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HellermannTyton



Solar energy

Reliable cable management solutions for solar plants





MADE FOR REAL 

**Proven performance  
in solar installations**

## Lower your OPEX costs by getting cable management right first time

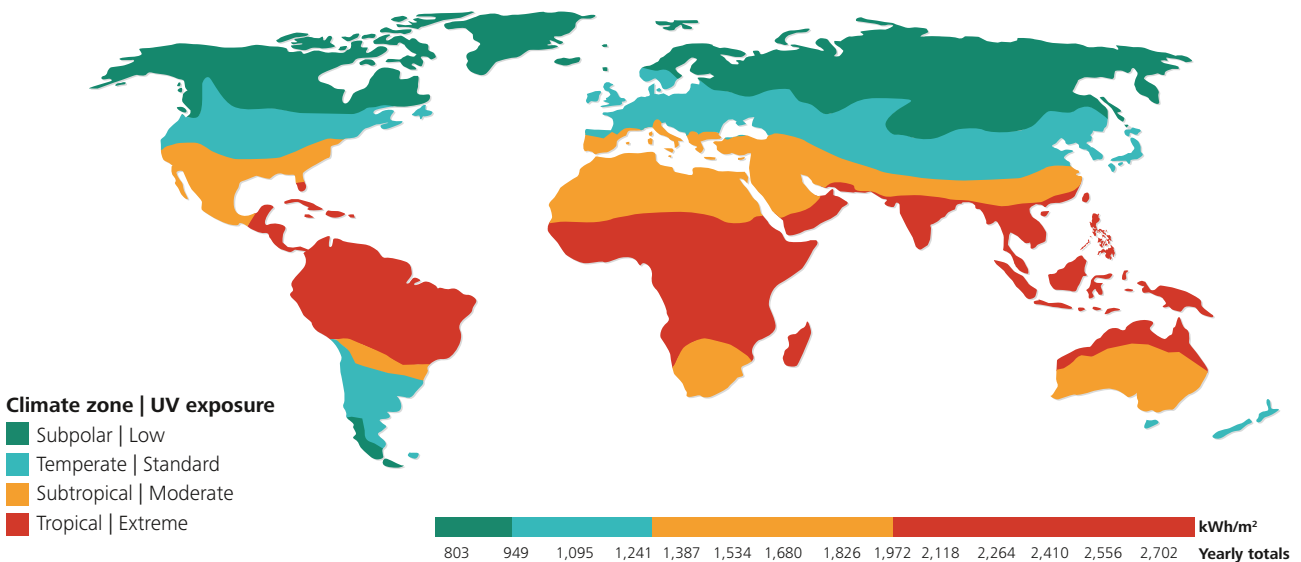
HellermannTyton products connect, fasten, route, protect and identify solar cables – bringing unmatched safety, reliability and longevity to PV installations – no matter how harsh the conditions they operate under.

Whether you're looking for a more reliable cable tie, more durable identification, or an experienced designer and manufacturer to act as your advisor for best practices focusing on your total cost of energy, HellermannTyton has expertise you can call on to help keep your operational expenditure as low as possible.

# Climate considerations

Selecting the right cable management solution for solar installations depends on the climate and local environmental conditions specific to the region where the plant will reside. The boundaries between climate zones are dynamic and can vary tremendously according to regional topography and specific local climatic influences.

## Long-term average of global UV horizontal irradiation (GHI)



Humidity, salt in the air and altitude all affect the performance of materials. Our product engineers are ready to advise you on the best combination for your local requirements.

# Part design considerations

Even the best-made clips, mounts and ties in the world will fail prematurely if they don't fit the requirements of the application. Take frame holes, they are one of the most common points where fasteners fail. The holes' sharp edges slice away at plastic parts that move with the wind and expand during the daytime heat.

Trackers and floating PV only exacerbate the problem. Poor cable management choices at the outset can lead to severe, long-term issues over the lifetime of a solar plant.

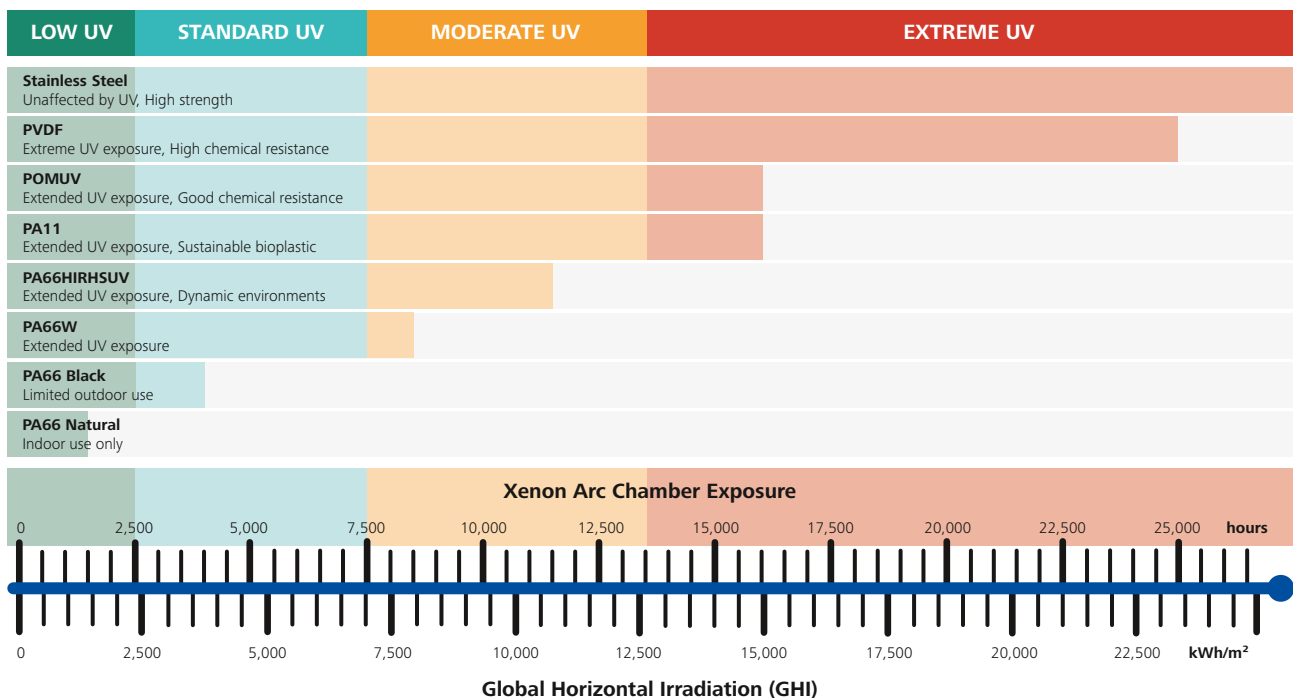
The hidden costs of poor cable management are several times greater than the cost of doing it right from the start.

## Material considerations

Depending where in the world our products are deployed, we help customers make informed decisions based on environmental factors. Off-the-shelf materials are appropriate for many general-purpose applications, but not in solar. Here, the short-term savings of standard grade materials quickly transform into spiralling maintenance costs. Quality is not everything, but everything without quality is nothing.

That's why HellermannTyton offers cable management products for the solar industry from materials formulated with UV stabilizers, UV absorbers or exceptionally durable base plastics designed for long-term service and extended lifespans.

### Plastic materials and their approximate performance under UV exposure.



Depending on your plant design and the expected UV and chemical exposure, we offer part solutions that outperform value-priced products. Even under extreme UV exposure, our new PVDF plastic material provides the most maintenance-free cable management you can get without resorting to stainless steel.

### Approximate suitability of materials to climate zones

Product base material	UV irradiation resistance	Humidity tolerance	Temperature range	Climatic zone
<b>PA66W</b>	☼	●	-40 °C to +85 °C, (+105 °C, 500 h)	Subpolar/Temperate
<b>PA66HIRHSUV</b>	☼☼	●●	-40 °C to +110 °C	Temperate
<b>PA11</b>	☼☼☼	●●●(-)	-40 °C to +85 °C, (+105 °C, 500 h)	Subtropical
<b>POMUV (Polyacetal)</b>	☼☼☼	●●●●(-)	-40 °C to +90 °C, (+105 °C, 500 h)	Subtropical
<b>PVDF</b>	☼☼☼☼	●●●●(-)	-55 °C to +175 °C	Tropical
<b>Stainless steel</b>	☼☼☼☼	●●●●(-)	-80 °C to +538 °C	Tropical

(-)Also recommended for floating PV applications.  
Please note; The above information is provided for information purposes only and is not a substitute for validation tests.

