

RobiFix mini

Flat primary circuit connectors | Welding automation

EN



STÄUBLI ELECTRICAL CONNECTORS

Long-term solutions – Expert connections



Stäubli Electrical Connectors is a leading international manufacturer of high-quality electrical contacts and connector systems and solutions for industrial applications. We are part of the Stäubli mechatronics group, the technology leader in connection solutions, robotics and textile machinery.

Stäubli develops, produces, sells and services products for markets with the highest productivity and safety standards. As recognized specialists, our focus is always on solutions and customers. Many new developments got their start here and are now becoming established as worldwide standards.

Our customers depend on our expertise and our active support, even when dealing with unusual challenges. With Stäubli, you're entering into a long-term partnership built on reliability, dedication, and exceptional quality in both products and services.

Pioneering contact technology for increased efficiency

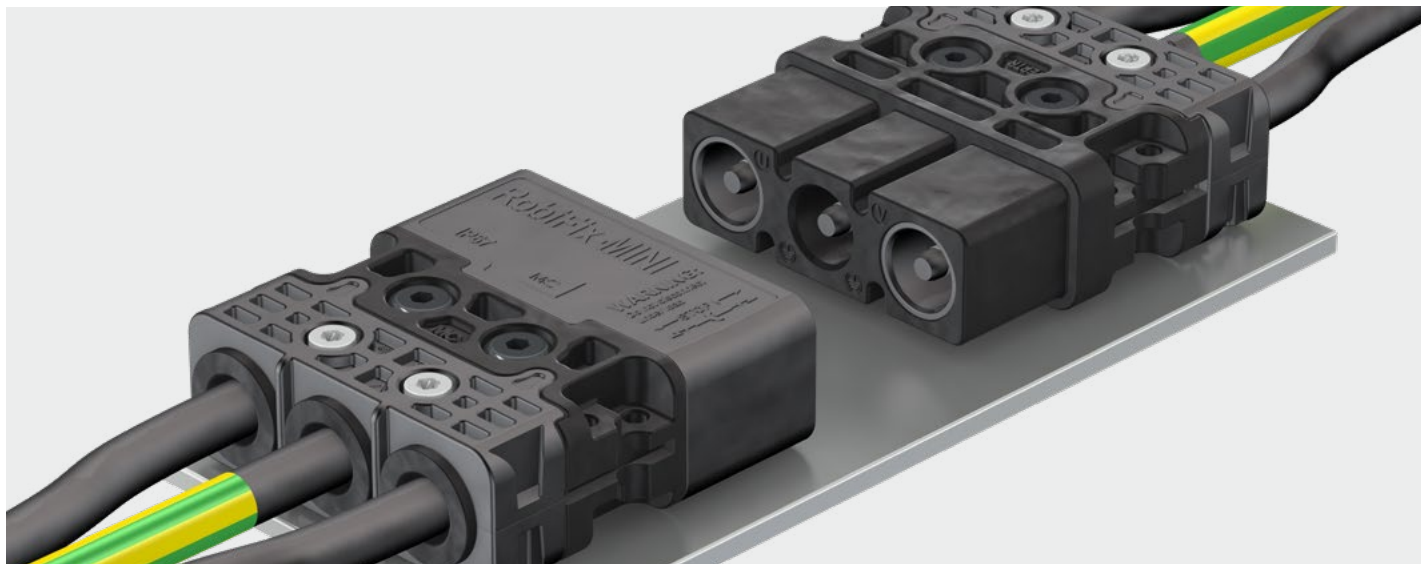
The entire Stäubli Electrical Connectors product range meets market expectations for high performance, the highest number of mating cycles, and long-lasting reliability for safe, durable operation. Our proven **MULTILAM technology** is ideal for all types of connections in industrial applications. Customers in the **power transmission and**

distribution sector rely on our consistent, loss-free transmission performance in all voltage ranges. The **automotive industry** depends on our high-efficiency connections for spot-welding applications in production lines. Harsh conditions in the **transportation sector** require high vibration resistance, maximum reliability, and compact design. These attributes are vitally important for railway and e-mobility applications. The safety

and reliability of our products are essential for **test and measurement technology.**

In the growing field of **alternative energy**, our products have been setting standards since the 1990s. About half of the solar energy generated worldwide is transmitted through safe, long-lasting, high-performance Stäubli connectors.

Applications and advantages



The new, cost-effective connector from Stäubli for primary circuit lines in welding applications. RobiFix mini was designed for installation on robot arms and as a manual plug connector. Thanks to its lightweight and compact design, this series can be easily integrated into modern lightweight manufacturing concepts.

Quick disconnect solutions help to reduce downtime and maintenance costs.

- User-friendly integration and easy assembly by hand
- Extremely compact and lightweight design
- First mate last break protective contact and touch protection on both sides

- Ideal solution for all primary circuit connectors segments, even with different cross sections
- High current-carrying capacity and unparalleled contact reliability thanks to MULTILAM advanced contact technology

RobiFix mini

The new, cost-effective Stäubli connector for primary circuit lines in welding applications.

Thanks to its lightweight and compact design, this series can be easily integrated into modern lightweight manufacturing concepts.

Used for installation on robot arms and as a manual plug connector.

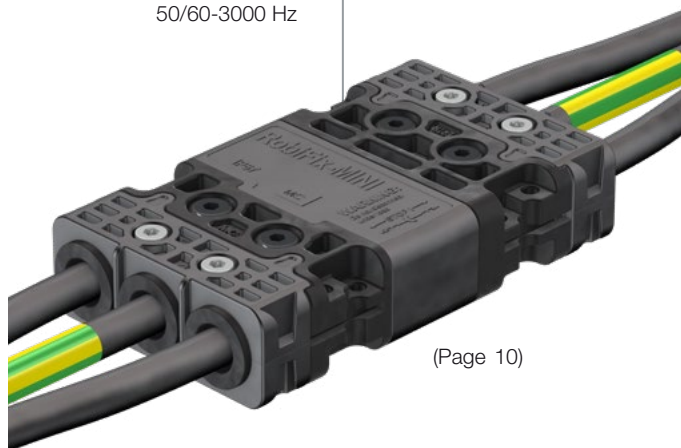
RobiFix mini allows for a continuous connection from welding guns via robots and, where necessary, tool changers, all in a single system.

