

# Rapid connection systems Main catalog

Utilitiesline | Industrial connectors



## 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



**Our FSA connector systems are used by power grid operators for connecting power generators to low-voltage installations up to 1000 V. Together with our industrial connectors, they are now considered the most flexible solution for temporary power transmission applications.**

The design of our FSA rapid connection systems makes them suitable for most installations, regardless of the existing connection system and its configuration. In addition to

shorter maintenance and intervention times and optimized availability of the power supply, the system also ensures greater operational reliability and lower maintenance costs.

Advantages of FSA systems:

- Safe connection to busbars
- Quick, reliable connection with low contact resistance
- Easy servicing and reduced maintenance costs

- High durability
- Suitable for use under European and Asian switchgear standards
- Optimal access to busbars
- Forces in contact area caused by cable weight are reduced
- Easy handling and use

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# General Information

## Color code

For items which are available in multiple colors, write the two-digit color code after the order number instead of the “\*” character indicated in the catalog. If no color is specified in the order, black color coding will be delivered.

20	green/yellow	26	violet
21	black	27	brown
22	red	28	gray
23	blue	29	white
24	yellow	30	orange
25	green	31	pink

## Changes / disclaimers

All data, illustrations and drawings in this catalog are the result of careful testing. They correspond to our experiences. Errors expected. We also reserve the right to make changes for design and safety reasons. It is therefore advisable not to rely exclusively on the catalog data for designs that incorporate our components, but to consult us to ensure that you have access to the most recent data. We are happy to assist you.

## Copyright

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## RoHS ready

EU directive 2011/65 on the restriction of the use of certain hazardous materials for electrical and electronic devices.

## Symbols



**Accessories or special tools are used with this product**



**Please read user information document i000 before use**



**Assembly instructions MA000 are available for this product**

INTRODUCTION

# Rapid connection systems

With a high robustness and extended safety features, rapid connection systems from Stäubli are the ideal solution for connection to copper busbars.

Thanks to their clever design and ease of handling, they offer reliable performance for continuous operation under harsh conditions. A range of different versions lets you select the rated current, mounting type and

connection compatibility to define the optimal solution for every application.

**Properties:**

- Narrow clamp dimensions
- Pluggable connections touch-protected when unmated
- Connection rotates through 360° to reduce mechanical strain on busbars

- Color coding
- Replaceable contact elements for easy servicing
- Wide range of accessories (torque wrench, transport case, protective cover, etc.)

<p><b>Overview</b></p>		
	<p><b>Flat bar clamp FSA20S</b></p>	<p><b>Flat bar clamp FSA20K</b></p>
<p>Primary market</p>	<p>Europe</p>	<p>Europe</p>
<p>Rated voltage</p>	<p>1000 V</p>	<p>1000 V</p>
<p>Rated current</p>	<p>200 A</p>	<p>450 A</p>
<p>Connection compatibility</p>	<p>For bare or slightly oxidized vertical copper busbars</p>	<p>For bare vertical copper busbars</p>
<p>Version/Model</p>	<p>Factory pre-assembled cable version with various connection options</p>	<p>Version available with integrated 16BL/16BV pluggable connector or crimp connection for on-site cable assembly</p>
<p>Intermateability</p>	<p>Compatible with 10BV and 16BL connector systems</p>	<p>Compatible with 16BL and 16BV connector systems</p>
<p>Coding</p>	<p>Color coding and mechanical coding</p>	<p>Color coding</p>
<p>Maintenance</p>	<p>Replaceable contact pin</p>	<p>Exchangeable block</p>
<p>Features</p>	<ul style="list-style-type: none"> <li>▪ Short body, exceptionally narrow head (22 mm wide, 17 mm long)</li> <li>▪ Robust design</li> </ul>	<ul style="list-style-type: none"> <li>▪ Short and long versions (FSA20K-K, FSA20K-L)</li> <li>▪ Narrow head (22 mm wide, 35 mm long)</li> </ul>



**M12 screw connector system**

**Flat bar clamp FSA10K**

France

China

1000 V

1000 V

400/800 A

530 A

- For bare vertical copper busbars (PTV)
- In place of an NH fuse via adapter (BMC...) in IP2X power distribution boxes

For bare or insulated horizontal copper busbars

Modular stand-alone connection system based on M12 screw connection

Version with integrated 16BL or 16BV connector

Compatible with 16BL and 16BL connector systems

Color coding

Replaceable contact claw

- Tested and approved according to TST-BT no. 822, 823, 824 Enedis
- Wide selection of connectors and compatible accessories to cover all types of Utilities applications: CV screw connector, PTV flat bar clamps, EV flush-mounted sockets, BJV junction boxes, etc.

- Long version
- Narrow head (36 mm)
- Claw-type contact element to penetrate busbars insulated with powder coating, tape or heat-shrink tubing

## RAPID CONNECTION SYSTEM FSA20S

# For applications up to 200 A

### For fast, safe connection to busbars in power distribution systems.

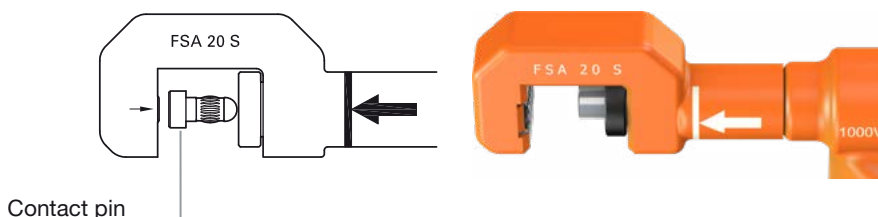
The FSA20S is a space-saving connection solution that's manufactured with a factory pre-assembled connection cable.

This version is ideal for closed systems designed for very tight spaces and operating at a maximum of 200 A. The contact pin can be used to penetrate slightly oxidized busbars, and can be replaced on-site by the user.

### Product features



Rotating connection



### Benefits for customers:

#### Easy servicing, saves time and money:

- Users can replace the contact pin themselves
- Lower maintenance costs
- Long lifespan of the FSA20S

#### Optimized handling and safety:

- Compact design, narrow head
- Rotates through 360°
- Easy access in confined spaces
- Special tool ensures safe installation and removal of flat bar clamps

#### Compatibility and flexibility:

- 10BV and 16BV plug connections
- Cable lug connection
- Special versions as per customer specifications



<b>Technical data<sup>1)</sup></b>	
Rated current	200 A Derating diagram page 46
Rated voltage	1000 V
Short-circuit current	1,75 kA, 1 s
Peak withstand current	4.5 kA, 10 ms
Rated impulse voltage	8 kV
Overvoltage category/Pollution degree (n)	CATIII/3
Insulation coordination	8 kV/3
Insulation material	PVC / POM
Clamping range/max. thickness of busbar	3 mm – 20 mm
Connection type	Fixed cable connection with multiple termination options (see page 10)
Mating cycles	1000–5000 depending on application – further use possible after contact pin replacement
Ambient temperature	-15... +80 °C
Color marking	with colored tape
Based on standards	BG: GS-ET-28 IEC 60664-1:2007, IEC 60529:2013, IEC 61984:2008, IEC 60512-5-2:2002

<sup>1)</sup> Technical data applies only to the flat bar clamp. General specifications may be restricted depending on choice of cable, see derating diagrams on page 46

# Connection variants for FSA20S

Plug combination			
	FSA20S/CS10...	FSA20S/CS16...	FSA20S/CP16...
			
Connection type	KBT10BV-AX/M...	KBT16BV-NS/M40-50...	KST16BV-NS/M40-50...
Intermateable with			
	KST10BV-AX... ID/S10BV-C... IS10BV-C	KST16BV-NS/M... ID/S16BV-NS IS16BV-NS	KBT16BV-NS/M... ID/B16BV-NS-A IB16BV-NS-A
	FSA20S/CL...	FSA20S/C...	
			
	K-SCH...		
			
	Cable lug <sup>1)</sup>	As per customer specifications <sup>1)</sup> see request / order form, page 23	

**Note:**

- Standard length 150 cm, other lengths by request

- For more information about the “KST” connection type, see catalog “Round connectors, single-pole, insulated, Ø 10–21 mm”

<sup>1)</sup> Safety must be ensured by the final product

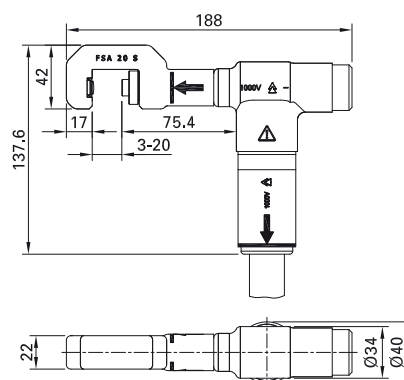
# FSA20S/C...

## With pre-assembled cable up to 200 A

The FSA20S offers multiple connection options for a high degree of flexibility in configuring it to the needs of each application. Standard versions come with 1.5 m cable

length; special versions can also be manufactured according to customer specifications (see order form on page 23).

