

Power Distribution

Short-circuit withstand strength to IEC

Short circuit withstand strength diagrams to IEC 61 439-1: 2020

The performance capability of Rittal RiLine busbar systems has been confirmed by extensive testing. In addition to the properties of insulating materials (section 10.2.3), clearance and creepage distances (section 10.4) and verification of the insulation properties (section 10.9), the short-circuit withstand strength (section 10.11) of the systems has been extensively tested and is documented below.

Mini-PLS busbar support

up to 250 A, 3-pole

Model No. SV 9600.000

40 mm bar centre distance,
for Mini-PLS special busbars

Rated operating voltage: up to 690 V AC
Rated insulation voltage: 690 V AC

Rated impulse withstand voltage: 6 kV

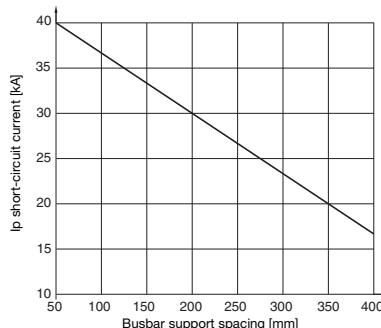
Overvoltage category: III

Pollution degree: 3

Rated frequency: 50/60 Hz

Test implemented:

- Rated peak withstand current I_{pk}



Busbar support

up to 800 A, 3-pole

Model No. SV 9340.000/SV 9340.010

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

Rated operating voltage: up to 690 V AC
Rated insulation voltage: 1000 V AC

Rated impulse withstand voltage: 8 kV

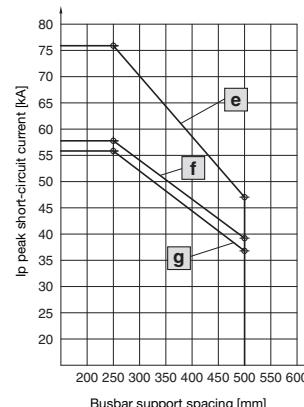
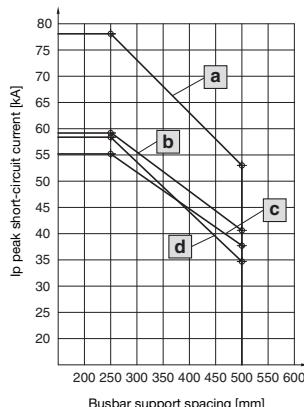
Overvoltage category: IV

Pollution degree: 3

Rated frequency: 50/60 Hz

Test implemented:

- Rated peak withstand current I_{pk}
- Rated short-time withstand current I_{cw}



Busbar mm	l mm	$I_{cw}^{1)}$ kA
30 x 10	250	37.6
30 x 5	250	36.0
20 x 10	250	29.0

¹⁾ For 1 sec.

l = Busbar support spacing

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 support

up to 800 A/1600 A, 3-pole

Model No. SV 9341.000/SV 9342.000

60 mm bar centre distance,
for PLS special busbars.

Rated operating voltage: up to 690 V AC
Rated insulation voltage: 1000 V AC
Rated impulse withstand voltage: 8 kV

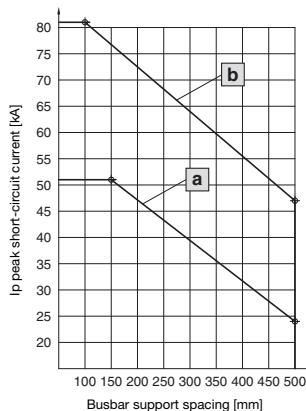
Overvoltage category: IV

Pollution degree: 3

Rated frequency: 50/60 Hz

Test implemented:

- Rated peak withstand current I_{pk}
- Rated short-time withstand current I_{cw}



Model No. SV	Busbar mm	I mm	$I_{cw}^{(1)}$ kA
[a] 9341.000	PLS 800	150	25.9
[b] 9342.000	PLS 1600	150	37.5

⁽¹⁾ For 1 sec.
 I = Busbar support spacing

Busbar support

up to 800 A, 4-pole

Model No. SV 9340.004

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

Rated operating voltage: up to 690 V AC
Rated insulation voltage: 1000 V AC
Rated impulse withstand voltage: 8 kV

