Ty-Rap® - Fastening solutions

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Ty-Rap - Fastening solutions

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Section C

Ty-Rap
Fastening solutions, how it all started

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

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.

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, UV radiation, aggressive chemicals, radiation and other harsh conditions.

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

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.

"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

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Ty-Rap high performance cable ties
Introduction

First patented in 1958 as a way to bundle wiring in airplanes, the Ty-Rap cable tie brand remains a benchmark of excellence and innovation in wire management

ABB's broad offering of Ty-Rap cable ties makes 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 Ty-Rap: the original source for cable ties and accessories.

What gives a Ty-Rap cable tie its exceptional strength? The corrosion-resistant, non-magnetic stainless steel locking barb in its head grips tightly and allows for a completely adjustable fit. Its raised tail makes it easy to pick up, even with gloved hands. And the easy-grip tail surface makes it easy to pull tight, even in wet or cold conditions.

Engineered for high-performance, Ty-Rap cable ties are available in standard nylon or in materials that are specially formulated to withstand the most adverse conditions, from UV exposure to extreme cold or heat. They have even been designed to withstand the rigors of space.

Ty-Rap cable ties: The right choice when performance really matters.

ABB is a leading power and automation technology group, active in more than 100 countries with about 150,000 employees worldwide.

ABB's portfolio includes 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, 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

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Product selection guide
How to choose the right fastener

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Product selection guide

Type	Ty-Rap Heat stabilized	Ty-Rap Heat stabilized + UV-resistant	Ty-Rap Heat reactive	Ty-Rap Extra high temperatures	Ty-Rap Flame retardant	Ty-Rap ECTFE	Ty-Rap UV-resistant black	Ty-Rap Polyamide 12
						Demanding applications		
				High temperatures		**Smoke & flame resistance**		**High UV resistance**
Applications	Transportation, Automotive	Transportation, Automotive	Visual safety indicator, MRO, HVAC	Transportation, Automotive	Rail, Aerospace HVAC	HVAC plenum installations High-performance smoke & flame requirements	Solar, Transportation	Solar, Transportation
Material	PA66	PA66	Polypro	PA46	PA66	ECTFE	PA66	PA12
Max tensile strength	780N	540N	265N	540N	540N	80N / 220N	780N	378N
Temperature resistance	Up to 125°C	Up to 105°C	0 to 80°C	Up to 150°C	-20 to 65°C	Up to 140°C	Up to 105°C	-40 to 85°C
	Up to 257°F	Up to 221°F	32 to 176°F	Up to 302°F	-4 to 149°F	Up to 284°F	Up to 221°F	-40 to 185°F
Max length	770mm	534mm	360mm	360mm	360mm	91mm / 185mm	1140mm	760mm
	30.32"	21.02"	14.17"	14.17"	14.17"	3.58" / 7.28"	44.88"	29.92"
Max wire bundle diameter	229mm	89mm	100mm	100mm	100mm	44mm	330mm	228mm
	9.02"	3.50"	3.94"	3.94"	3.94"	1.73"	12.99"	8.98"
UV-resistance	●	● ● ●	-	●	●	● ● ● ● ●	● ● ●	● ● ● ●
Accessories	● ●	● ●	●	● ●	● ●	●	● ●	● ●
Colors	Natural	⬛ ⬛	🟩	🟨	⬜	🟪	⬛	⬛
Easy to install	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
Installation tools	ERG50 ERG120	ERG50 ERG120	ERG50 ERG120	ERG50 ERG120	ERG50 ERG120	ERG50 ERG120	ERG50 ERG120	ERG50 ERG120

	Ty-Rap Polypropylene	Ty-Rap ETFE	Ty-Rap Detectable	Ty-Fast Ag+	Deltec®	Ty-Met	Ty-Rap	Twist Tail	Ty-Fast
				Demanding applications				**Simplicity & design**	
		Chemical resistance		Hygiene	Utilities & telecom	Extreme environments	Customization & performance	Convenience	Essential
Applications	Chemical processing, Autoclave sterilizing	Nuclear, Power plants, Space industry, Environments with risk of smoke generation	Food and beverage, Cosmetic	Medical, Pharmaceutical	Utilities, Packaging	Marine, Rail, Oil & gas, Industrial	Standard applications	MRO, Electrical, Residential	OEM, General bundling
Material	Polypro	ETFE	Polypro, PA66	PA66	Pom	SS	PA66	PA66	PA66
Strength	265N	530N	540N	540N	1100N	8800N	780N	130N	1110N
Temperature	-40 to 85°C	-60°C to 170°C	-20 to 85°C	-20 to 85°C	-40 to 300°C	-40 to 85°C	-20 to 85°C	-20 to 85°C	-40 to 85°C
	-40 to 185°F	-76 to 338°F	-4 to 185°F	-4 to 185°F	-40 to 572°F	-40 to 185°F	-4 to 185°F	-4 to 185°F	-40 to 185°F
Length	360mm	360mm	360mm	360mm	1,000m	1m	1140m	360mm	1200mm
	14.17"	14.17"	14.17"	14.17"	3280.84ft	3.28ft	3740.16ft	14.17"	47.24"
Width	102mm	100mm	100mm	100mm	4m	400mm	330mm	100mm	380mm
	4.02"	3.94"	3.94"	3.94"	13.12ft	15.75"	12.99"	3.94"	14.96"
Colors	black	green	brown, grey, blue	white	black	black, grey	white, grey, purple, blue, green, yellow, orange, red, brown, black	black	black
Tools	ERG50 ERG120	ERG50 ERG120	ERG50 ERG120	ERG50 ERG120	WT3D	DAS250 CT3	ERG50 ERG120	-	ERG50 ERG120

Environmental considerations
Corrosive environments

Ty-Rap cable ties can endure corrosive marine environments, such as deep-ocean drilling rigs and weather-lashed wind generators.

Environmental considerations
Extreme temperatures

Ty-Rap cable ties can endure extreme temperatures and UV exposure of solar power farms.

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Ty-Rap high performance cable ties
Features and benefits

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.

Protects cables. 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.

Up to 3X longer life: a smooth notch-less body increases overall breaking strength and deters the deterioration of the tie in high heat and UV applications. The locking design provides an infinite positioning for the right tension 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

"The Grip of Steel"
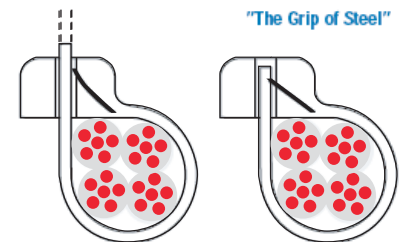
Higher grip, less damage
Ribbed and stippled surface, to prevent the tie from slipping around and along the bundle under vibration conditions and external shock.

Easy handling
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.

Easy installation
Non-slip tail, for an easy grip and pulling through the head during tensioning.
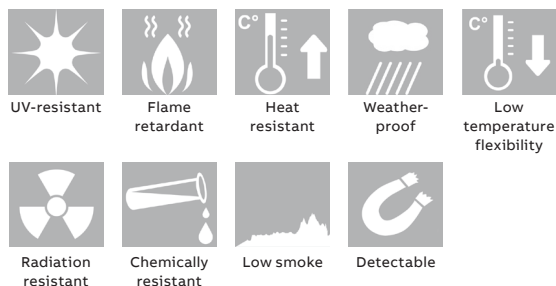
Extensive range of approvals and certifications:
Germanischer Lloyd, Lloyd's Register of Shipping, VG, Mil Specification, Amercian Bureau of Shipping (ABS); CE declaration, compliant to the low voltage directive and EN/IEC 62275 and
UL 62275

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

Wide range of size combinations: several lengths up to 1143mm (45"), in 6 typical widths with a tensile strength up to 780N, to fasten cable bundles with a diameter up to 330mm (12.99").

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.

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.

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…

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.
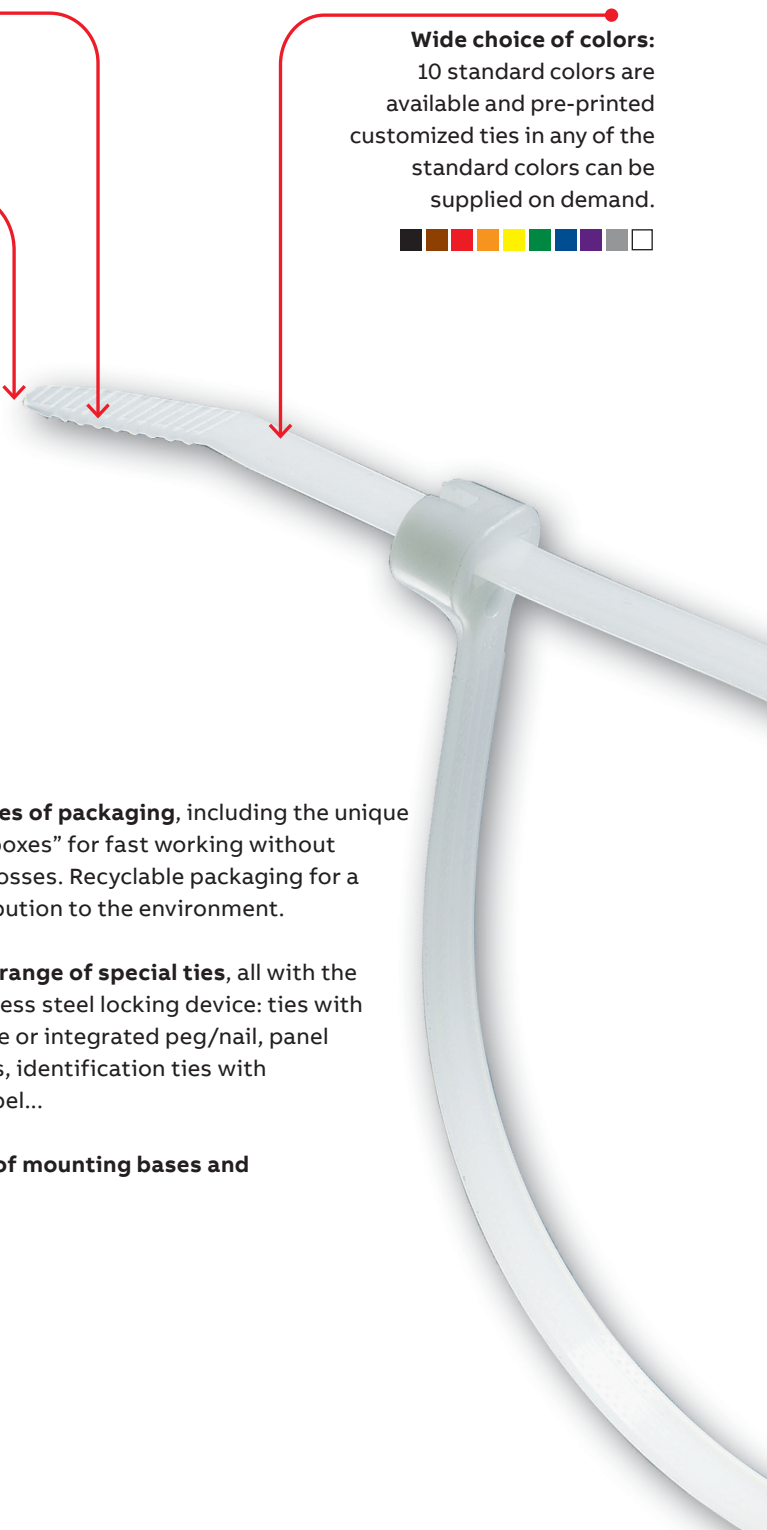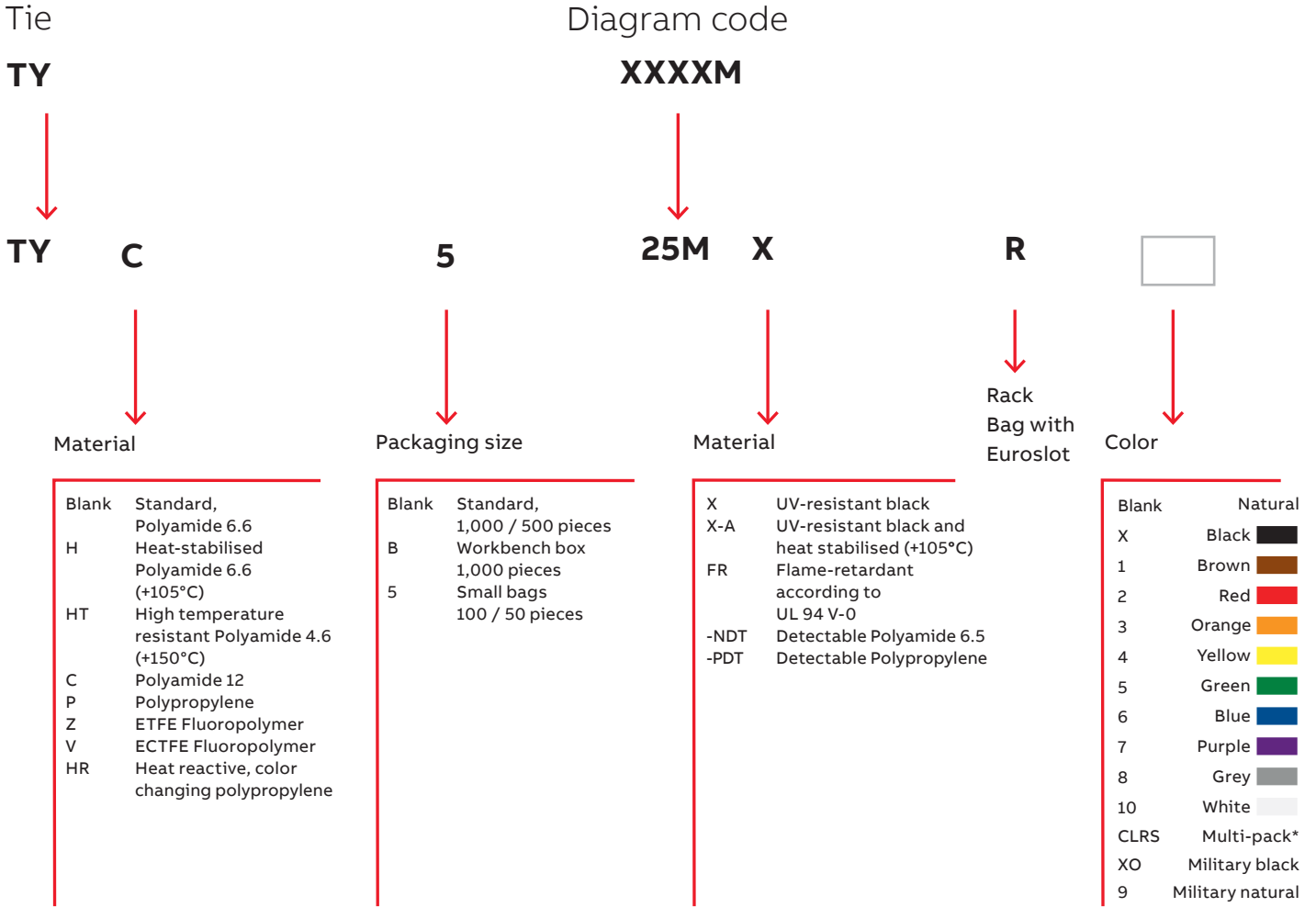
Broad range of mounting bases and accessories.

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

Radiation resistant · Chemically resistant · Low smoke · Detectable

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Ty-Rap numbering structure

Tie

TY

Diagram code

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
HR	Heat reactive, color changing polypropylene

Packaging size

Blank	Standard, 1,000 / 500 pieces
B	Workbench box 1,000 pieces
5	Small bags 100 / 50 pieces

Material

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 6.5
-PDT	Detectable Polypropylene

Rack
Bag with
Euroslot

Color

Blank	Natural
X	Black
1	Brown
2	Red
3	Orange
4	Yellow
5	Green
6	Blue
7	Purple
8	Grey
10	White
CLRS	Multi-pack*
XO	Military black
9	Military natural

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.

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Ty-Rap high performance cable ties

Polyamide 6.6 cable ties – Natural

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
- Packaging: OEM bulk quantities in recyclable polythene bags
- Also available in small bags with Euroslot (see page C12) and in workbench boxes (see page C15)

Technical information

- Material - Moulding: Polyamide 6.6
- Material - Locking barb: 316 grade stainless steel
- Temperature range: -60°C to +85°C (-76°F to 185°F)
- Min. Installation Temp.: -20°C (-4°F)
- Color: Natural
- Flammability rating: UL 94 V-2
- Other properties: Halogen free, Silicone free

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Polyamide 6.6 cable ties – Natural

Cat. no.	Bundle ø from ... to [mm]	Bundle ø from ... to [in.]	Length L [mm]	Length L [in.]	Width W [mm]	Width W [in.]	Thickness [mm]	Thickness [in.]	Min. tensile strength [N]	Pack quantity [pieces]	MIL spec.
TY523M / TY23M	1.5 - 22	0.06 - 0.87	92	3.62	2.3	0.09	1.0	0.04	80	100 /1,000	MS3367-4
TY5B2315M / TYB2315M	1.5 - 32	0.06 - 1.26	178	7.01	2.3	0.09	1.0	0.04	80	100 / 1,000	–
TY5232M / TY232M	1.5 - 51	0.06 - 2.01	203	7.99	2.3	0.09	1.0	0.04	80	100 / 1,000	–
TY5234M / TY234M	1.5 - 102	0.06 - 4.02	356	14.02	2.3	0.09	1.0	0.04	80	100 / 1,000	–
TY524M / TY24M	2 - 35	0.08 - 1.38	140	5.51	3.6	0.14	1.1	0.04	178	100 / 1,000	MS3367-5
TY5242M / TY242M	2 - 51	0.08 - 2.01	208	8.19	3.6	0.14	1.1	0.04	180	100 / 1,000	–
TY526M / TY26M	2 - 76	0.08 - 2.99	284	11.18	3.6	0.14	1.1	0.04	130	100 / 1,000	–
TY5244M / TY244M	2 - 102	0.08 - 4.02	368	14.49	3.6	0.14	1.1	0.04	134	100 / 1,000	–
TY525M / TY25M	3 - 48	0.12 - 1.89	186	7.32	4.8	0.19	1.1	0.04	220	100 / 1,000	MS3367-1
TY5253M / TY253M	3 - 78	0.12 - 3.07	290	11.42	4.8	0.19	1.3	0.05	220	100 / 1,000	MS3367-7
TY528M / TY28M	3 - 102	0.12 - 4.02	361	14.21	4.8	0.19	1.3	0.05	220	100 / 1,000	MS3367-2
TY5272M / TY272M	6 - 51	0.24 - 2.01	223	8.78	6.9	0.27	1.6	0.06	534	50 / 500	–
TY527M / TY27M	6 - 102	0.24 - 4.02	340	13.39	7.0	0.28	1.6	0.06	540	50 / 500	MS3367-3
TY5275M / TY275M	6 - 127	0.24 - 5	457	17.99	7.0	0.28	1.6	0.06	540	50 / 500	–
TY5277M / TY277M	6 - 177	0.24 - 6.97	617	24.29	7.0	0.28	1.6	0.06	540	50 / 500	–
TY529M / TY29M	6 - 229	0.24 - 9.02	771	30.35	6.9	0.27	1.5	0.06	540	50 / 500	MS3367-6
TY53510M / TY3510M	to 254	to 10	889	35	8.2	0.32	1.7	0.07	780	50 / 50	–
TY54513M	to 330	to 12.99	1143	45	8.2	0.32	1.7	0.07	780	50	–

Description of Cat. no. structure: see page C12
Description of materials and properties: see pages C110 to C123
Some approvals may not be applicable to all Cat. no.s. Contact your Sales Office for approvals limitations.

Tooling

ERG50
For use with 2.3mm to 4.8mm (80N to 220N) Cable ties. See page C100.

ERG120
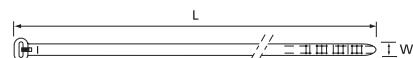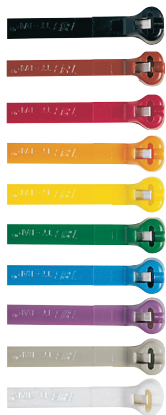For use with 4.8mm to 7.0mm (220N to 540N) Cable ties. See page C100.

WT3D
For use with 4.8mm to 8.2mm (220N to 780N) Cable ties. See page C100.

Diagrams

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Ty-Rap high performance cable ties
Polyamide 6.6 cable ties – Colored

Characteristics

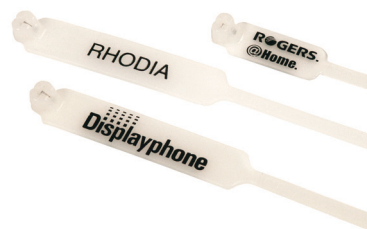Ty-Rap cable ties in Polyamide 6.6 are available in 10 different colors

- Several sizes and tensile strengths are normally in stock in standard pack quantities
- Standard packaging is 100/50 pieces
- Please contact your Sales Office for product availability and minimum order quantity of bulk packages, special colors, or other cable tie sizes
- Preprinted cable ties are available in special order. Contact your local sales office for more information

UV-resistant

Technical information

- Material - Moulding: Polyamide 6.6
- Material - Locking barb: 316 grade stainless steel
- Temperature range: -60°C to +85°C (-76°F to 185°F)
- Min. Installation Temp.: -20°C (-4°F)
- Flammability rating: UL 94 V-2
- Other properties: Halogen free, Silicone free

Polyamide 6.6 cable ties – Colored

Cat. no.	Bundle ø from ... to [mm]	Bundle ø from ... to [in.]	Length L [mm]	Length L [in.]	Width W [mm]	Width W [in.]	Thickness [mm]	Thickness [in.]	Min. tensile strength [N]	Pack quantity [pieces]	MIL spec.
TY523M* / TY23M*	1.5 - 22	0.06 - 0.87	92	3.62	2.3	0.09	1.0	0.04	80	100 / 1,000	MS3367-4
TY5232M* / TY232M*	1.5 - 51	0.06 - 2.01	203	7.99	2.3	0.09	1.0	0.04	80	100 / 1,000	–
TY5234M* / TY234M*	1.5 - 102	0.06 - 4.02	356	14.02	2.3	0.09	1.0	0.04	80	100 / 1,000	–
TY524M* / TY24M*	2 - 35	0.08 - 1.38	140	5.51	3.6	0.14	1.1	0.04	180	100 / 1,000	MS3367-5
TY5242M* / TY242M*	2 - 51	0.08 - 2.01	208	8.19	3.6	0.14	1.1	0.04	180	100 / 1,000	–
TY526M* / TY26M*	2 - 76	0.08 - 2.99	284	11.18	3.6	0.14	1.1	0.04	130	100 / 1,000	–
TY5244M* / TY244M*	2 - 102	0.08 - 4.02	368	14.49	3.6	0.14	1.1	0.04	134	100 / 1,000	–
TY525M* / TY25M*	3 - 48	0.12 - 1.89	186	7.32	4.8	0.19	1.1	0.04	220	100 / 1,000	MS3367-1
TY5253M* / TY253M*	3 - 78	0.12 - 3.07	290	11.42	4.8	0.19	1.3	0.05	220	100 / 1,000	MS3367-7
TY528M* / TY28M*	3 - 102	0.12 - 4.02	361	14.21	4.8	0.19	1.3	0.05	220	100 / 1,000	MS3367-
TY5271M* / TY271M*	6 - 31	0.24 - 1.22	150	5.91	7.0	0.28	1.6	0.06	540	50 / 500	–
TY5272M* / TY271M*	6 - 51	0.24 - 2.01	223	8.78	6.9	0.27	1.6	0.06	540	50 / 500	–
TY527M* / TY27M*	6 - 102	0.24 - 4.02	340	13.39	7.0	0.28	1.6	0.06	540	50 / 500	MS3367-3
TY5275M* / TY275M*	6 - 127	0.24 - 5	457	17.99	7.0	0.28	1.6	0.06	540	50 / 500	–
TY5277M* / TY277M*	6 - 177	0.24 - 6.97	617	24.29	7.0	0.28	1.6	0.06	540	50 / 500	–
TY529M* / TY29M*	6 - 229	0.24 - 9.02	771	30.35	6.9	0.27	1.5	0.06	540	50 / 500	MS3367-6
TY53510M* / TY3510M*	to 254	to 10	889	35	8.2	0.32	1.7	0.07	780	50 / 50	–
TY54513M*	to 330	to 12.99	1,143	45	8.2	0.32	1.7	0.07	780	50	–
TY525M-CLRS	3 - 48	0.12 - 1.89	186	7.32	4.8	0.19	1.1	0.04	220	100	–

Description of Cat. no. structure: see page C12. Description of materials and properties: see pages 110 to 123
* For cable ties in a specific color, replace * in the Cat. no. by the color code (see table below)
** For smaller quantities, the figure "5" needs to be added to the Cat. no. immediately after
"TY" – example: TY523M-2 is the same as TY23M-2 but in bags of 100
Some approvals may not be applicable to all Cat. no.s. Contact your Sales Office for approvals limitations.
Supplied in bags of 100 ties containing ten ties of each of the 10 standard colors (TY25M-0 to TY25M-9)

Tooling

ERG50
For use with 2.3mm to 4.8mm (80N to 220N) Cable ties. See page C100.

ERG120
For use with 4.8mm to 7.0mm (220N to 540N) Cable ties. See page C100.

WT3D
For use with 4.8mm to 8.2mm (220N to 780N) Cable ties. See page C100.

Diagrams

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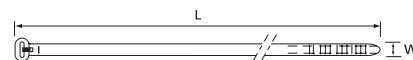
Cable tie color code

Color code	Color	Color code	Color
X	UV Black	5	Green
1	Brown	6	Blue
2	Red	7	Purple
3	Orange	8	Grey
4	Yellow	10	White

For example: TY23M-1 defines a brown TY23M cable tie.
Contact your Sales Office for product availability.