### FSA20S



Order No.	Type	Connection type	Cable	Conductor cross-section	Rated voltage	* Color
				mm <sup>2</sup>	V	
12.0317C...-150* <sup>1)</sup>	FSA20S/CS10-H35	KBT10BV-AX/M25/25-35-C...	H07RN-F	35	450	
12.0314C...-150* <sup>1)</sup>	FSA20S/CS10-P50	KBT10BV-AX/M25/50-70-C...	Purwil	50	1000	
12.0315C...-150* <sup>1)</sup>	FSA20S/CS10-H50	KBT10BV-AX/M32/50-70-C...	H07RN-F	50	450	
12.0318-150*	FSA20S/CS16-P50	KBT16BV-NS/M40-50	Purwil	50	1000	
12.0319-150*	FSA20S/CP16-P50	KST16BV-NS/M40-50	Purwil	50	1000	
12.0320-150*	FSA20S/CS16-H50	KBT16BV-NS/M40-50H	H07RN-F	50	450	
12.0321-150*	FSA20S/CP16-H50	KST16BV-NS/M40-50H	H07RN-F	50	450	
12.0322-150*	FSA20S/CL-P50	K-SCH50-12	Purwil	50	1000 <sup>2)</sup>	
12.0323-150*	FSA20S/CL-H50	K-SCH50-12/H	H07RN-F	50	450 <sup>2)</sup>	
12.0325-150*	FSA20S/CL-H35	K-SCH35-10/H	H07RN-F	35	450 <sup>2)</sup>	
12.0313-150*	FSA20S/C-H35	-	H07RN-F	35	450 <sup>2)</sup>	
12.0310-150*	FSA20S/C-P50	-	Purwil	50	1000 <sup>2)</sup>	
12.0311-150*	FSA20S/C-H50	-	H07RN-F	50	450 <sup>2)</sup>	

### Accessories

12.0301	FSA20S-WZ	Tool (required)	Page 12
12.0340	FSA20S-KB-10,8-M MT	Contact bolt	Page 12
12.0300	FSA20S-KO/C20	Transport case	Page 13



### User information i204

[www.staubli.com/electrical](http://www.staubli.com/electrical)

\* Please specify the color code

<sup>1)</sup> Add code number (C1 – C5). Standard code is C1

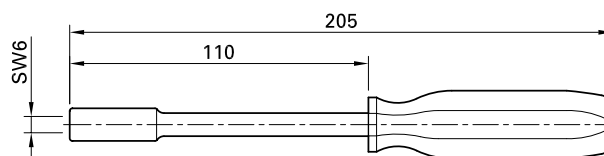
<sup>2)</sup> Safety must be ensured by the final product

## ACCESSORIES FOR FSA20S

# Tool

Safety regulations for working on live equipment must be observed when clamping the FSA onto busbars. To ensure a reliable con-

tact, only the special tool FSA20S-WZ may be used to tighten the FSA.



Order No.	Type	Suitable for
12.0301	FSA20S-WZ	FSA20S

# Replaceable contact element

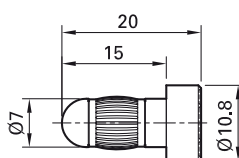
The FSA20S has a contact bolt that can penetrate light to moderate oxide layers on busbars.

The contact bolt is therefore subject to a certain degree of wear and must be re-

placed from time to time. (Users can do this replacement themselves.)

Please note: The FSA must be completely disconnected from the power supply before replacing the contact bolt!

Grasp the head of the contact bolt and pull it out with a slight twisting motion. Insert new contact bolt and push it into place.



Order No.	Type	Description
12.0340	FSA20S-KB-10,8-M MT	Contact bolt

# Transport case

Stable and convenient case for transport and compact storage of FSA20S and accessories. Space for 4 FSA20S units with

standard cable and other useful test accessories.

**Note:**

Case is delivered with no contents



Order No.	Type	Dimensions
		mm
12.0300	FSA20S-KO/C20	475 × 240 × 190

## RAPID CONNECTION SYSTEMS FSA20K

# For applications up to 450 A

The FSA20K rapid connection system is a robust model that is suitable for frequent use up to 450 A. FSA20K is used for fast, safe connection to copper busbars in power distribution systems.

The compact clamp design allows for connection even to connection points in tight

spaces, making it the ideal solution for EU systems.

In the event of wear or damage, users can replace the insulated exchangeable block with integrated Stäubli MULTILAM louver technology very easily by themselves.

The FSA20K is available with a range of connection options (16BL, 16BV, crimp connection), depending on the system configuration.

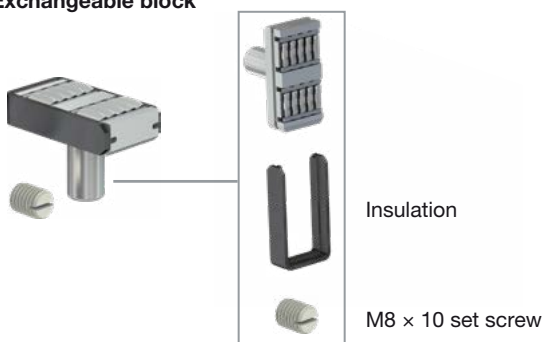


Rapid, easy connection with 16BL round connector system

**Product features**



**Exchangeable block**



360° handle rotation



**Benefits for customers:**

**Service-friendly, saves time and money**

- Users can replace exchangeable block themselves
- Easy replacement of insulation on exchangeable block and guide block
- Lower maintenance costs
- Long lifespan of the FSA20K

**Optimized handling and safety**

- Compact design, narrow head
- 360° rotation reduces strain caused by cable weight
- Easy access in confined spaces
- Perfectly tailored tapping right away
- Special tool ensures safe installation and removal of FSA20K/16BL
- Short and long versions for all connection types

**Simple, compatible, and practical**





- Connects with 16BL and 16BV connector systems
- Compatible with all mechanical codings (C1-C7) of the 16BL
- Convenient transport case available for a complete set (space for four FSAs and one tool).

Technical data <sup>1)</sup>			
	FSA20K/16BL	FSA20K/16BV	Crimp connection
Rated current	450 A Derating diagram page 46		
Rated voltage	1000 V		
Short-circuit current	7.5 kA, 1 s		
Peak withstand current	22 kA, 10 ms		
Rated impulse voltage	12 kV	8 kV	
Overtoltage category/Pollution degree (n)	CATIII/3		
Insulation coordination	12 kV/3	8 kV/3	
Insulation material	PVC / POM		
Clamping range/max. thickness of busbar	Up to 20 mm		
Length options: short...-K-WB/... long ...-L-WB/...	257.5 mm 330 mm		
Connection type	16BL connector	16BV connector	Crimp connection
Mating cycles	1000–5000 depending on application – Further use possible after replacement of exchangeable block		
Ambient temperature	-15... +80 °C		-15...+80°C
Color coding	integrated in plug		Black
Based on standards	BG: GS-ET-28 IEC 60664:2007, IEC 60529:2013, IEC 61984:2008, IEC 60512-5-2:2002		

<sup>1)</sup> Technical data applies only to the flat bar clamp. General specifications may be restricted depending on choice of cable, see derating diagrams on page 46



# Connection variants for FSA20K

Plug combination		
<p>FSA20K-...-WB/16BL-CP</p> 	<p>FSA20K-...-WB/IS16BV-NS</p> 	<p>FSA20K-...-WB/IB16BV-NS</p> 
<p>16BL-CS</p> 	<p>KBT16BV-NS/M...</p> 	<p>KST16BV-NS/M...</p> 
<p>FSA20K-...-WB/P...</p> 	<p>FSA20K-...-WB/P...H</p> 	
<p>For Class 6 cables (e.g. Purwil)</p>	<p>For Class 5 cables (e.g. H07RN-F)</p>	

**Note:**

For more information about the “KST” connection type, see catalog “Round connectors, single-pole, insulated, Ø 10–21 mm”

# FSA20K-...-WB/...

## With integrated connector

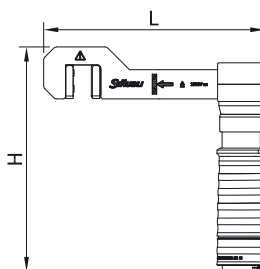
FSA20K-...-WB/... rapid connection systems come standard with an integrated color-coded plug connection and ready for immediate use, so they're easy and intuitive

to use with an existing 16BL or 16BV connector system.

### Benefits:

- Ready for immediate use
- Space-saving design
- Excellent safety features
- Compatible with 16BL and 16BV connector systems

### FSA20K-...-WB/16BL-CP



Order No.	Type	Suitable for	Height H	Length L	* Color
-----------	------	--------------	----------	----------	---------

#### Short version

12.1332-*	FSA20K-K-WB/16BL-CP	16BL-CS	243 mm	257.5 mm	
12.1327-*	FSA20K-K-WB/IS16BV-NS	KBT16BV-NS/M...	178 mm		
12.1326-*	FSA20K-K-WB/IB16BV-NS	KST16BV-NS/M...	187 mm		

#### Long version

12.1333-*	FSA20K-L-WB/16BL-CP	16BL-CS	243 mm	330 mm	
12.1329-*	FSA20K-L-WB/IS16BV-NS	KBT16BV-NS/M...	178 mm		
12.1328-*	FSA20K-L-WB/IB16BV-NS	KST16BV-NS/M...	187 mm		

#### Accessories

12.0501	FSA20-WZ	Torque wrench	Page 20	
12.0521	FSA20K-TK	Transport case (empty)	Page 20	
12.0502	FSA20-SHZ-KP	Protective cover	Page 21	
15.5882	16BL-CP/PC	Protective cover	Page 21	
15.5268	DBT-KBT16-NS	Protective cover	Page 21	
15.5272	DST16-NS	Protective cover	Page 21	
12.1330	FSA20K-WB SET	Exchangeable block set (including insulation and M8x100 set screw)	Page 22	
12.1331	FSA20/I-WB SET	Insulation (10-piece set)	Page 22	



Available by request



Assembly instructions MA090

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User information i400

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\* Please specify the color code

# FSA20K-...-WB/P...

## With crimp connection

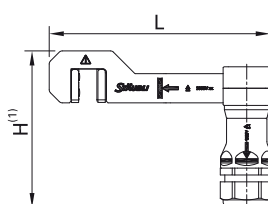
FSA20K-...-WB/P rapid connection systems are designed for connection to a cable with an appropriate crimping sleeve. Installation can be done at the user's site. For improved

safety and convenience, customer-specific pre-assembled solutions can also be manufactured at our factory (see request form, page 23).

