

Solar Energy

# Product highlights

You create power from sunlight.  
We help to make it possible.

*Hellermann Tyton – competence  
for renewable energies*

**HellermannTyton**

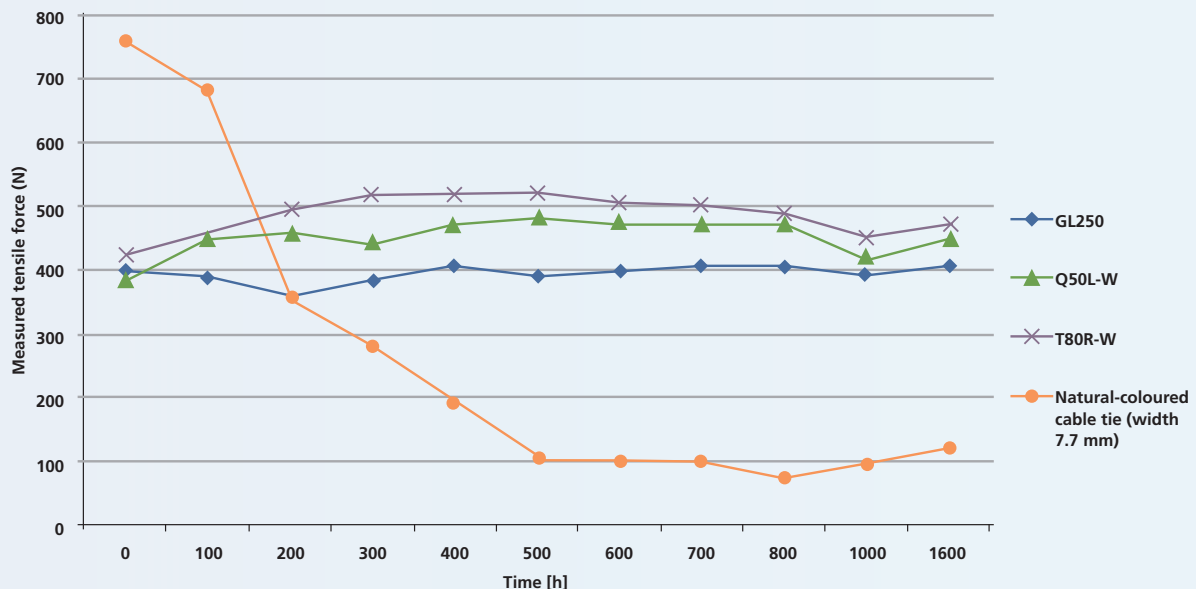
# UV Weathering Test

## UV-stability tested by Fraunhofer ISE

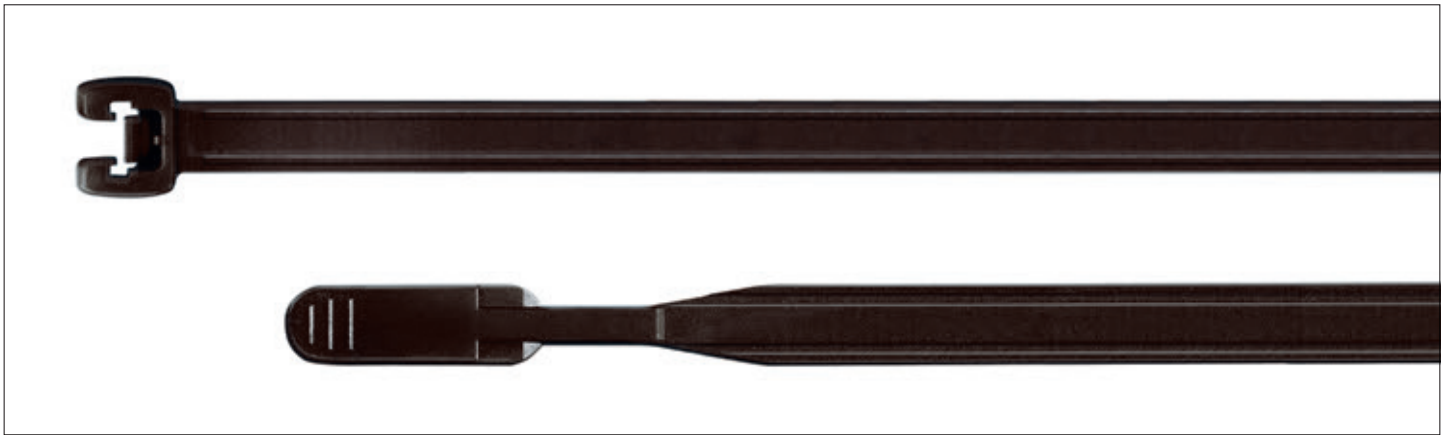
Commissioned by HellermannTyton, the **Fraunhofer Institute for Solar Energy Systems ISE** carried out an extended UV weathering test according to IEC 61215, subsection 10.10. For this purpose, four cable ties of different materials were fastened under load to test cylinders and then exposed to UV radiation at controlled intervals inside a test chamber. Thereafter, the ties were subjected to a loop strength test performed according to section 9.5.1 of the VDE Institute's DIN EN 62275:2010.07. The specimens spent up to 1,600 hours in the test chamber and were exposed to a UV dose of 156.78 kWh/m<sup>2</sup>. 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. The test corresponded to approximately 3 years of outdoor exposure. Since the intensity and coherence of UV irradiation in the test

chamber are not met under natural conditions, these values will be compared to the results of an on-going comparative outdoor exposure over 3 years in Freiburg, Germany and the Negev Desert in southern Israel.

