

CABLE TIES & ACCESSORIES

E ELEMATIC[®]
CABLING SYSTEMS



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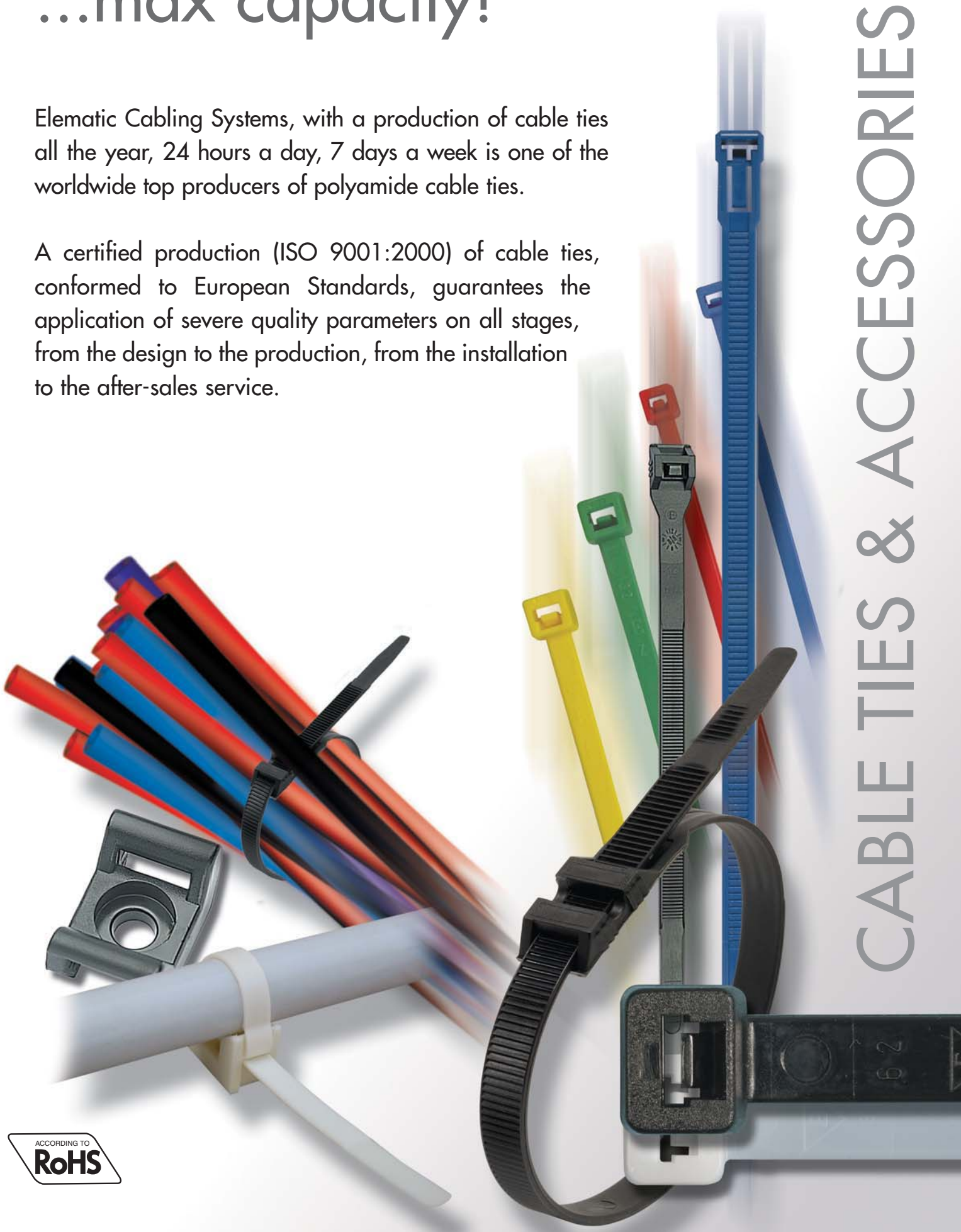
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...max capacity!

Elematic Cabling Systems, with a production of cable ties all the year, 24 hours a day, 7 days a week is one of the worldwide top producers of polyamide cable ties.

A certified production (ISO 9001:2000) of cable ties, conformed to European Standards, guarantees the application of severe quality parameters on all stages, from the design to the production, from the installation to the after-sales service.



CABLE TIES & ACCESSORIES

How to choose the right cable tie

The most important characteristics of a cable tie are:

- the raw-material they are made of (weather, chemicals and heat resistance)
- the tensile strength they can stand (tear strength)
- the min and max diameter they can bundle
- the shape of the tie in case of particular applications
- the flammability rating

Hereby a few suggestions on how to choose the right cable tie for your application.

Resistance to chemical agents

Chemical agents as powders, liquids or gases can deteriorate the raw material cable tie are made of, or extract some components from the plastic compound. The mechanical properties of the cable tie can deteriorate as a consequence of the interaction with several compounds. In this case the performance of the product could not meet the required standards.

UV and weather resistant cable ties

All polymers including the polyamides used for the production of cable ties are sensitive to UV radiation.

The most common additive used for protecting polyamides from UV radiation is carbon powder commonly known as "carbon black".

Natural Cable Ties (Elematic codes 52xx) have low resistance to UV radiation and therefore are not suggested for outdoor applications.

Black Cable Ties (Elematic codes 53xx) are additivated with carbon black. They have improved weather and UV radiation resistance and are better suitable for outdoor applications, but this is not enough to protect the material from the damage due to the UV-radiation for a long time. For these needs the weather resistance cable ties could be used.

Tests performed in should labs give for black cable ties a resistance till 150 hours QUV-B radiation following ISO 4892 norm. This can be compared to ca. 3 years outdoor resistance on average exposure to South-European areas.

We underline that particular environmental situations as combination of exposure to chemical agents and UV radiation, exposure to very warm, humid and sunny weather, etc., can change dramatically the performance of the product. Our indications should therefore be used only as a reference. In case of specific needs, please contact our technical department.

Weather Resistant Cable Ties (Elematic codes 53xx UV) are made of a specially additivated compound to provide an extra weather resistance so that they are optional for outdoor applications.

Tests performed in recommended labs give for weather resistant cable ties a resistance till 600 hours of QUV-B radiation following ISO 4892 norm. This can be compared to ca. 10 years outdoor resistance on average exposure to South-European areas.

For minimum order quantities and quotations please contact our sales department.



Heat resistance and self-extinguishing cable ties

All polymers including also polyamides used for the production of cable ties are sensitive to high temperatures.

Exposure to high temperatures can break the chemical bonds of the polymer causing degradation and loss of mechanical resistance. Polyamide products can therefore become fragile and sensitive to vibrations.

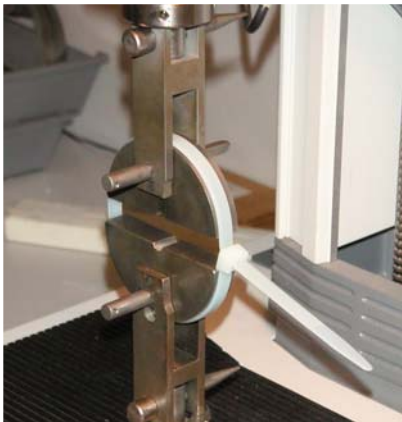
The max suggested installation temperature for standard cable ties is 60°C, while the max service temperature for continuous use is 85°C.

