



## **Cables & Accessories for Photovoltaic**

# Welcome to HELUKABEL®



Headquarters Hemmingen

We are currently one of the leading German cable companies with a comprehensive range of products. Today, we design, manufacture and supply for all markets and for all applications.

Our extensive warehouse stock, containing over 33,000 items, allows us to cover your needs within extremely short times.



Cables & Wires



Logistics centre Hemmingen



Custom Cables

The logistics centre allows us to carry out accelerated and paperless processing and shipping of customer orders by maintaining a high degree of efficiency within the supply chain. The latest warehousing systems, conveyor systems and integrated information technology make the system unique in the industry.

Each day, a largely automated process puts together several hundred customized orders "just in time" from more than 16,600 pallet staging areas.

In its own plant in Windsbach, an annual production of approx. 4,500 tons is reached, which is approximately 25,000 km of cable or 130,000 core-kilometres.

The products include shielded, unshielded and steel wire-reinforced control cables with a PVC/PUR sheath or thermoplastic elastomers. Halogen-free, flame and heat-resistant, shielded and unshielded cables. Our range is rounded out by special-purpose cables produced to customer requirements.



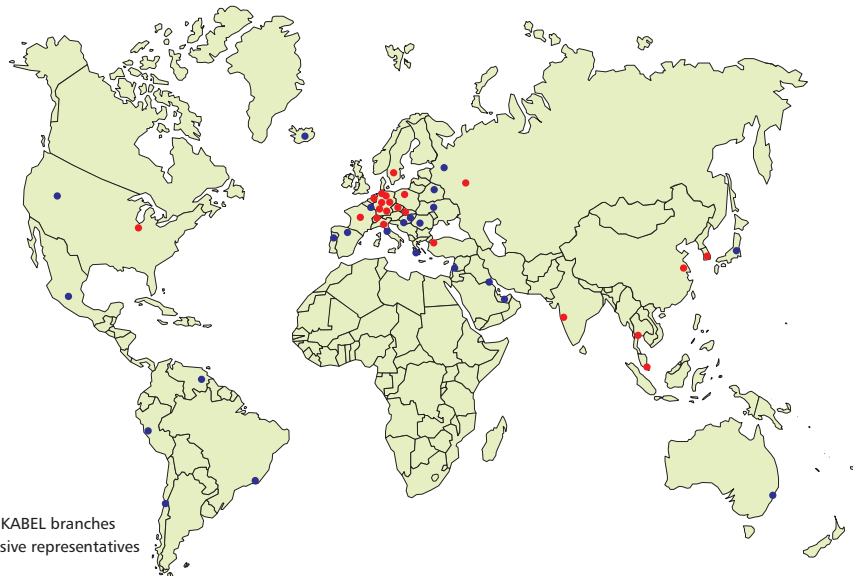
Cable Accessories

**This brochure gives you a comprehensive overview of the most important photovoltaic products.**

**The employees of our internal and field sales teams are happy to advise and assist you in finding the best solution for your needs.**



Data-, Network & Bus Technics



# Achieving Success through Quality and Innovation



**Product certificates document the tested quality level of our products.**

ISO 9000ff is used as the basis for quality management processes carried out at HELUKABEL®. Product certificates issued by accredited institutions also make it easier for you to evaluate your suppliers.

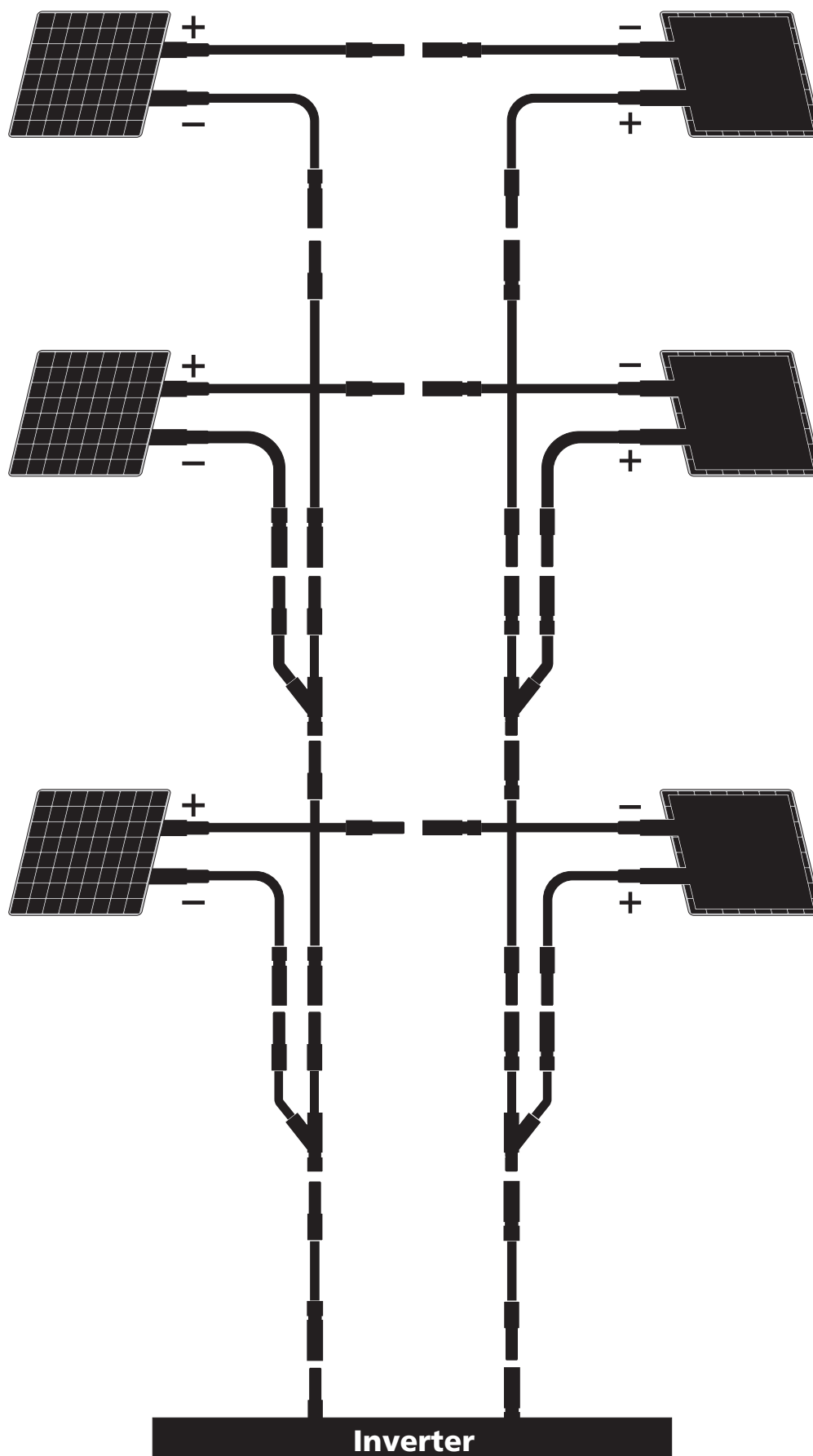
Our continuous quality improvement process enables us not only to maintain a consistently high quality standard, it also ensures continued development and new product development.