RobiFix mini can be used both with traditional applications with a frequency range from 50/60 Hz to 3000 Hz and with new, trendsetting technologies up to 10 kHz.

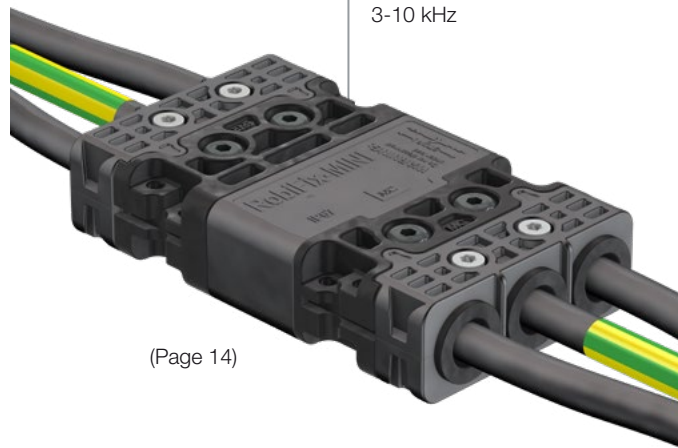


50/60-3000 Hz

3-10 kHz



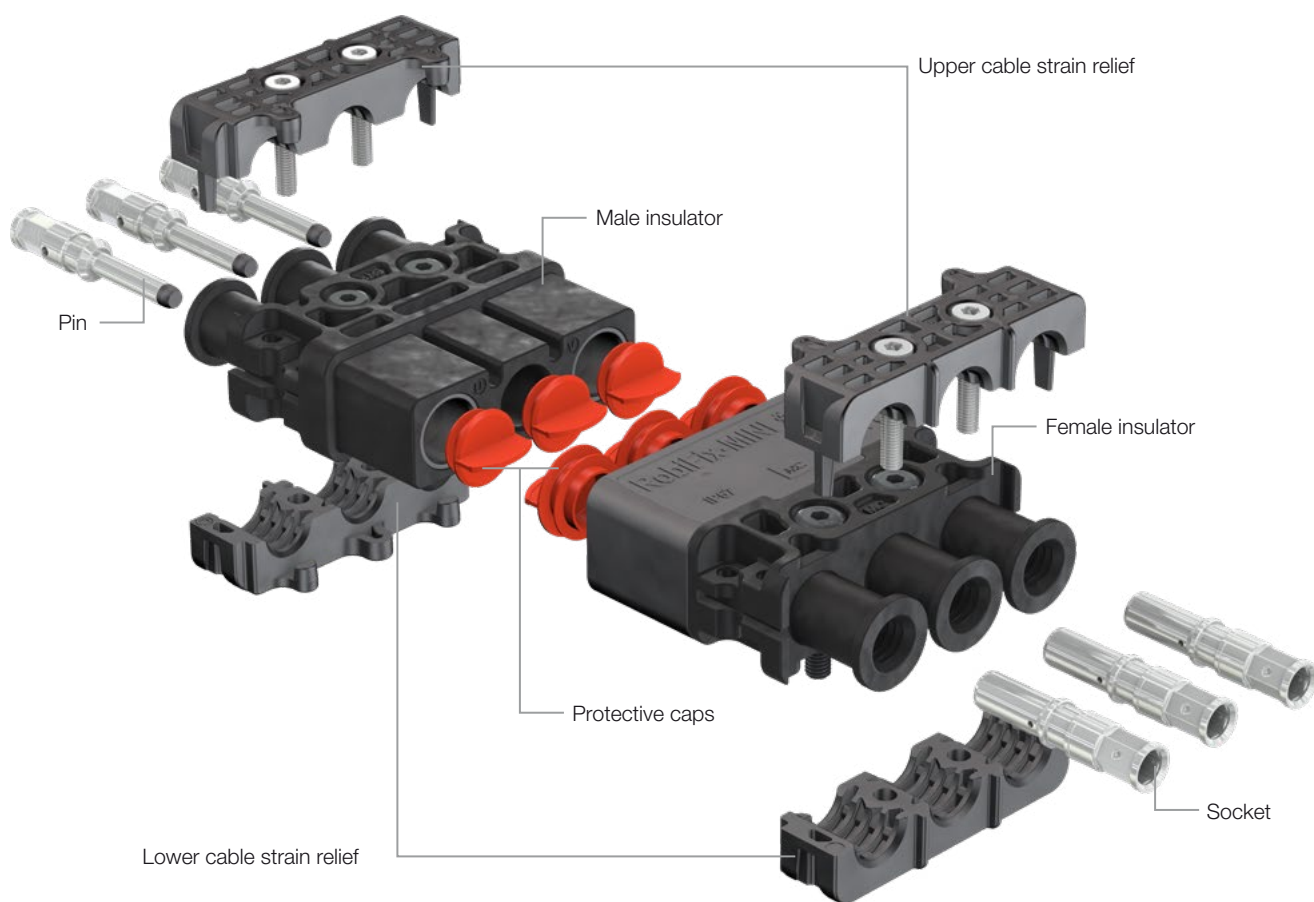
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Quick disconnect solutions for minimized downtime and maintenance costs.

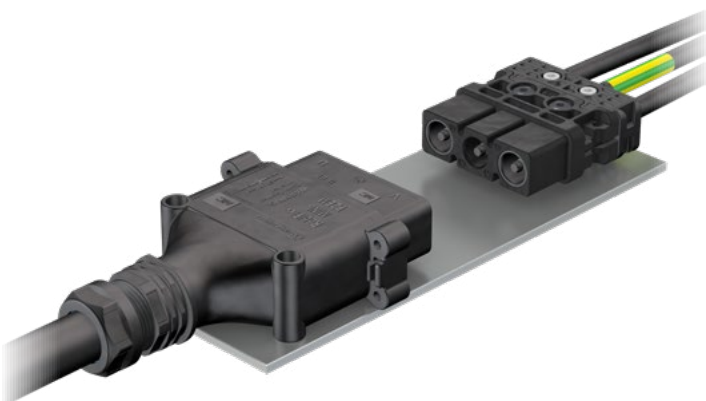
- User-friendly integration and easy assembly by hand
- Extremely compact and lightweight design
- First mate last break protective contact and touch protection on both sides
- Ideal solution for all primary circuit connector segments, even with different cross sections
- High current-carrying capacity and exceptionally high contact reliability thanks to MULTILAM technology
- Solutions for high-frequency welding can be found on page 14.



