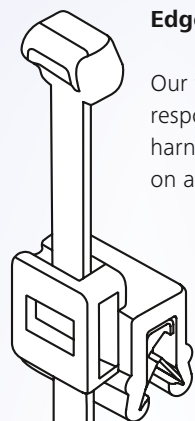


**HellermannTyton**

**Global  
Automotive  
Products**



## From one to a billion in less than two decades



### EdgeClip launched in 2000

Our first EdgeClip was a pragmatic response to a post-production harness fastening issue that occurred on a car already in mass production.

Today, you'll find EdgeClips in virtually every vehicle on the road around the globe. The success of these specialised plastic cable tie mounts is a testimony to HellermannTyton's position as a pioneer in cable management solutions tailored to automotive needs.

### 2019 and beyond

We manufacture millions of EdgeClips for automotive cable harnesses every week. One original part design has evolved into a series with hundreds of variants. Driven by your application needs, the EdgeClip family just keeps on growing.

## It's all in the name!

At HellermannTyton we don't just number our parts. We also give them a common Part Description.

Why? Well, even though some of our parts are of the same design, the same size and are technically identical, they receive a different article number according to which of our 16 factories around the world they are manufactured in.

The common name helps us easily find the current article number for each local variant for you.

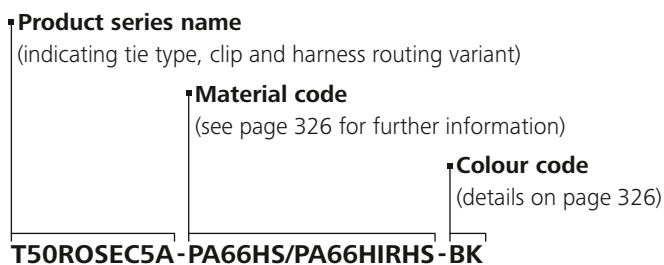
See below for an example of how to interpret the HellermannTyton common Part Description.

## Common Part Description explained

Take for example our 2-piece EdgeClip fixing tie **T50ROSEC5A-PA66HS/PA66HIRHS-BK**, pictured on the flap opposite.

This is a black, outside-serrated, heat-stabilised T-Series cable tie with a heat-stabilised, impact-modified nylon mounting clip for edges.

Here's how the name breaks down:



This common Part Description returns five different article numbers in our global systems because we make the same part in Brazil, China, Germany, Singapore and the USA.

**Tip:** You can find the right article number for your region by entering the common Part Description in the product search on your local HellermannTyton website (eg. for France: [www.HellermannTyton.fr](http://www.HellermannTyton.fr)).

## Content

### Cable Ties and Fixings

	Technical Information.....	22
	Cable Ties Inside Serrated.....	34
	Cable Ties Outside Serrated.....	44
	Cable Ties Without Serration.....	47
	Cable Ties, Releasable.....	48
	Cable Ties, Stainless Steel.....	51
	Cable Ties With Fixing Elements.....	56
	Cable Tie Mounts.....	121
	Fixing Elements.....	141
	Clips, Clamps and Plugs.....	195

**Handy material overview included with this catalogue!**

Is your material overview page missing? No problem: Download a new one from the Internet: [HellermannTyton.com/material-gac](http://HellermannTyton.com/material-gac)


### Insulation

	Heat Shrinkable Tubing.....	204
	Non Shrinkable Tubing.....	226

### Cable Protection Systems

	Corrugated Tubing.....	232
	Protective Sleeves.....	233

### Electrical Installation

	Electrical and Technical Tapes.....	248
-------------------------------------------------------------------------------------	-------------------------------------	-----

### Identification Systems

	Technical Information.....	252
	Wire and Cable Markers.....	257
	Industrial Identification.....	271
	RFID Cable Ties and Accessories.....	274
	Security Labelling.....	280
	Hazardous Area Identification.....	282
	Printers and Software.....	286

### Application Tooling

	Automatic Cable Tying System.....	294
	Application Tooling for Cable Ties.....	302
	Application Tooling for Non Shrinkable Tubing.....	319
	Application Tooling for Braided Sleeves.....	322

### Appendix

	Abbreviations Table for Product Materials and Colours.....	326
	Numerical Index.....	327
	Alphanumerical Index.....	341



Inspired by you

# MADE FOR

Our Automotive Product Catalogue



# REAL



New development challenges are bringing automotive manufacturers and suppliers around the globe into contact with our products. Products that are manufactured to the highest quality standards. Products that support the work of our customers in the face of the trends shaping the future, like e-mobility, autonomous driving and networked vehicles.

As a manufacturer with production at 16 sites worldwide we are ready to offer you fresh impulses. As your partner in 39 countries, we can provide you with reliable service for individual assignments, answer your questions and make suggestions.

Get ready to receive the enthusiastic support of the world's number one for cable management solutions in the automotive industry! Founded on more than 30 years' experience, our highly motivated teams exemplify development competence, industry knowledge and reliability. You can count on our resident engineers always being exactly where you need them.

In short, we are MADE FOR REAL.

**[HellermannTyton.com/automotive2019gac](https://www.hellermanntyton.com/automotive2019gac)**

## HellermannTyton develops solutions that help you keep step with all mobility trends

Save time assembling the wiring of high-voltage electric vehicles. Take the lead integrating sensitive on-board electronics for autonomous driving. The latest development trends require an evolutionary approach to cable management. As your partner, HellermannTyton will help you react swiftly to changing needs. For example, with products that already fulfil today's requirements for safe and reliable parts in tomorrow's vehicles.



### Brackets for charging sockets

We supply precise, stable brackets made of glass-fibre-reinforced plastic for many of the electric vehicles now rolling off the assembly line. Integrated threaded bushes ensure optimum mounting on the vehicle body frame.

For more information please contact us!



### One-piece fixing tie T50SOS2DOP

A truly smart solution for the efficient fastening of wiring and hoses: The fixing element can be applied manually without additional tools and delivers reliable protection against twisting.

Page 85



MADE FOR REAL<sup>®</sup>  
Inspired by  
mobility



MADE FOR REAL<sup>®</sup>

Inspired by  
collaboration



HellermannTyton has the spirit and the integrity needed to deliver the world's leading solutions in vehicle construction

**Teamwork is the catalyst of automotive evolution**

Pursuit of this conviction has made HellermannTyton a leading partner in the global automotive industry. Whether in development, in sales or in engineering – at HellermannTyton you can expect to find team players who collaborate closely with their customers.

No matter where you meet us – special commitment and the highest reliability await you: Our international teams will work your project quickly and around the clock, across time zones.



## HellermannTyton answers complex challenges with original solutions

Replacing metal parts with complex plastic alternatives is one of our specialities. We develop and manufacture lightweight, multifunctional components that do not corrode and also meet the requirements of the End-of-Life Vehicles Directive.



### **We help you shed weight constructively**

Our consultants do more than just place your order – they find out what you really need. When all the requirements for your components have been clearly discussed, we consider the possibilities from all angles. “Can’t” just isn’t in our vocabulary – as a consequence, you will often be astounded by the solutions we present to you.

MADE FOR REAL<sup>®</sup>

Inspired by  
improvement



MADE FOR REAL<sup>®</sup>

Inspired by  
extremes



## HellermannTyton develops products that can be relied on to withstand harsh conditions



### Cable tie locked by glass fibre pin

This special tie without serration combines immense holding force and high vibration resistance.

Page 47



### PEEK tags

High performance thermoplastics are ideal for marking applications where heat-resistance is crucial.

Page 284



### Heavy duty harness mount

Harness mounts fixed on threaded bolts or screws make it easy to secure cables and hoses with high torque.

Page 132



### High performance Viton®-E tubing

Viton®-E is resistant to fuels and lubricants and protects reliably at high temperatures in the engine compartment.

Page 225

MADE FOR REAL<sup>®</sup>

# Inspired by automation



## HellermannTyton is your partner for high-volume processing



### **Process reliability makes the difference: Autotool 2000 CPK.**

The latest version of the proven HellermannTyton Autotool 2000 CPK ensures the highest degree of process reliability in automatic bundling. It enables the traceability of individual binding force and quality. Comprehensive data acquisition in the tool means that all production and message data can be downloaded to a PC via an interface and used to monitor process reliability and quality.

Page 294



### **Fast ordering process**

Orders and delivery schedules are, of course, produced fully automatically in line with EDI standards.

### **Direct contact**

With HellermannTyton, you don't spend ages waiting to get through to someone at a call centre. You can get in touch with your contact person directly and discuss everything in your local language. Our advisers also have the necessary decision-making expertise.

### **Quick availability**

An extensive global distributor network guarantees rapid delivery of small contingents and large orders.





MADE FOR REAL 

Inspired by  
needs



HellermannTyton constantly optimises its own products – we evolve ideas every day



### 1. Cable Ties and Fixings

Particularly in doors and tailgates, our harness ties with seals protect the interior of the vehicle from dirt and water spray ingress.

Page 77



### 2. Insulation

SA47-LA heat shrinkable tubing allows for visual inspection of sealed splices and terminations. Transparent heat-shrink tubing paired with black, durable inner adhesive makes visual assessment of the corrosion protection possible.

Page 221



### 3. Cable Protection Systems

HEGEMIP braided sleeving reliably protects highly sensitive electronics from electromagnetic disruption. The HEGEMIP-HY, specially developed for hybrid vehicles, also improves protection against salt spray.

Page 243



### 4. Identification Systems

RFID solutions provide seamless component identification. Cable ties and other accessories with RFID transponders make it easier to meet increasing demand for traceability and position localisation.

Page 274



### 5. Application Tooling

The EVO9 application tool delivers precise cable tying results with reduced effort. Even with high application forces, the EVO9 significantly reduces the recoil and jarring that occurs when tying and cutting cable ties with conventional manual cable tie guns.

Page 310



## Technical Information

Material specification overview	22
Operating temperature ranges of cable tie materials	24
Properties of polyamide PA66	25
Properties of polyamide PA66W, PA11/PA12, PA46	26
Properties of polyamide PEEK and E/TFE (Tefzel®)	27
Chemical resistance of various plastics	28
Flammability test according to UL94	29
Conformity to IEC 62275 standards for cable ties	30
Determination of minimum tensile strength	31
Locking technologies for cable ties	32
Optimum storage conditions for cable ties	33



## Cable Ties Inside Serrated

<b>T-series</b>		
for outdoor use, black	PA66W, UV-resistant	34
temperatures up to +105 °C	PA66HS, heat stabilised	35
for higher impact resistance, ScanBlack	PA66HIR(S), high impact modified	37
temperatures up to +195 °C (short-term)	PA46	38
for higher chemical resistance and temperatures up to +170 °C	E/TFE	39
<b>With open head</b>		
standard	Q-Series, PA66	40
<b>With smart design</b>		
for tight applications	X-Series	41
<b>For hose and gaiter</b>		
natural and black	CTT-Series	42
<b>For parallel routing</b>		
various materials, natural and black	DH-Series	43



## Cable Ties Outside Serrated

<b>For thin-walled bundles</b>		
	OS-Series	44
<b>For temperatures up to +240 °C</b>		
	PEEK-Ties	45
<b>With 90° angled head</b>		
	V-Series	46



## Cable Ties Without Serration

<b>Locked by glass fibre pin</b>		
1-piece	KR-Series	47
endless	KR-Series	47



## Cable Ties, Releasable

<b>Inside serrated</b>		
with tuckaway	RT250-Series	48
	REL250-Series	48
<b>Without serration</b>		
flexible at low temperatures	SRT-series for industry quantities	49
<b>With hook and loop</b>		
for identification purposes, coloured	TEXTIE-Series	50



## Cable Ties, Stainless Steel

<b>With ball-lock</b>		
standard metal ties	MBT-Series SS304	51
	MBT-Series SS316	52
double wrapped	MBTXHD- and MBTUHD-Series SS316	53
coated	MBT-FC-Series SS316	54
<b>For heavy duty applications</b>		
	AMT-series	55



## Cable Ties With Fixing Elements

<b>Selection Guide for Fixing Ties</b>	56
<b>For round holes</b>	
	58
with arrowhead and wings	and pipe clip, twistable 59
	releasable 60
	in the strap 61
with arrowhead	without wings and disc 61
	62
	releasable 74
with arrowhead and disc	for temperatures up to +240 °C 75
	sealed 76
	in the strap 78
	parallel routing 81
	FT4 64, 68
	FT5 64, 68
	FT6 65, 69
with fir tree and disc	FT7 66, 71
	FT8 67, 71
	FT9 67, 72
	FT10 67, 73
	FT11 67, 73
	releasable 74
with fir tree and disc	with stand-off 79
with deep hole anchor	DHA5.5-DAH8.4 81
with rivet	releasable 111
with fir tree pipe clip	117
<b>For oval holes</b>	
with arrowhead and wings	60
	82, 84
with arrowhead and disc	sealed 83
	85-87
with fir tree and disc	with stand-off 88
<b>For squared holes</b>	with arrowhead and wings 60

<b>For weld studs</b>	100
cable routing above the stud	90
cable routing alongside the stud	91
cloverleaf design	cable routing alongside the stud 92
releasable	
	93
in the strap	releasable
	94, 95, 97
lateral adjustment	94, 95, 97
cable routing close to the stud	95
with disc	98
parallel routing	99
heavy duty applications	100
	parallel routing 100
<b>For screws</b>	
With mounting head for screws	89
heavy duty applications	101
	parallel routing 102
<b>For edges</b>	
EdgeClip-Family	top and side fixing 103
	top fixing 104
0.5 - 2.5 mm	side fixing 104
	top fixing 105
1.0 - 3.0 mm	side fixing 106
	top fixing 108
3.0 - 6.0 mm	side fixing 108
twistable	109
without metal clamp	for holes 110
<b>With connector clip</b>	111
<b>With wire clip</b>	112
<b>With pipe clip</b>	for bracket brake line 112
	360° 113, 115
	90° 116
twistable	360°, connectable, automatic locking feature 114
<b>For parallel separation</b>	with coupler 118
<b>For single hole application</b>	Chassis ties (BHT-ties) 119
<b>Fastening plate and rivet mount</b>	
heavy duty applications	SFTP-Series 120







## Cable Tie Mounts

<b>Technical Information</b>		
Installation of self adhesive mounts		121
<b>Self adhesive</b>		
high performance adhesive, for round and angled surfaces	FlexTack-Series FMB	122
high performance adhesive	SolidTack-Series MB	123
square base mount	MB-Series	124
rectangular base mount	TY-Series	125
	RA-Series	126
with cable clip	RB-Series	127
<b>Screwable</b>		
rectangular base mount	TY-Series	125
	KR-Series	128
for limited space	CTAM-Series	129
	MB-Series	130
<b>For heavy duty applications</b>		
	standard torque mounts	131
	medium torque mounts	131
for screws or studs	high torque mounts (metal bushing)	131
	for parallel separation	132
	for edges	133
	A-Series	134
screwable, Ratchet P-Clamps	B-Series	135
	C-Series	136
	D-Series	137
<b>Aluminium P-Clamps</b>	Alu-P-Series	138
<b>Plastic P-Clamp</b>	HP-Series	139
<b>Fixing elements with fir tree</b>		
for distance routing	Saddle mount	133



## Fixing Elements

<b>For cable routing</b>		
modular and interchangeable	Mini-cable channels family	141, 142
<b>For round holes</b>		
for cable ties	with arrowhead	143
	for pipes, for parallel routing	144
bundling clips	with arrowhead	145
	with arrowhead, sealed	145
	with fir tree	146
	with arrowhead, sealed	150
bundling clips, for distance routing	with arrowhead	149
	with fir tree	151
	with arrowhead, sealed	154
bundling clips lateral adjustment	with arrowhead	154
	with fir tree	154
connector clips	with fir tree	161
	with arrowhead	163
with arrowhead		175
<b>For oval holes</b>		
	with arrowhead	147
bundling clips	with arrowhead, sealed	147
	with fir tree	148
	with arrowhead	150
bundling clips, for distance routing	with arrowhead, sealed	150
	with fir tree	153
connector clips	with fir tree	164
	with arrowhead	167
with wire clip		175
<b>For weld studs</b>		
		190
bundling clips		155
	lateral adjustment	156
with connector clip		169
for parallel routing	twistable	188
cloverleaf design	cable routing alongside the stud	191
<b>For screws</b>		
	bundling clips	157





<b>For edges</b>		
	1 - 3 mm and 1.5 - 4.0 mm	158
bundling clips	1 - 3 mm, for distance routing	159
	3 - 6 mm	159
connector clips	1 - 3 mm, 1.5 - 4 mm and 3 - 6 mm	170
<b>For connectors</b>		
bundling clips		160
<b>For wires</b>	connector clips	169
<b>For harnesses</b>		
bundling clips	with harness clip	155
<b>For tubes and harnesses</b>		
with arrowhead		173
	with arrowhead	172
for round holes	with fir tree	176
		177
double tube clip	twistable 360°	178
for round holes, connectable	with arrowhead	179
connectable		179
for holes and studs	with automatic locking feature	180
connectable	with automatic locking feature	182
for round holes, connectable	with automatic locking feature, with arrowhead	183
with fir tree		185
multi parallel routing		188
for edges		192
<b>For tubes and pipes</b>		187
<b>For corrugated tubing</b>	with arrowhead	184
	for weld studs	189
<b>For parallel routing</b>		
for cable ties	twistable 360°	193
<b>For heavy duty applications</b>	beam clamps	194



## Clips, Clamps and Plugs

<b>Snapper hose clips</b>		
for tubes and harnesses	SNP-Series	196
<b>Blind plugs</b>		197
<b>Cover plugs</b>		199
<b>Open plugs</b>		199



### Material Specification Overview

MATERIAL	Material Shortcut	Operating Temperature	Colour*	Flammability
Aluminium alloy	AL	-40 °C to +180 °C	Natural (NA)	
Chloroprene Rubber	CR	-20 °C to +80 °C	Black (BK)	
Ethylene Tetrafluoroethylene (Tefzel®)	E/TFE	-80 °C to +170 °C	Blue (BU)	UL 94 V0
Polyacetal	POM	-40 °C to +90 °C, (+110 °C, 500 h)	Natural (NA)	UL 94 HB
Polyamide 11	PA11	-40 °C to +85 °C, (+105 °C, 500 h)	Black (BK)	UL 94 HB
Polyamide 11, UV-resistant	PA11W	-40 °C to +105 °C	Black (BK)	UL 94 HB
Polyamide 12	PA12	-40 °C to +85 °C, (+105 °C, 500 h)	Black (BK)	UL 94 HB
Polyamide 4.6	PA46	-40 °C to +130 °C, (+150 °C, 5000 h; +195 °C, 500 h)	Natural (NA), Grey (GY)	UL 94 V2
Polyamide 6	PA6	-40 °C to +80 °C	Black (BK)	UL 94 V2
Polyamide 6, glass-fibre reinforced	PA6GF30	-40 °C to +100 °C	Black (BK)	UL 94 HB
Polyamide 6, high impact modified	PA6HIR	-40 °C to +80 °C	Black (BK)	UL 94 HB
Polyamide 6, high impact modified, heat stabilised	PA6HIRHS	-80 °C to +110 °C	Black (BK)	UL 94 HB
Polyamide 6.6	PA66	-40 °C to +85 °C, (+105 °C, 500 h)	Black (BK), Natural (NA)	UL 94 V2
Polyamide 6.6, glass-fibre reinforced	PA66GF13	-40 °C to +105 °C	Black (BK)	UL 94 HB
Polyamide 6.6, glass-fibre reinforced	PA66GF15	-40 °C to +105 °C	Black (BK)	UL 94 HB
Polyamide 6.6, heat and UV stabilised	PA66HSUV	-40 °C to +105 °C	Black (BK), Natural (NA)	UL 94 V2
Polyamide 6.6, heat and UV stabilised	PA66HSW	-40 °C to +105 °C	Black (BK)	UL 94 V2
Polyamide 6.6, heat stabilised	PA66HS	-40 °C to +105 °C	Black (BK), Natural (NA)	UL 94 V2
Polyamide 6.6, high impact modified	PA66HIR	-40 °C to +80 °C, (+105 °C, 500 h)	Black (BK)	UL 94 HB
Polyamide 6.6, high impact modified, heat and UV stabilised	PA66HIRHSUV	-40 °C to +110 °C	Black (BK)	UL 94 HB
Polyamide 6.6, high impact modified, heat and UV stabilised (only for cable ties for Autotool System 3080)	PA66HIRHSUV	-40 °C to +95 °C, (+105 °C, 5000 h; +145 °C, 500 h)	Black (BK), Natural (NA)	UL 94 HB
Polyamide 6.6, high impact modified, heat and UV stabilised	PA66HIRHSW	-40 °C to +110 °C	Black (BK)	UL 94 HB
Polyamide 6.6, high impact modified, heat stabilised	PA66HIRHS	-40 °C to +105 °C	Black (BK)	UL 94 HB
Polyamide 6.6, high impact modified, scan black	PA66HIR(S)	-40 °C to +80 °C, (+105 °C, 500 h)	Black (BK)	UL 94 HB

Tefzel® is a registered trademark of DuPont. General linguistic usage for cable ties made from raw material E/TFE is Tefzel®-Tie. In addition to Tefzel® from DuPont HellermannTyton also uses equivalent E/TFE raw material from other suppliers.

\*Further colours available on request.

 = Minimum Loop Tensile Strength for Cable Ties (Newton)



MATERIAL	Material Shortcut	Operating Temperature	Colour*	Flammability
<b>Polyamide 6.6</b> , UV resistant	PA66W	-40 °C to +85 °C, (+105 °C, 500 h)	Black (BK)	UL 94 V2
<b>Polyamide 6.6</b> , UV-stabilised	PA66UV	-40 °C to +85 °C	Black (BK), Natural (NA)	UL 94 V2
<b>Polyamide 6.6</b> , with metal particles	PA66MP	-40 °C to +85 °C, (+105 °C, 500 h)	Blue (BU)	UL 94 HB
<b>Polyamide 6.6</b> , with metal particles	PA66MP+	-40 °C to +85 °C	Blue (BU)	not flame retardant
<b>Polyamide 6.6 V0</b>	PA66V0	-40 °C to +85 °C	White (WH)	UL 94 V0
<b>Polyaryletherketone</b>	PAEK	-55 °C to +200 °C	Beige (BGE)	UL 94 V0
<b>Polyester</b>	SP	-50 °C to +150 °C	Black (BK)	
<b>Polyetheretherketone</b>	PEEK	-55 °C to +240 °C	Beige (BGE)	UL 94 V0
<b>Polyethylene</b>	PE	-40 °C to +50 °C	Black (BK), Grey (GY)	UL 94 HB
<b>Polyolefin</b>	PO	-40 °C to +90 °C	Black (BK)	UL 94 V0
<b>Polyphenylene Sulfide</b>	PPS	-40 °C to +150 °C	Black (BK), Grey (GY)	UL 94 V0
<b>Polypropylene, Ethylene Propylene Diene Terpolymer rubber</b> free of Nitrosamine	PP, EPDM	-20 °C to +95 °C	Black (BK)	UL 94 HB
<b>Polypropylene 20% Talkum</b>	PPT20	-40 °C to +65 °C	Black (BK)	UL 94 HB
<b>Polypropylene</b> with metal particles	PPMP	-40 °C to +115 °C	Blue (BU)	UL 94 HB
<b>Polypropylene</b> with metal particles	PPMP+	-40 °C to +85 °C	Blue (BU)	not flame retardant
<b>Polyvinylidene Fluoride</b>	PVDFX	-50 °C to +150 °C	Natural (NA)	UL 94 V0
<b>Polyvinylchloride</b>	PVC	-10 °C to +70 °C	Black (BK), Natural (NA)	UL 94 V0
<b>Stainless Steel</b>	SS304, SS316	-80 °C to +538 °C	Natural (NA)	non-burning
<b>Thermoplastic Polyurethane</b>	TPU	-40 °C to +85 °C	Black (BK)	UL 94 HB

Tefzel® is a registered trademark of DuPont. General linguistic usage for cable ties made from raw material E/TFE is Tefzel®-Tie. In addition to Tefzel® from DuPont HellermannTyton also uses equivalent E/TFE raw material from other suppliers.

\*Further colours available on request.

 = Minimum Loop Tensile Strength for Cable Ties (Newton)

## Tip: Material shortcut is part of our Part Description name

**Product series name** (indicating tie type, clip and harness routing variant)

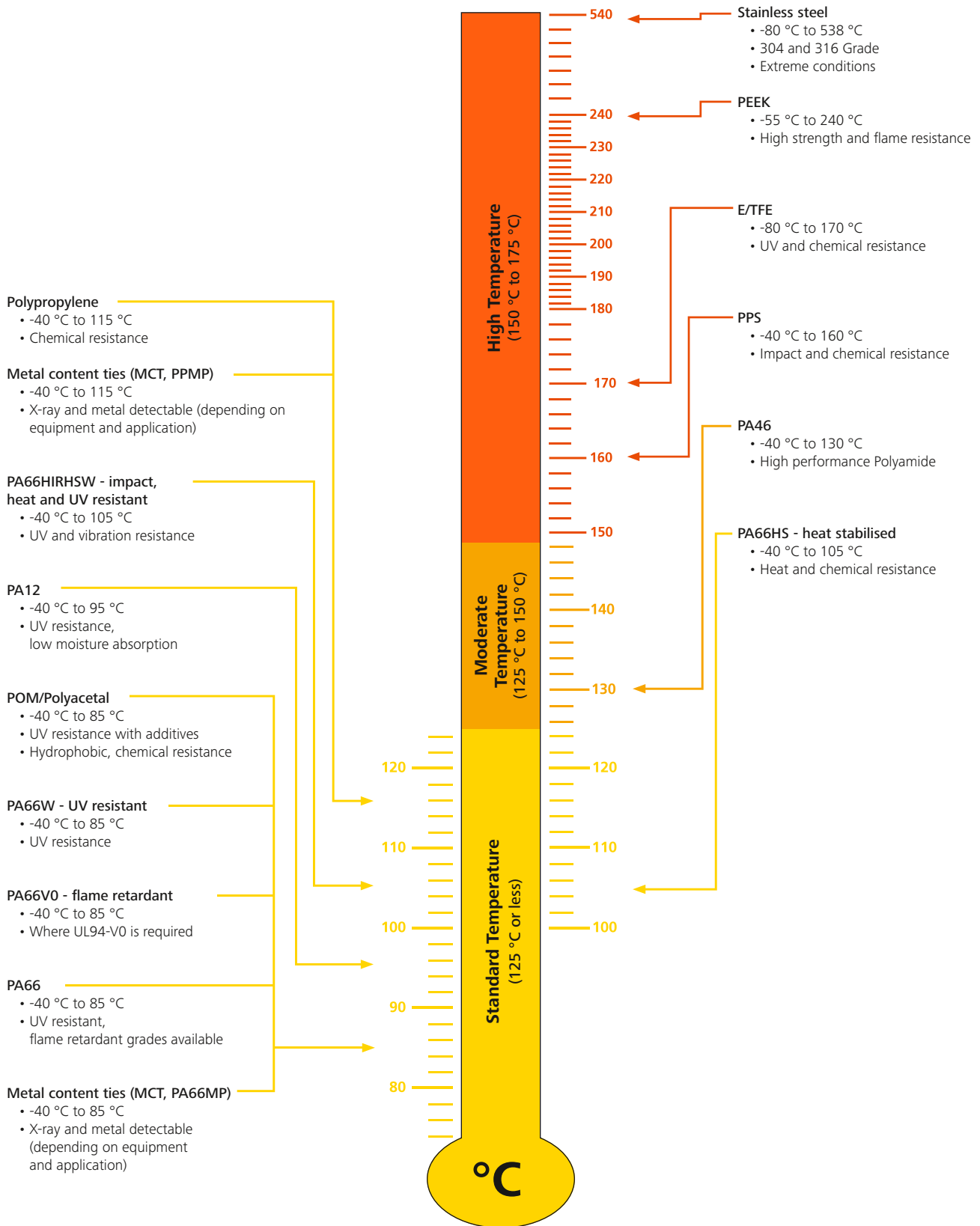
**Material code**

**Colour code** (details on page 326)

T50ROSEC5A-PA66HS/PA66HIRHS-BK

### Operating temperature ranges of cable tie materials

This Material Selection Guide illustrates the minimum and maximum operating temperatures for cable ties according to the material from which we manufacture them. It gives an overview of materials HellermannTyton is using manufacturing cable ties. Please contact our sales team to check availability of products in your preferred material.





## Properties of Polyamide PA66

Polyamides are among the most important thermoplastic synthetic materials. Thermoplastics can be reshaped by heating as often as required without undergoing chemical decomposition or other negative changes. This makes polyamide ideal for processing via injection moulding into high quality products. About 90 % of cable ties and fixings from HellermannTyton are made from this material. Polyamide is also known under the brand name of Nylon<sup>®</sup>, which was introduced by the Dupont company.

The inner structure of polyamide displays a partial order of polymer chains, i.e. polyamides are partially crystalline. Due to the tighter packing of the individual molecular chains polyamide only has limited transparency to light. The plastic is therefore described as translucent.

The polyamide PA66 has many properties which are highly advantageous for HellermannTyton cable ties and fixings, such as:

- High strength, rigidity and hardness
- High dimensional stability, even under the effect of heat
- High abrasion resistance

Having a wide range of polyamides and additives allows for an optimum adaptation of the properties of the finished product to suit the respective requirements.

The following PA66 variants are used for HellermannTyton products:

- Polyamide 6.6 standard (PA66) for temperature conditions of up to +85 °C
- Polyamide 6.6 Heat Stabilised (PA66HS) for temperature conditions of up to +105 °C
- Polyamide 6.6 UV Stabilised (PA66W) for exterior use
- Polyamide 6.6 Heat Stabilised and UV Stabilised (PA66HSW) for exterior use up to +105 °C
- Polyamide 6.6 Impact Resistant (PA66HIR) for high elasticity requirements
- Polyamide 6.6 Impact Resistant and Heat Stabilised (PA66HIRHS) for high elasticity requirements and temperatures up to +105 °C
- Polyamide 6.6 V0 for high standards of fire protection

### Water content in polyamide

Polyamide is a hygroscopic material - this means that it absorbs and releases water. The mechanical properties are significantly affected by the water content – especially flexibility and minimum tensile strength.

In a standard atmosphere of 23 °C and 50 % relative humidity, the degree of water saturation of polyamide is around 2.5 %. For optimal processing of cable ties it is therefore important that the polyamide has a water content of approximately 2.5 % in a state of equilibrium.



**The quality and functionality of the products are thus affected by the water content, therefore the correct storage of our products is crucial. Please read our separate instructions on storage.**

**Since humidity is so critical to the quality of the tie, the question arises: What happens if the tie is installed and the water content in the tie alters?**

The water content determines the flexibility and strength of a tie. At a water content of approximately 2.5 % the tie has the ideal flexibility for installation. When the strap is being threaded through the head of the tie, the pawl must be flexible enough to “see-saw” over the serration of the strap without breaking. On the other hand, there must also be adequate material rigidity for the serrations of the pawl to engage with the serrations of the strap during the tying process so that a 'positive locking' action is achieved. After achieving the positive locking action the tie is in a static condition. Changes in the mechanical properties of the tie as a function of water content are insignificant during this status.

## Properties of UV-stabilised Polyamide PA66W

The question constantly arises as to whether a black cable tie is suitable for use outside. This is dependant on the application of the tie, but in general the following statements can be made:

A black cable tie made of polyamide 6.6 standard (PA66) is only coloured black with a low proportion of carbon black. This is not sufficient to protect the material from damage caused by UV-radiation in the long term.

Products made from UV-stabilised polyamide PA66W are produced in accordance with ASTM standard D6779 with a higher carbon black percentage of approx. 2 %. So they resist UV-radiation in the European area for a considerably longer period than standard PA66.

This is clearly illustrated by the comparison of the two images:

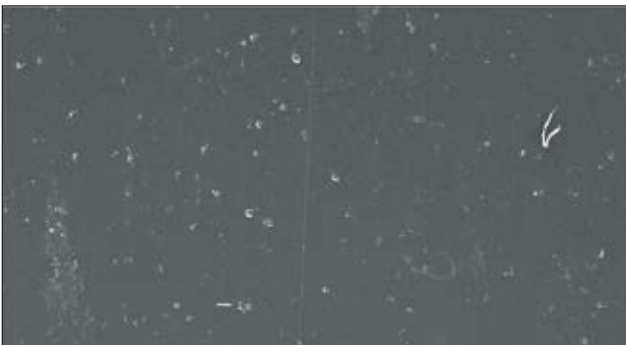
### After 500 hours of UV-radiation exposure

Polyamide 6.6 standard (PA66) dyed black:



*The joint has been damaged throughout by UV-radiation.*

Polyamide 6.6 UV-stabilised (PA66W) with approx. 2 % carbon black:



*The joint has only been altered at isolated points by the UV-radiation.*

**For outdoor use we recommend our range of products made from UV-stabilised polyamide (PA66W).**

### A simple practical test: "the hammer test"

You can quickly determine whether or not a cable tie is UV stabilised. Strike with a hammer the tail of the strap on the tie. Hold up this flattened end to the light. Cable ties with a carbon black content of about 2 % allow no light through and look black throughout. Standard black ties, however, are transparent on the flattened end.

## Properties of Polyamide PA11/PA12

Apart from PA66, there are polyamides which are less hygroscopic. These include PA11/PA12.

### PA11/PA12 have the following advantages over PA66:

- Less hygroscopic - saturation at 23 °C and 50 % relative humidity is approximately 1 %
- Better impact performance
- Good weather resistance, even without a special additive

These three properties make PA11/PA12 ideal for use outdoors, in particular when requirements may include impact resistance.

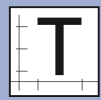
The water absorption of PA11/PA12 is not only less than that of PA66 but also slower. This is the requirement where the mechanical properties need to remain relatively unaffected by changing environmental conditions.

## Properties of Polyamide PA46

Polyamide PA66, despite the use of additives, is not suitable for long-term use in temperatures of +105 °C. Due to considerably better heat resistance, polyamide PA46 is more suitable for temperatures of up to +195 °C (depending on the length of time of operation).

### Advantages of PA46 over PA66:

- Greater rigidity, even at higher temperatures
- Higher operating temperature ranges of up to +150 °C (5,000 hours) and +195 °C (500 hours)
- Greater form stability at higher temperatures
- Excellent chemical resistance
- Operating temperature (long-term) up to +130 °C



## Properties of Polyetheretherketone PEEK

PEEK, a linear aromatic polymer is semi-crystalline and is widely regarded as the highest performance thermoplastic material currently available. A summary of key physical properties is as follows:

### High temperature performance

- Melting temperature of +343 °C
- Continuous use temperature of +240 °C (UL 746B)

### Wear resistance

- Outstanding wear resistance over wide ranges of pressure, velocity, temperature and counter facial roughness

### Chemical resistance

- Excellent resistance to a wide range of chemical environments, even at elevated temperatures
- The only common environment that dissolves it is concentrated sulfuric acid

### Fire, smoke and toxicity

- Highly stable and requires no flame-retardant additives to achieve a UL94 V0 rating at 1.45 mm thickness
- The composition and inherent purity of the material results in extremely low smoke and toxic gas emission in fire situations

### Hydrolysis resistance

- PEEK is not attacked by water or pressurized steam
- Components that are constructed from these materials retain a high level of mechanical properties when continuously conditioned in water at elevated temperatures and pressures

### Radiation resistance

- Excellent radiation resistance due to the energetically stable chemical structure of PEEK

### Purity

- PEEK materials are inherently pure with exceptionally low levels of ionic extractables
- Excellent out gassing characteristics

This makes PEEK the right choice for any high performance application in any industry with a clearly outstanding continuous use temperature of +240 °C.

## Properties of Ethylene Tetrafluoroethylene (E/TFE) - Tefzel®

E/TFE can be best described as a rugged thermoplastic with an outstanding balance of properties.

Mechanically, it is tough, has medium stiffness, impact and abrasion resistance.

E/TFE can perform successfully in applications where other materials are lacking in mechanical toughness, broad thermal capability, ability to meet severe environmental conditions.

Tefzel® is a registered trademark of DuPont.

### Summary of key properties:

- No load continuous use temperature of +170 °C
- Weather resistant
- Inert to most solvents and chemicals
- Hydrolytically stable
- Substantially better resistance to radiation than other plastic materials





### Chemical resistance of various plastics

- ▲ = resistant
- △ = partly resistant
- = not resistant

These values are only rough guides. They should not be regarded as a material specification and are no substitute for a suitability test. Please see our technical datasheets for further details.

	Conc. (%)	Temp. (°C)	PA66	PA46	PA12	PA11	POM	PP	E/TFE (Tefzel®)	TPU	PEEK
Acetaldehyde, liquid	100	23 °C	▲	○		▲	▲	△	▲	○	▲
Acetowne	100	23 °C	▲	▲	▲	▲	▲	▲	▲	○	▲
Allyl chloride	100	23 °C				▲	▲	▲		○	
Aniline	100	23 °C	▲	△	△	▲	△	▲	▲	○	▲
<b>Aromatic compounds</b>							▲	○	▲	△	▲
Benzaldehyde		23 °C	▲	△		▲	▲	▲	▲	○	▲
Benzine/Benzol mix		23 °C	▲	▲	▲	▲	▲	△	▲	△	▲
Benzol	100	23 °C	▲		▲	▲	△	△	▲	△	▲
Bromine		23 °C		○	○	○		○		○	
Carbon bisulphide	100	23 °C	▲	○	▲	○	▲	○	▲	○	▲
Carbon tetrachloride	100	23 °C	▲	▲	△	○	▲	△	▲	○	▲
CFC								△			
Chlorine, gaeous	100	23 °C	○			○		○	▲	△	
Chlorine, liquefied	100	23 °C	○	○		○		○			
Chlorobenzene	100	23 °C			○	△	△	▲			
Chloroform	100	23 °C		○	○	▲	○	△		○	
Chromic acid 10 %	10	23 °C	○	○		○	○	▲	▲	○	▲
Chromic acid 20 %	20	20 °C	○	○		○	○	▲	▲	○	▲
Chromic acid 50 %	50	20 °C	○	○		○	○	▲	▲	○	▲
Cyclohexane	100	23 °C	▲			▲	▲	▲	▲	▲	▲
Cyclohexanone	100	23 °C	▲			▲	▲	▲	▲		▲
Decahydronaphthlene	100	23 °C	▲			▲	▲	△	▲	▲	▲
Diethyl ether	100	23 °C	▲			▲	▲	△	▲		▲
Di-isopropyl ether	100	23 °C						△			
Dimethyl formamide	100	23 °C	▲	▲		▲	▲	▲	▲		▲
Diocetyl phthalate		23 °C	▲	▲		▲	▲	▲	▲	○	▲
Engine oil	100	23 °C			▲	▲	▲	▲		▲	▲
Ethanonic acid 10 %	10	20 °C	○	△	△	▲	▲	▲	▲		
Ethanonic acid 100 %	100	23 °C	○	○		▲	△	▲	▲		
Ethanonic acid 25 %	25	20 °C	○			▲	△	▲	▲		
Ethanonic acid 50 %	50	20 °C	○			▲	△	▲	▲		
Ethyl acetate	100	23 °C		▲	▲	▲	△	△		△	▲
Formic acid	98	23 °C	○		○	▲	○	▲	▲	○	△
Freon		23 °C						▲			▲
Heptane	100	23 °C	▲	▲	▲	▲	▲	▲	▲	▲	▲
Hydrogen peroxide 10 %	10	20 °C	△			▲	▲	▲	▲	△	
Hydrogen peroxide 30 %	30	23 °C	○	○		▲	▲	▲	▲	△	
<b>Ketone</b>			▲	▲			▲	▲	▲		▲
Methyisobutylketone	100	23 °C	▲			▲	▲	▲	▲		▲
Methylethylketone	100	23 °C	▲	▲		▲	△	▲	▲	○	▲
Nitric acid 10 %	10	20 °C	○		○	○	○	▲	▲	○	▲
Nitric acid 50 %	50	23 °C	○		○	○	○	○	▲	○	○
Nitrobenzene	100	23 °C	▲	△		▲	▲	▲	▲	○	▲
Ordinary petrol		23 °C		▲		▲	▲	▲			▲
Paraffin oil		23 °C	▲	▲	▲	▲	▲	▲	▲	▲	▲
Perchloroethylene		23 °C	▲		▲	△	▲	△	▲	○	▲
Petroleum		23 °C	▲	▲	▲	▲	▲	▲	▲	▲	▲
Phenol	65	23 °C	○	○	○	○	○	▲	▲	○	
Potass. Permanganate	6	23 °C	○	○	○	○	▲	▲	▲	△	▲
Salad oil		23 °C		△		▲	▲	▲			▲
Silicon oil		23 °C	▲	▲	▲	▲	▲	▲	▲	▲	▲
Sulphuric acid 10 %	10	20 °C	○		△	▲	○	▲	▲	○	△
Sulphuric acid 50 %	50	20 °C	○				○	▲	▲	○	○
Sulphuric acid 96 %	96	23 °C	○	○			○	○	▲	○	○
Toluol	100	23 °C	▲		▲	▲	▲	△	▲	○	▲
Trichlorethylene	100	23 °C	▲	△	△	△	△	△	▲	○	▲
Water, cold			▲		▲	▲	▲			▲	▲
Water, hot						▲	▲			△	▲
Xylene	100	23 °C	▲	▲	▲	▲	▲	△	▲	○	▲

Tefzel® is a registered trademark of DuPont.

General linguistic usage for cable ties made from raw material E/TFE is Tefzel®-Tie. In addition to Tefzel® from DuPont HellermannTyton is also using equivalent E/TFE raw material from other suppliers.



## What does flammability UL94 mean?

UL is the shortcut for Underwriters Laboratories. This is an independent organisation in the United States to control and certificate product safety.

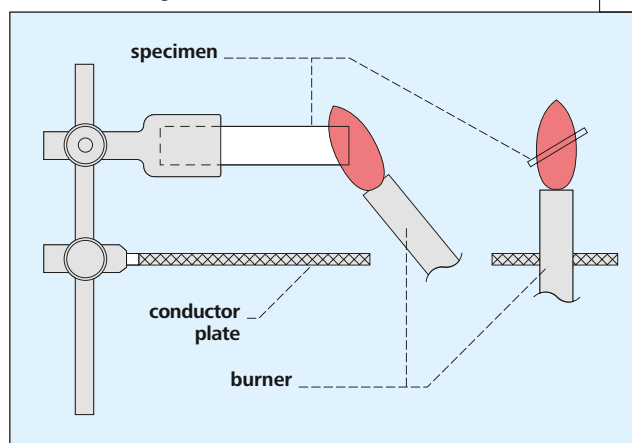
Beside a lot of product standards UL also specified the flammability test UL94 for plastic materials. UL94 is a material burning test done on defined specimen of the raw material but not a test on final products. UL94 differs between a horizontal burning test UL94 HB (picture 1) and a vertical burning test UL94 V (picture 2). For the vertical test UL94 V there are three flame ratings defined: UL94 V0, UL94 V1 and UL94 V2.

In all these burning tests an open flame is applied for a certain time to the specimen. As the burning behaviour also depends on the thickness of the material it is important to classify the material not only according to HB, V0, V1 or V2 but also to mention the thickness of specimen.

### UL94 HB:

Horizontal burning test

1



#### Test criteria:

- burning rate of specimen in mm/min.

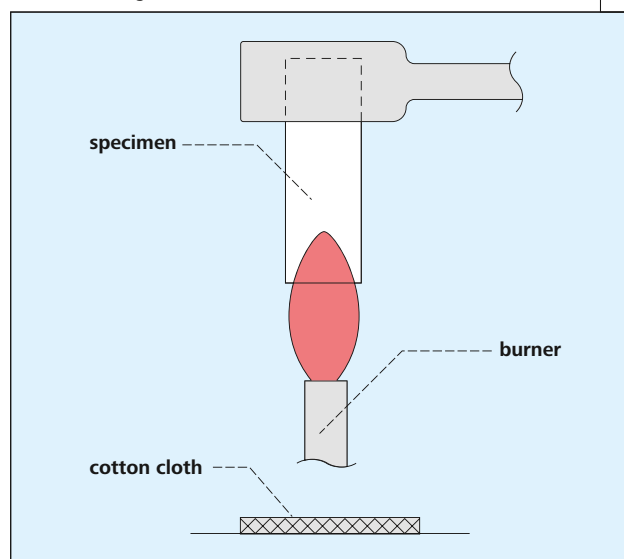
#### Classification:

- according to HB

### UL94 V:

Vertical burning test

2



#### Test criteria:

- afterflame time of specimen
- drip of flaming particles

#### Classification:

- according to V0, V1 or V2

Following table is a summary of test procedures and requirements of the UL94 classification.

Classification	Horizontal Test UL94		Vertical Test UL94		
	HB	HB	V0	V1	V2
Number of specimen	3	3	5	5	5
Thickness of specimen	< 3 mm	3 to 13 mm	up to max. 13 mm		
1st flame application	30 sec.	30 sec.	10 sec.	10 sec.	10 sec.
2nd flame application	-	-	10 sec.	10 sec.	10 sec.
Burning rate	max. 75 mm/min	max. 40 mm/min	-	-	-
Afterflame time after 1st flame application for each individual specimen	-	-	max. 10 sec.	max. 30 sec.	max. 30 sec.
Afterflame time after 2nd flame application for each individual specimen	-	-	max. 30 sec.	max. 60 sec.	max. 60 sec.
Total afterflame time for all 5 specimen after 1st and 2nd flame application	-	-	max. 50 sec.	max. 250 sec.	max. 250 sec.
Afterflame or afterglow of any specimen up to its end allowed	yes	yes	no	no	no
Cotton indicator ignited by flaming particles or drops allowed	-	-	no	no	yes

Flammability behaviour on the following product pages are always related to the raw material burning rate according to UL94. Most commonly used raw materials for cable ties and fixing elements are Polyamide 6.6 standard, Polyamide 6.6 weather resistant and Polyamide 6.6 heat stabilised. These materials normally fulfill UL94 V2 requirement.



### HellermannTyton cable ties conform to IEC 62275 standard

As a leading global manufacturer of quality, high performance cable management products for over 80 years, HellermannTyton's extensive fastening and fixings portfolio reflects our long-standing industry expertise.

Cable ties from the inside serrated (T-Series, Q-Series), the outside serrated (OS-Series) as well as our metal cable ties (MBT-Series and MST-Series) have been tested in accordance with the international cable tie standard IEC 62275 (Cable management systems - Cable ties for electrical installations).

Cable ties manufactured from the standard material polyamide 6.6 (PA66), heat-stabilised polyamide 6.6 (PA66HS), UV-stabilised polyamide 6.6 (PA66W) and stainless steel grades SS304 and SS316 have been successfully tested and approved.

#### The IEC 62275 standard includes the following tests:

- Installation test on minimum and maximum specified bundle diameters
- Installation test at minimum specified installation temperature
- Impact test at minimum specified operating temperature
- Minimum tensile strength (in the standard this is described as the loop test)
- Loop tensile test after heat ageing at the specified operating temperature
- Loop tensile test after heat cycling at the minimum and maximum operating temperatures
- Loop tensile test after humidity and heat cycling at the minimum and maximum operating temperatures
- Contribution to the spread of fire on both the actual product and test substrate (tissue paper)
- Loop tensile and visual tests after exposure to ultraviolet light radiation for PA66W ties
- Resistance to corrosion (dependent on material)
- Loop tensile test after vibration test for metal cable ties

#### The following cable ties have been tested and certified:

- T-Series inside serrated in PA66-NA, PA66-BK, PA66HS-NA, PA66HS-BK, PA66W
- OS-Series outside serrated in PA66-NA, PA66-BK, PA66HS-NA, PA66HS-BK, PA66W
- Q-Series inside serrated in PA66-NA, PA66-BK, coloured PA66, PA66HS-NA, PA66HS-BK
- MBT-Series, uncoated in SS316 material grade
- MST-Series, uncoated in SS304 material grade



**Material specification please see page 22.**

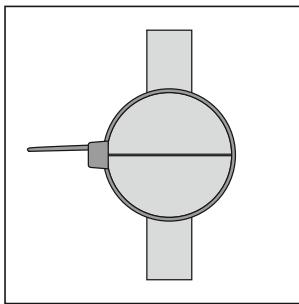


## Determination of minimum tensile strength

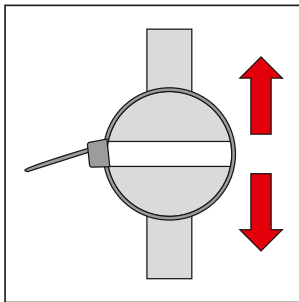
The minimum tensile strength is a critical selection criteria for cable ties. It expresses how much loading a cable tie can bear.

### The test procedure to determine minimum tensile strength:

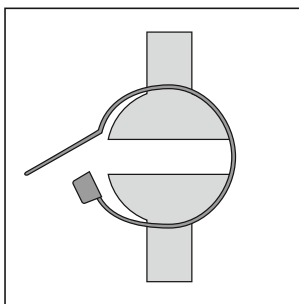
- Stabilisation to achieve equilibrium moisture content
- Set-up of the tensile test fixture
- Application of the tie on a split mandrel fixture
- Test speed



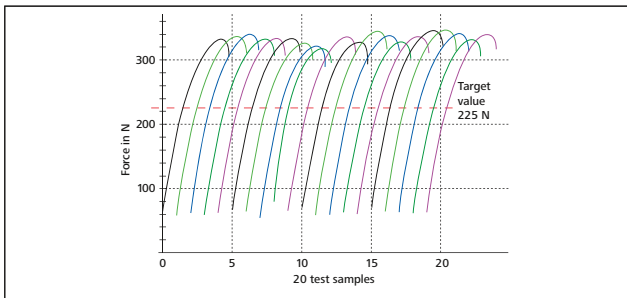
The cable tie is fixed onto a split mandrel fixture with the suitable cable tie application tool.



The mandrel is opened at a defined speed.



The loading at which the cable tie fails is determined. This value is stated in Newtons (N) and is recorded through a computer programme reading the tests. This programme produces graphs as outlined below.



Typical measurement protocol of a T50R made of PA66 with a minimum tensile strength of 225 N.

## Explanation of minimum tensile strengths

### What does a minimum tensile strength of 225 N (50 lbs) mean?

To explain what this value means, the mass with which the tie can be loaded is calculated. The unit of measurement of the mass is stated in kg. To do so, the unit Newton (N) is shown in the following way:

$$[N] = [kg * m/s^2]$$

The formula for calculating the mass is:

$$\text{Mass} = \text{minimum tensile strength} / \text{acceleration due to gravity}$$

The acceleration due to gravity is 9.81 m/s<sup>2</sup>

$$\text{Mass} = \text{minimum tensile strength} / [kg * m/s^2] / 9.81 [m/s^2]$$

At a minimum tensile strength of 225 N (50 lbs) the mass is:

$$\text{Mass} = 225 [kg * m/s^2] / 9.81 [m/s^2]$$

The units m/s<sup>2</sup> cancel each other out, leaving the unit [kg] for the mass. Thus:

$$\text{Mass} = 225 / 9.81 \text{ kg} = 22.9 \text{ kg}$$

Therefore, a T50R cable tie with a minimum tensile strength of 225 N (50 lbs) can be loaded with 22.9 kg.

Conversely, with the required loading capacity the minimum tensile strength can be calculated by a mass:

$$\text{Min. tensile strength} = \text{mass} * 9.81 [m/s^2]$$

If the tie is to be loaded with, for example, 53 kg this produces:

$$\text{Minimum tensile strength} = [53 \text{ kg}] * 9.81 [m/s^2] = 520 \text{ N}$$

In order to withstand a load of 53 kg, the tie must therefore have a minimum tensile strength of 520 N. In this case, select our T120R with a minimum tensile strength of 535 N (120 lbs).



$$225 \text{ N} / 9.81 = 22.9 \text{ kg}$$



$$53 \text{ kg} * 9.81 = 520 \text{ N}$$



= Minimum Loop Tensile Strength for Cable Ties (Newton)

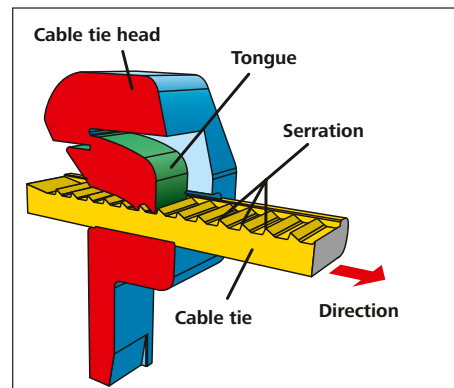
### Introduction to the main locking technologies used for cable ties

HellermannTyton offers a wide range of cable ties for use in different applications. By constantly refining our products and satisfying the ever-changing demands of the market, various locking technologies have been developed. Below you will find a brief overview of three most common locking technologies and their characteristics.

#### Cable ties with plastic pawls

This technology is used in 90 % of all polyamide (PA) cable ties applied by HellermannTyton. In order to cover a variety of applications, there are different variants of this system, for example: releasable versions, in-line versions, open head versions.

These are one-piece cable ties, the pawl is moulded as an integral part of the cable tie, thereby building in inherent strengths.



Locking technology of an outside serrated tie.

#### Locking technology

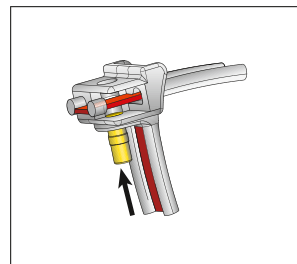
Positive locking is achieved by engaging the pawl with the strap serrations. This allows the cable tie to perform to the published minimum tensile strength, that is the loading that the cable tie can hold under application.

#### KR series cable ties

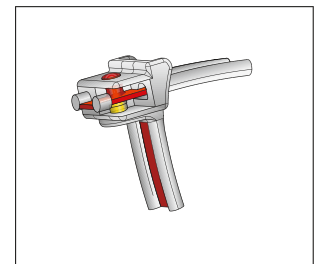
This cable tie is distinguished by its smooth strap and unique locking mechanism. With the KR series the chamfered head achieves an especially firm fit around the bundled material.

#### Locking technology

This locking technology takes advantage of the excellent deformation properties of polyamide (PA). Here, the glass fibre-reinforced locking pin (yellow) is forced into the strap by the use of an application tool - either the KR6/8 or KR8PNSE. The strap is deformed into the head of the tie by the application of the pin, thereby locking the cable tie in position and allowing the bundling of heavy loads.



The unlocked head of a KR-tie.



The cable tie (red) is locked into place with the pin.

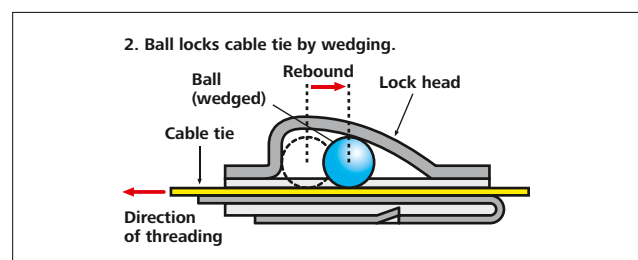
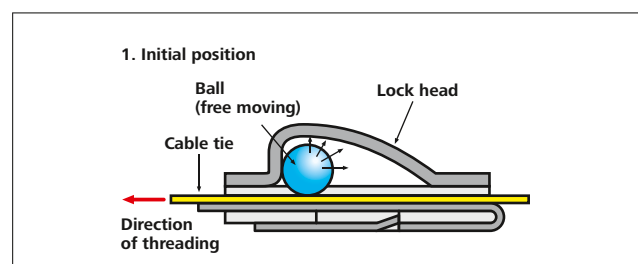
#### MBT series cable ties

Made of stainless steel grade 304 or 316, the MBT range of cable ties have no serrations on the strap and are threaded parallel through the head, gliding under a metal ball-bearing locking mechanism. By using an appropriate application tool like our MK9SST the cable tie is tensioned and the strap cut to a flush finish.

#### Locking technology

The strap is locked into the head by means of the small ball-bearing. The ball locks into the small end of the wedged shaped housing, forming a positive locking with the strap.

This cable tie is not suitable for rigid objects. Retraction of the ball-bearing (see drawing) is required into the small end of the wedged shaped housing to allow for a positive locking of the strap and also having a flush cut off at the end of the strap. This retraction cannot be ensured when bundling around inflexible materials such as metal pipes. The force by cutting the cable tie might end up in a rebound that could allow the ball moving back slightly. For rigid objects we therefore recommend a protective channel (LFPC) to be laid between strap and bundled object in order to compensate the rebound. The MBT locking technology allows for minimum tensile strengths of up to 7,000 Newton.



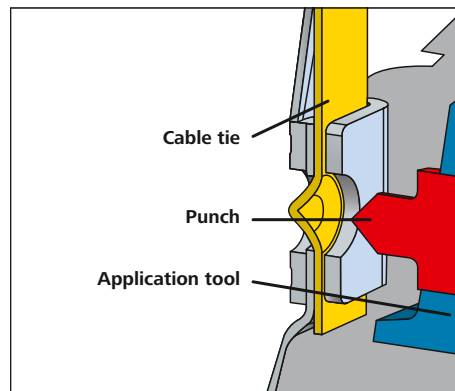
## Introduction to the main locking technologies used for cable ties

### MST series cable ties

MST cable ties are made of stainless steel 304. They offer similar features to MBT products but with a different head design and closure. Where space is tight the flat head allows for space savings. MST cable ties are not only weather-resistant but also highly resistant to heat, fire, and radiation. It can be used in challenging environments including indoor, outdoor and underground installations.

### Locking technology

The punch-locking mechanism keeps the lock tight even in challenging areas with very high vibration such as on trains. Our MST application tools (MST6/MST9) have been specifically developed for tightening and cutting MST cable ties. This tool is mandatory to apply and lock these stainless steel cable ties properly.



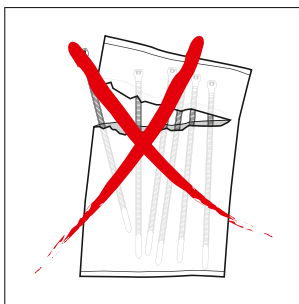
Punch-locking mechanism of the MST-Series.

## Optimum storage conditions for cable ties made of Polyamide (PA)

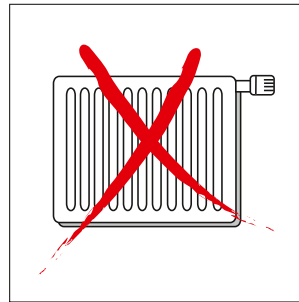
HellermannTyton cable ties, fastenings and fixings are manufactured from high-quality polyamide (PA). This industrial synthetic material is mainly processed using injection moulding, but can also be extruded. Polyamide is a hygroscopic material. This means that the material absorbs and loses moisture. For optimum handling of cable ties it is

important that the material is in a condition of equilibrium with a water content of approximately 2.5 %.

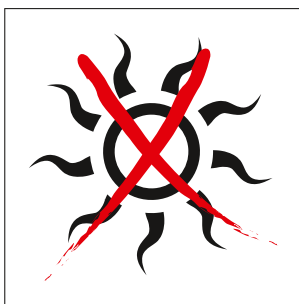
The packaging used by HellermannTyton ensures that the water content in the material remains constant. Therefore, it is important to store the products in their original packaging to preserve the quality of the ties.



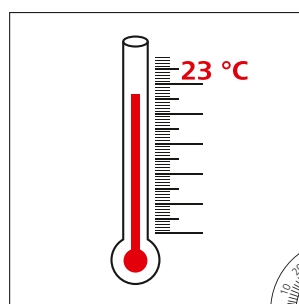
1. Once opened you should use the ties as quickly as possible.
2. Always store ties in the sealed plastic bag.



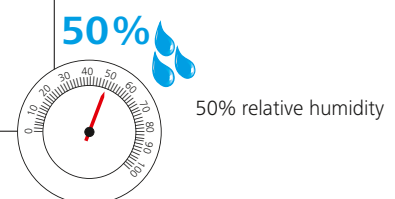
5. Store the product away from direct sources of heat.
6. Avoid contact with heat: for example, do not place on the radiators.



3. Do not expose the product to direct sunlight.
4. Do not store the product in sunlight; for example, on the windowsill.



7. The ideal storage conditions are those of the central European standard climate: 23 °C





# Cable Ties and Fixings

## Cable Ties Inside Serrated

### Cable Ties for outdoor use (UV-resistant)

#### T-Series in PA66W black

These inside serrated cable ties are made of UV-resistant Polyamide 6.6 (PA66W) and thus suitable for outdoor applications. UV stabilised cable ties resist UV radiation for a considerably longer period compared to standard PA66 cable ties. They can easily be used for bundling and securing cables, pipes and hoses especially in outdoor areas.

#### Features and benefits

- UV-resistant black cable tie available in a wide range of sizes
- Made from 100 % high quality plastic, allows for good recycling
- Inside serration for a strong hold onto bundles
- Easy application either manually or with a processing tool
- Simple to insert due to bent tail



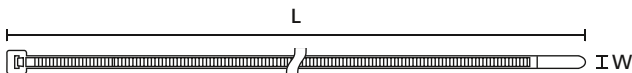
UV-resistant T-Series cable ties (PA66W).



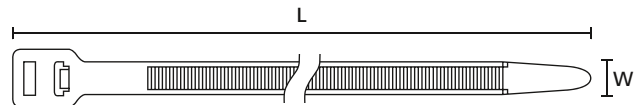
**Material specification please see page 22.**



**Other dimensions are available on request.**



T-Series



T250-series

PART DESCRIPTION	Width (W)	Length (L)	Bundle Ø max.	N
T18R-PA66W-BK	2.5	100.0	22.0	80
T18L-PA66W-BK	2.5	205.0	55.0	80
T30R-PA66W-BK	3.5	150.0	35.0	135
T50R-PA66W-BK	4.6	200.0	50.0	225
T50M-PA66UV-BK	4.6	245.0	65.0	225
T50L-PA66W-BK	4.6	390.0	110.0	225
T80I-PA66W-BK	4.7	300.0	85.0	355
T120S-PA66W-BK	7.6	225.0	55.0	535
T120I-PA66W-BK	7.6	300.0	80.0	535
T120R-PA66W-BK	7.6	387.0	100.0	535
T150L-PA66UV-BK	8.8	820.0	245.0	780
T150R-PA66UV-BK	8.9	390.0	105.0	780
T150M-PA66UV-BK	8.9	525.0	150.0	780
T250S-PA66UV-BK	12.5	235.0	50.0	1,115
T250R-PA66W-BK	12.5	520.0	145.0	1,115

All dimensions in mm. Subject to technical changes.



### Cable Ties for temperatures up to +105 °C (heat stabilised)

#### T-Series in PA66HS natural and black

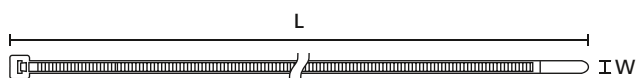
These inside serrated cable ties are made from heat stabilised Polyamide 6.6 (PA66HS). They can be applied in environments with continuous temperatures up to +105 °C. T-Series cable ties can be easily installed by hand or using an application tool to ensure consistency of installation.

#### Features and benefits

- Heat stabilised cable ties (PA66HS) for temperatures up to +105 °C
- Available in a wide range of sizes to cover almost every application
- Inside serration provides a strong hold onto bundles
- Manual and/or pneumatic tools available for greater process reliability
- Commonly offered in natural and black, other colours available on request



Heat stabilised T-Series cable ties up to +105 °C.



T-Series

PART DESCRIPTION	Width (W)	Length (L)	Bundle Ø max.	N
T18R-PA66HS-BK	2.5	100.0	22.0	80
T18R-PA66HS-NA	2.5	100.0	22.0	80
T18I-PA66HS-BK	2.5	145.0	35.0	80
T18I-PA66HS-NA	2.5	145.0	35.0	80
T18L-PA66HS-BK	2.5	205.0	55.0	80
T18L-PA66HS-NA	2.5	205.0	55.0	80
T30R-PA66HS-NA	3.5	150.0	35.0	135
T30R-PA66HS-BK	3.5	150.0	35.0	135
T30L-PA66HS-BK	3.5	198.0	50.0	135
T30L-PA66HS-NA	3.5	198.0	50.0	135
T30LL-PA66HS-BK	3.5	290.0	80.0	135
T30LL-PA66HS-NA	3.5	290.0	80.0	135
T40R-PA66HS-BK	4.0	175.0	40.0	180
T40R-PA66HS-NA	4.0	175.0	40.0	180
T50S-PA66HS-NA	4.6	150.0	35.0	225
T50S-PA66HS-BK	4.6	150.0	35.0	225
T50R-PA66HS-BK	4.6	200.0	50.0	225
T50R-PA66HS-NA	4.6	200.0	50.0	225
T50R-PA66HSW-BK	4.6	200.0	50.0	225
T50M-PA66HS-BK	4.6	245.0	65.0	225
T50I-PA66HS-BK	4.6	300.0	85.0	225
T50I-PA66HS-NA	4.6	300.0	85.0	225
T50L-PA66HS-BK	4.6	390.0	110.0	225
T50L-PA66HS-NA	4.6	390.0	110.0	225
T50L-PA66HS-BK	4.6	390.0	110.0	225
T80R-PA66HS-BK	4.7	210.0	55.0	355
T80R-PA66HS-NA	4.7	210.0	55.0	355
T80I-PA66HS-BK	4.7	300.0	85.0	355

All dimensions in mm. Subject to technical changes.



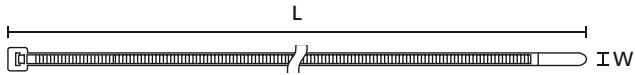


# Cable Ties and Fixings

## Cable Ties Inside Serrated

### Cable Ties for temperatures up to +105 °C (heat stabilised)

T-Series in PA66HS natural and black

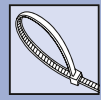


T-Series

PART DESCRIPTION	Width (W)	Length (L)	Bundle Ø max.	
T80I-PA66HS-NA	4.7	300.0	85.0	355
T80L-PA66HS-BK	4.7	390.0	110.0	355
T80L-PA66HS-NA	4.7	390.0	110.0	355
T120S-PA66HS-BK	7.6	225.0	55.0	535
T120S-PA66HS-NA	7.6	225.0	55.0	535
T120I-PA66HS-BK	7.6	300.0	80.0	535
T120I-PA66HS-NA	7.6	300.0	80.0	535
T150R(H)-PA66HS-BK	7.6	365.0	100.0	670
T150R(H)-PA66HS-NA	7.6	365.0	100.0	670
T120R(E)-PA66HS-BK	7.6	387.0	100.0	535
T120R-PA66HS-NA	7.6	387.0	100.0	535
T120R(E)-PA66HS-NA	7.6	387.0	100.0	535
T120R-PA66HS-BK	7.6	387.0	100.0	535
T120M-PA66HS-BK	7.6	460.0	125.0	535
T120XM-PA66HS-BK	7.6	600.0	175.0	535
T120XM-PA66HS-NA	7.6	600.0	175.0	535
T120L-PA66HS-NA	7.6	760.0	225.0	535
T120L-PA66HS-BK	7.6	760.0	225.0	535
T150L-PA66HS-BK	8.8	820.0	245.0	780
T150L-PA66HSUV-BK	8.8	820.0	245.0	780
T150M-PA66HS-BK	8.9	530.0	150.0	780
T150XL-PA66HS-BK	8.9	1,095.0	330.2	780
T250R-PA66HS-BK	12.5	520.0	145.0	1,115
T250R-PA66HS-NA	12.5	520.0	145.0	1,115

All dimensions in mm. Subject to technical changes.





### Cable Ties for higher impact resistant Polyamide 6.6 ScanBlack

#### T-Series in PA66HIR(S) black

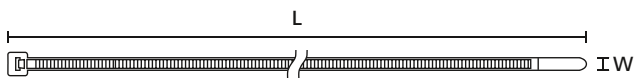
Impact resistance T-Series cable ties are manufactured from PA66HIR(S) – an impact modified material formulation. This high performance material offers limited brittleness sensitivity and a higher flexibility even at low temperatures. PA66HIR(S) cable ties meet increasing requirements like in the chemical, medical and/or automotive industry.

#### Features and benefits

- Impact resistant cable tie in black colour
- For bundling and securing cables, pipes and hoses
- Available in different sizes
- Higher flexibility especially in cold environments
- Limited brittleness sensitivity



Impact resistant T-Series cable tie (PA66HIR(S)).



T-Series



Material specification please see page 22.

PART DESCRIPTION	Width (W)	Length (L)	Bundle Ø max.	N
T18R-PA66HIR(S)-BK	2.5	100.0	22.0	80
T30L-PA66HIR(S)-BK	3.5	198.0	50.0	135
T50R-PA66HIR-BK	4.6	200.0	50.0	225
T50R-PA66HIR(S)-BK	4.6	200.0	50.0	225
T50I-PA66HIR(S)-BK	4.6	300.0	85.0	225
T50L-PA66HIR(S)-BK	4.6	390.0	110.0	225
T120I-PA66HIR(S)-BK	7.6	300.0	80.0	535
T120R(E)-PA66HIR-BK	7.6	387.0	100.0	535
T120R(E)-PA66HIR(S)-BK	7.6	387.0	100.0	535
T120R-PA66HIRHS-BK	7.6	387.0	100.0	535
T120L-PA66HIR(S)-BK	7.6	760.0	225.0	535

All dimensions in mm. Subject to technical changes.



# Cable Ties and Fixings

## Cable Ties Inside Serrated

### Cable Ties for temperatures up to +195 °C (500 h) in Polyamide 4.6

#### T-Series in PA46 natural and grey

These inside serrated cable ties are made from Polyamide 4.6 (PA46). They can be applied in environments with temperatures up to +195 °C (for 500 hours) which makes them suitable for applications where a broader temperature range is required. Polyamide 4.6 is a well known material in the automotive, railway or white goods area. An application tool is recommended to ensure greater process reliability while installing cable ties.

#### Features and benefits

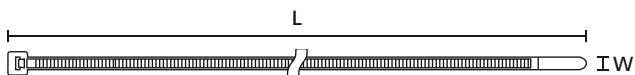
- Cable tie for high temperature applications up to +150 °C (5000 h) and +195 °C (500 h)
- Available in different sizes to cover various bundle diameters
- Low smoke generation in the event of a fire
- PA46 is a moisture sensitive material
- Inside serrated cable tie offers strong hold around bundles
- Easy application either manually or with an application tool
- Operating temperature (long-term) up to +130 °C



T-Series cable ties – higher temperature resistance up to +195 °C for 500 hours (PA46).



**Material specification please see page 22.**



T-Series

PART DESCRIPTION	Width (W)	Length (L)	Bundle Ø max.	N
T18R-PA46-NA	2.5	100.0	22.0	80
T30R-PA46-GY	3.5	150.0	35.0	135
T30R-PA46-NA	3.5	150.0	35.0	135
T50R-PA46-GY	4.6	200.0	50.0	225
T50R-PA46-NA	4.6	200.0	50.0	225
T50I-PA46-NA	4.6	300.0	85.0	225
T50L-PA46-NA	4.6	390.0	110.0	225
T120R-PA46-NA	7.6	387.0	100.0	535
T120R(E)-PA46-NA	7.6	387.0	100.0	535
T120R(E)-PA46-GY	7.6	387.0	100.0	535

All dimensions in mm. Subject to technical changes.



### Cable Ties for higher chemical resistance and temperatures up to +170 °C

#### T-Series in E/TFE (Tefzel®) blue

E/TFE or Tefzel® cable ties are used when higher chemical resistance and/or temperatures up to +170 °C are required. These ties are most likely chosen for challenging applications in industries like food and beverage, aerospace, automotive or railway.

#### Features and benefits

- Blue cable tie offering high chemical resistance
- Suitable for applications with temperatures up to 170 °C
- Resistant to radioactivity and UV light
- E/TFE is a non hydroscopic material, no moisture absorption
- Complying with UL94 V0 requirements



T-Series E/TFE cable ties – for higher chemical resistance up to +170 °C.



For more information on E/TFE mounts please refer to KR-Series on page 128.



T-Series

PART DESCRIPTION	Width (W)	Length (L)	Bundle Ø max.	N
T30R-E/TFE-BU	3.5	150.0	36.0	133
T50R-E/TFE-BU	4.7	202.0	50.0	222

All dimensions in mm. Subject to technical changes.

General linguistic usage for cable ties made from raw material E/TFE is Tefzel®-Tie. In addition to Tefzel® from DuPont HellermannTyton also uses equivalent E/TFE raw material from other suppliers.



# Cable Ties and Fixings

## Cable Ties Inside Serrated

### Cable Ties with open head

#### Q-Series

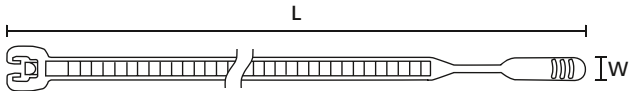
Q-Series cable ties for bundling and securing cables, pipes and hoses. The innovative and effective cable ties enable a simple and quick installation.

#### Features and benefits

- Open lock head for quick and easy insertion
- Integrated pre-locking function
- More than 25 % faster in application
- Inside serration for a strong hold around bundles
- Easy application either manually or with a processing tool



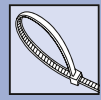
Q-tie cable ties: choose from a wide product range in different sizes.



Q-Series

PART DESCRIPTION	Width (W)	Length (L)	Bundle Ø max.	N
Q18R-PA66-BK	2.6	105.0	24.0	80
Q18R-PA66-NA	2.6	105.0	24.0	80
Q18I-PA66-BK	2.6	155.0	40.0	80
Q18I-PA66-NA	2.6	155.0	40.0	80
Q18L-PA66-BK	2.6	195.0	50.0	80
Q18L-PA66-NA	2.6	195.0	50.0	80
Q30R-PA66-BK	3.6	160.0	38.0	130
Q30R-PA66-NA	3.6	160.0	38.0	130
Q30L-PA66-BK	3.6	200.0	50.0	130
Q30L-PA66-NA	3.6	200.0	50.0	130
Q30LR-PA66-BK	3.6	250.0	65.0	130
Q30LR-PA66-NA	3.6	250.0	65.0	130
Q50R-PA66-BK	4.7	210.0	50.0	220
Q50R-PA66-NA	4.7	210.0	50.0	220
Q50I-PA66-BK	4.7	290.0	75.0	220
Q50I-PA66-NA	4.7	290.0	75.0	220
Q50L-PA66-BK	4.7	410.0	110.0	220
Q50L-PA66-NA	4.7	410.0	110.0	220
Q120I-PA66-BK	7.7	300.0	70.0	530
Q120I-PA66-NA	7.7	300.0	70.0	530
Q120R-PA66-BK	7.7	420.0	110.0	530
Q120R-PA66-NA	7.7	420.0	110.0	530
Q120M-PA66-BK	7.7	520.0	130.0	530
Q120M-PA66-NA	7.7	520.0	130.0	530

All dimensions in mm. Subject to technical changes.



### Cable Ties with smart design

#### X-Series

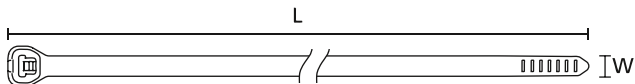
The X-series range of cable ties provides a new and improved design compared with standard cable ties, delivering a range of benefits and enhanced performance. With a new streamlined design and smaller head, the X-Series cable ties provide a superior fixing solution for tight applications, whilst also benefiting from a better grip around the bundle. This professional cable tie range is available in weather resistant and high impact / heat stabilised materials, ensuring these fixings consistently perform well both at high temperatures and in cold environments.

#### Features and benefits

- Inside serrated cable tie
- High tensile strength around cable bundles
- Smooth, rounded head design
- Space saving solution
- Improved ergonomic design
- Provides a secure fastening with no lateral movement



*X-Series provides a superior fixing solution for tight applications.*



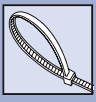
X-series



**Material specification  
please see page 22.**

PART DESCRIPTION	Width (W)	Length (L)	Bundle Ø max.	N
X80S-PA66HIRHS-BK	4.7	150.0	35.0	355
X80R-PA66HIRHS-BK	4.7	200.0	50.0	355
X80I-PA66HIRHS-BK	4.7	300.0	84.0	355
X80L-PA66HIRHS-BK	4.7	385.0	110.0	355
X120R-PA66HIRHS-BK	7.7	369.0	100.0	535
X250R-PA66HIRHS-BK	13.0	535.0	150.0	1,115
X250I-PA66HIRHS-BK	13.0	715.0	205.0	1,115

All dimensions in mm. Subject to technical changes.



# Cable Ties and Fixings

## Cable Ties Inside Serrated

### Cable Ties for hose and gaiter

#### CTT-Series natural and black

CTT is designed to secure pipes, hoses and gaiters where low pressures are being secured. These ties can be used in many different industries including automotive, white goods manufacturing, medical industry and construction.

#### Features and benefits

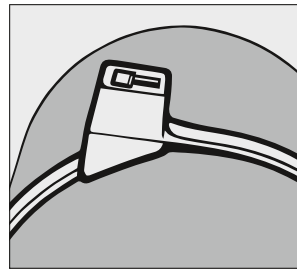
- Curved head design offers a good fit to the bundle
- Inside serration for a strong hold onto bundles
- Easy application either manually or with a processing tool



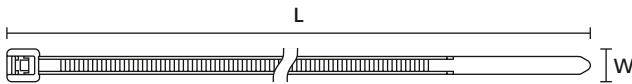
CTT ties installed on flexible gaiters.



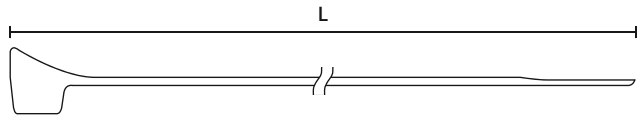
Material specification please see page 22.




For secure fixing of round and solid shapes.



CTT series



CTT Hose Ties

PART DESCRIPTION	Width (W)	Length (L)	Bundle Ø max.	
CTT20R-PA66-NA	2.5	101.6	13.0	90
CTT20R-PA66HS-BK	2.5	101.6	13.0	90
CTT60R-PA66-BK	4.7	205.0	45.0	265
HT120R-PA66HS-BK	7.6	340.0	90.0	535

All dimensions in mm. Subject to technical changes.



### Cable Ties for parallel routing

#### DH-Series

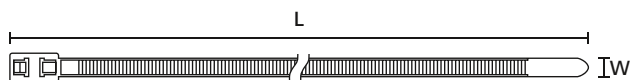
Double loop head ties are ideal for separation of two cable runs without the need for additional cable ties. Additionally these ties are widely used within the packaging industry. The first loop closes and secures the bag whilst the second loop can be made into a carrying handle (subject to weight).

#### Features and benefits

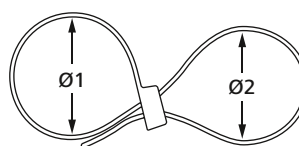
- Possibility to separate bundles with only one cable tie
- Cable tie with two heads creating an inside and outside serrated loop
- Available in a wide range of materials
- Bundles can be of different diameter
- Maximum bundle diameter is a maximum combined bundle
- Easy application either manually or with a processing tool



DH-Series cable ties for parallel routing.



DH-Series



DH-Series maximum combined bundle diameter

PART DESCRIPTION	Width (W)	Length (L)	Bundle Ø max.	N	Min. Tensile Strength 2nd loop
T50RDH-PA46-GY	4.7	210.0	38.0	225	180 N
T50RDH-PA66-NA	4.7	210.0	38.0	225	180 N
T50RDH-PA66HS-BK	4.7	210.0	38.0	225	180 N
T50RDH-PA66-BK	4.7	210.0	38.0	225	180 N
T50IDH-PA66-NA	4.7	305.0	76.0	225	180 N
T50IDH-PA66HS-BK	4.7	305.0	76.0	225	180 N
T50LDH-PA66-NA	4.7	395.0	100.0	225	180 N
T50LDH-PA66HS-BK	4.7	395.0	100.0	225	180 N

All dimensions in mm. Subject to technical changes.





# Cable Ties and Fixings

## Cable Ties Outside Serrated

### Cable Ties for thin-walled bundles

#### OS-Series

OS-Series cable ties are used in many areas where thin-walled or soft insulation wires and cable are being installed, for instance automotive and aircraft industry. OS ties manufactured from PA66V0 material are suitable for applications where safety regulations require reduction of smoke and dangerous gases.

#### Features and benefits

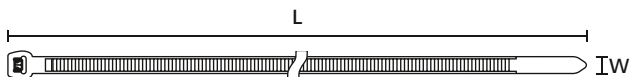
- Outside serrated cable tie with smooth surface to the bundle
- Tie follows the contours of the cable bundle perfectly
- Takes up less space due to curved head design
- Easy insertion combined with high tensile strength
- PA46 material for higher temperatures up to +195 °C (500 h)
- PA66V0 cable ties fulfill Limited Fire Hazard requirements
- Easy application either manually or with a processing tool



Outside serrated OS-Series cable tie with smooth surface to the bundle.



**Material specification**  
please see page 22.



OS-Series



The curved head design of the OS-Series

PART DESCRIPTION	Width (W)	Length (L)	Bundle Ø min.	Bundle Ø max.	N
T18ROS-PA66HS-NA	2.5	100.0	1.6	20.0	80
T18ROS-PA66HS-BK	2.5	100.0	1.6	20.0	80
T18ROS-PA66V0-WH	2.5	100.0	1.6	20.0	80
T30ROS-PA66HS-NA	3.4	145.0	1.6	35.0	135
T30ROS-PA66HS-BK	3.4	145.0	1.6	35.0	135
T30LOS-PA66HS-NA	3.4	200.0	1.6	50.0	135
T30LOS-PA66V0-WH	3.4	200.0	1.6	50.0	135
T30LOS-PA66HS-BK	3.4	200.0	1.6	50.0	135
T50SOS-PA66-GY	4.6	150.0	1.6	35.0	225
T50SOS-PA66-NA	4.6	150.0	1.6	35.0	225
T50SOS-PA66HS-BK	4.6	150.0	1.6	35.0	225
T50ROS-PA66HS-NA	4.6	200.0	1.6	50.0	225
T50ROS-PA46-GY	4.6	200.0	1.6	50.0	225
T50ROS-PA66-NA	4.6	200.0	1.6	50.0	225
T50ROS-PA66HS-BK	4.6	200.0	1.6	50.0	225
T50MOS-PA66HS-NA	4.6	245.0	1.6	66.0	225
T50MOS-PA66V0-WH	4.6	245.0	1.6	66.0	225
T50MOS-PA66HS-BK	4.6	245.0	1.6	66.0	225
T50LOS-PA66HS-BK	4.6	384.0	1.6	110.0	225
T120ROS-PA66HS-NA	7.6	385.0	5.0	105.0	535
T120ROS-PA66V0-WH	7.6	385.0	5.0	105.0	535
T120ROS-PA66HS-BK	7.6	385.0	5.0	105.0	535

All dimensions in mm. Subject to technical changes.





### Cable Ties for high temperature applications up to +240 °C

PEEK Ties have been designed for use in hazardous environments. Their suitability for high temperature applications makes them ideal for use in the drilling industry, railway, offshore or automotive industry. The excellent chemical and radium ray resistance is predestined for applications in medical engineering, chemical industry and power stations. Within the aerospace industry, PEEK ties are suitable due to their good ratio weight to tensile strength. Because of this combination of different properties, PEEK ties can replace metal solutions.

#### Features and benefits

- For high temperature applications from -55 °C up to +240 °C
- Close fit to the cable bundle due to the deepening head shape
- Easy insertion combined with high tensile strength
- Takes up less space due to curved head design
- Combines the performance of a metal tie with the ease of use of a polyamide cable tie
- Manual and/or pneumatic tools available for greater process reliability




*The contoured head takes up less space, gives a low insertion force and offers high strength.*




**Please find more PEEK products for your system solutions: Screw Mount CTAM, see page 129.**

#### PEEK Ties, inside serrated

PART DESCRIPTION	Width (W)	Length (L)	Bundle Ø min.	Bundle Ø max.	
PT220-PEEK-BGE	4.7	220.0	8.0	56.0	380

All dimensions in mm. Subject to technical changes.

#### PEEK Ties, outside serrated

PART DESCRIPTION	Width (W)	Length (L)	Bundle Ø min.	Bundle Ø max.	
PT2A-PEEK-BGE	3.4	145.0	4.0	35.0	230
PT3B-PEEK-BGE	4.7	250.0	4.0	65.0	300

All dimensions in mm. Subject to technical changes.



# Cable Ties and Fixings

## Cable Ties Outside Serrated

### Cable Ties with 90° angled head

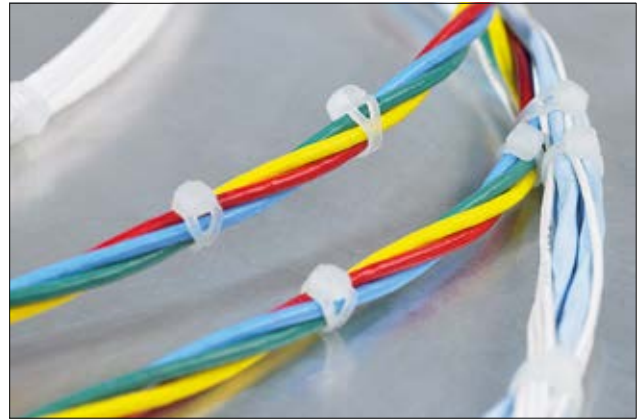
#### V-Series

Due to its low profile head, V-Series outside serrated cable ties are perfectly suited for applications with restricted space, such as camera, alarm and automation systems (Remote I/O Systems).

Where bundles are fed through a grommet or ductwork, V-Series provides a practical solution due to its unique rounded design.

#### Features and benefits

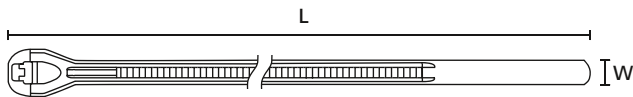
- Outside serrated cable tie with smooth surface to the bundle
- The 90° angled head perfectly fits onto the bundle
- Rounded head design minimises the risk of damage to insulation, especially of parallel routed bundles
- Low profile head takes up less space above the bundle
- Easy insertion and high tensile strength
- Easy application either manually or with a processing tool



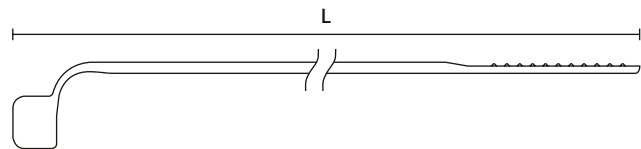
V-Series - the 90° angled head perfectly fits onto the bundle.



**Material specification please see page 22.**



V-Series



PART DESCRIPTION	Width (W)	Length (L)	Bundle Ø max.	N
V100R-PA46-GY	2.5	102.5	20.0	100
V100R-PA66HS-NA	2.5	102.5	20.0	100
V150R-PA46-GY	3.3	150.0	35.0	150
V150R-PA66-BK	3.3	150.0	35.0	150
V150R-PA66HS-NA	3.3	150.0	35.0	150

All dimensions in mm. Subject to technical changes.



### Cable Tie locked by glass fibre pin

This cable tie is distinguished by its smooth strap and unique locking mechanism. The chamfered head of the KR-Series allows for a firm fit around the bundled element. Due to its special design KR-Series cable ties can be used as a safety method to bundle any cable and to also secure bellows on steering racks, water hoses or vacuum lines. The endless strap version is fairly flexible and can be cut to any length required. Separate heads are available to fix the strap.

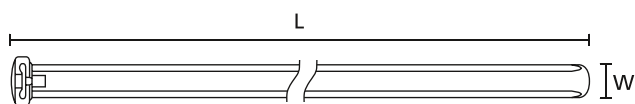
#### Features and benefits

- Cable tie without serration to avoid any damage to cables
- Strap is locked into place with a glass-fibre reinforced pin
- Very secure and vibration resistant fixing
- Available in various materials, colours and almost every length
- Cable ties from PA12 are highly resistant to chemicals, impact and UV light
- KR-ties up to 426 mm are made as one piece
- For assembly a special KR-tool is needed

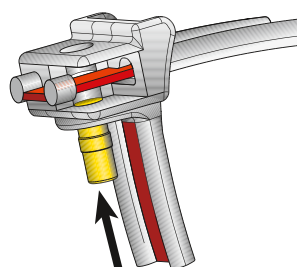


The KR-Series has been repeatedly proven in high vibration applications.

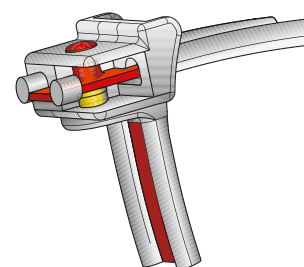
#### KR-Series, 1-Piece



Cable tie KR-Series



The unlocked head of a KR-tie.

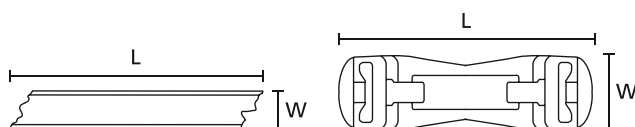


The cable tie (red) is locked into place with the pin.

PART DESCRIPTION	Width (W)	Length (L)	Bundle Ø max.	N
KR6/35-PA66HS-NA	6.1	360.0	93.0	490
KR8/21-PA66HS-NA	8.0	210.0	47.0	785
KR8/33-PA12-BK	8.0	337.0	86.0	390
KR8/33-PA66HS-BK	8.0	337.0	86.0	785
KR8/33-PA46-GY	8.0	337.0	86.0	785
KR8/33-PA66HS-NA	8.0	337.0	86.0	785
KR8/43-PA66HS-BK	8.0	426.0	105.0	785
KR8/43-PA66HS-NA	8.0	426.0	105.0	785

All dimensions in mm. Subject to technical changes.

#### KR-Series, endless



Cable tie KR8S1

Double-head KR8C5

PART DESCRIPTION	Width (W)	Length (L)	N
KR8/S1-PA66HS-NA	8.0	50.0 m	785
KR8/C5-PA66HS-NA	11.7	38.0	-

All dimensions in mm. Subject to technical changes.



# Cable Ties and Fixings

## Cable Ties, Releasable

### Cable Ties inside serrated with tuckaway

#### RT250-Series

The RT250 is a releasable cable tie. Due to its minimum loop tensile strength of 1,115 N the cable tie is perfectly suited to fix larger and/or heavier bundles. RT250 can be opened and reused. UV-resistant cable ties manufactured from PA66W are recommended for outdoor applications. For shorter lengths REL250-Series can be offered.

#### Features and benefits

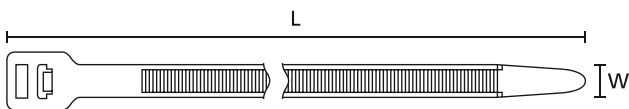
- Releasable and reusable cable tie
- Suitable for larger and/or heavier bundles
- Eyelet allows excess tail to be tucked neatly away
- Available in black and natural colour
- Extended trigger for simple and quick release of ties
- Protected trigger to avoid accidental release
- RT250 cable ties are inside serrated



RT250 Cable Ties: Ideal for larger or heavier bundles these ties can be opened and reused.



Material specification please see page 22.



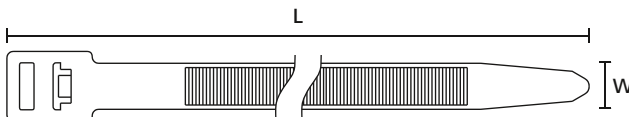
RT250-Series

PART DESCRIPTION	Width (W)	Length (L)	Bundle Ø max.	
RT250R-PA66-BK	12.5	515.0	125.0	1,115
RT250M-PA66-BK	12.5	565.3	150.0	1,115
RT250M-PA66-NA	12.5	565.3	150.0	1,115
RT250XL-PA66-BK	12.5	1,030.0	305.0	1,115
RT250XL-PA66-NA	12.5	1,030.0	305.0	1,115

All dimensions in mm. Subject to technical changes.

### Releasable cable tie

#### REL250-Series



REL250-Series

PART DESCRIPTION	Width (W)	Length (L)	Bundle Ø max.	
REL250S-PA66HIR(S)-BK	12.2	230.0	50.0	1,115
REL250X-PA66HIR(S)-BK	12.2	385.0	100.0	1,115

All dimensions in mm. Subject to technical changes.



### Cable Ties without serration in flexible TPU

#### SRT-Series for industry quantities

The soft, flexible material makes these ties particularly suitable for use on sensitive wires, for instance fibre-optic cables. Additionally they are suitable for moving elements and vibrating applications. The double slotted head allows for parallel bundling.

#### Features and benefits

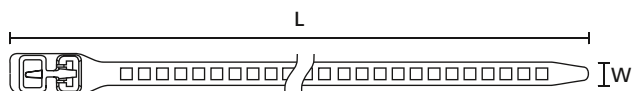
- Elastic and flexible cable ties with rounded and smooth edges
- Releasable and reusable
- Double slotted head with fixation pawl
- Flexibility ensures steady and evenly distributed pressure
- Tight fixation even in vertical position: prevent sliding down or loosing bundle
- Suitable for moving elements and vibrating applications like windmills, machines, robotics, pulsating tubing and conduits
- Ideal use for temporarily fixation for presentations, concerts, theatres, exhibitions
- Long lifetime when used indoor
- Remains flexible even at cold temperatures (-20 °C)



The elasticity of the SOFTIX ties makes them suitable for use in many applications.



**With 2nd loop to run bundles in parallel!**



SRT- and SOFTFIX-Series

PART DESCRIPTION	Width (W)	Length (L)	Bundle Ø max.	N
SRT1807-TPU-BK	7.0	180.0	45.0	57
SRT2607-TPU-BK	7.0	260.0	70.0	57
SRT26011-TPU-BK	11.0	260.0	65.0	123
SRT34011-TPU-BK	11.0	340.0	90.0	123
SRT58028-TPU-BK	28.0	580.0	150.0	360
SRT88028-TPU-BK	28.0	880.0	240.0	360

All dimensions in mm. Subject to technical changes.



# Cable Ties and Fixings

## Cable Ties, Releasable

### Hook and Loop Ties

#### TEXTIE-Series


The TEXTIE-Series offers a soft bundling method and is ideal for use on telephone cables, optical fibre and network cables. These cable ties can be reopened and reused up to 400 times. A perfect solution for temporary installations and cable management for stage equipment, at outdoor events or for prototype harnessing. Also suitable for use in private or office applications. TEXTIE cable ties are available in various colours and can be used to colour-code cables and/or wires.

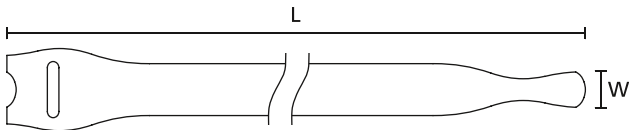
#### Features and benefits

- Quick and simple to use without tools
- Reusable up to 400 times
- Various colours for easy identification
- For indoor and outdoor use
- Can be attached to the bundle permanently
- Resistant to ageing, no corrosion



Due to the functional cable tie design the TEXTIE is fixed on the cable and cannot get lost.


 **Material specification please see page 22.**



TEXTIE -Series S ,M and L



The TEXTIE-Series is available in different colours and lengths.

PART DESCRIPTION	Drawing	Width (W)	Length (L)	Bundle Ø max.	Material Loop	Material Hook
TEXTIE S-PA66/PP-BK		12.5	150.0	45.0	Polyamide 6.6 (PA66)	Polypropylene (PP)
TEXTIE M-PA66/PP-BK		12.5	200.0	60.0	Polyamide 6.6 (PA66)	Polypropylene (PP)
TEXTIE M-PA66/PP-BU		12.5	200.0	60.0	Polyamide 6.6 (PA66)	Polypropylene (PP)
TEXTIE M-PA66/PP-GN		12.5	200.0	60.0	Polyamide 6.6 (PA66)	Polypropylene (PP)
TEXTIE M-PA66/PP-RD		12.5	200.0	60.0	Polyamide 6.6 (PA66)	Polypropylene (PP)
TEXTIE M-PA66/PP-WH		12.5	200.0	60.0	Polyamide 6.6 (PA66)	Polypropylene (PP)
TEXTIE M-PA66/PP-YE		12.5	200.0	60.0	Polyamide 6.6 (PA66)	Polypropylene (PP)
TEXTIE L-PA66/PP-BK		12.5	330.0	100.0	Polyamide 6.6 (PA66)	Polypropylene (PP)
TEXTIE 5M-PA66/PP-BK		12.5	5,000.0	-	Polyamide 6.6 (PA66)	Polypropylene (PP)
TEXTIE 25M-PA66/PP-BK		13.0	25,000.0	-	Polyamide 6.6 (PA66)	Polypropylene (PP)

All dimensions in mm. Subject to technical changes.



### Cable ties with ball-lock

#### MBT-Series, stainless steel 304

Metal ties are ideal for all applications that require high strength, reliability and fire resistance. The MBT range of stainless steel cable ties can be used in chemical industries and on oil platforms as well as in mass transit, shipbuilding and mining industries. MBT ties are also suitable for machine building, construction and in the outside area of radio technology. Additionally MBT ties are ideal for securing lighting in theatres and exhibition halls.

#### Features and benefits

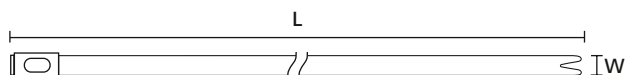
- Cable ties MBT, made from stainless steel 304
- Non-releasable locking feature
- Corrosion resistant
- Weather resistant
- Outstanding chemical resistance
- High temperature resistant
- Non-burning



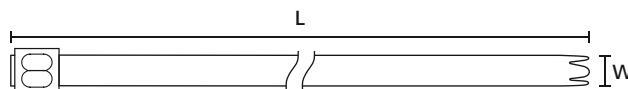
Stainless steel cable ties, uncoated, MBT\_SS, MBT\_HS.



Stainless Steel Cable Ties, uncoated, MBT\_XHS.



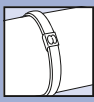
MBT-Series 4.6 mm and 7.9 mm width



MBT-Series 12.3 mm width

PART DESCRIPTION	Width (W)	Length (L)	Bundle Ø min.	Bundle Ø max.	N
MBT5SS-SS304-ML	4.6	127.0	12.0	25.0	900
MBT8SS-SS304-ML	4.6	201.0	17.0	50.0	900
MBT14SS-SS304-ML	4.6	362.0	17.0	102.0	900
MBT20SS-SS304-ML	4.6	521.0	17.0	152.0	900
MBT27SS-SS304-ML	4.6	685.0	17.0	203.0	900
MBT33SS-SS304-ML	4.6	838.0	17.0	254.0	900
MBT8HS-SS304-ML	7.9	201.0	17.0	50.0	2,000
MBT14HS-SS304-ML	7.9	362.0	17.0	102.0	2,000
MBT20HS-SS304-ML	7.9	521.0	17.0	152.0	2,000
MBT27HS-SS304-ML	7.9	685.0	17.0	203.0	2,000
MBT33HS-SS304-ML	7.9	838.0	17.0	254.0	2,000
MBT14XHS-SS304-ML	12.3	362.0	17.0	102.0	2,700
MBT20XHS-SS304-ML	12.3	521.0	17.0	152.0	2,700
MBT27XHS-SS304-ML	12.3	681.0	17.0	203.0	2,700
MBT33XHS-SS304-ML	12.3	838.0	17.0	254.0	2,700

All dimensions in mm. Subject to technical changes.



# Cable Ties and Fixings

## Cable Ties, Stainless Steel

### Cable ties with ball-lock

#### MBT-Series, stainless steel 316

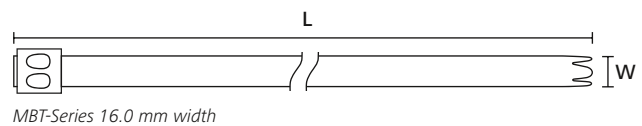
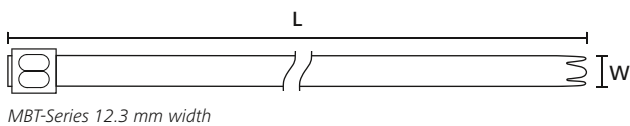
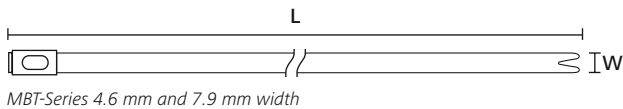
Metal ties are predestined for all areas with requirements for high holding force, reliability and fire resistance. The MBT range of stainless steel cable ties can be used in chemical industry and on oil platform as well as in mass transit, shipbuilding and mining industry. MBT ties are also suitable for machine building, apparatus construction and in the outside area of radio technology. Additionally MBT ties are a good solution to fix lighting in theatres and exhibition halls.

#### Features and benefits

- MBT cable ties made from stainless steel 316
- Non-releasable locking feature
- Corrosion resistant
- Weather resistant
- Outstanding chemical resistance
- High temperature resistant
- Non-burning



Stainless steel cable ties, uncoated, MBT\_S, MBT\_H.



PART DESCRIPTION	Width (W)	Length (L)	Bundle Ø min.	Bundle Ø max.	N
MBT5S-SS316-ML	4.6	127.0	12.0	25.0	900
MBT8S-SS316-ML	4.6	201.0	12.0	50.0	900
MBT14S-SS316-ML	4.6	362.0	12.0	102.0	900
MBT20S-SS316-ML	4.6	521.0	12.0	152.0	900
MBT27S-SS316-ML	4.6	685.0	12.0	203.0	900
MBT33S-SS316-ML	4.6	838.0	12.0	254.0	900
MBT8H-SS316-ML	7.9	201.0	12.0	50.0	2,000
MBT14H-SS316-ML	7.9	362.0	12.0	102.0	2,000
MBT20H-SS316-ML	7.9	521.0	12.0	152.0	2,000
MBT27H-SS316-ML	7.9	685.0	12.0	203.0	2,000
MBT33H-SS316-ML	7.9	838.0	12.0	254.0	2,000
MBT14XH-SS316-ML	12.3	362.0	12.0	102.0	2,700
MBT20XH-SS316-ML	12.3	521.0	12.0	152.0	2,700
MBT27XH-SS316-ML	12.3	681.0	12.0	203.0	2,700
MBT33XH-SS316-ML	12.3	838.0	12.0	254.0	2,700
MBT14UH-SS316-ML	16.0	362.0	12.0	102.0	4,100
MBT20UH-SS316-ML	16.0	521.0	12.0	152.0	4,100
MBT27UH-SS316-ML	16.0	681.0	12.0	203.0	4,100
MBT33UH-SS316-ML	16.0	838.0	12.0	254.0	4,100
MBT43UH-SS316-ML	16.0	1,092.0	12.0	330.0	4,100
MBT49UH-SS316-ML	16.0	1,245.0	12.0	380.0	4,100

All dimensions in mm. Subject to technical changes.





### Double wrap cable ties with ball-lock

**MBTXHD- / MBTUHD-Series, stainless steel 316**

The double wrap ties of the MBT-series are used in applications where a fixing requires an extraordinary high tensile strength.

#### Features and benefits

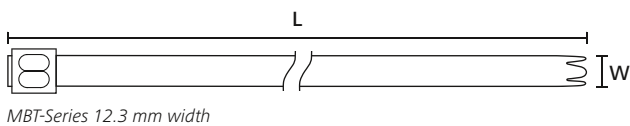
- Stainless steel MBT ties with double wrap operation
- Wraps around the bundle and passes through the head twice
- Very high tensile strength to carry enormous applied loads
- Head with two locking balls
- Resistant to arduous conditions and environments



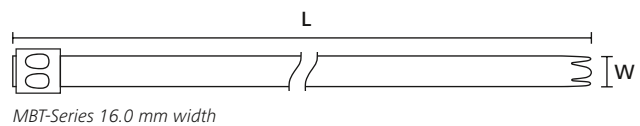
Double wrap stainless steel cable ties, uncoated, MBT\_UHD.



**Material specification please see page 22.**



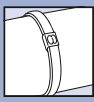
MBT-Series 12.3 mm width



MBT-Series 16.0 mm width

PART DESCRIPTION	Width (W)	Length (L)	Bundle Ø min.	Bundle Ø max.	N
MBT27XHD-SS316-ML	12.3	681.0	17.0	100.0	5,000
MBT33XHD-SS316-ML	12.3	838.0	17.0	120.0	5,000
MBT43XHD-SS316-ML	12.3	1,092.0	17.0	160.0	5,000
MBT49XHD-SS316-ML	12.3	1,245.0	17.0	180.0	5,000
MBT60XHD-SS316-ML	12.3	1,524.0	17.0	230.0	5,000
MBT27UHD-SS316-ML	16.0	681.0	25.0	100.0	7,000
MBT33UHD-SS316-ML	16.0	838.0	25.0	120.0	7,000
MBT43UHD-SS316-ML	16.0	1,092.0	25.0	160.0	7,000
MBT49UHD-SS316-ML	16.0	1,245.0	25.0	180.0	7,000
MBT60UHD-SS316-ML	16.0	1,524.0	25.0	230.0	7,000

All dimensions in mm. Subject to technical changes.



# Cable Ties and Fixings

## Cable Ties, Stainless Steel

### Cable ties with ball-lock and coating

#### MBT-FC-Series, stainless steel 316

The MBT range of stainless steel cable ties can be used in the most arduous of conditions or where the additional security, strength and fire resistance of a metal fixing is required. Used in all industries from mass transit, ship building, oil rigs, mining and chemical industry, theatres and exhibition halls. In the event of a fire, cables will remain securely held in place and will not fall to block emergency exits. Fully coated ties can also be used to avoid any reflection. An important consideration for instance in the defence industry.

#### Features and benefits

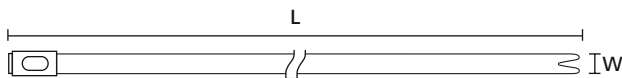
- Fully coated MBT, made from type 316 stainless steel with polyester coating
- Non-releasable locking feature
- Coated cable tie with smooth edges
- Comfortable handling and installation
- Eliminates contact corrosion between dissimilar materials during application



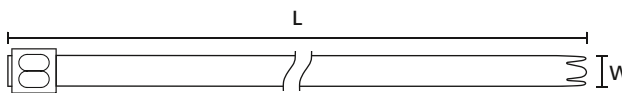
Stainless steel cable ties, coated, MBT\_SFC, MBT\_HFC.



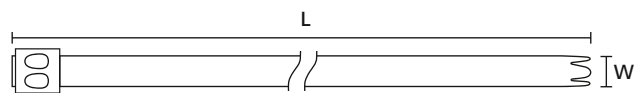
Stainless steel cable ties, coated, MBT\_XHFC.



MBT-Series 4.6 mm and 7.9 mm width



MBT-Series 12.3 mm width



MBT-Series 16.0 mm width

PART DESCRIPTION	Width (W)	Length (L)	Bundle Ø min.	Bundle Ø max.	
MBT5SFC-SS316/SP-BK	4.6	127.0	15.0	25.0	540
MBT8SFC-SS316/SP-BK	4.6	201.0	17.0	50.0	540
MBT14SFC-SS316/SP-BK	4.6	362.0	17.0	102.0	540
MBT20SFC-SS316/SP-BK	4.6	521.0	17.0	152.0	540
MBT27SFC-SS316/SP-BK	4.6	681.0	17.0	203.0	540
MBT33SFC-SS316/SP-BK	4.6	838.0	17.0	254.0	540
MBT8HFC-SS316/SP-BK	7.9	201.0	17.0	50.0	1,020
MBT14HFC-SS316/SP-BK	7.9	362.0	17.0	102.0	1,020
MBT20HFC-SS316/SP-BK	7.9	521.0	17.0	152.0	1,020
MBT27HFC-SS316/SP-BK	7.9	681.0	17.0	203.0	1,020
MBT33HFC-SS316/SP-BK	7.9	838.0	17.0	254.0	1,020
MBT14XHFC-SS316/SP-BK	12.3	362.0	17.0	102.0	1,620
MBT20XHFC-SS316/SP-BK	12.3	521.0	17.0	152.0	1,620
MBT27XHFC-SS316/SP-BK	12.3	681.0	17.0	203.0	1,620
MBT30XHFC-SS316/SP-BK	12.3	754.0	17.0	225.0	1,620
MBT33XHFC-SS316/SP-BK	12.3	838.0	17.0	254.0	1,620

All dimensions in mm. Subject to technical changes.



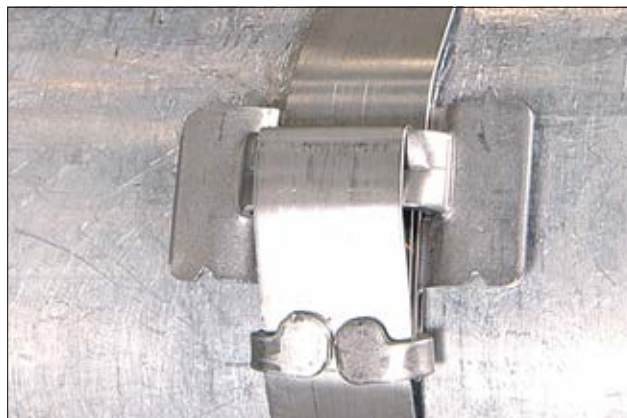
### Metal Banding for Heavy Duty Application

#### AMT-Series, Stainless Steel 316

The AMT tie is designed for heavy duty applications. The folding mechanism ensures that the tie will not become loose under vibration. Therefore in all safety relevant areas where vibration is normal, such as in the rail, ship or construction industry, this product is ideal.

#### Features and benefits

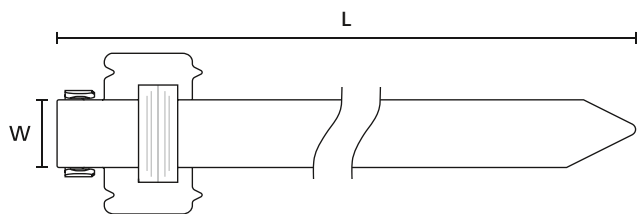
- AMT ties for heavy-duty application
- Available in type 316 stainless steel
- Suitable for applications with high vibrations



The high strength pre-assembled banding system – AMT tie.



**Material specification please see page 22.**

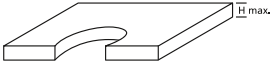
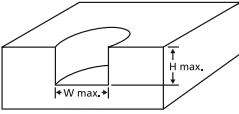
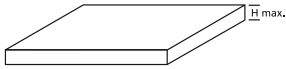
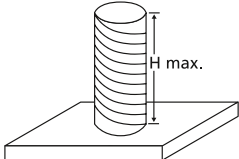


AMT tie

PART DESCRIPTION	Width (W)	Length (L)	Thickness (T)	N
AMT5L16SB-SS316-ML	16.0	500.0	0.40	2,500

All dimensions in mm. Subject to technical changes.

### Selection guide for fixing ties

Application	Arrowhead	Fir Tree Mount	Rivet Wall Plug	Screw Mount	EdgeClip	Weld Stud Mount
	●	●		●		
		●	●	●		
					●	
						●



#### Arrowhead

This fixing tie is based on an arrowhead offering high extraction forces. The arrowhead is securely in place when a click can be heard and felt by the user.



#### Arrowhead with disc

The disc minimises the ingress of dust, dirt and water. Furthermore a safe fixation inside the drill hole is assured that withstands pressure from various directions.



#### Arrowhead with supporting wings

Arrowhead fixings with supporting wings offer good and stable fixation in drilled holes. The supporting wings generate additional pressure to assure a firm and secure fixing while taking up any variation in panel thickness. These ties are also suitable in high vibration applications.



#### Arrowhead without supporting wings

The arrowhead design ensures good fixation and takes up minimal space.



#### Fir Tree Mount

Fir Tree Mounts can be pushed into pre-punched holes easily in panels or threaded, blind holes based on the low insertion forces. The design is ideally suited for a wide range of sheet thicknesses. The disc on top of the fir tree covers the hole and minimises the ingress of dust, dirt and water.





### Weld Stud Mount

Many of the HellermannTyton weld stud mounts can easily be attached by hand ("soft push"). The design offers very low insertion forces that require no tools. The mounts can be removed by twisting to the left.



### Weld Stud Fixings with lateral adjustment

The special oval shape of these mounts provides a 5 - 6 mm lateral adjustment to cater for any misalignment of the stud or incorrect positioning of ties on the cables. The bundle can therefore be moved when mounted.



### EdgeClip

The EdgeClips are specifically designed to bundle and guide cable and wires on edges. Cost intensive drill holes for fixing are no longer required. EdgeClips are easily mounted by hand, the integrated metal clamp, securely keeping the clips on the edge.



### EdgeClip twistable

Ideally suited for fixations where bundles need to be flexibly guided. These EdgeClips are available with facilities for 90° or 360° rotation.



### Cable and Hose Attachment

Excellent solution for subsequent attachment of pipes and wires to installed tubes.



### Heavy Duty Application

These sturdy fixing ties can withstand vibrations. They are easy to apply and give a secure alignment to the bundle. There will be high tightening torque through metal bushing.



### Two Piece Fixing Ties with Clip Coupler

The Coupler is an article to connect two cable ties for parallel bundling of tubes, harnesses or cables. Its design enables the cable ties to rotate up to 90° and allows flexible installations.



# Cable Ties and Fixings

## Cable Ties With Fixing Elements

### 1-Piece Fixing Ties with Arrowhead, with Wings

#### 1-Piece Fixing Ties with Arrowhead, with Wings, for Round Holes

For bundling and fixing of cable harnesses, pipes and hoses in many different industries, including automotive, aerospace, white goods manufacturing and panel building.

#### Features and benefits

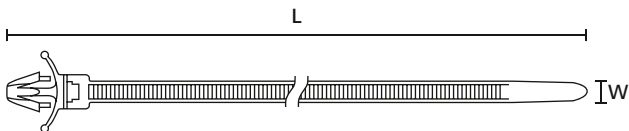
- Easy to assemble without the need for a tool
- Cable tie head always situated in defined position
- Arrowhead simply locks into place
- Supporting legs provide a secure and firm fixing in areas where space is limited



A wide range of arrowhead fixing ties which are suitable for different panel thicknesses and hole diameters.



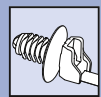
**Material specification**  
please see page 22.



T50SSL5

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	
T18RSF-PA66HS-NA		4.6 - 4.8	0.8 - 3.0	2.5	100.0	16.0	80	
T18RSF-PA66UV-BK		4.6 - 4.8	0.8 - 3.0	2.5	100.0	16.0	80	
T18RSF-PA46-NA		4.6 - 4.8	1.0 - 3.0	2.5	100.0	16.0	80	
T50VSL5-PA66-NA		6.1 - 6.3	1.0 - 2.6	4.6	100.0	16.0	225	
T50SSF-PA12-BK		6.0 - 6.6	0.7 - 3.0	4.6	160.0	35.0	225	
T50SSF-PA66-NA		6.0 - 6.6	0.7 - 3.0	4.6	160.0	35.0	225	
T50SSF-PA66HIRHS-BK		6.0 - 6.6	0.7 - 3.0	4.6	160.0	35.0	225	
T50RSFM-PA66HS-BK		6.0 - 6.6	0.7 - 3.0	4.6	205.0	45.0	225	
T50SSL5-PA66HS-BK		6.1 - 6.5	0.5 - 2.7	4.6	135.0	27.0	200	
T50SSL5-PA46-GY		6.1 - 6.5	0.5 - 2.7	4.6	135.0	27.0	225	
T50SL5-PA66HS-BK		6.1 - 6.5	0.8 - 2.5	4.7	165.0	34.0	222	
T50SL5-PA66HIRHS-BK		6.1 - 6.5	0.8 - 2.7	4.6	163.0	34.0	222	
T50RSFM-PA66-NA			6.0 - 6.6	0.7 - 3.0	4.6	205.0	45.0	225
T50SSF-PA66W-BK			6.0 - 7.5	0.7 - 2.6	4.8	130.0	26.0	223
T50RWPM6-E-HEX-PA66HS-BK	6.1 - 6.6 (hexagonal)		0.7 - 3.0	4.6	205.0	45.0	225	
OS130-PA66W-BK	6.8 - 7.2		0.6 - 2.6	5.0	130.0	20.0	147	
OS190-PA46-NA	6.8 - 7.2		0.6 - 2.6	5.0	190.0	40.0	147	
OS190-PA66W-BK	6.8 - 7.2		0.6 - 2.6	5.0	190.0	40.0	147	

All dimensions in mm. Subject to technical changes.



### 1-Piece Fixing Ties with Arrowhead, with Wings

#### 1-Piece Fixing Ties with Arrowhead, with Wings, for Round Holes

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N
T50SAH-PA66HS-NA		6.0 - 6.6	0.7 - 3.0	4.6	160.0	25.0	225
T18RWPM-PA66HS-BK		4.8 - 5.6	1.5 - 3.2	2.5	113.0	22.0	80
T50SL6-PA66HS-BK		6.3 - 7.5	0.5 - 2.5	4.6	165.0	34.0	225
T8RWPM3.5-PA66V0-WH		3.4 - 3.6	0.4 - 1.6	1.7	81.0	15.0	36
OS150WPM5-PA66-BK		4.7 - 5.0	0.7 - 2.5	4.7	150.5	35.0	200
OS150WPM7-PA66-BK		6.3 - 7.1	0.7 - 3.2	4.6	150.6	35.0	-
T50XSFM-PA66HS-BK		6.35 (hexagonal), 6.0 - 6.6	0.7 - 3.0	4.6	143.0	27.0	225
T50RWPM7.0-PA66HS-BK		6.8 - 7.2	0.7 - 3.0	4.6	200.0	45.0	225
T50SWPM7.0-PA66HS-BK		6.8 - 7.2	0.7 - 3.0	4.6	140.0	27.0	225
T50SWPM4.7PT0.7-1.6-PA66HS-BK			4.6 - 4.8	0.7 - 1.6	4.8	155.0	35.0
T50SWPM4.7-PA66-BK	4.6 - 4.8		3.2 - 4.0	4.8	155.0	35.0	225
OS220-PM9-PA66HSW-BK		9.0 - 9.2	2.0 - 5.5	5.0	220.0	45.0	250
OS230-PM9-PA66HSW-BK		9.0 - 9.2	7.0 - 14.0	5.0	229.0	45.0	250
T50SL7-PA46-NA		6.9 - 7.1	0.8 - 2.5	4.6	163.0	34.0	225
T50SL7-PA66HS-BK		6.9 - 7.1	0.8 - 2.5	4.6	165.0	34.0	225
YQR10050-PA66-BN		6.9 - 7.1	1.6 - 4.0	4.6	165.0	34.0	225
T50SL8-PA66-BK		8.0	0.8 - 1.5	4.6	165.0	35.0	225
T50SL8-PA46-NA		8.0	0.8 - 1.5	4.6	165.0	35.0	-

All dimensions in mm. Subject to technical changes.

### 2-Piece Fixing Ties with Arrowhead, with Wings

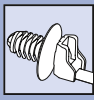
#### 2-Piece Fixing Ties with Arrowhead, with Wings and Pipe Clip, 90° rotatable

#### Features and benefits

- Pre-assembled 2-piece fixing tie with fir tree foot part
- Easy to assemble without the need for a tool
- Fir tree foot part can be used for a variety of panel thicknesses
- For maintenance needs cables can be replaced easily

PART DESCRIPTION	Drawing	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N
T50SWPM7.0OC15-18CBTO-SD-PA66HS/PA66HIRHS-BK		0.7 - 3.0	4.6	140.0	27.0	225

All dimensions in mm. Subject to technical changes.

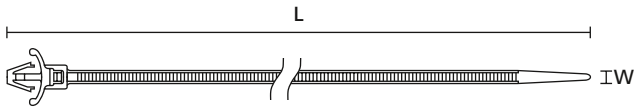


# Cable Ties and Fixings

## Cable Ties With Fixing Elements

### 1-Piece Fixing Ties with Arrowhead, with Wings

#### 1-Piece Fixing Ties with Arrowhead, with Wings, Releasable, for Round Holes



RT50RSF



Material specification please see page 22.

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N
YQR10016-PA66-GY		6.9 - 7.1	1.6 - 4.0	4.6	165.0	34.0	225
RT50RSF-PA66-BK		7.8 - 8.2	0.8 - 2.5	4.6	215.0	50.0	225
RT50SFK-PA66-BK		6.4 - 7.0	0.8 - 3.0	5.0	225.0	50.0	225
FBS100-PA66-BK		5.9 - 6.7	0.7 - 3.0	10.0	114.5	27.0	-
FBS140-PA66-BK		5.9 - 6.7	0.7 - 3.0	10.0	160.0	42.0	-
FBS185-PA66-BK		5.9 - 6.7	0.7 - 3.0	10.0	201.0	53.0	-
RT50SSF-PA66W-BK		6.0 - 7.5	0.7 - 2.6	4.8	130.0	26.0	223
GLRT50RSF-PA11W-BK		6.0 - 7.5	1.0 - 2.6	4.8	201.0	48.0	200
LRT18RWPM4.8-PA66V0-WH		4.7 - 4.9	0.4 - 2.0	2.5	110.0	20.0	100
RR30SWPM5-PA66V0-WH		4.8 - 5.1	0.5 - 2.5	3.3	134.0	27.0	98
RT18RSF-PA66V0-BK		3.8 - 4.2	0.6 - 2.3	3.0	132.0	27.0	80
RT30SSF-PA66HS-NA		4.0 - 4.2	0.8 - 2.0	3.3	130.0	27.0	135
RT30SSF-PA66V0-BK		4.0 - 4.2	0.8 - 2.0	3.3	130.0	27.0	135
RT30SSF-PA66W-BK		4.0 - 4.2	0.8 - 2.0	3.3	130.0	27.0	135
RT30SSF5-PA66W-BK		4.7 - 5.0	0.5 - 2.3	3.3	130.0	27.0	196
RT50SSF5.4-PA66-NA			5.2 - 5.6	0.5 - 1.6	7.6	150.0	32.0

All dimensions in mm. Subject to technical changes.

#### 1-Piece Fixing Ties with Arrowhead, with Wings, for Oval Holes

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N
T80RFT6X12-PA46-GY		6.3 x 12.3	0.6 - 3.0	4.6	228.0	45.0	222
T80RFT6X12-PA66-BK		6.3 x 12.3	0.6 - 3.0	4.6	228.0	45.0	222
OS170WPM712-PA6HS-BK		7.0 x 12.0	0.6 - 2.5	5.5	169.6	35.0	150

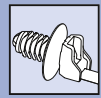
All dimensions in mm. Subject to technical changes.

#### 1-Piece Fixing Ties with Arrowhead, with Wings, for Squared Holes

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N
OS80-PM46-PA66W-BK		4.0 x 6.0	1.0 - 1.6	2.5	80.0	10.0	80

All dimensions in mm. Subject to technical changes.





### 1-Piece Fixing Ties with Arrowhead, with Wings in the Strap

#### 1-Piece Fixing Ties with Arrowhead, with Wings in the Strap

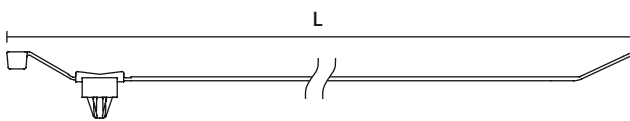
This range of fixing ties is ideal for use in many different industries, including automotive, aerospace and panel building. The T80RSF6.5FW features a detent that fits securely into the profile of the tubing which prevents from lateral movement and slipping.

#### Features and benefits

- Easy to assemble without the need for a tool
- Arrowhead simply locks into place
- Supporting legs provide a secure and firm fixing when space is limited
- Bundle runs central across fixing point
- Cable tie head always situated in defined position



*Designed to secure cables with parallel bundling the T80RSF6.5F offers a simple and secure fixing.*



T80RSF6.5F

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N
T80RSF6.5FW-PA66HS-BK		6.3 - 6.5	0.6 - 3.0	4.7	209.0	50.0	355
T80SSF6.5F-PA66HIRHS-BK		6.3 - 6.5	0.6 - 3.0	4.6	179.0	43.0	300
T80RSF6.5F-PA46-GY		6.3 - 6.5	0.6 - 3.0	4.7	209.0	50.0	355
T80RSF6.5F-PA66HS-BK		6.3 - 6.5	0.6 - 3.0	4.7	209.0	50.0	355
T80SSF6.5F-PA46-GY		6.3 - 6.5	0.6 - 3.0	4.6	179.0	43.0	225
T80RSF6.5F-PA66-BK		6.3 - 6.5	0.6 - 3.0	4.6	209.0	45.0	355

All dimensions in mm. Subject to technical changes.

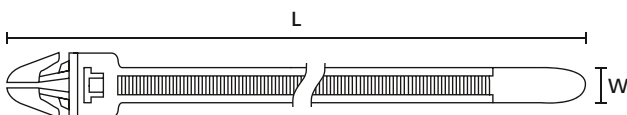
### 1-Piece Fixing Ties with Arrowhead

#### 1-Piece Fixing Ties with Arrowhead, without Wings and Disc, for round holes

The arrowhead design is usefull in areas with limited space.

#### Features and benefits

- Easy to assemble without the need for a tool
- Fixing tie with arrowhead without wings
- Arrowhead simply locks into place
- Cable tie head always situated in defined position



T30RSF



*The arrowhead design allows these fixing ties to be used in areas with limited space.*

PART DESCRIPTION	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N
T30RSF-PA66HS-BK	4.7 - 5.6	0.9 - 2.4	3.6	158.0	32.0	135
T30RSF(U)-PA66HS-BK	4.7 - 5.6	0.9 - 2.4	3.6	161.0	31.0	135
T50RSF(E)-PA66-BK	6.2 - 6.4	2.9 - 3.0	4.6	210.0	44.0	225
T50RSF(U)-PA66HIRHSUV-BK	6.4 - 7.1	1.0 - 3.5	4.7	210.0	44.0	225

All dimensions in mm. Subject to technical changes.



# Cable Ties and Fixings

## Cable Ties With Fixing Elements

### 1-Piece Fixing Ties with Arrowhead, with Disc

#### 1-Piece Fixing Ties with Arrowhead, with Disc, for Round Holes

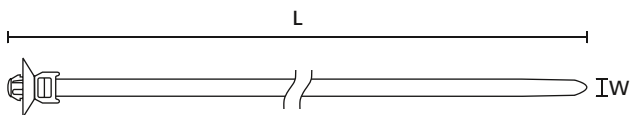
With a diverse range of fixing possibilities these ties are ideal for use in many different industries, including automotive, aerospace, white goods manufacture and panel building. This fastening solution is used to secure cable harnesses. We offer a variety of panel thicknesses and hole sizes to suit all kinds of application.

#### Features and benefits

- Easy to install without the need for a tool
- Arrowhead simply locks into place
- Disc adjusts tie for pressures from various directions and minimises ingress of dust and dirt
- Cable tie head always situated in a defined position
- KSFT-types with specially rounded arrowhead minimise the assembly height



The disc at the head of the T50SOSST6.5E protects the bore against dirt and splashes.



T50SOSKSFT6.5S2-E



Material specification please see page 22.

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø
T50SOSST6.5E-MS-PA66HS-NA		6.25 - 6.75	1.9 - 2.2	4.6	163.0	35.0	180	16.0
T30SOS-AS-SFT6.5E-PA66-BK		6.3 - 6.7	0.8 - 1.5	3.5	126.4	25.0	200	16.0
T50SOSST6.5E-PA66HS-BK		6.3 - 6.7	1.9 - 2.5	4.6	158.8	30.0	225	16.0
T30SOS-AS-SFT6.5-E-PA66HS-BK		6.5 - 7.0	0.8 - 1.5	3.5	126.4	25.0	200	16.0
T50SOSAH7S-E-PA66HS-BK		6.8 - 7.2	0.6 - 3.2	4.6	161.6	35.0	180	16.0
T50SOSKSFT6.5E-PA66HS-BK		6.3 - 6.7	0.7 - 1.3	4.6	156.0	35.0	180	16.0
T50SOSKSFT6.5S2-E-PA66HS-BK		6.3 - 6.7	1.7 - 2.3	4.6	157.5	35.0	225	16.0
T50SOSKSFT6.5PT2.4-3.0-PA66HS-BK		6.3 - 6.7	2.4 - 3.0	4.6	158.3	35.0	225	16.0
OS180AH7S-LH-E-PA66HS-BK		6.8 - 7.2	0.6 - 3.2	5.3	178.4	30.0	180	-
T50ROS AH6U-PA66HIRHS-NA		6.1 - 6.9	1.8 - 3.0	5.0	215.9	50.0	225	16.0
T50SD6-PA66HS-BK		6.3 - 7.5	0.6 - 1.8	5.0	160.0	31.0	200	18.0
T50MD7-PA66HS-BK		6.8 - 7.2	1.2 - 2.0	5.0	225.0	59.0	225	16.0
T50SOSKSFT5SE-PA66HS-BK		4.8 - 5.2	0.7 - 1.3	4.6	156.0	35.0	180	16.0
T50SOSKSFT5M-E-PA66HS-BK		4.8 - 5.2	1.7 - 2.3	4.6	157.0	35.0	180	16.0
T50SOSKSFT5.4E-PA66HS-BK		5.2 - 5.6	0.7 - 1.3	4.6	156.0	35.0	225	16.0
T50SST5-PA46-NA		6.1 - 6.5	0.7 - 1.5	4.6	170.0	31.0	225	16.2
T50SST5-PA66-NA		6.1 - 6.5	0.7 - 1.5	4.6	170.0	31.0	225	16.2
T50SST5-PA66-BK		6.1 - 6.5	0.7 - 1.5	4.6	170.0	31.0	225	16.2
T50SST5-PA66HIRHS-BK		6.1 - 6.5	0.7 - 1.5	4.6	170.0	31.0	225	16.2

All dimensions in mm. Subject to technical changes.



### 2-Piece Fixing Ties with Arrowhead, with Disc

#### 2-Piece Fixing Ties with Arrowhead, with Disc, for Round Holes

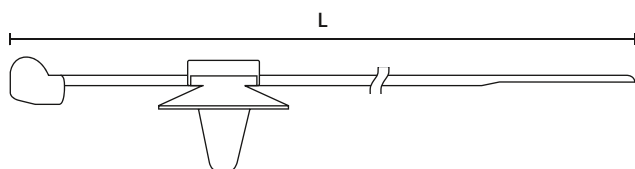
Primarily designed for fixing cable harnesses in the automotive industry, their simplicity and ease of use has resulted in these parts being used in other industries, for example aviation, switch gear and white goods manufacturing.

#### Features and benefits

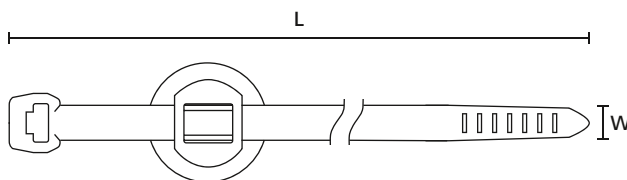
- Pre-assembled 2-piece fixing tie with arrowhead foot part
- Cable tie head can be moved after bundling
- Easy to assemble without the need for a tool
- Arrowhead simply locks into place
- Disc adjusts tie for pressure from various directions and minimises access of dust and dirt
- Type T30RSFT7H with offset of 27.8 mm height



Being a two-piece assembly allows the tie head to be located in the most convenient position.