Heat Resistance Cable Ties (Elematic codes 53xx T) are made of a specially additivated compound to provide an extra heat resistance (max service temperature for continuous use up to 125°C).

Polymers are also sensitive to low temperatures. Application of polyamide 6.6 cable ties is possible till around -10°C. Standard polyamide becomes very brittle at temperatures below -40°C (min. suggested service temperature for continuous use).

Heavy-duty Cable Ties (Elematic "Belturing Plus" range) provide an extra resistance to cold temperature (installation possible till -30°C) and an excellent resistance to UV radiation, therefore they are suggested also for external applications and long term exposure under the sunlight and UV action.

Self-extinguishing cable ties (Elematic codes 52xx V0) are made of polyamide 6.6 with additives that gives the auto extinguishing performance; the halogen and phosphorus free material avoids toxic emission in event of fire and conforms to UL-94 V0 and GW 960 °C standards.



Tear resistance

The tear resistance is the most important parameter for choosing the right cable tie for a specific application.

The technical data sheets of Elematic cable ties give the minimum guaranteed tear resistance for all sizes.

Elematic cable ties are tested following the main international standards as SAE AS 23190 (former MIL) or EN 50146 using dedicated equipment and with a constant rate of 25 mm/min.

The strength causing the collapse of the cable tie is given in Newton (N).

The standard testing conditions are 23°C and 50% of relative humidity.

It is important to underline that the values arising from those laboratory tests may not be representative of the resistance to the loads of real installations, due to the presence of external factors (high humidity, vibrations, high temperatures, etc.).

We therefore suggest to apply a safety factor of at least 2. This safety factor should be chosen depending on the application conditions.

In case of severe working conditions, at high temperatures, high humidity, vibrations... this safety factor should be increased up to 5.

General indications for cable ties installation (2,2-4,8 mm)

Cable Ties width (mm)	2,2	2,5÷2,6	3,6	4,5÷4,8
Tool setting (daN)*	0<daN<3	3<daN<6	6<daN<10	10<daN<13

*1 daN = 1kg

For more details concerning specific requirements, please ask our technical department.

Flammability rating of Cable Ties

The UL 94 test (flammability of plastic materials for parts in devices and appliances) enables to compare plastic materials in terms of their burning behaviour. It gives indication either on the relative speed of burning, or on the ability to extinguish or not to propagate fire.

The classification starts with the lowest level HB till the highest V0 (best self-extinguishing value).

HB (Horizontal Burning) - Test description

Sample size	125 ± 5 x 13 ± 0.5 mm
Thickness	0.8; 1.6; 3.2; 6 mm Bar having marked lines at 25 and 100 mm from its end
Pre-treatment	48 hours / 23 ± 2 °C / 50 ± 5% RH
Burner	Bunsen Ø 9.5 mm 100 mm length
Flame height	20 ± 1 mm
Contact time	30 s

The material is classified HB if the burn rate measured between the 2 marks, does not exceed:
38.1 mm/min for 3.2 mm testbar thickness;
63.5 mm/min for <3.2 mm testbar thickness;
In both cases the testbar should stop burning before reaching the 100 mm mark.

VO-V1-V2 (Vertical Burning) - Test description

Sample size	125 ± 5 x 13 ± 0.5 mm
Thickness	0.8; 1.6; 3.2; 6 mm
Pre-treatment	One set of 5 testbar conditioned for 48 hours / 23 ± 2 °C / 50 ± 5% RH; One set of 5 testbar conditioned for 168 hours at 70 ± 1 °C
Burner	Bunsen Ø 9.5 mm 100 mm length
Flame height	20 ± 1 mm
Number of flame applications	2 x 10 s

A flame is applied 2 times on 5 testbars obtaining 10 values per set of testbars. Two sets of sample, differently conditioned are tested for a total of 20 values.

Classification	V0	V1	V2
Maximum burning time single specimen (s)	≤ 10	≤ 30	≤ 30
Maximum burning time total of 5 specimens (s)	≤ 50	≤ 250	≤ 250
Afterflame plus afterglow time for each individual specimen after the second flame application (s)	≤ 30	≤ 60	≤ 60
Afterflame or afterglow of any specimen up to the holding clamp	No	No	Yes
Cotton indicator ignited by flaming particles or drops	No	No	Yes

All standard Elematic polyamide 6.6 cable ties are made of UL94-V2 classified raw material.

Special Cable Ties (Elematic codes 52xx V0 are made of a specially additivated compound to provide an extra self-extinguishing power (UL94-V0).

Chemical Agent	Conc. %	Resist.
Acetaldehyde - aqueous solution	40	D
Acetamide - aqueous solution	50	G
Acetic acid - aqueous solution	10	P
Acetic acid - concentrated		P
Acetic anhydride - concentrated		S
Acetone	100	G
Acrylonitrile	100	G
Aluminium chloride - aqueous solution	10	G
Aluminium sulphate - aqueous solution	10	G
Ammonia	10	G
Ammonia - gaseous		L
Ammonium chloride - aqueous solution	10	G
Amyl acetate	100	G
Amyl alcohol	100	G
Aniline	100	D
Barium chloride - aqueous solution	10	G
Benzaldehyde	100	L
Benzoic acid - aqueous solution	saturated	D
Benzol	100	G
Benzyl alcohol	100	L
Bitumen		D
Boric acid - aqueous solution	10	D
Butane		G
Butyl acetate	100	G
Butyl alcohol	100	D
Butyric acid	100	D
Calcium chloride - aqueous solution	20	S
Calcium chloride - aqueous solution	10	G
Camphor	100	G
Chlorine - gaseous	100	P
Chlorine water		D
Chlorobenzene		G
Chlorobromomethane		D
Chloroform	100	P
Chromic acid - aqueous solution	10	P
Chromic acid - aqueous solution	1	D
Citric acid - aqueous solution	10	L
Cyclohexane	100	G
Cyclohexanol	100	G
Decaline		G
Diacetone alcohol		G
Ethyl acetate	100	G
Ethyl alcohol	96	D
Ethyl chloride	100	D
Butyl phthalate		G
Carbon sulphide	100	G
Carbon tetrachloride		G
Caustic potash - aqueous solution	5	G
Caustic potash - aqueous solution	50	D
Caustic potash - aqueous solution	10	G
Caustic soda - aqueous solution	5	G
Caustic soda - aqueous solution	50	D
Caustic soda - aqueous solution	10	G
Copper salts - aqueous solution	10	G
Copper sulphate - aqueous solution	10	G
Dichlorofluoroethylene		G
Diethanolamine		G
Dimethylformamide	100	G
Ethyl ether	100	G
Ethyl glycol		G
Formaldehyde - aqueous solution	30	G
Formamide		D
Heptane		G
Hexane		D
Hydrogen sulphide - aqueous solution saturated		P
Isooctane		G

G= Good resistance without noticeable variations in weight and/or volume
D= Discrete resistance with significant variations in weight and/or volume resulting from prolonged contact.