**Our commitment to protecting the environment can be seen in our rate environment management system.**





# Design principle of a photovoltaic system



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Properties	Type	SOLARFLEX® 100 / 110	SOLARFLEX® 101 / 111	SOLARFLEX® 104 / 105	SOLARFLEX® 106 / 107	SOLARFLEX® 108 / 109	NYO	H07RN-F
Flexible		●●●	●●●	●●●	●●●	●●●●●	●	●●●
Abrasion-resistant		●●●	●●●	●●●	●●●	●●	●●●	●
Flame resistant		●●●	●●●	●●●	●●●	●●●	●●●	●●●
Halogen-free		yes	yes	yes	yes / no	no	no	no
Recyclable		yes	yes	yes	yes	yes	yes	yes
Marten a. rodent protection		no	yes*	no	no	no	no	no
UV-resistant		●●●	●●●	●●●	●●●	●●●	●●●	
Approvals		VDE, TÜV, UL	VDE, TÜV**	- / UL	-	-	VDE	HAR
Temperature		+90°C	+120°C	+90°C	+90°C/+80°C	+80°C/+80°C	+70°C	+60°C
AC nominal voltage		600/1000V	600/1000V	600/1000V	600/1000V	600/1000V	600/1000V	450/750V
DC nominal voltage		900/1500V	900/1500V	900/1500V	900/1500V	-	-	-
Test voltage 50Hz		4000V	4000V	4000V	4000V	3000V	4000V	2500 V
Minimum bending radius (X x cable diameter)		4 x	4 x	4 x	4 x	4 x / 6 x	12 x	4 x

\* applies only to SOLARFLEX 101-V4A LiTPE TPE

\*\* in preparation



HELUKABEL -SOLARFLEX 104-

1x40mm² / 7000277



## Technical data

### Temperature range

-40°C to +90°C (UL to +80°C)  
-40°C to +120°C (3,000 hours)

### Nominal voltage:

according to VDE 600/1000V AC, 900/1500V DC  
according to UL 1000V

### AC test voltage, 50 Hz

4000 V

### Minimum bending radius:

For fixed installation approx. 4 cable diameter

## Properties

- Approval: VDE, TÜV · <sup>1)</sup> UL-approbation up to 16qmm on request
- UV, ozone, weather and hydrolysis-resistant
- Very good resistance to oils and chemicals
- flame-resistant according to VDE 0482-332-2, DIN EN 60332-1 and according to UL 1581 "cable flame test"
- Very robust and abrasion-resistant sheath
- These cables have very good installation properties when being laid in narrow areas and in pipes.
- Resistant to short-circuits up to 250°C thanks to their dual insulation
- No cold flow meaning optimum long-term tightness of the connection systems
- easy machine processing
- very good flexibility
- recyclable
- RoHS conformity

## Construction

- double-insulated
- Bare copper, tinned, fine wired according to DIN VDE 0295 class 5 and IEC 60228 cl. 5
- Special TPE insulation, for colours see table
- PUR sheath, halogen-free

## Application

The **SOLARFLEX®100** with the very rugged PUR sheath is used for the cabling between interconnected solar modules

## SOLARFLEX® 100 LITPEPUR 3-NORM



Part No.	No. cores x cross-sec. mm <sup>2</sup>	Outer diameter approx. mm	Cop. weight kg/km	Weight approx. kg/km	Core / jacket colour
700549	1x2,5	5,8	24,0	55	black/red
701504	1x2,5	5,8	24,0	55	black/blue
701505	1x2,5	5,8	24,0	55	black/black
700277	1x4	6,7	38,4	85	red/black
701506	1x4	6,7	38,4	85	black/blue
701507	1x4	6,7	38,4	85	black/black
700278	1x6	7,6	57,6	95	red/black
701508	1x6	7,6	57,6	95	black/blue
701509	1x6	7,6	57,6	95	black/black
700368	1x10	9,6	96,0	110	black/black
701510	1x10	9,6	96,0	110	blue/black
701511	1x10	9,6	96,0	110	red/black
700369	1x16	11,0	153,6	170	black/black
701512	1x16	11,0	153,6	170	black/blue
701513	1x16	11,0	153,6	170	black/red

## SOLARFLEX® 100 LITPEPUR

Part No.	No. cores x cross-sec. mm <sup>2</sup>	Outer diameter approx. mm	Cop. weight kg/km	Weight approx. kg/km	Core / jacket colour
702188	1x25	13,1	240	295	red/black
702189	1x25	13,1	240	295	blue/black
702190	1x25	13,1	240	295	black/black
702191	1x35	14,1	336	395	red/black
702192	1x35	14,1	336	395	blue/black
702193	1x35	14,1	336	395	black/black
701943	1x50	17,4	480	630	red/black
701963	1x50	17,4	480	630	blue/black
701964	1x50	17,4	480	630	black/black
701944	1x70	18,9	672	850	red/black
701965	1x70	18,9	672	850	blue/black
701966	1x70	18,9	672	850	black/black
701945	1x95	21,8	912	1200	red/black
701967	1x95	21,8	912	1200	blue/black
701968	1x95	21,8	912	1200	black/black
701946	1x120	24,3	1152	1550	red/black
701969	1x120	24,3	1152	1550	blue/black
701970	1x120	24,3	1152	1550	black/black
701946	1x150	26,6	1440	1730	red/black
701971	1x150	26,6	1440	1730	blue/black
701972	1x150	26,6	1440	1730	black/black



## Technical data

### Temperature range

-40°C to +120°C (UL to +80°C)

### Nominal voltage:

according to VDE U<sub>0</sub>/U 600/1000V AC, 900/1500V DC, UL: 1000V

### AC test voltage, 50 Hz 4.000 V

### Minimum bending radius:

For fixed installation approx. 4 cable diameter

## Properties

- Approval: VDE, TÜV and UL
- UV, ozone, weather and hydrolysis-resistant
- Very good resistance to oils and chemicals
- flame-resistant according to VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1
- robust and abrasion-resistant · These cables have very good installation properties when being laid in narrow areas and in pipes. · Resistant to short-circuits up to 250°C thanks to their dual insulation · No cold flow meaning optimum long-term tightness of the connection systems · easy machine processing
- very good flexibility · recyclable · RoHS conformity