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Ty-Rap high performance cable ties

Polyamide 6.6 cable ties – Workbench boxes

Characteristics

- An attractive packaging option for high volume manual assembly: 1,000 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:
  -60°C to +85°C (-76°F to 185°F) (natural),
- -60°C to +105°C (-76°F to 221°F) (black)
- Min. Installation Temp.:
  -20°C (-4°F) (natural),
  -30°C (-22°F) (black)
- Color: Natural or UV-resistant black (other colors see page C12)
- Flammability rating: UL 94 V-2
- Other properties: Halogen free, Silicone free, UV-resistant (black)

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Polyamide 6.6 cable ties – Workbench boxes

Cat. no.	Bundle ø from … to [mm]	Bundle ø from … to [in.]	Color	Length L [mm]	Length L [in.]	Width W [mm]	Width W [in.]	Thickness [mm]	Thickness [in.]	Min. tensile strength [N]	Quantity [pieces]	MIL spec.
TYB23M	1.5 - 22	0.06 - 0.87	natural	92	3.62	2.3	0.09	1.0	0.04	80	1,000	MS3367-4
TYB23MX	1.5 - 22	0.06 - 0.87	UV-resistant black	92	3.62	2.3	0.09	1.0	0.04	80	1,000	MS3367-4
TYB232M	1.5 - 51	0.06 - 2.01	natural	203	7.99	2.3	0.09	1.0	0.04	80	1,000	–
TYB232MX	1.5 - 51	0.06 - 2.01	UV-resistant black	203	7.99	2.3	0.09	1.0	0.04	80	1,000	–
TYB24M	2 - 35	0.08 - 1.38	natural	140	5.51	3.6	0.14	1.1	0.04	178	1,000	MS3367-5
TYB24MX	2 - 35	0.08 - 1.38	UV-resistant black	140	5.51	3.6	0.14	1.1	0.04	180	1,000	MS3367-5
TYB25M	3 - 48	0.12 - 1.89	natural	186	7.32	4.8	0.19	1.3	0.05	220	1,000	MS3367-1
TYB25MX	3 - 48	0.12 - 1.89	UV-resistant black	186	7.32	4.8	0.19	1.3	0.05	220	1,000	MS3367-1

Description of Cat. no. structure: see page C12
Description of materials and properties: see pages C110 to C123
For tooling specifications: see pages C100 to C109

Tooling

ERG50
For use with 2.3mm to 4.8mm (80N to 220N) Cable ties. See page C100.

ERG120
For use with 4.8mm (220N) Cable ties. See page C100.

Diagrams
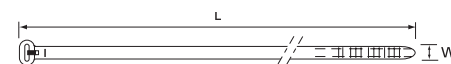
Ty-Rap high performance cable ties
Polyamide 6.6 cable ties – Heat stabilised

Characteristics
- Heat stabilised version, for applications up to 105°C (221°F).

Heat resistant

Technical information
- Material - Moulding: Polyamide 6.6
- Material - Locking barb: 316 grade stainless steel
- Temperature range: -60°C to +105°C (-76°F to 221°F)
- Min. Installation Temp.: -30°C (-22°F)
- Color: Natural (may have a greenish tint)
- Flammability rating: UL 94 V-2
- Other properties: Halogen free, Silicone free

E49405

Polyamide 6.6 cable ties – Heat stabilised

Cat. no.	Bundle ø from ... to [mm]	[in.]	Length L [mm]	[in.]	Width W [mm]	[in.]	Thickness [mm]	[in.]	Min. tensile strength [N]	Quantity [pieces]
TYH23M / TYHB23M	1.5 - 22	0.06 - 0.87	92	3.62	2.4	0.09	1.0	0.04	80	1,000
TYH232M	1.5 - 51	0.06 - 2.01	203	7.99	2.4	0.09	1.0	0.04	80	1,000
TYH24M	2 - 35	0.08 - 1.38	140	5.51	3.6	0.14	1.1	0.04	180	1,000
TYH242M*	2 - 51	0.08 - 2.01	208	8.19	3.6	0.14	1.1	0.04	180	1,000
TYH26M	2 - 76	0.08 - 2.99	284	11.18	3.6	0.14	1.1	0.04	130	1,000
TYH25M	3 - 48	0.12 - 1.89	186	7.32	4.7	0.19	1.3	0.05	220	1,000
TYH253M*	3 - 76	0.12 - 2.99	290	11.42	4.8	0.19	1.2	0.05	220	1,000
TYH28M	3 - 102	0.24 - 4.02	360	14.17	4.8	0.19	1.3	0.05	220	1,000
TYH272M*	4.8 - 51	0.19 - 2.01	222	8.74	7.6	0.30	1.6	0.06	540	500
TYH27M	4.8 - 102	0.19 - 4.02	340	13.39	7.0	0.28	1.6	0.06	540	500
TYH29M*	4.8 - 229	0.19 - 9.02	771	30.35	6.9	0.27	1.5	0.06	540	500

* Not UL recognised
Description of Cat. no. structure: see page C12
Description of materials and properties: see pages C110 to C123
For tooling specifications: see pages C100 to C109

Tooling

ERG50
For use with 2.4mm to 4.8mm (80N to 220N) Cable ties. See page C100.

ERG120
For use with 4.7mm to 7.0mm (220N to 540N) Cable ties. See page C100.

L-500-EU
For use with 6.9mm to 7.6mm (540N) Cable ties. See page C100.

Diagrams

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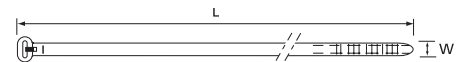
Ty-Rap high performance cable ties

Polyamide 6.6 cable ties – Heat stabilised + UV-resistant

Characteristics

- Heat stabilised + UV-resistant version, for outdoor applications that also require a resistance to high temperature (+105°C/221°F)
- For OEM and MRO applications like: transportation, lawn (garden/farm), construction equipment, recreational vehicles

UV-resistant

Heat resistant

Technical information

- Material - Moulding: Polyamide 6.6
- Material - Locking barb: 316 grade stainless steel
- Temperature range: -60°C to +105°C (-76°F to 221°F)
- Min. Installation Temp.: -40°C (-40°F)
- Color: Black
- Flammability rating: UL 94 V-2
- Other properties: UV-resistant, heat stabilised, Halogen free, Silicone free

UL
E49405

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Polyamide 6.6 cable ties – Heat stabilised + UV-resistant

Cat. no.	Bundle ø from ... to		Length L		Width W		Thickness		Min. tensile strength	Quantity
	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[N]	[pieces]
TY23MX-A	4.8 - 22	0.19 - 0.87	92	3.62	2.3	0.09	0.9	0.04	80	1,000
TY24MX-A	5.2 - 35	0.20 - 1.38	140	5.51	3.6	0.14	1.1	0.04	133	1,000
TY25MX-A	6.2 - 48	0.24 - 1.89	186	7.32	4.8	0.19	1.2	0.05	220	1,000
TY27MX-A	8 - 95	0.31 - 3.74	340	13.39	6.9	0.27	1.6	0.06	540	500

Description of Cat. no. structure: see page C12
Description of materials and properties: see pages C110 to C123
For tooling specifications: see pages C100 to C109

Tooling

ERG50
For use with 2.3mm (80N) Cable ties.
See page C100.

ERG120*
For use with 2.3mm to 6.9mm (80N to 540N) Cable ties.
See page C100.

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

L-500-EU
For use with 4.8mm to 6.9mm (220N to 540N) Cable ties.
See page C100.

Diagrams

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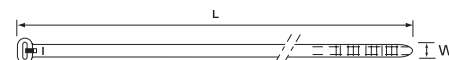
Ty-Rap heat-reactive cable ties
Changes color to warn you of potentially dangerous high temperatures

ABB introduces the latest innovative addition to its line of Ty-Rap high-performance cable ties — Ty-Rap heat-reactive cable ties. These ties change color from their standard green to translucent when in contact with a high-temperature surface, providing visual indication of overheating equipment or a potential skin burn hazard.

To use Ty-Rap heat-reactive cable ties, simply wrap the tie around the surface of the item you wish to monitor, and then hand tighten or use an installation tool to ensure that the tie has complete contact with the surface (insufficient contact may limit color change indication).

A properly installed Ty-Rap heat-reactive cable tie begins to fade in color when the surface temperature reaches 40°C (104°F), with full transition to translucent (natural nylon color) at 49°C (120°F), indicating that the surface has reached a dangerous temperature for prolonged contact with skin.

Features
- Changes color from green to translucent when in contact with high-temperature surface
- Efficacy of heat-reactive polypropylene material lasts up to 24 months under normal operating conditions
- Offers all the convenience and performance benefits of standard Ty-Rap cable ties, including the Grip of Steel® type 316 stainless steel locking barb
- Available in three lengths and two tensile strengths
- Choose the ERG50 or ERG120 Ty-Rap cable tie

application tool for easy installation

Applications
Ty-Rap heat-reactive cable ties are ideal for use where visual indication of a hot surface helps identify an unsafe working environment or malfunctioning equipment. They may be secured around any surface with normal operating temperature below 40°C (104°F), including:
- Piping
- Electrical circuits
- Boiler room surfaces
- Engine compartments
- Kitchen appliances
- Other applications in which hot surfaces may be a concern

Specifications
- Material: Polypropylene
- Operating temperature: -40°C to 80 °C (-40°F to 176°F)
- Heat-activation temperature: 49°C ± 3°C (120°F ± 6°F)
- Standard color: Green
- Heat-transition color: Translucent
- Color transition life: 1,000 hours above heatactivation temperature
- UV resistance: Indoor use only; avoid exposure to UV light
- Tensile strength and installation:
  - 0.19" wide ties: 30 lbs, ERG50 setting 2–5
  - 0.31" wide ties: 60 lbs, ERG120 setting 3–6

C°
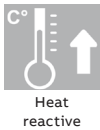
Heat
reactive

—
Ty-Rap heat-reactive cable ties

Cat. no.	Length L [mm]	[in.]	Width W [mm]	[in.]	Thickness [mm]	[in.]	Loop tensile strength lbs	N	Quantity [pieces]	UPC no.
TYHR25M-5	185	7.3	4.8	0.19	1.3	0.05	30	133	1,000	786210-18178
TYHR27M-5	279	11.0	4.8	0.19	1.5	0.06	30	133	1,000	786210-18180
TYHR28M-5	356	14.0	7.9	0.31	1.3	0.05	60	266	500	786210-18179

WARNING: The Ty-Rap heat-reactive cable tie is a heat indicator only. Use appropriate measuring device to verify actual temperature.
CAUTION: Replace the Ty-Rap heat-reactive cable tie upon the first occurrence of any of the following conditions: operating temperature range is exceeded, exposure to UV light, visible fading of standard green color or 24 months.

Ty-Rap high performance cable ties

Polyamide 4.6 cable ties – Extra high temperature

Characteristics

- Extreme continuous temperature rating: -40°C to +150°C (-40°F to 302°F) (in air)
- For high temperature environments in industrial, OEM, MRO and commercial construction applications such as: metal processing, paper mills, lighting, automotive

C°

Heat resistant

Technical information

- Material - Moulding: Polyamide 4.6
- Material - Locking barb: 316 grade stainless steel
- Temperature range: -40°C to +150°C (-40°F to 302°F)
- Min. Installation Temp.: -18°C (-0.4°F)
- Color: Light green
- Flammability rating: UL 94 V-2
- Other properties: Extra high temperature resistant, Halogen free, Silicon free

UL
E49405

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Polyamide 4.6 cable ties – Extra high temperature

Cat. no.	Bundle ø from ... to [mm]	[in.]	Length L [mm]	[in.]	Width W [mm]	[in.]	Thickness [mm]	[in.]	Min. tensile strength [N]	Quantity [pieces]
TYHT23M	2 - 20	0.08 - 0.79	95	3.74	2.3	0.09	0.91	0.04	80	1,000
TYHT24M	2 - 29	0.08 - 1.14	143	5.63	3.6	0.14	1.07	0.42	178	1,000
TYHT25M	5 - 45	0.20 - 1.77	192	7.56	4.8	0.19	1.22	0.05	220	1,000
TYHT28M	5 - 102	0.20 - 4.02	367	14.45	4.8	0.19	1.27	0.05	220	1,000
TYHT27M	5 - 89	0.20 - 3.50	349	13.74	6.9	0.27	1.60	0.02	534	500
TYHT277M	6 - 177	0.24 - 6.97	617	0.24	7.0	0.28	1.60	0.02	540	500

Description of Cat. no. structure: see page C12
Description of materials and properties: see pages C110 to C123
For tooling specifications: see pages C100 to C109

Tooling

ERG50
For use with 2.3mm to 4.8mm (80N to 220N) Cable ties. See page C100.

ERG120*
For use with 2.3mm to 7.0mm (80N to 540N) Cable ties. See page C100.

* ERG120 can not be used with TYHT23M and TYHT24M

WT199
For use with 2.3mm to 4.8mm (80N to 220N) Cable ties. See page C100.

L-500-EU
For use with 6.9mm to 7.0mm (534N to 540N) Cable ties. See page C100.

Diagrams

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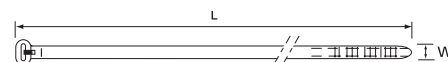
Ty-Rap high performance cable ties

Polyamide 6.6 cable ties – Flame retardant

Characteristics

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

Flame
retardant

Technical information

- Material - Moulding: Polyamide 6.6
- Material - Locking barb: 316 grade stainless steel
- Temperature range: -20°C to +65°C (-4°F to 149°F)
- Min. Installation Temp.: -0°C (32°F)
- Color: White
- Flammability rating: UL 94 V-0
- Other properties: Halogen free, Silicone free

E49405

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Polyamide 6.6 cable ties – Flame retardant

Cat. no.	Bundle ø from ... to		Length L		Width W		Thickness		Min. tensile strength	Quantity
	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[N]	[pieces]
TY23MFR	1.5 - 22	0.06 - 0.87	92	3.62	2.4	0.09	1.0	0.04	80	1,000
TY232MFR	1.5 - 51	0.06 - 2.01	203	7.99	2.4	0.09	1.0	0.04	80	1,000
TY24MFR	2 - 35	0.08 - 1.38	140	5.51	3.6	0.14	1.1	0.04	134	1,000
TY25MFR	3 - 48	0.12 - 1.89	186	7.62	4.6	0.18	1.1	0.04	220	1,000
TY28MFR	3 - 102	0.12 - 4.02	360	14.17	4.6	0.18	1.1	0.04	177	500
TY27MFR	6 - 95	0.24 - 3.74	335	13.19	7.6	0.30	1.6	0.06	540	500
TY272MFR	4.8- 51	0.19 - 2.01	223	8.78	7.0	0.28	1.6	0.06	540	500

Description of Cat. no. structure: see page C12
Description of materials and properties: see pages C110 to C123
For tooling specifications: see pages C100 to C109

Tooling

ERG50
For use with 4.8mm (220N) Cable ties. See page C100.

ERG120
For use with 4.8mm (220N) Cable ties. See page C100.

L-500-EU
For use with 7.0mm to 7.6mm (540N) Cable ties. See page C100.

Diagrams

L

W

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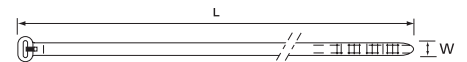
Ty-Rap high performance cable ties
Fluoropolymer cable ties – ECTFE

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

Flame retardant

Low smoke

Technical information
- Material - Moulding: Fluoropolymer ECTFE
- Material - Locking barb: 316 grade stainless steel
- Temperature range: -60°C to +160°C (-76°F to 320°F)
- Min. Installation Temp.: -60°C (-76°F)
- Color: Maroon
- Flammability rating: UL 94 V-0
- Other properties: low smoke

—

Fluoropolymer cable ties – ECTFE

Cat. no.	Bundle ø from … to [mm]	[in.]	Length L [mm]	[in.]	Width W [mm]	[in.]	Thickness [mm]	[in.]	Min. tensile strength [N]	Quantity [pieces]
TYV523M / TYV23M	1.5 - 22	0.06 - 0.87	92	0.36	2.3	0.09	1.15	0.05	80	100 / 1,000
TYV525M / TYV25M	3.0 - 48	0.12 - 1.89	186	7.32	4.7	0.19	1.30	0.05	220	100 / 1,000

Description of Cat. no. structure: see page C12
Description of materials and properties: see pages C110 to C123
For tooling specifications: see pages C100 to C109

Tooling

ERG50
For use with 2.3mm to 4.7mm (80N to 220N) Cable ties. See page C100.

ERG120
For use with 4.7mm (220N) Cable ties. See page C100.

Diagrams
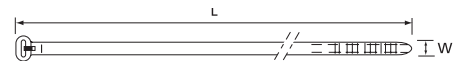
Ty-Rap high performance cable ties

Polyamide 6.6 cable ties – UV-resistant black

UV-resistant

Characteristics

- UV-resistant version, especially recommended for outdoor applications
- Black version (2% carbon for military specifications)
- Also available in heat stabilised + UV-resistant version (contains 2% carbon according to military application), for outdoor applications that also require a resistance to high temperature (+105°C/221°F). See page C17 (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 C12) and in workbench boxes (see page C15)

Technical information

- Material - Moulding: Polyamide 6.6
- Material - Locking barb: 316 grade stainless steel
- Temperature range: -60°C to +105°C (-76°F to 221°F)
- Min. Installation Temp.: -30°C (-22°F)
- Color: Black
- Flammability rating: UL 94 V-2
- Other properties: UV-resistant, Halogen free, Silicone free

—
Polyamide 6.6 cable ties – UV-resistant black

Cat. no.	Bundle ø from ... to [mm]	[in.]	Length L [mm]	[in.]	Width W [mm]	[in.]	Thickness [mm]	[in.]	Min. tensile strength [N]	Pack quantity [pieces]	MIL spec.
TY23MX	1.5 - 22	0.06 - 0.87	92	3.62	2.3	0.09	1.0	0.04	80	1,000	MS3367-4
TYB2315MX	1.5 - 32	0.06 - 1.26	178	7.01	2.3	0.09	1.0	0.04	80	1,000	–
TY232MX	1.5 - 51	0.06 - 2.01	203	7.99	2.3	0.09	1.0	0.04	80	1,000	–
TY234MX	1.5 - 102	0.06 - 4.02	356	14.02	2.3	0.09	1.0	0.04	80	1,000	–
TY24MX	2 - 35	0.08 - 1.38	140	5.51	3.6	0.14	1.1	0.04	180	1,000	MS3367-5
TY242MX	2 - 51	0.08 - 2.01	208	8.19	3.6	0.14	1.1	0.04	180	1,000	–
TY26MX	2 - 76	0.08 - 2.99	284	11.18	3.6	0.14	1.1	0.04	130	1,000	–
TY244MX	2 - 102	0.08 - 4.02	368	14.49	3.6	0.14	1.1	0.04	130	1,000	–
TY25MX	3 - 48	0.12 - 1.89	186	7.32	4.8	0.19	1.1	0.04	220	1,000	MS3367-1
TY253MX	3 - 78	0.12 - 3.07	290	11.42	4.8	0.19	1.3	0.05	220	1,000	MS3367-1
TY28MX	3 - 102	0.12 - 4.02	361	14.21	4.8	0.19	1.3	0.05	220	1,000	MS3367-2
TY272MX*	6 - 51	0.24 - 2.01	223	8.78	6.9	0.27	1.6	0.06	540	500	–
TY27MX*	6 - 102	0.24 - 4.02	340	13.39	7.0	0.28	1.6	0.06	540	500	MS3367-3
TY275MX*	6 - 127	0.24 - 5	457	17.99	7.0	0.28	1.6	0.06	540	500	–
TY277MX*	6 - 177	0.24 - 6.97	617	24.29	7.0	0.28	1.6	0.06	540	500	–
TY29MX*	6 - 229	0.24 - 9.02	771	30.35	6.9	0.27	1.5	0.06	540	500	MS3367-6
TY53510MX	to 254	to 10	889	35	8.2	0.32	1.7	0.07	780	500	–
TY54513MX	to 330	to 12.99	1143	45	8.2	0.32	1.7	0.07	780	500	–

* Min. installation temp : -40°C
Description of Cat. no. structure: see page C12
Description of materials and properties: see pages 110 to 123
Some approvals may not be applicable to all Cat. no.s. Contact your Sales Office for approvals limitations.

Tooling

ERG50
For use with 2.3mm to 4.8mm (80N to 220N) Cable ties. See page C100.
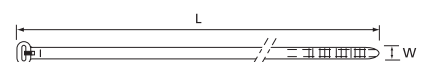

ERG120
For use with 4.8mm to 7.0mm (220N to 540N) Cable ties. See page C100.

WT3D
For use with 4.8mm to 8.2mm (220N to 780N) Cable ties. See page C100.

Diagrams

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Ty-Rap high performance cable ties

Polyamide 12 cable ties – UV-resistant

Characteristics

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

UV-resistant

Weather-proof

Technical information

- Material - Moulding: Polyamide 12
- Material - Locking barb: 316 grade stainless steel
- Temperature range: -40°C to +85°C (-40°F to 185°F)
- Color: Black
- Flammability rating: UL 94 V-2
- Other properties: UV-resistant, Halogen free, Silicone free

—

Polyamide 12 cable ties – UV-resistant

Cat. no.	Bundle ø from ... to		Length L		Width W		Thickness		Min. tensile strength	Quantity
	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[N]	[pieces]
TYC525MX / TYC25MX	3.5 - 45	0.14 - 1.77	186	7.32	4.70	0.19	1.17	0.05	155	100 / 1,000
TYC28MX	3.5 - 102	0.14 - 4.02	360	14.17	4.70	0.19	1.20	0.05	155	1,000
TYC272MX	6 - 51	0.24 - 2.01	222	8.74	7.60	0.30	1.60	0.06	380	500
TYC527MX / TYC27MX	6 - 89	0.24 - 3.50	343	0.14	7.62	0.30	1.50	0.06	380	50 / 500
TYC29MX	6 - 229	0.24 - 9.02	771	30.35	7.60	0.30	1.60	0.06	380	500

Description of Cat. no. structure: see page C12
Description of materials and properties: see pages C110 to C123
For tooling specifications: see pages C100 to C109

Tooling

ERG50
For use with 4.7mm to 7.6mm (155N to 380N) Cable ties. See page C100.

ERG120
For use with 4.7mm to 7.6mm (155N to 380N) Cable ties. See page C100.

L-500-EU
For use with 7.6mm to 7.62mm (380N) Cable ties. See page C100.

Diagrams

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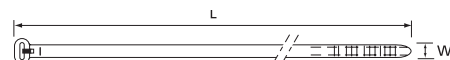
Ty-Rap high performance cable ties

Polypropylene cable ties – Weatherable

Characteristics

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

UV-resistant

Chemically resistant

Technical information

- Material - Moulding: Polypropylene
- Material - Locking barb: 316 grade stainless steel
- Temperature range: -40°C to +85°C (-40°F to 185°F)
- Color: Black
- Flammability rating: UL 94 HB
- Other properties: UV-resistant, Halogen free, Silicone free

—

Polypropylene cable ties – Weatherable

Cat. no.	Bundle ø from ... to		Length L		Width W		Thickness		Min. tensile strength	Quantity
	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[N]	[pieces]
TYP23MX	2 - 16	0.08 - 0.63	92	3.62	2.4	0.09	1.0	0.04	50	1,000
TYP25MX	3.5 - 45	0.14 - 1.77	186	7.32	4.8	0.19	1.1	0.04	130	1,000
TYP28MX	3.5 - 102	0.14 - 4.02	360	14.18	4.8	0.19	1.1	0.04	130	1,000
TYP27MX	6 - 90	0.24 - 3.54	340	13.39	7.0	0.28	1.6	0.06	270	500

Description of Cat. no. structure: see page C12
Description of materials and properties: see pages C110 to C123
For tooling specifications: see pages C100 to C109

Tooling

ERG50
For use with 2.4mm to 4.8mm (50N to 130N) Cable ties. See page C100.

ERG120
For use with 7mm (270N) Cable ties. See page C100.

L-500-EU
For use with 7mm (270N) Cable ties. See page C100.

Diagrams

—
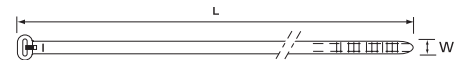
Ty-Rap high performance cable ties

Fluoropolymer cable ties – ETFE

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.

UV-resistant   Radiation resistant

Technical information

• Material - Moulding: Fluoropolymer ETFE
• Material - Locking barb: 316 grade stainless steel
• Temperature range: -60°C to +170°C (-76°F to 338°F)
• Min. Installation Temp.: -60°C (-76°F)
• Color: Aquamarine
• Flammability rating: UL 94 V-0
• Other properties: Silicone free, inert to most solvents and chemicals, hydrolytically stable, radiation resistant. Non-outgassing properties for zero gravity applications.

—

Fluoropolymer cable ties – ETFE

Cat. no.	Bundle ø from ... to [mm]	[in.]	Length L [mm]	[in.]	Width W [mm]	[in.]	Thickness [mm]	[in.]	Min. tensile strength [N]	Quantity [pieces]
TYZ523M* / TYZ23M*	1.5 - 22	0.06 - 0.87	92	3.62	2.3	0.09	1.10	0.04	80	100 / 1,000
TYZ525M / TYZ25M	3 - 48	0.12 - 1.89	186	7.32	4.3	0.17	1.66	0.07	220	100 / 1,000
TYZ528M / TYZ28M	3 - 102	0.12 - 4.02	360	14.17	4.4	0.17	1.66	0.07	220	100 / 500
TYZ527M** / TYZ27M**	6 - 95	0.24 - 3.74	340	13.39	6.8	0.27	1.85	0.07	540	50 / 100

* Cat. no. TYZ23M and TYZ523M are UL listed (E49405), all other items are UL recognized
** Not on EC Declaration
Description of Cat. no. structure: see page C12
Description of materials and properties: see pages C110 to C123
For tooling specifications: see pages C100 to C109

Tooling

ERG50
For use with 2.3mm to 4.3mm (80N to 220N) Cable ties. See page C100.

ERG120*
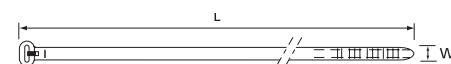For use with 2.3mm 6.8mm (80N to 540N) Cable ties. See page C100.

*ERG120 not to be used on TYZ23M

L-500-EU
For use with 6.8mm (540N) Cable ties. See page C100.