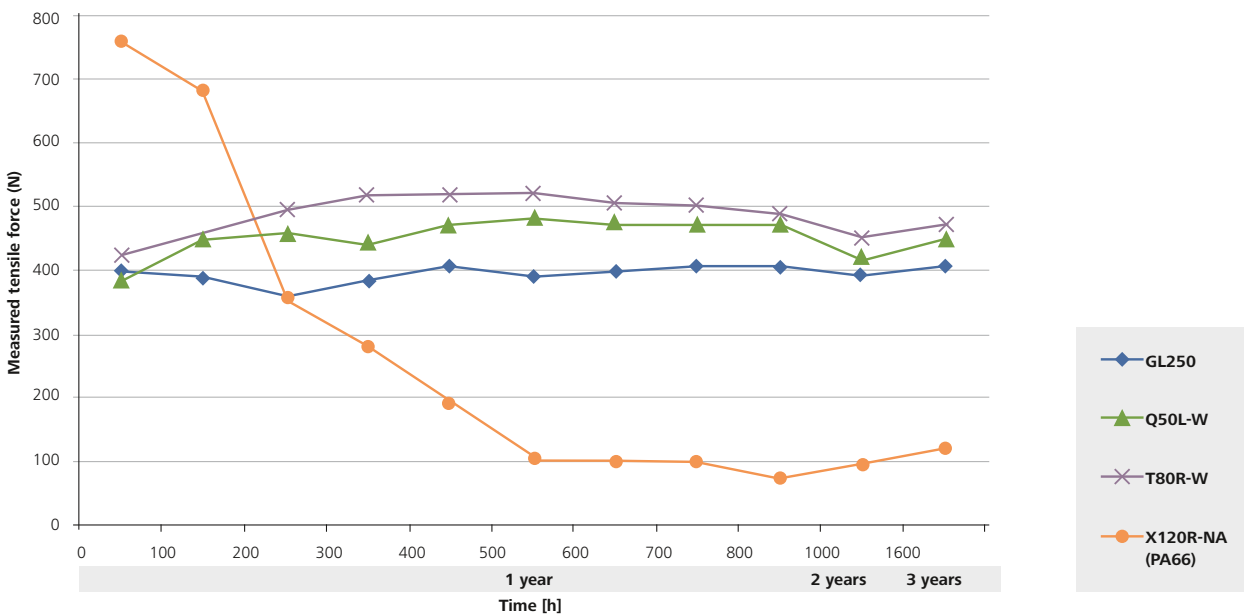
## UV stability of HellermannTyton cable ties

How fast or slow do plastic materials degrade under ultraviolet (UV) irradiation? To find out, HellermannTyton commissioned the Fraunhofer Institute for Solar Energy Systems (ISE) to carry out extended UV weathering tests on HellermannTyton cable ties made from plastics with different properties.

Fraunhofer ISE fastened the cable ties under load to metal cylinders and exposed them to 156.78kWh/m<sup>2</sup> of UV for 1600 hours at controlled intervals. This amount of artificial irradiation complies with the assumption that Central Europe is exposed to natural solar irradiation of 1,000 kWh/m<sup>2</sup> per year, with about 5% of this being in the damaging UV range. This dose corresponds to approximately three years of Central European natural solar irradiation.

To determine the functional integrity of the cable ties after each UV exposure interval, loop strength tests were performed on specimens according to section 9.5.1 of DIN EN 62275:2010-07.

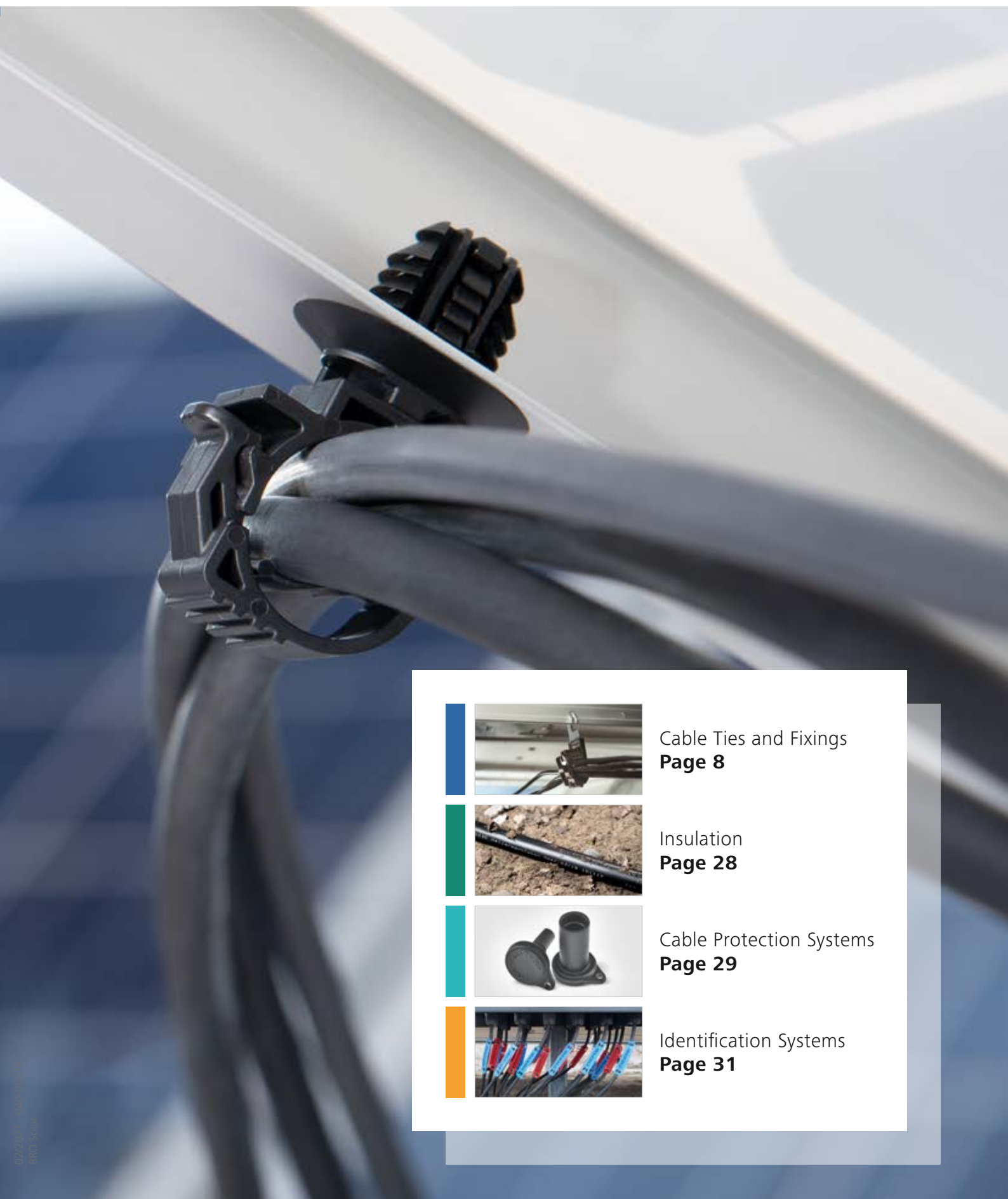
### Mean results of the cable tie loop strength test after artificial UV weathering



Fraunhofer ISE also collected data for T80R-W cable ties in real-time over three years at two outdoor locations, in south-western Germany and in the Negev Desert, Israel. These real-time findings affirm that the results of the accelerated UV exposure under laboratory conditions are indicative.

Natural-coloured polyamide 6.6 cable ties showed significant UV damage after only 200 hours in the test chamber. The loop tensile strength of this non-UV-stabilised material dropped to less than 50 percent of its initial value. In contrast, the T80R-W ties (UV-stabilised polyamide 6.6) and the GL250 ties (polyamide 11) showed only negligible degradation from UV exposure.

The UV-stabilised polyamide 6.6 material is reliable at this UV exposure. Importantly, 3 years of solar irradiation exposure in the Negev Desert equals approximately 6 years in Central Europe, depending on the specific local conditions. Data from the separate field test on T80R-W cable ties at a Central European location also affirmed this.



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**Cable Ties and Fixings**  
Cable ties, inside serrated

**Cable Tie, inside serrated**  
T Series in black

For the wider industry, HellermannTyton offers a wide range of cable ties made of UV stabilised, high quality material. This material provides additional protection against UV radiation for long-term outdoor use in temperate climate zones. This tie is available in various types, tensile strengths and bundle numbers.

**Features and benefits**

- UV resistant cable ties available in a wide range of sizes
- Made from 100% high quality plastic, allows for good recycling
- Insole injection for a strong grip on cables
- Easy application either manually or with a processing tool
- Built-in holder makes it easy to insert strap into the tie head



UV resistant cable ties on pipes

<b>MATERIAL</b>	Polyamide 6.6, Ultrastandard (PA66HT)
<b>Operating Temperature</b>	-45 °C to +85 °C, up to 125 °C, 100/10
<b>Flammability</b>	UL 94 V-0

HF ✓ RoHS ✓

TYPE	PKGS / 100	Length [L]	Bundle H max.	Ø [D]	Material	Colour	Pack Cont.	Tests	Article No.
T10R	2,5	101,9	22,9	10,2	PA66HT	Black (R6)	500 pcs	7,44	11147960
T15R	2,5	151,9	30,3	15,2	PA66HT	Black (R6)	500 pcs	7,44	11148750
T20R	1,5	201,9	37,8	20,3	PA66HT	Black (R6)	500 pcs	7,48	11149540
T25R	1,5	251,9	45,2	25,3	PA66HT	Black (R6)	500 pcs	7,48	11149590
T30R	1,5	301,9	52,7	30,3	PA66HT	Black (R6)	500 pcs	7,48	11149640
T35R	1,5	351,9	60,2	35,3	PA66HT	Black (R6)	500 pcs	7,48	11149690
T40R	1,5	401,9	67,7	40,3	PA66HT	Black (R6)	500 pcs	7,48	11149740
T45R	1,5	451,9	75,2	45,3	PA66HT	Black (R6)	500 pcs	7,48	11149790
T50R	1,5	501,9	82,7	50,3	PA66HT	Black (R6)	500 pcs	7,48	11149840
T55R	1,5	551,9	90,2	55,3	PA66HT	Black (R6)	500 pcs	7,48	11149890
T60R	1,5	601,9	97,7	60,3	PA66HT	Black (R6)	500 pcs	7,48	11149940
T65R	1,5	651,9	105,2	65,3	PA66HT	Black (R6)	500 pcs	7,48	11149990
T70R	1,5	701,9	112,7	70,3	PA66HT	Black (R6)	500 pcs	7,48	11150040
T75R	1,5	751,9	120,2	75,3	PA66HT	Black (R6)	500 pcs	7,48	11150090
T80R	1,5	801,9	127,7	80,3	PA66HT	Black (R6)	500 pcs	7,48	11150140
T85R	1,5	851,9	135,2	85,3	PA66HT	Black (R6)	500 pcs	7,48	11150190
T90R	1,5	901,9	142,7	90,3	PA66HT	Black (R6)	500 pcs	7,48	11150240
T95R	1,5	951,9	150,2	95,3	PA66HT	Black (R6)	500 pcs	7,48	11150290
T100R	1,5	1001,9	157,7	100,3	PA66HT	Black (R6)	500 pcs	7,48	11150340

