2 SR60 Busbar System

General Data

Overview

The SR60 busbar system is a modular system for busbars, for installation in distribution boards. The busbar clearance is 60 mm.

The basic elements are

- Busbar routings
- Mounting components for mounting onto busbars
- Covers for ensuring protection against contact

Design

- DIN VDE 0636, DIN VDE 0660 Part 500/ Part 107
- Rated voltages: 690 V AC
- Rated short-circuit strength: 50 kA for a clearance of 250 mm between supports
- Rated current: depending on selected busbar up to 630 A AC
- The modular design facilitates planning and installation
- The design can be freely selected
- The terminal can be freely positioned
- Switching and modular installation devices can be integrated
- Adjustable multi-range busbar support for busbars 12 x 5 mm to 30 x 10 mm
- The set busbar width can be read at the side
- Fast mounting using mounting components, which can be plugged on and locked in place
- Fast mounting using snap-on covers and touch protection elements
- Terminals can be retrofitted onto the busbars without having to be inserted

High-quality material

Busbar supports and fuse bases are manufactured from glass-fiber reinforced, thermoplastic polyester with the color RAL 7035 (light gray). The material ensures excellent mechanical, chemical and electrical properties. Furthermore, the material has an extremely low flammability and meets the requirements of UL 94 V0.

Planning

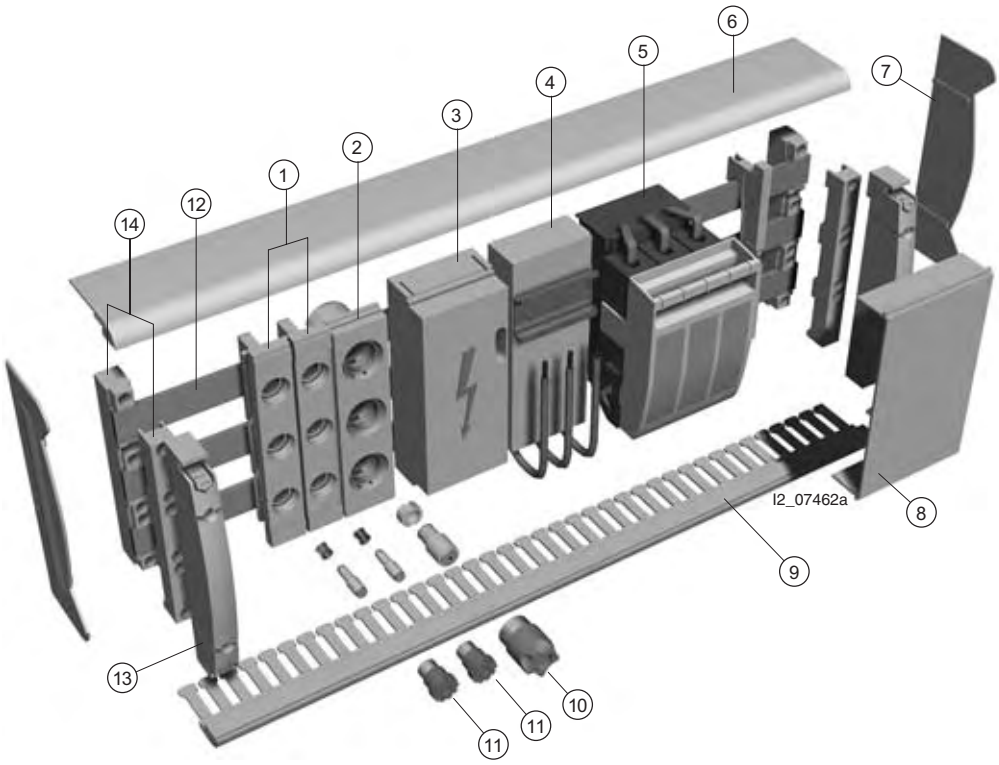
When dimensioning the busbar routings, depending on rated currents, the ambient temperature and the Cu busbar temperature must also be taken into account. The location and the ability of the busbar system to dissipate heat through convection also plays a key role in this calculation. As conditions can differ in each distribution system planning instructions can be found on page 2/3.

Panel widths:

The SR60 busbar system is designed for ALPHA distribution systems and is suitable for the following panel widths

W1 = 250 mm
W2 = 500 mm
W3 = 750 mm
W4 = 1000 mm and
W5 = 1250 mm.

The panel widths determine the required busbar length.