T50ROSSFT6.5 16-3



T50ROSSFT6.5 16-3

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø
T50ROSSFT6.5 16-3-PA66HS/PA66HIRHS-BK		6.3 - 6.7	2.5 - 3.5	4.6	200.0	45.0	225	16.0
T50RSFT6.5 16-3-PA66HS/PA66HIRHS-BK		6.3 - 6.7	2.5 - 3.5	4.6	200.0	49.0	222	16.0
T50SOSSFT6.5-D16-2-PA66HS/PA66HIRHS-BK		6.3 - 6.7	1.5 - 2.2	4.6	150.0	35.0	225	16.0
T50RSFT6.5D18-PA66HS/PA66HIRHS-BK		6.5 - 6.8	0.4 - 1.6	4.6	200.0	45.0	200	18.0
T50RSFT6.5-PA66HS-BK		6.3 - 6.7	0.7 - 2.0	4.6	200.0	45.0	225	22.4
T30RSFT7H-PA66HS/PA66HIRHS-BK		6.8 - 7.2	0.8 - 1.5	3.5	150.0	36.0	135	16.0

All dimensions in mm. Subject to technical changes.



# Cable Ties and Fixings

## Cable Ties With Fixing Elements

### 1-Piece Fixing Ties with Fir Tree, with Disc, for Round Holes

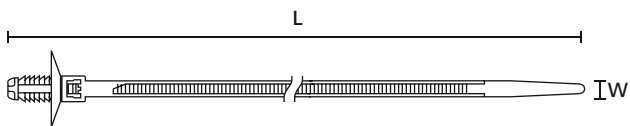
Primarily designed for fixing cable harnesses in the automotive industry, their simplicity and ease of use has resulted in these parts being used in other industries, for example aviation, switch gear manufacturer, white goods manufacturer.

#### Features and benefits

- Cable tie head always situated in defined position
- Easy to assemble without the need for a tool
- Disc adjusts tie for pressure from various directions and minimises access of dust and dirt
- Fir tree foot part can be used for a variety of panel thicknesses
- Suitable for use within threaded holes
- Versions with "-AS" avoid lateral adjustment and sealing-off cable bundles but it is still possible to move the tie around the cable bundle



*Fir tree foot parts can be used for a variety of panel thicknesses.*



*Reference for dimensions only*



**Material specification please see page 22.**

#### Fir Tree Parts FT4

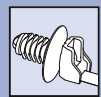
PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø
T30SOS-AS-FT4.5-E-PA66HS-BK		4.3 - 4.7	0.7 - 3.0	3.5	128.0	25.0	200	16.0

All dimensions in mm. Subject to technical changes.

#### Fir Tree Parts FT5

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø
T18RDP5-PA66-BK		4.9 - 5.1	3.0 - 4.0	2.5	110.0	20.0	80	13.0
OS160FT5-PA66HSW-BK		4.5 - 5.0	1.6 - 3.2	4.0	163.0	30.0	100	13.0

All dimensions in mm. Subject to technical changes.



### 1-Piece Fixing Ties with Fir Tree, with Disc, for Round Holes

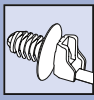
#### Fir Tree Parts FT6

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø	
T50SOSFT6.5-E4-PA46-BN		6.0 - 7.0	0.6 - 4.2	-	161.5	35.0	225	16.0	
T50SOSFT6.5-E4-PA66HS-BK		6.0 - 7.0	0.6 - 4.2	4.6	161.5	35.0	225	16.0	
T50SOSFT6E-PA46-GY		6.5 - 7.0	0.8 - 3.0	4.7	160.0	32.0	150	16.0	
T50SOSFT6E-PA66HIRHS-BK		6.5 - 7.0	0.8 - 3.0	4.7	160.0	32.0	150	16.0	
T50SOSFT6D10E-PA46-GY		5.8 - 6.2	0.8 - 5.5	4.6	163.0	32.0	200	9.8	
T50SOSFT6D10E-PA66HS-BK		5.8 - 6.2	0.8 - 5.5	4.6	163.0	32.0	225	9.8	
T50SOSFT6-E2-PA66HS-BK		6.3 - 7.0	0.6 - 4.2	4.6	160.0	35.0	180	16.0	
T50SOSFT6-E2-PA46-BN		6.3 - 7.0	0.6 - 4.2	4.6	161.0	35.0	180	16.0	
T50SOSFT6.5LG-E4-PA66HIRHSUV-BK			6.1 - 6.9	0.6 - 8.3	4.6	167.9	35.0	225	16.0
T50SOSFT6.5LG-E4-PA66HIRHS-NA	6.1 - 6.9		0.6 - 8.3	4.6	167.9	35.0	225	16.0	
T50SOSFT6.5LG-E4-PA46-BN	6.1 - 6.9		0.6 - 8.3	4.6	168.0	35.0	225	16.0	
T50SOSFT6.5LG-E4-PA66HS-GY	6.1 - 6.9		0.6 - 8.3	4.6	168.0	35.0	225	16.0	
T50ROSFT6.5LG-E4-PA66HIRHS-BK	6.1 - 6.9		0.6 - 8.3	4.6	218.1	50.0	225	16.0	
T50SOSFT6LG-E-PA46-GY			6.3 - 7.0	0.7 - 7.0	4.6	165.0	35.0	180	16.0
T50SOSFT6LGE-PA66HS-BK			6.3 - 7.0	0.7 - 7.0	4.6	165.0	35.0	180	16.0
T50SOSFT6LG-E-PA66HS-BK			6.3 - 7.0	0.7 - 7.0	4.6	165.0	35.0	180	16.0
T50SOSFT6.5LG-E4X-PA66HS-NA			6.3 - 7.0	0.7 - 7.0	4.6	165.0	35.0	225	16.0
T50SOSFT6.5LG-E4X-PA66HIRHSUV-BK			6.3 - 7.0	0.7 - 7.0	4.6	165.0	35.0	225	16.0
T50SOSFT6.5LG-E4X-PA66HS-BK			6.3 - 7.0	0.7 - 7.0	4.6	165.0	35.0	225	16.0
T50SOSFT6.5LG-E4X-PA66HS-YE			6.3 - 7.0	0.7 - 7.0	4.6	165.0	35.0	225	16.0
T50SOSFT6LG-E-PA66HS-BK			6.3 - 7.0	0.7 - 7.0	4.6	165.0	35.0	180	16.0
OS160FT6HEX-PA46-GY			6.35	0.7 - 5.0	5.3	170.0	30.0	200	16.0
OS160FT6HEX-PA66HS-BK			6.35	0.7 - 5.0	5.3	170.0	30.0	200	16.0
OS160FT6-PA66HSW-GY			6.5	0.7 - 5.0	5.3	170.0	30.0	200	16.0
T30SOS-AS-FT6-E-PA66HS-BK			6.3 - 6.7	0.6 - 4.0	3.5	129.4	25.0	200	16.0
T30SOS-AS-FT6E-PA66HS-BK		6.3 - 6.7	0.6 - 4.0	3.5	129.4	25.0	200	16.0	
T30SOS-AS-FT6-E-PA46-GY		6.3 - 6.7	0.6 - 4.0	3.5	129.4	25.0	200	16.0	
T50ROSFTQM6-PA66HIRHSUV-BK		M6	0.6 - 7.0	5.1	203.6	50.0	222	15.88	
T50ROSFTQM6-PA46-BN		M6	0.6 - 7.0	5.1	203.6	50.0	222	15.88	
T50SOSFT6-E3-PA66HIRHS-BK		6.1 - 6.9	0.7 - 3.5	4.7	161.0	35.0	150	16.0	
T50SOSFT6E1-PA66HIRHS-BK		6.3 - 7.0	0.7 - 3.0	4.7	161.4	35.0	150	16.0	
T50SOSFT6E1-PA66HS-BK		6.3 - 7.0	0.7 - 3.0	4.7	161.4	35.0	150	16.0	
T50SOSFT6E1-PA46-GY		6.3 - 7.0	0.7 - 3.0	4.7	161.4	35.0	225	16.0	

All dimensions in mm. Subject to technical changes.







# Cable Ties and Fixings

## Cable Ties With Fixing Elements

### 1-Piece Fixing Ties with Fir Tree, with Disc, for Round Holes

#### Fir Tree Parts FT6

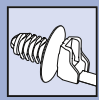
PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø
T30SOS-AS-FT6LG-E2-PA46-GY		6.1 - 6.9	0.6 - 8.3	3.5	135.0	25.0	200	17.0
T30SOS-AS-FT6LG-E2-PA66HS-BK		6.1 - 6.9	0.6 - 8.3	3.5	135.0	25.0	200	17.0
T50SOSFT6LG-E2-PA66HS-GY		6.1 - 6.9	0.6 - 8.3	4.6	167.0	35.0	180	16.0
T50SOSFT6LG-E2-PA46-BN		6.1 - 6.9	0.6 - 8.3	4.6	167.0	35.0	180	16.0
T50ROSFT6LG-E2-PA66HIRHS-BK		6.1 - 6.9	0.6 - 8.3	4.6	217.0	50.0	180	16.0
T50SOSFT6LG-E2-PA46-GY		6.1 - 6.9, 6.1 - 6.6 (hexagonal)	0.6 - 8.3	4.6	167.0	35.0	180	16.0
T50SOSFT6LG-E2-PA66HIRHS-BK		6.1 - 6.9, 6.1 - 6.6 (hexagonal)	0.6 - 8.3	4.6	167.0	35.0	180	16.0
T50SOSFT6LG-E4-PA66HS-BK		6.3 - 7.0	0.8 - 7.0	4.9	165.0	31.0	200	22.0
T50SOSFT6LGU-PA66HS-BK		6.5 - 7.2	0.6 - 8.5	5.1	169.0	35.0	225	16.0
T50ROSFT6LGU-PA66HS-BK		6.5 - 7.2	0.6 - 8.5	5.1	220.0	50.0	225	15.9
T50RTM25E-PA66HIRHS-BK		6.25 - 7.0	2.3 - 13.9	4.7	209.6	50.0	222	12.6
T50RTM25E-PA66HS-BK		6.25 - 7.0	2.3 - 13.9	4.7	213.8	50.8	222	12.6
T50SDP6-PA66HIRHS-BK		6.3 - 7.1	0.8 - 7.0	5.0	170.0	31.0	225	22.0

All dimensions in mm. Subject to technical changes.

#### Fir Tree Parts FT7

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø
T50SOSFT7-E-PA66HS-BK		6.8 - 7.2	0.6 - 6.0	4.7	165.0	30.0	225	16.5
FT220DP7-PA66-BK		6.8 - 7.2	0.8 - 5.0	4.7	232.0	40.0	225	16.0
OS170-FT7-LH-PA66HSW-BK		6.8 - 7.2	0.6 - 4.5	5.3	170.0	30.0	147	16.0
OS170-FT7-LH-PA66-BK		6.8 - 7.2	0.6 - 4.5	5.3	170.0	30.0	147	16.0
OS170-FT7-PA66-BK		6.8 - 7.2	0.6 - 4.5	5.3	170.0	30.0	147	16.0
OS180FT7LH-PA46-NA		6.5 - 7.0, 6.35 (hexagonal)	0.6 - 4.5	5.3	180.0	30.0	200	16.0
OS180FT7LH-PA66-BK		6.5 - 7.0, 6.35 (hexagonal)	0.6 - 4.5	5.3	180.0	30.0	200	16.0
OS180FT7LH-PA66-GY		6.5 - 7.0, 6.35 (hexagonal)	0.6 - 4.5	5.3	180.0	30.0	200	16.0
OS180FT7LH-PA66HS-BK		6.5 - 7.0, 6.35 (hexagonal)	0.6 - 4.5	5.3	180.0	30.0	200	16.0

All dimensions in mm. Subject to technical changes.



### 1-Piece Fixing Ties with Fir Tree, with Disc, for Round Holes

#### Fir Tree Parts FT8

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø
T50SOSFT8E-PA46-GY		8.0 - 8.5	0.6 - 6.0	4.6	163.0	35.0	225	16.0
T50SOSFT8E-PA66HS-BK		8.0 - 8.5	0.6 - 6.0	4.6	163.0	35.0	225	16.0

All dimensions in mm. Subject to technical changes.

#### Fir Tree Parts FT9

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø
T50SOSFT9E-PA66HS-BK		8.8 - 9.2	0.8 - 9.0	4.7	170.0	45.0	225	16.3

All dimensions in mm. Subject to technical changes.



Material specification please see page 22.

#### Fir Tree Parts FT11

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø
CM170FT11J-PA66W-BK		10.8 - 11.2	3.0 - 14.0	8.0	170.0	30.0	250	16.0

All dimensions in mm. Subject to technical changes.



# Cable Ties and Fixings

## Cable Ties With Fixing Elements

### 2-Piece Fixing Ties with Fir Tree, with Disc, for Round Holes

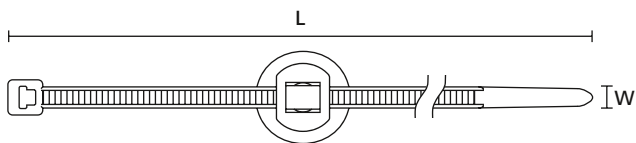
Primarily designed for fixing cable harnesses in the automotive industry their simplicity, and ease of use, has seen these parts used in everything from aircraft, to switch-gear, to washing machines.

#### Features and benefits

- Pre-assembled 2-piece fixing tie with fir tree foot part
- Cable tie head can be moved after bundling
- Easy to assemble without the need for a tool
- Disc adjusts tie for pressure from various directions and minimises ingress of dust and dirt
- Fir tree foot part can be used for a variety of panel thicknesses
- Suitable for use within threaded holes



These fir tree fixings can also be used in threaded, blind holes.



Reference for dimensions only



Material specification please see page 22.

#### Fir Tree Parts FT4

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø
T18RFT4-PA66HSW-BK		3.3 - 4.0	1.0 - 3.0	2.5	100.0	20.0	80	13
T30ROSFT4-PA66HS/PA66HSW-BK		3.3 - 4.0	1.0 - 3.0	3.4	145.0	31.0	135	13
T30RFT4-PA66HS-BK		3.3 - 4.0	1.0 - 3.0	13.5	148.0	35.0	135	13

All dimensions in mm. Subject to technical changes.

#### Fir Tree Parts FT5

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø
T30RFT5-PA46-GY		4.5 - 5.0	0.7 - 3.0	3.5	150.0	34.0	135	16.0
T30RFT5-PA66HS/PA66HIRHS-BK		4.5 - 5.0	0.7 - 3.0	3.5	150.0	34.0	135	16.0
T50SOSFT5-PA66HS/PA66HIRHS-BK		4.5 - 5.0	0.7 - 3.0	4.6	150.0	31.0	225	16.0
T50RFT5-PA66HS/PA66HIRHS-BK		4.5 - 5.0	0.7 - 3.0	4.6	200.0	45.0	225	16.0
T50RFT5-PA46-GY		4.5 - 5.0	0.7 - 3.0	4.6	202.0	45.0	225	16.0
T18RFT5-PA66HS-BK		4.5 - 5.0	0.7 - 3.0	2.5	100.0	22.0	80	16.0
T50SOSFT5SD-PA66HS/PA66HIRHS-BK		4.5 - 5.0	0.7 - 3.0	4.6	150.0	35.0	225	16.0
T18RFT5-MOD-PA66HS/PA66HIRHS-BK		4.5 - 5.0	0.7 - 3.0	2.5	100.0	22.0	80	11.0
T30RFT5-MOD-PA66HS/PA66HIRHS-BK		4.5 - 5.0	0.7 - 3.0	3.5	150.0	36.0	133	11.0
T30RFT5LG-PA46-GY		-	0.7 - 6.0	3.6	150.0	45.0	135	11.6
T50RFT5LG-PA46-GY		4.7 - 5.4	0.7 - 6.0	4.6	150.0	45.0	225	11.6
T30RFT5LG-PA66-BK		4.7 - 5.5	0.7 - 6.0	3.6	150.0	34.0	135	11.6
T50RFT5LG-PA66-BK		4.7 - 5.5	0.7 - 6.0	4.6	202.0	45.0	225	11.6

All dimensions in mm. Subject to technical changes.



### 2-Piece Fixing Ties with Fir Tree, with Disc, for Round Holes

#### Fir Tree Parts FT6

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø	
T18RFT6-PA66HS/PA66HIRHS-BK		6.4 - 7.1	0.8 - 3.0	2.5	100.0	18.0	80	16.0	
PT2AFT6LG-PEEK/PA46-BGE/GY		6.4 - 7.1	0.8 - 6.0	3.4	145.0	35.0	230	16.0	
T30RFT6LG-PA66HS/PA66HIRHS-BK		6.5 - 7.0	0.8 - 6.0	3.6	148.0	30.0	135	16.0	
T50SOSFT6LG-PA66HS/PA66HIRHS-BK		6.5 - 7.0	0.8 - 6.0	4.6	150.0	32.0	225	16.0	
T50SFT6LG-PA66HS/PA66HIRHS-BK		6.5 - 7.0	0.8 - 6.0	4.6	160.0	30.0	225	16.0	
T50ROSFT6LG-PA66HS/PA66HIRHS-BK		6.5 - 7.0	0.8 - 6.0	4.6	200.0	45.0	225	16.0	
T50RFT6LG-PA46-GY		6.5 - 7.0	0.8 - 6.0	4.6	200.0	45.0	222	16.0	
T50RFT6LG-PAEK-BGE		6.5 - 7.0	0.8 - 6.0	4.6	202.0	45.0	222	16.0	
T50RFT6LG-PA66/PA66HIRHS-BK		6.5 - 7.0	0.8 - 6.0	4.6	202.0	45.0	225	16.0	
T50RFT6LG-PA66HS/PA66HIRHS-BK		6.5 - 7.0	0.8 - 6.0	4.6	202.0	45.0	225	16.0	
T80IFT6LG-PA66HS/PA66HIRHS-BK		6.5 - 7.0	0.8 - 6.0	4.7	305.0	75.0	355	16.0	
T30RFT6LG-PA66/PA66HIRHS-BK		6.5 - 7.0	0.8 - 6.0	3.6	148.0	30.0	135	16.0	
T80IFT6LG-PA66/PA66HIRHS-NA/BK		6.5 - 7.0	0.8 - 6.0	4.7	300.0	75.0	355	16.0	
T30RFT6SD-PA66HS/PA66HIRHS-BK			6.4 - 7.1	0.8 - 3.0	3.6	148.0	35.0	135	16.0
T50ROSFT6SD-PA66HS/PA66HIRHS-BK			6.4 - 7.1	0.8 - 3.0	4.6	200.0	46.0	225	16.0
T50ROSFT6SD-PA46-GY	6.5 - 7.0		0.8 - 3.0	4.6	200.0	45.0	225	16.0	
T50RFT6LGSD-HEX-PA66HS/PA66HIRHS-BK		6.25 - 6.75, 6.1 - 6.6 (hexagonal)	0.7 - 5.0	4.6	202.0	45.0	225	16.0	
T30RFT6LG1SD-PA66HS/PA66HIRHS-BK		6.5 - 7.0	0.6 - 6.0	3.5	150.0	30.0	135	16.0	
T50SFT6LG1SD-PA66HS/PA66HIRHS-BK		6.5 - 7.0	0.6 - 6.0	4.6	160.0	30.0	225	16.0	
T50RFT6LG1SD-PA66HS/PA66HIRHS-BK		6.5 - 7.0	0.6 - 6.0	4.6	202.0	45.0	225	16.0	

All dimensions in mm. Subject to technical changes.




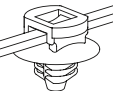
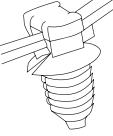
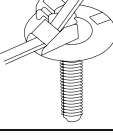
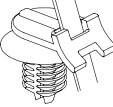


# Cable Ties and Fixings

## Cable Ties With Fixing Elements

### 2-Piece Fixing Ties with Fir Tree, with Disc, for Round Holes

#### Fir Tree Parts FT6

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.		Disc Ø
T30ROSFT6-PA66HS/PA66HIRHS-BK		6.4 - 7.1	0.8 - 3.0	3.4	145.0	31.0	135	16.0
T30RFT6-PA66HS/PA66HIRHS-BK		6.4 - 7.1	0.8 - 3.0	3.5	150.0	30.0	135	16.0
T50ROSFT6-PA66HS/PA66HIRHS-BK		6.4 - 7.1	0.8 - 3.0	4.6	200.0	45.0	225	16.0
T50RFT6-PA46-GY		6.4 - 7.1	0.8 - 3.0	4.6	202.0	45.0	225	16.0
T50RFT6-PA66/PA66HS-NA/BK		6.4 - 7.1	0.8 - 3.0	4.6	202.0	45.0	225	16.0
T50RFT6-PA66HS/PA66-BK		6.4 - 7.1	0.8 - 3.0	4.6	202.0	45.0	225	16.0
T50RFT6-PA66HS/PA66HIRHS-BK		6.4 - 7.1	0.8 - 3.0	4.6	202.0	45.0	225	16.0
T50RDHFT6-PA66HS/PA66HIRHS-BK		6.4 - 7.1	0.8 - 3.0	4.7	210.0	19.0	180	16.0
T30RFT6-PA66HS/PA66-NA/BK		6.4 - 7.1	0.8 - 3.0	3.5	150.0	34.0	135	16.0
T30RFT6-PA66HS/PA66-BK		6.4 - 7.1	0.8 - 3.0	3.5	150.0	34.0	135	16.0
T50ROSFT6-PA66HS-BK		6.4 - 7.1	0.8 - 3.0	4.6	200.0	45.0	225	16.0
T80IFT6-PA66HS/PA66HIRHS-BK		6.4 - 7.1	0.8 - 3.0	4.6	300.0	81.0	355	16.0
T50LFT6-PA66HS-BK		6.4 - 7.1	0.8 - 3.0	4.7	380.0	106.0	225	16.0
T80LFT6-PA66HS/PA66HIRHS-BK		6.4 - 7.1	0.8 - 3.0	5.0	390.0	108.0	355	16.0
T30LRFT6-PA66HS/PA66HIRHS-BK		6.5 - 7.0	0.8 - 3.0	3.3	260.0	65.0	180	16.0
T30RFT6-PA46-GY		6.5 - 7.0	0.8 - 3.0	3.5	150.0	34.0	135	16.0
T50SOSFT6-PA66HS-BK		6.5 - 7.0	0.8 - 3.0	4.6	150.0	32.0	225	16.0
T30RFT6D10-PA66HS/PA66HIRHS-BK		5.8 - 6.2	0.8 - 4.3	3.5	150.0	32.0	135	9.8
T50RFT6XXL-PA66HS/PA66HIRHS-BK		6.25 - 6.75	0.9 - 1.2	4.6	200.0	45.0	225	30.0
T50RSOC15FT6LG-PA46-GY		6.4 - 7.1	0.8 - 6.0	4.6	202.0	50.0	225	16.0

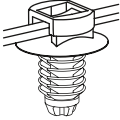
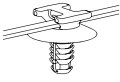
All dimensions in mm. Subject to technical changes.





### 2-Piece Fixing Ties with Fir Tree, with Disc, for Round Holes

#### Fir Tree Parts FT7

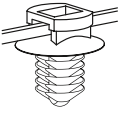
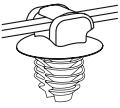
PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø
T50RFT7-PA66-NA/BK		6.5 - 7.0	0.8 - 7.0	4.6	202.0	45.0	225	16.0
T50RFT7-PA66-BK		6.5 - 7.0	0.8 - 7.0	4.6	202.0	45.0	225	16.0
T50RFT7-PA66HS-BK		6.5 - 7.0	0.8 - 7.0	4.6	202.0	45.0	225	16.0
T50IFT7-PA66HS-BK		6.5 - 7.0	0.8 - 7.0	4.6	300.0	85.0	225	16.0
T30RFT7-PA66-NA/BK		6.5 - 7.0	0.8 - 7.0	3.6	148.0	30.0	135	16.0
T30RFT7-PA66/PA66HS-BK		6.5 - 7.0	0.8 - 7.0	3.6	148.0	30.0	135	16.0
T50RFT7-PA46-NA		6.5 - 7.0	0.8 - 7.0	4.6	202.0	45.0	225	16.0
T50IFT7-PA66-NA/BK		6.5 - 7.0	0.8 - 7.0	4.6	300.0	85.0	225	16.0
T80IFT7-PA66/PA66HS-BK		6.5 - 7.0	1.0 - 7.0	4.6	300.0	85.0	335	16.0
T50RFT7HD-PA46-BN		6.2 - 7.2	0.8 - 7.0	4.6	200.0	50.0	225	21.6

All dimensions in mm. Subject to technical changes.



Material specification please see page 22.

#### Fir Tree Parts FT8

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø
T50ROSFT8-PA66HS-BK		7.7 - 8.0	0.8 - 6.0	4.6	200.0	45.0	225	16.0
T50RFT8-PA66HS-BK		7.7 - 8.0	0.8 - 6.0	4.6	202.0	45.0	225	16.0
T50LOSFT8-PA66HS-BK		7.7 - 8.0	0.8 - 6.0	4.6	384.0	100.0	225	16.0
T30RFT8-PA66HS/PA66-BK		7.7 - 8.0	0.8 - 6.0	3.6	148.0	32.0	135	16.0
T50SOSFT8-PA66HS/PA66HIRHS-BK		7.7 - 8.0	0.8 - 6.0	4.6	149.0	35.0	225	16.0
T50RFT8-PA66HS/PA66-BK		7.7 - 8.0	0.8 - 6.0	4.6	202.0	48.0	225	16.0
T40RFT8GSD-PA66HS/PA66HIRHS-BK		8.0 - 8.5	1.5 - 4.0	4.0	180.0	40.0	180	16.0
T50RFT8GSD-PA46-GY		8.0 - 8.5	1.5 - 4.0	4.6	202.0	45.0	225	16.0
T50RFT8GSD-PA66HS/PA66HIRHS-BK		8.0 - 8.5	1.5 - 4.0	4.6	202.0	45.0	225	16.0

All dimensions in mm. Subject to technical changes.



# Cable Ties and Fixings

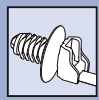
## Cable Ties With Fixing Elements

### 2-Piece Fixing Ties with Fir Tree, with Disc, for Round Holes

#### Fir Tree Parts FT9

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø
T120SFT9-PA66-BK		8.8 - 9.4	4.0 - 8.0	7.6	225.0	55.0	535	20.0
T150RFT9-PA66HS/PA66HIRHS-BK		9.0 - 10.6	5.0 - 11.0	7.6	365.0	100.0	670	20.0
T50RFT9-PA66HS/PA66HIRHS-BK		9.0 - 10.6	5.0 - 11.0	4.6	200.0	45.0	225	20.0
T30RFT9LP-PA66HS/PA66HIRHS-BK		8.8 - 9.2	0.8 - 9.0	3.5	150.0	35.0	135	20.0
T50RFT9LP-PA66HS/PA66HIRHS-BK		8.8 - 9.2	0.8 - 9.0	4.6	200.0	45.0	225	20.0
T120RFT9B-PA66HS/PA66HIRHSUV-BK		8.7 - 9.2	1.0 - 15.8	7.6	380.0	105.0	535	21.6
WSSFT9B-PA66HIRHSUV-BK		8.7 - 9.2	1.0 - 15.8	12.7	228.0	57.0	535	21.6
WSRFT9B-PA66HIRHSUV-BK		8.7 - 9.2	1.0 - 15.8	12.7	380.0	105.0	535	21.6
T150RFT9B-PA66HS/PA66HIRHS-BK		8.75 - 9.25	1.0 - 15.8	7.6	365.0	100.0	670	21.6
WSIFT9A-PA66HIRHSUV-BK		8.7 - 9.2	1.0 - 6.5	7.6	387.0	102.0	535	21.6
WSRFT9A-PA66HIRHSUV-BK		8.7 - 9.2	1.0 - 6.5	12.7	380.0	105.0	535	21.6
T120IFT9A-PA66HS/PA66HIRHS-BK		8.8 - 9.2	1.0 - 6.5	7.6	300.0	80.0	535	20.0
T120IFT9-PA66HIR(S)-BK		9.0 - 10.6	5.0 - 11.0	7.6	300.0	80.0	535	20.0

All dimensions in mm. Subject to technical changes.



### 2-Piece Fixing Ties with Fir Tree, with Disc, for Round Holes

#### Fir Tree Parts FT10

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø
T50RFT10-PA46-GY		9.5 - 10.0	0.8 - 5.0	4.6	200.0	45.0	225	18.0
V150RFT10-PA66/PA66HS-BK		9.7 - 10.0	0.8 - 5.0	3.3	150.0	35.0	150	18.0
T50ROSFT10-PA66HS-BK		9.7 - 10.0	0.8 - 5.0	4.6	200.0	45.0	225	18.0
T50RFT10-PA66HS-BK		9.7 - 10.0	0.8 - 5.0	4.6	200.0	45.0	225	18.0
T50RFT10-PA66-BK		9.7 - 10.0	0.8 - 5.0	4.6	200.0	45.0	225	18.0
T50RFT10-PA66HS/PA66-BK		9.7 - 10.0	0.8 - 5.0	4.6	200.0	45.0	225	18.0
T50ROSFT10-PA66HS/PA66-BK		9.7 - 10.0	0.8 - 5.0	4.6	200.0	45.0	225	18.0

All dimensions in mm. Subject to technical changes.

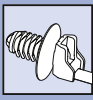


**Material specification please see page 22.**

#### Fir Tree Parts FT11

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø
T120RFT11-PA66HSW-BK		6.5 - 7.0	0.8 - 4.5	7.6	380.0	95.0	535	16.0

All dimensions in mm. Subject to technical changes.



# Cable Ties and Fixings

## Cable Ties With Fixing Elements

### 1-piece fixing ties with disc, for round holes, releasable

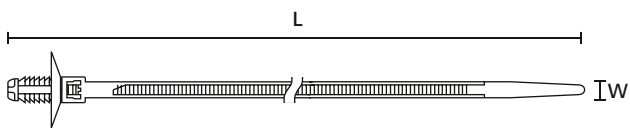
Primarily designed for fixing cable harnesses in the automotive industry their simplicity, and ease of use, has seen these parts used in everything from aircraft, to switch-gear, to washing machines.

#### Features and benefits

- Cable tie head always situated in defined position
- Easy to assemble without the need for a tool
- Disc adjusts tie for pressure from various directions and minimises access of dust and dirt
- Suitable for use within threaded holes
- Releasable versions are reusable



Ideal for use in 'thick' panels and threaded, blind holes.



Reference for dimensions only



**Material specification please see page 22.**

### 1-piece fixing ties with fir tree, with disc, for round holes, releasable

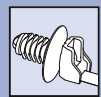
PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø
CM200FT9J-PA66HSW-BK		8.8 - 9.2	2.3 - 6.0	8.0	200.0	40.0	300	20.0
REL30SDP6-PA66-BK		6.3 - 7.1	3.0 - 7.0	5.0	170.0	31.0	135	22.0

All dimensions in mm. Subject to technical changes.

### 1-piece fixing tie with arrowhead, with disc, for round holes, releasable

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø
RT50SD6-PA66HS-BK		6.3 - 7.5	0.6 - 1.8	5.0	160.0	31.0	225	18.0

All dimensions in mm. Subject to technical changes.



### 1-piece fixing ties for high temperature applications up to +240 °C

With arrowhead, with disc, for round holes

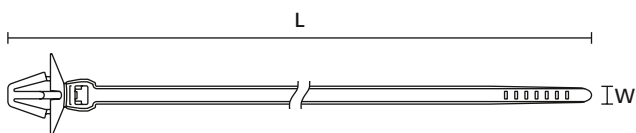
This fastening solution is especially suitable for high temperature areas like the engine bay or exhaust area. The outside serrated cable tie protects the insulation of cable bundles.

#### Features and benefits

- -55 °C to +240 °C operating temperature
- Excellent resistance against chemicals and gamma radiation
- Easy to install without the need for a tool
- Arrowhead simply locks into place
- Disc adjusts tie for pressures from various directions and minimises access of dust and dirt
- Cable tie head always situated in a defined position



One piece fixing tie with arrowhead, outside serrated.



Reference for dimensions only

PART DESCRIPTION	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø
PT2ASFT6.5PT0.7-1.5-E-PEEK-BGE	6.3 - 6.7	0.7 - 1.5	3.4	112.7	20.0	230	16.0

All dimensions in mm. Subject to technical changes.

### 2-piece fixing ties for high temperature applications up to +240 °C

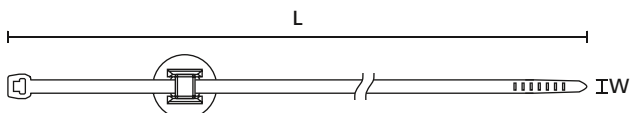
With arrowhead, with disc, for round holes

#### Features and benefits

- -55 °C to +240 °C operating temperature
- Excellent resistance against chemicals and gamma radiation
- Pre-assembled 2-piece fixing tie with arrowhead foot part
- Cable tie head can be moved after bundling
- Easy to assemble without the need for a tool
- Arrowhead simply locks into place
- Disc adjusts tie for pressure from various directions and minimises ingress of dust and dirt



PEEK fixing ties can be used for small diameters from 1.0 mm.



Reference for dimensions only

PART DESCRIPTION	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø
T50ROSP1SFT6.5-PA46/PEEK-GY/BGE	6.3 - 6.7	0.7 - 1.3	4.6	200.0	45.0	225	16.0
T50ROSP2SFT6.5-PA46/PEEK-GY/BGE	6.3 - 6.7	1.7 - 2.3	4.6	200.0	45.0	225	16.0
PT2AP1SFT6.5-PEEK-BGE	6.3 - 6.7	0.7 - 1.3	3.4	145.0	35.0	230	16.0
PT2AP2SFT6.5-PEEK-BGE	6.3 - 6.7	1.7 - 2.3	3.4	145.0	35.0	230	16.0
PT2AP3SFT6.5-PEEK-BGE	6.3 - 6.7	1.2 - 1.8	3.4	145.0	32.0	230	16.0

All dimensions in mm. Subject to technical changes.





# Cable Ties and Fixings

## Cable Ties With Fixing Elements

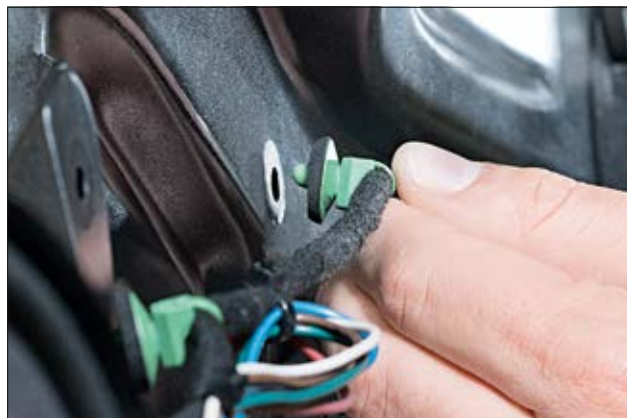
### 1-Piece Fixing Ties with Arrowhead, with Disc, Sealed

#### 1-Piece Fixing Ties with Arrowhead, with Disc, for Round Holes, Sealed

The parts are mainly used in the automotive industry. This fastening solution is used to secure cable harnesses e.g. in car doors. We offer a variety of panel thicknesses and hole sizes to suit all kinds of application. The seal protects the interior and surrounding cables among other things from splash water.

#### Features and benefits

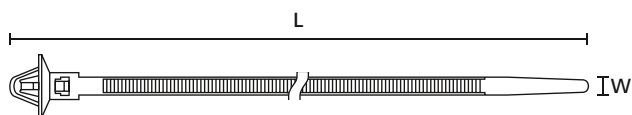
- One-piece fixing ties with cellular rubber disc
- Especially suitable for door and tailgate harnesses used for car body applications
- Made from PA66 heat-stabilised material
- Cellular rubber disc minimises ingress of dust, dirt and splash water



The additional seal protects against the ingress of moisture.



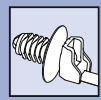
Material specification please see page 22.



Reference for dimensions only

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø
T50SOSKSFT5.4E-MD-PA66HS-BK		5.4 - 5.6	0.7 - 1.3	4.6	156.0	35.0	180	16.0
T50SOSSFT6.5E-MS-MD-PA66HS-NA		6.25 - 6.75, 6.1 - 6.6 (hexagonal)	0.7 - 1.6	4.6	163.0	35.0	180	16.0
T50XCROSSFT6.5-E-MDL-PA66HS-BK		6.25 - 6.75, 6.1 - 6.6 (hexagonal)	1.2 - 2.1	4.6	200.0	45.0	200	16.0
T30SOS-AS-SFT6.5E-MDL-PA66HS-BK		6.3 - 6.7	0.5 - 1.3	3.5	126.4	25.0	200	16.0
T50SOSSFT6.5-E-MD-NA		6.3 - 6.7	0.6 - 1.8	4.6	158.8	30.0	225	16.0
T50SOSSFT6.5E-MDL-PA66HS-GN		6.3 - 6.7	0.6 - 1.8	4.6	158.8	30.0	225	16.0
T50SOSSFT6.5E-MDL-PA66HS-BK		6.3 - 6.7	0.6 - 1.8	4.6	158.8	30.0	225	16.0
T50SOSST5EMDL-PA66HS-BK		6.3 - 6.7	0.6 - 1.8	4.6	158.8	30.0	225	18.0
T50SOSKSFT65E-MD-PA66HS-BK		6.3 - 6.7	0.7 - 1.3	4.6	156.5	35.0	180	16.0
T50ROSFT635SO125BMD-PA66HIRHS-BK		6.1 - 6.9	1.8 - 2.8	4.7	215.9	50.0	225	16.0
OS150-PM6-WPJ-PA66-NA		5.8 - 6.2	0.6 - 2.3	4.0	150.0	30.0	100	17.0
T50SOSSFT7-E-MD-PA66HS-NA		6.8 - 7.2	0.7 - 1.8	4.7	165.0	30.0	225	16.5

All dimensions in mm. Subject to technical changes.



### 2-Piece Fixing Ties with Arrowhead, with Disc

#### 2-Piece Fixing Ties with Arrowhead, with Disc, for Round Holes, Sealed

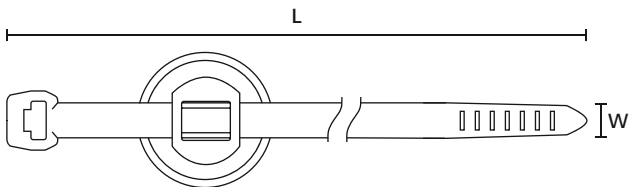
The parts are mainly used in the automotive industry. This fastening solution is used to secure cable harnesses e.g. in car doors. We offer a variety of panel thicknesses and hole sizes to suit all kinds of application. The seal protects the interior and surrounding cables among other things from splash water.

#### Features and benefits

- Pre-assembled 2-piece fixing tie with arrowhead foot part
- Cable tie head can be moved after bundling
- Easy to assemble without the need for a tool
- Arrowhead simply locks into place
- Disc adjusts tie for pressure from various directions
- Seal protects against splash water
- Versions "SRAH" are coming with a seal made from thermoplastic elastomer (TPE)



The additional seal protects against the ingress of moisture.



Reference for dimensions only

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø
T50ROS15ACCSRAH-PA66HIRHS/TPE-BK		6.1 - 6.9	0.6 - 1.1	4.7	218.0	50.0	110	22.3
T50ROS15ACCSRAH1.4T-PA66HIRHS/TPE-BK/GY		6.1 - 6.9	1.2 - 1.8	4.7	216.0	50.0	225	22.3
T30RAHD6-MD-PA66HS-BK		6.5 - 7.0	0.7 - 1.2	3.5	150.0	35.0	135	18.0
T30RAHD6-MS-MD-PA66HS-NA		6.5 - 7.0	0.7 - 1.2	3.5	150.0	35.0	135	18.0
T50RAHD6-MS-MD-PA66HS-NA		6.5 - 7.0	0.7 - 1.2	4.6	200.0	50.0	225	18.0
T50ROSAHD6-MS-MD-PA66HS/PA66-BK		6.5 - 7.0	0.7 - 1.2	4.6	200.0	50.0	225	18.0
T50ROSSFT6.5 16-3MD-PA66HS/PA66HIRHS-BK		6.1 - 7.0	2.5 - 3.0	4.6	200.0	45.0	225	16.0
T50ROSSFT6.5-16-2-MD-PA66HS/PA66HIRHS-BK		6.3 - 6.7	0.7 - 1.2	4.6	200.0	45.0	225	16.0
T50ROSSFT6.5-D16-2 MD-PA66HS/PA66HIRHS-BK		6.3 - 6.7	0.7 - 1.8	4.6	200.0	45.0	222	16.0

All dimensions in mm. Subject to technical changes.



# Cable Ties and Fixings

## Cable Ties With Fixing Elements

### 1-Piece Fixing Ties with Arrowhead, with Disc in the Strap, for Round Holes

These fixing ties are ideal for use in many different industries, including automotive, aerospace, rail and panel building.

#### Features and benefits

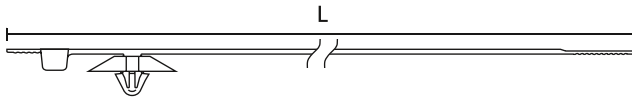
- Easy to assemble without the need for a tool
- Arrowhead simply locks into place
- Disc adjusts tie for pressures from various directions and minimises access of dust and dirt
- Cable tie head always situated in defined position
- Bundle runs directly across fixing point
- Simple assembly due to tab at the end of the head



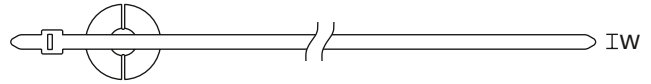
The 'tab' on the head of the tie makes it easy to locate and lift the head for assembly.



**Material specification please see page 22.**



Reference for dimensions only



Reference for dimensions only

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø
T50RSP-PA66-BK		6.0 - 6.5	0.7 - 1.3	4.6	190.0	45.0	225	18.0
T80RSFT-PA66HS-BK		5.7 - 6.3	1.0 - 3.5	4.6	190.0	45.0	355	24.4

All dimensions in mm. Subject to technical changes.



### 1-Piece Fixing Ties with Fir Tree and Disc, with Stand-off, for Round Holes

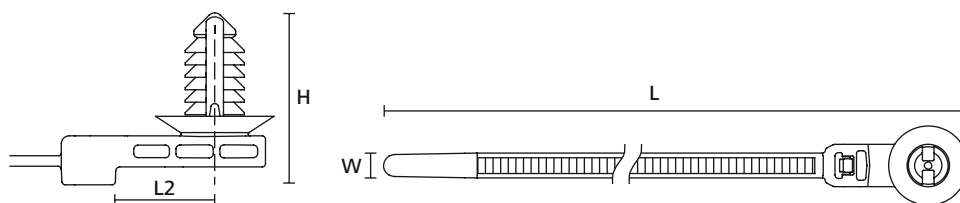
With Offset 12.5 and 25.0 mm

#### Features and benefits

- Bundling and fixing solution
- Ideal combination of materials and design
- Different positions of the fixing anchor are available to fit installation space
- 1-piece fixing tie with defined offset 12.5 and 25.0 mm



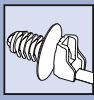
T50ROSFT6S25SO and T50ROSFT612.5SO.



PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Length (L2)	Bundle Ø max.	N
T50ROSFT612.5SO-PA66HIRHS-BK		6.1 - 6.9	0.6 - 6.0	5.1	234.2	12.5	50.0	222
T50ROSFT6S25SO-PA66HIRHS-BK		6.1 - 6.9	0.6 - 3.8	5.1	242.2	25.0	50.0	220
T50ROSFT625SO-PA66HIRHS-BK		6.1 - 6.9	0.6 - 6.0	5.1	247.2	25.0	50.0	222
T50ROSFT825SO-PA66HIRHS-BK		7.6 - 8.4	0.6 - 6.0	5.1	245.1	25.0	50.0	222
T50ROSFT812.5SO-PA66HIRHS-BK		7.6 - 8.4	0.6 - 6.5	5.1	222.9	12.5	50.0	222
T50ROSFT5SO25A-PA66HIRHS-GY		4.8 - 5.2	0.6 - 5.1	5.1	230.0	25.0	50.0	225
T50ROSFT6SO12.5A-PA66HIRHS-BK		6.1 - 6.9, 6.35 (hexagonal)	0.6 - 6.7	5.1	215.5	12.5	50.0	222
T50ROSFT6SO25A-PA66HIRHS-BK		6.1 - 6.9, 6.35 (hexagonal)	0.6 - 6.7	5.1	230.0	25.0	50.0	222
T50ROSFT6SO25A-PA46-BN		6.1 - 7.0, 6.35 (hexagonal)	0.6 - 6.7	5.1	230.0	25.0	50.0	222
T50ROSFT8SO25A-PA46-BN		7.6 - 8.4	0.6 - 6.7	5.1	230.0	25.0	50.0	222
T50ROSFT8SO25A-PA66HIRHS-GY		7.6 - 8.4	0.6 - 6.7	5.1	230.0	25.0	50.0	222
T50ROSFTM6SO12.5A-PA46-BN		M6	0.6 - 5.5	4.7	215.5	12.5	50.0	225
T50ROSFTM6SO12.5A-PA66HIRHS-GY		M6	0.6 - 5.5	4.7	215.5	12.5	50.0	222

All dimensions in mm. Subject to technical changes.



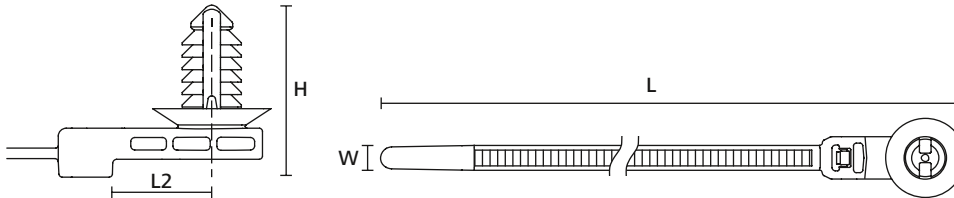


# Cable Ties and Fixings

## Cable Ties With Fixing Elements

### 1-Piece Fixing Ties with Fir Tree and Disc, with Stand-off, for Round Holes

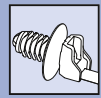
With Offset 12.5 and 25.0 mm



PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Length (L2)	Bundle Ø max.	N
T50ROSFT6SO12.5B-PA66HIRHS-BK		6.1 - 6.9, 6.35 (hexagonal)	0.6 - 6.7	4.7	215.5	12.5	50.0	225
T50ROSFT6SO12.5B-PA46-BN		6.1 - 7.0, 6.1 - 6.6 (hexagonal)	0.6 - 6.7	4.7	215.5	12.5	50.0	225
T50ROSFT6SO25B-PA46-BN		6.1 - 7.0, 6.1 - 6.6 (hexagonal)	0.6 - 6.7	5.1	230.0	25.0	50.0	225
T50ROSFT6SO25B-PA66HIRHS-BK		6.1 - 7.0, 6.1 - 6.6 (hexagonal)	0.6 - 6.7	5.1	230.0	25.0	50.0	225
T50ROSFT8SO25B-PA66HIRHS-BK		7.6 - 8.4	0.6 - 5.0	4.6	230.0	25.0	50.0	225
T50ROSFTM6SO12.5B-PA66HIRHS-BK		M6	0.5 - 6.7	4.6	215.5	12.5	50.0	222
T50ROSFT6SO12.5R-PA66HIRHS-BK		6.1 - 7.0	0.6 - 8.3	5.1	223.1	12.5	50.0	222
T50ROSFT6SO25R-PA66HIRHS-BK		6.1 - 7.0	0.6 - 8.3	5.1	237.7	25.0	50.0	222
T50ROSFT8SO12.5R-PA66HIRHSUV-BK		7.6 - 8.4	0.6 - 8.8	5.1	223.0	12.5	50.0	225

All dimensions in mm. Subject to technical changes.





### 2-Pieces Fixing Ties with Deep Hole Anchor, with Disc, for Round Holes

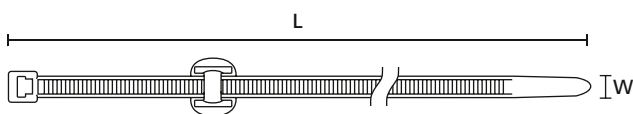
#### Deep Hole Anchor DHA5.5 - DHA8.4

#### Features and benefits

- Pre-assembled 2-piece fixing tie with deep hole anchor
- The high 'pull off' forces are due to the integrated metal clamp
- Cable tie head can be moved after bundling
- Easy to assemble without the need for a tool
- Disc adjusts tie for pressure from various directions and minimises ingress of dust and dirt
- Suitable for use within blind holes with or without thread



DHA5.5x15 and DHA8.4x20 for blind hole applications.



Reference for dimensions only



Material specification please see page 22.

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N
T50RDHA5.5x15-PA46-GY		5.4 - 5.6	15.0	4.6	202.0	45.0	225
T30RDHA8.4x20-PA66HIRHS-BK		8.3 - 8.5	20.0	4.6	200.0	30.0	135
T50RDHA8.4x20-PA46-GY		8.3 - 8.5	20.0	4.6	202.0	45.0	225

All dimensions in mm. Subject to technical changes.

### 2-Piece Fixing Ties with Arrowhead, with Disc

#### 2-Piece Fixing Ties with Arrowhead, for Round Holes, for Parallel Routing

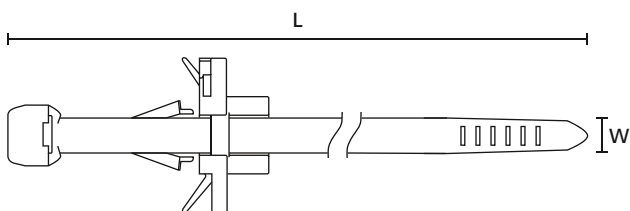
Primarily designed for fixing cable harnesses in the automotive industry their simplicity, and ease of use, has seen these parts used in everything from aircraft, to switch-gear, to washing machines.

#### Features and benefits

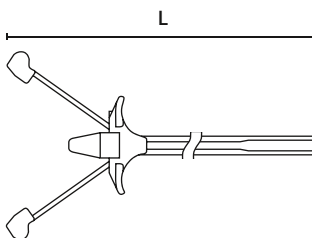
- Pre-assembled 2-piece fixing tie with arrowhead foot part
- Cable tie head can be moved after bundling
- Easy to assemble without the need for a tool
- Arrowhead simply locks into place
- DSFT-version for parallel routing of two bundles



T50SOSDSFT6.5 for parallel routing.



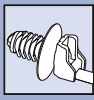
T50SOSDSFT6.5



T50SOSDSFT6.5

PART DESCRIPTION	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N
T50SOSDSFT6.5-PA66HS/PA66HIRHS-BK	6.3 - 6.7	0.7 - 1.5	4.6	150.0	15.0	225

All dimensions in mm. Subject to technical changes.



# Cable Ties and Fixings

## Cable Ties With Fixing Elements

### 1-Piece Fixing Tie with Arrowhead, with Disc

#### 1-Piece Fixing Tie with Arrowhead, with Disc, for Oval Holes

With a diverse range of fixing possibilities are ideal for use in many different industries, including automotive, aerospace and panel building.

#### Features and benefits

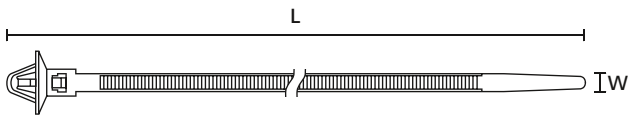
- Easy to install without the need for a tool
- Arrowhead simply locks into place
- Disc adjusts tie for pressures from various directions and minimises access of dust and dirt
- Cable tie head always situated in a defined position
- Versions for oval holes feature anti-twist protection



One Piece Fixing Tie T50SOSKSFT62x122PT1.7-2.3 for oval holes.



**Material specification**  
please see page 22.




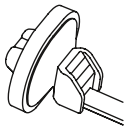
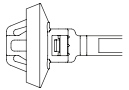
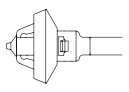

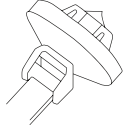
Reference for dimensions only

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	N	Disc Ø
OS130-SPM712-PA66HSW-BK		7.0 x 12.0	0.6 - 1.0	5.0	130.0	150	16.0 x 21.0
OS170-PM712-PA66HSW-BK		7.0 x 12.0	0.6 - 1.6	5.0	170.0	150	16.0 x 21.0
OS170AH712-PA66HS-BK		7.0 x 12.0	0.6 - 3.2	5.5	169.3	150	16.0
OS180AH712S-E-PA66HS-BK		7.0 x 12.0	0.7 - 3.2	5.1	179.0	225	21.2
T60SOSFT62x122-E-PA66HS-BK		6.2 - 12.2	2.4 - 3.3	5.5	157.5	300	16.0 x 22.0
T60XSOSFT62X122-E-PA66HS-BK		6.2 x 12.2	2.0 - 3.0	5.5	133.6	300	16.0 x 22.0
T60SOSFT65x130-E-PA66HS-NA		6.5 x 13.0	2.4 - 3.3	5.5	157.6	300	16.0 x 22.0
OS180SFT712-E-PA66HS-BK		7.0 x 12.0	0.6 - 2.0	5.1	182.0	225	16.3
T50SDOP-PA66HS-BK		6.2 - 12.2	1.0 - 1.9	5.0	160.0	225	22.0
T50SDOR-PA66HS-BK		6.2 x 12.2	0.5 - 2.5	5.0	160.0	225	16.0 x 22.0
T50SOSKSFT62x122PT0.7-1.3 90°-PA66HS-BK		6.2 x 12.2	0.7 - 1.3	4.6	158.0	225	16.0 x 21.0
T50SOSKSFT62x122PT1.7-2.3 90°-PA66HS-BK		6.2 x 12.2	1.7 - 2.3	4.6	159.0	225	16.0 x 21.0
T50SOSKSFT62x122PT0.7-1.3-PA66HS-BK		6.2 x 12.2	0.7 - 1.3	4.6	157.8	225	16.0 x 21.0
T50SOSKSFT62x122PT1.7-2.3-PA66HS-BK		6.2 x 12.2	1.7 - 2.3	4.6	159.0	225	16.0 x 21.0
T50SOSAH 7X12-PA66HS-BK		-	0.6 - 2.6	5.1	175.2	225	16.0 x 21.0
T60XSOSFT712S-E-PA66HS-BK		7.0 x 12.0	0.6 - 3.2	5.5	120.0	300	16.0 x 22.0
T60SOSFT712S-E-PA66HS-BK		7.0 x 12.0	0.6 - 3.2	5.5	158.0	300	16.0 x 22.0

All dimensions in mm. Subject to technical changes.



### 1-Piece Fixing Ties with Arrowhead, with Disc, for oval Holes, Sealed

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.		Disc Ø
<b>T60SOSSFT62x122-E-MD-PA66HS-BK</b>		6.2 x 12.2	0.6 - 2.0	5.5	157.5	30.0	300	16.0 x 22.0
<b>T60XSOSST62X122-E-MD-PA66HS-BK</b>		6.2 x 12.2	0.7 - 2.0	5.5	133.6	25.0	300	16.0 x 22.0
<b>T60SOSSFT65x130-E-MD-PA66HS-NA</b>		6.5 x 13.0	0.6 - 2.0	5.5	157.6	30.0	300	16.0 x 22.0
<b>T60SOSSFT70x120-E-MD-PA66HS-BK</b>		7.0 x 12.0	0.6 - 2.0	5.5	157.7	30.0	300	16.0 x 22.0
<b>OS150-PM712-WPJ-PA66HS-NA</b>		7.0 x 12.0	0.6 - 2.0	5.0	150.0	22.0	180	17.0 x 22.0
<b>OS150-PM712S-WPJ-PA66-NA</b>		7.0 x 12.0	0.5 - 1.2	6.0	150.0	25.0	150	17.5 x 22.5
<b>T50SOSKSFT62X122-90-MD-PA66HS-BK</b>		6.2 x 12.2	0.7 - 1.8	4.6	159.0	35.0	225	19.0 x 25.0
<b>T60SOSSFT65x130-E-MS-MD-PA66HS-BK</b>		6.5 x 13.0	0.6 - 2.0	5.5	158.0	30.0	300	16.0 x 22.0

All dimensions in mm. Subject to technical changes.



# Cable Ties and Fixings

## Cable Ties With Fixing Elements

### 2-Piece Fixing Ties with Arrowhead, for Oval Holes

#### 2-Piece Fixing Ties with Arrowhead, with Wings for Oval Holes

Primarily designed for fixing cable harnesses in the automotive industry, their simplicity and ease of use has resulted in these parts being used in other industries, for example aviation, switch gear manufacturer, white goods manufacturer.

#### Features and benefits

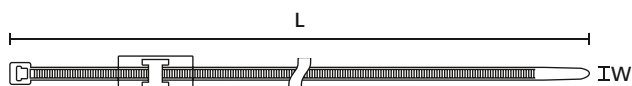
- Pre-assembled 2-piece fixing tie with arrowhead foot part
- Cable tie head can be moved after bundling
- Easy to assemble without the need for a tool
- Arrowhead simply locks into place
- Versions for oval holes feature anti-twist protection



T50RFT6OVAL for oval holes 6.3 x 12.2 mm.



**Material specification  
please see page 22.**



Reference for dimensions only

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N
T50RFT6OVAL-PA66HS/PA66HIRHS-BK		6.3 x 12.2	0.6 - 3.0	4.6	202.0	45.0	222
T50RFT62x122HR-PA46-GY		6.3 x 12.2	0.6 - 3.0	4.6	202.0	45.0	225
T80RWPM62X122-PA66HS-BK		6.3 x 12.2	0.6 - 3.0	4.6	202.0	45.0	355

All dimensions in mm. Subject to technical changes.

### 2-Piece Fixing Ties with Arrowhead, with Disc for Oval Holes

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N
T30RKSFT65x13-PA66HIRHS/PA66HS-BK		6.5 x 13.0	1.0 - 1.7	3.5	150.0	36.0	135
T50ISFT712-PA66HS/PA66HIRHS-BK		7.0 x 12.0	0.6 - 1.5	4.6	300.0	85.0	225
T50ROSSFT725-PA66HS/PA66W-BK		7.0 x 50.0	1.0 - 2.0	4.6	200.0	50.0	225

All dimensions in mm. Subject to technical changes.



### 1-Piece Fixing Ties with Fir Tree, with Disc

#### 1-Piece Fixing Ties with Fir Tree, with Disc, for Oval Holes

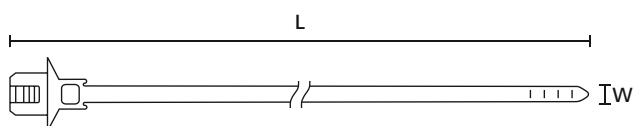
Primarily designed for fixing cable harnesses in the automotive industry their simplicity, and ease of use, has seen these parts used in everything from aircraft, to switch-gear, to washing machines.

#### Features and benefits

- Cable tie head always situated in defined position
- Easy to assemble without the need for a tool
- Disc adjusts tie for pressure from various directions and minimises access of dust and dirt
- Fir tree foot part can be used for a variety of panel thicknesses
- Suitable for use within threaded holes
- Versions for oval holes feature anti-twist protection



The DOP versions for oval holes feature anti-twist protection.



Reference for dimensions only

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø
T60SOSFT12-E-PA66HS-BK		12.0 - 12.5, M14 x 1.5	1.0 - 6.0	5.5	161.5	30.0	300	20.0
OS180FT62122A-PA46-GY		6.2 x 12.2	0.7 - 3.0	5.1	180.0	33.0	225	16.0 x 26.0
OS180FT62122A-PA66HS-BK		6.2 x 12.2	0.7 - 3.0	5.1	180.0	33.0	226	16.0 x 26.0
OS180FT712A-PA66HS-BK		7.0 x 12.0	0.7 - 3.0	5.1	180.0	33.0	225	16.0 x 21.0
OS180FT62122-PA46-GY		6.2 x 12.2	0.7 - 5.2	5.1	180.0	33.0	225	16.0 x 21.0
OS180FT62122-PA66HS-BK		6.2 x 12.2	0.7 - 5.2	5.1	180.0	33.0	225	16.0 x 21.0
OS180FT6513-PA46-GY		6.5 x 13.0	0.7 - 5.2	5.1	180.0	33.0	225	16.0 x 21.0
OS180FT6513-PA66HS-BK		6.5 x 13.0	0.7 - 5.2	5.1	180.0	33.0	225	16.0 x 21.0

All dimensions in mm. Subject to technical changes.





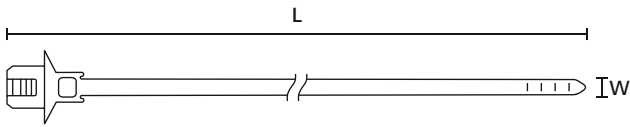


# Cable Ties and Fixings

## Cable Ties With Fixing Elements

### 1-Piece Fixing Ties with Fir Tree, with Disc

#### 1-Piece Fixing Ties with Fir Tree, with Disc, for Oval Holes



Reference for dimensions only

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø
T50ROSFTOVALR-PA66HIRHS-BK		6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.6 - 6.0	5.1	219.3	50.0	225	17.6 x 23.6
T50ROSFTSOVAL-PA66HIRHS-BK		6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.6 - 3.0	4.7	215.0	50.0	225	17.6 x 23.6
T50SOS2DOP62X122-E-PA46-GY		6.2 x 12.2	0.6 - 6.0	4.6	164.0	35.0	200	16.0 x 21.0
T50SOS2DOP62X122-E-PA66HS-BK		6.2 x 12.2	0.6 - 6.0	4.6	164.0	35.0	225	16.0 x 21.0
T50SOS3DOP65X130-E-PA46-GY		6.5 x 13.0	0.7 - 5.0	4.6	165.0	35.0	180	16.0 x 21.0
T50SOS3DOP65X130-E-PA66HS-BK		6.5 x 13.0	0.7 - 5.0	4.6	165.0	35.0	180	16.0 x 21.0
T50SOS2DOP7X12-E-PA66HS-BK		7.0 x 12.0	0.6 - 6.0	4.6	164.0	35.0	225	16.0 x 21.0
T50SOS2DOP7X12-PA46-GY		7.0 x 12.0	0.6 - 6.0	4.6	164.0	35.0	225	16.0 x 21.0
T50SOSFT7X12U-PA66HS-BK			7.0 x 12.0	0.6 - 4.0	5.1	165.0	35.0	225
T50ROSFT7X12U-PA66HS-BK	7.0 x 12.0		0.6 - 4.0	5.1	216.0	50.0	225	15.2 x 20.2
T50SOSFTOVALU-PA66HS-BK		6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.6 - 6.8	5.1	168.2	35.0	225	17.6 x 23.6
T50ROSFTOVALU-PA46-BN		6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.6 - 6.8	5.1	219.0	50.0	225	17.6 x 23.6
T50ROSFTOVALU-PA66HIRHS-BK		6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.6 - 6.8	5.1	219.0	50.0	225	17.6 x 23.6

All dimensions in mm. Subject to technical changes.



### 2-Piece Fixing Ties with Fir Tree, with Disc

#### 2-Piece Fixing Ties with Fir Tree, with disc, for oval holes

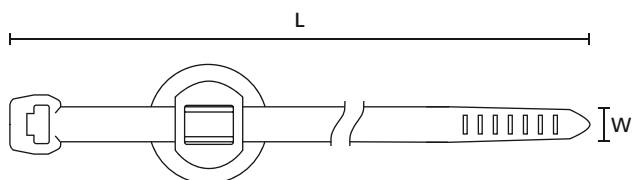
Primarily designed for fixing cable harnesses in the automotive industry their simplicity, and ease of use, has seen these parts used in everything from aircraft, to switch-gear, to washing machines.

#### Features and benefits

- Pre-assembled 2-piece fixing tie with fir tree foot part
- Cable tie head can be moved after bundling
- Easy to assemble without the need for a tool
- Disc adjusts tie for pressure from various directions and minimises access of dust and dirt
- Fir tree foot part can be used for a variety of panel thicknesses
- Suitable for use within threaded holes
- DOP versions for oval holes feature anti-twist protection



2-piece fixing ties with fir tree for oval holes.



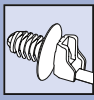
Reference for dimensions only



Material specification please see page 22.

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø
T50ROS1DOP62x122-PA66HS/PA66HIRHS-BK		6.2 x 12.2	0.6 - 6.0	4.6	200.0	45.0	225	16.0 x 21.0
LK2A1DOP62x122-PA66HIR/PA66HIRHS-BK		6.2 x 12.2	0.6 - 6.0	4.6	270.0	73.0	225	-
LK2AFT62x122A-PA66HIRHS-BK		6.2 x 12.2	0.6 - 5.0	4.6	275.0	73.0	225	16.0 x 21.0
LK2AFT62x122B-PA66HIRHS-BK		6.2 x 12.2	0.6 - 5.0	4.6	275.0	73.0	225	16.0 x 21.0
T50R6DOP-PA66HS/PA66HIRHS-BK		6.2 x 12.2	0.6 - 6.0	4.6	200.0	45.0	225	-
T50R6DOP-PA46/PA46-NA		6.2 x 12.2	0.6 - 6.0	4.6	200.0	45.0	225	16.0 x 21.0
T50RFT9X17A2-PA66HS/PA66HIRHS-BK		9.0 x 17.0	0.6 - 5.5	4.6	202.0	50.0	225	-
T50RFTOVAL-A-PA46-GY		6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.6 - 5.0	4.6	200.0	50.0	225	17.6 x 23.6
T50RFTOVAL-A-PA66HS/PA66HIRHS-BK		6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.6 - 5.0	4.6	200.0	50.0	225	17.6 x 23.6
T50ROSFTOVAL-B-PA66HS/PA66HIRHS-BK		6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.6 - 6.0	4.6	200.0	50.0	225	17.6 x 23.6

All dimensions in mm. Subject to technical changes.



# Cable Ties and Fixings

## Cable Ties With Fixing Elements

### 1-Piece Fixing Ties with Fir Tree and Disc, with Stand-off, for Oval Holes

With Offset 12.5 and 25.0 mm

#### Features and benefits

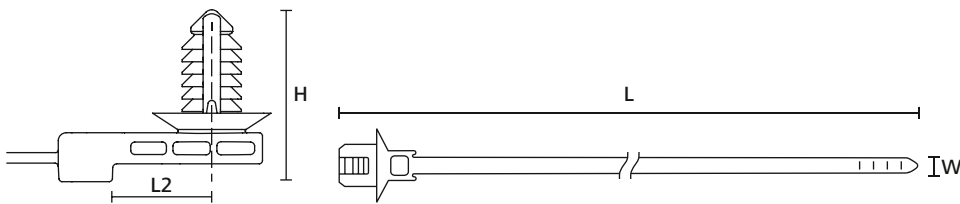
- Bundling and fixing solution
- Ideal combination of materials and design
- Different positions of the fixing anchor are available to fit installation space
- 1-Piece Fixing Tie with defined offset 12.5 and 25.0 mm



Material specification please see page 22.



One Piece Fixing Tie T50ROSFTOVAL25A with Stand Off for oval holes.



Reference for dimensions only

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Length (L2)	Bundle Ø max.	N
T50ROSFTOVAL12.5SO-PA66HIRHS-BK		6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.6 - 6.8	5.1	231.3	12.5	50.0	220
T50ROSFTOVAL25SO-PA66HIRHS-BK		6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.6 - 6.8	5.1	243.8	25.0	50.0	220
T50ROSFTOVAL25A-PA66HIRHS-GY		6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.6 - 6.8	4.7	229.3	25.0	50.0	225
T50ROSFTOVAL25A-PA66HIRHS-BK		6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.6 - 6.8	4.7	229.3	25.0	50.0	225
T50ROSFTOVAL12.5A-PA66HIRHS-BK		6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.6 - 6.8	4.7	216.8	12.5	50.0	225
T50ROSFTOVAL12.5A-PA66HIRHS-GY		6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.6 - 6.8	4.7	216.8	12.5	50.0	225
T50ROSFTOVAL25A-PA46-BN		6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.6 - 6.8	4.7	229.3	25.0	50.0	225
T50ROSFTOVAL12.5B-PA66HIRHS-BK			6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.6 - 6.8	4.7	216.8	12.5	50.0
T50ROSFTOVAL25B-PA46-BK	6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0		0.6 - 6.8	4.7	229.3	25.0	50.0	225
T50ROSFTOVAL25B-PA66HIRHS-BK	6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0		0.6 - 6.8	4.7	229.3	25.0	50.0	225
T50ROSFTOVAL25R-PA66HIRHS-BK		6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.6 - 6.8	5.1	237.4	25.0	50.0	225
T50ROSFTOVALIL25A-PA66HIRHS-BK		6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.6 - 6.8	4.7	232.3	25.0	50.0	225
T50ROSFTOVALIL25B-PA66HIRHS-BK		6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.6 - 6.8	4.7	232.3	25.0	50.0	225

All dimensions in mm. Subject to technical changes.



### 1-Piece Fixing Ties with Mounting Head for Screws

This range of one piece cable ties have a built in mounting hole and once fastened around the cables the bundle can be simply secured to the panel with a screw or bolt.

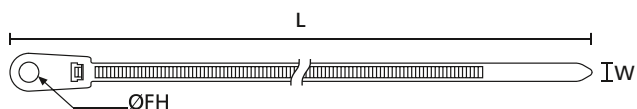
The tie is fitted to the panel first and then the cables can be added.

#### Features and benefits

- One-piece bundling and fixing tie
- Quick and easy installation



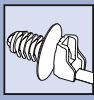
The mounting head ties can be easily screwed onto a panel.



Reference for dimensions only

PART DESCRIPTION	Hole Ø (FH)	N	Width (W)	Length (L)	Bundle Ø max.
T18MR-PA66W-BK	3.1	80	2.5	111.0	20.0
T30MR-PA66HSW-BK	4.1	135	3.5	157.0	32.0
T30MR-PA66W-BK	4.3	135	3.5	160.0	32.0
T30MR-PA66-BK	4.3	135	3.5	160.0	32.0
T50MRX-PA66HIRHSUV-BK	5.2	225	4.7	211.0	45.0
T50MR-PA66HIRHSUV-BK	5.4	225	4.7	215.0	45.0
T50MR-PA66W-BK	5.4	225	4.7	215.0	45.0
T50MI-PA66-BK	5.5	225	4.7	315.0	85.0
T50ML-PA66W-BK	5.5	225	4.7	390.0	100.0
T50ML-PA66-BK	5.5	225	4.7	390.0	100.0
T120MR-PA66HIRHS-GY	6.5	535	7.6	395.0	100.0
T120MR-PA66HIRHSUV-BK	6.5	535	7.6	395.0	102.0

All dimensions in mm. Subject to technical changes.



# Cable Ties and Fixings

## Cable Ties With Fixing Elements

### 1-Piece Fixing Ties for Weld Studs

#### For cable routing above the stud

Primarily designed for use in the automotive industry, these parts can be used in a wide variety of applications where weld studs or ISO bolts are used and cables need to be bundled and secured.

#### Features and benefits

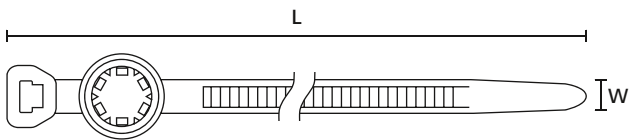
- Cable tie head always situated in defined position
- Easy to assemble without the need for a tool
- Bundle runs directly above weld stud with defined stand-off from the panel



The T50SSBS50T-E / T50SSBS60T-E allows very precise routing of cable bundles.



**Material specification please see page 22.**

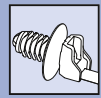


Reference for dimensions only

PART DESCRIPTION	Drawing	Stud Ø	Width (W)	Length (L)	Bundle Ø max.	N
T50SSBS50T-E-PA66HS-BK		5.0	4.6	160.0	35.0	200
T50SSBS60TS-E-PA66HS-BK		6.0	4.6	160.0	35.0	200
T50SSBS60T-E-PA66HS-BK		6.0	4.6	160.0	35.0	200

All dimensions in mm. Subject to technical changes.





### 1-Piece Fixing Ties for Weld Studs

#### For cable routing alongside the stud

Primarily designed for use in the automotive industry, these parts can be used in a wide variety of applications where weld studs or ISO bolts are used and cables need to be bundled and secured.

#### Features and benefits

- Cable tie head always situated in defined position
- Easy to install without the need for a tool
- Bundles are routed very close to stud



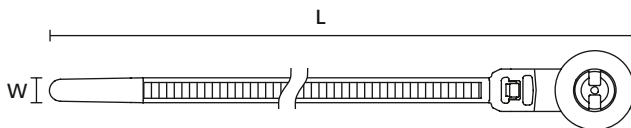
This outside serrated cable tie with weld stud mounting keeps the cables close to the fixing stud.



T50SOSSBU-M8/10 for bundles which run below the stud.



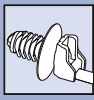
T50SOSSBD-M8/10.



Reference for dimensions only

PART DESCRIPTION	Drawing	Stud Ø	Width (W)	Length (L)	Bundle Ø max.	N
T50SOSSBU-M5-PA66HSW-GY		M5	5.7	175.0	30.0	150
T50SOSSBU-M6-PA66HSW-GY		M6	5.7	175.0	30.0	150
T50SOSSBD-M10-PA66HSW-BK		M10	5.7	175.0	30.0	150
T50SOSSBD-M5-PA66HSW-BK		M5	5.7	175.0	30.0	150
T50SOSSBD-M6-PA66HSW-BK		M6	5.7	175.0	30.0	150
T50SOSSBD-M8-PA66HSW-BK		M8	5.7	175.0	30.0	150
T50SOSSBU-M10-PA66HSW-GY		10.0	5.7	175.0	30.0	150
T50SOSSBU-M8-PA66HSW-GY		M8	5.7	175.0	30.0	150
T50SOSSBS5E-PA66HS-BK		5.0	4.7	160.0	35.0	225
T50SOSSBS5E-2-PA66HS-BK		5.0	4.7	161.0	35.0	225
T50SOSSBS6E-PA46-GY		M6	4.7	160.0	35.0	225
T50SOSSBS6E-PA66HS-BK		M6	4.7	160.0	35.0	225
HT170SB6-PA66HS-BK		M5, M6	5.5	172.2	35.0	150
T5ORM6OSSM-PA66HIRHSUV-BK		M6	25.0	224.0	50.0	225
SBT120-M6-PA66HSW-BK		6.0	13.0	300.0	60.0	533
SBT120-M12-PA66HSW-BK		M12	13.0	300.0	60.0	533
SBT50-M8-PA66HSW-BK		M8	6.0	180.0	35.0	222
SBT50-M12-PA66HSW-BK		M12	6.0	180.0	35.0	222

All dimensions in mm. Subject to technical changes.



# Cable Ties and Fixings

## Cable Ties With Fixing Elements

### 1-Piece Fixing Ties for Weld Studs, Cloverleaf Design

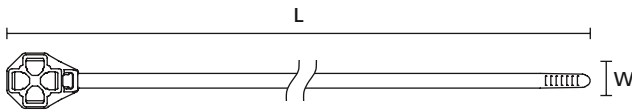
These fixing ties are coming with outstanding stud retention. With low insertion force and high extraction performance they offer an ideal combination of high-grade materials and superior design to suit the mounting and bundling needs of complex applications.

#### Features and benefits

- One-piece fixing ties
- Outstanding stud retention, keeps bundle secure
- Offset design versions positioning bundles away from obstructions, heat or sources of abrasion
- Low Profile head versions allow mounts to stack, providing parallel routing



1-Piece Fixing Ties for Weld Studs, cloverleaf design. From left to right: 1. Standoff, 2. standard, 3. low profile head with standoff, 4. low profile head design.



#### For cable routing alongside the stud

PART DESCRIPTION	Drawing	Stud Ø	Width (W)	Length (L)	Bundle Ø max.	N
T80ROSSB8U-PA46-BN		8.0	17.8	212.0	50.0	355
T80ROSSB10U-PA46-BN		10.0	10.0	215.0	50.0	335
T80ROSSB12U-PA46-BN		12.0	23.8	218.0	50.0	355

All dimensions in mm. Subject to technical changes.

#### For cable routing alongside the stud, low profile head

PART DESCRIPTION	Drawing	Stud Ø	Width (W)	Length (L)	Bundle Ø max.	N
T80ROSLPSB8U-PA46-BN		8.0	17.8	212.0	50.0	355
T80ROSLPSB10U-PA46-BN		10.0	10.0	215.0	50.0	355
T80ROSLPSB12U-PA46-BN		12.0	23.8	218.0	50.0	355

All dimensions in mm. Subject to technical changes.

#### For cable routing alongside the stud, standoff design

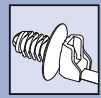
PART DESCRIPTION	Drawing	Stud Ø	Width (W)	Length (L)	Bundle Ø max.	N
T50ROSM6SMS025-PA46-BN		5.0, 6.0	14.2	224.0	50.0	223
T50ROSM8SMS025-PA46-BN		8.0	17.8	226.1	50.0	223

All dimensions in mm. Subject to technical changes.

#### For cable routing alongside the stud, standoff with low profile head

PART DESCRIPTION	Drawing	Stud Ø	Width (W)	Length (L)	Bundle Ø max.	N
T50ROSLPM8SMS025-PA46-BN		8.0	17.8	226.1	50.0	223

All dimensions in mm. Subject to technical changes.



### 1-Piece Fixing Ties for Weld Studs in the Strap

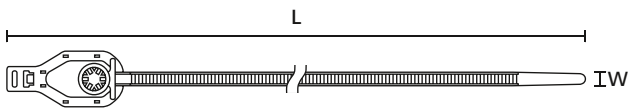
Primarily designed for use in the automotive industry, these parts can be used in a wide variety of applications where weld studs or ISO bolts are used and cables need to be bundled and secured.

#### Features and benefits

- For 5 mm studs or 5 mm ISO threaded studs
- Soft-push versions for easy assembly, without tool
- Eyelet allows excess tail to be tucked neatly away



1-Piece Fixing Ties for weld studs.



T50RS5, RT50RS



Material specification please see page 22.

### 1-Piece Fixing Ties for Weld Studs (Softpush) in the Strap

PART DESCRIPTION	Drawing	Height (H2)	Width (W)	Length (L)	Bundle Ø max.	N
T50RS5-PA66-BK		14.5	4.6	190.0	40.0	222

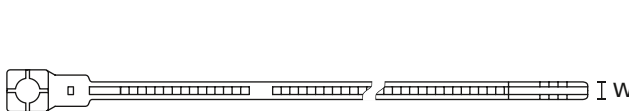
All dimensions in mm. Subject to technical changes.

### 1-Piece Fixing Ties for Weld Studs (Softpush) in the Strap, Releasable

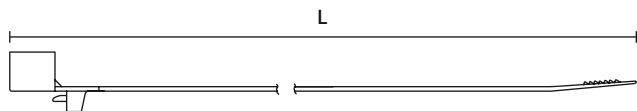
PART DESCRIPTION	Drawing	Height (H2)	Width (W)	Length (L)	Bundle Ø max.	N
RT50RS5-PA66-BK		14.5	4.6	190.0	40.0	225

All dimensions in mm. Subject to technical changes.

### 1-Piece Fixing Ties for Weld Studs (Hardpush), Releasable



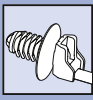
SBR8S



SBR8S

PART DESCRIPTION	Drawing	Stud Ø	Width (W)	Length (L)	Bundle Ø max.	N
SBR5-PA66HS-BK		5.0	6.0	220.0	40.0	300
SBR8S-PA46-GY		8.0	6.0	216.5	40.0	300

All dimensions in mm. Subject to technical changes.



# Cable Ties and Fixings

## Cable Ties With Fixing Elements

### 1-Piece Fixing Ties for Weld Studs, lateral adjustment

Primarily designed for use in the automotive industry, these parts can be used in a wide variety of applications where weld studs or ISO bolts are used and cables need to be bundled and secured.

#### Features and benefits

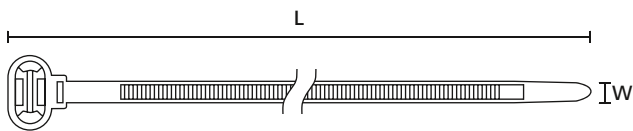
- Cable tie head always situated in defined position
- Easy to install without the need for a tool
- Provides a 5 - 6 mm lateral adjustment, also subsequently possible



**Material specification please see page 22.**



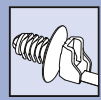
The fixing tie T50SOSSB5-High-E-C-CC for fixation on weld or ISO bolts.



Reference for dimensions only

PART DESCRIPTION	Drawing	Stud Ø	Width (W)	Length (L)	Bundle Ø max.	N	
T50SOSSB6HE-PA66HS-BK		6.0	4.7	160.0	35.0	170	
T50SOSSB5-High-E-O-US-PA66HS-BK		5.0	5.0	167.0	35.0	225	
T50SOSSB5-High-E-C-CC-PA46-GY		5.0, M6	5.0	167.0	35.0	225	
T50SOSSB5-High-E-C-CC-PA66HS-BK		5.0, M6	5.0	167.0	35.0	225	
T50SOSSB5-High-E-C-CC-PA66HS-GY		5.0, M6	5.0	167.0	35.0	225	
HT160SB5HE-PA66HS-GY			M5	5.0	167.0	35.0	200
HT160SB5HE-PA46-GY			M5	5.0	167.0	35.0	200
HT160SB6HE-PA66-BK			M6	5.0	167.0	35.0	200
HT160SB6HE-PA66HS-BK			M6	5.0	167.0	35.0	200
T60ROSSB6HEC-PA66HS-BK		6.0	5.5	227.4	55.0	300	
T50SOSSB5HEC-PA66HS-BK		5.0	4.6	160.0	35.0	170	

All dimensions in mm. Subject to technical changes.



### 1-Piece Fixing Ties for Weld Studs, lateral adjustment

#### T50SOSWSP5E-2 for 5 mm studs, retainer height 3.5 mm

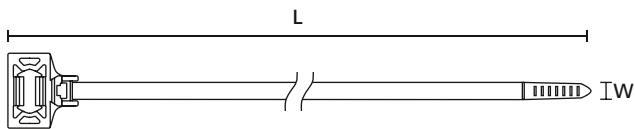
Primarily designed for use in the automotive industry, these parts can be used in a wide variety of applications where weld studs or ISO bolts are used and cables need to be bundled and secured.

#### Features and benefits

- Cable tie head always situated in defined position
- Easy to install without the need for a tool
- Provides 5 - 6 mm lateral adjustment
- Very low profile, stackable design
- For parallel routing of several bundles



T50SOSWSP5E-2, parallel installation using two fixing ties.



T50SOSWSP5E-2

PART DESCRIPTION	Stud Ø	Width (W)	Length (L)	Bundle Ø max.	N
T50SOSWSP5E-2-PA66HS-BK	5.0, 6.0	4.6	162.6	35.0	225

All dimensions in mm. Subject to technical changes.

### 1-Piece Fixing Ties for Weld Studs

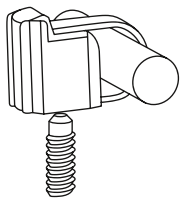
#### LFC-Series for routing close to the stud

#### Features and benefits

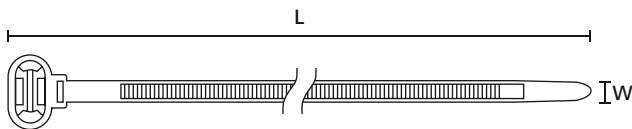
- 1-piece fixing tie for 5 mm studs
- Cable tie head always situated in defined position
- Easy to install without the need for a tool
- Bundle runs very close next to stud
- Closed stud retainer protects the bundle against damage
- Contact surface allows secure bundling with tensioning tool



LFC165-2 for bundle diameters up to 35.0 mm.



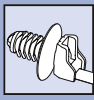
LFC165-2 can be put on by hand



Reference for dimensions only

PART DESCRIPTION	Stud Ø	Width (W)	Length (L)	Bundle Ø max.	N
LFC155-PA66-BK	5.0	4.6	163.0	26.0	160
LFC165(PSA)-PA66HS-BK	5.0	4.7	165.0	35.0	90
LFC165-2-PA66HS-BK	5.0	4.7	165.0	35.0	150

All dimensions in mm. Subject to technical changes.



# Cable Ties and Fixings

## Cable Ties With Fixing Elements

### 2-Piece Fixing Ties for Weld Studs

#### 2-Piece Fixing Ties for Weld Studs

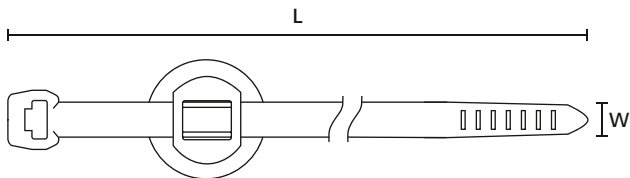
Primarily designed for use in the automotive industry, these parts can be used in a wide variety of applications where 5 mm weld studs or 5 mm ISO bolts are used and cables need to be bundled and secured

#### Features and benefits

- Pre-assembled 2-piece fixing tie with stud retainer
- Cable tie head can be moved after bundling
- Easy to install without the need for a tool
- SB5-types for 5 mm studs or 5 mm ISO threaded studs
- Types with discs can retain insulation materials while fixing a cable bundle
- Oval shape can be adjusted in a lateral position
- GBS8C for 8 mm retainer enables parallel routing
- SKL-types have a starlock inlay for firm grip on plastic surfaces



2-piece fixing tie T50ROSCL.



Reference for dimensions only

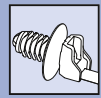


Material specification please see page 22.

PART DESCRIPTION	Drawing	Stud Ø	Width (W)	Length (L)	Bundle Ø max.	N	
T30RSBS5-PA66HS-BK		5.0	3.5	150.0	35.0	135	
T50SOSSBS5-PA66HS/PA66-BK		5.0	4.6	150.0	31.0	225	
T50SSBS5-PA66HS-BK		5.0	4.6	150.0	35.0	225	
T50SOSSBS5-PA66HS-BK		5.0	4.6	150.0	35.0	225	
T50RSBS5-PA66HS-BK		5.0	4.6	200.0	45.0	225	
T50RSBS5-PA66-BK		5.0	4.6	200.0	49.0	225	
T80ISBS5-PA66HS-BK		5.0	4.7	300.0	80.0	355	
T50ROSSBS5-PA66HIRHS-BK		M5	4.6	200.0	45.0	225	
T50ROSSBS5-PA66HS-BK		M5	4.6	200.0	45.0	225	
T50RDSBS5-6-PA66HS/PA66HIRHS-BK		M5, M6	4.6	200.0	45.0	225	
T50ROSGBS8CA-PA66HS/PA66HIRHS-BK			8.0	4.6	200.0	45.0	225
T50ROSGBS8CB-PA66HS/PA66HIRHS-BK	8.0		4.6	200.0	45.0	225	
T50ROSGBS8C-C-PA66HS/PA66HIRHS-BK	8.0		4.6	200.0	45.0	225	
T30RGS8C-A-PA66HS/PA66HIRHS-BK		M8	3.5	150.0	36.0	135	
T120RSBS-M8-PA66HS/PA66HIRHS-BK		M8	7.6	380.0	105.0	535	
T50RSBS-M10-PA66HS/PA66HIRHS-BK			M10	4.6	200.0	50.0	225
T120RSBS-M10-PA66HS/PA66HIRHS-BK			M10	7.6	380.0	105.0	535
T50RSBS-M12-PA66HS/PA66HIRHS-BK			M12	4.6	200.0	50.0	225
T120RSBS-M12-PA66HS/PA66HIRHS-BK			M12	7.6	380.0	105.0	535
T50SOSKL-PA66HS-BK		5.0	4.6	150.0	31.0	225	
T50ROSCL-PA66HS-BK		5.0	4.6	200.0	45.0	225	

All dimensions in mm. Subject to technical changes.





### 2-Piece Fixing Ties for Weld Studs

#### 2-Piece Fixing Ties for Weld Studs, lateral adjustment

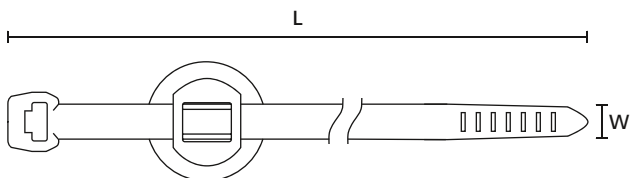
Series SBH5 and SBH5SD are used mainly in the automotive industry. The SD variant is for the smallest bundle diameters from 1 mm. Series SB5 and SBS5 are suitable for bundling and fastening cable looms and pipes in switch cabinet construction and automotive and construction machine industry.

#### Features and benefits

- Pre-assembled 2-piece fixing tie with stud retainer
- Cable tie head can be moved after bundling
- Easy to install without the need for a tool
- SB5-types for 5 mm studs or 5 mm ISO threaded studs
- Types with disc can retain insulation materials while fixing a cable bundle
- Oval shape can be adjusted in a lateral position



Cable ties with various weld stud fixing methods.



Reference for dimensions only

PART DESCRIPTION	Drawing	Stud Ø	Width (W)	Length (L)	Bundle Ø max.	N
T30RSB5-PA66HS/POM-BK		5.0	3.5	150.0	32.0	135
T50SOSSB5-PA66HS/POM-BK		5.0	4.6	150.0	35.0	225
T50RSB5-PA66/POM-BK		5.0	4.6	200.0	45.0	225
T50RSB5-PA46-GY		5.0	4.6	200.0	45.0	225
T50RSB5-PA66HS/POM-BK		5.0	4.6	200.0	45.0	225
T50ROSSB5-PA66HS/POM-BK		5.0	4.6	200.0	45.0	225
T50SSB5-PA66HS/POM-BK		M5	4.6	150.0	35.0	225
T50ISB5-PA66HS/PA66HIRHS-BK		M5	4.6	300.0	85.0	225
T50ISB5-PA66V0-WH		M5	4.6	300.0	85.0	225
T50ROSSB5CSD-PA46-GY			5.0	4.6	200.0	45.0
T50ROSSB5CSD-PA66HS-BK	5.0		4.6	200.0	45.0	225

All dimensions in mm. Subject to technical changes.



# Cable Ties and Fixings

## Cable Ties With Fixing Elements

### 2-Piece Fixing Ties for Weld Studs, with Disc (for isolation material)

#### 2-Piece Fixing Ties for Weld Studs, with Disc

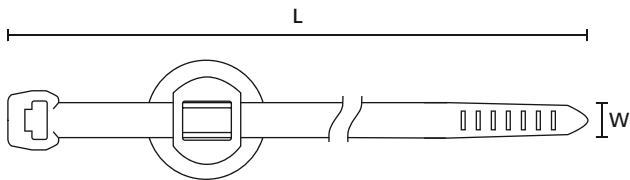
Primarily designed for use in the automotive industry, these parts can be used in a wide variety of applications where weld studs or ISO bolts are used and cables need to be bundled and secured

#### Features and benefits

- Pre-assembled with cable tie and weld stud mounting base
- Quick and easy installation
- Head rotates into perfect position for installation
- 'Soft-push' design for tool-free installation
- Mushroom-shaped SBH handles insulation or a sound-deadening blanket



Two Piece Fixing Tie T50RSBH5SD for weld studs.



Reference for dimensions only



Material specification  
please see page 22.

PART DESCRIPTION	Drawing	Stud Ø	Width (W)	Length (L)	Bundle Ø max.	N
T50RSBH5-PA66HS-BK		5.0	4.6	202.0	45.0	225
T80ISBH5-PA66HS-BK		5.0	5.0	300.0	80.0	355
T50SOSSBH5-PA66HS-BK		M5	4.6	150.0	32.0	225
T50SOSSBH5E-PA66HS-BK		5.0	4.6	166.4	35.0	225
T30RSBH5SD-PA66HS-BK		5.0	3.5	150.0	31.0	135
T50RSBH5SD-PA66HS-BK		5.0	4.6	200.0	45.0	222
T50ROSSBH5SD-PA66HS-BK		5.0	4.6	200.0	45.0	225
T80ISBH5SD-PA66HS-BK		5.0	4.6	300.0	78.0	356
T18RSBH5SD-PA66HS/PA66HIRHS-BK		M5	2.5	100.0	22.0	80
T50RSBH5SD-14-PA66HS-BK		5.0	4.6	200.0	45.0	222
T50RSBH6SD-PA66HS-BK		6.0	4.6	200.0	45.0	225
T50RSBHM5-6-PA66HS/PA66HIRHS-BK		M5, M6	4.6	200.0	50.0	225
T50RSBH5-10-PA66HS/PA66HIRHS-NA/BK		5.0	4.6	200.0	45.0	-

All dimensions in mm. Subject to technical changes.



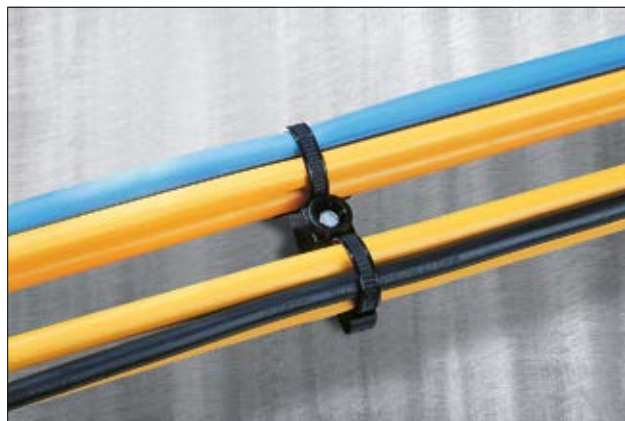
### 2-Piece Fixing Ties for Weld Studs, for Parallel Routing

#### 2-Piece Fixing Ties for Weld Studs, for Parallel Routing

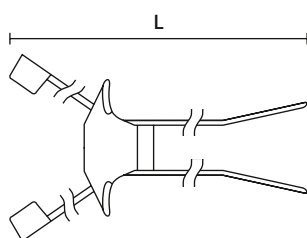
Widely used for securing cables pipes and hoses in the automotive and truck building industries, the mounting base is simply pushed onto a 5 mm diameter stud or bolt.

#### Features and benefits

- Pre-assembled 2-piece fixing tie with stud retainer
- For parallel routing of cables, hoses or harnesses
- Cable tie head can be moved after bundling
- Easy to install without the need for a tool
- For 5 mm studs or 5 mm ISO threaded studs



Parallel fixation of two cables and keeps the bundles close to the cables.



T50SDSBS5, T50ROSDSBS5

PART DESCRIPTION	Drawing	Stud Ø	Width (W)	Length (L)	Bundle Ø max.	N
T50RSB5DCSD-PA66HS-BK		5.0	4.6	200.0	45.0	225
T50SDSBS5-PA66HS/PA66HIRHS-BK		5.0	4.6	150.0	35.0	225
T50ROSDSBS5-PA66HS/PA66HIRHS-BK		5.0	4.6	200.0	45.0	222

All dimensions in mm. Subject to technical changes.



# Cable Ties and Fixings

## Cable Ties With Fixing Elements

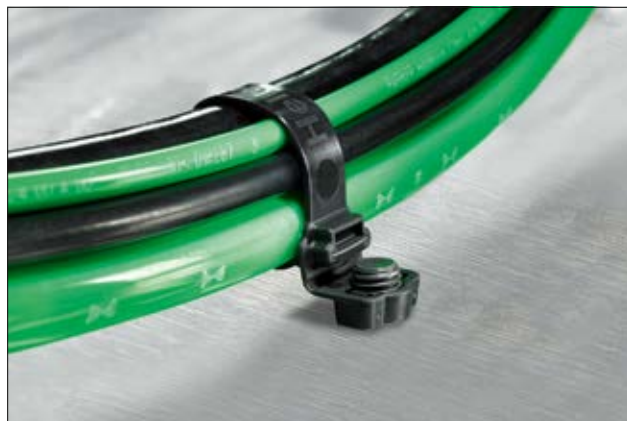
### 1-Piece Fixing Ties for Weld Studs, for Heavy Duty Applications

#### WS-Series for Threaded Studs

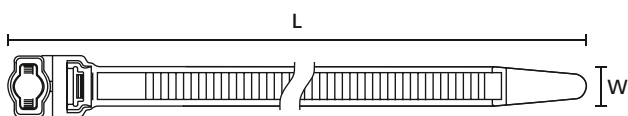
Wide strap stud-mounted cable ties are primarily designed for use in the automotive or truck industry.

#### Features and benefits

- Very flexible strap provides minimum pinching of soft hoses and convoluted tubing
- Low profile head for compact bundling
- Clamping rails to increase grip on round bundles
- Flexible hinge



The wide strap stud mount cable tie minimises pinching on soft bundles.



Wide strap heavy duty stud mount cable ties.

PART DESCRIPTION	Stud Ø	Width (W)	Length (L)	Bundle Ø max.	N
WSS250-PA66HIRHSUV-BK	M6	12.7	246.4	57.1	534
WSI250-PA66HIRHSUV-BK	M6	12.7	322.6	82.5	534
WSR250-PA66HIRHSUV-BK	M6	12.7	398.8	104.1	534
WSS8MM-PA66HIRHSUV-BK	M8	12.7	246.4	57.1	534
WSI8MM-PA66HIRHSUV-BK	M8	12.7	322.6	82.5	534
WSS380-PA66HIRHSUV-BK	M10	12.7	246.4	57.1	534
WSI380-PA66HIRHSUV-BK	M10	12.7	322.6	82.5	534
WSR380-PA66HIRHSUV-BK	M10	12.7	398.8	104.1	534

All dimensions in mm. Subject to technical changes.

### 1-Piece Fixing Ties for Weld Studs, for Heavy Duty Applications, for parallel routing

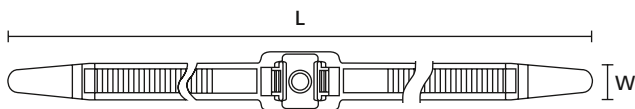
Primarily designed for use in the automotive industry, these parts can be used in a wide variety of applications where weld studs or ISO bolts are used and cables need to be bundled and secured.

#### Features and benefits

- Parallel separation between hoses, wires, cables and tubing
- Abrasion protection
- Optional mounting hole for securing bundles along the Chassis of trucks, trails and heavy duty equipment



DCT-Series: One Piece Fixing Ties for parallel routing of hoses, wires, cables and tubings.



Dual Clamp Ties (DCT)

PART DESCRIPTION	Stud Ø	Width (W)	Length (L)	Bundle Ø max.	N
DCT9-PA66HIRHSUV-BK	M6	12.7	330.2	33.0	667
DCT11-PA66HIRHSUV-BK	M6	12.7	487.7	58.0	667

All dimensions in mm. Subject to technical changes.



### 2-Piece Fixing Ties for Heavy Duty Applications, for Screws

#### HDM-Series

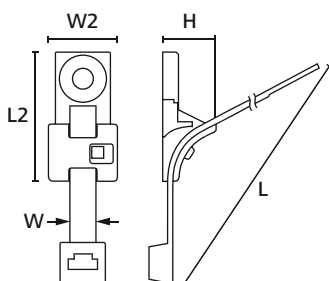
Used in the automotive and truck industry for harness fixing in the engine body, these parts offer solutions in many other industrial applications with difficult environment.

#### Features and benefits

- Pre-assembled 2-piece fixing tie
- Cable tie head can be moved after bundling
- Secure alignment to the bundle due to H-design
- A suitable alternative for metal clamps
- Withstands vibrations and displacement forces
- High tightening torque through metal bushing



These HDM are suitable for assembling on screws.



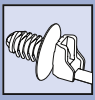
HDM with cable tie (L = length of the tie "flat")



Material specification please see page 22.

PART DESCRIPTION	Width (W2)	Length (L2)	Height (H)	Mounting Screw Type	Width (W)	Length (L)	Bundle Ø max.
T50RHDM6-PA46-GY	20.0	37.5	16.0	M6	4.6	200.0	50.0
T50RHDM6-PA66HIRHS-BK	20.0	37.5	16.0	M6	4.6	200.0	50.0
T120RHDM6-PA46-GY	20.0	37.5	16.0	M6	7.6	390.0	105.0
T120RHDM6-PA66HIRHS-BK	20.0	37.5	16.0	M6	7.6	390.0	105.0
T50RHDM8-PA46-GY	20.0	37.5	16.0	M8	4.6	200.0	50.0
T50RHDM8-PA66HIRHS-BK	20.0	37.5	16.0	M8	4.6	200.0	50.0
T120RHDM8-PA46-GY	20.0	37.5	16.0	M8	7.6	390.0	105.0
T120RHDM8-PA66HIRHS-BK	20.0	37.5	16.0	M8	7.6	390.0	105.0
T120RHDM8-PA46-GY	20.0	37.5	16.0	M8	7.6	390.0	105.0
X120RHDM65x160-PA66HIRHS-BK	32.0	40.2	15.5	M6	7.7	369.0	100.0

All dimensions in mm. Subject to technical changes.



# Cable Ties and Fixings

## Cable Ties With Fixing Elements

### 2-Piece Fixing Ties for Heavy Duty Applications, for Screws

#### DHDM-Series for Parallel Routing

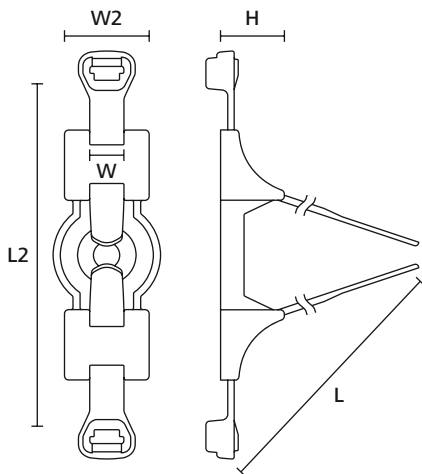
Used in the automotive and truck industry for harness fixing in the engine body, these parts offer solutions in many other industrial applications with difficult environment.

#### Features and benefits

- Pre-assembled 2-piece fixing tie
- Cable tie head can be moved after bundling
- Secure alignment to the bundle due to H-design
- A suitable alternative for metal clamps
- Withstands vibrations and displacement forces
- High tightening torque through metal bushing



DHDM for parallel routing of bundles.



DHDM with cable tie (L = length of the tie "flat")



Material specification please see page 22.

PART DESCRIPTION	Width (W2)	Length (L2)	Height (H)	Mounting Screw Type	Width (W)	Length (L)	Bundle Ø max.
T120RDHDM6-PA46-GY	25.4	59.4	15.5	M6	7.6	387.0	100.0
X120RDHDM6-PA66HIRHS-BK	25.4	59.4	15.5	M6	7.7	369.0	100.0
T120RDHDM8-PA46-GY	25.4	59.4	15.5	M8	7.6	387.0	105.0
X120RDHDM8-PA66HIRHS-BK	25.4	59.4	15.5	M8	7.7	369.0	100.0

All dimensions in mm. Subject to technical changes.





### 1-Piece Fixing Ties for Edges

#### EdgeClip-Family

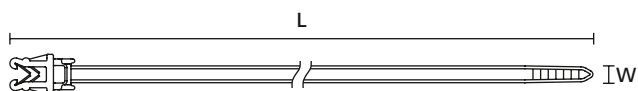
These cable ties and EdgeClip assemblies are ideal for use where holes are not acceptable or where due to temperature problems adhesives will fail. Once the cable tie is fastened around the cables the EdgeClip is presented ready for attaching to the panel. Widely used within the automotive and panel building industries these cable ties and EdgeClips save time and money.

#### Features and benefits

- Easy assembly, just clip on per hand
- For edges of 1 - 3 mm, 3 - 6 mm or 4 - 6 mm
- Integrated metal clamp holds clip firmly in place
- Clamp consists of double tempered steel spring
- Ideal for applications where holes or adhesives are not suitable



1-Piece Fixing Tie T50SOSEC12 can be pushed easily on edges.



T50SOSEC12E

PART DESCRIPTION	Drawing	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	
T50SOSEC12E-PA46-GY		1.0 - 3.0	4.6	160.0	35.0	150
T50SOSEC12E-PA66HS-BK		1.0 - 3.0	4.6	160.0	35.0	180
T50SOSEC13E-PA66HS-BK		1.0 - 3.0	4.6	160.0	35.0	180
T40XEC5SP-E-PA66HS-BK		1.0 - 3.0	4.0	85.0	15.0	178
T50SOSEC34E-PA66HS-BK		1.0 - 3.0	4.6	155.0	35.0	180
T50SOSEC20-E-PA66HS-BK		3.0 - 6.0	4.6	161.0	35.0	180
T50SOSEC20-MOD-PA66HIRHS-BK		4.0 - 6.0	4.6	161.0	35.0	180
T50SOSEC1.0-3.0SV-E-PA66HIRHS-BK		1.0 - 3.0	15.0	159.0	35.0	150

All dimensions in mm. Subject to technical changes.



# Cable Ties and Fixings

## Cable Ties With Fixing Elements

### 2-Piece Fixing Ties for Edges, 0.5 - 2.5 mm, Top Fixing

#### Mini-EdgeClip-Family for flat and thin edges

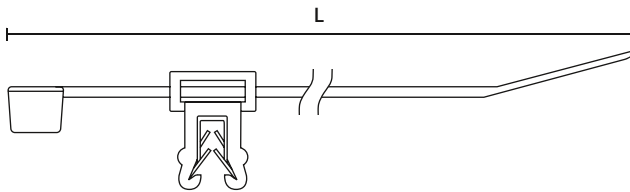
These cable ties and EdgeClip assemblies are ideal for use where holes are not acceptable or where due to temperature problems adhesives will fail. These assemblies are widely used for fixing and bundling cables, pipes and hoses within the automotive industry, harness making, panel building and electrical industry. These EdgeClips are specially designed for applications where space is limited such as in mirrors and headlights.

#### Features and benefits

- Springsteel clamp with interlocking claws
- For flat edges
- For thin edges 0.5 - 2.5 mm
- Small housing for limited space
- Pre-assembled 2-piece fixing tie with EdgeClip
- Cable tie head can be moved after bundling



T30ROSEC0,5-2,5SPV for application on thin edges.



Reference for dimensions only



Material specification please see page 22.

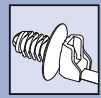
PART DESCRIPTION	Drawing	Width (W)	Length (L)	Bundle Ø max.	N
T30ROSEC0.5-2.5TP-SD-PA66HS/PA66HIRHS-BK		3.4	145.0	35.0	135
T30ROSEC0.5-2.5TV-SD-PA66HS/PA66HIRHS-BK		3.4	145.0	35.0	135
T30ROSEC0.5-2.5TPVA-PA66HS/PA66HIRHS-BK		3.4	145.0	35.0	135

All dimensions in mm. Subject to technical changes.

### 2-Piece Fixing Ties for Edges, 0.5 - 2.5 mm, Side Fixing

PART DESCRIPTION	Drawing	Width (W)	Length (L)	Bundle Ø max.	N
T30ROSEC0.5-2.5SP-SVB-PA66HS/PA66HIRHS-BK		3.4	145.0	35.0	135
T30ROSEC0.5-2.5SPVA-PA66HS/PA66HIRHS-BK		3.4	145.0	35.0	135

All dimensions in mm. Subject to technical changes.



### 2-Piece Fixing Ties for Edges, 1.0 - 3.0 mm, Top Fixing

#### EdgeClip-Family

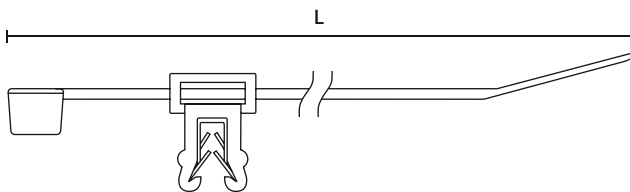
These cable ties and EdgeClip assemblies are ideal for use where holes are not acceptable or where due to temperature problems adhesives will fail. These assemblies are widely used for fixing and bundling cables, pipes and hoses within the automotive industry, harness making, panel building and electrical industry.

#### Features and benefits

- Pre-assembled 2-piece fixing tie with EdgeClip
- Cable tie head can be moved after bundling
- EC9, EC10, EC21 and EC22 are for minimum bundle diameters of 1 mm
- For edges of 1 - 3 mm



T50ROSEC10 fitted onto a plastic panel to hold a Ø 6 mm harness.



Fixing Tie with EC4

PART DESCRIPTION	Drawing	Width (W)	Length (L)	Bundle Ø max.	N
T30REC4A-PA66HS/PA66HIRHS-BK		3.6	148.0	33.0	135
T50SOSEC4A-PA66HS/PA66HIRHS-BK		4.6	150.0	35.0	225
T50ROSEC4A-PA66HS/PA66HIRHS-BK		4.6	200.0	45.0	225
T50REC4A-PA66HS/PA66HIRHS-BK		4.6	200.0	45.0	225
T50ROSEC4A-W-PA66W-BK		4.6	200.0	45.0	225
T50REC4A-PA66HS/PA66HIRHS-BK		4.6	202.0	45.0	225
T30REC4B-PA66HS/PA66HIRHS-BK		3.6	148.0	35.0	135
T50SOSEC4B-PA66HS/PA66HIRHS-BK		4.6	150.0	35.0	225
T50ROSEC4B-PA46-GY		4.6	200.0	45.0	225
T50ROSEC4B-PA66HS/PA66HIRHS-BK		4.6	200.0	45.0	225
T18REC10SD-PA66HS/PA66HIRHS-BK		2.5	100.0	22.0	80
T50SOSEC10-PA66HS/PA66HIRHS-BK		4.6	150.0	31.0	225
T50ROSEC10-PA66HS/PA66HIRHS-BK		4.6	200.0	45.0	225
T18REC9SD-PA66HS/PA66HIRHS-BK		2.5	100.0	22.0	80
T50SOSEC9SD-PA66HS/PA66HIRHS-BK		4.6	150.0	31.0	225
T50ROSEC9-PA66HS/PA66HIRHS-BK		4.6	200.0	45.0	225
T50REC9SD-PA66HS/PA66HIRHS-BK		4.6	200.0	45.0	225

All dimensions in mm. Subject to technical changes.



# Cable Ties and Fixings

## Cable Ties With Fixing Elements

### 2-Piece Fixing Ties for Edges, 1.0 - 3.0 mm, Side Fixing

#### EdgeClip-Family

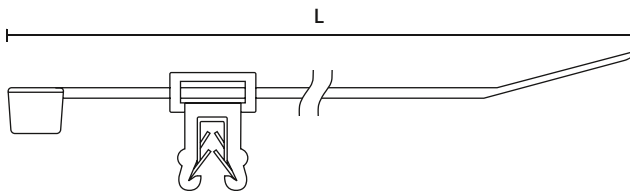
These cable ties and EdgeClip assemblies are ideal for use where holes are not acceptable or where due to temperature problems adhesives will fail. These assemblies are widely used for fixing and bundling cables, pipes and hoses within the automotive industry, harness making, panel building and electrical industry.

#### Features and benefits

- Pre-assembled 2-piece fixing tie with EdgeClip
- Cable tie head can be moved after bundling
- EC9, EC10, EC21 and EC22 are for minimum bundle diameters of 1 mm
- For edges of 1 - 3 mm



T50ROSEC23 - the cable bundle runs parallel with the edge.



Reference for dimensions only



Material specification please see page 22.


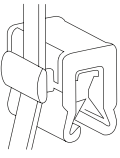
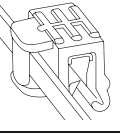
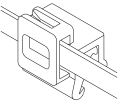
PART DESCRIPTION	Drawing	Width (W)	Length (L)	Bundle Ø max.	N	
T30LLEC5ART-PA66HS/PA66HIRHS-BK		3.5	290.0	80.0	135	
T30REC5A-PA66HS/PA66HIRHS-BK		3.6	148.0	33.0	135	
T40REC5A-PA66HS/PA66HIRHS-BK		4.0	17.5	45.0	180	
T50SOSEC5A-PA66HS/PA66HIRHS-BK		4.6	150.0	31.0	225	
T50ROSEC5A-PA66HS/PA66HIRHS-BK		4.6	200.0	45.0	225	
T50ROSEC5A-W-PA66W-BK		4.6	200.0	45.0	225	
T50REC5A-PA66HS/PA66HIRHS-BK		4.6	200.0	45.0	225	
T50REC5A-PA66UV/PA66HIRHSUV-BK		4.6	202.0	50.0	225	
Q50REC5A-PA66W-BK		4.7	210.0	45.0	220	
T50LEC5A-PA66HS/PA66HIRHS-BK		4.7	380.0	110.0	225	
T80IEC5A-PA66HS/PA66HIRHS-BK		5.0	300.0	85.0	355	
T30REC5B-PA66HS/PA66HIRHS-BK			3.6	150.0	32.0	135
T50SOSEC5B-PA66HS/PA66HIRHS-BK			4.6	150.0	31.0	225
T50REC5B-PA46/PA66HIRHS-GY/BK	4.6		200.0	45.0	225	
T50ROSEC5B-PA66HS/PA66HIRHS-BK	4.6		200.0	45.0	225	
T50REC5B-PA66HS/PA66HIRHS-BK	4.6		200.0	45.0	225	
Q50REC5B-PA66W-BK	4.7		210.0	45.0	220	

All dimensions in mm. Subject to technical changes.

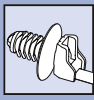


### 2-Piece Fixing Ties for Edges, 1.0 - 3.0 mm, Side Fixing

#### EdgeClip-Family

PART DESCRIPTION	Drawing	Width (W)	Length (L)	Bundle Ø max.	
T18REC21-PA66W/PA66HIRHS-BK		2.5	100.0	18.0	80
T50SOSEC21-PA66HS/PA66HIRHS-BK		4.6	150.0	35.0	225
T50ROSEC21-PA46-GY		4.6	200.0	45.0	225
T50ROSEC21-PA66HS/PA66HIRHS-BK		4.6	200.0	45.0	225
T50REC21-PA66HS/C75S-BK		4.6	202.0	45.0	225
T50REC21-PA66HS/PA66HIRHS-BK		4.6	202.0	45.0	225
T18REC22-PA66HS/PA66HIRHS-BK		2.5	100.0	20.0	80
T30REC22-PA66HS/PA66HIRHS-BK		3.5	150.0	36.0	135
T50ROSEC22-PA66HS/PA66HIRHS-BK		4.6	200.0	45.0	225
T50REC22-PA66W/PA66HIRHS-BK		4.6	200.0	45.0	225
T50ROSEC5B-W-PA66W-BK		4.6	200.0	45.0	225

All dimensions in mm. Subject to technical changes.



# Cable Ties and Fixings

## Cable Ties With Fixing Elements

### 2-Piece Fixing Ties for Edges, 3.0 - 6.0 mm, Top Fixing

#### EdgeClip-Family

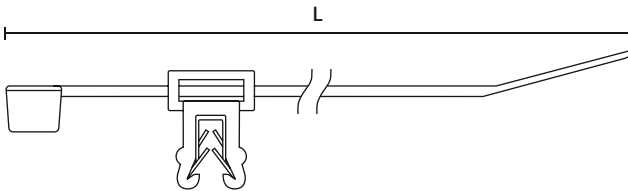
These cable ties and EdgeClip assemblies are ideal for use where holes are not acceptable or where due to temperature problems adhesives will fail. These assemblies are widely used for fixing and bundling cables, pipes and hoses within the automotive industry, harness making, panel building and electrical industry.

#### Features and benefits

- Pre-assembled 2-piece fixing tie with EdgeClip
- Cable tie head can be moved after bundling
- For minimum bundle diameters of 1 mm
- For edges of 3 - 6 mm



Pre-assembled 2-piece fixing tie with EdgeClip.



Reference for dimensions only



Material specification please see page 22.

PART DESCRIPTION	Drawing	Width (W)	Length (L)	Bundle Ø max.	N
T18ROSEC19-PA66HS/PA66HIRHS-BK		2.5	100.0	20.0	80
T50SOSEC19-PA66HS/PA66HIRHS-BK		4.6	150.0	35.0	225
T50ROSEC19-PA66HS/PA66HIRHS-BK		4.6	200.0	45.0	225
T50SOSEC20-PA66HS/PA66HIRHS-BK		4.6	150.0	35.0	225
T50ROSEC20-PA66HS/PA66HIRHS-BK		4.6	200.0	45.0	225

All dimensions in mm. Subject to technical changes.

### 2-Piece Fixing Ties for Edges, 3.0 - 6.0 mm, Side Fixing

PART DESCRIPTION	Drawing	Width (W)	Length (L)	Bundle Ø max.	N
T50REC23-PA66HS/PA66HIRHS-BK		4.6	200.0	45.0	225
T50ROSEC23-PA66HS/PA66HIRHS-BK		4.6	200.0	45.0	225
T50ROSEC24-PA66HS/PA66HIRHS-BK		4.6	200.0	45.0	225

All dimensions in mm. Subject to technical changes.





### 2-Piece Fixing Ties for Edges, twistable

#### EdgeClip-Family

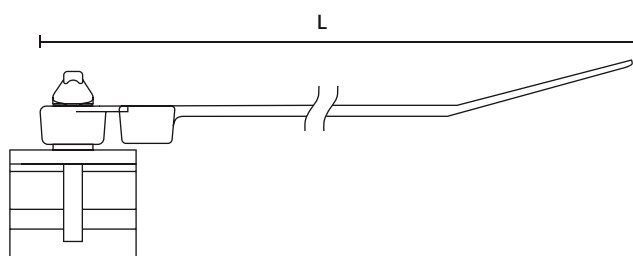
These cable ties and Edge Clip assemblies are ideal for use where holes are not acceptable or where due to temperature problems adhesives will fail. These assemblies are widely used for fixing and bundling cables, pipes and hoses within the automotive industry, harness making, panel building and electrical industry.

#### Features and benefits

- Pre-assembled 2-piece fixing tie with EdgeClip
- Easy to assemble by hand
- Cable tie head can be moved after bundling
- For edges of 1 - 2.5 mm or 1 - 3 mm
- Can be rotated to the desired position



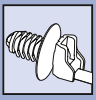
EdgeClip CBTO50R, rotatable 90°.



CBT30MR

PART DESCRIPTION	Drawing	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N
CBT30MR-PA66HS/POM-BK		2.5	3.5	160.0	32.0	135
CBTO30R-PA66HS/PA66HIRHS-BK		3.0	3.5	150.0	35.0	133
CBTO50R-PA66HS/PA66HIRHS-BK		3.0	4.6	202.0	47.0	225
CBTOS50RSTUD5-PA66HS/PA66HIRHS-BK		3.0	4.6	200.0	47.0	225
T50SVCEC1-3-PA66HS/PA66HIRHS-BK		3.0	4.7	150.0	35.0	225

All dimensions in mm. Subject to technical changes.



# Cable Ties and Fixings

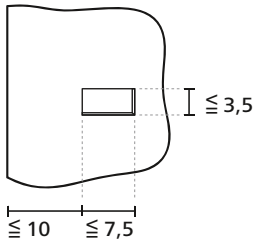
## Cable Ties With Fixing Elements

### 2-Piece Fixing Ties for Edges, for Holes

Due to the tie's reduced installation height it is ideal for use wherever space is at a premium.

#### Features and benefits

- Pre-assembled 2-piece fixing tie with EdgeClip
- Easy to assemble by hand
- Cable tie head can be moved after bundling
- For edges of 1.0 - 3.0 mm
- Secure fixing of the EdgeClip into drill hole
- Ideal for use wherever space is at its premium




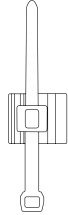
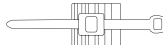
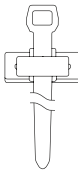
Position of the plate cut-out for the holding tab.



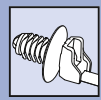
The holding tab increases the tensile strength additionaly.



**Material specification please see page 22.**

PART DESCRIPTION	Drawing	Width (W)	Length (L)	Bundle Ø max.	
T50REC2.5B-PA66HS/PA66HIRHS-BK		4.6	202.0	40.0	225
T50ROSEC2.5A-PA66HS/PA66HIRHS-BK		4.6	200.0	50.0	225
T50ROSCST-PA66HS/PA66HIRHS-BK		4.6	200.0	45.0	225

All dimensions in mm. Subject to technical changes.



### 2-Piece Fixing Tie with Connector Clip

#### Connector Clip Family

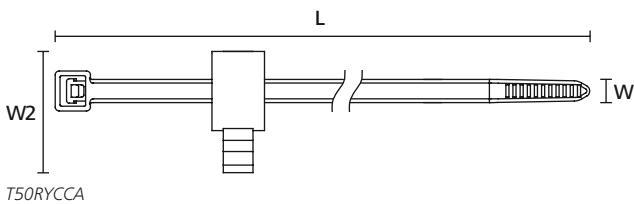
These two piece fixing ties with connector clips have been designed for electronic cables and cable sets used in the automotive industry. The connector are pushed onto the connector clip and hold firmly in place.

#### Features and benefits

- Easy to assemble without a need for a tool
- Preassembled cable tie with connector clip
- Connector can be removed without damage
- Rattle-free mounting



Two Piece Fixing Tie T50RYCCA with Connector Clip.



PART DESCRIPTION	Drawing	Width (W)	Length (L)	Bundle Ø max.	N
T50RYCCA-PA66HS/PA66HIRHS-BK		4.6	200.0	50.0	225
T50RYCCB-PA66HS/PA66HIRHS-BK		4.6	200.0	50.0	225

All dimensions in mm. Subject to technical changes.

### 1-Piece Fixing Ties with rivet, releasable

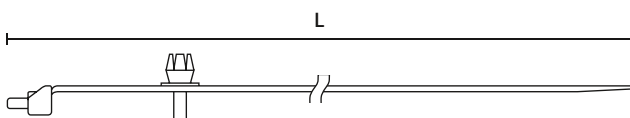
Offering a very secure fixing, particularly in applications suffering from vibration, these rivet fixing ties are simple and quick to install. Designed originally for the automotive industry they are now widely used in many industries as diverse as agriculture and ship building.

#### Features and benefits

- Simple to install with wings to lock ties firmly in place
- Releasable and reusable
- RI ranges are conventional 'serrated' cable ties



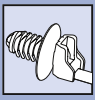
One Piece Fixing Tie with Rivet RI 160.



Fixing ties type RI.

PART DESCRIPTION	Hole Ø (FH)	Width (W)	Length (L)	Bundle Ø max.	N	Panel Thickness
RI 80-PA12-BK	6.9 - 7.1	7.0	80.0	16.0	265	0.8 - 2.2
RI 120-PA12-BK	6.9 - 7.1	9.0	120.0	28.0	265	0.8 - 2.2
RI160-PA12-BK	6.9 - 7.1	9.0	160.0	41.0	265	0.8 - 2.2

All dimensions in mm. Subject to technical changes.



# Cable Ties and Fixings

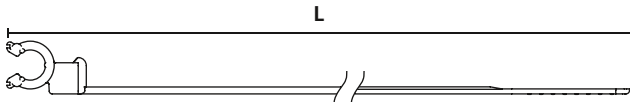
## Cable Ties With Fixing Elements

### 1-Piece Fixing Tie with Pipe Clip

#### Bracket brake line

#### Features and benefits

- Easily locks onto a cable, tube or hose (D = 4.8 - 5.4 mm)
- Cable tie head always in defined position
- Suitable for post-installation of bundles



Brake cable fixing



Brake cable fixing suitable for post installation of bundles.

PART DESCRIPTION	Drawing	Attach to Ø	Width (W)	Length (L)	Bundle Ø max.	N
Bracket brake line-PA46-GY		4.8 - 5.4	3.6	150.0	35.0	133
Bracket brake line-PA66HS-NA		4.8 - 5.4	3.6	150.0	35.0	133

All dimensions in mm. Subject to technical changes.

### 1-Piece Fixing Ties with Wire Clip

#### Features and benefits

- Cable tie head always in defined position
- Easy to close by simply pressing the cover
- Firm sit as a variation of sizes for different wires is available
- Suitable for post-installation of bundles



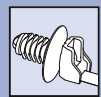
Material specification please see page 22.



T50SOSWA - The easy way for parallel guidance of cables next to a wire.

PART DESCRIPTION	Drawing	Attach to Ø	Width (W)	Length (L)	Bundle Ø max.	N
T50SOSWA1.8E-PA66HS-BK		1.8	4.6	150.0	35.0	225
T50SOSWA2.0E-PA66HS-BK		2.18	4.6	150.0	35.0	225
T50SOSWA3.4E-PA66HS-BK		3.4	4.6	150.0	35.0	225
T50SOSWA4.3E-PA66HS-BK		4.3	4.6	150.0	35.0	225
T50SOSWB1.8E-PA66HS-BK		1.8	4.6	150.0	35.0	225
T50SOSWB2.0E-PA66HS-BK		2.18	4.6	150.0	35.0	225
T50SOSWB3.4E-PA66HS-BK		3.4	4.6	150.0	35.0	225
T50SOSWB4.3E-PA66HS-BK		4.3	4.6	150.0	35.0	225
T50SOSWA57J-PA66HSW-BK		5.0 - 7.0	4.6	150.0	30.0	225

All dimensions in mm. Subject to technical changes.

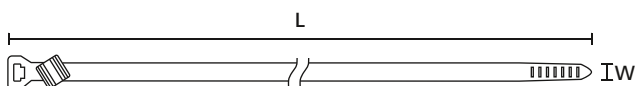


### 2-Piece Fixing Ties with Pipe Clip, twistable 360°

These fixing ties provide the opportunity to attach a wire or hose to an existing harness. Offering a full 360 degrees rotation, the wire/hose can be oriented in any direction in relation to the main harness.

#### Features and benefits

- Simply clip on a wire or hose
- Fixing clip offers full 360° rotation
- Routed cable can move in any direction in relation to the fixing point



T50SVC4S



T50SVC5 rotates in any direction.

PART DESCRIPTION	Drawing	Attach to Ø	Width (W)	Length (L)	Bundle Ø max.		
T50SVC4S-PA66HS/PP-BK/NA		3.8 - 4.2	4.7	155.0	35.0		
T50SVC4-PA66HS/PA66HIRHS-BK		3.8 - 4.2	4.7	155.0	35.0		
T50SVC5-PA66HS-BK		4.5 - 5.2	4.7	155.0	35.0		
T50SVC3.5-PA66HS/PA66HIRHS-BK		3.45 - 3.55	4.7	155.0	35.0		
T50SVC6.5-PA46-GY		6.5 - 8.0	4.7	155.0	35.0		
T50SVC6.5-PA66HS/PA66HIRHS-BK		6.5 - 8.0	4.7	155.0	35.0		
T50SVCOC9-11A-PA66HIRHS/PA66HS-BK		9.0 - 11.0	4.7	155.0	35.0		
T50SVCOC9-11B-PA66HIRHS/PA66HS-BK		9.0 - 11.0	4.7	155.0	35.0		
T50SVCOC10-14-PA66HS/PA66HIRHS-BK		10.0 - 14.0	4.7	155.0	35.0		
T50SVCOC10-14-PA46-GY		10.0 - 14.0	4.7	155.0	35.0		
T50SMVCOC10-14-PA66HS/PA66HIRHS-BK		10.0 - 14.0	4.7	210.0	50.0		
T50SVCOC14-PA66HS/PA66HIRHS-BK		14.0	4.7	155.0	35.0		
T50SVCOC15-18-PA66HS/PA66HIRHS-BK		15.0 - 18.0	4.7	155.0	35.0		
T50SMVCOC15-18-PA66HS/PA66HIRHS-BK		15.0 - 18.0	4.7	210.0	50.0		
T50SVCOC18-20A-PA66HS/PA66HIRHS-BK			18.0 - 20.0	4.7	155.0	35.0	
T50SVCOC18-20B-PA66HS/PA66HIRHS-BK			18.0 - 20.0	4.7	155.0	35.0	
T50SVCOC19-24.5-PA66HS/PA66HIRHS-BK			19.0 - 24.5	4.7	155.0	35.0	
T50SMVCOC19-24.5-PA66HS/PA66HIRHS-BK			19.0 - 24.5	4.7	210.0	50.0	
T50SMVCOC19-24.5-PA46-GY			19.0 - 24.5	4.7	210.0	50.0	
T50SVCOC25-31-PA46/PA66HIRHS-GY/BK			25.0 - 31.0	4.7	155.0	35.0	
T50SVCOC25-31-PA66HS/PA66HIRHS-BK			25.0 - 31.0	4.7	155.0	35.0	
T50SMVCOC25-31-PA66HS/PA66HIRHS-BK			25.0 - 31.0	4.7	210.0	50.0	
T50SVCOC28-PA66HS/PA66HIRHS-BK			28.0	4.7	155.0	35.0	
T50SMVCOC28-PA66HS/PA66HIRHS-BK			28.0	4.7	210.0	50.0	
T50SVCOC31-39-PA66HS/PA66HIRHS-BK			31.0 - 39.0	4.7	155.0	35.0	
T50SMVCOC31-39-PA66HS/PA66HIRHS-BK			31.0 - 39.0	4.7	210.0	50.0	
T50SVCOC39-45-PA66HS/PA66HIRHS-BK			39.0 - 45.0	4.7	155.0	35.0	
T50SMVCOC39-45-PA66HS/PA66HIRHS-BK			39.0 - 45.0	4.7	210.0	50.0	
T50SVCOC25.0-31.0 ST-PA66HS/PA66HIRHS-BK				25.0 - 31.0	4.7	155.0	35.0
T50SVCOC31.0-39.0 ST-PA66HS/PA66HIRHS-BK				31.0 - 39.0	4.7	155.0	35.0

All dimensions in mm. Subject to technical changes.



# Cable Ties and Fixings

## Cable Ties With Fixing Elements

### 2-Piece Fixing Ties with Automatic Harness Clip, connectable and twistable 360°

#### IAHC-Series

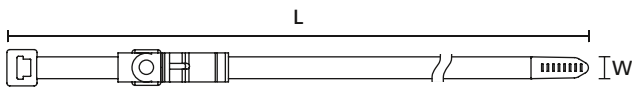
Offering a simple and secure method of attaching cables together. Originally designed for the automotive industry, these products are used in a wide range of applications.

#### Features and benefits

- Push and click closure
- 360 degrees rotatable
- Coupling elements of the IAHC variants allow parts to interconnect



T120R cable tie assembled with an IAHC.



T120RIAHC()TCR



Material specification please see page 22.

PART DESCRIPTION	Drawing	Attach to Ø	Width (W)	Length (L)	Bundle Ø max.	N
T50RIAHC1TCR-PA66HS/PA66HIRHS-BK		3.0 - 13.0	4.6	200.0	45.0	225
T120RIAHC1TCR-PA66HIRHS-BK		3.0 - 13.0	7.6	390.0	108.0	535
T50RIAHC2TCR-PA66HIRHS-BK		11.0 - 20.0	4.6	200.0	50.0	225
T120RIAHC2TCR-PA66HIRHS-BK		11.0 - 20.0	7.6	390.0	108.0	535
T120RIAHC3TCR-PA66HIRHS-BK		19.0 - 28.0	7.6	390.0	100.0	535
T120RIAHC4TCR-PA66HIRHS-BK		27.0 - 36.0	7.6	387.0	100.0	535
T50RIAHC5TCR-PA66HIR(S)/PA66HIRHS-BK		35.0 - 45.0	4.6	200.0	50.0	225
T120RIAHC5TCR-PA66HIRHS-BK		35.0 - 45.0	7.6	387.0	100.0	535

All dimensions in mm. Subject to technical changes.





