Technical Information

Cable Ties Inside Serrated

Cable Ties Outside Serrated

Cable Ties Without Serration

Cable Ties, Releasable

Cable Ties, Stainless Steel

Date of issue: 07/2019

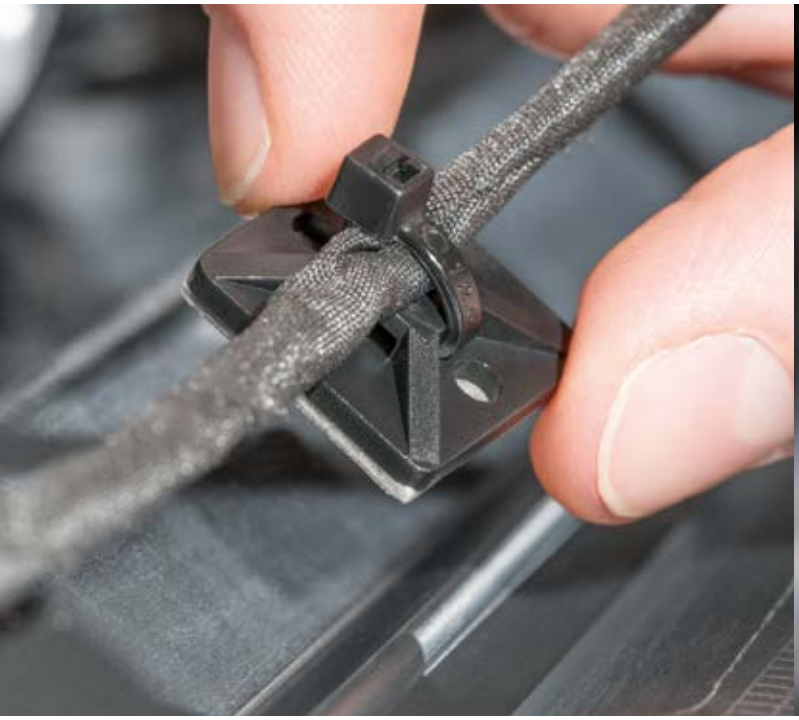
Cable Ties With Fixing Elements

Date of issue: 07/2019

Cable Tie Mounts

Fixing Elements

Date of issue: 07/2019



Clips, Clamps and Plugs

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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 additon to Tefzel® from DuPont HellermannTyton also uses equivalent E/TFE raw material from other suppliers.

*Further colours available on request.

N = **Minimum Loop Tensile Strength for Cable Ties (Newton)**

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

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N = **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

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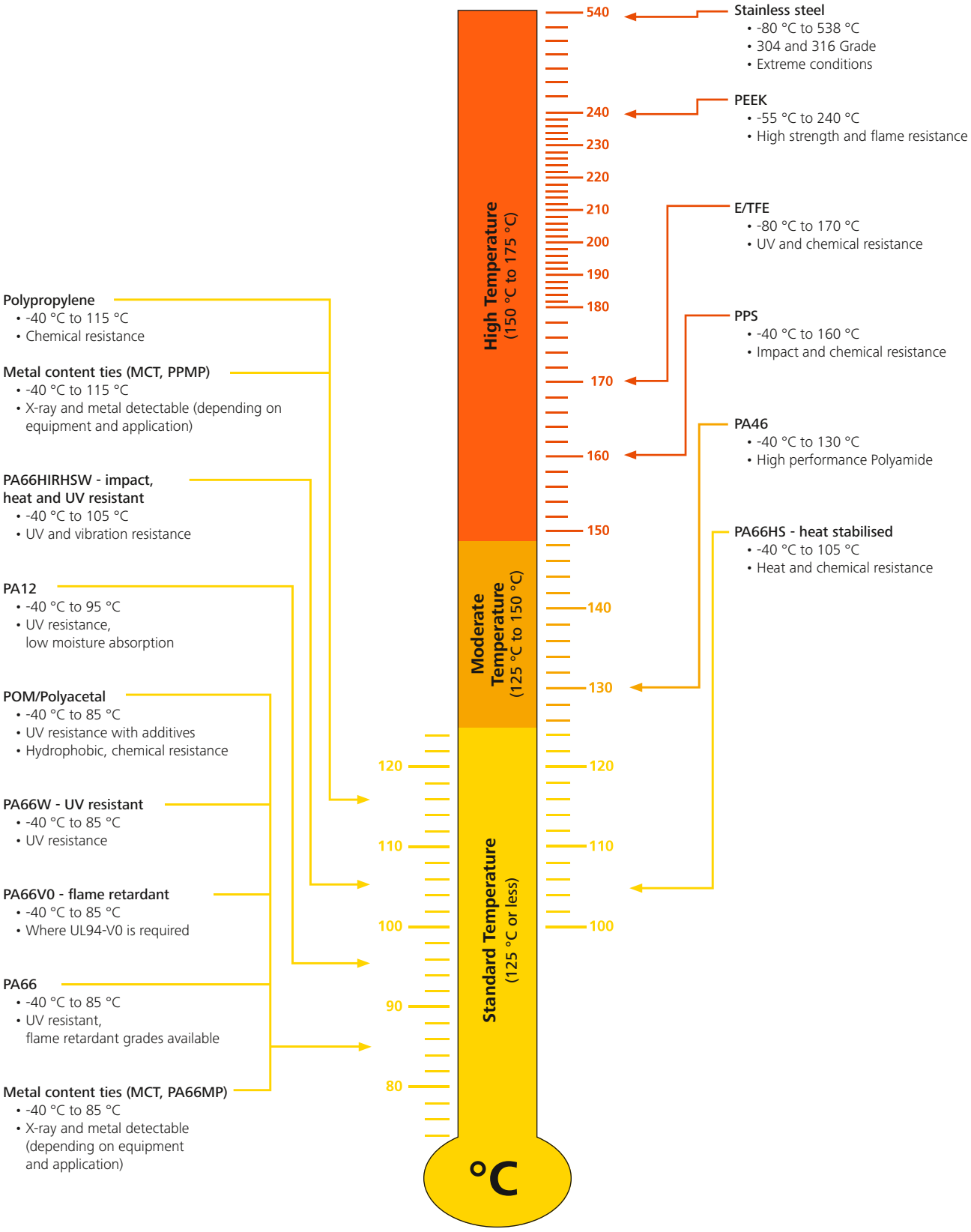
Operating temperature ranges of cable tie materials

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.



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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®, 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.

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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.

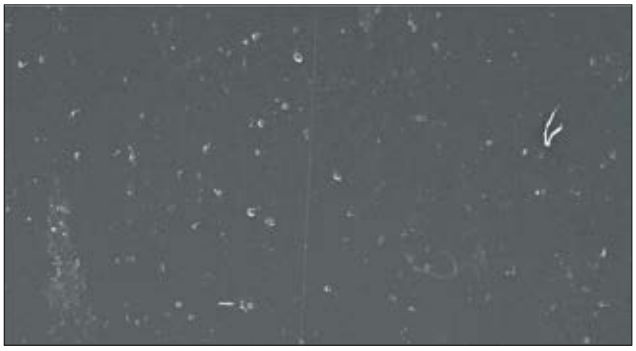
This is clearly illustrated by the comparison of the two images:

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 particularly 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

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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

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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	▲	△	△	▲	△	▲	▲	○	▲
Aromatic compounds							▲	○	▲	△	▲
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, gaesous	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	▲	▲		▲	▲	▲	▲		▲
Dioctyl 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	○	○		▲	▲	▲	▲	△	
Ketone			▲	▲			▲	▲	▲		▲
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	▲	▲	▲	▲	▲	△	▲	○	▲

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What does flammability UL94 mean?

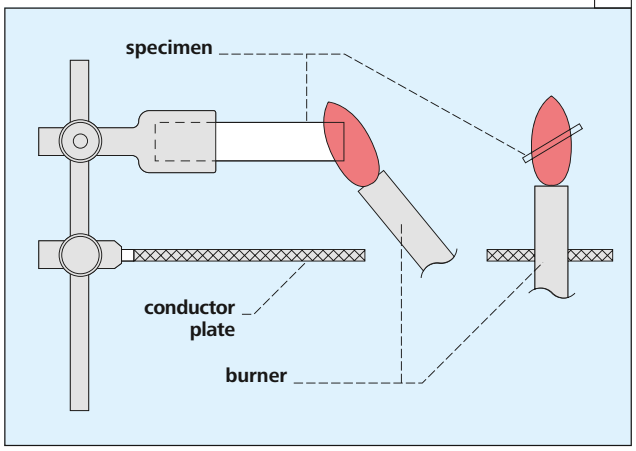
UL is the shortcut for Underwriters Laboratories. This is an independent organisation in the United States to control and certificate product safety.

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

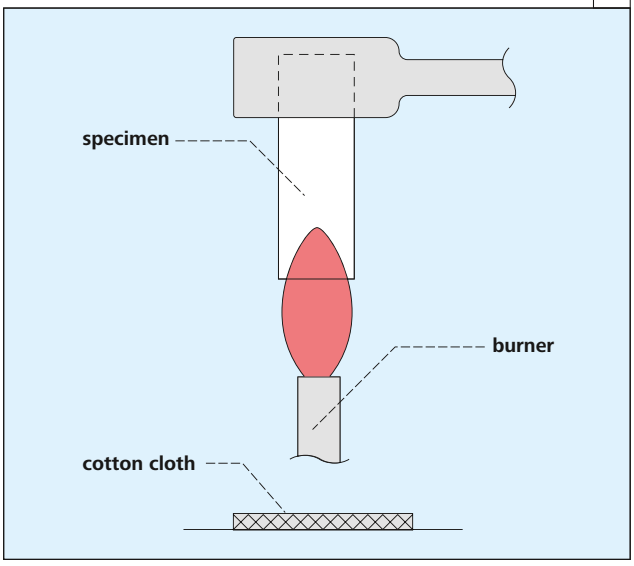


Test criteria:
- burning rate of specimen in mm/min.

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.

	Horizontal Test UL94		Vertical Test UL94		
Classification	**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.

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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.

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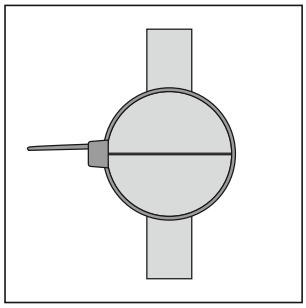
Determination of minimum tensile strength

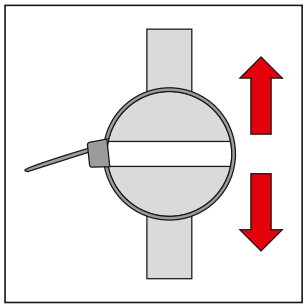
The minimum tensile strength is a critical selection criteria for cable ties. It expresses how much loading a cable tie can bear.

The test procedure to determine minimum tensile strength:

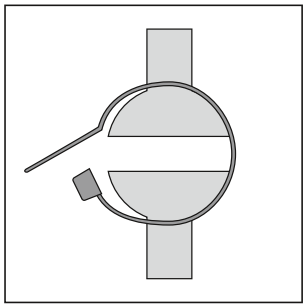
- Stabilisation to achieve equilibrium moisture content
- Set-up of the tensile test fixture
- Application of the tie on a split mandrel fixture
- Test speed



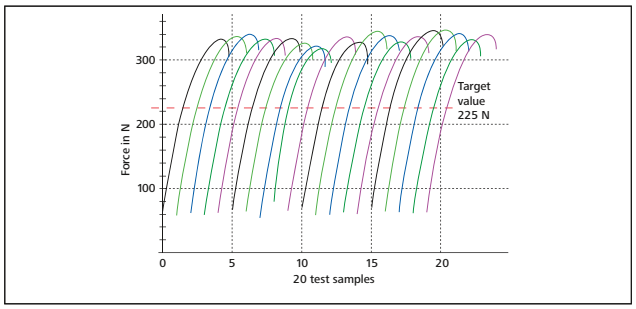
The cable tie is fixed onto a split mandrel fixture with the suitable cable tie application tool.



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/s²]

The formula for calculating the mass is:

Mass = minimum tensile strength/acceleration due to gravity

The acceleration due to gravity is 9.81 m/s²

Mass = minimum tensile strength/[kg * m/s²]/9.81 [m/s²]

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

Mass = 225 [kg * m/s²]/9.81 [m/s²]

The units m/s² cancel each other out, leaving the unit [kg] for the mass. Thus:

Mass = 225/9.81 kg = 22.9 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:

Min. tensile strength = mass * 9.81[m/s²]

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

Minimum tensile strength = [53 kg] * 9.81 [m/s²] = 520 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 N/9.81 = 22.9 kg

53 kg * 9.81 = 520 N

= Minimum Loop Tensile Strength for Cable Ties (Newton)

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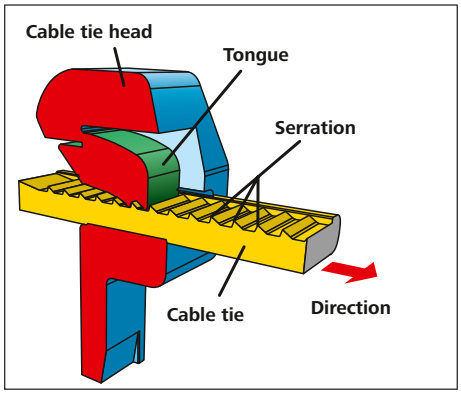
Introduction to the main locking technologies used for cable ties

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

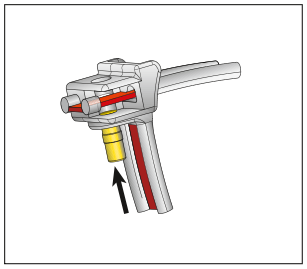
Positive locking is achieved by engaging the pawl with the strap serrations. This allows the cable tie to perform to the published minimum tensile strength, that is the loading that the cable tie can hold under application.

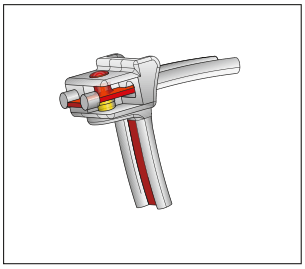
KR series cable ties

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.

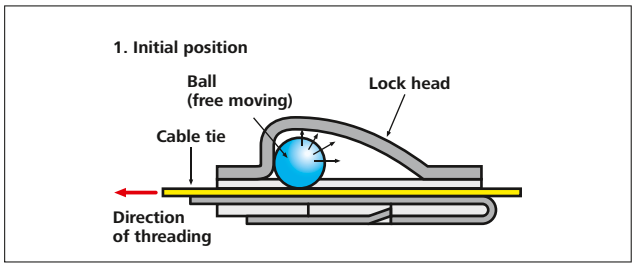
MBT series cable ties

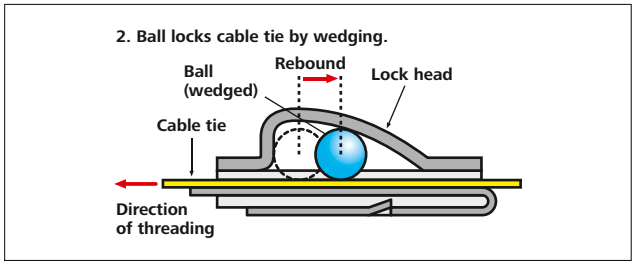
Made of stainless steel grade 304 or 316, the MBT range of cable ties have no serrations on the strap and are threaded parallel through the head, gliding under a metal ball-bearing locking mechanism. By using an appropriate application tool like our MK9SST the cable tie is tensioned and the strap cut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





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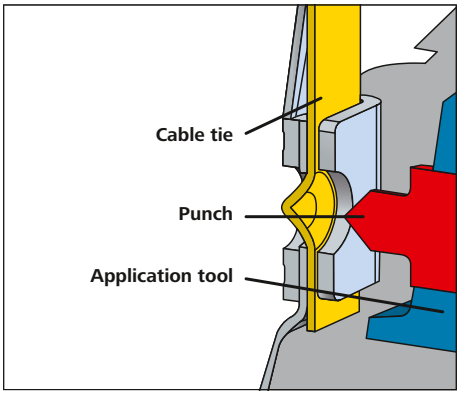
Introduction to the main locking technologies used for cable ties

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.



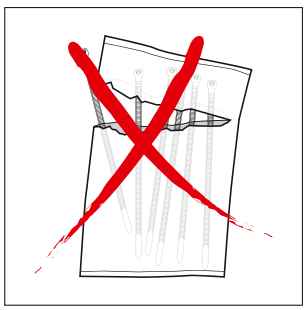
Punch-locking mechanism of the MST-Series.

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

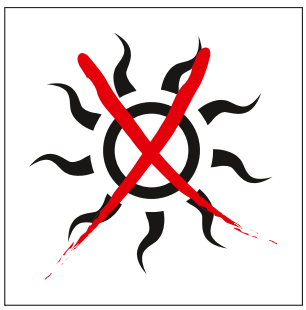
HellermannTyton cable ties, fastenings and fixings are manufactured from high-quality polyamide (PA). This industrial synthetic material is mainly processed using injection moulding, but can also be extruded.

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 %.

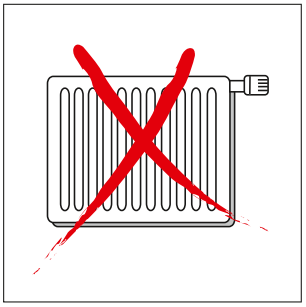
The packaging used by HellermannTyton ensures that the water content in the material remains constant. Therefore, it is important to store the products in their original packaging to preserve the quality of the ties.



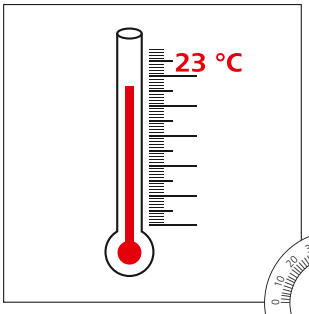
1. Once opened you should use the ties as quickly as possible.
2. Always store ties in the sealed plastic bag.



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



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



7. The ideal storage conditions are those of the central European standard climate:
   23 °C
   50% relative humidity

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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.

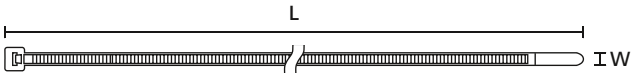
Features and benefits

- 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

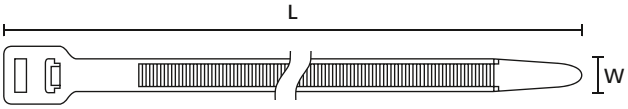
UV-resistant T-Series cable ties (PA66W).

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.

Date of issue: 07/2019

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

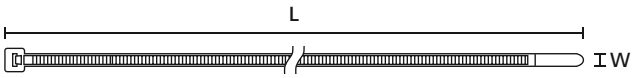
T-Series in PA66HS natural and black

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.

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

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



T-Series

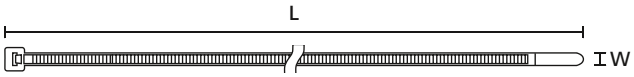
PART DESCRIPTION	Width (W)	Length (L)	Bundle Ø max.	N
T18R-PA66HS-BK	2.5	100.0	22.0	80
T18R-PA66HS-NA	2.5	100.0	22.0	80
T18I-PA66HS-BK	2.5	145.0	35.0	80
T18I-PA66HS-NA	2.5	145.0	35.0	80
T18L-PA66HS-BK	2.5	205.0	55.0	80
T18L-PA66HS-NA	2.5	205.0	55.0	80
T30R-PA66HS-NA	3.5	150.0	35.0	135
T30R-PA66HS-BK	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.