Diagrams

Ty-Rap high performance cable ties
Detectable cable ties

Characteristics

The Ty-Rap Detectable Cable Ties from ABB incorporate 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 1.5mm (0.06") diameter ferrous sphere
- Detectable by X-Ray equipment
- Bright blue color for an easy visual detection
- Help achieve the HACCP EU-Directive
- Available in standard Polyamide 6.6 or in 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 (-40°F to 185°F)
- Color: Bright blue
- Flammability rating: UL 94 V-2 (Polyamide 6.6), UL 94 HB (Polypropylene)
- Other properties: Halogen free, silicone free

—
Detectable cable ties

Cat. no.	Material	Bundle ø from ... to [mm]	Bundle ø from ... to [in.]	Length L [mm]	Length L [in.]	Width W [mm]	Width W [in.]	Min. tensile strength [N]	Quantity [pieces]
Detectable Polyamide 6.6									
TY523M-NDT	Polyamide 6.6	2 - 16	0.08 - 0.63	92	3.62	2.4	0.09	80	100
TY524M-NDT	Polyamide 6.6	2 - 29	0.08 - 1.14	140	5.51	3.6	0.14	134	100
TY525M-NDT	Polyamide 6.6	3.5 - 45	0.14 - 1.77	186	7.32	4.8	0.19	180	100
TY5253M-NDT	Polyamide 6.6	3.5 - 76	0.14 - 3	295	11.61	4.7	0.19	220	100
TY528M-NDT	Polyamide 6.6	3.5 - 102	0.14 - 4.02	360	14.17	4.8	0.19	220	100
TY527M-NDT	Polyamide 6.6	6 - 90	0.24 - 3.54	340	13.39	7.0	0.28	540	50
Detectable Polypropylene									
TY523M-PDT	Polypropylene	2 - 16	0.08 - 0.63	92	3.62	2.4	0.09	50	100
TY525M-PDT	Polypropylene	3.5 - 45	0.14 - 1.77	186	7.32	4.8	0.19	130	100
TY5253M-PDT	Polypropylene	3.5 - 76	0.14 - 3	295	11.61	4.7	0.19	220	100
TY528M-PDT	Polypropylene	3.5 - 102	0.14 - 4.02	360	14.17	4.8	0.19	130	100
TY527M-PDT	Polypropylene	6 - 90	0.24 - 3.54	340	13.39	7.0	0.28	270	50

Add -1 to Cat. no. for brown cable ties (e.g. TY523M-1-NDT)
Add -9 to Cat. no. for gray cable ties (e.g. TY5232M-9-NDT)
Description of Cat. no. structure: see page C12
Description of materials and properties: see pages C110 to C123
For tooling specifications: see pages C100 to C109

Tooling

ERG50
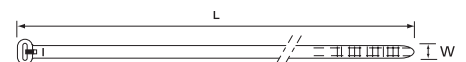For use with 2.4mm to 4.8mm (50N to 220N) Cable ties. See page C100.

ERG120
For use with 4.8mm 7.0mm (180N to 540N) Cable ties. See page C100.

L-500-EU
For use with 7mm (540N) Cable ties. See page C100.

Diagrams

Ty-Fast
Ag+™ bacteria-resistant cable ties

Ty-Fast Ag+ after 24 hours of exposure to bacteria

Standard cable tie after 24 hours of exposure to bacteria

Characteristics

A breakthrough safety solution for fastening in bacteria-prone areas. A standard nylon cable tie is a harmless enough object—you install it to bundle and fasten cables, and then you forget about it. By its very design, full of notches and grooves, though, a cable tie makes an attractive home for micro-organisms to collect and reproduce.

In most applications, this isn't a concern. However, in hospitals and food processing facilities, where reducing the growth of unhealthy micro-organisms is critical, the presence of heat, moisture and organic material common in these environments can encourage the growth of bacteria, fungus and mold. In response to the needs of customers in healthcare, food processing and preparation, pharmaceuticals, medical device manufacturing and other contamination-sensitive industries, ABB introduces the industry's first bacteria resistant cable tie. Ty-Fast Ag+ bacteria-resistant cable ties are molded from an FDA-compliant nylon resin blended with an antimicrobial silver ion additive to prevent the growth of bacteria, fungus and mold on their surface. A proven antimicrobial agent, ionized silver has been used in consumer products for years and is effective against a broad spectrum of micro-organisms, preventing their reproduction and spread.

- The industry's first cable tie that inhibits microbial growth
- Protects itself against bacteria, mold and fungus
- Helps to reduce infection rate and spread of bacteria by not hosting microbial growth

- Promotes a clean environment—99.9% effective for bacterial reduction
- Made from FDA-approved resin with EPA-registered antimicrobial
- Offers reliable Ty-Fast cable tie design for easy cable management
- UL recognized, RoHS and FDA compliant
- Patent pending

Applications
- Hospitals and other healthcare facilities
- Pharmaceutical production
- Food and beverage processing (off-line production)
- Medical equipment manufacturing

Technical information
- Material: FDA-compliant fungal-inert nylon 6.6 resin custom-blended with EPA-registered antimicrobial silver ion additive
- Operating temperature: -40°F to 185°F (-40°C to 85°C)
- Flammability rating: UL94V-2
- Certifications/ compliances:
  - Recognized to UL62275 Type 1
  - UL/EN/CSA62275 Type 2/2S rated for AH-2 plenum
  - Independent laboratory tested to ISO22196 (Measurement of Antibacterial Activity on Plastic Surfaces), equivalent to JISZ2802 (Japanese Test for Antimicrobial Activity and Efficacy)
  - Fungal inert to MIL-T-152B standard
  - RoHS compliant

—
Ag+ bacteria-resistant cable ties

| Cat. no.	Max bundle ø		Length L		Width W		Min. tensile strength	Quantity
	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[N]	[pieces]
TY100-18-ANTI	22	0.86	104.14	4.1	22	0.86	80	100
TY175-50-ANTI	44	1.75	195.58	7.7	44	1.75	220	100
TY400-50-ANTI	102	4.00	363.22	14.3	102	4.00	220	100
TY400-120-ANTI	102	4.00	363.22	14.3	102	4.00	540	100

Note: Ty-Fast Ag+ bacteria-resistant cable ties provide no antimicrobial inhibitory activity beyond protection of the cable ties themselves. They do not provide protection against specific pathogenic organisms, nor do they prevent growth of bacteria on adjacent or nearby surfaces. The antimicrobial efficacy of the material lasts a minimum of two years from manufacture under normal use conditions.

Tooling

ERG50
For use with 22mm to 102mm (80N to 540N) Cable ties. See page C100.

Diagrams
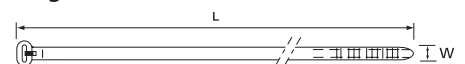
Cable support system with metallic locking barb

Pre-assembled Deltec cable ties

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: -65°C to +90°C (-85°F to 194°F)
- Flammability rating: UL 94 HB
- Color: Black
- Other properties: UV-resistant, Halogen free, superior resistance to moisture and salt environments

—

Pre-assembled Deltec cable ties

| Cat. no. | Bundle ø from ... to | | Length L | | Width W | | Min. tensile strength | Quantity |
	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[N]	[pieces]
CSS-100	60	2.36	254.0	10	12.7	0.5	1,110	50
TYD5135M	90	3.54	342.9	13.5	12.7	0.5	1,110	25
CSS-160	110	4.33	406.4	16	12.7	0.5	1,110	50
TYD5270M	200	7.87	685.8	27	12.7	0.5	1,110	10

For tooling specifications: see pages 100 to 109
Note: the recommended maximum continuous static loading for the Deltec straps is 90 N per strap.
For best results suggested spacing is 35 to 40cm.
It is the responsibility of the user to determine whether or not their application meets our recommendation.
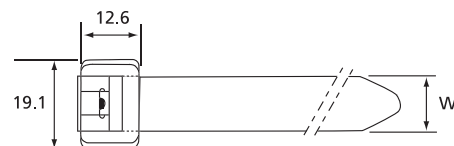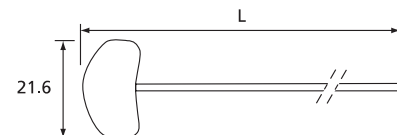
Tooling

WT3D
For use with 12.7mm (1110N) Cable ties. See page C100.

L-500-EU
For use with 12.7mm (1110N) Cable ties. See page C100.

Diagrams

—

Cable support system with metallic locking barb

Strap on reel & double locking heads

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 (-40°F to 185°F)
- Flammability rating: UL 94 HB
- Color: Black
- Other properties: UV-resistant, Halogen free, superior resistance to moisture and salt environments

—

Strap on reel

Cat. no.	Length per reel L [m]	[ft]	Width W [mm]	[in.]	Min. tensile strength [N]	Quantity [pieces]
TYD-50R	15.2	49.86	12.7	0.5	1,110	1
696-41794	304.8	1,000	12.7	0.5	1,110	1

For tooling specifications: see pages 100 to 109
Note: the recommended maximum continuous static loading for the Deltec straps is 90 N per strap.
For best results suggested spacing is 35 to 40cm. It is the responsibility of the user to determine whether or not their application meets our recommendation.

Tooling

WT3D
For use with 12.7mm (1110N) Cable ties. See page C100.

L-500-EU
For use with 12.7mm (1110N) Cable ties. See page C100.

Technical information

- Material - moulding: Toughened weatherable acetal
- Material - locking barb: Marine grade, corrosion-resistant copper alloy
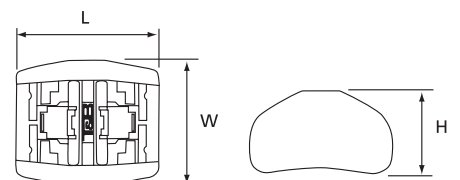- Temperature range: -40°C to +85°C (-40°F to 185°F)

- Flammability rating: UL 94 HB
- Color: Black
- Other properties: UV-resistant, Halogen free, superior resistance to moisture and salt environments

—

Double locking heads

Cat. no.	Length L [mm]	[in.]	Width W [mm]	[in.]	Height [mm]	[in.]	Quantity [pieces]
TYD-LH / 696-41795	21.6	0.85	19.1	0.75	12.6	0.50	25 / 1,000

To be assembled with Deltec strap on reel

Diagrams

—

Cable support system with metallic locking barb
Deltec Kits

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

—

Deltec Kits

Cat. No.	Length per reel		Reels Quantity [reels]	Locking heads Quantity [pieces]
	[mm]	**[in.]**		
CSS-5K / CSS-10K	15.2	0.60	5	150 / 300

To be assembled with Deltec strap on reel

Special ties with steel locking barb
Integrated mounting hole cable ties

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 (-40°F to 185°F)
- Color: Natural or UV-resistant black (see table)
- Flammability rating: UL 94 V-2
- Other properties: UV-resistant (black), Halogen free, Silicone free

—
Integrated mounting hole cable ties

Cat. no.	Color	Bundle ø from ... to [mm]	[in.]	Diameter of mounting hole [mm]	[in.]	Length L [mm]	[in.]	Width W [mm]	[in.]	Thickness [mm]	[in.]	Min. tensile strength [N]	Quantity [pieces]
TY533M / TY33M	natural	2 - 16	0.07 - 0.63	3.0	0.12	102	4.02	2.3	0.09	0.9	0.04	80	100 / 1,000
TY533MX / TY33MX	UV-resistant black	2 - 16	0.07 - 0.63	3.0	0.12	102	4.02	2.3	0.09	0.9	0.04	80	100 / 1,000
TY534M / TY34M	natural	2 - 29	0.07 - 1.14	4.4	0.17	151	5.94	3.5	0.14	1.0	0.04	180	100 / 1,000
TY534MX / TY34MX	UV-resistant black	2 - 29	0.07 - 1.14	4.4	0.17	151	5.94	3.5	0.14	1.0	0.04	180	100 / 1,000
TY635M	natural	3.5 - 45	0.14 - 1.77	4.0	0.16	198	7.80	4.7	0.19	1.1	0.04	220	1,000
TY635MX	UV-resistant black	3.5 - 45	0.14 - 1.77	4.0	0.16	198	7.80	4.7	0.19	1.1	0.04	220	1,000
TY535M / TY35M	natural	3.5 - 45	0.14 - 1.77	5.1	0.20	199	7.83	4.7	0.19	1.1	0.04	220	100 / 1,000
TY535MX / TY35MX	UV-resistant black	3.5 - 45	0.14 - 1.77	5.1	0.20	199	7.83	4.7	0.19	1.1	0.04	220	100 / 1,000
TY1435M	natural	3.5 - 45	0.14 - 1.77	6.7	0.26	198	7.80	4.7	0.19	1.1	0.04	220	1,000
TY537M / TY37M	natural	6 - 90	0.24 - 3.54	6.7	0.26	356	14.02	7.7	0.30	2.0	0.08	540	50 / 500
TY537MX / TY37MX	UV-resistant black	6 - 90	0.24 - 3.54	6.7	0.26	356	14.02	7.7	0.30	2.0	0.08	540	50 / 500
TYF535M / TYF35M	natural	3.5 - 45	0.14 - 1.77	4.0	0.16	186	7.32	4.7	0.19	1.2	0.05	220	100 / 1,000

VG approved. VG95387 part 4, type B
Some approvals may not be applicable to all Cat. no.s. Contact your Sales Office for approvals limitations
Description of Cat. no. structure: see page C12. Description of materials and properties: see pages C110 to C123
For tooling specifications: see pages C100 to C109

Tooling

ERG50
For use with 2.3mm to 4.7mm (80N to 220N) Cable ties. See page C100.
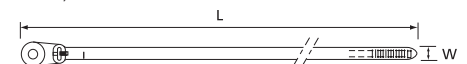
ERG120
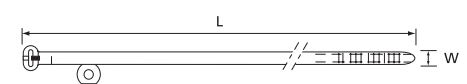For use with 4.7mm to 7.7mm (220N to 540N) Cable ties. See page C100.

L-500-EU
For use with 7.7mm (540N) Cable ties. See page C100.

Diagrams

TY...M, TY...MX

TYF35M, TYF535M

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Special ties with steel locking barb
Panel mounting cable ties

Characteristics
- Fastening and clip-mounting in one
- Fast pre- or on-site-assembly for a range of panel thickness up to 4.0mm
- 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 (-40°F to 185°F)
- Color: Natural or UV-resistant black (see table)
- Flammability rating: UL 94 V-2
- Other properties: UV-resistant (black), Halogen free, Silicone free

—

Panel mounting cable ties

Cat. No.	Color	Bundle ø from ... to [mm]	[in.]	Diameter of mounting hole [mm]	[in.]	Length L [mm]	[in.]	Width W [mm]	[in.]	Thickness [mm]	[in.]	Min. tensile strength [N]	Suitable for board/ wall thickness from ... to [mm]	[in.]	Quantity [pieces]
Anchor type															
TY54SM	natural	2 - 32	0.08 - 1.26	4.5 - 5.2	0.18 - 0.20	150	5.91	3.5	0.14	1.0	0.04	130	0.1 - 2.5	0.004 - 0.10	1,000
TY54SMX	UV-resistant black	2 - 32	0.08 - 1.26	4.5 - 5.2	0.18 - 0.20	150	5.91	3.5	0.14	1.0	0.04	130	0.1 - 2.5	0.004 - 0.10	1,000
TY38M	natural	3.5 - 44	0.14 - 1.73	6.4 - 6.7	0.25 - 0.26	200	7.87	4.7	0.19	1.3	0.05	220	1.0 - 4.0	0.04 - 0.16	1,000
TY38MX	UV-resistant black	3.5 - 44	0.14 - 1.73	6.4 - 6.7	0.25 - 0.26	200	7.87	4.7	0.19	1.3	0.05	220	1.0 - 4.0	0.04 - 0.16	1,000
Standard type															
696-41836	natural	3.5 - 45	0.14 - 1.77	5.8 - 7.5	0.23 - 0.30	197	7.76	4.8	0.19	1.1	0.04	220	2.2 - 3.7	0.09 - 1.15	1,000

Description of Cat. no. structure: see page C12
Description of materials and properties: see pages C110 to C123
For tooling specifications: see pages C100 to C109

Tooling

ERG50
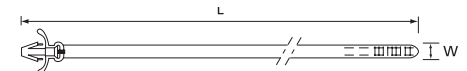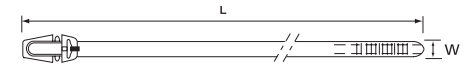For use with 3.5mm to 4.8mm (130N to 220N) Cable ties. See page C100.

ERG120
For use with 4.7mm to 4.8mm (220N) Cable ties. See page C100.

Diagrams

TY...

696-...

—

Special ties
Blind mounting cable 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 (-40°F to 185°F)
- Color: UV-resistant black
- Flammability rating: UL 94 V-2
- Other properties: UV-resistant, Halogen free, Silicone free

—

Blind mounting cable ties

Cat. no.	Bundle ø from ... to [mm]	[in.]	Diameter of mounting hole [mm]	[in.]	Length L [mm]	[in.]	Width W [mm]	[in.]	Thickness [mm]	[in.]	Min. tensile strength [N]	Quantity [pieces]
TY541M / TY41M	5 - 60	0.20 - 2.36	8.1 - 17.3	0.32 - 0.68	244	9.61	5.7	0.22	1.7	0.07	300	50 / 500

Description of Cat. no. structure: see page C12
Description of materials and properties: see pages C110 to C123
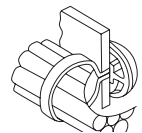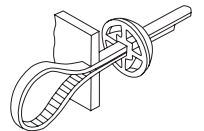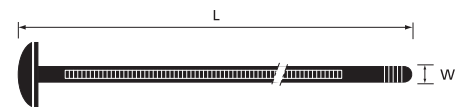For tooling specifications: see pages C100 to C109

Tooling

ERG120
For use with 5.7mm (300N) Cable ties.
See page C100.

Diagrams

—

Special ties with steel locking barb
Integrated peg / nail cable ties

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 (-40°F to 185°F)
- Color: UV-resistant black
- Flammability rating: UL 94 V-2
- Other properties: UV-resistant, Halogen free, Silicone free

—

Integrated peg / nail cable ties

Cat. no.	Bundle ø from ... to		Diameter of mounting hole		Length L		Width W		Thickness		Min. tensile strength	Mounting hole depth (min)		Quantity
	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[N]	[mm]	[in.]	[pieces]
TY544MX	3.5 - 45	0.14 - 1.77	6.4	0.25	200	7.87	4.6	0.18	1.0	0.04	220	25	0.98	50
TY545MX	4.7 - 38.1	0.19 - 1.5	–	–	200	7.87	4.7	0.19	1.0	0.04	220	–		50

Description of Cat. no. structure: see page C12
Description of materials and properties: see pages C110 to C123
For tooling specifications: see pages C100 to C109

Tooling

ERG50
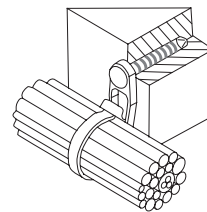For use with 4.6mm to 4.7mm (220N) Cable ties. See page C100.

ERG120
For use with 4.7mm to 7.7mm (220N to 540N) Cable ties. See page C100.

Diagrams

TY544MX

TY545MX

—

Special ties

Releasable cable 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 (-40°F to 185°F)
- Color: Natural
- Flammability rating: UL 94 V-2
- Other properties: Halogen free, Silicone free

—

Releasable cable ties

Cat. no.	Bundle ø from ... to		Length L		Width W		Thickness		Min. tensile strength	Quantity
	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[N]	[pieces]
TYR505	10 - 44	0.39 - 1.73	190	7.48	4.7	0.19	1.19	0.05	220	100
TYR508	10 - 102	0.39 - 4.02	364	14.33	4.7	0.19	1.19	0.05	220	100

Description of Cat. no. structure: see page C12
Description of materials and properties: see pages C110 to C123

Diagrams
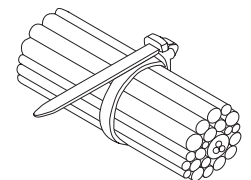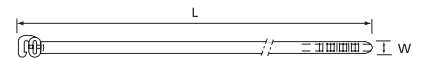
Pull end of tie through head. Turn tie end back on itself and insert into side of clip. To open, release tie end from clip and open tie.

—

Special ties
Releasable lashing ties with incorporated fastener

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 (-40°F to 185°F)
- Color: UV-resistant black
- Flammability rating: UL 94 V-2
- Other properties: Halogen free, Silicone free

—

Releasable lashing ties with incorporated fastener

Cat. no.	Bundle ø from ... to		Length L		Width W		Thickness		Min. tensile strength	Quantity
	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[N]	[pieces]
TY5409 / TY409	45 - 121	1.77 - 4.76	483	19.02	12.7	0.5	2.0	0.08	890	25 / 100

Description of Cat. no. structure: see page C12
Description of materials and properties: see pages C110 to C123

Diagrams
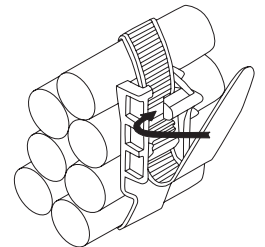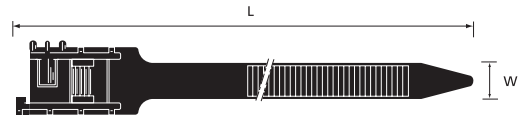
Introduce the cable tie tail into the lower slot in the head. Tighten the tie and pull it back. Slide in the tie under the catch from the side until it snaps into position.

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

Characteristics
- Heavy-duty lashing ties, in cut lengths with pre-assembled heads
- Also available on reel with separate heads (see page C38)
- 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 (-40°F to 185°F)
  Tie: -55°C to +110°C (-67°F to 230°F)
- Color: UV-resistant black
- Flammability rating: UL 94 V-2
- Other properties: UV-resistant, Halogen free

—
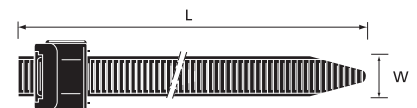**Releasable 2-piece lashing ties, pre-assembled version**

| Cat. no. | Bundle ø from ... to | | Diameter of mounting hole | | Length L | | Width W | | Thickness | | Min. tensile strength | Quantity |
	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[N]	[pieces]
TY53418PX	45 - 127	1.77 - 5	6.9	0.27	457	17.99	13.2	0.52	1.9	0.07	670	25
TY5418PX	45 - 127	1.77 - 5	–	–	457	17.99	13.2	0.52	1.8	0.07	670	25
TY5424PX	10 - 178	0.39 - 7.01	–	–	610	24.02	13.2	0.52	1.8	0.07	670	25
TY5442PX	10 - 305	0.39 - 12.01	–	–	1,067	42.01	13.2	0.52	1.8	0.07	670	10
TY5460PX	10 - 457	0.39 - 17.99	–	–	1,524	60	13.2	0.52	1.8	0.07	670	10

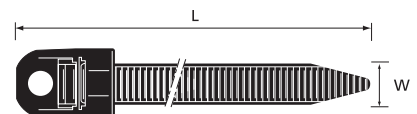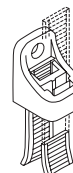Description of Cat. no. structure: see page C12
Description of materials and properties: see pages C110 to C123

Diagrams

TY54XXPX

TY53418PX

—

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

Characteristics
- Heavy-duty lashing ties on reel with separate heads
- Also available in cut lengths with pre-assembled heads (see page C37)
- 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.
- Cat. no. 696-41563: lashing tie on reel (300m/984.25ft), in weatherable Polypropylene
- Cat. no. 696-41562: separate head, type A (no mounting hole), weatherable Polyamide 6.6 (200 pieces)
- Cat. no. 696-41614: separate head, type B (with mounting hole), weatherable Polyamide 6.6 (200 pieces) Mounting hole: Ø 6.9mm (0.27")
- Cat. no. TY4100PX: kit containing 30m (98.43ft) 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 (-40°F to 185°F)
  Tie: -55°C to +110°C (-67°F to 230°F)
- Color: UV-resistant black
- Flammability rating: UL 94 V-2
- Other properties: UV-resistant, Halogen free

—

Releasable 2-piece lashing ties on reel with separate heads

Cat. no.	Length [mm]	Length [in.]	Width [mm]	Width [in.]	Thickness [mm]	Thickness [in.]	Quantity [pieces]	Type	Min. tensile strength of assembly [N]
696-41563	300	11.81	13.2	0.52	1.8	0.07	–	–	670
696-41562	–		–		–		200	Type A, no mounting hole	670
696-41614	–		–		–		200	Type B, with mounting hole	670
TY4100PX	30	1.18	13.2	0.52	1.8	0.07	50	Type A, no mounting hole	670

Description of Cat. no. structure: see page C12
Description of materials and properties: see pages C110 to C123

Diagrams

696-41563
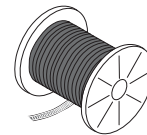
696-41562

696-41614

TY4100PX

696-41563

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Special ties with steel locking barb
Cable ties with identification tag

Characteristics
- Identification ties with incorporated label for durable marking and tying
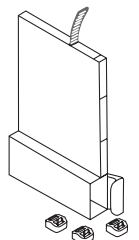- Label forms onto the bundle for types TY512M, TY51M and protrudes for ties TY532M and TY53M
- Series 51M is MIL (MS-3368-5) approved
- Trouble-free installation
- All edges are rounded to make installation easier
- Available in bulk packaging (500/1,000 pieces) or in small packaging (100 pieces)

Technical information
- Material - Moulding: Polyamide 6.6
- Material - Locking barb: 316 grade stainless steel
- Temperature range: -40°C to +85°C (-40°F to 185°F)
- Color: Natural
- Flammability rating: UL 94 V-2
- Other properties: Halogen free, Silicone free

—

Cable ties with identification tag

Cat. no.	Bundle ø from ... to [mm]	[in.]	Length L [mm]	[in.]	Width W [mm]	[in.]	Thickness [mm]	[in.]	Min. tensile strength [N]	Label Diagrams [mm]	[in.]	Quantity [pieces]	MIL Spec.
TY551M / TY51M	10 - 16	0.40 - 0.63	92	3.62	2.4	0.09	1.0	0.04	80	25.4 x 7.9	1 x 0.31	100 / 500	●
TY5512M / TY512M	10 - 51	0.40 - 2.01	210	8.27	2.4	0.09	1.0	0.04	80	25.4 x 7.9	1 x 0.31	100 / 1,000	–
TY553M / TY53M	2 - 16	0.08 - 0.63	102	4.02	2.4	0.09	1.0	0.04	80	20.6 x 9.3	0.81 x 0.36	100 / 500	–
TY5532M / TY532M	2 - 51	0.08 - 2.01	212	8.35	2.4	0.09	1.0	0.04	80	20.6 x 9.3	0.81 x 0.36	100 / 1,000	–

For other materials and colors contact your Sales Office
Description of Cat. no. structure: see page C12
Description of materials and properties: see pages C110 to C123
For tooling specifications: see pages C100 to C109

Tooling

ERG50
For use with 2.4mm (80N) Cable ties.
See page C100.