### Benefits for customers:

- Flexibility
- Optimal price/performance ratio

### FSA20K-...-WB/P...



Short version			Long version				
Order No.	Type	Length L	Order No.	Type	Length L	Conductor cross-section	Color
		mm			mm	mm <sup>2</sup>	

#### For Class 6 cables (e.g. Purwil)

12.1300	FSA20K-K-WB/P50	257.5	12.1306	FSA20K-L-WB/P50	330	50	21
12.1301	FSA20K-K-WB/P70		12.1307	FSA20K-L-WB/P70		70	
12.1302	FSA20K-K-WB/P95		12.1308	FSA20K-L-WB/P95		95	
12.1303	FSA20K-K-WB/P120		12.1309	FSA20K-L-WB/P120		120	
12.1304	FSA20K-K-WB/P150		12.1310	FSA20K-L-WB/P150		150	
12.1305	FSA20K-K-WB/P185		12.1311	FSA20K-L-WB/P185		185	

#### For Class 5 cables (e.g. H07RN-F)

12.1312	FSA20K-K-WB/P50H	257.5	12.1319	FSA20K-L-WB/P50H	330	50	21
12.1313	FSA20K-K-WB/P70H		12.1320	FSA20K-L-WB/P70H		70	
12.1314	FSA20K-K-WB/P95H		12.1321	FSA20K-L-WB/P95H		95	
12.1315	FSA20K-K-WB/P120H		12.1322	FSA20K-L-WB/P120H		120	
12.1316	FSA20K-K-WB/P150H		12.1323	FSA20K-L-WB/P150H		150	
12.1317	FSA20K-K-WB/P185H		12.1324	FSA20K-L-WB/P185H		185	
12.1318	FSA20K-K-WB/P240H		12.1325	FSA20K-L-WB/P240H		240	

#### Accessories

12.0501	FSA20-WZ	Torque wrench	Page 20
12.0521	FSA20K-TK	Transport case (empty)	Page 20
12.0502	FSA20-SHZ-KP	Protective cover	Page 21
12.1330	FSA20K-WB SET	Exchangeable block set (including insulation and M8x100 set screw)	Page 22
12.1331	FSA20/I-WB SET	Insulation (10-piece set)	Page 22



Montageanleitung MA090, MA093

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User information i400

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<sup>1)</sup> 152 mm to 164 mm, depending on version

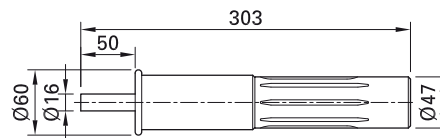
## ACCESSORIES FOR FSA20K

# Torque wrench

The tool meets the requirements of the EN 60900 standard, and comes standard with the appropriate preset torque value to en-

sure safe and accurate installation and removal of flat bar clamps.

### FSA20-WZ



Order No.	Type	Suitable for
12.0501	FSA20-WZ	FSA10K, FSA20K

# Transport case

Case with pre-cut foam insert for transport and storage of 4 FSA20... pluggable flat bar

clamps. The case also contains a plastic box for test accessories.

**Note:**

- Case is delivered with no contents

### FSA20K-TK



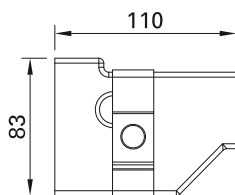
Order No.	Type
12.0521	FSA20K-TK

# Protective cover

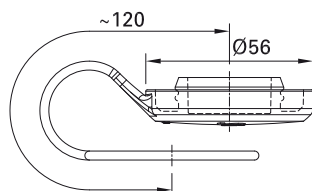
To protect the FSA20K from dust, moisture penetration, etc., the use of protective covers for the clamp and connectors is recom-

mended. This helps to further extend the system's lifespan.

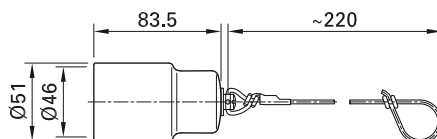
## FSA20-SHZ-KP



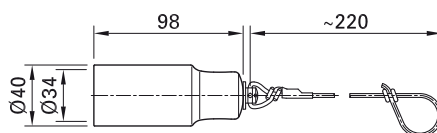
## 16BL-CP/PC



## DBT-KBT16-NS



## DST16-NS



Order No.	Type	Suitable for	Page
12.0502	FSA20-SHZ-KP	Clamp, FSA20K...	18
15.5882	16BL-CP/PC	FSA20K.../16BL-CP	18
15.5268	DBT-KBT16-NS	FSA20K-K-WB/IB16BV-NS	18
15.5272	DST16-NS	FSA20K-K-WB/IS16BV-NS	18

# Exchangeable block set

For on-site replacement by user. The exchangeable block helps to lower maintenance costs and ensure continued use of the overall system.

**FSA20K-WB SET**



**FSA20/I-WB SET**



Order No.	Type	Description
12.1330	FSA20K-WB SET	Exchangeable block set (including insulation and M8x100 set screw)
12.1331	FSA20/I-WB SET	Insulation set (10-piece set)



Assembly instructions MA090

[www.staubli.com/electrical](http://www.staubli.com/electrical)

## Related Stäubli catalog

Round connectors,  
single-pole, insulated,  
Ø 10–21 mm

Ideal for high-voltage test equipment and  
emergency power supply





## M12 SCREW CONNECTOR SYSTEM

# For applications up to 800 A

M12 screw connectors were specially developed for Enedis but can be used anywhere that safe, fast connections are needed in low-voltage installations.

Equipment tested and approved for TST-BT no. 822, 823, 824.

CV...  
Page 25



PTV...  
Page 26



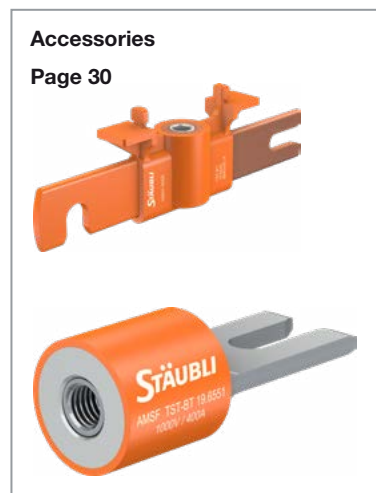
EV400  
Page 28



BJV...400/M12  
Page 29



Accessories  
Page 30



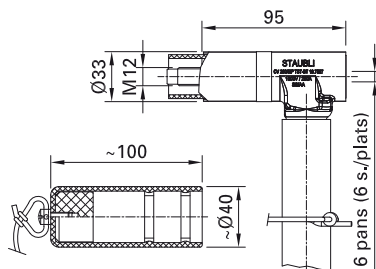


# CV... screw connectors

CV screw connectors have the shape of an M12 threading tool that can be screwed into a “mounting element” with an M12 thread. The mechanical and electrical functions are

distinct. As a result, the cable outlet turns and can be oriented according to the user’s needs. In addition, it is impossible to accidentally pull out a plug screwed to a bar, cir-

cuit board, etc. The plug is screwed onto the counterpart using an insulated pin wrench equipped with an 18 N m torque limiter.



## Technical data<sup>1)</sup>

Rated voltage	1000 V
Peak withstand current	30 kA, 10 ms
Insulation coordination	10 kV/3
Insulation material	PVC / POM
Degree of protection	IP2X
Technical datasheet	TST-BT823
Tightening torque	18 N m <sup>2)</sup>
Cable connector	Crimping
Cable marking with bushings	L1, L2, L3, N

Order No.	Type	Conductor cross-section	Rated current	Short-circuit current
		mm <sup>2</sup>	A	kA, 1 s
19.7867 <sup>-3)</sup>	CV110/16	16	110	2.5
19.7870 <sup>-3)</sup>	CV110/25	25	110	4
19.7871 <sup>-3)</sup>	CV110/35	35	110	5.5
19.7897 <sup>-3)</sup>	CV250/50	50	250	7.5
19.7898 <sup>-3)</sup>	CV250/70	70	250	7.5
19.7899 <sup>-3)</sup>	CV250/95	95	250	7.5
19.7900 <sup>-3)</sup>	CV400/120	120	400	15
19.7901 <sup>-3)</sup>	CV400/150	150	400	15

## Accessories

19.5509	CLC	Torque wrench	35
19.7909	BOU-CV	Protective cover	35



## Assembly instructions MA052

[www.staubli.com/electrical](http://www.staubli.com/electrical)

<sup>1)</sup> Technical data provided only for the pluggable connector. General specifications may be restricted depending on choice of cable, see derating diagrams on page 46

<sup>2)</sup> Torque wrench, see page 35

<sup>3)</sup> Please specify cable marking bushing L1, L2, L3 or N

# Rapid connection system PTV...

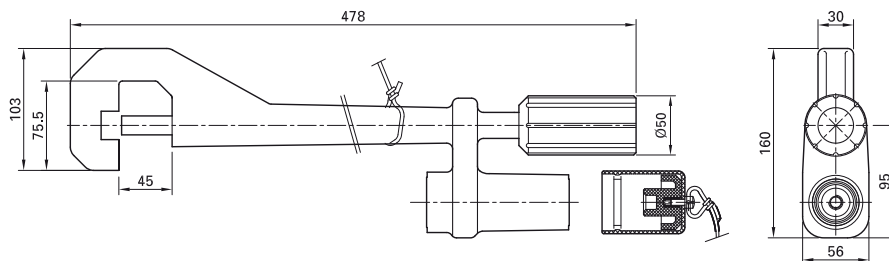
Turning the black handle clamps the rapid connection system in place on the busbar.