Date of issue: 07/2019

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.	N
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.

Date of issue: 07/2019

Cable Ties for higher impact resistant Polyamide 6.6 ScanBlack

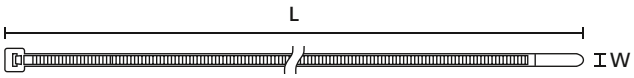
T-Series in PA66HIR(S) black

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.

Date of issue: 07/2019

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

T-Series in PA46 natural and grey

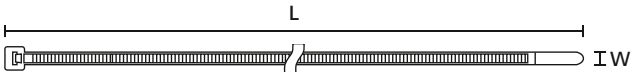
These inside serrated cable ties are made from Polyamide 4.6 (PA46). They can be applied in environments with temperatures up to +195 °C (for 500 hours) which makes them suitable for applications where a broader temperature range is required. Polyamide 4.6 is a well known material in the automotive, 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.

Date of issue: 07/2019

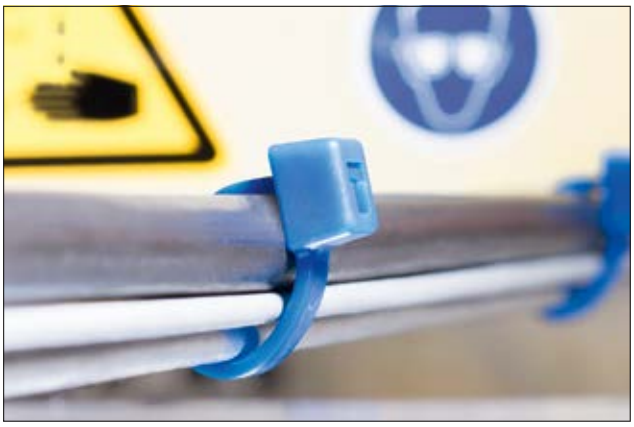
Cable Ties for higher chemical resistance and temperatures up to +170 °C

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.

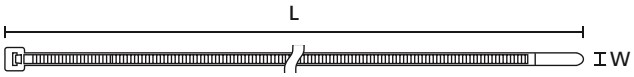
Features and benefits

- 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 additon to Tefzel® from DuPont HellermannTyton also uses equivalent E/TFE raw material from other suppliers.

Date of issue: 07/2019

Cable Ties with open head

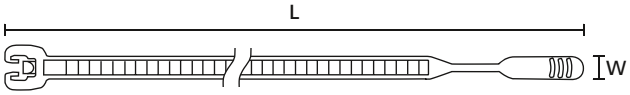
Q-Series

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.

Date of issue: 07/2019

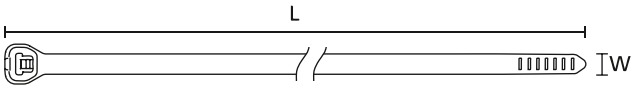
Cable Ties with smart design

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

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

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.

Date of issue: 07/2019

Cable Ties for hose and gaiter

CTT-Series natural and black

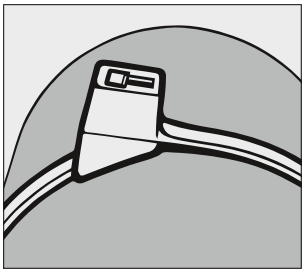
CTT is designed to secure pipes, hoses and gaiters where low pressures are being secured. These ties can be used in many different industries including automotive, white goods manufacturing, medical industry and construction.

Features and benefits

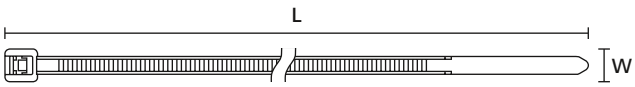
- Curved head design offers a good fit to the bundle
- Inside serration for a strong hold onto bundles
- Easy application either manually or with a processing tool

CTT ties installed on flexible gaiters.

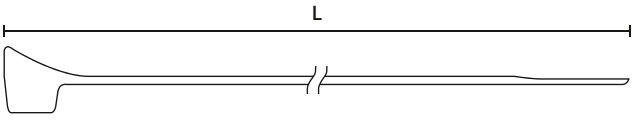
Material specification please see page 22.



For secure fixing of round and solid shapes.



CTT series



CTT Hose Ties

PART DESCRIPTION	Width (W)	Length (L)	Bundle Ø max.	N
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.

Date of issue: 07/2019

Cable Ties for parallel routing

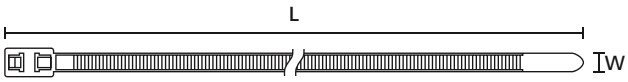
DH-Series

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).

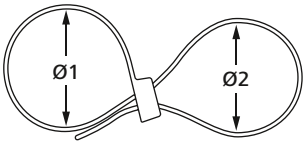
Features and benefits

- 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.

Date of issue: 07/2019

Cable Ties for thin-walled bundles

OS-Series

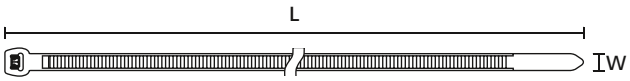
OS-Series cable ties are used in many areas where thin-walled or soft insulation wires and cable are being installed, for instance automotive and aircraft industry. OS ties manufactured from PA66V0 material are suitable for applications where safety regulations require reduction of smoke and dangerous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

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

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

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.

Date of issue: 07/2019

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

PEEK Ties have been designed for use in hazardous environments. Their suitablility 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.	N
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.	N
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.

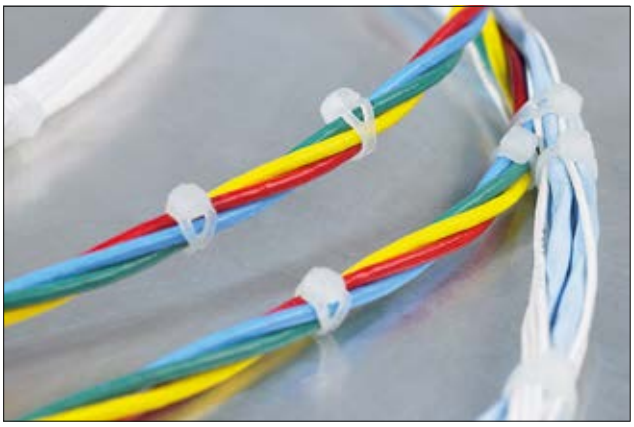
Date of issue: 07/2019

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.

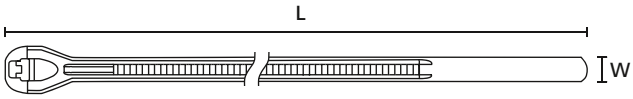


V-Series - the 90° angled head perfectly fits onto the bundle.

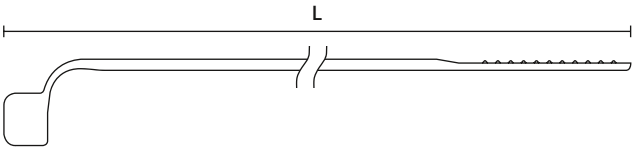
Features and benefits

- 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

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.

Date of issue: 07/2019

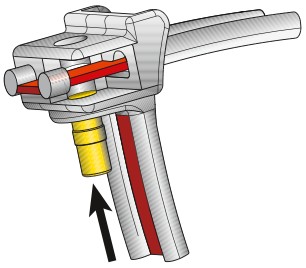
Cable Tie locked by glass fibre pin

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.

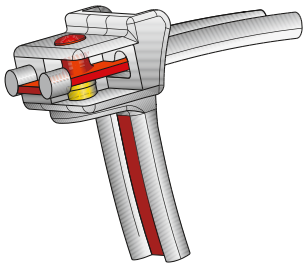
Features and benefits

- 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.

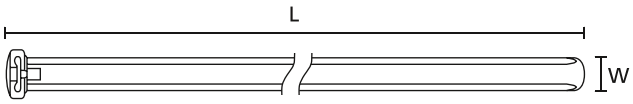


The unlocked head of a KR-tie.



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

KR-Series, 1-Piece

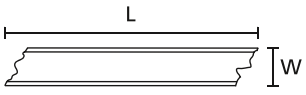


Cable tie KR-Series

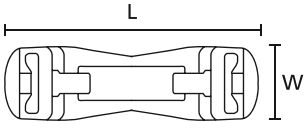
PART DESCRIPTION	Width (W)	Length (L)	Bundle Ø max.	N
KR6/35-PA66HS-NA	6.1	360.0	93.0	490
KR8/21-PA66HS-NA	8.0	210.0	47.0	785
KR8/33-PA12-BK	8.0	337.0	86.0	390
KR8/33-PA66HS-BK	8.0	337.0	86.0	785
KR8/33-PA46-GY	8.0	337.0	86.0	785
KR8/33-PA66HS-NA	8.0	337.0	86.0	785
KR8/43-PA66HS-BK	8.0	426.0	105.0	785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

Date of issue: 07/2019

Cable Ties inside serrated with tuckaway

RT250-Series

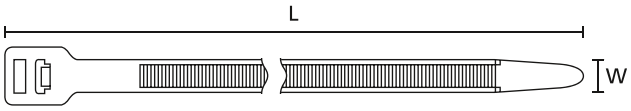
The RT250 is a releasable cable tie. Due to its minimum loop tensile strength of 1,115 N the cable tie is perfectly suited to fix larger and/or heavier bundles. RT250 can be opened and reused. UV-resistant cable ties manufactured from PA66W are recommended for outdoor applications. For shorter lengths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



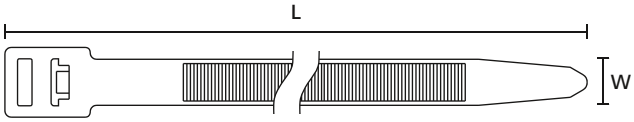
RT250-Series

PART DESCRIPTION	Width (W)	Length (L)	Bundle Ø max.	N
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.	N
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.

Date of issue: 07/2019

Cable Ties without serration in flexible TPU

SRT-Series for industry quantities

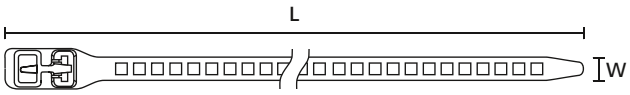
The soft, flexible material makes these ties particulary suitable for use on sensitive wires, for instance fibre-optic cables. Additionally they are suitable for moving elements and vibrating applications. The double slotted head allows for parallel bundling.

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.

Date of issue: 07/2019

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.

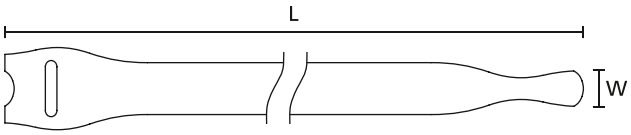
Features and benefits

- 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

Material specification please see page 22.

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

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



TEXTIE -Series S ,M and L

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.

Date of issue: 07/2019

Cable ties with ball-lock

MBT-Series, stainless steel 304

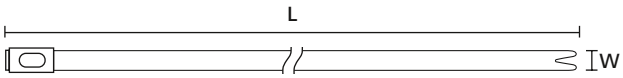
Metal ties are ideal for all applications that require high strength, reliability and fire resistance. The MBT range of stainless steel cable ties can be used in chemical industries and on oil platforms as well as in mass transit, shipbuilding and mining industries. MBT ties are also suitable for machine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

Stainless steel cable ties, uncoated, MBT_SS, MBT_HS.

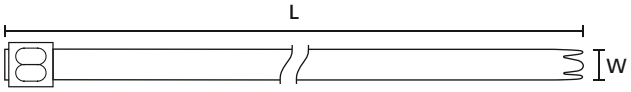
Stainless Steel Cable Ties, uncoated, MBT_XHS.

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



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.

Date of issue: 07/2019

Cable ties with ball-lock

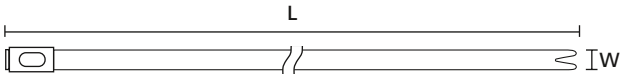
MBT-Series, stainless steel 316

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.

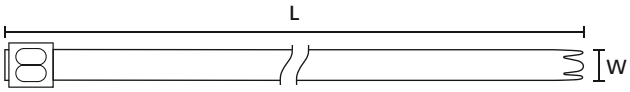
Stainless steel cable ties, uncoated, MBT_S, MBT_H.

Features and benefits

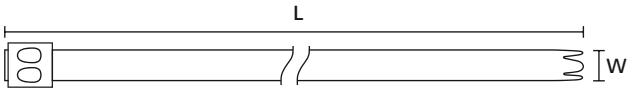
- MBT cable ties made from stainless steel 316
- Non-releasable locking feature
- Corrosion resistant
- Weather resistant
- Outstanding chemical resistance
- High temperature resistant
- Non-burning



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.	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.

Date of issue: 07/2019

Double wrap cable ties with ball-lock

MBTXHD- / MBTUHD-Series, stainless steel 316

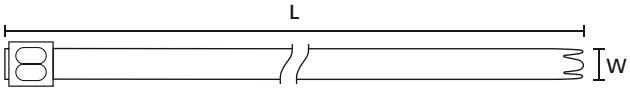
The double wrap ties of the MBT-series are used in applications where a fixing requires an extraordinary high tensile strength.

Features and benefits

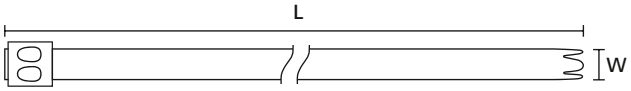
- Stainless steel MBT ties with double wrap operation
- Wraps around the bundle and passes through the head twice
- Very high tensile strength to carry enormous applied loads
- Head with two locking balls
- Resistant to arduous conditions and environments

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.

Date of issue: 07/2019

Cable ties with ball-lock and coating

MBT-FC-Series, stainless steel 316

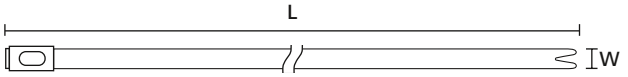
The MBT range of stainless steel cable ties can be used in the most arduous of conditions or where the additional security, strength and fire resistance of a metal fixing is required. Used in all industries from mass transit, ship building, oil rigs, mining and chemical industry, theatres and exhibition 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

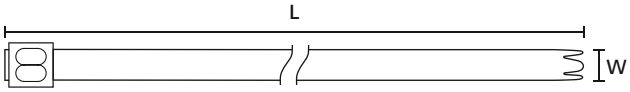
- Fully coated MBT, made from type 316 stainless steel with polyester coating
- Non-releasable locking feature
- Coated cable tie with smooth edges
- Comfortable handling and installation
- Eliminates contact corrosion between dissimilar materials during application

Stainless steel cable ties, coated, MBT_SFC, MBT_HFC.

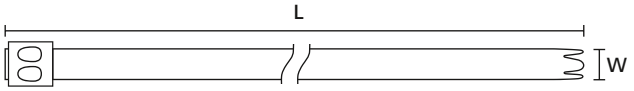
Stainless steel cable ties, coated, MBT_XHFC.



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.	N
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.

Date of issue: 07/2019

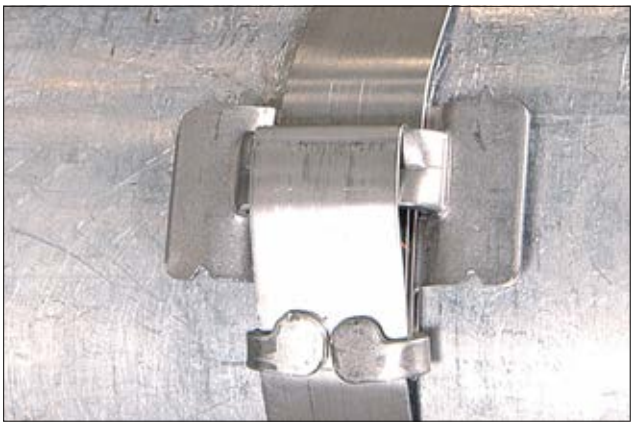
Metal Banding for Heavy Duty Application

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.

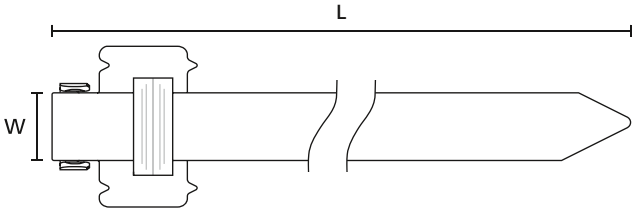
Features and benefits

- 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.



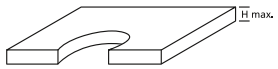
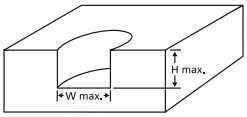
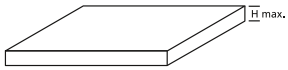
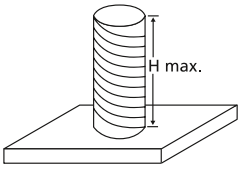
AMT tie

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.

Date of issue: 07/2019

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.

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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. Theses 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.

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1-Piece Fixing Ties with Arrowhead, with Wings

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

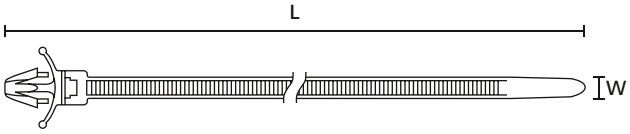
For bundling and fixing of cable harnesses, pipes and hoses in many different industries, including automotive, aerospace, white goods manufacturing and panel building.

Features and benefits

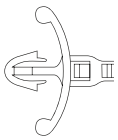
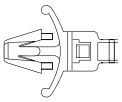
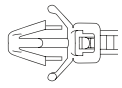
- Easy to assemble without the need for a tool
- Cable tie head always situated in defined position
- Arrowhead simply locks into place
- Supporting legs provide a secure and firm fixing in areas where space is limited

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
T50SSFM-PA12-BK		6.0 - 6.6	0.7 - 3.0	4.6	160.0	35.0	225
T50SSFM-PA66-NA		6.0 - 6.6	0.7 - 3.0	4.6	160.0	35.0	225
T50SSFM-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.

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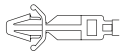
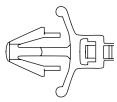
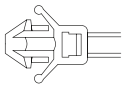
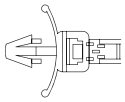
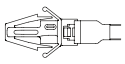
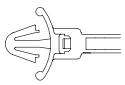
1-Piece Fixing Ties with Arrowhead, with Wings

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	225
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	-

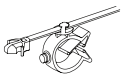
All dimensions in mm. Subject to technical changes.

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.

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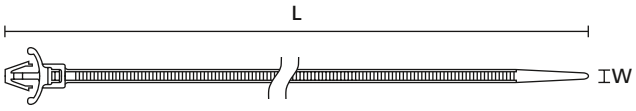
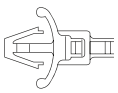
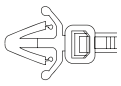
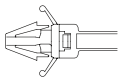
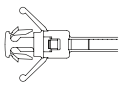
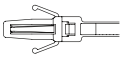
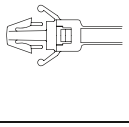
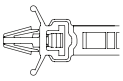
1-Piece Fixing Ties with Arrowhead, with Wings

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



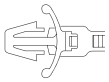
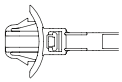
RT50RSF

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	225

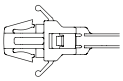
All dimensions in mm. Subject to technical changes.