## SOLARFLEX® 101 LITPETPE 2-NORM



Part No.	No. cores x cross-sec. mm <sup>2</sup>	Outer diameter approx. mm	Cop weight kg/km	Weight approx. kg/km	Core / jacket colour
78990	1x2,5	6,6	24,0	46	black/black
701514	1x2,5	6,6	24,0	46	blue/black
701515	1x2,5	6,6	24,0	46	red/black
700400	1x4	7,5	38,4	68	black/black
700048	1x4	7,5	38,4	68	blue/black
700049	1x4	7,5	38,4	68	red/black
701712	1x4	7,5	38,4	68	black/red
701713	1x4	7,5	38,4	68	black/blue
78166	1x6	8,3	57,6	95	black/black
701516	1x6	8,3	57,6	95	black/blue
701517	1x6	8,3	57,6	95	red/black
700610	1x10	10,2	96,0	110	black/black
701518	1x10	10,2	96,0	110	blue/black
701519	1x10	10,2	96,0	110	red/black
700611	1x16	11,4	153,6	170	black/black
701520	1x16	11,4	153,6	170	blue/black
701521	1x16	11,4	153,6	170	red/black

## SOLARFLEX® 101 LITPETPE

702236	1x25	13,1	240,0	280	red/black
702237	1x25	13,1	240,0	280	blue/black
702238	1x25	13,1	240,0	280	black/black
702239	1x35	14,1	336,0	400	red/black
702240	1x35	14,1	336,0	400	blue/black
702241	1x35	14,1	336,0	400	black/black
701785	1x50	17,4	480,0	630	red/black
701973	1x50	17,4	480,0	630	blue/black
701974	1x50	17,4	480,0	630	black/black
701942	1x70	18,9	672,0	850	red/black
701975	1x70	18,9	672,0	850	blue/black
701976	1x70	18,9	672,0	850	black/black
701782	1x95	21,8	912,0	1200	red/black
701977	1x95	21,8	912,0	1200	blue/black
701978	1x95	21,8	912,0	1200	black/black
701783	1x120	24,3	1152,0	1550	red/black
701979	1x120	24,3	1152,0	1550	blue/black
701980	1x120	24,3	1152,0	1550	black/black
701984	1x150	26,6	1440,0	1730	red/black
701981	1x150	26,6	1440,0	1730	blue/black
701784	1x150	26,6	1440,0	1730	black/black

## Construction

- double-insulated
- Bare copper, tinned, fine wired according to DIN VDE 0295 class 5 and IEC 60228 cl. 5
- Special TPE insulation
- Special TPE sheath
- For colours see table

### · SOLARFLEX® 101-V4A LITPETPE:

Like SOLARFLEX® 101 2-NORM, but additionally, armouring of V4A stainless steel (Marten and rodent protection)

## Note

All versions with meter-marking!

## SOLARFLEX® 101 LITPETPE 3-NORM



Part No.	No. cores x cross-sec. mm <sup>2</sup>	Outer diameter approx. mm	Cop weight kg/km	Weight approx. kg/km	Core / jacket colour
701675	1x2,5	6,6	24,0	46	black/black
701676	1x2,5	6,6	24,0	46	blue/black
701677	1x2,5	6,6	24,0	46	red/black
701678	1x4	7,5	38,4	68	black/black
701679	1x4	7,5	38,4	68	blue/black
701680	1x4	7,5	38,4	68	red/black

## SOLARFLEX® 101-V4A LITPETPE

701326	1x2,5	7,4	24,0	66	black/black
701327	1x4,0	8,3	38,4	88	black/black
701328	1x6,0	9,1	57,6	115	black/black
701329	1x10	11,0	96,0	130	black/black
701330	1x16	12,2	153,6	195	black/black



# SOLARFLEX® 110 Thinline LITPEPUR



## Technical data

### Temperature range

-40°C to + 90°C  
-40°C to +120°C (3.000 hours)

### Nominal voltage:

according to VDE U<sub>0</sub>/U 600/1000V AC, 900/1500V DC

### AC test voltage, 50 Hz

4000 V

### Minimum bending radius:

For fixed installation approx. 4 cable diameter

## Properties

- Approval: VDE and TÜV submitted
- Very robust and abrasion-resistant sheath
- UV, ozone, weather and hydrolysis-resistant
- Very good resistance to oils and chemicals
- flame-resistant according to VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1 and according to UL 1581 "cable flame test"
- These cables have very good installation properties when being laid in narrow areas and in pipes.
- Resistant to short-circuits up to 250°C thanks to their dual insulation
- No cold flow meaning optimum long-term tightness of the connection systems
- easy machine processing
- very good flexibility
- recyclable
- RoHS conformity

## Construction

- double-insulated
- Bare copper, tinned, fine wired according to DIN VDE 0295 class 5 and IEC 60228 cl. 5
- Special TPE insulation
- PUR sheath, halogen-free
- For colours see table

## Application

The **SOLARFLEX® 110** with the very rugged PUR sheath is used for the cabling between interconnected solar modules

## Note

**NEW** – with reduced outside diameter!  
All versions with meter-marking!

## SOLARFLEX® 110 LITPEPUR



Part No.	No. cores x cross-sec. mm <sup>2</sup>	Outer diameter approx. mm	Cop. weight kg/km	Weight approx. kg/km	Core / jacket colour
702953	1x2,5	5,4	24,0	55	red/black
702954	1x2,5	5,4	24,0	55	blue/black
702955	1x2,5	5,4	24,0	55	black/black
702956	1x4	6,0	38,4	85	red/black
702957	1x4	6,0	38,4	85	blue/black
702958	1x4	6,0	38,4	85	black/black
702959	1x6	6,8	57,6	95	red/black
702960	1x6	6,8	57,6	95	blue/black
702961	1x6	6,8	57,6	95	black/black
702962	1x10	8,0	96,0	110	black/black
702963	1x10	8,0	96,0	110	blue/black
702964	1x10	8,0	96,0	110	red/black
702965	1x16	9,4	153,6	170	black/black
702966	1x16	9,4	153,6	170	blue/black
702967	1x16	9,4	153,6	170	red/black
702968	1x25	11,2	240,0	295	black/red
702969	1x25	11,2	240,0	295	black/blue
702970	1x25	11,2	240,0	295	black/black

## SOLARFLEX® 110 LITPEPUR



Part No.	No. cores x cross-sec. mm <sup>2</sup>	Outer diameter approx. mm	Cop. weight kg/km	Weight approx. kg/km	Core / jacket colour
702971	1x35	12,8	336,0	395	red/black
702972	1x35	12,8	336,0	395	blue/black
702973	1x35	12,8	336,0	395	black/black
702974	1x50	14,6	480,0	630	red/black
702975	1x50	14,6	480,0	630	blue/black
702976	1x50	14,6	480,0	630	black/black
702977	1x70	17,4	672,0	850	red/black
702978	1x70	17,4	672,0	850	blue/black
702979	1x70	17,4	672,0	850	black/black
702980	1x95	20,0	912,0	1200	red/black
702981	1x95	20,0	912,0	1200	blue/black
702982	1x95	20,0	912,0	1200	black/black
702983	1x120	21,0	1152,0	1550	red/black
702984	1x120	21,0	1152,0	1550	blue/black
702985	1x120	21,0	1152,0	1550	black/black
702986	1x150	24,7	1440,0	1730	red/black
702987	1x150	24,7	1440,0	1730	blue/black
702988	1x150	24,7	1440,0	1730	black/black