Its geometry allows for installation between low-voltage fuses and busbar mounting screws.

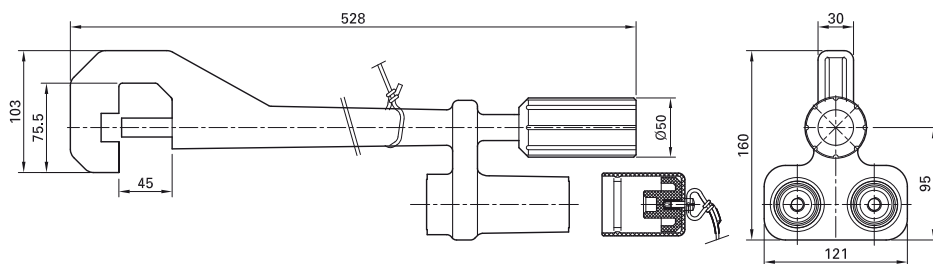
**Connection:**

For one or two screw connectors M12.

**PTV1400**



**PTV2400**



Order No.	Type	Rated current	Intermateable with	Page
		A		
19.7895	PTV1400	400	CV...	25
19.7896	PTV2400	800	CV...	25

**Accessories**

19.7922	BOU-PTV	Protective cover	35
---------	---------	------------------	----

**Technical data<sup>1)</sup>**

Rated voltage	1000 V
Short-circuit current	12 kA, 1 s
Peak withstand current	30 kA, 10 ms
Insulation coordination	10 kV/3
Insulation material	PVC / POM
Degree of protection	IP2X
Technical datasheet	TST-BT822



**Assembly instructions MA053**

[www.staubli.com/electrical](http://www.staubli.com/electrical)

<sup>1)</sup> Technical data provided only for the pluggable connector. General specifications may be restricted depending on choice of cable, see derating diagrams on page 46

**VAT-PTV1400**



Transport case with 4 flat bar clamps PTV1400

**VAT-PTV2400**



Transport case with 4 flat bar clamps PTV2400

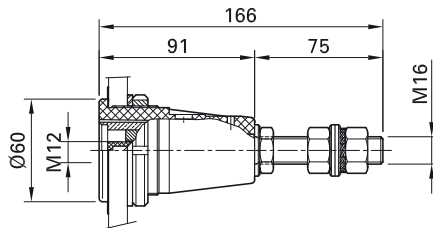
Order No.	Type
<b>19.5512</b>	VAT-PTV1400
<b>19.5513</b>	VAT-PTV2400

# Flush-mounted socket EV400

Flush-mounted sockets with IP2X protection for M12 screw connectors, type CV/... for use in switch cabinets or power distribution boxes.

The electrical connection is made with a cable lug or a busbar. The socket comes standard with a protective cover

(PL-PC-1021SET) marked with a coding disk with the codes L1, L2, L3 or N.



Order No.	Type	Intermateable with	Page	Marking code on coding disk
19.7902-*	EV400	CV...	25	20 21 22 23 24 25 26 27 28 29 L1 L2 L3 N

## Accessories

14.5252-*	PL-PC-1021SET	Protective cover (included in delivery)	36
14.5019	ID16BV-WZ	Installation tool	37

## Technical data

Rated current	400 A
Rated voltage	1000 V
Short-circuit current	15 kA, 1 s
Peak withstand current	50 kA, 10 ms
Insulation coordination	10 kV/3
Insulation material	PVC / POM
Degree of protection	IP2X
Technical datasheet	TST-BT823
Tightening torque	15 N m <sup>1)</sup>



Protective cover PL-PC-1021SET, page

36



Assembly instructions MA054

[www.staubli.com/electrical](http://www.staubli.com/electrical)

\* Please specify the marking code in place of the "\*\*"

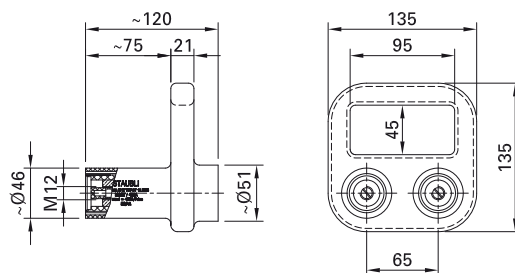
<sup>1)</sup> When tightening the round nut

# Junction box BJV...400/ M12

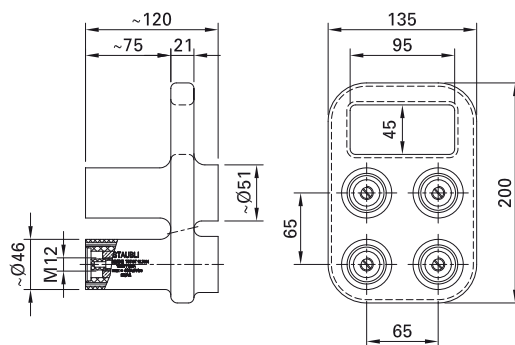
For cable extensions and parallel connection of up to 4 <sup>1)</sup> screw connectors M12 (type CV...), see page 25. All connections are on

the same potential. The number of inputs must be greater than or equal to the number of outputs.

## BJV2 400/M12



## BJV4 400/M12



Order No.	Type	No. of inputs/outputs	Rated current	Short-circuit current	Peak withstand current	Page
			A	kA / 1 s	kA / 10 ms	
19.7903	BJV2 400/M12	2	400	15	50	
19.7904	BJV4 400/M12	4	800	30	100	

### Accessories

19.7922	BOU-PTV	Protective cover				35
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### Technical data

Rated voltage	1000 V
Insulation coordination	10 kV/3
Insulation material	PVC / POM
Degree of protection	IP2X
Technical datasheet	TST-BT823



### Assembly instructions MA055

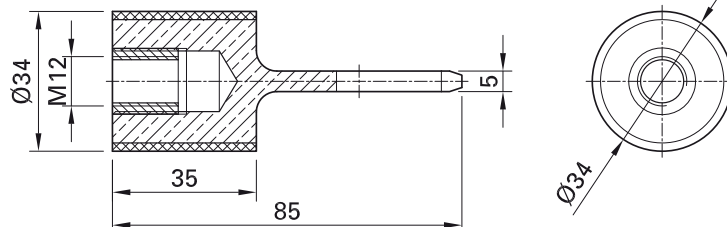
[www.staubli.com/electrical](http://www.staubli.com/electrical)

<sup>1)</sup> Junction box with 5 to 8 inputs/outputs, upon request

ACCESSORIES FOR SCREW CONNECTORS M12

# Adapter for clamping jaw AMSF

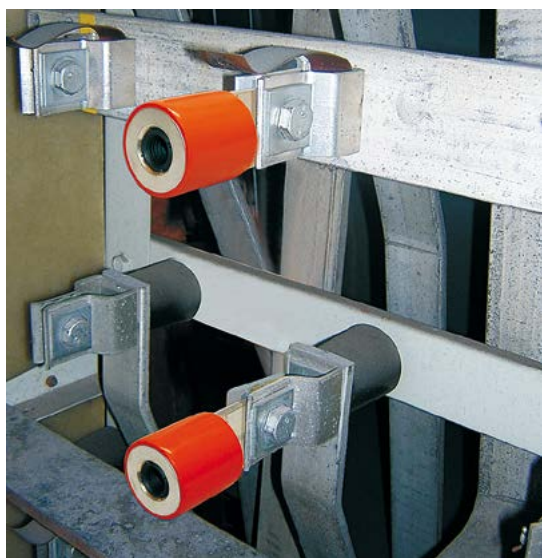
For insertion in the clamping jaws of fuse holders etc. when the fuse is pulled out.



Order No.	Type	Intermateable with	Page
19.6551	AMSF	CV...	25

**Technical data**

Rated current	400 A
Rated voltage (assembled with CV...)	1000 V
Short-circuit current	6 kA, 1 s
Peak withstand current	50 kA, 10 ms
Insulation material	PVC
Technical datasheet	TST-BT824

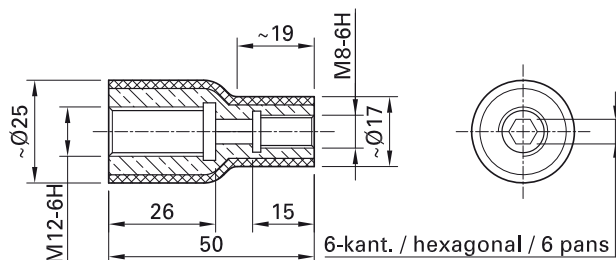


Assembly instructions MA056

[www.staubli.com/electrical](http://www.staubli.com/electrical)

# Adapter for threaded bolt AF8/12

Screws onto threaded bolt M8.



Order No.	Type	Intermateable with	Page
19.6541	AF8/12	CV...	25

## Technical data

Rated current	200 A
Rated voltage (assembled with CV...)	1000 V
Short-circuit current	6 kA, 1 s
Peak withstand current	50 kA, 10 ms
Insulation material	PVC
Technical datasheet	TST-BT824



Assembly instructions MA057

[www.staubli.com/electrical](http://www.staubli.com/electrical)

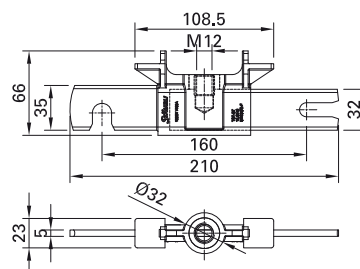
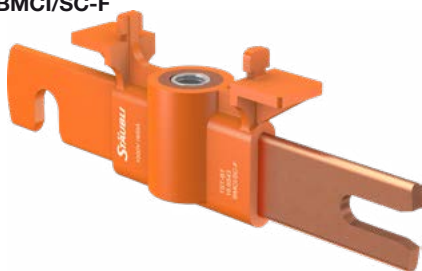
# Adapter rails for fuse holders with screw clamping BMCI/...F

For insertion in place of plug-in fuses in distribution boxes in low-voltage installations. The connection is made with M12 screw connectors.