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.

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

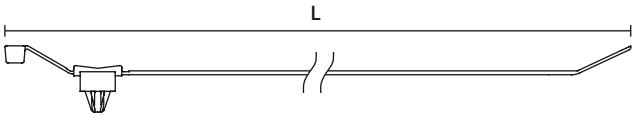
1-Piece Fixing Ties with Arrowhead, with Wings in the Strap

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.

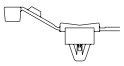
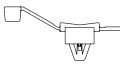
Features and benefits

- 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.

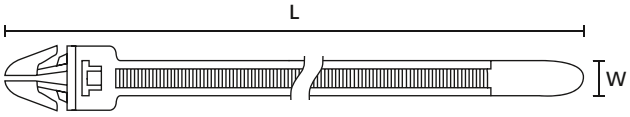
1-Piece Fixing Ties with Arrowhead

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.

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1-Piece Fixing Ties with Arrowhead, with Disc

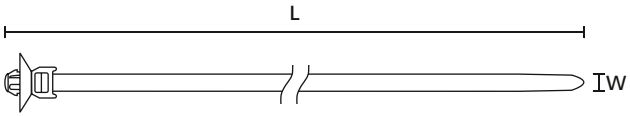
1-Piece Fixing Ties with Arrowhead, with Disc, for Round Holes

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

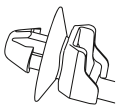
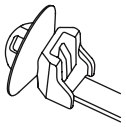
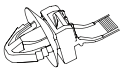
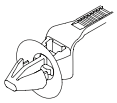
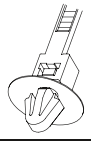
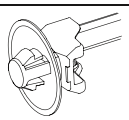
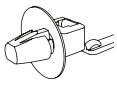
- Easy to install without the need for a tool
- Arrowhead simply locks into place
- Disc adjusts tie for pressures from various directions and minimises ingress of dust and dirt
- Cable tie head always situated in a defined position
- KSFT-types with specially rounded arrowhead minimise the assembly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

The disc at the head of the T50SOSSFT6.5E 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
T50SOSSFT6.5E-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
T50SOSSFT6.5E-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	-
T50ROSAH6U-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.

Date of issue: 07/2019

2-Piece Fixing Ties with Arrowhead, with Disc

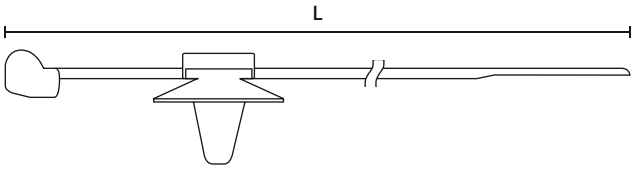
2-Piece Fixing Ties with Arrowhead, with Disc, for Round Holes

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.

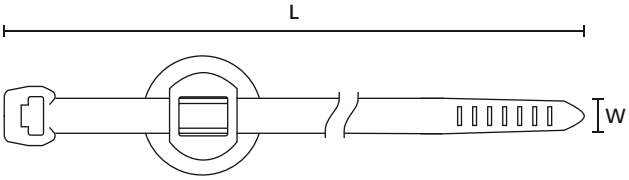
Features and benefits

- 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

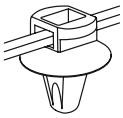
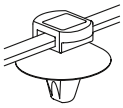
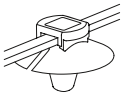
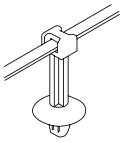
Being a two-piece assembly allows the tie head to be located in the most convenient position.



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.

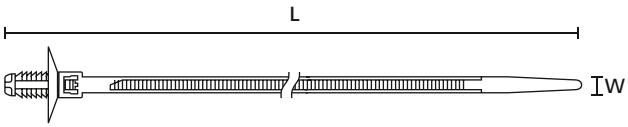
1-Piece Fixing Ties with Fir Tree, with Disc, for Round Holes

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

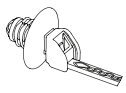
Fir tree foot parts can be used for a variety of panel thicknesses.



Reference for dimensions only

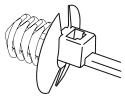
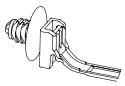
Material specification please see page 22.

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.

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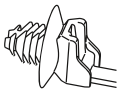
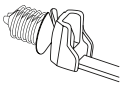
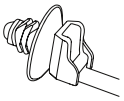
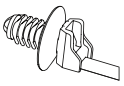
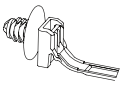
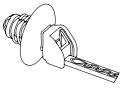
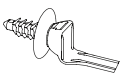
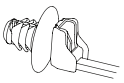
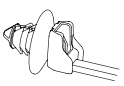
1-Piece Fixing Ties with Fir Tree, with Disc, for Round Holes

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
T50S0SFT6LG-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.

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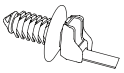
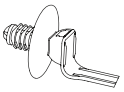
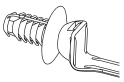
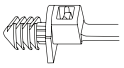
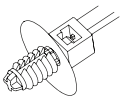
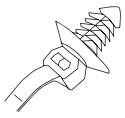
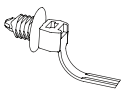
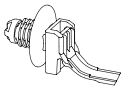
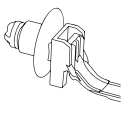
1-Piece Fixing Ties with Fir Tree, with Disc, for Round Holes

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

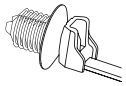
PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø
T50SOSFT7-E-PA66HS-BK		6.8 - 7.2	0.6 - 6.0	4.7	165.0	30.0	225	16.5
FT220DP7-PA66-BK		6.8 - 7.2	0.8 - 5.0	4.7	232.0	40.0	225	16.0
OS170-FT7-LH-PA66HSW-BK		6.8 - 7.2	0.6 - 4.5	5.3	170.0	30.0	147	16.0
OS170-FT7-LH-PA66-BK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

Date of issue: 07/2019

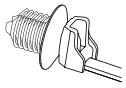
1-Piece Fixing Ties with Fir Tree, with Disc, for Round Holes

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.

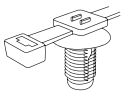
Fir Tree Parts FT9

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.

Date of issue: 07/2019

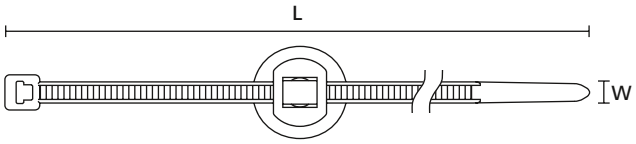
2-Piece Fixing Ties with Fir Tree, with Disc, for Round Holes

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

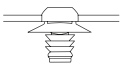
These fir tree fixings can also be used in threaded, blind holes.



Reference for dimensions only

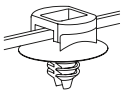
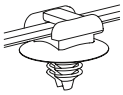
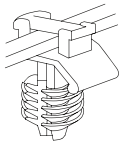
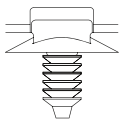
Material specification please see page 22.

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

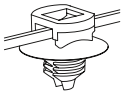
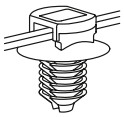
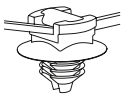
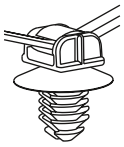
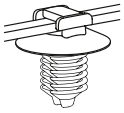
PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø
T30RFT5-PA46-GY		4.5 - 5.0	0.7 - 3.0	3.5	150.0	34.0	135	16.0
T30RFT5-PA66HS/PA66HIRHS-BK		4.5 - 5.0	0.7 - 3.0	3.5	150.0	34.0	135	16.0
T50SOSFT5-PA66HS/PA66HIRHS-BK		4.5 - 5.0	0.7 - 3.0	4.6	150.0	31.0	225	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.

Date of issue: 07/2019

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

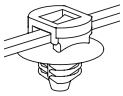
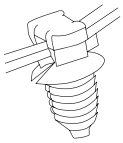
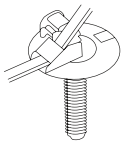
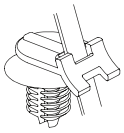
Fir Tree Parts FT6

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.

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

Fir Tree Parts FT6

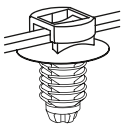
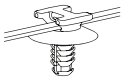
PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø
T30ROSFT6-PA66HS/PA66HIRHS-BK		6.4 - 7.1	0.8 - 3.0	3.4	145.0	31.0	135	16.0
T30RFT6-PA66HS/PA66HIRHS-BK		6.4 - 7.1	0.8 - 3.0	3.5	150.0	30.0	135	16.0
T50ROSFT6-PA66HS/PA66HIRHS-BK		6.4 - 7.1	0.8 - 3.0	4.6	200.0	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.

Date of issue: 07/2019

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

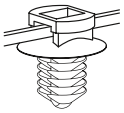
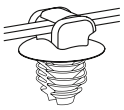
Fir Tree Parts FT7

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

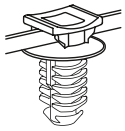
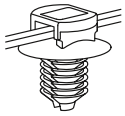
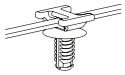
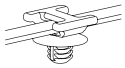
PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø
T50ROSFT8-PA66HS-BK		7.7 - 8.0	0.8 - 6.0	4.6	200.0	45.0	225	16.0
T50RFT8-PA66HS-BK		7.7 - 8.0	0.8 - 6.0	4.6	202.0	45.0	225	16.0
T50LOSFT8-PA66HS-BK		7.7 - 8.0	0.8 - 6.0	4.6	384.0	100.0	225	16.0
T30RFT8-PA66HS/PA66-BK		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.

Date of issue: 07/2019

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

Fir Tree Parts FT9

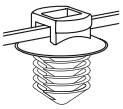
PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø
T120SFT9-PA66-BK		8.8 - 9.4	4.0 - 8.0	7.6	225.0	55.0	535	20.0
T150RFT9-PA66HS/PA66HIRHS-BK		9.0 - 10.6	5.0 - 11.0	7.6	365.0	100.0	670	20.0
T50RFT9-PA66HS/PA66HIRHS-BK		9.0 - 10.6	5.0 - 11.0	4.6	200.0	45.0	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.

Date of issue: 07/2019

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

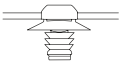
Fir Tree Parts FT10

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.

Date of issue: 07/2019

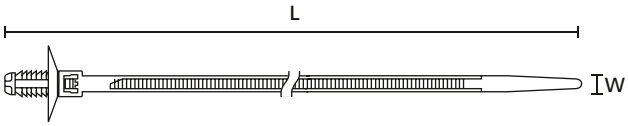
1-piece fixing ties with disc, for round holes, releasable

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

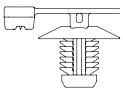
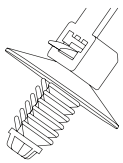
Ideal for use in 'thick' panels and threaded, blind holes.



Reference for dimensions only

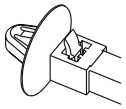
Material specification please see page 22.

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.

Date of issue: 07/2019

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

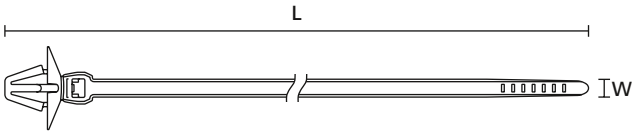
With arrowhead, with disc, for round holes

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.

One piece fixing tie with arrowhead, outside serrated.

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



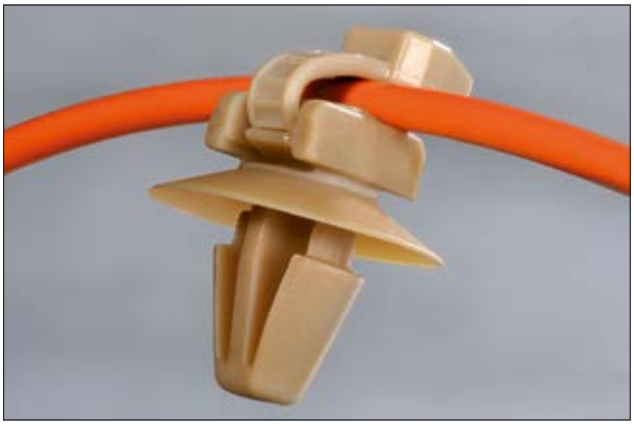
Reference for dimensions only

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

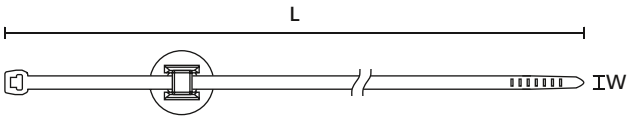
With arrowhead, with disc, for round holes



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

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



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.

Date of issue: 07/2019

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

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

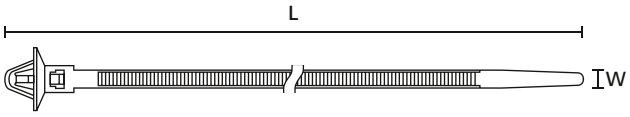
The parts are mainly used in the automotive industry. This fastening solution is used to secure cable harnesses e.g. in car doors. We offer a variety of panel thicknesses and hole sizes to suit all kinds of application. The seal protects the interior and surrounding cables among other things from splash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

Features and benefits

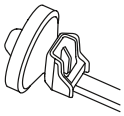
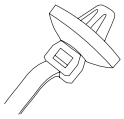
- One-piece fixing ties with cellular rubber disc
- Especially suitable for door and tailgate harnesses used for car body applications
- Made from PA66 heat-stabilised material
- Cellular rubber disc minimises ingress of dust, dirt and splash water

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
T50XROSSFT6.5-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.

Date of issue: 07/2019

2-Piece Fixing Ties with Arrowhead, with Disc

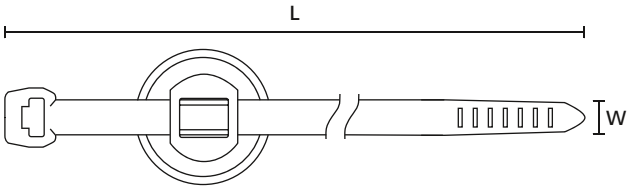
2-Piece Fixing Ties with Arrowhead, with Disc, for Round Holes, Sealed

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.

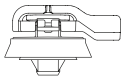
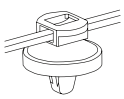
The additional seal protects against the ingress of moisture.

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)



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.

Date of issue: 07/2019

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

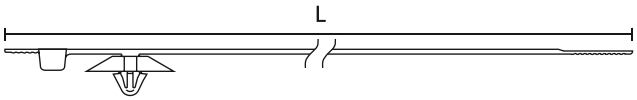
These fixing ties are ideal for use in many different industries, including automotive, aerospace, rail and panel building.

Features and benefits

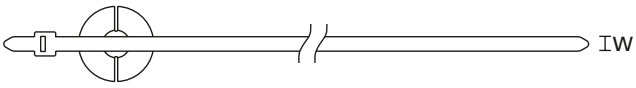
- Easy to assemble without the need for a tool
- Arrowhead simply locks into place
- Disc adjusts tie for pressures from various directions and minimises access of dust and dirt
- Cable tie head always situated in defined position
- Bundle runs directly across fixing point
- Simple assembly due to tab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

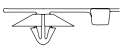
Material specification please see page 22.



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.

Date of issue: 07/2019

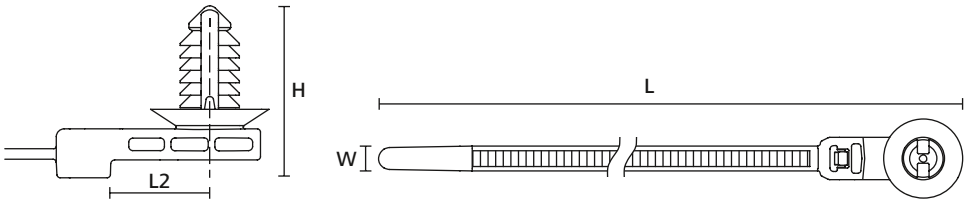
1-Piece Fixing Ties with Fir Tree and Disc, with Stand-off, for Round Holes

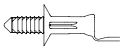
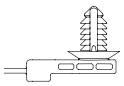
With Offset 12.5 and 25.0 mm

T50ROSFT6S25SO and T50ROSFT612.5SO.

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

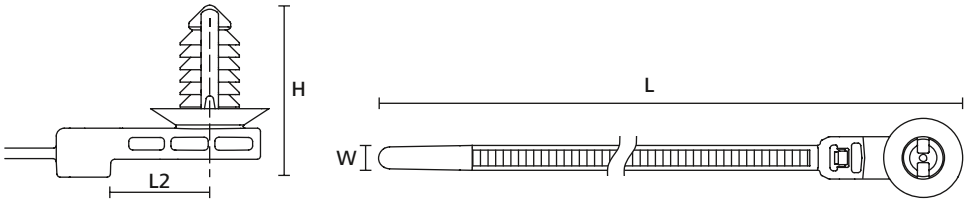


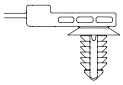
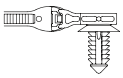
PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Length (L2)	Bundle Ø max.	N
T50ROSFT612.5SO-PA66HIRHS-BK		6.1 - 6.9	0.6 - 6.0	5.1	234.2	12.5	50.0	222
T50ROSFT6S25SO-PA66HIRHS-BK		6.1 - 6.9	0.6 - 3.8	5.1	242.2	25.0	50.0	220
T50ROSFT625SO-PA66HIRHS-BK		6.1 - 6.9	0.6 - 6.0	5.1	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.

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.

Date of issue: 07/2019

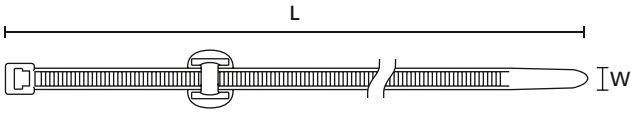
2-Pieces Fixing Ties with Deep Hole Anchor, with Disc, for Round Holes

Deep Hole Anchor DHA5.5 - DHA8.4

Features and benefits

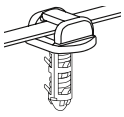
- Pre-assembled 2-piece fixing tie with deep hole anchor
- The high 'pull off' forces are due to the integrated metal clamp
- Cable tie head can be moved after bundling
- Easy to assemble without the need for a tool
- Disc adjusts tie for pressure from various directions and minimises ingress of dust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

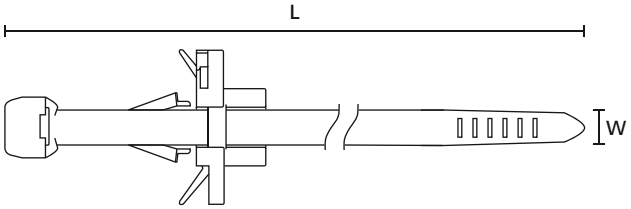
2-Piece Fixing Ties with Arrowhead, for Round Holes, for Parallel Routing

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.