### 2-Piece Fixing Ties with Pipe-Clip, twistable 360°

#### LOC-Series

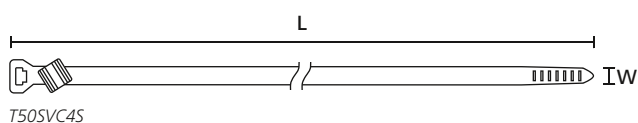
The fasteners interconnect two different bundles of goods, of various size and type. The mobility of the fixing provides a secure grip and protects the cables or bundles, even in difficult conditions.

#### Features and benefits

- Inside serrated cable tie with closure clip
- Retaining collar protects of noises of rattle
- Fixing Clip offers full 360° rotation
- Routed cable can move in any direction in relation to the fixing point



Two piece Fixing Tie T50SMVCLOC10-14 is used if routed tubes need to be able to follow movement - in any direction in relation to the fixing point.



PART DESCRIPTION	Drawing	Width (W)	Length (L)	Bundle Ø max.	N
T50SMVCLOC20-25-PA66HIRHSUV-BK		12.0	210.0	50.0	225
T50SMVCLOC5-9-PA66HIRHSUV-BK		12.0	210.0	50.0	225
T50SMVCLOC10-14-PA66HIRHSUV-BK		12.0	210.0	50.0	225
T50SMVCLOC15-19-PA66HIRHSUV-BK		12.0	210.0	50.0	225

All dimensions in mm. Subject to technical changes.



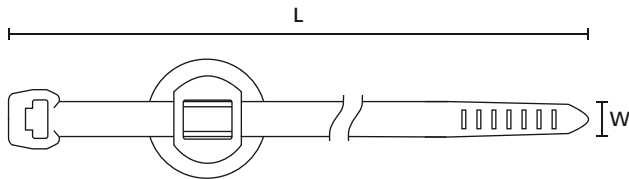
# Cable Ties and Fixings

## Cable Ties With Fixing Elements

### 2-Piece Fixing Ties with Pipe Clip

#### Features and benefits

- For post-installation of additional cables for pre-assembled cable looms
- Variety of twist angles and even different loop directions provide flexibility for cable routing
- For OC1 and 2A additional cable tie dimensions are available
- CBTO-series for cable ties up to 5 mm



Reference for dimensions only



Pipe Clip CBTO, twistable 90°.

PART DESCRIPTION	Drawing	Attach to Ø	Width (W)	Length (L)	Bundle Ø max.
T50ROCSG1A-PA66/PA66HIRHS-BK		4.0 - 10.0	4.6	202.0	45.0
T50IOC1A-PA66HIRHS-BK		4.0 - 10.0	4.6	305.0	80.0
T30ROC1A-PA66HS/PA66HIRHS-BK		4.0 - 10.0	3.6	148.0	31.0
T50ROC1A-PA66HS/PA66HIRHS-BK		4.0 - 10.0	4.6	202.0	45.0
T50LOC1A-PA66HIRHSUV-BK		4.0 - 10.0	4.7	390.0	45.0
T50ROCSG1B-PA66/PA66HIRHS-BK		4.0 - 10.0	4.6	202.0	45.0
T30ROC1B-PA66HS/PA66HIRHS-BK		4.0 - 10.0	3.6	148.0	30.0
T50ROC1B-PA66HS/PA66HIRHS-BK		4.0 - 10.0	4.6	202.0	45.0
T30ROC2B-PA46/PA66HIRHS-NA/BK		6.5 - 7.5	3.6	148.0	31.0
T50ROC2B-PA66HS/PA66HIRHS-BK		6.5 - 7.5	4.6	202.0	50.0
T30ROC2A-PA46-GY		6.5 - 7.5	3.6	148.0	31.0
T30ROC2A-PA46/PA66HIRHS-NA/BK		6.5 - 7.5	3.6	148.0	31.0
T30ROC2A-PA66HS/PA66HIRHS-BK		6.5 - 7.5	3.6	148.0	31.0
T30ROC5J-PA66HSUV-BK		11.0	3.5	152.0	30.0
T50RORC15x15-PA66HS/PA66HIRHS-BK		15.0 x 15.0	4.6	200.0	50.0

All dimensions in mm. Subject to technical changes.

### 2-Piece Fixing Ties with Pipe Clip, twistable 90°

PART DESCRIPTION	Drawing	Attach to Ø	Width (W)	Length (L)	Bundle Ø max.
T50ROC10-14CBTO-SD-SET-PA66HS/PA66HIRHS-BK		10.0 - 14.0	4.6	202.0	45.0
T50ROC15-18CBTO-SD-SET-PA66HS/PA66HIRHS-BK		15.0 - 18.0	4.6	202.0	45.0
T50ROC19-24.5CBTO-SD-SET-PA66HS/PA66HIRHS-BK		19.0 - 24.5	4.6	202.0	45.0

All dimensions in mm. Subject to technical changes.

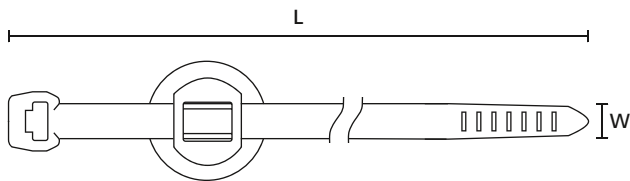


### 2-Piece Fixing Ties with a Fir Tree Pipe Clip

The fasteners interconnect two different bundles of goods, of various size and type. The mobility of the fixing provides a secure grip and protects the cables or bundles, even in difficult conditions.

#### Features and benefits

- Pre-assembled two piece fixing tie
- Easy to install without the need for a tool
- Bundle diameter is defined
- Clips to be attached into bore hole
- Suitable for post-installation of bundles



Reference for dimensions only



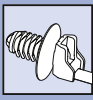
Two Piece Fixing Tie T50RCTC5-9FT7 is used when a tubing needs to be fixed in addition to a cable bundle.



**Material specification  
please see page 22.**

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N
T50SCTC5-9FT7-PA66HS/PA66HIRHS-BK		6.8 - 7.2	0.7 - 6.0	4.6	150.0	30.0	225

All dimensions in mm. Subject to technical changes.



# Cable Ties and Fixings

## Cable Ties With Fixing Elements

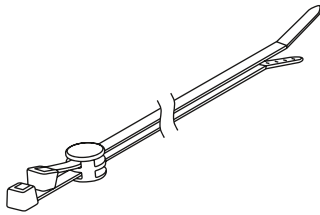
### 2-Piece Fixing Ties for parallel separation

#### Features and benefits

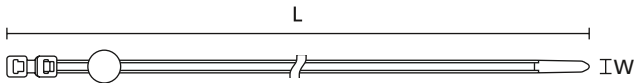
- Pre-assembled 2-piece fixing tie with coupler
- Cable tie head can be moved after bundling
- Easy addition of cables after assembly
- For parallel routing of bundles that can be twisted 90° even after installation



**Material specification  
please see page 22.**



T120RCOUPLER



Two Cable Ties with Coupler



T120RCOUPLER can be used for parallel routing of two cable ties.

PART DESCRIPTION	Width (W)	Length (L)	Bundle Ø max.	N
T50RCOUPLER-PA46-GY	4.6	202.0	47.0	225
T50RCOUPLER-PA66HIRHS/PA66HIR(S)-BK	4.6	202.0	47.0	225
T50R Coupler-PA66HS/PA66HIRHS-BK	4.6	202.0	47.0	225
T50RSINGLECOUPLER-PA66HIRHS-BK	4.6	202.0	47.0	225
T50ICOUPLER-PA66HS/PA66HIRHS-BK	4.6	300.0	85.0	225
T120RCOUPLER-PA66HIRHS/PA66HIR(S)-BK	7.6	390.0	105.0	535
T120RSINGLECOUPLER-PA66HIRHS/PA66HIR(S)-BK	7.6	390.0	105.0	535

All dimensions in mm. Subject to technical changes.

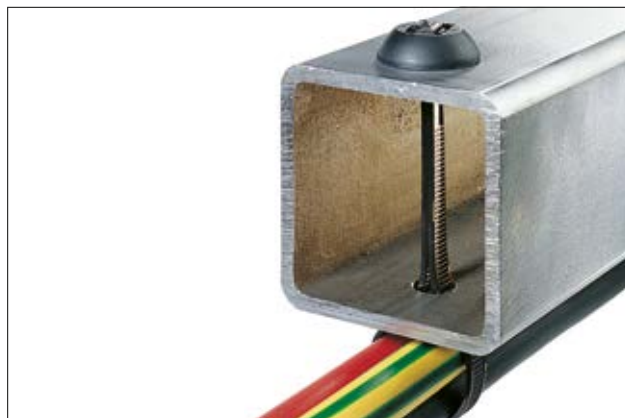


### Cable Ties for single hole application (Chassis Tie)

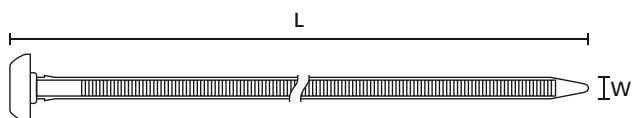
Using a single hole these 'chassis ties' are widely used in the automotive, truck and heavy equipment markets. Ideal for applications which have access to both sides of the hole - example truck frame rails.

#### Features and benefits

- Both sides serrated cable tie
- BHT-Series with round head for larger bearing area
- BHT375 for centred position
- CT- and DE-Series with small squared head for restricted space areas
- Tensioning with application tool



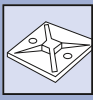
BHT375 - used for mounting cables via a single hole.



BHT375

PART DESCRIPTION	Drawing	Width (W)	Length (L)	Bundle Ø max.	N
BHT375-PA66HS-BK		7.6	375.0	100.0	700
BHT375M-PA66HS-BK		7.6	375.0	100.0	700
DE863220-PA66HS-BK		6.0	300.0	80.0	135
CT203-PA66HS-BK		7.6	200.0	50.0	700
CT375-PA66HS-BK		7.6	375.0	100.0	700
BT105L-PA66HIRHSUV-BK		5.6	381.5	110.0	467
PFC300-PA66HS-BK		6.0	300.0	80.0	180
LHT370-PA66-BK		7.6	370.0	106.0	535

All dimensions in mm. Subject to technical changes.



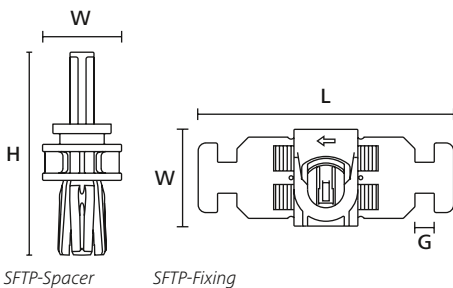
### Fastening Plate and Rivet Mount for Heavy Duty Applications

#### SFTP-Series

This SFTP-Heavy Duty fixing plate is used to run and fix cables to lead frames which can be found at railway, truck and agricultural vehicle construction. The cable harness is fixed with X120R tie onto the plate. The mounted plate can be fixed with the Rivet mount if a hole is valid at the frame. Or you can use the Bold Nut HDBN16 if a M16 stud is available. Both methods allow for a simple click and the harness is quick and vibration resistant applied to the lead frame.

#### Features and benefits

- Bundles are securely fixed with cable ties due to H-design of plate
- Plate can be fixed either with SFTP-Spacer for holes or bolt nut HDBN16 for M16 stud
- Very robust and vibration resistant fixing method for lead frames



SFTP-Spacer

SFTP-Fixing



From left to right: Bold Nut HDBN16, SFTP-Spacer and at the front: SFTP-Fixing.



Material specification please see page 22.

PART DESCRIPTION	Width (W)	Length (L)	Height (H)	Stud Ø
SFSFTP Set-PA66GF30/PA66HIRHS-BK	16.6	-	84.7	-
FSFTHDBN16-SET-PA66GF30/PA66HIRHS-BK	36.0	132.0	19.7	16.0

All dimensions in mm. Subject to technical changes.

### 2-Piece Fixing Ties with Heavy Duty Mount

#### For cable routing above the stud


These Heavy duty parts can be used in a wide variety of applications especially in trucks and agricultural vehicles. These Parts are not be fixed by hand but has to be installed with a tool. Easy fixation by pounding on the welded stud.

#### Features and benefits

- Cable tie head can be moved after bundling
- Bundle runs directly above the stud with defined stand-off from the panel
- Useable for metric thread M16
- Securely and firm hold even with vibrations
- X-Series cable ties are for special applications



Two Piece Fixing Tie X120RHDBN16 with Heavy Duty Bold Nut for M16 stud.

PART DESCRIPTION	Stud Ø	Width (W)	Length (L)	Bundle Ø max.	
X120RHDBN16-PA66HIRHS-BK	M16	7.7	369.0	100.0	535

All dimensions in mm. Subject to technical changes.

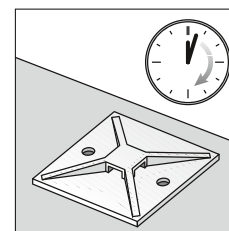
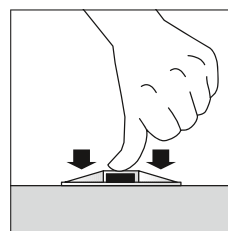
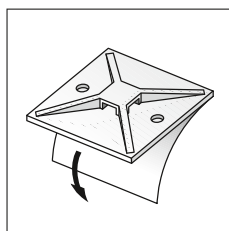
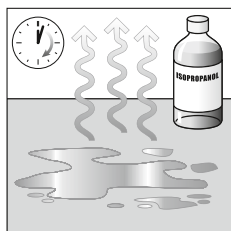


## Information and installation instructions for self-adhesive mounting bases

HellermannTyton uses different types of adhesives for self-adhesive bases: acrylate and synthetic rubber. These differ in the operating temperature range and the 'pull off' force of the adhesive. Synthetic rubber has an excellent initial grip, allowing for almost immediate use. Acrylate adhesive has less initial grip, so there is a need to wait for a few hours before use, but has a higher 'pull off' force than synthetic rubber. This enables a permanent fixing lasting months or even years.

ADHESIVE		Adhesive Operating Temperature
<b>Synthetic rubber with base of polyethylene foam</b>	Synthetic rubber	-40 °C to +60 °C
<b>Acrylate with base of polyurethane foam</b>	Acrylate	to +105 °C
<b>Acrylate with base of acrylic foam</b>	mod. Acrylate	-40 °C to +90 °C

### Instructions for use



1. The surface must be dry, free from dust, oil, oxides, parting agents and other impurities. The surface to be glued should be cleaned using a clean cloth and isopropanol/water (50/50). When using other appropriate cleaning agents, ensure that they do not attack the surface nor leave any residues. After cleaning allow the surface to air-dry completely.

2. Peel off protective backing and ensure the adhesive area is not touched.

3. Press down firmly on the base with the thumbs for several seconds.

4. Depending on the type of adhesive, wait for several minutes (synthetic rubber) or hours (acrylate) so that the adhesive can bond completely with the surface.

### Advantages of our self-adhesive mounts with mod. Acrylate (SolidTack / FlexTack)

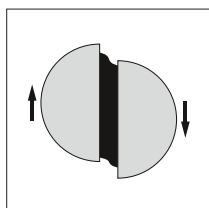
- Acrylic Foam Tape is made from a homogeneous system of high performance acrylic adhesive
- Very good initial bond
- High temperature resistance
- Adhesive offers design freedom, no need for bolts or screws
- Reduces the risk of corrosion, no need for boreholes



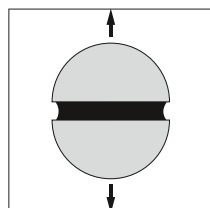
We will be happy to send you on request an up-to-date technical datasheet for whichever adhesive you are using.

- Weight reduction compared to mechanical mounting
- Possibility to optimize production processes and to reduce production cost (bonding vs. screwing)
- Can compensate unevenness up to a certain degree
- Specially developed for low energy surfaces

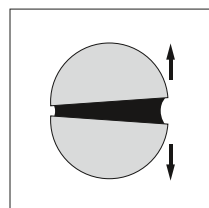
### Load types on adhesive bonds



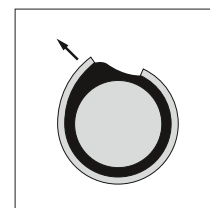
**Shear resistance.**  
Shear force pulls the adhesive surfaces in opposite directions along a parallel line.



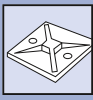
**Tensile strength.**  
Tension force pulls surfaces apart perpendicular to the adhesive bond.



**Cleavage resistance.**  
Cleavage can occur where forces acting on bonded surfaces are not evenly spread but concentrated along a single line.



**Peel adhesion.**  
Peeling force acts on a small amount of adhesive at the edge of the tape and weakens the adhesive bond. At least one adherend is flexible.



### Cable Tie Mounts with high performance adhesive

#### FlexTack-Series FMB for round and angled surfaces

FlexTack cable tie mounts can be successfully applied to a variety of high- and low-energy surfaces such as glass, metals (including painted, varnished or powder-coated surfaces) as well as plastics. FlexTack provides a reliable fixing solution where it is impractical to use screws or bolts. The unique design in combination with the special acrylate adhesive makes professional cable management easy.

#### Features and benefits

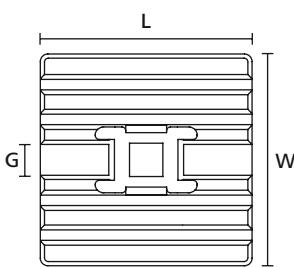
- Flexible Mount for round and angled surfaces
- FMB mounts with homogeneous system of acrylic adhesive
- Allows greater design freedom and offers uniform stress distribution along with weight reduction
- Adhesive with high cohesive strength combined with good weathering resistance
- Innovative fixing solution for high and low energy surfaces
- Protection foil with finger lift for easy peel off
- 4-way entry for cable tie for quicker and more flexible installation
- FlexTack Cable tie mounts are also suitable for high energy surfaces like metal or glass.



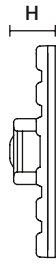
Flexible cable tie mount, FlexTack in use on a concave surface.



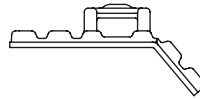
**Material specification please see page 22.**



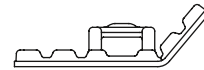
Flexible Adhesive Mount FMB4APT-I (plan view)



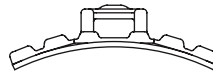
Flexible Adhesive Mount FMB4APT-I (side view)



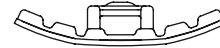
Flexible Adhesive Mount FMB4APT-I (down angled, side view)



Flexible Adhesive Mount FMB4APT-I (up angled, side view)



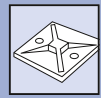
Flexible Adhesive Mount FMB4APT-I (convex, side view)



Flexible Adhesive Mount FMB4APT-I (concave, side view)

PART DESCRIPTION	Width (W)	Length (L)	Height (H)	Strap Width max. (G)	Adhesive
FMB4APT-A-PA66HS-BK	28.0	28.0	6.3	5.4	mod. Acrylate

All dimensions in mm. Subject to technical changes.



### Cable Tie Mounts with high performance adhesive

#### SolidTack-Series MB

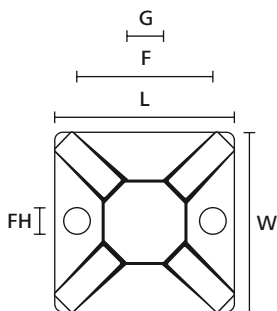
SolidTack MB Series mounts have a square design and are fairly common in areas like electrical cabinet, railway, aerospace, automotive and agriculture machinery. The premium self-adhesive bonds well on high and low-energy surfaces like plastics, metal, varnish or paint and is suitable for a wide range of applications.

#### Features and benefits

- MB mounts with homogeneous system of acrylic adhesive
- Very good initial adhesion, increases with time
- Adhesive with high cohesive strength combined with good weathering resistance
- Innovative fixing solution for high and low energy surfaces
- Protection foil with finger lift for easy peel off



SolidTack MB Series mounts with square design - screwable, self-adhesive - suitable for a wide range of applications like fastening of cables in the automotive machinery.



MB3-MB5 (plan view)



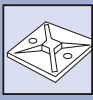
MB3-MB5 (side view)



For more information on the types of adhesive please see page 121.

PART DESCRIPTION	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Fixing Hole Centres (F)	Strap Width max. (G)	Adhesive
MB2APT-A-PA66-BK	13.0	13.0	4.1	-	-	2.7	mod. Acrylate
MB3APT-A-PA66-BK	19.0	19.0	3.8	3.1	13.2	4.4	mod. Acrylate
MB4A-PT1100-PA66-BK	28.0	28.0	4.7	4.0	20.2	5.6	mod. Acrylate
MB4APT-A-PA66-BK	28.0	28.0	4.7	4.0	20.2	5.6	mod. Acrylate
MB4APT-A-PA66-WH	28.0	28.0	4.7	4.0	20.2	5.6	mod. Acrylate
MB5APT-A-PA66-BK	38.0	38.0	6.3	4.7	25.3	10.0	mod. Acrylate

All dimensions in mm. Subject to technical changes.



### Self Adhesive, Screw Fixing Cable Tie Mounts

#### MB-Series square design, self adhesive, screwable

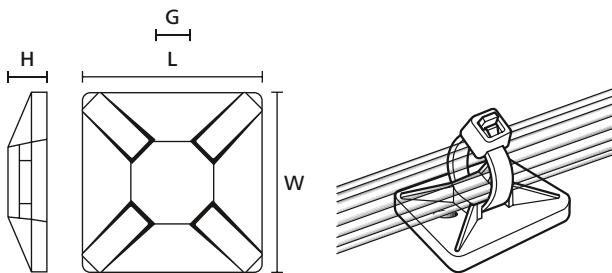
Where speed, simplicity and a firm fixing base are required these self adhesive clips are ideal. Particularly suitable for use in control cabinets, telecoms equipment or domestic appliances where the use of holes, screws, or nuts and bolts is impractical or undesirable.

#### Features and benefits

- Screwable or self-adhesive versions
- Simple to install with a screw or bolt
- Excellent security, particularly in areas of high vibration
- Maximum surface area with adhesive to achieve high pull-off force
- 4-way entry for cable tie for quicker and more flexible installation



MB-Series Mounts with square design / screwable, self adhesive.



Cable Tie Mount MB2A  
(side and plan view)

Cable Tie Mount MB3A in application



**Material specification  
please see page 22.**



**For more information on the types  
of adhesive please see page 121.**

PART DESCRIPTION	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Strap Width max. (G)	Adhesive
MB2A-PA66-BK	13.0	13.0	4.1	-	2.7	Synthetic rubber
MB3A-PA66-BK	19.0	19.0	3.8	3.1	4.1	Synthetic rubber
MB3A-PA66-WH	19.0	19.0	3.8	3.1	4.1	Synthetic rubber
MB4A3-PA66-BK	28.0	28.0	4.7	4.0	5.4	Acrylate
MB4A-PA66-BK	28.0	28.0	4.7	4.0	5.4	Synthetic rubber
MB4A-PA66-WH	28.0	28.0	4.7	4.0	5.4	Synthetic rubber

All dimensions in mm. Subject to technical changes.



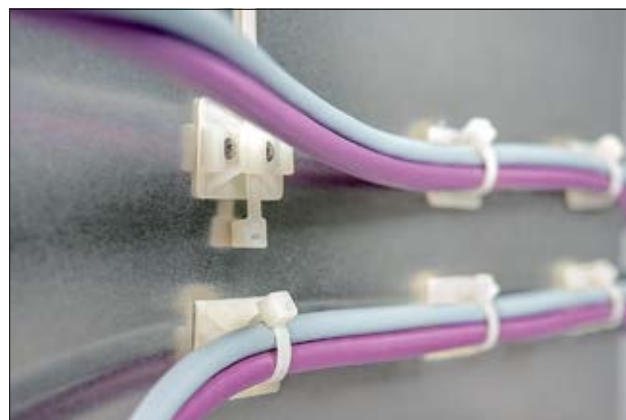
### Screw Fixing Cable Tie Mounts

#### TY-Series Rectangle Design, screwable

These products are designed for simple yet robust installation in a wide variety of applications. TY-Series mounts with a rectangular design are commonly used in telecoms equipment, switchgear and control cabinets. With its small and compact design TY3G1 offers an easy and rapid assembly for many different applications.

#### Features and benefits

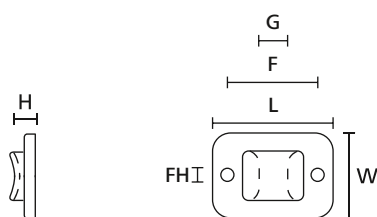
- Screwable or self-adhesive versions
- Concave design to support larger diameter cables and bundles
- 2-way mounting base for safe guiding of cables and conduits
- Suitable for applications with minimal space
- Mounted before cable installation
- Usable with standard cable ties



TY-Series mounts with rectangle design / screwable, self adhesive.



For more information on the types of adhesive please see page 121.

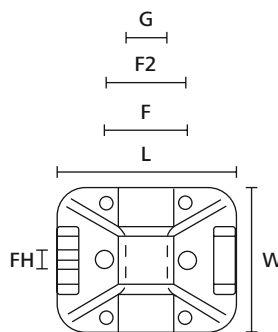


TY3G1, TY3G1S  
(side view)

TY3G1, TY3G1S (plan view)



TY8G1, TY8G1S  
(side view)



TY8G1, TY8G1S (plan view)

PART DESCRIPTION	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Fixing Hole Centres (F)	Fixing Hole Centres (F2)	Strap Width max. (G)
TY3G1-PA66-NA	14.0	20.0	3.7	2.2	15.0	-	4.0
TY8G1-PA66-NA	25.0	32.0	5.5	3.2	15.6	14.0	8.0

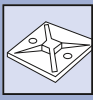
All dimensions in mm. Subject to technical changes.

### Self Adhesive, Screw Fixing Cable Tie Mounts

#### TY-Series Rectangle Design, self adhesive, screwable

PART DESCRIPTION	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Fixing Hole Centres (F)	Fixing Hole Centres (F2)	Strap Width max. (G)	Adhesive
TY3G1S-PA66W-BK	14.0	20.0	3.7	2.2	15.0	-	4.0	Acrylate
TY8G1S-PA66-NA	25.0	32.0	5.5	3.2	15.6	14.0	8.0	Acrylate

All dimensions in mm. Subject to technical changes.



### Mounts with round design, self adhesive

#### RA-Series

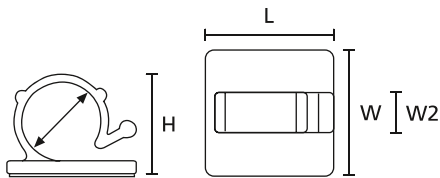
These mounts are ideal for use in applications which are difficult to access or for areas where self adhesive is the only possible fixing method and fixing holes would be unacceptable. The self adhesive mounts can be used without cable ties. Offering process optimization in industries like automotive, bus and truck, construction vehicles or industrial building.

#### Features and benefits

- One-piece self adhesive mount for quick and easy installation
- Can be used without cable ties offering process optimization
- Designed to hold wires, cables or hoses
- Different sizes for various bundle diameters available
- Two types of adhesive can be offered



Self adhesive one piece fixing mounts RA6 (l) and RB5 (r).



RA3-18 Series  
(side view)

RA3-18 Series (plan view)

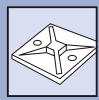


For more information on the types of adhesive please see page 121.

PART DESCRIPTION	Width (W)	Width (W2)	Length (L)	Height (H)	Bundle Ø max.	Adhesive
RA3-PA66-NA	13.0	5.0	13.0	5.0	3.0	Synthetic rubber
RA6-PA66-BK	19.0	5.0	19.0	9.0	6.0	Synthetic rubber
RA6-PA66-NA	19.0	5.0	19.0	9.0	6.0	Synthetic rubber
RA9-PA66-NA	19.0	7.5	19.0	12.5	9.0	Synthetic rubber
RA13-PA66-NA	25.0	10.0	25.0	16.5	13.0	Synthetic rubber
RA18-PA66-BK	28.5	10.0	28.5	23.0	18.0	Synthetic rubber
RA18-PA66-NA	28.5	10.0	28.5	23.0	18.0	Synthetic rubber

All dimensions in mm. Subject to technical changes.





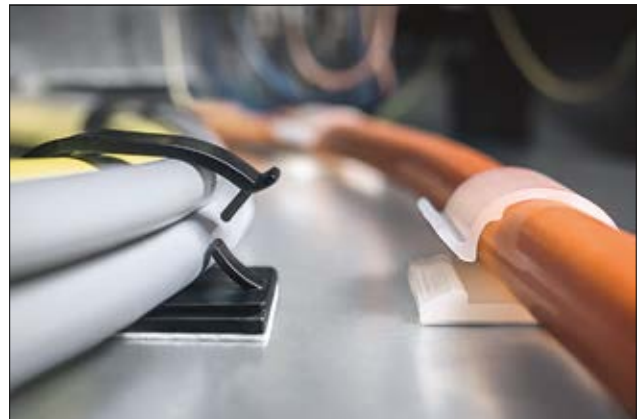
### Mounts with flat and round design, self adhesive

#### RB-Series

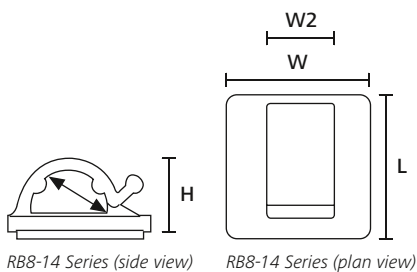
RB-Series self adhesive mounts offer greater routing freedom and also reduce the risk of corrosion compared to screw fixing mounts. They are ideally suited for tool-free installation and can be re-opened and reused easily when cables need to be replaced. These mounts can be used without the need for additional cable ties. Offering process optimization in a variety of applications.

#### Features and benefits

- Flat design to use in applications with limited space
- One-piece self adhesive mount for quick and easy installation
- Can be used without cable ties offering process optimization
- Different sizes for various bundle diameters available
- Cost effective with easy application on smooth, clean surfaces



Self adhesive one piece fixing mounts RB20 (l) and RB14 (r).



RB8-14 Series (side view)

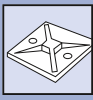
RB8-14 Series (plan view)



**Material specification  
please see page 22.**

PART DESCRIPTION	Width (W)	Width (W2)	Length (L)	Height (H)	Bundle Ø max.	Adhesive
RB8APT-PA66-BK	25.0	12.7	25.0	11.5	8.0	mod. Acrylate
RB8-PA66-BK	25.0	12.7	25.0	11.5	8.0	Synthetic rubber

All dimensions in mm. Subject to technical changes.



### Screw Fixing Mounts

#### Cable Tie Mounts with curved design

Designed specifically for holding heavier cable bundles these mounting bases can be used in many industries from agriculture to truck manufacturing. They offer a very secure fixing and can be used with a wide variety of heavy duty cable ties up to 8.3 mm width.

#### Features and benefits

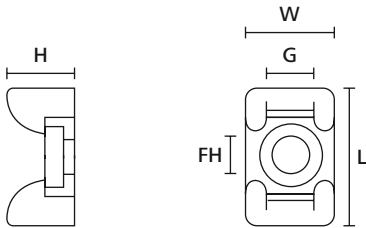
- Curved design for additional cable support
- Simple to install with a screw or bolt
- Excellent security, particularly in areas of high vibration
- Mounts are available in various sizes and materials



Cable Tie Mounts KR6G5, KR8G5 and CTM.



**Material specification please see page 22.**



KR6G5, KR8G5 and CTM (side view)

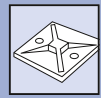
KR6G5, KR8G5 and CTM (plan view)



**The KR-E/TFE mounts can ideally be combined with the E/TFE-cable ties on page 39.**

PART DESCRIPTION	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Strap Width max. (G)
KR6G5-E/TFE-BU	11.8	17.8	8.8	4.5	6.4
KR6G5-PA66-NA	12.0	18.0	9.0	4.5	6.0
KR6G5-PA66W-BK	12.0	18.0	9.0	4.5	6.0
KR8G5-E/TFE-BU	14.3	24.8	12.1	6.5	8.3
KR8G5-PA66HS-BK	14.5	25.0	12.0	6.5	8.0

All dimensions in mm. Subject to technical changes.



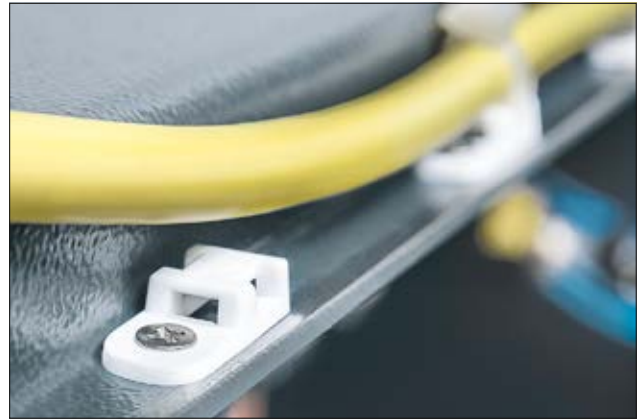
### Screw Fixing Mounts

#### CTAM-Series for applications where space is limited

Each of these products offers particular benefits, but all are designed for simple yet robust installation in a wide variety of applications. Particularly used in telecoms equipment, switchgear and control cabinets these cable tie mounts are also used within the aerospace and railway industry.

#### Features and benefits

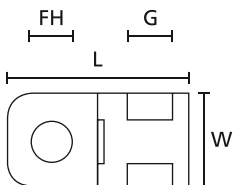
- Suitable for applications with minimal space
- Mounted before cable installation and in line with cable
- CTAM has 4-way entry design for use in line or at 90° angle to cable run
- CTAM mounts are available in different sizes and materials



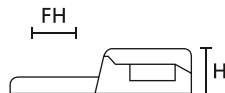
CTAM mounts for applications with limited space.



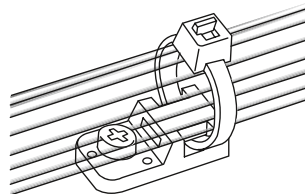
The CTAM mounts made of PEEK are the ideal complement for the PEEK tie on page 45.



CTAM-Series (plan view)



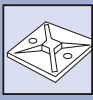
CTAM-Series (side view)



CTAM-Series in application

PART DESCRIPTION	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Strap Width max. (G)
CTAM1-PA66-WH	10.2	20.4	5.1	4.3	5.0
CTAM2-PA66-WH	10.2	20.4	5.1	5.2	5.0
CTAM2-PVDFX-NA	10.2	20.5	5.1	5.1	5.0
CTAM1-PEEK-BGE	10.2	20.5	5.5	4.3	5.0
CTAM2-PEEK-BGE	10.2	20.5	5.5	5.2	5.0

All dimensions in mm. Subject to technical changes.



### Screw Fixing Mounts

#### MB-Series Curved Design, screwable

These cable tie mounts are very small in their overall size. They are designed for simple yet robust installation particularly in areas with high vibrations and/or limited space. They are a common fixing method for telecoms equipment, switchgear and control cabinets.

#### Features and benefits

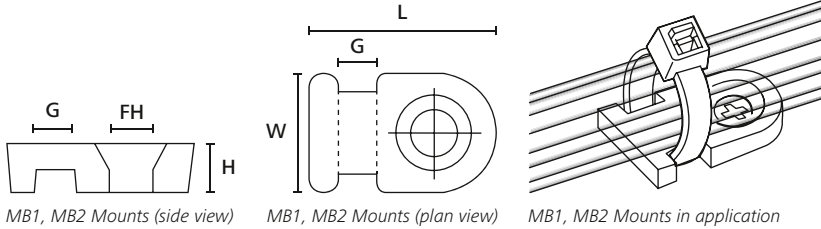
- Small overall size for areas with limited mounting space
- Simple to install with a screw, bolt or rivet
- Excellent security, particularly in areas of high vibration
- Single hole fixing with two-way entry for cable tie



TY- (l) and MB-Series (r) with curved design, screwable.



**Material specification please see page 22.**



PART DESCRIPTION	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Strap Width max. (G)
MB1-PA66-NA	8.0	12.5	3.5	2.9	2.6
MB2-PA66-BK	12.5	20.5	3.3	5.0	5.0
MB2-PA66-NA	12.5	20.5	3.3	5.0	5.0

All dimensions in mm. Subject to technical changes.



### Harness Clip for Heavy Duty Applications, for Screws or threaded Bolts

These heavy duty mounts (HDM) have been primarily designed for use in the automotive and truck industry. Nowadays they can be found in a variety of applications requiring heavy duty mounting in areas like the railway, defence and/or agriculture industry.

#### Features and benefits

- Design offers secure alignment to the bundle
- Possible replacement of cushion clamps and/or metal clamps
- Eliminates the needs for multiple sized fix diameter clamps
- For heavy duty cable ties up to 12.7 mm width
- High tightening torque
- Easy maintenance of bundle by simply changing the cable tie



Heavy Duty Mounts HDM-Series, patent number US5820083.

#### Standard Torque Mounts

PART DESCRIPTION	Drawing	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Strap Width max. (G)
HDM19-PA66HIRHSUV-BK		19.3	36.3	16.7	4.7	12.7
HDM25-PA66HIRHSUV-BK		19.3	36.3	16.7	6.2	12.7
HDM312-PA66HIRHSUV-BK		19.3	36.3	16.7	7.8	12.7

All dimensions in mm. Subject to technical changes.

#### Medium Torque Mounts

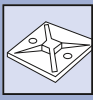
PART DESCRIPTION	Drawing	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Strap Width max. (G)
HDM321-PA66HIRHSUV-BK		24.0	46.0	20.7	8.31	12.7
HDM401-PA66HIRHSUV-BK		24.0	46.0	20.7	10.29	12.7
HDM501-PA66HIRHSUV-BK		24.0	46.0	20.7	12.7	12.7

All dimensions in mm. Subject to technical changes.

#### High Torque Mounts

PART DESCRIPTION	Drawing	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Strap Width max. (G)
HDM400BR-PA66HIRHSUV-BK		25.0	47.0	20.7	10.29	12.7

All dimensions in mm. Subject to technical changes.



### Two Way Saddle Mount for heavy duty applications, for parallel separation

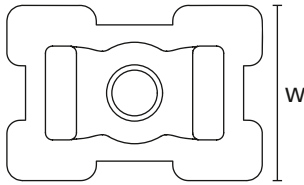
Heavy duty saddle mounts can be installed between two bundles to separate them and prevent chafing and wear. Fastened to a frame rail or mounting bracket, the special profile on the saddle mount provides a tight circumferential loop on large and small bundles. The saddle mount is an ideal assistant in many applications within the railway, truck and agricultural vehicle construction as well as in the ship building industry.

#### Features and benefits

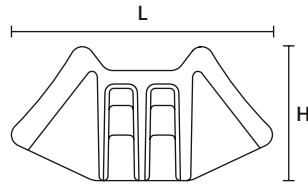
- For parallel routing of different bundles to avoid wear and chafing
- Offers secure alignment to the bundle
- Can be used in combination with heavy duty cable ties
- Easy maintenance of bundle by simply changing the cable tie
- Made from impact modified, heat stabilized material



*This saddle mount is installed between two bundles to separate them and prevent chafing and wear.*



S2CM25



S2CM25



**Material specification  
please see page 22.**

PART DESCRIPTION	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Strap Width max. (G)
S2CM25-PA66HIRHS-GY	30.0	45.0	23.0	6.0, 6.35 (hexagonal)	12.7
S2HM25-PA66HIRHSUV-BK	30.0	45.0	23.0	6.0, 6.35 (hexagonal)	12.7

All dimensions in mm. Subject to technical changes.





### Harness Clip for Heavy Duty Applications, for Screws or threaded Bolts for Edges

This axial oval mount stands off bundles from frame rails and cross members to prevent them from rubbing and chafing. They can be perfectly used in combination with heavy duty cable ties up to 12.7 mm width – ideal to securely fix cables and wires in the railway and shipbuilding industry as well as in truck and agricultural vehicle construction.

#### Features and benefits

- Guides bundles securely above sharp edges
- For threaded bolts or screws
- Can be used in combination with heavy duty cable ties
- For cable ties up to 12.7 mm width



*Axial oval mounts stand off bundles from frame rails and cross members to prevent them from rubbing and chafing.*

PART DESCRIPTION	Drawing	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Strap Width max. (G)
SAM83-PA66HIRHSUV-GY		26.0	34.0	35.0	8.0	12.7
SAOM82-PA66HIRHSUV-BK		26.0	34.0	35.0	8.0	12.7

All dimensions in mm. Subject to technical changes.

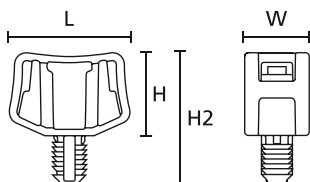
### Fixing Elements with Fir Tree, for Distance Routing

#### Saddle Mount

These heavy duty fixing offers excellent performance for ship building and the truck and construction vehicle industries.

#### Features and benefits

- For parallel routing of four bundles
- Secure alignment to the bundle due to H-design
- For cable ties up to 12.7 mm wide
- Pre-fixing of tie with integrated nose



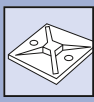
*Fir Tree Saddle Mounts*



*The mount can secure up to four separate bundles, providing parallel spacing between the frame rail and adjacent bundles.*

PART DESCRIPTION	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Height (H)	Height (H2)
S3STM50-PA66HIRHSUV-BK	12.7 - 13.7	1.9 - 13.0	22.0	50.0	35.0	55.0

All dimensions in mm. Subject to technical changes.



### Ratchet P-Clamp

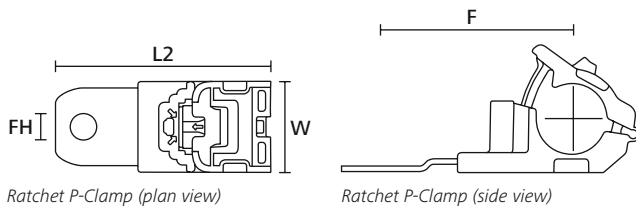
The Ratchet P-Clamp family offers versatility when managing wires, cables and hoses. The robust design and durable materials make it ideal for heavy duty applications, both in- and outdoors. The one-piece adjustable clamp can be closed by hand to the desired diameter. The release feature provides easy and nondestructive removal of cables simply by using a flat-head screwdriver. This nondestructive release allows the clamp to be reused without removing or replacing any bolts or screws. The Ratchet P-Clamp is offered in four sizes and multiple mounting configurations.

#### Features and benefits

- One-piece ratchet closure design allows for easy installation during pre- or final assembly
- Multiple configurations handle a wide range of diameters and applications, reducing part inventory
- Clamp interior is designed to guide and center bundle to reduce pinching
- Easy release feature allows for quick adjustments and maintenance
- Impact modified, heat and UV stabilized PA66 provides long-term durability, in- and outdoors
- Steel mounting plate tolerates high torque mounting and is treated to resist chemicals and salt spray



Ratchet P-Clamp - A more versatile way to mount and clamp cables.



Ratchet P-Clamp (plan view)

Ratchet P-Clamp (side view)



Material specification please see page 22.

For bundle diameters from 6.2 mm to 13.7 mm

PART DESCRIPTION	Width (W)	Length (L2)	Bundle Ø min.	Bundle Ø max.	Hole Ø (FH)	Fixing Hole Centres (F)	Variant
RCA90SM6-PA66HIRHSUV/ST/ZN-BK	34.9	68.8	6.2	13.7	6.5	24.9	Short
RCA90SM8-PA66HIRHSUV/ST/ZN-BK	34.9	68.8	6.2	13.7	8.31	24.9	Short
RCA90SM10-PA66HIRHSUV/ST/ZN-BK	34.9	68.8	6.2	13.7	10.29	24.9	Short
RCA90SM12-PA66HIRHSUV/ST/ZN-BK	34.9	68.8	6.2	13.7	12.95	24.9	Short
RCA30SM6-PA66HIRHSUV/ST/ZN-BK	34.9	78.5	6.2	13.7	6.5	47.7	Short
RCA30SM8-PA66HIRHSUV/ST/ZN-BK	34.9	78.5	6.2	13.7	8.31	47.7	Short
RCA30SM10-PA66HIRHSUV/ST/ZN-BK	34.9	78.5	6.2	13.7	10.29	47.7	Short
RCA30SM12-PA66HIRHSUV/ST/ZN-BK	34.9	78.5	6.2	13.7	12.95	47.7	Short
RCA180SM6-PA66HIRHSUV/ST/ZN-BK	34.9	83.1	6.2	13.7	6.5	50.5	Short
RCA180SM8-PA66HIRHSUV/ST/ZN-BK	34.9	83.1	6.2	13.7	8.31	50.5	Short
RCA180SM10-PA66HIRHSUV/ST/ZN-BK	34.9	83.1	6.2	13.7	10.29	50.5	Short
RCA180SM12-PA66HIRHSUV/ST/ZN-BK	34.9	83.1	6.2	13.7	12.95	50.5	Short
RCA15SM6-PA66HIRHSUV/ST/ZN-BK	34.9	86.9	6.2	13.7	6.5	54.7	Short
RCA15SM8-PA66HIRHSUV/ST/ZN-BK	34.9	86.9	6.2	13.7	8.31	54.7	Short
RCA15SM10-PA66HIRHSUV/ST/ZN-BK	34.9	86.9	6.2	13.7	10.29	54.7	Short
RCA15SM12-PA66HIRHSUV/ST/ZN-BK	34.9	86.9	6.2	13.7	12.95	54.7	Short
RCA90LM6-PA66HIRHSUV/ST/ZN-BK	34.9	96.8	6.2	13.7	6.5	24.9	Long
RCA90LM8-PA66HIRHSUV/ST/ZN-BK	34.9	96.8	6.2	13.7	8.31	24.9	Long
RCA90LM10-PA66HIRHSUV/ST/ZN-BK	34.9	96.8	6.2	13.7	10.29	24.9	Long

All dimensions in mm. Subject to technical changes.



## Ratchet P-Clamp

For bundle diameters from 6.2 mm to 13.7 mm

PART DESCRIPTION	Width (W)	Length (L2)	Bundle Ø min.	Bundle Ø max.	Hole Ø (FH)	Fixing Hole Centres (F)	Variant
RCA90LM12-PA66HIRHSUV/ST/ZN-BK	34.9	96.8	6.2	13.7	12.95	24.9	Long
RCA30LM6-PA66HIRHSUV/ST/ZN-BK	34.9	103.2	6.2	13.7	6.5	72.4	Long
RCA30LM8-PA66HIRHSUV/ST/ZN-BK	34.9	103.2	6.2	13.7	8.31	72.4	Long
RCA30LM10-PA66HIRHSUV/ST/ZN-BK	34.9	103.2	6.2	13.7	10.29	72.4	Long
RCA30LM12-PA66HIRHSUV/ST/ZN-BK	34.9	103.2	6.2	13.7	12.95	72.4	Long
RCA180MM6-PA66HIRHSUV/ST/ZN-BK	34.9	105.1	6.2	13.7	6.5	72.5	Medium
RCA180MM8-PA66HIRHSUV/ST/ZN-BK	34.9	105.1	6.2	13.7	8.31	72.5	Medium
RCA180MM10-PA66HIRHSUV/ST/ZN-BK	34.9	105.1	6.2	13.7	10.29	72.5	Medium
RCA180MM12-PA66HIRHSUV/ST/ZN-BK	34.9	105.1	6.2	13.7	12.95	72.5	Medium
RCA180LM6-PA66HIRHSUV/ST/ZN-BK	34.9	134.1	6.2	13.7	6.5	101.5	Long
RCA180LM8-PA66HIRHSUV/ST/ZN-BK	34.9	134.1	6.2	13.7	8.31	101.5	Long
RCA180LM10-PA66HIRHSUV/ST/ZN-BK	34.9	134.1	6.2	13.7	10.29	101.5	Long
RCA180LM12-PA66HIRHSUV/ST/ZN-BK	34.9	134.1	6.2	13.7	12.95	101.5	Long

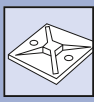
All dimensions in mm. Subject to technical changes.

For bundle diameters from 12.7 mm to 19.5 mm

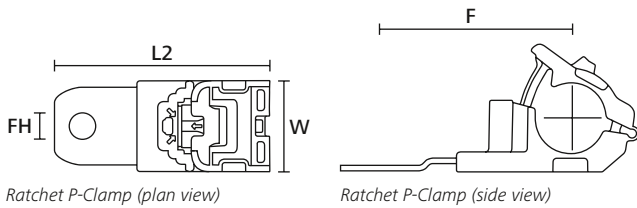
PART DESCRIPTION	Width (W)	Length (L2)	Bundle Ø min.	Bundle Ø max.	Hole Ø (FH)	Fixing Hole Centres (F)	Variant
RCB90SM6-PA66HIRHSUV/ST/ZN-BK	34.9	68.8	12.7	19.5	6.5	26.7	Short
RCB90SM8-PA66HIRHSUV/ST/ZN-BK	34.9	68.8	12.7	19.5	8.31	26.7	Short
RCB90SM12-PA66HIRHSUV/ST/ZN-BK	34.9	68.8	12.7	19.5	12.95	26.7	Short
RCB30SM6-PA66HIRHSUV/ST/ZN-BK	34.9	78.5	12.7	19.5	6.5	48.8	Short
RCB30SM8-PA66HIRHSUV/ST/ZN-BK	34.9	78.5	12.7	19.5	8.31	48.8	Short
RCB30SM10-PA66HIRHSUV/ST/ZN-BK	34.9	78.5	12.7	19.5	10.29	48.8	Short
RCB30SM12-PA66HIRHSUV/ST/ZN-BK	34.9	78.5	12.7	19.5	12.95	48.8	Short
RCB180SM6-PA66HIRHSUV/ST/ZN-BK	34.9	83.1	12.7	19.5	6.5	52.8	Short
RCB180SM8-PA66HIRHSUV/ST/ZN-BK	34.9	83.1	12.7	19.5	8.31	52.8	Short
RCB180SM12-PA66HIRHSUV/ST/ZN-BK	34.9	83.1	12.7	19.5	12.95	52.8	Short
RCB15SM6-PA66HIRHSUV/ST/ZN-BK	34.9	86.9	12.7	19.5	6.5	56.5	Short
RCB15SM8-PA66HIRHSUV/ST/ZN-BK	34.9	86.9	12.7	19.5	8.31	56.5	Short
RCB15SM10-PA66HIRHSUV/ST/ZN-BK	34.9	86.9	12.7	19.5	10.29	56.5	Short
RCB15SM12-PA66HIRHSUV/ST/ZN-BK	34.9	86.9	12.7	19.5	12.95	56.5	Short
RCB90LM6-PA66HIRHSUV/ST/ZN-BK	34.9	96.8	12.7	19.5	6.5	26.7	Long
RCB90LM8-PA66HIRHSUV/ST/ZN-BK	34.9	96.8	12.7	19.5	8.31	26.7	Long
RCB90LM10-PA66HIRHSUV/ST/ZN-BK	34.9	96.8	12.7	19.5	10.29	26.7	Long
RCB90LM12-PA66HIRHSUV/ST/ZN-BK	34.9	96.8	12.7	19.5	12.95	26.7	Long
RCB30LM6-PA66HIRHSUV/ST/ZN-BK	34.9	103.2	12.7	19.5	6.5	73.5	Long
RCB30LM8-PA66HIRHSUV/ST/ZN-BK	34.9	103.2	12.7	19.5	8.31	73.5	Long
RCB30LM10-PA66HIRHSUV/ST/ZN-BK	34.9	103.2	12.7	19.5	10.29	73.5	Long
RCB30LM12-PA66HIRHSUV/ST/ZN-BK	34.9	103.2	12.7	19.5	12.95	73.5	Long
RCB180MM6-PA66HIRHSUV/ST/ZN-BK	34.9	105.1	12.7	19.5	6.5	74.8	Medium
RCB180MM8-PA66HIRHSUV/ST/ZN-BK	34.9	105.1	12.7	19.5	8.31	74.8	Medium
RCB180MM10-PA66HIRHSUV/ST/ZN-BK	34.9	105.1	12.7	19.5	10.29	74.8	Medium
RCB180MM12-PA66HIRHSUV/ST/ZN-BK	34.9	105.1	12.7	19.5	12.95	74.8	Medium

All dimensions in mm. Subject to technical changes.





### Ratchet P-Clamp



Ratchet P-Clamp (plan view)

Ratchet P-Clamp (side view)



Material specification please see page 22.

For bundle diameters from 12.7 mm to 19.5 mm

PART DESCRIPTION	Width (W)	Length (L2)	Bundle Ø min.	Bundle Ø max.	Hole Ø (FH)	Fixing Hole Centres (F)	Variant
RCB180LM6-PA66HIRHSUV/ST/ZN-BK	34.9	134.1	12.7	19.5	6.5	103.8	Long
RCB180LM8-PA66HIRHSUV/ST/ZN-BK	34.9	134.1	12.7	19.5	8.31	103.8	Long
RCB180LM10-PA66HIRHSUV/ST/ZN-BK	34.9	134.1	12.7	19.5	10.29	103.8	Long
RCB180LM12-PA66HIRHSUV/ST/ZN-BK	34.9	134.1	12.7	19.5	12.95	103.8	Long
RCB180SM10-PA66HIRHSUV/ST/ZN-BK	34.9	83.1	12.7	19.5	10.29	52.8	Short
RCB90SM10-PA66HIRHSUV/ST/ZN-BK	34.9	68.8	12.7	19.5	10.29	26.7	Short

All dimensions in mm. Subject to technical changes.

For bundle diameters from 19.4 mm to 36.0 mm

PART DESCRIPTION	Width (W)	Length (L2)	Bundle Ø min.	Bundle Ø max.	Hole Ø (FH)	Fixing Hole Centres (F)	Variant
RCC30SM6-PA66HIRHSUV/ST/ZN-BK	34.9	90.2	19.4	36.0	6.5	50.5	Short
RCC30SM8-PA66HIRHSUV/ST/ZN-BK	34.9	90.2	19.4	36.0	8.31	50.5	Short
RCC30SM10-PA66HIRHSUV/ST/ZN-BK	34.9	90.2	19.4	36.0	10.29	50.5	Short
RCC30SM12-PA66HIRHSUV/ST/ZN-BK	34.9	90.2	19.4	36.0	12.95	50.5	Short
RCC90SM6-PA66HIRHSUV/ST/ZN-BK	34.9	101.2	19.4	36.0	6.5	39.9	Short
RCC90SM8-PA66HIRHSUV/ST/ZN-BK	34.9	101.2	19.4	36.0	8.31	39.9	Short
RCC90SM12-PA66HIRHSUV/ST/ZN-BK	34.9	101.2	19.4	36.0	12.95	39.9	Short
RCC180SM6-PA66HIRHSUV/ST/ZN-BK	34.9	103.0	19.4	36.0	6.5	62.3	Short
RCC180SM8-PA66HIRHSUV/ST/ZN-BK	34.9	103.0	19.4	36.0	8.31	62.3	Short
RCC180SM12-PA66HIRHSUV/ST/ZN-BK	34.9	103.0	19.4	36.0	12.95	62.3	Short
RCC15SM6-PA66HIRHSUV/ST/ZN-BK	34.9	103.5	19.4	36.0	6.5	62.3	Short
RCC15SM8-PA66HIRHSUV/ST/ZN-BK	34.9	103.5	19.4	36.0	8.31	62.3	Short
RCC15SM10-PA66HIRHSUV/ST/ZN-BK	34.9	103.5	19.4	36.0	10.29	62.3	Short
RCC15SM12-PA66HIRHSUV/ST/ZN-BK	34.9	103.5	19.4	36.0	12.95	62.3	Short
RCC30LM6-PA66HIRHSUV/ST/ZN-BK	34.9	114.9	19.4	36.0	6.5	75.2	Long
RCC30LM8-PA66HIRHSUV/ST/ZN-BK	34.9	114.9	19.4	36.0	8.31	75.2	Long
RCC30LM10-PA66HIRHSUV/ST/ZN-BK	34.9	114.9	19.4	36.0	10.29	75.2	Long
RCC30LM12-PA66HIRHSUV/ST/ZN-BK	34.9	114.9	19.4	36.0	12.95	75.2	Long
RCC180MM6-PA66HIRHSUV/ST/ZN-BK	34.9	125.0	19.4	36.0	6.5	84.3	Medium
RCC180MM8-PA66HIRHSUV/ST/ZN-BK	34.9	125.0	19.4	36.0	8.31	84.3	Medium
RCC180MM10-PA66HIRHSUV/ST/ZN-BK	34.9	125.0	19.4	36.0	10.29	84.3	Medium
RCC180MM12-PA66HIRHSUV/ST/ZN-BK	34.9	125.0	19.4	36.0	12.95	84.3	Medium
RCC90LM6-PA66HIRHSUV/ST/ZN-BK	34.9	129.2	19.4	36.0	6.5	39.9	Long
RCC90LM8-PA66HIRHSUV/ST/ZN-BK	34.9	129.2	19.4	36.0	8.31	39.9	Long
RCC90LM10-PA66HIRHSUV/ST/ZN-BK	34.9	129.2	19.4	36.0	10.29	39.9	Long
RCC90LM12-PA66HIRHSUV/ST/ZN-BK	34.9	129.2	19.4	36.0	12.95	39.9	Long

All dimensions in mm. Subject to technical changes.



## Ratchet P-Clamp

For bundle diameters from 19.4 mm to 36.0 mm

PART DESCRIPTION	Width (W)	Length (L2)	Bundle Ø min.	Bundle Ø max.	Hole Ø (FH)	Fixing Hole Centres (F)	Variant
RCC180LM6-PA66HIRHSUV/ST/ZN-BK	34.9	154.0	19.4	36.0	6.5	113.3	Long
RCC180LM8-PA66HIRHSUV/ST/ZN-BK	34.9	154.0	19.4	36.0	8.31	113.3	Long
RCC180LM10-PA66HIRHSUV/ST/ZN-BK	34.9	154.0	19.4	36.0	10.29	113.3	Long
RCC180LM12-PA66HIRHSUV/ST/ZN-BK	34.9	154.0	19.4	36.0	12.95	113.3	Long
RCC180SM10-PA66HIRHSUV/ST/ZN-BK	34.9	103.0	19.4	36.0	10.29	62.3	Short
RCC90SM10-PA66HIRHSUV/ST/ZN-BK	34.9	101.2	19.4	36.0	10.29	39.9	Short

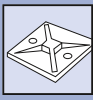
All dimensions in mm. Subject to technical changes.

For bundle diameters from 36.0 mm to 51.0 mm

PART DESCRIPTION	Width (W)	Length (L2)	Bundle Ø min.	Bundle Ø max.	Hole Ø (FH)	Fixing Hole Centres (F)	Variant
RCD90SM6-PA66HIRHSUV/ST/ZN-BK	34.9	88.7	36.0	51.0	6.5	42.4	Short
RCD90SM8-PA66HIRHSUV/ST/ZN-BK	34.9	88.7	36.0	51.0	8.31	42.4	Short
RCD90SM12-PA66HIRHSUV/ST/ZN-BK	34.9	88.7	36.0	51.0	12.95	42.4	Short
RCD30SM6-PA66HIRHSUV/ST/ZN-BK	34.9	102.4	36.0	51.0	6.5	55.9	Short
RCD30SM8-PA66HIRHSUV/ST/ZN-BK	34.9	102.4	36.0	51.0	8.31	55.9	Short
RCD30SM10-PA66HIRHSUV/ST/ZN-BK	34.9	102.4	36.0	51.0	10.29	55.9	Short
RCD30SM12-PA66HIRHSUV/ST/ZN-BK	34.9	102.4	36.0	51.0	12.95	55.9	Short
RCD180SM6-PA66HIRHSUV/ST/ZN-BK	34.9	115.5	36.0	51.0	6.5	70.0	Short
RCD180SM8-PA66HIRHSUV/ST/ZN-BK	34.9	115.5	36.0	51.0	8.31	70.0	Short
RCD180SM12-PA66HIRHSUV/ST/ZN-BK	34.9	115.5	36.0	51.0	12.95	70.0	Short
RCD15SM6-PA66HIRHSUV/ST/ZN-BK	34.9	115.9	36.0	51.0	6.5	69.1	Short
RCD15SM8-PA66HIRHSUV/ST/ZN-BK	34.9	115.9	36.0	51.0	8.31	69.1	Short
RCD15SM10-PA66HIRHSUV/ST/ZN-BK	34.9	115.9	36.0	51.0	10.29	69.1	Short
RCD15SM12-PA66HIRHSUV/ST/ZN-BK	34.9	115.9	36.0	51.0	12.95	69.1	Short
RCD90LM6-PA66HIRHSUV/ST/ZN-BK	34.9	116.7	36.0	51.0	6.5	42.4	Long
RCD90LM8-PA66HIRHSUV/ST/ZN-BK	34.9	116.7	36.0	51.0	8.31	42.4	Long
RCD90LM10-PA66HIRHSUV/ST/ZN-BK	34.9	116.7	36.0	51.0	10.29	42.4	Long
RCD90LM12-PA66HIRHSUV/ST/ZN-BK	34.9	116.7	36.0	51.0	12.95	42.4	Long
RCD30LM6-PA66HIRHSUV/ST/ZN-BK	34.9	127.0	36.0	51.0	6.5	80.5	Long
RCD30LM8-PA66HIRHSUV/ST/ZN-BK	34.9	127.0	36.0	51.0	8.31	80.5	Long
RCD30LM10-PA66HIRHSUV/ST/ZN-BK	34.9	127.0	36.0	51.0	10.29	80.5	Long
RCD30LM12-PA66HIRHSUV/ST/ZN-BK	34.9	127.0	36.0	51.0	12.95	80.5	Long
RCD180MM6-PA66HIRHSUV/ST/ZN-BK	34.9	137.5	36.0	51.0	6.5	92.0	Medium
RCD180MM8-PA66HIRHSUV/ST/ZN-BK	34.9	137.5	36.0	51.0	8.31	92.0	Medium
RCD180MM10-PA66HIRHSUV/ST/ZN-BK	34.9	137.5	36.0	51.0	10.29	92.0	Medium
RCD180MM12-PA66HIRHSUV/ST/ZN-BK	34.9	137.5	36.0	51.0	12.95	92.0	Medium
RCD180LM6-PA66HIRHSUV/ST/ZN-BK	34.9	166.5	36.0	51.0	6.5	121.0	Long
RCD180LM8-PA66HIRHSUV/ST/ZN-BK	34.9	166.5	36.0	51.0	8.31	121.0	Long
RCD180LM10-PA66HIRHSUV/ST/ZN-BK	34.9	166.5	36.0	51.0	10.29	121.0	Long
RCD180LM12-PA66HIRHSUV/ST/ZN-BK	34.9	166.5	36.0	51.0	12.95	121.0	Long
RCD180SM10-PA66HIRHSUV/ST/ZN-BK	34.9	115.5	36.0	51.0	10.29	70.0	Short
RCD90SM10-PA66HIRHSUV/ST/ZN-BK	34.9	88.7	36.0	51.0	10.29	42.4	Short

All dimensions in mm. Subject to technical changes.





### Aluminium P-Clamps

#### Alu-P-Clamp with / without chloroprene insert

Manufactured from a high quality aluminium, these metal P-Clamps provide flexibility whilst providing a permanent fixing in the most arduous of environments. The addition of a chloroprene insert provides the cable or pipe bundle with a high degree of protection against vibration, reducing noise and also providing electrical isolation. They are commonly used in caravan construction, the defence and railway industry as well as in the renewable energy sector.

#### Features and benefits

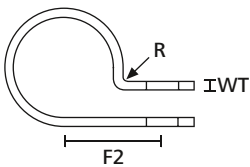
- Simple and secure pipe or cable fixation
- Can be combined with chloroprene rubber for vibration resistance
- Ideal for use in high temperature applications
- Suitable for applications needing strength of metal components



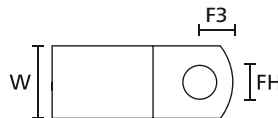
P-Clamps manufactured in polyamide, aluminium or aluminium with a chloroprene insert.



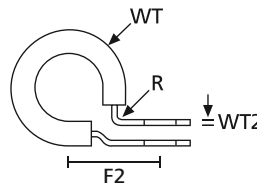
**Material specification please see page 22.**



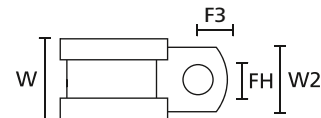
ALU P-Clamp (side view)



ALU P-Clamp (plan view)



ALU\_C P-Clamp with chloroprene insert (side view)

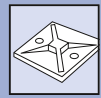


ALU\_C P-Clamp with chloroprene insert (plan view)

PART DESCRIPTION	Width (W)	Width (W2)	Wall (WT)	Wall (WT2)	Hole Ø (FH)	Fixing Hole Centres (F2)	Fixing Hole Centres (F3)	Bundle Ø max.	Radius (R)
ALU4-AL-NA	12.7	-	0.80	-	5.2	11.6	5.5	6.4	1.6
ALU5-AL-NA	12.7	-	0.80	-	5.2	12.6	5.5	8.0	1.6
ALU6-AL-NA	12.7	-	0.80	-	5.2	13.4	5.5	9.5	1.6
ALU7-AL-NA	12.7	-	0.80	-	5.2	14.2	5.5	11.1	1.6
ALU8-AL-NA	12.7	-	0.80	-	5.2	15.0	5.5	12.7	1.6
ALU5C-AL/CR-BK	16.3	12.7	3.70	0.8	5.2	12.6	5.5	4.8	1.6
ALU6C-AL/CR-BK	16.3	12.7	3.70	0.8	5.2	13.4	5.5	6.4	1.6
ALU7C-AL/CR-BK	16.3	12.7	3.70	0.8	5.2	14.2	5.5	8.0	1.6
ALU8C-AL/CR-BK	16.3	12.7	3.70	0.8	5.2	15.0	5.5	9.5	1.6
ALU10C-AL/CR-BK	16.3	12.7	3.70	0.8	5.2	16.6	5.5	12.7	1.6
ALU11C-AL/CR-BK	16.3	12.7	4.50	1.3	5.2	19.1	5.5	14.3	2.8
ALU13C-AL/CR-BK	16.3	12.7	4.50	1.3	5.2	20.7	5.5	17.5	2.8
ALU15C-AL/CR-BK	16.3	12.7	4.50	1.3	5.2	22.3	5.5	20.6	2.8
ALU16C-AL/CR-BK	16.3	12.7	4.50	1.3	5.2	23.1	5.5	22.2	2.8

All dimensions in mm. Subject to technical changes.





### Plastic P-Clamps

#### HP-Series

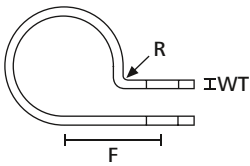
For permanent or semi-permanent cable fixings this range of plastic P-Clamps can be used in many industries. Their light weight makes them particularly suitable for use in areas such as aircraft and aerospace where minimising weight, but retaining a strong fixing, is vitally important.

#### Features and benefits

- Manufactured from Polyamide
- Good temperature resistance and high strength
- Wide range of sizes for every application
- Can be used without cable ties



P-Clamps H1P - H18P in different dimensions.



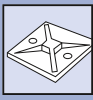
P-Clamp H1P - H18P (side view)



P-Clamp H1P - H18P (plan view)

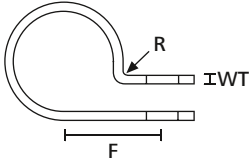
PART DESCRIPTION	Width (W)	Wall (WT)	Hole Ø (FH)	Bundle Ø max.	Fixing Hole Centres (F)	Radius (R)
NX0-PA66-NA	8.0	0.90	4.3	3.3	9.25	0.5
NX0-PA66-BK	8.0	0.90	4.3	3.3	9.25	0.5
NX3-PA66-NA	9.3	1.10	4.3	8.5	11.9	0.8
NX3-PA66-BK	9.3	1.10	4.3	8.5	11.9	0.8
NX1-PA66-NA	9.6	1.50	4.9	4.8	9.4	1.5
NX1-PA66-BK	9.6	1.50	4.9	4.8	9.4	1.5
H1P-PA66-NA	10.0	0.80	4.2	3.2	8.5	0.5
H1P-PA66HS-BK	10.0	0.80	4.2	3.2	8.5	0.5
H2P-PA66-NA	10.0	1.00	4.2	5.0	9.5	1.0
H2P-PA66HS-BK	10.0	1.00	4.2	5.0	9.5	1.0
H3P-PA66-NA	10.0	1.00	4.2	6.5	10.0	1.0
H3P-PA66HS-BK	10.0	1.00	4.2	6.5	10.0	1.0
H4P-PA66-NA	10.0	1.20	4.2	8.0	10.0	1.0
H5P-PA66-NA	10.0	1.20	4.2	9.5	11.0	1.0
H5P-PA66HS-BK	10.0	1.20	4.2	9.5	11.0	1.0
H6P-PA66-NA	10.0	1.20	4.2	11.0	13.0	1.0
H7P-PA66-NA	10.0	1.20	4.2	12.5	14.0	1.5
H7P-PA66HS-BK	10.0	1.20	4.2	12.5	14.0	1.5
H8P-PA66-NA	10.0	1.50	4.2	14.0	15.0	1.5
H9P-PA66HS-BK	10.0	1.50	4.2	16.0	16.0	1.5
NX1A-PA66-NA	12.0	1.50	5.0	6.5	10.95	1.5

All dimensions in mm. Subject to technical changes.



### Plastic P-Clamps

#### HP-Series



P-Clamp H1P - H18P (side view)



P-Clamp H1P - H18P (plan view)

PART DESCRIPTION	Width (W)	Wall (WT)	Hole Ø (FH)	Bundle Ø max.	Fixing Hole Centres (F)	Radius (R)
NX1A-PA66-BK	12.0	1.50	5.0	6.5	10.95	1.5
NX4-PA66-NA	12.3	1.60	5.0	9.5	13.1	1.0
NX4-PA66-BK	12.3	1.60	5.0	9.5	13.1	1.0
NX6-PA66-NA	12.3	1.60	5.0	14.5	15.45	1.6
NX6-PA66-BK	12.3	1.60	5.0	14.5	15.45	1.6
NXR8-PA66-NA	12.4	1.30	4.0	15.9	15.4	1.5
NXR8-PA66-BK	12.4	1.30	4.0	15.9	15.4	1.5
NXR11-PA66-NA	12.6	1.30	4.0	20.6	17.85	2.0
NXR11-PA66-BK	12.6	1.30	4.0	20.6	17.85	2.0
NXR14-PA66W-BK	16.1	1.60	4.0	25.4	23.4	3.0
NXR14-PA66-NA	16.1	1.60	4.0	25.4	23.4	3.0
NXR14-PA66-BK	16.1	1.60	4.0	25.4	23.4	3.0
NXR16-PA66-NA	19.3	1.50	4.5	31.8	28.6	4.0
NXR16-PA66-BK	19.3	1.50	4.5	31.8	28.6	4.0
NXR18-PA66-NA	19.3	1.50	5.7	38.1	32.5	3.0
NXR18-PA66-BK	19.3	1.50	5.7	38.1	32.5	3.0

All dimensions in mm. Subject to technical changes.



### Mini cable channel family

#### Modular and interchangeable cable routing system

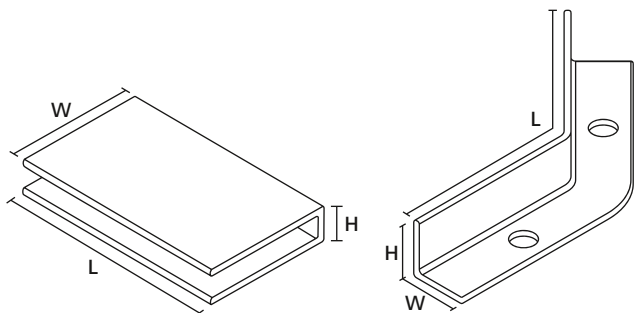
The mini cable channel family allows a cost effective routing solution that provides protection and configurable routing. Pieces are modular and interchangeable, providing high levels of customization. Mini channels replace engineered channels which are costly to design and develop.

#### Features and benefits

- Angled channel allows specific guidance around corners or obstructions
- U-Shape channel provides three sides of protection for wire or bundle
- Protects against abrasion and other environmental factors
- Types made from PPT20 material convince with a high operating temperature



Mini channel 90MINICHNL2.



Reference for dimensions only



Material specification please see page 22.

PART DESCRIPTION	Drawing	Height (H)	Width (W)	Length (L)	Hole Ø (FH)
45MINICHNL2-PPT20-BK		1.5	47.6	89.7	6.35 - 6.65
45MINICHNL-PPT20-BK		1.5	28.5	52.0	-
MINICHNLU-PPT20-BK		8.0	30.0	50.0	-
90ADMINICHNL-PPT20-BK		1.8	59.5	59.5	6.25 - 6.75
90MINICHNL2-PPT20-BK		1.5	63.5	63.5	6.35 - 6.65
90MINICHNL-PPT20-BK		1.5	38.5	38.5	-

All dimensions in mm. Subject to technical changes.



### Mini cable channel family for corners

#### With fixing element

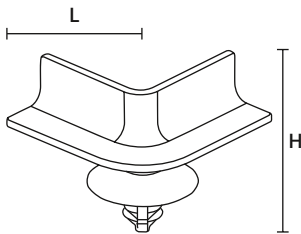
The mini cable channel family allows a cost effective routing solution that provides protection and configurable routing. Pieces are modular and interchangeable, providing high levels of customization. Mini channels replace engineered channels which are costly to design and develop.

#### Features and benefits

- These mini channels with their 90 degree design are a solution for routing a wire harness around a corner
- The additional fixing element allows the harness to be fixed at this location
- The mini channels can be used with a wide range of panel thicknesses and hole diameters



*Bundling Clip BC90FT6 - a smart fixing solution to guide bundles around a corner.*



*Reference for dimensions only*

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Height (H)	Length (L)
BC90FT6B-PA66HIRHS-BK		6.1 - 6.9	0.6 - 5.5	24.5	29.5
BC90FT6-PA66HIRHS-BK		6.1 - 6.9	0.7 - 6.0	26.2	29.5
BC90AH2-PA66HIRHSUV-BK		6.2 - 6.9	1.0 - 1.5	23.6	29.5
BC90AH-PA66HIRHSUV-BK		6.2 - 6.8	0.5 - 1.8	24.0	29.5

All dimensions in mm. Subject to technical changes.



### Arrowhead Cradle

#### SFC-Series

Offering simple and easy methods of securing cables or pipes. These parts are easy to install and simply lock into place. The part is positioned firmly and securely in the hole when a click can be heard. Can be used for example for boreholes in car doors and side mirrors.

#### Features and benefits

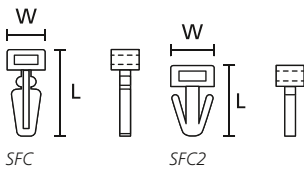
- Arrowhead fixing for use in pre-drilled or punched holes
- Ideal for applications with limited space and restricted access
- Parts with disc protect against water, dirt and dust



The SFC3 series for securely fixing and to route cables and pipes.



**Material specification please see page 22.**



PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Strap Width max. (G)
SFC2-PA66-NA		6.0	0.8 - 1.0	6.0	14.5	5.3
SFC3-PA66-BK		6.3	0.8 - 1.8	22.0	15.5	8.6
SFC3-F-PA66W-BK		6.4	2.0 - 3.3	12.0	16.8	6.5
SFC-PA66-NA		6.0	3.0 - 3.2	11.0	18.0	5.3

All dimensions in mm. Subject to technical changes.



### Bundling Clips for Parallel Routing of Pipes

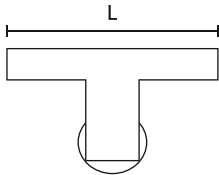
Originally designed for the automotive industry, these clips offer simple and easy methods of securing cables, hoses or pipes. The cellular rubber seal reliably protects against dust and dirt.

#### Features and benefits

- Especially for banding of cables and cable harnesses
- Fastened onto bundling bar with cable ties or adhesive tape
- Suitable for door and tailgate harnesses
- Manually or automatic applied with Autotool 2000, AT2000CPK or ATS3080
- Cables can be added to pipe clip after installation of bundling clip
- For maintenance needs cables are removable from pipe clip



Bundling clip FC20D6A for parallel routing of pipes.



Reference for dimensions only

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Length (L)
FC20D6A1-MD-PA66-NA		6.3 - 7.1, 6.35 (hexagonal)	0.7 - 1.8	50.0
FC20D6A-PA66-BK		6.3 - 7.1, 6.35 (hexagonal)	0.7 - 2.0	50.0
FC20D6B1-MD-PA66-NA		6.3 - 7.1, 6.35	0.7 - 1.8	50.0
FC20D6B-PA66-BK		6.3 - 7.1	0.7 - 2.0	50.0

All dimensions in mm. Subject to technical changes.





### Bundling Clips with Arrowhead for Round Holes

Originally designed for the automotive industry, these clips offer simple and easy methods of securing cables, hoses or pipes.

#### Features and benefits

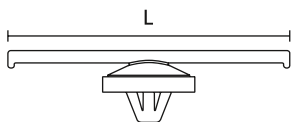
- Easy to install without the need for a tool
- Cable tie head always situated in defined position
- Arrowhead simply locks into place
- Disc adjusts tie for pressure from various directions and minimises access of dust and dirt
- ATS fixing elements can be applied with Autotool 2000, AT2000CPK or ATS3080



L to R: BundlingClip with OmegaClip, BundlingClip with seal, BundlingClip LRJ1.



**Material specification please see page 22.**



BCSFT6.5 16-3MD

### Bundling Clips with Arrowhead for Round Holes

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Length (L)
LRJ1-PA6-BK		6.2 - 6.7	0.6 - 2.0	55.0
BCSFT6.5 16-3-PA66HIRHS-BK		6.3 - 6.7	2.3 - 3.5	55.0
ATSBCSFT6.5-PA66HIRHS-BK		6.3 - 6.7	2.3 - 3.3	39.0
ATSBKSFT6.5-PA66HIRHS-BK		6.3 - 6.7	0.7 - 1.3	39.0
ATSBK2KSFT6.5-PA66HIRHS-BK		6.3 - 6.7	1.7 - 2.3	39.0

All dimensions in mm. Subject to technical changes.

### Bundling Clips with Arrowhead for Round Holes, Sealed

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Length (L)
BCSFT6.5 16-3MD-PA66HIRHS-BK		6.3 - 6.7	1.5 - 3.0	55.0
ATSBCSFT6.5-MD-PA66HIRHS-BK		6.3 - 6.7	2.0 - 3.0	39.0

All dimensions in mm. Subject to technical changes.

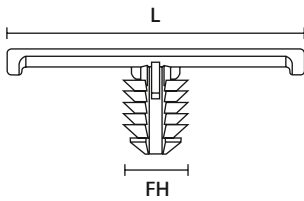


### Bundling Clips with Fir Tree, for Round Holes

Widespread used in cable harness production; a quick and easy means of fixing cables and wires securely in various parts of cars.

#### Features and benefits

- Easy to install without the need for a tool
- One fir tree foot part can be used for a variety of panel thicknesses
- Suitable for use within threaded holes
- Holding tabs prevent the tie slipping sideways
- ATS fixing elements can be tied automatically with the ATS3080 tool



TC4FT6LG



Bundling Clips with fir tree for a variety of applications with a wide range of panel thicknesses and drilled holes.



Material specification please see page 22.

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Length (L)
TC5FT6S-PA66HIRHS-BK		6.4 - 7.1	0.8 - 1.5	37.0
TC3FT6S-PA66HIRHS-BK		6.5 - 7.0	0.8 - 1.5	37.0
TC4FT6LG-PA66HIRHS-BK		6.3 - 7.0	0.6 - 5.1	37.0
TC4FT6LG-A-PA66HIRHS-NA		6.3 - 7.0	0.6 - 5.1	37.0
TC30FT6LG-PA66-BK		6.3 - 7.0	0.7 - 5.1	36.0
TCDSFT6-HEX-PA66HIRHS-BK		6.1 - 6.5, 6.1 - 6.38 (hexagonal)	0.8 - 4.5	40.0
CHDP66-PA66-BK		6.6	0.8 - 4.5	40.0
BCFT6XL56-PA66HIRHS-BK		6.3 - 7.0	0.7 - 9.0	56.0
TC6FT6LG-PA66HIRHS-NA		6.2 - 6.8	0.7 - 18.0	39.3
ATSBCFT6LG-PA66HIRHS-BK		6.3 - 7.0	0.6 - 5.1	39.0
BCOWFT5-PA66HIRHS-BK		5.2 - 5.6	0.6 - 3.1	24.9
BC37FT7LG-PA66HIRHS-BK		6.1 - 6.8	0.6 - 3.0	37.0
TC2FT6LG-PA66HIRHS-BK		6.3 - 7.0	0.6 - 5.1	55.0
BCOWFT8-PA66HIRHS-BK		M10, 8.0 - 8.5	0.6 - 4.0	27.3
TC6FT6-PA66HIRHS-BK		6.2 - 6.8	0.7 - 5.8	38.1

All dimensions in mm. Subject to technical changes.

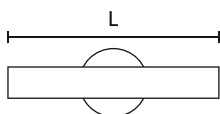


### Bundling Clips with Arrowhead for Oval Holes

Originally designed for the automotive industry, these clips offer simple and easy methods of securing cables, hoses or pipes. This parts are used in the automotive industry for assembly of cable harnesses.

#### Features and benefits

- Especially for banding of cables and cable harnesses
- Fastened onto bundling bar with cable ties or adhesive tape
- Various base geometries for wide variety of metal gauges and bore diameters



Reference for dimensions only



The Bundling Clip "BC with tube-Oval" can be used to route two tubes in parallel.

### Bundling Clips with Arrowhead for Oval Holes

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Length (L)
TCAH7x12-PA66HS-BK		7.0 x 12.0	0.6 - 2.6	66.0
BC70SFT712-PA66HIRHS-BK		7.0 x 12.0	0.7 - 3.2	70.0
TCSAH7x12-PA66HS-BK		7.0 x 12.0	0.6 - 2.6	39.3
BCHSFT712-PA66HIRHS-BK		7.0 x 12.0	0.7 - 3.2	40.0
BCLSFT712-PA66HIRHS-BK		7.0 x 12.0	0.8 - 2.0	64.5
BC40AH712-PA66-BK		7.0 x 12.0	0.7 - 1.6	40.0
BC40AH712-PA66-GY		7.0 x 12.0	0.7 - 1.6	40.0
BC55AH712-PA66-BK		7.0 x 12.0	0.7 - 1.6	55.0
BC55AH712-PA66-GY		7.0 x 12.0	0.7 - 1.6	55.0
BC with tube-Oval-PA66HIRHS-BK		6.5 x 13.0	0.6 - 3.0	77.8

All dimensions in mm. Subject to technical changes.

### Bundling Clips with Arrowhead for Oval Holes, Sealed

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Length (L)
BC70SFT712-MD-PA66HIRHS-BK		7.0 x 12.0	0.7 - 1.8	70.0
BCHSFT712-MD-PA66HIRHS-BK		7.0 x 12.0	0.7 - 1.8	42.0

All dimensions in mm. Subject to technical changes.



### Bundling Clips with Fir Tree for Oval Holes

#### Bundling Clips with Fir Tree, for Oval Holes

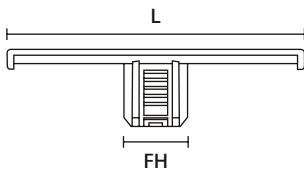
Originally designed for the automotive industry, these clips offer simple and easy methods of securing cables, hoses or pipes. These parts are used in the automotive industry for assembly of cable harnesses.

#### Features and benefits

- Especially for banding of cables and cable harnesses
- Fastened onto bundling bar with cable ties or adhesive tape
- Various base geometries for wide variety of metal gauges and bore diameters



**Material specification please see page 22.**



TCOP62X122



Bundling Clips with fir tree for a variety of applications with a wide range of panel thicknesses and drilled holes.

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Length (L)
TCOP62x122-PA66HIRHS-BK		6.2 x 12.2	0.6 - 6.0	55.0
TCOP62X122-PA66HIRHSUV-BK		6.2 x 12.2	0.6 - 6.0	55.0
TCOP70x120-PA66HIRHS-BK		7.0 x 12.0	0.6 - 6.0	55.0
WICKELCLIP-VDS-PA66HIRHS-BK		6.3 x 9.0, 6.3 x 10.0	0.6 - 2.5	40.0
BCFT63x100S-PA66HIRHS-BK		6.5 x 10.2	0.6 - 2.5	40.0
BC80DOP63x10-PA66HIRHS-BK		6.3 x 10.0	0.6 - 2.5	80.0
BCFTOVALXL-PA66HIRHS-NA		6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.6 - 11.0	58.0
BCSFTOVAL2-PA66HIRHSUV-NA		6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.6 - 2.5	38.7
BCFTOVAL2-PA66HIRHS-NA		6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.6 - 6.0	38.7
BCFTOVAL-PA66HIRHS-NA		6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.6 - 6.0	58.0

All dimensions in mm. Subject to technical changes.



### Bundling Clips with Arrowhead for Distance Routing

#### Round holes

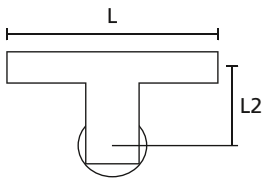
Originally designed for the automotive industry, these clips offer simple and easy methods of securing cables, hoses or pipes. These parts are used in the automotive industry for assembly of cable harnesses.

#### Features and benefits

- Easy to install without the need for a tool
- Arrowhead simply locks into place
- Disc adjusts tie for pressure from various directions and minimises access of dust and dirt
- Versions for oval holes feature anti-twist protection



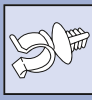
StandOff Clips allow cable looms to be routed at a set distance from the punched holes.



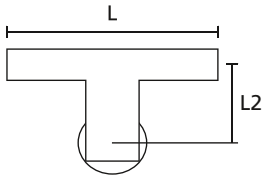
Reference for dimensions only

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Length (L)	Length (L2)
CH20D7-PA66-BK		6.4 - 7.0	0.6 - 1.4	50.0	20.0
CH20D6-PA66HS-BK		6.4 - 7.0	0.6 - 1.4	50.0	20.0
SOC31SFT6.5PT2.5-PA66HIRHS-BK		6.3 - 6.7	1.5 - 2.5	40.0	31.0
STAND OFF CLIP-PA46-GY		6.5 - 6.8	0.4 - 1.6	40.0	31.0
STAND OFF CLIP-PA66HIRHS-BK		6.5 - 6.8	0.4 - 1.6	40.0	31.0
STAND-OFF-CLIP-2-PA66HIRHS-BK		6.5 - 6.8	0.4 - 1.6	40.0	25.0
COW20SFT7-PA66HS-BK		6.35	0.7 - 1.6	42.0	20.0
SOC30AH6-PA66HIRHS-BK		6.1	0.6 - 3.0	50.0	19.0
SOC30D6-PA66-NA		6.4 - 7.1, 6.35 (hexagonal)	0.7 - 1.2	50.0	31.5

All dimensions in mm. Subject to technical changes.



### Bundling Clips with Arrowhead for Distance Routing



Reference for dimensions only



Material specification please see page 22.

#### Round holes, sealed

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Length (L)	Length (L2)
BC20SFT6.5-MD-PA66HIRHS/EPDM-BK		6.25 - 6.75	0.7 - 1.6	50.0	24.0
SOC30D6MD-PA66-NA		6.4 - 7.1, 6.1 - 6.6 (hexagonal)	0.7 - 1.2	50.0	36.0
SOC30D6-MD-PA66HIRHS-BK		6.4 - 7.1, 6.1 - 6.6 (hexagonal)	0.7 - 1.2	50.0	36.0

All dimensions in mm. Subject to technical changes.

#### Oval holes

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Length (L)	Length (L2)
BC20KSFT6.5-PA66HIRHS-BK		6.25 - 6.75	0.7 - 1.3	50.0	19.2

All dimensions in mm. Subject to technical changes.

#### Oval holes, sealed

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Length (L)	Length (L2)
SOC20SFT712-MD-PA66HIRHS/EPDM-BK		7.0 x 12.0	0.6 - 2.0	50.0	20.0
SOC32SFT65X130-MD-PA66HIRHS-BK		6.5 x 13.0	0.6 - 2.0	50.0	32.0

All dimensions in mm. Subject to technical changes.



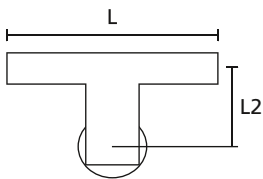


### Bundling Clips with Fir Tree for Distance Routing

Originally designed for the automotive industry, these clips offer simple and easy methods of securing cables, hoses or pipes.

#### Features and benefits

- Easy to install without the need for a tool
- One fir tree foot part can be used for a variety of panel thicknesses
- Suitable for use within threaded holes
- Disc covers the hole to prevent dirt and dust gaining access
- Bundle runs in a set distance to the hole



Reference for dimensions only



COW Clip used as tape-on clip.

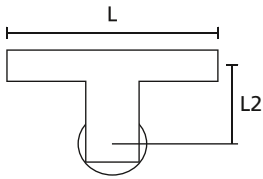
PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Length (L)	Length (L2)
COW20DP7-PA66HS-BN		6.3 - 7.0	0.8 - 4.5	42.0	20.0
COW30DP7-PA66-BK		6.3 - 7.0, 6.1 - 6.6 (hexagonal)	0.8 - 4.5	42.0	30.0
SOC4 M.FT6-PA66HIRHS-BK		6.5 - 7.0	0.7 - 5.1	55.0	20.32
SOC5FT6S-PA66HIRHS-BK		6.5 - 7.0	0.8 - 2.5	55.0	13.0
SOC5FT6LG-PA66HIRHS-BK		6.5 - 7.0, 6.1 - 6.6 (hexagonal)	0.7 - 5.1	55.0	13.0
SOC6-PA66HIRHS-BK		6.3 - 7.0, 6.1 - 6.6 (hexagonal)	0.8 - 3.5	55.0	22.0
SOC3-FT6-LG.-PA66HIRHS-BK		6.4 - 7.1	0.8 - 6.0	12.0	30.0
SOC7FT6-PA66HIRHSUV-BK		6.4 - 7.1	0.7 - 5.8	56.0	42.5
SOC8FT6LG-PA66HIRHS-BK		6.5 - 7.0	0.7 - 5.1	40.0	30.0

All dimensions in mm. Subject to technical changes.





### Bundling Clips with Fir Tree for Distance Routing



Reference for dimensions only

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Length (L)	Length (L2)
BC13FT6.35-PA66HIRHS-BK		6.35	1.1 - 5.0	40.0	22.0
CH20FT6-PA66HIRHS-BK		6.5 - 7.0	0.8 - 2.5	50.0	20.0
SOC20FT5-PA66HIRHS-BK		M6, 5.0 - 5.7	1.3 - 4.5	45.0	20.0
SOC10405-PA66HIRHS-BK		6.3 - 6.7	0.7 - 3.5	55.0	20.0
SOC10FT6LG-PA66HIRHS-NA		6.1 - 6.9, 6.35 (hexagonal)	0.6 - 5.8	58.0	43.4
SOC13FT6LGL-PA66HIRHS-GY		6.1 - 6.9, 6.35 (hexagonal)	0.6 - 5.8	43.2	43.2
SOC13FT6LGR-PA66HIRHSUV-BK		6.1 - 6.9	0.5 - 5.8	43.2	-
SOC8FT6-PA66HIRHS-NA		6.2 - 6.8	0.7 - 5.8	61.0	42.5
SOC9FT6XLG-PA66HIRHS-NA		6.1 - 6.9	0.6 - 12.3	35.5	15.75
SOC9FT6-PA66HIRHSUV-NA		6.1 - 6.9	0.5 - 6.1	35.5	15.75
SOCHFT6-PA66HIRHSUV-BK		6.35 - 7.0	0.8 - 5.6	56.0	42.5

All dimensions in mm. Subject to technical changes.

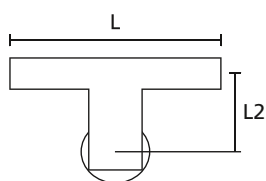


### Bundling Clips with Fir Tree, for Oval Holes, for Distance Routing

Originally designed for the automotive industry, these clips offer simple and easy methods of securing cables, hoses or pipes.

#### Features and benefits

- Easy to install without the need for a tool
- One fir tree foot part can be used for a variety of panel thicknesses
- Suitable for use within threaded holes
- Disc covers the hole to prevent dust and dirt gaining access
- Bundle runs in a set distance to the hole



Reference for dimensions only



Bundling clip SOC13FTOVAL for oval holes, easy to install without the need for a tool.



**Material specification  
please see page 22.**

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Length (L)	Length (L2)
ATSBCSOC6.2x12.2-PA66HIRHS-BK		6.2 x 12.2	0.6 - 6.0	42.0	15.0
SOC11FTOVAL-PA66HIRHS-BK		6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.5 - 6.9	50.2	20.0
SOC13FTOVAL-PA66HIRHS-BK		6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.6 - 4.0	50.0	20.0
SOC25FT712-PA66HIRHS-BK		7.0 x 12.0	1.1 - 6.1	50.0	25.0
BC70LFT712-PA66HIRHS-BK		7.0 x 12.0	0.9 - 5.5	81.3	40.0
SOC23.5FT6.2x12.2-PA66HIRHS-BK		6.2 x 12.2	0.6 - 6.0	43.6	23.5

All dimensions in mm. Subject to technical changes.



### Bundling Clips, lateral adjustment

An easy means of routing and securing cable sets in various parts of cars. These parts allow an adjustment motion to guide cable bundles safely and without damaging the cable insulation.

#### Features and benefits

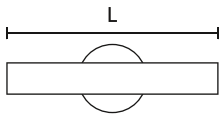
- Easy to install without the need for a tool
- Horizontal length tolerance compensation
- Ideal if holes do not fit registration or bundles need to be routed round corners



**Material specification please see page 22.**



The CHA2 with fir tree base and length tolerance compensation for precise cable routing even in difficult conditions.



Reference for dimensions only

#### With arrowhead

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Length (L)
CHA1-PA66HS-BK		6.3 - 7.0	0.5 - 1.2	54.0

All dimensions in mm. Subject to technical changes.

#### With fir tree

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Length (L)
CHA2-PA66-BK		6.5 - 7.0	0.8 - 2.0	54.0

All dimensions in mm. Subject to technical changes.

#### With arrowhead, sealed

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Length (L)
TCSFT6.5S-CHA-MD-PA66HS-GN		6.5 - 6.7	0.6 - 1.8	54.0

All dimensions in mm. Subject to technical changes.



### Bundling Clips with Harness Clip

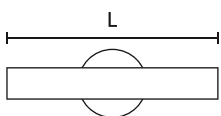
Originally designed for the automotive industry, these clips offer simple and easy methods of securing cables, hoses or pipes. These parts are used in the automotive industry for assembly of cable harnesses.

#### Features and benefits

- Especially for banding of cables and cable harnesses
- Fastened onto bundling bar with cable ties or adhesive tape
- Various base geometries for wide variety of metal gauges and bore diameters
- Suitable for post-installation of bundles
- Interchangeable in case of maintenance



Bundling clip OCTC1 with harness clip.



Reference for dimensions only

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Length (L)
OCTC1-PA66HIRHS-BK		-	-	60.0
Halter SFT6.5-PA66HIRHS-BK		6.3 - 6.7	0.6 - 1.5	60.0

All dimensions in mm. Subject to technical changes.

### Bundling Clips for Weld Studs

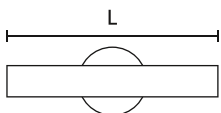
Originally designed for the automotive industry, these clips offer simple and easy methods of securing cables, hoses or pipes. These parts are used in the automotive industry for assembly of cable harnesses.

#### Features and benefits

- Especially for banding of cables and cable harnesses
- Fastened onto bundling bar with cable ties or adhesive tape
- Various base geometries for wide variety of metal gauges and bore diameters
- Maximum height of stud: 14.2 mm



Bundling clip BCOS6 for weld studs.



Reference for dimensions only

PART DESCRIPTION	Drawing	Stud Ø	Length (L)
BCOS5-PA66HIRHS-BK		5.0	59.0
BCOS6-PA66HIRHS-BK		6.0	59.0

All dimensions in mm. Subject to technical changes.



### Bundling Clips for Weld Studs, lateral adjustment

Originally designed for the automotive industry, these clips offer simple and easy methods of securing cables, hoses or pipes. These parts are used in the automotive industry for assembly of cable harnesses.

#### Features and benefits

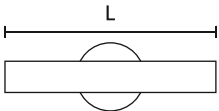
- Easy assembly, without tool
- Horizontal length tolerance compensation up to 4.0 mm
- BCUS55-D5-25: for coarse thread studs
- If connector retainer is a request: TCSB5CYCC
- If post-installation of cables is a need: Bundling clip SB5



TCSB5CYCC: Tapebar, Stud Retainer and ConnectorClip in just one article.



**Material specification please see page 22.**



Reference for dimensions only

PART DESCRIPTION	Drawing	Stud Ø	Length (L)
WICKELCLIP-SB5-POM-BK		5.0	60.0
TC-SB5C-PA66HS-BK		5.0	55.0
TCSB5CYCC-PA66HIRHS-BK		5.0	55.0
BCUW55-D5-25-PA66HIRHS-NA		5.0	50.0
BCBRKTSB5-PA66HIRHSUV-BK		5.0	71.0

All dimensions in mm. Subject to technical changes.





### Bundling Clips for Weld Studs, lateral adjustment

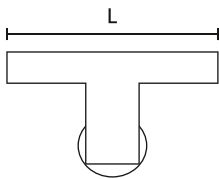
The BC series is proving very popular in the automotive industry as a means of installing cable sets easily in various areas of the vehicle. Due to the flat and lightweight design they are a solution provider at limited space areas.

#### Features and benefits

- Very flat bundling clip for 5.0 mm weld stud
- Horizontal length tolerance compensation
- Suitable for cables of reduced weight and diameter

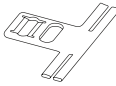


The slim line BC series is particularly compact and flexible.



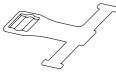
Reference for dimensions only

#### BC2212 for distance routing 12.0 and 22.0 mm

PART DESCRIPTION	Drawing	Stud Ø	Length (L)
BC2212-PA66HIRHS-BK		5.0	55.0

All dimensions in mm. Subject to technical changes.

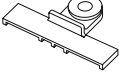
#### BC30 for distance 30.0 mm

PART DESCRIPTION	Drawing	Stud Ø	Length (L)
BC30-PA66HIRHS-BK		5.0	55.0

All dimensions in mm. Subject to technical changes.

### Bundling Clips for Screws

#### BC-SCR6

PART DESCRIPTION	Drawing	Hole Ø (FH)	Length (L)
BC-SCR6-PA66GF60/PA66HIRHS-BK		6.5	60.0

All dimensions in mm. Subject to technical changes.



### Bundling Clips for Edges

1 - 3 mm and 1.5 - 4.0 mm

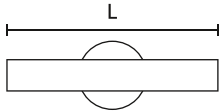
EdgeClips are used in the automotive industries and electrical industries and when it is impossible to drill holes or no other fixing points are available.

#### Features and benefits

- Easy assembly, just shuffle manually
- Designed for edges of 1 - 3 and 1.5 - 4 mm
- Integrated metal clamp holds clip firmly in place
- Clamp consists of double tempered steel spring
- ATS fixing elements can be tied automatically with tools ATS3080, AT2000 or AT2000CPK



Cables and leads can be fastened with a cable tie or adhesive tape to the bars of the mounting element.



Reference for dimensions only



Material specification please see page 22.

PART DESCRIPTION	Drawing	Panel Thickness	Length (L)
EC14-PA66HIRHS-BK		1.0 - 3.0	40.0
EC15-PA66HIRHS-BK		1.0 - 3.0	40.0
EC16-PA66HIRHS-BK		1.0 - 3.0	40.0
EC17-PA46-GY		1.0 - 3.0	46.5
EC17-PA66HIRHS-BK		1.0 - 3.0	46.5
ATSBCEC35-PA66HIRHS-BK		1.5 - 4.0	39.0
ATSBCEC36-PA66HIRHS-BK		1.5 - 4.0	39.0
ATSBCEC37-PA66HIRHS-BK		1.5 - 4.0	39.0
ATSBCEC38-PA66HSW-BK		1.5 - 4.0	39.0

All dimensions in mm. Subject to technical changes.

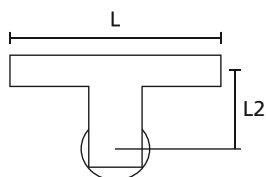


### Bundling Clips for Edges for Distance Routing

Originally designed for the automotive industry, these clips offer simple and easy methods of securing cables, hoses or pipes. These parts are used in the automotive industry for assembly of cable harnesses.

#### Features and benefits

- Especially for banding of cables and cable harnesses
- Fastened onto bundling bar with cable ties or adhesive tape
- Various base geometries for different routing directions available
- Integrated double tempered steel spring clamp holds clip firmly in place
- Ideal for applications where holes or adhesives are not suitable



Reference for dimensions only



Bundling clip EC48 for edges, for distance routing.

#### Bundling Clips for Edges, 1.0 - 3.0 mm, for Distance Routing

PART DESCRIPTION	Drawing	Panel Thickness	Length (L)	Length (L2)
EC30-PA66HIRHS-BK		1.0 - 3.0	50.0	65.0

All dimensions in mm. Subject to technical changes.

#### Bundling Clips for Edges, 3.0 - 6.0 mm, for Distance Routing

PART DESCRIPTION	Drawing	Panel Thickness	Length (L)	Length (L2)
EC48-PA66HIRHS-BK		3.0 - 6.0	50.0	17.25

All dimensions in mm. Subject to technical changes.



### Bundling Clips for Connectors

#### Bundling Clips for Connectors

Originally designed for the automotive industry, these clips offer simple and easy methods of securing cables, hoses or pipes. These parts are used in the automotive industry for assembly of cable harnesses.

#### Features and benefits

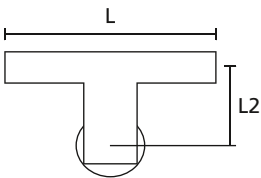
- Bundles are guided above connector plug
- Secure fixing of connector
- Connector easily installed by simply pushing into place
- Connection can be released non-destructive



**Material specification please see page 22.**



Connector Clips designed for cables and cable sets used in the automotive industry.



Reference for dimensions only

PART DESCRIPTION	Drawing	Length (L)	Length (L2)
YAZ-CONN-TAPE-CLIP-PA66HS-BK		55.0	-
CONNECTOR CLIP-PA66HIRHS-BK		55.0	-
BC52PAE-TP-PA66HIRHS-BK		52.0	-
BCBRKT55M-PA66HIRHS-NA		50.0	55.15
BCBRKT55M-PPS-GY		50.0	55.15
CC90BRKT-PA66HIRHSUV-BK		108.4	-

All dimensions in mm. Subject to technical changes.



### Connector Clips for round holes

#### With Fir Tree

The connector clips used here have been designed for electronic cables and cable sets used in the automotive industry. These parts are related to a connector and then secured to a surface depending on the requirement.

#### Features and benefits

- Connector easily installed by simply pushing into place
- Connection can be released (non-destructive)
- One fir tree foot part can be used for a variety of panel thicknesses
- Disc covers the hole to prevent dust and dirt gaining access
- For twist protection: Variants with additional stick



Connector Clips are available for many different connector types and fixing varieties.

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness
Big YCC TS-PA66HIRHS-BK		6.4 - 7.1	0.7 - 5.1
FT6LG-AMP-PA66HIRHS-BK		6.5 - 7.0	0.7 - 6.0
FT6LG.JAE.CONNECT.TS-PA66HIRHS-BK		6.5 - 7.0	0.7 - 5.1
FT6LG.M.St.Aufn.II-PA66HIRHS-BK		6.5 - 7.0	0.8 - 1.5
CCFT5-6D16-PA66HIRHS-BK		M6	0.7 - 4.5
FT6LG CC-PA66HIRHS-BK		6.4 - 7.1	0.8 - 6.0
FT6LG.YAZ.CONNECT-TS-PA66HIRHS-BK		6.4 - 7.1	0.7 - 5.1
FT6S-Y-CONN-TS-PA66HIRHS-BK		6.5 - 7.0	0.8 - 1.5
STECKERHALTER SITZ-PA66HIRHS-BK		6.5 - 7.0	0.6 - 3.0

All dimensions in mm. Subject to technical changes.





### Connector Clips for round holes

With Fir Tree



Material specification  
please see page 22.

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness
YCC-FT6-S-PA66HIRHS-BK		6.5 - 7.0	0.8 - 1.5
YCCFT6S-2-PA66HIRHS-BK		6.5 - 7.0	0.8 - 1.5
CCFT6LG-PA66HIRHS-BK		6.0 - 6.7	0.7 - 4.0
CP6FT6-PA6HIR-BK		6.2 - 6.5	0.7 - 5.0
CP2FT6-PA66HIRHS-BK		6.2 - 6.5	0.7 - 5.0
CP3FT6-PA66HIRHS-BK		6.2 - 6.5	0.7 - 5.0
CP2FT6-PA46-GY		6.2 - 6.5	0.7 - 5.0
CCFT6TS11-PA46-GY		6.3 - 7.0	0.6 - 4.0
CCFT6LG-TS-PA66HIRHS-BK		6.4 - 7.1	0.7 - 5.1
CC08-PA66HIRHS-NA		6.25 - 6.75	0.7 - 5.8
CC19-PA66HIRHSUV-BK		6.1 - 6.9, 6.35 (hexagonal)	0.6 - 5.5
FT6LG.M.AMP-AUFN.2-PA66HIRHS-BK		6.5 - 7.0	0.7 - 6.0
FT6LG2CT2-MOD-PA66HIRHS-BK		6.5 - 7.0	0.7 - 5.1
YCCFT6LGTS2-PA66HIRHS-BK		6.1 - 6.9	0.7 - 5.0

All dimensions in mm. Subject to technical changes.





### Connector Clips for round holes

#### With Arrowhead

The connector clips used here have been designed for electronic cables and cable sets used in the automotive industry. These parts are related to a connector and then secured to a surface depending on the requirement.

#### Features and benefits

- Connector easily installed by simply pushing into place
- Connection can be released (non-destructive)
- One fir tree foot part can be used for a variety of panel thicknesses
- Disc covers the hole to prevent dust and dirt gaining access
- For twist protection: Variants with additional stick



Connector clip YCKKSFT6.5-PT1:7-2:3 and CC14 with arrowhead fixing for round holes.

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness
Big Connector Clip-PA66HIRHS-BK		6.3 - 6.7	0.7 - 2.7
CCSFT5-PA66HIRHS-BK		4.8 - 5.2	0.7 - 2.3
CCSFT6.5-PA66HIRHS-BK		6.3 - 6.7	1.7 - 2.3
YCKKSFT6.5-PA66HIRHS-BK		6.3 - 6.7	0.7 - 1.3
CC-PAEKSFT6.5PT1.7-2.3-PA66HIRHS-BK		6.3 - 6.7	1.7 - 2.3
YCKKSFT6.5-PT1.7-2.3-PA66HIRHS-BK		6.3 - 6.7	1.7 - 2.3
CC1SFT7-MD-PA66HIRHS-BK		6.8 - 7.2	0.7 - 2.0
CC2SFT7-MD-PA66HIRHS-BK		6.8 - 7.2	0.7 - 2.0
CCSFT6.5-MOD-PA66HIRHS-BK		6.5 - 7.0	1.7 - 2.3
CC1SFT7PT2.3-3.5-PA66HIRHS-BK		6.8 - 7.2	2.3 - 3.5
CC14-PA66HIRHS-NA		-	0.5 - 1.4
CCSFT6.3-PA66-BK		6.3 - 6.5	0.7 - 2.5

All dimensions in mm. Subject to technical changes.



### Connector Clips for Oval Holes

#### With FirTree

The connector clips used here have been designed for electronic cables and cable sets used in the automotive industry. These parts are related to a connector and then secured to a surface depending on the requirement.

#### Features and benefits

- Connector easily installed by simply pushing into place
- Connection can be released non-destructive
- Easy assembly, just shuffle manually
- Oval connectors offer twist protection
- Available for a wide variety of panel thicknesses



For a secure fixation simply push the connector by hand on our Connector Clip YCCFT62x122.



Material specification please see page 22.

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness
YCCFT62x122-PA66HIRHS-BK		6.2 x 12.2	0.6 - 6.0
YCCFT82x185-PA66HIRHS-BK		8.2 x 18.5	1.5 - 4.5
CC03-PA66HIRHS-BK		8.0 x 15.0	0.8 - 6.4
CC04-PA66HIRHS-BK		8.0 x 15.0	0.8 - 6.4
CCFT8X15-PA66HIRHS-BK		8.0 x 15.0	0.7 - 6.4
CC09-PA66HIRHS-BK		9.0 x 17.0	0.5 - 6.4
CC10-PA66HIRHS-BK		9.0 x 17.0	0.5 - 15.5
CC11-PA66HIRHSUV-BK		9.0 x 17.0	0.6 - 6.5

All dimensions in mm. Subject to technical changes.



### Connector Clips for Oval Holes

With FirTree

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness
CC12-PA66HIRHS-BK		8.0 x 15.0	0.6 - 6.5
CC13-PA66HIRHS-BK		9.0 x 17.0	0.5 - 6.4
CC15-PA66HIRHS-BK		12.0 x 17.0	0.6 - 9.0
CC16-PA66HIRHS-BK		8.0 x 14.0, 8.0 x 15.0	0.6 - 7.8
CC16R-PA66HIRHS-BK		8.0 x 15.0, 8.0 x 14.0	0.6 - 3.0
CC17-PA66HIRHS-BK		12.0 x 17.0	0.6 - 9.0
CC20-PA66HIRHSUV-BK		9.0 x 17.0	0.6 - 9.5
CC22-PA66HIRHSUV-BK		6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.5 - 6.8
CCDOP62x122-PA66HIRHS-BK		6.2 x 12.2	0.7 - 5.0
CCFTOVAL-PA66HIRHS-BK		6.2 - 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.6 - 6.8
CCLOP62X122-PA66HIRHS-BK		6.2 x 12.2	-- 15.0
CCOVAL-S-PA66HIRHS-BK		6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.6 - 2.8

All dimensions in mm. Subject to technical changes.





### Connector Clips for Oval Holes

With FirTree

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness
CCOVAL2-PA66HIRHS-BK		6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.6 - 6.0
CCOVAL3-PA66HIRHS-BK		6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.5 - 6.8
CCOVAL4-PA66HIRHS-BK		6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.5 - 6.8
CCOVAL5-PA66HIRHS-BK		6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.5 - 6.8
CCOVAL6-PA66HIRHS-BK		6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.6 - 3.0
CCOVAL-PA66HIRHS-BK		6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.6 - 6.0
CP31DOP-PA66HIRHS-BK		6.2 x 12.2	0.6 - 5.0
CP21DOP-PA66HIRHS-BK		6.2 x 12.2	0.6 - 5.0
CP21DOP-PA46-GY		6.2 x 12.2	0.6 - 5.0
CP61DOP-PA66HIRHS-BK		6.2 x 12.2	0.6 - 5.0

All dimensions in mm. Subject to technical changes.



### Connector Clips for Oval Holes

#### With Arrowhead

The connector clips used here have been designed for electronic cables and cable sets used in the automotive industry. These parts are related to a connector and then secured to a surface depending on the requirement.

#### Features and benefits

- Connector easily installed by simply pushing into place
- Connection can be released non-destructive
- Easy assembly, just shuffle manually
- Oval connectors offer twist protection



Connector clip CCIISFT6 with arrowhead fixing for oval holes.



**Material specification please see page 22.**

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness
CCSFT7x12-PA66HIRHS-BK		7.0 x 12.0	0.8 - 2.0
CCAMPSFT7.0x12.0-PA66HIRHS-BK		7.0 x 12.0	1.2 - 2.0
YCCSFT62122-PA66HIRHS-BK		6.2 x 12.2	0.6 - 1.0
YCCSFT6.5x13PT2.5-3.5-PA66HIRHS-BK		6.5 x 13.0	2.5 - 3.5
CCIISFT6.5x13-PA66HIRHS-BK		6.5 x 13.0	0.7 - 3.0
CCIVSFT6.5x130-PA66HIRHS-BK		6.5 x 13.0	0.7 - 3.0
YCCKSFT62x122PT0.7-1.3 90°-PA66HIRHS-BK		6.2 x 12.2	0.7 - 1.3
YCCKSFT62x122PT0.7-1.3-PA66HIRHS-BK		6.2 x 12.2	0.7 - 1.3
YCCKSFT62x122PT1.7-2.3 90°-PA66HIRHS-BK		6.2 x 12.2	1.7 - 2.3
YCCKSFT62x122PT1.7-2.3-PA66HIRHS-BK		6.2 x 12.2	1.7 - 2.3
CCSFT6.5X12.5-MD-PA66HIRHS-BK		6.5 x 12.5	0.6 - 1.5

All dimensions in mm. Subject to technical changes.





### Connector Clips for Oval Holes

With Arrowhead

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness
CCSFT8.5X16-PA66HIRHS-BK		8.5 x 16.0	0.7 - 1.5
TCCSFT6.2x12.2-MD-PA66HIRHS/EPDM-BK		6.2 x 12.2	0.6 - 2.0
TCCSFT6.5X13PT0.6-2.0-MD-PA66HIRHS/EPDM-BK		6.5 x 13.0	0.6 - 2.0
YCCSFT6.5X13PT0.6-2.0-MD-PA66HIRHS/EPDM-BK		6.5 x 13.0	0.6 - 2.0
CCIVSFT65130-MD-PA66HIR-BK		6.5 x 13.0	0.6 - 2.0
CCIVSFT6513T3-PA66HIRHS-BK		6.5 x 13.0	0.6 - 3.0
CCIVSFT6513T4-PA66-BK		6.5 x 13.0	0.6 - 4.0
CCKSFT6.2x12.2-PA66HIRHS-BK		6.2 x 12.2	2.3 - 2.7
CCSFT8.0x15.0-PA66-BK		8.0 x 15.0	0.8 - 2.8
STECKERHALTER-OVALFUSS-PA66HIRHS-BK		6.2 - 12.2	0.5 - 3.0
YCCKSFT75X150-PA66HIR-BK		7.5 x 15.0	0.7 - 1.7
YCCKSFT75x150-PA66HIRHS-BK		7.5 x 15.0	0.7 - 1.7

All dimensions in mm. Subject to technical changes.





### Connector Clips for Weld Studs

The Connector Clips used here have been designed for electronic cables and cable sets used in the automotive industry. The Connector Clips are related to a Connector and then secured to a surface depending on the requirement.

#### Features and benefits

- Connector easily installed by simply pushing into place
- Connection can be released (non-destructive)
- Soft push design for tool free installation



**Material specification please see page 22.**



Connector clip CCSBS5 for weld studs.

PART DESCRIPTION	Drawing	Stud Ø	Width (W)	Length (L)
CCSBS5-PA66HIRHS-BK		5.0	10.8	16.0
CCSBS6-PA66HIRHS-BK		6.0	10.8	16.0
SB5CC-PA66HIRHS-BK		5.0	14.5	41.8

All dimensions in mm. Subject to technical changes.

### Connector Clips for Wires

The connector clips have been designed for electronic cables and cable sets used in the automotive industry. These parts are fixed to a connector and then secured to a surface depending on the requirement.

#### Features and benefits

- Connector easily installed by simply pushing into place
- Connection can be released (non-destructive)
- Suitable for post-installation of bundles
- For different wire sizes
- Part locks with an audible "click"



Connector clip CCWA for wires.

PART DESCRIPTION	Drawing	Length (L)	Height (H)	Bundle Ø min.	Bundle Ø max.
CCWA3.4-PA66HIRHS-BK		18.5	16.8	3.4	3.4
CCWA4.5-PA66HIRHS-BK		18.5	17.9	4.5	4.5

All dimensions in mm. Subject to technical changes.



### Connector Clips for Edges

1 - 3 mm, 1.5 - 4 mm and 3 - 6 mm

EdgeClips are used in the automotive industries and electrical industries and when it is impossible to drill holes or no other fixing points are available.

#### Features and benefits

- Connectors are mounted simply by pushing them into retainer
- Connector can be removed without damage
- Fastened to an edge, the EdgeClip ensures snug fit almost all types of connector



**Material specification please see page 22.**



EdgeClip EC6mod.

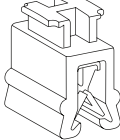

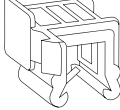
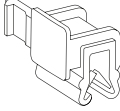
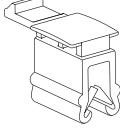
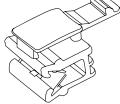
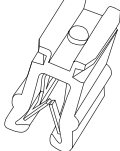
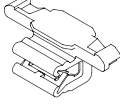

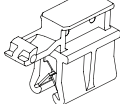
PART DESCRIPTION	Drawing	Panel Thickness
Edge-Clip25-PA66HIRHS-BK		1.0 - 3.0
EC28-PA66HIRHS-BK		1.0 - 3.0
EC32-PA66HIRHS-BK		1.0 - 3.0
EC33-PA66HIRHS-BK		1.0 - 3.0
EC42-PA66HIRHS-BK		1.5 - 4.0
EC43-PA66HIRHS-BK		1.5 - 4.0
EC45-PA66HIRHS-BK		1.0 - 3.0
EC6mod-PA66HIRHS-BK		1.0 - 3.0

All dimensions in mm. Subject to technical changes.



### Connector Clips for Edges

1 - 3 mm, 1.5 - 4 mm and 3 - 6 mm

PART DESCRIPTION	Drawing	Panel Thickness
EC JAE CC-PA66HIRHS-BK		1.0 - 3.0
CCEC3.0TP-PA66HIRHS-BK		1.0 - 3.0
ECC1CPT-PA66HIRHS-BK		3.0 - 6.0
EC11-PA66HIRHS-BK		1.5 - 3.0
CONNECTOR-CLIP EC6-PA66HIRHS-BK		1.0 - 3.0
CCEC3.0SV-PA66HIRHS-BK		1.0 - 3.0
CCIIEC6-MOD-PA66HIRHS-BK		1.0 - 3.0
EC46-PA66HIRHSUV-BK		1.0 - 3.0
EC52-PA66HIRHSUV-BK		1.0 - 3.0
EC54-PA66HIRHSUV-BK		1.0 - 3.0

All dimensions in mm. Subject to technical changes.



### Fixing Elements for Tubes and Harnesses

#### KSFT6.5OC with low Arrowhead

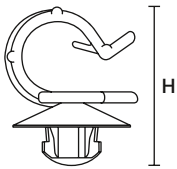
This fixing elements can be used ideally everywhere where space saving work is necessary. In case of maintenance, the tubes and harnesses can be exchanged.

#### Features and benefits

- Fixing part with rounded arrowhead to minimise assembly height
- Ideal for applications where space is limited
- Simply clip on a wire or hose
- Bundle diameter is defined
- Suitable for post-installation of bundles



The very low arrowhead is specially designed for narrow installation spaces.



KSFT6.5 OC 7-9



Material specification please see page 22.

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Attach to Ø	Height (H)
KSFT6.5OC1-3-PA66HIRHS-BK		6.3 - 6.7	2.3 - 2.7	1.0 - 3.0	14.4
KSFT6.5OC7-9-PA66HIRHS-BK		6.3 - 6.7	2.3 - 2.7	7.0 - 9.0	21.6

All dimensions in mm. Subject to technical changes.



### Fixing Elements for Tubes and Harnesses

#### With Arrowhead

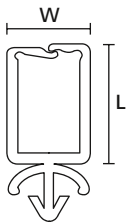
The increasing complexity of electronic and electrical components leads into less installation space. For this demand we are offering a selection of fixing elements guiding tubes and harnesses.

#### Features and benefits

- Accept single or multiple wires
- Simply push wires into place
- Self-locking to prevent accidental removal
- Arrowhead design for simple and secure installation
- Access to panel only needed from one side
- HC2x7.3AH13-PV: 360 degree rotatable, allows movement of wires if needed
- MWC12: Allows a large variety of wires to be routed



WPC – Wire Push In Clip.



Reference for dimensions only

PART DESCRIPTION	Drawing	Width (W)	Length (L)	Hole Ø (FH)
WPC10-PA66-NA		5.3	15.0	4.75
HC140SFT62x122-PA6HIR-BK		14.0	30.0	6.2 x 12.2
HC2x7.3AH13-PV-PA66W-BK		24.0	26.4	13.0 - 15.0
HTS9-PA66-BK		20.5	41.3	4.7 - 4.9
MWC12-PA66-BK		5.5	25.6	4.7 - 5.2

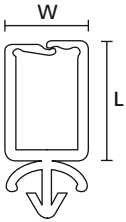
All dimensions in mm. Subject to technical changes.





### Fixing Elements for Tubes and Harnesses

#### With Arrowhead



Reference for dimensions only

PART DESCRIPTION	Drawing	Width (W)	Length (L)	Hole Ø (FH)
OHC60DOP-PA66HIRHS-BK		9.0	30.4	6.2 x 12.2
Universal Clip sealed-PA66HS-BK		9.0	30.4	6.5
WS02-PA66-NA		11.0	28.5	4.0
Universal Clip-PA66HS-BK		8.0	23.5	6.2 x 12.2

All dimensions in mm. Subject to technical changes.



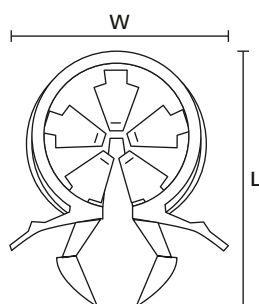
### Fixing elements with arrowhead

#### OHC-Series

Offering a simple and secure method of attaching cables to panels. Originally designed for the automotive industry they are finding a wide variety of applications in all industries using sheet metal panels.

#### Features and benefits

- Cables installed before fixation to a panel, as entry located in the foot part
- Installation into a through hole
- Conical flexible wings for a wider range of cable diameters and for a better centering of the bundle
- Recommended solution in environments subject to vibrations



Reference for dimensions only



Harness clip OHC8 for pre assembling on harnesses.



Material specification please see page 22.

PART DESCRIPTION	Drawing	Width (W)	Length (L)	Hole Ø (FH)	Bundle Ø min.	Bundle Ø max.
OHC8-PA66HIRHS-BK		12.5	12.5	6.5	2.0	8.0
OHC16-PA66HIRHS-BK		16.8	23.5	6.5	4.5	16.0

All dimensions in mm. Subject to technical changes.

### Fixing elements with arrowhead

#### HC-Series for oval holes

Offering a simple and secure method of attaching cables to panels. Originally designed for the automotive industry they are finding a wide variety of applications in all industries using sheet metal panels.

#### Features and benefits

- Cables installed before fixed to a panel
- Installation into a through-hole
- Conical flexible wings for wide range of cable diameters and for better centered bundles
- Recommended solution in environments subject to vibrations



Harness clip HC90SFT for oval holes and varying bundle diameter.

PART DESCRIPTION	Drawing	Length (L)	Hole Ø (FH)	Bundle Ø min.	Bundle Ø max.
HC90SFT62x122-PA6HIR-BK		17.0	6.2 x 12.2	3.0	15.0

All dimensions in mm. Subject to technical changes.





### Fixing Elements for Tubes and Harnesses

#### With Fir Tree

#### Features and benefits

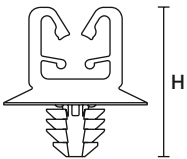
- Easy to install without the need for a tool
- Types with disc cover the hole and protect against dirt and dust ingress
- Rattlefree and secure hold of bundles due to retaining collar
- Suitable for post-installation of bundles
- Easy replacement of bundles in case of maintenance



**Material specification please see page 22.**



The HC48FT6 is designed for Bundle diameter 4.3 - 5.2 mm.



HC48FT6

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Attach to Ø	Height (H)	Nominal Ø
HC48FT5-PA66HIRHS-BK		4.5 - 5.0	0.7 - 3.0	4.5 - 5.2	21.0	-
HC48FT6-PA66HIRHS-BK		6.5 - 7.0	0.7 - 2.8	4.3 - 5.2	20.8	-
HC512FT7J-PA66HSW-BK		7.0	4.5 - 4.5	12.0	41.5	-
HC1220FT7J-PA66HSW-BK		7.0	4.5 - 4.5	20.0	55.3	-
CTC8FT6-PA66HIRHS-BK		6.1 - 6.9, 6.35 (hexagonal)	0.6 - 4.5	-	14.2	8.0
CTCFT6-PA66HIRHS-BK		6.3 - 6.7	0.7 - 4.5	-	18.5	15.0
FT6.5LGOC5-9-PA66HIRHS-BK		6.3 - 7.0	0.8 - 10.0	5.0 - 9.0	36.8	-
HC6-13FT6.5-PA66HS-BK		6.4 - 7.1	0.6 - 2.5	6.0 - 13.0	30.1	-
SC6.6-PA66HIRHSUV-BK		6.6	0.7 - 6.4	6.0 - 7.6	33.4	-

All dimensions in mm. Subject to technical changes.



### Fixing Elements for Tubes and Harnesses

#### PC-Series

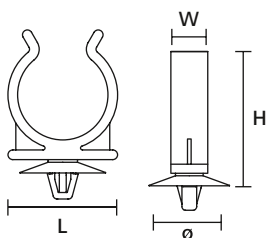
Pipe clips offering a simple and time saving fixing method for hoses and pipes even when a cable tie can't be used.

#### Features and benefits

- Fixing elements with fir tree or arrow head
- Simply clip on a wire or hose
- Clips to be attached into bore hole
- Bundles can be released at any time



For quick and simple routing of tubes and harnesses.



PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Attach to Ø	Width (W)	Length (L)	Height (H)	Disc Ø
PC23-PA66-BK		6.3	0.6 - 1.6	22.0 - 24.0	10.0	22.0	36.0	22.0
OC18SFT6.5PT0.7-2.0-PA66HIRHS-BK		6.5 - 6.7	0.7 - 2.0	18.0	12.0	20.0	38.7	20.5
PC35LAH-PA66-BK		4.7	0.8 - 2.0	3.5	8.0	9.0	15.5	-
PC5DP7S-PA66-BK		7.0	0.8 - 3.0	5.0	8.0	16.0	9.5	16.0
PC5DP7L-PA46-BK		7.0	0.8 - 7.0	5.0	8.0	16.0	9.5	16.0
PC5AH6.5-PA66HIRHSUV-BK		6.1 - 6.9, 6.35 (hexagonal)	1.2 - 1.6	4.7	10.0	17.0	21.5	17.0

All dimensions in mm. Subject to technical changes.



### Fixing Elements for Tubes and Harnesses

#### DTC - Double Tube Clip, rotatable 360°

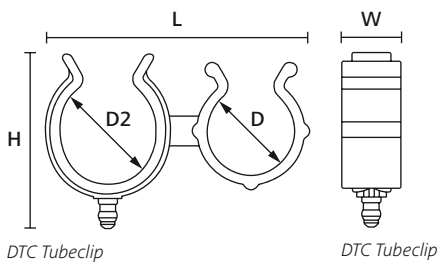
These pipe clips interconnect two different bundles of goods, of various size and type. The mobility of the fixing tie provides even in difficult conditions, such as vibrations, a secure grip and protects the cables or bundles.

#### Features and benefits

- Fixing clip offers full 360° rotation
- For routing of two different bundles
- Simply clip on a wire or hose
- Suitable for post-installation of bundles



DTCs for easy assembly of rotatable routed tubes and harnesses.



Material specification please see page 22.

PART DESCRIPTION	Ø (D)	Ø (D2)	Width (W)	Length (L)	Height (H)
DTC18x5-S-PA66HIRHS-BK	18.0	5.0	12.0	37.1	26.0
DTC18x6.5-S-PA66HIRHS-BK	18.0	6.5	12.0	38.1	26.0
DTC18x9-11-S-PA66HIRHS-BK	18.0	11.0	12.0	43.0	26.0
DTC18x18-20-S-PA66HIRHS-BK	18.0	20.0	12.0	54.0	35.6
DTC18x28-S-PA66HIRHS-BK	18.0	28.0	12.0	63.0	45.0

All dimensions in mm. Subject to technical changes.



### Fixing Elements for Tubes and Harnesses, interconnectable

#### IPC-Series with Arrowhead, connectable

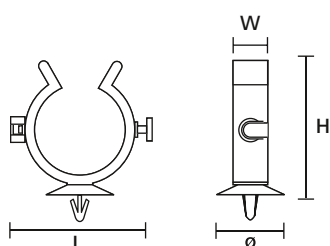
Originally designed for the automotive industry they are finding a wide and time saving variety of applications in all industries where the use of a cable tie is not suitable.

#### Features and benefits

- Fixing elements with fir tree or arrow head
- Simply clip on a wire or hose
- Clips to be attached into bore hole
- Bundles can be released at any time



Simple and secure installation of pipes or hoses to panels.



IPC Clip with arrowhead

PART DESCRIPTION	Hole Ø (FH)	Panel Thickness	Bundle Ø max.	Width (W)	Length (L)	Height (H)	Disc Ø
IPC10AH-PA66HIR-BK	6.3	1.6	12.5	10.0	22.2	18.4	22.0
IPC13AH-PA66-BK	6.3	1.6	13.5	10.0	25.9	21.0	22.0
IPC15AH-PA66-BK	6.3	1.6	14.7	10.0	27.2	23.0	22.0
IPC23AH-PA66-BK	6.3	1.6	25.0	10.0	36.7	34.0	22.0

All dimensions in mm. Subject to technical changes.

#### IPC-Series, connectable, without footpart

PART DESCRIPTION	Bundle Ø max.	Width (W)	Length (L)	Height (H)
IPC5P-PA66-BK	6.0	10.0	12.0	9.8
IPC10P-PA66HIR-BK	12.5	10.0	22.2	15.0
IPC13P-PA66-BK	13.5	10.0	25.9	17.4
IPC15P-PA66HIR-BK	14.7	10.0	27.2	19.5
IPC23P-PA66-BK	25.0	10.0	36.7	30.5

All dimensions in mm. Subject to technical changes.



### Fixing Elements for Tubes and Harnesses with Automatic Locking Feature

#### AHC-Series

Offering a simple and secure method of attaching cables to panels. Originally designed for the automotive industry, these products are used in a wide range of applications with sheet metal panels across various industries.

#### Features and benefits

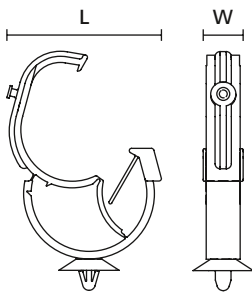
- Push and click closure for fixation of wires
- AHC( )SS und AHC( )SB can be pushed onto a 5.0 mm stud
- Vibration resistant, rattlefree and secure hold of bundle
- In case of maintenance easy replacement of bundle possible



Automatic Harness Clip open.



Automatic Harness Clip closed.



AHC(AH)



Material specification please see page 22.