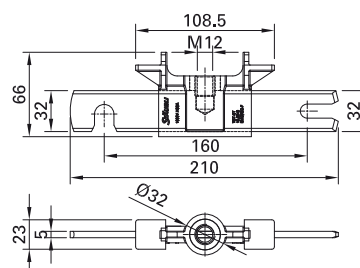
**Advantages:**

- Compatible with CV... plug connectors via M12 screw connector
- Versions with insulation on one side or conductive on both sides
- Safe, easy installation with use of PEB-PM holder

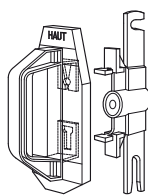
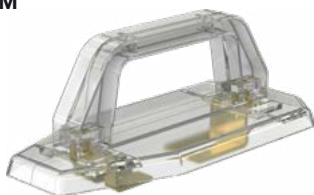
**BMCI/SC-F**



**BMCI/EC-F**



**PEBPM**



Order No.	Type	Intermateable with	Page	Rated voltage	Insulation coordination
				V	kV / 3
19.6543	BMCI/SC-F	CV...	25	1000	3.5
19.6549	BMCI/EC-F	CV...	25	1000	3.5
19.6545	PEBPM	BMCI/...F	32	-	-

Technical data	
Rated current	400 A
Short-circuit current	6 kA, 1 s
Peak withstand current	50 kA, 10 ms
Insulation material	PC
Technical datasheet	TST-BT824



**Assembly instructions MA058**  
[www.staubli.com/electrical](http://www.staubli.com/electrical)

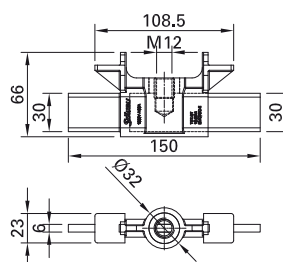


# Adapter rails for fuse holders with spring-loaded fork plug BMCI/...E

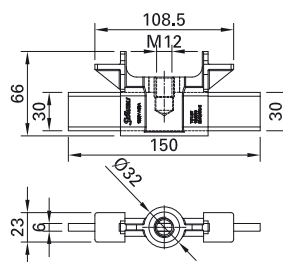
For insertion in place of plug-in fuses in distribution boxes in low-voltage installations.

The connection is made with M12 screw connectors.

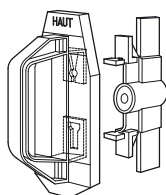
## BMCI/SC-E



## BMCI/EC-E



## PEBPM



Order No.	Type	Intermateable with	Page	Rated voltage	Insulation coordination
				V	kV / 3
19.6544	BMCI/SC-E	CV...	25	1000	3.5
19.6550	BMCI/EC-E	CV...	25	1000	3.5
19.6545	PEBPM	BMCI/...E	33	-	-

Technical data	
Rated current	400 A
Short-circuit current	6 kA, 1 s
Peak withstand current	50 kA, 10 ms
Insulation material	PC
Technical datasheet	TST-BT824



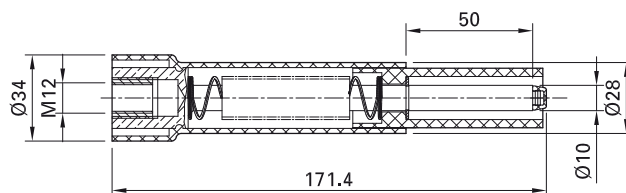
Assembly instructions MA059

[www.staubli.com/electrical](http://www.staubli.com/electrical)

# Connection plug with retractable insulation ARFR

For connection to an overhead-line tap connector, type CDR/CT, CDR/CNU, CD 74 CG or CP. The Ø 10 mm plug connector is

45 mm long and touch-protected with a retractable sleeve.



CDR / CT...

Order No.	Type	Intermateable with	Page
19.6542	ARFR	CV...	25

Technical data	
Rated current	250 A
Rated voltage	1000 V
Short-circuit current	6 kA, 1 s
Peak withstand current	50 kA, 10 ms
Insulation coordination	2.5 kV/3
Insulation material	PVC / POM
Technical datasheet	TST-BT824

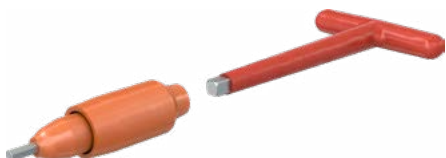


Assembly instructions MA060

[www.staubli.com/electrical](http://www.staubli.com/electrical)

# Torque wrench CLC

Insulated hex key for tightening screw connectors CV... With integrated torque limiter (18 N m). Includes transport case.



Order No.	Type	Suitable for	Page
19.5509	CLC	CV...	25

# Protective cover BOU-...

The plastic protective cover slips onto an unmated connector to protect against dust

and water spray. A cord can be used to attach the cap to the insulation of the connector to prevent loss.

**BOU-...**



Order No.	Type	Suitable for	Page
19.7909	BOU-CV	CV...	25
19.7922	BOU-PTV	PTV1400, PTV2400, BJV2, BJV4	26, 29

# Cleaning tool CT M12

One side is used for cleaning the screw connector's contact surfaces, the other for cleaning the M12 thread.



Order No.	Type	Suitable for	Page
19.5524	CT M12	CV..., EV400	25, 28



Assembly instructions MA061

[www.staubli.com/electrical](http://www.staubli.com/electrical)

# Protective cover PL-PC-1021SET

Spring-loaded hinged cover for flush-mounted socket EV400. Can be locked with a padlock (not included).



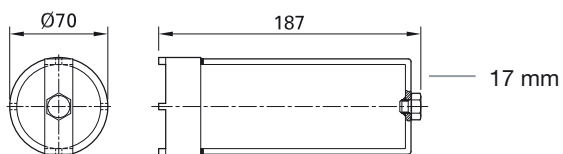
Order No.	Type	Suitable for	Page	Marking code on coding disk
14.5252-*	PL-PC-1021SET	EV400	28	

\* Specify desired marking code

# Installation tool ID16BV-WZ

Stäubli recommends a tightening torque of 15 N m when installing flush-mounted

socket EV400. To do this, Stäubli offers an installation tool with a 17 mm hex nut.



Order No.	Type	Suitable for	Page
14.5019	ID16BV-WZ	EV400	28

## RAPID CONNECTION SYSTEM FSA10K

# For parallel and insulated busbars up to 530 A

The FSA10K was developed especially for the Asian market. Its optimal design and small clamp dimensions allow for use between parallel busbars. These flat bar clamps have contact claws that can penetrate busbars' outer insulation. The claws can be replaced by the user on-site, reduc-

ing maintenance costs. The integrated plug is compatible with 16B... plug connector systems for excellent safety and easy handling.

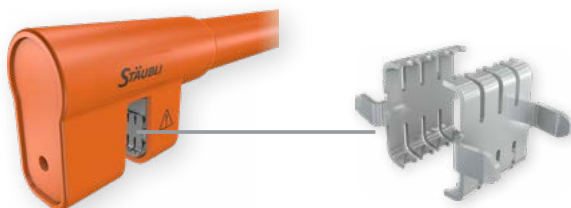
### Specific solution for:

- Parallel busbars
- Busbars insulated with powder coating, tape or heat-shrink tubing

### FSA10K/16BL



**Product features:**



**Patented replaceable contact claw**



**Extra-narrow head and long construction.**

**Connects with 16BL or 16BV systems.**



**360° handle rotation.**



**Benefits for customers:**

**Easy servicing and time savings**

- Penetrates insulated or powder-coated busbars
- Contact elements are easy to replace in case of damage or wear

**Maximum flexibility**

- For connecting multiple busbars
- Easy access in confined spaces
- Suitable for use with single-pole high-current connectors

**Easy handling:**

- Allows for optimal access
- Reduces forces at contact area

**Compatibility with 16BL system offers increased user safety:**

- Color coding
- 45° bayonet lock
- Locking pin prevents accidental unplugging

**Rapid, safe mounting on busbars**

A torque limiter is used to safely install the FSA10K and remove it from busbars.

Technical data <sup>1)</sup>		
	FSA10K/16BL	FSA10K/16BV
Rated current	530 A	
Rated voltage	1000 V	
Short-circuit current	12 kA, 1 s; 10 kA, 3 s; 9 kA, 4 s	12 kA, 1 s; 10 kA, 3 s
Rated peak withstand current	30 kA, 10 ms	22 kA
Rated impulse voltage	12 kV	8 kV
Overvoltage category/Pollution degree	CAT III/3	
Ambient temperature range	-40°C...+80°C	
Clamping range	2 mm – 10 mm	
Thickness of busbar	5 mm <sup>2)</sup> – 10 mm	
Required contact area on each side of the busbar	40 mm x 35 mm	
Type of termination	Plug connection 16BL	Socket connection 16BV
Length	500 mm	
For bare or insulated busbars		
Max. busbar insulation: – Powder-coating thickness	0.15 mm	
– Insulating tape	0.2 mm	
– Heat-shrink tubing	1 mm	
Operating cycles	>1000, depending on conditions (replaceable contact claw)	


**Montageanleitung MA400, MA407**
[www.staubli.com/electrical](http://www.staubli.com/electrical)

<sup>1)</sup> Technical data applies only to the connector. General specifications may be restricted depending on choice of cable, see derating diagrams on page 46

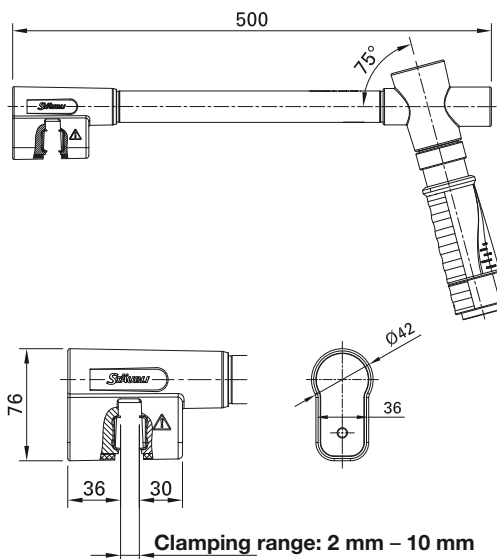
<sup>2)</sup> The busbars need to be supported adequately to prevent twisting.