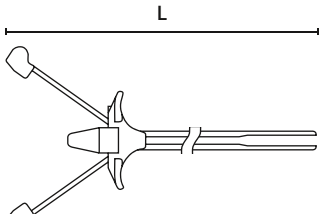
Features and benefits

- 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 rounting 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.

Date of issue: 07/2019

1-Piece Fixing Tie with Arrowhead, with Disc

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

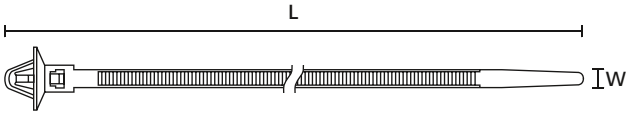
With a diverse range of fixing possibilities are ideal for use in many different industries, including automotive, aerospace and panel building.

Features and benefits

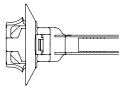
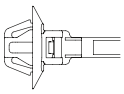
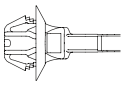
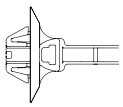
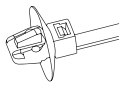
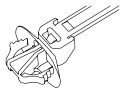
- Easy to install without the need for a tool
- Arrowhead simply locks into place
- Disc adjusts tie for pressures from various directions and minimises access of dust and dirt
- Cable tie head always situated in a defined position
- Versions for oval holes feature anti-twist protection

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

Material specification please see page 22.



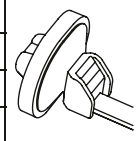
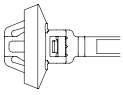
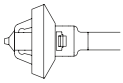
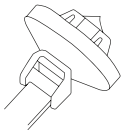
Reference for dimensions only

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
T60SOSSFT62x122-E-PA66HS-BK		6.2 - 12.2	2.4 - 3.3	5.5	157.5	300	16.0 x 22.0
T60XSOSSFT62X122-E-PA66HS-BK		6.2 x 12.2	2.0 - 3.0	5.5	133.6	300	16.0 x 22.0
T60SOSSFT65x130-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
T60XSOSSFT712S-E-PA66HS-BK		7.0 x 12.0	0.6 - 3.2	5.5	120.0	300	16.0 x 22.0
T60SOSSFT712S-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.

Date of issue: 07/2019

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.	N	Disc Ø
T60SOSSFT62x122-E-MD-PA66HS-BK		6.2 x 12.2	0.6 - 2.0	5.5	157.5	30.0	300	16.0 x 22.0
T60XSOSSFT62X122-E-MD-PA66HS-BK		6.2 x 12.2	0.7 - 2.0	5.5	133.6	25.0	300	16.0 x 22.0
T60SOSSFT65x130-E-MD-PA66HS-NA		6.5 x 13.0	0.6 - 2.0	5.5	157.6	30.0	300	16.0 x 22.0
T60SOSSFT70x120-E-MD-PA66HS-BK		7.0 x 12.0	0.6 - 2.0	5.5	157.7	30.0	300	16.0 x 22.0
OS150-PM712-WPJ-PA66HS-NA		7.0 x 12.0	0.6 - 2.0	5.0	150.0	22.0	180	17.0 x 22.0
OS150-PM712S-WPJ-PA66-NA		7.0 x 12.0	0.5 - 1.2	6.0	150.0	25.0	150	17.5 x 22.5
T50SOSKSFT62X122-90-MD-PA66HS-BK		6.2 x 12.2	0.7 - 1.8	4.6	159.0	35.0	225	19.0 x 25.0
T60SOSSFT65x130-E-MS-MD-PA66HS-BK		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.

Date of issue: 07/2019

2-Piece Fixing Ties with Arrowhead, for Oval Holes

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

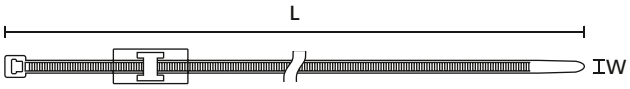
Primarily designed for fixing cable harnesses in the automotive industry, their simplicity and ease of use has resulted in these parts being used in other industries, for example aviation, switch gear manufacturer, white goods manufacturer.

Features and benefits

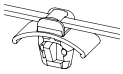
- Pre-assembled 2-piece fixing tie with arrowhead foot part
- Cable tie head can be moved after bundling
- Easy to assemble without the need for a tool
- Arrowhead simply locks into place
- Versions for oval holes feature anti-twist protection

T50RFT6OVAL for oval holes 6.3 x 12.2 mm.

Material specification please see page 22.

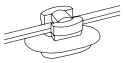
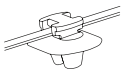
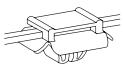


Reference for dimensions only

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.

Date of issue: 07/2019

1-Piece Fixing Ties with Fir Tree, with Disc

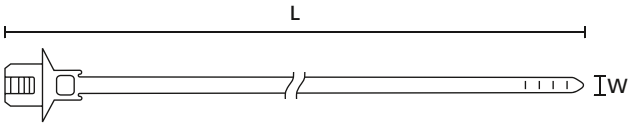
1-Piece Fixing Ties with Fir Tree, with Disc, for Oval Holes

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.

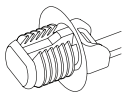
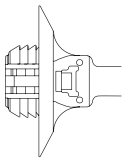
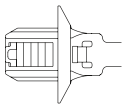
Features and benefits

- 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.



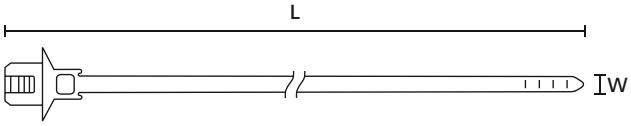
Reference for dimensions only

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

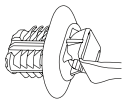
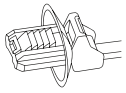
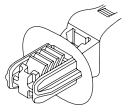
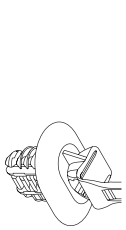
All dimensions in mm. Subject to technical changes.

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	15.2 x 20.2
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.

Date of issue: 07/2019

2-Piece Fixing Ties with Fir Tree, with Disc

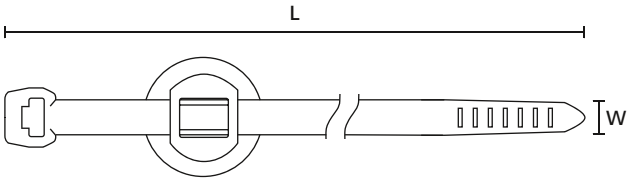
2-Piece Fixing Ties with Fir Tree, with disc, for oval holes

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

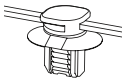
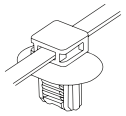
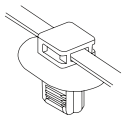
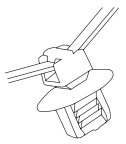
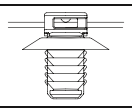
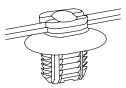
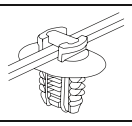
- Pre-assembled 2-piece fixing tie with fir tree foot part
- Cable tie head can be moved after bundling
- Easy to assemble without the need for a tool
- Disc adjusts tie for pressure from various directions and minimises access of dust and dirt
- Fir tree foot part can be used for a variety of panel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

Date of issue: 07/2019

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

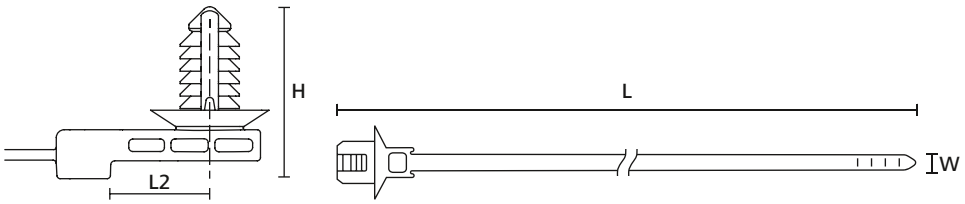
With Offset 12.5 and 25.0 mm

Features and benefits

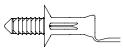
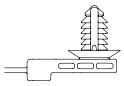
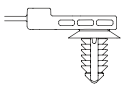
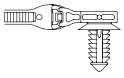
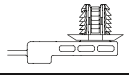
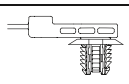
- Bundling and fixing solution
- Ideal combination of materials and design
- Different positions of the fixing anchor are available to fit installation space
- 1-Piece Fixing Tie with defined offset 12.5 and 25.0 mm

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	225
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.

Date of issue: 07/2019

1-Piece Fixing Ties with Mounting Head for Screws

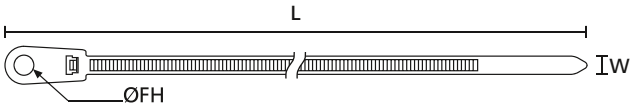
This range of one piece cable ties have a built in mounting hole and once fastened around the cables the bundle can be simply secured to the panel with a screw or bolt.

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.

Date of issue: 07/2019

1-Piece Fixing Ties for Weld Studs

For cable routing above the stud

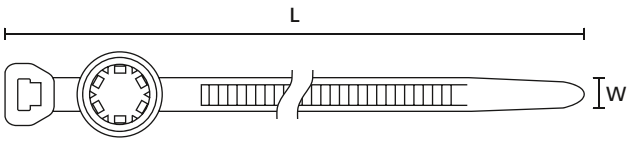
Primarily designed for use in the automotive industry, these parts can be used in a wide variety of applications where weld studs or ISO bolts are used and cables need to be bundled and secured.

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 T50SSBS5OT-E / T50SSBS6OT-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
T50SSBS5OT-E-PA66HS-BK		5.0	4.6	160.0	35.0	200
T50SSBS6OTS-E-PA66HS-BK		6.0	4.6	160.0	35.0	200
T50SSBS6OT-E-PA66HS-BK		6.0	4.6	160.0	35.0	200

All dimensions in mm. Subject to technical changes.

Date of issue: 07/2019

1-Piece Fixing Ties for Weld Studs

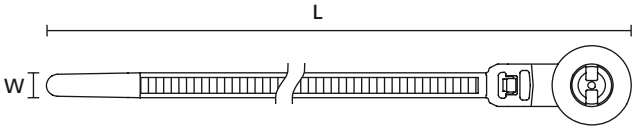
For cable routing alongside the stud

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

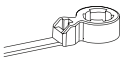
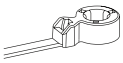
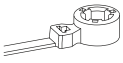
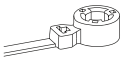
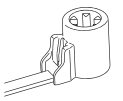
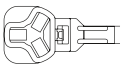
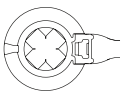
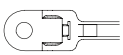
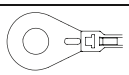
This outside serrated cable tie with weld stud mounting keeps the cables close to the fixing stud.



Reference for dimensions only

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

T50SOSSBD-M8/10.

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
T50RM6OSSM-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.

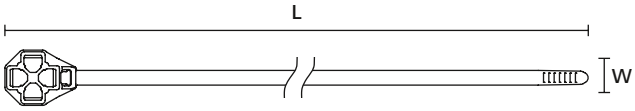
Date of issue: 07/2019

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.

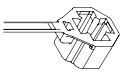
Features and benefits

- 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



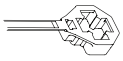
1-Piece Fixing Ties for Weld Studs, cloverleaf design. From left to right: 1. Standoff, 2. standard, 3. low profile head with standoff, 4. low profile head design.

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

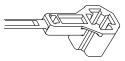
All dimensions in mm. Subject to technical changes.

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

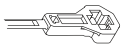
All dimensions in mm. Subject to technical changes.

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.

Date of issue: 07/2019

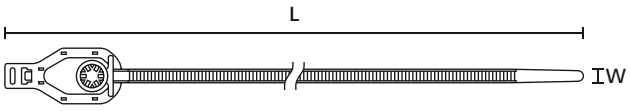
1-Piece Fixing Ties for Weld Studs in the Strap

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

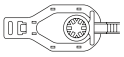
1-Piece Fixing Ties for weld studs.



T50RS5, RT50RS

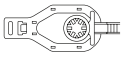
Material specification please see page 22.

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

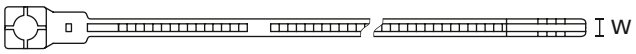
All dimensions in mm. Subject to technical changes.

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

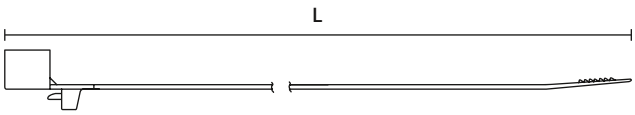
PART DESCRIPTION	Drawing	Height (H2)	Width (W)	Length (L)	Bundle Ø max.	N
RT50RS5-PA66-BK		14.5	4.6	190.0	40.0	225

All dimensions in mm. Subject to technical changes.

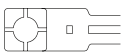
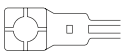
1-Piece Fixing Ties for Weld Studs (Hardpush), Releasable



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.

Date of issue: 07/2019

1-Piece Fixing Ties for Weld Studs, lateral adjustment

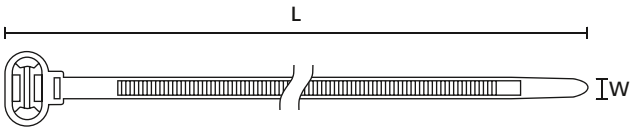
Primarily designed for use in the automotive industry, these parts can be used in a wide variety of applications where weld studs or ISO bolts are used and cables need to be bundled and secured.

Features and benefits

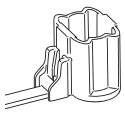
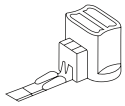
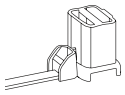
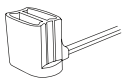
- Cable tie head always situated in defined position
- Easy to install without the need for a tool
- Provides a 5 - 6 mm lateral adjustment, also subsequently possible

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.

Date of issue: 07/2019

1-Piece Fixing Ties for Weld Studs, lateral adjustment

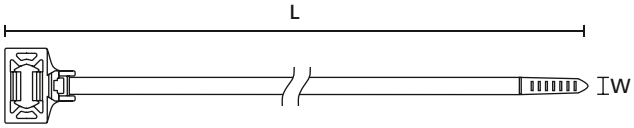
T50SOSWSP5E-2 for 5 mm studs, retainer height 3.5 mm

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

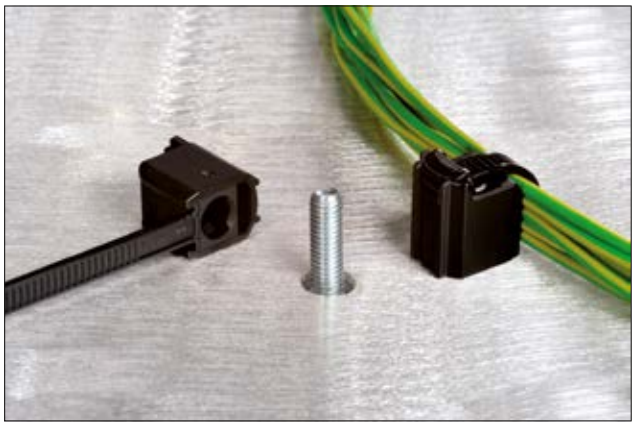
All dimensions in mm. Subject to technical changes.

1-Piece Fixing Ties for Weld Studs

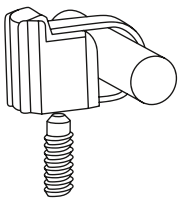
LFC-Series for routing close to the stud

Features and benefits

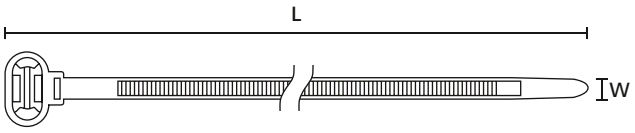
- 1-piece fixing tie for 5 mm studs
- Cable tie head always situated in defined position
- Easy to install without the need for a tool
- Bundle runs very close next to stud
- Closed stud retainer protects the bundle against damage
- Contact surface allows secure bundling with tensioning tool



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.

Date of issue: 07/2019

2-Piece Fixing Ties for Weld Studs

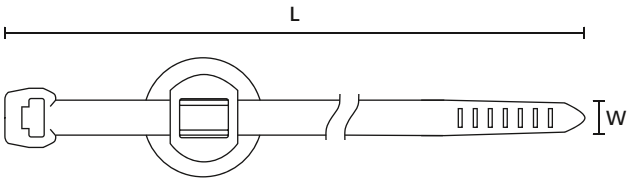
2-Piece Fixing Ties for Weld Studs

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

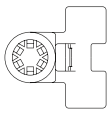
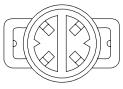
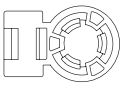
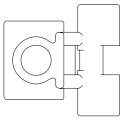
- Pre-assembled 2-piece fixing tie with stud retainer
- Cable tie head can be moved after bundling
- Easy to install without the need for a tool
- SB5-types for 5 mm studs or 5 mm ISO threaded studs
- Types with discs can retain insulation materials while fixing a cable bundle
- Oval shape can be adjusted 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 T50ROSKL.



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
T30RGBS8C-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
T50ROSKL-PA66HS-BK		5.0	4.6	200.0	45.0	225

All dimensions in mm. Subject to technical changes.

Date of issue: 07/2019

2-Piece Fixing Ties for Weld Studs

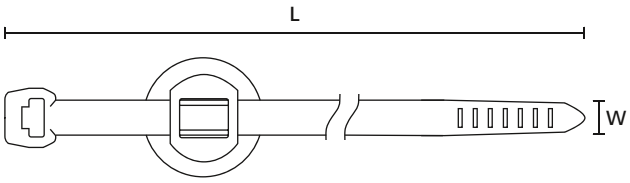
2-Piece Fixing Ties for Weld Studs, lateral adjustment

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.

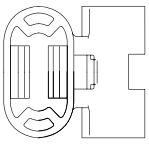
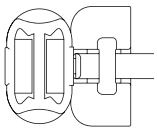
Features and benefits

- 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	225
T50ROSSB5CSD-PA66HS-BK		5.0	4.6	200.0	45.0	225

All dimensions in mm. Subject to technical changes.

Date of issue: 07/2019

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

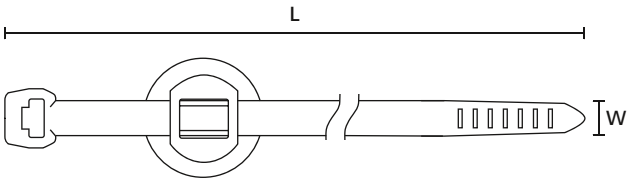
2-Piece Fixing Ties for Weld Studs, with Disc

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

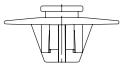
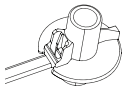
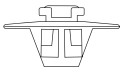
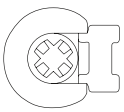
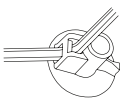
- Pre-assembled with cable tie and weld stud mounting base
- Quick and easy installation
- Head rotates into perfect position for installation
- 'Soft-push' design for tool-free installation
- Mushroom-shaped SBH handles insulation or a sound-deadening blanket

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.