\* in preparation

# SOLARFLEX® 111 LiTPETPE Thinline, for direct burial



## Technical data

Temperature range -40°C to +120°C

### Nominal voltage:

according to VDE U<sub>0</sub>/U 600/1000V AC, 900/1500V DC

AC test voltage, 50 Hz 4.000 V

### Minimum bending radius:

For fixed installation approx. 4 cable diameter

## Properties

- approval: VDE and TÜV submitted
- These cables have very good installation properties when being laid in narrow areas and in pipes. · for direct burial
- UV, ozone, weather and hydrolysis-resistant
- Very good resistance to oils and chemicals
- flame-resistant according to VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60322-1
- robust and abrasion-resistant · Resistant to short-circuits up to 250°C thanks to their dual insulation · No cold flow meaning optimum long-term tightness of the connection systems
- easy machine processing · very good flexibility · recyclable
- RoHS conformity

## SOLARFLEX® 111 LiTPETPE Thinline



Part No.	No. cores x cross-sec. mm <sup>2</sup>	Outer diameter approx. mm	Cop. weight kg/km	Weight approx. kg/km	Core / jacket colour
702989	1x2,5	5,4	24,0	46	black/black
702990	1x2,5	5,4	24,0	46	blue/black
702991	1x2,5	5,4	24,0	46	red/black
702992	1x4	6,0	38,4	68	black/black
702993	1x4	6,0	38,4	68	blue/black
702994	1x4	6,0	38,4	68	red/black
702995	1x6	6,8	57,6	95	black/black
702996	1x6	6,8	57,6	95	blue/black
782997	1x6	6,8	57,6	95	red/black
702998	1x10	8,0	96,0	110	black/black
702999	1x10	8,0	96,0	110	blue/black
703000	1x10	8,0	96,0	110	red/black
703001	1x16	9,4	153,6	170	black/black
703002	1x16	9,4	153,6	170	blue/black
703003	1x16	9,4	153,6	170	red/black
703004	1x25	11,2	240,0	280	red/black
703005	1x25	11,2	240,0	280	blue/black
703006	1x25	11,2	240,0	280	black/black
703007	1x35	12,8	336,0	400	red/black
703008	1x35	12,8	336,0	400	blue/black
703009	1x35	12,8	336,0	400	black/black
703010	1x50	14,6	480,0	630	blue/black
703011	1x50	14,6	480,0	630	red/black
703012	1x50	14,6	480,0	630	black/black
703013	1x70	17,4	672,0	850	red/black
703014	1x70	17,4	672,0	850	blue/black
703015	1x70	17,4	672,0	850	black/black
703016	1x95	20,0	912,0	1200	red/black
703017	1x95	20,0	912,0	1200	blue/black
703018	1x95	20,0	912,0	1200	black/black
703019	1x120	21,0	1152,0	1550	red/black
703020	1x120	21,0	1152,0	1550	blue/black
703021	1x120	21,0	1152,0	1550	black/black
703022	1x150	25,5	1440,0	1730	red/black
703023	1x150	25,5	1440,0	1730	blue/black
703024	1x150	25,5	1440,0	1730	black/black

\* in preparation

## Construction

- double-insulated
- Bare copper, tinned, fine wired according to DIN VDE 0295 class 5 and IEC 60228 cl. 5
- Special TPE insulation
- Special TPE sheath
- For colours see table

## Note

NEW – with reduced outside diameter!  
All versions with meter-marking!



Photos: Fa. Würth Solergy GmbH & Co. KG



## Technical data

### Temperature range

-40°C to +90°C (UL to +80°C)  
-40°C to +120°C (3.000 hours)

### Nominal voltage:

according to VDE U<sub>0</sub>/U 600/1000 V AC, 900/1500V DC  
according to UL 1000V

### AC test voltage, 50 Hz

4.000 V

### Minimum bending radius:

For fixed installation approx. 4 cable diameter

## Properties

- Approval: UL
- UV, ozone, weather and hydrolysis-resistant · Very good resistance to oils and chemicals
- flame-resistant according to VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1 and according to UL 1581 „cable flame test“
- Very robust and abrasion-resistant sheath · These cables have very good installation properties when being laid in narrow areas and in pipes.
- Resistant to short-circuits up to 250°C thanks to their dual insulation · No cold flow meaning optimum long-term tightness of the connection systems
- easy machine processing · very good flexibility · recyclable · RoHS-conformity

## Construction

- double-insulated
- Bare copper, tinned, fine wired according to DIN VDE 0295 class 5 and IEC 60228 cl. 5
- Insulation PUR
- PUR sheath, halogen-free
- For colours see table

## Application

The **SOLARFLEX®104 / 105** with the very rugged PUR sheath is used for the cabling between interconnected solar modules

## Note

All versions with meter-marking!

## SOLARFLEX® 104 LiPURPUR

Part No.	No. cores x cross-sec. mm <sup>2</sup>	Outer diameter approx. mm	Cop. weight kg/km	Weight approx. kg/km	Core / jacket colour
700019	1x2,5	5,8	24,0	55	red/black
74653	1x2,5	5,8	24,0	55	blue/black
701522	1x2,5	5,8	24,0	55	black/black
700020	1x4,0	6,3	38,4	80	red/black
74655	1x4,0	6,3	38,4	80	blue/black
701130	1x4,0	6,3	38,4	80	black/black
700021	1x6,0	7,6	57,6	95	red/black
78163	1x6,0	7,6	57,6	95	blue/black
701131	1x6,0	7,6	57,6	95	black/black
700612	1x10	9,6	96,0	110	red/black
700613	1x10	9,6	96,0	110	blue/black
701523	1x10	9,6	96,0	110	black/black
700614	1x16	11,0	153,6	170	red/black
700615	1x16	11,0	153,6	170	blue/black
701524	1x16	11,0	153,6	170	black/black
702230	1x25	13,1	240	280	red/black
702231	1x25	13,1	240	280	blue/black
702232	1x25	13,1	240	280	black/black
702233	1x35	14,1	336	400	red/black
702234	1x35	14,1	336	400	blue/black
702235	1x35	14,1	336	400	black/black
701953	1x50	17,4	480	630	red/black
701993	1x50	17,4	480	630	blue/black
701994	1x50	17,4	480	630	black/black
701954	1x70	18,9	672	850	red/black
701995	1x70	18,9	672	850	blue/black
701996	1x70	18,9	672	850	black/black
701955	1x95	21,8	912	1200	red/black
701997	1x95	21,8	912	1200	blue/black
701998	1x95	21,8	912	1200	black/black
701956	1x120	24,3	1152	1550	red/black
701999	1x120	24,3	1152	1550	blue/black
702000	1x120	24,3	1152	1550	black/black
701957	1x150	26,6	1440	1730	red/black
702001	1x150	26,6	1440	1730	blue/black
702002	1x150	26,6	1440	1730	black/black sw/sw

