Fastening solutions
Easily bundle, secure and manage your cables

Power and productivity
for a better world™

ABB

Introduction
Fastening solutions, how it all started

Ty-Rap®

First developed to solve the problem of bundling the hundreds of feet of wiring found inside commercial aircraft, Ty-Rap® cable ties can now be found virtually everywhere - from Nascar racing engines to backyard tool sheds. Self-fastening and basically indestructible, the ground-breaking design of the Ty-Rap® cable tie demonstrates how to solve a complex problem with a simple technology.

"My dad didn't have a lot of formal education, but he was the most ingenious person I have ever met,» said Robert Logan, Maurus' son. «He never thought the customary way of doing things was good enough and when he looked at anything he thought about ways to improve it. The invention of the cable tie is an excellent example of how he worked.»
Maurus Logan Ty-Rap® Inventor

For the cable tie, the proverbial light bulb came on over Logan's head while touring a Boeing aircraft manufacturing facility in 1956. Aircraft wiring was a cumbersome and detailed undertaking, involving thousands of feet of wire organized on sheets of 50-foot long plywood and held in place with knotted, waxcoated, braided nylon cord. Each knot had to be pulled tight by wrapping the cord around one's finger which sometimes cut the operator's fingers until they developed thick calluses or «hamburger hands.» Logan was convinced there had to be an easier, more forgiving, way to accomplish this critical task. For the next couple of years, Logan experimented with various tools and materials. On June 24, 1958, a patent for the longlasting, easy-to-use Ty-Rap® cable tie was submitted. The rest, as they say, is history

Table of Content
Ty-Rap® High Performance Cable Ties

Ty-Rap®
High Performance Cable Ties

Thomas & Betts (today a Member of the ABB Group) invented the Ty-Rap® cable tie to solve the problem of harnessing the hundreds of wires used in manufacturing aircraft and revolutionised the world of fastening. Today, the Ty-Rap® brand remains the benchmark for excellence and innovation in wire management.

Ty-Rap®

ABB's broad offering of cable ties is designed to make the task of fastening, bundling, clamping and managing wires easier and quicker for industrial applications, construction, communications, utility and OEM professionals as well as home improvement specialists and do-it-yourself enthusiasts. When strength, aesthetics, reliability and performance are required, knowledgeable professionals turn to the original and the best source for cable ties and accessories.

The corrosion-proof, non-magnetic stainless steel locking device inside the tie head guarantees the strongest and most durable locking you will ever find on the market. Ty-Rap® can be used in the most adverse conditions: humidity, heat, cold,…

Engineered for labour savings and high performance, Ty-Rap® cable ties are commonly used in a variety of applications.

When you choose a Ty-Rap® cable tie, you can count on quality, performance and innovation to make your work easier.

Thomas & Betts - A Member of the ABB Group

Since June 2012, Thomas & Betts (T&B) is a Member of the ABB Group. ABB is a leading power and automation technology group, active in more than 100 countries with about 150.000 employees worldwide.

With Thomas & Betts, this portfolio will is now completed with the following product lines and flagship brands:
- *Wire & Cable Management* - Ty-Rap® and Ty-Met® cable ties, Shrink-Kon® heat shrink, T&B Cabletray
- *Cable Protection Systems* - nylon & metallic incl. brands: PMA, Adaptaflex, Kopex-Ex, Harnessflex
- *Low Power Connection & Control* - Furse lightning & surge protection, Elastimold, Joslyn Hi-Voltage
- *Emergency lighting* - emergency lighting, battery systems incl. VanLien, Kaufel, Emergi-Lite brands
- *Hazardous location products* – DTS explosion proof light & boxes, Kopex-Ex conduits & fittings

Features and Benefits
Ty-Rap® High Performance Cable Ties

When strength, aesthetics, reliability and performance are required, knowledgeable professionals turn to the original and the best source for cable ties and accessories. Ty-Rap® fastening systems include a full range or cable ties, identification ties, clamps, mounting bases, harnessing aids and installing tools. Using Ty-Rap® fastening systems for all wiring jobs, large and small, will speed and improve the reliability of harnessing and wire bundling while saving you money.

Ty-Rap®

Rounded Edges, on the head and the strap, provide a comfortable handling of the ties and prevent sharp edges from damaging the cables. This gradual transition from the strap to the head protects the material against breaking at this most critical point. The edges of the head are also rounded off to offer maximum protection from injury.

Smooth, Notchless Body, reduces stress concentration points, making the Ty-Rap® ties stronger and thinner than conventional ties with notched bodies. The low-profile design of the head allows secure tying in tight spaces. No serration, means infinite adjustment (tensioned right every time).

"The Grip of Steel"
Non-Magnetic Stainless Steel Locking Barb – marine grade type 316 - that firmly anchors inside the tie head, ensures a strong, reliable and long lasting fastening under adverse conditions.

Ribbed and Stippled Surface, to prevent the tie from slipping around and along the bundle under vibration conditions and external shock.
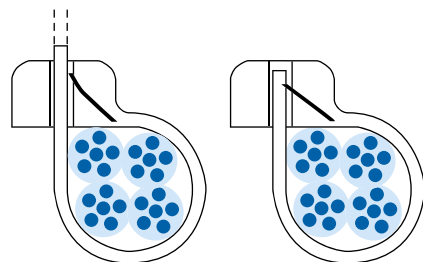
Non-Slip Tail, for an easy grip
and pulling through the head during tensioning.

Extensive Range of Approvals:
Germanischer Lloyd, Lloyd's Register of Shipping,
Bureau Veritas, UL, VG,MIL and IEC 62275.

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Wide Range of Size Combinations:
several lengths up to 1143 mm, in 6 typical widths
with a tensile strength up to 780N, to fasten cable
bundles with a diameter up to 330mm.

Dedicated Tooling,
to ensure that the excess end of the Ty-Rap® tie
is automatically cut off and the slight over cut
retracts into the head, eliminating the risk of
injury from protruding sharp edges.

Most Extensive Choice of Special Materials:
in addition to Polyamide 6.6 (standard,
UV-resistant, heat stabilised, flame retardant,
heat stabilised / UV-resistant), Polyamide 4.6
(extra high temperature) and Polyamide 12,
the Ty-Rap® ties are available in Polypropylene,
Fluoropolymer (ECTFE), Fluoropolymer (ETFE) and
the recently introduced Detectable Polyamide 6.6
and Detectable Polypropylene. UL 94 V-0, UL 94
V-2 and UL 94 HB.

UV-resistant | Flame retardant | Heat resistant | Weather-proof | Low temperature flexibility

Radiation resistant | Chemically resistant | Low smoke | Detectable

Angled Tail (turned up)
for fast and easy insertion into
the locking head
and ideally suited to being
picked up from a flat work area.

Wide Choice of Colours:
10 standard colours are available
and pre-printed customized ties in
any of the standard colours can be
supplied on demand.

Different Types of Packaging,
including the unique "workbench
boxes" for fast working without
problems or losses.
Recyclable packaging for a better
contribution to the environment.

Outstanding Range of Special Ties,
all with the famous stainless steel
locking device:
ties with mounting hole or integrated
peg/nail, panel mounting ties,
identification ties with integrated
label,...

**Broad Range of Mounting Bases and
Accessories.**
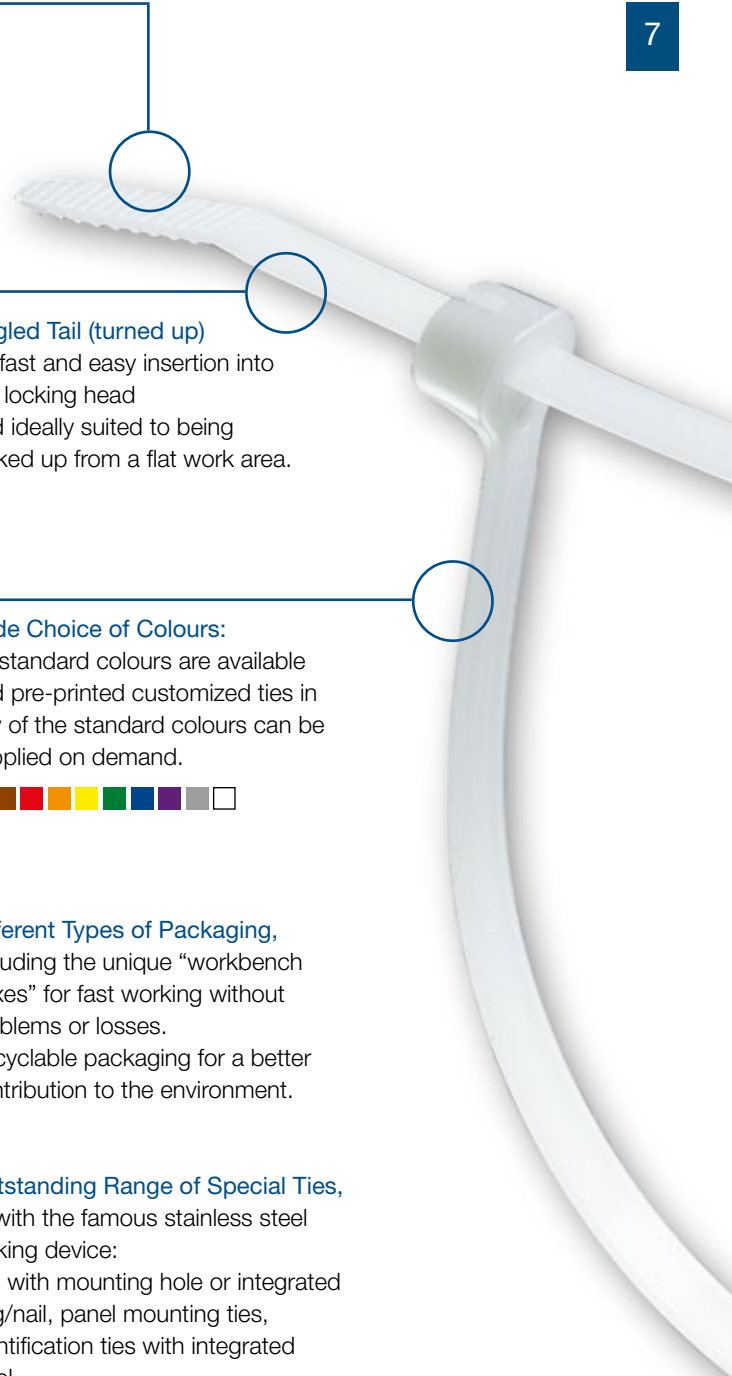
Product reference structure
Ty-Rap® High Performance Cable Ties

Ty-Rap® code

Tie		Dimension code				
TY		**XXXXM**				
TY	C	5	25M	X	R	

Material

"blank"	– Standard, Polyamide 6.6
H	– Heat stabilised Polyamide 6.6 (+105 °C)
HT	– High temperature resistant Polyamide 4.6 (+150 °C)
C	– Polyamide 12
P	– Polypropylene
Z	– ETFE Fluoropolymer
V	– ECTFE Fluoropolymer
D	– Toughened weatherable acetal*

Packaging size

"blank"	– Standard, 1000/500 pieces
B	– Workbench box, 1000 pieces
5	– Small bags 100/50 pieces

Material properties

X	– UV-resistant black
X-A	– UV-resistant black and heat stabilised (+105°C)
FR	– Flame-retardant according to UL 94 V-0
-NDT	– Detectable Polyamide 6.6
-PDT	– Detectable buoyant Polypropylene

Rack Bag with Euroslot

Colour

"blank"	= natural
0	= black
1	= brown
2	= red
3	= orange
4	= yellow
5	= green
6	= blue
7	= purple
8	= grey
9	= white

* Only for Deltec ties

Note: Nylon (Polyamide) is inherently susceptible to environmental conditions. Ty-Rap® cable ties are moisturised to optimum performance levels at machine-side and should be stored in cool dry areas out of direct sunlight. Cable ties are packaged in plastic bags to contain moisture and should remain sealed until ready for use.

Polyamide 6.6 cable ties - Natural
Ty-Rap® High Performance Cable Ties

Characteristics
- Standard version (Polyamide 6.6), to cover most indoor applications
- Several lengths and 6 typical widths with a tensile strength up to 780N, to cover the most demanding applications
- Wide range of colours
- Packaging: OEM bulk quantities in recyclable polythene bags
- Also available in small bags with Euroslot (see page 12) and in workbench boxes (see page 14)

Technical Information
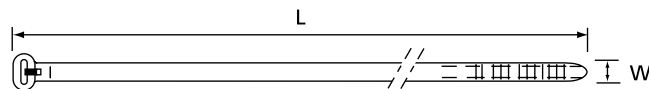|	
Material - Moulding	Polyamide 6.6
Material - Locking barb	316 grade stainless steel
Temperature range	-40°C to +85°C
Colour	Natural
Flammability rating	UL 94 V-2
Other properties	Halogen free, Silicone free

Product Ref.	MIL Spec.	Length L [mm]	Width W [mm]	Thickness [mm]	Bundle ø from ... to [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
TY23M	MS-3367-4	92	2.4	1.0	2 - 16	80	1000	
TYB2315M	–	178	2.4	1.0	2 - 38	80	1000	
TY232M	–	203	2.4	1.0	2 - 50	80	1000	
TY234M	–	356	2.4	1.0	2 - 102	80	1000	ERG50
TY24M	MS-3367-5	140	3.6	1.1	2 - 29	180	1000	WT193A
TY242M	–	204	3.6	1.1	2 - 50	180	1000	
TY26M	–	284	3.6	1.1	2 - 76	130	1000	
TY244M	–	368	3.6	1.1	2 - 103	130	1000	
TY25M	MS-3367-1	186	4.8	1.3	3.5 - 45	220	1000	ERG50
TY253M	MS-3367-7	295	4.8	1.3	3.5 - 78	220	1000	ERG120
TY28M	MS-3367-2	361	4.8	1.4	3.5 - 102	220	1000	WT193A
TY271M	–	150	7.6	1.5	6 - 31	540	500	
TY272M	–	223	6.9	1.6	6 - 50	540	500	
TY27M	MS-3367-3	340	6.9	1.6	6 - 90	540	500	ERG120
TY275M	–	457	6.9	1.6	6 - 127	540	500	L-500-EU
TY277M	–	617	6.9	1.6	6 - 177	540	500	
TY29M	MS-3367-6	771	6.9	1.5	6 - 229	540	500	
TY53510M	–	889	8.2	1.7	to 254	780	50	WT3D
TY54513M	–	1143	8.2	1.7	to 330	780	50	L-500-EU

Description of product reference structure: see page 8
Description of materials and properties: see pages 140 to 151
For tooling specifications: see pages 126 to 139

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Polyamide 6.6 cable ties - UV-resistant black
Ty-Rap® High Performance Cable Ties

Characteristics
- UV-resistant version, especially recommended for outdoor applications
- Black version (2% carbon for military specifications)
- Also available in heat stabilised + UV-resistant version, for outdoor applications that also require a resistance to high temperature (+105 °C). See page 19 (TY...MX-A series)
- Several lengths and 6 typical widths with a tensile strength up to 780N, to cover the most demanding applications
- Packaging: OEM bulk quantities in recyclable polythene bags
- Also available in small bags with Euroslot (see page 12) and in workbench boxes (see page 14)

Technical Information
|	
Material - Moulding	Polyamide 6.6
Material - Locking barb	316 grade stainless steel
Temperature range	-40°C to +105°C
Colour	Black (other colours see page 15)
Flammability rating	UL 94 V-2
Other properties	UV-resistant, Halogen free, Silicone free

Product Ref.	MIL Spec.	Length L [mm]	Width W [mm]	Thickness [mm]	Bundle ø from ... to [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
TY23MX	MS-3367-4	92	2.4	1.0	2 - 16	80	1000	
TYB2315MX	–	178	2.4	1.0	2 - 38	80	1000	
TY232MX	–	203	2.4	1.0	2 - 50	80	1000	ERG50
TY234MX	–	356	2.4	1.0	2 - 102	80	1000	WT193A
TY24MX	MS-3367-5	140	3.6	1.1	2 - 29	180	1000	
TY242MX	–	204	3.6	1.1	2 - 50	180	1000	
TY26MX	–	284	3.6	1.1	2 - 76	130	1000	
TY244MX	–	368	3.6	1.1	2 - 103	130	1000	
TY25MX	MS-3367-1	186	4.8	1.3	3.5 - 45	220	1000	ERG50
TY253MX	MS-3367-7	295	4.8	1.3	3.5 - 78	220	1000	ERG120
TY28MX	MS-3367-2	361	4.8	1.4	3.5 - 102	220	1000	WT193A
TY271MX	–	150	7.6	1.5	6 - 31	540	500	
TY272MX	–	223	6.9	1.6	6 - 50	540	500	ERG120
TY27MX	MS-3367-3	340	6.9	1.6	6 - 90	540	500	L-500-EU
TY275MX	–	457	6.9	1.6	6 - 127	540	500	
TY277MX	–	617	6.9	1.6	6 - 177	540	500	
TY29MX	MS-3367-6	771	6.9	1.5	6 - 229	540	500	
TY53510MX	–	889	8.2	1.7	to 254	780	50	WT3D
TY54513MX	–	1143	8.2	1.7	to 330	780	50	L-500-EU

Description of product reference structure: see page 8
Description of materials and properties: see pages 140 to 151
For tooling specifications: see pages 126 to 139
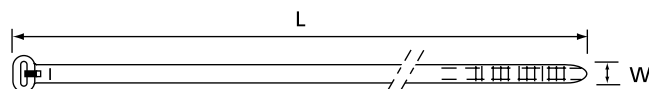
* Some approvals may not be applicable to all the Product References. Contact your Sales Office for approvals limitations

Polyamide 6.6 cable ties - Coloured
Ty-Rap® High Performance Cable Ties

Characteristics

Ty-Rap® ties in Polyamide 6.6 are available in 10 different colours and pre-printed ties in any of the standard colours can be supplied on demand.
- Several lengths and 6 typical widths with a tensile strength up to 780 N, to cover the most demanding applications
- Standard packaging is 1.000 / 500 pieces but smaller packaging (100 pieces) can also be supplied on request
- Please contact your Sales Office for product availability and Minimium Order Quantity

Technical Information

Material - Moulding	Polyamide 6.6
Material - Locking barb	316 grade stainless steel
Temperature range	-40°C to +85°C
Flammability rating	UL 94 V-2
Other properties	Halogen free, Silicone free

Product Ref.	MIL Spec.	Length L [mm]	Width W [mm]	Thickness [mm]	Bundle ø from ... to [mm]	Min. tensile strenght [N]	Quantity *** [pieces]	Tooling
TY23M-*	MS-3367-4	92	2.4	1.0	2 - 16	80	1000	
TY232M-*	–	203	2.4	1.0	2 - 50	80	1000	
TY234M-*	–	356	2.4	1.0	2 - 102	80	1000	ERG50
TY24M -*	MS-3367-5	140	3.6	1.1	2 - 29	180	1000	WT193A
TY242M-*	–	204	3.6	1.1	2 - 50	180	1000	
TY26M-*	–	284	3.6	1.1	2 - 76	130	1000	
TY244M-*	–	368	3.6	1.1	2 - 103	130	1000	
TY25M-*	MS-3367-1	186	4.8	1.3	3.5 - 45	220	1000	ERG50
TY253M-*	MS-3367-7	295	4.8	1.3	3.5 - 78	220	1000	ERG120
TY28M-*	MS-3367-2	361	4.8	1.4	3.5 - 102	220	1000	WT193A
TY271M-*	–	150	7.6	1.5	6 - 31	540	500	
TY272M-*	–	223	6.9	1.6	6 - 50	540	500	
TY27M-*	MS-3367-3	340	6.9	1.6	6 - 90	540	500	ERG120
TY275M-*	–	457	6.9	1.6	6 - 127	540	500	L-500-EU
TY277M-*	–	617	6.9	1.6	6 - 177	540	500	
TY29M-*	MS-3367-6	771	6.9	1.5	6 - 229	540	500	
TY53510M-*	–	889	8.2	1.7	to 254	780	50	WT3D
TY54513M-*	–	1143	8.2	1.7	to 330	780	50	L-500-EU

For cable ties in a specific colour, replace * in the Product Reference by the colour code:
0 = black, 1 = brown, 2 = red, 3 = orange, 4 = yellow, 5 = green, 6 = blue, 7 = purple, 8 = grey and 9 = white

For example: TY23M-1 defines a brown TY23M cable tie. Contact your Sales Office for product availability.
** Some approvals may not be applicable to all the Product References. Contact your Sales Office for approvals limitations
*** For smaller quantities, the figure "5" needs to be added to the part number immediately after "TY" - exemple: TY523M-2 is the same as TY23M-2 but in bags of 100

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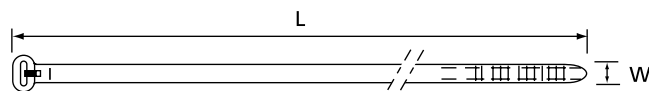
Polyamide 6.6 cable ties - Natural - Euroslot packaging
Ty-Rap® High Performance Cable Ties

Characteristics

The main characteristics of the Ty-Rap® cable ties are shown on pages 6 and 7.
- Standard version (Polyamide 6.6), to cover most indoor applications
- Packaging in small polythene bags with Euroslot, ideal for display and point-of-sales promotion (rack)
- Several lengths and 6 typical widths with a tensile strength up to 780N, to cover the most demanding applications
- Very convenient for small series production: 100 pieces (for cable ties from 2.4 mm to 4.8 mm width) or 50 pieces (for cable ties 6.9 mm width and above)

Technical Information

|	
Material - Moulding	Polyamide 6.6
Material - Locking barb	316 grade stainless steel
Temperature range	-40°C to +85°C
Colour	Natural
Flammability rating	UL 94 V-2
Other properties	Halogen free, Silicone free

Product Ref.	MIL Spec.	Length L [mm]	Width W [mm]	Thickness [mm]	Bundle ø from ... to [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
TY523MR	MS-3367-4	92	2.4	1.0	2 - 16	80	100	
TY5232MR	–	203	2.4	1.0	2 - 50	80	100	
TY5234M*	–	356	2.4	1.0	2 - 102	80	100	ERG50
TY524MR	MS-3367-5	140	3.6	1.1	2 - 29	180	100	WT193A
TY5242MR	–	204	3.6	1.1	2 - 50	180	100	
TY526MR	–	284	3.6	1.1	2 - 76	130	100	
TY5244MR	–	368	3.6	1.1	2 - 103	130	100	
TY525MR	MS-3367-1	186	4.8	1.3	3.5 - 45	220	100	ERG50
TY5253MR	MS-3367-7	295	4.8	1.3	3.5 - 78	220	100	ERG120
TY528MR	MS-3367-2	361	4.8	1.4	3.5 - 102	220	100	WT193A
TY5271MR	–	150	7.6	1.5	6 - 31	540	50	
TY5272MR	–	223	6.9	1.6	6 - 50	540	50	
TY527MR	MS-3367-3	340	6.9	1.6	6 - 90	540	50	ERG120
TY5275M*	–	457	6.9	1.6	6 - 127	540	50	L-500-EU
TY5277M*	–	617	6.9	1.6	6 - 177	540	50	
TY529M*	MS-3367-6	771	6.9	1.5	6 - 229	540	50	

* Product References TY5234M, TY5275M, TY5277M and TY529M have no Euroslot

Description of product reference structure: see page 8
Description of materials and properties: see pages 140 to 151
For tooling specifications: see pages 126 to 139
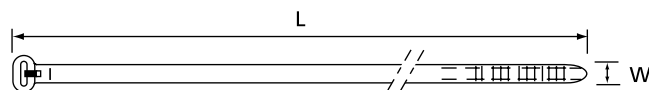
** Some approvals may not be applicable to all the Product References. Contact your Sales Office for approvals limitations

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Polyamide 6.6 cable ties - UV-resistant black - Euroslot packaging
Ty-Rap® High Performance Cable Ties

Characteristics

The main characteristics of the Ty-Rap® cable ties are shown on pages 6 and 7.
- UV-resistant version, especially recommended for outdoor applications
- Black version (2% carbon for military specifications)
- Packaging in small polythene bags with Euroslot, ideal for display and point-of-sales promotion (rack)
- Several lengths and 6 typical widths with a tensile strength up to 780N, to cover the most demanding applications
- Very convenient for small series production: 100 pieces (for cable ties from 2.4 mm to 4.8 mm width) or 50 pieces (for cable ties 6.9 mm width and above)

Technical Information

Material - Moulding	Polyamide 6.6
Material - Locking barb	316 grade stainless steel
Temperature range	-40°C to +105°C
Colour	Black (other colours see page 15)
Flammability rating	UL 94 V-2
Other properties	Halogen free, Silicone free

Product Ref.	MIL Spec.	Length L [mm]	Width W [mm]	Thickness [mm]	Bundle ø from ... to [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
TY523MXR	MS-3367-4	92	2.4	1.0	2 - 16	80	100	
TY5232MXR	–	203	2.4	1.0	2 - 50	80	100	
TY5234MX*	–	356	2.4	1.0	2 - 102	80	100	ERG50
TY524MXR	MS-3367-5	140	3.6	1.1	2 - 29	180	100	WT193A
TY5242MXR	–	204	3.6	1.1	2 - 50	180	100	
TY526MXR	–	284	3.6	1.1	2 - 76	130	100	
TY5244MXR	–	368	3.6	1.1	2 - 103	130	100	
TY525MXR	MS-3367-1	186	4.8	1.3	3.5 - 45	220	100	ERG50
TY5253MXR	MS-3367-7	295	4.8	1.3	3.5 - 78	220	100	ERG120
TY528MXR	MS-3367-2	361	4.8	1.4	3.5 - 102	220	100	WT193A
TY5271MXR	–	150	7.6	1.5	6 - 31	540	50	
TY5272MXR	–	223	6.9	1.6	6 - 50	540	50	ERG120
TY527MXR	MS-3367-3	340	6.9	1.6	6 - 90	540	50	L-500-EU
TY5275MX*	–	457	6.9	1.6	6 - 127	540	50	
TY5277MX*	–	617	6.9	1.6	6 - 177	540	50	
TY529MX*	MS-3367-6	771	6.9	1.6	6 - 229	540	50	

* Product References TY5234MX, TY5275MX, TY5277MX and TY529MX have no Euroslot

Description of product reference structure: see page 8
Description of materials and properties: see pages 140 to 151
For tooling specifications: see pages 126 to 139
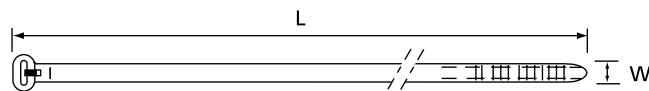
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** Some approvals may not be applicable to all the Product References. Contact your Sales Office for approvals limitations

Polyamide 6.6 cable ties - Workbench boxes
Ty-Rap® High Performance Cable Ties

Characteristics
- An attractive packaging option for high volume manual assembly: 1000 pieces in a workbench box - easy to reach, hence timesaving
- This user-friendly packaging allows fast working without problems or losses

Technical Information

Material - Moulding	Polyamide 6.6
Material - Locking barb	316 grade stainless steel
Temperature range	-40°C to +85°C (natural)
	-40°C to +105°C (black)
Colour	Natural or UV-resistant black (other colours see page 15)
Flammability rating	UL 94 V-2
Other properties	Halogen free, Silicone free, UV-resistant (black)

Product Ref.	MIL Spec.	Colour	Length L [mm]	Width W [mm]	Thick-ness [mm]	Bundle ø from ... to [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
TYB23M	MS-3367-4	natural	92	2.4	1.0	2 - 16	80	1000	
TYB23MX	MS-3367-4	UV-resistant black	92	2.4	1.0	2 - 16	80	1000	
TYB232M	–	natural	203	2.4	1.0	2 - 50	80	1000	ERG50
TYB232MX	–	UV-resistant black	203	2.4	1.0	2 - 50	80	1000	WT193A
TYB24M	MS-3367-5	natural	140	3.6	1.1	2 - 29	180	1000	
TYB24MX	MS-3367-5	UV-resistant black	140	3.6	1.1	2 - 29	180	1000	
TYB25M	MS-3367-1	natural	186	4.8	1.3	3.5 - 45	220	1000	ERG50, ERG120
TYB25MX	MS-3367-1	UV-resistant black	186	4.8	1.3	3.5 - 45	220	1000	WT193A

Description of product reference structure: see page 8
Description of materials and properties: see pages 140 to 151
For tooling specifications: see pages 126 to 139

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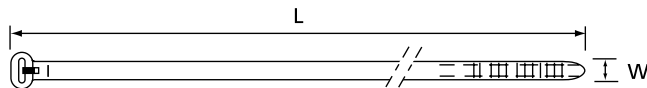
* Some approvals may not be applicable to all the Product References. Contact your Sales Office for approvals limitations

Polyamide 6.6 cable ties - Multi-coloured - UV-resistant
Ty-Rap® High Performance Cable Ties

Characteristics
- Multi-coloured TY25M cable ties in a single, convenient package
- Supplied in bags of 100 ties containing ten ties of each of the 10 standard colours
  (TY25M-0 to TY25M-9)
- Ideal for outdoor applications which require a colour coding or which have an aesthetic
  sensitivity (to match the colour of the cable or of the support), especially in cable bundling in
 telecom, datacom, cable and satellite TV

Technical Information

Material - Moulding	Polyamide 6.6
Material - Locking barb	316 grade stainless steel
Temperature range	-40°C to +85°C
Colour	Black, brown, red, orange, yellow, green, blue, purple, grey, white (10 ties of each colour)
Flammability rating	UL 94 V-2
Other properties	UV-resistant, Halogen free, Silicone free

Product Ref.	Length L [mm]	Width W [mm]	Thickness [mm]	Bundle ø from ... to [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
TY525M-CLRS	186	4.8	1.3	3.5 - 45	220	100	ERG50, ERG120, WT193A

Description of product reference structure: see page 8
Description of materials and properties: see pages 140 to 151
For tooling specifications: see pages 126 to 139

E49405
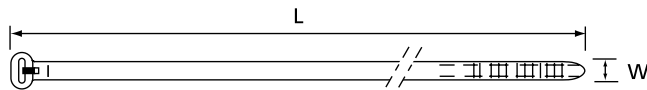
Printed cable ties
Ty-Rap® High Performance Cable Ties

ABB extends its highly respected existing capabilities in cable tie manufacture with its in-house printing equipment in order to respond flexibly to customer requirements and to allow rapid delivery. This service is offered for ties having a width of minimum 4.6 mm (batches of minimum 5,000 ties approximately)

According to the requirements, following printing processes are proposed:
Hot foil transfer
- The print is highly durable
- The basic character set is in accordance with DIN1451 - (3 mm character height)
- Text colours: Red, Orange, Yellow, Bright-Yellow, Green, Blue, Brown, Dark-Brown, Black, White

Inkjet
- The print is highly durable
- The standard printing colour is black
- The print is wear and weather resistant

Please contact your Sales Office for other character sets and special stamping designs.

Ty-Rap® professional kit
High Performance Cable Ties

Characteristics
A handy kit containing a professional selection of Ty-Rap® fastening products in one convenient box

- One ergonomic fastening tool ERG50 with exclusive features for quick set-up and fast installation
- 500 Ty-Rap® cable ties TY525MR
- 500 UV-resistant Ty-Rap® cable ties TY525MXR
- 100 Ty-Rap® cable ties TY525M included in a handy, light weight re-usable dispenser

Ty-Rap® dispenser
High Performance Cable Ties

Characteristics
- Save time by using the Ty-Rap® cable tie dispenser

Technical Information
- Durable, lightweight polyester exterior and tough vinyl interior construction
- Rugged diamond-shaped cutout for easy access to cable ties
  (up to 203 mm, 280 mm – 356 mm) and rectangular-shaped (for 102 mm)
- Handy belt clip and chrome steel loop for easy attachment
- Resealable hook-and-loop for easy refill
- Includes 100 genuine Ty-Rap® cable ties

Product Ref.	Description
Ty-Tote-23	Ty-Rap® Tote® 102mm Cable Tie Dispenser (includes 1 package TY523M)
Ty-Tote-25	Ty-Rap® Tote® 203mm Cable Tie Dispenser (includes 1 package TY525M)

Polyamide 6.6 cable ties - Flame retardant
Ty-Rap® High Performance Cable Ties

Characteristics

- Flame retardant version. Ideal for use when low flammability and low smoke are necessary such as public transport, tunnels, etc.
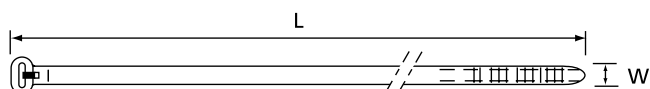
Technical Information

Material - Moulding	Polyamide 6.6
Material - Locking barb	316 grade stainless steel
Temperature range	-40°C to +85°C
Colour	White
Flammability rating	UL 94 V-2
Other properties	Halogen free, Silicone free

Product Ref.	Length L [mm]	Width W [mm]	Thickness [mm]	Bundle ø from ... to [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
TY23MFR	92	2.4	1.0	2 - 16	80	1000	
TY232MFR	203	2.4	1.0	2 - 50	80	1000	ERG 50, WT193A
TY24MFR	140	3.6	1.1	2 - 29	180	1000	
TY25MFR	186	4.8	1.1	3.5 - 45	220	1000	ERG50, ERG120
TY28MFR	360	4.8	1.1	3.5 - 102	220	1000	WT193A
TY27MFR	340	7.0	1.6	6 - 90	540	500	ERG120, L-500-EU

Description of product reference structure: see page 8
Description of materials and properties: see pages 140 to 151
For tooling specifications: see pages 126 to 139

E49405

Polyamide 6.6 cable ties - Heat stabilised
Ty-Rap® High Performance Cable Ties

Characteristics
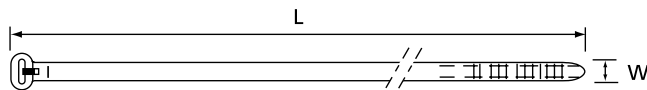- Heat stabilised version, for applications up to 105°C.