Date of issue: 07/2019

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

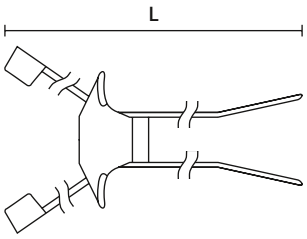
2-Piece Fixing Ties for Weld Studs, for Parallel Routing

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.

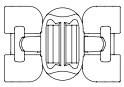
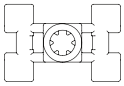
Features and benefits

- 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.

Date of issue: 07/2019

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

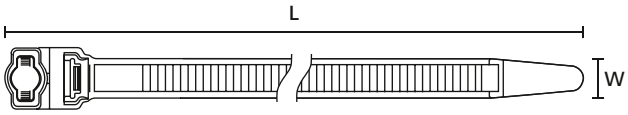
WS-Series for Threaded Studs

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.

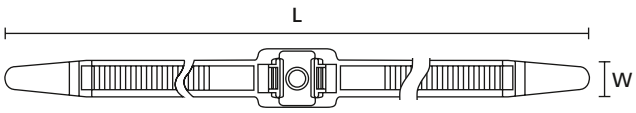
1-Piece Fixing Ties for Weld Studs, for Heavy Duty Applications, for parallel routing

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 seperation between hoses, wires, cables and tubing
- Abrasion protecion
- 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.

Date of issue: 07/2019

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

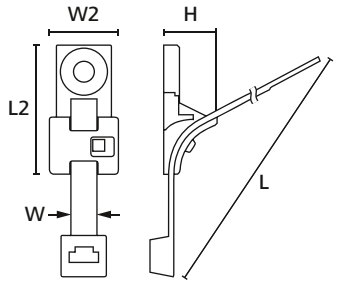
HDM-Series

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
T120RHDMP8-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.

Date of issue: 07/2019

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

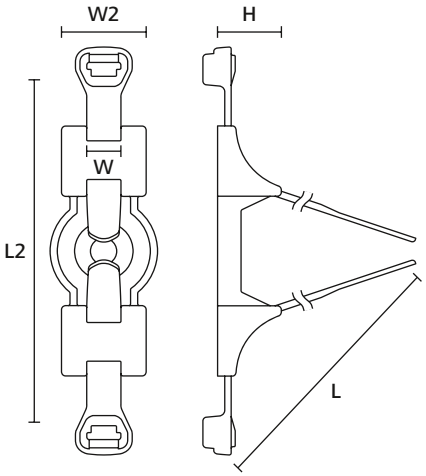
DHDM-Series for Parallel Routing

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.

Date of issue: 07/2019

1-Piece Fixing Ties for Edges

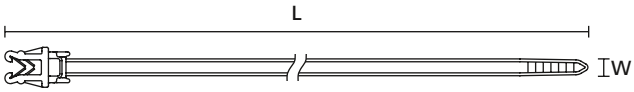
EdgeClip-Family

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.

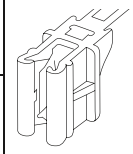
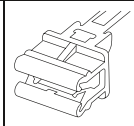
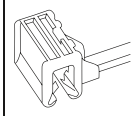
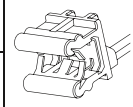
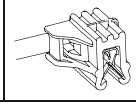
Features and benefits

- 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.	N
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.

Date of issue: 07/2019

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

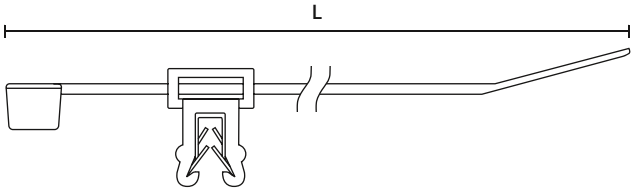
Mini-EdgeClip-Family for flat and thin edges

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 buidling and electrical industry. These EdgeClips are specially designed for applications where space is limited such as in mirrors and headlights.

Features and benefits

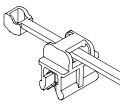
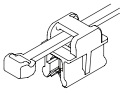
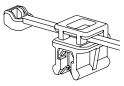
- Springsteel clamp with interlocking claws
- For flat edges
- For thin edges 0.5 - 2.5 mm
- Small housing for limited space
- Pre-assembled 2-piece fixing tie with EdgeClip
- Cable tie head can be moved after bundling

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



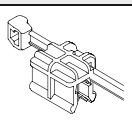
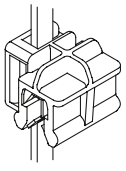
Reference for dimensions only

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.

Date of issue: 07/2019

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

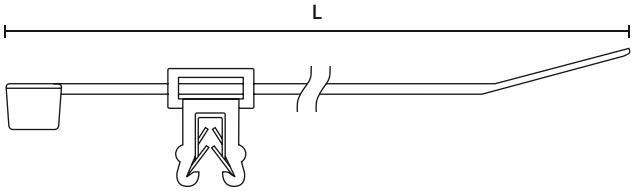
EdgeClip-Family

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 buidling and electrical industry.

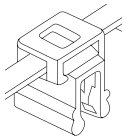
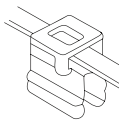
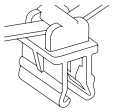
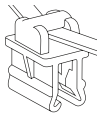
Features and benefits

- 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/PA6HIRHS-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.

Date of issue: 07/2019

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

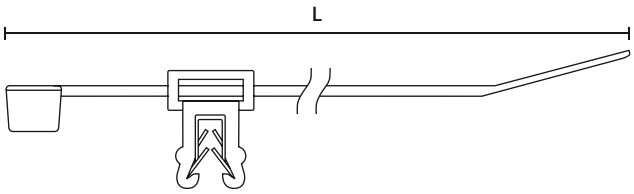
EdgeClip-Family

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 buidling and electrical industry.

Features and benefits

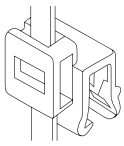
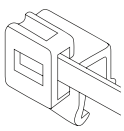
- Pre-assembled 2-piece fixing tie with EdgeClip
- Cable tie head can be moved after bundling
- EC9, EC10, EC21 and EC22 are for minimum bundle diameters of 1 mm
- For edges of 1 - 3 mm

T50ROSEC23 - the cable bundle runs parallel with the edge.



Reference for dimensions only

Material specification please see page 22.

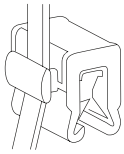
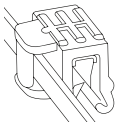
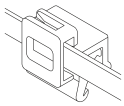
PART DESCRIPTION	Drawing	Width (W)	Length (L)	Bundle Ø max.	N
T30LLEC5ART-PA66HS/PA66HIRHS-BK		3.5	290.0	80.0	135
T30REC5A-PA66HS/PA66HIRHS-BK		3.6	148.0	33.0	135
T40REC5A-PA66HS/PA66HIRHS-BK		4.0	17.5	45.0	180
T50SOSEC5A-PA66HS/PA66HIRHS-BK		4.6	150.0	31.0	225
T50ROSEC5A-PA66HS/PA66HIRHS-BK		4.6	200.0	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.

Date of issue: 07/2019

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.	N
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.

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

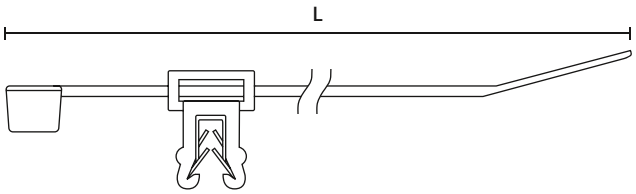
EdgeClip-Family

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 buidling and electrical industry.

Features and benefits

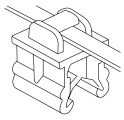
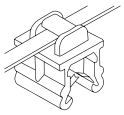
- Pre-assembled 2-piece fixing tie with EdgeClip
- Cable tie head can be moved after bundling
- For minimum bundle diameters of 1 mm
- For edges of 3 - 6 mm

Pre-assembled 2-piece fixing tie with EdgeClip.



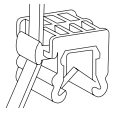
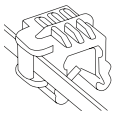
Reference for dimensions only

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.

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2-Piece Fixing Ties for Edges, twistable

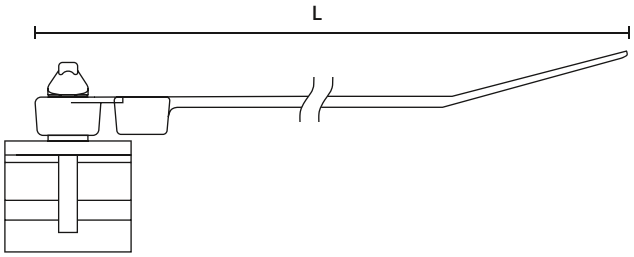
EdgeClip-Family

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 buidling and electrical industry.

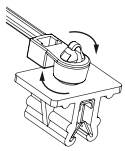
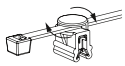
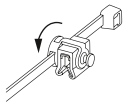
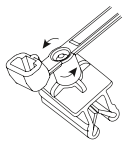
Features and benefits

- 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.

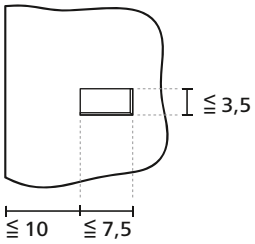
Date of issue: 07/2019

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

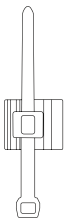
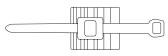
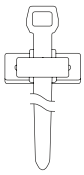
- Pre-assembled 2-piece fixing tie with EdgeClip
- Easy to assemble by hand
- Cable tie head can be moved after bundling
- For edges of 1.0 - 3.0 mm
- Secure fixing of the EdgeClip into drill hole
- Ideal for use wherever space is at its premium



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.	N
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.

Date of issue: 07/2019

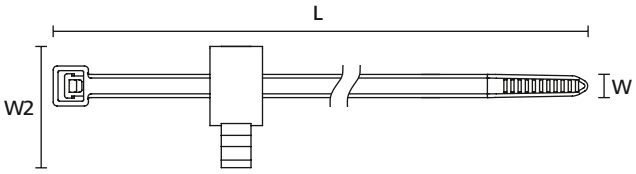
2-Piece Fixing Tie with Connector Clip

Connector Clip Family

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

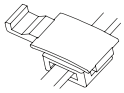
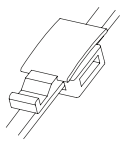
Features and benefits

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



T50RYCCA

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

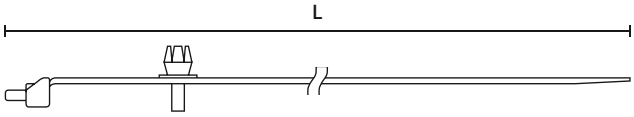
All dimensions in mm. Subject to technical changes.

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



Fixing ties type RI.

One Piece Fixing Tie with Rivet RI 160.

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.

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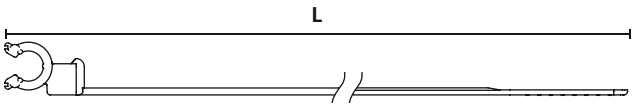
1-Piece Fixing Tie with Pipe Clip

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

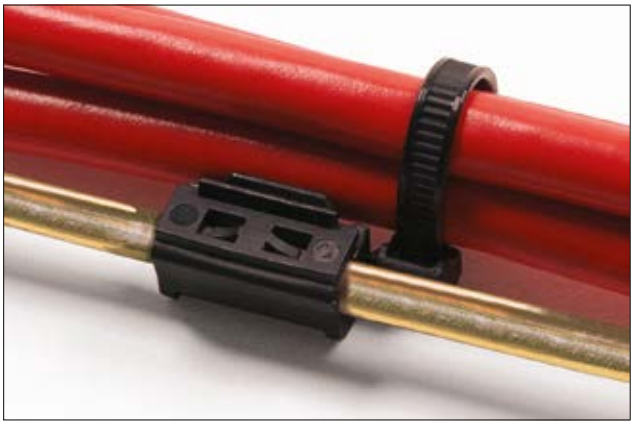
All dimensions in mm. Subject to technical changes.

1-Piece Fixing Ties with Wire Clip

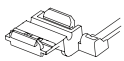
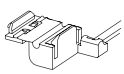
Features and benefits

- 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.

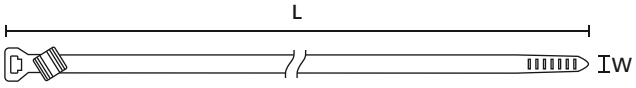
Date of issue: 07/2019

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.

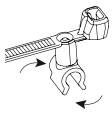
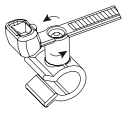
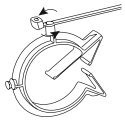
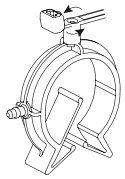
Features and benefits

- 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
T5SVCOC15-18-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.

Date of issue: 07/2019

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

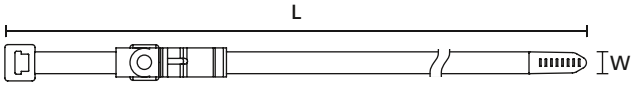
IAHC-Series

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 rotable
- 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
T50RIAHC1TICR-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
T50RIAHC2TICR-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.

Date of issue: 07/2019

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

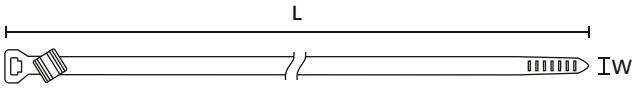
LOC-Series

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.

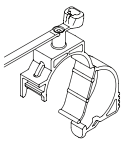
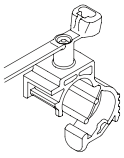
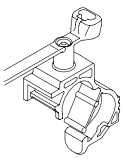
Features and benefits

- 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.



T50SVC4S

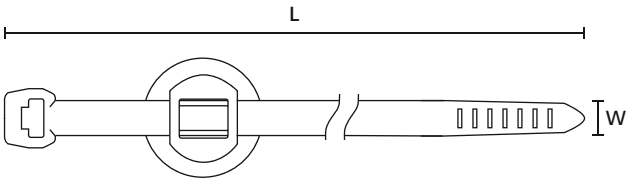
PART DESCRIPTION	Drawing	Width (W)	Length (L)	Bundle Ø max.	N
T50SMVCLOC20-25-PA66HIRHSUV-BK		12.0	210.0	50.0	225
T50SMVCLOC5-9-PA66HIRHSUV-BK		12.0	210.0	50.0	225
T50SMVCLOC10-14-PA66HIRHSUV-BK		12.0	210.0	50.0	225
T50SMVCLOC15-19-PA66HIRHSUV-BK		12.0	210.0	50.0	225

All dimensions in mm. Subject to technical changes.

2-Piece Fixing Ties with Pipe Clip

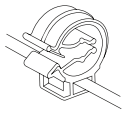
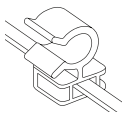
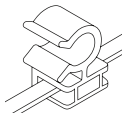
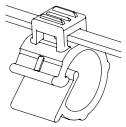
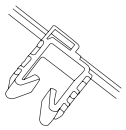
Features and benefits

- 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.

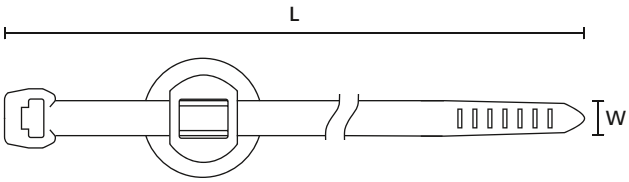
Date of issue: 07/2019

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

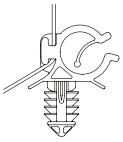
- Pre-assembled two piece fixing tie
- Easy to install without the need for a tool
- Bundle diameter is defined
- Clips to be attached into bore hole
- Suitable for post-installation of bundles



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.

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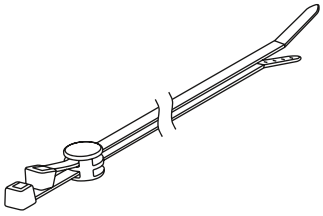
2-Piece Fixing Ties for parallel separation

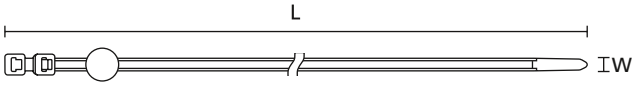
Features and benefits

- 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.

Date of issue: 07/2019

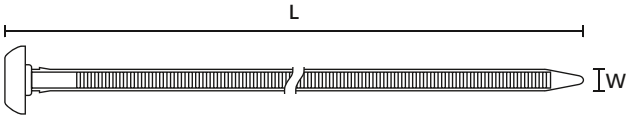
Cable Ties for single hole application (Chassis Tie)

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.

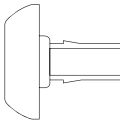
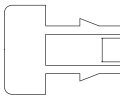
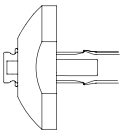
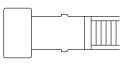
Features and benefits

- 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

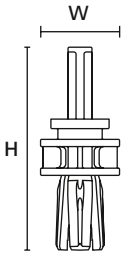
SFTP-Series

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 whole 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.

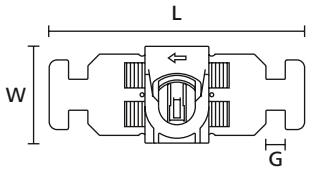
From left to right: Bold Nut HDBN16, SFTP-Spacer and at the front: SFTP-Fixing.

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

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	-
FSFTPHDBN16-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.

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

Features and benefits

- Cable tie head can be moved after bundling
- Bundle runs directly above the stud with definded 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

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

All dimensions in mm. Subject to technical changes.

Date of issue: 07/2019

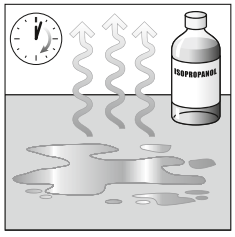
Information and installation instructions for self-adhesive mounting bases

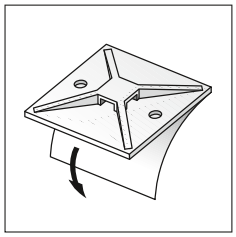
HellermannTyton uses different types of adhesives for self-adhesive bases: acrylate and synthetic rubber. These differ in the operating temperature range and the 'pull off' force of the adhesive. Synthetic rubber has an excellent initial grip, allowing for almost immediate use. Acrylate adhesive has 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
Synthetic rubber with base of polyethylene foam	Synthetic rubber	-40 °C to +60 °C
Acrylate with base of polyurethane foam	Acrylate	to +105 °C
Acrylate with base of acrylic foam	mod. Acrylate	-40 °C to +90 °C

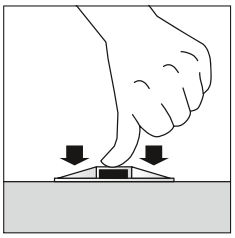
Instructions for use

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.

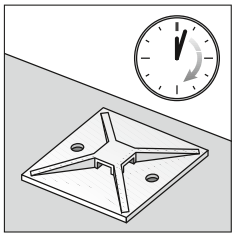




2. Peel off protective backing and ensure the adhesive area is not touched.



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



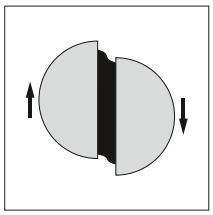
4. Depending on the type of adhesive, wait for several minutes (synthetic rubber) or hours (acrylate) so that the adhesive can bond completely with the surface.