PART DESCRIPTION	Drawing	Bundle Ø max.	Hole Ø (FH)	Stud Ø	Panel Thickness	Width (W)	Length (L)
AHC2SS-PA66HIRHS-BK		-	-	5.0	-	10.0	29.0
AHC2AH-PA66HIRHS-BK		-	6.2 - 6.7	-	0.5 - 3.0	10.0	29.5
AHC1AH-PA66HIRHS-BK		13.0	6.2 - 6.7	-	0.5 - 2.0	10.0	24.0
AHC4AH-PA66HIRHS-BK		41.5	6.2 - 6.7	-	0.8 - 2.7	13.5	57.6
AHC3SB-PA66HIRHS-BK		28.0	-	5.0	-	10.0	43.0
AHC3DH-PA66HIRHS-BK		28.0	6.2 x 12.2	-	0.5 - 2.0	10.0	66.0
AHC3EH2-PA66HIRHS-BK		28.0	6.2 x 12.2	-	1.8 - 4.8	11.0	44.2

All dimensions in mm. Subject to technical changes.



## Fixing Elements for Tubes and Harnesses with Automatic Locking Feature

### AHC-Series

PART DESCRIPTION	Drawing	Bundle Ø max.	Hole Ø (FH)	Stud Ø	Panel Thickness	Width (W)	Length (L)
AHC2BH-PA66HIRHS-BK		20.0	6.2 x 12.2	-	0.5 - 3.0	10.0	31.5
AHC3BH2-PA46-GY		28.0	6.2 x 12.2	-	0.6 - 3.0	9.0	41.5
AHC3BHR-PA66HIRHS-BK		28.0	6.2 x 12.2	-	0.7 - 3.0	10.0	40.0
AHC25FT6LG-PA66HIRHS-BK		22.0	6.4 - 7.0	-	0.7 - 4.0	10.0	34.0
AHC223FT6LG-PA66HIRHS-BK		23.0	6.4 - 7.0	-	0.7 - 4.0	10.0	35.0
AHC3CHR-PA6HIR-BK		28.0	6.2 x 12.2	-	1.0 - 2.7	10.0	40.0
AHC336FT6LG-PA66HIRHS-BK		36.0	6.4 - 7.0	-	0.7 - 4.0	14.0	50.0
AHC3CH2-PA66HIRHS-BK		28.0	6.2 x 12.2	-	0.7 - 2.5	11.0	44.1
AHC45BHG2-PA46-GY		36.0	6.2 x 12.2	-	1.0 - 3.0	14.0	50.0

All dimensions in mm. Subject to technical changes.



### Fixing Elements for Tubes and Harnesses with Automatic Locking Feature, connectable

#### IAHC-Series, Connectable

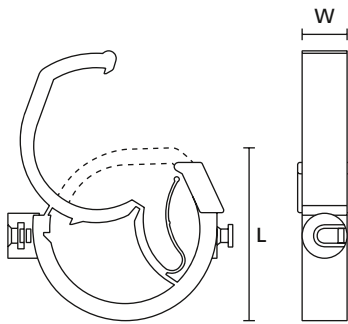
Offering a simple and secure method of attaching cables to panels. Originally designed for the automotive industry, these products are used in a wide range of applications with sheet metal panels across various industries.

#### Features and benefits

- Push and click closure
- Coupling elements of the IAHC variants allow parts to connect
- IAHC( )T can only be connected with another IAHC element
- Vibration resistant, rattlefree and secure hold of bundle
- In case of maintenance easy replacement of bundle possible
- 360 degree rotatable for guiding bundles in different directions



IAHC( )AH in combination with an IAHC( )T.



IAHC( )T



**Material specification please see page 22.**

PART DESCRIPTION	Drawing	Bundle Ø max.	Width (W)	Length (L)
IAHC1T-PA66HIRHS-BK		13.0	10.0	23.0
IAHC2T-PA66HIRHS-BK		20.0	10.0	30.0
IAHC3T-PA66HIRHS-BK		28.0	10.0	40.0
IAHC4T-PA66HIRHS-BK		36.0	13.5	47.0
IAHC5T-PA66HIRHS-BK		45.0	13.5	57.0

All dimensions in mm. Subject to technical changes.





### Fixing Elements for Tubes and Harnesses with Automatic Locking Feature, connectable

#### IAHC-Series, Connectable, with Arrowhead

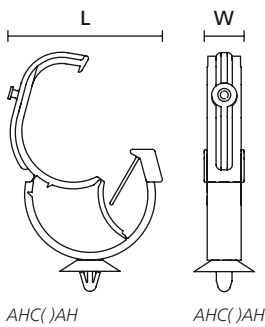
Offering a simple and secure method of attaching cables to panels. Originally designed for the automotive industry, these products are used in a wide range of applications with sheet metal panels across various industries.

#### Features and benefits

- Push and click closure for fixing of wires
- AHC( )SS und AHC( )SB can be pushed onto a 5.0 mm stud
- Vibration resistant, rattlefree and secure hold of bundle
- In case of maintenance easy replacement of bundle possible
- 360 degree rotatable for guiding bundles in different directions



IAHC elements can be connected.



PART DESCRIPTION	Drawing	Hole Ø (FH)	Bundle Ø max.	Width (W)	Length (L)
IAHC3AH-PA66HIRHS-BK		6.2 - 6.7	-	13.5	40.0
IAHC4AH-PA66HIRHS-BK		6.2 - 6.7	36.0	13.5	53.0
IAHC5BH-PA66HIRHS-BK		6.2 x 12.2	45.0	13.5	57.0
IAHC3CH-PA66HIRHS-BK		6.2 x 12.2	28.0	10.0	47.0
IAHC4CH-PA6HIRHS-BK		6.2 x 12.2	36.0	13.5	53.0
IAHC5FH-PA66HIRHS-BK		6.2 x 12.2	45.0	13.5	61.5

All dimensions in mm. Subject to technical changes.



### Fixing Elements for Corrugated Tubing, with Arrowhead

These clamps are used in the automotive industry, in the production of cable harnesses and in the electrical industry. Their quick and easy mounting is the reason for their universal success wherever corrugated tubing and pipes have to be fixed quickly and securely.

#### Features and benefits

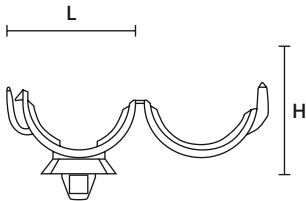
- Clamps for corrugated tubing for a variety of nominal diameters
- Arrowhead simply locks into place
- Tube is guided accurately by clicking
- Axial slipping is prevented by the inside profile of the clamp
- CTCLPROFILE clamp can also fastened to a metal edge



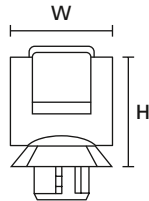
Simple and secure installation of pipes or hoses to panels.



**Material specification**  
please see page 22.



RCC D21, D24, D28



RCC D21, D24, D28

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Nominal Ø	Width (W)	Length (L)	Height (H)
RCC D21-PA66HIRHS-BK		6.2 x 12.2	0.7 - 2.5	21.0	22.0	31.0	30.0
RCC D24-PA66HIRHS-BK		6.2 x 12.2	0.7 - 2.5	24.0	22.0	33.0	33.0
RCC D28-PA66HIRHS-BK		6.75 x 13.25	0.7 - 3.0	28.0	22.0	37.0	37.0
CTCLPROFILE-PA66HIRHS-BK		7.8 - 8.2	2.3 - 2.7	31.2	12.0	64.5	59.5
OCTCSFT6.5-PA66HIRHS-BK		6.3 - 6.6	1.0 - 2.0	21.0	20.0	64.0	24.5

All dimensions in mm. Subject to technical changes.



### Fixing Elements for Corrugated Tubing, with Fir Tree

#### CTC-Series

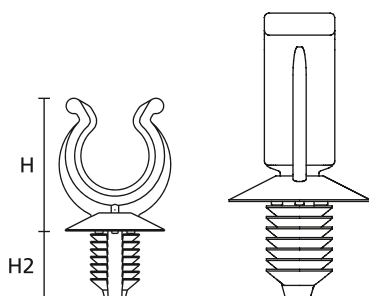
CTC clamps are used for example in the automotive, harness making, electrical industry and wherever corrugated tubing has to be quickly and firmly fixed.

#### Features and benefits

- CTC clamps for a variety of nominal diameters
- Fir tree foot part can be used for a variety of panel thicknesses
- Suitable for use within threaded holes
- Tube is guided accurately by clicking
- Axial slipping is prevented by the inside profile of the clamp



The tubing is clicked into the CTC clamp and is held firmly.



CTC-Series

PART DESCRIPTION	Drawing	Width (W)	Height (H)	Height (H2)	Hole Ø (FH)	Panel Thickness	Nominal Ø	Disc Ø
CTC4.5FT6LG-PA66HIRHS-BK		8.0	16.1	11.1	6.5 - 7.0	0.8 - 6.0	4.5	16.0
CTC7.5FT6LG-PA66HIRHS-BK		8.0	18.6	11.1	6.5 - 7.0	0.8 - 6.0	7.5	16.0
CTC10FT6LG-PA66HIRHS-BK		8.0	21.4	11.1	6.5 - 7.0	0.8 - 6.0	10.0	16.0
CTC13FT6LG-PA66HIRHS-BK		8.0	25.2	11.1	6.5 - 7.0	0.8 - 6.0	13.0	16.0
CNCTC8FT6.5LG-PA66HIRHS-BK		10.0	11.0	11.4	6.5 - 6.7	1.0 - 6.0	7.0	-
CNCTC8FT6.5LG-PA66HIRHS-BU		10.0	11.0	11.4	6.5 - 6.7	1.0 - 6.0	7.0	-
CTC8FT6-PA66HIRHS-BK		6.0	14.2	12.5	6.1 - 6.9, 6.35 (hexagonal)	0.6 - 4.5	8.0	-
CTCF6-PA66HIRHS-BK		11.0	18.5	9.3	6.3 - 6.7	0.7 - 4.5	15.0	-

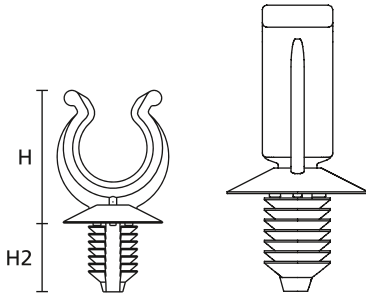
All dimensions in mm. Subject to technical changes.





### Fixing Elements for Corrugated Tubing, with Fir Tree

#### CTC-Series



CTC-Series

PART DESCRIPTION	Drawing	Width (W)	Height (H)	Height (H2)	Hole Ø (FH)	Panel Thickness	Nominal Ø	Disc Ø
CTCL4.5FT6LG-PA66HIRHS-BK		10.0	14.3	10.7	6.5 - 7.0	0.8 - 6.0	4.5	16.0
CTCL16FT6LG-PA66HIRHS-BK		43.9	48.0	17.5	6.3 - 7.0	0.7 - 13.0	16.0	-
LC9FTOVAL-PA66HIRHS-BK		10.0	37.7	13.2	6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.6 - 6.8	-	23.6 x 17.6
CTC7.5FT9-PA66HIRHS-BK		8.0	19.9	12.2	8.7 - 9.0	3.0 - 5.0	7.5	23.0
CTC10FT6-PA66HIRHS-BK		8.0	21.4	7.5	6.5 - 7.0	0.8 - 3.0	10.0	16.0
CTC10FT9-PA66HIRHS-BK		8.0	22.7	12.2	8.7 - 9.0	3.0 - 5.0	10.0	23.0
CTC13FT6-PA66HIRHS-BK		8.0	25.2	7.5	6.5 - 7.0	0.8 - 3.0	13.0	16.0
CTC22FT9-PA66HIRHS-BK		8.0	37.7	12.2	8.7 - 9.0	3.0 - 5.0	22.0	23.0

All dimensions in mm. Subject to technical changes.



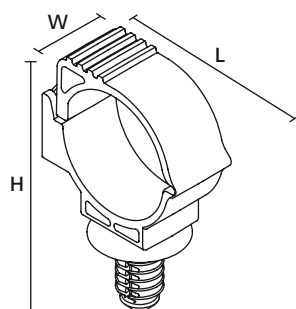
### Fixing Elements for Tubes and Pipes

#### LOC-Series

These clips offer fast and easy bundling of convoluted tubes and pipes, especially for the automotive industry.

#### Features and benefits

- For fixing and bundling convoluted tubes and pipes
- Vibration resistant, rattlefree and secure hold of bundle
- In case of maintenance easy replacement of bundle possible



Reference for dimensions only



Pipe Clip LOC15-19FT6LG covers up to two different bundle diameter.



Material specification please see page 22.

PART DESCRIPTION	Drawing	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Panel Thickness
LOC15-19FT6LG2-PA66HIRHS-BK		12.0	42.4	65.3	6.1 - 6.9	0.6 - 8.3
LOC15-19FT6LGSO-PA66HIRHS-BK		12.0	42.4	88.8	6.1 - 6.9	0.6 - 8.3
LOC59FT6LG-PA66HIRHSUV-BK		12.0	23.7	37.1	6.35 (hexagonal), 6.1 - 6.9	0.6 - 8.3
LOC1014FT6LG-PA66HIRHSUV-BK		12.0	27.6	41.7	6.35 (hexagonal), 6.1 - 6.9	0.6 - 8.3
LOC15-19FT6LG-PA66HIRHSUV-BK		12.0	31.6	47.5	6.35 (hexagonal), 6.1 - 6.9	0.6 - 8.3
LOC10-14FT6LG-PA46-GY		12.0	34.9	57.8	6.1 - 7.0	0.6 - 8.3
LOC20-25FT6.5LG-PA66HIRHSUV-BK		12.0	37.2	53.6	6.35 (hexagonal), 6.1 - 6.9	0.6 - 8.3
LOC15-19FT6LG-PA46-GY		12.0	42.4	65.3	6.1 - 6.9	0.6 - 8.3
LOC15-19FTOVAL-PA66HIRHSUV-BK		12.0	31.6	49.5	6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.6 - 6.8
LOC5-9FTOVAL-PA66HIRHSUV-BK		12.0	25.5	34.2	6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.6 - 6.8

All dimensions in mm. Subject to technical changes.



### Fixing Elements for Weld Studs for parallel routing, rotatable

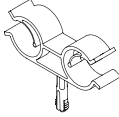
Designed for the fast and easy parallel routing of two tubes or pipes. Both can be installed by hand. The fixing element inside assures a firm grip even with smaller diameters.

#### Features and benefits

- For parallel routing of tubes and pipes
- Easy to install
- Post installation of tubes and pipes possible
- Defined offset between the bundles



With Fixing Element DUALM6DOCK bundles can be routed in parallel even as post installation.

PART DESCRIPTION	Drawing	Panel Thickness	Hole Ø (FH)
DUALM6DOCK-PA66HS-BK		0.6 - 6.8	6.0

All dimensions in mm. Subject to technical changes.

### Elements for Tubes and Harnesses

#### PCX-Series, multi parallel routing

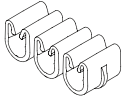
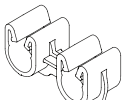
Designed for parallel routing of multiple tubes and harnesses. Simply push the bundles into the clips for a firm and secure hold. Prevents easily from twisting.

#### Features and benefits

- For parallel routing of tubes, hoses or pipes
- Prevents bundle from twisting
- Simple manual installation, just push bundle into clip



These pipe clips are a good solution if lines need to be routed in parallel.

PART DESCRIPTION	Drawing	Width (W)	Length (L)	Height (H)	Nominal Ø
PC5X3-PA66HIRHSUV-BK		10.2	25.2	9.3	4.7
PC6.5X2-PA66HIRHSUV-BK		10.2	25.3	12.0	6.35

All dimensions in mm. Subject to technical changes.



### Fixing Elements for Corrugated Tubing, for Weld Studs

#### CTC-Series for Weld Studs

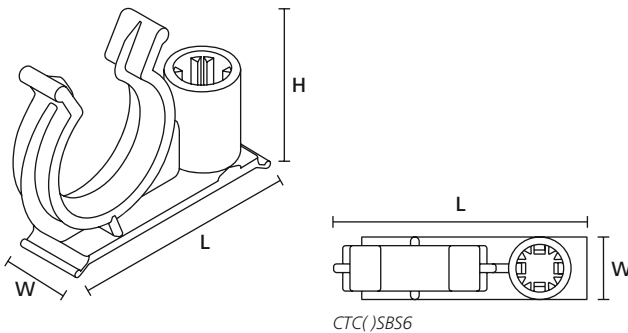
These holders are used in the automotive industry, in the production of cable harnesses and in the electrical industry. Their quick and easy mounting is the reason for their universal success wherever corrugated tubing and pipes have to be fixed quickly and securely.

#### Features and benefits

- Fixing elements for corrugated tubing for nominal diameters from 4.5 - 17.0 mm
- For M6 weld studs
- Soft-Push mechanic for simple assembly, without tool
- Tube is guided accurately by clicking
- Axial slipping is prevented by the inside profile of the clamp
- Clamp can be unscrewed and removed from the weld stud



The tubing is clicked into the CTC clamp and is held firmly.



Material specification please see page 22.

PART DESCRIPTION	Drawing	Width (W)	Length (L)	Height (H)	Nominal Ø	Stud Ø
CTC4.5SBS6-PA66HIRHS-BK		11.0	28.6	18.7	4.5	6.0
CTC7.5SBS6-PA66HIRHS-BK		11.0	31.8	19.4	7.5	6.0
CTC10SBS6-PA66HIRHS-BK		11.0	35.3	22.2	10.0	6.0
CTC13SBS6-PA66HIRHS-BK		11.0	37.0	26.5	13.0	6.0
CTC17SBS6-PA66HIRHS-BK		11.0	44.6	33.2	17.0	6.0

All dimensions in mm. Subject to technical changes.





### Fixing Elements for Weld Studs

#### SB-Series

Many industries (but specifically the automotive market) are using weld studs as the standard method of attaching components. Simply hammered onto the stud these parts provide ideal fixing bases for attaching cables, pipes or hose.

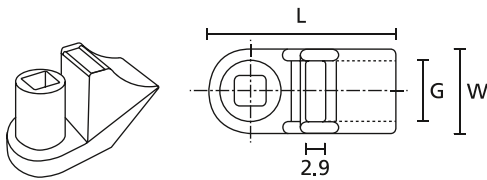
The use of weld studs avoids the problems with holes (ingress of moisture, corrosion etc).

#### Features and benefits

- Simple and quick method of fixing
- SBH types simply hammered onto the stud
- SBH1 and SBH3 allow cables to run across the panel
- SBH2 allow cables to run at 90° to the panel



SBH2 allow cables to run at 90° to the panel.



SBH1, SBH3

SBH1, SBH3



Material specification please see page 22.

PART DESCRIPTION	Width (W)	Length (L)	Length (L2)	Height (H)	Height (H2)	Stud Ø	Strap Width max. (G)
SBH1-PA66-BK	12.5	26.8	9.0	13.9	15.9	5.0	8.5
SBH2-PA66-BK	12.5	26.8	9.0	14.0	12.5	5.0	8.5
SBH3-PA66-BK	12.5	26.8	9.0	18.0	15.9	5.0	8.5

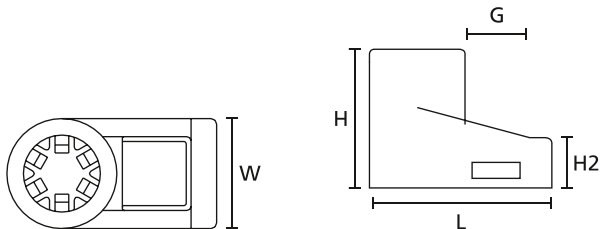
All dimensions in mm. Subject to technical changes.

### Fixing Elements for Weld Studs

#### CT-Series

#### Features and benefits

- Ideal for cable ties up to 4.8 mm wide
- Simply pushed by hand onto an ISO or Fir Tree stud



CTMS5

CTMS5



Fixing Element CTMS5 allows bundles to be routed alongside the stud.

PART DESCRIPTION	Width (W)	Length (L)	Height (H)	Height (H2)	Stud Ø	Strap Width max. (G)
CTMS5-PA66-BK	10.0	19.0	14.5	5.3	5.0	5.0

All dimensions in mm. Subject to technical changes.



### Fixing Elements for Weld Studs

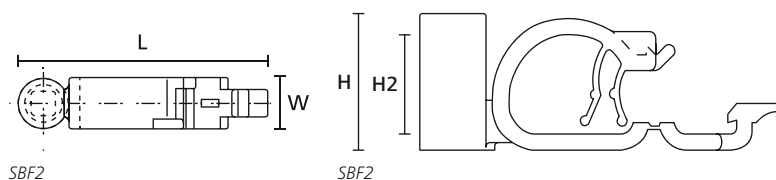
#### SBF-Clips

##### Features and benefits

- One-piece fixing and retainer
- For bundles of up to 13.5 mm
- Vibration resistant, rattlefree and secure hold of bundle
- In case of maintenance easy replacement of bundle possible



SBF2 for fixing on weld studs and cables need to be routed close to stud.



PART DESCRIPTION	Width (W)	Length (L)	Height (H)	Height (H2)	Stud Ø	Bundle Ø max.
SBF2-PA66-BK	10.0	47.7	18.2	13.5	5.0	13.5

All dimensions in mm. Subject to technical changes.

### Fixing Elements for Weld Studs, Cloverleaf Design

#### for cable routing alongside the stud

##### Features and benefits

- Stud fixing and retainer coming as one-piece part
- Easy to install manually: just push onto stud and click bundle into retainer
- Allows for post installation of cables
- In case of maintenance replacement of bundle possible



Fixing clip PC5SM6 for weld studs with additional pipe clip.

PART DESCRIPTION	Drawing	Width (W)	Length (L)	Hole Ø (FH)
PC5SM6-PA66HIRHSUV-BK		14.7	10.0	M6

All dimensions in mm. Subject to technical changes.



### Fixing Elements for Tubes and Harnesses, for Edges

#### EdgeClip-Family

EdgeClips are used in the automotive industries and electrical industries and when it is impossible to drill holes or no other fixing points are available.

#### Features and benefits

- Releasable fixing elements with EdgeClip
- Low-vibration routing of bigger bundle diameters
- Clips to be pushed onto an edge
- To be closed single handed, a snap can be felt
- Bundles can be released at any time
- EC27: fixing element enables usage of smaller bundle diameter
- EC41: for parallel guidance of two bundles



EdgeClip cable and tube clips are suitable for the low-vibration routing of cables and tubes with larger bundle diameters.



**Material specification please see page 22.**

PART DESCRIPTION	Drawing	Panel Thickness	Attach to Ø
EC27-PA66HIRHS-BK		1.0 - 3.0	15.0 - 22.0
EC39-PA6HIR-BK		1.0 - 3.0	15.3 - 15.9
EC41-PA6HIR-BK		3.0 - 6.0	2.0 x 8.0
HCEC3.0SP-C-PA66HIRHS-BK		1.0 - 3.0	12.0 - 15.0
HCEC3.0TPS-PA66HIRHS-BK		1.0 - 3.0	4.5 - 5.0

All dimensions in mm. Subject to technical changes.



### Fixing elements for Parallel Routing, twistable

#### DSWS-Series

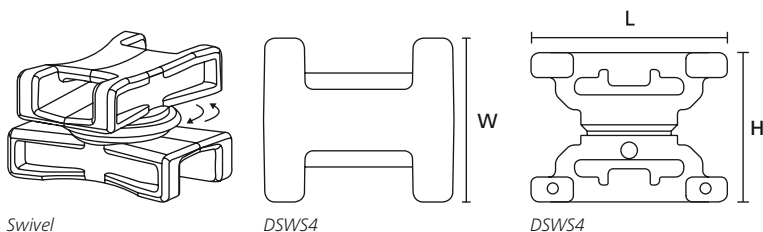
These fixing element for parallel routing can be used where bundles need separation from each other combined with the necessary functionality to support moving harnesses.

#### Features and benefits

- For parallel routing of bundles that can be twisted 360° even after setting
- Secure alignment to the bundle due to H-design
- Cable tie head can be moved after bundling
- For cable ties up to 12.7 mm wide
- For post-installation of bundles



The spacers can be easily rotated by hand, allowing the bundles to be crossed and rotated at any angle.



PART DESCRIPTION	Width (W)	Length (L)	Height (H)
DSWS4-PA66HS/POM-BK	20.3	23.6	18.0
DSWS5-PA66HS/POM-BK	25.4	40.6	23.6

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Heavy Duty Harness Clips

#### Beam clamps / Wedge clips

Primarily designed for use in the automotive/truck industry, these parts can be used in a wide variety of industries and applications where bundles need mounting.

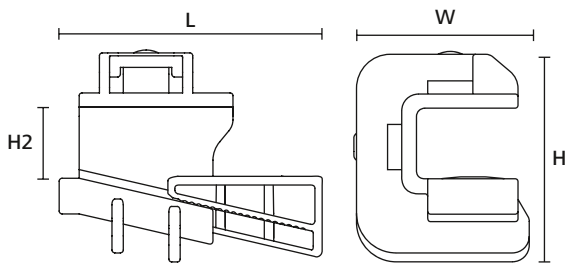
These heavy duty harness clips help to fix and secure cables, lines and hydraulic lines in truck, agriculture and railway vehicle construction, as well as in the ship building industry and industrial buildings.

#### Features and benefits

- Easy to install
- No damage to surfaces
- Easy maintenance of bundle by simply changing cable tie
- Cable tie head can be moved after bundling
- Applicable to a wide range of panel thicknesses



The Beam Clamp can be fixed onto a beam with a wedge. Up to two bundles can be routed on the top or rear side of the clamp.



Beam Clamp, Front view

Beam Clamp, Side view



**Material specification  
please see page 22.**

PART DESCRIPTION	Drawing	Panel Thickness	Width (W)	Length (L)	Height (H)	Height (H2)
Beam Clamp D-PA6GF30-BK		5.5 - 7.0	28.6	46.2	36.7	12.5
Beam Clamp B-PA6GF30-BK		7.0 - 8.5	28.6	46.2	36.7	12.5
Beam Clamp C-PA6GF30-BK		8.5 - 10.5	28.6	46.2	36.7	12.5
Beam Clamp D with foam-PA6GF30-BK		5.5 - 7.0	28.6	46.2	36.7	12.5
Beam Clamp B with foam-PA6GF30-BK		7.0 - 8.5	28.6	46.2	36.7	12.5
Beam Clamp C with foam-PA6GF30-BK		8.5 - 10.5	28.6	46.2	36.7	12.5

All dimensions in mm. Subject to technical changes.



### Snapper Hose Clips for Tubes and Harnesses

#### SNP-Series

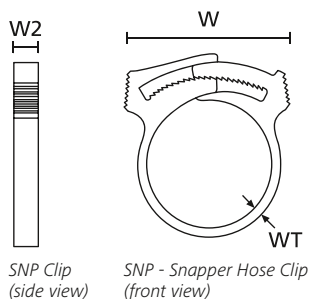
Our SNP range can be used as an alternative to metal hose clamps. Snapper can be used in markets as diverse as automotive, agriculture, white goods, venting systems, pumps and hydraulic systems to medical engineering.

#### Features and benefits

- Releasable and reusable plastic hose clamps
- Self-locking
- Releasable by giving a lateral movement to the 'head'
- Installation by hand possible
- Installation with processing tool for a secure tensioning
- For higher operating temperatures: Glass Filled PA66



SNP - Snapper Hose Clips range.



SNP Clip  
(side view)

SNP - Snapper Hose Clip  
(front view)

PART DESCRIPTION	Bundle Ø min.	Bundle Ø max.	Width (W) min.	Width (W) max.	Width (W2)	Wall (WT)
SNP1-POM-WH	6.0	6.5	8.33	11.73	3.8	1.00
SNP1-PA66GF13-BK	6.0	6.8	8.40	11.70	3.8	1.00
SNP1.25-PA66GF13-BK	7.1	7.7	10.57	12.62	3.8	1.10
SNP2(E)-POM-NA	8.7	10.0	17.00	21.00	6.0	1.50
SNP2-PA66GF13-BK	9.3	10.5	12.20	17.60	5.9	1.70
SNP3(E)-POM-NA	10.0	11.4	19.00	25.00	6.0	1.80
SNP4-PA66GF13-BK	10.4	11.7	13.30	19.20	5.9	1.70
SNP4(E)-POM-NA	10.8	12.3	19.00	23.00	6.0	1.80
SNP7-PA66GF13-BK	11.4	13.7	18.40	28.50	5.9	1.70
SNP6-PA66GF13-BK	11.7	13.3	14.70	21.60	5.9	1.70
SNP6(E)-POM-NA	12.0	13.7	19.00	24.00	6.0	1.80
SNP8-PA66GF13-BK	13.1	15.0	16.70	24.90	5.7	1.70
SNP8(E)-POM-NA	13.7	15.3	19.00	24.00	6.0	1.80
SNP10-PA66GF13-BK	14.5	16.6	17.60	26.90	5.9	1.80
SNP10(E)-POM-NA	15.0	16.8	19.00	24.00	6.0	1.80
SNP12A-PA66GF13-BK	15.6	18.3	21.00	29.90	5.9	1.80
SNP12(E)-POM-NA	16.8	18.4	19.00	24.00	6.0	1.80
SNP14(E)-POM-NA	18.1	19.9	19.00	24.00	6.0	1.80

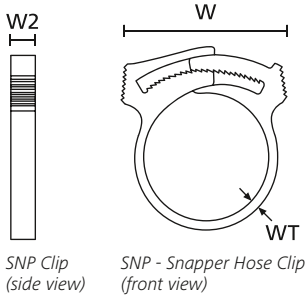
All dimensions in mm. Subject to technical changes.





### Snapper Hose Clips for Tubes and Harnesses

#### SNP-Series



SNP Clip  
(side view)

SNP - Snapper Hose Clip  
(front view)

PART DESCRIPTION	Bundle Ø min.	Bundle Ø max.	Width (W) min.	Width (W) max.	Width (W2)	Wall (WT)
SNP14A-PA66GF13-BK	18.5	21.0	20.90	30.10	5.9	1.80
SNP16-PA66GF13-BK	19.1	21.7	19.90	30.80	5.8	1.50
SNP16-POM-NA	19.9	21.7	19.00	24.00	6.0	1.90
SNP18A-PA66GF13-BK	19.9	23.6	24.00	35.50	5.9	1.80
SNP18(E)-POM-NA	21.4	23.0	16.00	22.00	6.0	1.90
SNP19-PA66GF13-BK	22.3	25.3	24.40	36.10	5.9	1.70
SNP20(E)-POM-NA	22.7	24.7	20.00	26.00	6.0	1.80
SNP22-PA66GF13-BK	23.7	27.4	23.90	37.70	6.0	1.80
SNP22(E)-POM-NA	25.3	27.3	20.00	26.00	6.0	1.60
SNP24-PA66GF13-BK	25.8	29.2	26.50	39.40	7.3	1.70
SNP24-POM-NA	26.5	28.6	20.00	26.00	6.0	2.00
SNP28-PA66GF13-BK	28.8	33.2	26.00	42.10	7.3	1.70
SNP32(E)-POM-NA	30.3	33.1	27.00	34.00	7.5	2.00
SNP32-PA66GF13-BK	31.2	35.8	27.30	44.40	7.3	1.80
SNP34(E)-POM-NA	32.5	35.1	27.00	34.00	7.5	2.00
SNP36(E)-POM-NA	34.8	37.1	27.00	34.00	7.5	2.00
SNP38(E)-POM-NA	36.7	38.9	27.00	34.00	7.5	2.00
SNP36-PA66GF13-BK	37.8	44.0	32.41	53.80	7.3	1.70
SNP42(E)-POM-NA	41.0	44.2	32.00	45.00	7.5	2.00
SNP38-PA66GF13-BK	41.0	48.1	35.60	57.50	7.3	1.80
SNP42-PA66GF13-BK	44.5	52.2	35.70	59.80	7.3	1.70
SNP50(E)-POM-NA	48.8	52.0	32.00	45.00	7.5	2.00
SNP50-PA66GF13-BK	52.2	58.6	36.50	60.40	7.3	1.70
SNP58(E)-POM-NA	56.7	59.2	31.00	39.00	7.5	2.00

All dimensions in mm. Subject to technical changes.





### Blind Plugs

Our Plugs were developed especially for the automotive industry. Application in trunks, doors, wheel housing and dash panels. Whenever needed to secure a hole against dirt or dust. Sometimes even used for optical reasons.

#### Features and benefits

- Easy assembly without the need of a tool
- Disc covers the hole and minimises ingress of dust, dirt and water
- Types "TRIM PLUG 5 and "PLUGSFT8.4": with additional retainer to fix panel or cover



Blindplugs are available in different dimensions and materials.

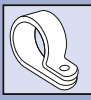


**Material specification please see page 22.**

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness
TRIM PLUG 5-PA66HIR-NA		5.0	4.0 - 4.5
PLUG11-PA66HIRHS-NA		11.0	4.0 - 6.0
PLUG5.5-PA6HIR-BK		5.0 - 5.5	2.5 - 26.0
PLUG SQ8x8-PA66HIR-BK		7.6 - 8.0	1.0 - 3.0
PLUG5 WITH OPENING-PA66HIRHS-BK		5.05 - 5.25	4.8 - 5.2
PLUG10-PE-BK		10.2	2.0 - 12.0
PLUGFT6XL-PA46-BN		6.5 - 7.0	0.7 - 18.0
PLUGFT6XL-PA66HIR-BK		6.5 - 7.0	0.7 - 18.0

All dimensions in mm. Subject to technical changes.





### Blind Plugs

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness
PLUGFT7-PA6HIR-BK		7.05 - 7.25	2.5 - 8.0
PLUGSFT8.4-POM-NA		8.3 - 8.5	0.7 - 0.9
FT6.5 Plug-PA66HIRHSUV-BK		6.1 - 6.9	0.6 - 6.0
FT6.5 PLUG-PA46-BK		6.1 - 6.9	0.6 - 6.0
M6PUSHPIN-PA46-BK		6.0	-
M6PUSHPIN-PA66HIRHSUV-BK		6.0	-
PLUGFTOVAL-PA66HIRHSUV-BK		6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.6 - 6.0

All dimensions in mm. Subject to technical changes.



### Cover Plugs and Open Plugs

Products were developed especially for the automotive industry. Application in trunks, doors, wheel housing and dash panels particularly where holes have to be covered and tubes must be guided securely. Parts are even used for optical reasons.

#### Features and benefits

- Easy assembly without the need of a tool
- Protection of ingress of dust, dirt and water are offered by cover plugs
- Open plugs cover and secure the edges of drilled holes



Cover Plugs are protecting and securing boreholes.



**Material specification please see page 22.**

#### Cover Plugs

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness
Cover Plug 20x50-PP/EPDM-BK		20.0 x 50.0	2.5
Cover Plug 20-PP/EPDM-BK		19.5	3.0
Cover Plug 32-EPDM-BK		32.0	2.5

All dimensions in mm. Subject to technical changes.

#### Open Plugs

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness
Open Plug 55x70-PP-BK		55.0 x 70.0	5.0 - 8.0
Open Plug 42x84-PA6HIR-BK		42.0 x 84.0	5.0 - 8.0
OPEN PLUG 34.6x112-PA66HIR-BK		34.6 x 112.0	5.0 - 8.0

All dimensions in mm. Subject to technical changes.

# Even big things have small beginnings.

You have to work with what you've got – and that was exactly what our company founder Paul Hellermann did back in 1935. Inspired by the small rubber tube in bicycle valves, he developed a process for binding electric cables with rubber: the Hellermann grommet and three-pronged pliers. The first two of the hundreds of patents filed since then.

[HellermannTyton.com/mfr-gac](https://HellermannTyton.com/mfr-gac)

## MADE FOR REAL









## Heat Shrinkable Tubing

<b>Product Selection</b>	
Size Overview	204
The right Heat Shrink Tube	205
Heatshrinkable Tubing Overview	206
<b>Thin wall</b>	
TCN20, 2:1, self extinguishing	207
TCN20 overexpanded, 3:1, self extinguishing	208
HFT-A, 2:1, flexible and coloured, self extinguishing	209
TF21, 2:1, flexible and coloured	210
TF24, 2:1, flexible and transparent; VG	213
TF31, 3:1, flexible and coloured	214
TF34, 3:1, flexible and transparent, VG	216
TR27, 2:1, halogen free and highly flame retardant	217
TK20, 2:1, PVDF semi-rigid in 1.2 m lengths	224
<b>Thin wall with adhesive liner</b>	
EPS-300, 3:1, on reel	218
EPS-400, 4:1, on reel	218
TG40, 4:1, 1.2 m lengths	219
<b>Standard wall with adhesive liner</b>	
SA47, 4:1, 1.2 m lengths	220
SA47-LA, 4:1, 1.2 m lengths	221
SA47-HT, 4:1, 1.2 m lengths	222
<b>Standard wall</b>	
SE28, 2:1, Elastomer	223
Viton®-E, 2:1, high performance Fluoroelastomer	225



## Non Shrinkable Tubing

<b>Chloroprene tubing and grommets</b>	
Helsyn H	226
Helsyn TH - thin wall	227
<b>Installation aid for tubing and grommets</b>	
Hellerine	228





### Overview of applications for Heat Shrink Tubing

When selecting the correct heat shrink tubing size, it is important to bear in mind the 80:20 rule. The heat shrink tubing must shrink by at least 20% and not more than 80% of its complete shrinkage capacity to achieve the right result. In our overview of applications you will find the best heat shrink tube for every cable diameter. The 80:20 rule has of course been taken into account in the table.

#### Heat Shrinkable Tubing with a shrink ratio of 2:1

HFT-A, TL27, TF21, TF24, VITON®-E, TK20, TK29, TFE-2, TR27, TCN20, SE28

Shrink ratio 2:1 Size mm		Cable/Wire Diameter
1.2/0.6		0.7 mm
		1.1 mm
3.2/1.6	2.4/1.2	1.4 mm
		1.9 mm
	4.8/2.4	2.2 mm
		2.9 mm
6.4/3.2	4.8/2.4	3.8 mm
		4.3 mm
	9.5/4.7	5.7 mm
		5.8 mm
12.7/6.4	9.5/4.7	7.7 mm
		8.6 mm
	19.1/9.5	11.4 mm
		15.2 mm
25.4/12.7	19.1/9.5	17.2 mm
		22.9 mm
		30.5 mm
50.8/25.4	38.1/19.1	34.3 mm
		45.7 mm
	76.2/38.1	61.0 mm
68.6 mm		
101.6/50.8	76.2/38.1	91.4 mm

#### Heat Shrinkable Tubing with a shrinkage ratio of 3:1

With the optimal shrinkage ratio of 3:1, you can cover a wide range of applications with just a few sizes. This leads to reduced stock expenditure and requires less space. 3:1 heat shrink tubes: TF34, TF31, EPS-300, TCN20 overexpanded, TA32, TA37

Shrink ratio 3:1 Size mm		Cable/Wire Diameter
1.5/0.5		0.7 mm
		1.3 mm
6/2	3/1	1.4 mm
		2.6 mm
	12/4	2.8 mm
		5.2 mm
18/6	12/4	5.6 mm
		8.4 mm
	24/8	10.4 mm
		11.2 mm
40/13	24/8	15.6 mm
		18.4 mm
	40/13	20.8 mm
		34.6 mm

#### Conversion from imperial to metric

<b>Inch</b>	1/32"	3/64"	1/16"	5/64"	3/32"	1/8"	3/16"	1/4"	3/8"
<b>mm</b>	0.8	1.2	1.6	2.0	2.4	3.2	4.8	6.4	9.5
<b>Inch</b>	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	3"	4"
<b>mm</b>	12.7	15.9	19.1	25.4	31.8	38.1	50.8	76.2	101.6

VITON® is a registered trademark of DuPont.

## The right Heat Shrink Tube

The 80:20 rule means that a heat shrink tube should shrink by a maximum of 80% and a minimum of 20%.

### For example:

A cable with a diameter of 5mm is to be wrapped in heat shrink tubing. In theory both sizes 6/2 and 12/4 would be suitable, since the required diameter of 5mm lies within the shrink range of both tube sizes.

#### Size 6/2

##### Maximum shrink (100%)



Shrinkage of 4 mm

##### Optimum shrinkage max. (80%)



Shrinkage of 0.8 mm

##### Optimum shrinkage min. (20%)



Shrinkage of 3.2 mm

Size 6/2 has a range of application of between 2.8 mm and 5.2 mm and is therefore suitable for the cable diameter of 5 mm.

#### Size 12/4

##### Maximum shrink (100%)



Shrinkage of 8 mm

##### Optimum shrinkage max. (80%)



Shrinkage of 6.4 mm

##### Optimum shrinkage min. (20%)



Shrinkage of 1.6 mm

The smallest application diameter of size 12/4 is 5.6 mm. This size is therefore unsuitable for a cable diameter of 5 mm.

#### Calculator tool for Heat Shrink Tubing

The calculator tool for heat shrink tubing is a selection guide for shrink tubing sizes based on the object to be covered. Fill in your specification and the calculator presents the right tubing size according to the 80:20 rule.

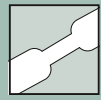
Find more information under [www.HellermannTyton.com/heatshrink-calculator](http://www.HellermannTyton.com/heatshrink-calculator)!

The calculator tool also checks if the heat shrink tubing you have chosen is suitable for your application. For example you can find the heat shrink tubing with the Product Search on the [www.HellermannTyton.com](http://www.HellermannTyton.com) website.



## Heat Shrinkable Tubing Overview

TYPE	Packaging Type	Variant	Material	Shrink Ratio	Operating Temperature	Dimension (mm)	Halogen-free	Colour	Page	
TCN20		Thin-Wall	PO-X	2:1	-55 °C to +125 °C	1.2 - 50.8		Black	207	
TCN20 overexpanded			PO-X	3:1	-55 °C to +125 °C	2.4 - 38.0		Black	208	
HFT-A			PO-X	2:1	-55 °C to +135 °C	1.2 - 101.6		Black	209	
TF21			PO-X	2:1	-55 °C to +135 °C	1.2 - 101.6		Black, Blue, Orange, Red, White, Yellow	210	
TF24			PO-X	2:1	-55 °C to +135 °C	1.2 - 101.6	HF ✓	Transparent	213	
TF31			PO-X	3:1	-55 °C to +135 °C	1.5 - 40.0		Black, Blue, Green, Red, White, Yellow	214	
TF34			PO-X	3:1	-55 °C to +135 °C	1.5 - 40.0	HF ✓	Transparent	216	
TR27			PO-X	2:1	-40 °C to +105 °C	3.2 - 50.8	HF ✓	Black	217	
EPS-300			Thin-Wall Hot melt adhesive	PO-X	3:1	-55 °C to +125 °C	3.0 - 40.0		Black	218
EPS-400				PO-X	4:1	-55 °C to +125 °C	4.0 - 32.0		Black	218
TG40		PO-X		4:1	-55 °C to +125 °C	6.00 - 18.00		Black, Transparent	219	
SA47		Standard-Wall Hot melt adhesive	PO-X	4:1	-40 °C to +125 °C	5.75 - 32.00	HF ✓	Black, Transparent	220	
SA47-LA			PO-X	4:1	-40 °C to +125 °C	5.75 - 52.0	HF ✓	Black, Transparent	221	
SA47-HT			PO-X	4:1	-40 °C to +150 °C	7.60 - 32.0		Black	222	
SE28		Standard-Wall	POA	2:1	-75 °C to +150 °C	3.2 - 101.2		Black	223	
TK20		Thin-Wall	PVDF	2:1	-55 °C to +175 °C	1.2 - 50.8		Transparent	224	
Viton®-E		Standard-Wall	FPMX	2:1	-55 °C to +200 °C	3.2 - 50.8		Black	225	



### Heat shrinkable tubing 2:1 - Self extinguishing

#### TCN20

TCN20 is suitable for a wide range of applications like electrical insulations, mechanical protection and cable bundling.

#### Features and benefits

- Thin wall general purpose polyolefin tubing
- Self extinguishing, UL224 VW-1, CSA
- Fast shrinking
- Low shrink temperature



Heat shrink tubing TCN20.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-55 °C to +125 °C
<b>Min. Shrink Temperature</b>	+100 °C
<b>Longitudinal Change After Shrinkage</b>	+/-5 %
<b>Dielectric Strength</b>	20 kV/mm according to IEC 243
<b>Flammability</b>	self-extinguishing, UL 224 VW-1



Heat Shrinkable Tubing 2:1



PART DESCRIPTION	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)
TCN20-1.2/0.6-PO-X-BK	1.2	3/64 "	0.6	0.30
TCN20-1.6/0.8-PO-X-BK	1.6	1/16 "	0.8	0.35
TCN20-2.4/1.2-PO-X-BK	2.4	3/32 "	1.2	0.45
TCN20-3.2/1.6-PO-X-BK	3.2	1/8 "	1.6	0.45
TCN20-4.8/2.4-PO-X-BK	4.8	3/16 "	2.4	0.50
TCN20-6.4/3.2-PO-X-BK	6.4	1/4 "	3.2	0.55
TCN20-9.5/4.8-PO-X-BK	9.5	3/8 "	4.8	0.55
TCN20-12.7/6.4-PO-X-BK	12.7	1/2 "	6.4	0.65
TCN20-19.1/9.5-PO-X-BK	19.1	3/4 "	9.5	0.80
TCN20-25.4/12.7-PO-X-BK	25.4	1 "	12.7	0.90
TCN20-38.1/19.1-PO-X-BK	38.1	1-1/2 "	19.1	1.02
TCN20-50.8/25.4-PO-X-BK	50.8	2 "	25.4	1.15

All dimensions in mm. Subject to technical changes.



### Heat shrinkable tubing 3:1 - Self extinguishing

#### TCN20 overexpanded

Mechanical and electrical protection applications for parts with high diameter variances. This fast shrinking tubing makes it suitable for high volume production.

#### Features and benefits

- Thin wall overexpanded polyolefin tubing
- Self extinguishing and low shrink temperature
- Highly flame-retardant, UL224 VW-1



Heat shrink tubing TCN20 overexpanded.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	3:1
<b>Operating Temperature</b>	-55 °C to +125 °C
<b>Min. Shrink Temperature</b>	+100 °C
<b>Longitudinal Change After Shrinkage</b>	+/-5 %
<b>Dielectric Strength</b>	20 kV/mm according to IEC 243
<b>Flammability</b>	self-extinguishing



Heat Shrinkable Tubing 3:1



PART DESCRIPTION	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)
TCN20-2.4/0.8-PO-X-BK	2.4	0.8	0.40
TCN20-3.2/1.2-PO-X-BK	3.2	1.2	0.50
TCN20-4.8/1.6-PO-X-BK	4.8	1.6	0.50
TCN20-6.6/2.4-PO-X-BK	6.6	2.4	0.55
TCN20-9.5/3.2-PO-X-BK	9.5	3.2	0.65
TCN20-12.7/4.8-PO-X-BK	12.7	4.8	0.75
TCN20-19.0/6.4-PO-X-BK	19.0	6.4	0.75
TCN20-25.4/9.5-PO-X-BK	25.40	9.50	0.80
TCN20-38.0/12.7-PO-X-BK	38.0	12.7	0.95

All dimensions in mm. Subject to technical changes.

### Heat shrinkable tubing 2:1 - flexible and coloured

#### HFT-A - self extinguishing

This high performance thin wall tubing is used extensively for electrical and mechanical protection. It is also well proven for sleeve marking to identify wiring circuits.

#### Features and benefits

- Flexible heat shrink tubing
- Fast shrinking, easy handling, good mechanical strength
- Wide range of colours
- Internal diameters up to 101.6 mm (4 inches)
- UL-224 ,CSA listed and VG approved



HFT-A conforms to major standards (VG) used in all Defence industries.



Standard sizes available in colours black, red, blue, yellow, white and green-yellow.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Min. Shrink Temperature</b>	+135 °C
<b>Longitudinal Change After Shrinkage</b>	-5 % max.
<b>Dielectric Strength</b>	20 kV/mm according to IEC 684 P2
<b>Flammability</b>	self-extinguishing, UL 224 VW-1



Heat Shrinkable Tubing 2:1



PART DESCRIPTION	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)	Designation as per VG-Norm
HFT-A-1.2/0.6-PO-X-BK	1.2	3/64 "	0.6	0.40	VG 95343 T05 A 001 A
HFT-A-1.6/0.8-PO-X-BK	1.6	1/16 "	0.8	0.40	VG 95343 T05 A 002 A
HFT-A-2.4/1.2-PO-X-BK	2.4	3/32 "	1.2	0.50	VG 95343 T05 A 003 A
HFT-A-3.2/1.6-PO-X-BK	3.2	1/8 "	1.6	0.50	VG 95343 T05 A 004 A
HFT-A-4.8/2.4-PO-X-BK	4.8	3/16 "	2.4	0.50	VG 95343 T05 A 005 A
HFT-A-6.4/3.2-PO-X-BK	6.4	1/4 "	3.2	0.60	VG 95343 T05 A 006 A
HFT-A-9.5/4.8-PO-X-BK	9.5	3/8 "	4.8	0.60	VG 95343 T05 A 007 A
HFT-A-12.7/6.4-PO-X-BK	12.7	1/2 "	6.4	0.60	VG 95343 T05 A 008 A
HFT-A-19.0/9.5-PO-X-BK	19.0	3/4 "	9.5	0.80	VG 95343 T05 A 009 A
HFT-A-25.4/12.7-PO-X-BK	25.4	1 "	12.7	0.90	VG 95343 T05 A 010 A
HFT-A-38.0/19.0-PO-X-BK	38.0	1-1/2 "	19.0	1.00	VG 95343 T05 A 011 A
HFT-A-50.8/25.4-PO-X-BK	50.8	2 "	25.4	1.10	VG 95343 T05 A 012 A
HFT-A-76.0/38.0-PO-X-BK	76.0	3 "	38.0	1.30	VG 95343 T05 A 013 A
HFT-A-101.6/50.8-PO-X-BK	101.6	4 "	50.8	1.40	VG 95343 T05 A 014 A

All dimensions in mm. Subject to technical changes.



### Heat shrinkable tubing 2:1 - flexible and coloured

#### TF21

Due to its versatility TF21 is suitable for a wide range of applications like electrical insulations, mechanical protection and marking.

#### Features and benefits

- Thin wall, flexible polyolefin tubing
- Fast shrinking and low shrink temperature
- Meets and exceeds lots of industrial standards
- Big variety of different colours and sizes
- Flame retarded and UL224 VW1 listed

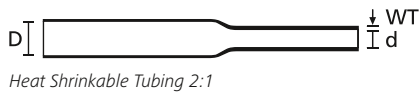


TF21 - available in a wide range of colours and sizes.



**Cut lengths available on request.  
Please contact us!**

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Min. Shrink Temperature</b>	+90 °C
<b>Longitudinal Change After Shrinkage</b>	+/-5 %
<b>Dielectric Strength</b>	37 kV/mm
<b>Flammability</b>	ASTM D876



PART DESCRIPTION	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)
TF21-1.2/0.6-PO-X-BU	1.2	3/64 "	0.6	0.41
TF21-1.2/0.6-PO-X-RD	1.2	3/64 "	0.6	0.41
TF21-1.2/0.6-PO-X-WH	1.2	3/64 "	0.6	0.41
TF21-1.2/0.6-PO-X-YE	1.2	3/64 "	0.6	0.41
TF21-1.2/0.6-PO-X-BK	1.2	3/64 "	0.6	0.41
TF21-1.6/0.8-PO-X-BU	1.6	1/16 "	0.8	0.43
TF21-1.6/0.8-PO-X-RD	1.6	1/16 "	0.8	0.43
TF21-1.6/0.8-PO-X-WH	1.6	1/16 "	0.8	0.43
TF21-1.6/0.8-PO-X-YE	1.6	1/16 "	0.8	0.43
TF21-1.6/0.8-PO-X-BK	1.6	1/16 "	0.8	0.43
TF21-2.4/1.2-PO-X-BU	2.4	3/32 "	1.2	0.51
TF21-2.4/1.2-PO-X-RD	2.4	3/32 "	1.2	0.51
TF21-2.4/1.2-PO-X-WH	2.4	3/32 "	1.2	0.51
TF21-2.4/1.2-PO-X-YE	2.4	3/32 "	1.2	0.51
TF21-2.4/1.2-PO-X-BK	2.4	3/32 "	1.2	0.51
TF21-3.2/1.6-PO-X-BU	3.2	1/8 "	1.6	0.51
TF21-3.2/1.6-PO-X-RD	3.2	1/8 "	1.6	0.51
TF21-3.2/1.6-PO-X-WH	3.2	1/8 "	1.6	0.51

All dimensions in mm. Subject to technical changes.



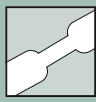
## Heat shrinkable tubing 2:1 - flexible and coloured

### TF21

PART DESCRIPTION	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)
TF21-3.2/1.6-PO-X-YE	3.2	1/8 "	1.6	0.51
TF21-3.2/1.6-PO-X-BK	3.2	1/8 "	1.6	0.51
TF21-4.8/2.4-PO-X-BU	4.8	3/16 "	2.4	0.51
TF21-4.8/2.4-PO-X-RD	4.8	3/16 "	2.4	0.51
TF21-4.8/2.4-PO-X-WH	4.8	3/16 "	2.4	0.51
TF21-4.8/2.4-PO-X-YE	4.8	3/16 "	2.4	0.51
TF21-4.8/2.4-PO-X-OG	4.8	3/16 "	2.4	0.51
TF21-4.8/2.4-PO-X-BK	4.8	3/16 "	2.4	0.51
TF21-6.4/3.2-PO-X-BU	6.4	1/4 "	3.2	0.64
TF21-6.4/3.2-PO-X-RD	6.4	1/4 "	3.2	0.64
TF21-6.4/3.2-PO-X-WH	6.4	1/4 "	3.2	0.64
TF21-6.4/3.2-PO-X-YE	6.4	1/4 "	3.2	0.64
TF21-6.4/3.2-PO-X-BK	6.4	1/4 "	3.2	0.64
TF21-9.5/4.8-PO-X-BU	9.5	3/8 "	4.8	0.64
TF21-9.5/4.8-PO-X-OG	9.5	3/8 "	4.8	0.64
TF21-9.5/4.8-PO-X-RD	9.5	3/8 "	4.8	0.64
TF21-9.5/4.8-PO-X-WH	9.5	3/8 "	4.8	0.64
TF21-9.5/4.8-PO-X-YE	9.5	3/8 "	4.8	0.64
TF21-9.5/4.8-PO-X-BK	9.5	3/8 "	4.8	0.64
TF21-12.7/6.4-PO-X-BU	12.7	1/2 "	6.4	0.64
TF21-12.7/6.4-PO-X-RD	12.7	1/2 "	6.4	0.64
TF21-12.7/6.4-PO-X-WH	12.7	1/2 "	6.4	0.64
TF21-12.7/6.4-PO-X-YE	12.7	1/2 "	6.4	0.64
TF21-12.7/6.4-PO-X-BK	12.7	1/2 "	6.4	0.64
TF21-19.1/9.5-PO-X-OG	19.1	3/4 "	9.5	0.76
TF21-19.1/9.5-PO-X-BK	19.1	3/4 "	9.5	0.76
TF21-19.1/9.5-PO-X-BU	19.1	3/4 "	9.5	0.76
TF21-19.1/9.5-PO-X-RD	19.1	3/4 "	9.5	0.76
TF21-19.1/9.5-PO-X-WH	19.1	3/4 "	9.5	0.76
TF21-19.1/9.5-PO-X-YE	19.1	3/4 "	9.5	0.76
TF21-25.4/12.7-PO-X-BK	25.4	1 "	12.7	0.89
TF21-25.4/12.7-PO-X-BU	25.4	1 "	12.7	0.89
TF21-25.4/12.7-PO-X-RD	25.4	1 "	12.7	0.89
TF21-25.4/12.7-PO-X-WH	25.4	1 "	12.7	0.89
TF21-25.4/12.7-PO-X-YE	25.4	1 "	12.7	0.89
TF21-38.0/19.0-PO-X-BK	38.1	1-1/2 "	19.1	1.02
TF21-38.0/19.0-PO-X-BU	38.1	1-1/2 "	19.1	1.02
TF21-38.0/19.0-PO-X-RD	38.1	1-1/2 "	19.1	1.02
TF21-38.0/19.0-PO-X-WH	38.1	1-1/2 "	19.1	1.02
TF21-38.0/19.0-PO-X-YE	38.1	1-1/2 "	19.1	1.02
TF21-50.8/25.4-PO-X-BK	50.8	2 "	25.4	1.14
TF21-50.8/25.4-PO-X-BU	50.8	2 "	25.4	1.14

All dimensions in mm. Subject to technical changes.





### Heat shrinkable tubing 2:1 - flexible and coloured

TF21



Heat Shrinkable Tubing 2:1

PART DESCRIPTION	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)
TF21-50.8/25.4-PO-X-RD	50.8	2 "	25.4	1.14
TF21-50.8/25.4-PO-X-WH	50.8	2 "	25.4	1.14
TF21-50.8/25.4-PO-X-YE	50.8	2 "	25.4	1.14
TF21-76.0/38.0-PO-X-BK	76.2	3 "	38.1	1.27
TF21-76.0/38.0-PO-X-BU	76.2	3 "	38.1	1.27
TF21-76.0/38.0-PO-X-RD	76.2	3 "	38.1	1.27
TF21-76.0/38.0-PO-X-WH	76.2	3 "	38.1	1.27
TF21-76.0/38.0-PO-X-YE	76.2	3 "	38.1	1.27
TF21-101.6/50.8-PO-X-BK	101.6	4 "	50.8	1.40
TF21-101.6/50.8-PO-X-BU	101.6	4 "	50.8	1.40
TF21-101.6/50.8-PO-X-RD	101.6	4 "	50.8	1.40
TF21-101.6/50.8-PO-X-WH	101.6	4 "	50.8	1.40
TF21-101.6/50.8-PO-X-YE	101.6	4 "	50.8	1.40

All dimensions in mm. Subject to technical changes.

### Heat shrinkable tubing 2:1 - flexible and transparent

#### TF24

Protects wire and cable markers subject to abuse, while permitting inspectability of each item covered. Protects electronic components while permitting their identification and inspection.

#### Features and benefits

- Transparent, flexible polyolefin tubing
- Protects identification marking perfect
- Halogen free
- Good mechanical and chemical resistance
- VG-approval and additional industrial approvals



TF24 transparent tubing with 2:1 shrink ratio.

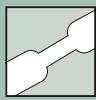
**i** Cut lengths available on request.  
Please contact us!

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Min. Shrink Temperature</b>	+110 °C
<b>Longitudinal Change After Shrinkage</b>	+/-5 % max.
<b>Dielectric Strength</b>	30 kV/mm
<b>Flammability</b>	not flame retardant



PART DESCRIPTION	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)	Designation as per VG-Norm
TF24-1.2/0.6-PO-X-CL	1.2	3/64 "	0.6	0.41	VG 95343 T05 B 001 M
TF24-1.6/0.8-PO-X-CL	1.6	1/16 "	0.8	0.43	VG 95343 T05 B 002 M
TF24-2.4/1.2-PO-X-CL	2.4	3/32 "	1.2	0.51	VG 95343 T05 B 003 M
TF24-3.2/1.6-PO-X-CL	3.2	1/8 "	1.6	0.51	VG 95343 T05 B 004 M
TF24-4.8/2.4-PO-X-CL	4.8	3/16 "	2.4	0.51	VG 95343 T05 B 005 M
TF24-6.4/3.2-PO-X-CL	6.4	1/4 "	3.2	0.64	VG 95343 T05 B 006 M
TF24-9.5/4.8-PO-X-CL	9.5	3/8 "	4.8	0.64	VG 95343 T05 B 007 M
TF24-12.7/6.4-PO-X-CL	12.7	1/2 "	6.4	0.64	VG 95343 T05 B 008 M
TF24-19.1/9.5-PO-X-CL	19.1	3/4 "	9.5	0.76	VG 95343 T05 B 009 M
TF24-25.4/12.7-PO-X-CL	25.4	1 "	12.7	0.89	VG 95343 T05 B 010 M
TF24-38.1/19.1-PO-X-CL	38.1	1-1/2 "	19.1	1.02	VG 95343 T05 B 011 M
TF24-50.8/25.4-PO-X-CL	50.8	2 "	25.4	1.14	VG 95343 T05 B 012 M
TF24-76.2/38.1-PO-X-CL	76.2	3 "	38.1	1.27	VG 95343 T05 B 013 M
TF24-101.6/50.8-PO-X-CL	101.6	4 "	50.8	1.40	VG 95343 T05 B 014 M

All dimensions in mm. Subject to technical changes.



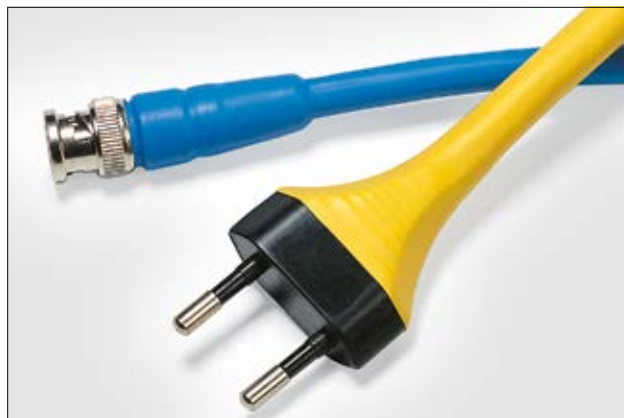
### Heat shrinkable tubing 3:1 - flexible and coloured

#### TF31

If higher fire protection is a requirement heat shrinkable tubing TF31 is a good choice. It is used for protection, insulation and identification wires, cables and light duty harnesses.

#### Features and benefits

- Thin wall, very flexible polyolefin tubing
- Few sizes cover a wide range of diameters allowing reduced inventory
- Fast shrinking and low shrink temperature
- Flame-retardant, UL224 VW1 listed



TF31 with 3:1 shrink ratio allowing for a wider range of application.



**Cut lengths available on request.  
Please contact us!**

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	3:1
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Min. Shrink Temperature</b>	+90 °C
<b>Longitudinal Change After Shrinkage</b>	+5 %/-15 %
<b>Dielectric Strength</b>	37 kV/mm
<b>Flammability</b>	ASTM D876, UL 224 VW-1, self-extinguishing



Heat Shrinkable Tubing 3:1



PART DESCRIPTION	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)
TF31-1.5/0.5-PO-X-BU	1.5	0.5	0.50
TF31-1.5/0.5-PO-X-GN	1.5	0.5	0.50
TF31-1.5/0.5-PO-X-RD	1.5	0.5	0.50
TF31-1.5/0.5-PO-X-WH	1.5	0.5	0.50
TF31-1.5/0.5-PO-X-YE	1.5	0.5	0.50
TF31-1.5/0.5-PO-X-BK	1.5	0.5	0.50
TF31-3/1-PO-X-BU	3.0	1.0	0.60
TF31-3/1-PO-X-GN	3.0	1.0	0.60
TF31-3/1-PO-X-RD	3.0	1.0	0.60
TF31-3/1-PO-X-WH	3.0	1.0	0.60
TF31-3/1-PO-X-YE	3.0	1.0	0.60
TF31-3/1-PO-X-BK	3.0	1.0	0.60
TF31-6/2-PO-X-BU	6.0	2.0	0.70
TF31-6/2-PO-X-GN	6.0	2.0	0.70
TF31-6/2-PO-X-RD	6.0	2.0	0.70
TF31-6/2-PO-X-WH	6.0	2.0	0.70
TF31-6/2-PO-X-YE	6.0	2.0	0.70
TF31-6/2-PO-X-BK	6.0	2.0	0.70
TF31-9/3-PO-X-BU	9.0	3.0	0.80
TF31-9/3-PO-X-GN	9.0	3.0	0.80
TF31-9/3-PO-X-RD	9.0	3.0	0.80

All dimensions in mm. Subject to technical changes.

## Heat shrinkable tubing 3:1 - flexible and coloured

TF31

PART DESCRIPTION	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)
TF31-9/3-PO-X-WH	9.0	3.0	0.80
TF31-9/3-PO-X-YE	9.0	3.0	0.80
TF31-9/3-PO-X-BK	9.0	3.0	0.80
TF31-12/4-PO-X-BU	12.0	4.0	0.85
TF31-12/4-PO-X-GN	12.0	4.0	0.85
TF31-12/4-PO-X-RD	12.0	4.0	0.85
TF31-12/4-PO-X-WH	12.0	4.0	0.85
TF31-12/4-PO-X-YE	12.0	4.0	0.85
TF31-12/4-PO-X-BK	12.0	4.0	0.85
TF31-18/6-PO-X-BU	18.0	6.0	1.00
TF31-18/6-PO-X-GN	18.0	6.0	1.00
TF31-18/6-PO-X-RD	18.0	6.0	1.00
TF31-18/6-PO-X-WH	18.0	6.0	1.00
TF31-18/6-PO-X-YE	18.0	6.0	1.00
TF31-18/6-PO-X-BK	18.0	6.0	1.00
TF31-24/8-PO-X-BU	24.0	8.0	1.20
TF31-24/8-PO-X-GN	24.0	8.0	1.20
TF31-24/8-PO-X-RD	24.0	8.0	1.20
TF31-24/8-PO-X-WH	24.0	8.0	1.20
TF31-24/8-PO-X-YE	24.0	8.0	1.20
TF31-24/8-PO-X-BK	24.0	8.0	1.20
TF31-40/13-PO-X-BU	40.0	13.0	1.25
TF31-40/13-PO-X-GN	40.0	13.0	1.25
TF31-40/13-PO-X-RD	40.0	13.0	1.25
TF31-40/13-PO-X-WH	40.0	13.0	1.25
TF31-40/13-PO-X-YE	40.0	13.0	1.25
TF31-40/13-PO-X-BK	40.0	13.0	1.25

All dimensions in mm. Subject to technical changes.



### Heat shrinkable tubing 3:1 - flexible and transparent

#### TF34

Protects wire and cable markers subject to abuse, while permitting inspectability of each item covered. Protects electronic components while permitting their identification and inspection.

#### Features and benefits

- Transparent, flexible polyolefin tubing
- Protects identification marking perfect
- Few sizes cover a wide range of diameters allowing reduced inventory
- Halogen free



TF34 transparent tubing with 3:1 shrink ratio allowing for a wider range of application.



**Cut lengths available on request.  
Please contact us!**

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	3:1
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Min. Shrink Temperature</b>	+110 °C
<b>Longitudinal Change After Shrinkage</b>	-5 % max.
<b>Dielectric Strength</b>	46 kV/mm
<b>Flammability</b>	not flame retardant



Heat Shrinkable Tubing 3:1

PART DESCRIPTION	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)
TF34-1.5/0.5-PO-X-CL	1.5	0.5	0.50
TF34-3/1-PO-X-CL	3.0	1.0	0.50
TF34-6/2-PO-X-CL	6.0	2.0	0.70
TF34-9/3-PO-X-CL	9.0	3.0	0.80
TF34-12/4-PO-X-CL	12.0	4.0	0.85
TF34-18/6-PO-X-CL	18.0	6.0	1.00
TF34-24/8-PO-X-CL	24.0	8.0	1.20
TF34-40/13-PO-X-CL	40.0	13.0	1.25

All dimensions in mm. Subject to technical changes.

### Heat shrinkable tubing 2:1 - Flame retardant

#### TR27

TR27 is used in applications where toxic emissions evolved in a fire must be minimised, e.g. for heavily populated buildings or safety sensitive areas like tunnels, hospitals, schools, theatres, mass transit vehicles and computer centres.

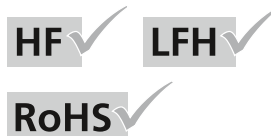
#### Features and benefits

- Thin wall, flexible polyolefin tubing
- Optional available with adhesive or as thick wall version (SR27)
- Halogen free and excellent flame-retardant properties
- Meets various industrial standards



TR27 is ideal for safety sensitive areas.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-40 °C to +105 °C
<b>Min. Shrink Temperature</b>	+115 °C
<b>Longitudinal Change After Shrinkage</b>	+5 %/-10 % max.
<b>Dielectric Strength</b>	15 kV/mm according to IEC 684 P2
<b>Flammability</b>	Limited Fire Hazard, halogen free, low generation of toxic gases and corrosive acid, low smoke generation



Heat Shrinkable Tubing 2:1

PART DESCRIPTION	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)
TR27-3.2/1.6-PO-X-BK	3.2	1/8 "	1.6	0.51
TR27-4.8/2.4-PO-X-BK	4.8	3/16 "	2.4	0.51
TR27-6.4/3.2-PO-X-BK	6.4	1/4 "	3.2	0.64
TR27-9.5/4.8-PO-X-BK	9.5	3/8 "	4.8	0.64
TR27-12.7/6.4-PO-X-BK	12.7	1/2 "	6.4	0.64
TR27-19.1/9.5-PO-X-BK	19.1	3/4 "	9.5	0.76
TR27-25.4/12.7-PO-X-BK	25.4	1 "	12.7	0.51
TR27-38.1/19.1-PO-X-BK	38.1	1-1/2 "	19.1	1.02
TR27-50.8/25.4-PO-X-BK	50.8	2 "	25.4	1.14

All dimensions in mm. Subject to technical changes.





### Heat shrinkable tubing adhesive lined

**EPS-300 - 3:1 shrink ratio**

**EPS-400 - 4:1 shrink ratio**

Heatshrinkable tubing EPS seals and protects a wide variety of electrical applications like back end connector sealing, connector-to-cable transitions and splices.

#### Features and benefits

- Flexible, thin wall polyolefin heat shrink tubing
- With coextruded hot melt adhesive inner wall
- Protects against moisture
- Provides an environmental sealing of complex parts



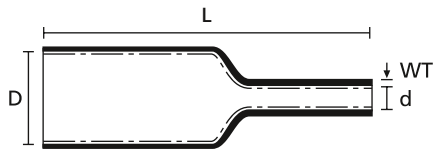
EPS300 and EPS400 offer high shrink ratios and protection against humidity.



**Cut lengths available on request.  
Please contact us!**



Heat Shrinkable Tubing 3:1 with adhesive



Heat Shrinkable Tubing 4:1 with adhesive



<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Operating Temperature</b>	-55 °C to +125 °C
<b>Min. Shrink Temperature</b>	+120 °C
<b>Longitudinal Change After Shrinkage</b>	-10 % max.
<b>Softening Point Adhesive</b>	+90 °C
<b>Dielectric Strength</b>	15 kV/mm according to IEC 684 P2
<b>Flammability</b>	ASTM D2671 (outer layer only)



PART DESCRIPTION	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Shrink Ratio
EPS-300-3/1-PO-X-BK	3.0	1.0	1.00	3:1
EPS-300-6/2-PO-X-BK	6.0	2.0	1.00	3:1
EPS-300-9/3-PO-X-BK	9.0	3.0	1.40	3:1
EPS-300-12/4-PO-X-BK	12.0	4.0	1.80	3:1
EPS-300-19/6-PO-X-BK	19.0	6.0	2.20	3:1
EPS-300-24/8-PO-X-BK	24.0	8.0	2.50	3:1
EPS-300-40/13-PO-X-BK	40.0	13.0	2.50	3:1

All dimensions in mm. Subject to technical changes.

PART DESCRIPTION	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Shrink Ratio
EPS-400-4/1-PO-X-BK	4.0	1.0	1.00	4:1
EPS-400-8/2-PO-X-BK	8.0	2.0	1.00	4:1
EPS-400-12/3-PO-X-BK	12.0	3.0	1.40	4:1
EPS-400-16/4-PO-X-BK	16.0	4.0	1.80	4:1
EPS-400-24/6-PO-X-BK	24.0	6.0	2.20	4:1
EPS-400-32/8-PO-X-BK	32.0	8.0	2.50	4:1

All dimensions in mm. Subject to technical changes.



### Heat shrinkable tubing 4:1 - 1.2 m lengths

#### TG40 - thin wall adhesive lined

TG40 is designed to insulate, seal and protect wire bundles, connectors, terminals and in-line splices in automotive wire harnesses and electronic assemblies.

#### Features and benefits

- Semi-rigid, thin wall polyolefin adhesive lined heat shrink tubing
- Good sealing properties and chemical resistance
- Flame-retardant (self-extinguishing)
- Provides an environmental sealing
- Resistant against acids, alkalis, oils and fuels



Heatshrinkable tubing TG40 in black and clear available.



**Cut lengths available on request. Please contact us!**



Heat Shrinkable Tubing 4:1 with adhesive

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	4:1
<b>Operating Temperature</b>	-55 °C to +125 °C
<b>Min. Shrink Temperature</b>	+110 °C
<b>Longitudinal Change After Shrinkage</b>	+/-10 % max
<b>Dielectric Strength</b>	12 kV/mm
<b>Flammability</b>	self-extinguishing (except for transparent)



PART DESCRIPTION	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)
TG40 6/1.27-PO-X-BK	6.00	1.27	1.30	1.2 m
TG40 6/1.27-PO-X-CL	6.00	1.27	1.30	1.2 m
TG40 8/1.65-PO-X-BK	8.00	1.65	1.52	1.2 m
TG40 8/1.65-PO-X-CL	8.00	1.65	1.52	1.2 m
TG40 12/2.41-PO-X-BK	12.00	2.41	1.91	1.2 m
TG40 12/2.41-PO-X-CL	12.00	2.41	1.91	1.2 m
TG40 18/4.45-PO-X-BK	18.00	4.45	2.41	1.2 m
TG40 18/4.45-PO-X-CL	18.00	4.45	2.41	1.2 m

All dimensions in mm. Subject to technical changes.



### Heat shrinkable tubing 4:1 - 1.2 m lengths

#### SA47 - standard wall adhesive lined

SA47 is a semi-rigid halogen free polyolefin tubing with a thick inner liner of hot melt adhesive. It has excellent tensile strength and strain relief. The adhesive liner provides excellent moisture protection. Ideal for electrical connections and splices in automobiles. Tubing is transparent and hot melt adhesive is black.

#### Features and benefits

- Flexible, standard wall polyolefin heat shrink tubing
- Excellent tensile strength and strain relief
- Provides excellent moisture protection
- Tubing is clear and hot melt adhesive black
- Provides an environmental sealing of complex parts
- Halogen free

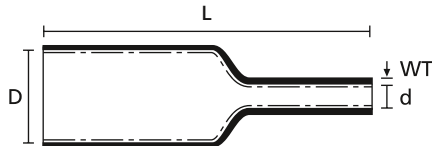


Heat shrink tubing SA47 for splice application.



SA47 has been developed with our Automotive partners to eliminate the risk of corrosion around cable splices and terminations.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	4:1
<b>Operating Temperature</b>	-40 °C to +125 °C
<b>Min. Shrink Temperature</b>	+130 °C
<b>Melting Point</b>	starting from +110 °C
<b>Longitudinal Change After Shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	>20 kV/mm



Heat Shrinkable Tubing 4:1 with adhesive



Cut lengths available on request. Please contact us!

PART DESCRIPTION	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)
SA47 5.75/1.25-PO-X-BK/CL	5.75	1.25	1.15	1.2 m
SA47 7.5/1.65-PO-X-BK/CL	7.5	1.65	1.40	1.2 m
SA47 11.0/2.4-PO-X-BK/CL	11.0	2.4	1.80	1.2 m
SA47 18.3/4.35-PO-X-BK/CL	18.30	4.35	2.20	1.2 m
SA47 24/6-PO-X-BK/CL	24.00	6.00	2.54	1.2 m
SA47 32/8-PO-X-BK/CL	32.00	8.00	2.54	1.2 m

All dimensions in mm. Subject to technical changes.

### Heat shrinkable tubing 4:1 - 1.2 m lengths

#### SA47-LA - standard wall adhesive lined

SA47-LA is a semi-rigid halogen free polyolefin tubing with an inner liner of hot melt adhesive. It has excellent tensile strength and strain relief. The adhesive liner provides excellent moisture protection. Ideal for electrical connections and splices in automobiles. Tubing is transparent and hot melt adhesive is black.

SA47-LA is specially designed with less adhesive for cable connections.

#### Features and benefits

- Flexible, standard wall polyolefin heat shrink tubing
- Excellent tensile strength and strain relief
- Provides excellent moisture protection
- Tubing is clear and hot melt adhesive black
- Provides an environmental sealing of complex parts
- Halogen free

**i** SA47 has been developed with our Automotive partners to eliminate the risk of corrosion around cable splices and terminations.

**i** Cut lengths available on request. Please contact us!

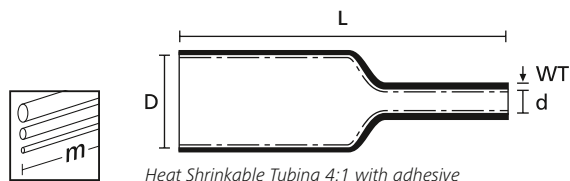


Heat shrink tubing SA47-LA for cable connection.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	4:1
<b>Operating Temperature</b>	-40 °C to +125 °C
<b>Min. Shrink Temperature</b>	+130 °C
<b>Melting Point</b>	starting from +110 °C
<b>Longitudinal Change After Shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	>20 kV/mm

HF ✓

RoHS ✓



**i** Colour orange available on request.

PART DESCRIPTION	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)
SA47-LA 5.75/1.25-PO-X-BK/CL	5.75	1.25	1.15	1.2 m
SA47-LA 7.5/1.65-PO-X-BK/CL	7.5	1.65	1.40	1.2 m
SA47-LA 11.0/2.4-PO-X-BK/CL	11.0	2.4	1.80	1.2 m
SA47-LA 18.3/4.35-PO-X-BK/CL	18.3	4.35	2.20	1.2 m
SA47-LA 24/6-PO-X-BK/CL	24.0	6.0	2.54	1.2 m
SA47-LA 32/8-PO-X-BK/CL	32.0	8.0	2.54	1.2 m
SA47-LA 52/13-PO-X-BK/CL	52.0	13.0	3.00	1.2 m

All dimensions in mm. Subject to technical changes.



### Heat shrinkable tubing 4:1 - 1.2 m lengths

#### SA47-HT - standard wall adhesive lined

SA47-HT is a semi-rigid flame retardant polyolefin tubing with a thick inner liner of hot melt adhesive. The tubing has excellent tensile strength and strain relief. The adhesive liner provides excellent moisture protection. Ideal for electrical connections and splices in automobiles. Suitable for high temperature applications up to 150 °C. Tubing is black and hot melt adhesive is black.

#### Features and benefits

- Flexible, standard wall polyolefin heat shrink tubing
- Excellent tensile strength and strain relief
- Provides excellent moisture protection
- Tubing and hot melt adhesive is black
- Provides an environmental sealing of complex parts
- For high temperature applications up to 150 °C
- Flame retardant



Heat shrink tubing SA47-HT for 150 °C application.



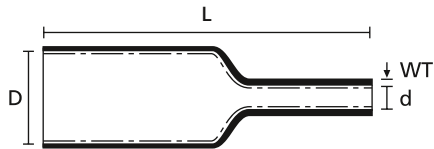
SA47-HT provides optimum protection against moisture in high temperature applications.



SA47 has been developed with our Automotive partners to eliminate the risk of corrosion around cable splices and terminations.



Cut lengths available on request. Please contact us!



Heat Shrinkable Tubing 4:1 with adhesive

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	4:1
<b>Operating Temperature</b>	-40 °C to +150 °C
<b>Min. Shrink Temperature</b>	+130 °C
<b>Melting Point</b>	starting from +120 °C
<b>Longitudinal Change After Shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	>20 kV/mm
<b>Flammability</b>	self-extinguishing



PART DESCRIPTION	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)
SA47-HT 7.6/1.7-PO-X-BK	7.60	1.70	1.52	1.2 m
SA47-HT 9.0/2.3-PO-X-BK	9.00	2.30	1.52	1.2 m
SA47-HT 11.6/2.5-PO-X-BK	11.60	2.50	2.29	1.2 m
SA47-HT 17.8/4.4-PO-X-BK	17.80	4.40	2.54	1.2 m
SA47-HT 24/6-PO-X-BK	24.00	6.00	2.54	1.2 m
SA47-HT 32/8-PO-X-BK	32.0	8.0	2.54	1.2 m

All dimensions in mm. Subject to technical changes.



### Heat shrinkable tubing 2:1 - Elastomer

#### SE28

SE28 is used for long-term protection of cables and wire harnesses in military equipment, motor sports and aviation.

#### Features and benefits

- Flexible, high performance elastomeric heat shrink tubing
- Used in aerospace, defence, railway and automotive applications
- Resistant to diesel fuel, aviation and hydraulic fluids
- Provides a reliable protection against abrasion and mechanical damage
- Very suitable for protecting cables and wire harnesses
- For high temperature applications up to 150°C



SE28 tubing.



SE28 is mainly used in high performance applications.



Heat Shrinkable Tubing 2:1

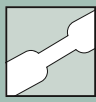
<b>MATERIAL</b>	Elastomer, cross-linked (POA)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-75 °C to +150 °C
<b>Min. Shrink Temperature</b>	+180 °C
<b>Longitudinal Change After Shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	22 kV/mm
<b>Flammability</b>	self-extinguishing

RoHS

PART DESCRIPTION	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Designation as per VG-Norm
SE28 3.2/1.6-POA-BK	3.2	1.6	0.80	VG 95343 T05 D 001 A
SE28 4.8/2.4-POA-BK	4.8	2.4	0.90	VG 95343 T05 D 002 A
SE28 6.4/3.2-POA-BK	6.4	3.2	1.00	VG 95343 T05 D 003 A
SE28 9.5/4.8-POA-BK	9.5	4.8	1.10	VG 95343 T05 D 004 A
SE28 12.7/6.4-POA-BK	12.7	6.4	1.30	VG 95343 T05 D 005 A
SE28 19.0/9.5-POA-BK	19.0	9.5	1.50	VG 95343 T05 D 006 A
SE28 25.4/12.7-POA-BK	25.4	12.7	1.90	VG 95343 T05 D 007 A
SE28 38.0/19.0-POA-BK	38.0	19.0	2.50	VG 95343 T05 D 008 A
SE28 51.0/25.4-POA-BK	51.0	25.4	3.10	VG 95343 T05 D 009 A
SE28 76.0/38.0-POA-BK	76.0	38.0	3.30	VG 95343 T05 D 010 A
SE28 101.2/51.0-POA-BK	101.2	51.0	3.50	VG 95343 T05 D 011 A

All dimensions in mm. Subject to technical changes.





### Heat shrinkable tubing 2:1 - PVDF

#### TK20

Typical applications of this translucent tubing are where high-temperature performance is required. Also very suitable for applications that ask for visual inspection of covered components, or if low friction surface is needed. TK20 is also used as oil stop for energy cables.

This thin walled, translucent heat shrink tubing is often used for chemical applications.

#### Features and benefits

- Semi-rigid heat shrinkable tubing made of PVDF
- Thin wall and tough
- For higher temperature applications
- Very good mechanical strength, abrasion resistance and chemical resistance
- Meets various industrial standards
- Self extinguishing, UL 224 VW1 listed



TK20 is often used for chemical applications.

<b>MATERIAL</b>	Polyvinylidene Fluoride (PVDF)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-55 °C to +175 °C
<b>Min. Shrink Temperature</b>	+170 °C
<b>Longitudinal Change After Shrinkage</b>	+/-10 % max
<b>Dielectric Strength</b>	43 kV/mm
<b>Flammability</b>	UL 224 VW-1



Heat Shrinkable Tubing 2:1



PART DESCRIPTION	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)	Length (L)	Designation as per VG-Norm
TK20-1.2/0.6-PVDF-CL	1.2	3/64 "	0.6	0.25	1.2 m	VG 95343 T05 F 001 M
TK20-1.6/0.8-PVDF-CL	1.6	1/16 "	0.8	0.25	1.2 m	VG 95343 T05 F 002 M
TK20-2.4/1.2-PVDF-CL	2.4	3/32 "	1.2	0.25	1.2 m	VG 95343 T05 F 003 M
TK20-3.2/1.6-PVDF-CL	3.2	1/8 "	1.6	0.25	1.2 m	VG 95343 T05 F 004 M
TK20-4.8/2.4-PVDF-CL	4.8	3/16 "	2.4	0.25	1.2 m	VG 95343 T05 F 005 M
TK20-6.4/3.2-PVDF-CL	6.4	1/4 "	3.2	0.30	1.2 m	VG 95343 T05 F 006 M
TK20-9.5/4.8-PVDF-CL	9.5	3/8 "	4.8	0.30	1.2 m	VG 95343 T05 F 007 M
TK20-12.7/6.4-PVDF-CL	12.7	1/2 "	6.4	0.30	1.2 m	VG 95343 T05 F 008 M
TK20-19.1/9.5-PVDF-CL	19.1	3/4 "	9.5	0.43	1.2 m	VG 95343 T05 F 009 M
TK20-25.4/12.7-PVDF-CL	25.4	1 "	12.7	0.48	1.2 m	VG 95343 T05 F 010 M
TK20-38.1/19.1-PVDF-CL	38.1	1-1/2 "	19.1	0.51	1.2 m	-
TK20-50.8/25.4-PVDF-CL	50.8	2 "	25.4	0.51	1.2 m	-

All dimensions in mm. Subject to technical changes.



### Heat shrinkable tubing 2:1 - Fluoroelastomer

#### Viton®-E

Viton®-E is used for reliable protection against aggressive chemicals in high temperature environments like engine compartments and turbines. It is also used when protective tubings are required to remain flexible at low temperatures.

#### Features and benefits

- High temperature resistant fluoroelastomeric heat shrink tubing
- Very good electrical, chemical and mechanical features
- Resistant to many fuels, oils and lubricants
- Flexible even at very low temperatures



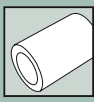
Viton®-E for flexibility and protection against aggressive chemicals.

<b>MATERIAL</b>	Fluoropolymer cross-linked (FPMX)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-55 °C to +200 °C
<b>Min. Shrink Temperature</b>	+170 °C
<b>Longitudinal Change After Shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	8 kV/mm
<b>Flammability</b>	VG 95343
<b>Insulation Class</b>	C (VDE 0530)



PART DESCRIPTION	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Designation as per VG-Norm
VITON®-E-3.2/1.6-FPMX-BK	3.2	1.6	0.70	VG 95343 T05 E 001 A
VITON®-E-4.8/2.4-FPMX-BK	4.8	2.4	0.80	VG 95343 T05 E 002 A
VITON®-E-6.4/3.2-FPMX-BK	6.4	3.2	0.90	VG 95343 T05 E 003 A
VITON®-E-9.5/4.8-FPMX-BK	9.5	4.8	1.00	VG 95343 T05 E 004 A
VITON®-E-12.7/6.4-FPMX-BK	12.7	6.4	1.20	VG 95343 T05 E 005 A
VITON®-E-19.0/9.5-FPMX-BK	19.0	9.5	1.40	VG 95343 T05 E 006 A
VITON®-E-25.4/12.7-FPMX-BK	25.4	12.7	1.80	VG 95343 T05 E 007 A
VITON®-E-38.0/19.0-FPMX-BK	38.0	19.0	2.40	VG 95343 T05 E 008 A
VITON®-E-50.8/25.4-FPMX-BK	50.8	25.4	2.80	VG 95343 T05 E 009 A

All dimensions in mm. Subject to technical changes.



# Insulation

## Non Shrinkable Tubing

### Chloroprene tubing and grommets

#### Helsyn H

The chloroprene tubings are ideally suited to rigorous environments such as automotive, aerospace, mass transit and defence markets.

As the material is highly elastic, it's original size can be expanded 500% on application and 200% in continuous use.

To save time and effort when fitting the tubing, try the HellermannTyton NA three prong tools and the Hellerine lubricant, which are specially designed for use with HellermannTyton chloroprene tubing.

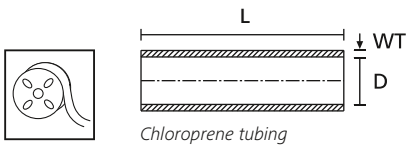
#### Features and benefits

- Highly elastic, easy to fit chloroprene tubing
- Withstands up to 120 °C intermittent temperature
- Covers many cable diameters with one size
- Available in cut lengths



H rubber tubing is highly flexible and easy to apply.

<b>MATERIAL</b>	Chloroprene Rubber (CR)
<b>Operating Temperature</b>	-65 °C to +95 °C, intermittent +120 °C
<b>Flammability</b>	UL 94 HB
<b>Elongation at break</b>	min. 500%



PART DESCRIPTION	Supplied Ø D min.	Wall (WT)	Bundle Ø max.
H12BKX100M-CR-BK	1.2	0.80	2.0
H15BKX100M-CR-BK	1.5	0.80	3.0
H25BKX100M-CR-BK	2.5	0.80	4.0
H30BKX100M-CR-BK	3.0	0.80	6.0
H40BKX100M-CR-BK	4.0	1.00	8.0
H50BKX100M-CR-BK	5.0	1.05	9.0
H75BKX25M-CR-BK	7.5	1.25	13.0

All dimensions in mm. Subject to technical changes.



PART DESCRIPTION	Supplied Ø D min.	Wall (WT)	Bundle Ø max.	Length (L)
H12X20BK-CR-BK	1.2	0.80	2.0	20.0
H15X20BK-CR-BK	1.5	0.80	3.0	20.0
H25X25BK-CR-BK	2.5	0.80	4.0	25.0
H30X25BK-CR-BK	3.0	0.80	6.0	25.0
H40X30BK-CR-BK	4.0	1.00	8.0	30.0
H50X25BK-CR-BK	5.0	1.05	9.0	25.0
H75X30BK-CR-BK	7.5	1.25	13.0	30.0

All dimensions in mm. Subject to technical changes.

## Chloroprene tubing and grommets

### Helsyn TH - thin wall



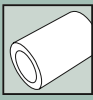
PART DESCRIPTION	Supplied Ø D min.	Wall (WT)	Bundle Ø max.
TH100BKX25M-CR-BK	10.0	1.00	20.0
TH120BKX25M-CR-BK	12.0	1.00	23.0
TH140BKX20M-CR-BK	14.0	1.10	25.0
TH170BKX20M-CR-BK	17.0	1.20	28.0

All dimensions in mm. Subject to technical changes.



PART DESCRIPTION	Supplied Ø D min.	Wall (WT)	Bundle Ø max.	Length (L)
TH100X35BK-CR-BK	10.0	1.00	20.0	35.0
TH120X50BK-CR-BK	12.0	1.00	23.0	50.0
TH140X50BK-CR-BK	14.0	1.10	25.0	50.0
TH170X50BK-CR-BK	17.0	1.20	28.0	50.0

All dimensions in mm. Subject to technical changes.



### Installation aid for tubing and grommets

#### Hellerine

Hellerine lubricant for tubing and grommets installations.

#### Features and benefits

- Effective aid for affixing elastomer sleeves
- Universally employable
- Evaporates after installation
- Consists of 99% vegetable oils
- Discoloration-free
- Offered in 250 ml bottle or in cans of 5 l or 20 l



Hellerine lubricant in 250 ml plastic bottle.

PART DESCRIPTION	Description
HELLERINE 0.25 LITER-CL	Hellerine assembly aid, 0.25 liter
HELLERINE 5 LITER-CL	Hellerine assembly aid, 5 liter
HELLERINE 20 LITER-CL	Hellerine assembly aid, 20 liter

All dimensions in mm. Subject to technical changes.

# Plastics know-how that enlightens

Replacing complex metal parts with thermoplastics is our speciality. Tailored to your needs, we design and manufacture components that are lighter, don't corrode, can combine several functions in a single piece and fully comply with end-of-life vehicle recycling requirements.

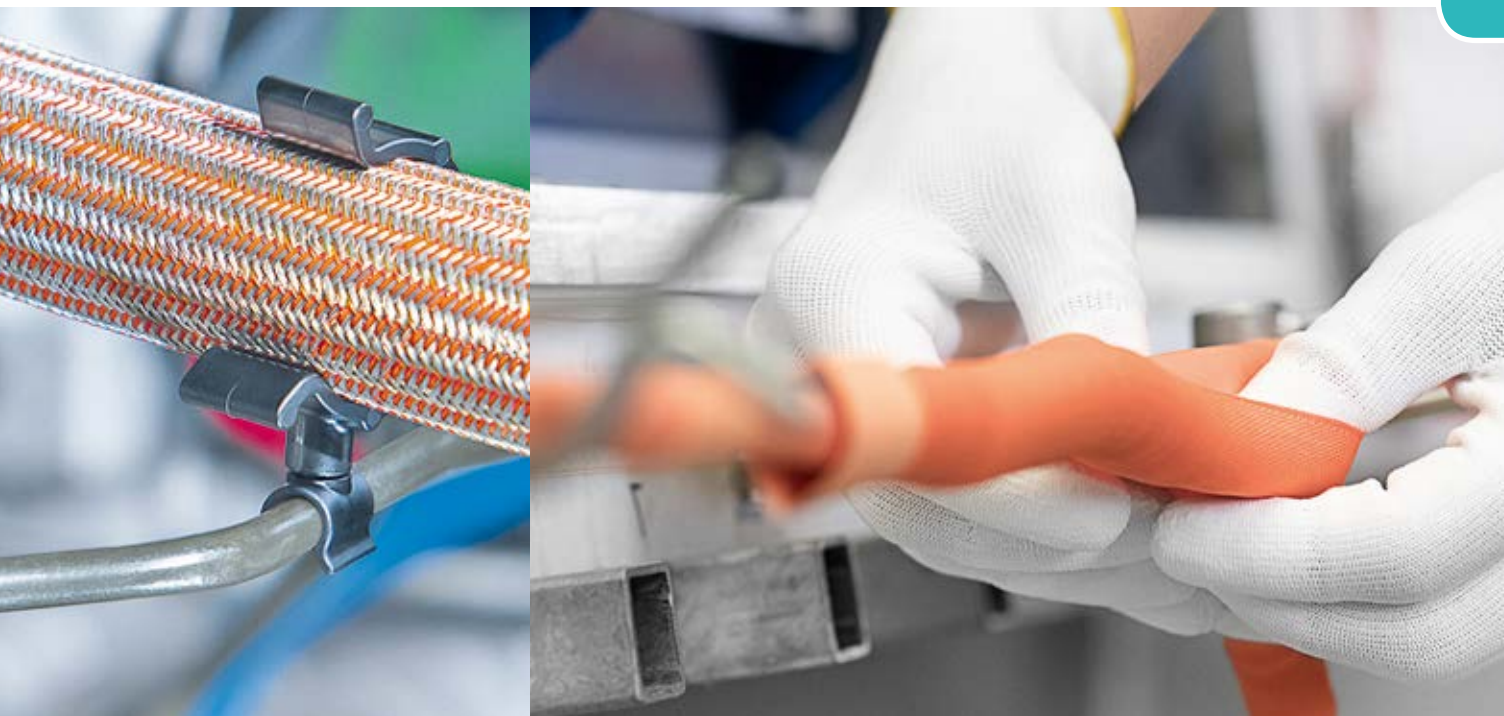
[HellermannTyton.com/automotive-gac2](https://www.hellermantyton.com/automotive-gac2)

**MADE FOR REAL** 









## Corrugated Tubing

### Isolvin

IWS	232
-----	-----



## Protective Sleeves

### Expandable Braided Sleeves

HEGP standard polyester	233
HEGPX high-expansion polyester	234
HEGPV0 polyester, flame-retardant	235
HEGPVOX high-expansion polyester flame-retardant	236
HEGPA66 polyamide 6.6, abrasion-resistant	237
HEGPL polyester, light weight	238
HEGSAS polyester, noise-protection	239

### Open Woven Sleeves

Twist-In self-closing polyester sleeving	240
HELAHOOK re-closable polyester sleeving with hook-and-loop seal	241

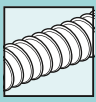
### Burst Protective Sleeves

HEGWS	242
-------	-----

### Electromagnetic Shielding Sleeves

HEGEMIP electromagnetic protection	243
HEGEMIP-HY electromagnetic protection for hybrid automobiles	244
HEGEMIP-VG electromagnetic protection for defence applications	245





### Corrugated Conduits

#### IWS Polyamide 6

IWS corrugated flexible conduits are typically used to route and protect wiring in cars and commercial vehicles, control panels and machines.

#### Features and benefits

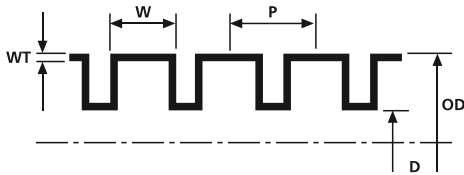
- Good crush and abrasion resistance
- Highly flexible
- Good protection against oils, fuels and solvents
- Self-extinguishing according to UL94 HB and FMVSS 302
- A slit version is available on request



IWS flexible corrugated conduits



Slit version on request.



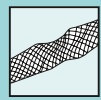
IWS

<b>MATERIAL</b>	Polyamide 6 (PA6)
<b>Operating Temperature</b>	-40 °C to +120 °C
<b>Flammability</b>	UL 94 HB, FMVSS 302



PART DESCRIPTION	Nominal Ø	Outside Ø (OD)	Inside Ø (ID)	Min. Bending Radius (R)
IWS4.5-PA6-BK	4.5	7.3	4.3	8
IWS7.5-PA6-BK	7.5	10.0	6.7	13
IWS8.5-PA6-BK	8.5	11.7	8.4	15
IWS10-PA6-BK	10	13.0	9.9	20
IWS12-PA6-BK	12	15.7	12.2	30
IWS13-PA6-BK	13	15.8	12.7	35
IWS14-PA6-BK	14	18.5	14.2	40
IWS17-PA6-BK	17	21.2	16.6	45
IWS19-PA6-BK	19	24.3	19.3	50
IWS22-PA6-BK	22	25.4	21.3	50
IWS23-PA6-BK	23	28.3	23.2	55
IWS26-PA6-BK	26	31.2	25.8	60
IWS29-PA6-BK	29	34.5	29.0	65

All dimensions in mm. Subject to technical changes.



### Standard polyester braided sleeving

#### Helagain HEGP

Helagain HEGP braided sleeving provides abrasion protection in the automotive industry, in machine building, in panel building and in electrical appliances.

#### Features and benefits

- Made of sturdy polyester
- Highly flexible
- High abrasion resistance
- Very high surface coverage



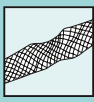
Helagain HEGP braided sleeving.

<b>MATERIAL</b>	Polyester (PET)
<b>Operating Temperature</b>	-50 °C to +150 °C
<b>Melting Point</b>	+250 °C
<b>Flammability</b>	UL 94 V2, FMVSS 302
<b>EN 45545-2 Classification</b>	R22 HL3, R23 HL3



PART DESCRIPTION	Bundle Ø min.	Bundle Ø max.
HEGP03-PET-BK	1.0	5.0
HEGP04-PET-BK	2.0	7.0
HEGP05-PET-BK	3.0	9.0
HEGP06-PET-BK	4.0	11.0
HEGP08-PET-BK	5.0	12.0
HEGP10-PET-BK	7.0	15.0
HEGP12-PET-BK	8.0	17.0
HEGP15-PET-BK	10.0	20.0
HEGP20-PET-BK	14.0	26.0
HEGP25-PET-BK	18.0	34.0
HEGP30-PET-BK	20.0	40.0
HEGP40-PET-BK	30.0	50.0
HEGP50-PET-BK	40.0	66.0

All dimensions in mm. Subject to technical changes.  
Colour grey available on request. Cuts in any lengths.



### High-expansion polyester braided sleeving

#### Helagain HEGPX

Helagain HEGPX is used whenever a higher expansion rate is required. HEGPX is particularly suitable for use in the automotive industry and in electrical appliances.

#### Features and benefits

- Made of sturdy polyester
- Highly flexible
- Expands to 3x nominal diameter
- Easy to apply over irregular shapes
- Good abrasion resistance



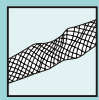
Helagain HEGPX braided sleeving.

<b>MATERIAL</b>	Polyester (PET)
<b>Operating Temperature</b>	-50 °C to +150 °C
<b>Melting Point</b>	+250 °C
<b>Flammability</b>	UL 94 V2, FMVSS 302
<b>EN 45545-2 Classification</b>	R22 HL2, R23 HL2



PART DESCRIPTION	Bundle Ø min.	Bundle Ø max.
HEGPX06-PET-BK	3.0	10.0
HEGPX09-PET-BK	5.0	16.0
HEGPX12-PET-BK	6.0	19.0
HEGPX20-PET-BK	13.0	32.0
HEGPX30-PET-BK	19.0	45.0
HEGPX40-PET-BK	32.0	70.0

All dimensions in mm. Subject to technical changes.  
Colour grey available on request. Cuts in any lengths.



### Flame-retardant polyester braided sleeving

#### Helagaine HEGPV0

HEGPV0 braided sleeving is used wherever fire protection is important such as in railway vehicles, machine tools, robotics and automatic equipment.

#### Features and benefits

- Made of sturdy polyester
- Self-extinguishing according to UL94 V0 for enhanced fire protection
- Highly flexible
- High abrasion resistance
- High surface coverage



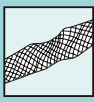
Helagaine HEGPV0 braided sleeving.

<b>MATERIAL</b>	Polyester (PBT)
<b>Operating Temperature</b>	-50 °C to +150 °C
<b>Melting Point</b>	+225 °C
<b>Flammability</b>	UL 94 V0, FMVSS 302



PART DESCRIPTION	Bundle Ø min.	Bundle Ø max.
HEGPV004-PBT-BK	3.0	7.0
HEGPV006-PBT-BK	5.0	11.0
HEGPV008-PBT-BK	7.0	13.0
HEGPV012-PBT-BK	11.0	17.0
HEGPV015-PBT-BK	13.0	20.0
HEGPV020-PBT-BK	18.0	25.0
HEGPV030-PBT-BK	27.0	40.0
HEGPV040-PBT-BK	35.0	50.0
HEGPV050-PBT-BK	40.0	60.0

All dimensions in mm. Subject to technical changes.  
Colour grey available on request. Cuts in any lengths.



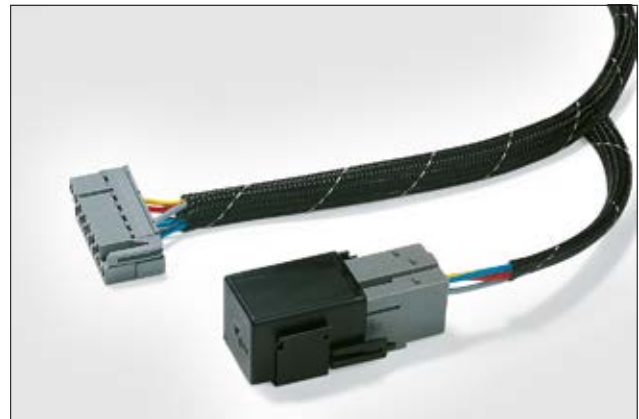
### Flame-retardant, high-expansion polyester braided sleeving

#### Helagain HEGPV0X

Helagain HEGPV0X braided sleeving is especially suitable wherever fire protection is important, such as in railway vehicles.

#### Features and benefits

- Made of sturdy polyester
- Self-extinguishing according to UL94 V0 for enhanced fire protection
- Highly flexible
- Expands to 3x nominal diameter
- Easy to apply over irregular shapes
- Good abrasion resistance



Helagain HEGPV0X flame-retardant braided sleeving.

<b>MATERIAL</b>	Polyester (PBT)
<b>Operating Temperature</b>	-50 °C to +150 °C
<b>Melting Point</b>	+225 °C
<b>Flammability</b>	UL 94 V0, FMVSS 302



PART DESCRIPTION	Bundle Ø min.	Bundle Ø max.
HEGPV0X03-PBT-BK	2.0	6.0
HEGPV0X06-PBT-BK	3.0	10.0
HEGPV0X09-PBT-BK	5.0	16.0
HEGPV0X12-PBT-BK	6.0	19.0
HEGPV0X20-PBT-BK	12.0	32.0
HEGPV0X30-PBT-BK	19.0	45.0
HEGPV0X40-PBT-BK	32.0	70.0
HEGPV0X50-PBT-BK	38.0	76.0

All dimensions in mm. Subject to technical changes.  
Colour grey available on request. Cuts in any lengths.



### Abrasion-resistant polyamide braided sleeving

#### Helagain HEGPA66

Helagain HEGPA66 is particularly suitable for vehicle manufacturing as well as plant construction.

#### Features and benefits

- Made from heavy-duty polyamide yarn
- Excellent abrasion resistance
- Highly flexible
- Easy to apply over irregular shapes
- Eases application by expanding when compressed
- Very high surface covering



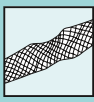
Helagain HEGPA66 braided sleeving.

<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Operating Temperature</b>	-60 °C to +150 °C
<b>Melting Point</b>	+255 °C
<b>Flammability</b>	UL 94 V2, FMVSS 302
<b>EN 45545-2 Classification</b>	R22 HL3, R23 HL3



PART DESCRIPTION	Bundle Ø min.	Bundle Ø max.
HEGPA6604-PA66-BK	3.0	6.0
HEGPA6606-PA66-BK	4.0	8.0
HEGPA6608-PA66-BK	5.0	10.0
HEGPA6610-PA66-BK	7.0	12.0
HEGPA6612-PA66-BK	8.0	14.0
HEGPA6616-PA66-BK	12.0	18.0
HEGPA6620-PA66-BK	15.0	23.0
HEGPA6625-PA66-BK	18.0	28.0
HEGPA6630-PA66-BK	25.0	32.0
HEGPA6640-PA66-BK	30.0	44.0
HEGPA6650-PA66-BK	40.0	55.0
HEGPA6660-PA66-BK	50.0	65.0

All dimensions in mm. Subject to technical changes.  
Colour grey available on request. Cuts in any lengths.



### Light-weight polyester braided sleeving

#### Helagain HEGPL

Helagain HEGPL is used primarily in the automobile interior, motor compartment, car body and chassis.

#### Features and benefits

- Made of sturdy polyester
- Expands to 3x nominal diameter
- Easier application over irregular shapes
- Highly flexible
- Good abrasion resistance



Helagain HEGPL braided sleeving.

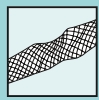
<b>MATERIAL</b>	Polyester (PET)
<b>Operating Temperature</b>	-50 °C to +150 °C
<b>Melting Point</b>	+250 °C
<b>Flammability</b>	UL 94 V2, FMVSS 302, Type B



PART DESCRIPTION	Bundle Ø min.	Bundle Ø max.
HEGPL03-PET-BK	3.0	8.0
HEGPL06-PET-BK	5.0	12.0
HEGPL12-PET-BK	8.0	21.0
HEGPL20-PET-BK	12.0	30.0
HEGPL30-PET-BK	18.0	55.0
HEGPL40-PET-BK	24.0	66.0
HEGPL50-PET-BK	30.0	82.0

All dimensions in mm. Subject to technical changes.  
Colour grey available on request. Cuts in any lengths.





### Noise-protection polyester braided sleeving

#### Helagain HEGSAS

Helagain HEGSAS braided sleeving is used primarily in the automotive sector, where vibration noise must be reduced.

#### Features and benefits

- Superior noise reduction
- Made of sturdy polyester
- Highly flexible
- Easy to apply over irregular shapes due
- High surface coverage
- Excellent abrasion resistance



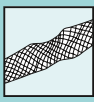
Helagain HEGSAS braided sleeving.

<b>MATERIAL</b>	Polyester (PET)
<b>Operating Temperature</b>	-50 °C to +150 °C
<b>Melting Point</b>	+250 °C
<b>Flammability</b>	FMVSS 302



PART DESCRIPTION	Bundle Ø min.	Bundle Ø max.
HEGSAS04-PET-BK	2.0	8.0
HEGSAS06-PET-BK	4.0	11.0
HEGSAS09-PET-BK	6.0	16.0
HEGSAS12-PET-BK	8.0	20.0
HEGSAS15-PET-BK	10.0	24.0
HEGSAS20-PET-BK	13.0	30.0
HEGSAS30-PET-BK	20.0	40.0
HEGSAS40-PET-BK	30.0	50.0

All dimensions in mm. Subject to technical changes.  
Colour grey available on request. Cuts in any lengths.



### Self-closing polyester sleeving

#### Helagaine Twist-In

Helagaine Twist-In is used to bundle and protect pre-terminated cables in machine-building and automation, electrical installations and automobile and truck manufacturing.

Helagaine Twist-In is also available in practical 2 m and 5 m lengths for use in the home or office.

#### Features and benefits

- Self-closing sleeve made of sturdy polyester
- Provides very good protection against abrasion
- Ideal for retro-fitting
- Quick and easy installation and removal
- Allows for inspection and maintenance



*Helagaine Twist-In enables easy access to cables and wires for assembly, inspection and maintenance.*



**Colour orange available on request.**



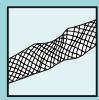
**Cut lengths available on request. Please contact us!**

<b>MATERIAL</b>	Polyester (PET)
<b>Operating Temperature</b>	-50 °C to +125 °C
<b>Melting Point</b>	+255 °C
<b>Flammability</b>	self-extinguishing, FMVSS 302



PART DESCRIPTION	Bundle Ø min.	Bundle Ø max.
Twist-In 05-PET-BK	4.0	5.0
Twist-In 08-PET-BK	5.0	8.0
Twist-In 13-PET-BK	10.0	13.0
Twist-In 19-PET-BK	16.0	19.0
Twist-In 25-PET-BK	19.0	25.0
Twist-In 29-PET-BK	25.0	29.0
Twist-In 32-PET-BK	29.0	32.0
Twist-In 38-PET-BK	32.0	38.0
Twist-In 50-PET-BK	38.0	50.0

All dimensions in mm. Subject to technical changes.



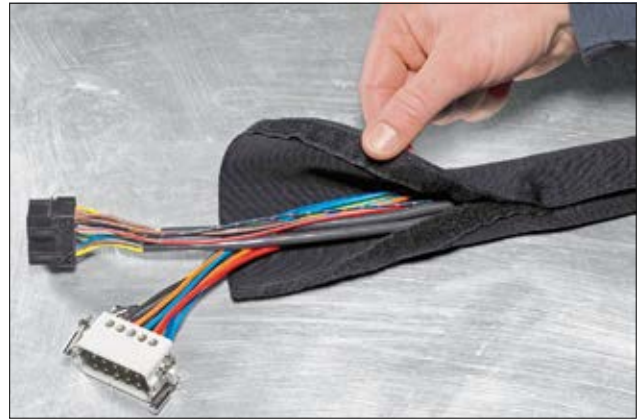
### Re-closeable protective sleeving with hook-and-loop seal

#### HELAHOOK

HELAHOOK is used in automobiles and commercial vehicles as well as industrial machines and railway vehicles. HELAHOOK is especially practical where repeated use is required, for instance in event management.

#### Features and benefits

- Re-sealable cable protection made of polyester
- Very elastic, fits snugly around the cables
- Hook and loop sealing system can be used for retro-fitting
- High abrasion-resistance



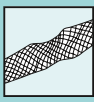
HELAHOOK protective sleeving allows for retro-fitting and repeated use.

<b>MATERIAL</b>	Polyester (PET)
<b>Operating Temperature</b>	-50 °C to +150 °C
<b>Flammability</b>	UL 94 V2, FMVSS 302



PART DESCRIPTION	Bundle Ø min.	Bundle Ø max.
HELAHOOK10-PET-BK	3.0	15.0
HELAHOOK15-PET-BK	10.0	20.0
HELAHOOK20-PET-BK	15.0	30.0
HELAHOOK25-PET-BK	20.0	40.0
HELAHOOK30-PET-BK	25.0	50.0

All dimensions in mm. Subject to technical changes.  
Cuts in any lengths.



### Burst Protection Sleeving for Hydraulic Hoses

#### Helagaine HEGWS

Helagaine HEGWS is burst protection sleeve highly resistant to abrasion and tears. HEGWS is used to protect hydraulic hoses and prevent injuries due to leaks emitting high-pressure liquid jets. HEGWS is typically used with earth moving machinery and where there is high mechanical vibration.

#### Features and benefits

- Exceptional tear-resistance
- Very good protection against abrasion
- Optimal protection of hydraulic hoses
- Reduces risk of liquid-jet injuries
- Fulfills the standards of Earth Moving Machinery EN ISO 3457 and Mechanical Vibration and Shock EN 1299



Helagaine HEGWS: The ideal protective sleeve for hydraulic hoses.

<b>MATERIAL</b>	Polyamide 6 (PA6)
<b>Operating Temperature</b>	-60 °C to +125 °C
<b>Melting Point</b>	+220 +/- 10 °C
<b>Flammability</b>	UL 94 V2, FMVSS 302, Type B



PART DESCRIPTION	Inside Ø (ID)	Wall (WT)
HEGWS20-PA6-BK	12	1.10
HEGWS25-PA6-BK	15	1.10
HEGWS30-PA6-BK	19	1.10
HEGWS35-PA6-BK	22	1.10
HEGWS40-PA6-BK	25	1.10
HEGWS45-PA6-BK	28	1.10
HEGWS50-PA6-BK	31	1.10
HEGWS60-PA6-BK	38	1.10
HEGWS70-PA6-BK	44	1.10
HEGWS80-PA6-BK	50	1.10
HEGWS90-PA6-BK	57	1.10
HEGWS100-PA6-BK	60	1.10
HEGWS115-PA6-BK	70	1.10
HEGWS145-PA6-BK	90	1.10
HEGWS176-PA6-BK	110	1.10
HEGWS200-PA6-BK	125	1.10

All dimensions in mm. Subject to technical changes.



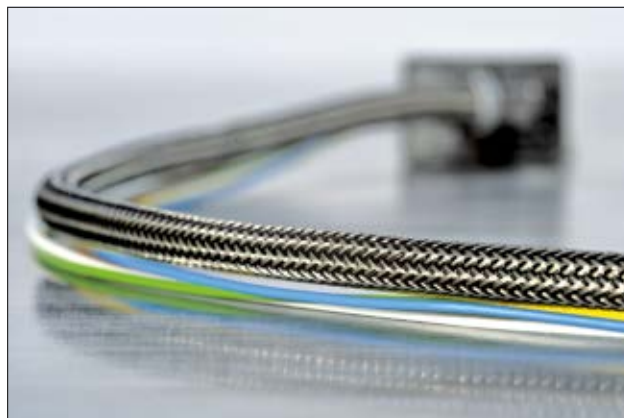
### Electromagnetic protection braided sleeving

#### Helagain HEGEMIP

Helagain HEGEMIP braided sleeving is used for highly sensitive electronics, such as in machines, military equipment and automobiles.

#### Features and benefits

- Excellent electromagnetic protection
- Extremely flexible, expandable and easy to apply
- No kinks or ruptures even when bent at sharp angles
- Superior abrasion protection
- Particularly suitable for applications with restricted space or requiring movement
- Inner disposable tube protects sleeve from deformation and allows for easy insertion of cables
- Fulfils the requirements of IEC CISPR25 for radio disturbances in vehicles, boats and engines



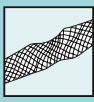
HEGEMIP braided sleeving: reliable protection from electromagnetic radiation.

<b>MATERIAL</b>	Polyester, halogen free (PET), Tin-plated copper (SNCU)
<b>Operating Temperature</b>	-40 °C to +150 °C
<b>EMI requirements</b>	10 kHz to 1 GHz according to CISPR25 (DIN VDE 0879-2)
<b>Flammability</b>	UL 94 V2, FMVSS 302



PART DESCRIPTION	Ø (D)	Bundle Ø min.	Bundle Ø max.	Weight
HEGEMIP04-PET/TNCU-ML	4.0	4.0	6.0	22 g/m
HEGEMIP06-PET/TNCU-ML	6.0	5.0	10.0	29 g/m
HEGEMIP08-PET/TNCU-ML	8.0	8.0	11.0	27 g/m
HEGEMIP10-PET/TNCU-ML	10.0	8.0	13.0	44 g/m
HEGEMIP12-PET/TNCU-ML	12.0	10.0	15.0	48 g/m
HEGEMIP14-PET/TNCU-ML	14.0	12.0	18.0	58 g/m
HEGEMIP16-PET/TNCU-ML	16.0	14.0	20.0	73 g/m
HEGEMIP18-PET/TNCU-ML	18.0	16.0	22.0	79 g/m
HEGEMIP20-PET/TNCU-ML	20.0	18.0	25.0	100 g/m

All dimensions in mm. Subject to technical changes.  
Cuts in any lengths.



### Electromagnetic protection braided sleeving for hybrid automobiles

#### Helagaine HEGEMIP-HY

Helagaine HEGEMIP-HY provides electromagnetic protection in hybrid automobiles.

#### Features and benefits

- Excellent electromagnetic protection
- Extremely flexible, expandable and easy to apply
- No kinks or ruptures even when bent at sharp angles
- Superior abrasion protection
- Special copper alloy for enhanced protection against salt spray
- Particularly suitable for applications with restricted space or requiring movement
- Inner disposable tube protects sleeve from deformation and allows for easy insertion of cables
- Fulfils the requirements of IEC CISPR25 for radio disturbances in vehicles, boats and engines



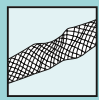
HEGEMIP-HY braided sleeving: EMI protection for hybrid automobiles.

<b>MATERIAL</b>	Polyester (PET), Tin-plated copper (SNCU)
<b>Operating Temperature</b>	-40 °C to +150 °C
<b>EMI requirements</b>	10 kHz to 1 GHz according to CISPR25 (DIN VDE 0879-2)
<b>Flammability</b>	UL 94 V2, FMVSS 302



PART DESCRIPTION	Ø (D)	Bundle Ø min.	Bundle Ø max.	Weight
HEGEMIP-HY20-PET/TNCU-ML/OG	20.0	19.0	27.0	72 g/m
HEGEMIP-HY30-PET/TNCU-ML/OG	30.0	25.0	35.0	101 g/m
HEGEMIP-HY35-PET/TNCU-ML/OG	35.0	30.0	40.0	120 g/m
HEGEMIP-HY40-PET/TNCU-ML/OG	40.0	30.0	50.0	180 g/m
HEGEMIP-HY50-PET/TNCU-ML/OG	50.0	40.0	60.0	193 g/m

All dimensions in mm. Subject to technical changes.  
Cuts in any lengths.



### Electromagnetic protection braided sleeving for defence applications

#### Helagain HEGEMIP-VG

Helagain HEGEMIP-VG provides electromagnetic protection for the defence industry.

#### Features and benefits

- Excellent electromagnetic protection
- Very flexible, expandable and easy to apply
- Especially suitable for applications in tight areas or requiring movement
- Inner disposable tube protects sleeve from deformation and allows for easy insertion of cables
- Very good abrasion resistance
- Approved to military norm VG 96936-10 / Type A



HEGEMIP-VG braided sleeving with VG approval for defence applications.

<b>MATERIAL</b>	Tin-plated copper (SNCU)
<b>Operating Temperature</b>	-65 °C to +150 °C
<b>Flammability</b>	UL 94 V2, FMVSS 302



PART DESCRIPTION	Ø (D)	Bundle Ø min.	Bundle Ø max.	Weight
HEGEMIP-VG03-TNCU-ML	3.0	3.5	5.0	19 g/m
HEGEMIP-VG04-TNCU-ML	4.0	4.5	7.0	30 g/m
HEGEMIP-VG06-TNCU-ML	6.0	5.5	8.5	37 g/m
HEGEMIP-VG07.5-TNCU-ML	7.5	7.5	13.5	71 g/m
HEGEMIP-VG10-TNCU-ML	10.0	13.0	17.5	96 g/m
HEGEMIP-VG12.5-TNCU-ML	12.5	15.0	19.5	100 g/m
HEGEMIP-VG20-TNCU-ML	20.0	19.0	30.0	265 g/m

All dimensions in mm. Subject to technical changes.







## Electrical and Technical Tapes

<b>Wire Harness Tapes</b>		
Hand-tearable Cloth Tape	Protect 180	248
Strong, High Temperature Cloth Tape	Protect 250	248
Soft and Flexible Fleece Tape	Protect 300	249
High Noise Reduction Tape	Protect 1500	249



### Wire Harness Tape – Hand-tearable Cloth Tape

#### HelaTape Protect 180



HelaTape Protect 180 is very flexible and used for cable harnessing.

#### Features and benefits

- High quality polyester fabric harnessing tape
- Rubber-based adhesive offers very good heat and media resistance
- High temperature stability from -40 °C to +125 °C
- Temperature resistance tested according to LV312
- Very good resistance against abrasion
- Material is very flexible and tearable by hand
- Excellent ageing resistance, stable against rotting

<b>MATERIAL</b>	Polyester (PET)
<b>Operating Temperature</b>	-40 °C to +125 °C
<b>Adhesion to Steel</b>	3 N/10 mm
<b>Adhesion to Backing</b>	3 N/10 mm
<b>Elongation at break</b>	15 %
<b>Breaking Strength</b>	65 N/10 mm



#### HelaTape Protect 180

PART DESCRIPTION	Thickness (T)	Width (W)	Length (L)
HTAPE-PROTECT180-PET-BK	0.18	19.0	25.0 m

All dimensions in mm. Subject to technical changes.

#### HelaTape Protect 250

PART DESCRIPTION	Thickness (T)	Width (W)	Length (L)
HTAPE-PROTECT250-PET-BK	0.25	19.0	25.0 m

All dimensions in mm. Subject to technical changes.

### Wire Harness Tape – Strong, High Temperature Cloth Tape

#### HelaTape Protect 250



HelaTape Protect 250 is designed for cable harnessing and offers a very high temperature resistance.

#### Features and benefits

- High temperature polyester fabric harnessing tape
- Special acrylate-based adhesive offers very good heat and media resistance
- Very high temperature stability from -40 °C to +150 °C
- Temperature and humidity resistance tested according to LV312
- Very good resistance against abrasion
- Material is very flexible and easy to handle
- Excellent ageing resistance, stable against rotting
- Provides long term reliability under varying and extreme environmental conditions

<b>MATERIAL</b>	Polyester (PET)
<b>Operating Temperature</b>	-40 °C to +150 °C
<b>Adhesion to Steel</b>	2.5 N/10 mm
<b>Adhesion to Backing</b>	2 N/10 mm
<b>Elongation at break</b>	15 %
<b>Breaking Strength</b>	180 N/10 mm





### Wire Harness Tape – Soft and Flexible Fleece Tape

#### HelaTape Protect 300



HelaTape Protect 300 provides high noise reduction and media resistance.

#### Features and benefits

- Soft polyester fleece harnessing tape
- High noise reduction and very high resistance against abrasion
- Synthetic rubber based adhesive offers good heat and media resistance
- High temperature stability from -40 °C to +105 °C
- Material is very flexible and tearable by hand
- Excellent ageing resistance and stable against rotting

### Wire Harness Tape – High Noise Reduction Tape

#### HelaTape Protect 1500



HelaTape Protect 1500 is extremely soft and offers very high noise reduction.

#### Features and benefits

- High quality polyamide velours harnessing tape
- Highest noise reduction and very high resistance against abrasion
- Acrylate based adhesive offers very good heat and media resistance
- High temperature stability from -40 °C to +130 °C
- Material is extremely soft and very flexible
- Excellent ageing resistance, stable against rotting

<b>MATERIAL</b>	Polyester (PET)
<b>Operating Temperature</b>	-40 °C to +105 °C
<b>Adhesion to Steel</b>	2 N/10 mm
<b>Adhesion to Backing</b>	2 N/10 mm
<b>Elongation at break</b>	10 %
<b>Breaking Strength</b>	30 N/10 mm

HF ✓ RoHS ✓

<b>MATERIAL</b>	Polyamide (PA)
<b>Operating Temperature</b>	-40 °C to +130 °C
<b>Adhesion to Steel</b>	2.5 N/10 mm
<b>Adhesion to Backing</b>	2 N/10 mm
<b>Elongation at break</b>	50 %
<b>Breaking Strength</b>	100 N/10 mm

HF ✓ RoHS ✓

#### HelaTape Protect 300

PART DESCRIPTION	Thickness (T)	Width (W)	Length (L)
HTAPE-PROTECT300-PET-BK	0.30	19.0	25.0 m

All dimensions in mm. Subject to technical changes.

#### HelaTape Protect 1500

PART DESCRIPTION	Thickness (T)	Width (W)	Length (L)
HTAPE-PROTECT1500-PA-BK	1.50	25.0	4.0 m

All dimensions in mm. Subject to technical changes.





## Technical Information

Bonding properties of labels	252
Effect of surface energy on bonding properties	253
The material combination is the decisive factor	253
Using labels with protective laminate	254
Thermal transfer films (colour ribbons)	255
Thermal transfer printing	255
Identification with RFID	256



## Wire and Cable Markers

<b>Shrinkable markers "Continuous Tube", thermal transfer</b>	
TCGT – 3:1 Commercial Grade Tubing	257
TULT – 3:1	259
TLFX – 2:1 Limited Fire Hazard	261
THTT – 2:1 High Temperature	264
<b>Shrinkable markers "Ladder Style", thermal transfer</b>	
TLFX DS	262
<b>Identification tags for cable bundle, thermal transfer</b>	
TIPTAG HF – Limited Fire Hazard, Halogen free	265
TIPTAG PU – UV-stabilised Tiptags, Polyurethane	266
<b>Identification tags for cable bundle "Ladder Style", thermal transfer</b>	
TAGHT – High Temperature Tiptags	267
<b>Self-laminating labels, thermal transfer</b>	
Helatag 323 (White-Transparent), high temperature	268
<b>Identification for marking cable bundles</b>	
IT Ties – Identification ties	269
<b>Adhesive labels for ties, plates and tags, thermal transfer</b>	
Helatag 892 (White)	270



## Industrial Identification

<b>Type label identification, thermal transfer</b>	
Helatag 1204 (Silver-matt)	271
<b>Asset identification label, thermal transfer</b>	
Helatag 1206 (White gloss)	272



## RFID Cable Ties and Accessories

<b>Cable ties with integrated RFID transponder</b>	
T50RFID – Low Frequency (LF) and High Frequency (HF)	274
<b>Detectable cable ties with integrated RFID transponder</b>	
MCTRFID – Low Frequency (LF) and High Frequency (HF)	275
<b>Stainless steel ties with RFID transponder</b>	
MBTRFID – High Frequency (HF) and Ultra High Frequency (UHF)	276
<b>Accessories with RFID transponder</b>	
HEXTAG – High Frequency (HF)	277
CRADLE - High Frequency (HF)	278
<b>RFID Readers</b>	
RFID Handheld Reader	279
RFID Desktop Reader	279



## Security Labelling

<b>Tamper-evident security labelling, thermal transfer</b>	
Helatag 1208 (White), fragmenting	280
Helatag 951 (Silver, Transparent), 2 parts	281



## Hazardous Area Identification

<b>Stainless steel printing system</b>	
M-BOSS Compact Printer	282
M-BOSS Compact and Organiser	282
M-BOSS Compact Markers	283
<b>Identification plates for marking cable bundles</b>	
HFTP PEEK for high temperature applications	284
<b>Protective laminates, thermal transfer</b>	
Helatag 323 (Transparent), high temperature	285



## Printers and Software

<b>Labelling software</b>	
TagPrint Pro 3.0	286
<b>Thermal transfer printer</b>	
TT430, Small to medium volume printing	287
TT430 accessories and spare parts	287
TT4030, High volume printing	288
TT4030 accessories and spare parts	288
<b>Thermal transfer ribbons for</b>	
Adhesive Labels	289
<b>Thermal printer ribbons for</b>	
Heatshrink and Tiptags	290

### Bonding properties of labels

The great variety of places where adhesive labels can be used require a broad range of different materials and adhesives. The information given below will explain all the important aspects of this adhesion.

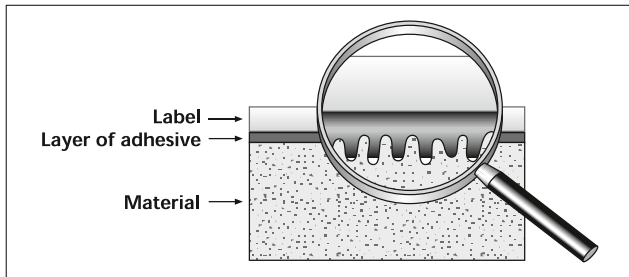
To enable you to make the right choice for your particular application quickly and efficiently, we have set out the most important selection criteria diagrammatically in our flowchart.

#### Initial and final bonding

In principle there are two different bonding conditions for labels: The initial bonding which occurs immediately after the label and surface are brought together and the final bonding which represents the permanent bonding status between label and surface following the application, pressing on and curing of the adhesive. The bonding of labels is measured in a defined test process (FINAT FTM) and stated in N/mm.

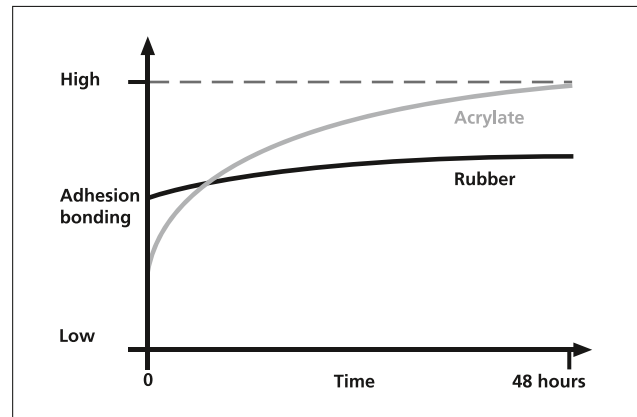
The initial bonding (or tack) describes the bonding ability of the label after it has been applied to the surface, without being pressed down.

The final bonding of labels is ultimately affected by the combined factors of material quality, adhesive basis, curing time, pressure applied and surface tension.



#### Adhesion: powers of attraction between two materials

Adhesion can be described, in principle, as the ability of the adhesive to form a bond with the substrate; the substrate is the surface of the material you need the label applied to. The influencing factors for optimum bonding are the quality of the material's surface and the creep ability of the adhesive. The crucial factor is the proportion of the surface which is actually to be 'wetted' by the adhesive. Most surfaces appear – from a microscopic point of view – like a mountain range with peaks and valleys; i.e. the effective surface is much bigger than that seen by the naked eye. No matter how smooth and flat a substrate may appear to be, there is always some roughness. The better the adhesive flows into the valleys, the more bonding points it can form and the better the adhesive will bond to the surface. A thicker layer of adhesive does allow these uneven areas to be filled in better, but a thicker coat of adhesive has negative effects when labels are processed by machine (e.g. leakage of the adhesive or limited storage life).



#### Adhesive basis

HellermannTyton currently uses acrylate and synthetic rubber as adhesive bases. Acrylate adhesives belong to the family of thermoplastic resins and at normal temperatures they provide high and lasting adhesion. When considering the final bonding of acrylate adhesives, however, it must be noted that the relatively high final bonding is only attained after a certain curing period. This is especially true of labelling materials which may be used for rating plates. Normally you must wait for at least 48 hours in a dry office environment.

Synthetic rubber-based adhesives, unlike acrylate-based adhesives, are distinguished by their high initial bonding. But this adhesive technology does not achieve a final bonding comparable to acrylate adhesives (see graph). Special mixtures of synthetic rubber are used in labelling technology, for example for removable labels, e.g. HellermannTyton material type 270.