Overview RobiFix mini solutions

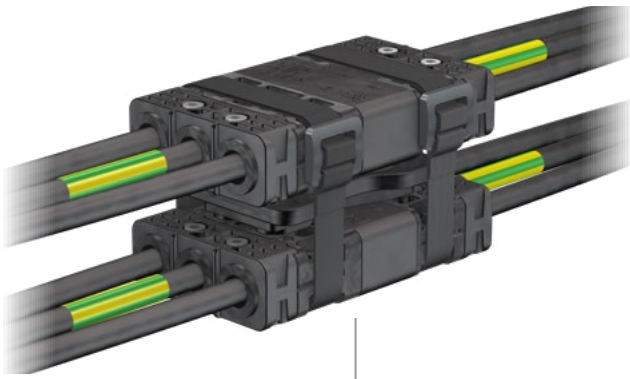


J1
Flange mount
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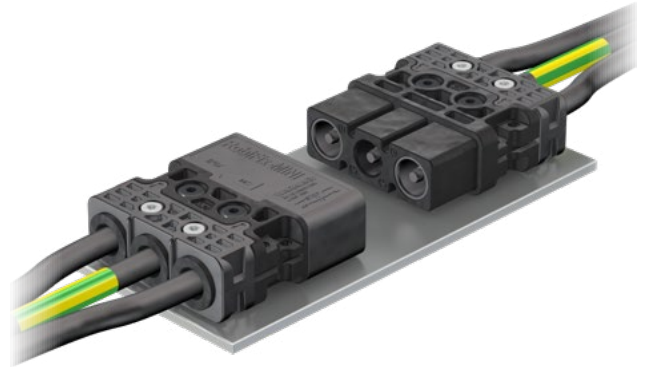


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Flat mount
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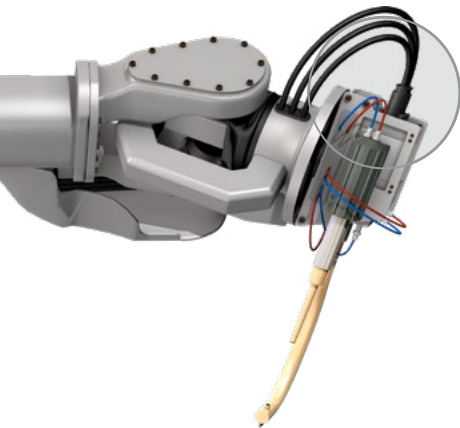




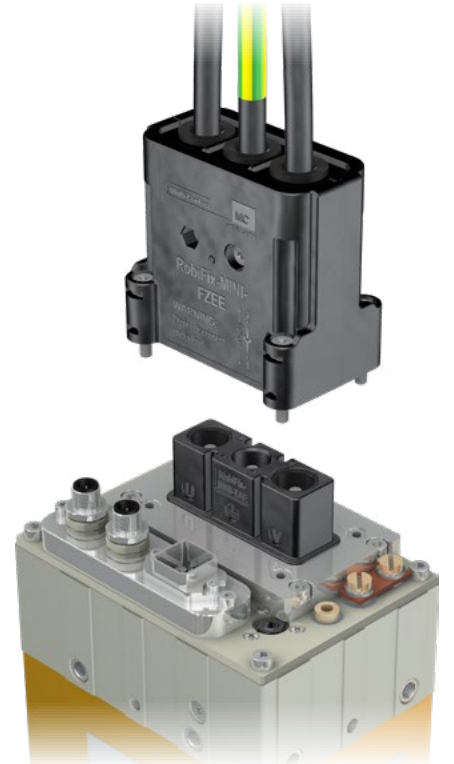
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Double dresspack
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J3
Flat mount
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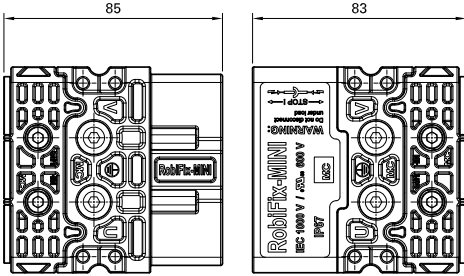


J6
Transformer connection
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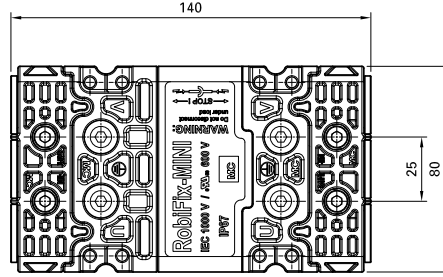
RobiFix mini

Dimensions (in millimeters)

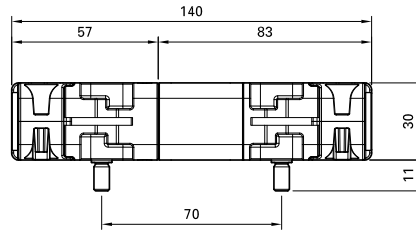
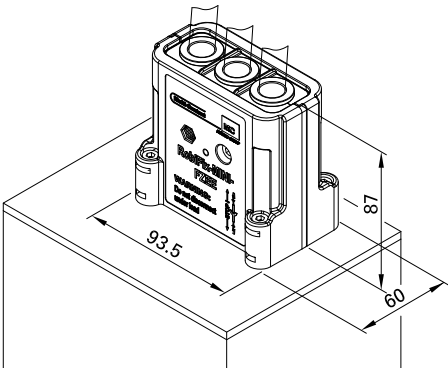


RobiFix mini-S...

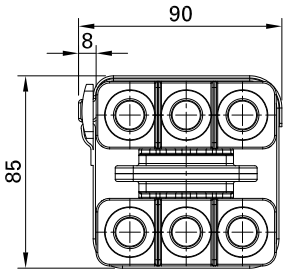
RobiFix mini-B...