Technical Information

Material - Moulding	Polyamide 6.6
Material - Locking barb	316 grade stainless steel
Temperature range	-40°C to +105°C
Colour	Natural (may have a greenish tint)
Flammability rating	UL 94 V-2
Other properties	Halogen free, Silicone free

Product Ref.	Length L [mm]	Width W [mm]	Thickness [mm]	Bundle ø from ... to [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
TYH23M / TYHB23M	92	2.4	1.0	2 - 16	80	1000	
TYH232M	203	2.4	1.0	2 - 50	80	1000	
TYH24M	140	3.6	1.1	2 - 29	130	1000	ERG50
TYH242M*	208	3.6	1.1	2 - 50	130	1000	WT193A
TYH26M	284	3.6	1.1	2 - 76	130	1000	
TYH25M	186	4.8	1.1	3.5 - 45	220	1000	ERG50
TYH253M*	290	4.8	1.1	3.5 - 78	220	1000	ERG120
TYH28M	360	4.8	1.1	3.5 - 102	220	1000	WT193A
TYH272M*	222	7.6	1.6	6 - 50	540	500	
TYH27M	340	7.0	1.6	6 - 90	540	500	L-500-EU, ERG120
TYH29M*	771	6.9	1.5	6 - 229	530	500	

* Not UL recognised

Description of product reference structure: see page 8
Description of materials and properties: see pages 140 to 151
For tooling specifications: see pages 126 to 139

E49405

Polyamide 6.6 cable ties - Heat stabilised + UV-resistant
Ty-Rap® High Performance Cable Ties

Characteristics
- Heat stabilised + UV-resistant version, for outdoor applications that also require a resistance to high temperature (+105°C)
- For OEM and MRO applications like: transportation, lawn (garden / farm), construction equipment, recreational vehicles
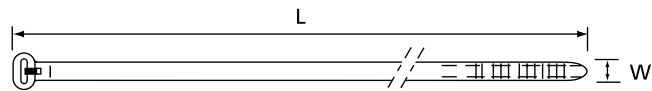
Technical Information

Material - Moulding	Polyamide 6.6
Material - Locking barb	316 grade stainless steel
Temperature range	-40°C to +105°C
Colour	Black
Flammability rating	UL 94 V-2
Other properties	UV-resistant, heat stabilised, Halogen free, Silicone free

Product Ref.	Length L [mm]	Width W [mm]	Thickness [mm]	Bundle ø from ... to [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
TY23MX-A	92	2.3	0.9	2 - 16	80	1000	
TY24MX-A	140	3.6	1.1	2 - 29	180	1000	ERG50, ERG120*
TY25MX-A	186	4.8	1.2	3.5 - 45	220	1000	WT193A
TY27MX-A	340	6.9	1.6	6 - 89	540	500	ERG120, L-500-EU

* ERG120 can not be used with TY23MX-A and TY24MX-A

Description of product reference structure: see page 8
Description of materials and properties: see pages 140 to 151
For tooling specifications: see pages 126 to 139

E49405

Polyamide 4.6 cable ties - Extra high temperature
Ty-Rap® High Performance Cable Ties

Characteristics
- Extreme continuous temperature rating: -40°C to +150°C (in air)
- For high temperature environments in industrial, OEM, MRO and commercial construction applications such as: metal processing, paper mills, lighting, automotive
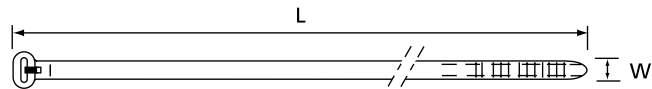
Technical Information

Material - Moulding	Polyamide 6.6
Material - Locking barb	316 grade stainless steel
Temperature range	-40°C to +150°C
Colour	Light green
Flammability rating	UL 94 V-2
Other properties	Extra high temperature resistant, Halogen free, Silicon free

Product Ref.	Length L [mm]	Width W [mm]	Thickness [mm]	Bundle ø from ... to [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
TYHT23M	92	2.3	0.9	2 - 16	80	1000	ERG120*
TYHT25M	186	4.8	1.2	3.5 - 45	220	1000	ERG50
TYHT28M	360	4.8	1.3	3.5 - 102	220	1000	WT193A
TYHT27M	340	6.9	1.6	6 - 89	540	500	ERG120
TYHT277M	617	7.0	1.6	6 - 177	540	500	L-500-EU

* ERG120 can not be used with TYHT23M

Description of product reference structure: see page 8
Description of materials and properties: see pages 140 to 151
For tooling specifications: see pages 126 to 139

Polyamide 12 cable ties - UV-resistant
Ty-Rap® High Performance Cable Ties

Characteristics
- Polyamide 12 UV-resistant version, remains flexible in cold & dry environments.
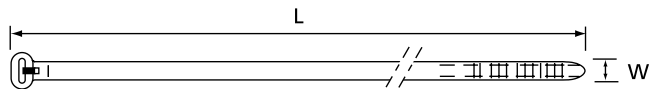- Ages better and has a better chemical resistance than Polyamide 6.6

Technical Information

Material - Moulding	Polyamide 12
Material - Locking barb	316 grade stainless steel
Temperature range	-40°C to +85°C
Colour	Black
Flammability rating	UL 94 V-2
Other properties	UV-resistant, Halogen free, Silicone free

Product Ref.	Length L [mm]	Width W [mm]	Thickness [mm]	Bundle ø from ... to [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
TYC25MX	186	4.8	1.1	3.5 - 45	150	1000	ERG50
TYC525MX	186	4.8	1.1	3.5 - 45	150	100	ERG120
TYC28MX	360	4.8	1.1	3.5 - 102	150	1000	WT193A
TYC272MX	222	7.6	1.6	6 - 50	380	500	
TYC27MX	340	7.0	1.6	6 - 90	380	500	ERG120
TYC527MX	340	7.0	1.6	6 - 90	380	50	L-500-EU
TYC29MX	771	7.6	1.6	6 - 229	380	500	

Description of product reference structure: see page 8
Description of materials and properties: see pages 140 to 151
For tooling specifications: see pages 126 to 139

Polypropylene cable ties - Weatherable
Ty-Rap® High Performance Cable Ties

Characteristics
- Polypropylene weatherable version, for increased resistance to chemicals
- Resistant against inorganic acids, polyhydric alcohols, neutral and basic salts

Technical Information

Material - Moulding	Polypropylene
Material - Locking barb	316 grade stainless steel
Temperature range	-40°C to +85°C
Colour	Black
Flammability rating	UL 94 HB
Other properties	UV-resistant, Halogen free, Silicone free

Product Ref.	Length L [mm]	Width W [mm]	Thickness [mm]	Bundle ø from ... to [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
TYP23MX	92	2.4	1.0	2 - 16	50	1000	
TYP25MX	186	4.8	1.1	3.5 - 45	130	1000	ERG50
TYP28MX	360	4.8	1.1	3.5 - 102	130	1000	WT193A
TYP27MX	340	7.0	1.6	6 - 90	270	500	ERG120, L-500-EU

Description of product reference structure: see page 8
Description of materials and properties: see pages 140 to 151
For tooling specifications: see pages 126 to 139
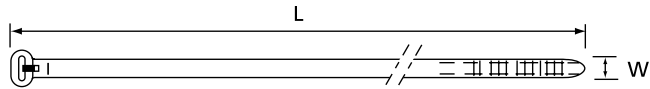
Detectable cable ties
Ty-Rap® High Performance Cable Ties

Characteristics

The Ty-Rap® Detectable Cable Ties from ABB incor-porate a unique compound (patent pending) that can be detected by X-Ray equipment, metal detectors and visual   inspection equipment.

Particularly recommended for applications in food, pharmaceutical and other contamination-sensitive industries using detection systems, where cable tie installation residuals (cut tails) are not allowed in the finished product.

- Detectable by metal detectors set at minimum 1.5 mm diameter ferrous sphere
- Detectable by X-Ray equipment
- Bright blue colour for an easy visual detection
- Help achieve the HACCP EU-Directive
- Available in standard Polyamide 6.6 or in buoyant Polypropylene version for liquid-processing applications
- Available in 5 different sizes in convenient small bags with Euroslot: 5 NDT, 4PDT
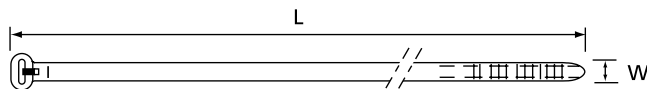
Technical Information

Material - Moulding	Polyamide 6.6 or Polypropylene
Material - Locking barb	316 grade stainless steel
Temperature range	-40°C to +85°C
Colour	Bright blue
Flammability rating	UL 94 V-2 (Polyamide 6.6)
	UL 94 HB (Polypropylene)
Other properties	Halogen free, silicone free

Product Ref.	Material	Length L [mm]	Width W [mm]	Bundle ø from ... to [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
DETECTABLE POLYAMIDE 6.6							
TY523M-NDT	Polyamide 6.6	92	2.4	2 - 16	80	100	ERG50, WT193A
TY524M-NDT	Polyamide 6.6	140	3.6	2 - 29	180	100	
TY525M-NDT	Polyamide 6.6	186	4.8	3.5 - 45	220	100	ERG50, ERG120
TY528M-NDT	Polyamide 6.6	360	4.8	3.5 - 102	220	100	WT193A
TY527M-NDT	Polyamide 6.6	340	7.0	6 - 90	540	50	ERG120, L-500-EU
DETECTABLE POLYPROPYLENE							
TY523M-PDT	Polypropylene	92	2.4	2 - 16	50	100	
TY525M-PDT	Polypropylene	186	4.8	3.5 - 45	130	100	ERG50, WT193A
TY528M-PDT	Polypropylene	360	4.8	3.5 - 102	130	100	
TY527M-PDT	Polypropylene	340	7.0	6 - 90	270	50	ERG120, L-500-EU

Description of product reference structure: see page 8
Description of materials and properties: see pages 140 to 151
For tooling specifications: see pages 126 to 139

Fluoropolymer cable ties - ECTFE
Ty-Rap® High Performance Cable Ties

Characteristics
- Outstanding characteristic: lower smoke density when burnt
- Recommended for applications where smoke generation is a   concern, such as plenum areas

Technical Information

Material - Moulding	Fluoropolymer ECTFE
Material - Locking barb	316 grade stainless steel
Temperature range	-60°C to +170°C
Colour	Maroon
Flammability rating	UL 94 V-0
Other properties	UV-resistant, low smoke

Product Ref.	Length L [mm]	Width W [mm]	Thickness [mm]	Bundle ø from ... to [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
TYV23M	92	2.4	1.0	2 - 16	80	1000	ERG50
TYV523M	92	2.4	1.0	2 - 16	80	100	WT193A
TYV25M	186	4.8	1.1	3.5 - 45	220	1000	ERG50, ERG120
TYV525M	186	4.8	1.1	3.5 - 45	220	100	WT193A

Description of product reference structure: see page 8
Description of materials and properties: see pages 140 to 151
For tooling specifications: see pages 126 to 139

E49405

Fluoropolymer cable ties - ETFE
Ty-Rap® High Performance Cable Ties

Characteristics
- ETFE Fluoropolymer version, resistant to chemicals and to radiation
- Non-outgassing properties for zero gravity applications
- The best all around plastic material for cable ties
- Typical applications include: nuclear, power plants, space industry, etc.

Technical Information

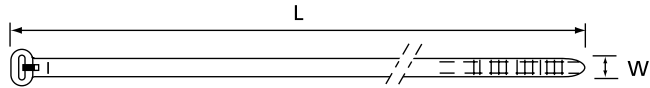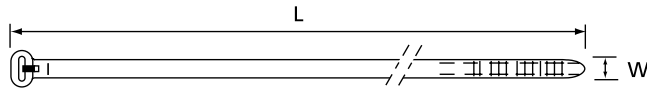|	
Material - Moulding	Fluoropolymer ETFE
Material - Locking barb	316 grade stainless steel
Temperature range	-46°C to +150°C
Colour	Aquamarine
Flammability rating	UL 94 V-0
Other properties	UV-resistant, Silicone free, inert to most solvents and chemicals, hydrolytically stable, radiation resistant. Non-outgassing properties for zero gravity applications.

Product Ref.	Length L [mm]	Width W [mm]	Thickness [mm]	Bundle ø from ... to [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
TYZ23M*	92	2.4	1.0	2 - 16	80	1000	
TYZ523M*	92	2.4	1.0	2 - 16	80	100	
TYZ25M	186	4.8	1.1	3.5 - 45	220	1000	ERG50
TYZ525M	186	4.8	1.1	3.5 - 45	220	100	ERG120**
TYZ28M	360	4.8	1.1	3.5 - 102	220	500	WT193A
TYZ528M	360	4.8	1.1	3.5 - 102	220	100	
TYZ27M	340	7.0	1.6	6 - 90	540	100	ERG120, L-500-EU
TYZ527M	340	7.0	1.6	6 - 90	540	50	

* Product Ref. TYZ23M and TYZ523M are UL listed (E49405), all other items are UL recognized
** ERG120 not to be used on TYZ23M

Description of product reference structure: see page 8
Description of materials and properties: see pages 140 to 151
For tooling specifications: see pages 126 to 139

E49405

Integrated mounting hole cable ties
Special ties with steel locking barb

Characteristics
- Can be directly mounted onto a support with screws, bolts or rivets
- Mounting and bundling in one maintenance-friendly assembly.
- Typical application: cable harness manufacture and pre- and end- mounting of bundles and parts. Maintenance friendly mounting of cables, tubes and parts in all types and sizes of machines and installations - indoor and outdoor.
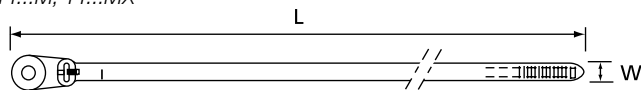
Technical Information

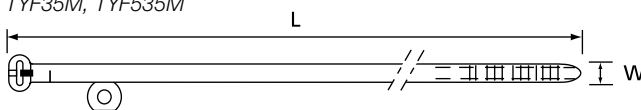|	
Material - Moulding	Polyamide 6.6
Material - Locking barb	316 grade stainless steel
Temperature range	-40°C to +85°C
Colour	Natural or UV-resistant black (see table)
Flammability rating	UL 94 V-2
Other properties	UV-resistant (black), Halogen free, Silicone free

Product Ref.	Colour	Diameter of mounting hole [mm]	Length L [mm]	Width W [mm]	Thick-ness [mm]	Bundle ø from ... to [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
TY33M	natural	3.0	102	2.3	0.9	2 - 16	80	1000	
TY533M	natural	3.0	102	2.3	0.9	2 - 16	80	100	
TY33MX	UV-resistant black	3.0	102	2.3	0.9	2 - 16	80	1000	ERG50
TY533MX	UV-resistant black	3.0	102	2.3	0.9	2 - 16	80	100	WT193A
TY34M	natural	4.4	151	3.5	1.0	2 - 29	180	1000	
TY534M	natural	4.4	151	3.5	1.0	2 - 29	180	100	
TY34MX	UV-resistant black	4.4	151	3.5	1.0	2 - 29	180	1000	
TY534MX	UV-resistant black	4.4	151	3.5	1.0	2 - 29	180	100	
TY635M	natural	4.0	198	4.7	1.1	3.5 - 45	220	1000	
TY635MX	UV-resistant black	4.0	198	4.7	1.1	3.5 - 45	220	1000	
TY35M	natural	5.1	199	4.7	1.1	3.5 - 45	220	1000	
TY535M	natural	5.1	199	4.7	1.1	3.5 - 45	220	100	ERG50
TY35MX	UV-resistant black	5.1	199	4.7	1.1	3.5 - 45	220	1000	ERG120
TY535MX	UV-resistant black	5.1	199	4.7	1.1	3.5 - 45	220	100	WT193A
TY1435M	natural	6.7	198	4.7	1.1	3.5 - 45	220	1000	
TY37M	natural	6.7	356	7.7	2.0	6 - 90	540	500	
TY537M	natural	6.7	356	7.7	2.0	6 - 90	540	50	ERG120
TY37MX	UV-resistant black	6.7	356	7.7	2.0	6 - 90	540	500	L-500-EU
TY537MX	UV-resistant black	6.7	356	7.7	2.0	6 - 90	540	50	
TYF35M	natural	4.0	186	4.7	1.2	3.5 - 45	220	1000	ERG50, ERG120
TYF535M	natural	4.0	186	4.7	1.2	3.5 - 45	220	100	WT193A

Description of product reference structure: see page 8
Description of materials and properties: see pages 140 to 151
For tooling specifications: see pages 126 to 139

TY...M, TY...MX

TYF35M, TYF535M

U L *
E49405

BUREAU VERITAS *

VG *
approved

VG95387
part 4, type B

* Some approvals may not be applicable to all the Product References. Contact your Sales Office for approvals limitations

Panel mounting cable ties
Special ties with steel locking barb

Characteristics
- Fastening and clip-mounting in one
- Fast pre- or on-site-assembly for a range of panel thickness up to 4.0 mm
- Fast and secure clip-mounting

Technical Information

|	
Material - Moulding	Polyamide 6.6
Material - Locking barb	316 grade stainless steel
Temperature range	-40°C to +85°C
Colour	Natural or UV-resistant black (see table)
Flammability rating	UL 94 V-2
Other properties	UV-resistant (black), Halogen free, Silicone free

| Product Ref.	Colour	Diameter of mounting hole [mm]	Length L [mm]	Width W [mm]	Thickness [mm]	Bundle diameter from ... to [mm]	Minimum tensile strength [N]	Suitable for board/wall thickness from to [mm]	Quantity [pieces]	Tooling
ANCHOR TYPE										
TY54SM	natural	4.5 - 5.2	150	3.5	1.0	2 - 32	130	0.1 - 2.5	1000	
TY54SMX	UV-resistant black	4.5 - 5.2	150	3.5	1.0	2 - 32	130	0.1 - 2.5	1000	ERG50 ERG120
TY38M	natural	6.4 - 6.7	200	4.7	1.3	3.5 - 44	220	1.0 - 4.0	1000	WT193A
TY38MX	UV-resistant black	6.4 - 6.7	200	4.7	1.3	3.5 - 44	220	1.0 - 4.0	1000	
STANDARD TYPE										
696-41836	natural	5.8 - 7.5	197	4.8	1.1	3.5 - 45	220	2.2 - 3.7	1000	WT193A
696-41836X	UV-resistant black	5.8 - 7.5	197	4.8	1.1	3.5 - 45	220	2.2 - 3.7	1000	ERG50 ERG120

** ERG120 only to be used with TY38M and TY38MX

Description of product reference structure: see page 8
Description of materials and properties: see pages 140 to 151
For tooling specifications: see pages 126 to 139

TY...
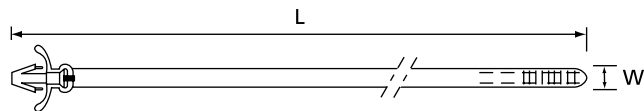
696-...
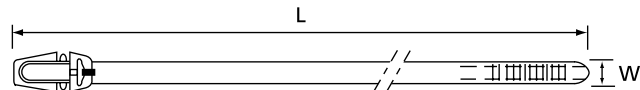
* Some approvals may not be applicable to all the Product References. Contact your Sales Office for approvals limitations

Blind mounting cable ties
Special ties with steel locking barb
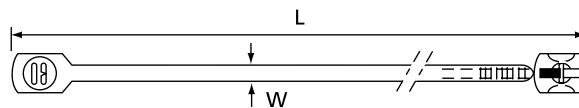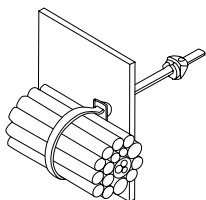
Characteristics
- Suitable for hard-to-reach areas
- Fast hidden mounting on walls and vehicle chassis
- Twist off the locking head
- Pull the tie end through the fastening hole
- Place locking head on tie end
- Pull tight and cut off excess
- In the locked state, the locking head neatly covers the mounting hole

Technical Information

Material - Moulding	Polyamide 6.6
Material - Locking barb	316 grade stainless steel
Temperature range	-40°C to +85°C
Colour	Natural or UV-resistant black (see table)
Flammability rating	UL 94 V-2
Other properties	UV-resistant (black), Halogen free, Silicone free

Product Ref.	Colour	Diameter of mounting hole [mm]	Length L [mm]	Width W [mm]	Thick-ness [mm]	Bundle ø from ... to [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
TYG34M	natural	6.4 - 7.0	160	3.6	1.1	2 - 32	180	1000	
TYG534M	natural	6.4 - 7.0	160	3.6	1.1	2 - 32	180	100	ERG50
TYG34MX	UV-resistant black	6.4 - 7.0	160	3.6	1.1	2 - 32	180	1000	WT193A
TYG534MX	UV-resistant black	6.4 - 7.0	160	3.6	1.1	2 - 32	180	100	

Description of product reference structure: see page 8
Description of materials and properties: see pages 140 to 151
For tooling specifications: see pages 126 to 139

E49405

Blind mounting cable ties
Special ties

Characteristics
- Suitable for hard-to-reach areas
- Fast hidden mounting on walls and vehicle chassis
- Ideal for mounting on vehicle chassis. Can still be released before final tensioning
- In the locked state, the locking head neatly covers the mounting hole

Technical Information

Material	Polyamide 6.6
Temperature range	-40°C to +85°C
Colour	UV-resistant black
Flammability rating	UL 94 V-2
Other properties	UV-resistant, Halogen free, Silicone free

Product Ref.	Diameter of mounting hole [mm]	Length L [mm]	Width W [mm]	Thick-ness [mm]	Bundle ø from ... to [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
TY41M	8.1 - 17.3	244	5.7	1.7	5 - 60	300	500	ERG120
TY541M	8.1 - 17.3	244	5.7	1.7	5 - 60	300	50	

Description of product reference structure: see page 8
Description of materials and properties: see pages 140 to 151
For tooling specifications: see pages 126 to 139
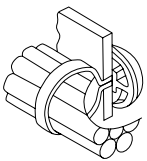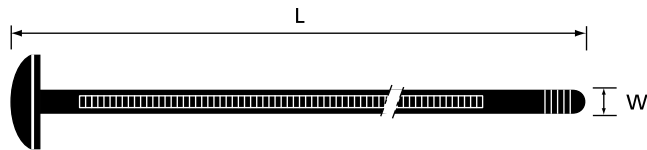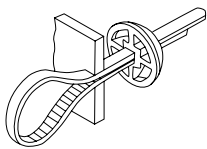
Integrated peg / nail cable ties
Special ties with steel locking barb

Characteristics
- TY545MX, with integrated nail for mounting onto wood or similar materials
- TY544MX, with integrated peg for mounting onto porous concrete or similar materials (masonry)
- Very simple application

Technical Information

Material - Moulding	Polyamide 6.6
Material - Locking barb	316 grade stainless steel
Temperature range	-40°C to +85°C
Colour	UV-resistant black
Flammability rating	UL 94 V-2
Other properties	UV-resistant, Halogen free, Silicone free

Product Ref.	Diameter of mounting hole [mm]	Length L [mm]	Width W [mm]	Thick-ness [mm]	Bundle ø from ... to [mm]	Min. tensile strenght [N]	Mounting hole depth [mm]	Quantity [pieces]	Tooling
TY544MX	6.4	200	4.6	1.0	3.5 - 45	220	25 min.	50	ERG50, ERG120
TY545MX	–	200	4.7	1.0	4.7 - 38.1	220	–	50	WT193A

Description of product reference structure: see page 8
Description of materials and properties: see pages 140 to 151
For tooling specifications: see pages 126 to 139
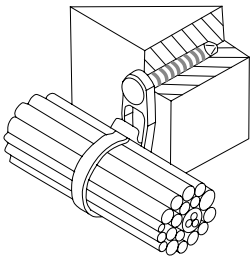
TY544MX
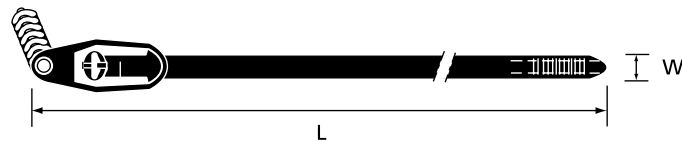
TY545MX

Releasable cable ties
Special ties

Characteristics
- For temporary but strong bundling, especially during control box wiring
- Very simple application
- Available in 2 lengths for different applications
- May be re-used many times
- No tooling necessary

Technical Information

Material	Polyamide 6.6
Temperature range	-40°C to +85°C
Colour	Natural
Flammability rating	UL 94 V-2
Other properties	Halogen free, Silicone free

Product Ref.	Length L [mm]	Width W [mm]	Thickness [mm]	Bundle ø from ... to [mm]	Min. tensile strenght [N]	Quantity [pieces]
TYR505	190	4.7	1.19	10 - 44	220	100
TYR508	364	4.7	1.19	10 - 102	220	100

Description of product reference structure: see page 8
Description of materials and properties: see pages 140 to 151
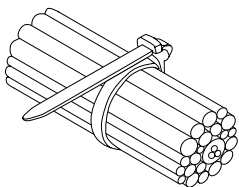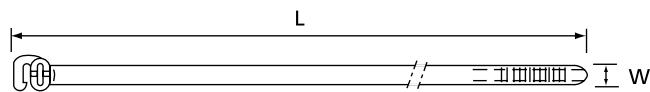
Pull end of tie through head. Turn tie end back on itself and insert into side of clip. To open, release tie end from clip and open tie.

Releasable lashing ties with incorporated fastener
Special ties

Characteristics

- For temporary but strong bundling, especially during control box wiring
- Very simple application
- Available in 2 lengths for different applications
- May be re-used many times
- No tooling necessary

Technical Information

Material	Polyamide 6.6
Temperature range	-40°C to +85°C
Colour	Natural
Flammability rating	UL 94 V-2
Other properties	Halogen free, Silicone free

| Product Ref.	Length L [mm]	Width W [mm]	Thickness [mm]	Bundle ø from ... to [mm]	Min. tensile strenght [N]	Quantity [pieces]
TY409	483	12.7	2.0	45 - 121	890	100
TY5409	483	12.7	2.0	45 - 121	890	25

Description of product reference structure: see page 8
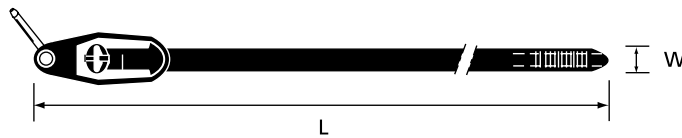Description of materials and properties: see pages 140 to 151
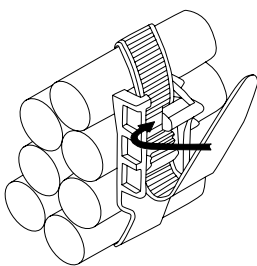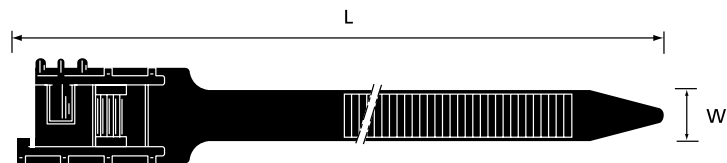
Introduce the cable tie tail into the lower slot in the head. Tighten the tie and pull it back. Slide in the tie under the catch from the side until it snaps into position.

Releasable 2-piece lashing ties, pre-assembled version
Special ties

Characteristics
- Heavy-duty lashing ties, in cut lengths with pre-assembled heads
- Also available on reel with separate heads (see page 34)
- UV-resistant Polypropylene, ideal for applications where chemical resistance is important (heads in weatherable rigid Polyamide 6.6)
- Extremely robust (670N)
- Easily releasable & reusable
- 2 types of head: type A: no mounting hole
  type B: with mounting hole
- Typical applications: Indoor and outdoor fastening of cables, pipes and other parts in industry, shipbuilding, chemical industry etc

Technical Information

Material - Tie	Weatherable Polypropylene
Material - Head	Polyamide 6.6
Temperature range	Head: -40°C to +85°C
	Tie: -55°C to +110°C
Colour	UV-resistant black
Flammability rating	UL 94 V-2
Other properties	UV-resistant, Halogen free

Product Ref.	Diameter of mounting hole [mm]	Length L [mm]	Width W [mm]	Thickness [mm]	Bundle ø from ... to [mm]	Min. tensile strenght [N]	Quantity [pieces]
TY53418PX	6.9	457	13.2	1.9	45 - 127	670	25
TY5418PX	–	457	13.2	1.8	45 - 127	670	25
TY5424PX	–	610	13.2	1.8	10 - 178	670	25
TY5442PX	–	1067	13.2	1.8	10 - 305	670	10
TY5460PX	–	1524	13.2	1.8	10 - 457	670	10

Description of product reference structure: see page 8
Description of materials and properties: see pages 140 to 151

TY54XXPX

TY53418PX
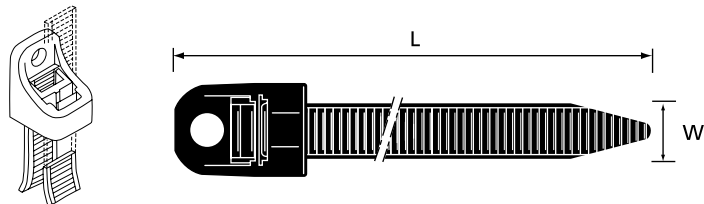
Releasable 2-piece lashing ties on reel with separate heads
Special ties

Characteristics

- Heavy-duty lashing ties on reel with separate heads
- Also available in cut lengths with pre-assembled heads (see page 33)
- UV-resistant Polypropylene, ideal for applications where chemical resistance is important (heads in weatherable rigid Polyamide 6.6)
- Extremely robust (670N)
- Easily releasable and reusable
- 2 types of head: type A: no mounting hole
  type B: with mounting hole
- Typical applications: Indoor and outdoor fastening of cables, pipes and other parts in industry, shipbuilding, chemical industry etc.
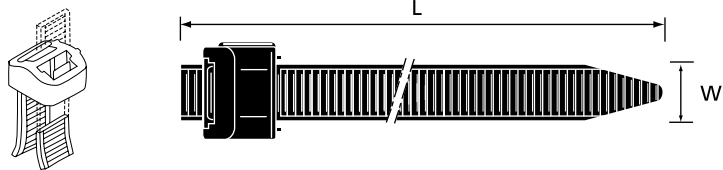- Product Ref. 696-41563: lashing tie on reel (300 m), in weatherable Polypropylene
- Product Ref. 696-41562: separate head, type A (no mounting hole), weatherable Polyamide 6.6 (200 pieces)
- Product Ref. 696-41614: separate head, type B (with mounting hole), weatherable Polyamide 6.6 (200 pieces) Mounting hole: Ø 6.9 mm
- Product Ref. TY4100PX: kit containing 30 m of lashing tie on reel + 50 separate heads, type A

Technical Information

Material - Tie	Weatherable Polypropylene
Material - Head	Polyamide 6.6
Temperature range	Head: -40°C to +85°C
	Tie: -55°C to +110°C
Colour	UV-resistant black
Flammability rating	UL 94 V-2
Other properties	UV-resistant, Halogen free

Product Ref.	Lashing tie, dimensions			Seperate locking heads		Min. tensile strength of assembly
	Length [mm]	Width [mm]	Thickness [mm]	Quantity [pieces]	Type	[N]
696-41563	300	13.2	1.8	–	–	670
696-41562	–	–	–	200	Type A, no mounting hole	670
696-41614	–	–	–	200	Type B, with mounting hole	670
TY4100PX	30	13.2	1.8	50	Type A, no mounting hole	670

Description of product reference structure: see page 8
Description of materials and properties: see pages 140 to 151
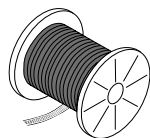
696-41563   696-41562   696-41614   TY4100PX

696-41563

Cable ties with identification tag
Special ties with steel locking barb

Characteristics
- Identification ties with incorporated label for durable marking and tying
- Label forms onto the bundle for types TY512M, TY51M and protrudes for ties TY532M and TY53M
- Series 51M is MIL (MS-3368-5) approved
- Trouble-free installation
- All edges are rounded to make installation easier
- Available in bulk packaging (500/1000 pieces) or in small packaging (100 pieces)

Technical Information
Material - Moulding	Polyamide 6.6
Material - Locking barb	316 grade stainless steel
Temperature range	-40°C to +85°C
Colour	Natural
Flammability rating	UL 94 V-2
Other properties	Halogen free, Silicone free
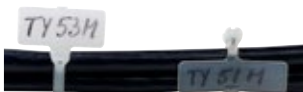
Product Ref.	MIL Spec.	Length L [mm]	Width W [mm]	Thick-ness [mm]	Bundle ø from ... to [mm]	Min. tensile strenght [N]	Label dimensions [mm]	Quantity [pieces]	Tooling
TY51M	MS-3368-5	92	2.4	1.0	10 - 16	80	25.4 x 7.9	500	
TY551M	MS-3368-5	92	2.4	1.0	10 - 16	80	25.4 x 7.9	100	
TY512M	–	210	2.4	1.0	10 - 51	80	25.4 x 7.9	1000	ERG50
TY5512M	–	210	2.4	1.0	10 - 51	80	25.4 x 7.9	100	WT193A
TY53M	–	102	2.4	1.0	2 - 16	80	20.6 x 9.3	500	
TY553M	–	102	2.4	1.0	2 - 16	80	20.6 x 9.3	100	
TY532M	–	212	2.4	1.0	2 - 51	80	20.6 x 9.3	1000	
TY5532M	–	212	2.4	1.0	2 - 51	80	20.6 x 9.3	100	

For other materials and colours contact your Sales Office

Description of product reference structure: see page 8
Description of materials and properties: see pages 140 to 151
For tooling specifications: see pages 126 to 139
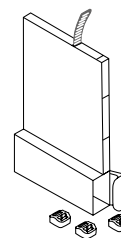
TY53M, TY553M, TY532M, TY5532M
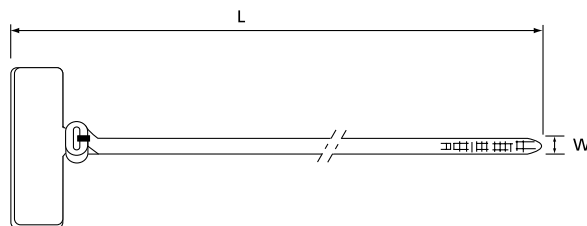
TY51M, TY551M, TY512M, TY5512M
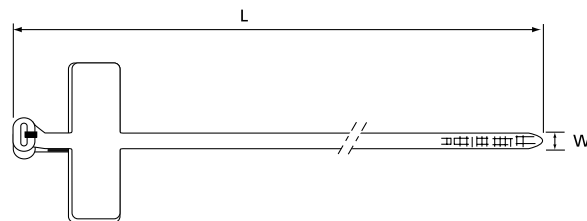
E49405

Cable ties with identification tag
Special ties with steel locking barb

Characteristics
- Identification ties with incorporated label for durable marking and tying
- Label forms onto the bundle
- 5 different versions, up to 4 straps, in bulk and small packaging
- 4 versions (up to 3 straps) are Mil-specified
- Trouble free installation
- Labelling of bundles up to 102 mm diameter
- All edges are rounded and surfaces smoothed to make installation easier

