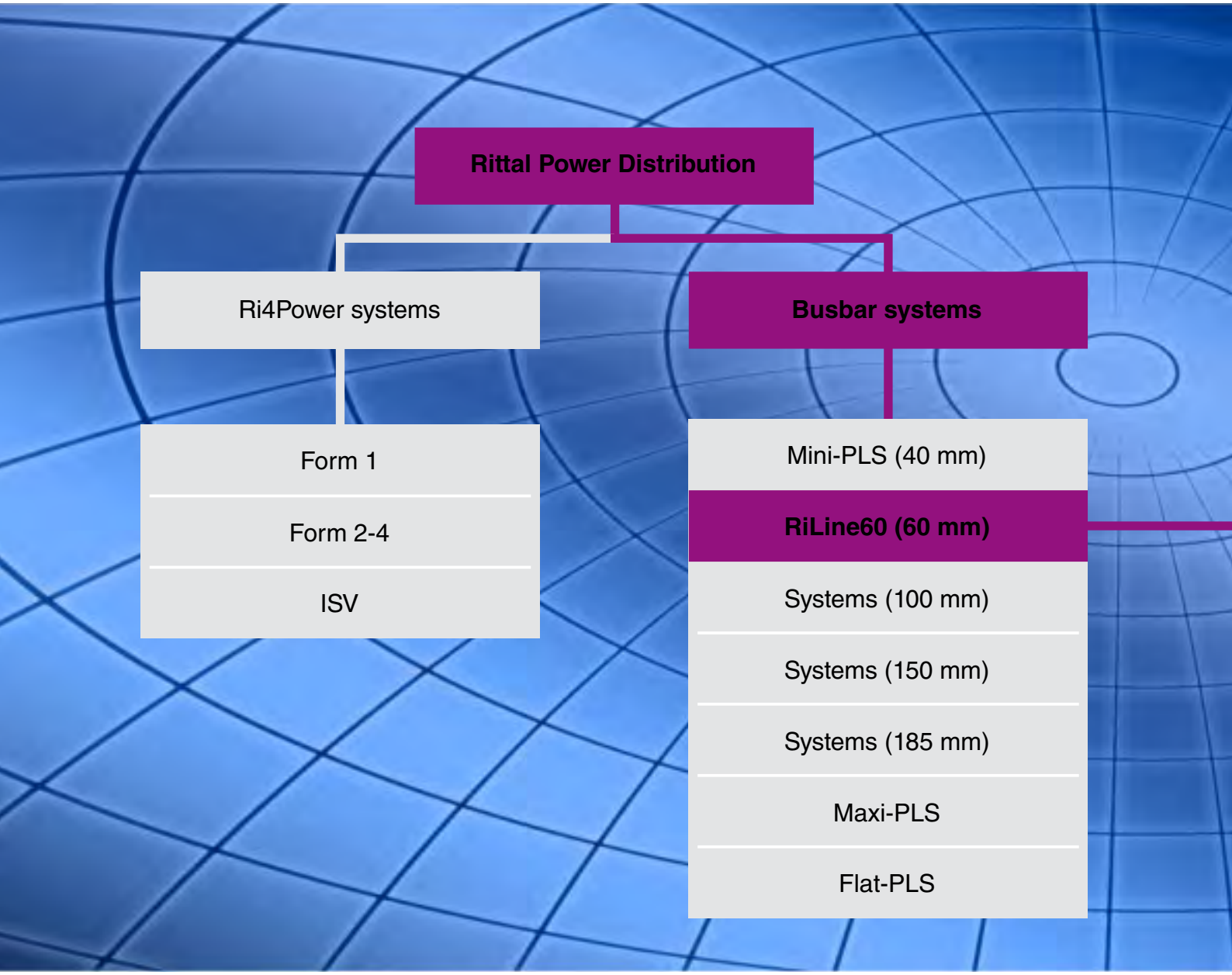
Rittal – **RiLine60**

Power distribution in 60 mm system technology for all the world's markets

FRIEDHELM LOH GROUP

Rittal – A whole world of power distribution

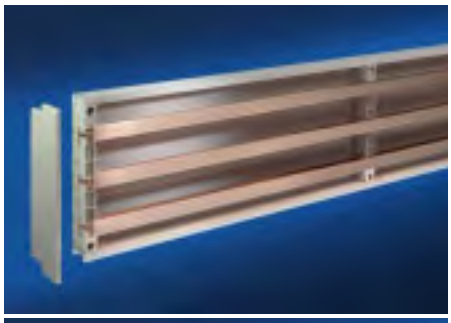


In the field of low-voltage technology, Rittal are key players in control and distribution technology for industrial systems and data centres, as well as in Rittal Ri4Power system technology.

Systems based on RiLine60 are **individual and economical,** thanks to their component modularity and diversity. What is more, comprehensive IEC type testing and UL approvals ensure **maximum safety** and make them considerably **easier to use throughout all the world's markets.**

Examples of RiLine60 system solutions, 3- and 4-pole

3-pole, from page 8
4-pole, from page 12



Busbar systems

3-pole, from page 16
4-pole, from page 50

Connection systems

3-pole, from page 22
4-pole, from page 56

Component adaptors, circuit-breaker component adaptors

3-pole, from page 24
4-pole, from page 58

Fuse elements

Bar assembly, 3-pole, from page 36
Mounting plate assembly, from page 59

Accessories

from page 65

Technical details

Busbars and short-circuit resistance, from page 80

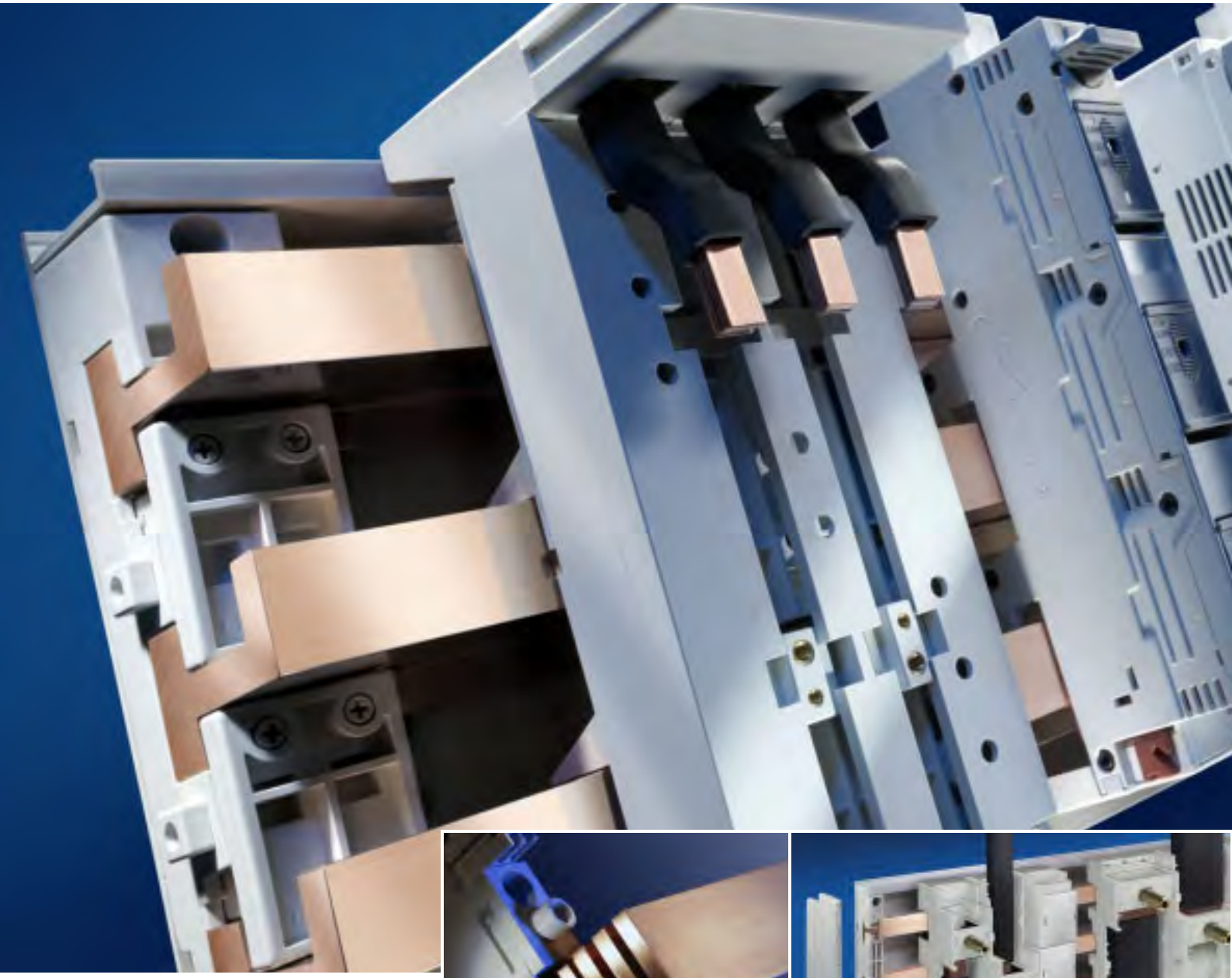
Assembly data and approvals, from page 87

Background information on IEC and UL, from page 108

Approval status of RiLine60 components

Approval status	Label, Model No.
c UL us LISTED	XXXX.XXX UL
c RU us	XXXX.XXX RU

Rittal RiLine60 – Modular, individual, saves time and money



Three busbar systems

- Flat bars up to 30 x 10 mm
- PLS 800 and
- PLS 1600

PLS 800 and PLS 1600 offer space-saving assembly by enabling **complete top-mounting** of the busbar supports.

All-round encapsulation of the busbar systems ensures maximum safety. There is no need for the customer to provide his own contact hazard protection features.

Connection systems

Either flexible busbars or round conductors may be used **conveniently, quickly and reliably.** The cable outlet is freely selected.

Ultimate power: Designed for optimum rating data.

Ultimate time savings: Cost-effective, thanks to simple assembly handling.

Ultimate energy efficiency: Low-loss operation, thanks to perfect contact and connection technology.

Ultimate safety: Optimum contact hazard protection at all times.

For IEC and UL markets: RiLine60 components meet the relevant standards and licensing conditions.

Component adaptor

One system with many variations. OM component adaptor technology up to 80 A meets every conceivable requirement. Whether you opt for tension spring clamping system, with connection cables or plug-in technology, everything is possible with the **ingenious platform technology** with its mantra “always in contact”.

The tried-and-tested support frame technology facilitates problem-free **replacement of equipment with the system operational.** The adaptor section remains on the busbar and covers it to prevent accidental contact whilst the component is being changed.

Fuse system (63 – 630 A)

The right solution to suit every application, whether screw components, D02-E18 to DIII, switchable D02-E18 components or NH technology.

The new RiLine Class generation of units up to 400 A is the ideal addition to the product range for UL applications.

The 60 mm system for global use

Market segment UL (cULus-listed)

RiLine60 was the first 60 mm bar system in the world to achieve “cULus-listed” approval.

Easier, faster UL and CSA system sign-offs save time and money for plant assemblers.

See page 110.

Market segment UR (UL-recognized)

The RiLine60 spectrum is supplemented by components which may only be approved as UL-recognized for reasons relating to the standard.

See page 110.

The approval of power distribution components is becoming ever more important for international switchgear manufacturers: There is a demand for uniform solutions for applications to IEC, UL and CSA without the need for complex, time-consuming engineering and extensive inspection processes.

Market segment UL

Important benefits for international machinery and plant manufacturing

In RiLine60, Rittal has “cULus-listed” approval for a 60 mm busbar system. This approval provides decisive advantages for international machinery and plant manufacturers with target markets in the USA or Canada:

- Reduced design input.
- Simplified sign-off of plant by UL (Underwriters Laboratories) and CSA (Canadian Standards Association) and therefore most importantly:
- Testing for compliance with the Conditions of Acceptability (COA) of all UL-recognized components used becomes superfluous.
- Overall, this leads to substantial time and cost savings with RiLine60.

Market segment IEC

All RiLine60 components naturally comply with the requirements to IEC.

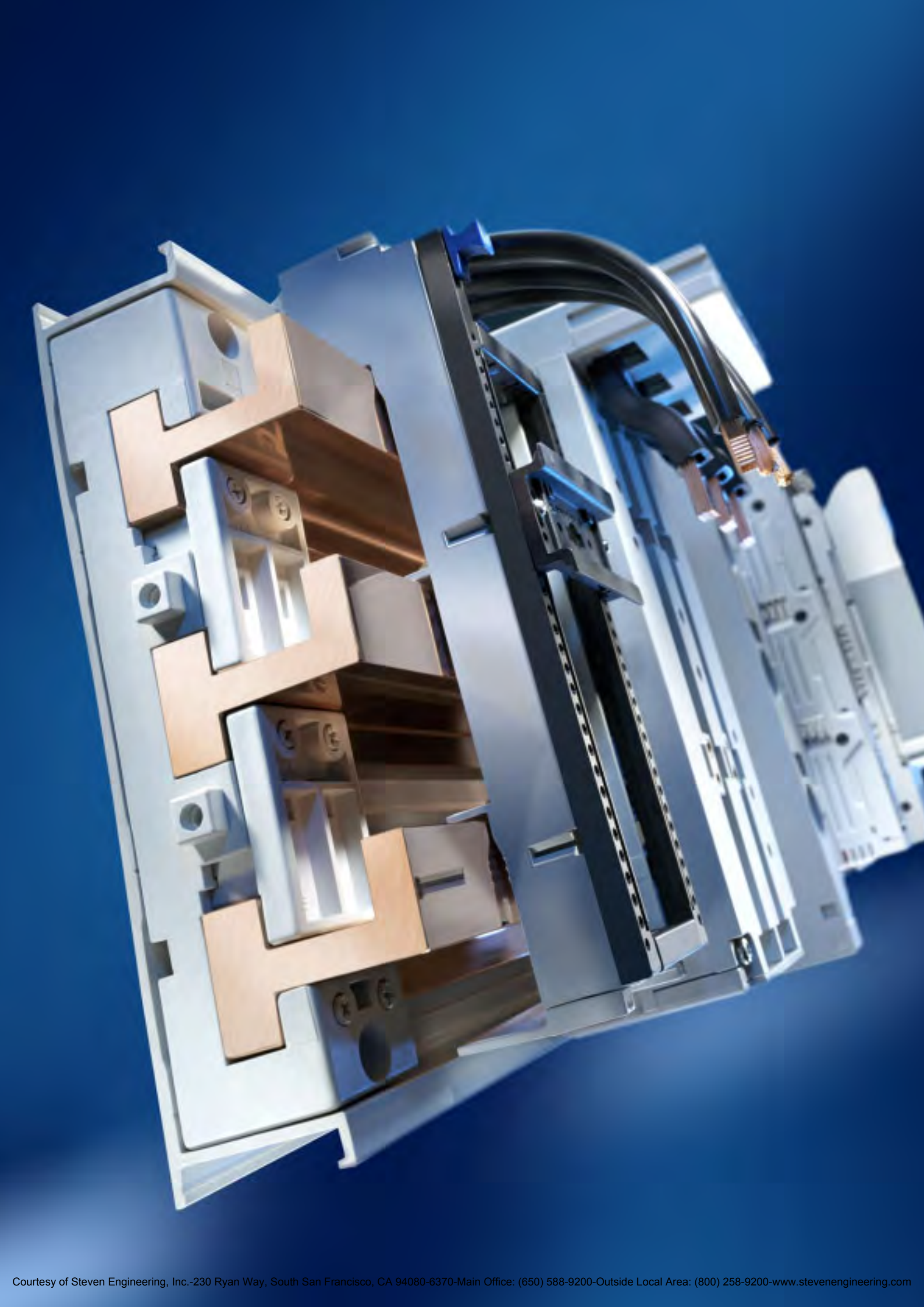
See page 108.

Market segment IEC/UL

As RiLine60 meets the requirements of both these markets, the assembly and sign-off of power distribution components is now much easier as well in these mixed markets.

Approval status of RiLine60 components

Approval status	Label Model No.
c UL us LISTED	XXXX.XXX UL
c RU us	XXXX.XXX RU



Courtesy of Steven Engineering, Inc.-230 Ryan Way, South San Francisco, CA 94080-6370-Main Office: (650) 588-9200-Outside Local Area: (800) 258-9200-www.stevenengineering.com

RiLine60 system example 1

Busbar system, 3-pole

In RiLine60, Rittal offers a **comprehensive system package** with components for individual customer solutions. Regardless of where in the world RiLine60 busbar systems are used, **RiLine60 is the system for all markets,** thanks to comprehensive type-testing to IEC 60 439-1 and its high approval status to UL. Simple project planning, fast assembly and perfect contact hazard protection are included as a matter of course with all RiLine60 system solutions. To this end, Rittal offers support systems and bars in conjunction with connection technology, component adaptors and fuse components – ingenious units that meet your requirements to perfection.

Use this example as inspiration for your design of a 3-pole RiLine60 busbar system.

1 Busbar systems

- 60 mm system technology type-tested to IEC 60 439-1 and UL 508 approved
- High safety standards for global use
- Minimal assembly work and maximum contact hazard protection

2 Connection systems

- Contacting system for round conductors and flexible busbars, no drilling required
- Convenient, assembly-friendly connection using high-quality box and prism terminal technology with minimal heat loss
- Stylish all-round contact hazard protection, also for incoming cables

3 Circuit-breaker adaptor

- 4 variants for the most common circuit-breakers up to 630 A
- Simple connection with pre-assembled connection brackets

4 OM component adaptor

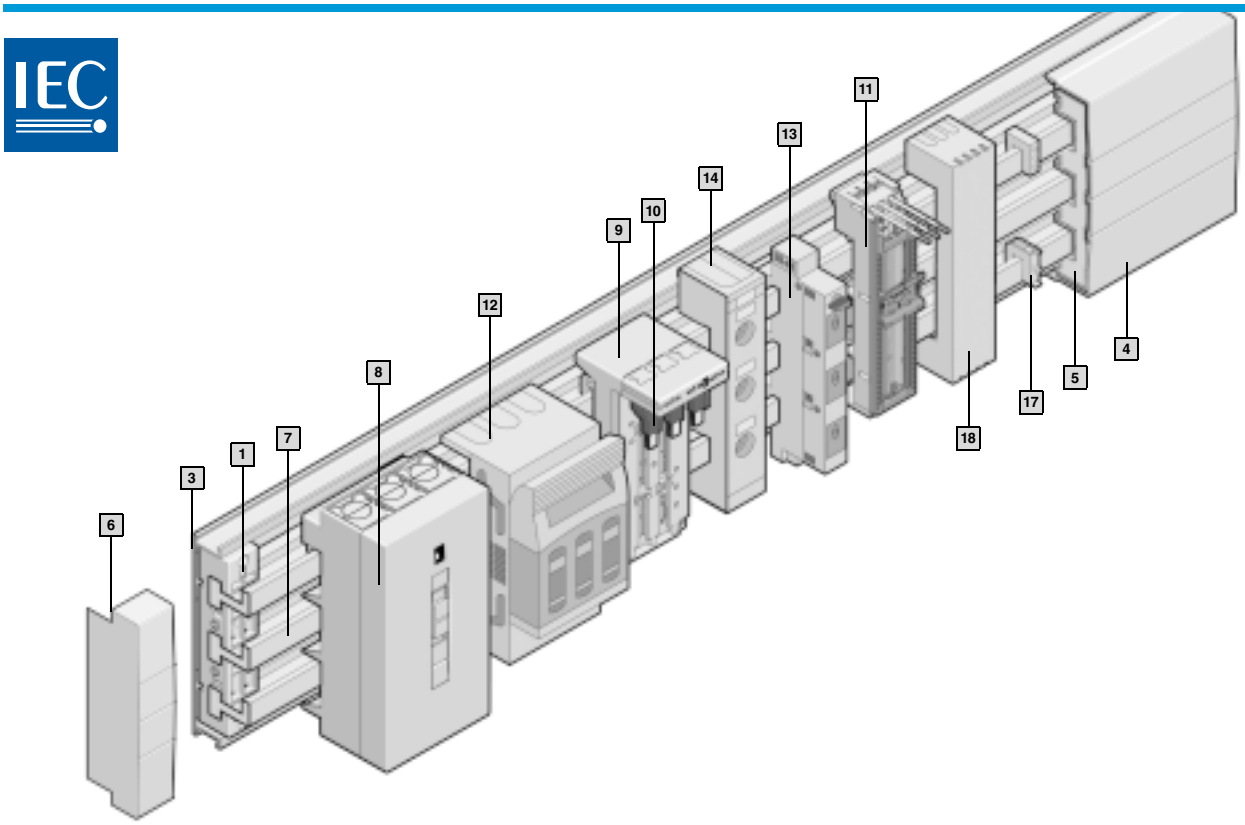
- Support frame technology
- Tension spring clamping system
- Plug-in system for premium adaptors
- Anti-slip guard for top-mounted equipment

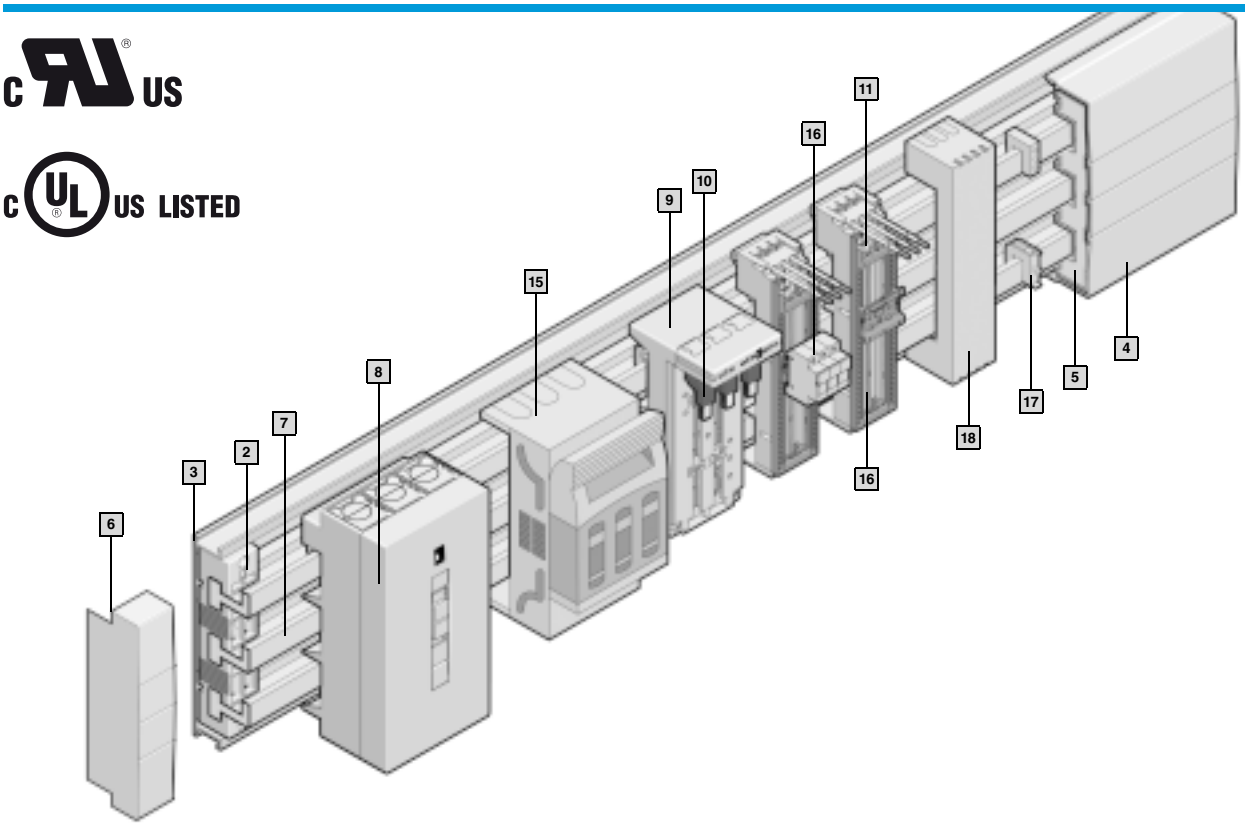
5 Fuse elements

- Versatile fuse system up to 630 A
- Direct contacting on busbars, no drilling reuqired
- Tested and/or approved to valid regulations and standards

RiLine60 system example 1

Busbar system, 3-pole, component overview





Busbar system, 3-pole, bill of materials

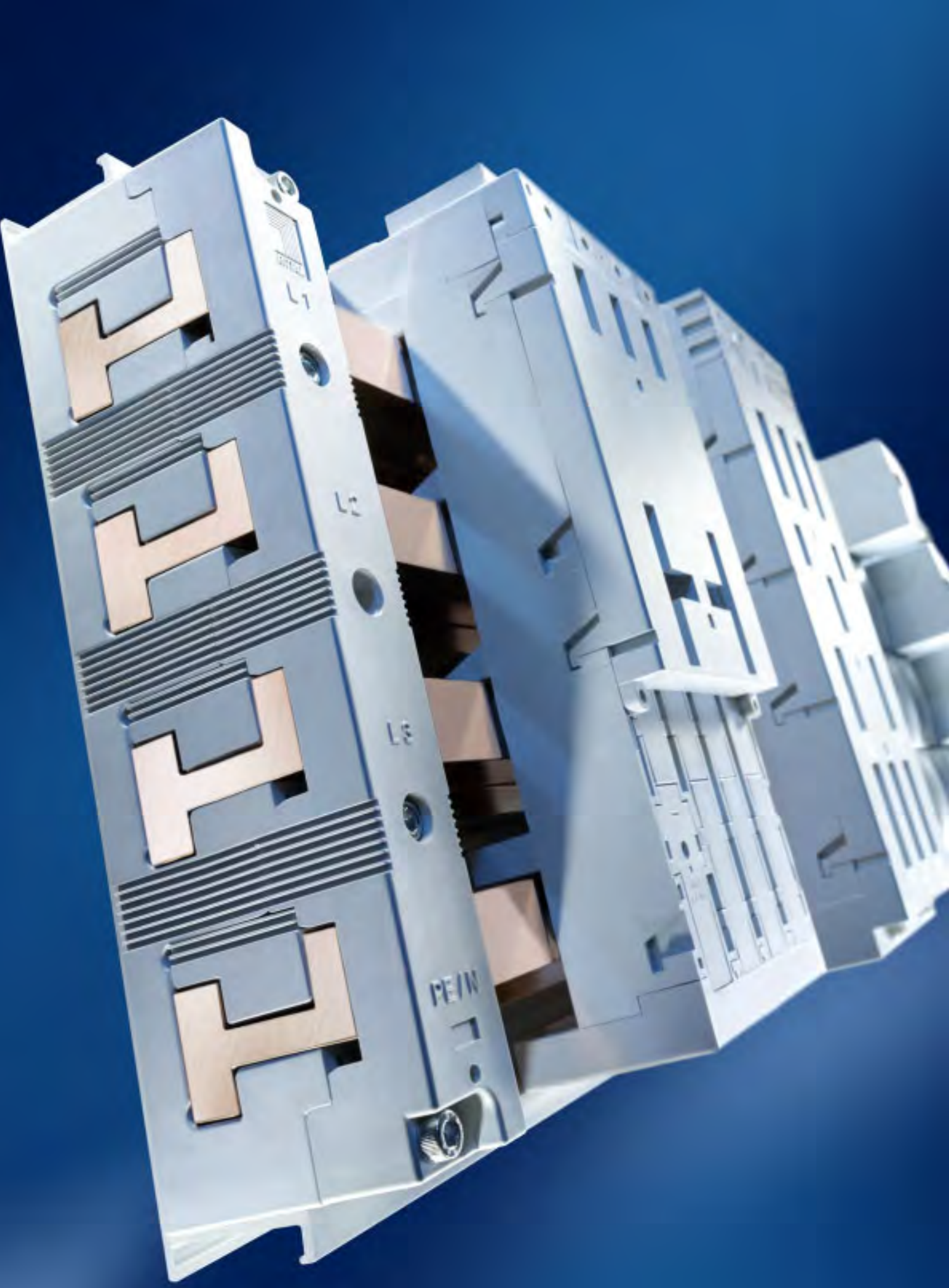
IEC system example:
System assembly with fully top-mountable Rittal PLS system 1600 A. A comparable configuration is possible with the Rittal PLS system 800 A or with flat copper bars.

Note:
For background information on IEC, see page 108/109.

UL system example:
System assembly with fully top-mountable Rittal PLS system 1600 A. A comparable configuration is possible with the Rittal PLS system 800 A or with flat copper bars.

Note:
For background information on UL, see page 110 – 112.

		Model No.		Page
		3-pole IEC	3-pole UL	
Busbar systems				
1	PLS busbar supports (3-pole)	**9342.000**	–	20
2	PLS busbar supports (3-pole)	–	9342.050	20
3	Base tray	**9342.130**	**9342.130**	21
4	Cover section	**9340.200**	**9340.200**	21
5	Support panel	**9340.220**	**9340.220**	21
6	End covers for contact hazard protection on the sides	**9342.070**	**9342.070**	20
7	PLS special busbars	**3529.000**	**3529.000**	20
Connection systems				
8	Busbar connection adaptor (3-pole)	**9342.280**	**9342.280**	22
Component adaptor				
9	Circuit-breaker component adaptors 125 A/125 A/160 A (3-pole)	**9342.510**	**9342.510**	34
10	Connection bracket for circuit-breaker component adaptors	**9342.570**	**9342.570**	76
11	OM adaptors 25 A/32 A with connection cables (3-pole)	**9340.470**	**9340.470**	26
Fuse elements				
12	NH bus-mounting fuse-switch-disconnectors, size 00 (3-pole)	**9343.000**	–	43
13	Rittal RiLine D-switch (60 mm)	**9340.950**	–	40
14	Bus-mounting fuse bases for clamping screw fastening (3-pole)	**3418.000**	–	38
	Contact hazard protection cover	**3419.000**	–	38
	End caps for rail system with base tray	**3420.010**	–	38
	Side cover	**3093.000**	–	38
15	Fuse holder 61 – 400 A	–	9345.100	49
16	Fuse holder up to 60 A (3-pole)	–	9345.000	48
Accessories				
17	Conductor connection clamps, 1 – 4 mm^2	**3555.000**	**3555.000**	71
	Conductor connection clamps, 2.5 – 16 mm^2	**3456.500**	**3456.500**	71
	Conductor connection clamps, 70 – 185 mm^2	**3459.500**	**3459.500**	71
18	System covers	**3086.000**	**3086.000**	71

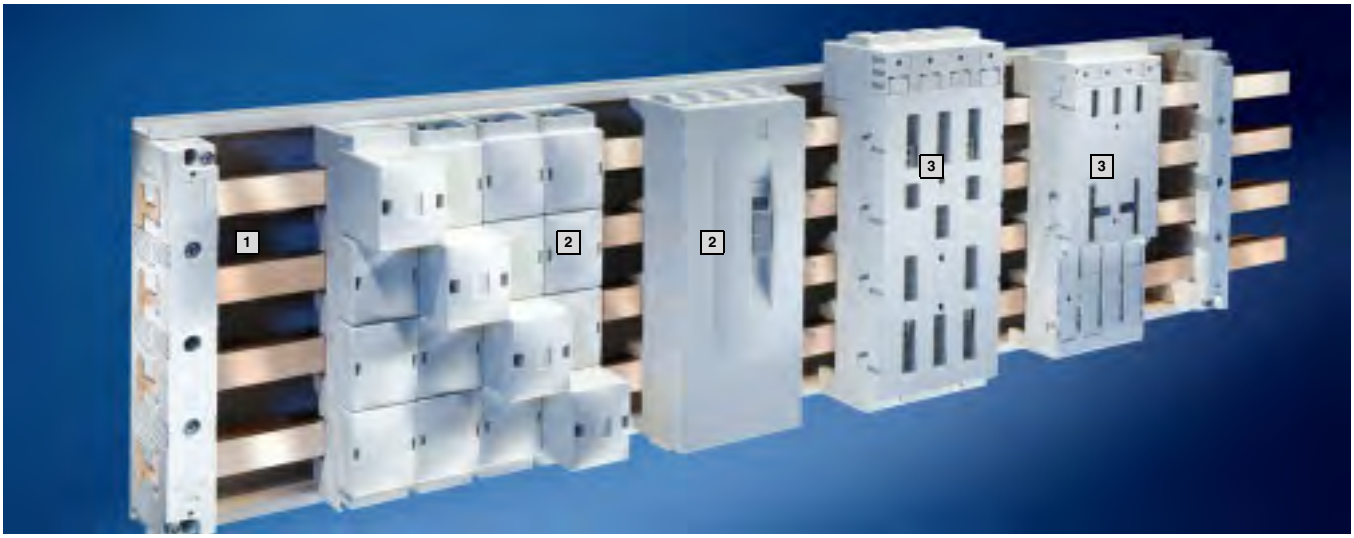


RiLine60 system example 2

Busbar system, 4-pole

4-pole systems or combinations of 3- and 4-pole systems are used in parts of western and southern Europe, in Scandinavia, and in the Middle East and Canada. In contrast to 3-pole systems, the **N-conductor is integrated into the busbar support.** The RiLine60 busbar and connection system meets the requirements of these markets to perfection.

Another decisive factor in favour of the 4-pole RiLine60 system is that **the electromagnetic compatibility (EMC)** of an enclosure is optimised. This EMC requirement also applies in 3-pole markets. Wherever single-phase electronic equipment produces harmonics, these should be compensated by positioning the N-conductor as close as possible to the phase conductors.



Use this example as inspiration for your design of a 4-pole busbar system with RiLine60.

1 Busbar systems

- 60 mm system technology type-tested to IEC 60 439-1 and UL 508 approved
- High safety standards for global use
- Minimal assembly work and maximum contact hazard protection

2 Connection systems

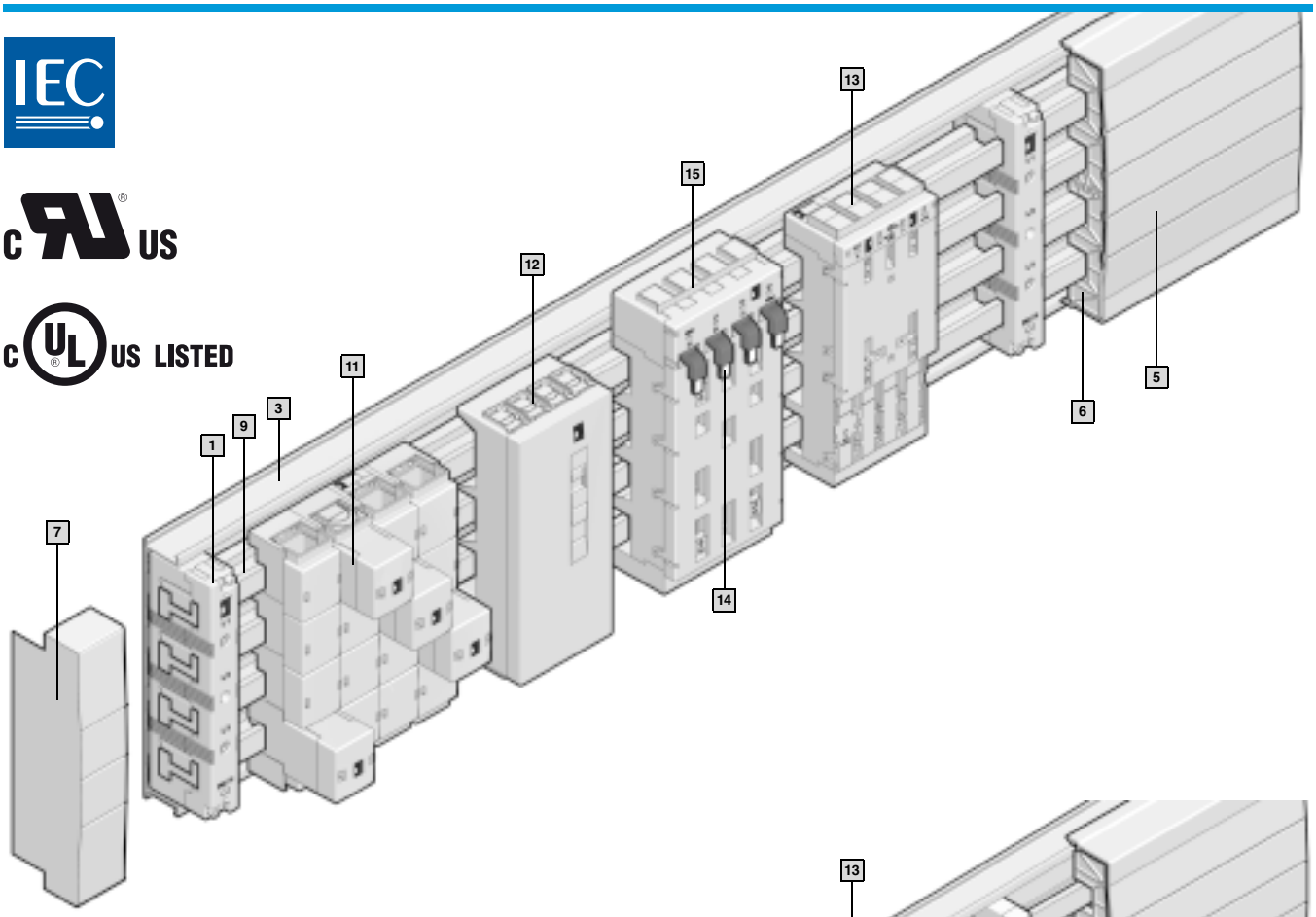
- Contacting system for round conductors and flexible busbars, no drilling required
- Convenient, assembly-friendly connection using high-quality box and prism terminal technology with minimal heat loss
- Stylish all-round contact hazard protection, also for outgoing cables

3 Circuit-breaker adaptor

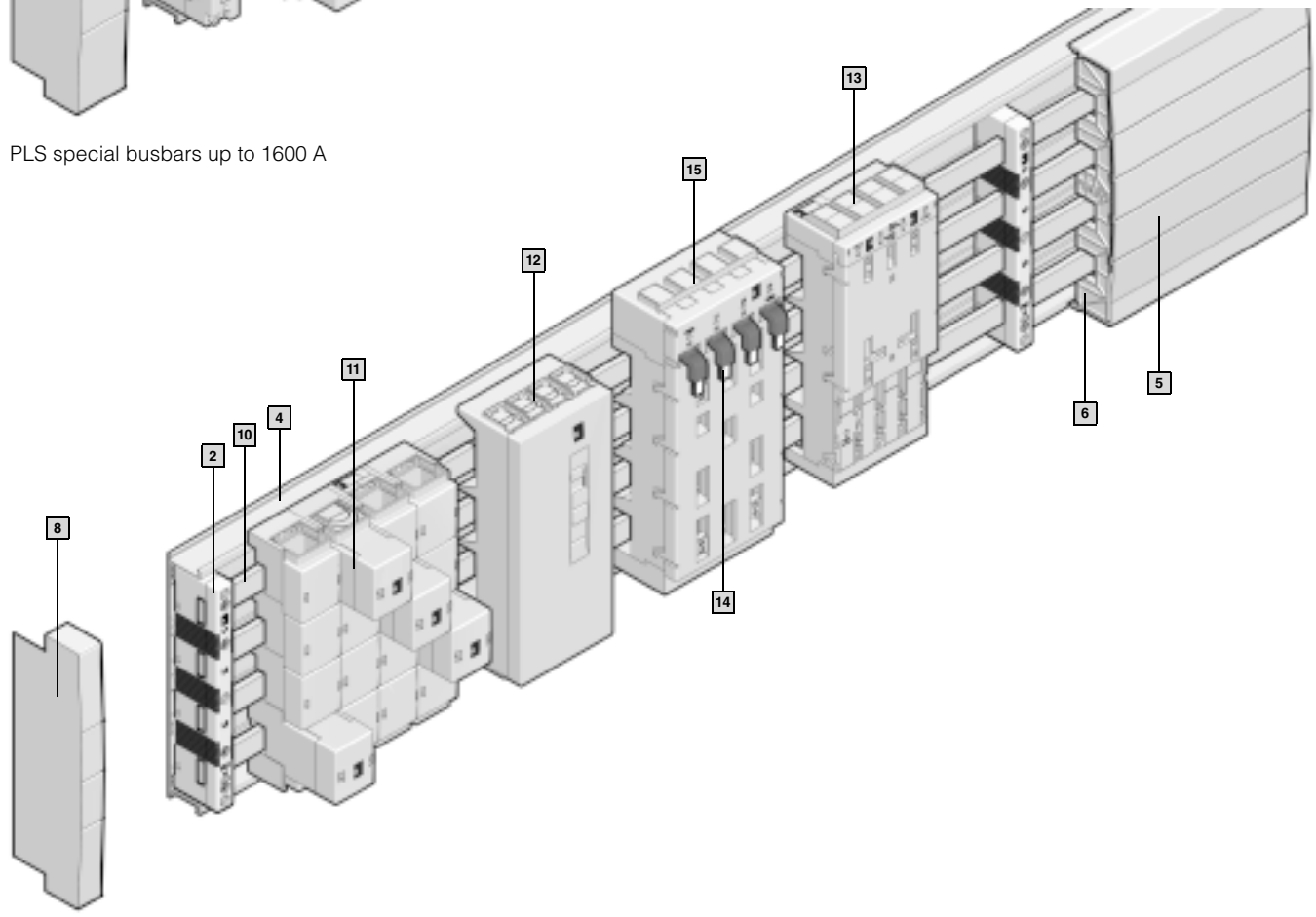
- 2 variants for the most common circuit-breakers up to 250 A
- Simple connection with pre-assembled connection brackets

RiLine60 system example 2

Busbar system, 4-pole, component overview



PLS special busbars up to 1600 A



Flat copper bars up to 800 A

Busbar system, 4-pole, bill of materials

IEC/UL system example:
System assembly with Rittal PLS system 1600 A, 4-pole.
A comparable assembly can be achieved with flat copper bars.

Note:
For more background information on IEC, see page 108/109, UL, see page 110 – 112.

		Model No. 4-pole IEC	Model No. 4-pole UL	Page
Busbar systems				
1	Busbar supports PLUS (4-pole)	**9342.004**	**9342.004**	54
2	Busbar support (4-pole)	**9340.004**	**9340.004**	52
3	Base tray (PLS)	**9342.134**	**9342.134**	55
4	Base tray	**9340.134**	**9340.134**	53
5	Cover section	**9340.214**	**9340.214**	53
6	Support panel	**9340.224**	**9340.224**	53
7	End cover for side contact hazard protection (PLS)	**9342.074**	**9342.074**	54
8	End cover for side contact hazard protection	**9340.074**	**9340.074**	52
9	PLS special busbars	**3529.000**	**3529.000**	54
10	Busbars			67
Connection systems				
11	Busbar connection adaptor (3-pole)	**9342.310**	**9342.310**	57
	Busbar connection adaptor extension kit (4-pole)	**9342.314**	**9342.314**	57
12	Busbar connection adaptor 250 A (4-pole)	**9342.254**	**9342.254**	56
Component adaptor				
13	Circuit-breaker component adaptor 160 A (4-pole)	**9342.514**	**9342.514**	58
14	Connection bracket for circuit-breaker component adaptors	**9342.570**	**–**	76
15	Circuit-breaker component adaptor 250 A (4-pole)	**9342.614**	**9342.614**	58

Busbar systems and connection technology

Fast assembly techniques: Bars may be inserted directly into the supports from the front.

All-round encapsulation of PLS and flat bar systems: Ensures maximum shockproofing.

Unrestricted top-mounting of the PLS busbar system: Completely flexible positioning of the supports makes planning easier, uses the space more effectively, and offers added stability.

Connection system to suit every application: Revolutionary design, user-friendly, universal.

RiLine60 busbar systems, 3-pole

Simply insert the bars from the front, secure, and it's done!
This is how quickly flat copper and PLS bars can be mounted in the supports.

Adjustment to the cross-section of flat bars
Width adaptation to 15, 20, 25 or 30 mm is achieved automatically upon insertion into the supports.

PLS offers unrestricted top-mounting
The supports may be positioned with complete flexibility and top-mounted with components. This makes planning easier, and saves assembly space.

UL busbar support
The increased creepage distances and clearance of the support and combination with the base tray section are requirements for use to UL 508A.

RiLine60 connection system, 3-pole

The right solution to suit every application
User-friendly connection system for round conductors and laminated copper bars.

Connection spectrum from 2.5 – 300 mm²
Depending on the adaptor designs, round connectors may be connected directly with wire end ferrules or ring terminals.

Connection of laminated copper bars; no drilling required
Clamping areas from 10 x 7.8 to 65 x 27 mm.

Simple connection and contacting
with just one screw.

Examples of the RiLine60 connection system, 3-pole

Cable outlet at the bottom

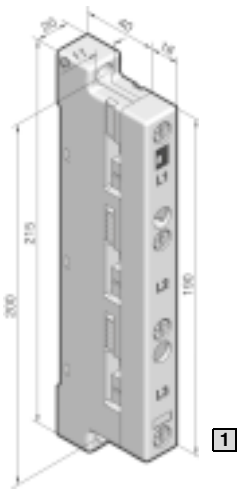
Cable outlet top and bottom

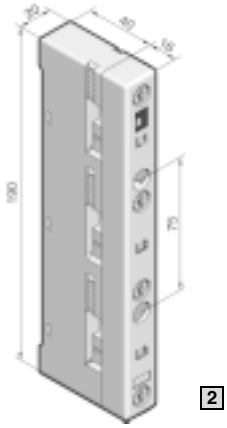
Combined clamping prisms for the connection of round conductors …

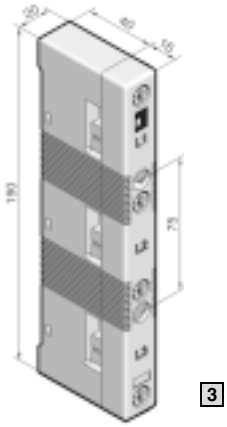
... and laminated copper bars

Rittal RiLine60 busbar systems up to 800 A (60 mm)

Busbar supports (3-pole)







Material:
Polyamide (PA 6.6),
25% fibreglass-reinforced.
Continuous operating temperature max. 130°C.
Fire protection corresponding to UL 94-V0.