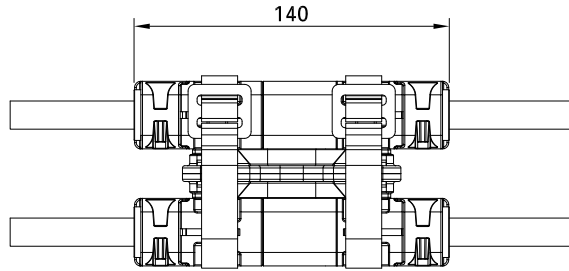
RobiFix mini mated



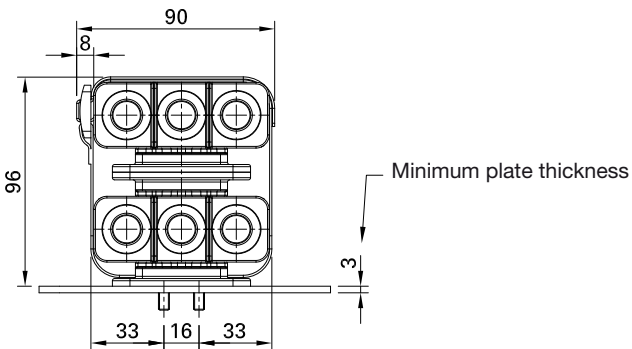
RobiFix mini mated



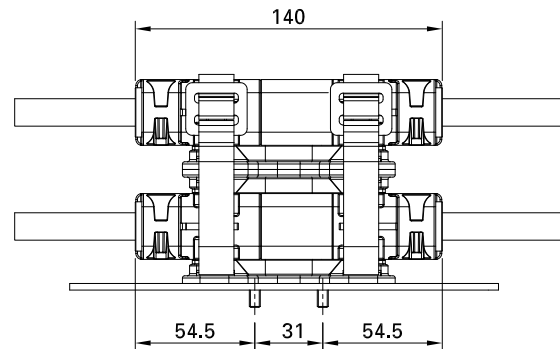
RobiFix mini-TwinLock



RobiFix mini-TwinLock



RobiFix mini-TwinPower



RobiFix mini-TwinPower

Technical data	
Number of poles	2 + PE
Rated current	see Derating (page 16)
Rated voltage	max. 1000 V (IEC), 600 V (UL)
Test voltage	6.6 kV (50 Hz, 1 min.)
Frequency	0 Hz – 10000 Hz
Cable connection	16 mm ² /25 mm ² /AWG 4
Outer insulation diameter of cable	Ø 7 mm – Ø 12.5 mm
Contact protection (both sides)	IP2X (IEC)
Protection, in mated condition	IP67 (IEC)
Operating temperature	-20 °C ... +90 °C
Overvoltage category	CAT III
Pollution degree	3
Socket material	CuZn, Ag
Pin material	CuZn, Ag + POM
Insulation material	TPE
Design/regulations	IEC/EN 61984, DIN VDE 0298-4/2013-06

J1 flange mount

Mixed conductors



RobiFix mini-B...-FZEM-FG



RobiFix mini-S...-FZEE-FG



Order No.	Type	Description	Contacts	Cable outer Ø
				mm
30.4268	RobiFix mini-B16-FZEM-FG	Housing for flange mount with female contact carrier, complete incl. cable strain relief housing and socket contacts	BP6/16	15 – 25
30.4207	RobiFix mini-B25-FZEM-FG	Housing for flange mount with female contact carrier, complete incl. cable strain relief housing and socket contacts	BP6/25	15 – 25
30.4272	RobiFix mini-S16-FZEE	Housing for flange mount with male contact carrier, complete incl. cable strain relief housing and pin contacts	SP6/16	7 – 12.5
30.4248	RobiFix mini-S25-FZEE	Housing for flange mount with male contact carrier, complete incl. cable strain relief housing and pin contacts	SP6/25	7 – 12.5

Individual parts

30.4260	RobiFix mini-B-FZEM-FG	Housing for flange mount with female contact carrier, without contacts, incl. cable strain relief housing	–	15 – 25
30.4249	RobiFix mini-S-FZEE	Housing for flange mount with male contact carrier, without contacts, incl. cable strain relief housing	–	7 – 12.5
		Pin and socket contacts (16/25 mm ² /4 AWG)	see page 18	



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J1 flat mount

Mixed conductors



RobiFix mini-B...-FZEM-FT



RobiFix mini-S...-DR



Order No.	Type	Description	Contacts	Cable outer Ø
				mm
30.4269	RobiFix mini-B16-FZEM-FT	Housing for flat mount with female contact carrier, complete incl. cable strain relief and socket contacts	BP6/16	15 – 25
30.4270	RobiFix mini-B25-FZEM-FT	Housing for flat mount with female contact carrier, complete incl. cable strain relief and socket contacts	BP6/25	15 – 25
30.4274	RobiFix mini-S16-DR	Male contact carrier, complete incl. spacer, cable strain relief and pin contacts	SP6/16	7 – 12.5
30.4275	RobiFix mini-S25-DR	Male contact carrier, complete incl. spacer, cable strain relief and pin contacts	SP6/25	7 – 12.5

Individual parts

30.4259	RobiFix mini-B-FZEM-FT	Housing for flat mount with female contact carrier, without contacts, incl. cable strain relief	–	15 – 25
30.4273	RobiFix mini-S-DR	Male contact carrier, without contacts, incl. spacer and cable strain relief	–	7 – 12.5
		Pin and socket contacts (16/25 mm ² /4 AWG)	see page 18	



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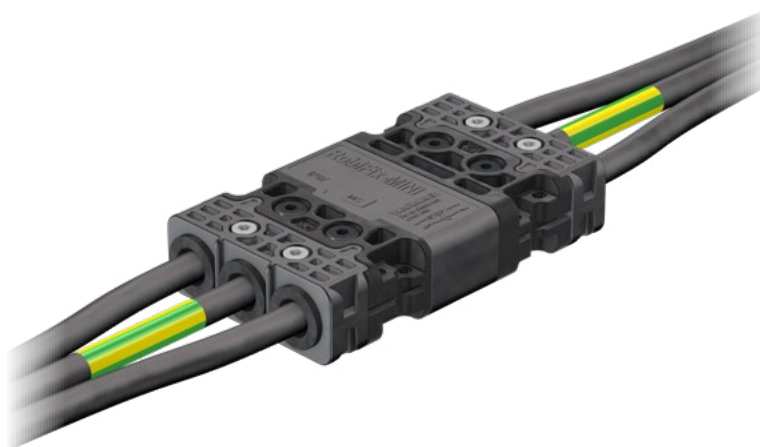
J3 flat mount

Single conductors



RobiFix mini-B...