Technical Information

|	
Material - Moulding	Polyamide 6.6
Material - Locking barb	316 grade stainless steel
Temperature range	-40°C to +85°C
Colour	Natural
Approvals	MIL: MS-3368 -1, -2, -3, -4
Flammability rating	UL 94 V-2
Other properties	Halogen free, Silicone free
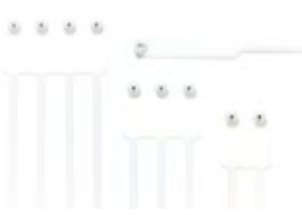
| Product Ref.	MIL Spec.	Length L [mm]	Width W [mm]	Thick- ness [mm]	Bundle ø from ... to [mm]	Min. tensile strenght [N]	Label dimensions [mm]	Quantity [pieces]	Tooling
TY48M	MS-3368-2	360	4.8	1.1	19 - 102	220	13.1 x 57.2	1000	
TY548M	MS-3368-2	360	4.8	1.1	19 - 102	220	13.1 x 57.2	100	
TY46M	MS-3368-1	184	4.8	1.1	9.5 - 45	220	13.1 x 27.0	1000	ERG50
TY546M	MS-3368-1	184	4.8	1.1	9.5 - 45	220	13.1 x 27.0	100	ERG120
TY46MD	MS-3368-3	184	4.8	1.1	9.5 - 45	220 x 2	29.7 x 27.0	500	WT193A
TY546MD	MS-3368-3	184	4.8	1.1	9.5 - 45	220 x 2	29.7 x 27.0	50	
TY46MT	MS-3368-4	184	4.8	1.1	9.5 - 45	220 x 3	46.0 x 27.0	500	
TY546MT	MS-3368-4	184	4.8	1.1	9.5 - 45	220 x 3	46.0 x 27.0	100	
TY46MF	–	184	4.8	1.1	9.5 - 45	220 x 4	63.1 x 27.0	250	
TY546MF	–	184	4.8	1.1	9.5 - 45	220 x 4	63.1 x 27.0	50	

For other materials and colours contact your Sales Office

Description of product reference structure: see page 8
Description of materials and properties: see pages 140 to 151
For tooling specifications: see pages 126 to 139

TY46MT, TY546MT

696-41563

696-41563

696-41563

696-41563

696-41563

E49405
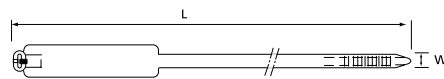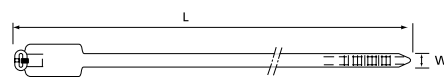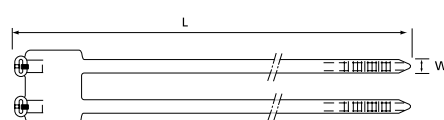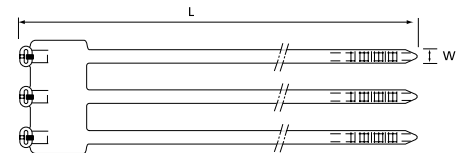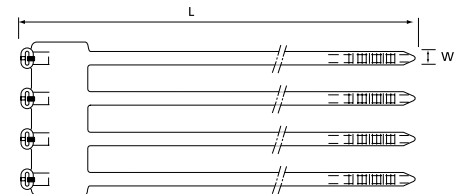
Pre-assembled Deltec cable ties
Cable support system with metallic locking barb

Characteristics
- Provides a strong, long-life and cost saving method of securing communication and overhead cables
- Double locking head with corrosion resistant locking barbs in copper alloy
- Proven years of service: designed to last a minimum of 20 years outdoor
- No sharp edges: operator friendly, cable friendly!
- Easy to install, low installation costs
- Extremely robust ties, with high tensile strength (1110N) after fastening
- Available either in pre-cut and pre-assembled lengths, or on reels with separate heads for total flexibility
- Choice of specific spacers and accessories
- Month and year of manufacture stamped into strap material

Technical Information

Material - Strap & head	Toughened weatherable acetal
Material - Locking barb	Marine grade, corrosion-resistant copper alloy
Temperature range	-40°C to +85°C
Flammability rating	UL 94 HB
Colour	Black
Other properties	UV-resistant, Halogen free, superior resistance to moisture and salt environments

Product Ref.	Length L [mm]	Width W [mm]	Bundle ø from ... to [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
TYD510M	1300.5	10.0	390	1110	100	
CSS-100	254.0	12.7	60	1110	50	WT3D
TYD5135M	342.9	12.7	90	1110	25	L-500-EU
CSS-160	406.4	12.7	110	1110	50	
TYD5270M	685.8	12.7	200	1110	10	

For tooling specifications: see pages 126 to 139

Note: the recommended maximum continuous static loading for the Deltec straps is 90 N per strap.
For best results suggested spacing is 35 to 40 cm.
It is the responsibility of the user to determine whether or not their application meets our recommendation.
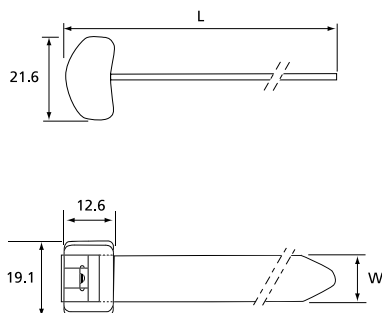
Strap on reel
Cable support system with metallic locking barb

Characteristics
- Strap on reel, with separate head
- Total flexibility & no waste: cut at the desired length
- Easy to store: reduced inventory
- User friendly

Technical Information

Material	Toughened weatherable acetal
Temperature range	-40°C to +85°C
Flammability rating	UL 94 HB
Colour	Black
Other properties	UV-resistant, Halogen free, superior resistance to moisture and salt environments

Product Ref.	Length per reel L [m]	Width W [mm]	Min. tensile strenght [N]	Quantity [reels]	Tooling
TYD-50R	15.2	12.7	1110	1	WT3D
696-41794	304.8	12.7	1110	1	L-500-EU

For tooling specifications: see pages 126 to 139

Note: the recommended maximum continuous static loading for the Deltec straps is 90 N per strap.
For best results suggested spacing is 35 to 40 cm.
It is the responsibility of the user to determine whether or not their application meets our recommendation.

Double locking heads
Cable support system with metallic locking barb

Technical Information

Material - moulding	Toughened weatherable acetal
Material - locking barb	Marine grade, corrosion-resistant copper alloy
Temperature range	-40°C to +85°C
Flammability rating	UL 94 HB
Colour	Black
Other properties	UV-resistant, Halogen free, superior resistance to moisture and salt environments

Product Ref.	Length L [mm]	Width W [mm]	Height H [mm]	Quantity [pieces]
TYD-LH	21.6	19.1	12.6	25
696-41795	21.6	19.1	12.6	1000

To be assembled with Deltec strap on reel
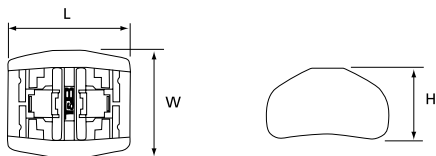
Deltec Kits
Ty-Rap® High Performance Cable Ties

Characteristics
- Convenient kits containing several reels of strap and separate locking heads, to provide all you need to be efficient on the field
- 2 configurations to match your need

Product Ref.	Reels		Locking heads
	Length per reel [mm]	Quantity [reels]	Quantity [pieces]
CSS-5K	15.2	5	150
CSS-10K	15.2	10	300

Cable spacers
Ty-Rap® High Performance Cable Ties

Characteristics

- Stackable height in 12.7 mm increments, for any desired spacing and all cable sizes - no need to stock multiple sizes of individual height spacers
- Designed to retain strap on each side and cradle the cable, providing restricted movement of spacer and preventing damage to cable
- Suitable for coaxial cables
- Can be used for parallel routing or for perpendicular cables

Technical Information

Material	Weather-resistant polypropylene
Temperature range	-40°C to +85°C
Flammability rating	UL 94 HB
Colour	Black
Other properties	UV-resistant, Halogen free

Product Ref.	Length L [mm]	Width W [mm]	Height H [mm]	Quantity [pieces]
TCP5255	53.3	30.5	12.7	25
TCP360	53.3	30.5	12.7	100
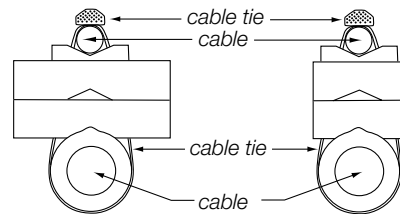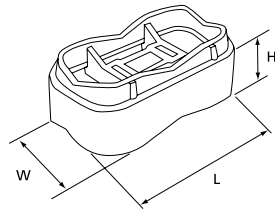
Base and hanger
Cable support system with metallic locking barb

Characteristics
- To secure the cables to all types of surfaces

Technical Information

Material	Zinc plated steel
Colour	Metallic

Product	Dimensions					Mounting hole	Quantity
Ref.	A	B	C	D	E	diameter	
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[pieces]
CSS-B	48.4	14.3	7.1	15.1	5.6	6.7 (2x)	50
CSS-H	22.5	22.2	29.8	13.6	8.3	6.9	50

Note: see pages 89 to 108 for other mounting bases in Nylon
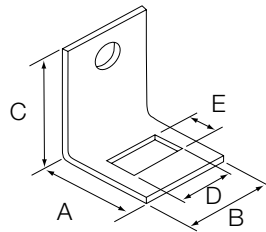
CSS-H   *CSS-B*

Table of Content
All plastic ties

Introduction
All plastic ties

Ty-Fast®, Col-Ty™, Safe-Ty™ and Ty-Grip™
All plastic ties

ABB offers a complete range of all plastic cable ties to cover the most demanding applications.

Ty-Fast® All plastic ties

The all-plastic cable ties are available in lengths from 112 mm to 1214 mm and widths from 2.4 mm to 13.2 mm, offering a loop tensile strength up to 1120 N. Those cable ties will satisfy bundling requirements up to 381 mm. Those cable ties are halogen and silicone free Polyamide 6.6 and are available in 12 different colours.

Ty-Fast® cable ties meet international standards such as UL, Germanischer Lloyd, Lloyd's Register of Shipping, Bureau Veritas, Mil-Specifications and QPL. State-of-the-art robotic and raw material handling equipment assures product and material integrity throughout the manufacturing process. The integrally formed Polyamide pawl combines low insertion and high locking strength.

A rounded, low-profile head makes for less snags, tails have improved two-sided finger grip design that helps the operator grasp and pull ties snug. The Sure Grip tab keeps the tail from popping out while being threaded, then holds it securely for final tightening by hand or tool.

Heavy duty installation ties

Col-Ty™ - the heavy installation tie - is mainly used for securing and bundling of cables in the utility and construction industries.

Col-Ty™ is ideal for hazardous environments, low temperatures and humidity. Col-Ty™ has a low profile double locking head with serration on the outer side of the tie, which eliminates the risk of damage to the cable.

Low-profile inline fasteners

The Safe-Ty™ design from ABB is ideal for use where precision bundling is required and clearance is a necessity. A unique saddle back design curves to form a snug fit around the bundle, and allows for easy pull-trough in bulkheads and any other tight spaces.

Hook & loop fasteners

Ty-Grip™ cable ties are very easy to release and re-use, making them ideal for applications where changes are anticipated or continuous access is required. There is no risk of over-tightening the cables, which makes the Ty-Grip™ hook & loop fasteners ideal for specific applications in fiber optics, computer network wiring, telecom cables, etc.

Product reference structure
All-plastic cable ties

Ty-Fast® code

Tie		Dimension code		
TY		**XXXX**		

TY	**100**	**18**	**X**	**100**

Tie Width Code	Tie Length Code	Tie Width/ Tensile Strength Code	Colour / Material	Packaging Code
Standard cable ties with a width up to 13.2 mm	for lengths from 112 mm up to 1214 mm	18 = 2.4 mm / (80N) 30 = 3.3 mm / (130N) 40 = 3.6 mm / (180N) 50 = 4.6 mm / (220N) 120 = 7.6 mm / (540N) 175 = 8.8 mm / (780N) 250 = 13.2 mm / (1120N)	All product references are made of halogen free Polyamide 6.6, UL 94 V-2, operating temperature -40°C to +85°C blank = natural X = black, UV-stabilised 1 = brown 2 = red 3 = orange 4 = yellow 5 = green 6 = blue 7 = purple 8 = grey 9 = white 20 = black 39 = Heat stabilised, temperature range: -40°C to +105°C, natural	[Blank] = Bulk packaging (1000 / 500 / 50 ties according to the size of the tie) 50 = 50 ties in a bag with Euroslot (only for Prod. Ref. TY400-120) 100 = 100 ties in a bag with Euroslot (not available for Prod. Ref. TY400-120, TY450-120, TY600-120 & TY800-120)

Note: Nylon (Polyamide) is inherently susceptible to environmental conditions. Ty-Fast® cable ties are moisturised to optimum performance levels at machine-side and should be stored in cool dry areas out of direct sunlight. Cable ties are packaged in plastic bags to contain moisture and should remain sealed until ready for use

Standard cable ties
All-plastic cable ties

Characteristics

State-of-the-art robotic and raw material handling equipment assures product and material integrity throughout the manufacturing process.
- The integrally formed Polyamide pawl combines low insertion and high locking strength
- A rounded, low-profile head makes for less snags
- Tails have improved two-sided finger grip design that helps the operator grasp and pull ties snug
- Sure Grip tab keeps the tail from popping out while being threaded, then holds it securely for final tightening by hand or tool
- Quick and easy pull through increases productivity, reduces operator fatigue

Technical Information

Material	Polyamide 6.6 (*)
Temperature range	-40°C to +85°C
Colour	Natural as standard colour (*)
Approvals	MIL: MS 3367-x (see table)
Flammability rating	UL 94 V-2
Other properties	Halogen free, Silicone free

(*) For other materials and colours see the product reference structure page 46

Product Ref.	MIL Spec.	Length L [mm]	Width W [mm]	Bundle ø from ... to [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
TY100-18	MS-3367-4	112	2.4	1.6 - 25	80	1000	
TY125-18	–	136	2.4	1.6 - 32	80	1000	
TY150-18	–	163	2.4	1.6 - 38	80	1000	
TY200-18	–	203	2.4	1.6 - 50	80	1000	
TY125-30	–	143	3.3	1.6 - 32	130	1000	ERG50
TY125-40	MS-3367-5	141	3.6	1.6 - 32	180	1000	WT193A
TY200-40	–	205	3.6	1.6 - 50	180	1000	
TY300-40	–	290	3.6	1.6 - 76	180	1000	
TY400-40	–	368	3.6	1.6 - 102	180	1000	
TY125-50	–	140	4.6	1.6 - 25	220	1000	
TY175-50	MS-3367-1	186	4.6	1.6 - 44	220	1000	ERG50
TY225-50	–	226	4.6	1.6 - 57	220	1000	ERG120
TY300-50	MS-3367-7	291	4.6	1.6 - 76	220	1000	WT193A
TY400-50	MS-3367-2	366	4.6	1.6 - 102	220	1000	
TY200-120	–	219	7.6	4.8 - 50	540	500	
TY300-120	–	289	7.6	4.8 - 76	540	100	ERG120
TY400-120	MS-3367-3	375	7.6	4.8 - 102	540	50 /100	L-500-EU
TY450-120	–	457	7.6	4.8 - 123	540	50	WT3D
TY600-120	–	610	7.6	4.8 - 177	540	50	
TY800-120	MS-3367-6	706	7.6	4.8 - 203	540	50	

Description of Product Reference structure: see page 46
Description of materials and properties: see pages 140 to 151
For tooling specifications: see pages 126 to 139

** Some approvals may not be applicable to all the Product References. Contact your Sales Office for approvals limitations

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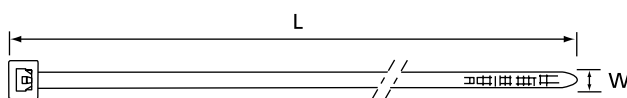
Standard cable ties - Jar
All-plastic cable ties

Characteristics

- Ty-Fast® cable ties packed in an attractive plastic jar
- Ideal product for the distribution market
- Different dimensions in the same packaging: 112 mm x 2.4 mm, 141 mm x 3.6 mm and 186 mm x 4.7 mm
- Tensile strength from 80N to 220N
- Available in 3 different packaging configurations: 1 in natural cable ties and 2 in black cable ties
- Ideal product when small volumes are needed for various applications

Technical Information

Material	Polyamide 6.6
Temperature range	-40°C to +85°C
Colour	Natural or UV-resistant black (see table)
Flammability rating	UL 94 V-2
Other properties	UV-resistant (black) Halogen free, Silicone free

Product Ref.	Quantity [pieces]	Colour	Mil Spec	Length L [mm]	Width W [N]	Bundle diameter from ... to [mm]	Minimum tensile strength [N]	Tooling
JTN-500-EU	2 x 100	natural	-	112	2.4	1.6 - 25	80	
	1 x 100	natural	MS-3367-5	141	3.6	1.6 - 32	180	ERG50, WT193A
	2 x 100	natural	MS-3367-1	186	4.6	1.6 - 44	220	ERG50, ERG120, WT193A
JTB-500-EU	2 x 100	UV-resistant black	-	112	2.4	1.6 - 25	80	
	1 x 100	UV-resistant black	MS-3367-5	141	3.6	1.6 - 32	180	ERG50, WT193A
	2 x 100	UV-resistant black	MS-3367-1	186	4.6	1.6 - 44	220	ERG50, ERG120, WT193A
JTB1-500-EU	2 x 100	UV-resistant black	-	112	2.4	1.6 - 25	80	
	2 x 100	UV-resistant black	MS-3367-5	141	3.6	1.6 - 32	180	ERG50, WT193A
	1 x 100	UV-resistant black	MS-3367-1	186	4.6	1.6 - 44	220	ERG50, ERG120, WT193A

Description of Product Reference structure: see page 46
Description of materials and properties: see pages 140 to 151
For tooling specifications: see pages 126 to 139

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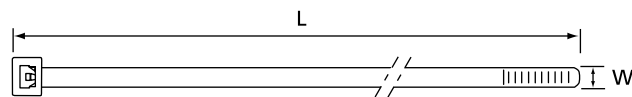
Extra-long cable ties
All-plastic cable ties

Characteristics
- Extremely long ties (up to 1214 mm)
- Robust construction (780N), for demanding applications where superior tensile strength is required
- The extra long Ty-Fast® ties are available in natural colour for indoor applications and in UV-resistant black for outdoor applications

Technical Information

Material	Polyamide 6.6
Temperature range	-40°C to +85°C
Colour	Natural or UV-resistant black (see table)
Flammability rating	UL 94 V-2
Other properties	UV-resistant (black), Halogen free, Silicone free

Product Ref.	Colour	Length L [mm]	Width W [mm]	Bundle ø from ... to [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
TY900-175X	UV-resistant black	930	8.8	5 - 273	780	50	
TY900-175	Natural	930	8.8	5 - 273	780	50	WT3D
TY1000-175X	UV-resistant black	1036	8.8	5 - 305	780	50	L300FR
TY1000-175	Natural	1036	8.8	5 - 305	780	50	L-500-EU
TY1200-175X	UV-resistant black	1214	8.8	5 - 381	780	50	WT193A
TY1200-17	Natural	1214	8.8	5 - 381	780	50	

Description of Product Reference structure: see page 46
Description of materials and properties: see pages 140 to 151
For tooling specifications: see pages 126 to 139

E49405

Heavy-duty cable ties
All-plastic cable ties

Characteristics
- Extremely robust ties (1120N), for demanding applications where extreme tensile strength is required
- Available in natural colour for indoor applications and in UV-resistant black for outdoor applications

Technical Information

Material	Polyamide 6.6
Temperature range	-40°C to +85°C
Colour	Natural or UV-resistant black (see table)
Flammability rating	UL 94 V-2
Other properties	UV-resistant (black), Halogen free, Silicone free

Product Ref.	Colour	Length L [mm]	Width W [mm]	Bundle ø from ... to [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
TYL300M	natural	300	13.2	75	1120	50	
TYL300MX	UV-resistant black	300	13.2	75	1120	50	L-500-EU
TYL546M	natural	546	13.2	140	1120	50	
TYL546MX	UV-resistant black	546	13.2	140	1120	50	

Description of Product Reference structure: see page 46
Description of materials and properties: see pages 140 to 151
For tooling specifications: see pages 126 to 139
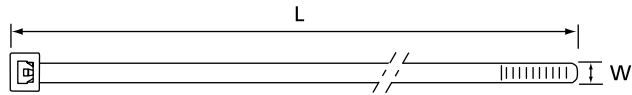
UL 94 V-0 flame retardant cable ties
All-plastic cable ties

Characteristics
- Similar to our Ty-Rap® range of flame retardant ties, these all-plastic ties are made from low smoke flame retardant Polyamide 6.6 and meet the requirements of UL 94 V-0.
- Ideal for use where low flammability and low smoke are necessary such as public transport / buildings, tunnels etc.

Technical Information

Material	Polyamide 6.6
Temperature range	-40°C to +85°C
Colour	Milky white
Flammability rating	UL 94 V-0
Other properties	Limited fire hazard (low smoke), Halogen free, Silicone free

Product Ref.	Length L [mm]	Width W [mm]	Bundle ø from ... to [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
TS1025HF	100	2.5	2 - 22	80	100	
TS1435HF	140	3.6	2.5 - 33	180	100	ERG50
TS2045HF	200	4.8	3 - 50	220	100	WT193A
TS2845HF	280	4.8	5 - 70	220	100	
TS3645HF	370	4.8	5 - 102	220	100	
TS3675HF	370	7.6	5 - 102	540	100	ERG120, L-500-EU, WT3D

Description of materials and properties: see pages 140 to 151

For tooling specifications: see pages 126 to 139
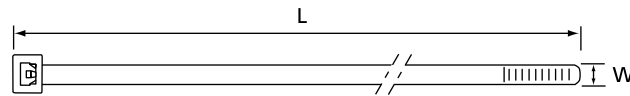
Integrated mounting hole cable ties
Special all-plastic cable ties

Characteristics
- Cable tie can be directly mounted onto a support with screws, bolts or rivets.
- Mounting and bundling in one maintenance-friendly assembly.
- Cable harness manufacture and pre- and end- mounting of bundles and parts.
- UV-resistant version, especially recommended for outdoor applications

Technical Information

Material	Polyamide 6.6
Temperature range	-40°C to +85°C
Colour	Natural or UV-resistant black (see table)
Flammability rating	UL 94 V-2
Other properties	UV-resistant (black), Halogen free, Silicone free

Product Ref.	Colour	Length L [mm]	Width W [mm]	Fixing scrw size	Bundle ø from ... to [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
L-5-30MH-0-C	UV-resistant black	152	3.3	M4	2 - 32	130	100	ERG50
L-5-30MH-9-C	natural	152	3.3	M4	2 - 32	130	100	WT193A
L-7-50MH-0-C	UV-resistant black	208	4.7	M5	2 - 44	220	100	
L-7-50MH-9-C	natural	208	4.7	M5	2 - 44	220	100	ERG50
L-11-50MH-0-C	UV-resistant black	314	4.7	M5	2 - 76	220	100	ERG120
L-11-50MH-9-C	natural	314	4.7	M5	2 - 76	220	100	WT193A
L-14-50MH-0-C	UV-resistant black	382	4.7	M5	2 - 102	220	100	WT3D
L-14-50MH-9-C	natural	382	4.7	M5	2 - 102	220	100	
L-14-120MH-0-C	UV-resistant black	382	7.6	M6	5 - 102	540	100	ERG120
L-14-120MH-9-C	natural	382	7.6	M6	5 - 102	540	100	L-500-EU, WT3D

Description of materials and properties: see pages 140 to 151
For tooling specifications: see pages 126 to 139
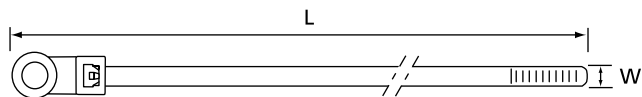
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Releasable panel mounting cable ties
Special all-plastic cable ties

Characteristics
- Fastening and clip-mounting in one
- Fast pre- or on-site-assembly for a range of panel thickness up to 2.7 mm
- Fast and secure clip-mounting
- For use in 6.35 mm mounting hole
- Product References containing xxx-PMR-xxx are releasable

Technical Information

|	
Material	Polyamide 6.6
Temperature range	-40°C to +85°C
Colour	Natural or UV-resistant black (see table)
Flammability rating	UL 94 V-2
Other properties	UV-resistant (black), Halogen free, Silicone free

Product Ref.	Colour	Length L [mm]	Width W [mm]	Bundle ø from ... to [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
STANDARD PANEL MOUNTING TIES							
L-5-50PM-0-C	UV-resistant black	147	4.8	2 - 25	220	100	ERG50
L-5-50PM-9-D	natural	147	4.8	2 - 25	220	1000	ERG120
L-7-50PM-0-C	UV-resistant black	208	4.8	2 - 44	220	100	L-500-EU
L-7-50PM-9-C	natural	208	4.8	2 - 44	220	100	WT193A
RELEASABLE PANEL MOUNTING TIES							
TB-4-50PMR-9-C-EU*	natural	110	4.8	2 - 22	220	100	ERG50, ERG120
L-5-50PMR-0-C	UV-resistant black	147	4.8	2 - 25	220	100	L-500-EU
L-5-50PMR-9-C	natural	147	4.8	2 - 25	220	100	WT193A
L-7-50PMR-9-C	natural	208	4.8	2 - 44	220	100	WT1-TB, WT2-TB

* Not UL registered

Description of materials and properties: see pages 140 to 151
For tooling specifications: see pages 126 to 139

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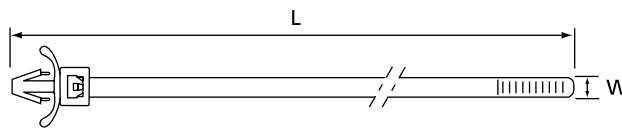
Releasable cable ties
Special all-plastic cable ties

Characteristics

- Easy releasable and re-usable. UV-resistant version, especially recommended for outdoor applications.

Technical Information

Material	Polyamide 6.6
Temperature range	-40°C to +85°C
Colour	Natural or UV-resistant black (see table)
Flammability rating	UL 94 V-2
Other properties	UV-resistant (black), Halogen free, Silicone free

Product Ref.	Colour	Length L [mm]	Width W [mm]	Bundle ø from ... to [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
L-5-50R-0-C	UV-resistant black	150	7.5	3 - 32	220	100	
L-8-50R-0-C	UV-resistant black	198	7.5	3 - 51	220	100	L-500-EU
L-8-50R-9-C	natural	198	7.5	3 - 51	220	100	WT3D
L-10-50R-0-C	UV-resistant black	298	7.5	3 - 76	220	100	ERG120
L-10-50R-9-C	natural	298	7.5	3 - 76	220	100	

Description of materials and properties: see pages 140 to 151
For tooling specifications: see pages 126 to 139

E49405

Cable ties with identification tag
Special all-plastic cable ties

Characteristics
- Identification ties with incorporated label for durable marking and tying
- Simple marking on the roughened writing surface

Technical Information

Material	Polyamide 6.6
Temperature range	-40°C to +85°C
Colour	Natural
Flammability rating	UL 94 V-2
Other properties	Halogen free, Silicone free

Product Ref.	Length L [mm]	Width W [mm]	Label dimensions [mm]	Bundle ø max. [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
L-4-18ID-9-C	102	2.5	7.9 x 24.7	19	80	100	ERG50
L-4-18ID-9-M	102	2.5	7.9 x 24.7	19	80	1000	WT193A
L-7-50ID-9-C	200	4.7	30 x 13.3	44	220	100	ERG50, ERG120
L-7-50ID-9-M	200	4.7	30 x 13.3	44	220	1000	WT193A, L-500-EU

Description of materials and properties: see pages 140 to 151
For tooling specifications: see pages 126 to 139

E49405

Special double-headed ties
Special all-plastic cable ties

Characteristics
- The double-headed ties allow the parallel routing of two bundles of cable with one single tie.
- Available in 3 different lengths.

Technical Information

Material	Polyamide 6.6
Temperature range	-40°C to +85°C
Colour	Natural
Flammability rating	UL 94 V-2
Other properties	Halogen free, Silicone free

Product Ref.	Length L	Width W	Bundle diameter		Min. tensile strenght	Quantity	Tooling
			loop 1 from ... to	Loop 2 from ... to			
	[mm]	[mm]	[mm]	[mm]	[N]	[pieces]	
TB-8-50RLDH	200	4.8	2.5 - 47	2.0 - 45	220	1000	ERG50, ERG120
TB-12-50RLDH	300	4.8	2.5 - 72	2.0 - 70	220	1000	WT193A
TB-15-50RLDH	370	4.8	2.5 - 100	2.0 - 97	220	1000	L-500-EU

Description of materials and properties: see pages 140 to 151
For tooling specifications: see pages 126 to 139
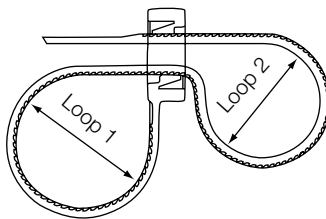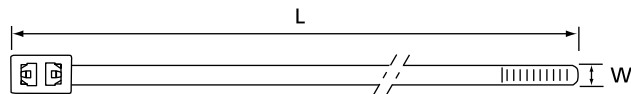
Safe-Ty™ Low profile in-line fasteners
Special all-plastic cable ties

Characteristics

The Safe-Ty™ design from ABB is ideal for use where precision bundling is required and clearance is a necessity. A unique saddle back design curves to form a snug fit around the bundle, and allows for easy pull-through in bulkheads and any other tight spaces.
- Low-profile, contoured head reduces clearance required for the bundle and enhances the appearance of your harness
- The safe-guard wall eliminates exposure to sharp edges
- The saddle back fits snug against the contour of the wiring harness
- Sizes and colours available to accommodate various requirements
- Recommended in all applications where the aesthetics and the user's safety can be a concern (thanks to the rounded edges): playgrounds, supermarket displays,...

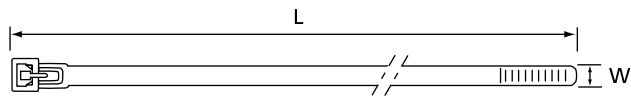### Technical Information
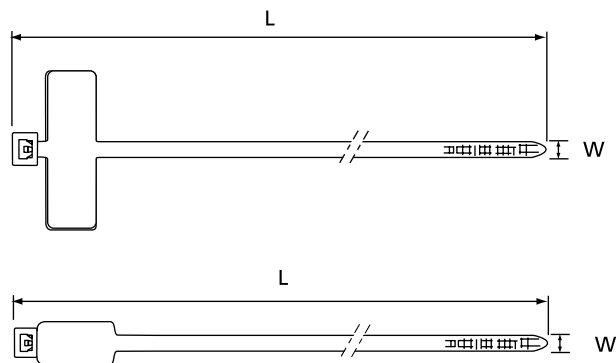
Material   Polyamide 6.6
Temperature range   -40°C to +85°C
Colour   Natural or UV-resistant (see table)
Flammability rating   UL 94 V-2
Other properties   UV-resistant (black), Halogen free, Silicone free

Product Ref.	Colour	Length L [mm]	Width W [mm]	D	Bundle ø from ... to [mm]	Min. tensile strenght [N]	Quantity ** [pieces]	Tooling
SF100-18	natural*	118	2.4	3.2	3.2 - 25.4	80	100 / 1000	
SF100-18X	UV-resistant black	118	2.4	3.2	3.2 - 25.4	80	100 / 1000	ERG50
SF200-18	natural*	206	2.4	3.2	3.2 - 50.8	80	100 / 1000	WT193A
SF200-18X	UV-resistant black	206	2.4	3.2	3.2 - 50.8	80	100 / 1000	
SF175-50	natural*	201	4.7	4.5	4.7 - 44.5	220	100 / 1000	
SF175-50X	UV-resistant black	201	4.7	4.5	4.7 - 44.5	220	100 / 1000	ERG50
SF300-50	natural*	288	4.7	4.5	4.7 - 76.2	220	100 / 1000	ERG120
SF300-50X	UV-resistant black	288	4.7	4.5	4.7 - 76.2	220	100 / 1000	WT193A
SF400-50	natural*	369	4.7	4.5	9.5 - 101.6	220	100 / 1000	L-500-EU
SF400-50X	UV-resistant black	369	4.7	4.5	9.5 - 101.6	220	100 / 1000	
SF400-120	natural*	370	7.6	6.9	9.5 - 101.6	540	100 / 1000	
SF400-120X	UV-resistant black	370	7.6	6.9	9.5 - 101.6	540	100 / 1000	ERG120
SF600-120	natural*	533	7.6	6.9	9.5 - 152.4	540	100 / 1000	L-500-EU
SF600-120X	UV-resistant black	533	7.6	6.9	9.5 - 152.4	540	100 / 1000	WT3D

* For other colours add colour suffix to Product Reference: 0 = black, 1 = brown, 2 = red, 3 = orange, 4 = yellow, 5 = green, 6 = blue, 8 = grey and 9 = white. For example: SF-175-50-2 (red)

** Standard quantity = 1000. For bags of 100 add -100 to the product reference, for example. SF100-18-100.

Description of materials and properties: see pages 140 to 151
For tooling specifications: see pages 126 to 139
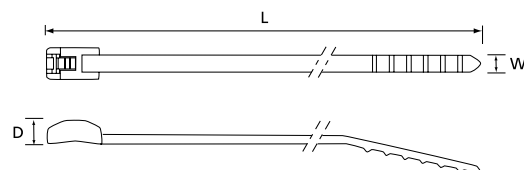
Note: Nylon (Polyamide) is inherently susceptible to environmental conditions. Safe-Ty™ cable ties are moisturised to optimum performance levels at machine-side and should be stored in cool dry areas out of direct sunlight. Cable ties are packaged in plastic bags to contain moisture and should remain sealed until ready for use

Ty-Grip™ Hook & Loop fasteners
Special cable ties

Characteristics
These handy ties are very easy to release and re-use, making them ideal for applications where changes are anticipated or continuous access is required.
- Quick bundling and re-adjustable tension
- No risk of over-tightening the cables, which makes the Ty-Grip™ Hook & Loop fasteners ideal for specific applications in fibre optics, computer network wiring, telecom cables, etc.
- Multiple colours available for identifying specific bundles
- Different sizes available to accommodate varying bundle diameters
- Screw-mount and self-adhesive mounting bases provide multiple mounting options

Technical Information FO Series
Material hook side	Polyamide
Material loop side	Low density Polyethylene
Temperature range	-20°C to +104°C
Colour	Standard colour: black - see note after table
Flammability rating	UL 94 HB*
Peel-off strength	0.8N/cm

Technical Information FOL Series
Material hook side	Polyamide
Temperature range	-20°C to +93°C
Colour	Standard colour: black - see note after table
Flammability rating	UL 94 HB
Peel-off strength	0.8N/cm

FO series loop ties are ideal for wrapping pre-determined bundle diameters thanks to the convenient slotted head.

FOL series buckle ties provide added strength and stability thanks to the high performance polyamide buckle.