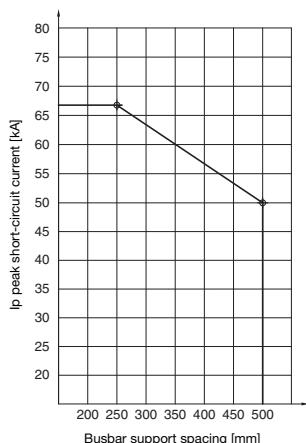
Overvoltage category: IV

Pollution degree: 3

Rated frequency: 50/60 Hz

Test implemented:

- Rated peak withstand current I_{pk}
- Rated short-time withstand current I_{cw}



Model No. SV	Busbar mm	I mm	$I_{cw}^{(1)}$ kA
9340.004	30 x 10	250	29

⁽¹⁾ For 1 sec.
 I = Busbar support spacing

PLS busbar support

up to 1600 A, 4-pole

Model No. SV 9342.004

60 mm bar centre distance,
for PLS special busbars.

Rated operating voltage: up to 690 V AC
Rated insulation voltage: 1000 V AC
Rated impulse withstand voltage: 8 kV

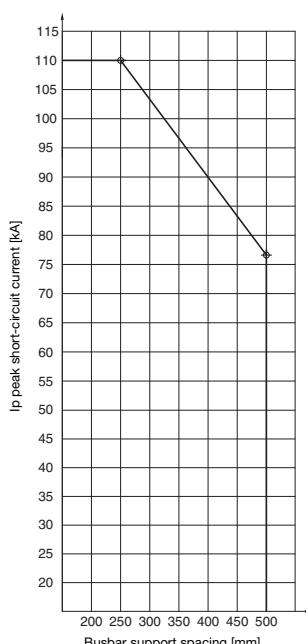
Overvoltage category: IV

Pollution degree: 3

Rated frequency: 50/60 Hz

Test implemented:

- Rated peak withstand current I_{pk}
- Rated short-time withstand current I_{cw}



Busbar mm	I mm	I_{cw} kA
PLS 1600	250	50 ¹⁾
	250	53 ²⁾
	500	38 ²⁾

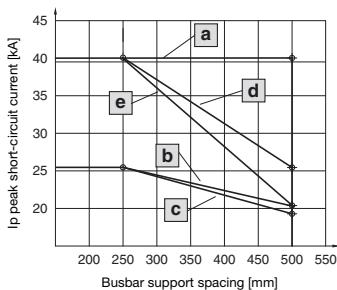
¹⁾ For 3 sec.
²⁾ For 1 sec.
 I = Busbar support spacing

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Busbar support for DC use

The figures shown in the diagram refer to a minimal bar centre distance of 60 mm. Larger centre-to-centre spacings are permissible. The rated operating voltage depends on the choice of bar centre distance and the configuration of the system with top-mounting components. The rated values can be taken from the technical specifications for the components. Compliance with the creepage distances and clearance to DIN EN 60 664-1 should be checked in the final assembly or final application.



Busbar mm	Holder	Number of poles	Curve
30 x 10	SV 9340.050	3-pole	[a]
	SV 9340.030	1-pole	[d]
15 x 5 – 25 x 10	SV 9340.050	3-pole	[b]
	SV 9340.030	1-pole	[c]
PLS 800	SV 9341.050	3-pole	[e]
	SV 9342.050	3-pole	[a]
PLS 1600	SV 9342.050	3-pole	[a]
	SV 9342.030	1-pole	[a]

Busbar support up to 1250 A, 3-pole

Model No. SV 3073.000

100 mm bar centre distance,
for busbars 30 x 10 – 60 x 10 mm

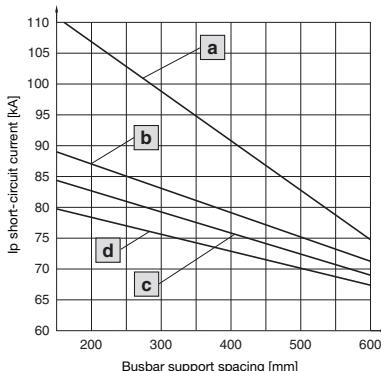
Rated operating voltage:
up to 1000 V AC

Pollution degree: 3

Rated frequency: 50/60 Hz

Test implemented:

– Rated peak withstand current I_{pk}



Busbar E-Cu mm	Rated current up to A	Curve
30 x 10	800	[d]
40 x 10	850	[c]
50 x 10	1000	[b]
60 x 10	1250	[a]