Diagrams

TY53M, TY553M, TY532M, TY5532M
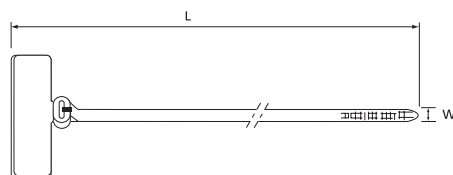
TY51M, TY551M, TY512M, TY5512M
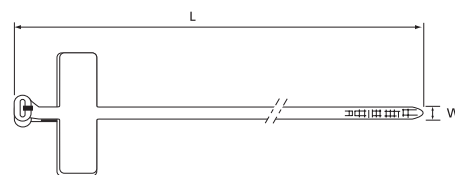
—

Special ties with steel locking barb
Cable ties with identification tag

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 102mm (4.02") 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 (-40°F to 185°F)
- Color: Natural
- Approvals: MIL: MS-3368 -1, -2, -3, -4
- Flammability rating: UL 94 V-2
- Other properties: Halogen free, Silicone free

—

Cable ties with identification tag

Cat. no.	Bundle ø from ... to		Length (L)		Width (W)		Thickness		Min. tensile strength	Label Diagrams		Quantity	MIL
Standard pack	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[N]	[mm]	[in.]	[pieces]	spec.
TY548M / TY48M	19 - 102	0.75 - 4.02	360	14.17	4.8	0.19	1.1	0.04	220	13.1 x 57.2	0.52 x 2.25	100 / 1,000	●
TY546M / TY46M	9.5 - 45	0.37 - 1.77	184	7.24	4.8	0.19	1.1	0.04	220	13.1 x 27.0	0.52 x 1.06	100 / 1,000	●
TY546MD / TY46MD	9.5 - 45	0.37 - 1.77	184	7.24	4.8	0.19	1.1	0.04	220 x 2	29.7 x 27.0	1.17 x 1.06	50 / 500	●
TY546MT / TY46MT	9.5 - 45	0.37 - 1.77	184	7.24	4.8	0.19	1.1	0.04	220 x 3	46.0 x 27.0	1.81 x 1.06	100 / 500	●
TY546MF / TY46MF	9.5 - 45	0.37 - 1.77	184	7.24	4.8	0.19	1.1	0.04	220 x 4	63.1 x 27.0	2.48 x 1.06	50 / 250	–

For other materials and colors contact your Sales Office
Description of Cat. no. structure: see page C12
Description of materials and properties: see pages C110 to C123
For tooling specifications: see pages C100 to C109
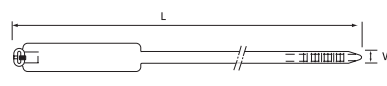
Tooling

ERG50
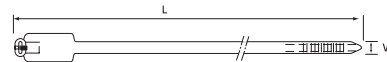For use with 4.8mm (220N) Cable ties.
See page C100.

ERG120
For use with 4.8mm (220N) Cable ties.
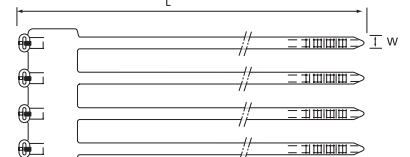See page C100.

Diagrams

TY48M

TY46M

TY46MD

TY46MT

TY46MF

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Ty-Rap high performance cable ties
Cable spacers

Characteristics
- Stackable height in 12.7mm (0.5") 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 (-40°F to 185°F)
- Flammability rating: UL 94 HB
- Color: Black
- Other properties: UV-resistant, Halogen free

—
Cable spacers

Cat. no.	Length L		Width W		Height		Quantity [pieces]
	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	
TCP5255 / TCP360	53.3	2.10	30.5	1.20	12.7	0.5	25 / 100

Diagrams

—
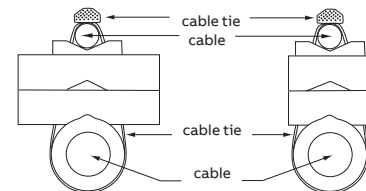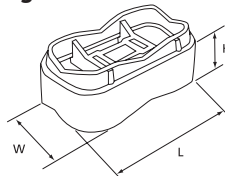
Cable support system with metallic locking barb
Base and hanger

Characteristics
- To secure the cables to all types of surfaces

Technical information
- Material: Zinc plated steel
- Color: Metallic

—
Base and hanger

Cat. no.	A		B		C		D		E		Mounting hole diameter		Quantity [pieces]
	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	
CSS-B	48.4	1.91	14.3	0.56	7.1	0.28	15.1	0.59	5.6	0.22	6.7 (2x)	0.26 (x2)	50
CSS-H	22.5	0.89	22.2	0.87	29.8	1.17	13.6	0.54	8.3	0.33	6.9	0.27	50

To be assembled with Deltec strap on reel

Diagrams
CSS-H
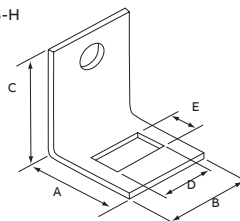
CSS-B
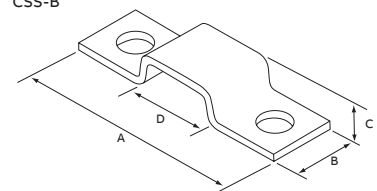
All plastic cable ties
Ty-Fast, Col-Ty™ and Ty-Grip™

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 112mm to 1214mm (4.41" to 47.80") and widths from 2.4mm to 13.2mm (0.09" x 0.52"), offering a loop tensile strength up to 1120 N. Those cable ties will satisfy bundling requirements up to 381mm (15"). Those cable ties are halogen and silicone free Polyamide 6.6 and are available in 12 different colors.

Ty-Fast cable ties meet shipbuilding classification such as Germanischer Lloyd/DNV-GL, Lloyd's Register of Shipping, Bureau Veritas but also Mil Specification and QPL.
Ty-Fast cable ties have a CE declaration, supported by compliance to the low voltage directive and EN/IEC 62275 and UL 62275.

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.

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.

—

Ty-Fast numbering structure

Tie   Diagram code

TY   **XXXX**

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

Tie width   Tie length   Tie width/tensile   Color/material   Packaging code
code   code   strength code

Standard cable ties with a width up to 13.2 mm (0.52")	for lengths from 112 mm up to 1,214 mm (4.41" to 47.80")	18 = 2.4 mm (0.09") / (80N) 30 = 3.3 mm (0.13") / (130N) 40 = 3.6 mm (0.14") / (180N) 50 = 4.6 mm (0.18") / (220N) 120 = 7.6 mm (0.30") / (540N) 175 = 8.8 mm (0.35") / (780N) 250 = 13.2 mm (0.52") / (1,120N)	All product references are made of halogen free Polyamide 6.6, UL 94 V-2, operating temperature -40°C to +85°C (-40°F to 185°F)	[Blank] = Bulk packaging (1,000/500/50 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-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.

—

All plastic cable ties

Extra-long cable ties

Characteristics
- Extremely long ties (up to 1214mm/47.80")
- Robust construction (778N), for demanding applications where superior tensile strength is required
- The extra long Ty-Fast ties are available in natural color for indoor applications and in UV-resistant black for outdoor applications

Technical information
- Material: Polyamide 6.6
- Temperature range: -40°C to +85°C (-40°F to 185°F)
- Color: Natural or UV-resistant black (see table)
- Flammability rating: UL 94 V-2
- Other properties: UV-resistant (black), Halogen free, Silicone free

E49405

—

Extra-long cable ties

| Cat. no. | Bundle ø from ... to | | Color | Length L | | Width W | | Min. tensile strength | Quantity |
	[mm]	[in.]		[mm]	[in.]	[mm]	[in.]	[N]	[pieces]
TY600-175X	7 - 187	0.28 - 7.36	UV-resistant black	631	24.84	9.0	0.35	778	50
TY600-175	7 - 187	0.28 - 7.36	Natural	631	24.84	9.0	0.35	778	50
TY900-175X	7 - 263	0.28 - 10.35	UV-resistant black	916	36.06	8.8	0.35	778	50
TY900-175	7 - 263	0.28 - 10.35	Natural	916	36.06	8.8	0.35	778	50
TY1000-175X	7 - 305	0.28 - 12	UV-resistant black	1,041	40.98	8.8	0.35	778	50
TY1000-175	7 - 305	0.28 - 12	Natural	1,041	40.98	8.8	0.35	778	50
TY1200-175	38 - 368	1.50 - 14.49	UV-resistant black	1,233	48.54	8.6	0.34	778	50
TY1200-175	38 - 368	1.50 - 14.49	Natural	1,233	48.54	8.6	0.34	778	50

Some approvals may not be applicable to all Cat. no.s
Contact your Sales Office for approvals limitations
Description of Cat. no. structure: see page C43
Description of materials and properties: see pages C110 to C123
For tooling specifications: see pages C100 to C109

Tooling

WT3D
For use with 8.6mm to 9.0mm (778N) Cable ties. See page C100.

L-500-EU
For use with 8.6mm to 9.0mm (778N) Cable ties. See page C100.

Diagrams
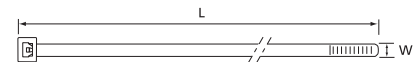
All plastic cable ties
Heavy-duty cable ties

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

Technical information
- Material: Polyamide 6.6
- Temperature range: -40°C to +85°C (-40°F to 185°F)
- Color: Natural or UV-resistant black (see table)
- Flammability rating: UL 94 V-2
- Other properties: UV-resistant (black), Halogen free, Silicone free

—
Heavy-duty cable ties

Cat. no.	Bundle ø from ... to [mm]	[in.]	Color	Length L [mm]	[in.]	Width W [mm]	[in.]	Min. tensile strength [N]	Quantity [pieces]
TYL300M	75	2.95	natural	300	11.81	13.2	0.52	1,120	50
TYL300MX	75	2.95	UV-resistant black	300	11.81	13.2	0.52	1,120	50
TYL546M	140	5.51	natural	546	21.50	13.2	0.52	1,120	50
TYL546MX	140	5.51	UV-resistant black	546	21.50	13.2	0.52	1,120	50

Description of Cat. no. structure: see page C43
Description of materials and properties: see pages C110 to C123
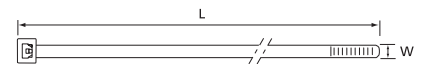For tooling specifications: see pages C100 to C109

Tooling

L-500-EU
For use with 8.6mm to 9.0mm (778N) Cable ties. See page C100.

Diagrams

—

All plastic cable ties

UL 94 V-0 flame retardant 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 (-40°F to 185°F)
- Color: Milky white
- Flammability rating: UL 94 V-0
- Other properties: Limited fire hazard (low smoke), Halogen free, Silicone free

—

UL 94 V-0 flame retardant cable ties

Cat. no.	Bundle ø from ... to [mm]	[in.]	Length L [mm]	[in.]	Width W [mm]	[in.]	Min. tensile strength [N]	Quantity [pieces]
TS1025HF	2 - 22	0.08 - 0.87	100	3.94	2.5	0.10	80	100
TS1435HF	2.5 - 33	0.10 - 1.30	140	5.51	3.6	0.14	180	100
TS2045HF	3 - 50	0.12 - 1.97	200	7.84	4.8	0.19	220	100
TS2845HF	5 - 70	0.20 - 2.76	280	11.02	4.8	0.19	220	100
TS3645HF	5 - 102	0.20 - 4.02	370	14.57	4.8	0.19	220	100
TS3675HF	5 - 102	0.20 - 4.02	370	14.57	7.6	0.30	540	100

Description of materials and properties: see pages 110 to 123
For tooling specifications: see pages 100 to 109

Tooling

ERG50
For use with 2.5mm to 4.8mm (80N to 220N) Cable ties. See page C100.

ERG120
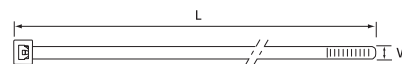For use with 7.6mm (540N) Cable ties. See page C100.

L-500-EU
For use with 7.6mm (540N) Cable ties. See page C100.

WT3D
For use with 7.6mm (540N) Cable ties. See page C100.

Diagrams

—

Special all-plastic cable ties

Integrated mounting hole 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 (-40°F to 185°F)
- Color: Natural or UV-resistant black (see table)
- Flammability rating: UL 94 V-2
- Other properties: UV-resistant (black), Halogen free, Silicone free

(UL) E49405

—

Integrated mounting hole cable ties

Cat. no.	Bundle ø from ... to [mm]	Bundle ø from ... to [in.]	Color	Length L [mm]	Length L [in.]	Width W [mm]	Width W [in.]	Fixing screw size	Min. tensile strength [N]	Quantity [pieces]
L-5-30MH-0-C*	2 - 32	0.08 - 1.26	UV-resistant black	152	5.98	3.3	0.13	M4	130	100
L-5-30MH-9-C*	2 - 32	0.08 - 1.26	natural	152	5.98	3.3	0.13	M4	130	100
L-7-50MH-0-C	2 - 44	0.08 - 1.73	UV-resistant black	208	8.23	4.7	0.19	M5	220	100
L-7-50MH-9-C	2 - 44	0.08 - 1.73	natural	208	8.23	4.7	0.19	M5	220	100
L-11-50MH-0-C*	2 - 76	0.08 - 2.99	UV-resistant black	314	12.36	4.7	0.19	M5	220	100
L-11-50MH-9-C*	2 - 76	0.08 - 2.99	natural	314	12.36	4.7	0.19	M5	220	100
L-14-50MH-0-C	2 - 102	0.08 - 4.02	UV-resistant black	382	15.04	4.7	0.19	M5	220	100
L-14-50MH-9-C	2 - 102	0.08 - 4.02	natural	382	15.04	4.7	0.19	M5	220	100
L-14-120MH-0-C*	5 - 102	0.08 - 4.02	UV-resistant black	382	15.04	7.6	0.30	M6	540	100
L-14-120MH-9-C*	5 - 102	0.08 - 4.02	natural	382	15.04	7.6	0.30	M6	540	100

* Not UL listed
Description of materials and properties: see pages C110 to C123
For tooling specifications: see pages C100 to C109

Tooling

ERG50
For use with 3.3mm to 4.7mm (130N to 220N) Cable ties. See page C100.

ERG120
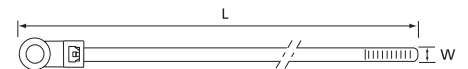For use with 4.7mm to 7.6mm (220N to 540N) Cable ties. See page C100.

L-500-EU
For use with 7.6mm (540N) Cable ties. See page C100.

WT3D
For use with 7.6mm (540N) Cable ties. See page C100.

Diagrams

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Special all-plastic cable ties
Releasable panel mounting cable ties

Characteristics
- Fastening and clip-mounting in one
- Fast pre- or on-site-assembly for a range of panel thickness up to 2.7mm (0.11")
- Fast and secure clip-mounting
- For use in 6.35mm (0.25") mounting hole
- Cat. no.s containing xxx-PMR-xxx are releasable

Technical information
- Material: Polyamide 6.6
- Temperature range: -40°C to +85°C (-40°F to 185°F)
- Color: Natural or UV-resistant black (see table)
- Flammability rating: UL 94 V-2
- Other properties: UV-resistant (black), Halogen free, Silicone free

—
Releasable panel mounting cable ties

E49405

Cat. no.	Bundle ø from ... to [mm]	[in.]	Color	Length L [mm]	[in.]	Width W [mm]	[in.]	Min. tensile strength [N]	Quantity [pieces]
Standard panel mounting ties									
L-5-50PM-0-C*	2 - 25	0.08 - 0.98	UV-resistant black	147	5.79	4.8	0.19	220	100
L-5-50PM-9-D*	2 - 25	0.08 - 0.98	natural	147	5.79	4.8	0.19	220	500
L-7-50PM-0-C	2 - 44	0.08 - 1.73	UV-resistant black	208	8.19	4.8	0.19	220	100
L-7-50PM-9-C	2 - 44	0.08 - 1.73	natural	208	8.19	4.8	0.19	220	100
Releasable panel mounting ties									
TB-4-50PMR-9-C-EU*	2 - 22	0.08 - 0.87	natural	110	4.33	4.8	0.19	220	100
L-5-50PMR-0-C*	2 - 25	0.08 - 0.98	UV-resistant black	147	5.79	4.8	0.19	220	100
L-5-50PMR-9-C*	2 - 25	0.08 - 0.98	natural	147	5.79	4.8	0.19	220	100
L-7-50PMR-9-C*	2 - 44	0.08 - 1.73	natural	208	8.19	4.8	0.19	220	100

* Not UL listed
Description of materials and properties: see pages 110 to 123
For tooling specifications: see pages 100 to 109

Tooling

ERG50
For use with 4.8mm (220N) Cable ties. See page C100.

ERG120
For use with 4.8mm (220N) Cable ties. See page C100.

L-500-EU
For use with 4.8mm (220N) Cable ties. See page C100.

WT3D
For use with 4.8mm (220N) Cable ties. See page C100.

WT1-TB
For use with 4.8mm (220N) Cable ties. See page C100.

WT2-TB
For use with 4.8mm (220N) Cable ties. See page C100.

Diagrams

L

W

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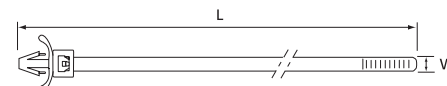
Special all-plastic cable ties

Releasable 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 (-40°F to 185°F)
- Color: Natural or UV-resistant black (see table)
- Flammability rating: UL 94 V-2
- Other properties: UV-resistant (black), Halogen free, Silicone free

—
Releasable cable ties

(U L)
E49405

Cat. no.	Bundle ø from … to		Color	Length L		Width W		Min. tensile strength	Quantity
	[mm]	[in.]		[mm]	[in.]	[mm]	[in.]	[N]	[pieces]
L-5-50R-0-C*	3 - 32	0.12 - 1.26	UV-resistant black	150	5.91	7.5	0.30	220	100
L-8-50R-0-C*	3 - 51	0.12 - 2.01	UV-resistant black	198	7.80	7.5	0.30	220	100
L-8-50R-9-C*	3 - 51	0.12 - 2.01	natural	198	7.80	7.5	0.30	220	100
L-10-50R-0-C	3 - 76	0.12 - 2.99	UV-resistant black	298	11.73	7.5	0.30	220	100
L-10-50R-9-C	3 - 76	0.12 - 2.99	natural	298	11.73	7.5	0.30	220	100

* Not UL listed
Description of materials and properties: see pages C110 to C123
For tooling specifications: see pages C100 to C109

Tooling

ERG120
For use with 7.5mm (220N) Cable ties. See page C100.

L-500-EU
For use with 7.5mm (220N) Cable ties. See page C100.

**WT3D**
For use with 7.5mm (220N) Cable ties. See page C100.

Diagrams
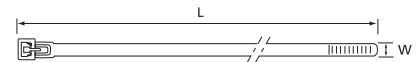
Special all-plastic cable ties
Cable ties with identification tag

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 (-40°F to 185°F)
- Color: Natural
- Flammability rating: UL 94 V-2
- Other properties: Halogen free, Silicone free

—
Cable ties with identification tag

UL E49405

Cat. no.	Bundle ø max. [mm]	[in.]	Length L [mm]	[in.]	Width W [mm]	[in.]	Label Diagrams [mm]	[in.]	Min. tensile strength [N]	Quantity [pieces]
L-4-18ID-9-C / L-4-18ID-9-M	19	0.75	102	4.02	2.5	0.10	7.9 x 24.7	0.31 x 0.92	80	100 / 1,000
L-7-50ID-9-C / L-7-50ID-9-M	44	1.73	200	7.87	4.7	0.19	30 x 13.3	1.18 x 0.52	220	100 / 1,000

Description of materials and properties: see pages C110 to C123
For tooling specifications: see pages C100 to C109

Tooling

ERG50
For use with 2.5mm to 4.7mm (80N to 220N) Cable ties. See page C100.

ERG120
For use with 4.7mm (220N) Cable ties. See page C100.

L-500-EU
For use with 4.7mm (220N) Cable ties. See page C100.

Diagrams
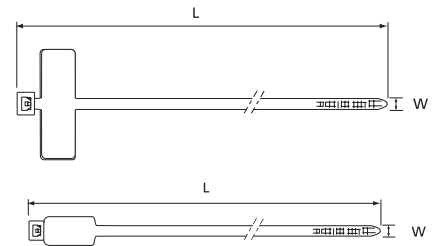
Special all-plastic cable ties
Special double-headed ties

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 (-40°F to 185°F)
- Color: Natural
- Flammability rating: UL 94 V-2
- Other properties: Halogen free, Silicone free

—

Special double-headed ties

| Cat. no. | Bundle diameter | | | | Length L | | Width W | | Min. tensile strength [N] | Quantity [pieces] |
| | Loop 1 from ... to | | Loop 2 from ... to | | | | | | | |
	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]		
TB-50RLDH	2.5 - 47	0.10 - 1.86	2.0 - 45	0.08 - 1.77	200	7.87	4.8	0.19	220	1,000
TB-12-50RLDH	2.5 - 72	0.10 - 2.83	2.0 - 70	0.08 - 2.76	300	11.81	4.8	0.19	220	1,000
TB-15-50RLDH	2.5 - 100	0.10 - 3.94	2.0 - 97	0.08 - 3.82	370	14.57	4.8	0.19	220	1,000

Description of materials and properties: see pages C110 to C123
For tooling specifications: see pages C100 to C109

Tooling

ERG50
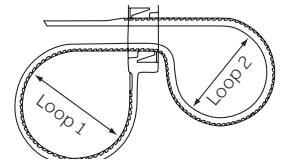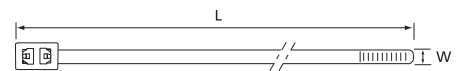For use with 4.8mm (220N) Cable ties. See page C100.

ERG120
For use with 4.8mm (220N) Cable ties. See page C100.

L-500-EU
For use with 4.8mm (220N) Cable ties. See page C100.

Diagrams

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Special cable ties

Ty-Grip hook & loop fasteners

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.

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 colors 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 (-4°F to 219.2°F)
- Color: Standard color: black
- 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 (-4°F to 199.4°F)
- Color: Standard color: black - see note after table
- Flammability rating: UL 94 HB
- Peel-off strength: 0.8N/cm

—

Ty-Grip hook & loop fasteners

Cat. no.	Maximum bundle diameter [mm]	[in.]	Length L [mm]	[in.]	Width W [mm]	[in.]	Tensile strength [N]	Quantity [pieces]
FO Series loop ties								
FO200-40-0	50.8	2	228.6	9	12.7	0.5	180	10
FO200-50-0	50.8	2	228.6	9	19.1	0.75	220	10
FO350-40-0	88.9	3.5	330.2	13	12.7	0.5	180	10
FO350-50-0	88.9	3.5	330.2	13	19.1	0.75	220	10
FO350-50-0-FR*	88.9	3.5	330.2	13	19.1	0.75	220	10
FOL Series buckle ties								
FOL300-50-0	76.2	3	304.8	12	19.1	0.75	220	10
FOL500-50-0	127.0	5	457.2	10.13	19.1	0.75	220	10

Replace "-0" in the Cat. no. by the corresponding color code
* Suffix FR is Flame Retardant version

Special cable ties
Ty-Grip hook & loop fasteners

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.

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 colors 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 (-4°F to 219.2°F)
- Color: Standard color: black*
- Flammability rating: UL 94 HB
- Peel-off strength: 0.8N/cm

—
Ty-Grip hook & loop fasteners

Cat. no.	Maximum bundle diameter [mm]	[in.]	Length L [mm]	[in.]	Width W [mm]	[in.]	Tensile strength [N]	Quantity [pieces]
FOS Series strip ties								
FOS150-50-0	38.1	1.5	152.4	6	19.1	0.75	220	10
FOS320-50-0	81.3	3.20	304.8	12	19.1	0.75	220	10
FOS500-50-0	127.0	5	457.2	18	19.1	0.75	220	10
FOR Series rolled strip								
FOR180-50-0		Various	4572.0	180	19.1	0.75	220	1
FOR180-50-0-FR**		Various	4572.0	180	19.1	0.75	220	1

* Standard color: black
Replace "-0" in the Cat. no. by the corresponding color
** FOR180-50-0-FR is made of flame retardant material
Contact your Sales Office for Product Availability in the other colors

Ty-Rap and Ty-Fast
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

Mounting bases & accessories
Overview

—
01 Mounting bases
—
02 Cable clamps
and 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 (-40°F to 185°F)
  (105°C/221°F) 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

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01
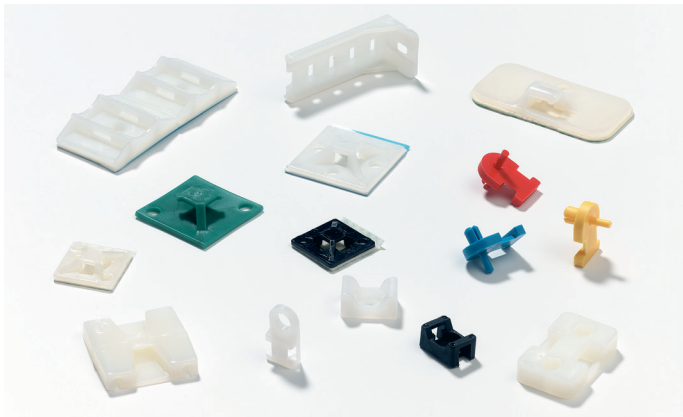
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02
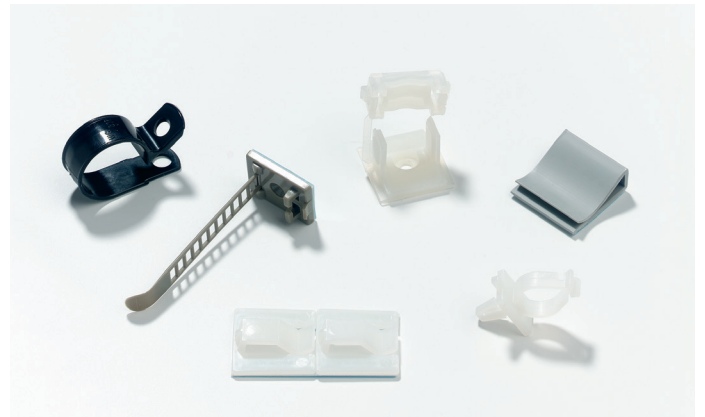
Mounting bases

2-way entry
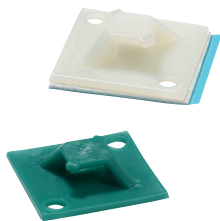
Characteristics

- Can be used in 2-way entry style for cable ties having a width up to 7.6mm (0.30")
- For cable ties having a width up to 4.8mm (0.19"), 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 (-40°F to 185°F)
  (Self-adhesive version: 0°C to +65°C/32°F to -85°F)

- Flammability rating: UL 94 V-2
- Color: (see table)
- Other properties: UV-resistant (black), Halogen free, Silicone free

TC347FR (Flame retardant)

- Material: Polyamide 6.6
- Temperature range: -40°C to +85°C (-40°F to 185°F)
- Flammability rating: UL 94 V-0
- Color: Natural
- Other properties: Halogen free, Silicone free

TCZ347 (Fluoropolymer)

- Material: ETFE Fluoropolymer
- Temperature range: -46°C to +150°C (-50.8°F to 302°F)
- Flammability rating: UL 94 V-0
- Color: Aquamarine
- Other properties: Silicone free, inert to most solvents and chemicals, hydrolytically stable, radiation resistant