Product Ref.	Maximum bundle diameter [mm]	Length L [mm]	Width W [mm]	Tensile strenght [N]	Quantity [pieces]
FO SERIES LOOP TIES					
F0200-40-0	50.8	228.6	12.7	180	10
F0200-50-0	50.8	228.6	19.1	220	10
F0350-40-0	88.9	330.2	12.7	180	10
F0350-50-0	88.9	330.2	19.1	220	10
F0350-50-0-FR*	88.9	330.2	19.1	220	10
FOL SERIES BUCKLE TIES					
F0L300-50-0	76.2	304.8	19.1	220	10
F0L500-50-0	127.0	457.2	19.1	220	10

* For other colours add colour suffix to Product Reference: 0 = black, 1 = brown, 2 = red, 3 = orange, 4 = yellow, 5 = green, 6 = blue, 8 = grey and 9 = white. For example: SF-175-50-2 (red)

** Standard quantity = 1000. For bags of 100 add -100 to the product reference, for example. SF100-18-100.

Ty-Grip™ Hook & Loop fasteners
Special cable ties

Characteristics
These handy ties are very easy to release and re-use, making them ideal for applications where changes are anticipated or continuous access is required.
- Quick bundling and re-adjustable tension
- No risk of over-tightening the cables, which makes the Ty-Grip™ Hook & Loop fasteners ideal for specific applications in fibre optics, computer network wiring, telecom cables, etc.
- Multiple colours available for identifying specific bundles
- Different sizes available to accommodate varying bundle diameters
- Screw-mount and self-adhesive mounting bases provide multiple mounting options

Technical Information FOS and FOR Series

Material hook side	Polyamide
Material loop side	Low density Polyethylene
Temperature range	-20°C to +104°C
Colour	Standard colour: black - see note after table
Flammability rating	UL 94 HB*
Peel-off strength	0.8N/cm

FOS series strip ties are pre-cut which makes bundling easy.

FOR series rolled hook and loop allows customers to conveniently cut pieces to desired lengths, eliminating waste.

Product Ref.	Maximum bundle diameter [mm]	Length L [mm]	Width W [mm]	Tensile strenght [N]	Quantity [pieces]
FOS SERIES STRIP TIES					
FOS150-50-0	38.1	152.4	19.1	220	10
FOS320-50-0	81.3	304.8	19.1	220	10
FOS500-50-0	127.0	457.2	19.1	220	10
FOR SERIES ROLLED STRIP					
FOR180-50-0	Various	4572.0	19.1	220	1
FOR180-50-0-FR*	Various	4572.0	19.1	220	1

* Standard colour: black

Replace "-0" in the Product Reference by the corresponding colour code: 1 = brown, 2 = red, 3 = orange, 4 = yellow, 5 = green, 6 = blue, 8 = grey and 9 = white

For example: FOS150-50-2 defines a red FOS150-50 type fastener

* FOR180-50-0-FR is made of flame retardant material

Contact your Sales Office for Product Availability in the other colours

Polyamide 6.6 Twist Tail® cable tie
All plastic cable tie – no tool needed

Characteristics
- New all-plastic cable tie, with unique, patent pending design
- Quick and easy to install, no tools required
- Strong, made of Polyamide 6.6, with 130N minimum tensile strength
- Safe, tail breaks off neat and clean, with no sharp edges
- General purpose applications, indoor and outdoor
- Available in 3 different lengths and 2 colours (white and UV-resistant black)

Technical Information
Material	Polyamide 6.6
Temperature range	+85°C
Colour	White or UV-resistant black
Flammability rating	UL 94 V-2
Other properties	Halogen free, Silicone free, UV resistant black

Product Ref.	Colour	Length [mm]	Width [mm]	Thickness [mm]	Bundle diameter [mm]	Quantity [pieces]
TT-7-30-9-L-EU	white	181	4.7	1.4	45	50
TT-7-30-0-L-EU	black	181	4.7	1.4	45	50
TT-11-30-9-L-EU	white	282	4.7	1.4	76	50
TT-11-30-0-L-EU	black	282	4.7	1.4	76	50
TT-14-30-9-L-EU	white	358	4.7	1.4	102	50
TT-14-30-0-L-EU	black	358	4.7	1.4	102	50

Col-Ty™ Heavy-duty double headed installation ties
Heavy-duty installation ties

Characteristics
- For securing and bundling of cables in the utility and construction industries
- Low profile double locking head*
- Serrations on the outer side of the tie eliminates the risk of damage to the cable
- Ideal for hazardous environments, low temperatures and humidity

Technical Information

Material	Polyester
Temperature range	-40°C to +80°C
Colour	Black
Flammability rating	UL 94 HB
Other properties	UV-resistant

Product Ref.	Length L [mm]	Width W [mm]	Thickness [mm]	Bundle ø from ... to [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
CTP-9-180-0-C*	180	9	1.8	10 - 42	440	100	
CTP-9-260-0-C	260	9	2.0	15 - 62	520	100	L300-FR
CTP-9-360-0-C	360	9	2.0	25 - 92	520	100	L-500-EU
CTP-9-500-0-C	510	9	2.4	74 - 140	550	100	WT3D
CTP-9-750-0-C	760	9	2.4	74 - 220	550	100	

* Product Ref. CTP-9-180-0-C has a single locking head

Description of materials and properties: see pages 140 to 151
For tooling specifications: see pages 126 to 139

Double locking head
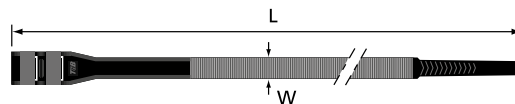
Single locking head
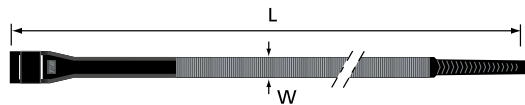
Col-Ty™ Accessories
Heavy-duty installation ties

Characteristics
- Use 5 mm screw
- Cradle for ties up to 9 mm wide

Technical Information

Material	Polyamide 11/12
Temperature range	-40°C to +80°C
Colour	Black
Flammability rating	UL 94 HB
Other properties	UV-resistant

Product Réf.	L [mm]	l [mm]	S [mm]	H [mm]	F [mm]	d2 [mm]	Quantity [pieces]
CT-3401	22.9	10.5	17.6	13.8	9.4	5.9	100
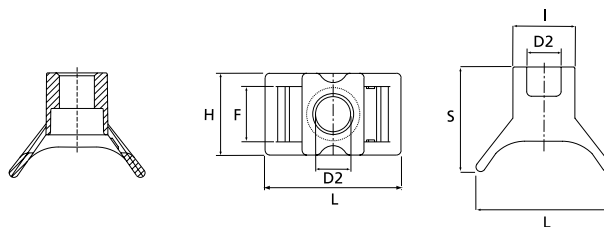
Col-Ty™ Accessories
Heavy-duty installation ties

Characteristics
- Wall plug suitable for ø 8 mm hole
- Simply drill hole and hammer the plug in

Technical Information

Material	Polyamide 11/12
Temperature range	-40°C to +80°C
Colour	Black
Flammability rating	UL 94 HB
Other properties	UV-resistant

Product Réf.	L [mm]	Ød1 [mm]	S [mm]	H [mm]	I [mm]	F [mm]	f [mm]	Quantity [pieces]
CT-5359	43.1	9.6	13.2	16	6.3	9.5	2.4	100
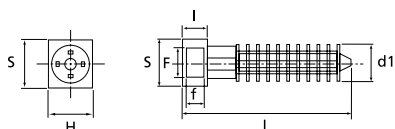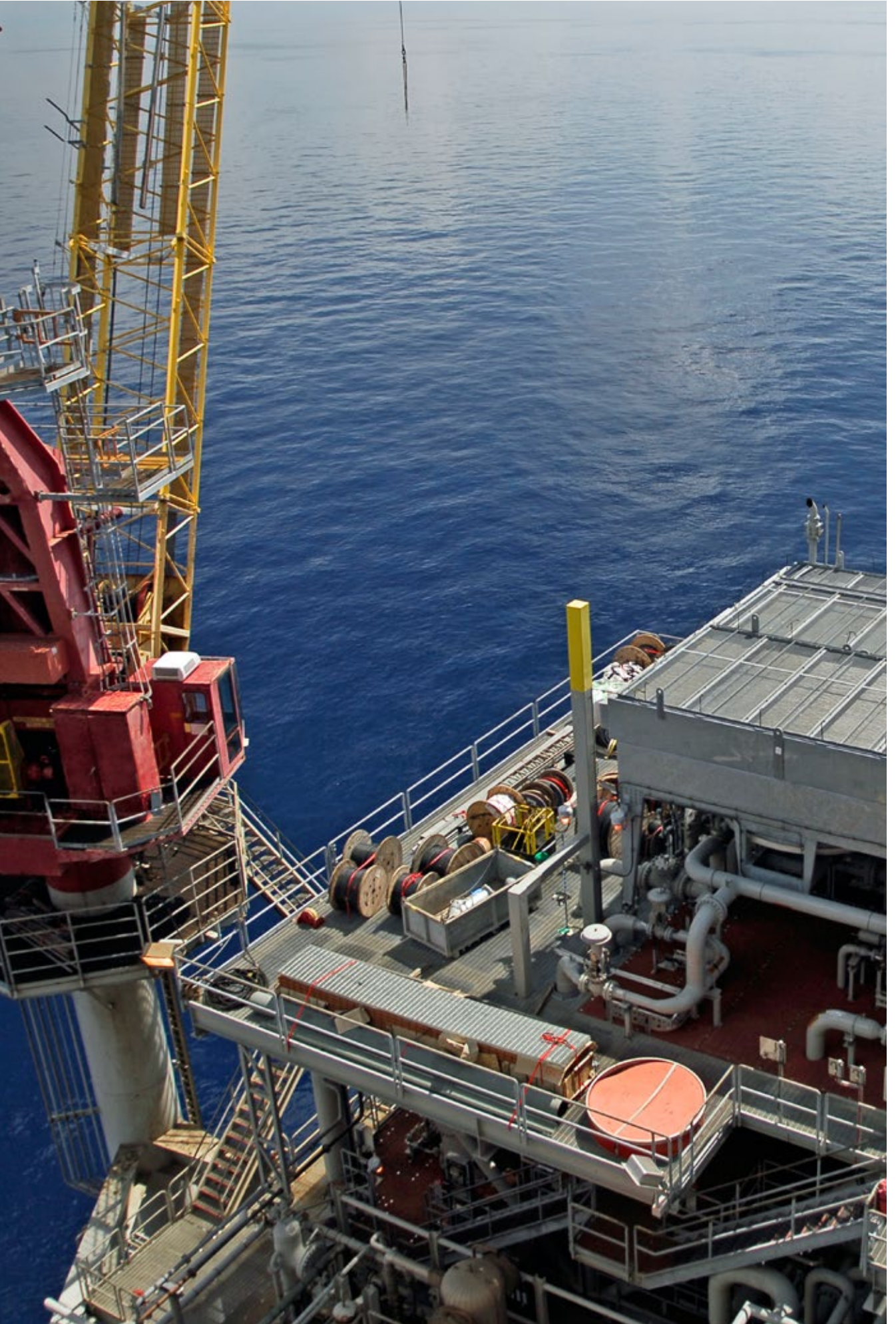
Table of Content
Stainless steel cable ties

Ty-Met™ Stainless Steel cable ties
Stainless steel cable ties

The Ty-Met™ stainless steel ties are the ultimate solution to install your cables in extreme conditions and hazardous areas, indoor and outdoor, such as the petrochemical and food processing industries, power stations, mining, shipbuilding, offshore and other aggressive environments.

Ty-Met™

The Ty-Met™ stainless steel ties provide a high mechanical strength combined with chemical durability and temperature resistance.
They are available in several different types:
- Ball-Lock Type: quick and reliable self-locking mechanism
- Ladder Type: easy application and strong locking system
- Strap Type: either pre-assembled or on reel with separate heads
- Releasable Type: can be unfastened for re-use
- Identification System: durable in tough environments and extreme conditions
- Band on reel with separate heads, for a cost saving installation without waste

Ty-Met™ cable ties have international approvals such as UL, Germanischer Lloyd, Lloyd's Register and Det Norske Veritas. All types are available in 316 grade (marine grade) stainless steel, for extra corrosion resistance

Available in uncoated version (for high temperature applications) or in fully coated version with non-toxic, halogen free coating, for a superior protection of cables and installer's hands and for an improved insulation between dissimilar materials.

A range of dedicated hand tools completes the product offering.

Features and Benefits
Stainless steel cable ties

Ball-Lock Type

**Easy application and strong self-locking mechanism (steel ball),
with low insertion force**

Angled / rounded tail, for safer handling and easier insertion

Rounded Edges and smooth surfaces, for fast and safe hand installation
Uncoated or fully coated with non-toxic, Halogen free Polyester
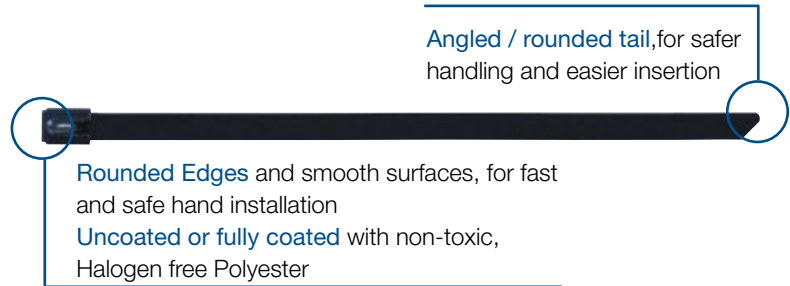
Ladder Type

Self-locking mechanism (pawl and ratchet)

Larger slot at the end, allows the use of a hook-type tool

Low profile, flat head (no sharp edges), for easy and safe installation
Uncoated or fully coated with non-toxic, Halogen free Polyester
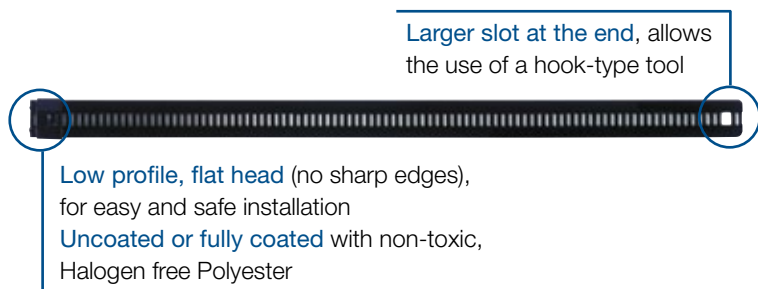
Releasable Type

The unique buckle design allows the tie to be unfastened for re-use

Can be installed by hand, and if necessary, the slots at the end allow the use of a hook-type tool

Additional ears can be bent back over the fastened tie to increase the tensile strength
Fully coated with non-toxic, Halogen free Polyester
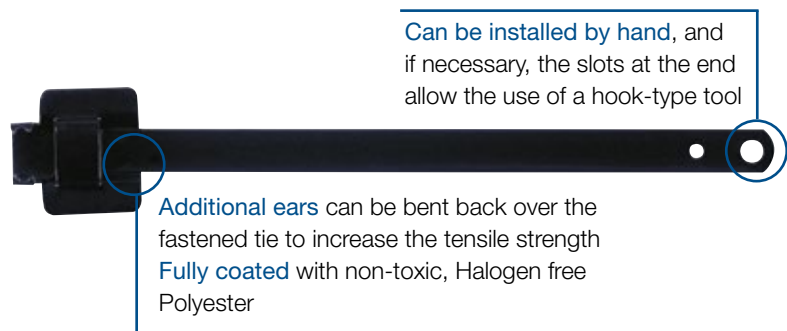
UV-resistant

Heat resistant

Low temperature flexibility

Weather-proof

Flame retardant

Chemically resistant

Radiation resistant

ID System

Durable identification system for tough environments and extreme conditions, indoor and outdoor

Dedicated carrier strips for 6, 10 or 16 characters
Carrier strips can be secured with Ty-Met ™ stainless steel ties

Characters and carrier strips are made of corrosion resistant 316 grade stainless steel, for high mechanical and chemical durability

Pre-embossed characters are easy to read, even when covered with dust, paint or dirt
Characters can be mounted on carrier strips or directly onto Ty-Met™ stainless steel ties
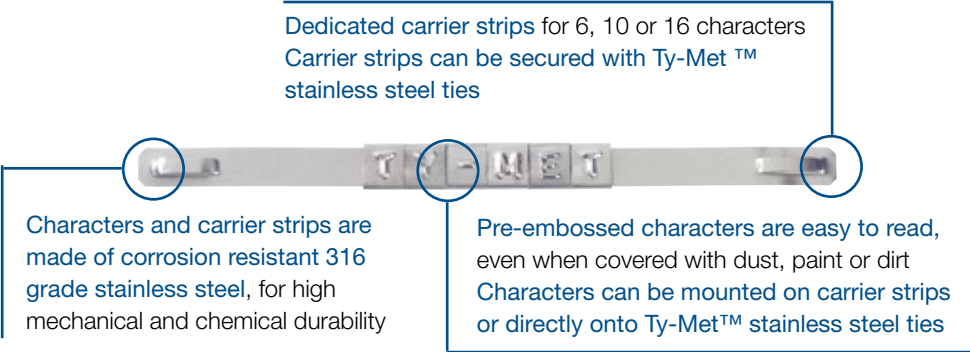
Bands on Reel with Separate Heads

Bands and separate heads are made of corrosion resistant 316 grade stainless steel, for high mechanical and chemical durability

Dedicated heads are easy to install

Available in 5 widths up to 19.1 mm, to suit a wide range of applications
25-metre reels for a cost saving and customised installation, around all sizes and shapes of objects

Bands are fully covered with non-toxic, halogen free Polypropylene
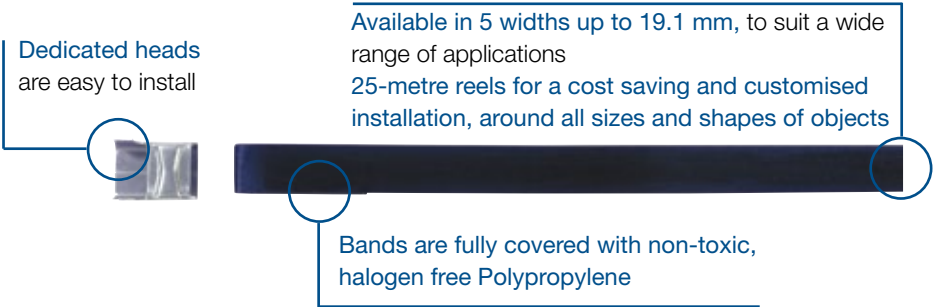
Ball-Lock Type - Standard widths, uncoated
Stainless steel cable ties

Characteristics

The Ball-Lock Type stainless steel ties from ABB are self-locking, requiring no time consuming crimping or folding operations.
- Strong self-locking mechanism (stainless steel ball), with low insertion force
- Fast, easy and reliable installation
- Standard widths (4.6 mm & 7.9 mm), suitable for most applications, indoor and outdoor
- Uncoated version, suitable for high temperature environments
- 2 grades of non-magnetic stainless steel: 304 grade for standard applications and 316 grade (marine grade) for extra corrosion resistance
- Applications: installation of cables and pipes in extreme conditions and hazardous areas, such as: petrochemical and food processing industries, power stations, mining, shipbuilding, offshore and other aggressive environments

Technical Information

Material	A. 304 grade non-magnetic stainless steel
	B. 316 grade non-magnetic stainless steel
Temperature range	-80°C to +300°C
Colour	Metallic
Flammability rating	Absolutely fireproof
Other properties	UV-resistant

Product Ref. Stainless steel 304	Product Ref. Stainless steel 316	Length L [mm]	Width W [mm]	Material thickness [mm]	Bundle ø from... to [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
YLS-4.6-100A	YLS-4.6-100B	100	4.6	0.26	20-25	440	100	
YLS-4.6-125A	YLS-4.6-125B	125	4.6	0.26	20-25	440	100	
YLS-4.6-150A	YLS-4.6-150B	150	4.6	0.26	20-35	440	100	
YLS-4.6-200A	YLS-4.6-200B	200	4.6	0.26	20-50	440	100	
YLS-4.6-300A	YLS-4.6-300B	300	4.6	0.26	20-83	440	100	
YLS-4.6-360A	YLS-4.6-360B	360	4.6	0.26	20-100	440	100	
YLS-4.6-520A	YLS-4.6-520B	520	4.6	0.26	20-150	440	100	
YLS-4.6-680A	YLS-4.6-680B	680	4.6	0.26	20-200	440	100	
YLS-4.6-840A	YLS-4.6-840B	840	4.6	0.26	20-250	440	100	
YLS-4.6-1000A	YLS-4.6-1000B	1000	4.6	0.26	20-300	440	100	
YLS-4.6-1200A	YLS-4.6-1200B	1200	4.6	0.26	20-365	440	100	
YLS-4.6-1400A	YLS-4.6-1400B	1400	4.6	0.26	20-425	440	100	CT3
YLS-7.9-100A	YLS-7.9-100B	100	7.9	0.26	20-20	1110	100	CT6
YLS-7.9-125A	YLS-7.9-125B	125	7.9	0.26	20-22	1110	100	
YLS-7.9-150A	YLS-7.9-150B	150	7.9	0.26	20-35	1110	100	
YLS-7.9-200A	YLS-7.9-200B	200	7.9	0.26	20-50	1110	100	
YLS-7.9-300A	YLS-7.9-300B	300	7.9	0.26	20-83	1110	100	
YLS-7.9-360A	YLS-7.9-360B	360	7.9	0.26	20-100	1110	100	
YLS-7.9-520A	YLS-7.9-520B	520	7.9	0.26	20-150	1110	100	
YLS-7.9-680A	YLS-7.9-680B	680	7.9	0.26	20-200	1110	100	
YLS-7.9-840A	YLS-7.9-840B	840	7.9	0.26	20-250	1110	100	
YLS-7.9-1000A	YLS-7.9-1000B	1000	7.9	0.26	20-300	1110	100	
YLS-7.9-1200A	YLS-7.9-1200B	1200	7.9	0.26	20-365	1110	100	
YLS-7.9-1400A	YLS-7.9-1400B	1400	7.9	0.26	20-425	1110	100	

* Some approvals may not be applicable to all the Product References. Contact your Sales Office for approvals limitations

UL E49405   GL   Lloyd's Register TYPE APPROVED   VIID TYPE APPROVED PRODUCTS

Ball-Lock Type - Standard widths, fully coated Stainless steel cable ties

Characteristics

The Ball-Lock Type stainless steel ties from ABB are self-locking, requiring no time consuming crimping or folding operations.
- Strong self-locking mechanism (stainless steel ball), with low insertion force
- Fast, easy and reliable installation
- Standard widths (4.6 mm & 7.9 mm), suitable for most applications, indoor and outdoor
- Corrosion resistant 316 grade stainless steel (marine grade) for high mechanical and chemical durability
- Fully coated version with non-toxic, halogen free Polyester coating, for a superior protection of cables and installer's hands and for an improved insulation between dissimilar materials.
- Applications: installation of cables and pipes in extreme conditions and hazardous areas, such as: petrochemical and food processing industries, power stations, mining, shipbuilding, offshore and other aggressive environments

Technical Information

Material	316 grade non-magnetic stainless steel
Coating	Polyester
Temperature range	-80°C to +150°C
Colour	Black
Flammability rating	Absolutely fireproof
Other properties	UV-resistant, Halogen free, non toxic

Product Ref.	Length L [mm]	Width W [mm]	Material thickness [mm]	Bundle ø from... to [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
YLS-4.6-100BC	100	4.6	0.36	20-25	440	100	
YLS-4.6-125BC	125	4.6	0.36	20-25	440	100	
YLS-4.6-150BC	150	4.6	0.36	20-35	440	100	
YLS-4.6-200BC	200	4.6	0.36	20-50	440	100	
YLS-4.6-300BC	300	4.6	0.36	20-83	440	100	
YLS-4.6-360BC	360	4.6	0.36	20-100	440	100	
YLS-4.6-520BC	520	4.6	0.36	20-150	440	100	
YLS-4.6-680BC	680	4.6	0.36	20-200	440	100	
YLS-4.6-840BC	840	4.6	0.36	20-250	440	100	
YLS-4.6-1000BC	1000	4.6	0.36	20-300	440	100	
YLS-4.6-1200BC	1200	4.6	0.36	20-365	440	100	
YLS-4.6-1400BC	1400	4.6	0.36	20-425	440	100	CT3
YLS-7.9-100BC	100	7.9	0.36	20-20	530	100	CT6
YLS-7.9-125BC	125	7.9	0.36	20-22	530	100	
YLS-7.9-150BC	150	7.9	0.36	20-35	530	100	
YLS-7.9-200BC	200	7.9	0.36	20-50	530	100	
YLS-7.9-300BC	300	7.9	0.36	20-83	530	100	
YLS-7.9-360BC	360	7.9	0.36	20-100	530	100	
YLS-7.9-520BC	520	7.9	0.36	20-150	530	100	
YLS-7.9-680BC	680	7.9	0.36	20-200	530	100	
YLS-7.9-840BC	840	7.9	0.36	20-250	530	100	
YLS-7.9-1000BC	1000	7.9	0.36	20-300	530	100	
YLS-7.9-1200BC	1200	7.9	0.36	20-365	530	100	
YLS-7.9-1400BC	1400	7.9	0.36	20-425	530	100	

* Some approvals may not be applicable to all the Product References. Contact your Sales Office for approvals limitations

TYPE APPROVED PRODUCTS

Ball-Lock Type - Heavy-duty ties, uncoated
Stainless steel cable ties

Characteristics

The Ball-Lock Type stainless steel ties from ABB are self-locking, requiring no time consuming crimping or folding operations.
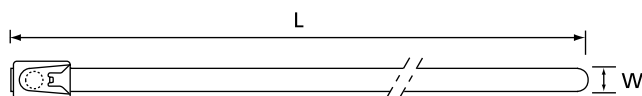- Strong self-locking mechanism (stainless steel ball), with low insertion force
- Fast, easy and reliable installation
- Heavy-duty version (12 mm & 16 mm of width), for extreme applications, indoor and outdoor
- Uncoated version, suitable for high temperature environments
- Corrosion resistant 316 grade stainless steel (marine grade) for high mechanical and chemical durability
- Applications: installation of cables and pipes in extreme conditions and hazardous areas, such as: petrochemical and food processing industries, power stations, mining, shipbuilding, offshore and other aggressive environments

Technical Information

Material	316 grade non-magnetic stainless steel
Temperature range	-80°C to +300°C
Colour	Metallic
Flammability rating	Absolutely fireproof
Other properties	UV-resistant

Product Ref.	Length L [mm]	Width W [mm]	Material thickness [mm]	Bundle ø from... to [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
YLS-12-200B	200	12.0	0.32	25-50	2670	50	
YLS-12-300B	300	12.0	0.32	25-83	2670	50	
YLS-12-360B	360	12.0	0.32	25-100	2670	50	
YLS-12-440B	440	12.0	0.32	25-125	2670	50	
YLS-12-520B	520	12.0	0.32	25-150	2670	50	
YLS-12-600B	600	12.0	0.32	25-175	2670	50	
YLS-12-680B	680	12.0	0.32	25-200	2670	50	CT3
YLS-12-760B	760	12.0	0.32	25-225	2670	50	CT7
YLS-12-840B	840	12.0	0.32	25-250	2670	50	
YLS-12-1000B	1000	12.0	0.32	25-300	2670	25	
YLS-12-1200B	1200	12.0	0.32	25-365	2670	25	
YLS-12-1400B	1400	12.0	0.32	25-425	2670	25	
YLS-16-200B	200	16.0	0.32	40-50	3110	50	
YLS-16-300B	300	16.0	0.32	40-80	3110	50	
YLS-16-360B	360	16.0	0.32	40-100	3110	50	
YLS-16-440B	440	16.0	0.32	40-125	3110	50	
YLS-16-520B	520	16.0	0.32	40-150	3110	50	
YLS-16-600B	600	16.0	0.32	40-185	3110	50	CT7
YLS-16-680B	680	16.0	0.32	40-200	3110	50	
YLS-16-760B	760	16.0	0.32	40-225	3110	50	
YLS-16-840B	840	16.0	0.32	40-250	3110	50	
YLS-16-1000B	1000	16.0	0.32	40-300	3110	25	
YLS-16-1200B	1200	16.0	0.32	40-365	3110	25	
YLS-16-1400B	1400	16.0	0.32	40-425	3110	25	

Ball-Lock Type - Heavy-duty ties, fully coated
Stainless steel cable ties

Characteristics

The Ball-Lock Type stainless steel ties from ABB are self-locking, requiring no time consuming crimping or folding operations.
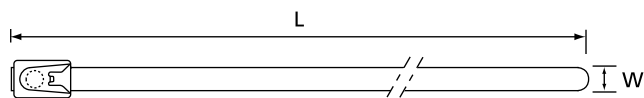- Strong self-locking mechanism (stainless steel ball), with low insertion force
- Fast, easy and reliable installation
- Heavy-duty version (12 mm & 16 mm of width), for extreme applications, indoor and outdoor
- Corrosion resistant 316 grade stainless steel (marine grade) for high mechanical and chemical durability
- Fully coated version with non-toxic, halogen free Polyester coating, for a superior protection of cables and installer's hands and for an improved insulation between dissimilar materials.
- Applications: installation of cables and pipes in extreme conditions and hazardous areas, such as: petrochemical and food processing industries, power stations, mining, shipbuilding, offshore and other aggressive environments

Technical Information

Material	316 grade non-magnetic stainless steel
Coating	Black Polyester
Temperature range	-80°C to +150°C
Flammability rating	Absolutely fireproof
Other properties	UV-resistant, Halogen free, non toxic

Product Ref.	Length L [mm]	Width W [mm]	Material thickness [mm]	Bundle ø from... to [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
YLS-12-200BC	200	12.0	0.42	25-50	2000	50	
YLS-12-300BC	300	12.0	0.42	25-83	2000	50	
YLS-12-360BC	360	12.0	0.42	25-100	2000	50	
YLS-12-440BC	440	12.0	0.42	25-125	2000	50	
YLS-12-520BC	520	12.0	0.42	25-150	2000	50	
YLS-12-600BC	600	12.0	0.42	25-175	2000	50	
YLS-12-680BC	680	12.0	0.42	25-200	2000	50	CT3
YLS-12-760BC	760	12.0	0.42	25-225	2000	50	CT7
YLS-12-840BC	840	12.0	0.42	25-250	2000	50	
YLS-12-1000BC	1000	12.0	0.42	25-300	2000	25	
YLS-12-1200BC	1200	12.0	0.42	25-365	2000	25	
YLS-12-1400BC	1400	12.0	0.42	25-425	2000	25	
YLS-16-200BC	200	16.0	0.42	40-50	2000	50	
YLS-16-300BC	300	16.0	0.42	40-80	2000	50	
YLS-16-360BC	360	16.0	0.42	40-100	2000	50	
YLS-16-440BC	440	16.0	0.42	40-125	2000	50	
YLS-16-520BC	520	16.0	0.42	40-150	2000	50	
YLS-16-600BC	600	16.0	0.42	40-185	2000	50	CT7
YLS-16-680BC	680	16.0	0.42	40-200	2000	50	
YLS-16-760BC	760	16.0	0.42	40-225	2000	50	
YLS-16-840BC	840	16.0	0.42	40-250	2000	50	
YLS-16-1000BC	1000	16.0	0.42	40-300	2000	25	
YLS-16-1200BC	1200	16.0	0.42	40-365	2000	25	
YLS-16-1400BC	1400	16.0	0.42	40-425	2000	25	
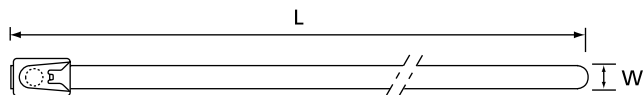
Ladder Type - Uncoated
Stainless steel cable ties

Characteristics

The Ladder Type stainless steel ties from ABB have a flat, low profile head for easy application.

- Strong self-locking mechanism (pawl and ratchet), requires no time consuming crimping or folding operations
- Flat and low profile head (no sharp edge), for easy installation
- Corrosion resistant 316 grade stainless steel for high mechanical and chemical durability
- Uncoated version for high temperature applications
- Increased usable length (slots up to the end of the tail), allows larger bundle diameters with the same tie length
- Larger slot at the end, allows the use of a hook-type tool
- Applications: Installation of cables and pipes in extreme conditions and hazardous areas, indoor and outdoor, such as: petrochemical and food processing industries, power stations, mining, shipbuil-ding, offshore and other aggressive environments

Technical Information

Material	316 grade stainless steel
Coating	Uncoated
Temperature range	-80°C to +300°C
Colour	Metallic
Flammability rating	Absolutely fireproof
Other properties	UV-resistant

Product Ref.	Length L [mm]	Width W [mm]	Material thickness [mm]	Bundle ø from... to [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
YLD-7-150-B	150	7.0	0.30	20-45	445	100	
YLD-7-225-B	225	7.0	0.30	20-70	445	100	
YLD-7-300-B	300	7.0	0.30	20-95	445	100	CT1-TB
YLD-7-450-B	450	7.0	0.30	20-140	445	100	CT2-TB
YLD-7-610-B	610	7.0	0.30	20-190	445	100	CT3
YLD-12-150-B	150	12.0	0.35	20-43	890	100	CT4-TB
YLD-12-225-B	225	12.0	0.35	20-60	890	100	CT5
YLD-12-300-B	300	12.0	0.35	20-80	890	100	WT3S
YLD-12-450-B	450	12.0	0.35	20-135	890	100	
YLD-12-610-B	610	12.0	0.35	20-185	890	100	

* Some approvals may not be applicable to all the Product References. Contact your Sales Office for approvals limitations

Ladder Type - Fully coated
Stainless steel cable ties

Characteristics

The Ladder Type stainless steel ties from ABB have a flat, low profile head for easy application.
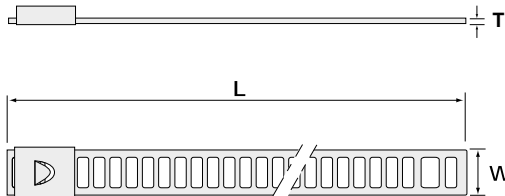
- Strong self-locking mechanism (pawl and ratchet), requires no time consuming crimping or folding operations
- Flat and low profile head (no sharp edge), for easy installation
- Corrosion resistant 316 grade stainless steel for high mechanical and chemical durability
- Fully coated version with non-toxic, Halogen free Polyester coa-ting, for a superior protection of cables and installer's hands and for an improved insulation between dissimilar materials
- Increased usable length (slots up to the end of the tail), allows larger bundle diameters with the same tie length
- Larger slot at the end, allows the use of a hook-type tool
- Applications: Installation of cables and pipes in extreme conditions and hazardous areas, indoor and outdoor, such as: petrochemical and food processing industries, power stations, mining, shipbuil-ding, offshore and other aggressive environments

Technical Information

Material	316 grade stainless steel
Coating	Polyester
Temperature range	-80°C to +150°C
Colour	Black
Flammability rating	Absolutely fireproof
Other properties	UV-resistant, Halogen free, non-toxic

Product Ref.	Length L [mm]	Width W [mm]	Material thickness [mm]	Bundle ø from... to [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
YLD-7-150-BC	150	7.0	0.41	20-45	445	100	
YLD-7-225-BC	225	7.0	0.41	20-70	445	100	
YLD-7-300-BC	300	7.0	0.41	20-95	445	100	
YLD-7-450-BC	450	7.0	0.41	20-140	445	100	CT1-TB
YLD-7-610-BC	610	7.0	0.41	20-190	445	100	CT2-TB
YLD-12-150-BC	150	12.0	0.46	20-43	890	100	CT3
YLD-12-225-BC	225	12.0	0.46	20-60	890	100	CT4-TB
YLD-12-300-BC	300	12.0	0.46	20-80	890	100	CT5
YLD-12-450-BC	450	12.0	0.46	20-135	890	100	WT3S
YLD-12-610-BC	610	12.0	0.46	20-185	890	100	

* Some approvals may not be applicable to all the Product References. Contact your Sales Office for approvals limitations

Strap Type ties
Stainless steel cable ties

Characteristics

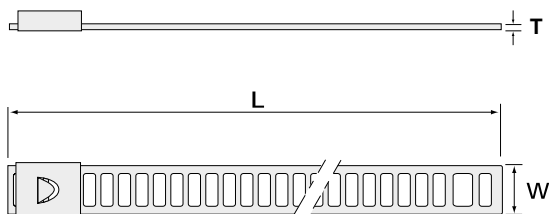The Strap Type ties have an easy self-locking mechanism and exist in pre-assembled lengths or on reel with separate heads

- Strong self-locking mechanism (pawl and ratchet), requires no time-consuming crimping or folding operations
- Head and body in corrosion resistant 316 grade stainless steel for high mechanical and chemical durability
- Uncoated, for high temperature applications
- Available in pre-assembled lengths up to 728 mm or in 2 reels of 152.4 metres per reel with separate heads (to be ordered separately), for a cost saving installation (no waste) around all sizes and shapes of objects
- Applications: installation of cables and pipes in extreme conditions and hazardous areas, such as: petrochemical and food processing industries, power stations, mining, shipbuilding, offshore and other aggressive environments

Technical Information

Material	316 grade stainless steel
Coating	Uncoated
Temperature range	-80°C to +300°C
Colour	Metallic
Flammability rating	Absolutely fireproof
Other properties	UV-resistant

Product Ref.	Length L [mm]	Width W [mm]	Max. Bundle ø [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
PRE-ASSEMBLED STRAPS						
TYS8	271	7.9	50	890	50	CT1-TB, CT2-TB,
TYS14	372	7.9	101	890	50	CT3, CT4-TB,
TYS22	575	7.9	152	890	50	CT5, WT3S
TYS28	728	7.9	203	890	50	
STRAP ON REEL						
TYS1000	304.8 m (2 reels of 152.4m)	7.9	Variable	890		CT1-TB, CT2-TB, CT3, CT4-TB, CT5, WT3S
SEPARATE HEADS						
TYS5200H					50	
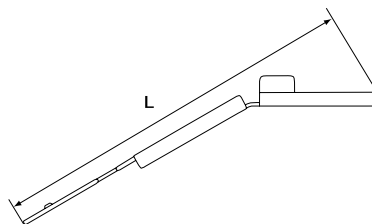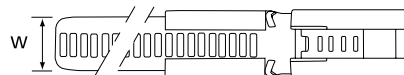
Releasable Type
Stainless steel cable ties

Characteristics

The Releasable Type stainless steel ties from ABB have a unique buckle design that allows the ties to be unfastened for re-use.