Colour:
RAL 7035

Note:
Data given in accordance with UL may deviate from IEC data, see page 91 – 95.

Short-circuit protection diagram,
see page 82/84.

Technical information
for the calculation of rated currents to DIN 43 671, see page 86.

Version	Packs of	1 External attachment	2 Internal attachment	3 Internal attachment	Page
Number of poles		3-pole	3-pole	3-pole	
Bar centre distance		60 mm	60 mm	60 mm	
For busbars E-Cu		12 x 5/10 mm[1], 15 x 5 – 30 x 10 mm		15 x 5 – 30 x 10 mm	
Tightening torque ● Assembly screw (M5 x 16) ● Cover attachment		 3 – 5 Nm 1 – 3 Nm	 3 – 5 Nm 1 – 3 Nm	 3 – 5 Nm 1 – 3 Nm	
Model No. SV	4	**9340.010**	**9340.000**	**9340.050[2]** UL	
Accessories					
4 End covers for contact hazard protection on the sides	2	**9340.070** UL			
Spacers for SV 9340.000/.010	12	**9340.090**	**9340.090**	**–**	66

[1] When using busbars 12 x 5/10 mm, spacer SV 9340.090 is additionally required.
[2] For UL applications, use of the base tray – see page 19 – is compulsory.

Busbars E-Cu

To DIN EN 13 601.
Length: 2400 mm/bar.

Dimensions mm	Rated current[1] up to	Rated current for UL 508 applications	Packs of	Model No. SV		Page
				E-Cu	E-Cu, tin-plated	
12 x 5	210 A	–	6	**3580.000**	**–**	
12 x 10	340 A	–	6	**3580.100**	**–**	
15 x 5	260 A	175 A	6	**3581.000**	**–**	
15 x 10	360 A	350 A	6	**3581.100**	**–**	
20 x 5	319 A	230 A	6	**3582.000**	**–**	
20 x 10	497 A	465 A	6	**3585.000**	**–**	
25 x 5	384 A	290 A	6	**3583.000**	**–**	
30 x 5[2]	447 A	350 A	6	**3584.000**	**3584.200[3]**	
30 x 10[2]	800 A	700 A	6	**3586.000**	**3586.200[3]**	
Accessories						
Busbar cover section (length 1m/each)			10	3092.000		69

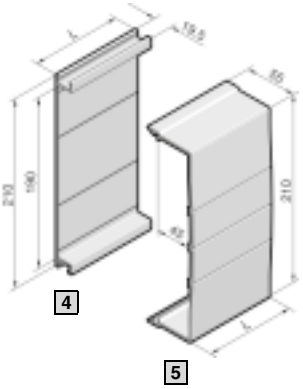
[1] For calculation of the current carrying capacity, see page 86. [2] For more busbar lengths, see page 67. [3] Delivery times available on request.

Busbar connectors

Technical information,
see page 68.

For busbars	Packs of	Model No. SV
1 12 x 5 – 15 x 10 mm (single connection)	3	**9350.075**[2]
2 20 x 5 – 30 x 10 mm (single connection)	3	**9320.020**[2]
3 20 x 5 – 30 x 10 mm (bayed connection)[1]	3	**9320.030**[2]

[1] From enclosure to enclosure
[2] For UL 508A applications only with the use of cross members, see page 66.



4 Base tray

For rear contact hazard protection of the flat bar assembly.

Length (L) mm	Packs of	Model No. SV
500	2	**9340.100**
700	2	**9340.110**
900	2	**9340.120**
1100	2	**9340.130**
2400	1	**9340.170**

5 Cover section

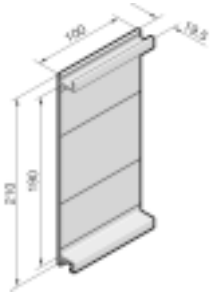
May be cut to length as required; for clip-on mounting to the base tray.

Length (L) mm	Packs of	Model No. SV
700	2	**9340.200**
1100	2	**9340.210**

Base tray and cover section
Material:
Thermally modified hard PVC.
Continuous operating temperature max. 91°C.
Fire protection corresponding to UL 94-V0.

Colour:
RAL 7035

Note:
If the cover section is mounted from the front, the support panel (SV 9340.220) is needed for stability.



Base tray infill

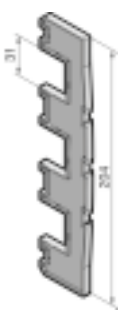
For rear contact hazard protection when connecting the busbars from enclosure to enclosure.

Material:
Thermally modified hard PVC.
Continuous operating temperature max. 91°C.
Fire protection corresponding to UL 94-V0.

Colour:
RAL 7035

Packs of	Model No. SV
2	**9340.140**

Supply includes:
Assembly parts.



Support panel

for cover section
To prevent side access to the cover section. The support panel also provides additional stability.
Recommended mounting distance ≤ 500 mm.

Material:
Polyamide (PA 6.6).
Continuous operating temperature max. 105°C.
Fire protection corresponding to UL 94-V0.

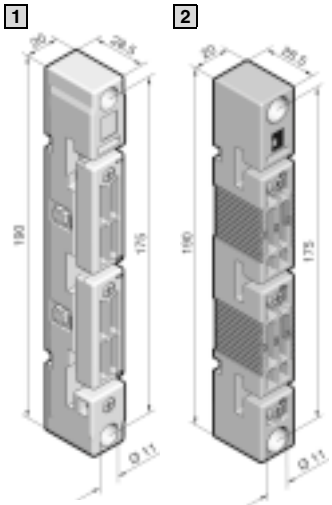
Colour:
RAL 7035

Packs of	Model No. SV
5	**9340.220**

Busbar connection adaptors page 22/23 **Connection clamps** page 71 **OM adaptors** page 26 – 29 **OM supports** page 30
Component adaptors page 31 – 35 **Bus-mounting fuse bases** page 38 – 40 **NH slimline fuse-switch-disconnectors** page 47
NH bus-mounting fuse-switch-disconnectors page 42 – 46 **Fuse holders** page 48/49 **Accessories** page 65 – 79

Rittal RiLine60 busbar systems up to 800/1600 A (60 mm)

PLS busbar supports (3-pole)



Material:
Polyamide (PA 6.6), 25% fibreglass-reinforced. Continuous operating temperature max. 130°C. Fire protection corresponding to UL 94-V0.

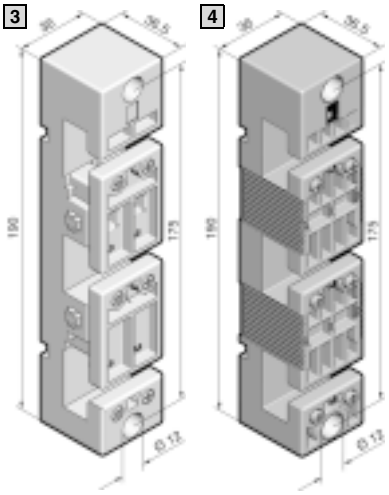
Colour:
RAL 7035

Note:
Data given in accordance with UL may deviate from IEC data, see page 91 – 95.

Short-circuit protection diagram,
see page 82/84.

Technical information
for the calculation of rated currents to DIN 43 671, see page 86.

1 2 Rittal PLS 800
3 4 Rittal PLS 1600



For Rittal system	Packs of	1 PLS 800	2 PLS 800 UL	3 PLS 1600	4 PLS 1600 UL
Number of poles		3-pole	3-pole	3-pole	3-pole
Bar centre distance		60 mm	60 mm	60 mm	60 mm
Tightening torque ● Assembly screw (M5 x 20) ● Busbar anti-slip guard		3 – 5 Nm 0.7 Nm	3 – 5 Nm 0.7 Nm	3 – 5 Nm 0.7 Nm	3 – 5 Nm 0.7 Nm
Model No. SV	4	**9341.000**	**9341.050**[1] UL	**9342.000**	**9342.050**[1] UL
Accessories					
5 End covers for contact hazard protection on the sides	2	**9341.070** UL		**9342.070** UL	

[1] The use of a base tray – see page 19 – is compulsory for UL applications.

PLS special busbars

made from E-Cu

For Rittal system		Packs of	PLS 800		PLS 1600	
Cross-section			300 mm²		900 mm²	
Max. rated current based on DIN 43 671[1] / UL 508			800 A/700 A		1,600 A/1,400 A	
Bar thickness			5 mm		10 mm	
Length mm	For enclosure width mm		**Model No. SV**		**Model No. SV**	
			E-Cu	E-Cu, tin-plated	E-Cu	E-Cu, tin-plated
495	600[2]	3	**3524.000**	**3524.200**[3]	**3527.000**	**3527.200**[3]
695	800[2]	3	**3525.000**	**3525.200**[3]	**3528.000**	**3528.200**[3]
895	1000[2]	3	**3525.010**	**3525.210**[3]	**3528.010**	**3528.210**[3]
1095	1200[2]	3	**3526.000**	**3526.200**[3]	**3529.000**	**3529.200**[3]
2400	variable	1	**3509.000**	**3509.200**[3]	**3516.000**	**3516.200**[3]

[1] For calculation of the current carrying capacity, see page 86. [2] For Rittal TS 8/ES enclosure systems [3] Delivery times available on request.

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Component adaptors page 31– 35 **Bus-mounting fuse bases** page 38 – 40 **NH slimline fuse-switch-disconnectors** page 47
NH bus-mounting fuse-switch-disconnectors page 42 – 46 **Fuse holders** page 48/49 **Accessories** page 65 – 79

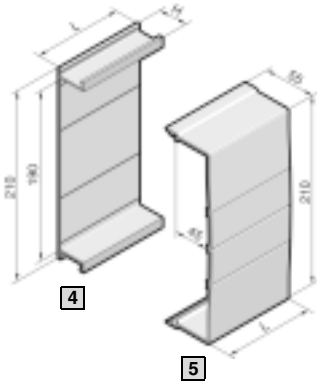
System components (3-pole)

PLS busbar connector, PLS expansion connector

Technical information,
see page 68.

For	Packs of	Model No. SV	
		PLS 800	PLS 1600
1 PLS single connection	3	**3504.000**[3]	**3514.000**[3]
2 PLS baying connection[1]	3	**3505.000**[3]	**3515.000**[3]
3 PLS expansion connection[2]	3	**9320.060**[3]	**9320.070**[3]

[1] From enclosure to enclosure.
[2] Two PLS rail connectors (single connection) are required to fit one expansion connector.
[3] For UL 508A applications only with the use of cross members, see page 66.



4 Base tray

For rear contact hazard protection of the PLS busbar assembly.

Length (L) mm	Packs of	Model No. SV For system	
		PLS 800	PLS 1600
500	2	**9341.100**	**9342.100**
700	2	**9341.110**	**9342.110**
900	2	**9341.120**	**9342.120**
1100	2	**9341.130**	**9342.130**
2400	1	**9341.170**	**9342.170**
Height (H) mm		32	43

5 Cover section

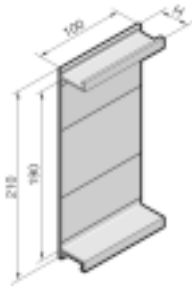
May be cut to length individually, for clip-on mounting to the base tray for PLS system 800 A and 1600 A.

Length (L) mm	Packs of	Model No. SV
700	2	**9340.200**
1100	2	**9340.210**

Base tray and cover section
Material:
Thermally modified hard PVC.
Continuous operating temperature max. 91°C.
Fire protection corresponding to UL 94-V0.

Colour:
RAL 7035

Note:
If the cover section is mounted from the front, the support panel (SV 9340.220) is needed for stability.



Base tray infill

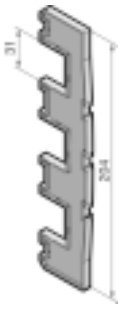
For rear contact hazard protection when connecting the busbars from enclosure to enclosure.

Material:
Thermally modified hard PVC.
Continuous operating temperature max. 91°C.
Fire protection corresponding to UL 94-V0.

Colour:
RAL 7035

For system	Height (H) mm	Packs of	Model No. SV
PLS 800	32	2	**9341.140**
PLS 1600	43	2	**9342.140**

Supply includes:
Assembly parts.



Support panel

for cover section
To prevent side access to the cover section. The support panel also provides additional stability.
Recommended mounting distance ≤ 500 mm.

Material:
Polyamide (PA 6.6).
Continuous operating temperature max. 105°C.
Fire protection corresponding to UL 94-V0.

Colour:
RAL 7035

Packs of	Model No. SV
5	**9340.220**

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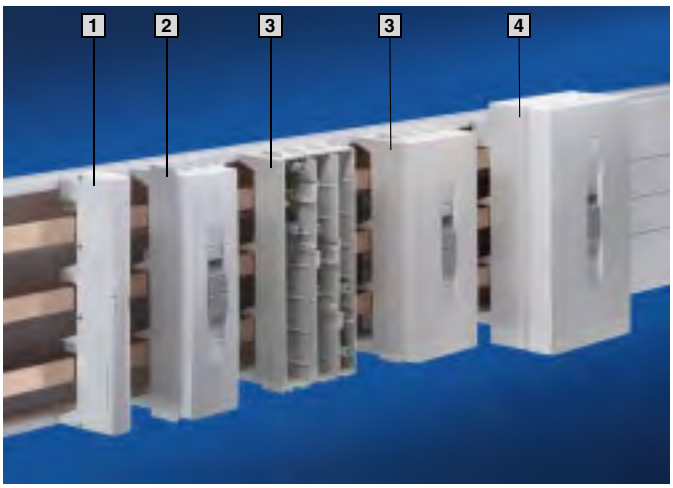
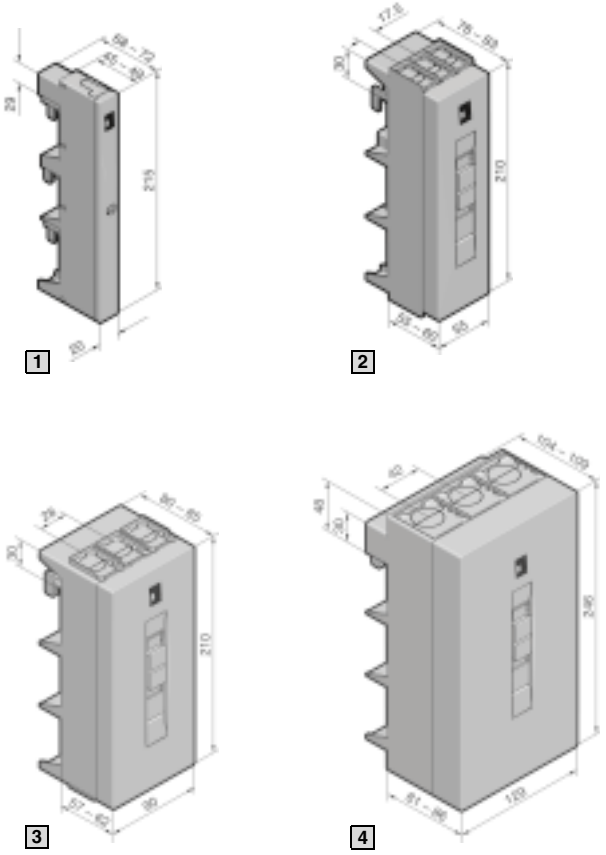
Busbar connection adaptors (3-pole)





Material:
Chassis
Polyamide (PA 6.6),
25% fibreglass-reinforced.
Continuous operating temperature max. 130°C.
Fire protection corresponding to UL 94-V0.
Cover
ABS,
fire protection corresponding to UL 94-V0.

Contact track, conductor connection clamp
Material, see page 100.

Colour:
RAL 7035

Supply includes:
Cover.

Note:
The technical data given in the tables may vary for UL applications, see page 91 – 95.

For further technical information on the connection of round conductors, see page 81.

Version (3-pole)	Packs of	1	2	3	4	Page
Rated current up to		63 A	125 A	250 A	800 A	
Rated operating voltage		690 V~	690 V~	690 V~	690 V~	
Connection of round conductors ● Fine wire with wire end ferrule ● Multi-wire ● Solid		 2.5 – 10 mm² 2.5 – 16 mm² 2.5 – 16 mm²	 10 – 25 mm² 16 – 35 mm² –	 35 – 120 mm² 35 – 120 mm² –	 95 – 185 mm² 95 – 300 mm² –	
Clamping area for laminated copper bars		–	10 x 7.8 mm	18.5 x 15.5 mm	33 x 20 mm	
Tightening torque ● Assembly screw ● Terminal screw		 2 Nm 2.5 Nm	 2 Nm 2 – 3 Nm	 4 – 6 Nm 12 Nm	 6 Nm 12 – 14 Nm	
For bar thickness		5/10 mm	5/10 mm	5/10 mm	5/10 mm	
Outlet at top/bottom **Model No. SV**	1	**–**	**9342.220**	**9342.250**	**9342.280**	
Outlet at top **Model No. SV**	1	**9342.200**	**9342.230**	**9342.260**	**9342.290**	
Outlet at bottom **Model No. SV**	1	**9342.210**	**9342.240**	**9342.270**	**9342.300**	
Accessories						
Laminated copper bars		–	■	■	■	70

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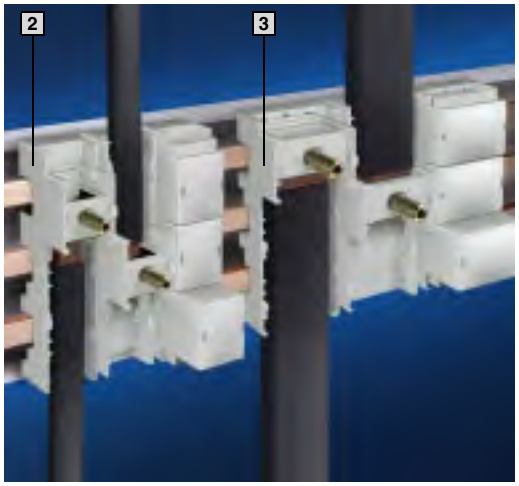
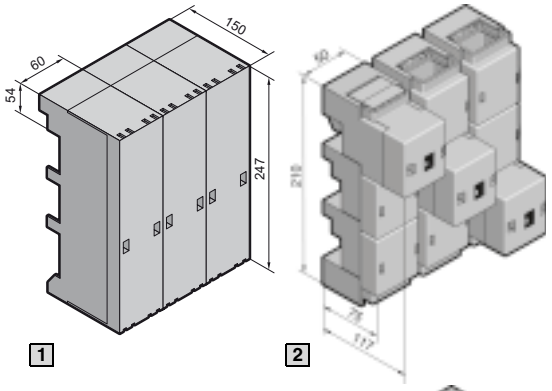
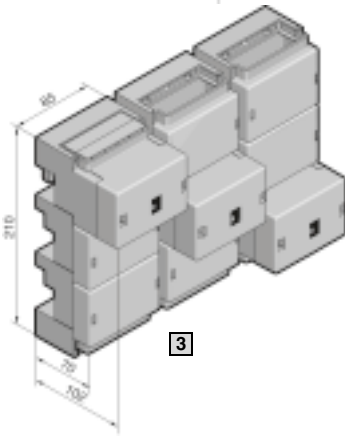
Busbar connection adaptors (3-pole)







Material:
Chassis
SV 3439.010
Fibreglass-reinforced, thermoplastic polyester (PBT). Continuous operating temperature max. 140°C. Fire protection corresponding to UL 94-V0.
SV 9342.310/.320
Polyamide (PA 6.6), 25% fibreglass-reinforced. Continuous operating temperature max. 130°C. Fire protection corresponding to UL 94-V0.

Cover
ABS, fire protection corresponding to UL 94-V0.

Contact track, conductor connection clamp
Material, see page 100.

Colour:
RAL 7035

Supply includes:
Cover.

Note:
The technical data given in the tables may vary for UL applications, see page 91 – 95.

For further technical information on the connection of round conductors, see page 81.

SV 3439.010
When connecting round conductors 300 mm² with ring terminals, the terminal clamps fitted as standard in the busbar connection adaptors must be replaced with screws and/or bolts M10.

Version (3 x 1-pole)	Packs of	1	2	3	Page
Rated current up to		600 A	800 A	1600 A	
Rated operating voltage		690 V~	690 V~	690 V~	
Outlet		top/bottom	top/bottom	top/bottom	
Connection of round conductors ● Fine wire with wire end ferrule ● Multi-wire		 35 – 240 mm² 35 – 240 mm²	 95 – 185 mm² 95 – 300 mm²	 – –	
Clamping area for laminated copper bars ● For 5 mm bar thickness ● For 10 mm bar thickness		 24 x 21 mm 24 x 21 mm	 33 x 27 mm 33 x 22 mm	 65 x 27 mm 65 x 22 mm	
Tightening torque ● Assembly screw ● Terminal screw		 15 – 20 Nm 15 Nm	 – 12 – 14 Nm	 – 15 – 20 Nm	
For bar thickness		5/10 mm	5/10 mm	5/10 mm	
Model No. SV	1 set	**3439.010**	**9342.310** (UL)	**9342.320** (UL)	
Accessories					
Laminated copper bars		■	■	■	70

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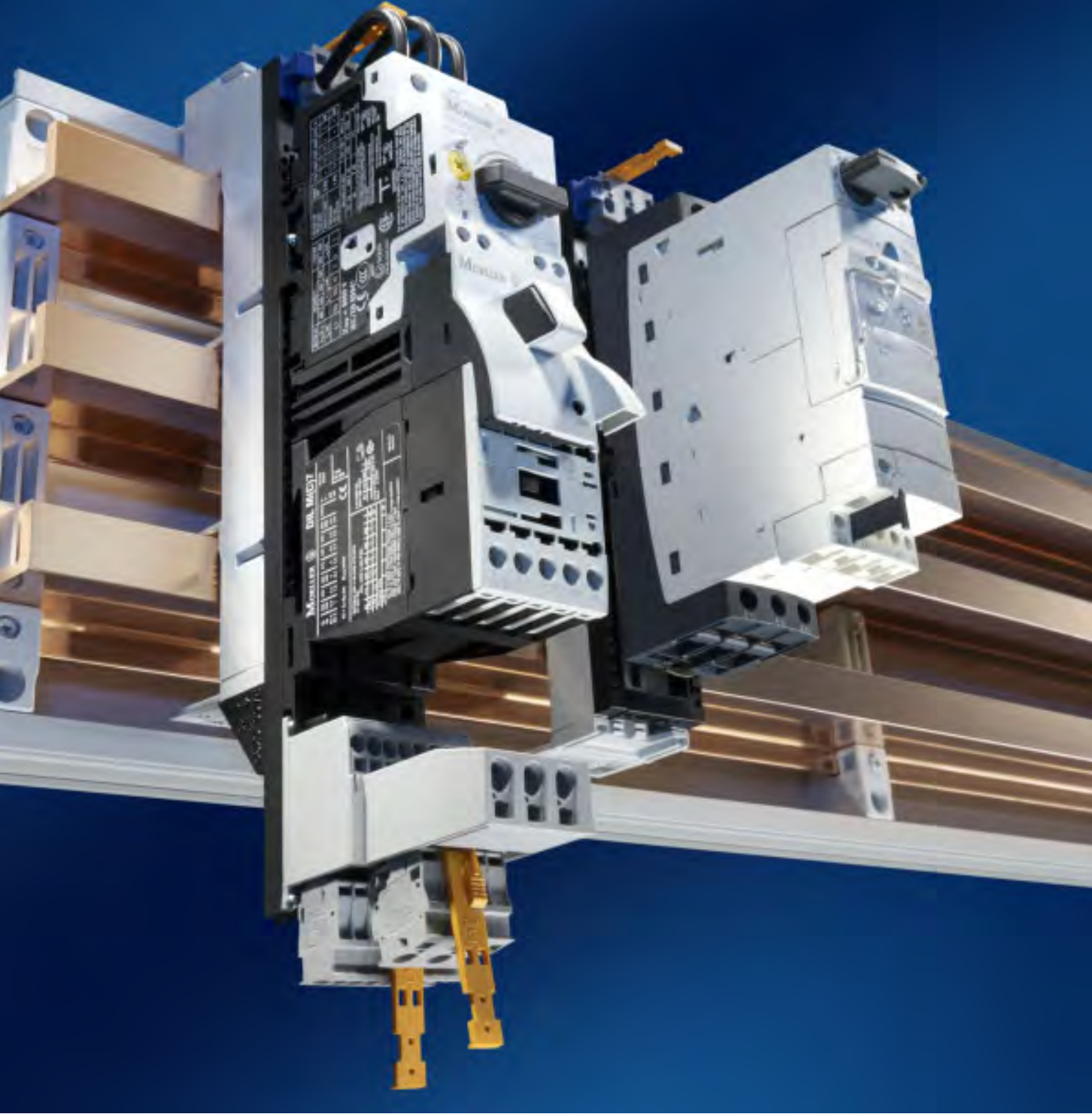
NH bus-mounting fuse-switch-disconnectors page 42 – 46 **Fuse holders** page 48/49 **Accessories** page 65 – 79



RiLine60 component adaptor

Innovative modularity, a high level of contact stability and fresh, rational approaches to component assembly are the distinguishing features of all RiLine60 component adaptors. The objectives are always the same: maximum operational and maintenance reliability, coupled with low installation and servicing costs.

OM adaptors with connection cables or tension spring clamps: External component assembly on the support frame and simple attachment of this frame onto the adaptor section.

RiLine60 circuit-breaker adaptor for universal, simplified assembly of circuit-breakers up to 630 A.

RiLine60 OM component adaptors, 3-pole

Direct mounting on 5/10 mm thick busbars.
With prefitted connection cables for component connection.

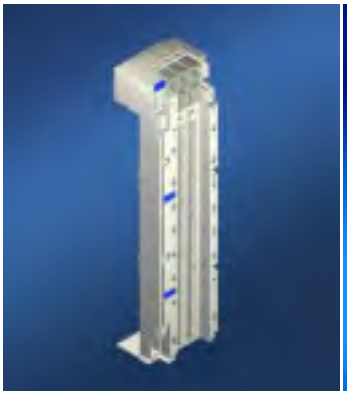
Alternatively, there is a version available with tension spring clamping technology.

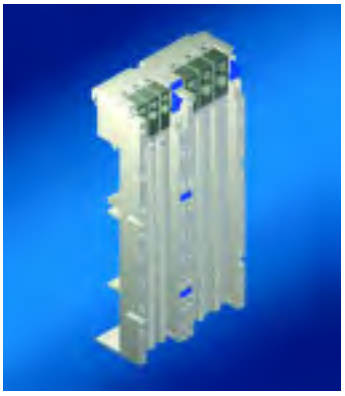
User-friendly support frame technology
System separation between the adaptor section and support frame facilitates user-friendly assembly of the top-mounted equipment outside of the switch-gear combination.

Thanks to this system separation, the busbars always remain covered and shock hazard proof in the event of a component exchange.

The modular OM adaptors and OM supports provide a broad spectrum of solutions.

Premium:
Adaptor with 3-pole jack up to 25 A, with outgoing connector block for 3 phase conductors and 8 auxiliary conductors.

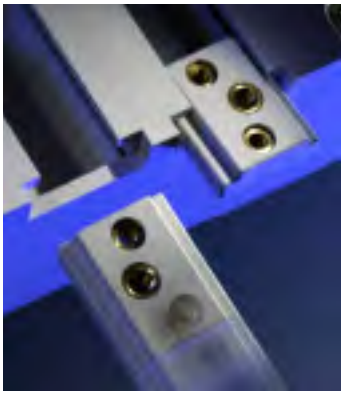




Bayable in any configuration
The construction widths 45 and 55 mm are bayable with a connection pin.
This also applies to the 10 mm insert strip (for auxiliary contacts and expansion modules).

RiLine60 circuit-breaker component adaptors, 3-pole

To suit all commercially available circuit-breakers

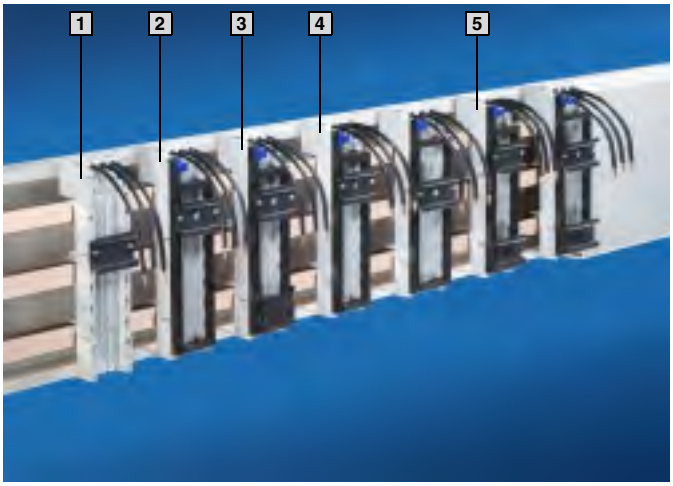


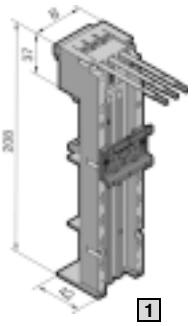
The sliding block concept of the circuit-breaker component adaptor supports the maximum variation.

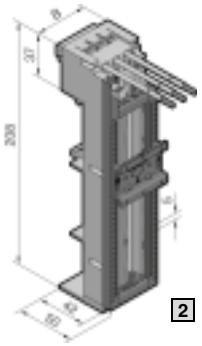
Cable outlet at the top

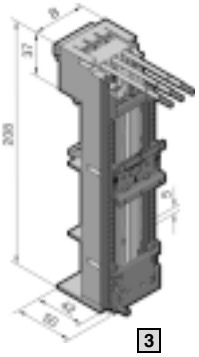
Cable outlet at the bottom

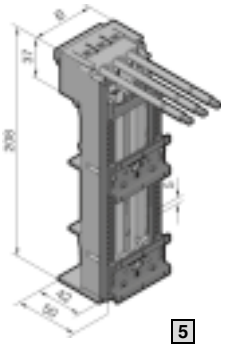
OM adaptors 25 A/32 A with connection cables (3-pole)











Material:
Polyamide (PA 6.6), 25% fibreglass-reinforced. Continuous operating temperature max. 130°C. Fire protection corresponding to UL 94-V0.

Colour:
RAL 7035 (chassis)

Note:
The technical data given in the tables may vary for UL applications, see page 91 – 95.

Overview of standard switchgear with allocation of the relevant adaptor, see page 96.

For the current carrying capacity of the supply cables fitted as standard, see page 90.

Version		Packs of	1	2	3	4	5	4	5	Page
Construction width (B)			45 mm	45 mm	45 mm	45 mm	45 mm	55 mm	55 mm	
Length			208 mm	208 mm	208 mm	208 mm	208 mm	208 mm	208 mm	
Rated current up to			25 A	25 A	25 A	32 A	32 A	32 A	32 A	
Rated operating voltage			690 V~	690 V~	690 V~	690 V~	690 V~	690 V~	690 V~	
Connection cables[1]			AWG 12	AWG 12	AWG 12	AWG 10	AWG 10	AWG 10	AWG 10	
With	Support frame		–	45 x 170 mm	45 x 170 mm	45 x 170 mm	45 x 170 mm	55 x 170 mm	55 x 170 mm	
	PinBlock		–	–	■	–	–	–	–	
Number of support rails, height	10 mm		1	1	1	1	2[2]	1	2[2]	
Support rail with anti-slip guard[3]			■	■	■	■	–	–	–	
For 5/10 mm bar thickness **Model No. SV**		1	**9340.310**	**9340.340**	**9340.370**	**9340.350**	**9340.380**	**9340.460**	**9340.470**	
Accessories										
Connection pin		20	9340.280	9340.280	9340.280	9340.280	9340.280	9340.280	9340.280	73
Insert strip 10 mm		2	9340.290	9340.290	9340.290	9340.290	9340.290	9340.290	9340.290	73
OM support	45 x 208 mm	1	9340.260	9340.260	9340.260	9340.260	9340.260	9340.260	9340.260	30
	55 x 208 mm	1	9340.270	9340.270	9340.270	9340.270	9340.270	9340.270	9340.270	30
Support frame										73
PinBlock for support frame										74
PinBlock Plus										74
Support rails										74/75

[1] AWG = American Wire Gauges
AWG 12 = 3.31 mm² ≙ 4 mm²
AWG 10 = 5.26 mm² ≙ 6 mm²
[2] The lower support rail with special latch is secured from behind with the support frame loosened.
[3] Anti-slip guard for motor circuit-breaker brands Moeller, Siemens and Telemecanique. Without anti-slip guard for universal applications.

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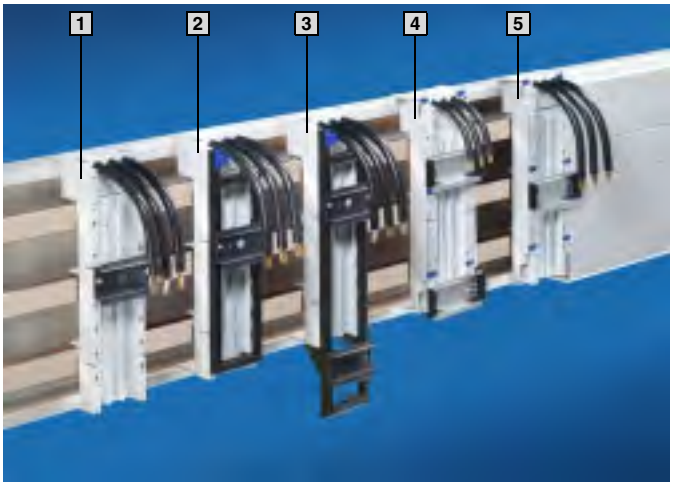
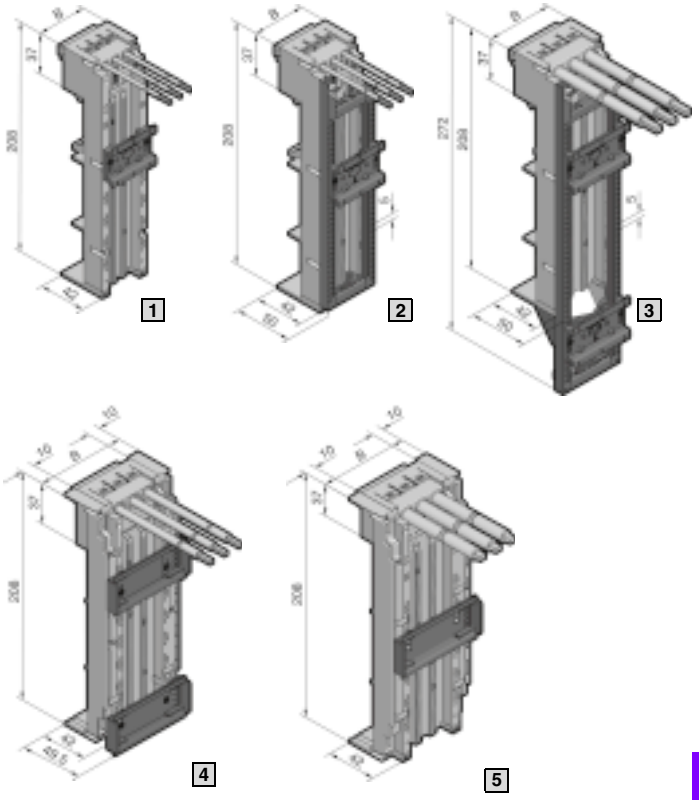
NH bus-mounting on-load isolators page 42 – 46 **Fuse holders** page 48/49 **Accessories** page 65 – 79

OM adaptors 40 A/65 A with connection cables (3-pole)





Material:
Polyamide (PA 6.6),
25% fibreglass-reinforced.
Continuous operating temperature max. 130°C.
Fire protection corresponding to UL 94-V0.

Colour:
RAL 7035 (chassis)

Note:
The technical data given in the tables may vary for UL applications,
see page 91 – 95.

Overview of standard switchgear with allocation of the relevant adaptor,
see page 96.

For the current carrying capacity of the supply cables fitted as standard,
see page 90.

Version		Packs of	1	2	3	4	5	Page
Construction width (B)			55 mm	55 mm	55 mm	75 mm	75 mm	
Length			208 mm	208 mm	272 mm	208 mm	208 mm	
Rated current up to			65 A	65 A	65 A	40 A	65 A	
Rated operating voltage			690 V~	690 V~	690 V~	690 V~	690 V~	
Connection cables[1]			AWG 6	AWG 6	AWG 6	AWG 8	AWG 6	
With	Support frame		–	55 x 170 mm	55 x 237 mm	–	–	
	Support frame supports		–	–	■	–	–	
	Insert strips		–	–	–	■	■	
Number of support rails, height	10 mm		1	1	2[2]	–	–	
	7.5 mm		–	–	–	2	1	
Support rail with anti-slip guard[3]			■	■	■	–	–	
For 5/10 mm bar thickness **Model No. SV**		1	**9340.410**[4]	**9340.430**[4]	**9340.450**[4]	**9340.710**	**9340.700**[4]	
Accessories								
Connection pin		20	9340.280	9340.280	9340.280	9340.280	9340.280	73
Insert strip 10 mm		2	9340.290	9340.290	9340.290	9340.290	9340.290	73
OM support	45 x 208 mm	1	9340.260	9340.260	9340.260	9340.260	9340.260	30
	55 x 208 mm	1	9340.270	9340.270	9340.270	9340.270	9340.270	30
Support frame								73
PinBlock for support frame								74
PinBlock Plus								74
Support rails								74/75

[1] AWG = American Wire Gauges
AWG 8 = 8.37 mm² ≙ 10 mm²
AWG 6 = 13.3 mm² ≙ 16 mm²
[2] The lower support rail with special latch is secured from behind with the support frame loosened.
[3] Anti-slip guard for motor circuit-breaker brands Moeller, Siemens and Telemecanique. Without anti-slip guard for universal applications.
[4] According to a heat dissipation test to IEC 60 439-1, a current carrying capacity of up to 80 A is supported.

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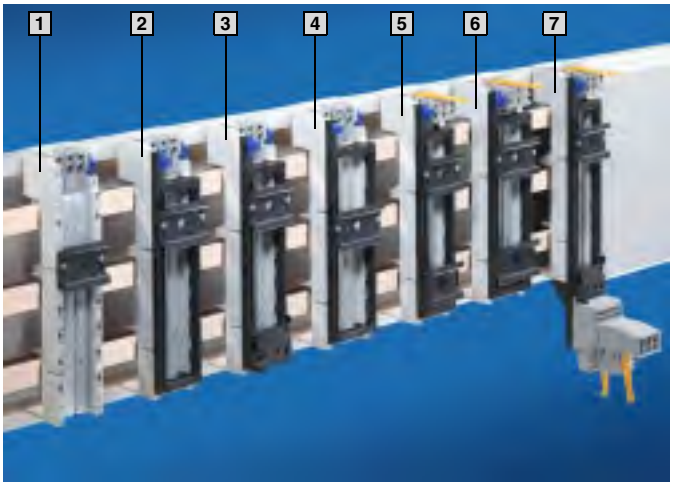
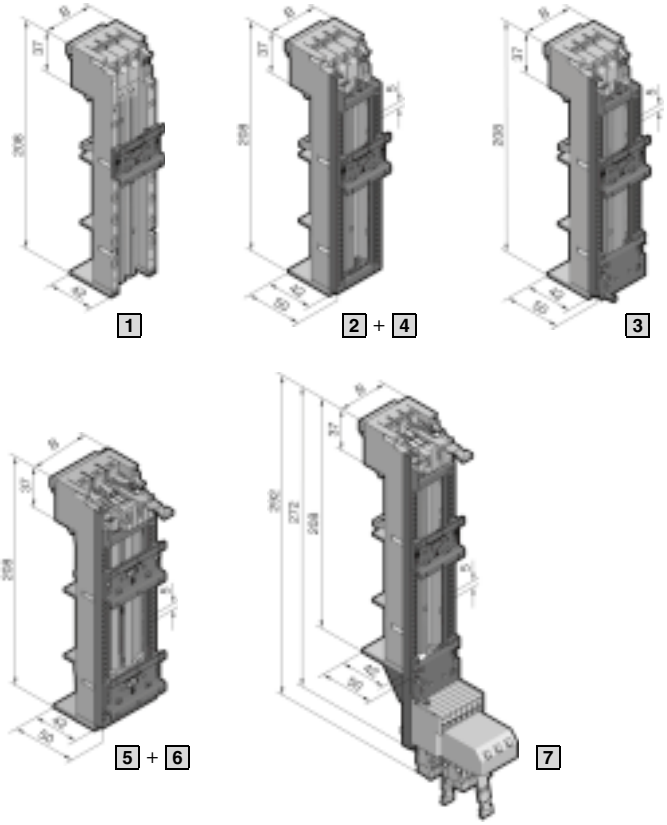
NH bus-mounting fuse-switch-disconnectors page 42 – 46 **Fuse holders** page 48/49 **Accessories** page 65 – 79

Rittal RiLine60 busbar systems (60 mm)

OM adaptors 32 A with tension spring clamp/OM Premium adaptors 25 A (3-pole)





Material:
Polyamide (PA 6.6), 25% fibreglass-reinforced. Continuous operating temperature max. 130°C. Fire protection corresponding to UL 94-V0.

Colour:
RAL 7035 (chassis)

Note:
Overview of standard switchgear with allocation of the relevant adaptor,
see page 97.

Version		Packs of	1	2	3	4	Premium adaptor 5	6	7	Page
Construction width (B)			45 mm	45 mm	45 mm	55 mm	45 mm	55 mm	45 mm	
Length			208 mm	208 mm	208 mm	208 mm	208 mm	208 mm	272 mm	
Rated current up to			32 A	32 A	32 A	32 A	25 A	25 A	25 A	
Rated operating voltage			690 V~	690 V~	690 V~	690 V~	690 V~	690 V~	690 V~	
Connection of round conductors			1.5 – 6 mm²	1.5 – 6 mm²	1.5 – 6 mm²	1.5 – 6 mm²	1.5 – 4 mm²	1.5 – 4 mm²	1.5 – 4 mm²	
With	Support frame		–	45 x 170 mm	45 x 170 mm	55 x 170 mm	45 x 170 mm	55 x 170 mm	45 x 237 mm	
	Support frame supports		–	–	–	–	–	–	■	
	PinBlock		–	–	■	–	–	–	■	
	Connector outlet		–	–	–	–	1)	1)	2)	
Number of support rails, height 10 mm			1	1	1	1	2 3)	2 3)	1	
Support rail with anti-slip guard 4)			■	■	■	–	–	–	■	
For 5/10 mm bar thickness **Model No. SV**		1	**9340.510**	**9340.530**	**9340.550**	**9340.660**	**9340.910**	**9340.930**	**9340.900**	
Accessories										
Cable set for OM adaptor	AWG 14	15	9340.850	9340.850	9340.850	9340.850	9340.850	9340.850	9340.850	75
	AWG 12	15	9340.860	9340.860	9340.860	9340.860	9340.860	9340.860	9340.860	75
	AWG 10	15	9340.870	9340.870	9340.870	9340.870	–	–	–	75
	AWG 8	6	–	–	–	–	–	–	–	75
	AWG 6	6	–	–	–	–	–	–	–	75
Connection pin		20	9340.280	9340.280	9340.280	9340.280	9340.280	9340.280	9340.280	73
Insert strip 10 mm		2	9340.290	9340.290	9340.290	9340.290	9340.290	9340.290	9340.290	73
OM support	45 x 208 mm	1	9340.260	9340.260	9340.260	9340.260	9340.260	9340.260	9340.260	30
	55 x 208 mm	1	9340.270	9340.270	9340.270	9340.270	9340.270	9340.270	9340.270	30
Support frame										73
PinBlock for support frame										74
PinBlock Plus										74
Support rails										74/75
ST-Combi connector										74

1) Supply includes: Connector with connection facility for 3 main contacts (1.5 – 4 mm²).
2) Supply includes: Sub-unit with connection facility for 3 main contacts (1.5 – 4 mm²) and 8 auxiliary contacts (0.5 – 2.5 mm²) including connector.
3) The lower support rail with special latch is secured from behind with the support frame loosened.
4) Anti-slip guard for motor circuit-breaker brands Moeller, Siemens and Telemecanique. Without anti-slip guard for universal applications.

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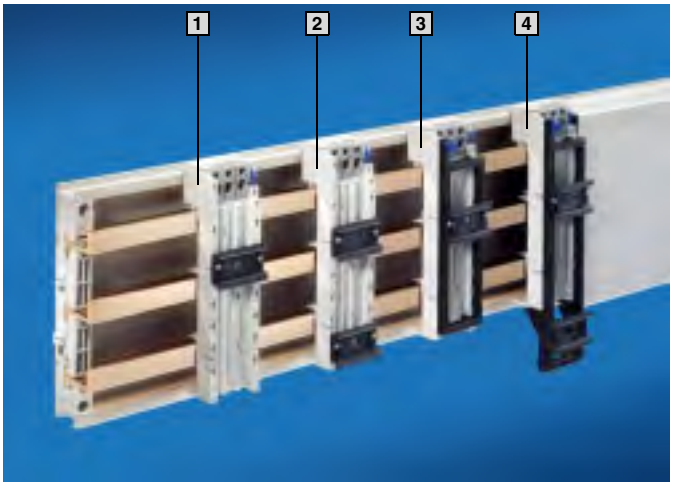
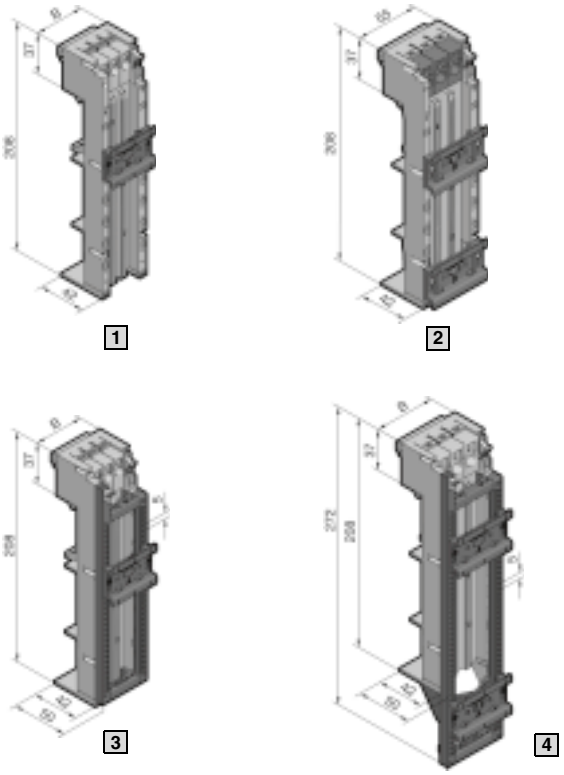
NH bus-mounting fuse-switch-disconnectors page 42 – 46 **Fuse holders** page 48/49 **Accessories** page 65 – 79

OM adaptors 65 A with tension spring clamp (3-pole)





Material:
Polyamide (PA 6.6),
25% fibreglass-reinforced.
Continuous operating temperature max. 130°C.
Fire protection corresponding to UL 94-V0.