**Recommended Tools**

2	3	4	5	6	7	8	9	10	11	12
HT 20	HT 21	HT 22	HT 23	HT 24	HT 25	HT 26	HT 27	HT 28	HT 29	HT 30

For detailed information on application possibilities, visit our Tech Center at [www.ht.com](http://www.ht.com)

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# Cable Ties and Fixings

## Cable ties, inside serrated

### Cable ties, inside serrated

#### T-Series in PA66W

For the solar industry, HellermannTyton offers a wide range of cable ties made of UV stabilised PA6.6 material. This material provides additional protection against UV radiation for long-term outdoor use in temperate climate zones. This tie is available in various styles, tensile strengths and bundle diameters.

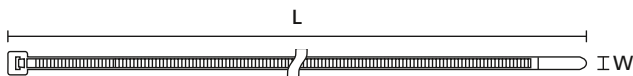
#### Features and benefits

- UV resistant black cable tie available in a wide range of sizes
- Made from 100% high quality plastic, allows for good recycling
- Inside serration for a strong grip on cables
- Easy application either manually or with a processing tool
- Bent tail makes it easy to insert strap into the tie head



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

<b>MATERIAL</b>	Polyamide 6.6, UV-resistant (PA66W)
<b>Operating Temperature</b>	-40 °C to +85 °C, (+105 °C, 500 h)
<b>Flammability</b>	UL 94 V2



T-Series

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
T18R	2.5	100.0	22.0	80	PA66W	Black (BK)	100 pcs.	2;4-6	111-01960
T18L	2.5	205.0	50.0	80	PA66W	Black (BK)	100 pcs.	2;4-6	111-02160
T30R	3.5	150.0	35.0	135	PA66W	Black (BK)	100 pcs.	2;4-6	111-03260
T80R	4.7	210.0	55.0	355	PA66W	Black (BK)	100 pcs.	2-8;10-12	111-05060
T80I	4.7	305.0	85.0	355	PA66W	Black (BK)	100 pcs.	2-8;10-12	111-08290
T80L	4.7	390.0	110.0	355	PA66W	Black (BK)	100 pcs.	2-8;10-12	111-05460
T150R(H)	7.6	365.0	100.0	670	PA66W	Black (BK)	100 pcs.	3;10-12	111-14860
T120M	7.6	460.0	125.0	535	PA66W	Black (BK)	100 pcs.	3;10-12	111-12660
T120L	7.6	760.0	225.0	535	PA66W	Black (BK)	50 pcs.	3;10-12	111-12430

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools									
2	3	4	5	6	7	8	10	11	12
MK20	MK21	MK3SP	MK3PNSP2	EVO7	MK7HT	MK7P	EVO9	EVO9HT	MK9P

For detailed information on Application Tooling please refer to our Main Catalogue or the Internet.



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## Cable ties made from sustainable bioplastic

### T-Series in PA11 black

What makes this cable tie so different is the high-performance polymer we make it from. Derived from 100% castor oil sources, PA11 is characterised by its extreme resistance to chemicals like zinc chloride as well as UV radiation. It is a popular choice for bundling and fixing of solar cables on galvanised steel sub constructions in coastal areas where chemical corrosion and degradation of conventional polyamide 6.6 materials is rapid.

Due to its low water absorption rate, PA11 is also ideal for floating PV, agrivoltaic and extremely dry climate applications.

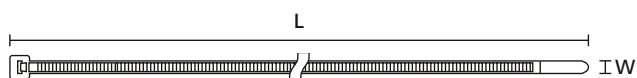
### Features and benefits

- Made of Polyamide 11 – a sustainable bioplastic from castor oil
- Very good UV resistance and durability in outdoor applications
- Stable technical performance even at very low temperatures
- High resistance to chemicals including chlorides
- Low water absorption rate offers consistent technical performance
- Plastic solution adding security for 1500V DC systems



A sustainable T-Series cable tie with high resistance to chemicals and UV light.

<b>MATERIAL</b>	Polyamide 11 (PA11)
<b>Operating Temperature</b>	-40 °C to +85 °C, (+105 °C, 500 h)
<b>Flammability</b>	UL 94 HB



T-Series

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
T18R	2.5	100.0	22.0	80	PA11	Black (BK)	100 pcs.	2;4-6	111-01718
T30R	3.5	150.0	35.0	130	PA11	Black (BK)	100 pcs.	2;4-6	111-01719
T50S	4.6	150.0	35.0	170	PA11	Black (BK)	100 pcs.	2-8;10	111-01720
T50R	4.6	200.0	50.0	170	PA11	Black (BK)	100 pcs.	2-8;10	111-01721
	4.6	200.0	50.0	225	PA11	Black (BK)	6,000 pcs.	2-8;10	111-05007
T50I	4.6	300.0	85.0	225	PA11	Black (BK)	100 pcs.	2-8;10	111-02217
T120L	7.6	760.0	225.0	535	PA11	Black (BK)	50 pcs.	3;10-12	111-12470

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools									
2	3	4	5	6	7	8	10	11	12
MK20	MK21	MK3SP	MK3PNSP2	EVO7	MK7HT	MK7P	EVO9	EVO9HT	MK9P

For detailed information on Application Tooling please refer to our Main Catalogue or the Internet.



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# Cable Ties and Fixings

## Cable ties, inside serrated

### Cable ties, inside serrated

#### T-50R in PVDF, grey

We manufacture this unique cable tie from high grade PVDF material, which has been used in the solar industry for top quality backsheet foils for many centuries. PVDF delivers the highest UV, chemical and thermal resistance of any plastic resin on the market. It performs reliably for 15 years and more and is recommended for use on fixed tilt and tracker installations, floating PV, agrivoltaic and bifacial setups in exposed, high-UV-rated locations in subtropical and tropical climate zones. Application on rounded edges is recommended.

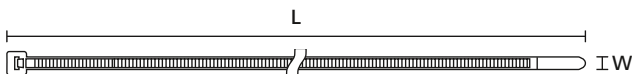
#### Features and benefits

- Made from PVDF for high UV, chemical and thermal resistance
- Does not need carbon black for UV protection, coloured in grey
- No water absorption, suitable for dry and humid applications
- Plastic solution adding security for 1500V DC systems



The PVDF tie is coloured grey in order to visibly distinguish it easily from other materials.

<b>MATERIAL</b>	Polyvinylidene Fluoride (PVDF)
<b>Operating Temperature</b>	-40 °C to +140 °C
<b>Flammability</b>	UL 94 V0



T-Series

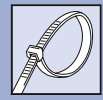
TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
T50R	4.7	200.0	50.0	225	PVDF	Grey (GY)	100 pcs.	2-8;10	111-02390
	4.7	200.0	50.0	225	PVDF	Grey (GY)	3,000 pcs.	2-8;10	111-02447

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools							
2	3	4	5	6	7	8	10
MK20	MK21	MK3SP	MK3PNSP2	EVO7	MK7HT	MK7P	EVO9

For detailed information on Application Tooling please refer to our Main Catalogue or the Internet.





### Cable ties with low profile head, outside-serrated

#### Robusto-Series

The flat head and wide strap design of the Robusto-Series differs from the classic cable tie design, making it the perfect choice for dynamic bundling applications such as trackers and floating PV installations. The PA11 material offers excellent resistance to UV radiation and chemicals in the most challenging environments

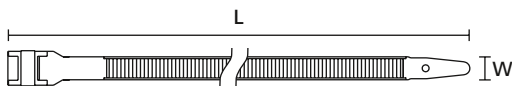
#### Features and benefits

- Made of Polyamide 11, a sustainable bioplastic from castor oil
- Outside-serrated strap and rounded head design protect bundle
- High tensile strength with a single- or a double-bridged head
- Soft material for easy handling without damaging the bundle
- Very good UV resistance and durability in outdoor applications
- Stable technical performance even at very low temperatures
- Low water absorption rate and high durability
- Pre-locking possible by pushing the strap through the eyelet
- Plastic solution adding security for 1500V DC systems

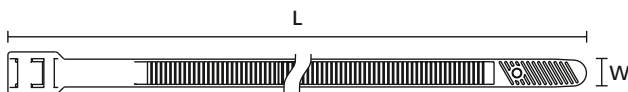


Flat head cable tie from sustainable bioplastic, Robusto-Series.