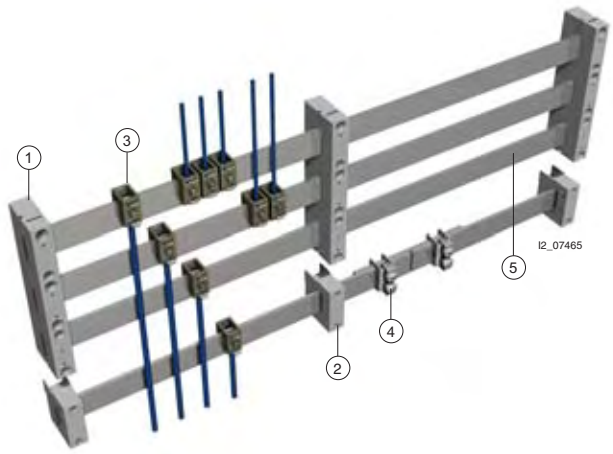
① 3-pole NEOZED bus-mounting base
② 3-pole DIAZED bus-mounting base
③ Panel infeed
④ Adapter for modular installation devices according to DIN 43880
⑤ LV HRC fuse switch disconnectors
⑥ Edge section
⑦ End cover
⑧ Blanking cover
⑨ Partition
⑩ DIAZED fuse and screw cap
⑪ NEOZED fuses and screw caps
⑫ Cu busbars
⑬ Support for residual field cover
⑭ Busbar holders
⑮ Support for partition and edge section

Not illustrated:
LV HRC bus-mounting

Overview

The busbar supports are set by adjusting their spacers to the required busbar dimensions. After inserting the busbars in the busbar supports, they are positioned by screwing together the busbar supports. The recommended spacing for supports is 250 mm. The terminals can be subsequently mounted onto the busbars without having to be inserted laterally.

① Busbar holder, 3-phase
② Busbar holder N/PE
③ Incoming and outgoing terminals
④ Terminal
⑤ Cu busbar



Application

The use of busbar runs with their versatile rail-adaptable connection, switching and installation devices is an ideal and cost-effective electrotechnical enhancement of modern distribution boards due to their small footprint, compact design and quick assembly contacts. Mounting is carried out on distribution board rails or mounting plates. The direct snap-on contacts of the rail-adaptable switching and installation devices on the Cu busbars drastically reduces distribution panels and assembly times, as well as the transfer resistance of the connections, compared to conventional installation. The basic elements of the busbar runs are as follows: busbar holders, enclosures and cover parts, channels and supports, as well as the rail-adaptable connection, switching and installation range such as ingoing/outgoing terminals, incoming supply, adapters for modular installation devices according to DIN 43880, LV HRC fuse switch disconnectors and three-pole NEOZED and DIAZED bus-mounting fuses.

Busbar holders and fuse bases are manufactured from glass-fiber reinforced, thermoplastic polyester (color RAL 7035, light gray). The material ensures excellent mechanical, chemical and electrical properties. Furthermore, the material has an extremely low flammability and meets the requirements of UL 94 V0. This satisfies the load requirements at rated operational voltage 500 V and rated currents at 200 A to 630 A, as well as the rated short-circuit strength 50 kA. When dimensioning the busbar routings, depending on rated currents, the ambient temperature and the Cu busbar temperature must also be taken into account. The location and the ability of the busbar system to dissipate heat through convection also plays a key role in this calculation. Because conditions can vary for each distribution board, the values in the following table serve as a guideline only. However, they must be applied to the entire power rail length.

Function

Dynamic rated short-circuit strength

The electrodynamic load of the busbar run depends on the level of short-circuit current, the length of the busbar section through which the current flows, the support spacing of the busbar holders and, of course, on the distance between the busbars themselves.

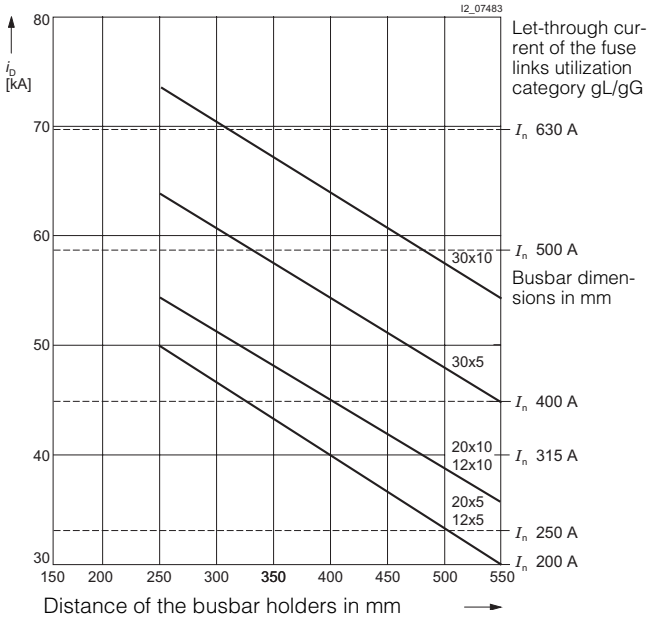
Because, for example, an LV HRC fuse is connected upstream to the busbars in the protective device, the let-through current i_D is the maximum current to flow through this protective device. The value i_D depends in turn on the maximum system short-circuit current and the current-limiting action of the protective device used.