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

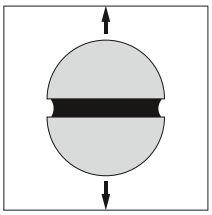
Advantages of our self-adhesive mounts with mod. Acrylate (SolidTack / FlexTack)

- 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
- 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

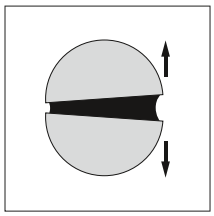
Load types on adhesive bonds



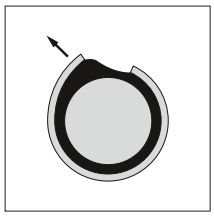
Shear resistance.
Shear force pulls the adhesive surfaces in opposite directions along a parallel line.



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.

Date of issue: 07/2019

Cable Tie Mounts with high performance adhesive

FlexTack-Series FMB for round and angled surfaces

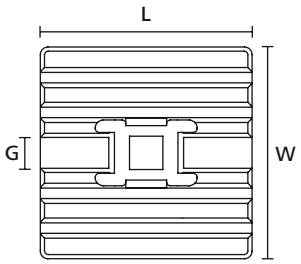
FlexTack cable tie mounts can be successfully applied to a variety of high- and low-energy surfaces such as glass, metals (including painted, varnished or powder-coated surfaces) as well as plastics. FlexTack provides a reliable fixing solution where it is impractical to use screws or bolts. The unique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

Features and benefits

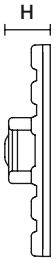
- Flexible Mount for round and angled surfaces
- FMB mounts with homogeneous system of acrylic adhesive
- Allows greater design freedom and offers uniform stress distribution along with weight reduction
- Adhesive with high cohesive strength combined with good weathering resistance
- Innovative fixing 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 concaved surface.

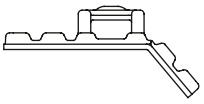
Material specification please see page 22.



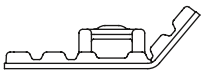
Flexible Adhesive Mount FMB4APT-I (plan view)



Flexible Adhesive Mount FMB4APT-I (side view)

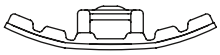


Flexible Adhesive Mount FMB4APT-I (down angled, side view)



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.

Date of issue: 07/2019

Cable Tie Mounts with high performance adhesive

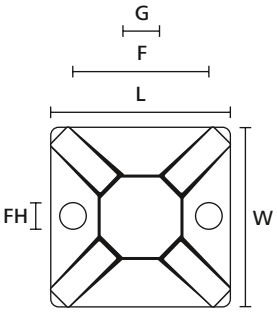
SolidTack-Series MB

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.

Date of issue: 07/2019

Self Adhesive, Screw Fixing Cable Tie Mounts

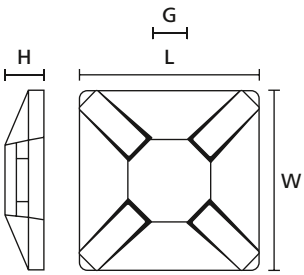
MB-Series square design, self adhesive, screwable

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.

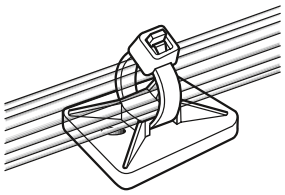
Features and benefits

- 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.

Date of issue: 07/2019

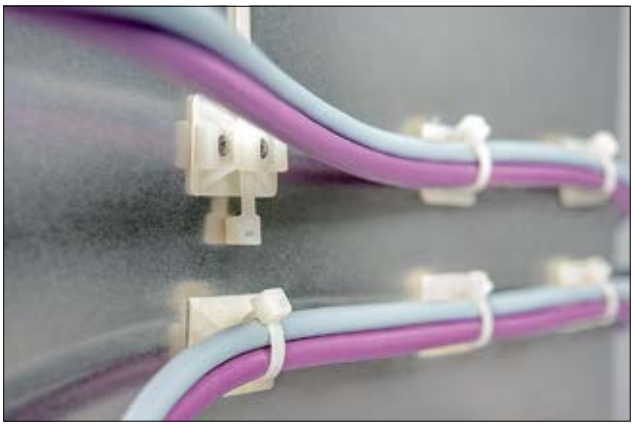
Screw Fixing Cable Tie Mounts

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

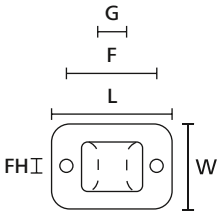
- Screwable or self-adhesive versions
- Concave design to support larger diameter cables and bundles
- 2-way mounting base for safe guiding of cables and conduits
- Suitable for applications with minimal space
- Mounted before cable installation
- Usable with standard cable ties



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

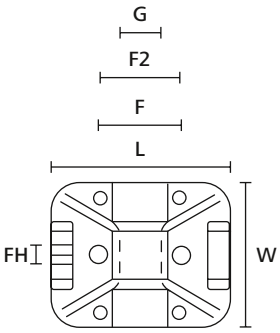
For more information on the types of adhesive please see page 121.

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.

Date of issue: 07/2019

Mounts with round design, self adhesive

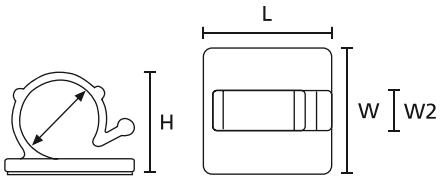
RA-Series

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.

Date of issue: 07/2019

Mounts with flat and round design, self adhesive

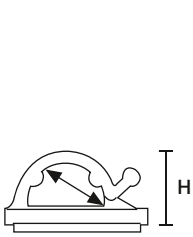
RB-Series

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.

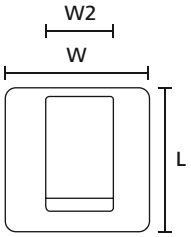
Self adhesive one piece fixing mounts RB20 (l) and RB14 (r).

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



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.

Date of issue: 07/2019

Screw Fixing Mounts

Cable Tie Mounts with curved design

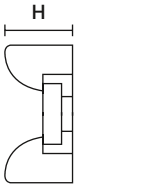
Designed specifically for holding heavier cable bundles these mounting bases can be used in many industries from agriculture to truck manufacturing. They offer a very secure fixing and can be used with a wide variety of heavy duty cable ties up to 8.3 mm width.

Features and benefits

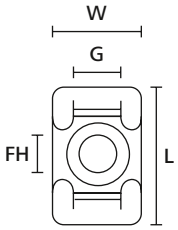
- Curved design for additional cable support
- Simple to install with a screw or bolt
- Excellent security, particularly in areas of high vibration
- Mounts are available in various sizes and materials

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

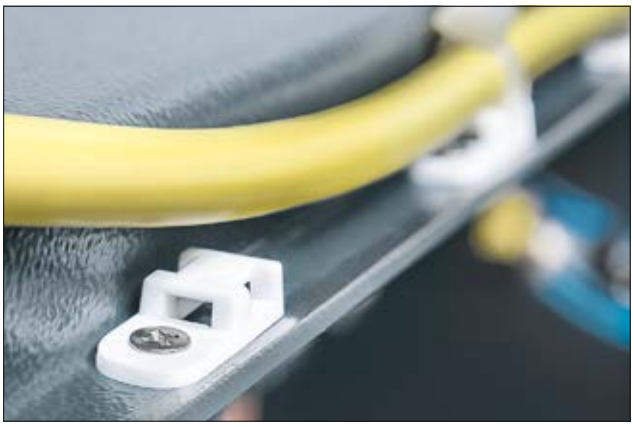
All dimensions in mm. Subject to technical changes.

Date of issue: 07/2019

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.

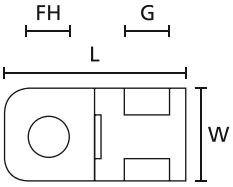


CTAM mounts for applications with limited space.

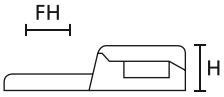
Features and benefits

- 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

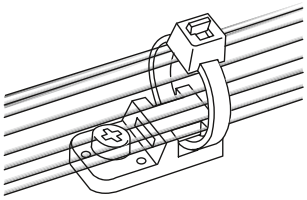
The CTAM mounts made of PEEK are the ideal complement for the PEEK tie on page 45.



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.

Date of issue: 07/2019

Screw Fixing Mounts

MB-Series Curved Design, screwable

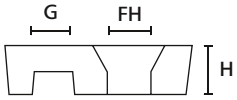
These cable tie mounts are very small in their overall size. They are designed for simple yet robust installation particulary in areas with high vibrations and/or limited space. They are a common fixing method for telecoms equipment, switchgear and control cabinets.

Features and benefits

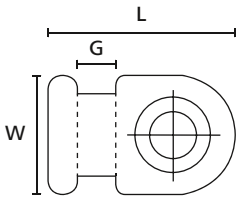
- Small overall size for areas with limited mounting space
- Simple to install with a screw, bolt or rivet
- Excellent security, particularly in areas of high vibration
- Single hole fixing with two-way entry for cable tie

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

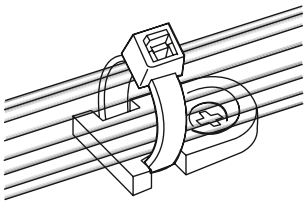
Material specification please see page 22.



MB1, MB2 Mounts (side view)



MB1, MB2 Mounts (plan view)



MB1, MB2 Mounts in application

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.

Date of issue: 07/2019

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

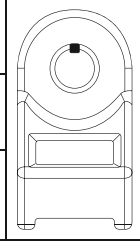
These heavy duty mounts (HDM) have been primarily designed for use in the automotive and truck industry. Nowadays they can be found in a variety of applications requiring heavy duty mounting in areas like the railway, defence and/or argriculture industry.

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

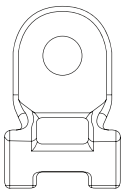
Heavy Duty Mounts HDM-Series, patent number US5820083.

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

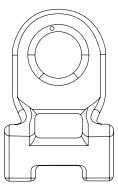
All dimensions in mm. Subject to technical changes.

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.

Date of issue: 07/2019

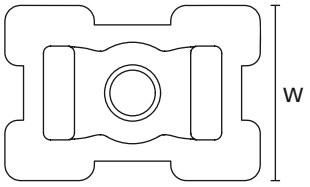
Two Way Saddle Mount for heavy duty applications, for parallel separation

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.

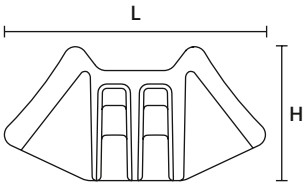
Features and benefits

- 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.

Date of issue: 07/2019

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.

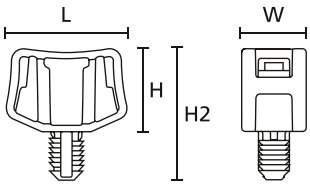
Fixing Elements with Fir Tree, for Distance Routing

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.

Date of issue: 07/2019

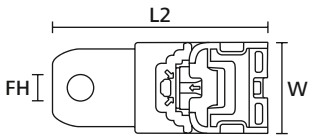
Ratchet P-Clamp

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.

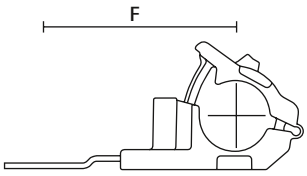
Ratchet P-Clamp - A more versatile way to mount and clamp cables.

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 (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-PA66ECHIRHS/ST/ZN-BK	34.9	83.1	6.2	13.7	10.29	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.

Date of issue: 07/2019

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

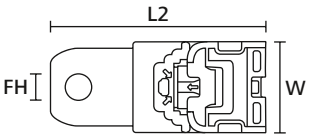
All dimensions in mm. Subject to technical changes.

For bundle diameters from 12.7 mm to 19.5 mm

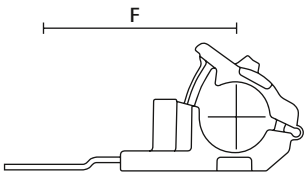
PART DESCRIPTION	Width (W)	Length (L2)	Bundle Ø min.	Bundle Ø max.	Hole Ø (FH)	Fixing Hole Centres (F)	Variant
RCB90SM6-PA66HIRHSUV/ST/ZN-BK	34.9	68.8	12.7	19.5	6.5	26.7	Short
RCB90SM8-PA66HIRHSUV/ST/ZN-BK	34.9	68.8	12.7	19.5	8.31	26.7	Short
RCB90SM12-PA66HIRHSUV/ST/ZN-BK	34.9	68.8	12.7	19.5	12.95	26.7	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.

Date of issue: 07/2019

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.

Date of issue: 07/2019

Aluminium P-Clamps

Alu-P-Clamp with / without chloroprene insert

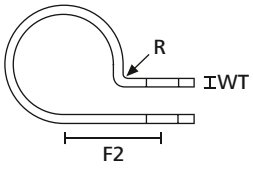
Manufactured from a high quality aluminium, these metal P-Clamps provide flexibility whilst providing a permanent fixing in the most arduous of environments. The addition of a chloroprene insert provides the cable or pipe bundle with a high degree of protection against vibration, reducing noise and also 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

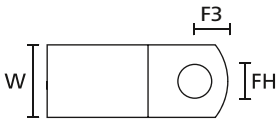
- Simple and secure pipe or cable fixation
- Can be combined with chloroprene rubber for vibration resistance
- Ideal for use in high temperature applications
- Suitable for applications needing strength of metal components

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

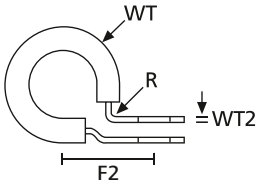
Material specification please see page 22.



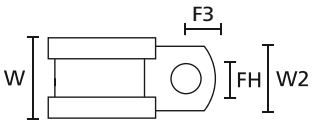
ALU P-Clamp (side view)



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.

Date of issue: 07/2019

Plastic P-Clamps

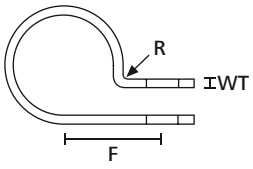
HP-Series

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)

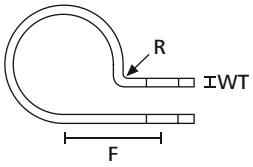
PART DESCRIPTION	Width (W)	Wall (WT)	Hole Ø (FH)	Bundle Ø max.	Fixing Hole Centres (F)	Radius (R)
NX0-PA66-NA	8.0	0.90	4.3	3.3	9.25	0.5
NX0-PA66-BK	8.0	0.90	4.3	3.3	9.25	0.5
NX3-PA66-NA	9.3	1.10	4.3	8.5	11.9	0.8
NX3-PA66-BK	9.3	1.10	4.3	8.5	11.9	0.8
NX1-PA66-NA	9.6	1.50	4.9	4.8	9.4	1.5
NX1-PA66-BK	9.6	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.

Date of issue: 07/2019

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.

Date of issue: 07/2019

Mini cable channel family

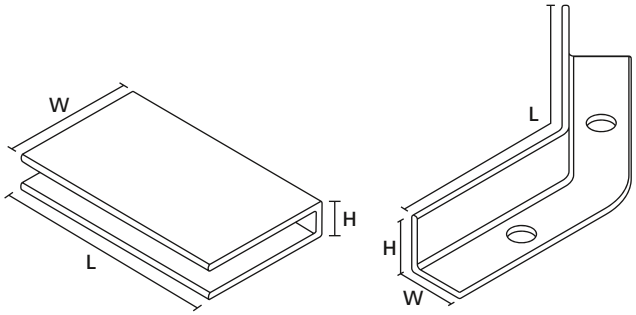
Modular and interchangeable cable routing system

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

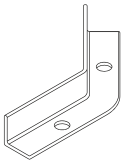
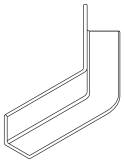
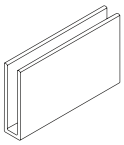
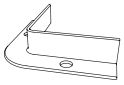
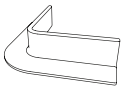
- Angled channel allows specific guidance around corners or obstructions
- U-Shape channel provides three sides of protection for wire or bundle
- Protects against abrasion and other environmental factors
- Types made from PPT20 material convince with a high operating temperature

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	-
90RADMINICHNL-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.

Date of issue: 07/2019

Mini cable channel family for corners

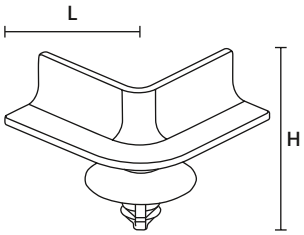
With fixing element

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.

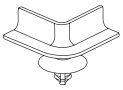
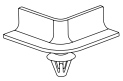
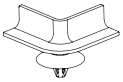
Bundling Clip BC90FT6 - a smart fixing solution to guide bundles around a corner.

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



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.

Date of issue: 07/2019

Arrowhead Cradle

SFC-Series

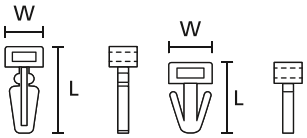
Offering simple and easy methods of securing cables or pipes. These parts are easy to install and simply lock into place. The part is positioned firmly and securely in the hole when a click can be heard. Can be used for example for boreholes in car doors and side mirrors.

Features and benefits

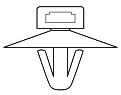
- Arrowhead fixing for use in pre-drilled or punched holes
- Ideal for applications with limited space and restricted access
- Parts with disc protect against water, dirt and dust

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

Material specification please see page 22.



SFC *SFC2*

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.

Date of issue: 07/2019

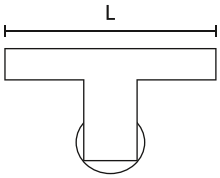
Bundling Clips for Parallel Routing of Pipes

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.

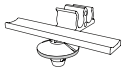
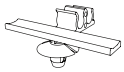
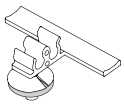
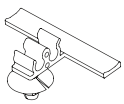
Features and benefits

- 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.

Date of issue: 07/2019

Bundling Clips with Arrowhead for Round Holes

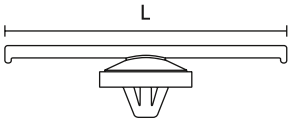
Originally designed for the automotive industry, these clips offer simple and easy methods of securing cables, hoses or pipes.

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

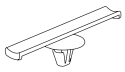
L to R: BundlingClip wih OmegaClip, BundlingClip with seal, BundlingClip LRJ1.

Material specification please see page 22.



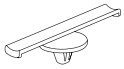
BCSFT6.5 16-3MD

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
ATSBCKSFT6.5-PA66HIRHS-BK		6.3 - 6.7	0.7 - 1.3	39.0
ATSBC2KSFT6.5-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.