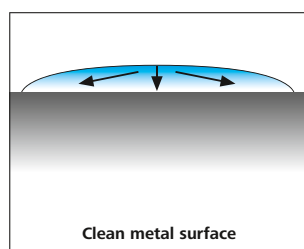




## Effect of surface energy on bonding properties

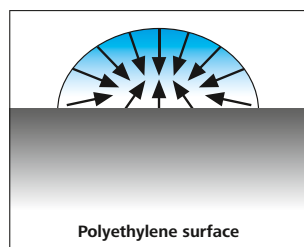
The surface energy (also known as surface tension) is an important factor in the selection of the right adhesive. Because of their chemical formulation, all surfaces have their own polarity and surface tension. The cause of surface tensions is the tendency of liquids to reduce their surface as far as possible, thus to form drops. When a surface which is to be marked (substrate) is wetted with an adhesive, in addition to the adhesive formulation and the surface quality (material, roughness, dampness etc.) the surface energy is also a decisive factor in the maximum attainable bonding force of the adhesive.

As a basic rule, it can be noted that the surface energy of the adhesive must be less than the surface energy of the material to be bonded (substrate). The adhesive should completely wet the substrate and not form any drops.



### Flat drops

- High surface energy
- Good wetting
- Good bonding properties



### Rounded drops

- Low surface energy
- Poor wetting
- Weak bonding properties

### The material combination is the decisive factor

An acrylate-based adhesive is polar and therefore has a relatively high surface energy. Acrylate-based adhesives achieve optimum final bonding on polar substrates (e.g. glass or metals) with a high surface energy. More critical is the application of labels using acrylate-based adhesives on materials with low surface energy (apolar substrates) such as, for example, silicone, polyethylene and polypropylene. The surface tensions of an acrylate-based adhesive can be reduced for particular applications by the addition of specific additives. However, this step brings with it some drawbacks, for example, a free-flowing adhesive and thus a limited life and storage ability of the labels. The lower bonding force of low-energy surfaces must therefore be taken into account of when considering the end use. For optimum marking using acrylate-based adhesive labels, HellermannTyton uses an improved adhesive formulation, which is co-ordinated to the most common materials in industry. In most cases it is possible to guarantee very good application of these labels. In borderline cases, a modified adhesive formulation may be necessary. Talk to us, we'll be delighted to advise you.

### Surface energies of different materials

MATERIAL	Surface energy [mN/m]*
Polytetrafluorethylene (PTFE)	18
Silicon (Si)	24
Polyvinyl fluoride (PVF)	25
Natural rubber (CR)	25
Polypropylene (PP)	29
Polyethylene (PE)	35
Polymethyl methacrylate, Acryl (PMMA)	36
Epoxy (EP)	36
Polyoxymethylene, Acetal (POM)	36
Polystyrene (PS)	38
Polyvinyl chloride (PVC)	39
Vinylidene chloride (VC)	40
Polyester (PET)	41
Polyimide (PI)	41
Polyarylsulfone (PAS)	41
Phenolic resin	42
Polyurethane (PUR)	43
Polyamide 6 (PA 6)	43
Polycarbonate (PC)	46
Lead (Pb)	450
Aluminium (Al)	840
Copper (Cu)	1,100
Chromium (Cr)	2,400
Iron (Fe)	2,550

\*The values stated are non-binding reference values and for guidance purposes only.

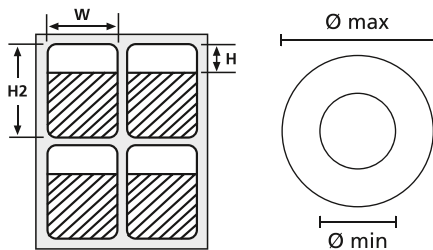
### Instructions for using labels with protective laminate

Labels with protective laminate (also known as cable laminators) have a white or coloured label field which can be written on either manually using a marker pen (see RiteOn and HELASIGN) or using a matrix, laser or thermal transfer printer (see Helatag). Depending on the design for the respective type of printing, the title block has a special surface finish to achieve the optimum print anchorage to the label substrate. This results in long-lasting, clear, sharp writing with text, graphics or barcode. A special feature is that most of the HellermannTyton protective laminate labels come with rounded corners. This achieves greater final adhesion of the protective laminate and counteracts any undesirable removal of the label, especially with cables of small diameter and in heavy-duty applications.

When calculating the minimum and maximum diameters, the following formula has been used:

$$\text{Diameter} = \frac{\text{Length of laminate}}{\pi}$$

Pi ( $\pi$ ) is the constant 3.14.



Helatag self-laminating labels.

#### Minimum diameter:

To save time, when wrapping the cable with the cable laminator, a limit of max. 2 windings has been set. The protective laminate length is calculated from: Height H2 – height H

By applying the “diameter” formula this produces the approx. minimum diameter:

$$\text{Diameter}_{\min} = \frac{H2 - H}{2 * \pi}$$

Example: TAG136LA4 (H = 19.05 mm; H2 = 67.7 mm)

$$\text{Diameter}_{\min} = \frac{67.7 - 19.05}{2 * 3.14}$$

#### Maximum diameter:

In this case the minimum requirement is complete coverage of the label field with the protective laminate with a single winding. The length of the protective laminate is again obtained from the formula: H2 – H.

By applying the “diameter” formula this produces the approx. maximum diameter, which also corresponds to double the minimum diameter:

$$\text{Diameter}_{\max} = \frac{H2 - H}{\pi} = 2 * \text{Diameter}_{\min}$$

Example: TAG136LA4 (H = 19.05 mm; H2 = 67.7 mm)

$$\text{Diameter}_{\max} = \frac{67.7 - 19.05}{3.14} = 2 * \text{Diameter}_{\min}$$



## Interesting facts about thermal transfer films (colour ribbons)

The thermal transfer ribbon is perhaps the most important consumable that is used in this printing system - using the right ribbon for a particular application is extremely important.

Not every transfer ribbon is equally suited to any purpose. Depending on the printing requirements (e.g. smudge or scratchproof) to be met, what type of labels will be used, an appropriate thermal transfer ribbon must be used.

Another important consideration for the thermal transfer ribbon is the electrostatic charging which can arise during the printing process. Some transfer ribbons become statically charged during the printing process, which can damage an ESD-sensitive printer head in the long run.

To clarify: The thermal transfer printer head is in physical contact with the back of the thermal transfer ribbon and consists solely of electronic, voltage-sensitive elements, which are known as dots.

These can become damaged when the thermal transfer ribbon causes discharges, which usually results in dot drop-outs. At points where the print head is damaged, no more colour is transferred. This leaves gaps on the label.

Thermal transfer films usually consist of three layers:

- A polyester strip as supporting material
- A protective, gliding backing layer on one side
- A colour layer on the other side.

The colour remains solid at room temperature, but liquefies under the effect of heat. To manufacture the colour ribbons, the polyester ribbon is coated with a special backing and then the respective coloured ink is applied. Print characteristics and bonding ability on various materials depend mainly on the chemical composition of this colour ink.

The main distinguishing feature of thermal transfer ribbons is the so-called quality of the coating. There are two basic types of thermal transfer ribbons:

### Wax-resin-based films – good synthesis

With this quality of a wax-resin mixture, the good print characteristics of the wax are essentially retained, but the resin content increases mechanical strength. The print image produced has high resistance to heat, solvents, abrasion and scratching and high print quality, e.g. for barcodes. These colour ribbons are suitable for use on synthetic materials. They can be used for most applications at standard print temperatures.

- TT932DOUT
- TT822OUT8

### Resin-based films – for very heavy-duty purposes

The colour layer at this quality level is based entirely on synthetic resins, developed for industrial applications and extreme conditions. Resin-based colour ribbons guarantee maximum readability, even on the most difficult materials (e.g. barcodes). Depending on the backing material, medium to high print temperatures and slow print speeds are necessary when using these thermal transfer films. In return, a print image is obtained which stands out for its high resistance to abrasion and scratching and great solvent and heat resistance.

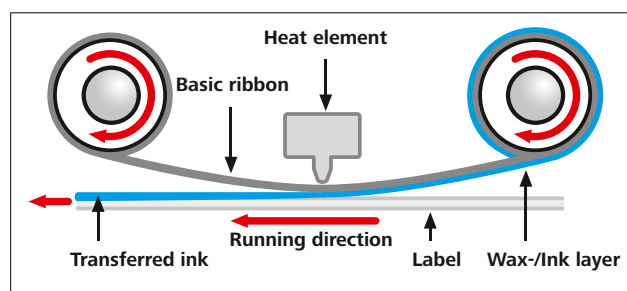
- TT822OUT
- TTRR
- TTRW
- TT122OUT
- TTDTHOUT
- TTRC+
- TTRHT

## Interesting facts about thermal transfer printing

Thermal transfer printing plays a central role, especially in the field of printing variable data, single-proofs and even for small series. This is largely due to the fact that thermal transfer printing is a non-impact printing (NIP) process. Unlike traditional printing processes, such as offset-printing, a NIP printing process does not require a fixed printing block and can therefore print out different data with consistent quality from print to print.

Due to the increasing spread and importance of one and two-dimensional barcodes in goods inventory systems, logistics and in the field of component identification, the market potential of thermal transfer printing is growing all the time. The same is also true of incremental serial numbers, inventory designations, entrance tickets, rating plates, wine labels and many more.

Good print quality, high print speeds and the option of printing almost all backing materials permanently – these are the critical advantages of thermal transfer printing. It's good readability, resistance and abrasion resistance allow thermal transfer printing to be put to use in applications where the print results from laser, inkjet or dot matrix printers are not satisfactory.



Heated dots strike a special colour ribbon, the thermal transfer film, which transfers liquefied colour ink at exactly that point onto the backing material (labels, tubes, rating plates). Our modern printers use what is known as "thin film technology", in which the very brief liquid phase of the ink produces faster print speeds and better and more precise images than with the "thick film technology" formerly used.

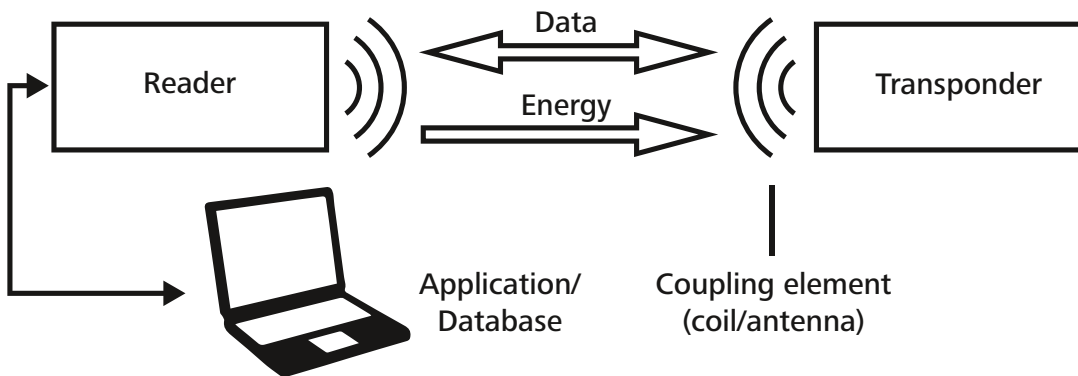
Moreover, the linear orientation of the labels or of the heatshrink tubing makes it possible to print on demand. The printing is then carried out as required. This is especially useful in the production of rating plates in series production.

In thermal transfer printing, the print image is defined by the three components: printer, label material and thermal transfer film (colour ribbon).

### The advantages at a glance:

- High print quality with a resolution of 8-12 dots/mm (12 dots/mm corresponds to approx. 300 dpi)
- Barcode printing in excellent quality, hence good optical readability
- High print speeds of between 30mm/sec and 150mm/sec
- Individual graphics capability
- Problem free and rapid realisation of self designed drafts
- Quiet and service friendly printers
- Prints are UV fast and permanent with high definition and contrast and good resistance to mechanical and chemical influences.

## What is RFID?



Radio frequency identification, for short RFID, simply means the identification by radio waves. The data transfer is affected by means of electromagnetic waves. This technology allows a contactless storing and reading of data and makes a communication between devices possible. There are several methods of identification, but the most common is to store a serial number that identifies a person or object, and perhaps other information, on a microchip that is attached to an antenna (the chip and the antenna together are called an RFID transponder or an RFID tag). With an RFID reader the stored information can be evaluated.

HellermannTyton offers a range of RFID cable ties complete with choice of transponders which can be read with HellermannTyton RFID readers to deliver quick and accurate reporting.

RFID (Radio Frequency Identification) is a digital system to manage equipment inspections and reporting for business that are still using paper based systems and wants to improve resource performance.

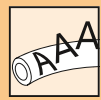
### The benefits of RFID cable ties and accessories are:

- Fast and paperless data collection
- Elimination of typing errors in reports
- Reduction of working hours due to reduction of paper work
- Controlled administration of devices and warehouse
- Comply with legislation
- Easy to share up-to-date information
- Reliable operation in harsh environments, for example wet, dusty, dirty conditions; corrosive environments; vibration and shock
- No need for contact or line-of-sight

HellermannTyton has developed a range of cable ties to host RFID transponders to enable users to easily fix the RFID tag to equipment that needs to carry a serial number for tracking and identification purposes.

Applications for RFID include:

- Resource and asset management
- Theft preventing and traceability
- Security tagging
- Essential maintenance
- Attendance verification and time recording
- Leak detection
- Baggage tagging
- Vehicle identification
- Automation processes



### Shrinkable markers, "Continuous Tube", thermal transfer

#### TCGT – 3:1 Commercial Grade

TCGT is a commercial grade 3:1 heat shrink marker material supplied as a continuous tube and printable on both sides. TCGT's polyolefin compound has good mechanical strength and resistance to organic solvents and chemicals. The surface of the tubing has been especially prepared so that print performance is excellent at all times. HellermannTyton's printer range allow users to create a high quality print. In addition it is possible to either perforate the tubing at pre-determined lengths or fully sever the markers.

#### Features and benefits

- Shrink ratio 3:1
- Available in black, blue, red, white and yellow
- Cable range from 39 mm to 1 mm
- Good mechanical strength and resistance to organic solvents and chemicals
- Highly flexible
- Delivery in convenient storage boxes



TCGT – five colours of printable tube to cover a wide range of diameters.

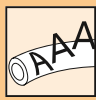
<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Min. Shrink Temperature</b>	+90 °C
<b>Shrink Ratio</b>	3:1
<b>Recommended Ribbon Type</b>	TTRC+, TTDTHOUT, TTRW, TT822OUT8
<b>Thermal Transfer Printer</b>	TT430, TT4030, TrakMark DS



PART DESCRIPTION	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)
TCGT3-1BK-PO-X-BK	3.0	1.0	0.60
TCGT3-1BU-PO-X-BU	3.0	1.0	0.60
TCGT3-1RD-PO-X-RD	3.0	1.0	0.60
TCGT3-1WH-PO-X-WH	3.0	1.0	0.60
TCGT3-1YE-PO-X-YE	3.0	1.0	0.60
TCGT4.8-1.6BK-PO-X-BK	4.8	1.6	0.65
TCGT4.8-1.6BU-PO-X-BU	4.8	1.6	0.65
TCGT4.8-1.6RD-PO-X-RD	4.8	1.6	0.65
TCGT4.8-1.6WH-PO-X-WH	4.8	1.6	0.65
TCGT4.8-1.6YE-PO-X-YE	4.8	1.6	0.65
TCGT6-2BK-PO-X-BK	6.0	2.0	0.70
TCGT6-2BU-PO-X-BU	6.0	2.0	0.70
TCGT6-2RD-PO-X-RD	6.0	2.0	0.70
TCGT6-2WH-PO-X-WH	6.0	2.0	0.70
TCGT6-2YE-PO-X-YE	6.0	2.0	0.70
TCGT9-3BK-PO-X-BK	9.0	3.0	0.80
TCGT9-3BU-PO-X-BU	9.0	3.0	0.80
TCGT9-3RD-PO-X-RD	9.0	3.0	0.80
TCGT9-3WH-PO-X-WH	9.0	3.0	0.80

All dimensions in mm. Subject to technical changes.  
More colours on request.





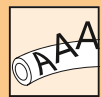
### Shrinkable markers, "Continuous Tube", thermal transfer

TCGT – 3:1 Commercial Grade



PART DESCRIPTION	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)
TCGT9-3YE-PO-X-YE	9.0	3.0	0.80
TCGT12-4BK-PO-X-BK	12.0	4.0	0.85
TCGT12-4BU-PO-X-BU	12.0	4.0	0.85
TCGT12-4RD-PO-X-RD	12.0	4.0	0.85
TCGT12-4WH-PO-X-WH	12.0	4.0	0.85
TCGT12-4YE-PO-X-YE	12.0	4.0	0.85
TCGT18-6BK-PO-X-BK	18.0	6.0	1.00
TCGT18-6BU-PO-X-BU	18.0	6.0	1.00
TCGT18-6RD-PO-X-RD	18.0	6.0	1.00
TCGT18-6WH-PO-X-WH	18.0	6.0	1.00
TCGT18-6YE-PO-X-YE	18.0	6.0	1.00
TCGT24-8BK-PO-X-BK	24.0	8.0	1.20
TCGT24-8BU-PO-X-BU	24.0	8.0	1.20
TCGT24-8RD-PO-X-RD	24.0	8.0	1.20
TCGT24-8WH-PO-X-WH	24.0	8.0	1.20
TCGT24-8YE-PO-X-YE	24.0	8.0	1.20
TCGT39-13BK-PO-X-BK	39.0	13.0	1.25
TCGT39-13BU-PO-X-BU	39.0	13.0	1.25
TCGT39-13RD-PO-X-RD	39.0	13.0	1.25
TCGT39-13WH-PO-X-WH	39.0	13.0	1.25
TCGT39-13YE-PO-X-YE	39.0	13.0	1.25

All dimensions in mm. Subject to technical changes.  
More colours on request.



### Shrinkable markers "Continuous Tube", thermal transfer

#### TULT – 3:1

TULT is a UL recognized 3:1 heat shrink marker material supplied as a continuous tube and printable on both sides. TULT's polyolefin compound has good mechanical strength and resistance to organic solvents and chemicals. The surface of the tubing has been especially prepared so that print performance is excellent at all times. HellermannTyton's printer range allow users to create a high quality print. In addition it is possible to either perforate the tubing at pre-determined lengths or fully sever the markers.

#### Features and benefits

- Shrink ratio 3:1
- Available in black, blue, red, white and yellow
- Cable range from 39 mm to 1 mm
- Good mechanical strength and resistance to organic solvents and chemicals
- Highly flexible
- Delivery in convenient storage boxes



TULT – good mechanical strength and resistance to organic solvents and chemicals.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Min. Shrink Temperature</b>	+90 °C
<b>Shrink Ratio</b>	3:1
<b>Recommended Ribbon Type</b>	TTRC+, TTDTHOUT, TTRW, TT822OUT8
<b>Thermal Transfer Printer</b>	TT430, TT4030, TrakMark DS

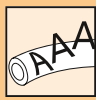


PART DESCRIPTION	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)
TULT3-1BK-PO-X-BK	3.0	1.0	0.60
TULT3-1BU-PO-X-BU	3.0	1.0	0.60
TULT3-1RD-PO-X-RD	3.0	1.0	0.60
TULT3-1WH-PO-X-WH	3.0	1.0	0.60
TULT3-1YE-PO-X-YE	3.0	1.0	0.60
TULT4.8-1.6BK-PO-X-BK	4.8	1.6	0.65
TULT4.8-1.6BU-PO-X-BU	4.8	1.6	0.65
TULT4.8-1.6RD-PO-X-RD	4.8	1.6	0.65
TULT4.8-1.6WH-PO-X-WH	4.8	1.6	0.65
TULT4.8-1.6YE-PO-X-YE	4.8	1.6	0.65
TULT6-2BK-PO-X-BK	6.0	2.0	0.70
TULT6-2BU-PO-X-BU	6.0	2.0	0.70
TULT6-2RD-PO-X-RD	6.0	2.0	0.70
TULT6-2WH-PO-X-WH	6.0	2.0	0.70
TULT6-2YE-PO-X-YE	6.0	2.0	0.70
TULT9-3BK-PO-X-BK	9.0	3.0	0.80
TULT9-3BU-PO-X-BU	9.0	3.0	0.80
TULT9-3RD-PO-X-RD	9.0	3.0	0.80
TULT9-3WH-PO-X-WH	9.0	3.0	0.80
TULT9-3YE-PO-X-YE	9.0	3.0	0.80

All dimensions in mm. Subject to technical changes.  
More colours on request.







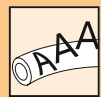
### Shrinkable markers "Continuous Tube", thermal transfer

TULT - 3:1



PART DESCRIPTION	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)
TULT12-4BK-PO-X-BK	12.0	4.0	0.85
TULT12-4BU-PO-X-BU	12.0	4.0	0.85
TULT12-4RD-PO-X-RD	12.0	4.0	0.85
TULT12-4WH-PO-X-WH	12.0	4.0	0.85
TULT12-4YE-PO-X-YE	12.0	4.0	0.85
TULT18-6BK-PO-X-BK	18.0	6.0	1.00
TULT18-6BU-PO-X-BU	18.0	6.0	1.00
TULT18-6RD-PO-X-RD	18.0	6.0	1.00
TULT18-6WH-PO-X-WH	18.0	6.0	1.00
TULT18-6YE-PO-X-YE	18.0	6.0	1.00
TULT24-8BK-PO-X-BK	24.0	8.0	1.20
TULT24-8BU-PO-X-BU	24.0	8.0	1.20
TULT24-8RD-PO-X-RD	24.0	8.0	1.20
TULT24-8WH-PO-X-WH	24.0	8.0	1.20
TULT24-8YE-PO-X-YE	24.0	8.0	1.20
TULT39-13BK-PO-X-BK	39.0	13.0	1.25
TULT39-13BU-PO-X-BU	39.0	13.0	1.25
TULT39-13RD-PO-X-RD	39.0	13.0	1.25
TULT39-13WH-PO-X-WH	39.0	13.0	1.25
TULT39-13YE-PO-X-YE	39.0	13.0	1.25

All dimensions in mm. Subject to technical changes.  
More colours on request.



### Shrinkable markers "Continuous Tube", thermal transfer

#### TLFX – 2:1 Limited Fire Hazard

TLFX is a halogen free European rail approved 2:1 heat shrink marker material supplied as a continuous tube and printable on both sides. Special material properties show low smoke propagation, density and toxicity. The tubing has been especially prepared so that print performance is excellent at all times. HellermannTyton's printer range allow users to create a high quality print. In addition it is possible to either perforate the tubing at pre-determined lengths or fully sever the markers.

#### Features and benefits

- Shrink ratio 2:1
- Halogen Free
- Low smoke propagation, density and toxicity
- High Oxygen Index value (36.5 %)
- Available in yellow or white
- Cable range 50.8 mm to 1.2 mm
- Delivery in convenient storage boxes



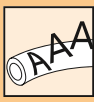
TLFX- high performance halogen free heat shrink tube.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Operating Temperature</b>	-55 °C to +105 °C
<b>Min. Shrink Temperature</b>	+100 °C
<b>Shrink Ratio</b>	2:1
<b>Recommended Ribbon Type</b>	TTDTHOUT
<b>Thermal Transfer Printer</b>	TT430, TT4030, TrakMark DS
<b>EN 45545-2 Classification</b>	R22 HL3, R23 HL3



PART DESCRIPTION	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)
TLFX24WH-PO-X-WH	2.4	1.2	0.57
TLFX24YE-PO-X-YE	2.4	1.2	0.57
TLFX32WH-PO-X-WH	3.2	1.6	0.58
TLFX32YE-PO-X-YE	3.2	1.6	0.58
TLFX48WH-PO-X-WH	4.8	2.4	0.61
TLFX48YE-PO-X-YE	4.8	2.4	0.61
TLFX64WH-PO-X-WH	6.4	3.2	0.61
TLFX64YE-PO-X-YE	6.4	3.2	0.61
TLFX95WH-PO-X-WH	9.5	4.8	0.66
TLFX95YE-PO-X-YE	9.5	4.8	0.66
TLFX127WH-PO-X-WH	12.7	6.4	0.68
TLFX127YE-PO-X-YE	12.7	6.4	0.68
TLFX190WH-PO-X-WH	19.0	9.5	0.69
TLFX190YE-PO-X-YE	19.0	9.5	0.69
TLFX254WH-PO-X-WH	25.4	12.7	0.69
TLFX254YE-PO-X-YE	25.4	12.7	0.69
TLFX381WH-PO-X-WH	38.1	19.0	0.70
TLFX381YE-PO-X-YE	38.1	19.0	0.70
TLFX508WH-PO-X-WH	50.8	25.4	0.73
TLFX508YE-PO-X-YE	50.8	25.4	0.73

All dimensions in mm. Subject to technical changes.



### Shrinkable markers "Ladder Style", thermal transfer

#### TLFX DS – 2:1 Limited Fire Hazard "Ladder Style"

TLFX DS is a halogen free European rail approved 2:1 heat shrink marker material supplied pre-cut and formatted into a convenient "ladder" system. Special material properties show low smoke propagation, density and toxicity. This pre-cut format not only allows printing on both sides of the marker but the user can also easily choose and pick each required marker. Special material properties show low smoke propagation, density and toxicity. The tubing has been especially prepared so that the print performance is excellent at all times using HellermannTyton's printer range.

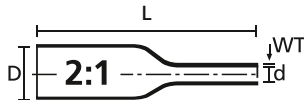
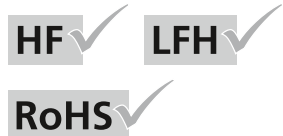
#### Features and benefits

- Shrink ratio 2:1
- Halogen Free
- Low smoke propagation, density and toxicity
- High Oxygen Index value (35.4%)
- 50 mm, 25 mm and 16 mm pre-cut marker options as standard, other lengths available on request
- Available in yellow or white
- Cable range 38.1 mm to 1.2 mm
- Delivery in convenient storage boxes



Shrinkable rail approved markers TLFX DS.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Operating Temperature</b>	-55 °C to +105 °C
<b>Min. Shrink Temperature</b>	+100 °C
<b>Shrink Ratio</b>	2:1
<b>Recommended Ribbon Type</b>	TTDTHOUT
<b>Thermal Transfer Printer</b>	TT430, TT4030, TrakMark DS
<b>EN 45545-2 Classification</b>	R22 HL3, R23 HL3



PART DESCRIPTION	Supplied Ø D min.	Recov. Ø d max.	Length (L)	Wall (WT)
TLFX24DS-2x25WH-PO-X-WH	2.4	1.2	25.0	0.52
TLFX24DS-2x25YE-PO-X-YE	2.4	1.2	25.0	0.52
TLFX24DS-1x50WH-PO-X-WH	2.4	1.2	50.0	0.52
TLFX24DS-1x50YE-PO-X-YE	2.4	1.2	50.0	0.52
TLFX32DS-2x25WH-PO-X-WH	3.2	1.6	25.0	0.64
TLFX32DS-2x25YE-PO-X-YE	3.2	1.6	25.0	0.64
TLFX32DS-1x50WH-PO-X-WH	3.2	1.6	50.0	0.64
TLFX32DS-1x50YE-PO-X-YE	3.2	1.6	50.0	0.64
TLFX48DS-2x25WH-PO-X-WH	4.8	2.4	25.0	0.64
TLFX48DS-2x25YE-PO-X-YE	4.8	2.4	25.0	0.64
TLFX48DS-1x50WH-PO-X-WH	4.8	2.4	50.0	0.64
TLFX48DS-1x50YE-PO-X-YE	4.8	2.4	50.0	0.64
TLFX64DS-2x25WH-PO-X-WH	6.4	3.2	25.0	0.73
TLFX64DS-2x25YE-PO-X-YE	6.4	3.2	25.0	0.73
TLFX64DS-1x50WH-PO-X-WH	6.4	3.2	50.0	0.73
TLFX64DS-1x50YE-PO-X-YE	6.4	3.2	50.0	0.73
TLFX95DS-2x25WH-PO-X-WH	9.5	4.8	25.0	0.70

All dimensions in mm. Subject to technical changes.

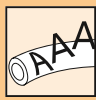


### Shrinkable markers "Ladder Style", thermal transfer

TLFX DS – 2:1 Limited Fire Hazard "Ladder Style"

PART DESCRIPTION	Supplied Ø D min.	Recov. Ø d max.	Length (L)	Wall (WT)
TLFX95DS-2x25YE-PO-X-YE	9.5	4.8	25.0	0.70
TLFX95DS-1x50WH-PO-X-WH	9.5	4.8	50.0	0.70
TLFX95DS-1x50YE-PO-X-YE	9.5	4.8	50.0	0.70
TLFX127DS-2x25WH-PO-X-WH	12.7	6.4	25.0	0.70
TLFX127DS-2x25YE-PO-X-YE	12.7	6.4	25.0	0.70
TLFX127DS-1x50WH-PO-X-WH	12.7	6.4	50.0	0.70
TLFX127DS-1x50YE-PO-X-YE	12.7	6.4	50.0	0.70
TLFX190DS-2x25WH-PO-X-WH	19.0	9.5	25.0	0.78
TLFX190DS-2x25YE-PO-X-YE	19.0	9.5	25.0	0.78
TLFX190DS-1x50WH-PO-X-WH	19.0	9.5	50.0	0.78
TLFX190DS-1x50YE-PO-X-YE	19.0	9.5	50.0	0.78
TLFX254DS-2x25WH-PO-X-WH	25.4	12.7	25.0	0.93
TLFX254DS-2x25YE-PO-X-YE	25.4	12.7	25.0	0.93
TLFX254DS-1x50WH-PO-X-WH	25.4	12.7	50.0	0.93
TLFX254DS-1x50YE-PO-X-YE	25.4	12.7	50.0	0.93
TLFX381DS-2x25WH-PO-X-WH	38.1	19.1	25.0	0.98
TLFX381DS-2x25YE-PO-X-YE	38.1	19.1	25.0	0.98
TLFX381DS-1x50WH-PO-X-WH	38.1	19.1	50.0	0.98
TLFX381DS-1x50YE-PO-X-YE	38.1	19.1	50.0	0.98

All dimensions in mm. Subject to technical changes.



### Shrinkable markers "Continuous Tube", thermal transfer

#### THTT – 2:1 High Temperature

THTT is a 2:1 high temperature, flame retardant heat shrink marker supplied in continuous tube and on convenient reels that allows printing on both sides if required. The printed marker is ideal for use in applications where high temperature and exposure to aggressive solutions are found. The tubing has been especially prepared so that the print performance is excellent at all times using HellermannTyton's printer range. A standard heat gun with reflector is used to shrink the sleeves onto the wire or cable to achieve a permanent mark. In addition it is possible to either perforate the tubing at pre-determined lengths or fully sever the markers. The material is also especially formulated to be printable with laser beam printers.

#### Features and benefits

- Shrink ratio 2:1
- PVDFX high temperature tube
- Thermal transfer or laser beam printable
- Available in white and black as standard
- Good mechanical strength and highly flexible
- Delivery in convenient storage boxes



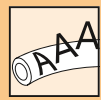
THTT - High temperature tube in black and white.

<b>MATERIAL</b>	Polyvinylidene Fluoride cross-linked (PVDFX)
<b>Operating Temperature</b>	-55 °C to +225 °C
<b>Min. Shrink Temperature</b>	+120 °C
<b>Shrink Ratio</b>	2:1
<b>Recommended Ribbon Type</b>	TTRHT
<b>Thermal Transfer Printer</b>	TT430, TT4030, TrakMark DS



PART DESCRIPTION	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)
THTT24BK-PVDFX-BK	2.4	1.2	0.41
THTT24WH-PVDFX-WH	2.4	1.2	0.41
THTT32BK-PVDFX-BK	3.2	1.6	0.27
THTT32WH-PVDFX-WH	3.2	1.6	0.27
THTT48BK-PVDFX-BK	4.8	2.4	0.27
THTT48WH-PVDFX-WH	4.8	2.4	0.27
THTT64BK-PVDFX-BK	6.4	3.2	0.33
THTT64WH-PVDFX-WH	6.4	3.2	0.33
THTT95BK-PVDFX-BK	9.5	4.8	0.33
THTT95WH-PVDFX-WH	9.5	4.8	0.33
THTT127BK-PVDFX-BK	12.7	6.4	0.33
THTT127WH-PVDFX-WH	12.7	6.4	0.33
THTT190BK-PVDFX-BK	19.0	9.5	0.43
THTT190WH-PVDFX-WH	19.0	9.5	0.43
THTT254BK-PVDFX-BK	25.4	12.7	0.48
THTT254WH-PVDFX-WH	25.4	12.7	0.48
THTT381BK-PVDFX-BK	38.1	19.1	0.50
THTT381WH-PVDFX-WH	38.1	19.1	0.50

All dimensions in mm. Subject to technical changes.



### Identification tags for cable bundle, thermal transfer

#### TIPTAG HF – Limited Fire Hazard, Halogen free

The Tiptag HF cable markers have been designed to identify larger wires and cable bundles not only in the electronics and general cabling environments but also in the railway industry. Tiptag HF is halogen free and its material properties show low smoke propagation, density and toxicity. Tiptags are presented in a special perforated format which include fastening slots for easy fitting with cable ties. They are also suitable for retrofit purposes.

Print from the reel with HellermannTyton's premium range of thermal transfer printers and ribbons for optimum print quality and longevity.

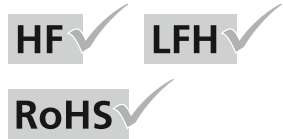
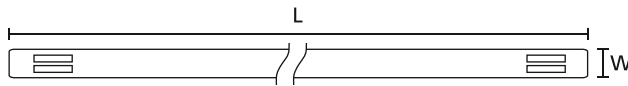
#### Features and benefits

- Ideal for marking larger wire and cable bundles
- Halogen free
- Low smoke propagation and toxicity
- Perforated format that includes fastening slots for cable ties
- Available in various colours



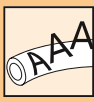
TIPTAG - high performance cable bundle marking.

<b>MATERIAL</b>	Polyolefin (PO)
<b>Operating Temperature</b>	-40 °C to +90 °C, (+160 °C, for 200 h)
<b>Flammability</b>	Limited Fire Hazard, low generation of toxic gases and corrosive acid, low smoke generation, halogen free
<b>Recommended Ribbon Type</b>	TTDTHOUT
<b>Thermal Transfer Printer</b>	TT430, TT4030
<b>EN 45545-2 Classification</b>	R22 HL3, R23 HL3



PART DESCRIPTION	Length (L)	Width (w)
TIPTAG11X65BU-PO-BU	65.0	11.0
TIPTAG11X65RD-PO-RD	65.0	11.0
TIPTAG11X65WH-PO-WH	65.0	11.0
TIPTAG11X65YE-PO-YE	65.0	11.0
TIPTAG15X65WH-PO-WH	65.0	15.0
TIPTAG15X65YE-PO-YE	65.0	15.0
TIPTAG11X100BU-PO-BU	100.0	11.0
TIPTAG11X100RD-PO-RD	100.0	11.0
TIPTAG11X100WH-PO-WH	100.0	11.0
TIPTAG11X100YE-PO-YE	100.0	11.0
TIPTAG15X100RD-PO-RD	100.0	15.0
TIPTAG15X100WH-PO-WH	100.0	15.0
TIPTAG15X100YE-PO-YE	100.0	15.0

All dimensions in mm. Subject to technical changes.  
More colours on request.



### Identification tags for cable bundle, thermal transfer

#### TIPTAG PU – UV-stabilised Tiptags, Polyurethane

The Tiptag PU cable markers consist of a robust and flexible polyurethane material. It is especially suited for harsh environments where the material is exposed to chemical, fluids or abrasion. Tiptag PU's are presented in a special perforated format which include fastening slots for easy fitting with cable ties. They are also suitable for retrofit purposes.

Print from the reel with HellermannTyton's premium range of thermal transfer printers.

A special ribbon has been developed for Tiptag PU to create a "tattoo" effect so that the marking cannot be rubbed off and is particularly durable and resistant to harsh abrasion.

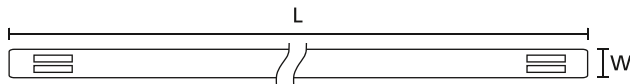


TIPTAG PU – printed mark has a tattoo-like permanency.

#### Features and benefits

- Durable and robust polyurethane material
- For large cable bundles and wires
- Flame retardant
- Weather resistant
- Abrasion resistant
- Good resistance to chemicals
- Available in white and yellow as standard
- Perforated format with fastening slots for cable ties

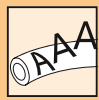
<b>MATERIAL</b>	Polyurethane (PUR)
<b>Operating Temperature</b>	-65 °C to +120 °C, intermittent +150 °C
<b>Flammability</b>	self-extinguishing, UL 94 V0 (3 mm)
<b>Recommended Ribbon Type</b>	TTRC+
<b>Thermal Transfer Printer</b>	TT430, TT4030



PART DESCRIPTION	Length (L)	Width (W)
TTAGPU11X65WH-PUR-WH	65.0	11.0
TTAGPU11X65YE-PUR-YE	65.0	11.0
TTAGPU15X65WH-PUR-WH	65.0	15.0
TTAGPU15X65YE-PUR-YE	65.0	15.0
TTAGPU11X100WH-PUR-WH	100.0	11.0
TTAGPU11X100YE-PUR-YE	100.0	11.0
TTAGPU15X100WH-PUR-WH	100.0	15.0
TTAGPU15X100YE-PUR-YE	100.0	15.0

All dimensions in mm. Subject to technical changes.  
More colours on request.





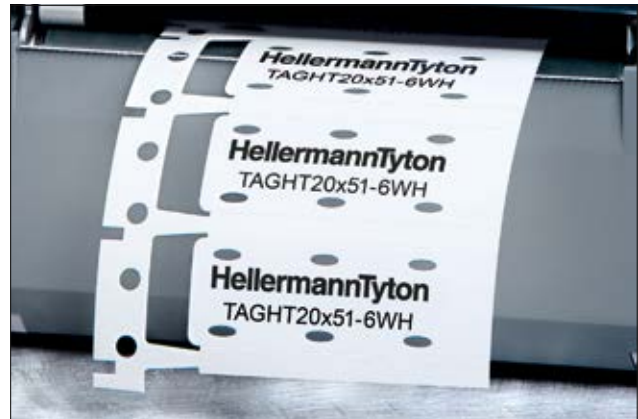
### Identification tags for cable bundle "Ladder Style", thermal transfer

#### TAGHT – High Temperature Tiptags

TAGHT is a high temperature, flame retardant cable marker used to identify larger cables and wire harnesses. The marker is ideal for applications where high temperatures and exposure to aggressive solutions are found, e.g. in the aerospace industry. They are supplied pre-cut and have been formatted into a convenient "ladder" system. Simply print and press out the required TAGHT and apply to cables and harness assemblies with cable ties, they are also suitable for retrofit purposes. Print with HellermannTyton's premium range of thermal printers and ribbons or a laser beam marking device.

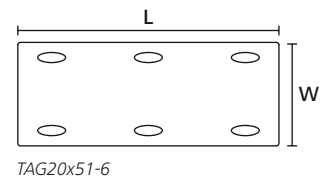
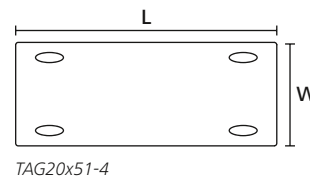
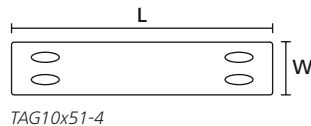
#### Features and benefits

- High temperature cable marker
- For larger cables, bundles and harnesses
- Thermal transfer or laser beam printable
- Good mechanical strength and highly flexible
- Delivery in convenient storage boxes



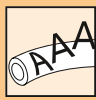
TAGHT – High temperature tag to identify cables and wire harnesses.

<b>MATERIAL</b>	Polyvinylidene Fluoride cross-linked (PVDFX)
<b>Operating Temperature</b>	-55 °C to +225 °C
<b>Flammability</b>	UL 224 VW-1
<b>Recommended Ribbon Type</b>	TTRHT
<b>Thermal Transfer Printer</b>	TT430, TT4030



PART DESCRIPTION	Length (L)	Width (W)
TAGHT10X51-4WH-PVDFX-WH	51.0	10.0
TAGHT20X51-4WH-PVDFX-WH	51.0	20.0
TAGHT20X51-6WH-PVDFX-WH	51.0	20.0

All dimensions in mm. Subject to technical changes.



### Self-laminating labels, thermal transfer

#### Helatag 323 (White-Transparent), high temperature

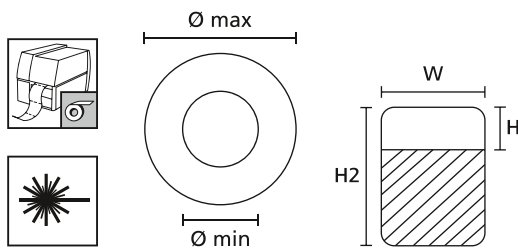
This self-laminating label consists of a printable area plus a lamination function for protection of print text against humidity, dirt, debris and mechanical abrasion. It is ideally suited for wire and cable marking in both high temperature and outside environments, particular used in industry as well as military technology.

#### Features and benefits

- High temperature self-laminating labels with an inscription field
- Extremely scratch and chemical resistant
- Protective laminating foil ensures optimal protection against humidity, dirt, debris, and mechanical abrasion
- Survives 5 years external weathering in central European climate



Easy marking of flexible, semi-rigid and rigid cables and wires.

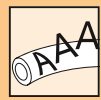


<b>MATERIAL</b>	Type 323, Polyvinylidene Fluoride (PVDF)
<b>Operating Temperature</b>	-40 °C to +140 °C, intermittent +160 °C
<b>Curing Temperature</b>	from +10 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil</b>	25 µm
<b>Chem. Material Properties</b>	Excellent resistance against water, UV radiation, weather influence and solvents based on petroleum.
<b>Recommended Ribbon Type</b>	TT932DOUT
<b>Thermal Transfer Printer</b>	TT430, TT4030



PART DESCRIPTION	Bundle Ø min.	Bundle Ø max.	Width (W)	Height (H)	Height (H2)	Width of Liner (WL)	Labels per Row
TAG51TD3-323-WHCL-323-CL/WH	1.4	3.0	25.4	8.8	19.1	85.0	3 pcs.
TAG26TD6-323-WHCL-323-CL/WH	1.5	3.0	12.7	9.5	19.1	85.0	6 pcs.
TAG36TD7-323-WHCL-323-CL/WH	2.0	4.7	12.7	9.0	23.8	95.0	7 pcs.
TAG24TD1-323-WHCL-323-CL/WH	3.5	7.6	50.8	12.7	36.5	55.0	1 pc.
TAG2TD6-323-WHCL-323-CL/WH	3.5	7.6	12.7	12.7	36.5	82.0	6 pcs.
TAG22TD3-323-WHCL-323-CL/WH	3.5	7.6	25.4	12.7	36.5	82.0	3 pcs.
TAG23TD5-323-WHCL-323-CL/WH	4.5	10.0	19.1	12.7	44.5	101.6	5 pcs.
TAG25TD3-323-WHCL-323-CL/WH	4.5	10.0	25.4	12.7	44.5	82.0	3 pcs.
TAG9TD3-323-WHCL-323-CL/WH	5.5	12.1	25.4	19.1	57.1	82.0	3 pcs.
TAG10TD2-323-WHCL-323-CL/WH	5.5	12.1	49.5	19.1	57.1	101.6	2 pcs.
TAG1TD2-323-WHCL-323-CL/WH	8.5	18.2	48.2	19.1	79.2	101.6	2 pcs.
TAG3TD3-323-WHCL-323-CL/WH	10.0	22.2	25.4	25.4	95.3	82.0	3 pcs.
TAG6TD1-323-WHCL-323-CL/WH	10.0	22.2	50.8	25.4	95.3	55.0	1 pc.
TAG107TD3-323-WHCL-323-CL/WH	12.0	37.5	25.4	31.8	149.9	82.0	3 pcs.
TAG38TD3-323-WHCL-323-CL/WH	20.8	47.5	25.4	38.1	187.2	82.0	3 pcs.
TAG07TD1-323-WHCL-323-CL/WH	20.8	47.5	50.8	25.4	187.2	55.0	1 pc.

All dimensions in mm. Subject to technical changes.  
More colours on request.



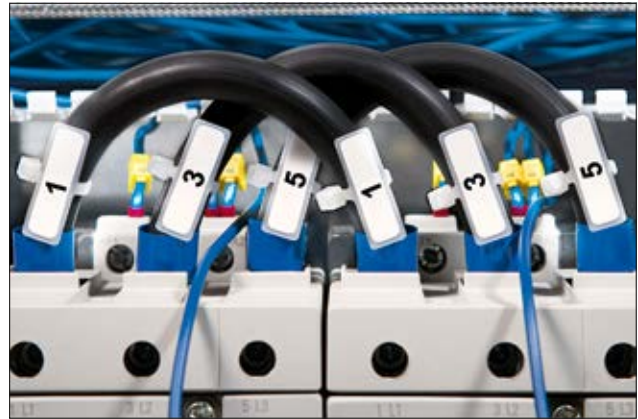
### Identification ties and plates for marking cable bundles

#### IT Ties

One of the major benefits is the ability to both secure and identify cable bundles at different times.

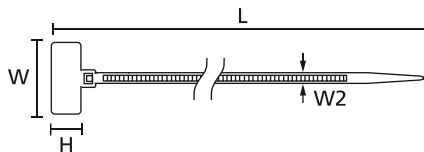
#### Features and benefits

- Identification ties made of Polyamide 6.6
- For simple identification and securing of cable bundles in one step
- Printable labels are available for a professional finish
- Manual or temporary marking is possible with an indelible pen (T82S-BK / T82R-RD)

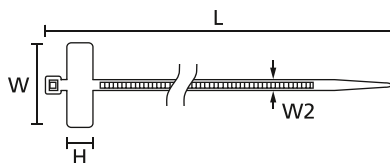


One operation with two user benefits.

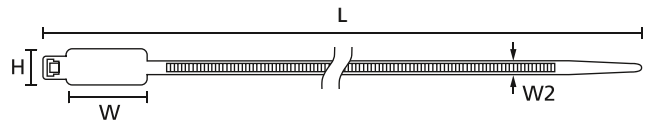
<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Operating Temperature</b>	-40 °C to +85 °C
<b>Flammability</b>	UL 94 V2



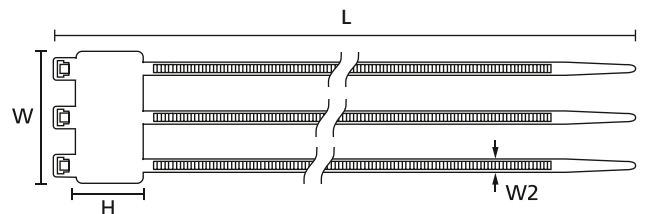
IT18FL



IT18R



IT50R



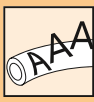
IT50RT

PART DESCRIPTION	Bundle Ø min.	Bundle Ø max.	Width (W)	Height (H)	Length (L)	Width (W2)		Recommended Labels
IT18FL-PA66-NA	1.5	19.0	20.5	9.0	110.0	2.5	80	TAG18-07TD1
IT18R-PA66-NA	6.0	22.0	25.0	8.0	100.0	2.3	80	TAG23-06TD1
IT50R-PA66-NA	9.5	44.5	28.0	12.9	203.0	4.6	225	TAG23-10TD1
IT50RD-PA66-NA	10.0	44.0	29.0	26.3	205.0	4.7	225	TAG26-21TD1
IT50RT-PA66-NA	10.0	44.0	46.0	26.3	205.0	4.7	225	TAG43-21TD1
IT50L-PA66-NA	19.0	100.0	56.0	12.8	390.0	4.7	225	TAG52-10TD1

All dimensions in mm. Subject to technical changes.  
More colours on request.

PART DESCRIPTION	Description
T82S-BK-PL-BK	Indelible Marker Pen
T82R-RD-PL-RD	Indelible Marker Pen

Subject to technical changes.



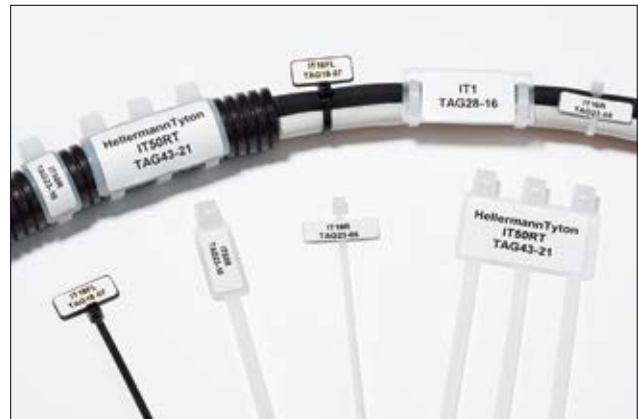
### Labels for IT ties, IMP plates and Q-tags, thermal transfer

#### Helatag 892 (White)

These labels are specially tailored to the sizes used in the IT marking tie and IMP/IT as well as Q-tag range. The flexible material sticks to the marking tie or tag, even on rounded surfaces. Print with HellermannTyton's premium range of thermal transfer printers and ribbons for optimum print results. Using unique numbering, graphics or barcodes the labels give excellent asset identification possibilities. This solution produces professional marking of tubes, pipes, cables and other parts.

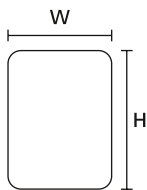
#### Features and benefits

- Suited to the slightly rough surfaces of Q-tags, IT ties and IMP/IT plates
- Adheres to rounded surfaces
- Rounded corners ensure better long term durability of adhesion
- White labels give excellent contrast



Identification ties and tags.

<b>MATERIAL</b>	Type 892, Vinyl (PVC), white (WH)
<b>Operating Temperature</b>	-40 °C to +80 °C
<b>Curing Temperature</b>	from 0 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil</b>	83 µm
<b>Chem. Material Properties</b>	Good resistance against water, oils and most solvents.
<b>Recommended Ribbon Type</b>	TT822OUT
<b>Thermal Transfer Printer</b>	TT430, TT4030



PART DESCRIPTION	Width (W)	Height (H)	Width of Liner (WL)	Labels per Row	For Size
TAG18-07TD1-892-WH-892-WH	18.0	7.0	24.0	1 pc.	IT18FL
TAG18-16TD1-892-WH-892-WH	18.0	16.0	24.0	1 pc.	IMP1.5
TAG23-06TD1-892-WH-892-WH	23.0	6.0	30.0	1 pc.	IT18R
TAG23-10TD1-892-WH-892-WH	23.0	10.0	30.0	1 pc.	IT50R
TAG26-21TD2-892-WH-892-WH	26.0	21.0	57.0	2 pcs.	IT50RD
TAG28-16TD1-892-WH-892-WH	28.0	16.0	34.0	1 pc.	IT1, IMP2
TAG43-16TD1-892-WH-892-WH	43.0	16.0	50.0	1 pc.	IMP2.5
TAG43-21TD1-892-WH-892-WH	43.0	21.0	50.0	1 pc.	IT50RT
TAG43-41TD1-892-WH-892-WH	43.0	41.0	50.0	1 pc.	IMP2.5W1.75
TAG52-10TD1-892-WH-892-WH	52.0	10.0	58.0	1 pc.	IT50L
TAG63TD1-892-WH-892-WH	63.5	38.1	70.0	1 pc.	QT7040R, QT7040S
TAG68-16TD1-892-WH-892-WH	68.0	16.0	74.0	1 pc.	IMP3.5, QT7016R
TAG102-64TD1-892-WH-892-WH	102.0	64.0	106.0	1 pc.	QT10065R

All dimensions in mm. Subject to technical changes.



### Type label identification, thermal transfer

#### Helatag 1204 (Silver-matt)

This silver-matt label is scratch-resistant and is ideal for usage as identification or name plate in industrial environments. The high temperature range suits a wide range of applications on flat surfaces. The adhesive is also suitable for critical surfaces like plastic and paint. Designing and printing labels is simple and users can quickly print out professional labels in a matter of moments when using TagPrint Pro labelling software.

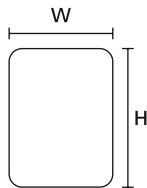
#### Features and benefits

- Replacement option for aluminium plates
- For applications on flat surfaces
- Allows the identification on critical surfaces, e.g. paints and plastic variants
- Print labels with customer unique references
- Use text, graphics and barcodes as required



Professional type plate on a heating unit.

<b>MATERIAL</b>	Type 1204, Polyester (PET)
<b>Operating Temperature</b>	-40 °C to +150 °C
<b>Curing Temperature</b>	from 0 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil</b>	55 µm
<b>Chem. Material Properties</b>	Excellent resistance to water, alcohol, most oils, greases, fuel, aliphatic solvents, weak acids, salts and alkalis.
<b>Recommended Ribbon Type</b>	TT822OUT
<b>Thermal Transfer Printer</b>	TT430, TT4030



PART DESCRIPTION	Width (W)	Height (H)	Width of Liner (WL)	Labels per Row
TAG71TD6-1204-SR-1204-ML	12.7	11.1	101.6	6 pcs.
TAG13TD4-1204-SR-1204-ML	19.1	6.4	101.6	4 pcs.
TAG34TD3-1204-SR-1204-ML	25.4	9.5	85.1	3 pcs.
TAG15TD3-1204-SR-1204-ML	25.4	12.7	85.1	3 pcs.
TAG35TD3-1204-SR-1204-ML	31.8	9.5	101.6	3 pcs.
TAG17TD2-1204-SR-1204-ML	38.1	6.4	85.1	2 pcs.
TAG27TD2-1204-SR-1204-ML	38.1	19.1	85.1	2 pcs.
TAG67TD2-1204-SR-1204-ML	38.1	31.8	85.1	2 pcs.
TAG69TD2-1204-SR-1204-ML	40.6	22.9	89.0	2 pcs.
TAG77TD1-1204-SR-1204-ML	50.8	22.9	55.0	1 pc.
TAG73TD1-1204-SR-1204-ML	50.8	25.4	55.0	1 pc.
TAG66TD1-1204-SR-1204-ML	50.8	36.5	56.8	1 pc.
TAG63TD1-1204-SR-1204-ML	63.5	38.1	70.0	1 pc.
TAG76TD1-1204-SR-1204-ML	63.5	50.8	70.0	1 pc.
TAG72TD1-1204-SR-1204-ML	69.9	31.8	76.0	1 pc.
TAG65TD1-1204-SR-1204-ML	76.2	36.5	82.0	1 pc.
TAG62TD1-1204-SR-1204-ML	76.2	50.8	82.0	1 pc.
TAG64TD1-1204-SR-1204-ML	88.9	36.5	95.0	1 pc.
TAG97TD1-1204-SR-1204-ML	101.6	74.0	106.0	1 pc.
TAG02TD1-1204-SR-1204-ML	104.0	12.0	104.0	1 pc.
TAGR3TD1-1204-SR-1204-ML	104.0	75,000.0	108.0	1 pc.

All dimensions in mm. Subject to technical changes.



### Asset identification label, thermal transfer

#### Helatag 1206 (White gloss)

This white label is scratch-resistant and is ideal for usage as identification or name plate in industrial environments. The high temperature range suits a wide range of applications on flat surfaces. The adhesive is also suitable for critical surfaces like plastic and paint.

Designing and printing labels is simple and users can quickly print out professional labels in a matter of moments when using TagPrint Pro labelling software.

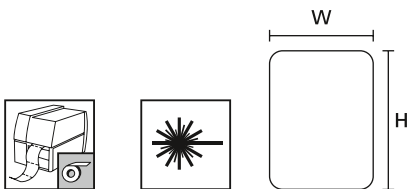
#### Features and benefits

- Ideal for machinery operating in high temperature areas (up to +150 °C)
- For applications on flat surfaces
- Chemical resistant polyester foil
- For permanent and ageing-resistant identification
- Barcodes and alphanumeric text remain pin sharp on this high quality material
- White colour guarantees a suitable contrast for all barcode scanners to read printed barcodes



Helatag labels for permanent asset identification.

<b>MATERIAL</b>	Type 1206, Polyester (PET), white gloss (GSWH)
<b>Operating Temperature</b>	-40 °C to +150 °C
<b>Curing Temperature</b>	from 0 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil</b>	50 µm
<b>Chem. Material Properties</b>	Excellent resistance to water, alcohol, most oils, greases, fuel, aliphatic solvents, weak acids, salts and alkalis.
<b>Recommended Ribbon Type</b>	TT822OUT
<b>Thermal Transfer Printer</b>	TT430, TT4030



PART DESCRIPTION	Width (W)	Height (H)	Width of Liner (WL)	Labels per Row
TAG71TD6-1206-WH-1206-WH	12.7	11.1	101.6	6 pcs.
TAG13TD4-1206-WH-1206-WH	19.1	6.4	101.6	4 pcs.
TAG16TD3-1206-WH-1206-WH	22.9	6.4	80.0	3 pcs.
TAG61TD3-1206-WH-1206-WH	25.4	4.8	89.0	3 pcs.
TAG01TD3-1206-WH-1206-WH	25.4	6.4	89.0	3 pcs.
TAG34TD3-1206-WH-1206-WH	25.4	9.5	85.1	3 pcs.
TAG15TD3-1206-WH-1206-WH	25.4	12.7	85.1	3 pcs.
TAG31TD3-1206-WH-1206-WH	25.4	19.1	85.1	3 pcs.
TAG35TD3-1206-WH-1206-WH	31.8	9.5	101.6	3 pcs.
TAG17TD2-1206-WH-1206-WH	38.1	6.4	85.1	2 pcs.
TAG27TD2-1206-WH-1206-WH	38.1	19.1	85.1	2 pcs.

All dimensions in mm. Subject to technical changes.



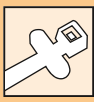
### Asset identification label, thermal transfer

Helatag 1206 (White gloss)

PART DESCRIPTION	Width (W)	Height (H)	Width of Liner (WL)	Labels per Row
TAG67TD2-1206-WH-1206-WH	38.1	31.8	85.1	2 pcs.
TAG69TD2-1206-WH-1206-WH	40.6	22.9	89.0	2 pcs.
TAG77TD1-1206-WH-1206-WH	50.8	22.9	55.0	1 pc.
TAG73TD1-1206-WH-1206-WH	50.8	25.4	55.0	1 pc.
TAG68TD1-1206-WH-1206-WH	63.5	25.4	69.0	1 pc.
TAG63TD1-1206-WH-1206-WH	63.5	38.1	70.0	1 pc.
TAG76TD1-1206-WH-1206-WH	63.5	50.8	70.0	1 pc.
TAG4TD1-1206-WH-1206-WH	65.0	20.0	70.0	1 pc.
TAG72TD1-1206-WH-1206-WH	69.9	31.8	76.0	1 pc.
TAG65TD1-1206-WH-1206-WH	76.2	36.5	82.0	1 pc.
TAG62TD1-1206-WH-1206-WH	76.2	50.8	82.0	1 pc.
TAG64TD1-1206-WH-1206-WH	88.9	36.5	95.0	1 pc.

All dimensions in mm. Subject to technical changes.





### Cable ties with integrated RFID transponder

#### T50RFID – Low Frequency (LF) and High Frequency (HF)

RFID cable ties provide an innovative solution for clear and rapid product identification. The nylon cable ties are equipped with an RFID transponder and therefore combine the numerous advantages of a regular cable tie with RFID technology. The ties are especially suited for securing, serialisation, tracking and identification of products in the areas of resource management, electrical inspection, inventory, distribution and rental services as well as for easy management of maintenance and repair routines.

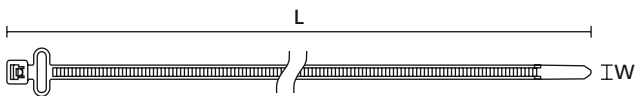
#### Features and benefits

- Flexible, contactless data communication
- Clear identification of objects through unique numbering
- Faster data management compared to paper solution
- More accurate documentation processes – prevention of human errors
- Robust and resistant to harsh environments and cleaning processes
- Low frequency (LF – 125 kHz) - Read only
- High frequency (HF – 13.56 MHz) - Rewritable




T50RFID – cable ties with RFID transponder.

<b>MATERIAL</b>	Polyamide 6.6 (PA66)	
<b>Frequency</b>	125 kHz (LF)	13.56 MHz (HF)
<b>Idle Temperature</b>	-40 °C to +85 °C	
<b>Operating Temperature</b>	-40 °C to +85 °C	-25 °C to +85 °C
<b>Flammability</b>	UL 94 V2	

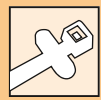


T50RFID, MCTRFID

PART DESCRIPTION	Frequency	Bundle Ø min.	Bundle Ø max.	Width (W)	Length (L)	
T50RFIDCLA-PA66-YE	125 kHz (LF)	1.5	50.0	4.6	200.0	225
T50RFIDCHA-PA66-YE	13.56 MHz (HF)	1.5	50.0	4.6	200.0	225
T50RFIDCHA-PA66-BK	13.56 MHz (HF)	1.5	50.0	4.6	200.0	225
T50RFIDCHA-PA66-BU	13.56 MHz (HF)	1.5	50.0	4.6	200.0	225

All dimensions in mm. Subject to technical changes.

 = Minimum Loop Tensile Strength for Cable Ties (Newton)



### Detectable cable ties with integrated RFID transponder

#### MCTRFID – Low Frequency (LF) and High Frequency (HF)

Metal content RFID cable ties offer an innovative solution for unique and fast product identification thanks to the fitting of a transponder directly to the cable tie. The metal content RFID cable ties are made with a percentage of a metallic trace element (magnet/X-Ray) and have been especially developed for industries where the potential for foreign body contamination is a problem. The ties can be used for securing, serialisation, tracking and identification of products e.g. in the food processing or pharmaceutical industry to support quality control effort.

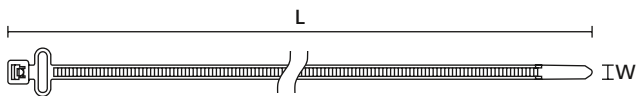
#### Features and benefits

- Magnetic or X-Ray detectable RFID cable ties (detection level depending on specific application)
- Total metal dispersion throughout the tie
- For safe handling of production processes
- Blue colour for easy visual detection
- Flexible, contactless data communication
- Clear identification of objects through unique numbering
- Faster data management compared to paper solution
- More accurate documentation processes – prevention of human errors
- Robust and resistant to harsh environments and cleaning processes
- Low frequency (LF – 125 kHz) - Read only
- High frequency (HF – 13.56 MHz) - Rewritable




MCTRFID – detectable cable ties (metal content) with RFID transponder.

<b>MATERIAL</b>	Polyamide 6.6, with metal particles (PA66MP)	
<b>Frequency</b>	125 kHz (LF)	13.56 MHz (HF)
<b>Idle Temperature</b>	-40 °C to +85 °C	
<b>Operating Temperature</b>	-40 °C to +85 °C	-25 °C to +85 °C
<b>Flammability</b>	UL 94 HB	

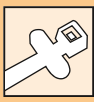


T50RFID, MCTRFID

PART DESCRIPTION	Frequency	Bundle Ø min.	Bundle Ø max.	Width (W)	Length (L)	
MCTRFIDCLA-PA66MP-BU	125 kHz (LF)	1.5	50.0	4.6	200.0	225
MCTRFIDCHA-PA66MP-BU	13.56 MHz (HF)	1.5	50.0	4.6	200.0	225

All dimensions in mm. Subject to technical changes.

 = Minimum Loop Tensile Strength for Cable Ties (Newton)



### Stainless steel ties with RFID transponder

#### MBTRFID – High Frequency (HF) and Ultra High Frequency (UHF)

Stainless steel RFID cable ties are fitted with a slide-on carrier for an ultra-high frequency (UHF) RFID transponder. These ties are ideal for product identification in all areas of harsh environment where high tensile strength and durability is of importance. The ties are especially suited for securing, serialisation, tracking and identification of products in the areas of resource management, electrical inspection, inventory, distribution and rental services as well as for easy management of maintenance and repair routines.

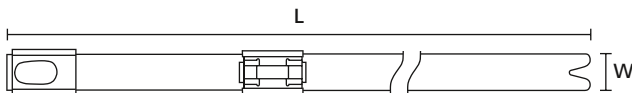
#### Features and benefits

- MBT stainless steel (316) tie complete with RFID transponder
- Especially suited for applications in harsh environments
- Patented non-releasable locking feature
- Flexible, contactless data communication
- Clear identification of objects through unique numbering
- Faster data management compared to paper solution
- More accurate documentation processes – prevention of human errors
- High frequency (HF – 13.56 MHz)
- Ultra high frequency (UHF – 869 MHz)
- Rewritable
- Standard colour red, black coating is also available as a special




MBTRFID – stainless steel RFID cable ties for product identification in harsh environments.


<b>MATERIAL</b>	Stainless Steel (SS316), Polyester (SP)	
<b>Frequency</b>	13.56 MHz (HF)	869 MHz (UHF)
<b>Idle Temperature</b>	-25 °C to +70 °C	-40 °C to +85 °C
<b>Operating Temperature</b>	-25 °C to +70 °C	-40 °C to +85 °C
<b>Flammability</b>	non-burning (except coating)	

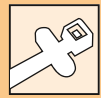


MBTRFID

PART DESCRIPTION	Frequency	Bundle Ø min.	Bundle Ø max.	Width (W)	Length (L)	
MBT8HFCRFID-SS316/SP-RD	13.56 MHz (HF)	17.0	50.0	7.9	201.0	1,020
MBT14HFCRFID-SS316/SP-RD	13.56 MHz (HF)	17.0	102.0	7.9	362.0	1,020
MBT20HFCRFID-SS316/SP-RD	13.56 MHz (HF)	17.0	152.0	7.9	521.0	1,020
MBT27HFCRFID-SS316/SP-RD	13.56 MHz (HF)	17.0	203.0	7.9	681.0	1,020
MBT33HFCRFID-SS316/SP-RD	13.56 MHz (HF)	17.0	254.0	7.9	838.0	1,020
MBT8HHFRFID-SS316/SP-RD	869 MHz (UHF)	17.0	50.0	7.9	201.0	1,020
MBT14HHFRFID-SS316/SP-RD	869 MHz (UHF)	17.0	102.0	7.9	362.0	1,020
MBT20HHFRFID-SS316/SP-RD	869 MHz (UHF)	17.0	152.0	7.9	521.0	1,020
MBT27HHFRFID-SS316/SP-RD	869 MHz (UHF)	17.0	203.0	7.9	681.0	1,020
MBT33HHFRFID-SS316/SP-RD	869 MHz (UHF)	17.0	254.0	7.9	838.0	1,020

All dimensions in mm. Subject to technical changes.

 = Minimum Loop Tensile Strength for Cable Ties (Newton)



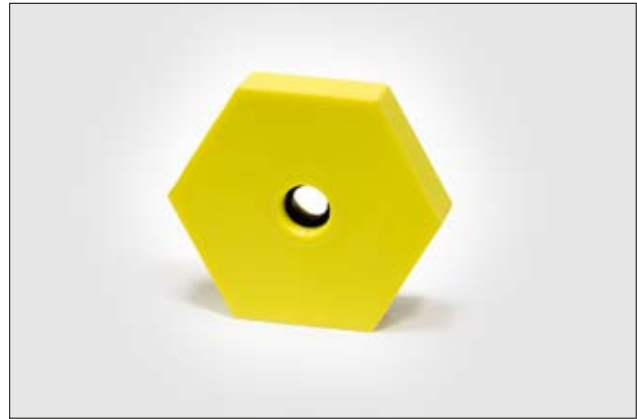
### Accessories with RFID transponder

#### HEXTAG – High Frequency (HF)

The HEXTAG made from PA66 is equipped with a transponder of HF frequency. The central hole allows a simple mounting in applications where a RFID cable tie solution is not suitable. All HellermannTyton RFID products can be used for securing, serialisation, tracking and identification of products in the areas of resource management, electrical inspection, inventory, distribution and rental services as well as for easy management of maintenance and repair routines.

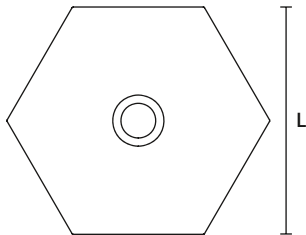
#### Features and benefits

- Can be fitted using a chosen fixing element through the centre hole
- Flexible, contactless data communication
- Clear identification of objects through unique numbering
- Faster data management compared to paper solution
- More accurate documentation processes – prevention of human errors
- Robust and resistant to harsh environments and cleaning processes
- High frequency (HF – 13.56 MHz)
- Rewritable
- Yellow colour for easy visual detection



RFID HEXTAG – for applications where a RFID cable tie solution is not suitable.

<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Frequency</b>	13.56 MHz (HF)
<b>Idle Temperature</b>	-40 °C to +85 °C
<b>Operating Temperature</b>	-40 °C to +85 °C
<b>Flammability</b>	UL 94 V2



HEXTAG (front view)



HEXTAG (side view)

PART DESCRIPTION	Frequency	Height (H)	Length (L)	Length (L2)
RFID HEXTAG-PA66-YE	13.56 MHz (HF)	8.0	33.4	38.39

All dimensions in mm. Subject to technical changes.



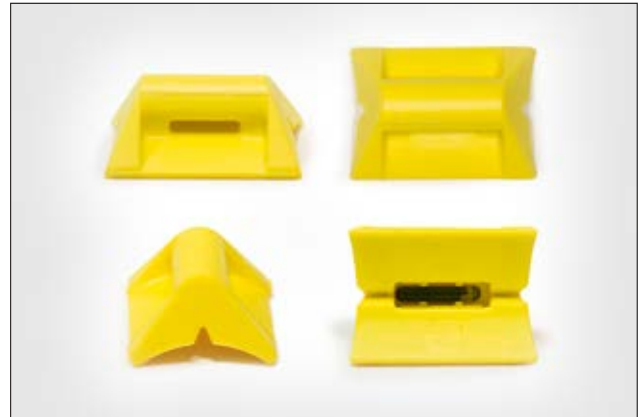
### Accessories with RFID transponder

#### CRADLE – High Frequency (HF)

The CRADLE equipped with a HF transponder can be used with standard HellermannTyton cable ties. All RFID products can be used for securing, serialisation, tracking and identification of products in the areas of resource management, electrical inspection, inventory, distribution and rental services as well as for easy management of maintenance and repair routines.

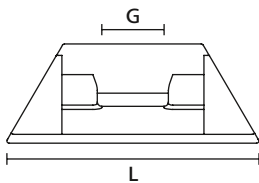
#### Features and benefits

- Cable tie slot to suit HellermannTyton's standard cable ties up to 7.9 mm wide
- Made from durable TPU and is suitable to be used in salt water conditions
- Flexible, contactless data communication
- Clear identification of objects through unique numbering
- Faster data management compared to paper solution
- More accurate documentation processes – prevention of human errors
- Robust and resistant to harsh environments and cleaning processes
- Date on RFID chip can be reprogrammed (HF) – no waste
- Yellow colour for easy visual detection
- Other colours and frequencies are available on request
- High frequency (HF – 13.56 MHz)
- Rewritable

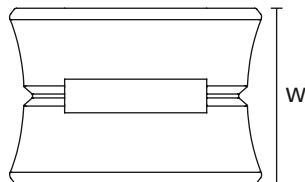


RFID CRADLE – can be used with a standard HellermannTyton cable tie.

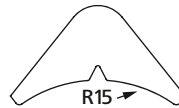
<b>MATERIAL</b>	Thermoplastic Polyurethane (TPU)
<b>Frequency</b>	13.56 MHz (HF)
<b>Idle Temperature</b>	-40 °C to +85 °C
<b>Operating Temperature</b>	-25 °C to +85 °C
<b>Flammability</b>	UL 94 V2



CRADLE (front view)



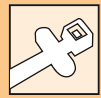
CRADLE (rear view)



CRADLE (side view)

PART DESCRIPTION	Frequency	Width (W)	Length (L)	Strap Width max. (G)
RFID CRADLE-TPU-YE	13.56 MHz (HF)	19.8	27.9	7.9

All dimensions in mm. Subject to technical changes.



### RFID Readers

#### RFID Handheld Reader

The HS9 handheld RFID readers are designed to read LF transponders and read/write to HF transponders fitted to HellermannTyton RFID cable ties and accessories. The readers act as an interface between the RFID transponder and computer systems or databases. Radio waves transmit the data from the RFID transponder to the reader, so that contactless reading and/or writing of information is possible. The HS9 reader is available for low frequency (LF, 125 kHz, read-only) and for high-frequency (HF, 13.56 MHz, read and write) transponders. RFID system solutions can make a significant contribution to improving the process reliability and quality in a variety of industries.

#### Features and benefits

- RFID handheld reader
- Write capability on request
- Low frequency (LF – 125 kHz)
- High frequency (HF – 13.56 MHz)
- USB, HID interface
- Wireless transmission via Bluetooth
- Operator convenience
- Lightweight and handy design
- Compatible with Android- and iOS-devices
- 9V alkaline battery included



RFID-HS9 – handheld readers for low frequency (LF) and high frequency (HF) transponders.

<b>Operating Temperature</b>	0 °C to +55 °C
<b>Interfaces</b>	USB, Bluetooth, HID
<b>L x W x H</b>	135.0 mm x 70.0 mm x 24.0 mm



PART DESCRIPTION	Frequency	Weight
<b>RFID-HS9BT-LF-ABS-BK</b>	125 kHz (LF)	0.165 kg
<b>RFID-HS9BT-HF-ABS-BK</b>	13.56 MHz (HF)	0.185 kg

Subject to technical changes.

#### RFID Desktop Reader

The RFID-DT22 desktop reader for stationary use has been designed to read and write from/to high frequency (HF 13.56 MHz) transponders fitted to HellermannTyton RFID cable ties and accessories. The reader acts as an interface to computer systems and databases. Radio waves transmit the data from the transponder to the reader, so that contactless reading of information is possible. RFID system solutions can make a significant contribution to improving the process reliability and quality in a variety of industries.

#### Features and benefits

- RFID desktop reader
- High frequency (HF – 13.56 MHz)
- For reading and writing of data
- USB, HID interface
- Operator convenience
- Lightweight and handy design



RFID-DT22 – desktop reader for high frequency (HF) transponders.

<b>Operating Temperature</b>	-25 °C to +60 °C
<b>Interfaces</b>	USB, HID
<b>L x W x H</b>	110.0 mm x 110.0 mm x 30.0 mm



PART DESCRIPTION	Frequency	Weight
<b>RFID-DT22-HF-ABS-BK</b>	13.56 MHz (HF)	0.2 kg

Subject to technical changes.



### Tamper-evident security labelling, thermal transfer

#### Helatag 1208 (White), fragmenting

These special labels are optimally suited for tamper-proof identification of valuable inventory items as well as a security and guarantee seal for components and housings.

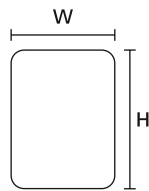
#### Features and benefits

- Security label
- Fragments on removal
- Designed weak spots makes label removal time consuming



Helatag 1208 – a secure way of identifying if an asset label has been tampered with.

<b>MATERIAL</b>	Type 1208, Acetate foil (CA), white (WH), tamper-proof
<b>Operating Temperature</b>	-40 °C to +150 °C
<b>Curing Temperature</b>	from +4 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil</b>	56 µm
<b>Chem. Material Properties</b>	Resistant to oils, water and solvents.
<b>Recommended Ribbon Type</b>	TT822OUT
<b>Thermal Transfer Printer</b>	TT430, TT4030



PART DESCRIPTION	Width (W)	Height (H)	Width of Liner (WL)	Labels per Row
TAG71TD6-1208-WH-1208-WH	12.7	11.1	101.6	6 pcs.
TAG15TD3-1208-WH-1208-WH	25.4	12.7	85.1	3 pcs.
TAG27TD2-1208-WH-1208-WH	38.1	19.1	85.1	2 pcs.
TAG67TD2-1208-WH-1208-WH	38.1	31.8	85.1	2 pcs.
TAG69TD2-1208-WH-1208-WH	40.6	22.9	89.0	2 pcs.
TAG73TD1-1208-WH-1208-WH	50.8	25.4	55.0	1 pc.
TAG66TD1-1208-WH-1208-WH	50.8	36.5	56.8	1 pc.

All dimensions in mm. Subject to technical changes.





### Tamper-evident security labelling, thermal transfer

#### Helatag 951 (Silver, Transparent), 2 parts

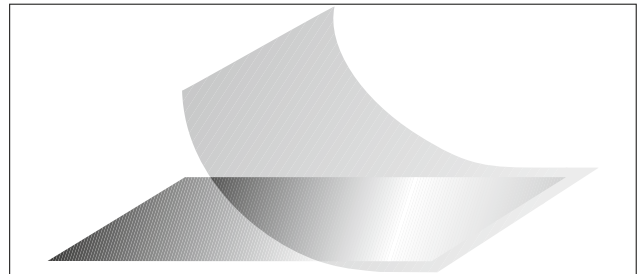
These labels are primarily used for tamper-proof type label applications in the automotive and electrical industries. They are ideally suited for labelling flat surfaces, e.g. on vehicle frames and can be used as a replacement for conventional aluminium plates. The transparent protective laminate guarantees good resistance to dirt and abrasion and can be easily applied by hand.

#### Features and benefits

- 2-part label, delivered on reel together with the protective label
- Designed for highly visible and rugged identification on trucks and trailers
- Tamper-evident, when pulled off a checkered pattern will be visible as evident
- High durability in outside use
- Thickness of 951A label 36 µm and 951B laminate 25 µm
- Particularly suitable as type label for vehicles

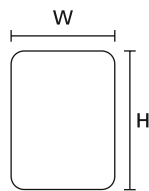


Type plate of an HGV trailer with protective laminate.



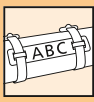
The printed silver type plate (Mat. 951A) is protected by the transparent laminate (Mat. 951B).

<b>MATERIAL</b>	Type 951, Polyester (PET), silver (SR) and Polyester (PET), transparent (CL)
<b>Operating Temperature</b>	-40 °C to +150 °C
<b>Curing Temperature</b>	from 0 °C (label), from +4 °C (laminate)
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil</b>	36 µm, 25 µm
<b>Chem. Material Properties</b>	Resistant to gasoline, mineral oils, greases, aliphatic solvents, weak acids, salts and alkalis.
<b>Recommended Ribbon Type</b>	TT822OUT
<b>Thermal Transfer Printer</b>	TT430, TT4030



PART DESCRIPTION	Width (W)	Height (H)	Width of Liner (WL)	Labels per Row
TAG25.4-12.7TD1-951 SET-951-ML	25.4	12.7	31.5	1 pc.
TAG50.8-25.4TD1-951 SET-951-ML	50.8	25.4	56.8	1 pc.
TAG63.5-50.8TD1-951 SET-951-ML	63.5	50.8	69.5	1 pc.
TAG101-74TD1-951 SET-951-ML	101.6	74.0	107.0	1 pc.
TAG101-160TD1-951 SET-951-ML	101.6	160.0	105.8	1 pc.

All dimensions in mm. Subject to technical changes.



### Stainless steel embossing system

#### M-BOSS Compact

M-BOSS Compact is a quiet easy-to-use metal plate embossing printer with a small production footprint. It is simple to install and operate and only needs a standard electrical supply and a PC. Texts are created with Tagprint Pro 3.0. Simply open the easy to use program to create print lists. Improved cooling system now ensures a continuous operation between 8-10 hours.

Marker plates are attached to pipes and cables using 4.6 mm width MBT cable ties and a MK9SST hand tool.

#### Features and benefits

- Small and easy to use metal plate embosser
- Quiet embossing mechanism suited to production and office environments
- Embossed characters have been tested to withstand 1.5 million strikes each
- Improved cooling systems allows 8-10 hours continuous printing
- Use Tagprint Pro 3.0 labelling software with pre-loaded templates to simplify print jobs
- 45 piece character set as standard - can be upgraded to 60 characters
- Letters: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
- Numbers: 0 1 2 3 4 5 6 7 8 9
- Symbols: & - / . , ' Ä, Ö, Ü
- Other symbols available on request



*A quiet, durable, and easy to use metal plate embossing printer.*

<b>Print Method</b>	Embossing
<b>Power Supply</b>	AC 110V-240V, 45/65 Hz, 1.5A-3A
<b>Cycle Time</b>	1 second per character
<b>Interfaces</b>	USB 2.0
<b>System Requirements</b>	MS Windows XP SP3, Vista SP1, Win 7, 8, 10
<b>Dimensions W x H x D</b>	480 mm x 353 mm x 570 mm
<b>Weight</b>	41.0 kg



**For problem-free printing we recommend TagPrint Pro, page 286.**



#### PART DESCRIPTION

##### M-BOSS Compact-BU

Subject to technical changes.



**1.5 million strikes per character without maintenance**

### Stainless steel embossing system

#### M-BOSS Compact including Organiser

The M-BOSS Compact with included Organiser system gives the added advantage of a self-contained storage system within the print unit.

The organiser is a 10 container carousel storage system that can be programmed to hold either an individual or a pre-defined set of marker plates. This means that users have the flexibility to manage how they work with the printed output. A simple input screen on the top of the machine is used to specify the quantity per container within the carousel. The carousel drawer when opened extends 430 mm from the front of the printer.

#### Features and benefits

- Ability to manage how the printed marker plates are organised
- Carousel system under the printer has 10 removable marker plate containers
- Flexible output means all marker plates or a set amount can be sent to each container
- Carousel system will hold up to 400 markers
- Each container can hold 40 marker plates



*A simple solution to managing your printer output.*

#### PART DESCRIPTION

##### M-BOSS Compact Organiser-BU

Subject to technical changes.



### Stainless steel printing system

#### M-BOSS Compact Markers

M-BOSS Compact Markers are used in all areas where severe mechanical or chemical conditions occur e.g. offshore industry, marine engineering, petrochemical industry, mining, underground or on radio and cellular masts where mark permanence is critical.

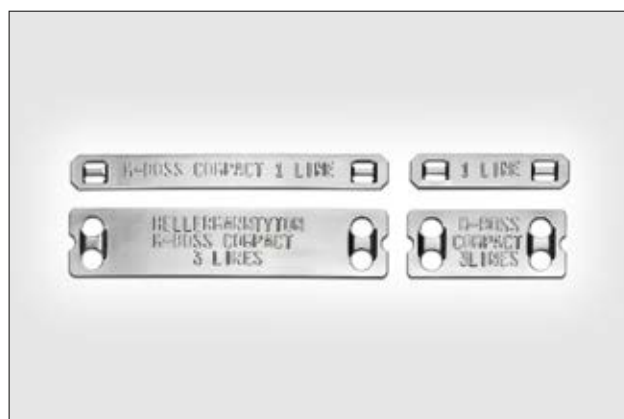
The raised surface of the embossed print ensures that the text remains visible even with dirt, grease, and paint cover the marker. The physical characteristics of the metal and the height of the embossed mark allows users to apply a stiff or metallic brush to the surface and remove excess layers of paint or grease without damaging the integrity of the text.

#### Features and benefits

- Raised marking ensure text visibility even when covered in dust, debris, grease and oil
- Stainless steel grade SS316 is suited for use in harsh environments
- Marker plates are designed for use with stainless steel cable ties with a 4.6 mm strap width
- Apply ties with a MK9SST

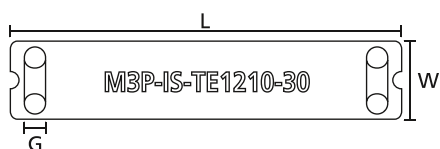


Marker plates designed to survive the harshest environments.

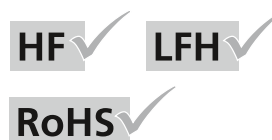


A range of metal plate sizes to suit your needs.

<b>MATERIAL</b>	Stainless Steel (SS316)
<b>Operating Temperature</b>	-80 °C to +538 °C

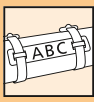


MBML



PART DESCRIPTION	Strap Width max. (G)	Number of lines	Characters per line	Number of characters	Width (W)	Length (L)
MBML10X45-SS316-ML	4.6	1	8	8	10.0	44.5
MBML10X90-SS316-ML	4.6	1	23	23	10.0	89.5
MBML20X45-SS316-ML	4.6	3	8	24	20.0	44.5
MBML20X90-SS316-ML	4.6	3	23	69	20.0	89.5

All dimensions in mm. Subject to technical changes.



### Identification plates for marking cable bundles

#### HFTP PEEK for high temperature applications

PEEK tags have been specifically designed for use in high temperature environments. The HFTP tags are applied to cables and harness assemblies with cable ties, and are also suitable for retrofit purposes. The material has been conditioned for printing with a laser beam and gives both excellent print definition and print durability.

#### Features and benefits

- For high temperature applications from -55°C up to +240°C
- Laser beam printable
- Identify cable or cable bundles
- Available in beige
- Fixed with PEEK cable ties

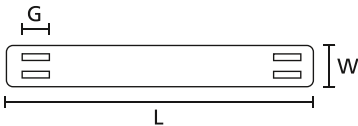


A clearly better way of identifying cables and pipes.

<b>MATERIAL</b>	Polyetheretherketone (PEEK)
<b>Operating Temperature</b>	-55 °C to +240 °C
<b>Flammability</b>	UL 94 V0



Other dimensions are available on request.



HFTP48

PART DESCRIPTION	Length (L)	Width (W)	Strap Width max. (G)
HFTP48-PEEK-BGE	48.0	9.5	3.4

All dimensions in mm. Subject to technical changes.



### Protective laminates, thermal transfer

#### Helatag 323 (Transparent), high temperature

Protective laminates are used for the additional protection of printed type labels, for example in the automotive sector and for other outdoor installations. The protective laminates are also used if the contours of a label, for example on glass surfaces or backlit objects, should not be visible (no-label look).

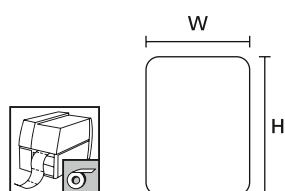
#### Features and benefits

- High temperature transparent material
- Ideal as a protective laminate or as a printed label
- The barrier label needs to overlap the covered label
- Survives 5 years external weathering in central European climate
- Provides additional protection against chemicals for the underlying label



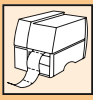
Helatag protective laminates.

<b>MATERIAL</b>	Type 323, Polyvinylidene Fluoride (PVDF), transparent (CL)
<b>Operating Temperature</b>	-40 °C to +140 °C, intermittent +160 °C
<b>Curing Temperature</b>	from +10 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil</b>	25 µm
<b>Chem. Material Properties</b>	Excellent resistance against water, UV radiation, weather influence and solvents based on petroleum.
<b>Recommended Ribbon Type</b>	TT822OUT
<b>Thermal Transfer Printer</b>	TT430, TT4030



PART DESCRIPTION	Width (W)	Height (H)	Width of Liner (WL)	Labels per Row
TAG0638TL2-323-CL-323-CL	43.2	11.4	94.9	2 pcs.
TAG1351TL1-323-CL-323-CL	55.9	17.8	62.0	1 pc.
TAG2551TL1-323-CL-323-CL	55.9	30.5	62.0	1 pc.
TAG3863TL1-323-CL-323-CL	68.6	43.2	75.0	1 pc.

All dimensions in mm. Subject to technical changes.



### Labelling software

#### TagPrint Pro 3.0

TagPrint Pro 3.0 is the easy-to-use label/marker design and printing software in the HellermannTyton printing. Compatible with Windows® 7, Vista and XP as well as future operating systems such as Windows® 8, TagPrint Pro 3.0 delivers an individualised, task-based experience that enables a user to easily develop print templates including bar codes, text and graphics to meet numerous applications. TagPrint Pro 3.0 streamlines labeling production by offering a user full control over the importing or entering of data, advanced security features, the option to group label designs under a single file name or job number, and the ability to batch print to either one or more printers at the same time.

#### Features and benefits

- Easy and intuitive label/marker template design
- WYSIWYG
- Print to multiple printers at one time
- Save jobs in a queue and print all at one time with "Print later" function
- Connect or import directly from other databases including Excel, Access, text files
- Text, graphics and barcode functionalities
- Full text editing functions
- Inverse, flip, and mirror image options for graphic images
- Print log available



*The easy to use software speeds up production of markers, labels and identification tags.*

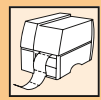
<b>System Requirements</b>	TagPrint Pro Standalone/TagPrint Pro Client PC running Microsoft Windows XP SP3, Vista SP1 or later, Windows 7, 8, 10 .NET Framework 4 512 MB RAM (XP SP3) 1.0 GB RAM (Vista/Windows 7, 8, 10) 500 MB available hard disk space.
----------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------



#### PART DESCRIPTION

**TagPrint Pro 3.0 EMEA-PL-WH**

Subject to technical changes.



## Thermal transfer printer

### TT430, Small to medium volume printing

The TT430 thermal transfer printer is perfect for printing on HellermannTyton materials such as self-adhesive labels, shrinkable tubing and identification tags. Thanks to its low weight and compact construction, the TT430 integrates seamlessly into any workstation. It is easy to use due to its intuitive touch display and clear status messages which can be shown in multiple languages. The optional cutter and perforator make this printer ideal for a wide range of applications. 300 dpi resolution ensures that barcodes, warning symbols, logos and text are as sharp as they can be.

#### Features and benefits

- Medium volume single sided printing
- Print on HellermannTyton cable markers and labels
- Uses standard ribbons
- Barcodes: standard and 2D
- Print speed up to 125 mm/s (30 mm/s recommended for Ladder Style products and tubing)
- Adjustable label sensor
- Multiple language selection
- Windows drivers: 32/64 bit for Windows XP, Windows Vista, Windows 7, 8, 10



TT430 thermal transfer printer.

<b>Print Method</b>	Thermal transfer
<b>Print Head Type</b>	300 dpi, flat type
<b>Print Speed</b>	up to 125 mm/s
<b>Max. Print Width</b>	106 mm
<b>Label Height Max (metric)</b>	1,000 mm
<b>Interfaces</b>	USB 2.0, Ethernet 10/100 Base T
<b>Supported Barcodes, Printer</b>	Standard and 2D
<b>Printer Memory</b>	64 MB RAM
<b>Dimensions W x H x D</b>	253 mm x 189 mm x 322 mm
<b>Weight</b>	4 kg

#### PART DESCRIPTION

TT430-GY

Subject to technical changes.

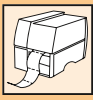


## Accessories for Thermal Transfer Printer TT430

PART DESCRIPTION	Description
<b>S430 Cutter-GY</b>	Cutter for TT430
<b>P430 Perforator-GY</b>	Perforator for TT430
<b>TT External Reel Holder-GY</b>	External Reel Holder
<b>TT430 300dpi Printhead-BK</b>	Printhead for TT430
<b>TT430 Print Roller-BK</b>	Print Roller for TT430

Subject to technical changes.





## Thermal transfer printer

### TT4030, High volume printing

HellermannTyton's premium printer TT4030 is specifically designed for medium and heavy duty industrial applications. The 300 dpi print head fulfils all standard requirements for printing bar codes, warning signs, logos and written information. Optional premium quality accessories such as a perforator and cutter are designed to work seamlessly with the printer and will suit the most demanding needs.

Printing high definition graphics such as 2D barcodes, standard bar codes, numbers and text on adhesive labels, thermo plastics such as heat shrink and cable markers (Tiptags) is easily done.

A colour LCD Touchscreen with modern user interface helps intuitive operation.

Creation of professional looking industrial identification is simplified by the use of HellermannTyton's label creation software TagPrint Pro 3.0.

Whether in stand-alone mode, as a PC application or in a network - the robust TT4030 printers can meet every requirement.

### Features and benefits

- High volume single sided printing
- Print on HellermannTyton heatshrink tubing, cable markers and labels
- Uses standard 300 m ribbons
- Barcodes: standard and 2D
- Print speed up to 300 mm/s (30 mm/s recommended for ladder style products and tubing)
- Multiple language selection
- Windows drivers: 32 / 64 bit for Windows XP, Windows Vista, Windows 7, 8, 10



TT4030 thermal transfer printer for high volumes.

<b>Print Method</b>	Thermal transfer
<b>Print Head Type</b>	300 dpi, flat type
<b>Print Speed</b>	up to 300mm/s
<b>Max. Print Width</b>	105.70 mm
<b>Label Height Max (metric)</b>	2,000 mm
<b>Interfaces</b>	RS232 C, USB 2.0, Ethernet 10/100 Base T
<b>Supported Barcodes, Printer</b>	Standard, 2D
<b>Printer Memory</b>	256 MB RAM
<b>Dimensions W x H x D</b>	252 mm x 288 mm x 460 mm
<b>Weight</b>	10 kg



### PART DESCRIPTION

TT4030-MET-GY

Subject to technical changes.

## Thermal Transfer Printer Accessories

PART DESCRIPTION	Description
<b>P4030 Perforator-DIV-GY</b>	Perforator for TT4030
<b>TT4030 Printhead-DIV-GY</b>	Printhead for TT4030
<b>S4030 Cutter-DIV-GY</b>	S4030 Cutter for TT4030
<b>TT External Reel Holder-GY</b>	External Reel Holder
<b>Printer Roller TT4030/TT4000+-DIV-GN</b>	Printer Roller for TT4030/TT4000+

Subject to technical changes.



## Thermal transfer ribbons for

### Adhesive Labels

The thermal transfer print technology is based on heating up certain dots in the print head. This transfers the ink very precisely from the ribbon onto the surface of the printed material. All HellermannTyton ribbons consist of a special resin composition to maximise print performance. In combination with HellermannTyton printers the ribbons ensure the highest of print quality on all HellermannTyton thermal printable identification materials.

#### Features and benefits

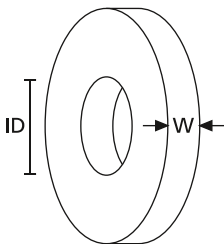
- Thermal transfer ribbons for highest quality and performance of printed labels
- Ribbons are specifically designed to maximise print performance for the recommended material



Ribbons for printing on adhesive labels.

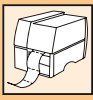


**ID:** The standard inside core diameter is 25.4 mm.



PART DESCRIPTION	Recommended Material	Width (W)
TT822OUT-PET-BK	323/823/880/892/951/1203/1204/1206/1208/1210/1211/1213/1216/1220/1221	60.0
	323/823/880/892/951/1203/1204/1206/1208/1210/1211/1213/1216/1220/1221	110.0
TT932DOUT 85MM-BK	323/1209	85.0
TT932DOUT 110MM-BK	323/1209	110.0

All dimensions in mm. Subject to technical changes.



### Thermal printer ribbons for

#### Heatshrink and Tiptags

The thermal transfer print technology is based on heating up certain dots in the print head. This transfers the ink very precisely from the ribbon onto the surface of the printed material. All HellermannTyton ribbons consist of a special resin composition to maximise print performance. In combination with HellermannTyton printers the ribbons ensure the highest of print quality on all HellermannTyton thermal printable identification materials.

#### Features and benefits

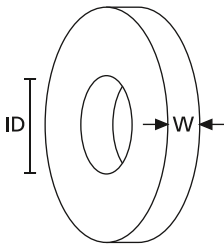
- Thermal transfer ribbons for high quality print results on heat shrink tubing and Tiptag identification tags
- Ribbons are specifically designed to maximize print performance for the recommended material



Ribbons for printing on tubes and Tiptags.



**ID: The standard inside core diameter is 25.4 mm.**



PART DESCRIPTION	Recommended Material	Width (W)
<b>TTDTHOUT 60MM-PET-BK</b>	TCGT/TULT(DS)/TLFX(DS)/TDRT(DS)/TLFD DS/TIPTAG	60.0
<b>TTDTHOUT 100MM-PET-BK</b>	TCGT/TULT(DS)/TLFX(DS)/TDRT(DS)/TLFD DS/TIPTAG	100.0
<b>TTRHTBK 70MM-BK</b>	THTT/THTT DS/TAGHT	70.0
<b>TTRHTBK 100mm-BK</b>	THTT/THTT DS/TAGHT	100.0
<b>TTRHTWH 70mm-WH</b>	THTT/THTT DS/TAGHT	70.0
<b>TTRHTWH 100mm-WH</b>	THTT/THTT DS/TAGHT	100.0

All dimensions in mm. Subject to technical changes.

# Configure this! Modular routing clips and clamps.

MOC clips and LOC clamps combine versatility, durability and vibration-resistance. Over 300 configurations with 12 standard MOC parts give you the freedom to configure perfect fastenings for your hoses and harnesses.

Brochure available here:  
[HellermannTyton.com/cc-gac](https://www.hellermann-tyton.com/cc-gac)

**MADE FOR REAL** 







### Automatic Cable Tying System

<b>Automatic bundling up to Ø 20 mm</b>	
Autotool 2000 CPK	294
Accessories for Autotool 2000 CPK	295
Cable ties for Autotool 2000 CPK	296
<b>Waste-free bundling up to Ø 80 mm</b>	
Autotool System 3080	297
Accessories for Autotool System 3080	298
Cable ties for Autotool System 3080	299
<b>For automatic cable tying systems</b>	
Edge clips	300
Bundling clips	301
Fir tree clips	301



### Application Tooling for Cable Ties

<b>Product Selection</b>	
Tool Overview for Cable Ties	302, 304
Flowchart for optimum tool selection	303, 304
<b>Technical Information</b>	
How to use a cable tie tool	305, 306
<b>Manual tensioning tool for cable ties with low profile head</b>	
MK10-SB	307
<b>Manual tensioning tool, simple version</b>	
MK20, MK21	307
<b>Manual tensioning tool metal housing</b>	
MK3SP	308
<b>Pneumatic tensioning tool metal housing</b>	
MK3PNSP2	308
<b>Manual tensioning tool plastic housing</b>	
EVO7, EVO7SP	310
EVO9, EVO9HT, EVO9SP	310
MK7HT	311
<b>Pneumatic tensioning tool plastic housing</b>	
MK7P	312
MK9P	313



<b>Manual tensioning tool for KR-Series</b>	
KR6/8	314
<b>Pneumatic tensioning tool for KR8-Series</b>	
KR8PNSE	314
<b>Manual tensioning tool for metal ties MBT-Series</b>	
MK9SST	315
KST-STG200	316
<b>Pneumatic tensioning tool for metal ties MBT-Series</b>	
MK9PSST	315
<b>Manual tensioning tool for metal ties MBT-, MLT- and AMT-Series</b>	
HDT16	316
<b>Manual tensioning tool for metal ties MST-Series</b>	
MST6	317
MST9	317
<b>Manual tensioning tool for metal ties MLT-Series</b>	
MTT4	318



## Application Tooling for Non Shrinkable Tubing

<b>Three-pronged pliers for sleeves and grommets</b>	
NA	319
VA2.5/5 - reinforced	320
K, S, SS	321



## Application Tooling for Braided Sleeves

<b>Helagaine Braided Sleeving</b>	
HSG0 hot cutting tool	322



### Automatic bundling up to Ø 20 mm

#### Autotool 2000 CPK

The Autotool 2000 CPK is an electrically operated and automated cable tying system. It has been developed to speed up bundling processes and to make the production more efficient. Besides the high speed bundling, this cable tying system is characterized by its simple operation and user-friendly ergonomics. The Autotool 2000 CPK offers a display for the settings and user information in 20 languages. One main feature of the Autotool 2000 CPK is the software "HT Data Management CPK".

This feature enables the easy parameterization of the tool for customers applications. The parameterization can easily be carried out via computer. Additionally the "HT Data Management CPK" offers an export function for the saved manufacturing data as well as further service functions. Therefore it ensures a consistent documentation for every binding process through the tool. The Autotool 2000 CPK is ideally suited for handling high volume applications in wire harness facilities, automotive and industrial companies and in the packaging sector. With either the Bench mount kit CPK or the Overhead suspension CPK, the Autotool 2000 CPK is suitable for both stationary and flexible applications.

By using the optional Power pack CPK with control box the Autotool 2000 CPK can be integrated into fully automated production lines through a serial interface. Due to the removable handle less assembly space is needed.

Bandoleers of 50 cable ties as well as reels of 3,500 cable ties can be used.

#### Features and benefits

- Electrically operated cable tying system
- Power supply through Power pack CPK - Input: 100-240 V a.c., 50/60 Hz; Output: 25.2 V d.c., max. 150 W
- Integration into fully automated production lines (Power pack CPK with control box necessary)
- Cycle time 0.8-1.2 sec. depending on quality and force
- Stationary and flexible use with devices possible
- HT Data Management CPK software (included) - for extensive data evaluation and monitoring of the tensioning process
- User-friendly menu in various languages included
- Process-reliable, constant and reproducible bundling and cutting up to Ø 20 mm
- Removable handle for space-saving integration

PART DESCRIPTION	Description
Autotool 2000 CPK-BK	Autotool 2000 CPK
Power pack CPK-GY	Power pack CPK
Power pack CPK with control box-GY	Power pack CPK with control box

Subject to technical changes.



Autotool 2000 CPK.



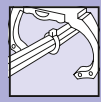
HT Data Management CPK - software for Autotool 2000 CPK.



Power pack CPK for Autotool 2000 CPK.

Power Supply	Electronically operated
Cycle Time	0.8-1.2 sec. depending on quality and force
Weight	1.8 kg
Tension Force	Adjustable





### Automatic bundling up to Ø 20 mm

#### Accessories for Autotool 2000 CPK

#### Features and benefits

- Bench mount kit CPK for stationary use
- Overhead suspension CPK for flexible use
- Wire retainer HH20 raises the bundle off the harness board at optimum height and allows the operator to eliminate handling the bundle when applying ties
- Force measurement device CPK to measure the linear tensile force of the Autotool 2000 CPK. Available with grip mount or robot adapter



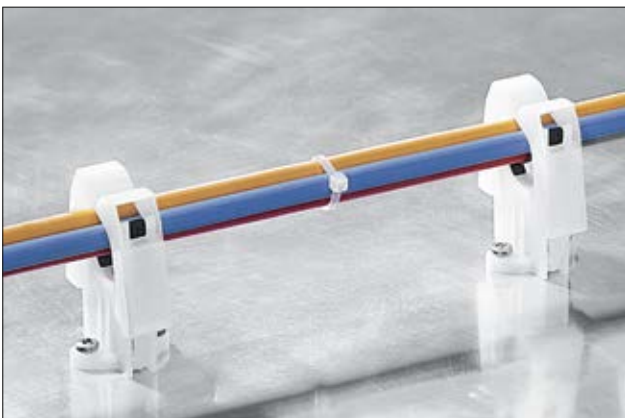
Bench mount kit CPK with foot pedal (also shown: Autotool 2000 CPK, Power pack CPK and T18RA3500).

PART DESCRIPTION	Description
Bench mount kit CPK-ML	Bench mount kit CPK
Force measurement device with grip mount CPK-ML	Force measurement device with grip mount CPK
Force measurement device with robot adapter CPK-ML	Force measurement device with robot adapter CPK
HH20-PA66-NA	HH20 wire retainer
Overhead suspension CPK-ML	Overhead suspension CPK

Subject to technical changes.



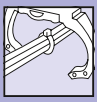
Overhead suspension CPK (also shown: Autotool 2000 CPK, Power pack CPK and T18RA3500).



Harness board accessory HH20.



Application with the Bench mount kit CPK.



### Automatic bundling up to Ø 20 mm

#### Cable ties for Autotool 2000 systems

The inside-serrated cable ties are designed for use specifically in the automatic cable tying systems. The Autotool 2000 CPK is ideally suited for handling high volumes applications in wire harness facilities, automotive and industrial companies as well as the packaging sector.

#### Features and benefits

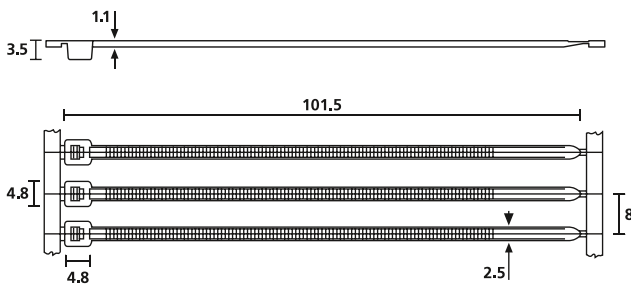
- Heat stabilised cable ties (PA66HS) in all colours for temperatures up to +125 °C
- Available in bandoleers of 50 cable ties or reels of 3,500 cable ties
- Repetitive tension on the bundles
- Easily recyclable



Cable ties for Autotool 2000 systems.




Please find the corresponding Bundling Clips on page 300.



Bandoleer T18RA



Material specification please see page 22.

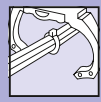
PART DESCRIPTION	Bundle Ø max.	 N
T18RA50-PA66HSW-BK	20.0	80
T18RA3500-PA66HSW-BK	20.0	80
T18RA3500-PA46-NA	20.0	80
T18RA50-PA66HS-NA	20.0	80
T18RA3500-PA66HS-NA	20.0	80

All dimensions in mm. Subject to technical changes.

Halogen-free according to the interdictions of the GADSL list and compulsory registration of the SVHC list.



= Minimum Loop Tensile Strength for Cable Ties (Newton)



### Waste-free bundling up to Ø 80 mm

#### Autotool System 3080

The Autotool System 3080 is an automated and electric cable tying system. It has been developed to speed up bundling processes and operates waste-free.

The advantage of three quick-changeable jaw sizes allows the Autotool System 3080 to adapt perfectly to different bundle diameters up to Ø 80 mm.

With either the Bench mount kit 3080 or the Overhead suspension 3080, the Autotool System 3080 is suitable for both stationary and flexible applications. The Autotool System 3080 can also be integrated into fully automated production lines.

Custom designed jaws are available to enable bundling of foot parts on production lines.

#### Features and benefits

- Electrically operated cable tying system (Power pack 3080 necessary)
- Power pack 3080 - Input: 240/150 V a.c., 50/60 Hz; Output: 48 V d.c., max. 150 W
- High quality, waste-free bundling up to Ø 80 mm with flush cut off
- Jaws with diameters of 30, 50 and 80 mm - included in delivery
- Cycle time 1.1-2.4 seconds depending on bundle diameter
- Integration into Bench mount kit 3080 or Overhead suspension 3080 possible
- Integration into fully automated production lines possible
- Foot part bundling with custom jaw design Ø 50 mm



Autotool System 3080.



Autotool System 3080 with three different jaws - to optimize the cycle time for different bundle diameters.

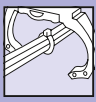
PART DESCRIPTION	Description
ATS3080-BK	Autotool System 3080
Power pack 3080-MET/PL-GY	Power pack 3080

Subject to technical changes.



Power pack 3080.

Power Supply	Electrically operated
Cycle Time	1.1-2.4 sec. depending on bundle diameter
Weight	1.9 kg
Tension Force	Adjustable



### Waste-free bundling up to Ø 80 mm

#### Accessories for Autotool System 3080

#### Features and benefits

- Bench mount kit automatic 3080 in fully automated production lines
- Bench mount kit horizontal 3080 for horizontal use in fully automated production lines
- Bench mount kit 3080 for stationary use, foot pedal included
- Overhead suspension 3080 for flexible use



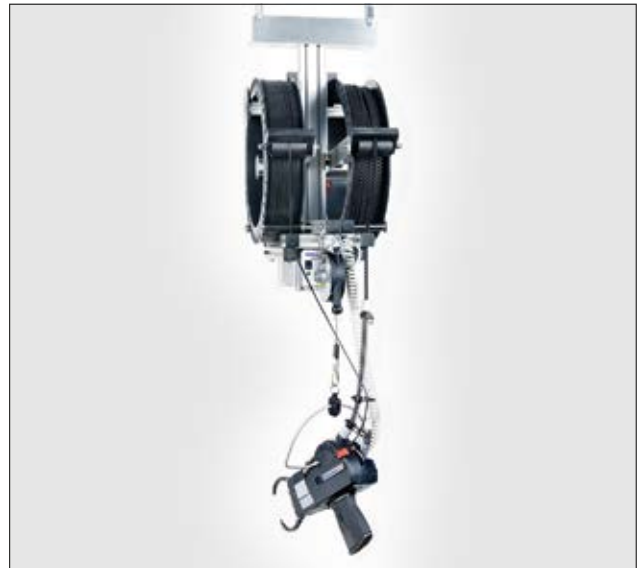
Bench mount kit 3080 with foot pedal (also shown: Autotool System 3080, Power pack 3080 and consumables).



Optional: Bench mount kit 3080 with table board.



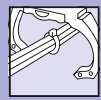
Packaging application with Bench mount kit horizontal 3080.



Overhead suspension 3080 (also shown: Autotool System 3080 and consumables).

PART DESCRIPTION	Description
<b>Bench mount kit automatic 3080-ML</b>	Bench mount kit automatic 3080
<b>Bench mount kit horizontal 3080-ML</b>	Bench mount kit horizontal 3080
<b>Bench mount kit 3080-ML</b>	Bench mount kit movable 3080
<b>Overhead suspension 3080-ML</b>	Overhead suspension 3080

Subject to technical changes.



### Waste-free bundling up to Ø 80 mm

#### Cable ties for Autotool System 3080

The outside serrated strap is perfectly suitable for sensitive surfaces and can be used for bundling and fixing of cables, pipes and hoses, as well as for bag sealing.

The materials are particularly appropriate for high volume bundling applications in cable assembly, automotive, industrial and packaging applications.

#### Features and benefits

- Innovative two-piece consumables: closure and strap
- Outside serrated strap protects the bundle
- Available on reels of 500 m strap and 5,000 pcs. closures



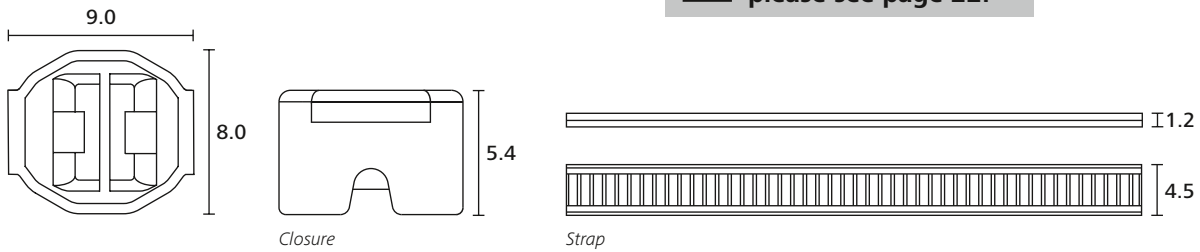
Closures and strap for Autotool System 3080.




Please find the corresponding Bundling Clips on page 300.



Material specification please see page 22.



PART DESCRIPTION	Description	Bundle Ø max.	
<b>Closures Black AT53080-PA66HSUV-BK</b>	Closures Black AT53080	80.0	225
<b>Closures Natural AT53080-PA66HSUV-NA</b>	Closures Natural AT53080	80.0	225
<b>Strap Black AT53080-PA66HIRHSUV-BK</b>	Strap Black AT53080	80.0	225
<b>Strap Natural AT53080-PA66HIRHSUV-NA</b>	Strap Natural AT53080	80.0	225

All dimensions in mm. Subject to technical changes.



= Minimum Loop Tensile Strength for Cable Ties (Newton)



### Automatic bundling

#### Edge Clips for Automatic Cable Tying Systems

Clips to fix cables and harnesses in the automotive and white goods industries.

#### Features and benefits

- Optimized for use automatic cable tying systems
- Easy to apply
- The fixing elements can be tied automatically with Autotool 2000 family and Autotool System 3080



**Material specification**  
please see page 22.



*Fixing elements for automatic bundling.*

PART DESCRIPTION	Drawing	Panel Thickness
ATSEC38-PA66HIRHS-BK		1.5 - 4.0
ATSEC37-PA66HIRHS-BK		1.5 - 4.0
ATSEC35-PA66HIRHS-BK		1.5 - 4.0
ATSEC36-PA66HIRHS-BK		1.5 - 4.0

All dimensions in mm. Subject to technical changes.



### Automatic bundling

#### Bundling Clips for Automatic Cable Tying Systems

PART DESCRIPTION	Drawing	Panel Thickness	Hole Ø (FH)
ATSBCEC35-PA66HIRHS-BK		1.5 - 4.0	-
ATSBCSFT6.5-PA66HIRHS-BK		2.3 - 3.3	6.3 - 6.7
ATSBCSFT6.5-MD-PA66HIRHS-BK		2.0 - 3.0	6.3 - 6.7
ATSBCEC36-PA66HIRHS-BK		1.5 - 4.0	-
ATSBCEC37-PA66HIRHS-BK		1.5 - 4.0	-
ATSBCT6LG-PA66HIRHS-BK		0.6 - 5.1	6.3 - 7.0
ATSBCEC38-PA66HSW-BK		1.5 - 4.0	-
ATSBCKSFT6.5-PA66HIRHS-BK		0.7 - 1.3	6.3 - 6.7
ATSBCKSFT6.5-PA66HIRHS-BK		1.7 - 2.3	6.3 - 6.7
ATSBKOWSFT6.5-PA46-GY		2.3 - 3.3	6.3 - 6.7
ATSBKOWSFT6.5PT2.3-3.3-PA46-GY		2.3 - 3.3	6.3 - 6.7

All dimensions in mm. Subject to technical changes.

#### Fir Tree Clips for Automatic Cable Tying Systems

PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness
ATSFT6-PA66HIRHS-BK		6.3 - 7.0	0.8 - 3.0

All dimensions in mm. Subject to technical changes.



## Tensioning Tools for Cable Ties



MK10-SB.  
See page 307



MK20, MK21.  
See page 307



MK3SP.  
See page 308



MK3PNP2.  
See page 308



EVO7/EVO7SP.  
See page 310



MK7HT.  
See page 311



MK7P.  
See page 312



EVO9/EVO9SP.  
See page 310



EVO9HT.  
See page 310



MK9P.  
See page 313

## Tensioning Tools for Cable Ties KR-Series



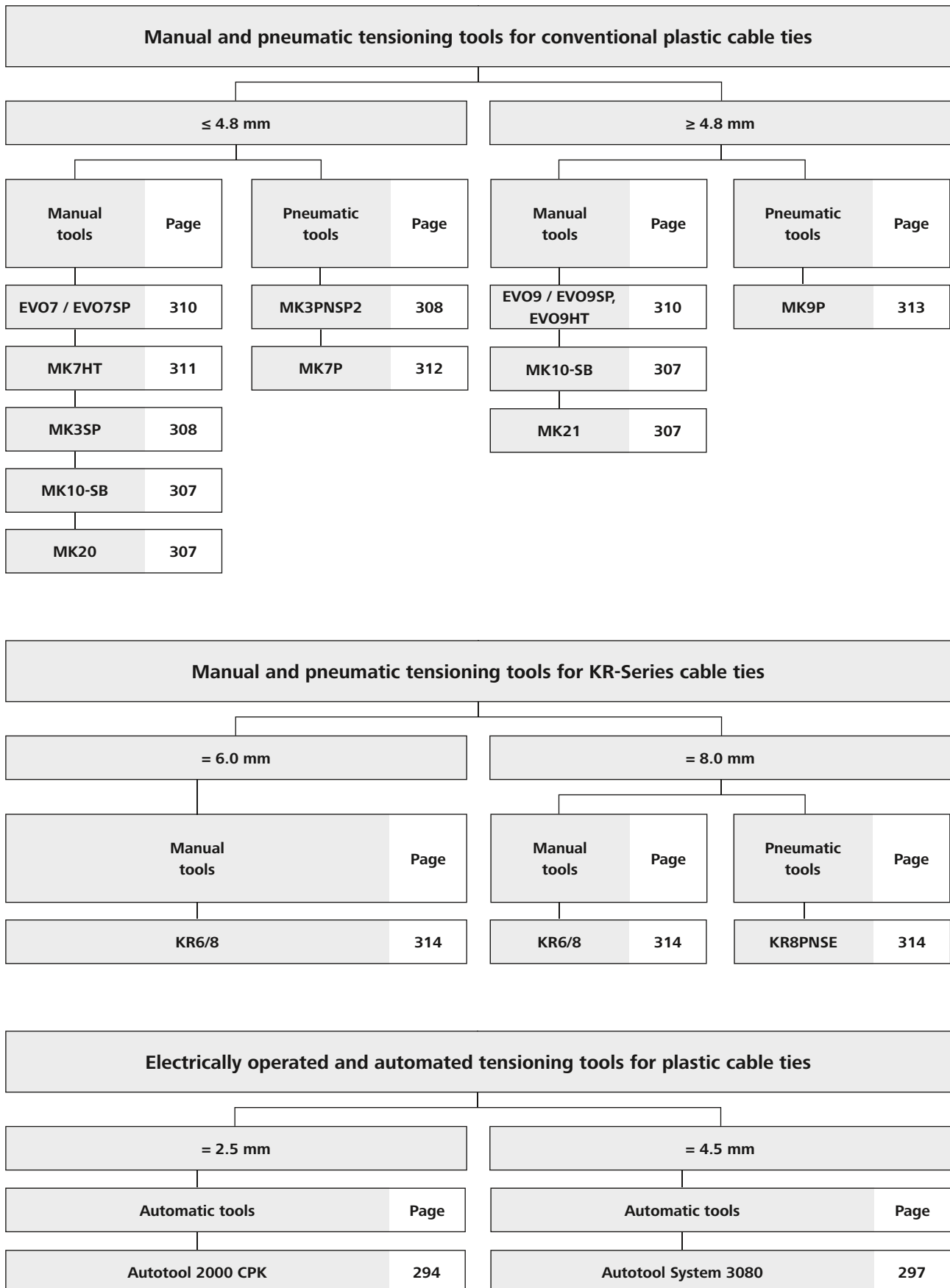
KR6/B.  
See page 314



KR8PNSE.  
See page 314



## Flowchart for optimum tool selection



## Tensioning Tools for Metal Ties



MK9SST.  
See page 315



MK9PSST.  
See page 315



HDT16.  
See page 316



KST-STG200.  
See page 316



MST6.  
See page 317

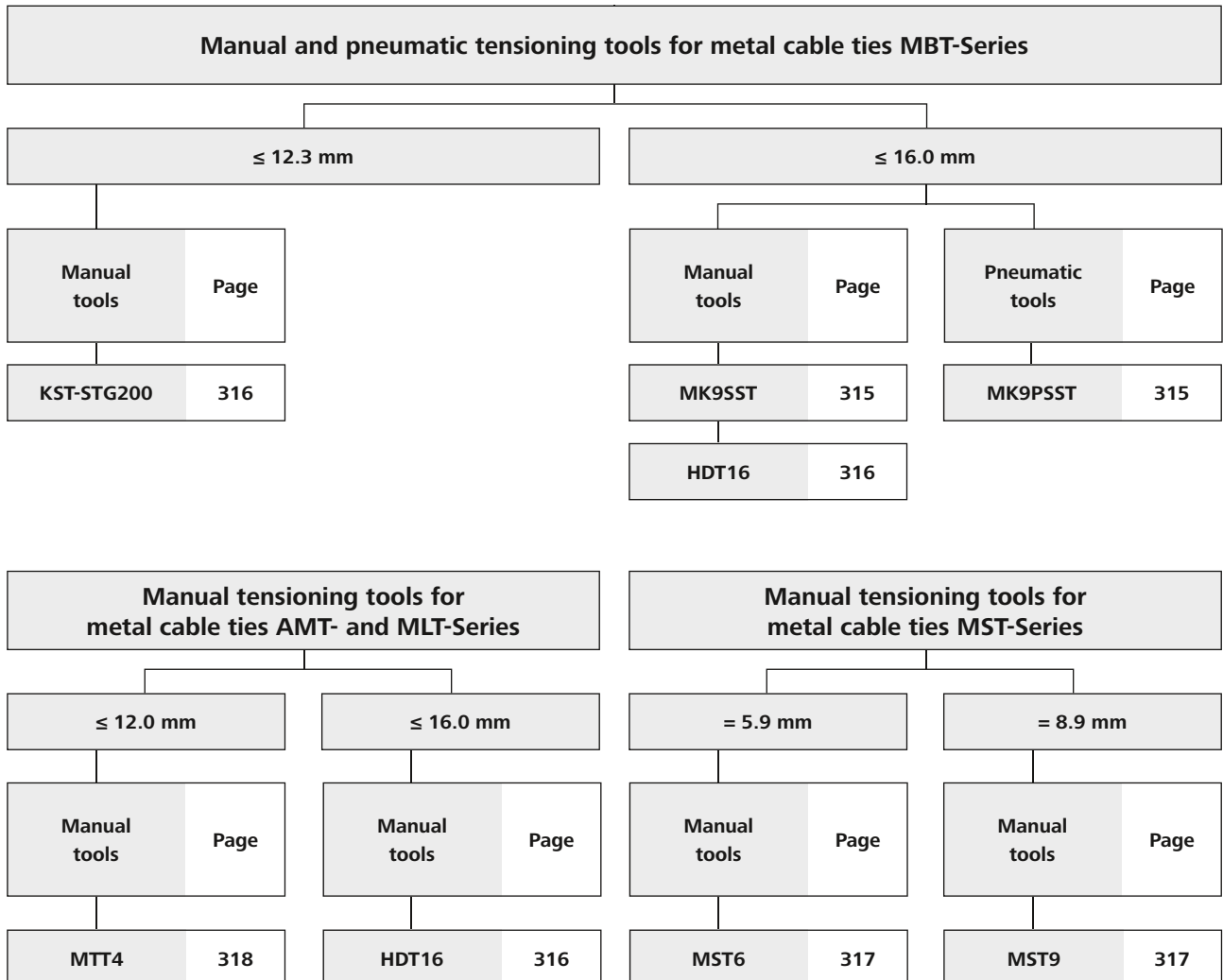


MST9.  
See page 317



MTT4.  
See page 318

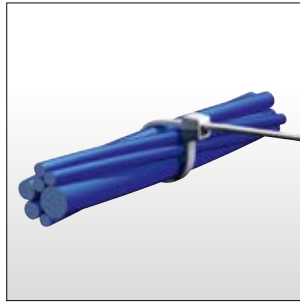
## Flowchart for optimum tool selection



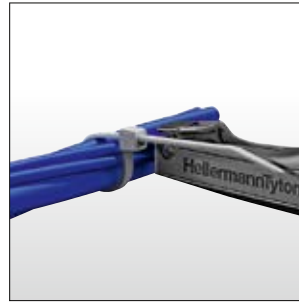
### How to use a cable tie tool (using an EVO7 as an example)



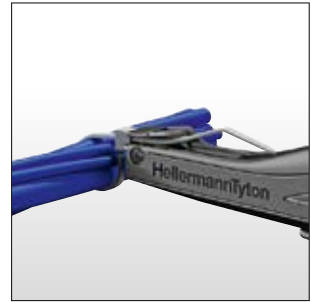
1. Use tension adjustment knob to select your desired tension setting.



2. Cinch a nylon HellermannTyton cable tie around the bundle.



3. Insert strap of cable ties through side opening of nosepiece.



4. Place front of nosepiece flush to the head of the cable tie.



5. Pull trigger until cable tie tensions and cuts.

### Tool testing - Determination of tensions

To date, no generally applicable test method has been established on the market. The companies within the HellermannTyton group work with an usual force meter with minimum 10 kHz frequency of data sampling to determine the tensile forces of the tools and to guarantee the quality of the tools.

It is more difficult to test cable tie tools than would appear at first glance. It is of supreme importance to comply with a standardised test procedure and consistent test conditions. This means for instance the size and thus the cross-section of the cable ties, but also the water content of the tie. A test using different ties and / or different conditioning can easily lead to different values.

In general, the speed of cut-off, the position of the tool with respect to the cable tie, the condition of the wearing parts in the tool and the state of the cable tie play a fundamental role in the determination of tensile forces.

Therefore we must point out that any values we provide must only ever be regarded as guide values for your information. The values cannot be transferred into practice "one for one".

In our user instructions, we specify an adjustment range for each type of cable tie. If tension values must be documented or comply with a specification, we recommend that you adjust them with the aid of the

force meter. Also, as a guideline, half the minimum holding strength of the cable tie should be used as tensile force.

The minimum tensile strength (also referred to as minimum unlocking strength) is the least force which the cable tie can withstand before it tears or stretches. This strength is determined using a threaded tie, hence the following formula should be used for guidance as to the correct tensile force of the tool:

$$\frac{\text{Min. tensile strength}}{2} = \text{recommended tensile force}$$

#### Example:

$$T50R = \frac{225 \text{ N minimum tensile strength}}{2}$$

$$\frac{225 \text{ N}}{2} = 112.5 \text{ N recommended tensile force according to formula}$$

The tensile force can of course be adjusted up or down, in line with the corresponding application.

Please bear in mind that this statement applies only to HellermannTyton products. Cable ties from other manufacturers may require a higher or lower force setting.

In order to secure the device after it has been adjusted using the force meter against manipulation or unintentional maladjustment, HellermannTyton offers an adjustment safety cap (Art. No.: 110-07200 for MK7HT, MK7P, MK9SST, MK9P) which you can push onto the device

after removing the adjustment unit (loosening a screw is all it takes to remove).

After a period of time, to be defined, you test the device again and if necessary re-adjust it. The problem of determination of forces depends on the individual case and has no direct connection with the quality of our product. An exact value for each setting (e. g. in Newtons), without stating a tolerance, cannot be confirmed.

### Test set-up with a usual force meter and EVO7 cable tie tool.



The following describes how to check the tension force of a manual tensioning tool.

1. Lay the cable tie (green) into the fixture (A).
2. Bring the nose piece of the tensioning tool (B) flush to the test block (C).
3. Insert the strap of the cable tie into the tensioning tool and pull the strap flush against the fixture (A).
4. Re-set the force meter (D) to zero.
5. Pull the trigger of the tensioning tool continuously until the cable tie is cut.
6. The tension force achieved at the cut off point is determined.



## Manual tensioning tool for cable ties with low profile head

**MK10-SB up to 9.5 mm strap width**

### Features and benefits

- Ideal for easy handling of entire HellermannTyton RPE, PE and LPH series
- Tensions and cuts off pre-looped cable ties flush at the head



MK10-SB.

PART DESCRIPTION	Strap Width max.	Strap Thickness max.	Weight
MK10-SB-ST-BU	9.5	2.5	0.372 kg

All dimensions in mm. Subject to technical changes.

## Manual tensioning tool for cable ties, simple version

**MK20 up to 4.8 mm strap width**

**MK21 up to 7.6 mm strap width**

### Features and benefits

- Lightweight, ergonomic tools
- For tensioning and cutting standard cable ties 4.8 - 7.6 mm width
- MK20 and MK21 ideal for on-site assembly
- Mounted and pretensioned ties are cut off by twisting tool
- Simply apply cable tie, tension and twist to cut



Manual tensioning tools MK20 and MK21.

PART DESCRIPTION	Strap Width max.	Strap Thickness max.	Weight
MK20-PL-BU	4.8	1.5	0.05 kg
MK21-PL-BU	7.6	2.5	0.05 kg

All dimensions in mm. Subject to technical changes.



### Manual tensioning tool metal housing

#### MK3SP up to 4.8 mm strap width

This tough metal tool MK3SP is used by harness makers for automotive industry and white goods as well as in the aerospace, railway and medical industry.

#### Features and benefits

- Tough metal tool for HellermannTyton plastic cable ties up to 4.8 mm width
- For consistent tensioning and automatically flush cutting
- Infinitely adjustable tension force
- Reliable and low maintenance



MK3SP.

PART DESCRIPTION	Description	Strap Width max.	Strap Thickness max.	Weight
MK3SP-MET-ML	MK3SP	4.8	1.5	0.332 kg
SP MK3SP replacement blade	Replacement Blade	-	-	0.001 kg

All dimensions in mm. Subject to technical changes.

### Pneumatic tensioning tool metal housing

#### MK3PNSP2 up to 4.8 mm strap width

#### Features and benefits

- Pneumatic tensioning tool
- Tough metal housing
- For cable ties up to 4.8 mm width
- For consistent tensioning and automatically flush cutting
- Infinitely adjustable tension force
- High application speed
- Reliable and low maintenance



The pneumatic tensioning tool MK3PNSP2 for plastic cable ties with max. width of 4.8 mm.

<b>Air Supply</b>	non oiled / oiled
<b>Air Pressure (min.)</b>	3 Bar
<b>Air Pressure (max.)</b>	6 Bar
<b>Hose Internal Diameter</b>	4.0 mm
<b>L x H x W</b>	approx. 225 x 140 x 40 mm



PART DESCRIPTION	Description	Strap Width max.	Strap Thickness max.	Weight
MK3PNSP2-AL-ML	MK3PNSP2	4.8	1.5	0.555 kg
SP MK3PNSP2 air hose 3 meters	Air hose, complete	-	-	0.139 kg
SP MK3PNSP2 cutting blade	Replacement Blade	-	-	0.001 kg

All dimensions in mm. Subject to technical changes.





## The EVO family delivers maximum performance whilst protecting muscles and joints

### The next generation of application tools impresses with its advanced technology.

With the EVO family HellermannTyton has developed truly ergonomic cable tie application tools that are unique in the market, perfectly combining convenience with function. **The heart of the EVO family is the innovative TLC-technology (Tension/Lock/Cut).** This is designed to revolutionise the application of cable ties by significantly reducing the cutting effort. The EVO family cuts cable ties with ease, delivering a flush clean finish with no excess strap, whilst enormously reducing physical strain on the user.



### The patent-pending TLC-technology delivers increased productivity:

- Application force and effort are significantly reduced
- Precise cutting of the cable tie right at the head
- Smooth fastening of the cable tie without recoil
- Protects muscles and joints and herewith the health of the user

### Perfect cutting made easy with the EVO family:

From precise preliminary settings to the perfect cut, the EVO family allows an even lighter, gentler and easier cable tie application than ever before. The TLC-technology makes all the difference!



#### 1. Tension

Tension the cable tie as usual. Use the tension adjustment knob to select the desired tension setting.



#### 2. Lock

The locking mechanism detects when the desired tension is reached, locking the tie in place prior to cutting. No manual pressure is required to hold the cable tie in place.



#### 3. Cut

For the final cut, very little effort is needed. By simply pulling the trigger back a little to cut the tie. Without recoil and vibration.



### Manual tensioning tool plastic housing

#### EVO7 up to 4.8 mm strap width

HellermannTyton's EVO7 mechanical hand tool was ergonomically designed to reduce the risks of repetitive stress injuries to operators while concurrently increasing productivity. The EVO7 Tension/Lock/Cut Technology delivers performance, safety and comfort for the operators. Available in a standard grip span (EVO7) or short grip span (EVO7SP), for smaller hands. Additional accessories are available.

#### Features and benefits

- Ergonomic, slip-proof handle for a comfortable and secure grip
- Extremely low-maintenance
- Fast and precise application with minimum effort (TLC mechanism)
- Convenient and simple tension adjustment
- Extended, slim nose for use in narrow spaces
- Housing made of resilient and lightweight glass fibre-reinforced polyester
- Standard grip span (90 mm) and short grip span (80 mm) available



The EVO7: Maximum performance with minimum effort.

PART DESCRIPTION	Description	Strap Width max.	Strap Thickness max.	Weight
EVO7-MET/PL-BK	EVO7	4.8	1.5	0.275 kg
EVO7SP-MET/PL-BK	EVO7SP	4.8	1.5	0.272 kg
BLADEKIT-MIX	Blade-Kit	-	-	0.002 kg

All dimensions in mm. Subject to technical changes.