Chemical Agent	Conc. %	Resist.
Lead stearate	100	G
Magnesium hydroxide	10	G
Magnesium salts - aqueous solution	10	G
Mercury		G
Methylethylketon		G
Ferric Chloride - aqueous solution	10	G
Formic acid - aqueous solution	85	S
Formic acid - aqueous solution	10	P
Glycol butylene	100	D
Hydrochloric acid - aqueous solution	36	S
Hydrochloric acid - aqueous solution	10	P
Hydrochloric acid - aqueous solution	2	L
Hydrogen peroxide - aqueous solution	30	P
Hydrogen peroxide - aqueous solution	3	P
Hydrogen peroxide - aqueous solution	1	P
Hydrogen peroxide - aqueous solution	0,5	L
Isopropyl alcohol		D
Lactic Acid - aqueous solution	90	P
Lactic Acid - aqueous solution	10	D
Lead acetate - aqueous solution	10	D
Magnesium chloride - aqueous solution	10	G
Mercuric chloride - aqueous solution	6	P
Methyl acetate	100	G
Methyl alcohol	100	D
Methyl chloride	100	L
Nitric acid		P
Oleic acid	100	G
Oxalic acid - aqueous solution	10	D
Petrol		G
Phosphoric acid - aqueous solution	10	P
Phthalic acid - aqueous solution saturated		D
Potassium bichromate - aqueous solution	5	D
Potassium bromide - aqueous solution	10	D
Potassium carbonate	100	G
Propyl alcohol		D
Salicylic acid	100	G
Sodium bromide - aqueous solution	10	D
Sodium carbonate - aqueous solution	10	G
Sodium chloride - aqueous solution	10	G
Sodium disulphate - aqueous solution	10	G
Sulphuric acid - concentrated	98	S
Sulphuric acid - aqueous solution	10	P
Sulphuric acid - aqueous solution	2	L
Tartaric acid		D
Tartaric acid - aqueous solution	10	G
Thionyl chloride		P
Vinyl chloride	100	G
Water (sea, river, potable, distilled)		G
Zinc chloride	10	D
Methyl-isobutylketon		G
Mineral oil		G
Naphtha solvent		G
Nitrobenzol	100	D
Nitromethane	100	D
Octyl phthalate		G
Ozone		P
Perchloroethylene		P
Phenol - aqueous solution		S
Potassium nitrate - aqueous solution	10	G
Sodium hypochlorite - aqueous solution		G
Sodium nitrate - aqueous solution	5	P
Sodium nitrate - aqueous solution	10	G
Sodium phosphate - aqueous solution	10	G
Sodium sulphate - aqueous solution	10	G
Trichloroethylene		D
Zinc oxide		G

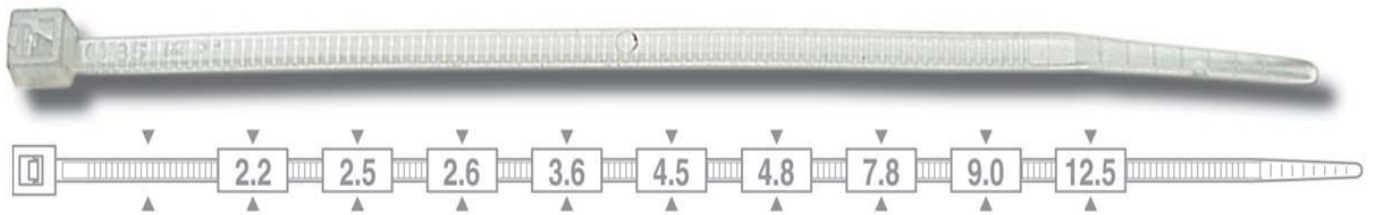
L= Limited resistance: It is possible to use the material in case of short contact.
P= Poor resistance; the material is strongly attacked.
S= Soluble

TECHNICAL PARAMETERS OF RAW MATERIALS

Material	Working temperature	Colour	UL-rating flame	Moisture absorption		Characteristics
				23°C 50% U.R.*	Saturation	
Polyamide 6.6	-40°C ÷ 85°C	natural / black	UL 94-V2	2,7%	8,5%	Polyamide 6.6 injection moulding grade. Good resistance to bases, oils, greases, chloride solvents, fuel, oil derivatives.
Polyamide 6.6 Heat stabilized 6.6	-40°C ÷ 125°C	natural / black	UL 94-V2	2,7%	8,5%	Polyamide 6.6 heat-stabilized for endurance applications to high temperatures.
Polyamide 6.6 UV stabilized	-40°C ÷ 105°C	black	UL 94-V2	2,7%	8,5%	Polyamide 6.6 UV for improved weather resistance.
Polyamide 6.6 Self-extinguishing	-40°C ÷ 85°C	natural	UL 94-V0	2,7%	8,5%	Self-extinguishing polyamide (halogen and phosphor-free).
Belturing Plus	-45°C ÷ 85°C	black	UL 94-HB	0,6%	1,2%	Good resistance to UV rays and weather. Improved shock resistance. Reduced moisture absorption.
Polyethylene HD	-40°C ÷ 100°C	white	UL 94-HB	-	-	High-density polyethylene. Good shock resistance.
Polyethylene LD	-50°C ÷ 90°C	natural/black white	UL 94-HB UL 94-V2	-	-	Low-density polyethylene. Good shock resistance.
Polyamide 6	-10°C ÷ 65°C	black	UL 94-HB	3,0%	9,5%	Polyamide 6 for moulding injection.
Polypropylene	-10°C ÷ 105°C	natural	UL 94-HB	-	-	Resistant to high temperatures, without any absorption of humidity. Good resistance to bases and weak acids.
ABS	-10°C ÷ 60°C	natural / black	UL 94-HB	0,3%	-	ABS injection moulding grade. Good shock resistance, good resistance to inorganic salts, bases, alcohols and hydrocarbides. Good heat resistance. Low moisture absorption.
PVC	-10°C ÷ 70°C	natural	UL 94-V0	-	-	Rigid PVC. Low resistance to organic compounds and solvents. Good aging resistance. No moisture absorption.
Polycarbonate	-5°C ÷ 85°C	transparent	ULV 94-V0	-	-	Low resistance to chemical agents and solvents. Good UV resistance.

*R.H.=relative humidity

STANDARD CABLE TIES



Characteristics of raw material: Polyamide 6.6

Humidity absorption: 2,7%
(50% relative humidity)

- Working temperature -40°C +85°C
- Tightening temperature -10°C +60°C
- Max admissible point +110°C for short time
- Melting temperature +256°C

Limit Oxygen Index (LOI): 27%
Flammability rating: UL 94 class V2.

According to EN 50 146

- High resistance to bases, oils, greases, oil derivatives, chloride solvents.
- Limited resistance to acids.
- Not resistant to phenols.
- Halogen-free resins.
- UV resistance (black color).