## SOLARFLEX® 105 LiPURPUR with UL-Approbation



Part No.	No. cores x cross-sec. mm <sup>2</sup>	Outer diameter approx. mm	Cop. weight kg/km	Weight approx. kg/km	Core / jacket colour
702194	1x2,5	5,8	24,0	55	red/black
702195	1x2,5	5,8	24,0	55	blue/black
702196	1x2,5	5,8	24,0	55	black/black
702197	1x4,0	6,3	38,4	80	red/black
702198	1x4,0	6,3	38,4	80	blue/black
702199	1x4,0	6,3	38,4	80	black/black
702200	1x6,0	7,6	57,6	95	red/black
702201	1x6,0	7,6	57,6	95	blue/black
702202	1x6,0	7,6	57,6	95	black/black
702203	1x10	9,6	96,0	110	red/black
702204	1x10	9,6	96,0	110	blue/black
702205	1x10	9,6	96,0	110	black/black
702206	1x16	11,0	153,6	170	red/black
702207	1x16	11,0	153,6	170	blue/black
702208	1x16	11,0	153,6	170	black/black
702209	1x25	13,1	240	280	red/black
702210	1x25	13,1	240	280	blue/black
702211	1x25	13,1	240	280	black/black
702212	1x35	14,1	336	400	red/black
702213	1x35	14,1	336	400	blue/black
702214	1x35	14,1	336	400	black/black
702215	1x50	17,4	480	630	red/black
702216	1x50	17,4	480	630	blue/black
702217	1x50	17,4	480	630	black/black
702218	1x70	18,9	672	850	red/black
702219	1x70	18,9	672	850	blue/black
702220	1x70	18,9	672	850	black/black
702221	1x95	21,8	912	1200	red/black
702222	1x95	21,8	912	1200	blue/black
702223	1x95	21,8	912	1200	black/black
702224	1x120	24,3	1152	1550	red/black
702225	1x120	24,3	1152	1550	blue/black
702226	1x120	24,3	1152	1550	black/black
702227	1x150	26,6	1440	1730	red/black
702228	1x150	26,6	1440	1730	blue/black
702229	1x150	26,6	1440	1730	black/black

# SOLARFLEX®-ZW 106 / 107 LiTPEPUR



## SOLARFLEX®-ZW 106

### Technical data

#### Temperature range

-40°C to +90°C  
-40°C to +120°C (3.000 Stunden)

#### Nominal voltage:

$U_0/U$  600/1000 V AC, 900/1500V DC

#### AC test voltage, 50 Hz

4.000 V

#### Minimum bending radius:

For fixed installation approx. 4 cable diameter

### Construction

- Bare copper, tinned, fine wired according to DIN VDE 0295 class 5 and IEC 60228 cl. 5
- Core Insulation Spezial-TPE
- PUR sheath, halogen-free
- Black

### Properties

- UV, ozone, weather and hydrolysis-resistant
- Very good resistance to oils and chemicals
- flame-resistant according to VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1, and according to UL 1581 „cable flame test“
- Very robust and abrasion-resistant sheath
- These cables have very good installation properties when being laid in narrow areas and in pipes.
- Resistant to short-circuits up to 250°C thanks to their dual insulation
- No cold flow meaning optimum long-term tightness of the connection systems
- easy machine processing
- very good flexibility
- recyclable
- RoHS conformity

### Application

The **SOLARFLEX®106** with the very rugged PUR sheath is used for the cabling between interconnected solar modules

## SOLARFLEX®-ZW 106 LiTPEPUR

Part No.	No. cores x cross-sec. mm <sup>2</sup>	Outer diameter approx. mm	Cop. weight kg/km	Weight approx. kg/km	Core / core jacket colour
701290	2x2,5	5,1x10,4	48,0	95	red/black/black
701291	2x4	5,8x11,9	76,8	135	red/black/black
701292	2x6	6,6x13,5	115,2	185	red/black/black
701324	2x10	7,7x16,9	192,0	280	red/black/black
701325	2x16	8,7x17,7	307,2	390	red/black/black
701958	2x25	10,9x22,2	480,0	610	red/black/black
701959	2x35	12,4x25,2	672,0	830	red/black/black
701960	2x50	14,6x29,8	960,0	1110	red/black/black

## SOLARFLEX®-ZW 107

### Technical data

#### Temperature range

-40°C to +80°C

#### Nominal voltage:

$U_0/U$  600/1000 V AC, 900/1500V DC

#### AC test voltage, 50 Hz

4.000 V

#### Minimum bending radius:

For fixed installation approx. 4 cable diameters

### Construction

- Bare copper, tinned, fine wired according to DIN VDE 0295 class 5 and IEC 60228 cl. 5
- Core Insulation PVC
- PVC sheath
- Black

### Properties

- UV, ozone, weather and hydrolysis-resistant
- mostly resistance to oils and chemicals
- flame-resistant according to VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1
- robust and abrasion-resistant
- These cables have very good installation properties when being laid in narrow areas and in pipes.
- Resistant to short-circuits up to 250°C thanks to their dual insulation
- No cold flow meaning optimum long-term tightness of the connection systems
- easy machine processing
- very good flexibility
- recyclable
- RoHS conformity

### Application

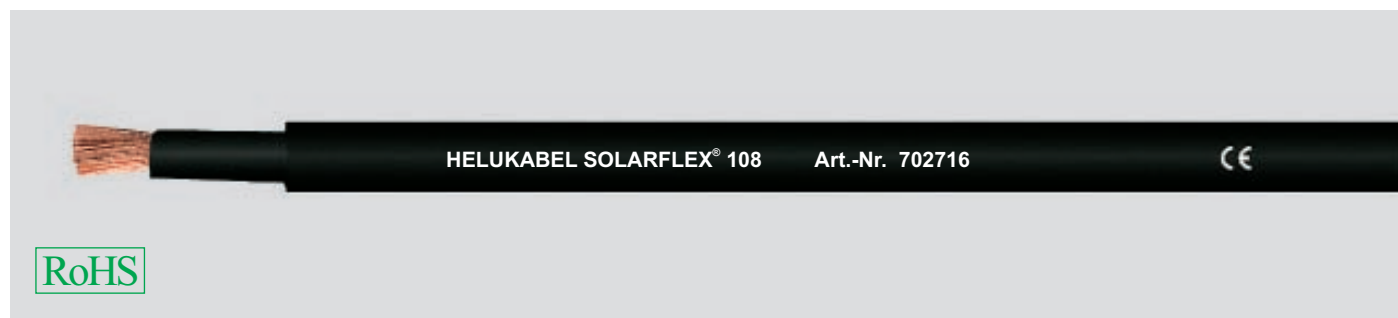
The **SOLARFLEX®107** with the rugged PVC sheath is used for the cabling between interconnected solar modules