—
2-way entry

Cat. No.	Color	Mounting method	L [mm]	L [in.]	W [mm]	W [in.]	Diagrams H [mm]	Diagrams H [in.]	For tie width up to [mm]	For tie width up to [in.]	Mounting hole diameter [mm]	Mounting hole diameter [in.]	Quantity [pieces]
TC347	natural	screw/glue*	7.8	0.31	28.6	1.13	28.6	1.13	7.6	0.30	4.4 (2x)	0.17 (2x)	1,000
TC347X	UV-resistant black	screw/glue*	7.8	0.31	28.6	1.13	28.6	1.13	7.6	0.30	4.4 (2x)	0.17 (2x)	1,000
TC347FR	natural/ flame retardant	screw/glue*	7.8	0.31	28.6	1.13	28.6	1.13	7.6	0.30	4.4 (2x)	0.17 (2x)	1,000
TCZ347	aquamarine	screw/glue*	7.8	0.31	28.6	1.13	28.6	1.13	7.6	0.30	4.4 (2x)	0.17 (2x)	500
TC5347AR / TC347A	natural	self-adhesive/ screw	8.5	0.34	29.0	1.14	29.0	1.14	7.6	0.30	4.4 (2x)	0.17 (2x)	100 / 1,000
TC5347AX	UV-resistant black	self-adhesive/ screw	8.5	0.34	29.0	1.14	29.0	1.14	7.6	0.30	4.4 (2x)	0.17 (2x)	100

* Glue = Cat. no. TC2PA (see page C115 for specifications)

Diagrams

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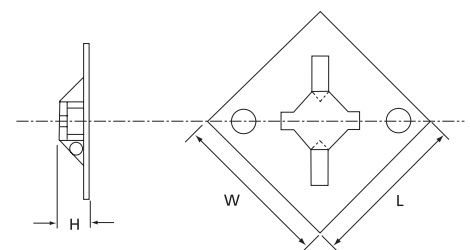
Mounting bases
4-way entry - high performance

Characteristics
- Design & materials, for increased performance
- Low profile shape (height: 5.1mm/0.20"), 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
- Material - Self-adhesive: Rubber based
- Temperature range: -60°C to +85°C (-76°F to 185°F) Self-adhesive version: 0°C to +70°C (32°F to 158°F)
- Flammability rating: UL 94 V-2
- Colors: Natural or UV-resistant black (see table)
- Other properties: UV-resistant black, Halogen free, Silicone free

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4-way entry - high performance

E49405

Product code	Color	Mounting method	L [mm]	L [in.]	W [mm]	W [in.]	H [mm]	H [in.]	For tie width up to [mm]	For tie width up to [in.]	Mounting hole diameter [mm]	Mounting hole diameter [in.]	Quantity [pieces]
TC345	natural	glue*/screws	28.6	1.13	28.6	1.13	5.1	0.20	5.2	0.20	4.0	0.16	1,000
TC5345A / TC345A	natural	self-adhesive (rubber based)/ screws	28.6	1.13	28.6	1.13	5.1	0.20	5.2	0.20	4.0	0.16	100 / 1,000
TC5345AX / TC345AX	UV-resistant black	self-adhesive (rubber based)/ screws	28.6	1.13	28.6	1.13	5.1	0.20	5.2	0.20	4.0	0.16	100 / 1,000

* Glue = Cat. no. TC2PA (see page C115 for specifications)

Diagrams

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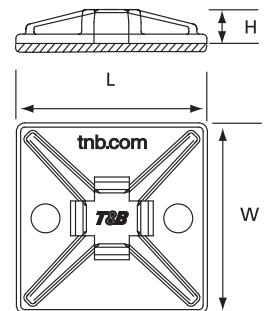
Mounting bases
4-way entry

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:
  Glue version: -40°C to +85°C (-40°F to 185°F)
  Self-adhesive version: 0°C to +70°C (32°F to 158°F)
- Flammability rating: UL 94 V-2
- Colors: Natural or UV-resistant black (see table)
- Other properties: UV-resistant black, Halogen free, Silicone free

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E49405

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4-way entry

Cat. No.	Color	Mounting method	Diagrams						For tie width up to		Mounting hole diameter		Quantity [pieces]
			L		W		H						
			[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	
For tie width up to 3.0mm (0.12")													
TC050x050A-C / TC050x050A	natural	self-adhesive	12.7	0.5	12.7	0.5	4.5	0.18	3.0	0.12	–	–	100 / 1,000
TC050x050AX-C / TC050x050AX	UV-resistant black	self-adhesive	12.7	0.5	12.7	0.5	4.5	0.18	3.0	0.12	–	–	100 / 1,000
For tie width up to 3.6mm (0.14")													
TC5344 / TC344	natural	screw/glue*	19.1	0.75	19.1	0.75	4.9	0.19	3.6	0.14	3.0	0.12	100 / 1,000
TC5344AR / TC344A	natural	self-adhesive/ screw	19.1	0.75	19.1	0.75	4.9	0.19	3.6	0.14	3.0	0.12	100 / 1,000
TC5344AX / TC344AX	UV-resistant black	self-adhesive/ screw	19.1	0.75	19.1	0.75	4.9	0.19	3.6	0.14	3.0	0.12	100 / 1,000

* Glue = Cat. no. TC2PA (see page C115 for specifications)

Diagrams

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Mounting bases

4-way entry - for wide cable ties
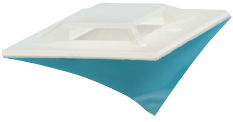
Characteristics

- 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:
  Glue version: -40°C to +85°C (-40°F to 185°F)
  Self-adhesive version: 0°C to +70°C (32°F to 158°F)
- Flammability rating: UL 94 V-2
- Colors: Natural or UV-resistant black (see table)
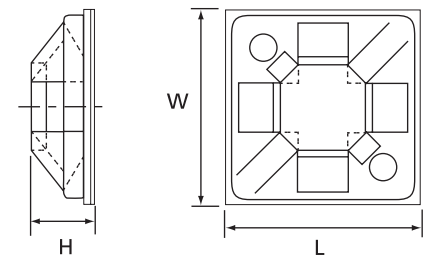- Other properties: UV-resistant black, Halogen free, Silicone free

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4-way entry - for wide cable ties

Cat. No.	Color	Mounting method	L [mm]	L [in.]	W [mm]	W [in.]	H [mm]	H [in.]	For tie width up to [mm]	For tie width up to [in.]	Mounting hole diameter [mm]	Mounting hole diameter [in.]	Quantity [pieces]
For tie width up to 7.9mm (0.31") (38.1mm x 38.1mm (1.5" x 1.5") base)													
TC150x150L / TC150x150	natural	screw / glue*	38.1	1.5	38.1	1.5	7.4	0.29	7.9	0.31	4.3	0.17	50 / 500
TC150x150A-L / TC150x150A	natural	self-adhesive / screw	38.1	1.5	38.1	1.5	7.4	0.29	7.9	0.31	4.3	0.17	50 / 500
TC150x150AX-L / TC150x150AX	UV-resistant black	self-adhesive / screw	38.1	1.5	38.1	1.5	7.4	0.29	7.9	0.31	4.3	0.17	50 / 500
For tie width up to 7.9mm (0.31") (50.8mm x 50.8mm (2" x 2") base)													
TC200x200L / TC200x200	natural	screw / glue*	50.8	2	50.8	2	7.4	0.29	7.9	0.31	4.3	0.17	50 / 500
TC200x200A-L / TC200x200A	natural	self-adhesive / screw	50.8	2	50.8	2	7.4	0.29	7.9	0.31	4.3	0.17	50 / 500
TC200x200AX	UV-resistant black	self-adhesive / screw	50.8	2	50.8	2	7.4	0.29	7.9	0.31	4.3	0.17	500
For tie width up to 19.1mm (0.75") (50.8mm x 50.8mm (2" x 2") base)													
TC368**	natural	screw / glue*	50.8	2	50.8	2	6.6	0.26	19.1	0.75	4.3	0.17	500
TC368A**	natural	self-adhesive / screw	50.8	2	50.8	2	6.6	0.26	19.1	0.75	4.3	0.17	500

* Glue = Cat. no. TC2PA (see page C115 for specifications)
** Not UL Listed

Diagrams

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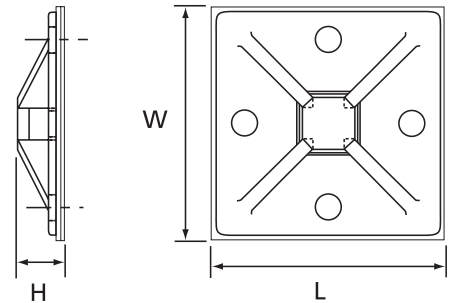
Mounting bases
Low profile plates

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 (-40°F to 185°F)
  Self-adhesive version: 0°C to +65°C (32°F to 149°F)
- Color: Natural or UV-resistant black (see table)
- Flammability rating: UL 94 V-2
- Other properties: Halogen free, Silicone free, UV-resistant black

—
Low profile plates

| | | | | | | | | | | | Diagrams | | For tie width up to | | | |
| | | | | H | | T | | W | | L | | E | | F | | | | Weight | Quantity |
Cat. No.	Color	Mounting method	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[g/100]	[pieces]
TC817-TB	natural	glue*	4.8	0.19	–		11.0	0.43	11.0	0.43	–	–	–	–	4.8	0.19	51	1,000
TC342	natural	glue*	5.7	0.22	–		29.0	1.41	29.0	1.41	7.5	0.30	21.0	0.83	4.8	0.19	340	1,000
TC342X	UV-resistant black	glue*	5.7	0.22	–		29.0	1.41	29.0	1.41	7.5	0.30	21.0	0.83	4.8	0.19	340	1,000
TC5342A / TC342A	natural	self-adhesive	5.7	0.22	0.8	0.31	29.0	1.41	29.0	1.41	7.5	0.30	21.0	0.83	4.8	0.19	360	100 / 1,000
TC342A-X	UV-resistant black	self-adhesive	5.7	0.22	0.8	0.31	29.0	1.41	29.0	1.41	7.5	0.30	21.0	0.83	4.8	0.19	360	1,000

* Glue = Cat. no. TC2PA (see page C115 for specifications)

Diagrams

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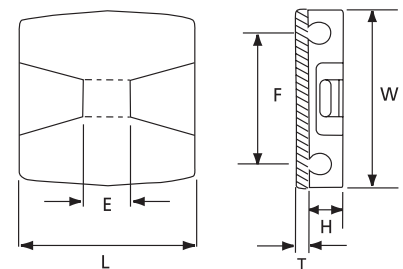
Mounting bases
Self-adhesive mounting cradle
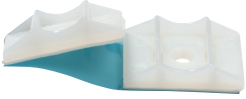
Characteristics
- Accepts cable ties to 7.6mm (0.30") width
- Supplied "two-up" on closed cell foam with synthetic polymer "rubber" based adhesive
- Use M3.5 self-tapping screw for added strength if desired

Technical information
- Material: Polyamide 6.6
- Temperature range: 0°C to +65°C (32°F to 149°F)
- Color: 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

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Self-adhesive mounting cradle

Cat. No.	Color	H [mm]	H [in.]	T [mm]	T [in.]	L [mm]	L [in.]	Diagrams W [mm]	W [in.]	For tie width up to [mm]	[in.]	Quantity [pieces]
MCNY-1250-9-L / MCNY-1250-9-C	natural	7.2	0.28	0.8	0.03	31.7	1.25	25.4	1	7.6	0.30	50 / 100
MCNY-1250-9-D	natural	7.2	0.28	0.8	0.03	31.7	1.25	25.4	1	7.6	0.30	500
MCNY-1250-0-C	UV-resistant black	7.2	0.28	0.8	0.03	31.7	1.25	25.4	1	7.6	0.30	100

For other colors and quantities please contact your Sales Office
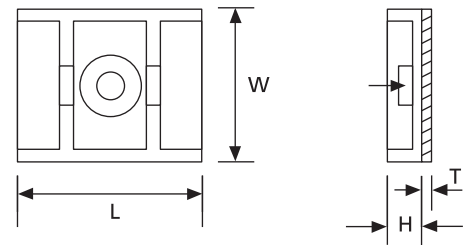
Diagrams

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Mounting bases
Saddle support

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 (-40°F to 186°F)
- Color: 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

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Saddle support

E49405

Cat. No.	Color	H [mm]	H [in.]	W [mm]	W [in.]	L [mm]	L [in.]	D [mm]	D [in.]	For tie width up to [mm]	For tie width up to [in.]	Mounting hole diameter [mm]	Mounting hole diameter [in.]	Quantity [pieces]
TC5140 / TC140	natural	6.7	0.26	8.7	0.34	14.2	0.56	1.8	0.07	2.4	0.09	3.0	0.12	100 / 500
TC5141 / TC141	natural	7.5	0.30	11.1	0.44	17.0	0.67	2.3	0.09	4.8	0.19	3.8	0.15	100 / 500
TC5142 / TC142	natural	10.7	0.42	14.2	0.56	23.4	0.92	2.9	0.11	7.6	0.30	5.2	0.20	100 / 500
TC5142X* / TC142X*	UV-resistant black / heat stabilised	10.7	0.42	14.2	0.56	23.4	0.92	2.9	0.11	7.6	0.30	5.2	0.20	100 / 500

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

Diagrams

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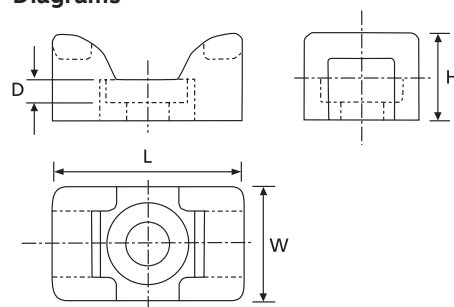
Mounting bases
Saddle support

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:
  Natural: -40°C to +85°C (-40°F to 185°F),
  UV-resistant black: -40°C to +105°C (-40°F to 221°F)
- Color: 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

—

Saddle support

Cat. No.	Color	H [mm]	H [in.]	W [mm]	W [in.]	L [mm]	L [in.]	Diagrams D [mm]	D [in.]	For tie width up to [mm]	[in.]	Mounting hole diameter [mm]	[in.]	Quantity [pieces]
SMNY-001-9-D	natural	7.1	0.28	9.8	0.39	15.2	0.60	4.7	0.19	4.8	0.19	4.2	0.17	500
SMNY-001-0-D	UV-resistant black / heat stabilised	7.1	0.28	9.8	0.39	15.2	0.60	4.7	0.19	4.8	0.19	4.2	0.17	500

For other colors and quantities please contact your Sales Office

Diagrams

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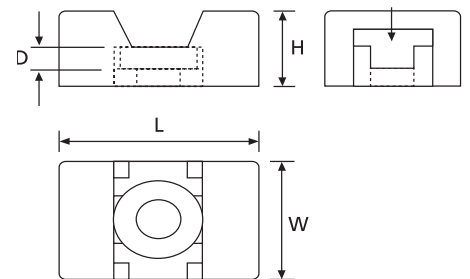
Mounting bases
Saddle-type mounting base
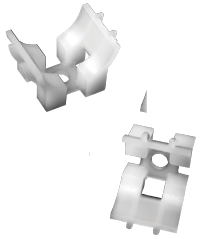
Characteristics

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 31.8mm (0.5" and 1.25")

Technical information
- Material: Polyamide 6.6
- Temperature range: -40°C to +85°C (-40°F to 185°F)
- Color: Natural
- Mounting method: Screw
- Flammability rating: UL 94 V-2
- Other properties: Halogen free, Silicone free

—
Saddle-type mounting base

Cat. No.	H [mm]	H [in.]	W [mm]	W [in.]	L [mm]	L [in.]	Diagrams D [mm]	Diagrams D [in.]	For tie width up to [mm]	For tie width up to [in.]	Mounting hole diameter [mm]	Mounting hole diameter [in.]	Weight [g/100]	Quantity [pieces]
TC92	14.3	0.56	15.1	0.59	15.1	0.59	12.7 - 31.8	0.5 - 1.25	4.8	0.19	3.9	0.15	143	100

Diagrams

Diameter from 12.7 to 31.8mm
D
H
W
L
ø 3.9 mm

Wire bundle
Saddle mounting plate
ABB
Ty-Rap cable ties

—

Mounting bases

Screw-mounted miniature 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 (-40°F to 185°F)
- Color: Natural
- Mounting method: Fillister-head screw
- Flammability rating: UL 94 V-2
- Other properties: Halogen free, Silicone free

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Screw-mounted miniature bases

E49405

Cat. No.	H		W		L		D		For tie width up to		Mounting hole diameter		Weight [g/100]	Quantity [pieces]
	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]		
TC814-TB	4.8	0.19	9.5	0.37	19.1	0.75	2.0	0.08	4.8	0.19	3.3	0.13	44	1,000
TC112-TB	4.8	0.19	9.5	0.37	19.1	0.75	2.0	0.08	4.8	0.19	4.4	0.17	44	1,000
TC812-TB	4.8	0.19	9.5	0.37	19.1	0.75	2.0	0.08	4.8	0.19	5.1	0.20	44	1,000

For other colors and quantities please contact your Sales Office

Diagrams

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Mounting bases
Screw-mounted miniature 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 (-40°F to 185°F)
- Color: Natural
- Mounting method: Screw or rivet
- Flammability rating: UL 94 V-2
- Other properties: Halogen free, Silicone free

—
Screw-mounted miniature bases

E49405

Cat. No.	H		W		L		For tie width up to		Mounting hole diameter				Weight [g/100]	Quantity [pieces]
					Diagrams				Diameter D1		Diameter D2			
	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]		
TC804-TB*	2.4	0.09	7.9	0.31	10.2	0.41	2.4	0.09	2.3	**0.09**	4.7	0.19	11	1,000
TC104	2.4	0.09	7.9	0.31	10.3	0.41	2.4	0.09	3.4	**0.09**	6.5	0.26	11	1,000
TC502 / TC102	3.2	0.13	12.7	0.5	19.1	0.75	4.8	0.19	4.4	**0.17**	8.7	0.34	50	100 / 1,000

* UL Recognized

Diagrams
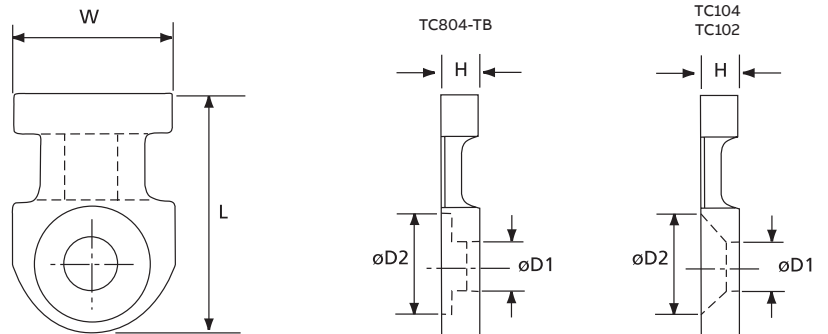
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Mounting bases
Screw-mounted - for wide cable ties

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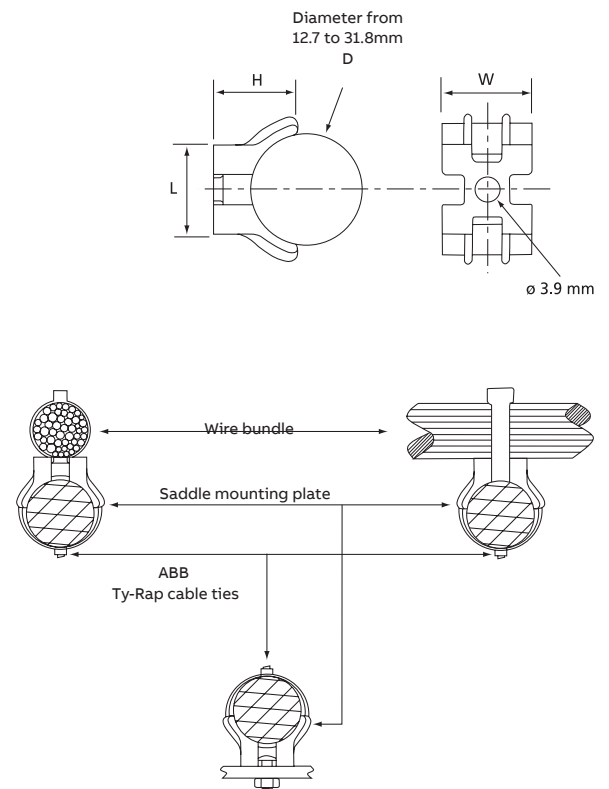- Secure fixing with 2 fastening holes

Technical information
- Material: Polyamide 6.6
- Temperature range: -40°C to +85°C (-40°F to 185°F)
- Color: Natural
- Mounting method: 2 screws
- Flammability rating: UL 94 V-2
- Other properties: Halogen free, Silicone free

UL
E49405

—

Screw-mounted - for wide cable ties

Cat. No.	H [mm]	H [in.]	W [mm]	W [in.]	L [mm]	L [in.]	D [mm]	D [in.]	Diagrams E [mm]	Diagrams E [in.]	For tie width up to [mm]	For tie width up to [in.]	Mounting hole diameter [mm]	Mounting hole diameter [in.]	Weight [g/100]	Quantity [pieces]
TC815-TB	6.4	0.25	19.1	0.75	31.2	1.23	19.9	0.78	6.4	0.25	7.6	0.30	5.3	0.21	278	500

For other colors and quantities please contact your Sales Office

—

Diagrams

Mounting bases

Screw-mounted - for crosswise fastening

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 (-40°F to 185°F)
- Color: Natural
- Mounting method: Screw or rivet
- Flammability rating: UL 94 V-2
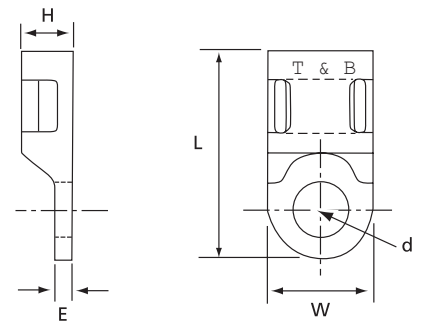- Other properties: Halogen free, Silicone free

—
Screw-mounted - for crosswise fastening

E49405

Cat. No.	H [mm]	H [in.]	W [mm]	W [in.]	L [mm]	L [in.]	D [mm]	D [in.]	E [mm]	E [in.]	For tie width up to [mm]	For tie width up to [in.]	Mounting hole diameter [mm]	Mounting hole diameter [in.]	Weight [g/100]	Quantity [pieces]
TC5828 / TC828-TB	3.8	0.15	10.1	0.40	22.5	0.89	1.5	0.06	17.4	0.68	4.8	0.19	4.3	0.17	46	100 / 1,000

Diagrams

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Mounting bases

Screw-mounted - for crosswise fastening

—
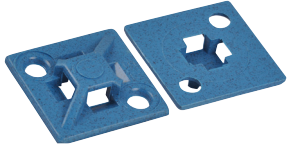
2-way and 4-way entry mounting bases

E49405

Cat. No.	Mounting method	Width H		Length D		For tie width up to		Mounting hole (2x) diameter		Quantity [pieces]
		[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	
TC5344A-NDT / TC344A-NDT	self-adhesive*/screw	19.1	0.75	19.1	0.75	3.6	0.14	3	0.12	100 / 1,000
TC5344A-PDT	self-adhesive*/screw	19.1	0.75	19.1	0.75	3.6	0.14	3	0.12	100
TC5347A-NDT / TC347A-NDT	self-adhesive*/screw	29	1.14	29	1.14	7.6	0.30	4.4	0.17	100 / 1,000
TC5347A-PDT	self-adhesive*/screw	29	1.14	29	1.14	7.6	0.30	4.4	0.17	100

* 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).

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Saddle support

E49405

Cat. No.	Mounting method	Width H		Length D		For tie width up to		Mounting hole diameter		Quantity [pieces]
		[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	
TC5141-NDT / TC141-NDT	screw	11.1	0.44	17	0.67	4.8	0.19	3.8	0.15	100 / 500
TC5141-PDT	screw	11.1	0.44	17	0.67	4.8	0.19	3.8	0.15	100
TC5142-NDT / TC142-NDT	screw	14.2	0.56	23.4	0.92	7.6	0.30	5.2	0.20	100 / 500
TC5142-PDT	screw	14.2	0.56	23.4	0.92	7.6	0.30	5.2	0.20	100

Mounting bases

Screw-mounted - for crosswise fastening

—
Screw-mounted miniature bases

E49405

Cat. No.	Mounting method	Width H [mm]	Width H [in.]	Length D [mm]	Length D [in.]	For tie width up to [mm]	For tie width up to [in.]	Mounting hole Diameter D1 [mm]	Diameter D1 [in.]	Diameter D2 [mm]	Diameter D2 [in.]	Quantity [pieces]
TC5102-NDT / TC102-NDT	screw	12.7	0.5	19.1	0.75	4.8	0.19	4.4	0.17	8.7	0.32	100 / 1,000
TC102-PDT	screw	12.7	0.5	19.1	0.75	4.8	0.19	4.4	0.17	8.7	0.32	1,000
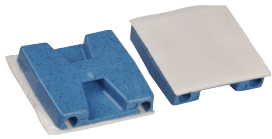
—
Low profile plates

E49405

Product code	Mounting method	Width H [mm]	Width H [in.]	Length D [mm]	Length D [in.]	For tie width up to [mm]	For tie width up to [in.]	Quantity [pieces]
TC5342A-NDT / TC342A-NDT	self-adhesive*	29	1.14	29	1.14	4.8	0.19	100 / 1,000
TC5342A-PDT	self-adhesive*	29	1.14	29	1.14	4.8	0.19	100

* 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).