Colour:
RAL 7035 (chassis)

Note:
Overview of standard switchgear with allocation of the relevant adaptor,
see page 97.

Version		Packs of	1	2	3	4	Page
Construction width (B)			55 mm	55 mm	55 mm	55 mm	
Length			208 mm	208 mm	208 mm	272 mm	
Rated current up to			65 A	65 A	65 A	65 A	
Rated operating voltage			690 V~	690 V~	690 V~	690 V~	
Connection of round conductors			2.5 – 16 mm²	2.5 – 16 mm²	2.5 – 16 mm²	2.5 – 16 mm²	
With	Support frame		–	–	55 x 170 mm	55 x 237 mm	
	Support frame supports		–	–	–	■	
Number of support rails, height 10 mm			1	2	1	2[1]	
Support rail with anti-slip guard[2]			■	–	■	■	
For 5/10 mm bar thickness **Model No. SV**		1	**9340.610**[3]	**9340.620**[3]	**9340.630**[3]	**9340.650**[3]	
Accessories							
Cable set for OM adaptor	AWG 14	15	9340.850	9340.850	9340.850	9340.850	75
	AWG 12	15	9340.860	9340.860	9340.860	9340.860	75
	AWG 10	15	9340.870	9340.870	9340.870	9340.870	75
	AWG 8	6	9340.880	9340.880	9340.880	9340.880	75
	AWG 6	6	9340.890	9340.890	9340.890	9340.890	75
Twin cords AWG 10		6	9340.820	9340.820	9340.820	9340.820	75
Connection pin		20	9340.280	9340.280	9340.280	9340.280	73
Insert strip 10 mm		2	9340.290	9340.290	9340.290	9340.290	73
OM support	45 x 208 mm	1	9340.260	9340.260	9340.260	9340.260	30
	55 x 208 mm	1	9340.270	9340.270	9340.270	9340.270	30
Support frame							73
PinBlock for support frame							74
PinBlock Plus							74
Support rails							74/75

[1] The lower support rail with special latch is attached from the rear with the support frame loosened.
[2] Anti-slip guard for motor circuit-breaker brands Moeller, Siemens and Telemecanique. Without anti-slip guard for universal applications.
[3] According to a heat dissipation test to IEC 60 439-1, a current carrying capacity of up to 80 A is supported.

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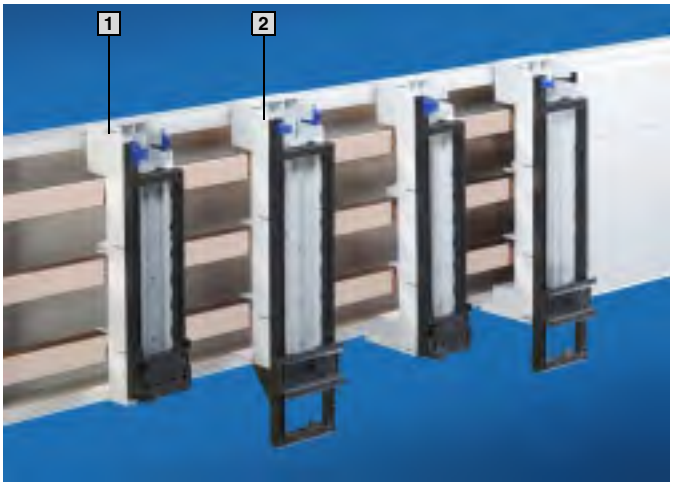
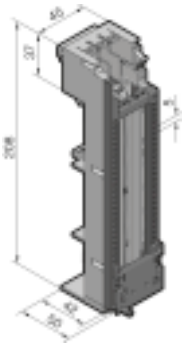
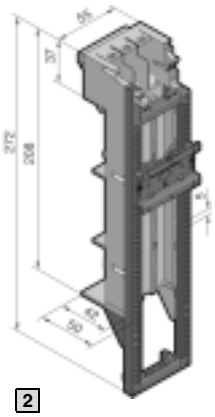
OM supports without contact system (3-pole)





1



2

Material:
Polyamide (PA 6.6),
25% fibreglass-reinforced.
Continuous operating
temperature max. 130°C.
Fire protection corresponding
to UL 94-V0.

Colour:
RAL 7035 (chassis)

Version		Packs of	1	2	Page
Construction width			45 mm	55 mm	
Length			208 mm	272 mm	
With	Support frame		45 x 170 mm	55 x 237 mm	
	Support frame supports		–	■	
	PinBlock		■	–	
Number of support rails, height 10 mm			–	1[1)]	
For 5/10 mm bar thickness **Model No. SV**		1	**9340.260** (UL)	**9340.270** (UL)	
Accessories					
Connection pin		20	9340.280	9340.280	73
Insert strip 10 mm		2	9340.290	9340.290	73
Support frame					73
PinBlock for support frame					74
PinBlock Plus					74
Support rails					74/75

[1)] The support rail with special latch is attached from the rear with the support frame loosened.

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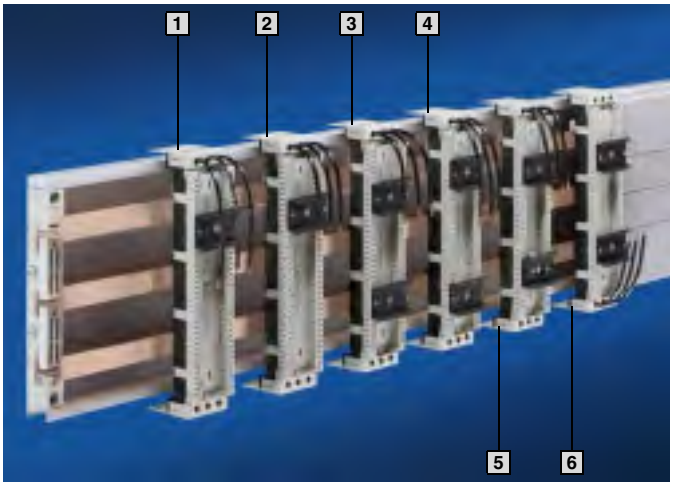
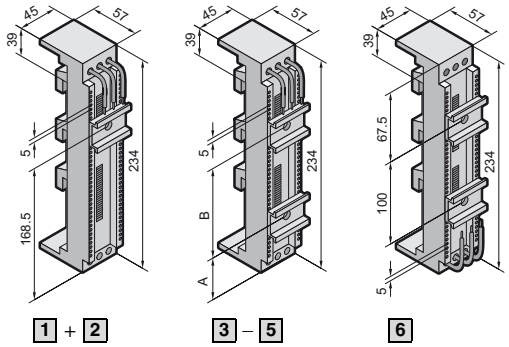
Multi-functional component adaptors 12 A/25 A (3-pole)





Material:
Polyamide (PA 6.6),
25% fibreglass-reinforced.
Continuous operating temperature max. 130°C.
Fire protection corresponding to UL 94-V0.

Colour:
RAL 7035,
RAL 9011 (chassis)

Note:
Overview of standard switchgear with allocation of the relevant adaptor,
see page 98.

Current carrying capacity of the supply cables fitted as standard,
see page 90.

For snap-on mounting		1	2	3	4	5	6	Page
Construction width		45 mm	45 mm	45 mm	45 mm	45 mm	45 mm	
Rated current up to		12 A	25 A	25 A	25 A	25 A	25 A	
Rated operating voltage		690 V~	690 V~	690 V~	690 V~	690 V~	690 V~	
Cable outlet		top	top	top	top	top	bottom	
Connection cables[1)]		AWG 14	AWG 12	AWG 12	AWG 12	AWG 12	AWG 12	
Support rails	Qty.	1	1	2	2	2 (1 variable)	2	
	Height	10 mm	10 mm	10 mm	10 mm	10 mm	10 mm	
	A	–	–	68.5 mm	55 mm	variable	–	
	B	–	–	100 mm	125 mm	variable	–	
Packs of		1	1	1	1	1	1	
For 5 mm bar thickness **Model No. SV**		**9320.160**	**9320.180**	**9320.200**	**9320.440**	**9320.220**	**9320.240**	
For 10 mm bar thickness **Model No. SV**		**9320.170**	**9320.190**	**9320.210**	**9320.450**	**9320.230**	**9320.250**	
Accessories	Packs of							
Support rails Width 45 mm, height 10 mm	5	9320.090	9320.090	9320.090	9320.090	9320.090	9320.090	77
Mounting clip	5	9320.140	9320.140	9320.140	9320.140	9320.140	9320.140	77

[1)] AWG = American Wire Gauges
AWG 14 = 2.08 mm² ≙ 2.5 mm²
AWG 12 = 3.31 mm² ≙ 4 mm²

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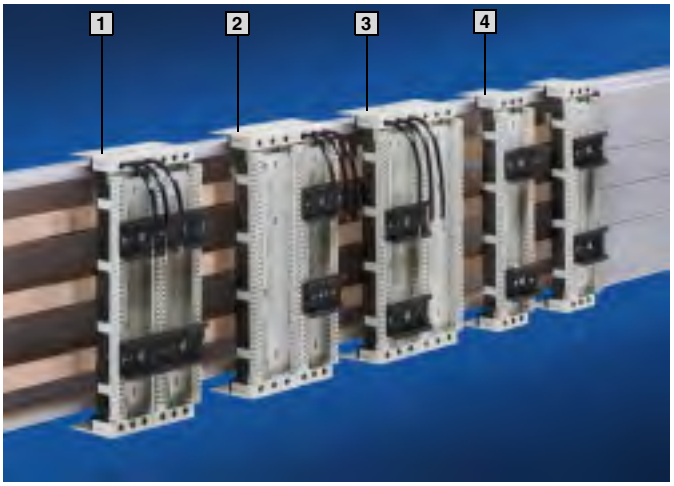
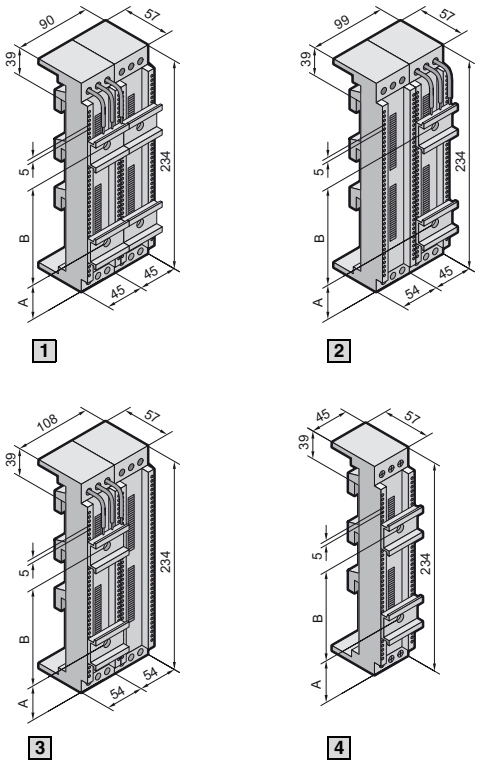
Multi-functional component adaptors 25 A (3-pole)





Material:
Polyamide (PA 6.6),
25% fibreglass-reinforced.
Continuous operating temperature max. 130°C.
Fire protection corresponding to UL 94-V0.

Colour:
RAL 7035,
RAL 9011 (chassis)

Note:
Overview of standard switchgear with allocation of the relevant adaptor,
see page 98.

Current carrying capacity of the supply cables fitted as standard,
see page 90.

For snap-on mounting		1	2	3	4	4	Page
Construction width		90 mm	99 mm	108 mm	45 mm	45 mm	
Rated current up to		25 A	25 A	25 A	25 A	25 A	
Rated operating voltage		690 V~	690 V~	690 V~	690 V~	690 V~	
Cable outlet		top	top	top	top	top/bottom	
Connection cables[1)]		AWG 12	AWG 12	AWG 12	–	–	
Connection of round conductors up to		–	–	–	16 mm²	16 mm²	
Support rails	Qty.	2	2	2	2 (1 variable)	2	
	Height	10 mm	10 mm	10 mm	10 mm	10 mm	
	A	68.5 mm	43 mm	43 mm	variable	68.5 mm	
	B	100 mm	125 mm	90 mm	variable	100 mm	
Packs of		1	1	1	1	1	
For 5 mm bar thickness **Model No. SV**		**9320.380**	**9320.400**	**9320.420**	**9320.260**	**9320.280**	
For 10 mm bar thickness **Model No. SV**		**9320.390**	**9320.410**	**9320.430**	**9320.270**	**9320.290**	
Accessories	Packs of						
Support rails Width 45 mm, height 10 mm	5	9320.090	9320.090	–	9320.090	9320.090	77
Support rails Width 54 mm, height 10 mm	5	–	9320.100	9320.100	–	–	77
Mounting clip	5	9320.140	9320.140	–	9320.140	9320.140	77

[1)] AWG = American Wire Gauges
AWG 12 = 3.31 mm² ≙ 4 mm²

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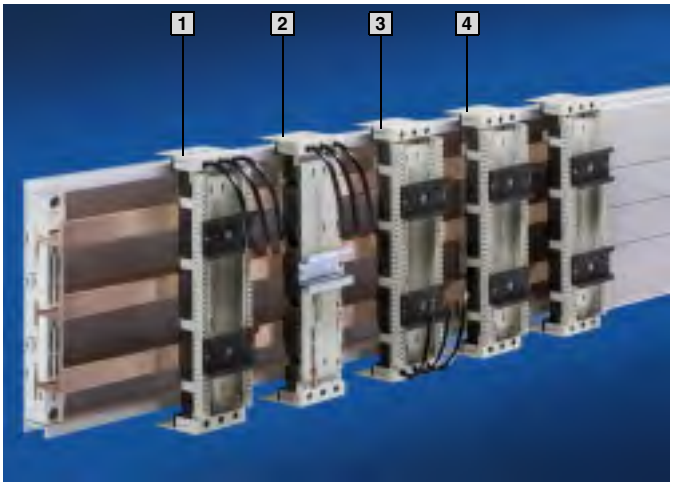
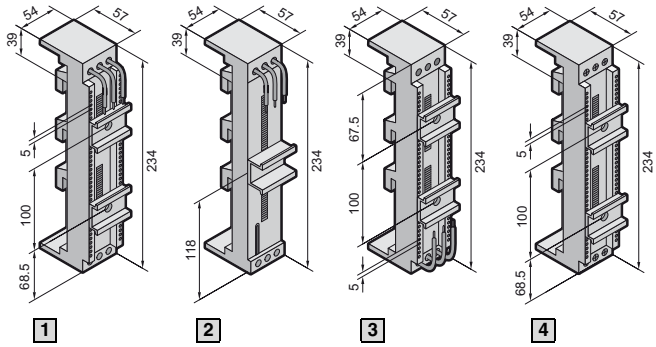
Multi-functional component adaptors 40 A (3-pole)





Material:
Polyamide (PA 6.6),
25% fibreglass-reinforced.
Continuous operating temperature max. 130°C.
Fire protection corresponding to UL 94-V0.

Colour:
RAL 7035,
RAL 9011 (chassis)

Note:
Overview of standard switchgear with allocation of the relevant adaptor,
see page 98.

Current carrying capacity of the supply cables fitted as standard,
see page 90.

For snap-on mounting		1	2	3	4	4	Page
Construction width		54 mm	54 mm	54 mm	54 mm	54 mm	
Rated current up to		40 A	40 A	40 A	40 A	40 A	
Rated operating voltage		690 V~	690 V~	690 V~	690 V~	690 V~	
Cable outlet		top	top	bottom	top	top/bottom	
Connection cables[1)]		AWG 10	AWG 10	AWG 10	–	–	
Connection of round conductors up to		–	–	–	16 mm²	16 mm²	
Support rails	Qty.	2	1	2	2	2	
	Height	10 mm	15 mm	10 mm	10 mm	10 mm	
Packs of		1	1	1	1	1	
For 5 mm bar thickness **Model No. SV**		**9320.300**	**9320.460**	**9320.320**	**9320.340**	**9320.360**	
For 10 mm bar thickness **Model No. SV**		**9320.310**	**9320.470**	**9320.330**	**9320.350**	**9320.370**	
Accessories	Packs of						
Support rails Width 54 mm, height 10 mm	5	9320.100	–	9320.100	9320.100	9320.100	77

[1)] AWG = American Wire Gauges
AWG 10 = 5.26 mm² ≙ 6 mm²

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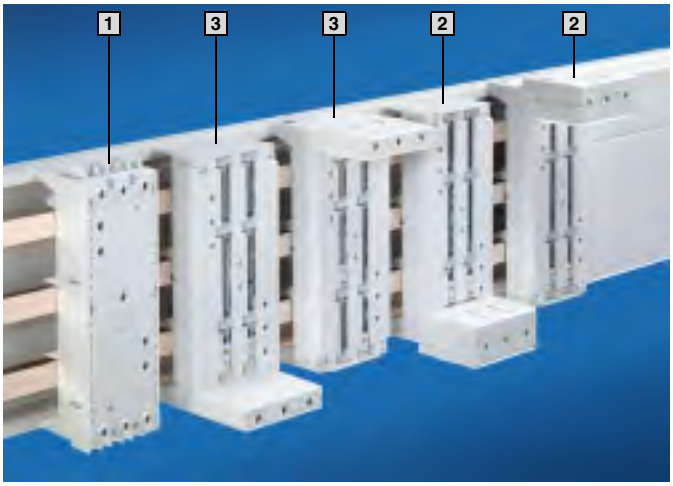
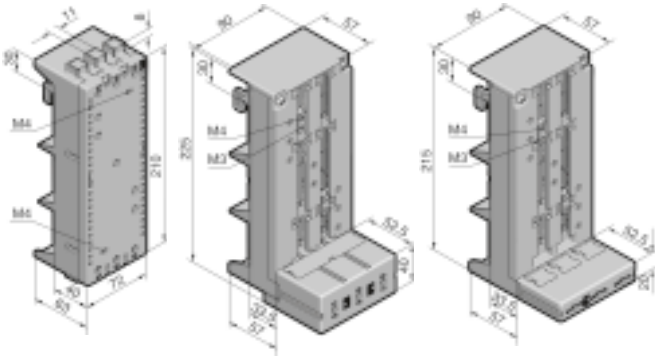
Rittal RiLine60 busbar systems (60 mm)

Circuit-breaker component adaptors 100 A/125 A/160 A (3-pole)

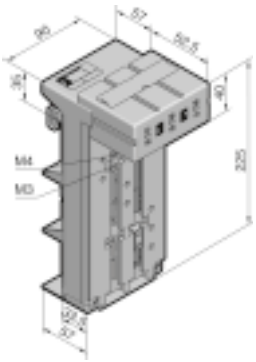




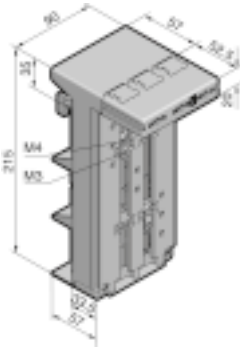
1 SV 9342.400/ SV 9342.410

2 SV 9342.540

3 SV 9342.500



2 SV 9342.550



3 SV 9342.510

Material:
Chassis
Polyamide (PA 6.6), 25% fibreglass-reinforced. Continuous operating temperature max. 130°C. Fire protection corresponding to UL 94-V0.

Colour:
RAL 7035

Supply includes:
Circuit-breaker component adaptor 125/160 A
Terminal cover and sliding blocks for switchgear attachment.

Note:
The technical data given in the tables may vary for UL applications, see page 94.

Mounting positions for universal applications, see page 99.

For further technical information on the connection of round conductors, see page 81.

Version		Packs of	1	2	3	Page
Construction width			72 mm	90 mm	90 mm	
Length			210 mm	225 mm	215 mm	
Rated current up to			100 A	125 A	160 A	
Rated operating voltage			690 V~	690 V~		
Connection clamp			Box terminal	Box terminal		
Connection of round conductors			10 – 35 mm²	35 – 120 mm²		
Clamping area for laminated copper bars			10 x 7.8 mm	18.5 x 15.5 mm		
Tightening torque ● Terminal screw ● Rail attachment ● Switchgear attachment			2 – 3 Nm 2 Nm 1.5 Nm	12 Nm 4 – 6 Nm 1.5 Nm		
For switchgear make/model	ABB		MS497	S2, T1, T2		
	Allen Bradley		–	140 – CMN		
	GE		–	FD		
	Merlin Gerin		–	NS80, NSC100		
	Moeller Electric		PKZ2[1]	NZM1		
	Siemens		S3	–		
	Telemecanique		GV3[1]	–		
	Terasaki		–	E125, S125		
	Universal application		■ [1]	–		
For bar thickness			5/10 mm	5/10 mm		
Cable outlet at the top[2] **Model No. SV**		1	**9342.400** UL	**9342.540** UL	**9342.500**	
Cable outlet at the bottom[2] **Model No. SV**		1	**9342.410** UL	**9342.550** UL	**9342.510**	
Accessories						
Support rail Width 72 mm, height 15 mm		5	9320.120	–	–	77
Sliding blocks		6	–	9342.560	9342.560	76
Connection bracket			–	■	■	76

[1] Mounting only possible with support rail SV 9320.120.
[2] Switch outlet or outgoing cable.

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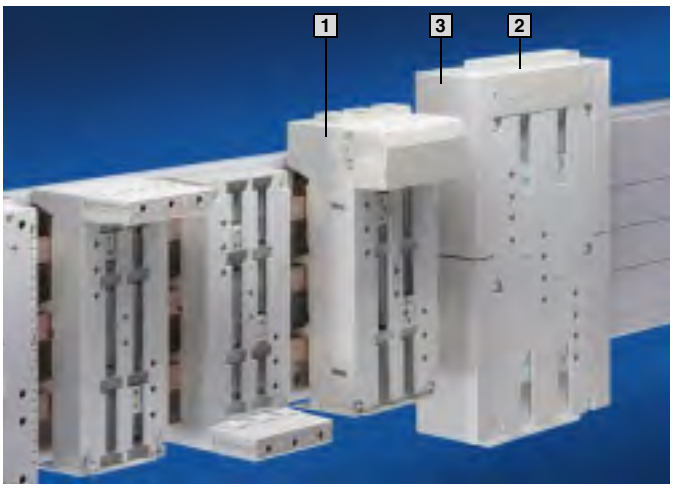
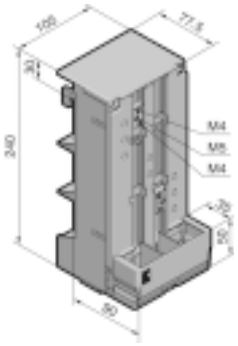
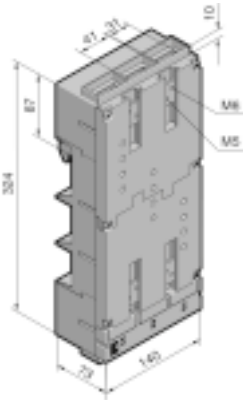
NH bus-mounting fuse-switch-disconnectors page 42 – 46 **Fuse holders** page 48/49 **Accessories** page 65 – 79

Circuit-breaker component adaptors 250 A/360 A (3-pole)

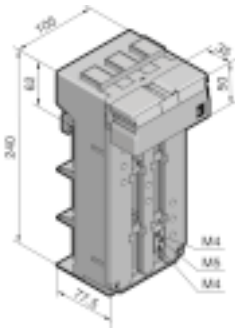




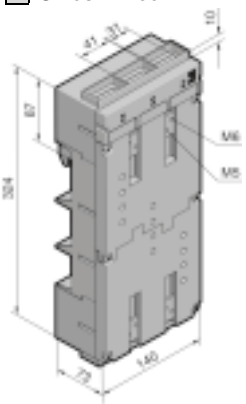
1 SV 9342.600



2 SV 9342.700



1 SV 9342.610



2 SV 9342.710

Material:
Chassis
Polyamide (PA 6.6), 25% fibreglass-reinforced. Continuous operating temperature max. 130°C. Fire protection corresponding to UL 94-V0.

Colour:
RAL 7035

Supply includes:
Terminal cover and sliding blocks for switchgear attachment.

Note:
The technical data given in the tables may vary for UL applications, see page 94.

Mounting positions for universal applications, see page 99.

For further technical information on the connection of round conductors, see page 81.

Version		Packs of	1	2	Page
Construction width			105 mm	140 mm	
Length			240 mm	324 mm	
Rated current up to			250 A	630 A	
Rated operating voltage			690 V~	690 V~	
Connection clamp			Box terminal	Screw terminal M10	
Connection of round conductors			35 – 120 mm²	max. 150 mm² 2)	
Clamping area for laminated copper bars			18.5 x 15.5 mm	32 x 10 mm	
Tightening torque ● Terminal screw ● Rail attachment ● Switchgear attachment			 12 Nm 4 – 6 Nm 1.5 Nm	 30 – 32 Nm 12 – 14 Nm 2.5 Nm	
For switchgear make/model	ABB		S3, T3, T4	S5, T5	
	Allen Bradley		140U – J	140U – L	
	GE		FE	–	
	Merlin Gerin		NS(X)100, NS(X)160, NS(X)250	NS(X)400, NS(X)630	
	Mitsubishi		NF125-SGW/HGW, NF160-SGW/HGW	NF400-SEW/HEW/REW, NF600-SEW/HEW/REW	
	Moeller Electric		NZM2	NZM3	
	Siemens		VL160X, VL160, VL250	VL400, VL630 3)	
	Telemecanique		GV7	–	
	Terasaki		L125, H125, S160, H160, L160, E250, L250, H250	E400, S400, H400, L400, E630, S630	
For bar thickness			5/10 mm	5/10 mm	
Cable outlet at the top 1) **Model No. SV**		1	**9342.600** UL	**9342.700** UL	
Cable outlet at the bottom 1) **Model No. SV**		1	**9342.610** UL	**9342.710** UL	
Accessories					
3 Insert strip 25 mm to extend the construction width from 140 mm to 190 mm		4 (1 set)	–	9342.720	76
Sliding blocks		6	9342.640	–	76
Connection bracket			■	■	76

1) Switch outlet or outgoing cable. 2) With ring terminal. 3) Also required: Insert strip 25 mm (SV 9342.720).

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Fuse elements

Rittal provides innovative fuse components for IEC or UL applications up to 630 A.

From bus-mounting fuse bases up to 36 A, **RiLine D-Switch** with visual monitoring, **RiLine NH disconnectors** with UR approval for semi-conductor fuses and **fuse holders in the RiLine Class range** for J-Class fuse inserts, approved to the latest UL /CSA standards, right through to **NH fuse-switch-disconnectors** in a slimline design, we have the right appropriate solution to suit every application.

RiLine60 IEC fuse technology, 3-pole

Fast assembly, variable cable outlets, tested to IEC – that's convincing cost optimisation for users.

Bus-mounting fuse bases
Screw-fastening or snap-mounting, 3-pole, for D02-E18, DII-E27 and DIII-E33 fuse technology.

RiLine D-Switch with visual fuse monitoring (flashing indicator) for D01 and D02-E18 fuse technology.

NH fuse-switch-disconnectors
Size 00 to 3. Free choice of cable outlet (top/bottom) by simply rotating the mounting feet.

NH slimline fuse-switch-disconnectors
Size 00. Free choice of cable outlet (top/bottom) by simply rotating the mounting feet.

RiLine60 UL fuse technology, 3-pole

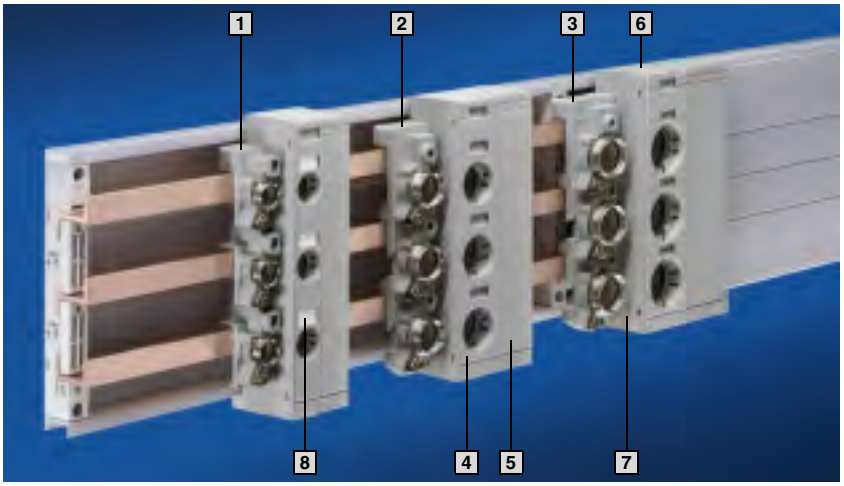
RiLine60 Class fuse holder: UL approved fuse technology for use in the North American market.

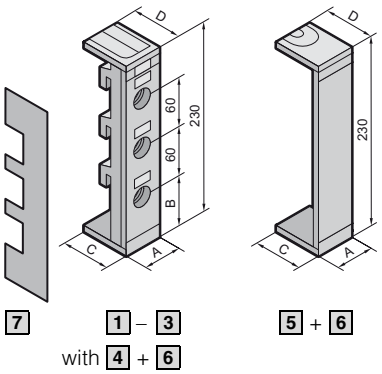
Fuse holder up to 60 A
Simple mounting on support rails or via RiLine60 OM component adaptors on busbars.

Fuse holder 100 to 400 A for mounting plate or busbar assembly
100 A/200 A/400 A fuse holders are intended solely for the use of J-Class fuses.

Rittal RiLine60 busbar systems (60 mm)

Bus-mounting fuse bases for clamping screw fastening (3-pole)





7 | 1 – 3 with 4 + 6 | 5 + 6

Material:
Bus-mounting fuse base:
Fibreglass-reinforced, thermoplastic polyester (PBT).
Continuous operating temperature max. 140°C.
Fire protection corresponding to UL 94-V0.

Contact hazard protection cover:
Polyamide (PA 6.6).
Continuous operating temperature max. 105°C.
Fire protection corresponding to UL 94-V0.

Colour:
RAL 7035

Version	Packs of	1	2	3
Type		D 02-E 18 (adaptor sleeve)	D II-E 27 (adaptor screw)	D III-E 33 (adaptor screw)
Width (A)		27 mm	42 mm	57 mm
Rated current		63 A	25 A	63 A
Rated operating voltage		400 V~	500 V~	690 V~
Terminal for round conductors[1]		1.5 – 16 mm²	1.5 – 16 mm²	1.5 – 16 mm²
Tightening torque ● Assembly screw ● Terminal screw		 2 Nm 2.5 Nm	 2 Nm 2.5 Nm	 2 Nm 2.5 Nm
For 5/10 mm bar thickness **Model No. SV**	10	**3418.000**	**3427.000**	**3433.000**
Accessories				
4 **Contact hazard protection cover** **Model No. SV**	10	**3419.000**	**3428.000**	**3434.000**
5 **Extension cover** **Model No. SV**	10	**3421.000**	**3430.000**	**3436.000**
6 **End caps** for system with base tray **Model No. SV**	10	**3420.010**	**3429.010**	**3435.010**
End caps for system without base tray **Model No. SV**	10	**3420.000**	**3429.000**	**3435.000**
7 **Side cover** **Model No. SV**	10	**3093.000**	**3093.000**	**3093.000**
8 **Identification labels** **Model No. SV**	100	**9320.080**	**9320.080**	**9320.080**
Width (A) mm		27	42	57
Spacing (B) mm		57	40	40
Depth (C) mm[2]		67	71.5	71.5
Depth (D) mm[3] for rail system – with base tray		47	51.5	51.5
Depth (D) mm[3] for rail system – without base tray		67	71.5	71.5

[1] Wire end ferrules should be used with fine wire conductors.
[2] Bottom end cap
[3] Top end cap

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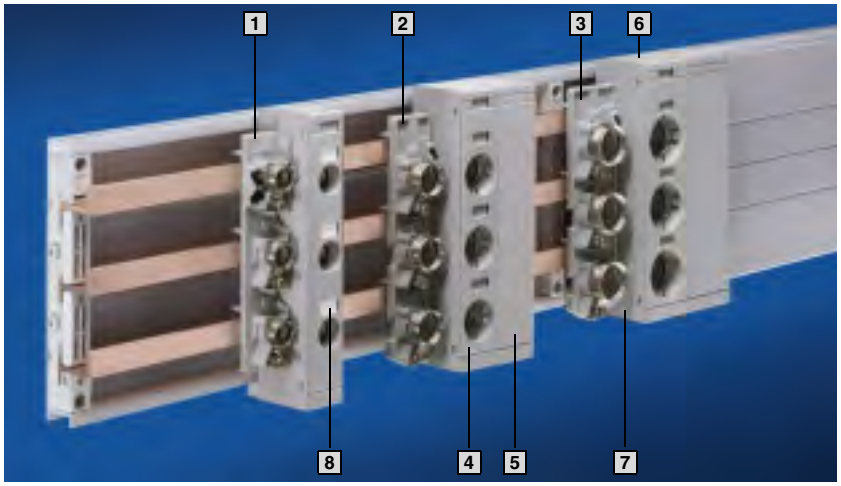
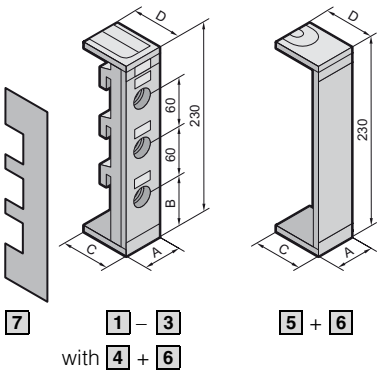
Bus-mounting fuse bases for snap-on mounting (3-pole)





7 | 1 – 3 with 4 + 6 | 5 + 6

Material:
Bus-mounting fuse base:
Fibreglass-reinforced, thermoplastic polyester (PBT).
Continuous operating temperature max. 140°C.
Fire protection corresponding to UL 94-V0.

Contact hazard protection cover:
Polyamide (PA 6.6).
Continuous operating temperature max. 105°C.
Fire protection corresponding to UL 94-V0.

Colour:
RAL 7035

Version	Packs of	1	2	3
Type		D 02-E 18 (adaptor sleeve)	D II-E 27 (gauge ring)	D III-E 33 (gauge ring)
Width (A)		36 mm	42 mm	57 mm
Rated current		63 A	25 A	63 A
Rated operating voltage		400 V~	500 V~	690 V~
Terminal for round conductors[1]		1.5 – 16 mm²	1.5 – 16 mm²	1.5 – 16 mm²
Tightening torque ● Terminal screw		2.5 Nm	2.5 Nm	2.5 Nm
For 5 mm bar thickness **Model No. SV**	10	**3422.000**	**3520.000**	**3530.000**
For 10 mm bar thickness **Model No. SV**	10	**3423.000**	**3521.000**	**3531.000**
Accessories				
4 **Contact hazard protection cover** **Model No. SV**	10	**3424.000**	**3428.000**	**3434.000**
5 **Extension cover** **Model No. SV**	10	**–**	**3430.000**	**3436.000**
6 **End caps** for system with base tray **Model No. SV**	10	**3425.010**	**3429.010**	**3435.010**
End caps for system without base tray **Model No. SV**	10	**3425.000**	**3429.000**	**3435.000**
7 **Side cover** **Model No. SV**	10	**3093.000**	**3093.000**	**3093.000**
8 **Identification labels** **Model No. SV**	100	**9320.080**	**9320.080**	**9320.080**
Width (A) mm		36	42	57
Spacing (B) mm		57	40	40
Depth (C) mm[2]		67	71.5	71.5
Depth (D) mm[3] for rail system	with base tray	47	51.5	51.5
	without base tray	67	71.5	71.5

[1] Wire end ferrules should be used with fine wire conductors.
[2] Bottom end cap
[3] Top end cap

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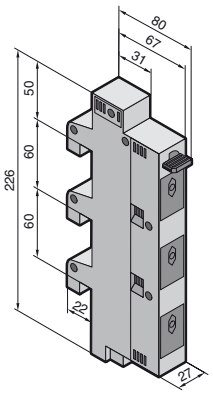
Rittal RiLine D-switch (60 mm)

Bus-mounting fuse base 63 A (3-pole)



- 3-pole switchable bus-mounting fuse base for snap-on mounting on 12 – 30 x 5/ 10 mm busbars or PLS 800/ 1600 with 60 mm bar centre distance.
- For the use of fuse inserts to DIN 49 522.
- With integral visual fuse monitoring via flashing indicator.
- Safely released via independent manual actuation.
- Lockable in the isolated position.
- Lockable and sealable.
- A display panel integrated into the enclosure visually indicates the device's operating status.

Material:
Polyamide PA6.
Fire protection corresponding to UL 94-V0.

Colour:
Chassis: RAL 7035
Fuse holder: RAL 7001

Basis of test:
IEC/EN 60 947-3

Supply includes:
Reducing retaining springs for D01 and 10 x 38 mm fuses.

Rated operating current	63 A
Rated operating voltage	400 V~
Service short-circuit breaking capacity	50 kA
Number of poles	3-pole
Fuse inserts	D01[1)]/D02/10 x 38 mm
Terminal for round conductors[2)]	1.5 – 25 mm²
Tightening torque ● Terminal screw	3 – 4 Nm
Level of contamination	3
Overvoltage category	IV
Min. voltage, indicator light	100 – 400 V~
Switching category	AC 22B
Contact hazard protection	IP 20
Packs of	3
Model No. SV	**9340.950**

[1)] When using D01 and 10 x 38 mm fuses, reducing retaining springs must be used.
[2)] Wire end ferrules should be used with fine wire conductors.

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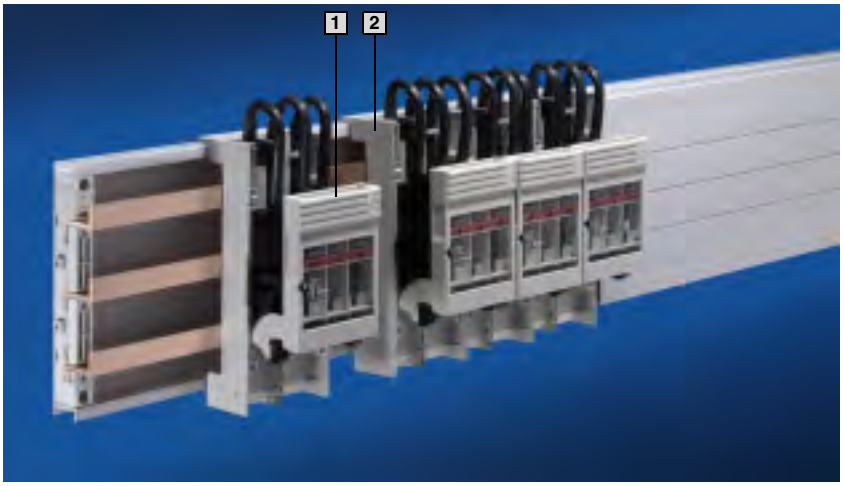
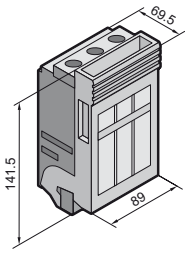
NH fuse-switch-disconnector, size 000 (3-pole)





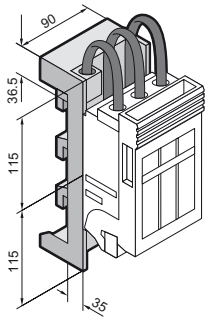
Material:
Chassis, lid,
contact hazard protection:
Fibreglass-reinforced
polyamide.
Fire protection corresponding
to UL 94-V0.
Contact tracks:
Silver-plated hard copper.

Colour:
Chassis: RAL 9011
Cover: RAL 7035

For technical information to IEC 60 947-3,
see page 104.

Size	Packs of	Size 000	Page
Rated current		100 A (160 A)[1)]	
Rated operating voltage		690 V~	
Cable outlet		top/bottom	
Type of connection		Terminal	
Connection of round conductors		1.5 – 50 mm²	
Clamping area for laminated copper bars (W x H)		10 x 10 mm	
Tightening torque ● Terminal screw		3 Nm	
1 Model No. SV	1	**3431.000**	
Also required			
Busbar adaptor		see below	
Accessories			
Micro-switch	5	3071.000	79

1) 160 A at 95 mm² connection cross-section (95 mm² connector pieces available on request).



2 Busbar adaptor

For mounting SV 3431.000 on 60 mm busbar systems.

Material:
Fibreglass-reinforced, thermoplastic polyester (PBT).
Continuous operating temperature max. 140°C.
Fire protection corresponding to UL 94-V0.

Colour:
RAL 7035

Supply includes:
35 mm² connection cables fitted as standard.

For bar thickness mm	Packs of	Model No. SV
5	1	**9320.040**
10	1	**9320.050**

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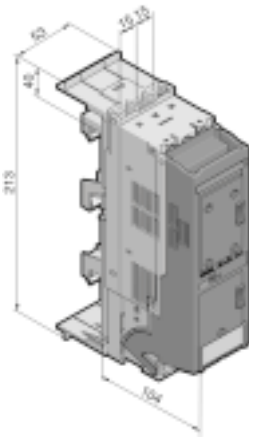
Rittal RiLine NH (60 mm)

NH bus-mounting fuse-switch-disconnectors, size 000 (3-pole)



Material:
Cover and chassis: Fibreglass-reinforced polyamide.
Fire protection corresponding to UL 94-V0.

Colour:
Chassis: RAL 7035
Cover: RAL 7001

Note:
The special fuse arrangement produces a minimal build width of just 53 mm.
The special shape of the NH disconnector chassis supports top-mounting of RiLine60 busbar support for flat copper bars.

Size		Packs of	Size 000		Page
Rated current			100 A		
Rated operating voltage			690 V~		
Utilisation category	500 V		AC -22B		
	690 V		AC -21B		
Type of connection			Box terminal		
Connection of round conductors (single-wire/multi-wire)			2.5 – 50 mm²		
$P_{heat\ loss}$/fuse insert			7.5 W		
Tightening torque ● Assembly screw ● Terminal screw			 4.5 Nm 4.5 Nm		
For bar thickness			5/10 mm		
Cable outlet			Top	Bottom	
Model No. SV		1	**3431.020**	**3431.030**	
Accessories					
Micro-switch		5	3071.000		79

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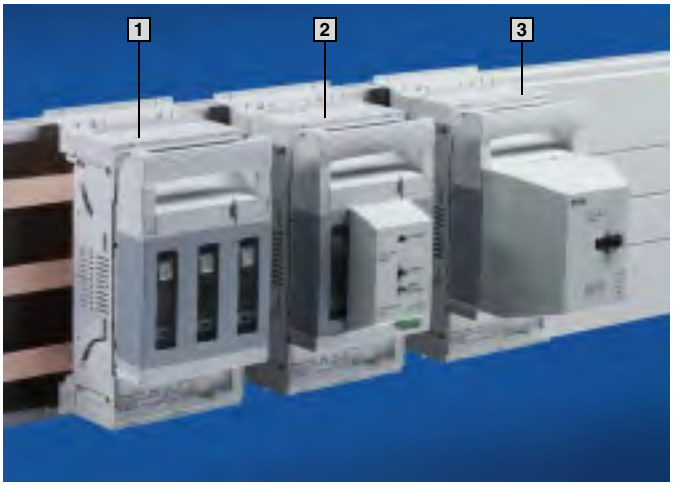
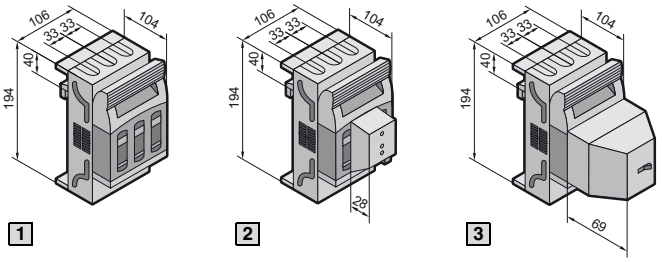
NH bus-mounting fuse-switch-disconnectors, size 00 (3-pole)





Material:
Chassis, lid, contact hazard protection: Polyamide PA6.
Fire protection corresponding to UL 94-V0.
Contact tracks:
Electrolytic copper, silver-plated.

Colour:
Cover and chassis: RAL 7035
Cover trim panel: RAL 7001

Supply includes:
Top and bottom covers.

For technical information to IEC 60 947-3,
see page 102 – 105.

Note:
The technical data provided in the table may deviate for RU applications,
see page 91 – 95.
Applications to RU only in conjunction with "Special Purpose Fuses".

Approvals:
UL 4248-1
CSA C22.2 No. 4248-1

Size	Packs of	Size 00		Page
Rated current		160 A		
Rated operating voltage		690 V~/500 V~[1]		
Cable outlet		top/bottom		
Type of connection		Box terminal	Screw M8	
Connection of round conductors		4 – 95 mm²	up to 95 mm²	
Clamping area for laminated copper bars (W x H)		13 x 13 mm	20 x 5 mm	
Tightening torque ● Assembly screw ● Terminal screw		 6 Nm 4.5 Nm	 6 Nm 12 Nm	
For bar thickness		5/10 mm	5/10 mm	
1 **Model No. SV**	1	**9343.000**	**9343.010**	
2 **with electronic fuse monitoring[1] Model No. SV**	1	**9343.020**	**9343.030**	
3 **with electromechanical fuse monitoring Model No. SV**	1	**9343.040**	**9343.050**	
Accessories				
Micro-switch	5	3071.000	3071.000	79
Connection space cover	2	9344.520	9344.520	79
Prism terminal	3	–	9344.600	78
Laminated copper bars		■	■	70

[1] Rated operating voltage 400 V~ to 500 V~ for NH disconnectors with electronic fuse monitoring.