### Manual tensioning tool plastic housing

#### EVO9 up to 13.5 mm strap width

The EVO9 is available in a standard grip span 90 mm (EVO9) or short grip span 80 mm (EVO9SP), for smaller hands. Both tools perform between 53N and 307N. The EVO9HT (high tension) was designed to apply HellermannTyton cable ties from 120N until 516N with a maximum width of 13.5 mm.

#### Features and benefits

- Standard grip span (90 mm) and short grip span (80 mm) available
- Ergonomic, slip-proof handle for a comfortable and secure grip
- Extremely low-maintenance
- Fast and precise application with minimum effort (TLC-technology)
- Convenient and simple tension adjustment
- Integrated 3 position quick adjustment override (EVO9/EVO9SP/EVO9HT)
- Housing made of resilient and lightweight glass fibre-reinforced polyester



The EVO9 with TLC technology.

PART DESCRIPTION	Description	Strap Width max.	Strap Thickness max.	Weight
EVO9-MET/PL-BK/RD	EVO9	13.5	2.0	0.357 kg
EVO9SP-MET/PL-BK/RD	EVO9SP	13.5	2.0	0.361 kg
EVO9HT-MET/PL-BK/BU	EVO9HT	13.5	2.0	0.364 kg
Replacement Blade-SS	EVO9 Blade	-	-	0.001 kg

All dimensions in mm. Subject to technical changes.



## Manual tensioning tool plastic housing

### MK7HT up to 4.8 mm strap width

MK7HT application tool is mainly used to apply cable ties in harness making industries.

#### Features and benefits

- Light glass-fibre-reinforced housing
- Ergonomic design
- For cable ties up to 4.8 mm width
- MK7 HighTension-Version with higher tension force than MK7
- Consistent tensioning and automatically flush cutting
- Infinitely adjustable tension force combined with three-step quick adjustment



MK7HT.

PART DESCRIPTION	Description	Strap Width max.	Strap Thickness max.	Weight
MK7HT-PL/GF-BK	MK7HT	4.8	1.5	0.29 kg
SP MK7HT replacement blade	Replacement Blade	-	-	0.001 kg
SP lock cap tensioning knob	Lock cap tensioning knob	-	-	0.011 kg

All dimensions in mm. Subject to technical changes.



### Pneumatic tensioning tool plastic housing

#### MK7P up to 4.8 mm strap width

The MK7P pneumatic bundling tool sets a new benchmark for the rational application of ties in the industrial production process. Improved compressed air supply moves the tensioning piston faster than in comparable tools.

#### Features and benefits

- Pneumatic tensioning tool
- Light glass-fibre-reinforced housing
- For cable ties up to 4.8 mm width
- For consistent tensioning and automatically flush cutting
- Infinitely adjustable tension force
- High application speed



The pneumatic tensioning tool MK7P for plastic cable ties with max. width of 4.8 mm.



The easy to use quick-set-knob.

<b>Air Supply</b>	non oiled / oiled
<b>Air Pressure (min.)</b>	3 Bar
<b>Air Pressure (max.)</b>	6 Bar
<b>Hose Internal Diameter</b>	4.0 mm
<b>L x H x W</b>	approx. 220 x 170 x 40 mm



PART DESCRIPTION	Description	Strap Width max.	Strap Thickness max.	Weight
MK7P-PL/GF-BK	MK7P	4.8	1.5	0.448 kg
SP MK3PNSP2 air hose 3 meters	Air hose, complete	-	-	0.139 kg
SP MK7P replacement blade-BK	Replacement Blade	-	-	0.001 kg
SP lock cap tensioning knob	Lock cap tensioning knob	-	-	0.011 kg

All dimensions in mm. Subject to technical changes.



## Pneumatic tensioning tool plastic housing

### MK9P up to 13.5 mm strap width

The MK9P is constructed with heavy duty parts to ensure optimum performance. It is ideally designed to apply heavy-duty ties like they are used in vehicle construction like trucks, busses and railways.

#### Features and benefits

- Pneumatic tensioning tool
- Glass-fibre-reinforced housing
- For cable ties up to 13.5 mm width
- For consistent tensioning and automatically flush cutting
- Infinitely adjustable tension force
- High application speed
- Holding ring for a balancer
- Optional with lower or upper air attachment



The pneumatic tensioning tool MK9P for plastic cable ties with max. width of 13.5 mm.



MK9P is also available with upper air attachment.

<b>Air Supply</b>	non oiled / oiled
<b>Air Pressure (min.)</b>	3 Bar
<b>Air Pressure (max.)</b>	6 Bar
<b>Hose Internal Diameter</b>	4.0 mm
<b>L x H x W</b>	approx. 280 x 200 x 55 mm



PART DESCRIPTION	Description	Strap Width max.	Strap Thickness max.	Weight	Air att. Position
MK9P-PL/GF-BK	MK9P	13.5	2.5	0.972 kg	lower air connection
	MK9P	13.5	2.5	1.057 kg	top air connection
SP MK3PNSP2 air hose 3 meters	Air hose, complete	-	-	0.139 kg	-
SP lock cap tensioning knob	Lock cap tensioning knob	-	-	0.011 kg	-
SP MK9P replacement blade-MET-ML	Replacement Blade	-	-	0.004 kg	-

All dimensions in mm. Subject to technical changes.



### Manual tensioning tool for KR-Series

#### KR6/8

Application tool KR6/8 crimps the glass-fibre-reinforced locking pin of the KR seal and leads to plastic deformation of the tie ends. This produces a very proof permanent connection. In combination with KR cable ties this system offers high vibration resistance. One reason for customers in the railway and automotive industry to take this system as a preferred solution.

#### Features and benefits

- Tough metal tool for applying KR cable ties only
- For tensioning, fixing and cutting KR cable ties
- Simply change the front plate to apply 6 mm or 8 mm straps



The manual tensioning tool KR6/8 for KR-Series cable ties.

PART DESCRIPTION	Description	For Ties	Strap Width max.	Weight
KR6/8-BU/RD	KR6/8	KR6, KR8	8.0	0.69 kg
SP KR6/8 replacement blade	Replacement blade	KR6, KR8	-	0.002 kg

All dimensions in mm. Subject to technical changes.

### Pneumatic tensioning tool for KR8-Series

#### KR8PNSE

Application tool KR8PNSE crimps the glass-fibre-reinforced locking pin of the KR seal and leads to plastic deformation of the tie ends. This produces a very proof permanent connection.

#### Features and benefits

- Pneumatic tool with tough metal housing
- For applying KR8 cable ties only
- For tensioning, fixing and automatic cutting KR8 cable ties
- Tension force can be adapted depending on air pressure
- Holding ring for a balancer



The pneumatic tensioning tool KR8PNSE for KR8-Series cable ties.

Air Supply	non oiled / oiled
Air Pressure (min.)	3 Bar
Air Pressure (max.)	4 Bar
Hose Internal Diameter	6.0 mm
L x H x W	approx. 320 x 210 x 50 mm



PART DESCRIPTION	Description	For Ties	Strap Width max.	Weight
KR8PNSE-ML	KR8PNSE	KR8	8.0	1.537 kg
SP KR8PNSE replacement blade	Replacement Blade	KR8	-	0.002 kg

All dimensions in mm. Subject to technical changes.



## Manual tensioning tool for metal ties MBT-Series

### MK9SST up to 16.0 mm strap width

The MK9SST is constructed with heavy duty parts to ensure optimum performance. It is designed to apply our MBT cable ties with a strap width of up to 16 mm. The tool is ideally suited for use in most arduous environments such as found on board ships, oil rigs, constructions or in nuclear power stations.

#### Features and benefits

- Glass-fibre-reinforced housing
- Ergonomic design
- Consistent tensioning and automatic cutting of metal ties MBT-Series
- Infinitely adjustable tension force combined with two-step quick adjustment



MK9SST.

PART DESCRIPTION	Description	Strap Width max.	Strap Thickness max.	Weight
MK9SST-PL/GF-GY	MK9SST	16.0	0.5	0.508 kg
SP MK9SST replacement blade-ST-GY	Replacement Blade	-	-	0.004 kg

All dimensions in mm. Subject to technical changes.

## Pneumatic tensioning tool for metal ties MBT-Series

### MK9PSST up to 16.0 mm strap width

The MK9PSST pneumatic stainless steel tool is constructed with heavy-duty parts to ensure optimum performance in demanding environments. It is ideally designed to apply stainless steel metal ball tie series (MBT) up to 16.0 mm width.

#### Features and benefits

- Unique levels of repeatability and accuracy
- High application speed and low maintenance
- Improved compressed air supply for faster tensioning piston movement
- Shorter processing time and greater volume of connecting tie application
- Ergonomic design
- Automatic ejection of cut-off cable tie end
- Ideally designed to apply stainless steel MBT-Series up to 16.0 mm width
- On air pressure between 3 and 6 bar



MK9PSST.

<b>Air Supply</b>	non oiled / oiled
<b>Air Pressure (min.)</b>	3 Bar
<b>Air Pressure (max.)</b>	6 Bar
<b>Hose Internal Diameter</b>	4.0 mm
<b>L x H x W</b>	approx. 280 x 200 x 55 mm

RoHS

PART DESCRIPTION	Description	Strap Width max.	Strap Thickness max.	Weight
MK9PSST-BK	MK9PSST	16.0	0.5	0.972 kg
SP MK9PSST replacement blade-SS-GY	Replacement Blade	-	-	0.004 kg
SP lock cap tensioning knob	Lock cap tensioning knob	-	-	0.011 kg

All dimensions in mm. Subject to technical changes.





### Manual tensioning tool for metal ties MBT-, MLT- and AMT-Series

#### HDT16 up to 16.0 mm strap width

The HDT16 application tool is designed for installing heavy duty stainless steel cable ties within a range of industries such as shipbuilding, oil rigs, mining and mass transit. The tool can easily be adjusted making it suitable for applying both MBT, MLT and AMT cable ties with a strap width of up to 16 mm.

#### Features and benefits

- Two way nose piece for use with MBT-Series and AMT-, MLT-Series stainless steel cable ties
- Easy adjustment of the handles to ensure the most ergonomic position for the operator
- Integrated cutting mechanism delivering a flush cut and professional finish every time
- The ideal tool for achieving a perfect installation of MBT, MLT and AMT cable ties



HDT16.

PART DESCRIPTION	Strap Width max.	Strap Thickness max.	Weight
HDT16-SS-ML	16.0	0.8	0.78 kg

All dimensions in mm. Subject to technical changes.

### Manual tensioning tool for metal ties MBT-Series

#### KST-STG200 up to 12.3 mm strap width

The KST-STG200 application tool is designed for installing heavy duty stainless steel cable ties within a range of industries such as shipbuilding, oil rigs, mining and mass transit. The tensioning strength can be adjusted while pulling the trigger. The tool is easy to handle and far more reliable than trying to tension the ties by hand.

#### Features and benefits

- Tough metal tool
- Operator controlled tensioning
- Cut off by pulling the hand lever



KST-STG200.

PART DESCRIPTION	Strap Width max.	Strap Thickness max.	Weight
KST-STG200-MET-BK/ML	12.3	0.3	0.562 kg

All dimensions in mm. Subject to technical changes.



## Manual tensioning tool for metal ties MST-Series

### MST6 for 5.9 mm strap width

The MST6 tool has been specially developed for reliably applying HellermannTyton metal cable ties of the MST-S series. Due to the punch-lock mechanism the tie is mechanically crimped and leads to metal deformation of the tie ends. This punch-lock mechanism ensures a reliable bundling with perfect resistance to vibration. The tension force is freely adjustable by the operator.

#### Features and benefits

- Tough metal tool
- Ergonomic design
- Consistent tensioning and automatically cutting of metal ties
- Designed for use with MST-S Series ties (5.9 mm)
- For tensioning, fixing and cutting MST-S metal ties only



MST6.

PART DESCRIPTION	Description	Strap Width max.	Strap Thickness max.	Weight
<b>MST6-MET/PL-GY/RD</b>	MST6	5.9	0.3	0.532 kg
<b>SP MST6 replacement blade-MET-ML</b>	Replacement Blade	-	-	0.003 kg
<b>SP MST6 replacement punch-MET</b>	Replacement Punch	-	-	0.003 kg

All dimensions in mm. Subject to technical changes.

## Manual tensioning tool for metal ties MST-Series

### MST9 for 8.9 mm strap width

The MST9 tool has been specially developed for reliably applying HellermannTyton metal cable ties of the MST-M series. Due to the punch-lock mechanism the tie is mechanically crimped and leads to metal deformation of the tie ends. This punch-lock mechanism ensures a reliable bundling with perfect resistance to vibration. The tension force is freely adjustable by the operator.

#### Features and benefits

- Tough metal tool
- Ergonomic design
- Consistent tensioning and automatic cutting of metal ties
- Designed for use with MST-M Series ties (8.9 mm)
- For tensioning, fixing and cutting MST-M metal ties only



MST9.

PART DESCRIPTION	Description	Strap Width max.	Strap Thickness max.	Weight
<b>MST9-MET/PL-BU/GY</b>	MST9	8.9	0.4	0.532 kg
<b>SP MST9 replacement blade-MET-ML</b>	Replacement Blade	-	-	0.004 kg
<b>SP MST9 replacement punch-MET</b>	Replacement Punch	-	-	0.004 kg

All dimensions in mm. Subject to technical changes.



### Manual tensioning tool for metal ties MLT-Series

#### MTT4 up to 12.0 mm strap width

The MTT4 tensioning tool is a lightweight manual processing tool which is easy to use for application of the MLT (releasable) series. The extended nose piece ensures the fixing length of the MLT cable tie. While using the ratchet system, the operator can easily cut off the tie on the correct length with the long cutter lever.

#### Features and benefits

- Tough metal tool
- Simple ratchet operation, easy to use
- Operator controlled tensioning and cutting facility



MTT4.

PART DESCRIPTION	Strap Width max.	Strap Thickness max.	Weight
MTT4-MET	12.0	0.7	0.78 kg

All dimensions in mm. Subject to technical changes.



### Three-pronged pliers for sleeves and grommets

#### NA

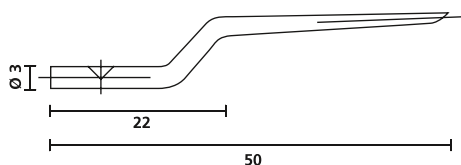
Three-pronged expansion tools are used to ensure speedy and precise application of expandable markers and sleeves.

#### Features and benefits

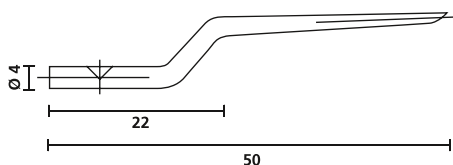
- To easily affix expandable sleeves of every type onto cables/connectors
- Push pliers and pull over cable
- Close pliers, sleeve is placed easily
- Hellerrine lubricant recommended for easy operation



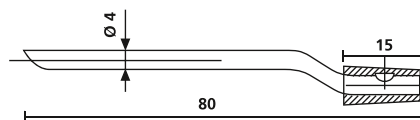
Fast, secure application with the NA three-pronged pliers.



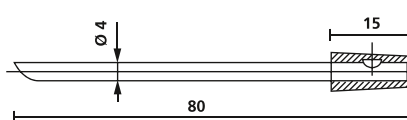
Replacement prong NA0/1



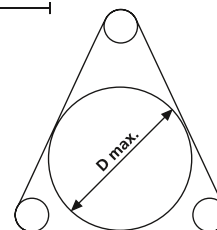
Replacement prong NA1K/3



Replacement prong NA4/5



Replacement prong NA8/10



Three-prong pliers D = max. application diameter

PART DESCRIPTION	Description	Bundle Ø min.	Bundle Ø max.	Ø D max.	Max. length of marker
NA0/1-ML	Expansion tool NA0/1	1.3	1.8	10.5	28
NA1K/3-ML	Expansion tool NA1/3	2.5	5.0	11.0	28
NA4/5-ML	Expansion tool NA4/5	7.5	10.0	15.5	50
NA8/10-ML	Expansion tool NA8/10	12.0	17.0	25.5	60
NA0/1 PRONG-ML	Replacement prongs for NA0/1	1.3	1.8	-	28
NA1K/3 PRONG-ML	Replacement prongs for NA1K/3	2.5	5.0	-	28
NA4/5 PRONG-ML	Replacement prongs for NA4/5	7.5	10.0	-	50
NA8/10 PRONG-ML	Replacement prongs for NA8/10	12.0	17.0	-	60

All dimensions in mm. Subject to technical changes.



### Three-pronged pliers for sleeves and grommets

#### VA2.5/5 - reinforced

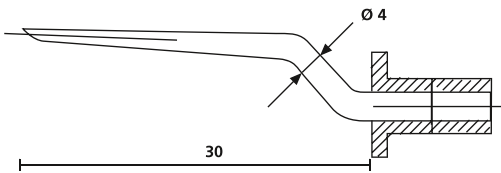
Expansion tools are used to ensure speedy and precise application of expandable markers and sleeves.

#### Features and benefits

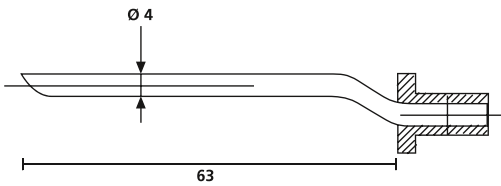
- Suitable for expanding tubing cut lengths and rubber parts
- Withstands high loading
- Set of 3 2.5/5 pins
- Replacement pins available in sizes 8 and 18



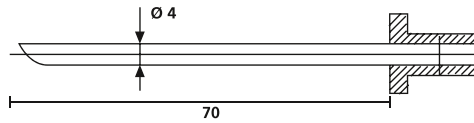
VA2.5/5.



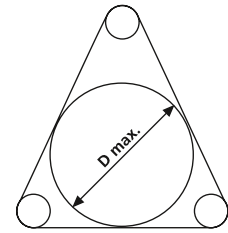
Replacement prong size 2.5/5



Replacement prong size 8



Replacement prong size 18



Three-prong pliers D = max. application diameter

PART DESCRIPTION	Description	Bundle Ø min.	Bundle Ø max.	Ø D max.
VA2.5/5-MET-ML	Expansion tool VA2.5/5	2.5	5.0	26.0
VA-2.5/5 PRONG-MET-ML	Replacement prongs size 2.5/5	2.5	5.0	26.0
VA2.5/5 PRONG 8-MET-ML	Replacement prongs size 8	8.0	10.0	28.0
VA2.5/5 PRONG 18-SS-ML	Replacement prongs size 18	18.0	20.0	30.0

All dimensions in mm. Subject to technical changes.



### Three-pronged pliers for sleeves and grommets

**K, S, SS**

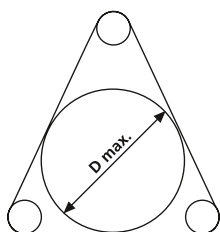
Three-pronged expansion tools are used to ensure speedy and precise application of expandable markers and sleeves.

#### Features and benefits

- For speedy application of markers and sleeves
- Hellerine lubricant recommended for easy operation
- Handy D KIT contains a tool body, a range of prongs and small bottle of Hellerine lubricant.



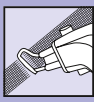
*Fast, secure application with the three-pronged expansion tools.*



*Three-prong pliers D = max. application diameter*

PART DESCRIPTION	Description	Bundle Ø min.	Bundle Ø max.	Ø D max.	Max. length of marker
<b>SS TOOL-MET</b>	Three-pronged plier	1.2	2.0	15.0	20
<b>S TOOL-MET</b>	Three-pronged plier	2.5	4.0	15.0	20
<b>K TOOL-MET</b>	Three-pronged plier	5.0	10.0	17.0	32
<b>D KIT-MET</b>	Three-pronged plier kit	1.2	11.5	17.0	32

All dimensions in mm. Subject to technical changes.



# Application Tooling

## Application Tooling for Braided Sleeves

### Hot cutting tool

#### HSG0

The HSG0 hand tool is used to cut braided sleeving cleanly and without fraying.

#### Features and benefits

- Light and sturdy
- Heats up quickly with the press of button and cuts in seconds
- The yarn melts and fuses together
- No fraying of the sleeving



**A replacement blade is available with the item number 170-99002.**



*The HSG0 hot cutting tool prevents the braided sleeving from fraying.*

PART DESCRIPTION	Description	Weight
HSG0-BU	Hot cutting tool	1.15 kg

Subject to technical changes.



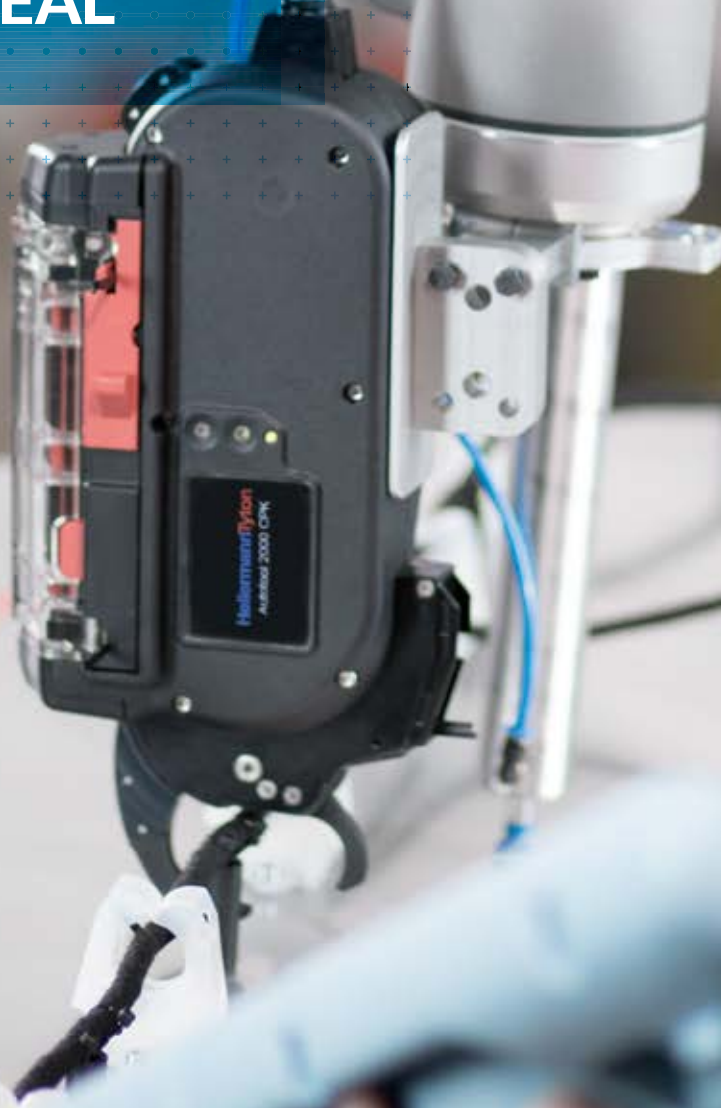
# Process reliability makes the difference: Autotool 2000 CPK

The automatic cable tying tool ensures the highest degree of process reliability. The Autotool 2000 CPK is a solution to one of the quality challenges that harness makers are posed by the mega trends in the automotive future and the steady growth of on-board electronics.

Process-reliable cable tying.

[HellermannTyton.com/cpk2000-gac](http://HellermannTyton.com/cpk2000-gac)

## MADE FOR REAL





**T** Abbreviations Table for Product Materials  
and Colours

---

326



**123** Numerical Index

327

**ABC** Alphanumerical Index

341

### Abbreviations Table for Product Materials and Colours

Abbreviation*	Material
323	Type 323, Polyvinylidene Fluoride (PVDF)
892	Type 892, Vinyl (PVC), white (WH)
951	Type 951, Polyester (PET), silver (SR) and Polyester (PET), transparent (CL)
1204	Type 1204, Polyester (PET)
1206	Type 1206, Polyester (PET), white gloss (GSWH)
1208	Type 1208, Acetate foil (CA), white (WH), tamper-proof
ABS	Acrylonitrile Butadiene Styrene (ABS)
AL	Aluminium alloy (AL)
AL	Aluminium (AL)
CR	Chloroprene Rubber (CR)
DIV	Various (DIV)
E/TFE	Ethylene Tetrafluoroethylene (E/ TFE)
EPDM	Ethylene Propylene Diene Terpolymer rubber (EPDM) free of Nitrosamine
FPMX	Fluoropolymer cross- linked (FPMX)
GF	Glass-fibre reinforced (GF)
MET	Metal (MET)
PA	Polyamide (PA)
PA11W	Polyamide 11, UV- resistant (PA11W)
PA12	Polyamide 12 (PA12)
PA46	Polyamide 4.6 (PA46)
PA6	Polyamide 6 (PA6)
PA66	Polyamide 6.6 (PA66)
PA66ECHRHS	Polyamide 6.6, electrically conductive, high impact modified, heat stabilised (PA66ECHRHS)
PA66GF13	Polyamide 6.6, glass-fibre reinforced (PA66GF13%)
PA66GF30	Polyamide 6, glass-fibre reinforced (PA66GF30%)
PA66GF60	Polyamide 6.6, glass-fibre reinforced (PA66GF60%)
PA66HIR	Polyamide 6.6, high impact modified (PA66HIR)
PA66HIR(S)	Polyamide 6.6, high impact modified, scan black (PA66HIR(S))
PA66HIRHS	Polyamide 6.6, high impact modified, heat stabilised (PA66HIRHS)
PA66HIRHS, EPDM	Polyamide 6.6, high impact modified, heat stabilised (PA66HIRHS), Ethylene Propylene Diene Terpolymer rubber (EPDM) free of Nitrosamine
PA66HIRHSUV	Polyamide 6.6, high impact modified, heat and UV stabilised (PA66HIRHSUV)
PA66HS	Polyamide 6.6, heat stabilised (PA66HS)
PA66HSUV	Polyamide 6.6, heat and UV stabilised (PA66HSUV)
PA66HSW	Polyamide 6.6, heat and UV-resistant (PA66HSW)
PA66MP	Polyamide 6.6, with metal particles (PA66MP)
PA66UV	Polyamide 6.6, UV- stabilised (PA66UV)
PA66V0	Polyamide 6.6 V0 (PA66V0)
PA66W	Polyamide 6.6, UV resistant (PA66W)
PA6GF30	Polyamide 6, glass-fibre reinforced (PA6GF30%)
PA6HIR	Polyamide 6, high impact modified (PA6HIR)
PA6HIRHS	Polyamide 6, high impact modified, heat stabilised (PA6HIRHS)
PAEK	Polyaryletherketone (PAEK)
PBT	Polyester (PBT)
PE	Polyethylene (PE)
PEEK	Polyetheretherketone (PEEK)
PET	Polyester, halogen free (PET)

Abbreviation*	Material
PL	Plastic (PL)
PO	Polyolefin (PO)
POA	Elastomer, cross-linked (POA)
POM	Polyacetal (POM)
PO-X	Polyolefin, cross-linked (POX) (PO-X)
PP	Polypropylene (PP)
PPS	Polyphenylene Sulfide (PPS)
PPT20	Polypropylene 20% Talkum (PPT20)
PUR	Polyurethane (PUR)
PVDF	Polyvinylidene Fluoride (PVDF)
PVDFX	Polyvinylidene Fluoride cross-linked (PVDFX)
SP	Polyester (SP)
SS	Stainless Steel (SS)
SS304	Stainless Steel (SS304)
SS316	Stainless Steel (SS316)
ST	Steel (ST)
TNCU	Tin-plated copper (TNCU) (SNCU)
TPE	Thermoplastic Elastomer (TPE)
TPU	Thermoplastic Polyurethane (TPU)
ZN	Zinc plated (ZN)

\*according to EN ISO 1043 Part 1 and ISO 1629

Abbreviation	Colour
BGE	Beige (BGE)
BK*	Black (BK)
BKIDWH	Black with White Identification Yarn (BKIDWH)
BN*	Brown (BN)
BU*	Blue (BU)
CL	Transparent (CL)
DKGY	Dark Grey (DKGY)
GN*	Green (GN)
GSWH	White gloss (GSWH)
GY*	Grey (GY)
LTBU	Light Blue (LTBU)
MIX	Various (MIX)
ML	Metal (ML)
MTSR	Silver-matt (MTSR)
NA	Natural (NA)
OG*	Orange (OG)
RD*	Red (RD)
SR*	Silver (SR)
TCBK	Tin-coloured and Black (TCBK)
TT	Translucent (TT)
WH*	White (WH)
YE*	Yellow (YE)

\*according to DIN IEC 60757



Article-No.	Part Description	Country	Page	Article-No.	Part Description	Country	Page	Article-No.	Part Description	Country	Page
102-00000	ATS3080-BK	DE	297	110-03400	MK3PNSP2-AL-ML	DE	308	111-00299	MBT14XHFC-SS316/SP-BK	GB	54
102-00040	Bench mount kit 3080-ML	DE	298	110-03500	MK3SP-MET-ML	DE	308	111-00300	MBT20XHFC-SS316/SP-BK	GB	54
102-00041	Bench mount kit horizontal 3080-ML	DE	298	110-03524	SP MK3SP replacement blade	DE	308	111-00301	MBT27XHFC-SS316/SP-BK	GB	54
102-00042	Bench mount kit automatic 3080-ML	DE	298	110-04000	MTT4-MET	GB	318	111-00302	MBT33XHFC-SS316/SP-BK	GB	54
102-00050	Overhead suspension 3080-ML	DE	298	110-07000	MK7HT-PL/GF-BK	US	311	111-00327	AMT5L165B-SS316-ML	GB	55
102-00100	Power pack 3080-MET/PL-GY	DE	297	110-07100	MK7P-PL/GF-BK	US	312	111-00388	T80L-PA66HS-BK	SG	36
102-66109	Strap Natural ATS3080-PA66HIRHSUV-NA	DE	299	110-07111	SP MK7P replacement blade-BK	US	312	111-00404	T18L-PA66HS-BK	US	35
102-66110	Strap Black ATS3080-PA66HIRHSUV-BK	DE	299	110-07200	SP lock cap tensioning knob	DE	312, 313, 315	111-00476	T18R-PA66HS-BK	US	35
102-66209	Closures Natural ATS3080-PA66HSUV-NA	DE	299	110-07511	SP MK7HT replacement blade	US	311	111-00525	T50R-PA46-NA	SG	38
102-66210	Closures Black ATS3080-PA66HSUV-BK	DE	299	110-09100	MK9P-PL/GF-BK	US	313	111-00526	T50L-PA46-NA	SG	38
102-67060	ATSFT6-PA66HIRHS-BK	DE	301	110-09110	MK9P-PL/GF-BK	US	313	111-00569	T50S-PA66HS-BK	CN	35
102-67065	ATSBCEFT6LG-PA66HIRHS-BK	DE	301	110-09111	SP MK9P replacement blade-MET-ML	US	313	111-00698	T30R-E/TFE-BU	JP	39
102-68350	ATSEC35-PA66HIRHS-BK	DE	300	110-09950	KST-STG200-MET-BK/ML	TW	316	111-00732	T50R-E/TFE-BU	JP	39
102-68355	ATSBCEC35-PA66HIRHS-BK	PL	301	110-10001	MK10-SB-ST-BU	FR	307	111-00819	T120R(E)-PA46-GY	GB	38
102-68360	ATSEC36-PA66HIRHS-BK	DE	300	110-13000	SP M5T9 replacement blade-MET-ML	JP	317	111-00824	T50R-PA46-GY	SG	38
102-68365	ATSBCEC36-PA66HIRHS-BK	DE	301	110-13001	SP M5T9 replacement blade-MET-ML	JP	317	111-00844	T18R-PA66W-BK	BR	34
102-68370	ATSEC37-PA66HIRHS-BK	DE	300	110-20006	MK20-PL-BU	DE	307	111-00847	T18L-PA66HS-BK	BR	35
102-68375	ATSBCEC37-PA66HIRHS-BK	PL	301	110-21016	MK21-PL-BU	DE	307	111-00850	T18L-PA66W-BK	BR	34
102-68380	ATSEC38-PA66HIRHS-BK	DE	300	110-30002	SP MK3PNSP2 air hose 3 meters	DE	312, 313	111-00852	T30R-PA66W-BK	BR	34
102-68385	ATSBCEC38-PA66HSW-BK	DE	301	110-30101	SP MK3PNSP2 cutting blade	DE	308	111-00856	T50L-PA66W-BK	BR	34
102-69065	ATSBCSFT6.5-MD-PA66HIRHS-BK	DE	301	110-40000	HDT16-SS-ML	GB	316	111-00860	T50R-PA66HSW-BK	BR	35
102-69066	ATSBCSFT6.5-PA66HIRHS-BK	DE	301	110-61000	MST6-MET/PL-GY/RD	JP	317	111-00861	T50R-PA66W-BK	BR	34
102-69067	ATSBCKSFT6.5-PA66HIRHS-BK	DE	301	110-61001	SP MST6 replacement blade-MET-ML	JP	317	111-00864	T80I-PA66W-BK	BR	34
102-69068	ATSBCKSFT6.5-PA66HIRHS-BK	DE	301	110-61002	SP MST6 replacement punch-MET	JP	317	111-00872	T120R-PA66HS-NA	BR	36
102-69080	ATSBOWSFT6.5-PA46-GY	PL	301	110-70106	BLADEKIT-MIX	US	310	111-00873	T120R-PA66HS-BK	BR	36
102-69089	ATSBCSFT6.5PT2.3-3.3-PA46-GY	PL	301	110-70129	EVO7-MET/PL-BK	US	310	111-00874	T120R-PA66W-BK	BR	34
106-00000	Autotool 2000 CPK-BK	DE	294	110-70130	EVO7SP-MET/PL-BK	US	310	111-00877	T120S-PA66W-BK	BR	34
106-00040	Bench mount kit CPK-ML	DE	295	110-80002	EVO9-MET/PL-BK/RD	US	310	111-00880	T250R-PA66W-BK	BR	34
106-00050	Overhead suspension CPK-ML	DE	295	110-80003	EVO9SP-MET/PL-BK/RD	US	310	111-00924	T30R-PA46-GY	GB	38
106-00100	Power pack CPK-GY	DE	294	110-80017	EVO9HT-MET/PL-BK/BU	US	310	111-00959	T120I-PA66HS-NA	SG	36
106-00110	Power pack CPK with control box-GY	DE	294	110-80037	Replacement Blade-SS	US	310	111-00996	T120I-PA66HS-NA	BR	36
106-29010	Force measurement device with grip mount CPK-ML	DE	295	110-95000	MK9SST-PL/GF-GY	US	315	111-00997	T120I-PA66W-BK	BR	34
106-29011	Force measurement device with robot adapter CPK-ML	DE	295	110-95273	SP MK9SST replacement blade-ST-GY	US	315	111-00998	T120R-PA46-NA	BR	38
108-00001	X80S-PA66HIRHS-BK	GB	41	110-95307	SP MK9PSSST replacement blade-SS-GY	US	315	111-01018	T120S-PA66HS-BK	BR	36
108-00004	X80R-PA66HIRHS-BK	GB	41	110-95350	MK9PSSST-BK	US	315	111-01039	T250R-PA66HS-NA	BR	36
108-00018	X80I-PA66HIRHS-BK	GB	41	111-00053	T120L-PA66HIR(S)-BK	GB	37	111-01050	T30R-PA66HS-BK	BR	35
108-00028	X80L-PA66HIRHS-BK	GB	41	111-00058	T18R-PA66HIR(S)-BK	GB	37	111-01060	T50L-PA66HS-BK	BR	35
108-00040	X120R-PA66HIRHS-BK	GB	41	111-00069	T50R-PA66HIR-BK	GB	37	111-01235	PT220-PEEK-BGE	JP	45
108-00045	X250I-PA66HIRHS-BK	GB	41	111-00074	REL250S-PA66HIR(S)-BK	GB	48	111-01281	T120I-PA66HS-BK	BR	36
108-00050	X250R-PA66HIRHS-BK	GB	41	111-00075	REL250X-PA66HIR(S)-BK	GB	48	111-01286	T120S-PA66HS-BK	BR	36
109-00001	Q18R-PA66-NA	ZA	40	111-00112	T50L-PA66HIR(S)-BK	GB	37	111-01301	MBT14UH-SS316-ML	GB	52
109-00004	Q18I-PA66-NA	ZA	40	111-00113	T50L-PA66HIR(S)-BK	GB	37	111-01302	MBT20UH-SS316-ML	GB	52
109-00007	Q18L-PA66-NA	ZA	40	111-00153	T120M-PA66HS-BK	GB	36	111-01303	MBT27UH-SS316-ML	GB	52
109-00010	Q30R-PA66-NA	ZA	40	111-00165	T120R(E)-PA66HIR(S)-BK	GB	37	111-01304	MBT33UH-SS316-ML	GB	52
109-00012	Q30L-PA66-NA	ZA	40	111-00167	T120R(E)-PA66HIR(S)-BK	GB	37	111-01305	MBT43UH-SS316-ML	GB	52
109-00014	Q30LR-PA66-NA	ZA	40	111-00189	T30L-PA66HS-BK	GB	35	111-01306	MBT49UH-SS316-ML	GB	52
109-00018	Q50R-PA66-NA	GB	40	111-00197	T30L-PA66HIR(S)-BK	GB	37	111-01307	MBT27XHD-SS316-ML	GB	53
109-00020	Q50I-PA66-NA	GB	40	111-00222	T50I-PA66HIR(S)-BK	GB	37	111-01308	MBT33XHD-SS316-ML	GB	53
109-00022	Q50L-PA66-NA	ZA	40	111-00238	T50R-PA66HIR(S)-BK	GB	37	111-01309	MBT43XHD-SS316-ML	GB	53
109-00024	Q120I-PA66-NA	ZA	40	111-00243	T50R-PA66HIR(S)-BK	GB	37	111-01310	MBT49XHD-SS316-ML	GB	53
109-00026	Q120R-PA66-NA	ZA	40	111-00264	T30R-PA46-GY	GB	38	111-01311	MBT60XHD-SS316-ML	GB	53
109-00028	Q120M-PA66-NA	ZA	40	111-00288	MBT5SFC-SS316/SP-BK	GB	54	111-01312	MBT27UHD-SS316-ML	GB	53
109-00030	Q18R-PA66-BK	ZA	40	111-00289	MBT8SFC-SS316/SP-BK	GB	54	111-01313	MBT33UHD-SS316-ML	GB	53
109-00033	Q18I-PA66-BK	ZA	40	111-00290	MBT14SFC-SS316/SP-BK	GB	54	111-01314	MBT43UHD-SS316-ML	GB	53
109-00036	Q18L-PA66-BK	ZA	40	111-00291	MBT20SFC-SS316/SP-BK	GB	54	111-01315	MBT49UHD-SS316-ML	GB	53
109-00039	Q30R-PA66-BK	ZA	40	111-00292	MBT27SFC-SS316/SP-BK	GB	54	111-01316	MBT60UHD-SS316-ML	GB	53
109-00041	Q30L-PA66-BK	ZA	40	111-00293	MBT33SFC-SS316/SP-BK	GB	54	111-01502	MBT30XHFC-SS316/SP-BK	GB	54
109-00043	Q30LR-PA66-BK	ZA	40	111-00294	MBT8HFC-SS316/SP-BK	GB	54	111-01547	T120I-PA66HS-BK	SG	36
109-00047	Q50R-PA66-BK	GB	40	111-00295	MBT14HFC-SS316/SP-BK	GB	54	111-01586	MBT14HFCRFID-SS316/SP-RD	GB	276
109-00049	Q50I-PA66-BK	GB	40	111-00296	MBT20HFC-SS316/SP-BK	GB	54	111-01587	MBT20HFCRFID-SS316/SP-RD	GB	276
109-00051	Q50L-PA66-BK	ZA	40	111-00297	MBT27HFC-SS316/SP-BK	GB	54	111-01588	MBT27HFCRFID-SS316/SP-RD	GB	276
109-00053	Q120I-PA66-BK	ZA	40	111-00298	MBT33HFC-SS316/SP-BK	GB	54	111-01589	MBT33HFCRFID-SS316/SP-RD	GB	276
109-00055	Q120R-PA66-BK	ZA	40					111-01591	T50RFIDCHA-PA66-BK	GB	274
109-00057	Q120M-PA66-BK	ZA	40					111-01623	T40R-PA66HS-BK	GB	35
								111-01627	T40R-PA66HS-NA	GB	35

Article-No.	Part Description	Country	Page	Article-No.	Part Description	Country	Page	Article-No.	Part Description	Country	Page
111-01638	T50RFIDCLA-PA66-YE	GB	274	111-12719	T120XM-PA66HS-NA	GB	36	113-00043	T18MR-PA66W-BK	JP	89
111-01639	T50RFIDCHA-PA66-YE	GB	274	111-12824	T120S-PA66HS-NA	GB	36	113-00046	T30MR-PA66HSW-BK	JP	89
111-01673	T50RFIDCHA-PA66-BU	GB	274	111-12850	T120S-PA66HS-BK	GB	36	113-00056	T50ML-PA66W-BK	US	89
111-01676	MCTRFIDCHA-PA66MP-BU	GB	275	111-15050	T150R(H)-PA66HS-BK	SG	36	113-00058	T50MR-PA66HIRHSUV-BK	US	89
111-01687	T150L-PA66HS-BK	BR	36	111-15069	T150R(H)-PA66HS-NA	SG	36	113-00060	T50MRX-PA66HIRHSUV-BK	US	89
111-01688	T150L-PA66HSUV-BK	BR	36	111-15410	T150L-PA66HS-BK	US	36	113-00067	T120MR-PA66HIRHS-GY	US	89
111-01689	T150L-PA66UV-BK	BR	34	111-15510	T150XL-PA66HS-BK	US	36	113-03011	T30MR-PA66-BK	MX	89
111-01950	T18R-PA66HS-BK	SG	35	111-15609	T150D-PA66HS-BK	US	36	113-05060	T50MR-PA66W-BK	GB	89
111-01959	T18R-PA66HS-NA	SG	35	111-81821	IT18R-PA66-NA	GB	269	113-12060	T120MR-PA66HIRHSUV-BK	US	89
111-01976	MCTRFIDCLA-PA66MP-BU	GB	275	111-81919	IT18FL-PA66-NA	US	269	114-01879	T18R-PA46-NA	SG	38
111-02049	T18L-PA66HS-BK	SG	35	111-85019	IT50R-PA66-NA	US	269	114-03079	T30R-PA46-NA	SG	38
111-02062	T150R-PA66UV-BK	BR	34	111-85119	IT50RT-PA66-NA	US	269	114-12179	T120R(E)-PA46-NA	GB	38
111-02159	T18L-PA66HS-NA	SG	35	111-85219	IT50RD-PA66-NA	US	269	115-00065	RT18RSF-PA66V0-BK	JP	60
111-02271	T30R-PA66HS-NA	BR	35	111-85319	IT50L-PA66-NA	US	269	115-00069	RT30SSF5-PA66W-BK	JP	60
111-02272	T50R-PA66HS-BK	BR	37	111-85350	T50SD6-PA66HS-BK	GB	62	115-00070	T50MR-PA66W-BK	JP	60
111-02273	T50R-PA66HS-NA	BR	35	111-85360	T50SL6-PA66HS-BK	GB	59	115-00071	RT30SSF-PA66V0-BK	CN	60
111-02274	T50M-PA66HS-BK	BR	35	111-85395	T50SSL5-PA46-GY	DE	58	115-00072	RT30SSF-PA66W-BK	CN	60
111-02276	T50L-PA66HS-BK	BR	35	111-85480	RT50SD6-PA66HS-BK	GB	74	115-00079	RT50SSF-PA66W-BK	JP	60
111-02278	T80I-PA66HS-BK	BR	35	111-85519	T18RSF-PA66HS-NA	DE	58	115-00087	RT50SSF5.4-PA66-NA	JP	60
111-02279	T80I-PA66HS-NA	BR	36	111-85560	T18RSF-PA66UV-BK	DE	58	115-00116	RR30SVPMS-PA66V0-WH	JP	60
111-02286	T250R-PA66HS-BK	BR	36	111-85719	T50S5FM-PA66-NA	GB	58	115-00144	DCT11-PA66HIRHSUV-BK	US	100
111-02296	T50M-PA66UV-BK	BR	34	111-85720	T50RSFM-PA66HS-BK	GB	58	115-06960	RT50SFK-PA66-BK	DE	60
111-02297	T150M-PA66UV-BK	BR	34	111-85729	T50RSFM-PA66-NA	GB	58	115-07010	RT50RSF-PA66-BK	GB	60
111-02298	T250S-PA66UV-BK	BR	34	111-85781	YQR10050-PA66-BN	GB	59	115-07110	RT50RS5-PA66-BK	GB	93
111-02305	T18I-PA66HS-BK	US	35	111-85810	T50RFT10-PA66HS-BK	DE	73	115-07189	SRT1807-TPU-BK	AT	49
111-02358	T18I-PA66HS-BK	SG	35	111-85850	T50MD7-PA66HS-BK	SG	62	115-07269	SRT2607-TPU-BK	AT	49
111-02359	T18I-PA66HS-NA	SG	35	111-85871	T50RFT7-PA66HS-BK	SG	71	115-11269	SRT26011-TPU-BK	AT	49
111-02384	T120R-PA66HIRHS-BK	BR	37	111-85880	T50RFT8-PA66HS-BK	GB	71	115-11349	SRT34011-TPU-BK	AT	49
111-03050	T30R-PA66HS-BK	GB	35	111-93058	MBT55S-SS304-ML	GB	51	115-28589	SRT58028-TPU-BK	AT	49
111-03068	T30R-PA66HS-BK	US	35	111-93059	MBT55S-SS316-ML	GB	52	115-28889	SRT88028-TPU-BK	AT	49
111-03259	T30R-PA66HS-NA	SG	35	111-93088	MBT85S-SS304-ML	GB	51	115-30900	DCT9-PA66HIRHSUV-BK	US	100
111-03341	T30L-PA66HS-BK	US	35	111-93089	MBT85S-SS316-ML	GB	52	115-31101	DCT11-PA66HIRHSUV-BK	US	100
111-03450	T30L-PA66HS-BK	SG	35	111-93148	MBT145S-SS304-ML	GB	51	115-41300	RT250R-PA66-BK	US	48
111-03459	T30L-PA66HS-NA	GB	35	111-93149	MBT145S-SS316-ML	GB	52	117-00008	T50LDH-PA66HS-BK	US	43
111-03569	T30LL-PA66HS-NA	GB	35	111-93208	MBT205S-SS304-ML	GB	51	117-05000	T50RDH-PA66-BK	GB	43
111-03660	T30LL-PA66HS-BK	GB	35	111-93209	MBT205S-SS316-ML	GB	52	117-05002	T50RDH-PA66-NA	GB	43
111-04882	T50R-PA66HS-NA	GB	35	111-93278	MBT275S-SS304-ML	GB	51	117-05010	T50RDH-PA66HS-BK	US	43
111-04890	T50R-PA66HIR(S)-BK	GB	37	111-93279	MBT275S-SS316-ML	GB	52	117-05050	T50RDH-PA66HS-BK	GB	43
111-04901	T50R-PA66HS-BK	US	35	111-93338	MBT335S-SS304-ML	GB	51	117-05168	T50RDH-PA46-GY	GB	43
111-04950	T50R-PA66HS-BK	GB	35	111-93339	MBT335S-SS316-ML	GB	52	117-05303	T50IDH-PA66-NA	US	43
111-05059	T80R-PA66HS-NA	SG	35	111-94088	MBT85S-SS304-ML	GB	51	117-05350	T50IDH-PA66HS-BK	US	43
111-05220	T50I-PA46-NA	GB	38	111-94089	MBT85S-SS316-ML	GB	52	117-05404	T50LDH-PA66HS-BK	US	43
111-05250	T50I-PA66HS-BK	SG	35	111-94148	MBT14HS-SS304-ML	GB	51	117-05461	T50LDH-PA66-NA	US	43
111-05251	T50I-PA66HS-BK	US	35	111-94149	MBT14HS-SS316-ML	GB	52	117-08070	T80R-PA66HS-BK	SG	35
111-05259	T50I-PA66HS-NA	GB	35	111-94208	MBT20HS-SS304-ML	GB	51	118-00018	T50MOS-PA66HS-BK	GB	44
111-05436	T50L-PA66HS-NA	GB	35	111-94209	MBT20H-SS316-ML	GB	52	118-00032	PT2A-PEEK-BGE	DE	45
111-05441	T50L-PA66HIR(S)-BK	GB	37	111-94278	MBT27HS-SS304-ML	GB	51	118-00035	T18ROS-PA66HS-NA	GB	44
111-05450	T50L-PA66HS-BK	SG	35	111-94279	MBT27H-SS316-ML	GB	52	118-00044	T30LOS-PA66HS-NA	GB	44
111-05459	T80L-PA66HS-NA	SG	36	111-94338	MBT33HS-SS304-ML	GB	51	118-00055	T50MOS-PA66HS-NA	GB	44
111-05471	T50L-PA66HS-BK	US	35	111-94339	MBT33H-SS316-ML	GB	52	118-00060	T50ROS-PA66-NA	BR	44
111-05850	T50S-PA66HS-BK	GB	35	111-95148	MBT14XH-SS304-ML	GB	51	118-00062	T50SOS-PA66-NA	BR	44
111-05859	T50S-PA66HS-NA	GB	35	111-95149	MBT14XH-SS316-ML	GB	52	118-00063	T50SOS-PA66HS-BK	BR	44
111-07110	T50RS5-PA66-BK	GB	93	111-95208	MBT20XH-SS304-ML	GB	51	118-00064	T30ROS-PA66HS-NA	GB	44
111-08250	T80I-PA66HS-BK	SG	35	111-95209	MBT20XH-SS316-ML	GB	52	118-00066	T120ROS-PA66HS-BK	GB	44
111-08259	T80I-PA66HS-NA	SG	36	111-95278	MBT27XH-SS304-ML	GB	51	118-00067	T120ROS-PA66HS-NA	GB	44
111-12032	T120R(E)-PA66HIR(S)-BK	GB	37	111-95279	MBT27XH-SS316-ML	GB	52	118-00074	V100R-PA66HS-NA	DE	46
111-12050	T120R(E)-PA66HS-BK	GB	36	111-95338	MBT33XH-SS304-ML	GB	51	118-00079	V18ROS-PA66V0-WH	GB	44
111-12059	T120R(E)-PA66HS-NA	GB	36	111-95339	MBT33XH-SS316-ML	GB	52	118-00080	T30LOS-PA66V0-WH	GB	44
111-12073	T120R(E)-PA66HIR-BK	GB	37	112-00100	HT120R-PA66HS-BK	GB	42	118-00081	T50MOS-PA66V0-WH	GB	44
111-12203	T120I-PA66HIR(S)-BK	GB	37	112-51919	CTT20R-PA66-NA	US	42	118-00082	T120ROS-PA66V0-WH	GB	44
111-12216	T120I-PA66HS-BK	US	36	112-51960	CTT20R-PA66HS-BK	US	42	118-00089	V150R-PA66HS-NA	DE	46
111-12402	T120L-PA66HIR(S)-BK	GB	37	112-56019	CTT60R-PA66-BK	US	42	118-00091	T50ROS-PA66HS-BK	BR	44
111-12440	T120L-PA66HS-BK	GB	36	113-00006	T30MR-PA66W-BK	GB	89	118-00092	T50SOS-PA66-GY	BR	44
111-12449	T120L-PA66HS-NA	GB	36	113-00007	T50ML-PA66-BK	US	89	118-00107	V150R-PA46-GY	DE	46
111-12700	T120XM-PA66HS-BK	GB	36	113-00031	T50MI-PA66-BK	US	89	118-00109	V100R-PA46-GY	DE	46

Article-No.	Part Description	Country	Page	Article-No.	Part Description	Country	Page	Article-No.	Part Description	Country	Page
118-00110	T50SOS-PA66HS-BK	MX	44	126-00139	GLRT50RSF-PA11W-BK	JP	60	126-02204	T50SSL5-PA66HS-BK	GB	58
118-00116	PT3B-PEEK-BGE	DE	45	126-00141	T50SOSKSF62x122PT0.7-1.3-PA66HS-BK	DE	82	126-02600	T80RSF6.5F-PA66HS-BK	FR	61
118-00117	V150R-PA66-BK	DE	46	126-00142	T50SOSKSF62x122PT1.7-2.3-PA66HS-BK	DE	82	126-03000	YQR10016-PA66-GY	GB	60
118-00151	T50ROS-PA66HS-BK	BR	44	126-00143	T50SOSKSF62x122PT0.7-1.3 90°-PA66HS-BK	DE	82	126-03100	T50SOSFT6.5E-MDL-PA66HS-GN	DE	76
118-04701	T18ROS-PA66HS-BK	GB	44	126-00144	T50SOSKSF62x122PT1.7-2.3 90°-PA66HS-BK	DE	82	126-03102	T50SOSFT6.5E-PA66HS-BK	DE	62
118-04800	T30ROS-PA66HS-BK	GB	44	126-00147	T50SOSFT6.5E-MD-NA	CN	76	130-00012	TEXTIE S-PA66/PP-BK	ES	50
118-04900	T30LOS-PA66HS-BK	GB	44	126-00148	T50SOSKSF65E-MD-PA66HS-BK	CN	76	130-00013	TEXTIE M-PA66/PP-BK	ES	50
118-05040	T50ROS-PA66HS-BK	GB	44	126-00157	T60SOSFT65x130-E-PA66HS-NA	SG	82	130-00014	TEXTIE M-PA66/PP-RD	ES	50
118-05059	T50ROS-PA66HS-NA	GB	44	126-00161	T50SOSFT6.5E-MS-PA66HS-NA	CN	62	130-00016	TEXTIE M-PA66/PP-YE	ES	50
118-05078	T50ROS-PA46-GY	SG	44	126-00162	OS220-PM9-PA66HSW-BK	JP	59	130-00017	TEXTIE M-PA66/PP-GN	ES	50
118-05850	T50SOS-PA66HS-BK	GB	44	126-00164	T50SL8-PA46-NA	GB	59	130-00018	TEXTIE M-PA66/PP-BU	ES	50
118-05900	T50LOS-PA66HS-BK	GB	44	126-00165	OS150-PM172-WPJ-PA66HS-NA	CN	83	130-00019	TEXTIE L-PA66/PP-BK	ES	50
120-00080	HH20-PA66-NA	JP	295	126-00166	OS230-PM9-PA66HSW-BK	JP	59	130-00020	TEXTIE 5M-PA66/PP-BK	ES	50
120-40019	T18RA50-PA66HS-NA	DE	296	126-00168	T50SWPM7.0-PA66HS-BK	CN	59	130-00021	TEXTIE M-PA66/PP-WH	ES	50
120-40020	T18RA50-PA66HSW-BK	DE	296	126-00169	T50RWPM7.0-PA66HS-BK	CN	59	130-00022	TEXTIE 25M-PA66/PP-BK	ES	50
120-46009	T18RA3500-PA46-NA	DE	296	126-00171	T50XSFM-PA66HS-BK	CN	59	131-13120	RI 120-PA12-BK	DE	111
120-50009	T18RA3500-PA66HS-NA	DE	296	126-00173	T50SL7-PA66HS-BK	GB	59	131-14080	RI 80-PA12-BK	DE	111
120-50010	T18RA3500-PA66HSW-BK	DE	296	126-00176	T50SOSKSF5M-E-PA66HS-BK	DE	62	131-14160	RI160-PA12-BK	DE	111
121-00680	KR6/8-BU/RD	DE	314	126-00180	T50SOSKSF5.4E-MD-PA66HS-BK	SG	76	131-60058	SBR85-PA46-GY	DE	93
121-00889	KR8PNSE-ML	DE	314	126-00183	PT2ASF6.5PT0.7-1.5-E-PEEK-BGE	DE	75	131-60060	SBR5-PA66HS-BK	DE	93
121-58551	KR8/CS-PA66HS-NA	DE	47	126-00185	T50SOSKSF6.5PT2.4-3.0-PA66HS-BK	PL	62	131-60070	LFC155-PA66-BK	FR	95
121-63555	KR6/35-PA66HS-NA	DE	47	126-00186	T60SOSFT65x130-E-MS-MD-PA66HS-BK	SG	83	131-75510	RT250XL-PA66-BK	US	48
121-73390	KR8/33-PA66HS-BK	DE	47	126-00190	T50SOSEC20-MOD-PA66HIRHS-BK	FR	103	131-75519	RT250XL-PA66-NA	US	48
121-74359	KR8/43-PA66HS-NA	DE	47	126-00191	T60SOSFT62x122-E-PA66HS-BK	SG	82	131-75610	RT250M-PA66-BK	US	48
121-74360	KR8/43-PA66HS-BK	DE	47	126-00196	LRT18RWPM4.8-PA66V0-WH	JP	60	131-75619	RT250M-PA66-NA	US	48
121-82155	KR8/21-PA66HS-NA	DE	47	126-00199	T50SL7-PA46-NA	CN	59	132-00000	LHT370-PA66-BK	GB	119
121-83355	KR8/33-PA66HS-NA	DE	47	126-00202	T50SD6-PA66HS-BK	BR	62	132-00002	LHT370-PA66-BK	GB	119
121-83378	KR8/33-PA46-GY	DE	47	126-00206	T8RWPM3.5-PA66V0-WH	JP	59	132-00011	BT105L-PA66HIRHSUV-BK	US	119
121-83380	KR8/33-PA12-BK	DE	47	126-00207	T60SOSFT7125-E-PA66HS-BK	SG	82	132-00020	PFC300-PA66HS-BK	BR	119
121-98151	KR8/S1-PA66HS-NA	DE	47	126-00208	T60XSOSSFT62x122-E-MD-PA66HS-BK	DE	83	132-00200	DE863220-PA66HS-BK	GB	119
122-68019	SP KR6/8 replacement blade	DE	314	126-00226	T50SOSFT7-E-MD-PA66HS-NA	CN	76	132-20300	CT203-PA66HS-BK	DE	119
122-80032	SP KR8PNSE replacement blade	DE	314	126-00229	T50SOS3DOP65x130-E-PA46-GY	CN	86	132-37530	CT375-PA66HS-BK	SG	119
126-00000	T50SOSEC13E-PA66HS-BK	DE	103	126-00234	T50SOSKSF62x122-90-MD-PA66HS-BK	CN	83	132-37540	CT375-PA66HS-BK	SG	119
126-00001	T50SL5-PA66HS-BK	GB	58	126-00235	T50SOSEC20-E-PA66HS-BK	FR	103	133-00004	STECKERHALTER-OVALFUSS-PA-66HIRHS-BK	FR	168
126-00005	T50SL5-PA66HIRHS-BK	GB	58	126-00236	T50SWPM4.7-PA66-BK	CN	59	133-00034	T50RFT8GSD-PA66HS/PA66HIRHS-BK	DE	71
126-00015	T50SDOP-PA66HS-BK	GB	82	126-00249	T50SOAH75-E-PA66HS-BK	SG	62	133-00059	T40XCEC55P-E-PA66HS-BK	DE	103
126-00031	T50SST5-PA46-NA	GB	62	126-00250	T50ROSFT635S0125BMD-PA66HIRHS-BK	MX	76	133-00067	Halter SFT6.5-PA66HIRHS-BK	DE	155
126-00036	T50SOSEC34E-PA66HS-BK	DE	103	126-00252	OS130-SPM712-PA66HSW-BK	JP	82	133-00075	Edge-Clip25-PA66HIRHS-BK	DE	170
126-00042	T18RWPM-PA66HS-BK	US	59	126-00253	T50SOSEC12E-PA46-GY	DE	103	133-00392	CCVISFT6.5x130-PA66HIRHS-BK	DE	167
126-00047	T80SSF6.5F-PA66HIRHS-BK	FR	61	126-00254	T60XSOSSFT62x122-E-PA66HS-BK	DE	82	133-01476	MINICHNLU-PPT20-BK	US	141
126-00049	T50SFFM-PA66HIRHS-BK	US	58	126-00255	T30SOS-AS-SFT6.5-E-PA66HS-BK	DE	62	133-01477	90MINICHNL2-PPT20-BK	US	141
126-00056	T50SFF-PA66W-BK	CN	58	126-00258	T18RSF-PA46-NA	DE	58	133-01478	45MINICHNL2-PPT20-BK	US	141
126-00057	OS160FT5-PA66HSW-BK	JP	64	126-00259	T60XSOSSFT7125-E-PA66HS-BK	SG	82	133-01479	90MINICHNL-PPT20-BK	US	141
126-00060	OS130-PA66W-BK	JP	58	126-00263	T50SWPM4.7PT0.7-1.6-PA66HS-BK	CN	59	133-01480	45MINICHNL-PPT20-BK	US	141
126-00062	OS190-PA46-NA	JP	58	126-00268	OS80-PM46-PA66W-BK	JP	60	133-01553	T50SOSWSP5E-2-PA66HS-BK	DE	95
126-00064	OS190-PA66W-BK	JP	58	126-00269	OS150-PM7125-WPJ-PA66-NA	CN	83	133-03178	PC5AH6.5-PA66HIRHSUV-BK	US	177
126-00065	T50SOSFT6.5E-MS-MD-PA66HS-NA	DE	76	126-00270	T50SOS3DOP65x130-E-PA66HS-BK	BR	86	133-03179	PC55M6-PA66HIRHSUV-BK	US	191
126-00068	T50SOSST5EMDL-PA66HS-BK	DE	76	126-00278	OS150WPM5-PA66-BK	KR	59	133-03187	PC6.5X2-PA66HIRHSUV-BK	US	188
126-00071	OS150-PM6-WPJ-PA66-NA	JP	76	126-00279	OS150WPM7-PA66-BK	KR	59	133-03188	PC5X3-PA66HIRHSUV-BK	US	188
126-00075	T50SOSKSF5.4E-PA66HS-BK	PL	62	126-00283	OS180AH7125-E-PA66HS-BK	KR	82	148-00088	T50SOSWA2.0E-PA66HS-BK	DE	112
126-00076	T60SOSFT65x130-E-MD-PA66HS-NA	SG	83	126-00285	OS180SF712-E-PA66HS-BK	KR	82	148-00089	T50SOSWA1.8E-PA66HS-BK	DE	112
126-00079	T60SOSFT70x120-E-MD-PA66HS-BK	DE	83	126-00289	T30SOS-AS-SFT6.5E-MDL-PA66HS-BK	CN	76	148-00090	T50SOSWB1.8E-PA66HS-BK	DE	112
126-00080	T60SOSFT62x122-E-MD-PA66HS-BK	SG	83	126-00290	T50SFFM-PA12-BK	US	58	148-00091	T50SOSWB4.3E-PA66HS-BK	DE	112
126-00081	T50SOSKSF6.5E-PA66HS-BK	PL	62	126-00310	OS180AH75-LH-E-PA66HS-BK	SG	62	148-00092	T50SOSWA4.3E-PA66HS-BK	DE	112
126-00086	T50SOSKSF6.5S2-E-PA66HS-BK	BR	61	126-00313	T50SSL5-PA66HS-BK	BR	58	148-00093	T50SOSWB2.0E-PA66HS-BK	DE	112
126-00094	T80RSF6.5F-PA66-BK	PL	62	126-00319	OS170AH712-PA66HS-BK	KR	82	148-00095	T50SOSWA3.4E-PA66HS-BK	DE	112
126-00095	T50SST5-PA66-NA	BR	62	126-00323	OS170WPM712-PA6HS-BK	KR	60	148-00096	T50SOSWB3.4E-PA66HS-BK	DE	112
126-00096	T50SST5-PA66-BK	BR	62	126-00329	T30RSF-PA66HS-BK	DE	61	148-00100	Bracket brake line-PA66HS-NA	FR	112
126-00099	T50SOSKSF5E-PA66HS-BK	DE	62	126-00342	T50SOSEC1.0-3.OSV-E-PA66HIRHS-BK	FR	103	148-00101	Bracket brake line-PA46-GY	FR	112
126-00100	T50SOSFT6E-PA46-GY	DE	65	126-00700	T30RSF(U)-PA66HS-BK	MX	61	148-00110	T50SOSWA57J-PA66HSW-BK	JP	112
126-00101	T50VSL5-PA66-NA	GB	58	126-01001	T50RSF(E)-PA66-BK	GB	61	148-00200	T50SOSEC12E-PA66HS-BK	DE	103
126-00114	T50ROSAH6U-PA66HIRHS-NA	US	62	126-01005	T50RSF(U)-PA66HIRHSUV-BK	US	61	150-00700	T50IFT7-PA66HS-BK	DE	71
126-00116	T50RSFM-PA66HS-BK	US	58	126-01600	T50SDOR-PA66HS-BK	GB	82	150-01700	FT220DP7-PA66-BK	GB	66
126-00131	OS170-PM712-PA66HSW-BK	JP	82	126-01900	T50SL8-PA66-BK	GB	59	150-07010	CHDP66-PA66-BK	GB	146
126-00138	T50RWPM6-E-HEX-PA66HS-BK	GB	58								



Article-No.	Part Description	Country	Page	Article-No.	Part Description	Country	Page	Article-No.	Part Description	Country	Page
150-08110	CHA1-PA66HS-BK	CN	154	150-77936	T50RDHFT6-PA66HS/PA66HIRHS-BK	GB	70	151-00383	IACH4CH-PA66HIRHS-BK	FR	183
150-10140	T30RSB5-PA66HS/POM-BK	DE	97	150-77941	T50RFT6-PA66HS/PA66HIRHS-BK	SG	70	151-00384	IACH5BH-PA66HIRHS-BK	FR	183
150-10141	T50RSB5-PA66HS/POM-BK	DE	97	150-77950	T30RFT6-PA66HS/PA66HIRHS-BK	SG	70	151-00391	Open Plug 42x84-PA6HIR-BK	FR	199
150-10144	T50SSB5-PA66HS/POM-BK	CN	97	150-92300	RCC D21-PA66HIRHS-BK	DE	184	151-00392	Open Plug 55x70-PP-BK	FR	199
150-10149	T50ROSSB5-PA66HS/POM-BK	DE	97	150-92600	CONNECTOR-CLIP EC6-PA66HIRHS-BK	DE	171	151-00394	OPEN PLUG 34.6x112-PA66HIR-BK	FR	199
150-15395	T50SST5-PA66HIRHS-BK	FR	62	150-92904	T50RSBH5SD-PA66HS-BK	DE	98	151-00399	PLUG5.5-PA6HIR-BK	FR	197
150-15493	T80RSFT-PA66HS-BK	DE	78	150-92905	T80SBH5SD-PA66HS-BK	DE	98	151-00414	PLUGFT7-PA6HIR-BK	FR	198
150-16943	T50RSBH5-PA66HS-BK	DE	98	150-93100	T50ROSSFT6.5-D16-2 MD-PA66HS/PA66HIRHS-BK	DE	77	151-00415	PLUG SQ8x8-PA66HIR-BK	FR	197
150-16945	T80ISBH5-PA66HS-BK	DE	98	150-93130	T50SOSSFT6.5-D16-2-PA66HS/PA66HIRHS-BK	GB	63	151-00419	PLUG5 WITH OPENING-PA66HIRHS-BK	FR	197
150-18900	SBH3-PA66-BK	DE	190	150-95500	TC5FT6S-PA66HIRHS-BK	DE	146	151-00423	HC140SFT62x122-PA6HIR-BK	FR	173
150-21290	T30RSB55-PA66HS-BK	SG	96	151-00010	CTC175B56-PA66HIRHS-BK	DE	189	151-00424	Cover Plug 32-EPDM-BK	FR	199
150-21291	T50RSB55-PA66HS-BK	SG	96	151-00016	BC30-PA66HIRHS-BK	FR	157	151-00426	PLUG10-PE-BK	FR	197
150-21293	T50SSB55-PA66HS-BK	SG	96	151-00017	BC2212-PA66HIRHS-BK	DE	157	151-00428	PLUGFT6XL-PA46-BN	FR	197
150-21297	T80ISB55-PA66HS-BK	SG	96	151-00018	CTC10FT6LG-PA66HIRHS-BK	FR	185	151-00429	EC42-PA66HIRHS-BK	DE	170
150-21299	T50ROSSB55-PA66HS-BK	SG	96	151-00019	CTC13FT6LG-PA66HIRHS-BK	FR	185	151-00430	CTC43-PA66HIRHS-BK	DE	170
150-26100	FBS100-PA66-BK	DE	60	151-00021	CTC13FT6LG-PA66HIRHS-BK	FR	185	151-00431	BSCFT6.5 16-3-PA66HIRHS-BK	FR	145
150-26140	FBS140-PA66-BK	DE	60	151-00022	OCTCSFT6.5-PA66HIRHS-BK	DE	184	151-00437	HDM25-PA66HIRHSUV-BK	US	131
150-26180	FBS185-PA66-BK	DE	60	151-00022	EC30-PA66HIRHS-BK	DE	159	151-00439	HDM312-PA66HIRHSUV-BK	US	131
150-31090	T30RFT6LG-PA66HS/PA66HIRHS-BK	SG	69	151-00023	SOC6-PA66HIRHS-BK	DE	151	151-00447	OCTC1-PA66HIRHS-BK	FR	155
150-31091	T50RFT6LG-PA66HS/PA66HIRHS-BK	SG	69	151-00026	CTCLPROFILE-PA66HIRHS-BK	FR	184	151-00459	FT6LG.JAE.CONNECT.TS-PA66HIRHS-BK	DE	161
150-31093	T50SFT6LG-PA66HS/PA66HIRHS-BK	DE	69	151-00028	TC3FT6S-PA66HIRHS-BK	DE	146	151-00460	EC45-PA66HIRHS-BK	DE	170
150-31096	T80IFT6LG-PA66HS/PA66HIRHS-BK	SG	69	151-00029	TCOP70x120-PA66HIRHS-BK	DE	148	151-00464	EC6mod-PA66HIRHS-BK	DE	170
150-31098	T50RFT6LG-PA46-GY	DE	69	151-00074	SOC5FT6LG-PA66HIRHS-BK	PL	151	151-00465	CP21DOP-PA66HIRHS-BK	FR	166
150-31099	T50ROSFT6LG-PA66HS/PA66HIRHS-BK	SG	69	151-00077	CH20D6-PA66HS-BK	GB	149	151-00467	TC4FT6LG-A-PA66HIRHS-NA	DE	146
150-35930	T50RSP-PA66-BK	DE	78	151-00096	IPC10AH-PA66HIR-BK	GB	179	151-00472	EC JAE CC-PA66HIRHS-BK	FR	171
150-37591	T50RFT6OVAL-PA66HS/PA66HIRHS-BK	DE	84	151-00119	PC5DP7S-PA66-BK	FR	177	151-00484	TCSB5CYCC-PA66HIRHS-BK	DE	156
150-37595	BHT375-PA66HS-BK	DE	119	151-00134	HDM19-PA66HIRHSUV-BK	US	131	151-00485	PLUG11-PA66HIRHS-NA	FR	197
150-37691	T50RSFT6.5D18-PA66HS/PA66HIRHS-BK	DE	63	151-00151	EC28-PA66HIRHS-BK	DE	170	151-00496	CC03-PA66HIRHS-BK	US	164
150-37791	T50ROSSFT6.5 16-3-PA66HS/PA66HIRHS-BK	DE	63	151-00161	EC27-PA66HIRHS-BK	FR	192	151-00497	RB8APT-PA66-BK	GB	127
150-37792	T50RSFT6.5 16-3-PA66HS/PA66HIRHS-BK	GB	63	151-00162	CP6FT6-PA6HIR-BK	FR	162	151-00499	ECC1CPT-PA66HIRHS-BK	DE	171
150-37799	T50ROSSFT6.5 16-3MD-PA66HS/PA66HIRHS-BK	DE	77	151-00163	CP3FT6-PA66HIRHS-BK	FR	162	151-00513	YCCSF6T2122-PA66HIRHS-BK	FR	167
150-39385	T80RSF6.5FW-PA66HS-BK	FR	61	151-00164	HC90SFT62x122-PA6HIR-BK	FR	175	151-00572	CTAM2-PVDFX-NA	JP	129
150-39392	T80SSF6.5F-PA46-GY	DE	61	151-00174	EC39-PA6HIR-BK	FR	192	151-00597	CC04-PA66HIRHS-BK	US	164
150-39395	T80RSF6.5F-PA46-GY	FR	61	151-00180	YCCFT62x122-PA66HIRHS-BK	DE	164	151-00598	RCC D28-PA66HIRHS-BK	DE	184
150-40581	T50ROSEC5B-PA66HS/PA66HIRHS-BK	DE	106	151-00181	AHC3DH-PA66HIRHS-BK	FR	180	151-00605	TCOP62x122-PA66HIRHS-BK	DE	148
150-40582	T50RECSB-PA66HS/PA66HIRHS-BK	DE	106	151-00192	EC33-PA66HIRHS-BK	DE	170	151-00611	CCCE3.0TP-PA66HIRHS-BK	DE	171
150-40583	T50SOSEC5B-PA66HS/PA66HIRHS-BK	DE	106	151-00194	CCSFT7x12-PA66HIRHS-BK	DE	167	151-00620	CCISFT6.5x13-PA66HIRHS-BK	DE	167
150-40591	T50ROSEC5A-PA66HS/PA66HIRHS-BK	DE	106	151-00195	CHP3FT6-PA66HIRHS-BK	FR	182	151-00621	CTCL16FT6LG-PA66HIRHS-BK	US	186
150-40593	T50SOSEC5A-PA66HS/PA66HIRHS-BK	DE	106	151-00199	IACH2T-PA66HIRHS-BK	FR	182	151-00623	SOCHFT6-PA66HIRHSUV-BK	US	152
150-41397	CONNECTOR CLIP-PA66HIRHS-BK	FR	160	151-00207	IACH4T-PA66HIRHS-BK	FR	182	151-00629	SOC7FT6-PA66HIRHSUV-BK	US	151
150-45292	T50REC2.5B-PA66HS/PA66HIRHS-BK	DE	110	151-00208	AHC2BH-PA66HIRHS-BK	FR	181	151-00630	Universal Clip sealed-PA66HS-BK	DE	174
150-45299	T50ROSEC2.5A-PA66HS/PA66HIRHS-BK	DE	110	151-00213	IACH3T-PA66HIRHS-BK	FR	182	151-00645	HCEC3.0TPS-PA66HIRHS-BK	DE	192
150-45397	STAND OFF CLIP-PA66HIRHS-BK	FR	149	151-00214	CP31DOP-PA66HIRHS-BK	FR	166	151-00650	SOC8FT6-PA66HIRHS-NA	US	152
150-45398	STAND OFF CLIP-PA46-GY	FR	149	151-00215	TC4FT6LG-PA66HIRHS-BK	DE	146	151-00651	TC6FT6LG-PA66HIRHS-NA	US	146
150-47595	BHT375M-PA66HS-BK	SG	119	151-00216	CP2FT6-PA66HIRHS-BK	FR	162	151-00653	KR6G5-E/TFE-BU	JP	128
150-47700	SBF2-PA66-BK	DE	191	151-00223	IACH1T-PA66HIRHS-BK	FR	182	151-00654	KR8G5-E/TFE-BU	JP	128
150-48396	T80RFT6X12-PA66-BK	DE	60	151-00234	EC41-PA6HIR-BK	FR	192	151-00662	BCFT6XL56-PA66HIRHS-BK	DE	146
150-48397	T80RFT6X12-PA46-GY	DE	60	151-00235	Big YCC TS-PA66HIRHS-BK	DE	161	151-00663	TC6FT6-PA66HIRHS-BK	US	146
150-52690	T30RFT6SD-PA66HS/PA66HIRHS-BK	SG	69	151-00281	BCO56-PA66HIRHS-BK	DE	155	151-00665	SOC8FT6LG-PA66HIRHS-BK	DE	151
150-55500	REL30SDP6-PA66-BK	GB	74	151-00333	TRIM PLUG 5-PA66HIR-NA	FR	197	151-00677	CC08-PA66HIRHS-NA	US	162
150-55550	T50SDP6-PA66HIRHS-BK	GB	66	151-00335	OHC16-PA66HIRHS-BK	FR	175	151-00680	HC48FT6-PA66HIRHS-BK	US	176
150-55610	T18RDP5-PA66-BK	GB	64	151-00336	OHC8-PA66HIRHS-BK	FR	175	151-00700	CTC4.5SB56-PA66HIRHS-BK	FR	189
150-55850	T30RFT5-PA66HS/PA66HIRHS-BK	DE	68	151-00340	SFC3-F-PA66W-BK	FR	143	151-00701	CTC7.5SB56-PA66HIRHS-BK	FR	189
150-56193	T50SDSB55-PA66HS/PA66HIRHS-BK	DE	99	151-00342	Cover Plug 20x50-PP/EPDM-BK	FR	199	151-00702	CTC10SB56-PA66HIRHS-BK	DE	189
150-56199	T50ROSDSB55-PA66HS/PA66HIRHS-BK	DE	99	151-00343	Cover Plug 20-PP/EPDM-BK	FR	199	151-00703	CTC13SB56-PA66HIRHS-BK	FR	189
150-74890	T30RFT6D10-PA66HS/PA66HIRHS-BK	DE	70	151-00366	AHC1AH-PA66HIRHS-BK	FR	180	151-00725	HTS9-PA66-BK	BR	173
150-76079	T50ROSEC4B-PA66HS/PA66HIRHS-BK	DE	105	151-00367	AHC2AH-PA66HIRHS-BK	FR	180	151-00734	RA6-PA66-NA	BR	126
150-76080	T30REC4B-PA66HS/PA66HIRHS-BK	DE	105	151-00368	AHC2SS-PA66HIRHS-BK	FR	180	151-00735	RA9-PA66-NA	BR	126
150-76090	T30REC4A-PA66HS/PA66HIRHS-BK	DE	105	151-00370	AHC3BHR-PA66HIRHS-BK	FR	181	151-00736	RA13-PA66-NA	BR	126
150-76091	T50REC4A-PA66HS/PA66HIRHS-BK	DE	105	151-00371	AHC3CHR-PA66HIR-BK	FR	181	151-00737	RA18-PA66-NA	BR	126
150-76093	T50SOSEC4A-PA66HS/PA66HIRHS-BK	DE	105	151-00372	AHC3SB-PA66HIRHS-BK	FR	180	151-00739	RA18-PA66-BK	BR	126
150-76099	T50ROSEC4A-PA66HS/PA66HIRHS-BK	DE	105	151-00374	AHC4AH-PA66HIRHS-BK	FR	180	151-00740	RA6-PA66-BK	BR	126
150-77591	T50RSBH5SD-14-PA66HS-BK	DE	98	151-00378	IACH3AH-PA66HIRHS-BK	FR	183	151-00741	PC23-PA66-BK	BR	177
150-77932	T30LRF6-PA66HS/PA66HIRHS-BK	GB	70	151-00381	IACH3CH-PA66HIRHS-BK	FR	183	151-00752	WPC10-PA66-NA	BR	173
				151-00382	IACH4AH-PA66HIRHS-BK	FR	183	151-00753	WS02-PA66-NA	BR	174

Article-No.	Part Description	Country	Page	Article-No.	Part Description	Country	Page	Article-No.	Part Description	Country	Page
151-00757	CTAM1-PEEK-BGE	JP	129	151-01049	LOC15-19FTOVAL-PA66HIRHSUV-BK	MX	187	151-01273	YCCSFT6.5X13PT0.6-2.0-MD-PA-66HIRHS/EPDM-BK	CN	168
151-00758	CTAM2-PEEK-BGE	JP	129	151-01051	BC90FT6B-PA66HIRHS-BK	US	142	151-01285	LOC15-19FT6LG-PA46-GY	US	187
151-00759	BCFT63x100S-PA66HIRHS-BK	DE	148	151-01056	DUALM6DOCK-PA66HS-BK	US	188	151-01286	CCOVAL5-PA66HIRHS-BK	US	166
151-00765	CC09-PA66HIRHS-BK	US	164	151-01057	CCFTOVAL-PA66HIRHS-BK	CN	165	151-01290	EC52-PA66HIRHSUV-BK	MX	171
151-00775	CCSFT6.5-PA66HIRHS-BK	FR	163	151-01058	CCEC3.0SV-PA66HIRHS-BK	CN	171	151-01294	CCFT6T511-PA46-GY	CN	162
151-00783	CTCFT6-PA66HIRHS-BK	FR	185	151-01061	FC20D6A-PA66-BK	KR	144	151-01295	CC17-PA66HIRHS-BK	US	165
151-00785	CCFT6LG-PA66HIRHS-BK	FR	162	151-01062	FC20D6A1-MD-PA66-NA	KR	144	151-01297	CC16-PA66HIRHS-BK	US	165
151-00787	IAHC5FH-PA66HIRHS-BK	FR	183	151-01063	FC20D6B-PA66-BK	KR	144	151-01301	BCHSFT712-MD-PA66HIRHS-BK	CN	147
151-00792	YCCSFT6.5-PT1.7-2.3-PA66HIRHS-BK	DE	163	151-01064	FC20D6B1-MD-PA66-NA	KR	144	151-01304	M6PUSHPIN-PA66HIRHSUV-BK	US	198
151-00807	CC10-PA66HIRHS-BK	US	164	151-01067	BC20SFT6.5-MD-PA66HIRHS/EPDM-BK	CN	150	151-01306	LOC5-9FTOVAL-PA66HIRHSUV-BK	US	187
151-00819	EC17-PA46-GY	DE	158	151-01070	BC20KSFT6.5-PA66HIRHS-BK	CN	150	151-01312	CCSFT6.5X12.5-MD-PA66HIRHS-BK	CN	167
151-00822	Beam Clamp B-PA6GF30-BK	DE	194	151-01071	M6PUSHPIN-PA46-BK	US	198	151-01317	FT6.5 Plug-PA66HIRHSUV-BK	US	198
151-00823	Beam Clamp C-PA6GF30-BK	DE	194	151-01078	AHC223FT6LG-PA66HIRHS-BK	FR	181	151-01323	CCSFT6.5-MOD-PA66HIRHS-BK	CN	163
151-00830	CH20FT6-PA66HIRHS-BK	CN	152	151-01082	HC6-13FT6.5-PA66HS-BK	CN	176	151-01329	SOC5FT6S-PA66HIRHS-BK	CN	151
151-00833	YCCSFT62x122PT0.7-1.3 90°-PA-66HIRHS-BK	FR	167	151-01094	BC70SFT712-MD-PA66HIRHS-BK	CN	147	151-01331	SOC32SFT65X130-MD-PA66HIRHS-BK	CN	150
151-00834	YCCSFT62x122PT1.7-2.3 90°-PA-66HIRHS-BK	FR	167	151-01108	CCOVAL2-PA66HIRHS-BK	US	166	151-01335	BC13FT6.35-PA66HIRHS-BK	CN	152
151-00835	YCCSFT62x122PT0.7-1.3-PA66HIRHS-BK	FR	167	151-01109	BC90AH2-PA66HIRHSUV-BK	US	142	151-01336	CC15FT7-MD-PA66HIRHS-BK	CN	163
151-00836	YCCSFT62x122PT1.7-2.3-PA66HIRHS-BK	FR	167	151-01113	EC46-PA66HIRHSUV-BK	US	171	151-01337	CC25FT7-MD-PA66HIRHS-BK	CN	163
151-00840	CC-PAEK5FT6.5PT1.7-2.3-PA66HIRHS-BK	FR	163	151-01114	PLUGSFT8.4-POM-NA	CN	198	151-01342	CN19-PA66HIRHSUV-BK	US	162
151-00851	BCUW55-D5-25-PA66HIRHS-NA	DE	156	151-01115	CTCL4.5FT6LG-PA66HIRHS-BK	DE	186	151-01356	YCCSFT6.5x13PT2.5-3.5-PA66HIRHS-BK	CN	167
151-00852	HC512FT7J-PA66HSW-BK	JP	176	151-01119	BCBRKTSB5-PA66HIRHSUV-BK	US	156	151-01358	CCFT8X15-PA66HIRHS-BK	CN	164
151-00853	HC1220FT7J-PA66HSW-BK	JP	176	151-01124	CCIEC6-MOD-PA66HIRHS-BK	CN	171	151-01360	SOC30D6-MD-PA66HIRHS-BK	SG	150
151-00855	CCLOP62X122-PA66HIRHS-BK	FR	165	151-01125	SOC13FT6LGL-PA66HIRHS-GY	US	152	151-01363	FT6.5 PLUG-PA46-BK	US	198
151-00857	MB1-PA66-NA	BR	130	151-01126	SOC13FT6LGR-PA66HIRHSUV-BK	US	152	151-01371	LOC20-25FT6.5LG-PA66HIRHSUV-BK	US	187
151-00858	MB2-PA66-NA	BR	130	151-01127	FT6LG2CT2-MOD-PA66HIRHS-BK	CN	162	151-01376	AHC336FT6LG-PA66HIRHS-BK	FR	181
151-00862	MB2-PA66-BK	BR	130	151-01136	CC12-PA66HIRHS-BK	US	165	151-01377	AHC45BH2-PA46-GY	FR	181
151-00868	IPC13P-PA66-BK	BR	179	151-01141	CCFT6LG-TS-PA66HIRHS-BK	CN	162	151-01390	RCB180SM10-PA66HIRHSUV/ST/ZN-BK	US	136
151-00869	IPC23P-PA66-BK	BR	179	151-01144	CC11-PA66HIRHSUV-BK	US	164	151-01392	CCWA4.5-PA66HIRHS-BK	DE	169
151-00870	IPC5P-PA66-BK	BR	179	151-01153	SOC9FT6-PA66HIRHSUV-NA	US	152	151-01397	CC20-PA66HIRHSUV-BK	US	165
151-00884	TC30FT6LG-PA66-BK	KR	146	151-01154	SOC9FT6XLG-PA66HIRHS-NA	US	152	151-01404	BCBRKTS5M-PA66HIRHS-NA	US	160
151-00886	Beam Clamp D-PA6GF30-BK	DE	194	151-01157	CCIV5FT6513T4-PA66-BK	KR	168	151-01405	HC48FT5-PA66HIRHS-BK	FR	176
151-00899	HC2x7.3AH13-UV-PA66W-BK	DE	173	151-01159	SOC30D6MD-PA66-NA	SG	150	151-01416	RCA180SM8-PA66HIRHSUV/ST/ZN-BK	US	134
151-00903	SOC10FT6LG-PA66HIRHS-NA	US	152	151-01166	LOC1014FT6LG-PA66HIRHSUV-BK	US	187	151-01417	RCA180SM10-PA66HIRHSUV/ST/ZN-BK	US	134
151-00911	HFTP48-PEEK-BGE	DE	284	151-01177	CNCTC8FT6.5LG-PA66HIRHS-BU	CN	185	151-01418	RCA180SM12-PA66HIRHSUV/ST/ZN-BK	US	134
151-00914	CP2FT6-PA46-GY	FR	162	151-01184	CC13-PA66HIRHS-BK	US	165	151-01419	RCA180MM8-PA66HIRHSUV/ST/ZN-BK	US	135
151-00915	CP21DOP-PA46-GY	FR	166	151-01186	Beam Clamp B with foam-PA6GF30-BK	DE	194	151-01420	RCA180MM10-PA66HIRHSUV/ST/ZN-BK	US	135
151-00918	CP61DOP-PA66HIRHS-BK	FR	166	151-01187	Beam Clamp C with foam-PA6GF30-BK	DE	194	151-01421	RCA180MM12-PA66HIRHSUV/ST/ZN-BK	US	135
151-00925	CCOVAL-PA66HIRHS-BK	US	166	151-01188	Beam Clamp D with foam-PA6GF30-BK	DE	194	151-01422	RCA180LM8-PA66HIRHSUV/ST/ZN-BK	US	135
151-00927	SC6.6-PA66HIRHSUV-BK	US	176	151-01193	MB4A-PT1100-PA66-BK	GB	123	151-01423	RCA180LM10-PA66HIRHSUV/ST/ZN-BK	US	135
151-00928	AHC3EH2-PA66HIRHS-BK	FR	180	151-01195	AHC3BH2-PA46-GY	FR	181	151-01424	RCA180LM12-PA66HIRHSUV/ST/ZN-BK	US	135
151-00937	AHC3CH2-PA66HIRHS-BK	FR	181	151-01196	CCSB55-PA66HIRHS-BK	FR	169	151-01425	RCA15SM8-PA66HIRHSUV/ST/ZN-BK	US	134
151-00958	OHC60DOP-PA66HIRHS-BK	FR	174	151-01198	AHC25FT6LG-PA66HIRHS-BK	FR	181	151-01426	RCA15SM10-PA66HIRHSUV/ST/ZN-BK	US	134
151-00965	YCCFT6LGT52-PA66HIRHS-BK	DE	162	151-01199	CC15-PA66HIRHS-BK	US	165	151-01427	RCA15SM12-PA66HIRHSUV/ST/ZN-BK	US	134
151-00970	SOC20FT5-PA66HIRHS-BK	CN	152	151-01206	EC48-PA66HIRHS-BK	US	159	151-01428	RCA30SM8-PA66HIRHSUV/ST/ZN-BK	US	134
151-00980	CCSFT5-PA66HIRHS-BK	CN	163	151-01213	SOC25FT712-PA66HIRHS-BK	CN	153	151-01429	RCA30SM10-PA66HIRHSUV/ST/ZN-BK	US	134
151-00992	SOC11FTOVAL-PA66HIRHS-BK	US	153	151-01217	BC70LFT712-PA66HIRHS-BK	CN	153	151-01430	RCA30SM12-PA66HIRHSUV/ST/ZN-BK	US	134
151-00993	BC90FT6-PA66HIRHS-BK	US	142	151-01219	LOC10-14FT6LG-PA46-GY	US	187	151-01431	RCA30LM8-PA66HIRHSUV/ST/ZN-BK	US	135
151-00994	BC90AH-PA66HIRHSUV-BK	US	142	151-01224	HDM400BR-PA66HIRHSUV-BK	US	131	151-01432	RCA30LM10-PA66HIRHSUV/ST/ZN-BK	US	135
151-00995	SOC31SFT6.5PT2.5-PA66HIRHS-BK	FR	149	151-01239	BCFTOVAL-PA66HIRHS-NA	US	148	151-01433	RCA30LM12-PA66HIRHSUV/ST/ZN-BK	US	135
151-01003	CCSFT6.2x12.2-PA66HIRHS-BK	US	168	151-01240	BCFTOVAL2-PA66HIRHS-NA	US	148	151-01434	RCA90SM8-PA66HIRHSUV/ST/ZN-BK	US	134
151-01004	CCSFT8.5X16-PA66HIRHS-BK	CN	168	151-01243	CC14-PA66HIRHS-NA	US	163	151-01435	RCA90SM10-PA66HIRHSUV/ST/ZN-BK	US	134
151-01005	BC80DOP63x10-PA66HIRHS-BK	CN	148	151-01244	CCOVAL3-PA66HIRHS-BK	US	166	151-01436	RCA90SM12-PA66HIRHSUV/ST/ZN-BK	US	134
151-01014	BCLSFT712-PA66HIRHS-BK	CN	147	151-01245	PLUGFTOVAL-PA66HIRHSUV-BK	US	198	151-01437	RCA90LM8-PA66HIRHSUV/ST/ZN-BK	US	134
151-01017	LOC59FT6LG-PA66HIRHSUV-BK	US	187	151-01246	CCOVAL4-PA66HIRHS-BK	US	166	151-01438	RCA90LM10-PA66HIRHSUV/ST/ZN-BK	US	134
151-01018	SOC13FTOVAL-PA66HIRHS-BK	DE	153	151-01249	CC90BRKT-PA66HIRHSUV-BK	US	160	151-01439	RCA90LM12-PA66HIRHSUV/ST/ZN-BK	US	135
151-01022	LOC15-19FT6LG-PA66HIRHSUV-BK	US	187	151-01252	TCAH7x12-PA66HS-BK	BR	147	151-01440	RCB180SM8-PA66HIRHSUV/ST/ZN-BK	US	135
151-01023	LOC15-19FT6LG2-PA66HIRHS-BK	US	187	151-01253	CCSAH7x12-PA66HS-BK	BR	147	151-01441	RCB180SM12-PA66HIRHSUV/ST/ZN-BK	US	135
151-01025	LOC15-19FT6LGSO-PA66HIRHS-BK	US	187	151-01254	TCCSFT6.2x12.2-MD-PA66HIRHS/EPDM-BK	CN	168	151-01442	RCB180MM8-PA66HIRHSUV/ST/ZN-BK	US	135
151-01033	CCOVAL6-PA66HIRHS-BK	US	166	151-01255	SOC20SFT712-MD-PA66HIRHS/EPDM-BK	CN	150	151-01443	RCB180MM10-PA66HIRHSUV/ST/ZN-BK	US	135
151-01036	BC70SFT712-PA66HIRHS-BK	CN	147	151-01262	BC37FT7LG-PA66HIRHS-BK	DE	146	151-01444	RCB180MM12-PA66HIRHSUV/ST/ZN-BK	US	135
151-01037	BCHSFT712-PA66HIRHS-BK	CN	147	151-01267	Universal Clip-PA66HS-BK	DE	174	151-01445	RCB180LM8-PA66HIRHSUV/ST/ZN-BK	US	136
151-01038	CNCTC8FT6.5LG-PA66HIRHS-BK	CN	185	151-01271	FT6.5LGC05-9-PA66HIRHS-BK	CN	176	151-01446	RCB180LM10-PA66HIRHSUV/ST/ZN-BK	US	136
151-01042	EC54-PA66HIRHSUV-BK	MX	171	151-01272	TCCSFT6.5X13PT0.6-2.0-MD-PA-66HIRHS/EPDM-BK	CN	168	151-01447	RCB180LM12-PA66HIRHSUV/ST/ZN-BK	US	136
151-01044	SB5CC-PA66HIRHS-BK	US	169					151-01448	RCB15SM8-PA66HIRHSUV/ST/ZN-BK	US	135

Article-No.	Part Description	Country	Page	Article-No.	Part Description	Country	Page	Article-No.	Part Description	Country	Page
151-01449	RCB155M10-PA66HIRHSUV/ST/ZN-BK	US	135	151-01537	BCBRKT55M-PP5-GY	US	160	151-01872	BCOWFT5-PA66HIRHS-BK	PL	146
151-01450	RCB155M12-PA66HIRHSUV/ST/ZN-BK	US	135	151-01540	SOC30D6MD-PA66-NA	KR	150	151-01876	CCWA3.4-PA66HIRHS-BK	PL	169
151-01451	RCB30SM8-PA66HIRHSUV/ST/ZN-BK	US	135	151-01543	CTC8FT6-PA66HIRHS-BK	CN	185	151-01878	CCFT5-6D16-PA66HIRHS-BK	PL	161
151-01452	RCB30SM10-PA66HIRHSUV/ST/ZN-BK	US	135	151-01550	YCKSFT75x150-PA66HIRHS-BK	KR	168	151-01879	BCOWFT8-PA66HIRHS-BK	PL	146
151-01453	RCB30SM12-PA66HIRHSUV/ST/ZN-BK	US	135	151-01552	OC18SFT6.5PT0.7-2.0-PA66HIRHS-BK	DE	177	151-01880	LC9FTOVAL-PA66HIRHS-BK	PL	186
151-01454	RCB30LM8-PA66HIRHSUV/ST/ZN-BK	US	135	151-01570	COW20SFT7-PA66HS-BK	SG	149	151-01882	ATSBCSOC6.2x12.2-PA66HIRHS-BK	PL	153
151-01455	RCB30LM10-PA66HIRHSUV/ST/ZN-BK	US	135	151-01582	RFID HEXTAG-PA66-YE	GB	277	151-01884	BCSFTOVAL2-PA66HIRHSUV-NA	US	148
151-01456	RCB30LM12-PA66HIRHSUV/ST/ZN-BK	US	135	151-01598	SOC30D6-PA66-NA	SG	149	151-01888	BCFTOVALXL-PA66HIRHS-NA	US	148
151-01457	RCB90SM8-PA66HIRHSUV/ST/ZN-BK	US	135	151-01600	SFC-PA66-NA	FR	143	151-01902	BC40AH712-PA66-BK	KR	147
151-01458	RCB90SM10-PA66HIRHSUV/ST/ZN-BK	US	136	151-01624	BC40AH712-PA66-GY	KR	147	151-01903	BC55AH712-PA66-BK	KR	147
151-01459	RCB90SM12-PA66HIRHSUV/ST/ZN-BK	US	135	151-01625	BC55AH712-PA66-GY	KR	147	151-01906	SFC3-PA66-BK	GB	143
151-01460	RCB90LM8-PA66HIRHSUV/ST/ZN-BK	US	135	151-01628	RCD90LM6-PA66HIRHSUV/ST/ZN-BK	US	137	151-02000	SFC2-PA66-NA	FR	143
151-01461	RCB90LM10-PA66HIRHSUV/ST/ZN-BK	US	135	151-01637	RCA180SM6-PA66HIRHSUV/ST/ZN-BK	US	134	151-02051	CC22-PA66HIRHSUV-BK	US	165
151-01462	RCB90LM12-PA66HIRHSUV/ST/ZN-BK	US	135	151-01638	RCA180MM6-PA66HIRHSUV/ST/ZN-BK	US	135	151-02061	90RADMINICHNL-PPT20-BK	MX	141
151-01466	CC15FT7PT2.3-3.5-PA66HIRHS-BK	CN	163	151-01639	RCA180LM6-PA66HIRHSUV/ST/ZN-BK	US	135	151-02062	CC15VFT6513T3-PA66HIRHS-BK	KR	168
151-01472	RFID CRADLE-TPU-YE	GB	278	151-01640	RCA155M6-PA66HIRHSUV/ST/ZN-BK	US	134	151-02064	SOC30AH6-PA66HIRHS-BK	KR	149
151-01474	RCC180SM8-PA66HIRHSUV/ST/ZN-BK	US	136	151-01641	RCA30SM6-PA66HIRHSUV/ST/ZN-BK	US	134	151-02065	BC with tube-Oval-PA66HIRHS-BK	KR	147
151-01475	RCC180SM10-PA66HIRHSUV/ST/ZN-BK	US	137	151-01642	RCA30LM6-PA66HIRHSUV/ST/ZN-BK	US	135	151-02122	CCOVAL-S-PA66HIRHS-BK	CN	165
151-01476	RCC180SM12-PA66HIRHSUV/ST/ZN-BK	US	136	151-01643	RCA90SM6-PA66HIRHSUV/ST/ZN-BK	US	134	151-02154	BC52PAE-TP-PA66HIRHS-BK	PL	160
151-01477	RCC180MM8-PA66HIRHSUV/ST/ZN-BK	US	136	151-01644	RCA90LM6-PA66HIRHSUV/ST/ZN-BK	US	134	151-02176	TC2FT6LG-PA66HIRHS-BK	BR	146
151-01478	RCC180MM10-PA66HIRHSUV/ST/ZN-BK	US	136	151-01645	RCB180SM6-PA66HIRHSUV/ST/ZN-BK	US	135	151-02204	MWC12-PA66-BK	KR	173
151-01479	RCC180MM12-PA66HIRHSUV/ST/ZN-BK	US	136	151-01646	RCC180MM6-PA66HIRHSUV/ST/ZN-BK	US	135	151-02206	CC16R-PA66HIRHS-BK	US	165
151-01480	RCC180LM8-PA66HIRHSUV/ST/ZN-BK	US	137	151-01647	RCB180LM6-PA66HIRHSUV/ST/ZN-BK	US	136	151-02219	FMB4APT-A-PA66HS-BK	PL	122
151-01481	RCC180LM10-PA66HIRHSUV/ST/ZN-BK	US	137	151-01648	RCB155M6-PA66HIRHSUV/ST/ZN-BK	US	135	151-02236	TCOP62X122-PA66HIRHSUV-BK	BR	148
151-01482	RCC180LM12-PA66HIRHSUV/ST/ZN-BK	US	137	151-01649	RCB30SM6-PA66HIRHSUV/ST/ZN-BK	US	135	151-02243	MB2APT-A-PA66-BK	DE	123
151-01483	RCC155M8-PA66HIRHSUV/ST/ZN-BK	US	136	151-01650	RCB30LM6-PA66HIRHSUV/ST/ZN-BK	US	135	151-02244	MB3APT-A-PA66-BK	DE	123
151-01484	RCC155M10-PA66HIRHSUV/ST/ZN-BK	US	136	151-01651	RCB90SM6-PA66HIRHSUV/ST/ZN-BK	US	135	151-02245	MB4APT-A-PA66-BK	DE	123
151-01485	RCC155M12-PA66HIRHSUV/ST/ZN-BK	US	136	151-01652	RCB90LM6-PA66HIRHSUV/ST/ZN-BK	US	135	151-02246	MB4APT-A-PA66-WH	DE	123
151-01486	RCC30SM8-PA66HIRHSUV/ST/ZN-BK	US	136	151-01653	RCC180SM6-PA66HIRHSUV/ST/ZN-BK	US	136	151-02247	MB5APT-A-PA66-BK	DE	123
151-01487	RCC30SM10-PA66HIRHSUV/ST/ZN-BK	US	136	151-01654	RCC180MM6-PA66HIRHSUV/ST/ZN-BK	US	136	151-02431	CCDOP62X122-PA66HIRHS-BK	FR	165
151-01488	RCC30SM12-PA66HIRHSUV/ST/ZN-BK	US	136	151-01655	RCC180LM6-PA66HIRHSUV/ST/ZN-BK	US	137	151-02600	CH20D7-PA66-BK	GB	149
151-01489	RCC30LM8-PA66HIRHSUV/ST/ZN-BK	US	136	151-01656	RCC155M6-PA66HIRHSUV/ST/ZN-BK	US	136	151-02901	CHA2-PA66-BK	CN	154
151-01490	RCC30LM10-PA66HIRHSUV/ST/ZN-BK	US	136	151-01657	RCC30SM6-PA66HIRHSUV/ST/ZN-BK	US	136	151-03100	COW20DP7-PA66HS-BN	FR	151
151-01491	RCC30LM12-PA66HIRHSUV/ST/ZN-BK	US	136	151-01658	RCC30LM6-PA66HIRHSUV/ST/ZN-BK	US	136	151-03200	COW30DP7-PA66-BK	FR	151
151-01492	RCC90SM8-PA66HIRHSUV/ST/ZN-BK	US	136	151-01659	RCC90SM6-PA66HIRHSUV/ST/ZN-BK	US	136	151-03301	CTM55-PA66-BK	GB	190
151-01493	RCC90SM10-PA66HIRHSUV/ST/ZN-BK	US	137	151-01660	RCC90LM6-PA66HIRHSUV/ST/ZN-BK	US	136	151-03401	EC15-PA66HIRHS-BK	DE	158
151-01494	RCC90SM12-PA66HIRHSUV/ST/ZN-BK	US	136	151-01661	RCD180SM6-PA66HIRHSUV/ST/ZN-BK	US	137	151-03402	EC16-PA66HIRHS-BK	DE	158
151-01495	RCC90LM8-PA66HIRHSUV/ST/ZN-BK	US	136	151-01662	RCD180MM6-PA66HIRHSUV/ST/ZN-BK	US	137	151-03403	EC17-PA66HIRHS-BK	DE	158
151-01496	RCC90LM10-PA66HIRHSUV/ST/ZN-BK	US	136	151-01663	RCD180LM6-PA66HIRHSUV/ST/ZN-BK	US	137	151-03404	EC14-PA66HIRHS-BK	DE	158
151-01497	RCC90LM12-PA66HIRHSUV/ST/ZN-BK	US	136	151-01664	RCD155M6-PA66HIRHSUV/ST/ZN-BK	US	137	151-06500	DSWS4-PA66HS-POM-BK	US	193
151-01499	RCD180SM8-PA66HIRHSUV/ST/ZN-BK	US	137	151-01665	RCD30SM6-PA66HIRHSUV/ST/ZN-BK	US	137	151-06502	DSWS5-PA66HS-BK	US	193
151-01501	RCD180SM10-PA66HIRHSUV/ST/ZN-BK	US	137	151-01666	RCD30LM6-PA66HIRHSUV/ST/ZN-BK	US	137	151-07100	HDM321-PA66HIRHSUV-BK	US	131
151-01502	RCD180SM12-PA66HIRHSUV/ST/ZN-BK	US	137	151-01667	RCD90SM6-PA66HIRHSUV/ST/ZN-BK	US	137	151-07300	HDM401-PA66HIRHSUV-BK	US	131
151-01503	RCD180MM8-PA66HIRHSUV/ST/ZN-BK	US	137	151-01669	YCKSFT75x150-PA66HIR-BK	KR	168	151-07500	HDM501-PA66HIRHSUV-BK	US	131
151-01504	RCD180MM10-PA66HIRHSUV/ST/ZN-BK	US	137	151-01670	RCA180SM6-PA66HIRHSUV/ST/ZN-BK	US	134	151-08101	LR1-PA6-BK	FR	145
151-01505	RCD180MM12-PA66HIRHSUV/ST/ZN-BK	US	137	151-01671	RCB180SM6-PA66HIRHSUV/ST/ZN-BK	US	135	151-11310	TY3G15-PA66W-BK	DE	125
151-01506	RCD180LM8-PA66HIRHSUV/ST/ZN-BK	US	137	151-01672	RCC180SM6-PA66HIRHSUV/ST/ZN-BK	US	136	151-11819	TY8G15-PA66-NA	DE	125
151-01507	RCD180LM10-PA66HIRHSUV/ST/ZN-BK	US	137	151-01673	RCD180SM6-PA66HIRHSUV/ST/ZN-BK	US	137	151-13018	RA3-PA66-NA	GB	126
151-01508	RCD180LM12-PA66HIRHSUV/ST/ZN-BK	US	137	151-01676	CCIVSFT65130-MD-PA66HIR-BK	KR	168	151-13020	RA9-PA66-NA	GB	126
151-01509	RCD155M8-PA66HIRHSUV/ST/ZN-BK	US	137	151-01678	RCA180SM10-PA66ECHRHS/ST/ZN-BK	US	134	151-13021	RA13-PA66-NA	GB	126
151-01510	RCD155M10-PA66HIRHSUV/ST/ZN-BK	US	137	151-01698	CCSBS6-PA66HIRHS-BK	CN	169	151-13119	RA18-PA66-NA	GB	126
151-01511	RCD155M12-PA66HIRHSUV/ST/ZN-BK	US	137	151-01800	MB2A-PA66-BK	GB	124	151-13403	RA6-PA66-NA	GB	126
151-01512	RCD30SM8-PA66HIRHSUV/ST/ZN-BK	US	137	151-01807	CCSFT8.0x15.0-PA66-BK	PL	168	151-13601	RB8-PA66-BK	GB	127
151-01513	RCD30SM10-PA66HIRHSUV/ST/ZN-BK	US	137	151-01809	CCSFT6.3-PA66-BK	PL	163	151-14130	IPC13AH-PA66-BK	GB	179
151-01514	RCD30SM12-PA66HIRHSUV/ST/ZN-BK	US	137	151-01837	Big Connector Clip-PA66HIRHS-BK	PL	163	151-14132	IPC13P-PA66-BK	GB	179
151-01515	RCD30LM8-PA66HIRHSUV/ST/ZN-BK	US	137	151-01838	F76LG CC-PA66HIRHS-BK	PL	161	151-14300	PC23-PA66-BK	GB	177
151-01516	RCD30LM10-PA66HIRHSUV/ST/ZN-BK	US	137	151-01840	SOC10405-PA66HIRHS-BK	PL	152	151-14311	CTC10FT6-PA66HIRHS-BK	FR	186
151-01517	RCD30LM12-PA66HIRHSUV/ST/ZN-BK	US	137	151-01841	YCCFT65-2-PA66HIRHS-BK	PL	162	151-14312	CTC13FT6-PA66HIRHS-BK	FR	186
151-01518	RCD90SM8-PA66HIRHSUV/ST/ZN-BK	US	137	151-01842	YCCFT82x185-PA66HIRHS-BK	PL	164	151-14313	CTC7.5FT6LG-PA66HIRHS-BK	FR	185
151-01519	RCD90SM10-PA66HIRHSUV/ST/ZN-BK	US	137	151-01843	KSFT6.5OC1-3-PA66HIRHS-BK	PL	172	151-14314	CTC4.5FT6LG-PA66HIRHS-BK	FR	185
151-01520	RCD90SM12-PA66HIRHSUV/ST/ZN-BK	US	137	151-01844	KSFT6.5OC7-9-PA66HIRHS-BK	PL	172	151-14400	IPC10P-PA66HIR-BK	GB	179
151-01521	RCD90LM8-PA66HIRHSUV/ST/ZN-BK	US	137	151-01862	EC32-PA66HIRHS-BK	PL	170	151-14500	IPC15AH-PA66-BK	GB	179
151-01522	RCD90LM10-PA66HIRHSUV/ST/ZN-BK	US	137	151-01863	HCEC3.OSP-C-PA66HIRHS-BK	PL	192	151-14502	IPC15P-PA66HIR-BK	GB	179
151-01523	RCD90LM12-PA66HIRHSUV/ST/ZN-BK	US	137	151-01867	BCOS5-PA66HIRHS-BK	PL	155	151-14601	IPC23AH-PA66-BK	GB	179
151-01534	SOC23.5FT6.2x12.2-PA66HIRHS-BK	DE	153	151-01869	YCKSFT6.5-PA66HIRHS-BK	PL	163	151-14603	IPC23P-PA66-BK	GB	179

Article-No.	Part Description	Country	Page	Article-No.	Part Description	Country	Page	Article-No.	Part Description	Country	Page
151-14700	PC35LAH-PA66-BK	GB	177	156-00015	T50SOSEC10-PA66HS/PA66HIRHS-BK	DE	105	156-00412	T50RHD8-PA66HIRHS-BK	FR	101
151-14801	PC5DP7L-PA46-BK	GB	177	156-00016	T50SOSEC20-PA66HS/PA66HIRHS-BK	DE	108	156-00416	T50ROC10-14CBTO-SD-SET-PA66HS/PA66HIRHS-BK	DE	116
151-21319	TY3G1-PA66-NA	DE	125	156-00017	T50SOSEC21-PA66HS/PA66HIRHS-BK	DE	107	156-00419	T50ROC15-18CBTO-SD-SET-PA66HS/PA66HIRHS-BK	DE	116
151-21819	TY8G1-PA66-NA	DE	125	156-00019	T50SOSEC9SD-PA66HS/PA66HIRHS-BK	DE	105	156-00422	T50ROC19-24.5CBTO-SD-SET-PA66HS/PA66HIRHS-BK	PL	116
151-24619	KR6G5-PA66-NA	DE	128	156-00020	T50ROSEC20-PA66HS/PA66HIRHS-BK	DE	108	156-00432	T50SOSFT5SD-PA66HS/PA66HIRHS-BK	DE	68
151-24660	KR6G5-PA66W-BK	DE	128	156-00025	T50RFT5-PA66HS/PA66HIRHS-BK	GB	68	156-00446	T50RFT62x122HR-PA46-GY	DE	84
151-24850	KR8G5-PA66HS-BK	DE	128	156-00036	T50ROC1A-PA66HS/PA66HIRHS-BK	FR	116	156-00447	T50ROVC4-PA66HS/PA66HIRHS-BK	FR	113
151-26101	TC-SB5C-PA66HS-BK	DE	156	156-00049	CBT30MR-PA66HS/POM-BK	FR	109	156-00455	T50ROSP1SFT6.5-PA46/PEEK-GY/BGE	DE	75
151-26150	SBH1-PA66-BK	DE	190	156-00069	WSIFT9A-PA66HIRHSUV-BK	US	72	156-00456	T50ROSP2SFT6.5-PA46/PEEK-GY/BGE	DE	75
151-26250	SBH2-PA66-BK	DE	190	156-00070	WSRFT9A-PA66HIRHSUV-BK	US	72	156-00457	T50RFT7HD-PA46-BN	US	71
151-28320	MB3A-PA66-BK	GB	124	156-00071	T120RFT9B-PA66HS/PA66HIRHSUV-BK	US	72	156-00459	T50RSBH5-10-PA66HS/PA66HIRHS-NA/BK	DE	98
151-28349	MB3A-PA66-WH	GB	124	156-00072	WSSFT9B-PA66HIRHSUV-BK	US	72	156-00505	T30ROC1B-PA66HS/PA66HIRHS-BK	FR	116
151-28412	MB4A-PA66-BK	GB	124	156-00074	WSRFT9B-PA66HIRHSUV-BK	US	72	156-00507	T50RYCCA-PA66HS/PA66HIRHS-BK	BR	111
151-28418	MB4A-PA66-WH	GB	124	156-00076	T50ROSF76-PA66HS/PA66HIRHS-BK	SG	70	156-00520	T30ROC5J-PA66HSUV-BK	JP	116
151-28430	MB4A3-PA66-BK	GB	124	156-00079	T50SOSBS5-PA66HS/PA66-BK	DE	96	156-00521	T50RYCCB-PA66HS/PA66HIRHS-BK	BR	111
151-28469	MB4A-PA66-WH	DE	124	156-00080	T50SOSBS5-PA66HS/POM-BK	DE	97	156-00522	T50RSBH5SD-PA66HS-BK	SG	98
151-29400	S2CM25-PA66HIRHS-GY	US	132	156-00084	T50RSB5-PA46-GY	DE	97	156-00529	T30REC5B-PA66HS/PA66HIRHS-BK	CN	106
151-29403	S2HM25-PA66HIRHSUV-BK	US	132	156-00085	T50ROSF76SD-PA46-GY	DE	69	156-00550	T120SINGLECOUPLER-PA66HIRHS/PA66HIR(S)-BK	FR	118
151-29500	S3STM50-PA66HIRHSUV-BK	US	133	156-00104	T40RFT8GSD-PA66HS/PA66HIRHS-BK	FR	71	156-00553	T50REC21-PA66HS/PA66HIRHS-BK	DE	107
151-29600	SAM83-PA66HIRHSUV-GY	US	133	156-00108	LK2A1D0P62122-PA66HIR/PA66HIRHS-BK	FR	87	156-00559	T40REC5A-PA66HS/PA66HIRHS-BK	SG	106
151-29701	SAOM82-PA66HIRHSUV-BK	US	133	156-00116	T120RIAHC2TCR-PA66HIRHS-BK	FR	114	156-00570	T50ROSEC4A-W-PA66W-BK	DE	105
151-31103	CTAM1-PA66-WH	US	129	156-00111	T50ROSGBS8C-C-PA66HS/PA66HIRHS-BK	FR	96	156-00576	T50REC22-PA66WV/PA66HIRHS-BK	DE	107
151-31203	CTAM2-PA66-WH	US	129	156-00120	T50ROSF10-PA66HS-BK	DE	73	156-00577	T50SMVCO19-24.5-PA46-GY	FR	113
155-01600	STAND-OFF-CLIP-2-PA66HIRHS-BK	DE	149	156-00128	T50SMVCO10-14-PA66HS/PA66HIRHS-BK	DE	113	156-00589	T50REC5A-PA66UV/PA66HIRHSUV-BK	MX	106
155-03800	FT6LG-AMP-PA66HIRHS-BK	DE	161	156-00129	T50SMVCO15-18-PA66HS/PA66HIRHS-BK	DE	113	156-00620	T50ROSC5T-PA66HS/PA66HIRHS-BK	CN	110
155-04000	RCC D24-PA66HIRHS-BK	DE	184	156-00130	T50SMVCO19-24.5-PA66HS/PA66HIRHS-BK	FR	113	156-00657	T50ROSC15FT6LG-PA46-GY	FR	70
155-05400	T50SOSBS5HEC-PA66HS-BK	GB	94	156-00131	T50SMVCO39-45-PA66HS/PA66HIRHS-BK	DE	113	156-00659	T50ROSEC21-PA46-GY	DE	107
155-05701	T50SOSBSH5E-PA66HS-BK	GB	98	156-00133	T50SMVCO39-45-PA66HS/PA66HIRHS-BK	DE	113	156-00661	T50ROSEC5A-W-PA66W-BK	DE	106
155-05800	T50SOSFT6E-PA66HIRHS-BK	DE	65	156-00154	T50SOSDSFT6.5-PA66HS/PA66HIRHS-BK	FR	81	156-00695	T30LLEC5ART-PA66HS/PA66HIRHS-BK	CN	106
155-10801	FT6LG.M.AMP-AUFN.2-PA66HIRHS-BK	DE	162	156-00172	T120RIAHC1T-PA66HIRHS-BK	FR	114	156-00698	T50ROSEC5B-W-PA66W-BK	DE	107
155-11601	BCSFT6.5 16-3MD-PA66HIRHS-BK	FR	145	156-00177	T120RIAHC3TCR-PA66HIRHS-BK	FR	114	156-00702	T50RFT6-PA66/PA66HS-NA/BK	BR	70
155-12300	T50SOSBS5SE-PA66HS-BK	FR	91	156-00175	T120RIAHC3TCR-PA66HIRHS-BK	FR	114	156-00703	T80IFT6-PA66HS/PA66HIRHS-BK	BR	70
155-16301	WICKELCLIP-VDS-PA66HIRHS-BK	DE	148	156-00176	T120RIAHC4TCR-PA66HIRHS-BK	FR	114	156-00704	T80IFT6LG-PA66/PA66HIRHS-NA/BK	BR	69
155-17801	CTC10FT9-PA66HIRHS-BK	FR	186	156-00177	T120RIAHC4TCR-PA66HIRHS-BK	FR	114	156-00705	T50RFT6-PA66HS/PA66-BK	BR	70
155-19001	SOC3-FT6-LG-PA66HIRHS-BK	PL	151	156-00200	T120IFT9-PA66HIR(S)-BK	GB	72	156-00707	T30RFT6-PA66HS/PA66-NA/BK	BR	70
155-23701	WICKELCLIP-SB5-POM-BK	DE	156	156-00235	T50RFT8GSD-PA46-GY	DE	71	156-00708	T30RFT6-PA66HS/PA66-BK	BR	70
155-25201	CTC22FT9-PA66HIRHS-BK	FR	186	156-00251	T50ROSGBS8CA-PA66HS/PA66HIRHS-BK	FR	96	156-00710	T30RFT6LG-PA66/PA66HIRHS-BK	BR	69
155-30602	T50SBS5OT-E-PA66HS-BK	FR	90	156-00252	T50ROSGBS8CB-PA66HS/PA66HIRHS-BK	FR	96	156-00711	T50RFT6LG-PA66/PA66HIRHS-BK	BR	69
155-30702	FT6LG.YAZ.CONNCT-TS-PA66HIRHS-BK	DE	161	156-00264	T50SOSFT6.5E-MDL-PA66HS-BK	DE	76	156-00713	T50ROSF76-PA66HS-BK	BR	70
155-30802	TC2FT6LG-PA66HIRHS-BK	DE	146	156-00275	T120RCOUPLER-PA66HIRHS/PA66HIR(S)-BK	FR	118	156-00714	T50ROSSFT6.5-D16-2-MD-PA66HS/PA66HIRHS-BK	BR	77
155-30902	SOC4 M.FT6-PA66HIRHS-BK	DE	151	156-00276	T50RCOUPLER-PA66HIRHS/PA66HIR(S)-BK	FR	118	156-00716	T50SOSFT6LG-PA66HS/PA66HIRHS-BK	BR	69
155-31102	YAZ-CONN-TAPE-CLIP-PA66HS-BK	DE	160	156-00303	T50SMVCO25-31-PA66HS/PA66HIRHS-BK	FR	113	156-00717	T50ROSF76LG-PA66HS/PA66HIRHS-BK	BR	69
155-31602	CTC7.5FT9-PA66HIRHS-BK	FR	186	156-00304	T50SMVCO31-39-PA66HS/PA66HIRHS-BK	DE	113	156-00718	T50SOSFT6-PA66HS-BK	BR	70
155-32602	FT6LG.M.St.Aufn.II-PA66HIRHS-BK	DE	161	156-00306	T50SMVCO31-39-PA66HS/PA66HIRHS-BK	DE	113	156-00720	T50LFT6-PA66HS-BK	BR	70
155-34202	LFC165(PSA)-PA66HS-BK	GB	95	156-00306	T50ROC1B-PA66HS/PA66HIRHS-BK	DE	116	156-00721	T50RFT7-PA66-NA/BK	BR	71
155-36002	STECKERHALTER SITZ-PA66HIRHS-BK	DE	161	156-00339	T18RFT4-PA66HSW-BK	JP	68	156-00723	T50RFT7-PA66-BK	BR	71
155-37104	T18REC9SD-PA66HS/PA66HIRHS-BK	DE	105	156-00351	T120RFT11-PA66HSW-BK	JP	73	156-00724	T30RFT7-PA66-NA/BK	BR	71
155-38102	YCC-FT6-S-PA66HIRHS-BK	DE	162	156-00354	T30ROSF74-PA66HS/PA66HSW-BK	JP	68	156-00725	T30RFT7-PA66/PA66HS-BK	BR	71
155-38304	T18REC10SD-PA66HS/PA66HIRHS-BK	DE	105	156-00356	T30ROSF76-PA66HS/PA66HIRHS-BK	JP	70	156-00729	T80IFT7-PA66/PA66HS-BK	BR	71
155-39002	TCDSFT6-HEX-PA66HIRHS-BK	DE	146	156-00360	T50ROSF78-PA66HS-BK	JP	71	156-00730	T50IFT7-PA66-NA/BK	BR	71
155-40602	EC11-PA66HIRHS-BK	DE	171	156-00363	T50LOSFT8-PA66HS-BK	JP	71	156-00731	T50RFT8-PA66HS/PA66-BK	BR	71
155-41102	T50SAH-PA66HS-NA	DE	59	156-00376	T50RFT8-PA66HS-BK	US	71	156-00732	T30RFT8-PA66HS/PA66-BK	BR	71
155-42002	T50ROSSFT6.5-16-2-MD-PA66HS/PA66HIRHS-BK	DE	77	156-00379	T50XROSSFT6.5-E-MDL-PA66HS-BK	DE	76	156-00735	T120SFT9-PA66-BK	BR	72
155-43702	FT6S-Y-CONN-TS-PA66HIRHS-BK	DE	161	156-00380	CBTOS50RSTUD5-PA66HS/PA66HIRHS-BK	FR	109	156-00738	T50RFT10-PA66-BK	BR	73
155-43802	CCAMPSFT7.0x12.0-PA66HIRHS-BK	DE	167	156-00382	T50RCOUPLER-PA46-GY	FR	118	156-00739	T50ROSF10-PA66HS/PA66-BK	BR	73
155-46302	T50SOSBS6HE-PA66HS-BK	DE	94	156-00387	T50REC21-PA66HS/C755-BK	JP	107	156-00740	T50RFT10-PA66HS/PA66-BK	BR	73
156-00003	T30REC5A-PA66HS/PA66HIRHS-BK	DE	106	156-00390	BC-5CR6-PA66GF60/PA66HIRHS-BK	DE	157	156-00742	T50RSB5-PA66/POM-BK	BR	97
156-00006	T50ROSEC23-PA66HS/PA66HIRHS-BK	DE	108	156-00406	T120RHD6M-PA66HIRHS-BK	FR	101	156-00743	T50ROSSBS5-PA66HS/POM-BK	BR	97
156-00007	T50ROSEC24-PA66HS/PA66HIRHS-BK	DE	108	156-00407	T120RHD6M-PA46-GY	FR	101	156-00744	T30RSB5-PA66HS/POM-BK	BR	97
156-00010	T50ROSEC21-PA66HS/PA66HIRHS-BK	DE	107	156-00408	T120RHD6M8-PA66HIRHS-BK	FR	101	156-00745	T50RSB5-PA66-BK	BR	96
156-00011	T50ROSEC22-PA66HS/PA66HIRHS-BK	DE	107	156-00409	T120RHD6M8-PA46-GY	FR	101	156-00746	T50ROSSBS5-PA66HIRHS-BK	BR	96
156-00012	T30ROC1A-PA66HS/PA66HIRHS-BK	FR	116	156-00410	T50RHD6M6-PA66HIRHS-BK	FR	101	156-00748	T50RSBH5-PA66HS-BK	BR	98
156-00013	T30ROC2A-PA66HS/PA66HIRHS-BK	DE	116								
156-00014	T30ROC2A-PA46-GY	FR	116								