—

Mounting bases

Screw-mounted - for crosswise fastening

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 (-40°F to 185°F)
- Color: Natural
- Mounting method: Screw or rivet
- Flammability rating: UL 94 V-2
- Other properties: Halogen free, Silicone free

—

Screw-mounted - for crosswise fastening

							Diagrams				For tie width up to		Mounting hole diameter		Weight	Quantity
	H		W		L		D		E							
Cat. No.	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[g/100]	[pieces]
TC826-TB	5.7	0.22	12.7	0.5	23.8	0.94	5.3	0.21	2.0	0.08	4.8	0.19	4.4	0.17	102	1,000

For other colors and quantities please contact your Sales Office

Diagrams

—
Mounting bases
Screw-mounted supporting 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 (-40°F to 185°F)
- Color: Natural
- Mounting method: 2 screws or 2 rivets
- Flammability rating: UL 94 V-2
- Other properties: Halogen free, Silicone free

—
Screw-mounted supporting bases

Cat. No.	H [mm]	H [in.]	W [mm]	W [in.]	L [mm]	L [in.]	G [mm]	G [in.]	E [mm]	E [in.]	F [mm]	F [in.]	For tie width up to [mm]	For tie width up to [in.]	Mounting hole diameter (x2) [mm]	Mounting hole diameter (x2) [in.]	Weight [g/100]	Quantity [pieces]
TC106	25.4	1	19.1	0.75	25.4	1	12.7	0.5	4.6	0.18	16.5	0.65	7.6	0.30	3.3	0.13	435	200
TC109	11.1	0.44	9.9	0.39	14.3	0.56	7.1	0.28	1.7	0.07	7.0	0.28	4.8	0.19	2.4	0.09	45	1,000

Diagrams

—

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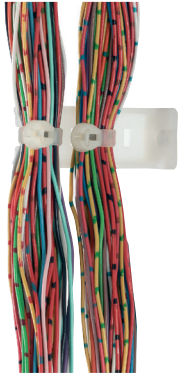
Characteristics
- Tie mounting strips for up to 6 bundles simultaneously
- When mounted, the tie is guided through the clamp for fast assembly

Cat. no. 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)

Cat. no. TC375 and TC376
- For vertical and double-side mounting

Cat. no. TC101 and TC103
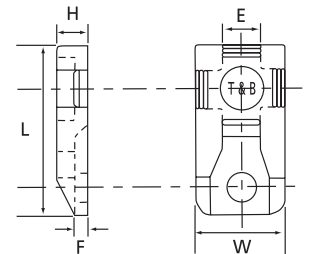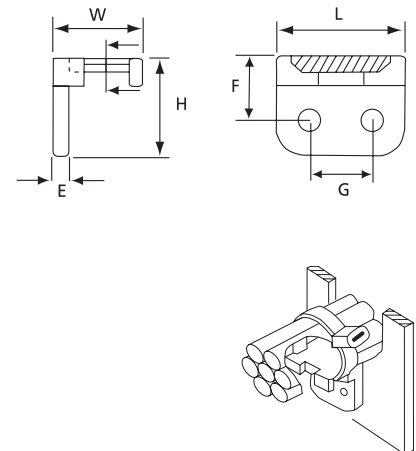- Elongated fastening hole on one end allows greater flexibility during mounting

Technical information
- Material: Polyamide 6.6
- Temperature range: -40°C to +85°C (-40°F to 185°F)
- Color: Natural
- Mounting method: 2 screws (1 screw for Cat. no.. TC376 & TC375)
- Flammability rating: UL 94 V-2
- Other properties: Halogen free, Silicone free

—
Screw-mounted strips for multiple bundling

E49405

Cat. No.	H [mm]	H [in.]	W [mm]	W [in.]	L [mm]	L [in.]	D [mm]	D [in.]	Diagrams E [mm]	Diagrams E [in.]	Max. number of bundles [mm]	Max. number of bundles [in.]	For tie width up to [mm]	For tie width up to [in.]	Mounting hole diameter [mm]	Mounting hole diameter [in.]	Weight [g/100]	Quantity [pieces]	Mil. Spec.
TC101	3.2	0.13	12.7	0.5	50.0	1.97	35.6	1.40	9.5	0.37	1	0.04	4.8	0.19	5.2	0.20	151	1,000	–
TC103	5.1	0.20	15.8	0.62	79.0	3.11	59.6	2.35	18.6	0.73	1	0.04	7.6	0.30	6.9	0.27	505	500	–
TC1101	3.2	0.13	12.7	0.5	44.0	1.73	31.8	1.25	9.5	0.37	1	0.04	4.8	0.19	3.7	0.15	160	100	●
TC1102	3.2	0.13	12.7	0.5	76.0	2.99	31.8	1.25	9.5	0.37	2	0.08	4.8	0.19	3.7	0.15	280	100	●
TC1103	3.2	0.13	12.7	0.5	108.0	4.25	31.8	1.25	9.5	0.37	3	0.12	4.8	0.19	3.7	0.15	400	100	●
TC1104	3.2	0.13	12.7	0.5	140.0	5.51	31.8	1.25	9.5	0.37	4	0.16	4.8	0.19	3.7	0.15	520	100	●
TC1105	3.2	0.13	12.7	0.5	171.0	6.73	31.8	1.25	9.5	0.37	5	0.20	4.8	0.19	3.7	0.15	650	100	●
TC1112	5.2	0.20	15.9	0.63	244.0	9.61	38.1	1.5	14.3	0.56	6	0.24	7.6	0.30	3.7	0.15	1679	100	●
TC1113	5.2	0.20	15.9	0.63	53.3	2.10	38.1	1.5	14.3	0.56	1	0.04	7.6	0.30	3.7	0.15	385	100	●
TC1114	5.2	0.20	15.9	0.63	91.4	3.60	38.1	1.5	14.3	0.56	2	0.08	7.6	0.30	3.7	0.15	658	100	●
TC1115	5.2	0.20	15.9	0.63	130.0	5.12	38.1	1.5	14.3	0.56	3	0.12	7.6	0.30	3.7	0.15	914	100	●
TC1116	5.2	0.20	15.9	0.63	168.0	6.61	38.1	1.5	14.3	0.56	4	0.16	7.6	0.30	3.7	0.15	1190	100	●
TC1117	5.2	0.20	15.9	0.63	206.0	8.11	38.1	1.5	14.3	0.56	5	0.20	7.6	0.30	3.7	0.15	1141	100	●
TC375	19.1	0.75	17.5	0.69	93.0	3.66	–	–	6.4	0.25	5	0.20	4.8	0.19	4.8	0.19	486	100	–
TC376	17.0	0.67	17.5	0.69	44.0	1.73	–	–	6.4	0.25	2	0.08	4.8	0.19	4.8	0.19	253	100	–

For other colors and quantities please contact your Sales Office

Diagrams

TC375 & TC376
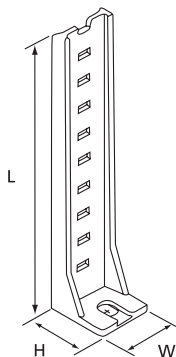
TC1101 ... TC1117
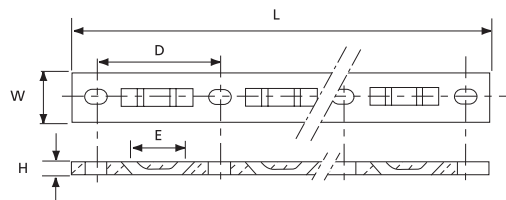
TC101 & TC103

—
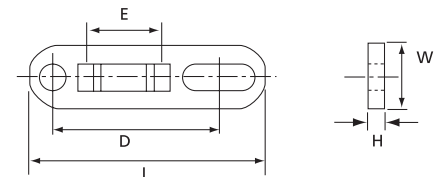
Mounting bases
Weather resistant - Heavy-duty

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

Cat. no. 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

Cat. no. 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 (-40°F to 185°F)
- Color: Black
- Mounting method: Screw (for Cat. no. TC5355 to TC5357 only)
- Flammability rating: UL 94 V-2
- Other properties: UV-resistant, Halogen free, Silicone free

—
Weather resistant - Heavy-duty

Cat. No.	H [mm]	H [in.]	W [mm]	W [in.]	L [mm]	L [in.]	E [mm]	E [in.]	F [mm]	F [in.]	Diagrams f [mm]	f [in.]	For tie width up to [mm]	[in.]	Mounting hole diameter [mm]	[in.]	Weight [g/100]	Quantity [pieces]
Mounting cradle																		
TC5355	15.9	0.63	19.1	0.75	44.5	1.75	11.1	0.44	28.6	1.13	–	–	12.7	0.5	4.6	0.18	500	25
TC5356	15.9	0.63	19.1	0.75	44.5	1.75	11.1	0.44	28.6	1.13	–	–	12.7	0.5	5.2	0.20	500	25
TC5357	15.9	0.63	19.1	0.75	44.5	1.75	11.1	0.44	28.6	1.13	–	–	12.7	0.5	6.7	0.26	500	25
Wall plug																		
TC5358	31.8	1.25	9.9	0.39	9.9	0.39	7.1	0.28	5.6	0.22	2.3	0.09	4.8	0.19	6.4 (in wall)	0.25 (in wall)	120	100
TC5359	38.4	1.51	19.1	0.75	19.1	0.75	8.1	0.32	14.0	0.55	3.1	0.12	12.7	0.5	9.5 (in wall)	0.37 (in wall)	320	50

Diagrams

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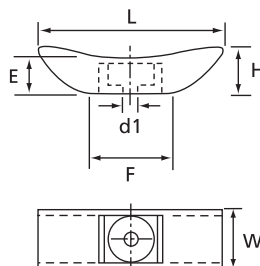
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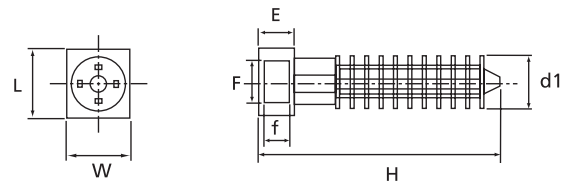
Mounting bases
Clip-in mounting bases for blind mounting

Characteristics
- Clip-in tie mounting bases for housings, faceplates etc
- With fastening clip for blind-mounting and two openings for 2.8mm (0.11") or 4.8mm (0.19") ties
- Low profile

Technical information
- Material: Polyamide 6.6
- Temperature range: -40°C to +85°C (-40°F to 185°F)
- Color: Natural
- Mounting method: Clip in
- Flammability rating: UL 94 V-2
- Other properties: Halogen free, Silicone free

—

Clip-in mounting bases for blind mounting

E49405

Cat. No.	H [mm]	H [in.]	W [mm]	W [in.]	G [mm]	G [in.]	E [mm]	E [in.]	F [mm]	F [in.]	Panel thickness from...to [mm]	Panel thickness from...to [in.]	For tie width up to [mm]	For tie width up to [in.]	Mounting hole diameter [mm]	Mounting hole diameter [in.]	Weight [g/100]	Quantity [pieces]
TC121-TB	10.4	0.41	11.2	0.44	3.4	0.13	2.0	0.08	6.1	0.24	0.1 to 3.2	0.003 to 0.13	2.4 or 4.8	0.09 or 0.19	6.3	0.25	31	1,000

Diagrams
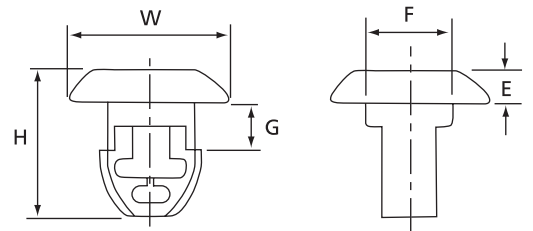
Mounting bases
Clip-in mounting bases for surface mounting

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 (-40°F to 185°F)
- Color: 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

—
Clip-in mounting bases for surface mounting

Cat. No.	H [mm]	H [in.]	W [mm]	W [in.]	L [mm]	L [in.]	G [mm]	G [in.]	E [mm]	E [in.]	F [mm]	F [in.]	Panel thickness from...to [mm]	Panel thickness from...to [in.]	For tie width up to [mm]	For tie width up to [in.]	Mounting hole diameter [mm]	Mounting hole diameter [in.]	Weight [g/100]	Quantity [pieces]
TC5823 / TC823-TB	16.8	0.66	11.1	0.44	11.1	0.44	3.6	0.14	5.1	0.20	5.8	0.23	0.1 to 3.2	0.004 to 0.13	4.8	0.19	6.2 to 6.5	0.24 to 0.26	68	100 / 1,000
TC823X*	16.8	0.66	11.1	0.44	11.1	0.44	3.6	0.14	5.1	0.20	5.8	0.23	0.1 to 3.2	0.004 to 0.13	4.8	0.19	6.2 to 6.5	0.24 to 0.26	68	1,000

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

Diagrams

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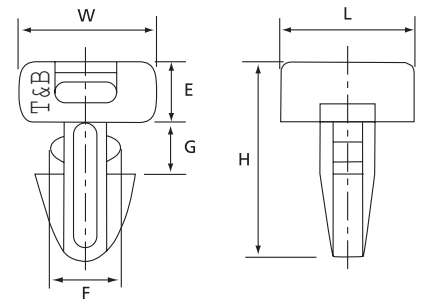
Mounting bases
Rivet-mounted bases

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

Technical information
- Material: Polyamide 6.6
- Temperature range: -40°C to +85°C (-40°F to 185°F)
- Color: See table
- Mounting method: Rivet mounted
- Flammability rating: UL 94 V-2
- Other properties: Halogen free, Silicone free

—

Rivet-mounted bases

E49405

Cat. No.	Color	W [mm]	W [in.]	L [mm]	L [in.]	F [mm]	F [in.]	E [mm]	E [in.]	G [mm]	G [in.]	H [mm]	H [in.]	J [mm]	J [in.]	For tie width up to [mm]	For tie width up to [in.]	Mounting hole diameter [mm]	Mounting hole diameter [in.]	Weight [g/100]	Quantity [pieces]
TC116-TB	Red	12.7	0.5	19.1	0.75	3.2	0.13	13.9	0.55	8.6	0.34	15	0.59	3.9	0.15	4.8	0.19	3.7	0.15	70.5	1,000
TC118-TB	Blue	12.7	0.5	19.1	0.75	3.2	0.13	13.9	0.55	8.6	0.34	15	0.59	4.5	0.18	4.8	0.19	4.4	0.17	71.0	1,000
TC120	Yellow	12.7	0.5	19.1	0.75	3.2	0.13	13.9	0.55	8.6	0.34	15	0.59	5.2	0.20	4.8	0.19	4.9	0.19	71.5	1,000

Diagrams

—
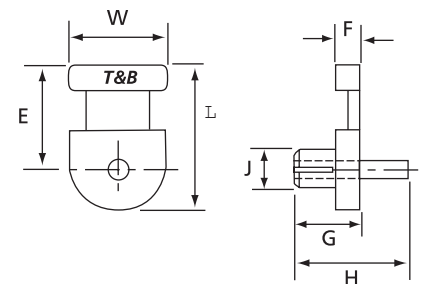
Mounting bases
Aluminium plates

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 (212°F to 842°F)
  Self-adhesive version: 0°C to +65°C (32°F to 149°F)
- Color: Metallic
- Mounting method: Glue (*) and / or screw or self-adhesive
- Flammability rating: Fire proof
- Other properties: UV-resistant

—

Aluminium plates

Cat. No.	Mounting method	H [mm]	H [in.]	W [mm]	W [in.]	L [mm]	L [in.]	E [mm]	E [in.]	F [mm]	F [in.]	For tie width up to [mm]	For tie width up to [in.]	Mounting hole diameter [mm]	Mounting hole diameter [in.]	Weight [g/100]	Quantity [pieces]
TC105AP	self-adhesive / screw	3.8	0.15	13.2	0.52	25.4	1	4.8	0.89	0.8	0.03	4.8	0.89	4.9	0.19	67	1,000
TC5105 / TC105	screw	3.8	0.15	13.2	0.52	25.4	1	4.8	0.89	0.8	0.03	4.8	0.89	4.9	0.19	67	100 / 1,000
TC824-TB	2-component glue*	3.8	0.15	9.5	0.37	34.9	1.37	–	–	0.8	0.03	4.8	0.89	–	–	69	1,000

* Glue = Cat. no. TC2PA (see page C115 for specifications)

Diagrams

TC824-TB
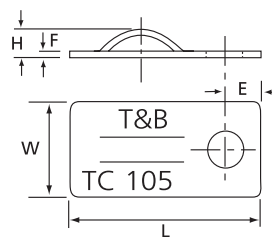
TC105 and TC105AP

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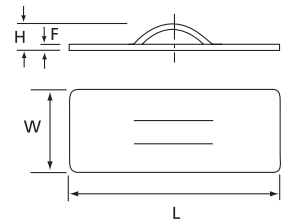
Cable clamps

Plain edge cable clamps

Characteristics

- 18 diameters and 2 widths with mounting holes for M4 and M5 screws
- Indoor application

Technical information

- Material: Polyamide 6.6
- Temperature range: -40°C to +85°C (-40°F to 185°F)
- Color: Black
- Mounting method: Screw
- Flammability rating: UL 94 V-2
- Other properties: Halogen free, Silicone free

—

Plain edge cable clamps

Cat. No.	D1 closed diameter [mm]	[in.]	E [mm]	[in.]	T [mm]	[in.]	W [mm]	[in.]	Z [mm]	[in.]	X [mm]	[in.]	Quantity [pieces]
N4NY-002-0-M	3.20	0.13	8.71	0.34	1.27	0.05	9.53	0.38	5.54	0.22	4.30	0.17	1,000
N4NY-003-0-M	4.70	0.19	9.60	0.38	1.27	0.05	9.53	0.38	5.54	0.22	4.30	0.17	1,000
N4NY-004-0-M	6.30	0.25	10.70	0.42	1.27	0.05	9.53	0.38	5.54	0.22	4.30	0.17	1,000
N4NY-005-0-M	7.90	0.31	11.20	0.44	1.27	0.05	9.53	0.38	5.54	0.22	4.30	0.17	1,000
N4NY-006-0-M	9.50	0.37	11.79	0.46	1.27	0.05	9.53	0.38	5.54	0.22	4.30	0.17	1,000
N4NY-008-0-M	12.70	0.5	13.46	0.53	1.27	0.05	9.53	0.38	5.54	0.22	4.30	0.17	1,000
N6NY-004C-0-M	6.35	0.25	11.10	0.44	1.52	0.06	12.71	0.50	5.54	0.22	5.16	0.20	1,000
N6NY-005C-0-M	7.92	0.31	12.24	0.48	1.52	0.06	12.71	0.50	5.54	0.22	5.16	0.20	1,000
N6NY-006C-0-M	9.53	2.09	12.70	0.5	1.52	0.06	12.71	0.50	5.54	0.22	5.16	0.20	1,000
N6NY-008C-0-M	12.70	0.5	14.05	0.55	1.52	0.06	12.71	0.50	5.54	0.22	5.16	0.20	1,000
N6NY-009-0-M	14.27	0.56	15.32	0.60	1.52	0.06	12.71	0.50	5.54	0.22	5.16	0.20	1,000
N6NY-010-0-M	15.88	0.63	15.88	0.63	1.52	0.06	12.71	0.50	5.54	0.22	5.16	0.20	1,000
N6NY-011-0-M	17.48	0.69	16.89	0.66	1.52	0.06	12.71	0.50	5.54	0.22	5.16	0.20	1,000
N6NY-012-0-M	19.05	0.75	17.75	0.70	1.52	0.06	12.71	0.50	5.54	0.22	5.16	0.20	1,000
N6NY-013-0-M	20.62	0.81	19.43	0.76	1.52	0.06	12.71	0.50	5.54	0.22	5.16	0.20	1,000
N6NY-014-0-M	22.23	0.88	20.19	0.79	1.52	0.06	12.71	0.50	5.54	0.22	5.16	0.20	1,000
N6NY-016-0-M	25.40	1	21.00	0.83	1.52	0.06	12.71	0.50	5.54	0.22	5.16	0.20	1,000

Also available in quantities of 100 pieces. For other colors please contact your Sales Office

Diagrams

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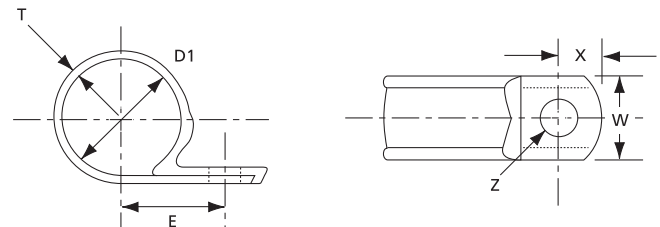
Cable clamps

Adjustable, ladder style clamps
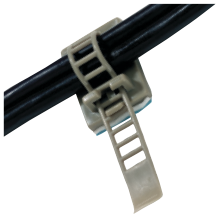
Characteristics

- 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

- Material: Polyamide 6.6
- Temperature range: 0°C to +65°C (32°F to 149°F)
- Color: Grey
- Mounting method: Self adhesive and / or screw-mounting
- Flammability rating: UL 94 V-2 (clamp)
- Other properties: Halogen free, Silicone free

Technical information

—

Adjustable, ladder style clamps

Cat. No.	Bundle diameter range [mm]	[in.]	H [mm]	[in.]	W [mm]	[in.]	L [mm]	[in.]	Diagrams S [mm]	[in.]	Screw hole diameter [mm]	[in.]	Quantity [pieces]
ULNY-013-8-C	3 - 12.7	0.12 - 0.5	59.5	2.34	18	0.71	25	0.99	8	0.31	2.79	0.11	100
ULNY-018-8-C	5 - 21.0	0.20 - 0.83	79.4	3.13	21	0.83	30	1.18	12	0.47	2.79	0.11	100
ULNY-023-8-C	7 - 25.0	0.28 - 0.98	85.5	3.37	25	0.98	35	1.38	14	0.55	3.43	0.14	100

For other quantities please contact your Sales Office

Diagrams

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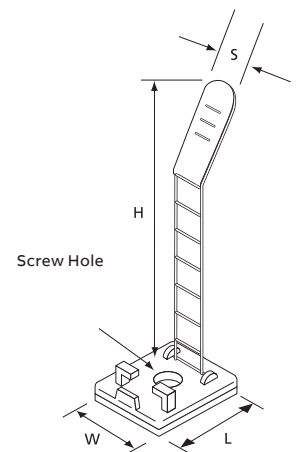
Cable clamps
Latching clamps
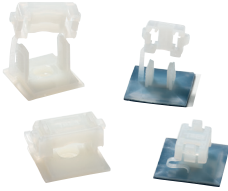
Characteristics
- Re-usable tie mounting clamps
- For self-adhesive and / or screw- or rivet mounting
- One-piece design with integrated releasable lock
- The inner profile protects sensitive cables, fibre optics etc
- Desired height can be set in 3 or 6 ratchet steps
- The large base surface area and the strong adhesive film guarantee a high adhesive strength
- The self-adhesive film is foam backed (0.8mm/0.03") which allows durable fixing on a variety of materials

Technical information
- Material: Polyamide 6.6
- Temperature range:
  -40°C to +85°C (-40°F to 185°F)
  Self-adhesive version: 0°C to +65°C (32°F to 149°F)
- Color: Natural
- Mounting method: Self adhesive or screw-mounting
- Flammability rating: UL 94 V-2
- Other properties: Halogen free, Silicone free

—
Latching clamps

													Diagrams						
		H										E Height of clamping area from ... to		F Width of clamping area		Mounting hole diameter			
		max.		min.		W		L		D									
Cat. No.	Mounting method	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	Weight [g/100]	Quantity [pieces]
TC5349A-TB / TC349A-TB	self-adhesive (rubber based) / screw	14.5	0.57	11.5	0.45	25.0	0.98	25.0	0.98	2.7	0.11	6 to 8.5	0.24 to 0.33	6	0.24	–	–	120	100 / 1,000
TC349AN	self-adhesive (acrylic based) / screw	14.5	0.57	11.5	0.45	25.0	0.98	25.0	0.98	2.7	0.11	6 to 8.5	0.24 to 0.33	6	0.24	–	–	120	1,000
TC5350A-TB / TC350A-TB	self-adhesive (rubber based) / screw	22.0	0.87	18.0	0.71	25.0	0.98	25.0	0.98	4.7	0.19	6 to 12.5	0.24 to 0.49	15	0.59	4.3	0.17	400	100 / 1,000
TC350AN	self-adhesive (acrylic based) / screw	22.0	0.87	18.0	0.71	25.0	0.98	25.0	0.98	4.7	0.19	6 to 12.5	0.24 to 0.49	15	0.59	4.3	0.17	400	1,000
TC5350 / TC350	screw	21.3	0.84	17.2	0.68	25.0	0.98	25.0	0.98	4.0	0.16	6 to 12.5	0.24 to 0.49	15	0.59	4.3	0.17	380	100 / 1,000

Diagrams

TC349A-TB
TC349AN
TC5349A-TB
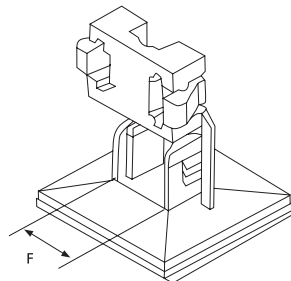
TC350
TC350AN
TC5350
TC350A-TB
TC5350A-TB

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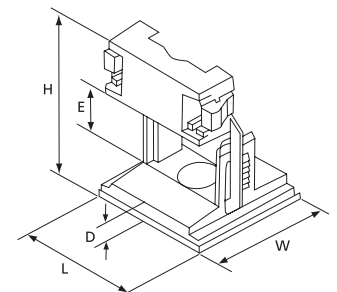
Cable clamps
Re-openable clamps

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
- Cat. no. TC95 features 2-stage lock

Technical information
- Material: Polyamide 6.6
- Temperature range: -40°C to +85°C (40°F to 185°F)
- Color: Natural
- Mounting method: Clip in
- Flammability rating: UL 94 V-2
- Other properties: Halogen free, Silicone free

—
Re-openable clamps

Cat. No.	H [mm]	H [in.]	W [mm]	W [in.]	L [mm]	L [in.]	D [mm]	D [in.]	T [mm]	T [in.]	For wall thickness from ... to [mm]	For wall thickness from ... to [in.]	Mounting hole diameter [mm]	Mounting hole diameter [in.]	Weight [g/100]	Quantity [pieces]
TC88	22.6	0.89	12.7	0.5	19.1	0.75	12.7	0.5	2.5	0.10	2.5 - 3.6	0.10 - 0.14	5.7 - 7	0.22 - 0.28	115	100
TC95	40.5	1.59	12.7	0.5	19.1	0.75	25.4	1	2.5	0.10	2.5 - 3.6	0.10 - 0.14	5.7 - 7	0.22 - 0.28	278	100

Diagrams

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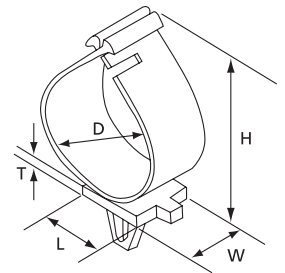
Cable clamps

Re-openable clamps with springs
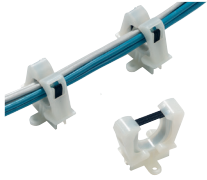
Characteristics

- 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 (-40°F to 185°F)
- Color: Natural
- Mounting method: 2 screws
- Flammability rating: UL 94 V-2 (body)
- Other properties: Halogen free

—

Re-openable clamps with springs

Cat. No.	Max. bundle diameter		H		L		W		E		Diagrams F		Mounting hole diameter		Weight [g/100]	Quantity [pieces]
	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]		
TC86	19	0.75	46	1.81	44.5	1.75	31.8	1.25	22.2	0.87	2.5	0.10	3.9	0.15	860	25
TC87	32	1.26	58	2.28	62.7	2.47	38.1	1.5	25.4	1	2.5	0.10	3.9	0.15	1;950	25

Diagrams

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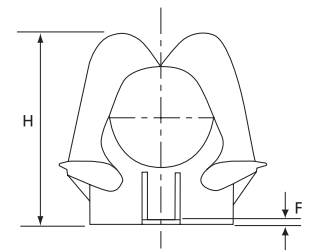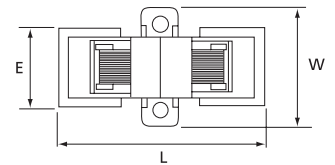
Cable clamps