The possible let-through values of the protective equipment are specified by the manufacturers in the form of a current limitation diagram as a function of the so-called prospective short-circuit current (r.m.s. value of the possible rated short-circuit current for the system). You will find the current-limiting characteristics for Siemens fuse links in the Chapter "Low-voltage fuse systems".

For busbar holders with power rails of 12 x 5 mm to 20 x 5 mm, the distance between the holders of the support spacing should be adapted to suit the bars in the distribution board and, if possible, should not exceed 250 mm.

When using power rails of 25 x 5 mm, 30 x 5 mm, 12 x 10 mm to 30 x 10 mm the distance can also be up to 500 mm. In the case of larger distances, subcarriers must be fitted as increased support spacing reduces the dynamic stability. It is essential to ensure that the permissible current carrying capacity of the individual busbars is not exceeded. A center infeed is required in the limit range. However, the infeed can also be carried out from both sides of the busbar ends.

Diagram of the dynamic short-circuit strength of the busbars



i_D: Let-through values (kA) of the LV HRC fuse links, utilization category gL/gG with rated current 200 A to 630 A for prospective short-circuit current I_p = 120 kA.

Busbar routing

Technical specifications

Continuous currents depending on the Cu power rail dimensions and Cu busbar temperatures at 35 °C ambient temperature

Cu busbar dimensions H × D mm × mm	Continuous current for open busbar run ambient temperature 35 °C A	Continuous current of fuse link utilization category gL/gG A
12 × 5	200	200
12 × 10	360	315
15 × 5	250	250
15 × 10	447	400
20 × 5	320	315
20 × 10	520	500
25 × 5	400	400
25 × 10	580	500
30 × 5	447	400
30 × 10	630	630

As far as other types of upstream protective devices are concerned, please observe the permissible continuous current of the power rail.

Selection and ordering data

			Dimensions W x H x D mm × mm × mm	Order No.	Weight 1 item kg	PS*/ P. unit Items
	**Busbar support for SR60 busbar system** for busbars with a bar thickness of 5 or 10 mm and a 12, 15, 20, 25 or 30 mm busbar height 60 mm busbar distance					
	external	3-phase	20 × 220 × 50/55	**8US19 23-2AA00**	0.214	10
	internal	3-phase	20 × 185 × 50/55	**8US19 23-3AA00**	0.200	10
	internal	4-phase	20 × 245 × 50/55	**8US19 23-4AA00**	0.269	10
	**N/PE busbar support** for mounting onto busbar supports, can also be used as single support 1-phase		20 × 90 × 50/55	**5SH3 506**	0.070	1/10
	**SR60 connecting terminal plate** 3-phase, for conductors from 150 to 300 mm^2 (illustration without cover)			**5SH3 535**	1.657	1
	**Connector block for SR60 busbars** 3-phase, for conductors from 35 to 120 mm^2			**8US19 21-1AA00**	0.607	1

* You can order this quantity or a multiple thereof.

Accessories

		Conductor cross-section up to mm²	Tightening torque Nm	Order No.	Weight 1 item kg	PS*/ P. unit Items
Terminals						
 8JH4 102	**Terminals for one busbar** 12 mm × 5 mm	1.5 ... 16	1.4	**8JH4 102**	0.010	1
 8JH4 104		16 ... 35	3.0	**8JH4 104**	0.030	1
 8JH4 105		16 ... 70	6.0	**8JH4 105**	0.030	1
		16 ... 95	10.0	**8JH4 106**	0.070	1
 8JK3 061		25 ... 120	10.0	**8JK3 061**	0.090	1
 8JH4 105	**Terminals for two busbars** 12 mm × 10 mm	16 ... 35	6.0	**8JH4 105**	0.030	1
		16 ... 70	10.0	**8JH4 106**	0.070	1
 8JK3 061		25 ... 50	10.0	**8JK3 061**	0.090	1
	**Extension terminal** for 12 mm × 5 mm busbar busbar not included in delivery		6.0	**8JK3 201**	1 set 0.100	1 set
	**Terminal for circular conductor** 20 mm × 5 mm to 30 mm × 10 mm	150 ... 240		**8US19 41-2BB00**	0.307	6

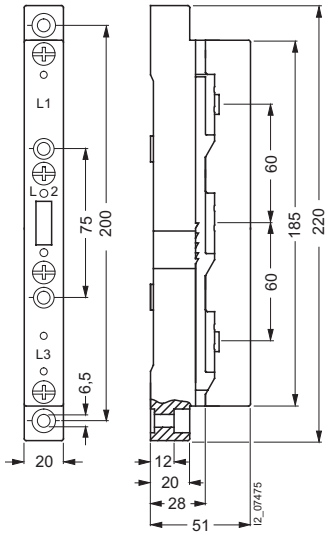
* You can order this quantity or a multiple thereof.