## For parallel and insulated busbars

FSA10K/... rapid connection systems are designed for safe connection to parallel busbars, specifically in the Asian market. FSA10K/... rapid connection systems come

standard with an integrated color-coded plug connection and ready for immediate use, so they're easy and intuitive to use with an existing 16BL or 16BV connector system.



Order No.	Type	Description	Suitable for	*Colors
12.1278-*	FSA10K/16BL-CP-SET	Rapid connection system with integrated 16BL plug	16BL-CS	22 23 24 25 <sup>1)</sup>
12.1274-*	FSA10K/16BV-SET	Rapid connection system with integrated 16BV socket	KST16BV	21 22 23 24 25 <sup>1)</sup>

### Accessories

			Suitable for
12.0501	FSA20-WZ	Torque wrench tool, 10 N m	FSA10K/16B...
12.1275	K-F-FSA10K CONTACT CLAW AG-SET	Contact claw set (1 pair)	FSA10K/16B...
15.5882	16BL-CP/PC	Protective cover to protect the connectors from dust and water when unmated	FSA10K/16BL...
15.5268	DBT-KBT16NS	Protective cover to protect the connectors from dust and water when unmated	FSA10K/16BV...
12.1279	FSA10K/16BL-TC	Transport case with trolley, empty, suited for 4 x FSA10K/16BL + 1 x FSA20-WZ	FSA10K/16BL...
12.1276	FSA10K-TC	Transport case, empty suited for 4 x FSA10K/16BV + 1 x FSA20-WZ	FSA10K/16BV...



### Montageanleitung MA400, MA407

[www.staubli.com/electrical](http://www.staubli.com/electrical)

\* Add the desired color code

<sup>1)</sup> Additional colors upon request

## CRIMPING

# Tips for crimping with crimping sleeves

Stäubli recommends ELPRESS hexagonal crimping. The dimensions of the crimping sleeves, and the crimping inserts supplied by ELPRESS, are designed for crimping Class 6 <sup>1)</sup> flexible conductors (Purwil).

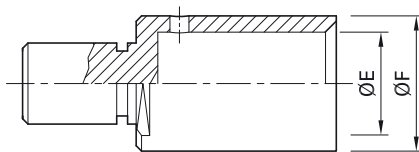
In response to the increased use of Class 5 <sup>1)</sup> conductors with reduced flexibility and therefore a smaller conductor diameter (e.g. H07RN-F), a new range of connectors with a crimping sleeve designed for use with these

conductors has been added to our product range. The new crimping sleeves guarantee a perfect connection in terms of both contact resistance and pull-out strength.

### Crimping sleeve



Material: CU-ETP, Ag



Order No.	Plug type	Conductor cross-section	Inside Ø E	Outside Ø F	Crimping pliers	Order No. – Crimping pliers	Crimping insert	Order No. – Crimping insert	Assembly instructions
		mm <sup>2</sup>	mm	mm					

#### For flexible Class 6 <sup>1)</sup> cables (e.g. Purwil)

12.1300	FSA20K-K-WB/P50	50	11	14.5	M-PZ-T2600	18.3710	TB11-14,5	18.3713	MA226
12.1301	FSA20K-K-WB/P70	70	13	17	M-PZ-T2600	18.3710	TB8-17 <sup>3)</sup>	18.3711	
12.1302	FSA20K-K-WB/P95	95	15	20	M-PZ-T2600	18.3710	TB7-20 <sup>3)</sup>	18.3714	
12.1303	FSA20K-K-WB/P120	120	17	22	V1311C <sup>2)</sup>		B22 (V1330)	–	MA069
12.1304	FSA20K-K-WB/P150	150	19	25	V1311C <sup>2)</sup>		B25 (V1330)	–	
12.1305	FSA20K-K-WB/P185	185	21	27	V1311C <sup>2)</sup>		13CB27 <sup>3)</sup>	–	

#### For flexible Class 5 <sup>1)</sup> cables (e.g. H07RN-F)

12.1312	FSA20K-K-WB/P50H	50	10	14	M-PZ-T2600	18.3710	TB12-14	<sup>2)</sup>	MA226
12.1313	FSA20K-K-WB/P70H	70	12	16	M-PZ-T2600	18.3710	TB10-16	<sup>2)</sup>	
12.1314	FSA20K-K-WB/P95H	95	13.5	18	M-PZ-T2600	18.3710	TB8-18	<sup>2)</sup>	
12.1315	FSA20K-K-WB/P120H	120	15	19	V1311C <sup>2)</sup>		B19	–	MA069
12.1316	FSA20K-K-WB/P150H	150	17	22	V1311C <sup>2)</sup>		B22 (V1330)	–	
12.1317	FSA20K-K-WB/P185H	185	19	24	V1311C <sup>2)</sup>		13CB24 <sup>3)</sup>	–	
12.1318	FSA20K-K-WB/P240H	240	21	26	V1311C <sup>2)</sup>		13CB26	–	

### M-PZ-T2600



### V1311C



<sup>1)</sup> In accordance with IEC 60228:2004

<sup>2)</sup> Not delivered by Stäubli

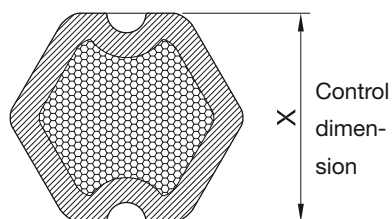
<sup>3)</sup> 2 crimps required

## Evaluating crimping results

The deformation of the crimping sleeve can be used to evaluate whether crimping was performed correctly with the tool. Use a cal-

iper to measure the dimension X across the hex flats where the crimp die has made an impression (see diagram below). The mea-

sured dimension X should match the control dimension in the table.



Conductor cross-section	Crimping pliers	Order No. – Crimping pliers	Crimping insert	Order No. – Crimping insert	Control dimension X
mm <sup>2</sup>					mm

### For flexible Class 6 <sup>1)</sup> cables

50	M-PZ-T2600	<b>18.3710</b>	TB11-14,5	<b>18.3713</b>	11.4
70	M-PZ-T2600	<b>18.3710</b>	TB8-17	<b>18.3711</b>	13.4
95	M-PZ-T2600	<b>18.3710</b>	TB7-20	<b>18.3714</b>	15.8
120	V1311C <sup>2)</sup>		B22 (V1330)	–	16.3
150	V1311C <sup>2)</sup>		B25 (V1330)	–	20.3
185	V1311C <sup>2)</sup>		13CB27 <sup>3)</sup>	–	20.5

### For flexible Class 5 <sup>1)</sup> cables

50	M-PZ-T2600	<b>18.3710</b>	TB12-14	<sup>2)</sup>	11.6
70	M-PZ-T2600	<b>18.3710</b>	TB10-16	<sup>2)</sup>	13.2
95	M-PZ-T2600	<b>18.3710</b>	TB8-18	<sup>2)</sup>	14.0
120	V1311C <sup>2)</sup>		B19	–	15.4
150	V1311C <sup>2)</sup>		B22 (V1330)	–	16.3
185	V1311C <sup>2)</sup>		13CB24 <sup>3)</sup>	–	17.7
240	V1311C <sup>2)</sup>		13CB26	–	19.5

<sup>1)</sup> In accordance with IEC 60228:2004

<sup>2)</sup> Not delivered by Stäubli

<sup>3)</sup> 2 crimps required



Assembly instructions MA077

[www.staubli.com/electrical](http://www.staubli.com/electrical)

ANHANG

# Technical notes

**MULTILAM**

For a technical description of electrical contacts with MULTILAM, see our catalog "MULTILAM – Technical overview".

**Rated current** (IEC 61984:2008)

Current value determined by Stäubli that the connector can conduct continuously and simultaneously through all its contacts connected to the largest specified conductors, at an ambient temperature of 40 °C, without exceeding the upper temperature limit.

**Rated voltage** (IEC 61984:2008)

For connectors, the voltage determined by Stäubli to which operating and performance characteristics refer.

**Note:** A connector may have more than one rated voltage value.

**Contact resistance**

is the resistance occurring at the point where two contact surfaces touch. Its value is calculated using the measured voltage drop at the rated current.

The value specified in the catalog refers to contact resistance in new condition.

**Test voltage**

The voltage that a connector can withstand under the determined conditions without breakdown or flashover.

**Peak withstand current**

As defined by IEC 60909:2016.

**Insulation coordination**

according to IEC 60664-1:2007. The values in the tables indicate the rated impulse voltage in kV and the degree of pollution.