The graphs below depict the mean results of the cable tie loop strength test after artificial UV weathering. The natural-coloured, conventional polyamide 6.6 cable tie (width 7.7 mm) already showed significant material degradation caused by the UV radiation after 200 hours in the test chamber. The loop tensile strength of this non-UV-stabilised material sank to below half its initial value. In contrast to this, it is apparent that the **Q50L-W** and **T80R-W**, made of UV-stabilised polyamide 6.6, as well as the **GL250**, made of polyamide 11, show virtually **no effects of UV weathering**.





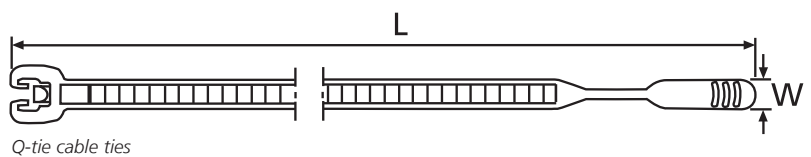


With its revolutionary, time-saving open head design, the Q-tie is available in a wide range of sizes.

## Q-tie Cable Ties

The new Q-tie cable ties are revolutionary due to their open head design. When using cable ties with a conventional head design, the tail of the strap must first be fed through the slot in the locking head. Only after a change in grip can the tie be tightened.

With the new Q-ties, these two assembly steps are a thing of the past. Simply insert the ergonomically bent tail into the open side of the head and tighten the cable tie. The fastening process is complete.



Q-tie cable ties

Material Data	
Material	<b>Polyamide 6.6 UV-resistant (PA66W)</b>
Colour	<b>Black (BK)</b>
Operating Temperature	<b>-40°C to +85°C, short-term up to +105°C (500 h)</b>
Flammability	<b>Complies with UL94 V2</b>

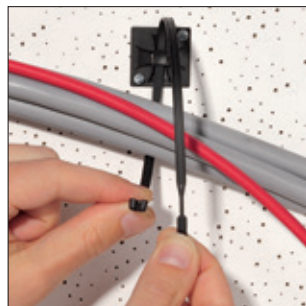


## “Pre Locking” Function:

The integrated “pre-locking” function allows for temporary as well as final cable bundling.



Insert tail into lock head and push tail partly in the head.