RobiFix mini-S...



UL-File No.: E351413
16/25 mm²

Order No.	Type	Description	Contacts	Cable outer Ø
				mm
30.4202	RobiFix mini-B16	Female contact carrier, complete incl. cable strain relief and socket contacts	BP6/16	7 – 12.5
30.4203	RobiFix mini-S16	Male contact carrier, complete incl. cable strain relief and pin contacts	SP6/16	7 – 12.5
30.4200	RobiFix mini-B25	Female contact carrier, complete incl. cable strain relief and socket contacts	BP6/25	7 – 12.5
30.4201	RobiFix mini-S25	Male contact carrier, complete incl. cable strain relief and pin contacts	SP6/25	7 – 12.5

Individual parts

30.4215	RobiFix mini-B	Female contact carrier, without contacts incl. cable strain relief	–	7 – 12.5
30.4210	RobiFix mini-S	Male contact carrier, without contacts incl. cable strain relief	–	7 – 12.5
		Pin and socket contacts (16/25 mm ² /4 AWG)	see page 18	



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J6 transformer connection

Single conductors



RobiFix mini-B...-FZEE



RobiFix mini-TAE-43



Order No.	Type	Description	Contacts	Cable outer Ø mm
30.4271	RobiFix mini-B16-FZEE	Flange housing with female contact carrier complete incl. cable strain relief and socket contacts	BP6/16	7 – 12.5
30.4208	RobiFix mini-B25-FZEE	Flange housing with female contact carrier complete incl. cable strain relief and socket contacts	BP6/25	7 – 12.5
30.4209	RobiFix mini-TAE-43	Male contact carrier for welding transformers, (incl. 3 threaded pins)	S6/M6-43	–

Individual parts

30.4213	RobiFix mini-B-FZEE	Flange housing with female contact carrier, without contacts incl. cable strain relief	–	7 – 12.5
30.4256	RobiFix mini-TAE	Male contact carrier for welding transformers, without contacts	–	–
		Pin and socket contacts (16/25 mm ² /4 AWG)	see page 18	



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RobiFix mini

3-10 kHz applications

Due to the increased occurrence of skin effect at frequencies of 10 kHz, the use of a special, partly insulated Stäubli high-frequency cable is required.

Partly insulated single wires allow energy to be transferred more efficiently by optimizing current density distribution in the conductor.

The HF-TC16 cable is appropriate for robot dresspacks.

Order No.	Type	Description
30.4276	HF-TC16	High-frequency cable 16 mm ² CE UR AWM style 10770 80 °C 1000 V

Individual parts

	Single contacts (16 mm ² /25 mm ² /4 AWG)	see page 18
	Contact carriers	see page 10 – 13

Cable specifications

Electrical data	
Rated current	see Derating page 16
Rated voltage	DC max. 750 V (VDE) 1000 V AC (UL)
Test voltage	4000 V
Frequency	max. 10 kHz
Direct current resistance at 20 °C	max. 1.21 Ω/km

Cable structure (from the inside to the outside)	
Cable cross-section (7 single wires, partly insulated)	∑ 16 mm ²
Material partial insulation (per wire)	PTFE
Winding of the complete wires bundle	PTFE
Material of insulation	TPE
Winding of insulation	Non-woven tape
Material of jacket	PUR
Cable outer diameter	Ø 12 mm – Ø 12.5 mm
Cable weight (weight of copper)	ca. 251 kg/km (154.6 kg/km)

General data	
Operating temperature	-40 °C ... +90 °C max. 80 °C (UL)
Minimum bending radius, static moving	5 × cable-Ø 7.5 × cable-Ø
Torsion angle	±380°/m
Paint compatibility	PWIS ¹⁾ -free Silicone free

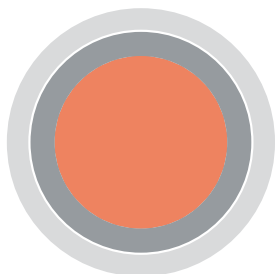
¹⁾ PWIS: Paint-Wetting Impairment Substances



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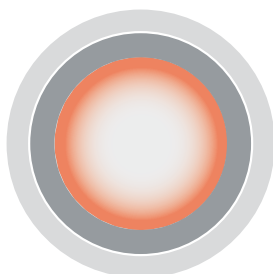
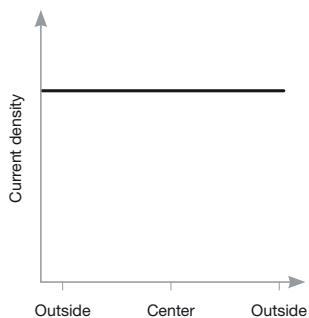
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Comparison standard welding cable vs. high-frequency cable



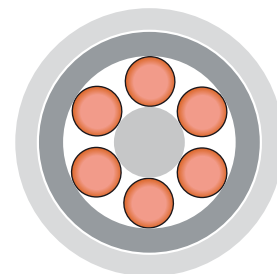
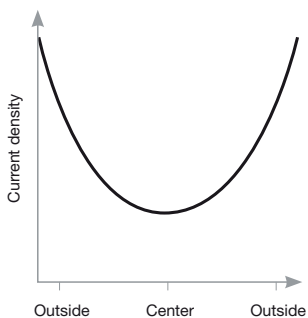
Conventional cable