## SOLARFLEX®-ZW 107 LiPVCPCV

Part No.	No. cores x cross-sec. mm <sup>2</sup>	Outer diameter approx. mm	Cop. weight kg/km	Weight approx. kg/km	Core / core jacket colour
702248	2x2,5	5,1x10,4	48,0	95	red/black/black
702016	2x4	5,8x11,9	76,8	135	red/black/black
702249	2x6	6,6x13,5	115,2	185	red/black/black
702250	2x10	7,7x16,9	192,0	280	red/black/black
702251	2x16	8,7x17,7	307,2	390	red/black/black
702252	2x25	10,9x22,2	480,0	610	red/black/black
702253	2x35	12,4x25,2	672,0	830	red/black/black
702254	2x50	14,6x29,8	960,0	1110	red/black/black



# SOLARFLEX® 108 / 109 for fixed indoor installation



## Technical data

### Temperature range

-5°C to +80°C  
-40°C to +80°C

### Nominal voltage:

according to VDE U<sub>b</sub>/U 600/1000 V AC, 900/1500V DC

### AC test voltage

3000 V

### Insulation resistance

mind. 20 MOhm x km

### Minimum bending radius:

approx. 8 x cable diameter

## Properties

- UV, ozone-resistant
- Self-extinguishing and flame retardant PVC sheath according to VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1
- good flexibility
- RoHS conformity

## SOLARFLEX® 108

Part No.	No. cores x cross-sec. mm <sup>2</sup>	Outer diameter approx. mm	Cop. weight kg/km	Weight approx. kg/km	Core / jacket colour
703904	1x6	6,5	58,0	80	black/black
702715	1x10	8,4	96,0	130	black/black
702716	1x16	9,5	154,0	181	black/black
702717	1x25	11,0	240,0	274	black/black
702718	1x35	12,5	336,0	398	black/black
702719	1x50	15,4	480,0	529	black/black
702720	1x70	18,2	672,0	717	black/black
702721	1x95	20,0	912,0	1050	black/black
702722	1x120	21,0	1152,0	1240	black/black
702723	1x150	23,8	1440,0	1524	black/black

## Construction

### SOLARFLEX® 108

- Bare copper, tinned, fine wired according to DIN VDE 0295 class 5
- 1. Insulation PVC black
- 2. Insulation PVC black

### SOLARFLEX® 109

- Bare copper, tinned, fine wired according to DIN VDE 0295 class 5
- 1. Insulation PVC black
- tinned cop. netting
- 2. Insulation PVC black

## Application

The cheap, flexible and double insulated single conductor for the indoor installation to converter.

By protected installation also applicable for the outside.

## SOLARFLEX® 109

Part No.	No. cores x cross-sec. mm <sup>2</sup>	Outer diameter approx. mm	Cop. weight kg/km	Weight approx. kg/km	Core / jacket colour
702724	1x6	7,8	71,0	101	black/black
702725	1x10	9,7	122,0	168	black/black
702726	1x16	11,7	180,0	217	black/black
702727	1x25	13,0	282,0	342	black/black
702728	1x35	14,7	386,0	468	black/black
702729	1x50	18,7	535,0	857	black/black
702730	1x70	22,2	750,0	822	black/black
702731	1x95	23,4	1004,0	1190	black/black
702732	1x120	24,5	1260,0	1400	black/black
702733	1x150	27,8	1570,0	1710	black/black

# NYY-O / H07RN-F



## NYY-O

### Technical data

#### Temperature range

bewegt -5°C to + 50°C  
 nicht bewegt -40°C to + 70°C

#### Nominal voltage:

$U_0/U$  600/1000V

#### A.c. test voltage

4000 V

#### Minimum bending radius:

Approx. 15 cable diameters

### Construction

- Bare copper conductor, according to DIN VDE 0295 class 1 or class 2, single or multi-wire, IEC 60228 cl. 1 or cl. 2
- PVC insulation, black
- PVC-sheath, black

### Properties

- PVC flame-resistant and self-extinguishing according to VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1
- RoHS conformity

### Application

Power cables for energy supply for use in underground, in open air, in water and indoors.

## NYY-O

Part No.	No. cores x cross-sec. mm <sup>2</sup>	Outer diameter approx. mm	Cop. weight kg/km	Weight approx. kg/km	Core / jacket colour
32089	1x4	9,0	38,0	115	black/black
32090	1x6	9,5	58,0	135	black/black
32091	1x10	10,0	96,0	179	black/black
32092	1x16	11,0	154,0	245	black/black
32093	1x25	12,0	240,0	360	black/black
32094	1x35	13,0	336,0	470	black/black
32095	1x50	15,0	480,0	620	black/black
32096	1x70	16,5	672,0	810	black/black
32097	1x95	19,0	912,0	1110	black/black
32098	1x120	20,5	1152,0	1360	black/black
32099	1x150	22,5	1440,0	1670	black/black

## H07RN-F

### Technical data

#### Temperature range

-30°C to +60°C

#### Nominal voltage:

$U_0/U$  450/750V

For protected and fixed installation

$U_0/U$  600/1000V

#### A.c. test voltage

2500 V

#### Minimum bending radius:

For fixed installation approx. 4 cable diameters

### Construction

- Bare copper or tinned conductor, fine-wired according to DIN VDE 0295 class 5, IEC 60228 cl. 5
- Rubber core insulation EI4
- Rubber-outer sheath EM2 black

### Properties

- Ozone resistant according to VDE 0473 part 811-2-1, DIN EN 60811-2-1
- RoHS conformity

### Application

Heavy-duty rubber sheathed cable for use in dry, moist and wet areas.

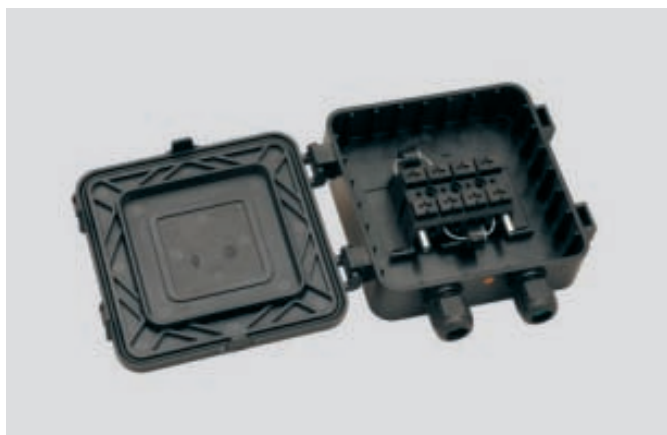
In the open, only for protected installation and under consideration of the temperature range.