To release the tie push tail end slightly out of head.



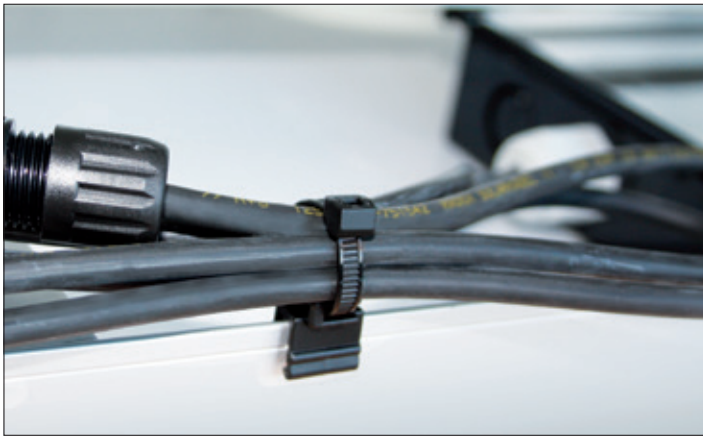
If installation is finished, Q-tie can be tightened and cut off – either manually or with an application tool.



## Technical Specifications

Art. No.	Type	Length (L)	Width (W)	Bundle Ø max.		Colour
Polyamide 6.6. UV-resistant						
109-00076	<b>Q50R</b>	210	4.7	50	220	Black (BK)
109-00078	<b>Q50I</b>	290	4.7	75	220	Black (BK)
109-00080	<b>Q50L</b>	410	4.7	110	220	Black (BK)
109-00082	<b>Q120I</b>	300	7.7	70	530	Black (BK)
109-00084	<b>Q120R</b>	420	7.7	110	530	Black (BK)
109-00086	<b>Q120M</b>	520	7.7	130	530	Black (BK)

All dimensions in mm. Subject to technical changes.



EdgeClip T50ROSEC4A-W.



EdgeClip T50ROSEC5B-W.

## Fixing Ties for Edges

### • EdgeClip Family

#### Key features

The fixing components of the EdgeClip product range were developed for routing and bundling of cables or pipes along edges. They are suitable for edges from 1.0 to 3.0 mm wide and 3.0 to 6.0 mm wide edges. The clip is easily applied by hand and the integrated metal clamp holds it firmly in place. No drilling of holes is required. In combination with our the OS-Series of outside serrated cable ties or the innovative Q-Series, the EdgeClip is a dependable mounting solution. The silver-grey clamp, the heart of our EdgeClips, consists of double-tempered spring steel in accordance with DIN EN 10132-4 C75S. The spring steel gives the clamp both the necessary rigidity to provide high pull-off forces and also sufficient flexibility for various possible applications.

#### Applications

Routing of cord and module connection cables on aluminium struts or on module frames made of aluminium. No drilling of holes is required.

#### Material Specifications

Material	<b>Polyamide 6.6 UV-resistant (PA66W)</b>
Colour	<b>Black (BK)</b>
Operating Temperature	<b>-40°C to +85°C, short-term up to +105°C (500 h)</b>
Flammability	<b>Complies with UL94 V2</b>



### EdgeClip with OS-Series of Outside Serrated Cable Ties

#### Technical Specifications

Art. No.	Type	Length (L)	Width (W)	Bundle Ø max.	N	Edge Thickness (mm)	Drawing
Polyamide 6.6 UV-resistant							
156-00843	<b>T50ROSEC23-W</b>	200	4.6	45.0	225	3-6	
156-00570	<b>T50ROSEC4A-W</b>	200	4.6	45.0	225	1-3	
156-01154	<b>T50ROSEC4B-W</b>	200	4.6	45.0	225	1-3	
156-00661	<b>T50ROSEC5A-W</b>	200	4.6	45.0	225	1-3	
156-00698	<b>T50ROSEC5B-W</b>	200	4.6	45.0	225	1-3	

All dimensions in mm. Subject to technical changes.