Busbar routing

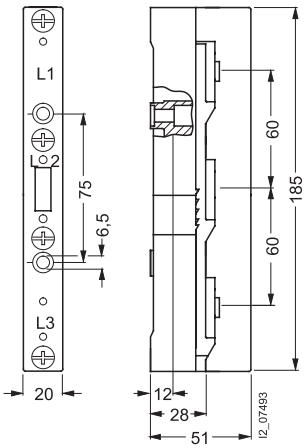
Dimensional drawings

8US19 23 busbar holders for SR60 busbar system

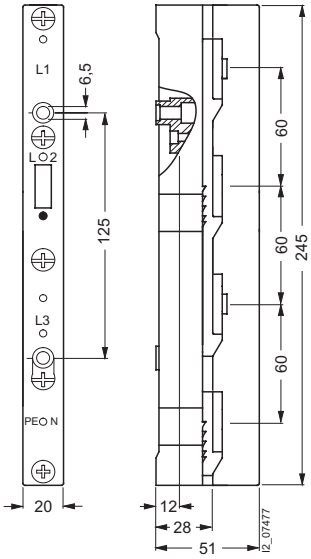
8US19 23-2AA00



8US19 23-3AA00

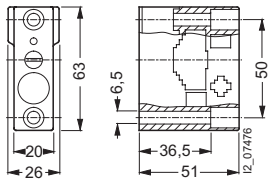


8US19 23-4AA00



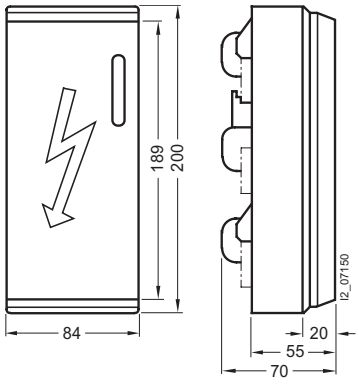
N/PE busbar support

8US19 23-2AA00

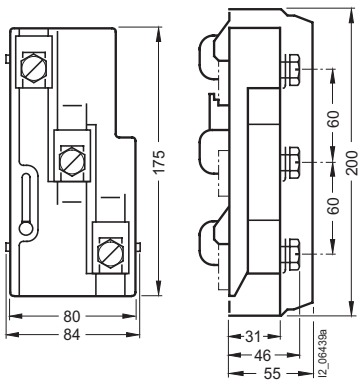


Connector block for SR60 busbars

8US19 21-1AA00
shown closed

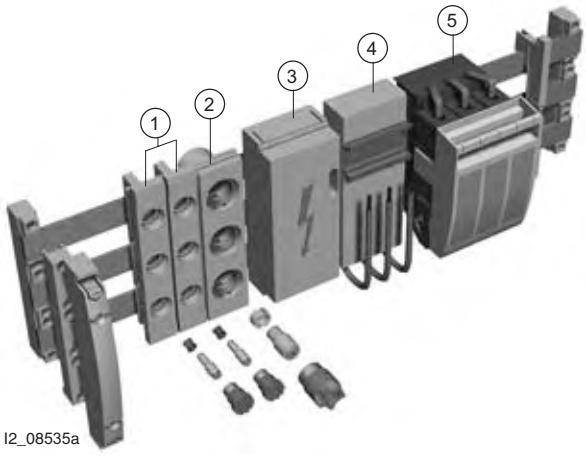


shown open



Overview

① 3-pole NEOZED bus-mounting base
② 3-pole DIAZED bus-mounting base
③ Panel infeed
④ Adapter for modular installation devices according to DIN 43880
⑤ LV HRC fuse switch disconnectors