## H07RN-F

Part No.	No. cores x cross-sec. mm <sup>2</sup>	Outer diameter approx. mm	Cop. weight kg/km	Weight approx. kg/km	Core / jacket colour
37003	1x4	7,2-9,0	38,0	100	black/black
37004	1x6	7,9-9,8	58,0	130	black/blue
37005	1x10	9,5-11,9	96,0	230	black/black
37006	1x16	10,8-13,4	154,0	290	black/black
37007	1x25	12,7-15,8	240,0	420	black/black
37008	1x35	14,3-17,9	336,0	530	black/black
37009	1x50	16,5-20,6	480,0	750	black/black
37010	1x70	18,6-23,3	672,0	960	black/black
37011	1x95	20,8-26,0	912,0	1250	black/black
37012	1x120	22,8-28,6	1152,0	1560	black/black
37013	1x150	25,2-31,4	1440,0	1900	black/black



# Panel box



## Photovoltaic panel box

Suitable for connecting SOLARFLEX® cables to the core cross-sections 4mm<sup>2</sup> and 6mm<sup>2</sup>. Preventing condensation through use of a bronze air filter.

A set of adhesive elements are included for tight and lasting mounting.

## Technical data

Protection classification: IP 65

Temperature range: -40°C to +85°C

Working current: 20A

Working voltage: 600V

Breakdown voltage 3,000V

Insulation resistance: >500MΩ

Safety class II

Flammability according to UL94 V0

Terminal insert: certified according to UL, CSA, ENEC

## Material

Casing: PC (polycarbonate)

· UV-resistant

Air filter: Bronze

Luftfilter: Bronze

Part No.	Type	Units
black		
903709	Panel box	1

# Coupler plug for SOLARFLEX®



## Coupling connector

with bayonet lock for quick assembly and secure locking

## Technical data

Protection classification: IP 67

Temperature range: -40°C to +85°C

## Properties

- Easy to assemble
- high degree of strain relief
- reliable and secure assembly through the use of a bayonet lock
- Other than crimping the contacts, no additional tools are needed

## Material

Contact: CuSn

Casing: PC (polycarbonate)

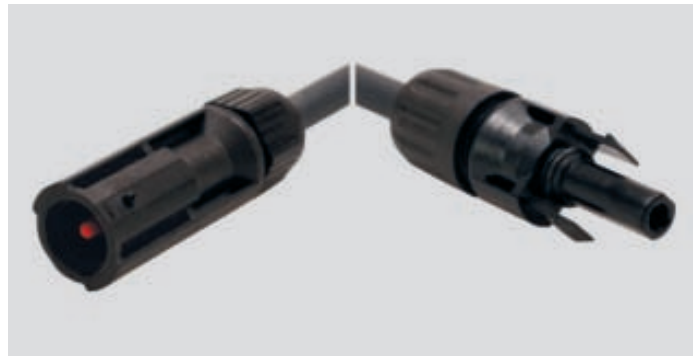
Part No.	Core diameter mm <sup>2</sup>	Type	Units
903568	4	Socket	1
903569	4	Contact pin	1
903570	6	Socket	1
903571	6	Contact pin	1

(These parts contain in each connector with contact)



# Adapter SOLARFLEX®

Used for the transition from MC-connectors to connectors with bayonet fixing



Part No.	Type	Cross section mm <sup>2</sup>	Bayonet	Coupling	Length mm	Unit
650558	Adapter S-B4	4,0	Socket	Mc4-Contact pin 4-6	300	1
650559	Adapter B-S4	4,0	Contact pin	Mc4-Socket 4-6	300	1
650560	Adapter S-B3	4,0	Socket	Mc3-Contact pin 2-4	300	1
650561	Adapter B-S3	4,0	Contact pin	Mc3-Socket 2-4	300	1
650562	Adapter S-S3	4,0	Socket	Mc3-Socket 2-4	300	1
650563	Adapter B-B3	4,0	Contact pin	Mc4-Contact pin 2-4	300	1

Adapter for cross section 6 mm<sup>2</sup> on request

# Cable gland HELUTOP® HT



## HELUTOP® HT

The plastic cable gland with vibration protection

### Technical data

Protection classification: IP 68 - 5 bar

Temperature range: -30°C to +80°C

Testing standard: EN50262

### Properties

- Optimum strain relief through clamping plates
- Easy to assemble
- Large clamping areas

### Material

Casing: polyamide PA 6

Moulded seal: Neoprene

- Halogen-free
- silicone-free
- cadmium-free
- phosphorous-free

### Note

Colour black, other colours available upon request

Part No. schwarz RAL 9005	Size Metr.	Cable $\varnothing$ from - to mm	Thread length mm	Spanner size mm	Unit
93937	M 12 x 1,5	3,0 - 6,5	6,0	15	100
93938	M 16 x 1,5	4,0 - 8,0	10,0	18	50
92669	M 16 x 1,5	5,0 - 10,0	10,0	22	50
93939	M 20 x 1,5	6,0 - 12,0	10,0	24	50
93940	M 25 x 1,5	11,0 - 17,0	10,0	29	50
93941	M 32 x 1,5	15,0 - 21,0	10,0	36	25
93942	M 40 x 1,5	19,0 - 28,0	10,0	46	50

# Lock nut KMK-PA-MB



## KMK-PA MB

The locknut made of polyamide with collar.

### Technical data

Temperature range: -40°C to +100°C

### Material

Polyamide PA 6

- Halogen-free
- silicone-free
- cadmium-free
- phosphorous-free

### Note

Colour black, other colours available upon request

Part No. black RAL 9005	Size Metr.	Spanner size mm	Unit
98163	M 12 x 1,5	18	100
98164	M 16 x 1,5	22	100
98165	M 20 x 1,5	26	100
98166	M 25 x 1,5	32	100
98167	M 32 x 1,5	41	100
98168	M 40 x 1,5	50	50

# Flexible tube HELUcond CO-PA



## HELUcond CO-PA

The dividable and re-closable cable protection tube for subsequent mechanical protection of the cables.

- Trouble-free retrofitting
- High mechanical strength
- Simple installation of pre-fabricated lines
- Repair of existing systems

## Technical data

Protection classification: IP 43

Temperature range: -40°C to +120°C

Temperature range for short time: up to +160°C

## Material

Polyamide 6

- Halogen-free

Part No. black	Trade size mm	Inner diameter mm	Outer diameter mm	Per meters
90061	10,0	8,8	13,5	50
90062	14,0	13,2	18,7	50
90063	20,0	20,2	25,7	50
90064	23,0	23,9	31,3	50
90065	37,0	32,5	43,2	25

# Shrink-on sleeve SK-M medium-thick walled



## SK-M

Polyolefine shrunk tube with internal adhesive for repairing insulation and sealing electrical components.