**EdgeClip with time-saving, innovative Q-ties**

Technical Specifications

Art. No.	Type	Length (L)	Width (W)	Bundle Ø max.		Edge Thickness (mm)	Drawing
Polyamide 6.6 UV-resistant							
156-01085	<b>Q50REC4A-W</b>	210	4.7	45.0	220	1-3	
156-01086	<b>Q50REC4B-W</b>	210	4.7	45.0	220	1-3	
156-01087	<b>Q50REC5A-W</b>	210	4.7	45.0	220	1-3	
156-01088	<b>Q50REC5B-W</b>	210	4.7	45.0	220	1-3	

All dimensions in mm. Subject to technical changes.



Due to its broad front end, the stainless steel clip can easily be pushed on. The retaining claws on both sides ensure secure fastening.



Up to 2 solar cables of typical diameters 4.0–10.0 mm<sup>2</sup> can be routed.

**Stainless steel EdgeClip**

• **MSC2**

**Key features**

The innovative EdgeClip is made of stainless steel and was developed for very demanding applications where use of plastics alone is no longer the preferred fastening method, for example in desert-based solar parks or applications in the immediate vicinity of salt water. The corrosion-resistant MSC2 can be easily manually pushed onto the frame of solar modules or aluminium or galvanized steel edges measuring 1.0 to 3.0 mm thick.

The retaining claws on either side provide a secure fastening on both sides of the edge. On the cable holder side, the edges are especially rounded, so that the solar cable cannot be damaged. The clip can hold 1 or 2 solar cables with typical diameters ranging from 4.0 to 10.0 mm<sup>2</sup> lengthwise to the edge.

Material Specifications

Material	<b>Stainless steel, non-corrosive, Type SS304 (SS304)</b>
Operating Temperature	<b>-80°C to +538°C</b>
Flammability	<b>Non-flammable</b>



Technical Specifications

Art. No.	Type	Length (L)	Width (W)	Bundle Ø min.	Bundle Ø max.	Edge Thickness (mm)
Material Type SS304						
151-00982	<b>MSC2</b>	24	13	5.0	7.6	1-3

All dimensions in mm. Subject to technical changes.



GalvaLok and PA66 ties after 24 hours in a saturated zinc chloride solution at +90°C.

## GalvaLok Cable Ties

### • GalvaLok

#### Key features

The GalvaLok ties are made of high-performance polyamide 11 (PA11), which is derived from sustainable castor oil sources and is characterised by its extreme resistance to chemicals such as zinc chloride as well as UV-radiation. A special use is the bundling and fixing of solar cables on galvanized steel frames in coastal areas. Here, salt in the air in combination with water forms a solution of zinc chloride on galvanized steel frames, which can lead to extreme corrosion of conventional polyamide 6.6 (see image comparison).



Use of GalvaLok in the solar industry.

#### Material Specifications

Material	<b>Polyamide 11 UV-resistant (PA11W)</b>
Colour	<b>Black (BK)</b>
Operating Temperature	<b>-40°C to +105°C</b>
Flammability	<b>Complies with UL94 HB</b>

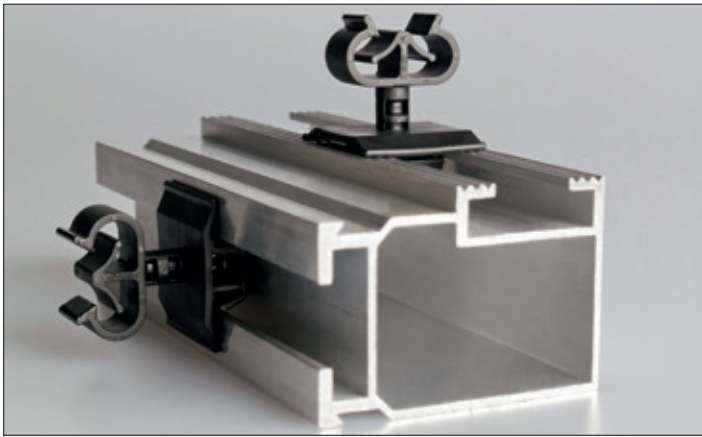


#### Technical Specifications

Art. No.	Type	Length (L)	Width (W)	Bundle Ø max.	N
Polyamide 11 UV-resistant					
111-01264	<b>GL200</b>	203	4.7	50	200
111-01265	<b>GL250</b>	252	4.8	65	250
111-01266	<b>GL300</b>	301	4.8	80	250