- Releasable and re-usable
- Corrosion resistant 316 grade stainless steel for high mechanical and chemical durability
- Fully coated version with non-toxic, Halogen free Polyester coating, for a superior protection of cables and installer's hands and for an improved insulation between dissimilar materials
- Fast, easy and reliable installation - can be installed by hand and if necessary, the slots at the end of the tie allow the use of a hook-type tool
- The additional ears can be bent back over the fastened tie to increase the tensile strength
- Applications: Installation of cables and pipes in extreme conditions and hazardous areas, indoor and outdoor, such as: petrochemical and food processing industries, power stations, mining, shipbuil-ding, offshore and other aggressive environments

Technical Information

Material	316 grade stainless steel
Coating	Polyester
Temperature range	-80°C to +150°C
Colour	Black
Flammability rating	Absolutely fireproof
Other properties	UV-resistant, Halogen free, non-toxic

Product Ref.	Length L [mm]	Width W [mm]	Material thickness [mm]	Bundle ø from... to [mm]	Min. tensile strenght [N]	Quantity [pieces]	Tooling
YRL-5-150-BC	150	5.0	0.61	30-36	334 (1334 for DNV)	100	
YRL-5-230-BC	230	5.0	0.61	30-60	334 (1334 for DNV)	100	
YRL-5-330-BC	330	5.0	0.61	30-95	334 (1334 for DNV)	100	
YRL-5-450-BC	450	5.0	0.61	30-130	334 (1334 for DNV)	100	
YRL-5-650-BC	650	5.0	0.61	30-190	334 (1334 for DNV)	100	CT1-TB
YRL-10-150-BC	150	10.0	0.61	40-40	1112 (2000 for DNV)	100	CT2-TB
YRL-10-230-BC	230	10.0	0.61	40-60	1112 (2000 for DNV)	100	CT4-TB
YRL-10-330-BC	330	10.0	0.61	40-95	1112 (2000 for DNV)	100	
YRL-10-450-BC	450	10.0	0.61	40-130	1112 (2000 for DNV)	100	
YRL-10-650-BC	650	10.0	0.61	40-190	1112 (2000 for DNV)	100	
YRL-10-750-BC	750	10.0	0.61	40-230	1112 (2000 for DNV)	100	
YRL-10-900-BC	900	10.0	0.61	40-275	1112 (2000 for DNV)	100	
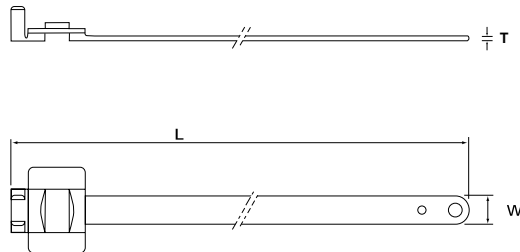
* Some approvals may not be applicable to all the Product References. Contact your Sales Office for approvals limitations

Stainless steel ID system
Stainless steel cable ties

Characteristics

A new durable identification system, ideally suitable for tough environments and extreme conditions, indoor and outdoor.

- Sleeves with pre-embossed characters (letters, digits and symbols)
- Pre-embossed characters are raised above the surface of the sleeve, which makes them easy to read even when covered with dust, paint or dirt
- Dedicated strips can carry 6, 10 or 16 sleeves
- Sleeves and strips are made of corrosion resistant 316 grade stainless steel (marine grade), for high mechanical and chemical durability
- The sleeves can be mounted onto the carrier strips (which will be secured by Ty-Met™ stainless steel ties) or directly onto Ty-Met™ stainless steel ties having a width up to 7.9 mm

Product Ref.	Description	L [mm]	W [mm]	H [mm]	T [mm]	Packaging [pieces]	Product Ref.	Description	L [mm]	W [mm]	H [mm]	T [mm]	Packaging [pieces]
SLEEVES WITH PRE-EMBOSSED CHARACTERS, UNCOATED													
YID-CHAR-A	Letter "A"	9.2	8	2.5	0.25	100	YID-CHAR-U	Letter "U"	9.2	8	2.5	0.25	100
YID-CHAR-B	Letter "B"	9.2	8	2.5	0.25	100	YID-CHAR-V	Letter "V"	9.2	8	2.5	0.25	100
YID-CHAR-C	Letter "C"	9.2	8	2.5	0.25	100	YID-CHAR-W	Letter "W"	9.2	8	2.5	0.25	100
YID-CHAR-D	Letter "D"	9.2	8	2.5	0.25	100	YID-CHAR-X	Letter "X"	9.2	8	2.5	0.25	100
YID-CHAR-E	Letter "E"	9.2	8	2.5	0.25	100	YID-CHAR-Y	Letter "Y"	9.2	8	2.5	0.25	100
YID-CHAR-F	Letter "F"	9.2	8	2.5	0.25	100	YID-CHAR-Z	Letter "Z"	9.2	8	2.5	0.25	100
YID-CHAR-G	Letter "G"	9.2	8	2.5	0.25	100	YID-CHAR-1	Digit "1"	9.2	8	2.5	0.25	100
YID-CHAR-H	Letter "H"	9.2	8	2.5	0.25	100	YID-CHAR-2	Digit "2"	9.2	8	2.5	0.25	100
YID-CHAR-I	Letter "I"	9.2	8	2.5	0.25	100	YID-CHAR-3	Digit "3"	9.2	8	2.5	0.25	100
YID-CHAR-J	Letter "J"	9.2	8	2.5	0.25	100	YID-CHAR-4	Digit "4"	9.2	8	2.5	0.25	100
YID-CHAR-K	Letter "K"	9.2	8	2.5	0.25	100	YID-CHAR-5	Digit "5"	9.2	8	2.5	0.25	100
YID-CHAR-L	Letter "L"	9.2	8	2.5	0.25	100	YID-CHAR-6	Digit "6" or "9"	9.2	8	2.5	0.25	100
YID-CHAR-M	Letter "M"	9.2	8	2.5	0.25	100	YID-CHAR-7	Digit "7"	9.2	8	2.5	0.25	100
YID-CHAR-N	Letter "N"	9.2	8	2.5	0.25	100	YID-CHAR-8	Digit "8"	9.2	8	2.5	0.25	100
YID-CHAR-O	Letter "O"	9.2	8	2.5	0.25	100	YID-CHAR-BLANK	Blank filler	9.2	8	2.5	0.25	100
YID-CHAR-P	Letter "P"	9.2	8	2.5	0.25	100	YID-CHAR-PLUS	Symbol "+"	9.2	8	2.5	0.25	100
YID-CHAR-Q	Letter "Q"	9.2	8	2.5	0.25	100	YID-CHAR-MINUS	Symbol "-"	9.2	8	2.5	0.25	100
YID-CHAR-R	Letter "R"	9.2	8	2.5	0.25	100	YID-CHAR-SLASH	Symbol "/"	9.2	8	2.5	0.25	100
YID-CHAR-S	Letter "S"	9.2	8	2.5	0.25	100	YID-CHAR-EARTH	Symbol "⏚"	9.2	8	2.5	0.25	100
YID-CHAR-T	Letter "T"	9.2	8	2.5	0.25	100	YID-CHAR-SINE	Symbol "~"	9.2	8	2.5	0.25	100

For digit 9 (nine) use digit 6 (six) upside down, for digit 0 (zero) use letter "O"
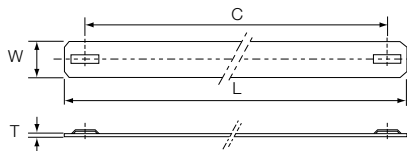
Product Ref.	Description	L [mm]	W [mm]	T [mm]	C [mm]	Packaging [pieces]
CARRIER STRIPS, UNCOATED						
YID-STRIP-6	Carrier strip for 6 sleeves	93	7.9	0.25	75	100
YID-STRIP-10	Carrier strip for 10 sleeves	133	7.9	0.25	115	100
YID-STRIP-16	Carrier strip for 16 sleeves	188	7.9	0.25	170	100

Strips can be secured with Ty-Met™ stainless steel ties having a width up to 7.9 mm
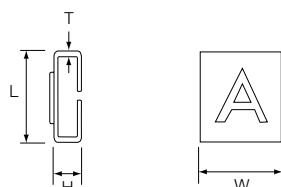
Bands on reel with separate heads
Stainless steel cable ties

Characteristics

A new range of stainless steel band on reel with separate heads, for a cost saving installation without waste
- Bands and heads are made of corrosion resistant 316 grade stainless steel, for high mechanical and chemical durability
- Bands are fully covered with a non-toxic, halogen free black Polypropylene sheath, for a superior protection of cables and installer's hands, and for an improved insulation between dissimilar materials
- Cost saving and flexible: the 25-metre reels allow a customised installation (no waste) around all sizes and shapes of objects
- Dedicated separate heads are easy to install
- Available in 5 widths up to 19.1 mm, to suit a wide range of applications

Technical Information

Material	316 grade non-magnetic stainless steel
Coating	Polypropylene
Colour	Bands & Heads: metallic
	Coating: black
Other properties	UV-resistant, Halogen free, non-toxic

Product Ref.	W1 [mm]	W2 [mm]	T1 [mm]	T2 [mm]	Length [m]	Tooling
BANDS ON REELS, FULLY COVERED WITH POLYPROPYLENE SHEATH						
YBR-6.4-25BC	6.4	7.2	0.48	1.25	25	
YBR-9.5-25BC	9.5	10.3	0.48	1.25	25	
YBR-12.7-25BC	12.7	13.5	0.48	1.25	25	CT8
YBR-15.9-25BC	15.9	16.7	0.48	1.25	25	
YBR-19.1-25BC	19.1	18.9	0.48	1.25	25	
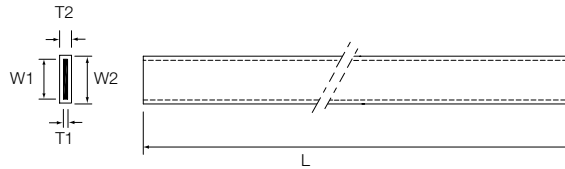
Product Ref.	Length L [mm]	Width W [mm]	Quantity [pieces]
SEPARATE HEADS, UNCOATED			
YBRH-6.4	9.3	15.9	100
YBRH-9.5	12.0	15.9	100
YBRH-12.7	16.5	22.3	100
YBRH-15.9	19.4	22.3	100
YBRH-19.1	21.7	22.3	100
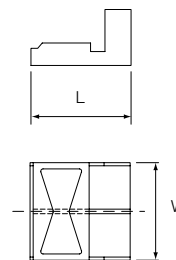
Mounting bases
Stainless steel cable ties

Characteristics

- Mounting bases in corrosion resistant 316 grade stainless steel
- Uncoated, for high temperature applications (-80°C to +300°C)

Product Ref.	Length L [mm]	Width W [mm]	Dimension A [mm]	Mounting hole diameter [mm]	For stainless steel ties width up to [mm]	Quantity [pieces]
TCS25	57.1	25.4	31.8	6.7 (x2)	8.7	50
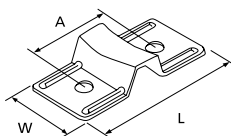
Selection chart & Specifications
Stainless steel cable ties

Type	Material	Coating	Series	Shape	Range		Packa-ging	Quantity
					Width [mm]	Length [mm]		
Ball-Lock Type	304 Grade Stainless Steel	Uncoated	YLS-4.6-…A		4.6	125 - 1400	Bag	100 ties per bag
			YLS-7.9-…A		7.9	125 - 1400	Bag	100 ties per bag
	316 Grade Stainless Steel	Uncoated	YLS-4.6-…B		4.6	125 - 1400	Bag	100 ties per bag
			YLS-7.9-…B		7.9	125 - 1400	Bag	100 ties per bag
		Polyester	YLS-4.6-…BC		4.6	125 - 1400	Bag	100 ties per bag
			YLS-7.9-…BC		7.9	125 - 1400	Bag	100 ties per bag
Ball-Lock Type, Heavy-Duty	316 Grade Stainless Steel	Uncoated	YLS-12-…B		12.0	200 - 1400	Bag	50 / 25 ties per bag
			YLS-16-…B		16.0	200 - 1400	Bag	50 / 25 ties per bag
		Polyester	YLS-12-…BC		12.0	200 - 1400	Bag	50 / 25 ties per bag
			YLS-16-…BC		16.0	200 - 1400	Bag	50 / 25 ties per bag
Ladder Type	316 Grade Stainless Steel	Uncoated	YLD-7-…-B		7.0	150 - 610	Bag	100 ties per bag
			YLD-12-…-B		12.0	150 - 610	Bag	100 ties per bag
		Polyester	YLD-7-…-BC		7.0	150 - 610	Bag	100 ties per bag
			YLD-12-…-BC		12.0	150 - 610	Bag	100 ties per bag
Strap Type	316 Grade Stainless steel	Uncoated	TYS8 to TYS28	Preassembled strap	7.9	271 - 728	Bag	50 ties per bag
			TYS1000	Strap	7.9	152.4 m	Reel (1)	304.8 m (2x152.4 m)
			TYS5200H	Heads	7.9		Bag	50 pieces per bag
Releasable Type	316 Grade Stainless Steel	Polyester	YRL-5-…-BC		5.0	150 - 650	Bag	100 ties per bag
			YRL-10-…-BC		10.0	150 - 900	Bag	100 ties per bag
Identification System	316 Grade Stainless Steel	Uncoated	YID-CHAR-…	Characters All letters & digits + 6 symbols			Bag	100 pieces per bag
			YID-STRIP-…	Strips		93 - 188	Bag	100 pieces per bag
Bands on Reel & Separate Heads	316 Grade Stainless Steel	Polypropylene	YBR-…-BC	Bands	6.4 - 9.5 - 12.7 - 15.9 - 19.1		Reel (1)	25 metres per reel
		Uncoated	YBRH-…	Heads	6.4 - 9.5 - 12.7 -		Bag	100 pieces per bag

Reel (1): Reel in cardboard box
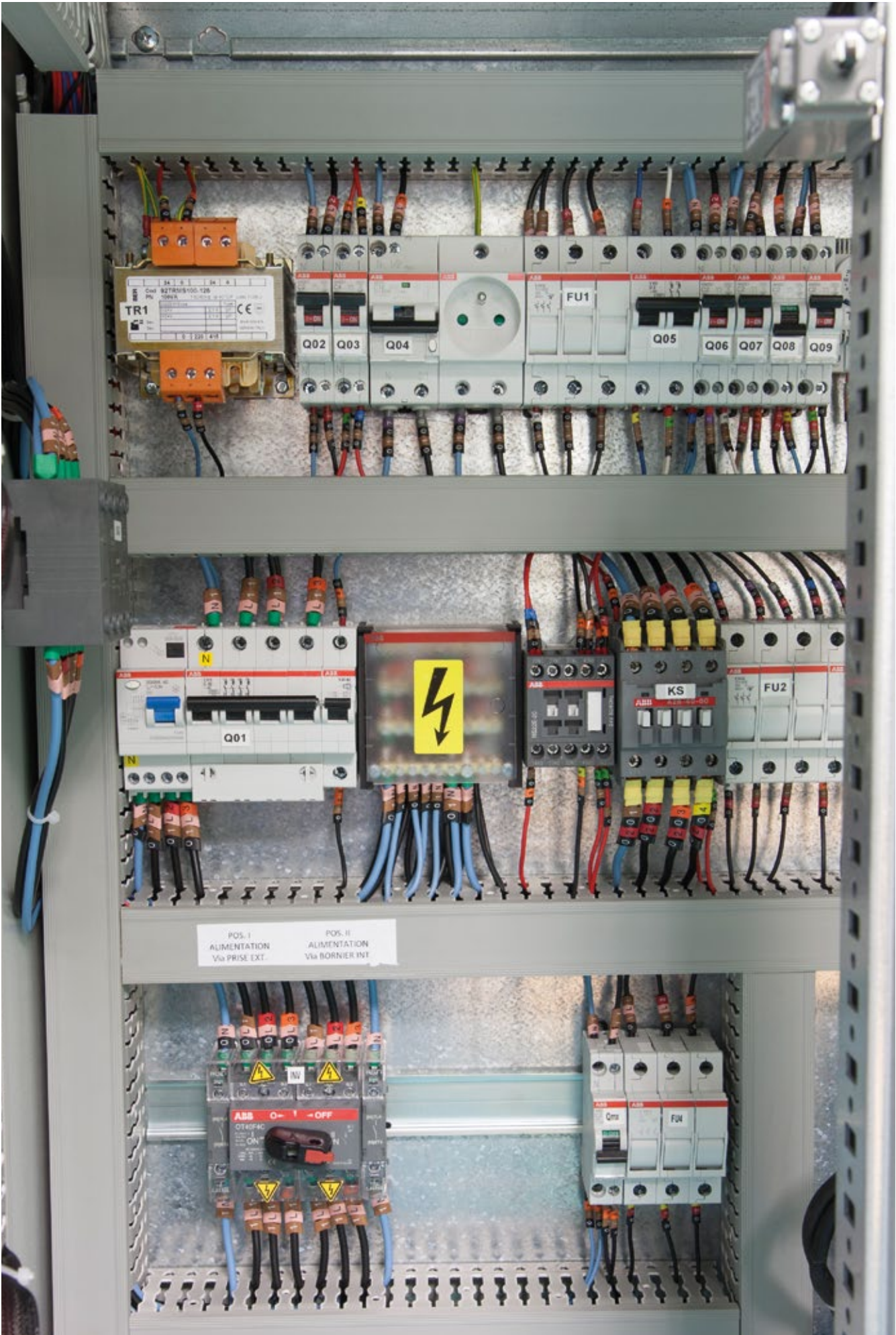
Table of Content
Mounting Bases, Cable Clamps & Other Fastening Accessories

Ty-Rap® and Ty-Fast® Accessories
Accessories

To complement the range of premium cable ties, ABB has also developed an extensive range of mounting bases, cable clamps and other fastening accessories, to provide a professional solution to the most demanding applications in cable management.

A wide range of material is offered, from the classic Polyamide 6.6 to the high performance Fluoropolymer ETFE for applications in tough conditions.

To better suit each kind of applications, these products exist in a wide choice of shape & design, and with different mounting methods, from self-adhesive to glue and / or screw mounting.

In particular, with the new high performance mounting bases (TC345 series), ABB is now offering a mounting base that leads the industry with more features and better performance:
- new design & materials, for increased performance
- special adhesive formulation, specifically for Nylon Mounting bases

Typical applications include wiring in:
- control boxes & machine control devices
- office equipment & home appliances
- military & medical equipment
- lighting & electronic equipment

Overview
Mounting Bases & Accessories

Characteristics

Self-adhesive mounting bases and clamps for screw and rivet mounting

The main difference between a mounting base and a cable clamp is the way the cable bundle can be mounted: while the cable bundle is attached directly to the clamp, the mounting base requires a cable tie to hold the bundle.

ABB offers a wide range of mounting bases and cable clamps, which can be self-adhesive or for screw and rivet mounting.

- Standard material: Polyamide 6.6
- Available in different types / material to suit any application
- Available in a wide range of sizes
- Temperature range: -40°C to +85°C (+105°C for short periods)
- Low profile design
- Easy to install
- Extremely strong and durable adhesive
- When applicable ABB accessories are UL recognised
- Self-adhesive mounting bases allow wire and cable mounting where mounting holes can not be drilled
- Used for the adhesion on a variety of materials and for durable   fixing of stamped signs and panels for the electrical industry

Typical surfaces

- Plastic
- Glass
- Wood
- Metal
- Paper
- Painted surfaces
- Ceramics

2-way entry
Mounting bases

Characteristics
- Can be used in 2-way entry style for cable ties having a width up to 7.6 mm
- For cable ties having a width up to 4.8 mm, the mounting bases can be used in 4-way entry style
- Choice of 3 materials: standard Polyamide 6.6 (natural), UV-resistant Polyamide 6.6 (black),
  Polyamide 6.6 flame retardant and ETFE Fluoropolymer (aquamarine)
- Supplied either on a rubber based (synthetic polymer) closed cell foam adhesive
  (installation: self-adhesive and/or screw) or without self-adhesive
  (installation: screw and/or 2-component glue*)

Technical Information TC347, TC347A, TC5347AR, TC347X and TC5347AX
Material	Polyamide 6.6
Temperature range	-40°C to +85°C (Self-adhesive version: 0°C to +65°C)
Flammability rating	UL 94 V-2
Colour	(see table)
Other properties	UV-resistant (black), Halogen free, Silicone free

Technical Information TC347FR (Flame retardant)
Material	Polyamide 6.6
Temperature range	-40°C to +85°C
Flammability rating	UL 94 V-0
Colour	Natural
Other properties	Halogen free, Silicone free

Technical Information TCZ347 (Fluoropolymer)
Material	ETFE Fluoropolymer
Temperature range	-46°C to +150°C
Flammability rating	UL 94 V-0
Colour	Aquamarine
Other properties	Silicone free, inert to most solvents and chemicals, hydrolytically stable, radiation resistant
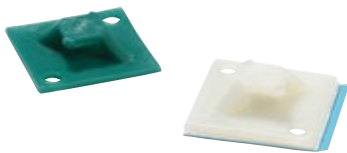
Product Ref.	Colour	Mounting method	Dimensions			For tie width up to	Mounting hole diameter	Quantity
			L [mm]	W [mm]	H [mm]	[mm]	[mm]	[pieces]
TC347	natural	screw / glue*	7.8	28.6	28.6	7.6	4.4 (2x)	1000
TC347X	UV-resistant black	screw / glue*	7.8	28.6	28.6	7.6	4.4 (2x)	1000
TC347FR	natural / flame retardant	screw / glue*	7.8	28.6	28.6	7.6	4.4 (2x)	1000
TCZ347	aquamarine	screw / glue*	7.8	28.6	28.6	7.6	4.4 (2x)	500
TC347A	natural	self-adhesive / screw	8.5	29.0	29.0	7.6	4.4 (2x)	1000
TC5347AR	natural	self-adhesive / screw	8.5	29.0	29.0	7.6	4.4 (2x)	100
TC5347AX	UV-resistant black	self-adhesive / screw	8.5	29.0	29.0	7.6	4.4 (2x)	100

* Glue = Product Ref. TC2PA (see page 143 for specifications)
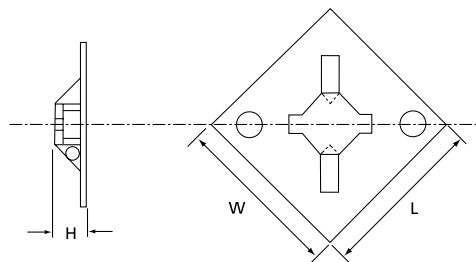
4-way entry - high performance
Mounting bases

Characteristics

- Design & materials, for increased performance
- Low profile shape (height: 5.1 mm), to save space and reduce the torque forces on the mounting base
- Ramped cable tie entries, for easier insertion of the cable tie
- Longer struts (up to the edges of the base), for better adhesion
- Special adhesive formulation (specifically for Nylon mounting bases) for high pull-off strength
- 2 kinds of self-adhesive material:
  - rubber-based, for immediate adhesion (15 minutes set-up time)
  - acrylic based, to have the possibility of repositioning the mounting base initially (set-up time: 24 to 72 hours)
- Two holes to have the possibility to use additional screws, for even stronger installations when required
- Supplied on two-up lining, for easy removal of the lining

Technical Information

Material - Moulding	Polyamide or UV-resistant Polyamide or flame retardant Polyamide (See table)
Material - Self-adhesive	Rubber based or acrylic based (See table)
Temperature range	-40°C to +85°C (Self-adhesive version: 0°C to +65°C)
Flammability rating	UL 94 V-2 or UL 94 V-0 (for flame retardant Polyamide)
Colours	Natural or UV-resistant black (see table)
Other properties	UV-resistant black, Halogen free, Silicone free

Product Ref.	Colour	Mounting method	Dimensions			For tie width up to	Mounting hole diameter	Quantity
			L [mm]	W [mm]	H [mm]	[mm]	[mm]	[pieces]
TC345	natural	glue* / screws	28.6	28.6	5.1	5.2	4.0	1000
TC345A	natural	self-adhesive (rubber based) / screws	28.6	28.6	5.1	5.2	4.0	1000
TC5345A	natural	self-adhesive (rubber based) / screws	28.6	28.6	5.1	5.2	4.0	100
TC345AX	UV-resistant black	self-adhesive (rubber based) / screws	28.6	28.6	5.1	5.2	4.0	1000
TC5345AX	UV-resistant black	self-adhesive (rubber based) / screws	28.6	28.6	5.1	5.2	4.0	100
TC345AFR	natural / flame retardant	self-adhesive (rubber based) / screws	28.6	28.6	5.1	5.2	4.0	1000
TC345AHTFR	natural / flame retardant	self-adhesive (acrylic based) / screws	28.6	28.6	5.1	5.2	4.0	1000
TC5345AHTFR	natural / flame retardant	self-adhesive (acrylic based) / screws	28.6	28.6	5.1	5.2	4.0	100

* Glue = Product Ref. TC2PA (see page 143 for specifications)

4-way entry
Mounting bases

Characteristics
- Supplied either on a rubber based (synthetic polymer) closed cell foam adhesive or without self adhesive (installation: screw and/or 2 component glue*)
- Available in standard Polyamide 6.6 (natural) or UV-resistant Polyamide 6.6 (black)

Technical Information

Material	Polyamide 6.6
Temperature range	-40°C to +85°C (Self-adhesive version: 0°C to +65°C)
Flammability rating	UL 94 V-2
Colours	Natural or UV-resistant black (see table)
Other properties	UV-resistant black, Halogen free, Silicone free

Product Ref.	Colour	Mounting method	Dimensions			For tie width up to	Mounting hole diameter	Quantity
			L	W	H			
			[mm]	[mm]	[mm]	[mm]	[mm]	[pieces]
FOR TIE WIDTH UP TO 3.0 MM								
TC050x050A	natural	self-adhesive	12.7	12.7	4.5	3.0	–	1000
TC050x050A-C	natural	self-adhesive	12.7	12.7	4.5	3.0	–	100
TC050x050AX	UV-resistant black	self-adhesive	12.7	12.7	4.5	3.0	–	1000
TC050x050AX-C	UV-resistant black	self-adhesive	12.7	12.7	4.5	3.0	–	100
FOR TIE WIDTH UP TO 3.6 MM								
TC344	natural	screw / glue*	19.1	19.1	4.9	3.6	3.0	1000
TC5344	natural	screw / glue*	19.1	19.1	4.9	3.6	3.0	100
TC344A	natural	self-adhesive / screw	19.1	19.1	4.9	3.6	3.0	1000
TC5344AR	natural	self-adhesive / screw	19.1	19.1	4.9	3.6	3.0	100
TC344AX	UV-resistant black	self-adhesive / screw	19.1	19.1	4.9	3.6	3.0	1000
TC5344AX	UV-resistant black	self-adhesive / screw	19.1	19.1	4.9	3.6	3.0	100

* Glue = Product Ref. TC2PA (see page 143 for specifications)
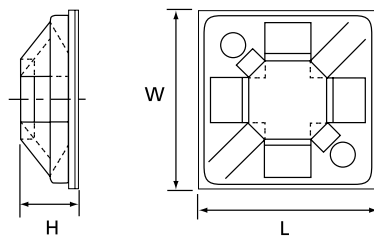
4-way entry - for wide cable ties
Mounting bases

Characteristics
- Supplied either on a rubber based (synthetic polymer) closed cell foam adhesive or without self adhesive (installation: screw and/or 2 component glue*)
- Available in standard Polyamide 6.6 (natural) or UV-resistant Polyamide 6.6 (black)

Technical Information

Material	Polyamide 6.6
Temperature range	-40°C to +85°C (Self-adhesive version: 0°C to +65°C)
Flammability rating	UL 94 V-2
Colours	Natural or UV-resistant black (see table)
Other properties	UV-resistant black, Halogen free, Silicone free

Product Ref.	Colour	Mounting method	Dimensions			For tie width up to	Mounting hole diameter	Quantity
			L [mm]	W [mm]	H [mm]	[mm]	[mm]	[pieces]
FOR TIE WIDTH UP TO 7.9 MM (38.1 MM x 38.1 MM BASE)								
TC150x150	natural	screw / glue*	38.1	38.1	7.4	7.9	4.3	500
TC150x150L	natural	screw / glue*	38.1	38.1	7.4	7.9	4.3	50
TC150x150A	natural	self-adhesive / screw	38.1	38.1	7.4	7.9	4.3	500
TC150x150A-L	natural	self-adhesive / screw	38.1	38.1	7.4	7.9	4.3	50
TC150x150AX	UV-resistant black	self-adhesive / screw	38.1	38.1	7.4	7.9	4.3	500
TC150x150AX-L	UV-resistant black	self-adhesive / screw	38.1	38.1	7.4	7.9	4.3	50
FOR TIE WIDTH UP TO 7.9 MM (50.8 MM x 50.8 MM BASE)								
TC200x200	natural	screw / glue*	50.8	50.8	7.4	7.9	4.3	500
TC200x200L	natural	screw / glue*	50.8	50.8	7.4	7.9	4.3	50
TC200x200A	natural	self-adhesive / screw	50.8	50.8	7.4	7.9	4.3	500
TC200x200A-L	natural	self-adhesive / screw	50.8	50.8	7.4	7.9	4.3	50
TC200x200AX	UV-resistant black	self-adhesive / screw	50.8	50.8	7.4	7.9	4.3	500
FOR TIE WIDTH UP TO 19.1 MM (50.8 MM x 50.8 MM BASE)								
TC368	natural	screw / glue*	50.8	50.8	6.6	19.1	4.3	500
TC368A	natural	self-adhesive / screw	50.8	50.8	6.6	19.1	4.3	500

* Glue = Product Ref. TC2PA (see page 143 for specifications)
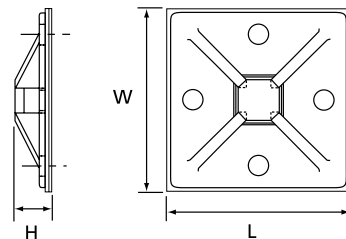
Low profile plates
Mounting bases

Characteristics
- Low profile
- Easy to use
- Self-adhesive or to be glued with 2-component glue*

Technical Information

Material	Polyamide 6.6
Temperature range	-40°C to +85°C (Self-adhesive version: 0°C to +65°C)
Colour	Natural or UV-resistant black (see table)
Flammability rating	UL 94 V-2
Other properties	Halogen free, Silicone free, UV-resistant black

Product Ref.	Colour	Mounting method	Dimensions						For tie width up to	Weight	Quantity
			H [mm]	T [mm]	W [mm]	L [mm]	E [mm]	F [mm]	[mm]	[g/100]	[pieces]
TC817-TB	natural	glue*	4.8	–	11.0	11.0	–	–	4.8	51	1000
TC342	natural	glue*	5.7	–	29.0	29.0	7.5	21.0	4.8	340	1000
TC342X	UV-resistant black	glue*	5.7	–	29.0	29.0	7.5	21.0	4.8	340	1000
TC342A	natural	self-adhesive	5.7	0.8	29.0	29.0	7.5	21.0	4.8	360	1000
TC5342A	natural	self-adhesive	5.7	0.8	29.0	29.0	7.5	21.0	4.8	360	100
TC342A-X	UV-resistant black	self-adhesive	5.7	0.8	29.0	29.0	7.5	21.0	4.8	360	1000

* Glue = Product Ref. TC2PA (see page 143 for specifications)
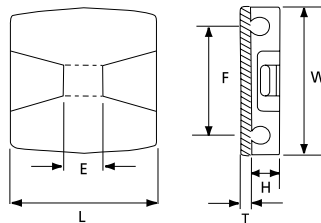
Self-adhesive mounting cradle
Mounting bases

Characteristics
- Accepts cable ties to 7.6 mm width
- Supplied "two-up" on closed cell foam with synthetic polymer "rubber" based adhesive
- Use M3.5 self-tapping screw for added strength if desired