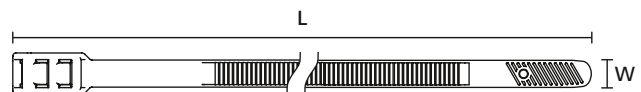
<b>MATERIAL</b>	Polyamide 11 (PA11)
<b>Operating Temperature</b>	-40 °C to +85 °C
<b>Flammability</b>	UL 94 HB



Robusto (LPH922)



Robusto (LPH942)



Robusto (LPH962, LPH992)

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
<b>Robusto (LPH922)</b>	9.0	123.0	22.0	310	PA11	Black (BK)	100 pcs.	1;10-12	112-00025
<b>Robusto (LPH942)</b>	9.0	180.0	42.0	360	PA11	Black (BK)	100 pcs.	1;10-12	112-00011
<b>Robusto (LPH962)</b>	9.0	260.0	62.0	530	PA11	Black (BK)	100 pcs.	1;10-12	112-00012
<b>Robusto (LPH992)</b>	9.0	355.0	92.0	530	PA11	Black (BK)	100 pcs.	1;10-12	112-00013

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools			
1	10	11	12
MK10-SB	EVO9	EVO9HT	MK9P

For detailed information on Application Tooling please refer to our Main Catalogue or the Internet.



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# Cable Ties and Fixings

## Cable ties, stainless steel

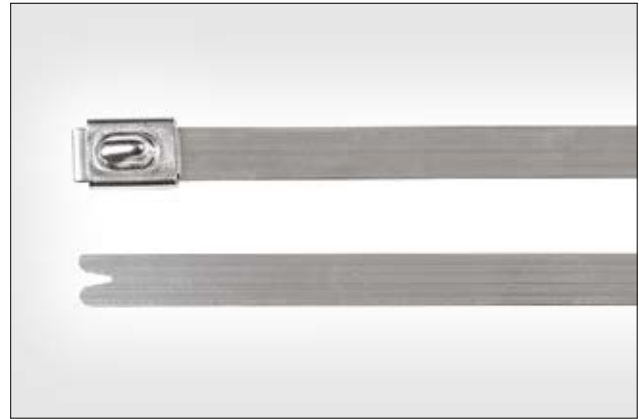
### Cable ties with ball-lock

#### MBT-Series, stainless steel 304

Metal ties are ideal for all applications that require extra strength, long-term weathering reliability and fire resistance. Stainless steel MBT ties secure cables, poles and pipes in harsh environments and are appropriate for indoor, outdoor and underground uses.

#### Features and benefits

- Non-releasable locking feature
- Corrosion resistant
- Weather resistant
- Outstanding chemical resistance
- High temperature resistant
- Non-burning



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



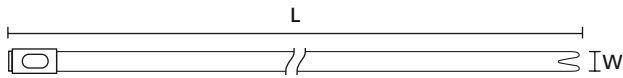
For hard, smooth surface applications, we recommend the use of our LFPC protective channels.

<b>MATERIAL</b>	Stainless Steel (SS304)
<b>Operating Temperature</b>	-80 °C to +538 °C
<b>Flammability</b>	non-burning

HF ✓

LFH ✓

RoHS ✓



MBT-Series 4.6 mm and 7.9 mm width

TYPE	Width (W)	Length (L)	Bundle Ø min.	Bundle Ø max.		Material	Pack Cont.	Tools	Article-No.
MBT8SS	4.6	201.0	17.0	50.0	900	SS304	100 pcs.	15-18	111-93088
MBT14SS	4.6	362.0	17.0	102.0	900	SS304	100 pcs.	15-18	111-93148
MBT20SS	4.6	521.0	17.0	152.0	900	SS304	100 pcs.	15-18	111-93208
MBT27SS	4.6	685.0	17.0	203.0	900	SS304	100 pcs.	15-18	111-93278
MBT14HS	7.9	362.0	17.0	102.0	2,000	SS304	50 pcs.	15-18	111-94148
MBT20HS	7.9	521.0	17.0	152.0	2,000	SS304	50 pcs.	15-18	111-94208
MBT27HS	7.9	685.0	17.0	203.0	2,000	SS304	50 pcs.	15-18	111-94278
MBT33HS	7.9	838.0	17.0	254.0	2,000	SS304	50 pcs.	15-18	111-94338

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

#### Recommended Tools

15	16	17	18
MK9SST	MK9PSST	HDT16	KST-STG200

For detailed information on Application Tooling please refer to our Main Catalogue or the Internet.





## Cable ties with fixing element for round holes

### FT6 Fir Tree Parts

Cable ties with fir tree mounts feature low insertion force and a high extraction force, without the need for screws or rivets. Manufactured from impact-modified and heat stabilised Polyamide 6.6 material, they offer increased flexibility, heat resistance and UV stability.

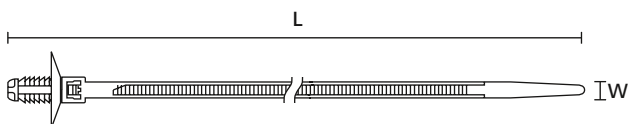
#### Features and benefits

- Cable tie head always situated in a defined position
- Easy to assemble without the need for tools
- Integrated disc compensates for pressure from any direction and minimises dust and dirt ingress
- Fir tree foot part can be used on a variety of panel thicknesses
- Suitable for use within threaded holes
- Plastic solution adding security for 1500V DC systems



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

<b>MATERIAL</b>	Polyamide 6.6, high impact modified, heat and UV-stabilised (PA66HIRHSUV)
<b>Operating Temperature</b>	-40 °C to +105 °C
<b>Flammability</b>	UL 94 HB

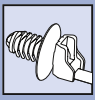


*Reference for dimensions only.*

TYPE	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø	Material	Colour	Article-No.
T50SOSFT6.5LG-E4X		6.3 - 7.0	0.7 - 7.0	4.6	165.0	35.0	225	16.0	PA66HIRHSUV	Black (BK)	157-00302

All dimensions in mm. Subject to technical changes.





# Cable Ties and Fixings

Fixing products for holes

## Cable tie with fixing element for round holes and stand-off

### First Solar Series 6 Solar Fir Tree Fasteners

The Series 6 Solar Fir Tree Fastener is the easiest and fastest wire management solution on the market. It features a head design specifically tailored to First Solar Series 6 Modules. The entire fir tree passes through the wire management hole to prevent unintended disengagement. The unique barrel head rests on the module lip to relieve downward forces on the fir tree. Stand-off keeps bundles the perfect distance from mounting hole, allowing non-destructive movement due to wind or tracker motion. The bent tail design allows quick and simple installation by hand.

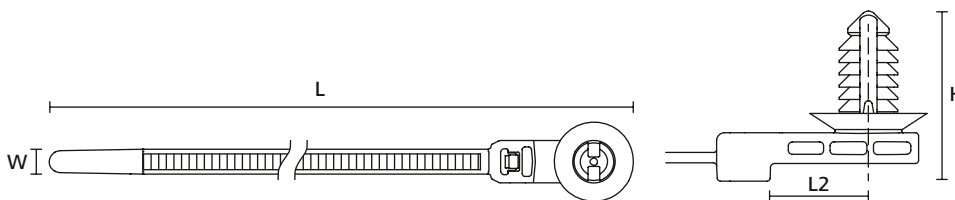
### Features and benefits

- HIRHSUV solar fasteners provide excellent durability in UV-, chemical- and moisture-sensitive environments
- Can be pre-installed while modules are still on the pallet
- Barrel and offset head design reduce potential for abrasion and wear
- Design vetted and recommended by First Solar
- Plastic solution adding security for 1500V DC systems



Utilising the First Solar Series 6 wire management hole for module-to-module wire management.

<b>MATERIAL</b>	Polyamide 6.6, high impact modified, heat and UV-stabilised (PA66HIRHSUV)
<b>Operating Temperature</b>	-40 °C to +105 °C
<b>Flammability</b>	UL 94 HB



TYPE	Drawing	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Length (L2)	N	Material	Colour	Tools	Article-No.
T50ROSFT5.6SO25R		5.6	3.0 - 4.3	5.1	203.2	25.0	225	PA66HIRHSUV	Black (BK)	2-8;10	157-00421

All dimensions in mm. Subject to technical changes.

Recommended Tools							
2	3	4	5	6	7	8	10
MK20	MK21	MK3SP	MK3PNSP2	EVO7	MK7HT	MK7P	EVO9

For detailed information on Application Tooling please refer to our Main Catalogue or the Internet.





## Push button mount for holes, with cable tie

### T50RPBM9

This button head mount includes a T50R tie in a kit to secure cables and wire bundles on solar modules and mounting structures. The mount conveniently fits existing oval (9x14mm) and round holes (9-12mm) with zero insertion force. Made from impact-modified, heat-resistant, UV-stabilised polyamide 6.6, which is specifically formulated for extreme environments. The mount is designed to withstand movement, particularly on single-axis tracker systems, for years of dependable performance.

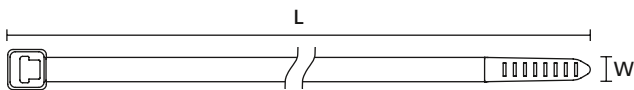
#### Features and benefits

- High-impact-modified, heat-resistant, UV-stabilised material is ideal for long-term performance in extreme weather
- Capable of holding several cables, depending on cable tie size used, for ultimate flexibility
- Zero-insertion-force design requires no tools for quick and easy mounting to most solar modules
- Withstands tracker movement to prevent chafing of wires
- Plastic solution adding security for 1500V DC systems

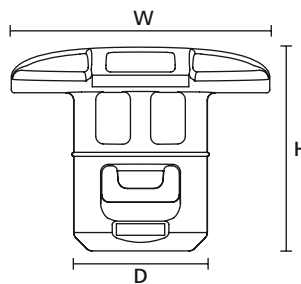


Tracker movements are no longer an issue with the PBM9 kit.