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Selection and ordering data

	Size	Rated current	Rated voltage	Order No.	Weight 1 item	PS*/ P. unit
		A	V		kg	Items
	**NEOZED SR60 bus-mounting bases** for busbar thickness 5 mm for NEOZED adapter sleeves 3-pole					
	D02	63	400	**5SG6 202**	0.141	1/10
	excess width with clearance for wiring					
	D02	63	400	**5SG6 204**	0.154	1/10
	for busbar thickness 10 mm NEOZED adapter sleeves 3-pole					
	D02	63	400	**5SG6 203**	0.138	1/10
	excess width with clearance for wiring					
	D02	63	400	**5SG6 205**	0.149	1/10
	**DIAZED SR60 bus-mounting bases** for busbar thickness 5 mm for use of DIAZED SR60 adapter rings 3-pole					
	DII	25	500	**5SF6 014**	0.230	1/10
	DIII	63	690	**5SF6 214**	0.318	1/10
	for use of DIAZED screw adapters 3-pole					
	DII	25	500	**5SF6 015**	0.222	1/10
	DIII	63	690	**5SF6 215**	0.310	1/10
	for busbar thickness 10 mm for use of DIAZED SR60 adapter rings 3-pole					
	DII	25	500	**5SF6 016**	0.233	1/10
	DIII	63	690	**5SF6 216**	0.316	1/10
	for use of DIAZED screw adapters 3-pole					
	DII	25	500	**5SF6 017**	0.220	1/10
	DIII	63	690	**5SF6 217**	0.328	1/10

*** You can order this quantity or a multiple thereof.**

Mounting components

Selection and ordering data

	Size	MW	Order No.	Weight 1 item	PS*/ P. unit
				kg	Items
	**NEOZED SR60 covers**				
	D02	1.5	**5SH5 241**	0.026	1/10
	excess width with clearance for wiring				
	D02	2	**5SH5 242**	0.031	1/10
	with double width for a larger clearance for wiring				
	D02	3	**5SH5 243**	0.040	1/10
	**DIAZED SR60 covers**				
	DII	2.3	**5SH2 042**	0.050	1/10
	DIII	3.2	**5SH2 242**	0.061	1/10
	with double width for a larger clearance for wiring				
	DII	4.7	**5SH2 043**	0.084	1/10
	DIII	6.4	**5SH2 243**	0.106	1/10

	Size	Thread	For fuse links A	Order No.	Weight 1 item kg	PS*/ P. unit Items
	**DIAZED SR60 adapter rings** only for DIAZED SR60 bus-mounting bases					
	DII	E 27	2	**5SH3 071**	0.005	10
			4	**5SH3 072**	0.005	10
			6	**5SH3 073**	0.005	10
			10	**5SH3 074**	0.005	10
			16	**5SH3 075**	0.005	10
			20	**5SH3 076**	0.004	10
	DIII	E 33	2	**5SH3 078**	0.008	10
			4	**5SH3 080**	0.008	10
			6	**5SH3 081**	0.008	10
			10	**5SH3 082**	0.008	10
			16	**5SH3 083**	0.008	10
			20	**5SH3 084**	0.006	10
			25	**5SH3 085**	0.007	10
			35	**5SH3 086**	0.006	10
			50	**5SH3 087**	0.005	10

For NEOZED screw caps, adapter sleeves and fuse links, see the Chapter "Low-voltage fuse systems", NEOZED fuse system.
For DIAZED screw caps, screw adapters and fuse links, see the Chapter "Low-voltage fuse systems", DIAZED fuse system.

*** You can order this quantity or a multiple thereof.**

Selection and ordering data

		Width	Order No.	Weight 1 item	PS*/ P. unit
		mm		kg	Items
	**SR60 LV HRC bus-mounting fuse bases** **Size 000 and 00** with cover, top terminals, for 5 and 10 mm busbar thickness 3-pole Terminals up to 70 mm^2 Rated voltage 690 V AC				
	with saddle-type terminal connection		**3NH4 052**	0.641	1
	with flat termination, screw M8		**3NH4 053**	0.646	1

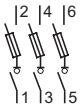
	I_u	For LV HRC links	Conductor cross-section	Type of connection/ adapter	Order No.	Weight 1 item	PS*/ P. unit
	A	Size	up to mm^2			kg	Items
	**Fuse switch disconnectors for SR60 busbars** climate-proof, rated operational voltage 690 V AC delivered without LV HRC fuse links						
	100	000 and 00	1.5 ... 35	top	**3NP40 16-1CK01**	0.916	1
				bottom	**3NP40 16-1CJ01**	0.950	1
	160	000 and 00	up to 2 × 70	top	**3NP40 76-1CE01**	1.200	1
				bottom	**3NP40 76-1CF01**	1.200	1
	160	000 and 00	2.5 ... 70 (SIGUT terminal)	top	**3NP40 76-1CK01**	1.290	1
				bottom	**3NP40 76-1CJ01**	1.240	1
	250	0 and 1	max. 150	top or bottom	**3NP42 76-1CG01**	3.710	1
	400	2	max. 240	top or bottom	**3NP43 76-1CG01**	5.440	1
	630	3	max. 2 × 240	top or bottom	**3NP44 76-1CG01**	7.680	1

For additional busbar adapters and fuse switch disconnectors,
see the Chapter "Low-voltage fuse systems, LV HRC fuse system, LV HRC fuse switch disconnectors".