Self-adhesive press clips

Characteristics

- Available in "full clip" version (PCNY series) or "half clip" version (HCNY series)
- 4 sizes to accommodate bundles up to 12mm (0.47")
- 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 (32°F to 149°F)
- Color: Natural
- Mounting method: Self-adhesive
- Flammability rating: UL 94 V-2
- Other properties: Halogen free, Silicone free

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Self-adhesive press clips

Cat. No.	D [mm]	D [in.]	L [mm]	L [in.]	B [mm]	B [in.]	H [mm]	H [in.]	W [mm]	W [in.]	Quantity [pieces]
Full clip											
PCNY-125-9-D	3.17	0.12	19.30	0.76	9.65	0.38	5.36	0.21	9.52	0.37	500
PCNY-250-9-C / PCNY-250-9-D	6.35	0.25	35.05	1.38	17.52	0.69	8.23	0.32	12.69	0.50	100 / 500
PCNY-375-9-C / PCNY-375-9-D	9.52	0.74	37.32	1.47	18.61	0.73	11.29	0.44	15.87	0.62	100 / 500
PCNY-500-9-C / PCNY-500-9-D	12.69	0.50	40.57	1.60	20.19	0.79	14.85	0.58	19.05	0.75	100 / 500
Half clip											
HCNY-125-9-C / HCNY-125-9-M	3.17	0.12	12.52	0.49	9.65	0.38	4.57	0.18	9.52	0.37	100 / 1,000
HCNY-250-9-C / HCNY-250-9-M	6.35	0.25	21.97	0.86	17.52	0.69	8.25	0.32	12.69	0.50	100 / 1,000
HCNY-375-9-C / HCNY-375-9-M	9.52	0.74	24.88	0.98	19.05	0.75	10.54	0.41	15.87	0.62	100 /1,000
HCNY-500-9-C / HCNY-500-9-M	12.69	0.50	28.19	1.11	20.83	0.82	14.22	0.56	19.05	0.75	100 / 1,000

Diagrams

PCNY

HCNY

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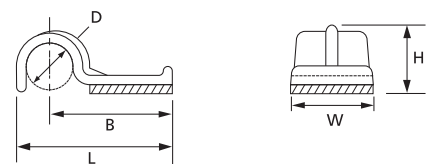
Cable clamps
Self-adhesive clips for round cable

Characteristics
- Diverse cable clamps for bundle diameters from 4mm (0.16") to 13.5mm (0.53")
- 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 (32°F to 149°F)
- Color: Natural or black
- Mounting method: Self-adhesive
- Flammability rating: UL 94 V-2
- Other properties: Halogen free, Silicone free

—
Self-adhesive clips for round cable

Cat. No.	Color	Max. bundle diameter [mm]	[in.]	H [mm]	[in.]	W [mm]	[in.]	L [mm]	[in.]	Quantity [pieces]
RANY-160-9-D	natural	4.0	0.16	6.4	0.25	16.0	0.63	14.8	0.58	500
RANY-280-9-D	natural	7.1	0.28	10.4	0.41	25.4	1	25.4	1	500
RANY-280-0-D	black	7.1	0.28	10.4	0.41	25.4	1	25.4	1	500
RANY-530-9-D	natural	13.5	0.53	15.8	0.62	25.4	1	25.4	1	500
RANY-620-9-D	natural	13.5	0.53	14.2	0.56	31.8	1.25	28.5	1.12	500

For other colors and quantities please contact your Sales Office

Diagrams

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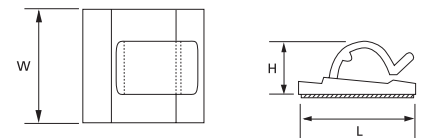
Cable clamps

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 1.27mm (76.2mm wide) (0.05" pitch/3" 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 (-40°F to 185°F)
  Self-adhesive version: 0°C to +65°C
  (32°F to 149°F)
- Color: Natural
- Mounting method: Self-adhesive and / or for screw- or rivet-mounting
- Flammability rating: UL 94 V-2
- Other properties: Halogen free, Silicone free

—
Accessories for flat cables

| | | | | | | | | | | | | | | | Diagrams | | | | |
Cat. No.	Mounting method	H max. [mm]	max. [in.]	min. [mm]	min. [in.]	W [mm]	W [in.]	L [mm]	L [in.]	D Mounting centres from ... to [mm]	from ... to [in.]	E Inner width [mm]	E [in.]	Adhesive strength on steel/ fastening hole	Weight [g/100]	Quantity [pieces]
FCC-1	countersunk screws	21.0	0.83	8.0	0.31	12.7	0.5	32.5	1.28	–	–	25.4	1	M4	260	50
FCC-1A	countersunk screws / self-adhesive	21.0	0.83	8.8	0.35	12.7	0.5	32.5	1.28	–	–	25.4	1	76 N/cm	275	50
FCC-2	countersunk screws	36.0	1.42	8.0	0.31	12.7	0.5	57.9	2.28	39.1	1.54	50.8	2	M4	340	50
FCC-2A	countersunk screws / self-adhesive	36.0	1.42	8.8	0.35	12.7	0.5	57.9	2.28	39.1	1.54	50.8	2	76 N/cm	390	50
FCC-3	countersunk screws	36.0	1.42	8.0	0.31	12.7	0.5	83.3	3.28	64.5	2.54	76.2	3	M4	475	50
FCC-3A	countersunk screws / self-adhesive	36.0	1.42	8.8	0.35	12.7	0.5	83.3	3.28	64.5	2.54	76.2	3	76 N/cm	490	50

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Diagrams

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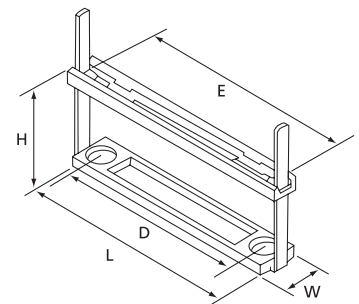
Accessories for flat cables

PVC cable-clips
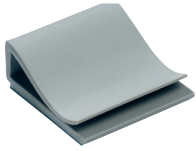
Characteristics

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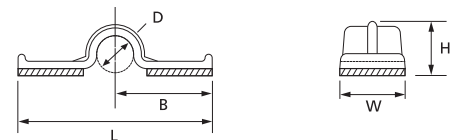- "Single cut" on a rubber based closed cell foam adhesive

Technical information

- Material: PVC (clip)
- Temperature range: 0°C to +65°C (32°F to 149°F)
- Color: Grey
- Mounting method: Self-adhesive
- Flammability rating: UL 94 V-0 (clip)
- Other properties: UV-resistant

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Self-adhesive clips for round cable

					Diagrams		
	H		T		W		Quantity
Cat. No.	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[pieces]
FRPV-1000-8-C / FRPV-1000-8-D	5.8	0.23	27	1.06	25.4	1	100 / 500

Diagrams

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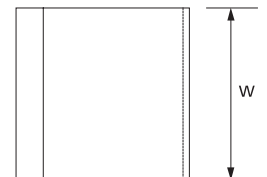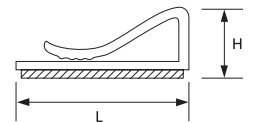
Accessories for flat cables
Clips with flexible leg

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 (-40°F to 185°F)
  Self-adhesive version: 0°C to +65°C
  (32°F to 149°F)
- Color: Natural
- Mounting method:Self-adhesive or screw
- Flammability rating: UL 94 V-2 (clip)
- Other properties: Halogen free, Silicone free

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Clips with flexible leg

Cat. No.	Mounting method	H [mm]	H [in.]	T [mm]	T [in.]	W [mm]	W [in.]	Quantity [pieces]
FSNY-812-9-C	M4 screw	3.17	0.12	30.15	1.19	25.40	1	100
FANY-812-9-C / FANY-812-9-D	self-adhesive	7.14	0.28	25.40	1	25.40	1	100 / 500

For other colors and quantities please contact your Sales Office

Diagrams

FANY
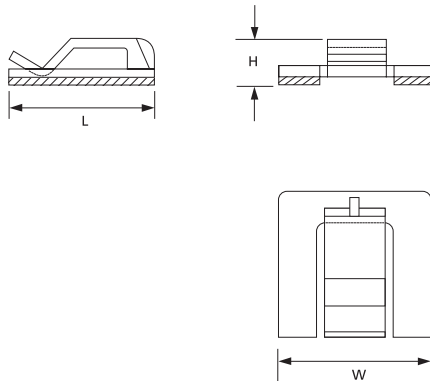
FSNY
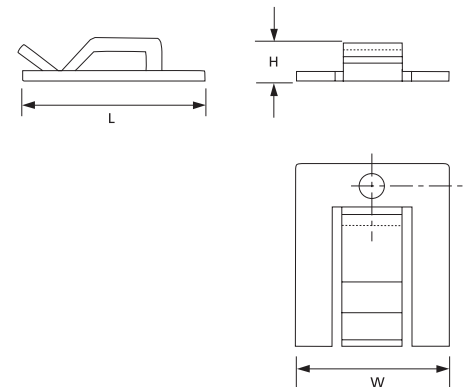
Cable sleeves and spiral wraps
Bind-It®

The Cable Protection Systems (CPS) 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 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.

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Cable sleeves and spiral wraps
Spiral wrap
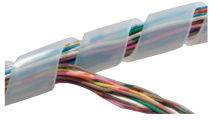
Characteristics
- For protection of bundles from 4mm to 130mm (0.16" to 5.12")
- Install gapped for greater flexibility or butted for maximum abrasion resistance, insulation and rigidity
- Counter-clockwise cut
- Delivered in bags with Euroslot
- Available in natural and UV-resistant black Polyethylene

Technical information
- Material: Polyethylene
- Temperature range: -30°C to +80°C (-22°F to 176°F)
- Color: Natural and UV-resistant black
- Flammability rating: UL 94 HB
- Other properties: UV-resistant black, Halogen free, Silicone free

—
Spiral wrap

Cat. No.	Color	Outer diameter [mm]	[in.]	pitch [mm]	[in.]	Nominal thickness [mm]	[in.]	Min. – max. bundle diameter [mm]	[in.]	Length [m]	[ft]
SRPE-6-9	natural	6.0	0.24	7.0	0.78	0.5	0.02	4 - 50	0.16 - 0.97	10	32.81
SRPE-8-9	natural	8.0	0.31	10.8	0.43	0.5	0.02	6 - 60	0.24 - 25.59	10	32.81
SRPE-10-9	natural	10.0	0.39	11.4	0.44	0.8	0.03	7.5 - 60	0.30 - 25.59	10	32.81
SRPE-12-9	natural	12.0	0.47	13.9	0.55	0.9	0.04	9 - 65	0.35 - 2.56	10	32.81
SRPE-15-9	natural	15.0	0.59	15.0	0.59	1.0	0.04	12 - 70	0.47 - 2.76	10	32.81
SRPE-19-9	natural	19.0	0.75	18.2	0.72	1.3	0.05	15 - 100	0.59 - 3.94	10	32.81
SRPE-24-9	natural	24.0	0.94	19.6	0.77	1.5	0.06	20 - 130	0.79 - 5.12	10	32.81
SRPE-6-0	UV-resistant black	6.0	0.24	7.0	0.28	0.5	0.02	4 - 50	0.16 - 0.97	10	32.81
SRPE-8-0	UV-resistant black	8.0	0.31	10.8	0.43	0.5	0.02	6 - 60	0.24 - 25.59	10	32.81
SRPE-10-0	UV-resistant black	10.0	0.39	11.4	0.44	0.8	0.03	7.5 - 60	0.30 - 25.59	10	32.81
SRPE-12-0	UV-resistant black	12.0	0.47	13.9	0.55	0.9	0.04	9 - 65	0.35 - 2.56	10	32.81
SRPE-15-0	UV-resistant black	15.0	0.59	15.0	0.59	1.0	0.04	12 - 70	0.47 - 2.76	10	32.81
SRPE-19-0	UV-resistant black	19.0	0.75	18.2	0.72	1.3	0.05	15 - 100	0.59 - 3.94	10	32.81
SRPE-24-0	UV-resistant black	24.0	0.94	19.6	0.77	1.5	0.06	20 - 130	0.79 - 5.12	10	32.81

Diagrams

Nominal thickness

Outer diameter

Pitch

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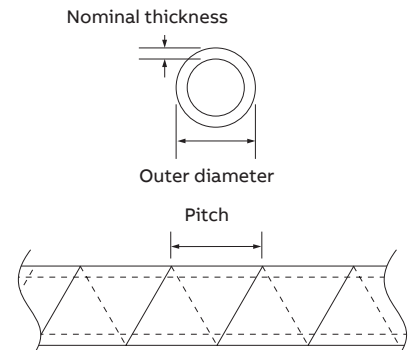
Cable sleeves and spiral wraps

Extruded grommeting

Characteristics

- Used to line panel edges and knock-outs where the chafing of passing wires is a concern
- Available in 8 stock sizes in 30.5m (100.07ft) lengths for panels from 1mm to 6.35mm (0.04" to 0.25")
- 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 (-40°F to 185°F)
- Color: Natural or black
- Flammability rating: UL 94 V-2
- Other properties: Halogen free, Silicone free

—

Extruded grommeting

		Internal width A		Thickness T		H		W		Length per reel	
Cat. No.	Color	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[m]	[ft]
GRNY-040-9-C	natural	1.01	0.04	1.01	0.04	4.82	0.19	3.17	0.12	30.5	100.07
GRNY-052-9-C	natural	1.32	0.05	1.01	0.04	4.82	0.19	3.17	0.12	30.5	100.07
GRNY-062-9-C	natural	1.57	0.06	1.14	0.04	5.08	0.2	4.32	0.17	30.5	100.07
GRNY-085-9-C	natural	2.15	0.08	1.14	0.04	5.08	0.2	4.32	0.17	30.5	100.07
GRNY-100-9-C	natural	2.54	0.1	1.14	0.04	5.58	0.22	5.33	0.21	30.5	100.07
GRNY-125-9-C	natural	3.17	0.12	1.27	0.05	5.58	0.22	5.23	0.21	30.5	100.07
GRNY-187-9-C	natural	4.74	0.19	1.27	0.05	6.85	0.27	6.98	0.27	30.5	100.07
GRNY-250-9-C	natural	6.35	0.25	1.27	0.05	7.11	0.28	9.39	0.37	30.5	100.07
GRNY-040-0-C	black	1.01	0.04	1.01	0.04	4.82	0.19	3.17	0.12	30.5	100.07
GRNY-052-0-C	black	1.32	0.05	1.01	0.04	4.82	0.19	3.17	0.12	30.5	100.07
GRNY-062-0-C	black	1.57	0.06	1.14	0.04	5.08	0.2	4.32	0.17	30.5	100.07
GRNY-085-0-C	black	2.15	0.08	1.14	0.04	5.08	0.2	4.32	0.17	30.5	100.07
GRNY-100-0-C	black	2.54	0.1	1.14	0.04	5.58	0.22	5.33	0.21	30.5	100.07
GRNY-125-0-C	black	3.17	0.12	1.27	0.05	5.58	0.22	5.23	0.21	30.5	100.07
GRNY-187-0-C	black	4.74	0.19	1.27	0.05	6.85	0.27	6.85	0.27	30.5	100.07
GRNY-250-0-C	black	6.35	0.25	1.27	0.05	7.11	0.28	9.39	0.37	30.5	100.07

Diagrams
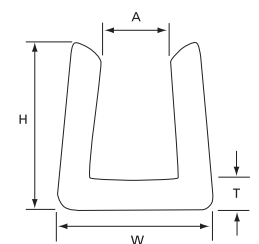
—
Wire protection products
Molded Grommeting

Characteristics
- Meets MS21266
- Available in three materials for panel thicknesses from 0.015 in. to 0.192 in.
- Grommet is used to protect panel edges and knockouts where the chafing of passing wires is a concern
- Also available in fluoropolymer material for harsh environments
- Strip length – 12¾ in.

—
Molded Grommeting

Std. Cat. No.	Bulk Cat. No.	Material	A		B		C		D		For panel thickness		Military Standard Numbers	Std. Pkg.	Bulk Pkg.
			[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[mm]	[in.]	[in.]	[mm]			
GSNY-052-9-C	–	Natural Nylon 6/6	0.15	3.81	0.06	1.42	0.16	3.94	0.10	2.54	0.02-0.052	0.38-1.32	MS-21266-1N	100	–
GSNY-085-9-C	–		0.18	4.45	0.09	2.29	0.16	3.94	0.10	2.54	0.05-0.085	1.35-2.16	MS-21266-2N	100	–
GSNY-128-9-C	–		0.22	5.59	0.13	3.33	0.16	3.94	0.10	2.54	0.09-0.128	2.18-3.25	MS-21266-3N	100	–
GSNY-192-9-C	–		0.36	8.26	0.20	4.95	0.23	5.84	0.10	2.54	0.19-0.192	3.25-4.88	MS-21266-4N	100	–
GSFR-052-WH-C	–	Flame-Retardant White	0.15	3.81	0.06	1.42	0.23	5.84	0.10	2.54	0.02-0.052	0.38-1.32	–	100	–
–	GSFR-052-WH-D		0.15	3.81	0.06	1.42	0.23	5.84	0.10	2.54	0.02-0.052	0.38-1.32	–	–	500
GSFR-085-WH-C	–		0.18	4.45	0.09	2.29	0.23	5.84	0.10	2.54	0.05-0.085	1.35-2.16	–	100	–

Diagrams
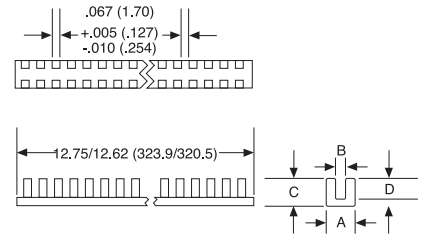
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Wire protection products
Braided Sleeving
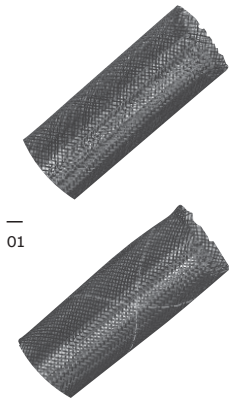
—
01 Polyethylene
Terephthalate (P.E.T.)

—
02 F – Flame
Retardant Polyethylene
Terephthalate (P.E.T.)

Characteristics
ABB braided wire protection sleeving is used to bundle and protect wires and cables from abrasion and excessive wear. Its flexible, lightweight, open weave construction installs easily over a variety of bundle diameters and shapes. The sleeving is resistant to chemicals, fungus, fuels, UV sunlight, and has an indefinite shelf life. It's easily cut with a hot knife, which seals the end, preventing fraying. Ends can be secured using Ty-Rap cable ties.
- Handy mini spools or bulk reels
- Eight sizes from ⅛ in. (3.18 mm) to 2½ in. (63.5 mm) nominal I.D. size
- Solid or wraparound hook and loop braided expandable wire sleeving
- Meets UL94V-1
- Meets Federal Motor Vehicle Standard No. FMV SS 302

Technical information
Polyethylene Terephthalate (P.E.T.)
- Black polyester monofilament material
- 0.010 in. (0.25mm)
- Designed for indoor and outdoor applications
- Rated for continuous operating temp. -75°C to 125°C (-103°F to 257°F)

Technical information
F – Flame retardant polyethylene terephthalate (P.E.T.)
- Self-extinguishing polyester monofilament material
- 0.010 in. (0.25 mm)
- Can be used indoors and outdoors
- Provided in black with white tracer for identification
- Rated for continuous operating temp. -75°C to 125°C (-103°F to 257°F)
- Meets UL 94V-1 Flammability Rating

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Braided sleeving catalogue number system

Cat. No.	Nominal D.I.		Colour	Nominal diameter range		Reel size	Std. Pkg.
	[mm]	[in.]		[mm]	[in.]		
S250PT-0	0.250	6.35	Black	0.125 to 0.375	3.18 to 9.53		1
S375PC-0	0.375	9.53	Black	0.187 to 0.625	4.75 to 15.88		1
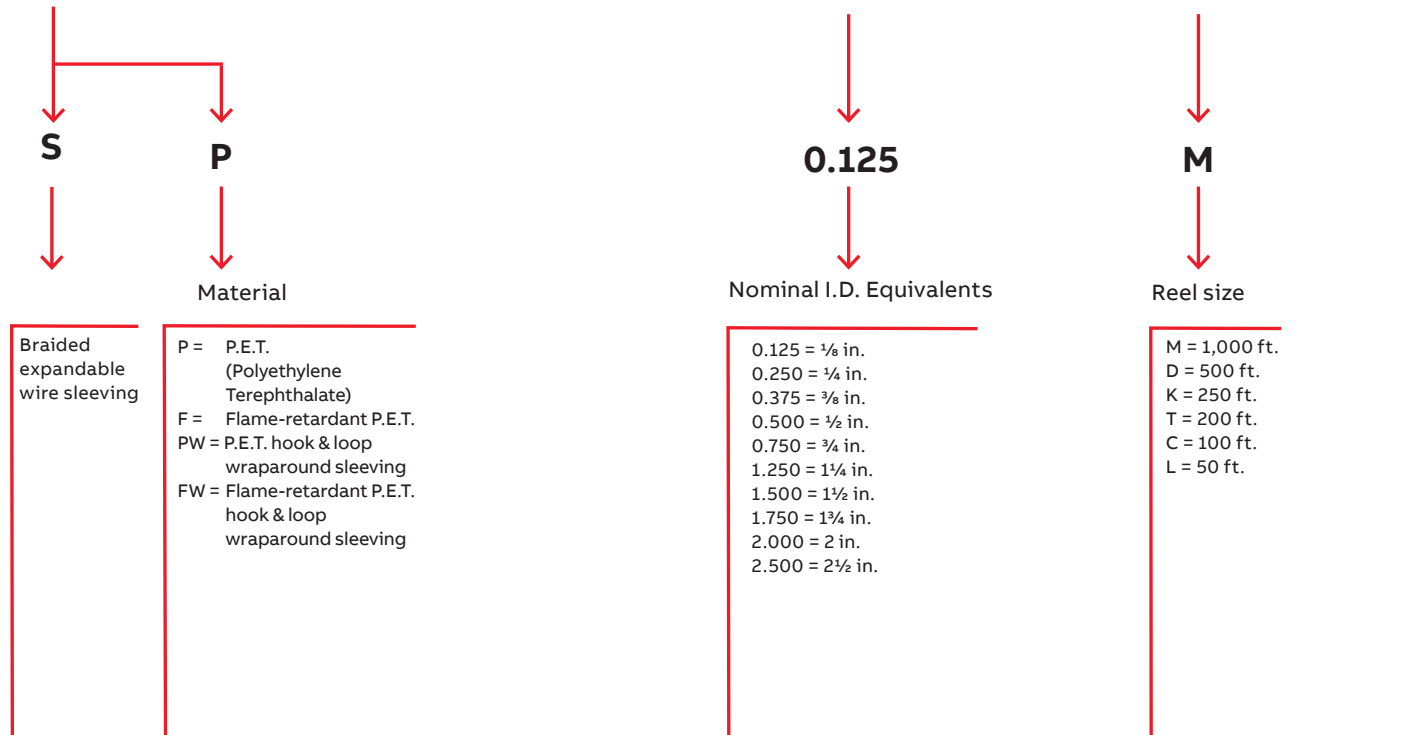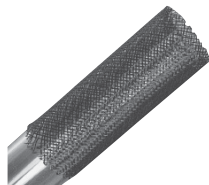
S **P** **0.125** **M**

Material

Nominal I.D. Equivalents

Reel size

Braided expandable wire sleeving

P = P.E.T. (Polyethylene Terephthalate)
F = Flame-retardant P.E.T.
PW = P.E.T. hook & loop wraparound sleeving
FW = Flame-retardant P.E.T. hook & loop wraparound sleeving

0.125 = ⅛ in.
0.250 = ¼ in.
0.375 = ⅜ in.
0.500 = ½ in.
0.750 = ¾ in.
1.250 = 1¼ in.
1.500 = 1½ in.
1.750 = 1¾ in.
2.000 = 2 in.
2.500 = 2½ in.

M = 1,000 ft.
D = 500 ft.
K = 250 ft.
T = 200 ft.
C = 100 ft.
L = 50 ft.

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Wire protection products

Braided Sleeving

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P.E.T. Braided expandable wire sleeving – Mini spool

Cat. No.	Nominal I.D.		Colour	Nominal diameter range		Reel size	Std. Pkg.
	[mm]	**[in.]**		**[mm]**	**[in.]**		
S250PT-0	0.25	6.35	Black	0.13 to 0.38	3.18 to 9.53	200 ft. / 60.96 m	1
S375PC-0	0.38	9.53	Black	0.19 to 0.63	4.75 to 15.88	125 ft. / 38.10 m	1
S500PC-0	0.50	12.70	Black	0.25 to 0.75	6.35 to 19.05	100 ft. / 30.48 m	1
S750PC-0	0.75	19.05	Black	0.50 to 1.25	12.70 to 31.75	100 ft. / 30.48 m	1
S1250PL-0	1.25	31.75	Black	0.75 to 1.75	19.05 to 44.45	50 ft. / 15.24 m	1
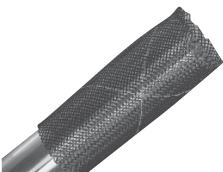
* NOTE: Order by spool, not per foot.

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Flame retardant braided expandable wire sleeving – Mini spool

Cat. No.	Nominal I.D.		Colour	Nominal diameter range		Reel size	Std. Pkg.
	[mm]	**[in.]**		**[mm]**	**[in.]**		
S250FT-0	0.25	6.35	Black with White Tracer	0.13 to 0.38	3.18 to 9.53	200 ft. / 60.96 m	1
S500FC-0	0.50	12.70	Black with White Tracer	0.25 to 0.75	6.35 to 19.05	100 ft. / 30.48 m	1
S750FC-0	0.75	19.05	Black with White Tracer	0.50 to 1.25	12.70 to 31.75	100 ft. / 30.48 m	1
S1250FL-0	1.25	31.75	Black with White Tracer	0.75 to 1.75	19.05 to 44.45	50 ft. / 15.24 m	1

* NOTE: Order by spool, not per foot.