EC Directives:

The raw material used to produce our cable ties is compliant with EC Directives:

- 2000/53/EC (ELV)
- 2002/95/EC (RoHS)
- 2002/96/EC (WEEE)
- 2003/11/EC

Applications

- Electrical installations.
- Industrial Wiring.
- Automotive.
- Panel building.
- Special applications.

Characteristics

- Our Cable Ties are made exclusively of polyamide 6.6 so that they do not cause issues of material separation during recycling or interferences in electronic equipments.
- In the black cable ties the added carbon black gives an UV resistance according to ISO 4892 (QUV-B 150 hours), compared to 3 years of outdoor exposure under the sunlight and UV action.

Benefits

- Smooth rounded edges make them easier to be handled and safer to be installed.
- Bent rounded tip allows easier insertion through the head of the cable ties.
- Low friction coefficient of the material.

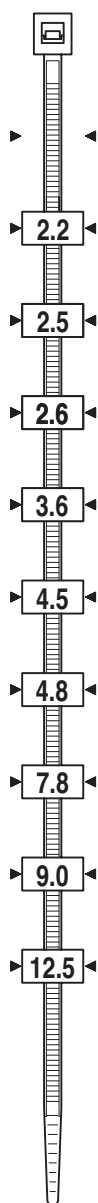


Tools for cable ties, see pages 106-107

Our cable ties are constantly tested in our laboratories following important international standards. Particular extreme cable ties uses, weather conditions or even unsuitable applications might nevertheless vary some of the data we declare. Therefore, in case of specific enquiries or problems, do not hesitate to contact us. We will be pleased to share our experience with You.



Polyamide 6.6 cable ties width 2,2 ÷ 12,5 mm



Code	Code	Dimensions	Ø Bundle	Tensile strength		Bag	Carton
Natural	Black	(mm)	max (mm)	(kg)	(N)	pcs	pcs
5201/CE	5301/CE	2,2x75	15	6,12	60	100	20.000
5201E	5301E	2,2x75	15	6,12	60	1.000	100.000
5203/CE	5303/CE	2,5x98	21	8,16	80	100	15.000
5203E	5303E	2,5x98	21	8,16	80	1.000	50.000
5203/B2	5303/B2	2,5x98	21	8,16	80	20.000	20.000
5205/CE	5305/CE	2,5x135	32	8,16	80	100	12.000
5205E	5305E	2,5x135	32	8,16	80	1.000	30.000
5206/CE	5306/CE	2,6x160	40	8,16	80	100	10.000
5206E	5306E	2,6x160	40	8,16	80	1.000	30.000
5207/CE	5307/CE	2,6x200	52	8,16	80	100	8.000
5207E	5307E	2,6x200	52	8,16	80	1.000	25.000
5209/CE	5309/CE	3,6x140	35	13,26	130	100	7.000
5209E	5309E	3,6x140	35	13,26	130	1.000	25.000
5214/CE	5314/CE	3,6x200	50	13,26	130	100	7.000
5214E	5314E	3,6x200	50	13,26	130	1.000	20.000
5210/CE	5310/CE	3,6x290	80	13,26	130	100	4.500
5210E	5310E	3,6x290	80	13,26	130	500	15.000
5208E	5308E	3,6x370	103	13,26	130	100	4.000
5212/CE	5312/CE	4,5x120	24	22,44	220	100	8.000
5212E	5312E	4,5x120	24	22,44	220	1.000	20.000
5211/CE	5311/CE	4,5x160	40	22,44	220	100	6.000
5211E	5311E	4,5x160	40	22,44	220	1.000	18.000
5213/CE	5313/CE	4,8x178	45	22,44	220	100	5.000
5213E	5313E	4,8x178	45	22,44	220	1.000	15.000
5215/CE	5315/CE	4,8x200	50	22,44	220	100	4.000
5215E	5315E	4,8x200	50	22,44	220	1.000	14.000
5216/CE	5316/CE	4,8x250	68	22,44	220	100	4.500
5217E	5317E	4,8x290	78	22,44	220	100	3.500
5219E	5319E	4,8x360	100	22,44	220	100	3.000
5218E	5318E	4,8x390	106	22,44	220	100	7.000
5220E	5320E	4,8x430	115	22,44	220	100	6.000
5221E	5321E	7,8x120	25	55,08	540	100	4.000
5223E	5323E	7,8x180	45	55,08	540	100	2.500
5225E	5325E	7,8x240	63	55,08	540	100	2.000
5226E	5326E	7,8x300	80	55,08	540	100	1.500
5227E	5327E	7,5x365	100	55,08	540	100	1.500
5229E	5329E	7,5x450	130	55,08	540	100	3.000
5231E	5331E	7,5x540	158	55,08	540	100	2.000
5233E	5333E	7,8x750	220	55,08	540	100	2.000
5234E	5334E	9,0x780	233	71,4	700	100	1.300
5235E	5335E	12,5x225	57	110	1.080	50	2.000
5237E	5337E	12,5x500	143	110	1.080	50	1.000
5239E	5339E	12,5x720	213	110	1.080	50	1.000
5241E	5341E	12,5x850	255	110	1.080	50	1.500
5243E	5343E	12,5x1000	302	110	1.080	50	1.000

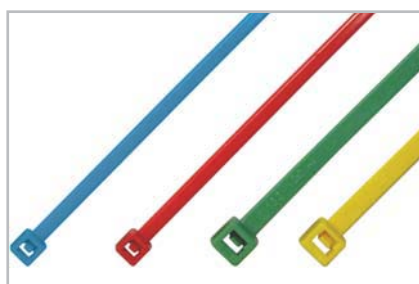
*The nominal dimensions can slightly change according to the utilized mould.

COLOURED CABLE TIES - polyamide 6.6 width 2,5 ÷ 4,8 mm

5203/C*	2,5x98	21	8,16	80	100	15.000
5209/C*	3,6x140	32	13,26	130	100	7.000
5214/C*	3,6x200	50	13,26	130	100	7.000
5215/C*	4,8x200	50	22,44	220	100	4.000
5217*	4,8x290	78	22,44	220	100	3.500

* ♦ R=Red, ♦ G=Yellow, ♦ V=Green, ♦ B=Blue

Minimum order quantity: 1 carton. Other colours and dimensions available on request.



COLSPEED CABLE TIES



Characteristics of raw material: Polyamide 6.6

Humidity absorption: 2,7%
(50% relative humidity)

- Working temperature -40°C +85°C
- Tightening temperature -10°C +60°C
- Max admissible point +110°C for short time
- Melting temperature +256°C

Limit Oxygen Index (LOI): 27%
Flammability rating: UL 94 class V2.

According to EN 50 146 and EDF HN 33 S 62

- High resistance to bases, oils, greases, oil derivatives, chloride solvents.
- Limited resistance to acids.
- Not resistant to phenols.
- Halogen-free resins.
- UV resistance.

EC Directives:

The raw material used to produce these cable ties is compliant with EC Directives:

- 2000/53/EC (ELV)
- 2002/95/EC (RoHS)
- 2002/96/EC (WEEE)
- 2003/11/EC



Applications

- Electrical installations.
- Industrial Wiring.
- Automotive.
- Panel building.
- Special applications.
- External application.