Busbar support up to 1600 A, 3-pole

Model No. SV 3052.000

185 mm bar centre distance,
for busbars 50 x 10 – 80 x 10 mm

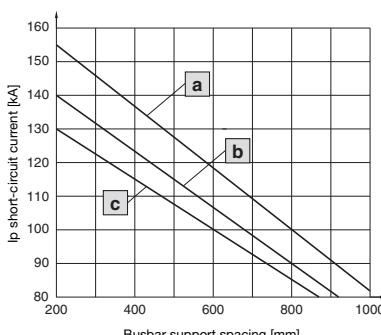
Rated operating voltage:
up to 1000 V AC

Pollution degree: 3

Rated frequency: 50/60 Hz

Test implemented:

– Rated peak withstand current I_{pk}



Busbar E-Cu mm	Rated current up to A	Curve
50 x 10	1000	[c]
60 x 10	1250	[b]
80 x 10	1600	[a]

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Busbar support up to 2500 A/3000 A, 3-pole

150 mm bar centre distance

Rated operating voltage:
up to 1000 V AC

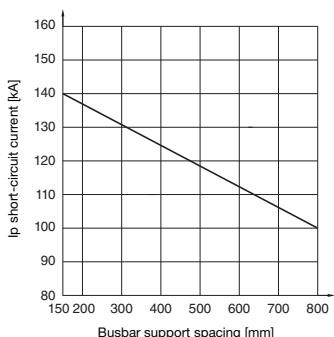
Pollution degree: 3

Rated frequency: 50/60 Hz

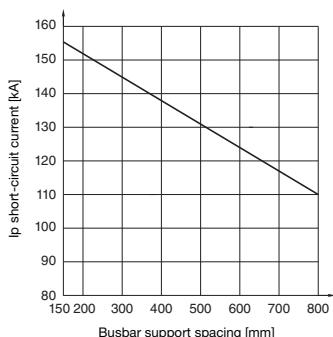
Test implemented:

- Rated peak withstand current I_{pk}

Model No. SV 3055.000 (2500 A),
bar accommodation
 $3 \times 2 \times 80 \times 10$ mm



Model No. SV 3057.000 (3000 A),
bar accommodation
 $3 \times 2 \times 100 \times 10$ mm



Power Distribution

Short-circuit withstand strength to UL 508

Consistently tested for an SCCR of 65 kA

For effective support of RiLine busbar technology in enclosures, Rittal has conducted comprehensive testing of all RiLine busbar systems and components, and generated a uniform SCCR of 65 kA. When planning and designing enclosures to UL 508A, users benefit from simple, time-saving design of the busbar systems and components. They need only ensure that the top-mounted equipment used, such as circuit-breakers, motor circuit-breakers and fuses, meet the specified requirements. The required measures to meet this condition are clearly defined in the following tables.

Busbar systems 60 mm

Model No.	Code	SCCR kA	Voltage AC max. V	Conditions for SCCR have been met, in combination with / protected by	Support spacing	Busbar dimensions W x H mm
9340.050	Busbar support, 3-pole, 60 mm	14	600	–	500	12 x 5/10
		22	600	–	500	15/20/25 x 5/10
		25	600	–	250	12 x 5/10
		25	600	–	500	30 x 5/10
		30	600	–	250	15/20/25 x 5/10
		50	600	Fuse Class L max. 800 A, JDDZ/7	350	30 x 5/10
		54	600	Circuit Breaker max. 600 A, DIVQ/7	500	30 x 5/10
		65	480	Circuit Breaker max. 600 A, DIVQ/7	250	30 x 5/10
		73	600	Fuse Class L max. 800 A, JDDZ/7	250	30 x 5/10
9340.004	Busbar support, 4-pole, 60 mm	22	600	–	500	250
		25	600	–	500	30 x 5/10
		30	600	–	250	15/20/25/25 x 5/10
		65	600	Fuse Class L max. 800 A, JDDZ/7	250	15/20/25 x 5/10
9341.050	Busbar support PLS 800, 3-pole, 60 mm	14	600	–	500	PLS 800
		22	600	–	200	PLS 800
		50	600	Circuit Breaker max. 600 A, DIVQ/7	250	PLS 800
		50	600	Fuse Class L max. 800 A, JDDZ/7	250	PLS 800
		65	480	Circuit Breaker max. 600 A, DIVQ/7	150	PLS 800
		65	600	Fuse Class J max. 800 A, JDDZ/7	150	PLS 800
9342.050	Busbar support PLS 1600, 3-pole, 60 mm	25	600	–	500	PLS 1600
		30	600	–	250	PLS 1600
		35	600	–	150	PLS 1600
		65	600	Fuse Class L max. 1400 A, JDDZ/7	250	PLS 1600
		65	600	Fuse Class L max. 1600 A, JDDZ/7	100	PLS 1600
9342.004	Busbar support PLS 1600 PLUS, 4-pole, 60 mm	35	600	–	500	PLS 1600
		50	600	–	250	PLS 1600
		65	480	Circuit Breaker max. 1200 A, DIVQ/7	250	PLS 1600
		65	600	Fuse Class L max. 1600 A, JDDZ/7	250	PLS 1600