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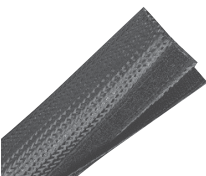
P.E.T. Hook and loop, wraparound sleeving – Mini spool

Cat. No.	Nominal I.D.		Colour	Nominal diameter range		Reel size	Std. Pkg.
	[mm]	**[in.]**		**[mm]**	**[in.]**		
S500PWL-0	0.50	12.70	Black	0.25 to 0.75	6.35 to 19.05	50 ft. / 15.24 m	1
S750PWL-0	0.75	19.05	Black	0.50 to 1.25	12.70 to 31.75	50 ft. / 15.24 m	1
S1250PWL-0	1.25	31.75	Black	0.75 to 1.75	19.05 to 44.45	50 ft. / 15.24 m	1
S2000PWL-0	2.00	50.80	Black	1.50 to 3.50	38.10 to 88.90	50 ft. / 15.24 m	1

* NOTE: Order by spool, not per foot.

• No tools required to close the sleeving
• Hook and loop material is made of 100% nylon

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Flame retardant hook and loop, wraparound sleeving – Mini spool

Cat. No.	Nominal I.D.		Colour	Nominal diameter range		Reel size	Std. Pkg.
	[mm]	**[in.]**		**[mm]**	**[in.]**		
S500FWL-0	0.50	12.70	Black with White Tracer	0.25 to 0.75	6.35 to 19.05	50 ft. / 15.24 m	1
S750FWL-0	0.75	19.05	Black with White Tracer	0.50 to 1.25	12.70 to 31.75	50 ft. / 15.24 m	1
S1250FWL-0	1.25	31.75	Black with White Tracer	0.75 to 1.75	19.05 to 44.45	50 ft. / 15.24 m	1
S2000FWL-0	2.00	50.80	Black with White Tracer	1.50 to 3.50	38.10 to 88.90	50 ft. / 15.24 m	1

* NOTE: Order by spool, not per foot.

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Wire protection products
Braided Sleeving
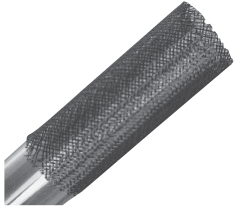
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P.E.T. Braided Expandable Wire Sleeving – Bulk reel

Cat. No.	Nominal I.D.		Colour	Nominal diameter range		Reel size	Std. Pkg.
	[mm]	[in.]		[mm]	[in.]		
S125PM-0	0.125	3.18	Black	0.09 to 0.250	2.39 to 6.35	1,000 ft. / 304.80 m	1
S250PM-0	0.25	6.35	Black	0.125 to 0.375	3.18 to 9.53	1,000 ft. / 304.80 m	1
S375PD-0	0.38	9.53	Black	0.19 to 0.63	4.75 to 15.88	500 ft. / 152.40 m	1
S500PD-0	0.50	12.70	Black	0.25 to 0.75	6.35 to 19.05	500 ft. / 152.40 m	1
S750PK-0	0.75	19.05	Black	0.50 to 1.25	12.70 to 31.75	250 ft. / 76.20 m	1
S1250PK-0	1.25	31.75	Black	0.75 to 1.75	19.05 to 44.45	250 ft. / 76.20 m	1
S1500PT-0	1.50	38.10	Black	1.00 to 2.50	25.40 to 63.50	200 ft. / 60.96 m	1
S1750PT-0	1.75	44.45	Black	0.125 to 0.375	31.75 to 59.85	200 ft. / 60.96 m	1
S2000PT-0	2.00	50.80	Black	1.50 to 3.50	38.10 to 88.90	200 ft. / 60.96 m	1
S2500PT-0	2.50	63.50	Black	1.75 to 4.50	44.45 to 114.30	200 ft. / 60.96 m	1
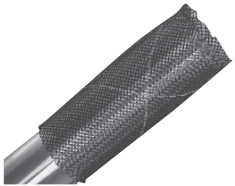
* NOTE: Order by spool, not per foot.

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Flame retardant braided expandable wire sleeving – Bulk reel

Cat. No.	Nominal I.D.		Colour	Nominal diameter range		Reel size	Std. Pkg.
	[mm]	[in.]		[mm]	[in.]		
S125FM-0	0.125	3.18	Black with white Tracer	0.09 to 0.250	2.39 to 6.35	1,000 ft. / 304.80 m	1
S250FM-0	0.25	6.35	Black with white Tracer	0.125 to 0.375	3.18 to 9.53	1,000 ft. / 304.80 m	1
S375FD-0	0.38	9.53	Black with white Tracer	0.19 to 63	4.75 to 15.88	500 ft. / 152.40 m	1
S500FD-0	0.50	12.70	Black with white Tracer	0.25 to 0.75	6.35 to 19.05	500 ft. / 152.40 m	1
S750FK-0	0.75	19.05	Black with white Tracer	0.50 to 1.25	12.70 to 31.75	250 ft. / 76.20 m	1
S750FK-9	0.75	19.05	White with black Tracer	0.50 to 1.25	12.70 to 31.75	250 ft. / 76.20 m	1
S1250FK-0	1.25	31.75	Black with white Tracer	0.75 to 1.75	19.05 to 44.45	250 ft. / 76.20 m	1
S1750FT-0	1.75	44.45	Black with white Tracer	0.125 to 0.375	31.75 to 59.85	200 ft. / 60.96 m	1
S1750FT-9	1.75	44.45	White with black Tracer	0.125 to 0.375	31.75 to 59.85	200 ft. / 60.96 m	1
S2000FT-0	2.00	50.80	Black with white Tracer	1.50 to 3.50	38.10 to 88.90	200 ft. / 60.96 m	1
S2500FT-0	2.50	63.50	Black with white Tracer	1.75 to 4.50	44.45 to 114.30	200 ft. / 60.96 m	1

* NOTE: Order by spool, not per foot.
For other colours, lengths, sizes and materials, please Contact your Regional Sales Office.

Cable tie tooling
Ty-Rap and Ty-Met 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

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Cable tie tooling
Selection guide

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Tooling for plastic ties

	Cat. No.	Features	Tensioning	Cutting	For cable ties
	ERG50	Ergonomic hand tool with superior level of reliability and performance	adjustable	automatic	2.4mm - 4.8mm (0.04" - 0.19")
	ERG120	Ergonomic hand tool with superior level of reliability and performance	adjustable	automatic	4.8mm - 7.6mm (0.19" - 0.30")
	ERG50P	Ergonomic pneumatic tool with superior level of reliability and performance	adjustable	automatic	2.4mm - 4.8mm/ (0.04" - 0.19")
	WT199	Semi- automatic MIL specified hand tool (MIL. Nr. MS-90387-1)	adjustable	automatic	2.4mm - 4.8mm (0.04" - 0.19")
	WT1-TB	Basic tensioning tool, intended for maintenance and small batch use	basic	twist cut	2.4mm - 4.8mm (0.04" - 0.19")
	WT197	Semi-automatic MIL specified hand tool (MIL. Nr. MS-90387-2)	adjustable	automatic	4.8mm - 7.6mm (0.19" - 0.30")
	WT2-TB	Basic tensioning tool, intended for maintenance and small batch use	basic	twist cut	4.8mm - 7.6mm (0.19" - 0.19")
	DAS250	Adjustable tension settings	adjustable	automatic	7.87mm (0.31")
	WT3D	Robust metal body with plastic hand-grips, designed for tensioning and cutting heavy-duty cable ties	basic	twist cut	7.6mm - 12.7mm (0.30" - 0.5")

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Cable tie tooling
Selection guide

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Tooling for Ty-Met stainless steel ties

	Cat. No.	Features	Tensioning	Cutting	For cable 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 12mm (0.47")
	L-600	Tensioning tool	basic	manual (twist cut)	Ball-lock type. Width: 4.6mm & 7.9mm (0.18" & 0.31")
	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: 4.6mm & 7.9mm (0.18" & 0.31")
	CT7	Tensioning and cutting tool, ratchet type	basic	manual	Ball-lock type. Width: 12mm & 16mm (0.47" & 0.63")
	CT8	Tensioning and cutting tool, ratchet type	basic	manual	Bands on reel (all widths)

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Cable tie tooling

Tools for plastic cable ties: ERG50, ERG120 and ERG50P

ERG50

ERG120

ERG50P

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 (25.4mm/1"), 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 color: Black
- For type of cable tie: Plastic ties
- For tie width: 2.4mm - 4.8mm (0.09" - 0.19")
- Features: Adjustable tension setting, automatic cutting, retraction of the strap end after application of Ty-Rap cable ties
- Weight: 260g
- Diagrams [L x W x H]: 178 x 127 x 38mm (7.01 x 5 x 150")
- Replacement blades: Cat. no. ERG50B

ERG120
- Tool type: Ergonomic hand tool
- Nose color: Orange
- For type of cable tie: Plastic ties
- For tie width: 4.8mm - 7.6mm (0.19" - 0.30")
- Features: Adjustable tension setting, automatic cutting, retraction of the strap end after application of Ty-Rap cable ties
- Weight: 278g
- Diagrams [L x W x H]: 178 x 127 x 38mm (7.01 x 5 x 1.50")
- Replacement blades: Cat. no. ERG120B

ERG50P
- Tool type: Ergonomic pneumatic tool
- Nose color: Black
- For type of cable tie: Plastic ties
- For tie width: 2.4mm - 4.8mm (0.09" - 0.19")
- 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/8.86ft)
- Operating air pressure: 6 to 7 bar non-lubricated air
- Weight: 415g (without pneumatic hose)
- Diagrams [L x W x H]: 245 x 155 x 40mm (9.65 x 6.10 x 1.57")
- Replacement blades: Cat. no. ERG50B

—
ERG50P tool in use

—

Cable tie tooling
Military certified installation tools

—

Cat. no.: 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: 2.4mm - 4.8mm (0.09" - 0.19")
- Features: Adjustable tension setting, automatic cutting, MIL specified (MS-90387-1)
- Weight: 410g
- Diagrams [L x W x H]: 163 x 134 x 24mm (6.42" x 5.28" x 0.94")

—

Cat. no.: 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: 4.8mm - 7.6mm (0.19" - 0.30")
- Features: Adjustable tension setting, automatic cutting, MIL specified (MS-90387-2)
- Weight: 420g
- Diagrams [L x W x H]: 165 x 135 x 29mm (6.50" x 5.31" x 1.14")

—

Cable tie tooling

Tool for heavy duty plastic cable ties

—

Cat. no.: 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: 7.6mm - 12.7mm (0.30" - 0.5")
- Features: Tensioning, manual cutting (by twisting the tool)
- Weight: 225g
- Diagrams [L x W x H]: 178 x 112 x 20mm (7.01" x 4.41" x 0.79")

—

Cable tie tooling

Tool for heavy duty stainless steel cable ties

—

Cat. no.: DAS250

Characteristics
- Installs Ty-Rap stainless steel cable ties
- Rugged stainless steel construction
- Pistol-type installation tool
- Adjustable tension settings

Technical information
- Tool type: Hand tool
- For type of cable tie: Plastic ties, stainless steel multi-lok, ball lok and roller back lok ties
- For tie width: 7.87mm (0.31")
- Features: Adjustable tension setting, automatic cutting, rugged stainless steel construction, pistol type installation tool
- Weight: 630g

—

Cable tie tooling
Tools for plastic cable ties

—

Cat. no.: 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
- Color: Orange
- For type of cable tie: Plastic ties
- For tie width: 2.4mm - 4.8mm (0.09" x 0.19")
- Features: Basic tensioning, twist cut
- Weight: 28.4g
- Diagrams [L x W x H]: 134 x 55 x 27mm (5.28" x 2.17" x 1.06")

—

Cat. no.: 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
- Color: Black
- For type of cable tie: Plastic ties
- For tie width: 4.8mm - 7.6mm (0.19" x 0.30")
- Features: Basic tensioning, twist cut
- Weight: 28.4g
- Diagrams [L x W x H]: 134 x 55 x 27mm (5.28" x 2.17" x 1.06")

—

Cable tie tooling
Tools for stainless steel ties

—
Cat. no.: 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: 50g
- Diagrams [L x W x H]: 85 x 106 x 15mm (3.35" x 4.17" x 0.59")

—
Cat. no.: 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 12mm (0.47")
- Features: Tensioning, no cutting
- Weight: 300g
- Diagrams [L x W x H]: 195 x 90 x 30mm (7.68" x 3.54" x 1.18")

—
Cat. no.: 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 12mm (0.47")
- Features: Tensioning, no cutting
- Weight: 225g
- Diagrams [L x W x H]: 178 x 112 x 20mm (7.01" x 4.41" x 0.79")

—

Cable tie tooling
Tools for stainless steel ties

—

Cat. no.: 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 12mm (0.47")
- Features: Tensioning, manual cutting
- Weight: 550g
- Diagrams [L x W x H]: 210 x 155 x 35mm (8.27" x 6.10" x 1.38")

—

Cat. no.: L-600

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 - 7.9mm (0.18" - 0.31")
- Features: Tensioning, manual cutting (by twisting the tool)
- Weight: 600g
- Diagrams [L x W x H]: 200 x 140 x 40mm (7.87" x 5.51" x 1.57")

—

Cat. no.: 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: 1200g
- Diagrams [L x W x H]: 156 x 180 x 80mm (6.14" x 7.09" x 3.15")

—

Cable tie tooling
Tools for stainless steel ties

—

Cat. no.: 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 12mm (0.47")
- Features: Adjustable tension setting, automatic cutting
- Weight: 430g
- Diagrams [L x W x H]: 173 x 158 x 22mm (6.81" x 6.22" x 0.87")

—

Cat. no.: 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 - 7.9mm (0.18" x 0.31")
- Features: Adjustable tension setting, automatic cutting
- Weight: 430g
- Diagrams [L x W x H]: 173 x 158 x 22mm (6.81" x 6.22" x 0.87")

—

Cat. no.: CT7

Characteristics

- Tensioning and cutting tool, ratchet type
- Suitable for coated and uncoated ball-lock type stainless steel ties, having a width of 12mm and 16mm (0.47" x 0.63")

Technical information

- Tool type: Hand tool, ratchet type
- Weight: 1300g
- Diagrams [L x W x H]: 270 x 170 x 60mm (10.63" x 6.69" x 2.36")

—

Cat. no.: CT8

Characteristics

- Tensionng and cutting tool, ratchet type
- Suitable for the bands on reel, in all widths
- The long nose leaves an excess of 45mm 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 19.1mm)
- Weight: 1570g
- Diagrams [L x W x H]: 310 x 200 x 60mm (12.20" x 7.87" x 2.36")

—
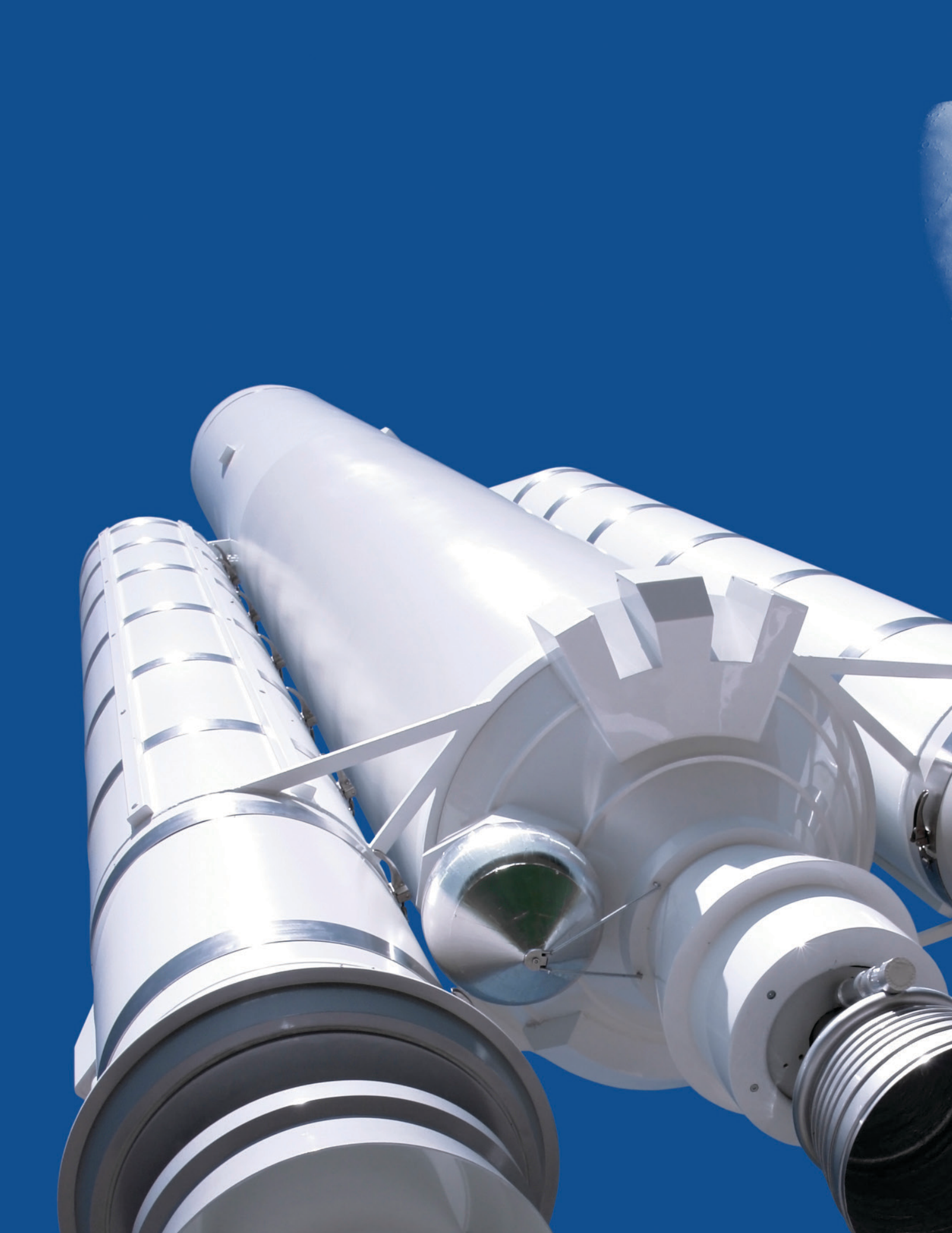
Material specifications

Material selection and 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 Cat. no.	TY...M	TY...MX	TYH...M	TY...MXA	TY...MFR
Ty-Fast Cat. no.	TY...	TY...X	TY...39		TS...HF
Max. operating temperature	85°C	105°C	105°C	105°C	65°C
	185°F	221°F	221°F	221°F	149°F
Min. operating temp.	-60°C	-60°C	-60°C	-60°C	-20°C
	-76°F	-76°F	-76°F	-76°F	-4°F
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%
Colors	Natural**	Black***	Natural****	Black	White
E-module (N/mm²)	2,000	2,000	2,000	2,000	1,400
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 120 - 122)
Halogen free	✔	✔	✔	✔	✔
Silicon free	✔	✔	✔	✔	✔

*   2% carbon for military specifications
**   Ty-Fast ties in standard Polyamide 6.6 are available in natural color and in a wide range of colors
      Ty-Rap ties in standard Polyamide 6.6 are available in natural color only
*** Ty-Fast ties in weather resistant Polyamide 6.6 are available in black color only (with 2% carbon for military specifications)
      Ty-Rap ties in weather resistant Polyamide 6.6 are available in black color (with 2% carbon for military specifications) and in a wide range of colors (except natural)
****Heat stabilised Polyamide 6.6 may have a greenish tint

—
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
Higt 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	TV	DEL	SS
TYHT...M	TY...M-NDT	TYC...MX	TYP...MX	TY...M-PDT	TYZ...M	TYV...M	TYD...	YRL... or YLD...
							CSS	or YLS... or YID...
								or YBR... or TYS...
170°C	85°C	85°C	85°C	85°C	150°C	160°C	90°C	300°C 150°C for Polyester
338°F	185°F	185°F	185°F	185°F	302°F	320°F	194°F	572°F 302°F for Polyester
-40°C	-40°C	-40°C	-40°C	-40°C	-60°C	-60°C	-65°C	-80°C
-40°F	-40°F	-40°F	-40°F	-40°F	-76°F	-76°F	-85°F	-112°F
V-2	V-2	V-2	HB	HB	V-0	V-0	HB	Excellent
1.18	1.31	1.02	0.90 - 0.91	1.03 - 1.07	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
3,200		1,600	1,100-1,300		1,000			193,000
		3.5-13	3-17		o.B.			122J(IZOD)
		✔	✔	✔	✔	✔	✔	✔
					✔	✔		✔
✔				✔	✔		✔	✔
		✔	✔	✔	✔	✔	✔	✔
		✔	✔	✔				✔
					✔			✔
								✔
✔	✔	✔	✔	✔			✔	✔
✔	✔	✔	✔	✔	✔	✔	✔	✔

—

Storage recommendations
Guidelines

Material specifications
UL flammability ratings

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

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 Diagrams 127 x 12.7mm (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 304.8mm (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 304.8mm (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 304.8mm (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 ½ inch x 5 inches (12.7mm x 127mm) specimen held at one end in a horizontal position with marks at 1 inch (25.4mm) and 5 inches (127mm) from the free end. A flame is applied to the free end for 30 seconds or until the flame front reaches the 1 inch (25.4mm) mark. If combustion continues the duration is timed between the 1 inch (25.4mm) mark and the 5 inch (127mm) mark. If combustion stops before the 5 inch (127mm) 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 (3mm) in thickness will be classified 94HB if it has a burning rate of less than 3 inches (76.2mm) per minute or stops burning before the 5 inches (127mm) 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.

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Material specifications

Adhesive material specifications

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 (0.8mm) 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

—
Cat. no.: 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 Cat. no.: 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 (68°F)

—
Adhesive material specifications

Property	Method	Unit of measure	Rubber based (self-adhesive)	Acrylic based (2 compound glue)
Coated sides	–	each	2	2
Foam density	–	Kg/m^3	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 (71.6°F) 50% RH	PSTC 7	Hours	100 +	8 +
22°C (71.6°F) occasional wetting		N/m^2	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/°F Min	-18	-29
	–	°C/°F Max	+66	+79
Flammability	ASTM D 624		Slow burn	Slow burn

—
Material specifications
Material selection and 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 color and in a wide range of colors
- Ty-Rap ties in standard Polyamide 6.6 are available in natural color 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 color only (with 2% carbon for military specifications)
- Ty-Rap ties in weather resistant Polyamide 6.6 are available in black color (with 2% carbon for military specifications) and in a wide range of colors (except natural)
- Flammability rating: UL 94 V-2

UV-resistant   Weather-proof

—

Material specifications
Material selection and specifications

—

Polyamide 6.6, heat stabilised

- Similar to Polyamide 6.6, but increased operating temperatures, up to 105°C (221°F)
- Excellent tensile strength
- High temperature resistance
- Color: natural (may have a greenish tint)
- Flammability rating: UL 94 V-2

Heat resistant

—

Polyamide 6.6, flame retardant

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

Flame retardant

—

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 (221°F)
- Combines the features & benefits of Polyamide 6.6, weather resistant and Polyamide 6.6, heat stabilised
- Color: black
- Flammability rating: UL 94 V-2

UV-resistant   Weather-proof   Heat resistant

—

Polyamide 6.6, detectable

- Similar to Polyamide 6.6, but contains a compound detectable by metal detectors (tested and rated at 1.5mm (0.06") diameter ferrous sphere setting) and X-ray equipment
- Color: 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

Detectable

—

Polyamide 4.6, extra high temperature (150°C)

- Similar to Polyamide 6.6, but outstanding resistance to high temperatures up to 150°C (221°F)
- Halogen free and silicone free
- Color: light green
- Flammability rating: UL 94 V-2

Heat resistant

—

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
- Color: black
- Flammability rating: UL 94 V-2

UV-resistant   Weather-proof   Low temperature flexibility   Chemically resistant

—

Material specifications
Material selection and specifications

—

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
- Color: black
- Flammability rating: UL 94 HB

UV-resistant | Weather-proof | Chemically resistant

—

Polypropylene, detectable

- Similar to standard Polypropylene, but contains a compound detectable by metal detectors (tested and rated at 1.5mm (0.06") diameter ferrous sphere setting) and X-ray equipment
- Color: 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 HB

Detectable

—

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
- Color: aquamarine

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

Weather-proof | Radiation resistant | Chemically resistant

—

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
- Color: maroon
- Flammability rating: UL 94 V-0

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

Weather-proof | Low smoke | Chemically resistant

—

Material specifications

Material selection and specifications

—

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
- Color: black
- Flammability rating: UL 94 HB
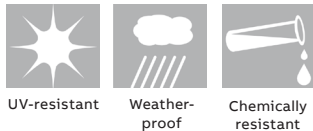
UV-resistant   Weather-proof   Chemically resistant

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Heat Reactive Polypropylene

- Material: Polypropylene
- Heat Activation Temperature: 49°C (+/- 3°C) (120.2°F (+/- 3°F))
- Standard Color: Green
- Heat transition color: Translucent (Natural)
- Tensile Strength: 4.8mm (0.19") – 30lb / 7.9mm (0.31") – 60lb
- Operating temperature: -40°C to 80°C (-40°F to 176°F)
- Color transition life: 1,000 hours above heat activation temperature
- UV Resistance: Indoor use only, avoid exposure to UV light
- Installation: 4.8mm (0.19") – ERG50 setting 2 to 5, 7.9mm (0.31") – ERG120 setting 3 to 6
- Warning: Product is a heat indicator only. Use appropriate measuring device to verify temperature.
- Applications: Where visual indication of a hot surface helps identify an unsafe working environment or malfunctioning equipment. May be secured around any surface where normal operation is below 40°C (104°F), such as: piping, electrical circuits, boiler room surfaces, engine compartments, kitchen appliances and anywhere hot surfaces may be a concern.

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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
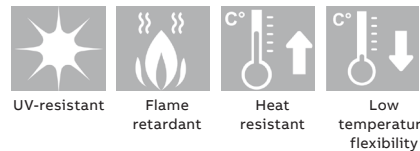
UV-resistant   Flame retardant   Heat resistant   Low temperature flexibility
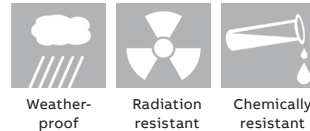
Weather-proof   Radiation resistant   Chemically resistant

Material specifications

Material selection and specifications

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

Reagents	Concentration	HS PA6.6	TV	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
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 specifications
Material selection and specifications

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

Reagents	Concentration	HS PA6.6	TV	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
S = Satisfactory
F = Fair
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Material specifications

Material selection and specifications

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

Reagents	Concentration	HS PA6.6	TV	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
S = Satisfactory
F = Fair
NR = Not Recommended
(AQ = Aqueous)

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Material specifications
Unit conversion factors

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Unit conversion factors

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)		17,280		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)		1,000,000.0		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		3,785.332		cubic centimetres (cm^3)
grams (g)		15.432		grains
gram/centimetre^3 (gm/cm^3)		0.0361275		pounds/in^3 (lb/in^3)
horsepower (hp)		33,000.0		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)		1,000.0		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		1,760.0		yards (yd)
miles		5,280.0		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)		1,000.0		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