Characteristics

- The flat head, the high surface and the closing system with external teeth of these Cable Ties, make them particularly suitable for applications on suspended lines, avoiding problems of insulation damage.
- In the Colspeed cable ties the added carbon black gives an UV resistance according to ISO 4892 (QUV-B 150 hours), compared to 3 years of outdoor exposure under the sunlight and UV action.

Benefits

- Ensure a permanent installation.
- Bent "tooth".
- Bent rounded tip for the safest application.
- Smooth rounded edges make them easier to be handled and installed.

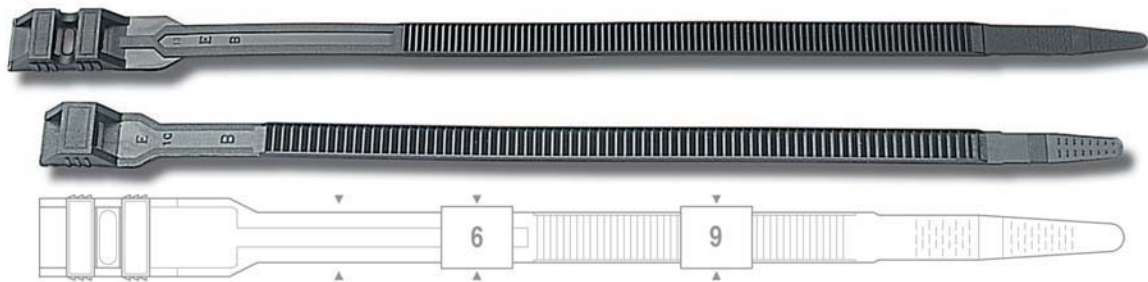


Tools for cable ties, see pages 106-107

Code	Dimension	Head	Ø Bundle (mm)	Tensile strength		Bag	Cartoon
Black	(mm)		(max)	(kg)	(N)	pcs	pcs
6501	8,8X200	TS	40	36,72	360	100	4.500
6502	8,8X290	TD	70	55,08	540	100	3.000
6503	8,8X380	TD	100	55,08	540	100	2.000

• TS = single head • TD = double head

BELTURING PLUS CABLE TIES



Characteristics of raw material:

- Humidity absorption: <1%
- Working temperature da -45°C a +85°C
 - Tightening temperature da -30°C a +60°C
 - Max admissible point +120°C for short time
- Limit Oxygen Index (LOI): 22% (EN ISO 4589-1 and ASTM D 2863-00)
- Flammability rating: UL 94 class HB.
- Halogen-free resins.
According to EN 50 146 and EDF HN 33 S 62
- High resistance to bases, oils, greases, oil derivatives, chloride solvents.
 - Limited resistance to acids.
 - Not resistant to phenols.
 - Halogen-free resins.
 - UV resistance.

EC Directives:

The raw material used to produce these cable ties is compliant with EC Directives:
 2000/53/EC (ELV)
 2002/95/EC (RoHS)
 2002/96/EC (WEEE)
 2003/11/EC



Applications

- Electrical installations.
- Industrial wiring.
- Automotive.
- Panel building.
- Special applications.
- Outdoor uses.

Characteristics

The flat head, the high surface and the closing system with external teeth of these Cable Ties make them particularly suitable for applications on suspended lines, avoiding problems of insulation damage.

Benefits

- Highly withstands climatic changes, also in sea-areas.
- High UV resistance.
- Halogen-free resins.



Tools for cable ties, see pages 106-107.



TEMPORARY INSTALLATION (RELEASABLE CABLE TIE)



DEFINITIVE INSTALLATION



Belturing Plus Cable Ties - SINGLE HEAD

Code	Dimension (mm)	Ø Bundle max (mm)	Tensile strength		Bag pcs	Carton pcs
			(Kg)	(N)		
6449XE	115x6	25	28,56	280	100	9.000
6450XE	180x6	45	28,56	280	100	6.000
6452XE	290x6	78	28,56	280	100	4.800
6454XE	360x6	100	28,56	280	100	1.500
6447XE	132x9	27	39,78	390	100	4.800
6451XE	180x9	40	39,78	390	100	4.800



Belturing Plus Cable Ties - DOUBLE HEAD

Code	Dimension (mm)	Ø Bundle max (mm)	Tensile strength		Bag pcs	Carton pcs
			(Kg)	(N)		
6453XE	260x9	62	55,08	540	100	2.800
6448XE	300x9	80	55,08	540	100	1.500
6455XE	360x9	93	55,08	540	100	1.500
6456XE	510x9	140	55,08	540	100	1.000
6457XE	760x9	220	55,08	540	100	800

A very practical box that can easily be hung to your belt. Its convenient upper opening, very easy to be reclosed, allows the quickest picking-up of the product and the best protection from dust.



Cable ties COLSTEEL



Cable ties made in stainless steel AISI 304 with ball lock system.

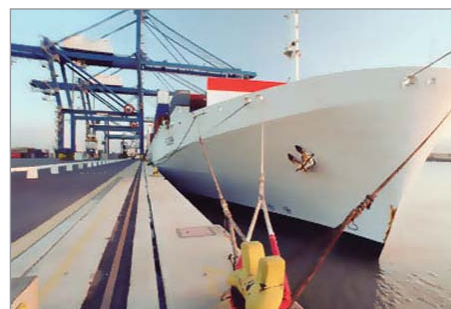
Characteristics of raw material: stainless steel AISI 304

Operating temperature: $-80\text{ }^{\circ}\text{C} \div 538\text{ }^{\circ}\text{C}$.

Uninflammable.

Resistance to external agents:

- Outstanding resistance to acid, oils, greases, chemicals, solvents.
- High resistance to the seawater and to corrosive atmosphere.
- Excellent resistance to UV rays.



Applications

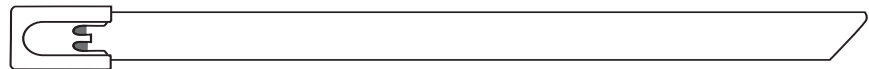
For heavy duty applications and where a great resistance to corrosion, high temperature, fire, chemicals and atmospheric agents are required. These cable ties are particularly used in shipbuilding, mining, oil rigs, food industry, theatre, cinemas and exhibition halls.

Characteristics

- High resistance to corrosion.
- High tensile strength.
- No absorption of humidity.
- High resistance to very high temperature and flame.
- High resistance to atmospheric agents and UV rays.
- Outstanding chemical and corrosion resistance.

Benefits

- The ball lock system allows a little effort and permit the closing adjust in continuous.
- It is possible to lock the cable ties by hand or with the dedicated tool (code 5407).
- The easy closing system allows to save time during the installation.
- They can be put like fire assurance when other plastic cable ties are used (i.e. in the ship technological plants).
- The absence of flashes and cutting edges avoid damages on the cable electrical insulation.