*** You can order this quantity or a multiple thereof.**

Mounting components

Selection and ordering data

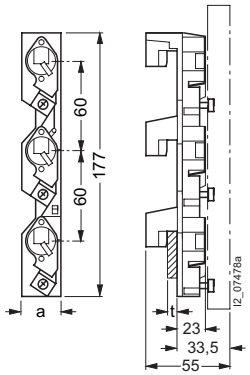
		Rated current AC	Rated voltage AC	Order No.	Weight 1 item	PS*/ P. unit
		A	V		kg	Items
	**NEOZED SR60 bus-mounting switch disconnectors** for busbar thickness 5 and 10 mm for 3-phase busbar system Width: 1.5 MW 3-pole Size D02 	63	400	**5SG7 230**	0.700	1
	SR60 bus-mounting disconnector for 10 x 38 mm cylindrical fuses for busbar thickness 5 and 10 mm for 3-phase busbar system 3-pole 	32	690	**3NW7 430**	0.700	1
	Auxiliary switch 1 changeover contact, 24 to 230 V AC, AC 2 A			**5SH5 525**	0.007	1
	**Lateral module** for NEOZED SR60 bus-mounting switch disconnectors for better heat conduction at permanent loads over 35 A Width: 0.5 MW			**5SH5 526**	0.060	1/5
	Reducer for NEOZED fuse links D01 in the SR60 bus-mounting switch disconnector			**5SH5 527**	0.003	10

* You can order this quantity or a multiple thereof.

Dimensional drawings

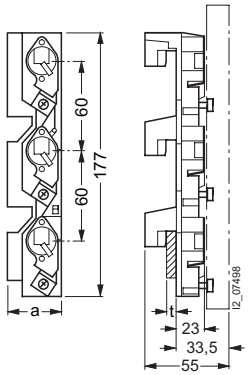
NEOZED SR60 bus-mounting bases

D02/63 A (a = 27 mm)
(t = busbar thickness)



5SG6 202 (t = 5 mm),
5SG6 203 (t = 10 mm)

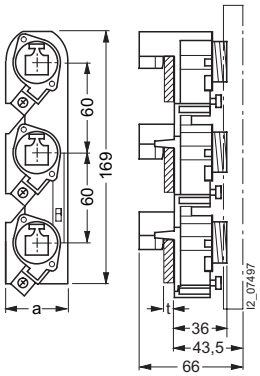
D02/63 A (a = 36 mm)



5SG6 204 (t = 5 mm),
5SG6 205 (t = 10 mm)

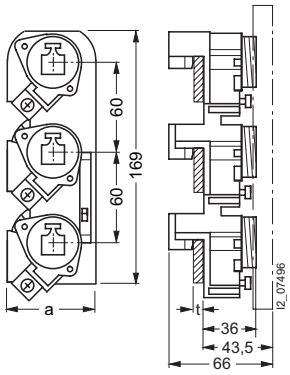
DIAZED SR60 bus-mounting bases

DII/25 A (a = 42 mm)



5SF6 014, 5SF6 015 (t = 5 mm),
5SF6 016, 5SF6 017 (t = 10 mm)

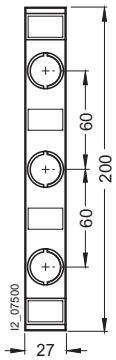
DIII/63 A (a = 57 mm)



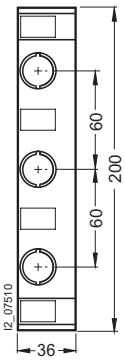
5SF6 214, 5SF6 215 (t = 5 mm),
5SF6 216, 5SF6 217 (t = 10 mm)

NEOZED SR60 cover

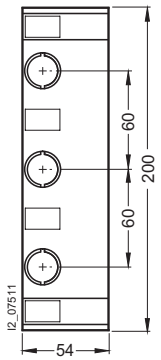
D02/63 A



5SH5 241
1-fold



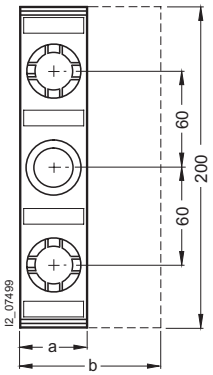
5SH5 242
1.33-fold



5SH5 243
2-fold

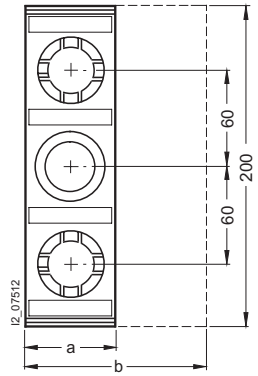
DIAZED SR60 cover

DII/25 A



5SH2 042 (1-fold: a = 42 mm)
5SH2 043 (2-fold: b = 84 mm)