Article-No.	Part Description	Country	Page	Article-No.	Part Description	Country	Page	Article-No.	Part Description	Country	Page
156-00749	T50ROSCL-PA66HS-BK	BR	96	156-01239	T50SVCOC28-PA66HS/PA66HIRHS-BK	CN	113	156-01535	T120RSBS-M8-PA66HS/PA66HIRHS-BK	CN	96
156-00770	T50RFT6XL-PA66HS/PA66HIRHS-BK	CN	70	156-01254	T18REC22-PA66HS/PA66HIRHS-BK	SG	107	156-01538	T50ROC2B-PA66HS/PA66HIRHS-BK	CN	116
156-00782	T50ROSEC4B-PA46-GY	DE	105	156-01257	T30RFT6LG1SD-PA66HS/PA66HIRHS-BK	SG	69	156-01542	T30ROSEC0.5-2.5TPVA-PA66HS/PA-66HIRHS-BK	DE	104
156-00809	T50RFT7-PA46-NA	CN	71	156-01268	T50SMVCOCC28-PA66HS/PA66HIRHS-BK	CN	113	156-01543	T30ROSEC0.5-2.5TP-SD-PA66HS/PA66HIRHS-BK	DE	104
156-00819	T50RSBH6SD-PA66HS-BK	DE	98	156-01270	T18RFT5-MOD-PA66HS/PA66HIRHS-BK	CN	68	156-01544	T30ROSEC0.5-2.5SPVA-PA66HS/PA-66HIRHS-BK	DE	104
156-00823	T120RHDMP8-PA46-GY	FR	101	156-01271	T30RFT5-MOD-PA66HS/PA66HIRHS-BK	CN	68	156-01545	T30ROSEC0.5-2.5TV-SD-PA66HS/PA66HIRHS-BK	DE	104
156-00832	T50SOSFT8-PA66HS/PA66HIRHS-BK	CN	71	156-01277	T50RDOP-PA46/PA46-NA	CN	87	156-01546	T30ROSEC0.5-2.5SP-SVB-PA66HS/PA66HIRHS-BK	DE	104
156-00835	T50ROSEC5B-PA66HS/PA66HIRHS-GY/BK	CN	106	156-01280	T50REC9SD-PA66HS/PA66HIRHS-BK	DE	105	156-01549	T30ROSEC0.5-2.5TV-SD-PA66HS/PA66HIRHS-BK	DE	104
156-00836	T30ROC2A-PA46/PA66HIRHS-NA/BK	CN	116	156-01291	T50RFT6-PA46-GY	DE	70	156-01551	T50SCTC5-9FT7-PA66HS/PA-66HIRHS-BK	CN	117
156-00845	T150RFT9-PA66HS/PA66HIRHS-BK	SG	72	156-01299	T50ROSADH6-MS-MD-PA66HS/PA66-BK	SG	77	156-01554	T50ISFT712-PA66HS/PA66HIRHS-BK	CN	84
156-00847	T30RDHA8.4x20-PA66HIRHS-BK	DE	81	156-01303	T50ROCSG1B-PA66/PA66HIRHS-BK	SG	116	156-01565	MBT8HHFRFID-SS316/SP-RD	GB-PLY	276
156-00860	T50ROSEC4A-PA66HS/PA66HIRHS-BK	US	105	156-01311	DTC18x5-S-PA66HIRHS-BK	CN	178	156-01566	MBT14HHFRFID-SS316/SP-RD	GB-PLY	276
156-00861	T50ROSEC4B-PA66HS/PA66HIRHS-BK	US	105	156-01312	DTC18x6.5-S-PA66HIRHS-BK	CN	178	156-01567	MBT20HHFRFID-SS316/SP-RD	GB-PLY	276
156-00862	T50ROSEC5B-PA66HS/PA66HIRHS-BK	US	106	156-01313	DTC18x9-11-S-PA66HIRHS-BK	CN	178	156-01568	MBT27HHFRFID-SS316/SP-RD	GB-PLY	276
156-00864	T50ROSEC5A-PA66HS/PA66HIRHS-BK	US	106	156-01314	DTC18x18-20-S-PA66HIRHS-BK	CN	178	156-01569	MBT33HHFRFID-SS316/SP-RD	GB-PLY	276
156-00915	T30REC22-PA66HS/PA66HIRHS-BK	CN	107	156-01315	DTC18x28-S-PA66HIRHS-BK	CN	178	156-01577	T50ROSSFT725-PA66HS/PA66W-BK	FR	84
156-00919	T50RHDMP6-PA46-GY	SG	101	156-01316	T30RFT5-PA46-GY	DE	68	156-01584	T50SVCCEC1-3-PA66HS/PA66HIRHS-BK	CN	109
156-00932	T50LECSA-PA66HS/PA66HIRHS-BK	CN	106	156-01317	T120RIACH5TCR-PA66HIRHS-BK	FR	114	156-01601	CBTO50R-PA66HS/PA66HIRHS-BK	DE	109
156-00936	T30ROC2B-PA46/PA66HIRHS-NA/BK	SG	116	156-01318	T50SVCOC14-PA66HS/PA66HIRHS-BK	CN	113	156-01617	T50ISB5-PA66HS/PA66HIRHS-BK	CN	97
156-00953	T30RFT4-PA66HS-BK	MX	68	156-01320	CBTO30R-PA66HS/PA66HIRHS-BK	CN	109	156-01623	X120RHDBN16-PA66HIRHS-BK	DE	120
156-00984	T50RFT5-PA46-GY	DE	68	156-01336	PT2AFT6L-PEEK/PA46-BGE/GY	DE	69	156-01624	T30RFT5LG-PA66-BK	KR	68
156-00985	T150RFT9B-PA66HS/PA66HIRHS-BK	SG	72	156-01366	T50SVC5-PA66HS-BK	DE	113	156-01625	T30RFT5LG-PA46-GY	KR	68
156-01031	T50LOC1A-PA66HIRHSUV-BK	US	116	156-01367	T50SVCOC10-14-PA66HS/PA66HIRHS-BK	DE	113	156-01626	T50RFT5LG-PA66-BK	KR	68
156-01035	T50SWPM7.0OC15-18CBTO-SD-PA66HS/PA66HIRHS-BK	CN	59	156-01368	T50SVCOC15-18-PA66HS/PA66HIRHS-BK	DE	113	156-01627	T50RFT5LG-PA46-GY	KR	68
156-01041	T50RDOP-PA66HS/PA66HIRHS-BK	CN	87	156-01369	T50SVCOC19-24.5-PA66HS/PA-66HIRHS-BK	DE	113	156-01640	T50RFT9X17A2-PA66HS/PA66HIRHS-BK	MX	87
156-01044	T30RSFT77H-PA66HS/PA66HIRHS-BK	CN	63	156-01370	T50SVCOC39-45-PA66HS/PA66HIRHS-BK	DE	113	156-01650	T50RDSB55-6-PA66HS/PA66HIRHS-BK	CN	96
156-01048	T50RIACH5TCR-PA66HIR(S)/PA-66HIRHS-BK	FR	114	156-01371	T50SVC6.5-PA66HS/PA66HIRHS-BK	DE	113	156-01663	T30RGSB8C-A-PA66HS/PA66HIRHS-BK	CN	96
156-01068	T30RFT6-PA46-GY	SG	70	156-01372	T50SVCOC25-31-PA66HS/PA66HIRHS-BK	DE	113	156-01674	T50SOSAH 7X12-PA66HS-BK	BR	82
156-01087	Q50REC5A-PA66W-BK	DE	106	156-01373	T50SVCOC31-39-PA66HS/PA66HIRHS-BK	DE	113	156-01690	T50SMVLOC15-19-PA66HIRHSUV-BK	MX	115
156-01088	Q50REC5B-PA66W-BK	DE	106	156-01374	T50SVC45-PA66HS/PP-BK/NA	DE	113	156-01697	T50RSFT6.5-PA66HS-BK	GB	63
156-01090	PT2AP15FT6.5-PEEK-BGE	DE	75	156-01376	T50SVC3.5-PA66HS/PA66HIRHS-BK	DE	113	156-01703	T50ROSSB5CSD-PA66HS-BK	DE	97
156-01091	PT2AP25FT6.5-PEEK-BGE	DE	75	156-01380	T50SVCOC20.0-31.0 ST-PA66HS/PA66HIRHS-BK	DE	113	156-01705	T50RFT6LGS-HEX-PA66HS/PA-66HIRHS-BK	GB	69
156-01096	X120RDHDM6-PA66HIRHS-BK	FR	102	156-01381	T50SVCOC31.0-39.0 ST-PA66HS/PA66HIRHS-BK	DE	113	156-01708	T50ISB5-PA66V0-WH	CN	97
156-01097	X120RDHDM8-PA66HIRHS-BK	FR	102	156-01384	T50SVC6.5-PA46-GY	DE	113	156-01714	T50SMVLOC20-25-PA66HIRHSUV-BK	MX	115
156-01098	T120RDHDM6-PA46-GY	FR	102	156-01385	T50SVCOC10-14-PA46-GY	DE	113	156-01744	T50SOSBHS-PA66HS-BK	BR	98
156-01099	T120RDHDM8-PA46-GY	FR	102	156-01386	T50SVCOC25-31-PA66/PA66HIRHS-GY/BK	DE	113	156-01746	T50SOSB55-PA66HS-BK	BR	96
156-01120	T80LFT6-PA66HS/PA66HIRHS-BK	CN	70	156-01391	T50RFT6LG1SD-PA66HS/PA66HIRHS-BK	SG	69	156-01754	T18RFT6-PA66HS/PA66HIRHS-BK	DE	69
156-01126	T50RHDMP8-PA46-GY	CN	101	156-01431	T18RSBH5SD-PA66HS/PA66HIRHS-BK	CN	98	156-01761	T50SOSKL-PA66HS-BK	BR	96
156-01134	T50RSINGLECOUPLER-PA66HIRHS-BK	FR	118	156-01432	T50ROSEC5A-PA66HS/PA66HIRHS-BK	BR	106	156-02263	T30RFT5-PA66HS/PA66HIRHS-BK	BR	68
156-01144	T50RFT9-PA66HS/PA66HIRHS-BK	CN	72	156-01433	T50ROSEC5B-PA66HS/PA66HIRHS-BK	BR	106	156-02264	T50RFT7-PA66HS-BK	BR	71
156-01146	PT2AP35FT6.5-PEEK-BGE	DE	75	156-01434	T50SOSSECSA-PA66HS/PA66HIRHS-BK	BR	106	156-02269	T50ROSEC21-PA66HS/PA66HIRHS-BK	BR	107
156-01155	T50RDHA8.4x20-PA46-GY	DE	81	156-01435	T50SOSSECSB-PA66HS/PA66HIRHS-BK	BR	106	156-02272	T50SOS2DOP7X12-PA46-GY	CN	86
156-01167	MBT8HFRFID-SS316/SP-RD	GB	276	156-01436	T80IECSA-PA66HS/PA66HIRHS-BK	BR	106	156-02372	T50ROSSB5CSD-PA46-GY	DE	97
156-01182	T50ROSEC4B-PA66HS/PA66HIRHS-BK	BR	105	156-01437	T50REC5A-PA66HS/PA66HIRHS-BK	BR	106	156-02377	T50RFT10-PA46-GY	CN	73
156-01187	T30RAHD6-MD-PA66HS-BK	SG	77	156-01438	T50ROSEC4A-PA66HS/PA66HIRHS-BK	BR	105	156-02383	T50SMVLOC10-14-PA66HIRHSUV-BK	MX	115
156-01190	T50SVCOC18-20A-PA66HS/PA-66HIRHS-BK	CN	113	156-01439	T30REC4A-PA66HS/PA66HIRHS-BK	BR	105	156-02384	T50SMVLOC5-9-PA66HIRHSUV-BK	MX	115
156-01193	T50RAHD6-MS-MD-PA66HS-NA	SG	77	156-01440	T50SOSSECA-PA66HS/PA66HIRHS-BK	BR	105	156-02387	T50R Coupler-PA66HS/PA66HIRHS-BK	BR	118
156-01194	T50SVCOC18-20B-PA66HS/PA-66HIRHS-BK	CN	113	156-01441	T50SOSSECB-PA66HS/PA66HIRHS-BK	BR	105	156-02408	T50RSBHM5-6-PA66HS/PA66HIRHS-BK	CN	98
156-01199	T30RFT9LP-PA66HS/PA66HIRHS-BK	CN	72	156-01457	T50RFT6L-PAEK-BGE	US	69	156-02409	CBTO50R-PA66HS/PA66HIRHS-BK	BR	109
156-01201	T50RFT9LP-PA66HS/PA66HIRHS-BK	CN	72	156-01458	T30RAHD6-MS-MD-PA66HS-NA	SG	77	156-02411	T30RSBH5SD-PA66HS-BK	BR	98
156-01203	T50RDHA5.5x15-PA46-GY	DE	81	156-01459	T120IFT9A-PA66HS/PA66HIRHS-BK	CN	72	156-02424	T50REC4A-PA66HS/PA66HIRHS-BK	BR	105
156-01208	LK2AFT62x122A-PA66HIRHS-BK	FR	87	156-01464	T50RFTOVAL-A-PA66HS/PA66HIRHS-BK	CN	87	156-02425	FSFPT Set-PA66GF30/PA66HIRHS-BK	DE	120
156-01209	LK2AFT62x122B-PA66HIRHS-BK	FR	87	156-01465	T50RFTOVAL-A-PA46-GY	CN	87	156-02426	FSFPTBDN16-SET-PA66GF30/PA-66HIRHS-BK	DE	120
156-01212	T50ROCSG1A-PA66/PA66HIRHS-BK	SG	116	156-01466	X120RHDMP65x160-PA66HIRHS-BK	FR	101	156-02459	T50REC23-PA66HS/PA66HIRHS-BK	BR	108
156-01225	T18RFT5-PA66HS-BK	DE	68	156-01516	T50SVC5-PA66HS-BK	MX	113	156-02466	T50ROS15ACC5RAH-PA66HIRHSUV/TPE-BK/GY	US	77
156-01226	T50IOC1A-PA66HIRHS-BK	MX	116	156-01517	T50ICOUPLER-PA66HS/PA66HIRHS-BK	CN	118				
156-01231	T18REC21-PA66W/PA66HIRHS-BK	DE	107	156-01519	T50ROSFTOVAL-B-PA66HS/PA-66HIRHS-BK	CN	87				
156-01233	V150RFT10-PA66/PA66HS-BK	GB	73	156-01521	T80RWPMP62X122-PA66HS-BK	FR	84				
156-01235	T30RSFT65x13-PA66HIRHS/PA66HS-BK	CN	84	156-01530	T50RSBS-M12-PA66HS/PA66HIRHS-BK	CN	96				
156-01236	T50SVCOC9-11A-PA66HIRHS/PA66HS-BK	CN	113	156-01531	T120RSBS-M12-PA66HS/PA66HIRHS-BK	CN	96				
156-01237	T50SVCOC9-11B-PA66HIRHS/PA66HS-BK	CN	113	156-01532	T50RSBS-M10-PA66HS/PA66HIRHS-BK	CN	96				
156-01238	TCSFT6.5S-CHA-MD-PA66HS-GN	CN	154	156-01533	T120RSBS-M10-PA66HS/PA66HIRHS-BK	CN	96				

Article-No.	Part Description	Country	Page	Article-No.	Part Description	Country	Page	Article-No.	Part Description	Country	Page
156-02467	T50ROS15ACCSRAH1.4T-PA66HIRHS/TPE-BK/GY	US	77	157-00118	T50ROSFTM6SO12.5A-PA66HIRHS-GY	US	79	157-00262	OS180FT62122-PA46-GY	KR	85
156-02488	T50RSB5DCSD-PA66HS-BK	DE	99	157-00120	T50ROSFT8SO25A-PA66HIRHS-GY	US	79	157-00263	OS180FT62122A-PA66HS-BK	KR	85
156-04600	T18ROSEC19-PA66HS/PA66HIRHS-BK	DE	108	157-00122	OS170-F7-LH-PA66HSW-BK	JP	66	157-00264	HT160SB6HE-PA66HS-BK	KR	94
156-04601	T50SOSEC19-PA66HS/PA66HIRHS-BK	DE	108	157-00124	T50SOSFT6E1-PA66HS-BK	BR	65	157-00268	T50ROSFTSOVAL-PA66HIRHS-BK	US	86
156-04602	T50ROSEC19-PA66HS/PA66HIRHS-BK	DE	108	157-00125	T50SOSFT6E1-PA66HIRHS-BK	BR	65	157-00271	T30SOS-AS-FT6LG-E2-PA66HS-BK	CN	66
156-05330	T50RIAHC2TICR-PA66HIRHS-BK	FR	114	157-00131	T50ROSFTM6SO12.5B-PA66HIRHS-BK	US	80	157-00272	T30SOS-AS-FT6E-PA66HS-BK	CN	65
156-05331	T50RIAHC1TICR-PA66HS/PA66HIRHS-BK	FR	114	157-00142	T50ROSFTOVALU-PA66HIRHS-BK	US	86	157-00273	T30SOS-AS-SFT6.5E-PA66-BK	CN	62
156-05902	T50ROSFT6SD-PA66HS/PA66HIRHS-BK	SG	69	157-00143	T50SOSFTOVALU-PA66HS-BK	US	86	157-00275	T50RMOSSM-PA66HIRHSUV-BK	US	91
156-05903	T50ROSEC9-PA66HS/PA66HIRHS-BK	DE	105	157-00144	T50ROSFTQM6-PA46-BN	US	65	157-00280	T50SOSFT9E-PA66HS-BK	CN	67
156-05904	T50ROSEC10-PA66HS/PA66HIRHS-BK	DE	105	157-00145	T50ROSFT6SO12.5A-PA66HIRHS-BK	US	79	157-00287	T50SOSFT6.5LG-E4X-PA66HS-BK	US	65
156-05905	T50ROSSBH5SD-PA66HS-BK	DE	98	157-00149	T50SOSFT6LG-E2-PA46-BN	US	66	157-00288	T50ROSFTOVAL25A-PA46-BN	US	88
156-05908	T50ROS1DOP62x122-PA66HS/PA66HIRHS-BK	DE	87	157-00150	T50ROSFT6SO25A-PA66HIRHS-BK	US	79	157-00293	T80ROSSB8U-PA46-BN	MX	92
156-06200	T50SOSFT5-PA66HS/PA66HIRHS-BK	GB	68	157-00151	T50SOSSB5-High-E-C-CC-PA66HS-GY	US	94	157-00294	T80ROSSB10U-PA46-BN	MX	92
157-00001	T50RTM25E-PA66HS-BK	US	66	157-00152	T50SOSFT6LG-E2-PA66HS-GY	US	66	157-00295	T80ROSSB12U-PA46-BN	US	92
157-00014	T50SOS2DOP62x122-E-PA66HS-BK	PL	86	157-00155	T60SOSFT12-E-PA66HS-BK	DE	85	157-00296	T50SOSFT6.5LG-E4-PA66HIRHSUV-BK	US	65
157-00016	T50SOS3DOP65x130-E-PA66HS-BK	PL	86	157-00157	T50ROSFTOVALU-PA46-BN	US	86	157-00297	T50SOSFT6.5LG-E4X-PA66HS-BK	US	65
157-00017	OS170-F17-PA66-BK	JP	66	157-00158	T50ROSFT6SO25A-PA46-BN	US	79	157-00298	T50SOSFT6.5LG-E4X-PA66HS-BK	US	65
157-00019	OS170-F17-LH-PA66-BK	JP	66	157-00159	OS160FT6HEX-PA46-GY	SG	65	157-00299	T50SOSFT6.5LG-E4X-PA66HS-NA	US	65
157-00021	SBT120-M12-PA66HSW-BK	JP	91	157-00160	HT160SB5HE-PA46-GY	SG	94	157-00301	T50SOSFT6.5LG-E4X-PA66HS-YE	US	65
157-00022	SBT120-M6-PA66HSW-BK	JP	91	157-00161	HT160SB5HE-PA66HS-GY	KR	94	157-00302	T50SOSFT6.5LG-E4X-PA66HIRHSUV-BK	US	65
157-00025	SBT50-M12-PA66HSW-BK	JP	91	157-00164	T50ROSFT6SO25R-PA66HIRHS-BK	US	80	157-00303	T50SOSFT6.5LG-E4-PA66HS-GY	US	65
157-00027	SBT50-M8-PA66HSW-BK	JP	91	157-00165	T50ROSFT6SO12.5R-PA66HIRHS-BK	US	80	157-00304	T50SOSFT6.5LG-E4-PA46-BN	US	65
157-00028	T50SOSFT6D10E-PA46-GY	DE	65	157-00166	T50SOSFT6LG-E-PA46-GY	SG	65	157-00306	T50ROSFT6.5LG-E4-PA66HIRHS-BK	US	65
157-00033	T50SOSFT6E1-PA66HIRHS-BK	DE	65	157-00167	T50ROSFT5SO25A-PA66HIRHS-GY	US	79	157-00308	T50SOSFT6.5-E4-PA66HS-BK	US	65
157-00034	WSS8MM-PA66HIRHSUV-BK	US	100	157-00168	T50ROSFT8SO25A-PA46-BN	US	79	157-00309	T50SOSFT6.5-E4-PA46-BN	US	65
157-00035	WS18MM-PA66HIRHSUV-BK	US	100	157-00169	T50ROSFT6SO25B-PA66HIRHS-BK	US	80	157-00312	T50ROSFT6SO12.5B-PA46-BN	US	80
157-00037	T50SOSSB5-High-E-C-CC-PA66HS-BK	DE	95	157-00170	T50ROSFT8SO25B-PA66HIRHS-BK	US	80	157-00313	T30SOS-AS-FT6-E-PA46-GY	CN	65
157-00038	T50SOSSBD-M6-PA66HSW-BK	JP	91	157-00171	T50ROSFT6SO12.5B-PA66HIRHS-BK	US	80	157-00314	T30SOS-AS-FT6LG-E2-PA46-GY	CN	66
157-00039	T50SOSSBD-M8-PA66HSW-BK	JP	91	157-00173	T50SOSSB6OTS-E-PA66HS-BK	FR	90	157-00321	T30SOS-AS-FT4.5-E-PA66HS-BK	CN	64
157-00040	T50SOSSBD-M10-PA66HSW-BK	JP	91	157-00174	OS180FT712A-PA66HS-BK	KR	85	157-00323	T50ROSFTOVALI25A-PA66HIRHS-BK	US	88
157-00044	T50SOSSBD-M5-PA66HSW-BK	JP	91	157-00177	T50SOSFT6-E2-PA46-BN	US	65	157-00326	T50ROS6M6MSO25-PA46-BN	US	92
157-00045	T50SOSFT6D10E-PA66HS-BK	DE	65	157-00185	T50SOSFT7-E-PA66HS-BK	CN	66	157-00328	T50ROS8M8MSO25-PA46-BN	US	92
157-00047	LFC165-2-PA66HS-BK	GB	95	157-00186	T50ROSFT6SO25B-PA46-BN	US	80	157-00332	T50ROSFTOVAL25B-PA46-BK	US	88
157-00050	T50SOSFT6LG-U-PA66HS-BK	US	66	157-00188	T50ROSFT6LG-E2-PA66HIRHS-BK	US	66	157-00333	T50ROSFTOVALI25B-PA66HIRHS-BK	US	88
157-00052	T50ROSFT6LG-U-PA66HS-BK	US	66	157-00193	OS180FT62122A-PA46-GY	KR	85	157-00341	T80ROSLPSB8U-PA46-BN	MX	92
157-00053	T50SOSFT7X12U-PA66HS-BK	US	86	157-00195	T50ROSFT625SO-PA66HIRHS-BK	US	79	157-00343	T80ROSLPSB10U-PA46-BN	US	92
157-00054	T50ROSFT7X12U-PA66HS-BK	US	86	157-00196	T50ROSFT825SO-PA66HIRHS-BK	US	79	157-00345	T80ROSLPSB12U-PA46-BN	US	92
157-00059	T50SOSFT6E1-PA46-GY	DE	65	157-00197	T50ROSFT6S25SO-PA66HIRHS-BK	US	79	157-00355	T50SOSFT6.5LG-E4-PA66HIRHS-NA	US	65
157-00064	T50SOSSBU-M5-PA66HSW-GY	JP	91	157-00205	T50ROSFTOVAL25A-PA66HIRHS-GY	US	88	157-00361	T50ROSLPMSMSO25-PA46-BN	US	92
157-00065	T50SOSSBU-M6-PA66HSW-GY	JP	91	157-00211	T50SOSSB5E-PA66HS-BK	CN	91	157-00363	OS160FT6-PA66HSW-GY	KR	65
157-00066	T50SOSSBU-M8-PA66HSW-GY	JP	91	157-00212	T50ROSFTM6SO12.5A-PA46-BN	US	79	157-00377	HT170SB6-PA66HS-BK	KR	91
157-00067	T50SOSSBU-M10-PA66HSW-GY	JP	91	157-00215	T50ROSFT8SO12.5R-PA66HIRHSUV-BK	US	80	157-00400	WSS250-PA66HIRHSUV-BK	US	100
157-00068	OS180FT7LH-PA66-GY	SG	66	157-00216	T50ROSFT612.5SO-PA66HIRHS-BK	US	79	157-00401	WS1250-PA66HIRHSUV-BK	US	100
157-00069	T50SOS2DOP62x122-E-PA46-GY	PL	86	157-00217	T50ROSFT812.5SO-PA66HIRHS-BK	US	79	157-00402	WSR250-PA66HIRHSUV-BK	US	100
157-00070	OS180FT7LH-PA66-BK	SG	66	157-00218	T50ROSFTOVAL12.5SO-PA66HIRHS-BK	US	88	157-00403	WSS380-PA66HIRHSUV-BK	US	100
157-00071	OS180FT7LH-PA46-NA	SG	66	157-00219	T50ROSFTOVAL25SO-PA66HIRHS-BK	US	88	157-00404	WS1380-PA66HIRHSUV-BK	US	100
157-00072	T50SOSFT8E-PA66HS-BK	DE	67	157-00221	T50ROSFTOVAL25R-PA66HIRHS-BK	US	88	157-00405	WSR380-PA66HIRHSUV-BK	US	100
157-00073	T50RTM25E-PA66HIRHS-BK	US	66	157-00222	T50ROSFTOVAL25A-PA66HIRHS-BK	US	88	157-01105	T50SOS2DOP7X12-E-PA66HS-BK	CN	86
157-00076	CM200FT9J-PA66HSW-BK	JP	74	157-00224	T50ROSFTOVAL12.5A-PA66HIRHS-BK	US	88	169-22100	IWS10-PA6-BK	DE	232
157-00079	OS180FT7LH-PA66HS-BK	SG	66	157-00225	T50ROSFTOVAL12.5A-PA66HIRHS-GY	US	88	169-22120	IWS12-PA6-BK	DE	232
157-00081	OS160FT6HEX-PA66HS-BK	SG	65	157-00227	T50SOSSB5-High-E-C-CC-PA66HS-BK	DE	94	169-22130	IWS13-PA6-BK	DE	232
157-00083	T50SOSSB6OT-E-PA66HS-BK	FR	90	157-00228	T50SOSFT6LGE-PA66HS-BK	GB	65	169-22140	IWS14-PA6-BK	DE	232
157-00085	T50SOSFT6-E2-PA66HS-BK	PL	65	157-00229	T50SOSSB5-High-E-C-CC-PA46-GY	DE	94	169-22170	IWS17-PA6-BK	DE	232
157-00086	CM170FT11J-PA66W-BK	JP	67	157-00232	T50ROSFTOVALR-PA66HIRHS-BK	US	86	169-22190	IWS19-PA6-BK	DE	232
157-00087	OS180FT6513-PA66HS-BK	SG	85	157-00237	T50SOSFT6LG-E4-PA66HS-BK	FR	66	169-22220	IWS22-PA6-BK	DE	232
157-00088	OS180FT62122-PA66HS-BK	KR	85	157-00241	T50SOSFT6-E3-PA66HIRHS-BK	DE	65	169-22230	IWS23-PA6-BK	DE	232
157-00094	HT160SB6HE-PA66-BK	SG	94	157-00242	T50SOSFT6LG-E2-PA66HIRHS-BK	CN	66	169-22260	IWS26-PA6-BK	DE	232
157-00097	T50SOSFT6LG-E-PA66HS-BK	US	65	157-00243	T30SOS-AS-FT6-E-PA66HS-BK	DE	65	169-22290	IWS29-PA6-BK	DE	232
157-00101	T60ROSSB6HEC-PA66HS-BK	DE	94	157-00244	T50SOSFT6LG-E2-PA46-GY	CN	66	169-22450	IWS4.5-PA6-BK	DE	232
157-00105	T50SOSSB5-High-E-C-CC-PA66HS-BK	US	94	157-00247	T50ROSFTOVAL25B-PA66HIRHS-BK	US	88	169-22750	IWS7.5-PA6-BK	DE	232
157-00106	T50SOSSB5-High-E-O-US-PA66HS-BK	US	94	157-00249	T50ROSFTOVAL12.5B-PA66HIRHS-BK	US	88	169-22850	IWS8.5-PA6-BK	DE	232
157-00108	T50SOSFT6-E2-PA66HS-BK	US	65	157-00251	OS180FT6513-PA46-GY	KR	85	170-00060	HEGPX06-PET-BK	FR	234
157-00112	T50ROSFTQM6-PA66HIRHSUV-BK	US	65	157-00252	T50SOSSB5E-2-PA66HS-BK	FR	91	170-00090	HEGPX09-PET-BK	FR	234
157-00115	T50SOSFT8E-PA46-GY	DE	67	157-00255	T50SOSFT6LG-E-PA66HS-BK	BR	65	170-00120	HEGPX12-PET-BK	FR	234
				157-00256	T50SOSSB5E-PA46-GY	CN	91	170-00200	HEGPX20-PET-BK	FR	234

Article-No.	Part Description	Country	Page	Article-No.	Part Description	Country	Page	Article-No.	Part Description	Country	Page
170-00300	HEGPX30-PET-BK	FR	234	170-46000	HEGPA6660-PA66-BK	FR	237	191-10229	SNP22(E)-POM-NA	GB	196
170-00400	HEGPX40-PET-BK	FR	234	170-50030	HEGPV0X03-PBT-BK	FR	236	191-10249	SNP24-POM-NA	GB	196
170-01000	Twist-In 05-PET-BK	FR	240	170-50060	HEGPV0X06-PBT-BK	FR	236	191-10329	SNP32(E)-POM-NA	FR	196
170-01001	Twist-In 08-PET-BK	FR	240	170-50090	HEGPV0X09-PBT-BK	FR	236	191-10349	SNP34(E)-POM-NA	FR	196
170-01002	Twist-In 13-PET-BK	FR	240	170-50120	HEGPV0X12-PBT-BK	FR	236	191-10369	SNP36(E)-POM-NA	GB	196
170-01004	Twist-In 19-PET-BK	FR	240	170-50200	HEGPV0X20-PBT-BK	FR	236	191-10389	SNP38(E)-POM-NA	FR	196
170-01005	Twist-In 25-PET-BK	FR	240	170-50300	HEGPV0X30-PBT-BK	FR	236	191-10429	SNP42(E)-POM-NA	FR	196
170-01006	Twist-In 29-PET-BK	FR	240	170-50400	HEGPV0X40-PBT-BK	FR	236	191-10509	SNP50(E)-POM-NA	GB	196
170-01007	Twist-In 32-PET-BK	FR	240	170-50500	HEGPV0X50-PBT-BK	FR	236	191-10589	SNP58(E)-POM-NA	GB	196
170-01008	Twist-In 38-PET-BK	FR	240	170-60401	HEGSAS04-PET-BK	FR	239	192-10010	SNP1-PA66GF13-BK	US	195
170-01010	Twist-In 50-PET-BK	FR	240	170-60600	HEGSAS06-PET-BK	FR	239	192-10020	SNP2-PA66GF13-BK	US	195
170-01300	HEGWS20-PA6-BK	CN	242	170-60900	HEGSAS09-PET-BK	FR	239	192-10040	SNP4-PA66GF13-BK	US	195
170-01301	HEGWS25-PA6-BK	CN	242	170-61200	HEGSAS12-PET-BK	FR	239	192-10060	SNP6-PA66GF13-BK	US	195
170-01302	HEGWS30-PA6-BK	CN	242	170-61500	HEGSAS15-PET-BK	FR	239	192-10070	SNP7-PA66GF13-BK	US	195
170-01303	HEGWS35-PA6-BK	CN	242	170-62000	HEGSAS20-PET-BK	FR	239	192-10080	SNP8-PA66GF13-BK	US	195
170-01304	HEGWS40-PA6-BK	CN	242	170-63000	HEGSAS30-PET-BK	FR	239	192-10100	SNP10-PA66GF13-BK	US	195
170-01305	HEGWS45-PA6-BK	CN	242	170-64000	HEGSAS40-PET-BK	FR	239	192-10160	SNP16-PA66GF13-BK	US	196
170-01306	HEGWS50-PA6-BK	CN	242	170-80503	HEGPL03-PET-BK	FR	238	192-10220	SNP22-PA66GF13-BK	US	196
170-01307	HEGWS60-PA6-BK	CN	242	170-80506	HEGPL06-PET-BK	FR	238	192-10240	SNP24-PA66GF13-BK	US	196
170-01308	HEGWS70-PA6-BK	CN	242	170-80512	HEGPL12-PET-BK	FR	238	192-10320	SNP32-PA66GF13-BK	US	196
170-01309	HEGWS80-PA6-BK	CN	242	170-80520	HEGPL20-PET-BK	FR	238	192-10360	SNP36-PA66GF13-BK	US	196
170-01310	HEGWS90-PA6-BK	CN	242	170-80530	HEGPL30-PET-BK	FR	238	192-10380	SNP38-PA66GF13-BK	US	196
170-01311	HEGWS100-PA6-BK	CN	242	170-80540	HEGPL40-PET-BK	FR	238	192-10500	SNP50-PA66GF13-BK	US	196
170-01312	HEGWS115-PA6-BK	CN	242	170-80550	HEGPL50-PET-BK	FR	238	211-00234	NX3-PA66-NA	BR	139
170-01313	HEGWS145-PA6-BK	CN	242	170-99001	HSG0-BU	DE	322	211-00235	NX4-PA66-NA	BR	140
170-01314	HEGWS176-PA6-BK	CN	242	173-00200	HEGEMIP-VG03-TNCU-ML	FR	245	211-00236	NX6-PA66-NA	BR	140
170-01315	HEGWS200-PA6-BK	CN	242	173-00201	HEGEMIP-VG04-TNCU-ML	FR	245	211-00237	NX1-PA66-NA	BR	139
170-05100	HELAHOOK10-PET-BK	FR	241	173-00202	HEGEMIP-VG06-TNCU-ML	FR	245	211-00238	NX1A-PA66-NA	BR	139
170-05150	HELAHOOK15-PET-BK	FR	241	173-00203	HEGEMIP-VG07.5-TNCU-ML	FR	245	211-00239	NX8-PA66-NA	BR	140
170-05200	HELAHOOK20-PET-BK	FR	241	173-00204	HEGEMIP-VG10-TNCU-ML	FR	245	211-00240	NXR11-PA66-NA	BR	140
170-05250	HELAHOOK25-PET-BK	FR	241	173-00205	HEGEMIP-VG12.5-TNCU-ML	FR	245	211-00241	NXR14-PA66-NA	BR	140
170-05300	HELAHOOK30-PET-BK	FR	241	173-00206	HEGEMIP-VG20-TNCU-ML	FR	245	211-00242	NX0-PA66-NA	BR	139
170-10300	HEGP03-PET-BK	FR	233	173-00400	HEGEMIP04-PET/TNCU-ML	FR	243	211-00243	NXR16-PA66-NA	BR	140
170-10400	HEGP04-PET-BK	FR	233	173-00600	HEGEMIP06-PET/TNCU-ML	FR	243	211-00244	NXR18-PA66-NA	BR	140
170-10500	HEGP05-PET-BK	FR	233	173-00800	HEGEMIP08-PET/TNCU-ML	FR	243	211-00245	NXR18-PA66-BK	BR	140
170-10600	HEGP06-PET-BK	FR	233	173-01000	HEGEMIP10-PET/TNCU-ML	FR	243	211-00246	NX1-PA66-BK	BR	139
170-10800	HEGP08-PET-BK	FR	233	173-01200	HEGEMIP12-PET/TNCU-ML	FR	243	211-00247	NX1A-PA66-BK	BR	140
170-11000	HEGP10-PET-BK	FR	233	173-01400	HEGEMIP14-PET/TNCU-ML	FR	243	211-00248	NX3-PA66-BK	BR	139
170-11200	HEGP12-PET-BK	FR	233	173-01600	HEGEMIP16-PET/TNCU-ML	FR	243	211-00249	NX4-PA66-BK	BR	140
170-11500	HEGP15-PET-BK	FR	233	173-01800	HEGEMIP18-PET/TNCU-ML	FR	243	211-00250	NXR8-PA66-BK	BR	140
170-12000	HEGP20-PET-BK	FR	233	173-02000	HEGEMIP20-PET/TNCU-ML	FR	243	211-00251	NXR11-PA66-BK	BR	140
170-12500	HEGP25-PET-BK	FR	233	173-02001	HEGEMIP-HY20-PET/TNCU-ML/OG	FR	244	211-00252	NXR14-PA66-BK	BR	140
170-13000	HEGP30-PET-BK	FR	233	173-03000	HEGEMIP-HY30-PET/TNCU-ML/OG	FR	244	211-00253	NX16-PA66-BK	BR	140
170-14000	HEGP40-PET-BK	FR	233	173-03501	HEGEMIP-HY35-PET/TNCU-ML/OG	FR	244	211-00254	NX0-PA66-BK	BR	139
170-15000	HEGP50-PET-BK	FR	233	173-04000	HEGEMIP-HY40-PET/TNCU-ML/OG	FR	244	211-00255	NXR14-PA66W-BK	BR	140
170-30400	HEGPV004-PBT-BK	FR	235	173-05000	HEGEMIP-HY50-PET/TNCU-ML/OG	FR	244	211-00256	NX6-PA66-BK	BR	140
170-30600	HEGPV006-PBT-BK	FR	235	190-00022	SNP1-POM-WH	US	195	211-10040	ALU4-AL-NA	DE	138
170-30800	HEGPV008-PBT-BK	FR	235	190-00029	SNP1.25-PA66GF13-BK	US	195	211-10050	ALU5-AL-NA	DE	138
170-31200	HEGPV012-PBT-BK	FR	235	190-00090	SNP19-PA66GF13-BK	US	196	211-10060	ALU6-AL-NA	DE	138
170-31500	HEGPV015-PBT-BK	FR	235	190-00127	SNP28-PA66GF13-BK	US	196	211-10070	ALU7-AL-NA	DE	138
170-32000	HEGPV020-PBT-BK	FR	235	190-00254	SNP12A-PA66GF13-BK	US	195	211-10080	ALU8-AL-NA	DE	138
170-33000	HEGPV030-PBT-BK	FR	235	190-00258	SNP18A-PA66GF13-BK	US	196	211-15050	ALU5C-AL/CR-BK	DE	138
170-34000	HEGPV040-PBT-BK	FR	235	190-00300	SNP14A-PA66GF13-BK	US	196	211-15060	ALU6C-AL/CR-BK	DE	138
170-35000	HEGPV050-PBT-BK	FR	235	191-00005	SNP42-PA66GF13-BK	US	196	211-15070	ALU7C-AL/CR-BK	DE	138
170-40400	HEGPA6604-PA66-BK	FR	237	191-10029	SNP2(E)-POM-NA	FR	195	211-15080	ALU8C-AL/CR-BK	DE	138
170-40600	HEGPA6606-PA66-BK	FR	237	191-10039	SNP3(E)-POM-NA	FR	195	211-15100	ALU10C-AL/CR-BK	DE	138
170-40800	HEGPA6608-PA66-BK	FR	237	191-10049	SNP4(E)-POM-NA	FR	195	211-15110	ALU11C-AL/CR-BK	DE	138
170-41000	HEGPA6610-PA66-BK	FR	237	191-10069	SNP6(E)-POM-NA	FR	195	211-15130	ALU13C-AL/CR-BK	DE	138
170-41200	HEGPA6612-PA66-BK	FR	237	191-10089	SNP8(E)-POM-NA	FR	195	211-15150	ALU15C-AL/CR-BK	DE	138
170-41600	HEGPA6616-PA66-BK	FR	237	191-10109	SNP10(E)-POM-NA	FR	195	211-15160	ALU16C-AL/CR-BK	DE	138
170-42000	HEGPA6620-PA66-BK	FR	237	191-10129	SNP12(E)-POM-NA	FR	195	211-60000	H1P-PA66HS-BK	DE	139
170-42500	HEGPA6625-PA66-BK	FR	237	191-10149	SNP14(E)-POM-NA	GB	195	211-60001	H2P-PA66HS-BK	DE	139
170-43000	HEGPA6630-PA66-BK	FR	237	191-10169	SNP16-POM-NA	GB	196	211-60002	H3P-PA66HS-BK	DE	139
170-44000	HEGPA6640-PA66-BK	FR	237	191-10189	SNP18(E)-POM-NA	GB	196	211-60004	H5P-PA66HS-BK	DE	139
170-45000	HEGPA6650-PA66-BK	FR	237	191-10209	SNP20(E)-POM-NA	FR	196	211-60006	H7P-PA66HS-BK	DE	139



Article-No.	Part Description	Country	Page	Article-No.	Part Description	Country	Page	Article-No.	Part Description	Country	Page
211-60008	H9P-PA66HS-BK	DE	139	309-10160	TF21-1.6/0.8-PO-X-BK	JP	210	309-31903	TF24-19.1/9.5-PO-X-CL	JP	213
211-60019	H1P-PA66-NA	DE	139	309-10240	TF21-2.4/1.2-PO-X-BK	DE	210	309-32543	TF24-25.4/12.7-PO-X-CL	JP	213
211-60029	H2P-PA66-NA	DE	139	309-10320	TF21-3.2/1.6-PO-X-BK	DE	211	309-33813	TF24-38.1/19.1-PO-X-CL	JP	213
211-60039	H3P-PA66-NA	DE	139	309-10480	TF21-4.8/2.4-PO-X-BK	DE	211	309-35083	TF24-50.8/25.4-PO-X-CL	JP	213
211-60049	H4P-PA66-NA	DE	139	309-10640	TF21-6.4/3.2-PO-X-BK	DE	211	309-37603	TF24-76.2/38.1-PO-X-CL	JP	213
211-60059	H5P-PA66-NA	DE	139	309-10950	TF21-9.5/4.8-PO-X-BK	DE	211	309-40123	TF24-1.2/0.6-PO-X-CL	JP	213
211-60069	H6P-PA66-NA	DE	139	309-11020	TF21-101.6/50.8-PO-X-BK	JP	212	309-40163	TF24-1.6/0.8-PO-X-CL	JP	213
211-60079	H7P-PA66-NA	DE	139	309-11022	TF21-101.6/50.8-PO-X-RD	JP	212	309-40243	TF24-2.4/1.2-PO-X-CL	JP	213
211-60089	H8P-PA66-NA	DE	139	309-11024	TF21-101.6/50.8-PO-X-YE	JP	212	309-40323	TF24-3.2/1.6-PO-X-CL	JP	213
241-00002	PLUGFT6XL-PA66HIR-BK	FR	197	309-11026	TF21-101.6/50.8-PO-X-BU	JP	212	309-40953	TF24-9.5/4.8-PO-X-CL	JP	213
300-73010	TCN20-1.2/0.6-PO-X-BK	CN	207	309-11029	TF21-101.6/50.8-PO-X-WH	JP	212	309-41273	TF24-12.7/6.4-PO-X-CL	JP	213
300-73020	TCN20-1.6/0.8-PO-X-BK	CN	207	309-11270	TF21-12.7/6.4-PO-X-BK	DE	211	309-50482	TF21-4.8/2.4-PO-X-RD	DE	211
300-73030	TCN20-2.4/1.2-PO-X-BK	CN	207	309-11900	TF21-19.1/9.5-PO-X-BK	DE	211	309-50483	TF24-4.8/2.4-PO-X-CL	JP	213
300-73040	TCN20-3.2/1.6-PO-X-BK	CN	207	309-11902	TF21-19.1/9.5-PO-X-RD	DE	211	309-50484	TF21-4.8/2.4-PO-X-YE	DE	211
300-73050	TCN20-4.8/2.4-PO-X-BK	CN	207	309-11904	TF21-19.1/9.5-PO-X-YE	DE	211	309-50486	TF21-4.8/2.4-PO-X-BU	DE	211
300-73060	TCN20-6.4/3.2-PO-X-BK	CN	207	309-11906	TF21-19.1/9.5-PO-X-BU	DE	211	309-50489	TF21-4.8/2.4-PO-X-WH	DE	211
300-73070	TCN20-9.5/4.8-PO-X-BK	CN	207	309-11909	TF21-19.1/9.5-PO-X-WH	DE	211	309-50642	TF21-6.4/3.2-PO-X-RD	DE	211
300-73080	TCN20-12.7/6.4-PO-X-BK	CN	207	309-12540	TF21-25.4/12.7-PO-X-BK	DE	211	309-50643	TF24-6.4/3.2-PO-X-CL	JP	213
300-73090	TCN20-19.1/9.5-PO-X-BK	CN	207	309-12542	TF21-25.4/12.7-PO-X-RD	DE	211	309-50644	TF21-6.4/3.2-PO-X-YE	DE	211
300-73100	TCN20-25.4/12.7-PO-X-BK	CN	207	309-12544	TF21-25.4/12.7-PO-X-YE	DE	211	309-50646	TF21-6.4/3.2-PO-X-BU	DE	211
300-73110	TCN20-38.1/19.1-PO-X-BK	CN	207	309-12546	TF21-25.4/12.7-PO-X-BU	DE	211	309-50649	TF21-6.4/3.2-PO-X-WH	DE	211
300-73120	TCN20-50.8/25.4-PO-X-BK	CN	207	309-12549	TF21-25.4/12.7-PO-X-WH	DE	211	311-00169	TK20-1.6/0.8-PVDF-CL	JP	224
300-73130	TCN20-2.4/0.8-PO-X-BK	CN	208	309-13810	TF21-38.0/19.0-PO-X-BK	JP	211	311-00249	TK20-2.4/1.2-PVDF-CL	JP	224
300-73140	TCN20-3.2/1.2-PO-X-BK	CN	208	309-13812	TF21-38.0/19.0-PO-X-RD	JP	211	311-00329	TK20-3.2/1.6-PVDF-CL	JP	224
300-73150	TCN20-4.8/1.6-PO-X-BK	CN	208	309-13814	TF21-38.0/19.0-PO-X-YE	JP	211	311-00489	TK20-4.8/2.4-PVDF-CL	JP	224
300-73160	TCN20-6.4/2.4-PO-X-BK	CN	208	309-13816	TF21-38.0/19.0-PO-X-BU	JP	211	311-00649	TK20-6.4/3.2-PVDF-CL	JP	224
300-73170	TCN20-9.5/3.2-PO-X-BK	CN	208	309-13819	TF21-38.0/19.0-PO-X-WH	JP	211	311-00959	TK20-9.5/4.8-PVDF-CL	JP	224
300-73180	TCN20-12.7/4.8-PO-X-BK	CN	208	309-15080	TF21-50.8/25.4-PO-X-BK	JP	211	311-01279	TK20-12.7/6.4-PVDF-CL	JP	224
300-73190	TCN20-19.0/6.4-PO-X-BK	CN	208	309-15082	TF21-50.8/25.4-PO-X-RD	JP	212	311-01909	TK20-19.1/9.5-PVDF-CL	JP	224
300-73200	TCN20-25.4/9.5-PO-X-BK	CN	208	309-15084	TF21-50.8/25.4-PO-X-YE	JP	212	311-02549	TK20-25.4/12.7-PVDF-CL	JP	224
300-73210	TCN20-38.0/12.7-PO-X-BK	CN	208	309-15086	TF21-50.8/25.4-PO-X-BU	JP	211	311-03819	TK20-38.1/19.1-PVDF-CL	JP	224
301-10000	SA47 5.75/1.25-PO-X-BK/CL	DE	220	309-15089	TF21-50.8/25.4-PO-X-WH	JP	212	311-05089	TK20-50.8/25.4-PVDF-CL	JP	224
301-10001	SA47 7.5/1.65-PO-X-BK/CL	DE	220	309-17600	TF21-76.0/38.0-PO-X-BK	JP	212	315-50320	TR27-3.2/1.6-PO-X-BK	JP	217
301-10002	SA47 11.0/2.4-PO-X-BK/CL	JP	220	309-17602	TF21-76.0/38.0-PO-X-RD	JP	212	315-50480	TR27-4.8/2.4-PO-X-BK	JP	217
301-10003	SA47 18.3/4.35-PO-X-BK/CL	JP	220	309-17604	TF21-76.0/38.0-PO-X-YE	JP	212	315-50640	TR27-6.4/3.2-PO-X-BK	JP	217
301-10004	SA47 32/8-PO-X-BK/CL	JP	220	309-17606	TF21-76.0/38.0-PO-X-BU	JP	212	315-50950	TR27-9.5/4.8-PO-X-BK	JP	217
301-10005	SA47 24/6-PO-X-BK/CL	JP	220	309-17609	TF21-76.0/38.0-PO-X-WH	JP	212	315-51270	TR27-12.7/6.4-PO-X-BK	JP	217
301-10010	SA47-HT 7.6/1.7-PO-X-BK	JP	222	309-20122	TF21-1.2/0.6-PO-X-RD	JP	210	315-51900	TR27-19.1/9.5-PO-X-BK	JP	217
301-10011	SA47-HT 9.0/2.3-PO-X-BK	JP	222	309-20124	TF21-1.2/0.6-PO-X-YE	JP	210	315-52540	TR27-25.4/12.7-PO-X-BK	JP	217
301-10012	SA47-HT 11.6/2.5-PO-X-BK	JP	222	309-20126	TF21-1.2/0.6-PO-X-BU	JP	210	315-53810	TR27-38.1/19.1-PO-X-BK	JP	217
301-10013	SA47-HT 17.8/4.4-PO-X-BK	JP	222	309-20129	TF21-1.2/0.6-PO-X-WH	JP	210	315-55100	TR27-50.8/25.4-PO-X-BK	JP	217
301-10014	SA47-HT 32/8-PO-X-BK	JP	222	309-20162	TF21-1.6/0.8-PO-X-RD	JP	210	317-00008	TG40 6/1.27-PO-X-BK	CN	219
301-10015	SA47-HT 24/6-PO-X-BK	JP	222	309-20164	TF21-1.6/0.8-PO-X-YE	JP	210	317-00009	TG40 6/1.27-PO-X-CL	CN	219
301-10020	SA47-LA 5.75/1.25-PO-X-BK/CL	DE	221	309-20166	TF21-1.6/0.8-PO-X-BU	JP	210	317-00010	TG40 8/1.65-PO-X-BK	CN	219
301-10021	SA47-LA 7.5/1.65-PO-X-BK/CL	JP	221	309-20169	TF21-1.6/0.8-PO-X-WH	JP	210	317-00011	TG40 8/1.65-PO-X-CL	CN	219
301-10022	SA47-LA 11.0/2.4-PO-X-BK/CL	DE	221	309-20242	TF21-2.4/1.2-PO-X-RD	DE	210	317-00012	TG40 12/2.41-PO-X-BK	CN	219
301-10023	SA47-LA 18.3/4.35-PO-X-BK/CL	JP	221	309-20244	TF21-2.4/1.2-PO-X-YE	DE	210	317-00013	TG40 12/2.41-PO-X-CL	CN	219
301-10024	SA47-LA 24/6-PO-X-BK/CL	JP	221	309-20246	TF21-2.4/1.2-PO-X-BU	DE	210	317-00014	TG40 18/4.45-PO-X-BK	CN	219
301-10025	SA47-LA 32/8-PO-X-BK/CL	JP	221	309-20249	TF21-2.4/1.2-PO-X-WH	DE	210	317-00015	TG40 18/4.45-PO-X-CL	CN	219
301-10026	SA47-LA 52/13-PO-X-BK/CL	JP	221	309-20322	TF21-3.2/1.6-PO-X-RD	DE	210	330-00320	VITON®-E-3.2/1.6-FPMX-BK	NL	225
305-01200	HFT-A-1.2/0.6-PO-X-BK	NL	209	309-20324	TF21-3.2/1.6-PO-X-YE	DE	211	330-00480	VITON®-E-4.8/2.4-FPMX-BK	NL	225
305-01600	HFT-A-1.6/0.8-PO-X-BK	NL	209	309-20326	TF21-3.2/1.6-PO-X-BU	DE	210	330-00640	VITON®-E-6.4/3.2-FPMX-BK	NL	225
305-02400	HFT-A-2.4/1.2-PO-X-BK	NL	209	309-20329	TF21-3.2/1.6-PO-X-WH	DE	210	330-00950	VITON®-E-9.5/4.8-FPMX-BK	NL	225
305-03200	HFT-A-3.2/1.6-PO-X-BK	NL	209	309-20483	TF21-4.8/2.4-PO-X-OG	JP	211	330-01270	VITON®-E-12.7/6.4-FPMX-BK	NL	225
305-04800	HFT-A-4.8/2.4-PO-X-BK	NL	209	309-20952	TF21-9.5/4.8-PO-X-RD	DE	211	330-01900	VITON®-E-19.0/9.5-FPMX-BK	NL	225
305-06400	HFT-A-6.4/3.2-PO-X-BK	NL	209	309-20953	TF21-9.5/4.8-PO-X-OG	JP	211	330-02540	VITON®-E-25.4/12.7-FPMX-BK	NL	225
305-09500	HFT-A-9.5/4.8-PO-X-BK	NL	209	309-20954	TF21-9.5/4.8-PO-X-YE	DE	211	330-03810	VITON®-E-38.0/19.0-FPMX-BK	NL	225
305-12700	HFT-A-12.7/6.4-PO-X-BK	NL	209	309-20956	TF21-9.5/4.8-PO-X-BU	DE	211	330-05080	VITON®-E-50.8/25.4-FPMX-BK	NL	225
305-19000	HFT-A-19.0/9.5-PO-X-BK	NL	209	309-20959	TF21-9.5/4.8-PO-X-WH	DE	211	331-00129	TK20-1.2/0.6-PVDF-CL	JP	224
305-25400	HFT-A-25.4/12.7-PO-X-BK	NL	209	309-21272	TF21-12.7/6.4-PO-X-RD	DE	211	333-20150	TF31-1.5/0.5-PO-X-BK	JP	214
305-38100	HFT-A-38.0/19.0-PO-X-BK	NL	209	309-21274	TF21-12.7/6.4-PO-X-YE	DE	211	333-20900	TF31-9/3-PO-X-BK	DE	215
305-50800	HFT-A-50.8/25.4-PO-X-BK	NL	209	309-21276	TF21-12.7/6.4-PO-X-BU	DE	211	333-21200	TF31-12/4-PO-X-BK	DE	215
305-76200	HFT-A-76.0/38.0-PO-X-BK	NL	209	309-21279	TF21-12.7/6.4-PO-X-WH	DE	211	333-24000	TF31-40/13-PO-X-BK	JP	215
305-91600	HFT-A-101.6/50.8-PO-X-BK	NL	209	309-21903	TF21-19.1/9.5-PO-X-OG	JP	211	333-30150	TF31-1.5/0.5-PO-X-BK	JP	214
309-10120	TF21-1.2/0.6-PO-X-BK	JP	210	309-31023	TF24-101.6/50.8-PO-X-CL	JP	213	333-30152	TF31-1.5/0.5-PO-X-RD	JP	214

Article-No.	Part Description	Country	Page	Article-No.	Part Description	Country	Page	Article-No.	Part Description	Country	Page
333-30153	TF34-1.5/0.5-PO-X-CL	JP	216	341-04010	EPS-400-4/1-PO-X-BK	NL	218	553-31252	TCGT12-4BK-PO-X-BK	PL	258
333-30154	TF31-1.5/0.5-PO-X-YE	JP	214	341-08020	EPS-400-8/2-PO-X-BK	NL	218	553-31253	TCGT12-4BU-PO-X-BU	PL	258
333-30155	TF31-1.5/0.5-PO-X-GN	JP	214	341-12030	EPS-400-12/3-PO-X-BK	NL	218	553-31254	TCGT12-4RD-PO-X-RD	PL	258
333-30156	TF31-1.5/0.5-PO-X-BU	JP	214	341-16040	EPS-400-16/4-PO-X-BK	NL	218	553-31850	TCGT18-6YE-PO-X-YE	PL	258
333-30159	TF31-1.5/0.5-PO-X-WH	JP	214	341-24060	EPS-400-24/6-PO-X-BK	NL	218	553-31851	TCGT18-6WH-PO-X-WH	PL	258
333-30300	TF31-3/1-PO-X-BK	DE	214	341-32080	EPS-400-32/8-PO-X-BK	NL	218	553-31852	TCGT18-6BK-PO-X-BK	PL	258
333-30302	TF31-3/1-PO-X-RD	DE	214	342-20000	SE28 3.2/1.6-POA-BK	JP	223	553-31853	TCGT18-6BU-PO-X-BU	PL	258
333-30303	TF34-3/1-PO-X-CL	JP	216	342-20010	SE28 4.8/2.4-POA-BK	JP	223	553-31854	TCGT18-6RD-PO-X-RD	PL	258
333-30304	TF31-3/1-PO-X-YE	DE	214	342-20020	SE28 6.4/3.2-POA-BK	JP	223	553-32450	TCGT24-8YE-PO-X-YE	PL	258
333-30305	TF31-3/1-PO-X-GN	JP	214	342-20030	SE28 9.5/4.8-POA-BK	JP	223	553-32451	TCGT24-8WH-PO-X-WH	PL	258
333-30306	TF31-3/1-PO-X-BU	DE	214	342-20040	SE28 12.7/6.4-POA-BK	JP	223	553-32452	TCGT24-8BK-PO-X-BK	PL	258
333-30309	TF31-3/1-PO-X-WH	DE	214	342-20050	SE28 19.0/9.5-POA-BK	JP	223	553-32453	TCGT24-8BU-PO-X-BU	PL	258
333-30600	TF31-6/2-PO-X-BK	DE	214	342-20060	SE28 25.4/12.7-POA-BK	JP	223	553-32454	TCGT24-8RD-PO-X-RD	PL	258
333-30602	TF31-6/2-PO-X-RD	DE	214	342-20070	SE28 38.0/19.0-POA-BK	JP	223	553-33950	TCGT39-13YE-PO-X-YE	PL	258
333-30603	TF34-6/2-PO-X-CL	JP	216	342-20080	SE28 51.0/25.4-POA-BK	JP	223	553-33951	TCGT39-13WH-PO-X-WH	PL	258
333-30604	TF31-6/2-PO-X-YE	DE	214	342-20090	SE28 76.0/38.0-POA-BK	JP	223	553-33952	TCGT39-13BK-PO-X-BK	PL	258
333-30605	TF31-6/2-PO-X-GN	JP	214	342-20100	SE28 101.2/51.0-POA-BK	JP	223	553-33953	TCGT39-13BU-PO-X-BU	PL	258
333-30606	TF31-6/2-PO-X-BU	DE	214	500-50820	T825-BK-PL-BK	DE	269	553-33954	TCGT39-13RD-PO-X-RD	PL	258
333-30609	TF31-6/2-PO-X-WH	DE	214	500-50822	T82R-RD-PL-RD	DE	269	553-40350	TULT3-1YE-PO-X-YE	PL	259
333-30900	TF31-9/3-PO-X-BK	DE	215	544-20000	M-BOSS Compact-BU	DE	282	553-40351	TULT3-1WH-PO-X-WH	PL	259
333-30902	TF31-9/3-PO-X-RD	DE	215	544-21000	M-BOSS Compact Organiser-BU	DE	282	553-40352	TULT3-1BK-PO-X-BK	PL	259
333-30903	TF34-9/3-PO-X-CL	JP	216	544-80101	MBML10X45-S5316-ML	GB	283	553-40353	TULT3-1BU-PO-X-BU	PL	259
333-30904	TF31-9/3-PO-X-YE	DE	215	544-80102	MBML10X90-S5316-ML	GB	283	553-40354	TULT3-1RD-PO-X-RD	PL	259
333-30905	TF31-9/3-PO-X-GN	JP	214	544-80201	MBML20X45-S5316-ML	GB	283	553-40450	TULT4.8-1.6YE-PO-X-YE	PL	259
333-30906	TF31-9/3-PO-X-BU	DE	214	544-80202	MBML20X90-S5316-ML	GB	283	553-40451	TULT4.8-1.6WH-PO-X-WH	PL	259
333-30909	TF31-9/3-PO-X-WH	DE	215	551-41100	THTT24WH-PVDFX-WH	CN	264	553-40452	TULT4.8-1.6BK-PO-X-BK	PL	259
333-31200	TF31-12/4-PO-X-BK	DE	215	551-41101	THTT32WH-PVDFX-WH	CN	264	553-40453	TULT4.8-1.6BU-PO-X-BU	PL	259
333-31202	TF31-12/4-PO-X-RD	DE	215	551-41102	THTT48WH-PVDFX-WH	CN	264	553-40454	TULT4.8-1.6RD-PO-X-RD	PL	259
333-31203	TF34-12/4-PO-X-CL	JP	216	551-41103	THTT64WH-PVDFX-WH	CN	264	553-40650	TULT6-2YE-PO-X-YE	PL	259
333-31204	TF31-12/4-PO-X-YE	DE	215	551-41104	THTT95WH-PVDFX-WH	CN	264	553-40651	TULT6-2WH-PO-X-WH	PL	259
333-31205	TF31-12/4-PO-X-GN	JP	215	551-41105	THTT127WH-PVDFX-WH	CN	264	553-40652	TULT6-2BK-PO-X-BK	PL	259
333-31206	TF31-12/4-PO-X-BU	DE	215	551-41106	THTT190WH-PVDFX-WH	CN	264	553-40653	TULT6-2BU-PO-X-BU	PL	259
333-31209	TF31-12/4-PO-X-WH	DE	215	551-41107	THTT254WH-PVDFX-WH	CN	264	553-40654	TULT6-2RD-PO-X-RD	PL	259
333-31800	TF31-18/6-PO-X-BK	DE	215	551-41108	THTT381WH-PVDFX-WH	CN	264	553-40950	TULT9-3YE-PO-X-YE	PL	259
333-31802	TF31-18/6-PO-X-RD	DE	215	551-41109	THTT24BK-PVDFX-BK	CN	264	553-40951	TULT9-3WH-PO-X-WH	PL	259
333-31803	TF34-18/6-PO-X-CL	JP	216	551-41110	THTT32BK-PVDFX-BK	CN	264	553-40952	TULT9-3BK-PO-X-BK	PL	259
333-31804	TF31-18/6-PO-X-YE	DE	215	551-41111	THTT48BK-PVDFX-BK	CN	264	553-40953	TULT9-3BU-PO-X-BU	PL	259
333-31805	TF31-18/6-PO-X-GN	JP	215	551-41112	THTT64BK-PVDFX-BK	CN	264	553-40954	TULT9-3RD-PO-X-RD	PL	259
333-31806	TF31-18/6-PO-X-BU	DE	215	551-41113	THTT95BK-PVDFX-BK	CN	264	553-41250	TULT12-4YE-PO-X-YE	PL	260
333-31809	TF31-18/6-PO-X-WH	DE	215	551-41114	THTT127BK-PVDFX-BK	CN	264	553-41251	TULT12-4WH-PO-X-WH	PL	260
333-32400	TF31-24/8-PO-X-BK	DE	215	551-41115	THTT190BK-PVDFX-BK	CN	264	553-41252	TULT12-4BK-PO-X-BK	PL	260
333-32402	TF31-24/8-PO-X-RD	DE	215	551-41116	THTT254BK-PVDFX-BK	CN	264	553-41253	TULT12-4BU-PO-X-BU	PL	260
333-32403	TF34-24/8-PO-X-CL	JP	216	551-41117	THTT381BK-PVDFX-BK	CN	264	553-41254	TULT12-4RD-PO-X-RD	PL	260
333-32404	TF31-24/8-PO-X-YE	DE	215	553-30350	TCGT3-1YE-PO-X-YE	PL	257	553-41850	TULT18-6YE-PO-X-YE	PL	260
333-32405	TF31-24/8-PO-X-GN	JP	215	553-30351	TCGT3-1WH-PO-X-WH	PL	257	553-41851	TULT18-6WH-PO-X-WH	PL	260
333-32406	TF31-24/8-PO-X-BU	DE	215	553-30352	TCGT3-1BK-PO-X-BK	PL	257	553-41852	TULT18-6BK-PO-X-BK	PL	260
333-32409	TF31-24/8-PO-X-WH	DE	215	553-30353	TCGT3-1BU-PO-X-BU	PL	257	553-41853	TULT18-6BU-PO-X-BU	PL	260
333-34000	TF31-40/13-PO-X-BK	JP	215	553-30354	TCGT3-1RD-PO-X-RD	PL	257	553-41854	TULT18-6RD-PO-X-RD	PL	260
333-34002	TF31-40/13-PO-X-RD	JP	215	553-30450	TCGT4.8-1.6YE-PO-X-YE	PL	257	553-42450	TULT24-8YE-PO-X-YE	PL	260
333-34003	TF34-40/13-PO-X-CL	JP	216	553-30451	TCGT4.8-1.6WH-PO-X-WH	PL	257	553-42451	TULT24-8WH-PO-X-WH	PL	260
333-34004	TF31-40/13-PO-X-YE	JP	215	553-30452	TCGT4.8-1.6BK-PO-X-BK	PL	257	553-42452	TULT24-8BK-PO-X-BK	PL	260
333-34005	TF31-40/13-PO-X-GN	JP	215	553-30453	TCGT4.8-1.6BU-PO-X-BU	PL	257	553-42453	TULT24-8BU-PO-X-BU	PL	260
333-34006	TF31-40/13-PO-X-BU	JP	215	553-30454	TCGT4.8-1.6RD-PO-X-RD	PL	257	553-42454	TULT24-8RD-PO-X-RD	PL	260
333-34009	TF31-40/13-PO-X-WH	JP	215	553-30650	TCGT6-2YE-PO-X-YE	PL	257	553-43950	TULT39-13YE-PO-X-YE	PL	260
333-40300	TF31-3/1-PO-X-BK	DE	214	553-30651	TCGT6-2WH-PO-X-WH	PL	257	553-43951	TULT39-13WH-PO-X-WH	PL	260
333-40600	TF31-6/2-PO-X-BK	DE	214	553-30652	TCGT6-2BK-PO-X-BK	PL	257	553-43952	TULT39-13BK-PO-X-BK	PL	260
333-41800	TF31-18/6-PO-X-BK	DE	215	553-30653	TCGT6-2BU-PO-X-BU	PL	257	553-43953	TULT39-13BU-PO-X-BU	PL	260
333-42400	TF31-24/8-PO-X-BK	DE	215	553-30654	TCGT6-2RD-PO-X-RD	PL	257	553-43954	TULT39-13RD-PO-X-RD	PL	260
340-03010	EPS-300-3/1-PO-X-BK	NL	218	553-30950	TCGT9-3YE-PO-X-YE	PL	258	553-60000	TLFX24D5-1x50WH-PO-X-WH	DK	262
340-06020	EPS-300-6/2-PO-X-BK	NL	218	553-30951	TCGT9-3WH-PO-X-WH	PL	257	553-60001	TLFX32D5-1x50WH-PO-X-WH	DK	262
340-09030	EPS-300-9/3-PO-X-BK	NL	218	553-30952	TCGT9-3BK-PO-X-BK	PL	257	553-60002	TLFX48D5-1x50WH-PO-X-WH	DK	262
340-12040	EPS-300-12/4-PO-X-BK	NL	218	553-30953	TCGT9-3BU-PO-X-BU	PL	257	553-60003	TLFX64D5-1x50WH-PO-X-WH	DK	262
340-19060	EPS-300-19/6-PO-X-BK	NL	218	553-30954	TCGT9-3RD-PO-X-RD	PL	257	553-60004	TLFX95D5-1x50WH-PO-X-WH	DK	263
340-24080	EPS-300-24/8-PO-X-BK	NL	218	553-31250	TCGT12-4YE-PO-X-YE	PL	258	553-60005	TLFX127D5-1x50WH-PO-X-WH	DK	263
340-40130	EPS-300-40/13-PO-X-BK	NL	218	553-31251	TCGT12-4WH-PO-X-WH	PL	258	553-60006	TLFX190D5-1x50WH-PO-X-WH	DK	263

Article-No.	Part Description	Country	Page	Article-No.	Part Description	Country	Page	Article-No.	Part Description	Country	Page
553-60007	TLFX254DS-1x50WH-PO-X-WH	DK	263	556-00456	P430 Perforator-GY	DE	287	596-12255	TAG23-06TD1-892-WH-892-WH	DE	270
553-60008	TLFX381DS-1x50WH-PO-X-WH	DK	263	556-00700	RFID-HS9BT-HF-ABS-BK	DE	279	596-12256	TAG23-10TD1-892-WH-892-WH	DE	270
553-60010	TLFX24DS-1x50YE-PO-X-YE	DK	262	556-00701	RFID-HS9BT-LF-ABS-BK	DE	279	596-12257	TAG26-21TD2-892-WH-892-WH	DE	270
553-60011	TLFX32DS-1x50YE-PO-X-YE	DK	262	556-00702	RFID-DT22-HF-ABS-BK	DE	279	596-12258	TAG28-16TD1-892-WH-892-WH	DE	270
553-60012	TLFX48DS-1x50YE-PO-X-YE	DK	262	556-04005	Printer Roller TT4030/TT4000+-DIV-GN	DE	288	596-12259	TAG43-16TD1-892-WH-892-WH	DE	270
553-60013	TLFX64DS-1x50YE-PO-X-YE	DK	262	556-04037	TT4030-MET-GY	DE	288	596-12260	TAG43-21TD1-892-WH-892-WH	DE	270
553-60014	TLFX95DS-1x50YE-PO-X-YE	DK	263	556-04041	TT4030 Printhead-DIV-GY	JP	288	596-12261	TAG43-41TD1-892-WH-892-WH	DE	270
553-60015	TLFX127DS-1x50YE-PO-X-YE	DK	263	556-20079	Cutter-DIV-GY	DE	288	596-12262	TAG52-10TD1-892-WH-892-WH	DE	270
553-60016	TLFX190DS-1x50YE-PO-X-YE	DK	263	556-04051	P4030 Perforator-DIV-GY	DE	288	596-12263	TAG63TD1-892-WH-892-WH	DE	270
553-60017	TLFX254DS-1x50YE-PO-X-YE	DK	263	556-20062	TIPTAG11X65RD-PO-RD	GB	265	596-12264	TAG68-16TD1-892-WH-892-WH	DE	270
553-60018	TLFX381DS-1x50YE-PO-X-YE	DK	263	556-20064	TIPTAG11X65YE-PO-YE	GB	265	596-12265	TAG102-64TD1-892-WH-892-WH	DE	270
553-60020	TLFX24DS-2x25WH-PO-X-WH	DK	262	556-20066	TIPTAG11X65BU-PO-BU	GB	265	596-12615	TAG15TD3-1206-WH-1206-WH	DE	272
553-60021	TLFX32DS-2x25WH-PO-X-WH	DK	262	556-20069	TIPTAG11X65WH-PO-WH	GB	265	596-12616	TAG16TD3-1206-WH-1206-WH	DE	272
553-60022	TLFX48DS-2x25WH-PO-X-WH	DK	262	556-20074	TIPTAG11X100YE-PO-YE	GB	265	596-12617	TAG17TD2-1206-WH-1206-WH	DE	272
553-60023	TLFX64DS-2x25WH-PO-X-WH	DK	262	556-20079	TIPTAG11X100WH-PO-WH	GB	265	596-12627	TAG52-10TD1-1206-WH-1206-WH	DE	272
553-60024	TLFX95DS-2x25WH-PO-X-WH	DK	263	556-20080	TIPTAG11X100BU-PO-BU	GB	265	596-12631	TAG31TD3-1206-WH-1206-WH	DE	272
553-60025	TLFX127DS-2x25WH-PO-X-WH	DK	263	556-20091	TIPTAG11X100RD-PO-RD	GB	265	596-12634	TAG34TD3-1206-WH-1206-WH	DE	272
553-60026	TLFX190DS-2x25WH-PO-X-WH	DK	263	556-21064	TIPTAG15X65YE-PO-YE	GB	265	596-12635	TAG35TD3-1206-WH-1206-WH	DE	272
553-60027	TLFX254DS-2x25WH-PO-X-WH	DK	263	556-21069	TIPTAG15X65WH-PO-WH	GB	265	596-12661	TAG61TD3-1206-WH-1206-WH	DE	272
553-60028	TLFX381DS-2x25WH-PO-X-WH	DK	263	556-21074	TIPTAG15X100YE-PO-YE	GB	265	596-12662	TAG62TD1-1206-WH-1206-WH	DE	273
553-60029	TLFX24DS-2x25YE-PO-X-YE	DK	262	556-21079	TIPTAG15X100WH-PO-WH	GB	265	596-12663	TAG63TD1-1206-WH-1206-WH	DE	273
553-60030	TLFX32DS-2x25YE-PO-X-YE	DK	262	556-21096	TIPTAG15X100RD-PO-RD	GB	265	596-12664	TAG64TD1-1206-WH-1206-WH	DE	273
553-60031	TLFX48DS-2x25YE-PO-X-YE	DK	262	556-25006	TTAGPU15X100WH-PUR-WH	GB	266	596-12665	TAG65TD1-1206-WH-1206-WH	DE	273
553-60032	TLFX64DS-2x25YE-PO-X-YE	DK	262	556-25007	TTAGPU15X65WH-PUR-WH	GB	266	596-12667	TAG67TD2-1206-WH-1206-WH	DE	273
553-60033	TLFX95DS-2x25YE-PO-X-YE	DK	263	556-25010	TTAGPU15X100YE-PUR-YE	GB	266	596-12668	TAG68TD1-1206-WH-1206-WH	DE	273
553-60034	TLFX127DS-2x25YE-PO-X-YE	DK	263	556-25011	TTAGPU15X65YE-PUR-YE	GB	266	596-12669	TAG69TD1-1206-WH-1206-WH	DE	273
553-60035	TLFX190DS-2x25YE-PO-X-YE	DK	263	556-25012	TTAGPU11X65WH-PUR-WH	GB	266	596-12671	TAG71TD6-1206-WH-1206-WH	DE	272
553-60036	TLFX254DS-2x25YE-PO-X-YE	DK	263	556-25019	TTAGPU11X65YE-PUR-YE	GB	266	596-12672	TAG72TD1-1206-WH-1206-WH	DE	273
553-60037	TLFX381DS-2x25YE-PO-X-YE	DK	263	556-25020	TTAGPU11X100YE-PUR-YE	GB	266	596-12673	TAG73TD1-1206-WH-1206-WH	DE	273
554-50900	TLFX508WH-PO-X-WH	CN	261	556-25021	TTAGPU11X100WH-PUR-WH	GB	266	596-20871	TAG71TD6-1208-WH-1208-WH	DE	280
554-50901	TLFX508YE-PO-X-YE	CN	261	556-80000	TAGHT10X51-4WH-PVDFX-WH	GB	267	596-21204	TAG02TD1-1204-SR-1204-ML	DE	271
554-51000	TLFX24WH-PO-X-WH	CN	261	556-80002	TAGHT20X51-6WH-PVDFX-WH	GB	267	596-22320	TAG22TD3-323-WHCL-323-CL/WH	DE	268
554-51001	TLFX24YE-PO-X-YE	CN	261	556-80004	TAGHT20X51-4WH-PVDFX-WH	GB	267	596-23320	TAG23TD5-323-WHCL-323-CL/WH	DE	268
554-51100	TLFX32WH-PO-X-WH	CN	261	596-01120	TAG01TD3-1206-WH-1206-WH	DE	272	596-24320	TAG24TD1-323-WHCL-323-CL/WH	DE	268
554-51101	TLFX32YE-PO-X-YE	CN	261	596-01320	TAG1TD2-323-WHCL-323-CL/WH	DE	268	596-25320	TAG25TD3-323-WHCL-323-CL/WH	DE	268
554-51200	TLFX48WH-PO-X-WH	CN	261	596-02320	TAG2TD6-323-WHCL-323-CL/WH	DE	268	596-26320	TAG26TD6-323-WHCL-323-CL/WH	DE	268
554-51201	TLFX48YE-PO-X-YE	CN	261	596-03320	TAG3TD3-323-WHCL-323-CL/WH	DE	268	596-27120	TAG27TD2-1204-SR-1204-ML	DE	271
554-51300	TLFX64WH-PO-X-WH	CN	261	596-06320	TAG6TD1-323-WHCL-323-CL/WH	DE	268	596-31204	TAGR3TD1-1204-SR-1204-ML	DE	271
554-51301	TLFX64YE-PO-X-YE	CN	261	596-07320	TAG07TD1-323-WHCL-323-CL/WH	DE	268	596-31208	TAG73TD1-1208-WH-1208-WH	DE	280
554-51400	TLFX95WH-PO-X-WH	CN	261	596-09320	TAG9TD3-323-WHCL-323-CL/WH	DE	268	596-34120	TAG34TD3-1204-SR-1204-ML	DE	271
554-51401	TLFX95YE-PO-X-YE	CN	261	596-10320	TAG10TD2-323-WHCL-323-CL/WH	DE	268	596-36320	TAG36TD7-323-WHCL-323-CL/WH	DE	268
554-51500	TLFX127WH-PO-X-WH	CN	261	596-10732	TAG107TD3-323-WHCL-323-CL/WH	DE	268	596-38320	TAG38TD3-323-WHCL-323-CL/WH	DE	268
554-51501	TLFX127YE-PO-X-YE	CN	261	596-12035	TAG35TD3-1204-SR-1204-ML	DE	271	596-38321	TAG0638TL2-323-CL-323-CL	DE	285
554-51600	TLFX190WH-PO-X-WH	CN	261	596-12043	TAG13TD4-1204-SR-1204-ML	DE	271	596-40951	TAG101-160TD1-951 SET-951-ML	DE	281
554-51601	TLFX190YE-PO-X-YE	CN	261	596-12045	TAG15TD3-1204-SR-1204-ML	DE	271	596-41206	TAG4TD1-1206-WH-1206-WH	DE	273
554-51700	TLFX254WH-PO-X-WH	CN	261	596-12047	TAG17TD2-1204-SR-1204-ML	DE	271	596-41951	TAG101-74TD1-951 SET-951-ML	DE	281
554-51701	TLFX254YE-PO-X-YE	CN	261	596-12061	TAG13TD4-1206-WH-1206-WH	DE	272	596-42951	TAG63.5-50.8TD1-951 SET-951-ML	DE	281
554-51800	TLFX381WH-PO-X-WH	CN	261	596-12062	TAG62TD1-1204-SR-1204-ML	DE	271	596-43951	TAG50.8-25.4TD1-951 SET-951-ML	DE	281
554-51801	TLFX381YE-PO-X-YE	CN	261	596-12063	TAG63TD1-1204-SR-1204-ML	DE	271	596-44951	TAG25.4-12.7TD1-951 SET-951-ML	DE	281
556-00051	TagPrint Pro 3.0 EMEA-PL-WH	US	286	596-12064	TAG64TD1-1204-SR-1204-ML	DE	271	596-51320	TAG51TD3-323-WHCL-323-CL/WH	DE	268
556-00101	TT822OUT-PET-BK	US	289	596-12065	TAG65TD1-1204-SR-1204-ML	DE	271	596-51321	TAG1351TL1-323-CL-323-CL	DE	285
556-00111	TT822OUT-PET-BK	US	289	596-12066	TAG66TD1-1204-SR-1204-ML	DE	271	596-52321	TAG2551TL1-323-CL-323-CL	DE	285
556-00117	TT932DOU 85MM-BK	JP	289	596-12067	TAG67TD2-1204-SR-1204-ML	DE	271	596-61206	TAG76TD1-1206-WH-1206-WH	DE	273
556-00118	TT932DOU 110MM-BK	JP	289	596-12069	TAG69TD2-1204-SR-1204-ML	DE	271	596-63321	TAG3863TL1-323-CL-323-CL	DE	285
556-00140	TTDTHOUT 60MM-PET-BK	US	290	596-12071	TAG71TD6-1204-SR-1204-ML	DE	271	596-71204	TAG97TD1-1204-SR-1204-ML	DE	271
556-00141	TTDTHOUT 100MM-PET-BK	US	290	596-12072	TAG72TD1-1204-SR-1204-ML	DE	271	596-71206	TAG77TD1-1206-WH-1206-WH	DE	273
556-00204	TTTRHTBK 70MM-BK	JP	290	596-12076	TAG76TD1-1204-SR-1204-ML	DE	271	596-73124	TAG73TD1-1204-SR-1204-ML	DE	271
556-00209	TTTRHTWH 70mm-WH	JP	290	596-12077	TAG77TD1-1204-SR-1204-ML	DE	271	600-02198	H75X30BK-CR-BK	GB	226
556-00210	TTTRHTBK 100mm-BK	JP	290	596-12080	TAG15TD3-1208-WH-1208-WH	DE	280	600-02493	TH100X35BK-CR-BK	GB	227
556-00211	TTTRHTWH 100mm-WH	JP	290	596-12082	TAG27TD2-1208-WH-1208-WH	DE	280	600-02495	TH120X50BK-CR-BK	GB	227
556-00450	TT430-GY	DE	287	596-12086	TAG66TD1-1208-WH-1208-WH	DE	280	600-02496	TH140X50BK-CR-BK	GB	227
556-00451	TT External Reel Holder-GY	DE	288	596-12087	TAG67TD2-1208-WH-1208-WH	DE	280	600-02497	TH170X50BK-CR-BK	GB	227
556-00452	S430 Cutter-GY	DE	287	596-12089	TAG69TD2-1208-WH-1208-WH	DE	280	600-02498	H12X20BK-CR-BK	GB	226
556-00453	TT430 300dpi Printhead-DIV-BK	JP	287	596-12253	TAG18-07TD1-892-WH-892-WH	DE	270	600-02929	H15X20BK-CR-BK	GB	226
556-00454	TT430 Print Roller-DIV-BK	DE	287	596-12254	TAG18-16TD1-892-WH-892-WH	DE	270	600-02934	H25X25BK-CR-BK	GB	226

Article-No.	Part Description	Country	Page
600-02938	H30X25BK-CR-BK	GB	226
600-02947	H40X30BK-CR-BK	GB	226
600-02949	H50X25BK-CR-BK	GB	226
608-01200	H12BKX100M-CR-BK	GB	226
608-01201	H15BKX100M-CR-BK	GB	226
608-01202	TH170BKX20M-CR-BK	GB	227
608-01203	H25BKX100M-CR-BK	GB	226
608-01204	H30BKX100M-CR-BK	GB	226
608-01205	H40BKX100M-CR-BK	GB	226
608-01206	H50BKX100M-CR-BK	GB	226
608-01207	H75BKX25M-CR-BK	GB	226
608-01208	TH100BKX25M-CR-BK	GB	227
608-01209	TH120BKX25M-CR-BK	GB	227
608-01210	TH140BKX20M-CR-BK	GB	227
621-00200	VA2.5/5-MET-ML	DE	320
621-01200	VA-2.5/5 PRONG-MET-ML	DE	320
621-02200	VA2.5/5 PRONG 8-MET-ML	DE	320
621-03200	VA2.5/5 PRONG 18-SS-ML	DE	320
621-10001	NA0/1-ML	DE	319
621-10103	NA1K/3-ML	DE	319
621-10405	NA4/5-ML	DE	319
621-10810	NA8/10-ML	DE	319
621-60001	NA0/1 PRONG-ML	DE	319
621-60103	NA1K/3 PRONG-ML	DE	319
621-60405	NA4/5 PRONG-ML	DE	319
621-60810	NA8/10 PRONG-ML	DE	319
621-80005	D KIT-MET	GB	321
621-80007	K TOOL-MET	GB	321
621-80008	SS TOOL-MET	GB	321
621-80009	S TOOL-MET	GB	321
625-00250	HELLERINE 0.25 LITER-CL	DE	228
625-05000	HELLERINE 5 LITER-CL	DE	228
625-06000	HELLERINE 20 LITER-CL	DE	228
712-10000	HTAPE-PROTECT1500-PA-BK	CN	249
712-10001	HTAPE-PROTECT300-PET-BK	CN	249
712-10002	HTAPE-PROTECT180-PET-BK	CN	248
712-10003	HTAPE-PROTECT250-PET-BK	CN	248

Part Description	Country	Article-No.	Page	Part Description	Country	Article-No.	Page	Part Description	Country	Article-No.	Page
45MINICHNL2-PPT20-BK	US	133-01478	141	BC55AH712-PA66-BK	KR	151-01903	147	CC17-PA66HIRHS-BK	US	151-01295	165
45MINICHNL-PPT20-BK	US	133-01480	141	BC55AH712-PA66-GY	KR	151-01625	147	CC19-PA66HIRHSUV-BK	US	151-01342	162
90MINICHNL2-PPT20-BK	US	133-01477	141	BC70LFT712-PA66HIRHS-BK	CN	151-01217	153	CC1SFT7-MD-PA66HIRHS-BK	CN	151-01336	163
90MINICHNL-PPT20-BK	US	133-01479	141	BC70SFT712-MD-PA66HIRHS-BK	CN	151-01094	147	CC1SFT7PT2.3-3.5-PA66HIRHS-BK	CN	151-01466	163
90RADMINICHNL-PPT20-BK	MX	151-02061	141	BC70SFT712-PA66HIRHS-BK	CN	151-01036	147	CC20-PA66HIRHSUV-BK	US	151-01397	165
AHC1AH-PA66HIRHS-BK	FR	151-00366	180	BC80DOP63x10-PA66HIRHS-BK	CN	151-01005	148	CC22-PA66HIRHSUV-BK	US	151-02051	165
AHC223FT6LG-PA66HIRHS-BK	FR	151-01078	181	BC90AH2-PA66HIRHSUV-BK	US	151-01109	142	CC2SFT7-MD-PA66HIRHS-BK	CN	151-01337	163
AHC25FT6LG-PA66HIRHS-BK	FR	151-01198	181	BC90AH-PA66HIRHSUV-BK	US	151-00994	142	CC90BRKT-PA66HIRHSUV-BK	US	151-01249	160
AHC2AH-PA66HIRHS-BK	FR	151-00367	180	BC90FT6B-PA66HIRHS-BK	US	151-01051	142	CCAMPSFT7.0x12.0-PA66HIRHS-BK	DE	155-43802	167
AHC2BH-PA66HIRHS-BK	FR	151-00208	181	BC90FT6-PA66HIRHS-BK	US	151-00993	142	CCDOP62x122-PA66HIRHS-BK	FR	151-02431	165
AHC2SS-PA66HIRHS-BK	FR	151-00368	180	BCBRKT55M-PA66HIRHS-NA	US	151-01404	160	CCEC3.0SV-PA66HIRHS-BK	CN	151-01058	171
AHC336FT6LG-PA66HIRHS-BK	FR	151-01376	181	BCBRKT55M-PPS-GY	US	151-01537	160	CCEC3.0TP-PA66HIRHS-BK	DE	151-00611	171
AHC3BH2-PA46-GY	FR	151-01195	181	BCBRKTSB5-PA66HIRHSUV-BK	US	151-01119	156	CCFT5-6D16-PA66HIRHS-BK	PL	151-01878	161
AHC3BHR-PA66HIRHS-BK	FR	151-00370	181	BCFT63x100S-PA66HIRHS-BK	DE	151-00759	148	CCFT6LG-PA66HIRHS-BK	FR	151-00785	162
AHC3CH2-PA66HIRHS-BK	FR	151-00937	181	BCFT6XL56-PA66HIRHS-BK	DE	151-00662	146	CCFT6LG-TS-PA66HIRHS-BK	CN	151-01141	162
AHC3CHR-PA6HIR-BK	FR	151-00371	181	BCFTOVAL2-PA66HIRHS-NA	US	151-01240	148	CCFT6TS11-PA46-GY	CN	151-01294	162
AHC3DH-PA66HIRHS-BK	FR	151-00181	180	BCFTOVAL-PA66HIRHS-NA	US	151-01239	148	CCFT8X15-PA66HIRHS-BK	CN	151-01358	164
AHC3EH2-PA66HIRHS-BK	FR	151-00928	180	BCFTOVALXL-PA66HIRHS-NA	US	151-01888	148	CCFTOVAL-PA66HIRHS-BK	CN	151-01057	165
AHC3SB-PA66HIRHS-BK	FR	151-00372	180	BCHSFT712-MD-PA66HIRHS-BK	CN	151-01301	147	CCIIEC6-MOD-PA66HIRHS-BK	CN	151-01124	171
AHC45BHG2-PA46-GY	FR	151-01377	181	BCHSFT712-PA66HIRHS-BK	CN	151-01037	147	CCIIISFT6.5x13-PA66HIRHS-BK	DE	151-00620	167
AHC4AH-PA66HIRHS-BK	FR	151-00374	181	BCLSFT712-PA66HIRHS-BK	CN	151-01014	147	CCIVSFT6.5x130-PA66HIRHS-BK	DE	133-00392	167
ALU10C-AL/CR-BK	DE	211-15100	138	BCOS5-PA66HIRHS-BK	PL	151-01867	155	CCIVSFT65130-MD-PA66HIR-BK	KR	151-01676	168
ALU11C-AL/CR-BK	DE	211-15110	138	BCOS6-PA66HIRHS-BK	DE	151-00281	155	CCIVSFT6513T3-PA66HIRHS-BK	KR	151-02062	168
ALU13C-AL/CR-BK	DE	211-15130	138	BCOWFT5-PA66HIRHS-BK	PL	151-01872	146	CCIVSFT6513T4-PA66-BK	KR	151-01157	168
ALU15C-AL/CR-BK	DE	211-15150	138	BCOWFT8-PA66HIRHS-BK	PL	151-01879	146	CCKSFT6.2x12.2-PA66HIRHS-BK	US	151-01003	168
ALU16C-AL/CR-BK	DE	211-15160	138	BC-SCRF6-PA66GF60/PA66HIRHS-BK	DE	156-00390	157	CCLOP62X122-PA66HIRHS-BK	FR	151-00855	165
ALU4-AL-NA	DE	211-10040	138	BGSFT6.5 16-3MD-PA66HIRHS-BK	FR	155-11601	145	CCOVAL2-PA66HIRHS-BK	US	151-01108	166
ALU5-AL-NA	DE	211-10050	138	BGSFT6.5 16-3-PA66HIRHS-BK	FR	151-00431	145	CCOVAL3-PA66HIRHS-BK	US	151-01244	166
ALU5C-AL/CR-BK	DE	211-15050	138	BCSFTOVAL2-PA66HIRHSUV-NA	US	151-01884	148	CCOVAL4-PA66HIRHS-BK	US	151-01246	166
ALU6-AL-NA	DE	211-10060	138	BCUW55-D5-25-PA66HIRHS-NA	DE	151-00851	156	CCOVAL5-PA66HIRHS-BK	US	151-01286	166
ALU6C-AL/CR-BK	DE	211-15060	138	Beam Clamp B with foam-PA6GF30-BK	DE	151-01186	194	CCOVAL6-PA66HIRHS-BK	US	151-01033	166
ALU7-AL-NA	DE	211-10070	138	Beam Clamp B-PA6GF30-BK	DE	151-00822	194	CCOVAL-PA66HIRHS-BK	US	151-00925	166
ALU7C-AL/CR-BK	DE	211-15070	138	Beam Clamp C with foam-PA6GF30-BK	DE	151-01187	194	CCOVAL-S-PA66HIRHS-BK	CN	151-02122	165
ALU8-AL-NA	DE	211-10080	138	Beam Clamp C-PA6GF30-BK	DE	151-00823	194	CC-PAEKSFT6.5PT1.7-2.3-PA66HIRHS-BK	FR	151-00840	163
ALU8C-AL/CR-BK	DE	211-15080	138	Beam Clamp D with foam-PA6GF30-BK	DE	151-01188	194	CCSB55-PA66HIRHS-BK	FR	151-01196	169
AMT5L165B-SS316-ML	GB	111-00327	55	Beam Clamp D-PA6GF30-BK	DE	151-00886	194	CCSB56-PA66HIRHS-BK	CN	151-01698	169
ATS3080-BK	DE	102-00000	297	Bench mount kit 3080-ML	DE	102-00040	298	CCSFT5-PA66HIRHS-BK	CN	151-00980	163
ATSBK2KSFT6.5-PA66HIRHS-BK	DE	102-69068	301	Bench mount kit automatic 3080-ML	DE	102-00042	298	CCSFT6.3-PA66-BK	PL	151-01809	163
ATSBCEC35-PA66HIRHS-BK	PL	102-68355	301	Bench mount kit CPK-ML	DE	106-00040	295	CCSFT6.5-MOD-PA66HIRHS-BK	CN	151-01323	163
ATSBCEC36-PA66HIRHS-BK	DE	102-68365	301	Bench mount kit horizontal 3080-ML	DE	102-00041	298	CCSFT6.5-PA66HIRHS-BK	FR	151-00775	163
ATSBCEC37-PA66HIRHS-BK	PL	102-68375	301	BHT375M-PA66HS-BK	SG	150-47595	119	CCSFT6.5X12.5-MD-PA66HIRHS-BK	CN	151-01312	167
ATSBCEC38-PA66HSW-BK	DE	102-68385	301	BHT375-PA66HS-BK	DE	150-37595	119	CCSFT7x12-PA66HIRHS-BK	DE	151-00194	167
ATSBCTF6LG-PA66HIRHS-BK	DE	102-67065	301	Big Connector Clip-PA66HIRHS-BK	PL	151-01837	163	CCSFT8.0x15.0-PA66-BK	PL	151-01807	168
ATSBKCSFT6.5-PA66HIRHS-BK	DE	102-69067	301	Big YCC TS-PA66HIRHS-BK	DE	151-00235	161	CCSFT8.5X16-PA66HIRHS-BK	CN	151-01004	168
ATSBKOWSFT6.5-PA46-GY	PL	102-69080	301	BLADEKIT-MIX	US	110-70106	310	CCWA3.4-PA66HIRHS-BK	PL	151-01876	169
ATSBKCSFT6.5-MD-PA66HIRHS-BK	DE	102-69065	301	Bracket brake line-PA46-GY	FR	148-00101	112	CCWA4.5-PA66HIRHS-BK	DE	151-01392	169
ATSBKCSFT6.5-PA66HIRHS-BK	DE	102-69066	301	Bracket brake line-PA66HS-NA	FR	148-00100	112	CH20D6-PA66HS-BK	GB	151-00077	149
ATSBKCSFT6.5PT2.3-3.3-PA46-GY	PL	102-69089	301	BT105L-PA66HIRHSUV-BK	US	132-00011	119	CH20D7-PA66-BK	GB	151-02600	149
ATSBKSOCC6.2x12.2-PA66HIRHS-BK	PL	151-01882	153	CBT30MR-PA66HS/POM-BK	FR	156-00049	109	CH20FT6-PA66HIRHS-BK	CN	151-00830	152
ATSEC35-PA66HIRHS-BK	DE	102-68350	300	CBTO30R-PA66HS/PA66HIRHS-BK	CN	156-01320	109	CHA1-PA66HS-BK	CN	150-08110	154
ATSEC36-PA66HIRHS-BK	DE	102-68360	300	CBTO50R-PA66HS/PA66HIRHS-BK	DE	156-01601	109	CHA2-PA66-BK	CN	151-02901	154
ATSEC37-PA66HIRHS-BK	DE	102-68370	300	CBTO50R-PA66HS/PA66HIRHS-BK	BR	156-02409	109	CHDP66-PA66-BK	GB	150-07010	146
ATSEC38-PA66HIRHS-BK	DE	102-68380	300	CBTO50RSTUD5-PA66HS/PA66HIRHS-BK	FR	156-00380	109	Closures Black ATS3080-PA66HSUV-BK	DE	102-66210	299
ATSFT6-PA66HIRHS-BK	DE	102-67060	301	CC03-PA66HIRHS-BK	US	151-00496	164	Closures Natural ATS3080-PA66HSUV-NA	DE	102-66209	299
Autotool 2000 CPK-BK	DE	106-00000	294	CC04-PA66HIRHS-BK	US	151-00597	164	CM170FT11J-PA66W-BK	JP	157-00086	67
BC with tube-Oval-PA66HIRHS-BK	KR	151-02065	147	CC08-PA66HIRHS-BK	US	151-00677	162	CM200FT9J-PA66HSW-BK	JP	157-00076	74
BC13FT6.35-PA66HIRHS-BK	CN	151-01335	152	CC09-PA66HIRHS-BK	US	151-00765	164	CNCTC8FT6.5LG-PA66HIRHS-BK	CN	151-01038	185
BC20KSFT6.5-PA66HIRHS-BK	CN	151-01070	150	CC10-PA66HIRHS-BK	US	151-00807	164	CNCTC8FT6.5LG-PA66HIRHS-BU	CN	151-01177	185
BC20SFT6.5-MD-PA66HIRHS/EPDM-BK	CN	151-01067	150	CC11-PA66HIRHSUV-BK	US	151-01144	164	CONNECTOR CLIP-PA66HIRHS-BK	FR	150-41397	160
BC2212-PA66HIRHS-BK	DE	151-00017	157	CC12-PA66HIRHS-BK	US	151-01136	165	CONNECTOR-CLIP EC6-PA66HIRHS-BK	DE	150-92600	171
BC30-PA66HIRHS-BK	FR	151-00016	157	CC13-PA66HIRHS-BK	US	151-01184	165	Cover Plug 20-PP/EPDM-BK	FR	151-00343	199
BC37FT7LG-PA66HIRHS-BK	DE	151-01262	146	CC14-PA66HIRHS-NA	US	151-01243	163	Cover Plug 20x50-PP/EPDM-BK	FR	151-00342	199
BC40AH712-PA66-BK	KR	151-01902	147	CC15-PA66HIRHS-BK	US	151-01199	165	Cover Plug 32-EPDM-BK	FR	151-00424	199
BC40AH712-PA66-GY	KR	151-01624	147	CC16-PA66HIRHS-BK	US	151-01297	165	COW20DP7-PA66HS-BN	FR	151-03100	151
BC52PAE-TP-PA66HIRHS-BK	PL	151-02154	160	CC16R-PA66HIRHS-BK	US	151-02206	165	COW20SFT7-PA66HS-BK	SG	151-01570	149

Part Description	Country	Article-No.	Page	Part Description	Country	Article-No.	Page	Part Description	Country	Article-No.	Page
COW30DP7-PA66-BK	FR	151-03200	151	EC39-PA6HIR-BK	FR	151-00174	192	H2P-PA66-NA	DE	211-60029	139
CP21DOP-PA46-GY	FR	151-00915	166	EC41-PA6HIR-BK	FR	151-00234	192	H30BKX100M-CR-BK	GB	608-01204	226
CP21DOP-PA66HIRHS-BK	FR	151-00465	166	EC42-PA66HIRHS-BK	DE	151-00429	170	H30X25BK-CR-BK	GB	600-02938	226
CP2FT6-PA46-GY	FR	151-00914	162	EC43-PA66HIRHS-BK	DE	151-00430	170	H3P-PA66HS-BK	DE	211-60002	139
CP2FT6-PA66HIRHS-BK	FR	151-00216	162	EC45-PA66HIRHS-BK	DE	151-00460	170	H3P-PA66-NA	DE	211-60039	139
CP31DOP-PA66HIRHS-BK	FR	151-00214	166	EC46-PA66HIRHSUV-BK	US	151-01113	171	H40BKX100M-CR-BK	GB	608-01205	226
CP3FT6-PA66HIRHS-BK	FR	151-00163	162	EC48-PA66HIRHS-BK	US	151-01206	159	H40X30BK-CR-BK	GB	600-02947	226
CP61DOP-PA66HIRHS-BK	FR	151-00918	166	EC52-PA66HIRHSUV-BK	MX	151-01290	171	H4P-PA66-NA	DE	211-60049	139
CP6FT6-PA6HIR-BK	FR	151-00162	162	EC54-PA66HIRHSUV-BK	MX	151-01042	171	H50BKX100M-CR-BK	GB	608-01206	226
CT203-PA66HS-BK	DE	132-20300	119	EC6mod-PA66HIRHS-BK	DE	151-00464	170	H50X25BK-CR-BK	GB	600-02949	226
CT375-PA66HS-BK	SG	132-37530	119	ECC1CPT-PA66HIRHS-BK	DE	151-00499	171	H5P-PA66HS-BK	DE	211-60004	139
CT375-PA66HS-BK	SG	132-37540	119	Edge-Clip25-PA66HIRHS-BK	DE	133-00075	170	H5P-PA66-NA	DE	211-60059	139
CTAM1-PA66-WH	US	151-31103	129	EPS-300-12/4-PO-X-BK	NL	340-12040	218	H6P-PA66-NA	DE	211-60069	139
CTAM1-PEEK-BGE	JP	151-00757	129	EPS-300-19/6-PO-X-BK	NL	340-19060	218	H75BKX25M-CR-BK	GB	608-01207	226
CTAM2-PA66-WH	US	151-31203	129	EPS-300-24/8-PO-X-BK	NL	340-24080	218	H75X30BK-CR-BK	GB	600-02198	226
CTAM2-PEEK-BGE	JP	151-00758	129	EPS-300-3/1-PO-X-BK	NL	340-03010	218	H7P-PA66HS-BK	DE	211-60006	139
CTAM2-PVDFX-NA	JP	151-00572	129	EPS-300-40/13-PO-X-BK	NL	340-40130	218	H7P-PA66-NA	DE	211-60079	139
CTC10FT6LG-PA66HIRHS-BK	FR	151-00018	185	EPS-300-6/2-PO-X-BK	NL	340-06020	218	H8P-PA66-NA	DE	211-60089	139
CTC10FT6-PA66HIRHS-BK	FR	151-14311	186	EPS-300-9/3-PO-X-BK	NL	340-09030	218	H9P-PA66HS-BK	DE	211-60008	139
CTC10FT9-PA66HIRHS-BK	FR	155-17801	186	EPS-400-12/3-PO-X-BK	NL	341-12030	218	Halter SFT6.5-PA66HIRHS-BK	DE	133-00067	155
CTC10SBS6-PA66HIRHS-BK	DE	151-00702	189	EPS-400-16/4-PO-X-BK	NL	341-16040	218	HC1220FT7J-PA66HSW-BK	JP	151-00853	176
CTC13FT6LG-PA66HIRHS-BK	FR	151-00019	185	EPS-400-24/6-PO-X-BK	NL	341-24060	218	HC140SFT62x122-PA6HIR-BK	FR	151-00423	173
CTC13FT6-PA66HIRHS-BK	FR	151-14312	186	EPS-400-32/8-PO-X-BK	NL	341-32080	218	HC2x7.3AH13-PV-PA66W-BK	DE	151-00899	173
CTC13SBS6-PA66HIRHS-BK	FR	151-00703	189	EPS-400-4/1-PO-X-BK	NL	341-04010	218	HC48FT5-PA66HIRHS-BK	FR	151-01405	176
CTC17SBS6-PA66HIRHS-BK	DE	151-00010	189	EPS-400-8/2-PO-X-BK	NL	341-08020	218	HC48FT6-PA66HIRHS-BK	US	151-00680	176
CTC22FT9-PA66HIRHS-BK	FR	155-25201	186	EVO7-MET/PL-BK	US	110-70129	310	HC512FT7J-PA66HSW-BK	JP	151-00852	176
CTC4.5FT6LG-PA66HIRHS-BK	FR	151-14314	185	EVO7SP-MET/PL-BK	US	110-70130	310	HC6-13FT6.5-PA66HS-BK	CN	151-01082	176
CTC4.5SBS6-PA66HIRHS-BK	FR	151-00700	189	EVO9HT-MET/PL-BK/BU	US	110-80017	310	HC90SFT62x122-PA6HIR-BK	FR	151-00164	175
CTC7.5FT6LG-PA66HIRHS-BK	FR	151-14313	185	EVO9-MET/PL-BK/RD	US	110-80002	310	HCEC3.OSP-C-PA66HIRHS-BK	PL	151-01863	192
CTC7.5FT9-PA66HIRHS-BK	FR	155-31602	186	EVO9SP-MET/PL-BK/RD	US	110-80003	310	HCEC3.0TPS-PA66HIRHS-BK	DE	151-00645	192
CTC7.5SBS6-PA66HIRHS-BK	FR	151-00701	189	FBS100-PA66-BK	DE	150-26100	60	HDM19-PA66HIRHSUV-BK	US	151-00134	131
CTC8FT6-PA66HIRHS-BK	CN	151-01543	185	FBS140-PA66-BK	DE	150-26140	60	HDM25-PA66HIRHSUV-BK	US	151-00437	131
CTCFTE-PA66HIRHS-BK	FR	151-00783	185	FBS185-PA66-BK	DE	150-26180	60	HDM312-PA66HIRHSUV-BK	US	151-00439	131
CTCL16FT6LG-PA66HIRHS-BK	US	151-00621	186	FC20D6A1-MD-PA66-NA	KR	151-01062	144	HDM321-PA66HIRHSUV-BK	US	151-07100	131
CTCL4.5FT6LG-PA66HIRHS-BK	DE	151-01115	186	FC20D6A-PA66-BK	KR	151-01061	144	HDM400BR-PA66HIRHSUV-BK	US	151-01224	131
CTCLPROFILE-PA66HIRHS-BK	FR	151-00026	184	FC20D6B1-MD-PA66-NA	KR	151-01064	144	HDM401-PA66HIRHSUV-BK	US	151-07300	131
CTMS5-PA66-BK	GB	151-03301	190	FC20D6B-PA66-BK	KR	151-01063	144	HDM501-PA66HIRHSUV-BK	US	151-07500	131
CTT20R-PA66HS-BK	US	112-51960	42	FMB4APT-A-PA66HS-BK	PL	151-02219	122	HDT16-SS-ML	GB	110-40000	316
CTT20R-PA66-NA	US	112-51919	42	Force measurement device with grip mount CPK-ML	DE	106-29010	295	HEGEMIP04-PET/TNCU-ML	FR	173-00400	243
CTT60R-PA66-BK	US	112-56019	42	Force measurement device with robot adapter CPK-ML	DE	106-29011	295	HEGEMIP06-PET/TNCU-ML	FR	173-00600	243
D KIT-MET	GB	621-80005	321	FSFTPHDBN16-SET-PA66GF30/PA-66HIRHS-BK	DE	156-02426	120	HEGEMIP08-PET/TNCU-ML	FR	173-00800	243
DCT11-PA66HIRHSUV-BK	US	115-00144	100	FT220DP7-PA66-BK	GB	150-01700	66	HEGEMIP10-PET/TNCU-ML	FR	173-01000	243
DCT11-PA66HIRHSUV-BK	US	115-31101	100	FT6.5 PLUG-PA46-BK	US	151-01363	198	HEGEMIP12-PET/TNCU-ML	FR	173-01200	243
DCT9-PA66HIRHSUV-BK	US	115-30900	100	FT6.5 Plug-PA66HIRHSUV-BK	US	151-01317	198	HEGEMIP14-PET/TNCU-ML	FR	173-01400	243
DE863220-PA66HS-BK	GB	132-00200	119	FT6.5LGOCS-9-PA66HIRHS-BK	CN	151-01271	176	HEGEMIP16-PET/TNCU-ML	FR	173-01600	243
DSWS4-PA66HS/POM-BK	US	151-06500	193	FT6LGG CC-PA66HIRHS-BK	PL	151-01838	161	HEGEMIP18-PET/TNCU-ML	FR	173-01800	243
DSWS5-PA66HS-BK	US	151-06502	193	FT6LGG.JAE.CONNECT.TS-PA66HIRHS-BK	DE	151-00459	161	HEGEMIP20-PET/TNCU-ML	FR	173-02000	243
DTC18x18-20-S-PA66HIRHS-BK	CN	156-01314	178	FT6LGG.M.AMP-AUFN.2-PA66HIRHS-BK	DE	155-10801	162	HEGEMIP-HY20-PET/TNCU-ML/OG	FR	173-02001	244
DTC18x28-S-PA66HIRHS-BK	CN	156-01315	178	FT6LGG.M.St.Aufn.II-PA66HIRHS-BK	DE	155-32602	161	HEGEMIP-HY30-PET/TNCU-ML/OG	FR	173-03000	244
DTC18x5-S-PA66HIRHS-BK	CN	156-01311	178	FT6LGG.YAZ.CONNECT-TS-PA66HIRHS-BK	DE	155-30702	161	HEGEMIP-HY40-PET/TNCU-ML/OG	FR	173-04000	244
DTC18x6.5-S-PA66HIRHS-BK	CN	156-01312	178	FT6LGG2CT2-MOD-PA66HIRHS-BK	CN	151-01127	162	HEGEMIP-HY50-PET/TNCU-ML/OG	FR	173-05000	244
DTC18x9-11-S-PA66HIRHS-BK	CN	156-01313	178	FT6LGG-AMP-PA66HIRHS-BK	DE	155-03800	161	HEGEMIP-VG03-TNCU-ML	FR	173-00200	245
DUALM6DOCK-PA66HS-BK	US	151-01056	188	FT65-Y-CONN-TS-PA66HIRHS-BK	DE	155-43702	161	HEGEMIP-VG04-TNCU-ML	FR	173-00201	245
EC JAE CC-PA66HIRHS-BK	FR	151-00472	171	GLRT50RSF-PA11W-BK	JP	126-00139	60	HEGEMIP-VG06-TNCU-ML	FR	173-00202	245
EC11-PA66HIRHS-BK	DE	155-40602	171	H12BKX100M-CR-BK	GB	608-01200	226	HEGEMIP-VG07.5-TNCU-ML	FR	173-00203	245
EC14-PA66HIRHS-BK	DE	151-03404	158	H12X20BK-CR-BK	GB	600-02498	226	HEGEMIP-VG10-TNCU-ML	FR	173-00204	245
EC15-PA66HIRHS-BK	DE	151-03401	158	H15BKX100M-CR-BK	GB	608-01201	226	HEGEMIP-VG12.5-TNCU-ML	FR	173-00205	245
EC16-PA66HIRHS-BK	DE	151-03402	158	H15X20BK-CR-BK	GB	600-02929	226	HEGEMIP-VG20-TNCU-ML	FR	173-00206	245
EC17-PA46-GY	DE	151-00819	158	H1P-PA66HS-BK	DE	211-60000	139	HEGP03-PET-BK	FR	170-10300	233
EC17-PA66HIRHS-BK	DE	151-03403	158	H1P-PA66-NA	DE	211-60019	139	HEGP04-PET-BK	FR	170-10400	233
EC27-PA66HIRHS-BK	FR	151-00161	192	H25BKX100M-CR-BK	GB	608-01203	226	HEGP05-PET-BK	FR	170-10500	233
EC28-PA66HIRHS-BK	DE	151-00151	170	H25X25BK-CR-BK	GB	600-02934	226	HEGP06-PET-BK	FR	170-10600	233
EC30-PA66HIRHS-BK	DE	151-00022	159	H2P-PA66HS-BK	DE	211-60001	139	HEGP08-PET-BK	FR	170-10800	233
EC32-PA66HIRHS-BK	PL	151-01862	170					HEGP10-PET-BK	FR	170-11000	233
EC33-PA66HIRHS-BK	DE	151-00192	170								



Part Description	Country	Article-No.	Page	Part Description	Country	Article-No.	Page	Part Description	Country	Article-No.	Page
HEGP12-PET-BK	FR	170-11200	233	HEGWS35-PA6-BK	CN	170-01303	242	IPC5P-PA66-BK	BR	151-00870	179
HEGP15-PET-BK	FR	170-11500	233	HEGWS40-PA6-BK	CN	170-01304	242	IT18FL-PA66-NA	US	111-81919	269
HEGP20-PET-BK	FR	170-12000	233	HEGWS45-PA6-BK	CN	170-01305	242	IT18R-PA66-NA	GB	111-81821	269
HEGP25-PET-BK	FR	170-12500	233	HEGWS50-PA6-BK	CN	170-01306	242	IT50L-PA66-NA	US	111-85319	269
HEGP30-PET-BK	FR	170-13000	233	HEGWS60-PA6-BK	CN	170-01307	242	IT50RD-PA66-NA	US	111-85219	269
HEGP40-PET-BK	FR	170-14000	233	HEGWS70-PA6-BK	CN	170-01308	242	IT50R-PA66-NA	US	111-85019	269
HEGP50-PET-BK	FR	170-15000	233	HEGWS80-PA6-BK	CN	170-01309	242	IT50RT-PA66-NA	US	111-85119	269
HEGPA6604-PA66-BK	FR	170-40400	237	HEGWS90-PA6-BK	CN	170-01310	242	IWS10-PA6-BK	DE	169-22100	232
HEGPA6606-PA66-BK	FR	170-40600	237	HELAHOOK10-PET-BK	FR	170-05100	241	IWS12-PA6-BK	DE	169-22120	232
HEGPA6608-PA66-BK	FR	170-40800	237	HELAHOOK15-PET-BK	FR	170-05150	241	IWS13-PA6-BK	DE	169-22130	232
HEGPA6610-PA66-BK	FR	170-41000	237	HELAHOOK20-PET-BK	FR	170-05200	241	IWS14-PA6-BK	DE	169-22140	232
HEGPA6612-PA66-BK	FR	170-41200	237	HELAHOOK25-PET-BK	FR	170-05250	241	IWS17-PA6-BK	DE	169-22170	232
HEGPA6616-PA66-BK	FR	170-41600	237	HELAHOOK30-PET-BK	FR	170-05300	241	IWS19-PA6-BK	DE	169-22190	232
HEGPA6620-PA66-BK	FR	170-42000	237	HELLERINE 0.25 LITER-CL	DE	625-00250	228	IWS22-PA6-BK	DE	169-22220	232
HEGPA6625-PA66-BK	FR	170-42500	237	HELLERINE 20 LITER-CL	DE	625-06000	228	IWS23-PA6-BK	DE	169-22230	232
HEGPA6630-PA66-BK	FR	170-43000	237	HELLERINE 5 LITER-CL	DE	625-05000	228	IWS26-PA6-BK	DE	169-22260	232
HEGPA6640-PA66-BK	FR	170-44000	237	HFT-A-1.2/0.6-PO-X-BK	NL	305-01200	209	IWS29-PA6-BK	DE	169-22290	232
HEGPA6650-PA66-BK	FR	170-45000	237	HFT-A-1.6/0.8-PO-X-BK	NL	305-01600	209	IWS4.5-PA6-BK	DE	169-22450	232
HEGPA6660-PA66-BK	FR	170-46000	237	HFT-A-101.6/50.8-PO-X-BK	NL	305-91600	209	IWS7.5-PA6-BK	DE	169-22750	232
HEGPL03-PET-BK	FR	170-80503	238	HFT-A-12.7/6.4-PO-X-BK	NL	305-12700	209	IWS8.5-PA6-BK	DE	169-22850	232
HEGPL06-PET-BK	FR	170-80506	238	HFT-A-19.0/9.5-PO-X-BK	NL	305-19000	209	K TOOL-MET	GB	621-80007	321
HEGPL12-PET-BK	FR	170-80512	238	HFT-A-2.4/1.2-PO-X-BK	NL	305-02400	209	KR6/35-PA66HS-NA	DE	121-63555	47
HEGPL20-PET-BK	FR	170-80520	238	HFT-A-25.4/12.7-PO-X-BK	NL	305-25400	209	KR6/8-BU/RD	DE	121-00680	314
HEGPL30-PET-BK	FR	170-80530	238	HFT-A-3.2/1.6-PO-X-BK	NL	305-03200	209	KR6G5-E/TFE-BU	JP	151-00653	128
HEGPL40-PET-BK	FR	170-80540	238	HFT-A-38.0/19.0-PO-X-BK	NL	305-38100	209	KR6G5-PA66-NA	DE	151-24619	128
HEGPL50-PET-BK	FR	170-80550	238	HFT-A-4.8/2.4-PO-X-BK	NL	305-04800	209	KR6G5-PA66W-BK	DE	151-24660	128
HEGPV004-PBT-BK	FR	170-30400	235	HFT-A-50.8/25.4-PO-X-BK	NL	305-50800	209	KR8/21-PA66HS-NA	DE	121-82155	47
HEGPV006-PBT-BK	FR	170-30600	235	HFT-A-6.4/3.2-PO-X-BK	NL	305-06400	209	KR8/33-PA12-BK	DE	121-83380	47
HEGPV008-PBT-BK	FR	170-30800	235	HFT-A-76.0/38.0-PO-X-BK	NL	305-76200	209	KR8/33-PA46-GY	DE	121-83378	47
HEGPV012-PBT-BK	FR	170-31200	235	HFT-A-9.5/4.8-PO-X-BK	NL	305-09500	209	KR8/33-PA66HS-BK	DE	121-73390	47
HEGPV015-PBT-BK	FR	170-31500	235	HFTP48-PEEK-BGE	DE	151-00911	284	KR8/33-PA66HS-NA	DE	121-83355	47
HEGPV020-PBT-BK	FR	170-32000	235	HH20-PA66-NA	JP	120-00080	295	KR8/43-PA66HS-BK	DE	121-74360	47
HEGPV030-PBT-BK	FR	170-33000	235	HSG0-BU	DE	170-99001	322	KR8/43-PA66HS-NA	DE	121-74359	47
HEGPV040-PBT-BK	FR	170-34000	235	HT120R-PA66HS-BK	GB	112-00100	42	KR8/C5-PA66HS-NA	DE	121-58551	47
HEGPV050-PBT-BK	FR	170-35000	235	HT160S5HE-PA46-GY	SG	157-00160	94	KR8/S1-PA66HS-NA	DE	121-98151	47
HEGPV0X03-PBT-BK	FR	170-50030	236	HT160S5HE-PA66HS-GY	KR	157-00161	94	KR8G5-E/TFE-BU	JP	151-00654	128
HEGPV0X06-PBT-BK	FR	170-50060	236	HT160S6HE-PA66-BK	SG	157-00094	94	KR8G5-PA66HS-BK	DE	151-24850	128
HEGPV0X09-PBT-BK	FR	170-50090	236	HT160S6HE-PA66HS-BK	KR	157-00264	94	KR8PNSE-ML	DE	121-00889	314
HEGPV0X12-PBT-BK	FR	170-50120	236	HT170S5B-PA66HS-BK	KR	157-00377	91	KSFT6.5OC1-3-PA66HIRHS-BK	PL	151-01843	172
HEGPV0X20-PBT-BK	FR	170-50200	236	HTAPE-PROTECT1500-PA-BK	CN	712-10000	249	KSFT6.5OC7-9-PA66HIRHS-BK	PL	151-01844	172
HEGPV0X30-PBT-BK	FR	170-50300	236	HTAPE-PROTECT180-PET-BK	CN	712-10002	248	KST-STG200-MET-BK/ML	TW	110-09950	316
HEGPV0X40-PBT-BK	FR	170-50400	236	HTAPE-PROTECT250-PET-BK	CN	712-10003	248	LC9FTOVAL-PA66HIRHS-BK	PL	151-01880	186
HEGPV0X50-PBT-BK	FR	170-50500	236	HTAPE-PROTECT300-PET-BK	CN	712-10001	249	LFC155-PA66-BK	FR	131-60070	95
HEGPX06-PET-BK	FR	170-00060	234	HTS9-PA66-BK	BR	151-00725	173	LFC165(PSA)-PA66HS-BK	GB	155-34202	95
HEGPX09-PET-BK	FR	170-00090	234	IAHC1T-PA66HIRHS-BK	FR	151-00223	182	LFC165-2-PA66HS-BK	GB	157-00047	95
HEGPX12-PET-BK	FR	170-00120	234	IAHC2T-PA66HIRHS-BK	FR	151-00199	182	LHT370-PA66-BK	GB	132-00000	119
HEGPX20-PET-BK	FR	170-00200	234	IAHC3AH-PA66HIRHS-BK	FR	151-00378	183	LHT370-PA66-BK	GB	132-00002	119
HEGPX30-PET-BK	FR	170-00300	234	IAHC3CH-PA66HIRHS-BK	FR	151-00381	183	LK2A1DOP62x122-PA66HIR/PA-66HIRHS-BK	FR	156-00105	87
HEGPX40-PET-BK	FR	170-00400	234	IAHC3T-PA66HIRHS-BK	FR	151-00213	182	LK2AFT62x122A-PA66HIRHS-BK	FR	156-01208	87
HEGSA04-PET-BK	FR	170-60401	239	IAHC4AH-PA66HIRHS-BK	FR	151-00382	183	LK2AFT62x122B-PA66HIRHS-BK	FR	156-01209	87
HEGSA06-PET-BK	FR	170-60600	239	IAHC4CH-PA66HIRHS-BK	FR	151-00383	183	LOC10-14FT6LG-PA46-GY	US	151-01219	187
HEGSA09-PET-BK	FR	170-60900	239	IAHC4T-PA66HIRHS-BK	FR	151-00207	182	LOC1014FT6LG-PA66HIRHSUV-BK	US	151-01166	187
HEGSA12-PET-BK	FR	170-61200	239	IAHC5BH-PA66HIRHS-BK	FR	151-00384	183	LOC15-19FT6LG2-PA66HIRHS-BK	US	151-01023	187
HEGSA15-PET-BK	FR	170-61500	239	IAHC5FH-PA66HIRHS-BK	FR	151-00787	183	LOC15-19FT6LG-PA46-GY	US	151-01285	187
HEGSA20-PET-BK	FR	170-62000	239	IAHC5T-PA66HIRHS-BK	FR	151-00195	182	LOC15-19FT6LG-PA66HIRHSUV-BK	US	151-01022	187
HEGSA30-PET-BK	FR	170-63000	239	IPC10AH-PA66HIR-BK	GB	151-00096	179	LOC15-19FT6LGS0-PA66HIRHS-BK	US	151-01025	187
HEGSA40-PET-BK	FR	170-64000	239	IPC10P-PA66HIR-BK	GB	151-14400	179	LOC15-19FTOVAL-PA66HIRHSUV-BK	MX	151-01049	187
HEGWS100-PA6-BK	CN	170-01311	242	IPC13AH-PA66-BK	GB	151-14130	179	LOC20-25FT6.5LG-PA66HIRHSUV-BK	US	151-01371	187
HEGWS115-PA6-BK	CN	170-01312	242	IPC13P-PA66-BK	BR	151-00868	179	LOC59FT6LG-PA66HIRHSUV-BK	US	151-01017	187
HEGWS145-PA6-BK	CN	170-01313	242	IPC13P-PA66-BK	GB	151-14132	179	LOC5-9FTOVAL-PA66HIRHSUV-BK	US	151-01306	187
HEGWS176-PA6-BK	CN	170-01314	242	IPC15AH-PA66-BK	GB	151-14500	179	LRJ1-PA6-BK	FR	151-08101	145
HEGWS200-PA6-BK	CN	170-01315	242	IPC15P-PA66HIR-BK	GB	151-14502	179	LRT18RWPM4.8-PA66V0-WH	JP	126-00196	60
HEGWS20-PA6-BK	CN	170-01300	242	IPC23AH-PA66-BK	GB	151-14601	179	M6PUSHPIN-PA46-BK	US	151-01071	198
HEGWS25-PA6-BK	CN	170-01301	242	IPC23P-PA66-BK	BR	151-00869	179	M6PUSHPIN-PA66HIRHSUV-BK	US	151-01304	198
HEGWS30-PA6-BK	CN	170-01302	242	IPC23P-PA66-BK	GB	151-14603	179				



Part Description	Country	Article-No.	Page	Part Description	Country	Article-No.	Page	Part Description	Country	Article-No.	Page
MB1-PA66-NA	BR	151-00857	130	MBT33HHFRFID-SS316/SP-RD	GB-PLY	156-01569	276	NX3-PA66-NA	BR	211-00234	139
MB2A-PA66-BK	GB	151-01800	124	MBT33H-SS316-ML	GB	111-94339	52	NX4-PA66-BK	BR	211-00249	140
MB2APT-A-PA66-BK	DE	151-02243	123	MBT33HS-SS304-ML	GB	111-94338	51	NX4-PA66-NA	BR	211-00235	140
MB2-PA66-BK	BR	151-00862	130	MBT33SFC-SS316/SP-BK	GB	111-00293	54	NX6-PA66-BK	BR	211-00256	140
MB2-PA66-NA	BR	151-00858	130	MBT33S-SS316-ML	GB	111-93339	52	NX6-PA66-NA	BR	211-00236	140
MB3A-PA66-BK	GB	151-28320	124	MBT33SUHD-SS304-ML	GB	111-93338	51	NXR11-PA66-BK	BR	211-00251	140
MB3A-PA66-WH	GB	151-28349	124	MBT33UH-SS316-ML	GB	111-01313	53	NXR11-PA66-NA	BR	211-00240	140
MB3APT-A-PA66-BK	DE	151-02244	123	MBT33UH-SS316-ML	GB	111-01304	52	NXR14-PA66-BK	BR	211-00252	140
MB4A3-PA66-BK	GB	151-28430	124	MBT33XHD-SS316-ML	GB	111-01308	53	NXR14-PA66-NA	BR	211-00241	140
MB4A-PA66-BK	GB	151-28412	124	MBT33XHC-SS316/SP-BK	GB	111-00302	54	NXR14-PA66W-BK	BR	211-00255	140
MB4A-PA66-WH	GB	151-28418	124	MBT33XH-SS316-ML	GB	111-95339	52	NXR16-PA66-BK	BR	211-00253	140
MB4A-PA66-WH	DE	151-28469	124	MBT33XHS-SS304-ML	GB	111-95338	51	NXR16-PA66-NA	BR	211-00243	140
MB4A-PT1100-PA66-BK	GB	151-01193	123	MBT43UH-SS316-ML	GB	111-01314	53	NXR18-PA66-BK	BR	211-00245	140
MB4APT-A-PA66-BK	DE	151-02245	123	MBT43UH-SS316-ML	GB	111-01314	53	NXR18-PA66-NA	BR	211-00244	140
MB4APT-A-PA66-WH	DE	151-02246	123	MBT43UH-SS316-ML	GB	111-01305	52	NXR8-PA66-BK	BR	211-00250	140
MB5APT-A-PA66-BK	DE	151-02247	123	MBT43XH-SS316-ML	GB	111-01309	53	NXR8-PA66-NA	BR	211-00239	140
MBML10X45-SS316-ML	GB	544-80101	283	MBT49UH-SS316-ML	GB	111-01315	53	OC185FT6.5PT0.7-2.0-PA66HIRHS-BK	DE	151-01552	177
MBML10X90-SS316-ML	GB	544-80102	283	MBT49UH-SS316-ML	GB	111-01306	52	OCTC1-PA66HIRHS-BK	FR	151-00447	155
MBML20X45-SS316-ML	GB	544-80201	283	MBT49XH-SS316-ML	GB	111-01310	53	OCTCSFT6.5-PA66HIRHS-BK	DE	151-00021	184
MBML20X90-SS316-ML	GB	544-80202	283	MBT55FC-SS316/SP-BK	GB	111-00288	54	OHC16-PA66HIRHS-BK	FR	151-00335	175
M-BOSS Compact Organiser-BU	DE	544-21000	282	MBT55-SS316-ML	GB	111-93059	52	OHC60DOP-PA66HIRHS-BK	FR	151-00958	174
M-BOSS Compact-BU	DE	544-20000	282	MBT55S-SS304-ML	GB	111-93058	51	OHC8-PA66HIRHS-BK	FR	151-00336	175
MBT14HFCRFID-SS316/SP-RD	GB	111-01586	276	MBT60UH-SS316-ML	GB	111-01316	53	OPEN PLUG 34.6x112-PA66HIR-BK	FR	151-00394	199
MBT14HFC-SS316/SP-BK	GB	111-00295	54	MBT60XH-SS316-ML	GB	111-01311	53	Open Plug 42x84-PA6HIR-BK	FR	151-00391	199
MBT14HHFRFID-SS316/SP-RD	GB-PLY	156-01566	276	MBT8HFCRFID-SS316/SP-RD	GB	156-01167	276	Open Plug 55x70-PP-BK	FR	151-00392	199
MBT14H-SS316-ML	GB	111-94149	52	MBT8HFC-SS316/SP-BK	GB	111-00294	54	OS130-PA66W-BK	JP	126-00060	58
MBT14HS-SS304-ML	GB	111-94148	51	MBT8HHFRFID-SS316/SP-RD	GB-PLY	156-01565	276	OS130-SPM712-PA66HSW-BK	JP	126-00252	82
MBT14SFC-SS316/SP-BK	GB	111-00290	54	MBT8H-SS316-ML	GB	111-94089	52	OS150-PM6-WPJ-PA66-NA	JP	126-00071	76
MBT14S-SS316-ML	GB	111-93149	52	MBT8HS-SS304-ML	GB	111-94088	51	OS150-PM712S-WPJ-PA66-NA	CN	126-00269	83
MBT14SS-SS304-ML	GB	111-93148	51	MBT8SFC-SS316/SP-BK	GB	111-00289	54	OS150-PM712-WPJ-PA66HS-NA	CN	126-00165	83
MBT14UH-SS316-ML	GB	111-01301	52	MBT8S-SS316-ML	GB	111-93089	52	OS150WPM5-PA66-BK	KR	126-00278	59
MBT14XHFC-SS316/SP-BK	GB	111-00299	54	MBT8SS-SS304-ML	GB	111-93088	51	OS150WPM7-PA66-BK	KR	126-00279	59
MBT14XH-SS316-ML	GB	111-95149	52	MCTRFIDCHA-PA66MP-BU	GB	111-01676	275	OS160FT5-PA66HSW-BK	JP	126-00057	64
MBT14XHS-SS304-ML	GB	111-95148	51	MCTRFIDCLA-PA66MP-BU	GB	111-01976	275	OS160FT6HEX-PA46-GY	SG	157-00159	65
MBT20HFCRFID-SS316/SP-RD	GB	111-01587	276	MINICHNLU-PPT20-BK	US	133-01476	141	OS160FT6HEX-PA66HS-BK	SG	157-00081	65
MBT20HFC-SS316/SP-BK	GB	111-00296	54	MK10-SB-ST-BU	FR	110-10001	307	OS160FT6-PA66HSW-GY	KR	126-00363	65
MBT20HHFRFID-SS316/SP-RD	GB-PLY	156-01567	276	MK20-PL-BU	DE	110-20006	307	OS170AH712-PA66HS-BK	KR	126-00319	82
MBT20H-SS316-ML	GB	111-94209	52	MK21-PL-BU	DE	110-21016	307	OS170-F7-LH-PA66-BK	JP	157-00019	66
MBT20HS-SS304-ML	GB	111-94208	51	MK3PNSP2-AL-ML	DE	110-03400	308	OS170-F7-LH-PA66HSW-BK	JP	157-00122	66
MBT20SFC-SS316/SP-BK	GB	111-00291	54	MK3SP-MET-ML	DE	110-03500	308	OS170-F7-PA66-BK	JP	157-00017	66
MBT20S-SS316-ML	GB	111-93209	52	MK7HT-PL/GF-BK	US	110-07000	311	OS170-PM712-PA66HSW-BK	JP	126-00131	82
MBT20SS-SS304-ML	GB	111-93208	51	MK7P-PL/GF-BK	US	110-07100	312	OS170WPM712-PA66HS-BK	KR	126-00323	60
MBT20UH-SS316-ML	GB	111-01302	52	MK9P-PL/GF-BK	US	110-09100	313	OS180AH712S-E-PA66HS-BK	KR	126-00283	82
MBT20XHFC-SS316/SP-BK	GB	111-00300	54	MK9P-PL/GF-BK	US	110-09110	313	OS180AH75-LH-E-PA66HS-BK	SG	126-00310	62
MBT20XH-SS316-ML	GB	111-95209	52	MK9PST-BK	US	110-95350	315	OS180FT62122A-PA46-GY	KR	157-00193	85
MBT20XHS-SS304-ML	GB	111-95208	51	MK9SST-PL/GF-GY	US	110-95000	315	OS180FT62122A-PA66HS-BK	KR	157-00263	85
MBT27HFCRFID-SS316/SP-RD	GB	111-01588	276	MST6-MET/PL-GY/RD	JP	110-61000	317	OS180FT62122-PA46-GY	KR	157-00262	85
MBT27HFC-SS316/SP-BK	GB	111-00297	54	MST9-MET/PL-BU/GY	JP	110-13000	317	OS180FT62122-PA66HS-BK	KR	157-00088	85
MBT27HHFRFID-SS316/SP-RD	GB-PLY	156-01568	276	MTT4-MET	GB	110-04000	318	OS180FT6513-PA46-GY	KR	157-00251	85
MBT27H-SS316-ML	GB	111-94279	52	MWC12-PA66-BK	KR	151-02204	173	OS180FT6513-PA66HS-BK	SG	157-00087	85
MBT27HS-SS304-ML	GB	111-94278	51	NAO/1 PRONG-ML	DE	621-60001	319	OS180FT712A-PA66HS-BK	KR	157-00174	85
MBT27SFC-SS316/SP-BK	GB	111-00292	54	NAO/1-ML	DE	621-10001	319	OS180FT7LH-PA46-NA	SG	157-00071	66
MBT27S-SS316-ML	GB	111-93279	52	NA1K/3 PRONG-ML	DE	621-60103	319	OS180FT7LH-PA66-BK	SG	157-00070	66
MBT27SS-SS304-ML	GB	111-93278	51	NA1K/3-ML	DE	621-10103	319	OS180FT7LH-PA66-GY	SG	157-00068	66
MBT27UH-SS316-ML	GB	111-01312	53	NA4/5 PRONG-ML	DE	621-60405	319	OS180FT7LH-PA66HS-BK	SG	157-00079	66
MBT27UH-SS316-ML	GB	111-01303	52	NA4/5-ML	DE	621-10405	319	OS180SFT712-E-PA66HS-BK	KR	126-00285	82
MBT27XHD-SS316-ML	GB	111-01307	53	NA8/10 PRONG-ML	DE	621-60810	319	OS190-PA46-NA	JP	126-00062	58
MBT27XHFC-SS316/SP-BK	GB	111-00301	54	NA8/10-ML	DE	621-10810	319	OS190-PA66W-BK	JP	126-00064	58
MBT27XH-SS316-ML	GB	111-95279	52	NX0-PA66-BK	BR	211-00254	139	OS220-PM9-PA66HSW-BK	JP	126-00162	59
MBT27XHS-SS304-ML	GB	111-95278	51	NX0-PA66-NA	BR	211-00242	139	OS230-PM9-PA66HSW-BK	JP	126-00166	59
MBT30XHFC-SS316/SP-BK	GB	111-01502	54	NX1A-PA66-BK	BR	211-00247	140	OS80-PM46-PA66W-BK	JP	126-00268	60
MBT33HFCRFID-SS316/SP-RD	GB	111-01589	276	NX1A-PA66-NA	BR	211-00238	139	Overhead suspension 3080-ML	DE	102-00050	298
MBT33HFC-SS316/SP-BK	GB	111-00298	54	NX1-PA66-BK	BR	211-00246	139	Overhead suspension CPK-ML	DE	106-00050	295
				NX1-PA66-NA	BR	211-00237	139	P4030 Perforator-DIV-GY	DE	556-04051	288
				NX3-PA66-BK	BR	211-00248	139	P430 Perforator-GY	DE	556-00456	287