Stainless steel cable ties

Cod.	Dimensions (mm)	∅ Bundle max. (mm)	Thickness (mm)	Tensile strength		Bag pcs
				(Kg)	(N)	
6703	4,6x201	50	0,25	46	450	100
6706	4,6x266	67	0,25	46	450	100
6708	4,6x362	102	0,25	46	450	100
6710	4,6x521	152	0,25	46	450	50
6712	4,6x838	254	0,25	46	450	50
6719	7,9x201	50	0,25	114	1118	100
6720	7,9x266	67	0,25	114	1118	100
6722	7,9x362	102	0,25	114	1118	100
6724	7,9x521	152	0,25	114	1118	50
6726	7,9x838	254	0,25	114	1118	50
6728	7,9x1067	305	0,25	114	1118	50



Tool for cable ties

Cod.	L (mm)	Weight (gr.)	Packaging pcs
5407	178	560	1

Tool for stainless steel cable ties with width up to 7,9 mm. Made in a strong metallic structure, it allows to adjust the tightening strength with the screw under the handle. When the set tension is reached, the blade cuts off the tail of the ties without effort and flashes.

SPECIAL CABLE TIES

Cable ties available on request. Minimum order quantities are applied.



These cable ties, made of polyamide 6.6 with additives, can be used for operating temperatures up to 125°C /145°C for short time.

Operating temperature: -40°C ÷ 125°C
Flammability rating: UL-94 V2.

HEAT RESISTANT cable ties (-40°C +125°C)

Code	Code	Dimension	Ø Bundle (mm)	Tensile strength		Bag	Carton
Natural	Black	(mm)	(max)	(kg)	(N)	pcs	pcs
5203/C T	5303/C T	2,5x98	21	8,16	80	100	40.000
5209/C T	5309/C T	3,6x140	32	13,26	130	100	25.000
5214/C T	5314/C T	3,6x200	50	13,26	130	100	20.000
5215/C T	5315/C T	4,8x200	50	22,44	220	100	13.000
5217 T	5317 T	4,8x290	78	22,44	220	100	10.000
5227 T	5327 T	7,8x365	100	55,08	540	100	3.500



These cable ties are made with a special compound that assures an UV resistance according to ISO 4892 (QUV-B 600 hours), compared to 10 years of outdoor exposure under the sunlight and UV action.

Operating temperature: -40°C ÷ 105°C
Flammability rating: UL-94 V2.

UV AND WEATHER RESISTANT cable ties (UL94 - V2) - for outdoor use

Code	Dimension	Ø Bundle (mm)	Tensile strength		Bag	Carton
Black	(mm)	(max)	(kg)	(N)	pcs	pcs
5303/C UV	2,5x98	21	8,16	80	100	40.000
5309/C UV	3,6x140	35	13,26	130	100	25.000
5314/C UV	3,6x200	50	13,26	130	100	20.000
5315/C UV	4,8x200	50	22,44	220	100	13.000
5317 UV	4,8x290	78	22,44	220	100	10.000
5327 UV	7,8x365	100	55,08	540	100	3.500



These cable ties, made of polyamide 6.6 with additives, can be used where the auto extinguishing performance is required. They conform with UL-94 V0 and GW 960°C standards and the halogen and phosphorus free material avoids toxic emission in event of fire.

Operating temperature: -40°C ÷ 85°C
Flammability rating: UL-94 V0.

SELF-EXTINGUISHING cable ties (UL94 - V0) - GW 960°C

Code	Dimension	Ø Bundle (mm)	Tensile strength		Bag	Carton
Natural	(mm)	(max)	(kg)	(N)	pcs	pcs
5203/C V0	2,5x98	21	8,16	80	100	40.000
5209/C V0	3,6x140	35	13,26	130	100	25.000
5214/C V0	3,6x200	50	13,26	130	100	20.000
5215/C V0	4,8x200	50	22,44	220	100	13.000
5217 V0	4,8x290	78	22,44	220	100	10.000
5227 V0	7,8x365	100	55,08	540	100	3.500



The polyamide 6.6 cable ties with marking plate, allow a quick identification through specific marking on the plate.

Operating temperature: -40°C ÷ 85°C
Flammability rating: UL-94 V2.

IDENTIFICATION CABLE TIES

Code	Dimension	Plate height	Plate width	Ø Bundle (mm) (max)	Tensile strength		Bag pcs	Carton pcs
	(mm)	(mm)	(mm)		(kg)	(N)		
52100-M	2,5x100	8	25,4	20	8,16	80	100	10.000
52200-M	2,5x200	8	25,4	50	8,16	80	100	7.500



IDENTIFICATION CABLE TIES

Code	Dimension	Plate height	Plate width	Ø Bundle (mm) (max)	Tensile strength		Bag pcs	Carton pcs
	(mm)	(mm)	(mm)		(kg)	(N)		
52110-M	2,5x110	9,1	20,4	20	8,16	80	100	10.000
52210-M	2,5x210	9,1	20,4	52	8,16	80	100	7.500



IDENTIFICATION CABLE TIES

Code	Dimension	Plate height	Plate width	Ø Bundle (mm) (max)	Tensile strength		Bag pcs	Carton pcs
	(mm)	(mm)	(mm)		(kg)	(N)		
52190-M	4,8x190	28	13	48	22,44	220	100	5.000
52270-M	4,8x270	28	13	68	22,44	220	100	4.000



The nylon 6.6 releasable cable ties allow a quick and simple release of the ties. They are ideal for temporary installations or when the addition or removal of cables is required.

Operating temperature: -40°C ÷ 85°C
Flammability rating: UL-94 V2.

RELEASABLE CABLE TIES

Code nat.	Code black	Dimension (mm)	Ø Bundle (mm) (max)	Tensile strength		Bag pcs	Carton pcs
				(kg)	(N)		
5250	5350	7,5x200	50	22,44	220	100	7.500
5252	5352	7,5x250	65	22,44	220	100	5.000
5254	5354	7,5x350	100	22,44	220	100	4.500

* Coloured cable ties available on request.

◆ R=Red, ◆ G=Yellow, ◆ V=Green, ◆ B=Blue



The Polyamide 6.6 push mount cable ties are used for fixing cables to panels with thickness up to 3 mm.

Operating temperature: $-40^{\circ}\text{C} \div 85^{\circ}\text{C}$
 Flammability rating: UL-94 V2.

"M"



"A"



PUSH MOUNT CABLE TIES

Code	Dimension	Ø Hole	Panel thickness	Ø Bundle (mm)	Tensile strength		Bag	Carton
	(mm)	(mm)	(mm)	(max)	(kg)	(N)	pcs	pcs
52155-M	3,5x150	5,2	2,7	38	13,26	130	100	7.500
52205-M	4,5x200	6,3	3,0	50	22,44	220	100	5.000
52203-A	4,5x100	6,3	3,0	50	22,44	220	100	5.000
52204-A	4,5x150	6,3	3,0	50	22,44	220	100	5.000
52205-A	4,5x200	6,3	3,0	50	22,44	220	100	5.000



The Polyamide 6.6 cable ties with mounting hole are used for bundling the cables with a screw or bolt.

Operating temperature: $-40^{\circ}\text{C} \div 85^{\circ}\text{C}$
 Flammability rating: UL-94 V2.