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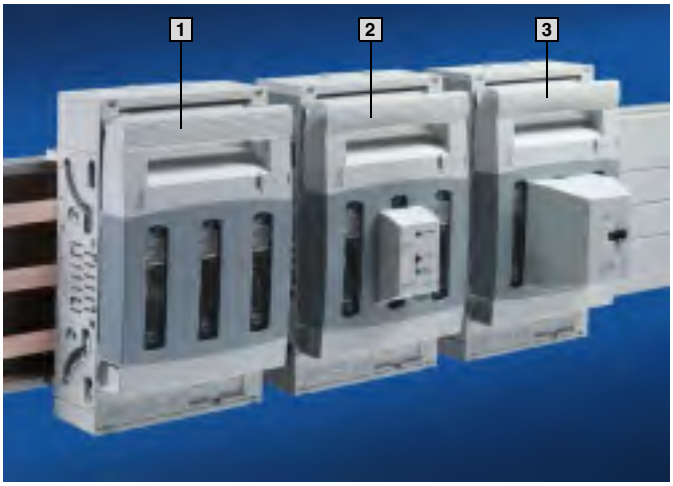
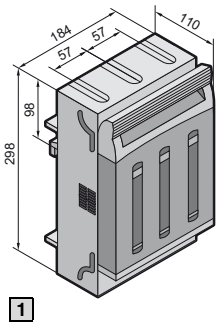
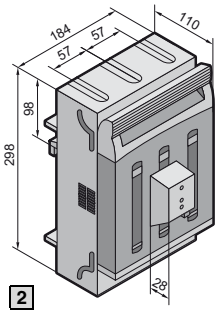
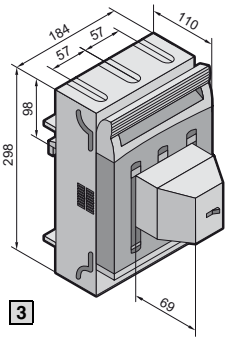
NH bus-mounting fuse-switch-disconnectors, size 1 (3-pole)









Material:
Chassis, lid, contact hazard protection: Polyamide PA6.
Fire protection corresponding to UL 94-V0.
Contact tracks:
Electrolytic copper, silver-plated.

Colour:
Cover and chassis: RAL 7035
Cover trim panel: RAL 7001

Supply includes:
Top and bottom covers.

For technical information to IEC 60 947-3,
see page 102 – 105.

Note:
The technical data provided in the table may deviate for RU applications,
see page 91 – 95.
Applications to RU only in conjunction with "Special Purpose Fuses".

Approvals:
UL 4248-1
CSA C22.2 No. 4248-1

Size	Packs of	Size 1		Page
Rated current		250 A		
Rated operating voltage		690 V~/500 V~ [1]		
Cable outlet		top/bottom		
Type of connection		Box terminal	Screw M10	
Connection of round conductors		35 – 150 mm² [2]	up to 150 mm²	
Clamping area for laminated copper bars (W x H)		20 x 3 – 14 mm	32 x 10 mm	
Tightening torque ● Assembly screw ● Terminal screw		 6 Nm 12 Nm	 6 Nm 20 Nm	
For bar thickness		5/10 mm	5/10 mm	
1 **Model No. SV**	1	**9343.100**	**9343.110**	
2 **with electronic fuse monitoring [1] Model No. SV**	1	**9343.120**	**9343.130**	
3 **with electromechanical fuse monitoring Model No. SV**	1	**9343.140**	**9343.150**	
Accessories				
Micro-switch	2	9344.510	9344.510	79
Connection space cover	2	9344.530	9344.530	79
Box terminals	3	–	9344.610	78
Arc chambers	3	9344.680	9344.680	79
Laminated copper bars		■	■	70

[1] Rated operating voltage 400 V~ to 500 V~ for NH disconnectors with electronic fuse monitoring.
[2] Connection of sector-shaped conductors 50 – 150 mm².

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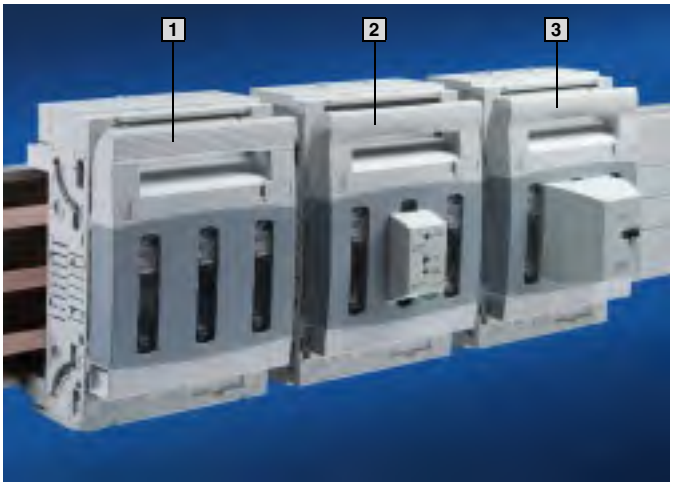
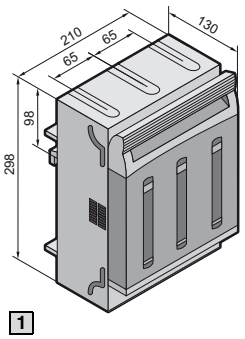
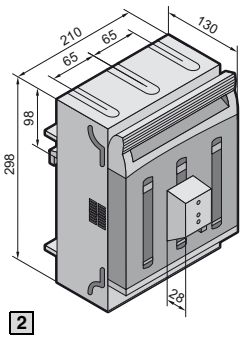
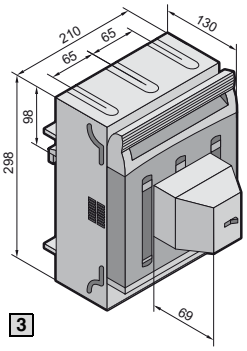
NH bus-mounting fuse-switch-disconnectors, size 2 (3-pole)









Material:
Chassis, lid, contact hazard protection: Polyamide PA6.
Fire protection corresponding to UL 94-V0.
Contact tracks:
Electrolytic copper, silver-plated.

Colour:
Cover and chassis: RAL 7035
Cover trim panel: RAL 7001

Supply includes:
Top and bottom covers.

For technical information to IEC 60 947-3,
see page 102 – 105.

Note:
The technical data provided in the table may deviate for RU applications,
see page 91 – 95.
Applications to RU only in conjunction with "Special Purpose Fuses".

Approvals:
UL 4248-1
CSA C22.2 No. 4248-1

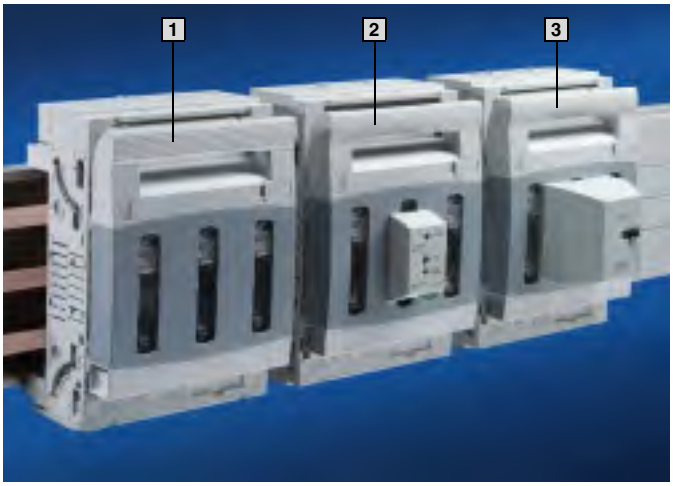
Size	Packs of	Size 2		Page
Rated current		400 A		
Rated operating voltage		690 V~/500 V~ [1]		
Cable outlet		top/bottom		
Type of connection		Box terminal	Screw M10	
Connection of round conductors		95 – 300 mm² [2]	up to 240 mm²	
Clamping area for laminated copper bars (W x H)		32 x 10 – 20 mm	50 x 10 mm	
Tightening torque ● Assembly screw ● Terminal screw		 8 Nm 20 Nm	 8 Nm 20 Nm	
For bar thickness		5/10 mm	5/10 mm	
1 **Model No. SV**	1	**9343.200**	**9343.210**	
2 **with electronic fuse monitoring [1] Model No. SV**	1	**9343.220**	**9343.230**	
3 **with electromechanical fuse monitoring Model No. SV**	1	**9343.240**	**9343.250**	
Accessories				
Micro-switch	2	9344.510	9344.510	79
Connection space cover	2	9344.540	9344.540	79
Box terminals	3	–	9344.620	78
Arc chambers	3	9344.680	9344.680	79
Laminated copper bars		■	■	70

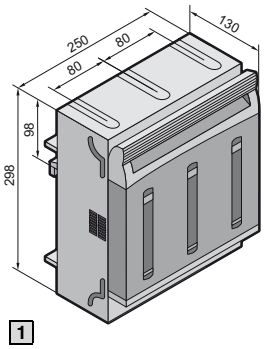
[1] Rated operating voltage 400 V~ to 500 V~ for NH disconnectors with electronic fuse monitoring.
[2] Connection of sector-shaped conductors 120 – 300 mm².

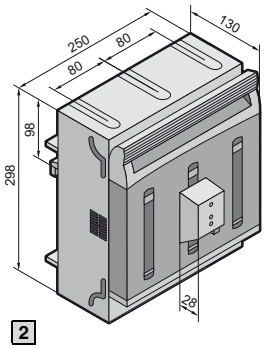
Busbar systems page 18 – 21 **Busbar connection adaptors** page 22/23 **Connection clamps** page 71 **OM adaptors** page 26 – 29
OM supports page 30 **Component adaptors** page 31 – 35 **Bus-mounting fuse bases** page 38 – 40 **NH slimline fuse-switch-disconnectors** page 47
Fuse holders page 48/49 **Accessories** page 65 – 79

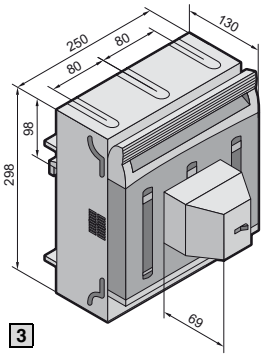
Rittal RiLine NH (60 mm)

NH bus-mounting fuse-switch-disconnectors, size 3 (3-pole)









Material:
Chassis, lid, contact hazard protection: Polyamide PA6.
Fire protection corresponding to UL 94-V0.
Contact tracks:
Electrolytic copper, silver-plated.

Colour:
Cover and chassis: RAL 7035
Cover trim panel: RAL 7001

Supply includes:
Top and bottom covers.

For technical information to IEC 60 947-3,
see page 102 – 105.

Note:
The technical data provided in the table may deviate for RU applications,
see page 91 – 95.
Applications to RU only in conjunction with "Special Purpose Fuses".

Approvals:
UL 4248-1
CSA C22.2 No. 4248-1

Size	Packs of	Size 3		Page
Rated current		630 A		
Rated operating voltage		690 V~/500 V~ [1]		
Cable outlet		top/bottom		
Type of connection		Box terminal	Screw M10	
Connection of round conductors		95 – 300 mm² [2]	up to 300 mm²	
Clamping area for laminated copper bars (W x H)		32 x 10 – 20 mm	50 x 10 mm	
Tightening torque ● Assembly screw ● Terminal screw		 8 Nm 20 Nm	 8 Nm 20 Nm	
For bar thickness		5/10 mm	5/10 mm	
1 **Model No. SV**	1	**9343.300**	**9343.310**	
2 **with electronic fuse monitoring [1] Model No. SV**	1	**9343.320**	**9343.330**	
3 **with electromechanical fuse monitoring Model No. SV**	1	**9343.340**	**9343.350**	
Accessories				
Micro-switch	2	9344.510	9344.510	79
Connection space cover	2	9344.550	9344.550	79
Box terminals	3	–	9344.620	78
Arc chambers	3	9344.680	9344.680	79
Laminated copper bars		■	■	70

[1] Rated operating voltage 400 V~ to 500 V~ for NH disconnectors with electronic fuse monitoring.
[2] Connection of sector-shaped conductors 120 – 300 mm².

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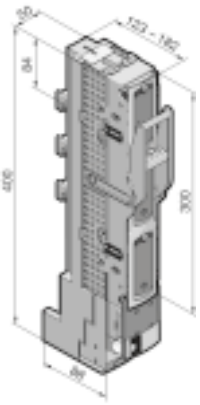
NH slimline fuse-switch-disconnectors, size 00 (3-pole)



Material:
Cover, strip chassis:
Fibreglass-reinforced polyamide.
Fire protection corresponding to UL 94-V0.
Contact tracks:
Silver-plated hard copper.

Colour:
Chassis: RAL 7035
Cover: RAL 7001
Handle: RAL 7016

For technical information to IEC 60 947-3,
see page 101/102.

Size	Packs of	Size 00		Page
Rated current		160 A		
Rated operating voltage		690 V~		
Cable outlet		top/bottom		
Type of connection		Box terminal	Screw M8	
Connection of round conductors (single-wire/multi-wire)		2.5 – 95 mm²	up to 95 mm²	
Tightening torque ● Assembly screw ● Terminal screw		 6 Nm 4.5 Nm	 6 Nm 14 Nm	
For bar thickness		5/10 mm	5/10 mm	
Model No. SV	1	**9346.000**	**9346.010**	
Accessories				
Micro-switch	5	9346.400	9346.400	79
Lug terminal connection parts	1 set	–	3592.020	78
Clamp-type terminal connection	1 set	–	3592.010	78

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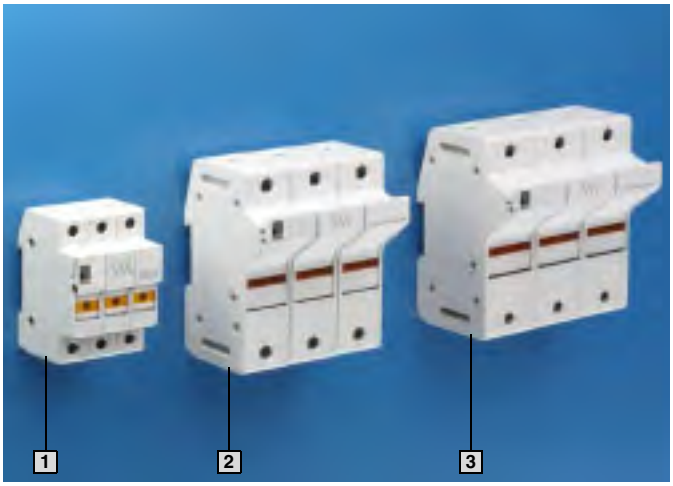
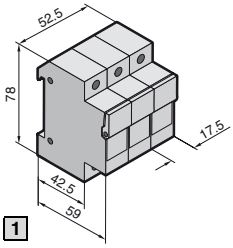
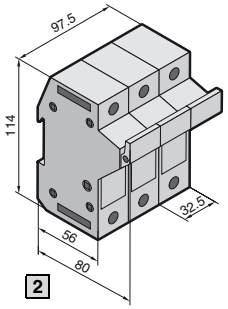
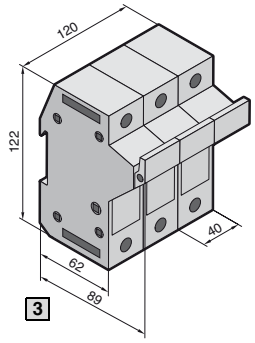
Fuse holder up to 60 A (3-pole)









- UL/CSA Listed.
- Fuse holder for the use of fuses to American/Canadian standards.
- For snap-on mounting on 35 mm support rails to IEC/EN 60 715 (7.5/15 mm high) or RiLine60 component adaptor combinations (OM adaptors/supports, see page 26 – 30).
- Visual fuse monitoring via indicator lights.
- 3-pole, switchable off-load.

Material:
Polyamide PA6.
Fire protection corresponding to UL 94-V0.

Colour:
RAL 7035

Approvals:

SV 9345.000:
UL 512, CSA C22.1, Class 6225

SV 9345.010, SV 9345.030:
UL 512, CSA, Class 6225

Version	1	2	3
Fuse type (class)	CC	J	J
Rated operating current	30 A	30 A	60 A
Rated operating voltage	600 V~	600 V~	600 V~
Number of poles	3-pole	3-pole	3-pole
Fuse size	10 x 38 mm	21 x 57 mm	27 x 60 mm
Switching capacity RMS Sym. Rating	200 kA	200 kA	200 kA
Min. voltage, indicator light	115 V ≃	115 V ≃	115 V ≃
Connection of round conductors	2.5 – 10 mm² AWG 6 – 14	2.5 – 25 mm² AWG 2 – 14	2.5 – 25 mm² AWG 2 – 14
Tightening torque ● Terminal screw	2 Nm 37.47 cm-lbs solid/stranded Cu	4 Nm 35 in-lbs solid/stranded Cu	5 Nm 114.30 cm-lbs solid/stranded Cu
Contact hazard protection	IP 20	IP 20	IP 20
Packs of	4	2	2
Model No. SV	**9345.000** UL	**9345.010**[1] UL	**9345.030** UL

[1] May also be used for cylindrical fuses 22 x 58 mm to French standards without UL licensing.

Mounting example on bar systems

Required accessories	Fuse holder		
	9345.000	9345.010	9345.030
9340.260	–	1	–
9340.270	–	–	1
9340.280	–	3	6
9340.290	–	–	1
9340.410	–	1	1
9340.460	1	–	–
9342.880	–	1	–
9342.950	1	1	2

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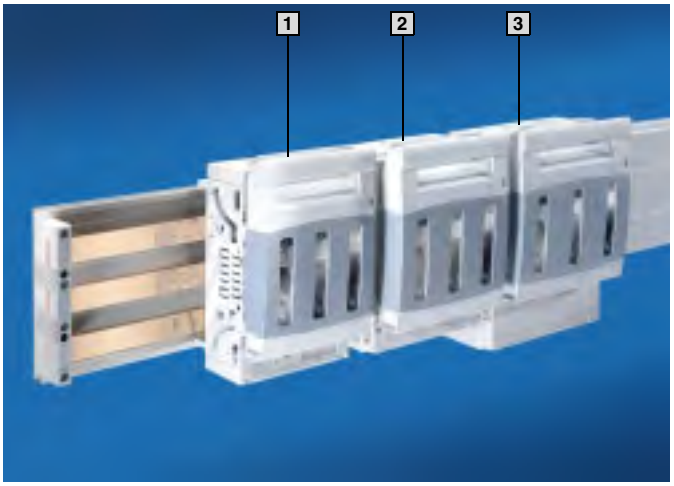
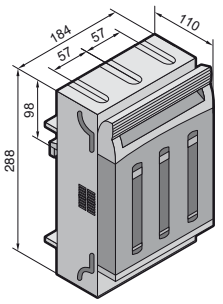
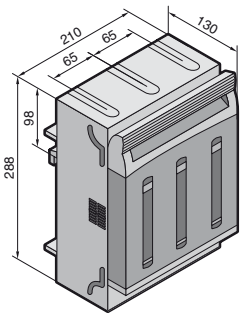
Fuse holder 61 – 400 A (3-pole)

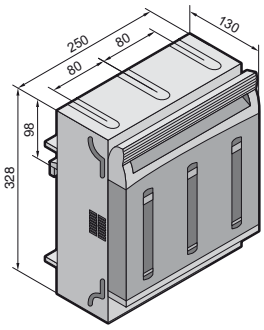




1



2



3

Material:
Chassis, lid, contact hazard protection: Polyamide PA6.
Fire protection corresponding to UL 94-V0.
Contact tracks:
Electrolytic copper, silver-plated.

Colour:
Cover and chassis: RAL 7035
Cover trim panel: RAL 7001

Approvals:
UL 4248-1/UL 4248-8
CSA C22.2 No. 4248.107/
CSA C22.2 No. 4248.8-07

Version	Packs of	1	2	3
Fuse type (class)		J		
Fuse standard		UL 248-8		
Rated operating current		61 – 100 A	101 – 200 A	201 – 400 A
Rated operating voltage		600 V AC		
Number of poles		3-pole		
Switching capacity RMS Sym. Rating		100 kA		
Contact hazard protection		IP 20		
Connection of round conductors (box terminal)		AWG 2 – MCM 300	AWG 3/0 – MCM 600	
Model No. SV	1	**9345.100**	**9345.200**	**9345.400**

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System components, 4-pole

With a variety of 4-pole busbar supports, RiLine60 provides the ideal basis for complete solutions up to 1600 A. Whether for 4-pole markets or for EMC-optimised enclosure assembly, RiLine60 4-pole is sure to impress with every application, **thanks to its compact design and user-friendly connection system.**

RiLine60 busbar systems, 4-pole

The complete solution up to 1600 A: Whether a compact assembly for 4-pole markets or for EMC-optimised enclosure configuration. Three different support variants provide the solution.

Support for square flat copper bars
For cross-section adaptation from 15 x 5 mm to 30 x 10 mm and normal short-circuit resistance requirements.

Reinforced support for flat bar and PLS 1600
For increased short-circuit resistance requirements, these 4-pole RiLine60 busbar supports

for flat bars up to 30 x 10 mm or PLS 1600 provide the ideal platform.

RiLine60 connection system, 4-pole

The right solution for every application:
User-friendly connection system for round conductors and laminated copper bars.

Versatile cable outlet
With 4 adaptor variants, supports cable outlet at the top/ bottom or for looping through.

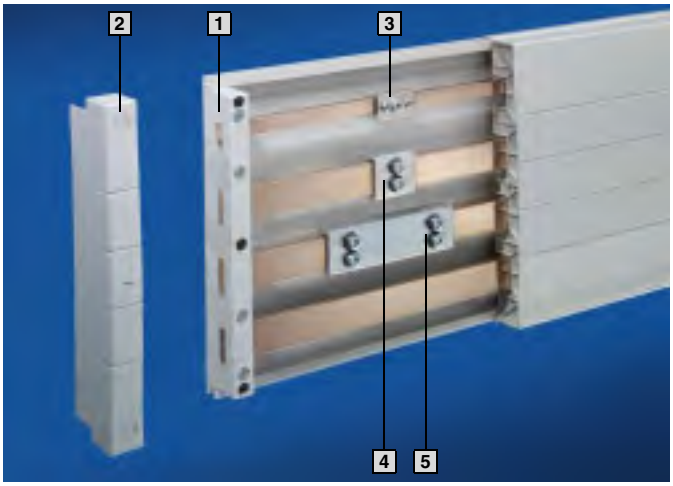
Depending on the design, round connectors may be connected directly or with wire end ferrules. Alternatively, it is also possible to contact laminated copper bars directly without the need for other accessories.

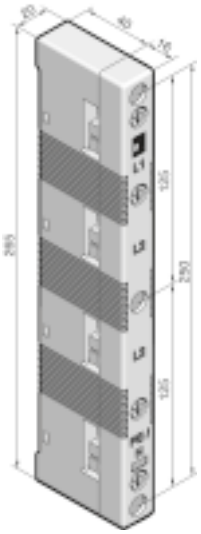
RiLine60 circuit-breaker adaptor, 4-pole

Ideal attachment in any position: Whether you opt for horizontal or vertical assembly, circuit-breaker adaptors always ensure optimum mechanical attachment with reliable contacting.

Assembly-friendly platform technology
By simply loosening the mounting plate, the switchgear may be conveniently fitted outside of the enclosure, even with the basic adaptor installed. Then simply locate, connect, and it's ready to operate!

Busbar supports (4-pole)





Material:
Polyamide (PA 6.6),
25% fibreglass-reinforced.
Continuous operating temperature max. 130°C.
Fire protection corresponding to UL 94-V0.

Colour:
RAL 7035

Note:
The technical data given in the tables may vary for UL applications, see page 91 – 95.

Short-circuit protection diagram, see page 83.

Technical information
for the calculation of rated currents to DIN 43 671, see page 86.

1 With attachment holes on the inside

Version	Packs of	1	Page
Number of poles		4-pole	
Bar centre distance		60 mm	
For busbars E-Cu		12 x 5/10 mm[1], 15 x 5 – 30 x 10 mm	
Tightening torque ● Assembly screw (M5 x 25) ● Cover attachment		 3 – 5 Nm 1 – 3 Nm	
Model No. SV	4	**9340.004[2]** UL	
Accessories			
2 End covers for contact hazard protection on the sides	2	**9340.074** UL	
Spacers for SV 9340.004	12	9340.090	66

[1] If 12 x 5/10 mm busbars are used, the spacer SV 9340.090 is additionally required.
[2] The use of a base tray, see page 53, is compulsory for UL applications.

Busbars E-Cu

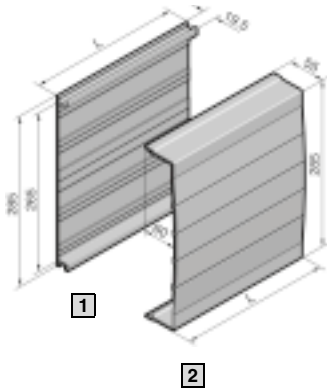
To DIN EN 13 601.
Length: 2400 mm/bar.

Dimensions mm	Rated current[1] up to	Rated current for UL 508 applications	Packs of	Model No. SV		Page
				E-Cu	E-Cu, tin-plated	
12 x 5	210 A	–	6	**3580.000**	–	
12 x 10	340 A	–	6	**3580.100**	–	
15 x 5	260 A	175 A	6	**3581.000**	–	
15 x 10	360 A	350 A	6	**3581.100**	–	
20 x 5	319 A	230 A	6	**3582.000**	–	
20 x 10	497 A	465 A	6	**3585.000**	–	
25 x 5	384 A	290 A	6	**3583.000**	–	
30 x 5[2]	447 A	350 A	6	**3584.000**	**3584.200[3]**	
30 x 10[2]	800 A	700 A	6	**3586.000**	**3586.200[3]**	
Accessories						
Busbar cover section (length 1m/each)			10	3092.000		69
Busbar connector for E-Cu						
3 12 x 5 – 15 x 10 mm (single connection)			3	9350.075		68
4 20 x 5 – 30 x 10 mm (single connection)			3	9320.020		68
5 20 x 5 – 30 x 10 mm (bayed connection)[4]			3	9320.030		68

[1] For calculation of the current carrying capacity, see page 86. [2] For more busbar lengths, see page 67.
[3] Delivery times on request. [4] From enclosure to enclosure.

Busbar connection adaptors page 56/57 **Connection clamps** page 71 **Component adaptors** page 58 **Accessories** page 65 – 79

System components (4-pole)



1 Base tray

For rear contact hazard protection of the flat bar assembly.

Length (L) mm	Packs of	Model No. SV
1100	2	**9340.134**

2 Cover section

May be cut to length as required; for clip-on mounting to the base tray.

Length (L) mm	Packs of	Model No. SV
1100	2	**9340.214**

Base tray and cover section
Material:
Thermally modified hard PVC.
Continuous operating temperature max. 91°C.
Fire protection corresponding to UL 94-V0.

Colour:
RAL 7035

Note:
If the cover section is mounted from the front, the support panel (SV 9340.224) is needed for stability.

Support panel

for cover section
To prevent side access to the cover section. The support panel also provides additional stability. Recommended mounting distance ≤ 500 mm.

Material:
Polyamide (PA 6.6).
Continuous operating temperature max. 105°C.
Fire protection corresponding to UL 94-V0.

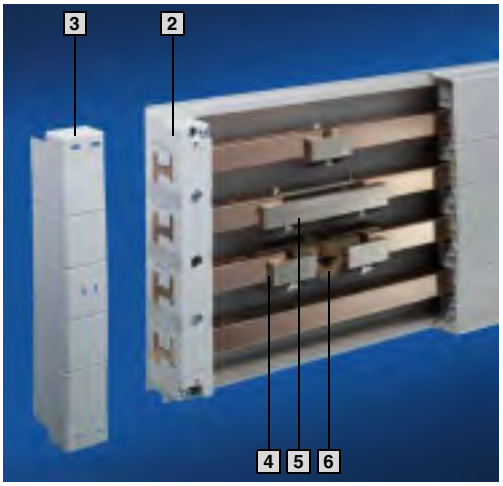
Colour:
RAL 7035

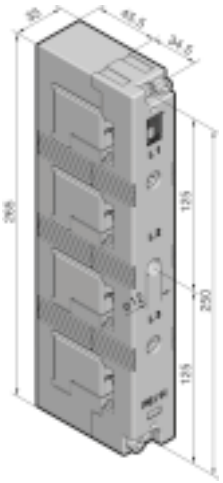
Packs of	Model No. SV
5	**9340.224**

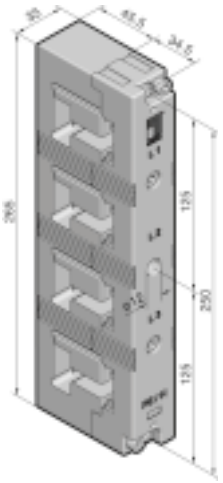
Busbar connection adaptors page 56/57 **Connection clamps** page 71 **Component adaptors** page 58 **Accessories** page 65 – 79

Rittal RiLine60 busbar systems 800/1600 A (60 mm)

Busbar supports PLUS (4-pole)







1 Rittal 30 x 10 PLUS 2 Rittal PLS 1600 PLUS

Material:
Polyamide (PA 6.6), 25% fibreglass-reinforced. Continuous operating temperature max. 130°C. Fire protection corresponding to UL 94-V0.

Colour:
RAL 7035

Short-circuit protection diagram,
see page 83.

Technical information
for the calculation of rated currents to DIN 43 671,
see page 86.

For system		Packs of	1 Rittal 30 x 10 PLUS	2 Rittal PLS 1600 PLUS
Number of poles			4-pole	4-pole
Bar centre distance			60 mm	60 mm
For	busbars E-Cu 30 x 10 mm		■	–
	PLS special busbars (PLS 1600)		–	■
Tightening torque ● Assembly screw (M6 x 20) ● Cover attachment			 3 – 5 Nm 5 – 7 Nm	 3 – 5 Nm 5 – 7 Nm
Model No. SV		4	**9342.014**[1] UL	**9342.004**[1] UL
Accessories				
3 End covers for contact hazard protection on the sides		2	**9342.074** UL	**9342.074** UL

[1] The use of a base tray, see page 55, is compulsory for UL applications.

Busbars

made from E-Cu

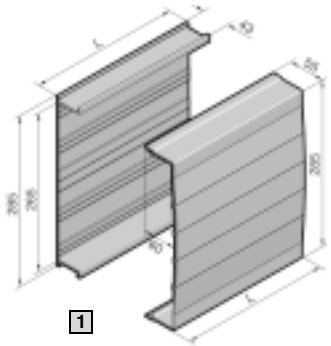
Detailed drawing:
SV 9661.300 to .380, see page 67.

For system		Rittal 30 x 10 PLUS			Rittal PLS 1600 PLUS			Page
Dimensions		30 x 10 mm			–			
Max. rated current based on DIN 43 671[1] / UL 508		800 A/700 A			1600 A/1400 A			
Cross-section (bar thickness)		–			900 mm² (10 mm)[6]			
For enclosure width mm		Length mm	Packs of	**Model No. SV**	Length mm	Packs of	**Model No. SV**	
600[2]		565	2	**9661.360**	495	3	**3527.000**[3] RAL	
800[2]		765	2	**9661.380**	695	3	**3528.000**[3] RAL	
1000[2]		965	2	**9661.300**	895	3	**3528.010**[3] RAL	
1200[2]		1165	2	**9661.320**	1095	3	**3529.000**[3] RAL	
Variable		2400	6	**3586.000**[3] RAL	2400	1	**3516.000**[3] RAL	
Accessories								
4 PLS busbar connector (single connection)		–	–	–	–	3	3514.000	68
5 PLS busbar connector (bayed connection) [4]		–	–	–	–	3	3515.000	68
6 PLS expansion connectors[5]		–	–	–	–	3	9320.070	68
Baying bracket for SV 9661.300 to .380 (bayed connection)		95	4	9661.350				67
Busbar connector for SV 3586.000	Single connection	–	3	9320.020	–	–	–	68
	Baying connection[4]	–	3	9320.030	–	–	–	68
Busbar cover section		1000	10	3092.000	–	–	–	69

[1] For calculation of the current carrying capacity, see page 86.
[2] For Rittal TS 8 enclosure systems.
[3] To order tin-plated version, please add extension .2X0 to the Model No. Delivery times available on request.
[4] From enclosure to enclosure.
[5] Two PLS rail connectors (single connection) are required to fit one expansion connector.
[6] PLS special busbars (1600 A).

Busbar connection adaptors page 56/57 **Connection clamps** page 71 **Component adaptors** page 58 **Accessories** page 65 – 79

System components (4-pole)



1

2

1 Base tray

For rear contact hazard protection of the busbar assembly PLUS.

Length (L) mm	Packs of	Model No. SV
1100	2	**9342.134**

2 Cover section

May be cut to length as required; for clip-on mounting to the base tray.

Length (L) mm	Packs of	Model No. SV
1100	2	**9340.214**

Base tray and cover section
Material:
Thermally modified hard PVC.
Continuous operating temperature max. 91°C.
Fire protection corresponding to UL 94-V0.

Colour:
RAL 7035

Note:
If the cover section is mounted from the front, the support panel (SV 9340.224) is needed for stability.

Support panel

for cover section
To prevent side access to the cover section. The support panel also provides additional stability.
Recommended mounting distance ≤ 500 mm.

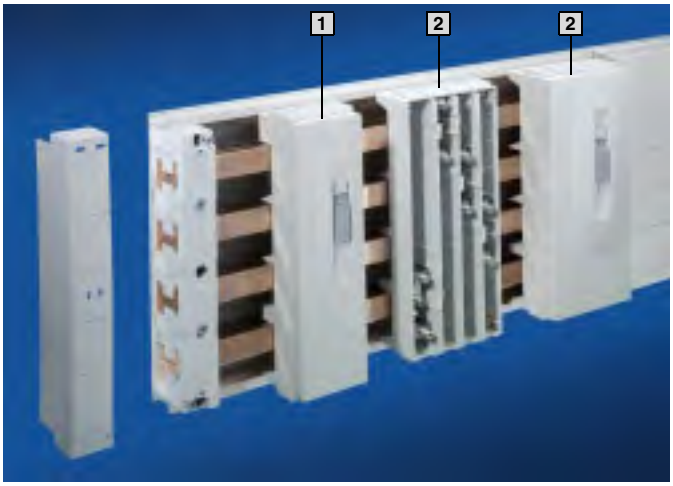
Material:
Polyamide (PA 6.6).
Continuous operating temperature max. 105°C.
Fire protection corresponding to UL 94-V0.

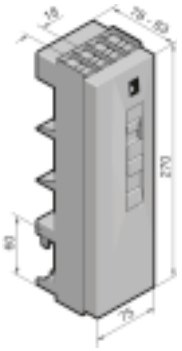
Colour:
RAL 7035

Packs of	Model No. SV
5	**9340.224**

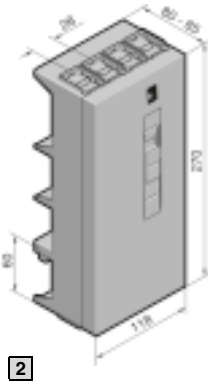
Busbar connection adaptors page 56/57 **Connection clamps** page 71 **Component adaptors** page 58 **Accessories** page 65 – 79

Busbar connection adaptors (4-pole)





1



2

Material:
Chassis
Polyamide (PA 6.6),
25% fibreglass-reinforced.
Continuous operating temperature max. 130°C.
Fire protection corresponding to UL 94-V0.
Cover
ABS,
fire protection corresponding to UL 94-V0.
Contact track, conductor connection clamp
Material, see page 100.

Colour:
RAL 7035

Supply includes:
Cover.

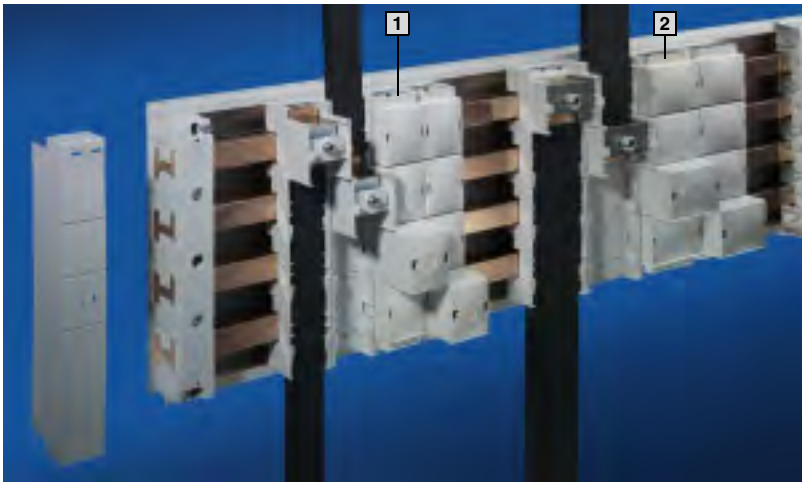
Note:
The technical data given in the tables may vary for UL applications, see page 91 – 95.

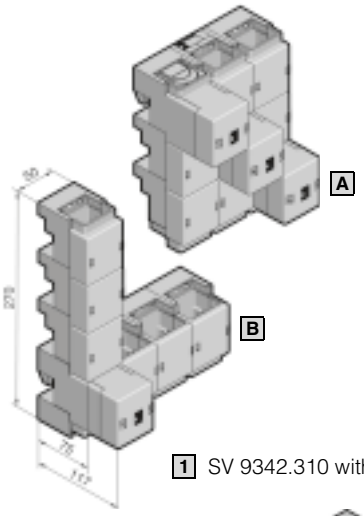
For further technical information on the connection of round conductors, see page 81.

Version	Packs of	1	2	Page
Number of poles		4-pole	4-pole	
Rated current up to		125 A	250 A	
Rated operating voltage		690 V~	690 V~	
Connection of round conductors ● Fine wire with wire end ferrule ● Multi-wire		 10 – 25 mm² 16 – 35 mm²	 35 – 120 mm² 35 – 120 mm²	
Clamping area for laminated copper bars		10 x 7.8 mm	18.5 x 15.5 mm	
Tightening torque ● Assembly screw ● Terminal screw		 2 Nm 2 – 3 Nm	 4 – 6 Nm 12 Nm	
For bar thickness		5/10 mm	5/10 mm	
Outlet at top/bottom **Model No. SV**	1	**9342.224**	**9342.254**	
Outlet at top **Model No. SV**	1	**9342.234**	**9342.264**	
Outlet at bottom **Model No. SV**	1	**9342.244**	**9342.274**	
Accessories				
Laminated copper bars		■	■	70

Busbar systems page 52 – 55 **Connection clamps** page 71 **Component adaptors** page 58 **Accessories** page 65 – 79

Busbar connection adaptors (4-pole)





1 SV 9342.310 with SV 9342.314

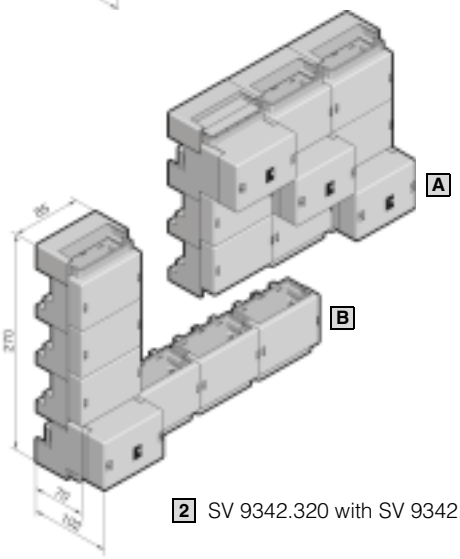
Material:
Chassis
Polyamide (PA 6.6),
25% fibreglass-reinforced.
Continuous operating temperature max. 130°C.
Fire protection corresponding to UL 94-V0.
Cover
ABS,
fire protection corresponding to UL 94-V0.
Contact track, conductor connection clamp
Material, see page 100.

Colour:
RAL 7035

Supply includes:
Cover.

Note:
The technical data given in the tables may vary for UL applications, see page 91 – 95.

For further technical information on the connection of round conductors, see page 81.



2 SV 9342.320 with SV 9342.324

Version		Packs of	1	2	Page
Rated current up to			800 A	1600 A	
Rated operating voltage			690 V~	690 V~	
Outlet			top/bottom	top/bottom	
Connection of round conductors ● Fine wire with wire end ferrule ● Multi-wire			 95 – 185 mm² 95 – 300 mm²	 – –	
Clamping area for laminated copper bars ● For 5 mm bar thickness ● For 10 mm bar thickness			 33 x 27 mm 33 x 22 mm	 65 x 27 mm 65 x 22 mm	
Tightening torque ● Terminal screw			 12 – 14 Nm	 15 – 20 Nm	
For bar thickness			5/10 mm	5/10 mm	
Busbar connection adaptors (3 x 1-pole) **Model No. SV**	A	1 set	**9342.310** UL	**9342.320** UL	
Also required					
Busbar connection adaptor (expansion set for 4-pole configuration)	B	1	**9342.314** UL	**9342.324** UL	
Accessories					
Laminated copper bars			■	■	70

Busbar systems page 52 – 55 **Connection clamps** page 71 **Component adaptors** page 58 **Accessories** page 65 – 79

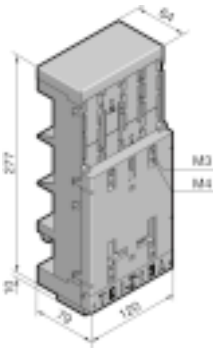
Circuit-breaker component adaptors 160 A/250 A (4-pole)

Material:
Chassis
Polyamide (PA 6.6),
25% fibreglass-reinforced.
Continuous operating temperature max. 130°C.
Fire protection corresponding to UL 94-V0.
Contact track, conductor connection clamp
Material, see page 100.

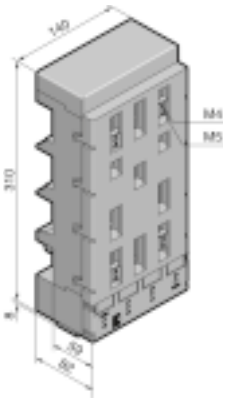
Colour:
RAL 7035

Supply includes:
Terminal cover and sliding blocks for switchgear attachment.

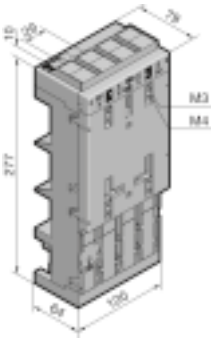
Note:
For further technical information on the connection of round conductors,
see page 81.



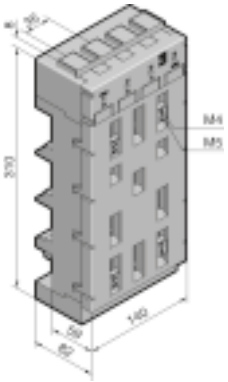
1 SV 9342.504



2 SV 9342.604



1 SV 9342.514



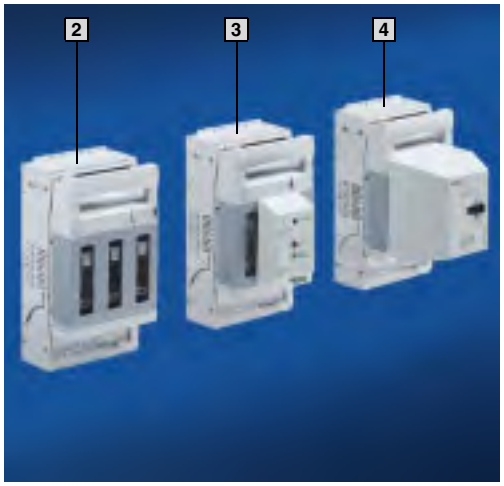
2 SV 9342.614

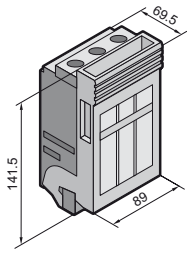
Design		Packs of	1	2
Number of poles			4-pole	4-pole
Construction width			120 mm	140 mm
Length			277 mm	310 mm
Rated current up to			160 A	250 A
Rated operating voltage			690 V~	690 V~
Connection clamp			Box terminal	Box terminal
Connection of round conductors			35 – 120 mm²	35 – 120 mm²
Clamping area for laminated copper bars			18.5 x 15.5 mm	18.5 x 15.5 mm
Tightening torque ● Terminal screw ● Rail attachment ● Switchgear attachment			 12 Nm 4 – 6 Nm 1.5 Nm	 12 Nm 4 – 6 Nm 1.5 Nm
For switchgear make/model	ABB		T1 (160 A), T2 (160 A)	T3S (250 A), T4V (315 A)
	Merlin Gerin		NSC100	NS100(X), NS160(X), NS250(X)
	Moeller Electric		NZM1-4 (125 A)	NZM2-4 (250 A)
	Siemens		–	VL160X, VL160, VL250
For bar thickness			5/10 mm	5/10 mm
Cable outlet at the top[1)] **Model No. SV**		1	**9342.504** UL	**9342.604** UL
Cable outlet at the bottom[1)] **Model No. SV**		1	**9342.514** UL	**9342.614** UL

[1)] Switch outlet or outgoing cable.

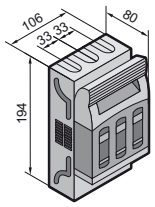
Busbar systems page 52 – 55 **Busbar connection adaptors** page 56/57 **Connection clamps** page 71 **Accessories** page 65 – 79

NH fuse-switch-disconnectors size 000/size 00





1



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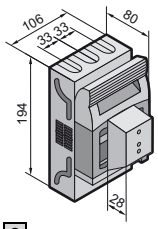

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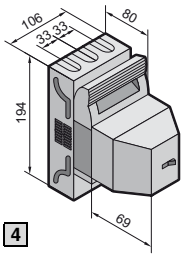


4

Material:
Chassis, lid, contact hazard protection:
- Size 000
  Fibreglass-reinforced polyamide
- Size 00
  Polyamide PA6.