**Used plastics**

Initials	Material designation	Temperature °C
PA	Polyamide	-40...+80
POM	Polyoxymethylene	-40...+100
PVC	Polyvinyl chloride	-15...+80
PC	Polycarbonate	-15...+80

**Lubricants**

Stäubli recommends the following lubricants:

**Grease (general elec. contacts):**

Klübertemp GR UT 18 – 100 g (73.1059)

Kontasynt BA100 Spray (73.1051)\*

**Grease in SF6 gas:**

Barrierta I EL-102\*

**Assembly and sealing grease:**

Barrierta I S-402 or Barrierta I MI-202\*

**Mating cycles**

The max. mating frequency of the standard connector is 1000 to 5000 connections, depending on use conditions. This requires a thin lubricant film on the contacts before the first mating. Higher mating cycles put stress on the surface, the guide and the lubrication, and always necessitate special clarifications and special versions.

**Crimp connection**

For conductor connections, we recommend hexagonal crimping for our crimping sleeves. Our crimping sleeves are designed for highly flexible Cu conductors. For other types of conductors, special crimping sleeves are required. Stäubli recommends Elpress or similar brands for all highly-flexible Cu conductors.

**Note:** Stäubli also manufactures fully pre-assembled leads and cables!

\* from Klüber Lubrication, Munich

# Safety instructions

## Basic protection against electric shock (IEC 61140:2016)

Hazardous live parts shall not be accessible, and accessible conductive parts shall not be dangerous when live:

- either under normal conditions (operation in intended use and in the absence of a fault),
- or under single-fault conditions, e.g. faulty basic insulation.

## IEC 61984:2008 “Connectors – Safety requirements and tests”

This international standard applies to connectors with rated voltages from 50 V to 1000 V and rated currents up to 125 A per contact, for which either no detailed specification (DS) exists or for which the DS refers to this standard for safety aspects.

### BG: GS-ET-28

Hand tools for working on live parts up to 1 kV AC and 1.5 kV DC.

### IEC 60529:2013

Degrees of protection provided by enclosures (IP code)

## Extracts from IEC 61984:2008 and remarks

### 1) Plug connectors

Contacts are not under voltage or under load/current when connecting or disconnecting. An electrical or mechanical interlock can prevent contacts from becoming live before the connector is plugged in or pulled out. An interlock can be obtained with a microswitch.

### Protection against electric shock for unenclosed connectors

Protection is ensured by the customer in the final product in which the connectors are installed, or a safety extra-low voltage (SELV) shall be applied.

### Protection against electric shock for enclosed connectors

- Mated condition: clearance and creepage distances are measured between live parts and the IEC probe with a test force of 20 N.
- Unmated condition, contact openings: clearance and creepage distances are considered.

For a plug connector with breaking capacity, clearance and creepage distances are measured through the openings between the live parts and the plane of the mating face.

### 2) Plug-in devices

When connecting or disconnecting, contacts are under voltage only; however, contacts are not under load, and carry no current. Plug-in devices must have the stated breaking capacity or must be so designed that they can only be connected and disconnected in the absence of load (current). This can be achieved by means of an interlock, e.g. a microswitch. A microswitch can be installed on the fixed part of the plug connector.

- Mated condition: clearance and creepage distances are measured between live parts and the IEC probe.
- Unmated condition: contact openings: clearance and creepage distances are measured between live parts and the plane of the mating face. Does not apply to the male part of the connector.

### 3) Connector with breaking capacity

(CBC). Contacts are under voltage and current (load) flows through the contacts when connecting or disconnecting. Stäubli connectors are not suitable for connection or disconnection under load. No breaking capacity can be specified.

# Derating diagrams

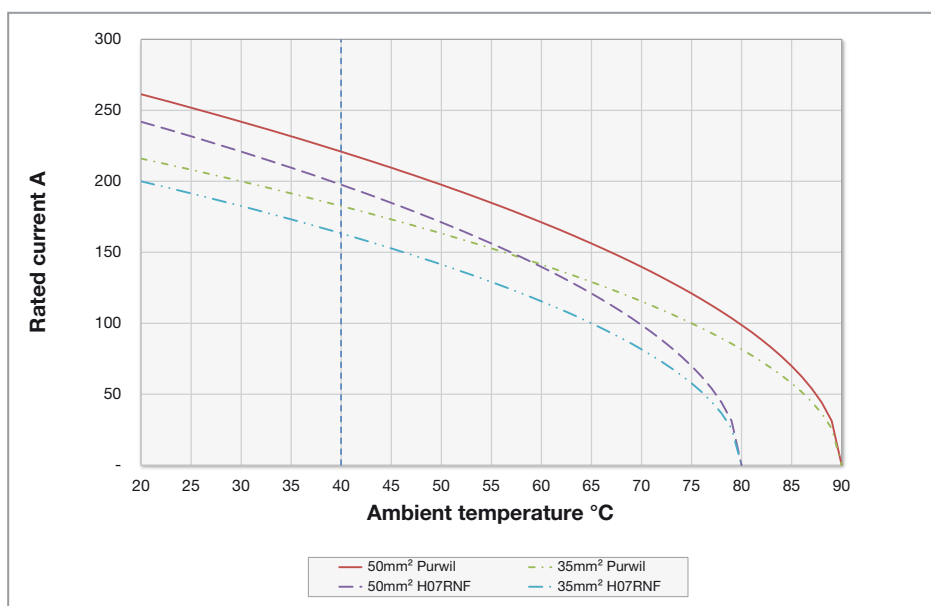
## Per IEC 60512-5-2:2002

The diagrams show the current-carrying capacity values applicable for use at different ambient temperatures. A reduction factor of 0.9 was used as a basis.

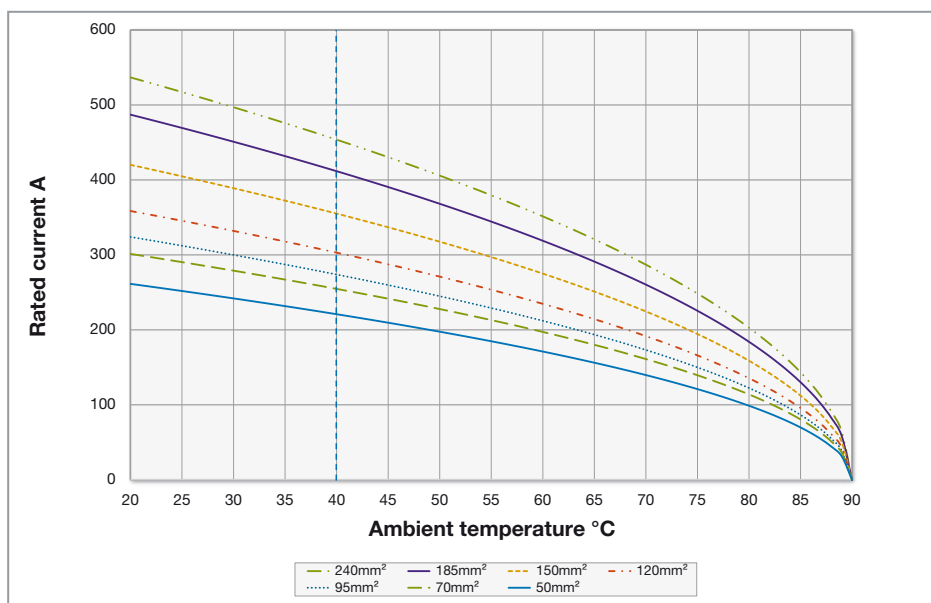
Note:

The indicated values apply for cables with a defined max. operating temperature (e.g. 90°C for FSA20S and FSA20K). If cables with a lower operating temperature are used, the currents must be reduced accordingly.