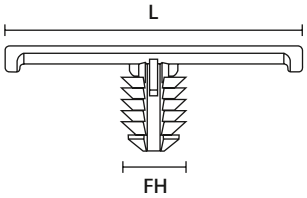
Date of issue: 07/2019

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

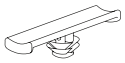
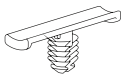
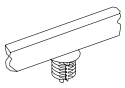
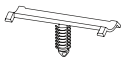
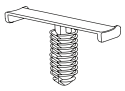
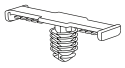
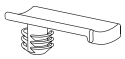
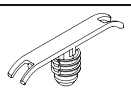
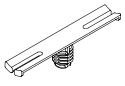
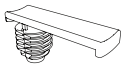
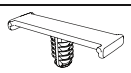
- Easy to install without the need for a tool
- One fir tree foot part can be used for a variety of panel thicknesses
- Suitable for use within threaded holes
- Holding tabs prevent the tie slipping sideways
- ATS fixing elements can be tied automatically with the ATS3080 tool



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.

Date of issue: 07/2019

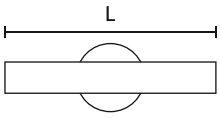
Bundling Clips with Arrowhead for Oval Holes

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

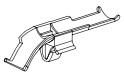
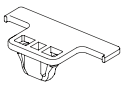
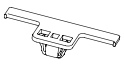
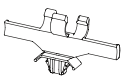
- Especially for banding of cables and cable harnesses
- Fastened onto bundling bar with cable ties or adhesive tape
- Various base geometries for wide variety of metal gauges and bore diameters

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



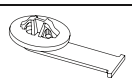
Reference for dimensions only

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.

Date of issue: 07/2019

Bundling Clips with Fir Tree for Oval Holes

Bundling Clips with Fir Tree, for Oval Holes

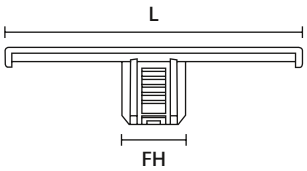
Originally designed for the automotive industry, these clips offer simple and easy methods of securing cables, hoses or pipes. These parts are used in the automotive industry for assembly of cable harnesses.

Features and benefits

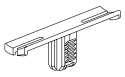
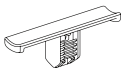
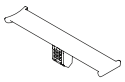
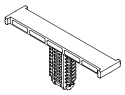
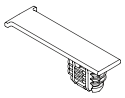
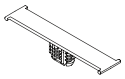
- Especially for banding of cables and cable harnesses
- Fastened onto bundling bar with cable ties or adhesive tape
- Various base geometries for wide variety of metal gauges and bore diameters

Material specification please see page 22.

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



TCOP62X122

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.

Date of issue: 07/2019

Bundling Clips with Arrowhead for Distance Routing

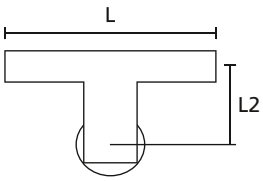
Round holes

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.

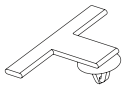
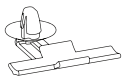
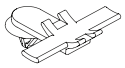
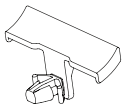
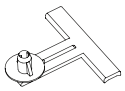
Features and benefits

- 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.



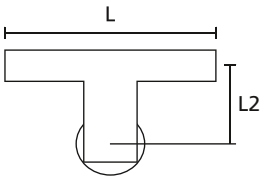
Reference for dimensions only

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.

Date of issue: 07/2019

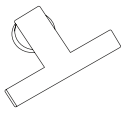
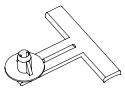
Bundling Clips with Arrowhead for Distance Routing



Reference for dimensions only

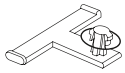
Material specification please see page 22.

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

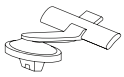
All dimensions in mm. Subject to technical changes.

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.

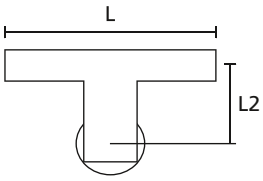
Date of issue: 07/2019

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.

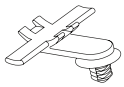
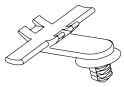
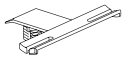
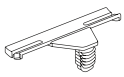
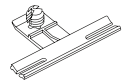
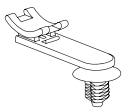
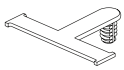
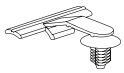
Features and benefits

- 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



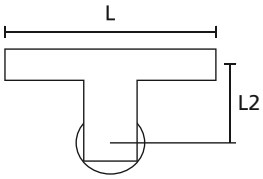
Reference for dimensions only

COW Clip used as tape-on clip.

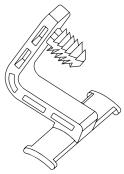
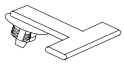
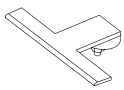
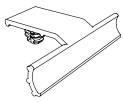
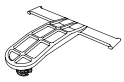
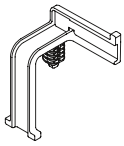
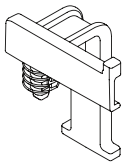
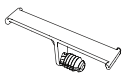
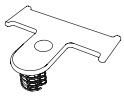
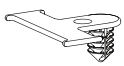
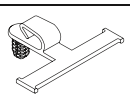
PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness	Length (L)	Length (L2)
COW20DP7-PA66HS-BN		6.3 - 7.0	0.8 - 4.5	42.0	20.0
COW30DP7-PA66-BK		6.3 - 7.0, 6.1 - 6.6 (hexagonal)	0.8 - 4.5	42.0	30.0
SOC4 M.FT6-PA66HIRHS-BK		6.5 - 7.0	0.7 - 5.1	55.0	20.32
SOC5FT6S-PA66HIRHS-BK		6.5 - 7.0	0.8 - 2.5	55.0	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.

Date of issue: 07/2019

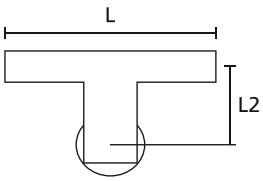
Bundling Clips with Fir Tree, for Oval Holes, for Distance Routing

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

Features and benefits

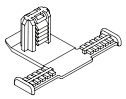
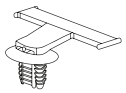
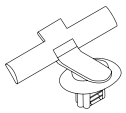
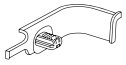
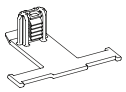
- Easy to install without the need for a tool
- One fir tree foot part can be used for a variety of panel thicknesses
- Suitable for use within threaded holes
- Disc covers the hole to prevent dust and dirt gaining access
- Bundle runs in a set distance to the hole

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



Reference for dimensions only

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.

Date of issue: 07/2019

Bundling Clips, lateral adjustment

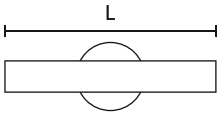
An easy means of routing and securing cable sets in various parts of cars. These parts allow an adjustment motion to guide cable bundles safely and without damaging the cable insulation.

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

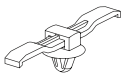
Material specification please see page 22.

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

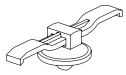
All dimensions in mm. Subject to technical changes.

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.

Date of issue: 07/2019

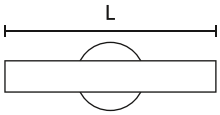
Bundling Clips with Harness Clip

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.

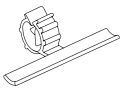
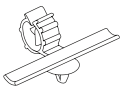
Features and benefits

- 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.

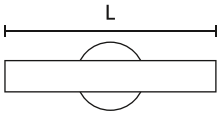
Bundling Clips for Weld Studs

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.

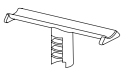
Features and benefits

- 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.

Date of issue: 07/2019

Bundling Clips for Weld Studs, lateral adjustment

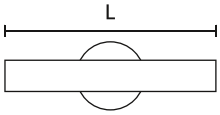
Originally designed for the automotive industry, these clips offer simple and easy methods of securing cables, hoses or pipes. These parts are used in the automotive industry for assembly of cable harnesses.

Features and benefits

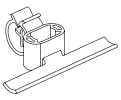
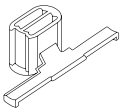
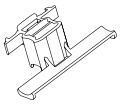
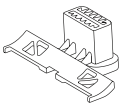
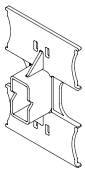
- Easy assembly, without tool
- Horizontal length tolerance compensation up to 4.0 mm
- BCUWS5-D5-25: for coarse thread studs
- If connector retainer is a request: TCSB5CYCC
- If post-installation of cables is a need: Bundling clip SB5

Material specification please see page 22.

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



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
BCUWS5-D5-25-PA66HIRHS-NA		5.0	50.0
BCBRKTSB5-PA66HIRHSUV-BK		5.0	71.0

All dimensions in mm. Subject to technical changes.

Date of issue: 07/2019

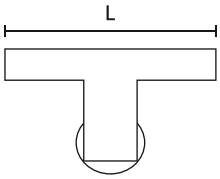
Bundling Clips for Weld Studs, lateral adjustment

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 soloution provider at limited space areas.

Features and benefits

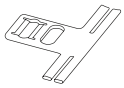
- Very flat bundling clip for 5.0 mm weld stud
- Horizontal length tolerance compensation
- Suitable for cables of reduced weight and diameter

The slim line BC series is particularly compact and flexible.



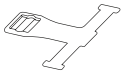
Reference for dimensions only

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.

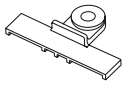
BC30 for distance 30.0 mm

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.

Date of issue: 07/2019

Bundling Clips for Edges

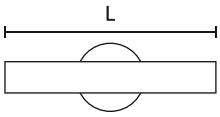
1 - 3 mm and 1.5 - 4.0 mm

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

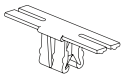
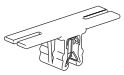
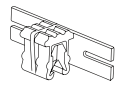
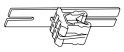
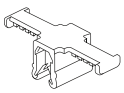
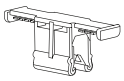
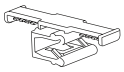
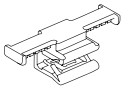
- Easy assembly, just shuffle manually
- Designed for edges of 1 - 3 and 1.5 - 4 mm
- Integrated metal clamp holds clip firmly in place
- Clamp consists of double tempered steel spring
- ATS fixing elements can be tied automatically with tools ATS3080, AT2000 or AT2000CPK

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.

Date of issue: 07/2019

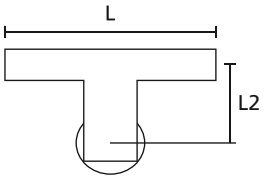
Bundling Clips for Edges for Distance Routing

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

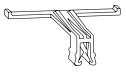
- Especially for banding of cables and cable harnesses
- Fastened onto bundling bar with cable ties or adhesive tape
- Various base geometries for different routing directions avaliable
- Integrated double tempered steel spring clamp holds clip firmly in place
- Ideal for applications where holes or adhesives are not suitable

Bundling clip EC48 for edges, for distance routing.



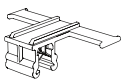
Reference for dimensions only

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.

Date of issue: 07/2019

Bundling Clips for Connectors

Bundling Clips for Connectors

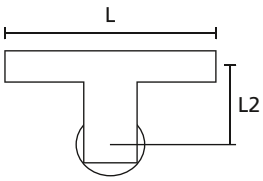
Originally designed for the automotive industry, these clips offer simple and easy methods of securing cables, hoses or pipes. These parts are used in the automotive industry for assembly of cable harnesses.

Features and benefits

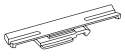
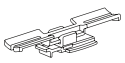
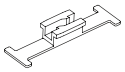
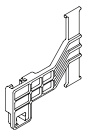
- Bundles are guided above connector plug
- Secure fixing of connector
- Connector easily installed by simply pushing into place
- Connection can be released non-destructive

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.

Date of issue: 07/2019

Connector Clips for round holes

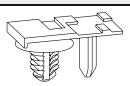
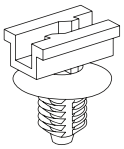
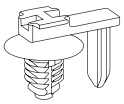
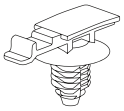
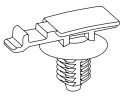
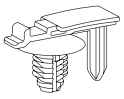
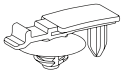
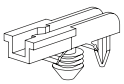
With Fir Tree

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.

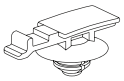
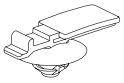
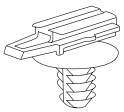
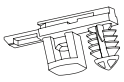
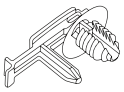
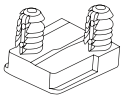
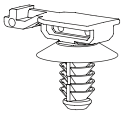
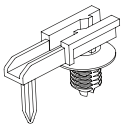
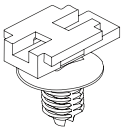
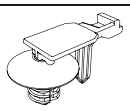
PART DESCRIPTION	Drawing	Hole Ø (FH)	Panel Thickness
Big YCC TS-PA66HIRHS-BK		6.4 - 7.1	0.7 - 5.1
FT6LG-AMP-PA66HIRHS-BK		6.5 - 7.0	0.7 - 6.0
FT6LG.JAE.CONNECT.TS-PA66HIRHS-BK		6.5 - 7.0	0.7 - 5.1
FT6LG.M.St.Aufn.II-PA66HIRHS-BK		6.5 - 7.0	0.8 - 1.5
CCFT5-6D16-PA66HIRHS-BK		M6	0.7 - 4.5
FT6LG CC-PA66HIRHS-BK		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.

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Connector Clips for round holes

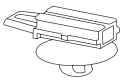
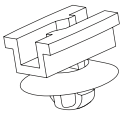
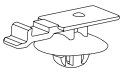
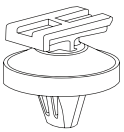
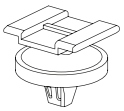
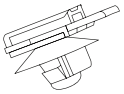
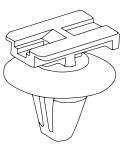
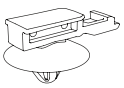
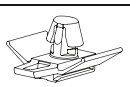
With Arrowhead

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 YCCKSFT6.5-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
YCCKSFT6.5-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
YCCKSFT6.5-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.

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Connector Clips for Oval Holes

With FirTree

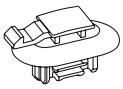
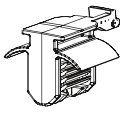
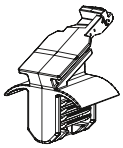
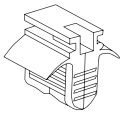
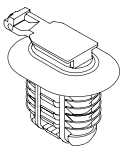
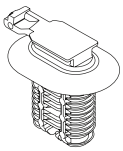
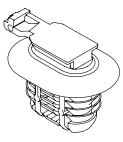
The connector clips used here have been designed for electronic cables and cable sets used in the automotive industry. These parts are related to a connector and then secured to a surface depending on the requirement.

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.

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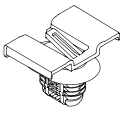
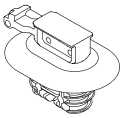
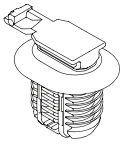
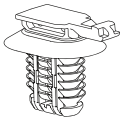
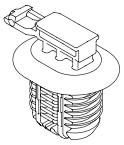
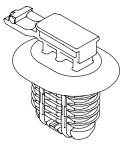
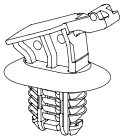
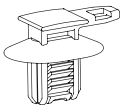
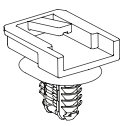
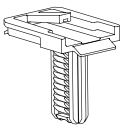
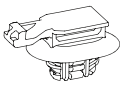
Connector Clips for Oval Holes

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.

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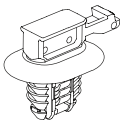
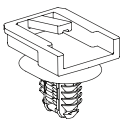
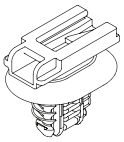
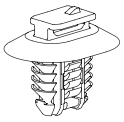
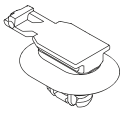
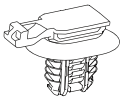
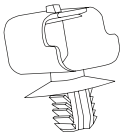
Connector Clips for Oval Holes

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.

Date of issue: 07/2019

Connector Clips for Oval Holes

With Arrowhead

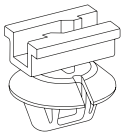
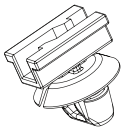
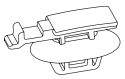
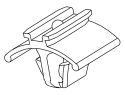
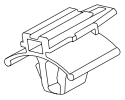
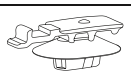
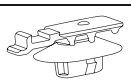
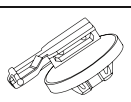
The connector clips used here have been designed for electronic cables and cable sets used in the automotive industry. These parts are related to a connector and then secured to a surface depending on the requirement.

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

Material specification please see page 22.

Connector clip CCIISFT6 with arrowhead fixing for oval holes.

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.

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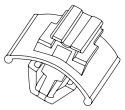
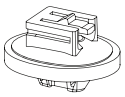
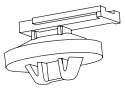
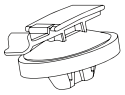
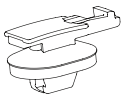
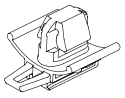
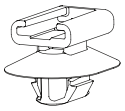
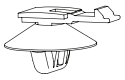
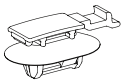
Connector Clips for Oval Holes

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.

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Connector Clips for Weld Studs

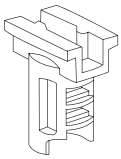
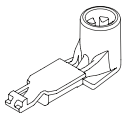
The Connector Clips used here have been designed for electronic cables and cable sets used in the automotive industry. The Connector Clips are related to a Connector and then secured to a surface depending on the requirement.

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.

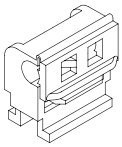
Connector Clips for Wires

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.

Date of issue: 07/2019

Connector Clips for Edges

1 - 3 mm, 1.5 - 4 mm and 3 - 6 mm

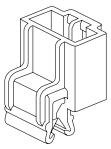
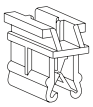
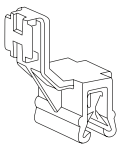
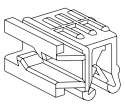
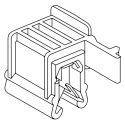
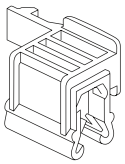
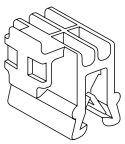
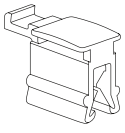
EdgeClips are used in the automotive industries and electrical industries and when it is impossible to drill holes or no other fixing points are available.

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.

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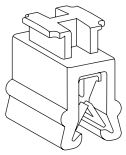
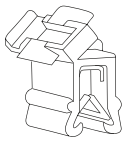
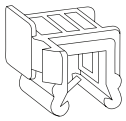
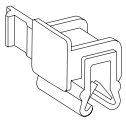
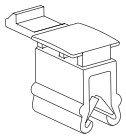
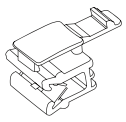
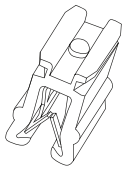
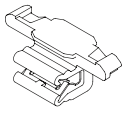
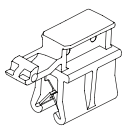
Connector Clips for Edges

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

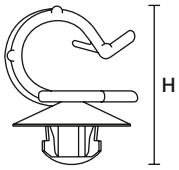
KSFT6.5OC with low Arrowhead

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

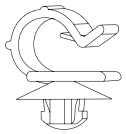
- Fixing part with rounded arrowhead to minimise assembly height
- Ideal for applications where space is limited
- Simply clip on a wire or hose
- Bundle diameter is defined
- Suitable for post-installation of bundles

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.