Fire protection corresponding to UL 94-V0.
Contact tracks:
Electrolytic copper, silver-plated.

Colour
- Size 000
  Chassis: RAL 9011
  Cover: RAL 7035
- Size 00
  Chassis and cover:
  RAL 7035
  Cover trim panel: RAL 7001

Technical information
to IEC 60 947-3,
see page 102 – 105.

Drilling dimensions,
see page 106.

Note:
The technical data given in the tables may vary for RU applications,
see page 91 – 95.

Applications to RU only in conjunction with "Special Purpose Fuses".

Approvals:
UL 4248-1
CSA C22.2 No. 4248-1

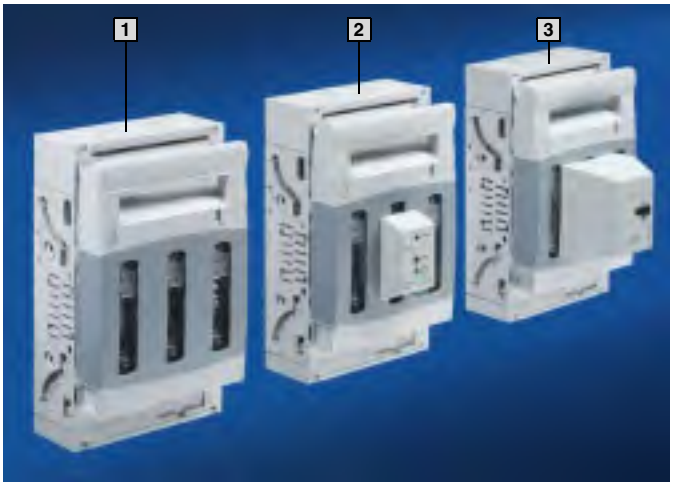
Size	Packs of	Size 000	Size 00		Page
Rated current		100 A (160 A)[1]	160 A		
Rated operating voltage		690 V~	690 V~/500 V~[2]		
Cable outlet		top/bottom	top/bottom		
Type of connection		Terminal	Box terminal	Screw M8	
Connection of round conductors		1.5 – 50 mm²	4 – 70 mm²	up to 95 mm²	
Clamping area for laminated copper bars (W x H)		10 x 10 mm	13 x 13 mm	20 x 5 mm	
Tightening torque Terminal screw		3 Nm	4.5 Nm	12 Nm	
1 **Model No. SV**	1	**3431.000**	**–**	**–**	
2 **Model No. SV**	1	**–**	**9344.000**	**9344.010**	
3 **with electronic fuse monitoring[1] Model No. SV**	1	**–**	**9344.020**	**9344.030**	
4 **with electromechanical fuse monitoring Model No. SV**	1	**–**	**9344.040**	**9344.050**	
Accessories					
Micro-switch	5	3071.000	3071.000	3071.000	79
Connection space cover	2	–	9344.520	9344.520	79
Prism terminal	3	–	–	9344.600	78
Mounting set	1	3432.000	–	–	79
Laminated copper bars		■	■	■	70

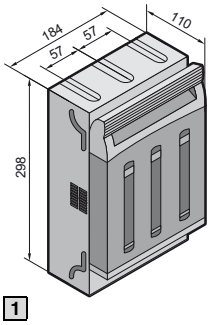
[1] 160 A at 95 mm² connection cross-section (95 mm² connector pieces available on request).
[2] Rated operating voltage 400 V~ to 500 V~ for NH disconnectors with electronic fuse monitoring.

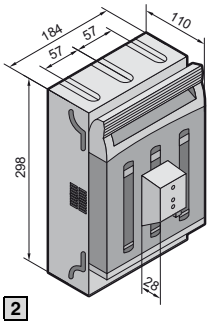
Accessories page 78/79

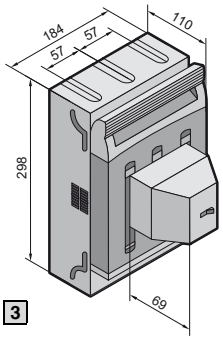
Rittal RiLine NH (mounting plate assembly)

NH fuse-switch-disconnectors, size 1









Material:
Chassis, lid, contact hazard protection: Polyamide PA6.
Fire protection corresponding to UL 94-V0.
Contact tracks:
Electrolytic copper, silver-plated.

Colour:
Chassis and cover: RAL 7035
Cover trim panel: RAL 7001

Technical information
to IEC 60 947-3,
see page 114 – 115.

Drilling dimensions,
see page 116.

Note:
The technical data given in the tables may vary for RU applications,
see page 91 – 95.

Applications to RU only in conjunction with "Special Purpose Fuses".

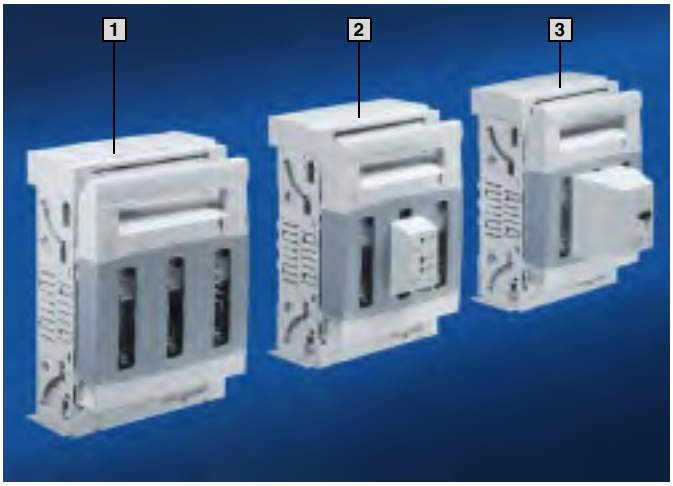
Approvals:
UL 4248-1
CSA C22.2 No. 4248-1

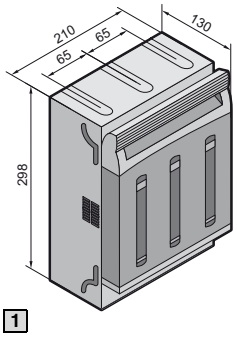
Size	Packs of	Size 1		Page
Rated current		250 A		
Rated operating voltage		690 V~/500 V~[1]		
Cable outlet		top/bottom		
Type of connection		Box terminal	Screw M10	
Connection of round conductors		35 – 150 mm² [2]	up to 150 mm²	
Clamping area for laminated copper bars (W x H)		20 x 3 – 14 mm	32 x 10 mm	
Tightening torque Terminal screw		12 Nm	20 Nm	
1 **Model No. SV**	1	**9344.100**	**9344.110**	
2 **with electronic fuse monitoring[1] Model No. SV**	1	**9344.120**	**9344.130**	
3 **with electromechanical fuse monitoring Model No. SV**	1	**9344.140**	**9344.150**	
Accessories				
Micro-switch	2	9344.510	9344.510	79
Connection space cover	2	9344.530	9344.530	79
Box terminal	3	–	9344.610	78
Arc chamber	3	9344.680	9344.680	79
Laminated copper bars		■	■	70

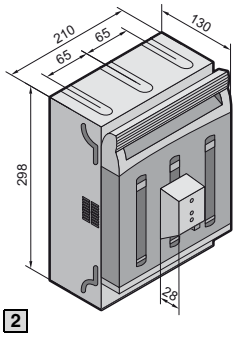
[1] Rated operating voltage 400 V~ to 500 V~ for NH disconnectors with electronic fuse monitoring.
[2] Connection of sector-shaped conductors 50 – 150 mm².

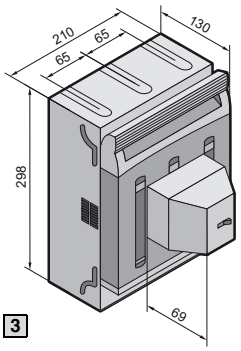
Accessories page 78/79

NH fuse-switch-disconnectors, size 2









Material:
Chassis, lid, contact hazard protection: Polyamide PA6.
Fire protection corresponding to UL 94-V0.
Contact tracks:
Electrolytic copper, silver-plated.

Colour:
Chassis and cover: RAL 7035
Cover trim panel: RAL 7001

Technical information
to IEC 60 947-3,
see page 102 – 105.

Drilling dimensions,
see page 106.

Note:
The technical data given in the tables may vary for RU applications,
see page 91 – 95.

Applications to RU only in conjunction with "Special Purpose Fuses".

Approvals:
UL 4248-1
CSA C22.2 No. 4248-1

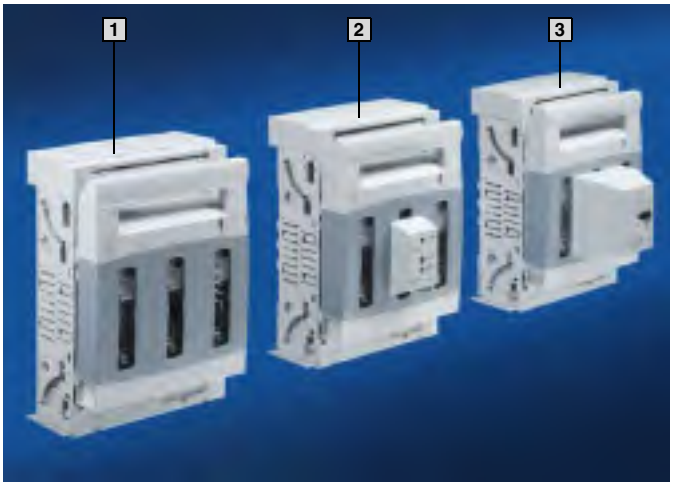
Size	Packs of	Size 2		Page
Rated current		400 A		
Rated operating voltage		690 V~/500 V~[1]		
Cable outlet		top/bottom		
Type of connection		Box terminal	Screw M10	
Connection of round conductors		95 – 300 mm² [2]	up to 240 mm²	
Clamping area for laminated copper bars (W x H)		32 x 10 – 20 mm	50 x 10 mm	
Tightening torque ● Terminal screw		20 Nm	20 Nm	
1 **Model No. SV**	1	**9344.200**	**9344.210**	
2 **with electronic fuse monitoring[1] Model No. SV**	1	**9344.220**	**9344.230**	
3 **with electromechanical fuse monitoring Model No. SV**	1	**9344.240**	**9344.250**	
Accessories				
Micro-switch	2	9344.510	9344.510	79
Connection space cover	2	9344.540	9344.540	79
Box terminal	3	–	9344.620	78
Arc chamber	3	9344.680	9344.680	79
Laminated copper bars		■	■	70

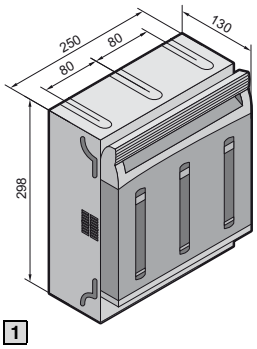
[1] Rated operating voltage 400 V~ to 500 V~ for NH disconnectors with electronic fuse monitoring.
[2] Connection of sector-shaped conductors 120 – 300 mm².

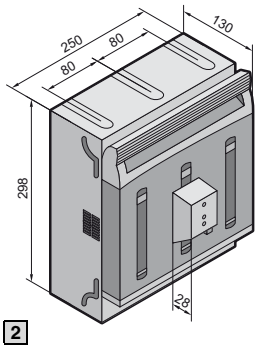
Accessories page 78/79

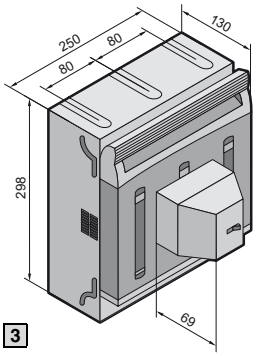
Rittal RiLine NH (mounting plate assembly)

NH fuse-switch-disconnectors, size 3









Material:
Chassis, lid, contact hazard protection: Polyamide PA6.
Fire protection corresponding to UL 94-V0.
Contact tracks:
Electrolytic copper, silver-plated.

Colour:
Chassis and cover: RAL 7035
Cover trim panel: RAL 7001

Technical information
to IEC 60 947-3,
see page 102 – 105.

Drilling dimensions,
see page 106.

Note:
The technical data given in the tables may vary for RU applications,
see page 91 – 95.

Applications to RU only in conjunction with "Special Purpose Fuses".

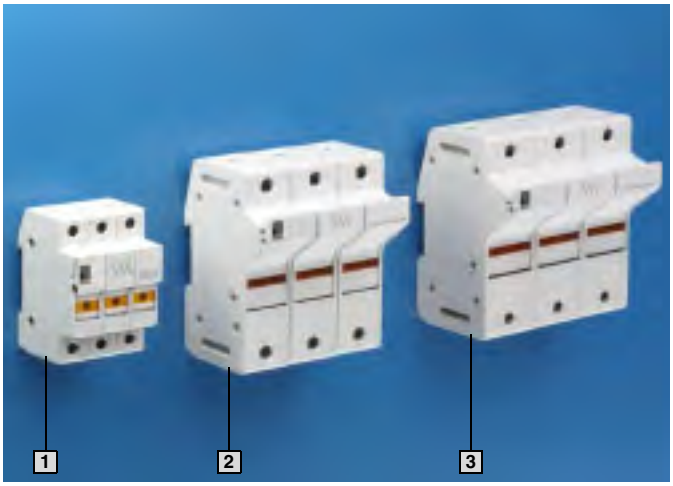
Approvals:
UL 4248-1
CSA C22.2 No. 4248-1

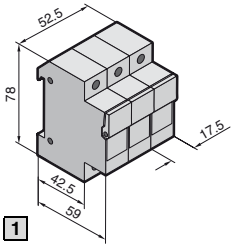
Size	Packs of	Size 3		Page
Rated current		630 A		
Rated operating voltage		690 V~/500 V~ [1]		
Cable outlet		top/bottom		
Type of connection		Box terminal	Screw M10	
Connection of round conductors		95 – 300 mm² [2]	up to 300 mm²	
Clamping area for laminated copper bars (W x H)		32 x 10 – 20 mm	50 x 10 mm	
Tightening torque ● Terminal screw		20 Nm	20 Nm	
1 **Model No. SV**	1	**9344.300**	**9344.310**	
2 **with electronic fuse monitoring [1] Model No. SV**	1	**9344.320**	**9344.330**	
3 **with electromechanical fuse monitoring Model No. SV**	1	**9344.340**	**9344.350**	
Accessories				
Micro-switch	2	9344.510	9344.510	79
Connection space cover	2	9344.550	9344.550	79
Box terminal	3	–	9344.620	78
Arc chamber	3	9344.680	9344.680	79
Laminated copper bars		■	■	70

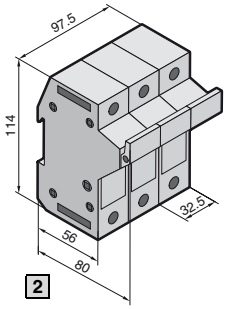
[1] Rated operating voltage 400 V~ to 500 V~ for NH disconnectors with electronic fuse monitoring.
[2] Connection of sector-shaped conductors 120 – 300 mm².

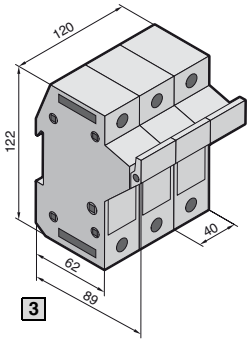
Accessories page 78/79

Fuse holder up to 60 A









- UL/CSA Listed.
- Fuse holder for the use of fuses to American/Canadian standards.
- For snap-on mounting on 35 mm support rails to IEC/EN 60 715 (7.5/15 mm high).
- Visual fuse monitoring via indicator lights.
- 3-pole, switchable off-load.

Material:
Polyamide PA6.
Fire protection corresponding to UL 94-V0.

Colour:
RAL 7035

Approvals:

SV 9345.000:
UL 512, CSA C22.1, Class 6225

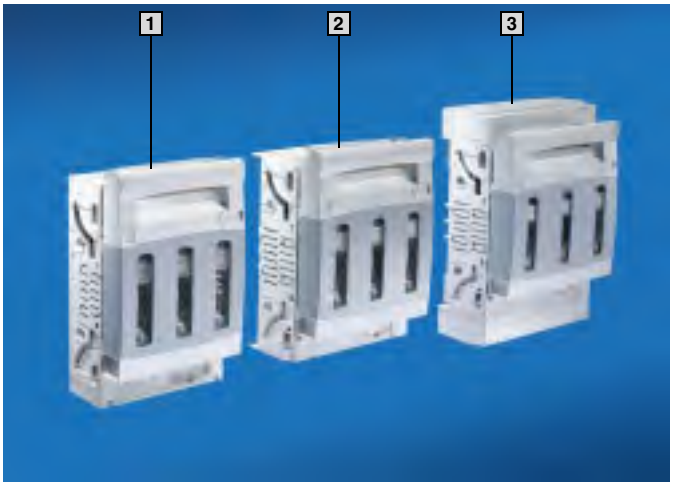
SV 9345.010, SV 9345.030:
UL 512, CSA, Class 6225

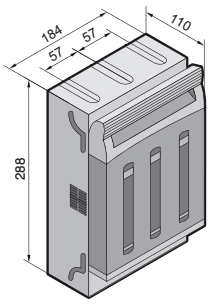
Version	1	2	3
Fuse type (class)	CC	J	J
Rated operating current	30 A	30 A	60 A
Rated operating voltage	600 V~	600 V~	600 V~
Number of poles	3-pole	3-pole	3-pole
Fuse size	10 x 38 mm	21 x 57 mm	27 x 60 mm
Switching capacity RMS Sym. Rating	200 kA	200 kA	200 kA
Min. voltage, indicator light	115 V ≃	115 V ≃	115 V ≃
Connection of round conductors	2.5 – 10 mm² AWG 6 – 14	2.5 – 25 mm² AWG 2 – 14	2.5 – 25 mm² AWG 2 – 14
Tightening torque ● Terminal screw	2 Nm 37.47 cm-lbs solid/stranded Cu	4 Nm 35 in-lbs solid/stranded Cu	5 Nm 45 in-lbs solid/stranded Cu
Contact hazard protection	IP 20	IP 20	IP 20
Packs of	4	2	2
Model No. SV	**9345.000** UL	**9345.010[1)]** UL	**9345.030** UL

[1)] May also be used for cylindrical fuses 22 x 58 mm to French standards without UL licensing.

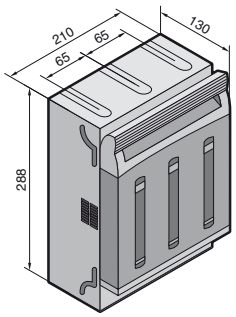
Rittal RiLine Class (mounting plate assembly)

Fuse holder 61 – 400 A

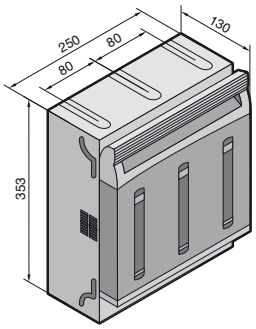




1



2



3

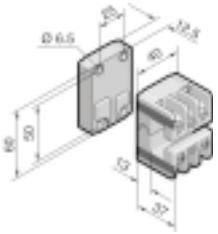
Material:
Chassis, lid, contact hazard protection: Polyamide PA6.
Fire protection corresponding to UL 94-V0.
Contact tracks:
Electrolytic copper, silver-plated.

Colour:
Chassis and cover: RAL 7035
Cover trim panel: RAL 7001

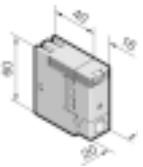
Approvals:
UL 4248-1/UL 4248-8
CSA C22.2 No. 4248.107/
CSA C22.2 No. 4248.8-07

Version	Packs of	1	2	3
Number of poles		3-pole		
Fuse type (class)		J		
Fuse standard		UL 248-8		
Rated operating current		61 – 100 A	101 – 200 A	201 – 400 A
Fuse size		27 x 117 mm	41 x 146 mm	54 x 181 mm
Rated operating voltage		600 V AC		
Switching capacity RMS Sym. Rating		100 kA		
Contact hazard protection		IP 20		
Connection of round conductors (box terminal)		AWG 2 – MCM 300	AWG 3/0 – MCM 600	
Model No. SV	1	**9345.110**	**9345.210**	**9345.410**

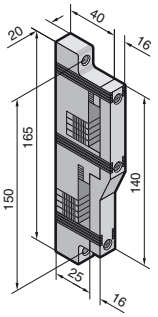
1 and 2-pole



1 SV 9342.030



2 SV 9340.030



3 SV 9340.040

Material:
Polyamide (PA 6.6),
25% fibreglass-reinforced.
Continuous operating temperature max. 130°C.
Fire protection corresponding to UL 94-V0.

Colour:
RAL 7035

Supply includes:
SV 9342.030
Raised section for stepped configuration of the PLS busbars.

Note:
SV 9340.030/SV 9342.030
The busbar supports may be bayed with 60 mm bar centre distance for the configuration of multi-pole systems.

Version	1	2	3	Page
Number of poles	1-pole	1-pole	2-pole	
Bar centre distance	–	–	60 mm	
For busbars E-Cu	PLS 1600[1)]	–	–	54
	–	12 x 5/10 mm[2)], 15 x 5 – 30 x 10 mm	12 x 5 – 30 x 10 mm	67
Tightening torque ● Assembly screw ● Lid attachment	M6 x 20/35 mm[3)] 3 – 5 Nm 0.7 Nm	M5 x 16 3 – 5 Nm 1 – 3 Nm	M5 x 16 3 – 5 Nm 1 – 3 Nm	
Packs of	4	4	4	
Model No. SV	**9342.030[4)]**	**9340.030[4)]**	**9340.040[4) 5)]**	
Accessories				
Spacers	–	9340.090	–	66
Additional fastening attachment	–	■	–	65

[1)] PLS special busbars
[2)] If 12 x 5/10 mm busbars are used, the spacer SV 9340.090 is additionally required.
[3)] 35 mm when using the additional raised section.
[4)] PEN/N/PE support
[5)] N/PE support

Additional fastening attachment

for busbar support SV 9340.030
Optional plug-in anti-twist guard for SV 9340.030.
Facilitates support alignment with horizontal or vertical mounting.

Material:
Polyamide (PA 6.6),
25% fibreglass-reinforced.
Continuous operating temperature max. 130°C.
Fire protection corresponding to UL 94-V0.

Colour:
RAL 7035

Supply includes:
8 connection pins (SV 9340.280).

Packs of	Model No. SV
4	**9340.035**

Accessories

Spacers

for RiLine60 busbar supports (flat busbar system)
For adapting 12 x 5 and
12 x 10 mm size busbars.
For busbar supports
- SV 9340.030 (single-pole), see page 65.
- SV 9340.000/.010 (3-pole), see page 18.
- SV 9340.004 (4-pole), see page 52.

Material:
Polyamide (PA 6.6),
25% fibreglass-reinforced.
Continuous operating temperature max. 130°C.
Fire protection corresponding to UL 94-V0.

Colour:
RAL 7035

Packs of	**Model No. SV**
12	**9340.090**

Cross members

for RiLine60 busbar connections, 3-pole
In order to comply with the clearance for “feeder circuits” required by UL 508 for flat bar systems with 60 mm bar centre distance and PLS 800/ 1600.

Material:
Polyamide (PA 6.6),
25% fibreglass-reinforced.
Continuous operating temperature max. 130°C.
Fire protection corresponding to UL 94-V0.

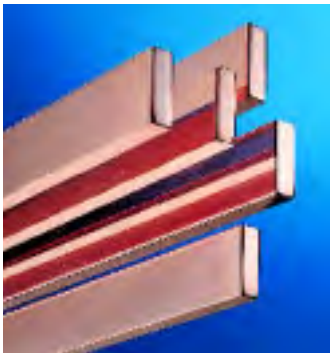
Colour:
RAL 7035

Note:
One pack (2 pieces) is sufficient for one busbar connection.

Version for	Width (B) mm	Packs of	**Model No. SV**
Single connection	60	2	**9340.240**
Baying connection[1)]	160	2	**9340.230**

[1)] From enclosure to enclosure

Also required:
Support panel SV 9340.220 (2 pieces), see page 19/21.



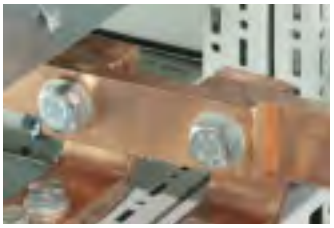
Busbars

made from E-Cu
To DIN EN 13 601.
Length: 2400 mm/bar.

Dimensions mm	Weight/bar kg	Packs of	Model No. SV	
			E-Cu	E-Cu, tin-plated
12 x 5	1.28	6	**3580.000**	–
15 x 5	1.60	6	**3581.000**	–
20 x 5	2.14	6	**3582.000**	–
25 x 5	2.67	6	**3583.000**	–
30 x 5	3.20	6	**3584.000**	**3584.200**[1)]
12 x 10	2.56	6	**3580.100**	–
15 x 10	3.20	6	**3581.100**	–
20 x 10	4.27	6	**3585.000**	–
30 x 10	6.41	6	**3586.000**	**3586.200**[1)]

[1)] Delivery times available on request.

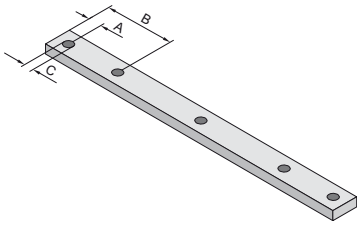
1



2

1 Busbars

made from E-Cu
Suitable for
- Direct installation in TS 8 enclosures
- Busbar supports
  - SV 9340.000/.010, see page 18
  - SV 9340.004, see page 52
  - SV 9342.014, see page 54
  - SV 9340.030/0.040, see page 65
- PE/PEN combinations in conjunction with combination angle and baying bracket.



For enclosure width mm	Packs of	Length mm	Model No. SV	
			30 x 5 mm	30 x 10 mm
300	2	265	**9661.335**	**9661.330**
400	2	365	**9661.345**	**9661.340**
600	2	565	**9661.365**	**9661.360**
800	2	765	**9661.385**	**9661.380**
1000	2	965	**9661.305**	**9661.300**
1200	2	1165	**9661.325**	**9661.320**
A mm			15	15
B mm			–	–
C mm			Ø 11	Ø 11
Accessories				
2 Baying bracket E-Cu	4	95	**9661.355**	**9661.350**

PE/PEN combination angle

for PE/PEN combinations
The PE/PEN combination, comprised of busbars, combination angles and baying brackets, facilitates type-tested assembly to IEC 60 439-1. The pre-manufactured combination angles and baying brackets, and the busbars customised to the individual enclosure width, facilitate inexpensive, time-saving assembly.

Material:
E-Cu

Supply includes:
Assembly parts.

Technical specifications:
Tested short-circuit resistance
PE/PEN combination in conjunction with Rittal TS 8 enclosures.
- 30 x 5 mm:
  I_{cw} 18 kA, 1 sec.
- PE/PEN combination
  30 x 10 mm:
  I_{cw} 30 kA, 1 sec.

For busbars mm	Packs of	Model No. SV
30 x 5	4	**9661.235**
30 x 10	4	**9661.230**

Busbar connectors

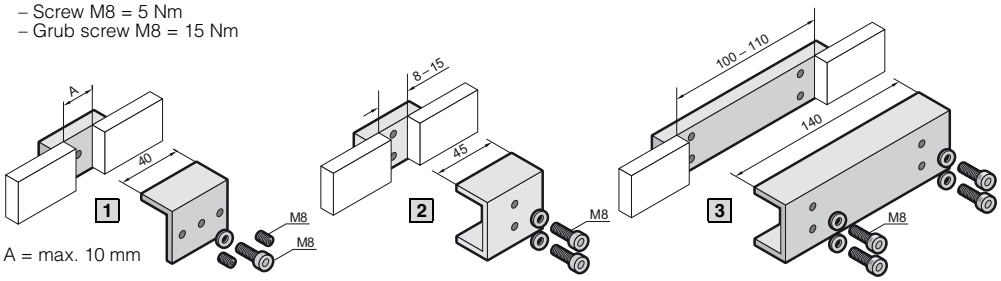
For connecting square busbars, no drilling required.

Material:
SV 9350.075
Top part: St 37, nickel-plated surface finish
Contact plate: E-Cu, nickel-plated surface finish

SV 9320.020/SV 9320.030
Top part: Sheet steel, zinc-plated, passivated
Contact plate: E-Cu, silver-plated

For busbars mm	Application		Tightening torque	Packs of	Model No. SV
	Single connection	Bayed connection[1]			
12 x 5 – 15 x 10	1	–	5 Nm/15 Nm[2]	3	**9350.075**
20 x 5 – 30 x 10	2	–	20 Nm	3	**9320.020**
	–	3	20 Nm	3	**9320.030**

[1] From enclosure to enclosure
[2] Hex socket
– Screw M8 = 5 Nm
– Grub screw M8 = 15 Nm



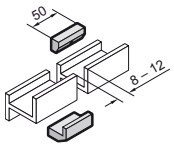
PLS busbar connectors

For connecting the PLS special busbars; no drilling required.

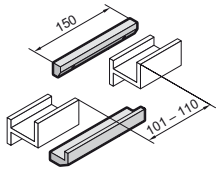
Material:
E-Cu, nickel-plated

A

B



A



B

Application	Packs of	Model No. SV for system	
		PLS 800	PLS 1600
A Single connection	3	**3504.000**	**3514.000**
B Baying connection[1]	3	**3505.000**	**3515.000**
Tightening torque		10 – 15 Nm	15 – 20 Nm

[1] From enclosure to enclosure (TS 8)

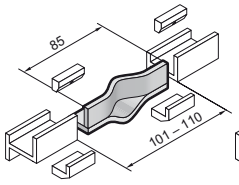
PLS expansion connectors

For thermal and mechanical compensation during connection of PLS special busbars from enclosure to enclosure (TS 8).

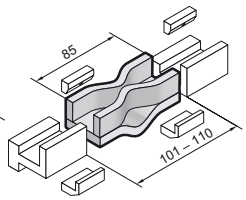
Material:
E-Cu

A

B



A

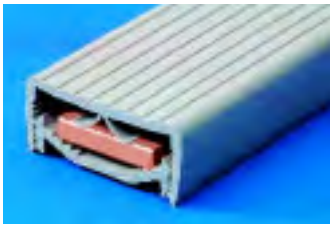


B

Packs of	Model No. SV for system	
	A PLS 800	B PLS 1600
3	**9320.060**	**9320.070**
Also required		
PLS busbar connectors[1]	3504.000	3514.000

[1] Two busbar connectors are needed to fit one expansion connector.

Note:
With a temperature increase of 30 K, the busbars will expand in length by around 0.5 mm/m. Consequently, the use of an expansion connector is recommended for busbar systems with lengths > 3600 mm for thermal compensation.



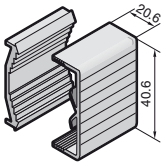
Busbar cover section

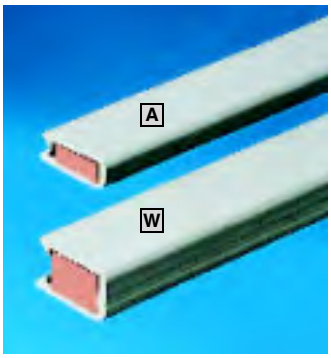
Contact hazard protection via full encapsulation of the busbars. May be cut to required length.

Material:
Thermally modified hard PVC.
Continuous operating temperature max. 91°C.
Fire protection corresponding to UL 94-V0.

Colour:
RAL 7035

For busbars mm	Packs of	Model No. SV
12 x 5 – 30 x 10	10 @ 1 m	**3092.000**



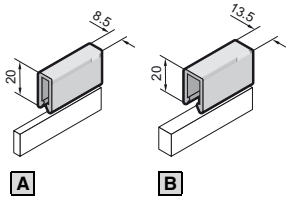


Busbar cover sections

Contact hazard protection via covering of the busbars. May be cut to required length. length: 1000 mm/section.

Material:
Thermally modified hard PVC.
Continuous operating temperature max. 91°C.
Fire protection corresponding to UL 94-V0.

Colour:
RAL 7035

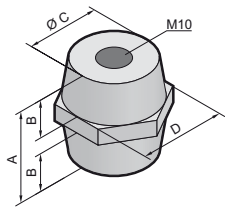


For busbars mm	Packs of	Model No. SV
A 12/15 x 5	4	**9350.010**
B 12/15 x 10	4	**9350.060**

Base isolators

For configuring busbar systems with any given bar centre distances and for assembling insulated PE or PEN bars.

Material:
Duroplastic polyester (UP resin).
Continuous operating temperature max. 135°C.



Rated operating voltage	1 kV	1 kV
Tensile strength	12 kN	13 kN
Torsional strength	75 Nm	90 Nm
Bending strength	6 kN	6 kN
Tightening torque	40 Nm	40 Nm
A mm	40	50
B mm	15	19
Ø C mm	32	42
D mm	SW 36	SW 50
Packs of	6	6
Model No. SV	**3031.000**	**3032.000**

Laminated copper bars Rittal Flexibar “S”

Length: 2000 mm/bar.

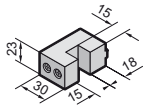
Material:
Cu lamina
- High-purity electrolyte copper F20

Insulation
- High-strength vinyl compound
- Expansion 370 %
- Temperature range: –30°C to +105°C
- Flame retardant version to UL 94-V0
- Dielectric strength: 20 kV/mm

Short-circuit protection diagram,
see page 107.

Configuration[1] mm	I_n for 50 K[2]	I_n for 30 K[2]	I_n for 10 K[2]	Packs of	Model No. SV
8 x 6.0 x 0.5	165 A	125 A	–	1	**3565.010**
6 x 9.0 x 0.8	250 A	220 A	120 A	1	**3565.000**
6 x 13.0 x 0.5	200 A	150 A	110 A	1	**3566.000**
4 x 15.5 x 0.8	300 A	210 A	140 A	1	**3567.000**
6 x 15.5 x 0.8	350 A	290 A	170 A	1	**3568.000**
10 x 15.5 x 0.8	450 A	350 A	190 A	1	**3569.000**
5 x 20.0 x 1.0	400 A	300 A	180 A	1	**3570.000**
5 x 24.0 x 1.0	450 A	370 A	230 A	1	**3571.000**
10 x 24.0 x 1.0	800 A	600 A	340 A	1	**3572.000**
5 x 32.0 x 1.0	550 A	470 A	280 A	1	**3573.000**
10 x 32.0 x 1.0	1,000 A	800 A	460 A	1	**3574.000**
5 x 40.0 x 1.0	800 A	600 A	340 A	1	**3575.000**
10 x 40.0 x 1.0	1,200 A	950 A	500 A	1	**3576.000**
5 x 50.0 x 1.0	900 A	700 A	400 A	1	**3577.000**
10 x 50.0 x 1.0	1,400 A	1,000 A	600 A	1	**3578.000**
10 x 63.0 x 1.0	1,600 A	1,240 A	715 A	1	**3579.000**

[1] Number of lamina x lamina width x lamina thickness
[2] The conductor temperature of the laminated copper bar is derived by adding the ambient temperature and the temperature increase together.
Example:
SV 3565.000 carrying 220 A, i.e. the temperature increases by 30 K. At an ambient temperature of 35°C, this produces a resultant conductor temperature of 35°C + 30 K = 65°C.



Universal support

For the attachment of laminated copper bars from 20 x 5 to 63 x 10 mm.

Material:
Fibreglass-reinforced, thermoplastic polyester (PBT).
Fire protection corresponding to UL 94-V0.

Colour:
RAL 7035

Supply includes:
Screws and “U” nuts for mounting on PS/TS mounting rails.

Packs of	Model No. SV
3	**3079.000**

Short-circuit protection diagram,
see page 107.

Universal support

For the attachment of multi-stacked laminated copper bars from 40 x 5 to 100 x 10 mm.

Material:
Fibreglass-reinforced, thermoplastic polyester (PBT).
Fire protection corresponding to UL 94-V0.

Colour:
RAL 7035

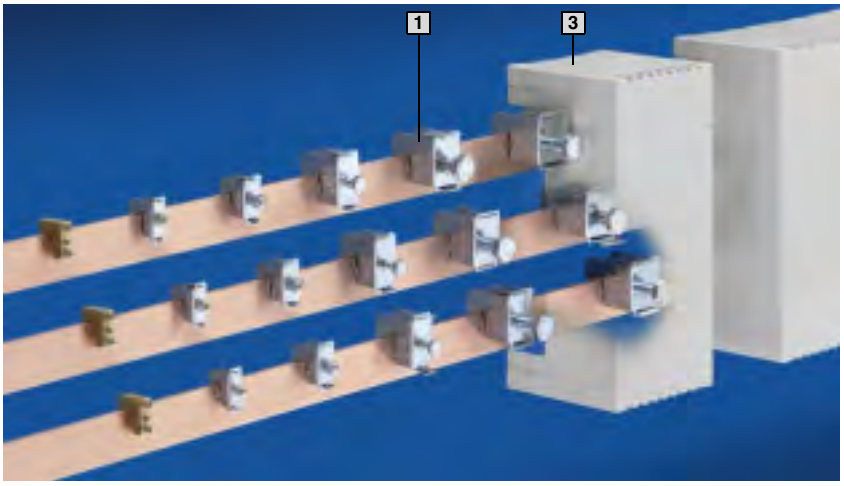
Supply includes:
Screws and sliding nuts for attachment on C rails.

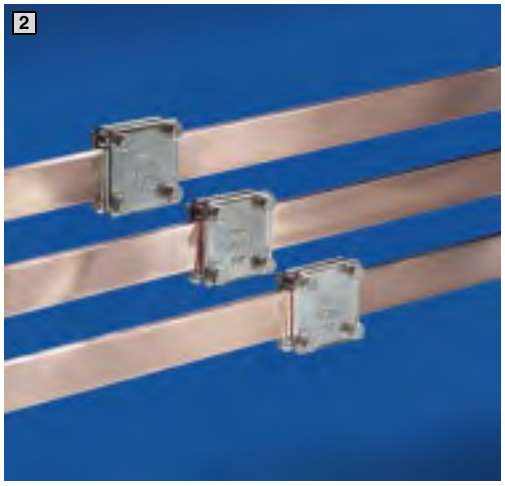
Packs of	Model No. SV
3 sets	**3079.010**

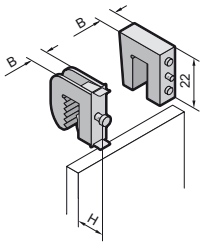
Accessories:

C rails 30/15,
see Catalogue 32, page 999

Clamps/system covers







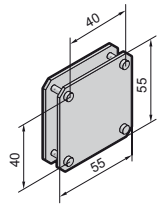
1 Conductor connection clamps

For bar thickness mm	Connection of round conductors[1] mm²	Clamping area for laminated copper bars mm	Tightening torque Nm	Width (B) mm	Height (H) mm min.	Height (H) mm max.	Packs of	Model No. SV
3 – 5	1 – 4	–	2	8.0	–	–	15	**3550.000**
5	1 – 4	–	2	11.0	17	23	15	**3450.500**
5	2.5 – 16	8 x 8	3	14.0	22	29	15	**3451.500**
5	16 – 50	10.5 x 11	6 – 8	18.5	26	39	15	**3452.500**
5	35 – 70	16.5 x 15	10 – 12	24.5	39	57	15	**3453.500**
5	70 – 185	22.5 x 20	12 – 15	30.5	44	66	15	**3454.500**
6 – 10	1 – 4	–	2	8.0	–	–	15	**3555.000**
10	1 – 4	–	2	11.0	17	23	15	**3455.500**
10	2.5 – 16	8 x 8	3	14.0	22	29	15	**3456.500**
10	16 – 50	10.5 x 11	6 – 8	18.5	26	39	15	**3457.500**
10	35 – 70	16.5 x 15	10 – 12	24.5	39	57	15	**3458.500**
10	70 – 185	22.5 x 20	12 – 15	30.5	44	66	15	**3459.500**

[1] When using fine or extra-fine conductors, wire end ferrules should be used.
For more technical information on connecting round conductors, see page 90.

Material:
Sheet steel, zinc plated, passivated
(SV 3450.500 – SV 3459.500),
Brass
(SV 3550.000/SV 3555.000).

Accessories:
Laminated copper bars,
see page 70.



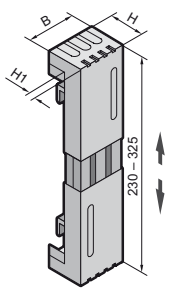
2 Plate clamp

For busbars 12 x 5 – 30 x 10 mm.
Clamping area for laminated copper bars:
34 x 10 mm.
Tightening torque: 6 – 8 Nm.

Material:
Sheet steel, zinc-plated, passivated.

Packs of	Model No. SV
3	**3554.000**

Accessories:
Laminated copper bars,
see page 70.



3 System covers

For conductor connection clamps and plate clamps.

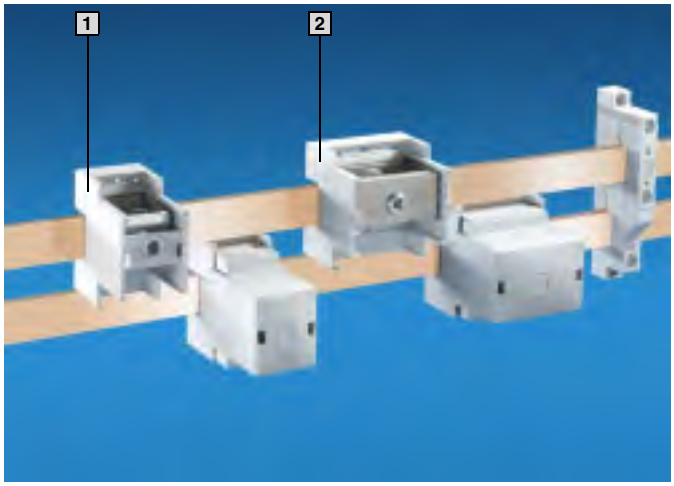
Material:
ABS.
Continuous operating temperature max. 80°C
Fire protection corresponding to UL 94-V0.

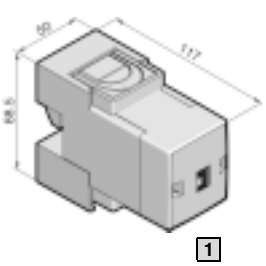
Colour:
RAL 7035

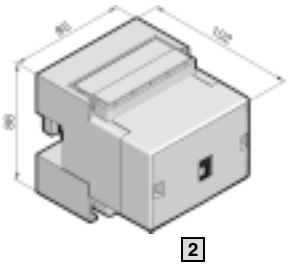
Note:
For 3-pole systems with 60/100 mm bar centre distance. Only suitable for use with systems without a base tray. For systems with a base tray, the system covers must be mechanically shortened.

Width (B) mm	Height (H) mm	Height (H1) mm	Packs of	Model No. SV
50	80	40	4	**3086.000**
100	80	40	4	**3087.000**
100	110	70	4	**3090.000**
200	80	40	4	**3088.000**
200	110	70	4	**3091.000**

Terminal block







Material:
Chassis
Polyamide (PA 6.6),
25% fibreglass-reinforced.
Continuous operating temperature max. 130°C.
Fire protection corresponding to UL 94-V0.
Cover
ABS,
fire protection corresponding to UL 94-V0.
Contact track, conductor connection clamps
Material, see page 100.

Colour:
RAL 7035

Supply includes:
3 terminals including cover.

Note:
When using the terminal on 2-pole busbar systems (SV 9340.040), the terminal must be rotated through 180° for connection to the PE busbar.

Version	Packs of	1	2	Page
Outlet		top/bottom	top/bottom	
Connection of round conductors[1)] ● Fine wire with wire end ferrule ● Multi-wire		 95 – 185 mm² 95 – 300 mm²	 – –	
Clamping area for laminated copper bars ● For 5 mm bar thickness ● For 10 mm bar thickness		 33 x 27 mm 33 x 22 mm	 65 x 27 mm 65 x 22 mm	
Tightening torque		12 – 14 Nm	15 – 20 Nm	
For bar thickness		5/10 mm	5/10 mm	
Model No. SV	3	**9342.311**	**9342.321**	
Accessories				
Laminated copper bars		■	■	70

[1)] For further technical information on the connection of round conductors, see page 87.

Accessories

Insert strip

for OM adaptor/support
To extend the construction width in a 10 mm pitch pattern. May be bayed as often as required on both sides. With integral cable duct.

Material:
PA 6.6

Colour:
RAL 7035

Supply includes:
6 connection pins (SV 9340.280).

Packs of	Model No. SV
2	**9340.290**

Connection pin

For mechanical connection of OM adaptor/support, insert strip (SV 9340.290) plus single-pole busbar support (SV 9340.030 with SV 9340.035).

Material:
PA6

Colour:
RAL 5010

Packs of	Model No. SV
20	**9340.280**

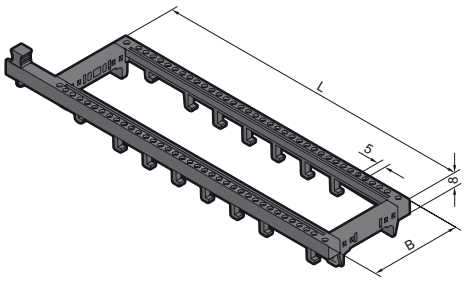
Support frame

for OM adaptor/support
For use as a spare or for the configuration of replacement assemblies.

Material:
PA 6.6

Colour:
RAL 9005

Note:
UL approval in conjunction with OM adaptor/support.



For adaptor width 45 mm

Width (B) mm	Length (L) mm	Packs of	Model No. SV
45	170	5	**9341.800**
45	237	5	**9341.820**

For adaptor width 55 mm

Width (B) mm	Length (L) mm	Packs of	Model No. SV
55	170	5	**9341.830**
55	237	5	**9341.850**

Support frame support

for OM adaptors
To reinforce support frames 45 x 237 mm and 55 x 237 mm for use on OM adaptors.

Material:
PA 6.6

Colour:
RAL 9005

Note:
UL approval in conjunction with OM adaptor/support.

