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Filters for shielded rooms

250/440 V, 63 … 250 A

Series/Type: **B84299*1*B/E001 / B84299*1*B/E003**

Date: 2017-02-02

EPCOS AG is a TDK Group Company.

2- and 4-line-filters 63 to 250 A
Multi-stage
Stopband attenuation:
- B84299*1*B/E001: 150kHz to 40 GHz
- B84299*1*B/E003: 14 kHz to 40 GHz

Features

- General-purpose use through design with separate lines without intercoupling
- Use of single chokes. Thus the insertion loss values are not reduced under all operating current conditions and not when operated with artificial mains networks (AMN) or other equipment with high leakage currents
- Insertion loss to EN 55017

Design

The electrical components are incorporated in an RF-tight case of stainless steel. The cables enter through glands. The RF-tight termination of the openings is produced by specially shaped lids.

The conductors and equipment grounding conductor are connected by threaded bolts. The surface around the fixing holes is left as bare metal (unpainted) to ensure good RF contact with metal surfaces (chassis, ground).

Protective measures (grounding)

The high capacitances between the lines and ground require special protective measures. If there are no product-specific requirements, protection with a secondary ground wire (cross section min. 10 mm^2) in accordance with EN 50178 is necessary. For this purpose the filter case have connecting bolts at each end.

Resistors are incorporated in the filter to discharge capacitors after turn-off.

Scope of supply

Filters are supplied complete with all parts required for RF-tight installation (fixing screws, flanges, RF gaskets, cable glands) and installation instructions.

Installation

No welding is needed on the shielding wall, so any subsequent installation is quite simple.

Accessories and special versions

RF-tight flexible connector fittings are available for installation spaced away from the shielding wall. Filters with an EMP protection add-on for surge currents up to 100 kA per line are available on request. To match requirements, filters can be supplied with different kinds of EMC or shielding cable glands.

Tests

All filters are 100% tested and the results are archived under a filter's serial number. If required, a test report can be generated for the serial number.

Technical data and measuring conditions

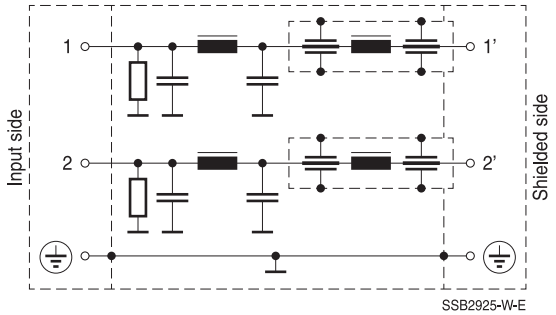
Rated voltage 2-line filters	$V_{R\,[L–PE\,/\,L–L]}$	250 V
Rated voltage 4-line filters	$V_{R\,[L–PE\,/\,L–L]}$	250/440 V
Rated frequency	f_R	50/60 Hz
Rated current	I_R	See characteristics
Power dissipation	P_D	See characteristics
Test voltage line to line	V_{test}	1200 V DC / 2 sec.
Test voltage line to case	V_{test}	1200 V DC / 2 sec.
Rated temperature	T_R	40 °C
Overload capability (thermal)	I_{over}	75 x I_R for 50 ms 10 x I_R for 1 s 2 x I_R for 1 min 1.4 x I_R for 15 min
Leakage current (IEC 60939−1: 2010, Annex A)	I_{Leak}	See characteristics
Capacitive reactive current/line	$I_{reactive}$	See characteristics
Max. permissible harmonic distortion (THD)	THD_{max}	8 % acc. EN 50160
Climatic category (IEC 60068-1: 1992)		25/085/56
Permissible ambient temperature		−25 … +40 °C
Degree of protection (IEC 60529: 2013)		IP 20
Max. DC resistance	R_{DC}	See characteristics