<b>MATERIAL</b>	Polyamide 6.6, high impact modified, heat and UV-stabilised (PA66HIRHSUV)
<b>Operating Temperature</b>	-40 °C to +105 °C
<b>Flammability</b>	UL 94 HB



Cable Tie T50RPMB9 (Set)



Button Mount T50RPM9 (Set)

TYPE	Hole Ø (FH)	Panel Thickness	Width (W)	Length (L)	Height (H)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Article-No.
T50RPBM9SET	9.0 x 12.0, 9.0 x 14.0	3.0	17.0	203.2	13.4	50.0	225	PA66HIRHSUV	Black (BK)	500 pcs.	156-02512
	9.0 x 12.0, 9.0 x 14.0	3.0	17.0	203.2	13.4	50.0	225	PA66HIRHSUV	Black (BK)	1,000 pcs.	156-02513

All dimensions in mm. Subject to technical changes.



Please note! Not all products listed on this page may have this approval. Please check our website for latest approvals.

Add items to your watchlist!

[www.ht.click/1-15](http://www.ht.click/1-15)







# Cable Ties and Fixings

Fixing products for holes

## Fixing element for oval and round holes

### Locking clamps, LOC-Series

LOC is ideal for fastening wire and cable bundles to solar panels. The uniquely engineered fir tree holds tightly in most oval or round pre-stamped module holes. Depending on the version, the locking clamp mechanism dynamically fits up to four DC cables (4-6 mm<sup>2</sup>), while an optional cable saddle allows installers to add additional cable runs. We manufacture the clamp from impact-modified Polyamide 6.6 for increased flexibility, heat resistance and UV stability. This material delivers years of dependable performance. LOC is easy to install with a single hand without the need for tools, saving time and labour costs.

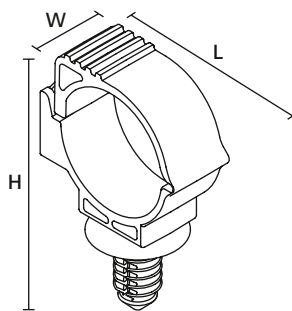
### Features and benefits

- Releasable clamp mechanism allows for easy, one-handed maintenance without having to remove the mount
- Low-insertion, high-extraction fir tree foot part compatible with a wide range of solar modules
- Impact-modified, heat-resistant, UV-stabilised material ideal for long-term performance in extreme weather, even on trackers
- Plastic solution adding security for 1500V DC systems



Time saving with LOC-Series cable management.

<b>MATERIAL</b>	Polyamide 6.6, high impact modified, heat and UV-stabilised (PA66HIRHSUV)
<b>Operating Temperature</b>	-40 °C to +105 °C
<b>Flammability</b>	UL 94 HB



Reference drawing for dimensions only.



TYPE	Drawing	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Panel Thickness	Bundle Ø max.	Material	Colour	Pack Cont.	Article-No.
LOC1014FT9x12		12.0	35.0	58.8	9,0 x 12,0, 9,0 x 14,0	0.6 - 6.8	14.0	PA66HIRHSUV	Black (BK)	100 pcs.	151-02218
		12.0	35.0	58.8	9,0 x 12,0, 9,0 x 14,0	0.6 - 6.8	14.0	PA66HIRHSUV	Black (BK)	500 pcs.	151-02501
LOC5-9FT6LG		12.0	23.7	37.1	6,35 (hexagonal), 6,1 - 6,9	0.6 - 8.3	9.0	PA66HIRHSUV	Black (BK)	1,700 pcs.	151-01017
LOC1014FT6LG		12.0	27.6	41.7	6,35 (hexagonal), 6,1 - 6,9	0.6 - 8.3	14.0	PA66HIRHSUV	Black (BK)	2,000 pcs.	151-01166

All dimensions in mm. Subject to technical changes.



Please note! Not all products listed on this page may have this approval. Please check our website for latest approvals.





## Fastener for round holes

### Solar clip, SC-Series

The SC6.6 Clip with fir tree mount is ideal for panels and substructures with pre-drilled holes. Easy installation by hand eliminates the need for any tools. Once installed, 4-6 mm<sup>2</sup> cables simply snap into the clip. The cable can be removed and reinstalled without removing the clip. Made from PA66HIRHSUV material, the SC6.6 provides increased flexibility along with heat resistance and UV stability.

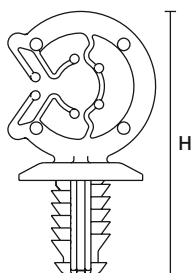
### Features and benefits

- Easy to install without the need for tools
- Suitable for post-installation of bundles
- Easy replacement of bundles in the event of maintenance
- Fir tree foot part can be used on a variety of panel thicknesses
- Plastic solution adding security for 1500V DC systems

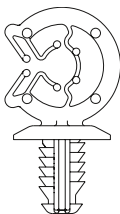


The SC6.6 for solar cables is ideal for quick installation and easy maintenance.

<b>MATERIAL</b>	Polyamide 6.6, high impact modified, heat and UV-stabilised (PA66HIRHSUV)
<b>Operating Temperature</b>	-40 °C to +105 °C
<b>Flammability</b>	UL 94 HB



Solar clip, SC-Series

TYPE	Drawing	Width (W)	Height (H)	Bundle Ø max.	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
SC6.6		18.3	33.4	7.6	6.6	0.7 - 6.4	PA66HIRHSUV	Black (BK)	151-00927

All dimensions in mm. Subject to technical changes.





# Cable Ties and Fixings

Fixing products for holes

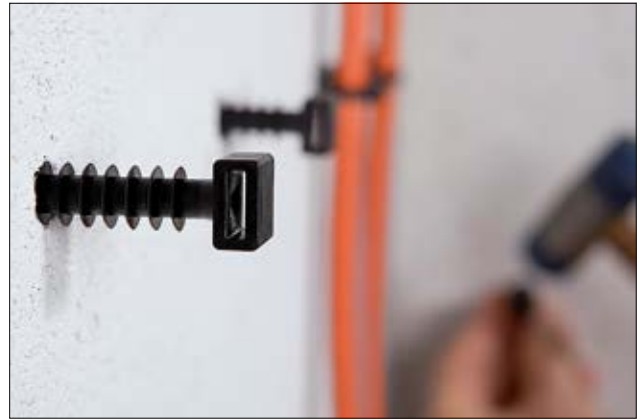
## Fixing base

### LOK-Series

Intended for rooftop solar installations, the LOK mounts secures inverter feed and homerun cables on a wide range of materials, especially brickwork. In conjunction with a suitable cable tie, it can be used either indoors or outdoors.

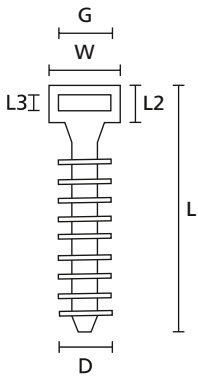
### Features and benefits

- Usable with any cable ties up to 9 mm width
- Suitable for use with a wide range of materials, including concrete, brick, block and wood
- Installed by knocking into 7 mm or 8 mm diameter hole
- Eliminates the need for pipes and cable ducts on walls
- Made of polyamide 11, a sustainable and highly UV-resistant bioplastic



LOK01 fixing bases for indoor and outdoor use.

<b>MATERIAL</b>	Polyamide 11 (PA11)
<b>Operating Temperature</b>	-40 °C to +85 °C
<b>Flammability</b>	UL 94 HB

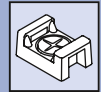


LOK01 fixing base (front view)

TYPE	Width (W)	Length (L)	Length (L2)	Length (L3)	Ø (D)	Strap Width max. (G)	Hole Ø (FH)	Material	Colour	Article-No.
LOK01	12.0	44.0	6.5	2.5	9.2	9.0	7.0 - 8.0	PA11	Black (BK)	151-01277

All dimensions in mm. Subject to technical changes.





## Harness clip for screws or threaded bolts, with cable tie

### Standard torque mounts

Solar substructures such as fixed tilt and trackers employ a wide range of bolts, which can also be used for cable management solutions. Utilise these existing bolts with our heavy duty torque mounts (HDM-Series).

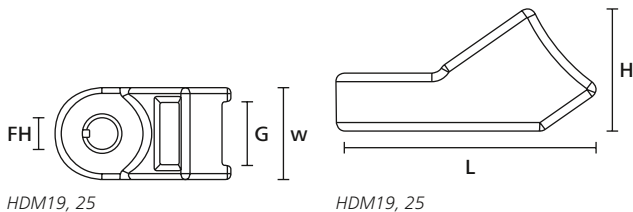
### Features and benefits

- Design offers secure alignment to the bundle
- Possible replacement of cushion clamps and/or metal clamps
- Eliminates the need for multiple sizes of fixed diameter clamps
- For cable ties up to 12.7 mm width
- Easy maintenance of bundle by simply changing the cable tie
- Plastic solution adding security for 1500V DC systems



Heavy Duty Mounts HDM-Series, patent number US5820083.