Technical Information

Material	Polyamide 6.6
Temperature range	0°C to +65°C
Colour	Natural or UV-resistant black (see table)
Mounting method	Self adhesive and/or screw
Flammability rating	UL 94 V-2
Other properties	UV-resistant black, Halogen free, Silicone free
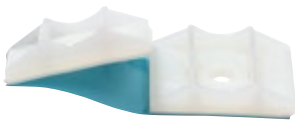
Product Ref.	Colour	Dimensions				For tie with up to	Quantity
		H [mm]	T [mm]	L [mm]	W [mm]	[mm]	[pieces]
MCNY-1250-9-L	natural	7.2	0.8	31.7	25.4	7.6	50
MCNY-1250-9-C	natural	7.2	0.8	31.7	25.4	7.6	100
MCNY-1250-9-D	natural	7.2	0.8	31.7	25.4	7.6	500
MCNY-1250-0-C	UV-resistant black	7.2	0.8	31.7	25.4	7.6	100

* Glue = Product Ref. TC2PA (see page 143 for specifications)
For other colours and quantities please contact your Sales Office
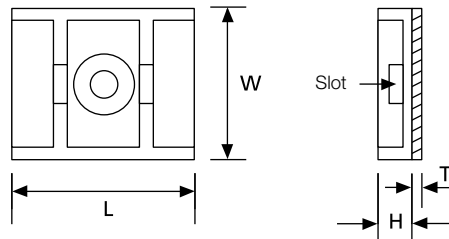
Saddle support
Mounting bases

Characteristics
- Tie mounting bases with supporting saddle
- For screw- or rivet-mounting
- The prism-shape of the saddle prevents twisting around the fixture
- High strength through compact design
- Non-conductive, non-corrosive, resistant to fuels, lubricants and most chemicals
- Available in natural nylon, UV-resistant nylon or heat stabilised black version

Technical Information

Material	Polyamide 6.6 or heat stabilised Polyamide 6.6
Temperature range	-40°C to +85°C (Natural)
	-40°C to +105°C (UV-resistant black)
Colour	Natural or UV-resistant black (see table)
Mounting method	Screw
Flammability rating	UL 94 V-2
Other properties	Halogen free, Silicone free, UV-resistant black

Product Ref.	Colour	Dimensions				For tie width up to	Mounting hole diameter	Quantity
		H [mm]	W [mm]	L [mm]	D [mm]	[mm]	[mm]	[pieces]
TC140	natural	6.7	8.7	14.2	1.8	2.4	3.0	500
TC5140	natural	6.7	8.7	14.2	1.8	2.4	3.0	100
TC141	natural	7.5	11.1	17.0	2.3	4.8	3.8	500
TC5141	natural	7.5	11.1	17.0	2.3	4.8	3.8	100
TC142	natural	10.7	14.2	23.4	2.9	7.6	5.2	500
TC5142	natural	10.7	14.2	23.4	2.9	7.6	5.2	100
TC142X*	UV-resistant black / heat stabilised	10.7	14.2	23.4	2.9	7.6	5.2	500
TC5142X*	UV-resistant black / heat stabilised	10.7	14.2	23.4	2.9	7.6	5.2	100

* Are not UL recognised
For other colours and quantities please contact your Sales Office
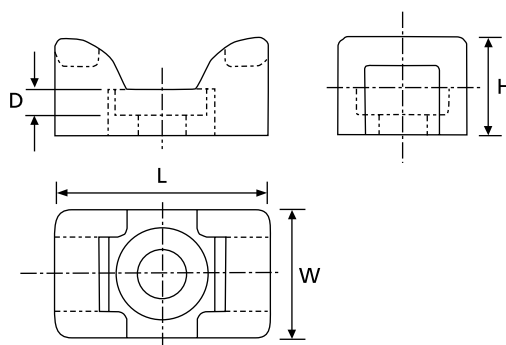
Saddle support
Mounting bases

Characteristics

- Tie mounting bases with supporting saddle
- For screw- or rivet-mounting
- The prism-shape of the saddle prevents twisting around the fixture
- High strength through compact design
- Non-conductive, non-corrosive, resistant to fuels, lubricants and most chemicals
- Available in UV-resistant, heat stabilised black version

Technical Information

Material	Polyamide 6.6 or heat stabilised Polyamide 6.6
Temperature range	-40°C to +85°C (Natural)
	-40°C to +105°C (UV-resistant black)
Colour	Natural or UV-resistant black
Mounting method	Screw or rivet
Flammability rating	UL 94 V-2
Other properties	Halogen free, Silicone free, UV-resistant black

Product Ref.	Colour	Dimensions				For tie width up to	Mounting hole diameter	Quantity
		H	W	L	D			
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[pieces]
SMNY-001-9-D	natural	7.1	9.8	15.2	4.7	4.8	4.2	500
SMNY-001-0-D	UV-resistant black / heat stabilised	7.1	9.8	15.2	4.7	4.8	4.2	500

For other colours and quantities please contact your Sales Office
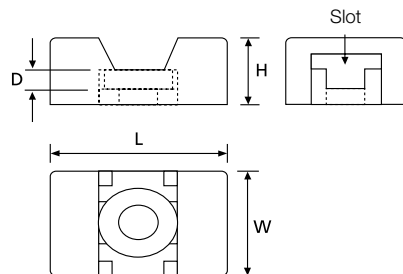
Saddle-type mounting base
Mounting bases

Characteristics

The saddle-type mounting bases allow 3 possible cable mounting:
- the cables can be attached to a flat surface on which the base is screwed
- the cable bundles can be mounted in parallel
- the cable bundles can be mounted crosswise

Can also be used for the mounting of cylindrical objects having a diameter between 12.7 and 31.8 mm

Technical Information

Material	Polyamide 6.6
Temperature range	-40°C to +85°C
Colour	Natural
Mounting method	Screw
Flammability rating	UL 94 V-2
Other properties	Halogen free, Silicone free

Product Ref.	Dimensions				For tie width up to	Mounting hole diameter	Weight	Quantity
	H	W	L	D				
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[g/100]	[pieces]
TC92	14.3	15.1	15.1	12.7 - 31.8	4.8	3.9	143	100
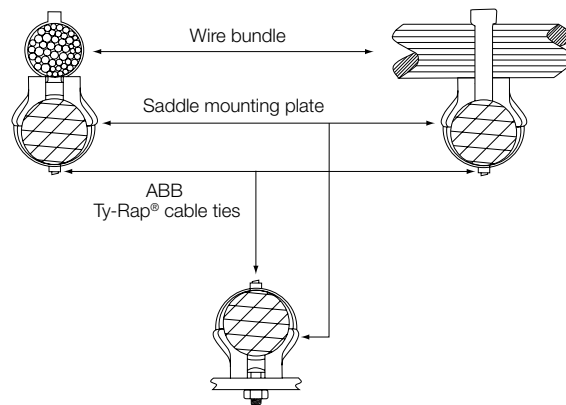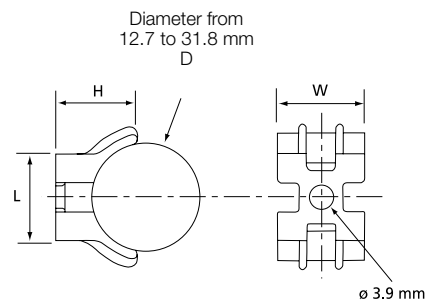
Diameter from
12.7 to 31.8 mm
D

H

W

L

ø 3.9 mm

Wire bundle

Saddle mounting plate

ABB
Ty-Rap® cable ties

Screw-mounted miniature bases
Mounting bases

Characteristics
- Low profile mounting base
- For screw- or rivet-mounting
- Easy to use thanks to the cable tie insertion guide

Technical Information

Material	Polyamide 6.6
Temperature range	-40°C to +85°C
Colour	Natural
Mounting method	Fillister-head screw
Flammability rating	UL 94 V-2
Other properties	Halogen free, Silicone free

Product Ref.	Dimensions				For tie width up to	Mounting hole diameter	Weight	Quantity
	H	W	L	D				
	[mm]	[mm]	[mm]	[mm]	[mm]	[pieces]	[g/100]	[pieces]
TC814-TB	4.8	9.5	19.1	2.0	4.8	3.3	44	1000
TC112-TB	4.8	9.5	19.1	2.0	4.8	4.4	44	1000
TC812-TB	4.8	9.5	19.1	2.0	4.8	5.1	44	1000

For other colours and quantities please contact your Sales Office

E49405

Screw-mounted miniature bases
Mounting bases

Characteristics
- Extremely low profile
- For screw- or rivet-mounting
- Easy to use thanks to the cable tie insertion guide

Technical Information

Material	Polyamide 6.6
Temperature range	-40°C to +85°C
Colour	Natural
Mounting method	Screw or rivet
Flammability rating	UL 94 V-2
Other properties	Halogen free, Silicone free

Product	Dimensions			For tie	Mounting hole		Weight	Quantity
Ref.	H	W	L	width up to	diameter D1	diameter D2		
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[g/100]	[pieces]
TC804-TB	2.4	7.9	10.2	2.4	2.3	4.7	11	1000
TC104	2.4	7.9	10.3	2.4	3.4	6.5	11	1000
TC102	3.2	12.7	19.1	4.8	4.4	8.7	50	1000

TC804-TB

TC104
TC102

E49405

Screw-mounted - for wide cable ties
Mounting bases

Characteristics
- Extremely low profile
- For screw- or rivet-mounting
- Easy to use thanks to the cable tie insertion guide
- Secure fixing with 2 fastening holes

Technical Information

Material	Polyamide 6.6
Temperature range	-40°C to +85°C
Colour	Natural
Mounting method	2 screws
Flammability rating	UL 94 V-2
Other properties	Halogen free, Silicone free
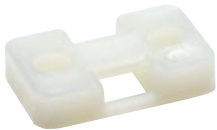
Product Ref.	Dimensions					For tie width up to	Mounting hole diameter	Weight	Quantity
	H	W	L	D	E				
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[g/100]	[pieces]
TC815-TB	6.4	19.1	31.2	19.9	6.4	7.6	5.3	278	500

For other colours and quantities please contact your Sales Office

E49405

Screw-mounted - for crosswise fastening
Mounting bases

Characteristics
- Extremely low profile
- For screw- or rivet-mounting
- Easy to use thanks to the cable tie insertion guide
- Two ties can be fastened crosswise to securely fix cable intersections

Technical Information

Material	Polyamide 6.6
Temperature range	-40°C to +85°C
Colour	Natural
Mounting method	Screw or rivet
Flammability rating	UL 94 V-2
Other properties	Halogen free, Silicone free

Product Ref.	Dimensions					For tie width up to	Mounting hole diameter	Weight	Quantity
	H	W	L	D	E				
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[g/100]	[pieces]
TC828-TB	3.8	10.1	22.5	1.5	13.4	4.8	4.3	46	1000
TC5828	3.8	10.1	22.5	1.5	13.4	4.8	4.3	46	100
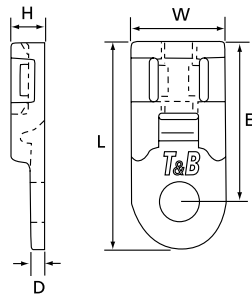
E49405

Screw-mounted - for crosswise fastening
Mounting bases

2-way and 4-way entry mounting bases

Product ref.	Mounting method	Width H [mm]	Length D [mm]	For tie width up to [mm]	Mounting hole (2x) diameter [mm]	Quantity [pieces]
TC5344A-NDT	self-adhesive*/screw	19.1	19.1	3.6	3	100
TC5344A-PDT	self-adhesive*/screw	19.1	19.1	3.6	3	100
TC344A-NDT	self-adhesive*/screw	19.1	19.1	3.6	3	1000
TC5347A-NDT	self-adhesive*/screw	29	29	7.6	4.4	100
TC5347A-PDT	self-adhesive*/screw	29	29	7.6	4.4	100
TC347A-NDT	self-adhesive*/screw	29	29	7.6	4.4	1000

Saddle support

Product ref.	Mounting method	Width H [mm]	Length D [mm]	For tie width up to [mm]	Mounting hole diameter [mm]	Quantity [pieces]
TC5141-NDT	screw	11.1	17	4.8	3.8	100
TC5141-PDT	screw	11.1	17	4.8	3.8	100
TC141-NDT	screw	11.1	17	4.8	3.8	500
TC5142-NDT	screw	14.2	23.4	7.6	5.2	100
TC5142-PDT	screw	14.2	23.4	7.6	5.2	100
TC142-NDT	screw	14.2	23.4	7.6	5.2	500

Srew-mounted miniature bases

| Product ref. | Mounting method | Width H [mm] | Length D [mm] | For tie width up to [mm] | Mounting hole | | Quantity [pieces] |
					diameter D1 [mm]	diameter D2 [mm]	
TC5102-NDT	screw	12,7	19,1	4,8	4,4	8,7	100
TC102-NDT	screw	12,7	19,1	4,8	4,4	8,7	1000
TC102-PDT	screw	12,7	19,1	4,8	4,4	8,7	1000

Low profile plates
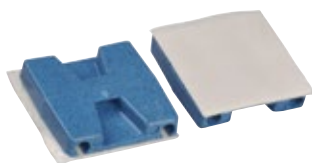
Product ref.	Mounting method	Width H [mm]	Length D [mm]	For tie width up to [mm]	Quantity [pieces]
TC5342A-NDT	self-adhesive*	29	29	4,8	100
TC5342A-PDT	self-adhesive*	29	29	4,8	100
TC342A-NDT	self-adhesive*	29	29	4,8	1000

* Surface preparation: surface should be cleaned with alcohol-based cleaner before application.
Installation: Surface must be clean and dry prior to application of accessory.
Allow 15-minute setting time for maximum adhesion performance of synthetic rubber adhesive (SRA).

Screw-mounted - for crosswise fastening
Mounting bases

Characteristics
- Extremely low profile
- For screw- or rivet-mounting
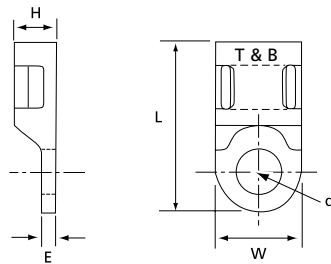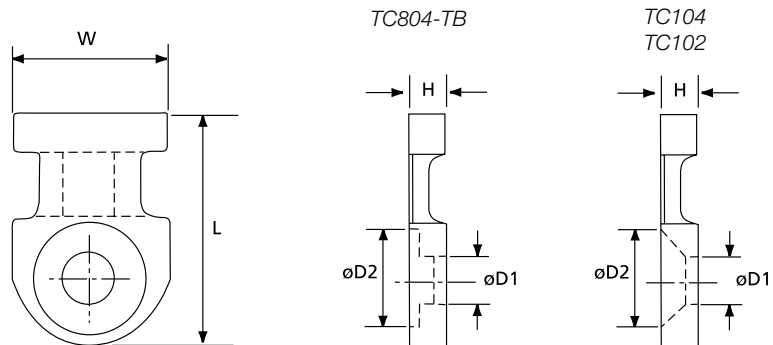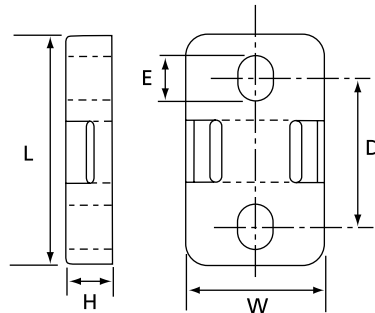- Easy to use thanks to the cable tie insertion guide
- Two ties can be fastened crosswise to securely fix cable intersections

Technical Information
Material	Polyamide 6.6
Temperature range	-40°C to +85°C
Colour	Natural
Mounting method	Screw or rivet
Flammability rating	UL 94 V-2
Other properties	Halogen free, Silicone free

Product Ref.	Dimensions					For tie width up to	Mounting hole diameter	Weight	Quantity
	H [mm]	W [mm]	L [mm]	D [mm]	E [mm]	[mm]	[mm]	[g/100]	[pieces]
TC826-TB	5.7	12.7	23.8	5.3	2.0	4.8	4.4	102	1000

For other colours and quantities please contact your Sales Office
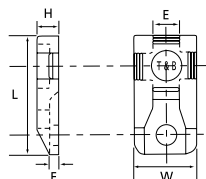
E49405

Screw-mounted supporting bases
Mounting bases

Characteristics
- Supporting mounting base with strong hold thanks to 2 mounting holes
- Can be screwed or riveted
- Allows double and/or crosswise (two ties) fixing
- For parallel and through mounting with support
- Suitable for large bundle diameters

Technical Information
Material	Polyamide 6.6
Temperature range	-40°C to +85°C
Colour	Natural
Mounting method	2 screws or 2 rivets
Flammability rating	UL 94 V-2
Other properties	Halogen free, Silicone free

Product Ref.	Dimensions						For tie width up to	Mounting hole diameter	Weight	Quantity
	H [mm]	W [mm]	L [mm]	G [mm]	E [mm]	F [mm]	[mm]	[mm]	[g/100]	[pieces]
TC106	25.4	19.1	25.4	12.7	4.6	16.5	7.6	3.3 (x 2)	435	200
TC109	11.1	9.9	14.3	7.1	1.7	7.0	4.8	2.4 (x 2)	45	1000
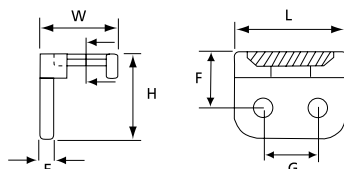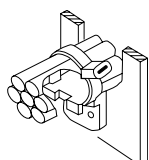
E49405

Screw-mounted strips for multiple bundling
Mounting bases

Characteristics
- Tie mounting strips for up to 6 bundles simultaneously
- When mounted, the tie is guided through the clamp for fast assembly

Product Ref. TC1101 to TC1117
- Simple and strong flat mounting beams for fixing multiple cables, bundles or components
- Mil. Specified (MS-3339-...-...)
- VG approved (VG 95387, item 2)

Product Ref. TC375 and TC376
- For vertical and double-side mounting

Product Ref. TC101 and TC103
- Elongated fastening hole on one end allows greater flexibility   during mounting

Technical Information

Material	Polyamide 6.6
Temperature range	-40°C to +85°C
Colour	Natural
Mounting method	2 screws (1 screw for Prod. Ref. TC376 & TC375)
Flammability rating	UL 94 V-2
Other properties	Halogen free, Silicone free

Product Ref.	Mil. Spec.	Dimensions					Max. number of bundles	For tie width up to	Mounting hole diameter	Weight	Quantity
		H	W	L	D	E					
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[g/100]	[pieces]
TC101	–	3.2	12.7	50.0	35.6	9.5	1	4.8	5.2	151	1000
TC103	–	5.1	15.8	79.0	59.6	18.6	1	7.6	6.9	505	500
TC1101	MS-3339-1-9	3.2	12.7	44.0	31.8	9.5	1	4.8	3.7	160	100
TC1102	MS-3339-2-9	3.2	12.7	76.0	31.8	9.5	2	4.8	3.7	280	100
TC1103	MS-3339-3-9	3.2	12.7	108.0	31.8	9.5	3	4.8	3.7	400	100
TC1104	MS-3339-4-9	3.2	12.7	140.0	31.8	9.5	4	4.8	3.7	520	100
TC1105	MS-3339-5-9	3.2	12.7	171.0	31.8	9.5	5	4.8	3.7	650	100
TC1112	MS-3339-11-9	5.2	15.9	244.0	38.1	14.3	6	7.6	3.7	1679	100
TC1113	MS-3339-6-9	5.2	15.9	53.3	38.1	14.3	1	7.6	3.7	385	100
TC1114	MS-3339-7-9	5.2	15.9	91.4	38.1	14.3	2	7.6	3.7	658	100
TC1115	MS-3339-8-9	5.2	15.9	130.0	38.1	14.3	3	7.6	3.7	914	100
TC1116	MS-3339-9-9	5.2	15.9	168.0	38.1	14.3	4	7.6	3.7	1190	100
TC1117	MS-3339-10-9	5.2	15.9	206.0	38.1	14.3	5	7.6	3.7	1141	100
TC375	–	19.1	17.5	93.0	–	6.4	5	4.8	4.8	486	100
TC376	–	17.0	17.5	44.0	–	6.4	2	4.8	4.8	253	100

For other colours and quantities please contact your Sales Office

TC375 & TC376

TC1101 ... TC1117

TC101 & TC103
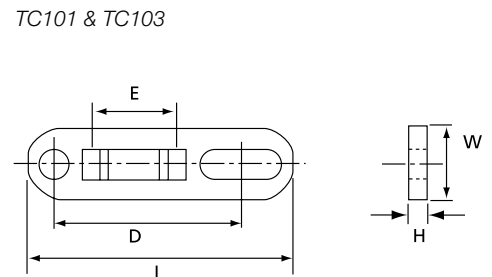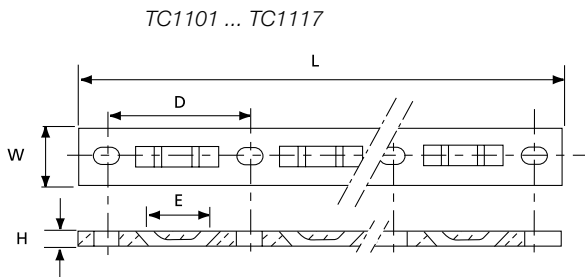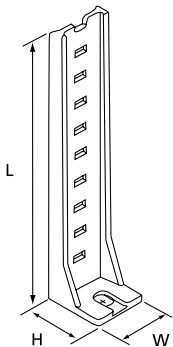
E49405

Weather resistant - Heavy-duty
Mounting bases

Characteristics
- Tie mounting base for outdoor installation
- A strong, weatherproof and durable outdoor fastening solution for pipes, hoses, cables, etc.

Product Ref. TC5358 and TC5359
- Built-in plug for mounting into walls
- Easy to install: the plug is simply hammered into a hole
- The lamellar plug ensures high tensile strength and durability
Product Ref. TC5355 to TC5357
- For screw-fastening
- Ergonomically shaped for trouble-free installation

Technical Information
Material	UV-stabilised Polyamide 6.6
Temperature range	-40°C to +85°C
Colour	Black
Mounting method	Screw (for Product ref. TC5355 to TC5357 only)
Flammability rating	UL 94 V-2
Other properties	UV-resistant, Halogen free, Silicone free

Product Ref.	Dimensions						For tie width up to	Mounting hole diameter	Weight	Quantity
	H	W	L	E	F	f				
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[g/100]	[pieces]
MOUNTING CRADLE										
TC5355	15.9	19.1	44.5	11.1	28.6	–	12.7	4.6	500	25
TC5356	15.9	19.1	44.5	11.1	28.6	–	12.7	5.2	500	25
TC5357	15.9	19.1	44.5	11.1	28.6	–	12.7	6.7	500	25
WALL PLUG										
TC5358	31.8	9.9	9.9	7.1	5.6	2.3	4.8	6.4 (in wall)	120	100
TC5359	38.4	19.1	19.1	8.1	14.0	3.1	12.7	9.5 (in wall)	320	50

TC5355-TC5356-TC5357   *TC5358-TC5359*
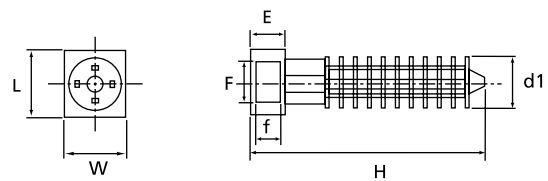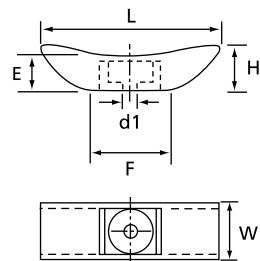
Clip-in mounting bases for blind mounting
Mounting bases

Characteristics

- Clip-in tie mounting bases for housings, faceplates etc
- With fastening clip for blind-mounting and two openings for 2.8 mm or 4.8 mm ties
- Low profile

Technical Information

Material	Polyamide 6.6
Temperature range	-40°C to +85°C
Colour	Natural
Mounting method	Clip in
Flammability rating	UL 94 V-2
Other properties	Halogen free, Silicone free

Product Ref.	Dimensions					Panel thickness	For tie width	Mounting hole diameter	Weight	Quantity
	H	W	G	E	F	from … to	up to			
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[g/100]	[pieces]
TC121-TB	10.4	11.2	3.4	2.0	6.1	0.1 - 3.2	2.4 or 4.8	6.3	31	1000
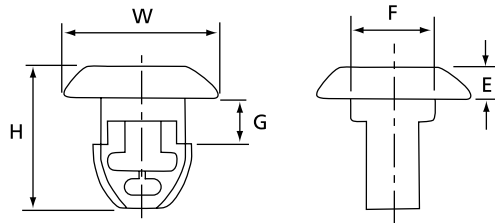
E49405

Clip-in mounting bases for surface mounting
Mounting bases

Characteristics
- Clip-in tie mounting bases for housings, faceplates etc
- With fastening clip for surface mounting
- Low profile

Technical Information

Material	Polyamide 6.6
Temperature range	-40°C to +85°C
Colour	Natural (TC823-TB & TC5823)
	UV-resistant black (TC823X)
Mounting method	Clip in
Flammability rating	UL 94 V-2
Other properties	UV-resistant (black), Halogen free, Silicone free

Product	Dimensions						Panel thickness	For tie width	Mounting hole	Weight	Quantity
Ref.	H	W	L	G	E	F	from ... to	up to	diameter		
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[g/100]	[pieces]
TC823-TB	16.8	11.1	11.1	3.6	5.1	5.8	0.1 - 3.2	4.8	6.2 - 6.5	68	1000
TC5823	16.8	11.1	11.1	3.6	5.1	5.8	0.1 - 3.2	4.8	6.2 - 6.5	68	100
TC823X*	16.8	11.1	11.1	3.6	5.1	5.8	0.1 - 3.2	4.8	6.2 - 6.5	68	1000

* Are not UL recognised
For other colours and quantities please contact your Sales Office
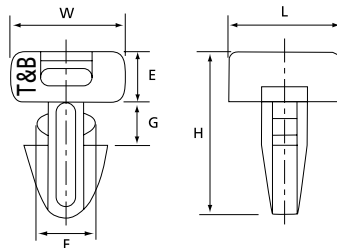
E49405

Rivet-mounted bases
Mounting bases

Characteristics
- Low profile mounting base with integrated rivet
- Easy to install into normal or blind holes: just hammer in the expanding harbour
- Parts are colour-coded according to hole diameter to avoid confusion

Technical Information

Material	Polyamide 6.6
Temperature range	-40°C to +85°C
Colour	See table
Mounting method	Rivet mounted
Flammability rating	UL 94 V-2
Other properties	Halogen free, Silicone free

Product Ref.	Colour	Dimensions							For tie width up to	Mounting hole diameter	Weight	Quantity
		W	L	F	E	G	H	J				
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[g/100]	[pieces]
TC116-TB	red	12.7	19.1	3.2	13.9	8.6	15	3.9	4.8	3.7	70.5	1000
TC118-TB	blue	12.7	19.1	3.2	13.9	8.6	15	4.5	4.8	4.4	71.0	1000
TC120	yellow	12.7	19.1	3.2	13.9	8.6	15	5.2	4.8	4.9	71.5	1000
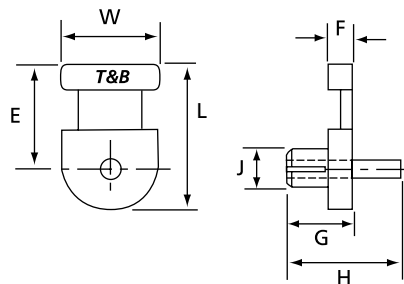
E49405

Aluminium plates
Mounting bases

Characteristics
- Very strong mounting base for gluing or screw mounting or self-adhesive mounting
- Low profile
- Soft material can be perfectly shaped onto any support
- Lightweight
- Does not age under extreme temperatures

Technical Information

Material	Aluminium (3003, ASTMB-209)
Temperature range	-100°C to +450°C (Self-adhesive version: 0°C to +65°C)
Colour	Metallic
Mounting method	Glue (*) and / or screw or self-adhesive
Flammability rating	Fire proof
Other properties	UV-resistant

Product Ref.	Mounting method	Dimensions					For tie width up to	Mounting hole diameter	Weight	Quantity
		H	W	L	E	F				
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[g/100]	[pieces]
TC105AP	self-adhesive / screw	3.8	13.2	25.4	4.8	0.8	4.8	4.9	67	1000
TC105	screw	3.8	13.2	25.4	4.8	0.8	4.8	4.9	67	1000
TC5105	screw	3.8	13.2	25.4	4.8	0.8	4.8	4.9	67	100
TC824-TB	2-component glue*	3.8	9.5	34.9	–	0.8	4.8	–	69	1000

* Glue = Product Ref TC2PA (see page 143 for specifications)

TC824-TB
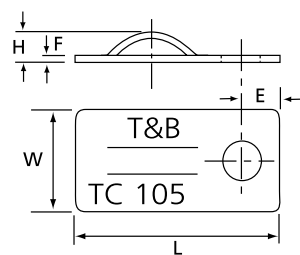
TC105 and TC105AP
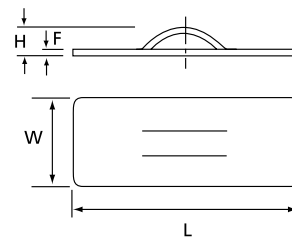
Heat stabilised self-aligning clamps
Cable clamps

Characteristics

- Moulded-in saddle washer enhances performance and appearance
- Self-alignment feature makes this clamp ideal for assembly applications
- 14 diameters and 2 widths with mounting holes for M4 and M5 screws
- Item numbers moulded-in for easy identification
- Indoor application

Technical Information

Material	Heat-stabilised Polyamide 6.6
Temperature range	-40°C to +105°C
Colour	Black
Mounting method	Screw
Flammability rating	UL 94 V-2
Other properties	Halogen free, Silicone free

Product	Dimensions							Quantity
Ref.	D nominal diameter	D1 closed diameter	E	T	W	Z	X	
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[pieces]
W4NY-125-0-C	3.17	2.89	8.46	1.02	9.52	4.24	6.53	100
W4NY-187-0-C	4.76	4.36	9.02	1.02	9.52	4.24	5.53	100
W4NY-250-0-C	6.34	5.94	9.70	1.02	9.52	4.24	4.83	100
W4NY-312-0-C	7.93	7.54	10.71	1.02	9.52	4.24	5.21	100
W4NY-375-0-C	9.52	9.11	11.53	1.02	9.52	4.24	5.33	100
W4NY-500-0-C	12.69	12.29	12.45	1.02	9.52	4.24	6.76	100
W6NY-562-0-C	14.28	13.90	16.68	1.52	12.69	5.15	5.99	100
W6NY-625-0-C	15.87	15.46	16.17	1.52	12.69	5.15	7.37	100
W6NY-687-0-C	17.46	17.06	17.63	1.52	12.69	5.15	8.31	100
W6NY-750-0-C	19.04	18.64	18.44	1.52	12.69	5.15	8.28	100
W6NY-812-0-C	20.63	20.24	19.71	1.52	12.69	5.15	8.20	100
W6NY-875-0-C	22.22	21.81	18.62	1.52	12.69	5.15	7.87	100
W6NY-1000-0-C	25.39	24.99	22.38	1.52	12.69	5.15	7.42	100
W6NY-1250-0-D*	31.73	31.16	25.65	1.52	12.69	5.15	8.61	500

Also available in quantities of 1,000 pieces. For other colours please contact your Sales Office
* Only available in 500 pcs.
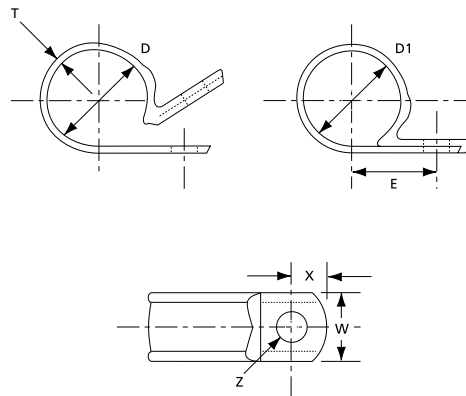
Adjustable, ladder style clamps
Cable clamps

Characteristics
- Ladder style fastener is easily released and refastened
- Supplied "single-cut" on a rubber based closed cell foam adhesive
- In addition, can also be mounted with a screw, for improved pull-off strength

Technical Information

Material	Polyamide 6.6
Temperature range	0°C to +65°C
Colour	Grey
Mounting method	Self adhesive and / or screw-mounting
Flammability rating	UL 94 V-2 (clamp)
Other properties	Halogen free, Silicone free
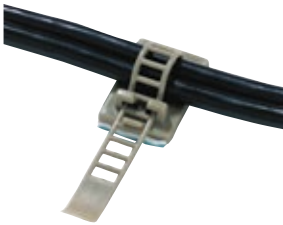
Product Ref.	Dimensions				Bundle diameter range	Screw hole diameter	Quantity
	H	W	L	S			
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[pieces]
ULNY-013-8-C	59.5	18	25	8	3 - 12.7	2.79	100
ULNY-018-8-C	79.4	21	30	12	5 - 21.0	2.79	100
ULNY-023-8-C	85.5	25	35	14	7 - 25.0	3.43	100

For other quantities please contact your Sales Office
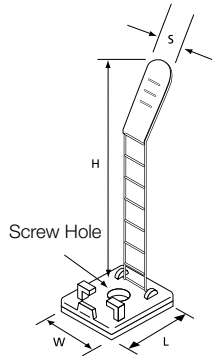
Latching clamps
Cable clamps

Characteristics
- Re-usable tie mounting clamps
- For self-adhesive and / or screw- or rivet mounting
- One-piece design with integrated releasable lock
- The inner profile protects sensitive cables, fibre optics etc
- Desired height can be set in 3 or 6 ratchet steps
- The large base surface area and the strong adhesive film guarantee a high adhesive strength
- The self-adhesive film is foam backed (0.8 mm) which allows durable fixing on a variety of materials