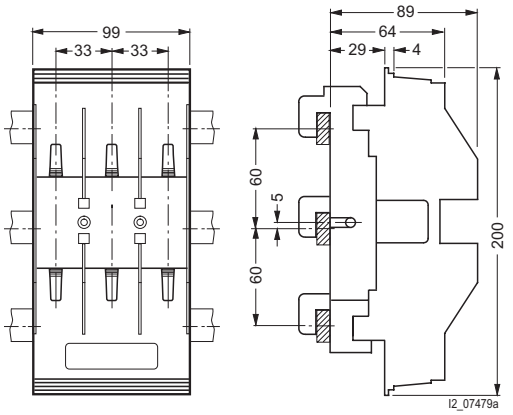
DIII/63 A



5SH2 242 (1-fold: a = 57 mm)
5SH2 243 (2-fold: a = 114 mm)

LV HRC SR60 bus-mounting fuse bases, 3-pole

3NH4 052, 3NH4 053

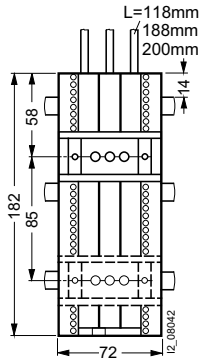


Mounting components

Dimensional drawings

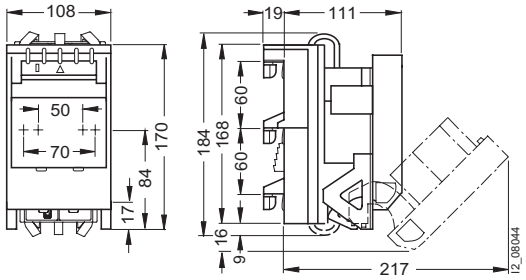
Busbar adapters for SR60 busbars

8US12 81-6NA00
8US12 71-2NA20

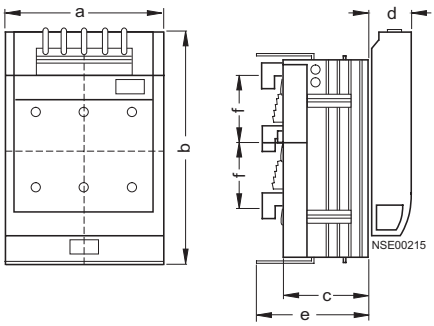


Fuse switch disconnectors for SR60 busbars

Rail distance 60 mm
3NP40 76



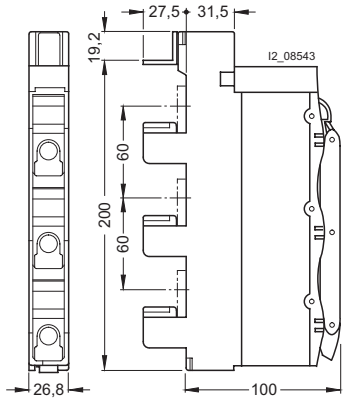
3NP4. 76 (not 3NP40 76)



Type	Dimensions				
	a	b	c	d	f
3NP42 76	184	243	66	45.5	60
3NP43 76	210	288	80	48	60
3NP44 76	256	300	94.5	48	60

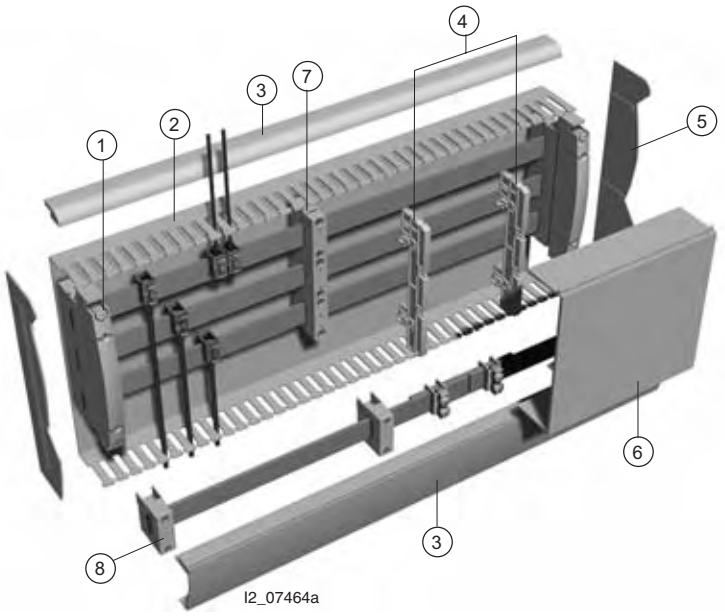
NEOZED SR60 bus-mounting switch disconnectors/ SR60 bus-mounting disconnectors