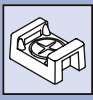
<b>MATERIAL</b>	Polyamide 6.6, high impact modified, heat and UV-stabilised (PA66HIRHSUV)
<b>Operating Temperature</b>	-40 °C to +105 °C
<b>Flammability</b>	UL 94 HB



TYPE	Drawing	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Strap Width max. (G)	Material	Colour	Pack Cont.	Article-No.
HDM19		19.3	36.3	16.7	4.7	12.7	PA66HIRHSUV	Black (BK)	100 pcs.	151-00134
HDM25		19.3	36.3	16.7	6.2	12.7	PA66HIRHSUV	Black (BK)	100 pcs.	151-00437

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.





# Cable Ties and Fixings

Fixing products for screws

## Ratcheting clamp, bolt fixing

### Ratchet P-Clamp

The Ratchet P-Clamp series is ideal for cable and hose management in solar installations. Proven applications include end-of-row arrests toward the fixed post and managing wire in transitions on tracker and fixed tilt installations. The unique single-piece adjustable clamp can be closed by hand to the required diameter. The release feature allows for easy and non-destructive removal of cables with the aid of a flat-head screwdriver. The Ratchet P-Clamp is available in multiple sizes and multiple mounting angles. Configurations include bolt fixing diameters from M6 to M12 and stainless steel metal plates.

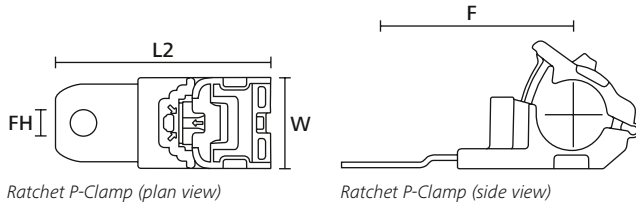
### Features and benefits

- Ratchet P-Clamp for bundle diameters ranging from 6.2 up to 51.0 mm (divided into 4 sizes)
- One-piece ratchet closure design allows for easy installation during pre- or final assembly
- Multiple configurations cover a wide range of diameters and application configurations, significantly reducing part inventory
- Clamp interior is designed to guide and centre bundle to reduce pinching
- Easy release feature allows for quick adjustment and maintenance
- Impact-modified, heat- and UV-stabilised PA66 provides long-term durability, in- and outdoors
- Steel mounting plate accommodates high torque and is treated to resist chemicals and salt spray. Available also in stainless steel grade
- Plastic solution adding security for 1500V DC systems



Managing wire in transition on a tracker installation.

<b>MATERIAL</b>	Polyamide 6.6, high impact modified, heat and UV-stabilised (PA66HIRHSUV), Steel (ST), Zinc plated (ZN)
<b>Operating Temperature</b>	-40 °C to +105 °C
<b>Flammability</b>	UL 94 HB



**i** All Ratchet P-Clamps are also available with stainless steel mounting plate.

TYPE	Drawing	Width (W)	Length (L2)	Bundle Ø min.	Bundle Ø max.	Hole Ø (FH)	Fixing Hole Centres (F)	Variant	Material	Colour	Article-No.
RCB180SM10		34.9	83.1	12.7	19.5	10.29	52.8	Short	PA66HIRHSUV, ST, ZN	Black (BK)	151-01390
RCC180SM10		34.9	103.0	19.4	36.0	10.29	62.3	Short	PA66HIRHSUV, ST, ZN	Black (BK)	151-01475
RCD180SM10		34.9	115.5	36.0	51.0	10.29	70.0	Short	PA66HIRHSUV, ST, ZN	Black (BK)	151-01501
RCB90SM10		34.9	68.8	12.7	19.5	10.29	26.7	Short	PA66HIRHSUV, ST, ZN	Black (BK)	151-01458
RCC90SM10		34.9	101.2	19.4	36.0	10.29	39.9	Short	PA66HIRHSUV, ST, ZN	Black (BK)	151-01493
RCD90SM10		34.9	88.7	36.0	51.0	10.29	42.4	Short	PA66HIRHSUV, ST, ZN	Black (BK)	151-01519

All dimensions in mm. Subject to technical changes.



Please note! Not all products listed on this page may have this approval. Please check our website for latest approvals.





## Edge fastening cable ties, 1-piece

### EdgeClip-Series, 1.0 - 3.0 mm

Cable ties with EdgeClips are ideal where holes are not acceptable and there is no other way to route cables along an edge. This is often the case when connected module leads are too short to be fixed to substructures. Another common scenario is keeping solar cables out of substructure metallic ducts or away from roof surfaces that can be flooded with water, causing inverter faults over time. The EdgeClip can be easily pushed onto the edge by hand without any tools. The integrated metal clamp delivers reliably high extraction force. EdgeClips are available as one- or two-piece parts with a pre-installed cable tie. Both cable tie and EdgeClip housing are manufactured of UV-stabilised PA6.6 specifically suitable for PV applications in temperate climate zones

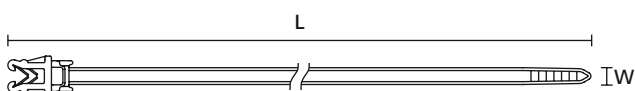


1-Piece Fixing Tie T50SOSEC12E can be pushed easily on edges.

### Features and benefits

- Easy installation, just push on by hand
- For edge thickness of 1 - 3 mm, 3 - 6 mm, 4 - 6 mm or 6 - 8 mm
- Avoids long term issues with flooded cabling and connectors
- Plastic solution adding security for 1500V DC systems

<b>MATERIAL</b>	Polyamide 6.6, UV-resistant (PA66W)
<b>Operating Temperature</b>	-40 °C to +85 °C, (+105 °C, 500 h)
<b>Flammability</b>	UL 94 V2



T50SOSEC12E

TYPE	Drawing	Panel Thickness	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Tools	Article-No.
T50SOSEC12E		1.0 - 3.0	4.6	160.0	35.0	180	PA66W	Black (BK)	2-8;10	126-00374
T50SOSEC13E		1.0 - 3.0	4.6	160.0	35.0	180	PA66W	Black (BK)	2-8;10	126-00373
T50SOSEC34E		1.0 - 3.0	4.6	155.0	35.0	180	PA66W	Black (BK)	2-8;10	126-00375

All dimensions in mm. Subject to technical changes.

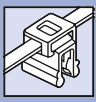
Recommended Tools							
2	3	4	5	6	7	8	10
MK20	MK21	MK3SP	MK3PNSP2	EVO7	MK7HT	MK7P	EVO9

For detailed information on Application Tooling please refer to our Main Catalogue or the Internet.

Add items to your watchlist!

[www.ht.click/1-21](http://www.ht.click/1-21)





# Cable Ties and Fixings

Fixing products for edges

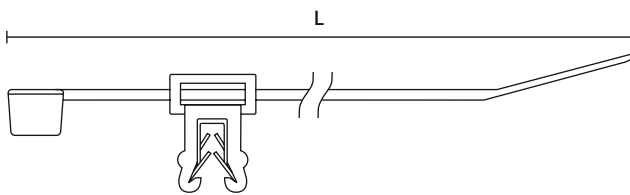
## Edge fastening cable ties, 2-piece

### Features and benefits

- Easy installation, just push on by hand
- For edge thickness of 1 - 3 mm
- Avoids long term issues with flooded cabling and connectors
- Plastic solution adding security for 1500V DC systems
- Pre-assembled fixing tie with EdgeClip
- Cable tie head can be moved after bundling



Easy module level cable management along an edge.



Fixing Tie with EC4

<b>MATERIAL</b>	Polyamide 6.6, UV-resistant (PA66W)
<b>Operating Temperature</b>	-40 °C to +85 °C, (+105 °C, 500 h)
<b>Flammability</b>	UL 94 V2



### EdgeClip-Series, 1.0 - 3.0 mm, top fixing

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Tools	Article-No.
T50ROSEC4A		4.6	200.0	45.0	225	PA66W	Black (BK)	2-8;10	156-00570
T50ROSEC4B		4.6	200.0	45.0	225	PA66W	Black (BK)	2-8;10	156-01154

All dimensions in mm. Subject to technical changes.

### EdgeClip-Series, 1.0 - 3.0 mm, side fixing

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Tools	Article-No.
T50ROSEC5A		4.6	200.0	45.0	225	PA66W	Black (BK)	2-8;10	156-00661
T50ROSEC5B		4.6	200.0	45.0	225	PA66W	Black (BK)	2-8;10	156-00698

All dimensions in mm. Subject to technical changes.

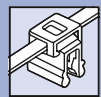
Recommended Tools							
2	3	4	5	6	7	8	10
MK20	MK21	MK3SP	MK3PNSP2	EVO7	MK7HT	MK7P	EVO9

For detailed information on Application Tooling please refer to our Main Catalogue or the Internet.



Add items to your watchlist!

[www.ht.click/1-22](http://www.ht.click/1-22)



## Edge fastening cable ties, 2-piece

### EdgeClip-Series, 3.0 - 6.0 mm, side fixing

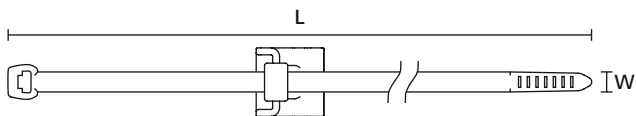
#### Features and benefits

- Easy installation, just push on by hand
- For edge thickness of 3 - 6 mm
- Avoids long term issues with flooded cabling and connectors
- Plastic solution adding security for 1500V DC systems
- Pre-assembled fixing tie with EdgeClip
- Cable tie head can be moved after bundling



Easy module level cable management along a metal edge.

Please note: Visual representations of EdgeClip parts in application do not replace the need for precise engineering calculation of the expected forces in your individual installation. Failure to do so, or incorrect installation, can produce unnecessary risk of damage and fatality that HellermannTyton cannot be liable for. HellermannTyton product experts are available to advise you on the suitability of your intended use of EdgeClips on specific materials.



TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Tools	Article-No.
T50ROSEC23		4.6	200.0	45.0	225	PA66W	Black (BK)	2-8;10	156-00843

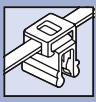
All dimensions in mm. Subject to technical changes.

Recommended Tools							
2	3	4	5	6	7	8	10
MK20	MK21	MK3SP	MK3PNSP2	EVO7	MK7HT	MK7P	EVO9

For detailed information on Application Tooling please refer to our Main Catalogue or the Internet.







# Cable Ties and Fixings

Fixing products for edges

## Edge fasteners

The MSC-Series provides an excellent alternative to managing wire and PV cables where plastic fasteners are not the preferred method, for extreme in subtropical and tropical climate zones and floating PV applications. Designed for effortless insertion, this stainless steel EdgeClip has a high extraction force that tolerates extreme environments and provides assurance that the cables are securely affixed to a panel or substructure.

### Features and benefits

- Integrated design allows for easy insertion by hand
- Rounded edges protect the cable insulation from damage
- Double-compression design that accommodates up to two cables and various sizes (4-6 mm<sup>2</sup>)
- High extraction force for withstanding extreme conditions
- Made from SS304 stainless steel

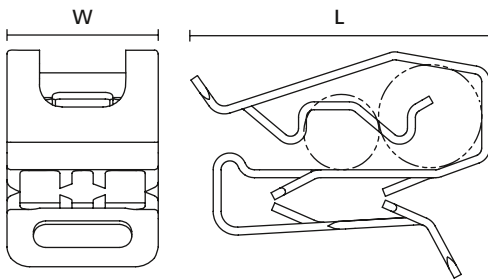


Fixing Element MSC2 for Solar Panels.

<b>MATERIAL</b>	Stainless Steel (SS304)
<b>Operating Temperature</b>	-80 °C to +538 °C
<b>Flammability</b>	non-burning



### Metal solar clips, MSC-Series, heavy duty



MSC2

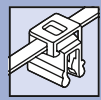
TYPE	Panel Thickness	Cable Ø min	Cable Ø max	Width (W)	Length (L)	Material	Colour	Pack Cont.	Article-No.
MSC2	1.0 - 3.0	5.0	7.6	13.0	24.1	SS304	Metal (ML)	100 pcs.	151-00982
	1.0 - 3.0	5.0	7.6	13.0	24.1	SS304	Metal (ML)	5,000 pcs.	151-02320

All dimensions in mm. Subject to technical changes.

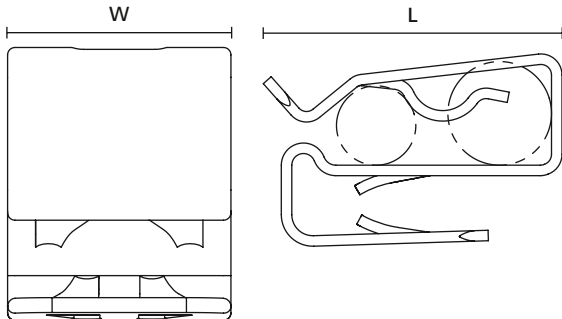


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## Metal solar clips, MSC-Series, low profile



MSC2LP

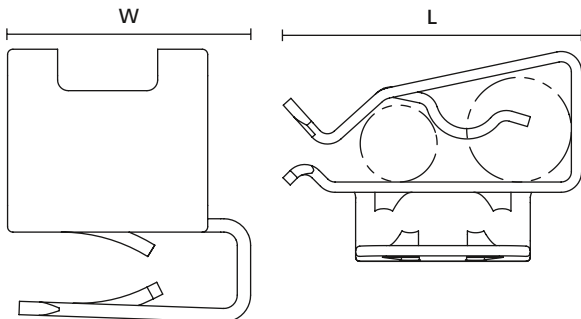


MSC2LP for low profiles are managing PV cables where plastic fasteners are not the preferred method.

TYPE	Panel Thickness	Cable Ø min	Cable Ø max	Width (W)	Length (L)	Material	Colour	Pack Cont.	Article-No.
MSC2LP1	0.8 - 1.3	4.1	7.0	10.3	18.1	SS304	Metal (ML)	5,000 pcs.	151-03155
MSC2LP	1.5 - 2.0	4.1	7.0	9.5	17.0	SS304	Metal (ML)	100 pcs.	151-01699
	1.5 - 2.0	4.1	7.0	9.5	17.0	SS304	Metal (ML)	5,000 pcs.	151-02436

All dimensions in mm. Subject to technical changes.

## Metal solar clips, MSC-Series, 90 degree



MSC90



90-degree metal edge clip for optimized routing of solar cables.

TYPE	Panel Thickness	Cable Ø min	Cable Ø max	Width (W)	Length (L)	Material	Colour	Pack Cont.	Article-No.
MSC901	0.8 - 1.2	4.1	7.39	11.6	18.4	SS304	Metal (ML)	100 pcs.	151-02569
	0.8 - 1.2	4.1	7.39	11.6	18.4	SS304	Metal (ML)	5,000 pcs.	151-02570
MSC90	1.5 - 2.0	4.1	7.0	11.6	18.4	SS304	Metal (ML)	100 pcs.	151-02189
	1.5 - 2.0	4.1	7.0	11.6	18.4	SS304	Metal (ML)	5,000 pcs.	151-02291

All dimensions in mm. Subject to technical changes.



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# Cable Ties and Fixings

Fixing products for pipes and harnesses

## Spacer ties for row-to-row routing

### Aerial support ties, TAS-Series

Aerial support ties fix cables to the messenger wire setup often used for solar row-to-row transitions above the ground. The one-piece design, featuring a spacer and strap with bent tail, simplifies use and reduces installation time as well as inventory costs. Outside serrations along the strap prevent damage to sensitive cables. The PA66HIRHSUV material is well suited for long-term, outdoor use.

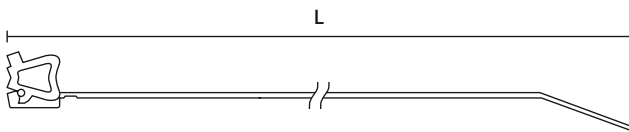
#### Features and benefits

- UV resistant, heat-stabilised and impact-resistant PA66 material delivers excellent performance outdoors
- One-piece design reduces installation time
- Better protection of cables compared to hanger solutions when grazing is allowed in the solar park
- Plastic delivers robust performance at lower cost than metal fasteners
- Plastic solution adding security for 1500V DC systems




Spacer ties enables proper row-to-row cable management above the ground.

<b>MATERIAL</b>	Polyamide 6.6, high impact modified, heat and UV-stabilised (PA66HIRHSUV)
<b>Operating Temperature</b>	-40 °C to +105 °C
<b>Flammability</b>	UL 94 HB



TAS-series

TYPE	Width (W)	Length (L)	Bundle Ø max.		Material	Colour	Article-No.
TAS120M	12.7	270.0	70.0	535	PA66HIRHSUV	Black (BK)	111-01671
TAS120L	12.7	420.0	114.0	535	PA66HIRHSUV	Black (BK)	111-01672

All dimensions in mm. Subject to technical changes.





## Fixing elements for tubes and harnesses

### Ratcheting clamp, with hanger

The Series 6 Ratchet P-Clamp Solar Hanger offers one-handed, toolless simplicity and size versatility for managing wires and cables on First Solar modules. The robust design and solar-optimized materials make it ideal for heavy duty, outdoor applications. The one-piece adjustable clamp can be closed by hand to the desired diameter, replacing multiple sizes of fixed diameter fasteners. The integrated release feature enables easy and nondestructive removal of cables by inserting a flat-head screwdriver. This allows the clamp to be reused without removing it.

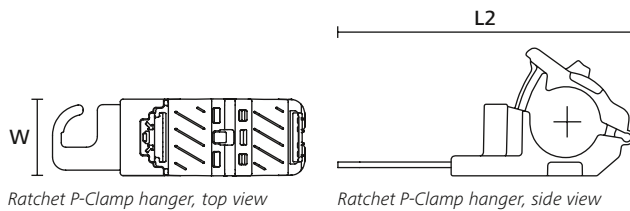
### Features and benefits

- Impact modified, heat and UV stabilized PA66 provides long-term durability in solar applications
- One-piece ratchet closure design allows for easy installation during pre- or final assembly
- Release feature allows for quick adjustments and maintenance
- First Solar specific steel mounting hanger tolerates high torque and is treated to resist chemicals



Ratchet P-Clamp Hanger applied to a solar panel.

<b>MATERIAL</b>	Polyamide 6.6, high impact modified, heat and UV-stabilised (PA66HIRHSUV), Zinc plated (ZN)
<b>Operating Temperature</b>	-40 °C to +105 °C
<b>Flammability</b>	UL 94 HB



Ratchet P-Clamp hanger, top view

Ratchet P-Clamp hanger, side view

TYPE	Width (W)	Length (L2)	Bundle Ø min.	Bundle Ø max.	Variant	Material	Colour	Article-No.
RCBHANGER	34.9	81.7	12.7	19.5	Short	PA66HIRHSUV, ZN	Black (BK)	151-02875
RCCHANGER	34.9	101.7	19.4	36.0	Short	PA66HIRHSUV, ZN	Black (BK)	151-03057

All dimensions in mm. Subject to technical changes.