Date of issue: 07/2019

Fixing Elements for Tubes and Harnesses

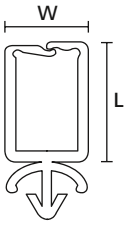
With Arrowhead

The increasing complexitiy 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.

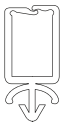
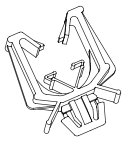
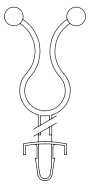
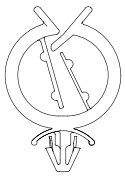
Features and benefits

- 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

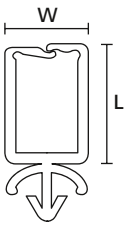
PART DESCRIPTION	Drawing	Width (W)	Length (L)	Hole Ø (FH)
WPC10-PA66-NA		5.3	15.0	4.75
HC140SFT62x122-PA6HIR-BK		14.0	30.0	6.2 x 12.2
HC2x7.3AH13-PV-PA66W-BK		24.0	26.4	13.0 - 15.0
HTS9-PA66-BK		20.5	41.3	4.7 - 4.9
MWC12-PA66-BK		5.5	25.6	4.7 - 5.2

All dimensions in mm. Subject to technical changes.

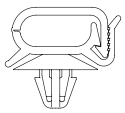
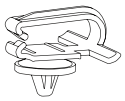
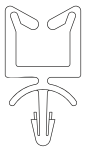
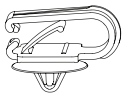
Date of issue: 07/2019

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.

Date of issue: 07/2019

Fixing elements with arrowhead

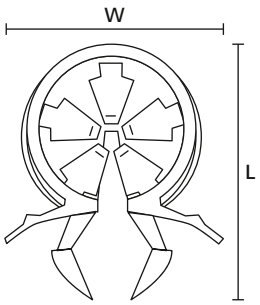
OHC-Series

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

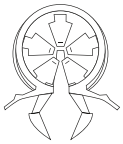
- Cables installed before fixation to a panel, as entry located in the foot part
- Installation into a through hole
- Conical flexible wings for a wider range of cable diameters and for a better centering of the bundle
- Recommended solution in environments subject to vibrations

Harness clip OHC8 for pre assembling on harnesses.



Reference for dimensions only

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

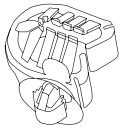
HC-Series for oval holes

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.

Date of issue: 07/2019

Fixing Elements for Tubes and Harnesses

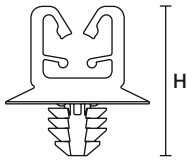
With Fir Tree

Features and benefits

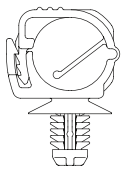
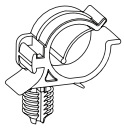
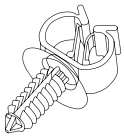
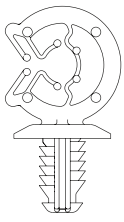
- Easy to install without the need for a tool
- Types with disc cover the hole and protect against dirt and dust ingress
- Rattlefree and secure hold of bundles due to retaining collar
- Suitable for post-installation of bundles
- Easy replacement of bundles in case of maintenance

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.

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Fixing Elements for Tubes and Harnesses

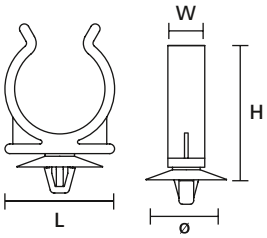
PC-Series

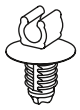
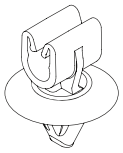
Pipe clips offering a simple and time saving fixing methode for hoses and pipes even when a cable tie can't be used.

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.

Date of issue: 07/2019

Fixing Elements for Tubes and Harnesses

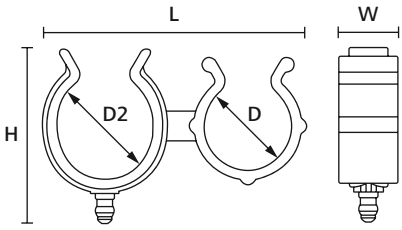
DTC - Double Tube Clip, rotatable 360°

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.



DTC Tubeclip *DTC Tubeclip*

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.

Date of issue: 07/2019

Fixing Elements for Tubes and Harnesses, interconnectable

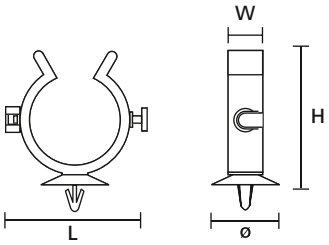
IPC-Series with Arrowhead, connectable

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.

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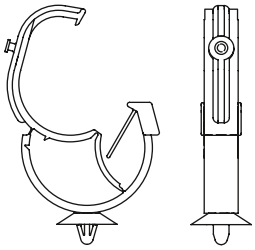
Fixing Elements for Tubes and Harnesses with Automatic Locking Feature

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

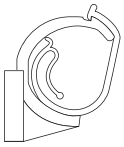
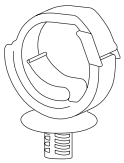
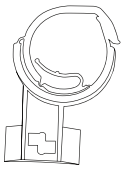


AHC( )AH

Automatic Harness Clip open.

Automatic Harness Clip closed.

Material specification please see page 22.

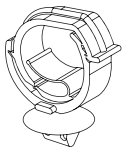
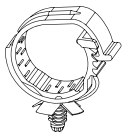
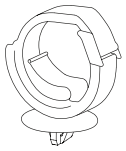
PART DESCRIPTION	Drawing	Bundle Ø max.	Hole Ø (FH)	Stud Ø	Panel Thickness	Width (W)	Length (L)
AHC2SS-PA66HIRHS-BK		-	-	5.0	-	10.0	29.0
AHC2AH-PA66HIRHS-BK		-	6.2 - 6.7	-	0.5 - 3.0	10.0	29.5
AHC1AH-PA66HIRHS-BK		13.0	6.2 - 6.7	-	0.5 - 2.0	10.0	24.0
AHC4AH-PA66HIRHS-BK		41.5	6.2 - 6.7	-	0.8 - 2.7	13.5	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.

Date of issue: 07/2019

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

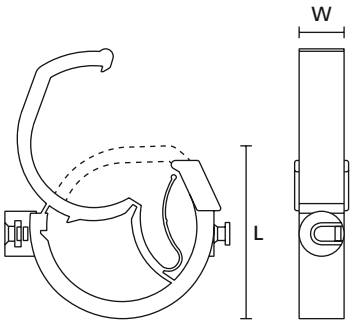
IAHC-Series, Connectable

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.

Date of issue: 07/2019

Fixing Elements for Tubes and Harnesses with Automatic Locking Feature, connectable

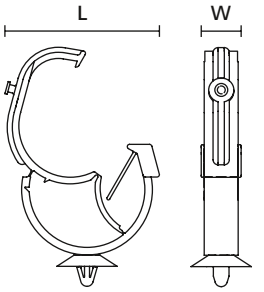
IAHC-Series, Connectable, with Arrowhead

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.

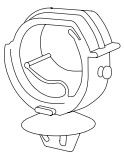
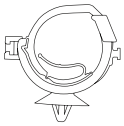
IAHC elements can be connected.

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



AHC( )AH *AHC( )AH*

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.

Date of issue: 07/2019

Fixing Elements for Corrugated Tubing, with Arrowhead

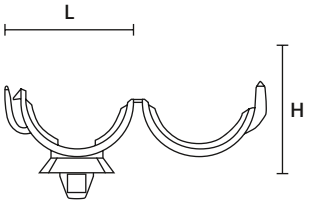
These clamps are used in the automotive industry, in the production of cable harnesses and in the electrical industry. Their quick and easy mounting is the reason for their universal success wherever corrugated tubing and pipes have to be fixed quickly and securely.

Features and benefits

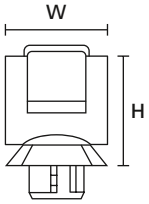
- Clamps for corrugated tubing for a variety of nominal diameters
- Arrowhead simply locks into place
- Tube is guided accurately by clicking
- Axial slipping is prevented by the inside profile of the clamp
- CTCLPROFILE clamp can also fastened to a metal edge

Simple and secure installation of pipes or hoses to panels.

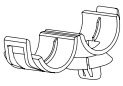
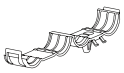
Material specification please see page 22.



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.

Date of issue: 07/2019

Fixing Elements for Corrugated Tubing, with Fir Tree

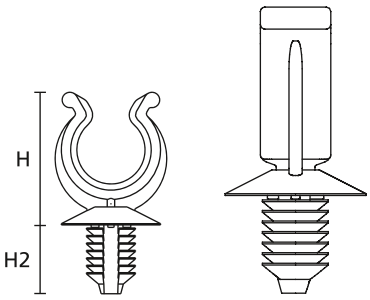
CTC-Series

CTC clamps are used for example in the automotive, harness making, electrical industry and wherever corrugated tubing has be quickly and firmly fixed.

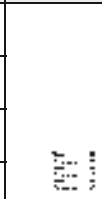
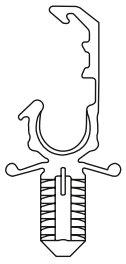
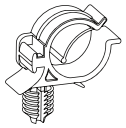
Features and benefits

- 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.



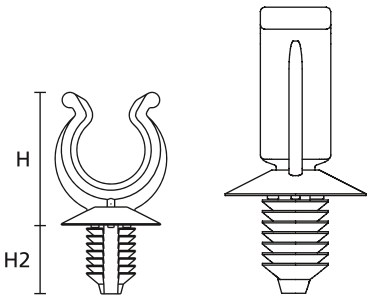
CTC-Series

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	-
CTCFT6-PA66HIRHS-BK		11.0	18.5	9.3	6.3 - 6.7	0.7 - 4.5	15.0	-

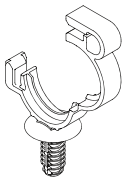
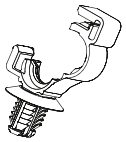
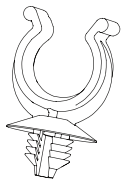
All dimensions in mm. Subject to technical changes.

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.

Date of issue: 07/2019

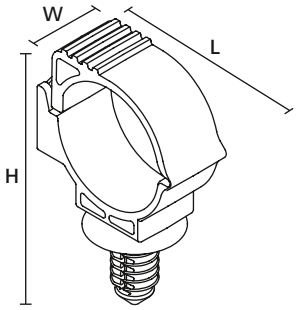
Fixing Elements for Tubes and Pipes

LOC-Series

These clips offer fast and easy bundling of convuluted tubes and pipes, especially for the automotive industry.

Features and benefits

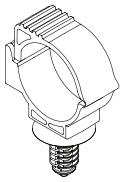
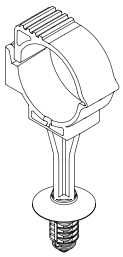
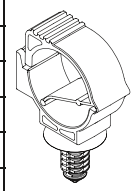
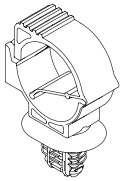
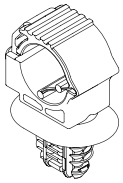
- For fixing and bundling convoluted tubes and pipes
- Vibration resistant, rattlefree and secure hold of bundle
- In case of maintenance easy replacement of bundle possible



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.

Date of issue: 07/2019

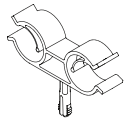
Fixing Elements for Weld Studs for parallel routing, rotatable

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

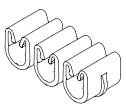
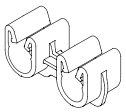
PCX-Series, multi parallel routing

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 soloution 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.

Date of issue: 07/2019

Fixing Elements for Corrugated Tubing, for Weld Studs

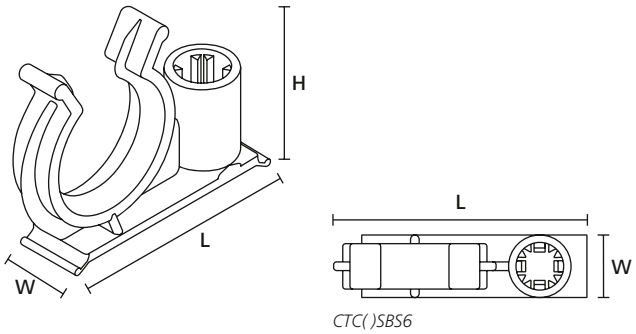
CTC-Series for Weld Studs

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

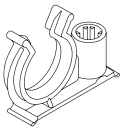
- Fixing elements for corrugated tubing for nominal diameters from 4.5 - 17.0 mm
- For M6 weld studs
- Soft-Push mechanic for simple assembly, without tool
- Tube is guided accurately by clicking
- Axial slipping is prevented by the inside profile of the clamp
- Clamp can be unscrewed and removed from the weld stud

The tubing is clicked into the CTC clamp and is held firmly.



CTC( )SBS6

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.

Date of issue: 07/2019

Fixing Elements for Weld Studs

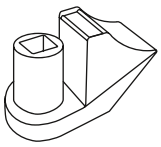
SB-Series

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.

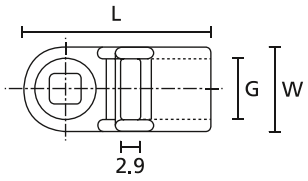
The use of weld studs avoids the problems with holes (ingress of moisture, corrosion etc).

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



SBH1, SBH3



SBH1, SBH3

SBH2 allow cables to run at 90° to the panel.

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

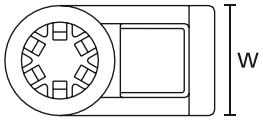
All dimensions in mm. Subject to technical changes.

Fixing Elements for Weld Studs

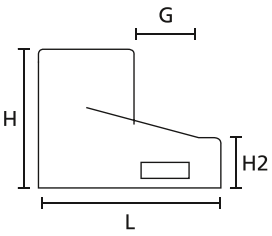
CT-Series

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.

Date of issue: 07/2019

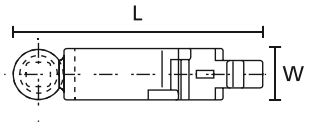
Fixing Elements for Weld Studs

SBF-Clips

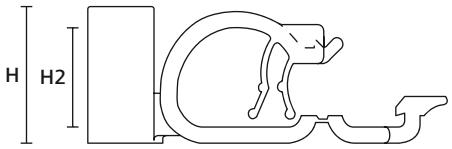
Features and benefits

- 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.



SBF2



SBF2

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.

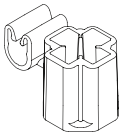
Fixing Elements for Weld Studs, Cloverleaf Design

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

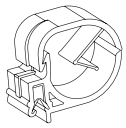
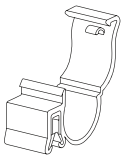
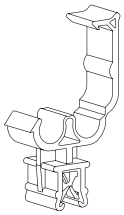
EdgeClips are used in the automotive industries and electrical industries and when it is impossible to drill holes or no other fixing points are available.

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.

Date of issue: 07/2019

Fixing elements for Parallel Routing, twistable

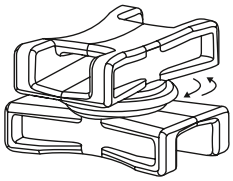
DSWS-Series

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.

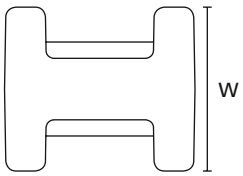
Features and benefits

- 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

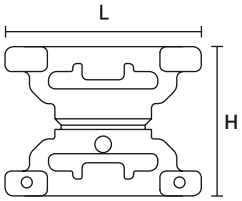
The spacers can be easily rotated by hand, allowing the bundles to be crossed and rotated at any angle.



Swivel



DSWS4



DSWS4

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.

Date of issue: 07/2019

Heavy Duty Harness Clips

Beam clamps / Wedge clips

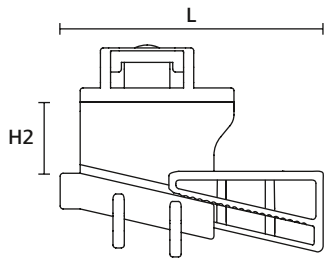
Primarily designed for use in the automotive/truck industry, these parts can be used in a wide variety of industries and applications where bundles need mounting.

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.

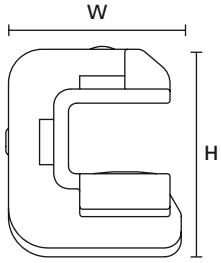
Features and benefits

- 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.

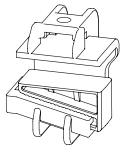
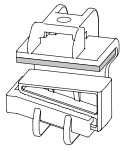


Beam Clamp, Front view



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.

Date of issue: 07/2019

Snapper Hose Clips for Tubes and Harnesses

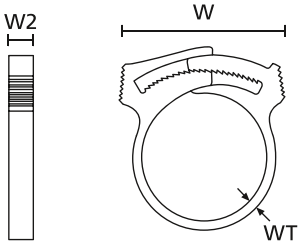
SNP-Series

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)

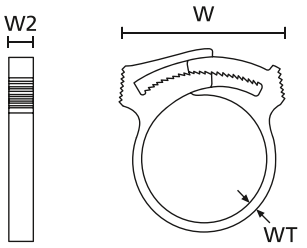
PART DESCRIPTION	Bundle Ø min.	Bundle Ø max.	Width (W) min.	Width (W) max.	Width (W2)	Wall (WT)
SNP1-POM-WH	6.0	6.5	8.33	11.73	3.8	1.00
SNP1-PA66GF13-BK	6.0	6.8	8.40	11.70	3.8	1.00
SNP1.25-PA66GF13-BK	7.1	7.7	10.57	12.62	3.8	1.10
SNP2(E)-POM-NA	8.7	10.0	17.00	21.00	6.0	1.50
SNP2-PA66GF13-BK	9.3	10.5	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.

Date of issue: 07/2019

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.

Date of issue: 07/2019

Blind Plugs

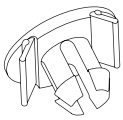
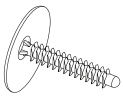
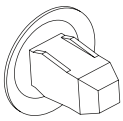
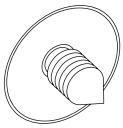
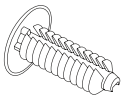
Our Plugs were developed especially for the automotive industry. Application in trunks, doors, wheel housing and dash panels. Whenever needed to secure a hole against dirt or dust. Sometimes even used for optical reasons.

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

Material specification please see page 22.

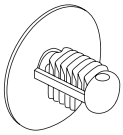
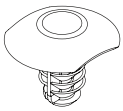
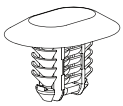
Blindplugs are available in different dimensions and materials.

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.

Date of issue: 07/2019

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.

Date of issue: 07/2019

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.

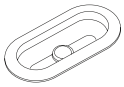
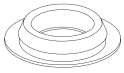
Features and benefits

- 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

Material specification please see page 22.

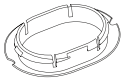
Cover Plugs are protecting and securing boreholes.

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.

Date of issue: 07/2019

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.

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