Packs of	Model No. SV
10	**9340.800**

OM adaptor/support

Accessories

Support frame

with fitted sub-unit,
for OM Premium adaptors
To prepare spare assemblies with fully prewired motor starters for OM Premium adaptor (SV 9340.900/.910).

Connection data of the sub-unit (tension spring clamp):
3 main contacts (1.5 – 6 mm²), 690 V~
8 auxiliary contacts (0.5 – 2.5 mm²), 300 V~

Material:
PA 6.6

Colour:
Support frame and rail: RAL 9005

Supply includes:
Sub-unit, PinBlock, support rail and support frame support.

Packs of	Model No. SV
2	**9341.970**

PinBlock

for support frames
For reliable attachment and positioning of the contactor on motor starter combinations, for simple clip-on mounting onto the support frame. Individual vertical positioning is achieved by relocating the PinBlock.

Material:
PA 6.6

Colour:
RAL 9005

For support frames	Packs of	Model No. SV
45 mm wide	5	**9342.800**
55 mm wide	5	**9342.810**

Note:
UL approval in conjunction with OM adaptor/support.

PinBlock Plus

for starters with increased contactor attachment
Mounted by simply clipping onto the PinBlock (SV 9342.800/.810).

Material:
PA 6.6

Colour:
RAL 9005

Packs of	Model No. SV
5	**9342.820**

Note:
UL approval in conjunction with OM adaptor/support.

ST-Combi connector

for OM premium adaptor
May be used as a spare. With tension spring clamp at the outlet end.

Material:
PA 6.6

Version	Packs of	Model No. SV
3-pole 1.5 – 4 mm²	5	**9341.980**
8-pole 0.25 – 2.5 mm²	5	**9341.990**

Support rails 35 x 15 mm

for OM adaptor/support
For attaching to the adaptor section.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly screws and side anti-slip guard.

Width mm	Packs of	Model No. SV
45	5	**9342.880**
55	5	**9342.950**

Accessories

Support rails 35 x 10 mm

for OM adaptor/support

Material:
PA 6.6

Colour:
RAL 9005

Supply includes:
Assembly screws.

Note:
UL approval in conjunction with OM adaptor/support.

For attaching to the adaptor section

Version	Width mm	Packs of	Model No. SV
TS 45C[1)]	45	5	**9342.850**
TS 45D	45	5	**9342.860**
TS 55C[1)]	55	5	**9342.920**
TS 55D	55	5	**9342.930**
TS 55E[1) 3)]	55	5	**9342.960**

For attaching to the support frame

Version	Width mm	Packs of	Model No. SV
TS 45A[1)]	45	5	**9342.830**
TS 45B	45	5	**9342.840**
TS 45B-V[2)]	45	5	**9342.870**
TS 55A[1)]	55	5	**9342.900**
TS 55B	55	5	**9342.910**
TS 55B-V[2)]	55	5	**9342.940**
TS 55E[1) 3)]	55	5	**9342.960**

[1)] With anti-slip guard for motor circuit-breaker.
[2)] With latch for retrospective locking of the support rail after the switchgear has been assembled.
[3)] Reinforced version. Recommended for switchgear with an unladen weight per support rail > 600 g.

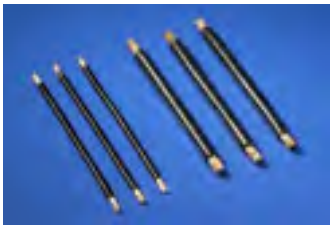
Support rails 35 x 7.5 mm

for OM adaptor/support
For assembly on 55 mm wide OM adaptors/ supports with 10 mm wide adaptor extension pieces mounted on the right and left. Arrangement of the mounting hole for central configuration on 55 mm wide adaptor section or support frame.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly screws and side anti-slip guard.

Width mm	Packs of	Model No. SV
72	5	**9342.980**



Cable set

Pre-assembled connection cables for individual connection of switchgear, top-mounted on OM adaptors with tension spring clamps. Length: 130 mm.

Material:
PVC insulation.
Temperature-resistant up to 105°C.
Wire ends ultrasonically compressed at both ends.

Note:
For current carrying capacity of the insulated supply cables, see page 90.

Version	Packs of	Model No. SV
AWG 14 = 2.08 mm^2 ≙ 2.5 mm^2	15	**9340.850**
AWG 12 = 3.31 mm^2 ≙ 4 mm^2	15	**9340.860**
AWG 10 = 5.26 mm^2 ≙ 6 mm^2	15	**9340.870**
AWG 8 = 8.37 mm^2 ≙ 10 mm^2	6	**9340.880**
AWG 6 = 13.3 mm^2 ≙ 16 mm^2	6	**9340.890**

AWG = American Wire Gauges

Twin cords

for OM adaptors
with tension spring clamp 2.5 – 16 mm^2
Pre-assembled connection cables for individual connection of up to two switchgear units per adaptor.

Cable length:
L1 = 140 mm,
L2 = 250 mm.

Material:
Insulating PVC.
Temperature-resistant up to 105°C.
Wire ends with ultrasonic wire-end compression.

Version	Packs of	Model No. SV
AWG 10 = 5.26 mm^2 ≙ 6 mm^2	6	**9340.820**

AWG = American Wire Gauges

Note:
For current carrying capacity of the insulated supply cables, see page 90.

Circuit-breaker component adaptor

Accessories

Insert strip

for circuit-breaker component adaptor
To extend the construction width from 140 mm to 190 mm.
Width: 25 mm.

Material:
ABS

Colour:
RAL 7035

For	Packs of	Model No. SV
SV 9342.700 SV 9342.710	4 (1 set)	**9342.720** Ⓤ

Note:
4 pieces (1 set) are needed to widen a component adaptor.

Sliding blocks

for circuit-breaker component adaptor (3-pole)
For additional locking of circuit breakers with more than two attachment points.

Colour:
RAL 7035

For	With threaded insert	Packs of	Model No. SV
SV 9342.500/.510 SV 9342.540/.550	M3/M4	6	**9342.560**
SV 9342.600/0.610	M4/M5	6	**9342.640**

Note:
UL approval in conjunction with circuit-breaker component adaptor.

Connection bracket

for circuit-breaker component adaptor
Pre-assembled, laminated flat copper for connecting standard, commercially available moulded case circuit-breakers (MCCB).

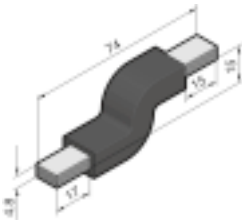
Material:
Electrolytic copper F20

Insulation:
Vinyl compound.
Continuous operating temperature max. 105°C
Fire protection corresponding to UL 94-V0.

Dimensions[1] mm	For circuit-breaker component adaptor	For connecting moulded case circuit-breakers (MCCB), make (model)	Packs of[2]	Model No. SV
6 x 9 x 0.8	SV 9342.500/0.510 SV 9342.540/0.550	Moeller (NZM1)	3	**9342.570**[3]
10 x 15.5 x 0.8	SV 9342.600/0.610	ABB (T3), GE (FE)	3	**9342.660**
		Merlin Gerin (NS100/160/250), Telemecanique (GV7)	3	**9342.670**
		ABB (S3), Moeller (NZM2), Siemens (VL250)	3	**9342.680**
		Siemens (VL160X, VL160)	3	**9342.690**
10 x 32.0 x 1.0	SV 9342.700/0.710	ABB (T5)	3	**9342.770**
		ABB (S5), Merlin Gerin (NS400/630)	3	**9342.780**
		Moeller (NZM3)	3	**9342.790**

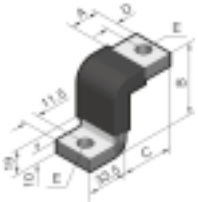
[1] Number of lamina x lamina width x lamina thickness
[2] 3 pieces = 1 set
[3] Universal application for switchgear with a dimensional difference between the mounting level and the upper edge of the contact level of 20 ± 5 mm.

SV 9342.570



SV 9342.660 – SV 9342.690

SV 9342.770 – SV 9342.790



Model No. SV	A mm	B mm	C mm	D mm	E mm
9342.660	26	65	43	9	Ø 10
9342.670	19	66	36	10	Ø 10
9342.680	23	71	40	9	Ø 10
9342.690	23	67	40	11	Ø 7
9342.770	26	51	62	9	Ø 12
9342.780	29	57	46	12	Ø 12
9342.790	28	62	38	14	Ø 12

Accessories

Support rail 35 x 15 mm

for circuit-breaker component adaptors

For SV 9342.400/.410.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly screws and side anti-slip guard.

Width mm	Packs of	Model No. SV
72	5	**9320.120**

Support rails 35 x 10 mm

for multi-functional component adaptors

Material:
PA 6.6

Supply includes:
Assembly screws.

Colour:
RAL 9005

Width mm	Packs of	Model No. SV
45	5	**9320.090**
54	5	**9320.100**

Note:
UL approval in conjunction with multi-functional component adaptor.

Mounting clip

for multi-functional component adaptors (45 mm construction width)

For additional locking of motor starter combinations.

Supply includes:
Support rails, 45 mm wide.

Colour:
RAL 7035

Packs of	Model No. SV
5	**9320.140**

Accessories

Identification labels
for bus-mounting fuse bases

Packs of	Model No. SV
100	**9320.080**

Lug terminal connection parts
for NH slimline fuse-switch-disconnectors size 00
For connecting laminated copper bars and round conductors 1.5 to 25 mm².
Clamping area: 16 x 10 mm.
Tightening torque:
Terminal screw 4 Nm.

Packs of	Model No. SV
1 set	**3592.020**

Clamp-type terminal connection
for NH slimline fuse-switch-disconnectors size 00
For the connection of round conductors 1.5 to 95 mm².
Tightening torque:
Terminal screw 4 Nm.

Packs of	Model No. SV
1 set	**3592.010**

1

2

Prism terminals/box terminals
for NH disconnectors, sizes 00 to 3 with screw terminal
For direct connection of round and sector-shaped conductors and laminated copper bars.

Version	For NH disconnectors	Clamping area for laminated copper bars	Connection: Round conductors	Connection: Sector-shaped conductors	Tightening torque	Packs of	Model No. SV
1 Prism terminals	Size 00	–	10 – 70 mm²	10 – 70 mm²	3 Nm	3	**9344.600**
2 Box terminals	Size 1	20 x 14 mm	35 – 150 mm²	50 – 150 mm²	12 Nm	3	**9344.610**
	Size 2/3	32 x 20 mm	95 – 300 mm²	120 – 300 mm²	20 Nm	3	**9344.620**

1

2

3

Micro-switch

for NH disconnector/slimline fuse-switch-disconnectors
To indicate the switch position of the NH unit (switch cover).

For	Packs of	Model No. SV
NH disconnectors		
1 Size 000/size 00	5	**3071.000**
3 Size 1 – 3	2	**9344.510**[1)]
NH strips		
2 Size 00	5	**9346.400**

[1)] Plastic lug for attaching the micro-switch to the disconnector chassis.

Mounting set

For mounting the NH fuse-switch-disconnector, size 000, on 35 mm support rails to IEC/EN 60 715 (7.5 mm/15 mm high).

Packs of	Model No. SV
1	**3432.000**

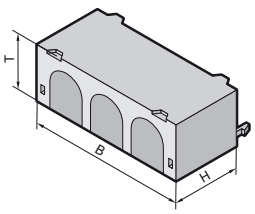
Connection space cover

for NH disconnector

- For extending the contact hazard protection cover, e.g. when using ring terminals with a long collar.
- Bayable as required at the top and bottom.

Material:
Polyamide PA6

Colour:
RAL 7035



B = Width
T = Depth

For NH disconnectors	Packs of	Model No. SV
Size 00	2	**9344.520**
Size 1	2	**9344.530**
Size 2	2	**9344.540**
Size 3	2	**9344.550**

Model No. SV	B mm	H mm	T mm
9344.520	106	46	37
9344.530	184	70	42
9344.540	210	70	42
9344.550	250	70	42

Arc chambers

for NH disconnectors, sizes 1 to 3
To increase switching capacity.

Technical specifications:
See table “NH disconnectors (utilisation category)”, page 104.

Packs of	Model No. SV
3	**9344.680**

Busbar systems

When developing the Rittal busbar systems and their components, Rittal drew on the latest state of the art and the currently valid standards and regulations. These applications are used by specialist companies worldwide. As well as permanent in-house controls at Rittal, the quality of the SV components is further reinforced by a vast array of tests and approvals.

As product development is an on-going process, we reserve the right to make amendments in line with technical progress.

Glossary of frequently used basic/user regulations for busbar systems and components

- **IEC/EN 60 439-1**
  Low-voltage switchgear combinations
  Part 1: Type-tested and partially type-tested combinations
- **IEC/EN 60 947-1**
  Low-voltage switchgear
  Part 1: General specifications
- **IEC/EN 60 947-3**
  Low-voltage switchgear and controlgear: switches, disconnectors, switch disconnectors and fuse combination units
- **IEC/EN 60 664-1**
  Coordination of insulation for electrical operating equipment in low-voltage systems
  Part 1: Basic principles, requirements and tests
- **IEC/EN 60 999-1**
  Connector parts – Electrical copper conductors –
  Safety requirements for screw terminals and screwless terminals
  General and specific requirements for terminals for conductors from 0.2 mm^2 up to and including 35 mm^2
- **IEC/EN 60 999-2**
  Connector parts – Electrical copper conductors –
  Safety requirements for screw terminals and screwless terminals
  Part 2: Special requirements for terminals for conductors greater than 35 mm^2 up to and including 300 mm^2
- **DIN 43 671**
  Copper busbars, dimensioning for constant current
- **DIN 43 673-1**
  Busbar drill holes and screw fastenings, busbars with rectangular cross-section
- **IEC/EN 60 715**
  Dimensions of low-voltage switchgear –
  Standardised support rails for the mechanical attachment of electrical components in switching systems
- **DIN EN 13 601**
  Copper and copper alloys – Copper rods and wires for general use in electrical engineering
- **UL 248**
  Low-Voltage Fuses
- **UL 4248-1**
  Fuseholders Part 1: General Requirements
- **UL 486 E**
  Equipment Wiring Terminals for use with Aluminium and/or Copper Conductors
- **UL 489**
  Molded-Case Circuit breakers, Molded-Case Switch and Circuit-Breaker Enclosures
- **UL 508**
  Industrial Control Equipment
- **UL 508A**
  Industrial Control Panels
- **UL 512**
  Fuseholders
- **UL 845**
  Motor Control Centers
- **UL 891**
  Switchboards

Application

In order to avoid injury and damage to property, busbar systems must only be assembled and used by suitably trained and qualified personnel. The valid technical regulations, standards and provisions must, of course, be observed.

Users are required to carefully observe the information and instructions supplied by Rittal, and where necessary to forward them to downstream users and/or customers with a special advice note. In particular, the specified tightening torques of electrical terminal connections must be observed in order to achieve an optimum contact pressure.

Technical data and catalogue information/operating conditions

Power distribution components are used in conjunction with a wide range of different switchgear, assemblies and components for power distribution. These various assemblies and components necessitate a wide range of different operating and ambient conditions which are, firstly, outside of Rittal's sphere of influence, and secondly, must be guaranteed in order to allow safe operation by the plant manufacturer.

IEC/EN 60 439-1 and the ambient conditions specified therein for interior siting at a contamination level of 3 serves as a basis for Rittal power distribution components in the IEC market.
At enclosure interior temperatures of > 35°C, application-specific derating should be provided, where applicable.
Specifically in relation to the limit temperatures specified in IEC/EN 60 439-1 the following factors should be given critical consideration by the plant manufacturer:

- Arrangement of components in respect of the thermally interactive influences in the overall structure
- Heat loss of the circuit-breakers and fuses used
- Active/passive ventilation measures
- Required cable cross-sections according to standard and/or manufacturer data
- Operating mode of plant (switching cycles etc.)
- Consideration of the operating and ambient conditions
- Consideration of the simultaneity factor
- Consideration of the rated load factor

It should also be noted that the horizontal installation position is the standard installation position for busbar systems, and this therefore produces the vertical installation position for top-mounted equipment. Once assembly of the system has been completed, the minimum creepage distances and clearances to IEC/EN 60 664-1 should be checked.

Chemical contamination caused by direct contact with substances or an excessively chemically charged atmosphere during transportation, storage and operation of the components should be avoided, since this can lead to contact corrosion and other lasting negative influences.

Specifically for the UL market, the requirements to UL 508A apply to plant manufacturers. In particular, depending on the application, the required creepage distances and clearances must be taken into account.

Rated load factor

The rated load factor of a switchgear enclosure or part thereof (e.g. a field) comprising several main circuits refers to the ratio between the largest sum total of all currents anticipated at any given time in the affected main circuits and the sum total of the rated currents of all main circuits of the switchgear enclosure or observed part thereof.

Number of main circuits	Load factor
2 and 3	0.9
4 and 5	0.8
6 and 7	0.7
10 or more	0.6

Conductor connections

Unless mentioned separately in the Rittal product documentation or on the product itself, the conductor connections apply solely to the direct connection of Cu conductors. Connections with aluminium conductors are subject to special conductor preparation and must be serviced at regular intervals.
Please observe the torque specified on the product or in our documentation. In accordance with the valid regulation IEC/EN 60 999-1 and -2, terminal connections must not be subjected to any tensile loads. For this reason, in order to ensure proper installation, appropriate strain relief should be provided for the application in question. The clamping ranges specified in the Rittal documents represent the absolute figure for the minimum/maximum supply lead that may be used. When using wire end ferrules, because of the different crimping types, universal clearance cannot be given, since deviations for the clamping zone or electromagnetically unfavourable connections may occur. Generally speaking, care must be taken to ensure that the force effect of the terminal does not loosen or even counteract the natural compression of the wire end ferrule. For example, square and trapezoid compression is preferable for flat-compression terminals. For terminals with a circular action, round compression is the most suitable. Particularly with larger cross-sections, for example, the use of square or trapezoid-compressed conductors in terminals with a circular action may create an electromechanically inadequate connection. The reason for this is the self-release effect, since when the terminal is screwed together, the corners of the wire end ferrule are reshaped in a circular direction, and as a result, the actual compression between the conductor and ferrule can be rendered ineffective. Mechanically speaking, terminals have not been designed to impose a new compression form on the conductor. Such an application would be a classic example of inadmissible temperature rises, which in a worst case could lead to arcing as a result of ionisation of the immediate ambient air, and ultimately to complete destruction of the plant.

Names of conductor types to IEC/EN 60 228:

rs Round conductor, single-wire
ss Sector conductor, single-wire
rm Round conductor, multi-wire
sm Sector conductor, multi-wire
f Fine-wire

UL 486E applies to clamping connections to UL. We distinguish between clamping connections for field-wiring or factory-wiring. All clamping connections in Rittal RiLine60 busbar connection and component adaptors have been tested for the more stringent licensing requirements for field-wiring. Under UL 486E, no wire end ferrules must be used for cable preparation.

Designation of conductor types to UL 486E:

s stranded (multi-wire)
sol solid (single-wire)

The following table shows the allocation of AWG and MCM cross-sections to conductor cross-sections in mm²:

Conductor size	Absolute cross-section in mm²	Next standard cross-section in mm²
AWG 16	1.31	1.5
AWG 14	2.08	2.5
AWG 12	3.31	4
AWG 10	5.26	6
AWG 8	8.37	10
AWG 6	13.3	16
AWG 4	21.2	25
AWG 2	33.6	35
AWG 0	53.4	50
AWG 2/0	67.5	70
AWG 3/0	85	95
MCM 250	127	120
MCM 300	152	150
MCM 350	178	185
MCM 500	254	240
MCM 600	304	300

AWG = American Wire Gauges
MCM = Circular Mils (1 MCM = 1000 Circ. Mils = 0.5067 mm²)

Short-circuit protection diagrams to IEC/EN 60 439-1

Type testing to IEC/EN 60 439-1
During the course of system type-testing, the following tests were conducted on the Rittal RiLine60 busbar systems and on representative Rittal RiLine60 top-mounting components:

Proof of insulating properties (to IEC/EN 60 439-1, 8.2.2)
Test piece: Representative system configuration.
Test with surge voltage 1.2/50 µs, 9.8 kV.

Proof of short-circuit resistance (to IEC/EN 60 439-1, 8.2.3)
see short-circuit resistance diagrams below.

Proof of creepage distances and clearance (to IEC/EN 60 439-1, 8.2.5)
Test piece: Representative system configuration.

Proof of IP protection category (to IEC/EN 60 439-1, 8.2.7)
Test piece: Representative system configuration. Proven protection category: IP 2X.

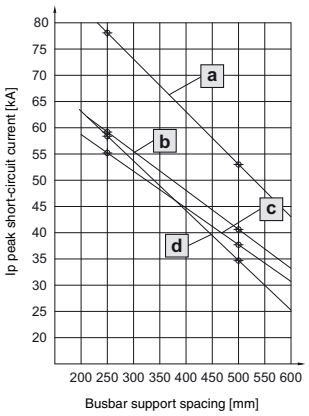
Busbar supports (3-pole)

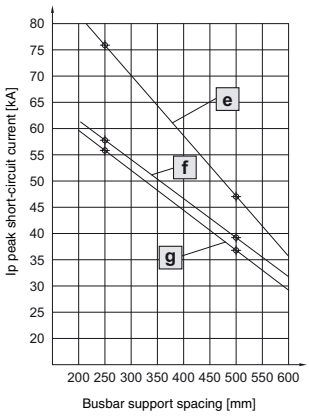
SV 9340.000/SV 9340.010
page 18

60 mm bar centre distance, for busbars from 15 x 5 – 30 x 10 mm.

Rated operating voltage: up to 690 V AC
Rated insulation voltage: 1000 V AC
Rated surge voltage: 8 kV
Overvoltage category: IV
Level of contamination: 3
Rated frequency: 50/60 Hz

Test implemented:
- Rated surge current resistance I_{pk} (see diagram)
- Rated short-time current resistance I_{cw}





Busbar mm	l mm	I_{cw} kA
30 x 10	250	37.6
30 x 5	250	36.0
20 x 10	250	29.0

Busbar mm	Curve
30 x 10	a
20 x 10	b
25 x 5	c
15 x 5	d

Busbar mm	Curve
30 x 5	e
20 x 5	f
15 x 10	g

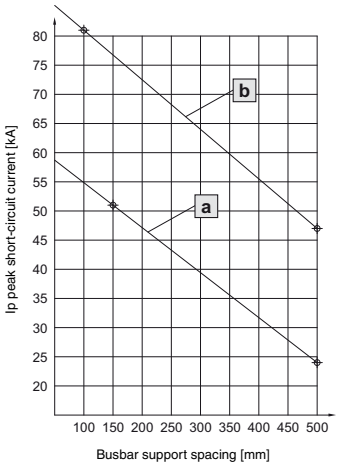
PLS busbar supports (3-pole)

SV 9341.000/SV 9342.000
page 20

60 mm bar centre distance, for PLS special busbars.

Rated operating voltage: up to 690 V AC
Rated insulation voltage: 1000 V AC
Rated surge voltage: 8 kV
Overvoltage category: IV
Level of contamination: 3
Rated frequency: 50/60 Hz

Test implemented:
- Rated surge current resistance I_{pk} (see diagram)
- Rated short-time current resistance I_{cw}



Busbar mm	l mm	I_{cw} kA
PLS 800	150	25.9
PLS 1600	150	37.5

Busbar mm	Curve
PLS 800	a
PLS 1600	b

Short-circuit protection diagrams to IEC/EN 60 439-1

Busbar supports (4-pole)

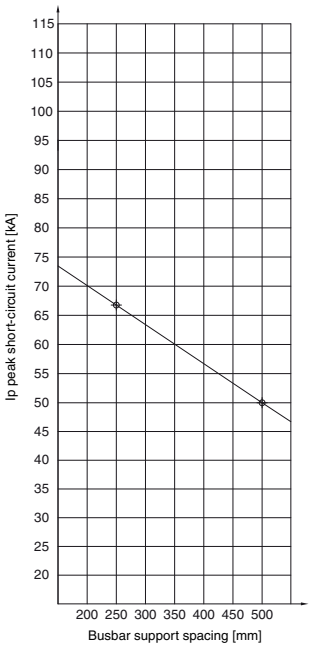
SV 9340.004/SV 9342.014
Page 52/54

60 mm bar centre distance,
for 30 x 10 mm busbars.

Rated operating voltage: up to 690 V AC
Rated insulation voltage: 1000 V AC
Rated surge voltage: 8 kV
Overvoltage category: IV
Level of contamination: 3
Rated frequency: 50/60 Hz

Test implemented:
- Rated surge current resistance I_{pk} (see diagram)
- Rated short-time current resistance I_{cw}

Busbar mm	l mm	I_{cw} kA
30 x 10	250	29
	500	23



PLS busbar supports (4-pole)

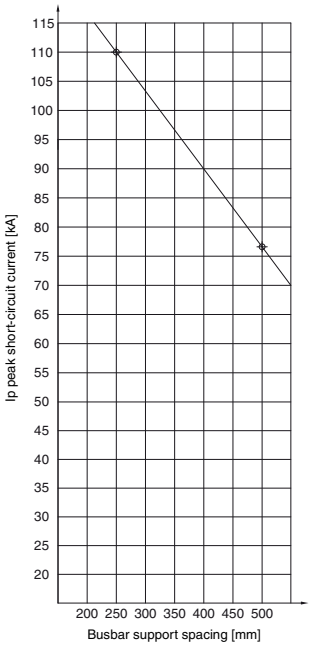
SV 9342.004
page 54

60 mm bar centre distance,
for Mini-PLS special busbars.

Rated operating voltage: up to 690 V AC
Rated insulation voltage: 1000 V AC
Rated surge voltage: 8 kV
Overvoltage category: IV
Level of contamination: 3
Rated frequency: 50/60 Hz

Test implemented:
- Rated surge current resistance I_{pk} (see diagram)
- Rated short-time current resistance I_{cw}

Busbar mm	l mm	I_{cw} kA
PLS 1600	250	53
	500	38



Short-circuit protection diagrams to UL 508

The short-circuit resistance of Rittal RiLine60 has been extensively tested. Short-circuit resistance to UL criteria is assessed via the root-mean-square value of the short-circuit current (I_{RMS}), which must be applied for at least 3 periods.

During the course of testing, the test equipment has been adjusted to the respective root-mean-square values (I_{RMS}). The resultant peak short-circuit currents I_p are shown in the short-circuit protection diagrams below.

Busbar supports (3-pole)

for feeder circuits 700 A
page 18

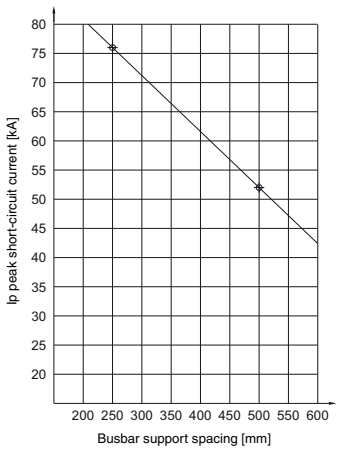
60 mm bar centre distance,
for busbars 15 x 5 – 30 x 10 mm.

Note:
SV 9340.050 with E-Cu 30 x 5/10 mm
With a pre-fuse, the following short-circuit value can be achieved:
- Support spacing: 350 mm
- Fuse: Class L 800 A
- I_{RMS}: 50 kA

Settings I_{RMS} ($I_{eff.}$) of the test equipment without pre-fuse:

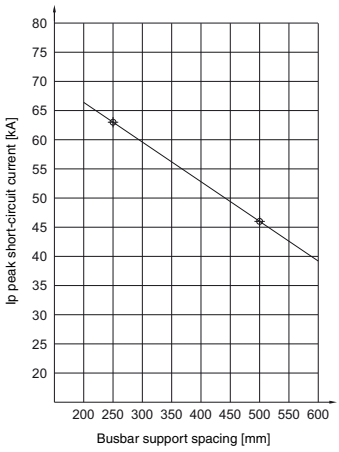
Support spacing mm	I_{RMS} kA
250	35
500	25

SV 9340.050 with
30 x 5/10 mm



Support spacing mm	I_{RMS} kA
250	30
500	22

SV 9340.050 mit
25 x 5 mm
20 x 5/10 mm
15 x 5/15 mm



PLS busbar supports (3-pole)

for feeder circuits
700 A (PLS 800)/1400 A (PLS 1600)
page 20

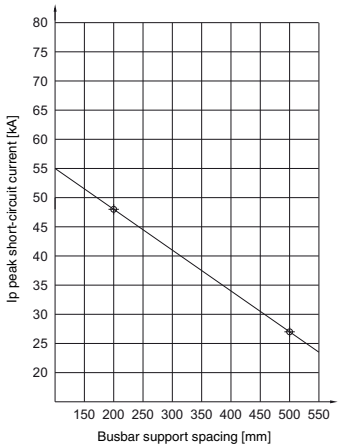
60 mm bar centre distance,
for Mini-PLS special busbars.

Note:
SV 9342.050 (PLS 1600)
With a pre-fuse, the following short-circuit value can be achieved:
- Support spacing: 250 mm
- Fuse: Class L 1400 A
- I_{RMS}: 65 kA

Settings I_{RMS} ($I_{eff.}$) of the test equipment without pre-fuse:

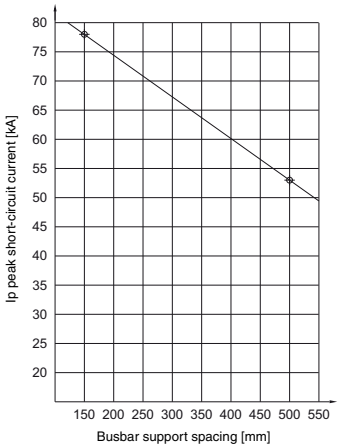
Support spacing mm	I_{RMS} kA
200	22
500	14

SV 9341.050 (PLS 800)



Support spacing mm	I_{RMS} kA
150	35
500	25

SV 9342.050 (PLS 1600)



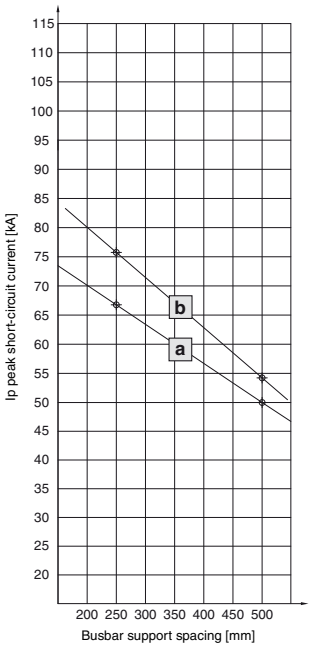
Short-circuit protection diagrams to UL 508

Busbar supports (4-pole)

For feeder circuits up to 700 A

SV 9340.004/SV 9342.014
page 52/54

60 mm bar centre distance.



Settings I_{RMS} ($I_{eff.}$) of the test equipment without pre-fuse:

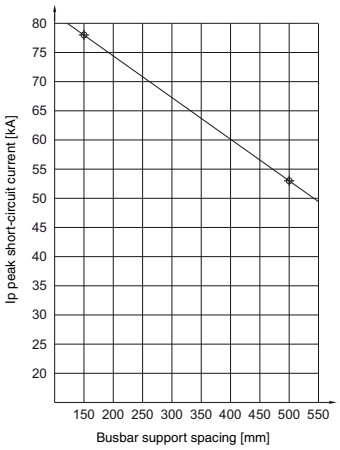
Model No. SV	Busbar mm	Support spacing mm	I_{RMS}
a 9340.004	15 x 5 – 30 x 10	250	30
		500	22
b 9342.014	30 x 10	250	35
		500	25

PLS busbar supports (4-pole)

For feeder circuits up to 1400 A

SV 9342.004
page 54

60 mm bar centre distance,
for Mini-PLS special busbars.



Settings I_{RMS} ($I_{eff.}$) of the test equipment without pre-fuse:

Busbar mm	Support spacing mm	RMS kA
PLS 1600	150	35
	500	25

Busbars

Rated currents of busbars E-Cu (DIN 43 671)

DIN 43 671 specifies the constant currents for busbars at an ambient temperature of 35°C and an average busbar temperature of 65°C. With the aid of a correction factor (k_2), the continuous currents specified in the following table may be adjusted to alternative operating temperatures.

For safe operation with thermal reserve, it is advisable to limit the busbar temperature to a maximum of 85°C. However, the decisive factor is the lowest permissible continuous temperature of the components which directly contact the busbar system (fuse bases, outgoing cables etc.). The ambient air temperature of the busbars or busbar system should not exceed 40°C; an average of 35°C maximum is recommended.

For the continuous temperatures specified in the table, an emission level of 0.4 applies, equivalent to an oxidating copper bar. In modern busbar systems – built into enclosures with a protection category of IP 54 and above – a more favourable emission level can be assumed. The lower emission level facilitates an additional increase in continuous currents compared with the figures in DIN 43 671, irrespective of the specified air and busbar temperature. Experience has shown an increase in the continuous current of 6 – 10% compared with the table figures for uncoated copper bars, and 60% for surface-oxidised copper bars.

Example:
For a Cu bar 30 x 10 mm (E-Cu F30), DIN 43 671 specifies a constant current of I_{N65} = 573 A.
The correction factor diagram for square cross-sections indicates a correction factor k_2 = 1.29 at an air temperature of 35°C and a busbar temperature of 85°C. Thanks to the favourable emission level, the continuous current is increased by a further 6 – 10%. In this example, a mean value of 8% is used. Compared with the table figure from DIN 43 671, the Rittal rated current specification for a Cu bar 30 x 10 mm is:

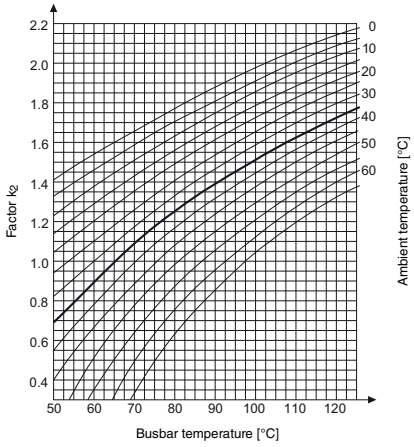
$$I_{N85} = I_{N65} \cdot k_2 + 8\%$$
$$= 573\ A \cdot 1.29 \cdot 1.08$$
$$I_{N85} = 800\ A$$

Continuous currents for busbars
Made from E-Cu with square cross-section in indoor locations at 35°C air temperature and 65°C bar temperature, vertical position or horizontal position of the bar width.

Width x thickness mm	Cross-section mm²	Weight[1]	Material[2]	Continuous current in A			
				AC current up to 60 Hz		DC current + AC current 16 Hz	
				Bare bar	Coated bar	Bare bar	Coated bar
12 x 2	23.5	0.209	E-Cu F30	108	123	108	123
15 x 2	29.5	0.262		128	148	128	148
15 x 3	44.5	0.396		162	187	162	187
20 x 2	39.5	0.351		162	189	162	189
20 x 3	59.5	0.529		204	237	204	237
20 x 5	99.1	0.882		274	319	274	320
20 x 10	199.0	1.770		427	497	428	499
25 x 3	74.5	0.663		245	287	245	287
25 x 5	124.0	1.110		327	384	327	384
30 x 3	89.5	0.796		285	337	286	337
30 x 5	149.0	1.330		379	447	380	448
30 x 10	299.0	2.660		573	676	579	683
40 x 3	119.0	1.060		366	435	367	436
40 x 5	199.0	1.770		482	573	484	576
40 x 10	399.0	3.550		715	850	728	865
50 x 5	249.0	2.220		583	697	588	703
50 x 10	499.0	4.440		852	1020	875	1050
60 x 5	299.0	2.660		688	826	696	836
60 x 10	599.0	5.330		985	1180	1020	1230
80 x 5	399.0	3.550		885	1070	902	1090
80 x 10	799.0	7.110		1240	1500	1310	1590
100 x 10	999.0	8.890		1490	1810	1600	1940

[1] Calculated with a density of 8.9 kg/dm³
[2] Reference basis for the continuous current levels (figures taken from DIN 43 671)

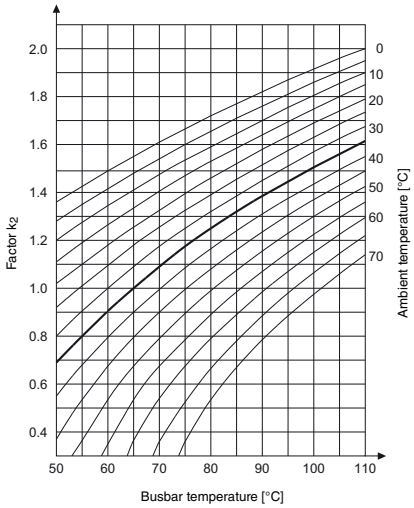
Correction factor diagram to DIN 43 671



Rittal PLS current load
According to DIN 43 671, the correction factor k_2 (correction diagram) is used to correct the basic current with reference to the existing temperatures of the ambient air and the busbar. In accordance with DIN 43 671, the load figures of the Rittal PLS special bars have been determined on the basis of measurement trials, as follows:

PLS special busbars	Rated current AC 50/60 Hz	
	for 35/75°C	for 35/65°C (basic value)
PLS 800	800 A	684 A
PLS 1600	1600 A	1,368 A

Correction factor diagram for PLS



Installation data for applications to IEC (DIN EN)

Model No. SV	Designation	Tightening torque			Connection of round conductors	Clamping area for laminated copper bars
		Terminal screw	Assembly screw	Cover attachment		
RiLine60 busbar systems up to 800 A/1600 A (3-pole, 60 mm bar centre distance)						
9340.000	Busbar support	–	3 – 5 Nm	1 – 3 Nm	–	–
9340.010	Busbar support	–	3 – 5 Nm	1 – 3 Nm	–	–
9341.000	Busbar support PLS 800	–	3 – 5 Nm 0.7 Nm[1)]	–	–	–
9342.000	Busbar support PLS 1600	–	3 – 5 Nm 0.7 Nm[1)]	–	–	–
9342.200	Busbar connection adaptor 63 A Outlet at top	2.5 Nm	2 Nm	–	2.5 – 10 mm² (fine-wire with wire end ferrule) 2.5 – 16 mm² (multi-wire) 2.5 – 16 mm² (solid)	–
9342.210	Busbar connection adaptor 63 A Outlet at bottom					
9342.220	Busbar connection adaptor 125 A Outlet at top/bottom	2 – 3 Nm	2 Nm	–	10 – 25 mm² (fine-wire with wire end ferrule) 16 – 35 mm² (multi-wire)	10 x 7.8 mm
9342.230	Busbar connection adaptor 125 A Outlet at top					
9342.240	Busbar connection adaptor 125 A Outlet at bottom					
9342.250	Busbar connection adaptor 250 A Outlet at top/bottom	12 Nm	4 – 6 Nm	–	35 – 120 mm² (fine-wire with wire end ferrule) 35 – 120 mm² (multi-wire)	18.5 x 15.5 mm
9342.260	Busbar connection adaptor 250 A Outlet at top					
9342.270	Busbar connection adaptor 250 A Outlet at bottom					
9342.280	Busbar connection adaptor 800 A Outlet at top/bottom	12 – 14 Nm	6 Nm	–	95 – 185 mm² (super-fine wire with wire end ferrule) 95 – 300 mm² (multi-wire)	33 x 20 mm
9342.290	Busbar connection adaptor 800 A Outlet at top					
9342.300	Busbar connection adaptor 800 A Outlet at bottom					
3439.010	Busbar connection adaptor 600 A Outlet at top/bottom	15 Nm	15 – 20 Nm	–	35 – 240 mm² (fine-wire with wire end ferrule) 35 – 240 mm² (multi-wire)	24 x 21 mm
9342.310	Busbar connection adaptor 800 A Outlet at top/bottom	12 – 14 Nm	–	–	95 – 185 mm² (fine-wire with wire end ferrule) 95 – 300 mm² (multi-wire)	33 x 27 mm[2)] 33 x 22 mm[3)]
9342.320	Busbar connection adaptor 1,600 A Outlet at top/bottom	15 – 20 Nm	–	–	–	65 x 27 mm[2)] 65 x 22 mm[3)]
9320.260	Multi-functional component adaptor 25 A	2.5 Nm	–	–	1.5 – 16 mm²	–
9320.270	Multi-functional component adaptor 25 A	2.5 Nm	–	–	1.5 – 16 mm²	–
9320.280	Multi-functional component adaptor 25 A	2.5 Nm	–	–	1.5 – 16 mm²	–
9320.290	Multi-functional component adaptor 25 A	2.5 Nm	–	–	1.5 – 16 mm²	–
9320.340	Multi-functional component adaptor 40 A	2.5 Nm	–	–	1.5 – 16 mm²	–

[1)] Busbar anti-slip guard.
[2)] For 5 mm busbar thickness.
[3)] For 10 mm busbar thickness.