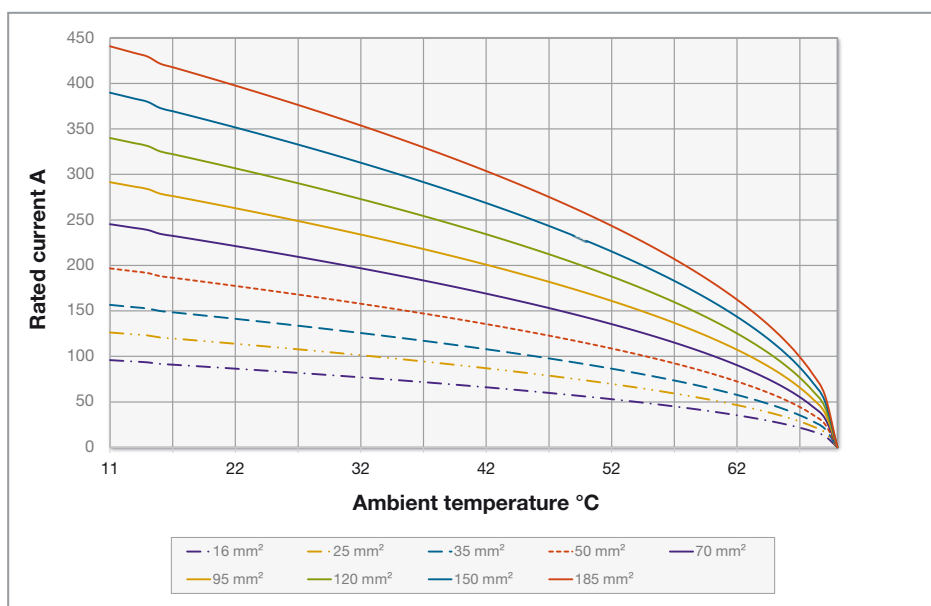
## Rapid connection system FSA20S



## Rapid connection system FSA20K

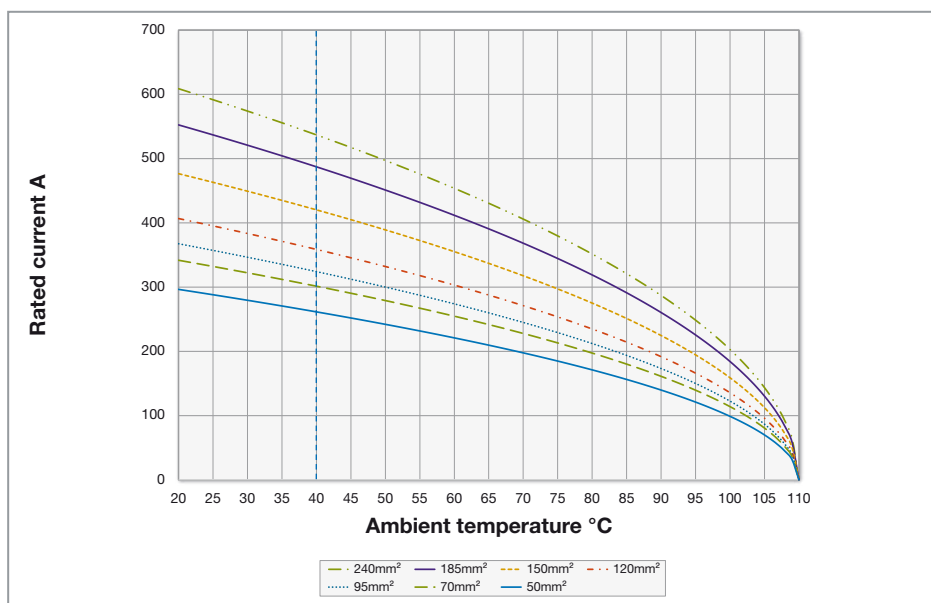


CV/PTV

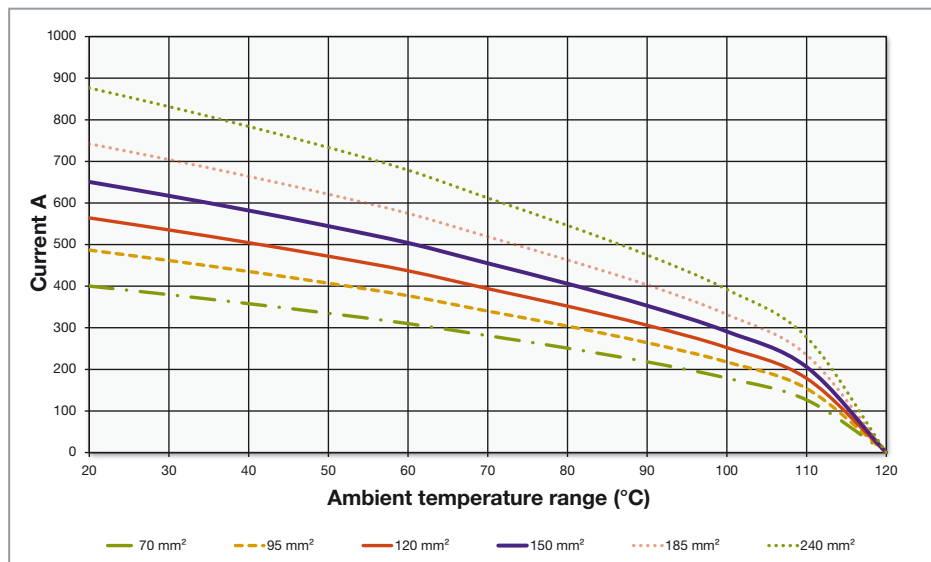


Note:  
The PTV2400 allows two CV connectors to be connected, thereby doubling the nominal current.

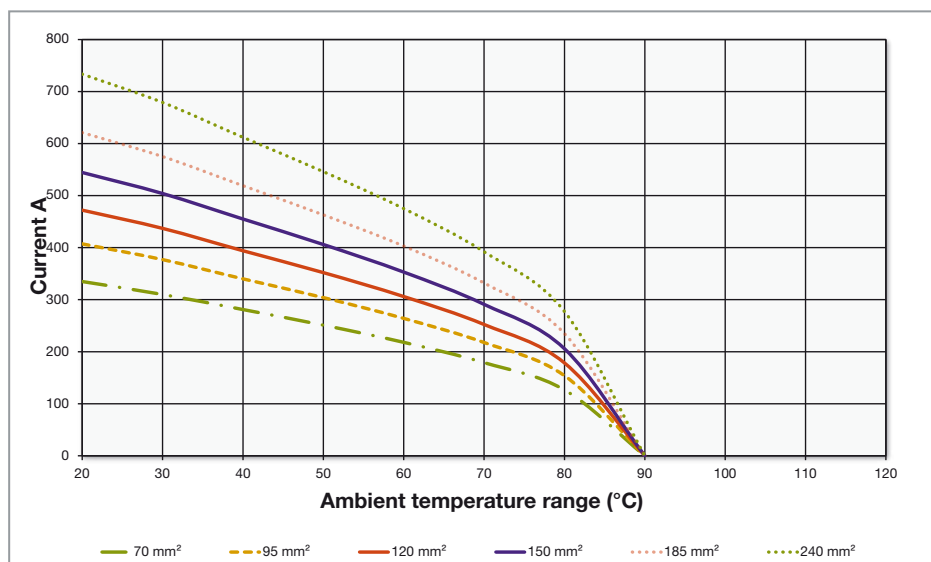
Rapid connection system FSA10K



Derating for insulated copper cables (IEC 60364-5-52), max. 120 °C (e.g. RADOX®)

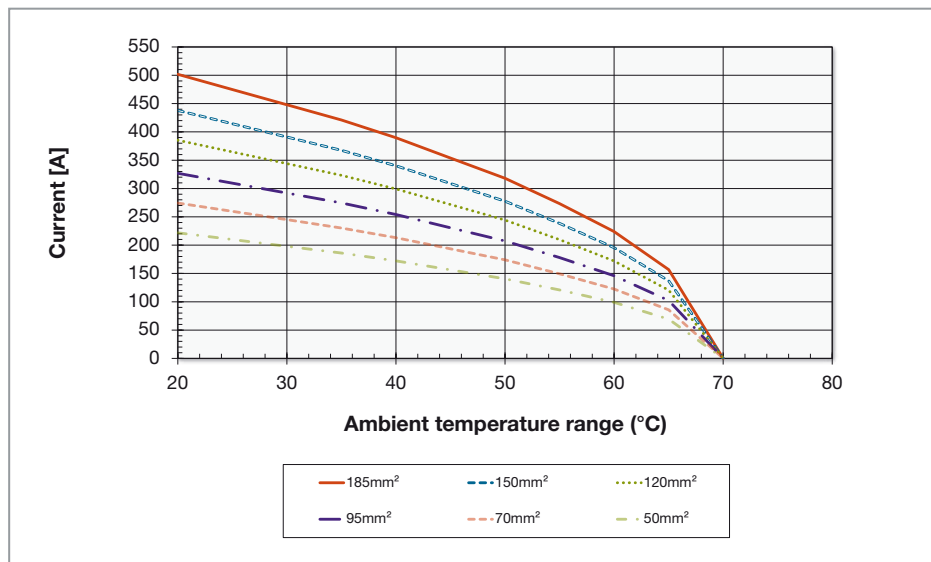


Derating for insulated copper cables (IEC 60364-5-52), max. 90 °C (e.g. PUR)

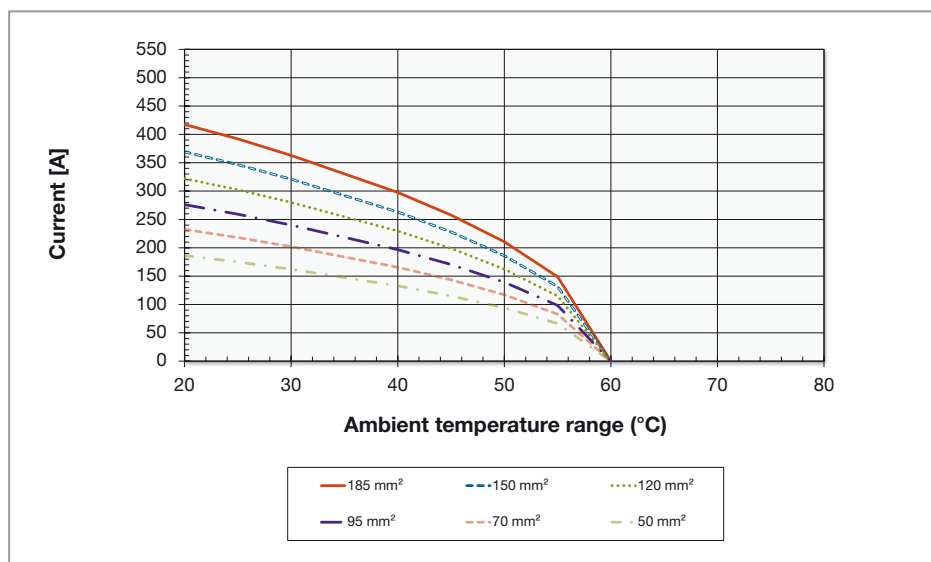




For insulated Cu cables, max. 70 °C (e.g. PVC)



For insulated Cu cables, max. 60 °C (e.g. H07RN-F)



**Derating for electrical machinery**

The IEC 60204-1 standard “Safety of machinery” applies in place of the IEC 60364-5-52 for the use of electrical equipment with machinery.

This standard specifies the current-carrying capacity of PVC-insulated copper cables for continuous operation in machinery applications at an ambient temperature of 40°C.

For bundled cables and leads, additional reduction factors apply under these conditions.

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# Notes



■ Stäubli Units    ○ Agents

# Global presence of the Stäubli Group

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