Technical Information
Material	Polyamide 6.6
Temperature range	-40°C to +85°C (Self-adhesive version: 0°C to +65°C)
Colour	Natural
Mounting method	Self adhesive or screw-mounting
Flammability rating	UL 94 V-2
Other properties	Halogen free, Silicone free
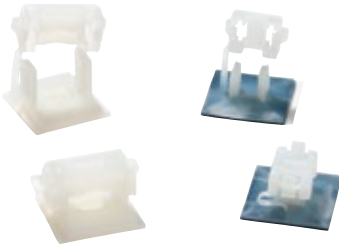
Product Ref.	Mounting method	Dimensions							Mounting hole diameter	Weight	Quantity
		H max.	H min.	W	L	D	E Height of clamping area from ... to	F Width of clamping area			
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[g/100]	[pieces]
TC349A-TB	self-adhesive (rubber based) / screw	14.5	11.5	25.0	25.0	2.7	6 - 8.5	6	–	120	1000
TC349AN	self-adhesive (acrylic based) / screw	14.5	11.5	25.0	25.0	2.7	6 - 8.5	6	–	120	1000
TC5349A-TB	self-adhesive (rubber based) / screw	14.5	11.5	25.0	25.0	2.7	6 - 8.5	6	–	120	100
TC350A-TB	self-adhesive rubber based) / screw	22.0	18.0	25.0	25.0	4.7	6 - 12.5	15	4.3	400	1000
TC350AN	self-adhesive (acrylic based) / screw	22.0	18.0	25.0	25.0	4.7	6 - 12.5	15	4.3	400	1000
TC5350A-TB	self-adhesive rubber based) / screw	22.0	18.0	25.0	25.0	4.7	6 - 12.5	15	4.3	400	100
TC350	screw	21.3	17.2	25.0	25.0	4.0	6 - 12.5	15	4.3	380	1000
TC5350	screw	21.3	17.2	25.0	25.0	4.0	6 - 12.5	15	4.3	380	100

TC349A-TB
TC349AN
TC5349A-TB

TC350
TC350AN
TC5350
TC350A-TB
TC5350A-TB
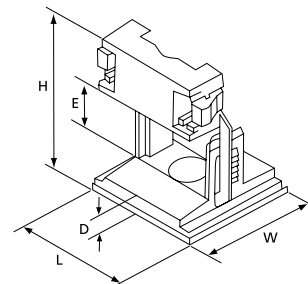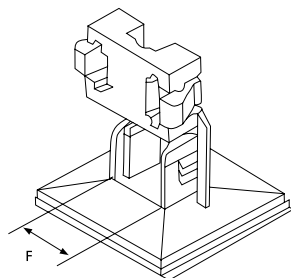
Re-openable clamps
Cable clamps

Characteristics
- Simple installation
- Can be mounted by clipping-in or gluing
- For series production or as a temporary support during wiring   installation
- Clip ends are rounded for comfortable re-opening
- Product Ref. TC95 features 2-stage lock

Technical Information

Material	Polyamide 6.6
Temperature range	-40°C to +85°C
Colour	Natural
Mounting method	Clip in
Flammability rating	UL 94 V-2
Other properties	Halogen free, Silicone free

Product Ref.	Dimensions					For wall thickness from … to	Mounting hole diameter	Weight	Quantity
	H	W	L	D	T				
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[g/100]	[pieces]
TC88	22.6	12.7	19.1	12.7	2.5	2.5 - 3.6	5.7 - 7	115	100
TC95	40.5	12.7	19.1	25.4	2.5	2.5 - 3.6	5.7 - 7	278	100
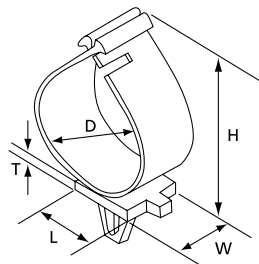
Re-openable clamps with springs
Cable clamps

Characteristics
- Holding clips with rubberised fabric tape
- The built-in springs hold the cable bundle safely in the desired position
- The upper clip end is rounded for easy addition of cables
- Strong fixing due to two mounting holes, aligned along the axis of the cable bundle

Technical Information

Material - Body	Polyamide 6.6
Material - Elastic	Rayon & natural rubber
Material - Spring	Steel
Temperature range	-40°C to +85°C
Colour	Natural
Mounting method	2 screws
Flammability rating	UL 94 V-2 (body)
Other properties	Halogen free

Product Ref.	Dimensions					Max. bundle diameter	Mounting hole diameter	Weight	Quantity
	H	L	W	E	F				
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[g/100]	[pieces]
TC86	46	44.5	31.8	22.2	2.5	19	3.9	860	25
TC87	58	62.7	38.1	25.4	2.5	32	3.9	1950	25
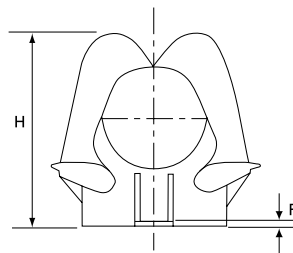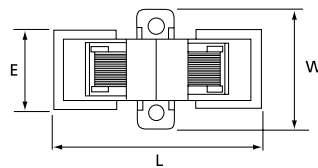
Self-adhesive press clips
Cable clamps

Characteristics
- Available in "full clip" version (PCNY series) or "half clip" version (HCNY series)
- 4 sizes to accommodate bundles up to 12 mm
- Clips are provided "two-up" on a rubber based closed cell foam adhesive

Technical Information

Material	Polyamide 6.6 (clip)
Temperature range	0°C to +65°C
Colour	Natural
Mounting method	Self-adhesive
Flammability rating	UL 94 V-2
Other properties	Halogen free, Silicone free

Product	Dimensions					Quantity
Ref.	D	L	B	H	W	
	[mm]	[mm]	[mm]	[mm]	[mm]	[pieces]
WALL PLUG						
PCNY-125-9-D	3.17	19.30	9.65	5.36	9.52	500
PCNY-250-9-C	6.35	35.05	17.52	8.23	12.69	100
PCNY-250-9-D	6.35	35.05	17.52	8.23	12.69	500
PCNY-375-9-C	9.52	37.32	18.61	11.29	15.87	100
PCNY-375-9-D	9.52	37.32	18.61	11.29	15.87	500
PCNY-500-9-C	12.69	40.57	20.19	14.85	19.05	100
PCNY-500-9-D	12.69	40.57	20.19	14.85	19.05	500
WALL PLUG						
HCNY-125-9-C	3.17	12.52	9.65	4.57	9.52	100
HCNY-125-9-M	3.17	12.52	9.65	4.57	9.52	1000
HCNY-250-9-C	6.35	21.97	17.52	8.25	12.69	100
HCNY-250-9-M	6.35	21.97	17.52	8.25	12.69	1000
HCNY-375-9-C	9.52	24.88	19.05	10.54	15.87	100
HCNY-375-9-M	9.52	24.88	19.05	10.54	15.87	1000
HCNY-500-9-C	12.69	28.19	20.83	14.22	19.05	100
HCNY-500-9-M	12.69	28.19	20.83	14.22	19.05	1000

PCNY
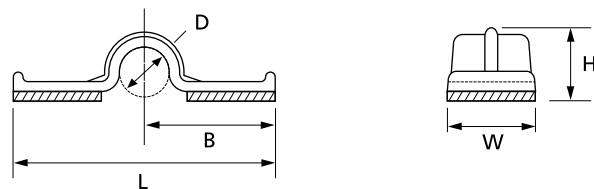
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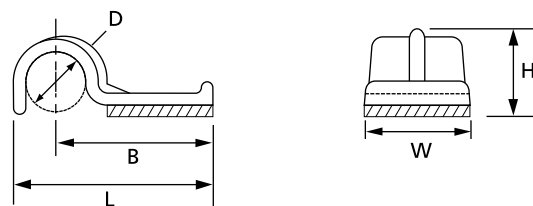
Self-adhesive clips for round cable
Cable clamps

Characteristics
- Diverse cable clamps for bundle diameters from 4 mm to 15.8 mm
- Clips are provided two-up on a rubber based closed cell foam adhesive
- Flexible centre tongue for removal or addition of cables

Technical Information

Material	Polyamide 6.6 (clip)
Temperature range	0°C to +65°C
Colour	Natural or black
Mounting method	Self-adhesive
Flammability rating	UL 94 V-2
Other properties	Halogen free, Silicone free

Product Ref.	Colour	Dimensions			Max. bundle diameter	Quantity
		H [mm]	W [mm]	L [mm]	[mm]	[pieces]
RANY-160-9-D	natural	6.4	16.0	14.8	4.2	500
RANY-280-9-D	natural	10.4	25.4	25.4	4.2	500
RANY-280-0-D	black	10.4	25.4	25.4	4.2	500
RANY-530-9-D	natural	15.8	25.4	25.4	4.2	500
RANY-620-9-D	natural	14.2	31.8	28.5	4.2	500

For other colours and quantities please contact your Sales Office
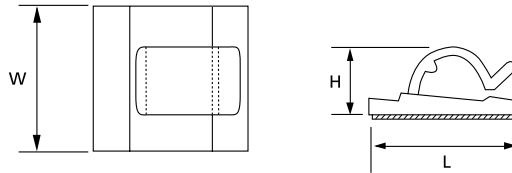
Cable clamps
Accessories for flat cables

Characteristics
- This system allows the secure and neat fixing of between 1 and 25 ribbon cables
- Clamp height adapts accurately to the desired number of ribbon cables
- Suitable for ribbon cables up to 60 conductors with a pitch of 1.27 mm (76.2 mm wide)
- Can be re-opened for later addition or removal of a cable
- Very strong hold
- All versions can be mounted with countersunk-head screws or rivets
- Some versions have an additional self-adhesive foam, for fast mounting

Technical Information

Material	Polyamide 6.6 (clip)
Temperature range	-40°C to +85°C
	(Self-adhesive version: 0°C to +65°C)
Colour	Natural
Mounting method	Self-adhesive and / or for screw- or rivet-mounting
Flammability rating	UL 94 V-2
Other properties	Halogen free, Silicone free

Product Ref.	Mounting method	Dimensions						Adhesive strength on steel/ fastening hole	Weight	Quantity
		H max.	H min.	W	L	D mounting centres from ... to	E inner width			
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[g/100]	[pieces]
FCC-1	countersunk screws	21.0	8.0	12.7	32.5	–	25.4	M4	260	50
FCC-1A	countersunk screws / self-adhesive	21.0	8.8	12.7	32.5	–	25.4	76 N/cm	275	50
FCC-2	countersunk screws	36.0	8.0	12.7	57.9	39.1	50.8	M4	340	50
FCC-2A	countersunk screws / self-adhesive	36.0	8.8	12.7	57.9	39.1	50.8	76 N/cm	390	50
FCC-3	countersunk screws	36.0	8.0	12.7	83.3	64.5	76.2	M4	475	50
FCC-3A	countersunk screws / self-adhesive	36.0	8.8	12.7	83.3	64.5	76.2	76 N/cm	490	50
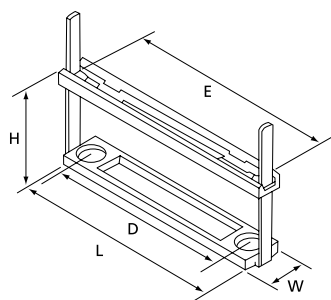
PVC cable-clips
Accessories for flat cables

Characteristics
- Low profile clip for single or multiple layers of flat ribbon cable
- "Single cut" on a rubber based closed cell foam adhesive

Technical Information

Material	PVC (clip)
Temperature range	0°C to +65°C
Colour	Grey
Mounting method	Self-adhesive
Flammability rating	UL 94 V-0 (clip)
Other properties	UV-resistant

Product	Dimensions			Quantity
Ref.	H	T	W	
	[mm]	[mm]	[mm]	[pieces]
FRPV-1000-8-C	5.8	27	25.4	100
FRPV-1000-8-D	5.8	27	25.4	500
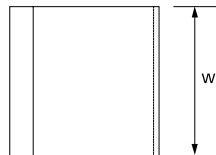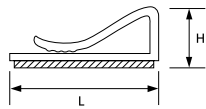
Clips with flexible leg
Accessories for flat cables

Characteristics
- Low profile clip for single or multiple layers of flat ribbon cable
- Flexible centre leg allows for easy removal and replacement of desired cable
- Non-conductive, non-corrosive, resistant to fuels, lubricants and most chemicals
- FANY supplied "two-up" on a rubber based closed cell foam adhesive
- FSNY type has an additional mounting hole for screw mounting (M4 screw)

Technical Information

Material	Polyamide 6.6 (clip)
Temperature range	-40°C to +85°C
	(Self-adhesive version: 0°C to +65°C)
Colour	Natural
Mounting method	Self-adhesive or screw
Flammability rating	UL 94 V-2 (clip)
Other properties	Halogen free, Silicone free

Product Ref.	Mounting method	Dimensions			Quantity
		H [mm]	T [mm]	W [mm]	[pieces]
FSNY-812-9-C	M4 screw	3.17	30.15	25.40	100
FANY-812-9-C	self-adhesive	7.14	25.40	25.40	100
FANY-812-9-D	self-adhesive	7.14	25.40	25.40	500

For other colours and quantities please contact your Sales Office

FANY
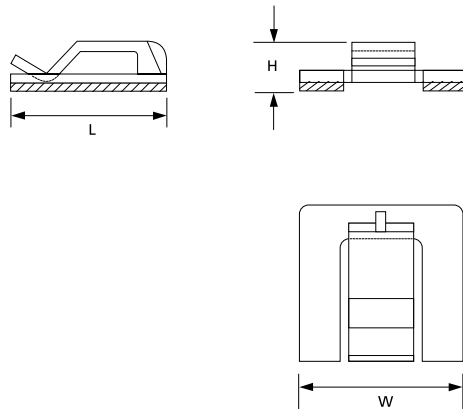
FSNY

Table of Content
Cable sleeves and spiral wraps

Introduction
Cable sleeves and spiral wraps

Bind-It®
Cable sleeves and spiral wraps

The Cable Protection Systems (CPS) from ABB captures different products:
- Wrap-around woven sleeving
- Braided sleeving
- Spiral wrap
- Extruded grommeting .

The wrap-around sleeving – better known under the name Bind-It® - is a tough but lightweight sleeve used to bundle and protect wires and cables from abrasion, sharp edges and chafing. Bind-It® is a self-wrapping sleeve that is very quick and easy to install and remove. Bind-It® is also available in a flame retardant version. No heat is necessary to seal the ends of this product. The ends can be secured by using Ty-Rap® cable ties.

The braided sleeving of ABB is used for bundling and protecting cables. The braided sleeving is a closed sleeve available in a flame and a non-flame retardant version. This product is mainly used inside cabinets and enclosures. To stop the end of the sleeving fraying it is necessary to heat seal the ends using a "hotwire" device.

Spiral wrap is mainly used for protection of bundles. This product is available in a natural and UV-resistant version and supplied in a Euroslot bag, ideal for the distribution market.

Finally the extruded grommeting of ABB is used to line panel edges and knock-outs where the chafing of passing wires is a concern. In most applications, grommeting will grip tightly by itself.

Wrap-around woven sleeving
Cable sleeves and spiral wraps

Characteristics

- Offers excellent protection for cable assemblies against abrasion
- No heat is required to seal the ends of this product as with traditional braided sleeving
- With its wrap-around design, it can be installed on assemblies where the wires are already terminated or wires need to be broken-out
- Bind-It® is available in nominal sizes from 5 mm to 38 mm

Technical Information

Material	Mono and multifilaments of polyester
Temperature range	-70°C to +125°C
Melt temperature	+255°C
Automotive temperature class	T3
Colour	Black
Flammability rating	Self-extinguishing, type B (FMVSS-302 Test method D45 1333)
Abrasion resistance	PSA D44 1722 : R8
Dielectric strength	from 1kVAC

Characteristics Flame retardant version

- Wrap-around sleeving manufactured from flame-retardant polyester monofilaments and multifilaments
- Designed for mechanical protection and maintenance of wire and cable bundles
- Its construction with 100% covering ratio provides excellent cut-through and abrasion resistance
- No heat is required to seal the ends of this product as with traditional braided sleeving
- With its wrap-around design, it can be installed on assemblies where the wires are already terminated or wires need to be broken-out
- Bind-It® is available in nominal sizes from 5 mm to 50 mm

Technical Information Flame retardant version

Material	Mono and multifilaments of polyester
Temperature range	-50°C to +125°C
Melt temperature	+240°C
Automotive temperature class	T3
Colour	Black
Flammability rating	Flame retardant (I3-F1), NF16-101
Ignitability test	According to NF-EN-ISO 11925-2
Abrasion resistance	PSA D44 1722: R8
Smoke opacity	NFX 10-702-1; 10-702-2: Pass; Smoke index: 12
Index oxygen	According to NF-ISO 4589-2; OI=36,9 %
Dielectric strength	from 1kVAC
Other properties	Halogen free
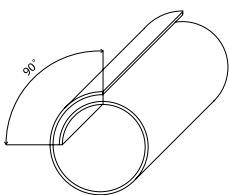
* Nominal size is determined by wrapping the product around a mandrel of a given size to obtain 90 degrees of overlap (average value).

Product Ref.	Nominal Size* [mm]	Length per mini-reel [m]
CPS05W-150-EU	5	150
CPS08W-100-EU	8	100
CPS13W-50-EU	13	50
CPS19W-25-EU	19	25
CPS25W-25-EU	25	25
CPS29W-15-EU	29	15
CPS32W-15-EU	32	15
CPS38W-15-EU	38	15

Product Ref.	Nominal Size* [mm]	Length per mini-reel [m]
CPS05W-150-FR-EU	5	150
CPS08W-100-FR-EU	8	100
CPS13W-50-FR-EU	13	50
CPS19W-25-FR-EU	19	25
CPS25W-25-FR-EU	25	25
CPS29W-15-FR-EU	29	15
CPS32W-15-FR-EU	32	15
CPS38W-15-FR-EU	38	15
CPS50W-15-FR-EU	50	15

Braided sleeving
Cable sleeves and spiral wraps

Characteristics
- Standard colour – black or grey
- Non-flame retardant Polyester rated at UL 94 V-2
- Available in nominal diameters from 3 to 50 mm to cover bundle diameters of 1 to 66 mm, giving flexibility when adding to or removing cables from wire looms
- For use in temperature ranges from -50°C to +150°C
- Good chemical resistance
- Halogen free
- For protecting and bundling cables and wires inside cabinets and enclosures

To stop the ends of the sleeving fraying it is necessary to heat seal the ends using a "hotwire" device. (Product Ref. WT-HSG)

Technical Information

Material	Polyester
Temperature range	-50°C to +150°C
Colour	Black or grey
Flammability rating	UL 94 V-2
Other properties	Good chemical resistance, Halogen free

1:2

Product Ref. Black	Product Ref. Grey	Nominal as supplied [mm]	Expandable diameter range [mm]	Length per mini-reel [m]
CPS3B-100	CPS3G-100	3	1 - 5	100
CPS4B-100	CPS4G-100	4	2 - 7	100
CPS5B-100	CPS5G-100	5	3 - 9	100
CPS6B-100	CPS6G-100	6	4 - 11	100
CPS8B-100	CPS8G-100	8	5 - 12	100
CPS10B-100	CPS10G-100	10	7 - 15	100
CPS12B-50	CPS12G-50	12	8 - 17	50
CPS15B-50	CPS15G-50	15	10 - 20	50
CPS20B-25	CPS20G-25	20	14 - 26	25
CPS25B-25	CPS25G-25	25	18 - 34	25
CPS30B-25	CPS30G-25	30	20 - 40	25
CPS40B-25	CPS40G-25	40	30 - 50	25
CPS50B-25	CPS50G-25	50	40 - 66	25

Spiral wrap
Cable sleeves and spiral wraps

Characteristics
- For protection of bundles from 4 mm to 130 mm
- Install gapped for greater flexibility or butted for maximum abrasion resistance, insulation and rigidity
- Counter-clockwise cut
- Delivered in bags with Euroslot
- Available in natural and UV-resistant black Polyethylene

Technical Information

Material	Polyethylene
Temperature range	+10°C to +80°C
Colour	Natural and UV-resistant black
Flammability rating	UL 94 HB
Other properties	UV-resistant black, Halogen free, Silicone free

Product Ref.	Colour	Outer diameter [mm]	Pitch [mm]	Nominal thickness [mm]	Min. - max. bundle diameter [mm]	Length [m]
SRPE-6-9	natural	6.0	7.0	0.5	4 - 50	10
SRPE-8-9	natural	8.0	10.8	0.5	6 - 60	10
SRPE-10-9	natural	10.0	11.4	0.8	7.5 - 60	10
SRPE-12-9	natural	12.0	13.9	0.9	9 - 65	10
SRPE-15-9	natural	15.0	15.0	1.0	12 - 70	10
SRPE-19-9	natural	19.0	18.2	1.3	15 - 100	10
SRPE-24-9	natural	24.0	19.6	1.5	20 - 130	10
SRPE-6-0	UV-resistant black	6.0	7.0	0.5	4 - 50	10
SRPE-8-0	UV-resistant black	8.0	10.8	0.5	6 - 60	10
SRPE-10-0	UV-resistant black	10.0	11.4	0.8	7.5 - 60	10
SRPE-12-0	UV-resistant black	12.0	13.9	0.9	9 - 65	10
SRPE-15-0	UV-resistant black	15.0	15.0	1.0	12 - 70	10
SRPE-19-0	UV-resistant black	19.0	18.2	1.3	15 - 100	10
SRPE-24-0	UV-resistant black	24.0	19.6	1.5	20 - 130	10

Nominal thickness

Outer diameter
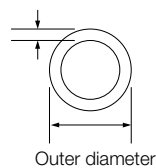
Pitch
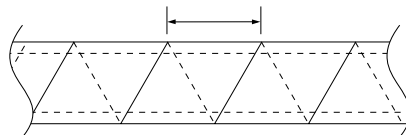
Extruded grommeting
Cable sleeves and spiral wraps

Characteristics
- Used to line panel edges and knock-outs where the chafing of passing wires is a concern
- Available in 8 stock sizes in 30.5 m lengths for panels from 1 mm to 6.35 mm
- In most applications, grommeting will grip tightly by itself, if not, a touch of Epoxy will keep it in place

Technical Information

Material	Polyamide 6.6
Temperature range	-40°C to +85°C
Colour	Natural or black
Flammability rating	UL 94 V-2
Other properties	Halogen free, Silicone free

Product Ref.	Colour	Internal width A [mm]	Thickness T [mm]	H [mm]	W [mm]	Length per reel [m]
GRNY-040-9-C	natural	1.01	1.01	4.82	3.17	30.5
GRNY-052-9-C	natural	1.32	1.01	4.82	3.17	30.5
GRNY-062-9-C	natural	1.57	1.14	5.08	4.32	30.5
GRNY-085-9-C	natural	2.15	1.14	5.08	4.32	30.5
GRNY-100-9-C	natural	2.54	1.14	5.58	5.33	30.5
GRNY-125-9-C	natural	3.17	1.27	5.58	5.23	30.5
GRNY-187-9-C	natural	4.74	1.27	6.85	6.98	30.5
GRNY-250-9-C	natural	6.35	1.27	7.11	9.39	30.5
GRNY-040-0-C	black	1.01	1.01	4.82	3.17	30.5
GRNY-052-0-C	black	1.32	1.01	4.82	3.17	30.5
GRNY-062-0-C	black	1.57	1.14	5.08	4.32	30.5
GRNY-085-0-C	black	2.15	1.14	5.08	4.32	30.5
GRNY-100-0-C	black	2.54	1.14	5.58	5.33	30.5
GRNY-125-0-C	black	3.17	1.27	5.58	5.23	30.5
GRNY-187-0-C	black	4.74	1.27	6.85	6.85	30.5
GRNY-250-0-C	black	6.35	1.27	7.11	9.39	30.5
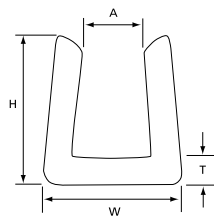
Table of Content
Cable Tie Tooling

Introduction
Cable Tie Tooling

Ty-Rap® and Ty-Met™ tooling
Cable Tie Tooling

ABB offers a comprehensive range of tooling to complement the full range of cable ties.
The range includes low-cost tools for maintenance and small batch requirements, as well as robust and ergonomic tools with tension setting and automatic cutting, now also in pneumatic version

In particular, the ERG50 and ERG120 hand tools, as well as the new ERG50P pneumatic tool, provide a superior level of reliability and performance, combined with enhanced ergonomics and comfort of use.

These ergonomic tools, with adjustable tension and automatic cutting, are ideally suited for efficiently installing all kinds of plastic cable ties in industrial (Original Equipment Manufacturers, Maintenance and Repair Organisations, etc) and construction applications.

ERG50, ERG50P & ERG120

Superior reliability and performance
- Developed to meet the market needs for a more rugged and longer lasting tool
- Designed to integrate the greatest number of features in the market

Enhanced ergonomics and comfort of use
- First class design and materials, for maximum convenience
- As a result, the operator is subject to less stress, less fatigue and less risk of trauma due to long term use (such as Carpal Tunnel Syndrome)
- The pneumatic version (ERG50P) provides an even increased comfort of use

Increased efficiency
- Exclusive features for quick set-up and fast installation
- Confidence to achieve a highly professional result, installation after installation

Selection guide
Cable Tie Tooling

Product Ref.	Features	Tensioning	Cutting	For cable ties
TOOLING FOR PLASTIC TIES				
ERG50	Ergonomic hand tool with superior level of reliability and performance	adjustable	automatic	2.4 mm - 4.8 mm
ERG120	Ergonomic hand tool with superior level of reliability and performance	adjustable	automatic	4.8 mm - 7.6 mm
ERG50P	Ergonomic pneumatic tool with superior level of reliability and performance	adjustable	automatic	2.4 mm - 4.8 mm
WT199	Semi- automatic MIL specified hand tool (MIL. Nr. MS-90387-1)	adjustable	automatic	2.4 mm - 4.8 mm
WT193A	Robust construction, ideal for industrial mass finishing applications like cable-tree assemblies	adjustable	automatic	2.4 mm - 4.8 mm
WT1-TB	Basic tensioning tool, intended for maintenance and small batch use	basic	twist cut	2.4 mm - 4.8 mm
WT197	Semi-automatic MIL specified hand tool (MIL. Nr. MS-90387-2)	adjustable	automatic	4.8 mm - 7.6 mm
WT2-TB	Basic tensioning tool, intended for maintenance and small batch use	basic	twist cut	4.8 mm - 7.6 mm
L300-FR	Rugged construction with field proven durability	basic	manual	7.6 mm - 9 mm
WT3D	Robust metal body with plastic hand-grips, designed for tensioning and cutting heavy-duty cable ties	basic	twist cut	7.6 mm - 12.7 mm
L-500-EU	Rugged metallic construction	adjustable	automatic	4.7 mm - 13.3 mm

Selection guide
Cable Tie Tooling

Product Ref.	Features	Tensioning	Cutting	For cable ties
TOOLING FOR TY-MET™ STAINLESS STEEL TIES				
CT1-TB	Tensioning hook provides extra-leverage for tensioning the ties by hand	basic	no cutting	Releasable, Ladder Type & Strap Type
CT2-TB	Basic hand tool	basic	no cutting	Releasable, Ladder Type & Strap Type
WT3S	A robust metallic hand tool with rubber grips	basic	no cutting	Ladder Type & Strap Type
CT3	Economic tensioning tool	basic	manual	Ladder Type, Strap Type & Ball-Lock Type (width up to 12 mm)
L600	Tensioning tool	basic	manual (twist cut)	Ball-Lock Type (width: 4.6 mm & 7.9 mm)
CT4-TB	Bantam tool, unique 3-way handle can be used in various positions. Especially useful in tight areas with minimal access	basic	manual	Releasable, Ladder Type & Strap Type
CT5	Adjustable tension setting tool with automatic cutting	adjustable	automatic	Ladder Type & Strap Type
CT6	Adjustable tension setting tool with automatic cutting	adjustable	automatic	Ball-Lock Type (width: 4.6 mm & 7.9 mm)
CT7	Tensioning and cutting tool, ratchet type	basic	manual	Ball-Lock Type (width: 12mm & 16mm)
CT8	Tensioning and cutting tool, ratchet type	basic	manual	Bands on reel (all widths)

Tools for plastic cable ties: ERG50, ERG120 and ERG50P
Cable Tie Tooling

Characteristics

The ergenomic tools from ABB provide a superior level of reliability and performance, combined with enhanced ergonomics and comfort of use. With their adjustable tension and automatic cutting, they are ideally suited for efficiently installing all kinds of plastic cable ties in industrial (Original Equipment Manufacturers, Maintenance and Repair Organisations, etc) and construction applications. They are available in hand tool version (ERG50 and ERG120) and in pneumatic version (ERG50P) for higher volumes of installation without muscle strain.

Developed to meet the market needs for a more rugged and longer lasting tool, and to integrate the greatest number of features in the market:
- 360° rotating nose (patented), allows the tool to be used in any position
- Tension adjustment lock, for constant tension setting
- Quick tension-adjustment wheel located towards the front for easy access and fast changes
- Adjustable handle span (for hand tools only) fits large and small hands.
- Anti-recoil mechanism (patented) reduces vibration shock
- First class design and materials: ergonomic shape with rounded edges, soft rubber handles, well balanced center of gravity
- Longest stroke length on the market (25.4 mm), meaning less tensioning cycles, for time and cost saving
- High / low force setting (patent pending), for a selection between "high force & long stroke" or "low force & short stroke" (for hand tools only)
- The cable tie is cut flush to the head, with no remaining protrusion, and the cut tail remains captive in the tool for a cleaner installation
- Easy access to spare blade nest, always a spare blade at hand (each tool is supplied with a spare blade)

As a result, the operator is subject to less stress, less fatigue and less risk of trauma due to long term use (such as Carpal Tunnel Syndrome)

Technical Information ERG50

Tool type	Ergonomic hand tool
Nose colour	Black
For type of cable tie	Plastic ties
For tie width	2.4 mm - 4.8 mm
Features	Adjustable tension setting, automatic cutting, retraction of the strap end after application of Ty-Rap® cable ties
Weight	260 g
Dimensions [L x W x H]	178 x 127 x 38 mm
Replacement blades	Product Ref. ERG50B

Technical Information ERG120

Tool type	Ergonomic hand tool
Nose colour	Orange
For type of cable tie	Plastic ties
For tie width	4.8 mm - 7.6 mm
Features	Adjustable tension setting, automatic cutting, retraction of the strap end after application of Ty-Rap® cable ties
Weight	278 g
Dimensions [L x W x H]	178 x 127 x 38 mm
Replacement blades	Product Ref. ERG120B

Technical Information ERG50P

Tool type	Ergonomic pneumatic tool
Nose colour	Black
For type of cable tie	Plastic ties
For tie width	2.4 mm - 4.8 mm
Features	Adjustable tension setting, automatic cutting, retraction of the strap end after application of Ty-Rap® cable ties, double hangers, supplied with pneumatic hose (2.7 metre)
Operating air pressure	6 to 7 bar non-lubricated air
Weight	415 g (without pneumatic hose)
Dimensions [L x W x H]	245 x 155 x 40 mm
Replacement blades	Product Ref. ERG50B

Tools for plastic cable ties
Cable Tie Tooling

Product Ref.: WT193A

Characteristics
- High quality hand tool, to bind, tension and cut in one operation
- Solid lightweight metal body
- Tension setting to ensure product consistency
- Robust construction, ideal for industrial mass finishing applications like cable-tree assemblies

Technical Information
Tool type	Heavy-duty hand tool
For type of cable tie	Plastic ties
For tie width	2.4 mm - 4.8 mm
Features	Adjustable tension setting, automatic cutting
Weight	300 g
Dimensions [L x W x H]	182 x 135 x 19.5 mm
Replacement blades	Product Ref. R464201

Product Ref.: WT199

Characteristics
- Semi- automatic hand tool
- MIL. Nr. MS-90387-1
- Tension setting to ensure product consistency
- Robust metal construction
- Ideal for industrial mass finishing applications like cable tree assemblies, for example in the military industry

Technical Information
Tool type	Semi-automatic hand tool
For type of cable tie	Plastic ties
For tie width	2.4 mm - 4.8 mm
Features	Adjustable tension setting, automatic cutting, MIL specified (MS-90387-1)
Weight	410 g
Dimensions [L x W x H]	163 x 134 x 24 mm

Product Ref.: WT197

Characteristics
- Semi-automatic hand tool
- MIL. Nr. MS-90387-2
- Tension setting to ensure product consistency
- Robust metal construction
- Ideal for industrial mass finishing applications like cable tree assemblies, for example in the military industry

Technical Information
Tool type	Semi-automatic hand tool
For type of cable tie	Plastic ties
For tie width	4.8 mm - 7.6 mm
Features	Adjustable tension setting, automatic cutting, MIL specified (MS-90387-2)
Weight	420 g
Dimensions [L x W x H]	165 x 135 x 29 mm

Tools for plastic cable ties
Cable Tie Tooling

Product Ref.: WT3D

Characteristics
- Designed for tensioning and cutting heavy-duty cable ties
- Robust metal body with plastic hand-grips

Technical Information
Tool type	Hand tool for Deltec ties, Col-Ty™ installation ties and other wide cable ties
For type of cable tie	Plastic ties
For tie width	7.6 mm - 12.7 mm
Features	Tensioning, manual cutting (by twisting the tool)
Weight	225 g
Dimensions [L x W x H]	178 x 112 x 20 mm

Product Ref.: L-500-EU

Characteristics
- Rugged metallic construction makes this tool ideal for use with our 4.7 mm to 13.3 mm wide ties
- Set tension adjuster to give desired tie tightness
- Pull trigger and tie is automatically tensioned and cut

Technical Information
Tool type	Hand tool
For type of cable tie	Plastic ties
For tie width	4.7 mm - 13.3 mm
Features	Tensioning, automatic cutting

Product Ref.: L300-FR

Characteristics
- Rugged construction makes this tool ideal for use with our 7.6 mm to 9 mm wide ties
- Pull tie to desired tension and pull trigger to cut excess flush at cable tie head
- Field proven durability

Technical Information
Tool type	Hand tool for Col-Ty™ installation ties and other wide cable ties
Colour	White
For type of cable tie	Plastic ties
For tie width	7.6 mm - 9 mm
Features	Tensioning, manual cutting
Weight	330 g
Dimensions [L x W x H]	195 x 100 x 25 mm

Tools for plastic cable ties
Cable Tie Tooling

Product Ref.: WT1-TB

Characteristics
- Twist-and-cut tensioning tool in plastic, intended for maintenance and small batch use

Technical Information
Tool type	Low-cost hand tool
Colour	Orange
For type of cable tie	Plastic ties
For tie width	2.4 mm - 4.8 mm
Features	Basic tensioning, twist cut
Weight	28.4 g
Dimensions [L x W x H]	134 x 55 x 27 mm

Product Ref.: WT2-TB

Characteristics
- Twist-and-cut tensioning tool in plastic, intended for maintenance and small batch use

Technical Information
Tool type	Low-cost hand tool
Colour	Black
For type of cable tie	Plastic ties
For tie width	4.8 mm - 7.6 mm
Features	Basic tensioning, twist cut
Weight	28.4 g
Dimensions [L x W x H]	134 x 55 x 27 mm

Tools for stainless steel ties
Cable Tie Tooling

Product Ref.: CT1-TB

Characteristics
- Tensioning hook suitable for Releasable Type, Ladder Type and Strap type stainless steel ties
- Provides extra-leverage for tensioning the ties by hand

Technical Information
Tool type	Hand tool
For type of cable tie	Releasable Type, Ladder Type & Strap Type stainless steel ties
Features	Tensioning, no cutting
Weight	50 g
Dimensions [L x W x H]	85 x 106 x 15 mm

Product Ref.: CT2-TB

Characteristics
- Cable tie tensioner suitable for Releasable Type, Ladder Type & Strap type ties
- Tensions the ties to their optimum holding power with a simple squeeze: a flick of the wrist and they're locked tight

Technical Information
Tool type	Hand tool
For type of cable tie	Releasable Type, Ladder Type & Strap Type stainless steel ties
For tie width	Up to 12 mm
Features	Tensioning, no cutting
Weight	300 g
Dimensions [L x W x H]	195 x 90 x 30 mm

Product Ref.: WT3S

Characteristics
- A robust metallic hand tool with rubber grips designed for tensioning Ladder Type & Strap Type stainless steel ties
- After tensioning, the stainless steel ties can easily be cut with side-cutters

Technical Information
Tool type	Hand tool
For type of cable tie	Ladder Type & Strap Type stainless steel ties
For tie width	Up to 12 mm
Features	Tensioning, no cutting
Weight	225 g
Dimensions [L x W x H]	178 x 112 x 20 mm

Tools for stainless steel ties
Cable Tie Tooling

Product Ref.: CT3

Characteristics
- Cost-effective tensioning tool
- Cut-off by hand-activated lever

Technical Information

Tool type	Hand tool
For type of cable tie	Ladder Type, Strap Type & Ball Lock Type stainless steel ties, coated and uncoated
For tie width	Up to 12 mm
Features	Tensioning, manual cutting
Weight	550 g
Dimensions [L x W x H]	210 x155 x 35 mm

Product Ref.: L600

Characteristics
- Tensioning tool with twist cut

Technical Information

Tool type	Hand tool
For type of cable tie	Ball Lock Type stainless steel ties, coated and uncoated
For tie width	4.6 - 7.9 mm
Features	Tensioning, manual cutting (by twisting the tool)
Weight	600 g
Dimensions [L x W x H]	200 x 140 x 40 mm

Product Ref.: CT4-TB

Characteristics
- Bantam tool, suitable for Releasable Type, Ladder Type & Strap Type stainless steel ties
- Unique 3-way handle can be used in various positions. Especially useful in tight areas with minimal access

Technical Information

Tool type	Hand tool
For type of cable tie	Releasable Type, Ladder Type & Strap Type stainless steel ties
Features	Tensioning, manual cutting
Weight	1200 g
Dimensions [L x W x H]	156 x 180 x 80 mm

Tools for stainless steel ties
Cable Tie Tooling

Product Ref.: CT5

Characteristics
- Suitable for coated and uncoated Ladder Type & Strap Type stainless steel ties
- Adjustable tension settings
- Automatic cutting once desired tension has been reached

Technical Information
Tool type	Tension setting hand tool
For type of cable tie	Ladder Type & Strap Type stainless steel ties, coated and uncoated
For tie width	Up to 12 mm
Features	Adjustable tension setting, automatic cutting
Weight	430 g
Dimensions [L x W x H]	173 x 158 x 22 mm

Product Ref.: CT6

Characteristics
- Suitable for coated and uncoated Ball-Lock Type stainless steel ties
- Adjustable tension settings
- Automatic cutting once desired tension has been reached

Technical Information
Tool type	Tension setting hand tool
For type of cable tie	Ball-Lock Type stainless steel ties, coated and uncoated
For tie width	4.6 - 7.9 mm
Features	Adjustable tension setting, automatic cutting
Weight	430 g
Dimensions [L x W x H]	173 x 158 x 22 mm

Tools for stainless steel ties
Cable Tie Tooling

Product Ref.: CT7

Characteristics
- Tensioning and cutting tool, ratchet type
- Suitable for coated and uncoated Ball-Lock Type stainless steel ties, having a width of 12 mm and 16 mm

Technical Information

Tool type	Hand tool, ratchet type
Weight	1300 g
Dimensions [L x W x H]	270 x 170 x 60 mm

Product Ref.: CT8

Characteristics
- Tensionng and cutting tool, ratchet type
- Suitable for the bands on reel, in all widths
- The long nose leaves an excess of 45 mm after the tie is cut, for an easy installation of the band on reel

Technical Information

Tool type	Hand tool, ratchet type
For type of cable tie	Bands on reel
For tie width	All widths (up to 19.1 mm)
Weight	1570 g
Dimensions [L x W x H]	310 x 200 x 60 mm

Table of Content
Material specifications

UL flammability ratings
Materials specifications

Flammability ratings for selecting cable ties
Note: Flammability ratings of cable tie materials per UL as follows. These tests for flammability of plastic material are intended to serve as a preliminary indication of acceptability with respect to flammability for particular applications.