Installation data for applications to IEC (DIN EN)

Model No. SV	Designation	Tightening torque			Connection of round conductors	Clamping area for laminated copper bars
		Terminal screw	Assembly screw	Cover attachment		
RiLine60 busbar systems up to 800 A/1600 A (3-pole, 60 mm bar centre distance)						
9320.350	Multi-functional component adaptor 40 A	2.5 Nm	–	–	1.5 – 16 mm²	–
9320.360	Multi-functional component adaptor 40 A	2.5 Nm	–	–	1.5 – 16 mm²	–
9320.370	Multi-functional component adaptor 40 A	2.5 Nm	–	–	1.5 – 16 mm²	–
9342.400	Circuit-breaker component adaptor 100 A	2 – 3 Nm	2 Nm	–	10 – 35 mm²	10 x 7.8 mm
9342.410	Circuit-breaker component adaptor 100 A	2 – 3 Nm	2 Nm	–	10 – 35 mm²	10 x 7.8 mm
9342.500	Circuit-breaker component adaptor 160 A	12 Nm	4 – 6 Nm	–	35 – 120 mm²	18.5 x 15.5 mm
9342.510	Circuit-breaker component adaptor 160 A	12 Nm	4 – 6 Nm	–	35 – 120 mm²	18.5 x 15.5 mm
9342.540	Circuit-breaker component adaptor 125 A	12 Nm	4 – 6 Nm	–	35 – 120 mm²	18.5 x 15.5 mm
9342.550	Circuit-breaker component adaptor 125 A	12 Nm	4 – 6 Nm	–	35 – 120 mm²	18.5 x 15.5 mm
9342.600	Circuit-breaker component adaptor 250 A	12 Nm	4 – 6 Nm	–	35 – 120 mm²	18.5 x 15.5 mm
9342.610	Circuit-breaker component adaptor 250 A	12 Nm	4 – 6 Nm	–	35 – 120 mm²	18.5 x 15.5 mm
9342.700	Circuit-breaker component adaptor 630 A	30 – 32 Nm	12 – 14 Nm	–	max. 150 mm² [1]	32 x 10 mm
9342.710	Circuit-breaker component adaptor 630 A	30 – 32 Nm	12 – 14 Nm	–	max. 150 mm² [1]	32 x 10 mm
3418.000	Bus-mounting fuse base 63 A, D 02-E 18	2.5 Nm	2 Nm	–	1.5 – 16 mm² [2]	–
3427.000	Bus-mounting fuse base 25 A, D II-E 27	2.5 Nm	2 Nm	–	1.5 – 16 mm² [2]	–
3433.000	Bus-mounting fuse base 63 A, D III-E 33	2.5 Nm	2 Nm	–	1.5 – 16 mm² [2]	–
3422.000	Bus-mounting fuse base 63 A, D 02-E 18	2.5 Nm	–	–	1.5 – 16 mm² [2]	–
3423.000	Bus-mounting fuse base 63 A, D 02-E 18	2.5 Nm	–	–	1.5 – 16 mm² [2]	–
3520.000	Bus-mounting fuse base 25 A, D II-E 27	2.5 Nm	–	–	1.5 – 16 mm² [2]	–
3521.000	Bus-mounting fuse base 25 A, D II-E 27	2.5 Nm	–	–	1.5 – 16 mm² [2]	–
3530.000	Bus-mounting fuse base 63 A, D III-E 33	2.5 Nm	–	–	1.5 – 16 mm² [2]	–
3531.000	Bus-mounting fuse base 63 A, D III-E 33	2.5 Nm	–	–	1.5 – 16 mm² [2]	–
9340.950	Bus-mounting fuse base 63 A	3 – 4 Nm	–	–	1.5 – 25 mm²	–
9346.000	NH slimline fuse-switch-disconnector, size 00	4.5 Nm	6 Nm	–	2.5 – 95 mm²	–
9346.010	NH slimline fuse-switch-disconnector, size 00	14 Nm	6 Nm	–	up to 95 mm²	–
3431.000	NH fuse-switch-disconnector, size 000	3 Nm	5 Nm	–	1.5 – 50 mm²	10 x 10 mm
3431.020	NH bus-mounting fuse-switch-disconnector, size 000	4.5 Nm	4.5 Nm	–	2.5 – 50 mm²	–
3431.030	NH bus-mounting fuse-switch-disconnector, size 000	4.5 Nm	4.5 Nm	–	2.5 – 50 mm²	–
9343.000	NH bus-mounting fuse-switch-disconnector, size 00	4.5 Nm	6 Nm	–	4 – 95 mm²	13 x 13 mm
9343.020	NH bus-mounting fuse-switch-disconnector, size 00 with electronic fuse monitoring	4.5 Nm	6 Nm	–	4 – 95 mm²	13 x 13 mm
9343.040	NH bus-mounting fuse-switch-disconnector, size 00 with electromechanical fuse monitoring	4.5 Nm	6 Nm	–	4 – 95 mm²	13 x 13 mm
9343.010	NH bus-mounting fuse-switch-disconnector, size 00	12 Nm	6 Nm	–	up to 95 mm²	20 x 5 mm
9343.030	NH bus-mounting fuse-switch-disconnector, size 00 with electronic fuse monitoring	12 Nm	6 Nm	–	up to 95 mm²	20 x 5 mm
9343.050	NH bus-mounting fuse-switch-disconnector, size 00 with electromechanical fuse monitoring	12 Nm	6 Nm	–	up to 95 mm²	20 x 5 mm
9343.100	NH bus-mounting fuse-switch-disconnector, size 1	12 Nm	6 Nm	–	35 – 150 mm² [3]	20 x 14 mm
9343.120	NH bus-mounting fuse-switch-disconnector, size 1 with electronic fuse monitoring	12 Nm	6 Nm	–	35 – 150 mm² [3]	20 x 14 mm
9343.140	NH bus-mounting fuse-switch-disconnector, size 1 with electromechanical fuse monitoring	12 Nm	6 Nm	–	35 – 150 mm² [3]	20 x 14 mm
9343.110	NH bus-mounting fuse-switch-disconnector, size 1	20 Nm	6 Nm	–	up to 150 mm²	32 x 10 mm
9343.130	NH bus-mounting fuse-switch-disconnector, size 1 with electronic fuse monitoring	20 Nm	6 Nm	–	up to 150 mm²	32 x 10 mm
9343.150	NH bus-mounting fuse-switch-disconnector, size 1 with electromechanical fuse monitoring	20 Nm	6 Nm	–	up to 150 mm²	32 x 10 mm
9343.200	NH bus-mounting fuse-switch-disconnector, size 2	20 Nm	8 Nm	–	95 – 300 mm² [4]	32 x 20 mm
9343.220	NH bus-mounting fuse-switch-disconnector, size 2 with electronic fuse monitoring	20 Nm	8 Nm	–	95 – 300 mm² [4]	32 x 20 mm
9343.240	NH bus-mounting fuse-switch-disconnector, size 2 with electromechanical fuse monitoring	20 Nm	8 Nm	–	95 – 300 mm² [4]	32 x 20 mm
9343.210	NH bus-mounting fuse-switch-disconnector, size 2	20 Nm	8 Nm	–	up to 240 mm²	50 x 10 mm
9343.230	NH bus-mounting fuse-switch-disconnector, size 2 with electronic fuse monitoring	20 Nm	8 Nm	–	up to 240 mm²	50 x 10 mm
9343.250	NH bus-mounting fuse-switch-disconnector, size 2 with electromechanical fuse monitoring	20 Nm	8 Nm	–	up to 240 mm²	50 x 10 mm
9343.300	NH bus-mounting fuse-switch-disconnector, size 3	20 Nm	8 Nm	–	95 – 300 mm² [4]	32 x 20 mm
9343.320	NH bus-mounting fuse-switch-disconnector, size 3 with electronic fuse monitoring	20 Nm	8 Nm	–	95 – 300 mm² [4]	32 x 20 mm
9343.340	NH bus-mounting fuse-switch-disconnector, size 3 with electromechanical fuse monitoring	20 Nm	8 Nm	–	95 – 300 mm² [4]	32 x 20 mm
9343.310	NH bus-mounting fuse-switch-disconnector, size 3	20 Nm	8 Nm	–	up to 300 mm²	50 x 10 mm
9343.330	NH bus-mounting fuse-switch-disconnector, size 3 with electronic fuse monitoring	20 Nm	8 Nm	–	up to 300 mm²	50 x 10 mm
9343.350	NH bus-mounting fuse-switch-disconnector, size 3 with electromechanical fuse monitoring	20 Nm	8 Nm	–	up to 300 mm²	50 x 10 mm
RiLine60 busbar systems up to 800 A/1600 A (4-pole, 60 mm bar centre distance)						
9340.004	Busbar support	–	3 – 5 Nm	1 – 3 Nm	–	–
9342.014	Busbar support (30 x 10 PLUS)	–	3 – 5 Nm	5 – 7 Nm	–	–
9342.004	Busbar support (PLS 1600 PLUS)	–	3 – 5 Nm	5 – 7 Nm	–	–

[1] With ring terminal. [2] Wire end ferrules should be used with fine wire conductors. [3] Connection of sector-shaped conductors 50 – 150 mm²
[4] Connection of sector-shaped conductors 120 – 300 mm²

Installation data for applications to IEC (DIN EN)

Model No. SV	Designation	Tightening torque			Connection of round conductors	Clamping area for laminated copper bars
		Terminal screw	Assembly screw	Cover attachment		
RiLine60 busbar systems up to 800 A/1600 A (4-pole, 60 mm bar centre distance)						
9342.224	Busbar connection adaptor 125 A Outlet at top/bottom	2 – 3 Nm	2 Nm	–	10 – 25 mm² (fine-wire with wire end ferrule) 16 – 35 mm² (multi-wire)	10 x 7.8 mm
9342.234	Busbar connection adaptor 125 A Outlet at top					
9342.244	Busbar connection adaptor 125 A Outlet at bottom					
9342.254	Busbar connection adaptor 250 A Outlet at top/bottom	12 Nm	4 – 6 Nm	–	35 – 120 mm² (fine-wire with wire end ferrule) 35 – 120 mm² (multi-wire)	18.5 x 15.5 mm
9342.264	Busbar connection adaptor 250 A Outlet at top					
9342.274	Busbar connection adaptor 250 A Outlet at bottom					
9342.310	Busbar connection adaptor 800 A Outlet at top/bottom	12 – 14 Nm	–	–	95 – 185 mm² (fine-wire with wire end ferrule) 95 – 300 mm² (multi-wire)	33 x 27 mm[1] 33 x 22 mm[2]
9342.320	Busbar connection adaptor 1600 A Outlet at top/bottom	15 – 20 Nm	–	–	–	65 x 27 mm[1] 65 x 22 mm[2]
9342.314	Busbar connection adaptor 800 A Outlet at top/bottom (Expansion set for 4-pole configuration)	12 – 14 Nm	–	–	95 – 185 mm² (fine-wire with wire end ferrule) 95 – 300 mm² (multi-wire)	33 x 27 mm[1] 33 x 22 mm[2]
9342.324	Busbar connection adaptor 1600 A Outlet at top/bottom (Expansion set for 4-pole configuration)	15 – 20 Nm	–	–	–	65 x 27 mm[1] 65 x 22 mm[2]
9342.504	Circuit-breaker component adaptor 160 A	12 Nm	4 – 6 Nm	–	35 – 120 mm²	18.5 x 15.5 mm
9342.514	Circuit-breaker component adaptor 160 A	12 Nm	4 – 6 Nm	–	35 – 120 mm²	18.5 x 15.5 mm
9342.604	Circuit-breaker component adaptor 250 A	12 Nm	4 – 6 Nm	–	35 – 120 mm²	18.5 x 15.5 mm
9342.614	Circuit-breaker component adaptor 250 A	12 Nm	4 – 6 Nm	–	35 – 120 mm²	18.5 x 15.5 mm
Rittal RiLine NH (mounting plate assembly)						
3431.000	NH fuse-switch-disconnector, size 000	3 Nm	–	–	1.5 – 50 mm²	10 x 10 mm
9344.000	NH fuse-switch-disconnector, size 00	4.5 Nm	–	–	4 – 70 mm²	13 x 13 mm
9344.010	NH fuse-switch-disconnector, size 00	12 Nm	–	–	up to 95 mm²	20 x 5 mm
9344.020	NH fuse-switch-disconnector, size 00 with electronic fuse monitoring	4.5 Nm	–	–	4 – 70 mm²	13 x 13 mm
9344.030	NH fuse-switch-disconnector, size 00 with electronic fuse monitoring	12 Nm	–	–	up to 95 mm²	20 x 5 mm
9344.040	NH fuse-switch-disconnector, size 00 with electromechanical fuse monitoring	4.5 Nm	–	–	4 – 70 mm²	13 x 13 mm
9344.050	NH fuse-switch-disconnector, size 00 with electromechanical fuse monitoring	12 Nm	–	–	up to 95 mm²	20 x 5 mm
9344.100	NH fuse-switch-disconnector, size 1	12 Nm	–	–	35 – 150 mm² [3]	20 x 14 mm
9344.110	NH fuse-switch-disconnector, size 1	20 Nm	–	–	up to 150 mm²	32 x 10 mm
9344.120	NH fuse-switch-disconnector, size 1 with electronic fuse monitoring	12 Nm	–	–	35 – 150 mm² [3]	20 x 14 mm
9344.130	NH fuse-switch-disconnector, size 1 with electronic fuse monitoring	20 Nm	–	–	up to 150 mm²	32 x 10 mm
9344.140	NH fuse-switch-disconnector, size 1 with electromechanical fuse monitoring	12 Nm	–	–	35 – 150 mm² [3]	20 x 14 mm
9344.150	NH fuse-switch-disconnector, size 1 with electromechanical fuse monitoring	20 Nm	–	–	up to 150 mm²	32 x 10 mm
9344.200	NH fuse-switch-disconnector, size 2	20 Nm	–	–	95 – 300 mm² [4]	32 x 20 mm
9344.210	NH fuse-switch-disconnector, size 2	20 Nm	–	–	up to 240 mm²	50 x 10 mm
9344.220	NH fuse-switch-disconnector, size 2 with electronic fuse monitoring	20 Nm	–	–	95 – 300 mm² [4]	32 x 20 mm
9344.230	NH fuse-switch-disconnector, size 2 with electronic fuse monitoring	20 Nm	–	–	up to 240 mm²	50 x 10 mm
9344.240	NH fuse-switch-disconnector, size 2 with electromechanical fuse monitoring	20 Nm	–	–	95 – 300 mm² [4]	32 x 20 mm
9344.250	NH fuse-switch-disconnector, size 2 with electromechanical fuse monitoring	20 Nm	–	–	up to 240 mm²	50 x 10 mm
9344.300	NH fuse-switch-disconnector, size 3	20 Nm	–	–	95 – 300 mm² [4]	32 x 20 mm
9344.310	NH fuse-switch-disconnector, size 3	20 Nm	–	–	up to 300 mm²	50 x 10 mm
9344.320	NH fuse-switch-disconnector, size 3 with electronic fuse monitoring	20 Nm	–	–	95 – 300 mm² [4]	32 x 20 mm
9344.330	NH fuse-switch-disconnector, size 3 with electronic fuse monitoring	20 Nm	–	–	up to 300 mm²	50 x 10 mm
9344.340	NH fuse-switch-disconnector, size 3 with electromechanical fuse monitoring	20 Nm	–	–	95 – 300 mm² [4]	32 x 20 mm
9344.350	NH fuse-switch-disconnector, size 3 with electromechanical fuse monitoring	20 Nm	–	–	up to 300 mm²	50 x 10 mm

[1] For 5 mm busbar thickness.
[2] For 10 mm busbar thickness.
[3] Connection of sector-shaped conductors 50 – 150 mm².
[4] Connection of sector-shaped conductors 120 – 300 mm².

Installation data for applications to IEC (DIN EN)

Model No. SV	Designation	Tightening torque			Connection of round conductors	Clamping area for laminated copper bars
		Terminal screw	Assembly screw	Cover attachment		
Accessories						
3592.020	Lug terminal connection part	4 Nm	–	–	1.5 – 25 mm²	16 x 10 mm
3592.010	Clamp-type terminal connection	4 Nm	–	–	1.5 – 95 mm²	–
9344.600	Prism terminal	3 Nm	–	–	10 – 70 mm² (round conductor) 10 – 70 mm² (sector-shaped conductor)	–
9344.610	Box terminal	12 Nm	–	–	35 – 150 mm² (round conductor) 50 – 150 mm² (sector-shaped conductor)	20 x 14 mm
9344.620	Box terminal	20 Nm	–	–	95 – 300 mm² (round conductor) 120 – 300 mm² (sector-shaped conductor)	32 x 20 mm
9340.030	Busbar support, 1-pole	–	3 – 5 Nm	1 – 3 Nm	–	–
9340.040	Busbar support, 2-pole	–	3 – 5 Nm	1 – 3 Nm	–	–
9342.030	PLS busbar support, 1-pole	–	3 – 5 Nm	0.7 Nm	–	–
3031.000	Base isolators	–	40 Nm	–	–	–
3032.000	Base isolators	–	40 Nm	–	–	–
9350.075	Busbar connectors	–	5 Nm/ 15 Nm[1)]	–	–	–
9320.020	Busbar connectors	–	20 Nm	–	–	–
9320.030	Busbar connectors	–	20 Nm	–	–	–
3504.000	PLS busbar connector (PLS 800)	–	10 – 15 Nm	–	–	–
3505.000	PLS busbar connector (PLS 800)	–	10 – 15 Nm	–	–	–
3514.000	PLS busbar connector (PLS 1600)	–	15 – 20 Nm	–	–	–
3515.000	PLS busbar connector (PLS 1600)	–	15 – 20 Nm	–	–	–
Conductor connection clamps/plate clamps						
3550.000	Conductor connection clamp	2 Nm	–	–	1 – 4 mm²	–
3450.500	Conductor connection clamp	2 Nm	–	–	1 – 4 mm²	–
3451.500	Conductor connection clamp	3 Nm	–	–	2.5 – 16 mm²	8 x 8 mm
3452.500	Conductor connection clamp	6 – 8 Nm	–	–	16 – 50 mm²	10.5 x 11 mm
3453.500	Conductor connection clamp	10 – 12 Nm	–	–	35 – 70 mm²	16.5 x 15 mm
3454.500	Conductor connection clamp	12 – 15 Nm	–	–	70 – 185 mm²	22.5 x 20 mm
3555.000	Conductor connection clamp	2 Nm	–	–	1 – 4 mm²	–
3455.500	Conductor connection clamp	2 Nm	–	–	1 – 4 mm²	–
3456.500	Conductor connection clamp	3 Nm	–	–	2.5 – 16 mm²	8 x 8 mm
3457.500	Conductor connection clamp	6 – 8 Nm	–	–	16 – 50 mm²	10.5 x 11 mm
3458.500	Conductor connection clamp	10 – 12 Nm	–	–	35 – 70 mm²	16.5 x 15 mm
3459.500	Conductor connection clamp	12 – 15 Nm	–	–	70 – 185 mm²	22.5 x 20 mm
3554.000	Plate clamp	6 – 8 Nm	–	–	–	34 x 10 mm

[1)] Hex socket screw M8 = 5 Nm, grub screw M8 = 15 Nm.

Current carrying capacity of connection cables

The current carrying capacity of cables and lines depends on various factors. In addition to the actual insulation, i.e. the design of the cable sheathing, factors such as

- How the cable is laid
- Clustering
- Ambient temperatures

are decisive for the actual current carrying capacity of a conductor. Based on the following tables, it is possible to calculate the current carrying capacity of conductor cross-sections between 1.5 and 35 mm² with due regard for the aforementioned factors.

Current carrying capacity
of insulated PVC cables at an ambient temperature of +40°C, installation type E (IEC/EN 60 204-1:1998-11)

Nominal cross-section mm²	Current capacity A
1.5	16
2.5	22
4	30
6	37
10	52
16	70
25	88
35	114

Conversion factors
for the load capacity of cables (IEC/EN 60 204-1:1998-11)

Ambient temperature °C	Factor
30	1.15
35	1.08
40	1.00
45	0.91
50	0.82
55	0.71
60	0.58

Reduction factor for clustering of cables/lines

How the cable is laid	No. of affected circuits			
E	2	4	6	9
	0.88	0.77	0.73	0.72

Overview of approvals and assembly data for applications to UL

Model No. SV	c UL us LISTED E191125	c UL us LISTED E235931	E191125	E235931	E195144	Rated current	Rated voltage	Connection cross-sections	Tightening torque		
									Round conductors	Laminated copper bar	Others
3066.000			■								
3086.000			■								
3087.000			■								
3088.000			■								
3090.000			■								
3091.000			■								
3092.000			■								
3450.500			■						1 – 4 mm²		
3451.500			■						2.5 – 16 mm²		
3452.500			■						16 – 50 mm²		
3453.500			■						35 – 70 mm²		
3454.500			■						70 – 185 mm²		
3455.500			■						1 – 4 mm²		
3456.500			■						2.5 – 16 mm²		
3457.500			■						16 – 50 mm²		
3458.500			■						35 – 70 mm²		
3459.500			■						70 – 185 mm²		
3460.500			■								
3504.000			■								CMS 10 – 15 Nm
3505.000			■								CMS 10 – 15 Nm
3509.000			■			700 A					
3514.000			■								CMS 15 – 20 Nm
3515.000			■								CMS 15 – 20 Nm
3516.000			■			1400 A					
3524.000			■			700 A					
3525.000			■			700 A					
3525.010			■			700 A					
3526.000			■			700 A					
3527.000			■			1400 A					
3528.000			■			1400 A					
3528.010			■			1400 A					
3529.000			■			1400 A					
3548.000			■								
3549.000			■								
3550.000			■						1 – 4 mm²		
3555.000			■						1 – 4 mm²		
3563.000			■								
3565.000					■						
3566.000					■						
3567.000					■						
3568.000					■						
3569.000					■						
3570.000					■						
3571.000					■						
3572.000					■						
3573.000					■						
3574.000					■						
3575.000					■						
3576.000					■						
3577.000					■						
3578.000					■						
3579.000					■						
3580.000			■			140 A					
3580.100			■			280 A					
3581.000			■			175 A					
3581.100			■			350 A					
3582.000			■			230 A					
3583.000			■			290 A					
3584.000			■			350 A					

Listed components for feeder-circuits up to 600 V AC **TS** = terminal screw **CCC** = Conductor connection clamp
CMS = Component mounting screw **BMS** = Busbar mounting screw
Conversion factor: 1 Nm = 8.851 in-lbs **s** = stranded **sol** = solid **Lam. Cu** = Laminated copper bar (Flexibar)

Overview of approvals and assembly data for applications to UL

Model No. SV	c UL us LISTED E191125	c UL us LISTED E235931	E191125	E235931	E195144	Rated current	Rated voltage	Connection cross-sections	Tightening torque		
									Round conductors	Laminated copper bar	Others
3585.000			■			465 A					
3586.000			■			700 A					
9320.020			■								
9320.030			■								
9320.040			■								
9320.050			■								
9320.060			■								
9320.070			■								
9320.090			■								
9320.100			■								
9320.110			■								
9320.120			■								
9320.140			■								
9320.150			■								
9320.160			■								
9320.170			■								
9320.180			■								
9320.190			■								
9320.200			■								
9320.210			■								
9320.220			■								
9320.230			■								
9320.240			■								
9320.250			■								
9320.260			■								
9320.270			■								
9320.280			■								
9320.290			■								
9320.300			■								
9320.310			■								
9320.320			■								
9320.330			■								
9320.340			■								
9320.350			■								
9320.360			■								
9320.370			■								
9320.380			■								
9320.390			■								
9320.400			■								
9320.410			■								
9320.420			■								
9320.430			■								
9320.440			■								
9320.450			■								
9320.460			■								
9320.470			■								
9340.004	■										BMS 1 – 3 Nm CMS 3 – 5 Nm
9340.050	■										BMS 1 – 3 Nm CMS 3 – 5 Nm
9340.070	■										
9340.074	■										
9340.100	■										
9340.110	■										
9340.120	■										
9340.130	■										
9340.134	■										
9340.140	■										
9340.200	■										

Listed components for feeder-circuits up to 600 V AC **TS** = terminal screw **CCC** = Conductor connection clamp
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Conversion factor: 1 Nm = 8.851 in-lbs **s** = stranded **sol** = solid **Lam. Cu** = Laminated copper bar (Flexibar)

Overview of approvals and assembly data for applications to UL

Model No. SV	c UL us LISTED E191125	c UL us LISTED E235931	E191125	E235931	E195144	Rated current	Rated voltage	Connection cross-sections	Tightening torque		
									Round conductors	Laminated copper bar	Others
9340.210	■										
9340.214	■										
9340.220	■										
9340.224	■										
9340.260	■										
9340.270	■										
9340.280	■										
9340.290	■										
9340.310	■					25 A	600 V AC	AWG 12			
9340.340	■					25 A	600 V AC	AWG 12			
9340.350	■					32 A	600 V AC	AWG 10			
9340.370	■					25 A	600 V AC	AWG 12			
9340.380	■					32 A	600 V AC	AWG 10			
9340.410	■					65 A	600 V AC	AWG 6			
9340.430	■					65 A	600 V AC	AWG 6			
9340.450	■					65 A	600 V AC	AWG 6			
9340.460	■					32 A	600 V AC	AWG 10			
9340.470	■					32 A	600 V AC	AWG 10			
9340.700	■					65 A	600 V AC	AWG 6			
9340.710	■					40 A	600 V AC	AWG 8			
9341.050	■										BMS 0.7 Nm CMS 3 – 5 Nm
9341.070	■										
9341.100	■										
9341.110	■										
9341.120	■										
9341.130	■										
9341.140	■										
9342.004	■										BMS 5 – 7 Nm CMS 3 – 5 Nm
9342.014	■										BMS 5 – 7 Nm CMS 3 – 5 Nm
9342.050	■										BMS 0.7 Nm
9342.070	■										
9342.074	■										
9342.100	■										
9342.110	■										
9342.120	■										
9342.130	■										
9342.134	■										
9342.140	■										
9342.200	■					60 A	600 V AC	6 – 16 mm² AWG 6 – 10	5 Nm		
9342.210	■					60 A	600 V AC	6 – 16 mm² AWG 6 – 10	5 Nm		
9342.220			■			125 A	600 V AC	16 – 35 mm² AWG 2 – 6	5 Nm		
9342.224	■					125 A	600 V AC	16 – 35 mm² AWG 2 – 6	5 Nm		
9342.230	■					125 A	600 V AC	16 – 35 mm² AWG 2 – 6	5 Nm		
9342.234	■					125 A	600 V AC	16 – 35 mm² AWG 2 – 6	5 Nm		
9342.240	■					125 A	600 V AC	16 – 35 mm² AWG 2 – 6	5 Nm		
9342.244	■					125 A	600 V AC	16 – 35 mm² AWG 2 – 6	5 Nm		
9342.250	■					250 A	600 V AC	35 – 120 mm² AWG 2 – MCM 250	12 Nm	12 Nm	
9342.254	■					250 A	600 V AC	35 – 120 mm² AWG 2 – MCM 250	12 Nm	12 Nm	

Listed components for feeder-circuits up to 600 V AC **TS** = terminal screw **CCC** = Conductor connection clamp
CMS = Component mounting screw **BMS** = Busbar mounting screw
Conversion factor: 1 Nm = 8.851 in-lbs **s** = stranded **sol** = solid **Lam. Cu** = Laminated copper bar (Flexibar)

Technical information

Overview of approvals and assembly data for applications to UL

Model No. SV	c UL us LISTED E191125	c UL us LISTED E235931	E191125	E235931	E195144	Rated current	Rated voltage	Connection cross-sections	Tightening torque		
									Round conductors	Laminated copper bar	Others
9342.260	■					250 A	600 V AC	35 – 120 mm² AWG 2 – MCM 250	12 Nm	12 Nm	
9342.264	■					250 A	600 V AC	35 – 120 mm² AWG 2 – MCM 250	12 Nm	12 Nm	
9342.270	■					250 A	600 V AC	35 – 120 mm² AWG 2 – MCM 250	12 Nm	12 Nm	
9342.274	■					250 A	600 V AC	35 – 120 mm² AWG 2 – MCM 250	12 Nm	12 Nm	
9342.280			■			600 A	600 V AC	95 – 300 mm² AWG 3/0 – MCM 600	18 Nm	18 Nm	
9342.290	■					600 A	600 V AC	95 – 300 mm² AWG 3/0 – MCM 600	18 Nm	18 Nm	
9342.300	■					600 A	600 V AC	95 – 300 mm² AWG 3/0 – MCM 600	18 Nm	18 Nm	
9342.310	■					700 A	600 V AC	95 – 300 mm² AWG 3/0 – MCM 600	16.5 Nm	16.5 Nm	
9342.314	■					700 A	600 V AC	95 – 300 mm² AWG 3/0 – MCM 600	16.5 Nm	16.5 Nm	
9342.320	■					1,400 A	600 V AC	Lam. Cu 10 x 63 x 1 mm	–	22 Nm	
9342.324	■					1,400 A	600 V AC		–	22 Nm	
9342.400	■					100 A	600 V AC	10 – 35 mm² AWG 2 – 6	5 Nm	–	
9342.410	■					100 A	600 V AC	10 – 35 mm² AWG 2 – 6	5 Nm	–	
9342.504	■					125 A	600 V AC	35 – 120 mm² AWG 2 – MCM 250 Lam. Cu 10 x 15.5 x 0.8 mm	12 Nm	12 Nm	
9342.514	■					125 A	600 V AC	35 – 120 mm² AWG 2 – MCM 250 Lam. Cu 10 x 15.5 x 0.8 mm	12 Nm	12 Nm	
9342.540	■					125 A	600 V AC	35 – 120 mm² AWG 2 – MCM 250 Lam. Cu 10 x 15.5 x 0.8 mm	12 Nm	12 Nm	
9342.550	■					125 A	600 V AC	35 – 120 mm² AWG 2 – MCM 250 Lam. Cu 10 x 15.5 x 0.8 mm	12 Nm	12 Nm	
9342.600	■					250 A	600 V AC	35 – 120 mm² AWG 2 – MCM 250 Lam. Cu 10 x 15.5 x 0.8 mm	12 Nm	12 Nm	
9342.604	■					250 A	600 V AC	35 – 120 mm² AWG 2 – MCM 250 Lam. Cu 10 x 15.5 x 0.8 mm	12 Nm	12 Nm	
9342.610	■					250 A	600 V AC	35 – 120 mm² AWG 2 – MCM 250 Lam. Cu 10 x 15.5 x 0.8 mm	12 Nm	12 Nm	
9342.614	■					250 A	600 V AC	35 – 120 mm² AWG 2 – MCM 250 Lam. Cu 10 x 15.5 x 0.8 mm	12 Nm	12 Nm	
9342.700	■					600 A	600 V AC	Lam. Cu 10 x 32 x 1 mm	30 Nm	30 Nm	
9342.710	■					600 A	600 V AC	Lam. Cu 10 x 32 x 1 mm	30 Nm	30 Nm	
9342.720	■										
9343.000				■ [1]		160 A	600 V AC		CCC: 4.5 Nm	CCC: 4.5 Nm	CMS 6 Nm
9343.010				■ [1]		160 A	600 V AC		TS: 12 Nm	TS: 12 Nm	CMS 6 Nm
9343.100				■ [1]		250 A	600 V AC		CCC: 12 Nm	CCC: 12 Nm	CMS 6 Nm
9343.110				■ [1]		250 A	600 V AC		TS: 20 Nm	TS: 20 Nm	CMS 6 Nm
9343.200				■ [1]		400 A	600 V AC		CCC: 20 Nm	CCC: 20 Nm	CMS 8 Nm
9343.210				■ [1]		400 A	600 V AC		TS: 20 Nm	TS: 20 Nm	CMS 8 Nm
9343.300				■ [1]		630 A	600 V AC		CCC: 20 Nm	CCC: 20 Nm	CMS 8 Nm
9343.310				■ [1]		630 A	600 V AC		TS: 20 Nm	TS: 20 Nm	CMS 8 Nm
9344.000				■ [1]		160 A	600 V AC		CCC: 4.5 Nm	CCC: 4.5 Nm	
9344.010				■ [1]		160 A	600 V AC		TS: 12 Nm	TS: 12 Nm	
9344.100				■ [1]		250 A	600 V AC		CCC: 12 Nm	CCC: 12 Nm	

Listed components for feeder-circuits up to 600 V AC **TS** = terminal screw **CCC** = Conductor connection clamp
CMS = Component mounting screw **BMS** = Busbar mounting screw
Conversion factor: 1 Nm = 8.851 in-lbs **s** = stranded **sol** = solid **Lam. Cu** = Laminated copper bar (Flexibar)
[1] For the use of "Special Purpose Fuses"

Overview of approvals and assembly data for applications to UL

Model No. SV	c UL us LISTED E191125	c UL us LISTED E235931	E191125	E235931	E195144	Rated current	Rated voltage	Connection cross-sections	Tightening torque		
									Round conductors	Laminated copper bar	Others
9344.110				■ [1]		250 A	600 V AC		TS: 20 Nm	TS: 20 Nm	
9344.200				■ [1]		400 A	600 V AC		CCC: 20 Nm	CCC: 20 Nm	
9344.210				■ [1]		400 A	600 V AC		TS: 20 Nm	TS: 20 Nm	
9344.300				■ [1]		630 A	600 V AC		CCC: 20 Nm	CCC: 20 Nm	
9344.310				■ [1]		630 A	600 V AC		TS: 20 Nm	TS: 20 Nm	
9345.000		■				30 A	600 V AC	sol/s 2.5 – 10 mm² AWG 6 – 14	2 Nm		
9345.010		■				30 A	600 V AC	sol/s 2.5 – 25 mm² AWG 2 – 14	4 Nm		
9345.030		■				60 A	600 V AC	sol/s 2.5 – 25 mm² AWG 2 – 14	5 Nm		
9345.100				■		61 – 100	600 V AC		CCC: 12 Nm	CCC: 12 Nm	CMS 6 Nm
9345.110				■		61 – 100	600 V AC		CCC: 12 Nm	CCC: 12 Nm	
9345.200				■		101 – 200	600 V AC		CCC: 20 Nm	CCC: 20 Nm	CMS 8 Nm
9345.210				■		101 – 200	600 V AC		CCC: 20 Nm	CCC: 20 Nm	
9345.400				■		201 – 400 A	600 V AC		CCC: 20 Nm	CCC: 20 Nm	CMS 8 Nm
9345.410				■		201 – 400 A	600 V AC		CCC: 20 Nm	CCC: 20 Nm	

Listed components for feeder-circuits up to 600 V AC **TS** = terminal screw **CCC** = Conductor connection clamp
CMS = Component mounting screw **BMS** = Busbar mounting screw
Conversion factor: 1 Nm = 8.851 in-lbs **s** = stranded **sol** = solid **Lam. Cu** = Laminated copper bar (Flexibar)
[1] For the use of "Special Purpose Fuses"

Allocation of switchgear

OM adaptor with connection cables

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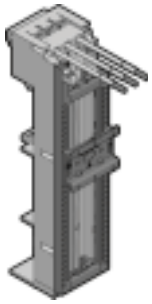
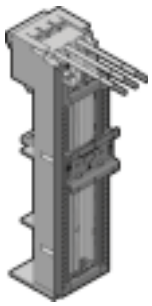


For make/model	ABB												Moeller Electric								
	MCB				Starters				Reversing Starter				MCB			Starters			Reversing Starter		
	MS-116	MS-225	MS-325	MS-450	MS-116 B6-7, A9-16	MS-225 B6-7, A9-A12-A16, A26-30	MS-325 B6-7, A9-A12-A16, A26-30	MS-450 A30-A40-A50	MS-116 B6-7, A9-16	MS-225 B6-7, A9-A12-A16, A26-30	MS-325 B6-7, A9-A12-A16, A26-30	MS-450 A30-A40-A50	PKZM0	PKZM01	PKZM4	PKZM0 + DILM7-9	PKZM0 + DILM12-32	PKZM4 + DILM17-65	PKZM0 + DILM7-9	PKZM0 + DILM12-32	PKZM4 + DILM17-65
	Construction width												Construction width								
	45	54	54	55	48	54	54	70	45	110	110	140	45	45	55	45	45	55	90	90	110
Model No. SV	**Version**	**Required quantity (units)**												**Required quantity (units)**								
9340.340	OM adaptor 25 A, 690 V~, AWG 12[1]	1												1							
9340.370	OM adaptor 25 A, 690 V~, AWG 12[1]								1							1			1		
9340.350	OM adaptor 32 A, 690 V~, AWG 10[1]												1								
9340.380	OM adaptor 32 A, 690 V~, AWG 10[1]																1			1	
9340.460	OM adaptor 32 A, 690 V~, AWG 10[2]		1	1																	
9340.470	OM adaptor 32 A, 690 V~, AWG 10[2]					1	1	1		1	1										
9340.430	OM adaptor 65 A, 690 V~, AWG 6[2]				1										1						
9340.450	OM adaptor 65 A, 690 V~, AWG 6[2]							1				1						1			1
9340.260	OM support, 45 mm wide								1										1	1	
9340.270	OM support, 55 mm wide									1	1	1									1
9340.290	Insert strip, 10 mm wide							2				3									
9340.280	Connection pin								3	3	3	3							3	3	3
9342.840	Support rail TS45 B	1							1												
9342.870	Support rail TS45 B-V																			1	

[1] 45 mm construction width
[2] 55 mm construction width



For make/model	Siemens									Telemecanique (Schneider Electric)													
	MCB			Starters			Reversing Starter			MCB					Starters					Reversing Starter			
	S00	S0	S2	S00 + S00	S0 + S0	S2 + S2	S00 + S00	S0 + S0	S2 + S2	GV2-ME	GV2-P	LUB12	LUB32	GV3 to 65 A	GV2-P + LC1K AC	GV2-P + LC1K DC	GV2-ME + LC1K AC	GV2-ME + LC1K DC	GV3 + LC1D65	GV2-P + LC2K AC	GV2-P + LC2K DC	GV2-ME + LC2K AC	GV2-ME + LC2K DC
	Construction width									Construction width													
	45	45	55	45	45	55	90	100	120	45	45	45	45	62	45	45	45	45	62	90	90	90	90
Model No. SV	**Version**	**Required quantity (units)**									**Required quantity (units)**												
9340.340	OM adaptor 25 A, 690 V~, AWG 12[1]	1	1								1	1	1										
9340.370	OM adaptor 25 A, 690 V~, AWG 12[1]				1	1		1	1														
9340.350	OM adaptor 32 A, 690 V~, AWG 10[1]										1	1	1	1		1	1	1	1		1	1	1	1
9340.380	OM adaptor 32 A, 690 V~, AWG 10[1]														1		1			1		1	
9340.430	OM adaptor 65 A, 690 V~, AWG 6[2]			1										1									
9340.450	OM adaptor 65 A, 690 V~, AWG 6[2]						1		1										1				
9340.260	OM support, 45 mm wide						1	1												1	1	1	1
9340.270	OM support, 55 mm wide								1														
9340.290	Insert strip, 10 mm wide							1	1					1					1				
9340.280	Connection pin						3	3	3											3	3	3	3
9342.800	PinBlock 45 mm												1										
9342.820	PinBlock Plus														1		1			2		2	

[1] 45 mm construction width
[2] 55 mm construction width

OM adaptor with tension spring clamp

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For make/model	ABB												Moeller Electric								
	MCB				Starters				Reversing Starter				MCB			Starters			Reversing Starter		
	MS-116	MS-225	MS-325	MS-450	MS-116 B6-7, A9-16	MS-225 B6-7, A9-A12-A16	MS-325 B6-7, A9-A12-A16, A26-30	MS-450 A30-A40-A50	MS-116 B6-7, A9-16	MS-225 B6-7, A9-A12-A16	MS-325 B6-7, A9-A12-A16, A26-30	MS-450 A30-A40-A50	PKZM0	PKZM01	PKZM4	PKZM0 + DILM7-9	PKZM0 + DILM12-32	PKZM4 + DILM17-65	PKZM0 + DILM7-9	PKZM0 + DILM12-32	PKZM4 + DILM17-65
	Construction width												Construction width								
	45	54	54	55	48	54	54	70	90	110	110	140	45	45	55	45	45	55	90	90	110
Model No. SV	**Version**	**Required quantity (units)**												**Required quantity (units)**								
9340.530	OM adaptor 32 A, 690 V~, 1.5 – 6 mm² [1]	1												1	1			1			1	
9340.550	OM adaptor 32 A, 690 V~, 1.5 – 6 mm² [1]								1							1				1		
9340.630	OM adaptor 65 A, 690 V~, 2.5 – 16 mm² [2]				1										1							
9340.650	OM adaptor 65 A, 690 V~, 2.5 – 16 mm² [2]							1				1							1			1
9340.660	OM adaptor 32 A, 690 V~, 1.5 – 6 mm² [2]		1	1		1	1	1		1	1											
9340.260	OM support, 45 mm wide								1										1	1		
9340.270	OM support, 55 mm wide									1	1	1										1
9340.290	Insert strip, 10 mm wide							2				3										
9340.280	Connection pin								3	3	3	3							3	3	3	
9340.860	Cable set AWG 12	3	3			3	3		3	3				3		3			3			
9340.870	Cable set AWG 10			3				3			3		3				3			3		
9340.890	Cable set AWG 6				3				3			3			3			3				3
9342.840	Support rail TS45 B	1				1			1													
9342.870	Support rail TS45 B-V																1			2		
9342.940	Support rail TS55 B-V						1	1		1	1											

[1] 45 mm construction width
[2] 55 mm construction width

For make/model	Siemens									Telemecanique (Schneider Electric)												
	MCB			Starters			Reversing Starter			MCB				Starters					Reversing Starter			
	S00	S0	S2	S00 + S00	S0 + S0	S2 + S2	S00 + S00	S0 + S0	S2 + S2	GV2-ME	GV2-P	LUB12	GV3 to 65 A	GV2-P + LC1K AC	GV2-P + LC1K DC	GV2-ME + LC1D AC	GV2-ME + LC1D DC	GV3 + LC1D65	GV2-P + LC2K AC	GV2-P + LC2K DC	GV2-ME + LC2D AC	GV2-ME + LC2D DC
	Construction width									Construction width												
	45	45	55	45	45	55	90	100	120	45	45	45	62	45	45	45	45	62	90	90	90	90
Model No. SV	**Version**	**Required quantity (units)**									**Required quantity (units)**											
9340.530	OM adaptor 32 A, 690 V~, 1.5 – 6 mm² [1]	1	1								1	1	1									
9340.550	OM adaptor 32 A, 690 V~, 1.5 – 6 mm² [1]				1	1		1	1						1	1	1	1		1	1	1	1
9340.630	OM adaptor 65 A, 690 V~, 2.5 – 16 mm² [2]			1									1									
9340.650	OM adaptor 65 A, 690 V~, 2.5 – 16 mm² [2]						1			1									1				
9340.260	OM support, 45 mm wide							1	1											1	1	1	1
9340.270	OM support, 55 mm wide									1													
9340.290	Insert strip, 10 mm wide							1	1				1					1					
9340.280	Connection pin							3	3	3										3	3	3	3
9340.860	Cable set AWG 12	3			3			3															
9340.870	Cable set AWG 10		3			3			3		3	3	3		3	3	3	3		3	3	3	3
9340.890	Cable set AWG 6			3			3			3				3					3				
9342.820	PinBlock Plus													1		1			2		2		

[1] 45 mm construction width
[2] 55 mm construction width

Allocation of switchgear

Multi-functional component adaptor 12 A/25 A

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Make/model	For bar thickness 5 mm Model No. SV	For bar thickness 10 mm Model No. SV	Accessories Model No. SV
ABB			
MS116-..	9320.180	9320.190	–
AEG			
Mbs25	9320.180	9320.190	–
Allen Bradley			
103-...R	9320.180	9320.190	–
107-...R	9320.380	9320.390	–
140M-...-...	9320.180	9320.190	–
140-MN-...	9320.180	9320.190	–
190-M1-...	9320.440	9320.450	–
190-M2-...	9320.440	9320.450	–
Moeller Electric			
PKM0...	9320.180	9320.190	–
PKZM0-...	9320.180	9320.190	–
PKZM0-...T	9320.180	9320.190	–
PKZM0-../0.-.	9320.180	9320.190	–
PKZM0.../E01-G-W	9320.380	9320.390	–
PKZM0-../E-10-D	9320.180	9320.190	–
PKZM0-../S00-11	9320.180	9320.190	9320.140
PKZM0-../SE00-11	9320.200	9320.210	–
PKZM0-.../.-..-W	9320.380	9320.390	–
PKZM0-.../.-..WMF	9320.420[1]	9320.430[1]	–

Make/model	For bar thickness 5 mm Model No. SV	For bar thickness 10 mm Model No. SV	Accessories Model No. SV
Siemens			
S0			
3RA11 20-...2.-0...	9320.180	9320.190	9320.140
3RA12 20-....-...	9320.400	9320.410	–
3RV1. 21-...1.	9320.180	9320.190	–
3RW30 2.-1AB..	9320.180	9320.190	–
S00			
3RA11 10..0.1.-1...	9320.180	9320.190	9320.140
3RA12 10-....-...	9320.380[1]	9320.390[1]	9320.140
3RV10 11-..A1.	9320.180	9320.190	–
3RW30 1.-1CB.4	9320.180	9320.190	–
S00 Cage Clamp			
3RV10 11-..A20	9320.160	9320.170	–
Telemecanique			
GV2-....	9320.180	9320.190	–
GV2-M..K1..	9320.180	9320.190	–
GV2-M..K2..	9320.380	9320.390	–
GV2-P..D1..	9320.440	9320.450	–
GV2-P..D2..	9320.420[2]	9320.430[2]	–
LD1-L.030 (max. 25 A)	9320.180	9320.190	–
LH4-N1....7	9320.180	9320.190	–
LH4-N2....7	9320.380	9320.390	–

[1] The bottom support rail is eliminated
[2] The upper support rail is offset at a distance of 125 mm from the lower support rail (support rail centre-to-centre spacing)

Multi-functional component adaptor 40 A

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Make/model	For bar thickness 5 mm Model No. SV	For bar thickness 10 mm Model No. SV
ABB		
MS25-TM-..	9320.300[1]	9320.310[1]
MS225-..	9320.300[1]	9320.310[1]
MS325-..	9320.300[1]	9320.310[1]
MS450-.. (max. 40 A)	9320.460	9320.470
MS451-.. (max. 40 A)	9320.460	9320.470
DLA..-30	9320.300[2]	9320.310[2]
AEG		
Mbs28	9320.300[1]	9320.310[1]
Allen Bradley		
140M-F8.-... (max. 40 A)	9320.300[1]	9320.310[1]
Moeller Electric		
PKZM4-... (max. 40 A)	9320.460	9320.470
Siemens		
S2		
3RV1. 31-4..10 (max. 40 A)	9320.460	9320.470
3RW30 3.-1AB.. (max. 40 A)	9320.460	9320.470
Telemecanique		
GV3-P.... (max. 40 A)	9320.460	9320.470
GV3-L.... (max. 40 A)	9320.460	9320.470

[1] The bottom support rail is eliminated
[2] The top support rail is eliminated

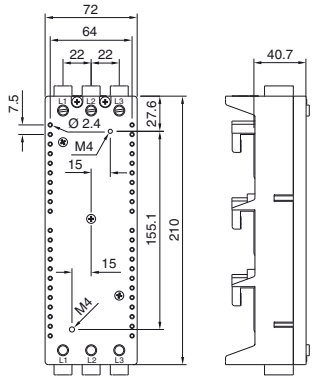
Circuit-breaker component adaptor

In addition to direct population of circuit-breaker component adaptors with the circuit-breakers specified on page 34/35, the circuit-breaker component adaptors may also be individually populated with switchgear.
In this regard, care should be taken to ensure that

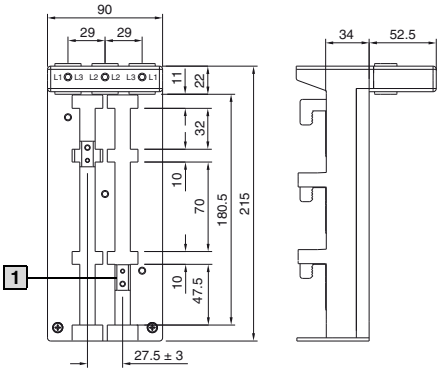
- the mounting points of the switchgear are within the setting range of the sliding blocks,
- the switchgear may be mounted on the adaptor with respect to the external dimensions and connection range.

The detailed drawings below should serve as templates for checking the required mounting position.

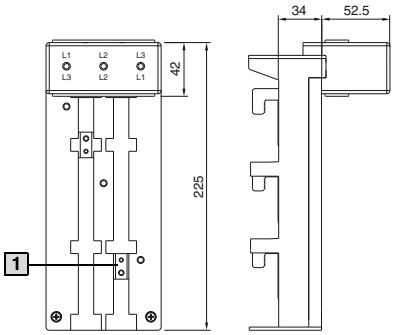
SV 9342.400/0.410



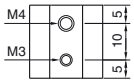
SV 9342.500/0.510



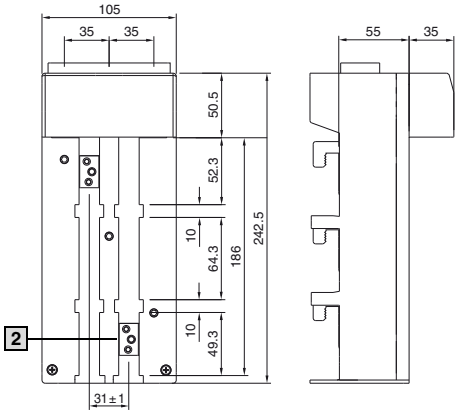
SV 9342.540/.550
Comparable with SV 9342.500/.510



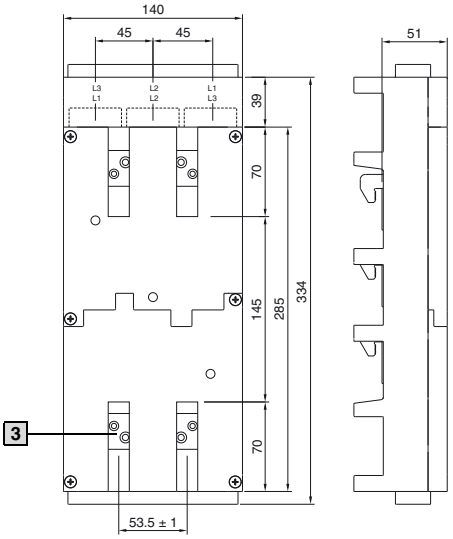
1 Sliding block
SV 9342.560



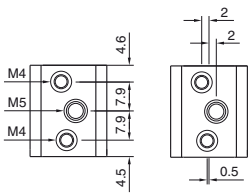
SV 9342.600/0.610



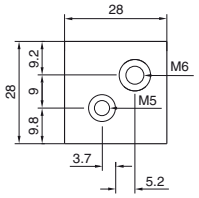
SV 9342.700/0.710



2 Sliding block
SV 9342.640



3 Sliding block



Material specifications

Contact tracks and conductor connection clamps

Model No. SV	Contact track				Conductor connection clamps		
	E-Cu silver-plated	E-Cu nickel-plated	Sheet steel zinc-plated, passivated	Cast bronze tin-plated	Stainless steel	Sheet steel zinc-plated, passivated	Cast brass nickel-plated
3439.010	■			■			
3439.010	■			■			
9342.200		■				■	
9342.210		■				■	
9342.220		■				■	
9342.224		■				■	
9342.230		■				■	
9342.234		■				■	
9342.240		■				■	
9342.244		■				■	
9342.250		■					■
9342.254		■					■
9342.260		■					■
9342.264		■					■
9342.270		■					■
9342.274		■					■
9342.280		■					■
9342.290		■					■
9342.300		■					■
9342.310	■						■
9342.311	■						■
9342.314	■						■
9342.320	■				■		
9342.321	■				■		
9342.324	■				■		
9342.400		■				■	
9342.410		■				■	
9342.500		■					■
9342.504		■					■
9342.510		■					■
9342.514		■					■
9342.540		■					■
9342.550		■					■
9342.600		■					■
9342.604		■					■
9342.610		■					■
9342.614		■					■
9342.700		■					
9342.710		■					

NH slimline fuse-switch-disconnectors, size 00

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Technical data to IEC/EN 60 947-3		
Size		00
Rated operating current I_e Conventional thermal current I_{th}		160 A 160 A
Rated operating voltage U_e Rated insulation voltage U_i		690 V AC 800 V
Rated surge voltage resistance U_{imp}		8 kV
Conditional rated short-circuit current when protected with fuses		50 kA
Utilisation category	500 V	AC-22B
	690 V	AC-21B
Mechanical life (switching cycles)		1600
Contact hazard protection		IP2X
Permissible ambient temperature		–25°C to +55°C
Fire protection corresponding to		UL 94-V0
$P_{heat\ loss}$/fuse insert		12 W

Easy changeover of the cable outlet

The uniform design of the RiLine generation of NH slimline fuse-switch-disconnectors combines optimum functionality with an attractive design. This feature supports system-compatible integration into the RiLine60 contact hazard protection concept with base tray.