$A = 25 \text{ mm}^2$
 $f = 50 \text{ Hz}$



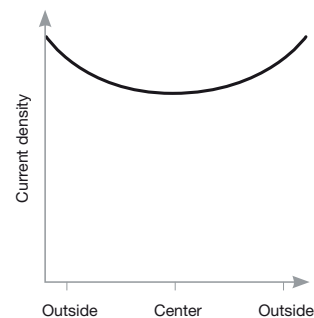
Conventional cable

$A = 25 \text{ mm}^2$
 $f = 10 \text{ kHz}$

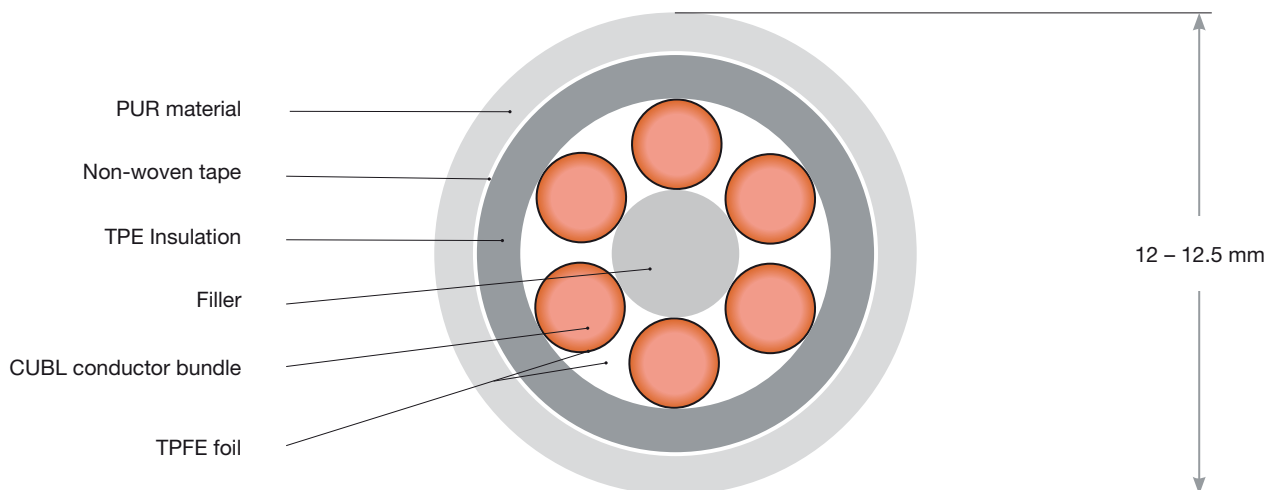


HF torsion cable

$\sum A = 16 \text{ mm}^2$
 $f = 10 \text{ kHz}$



Cable structure (scheme)



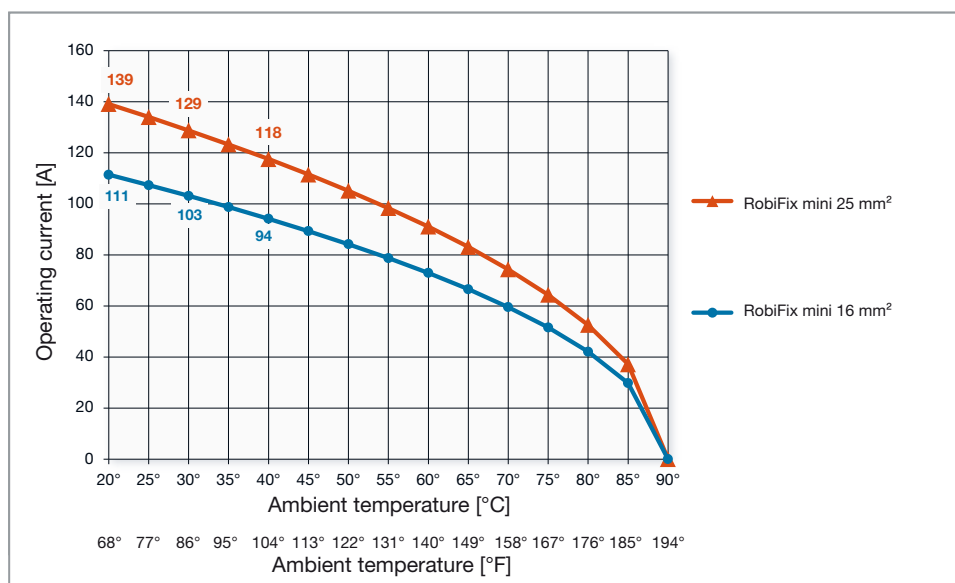
Deratings

Current-carrying capacity of connectors is limited by the thermal load capacity of the materials, the contact elements including connections and the insulating parts. The

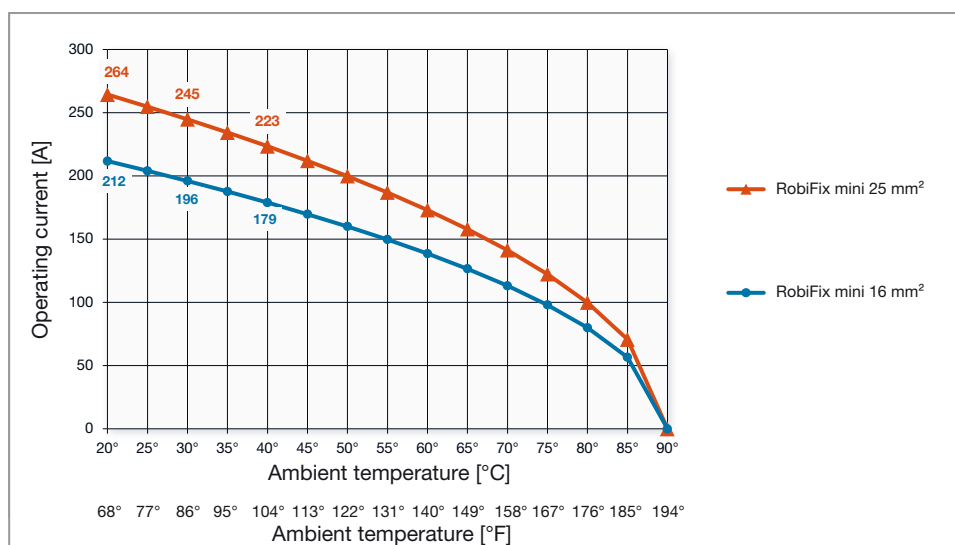
derating curve therefore applies to currents which may flow continuously, not intermittently, through each contact element of the plug connection at the same time, without

exceeding the upper permissible limiting temperature.