All dimensions in mm. Subject to technical changes.





HC2x7.3AH13-PV.



KR6G5 mounting base.

### Clips and Screw Fixing Mounts

#### Key features

The focus here is on the design and application of alternative mounting solutions for solar cables. Bases made of UV-stabilised material to be used with a mounting screw is a viable option for permanent fixings, especially for smooth frames. Our Solarclip SC6.6 is ideal for mounting bases to pre-drilled rectangular profiles. The twistable HC2X7.3AH13-PV fastening clip makes it simple to attach one or two cables to solar panels along two different types of groove.

**Please contact us if you are interested in an individual fixing solution.**

#### Material Specifications

Material	<b>Polyamide 6.6 UV-resistant (PA66W)</b>
Colour	<b>Black (BK)</b>
Operating temperature	<b>-40°C to +85°C, short-term up to +105°C (500 h)</b>
Fire protection properties	<b>Complies with UL94 V2</b>



#### Technical Specifications

Art. No.	Type	Length (L)	Width (W)	Height (H)	Height (H2)	Ø Mounting Hole (FH)	Tie Width	Colour	Drawing
Polyamide 6.6 UV-resistant									
151-26860	<b>CL8</b>	27.3	12.5	16.0	5.0	6.5	8.0	Black (BK)	
151-24660	<b>KR6G5</b>	18.0	12.0	9.0	–	4.5	6.0	Black (BK)	

#### Technical Specifications

Art. No.	Type	Bundle Ø	Plate Thickness	Hole Ø	Profile rail		Drawing
					Nominal Groove Width	Height min.	
Polyamide 6.6 UV-resistant							
151-00899	<b>HC2x7.3AH13-PV</b>	2 x 4.9 - 7.3	1.8 - 2.25	–	13.0	6.0	
151-00927	<b>SC6.6</b>	6.0 - 7.6	0.7 - 6.35	6.6	–	–	

All dimensions in mm. Subject to technical changes.

# Cable Ties and Fixings



MBT series.

## Stainless Steel Cable Ties with Ball-Lock

### • MBT series

#### Key features

These cable ties are made of stainless steel, ensuring they are both resistant to chemicals and high temperatures. MBT cable ties have a patented, non-releaseable, single or double-ball locking feature.

#### Material Specifications

Material	<b>Stainless steel, non-corrosive, Type SS304 (SS304)</b>
Operating Temperature	<b>-80°C to +538°C</b>
Flammability	<b>Non-burning</b>



#### Technical Specifications

Art. No.	Type	Length (L)	Width (W)	Bundle Ø max.	N
Material Type SS304					
111-93059	<b>MBT5S</b>	127	4.6	25	900
111-93089	<b>MBT8S</b>	201	4.6	50	900
111-93149	<b>MBT14S</b>	362	4.6	102	900
111-93209	<b>MBT20S</b>	521	4.6	152	900
111-93279	<b>MBT27S</b>	681	4.6	203	900
111-94149	<b>MBT14H</b>	362	7.9	102	1700
111-94209	<b>MBT20H</b>	521	7.9	152	1700
111-94279	<b>MBT27H</b>	681	7.9	203	1700
111-94339	<b>MBT33H</b>	838	7.9	254	1700

All dimensions in mm. Subject to technical changes. For other sizes, please refer to our catalogues.

For further products and information, please refer to our catalogues.



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