## Technical data

Temperature range: -55°C to +110°C

Shrinking temperature: +120°C

## Material

PO (Polyolefine) with internal adhesive

## Note:

Form of shipment: 1.2 m rods

Part No. black	Inner diameter before shrinkage mm	Wall thickness mm	Inner diameter after shrinkage mm	Unit
99788	10,2	2,0	3,8	1
99789	19,0	2,0	5,6	1
99790	28,0	2,0	10,2	1
99792	38,0	2,0	12,7	1
99794	52,0	2,0	19,0	1

## Cable tie TY-MX (a product from Thomas & Betts)



### TY-MX (UV-stabilised)

Cable ties with steel lug lock made of corrosion-resistant, non-magnetic steel.

This offers excellent binding properties even under the most rigorous conditions such as heat, cold, humidity etc. and is insensitive to vibrations and external influences.

### Technical data

Temperature range: -40°C to +85°C

Flammability according to UL94 V2

### Material

Polyamide PA 6

· Halogen-free

Part No. black	Type T & B	Length mm	With mm	Bundle diameter mm	Load capacity N	Unit
97310	TY 5-23MX	92,0	2,4	16,0	81	100
97313	TYB 5-24MX	140,0	3,6	29,0	180	100
97436	TY 5-26MX	281,0	3,6	76,0	180	100
93694	TY 5-26MX	186,0	4,8	45,0	225	100
93696	TY 5-28MX	360,0	4,8	102,0	225	100
93698	TY 5-27MX	338,0	7,6	90,0	544	50

## Cable tie Q-Tie® (weather-resistant)



### Q-Tie® (weather-resistant)

This cable tie consists of a mixture of materials that offers the best UV and oxidation protection for weather-resistant applications. Q-Tie® cable ties have an open head. This allows for quick and reliable assembly. Likewise, the head allows for temporary securing that can be loosened later.

### Technical data

Temperature range: -40°C to +85°C

Flammability according to UL94 V2

### Material

Polyamid PA 6.6

· Halogen-free

· Silicone-free

Part No. black	Type Q-Tie®	Length mm	With mm	Bundle diameter mm	Load capacity N	Unit
903696	Q26/105 BK-WS	105	2,6	24	80	200
903697	Q26/155 BK-WS	155	2,6	40	80	200
903698	Q26/195 BK-WS	195	2,6	50	80	200
903699	Q36/160 BK-WS	160	3,6	38	130	100
903700	Q36/200 BK-WS	200	3,6	50	130	100
903701	Q36/250 BK-WS	250	3,6	65	130	100
903702	Q36/300 BK-WS	300	3,6	82	130	100
903703	Q47/210 BK-WS	210	4,7	50	220	100
903704	Q47/290 BK-WS	290	4,7	75	220	100
903705	Q47/410 BK-WS	410	4,7	110	220	100
903706	Q77/300 BK-WS	300	7,7	70	530	100
903707	Q77/420 BK-WS	420	7,7	110	530	100
903708	Q77/520 BK-WS	520	7,7	145	530	100



## Cable shears HELUTOOL D20

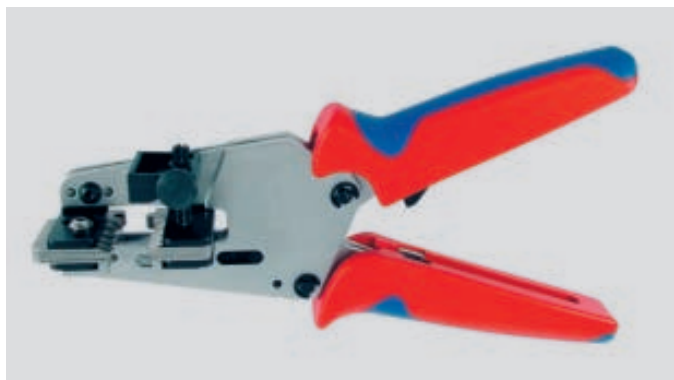


### Cable shears **HELUTOOL D20** with dual cutting edges, for Al- and Cu-cables

- cutting of Cu- and Al-cables, single and multi-wire
- low effort required due to high transmission ratio and new blade geometry
- cutting without crushing or deformation
- initial and final cut (1st and 2nd blades) allow cables with a diameter of up to max. 25 mm Ø to be cut
- easy cut with one hand operation
- adjustable joint screw, self locking
- Material: special tool steel, forged

Part No.	Type	Unit
904933	HELUTOOL D20	1

## Cable stripper for SOLARFLEX®



### Cable stripper for **SOLARFLEX®** For core cross-sections of 1.5 mm<sup>2</sup> to 6 mm<sup>2</sup>

#### Properties

- with longitudinal stop
- precise and damage-free stripping
- exchangeable cutting insert
- ergonomically shaped two-component handles
- Length 200 mm
- Weight 425 g

#### Material

Chromium-plated

Part No.	Type	Unit
903572	Stripper for SOLARFLEX®, complete	1
903573	Stripping blades	1

## Crimping tool HELUTOOL PEW 12.72



### Crimpzange **HELUTOOL PEW 12.72**

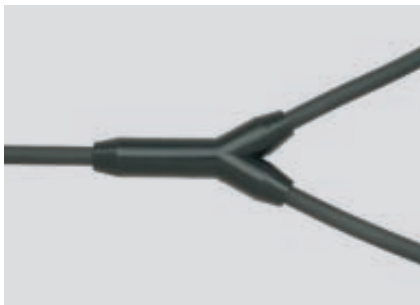
for crimping of turned male and female contacts that are used with connectors with bayonet fixing

#### Properties

- for 1.5 – 6 mm<sup>2</sup>
- burnished
- Crimp jaws
- even four indent crimping
- length 200 mm
- weight 625 g

Part No.	Type	Unit
903674	Crimping tool HELUTOOL PEW 12.72	1

# Pre-assembled



Pre-assembled solutions guarantee uniform, high quality and speed up the assembly. Costs are reduced thanks to standardization.

SOLARFLEX® cables are assembled, connected and sealed (Macromelt melting process).

Various forms of connections are possible, such as cross, Y or T distributors (with and without fastening lug).

SOLARFLEX® cables are connected to panel boxes; the free ends are provided with connector plugs.

## Quickly and easily secured

Panel boxes have a set of adhesive elements on the rear for quick and easy installation.

Cable holders can be secured using screws or adhesive. SOLARFLEX® cables are easily snapped into place in the holder. Holders for Y-bayonet distributors can be fastened with screws.



# Fax-Request

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Sender (Stamp)

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Contact Person

Description	Part No.	quantity order	required date of deliver

**Yes, I want more information about HELUKABEL® products.**

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**HELUKABEL® GmbH**  
 Custom cable  
 Dieselstraße 8-12  
 D-71282 Hemmingen / Germany  
 Tel. +49 - 71 50 / 92 09 -728  
 Fax +49 - 71 50 / 88 84



**HELUKABEL®**



Production Windsbach / Germany

**HELUKABEL® GmbH**

Headquarters  
Dieselstraße 8-12  
D-71282 Hemmingen / Germany  
Ph. +49 - 71 50 - 92 09-0  
Fax +49 - 71 50 - 88 84  
[info@helukabel.de](mailto:info@helukabel.de)

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