Applications up to 3000 Hz – Rating Factor 0.9



Double dresspack assembly up to 3000 Hz – rating factor 0.9



Note:

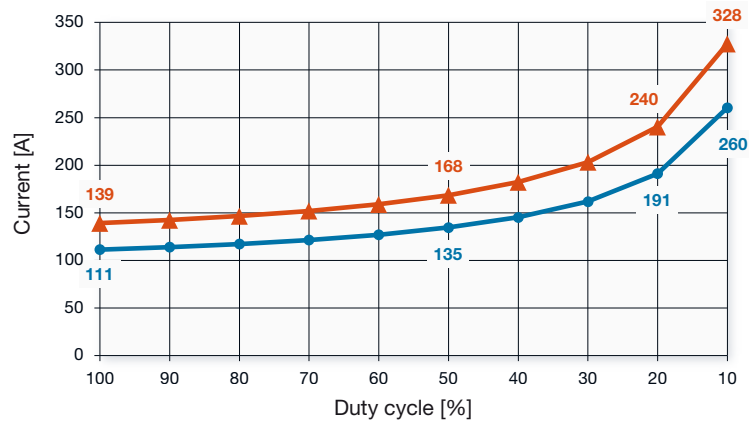
Additionally, when selecting the cable cross-sections, please comply with the DIN VDE 0298-4 and EN60204-1, IEC60204-1 standards.

The following are the current characteristics for short-time operation, in addition to the maximum continuous currents (table

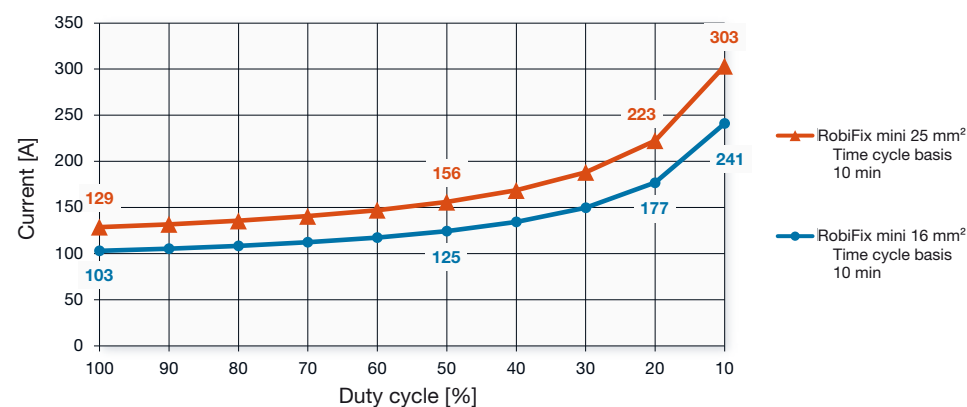
above). The duty cycle is determined within one cycle duration (ratio of switch-on time and pause time).

Rating Factor 0,9

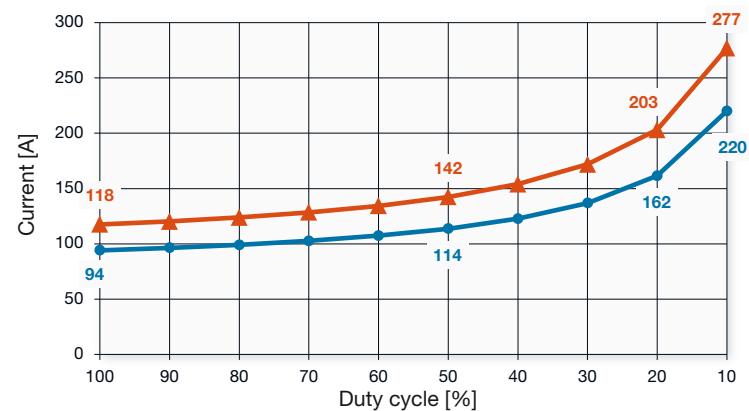
Current at
Ambient temperature 20°C (68°F)
 (0 Hz – 3000 Hz)



Current at
Ambient temperature 30°C (86°F)
 (0 Hz – 3000 Hz)



Current at
Ambient temperature 40°C (104°F)
 (0 Hz – 3000 Hz)

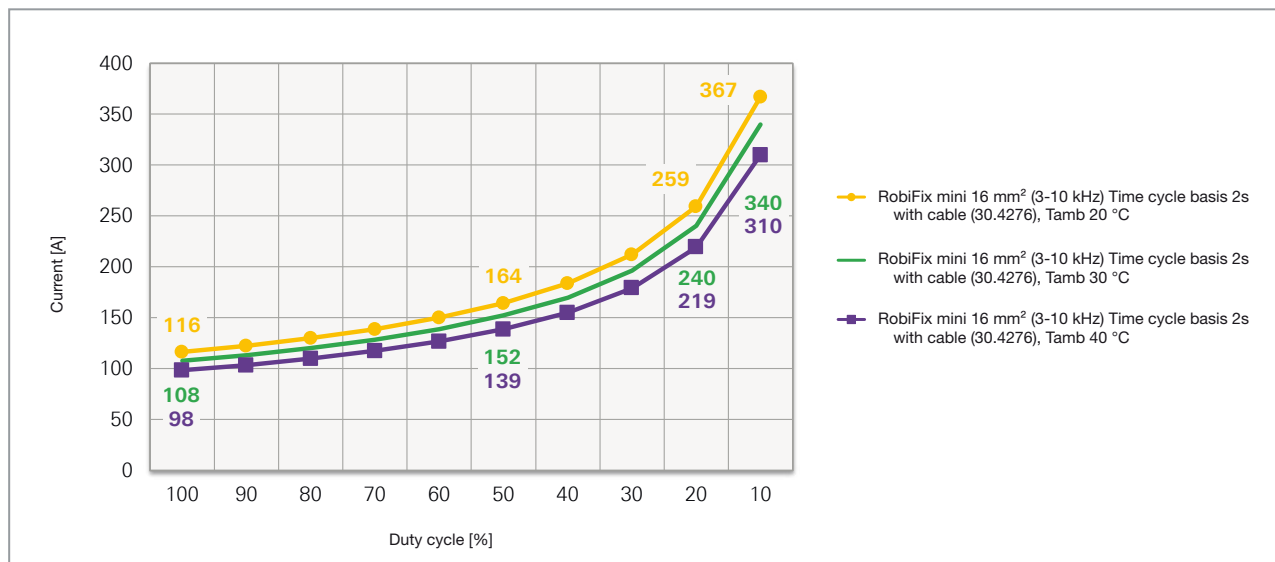


Example: Using 25 mm² cables with an ambient temperature of 20 °C (68 °F), RobiFix mini is rated up to 240 A at a 20 % duty cycle, and 139 A at a 100 % duty cycle. A

20 % duty cycle is based on a cycle time of 10 minutes with 2 minutes under load and 8 minutes without current.