5SG7 230
3NW7 430



Overview

① Edge support
② Base
③ Edge
④ Support for the residual field cover
⑤ End cover
⑥ Blanking cover
⑦ Busbar support, 3-phase
⑧ N/PE busbar support



Selection and ordering data

		Length	Order No.	Weight 1 item	PS*/ P. unit
		mm		kg	Items
SR60 covers					
	**Bases** Height 230 mm, for 3 busbars 290 mm, for 4 busbars	1100	**5SH3 526** **5SH3 527**	1.100 1.300	2 2
	Blanking cover Depth 32 mm	1000	**5SH3 537**	0.075	2
	**Cover profiles for busbars** up to 30 x 5 mm up to 30 x 10 mm	1000	**8US19 22-2AA00** **8US19 22-2BA00**	0.156 0.105	10 10
	**Edges** H x W 17 x 36 mm, for 3 busbars 77 x 36 mm, for 4 busbars	1100	**5SH3 528** **5SH3 530**	0.311 0.583	2 2
	**Partition** slotted H x W 17 x 86 mm	1100	**5SH3 531**	0.365	2

* You can order this quantity or a multiple thereof.

Accessories

Selection and ordering data

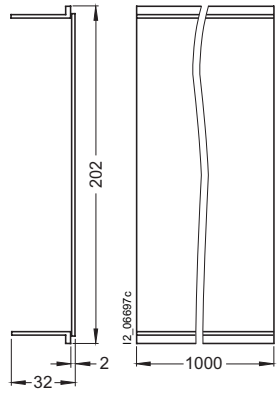
		Order No.	Weight 1 item	PS*/ P. unit
			kg	Items
SR60 covers				
	**End covers for busbar support, lateral** Height 230 mm	**5SH3 533**	0.038 1 set	4
	290 mm (1 set = 2 items)	**5SH3 534**	0.048	1 set
	End covers for busbar support, top			
	3-pole	**8US19 22-1AC00**	0.020	10
	4-pole	**8US19 22-1AB00**	0.055	1
	**Edge support and support for partition**	**5SH3 532**	0.106	2
	**Support for blanking cover** for blanking cover	**5SH3 536**	0.040	4

* You can order this quantity or a multiple thereof.

Dimensional drawings

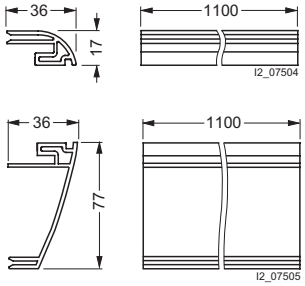
Blanking cover

5SH3 537



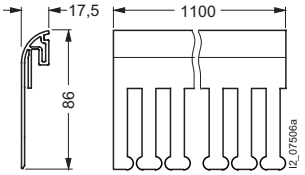
Edge

5SH3 528, 5SH3 530



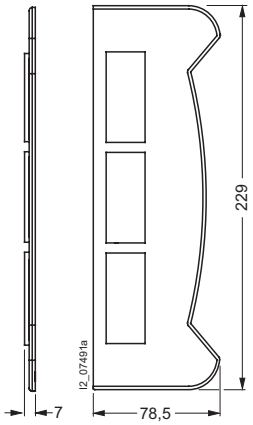
Partition

5SH3 531

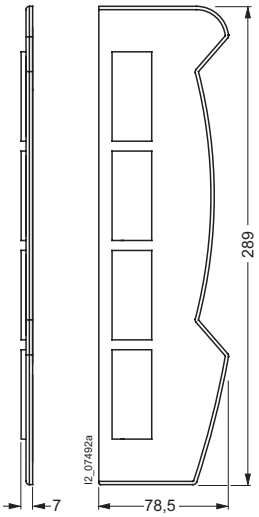


End cover for busbar support, lateral

5SH3 533

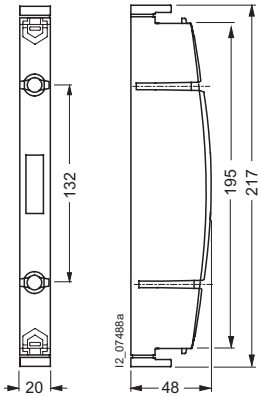


5SH3 534



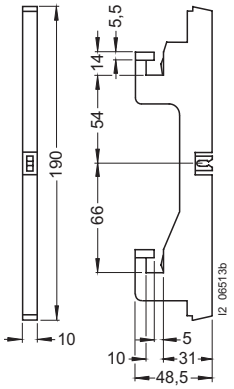
Edge support and support for partition

5SH3 532



Support for the blanking cover

5SH3 536



Notes