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### Heat shrink tubing, medium wall

#### MA47

MA47 is a medium wall heat shrink tubing with an adhesive lining for use in low voltage solar applications. The thermoplastic adhesive liner provides excellent moisture sealing and insulation protection of cable joints and DC/AC terminations in combiner boxes and inverter arrays. Made of a polyolefin outer material, this tubing has a 4:1 shrink ratio.

#### Features and benefits

- Medium wall tubing with robust insulation characteristics
- Shrink tubing for cable applications above and below ground
- Protects cable joints and terminations in low voltage applications
- Coated inside with thermoplastic adhesive
- Protects cables against humidity and environmental damage after shrinking



MA47 for above and below ground.



**Cut lengths available on request. Please contact us!**



Heat Shrinkable Tubing 4:1 with adhesive

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	up to 4:1
<b>Operating Temperature</b>	-55 °C to +110 °C
<b>Min. Shrink Temperature</b>	+120 °C
<b>Softening Point Adhesive</b>	+85 °C
<b>Longitudinal Change After Shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	15 kV/mm
<b>Flammability</b>	not flame retardant
<b>Insulation Class</b>	A (VDE 0530)

HF ✓

RoHS ✓

RoHS ✓

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Tools	Article-No.
MA47-19/6	22.0	6.0	2.40	1.0 m	Black (BK)	30;32	323-20190
MA47-30/8	33.0	8.0	2.60	1.0 m	Black (BK)	30;32	323-20300
MA47-40/12	40.0	12.0	2.60	1.0 m	Black (BK)	30;32	323-20400
MA47-50/16	55.0	16.0	2.70	1.0 m	Black (BK)	30;32	323-20500

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

#### Recommended Tools

30	32
H6100	E4500

For detailed information on Application Tooling please refer to our Main Catalogue or the Internet.



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## Dust covers

### MC4 type-compatible dust covers

Dust covers are used for protecting the male and female pin of the unplugged PV connectors from dust and water ingress. Applications include PV harnesses, combiner box connections, inverter DC array input and DC fed tracker actuators. Field installations also sometimes require temporary protection of connectors in exposed areas, like deserts.

### Features and benefits

- Prevents possible damage (such as hot connections) of the connectors
- Compatible with most MC4 type connectors



Prevent connector damage with dust covers MC4.



MC4 dust covers, female.



MC4 dust covers, male.

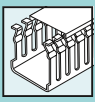
<b>MATERIAL</b>	Polyvinylchloride (PVC)
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TYPE	Material	Colour	Pack Cont.	Article-No.
<b>DCOVERM100</b>	PVC	Black (BK)	100 pcs.	631-00001
<b>DCOVERF100</b>	PVC	Black (BK)	100 pcs.	631-00000

All dimensions in mm. Subject to technical changes.





### Unistrut cable management

#### T50RUNICLIP

Cable management can be a challenge on widely used rolled steel Unistrut profiles without slots. This rail cradle solution provides cable management on the back of Unistrut P1000 or P2000 profiles, applying a cable tie onto the saddle. Made of PA66W material suitable for temperate climate zones.

#### Features and benefits

- Easy clip-on rail cradle
- Integrated multidirectional cable tie mount insert
- Designed for cable ties up to 5mm width



T50RUNICLIP to clip around the solid side of Unistrut profiles.

TYPE	Length (L)	Width (W)	Material	Article-No.
T50RUNICLIP	42.0	42.0	PA66W	911-01970

All dimensions in mm. Subject to technical changes.

### Electrical cabinet spacer

#### DIN rail spacer

With the emerge of 1500V systems and ongoing transition to smaller string combiner boxes, the DIN rail spacer ensures the proper distances for safe and effective wiring.

#### Features and benefits

- Used to raise DIN rails to allow for general wiring under the DIN rail
- Unique perfect-fit design to bottom profile of standard DIN rail
- Star design allows screw to earth both DIN rail and back plate

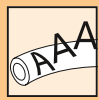


Effective cable wiring with DIN rail spacer.

TYPE	Length (L)	Width (W)	Height (H)	Material	Article-No.
TS35DINSPACER	31.5	25.0	15.0	PP	911-01969

All dimensions in mm. Subject to technical changes.





### Identification tags for cable bundles, thermal transfer, ladder style

#### TAGPU – UV-stabilised Tiptags

TAGPU is a specially designed cable marker for identifying cables, where a permanently legible and UV resistant marking is required. The cable markers consist of a robust and flexible polyurethane material and are especially suited for harsh environments. The material and print has been tested for a minimum of 10 year's exposure. They are supplied pre-cut and have been formatted into a convenient „ladder“ system. The markers are applied to cable and harness assemblies with cable ties, and are also suitable for retrofitting. Print with HellermannTyton's TagPrint Pro software, premium range of thermal printers and suitable ribbons.

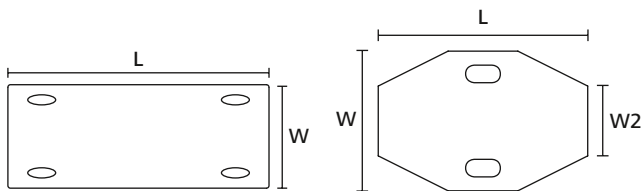
#### Features and benefits

- UV-stabilised
- Robust and flexible material
- Thermal transfer or laser beam printable
- Halogen free
- Good mechanical strength and highly flexible
- Delivery in convenient storage boxes



TAGPU for clear identification of multiple strings.

<b>MATERIAL</b>	Polyurethane (PUR)
<b>Operating Temperature</b>	-25 °C to +105 °C
<b>Flammability</b>	UL 94 V0 (3 mm)
<b>Recommended Ribbon Type</b>	TTRC+, TTRHT
<b>Thermal Transfer Printer</b>	TT431, TT4030



Identification tag with four fixing holes.

TYPE	Drawing	Length (L)	Width (W)	Width (W2)	Pack Cont.	Colour	Article-No.
TAGPU12X60-4		60.0	11.6	-	1,000 pcs.	Blue (BU)	556-80513
		60.0	11.6	-	1,000 pcs.	Red (RD)	556-80512
		60.0	11.6	-	1,000 pcs.	White (WH)	556-80515
		60.0	11.6	-	1,000 pcs.	Yellow (YE)	556-80514
TAGPU20X30-2		30.0	20.0	11.0	1,000 pcs.	Blue (BU)	556-80556
		30.0	20.0	11.0	1,000 pcs.	Red (RD)	556-80557
		30.0	20.0	11.0	1,000 pcs.	White (WH)	556-80527
		30.0	20.0	11.0	1,000 pcs.	Yellow (YE)	556-80528

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available. More colours on request.



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### Identification labels, thermal transfer

#### TAG material 1220, UV-stable identification

Panel labels are durable adhesive labels especially made from a thick material that is designed to replace traditional engraved plastic plates. Ideal for panel row marking and string inverter rack identification. Create crisp and clear professional-looking labels by printing with HellermannTyton thermal transfer printers and ribbons. Simple label design creation is easily achieved using separately available TagPrint Pro software.

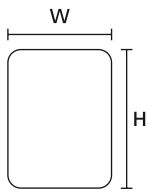
#### Features and benefits

- Cost-effective replacement for engraved plastic plates
- No need for additional label holder
- High-performance adhesive and compressible foam backing
- Optimal adhesion ensured on uneven surfaces
- Rounded corners ensure better long term durability of adhesion
- High contrast text and barcodes
- Tested for a minimum of 10 year's UV performance
- Print on site instead of order off site
- Outstanding chemical resistance with TT122OUT ribbon



Perfect way to replace engraved labels: on-site outdoor durable printed labels.

<b>MATERIAL</b>	Type 1220, Polyester, white (1220)
<b>Operating Temperature</b>	-40 °C to +90 °C
<b>Curing Temperature</b>	from +10 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil</b>	50 µm
<b>Chem. Material Properties</b>	Excellent resistance to ageing, weathering and UV-radiation. Extensive resistance to the influence of chemicals and solvents.
<b>Recommended Ribbon Type</b>	TT122OUT, TT822OUT
<b>Thermal Transfer Printer</b>	TT431, TT4030



TYPE	Width (W)	Height (H)	Width of Liner (WL)	Labels per Row	Pack Cont.	Colour	Article-No.
TAG60-30TDK1-1220-WH	60.0	30.0	66.0	1 pc.	500 pcs.	White (WH)	596-00569
TAG90-45TDK1-1220-WH	90.0	45.0	96.0	1 pc.	500 pcs.	White (WH)	596-00570
TAG100-30TDK1-1220-WH	100.0	30.0	106.0	1 pc.	250 pcs.	White (WH)	596-00571
TAG100-70TDK1-1220-WH	100.0	70.0	106.0	1 pc.	250 pcs.	White (WH)	596-00572

All dimensions in mm. Subject to technical changes.  
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# Comprehensive part solutions for reliable solar cabling

Order your solar sample pack now and try out our quality cable management products on your golden row:





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## As long as the sun rises each morning, our solar energy cable management expertise will shine on your PV installations

HellermannTyton quality cable management parts are designed to ensure unmatched safety, reliability and longevity in your solar plants. Our product specialists have first-hand expertise meeting solar energy challenges in specific environments. They are ready to join you on site and advise you which cable management parts will give you the best return on investment over the lifetime of your solar installation.

We're at home in 39 countries and speak your language.



## Contact your local representative now to try out HellermannTyton parts on your golden row

If you have any questions on specific solutions or would just like to receive more information, we are happy to help – with all our experience and with technical know-how.

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