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Short-circuit withstand strength to UL 508

Bus-mounted components 60 mm

Model No.	Code	SCCR kA	Voltage AC max. V	Conditions for SCCR have been met, in combination with / protected by
Connection adaptor				
9342.200 9342.210	Busbar connection adaptor 63 A, 3-pole	65	600	Fuse Class J max. 60 A, JDDZ/7
		65	480	Manual Motor Controller max. 65 A, NLRV/7
9342.240	Busbar connection adaptor 125 A, 3-pole	50	600	Fuse Class K5 max. 125 A, JDDZ/7
		65	480	Circuit Breaker max. 125 A, DIVQ/7
		65	600	Fuse Class J max. 400 A, JDDZ/7
9342.224	Busbar connection adaptor 125 A, 4-pole	50	600	Fuse Class K5 max. 125 A, JDDZ/7
		65	480	Circuit Breaker max. 125 A, DIVQ/7
		65	600	Fuse Class J max. 400 A, JDDZ/7
9342.250 9342.270	Busbar connection adaptor 250 A, 3-pole	50	600	Fuse Class K5 max. 250 A, JDDZ/7
		50	600	Combination Motor Controller max. 250 A, NKJH/7
		65	480	Circuit Breaker max. 250 A, DIVQ/7
		65	600	Fuse Class J max. 400 A, JDDZ/7
9342.254	Busbar connection adaptor 250 A, 4-pole	50	600	Fuse Class K5 max. 250 A, JDDZ/7
		50	600	Combination Motor Controller max. 250 A, NKJH/7
		65	480	Circuit Breaker max. 250 A, DIVQ/7
		65	600	Fuse Class J max. 400 A, JDDZ/7
9342.300	Busbar connection adaptor 800 A, 3-pole	50	600	Fuse Class K5 max. 600 A, JDDZ/7
		65	480	Circuit Breaker max. 600 A, DIVQ/7
		65	600	Fuse Class L max. 800 A, JDDZ/7
9342.310 9342.311 9342.314	Connection adaptor 800 A, 3 x 1-pole Connection block 800 A, 1-pole Expansion set for 9342.310 (4-pole)	65	480	Circuit Breaker max. 600 A, DIVQ/7
		65	600	Fuse Class L max. 800 A, JDDZ/7
9342.320 9342.321 9342.324	Connection adaptor 1600 A, 3 x 1-pole Connection block 1600 A, 1-pole Expansion set for 9342.320 (4-pole)	65	480	Circuit Breaker max. 1200 A, DIVQ/7
		65	600	Fuse Class L max. 1600 A, JDDZ/7
Fuse holder				
9345040	Fuse holder Class CC, 30 A, 3-pole	200	600	Fuse Class CC max. 30 A, JDDZ/7
9345005	Fuse holder Class CC, 30 A, 3-pole	200	600	Fuse Class CC max. 30 A, JDDZ/7
9345015	Fuse holder Class J, 30 A, 3-pole	200	600	Fuse Class J max. 30 A, JDDZ/7
9345035	Fuse holder Class J, 60 A, 3-pole	200	600	Fuse Class J max. 60 A, JDDZ/7
9345100	Fuse holder Class J, 61 – 100 A, 3-pole	100	600	Fuse Class J max. 100 A, JDDZ/7
9345200	Fuse holder Class J, 101 – 200 A, 3-pole	100	600	Fuse Class J max. 200 A, JDDZ/7
9345400	Fuse holder Class J, 201 – 400 A, 3-pole	100	600	Fuse Class J max. 400 A, JDDZ/7