Deratings 3-10 kHz applications

Rating Factor 0.9



RobiFix mini

Single contacts



BP6/...



SP6/...



S6/M6-43

Order No.	Type	Description	Nominal Ø	Conductor cross section		I.D. crimping sleeve	O.D. crimping sleeve
			mm	mm ²	AWG		
30.4234	BP6/16	Socket	6	16	–	6	9
30.4223	SP6/16	Pin (with touch protection)	6	16	–	6	9
30.4238	BP6/25	Socket	6	25	–	8	11
30.4227	SP6/25	Pin (with touch protection)	6	25	–	8	11
04.0420	S6/M6-43	Pin (43 mm long pin for transformer with M6 thread)	6	–	–	–	–



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RobiFix mini

Accessoires



Robifix mini-DR-SHR



Robifix mini-ZE



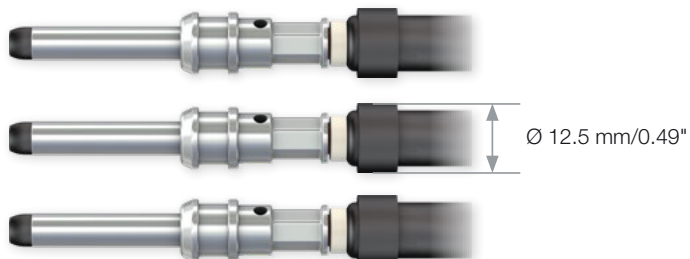
Robifix mini-B-PC



Robifix mini-S-PC



Robifix mini-RR9/12,5



Order No.	Type	Description
30.4261	Robifix mini-DR-SHR	Spacer set for Robifix mini contact carrier
30.4214	Robifix mini-ZE	Cable strain relief for Robifix mini contact carrier
30.4278	Robifix mini-B-PC	Set of 3 protective caps, for female connector
30.4279	Robifix mini-S-PC	Set of 3 protective caps, for male connector
30.4277	Robifix mini-RR9/12,5	Set of 3 rubber rings, I. D. 9 mm/O. D. 12.5 mm



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Accessories

If not installed on the robot, RobiFix mini remains connected and locked using RobiFix mini-LOCK. Ideal for cable extensions.



RobiFix mini-LOCK



Wall mounting



Mobile mounting

Order No.	Type	Description	fits to
30.4286	RobiFix mini-LOCK	Locking system including mounting screws and hook-and-loop fasteners (without connector)	RobiFix mini-B... + RobiFix mini-S...



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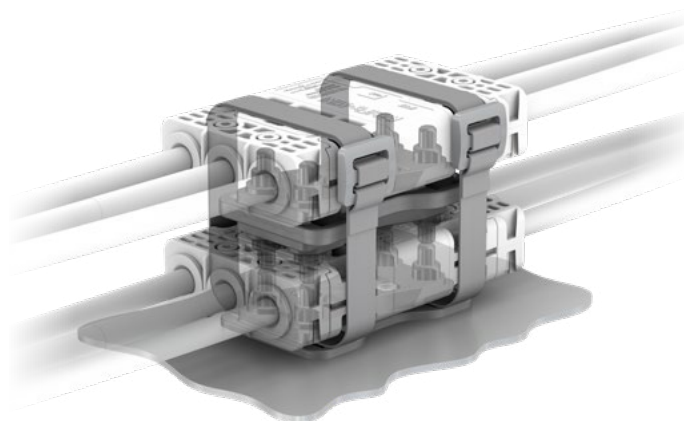
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System for a double dresspack



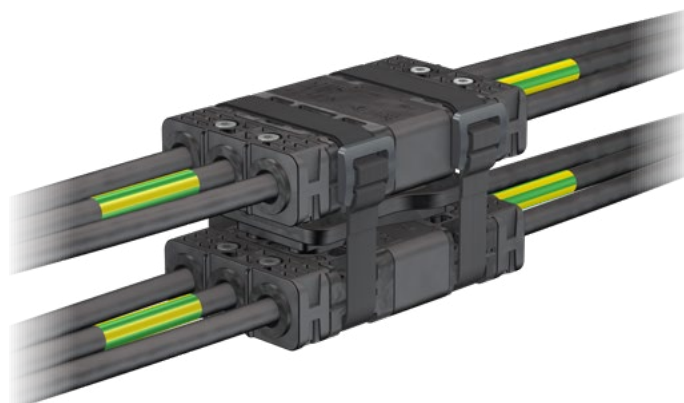
RobiFix mini-TwinPower

Robot mounting



RobiFix mini-TwinLock

Mobile mounting



Order No.	Type	Description	fits to
30.4287	RobiFix mini-TwinLock	Locking system including hook and loop fasteners (without connectors)	RobiFix mini-B... + RobiFix mini-S...
30.4289	RobiFix mini-TwinPower	Locking system including mounting screws and hook and loop fasteners (without connectors)	RobiFix mini-B... + RobiFix mini-S...



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RobiFix mini-B-FZEM-FG	30.4260	10
RobiFix mini-DR	30.4263	19
RobiFix mini-B16-FZEM-FG	30.4268	10
RobiFix mini-B16-FZEM-FT	30.4269	11
RobiFix mini-B25-FZEM-FT	30.4270	11
RobiFix mini-B16-FZEE	30.4271	13
RobiFix mini-S16-FZEE-FG	30.4272	10
RobiFix mini-S-DR	30.4273	11
RobiFix mini-S16-DR	30.4274	11
RobiFix mini-S25-DR	30.4275	11
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RobiFix mini-RR9/12,5	30.4277	19
RobiFix mini-B-PC	30.4278	19
RobiFix mini-S-PC	30.4279	19
RobiFix mini-LOCK	30.4286	20
RobiFix mini-TwinLock	30.4287	21
RobiFix mini-TwinPower	30.4289	21



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