CABLE TIES WITH MOUNTING HOLE

Code	Dimension	Ø Bundle (mm)	Tensile strength		Ø Hole	Bag	Carton
	(mm)	(max)	(kg)	(N)	(mm)	pcs	pcs
52150-I	3,6x150	2	13,26	130	4,5	100	7.500
52200-S	4,8x200	50	22,44	220	5,2	100	5.000
52200-H	7,8x200	44	55,08	540	6,5	100	3.000
52300-H	7,8x300	75	55,08	540	6,5	100	2.000
52380-H	7,8x380	104	55,08	540	6,5	100	2.000



The Polyamide 6.6 cable tray ties are used for fixing the cables to the cable tray.

Operating temperature: $-40^{\circ}\text{C} \div 85^{\circ}\text{C}$
 Flammability rating: UL-94 V2.

CABLE TRAY TIES*

Code	Dimension	Tensile strength		Bag	Carton
	(mm)	(kg)	(N)	pcs	pcs
5346	7,8x (24 + 270)	55,08	540	100	2.000
5347	12,6x (50 + 275)	110,16	1.080	50	1.000

* Cable Ties available on request and minimum quantities.

CABLE TIES ACCESSORIES

CABLE TIES SUPPORTS

Applications

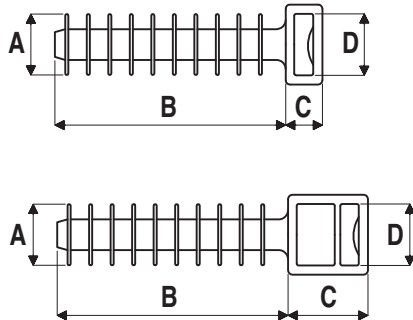
Fixing of cables and pipes.
Installation temperature: > -5°C

Characteristics

Polyamide 6 black (carbon black).
Available in black and white colours
(characteristics on page 19).

Benefits

Very easy installation: for cable ties up to 9 mm width. Two different types for different wall distances.



WALLPLUG BASES FOR CABLE TIES polyamide 6

Code	Code	Ø Hole (mm)	Dimensions (mm)				Bag pcs	Carton pcs
			A	B	C	D		
5456 A	5456 AW	6	7,8	30,7	6,3	9,6	100	5.000
5458	5458 W	8	10,0	37,0	6,5	9,7	100	5.000
5458 A	-	8	10,0	37,0	6,5	9,7	100	5.000
5459	-	8	10,0	37,0	13	9,7	100	4.000

* Grey colour on request.

Applications

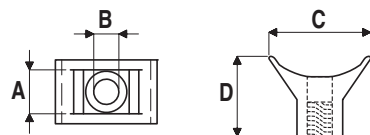
Fixing of cables and pipes.

Characteristics

Polyamide 6.6 black (carbon black).
The support is provided with M6/7
thread, can therefore be fixed with plug
cod. 566112.
(characteristics on page 19)

Benefits

For cable ties up to 9 mm width. Suitable for
either countersunk or flat headed screws.
For wall plug max 8 mm.



CABLE TIE SUPPORT in polyamide 6.6 for cable ties width up to 9 mm

Code	Dimensions (mm)				Thread	Bag pcs	Carton pcs
	A	B	C	D			
1041301	9,4	5	23	17,6	M6/7	100	10.000



THREADED WALL PLUG M6/7 in polyamide 6.6 for cable tie support

Code	Length (mm)	Ø Hole (mm)	Thread	Bag pcs	Carton pcs



Applications

Fixing of cables and pipes.

Characteristics

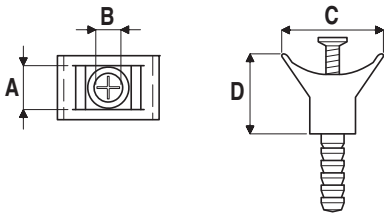
Polyamide 6.6 black (carbon black).
(characteristics on page 19)

Benefits

Fast fixing with hammer-in anchor
(our UCX Ø 5x36 mm).
For cable ties up to 9 mm width.



CABLE TIE SUPPORT in polyamide 6.6 with anchor



Code	Dimensions (mm)				Bag pcs	Carton pcs
	A	B	C	D		
1041303	9,4	5	23	17,6	100	10.000

Applications

Electrical panels.

Characteristics

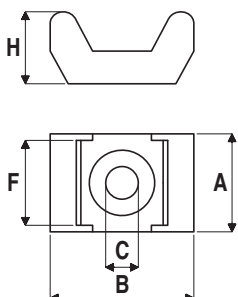
Polyamide 6.6.
(characteristics on page 19)
For cable ties width max 9 mm.

Benefits

Fixing with screw or rivet.



CRADLES IN POLYAMIDE 6.6



Code Natural	Code Black	Cable ties width (mm)	Dimensions (mm)					Bag pcs	Carton pcs
			A	B	C	F	H		
5498	5499	5	9,5	15	3,5	5	7	100	10.000
5496	5497	9	14,6	22,5	5	9,3	11	100	5.000

Applications

Electrical panels.

Characteristics

Polyamide 6.6.
(characteristics on page 19)

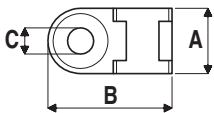
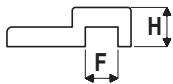
Benefits

Fixing with screw or rivet.



EYELETS IN POLYAMIDE 6.6

Code	Code	Cable ties	Dimensions (mm)					Bag	Carton
			width (mm)	A	B	C	F		
Natural	Black								
5460	5461	4,8	10	19	4,1	5	6	100	10.000



Applications

Suspended electrical installations.

Characteristics

Polyamide 6.6 black (carbon black).
(characteristics on page 19)

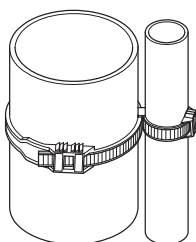
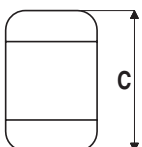
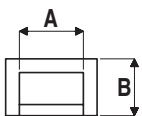
Benefits

Enables cables to be secured to posts or pipes by passing two ties through the rectangular hole.



TWIN TIE DEVICE in polyamide 6.6

Code	Dimensions (mm)			Bag	Carton
	A	B	C		
1041302	9,3	9,5	21,3	100	10.000



Applications

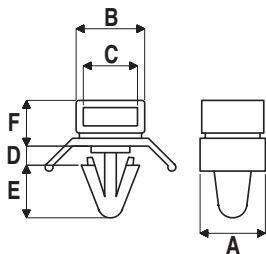
For use in pre-drilled or punched holes on plates with thickness up to 3 mm.
Hole Ø 6,5 mm.

Characteristics

Polyamide 6.6.
(characteristics on page 19)

Benefits

Suitable for applications on sheet-steel, with cable ties up to 7,8 mm width.



ARROWHEAD CRADLE

Code	Dimensions (mm)						Ø Fixing hole (mm)	Bag pcs	Carton pcs
	A	B	C	D	E	F			
104300	10	10,6	8,1	3	8	7,1	6,5	100	17.000

IDENTIFICATION PLATE BADGES

Applications

Electrical panels, cable bundles.