UL 94 vertical burn test procedures
Test specimens of the material, with dimensions 127 x 12.7 mm (5»x 1/2»), with the thickness intended for use in the end product, are tested in both the manufactured condition and in the aged state. The test requires that the specimen be supported in a vertical fixture and a precisely controlled flame applied for a 10 second period. The flame is removed and the duration of flaming is noted. If the flame extinguishes, a second exposure to flame for 10 seconds is applied and duration of flaming is again noted. It is observed and recorded whether or not test specimens drip flaming particles that ignite a cotton swab.

Materials classed 94 V-0:
A material classed 94 V-0 shall:
- A Not have any specimens that burn with flaming combustion for more than 10 seconds after either application of the test flame
- B Not have a total flaming combustion time exceeding 50 seconds for the 10 flame applications for each set of five specimens
- C Not have any specimens that burn with flaming or glowing combustion up to the holding fixture
- D Not have any specimens that drip flaming particles that ignite the dry absorbent surgical cotton located 304.8 mm (12») below the test specimen
- E Not have any specimens with glowing combustion that persists for more than 30 seconds after the second removal of the test flame

Materials classed 94 V-1:
A material classed 94 V-1 shall:
- A Not have any specimens that burn with flaming combustion for more than 30 seconds after either application of the test flame
- B Not have a total flaming combustion time exceeding 250 seconds for the 10 flame applications for each set of five specimens
- C Not have any specimens that burn with flaming or glowing combustion up to the holding fixture
- D Not have any specimens that drip flaming particles that ignite the dry absorbent surgical cotton located 304.8 mm (12») below the test specimen
- E Not have any specimens with glowing combustion that persists for more than 60 seconds after the second removal of the test flame.

Materials classed 94 V-2:
A material classed 94 V-2 shall:
- A Not have any specimens that burn with flaming combustion for more than 30 seconds after either application of the test flame
- B Not have a total flaming combustion time exceeding 250 seconds for the 10 flame applications for each set of five specimens
- C Not have any specimens that burn with flaming or glowing combustion up to the holding fixture
- D Be permitted to have specimens that drip flaming particles that burn only briefly, some of which ignite the dry absorbent surgical cotton placed 304.8 mm (12») below the test specimen
- E Not have any specimens with glowing combustion that persists for more than 60 seconds after the second removal of the test flame

UL 94 horizontal burn (HB) test procedures
The test uses a 1/2 inch x 5 inches (12.7 mm x 127 mm) specimen held at one end in a horizontal position with marks at 1 inch (25.4 mm) and 5 inches (127 mm) from the free end. A flame is applied to the free end for 30 seconds or until the flame front reaches the 1 inch (25.4 mm) mark. If combustion continues the duration is timed between the 1 inch (25.4 mm) mark and the 5 inch (127 mm) mark. If combustion stops before the 5 inch (127 mm) mark, the time of combustion and the damaged length between the two marks are recorded. A set of three specimens are tested.

Materials classed 94 HB
A material that is less than 0.118 inch (3 mm) in thickness will be classified 94HB if it has a burning rate of less than 3 inches (76.2 mm) per minute or stops burning before the 5 inches (127 mm) mark. If one specimen from the set of three fails to comply, then a second set of three are tested. All three of this second set must comply. HB rated materials are considered "self-extinguishing". This is the lowest (least flame retardant) UL94 rating.

Nylon 6.6 = Polyamide 6.6 is Halogen-free and Silicone-free.

Adhesive material specifications
Materials specifications

Property	Method	Unit of measure	Rubber based (self-adhesive)	Acrylic based (2 component glue)
Coated Sides	–	each	2	2
Foam Density	–	Kg/m3	96.9	96.9
Peel Adhesion	PSTC 1	N/cm width	10.9	10
	ASTM D 1000	Average		8.8
Shear Adhesion	natural	15.0	15.0	10
22°C 50% RH	PSTC 7	Hours	100 +	8 +
22°C Occasional Wetting		N/m2	68971	15174
Tensile Strength	ASTM D 412	PSI	100	100 +
Tear Resistance	ASTM D 624	N/cm	52.6	52.6 +
Elongation at Break	–	%	400	200
Service Temperature	–	°C Min	-18	-29
	–	°C Max	+66	+79
Flammability	ASTM D 624		Slow Burn	Slow Burn

Installation instructions for self-adhesive mounting bases
- Mounting surfaces should be cleaned with alcohol based (IPA) cleaner before application
- The self-adhesive mounting bases have a double-sided adhesive tape made of synthetic foam, covered by a protecting foil.
- To install the self-adhesive mounting base, remove the protecting foil and press the mounting base onto the cleaned surface
- The thickness of the self-adhesive foam (0.8 mm) compensates the irregularities of the application surfaces and allows installations on structured surfaces of cabinet doors, on sheet metal, on machines, etc
- The adhesion is achieved immediately during the installation, which means that later repositioning is not possible

Product Ref.: TC2PA

Characteristics
- 2 component glue
- Consists of one tube each of adhesive and activator
- Easy application
- Stable and durable adhesion
- Applicable on all Polyamide and Aluminium mounting bases and cable clamps
- Also applicable on concrete and other porous surfaces
- UV resistant

Technical Information
Description   2 component glue
Weight   0.21 kg

Installation instructions for Product Ref. : TC2PA (2 component glue)
- Mounting surfaces should be cleaned before application
- The liquid adhesive in the tube is to be spread onto the mounting surface. It can be used on most rough surfaces (like concrete)
- The activator liquid is then spread onto the surface of the mounting base
- Place the surface of the mounting base in contact with the surface where it has to be mounted, position the mounting base correctly and then press firmly
- Repositioning the mounting base remains possible only for a few seconds
- Do not use the mounting base immediately after installation. The Acrylic-based adhesive requires a set-up time that can be influenced by factors such as temperature (allow 24 - 72 hours for maximum performance)
- Temperature of installation needs to be above +20°C

Material selection and specifications
Materials specifications

Selecting the right material for your applications

ABB offers cable ties and accessories in a wide variety of materials, each suited for specific environments. The purpose of this document, therefore, is to assist in choosing the best material for a particular application.

The effects of weathering, flame, chemicals, extreme temperatures and radiation on the different materials is clearly presented in tabular form. This will facilitate the choice of the best material for the application.

Having determined the most suitable material, one can choose from the wide variety of cable ties, identification ties, mounting bases, lashing ties, etc., offered by ABB.

Material specifications

Note: Nylon (Polyamide) is inherently susceptible to environmental conditions. Polyamide 6.6 cable ties are moisturised to optimum performance levels at machine-side and should be stored in cool dry areas out of direct sunlight. Cable ties are packaged in plastic bags to contain moisture and should remain sealed until ready for use.

Polyamide 6.6

- Thermoplastic material used in cable ties for universal applications in the industry
- Excellent resistance to shocks, chemicals, oils and temperature fluctuations
- High surface hardness and a small coefficient of friction
- Flammability rating: UL 94 V-2
- Halogen free and Silicone free
- Indoor applications
- Ty-Fast® ties in standard Polyamide 6.6 are available in natural colour and in a wide range of colours
- Ty-Rap® ties in standard Polyamide 6.6 are available in natural colour only

Polyamide 6.6, weather resistant

- Similar to Polyamide 6.6, but recommended for outdoor applications
- UV-resistant
- Halogen free and Silicone free
- Ty-Fast® ties in weather resistant Polyamide 6.6 are available in black colour only (with 2 % carbon for military specifications)
- Ty-Rap® ties in weather resistant Polyamide 6.6 are available in black colour (with 2 % carbon for military specifications) and in a wide range of colours (except natural)
- Flammability rating: UL 94 V-2

Polyamide 6.6, heat stabilised

- Similar to Polyamide 6.6, but increased operating temperatures, up to 105°C
- Excellent tensile strength
- High temperature resistance
- Colour: natural (may have a greenish tint)
- Flammability rating: UL 94 V-2

Polyamide 6.6, heat stabilised and UV-resistant

- Similar to Polyamide 6.6, but recommended for outdoor applications and/or high temperature applications, up to 105°C
- Combines the features & benefits of Polyamide 6.6, weather resistant and Polyamide 6.6, heat stabilised
- Colour: black
- Flammability rating: UL 94 V-2

Polyamide 6.6, flame retardant

- Excellent flammability rating: UL 94 V-0
- Ideal in areas where human life is at risk
- Colour: white

Polyamide 6.6, detectable

- Similar to Polyamide 6.6, but contains a compound detectable by metal detectors (tested and rated at 1.5 mm diameter ferrous sphere setting) and X-ray equipment
- Colour: bright blue, also contributes to visual detection
- Especially recommend for the food industry, and for any other contamination sensitive industry using detection equipment
- Halogen free and silicone free
- Flammability rating: UL 94 V-2

Polyamide 4.6, extra high temperature (150°C)

- Similar to Polyamide 6.6, but outstanding resistance to high temperatures up to 150°C
- Halogen free and silicone free
- Colour: light green
- Flammability rating: UL 94 V-2

Polyamide 12, weather resistant

- Extremely flexible, also at low temperatures
- Ages better than Polyamide 6.6
- UV-resistant and weatherproof
- Better chemical resistance than Polyamide 6.6
- Colour: black
- Flammability rating: UL 94 V-2

Polypropylene, weather resistant

- Resistant against inorganic acids, polyhydric alcohols, neutral and basic salts
- Resists a number of other chemicals
- UV resistant
- Lower tensile strength than Polyamide 6.6
- Colour: black
- Flammability rating: UL 94 HB

Polypropylene, detectable

- Similar to standard Polypropylene, but contains a compound detectable by metal detectors (tested and rated at 1.5 mm dia-meter ferrous sphere setting) and X-ray equipment
- Colour: bright blue, also contributes to visual detection
- Buoyant (floats on the surface), for use in liquid-processing applications
- Especially recommend for the food industry, and for any other contamination sensitive industry using detection equipment
- Halogen free and silicone free
- Flammability rating: UL 94 HB

ETFE Fluoropolymer

- Tensile strength slightly lower than Polyamide 6.6
- ETFE Fluoropolymer is inert to most solvents and chemicals, hydrolytically stable, UV and weather resistant
- Radiation resistant (meets IEEE383) and approved for nuclear plant use
- Non-outgassing properties for zero gravity applications
- Very high temperature resistance
- Flammability rating: UL 94 V-0
- The best all around plastic material for cable ties
- Colour: aquamarine

ECTFE Fluoropolymer

- Similar to ETFE Fluoropolymer in performance
- Outstanding characteristic: lower smoke density when burnt
- Recommended for applications where smoke generation is a concern, such as plenum areas
- Colour: maroon
- Flammability rating: UL 94 V-0

Toughened weatherable acetal

- Excellent resistance to a wide variety of solvents, esters, oils, greases, gasoline and other petroleum hydrocarbons
- Resistant to weak acids and bases
- Excellent resistance to UV (weatherable acetal)
- Limited self-extinguishing properties
- Colour: black
- Flammability rating: UL 94 HB

302/304 Stainless Steel, 316 Stainless Steel

- Superior corrosion resistance
- Excellent tensile strengths at extreme temperatures
- High resistance to chemicals, acids and radiation
- 316 grade has a better resistance to saltwater corrosion and can be supplied with a halogen free coating
- Extensively used in offshore, rail and petrochemical industries

Material selection and specifications
Materials specifications

General
There is a number of factors to be considered when choosing the proper materials for a specific environment. It is extremely difficult to provide data on all the possible combinations or conditions that can occur and therefore, it is recommended that this information be used as a guideline and that cable tie samples be tested in the intended application, by the user, to determine suitability.

How to use the table
If your application is in an extremely cold environment, three materials will answer your need: ETFE Fluoropolymer, Polyamide 12 and stainless steel. If you also require high tensile strength, then stainless steel is your best choice. Where high strength is not required, Polyamide 12 might be your choice as it is the less costly.
This information is based on data provided by the manufacturers of the specific materials listed and is provided only as a general guide. No specific recommendation is intended. As each application may vary, testing should be conducted by the user in the intended environment.

Table 1 gives relative performance ratings of the different materials we offer. Chemical resistance is shown in Table 2

Table 1 - Information on cable tie materials

Material Code	Polyamide 6.6	Polyamide 6.6 weather resistant*	Polyamide 6.6 heat stabilised	Polyamide 6.6 heat stabilised UV resistant	Polyamide 6.6 flame retardant
	PA6.6	UV PA6.6	HS PA6.6	HSUV PA6.6	FR PA6.6
Ty-Rap® Product Ref.	TY...M	TY...MX	TYH...M	TY...MXA	TY...MFR
Ty-Fast® Product Ref.	TY...	TY...X	TY...39		TS...HF
Max. operating temperature	+85°C	+85°C	+105°C	+105°C	+85°C
Min. operating temp.	-40°C	-40°C	-40°C	-40°C	-40°C
UL flammability rating	V-2	V-2	V-2	V-2	V-0
Specific density	1.14	1.14	1.14	1.14	1.16
Water absorption (24h/ASTM)	2.5 - 3.1%	2.5 - 3.1%	2.5 - 3.1%	2.5 - 3.1%	3.0 - 3.5%
Colours	Natural**	Black***	Natural****	Black	White
E-module (N/mm2)	2000	2000	2000	2000	1400
Notch impact strength conform DIN 53453 (KJ/m2)	2-20	2-20	2-20	2-20	3-25
UV resistant		✔		✔	
Flame retardant					✔
Heat resistant			✔	✔	
Enhanced weatherability				✔	
Flexible at low temperatures					
Radiation resistant					
Chemically resistant					See table 2 (pages 148 - 150)
Halogen free	✔	✔	✔	✔	✔
Silicon free	✔	✔	✔	✔	✔

Material codes used in tables

Material	Code
STANDARD POLYAMIDE 6.6	PA6.6
WEATHER RESISTANT POLYAMIDE 6.6	UV PA6.6
HEAT-STABILISED POLYAMIDE 6.6	HS PA6.6
HEAT-STABILISED UV RESISTANT POLYAMIDE 6.6	HSUV PA6.6
FLAME RETARDANT POLYAMIDE 6.6	FR PA6.6
HIGH TEMPERATURE POLYAMIDE 4.6	HT PA4.6
DETECTABLE POLYAMIDE 6.6	DET PA6.6
WEATHER RESISTANT POLYAMIDE 12	UV PA12
POLYPROPYLENE	PP
WEATHER RESISTANT POLYPROPYLENE	UV PP
DETECTABLE POLYPROPYLENE	DET PP
ETFE FLUOROPOLYMER	TZ
ECTFE FLUOROPOLYMER	HAL
TOUGHENED WEATHERABLE ACETAL	DEL
STAINLESS STEEL	SS

Polyamide 4.6 high temperature	Detectable Polyamide 6.6	Polyamide 12 weather resistant	Polypropylene weather resistant	Detectable Polypropylene	ETFE	ECTFE	Toughened weatherable acetal	Stainless Steel
HT PA4.6	DET PA6.6	UV PA12	UV PP	DET PP	TZ	HAL	DEL	SS
TYHT...M	TY...M-NDT	TYC...MX	TYP...MX	TY...M-PDT	TYZ...M	TYV...M	TYD... CSS	YRL.. or YLD... or YLS... or YID... or YBR... or TYS...
+150°C	+85°C	+85°C	+85°C	+85°C	+150°C	+140°C	+85°C	+538°C +150°C for Polyester
-40°C	-40°C	-40°C	-40°C	-40°C	-46°C	-40°C	-40°C	-80°C
V-2	V-2	V-2	HB	HB	V-0	V-0	HB	Excellent
1.18		1.02	0.90 - 0.91		1.67 - 1.75			7.95
1.3%		0.7 - 1.1%	0.01 - 0.03%		0.02%			0%
Light green	Bright blue	Black	Black	Bright blue	Aquamarine	Maroon	Black	Metallic / Black
3200		1600	1100-1300		1000			193000
		3.5-13	3-17		o.B.			122J(IZOD)
	✔	✔	✔	✔	✔	✔	✔	✔
					✔	✔		✔
✔				✔	✔	✔		✔
		✔	✔	✔	✔	✔	✔	✔
		✔	✔	✔				✔
					✔			✔
								✔
✔	✔	✔	✔	✔			✔	✔
✔	✔	✔	✔	✔	✔	✔	✔	✔

Material selection and specifications
Materials specifications

Table 2 - Resistance of available materials to various chemicals at 21°C

Reagents	Concentration	HS PA6.6	HAL	DEL	PA6.6	UV PA6.6	FR PA6.6	UV PA12	PP	UVPP	TZ	SS
Arsenic Acid	40%	–	–	–	–	–	–	–	E	E	–	E
Acetaldehyde	50%	S	–	–	S	S	S	–	–	–	–	–
Acetone	100%	E	E	F	E	E	E	E	E	E	E	E
Aluminum Hydroxide	AQ	–	E	–	–	–	–	–	E	E	E	E
Ammonia	All	–	E	–	–	–	–	E	E	E	E	15.0
Ammonium Carbonate	5%	S	E	–	S	S	S	E	E	E	E	E
Ammonium Hydroxide	10%	E	E	F	E	E	E	–	E	E	E	E
Ammonium Nitrate	–	–	E	–	–	–	–	E	E	E	E	E
Ammonium Sulfate	10%	–	E	–	–	–	–	S	S	S	S	S
Barium Carbonate	All	–	E	–	–	–	–	E	E	E	E	E
Barium Chloride	5%	NR		–	NR	NR	NR	E	E	E	E	E
Barium Sulfate	10%	E		–	E	E	E	E	E	E	E	E
Barium Sulfide	10%	S		–	S	S	S	E	E	E	E	E
Benzene	100%	E	E	F	E	E	E	E	S	S	E	E
Benzoic Acid	100%	NR	E	–	NR	NR	NR	E	E	E	E	E
Butyric Acid	50%	NR	E	–	NR	NR	NR	–	E	E	E	E
Calcium Carbonate	AQ	–	E	–	–	–	–	–	E	E	E	E
Calcium Hydroxide	20%	–	F	E	–	–	–	–	E	E	E	E
Calcium Hydrochlorite	2	NR	–	–	NR	NR	NR	–	F	F	F	F
Calcium Sulfate	2%	–	E	–	–	–	–	–	E	E	E	E
Carbon Tetrachloride	100%	E	E	E	E	E	E	E	F	F	E	E
Chlorine (WET)	–	NR		–	NR	NR	NR	–	F	F	F	F
Chlorine (DRY)	–	NR	–	–	NR	NR	NR	–	NR	NR	F	F
Chloroacetic Acid	30%	NR	–	–	NR	NR	NR	–	–	–	F	F
Chloroform	100%	–	E	–	–	–	–	F	F	F	E	E
Chromic Acid	50%	NR	S	–	NR	NR	NR	–	F	F	F	F
Citric Acid	50%	S	E	E	S	S	S	E	E	E	E	E
Copper Cyanide	10%	–	E	–	–	–	–	–	E	E	E	E
Copper Nitrate	50%	–	E	–	–	–	–	–	E	E	E	E
Cider	–	–	E	–	–	–	–	–	E	E	E	E
Dichloroethane	100%	–	E	–	–	–	–	–	–	–	E	E
Diethyl Ether	100%	–	E	S	–	–	–	E	E	E	E	E
Ethyl Alcohol	100%	S	E	–	S	S	S	E	E	E	E	E
Ethyl Chloride	100%	–	S	E	–	–	–	F	F	F	E	E
Ethylene Glycol	100%	E	E	S	E	E	E	–	E	E	E	E
Ferric Hydroxide	All	–	E	–	–	–	–	–	E	E	E	E
Ferric Nitrate	10%	–	E	–	–	–	–	–	E	E	E	E
Ferrous Sulfate	10%	–	E	–	–	–	–	–	E	E	E	E
Fuel Oil	100%	–	E	–	–	–	–	E	–	–	E	E

Ratings
E = Excellent
S = Satisfactory
F = Fair
NR = Not Recommended
(AQ = Aqueous)

Material selection and specifications
Materials specifications

Table 2 - Resistance of available materials to various chemicals at 21°C

Reagents	Concen-tration	HS PA6.6	HAL	DEL	PA6.6	UV PA6.6	FR PA6.6	UV PA12	PP	UVPP	TZ	SS
Furfural	100%	–	E	–	–	–	–	–	F	F	E	E
Gallic Acid	AQ	–	E	–	–	–	–	–	–	–	E	E
Gasoline	100%	E	E	–	E	E	E	–	S	S	E	E
Glycerine	100%	–	E	–	–	–	–	E	E	E	–	E
Hydrocyanic Acid	All	–	E	–	–	–	–	–	E	E	E	E
Hydrogen Peroxide	30%	NR	E	F	NR	NR	NR	S	E	E	E	E
Hydrogen Sulfide	Dry	NR	E	–	NR	NR	NR	E	E	E	E	E
Iodoform	100%	–	E	–	–	–	–	–	–	–	E	E
Isopropyl Alohol	100%	S	E	–	S	S	S	E	E	E	E	E
Jet Fuel	100%	E	E	–	E	E	E	–	S	S	E	E
Lactic Acid	10%	E	E	–	E	E	E	S	E	E	E	E
Lanolin	10%	E	E	–	E	E	E	E	E	E	E	E
Lead Acetate	5%	–	E	–	–	–	–	–	E	E	E	E
Linseed Oil	10%	E	E	E	E	E	E	E	E	E	E	E
Magnesium Carbonate	All	–	E	–	–	–	–	E	E	E	E	E
Magnesium Chloride	10%	F	–	–	F	F	F	F	F	F	F	F
Magnesium Nitrate	All	–	E	–	–	–	–	E	E	E	E	E
Malic Acid	AQ	–	E	–	–	–	–	–	E	E	E	E
Mercury	100%	–	E	–	–	–	–	E	E	E	E	E
Methyl Alcohol	100%	S	E	–	S	S	S	E	E	E	E	E
Methyl Chloride	100%	–	S	–	–	–	–	–	S	S	E	E
MethylEthyl Ketone	100%	–	E	F	–	–	–	E	E	E	E	E
Naptha	100%	–	E	–	–	–	–	–	E	E	E	E
Nitric Acid	30%	NR	E	NR	NR	NR	NR	–	E	E	E	E
Nitric Acid	30-70%	NR	S	NR	NR	NR	NR	–	F	F	S	E
Nitrous Acid	5%	–	E	–	–	–	–	–	F	F	E	E
Oieic Acid	100%	–	E	S	–	–	–	–	E	E	E	E
Oxalic Acid	10%	–	E	–	–	–	–	S	E	E	E	E
Paraffin	100%	E	E	–	E	E	E	E	E	E	E	E
PetroleumEther	100%	–	E	–	–	–	–	E	F	F	E	E
Phenol	90%	NR	E	NR	NR	NR	NR	–	E	E	E	E
Phosphoric Acid	10%	NR	E	–	NR	NR	NR	–	E	E	E	E
Picric Acid	1%	–	E	–	–	–	–	–	E	E	E	E
Potassium Bromide	AQ	–	–	–	–	–	–	–	S	S	S	S
Potassium Carbonate	1%	–	E	–	–	–	–	E	E	E	E	E
Potassium Chlorate	AQ	–	E	–	–	–	–	S	E	E	E	E
Potassium Dichromate	40%	NR	E	–	NR	NR	NR	F	E	E	E	E
Potassium Ferrocyanide	25%	–	E	–	–	–	–	–	E	E	E	E
Potassium Hydroxide	5%	S	E	–	S	S	S	–	E	E	E	E

Ratings
E = Excellent
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Table 2 - Resistance of available materials to various chemicals at 21°C

Reagents	Concen-tration	HS PA6.6	HAL	DEL	PA6.6	UV PA6.6	FR PA6.6	UV PA12	PP	UVPP	TZ	SS
Potassium Iodide	All	–	E	–	–	–	–	E	E	E	E	E
Potassium Nitrate	50%	F	E	–	F	F	F	E	E	E	E	E
Potassium Permanganate	5%	NR	E	S	NR	NR	NR	NR	E	E	E	E
PotassiumSulfate	5%	–	E	–	–	–	–	E	E	E	E	E
PotassiumSulfide	AQ	–	E	–	–	–	–	–	E	E	E	E
Propyl Alcohol	100%	E	E	–	E	E	E	–	E	E	E	E
Silver Nitrate	10%	–	E	–	–	–	–	E	E	E	E	E
Sodium Acetate	60%	E	E	–	E	E	E	–	E	E	E	E
Sodium Bicarbonate	All	E	E	–	E	E	E	E	E	E	E	E
Sodium Bisulfate	10%	–	E	E	–	–	–	E	E	E	E	E
Sodium Borate	All	–	E	–	–	–	–	–	E	E	E	E
Sodium Carbonate	5%	E	E	S	E	E	E	E	E	E	E	E
Sodium Chlorate	25%	–	E	E	–	–	–	S	E	E	E	E
Sodium Chloride	2%	E	E	S	E	E	E	E	E	E	E	E
Sodium Fluoride	5%	–	–	–	–	–	–	–	F	F	F	F
Sodium Hydroxide	10%	E	E	S	E	E	E	E	E	E	E	E
Sodium Hyposulfite	AQ	–	E	–	–	–	–	–	–	–	E	E
Sodium Nitrate	5%	E	E	–	E	E	E	E	E	E	E	E
Sodium Nitrite	AQ	–	E	–	–	–	–	S	E	E	E	E
Sodium Perchlorate	10%	–	E	–	–	–	–	–	–	–	E	E
Sodium Phosphate	5%	–	E	–	–	–	–	E	E	E	E	E
Sodium Sulfate	5%	S	E	–	S	E	E	E	E	E	E	E
Sodium Thiosulfate	5%	–	–	S	–	–	–	S	S	S	S	S
Stearic Acid	100%	–	E	–	–	–	–	F	E	E	E	E
Sulfur	100%	–	E	–	–	–	–	E	E	E	E	E
Sulfur Dioxide	All	NR	E	–	NR	NR	NR	E	E	E	E	E
Sulfuric Acid	Conc.	NR	E	NR	NR	NR	NR	–	S	S	E	E
Sulfuric Acid	5%	NR	F	F	NR	NR	NR	F	F	F	F	F
Tannic Acid	10%	–	E	–	–	–	–	–	E	E	E	E
Tartaric Acid	50%	–	E	E	–	–	–	E	E	E	E	E
Tetrahydrofuran	100%	–	F	E	–	–	–	S	F	F	E	E
Toluene	100%	E	E	F	E	E	E	E	F	F	E	F
Xylene	100%	E	–	E	E	E	E	F	F	E	E	E
Zinc Chloride	70%	F	E	NR	F	F	F	E	E	E	E	E
Zinc Nitrate	AQ	–	E	–	–	–	–	E	E	E	E	E
Zinc Sulfate	AQ	–	E	–	–	–	–	E	E	E	E	E

Ratings
E = Excellent
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NR = Not Recommended
(AQ = Aqueous)

Unit conversion factors
Materials specifications

Unit	x	Constant	=	unit
BTU		778.0		foot-pound (ft x lb)
BTU		1054.8		Joules
BTU		0.293		Watt-hours (W x h)
centimetres (cm)		0.032808		feet (ft)
centimetres (cm)		0.3937		inches (in)
centimetres (cm)		0.00001		kilometres (km)
centimetres (cm)		0.010		metres (m)
centimetres (cm)		10.0		millimetres (mm)
circular mils		0.00064516		circular millimetres
circular mils		0.0000007854		inches^2 (in^2)
circular mils		0.000506671		square millimetres (mm^2)
circular mils		0.7854		mils^2
cubic centimetre (cm^3)		0.000035314		cubic foot (ft^3)
cubic centimetre (cm^3)		0.061023		cubic inch (in^3)
cubic centimetre (cm^3)		0.000001		cubic metre (m^3)
cubic centimetre (cm^3)		0.0026417		gallons
cubic foot (ft^3)		17280.		cubic inch (in^3)
cubic foot (ft^3)		28317.016		cubic centimetre (cm^3)
cubic inch (in^3)		0.00057870		cubic feet (ft^3)
cubic inch (in^3)		0.000016387		cubic metre (m^3)
cubic inch (in^3)		16.387162		cubic centimetre (cm^3)
cubic metre (m^3)		1000000.0		centimetre (cm)
cubic metre (m^3)		35.314456		cubic foot (ft^3)
cubic metre (m^3)		264.17		gallons
foot (ft)		0.00018939		miles
foot (ft)		0.33333		yards (yd)
foot (ft)		12		inches (in)
foot (ft)		0.00030480		kilometres (km)
foot (ft)		0.30480		metres (m)
foot (ft)		30.480		centimetres (cm)
foot (ft)		304.80		millimetres (mm)
foot/pound (ft/lb)		0.00067197		metres/grams (m/g)
foot-pound (ft x lb)		0.001285		BTU
foot-pound (ft x lb)		1.356		Joules (J)
foot/pound (ft/lb)		0.1383		kilogram/metre (kg/m)
gallons (US)		3.785332		litres (l)

Unit	x	Constant	=	unit
gallons		0.13368		cubic foot (ft^3)
gallons		231.0		cubic inch (in^3)
gallons		3785.332		cubic centimetres (cm^3)
grams (g)		15.432		grains
gram/centimetre3 (gm/cm3)		0.0361275		pounds/in^3 (lb/in^3)
horsepower (hp)		33000.0		ft x lb/min
horsepower (hp)		550.0		ft x lb/sec
horsepower (hp)		745.7		Watts (W)
inch (in)		0.027178		yards (yd)
inch (in)		0.083333		feet (ft)
inch (in)		0.00002540		kilometre (km)
inch (in)		0.025400		metre (m)
inch (in)		2.54000514		centimetre (cm)
inch (in)		25.4000514		millimetre (mm)
inch (in)		1000.0		mils
Joules		0.000948		BTU
Joules		107		ergs
liters (l)		61.0250		cubic inch (in^3)
metres (m)		1.093611		yard (yd)
metres (m)		3.2808333		feet (ft)
metres (m)		39.37		inch (in)
metres (m)		100.0		centimetre (cm)
miles		1760.0		yards (yd)
miles		5280.0		feet (ft)
miles		1.6093		kilometre (km)
millimetres (mm)		0.0032808		feet (ft)
millimetres (mm)		0.03937		inch (in)
millimetres (mm)		0.001		metres (m)
millimetres (mm)		0.01		centimetres (cm)
millimetres (mm)		39.3701		mils
millimetres (mm)		1000.0		microns (μm)
Watts (W)		44.25		ft x lb/minute
Watts (W)		0.737562		ft x lb/sec
Watts (W)		0.001341		horsepower (hp)
Watt-hours (W x h)		3.41266		BTU

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07/2014

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