In just 3 seconds, the cable outlet of the RiLine NH fuse-switch-disconnectors size 00 may be swapped from top to bottom with one and the same device by simply rotating the mounting hook.

In this way, there is no need to decide whether the cable outlet will go at the top or bottom until immediately prior to assembly. This function offers a clear benefit for customers, by halving the required warehousing and associated costs.

Simple removal of the switch unit

The recently developed multi-functional switch provides the user with visually clearly defined actuation of the switch unit. Simple actuation at the sides means that the switch unit may either be removed completely, or placed in the parking position.

Simple removal of the fuse inserts

The fuse is released directly from the front. This allows the operator to hold the switch units safely and conveniently while removing the fuse.

The location mechanism of the switch unit is a practical mounting benefit for reuse of the fuse. The fuses are readily inserted single-handedly.

Technical information

Rittal RiLine NH

NH slimline fuse-switch-disconnectors, size 00

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Top-mounting of supports even with flat bars

Thanks to the special design of the strip chassis, there is the option of direct, space-saving top mounting of the RiLine60 flat bar support.

Simple signalling of the switching position

Whether for signalling the switch position to the PLC or for load disconnection of a relay – 2 microswitch fixtures which may each be populated independently of one another can accommodate both these conditions in next to no time.

NH disconnectors, sizes 00 to

Page 43 – 46

Easy changeover of the cable outlet

The uniform design of the RiLine generation of NH disconnectors combines optimum functionality with an attractive design. This feature supports system-compatible integration into the RiLine60 contact hazard protection concept with base tray.

In just 3 seconds, the same device may be used to swap the cable outlet from top to bottom for all RiLine NH bus-mounting fuse-switch-disconnectors by simply rotating the mounting hook.

In this way, there is no need to decide whether the cable outlet will go at the top or bottom until immediately prior to assembly. This function offers a clear benefit for customers, by halving the required warehousing and associated costs.

Lid lock and seal

All designs have a screwdriver-operated lock as standard, to prevent unintentional opening of the disconnector lid.
In addition, the lock position may also be sealed with sealing wire.

Lid lock

Lid seal

NH disconnectors, size 00 to 3

Page 43 – 46

Simple signalling of the switching position with micro-switches

All sizes have the option of accommodating micro-switches to indicate the switching position. The micro-switch simply clips into the relevant position in the disconnector chassis. Two microswitch locators are available as standard for each device. This allows the switching position of the disconnector lid to be communicated to a PLC, while using the second micro-switch to operate the load contactor at the same time.

The micro-switch wiring is routed through the device to the rear or through the pre-punched knock-out of the contact hazard protection cover plates.

Size 00

Sizes 1 to 3

Cable gland

Top-mounting of supports even with flat bars

The panels (removable at the side) allow top-mounting of Rittal RiLine60 busbar supports for all flat bars, enabling very compact configuration of the units. In conjunction with the super-slimline design, this allows a space-saving configuration.

Electronic fuse monitoring

Electronic fuse monitoring has a test button for easy simulation of a defective fuse during commissioning. The auxiliary power for the electronics is generated from the input side of the three-phase network. For technical reasons, the rated frequency of the supplying network (see technical specifications on page 105) must not be exceeded, otherwise the electronic fuse monitor will be damaged.

Use in conjunction with motors in frequency converter mode is one such example. In such cases, electronic fuse monitoring must only be used as rotary current fusing for the frequency converter on the input side, and not in the frequency-modulated motor supply leads.

A green and a red LED display indicate the operating status of the electronic fuse monitor.

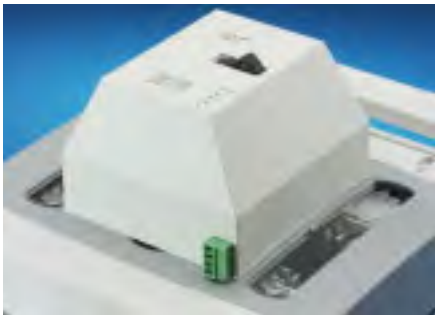
Details of how to evaluate the LEDs and the floating alarm contacts may be found in the technical specifications. In the event of a mains failure or if the disconnector lid is opened, the current operating status of the alarm contacts is retained.

Note:
The fuses used MUST be designed with live puller lugs.

Electromechanical fuse monitoring

Unlike electronic monitoring, this system operates without auxiliary power, yet still performs the same functions. The rocker switch on the operating housing additionally provides a visual display of the operating status.

Note:
The fuses used MUST be designed with live puller lugs.



Rittal RiLine NH

Arc chambers to increase switching capacity

for NH isolators, size 1 – 3

Technical specifications:
See table “NH disconnectors (utilisation category)”, page 104.

1. Remove the plastic bar

2. Clip the arc chambers into position

NH fuse-switch-disconnectors and bus-mounting fuse-switch-disconnectors, size 000 to 3

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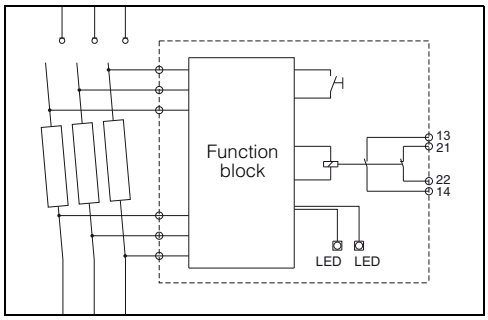
Technical specifications IEC 60 947-3						
Size (NH fuse inserts to VDE 0636-201)		Size 000	Size 00	Size 1	Size 2	Size 3
Rated operating current I_e		100 A, 160 A[1)]	160 A	250 A	400 A	630 A
Rated operating voltage U_e		690 V AC	690 V AC[2)]			
Rated insulation voltage U_i		690 V AC	1000 V			
Rated surge voltage resistance U_{imp}		6 kV	8 kV[2)]			
Level of contamination		3				
Overvoltage category		III				
Rated frequency		50/60 Hz				
Conditional rated short-circuit current (when protected with fuses)	at 690 V AC	80 kA			50 kA	80 kA
	at 500 V AC	–	80 kA			
Utilisation category	400 V AC	AC-22B (I_e = 100 A)	AC-23B	AC-23B	AC-23B	AC-23B
	500 V AC	–	AC-22B	AC-23B	AC-22B (AC-23B[3)])	AC-22B (AC-23B[3)])
	690 V AC	AC-21B (I_e = 100 A)	AC-21B	AC-22B (AC-23B[3)])	AC-21B (AC-23B[3)])	AC-21B (AC-23B[3)])
	220 V DC[4)]	–	DC-22B	DC-21B (DC-22B[3)])	DC-21B (DC-22B[3)])	DC-21B (DC-22B[3)])
	440 V DC[4)]	DC-21B (I_e = 100 A)	–	DC-22B[3)]	DC-22B[3)]	DC-22B[3)]
	1000 V DC[4)5)]	–	DC-20B	DC-20B	DC-20B	DC-20B
Mechanical life (switching cycles)		2000	1400		800	
Electrical life (switching cycles)		200				
Siting conditions		Interior siting: Relative humidity 50 % at 40°C or 90 % at 20°C (without condensation due to temperature fluctuations)				
Permissible ambient temperature		–25°C to +55°C	–20°C to +60°C			
$P_{heat\ loss}$/fuse insert		7.5 W (9 W)[1)]	12 W	23 W	34 W	48 W

[1)] For 95 mm² connection cross-section (95 mm² connection pieces available on request)
[2)] Reduction of the rated values for electronic fuse monitoring: Rated surge voltage resistance 3.5 kV, rated voltage 500 V AC.
Reduction of rated values for electromechanical fuse monitoring: Rated surge voltage resistance 6 kV.
[3)] With arc chamber set (Model No. SV 9344.680) for increased switching capacity.
[4)] DC application with component mounting of phase L_1 and L_3 in series, electronic fuse monitoring function not supported.
[5)] For use as disconnector or fuse-switch-disconnector.
The required creepage distances and clearances should be observed in the cable connection area.

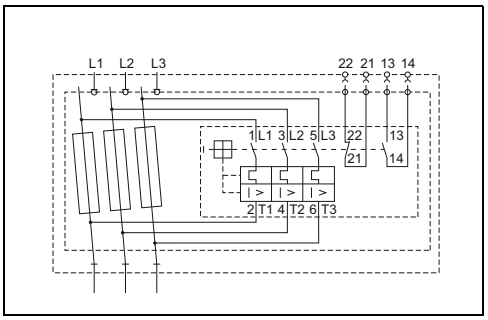
Electronic and electromechanical fuse monitoring

Technical specifications	Electronic fuse monitoring	Electromechanical fuse monitoring
Rated operating voltage U_e	AC 400 V to AC 500 V (50/60 Hz)	AC 24 V to AC 690 V (50/60 Hz) DC 24 V to DC 250 V
Rated surge voltage resistance U_{imp}	3.5 kV	6 kV
Response time	< 0.5 s	< 2 s
Auxiliary contacts	1 NO, 1 NC	1 NO, 1 NC
Load capacity of auxiliary contacts	5 A	4 A
Permissible ambient temperature	–20°C to +60°C	–20°C to +60°C
Display	LED constantly green (operational) 13/14: Open 21/22: Closed	Rocker switch position “1” (operational) 13/14: Closed 21/22: Open
	LED flashing red (error message) 13/14: Closed 21/22: Open	Rocker switch position “0” (error message) 13/14: Open 21/22: Closed
Connection of auxiliary contacts	Terminal up to 1.5 mm²	Terminal up to 1.5 mm²
NH fuse inserts	With contacted, live puller lugs	

Wiring diagram



Electronic fuse monitoring



Electromechanical fuse monitoring

Rittal RiLine NH

NH on-load isolator

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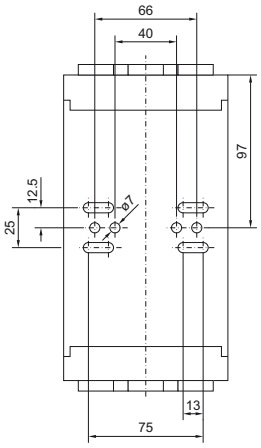
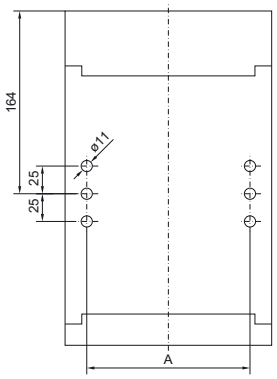
Hole size

Size 00 (SV 9344.000 – 9344.050)

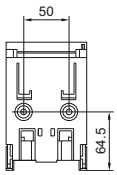


Size 1 (SV 9344.100 – 9344.150)
Size 2 (SV 9344.200 – 9344.250)
Size 3 (SV 9344.300 – 9344.350)



Size	A
1	150
2	166
3	195

Size 000 (SV 3431.000)



Laminated copper bars Rittal Flexibar “S”

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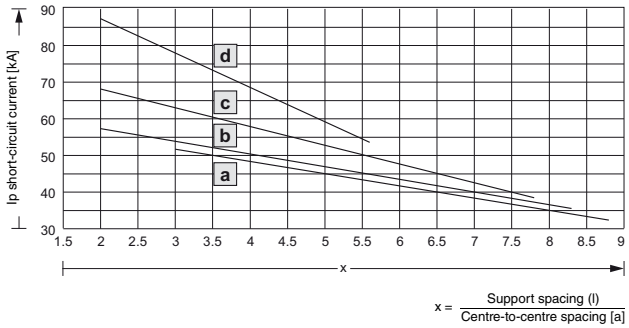
Configuration[1] mm	I_n for 50 K[2]	I_n for 30 K[2]	I_n for 10 K[2]	Curve (short-circuit resistance)	Installation type	**Model No. SV**
8 x 6.0 x 0.5	165 A	125 A	–	–	–	3565.010
6 x 9.0 x 0.8	250 A	220 A	120 A	–	–	3565.000
6 x 13.0 x 0.5	200 A	150 A	110 A	–	–	3566.000
4 x 15.5 x 0.8	300 A	210 A	140 A	–	–	3567.000
6 x 15.5 x 0.8	350 A	290 A	170 A	a	1	3568.000
10 x 15.5 x 0.8	450 A	350 A	190 A	a	1	3569.000
5 x 20.0 x 1.0	400 A	300 A	180 A	a	1	3570.000
5 x 24.0 x 1.0	450 A	370 A	230 A	a	1	3571.000
10 x 24.0 x 1.0	800 A	600 A	340 A	b	1	3572.000
5 x 32.0 x 1.0	550 A	470 A	280 A	b	2/3	3573.000
10 x 32.0 x 1.0	1000 A	800 A	460 A	c	2/3	3574.000
5 x 40.0 x 1.0	800 A	600 A	340 A	b	2/3	3575.000
10 x 40.0 x 1.0	1200 A	950 A	500 A	c	2/3	3576.000
5 x 50.0 x 1.0	900 A	700 A	400 A	b	2/3	3577.000
10 x 50.0 x 1.0	1400 A	1000 A	600 A	c	2/3	3578.000
10 x 63.0 x 1.0	1600 A	1240 A	715 A	d	2/3	3579.000

[1] Number of lamina x lamina width x lamina thickness
[2] The conductor temperature of the laminated copper bar is derived by adding the ambient temperature and the temperature increase together.
Example:
SV 3565.000 carrying 220 A, i.e. the temperature increases by 30 K. At an ambient temperature of 35°C, this produces a resultant conductor temperature of 35°C + 30 K = 65°C.

Short-circuit resistance diagrams

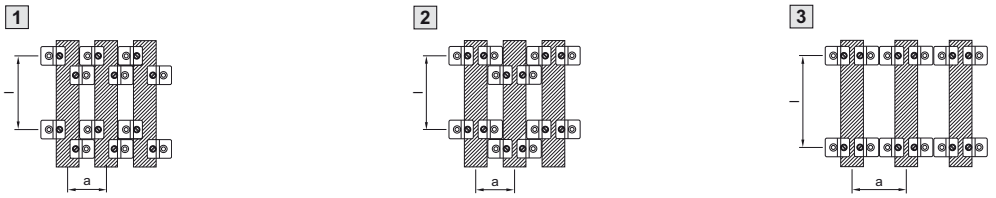
Basis of test:
VDE 0660, part 500/IEC 60 439-1.
Test implemented:
Dynamic short-circuit resistance to IEC 60 439-1.

The dimensions for the support spacing (l) and for the centre-to-centre spacing (a) must be within the specified min./max. limits. The quotients of l/a can be used to determine the permissible short-circuit current I_p by using curves a to d. The prescribed installation type must be taken into account.



Curve	Support spacing (l) mm		Centre-to-centre spacing (a) mm	
	min.	Max.	min.	Max.
a	150	300	34	60
b	150	350	42	85
c	200	400	51	85
d	200	450	81	100

Type of assembly with universal support SV 3079.000



Background information on IEC

The International Electrotechnical Commission (IEC) is an international standardisation committee based in Geneva which drafts standards in the field of electrical and electronic engineering.
The IEC was founded in London in 1906 with the aim of standardising the various national regulations with international provisions, and thereby helping to eliminate trade barriers. During its founding years, the IEC was primarily involved in unifying the standards for units of measurement, in particular Gauß, Hertz and Weber. The IEC was the first body to propose a system of standards which ultimately became the SI, the international system of units. In 1938, the IEC published a multi-lingual dictionary to standardise electrical engineering terms.

Tasks and organisation
The IEC statute covers the entire range of electrical engineering, including the generation and distribution of energy, electronics, magnetism and electromagnetism, electroacoustics, multimedia and telecommunications, as well as more general disciplines such as specialist terminology and symbols, electromagnetic compatibility, measurement techniques and operational performance, reliability, design and development, safety and the environment.
IEC standards are numbered between 60 000 and 79 999. An example of a title is: IEC 60 417: Graphical Symbols for use on Equipment. The numbers of older IEC standards were converted in 1997 by adding 60 000 – for example, the old IEC 27 became IEC 60 027.

Membership
The so-called National Committees (NC) are members of the IEC. Each NC represents the national electrical engineering interests in the IEC. This includes manufacturers, suppliers, distributors and providers, consumers and users, all levels of government, professional organisations and trade associations, as well as developers of national standards. National committees vary in their organisation and, depending on the country, are comprised of representatives from the public and/or private sector. Around 90% of employees who prepare IEC standards work in industry.
There are more than 70 countries represented in the IEC, organised in 93 technical committees, 80 sub-committees and around 700 working groups (as at 2008).

Organisation in Europe
The comparable European organisation is CENELEC (French: Comité Européen de Normalisation Electrotechnique; English: European Committee for Electrotechnical Standardization).
CENELEC is one of the three big standardisation organisations in Europe and responsible for European standardisation in the field of electrical engineering. CENELEC was founded in 1973 and is a charitable organisation under Belgian law, based in Brussels.

Organisation in Germany
The Deutsche Kommission Elektrotechnik Elektronik Informationstechnik im DIN und VDE (DKE) is the organisation responsible for the formulation of standards and safety provisions in the fields of electronics, electrical engineering and information technology in Germany.
DKE is part of the Deutsche Institut für Normung (DIN) and the Verband der Elektrotechnik, Elektronik und Informationstechnik (VDE). It is supported by the VDE.
The DKE is Germany's member in CENELEC and in the IEC.

Transfer of international standards into national standards
Following adoption of a standard by the member countries, each country can then transfer this standard into its own national version. For example, the international standard IEC 60 439-1 (Low-voltage switchgear assemblies – Part 1: Type-tested and partially type-tested assemblies) becomes standard EN 60 439-1 at European level. This is translated into the national German standard DIN EN 60 439-1 and simultaneously constitutes VDE provision VDE 0660 part 500.

Design differences between TTA and PTTA

The following regulation applies to the manufacture of low-voltage switchgear and distribution boards:
IEC/EN 60 439-1
Low-voltage switchgear and controlgear assemblies.

This standard makes a distinction between
- type-tested switchgear assemblies (TTA) and
- partially type-tested switchgear assemblies (PTTA).

This refers to the following:
Type-tested switchgear assemblies (TTA) are switchgear assemblies or parts thereof (e.g. functional units) which comply with standard type-tested switchgear assemblies without any major deviations from the original type or system.

Partially type-tested switchgear assemblies (PTTA)
are switchgear assemblies which are manufactured individually or in small quantities for specific application conditions and which contain both type-tested and non-type-tested assemblies, provided the latter are derived from type-tested assemblies (e.g. by means of calculation) which have passed the appropriate tests.

There are no defined quality differences between the two design variants TTA and PTTA. In other words, they are deemed to be of equal value.
However, both design variants require different proof and tests.

The following proof and tests must be provided for system configuration in line with regulations and as evidence of CE conformity:

TTA/PTTA to IEC/EN 60 439-1
- Compliance with the overtemperature limit
- Dielectric strength
- Short-circuit resistance
- Effectiveness of the PE conductor
- Creepage distances and clearances
- Mechanical function
- IP protection categories
- Wiring, electrical function
- Insulation
- Protective measures

Amongst type-tested switchgear assemblies TTA, this evidence is provided by one-off type testing and unit testing following assembly.

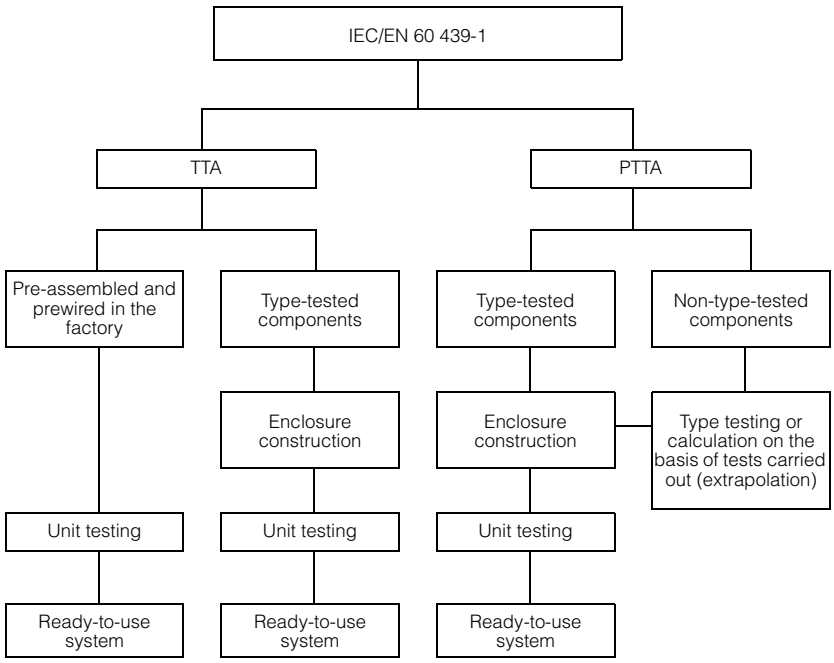
In the case of partially type-tested switchgear assemblies PTTA, complete evidence must be provided for each system installed, either by means of testing or by means of calculation based on the tests performed.

For details of the scope of testing for both design variants, please refer to table 7 in IEC/EN 60 439-1 which contains references to the relevant section number of the standard.

This standard specifies that random variation e.g. of switchgear and protective devices of different makes or models within a switchgear installation is no longer possible without evidence of testing or calculation. This evidence can only be supplied by the manufacturer/workshop.

Special consideration must be made for this fact, both when planning and when purchasing switchgear and distributors.

Difference between TTA and PTTA



Unit testing (final inspection of installations)

According to IEC/EN 60 439-1 part 8.3, low-voltage switchgear assemblies should be subjected to an original inspection prior to commissioning and handover to the customer.

On-site inspection of the customer's system is not necessary for switchgear and distributors, provided an inspection record from the manufacturer/workshop is available.

This cost-saving variant should be the norm in all cases where no retrospective modifications have been implemented on site.

Background information on UL

UL or Underwriters Laboratories was founded in 1894 as a non-profit-making organisation for testing and certification. UL operates five testing laboratories in the United States and subsidiaries worldwide, with an emphasis on product testing aimed at general safety.

Why are UL approvals important?

- International regulations and standards such as NEMA and IEC are used as a basis by manufacturers for product developments and subsequent testing.
- Nationally recognised test laboratories confirm and certify that a product complies with the specific standards; in North America this is carried out by organisations such as UL or CSA (Canadian Standards Association).
- For many applications, the sole use of UL and/or CSA-approved products is a requirement; consequently, it is advisable to design electrical controllers for North American applications with suitable UL-approved components.

How does the US system for electrical safety work?

Every piece of electrical equipment (machine/plant) is tested by the competent local inspector (AHJ = Authority Having Jurisdiction) prior to commissioning. The AHJ has the final say with regard to commissioning. All AHJs use Standard NFPA 70 (NFPA = National Fire Protection Association) as a basis, which is generally regarded as the NEC (National Electrical Code). NFPA 70 is therefore an important basis for UL 508A (Industrial Control Panels).

The AHJ considers the use of UL-recognized or UL-listed components an important indication that a system complies with the safety requirements to NFPA 70. This saves time and money during construction and commissioning of the equipment, as the UL symbol indicates that testing of the components and/or of the system did not reveal any foreseeable risks with regard to fire, electric shock and associated dangers.

The UL symbols: "UL listed" or "UL recognized"

When labelling UL-approved products, a general distinction is made between Recognized Components and Listed Devices:

1 **(Recognized Components)**
This label is used on products which are not complete in terms of their application. These products are listed in the UL's "yellow component database". The correct use of such components must make due allowance for the "Conditions of Acceptability", listing the framework conditions and application parameters approved by the UL.

2 **(Listed Devices)**
Here, it is only important to note that the remarks and rating data specified on the product are observed with the application. Terminals for field-wiring are authorised as Listed Devices (cf. "Important remarks", point 3, page 111).

Recognized Component c US
Sample rating plate for a busbar support with c US.

Listed Device c UL US LISTED
Sample rating plate for a busbar support with c UL US LISTED.

Application areas for UL508 and UL508A

UL508 describes industrial control components and is therefore the decisive standard for the assessment of Rittal SV components. For example, this standard contains information on:

- Starters
- Relays and contactors
- Circuit-breakers
- Controllers

UL 508A describes industrial control panels and is therefore the decisive standard for switchgear manufacturers.

For example, this standard contains information on:

- Machine controllers
- Elevator controllers
- Crane controllers
- Equipment for heating, air-conditioning and ventilation systems and describes, for example, in table SA 1.1 the devices which may be used in this standard and the requirements governing the standard and category number.

Both standards describe control systems for general industrial applications with a rated voltage of up to 600 V. The maximum permissible ambient temperature is 40°C.

Distinguishing between feeder and branch circuits

Standard UL 508A makes a distinction between feeder circuits and branch & control circuits. Generally speaking, the term "feeder circuits" refers to the part of the circuit located at the supply end before the last over-current protective device (a device approved to UL 489). Increased requirements with regard to creepage distances and clearances apply to this part of the circuit. The term "branch & control circuits" refers to the part of the circuit located after the last over-current protective device. When using busbar systems, it is important to know whether the application is in the feeder section or the branch section, as the requirements governing the required creepage distances and clearances are significantly higher for feeder circuits.

Important remarks

for the use of busbar systems to UL 508A

1. Creepage distances and clearances
One of the principal requirements in UL 508A is the amendment to the required creepage distances and clearances for feeder circuits.
For applications >250 V the following distances and clearances are required:

- Between phases:
  A Creepage distance 50.8 mm (2 inches)
  B Clearance 25.4 mm (1 inch)
- Between phase and earthed, uninsulated metal parts:
  C Creepage distance 25.4 mm (1 inch)
  D Clearance 25.4 mm (1 inch)

Rittal RiLine60 complies with these requirements. All busbar connection adaptors and component adaptors (OM adaptors with standard AWG connection cables and circuit-breaker adaptors) have been designed in accordance with these requirements. However, users should bear in mind a small number of differences from the IEC version:

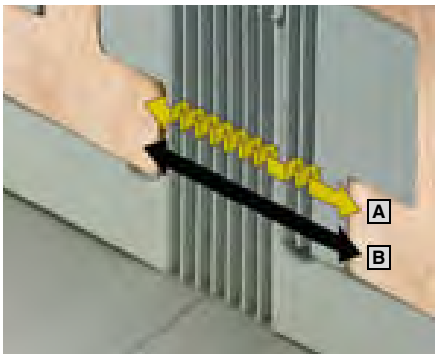
- Special UL busbar supports for flat bars and Rittal PLS with increased creepage distances and clearances.
- In order to guarantee the required distances between live parts and the earthed mounting plate, the use of a Rittal RiLine60 base tray is compulsory.

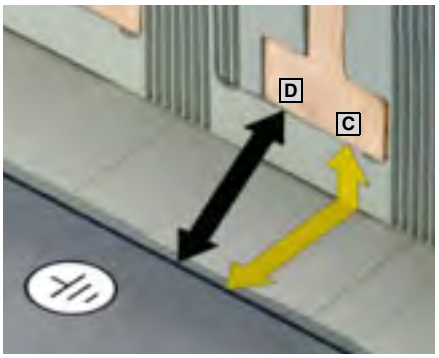
2. Rated currents
For untested busbar applications, UL 508A specifies a current carrying capacity of 1000 A/inch^2 (1.5 A/mm^2) in the absence of testing.

This value may be higher if the product or application has undergone suitable testing. Rittal has conducted extensive testing in this respect in order to give users the maximum benefits when using the RiLine60 busbar system. The benefit of such testing is that SV busbar systems with higher rated currents may be used than permitted by the default value. For example, a busbar with dimensions 30 x 10 mm can take 700 A instead of 465 A.

3. Terminals for factory or field wiring
In accordance with the UL standards, connection terminals may be approved for factory or field wiring. If a terminal is approved for factory wiring, it may only be used in switchgear assembly by suitably trained professionals.

If connection terminals are to be used in the field (e.g. on a construction site), the component must be approved for field wiring. **The terminals of the busbar connection adaptors and component adaptors in the Rittal RiLine60 series have therefore been tested for field wiring applications.**





Definition of creepage distances and clearances:

A Creepage distance between active conductors/busbars
B Clearance between active conductors/busbars
C Creepage distance between active conductors/busbars and earthed metal parts
D Clearance between active conductors/busbars and earthed metal parts

Background information on UL

Simple, fast system sign-offs

Save time and money with easier UL and CSA sign-offs.
The approval of power distribution components is becoming ever more important for international switchgear manufacturers. The c UL us LISTED approval of RiLine60 busbar systems offers significant advantages for both the UL and CSA market. Complex, time-consuming engineering, inspection and sign-off processes are reduced to a minimum.

Important benefits and added value with RiLine60

c UL us LISTED

1. Dramatic time savings
Straightforward UL and CSA sign-off processes

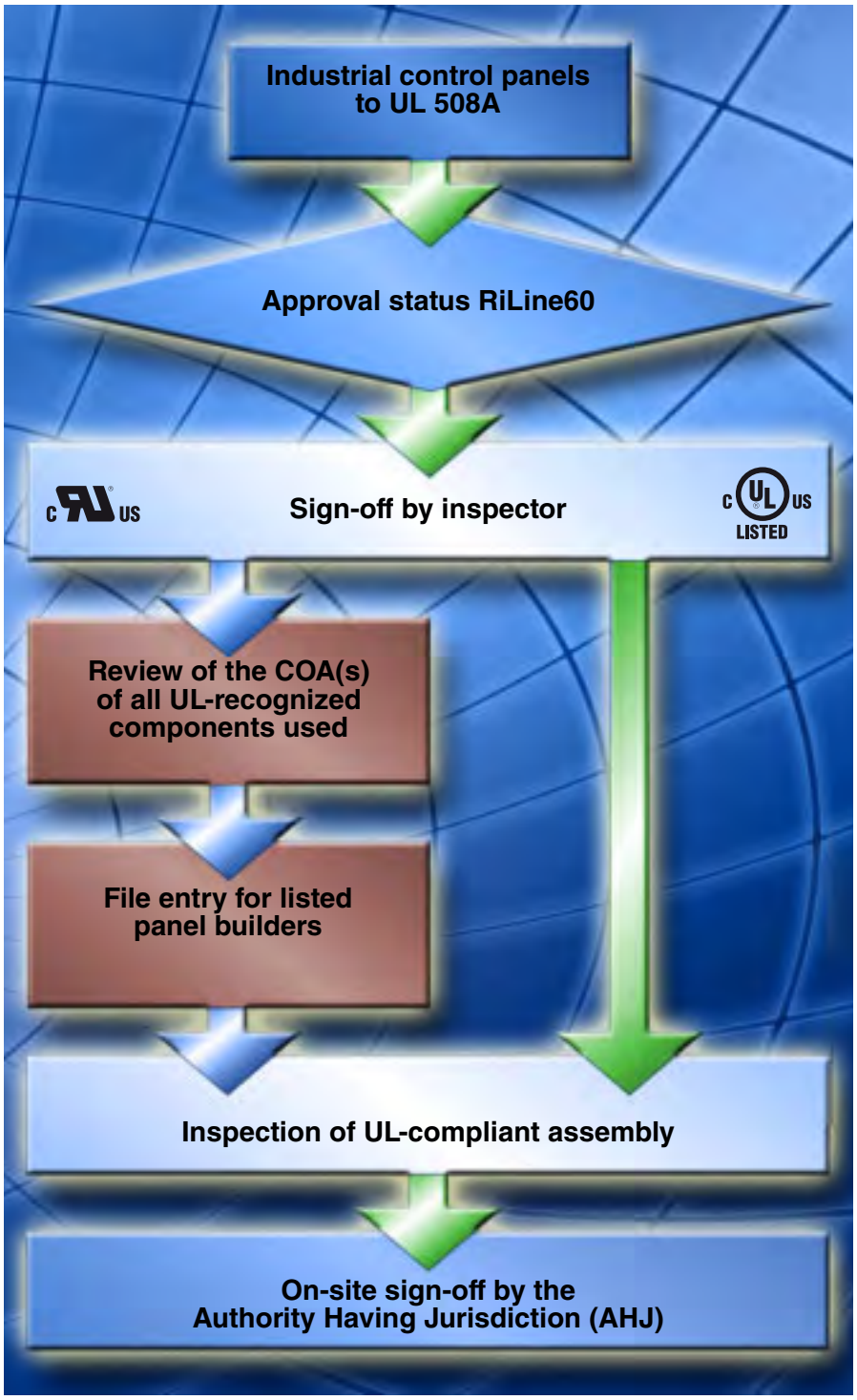
2. Conditions of Acceptability (CoA) are eliminated, documentation work is minimised
No additional tests required as with UL-recognized components.

3. Cost savings for listed panel builders
The usual UL costs for file entry of the UL-recognized components are eliminated.

4. A high level of acceptance among end customers
RiLine60 c UL us LISTED meets the requirements of valid safety standards to perfection.

5. Barrierless access to the CSA market
c UL us LISTED products are accepted on the Canadian market with no further test requirements.

6. Time- and cost-efficient project planning
Reduced project planning work when incorporating the engineering considerations.



Rated currents and short-circuit currents of standard transformers

Rated voltage	UN = 400 V		
Short-circuit voltage U_k		4%[1]	6%[2]
Power consumption S_{NT} [kVA]	Rated current I_N [A]	Short-circuit current $I_{k''}$[3] [kA]	
50	72	1.89	1.20
100	144	3.61	2.41
160	230	5.77	3.85
200	288	7.22	4.81
250	360	9.02	6.01
315	455	11.36	7.58
400	589	14.43	9.62
500	722	18.04	12.03
630	910	22.73	15.15
800	1156	28.86	19.24
1000	1444	36.08	24.05
1250	1805	45.09	30.06
1600	2312	57.72	38.48
2000	2882	72.15	48.10

[1] U_k = 4% standardised to DIN 42 503 for S_{NT} = 50 . . . 630 kVA
[2] U_k = 6% standardised to DIN 42 511 for S_{NT} = 100 . . . 1600 kVA
[3] $I_{k''}$ = Initial symmetrical short-circuit current of transformer when connecting to a mains supply with unlimited short-circuit lead

Information on the topic of “whiskers”

The EU electric scrap regulation RoHS prohibits the addition of lead to tin. In tin-plated busbars, this poses a major risk of whisker formation which can result in dangerous short-circuits between 2 phases or between a phase and earthed parts in switchgear.

Whiskers are hair-like, electrically conductive crystals which grow out of the tin layer in tin-plated busbars under defined conditions. Their diameter is generally in the region of 1 – 2 µm, and whiskers may be 10 to 12 mm in length. Whiskers grow as a result of mechanical stresses in the molecular tin structure, i.e. the migration of individual molecules leads to thread formation. The speed of growth is approximately 750 µm/month, with the growth rate being most favourable at 50°C. The ambient medium does not influence whisker growth. Whiskers can occur both in a high vacuum and under various atmospheres and humidities. The highest internal stresses occur in thin layers of tin, so that increased whisker growth is likely under such conditions.

The risk of whisker formation can be minimised by ensuring that the tin-plated surface is as matt as possible, and layer thicknesses of at least 10 – 20 µm are applied. These measures are fulfilled by the tin-plated flat bars that may be ordered on request from Rittal, as well as by the PLS 800 and PLS 1600. Additionally, the RiLine60 base tray and adaptor technology, based on the high level of contact hazard protection, is ideally designed in terms of insulation between the different potentials.

Rittal RiLine NH

Use of semi-conductor fuses in Rittal RiLine NH disconnectors

The overload and short-circuit protection of semi-conductor components places very high demands on fuse inserts. Because semi-conductor components have a low thermal capacity, the integral disconnect value (I^2t-value) of the semi-conductor fuse inserts type aR, gR or gRL must match the integral limit value of the semi-conductor cell being protected. Consequently, the tripping characteristic of the fuse inserts must be very fast, and overvoltage during the disconnection process (switching or arc voltage) must be as minimal as possible. Compared with fuse inserts for cable and line protection and transformer protection, the particular features of semi-conductor fuse inserts produce a comparatively high heat loss.

The high heat loss is dissipated to the environment in the form of thermal energy. Because NH switchgear only has a limited capacity to dissipate thermal energy to the environment, the maximum heat loss ($P_{heat\ loss}$/fuse insert) is listed in the technical specifications of the NH switchgear. If the values exceed the heat loss specified by the manufacturer, the rated current should be reduced in accordance with the table opposite, or the minimum connection cross-section increased accordingly to encourage heat dissipation.

With due regard for the reduction factors listed in the following tables and minimum connection cross-sections, all overtemperature limits prescribed by IEC/EN 60 947-3 are met. The values were calculated on the basis of the IEC/EN standard assembly. Siemens Sitor fuses were used for sample testing.

NH disconnectors, size 00

Sitor fuse insert				Min. connection cross-section (Cu)	Reduction factor	Max. operating current[1)]
Model No.	Size	In A	Operating category	mm^2		A
3NE8 017	00	50	gR	10	0.9	45
3NE8 018	00	63	gR	16	0.9	60
3NE8 020	00	80	aR	25	0.85	70
3NE8 021	00	100	aR	35	0.85	85
3NE8 022	00	125	aR	50	0.80	100
3NE8 024	00	160	aR	70	0.75	120
3NE1 021-2	00	100	gR	35	1.0	100
3NE1 022-2	00	125	gR	50	0.95	120
3NE1 022-0	00	125	gS	50	1.0	125

[1)] Maximum operating current figures have been rounded to the nearest 5A.

NH disconnectors, size 1

Sitor fuse insert				Min. connection cross-section (Cu)	Reduction factor	Max. operating current[1)]
Model No.	Size	In A	Operating category	mm^2		A
3NE3 221	1[2)]	100	aR	35	0.95	95
3NE3 222	1[2)]	125	aR	50	0.9	110
3NE3 224	1[2)]	160	aR	70	0.9	150
3NE3 225	1[2)]	200	aR	95	0.85	170
3NE3 227	1[2)]	250	aR	120	0.8	200
3NE3 230-0B	1[2)]	315	aR	185	0.75	240
3NE1 225-2	1	200	gR	95	1.0	200
3NE1 227-2	1	250	gR	120	0.95	240
3NE1 230-2	1	315	gR	185	0.9	285
3NE1 230-0	1	315	gS	185	0.95	300

[1)] Maximum operating current figures have been rounded to the nearest 5 A.
[2)] Fuse design with slotted contact blades corresponding to IEC 60 269-4. Devices must only be switched while off-load.

NH disconnectors, size 2

Sitor fuse insert				Min. connection cross-section (Cu)	Reduction factor	Max. operating current[1]
Model No.	Size	In A	Operating category	mm²		A
3NE1 331-2	2	350	gR	2 x 95	1.0	350
3NE1 333-2	2	450	gR	2 x 120	0.95	425
3NE1 334-2	2	500	gR	2 x 120	0.9	450
3NE1 334-0	2	500	gS	2 x 120	1.0	500
3NE3 332-0B	2[2])	400	aR	240	0.85	340
3NE3 333	2[2])	450	aR	2 x 150	0.8	360

[1]) Maximum operating current figures have been rounded to the nearest 5 A.
[2]) Fuse design with slotted contact blades in accordance with IEC 60 269-4. Devices must only be switched while off-load.

NH disconnectors, size 3

Sitor fuse insert				Min. connection cross-section (Cu)	Reduction factor	Max. operating current[1]
Model No.	Size	In A	Operating category	mm²		A
3NE1 435-2	3	560	gR	2 x 185	1.0	560
3NE1 436-2	3	630	gR	2 x 40 x 5	1.0	630
3NE1 447-2	3	670	gR	2 x 40 x 5	0.95	650
3NE1 437-2	3	710	gR	2 x 40 x 5	0.9	650
3NE1 437-0	3	710	gS	2 x 40 x 5	0.95	675

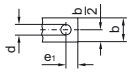
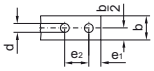
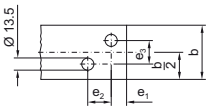
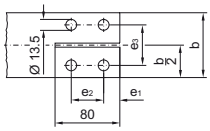
[1]) Maximum operating current figures have been rounded to the nearest 5 A.

Note:
Where possible, we recommend using the next-largest conductor cross-section in order to ensure superior heat dissipation. When using several NH devices close together, the rated load factor pursuant to IEC 60 439, Table 1 must be observed. For configuration of the busbar system, we recommend the following design, depending on the size of the NH disconnector:

NH disconnector size	Busbar system
NH 00	At least 30 x 5 mm
NH 1 – 2	At least 30 x 10 mm
NH 3	PLS 1600

Busbar screw connections to DIN 43 673

Drilling patterns and drilled holes

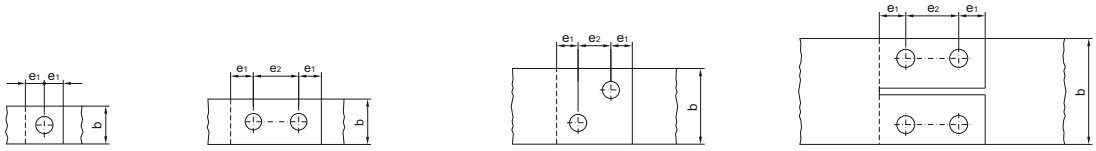
Bar widths mm		12 to 50		25 to 60			60			80 to 100		
Form[1]		1		2			3			4		
Drilled holes in the bar ends (drilling pattern)												
	Nominal width b	d	e_1	d	e_1	e_2	e_1	e_2	e_3	e_1	e_2	e_3
Hole size	**12**	5.5	6	–	–	–	–	–	–	–	–	–
	15	6.6	7.5	–	–	–	–	–	–	–	–	–
	20	9.0	10	–	–	–	–	–	–	–	–	–
	25	11	12.5	11	12.5	30	–	–	–	–	–	–
	30	11	15	11	15	30	–	–	–	–	–	–
	40	13.5	20	13.5	20	40	–	–	–	–	–	–
	50	13.5	25	13.5	20	40	–	–	–	–	–	–
	60	–	–	13.5	20	40	17	26	26	–	–	–
	80	–	–	–	–	–	–	–	–	20	40	40
	100	–	–	–	–	–	–	–	–	20	40	50

Permissible deviations for hole-centre distances ± 0.3 mm

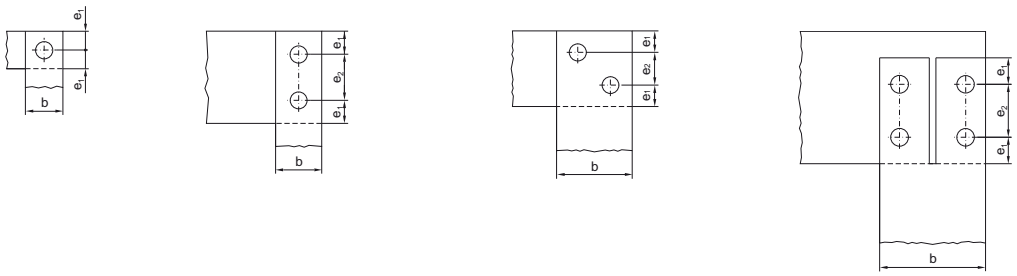
[1] Shape designations 1 – 4 match DIN 46 206, part 2 – Flat-type screw terminal

Examples of busbar screw connections

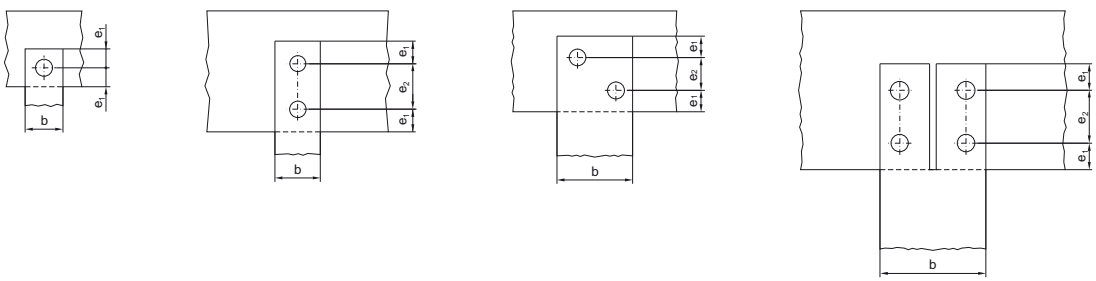
Longitudinal connectors



Angular connectors



T-connectors



Note:
For figures for dimensions b, d, e_1 and e_2 refer to table “Drilling patterns and drilled holes”.
Slots are permissible at one end of the bar or at the end of a bar stack.

List of model numbers

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