Part Description	Country	Article-No.	Page	Part Description	Country	Article-No.	Page	Part Description	Country	Article-No.	Page
PC23-PA66-BK	BR	151-00741	177	RA6-PA66-NA	BR	151-00734	126	RCB90LM10-PA66HIRHSUV/ST/ZN-BK	US	151-01461	135
PC23-PA66-BK	GB	151-14300	177	RA6-PA66-NA	GB	151-13403	126	RCB90LM12-PA66HIRHSUV/ST/ZN-BK	US	151-01462	135
PC35LAH-PA66-BK	GB	151-14700	177	RA9-PA66-NA	BR	151-00735	126	RCB90LM6-PA66HIRHSUV/ST/ZN-BK	US	151-01652	135
PC5AH6.5-PA66HIRHSUV-BK	US	133-03178	177	RA9-PA66-NA	GB	151-13020	126	RCB90LM8-PA66HIRHSUV/ST/ZN-BK	US	151-01460	135
PC5DP7L-PA46-BK	GB	151-14801	177	RB8APT-PA66-BK	GB	151-00497	127	RCB90SM10-PA66HIRHSUV/ST/ZN-BK	US	151-01458	136
PC5DP7S-PA66-BK	FR	151-00119	177	RB8-PA66-BK	GB	151-13601	127	RCB90SM12-PA66HIRHSUV/ST/ZN-BK	US	151-01459	135
PC5SM6-PA66HIRHSUV-BK	US	133-03179	191	RCA15SM10-PA66HIRHSUV/ST/ZN-BK	US	151-01426	134	RCB90SM6-PA66HIRHSUV/ST/ZN-BK	US	151-01651	135
PC5X3-PA66HIRHSUV-BK	US	133-03188	188	RCA15SM12-PA66HIRHSUV/ST/ZN-BK	US	151-01427	134	RCB90SM8-PA66HIRHSUV/ST/ZN-BK	US	151-01457	135
PC6.5X2-PA66HIRHSUV-BK	US	133-03187	188	RCA15SM6-PA66HIRHSUV/ST/ZN-BK	US	151-01640	134	RCC D21-PA66HIRHS-BK	DE	150-92300	184
PFC300-PA66HS-BK	BR	132-00020	119	RCA15SM8-PA66HIRHSUV/ST/ZN-BK	US	151-01425	134	RCC D24-PA66HIRHS-BK	DE	155-04000	184
PLUG SQ8x8-PA66HIR-BK	FR	151-00415	197	RCA180LM10-PA66HIRHSUV/ST/ZN-BK	US	151-01423	135	RCC D28-PA66HIRHS-BK	DE	151-00598	184
PLUG10-PE-BK	FR	151-00426	197	RCA180LM12-PA66HIRHSUV/ST/ZN-BK	US	151-01424	135	RCC15SM10-PA66HIRHSUV/ST/ZN-BK	US	151-01484	136
PLUG11-PA66HIRHS-NA	FR	151-00485	197	RCA180LM6-PA66HIRHSUV/ST/ZN-BK	US	151-01639	135	RCC15SM12-PA66HIRHSUV/ST/ZN-BK	US	151-01485	136
PLUG5 WITH OPENING-PA66HIRHS-BK	FR	151-00419	197	RCA180LM8-PA66HIRHSUV/ST/ZN-BK	US	151-01422	135	RCC15SM6-PA66HIRHSUV/ST/ZN-BK	US	151-01656	136
PLUG5.5-PA66HIR-BK	FR	151-00399	197	RCA180MM10-PA66HIRHSUV/ST/ZN-BK	US	151-01420	135	RCC15SM8-PA66HIRHSUV/ST/ZN-BK	US	151-01483	136
PLUGFT6XL-PA46-BN	FR	151-00428	197	RCA180MM12-PA66HIRHSUV/ST/ZN-BK	US	151-01421	135	RCC180LM10-PA66HIRHSUV/ST/ZN-BK	US	151-01481	137
PLUGFT6XL-PA66HIR-BK	FR	241-00002	197	RCA180MM6-PA66HIRHSUV/ST/ZN-BK	US	151-01638	135	RCC180LM12-PA66HIRHSUV/ST/ZN-BK	US	151-01482	137
PLUGFT7-PA66HIR-BK	FR	151-00414	198	RCA180MM8-PA66HIRHSUV/ST/ZN-BK	US	151-01419	135	RCC180LM6-PA66HIRHSUV/ST/ZN-BK	US	151-01655	137
PLUGFTOVAL-PA66HIRHSUV-BK	US	151-01245	198	RCA180SM10-PA66CHIRHS/ST/ZN-BK	US	151-01678	134	RCC180LM8-PA66HIRHSUV/ST/ZN-BK	US	151-01480	137
PLUGSFT8.4-POM-NA	CN	151-01114	298	RCA180SM12-PA66HIRHSUV/ST/ZN-BK	US	151-01417	134	RCC180MM10-PA66HIRHSUV/ST/ZN-BK	US	151-01478	136
Power pack 3080-MET/PL-GY	DE	102-00100	197	RCA180SM6-PA66HIRHSUV/ST/ZN-BK	US	151-01637	134	RCC180MM12-PA66HIRHSUV/ST/ZN-BK	US	151-01479	136
Power pack CPK with control box-GY	DE	106-00110	294	RCA180SM8-PA66HIRHSUV/ST/ZN-BK	US	151-01670	134	RCC180MM6-PA66HIRHSUV/ST/ZN-BK	US	151-01654	136
Power pack CPK-GY	DE	106-00100	294	RCA180SM10-PA66HIRHSUV/ST/ZN-BK	US	151-01670	134	RCC180MM8-PA66HIRHSUV/ST/ZN-BK	US	151-01477	136
Printer Roller TT4030/TT4000*+DIV-GN	DE	556-04005	288	RCA180SM12-PA66HIRHSUV/ST/ZN-BK	US	151-01416	134	RCC180SM10-PA66HIRHSUV/ST/ZN-BK	US	151-01475	137
PT220-PEEK-BGE	JP	111-01235	45	RCA30LM10-PA66HIRHSUV/ST/ZN-BK	US	151-01432	135	RCC180SM12-PA66HIRHSUV/ST/ZN-BK	US	151-01476	136
PT2AFT6LG-PEEK/PA46-BGE/GY	DE	156-01336	69	RCA30LM12-PA66HIRHSUV/ST/ZN-BK	US	151-01433	135	RCC180SM6-PA66HIRHSUV/ST/ZN-BK	US	151-01653	136
PT2AP1SFT6.5-PEEK-BGE	DE	156-01090	75	RCA30LM6-PA66HIRHSUV/ST/ZN-BK	US	151-01642	135	RCC180SM8-PA66HIRHSUV/ST/ZN-BK	US	151-01672	136
PT2AP2SFT6.5-PEEK-BGE	DE	156-01091	75	RCA30LM8-PA66HIRHSUV/ST/ZN-BK	US	151-01431	135	RCC180SM10-PA66HIRHSUV/ST/ZN-BK	US	151-01474	136
PT2AP3SFT6.5-PEEK-BGE	DE	156-01146	75	RCA30SM10-PA66HIRHSUV/ST/ZN-BK	US	151-01429	134	RCC30LM10-PA66HIRHSUV/ST/ZN-BK	US	151-01490	136
PT2A-PEEK-BGE	DE	118-00032	45	RCA30SM12-PA66HIRHSUV/ST/ZN-BK	US	151-01430	134	RCC30LM12-PA66HIRHSUV/ST/ZN-BK	US	151-01491	136
PT2ASFT6.5PT0.7-1.5-E-PEEK-BGE	DE	126-00183	75	RCA30SM6-PA66HIRHSUV/ST/ZN-BK	US	151-01641	134	RCC30LM6-PA66HIRHSUV/ST/ZN-BK	US	151-01658	136
PT3B-PEEK-BGE	DE	118-00116	45	RCA30SM8-PA66HIRHSUV/ST/ZN-BK	US	151-01428	134	RCC30LM8-PA66HIRHSUV/ST/ZN-BK	US	151-01489	136
Q120I-PA66-BK	ZA	109-00053	40	RCA90LM10-PA66HIRHSUV/ST/ZN-BK	US	151-01438	134	RCC30SM10-PA66HIRHSUV/ST/ZN-BK	US	151-01487	136
Q120I-PA66-NA	ZA	109-00024	40	RCA90LM12-PA66HIRHSUV/ST/ZN-BK	US	151-01439	135	RCC30SM12-PA66HIRHSUV/ST/ZN-BK	US	151-01488	136
Q120M-PA66-BK	ZA	109-00057	40	RCA90LM6-PA66HIRHSUV/ST/ZN-BK	US	151-01644	134	RCC30SM6-PA66HIRHSUV/ST/ZN-BK	US	151-01657	136
Q120M-PA66-NA	ZA	109-00028	40	RCA90LM8-PA66HIRHSUV/ST/ZN-BK	US	151-01437	134	RCC30SM8-PA66HIRHSUV/ST/ZN-BK	US	151-01486	136
Q120R-PA66-BK	ZA	109-00055	40	RCA90SM10-PA66HIRHSUV/ST/ZN-BK	US	151-01435	134	RCC90LM10-PA66HIRHSUV/ST/ZN-BK	US	151-01496	136
Q120R-PA66-NA	ZA	109-00026	40	RCA90SM12-PA66HIRHSUV/ST/ZN-BK	US	151-01436	134	RCC90LM12-PA66HIRHSUV/ST/ZN-BK	US	151-01497	136
Q18I-PA66-BK	ZA	109-00033	40	RCA90SM6-PA66HIRHSUV/ST/ZN-BK	US	151-01643	134	RCC90LM6-PA66HIRHSUV/ST/ZN-BK	US	151-01660	136
Q18I-PA66-NA	ZA	109-00004	40	RCA90SM8-PA66HIRHSUV/ST/ZN-BK	US	151-01434	134	RCC90LM8-PA66HIRHSUV/ST/ZN-BK	US	151-01495	136
Q18L-PA66-BK	ZA	109-00036	40	RCB15SM10-PA66HIRHSUV/ST/ZN-BK	US	151-01449	135	RCC90SM10-PA66HIRHSUV/ST/ZN-BK	US	151-01493	137
Q18L-PA66-NA	ZA	109-00007	40	RCB15SM12-PA66HIRHSUV/ST/ZN-BK	US	151-01450	135	RCC90SM12-PA66HIRHSUV/ST/ZN-BK	US	151-01494	136
Q18R-PA66-BK	ZA	109-00030	40	RCB15SM6-PA66HIRHSUV/ST/ZN-BK	US	151-01648	135	RCC90SM6-PA66HIRHSUV/ST/ZN-BK	US	151-01659	136
Q18R-PA66-NA	ZA	109-00001	40	RCB15SM8-PA66HIRHSUV/ST/ZN-BK	US	151-01448	135	RCC90SM8-PA66HIRHSUV/ST/ZN-BK	US	151-01492	136
Q30L-PA66-BK	ZA	109-00041	40	RCB180LM10-PA66HIRHSUV/ST/ZN-BK	US	151-01446	136	RCD15SM10-PA66HIRHSUV/ST/ZN-BK	US	151-01510	137
Q30L-PA66-NA	ZA	109-00012	40	RCB180LM12-PA66HIRHSUV/ST/ZN-BK	US	151-01447	136	RCD15SM12-PA66HIRHSUV/ST/ZN-BK	US	151-01511	137
Q30LR-PA66-BK	ZA	109-00043	40	RCB180LM6-PA66HIRHSUV/ST/ZN-BK	US	151-01647	136	RCD15SM6-PA66HIRHSUV/ST/ZN-BK	US	151-01664	137
Q30LR-PA66-NA	ZA	109-00014	40	RCB180LM8-PA66HIRHSUV/ST/ZN-BK	US	151-01445	136	RCD15SM8-PA66HIRHSUV/ST/ZN-BK	US	151-01509	137
Q30R-PA66-BK	ZA	109-00039	40	RCB180MM10-PA66HIRHSUV/ST/ZN-BK	US	151-01443	135	RCD180LM10-PA66HIRHSUV/ST/ZN-BK	US	151-01507	137
Q30R-PA66-NA	ZA	109-00010	40	RCB180MM12-PA66HIRHSUV/ST/ZN-BK	US	151-01444	135	RCD180LM12-PA66HIRHSUV/ST/ZN-BK	US	151-01508	137
Q50I-PA66-BK	GB	109-00049	40	RCB180MM6-PA66HIRHSUV/ST/ZN-BK	US	151-01646	135	RCD180LM6-PA66HIRHSUV/ST/ZN-BK	US	151-01663	137
Q50I-PA66-NA	GB	109-00020	40	RCB180MM8-PA66HIRHSUV/ST/ZN-BK	US	151-01442	135	RCD180LM8-PA66HIRHSUV/ST/ZN-BK	US	151-01506	137
Q50L-PA66-BK	ZA	109-00051	40	RCB180SM10-PA66HIRHSUV/ST/ZN-BK	US	151-01390	136	RCD180MM10-PA66HIRHSUV/ST/ZN-BK	US	151-01504	137
Q50L-PA66-NA	ZA	109-00022	40	RCB180SM12-PA66HIRHSUV/ST/ZN-BK	US	151-01441	135	RCD180MM12-PA66HIRHSUV/ST/ZN-BK	US	151-01505	137
Q50RECSA-PA66W-BK	DE	156-01087	106	RCB180SM6-PA66HIRHSUV/ST/ZN-BK	US	151-01645	135	RCD180MM6-PA66HIRHSUV/ST/ZN-BK	US	151-01662	137
Q50RECSB-PA66W-BK	DE	156-01088	106	RCB180SM8-PA66HIRHSUV/ST/ZN-BK	US	151-01671	135	RCD180MM8-PA66HIRHSUV/ST/ZN-BK	US	151-01503	137
Q50R-PA66-BK	GB	109-00047	40	RCB180SM10-PA66HIRHSUV/ST/ZN-BK	US	151-01440	135	RCD180SM10-PA66HIRHSUV/ST/ZN-BK	US	151-01501	137
Q50R-PA66-NA	GB	109-00018	40	RCB30LM10-PA66HIRHSUV/ST/ZN-BK	US	151-01455	135	RCD180SM12-PA66HIRHSUV/ST/ZN-BK	US	151-01502	137
RA13-PA66-NA	BR	151-00736	126	RCB30LM12-PA66HIRHSUV/ST/ZN-BK	US	151-01456	135	RCD180SM6-PA66HIRHSUV/ST/ZN-BK	US	151-01661	137
RA13-PA66-NA	GB	151-13021	126	RCB30LM6-PA66HIRHSUV/ST/ZN-BK	US	151-01650	135	RCD180SM8-PA66HIRHSUV/ST/ZN-BK	US	151-01673	137
RA18-PA66-BK	BR	151-00739	126	RCB30LM8-PA66HIRHSUV/ST/ZN-BK	US	151-01454	135	RCD180SM10-PA66HIRHSUV/ST/ZN-BK	US	151-01499	137
RA18-PA66-NA	BR	151-00737	126	RCB30SM10-PA66HIRHSUV/ST/ZN-BK	US	151-01452	135	RCD30LM10-PA66HIRHSUV/ST/ZN-BK	US	151-01516	137
RA18-PA66-NA	GB	151-13119	126	RCB30SM12-PA66HIRHSUV/ST/ZN-BK	US	151-01453	135	RCD30LM12-PA66HIRHSUV/ST/ZN-BK	US	151-01517	137
RA3-PA66-NA	GB	151-13018	126	RCB30SM6-PA66HIRHSUV/ST/ZN-BK	US	151-01649	135	RCD30LM6-PA66HIRHSUV/ST/ZN-BK	US	151-01666	137
RA6-PA66-BK	BR	151-00740	126	RCB30SM8-PA66HIRHSUV/ST/ZN-BK	US	151-01451	135	RCD30LM8-PA66HIRHSUV/ST/ZN-BK	US	151-01515	137

Part Description	Country	Article-No.	Page	Part Description	Country	Article-No.	Page	Part Description	Country	Article-No.	Page
RCD30SM10-PA66HIRHSUV/ST/ZN-BK	US	151-01513	137	SA47-LA 7.5/1.65-PO-X-BK/CL	JP	301-10021	221	SNP50(E)-POM-NA	GB	191-10509	196
RCD30SM12-PA66HIRHSUV/ST/ZN-BK	US	151-01514	137	SAM83-PA66HIRHSUV-GY	US	151-29600	133	SNP50-PA66GF13-BK	US	192-10500	196
RCD30SM6-PA66HIRHSUV/ST/ZN-BK	US	151-01665	137	SAOM82-PA66HIRHSUV-BK	US	151-29701	133	SNP58(E)-POM-NA	GB	191-10589	196
RCD30SM8-PA66HIRHSUV/ST/ZN-BK	US	151-01512	137	SB5CC-PA66HIRHS-BK	US	151-01044	169	SNP6(E)-POM-NA	FR	191-10069	195
RCD90LM10-PA66HIRHSUV/ST/ZN-BK	US	151-01522	137	SBF2-PA66-BK	DE	150-47700	191	SNP6-PA66GF13-BK	US	192-10060	195
RCD90LM12-PA66HIRHSUV/ST/ZN-BK	US	151-01523	137	SBH1-PA66-BK	DE	151-26150	190	SNP7-PA66GF13-BK	US	192-10070	195
RCD90LM6-PA66HIRHSUV/ST/ZN-BK	US	151-01628	137	SBH2-PA66-BK	DE	151-26250	190	SNP8(E)-POM-NA	FR	191-10089	195
RCD90LM8-PA66HIRHSUV/ST/ZN-BK	US	151-01521	137	SBH3-PA66-BK	DE	150-18900	190	SNP8-PA66GF13-BK	US	192-10080	195
RCD90SM10-PA66HIRHSUV/ST/ZN-BK	US	151-01519	137	SBR5-PA66HS-BK	DE	131-60060	93	SOC10405-PA66HIRHS-BK	PL	151-01840	152
RCD90SM12-PA66HIRHSUV/ST/ZN-BK	US	151-01520	137	SBR85-PA46-GY	DE	131-60058	93	SOC10FT6LG-PA66HIRHS-NA	US	151-00903	152
RCD90SM6-PA66HIRHSUV/ST/ZN-BK	US	151-01667	137	SBT120-M12-PA66HSW-BK	JP	157-00021	91	SOC11FTOVAL-PA66HIRHS-BK	US	151-00992	153
RCD90SM8-PA66HIRHSUV/ST/ZN-BK	US	151-01518	137	SBT120-M6-PA66HSW-BK	JP	157-00022	91	SOC13FT6LGL-PA66HIRHS-GY	US	151-01125	152
REL250S-PA66HIR(S)-BK	GB	111-00074	48	SBT50-M12-PA66HSW-BK	JP	157-00025	91	SOC13FT6LGR-PA66HIRHSUV-BK	US	151-01126	152
REL250X-PA66HIR(S)-BK	GB	111-00075	48	SBT50-M8-PA66HSW-BK	JP	157-00027	91	SOC13FTOVAL-PA66HIRHS-BK	DE	151-01018	153
REL30SDP6-PA66-BK	GB	150-55500	74	SC6.6-PA66HIRHSUV-BK	US	151-00927	176	SOC20FT5-PA66HIRHS-BK	CN	151-00970	152
Replacement Blade-SS	US	110-80037	310	SE28 101.2/51.0-POA-BK	JP	342-20100	223	SOC20SFT712-MD-PA66HIRHS/EPDM-BK	CN	151-01255	150
RFID CRADLE-TPU-YE	GB	151-01472	278	SE28 12.7/6.4-POA-BK	JP	342-20040	223	SOC23.5FT6.2x12.2-PA66HIRHS-BK	DE	151-01534	153
RFID HEXTAG-PA66-YE	GB	151-01582	277	SE28 19.0/9.5-POA-BK	JP	342-20050	223	SOC25FT712-PA66HIRHS-BK	CN	151-01213	153
RFID-DT22-HF-ABS-BK	DE	556-00702	279	SE28 25.4/12.7-POA-BK	JP	342-20060	223	SOC30AH6-PA66HIRHS-BK	KR	151-02064	149
RFID-HS9BT-HF-ABS-BK	DE	556-00700	279	SE28 3.2/1.6-POA-BK	JP	342-20000	223	SOC30D6-MD-PA66HIRHS-BK	SG	151-01360	150
RFID-HS9BT-LF-ABS-BK	DE	556-00701	279	SE28 38.0/19.0-POA-BK	JP	342-20070	223	SOC30D6MD-PA66-NA	SG	151-01159	150
RI 120-PA12-BK	DE	131-13120	111	SE28 4.8/2.4-POA-BK	JP	342-20010	223	SOC30D6MD-PA66-NA	KR	151-01540	150
RI 80-PA12-BK	DE	131-14080	111	SE28 51.0/25.4-POA-BK	JP	342-20080	223	SOC30D6-PA66-NA	SG	151-01598	149
RI160-PA12-BK	DE	131-14160	111	SE28 6.4/3.2-POA-BK	JP	342-20020	223	SOC31SFT6.5PT2.5-PA66HIRHS-BK	FR	151-00995	149
RR30SWPM5-PA66V0-WH	JP	115-00116	60	SE28 76.0/38.0-POA-BK	JP	342-20090	223	SOC32SFT65X130-MD-PA66HIRHS-BK	CN	151-01331	150
RT18RSF-PA66V0-BK	JP	115-00065	60	SE28 9.5/4.8-POA-BK	JP	342-20030	223	SOC3-FT6-LG-PA66HIRHS-BK	PL	155-19001	151
RT250M-PA66-BK	US	131-75610	48	SFC2-PA66-NA	FR	151-02000	143	SOC4 M.FT6-PA66HIRHS-BK	DE	155-30902	151
RT250M-PA66-NA	US	131-75619	48	SFC3-F-PA66W-BK	FR	151-00340	143	SOC5FT6LG-PA66HIRHS-BK	PL	151-00074	151
RT250R-PA66-BK	US	115-41300	48	SFC3-PA66-BK	GB	151-01906	143	SOC5FT65-PA66HIRHS-BK	CN	151-01329	151
RT250XL-PA66-BK	US	131-75510	48	SFC-PA66-NA	FR	151-01600	143	SOC6-PA66HIRHS-BK	DE	151-00023	151
RT250XL-PA66-NA	US	131-75519	48	SFSFT Set-PA66GF30/PA66HIRHS-BK	DE	156-02425	120	SOC7FT6-PA66HIRHSUV-BK	US	151-00629	151
RT30SSF5-PA66W-BK	JP	115-00069	60	SNP1.25-PA66GF13-BK	US	190-00029	195	SOC8FT6LG-PA66HIRHS-BK	DE	151-00665	151
RT30SSF-PA66HS-NA	JP	115-00070	60	SNP10(E)-POM-NA	FR	191-10109	195	SOC8FT6-PA66HIRHS-NA	US	151-00650	152
RT30SSF-PA66V0-BK	CN	115-00071	60	SNP10-PA66GF13-BK	US	192-10100	195	SOC9FT6-PA66HIRHSUV-NA	US	151-01153	152
RT30SSF-PA66W-BK	CN	115-00072	60	SNP12(E)-POM-NA	FR	191-10129	195	SOC9FT6XLG-PA66HIRHS-NA	US	151-01154	152
RT50RS5-PA66-BK	GB	115-07110	93	SNP12A-PA66GF13-BK	US	190-00254	195	SOCHFT6-PA66HIRHSUV-BK	US	151-00623	152
RT50RSF-PA66-BK	GB	115-07010	60	SNP14(E)-POM-NA	GB	191-10149	195	SP KR6/8 replacement blade	DE	122-68019	314
RT50SD6-PA66HS-BK	GB	111-85480	74	SNP14A-PA66GF13-BK	US	190-00300	196	SP KR8PNS E replacement blade	DE	122-80032	314
RT50SFK-PA66-BK	DE	115-06960	60	SNP16-PA66GF13-BK	US	192-10160	196	SP lock cap tensioning knob	DE	110-07200	312, 313, 315
RT50SSF5.4-PA66-NA	JP	115-00087	60	SNP16-POM-NA	GB	191-10169	196	SP MK3PNSP2 air hose 3 meters	DE	110-30002	312, 313
RT50SSF-PA66W-BK	JP	115-00079	60	SNP18(E)-POM-NA	GB	191-10189	196	SP MK3PNSP2 cutting blade	DE	110-30101	308
S TOOL-MET	GB	621-80009	321	SNP18A-PA66GF13-BK	US	190-00258	196	SP MK3SP replacement blade	DE	110-03524	308
S2CM25-PA66HIRHS-GY	US	151-29400	132	SNP19-PA66GF13-BK	US	190-00090	196	SP MK7HT replacement blade	US	110-07511	311
S2HM25-PA66HIRHSUV-BK	US	151-29403	132	SNP1-PA66GF13-BK	US	192-10010	195	SP MK7P replacement blade-BK	US	110-07111	312
S3STM50-PA66HIRHSUV-BK	US	151-29500	133	SNP1-POM-WH	US	190-00022	195	SP MK9P replacement blade-MET-ML	US	110-09111	313
SA430 Cutter-DIV-GY	DE	556-04050	288	SNP2(E)-POM-NA	FR	191-10029	195	SP MK9PST replacement blade-SS-GY	US	110-95307	315
SA430 Cutter-GY	DE	556-00452	287	SNP20(E)-POM-NA	FR	191-10209	196	SP MK9SST replacement blade-ST-GY	US	110-95273	315
SA47 11.0/2.4-PO-X-BK/CL	JP	301-10002	220	SNP22(E)-POM-NA	GB	191-10229	196	SP MST6 replacement blade-MET-ML	JP	110-61001	317
SA47 18.3/4.35-PO-X-BK/CL	JP	301-10003	220	SNP22-PA66GF13-BK	US	192-10220	196	SP MST6 replacement punch-MET	JP	110-61002	317
SA47 24/6-PO-X-BK/CL	JP	301-10005	220	SNP24-PA66GF13-BK	US	192-10240	196	SP MST9 replacement blade-MET-ML	JP	110-13001	317
SA47 32/8-PO-X-BK/CL	JP	301-10004	220	SNP24-POM-NA	GB	191-10249	196	SP MST9 replacement punch-MET	JP	110-13002	317
SA47 5.75/1.25-PO-X-BK/CL	DE	301-10000	220	SNP28-PA66GF13-BK	US	190-00127	196	SRT1807-TPU-BK	AT	115-07189	49
SA47 7.5/1.65-PO-X-BK/CL	DE	301-10001	220	SNP2-PA66GF13-BK	US	192-10020	195	SRT26011-TPU-BK	AT	115-11269	49
SA47-HT 11.6/2.5-PO-X-BK	JP	301-10012	222	SNP3(E)-POM-NA	FR	191-10039	195	SRT2607-TPU-BK	AT	115-07269	49
SA47-HT 17.8/4.4-PO-X-BK	JP	301-10013	222	SNP32(E)-POM-NA	FR	191-10329	196	SRT34011-TPU-BK	AT	115-11349	49
SA47-HT 24/6-PO-X-BK	JP	301-10015	222	SNP32-PA66GF13-BK	US	192-10320	196	SRT58028-TPU-BK	AT	115-28589	49
SA47-HT 32/8-PO-X-BK	JP	301-10014	222	SNP34(E)-POM-NA	FR	191-10349	196	SRT88028-TPU-BK	AT	115-28889	49
SA47-HT 7.6/1.7-PO-X-BK	JP	301-10010	222	SNP36(E)-POM-NA	GB	191-10369	196	SS TOOL-MET	GB	621-80008	321
SA47-HT 9.0/2.3-PO-X-BK	JP	301-10011	222	SNP36-PA66GF13-BK	US	192-10360	196	STAND OFF CLIP-PA46-GY	FR	150-45398	149
SA47-LA 11.0/2.4-PO-X-BK/CL	DE	301-10022	221	SNP38(E)-POM-NA	FR	191-10389	196	STAND OFF CLIP-PA66HIRHS-BK	FR	150-45397	149
SA47-LA 18.3/4.35-PO-X-BK/CL	JP	301-10023	221	SNP38-PA66GF13-BK	US	192-10380	196	STAND-OFF-CLIP-2-PA66HIRHS-BK	DE	155-01600	149
SA47-LA 24/6-PO-X-BK/CL	JP	301-10024	221	SNP4(E)-POM-NA	FR	191-10049	195	STECKERHALTER SITZ-PA66HIRHS-BK	DE	155-36002	161
SA47-LA 32/8-PO-X-BK/CL	JP	301-10025	221	SNP42(E)-POM-NA	FR	191-10429	196				
SA47-LA 5.75/1.25-PO-X-BK/CL	DE	301-10020	221	SNP42-PA66GF13-BK	US	191-00005	196				
SA47-LA 52/13-PO-X-BK/CL	JP	301-10026	221	SNP4-PA66GF13-BK	US	192-10040	195				

Part Description	Country	Article-No.	Page	Part Description	Country	Article-No.	Page	Part Description	Country	Article-No.	Page
STECKERHALTER-OVALFUSS-PA-66HIRHS-BK	FR	133-00004	168	T150L-PA66HS-BK	US	111-15410	36	T30MR-PA66-BK	MX	113-03011	89
Strap Black ATS3080-PA66HIRHSUV-BK	DE	102-66110	299	T150L-PA66HSUV-BK	BR	111-01688	36	T30MR-PA66HSW-BK	JP	113-00046	89
Strap Natural ATS3080-PA66HIRHSUV-NA	DE	102-66109	299	T150L-PA66UV-BK	BR	111-01689	34	T30MR-PA66W-BK	GB	113-00006	89
T120IFT9A-PA66HS/PA66HIRHS-BK	CN	156-01459	72	T150M-PA66HS-BK	US	111-15609	36	T30RAHD6-MD-PA66HS-BK	SG	156-01187	77
T120IFT9-PA66HIR(S)-BK	GB	156-00200	72	T150M-PA66UV-BK	BR	111-02297	34	T30RAHD6-MS-MD-PA66HS-NA	SG	156-01458	77
T120I-PA66HIR(S)-BK	GB	111-12203	37	T150R(H)-PA66HS-BK	SG	111-15050	36	T30RDHA8.4x20-PA66HIRHS-BK	DE	156-00847	81
T120I-PA66HS-BK	BR	111-01281	36	T150R(H)-PA66HS-NA	SG	111-15069	36	T30R-E/TFE-BU	JP	111-00698	39
T120I-PA66HS-BK	SG	111-01547	36	T150RFT9B-PA66HS/PA66HIRHS-BK	SG	156-00985	72	T30REC22-PA66HS/PA66HIRHS-BK	CN	156-00915	107
T120I-PA66HS-BK	US	111-12216	36	T150RFT9-PA66HS/PA66HIRHS-BK	SG	156-00845	72	T30REC4A-PA66HS/PA66HIRHS-BK	DE	150-76090	105
T120I-PA66HS-NA	SG	111-00959	36	T150R-PA66UV-BK	BR	111-02062	34	T30REC4A-PA66HS/PA66HIRHS-BK	BR	156-01439	105
T120I-PA66HS-NA	BR	111-00996	36	T150XL-PA66HS-BK	US	111-15510	36	T30REC4B-PA66HS/PA66HIRHS-BK	DE	150-76080	105
T120I-PA66W-BK	BR	111-00997	34	T181-PA66HS-BK	US	111-02305	35	T30REC5A-PA66HS/PA66HIRHS-BK	DE	156-00003	106
T120L-PA66HIR(S)-BK	GB	111-00053	37	T181-PA66HS-BK	SG	111-02358	35	T30REC5B-PA66HS/PA66HIRHS-BK	CN	156-00529	106
T120L-PA66HIR(S)-BK	GB	111-12402	37	T181-PA66HS-NA	SG	111-02359	35	T30RFT4-PA66HS-BK	MX	156-00953	68
T120L-PA66HS-BK	GB	111-12440	36	T18L-PA66HS-BK	US	111-00404	35	T30RFT5LG-PA46-GY	KR	156-01625	68
T120L-PA66HS-NA	GB	111-12449	36	T18L-PA66HS-BK	BR	111-00847	35	T30RFT5LG-PA66-BK	KR	156-01624	68
T120M-PA66HS-BK	GB	111-00153	36	T18L-PA66HS-BK	SG	111-02049	35	T30RFT5-MOD-PA66HS/PA66HIRHS-BK	CN	156-01271	68
T120MR-PA66HIRHS-GY	US	113-00067	89	T18L-PA66HS-NA	SG	111-02159	35	T30RFT5-PA46-GY	DE	156-01316	68
T120MR-PA66HIRHSUV-BK	US	113-12060	89	T18L-PA66W-BK	BR	111-00850	34	T30RFT5-PA66HS/PA66HIRHS-BK	DE	150-55850	68
T120R(E)-PA46-GY	GB	111-00819	38	T18MR-PA66W-BK	JP	113-00043	89	T30RFT5-PA66HS/PA66HIRHS-BK	BR	156-02263	68
T120R(E)-PA46-NA	GB	114-12179	38	T18RA3500-PA46-NA	DE	120-46009	296	T30RFT6D10-PA66HS/PA66HIRHS-BK	DE	150-74890	70
T120R(E)-PA66HIR(S)-BK	GB	111-00165	37	T18RA3500-PA66HS-NA	DE	120-50009	296	T30RFT6LG1SD-PA66HS/PA66HIRHS-BK	SG	156-01257	69
T120R(E)-PA66HIR(S)-BK	GB	111-00167	37	T18RA3500-PA66HSW-BK	DE	120-50010	296	T30RFT6LG-PA66-PA66HIRHS-BK	BR	156-00710	69
T120R(E)-PA66HIR(S)-BK	GB	111-12032	37	T18RA50-PA66HS-NA	DE	120-40019	296	T30RFT6LG-PA66HS/PA66HIRHS-BK	SG	150-31090	69
T120R(E)-PA66HIR-BK	GB	111-12073	37	T18RA50-PA66HSW-BK	DE	120-40020	296	T30RFT6-PA46-GY	SG	156-01068	70
T120R(E)-PA66HS-BK	GB	111-12050	36	T18RDP5-PA66-BK	GB	150-55610	64	T30RFT6-PA66HS/PA66-BK	BR	156-00708	70
T120R(E)-PA66HS-NA	GB	111-12059	36	T18REC10SD-PA66HS/PA66HIRHS-BK	DE	155-38304	105	T30RFT6-PA66HS/PA66HIRHS-BK	SG	150-77950	70
T120RCOUPLER-PA66HIRHS/PA-66HIR(S)-BK	FR	156-00275	118	T18REC21-PA66W/PA66HIRHS-BK	DE	156-01231	107	T30RFT6-PA66HS/PA66-NA/BK	BR	156-00707	70
T120RDHDM6-PA46-GY	FR	156-01098	102	T18REC22-PA66HS/PA66HIRHS-BK	SG	156-01254	107	T30RFT6SD-PA66HS/PA66HIRHS-BK	SG	150-52690	69
T120RDHDM8-PA46-GY	FR	156-01099	102	T18REC9SD-PA66HS/PA66HIRHS-BK	DE	155-37104	105	T30RFT7-PA66/PA66HS-BK	BR	156-00725	71
T120RFT11-PA66HSW-BK	JP	156-00351	73	T18RFT4-PA66HSW-BK	JP	156-00339	68	T30RFT7-PA66-NA/BK	BR	156-00724	71
T120RFT9B-PA66HS/PA66HIRHSUV-BK	US	156-00071	72	T18RFT5-MOD-PA66HS/PA66HIRHS-BK	CN	156-01270	68	T30RFT8-PA66HS/PA66-BK	BR	156-00732	71
T120RHDm6-PA46-GY	FR	156-00407	101	T18RFT5-PA66HS-BK	DE	156-01225	68	T30RFT9LP-PA66HS/PA66HIRHS-BK	CN	156-01199	72
T120RHDm6-PA66HIRHS-BK	FR	156-00406	101	T18RFT6-PA66HS/PA66HIRHS-BK	DE	156-01754	69	T30RGSB8C-A-PA66HS/PA66HIRHS-BK	CN	156-01663	96
T120RHDm8-PA46-GY	FR	156-00409	101	T18ROSEC19-PA66HS/PA66HIRHS-BK	DE	156-04600	108	T30RKSFT65x13-PA66HIRHS/PA66HS-BK	CN	156-01235	84
T120RHDm8-PA66HIRHS-BK	FR	156-00408	101	T18ROS-PA66HS-BK	GB	118-04701	44	T30ROC1A-PA66HS/PA66HIRHS-BK	FR	156-00012	116
T120RHDMP8-PA46-GY	FR	156-00823	101	T18ROS-PA66HS-NA	GB	118-00035	44	T30ROC1B-PA66HS/PA66HIRHS-BK	FR	156-00505	116
T120RIAHC1TCR-PA66HIRHS-BK	FR	156-00172	114	T18ROS-PA66V0-WH	GB	118-00079	44	T30ROC2A-PA46/PA66HIRHS-NA/BK	CN	156-00836	116
T120RIAHC2TCR-PA66HIRHS-BK	FR	156-00108	114	T18R-PA46-NA	SG	114-01879	38	T30ROC2A-PA46-GY	FR	156-00014	116
T120RIAHC3TCR-PA66HIRHS-BK	FR	156-00175	114	T18R-PA66HIR(S)-BK	GB	111-00058	37	T30ROC2A-PA66HS/PA66HIRHS-BK	DE	156-00013	116
T120RIAHC4TCR-PA66HIRHS-BK	FR	156-00176	114	T18R-PA66HS-BK	US	111-00476	35	T30ROC2B-PA46/PA66HIRHS-NA/BK	SG	156-00936	116
T120RIAHC5TCR-PA66HIRHS-BK	FR	156-01317	114	T18R-PA66HS-BK	SG	111-01950	35	T30ROC5J-PA66HSUV-BK	JP	156-00520	116
T120ROS-PA66HS-BK	GB	118-00066	44	T18R-PA66HS-NA	SG	111-01959	35	T30ROSEC0.5-2.5SP-SVB-PA66HS/PA66HIRHS-BK	DE	156-01546	104
T120ROS-PA66HS-NA	GB	118-00067	44	T18R-PA66W-BK	BR	111-00844	34	T30ROSEC0.5-2.5SPVA-PA66HS/PA-66HIRHS-BK	DE	156-01544	104
T120ROS-PA66V0-WH	GB	118-00082	44	T18RSBH5SD-PA66HS/PA66HIRHS-BK	CN	156-01431	98	T30ROSEC0.5-2.5TP-SD-PA66HS/PA66HIRHS-BK	DE	156-01543	104
T120R-PA46-NA	BR	111-00998	38	T18RSF-PA46-NA	DE	126-00258	58	T30ROSEC0.5-2.5TPVA-PA66HS/PA-66HIRHS-BK	DE	156-01542	104
T120R-PA66HIRHS-BK	BR	111-02384	37	T18RSF-PA66HS-NA	DE	111-85519	58	T30ROSEC0.5-2.5TV-SD-PA66HS/PA66HIRHS-BK	DE	156-01545	104
T120R-PA66HS-BK	BR	111-00873	36	T18RSF-PA66UV-BK	DE	111-85560	58	T30ROSFT4-PA66HS/PA66HSW-BK	JP	156-00354	68
T120R-PA66HS-NA	BR	111-00872	36	T18RWPM-PA66HS-BK	US	126-00042	59	T30ROSFT6-PA66HS/PA66HIRHS-BK	JP	156-00356	70
T120R-PA66W-BK	BR	111-00874	34	T250R-PA66HS-BK	BR	111-02286	36	T30ROS-PA66HS-BK	GB	118-04800	44
T120RSB5-M10-PA66HS/PA66HIRHS-BK	CN	156-01533	96	T250R-PA66HS-NA	BR	111-01039	36	T30ROS-PA66HS-NA	GB	118-00064	44
T120RSB5-M12-PA66HS/PA66HIRHS-BK	CN	156-01531	96	T250R-PA66W-BK	BR	111-00880	34	T30R-PA46-GY	GB	111-00264	38
T120RSB5-M8-PA66HS/PA66HIRHS-BK	CN	156-01535	96	T250S-PA66UV-BK	BR	111-02298	34	T30R-PA46-GY	GB	111-00924	38
T120RSINGLECOUPLER-PA66HIRHS/PA66HIR(S)-BK	FR	156-00550	118	T30LLECSART-PA66HS/PA66HIRHS-BK	CN	156-00695	106	T30R-PA46-NA	SG	114-03079	38
T120SFT9-PA66-BK	BR	156-00735	72	T30LL-PA66HS-BK	GB	111-03660	35	T30R-PA66HS-BK	BR	111-01050	35
T120S-PA66HS-BK	BR	111-01018	36	T30LL-PA66HS-NA	GB	111-03569	35	T30R-PA66HS-BK	GB	111-03050	35
T120S-PA66HS-BK	BR	111-01286	36	T30LOS-PA66HS-BK	GB	118-04900	44	T30R-PA66HS-BK	US	111-03068	35
T120S-PA66HS-BK	GB	111-12850	36	T30LOS-PA66HS-NA	GB	118-00044	44	T30R-PA66HS-NA	BR	111-02271	35
T120S-PA66HS-NA	GB	111-12824	36	T30LOS-PA66V0-WH	GB	118-00080	44	T30R-PA66W-BK	BR	111-00852	34
T120S-PA66W-BK	BR	111-00877	34	T30L-PA66HIR(S)-BK	GB	111-00197	37	T30RSB5-PA66HS/POM-BK	DE	150-10140	97
T120XM-PA66HS-BK	GB	111-12700	36	T30L-PA66HS-BK	GB	111-00189	35	T30RSB5-PA66HS/POM-BK	BR	156-00744	97
T120XM-PA66HS-NA	GB	111-12719	36	T30L-PA66HS-BK	US	111-03341	35				
T150L-PA66HS-BK	BR	111-01687	36	T30L-PA66HS-BK	SG	111-03450	35				
				T30L-PA66HS-NA	GB	111-03459	35				
				T30LRT6-PA66HS/PA66HIRHS-BK	GB	150-77932	70				



Part Description	Country	Article-No.	Page	Part Description	Country	Article-No.	Page	Part Description	Country	Article-No.	Page
T3ORSBH5SD-PA66HS-BK	BR	156-02411	98	T50R6DOP-PA66HS/PA66HIRHS-BK	CN	156-01041	87	T50RFTOVAL-A-PA46-GY	CN	156-01465	87
T3ORSBS5-PA66HS-BK	SG	150-21290	96	T50RAHD6-MS-MD-PA66HS-NA	SG	156-01193	77	T50RFTOVAL-A-PA66HS/PA66HIRHS-BK	CN	156-01464	87
T3ORSF(U)-PA66HS-BK	MX	126-00700	61	T50RCOUPLER-PA46-GY	FR	156-00382	118	T50RHD6-PA46-GY	SG	156-00919	101
T3ORSF-PA66HS-BK	DE	126-00329	61	T50RCOUPLER-PA66HIRHS/PA66HIR(S)-BK	FR	156-00276	118	T50RHD6-PA66HIRHS-BK	FR	156-00410	101
T3ORSFT7H-PA66HS/PA66HIRHS-BK	CN	156-01044	63	T50RDHA5.5x15-PA46-GY	DE	156-01203	81	T50RHD6-PA46-GY	CN	156-01126	101
T3OSOS-AS-FT4.5-E-PA66HS-BK	CN	157-00321	64	T50RDHA8.4x20-PA46-GY	DE	156-01155	81	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T3OSOS-AS-FT6-E-PA46-GY	CN	157-00313	65	T50RDHFT6-PA66HS/PA66HIRHS-BK	GB	150-77936	70	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T3OSOS-AS-FT6E-PA66HS-BK	CN	157-00272	65	T50RDH-PA46-GY	GB	117-05168	43	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T3OSOS-AS-FT6-E-PA66HS-BK	DE	157-00243	65	T50RDH-PA66-BK	GB	117-05000	43	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T3OSOS-AS-FT6LG-E2-PA46-GY	CN	157-00314	66	T50RDH-PA66HS-BK	US	117-05010	43	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T3OSOS-AS-FT6LG-E2-PA66HS-BK	CN	157-00271	66	T50RDH-PA66HS-BK	GB	117-05050	43	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T3OSOS-AS-SFT6.5E-MDL-PA66HS-BK	CN	126-00289	76	T50RDH-PA66-NA	GB	117-05002	43	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T3OSOS-AS-SFT6.5E-PA66-BK	CN	157-00273	62	T50RD5B55-6-PA66HS/PA66HIRHS-BK	CN	156-01650	96	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T3OSOS-AS-SFT6.5-E-PA66HS-BK	DE	126-00255	62	T50R-E/TFE-BU	JP	111-00732	39	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T4OREC5A-PA66HS/PA66HIRHS-BK	SG	156-00559	106	T50REC2.5B-PA66HS/PA66HIRHS-BK	DE	150-45292	110	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T4ORFT8GSD-PA66HS/PA66HIRHS-BK	FR	156-00104	71	T50REC21-PA66HS/C75S-BK	JP	156-00387	107	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T4OR-PA66HS-BK	GB	111-01623	35	T50REC21-PA66HS/PA66HIRHS-BK	DE	156-00553	107	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T4OR-PA66HS-NA	GB	111-01627	35	T50REC22-PA66W/PA66HIRHS-BK	DE	156-00576	107	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T4OXECS5P-E-PA66HS-BK	DE	133-00059	103	T50REC23-PA66HS/PA66HIRHS-BK	BR	156-02459	108	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50ICOUPLER-PA66HS/PA66HIRHS-BK	CN	156-01517	118	T50REC4A-PA66HS/PA66HIRHS-BK	DE	150-76091	105	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50IDH-PA66HS-BK	US	117-05350	43	T50REC4A-PA66HS/PA66HIRHS-BK	BR	156-02424	105	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50IDH-PA66-NA	US	117-05303	43	T50REC5A-PA66HS/PA66HIRHS-BK	BR	156-01437	106	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50IFT7-PA66HS-BK	DE	150-00700	71	T50REC5A-PA66UV/PA66HIRHSUV-BK	MX	156-00589	106	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50IFT7-PA66-NA/BK	BR	156-00730	71	T50REC5B-PA46/PA66HIRHS-GY/BK	CN	156-00835	106	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50IOC1A-PA66HIRHS-BK	MX	156-01226	116	T50REC5B-PA66HS/PA66HIRHS-BK	DE	150-40582	106	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50I-PA46-NA	GB	111-05220	38	T50REC9SD-PA66HS/PA66HIRHS-BK	DE	156-01280	105	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50I-PA66HIR(S)-BK	GB	111-00222	37	T50RFIDCHA-PA66-BK	GB	111-01591	274	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50I-PA66HS-BK	SG	111-05250	35	T50RFIDCHA-PA66-BU	GB	111-01673	274	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50I-PA66HS-BK	US	117-05251	35	T50RFIDCHA-PA66-YE	GB	111-01639	274	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50I-PA66HS-NA	GB	111-05259	35	T50RFIDCLA-PA66-YE	GB	111-01638	274	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50ISB5-PA66HS/PA66HIRHS-BK	CN	156-01617	97	T50RFT10-PA46-GY	CN	156-02377	73	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50ISB5-PA66V0-WH	CN	156-01708	97	T50RFT10-PA66-BK	BR	156-00738	73	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50ISFT712-PA66HS/PA66HIRHS-BK	CN	156-01554	84	T50RFT10-PA66HS/PA66-BK	BR	156-00740	73	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50LDH-PA66HS-BK	US	117-00008	43	T50RFT10-PA66HS-BK	DE	111-85810	73	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50LDH-PA66HS-BK	US	117-05404	43	T50RFT5LG-PA46-GY	KR	156-01627	68	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50LDH-PA66-NA	US	117-05461	43	T50RFT5LG-PA66-BK	KR	156-01626	68	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50LEC5A-PA66HS/PA66HIRHS-BK	CN	156-00932	106	T50RFT5-PA46-GY	DE	156-00984	68	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50LFT6-PA66HS-BK	BR	156-00720	70	T50RFT5-PA66HS/PA66HIRHS-BK	GB	156-00025	68	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50LOC1A-PA66HIRHSUV-BK	US	156-01031	116	T50RFT6-PA66HS/PA66HIRHS-BK	DE	156-00446	84	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50LOSFT8-PA66HS-BK	JP	156-00363	71	T50RFT6LG1SD-PA66HS/PA66HIRHS-BK	SG	156-01391	69	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50LOS-PA66HS-BK	GB	118-05900	44	T50RFT6LG-PA46-GY	DE	150-31098	69	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50L-PA46-NA	SG	111-00526	38	T50RFT6LG-PA66/PA66HIRHS-BK	BR	156-00711	69	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50L-PA66HIR(S)-BK	GB	111-00112	37	T50RFT6LG-PA66HS/PA66HIRHS-BK	SG	150-31091	69	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50L-PA66HIR(S)-BK	GB	111-00113	37	T50RFT6LG-PAEK-BGE	US	156-01457	69	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50L-PA66HIR(S)-BK	GB	111-05441	37	T50RFT6LGS-D-HEX-PA66HS/PA66HIRHS-BK	GB	156-01705	69	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50L-PA66HS-BK	BR	111-01060	35	T50RFT6OVAL-PA66HS/PA66HIRHS-BK	DE	150-37591	84	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50L-PA66HS-BK	BR	111-02276	35	T50RFT6-PA46-GY	DE	156-01291	70	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50L-PA66HS-BK	SG	111-05450	35	T50RFT6-PA66/PA66HS-NA/BK	BR	156-00702	70	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50L-PA66HS-BK	US	111-05471	35	T50RFT6-PA66HS/PA66-BK	BR	156-00705	70	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50L-PA66HS-NA	GB	111-05436	35	T50RFT6-PA66HS/PA66HIRHS-BK	SG	150-77941	70	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50L-PA66W-BK	BR	111-00856	34	T50RFT6XXL-PA66HS/PA66HIRHS-BK	CN	156-00770	70	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50MD7-PA66HS-BK	SG	111-85850	62	T50RFT7HD-PA46-BN	US	156-00457	71	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50MI-PA66-BK	US	113-00031	89	T50RFT7-PA46-NA	CN	156-00809	71	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50ML-PA66-BK	US	113-00007	89	T50RFT7-PA66-BK	BR	156-00723	71	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50ML-PA66W-BK	US	113-00056	89	T50RFT7-PA66HS-BK	SG	111-85871	71	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50MOS-PA66HS-BK	GB	118-00018	44	T50RFT7-PA66HS-BK	BR	156-02264	71	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50MOS-PA66HS-NA	GB	118-00055	44	T50RFT7-PA66-NA/BK	BR	156-00721	71	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50MOS-PA66V0-WH	GB	118-00081	44	T50RFT8GSD-PA46-GY	DE	156-00235	71	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50M-PA66HS-BK	BR	111-02274	35	T50RFT8GSD-PA66HS/PA66HIRHS-BK	DE	133-00034	71	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50M-PA66UV-BK	BR	111-02296	34	T50RFT8-PA66HS/PA66-BK	BR	156-00731	71	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50MR-PA66HIRHSUV-BK	US	113-00058	89	T50RFT8-PA66HS-BK	GB	111-85880	71	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50MR-PA66W-BK	GB	113-05060	89	T50RFT8-PA66HS-BK	US	156-00376	71	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50MRX-PA66HIRHSUV-BK	US	113-00060	89	T50RFT9LP-PA66HS/PA66HIRHS-BK	CN	156-01201	72	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50R Coupler-PA66HS/PA66HIRHS-BK	BR	156-02387	118	T50RFT9-PA66HS/PA66HIRHS-BK	CN	156-01144	72	T50RHD6-PA66HIRHS-BK	FR	156-00412	101
T50R6DOP-PA46/PA46-NA	CN	156-01277	87	T50RFT9X17A2-PA66HS/PA66HIRHS-BK	MX	156-01640	87	T50RHD6-PA66HIRHS-BK	FR	156-00412	101

Part Description	Country	Article-No.	Page	Part Description	Country	Article-No.	Page	Part Description	Country	Article-No.	Page
T50ROSFT6LG-PA66HS/PA66HIRHS-BK	SG	150-31099	69	T50ROSSB5-PA66HS/POM-BK	DE	150-10149	97	T50SD6-PA66HS-BK	BR	126-00202	62
T50ROSFT6LG-PA66HS/PA66HIRHS-BK	BR	156-00717	69	T50ROSSB5-PA66HS/POM-BK	BR	156-00743	97	T50SDOP-PA66HS-BK	GB	126-00015	82
T50ROSFT6LG-PA66HS-BK	US	157-00052	66	T50ROSSB5SD-PA66HS-BK	DE	156-05905	98	T50SDOR-PA66HS-BK	GB	126-01600	82
T50ROSFT6-PA66HS/PA66HIRHS-BK	SG	156-00076	70	T50ROSSB5S-PA66HIRHS-BK	BR	156-00746	96	T50SDP6-PA66HIRHS-BK	GB	150-55550	66
T50ROSFT6-PA66HS-BK	BR	156-00713	70	T50ROSSB5S-PA66HS-BK	SG	150-21299	96	T50SDSB5S-PA66HS/PA66HIRHS-BK	DE	150-56193	99
T50ROSFT6S25SO-PA66HIRHS-BK	US	157-00197	79	T50ROSSFT6.5 16-3MD-PA66HS/PA66HIRHS-BK	DE	150-37799	77	T50SFT6LG1SD-PA66HS/PA66HIRHS-BK	DE	156-00154	69
T50ROSFT6SD-PA46-GY	DE	156-00085	69	T50ROSSFT6.5 16-3-PA66HS/PA66HIRHS-BK	DE	150-37791	63	T50SFT6LG-PA66HS/PA66HIRHS-BK	DE	150-31093	69
T50ROSFT6SD-PA66HS/PA66HIRHS-BK	SG	156-05902	69	T50ROSSFT6.5 16-2-PA66HS/PA66HIRHS-BK	DE	155-42002	77	T50SL5-PA66HS-BK	GB	126-00005	58
T50ROSFT6SO12.5A-PA66HIRHS-BK	US	157-00145	79	T50ROSSFT6.5 16-2-MD-PA66HS/PA66HIRHS-BK	DE	150-93100	77	T50SL5-PA66HS-BK	GB	126-00001	58
T50ROSFT6SO12.5B-PA46-BN	US	157-00312	80	T50ROSSFT6.5-D16-2 MD-PA66HS/PA66HIRHS-BK	DE	150-93100	77	T50SL6-PA66HS-BK	GB	111-85360	59
T50ROSFT6SO12.5B-PA66HIRHS-BK	US	157-00171	80	T50ROSSFT6.5-D16-2 MD-PA66HS/PA66HIRHS-BK	BR	156-00714	77	T50SL7-PA46-NA	CN	126-00199	59
T50ROSFT6SO12.5R-PA66HIRHS-BK	US	157-00165	80	T50ROSSFT72S-PA66HS/PA66W-BK	FR	156-01577	84	T50SL7-PA66HS-BK	GB	126-00173	59
T50ROSFT6SO25A-PA46-BN	US	157-00158	79	T50R-PA46-GY	SG	111-00824	38	T50SL8-PA46-NA	GB	126-00164	59
T50ROSFT6SO25A-PA66HIRHS-BK	US	157-00150	79	T50R-PA46-NA	SG	111-00525	38	T50SL8-PA66-BK	GB	126-01900	59
T50ROSFT6SO25B-PA46-BN	US	157-00186	80	T50R-PA66HIR(S)-BK	GB	111-00238	37	T50SMVCLC10-14-PA66HIRHSUV-BK	MX	156-02383	115
T50ROSFT6SO25B-PA66HIRHS-BK	US	157-00169	80	T50R-PA66HIR(S)-BK	GB	111-00243	37	T50SMVCLC15-19-PA66HIRHSUV-BK	MX	156-01690	115
T50ROSFT6SO25R-PA66HIRHS-BK	US	157-00164	80	T50R-PA66HIR(S)-BK	GB	111-04890	37	T50SMVCLC20-25-PA66HIRHSUV-BK	MX	156-01714	115
T50ROSFT7X12U-PA66HS-BK	US	157-00054	86	T50R-PA66HIR(S)-BK	GB	111-04890	37	T50SMVCLC3-9-PA66HIRHSUV-BK	MX	156-02384	115
T50ROSFT812.5SO-PA66HIRHS-BK	US	157-00217	79	T50R-PA66HIR(S)-BK	GB	111-00069	37	T50SMVCO10-14-PA66HS/PA66HIRHS-BK	DE	156-00128	113
T50ROSFT825SO-PA66HIRHS-BK	US	157-00196	79	T50R-PA66HS-BK	BR	111-02272	37	T50SMVCO15-18-PA66HS/PA66HIRHS-BK	DE	156-00129	113
T50ROSFT8-PA66HS-BK	JP	156-00360	71	T50R-PA66HS-BK	US	111-04901	35	T50SMVCO19-24.5-PA46-GY	FR	156-00577	113
T50ROSFT8SO12.5R-PA66HIRHSUV-BK	US	157-00215	80	T50R-PA66HS-BK	GB	111-04950	35	T50SMVCO19-24.5-PA66HS/PA66HIRHS-BK	FR	156-00130	113
T50ROSFT8SO25A-PA46-BN	US	157-00168	79	T50R-PA66HS-NA	BR	111-02273	35	T50SMVCO25-31-PA66HS/PA66HIRHS-BK	FR	156-00303	113
T50ROSFT8SO25A-PA66HIRHS-GY	US	157-00120	79	T50R-PA66HS-NA	GB	111-04882	35	T50SMVCO28-PA66HS/PA66HIRHS-BK	CN	156-01268	113
T50ROSFT8SO25B-PA66HIRHS-BK	US	157-00170	80	T50R-PA66HSW-BK	BR	111-00860	35	T50SMVCO31-39-PA66HS/PA66HIRHS-BK	DE	156-00304	113
T50ROSFTM6SO12.5A-PA46-BN	US	157-00212	79	T50R-PA66W-BK	BR	111-00861	34	T50SMVCO39-45-PA66HS/PA66HIRHS-BK	DE	156-00131	113
T50ROSFTM6SO12.5A-PA66HIRHS-GY	US	157-00118	79	T50RS5-PA66-BK	GB	111-07110	93	T50SOS2DOP62X122-E-PA46-GY	PL	157-00069	86
T50ROSFTM6SO12.5B-PA66HIRHS-BK	US	157-00131	80	T50RSB5DCSD-PA66HS-BK	DE	156-02488	99	T50SOS2DOP62X122-E-PA66HS-BK	PL	157-00014	86
T50ROSFTOVAL12.5A-PA66HIRHS-BK	US	157-00224	88	T50RSB5-PA46-GY	DE	156-00084	97	T50SOS2DOP7X12-E-PA66HS-BK	CN	157-01105	86
T50ROSFTOVAL12.5A-PA66HIRHS-GY	US	157-00225	88	T50RSB5-PA66/POM-BK	BR	156-00742	97	T50SOS2DOP7X12-E-PA66HS-BK	CN	156-02272	86
T50ROSFTOVAL12.5B-PA66HIRHS-BK	US	157-00249	88	T50RSB5-PA66HS/POM-BK	DE	150-10141	97	T50SOS2DOP7X12-PA46-GY	CN	156-02272	86
T50ROSFTOVAL12.5SO-PA66HIRHS-BK	US	157-00218	88	T50RSB5-10-PA66HS/PA66HIRHS-NA/BK	DE	156-00459	98	T50SOS3DOP65X130-E-PA46-GY	CN	126-00229	86
T50ROSFTOVAL25A-PA46-BN	US	157-00288	88	T50RSB5-PA66HS-BK	DE	150-16943	98	T50SOS3DOP65X130-E-PA66HS-BK	BR	126-00270	86
T50ROSFTOVAL25A-PA66HIRHS-BK	US	157-00222	88	T50RSB5-PA66HS-BK	BR	156-00748	98	T50SOS3DOP65X130-E-PA66HS-BK	PL	157-00016	86
T50ROSFTOVAL25A-PA66HIRHS-GY	US	157-00205	88	T50RSB5SD-14-PA66HS-BK	DE	150-77591	98	T50SOSAH 7X12-PA66HS-BK	BR	156-01674	82
T50ROSFTOVAL25B-PA46-BK	US	157-00332	88	T50RSB5SD-PA66HS-BK	DE	150-92904	98	T50SOSAH75-E-PA66HS-BK	SG	126-00249	62
T50ROSFTOVAL25B-PA66HIRHS-BK	US	157-00247	88	T50RSB5SD-PA66HS-BK	SG	156-00522	98	T50SOSD5FT6.5-PA66HS/PA66HIRHS-BK	FR	156-00133	81
T50ROSFTOVAL25R-PA66HIRHS-BK	US	157-00221	88	T50RSB6SD-PA66HS-BK	DE	156-00819	98	T50SOSEC1.0-3.OSV-E-PA66HIRHS-BK	FR	126-00342	103
T50ROSFTOVAL25SO-PA66HIRHS-BK	US	157-00219	88	T50RSBHM5-6-PA66HS/PA66HIRHS-BK	CN	156-02408	98	T50SOSEC10-PA66HS/PA66HIRHS-BK	DE	156-00015	105
T50ROSFTOVAL-B-PA66HS/PA66HIRHS-BK	CN	156-01519	87	T50RSB5S-PA66-BK	BR	156-00745	96	T50SOSEC12E-PA46-GY	DE	126-00253	103
T50ROSFTOVAL125A-PA66HIRHS-BK	US	157-00323	88	T50RSB5S-PA66HS-BK	SG	150-21291	96	T50SOSEC12E-PA66HS-BK	DE	148-00200	103
T50ROSFTOVAL125B-PA66HIRHS-BK	US	157-00333	88	T50RSB5-M10-PA66HS/PA66HIRHS-BK	CN	156-01532	96	T50SOSEC13E-PA66HS-BK	DE	126-00000	103
T50ROSFTOVALR-PA66HIRHS-BK	US	157-00232	86	T50RSB5-M12-PA66HS/PA66HIRHS-BK	CN	156-01530	96	T50SOSEC19-PA66HS/PA66HIRHS-BK	DE	156-04601	108
T50ROSFTOVALU-PA46-BN	US	157-00157	86	T50RSF(E)-PA66-BK	GB	126-01001	61	T50SOSEC20-E-PA66HS-BK	FR	126-00235	103
T50ROSFTOVALU-PA66HIRHS-BK	US	157-00142	86	T50RSF(U)-PA66HIRHSUV-BK	US	126-01005	61	T50SOSEC20-MOD-PA66HIRHS-BK	FR	126-00190	103
T50ROSFTQM6-PA46-BN	US	157-00144	65	T50RSFM-PA66HS-BK	GB	111-85720	58	T50SOSEC20-PA66HS/PA66HIRHS-BK	DE	156-00016	108
T50ROSFTQM6-PA66HIRHSUV-BK	US	157-00112	65	T50RSFM-PA66HS-BK	US	126-00116	58	T50SOSEC21-PA66HS/PA66HIRHS-BK	DE	156-00017	107
T50ROSFTSOVAL-PA66HIRHS-BK	US	157-00268	86	T50RSFM-PA66-NA	GB	111-85729	58	T50SOSEC34E-PA66HS-BK	DE	126-00036	103
T50ROSGBS8CA-PA66HS/PA66HIRHS-BK	FR	156-00251	96	T50RSFT6.5 16-3-PA66HS/PA66HIRHS-BK	GB	150-37792	63	T50SOSEC4A-PA66HS/PA66HIRHS-BK	DE	150-76093	105
T50ROSGBS8CB-PA66HS/PA66HIRHS-BK	FR	156-00252	96	T50RSFT6.5D18-PA66HS/PA66HIRHS-BK	DE	150-37691	63	T50SOSEC4A-PA66HS/PA66HIRHS-BK	BR	156-01440	105
T50ROSGBS8C-PA66HS/PA66HIRHS-BK	FR	156-00116	96	T50RSFT6.5-PA66HS-BK	GB	156-01697	63	T50SOSEC4B-PA66HS/PA66HIRHS-BK	DE	156-00109	105
T50ROSCL-PA66HS-BK	BR	156-00749	96	T50RSINGLECOUPLER-PA66HIRHS-BK	FR	156-01134	118	T50SOSEC4B-PA66HS/PA66HIRHS-BK	BR	156-01441	105
T50ROSLPM8MSO25-PA46-BN	US	157-00361	92	T50RSOC15FT6LG-PA46-GY	FR	156-00657	70	T50SOSEC5A-PA66HS/PA66HIRHS-BK	DE	150-40593	106
T50ROSM6MSO25-PA46-BN	US	157-00326	92	T50RSP-PA66-BK	DE	150-35930	78	T50SOSEC5A-PA66HS/PA66HIRHS-BK	BR	156-01434	106
T50ROSM8MSO25-PA46-BN	US	157-00328	92	T50RTM25E-PA66HIRHS-BK	US	157-00073	66	T50SOSEC5B-PA66HS/PA66HIRHS-BK	DE	150-40583	106
T50ROSFP1SFT6.5-PA46/PEEK-GY/BGE	DE	156-00455	75	T50RTM25E-PA66HS-BK	US	157-00001	66	T50SOSEC5B-PA66HS/PA66HIRHS-BK	BR	156-01435	106
T50ROSFP2SFT6.5-PA46/PEEK-GY/BGE	DE	156-00456	75	T50RWPM6-E-HEX-PA66HS-BK	GB	126-00138	58	T50SOSEC9SD-PA66HS/PA66HIRHS-BK	DE	156-00019	105
T50ROS-PA46-GY	SG	118-05078	44	T50RWPM7.0-PA66HS-BK	CN	126-00169	59	T50SOSFT5-PA66HS/PA66HIRHS-BK	GB	156-06200	68
T50ROS-PA66HS-BK	BR	118-00091	44	T50RYCCA-PA66HS/PA66HIRHS-BK	BR	156-00507	111	T50SOSFT5SD-PA66HS/PA66HIRHS-BK	DE	156-00432	68
T50ROS-PA66HS-BK	BR	118-00151	44	T50RYCCB-PA66HS/PA66HIRHS-BK	BR	156-00521	111	T50SOSFT6.5-E4-PA46-BN	US	157-00309	65
T50ROS-PA66HS-BK	GB	118-05040	44	T50S0SFT6LG-E-PA66HS-BK	BR	157-00255	65	T50SOSFT6.5-E4-PA66HS-BK	US	157-00308	65
T50ROS-PA66HS-NA	GB	118-05059	44	T50SAH-PA66HS-NA	DE	155-41102	59	T50SOSFT6.5LG-E4-PA46-BN	US	157-00304	65
T50ROS-PA66-NA	BR	118-00060	44	T50SCTCS-9FT7-PA66HS/PA66HIRHS-BK	CN	156-01551	117				
T50ROSSB5CSD-PA46-GY	DE	156-02372	97	T50SD6-PA66HS-BK	GB	111-85350	62				
T50ROSSB5CSD-PA66HS-BK	DE	156-01703	97								

Part Description	Country	Article-No.	Page	Part Description	Country	Article-No.	Page	Part Description	Country	Article-No.	Page
T50SOSFT6.5LG-E4-PA66HIRHS-NA	US	157-00355	65	T50SOSB5-High-E-O-US-PA66HS-BK	US	157-00106	94	T50SVCCE1-3-PA66HS/PA66HIRHS-BK	CN	156-01584	109
T50SOSFT6.5LG-E4-PA66HIRHSUV-BK	US	157-00296	65	T50SOSB5-PA66HS/POM-BK	DE	156-00080	97	T50SVCOC10-14-PA46-GY	DE	156-01385	113
T50SOSFT6.5LG-E4-PA66HS-GY	US	157-00303	65	T50SOSB6HE-PA66HS-BK	DE	155-46302	94	T50SVCOC10-14-PA66HS/PA66HIRHS-BK	DE	156-01367	113
T50SOSFT6.5LG-E4X-PA66HIRHSUV-BK	US	157-00302	65	T50SOSB8D-M10-PA66HSW-BK	JP	157-00040	91	T50SVCOC14-PA66HS/PA66HIRHS-BK	CN	156-01318	113
T50SOSFT6.5LG-E4X-PA66HS-BK	US	157-00287	65	T50SOSB8D-M5-PA66HSW-BK	JP	157-00044	91	T50SVCOC18-20A-PA66HS/PA66HIRHS-BK	CN	156-01190	113
T50SOSFT6.5LG-E4X-PA66HS-BK	US	157-00297	65	T50SOSB8D-M6-PA66HSW-BK	JP	157-00038	91	T50SVCOC18-20B-PA66HS/PA66HIRHS-BK	CN	156-01194	113
T50SOSFT6.5LG-E4X-PA66HS-NA	US	157-00298	65	T50SOSB8D-M8-PA66HSW-BK	JP	157-00039	91	T50SVCOC19-24.5-PA66HS/PA66HIRHS-BK	DE	156-01369	113
T50SOSFT6.5LG-E4X-PA66HS-YE	US	157-00301	65	T50SOSB85E-PA66HS-BK	GB	155-05701	98	T50SVCOC25.0-31.0-ST-PA66HS/PA66HIRHS-BK	DE	156-01380	113
T50SOSFT6D10E-PA46-GY	DE	157-00028	65	T50SOSB85E-2-PA66HS-BK	FR	157-00252	91	T50SVCOC25-31-PA46/PA66HIRHS-GY/BK	DE	156-01386	113
T50SOSFT6D10E-PA66HS-BK	DE	157-00045	65	T50SOSB85E-PA66HS-BK	FR	155-12300	91	T50SVCOC25-31-PA66HS/PA66HIRHS-BK	DE	156-01372	113
T50SOSFT6E1-PA46-GY	DE	157-00059	65	T50SOSB85S-PA66HS/PA66-BK	DE	156-00079	96	T50SVCOC28-PA66HS/PA66HIRHS-BK	CN	156-01239	113
T50SOSFT6E1-PA66HIRHS-BK	DE	157-00033	65	T50SOSB85S-PA66HS-BK	BR	156-01746	96	T50SVCOC31.0-39.0-ST-PA66HS/PA66HIRHS-BK	DE	156-01381	113
T50SOSFT6E1-PA66HIRHS-BK	BR	157-00125	65	T50SOSB85E-PA66HS-BK	CN	157-00211	91	T50SVCOC31-39-PA66HS/PA66HIRHS-BK	DE	156-01373	113
T50SOSFT6E1-PA66HS-BK	CN	157-00124	65	T50SOSB85E-PA66HS-BK	JP	157-00067	91	T50SVCOC39-45-PA66HS/PA66HIRHS-BK	DE	156-01370	113
T50SOSFT6-E2-PA46-BN	US	157-00177	65	T50SOSB85E-PA66HS-BK	JP	157-00065	91	T50SVCOC9-11A-PA66HIRHS/PA66HS-BK	CN	156-01236	113
T50SOSFT6-E2-PA66HS-BK	PL	157-00085	65	T50SOSB85E-PA66HS-BK	JP	157-00066	91	T50SVCOC9-11B-PA66HIRHS/PA66HS-BK	CN	156-01237	113
T50SOSFT6-E2-PA66HS-BK	US	157-00108	65	T50SOSB85E-PA66HS-BK	GB	150-93130	63	T50SWPM4.7-PA66-BK	CN	126-00236	59
T50SOSFT6-E3-PA66HIRHS-BK	DE	157-00241	65	T50SOSB85E-PA66HS-BK	DE	156-00264	76	T50SWPM4.7PT0.7-1.6-PA66HS-BK	CN	126-00263	59
T50SOSFT6E-PA46-GY	DE	126-00100	65	T50SOSB85E-PA66HS-BK	DE	126-03100	76	T50SWPM7.0OC15-18CBTO-SD-PA66HS/PA66HIRHS-BK	CN	156-01035	59
T50SOSFT6E-PA66HIRHS-BK	DE	155-05800	65	T50SOSB85E-PA66HS-BK	CN	126-00147	76	T50SWPM7.0-PA66HS-BK	CN	126-00168	59
T50SOSFT6LG-E2-PA46-BN	US	157-00149	66	T50SOSB85E-PA66HS-BK	DE	126-00065	76	T50VSL5-PA66-NA	GB	126-00101	58
T50SOSFT6LG-E2-PA46-GY	CN	157-00244	66	T50SOSB85E-PA66HS-BK	CN	126-00161	62	T50XROSSFT6.5-E-MDL-PA66HS-BK	DE	156-00379	76
T50SOSFT6LG-E2-PA66HIRHS-BK	CN	157-00242	66	T50SOSB85E-PA66HS-BK	DE	126-03102	62	T50XSFM-PA66HS-BK	CN	126-00171	59
T50SOSFT6LG-E2-PA66HS-GY	US	157-00152	66	T50SOSB85E-PA66HS-BK	CN	126-00226	76	T50SVCOC15-18-PA66HS/PA66HIRHS-BK	DE	156-01368	113
T50SOSFT6LG-E4-PA66HS-BK	FR	157-00237	66	T50SOSB85E-PA66HS-BK	DE	148-00089	112	T60ROSSB6HEC-PA66HS-BK	DE	157-00101	94
T50SOSFT6LG-E-PA46-GY	SG	157-00166	65	T50SOSB85E-PA66HS-BK	DE	148-00088	112	T60SOSFT12-E-PA66HS-BK	DE	157-00155	85
T50SOSFT6LGE-PA66HS-BK	GB	157-00228	65	T50SOSB85E-PA66HS-BK	DE	148-00095	112	T60SOSFT62x122-E-MD-PA66HS-BK	SG	126-00080	83
T50SOSFT6LG-E-PA66HS-BK	US	157-00097	65	T50SOSB85E-PA66HS-BK	DE	148-00092	112	T60SOSFT62x122-E-PA66HS-BK	SG	126-00191	82
T50SOSFT6LG-PA66HS/PA66HIRHS-BK	BR	156-00716	69	T50SOSB85E-PA66HS-BK	JP	148-00110	112	T60SOSFT65x130-E-MD-PA66HS-NA	SG	126-00076	83
T50SOSFT6LUG-PA66HS-BK	US	157-00050	66	T50SOSB85E-PA66HS-BK	DE	148-00090	112	T60SOSFT65x130-E-MS-MD-PA66HS-BK	SG	126-00186	83
T50SOSFT6-PA66HS-BK	BR	156-00718	70	T50SOSB85E-PA66HS-BK	DE	148-00093	112	T60SOSFT65x130-E-PA66HS-NA	SG	126-00157	82
T50SOSFT7-E-PA66HS-BK	CN	157-00185	66	T50SOSB85E-PA66HS-BK	DE	148-00096	112	T60SOSFT70x120-E-MD-PA66HS-BK	DE	126-00079	83
T50SOSFT7X12U-PA66HS-BK	US	157-00053	86	T50SOSB85E-PA66HS-BK	DE	148-00091	112	T60SOSFT712S-E-PA66HS-BK	SG	126-00207	82
T50SOSFT8E-PA46-GY	DE	157-00115	67	T50SOSB85E-PA66HS-BK	DE	133-01553	95	T60XSOSSFT62X122-E-MD-PA66HS-BK	DE	126-00208	83
T50SOSFT8E-PA66HS-BK	DE	157-00072	67	T50SOSB85E-PA66HS-BK	CN	111-00569	35	T60XSOSSFT62X122-E-PA66HS-BK	DE	126-00254	82
T50SOSFT8-PA66HS/PA66HIRHS-BK	CN	156-00832	71	T50SOSB85E-PA66HS-BK	GB	111-05850	35	T60XSOSSFT712S-E-PA66HS-BK	SG	126-00259	82
T50SOSFT9E-PA66HS-BK	CN	157-00280	67	T50SOSB85E-PA66HS-BK	GB	111-05859	35	T80IECSA-PA66HS/PA66HIRHS-BK	BR	156-01436	106
T50SOSFTOVALU-PA66HS-BK	US	157-00143	86	T50SOSB85E-PA66HS-BK	CN	150-10144	97	T80IFT6LG-PA66/PA66HIRHS-NA/BK	BR	156-00704	69
T50SOSK-PA66HS-BK	BR	156-01761	96	T50SOSB85E-PA66HS-BK	FR	155-30602	90	T80IFT6LG-PA66HS/PA66HIRHS-BK	SG	150-31096	69
T50SOSKFT5.4E-MD-PA66HS-BK	SG	126-00180	76	T50SOSB85E-PA66HS-BK	SG	150-21293	96	T80IFT6-PA66HS/PA66HIRHS-BK	BR	156-00703	70
T50SOSKFT5.4E-PA66HS-BK	PL	126-00075	62	T50SOSB85E-PA66HS-BK	FR	157-00083	90	T80IFT7-PA66/PA66HS-BK	BR	156-00729	71
T50SOSKFT5M-E-PA66HS-BK	DE	126-00176	62	T50SOSB85E-PA66HS-BK	FR	157-00173	90	T80I-PA66HS-BK	BR	111-02278	35
T50SOSKFT5SE-PA66HS-BK	DE	126-00099	62	T50SOSB85E-PA66HS-BK	US	126-00290	58	T80I-PA66HS-BK	SG	111-08250	35
T50SOSKFT6.5E-PA66HS-BK	PL	126-00081	62	T50SOSB85E-PA66HS-BK	US	126-00049	58	T80I-PA66HS-NA	BR	111-02279	36
T50SOSKFT6.5PT2.4-3.0-PA66HS-BK	PL	126-00185	62	T50SOSB85E-PA66HS-BK	GB	111-85719	58	T80I-PA66HS-NA	SG	111-08259	36
T50SOSKFT6.5S2-E-PA66HS-BK	PL	126-00086	62	T50SOSB85E-PA66HS-BK	CN	126-00056	58	T80I-PA66W-BK	BR	111-00864	34
T50SOSKFT62X122-90-MD-PA66HS-BK	CN	126-00234	83	T50SOSB85E-PA66HS-BK	DE	111-85395	58	T80ISBH5-PA66HS-BK	DE	150-16945	98
T50SOSKFT62x122PT0.7-1.3	DE	126-00143	82	T50SOSB85E-PA66HS-BK	BR	126-00313	58	T80ISBH5D-PA66HS-BK	DE	150-92905	98
T50SOSKFT62x122PT0.7-1.3-PA66HS-BK	DE	126-00144	82	T50SOSB85E-PA66HS-BK	GB	126-02204	58	T80ISB5S-PA66HS-BK	SG	150-21297	96
T50SOSKFT62x122PT1.7-2.3-PA66HS-BK	DE	126-00142	82	T50SOSB85E-PA66HS-BK	GB	126-00031	62	T80LFT6-PA66HS/PA66HIRHS-BK	CN	156-01120	70
T50SOSKFT65E-MD-PA66HS-BK	CN	126-00148	76	T50SOSB85E-PA66HS-BK	BR	126-00096	62	T80L-PA66HS-BK	SG	111-00388	36
T50SOS-PA66-GY	BR	118-00092	44	T50SOSB85E-PA66HS-BK	FR	150-15395	62	T80L-PA66HS-NA	DE	150-48397	60
T50SOS-PA66HS-BK	BR	118-00063	44	T50SOSB85E-PA66HS-BK	BR	126-00095	62	T8ORFT6X12-PA46-GY	DE	150-48396	60
T50SOS-PA66HS-BK	MX	118-00110	44	T50SOSB85E-PA66HS-BK	DE	156-01376	113	T8ORFT6X12-PA66-BK	DE	150-48396	60
T50SOS-PA66HS-BK	GB	118-05850	44	T50SOSB85E-PA66HS-BK	FR	156-00447	113	T8OROSLPSB10U-PA46-BN	US	157-00343	92
T50SOS-PA66-NA	BR	118-00062	44	T50SOSB85E-PA66HS-BK	DE	156-01374	113	T8OROSLPSB12U-PA46-BN	US	157-00345	92
T50SOSB5HEC-PA66HS-BK	GB	155-05400	94	T50SOSB85E-PA66HS-BK	DE	156-01366	113	T8OROSLPSB8U-PA46-BN	MX	157-00341	92
T50SOSB5-High-E-C-CC-PA46-GY	DE	157-00229	94	T50SOSB85E-PA66HS-BK	MX	156-01516	113	T8OROSSB10U-PA46-BN	MX	157-00294	92
T50SOSB5-High-E-C-CC-PA66HS-BK	DE	157-00037	95	T50SOSB85E-PA66HS-BK	DE	156-01384	113	T8OROSSB12U-PA46-BN	US	157-00295	92
T50SOSB5-High-E-C-CC-PA66HS-BK	US	157-00105	94	T50SOSB85E-PA66HS-BK	DE	156-01371	113	T8OROSSB8U-PA46-BN	MX	157-00293	92
T50SOSB5-High-E-C-CC-PA66HS-BK	DE	157-00227	94	T50SOSB85E-PA66HS-BK	DE	156-01371	113	T8OR-PA66HS-BK	SG	117-08070	35
T50SOSB5-High-E-C-CC-PA66HS-GY	US	157-00151	94								



Part Description	Country	Article-No.	Page	Part Description	Country	Article-No.	Page	Part Description	Country	Article-No.	Page
T80R-PA66HS-NA	SG	111-05059	35	TAG62TD1-1204-SR-1204-ML	DE	596-12062	271	TCGT24-8BU-PO-X-BU	PL	553-32453	258
T80RSF6.5F-PA46-GY	FR	150-39395	61	TAG62TD1-1206-WH-1206-WH	DE	596-12662	273	TCGT24-8RD-PO-X-RD	PL	553-32454	258
T80RSF6.5F-PA66-BK	BR	126-00094	61	TAG63.5-50.8TD1-951 SET-951-ML	DE	596-42951	281	TCGT24-8WH-PO-X-WH	PL	553-32451	258
T80RSF6.5F-PA66HS-BK	FR	126-02600	61	TAG63TD1-1204-SR-1204-ML	DE	596-12063	271	TCGT24-8YE-PO-X-YE	PL	553-32450	258
T80RSF6.5FW-PA66HS-BK	FR	150-39385	61	TAG63TD1-1206-WH-1206-WH	DE	596-12663	273	TCGT3-1BK-PO-X-BK	PL	553-30352	257
T80RSFT-PA66HS-BK	DE	150-15493	78	TAG63TD1-892-WH-892-WH	DE	596-12263	270	TCGT3-1BU-PO-X-BU	PL	553-30353	257
T80RWP6M2X122-PA66HS-BK	FR	156-01521	84	TAG64TD1-1204-SR-1204-ML	DE	596-12064	271	TCGT3-1RD-PO-X-RD	PL	553-30354	257
T80SSF6.5F-PA46-GY	DE	150-39392	61	TAG64TD1-1206-WH-1206-WH	DE	596-12664	273	TCGT3-1WH-PO-X-WH	PL	553-30351	257
T80SSF6.5F-PA66HIRHS-BK	FR	126-00047	61	TAG65TD1-1204-SR-1204-ML	DE	596-12065	271	TCGT3-1YE-PO-X-YE	PL	553-30350	257
T82R-RD-PL-RD	DE	500-50822	269	TAG65TD1-1206-WH-1206-WH	DE	596-12665	273	TCGT39-13BK-PO-X-BK	PL	553-33952	258
T82S-BK-PL-BK	DE	500-50820	269	TAG66TD1-1204-SR-1204-ML	DE	596-12066	271	TCGT39-13BU-PO-X-BU	PL	553-33953	258
T8RWP3M3.5-PA66VO-WH	JP	126-00206	59	TAG66TD1-1208-WH-1208-WH	DE	596-12086	280	TCGT39-13RD-PO-X-RD	PL	553-33954	258
TAG01TD3-1206-WH-1206-WH	DE	596-01120	272	TAG66TD1-1208-WH-1208-WH	DE	596-12086	280	TCGT39-13WH-PO-X-WH	PL	553-33951	258
TAG02TD1-1204-SR-1204-ML	DE	596-21204	271	TAG67TD2-1204-SR-1204-ML	DE	596-12067	271	TCGT39-13YE-PO-X-YE	PL	553-33950	258
TAG0638TL2-323-CL-323-CL	DE	596-38321	285	TAG67TD2-1206-WH-1206-WH	DE	596-12067	273	TCGT4.8-1.6BK-PO-X-BK	PL	553-30452	257
TAG07TD1-323-WHCL-323-CL/WH	DE	596-07320	268	TAG68-16TD1-892-WH-892-WH	DE	596-12264	270	TCGT4.8-1.6BU-PO-X-BU	PL	553-30453	257
TAG101-160TD1-951 SET-951-ML	DE	596-40951	281	TAG68TD1-1206-WH-1206-WH	DE	596-12668	273	TCGT4.8-1.6RD-PO-X-RD	PL	553-30454	257
TAG101-74TD1-951 SET-951-ML	DE	596-41951	281	TAG69TD2-1204-SR-1204-ML	DE	596-12069	271	TCGT4.8-1.6WH-PO-X-WH	PL	553-30451	257
TAG102-64TD1-892-WH-892-WH	DE	596-12265	270	TAG69TD2-1206-WH-1206-WH	DE	596-12669	273	TCGT4.8-1.6YE-PO-X-YE	PL	553-30450	257
TAG107TD3-323-WHCL-323-CL/WH	DE	596-10732	268	TAG69TD2-1208-WH-1208-WH	DE	596-12089	280	TCGT6-2BK-PO-X-BK	PL	553-30652	257
TAG10TD2-323-WHCL-323-CL/WH	DE	596-10320	268	TAG69TD1-323-WHCL-323-CL/WH	DE	596-06320	268	TCGT6-2BU-PO-X-BU	PL	553-30653	257
TAG1351TL1-323-CL-323-CL	DE	596-51321	285	TAG71TD6-1204-SR-1204-ML	DE	596-12071	271	TCGT6-2RD-PO-X-RD	PL	553-30654	257
TAG13TD4-1204-SR-1204-ML	DE	596-12043	271	TAG71TD6-1206-WH-1206-WH	DE	596-12671	272	TCGT6-2WH-PO-X-WH	PL	553-30651	257
TAG13TD4-1206-WH-1206-WH	DE	596-12061	272	TAG71TD6-1208-WH-1208-WH	DE	596-20871	280	TCGT6-2YE-PO-X-YE	PL	553-30650	257
TAG15TD3-1204-SR-1204-ML	DE	596-12045	271	TAG72TD1-1204-SR-1204-ML	DE	596-12072	271	TCGT9-3BK-PO-X-BK	PL	553-30952	257
TAG15TD3-1206-WH-1206-WH	DE	596-12615	272	TAG72TD1-1206-WH-1206-WH	DE	596-12672	273	TCGT9-3BU-PO-X-BU	PL	553-30953	257
TAG15TD3-1208-WH-1208-WH	DE	596-12080	270	TAG73TD1-1204-SR-1204-ML	DE	596-73124	271	TCGT9-3RD-PO-X-RD	PL	553-30954	257
TAG16TD3-1206-WH-1206-WH	DE	596-12616	272	TAG73TD1-1206-WH-1206-WH	DE	596-12673	273	TCGT9-3WH-PO-X-WH	PL	553-30951	257
TAG17TD2-1204-SR-1204-ML	DE	596-12047	271	TAG73TD1-1208-WH-1208-WH	DE	596-31208	280	TCGT9-3YE-PO-X-YE	PL	553-30950	258
TAG17TD2-1206-WH-1206-WH	DE	596-12617	272	TAG76TD1-1204-SR-1204-ML	DE	596-12076	271	TCN20-1.2/0.6-PO-X-BK	CN	300-73010	207
TAG18-07TD1-892-WH-892-WH	DE	596-12253	270	TAG76TD1-1206-WH-1206-WH	DE	596-61206	273	TCN20-1.6/0.8-PO-X-BK	CN	300-73020	207
TAG18-16TD1-892-WH-892-WH	DE	596-12254	270	TAG77TD1-1204-SR-1204-ML	DE	596-12077	271	TCN20-12.7/4.8-PO-X-BK	CN	300-73180	208
TAG1TD2-323-WHCL-323-CL/WH	DE	596-01320	268	TAG77TD1-1206-WH-1206-WH	DE	596-71206	273	TCN20-12.7/6.4-PO-X-BK	CN	300-73080	207
TAG22TD3-323-WHCL-323-CL/WH	DE	596-22320	268	TAG97TD1-1204-SR-1204-ML	DE	596-71204	271	TCN20-19.0/6.4-PO-X-BK	CN	300-73190	208
TAG23-06TD1-892-WH-892-WH	DE	596-12255	270	TAG9TD3-323-WHCL-323-CL/WH	DE	596-09320	268	TCN20-19.1/9.5-PO-X-BK	CN	300-73090	207
TAG23-10TD1-892-WH-892-WH	DE	596-12256	270	TAGHT10X5-1-4WH-PVDFX-WH	GB	556-80000	267	TCN20-2.4/0.8-PO-X-BK	CN	300-73130	208
TAG23TD5-323-WHCL-323-CL/WH	DE	596-23320	268	TAGHT20X5-1-4WH-PVDFX-WH	GB	556-80004	267	TCN20-2.4/1.2-PO-X-BK	CN	300-73030	207
TAG24TD1-323-WHCL-323-CL/WH	DE	596-24320	268	TAGHT20X5-1-6WH-PVDFX-WH	GB	556-80002	267	TCN20-25.4/12.7-PO-X-BK	CN	300-73100	207
TAG25.4-12.7TD1-951 SET-951-ML	DE	596-44951	281	TagPrint Pro 3.0 EMEA-PL-WH	US	556-00051	286	TCN20-25.4/9.5-PO-X-BK	CN	300-73200	208
TAG2551TL1-323-CL-323-CL	DE	596-52321	285	TAGR3TD1-1204-SR-1204-ML	DE	596-31204	271	TCN20-3.2/1.2-PO-X-BK	CN	300-73140	208
TAG25TD3-323-WHCL-323-CL/WH	DE	596-25320	268	TC2FT6LG-PA66HIRHS-BK	BR	151-02176	146	TCN20-3.2/1.6-PO-X-BK	CN	300-73040	207
TAG26-21TD2-892-WH-892-WH	DE	596-12257	270	TC2FT6LG-PA66HIRHS-BK	DE	155-30802	146	TCN20-38.0/12.7-PO-X-BK	CN	300-73210	208
TAG26TD6-323-WHCL-323-CL/WH	DE	596-26320	268	TC30FT6LG-PA66-BK	KR	151-00884	146	TCN20-38.1/19.1-PO-X-BK	CN	300-73110	207
TAG27TD2-1204-SR-1204-ML	DE	596-27120	271	TC3FT6S-PA66HIRHS-BK	DE	151-00028	146	TCN20-4.8/1.6-PO-X-BK	CN	300-73150	208
TAG27TD2-1206-WH-1206-WH	DE	596-12627	272	TC4FT6LG-A-PA66HIRHS-NA	DE	151-00467	146	TCN20-4.8/2.4-PO-X-BK	CN	300-73050	207
TAG27TD2-1208-WH-1208-WH	DE	596-12082	280	TC4FT6LG-PA66HIRHS-BK	DE	151-00215	146	TCN20-50.8/25.4-PO-X-BK	CN	300-73120	207
TAG28-16TD1-892-WH-892-WH	DE	596-12258	270	TC5FT6S-PA66HIRHS-BK	DE	150-95500	146	TCN20-6.4/3.2-PO-X-BK	CN	300-73060	207
TAG2TD6-323-WHCL-323-CL/WH	DE	596-02320	268	TC6FT6LG-PA66HIRHS-NA	US	151-00651	146	TCN20-6.6/2.4-PO-X-BK	CN	300-73160	208
TAG31TD3-1206-WH-1206-WH	DE	596-12631	271	TC6FT6-PA66HIRHS-BK	US	151-00663	146	TCN20-9.5/3.2-PO-X-BK	CN	300-73170	208
TAG34TD3-1204-SR-1204-ML	DE	596-34120	271	TCAH7x12-PA66HS-BK	BR	151-01252	147	TCN20-9.5/4.8-PO-X-BK	CN	300-73070	207
TAG34TD3-1206-WH-1206-WH	DE	596-12634	272	TCCSFT6.2x12.2-MD-PA66HIRHS/EPDM-BK	CN	151-01254	168	TCOP62x122-PA66HIRHS-BK	DE	151-00605	148
TAG35TD3-1204-SR-1204-ML	DE	596-12035	271	TCCSFT6.5x13PT0.6-2.0-MD-PA66HIRHS/EPDM-BK	CN	151-01272	168	TCOP62x122-PA66HIRHSUV-BK	BR	151-02236	148
TAG35TD3-1206-WH-1206-WH	DE	596-12635	272	TCDSFT6-HEX-PA66HIRHS-BK	DE	155-39002	146	TCOP70x120-PA66HIRHS-BK	DE	151-00029	148
TAG36TD7-323-WHCL-323-CL/WH	DE	596-36320	268	TCGT12-4BK-PO-X-BK	PL	553-31252	258	TCSAH7x12-PA66HS-BK	BR	151-01253	147
TAG3863TL1-323-CL-323-CL	DE	596-63321	285	TCGT12-4BU-PO-X-BU	PL	553-31253	258	TC-SB5C-PA66HS-BK	DE	151-26101	156
TAG38TD3-323-WHCL-323-CL/WH	DE	596-38320	268	TCGT12-4RD-PO-X-RD	PL	553-31254	258	TC-SB5CYCC-PA66HIRHS-BK	DE	151-00484	156
TAG3TD3-323-WHCL-323-CL/WH	DE	596-03320	268	TCGT12-4WH-PO-X-WH	PL	553-31251	258	TCSFT6.5S-CHA-MD-PA66HS-GN	CN	156-01238	154
TAG43-16TD1-892-WH-892-WH	DE	596-12259	270	TCGT12-4YE-PO-X-YE	PL	553-31250	258	TEXTIE 25M-PA66/PP-BK	ES	130-00022	50
TAG43-21TD1-892-WH-892-WH	DE	596-12260	270	TCGT18-6BK-PO-X-BK	PL	553-31852	258	TEXTIE 5M-PA66/PP-BK	ES	130-00020	50
TAG43-41TD1-892-WH-892-WH	DE	596-12261	270	TCGT18-6BU-PO-X-BU	PL	553-31853	258	TEXTIE L-PA66/PP-BK	ES	130-00019	50
TAG4TD1-1206-WH-1206-WH	DE	596-41206	273	TCGT18-6RD-PO-X-RD	PL	553-31854	258	TEXTIE M-PA66/PP-BK	ES	130-00013	50
TAG50.8-25.4TD1-951 SET-951-ML	DE	596-43951	281	TCGT18-6WH-PO-X-WH	PL	553-31854	258	TEXTIE M-PA66/PP-BU	ES	130-00018	50
TAG51TD3-323-WHCL-323-CL/WH	DE	596-51320	268	TCGT18-6WH-PO-X-WH	PL	553-31851	258	TEXTIE M-PA66/PP-GN	ES	130-00017	50
TAG52-10TD1-892-WH-892-WH	DE	596-12262	270	TCGT18-6YE-PO-X-YE	PL	553-31850	258	TEXTIE M-PA66/PP-RD	ES	130-00014	50
TAG61TD3-1206-WH-1206-WH	DE	596-12661	272	TCGT24-8BK-PO-X-BK	PL	553-32452	258	TEXTIE M-PA66/PP-WH	ES	130-00021	50

Part Description	Country	Article-No.	Page	Part Description	Country	Article-No.	Page	Part Description	Country	Article-No.	Page
TEXTIE M-PA66/PP-YE	ES	130-00016	50	TF21-76.0/38.0-PO-X-BU	JP	309-17606	212	TF31-40/13-PO-X-YE	JP	333-34004	215
TEXTIE S-PA66/PP-BK	ES	130-00012	50	TF21-76.0/38.0-PO-X-RD	JP	309-17602	212	TF31-6/2-PO-X-BK	DE	333-30600	214
TF21-1.2/0.6-PO-X-BK	JP	309-10120	210	TF21-76.0/38.0-PO-X-WH	JP	309-17609	212	TF31-6/2-PO-X-BK	DE	333-40600	214
TF21-1.2/0.6-PO-X-BU	JP	309-20126	210	TF21-76.0/38.0-PO-X-YE	JP	309-17604	212	TF31-6/2-PO-X-BU	DE	333-30606	214
TF21-1.2/0.6-PO-X-RD	JP	309-20122	210	TF21-9.5/4.8-PO-X-BK	DE	309-10950	211	TF31-6/2-PO-X-GN	JP	333-30605	214
TF21-1.2/0.6-PO-X-WH	JP	309-20129	210	TF21-9.5/4.8-PO-X-BU	DE	309-20956	211	TF31-6/2-PO-X-RD	DE	333-30602	214
TF21-1.2/0.6-PO-X-YE	JP	309-20124	210	TF21-9.5/4.8-PO-X-OG	JP	309-20953	211	TF31-6/2-PO-X-WH	DE	333-30609	214
TF21-1.6/0.8-PO-X-BK	JP	309-10160	210	TF21-9.5/4.8-PO-X-RD	DE	309-20952	211	TF31-6/2-PO-X-YE	DE	333-30604	214
TF21-1.6/0.8-PO-X-BU	JP	309-20166	210	TF21-9.5/4.8-PO-X-WH	DE	309-20959	211	TF31-9/3-PO-X-BK	DE	333-20900	215
TF21-1.6/0.8-PO-X-RD	JP	309-20162	210	TF21-9.5/4.8-PO-X-YE	DE	309-20954	211	TF31-9/3-PO-X-BK	DE	333-30900	215
TF21-1.6/0.8-PO-X-WH	JP	309-20169	210	TF24-1.2/0.6-PO-X-CL	JP	309-40123	213	TF31-9/3-PO-X-BU	DE	333-30906	214
TF21-1.6/0.8-PO-X-YE	JP	309-20164	210	TF24-1.6/0.8-PO-X-CL	JP	309-40163	213	TF31-9/3-PO-X-GN	JP	333-30905	214
TF21-101.6/50.8-PO-X-BK	JP	309-11020	212	TF24-101.6/50.8-PO-X-CL	JP	309-31023	213	TF31-9/3-PO-X-RD	DE	333-30902	215
TF21-101.6/50.8-PO-X-BU	JP	309-11026	212	TF24-12.7/6.4-PO-X-CL	JP	309-41273	213	TF31-9/3-PO-X-WH	DE	333-30909	215
TF21-101.6/50.8-PO-X-RD	JP	309-11022	212	TF24-19.1/9.5-PO-X-CL	JP	309-31903	213	TF31-9/3-PO-X-YE	DE	333-30904	215
TF21-101.6/50.8-PO-X-WH	JP	309-11029	212	TF24-2.4/1.2-PO-X-CL	JP	309-40243	213	TF34-1.5/0.5-PO-X-CL	JP	333-30153	216
TF21-101.6/50.8-PO-X-YE	JP	309-11024	212	TF24-25.4/12.7-PO-X-CL	JP	309-32543	213	TF34-12/4-PO-X-CL	JP	333-31203	216
TF21-12.7/6.4-PO-X-BK	DE	309-11270	211	TF24-3.2/1.6-PO-X-CL	JP	309-40323	213	TF34-18/6-PO-X-CL	JP	333-31803	216
TF21-12.7/6.4-PO-X-BU	DE	309-21276	211	TF24-38.1/19.1-PO-X-CL	JP	309-33813	213	TF34-24/8-PO-X-CL	JP	333-32403	216
TF21-12.7/6.4-PO-X-RD	DE	309-21272	211	TF24-4.8/2.4-PO-X-CL	JP	309-50483	213	TF34-3/1-PO-X-CL	JP	333-30303	216
TF21-12.7/6.4-PO-X-WH	DE	309-21279	211	TF24-50.8/25.4-PO-X-CL	JP	309-35083	213	TF34-40/13-PO-X-CL	JP	333-34003	216
TF21-12.7/6.4-PO-X-YE	DE	309-21274	211	TF24-6.4/3.2-PO-X-CL	JP	309-50643	213	TF34-6/2-PO-X-CL	JP	333-30603	216
TF21-19.1/9.5-PO-X-BK	DE	309-11900	211	TF24-76.2/38.1-PO-X-CL	JP	309-37603	213	TF34-9/3-PO-X-CL	JP	333-30903	216
TF21-19.1/9.5-PO-X-BU	DE	309-11906	211	TF24-9.5/4.8-PO-X-CL	JP	309-40953	213	TG40 12/2.41-PO-X-BK	CN	317-00012	219
TF21-19.1/9.5-PO-X-OG	JP	309-21903	211	TF31-1.5/0.5-PO-X-BK	JP	333-20150	214	TG40 12/2.41-PO-X-CL	CN	317-00013	219
TF21-19.1/9.5-PO-X-RD	DE	309-11902	211	TF31-1.5/0.5-PO-X-BK	JP	333-30150	214	TG40 18/4.45-PO-X-BK	CN	317-00014	219
TF21-19.1/9.5-PO-X-WH	DE	309-11909	211	TF31-1.5/0.5-PO-X-BU	JP	333-30156	214	TG40 18/4.45-PO-X-CL	CN	317-00015	219
TF21-19.1/9.5-PO-X-YE	DE	309-11904	211	TF31-1.5/0.5-PO-X-GN	JP	333-30155	214	TG40 6/1.27-PO-X-BK	CN	317-00008	219
TF21-2.4/1.2-PO-X-BK	DE	309-20240	210	TF31-1.5/0.5-PO-X-RD	JP	333-30152	214	TG40 6/1.27-PO-X-CL	CN	317-00009	219
TF21-2.4/1.2-PO-X-BU	DE	309-20246	210	TF31-1.5/0.5-PO-X-WH	JP	333-30159	214	TG40 8/1.65-PO-X-BK	CN	317-00010	219
TF21-2.4/1.2-PO-X-RD	DE	309-20242	210	TF31-1.5/0.5-PO-X-YE	JP	333-30154	214	TG40 8/1.65-PO-X-CL	CN	317-00011	219
TF21-2.4/1.2-PO-X-WH	DE	309-20249	210	TF31-12/4-PO-X-BK	DE	333-21200	215	TH100BKX25M-CR-BK	GB	608-01208	227
TF21-2.4/1.2-PO-X-YE	DE	309-20244	210	TF31-12/4-PO-X-BK	DE	333-31200	215	TH100X35BK-CR-BK	GB	600-02493	227
TF21-25.4/12.7-PO-X-BK	DE	309-12540	211	TF31-12/4-PO-X-BU	DE	333-31206	215	TH120BKX25M-CR-BK	GB	608-01209	227
TF21-25.4/12.7-PO-X-BU	DE	309-12546	211	TF31-12/4-PO-X-GN	JP	333-31205	215	TH120X50BK-CR-BK	GB	600-02495	227
TF21-25.4/12.7-PO-X-RD	DE	309-12542	211	TF31-12/4-PO-X-RD	DE	333-31202	215	TH140BKX20M-CR-BK	GB	608-01210	227
TF21-25.4/12.7-PO-X-WH	DE	309-12549	211	TF31-12/4-PO-X-WH	DE	333-31209	215	TH140X50BK-CR-BK	GB	600-02496	227
TF21-25.4/12.7-PO-X-YE	DE	309-12544	211	TF31-12/4-PO-X-YE	DE	333-31204	215	TH170BKX20M-CR-BK	GB	608-01202	227
TF21-3.2/1.6-PO-X-BK	DE	309-10320	211	TF31-18/6-PO-X-BK	DE	333-31800	215	TH170X50BK-CR-BK	GB	600-02497	227
TF21-3.2/1.6-PO-X-BU	DE	309-20326	210	TF31-18/6-PO-X-BK	DE	333-41800	215	THTT127BK-PVDFX-BK	CN	551-41114	264
TF21-3.2/1.6-PO-X-RD	DE	309-20322	210	TF31-18/6-PO-X-BU	DE	333-31806	215	THTT127WH-PVDFX-WH	CN	551-41105	264
TF21-3.2/1.6-PO-X-WH	DE	309-20329	210	TF31-18/6-PO-X-GN	JP	333-31805	215	THTT190BK-PVDFX-BK	CN	551-41115	264
TF21-3.2/1.6-PO-X-YE	DE	309-20324	211	TF31-18/6-PO-X-RD	DE	333-31802	215	THTT190WH-PVDFX-WH	CN	551-41106	264
TF21-38.0/19.0-PO-X-BK	JP	309-13810	211	TF31-18/6-PO-X-WH	DE	333-31809	215	THTT24BK-PVDFX-BK	CN	551-41109	264
TF21-38.0/19.0-PO-X-BU	JP	309-13816	211	TF31-18/6-PO-X-YE	DE	333-31804	215	THTT24WH-PVDFX-WH	CN	551-41100	264
TF21-38.0/19.0-PO-X-RD	JP	309-13812	211	TF31-24/8-PO-X-BK	DE	333-32400	215	THTT254BK-PVDFX-BK	CN	551-41116	264
TF21-38.0/19.0-PO-X-WH	JP	309-13819	211	TF31-24/8-PO-X-BK	DE	333-42400	215	THTT254WH-PVDFX-WH	CN	551-41107	264
TF21-38.0/19.0-PO-X-YE	JP	309-13814	211	TF31-24/8-PO-X-BU	DE	333-32406	215	THTT32BK-PVDFX-BK	CN	551-41110	264
TF21-4.8/2.4-PO-X-BK	DE	309-10480	211	TF31-24/8-PO-X-GN	JP	333-32405	215	THTT32WH-PVDFX-WH	CN	551-41101	264
TF21-4.8/2.4-PO-X-BU	DE	309-50486	211	TF31-24/8-PO-X-RD	DE	333-32402	215	THTT381BK-PVDFX-BK	CN	551-41117	264
TF21-4.8/2.4-PO-X-OG	JP	309-20483	211	TF31-24/8-PO-X-WH	DE	333-32409	215	THTT381WH-PVDFX-WH	CN	551-41108	264
TF21-4.8/2.4-PO-X-RD	DE	309-50482	211	TF31-24/8-PO-X-YE	DE	333-32404	215	THTT48BK-PVDFX-BK	CN	551-41111	264
TF21-4.8/2.4-PO-X-WH	DE	309-50489	211	TF31-3/1-PO-X-BK	DE	333-30300	214	THTT48WH-PVDFX-WH	CN	551-41102	264
TF21-4.8/2.4-PO-X-YE	DE	309-50484	211	TF31-3/1-PO-X-BK	DE	333-40300	214	THTT64BK-PVDFX-BK	CN	551-41112	264
TF21-50.8/25.4-PO-X-BK	JP	309-15080	211	TF31-3/1-PO-X-BU	DE	333-30306	214	THTT64WH-PVDFX-WH	CN	551-41103	264
TF21-50.8/25.4-PO-X-BU	JP	309-15086	211	TF31-3/1-PO-X-GN	JP	333-30305	214	THTT95BK-PVDFX-BK	CN	551-41113	264
TF21-50.8/25.4-PO-X-RD	JP	309-15082	212	TF31-3/1-PO-X-RD	DE	333-30302	214	THTT95WH-PVDFX-WH	CN	551-41104	264
TF21-50.8/25.4-PO-X-WH	JP	309-15089	212	TF31-3/1-PO-X-WH	DE	333-30309	214	TIPTAG11X100BU-PO-BU	GB	556-20080	265
TF21-50.8/25.4-PO-X-YE	JP	309-15084	212	TF31-3/1-PO-X-YE	DE	333-30304	214	TIPTAG11X100RD-PO-RD	GB	556-20091	265
TF21-6.4/3.2-PO-X-BK	DE	309-10640	211	TF31-40/13-PO-X-BK	JP	333-24000	215	TIPTAG11X100WH-PO-WH	GB	556-20079	265
TF21-6.4/3.2-PO-X-BU	DE	309-50646	211	TF31-40/13-PO-X-BK	JP	333-34000	215	TIPTAG11X100YE-PO-YE	GB	556-20074	265
TF21-6.4/3.2-PO-X-RD	DE	309-50642	211	TF31-40/13-PO-X-BU	JP	333-34006	215	TIPTAG11X65BU-PO-BU	GB	556-20066	265
TF21-6.4/3.2-PO-X-WH	DE	309-50649	211	TF31-40/13-PO-X-GN	JP	333-34005	215	TIPTAG11X65RD-PO-RD	GB	556-20062	265
TF21-6.4/3.2-PO-X-YE	DE	309-50644	211	TF31-40/13-PO-X-RD	JP	333-34002	215	TIPTAG11X65WH-PO-WH	GB	556-20069	265
TF21-76.0/38.0-PO-X-BK	JP	309-17600	212	TF31-40/13-PO-X-WH	JP	333-34009	215	TIPTAG11X65YE-PO-YE	GB	556-20064	265

Part Description	Country	Article-No.	Page	Part Description	Country	Article-No.	Page	Part Description	Country	Article-No.	Page
TIPTAG15X100RD-PO-RD	GB	556-21096	265	TLFX64WH-PO-X-WH	CN	554-51300	261	TULT39-13WH-PO-X-WH	PL	553-43951	260
TIPTAG15X100WH-PO-WH	GB	556-21079	265	TLFX64YE-PO-X-YE	CN	554-51301	261	TULT39-13YE-PO-X-YE	PL	553-43950	260
TIPTAG15X100YE-PO-YE	GB	556-21074	265	TLFX95DS-1x50WH-PO-X-WH	DK	553-60004	263	TULT4.8-1.6BK-PO-X-BK	PL	553-40452	259
TIPTAG15X65WH-PO-WH	GB	556-21069	265	TLFX95DS-1x50YE-PO-X-YE	DK	553-60014	263	TULT4.8-1.6BU-PO-X-BU	PL	553-40453	259
TIPTAG15X65YE-PO-YE	GB	556-21064	265	TLFX95DS-2x25WH-PO-X-WH	DK	553-60024	263	TULT4.8-1.6RD-PO-X-RD	PL	553-40454	259
TK20-1.2/0.6-PVDF-CL	JP	331-00129	224	TLFX95DS-2x25YE-PO-X-YE	DK	553-60033	263	TULT4.8-1.6WH-PO-X-WH	PL	553-40451	259
TK20-1.6/0.8-PVDF-CL	JP	311-00169	224	TLFX95WH-PO-X-WH	CN	554-51400	261	TULT4.8-1.6YE-PO-X-YE	PL	553-40450	259
TK20-12.7/6.4-PVDF-CL	JP	311-01279	224	TLFX95YE-PO-X-YE	CN	554-51401	261	TULT6-2BK-PO-X-BK	PL	553-40652	259
TK20-19.1/9.5-PVDF-CL	JP	311-01909	224	TR27-12.7/6.4-PO-X-BK	JP	315-51270	217	TULT6-2BU-PO-X-BU	PL	553-40653	259
TK20-2.4/1.2-PVDF-CL	JP	311-00249	224	TR27-19.1/9.5-PO-X-BK	JP	315-51900	217	TULT6-2RD-PO-X-RD	PL	553-40654	259
TK20-25.4/12.7-PVDF-CL	JP	311-02549	224	TR27-25.4/12.7-PO-X-BK	JP	315-52540	217	TULT6-2WH-PO-X-WH	PL	553-40651	259
TK20-3.2/1.6-PVDF-CL	JP	311-00329	224	TR27-3.2/1.6-PO-X-BK	JP	315-50320	217	TULT6-2YE-PO-X-YE	PL	553-40650	259
TK20-38.1/19.1-PVDF-CL	JP	311-03819	224	TR27-38.1/19.1-PO-X-BK	JP	315-53810	217	TULT9-3BK-PO-X-BK	PL	553-40952	259
TK20-4.8/2.4-PVDF-CL	JP	311-00489	224	TR27-4.8/2.4-PO-X-BK	JP	315-50480	217	TULT9-3BU-PO-X-BU	PL	553-40953	259
TK20-50.8/25.4-PVDF-CL	JP	315-05089	224	TR27-50.8/25.4-PO-X-BK	JP	315-55100	217	TULT9-3RD-PO-X-RD	PL	553-40954	259
TK20-6.4/3.2-PVDF-CL	JP	311-00649	224	TR27-6.4/3.2-PO-X-BK	JP	315-50640	217	TULT9-3WH-PO-X-WH	PL	553-40951	259
TK20-9.5/4.8-PVDF-CL	JP	311-00959	224	TR27-9.5/4.8-PO-X-BK	JP	315-50950	217	TULT9-3YE-PO-X-YE	PL	553-40950	259
TLFX127DS-1x50WH-PO-X-WH	DK	553-60005	263	TRIM PLUG 5-PA66HIR-NA	FR	151-00333	197	Twist-In 05-PET-BK	FR	170-01000	240
TLFX127DS-1x50YE-PO-X-YE	DK	553-60015	263	TT External Reel Holder-GY	DE	556-00451	288	Twist-In 08-PET-BK	FR	170-01001	240
TLFX127DS-2x25WH-PO-X-WH	DK	553-60025	263	TT4030 Printhead-DIV-GY	JP	556-04041	288	Twist-In 13-PET-BK	FR	170-01002	240
TLFX127DS-2x25YE-PO-X-YE	DK	553-60034	263	TT4030-MET-GY	DE	556-04037	288	Twist-In 19-PET-BK	FR	170-01004	240
TLFX127WH-PO-X-WH	CN	554-51500	261	TT430 300dpi Printhead-DIV-BK	JP	556-00453	287	Twist-In 25-PET-BK	FR	170-01005	240
TLFX127YE-PO-X-YE	CN	554-51501	261	TT430 Print Roller-DIV-BK	DE	556-00454	287	Twist-In 29-PET-BK	FR	170-01006	240
TLFX190DS-1x50WH-PO-X-WH	DK	553-60006	263	TT430-GY	DE	556-00450	287	Twist-In 32-PET-BK	FR	170-01007	240
TLFX190DS-1x50YE-PO-X-YE	DK	553-60016	263	TT822OUT-PET-BK	US	556-00101	289	Twist-In 38-PET-BK	FR	170-01008	240
TLFX190DS-2x25WH-PO-X-WH	DK	553-60026	263	TT822OUT-PET-BK	US	556-00111	289	Twist-In 50-PET-BK	FR	170-01010	240
TLFX190DS-2x25YE-PO-X-YE	DK	553-60035	263	TT932DOUT 110MM-BK	JP	556-00118	289	TY3G1-PA66-NA	DE	151-21319	125
TLFX190WH-PO-X-WH	CN	554-51600	261	TT932DOUT 85MM-BK	JP	556-00117	289	TY3G1S-PA66W-BK	DE	151-11310	125
TLFX190YE-PO-X-YE	CN	554-51601	261	TTAGPU11X100WH-PUR-WH	GB	556-25021	266	TY8G1-PA66-NA	DE	151-21819	125
TLFX24DS-1x50WH-PO-X-WH	DK	553-60000	262	TTAGPU11X100YE-PUR-YE	GB	556-25020	266	TY8G1S-PA66-NA	DE	151-11819	125
TLFX24DS-1x50YE-PO-X-YE	DK	553-60010	262	TTAGPU11X65WH-PUR-WH	GB	556-25012	266	Universal Clip sealed-PA66HS-BK	DE	151-00630	174
TLFX24DS-2x25WH-PO-X-WH	DK	553-60020	262	TTAGPU11X65YE-PUR-YE	GB	556-25019	266	Universal Clip-PA66HS-BK	DE	151-01267	174
TLFX24DS-2x25YE-PO-X-YE	DK	553-60029	262	TTAGPU15X100WH-PUR-WH	GB	556-25006	266	V100R-PA46-GY	DE	118-00109	46
TLFX24WH-PO-X-WH	CN	554-51000	261	TTAGPU15X100YE-PUR-YE	GB	556-25010	266	V100R-PA66HS-NA	DE	118-00074	46
TLFX24YE-PO-X-YE	CN	554-51001	261	TTAGPU15X65WH-PUR-WH	GB	556-25007	266	V150RFT10-PA66/PA66HS-BK	GB	156-01233	73
TLFX254DS-1x50WH-PO-X-WH	DK	553-60007	263	TTAGPU15X65YE-PUR-YE	GB	556-25011	266	V150R-PA46-GY	DE	118-00107	46
TLFX254DS-1x50YE-PO-X-YE	DK	553-60017	263	TTDTHOUT 100MM-PET-BK	US	556-00141	290	V150R-PA66-BK	DE	118-00117	46
TLFX254DS-2x25WH-PO-X-WH	DK	553-60027	263	TTDTHOUT 60MM-PET-BK	US	556-00140	290	V150R-PA66HS-NA	DE	118-00089	46
TLFX254DS-2x25YE-PO-X-YE	DK	553-60036	263	TRHTBK 100mm-BK	JP	556-00210	290	VA2.5/5 PRONG 18-SS-ML	DE	621-03200	320
TLFX254WH-PO-X-WH	CN	554-51700	261	TRHTBK 70MM-BK	JP	556-00204	290	VA2.5/5 PRONG 8-MET-ML	DE	621-02200	320
TLFX254YE-PO-X-YE	CN	554-51701	261	TRHTWH 100mm-WH	JP	556-00211	290	VA-2.5/5 PRONG-MET-ML	DE	621-01200	320
TLFX32DS-1x50WH-PO-X-WH	DK	553-60001	262	TRHTWH 70mm-WH	JP	556-00209	290	VA2.5/5-MET-ML	DE	621-00200	320
TLFX32DS-1x50YE-PO-X-YE	DK	553-60011	262	TULT12-4BK-PO-X-BK	PL	553-41252	260	VITON®-E-12.7/6.4-FPMX-BK	NL	330-01270	225
TLFX32DS-2x25WH-PO-X-WH	DK	553-60021	262	TULT12-4BU-PO-X-BU	PL	553-41253	260	VITON®-E-19.0/9.5-FPMX-BK	NL	330-01900	225
TLFX32DS-2x25YE-PO-X-YE	DK	553-60030	262	TULT12-4RD-PO-X-RD	PL	553-41254	260	VITON®-E-25.4/12.7-FPMX-BK	NL	330-02540	225
TLFX32WH-PO-X-WH	CN	554-51100	261	TULT12-4WH-PO-X-WH	PL	553-41251	260	VITON®-E-3.2/1.6-FPMX-BK	NL	330-00320	225
TLFX32YE-PO-X-YE	CN	554-51101	261	TULT12-4YE-PO-X-YE	PL	553-41250	260	VITON®-E-38.0/19.0-FPMX-BK	NL	330-03810	225
TLFX381DS-1x50WH-PO-X-WH	DK	553-60008	263	TULT18-6BK-PO-X-BK	PL	553-41852	260	VITON®-E-4.8/2.4-FPMX-BK	NL	330-00480	225
TLFX381DS-1x50YE-PO-X-YE	DK	553-60018	263	TULT18-6BU-PO-X-BU	PL	553-41853	260	VITON®-E-50.8/25.4-FPMX-BK	NL	330-05080	225
TLFX381DS-2x25WH-PO-X-WH	DK	553-60028	263	TULT18-6RD-PO-X-RD	PL	553-41854	260	VITON®-E-6.4/3.2-FPMX-BK	NL	330-00640	225
TLFX381DS-2x25YE-PO-X-YE	DK	553-60037	263	TULT18-6WH-PO-X-WH	PL	553-41851	260	VITON®-E-9.5/4.8-FPMX-BK	NL	330-00950	225
TLFX381WH-PO-X-WH	CN	554-51800	261	TULT18-6YE-PO-X-YE	PL	553-41850	260	WICKELCLIP-SB5-POM-BK	DE	155-23701	156
TLFX381YE-PO-X-YE	CN	554-51801	261	TULT24-8BK-PO-X-BK	PL	553-42452	260	WICKELCLIP-VDS-PA66HIRHS-BK	DE	155-16301	148
TLFX48DS-1x50WH-PO-X-WH	DK	553-60002	262	TULT24-8BU-PO-X-BU	PL	553-42453	260	WPC10-PA66-NA	BR	151-00752	173
TLFX48DS-1x50YE-PO-X-YE	DK	553-60012	262	TULT24-8RD-PO-X-RD	PL	553-42454	260	WS02-PA66-NA	BR	151-00753	174
TLFX48DS-2x25WH-PO-X-WH	DK	553-60022	262	TULT24-8WH-PO-X-WH	PL	553-42451	260	WSI250-PA66HIRHSUV-BK	US	157-00401	100
TLFX48DS-2x25YE-PO-X-YE	DK	553-60031	262	TULT24-8YE-PO-X-YE	PL	553-42450	260	WSI380-PA66HIRHSUV-BK	US	157-00404	100
TLFX48WH-PO-X-WH	CN	554-51200	261	TULT3-1BK-PO-X-BK	PL	553-40352	259	WSI8MM-PA66HIRHSUV-BK	US	157-00035	100
TLFX48YE-PO-X-YE	CN	554-51201	261	TULT3-1BU-PO-X-BU	PL	553-40353	259	WSIFT9A-PA66HIRHSUV-BK	US	156-00069	72
TLFX508WH-PO-X-WH	CN	554-50900	261	TULT3-1RD-PO-X-RD	PL	553-40354	259	WSR250-PA66HIRHSUV-BK	US	157-00402	100
TLFX508YE-PO-X-YE	CN	554-50901	261	TULT3-1WH-PO-X-WH	PL	553-40351	259	WSR380-PA66HIRHSUV-BK	US	157-00405	100
TLFX64DS-1x50WH-PO-X-WH	DK	553-60003	262	TULT3-1YE-PO-X-YE	PL	553-40350	259	WSRFT9A-PA66HIRHSUV-BK	US	156-00070	72
TLFX64DS-1x50YE-PO-X-YE	DK	553-60013	262	TULT39-13BK-PO-X-BK	PL	553-43952	260	WSRFT9B-PA66HIRHSUV-BK	US	156-00074	72
TLFX64DS-2x25WH-PO-X-WH	DK	553-60023	262	TULT39-13BU-PO-X-BU	PL	553-43953	260	WS250-PA66HIRHSUV-BK	US	157-00400	100
TLFX64DS-2x25YE-PO-X-YE	DK	553-60032	262	TULT39-13RD-PO-X-RD	PL	553-43954	260	WS380-PA66HIRHSUV-BK	US	157-00403	100

Part Description	Country	Article-No.	Page
WSS8MM-PA66HIRHSUV-BK	US	157-00034	100
WSSFT9B-PA66HIRHSUV-BK	US	156-00072	72
X120RDHDM6-PA66HIRHS-BK	FR	156-01096	102
X120RDHDM8-PA66HIRHS-BK	FR	156-01097	102
X120RDHBN16-PA66HIRHS-BK	DE	156-01623	120
X120RHDM65x160-PA66HIRHS-BK	FR	156-01466	101
X120R-PA66HIRHS-BK	GB	108-00040	41
X250I-PA66HIRHS-BK	GB	108-00045	41
X250R-PA66HIRHS-BK	GB	108-00050	41
X80I-PA66HIRHS-BK	GB	108-00018	41
X80L-PA66HIRHS-BK	GB	108-00028	41
X80R-PA66HIRHS-BK	GB	108-00004	41
X80S-PA66HIRHS-BK	GB	108-00001	41
YAZ-CONN-TAPE-CLIP-PA66HS-BK	DE	155-31102	160
YCCFT62x122-PA66HIRHS-BK	DE	151-00180	164
YCCFT6LGT52-PA66HIRHS-BK	DE	151-00965	162
YCCFT6S-2-PA66HIRHS-BK	PL	151-01841	162
YCC-FT6-S-PA66HIRHS-BK	DE	155-38102	162
YCCFT82x185-PA66HIRHS-BK	PL	151-01842	164
YCCKSFT6.5-PA66HIRHS-BK	PL	151-01869	163
YCCKSFT6.5-PT1.7-2.3-PA66HIRHS-BK	DE	151-00792	163
YCCKSFT62x122PT0.7-1.3 90°-PA-66HIRHS-BK	FR	151-00833	167
YCCKSFT62x122PT0.7-1.3-PA66HIRHS-BK	FR	151-00835	167
YCCKSFT62x122PT1.7-2.3 90°-PA-66HIRHS-BK	FR	151-00834	167
YCCKSFT62x122PT1.7-2.3-PA66HIRHS-BK	FR	151-00836	167
YCCKSFT75x150-PA66HIR-BK	KR	151-01669	168
YCCKSFT75x150-PA66HIRHS-BK	KR	151-01550	168
YCCSFT6.5X13PT0.6-2.0-MD-PA-66HIRHS/EPDM-BK	CN	151-01273	168
YCCSFT6.5x13PT2.5-3.5-PA66HIRHS-BK	CN	151-01356	167
YCCSFT62122-PA66HIRHS-BK	FR	151-00513	167
YQR10016-PA66-GY	GB	126-03000	60
YQR10050-PA66-BN	GB	111-85781	59



A large grid of small dots for taking notes, consisting of approximately 30 columns and 40 rows of dots.



A large grid of small dots for taking notes, consisting of approximately 30 columns and 40 rows.





A large grid of small dots covering the majority of the page, intended for handwritten notes.



A large grid of small dots for taking notes, consisting of approximately 30 columns and 40 rows.



A large grid of small dots for taking notes, arranged in approximately 30 columns and 80 rows.





A large grid of small dots for taking notes, consisting of approximately 30 columns and 40 rows.




A large grid of small dots for taking notes, arranged in approximately 30 columns and 60 rows.

## Europe

 **HellermannTyton GmbH – Austria**  
Rennbahnweg 65  
1220 Vienna  
Tel.: +43 12 59 99 55-0  
Fax: +43 12 59 99 11  
Email: office@HellermannTyton.at  
www.HellermannTyton.at

 **HellermannTyton – Bulgaria**  
Email: officeBG@HellermannTyton.at  
www.HellermannTyton.at


 **HellermannTyton – Czech Republic**  
Email: officeCZ@HellermannTyton.at  
www.HellermannTyton.cz

 **HellermannTyton – Denmark**  
Industrivej 44A, 1.  
4000 Roskilde  
Tel.: +45 702 371 20  
Fax: +45 702 371 21  
Email: htdk@HellermannTyton.dk  
www.HellermannTyton.dk

 **HellermannTyton – Finland**  
Äyritie 12 B  
01510 Vantaa  
Tel.: +358 9 8700 450  
Fax: +358 9 8700 4520  
Email: myynti@HellermannTyton.fi  
www.HellermannTyton.fi

 **HellermannTyton S.A.S. – France**  
2 rue des Hêtres - CS 80543  
78197 Trappes Cedex  
Tel.: +33 1 30 13 80 00  
Fax: +33 1 30 13 80 60  
Email: info@HellermannTyton.fr  
www.HellermannTyton.fr

 **HellermannTyton GmbH – Germany**  
Großer Moorweg 45  
25436 Tornesch  
Tel.: +49 4122 701-0  
Fax: +49 4122 701-400  
Email: info@HellermannTyton.de  
www.HellermannTyton.de

 **HellermannTyton KFT – Hungary**  
Kisfaludy u. 13  
1044 Budapest  
Tel.: +36 1 369 4151  
Fax: +36 1 369 4151  
Email: officeHU@HellermannTyton.at  
www.HellermannTyton.hu


 **HellermannTyton Ltd – Ireland**  
Unit A5 Cherry Orchard  
Business Park  
Ballyfermot, Dublin 10  
Tel.: +353 1 626 8267  
Fax: +353 1 626 8022  
Email: sales@HellermannTyton.ie  
www.HellermannTyton.co.uk

 **HellermannTyton S.r.l. – Italy**  
Via Visco, 3/5  
35010 Limena (PD)  
Tel.: +39 049 767 870  
Fax: +39 049 767 985  
Email: info@HellermannTyton.it  
www.HellermannTyton.it

 **HellermannTyton B.V. – Belgium/Netherlands**  
Vanadiumweg 11-C  
3812 PX Amersfoort  
Tel.: +31 33 460 06 90  
Fax: +31 33 460 06 99  
Email (NL): info@HellermannTyton.nl  
Email (BE): info@HellermannTyton.be  
www.HellermannTyton.nl  
www.HellermannTyton.be

 **HellermannTyton AS – Norway**  
Nils Hansens vei 13  
0667 Oslo  
Tel.: +47 23 17 47 00  
Fax: +47 22 97 09 70  
Email: firmapost@HellermannTyton.no  
www.HellermannTyton.no

 **HellermannTyton Sp. z o.o. – Poland**  
Kotunia 111  
62-400 Słupca  
Tel.: +48 63 2237 111  
Fax: +48 63 2237 110  
Email: info@HellermannTyton.pl  
www.HellermannTyton.pl

 **HellermannTyton – Romania**  
Email: officeRO@HellermannTyton.at  
www.HellermannTyton.at

 **OOO HellermannTyton – Russia**  
40/4, Pulkovskoe road  
BC Technopolis Pulkovo, office A 8081  
196158, St. Petersburg  
Tel.: +7 812 386 00 09  
Fax: +7 812 386 00 08  
Email: info@HellermannTyton.ru  
www.HellermannTyton.ru

 **HellermannTyton – Slovenia**  
Branch Office Ljubljana  
Podružnica Ljubljana, Umkarjeva 2  
1000 Ljubljana  
Tel.: +386 1 433 70 56  
Fax: +386 1 433 63 21  
Email: officeSI@HellermannTyton.at  
www.HellermannTyton.si

 **HellermannTyton España s.l. – Spain / Portugal**  
Avda. de la Industria 37 2º 2  
28108 Alcobendas, Madrid  
Tel.: +34 91 661 2835  
Fax: +34 91 661 2368  
Email:  
HellermannTyton@HellermannTyton.es  
www.HellermannTyton.es

 **HellermannTyton AB – Sweden**  
Isafjordsgatan 5  
16440 Kista  
Tel.: +46 8 580 890 00  
Fax: +46 8 580 348 02  
Email: kundsupport@HellermannTyton.se  
www.HellermannTyton.se

 **HellermannTyton Engineering GmbH – Turkey**  
Saray Mah. Dr. Adnan Büyükdüz Cad. No:4  
Akkom Office Park 2. Blok Kat: 10  
34768 Ümraniye-Istanbul  
Tel.: +90 216 687 03 40  
Fax: +90 216 250 32 32  
Email: info@HellermannTyton.com.tr  
www.HellermannTyton.com.tr

 **HellermannTyton Ltd – UK**  
William Prance Road  
Plymouth International Medical  
and Technology Park  
Plymouth, Devon PL6 5WR  
Tel.: +44 1752 701 261  
Fax: +44 1752 790 058  
Email: info@HellermannTyton.co.uk  
www.HellermannTyton.co.uk

 **HellermannTyton Ltd – UK**  
Sharston Green Business Park  
1 Robeson Way  
Altrincham Road, Wythenshawe  
Manchester M22 4TY  
Tel.: +44 161 947 2200  
Fax: +44 161 947 2220  
Email: sales@HellermannTyton.co.uk  
www.HellermannTyton.co.uk

 **HellermannTyton Ltd – UK**  
Cley Road, Kingswood Lakeside  
Cannock, Staffordshire  
WS11 8AA  
Tel.: +44 1543 728282  
Fax: +44 1543 728284  
Email: info@HellermannTyton.co.uk  
www.HellermannTyton.co.uk


 **HellermannTyton Data Ltd – UK**  
Waterside House, Edgar Mobbs Way  
Northampton NN5 5JE  
Tel.: +44 1604 707 420  
Fax: +44 1604 705 454  
Email: sales@htdata.co.uk  
www.htdata.co.uk

## Middle East

 **HellermannTyton – UAE**  
Email: info@HellermannTyton.ae  
www.HellermannTyton.ae


## North America


 **HellermannTyton – Canada**  
Tel.: +1 905 726 1221  
Fax: +1 905 726 8538  
Email: sales@HellermannTyton.ca  
www.HellermannTyton.ca

 **HellermannTyton – Mexico**  
Tel.: +52 333 133 9880  
Fax: +52 333 133 9861  
Email: info@HellermannTyton.com.mx  
www.HellermannTyton.com

 **HellermannTyton – USA**  
Tel.: +1 414 355 1130  
Fax: +1 414 355 7341  
Email: corp@htamericas.com  
www.HellermannTyton.com


## South America

 **HellermannTyton – Argentina**  
Tel.: +54 11 4754 5400  
Fax: +54 11 4752 0374  
Email: ventas@HellermannTyton.com.ar  
www.HellermannTyton.com.ar


 **HellermannTyton – Brazil**  
Tel.: +55 11 4815 9000  
Fax: +55 11 4815 9030  
Email: vendas@HellermannTyton.com.br  
www.HellermannTyton.com.br


## Asia-Pacific

 **HellermannTyton – Australia**  
Tel.: +61 2 9525 2133  
Fax: +61 2 9526 2495  
Email: cservice@HellermannTyton.com.au  
www.HellermannTyton.com.au


 **HellermannTyton – China**  
Tel.: +86 510 8528 2536  
Fax: +86 510 8528 2731  
Email: cservice@HellermannTyton.com.cn  
www.HellermannTyton.com.cn


 **HellermannTyton – Hong Kong**  
Tel.: +852 2831 9090  
Fax: +852 2832 9381  
Email: cservice@HellermannTyton.com.hk  
www.HellermannTyton.com.sg


 **HellermannTyton – India**  
Tel.: +91 120 413 3384  
Email: cservice@HellermannTyton.co.in  
www.HellermannTyton.co.in

 **HellermannTyton – Japan**  
Tel.: +81 3 5790 3111  
Fax: +81 3 5790 3112  
Email: mkt@hellermanntyton.co.jp  
www.HellermannTyton.co.jp


 **HellermannTyton – Republic of Korea**  
Tel.: +82 32 833 8012  
Fax: +82 32 833 8013  
Email: cservice@HellermannTyton.co.kr  
www.HellermannTyton.co.kr

 **HellermannTyton – Philippines**  
Tel.: +63 2 752 6551  
Fax: +63 2 752 6553  
Email: cservice@HellermannTyton.com.ph  
www.HellermannTyton.com.ph

 **HellermannTyton – Singapore**  
Tel.: +65 6 586 1919  
Fax: +65 6 752 2527  
Email: cservice@HellermannTyton.sg  
www.HellermannTyton.com.sg

 **HellermannTyton – Thailand**  
Tel.: +662 237 6702 / 266 0624  
Fax: +662 266 8664  
Email: cservice@HellermannTyton.co.th  
www.HellermannTyton.com.sg

## Africa

 **HellermannTyton – South Africa**  
Tel.: +27 11 879 6600  
Fax: +27 11 879 6603  
Email: jhb.sales@HellermannTyton.co.za  
www.HellermannTyton.co.za



## Created today. Driven tomorrow. Everything we do is tailored to meet your requirements

Our goal is to give automotive innovators the freedom to create the future of mobility – today. Don't make when you can already buy! You'll be amazed by the diversity of our standard product range.



Discover what we can do for you.

Watch the MADE TO MOVE film  
[HellermannTyton.com/madetomove-gac](http://HellermannTyton.com/madetomove-gac)

## Compliance with specifications is our standard

You can be assured that each of our products meet the stringent safety standards and strict automotive industry specifications.



We are happy to supply you with copies of our certificates.

**Find details for your local contact on the opposite page.**

# MADE FOR REAL®

**HellermannTyton**  
www.HellermannTyton.com



PEFC Certified  
This catalogue is from  
sustainably managed forests and  
controlled sources.  
[www.pefc.org](http://www.pefc.org)  
Printed in Germany