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Bus-mounted components 60 mm

Model No.	Code	SCCR kA	Voltage AC max. V	Conditions for SCCR have been met, in combination with / protected by
OM adaptor				
9340.760 9340.780	OM adaptor, AWG 12, 3-pole	30	600	Fuse Class K5 max. 60 A, JDDZ/7
		50	600	Fuse Class K5 max. 35 A, JDDZ/7
		65	600	Fuse Class J max. 30 A, JDDZ/7
		65	600	Fuse Class K5 max. 30 A, JDDZ/7
		50	480	Combination Motor Controller max. 27 A, NKJH/7
		65	480	Combination Motor Controller max. 32 A, NKJH/7
9340.310 9340.320 9340.340 9340.370 9340.400	OM adaptor, AWG 12, 3-pole	30	600	Fuse Class K5 max. 60 A, JDDZ/7
		50	600	Fuse Class K5 max. 35 A, JDDZ/7
		65	600	Fuse Class J max. 30 A, JDDZ/7
		65	600	Fuse Class K5 max. 30 A, JDDZ/7
		50	480	Combination Motor Controller max. 27 A, NKJH/7
		65	480	Combination Motor Controller max. 32 A, NKJH/7
9340.350 9340.380 9340.390 9340.770 9340.790	OM adaptor, AWG 10, 3-pole	30	600	Fuse Class K5 max. 60 A, JDDZ/7
		50	600	Fuse Class K5 max. 35 A, JDDZ/7
		65	600	Fuse Class J max. 30 A, JDDZ/7
		65	600	Fuse Class K5 max. 30 A, JDDZ/7
		50	480	Combination Motor Controller max. 27 A, NKJH/7
		65	480	Combination Motor Controller max. 32 A, NKJH/7
9340.460 9340.470	OM adaptor, AWG 10, 3-pole	30	600	Fuse Class K5 max. 60 A, JDDZ/7
		30	480	Combination Motor Controller max. 63 A, NKJH/7
		65	600	Fuse Class J max. 60 A, JDDZ/7
		65	480	Manual Motor Controller max. 63 A, NLRV/7
		65	480	Combination Motor Controller max. 63 A, NKJH/7
9340.710 9340.720 9340.730 9340.740 9340.750	OM adaptor, AWG 8, 3-pole	30	600	Fuse Class K5 max. 60 A, JDDZ/7
		30	480	Combination Motor Controller max. 63 A, NKJH/7
		65	600	Fuse Class J max. 60 A, JDDZ/7
		65	480	Manual Motor Controller max. 63 A, NLRV/7
		65	480	Combination Motor Controller max. 63 A, NKJH/7
9340.410 9340.430 9340.450 9340.700	OM adaptor, AWG 6, 3-pole	30	600	Fuse Class K5 max. 60 A, JDDZ/7
		30	480	Combination Motor Controller max. 63 A, NKJH/7
		65	600	Fuse Class J max. 60 A, JDDZ/7
		65	480	Manual Motor Controller max. 63 A, NLRV/7
		65	480	Combination Motor Controller max. 63 A, NKJH/7
Circuit-breaker component adaptor				
9342.400 9342.410	Circuit-breaker component adaptor 100 A, 3-pole	65	480	Manual Motion Controller max. 100 A, NLRV/7
9342.540 9342.550	Circuit-breaker component adaptor 125 A, 3-pole	65	480	Circuit Breaker max. 125 A, DIVQ/7
9342.504 9342.514	Circuit-breaker component adaptor 125 A, 4-pole	65	480	Circuit Breaker max. 125 A, DIVQ/7
9342.610 9345.600 9345.610	Circuit-breaker component adaptor 250 A, 3-pole	65	480	Circuit Breaker max. 250 A, DIVQ/7
9345.604 9345.614	Circuit-breaker component adaptor 250 A, 4-pole	65	480	Circuit Breaker max. 250 A, DIVQ/7
9345.720 9345.730	Circuit-breaker component adaptor 400 A, 3-pole	65	480	Circuit Breaker max. 400 A, DIVQ/7
9345.700 9345.710	Circuit-breaker component adaptor 630 A, 3-pole	65	480	Circuit Breaker max. 600 A, DIVQ/7