Characteristics

Material: polyamide 6.6.
(characteristics on page 19)

Benefits

Quick and economic solution for the identification of a bundle of cables.



IDENTIFICATION PLATE BADGES*

Code	Type (mm)	Length (mm)	Width (mm)	Bag pcs
104293	A	60,5	25,2	100
104291	B	26,4	16,2	100
104292	C	40,3	20,5	100
104294	D	59,9	49,9	100

*IMPORTANT: these identification plates can be attached around a cable harness with cable ties up to 4,8 mm wide.

MOUNTING BASES - SINGLE WAY

Applications

They are used with cable ties, for routing and securing wire bundles or cables. Their thin profile allows use in limited areas.

Operating temperature: -10°C ÷ 60°C

Flammability rating: UL94-HB.

Characteristics

Material: ABS.

(characteristics on page 19)

Self adhesive bases with 3 different types of adhesive foam: rubber base, special rubber base, acrylic.

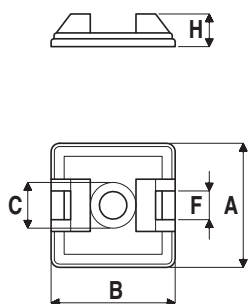
The rubber base adhesives: are particularly suitable for immediate applications.

The acrylic base adhesive: is instead more suitable for long period applications and where a good UV ray resistance is required.

Benefits

Easy to apply.

Suitable for cable ties up to 4,8 mm width.



mounting bases **WITHOUT ADHESIVE** (application with screw)

Code	Code	Cable ties	Dimensions (mm)					Bag	Carton
Natural	Black	width (mm)	A	B	C	F	H	pcs	pcs
5421	5423	3,6	19	19	4,2	4	5	100	10.000
5422	5424	4,8	27	27	4,2	6	7,4	100	5.000

mounting bases **WITH RUBBER BASE ADHESIVE**

Code	Code	Cable ties	Dimensions (mm)					Bag	Carton
Natural	Black	width (mm)	A	B	C	F	H	pcs	pcs
5426*	5428*	3,6	19	19	4,2	4	5	100	10.000
5427*	5429*	4,8	27	27	4,2	6	7,4	100	5.000

mounting bases **WITH SPECIAL RUBBER BASE ADHESIVE**

Code	Code	Cable ties	Dimensions (mm)					Bag	Carton
Natural	Black	width (mm)	A	B	C	F	H	pcs	pcs
5426 3M*	5428 3M*	3,6	19	19	4,2	4	5	100	10.000
5427 3M*	5429 3M*	4,8	27	27	4,2	6	7,4	100	5.000

*Starting from 2010 these articles will be replaced by others with a new adhesive; the new codes will be the same with final RB (i.e. 5426 RB)

mounting bases **WITH ACRYLIC BASE ADHESIVE**

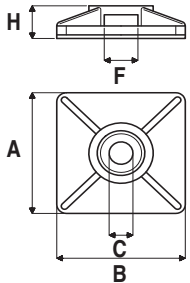
Code	Code	Cable ties	Dimensions (mm)					Bag	Carton
Natural	Black	width (mm)	A	B	C	F	H	pcs	pcs
5426 3MV	5428 3MV	3,6	19	19	4,2	4	5	100	10.000
5427 3MV	5429 3MV	4,8	27	27	4,2	6	7,4	100	5.000

ADHESIVE DATA SHEET

Adhesive data sheet	u.m.	standard rubber base	special rubber base	acrylic base
Bonding foam		polyethylene	polyethylene	polyester
Density	kg/m ³	67	100	320
500 hour static shear adhesion*	kg/cm ²	0,65	0,7	0,3
Maximum recommended weight loading*	kg/cm ²	0,32	0,36	0,15
Dynamic shear adhesion	kg/cm ²	4,1	4,1	8
Tensile strength	kg/cm ²	>8	>10	>20
Elongation		>120%	>150%	>90%
U.V. resistance		not recommended	not recommended	good
Service temperature		-20°C / +50°C	-40°C / +60°C	-40°C / +120°C
Recommended application		+15°C / +40°C	+15°C / +40°C	+15°C / +40°C
Use		immediate application	immediate application	application after 24h rest

* On clean zinc metallic surfaces.

MOUNTING BASES - TWO WAYS



two way mounting bases **WITHOUT ADHESIVE** (application with screw)

Code	Code	Cable ties	Dimensions (mm)					Bag	Carton
Natural	Black	width (mm)	A	B	C	F	H	pcs	pcs
5466	5468	3,6	19	19	4,1	4	5	100	10.000
5472	5474	4,8	27	27	4,8	6	6,5	100	5.000

two way mounting bases **WITH RUBBER BASE ADHESIVE**

Code	Code	Cable ties	Dimensions (mm)					Bag	Carton
Natural	Black	width (mm)	A	B	C	F	H	pcs	pcs
5467*	5469*	3,6	19	19	4,1	4	5	100	10.000
5473*	5475*	4,8	27	27	4,8	6	6,5	100	5.000

two way mounting bases **WITH SPECIAL RUBBER BASE ADHESIVE**

Code	Code	Cable ties	Dimensions (mm)					Bag	Carton
Natural	Black	width (mm)	A	B	C	F	H	pcs	pcs
5467 3M*	5469 3M*	3,6	19	19	4,1	4	5	100	10.000
5473 3M*	5475 3M*	4,8	27	27	4,8	6	6,5	100	5.000

*Starting from 2010 these articles will be replaced by others with a new adhesive; the new codes will be the same with final RB (i.e. 5467 RB).

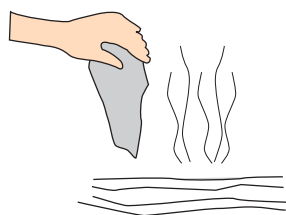
two way mounting bases **WITH ACRYLIC BASE ADHESIVE**

Code	Code	Cable ties	Dimensions (mm)					Bag	Carton
Natural	Black	width (mm)	A	B	C	F	H	pcs	pcs
5467 3MV	5469 3MV	3,6	19	19	4,1	4	5	100	10.000
5473 3MV	5475 3MV	4,8	27	27	4,8	6	6,5	100	5.000

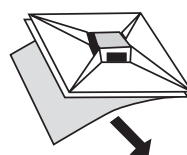
INSTALLATION INSTRUCTION FOR SELF ADHESIVE MOUNTING BASES



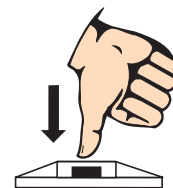
1 Clean the surface using an appropriate cleaner (e.g. isopropanol/water) avoiding to leave any residues.



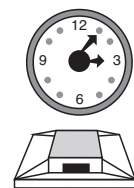
2 Wait until the cleaned surface is completely dried.



3 Peel off the protective film avoiding to touch the adhesive.



4 Put the base on the cleaned surface pressing down with the finger for several seconds.



5 Wait for a certain time (minutes in case of syntetic rubber, hours in case of acrylate) to assure the max adhesion to the surface.