Characteristics and ordering codes

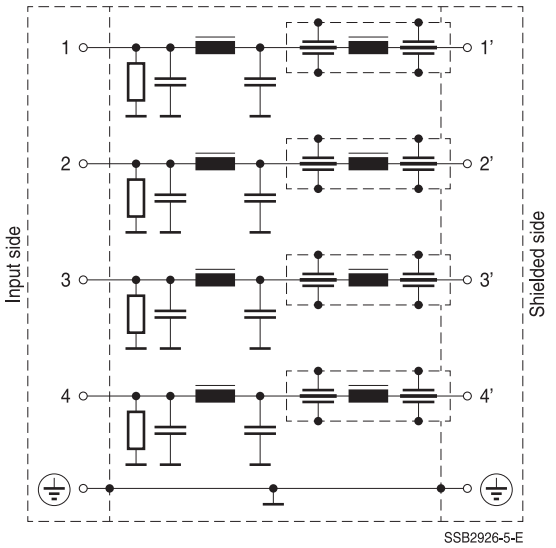
I_R A	Mech. version	Attenuation diagram	R_{DC} mΩ	P_D W	$I_{reactive}$ A	I_{leak} mA	Dimensional drawing	Circuit diagram	Appr. weight kg	Ordering code
2-line filters										
63	C	1	3.5	30	1.1	1100	1	1	18	B84299C1630B001
	D						2			B84299D1630B001
	C	3	8.0	60	4.9	4900	3	3	39	B84299C1630B003
	D						4			B84299D1630B003
100	C	1	2.0	40	1.1	1100	1	1	18	B84299C1101B001
	D						2			B84299D1101B001
	C	3	4.0	80	6.5	6500	5	5	51	B84299C1101B003
	D						6			B84299D1101B003
4-line filters										
63	C	1	3.5	45	1.1	115	7	2	30	B84299C1630E001
	D						8			B84299D1630E001
	C	3	8.0	90	4.9	510	9	4	45	B84299C1630E003
	D						10			B84299D1630E003
100	C	1	2.0	60	1.1	115	7	2	32	B84299C1101E001
	D						8			B84299D1101E001
	C	3	4.0	120	6.5	675	11	6	72	B84299C1101E003
	D						12			B84299D1101E003
150	C	1	0.8	55	1.6	165	13	4	40	B84299C1151E001
	D						14			B84299D1151E001
	C	3	2.0	135	6.5	675	15	6	100	B84299C1151E003
	D						16			B84299D1151E003
250	C	1	0.3	60	1.2	130	17	7	52	B84299C1251E001
	D						18			B84299D1251E001
	C	2	0.5	95	1.6	160	19	8	68	B84299C1251E003
	D						20			B84299D1251E003

Typical circuit diagrams

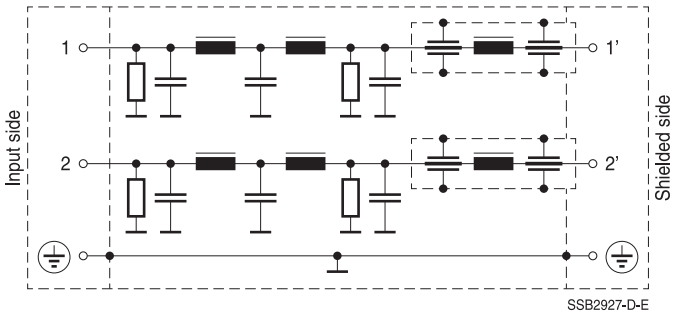
Circuit diagram 1: 2 line filters 63A/100A with 100 dB from 150 kHz



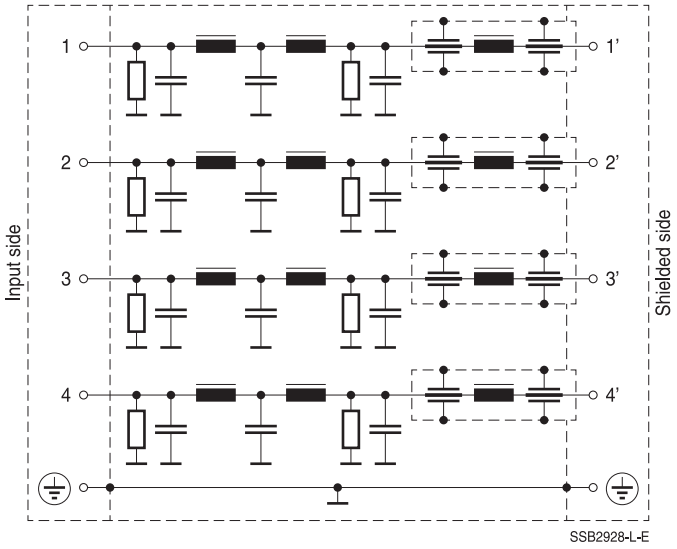
Circuit diagram 2: 4 line filters 63A/100A with 100 dB from 150 kHz



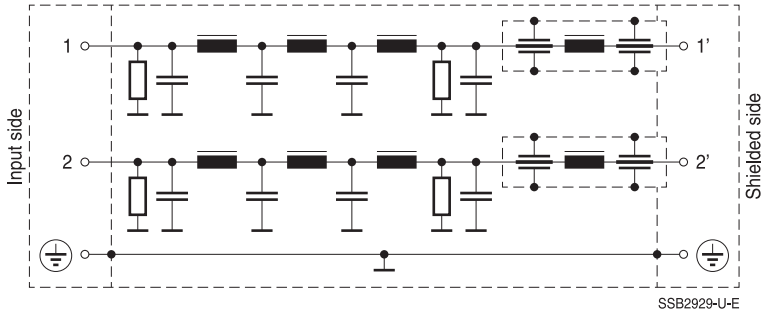
Circuit diagram 3: 2 line filters 63A with 100 dB from 14 kHz



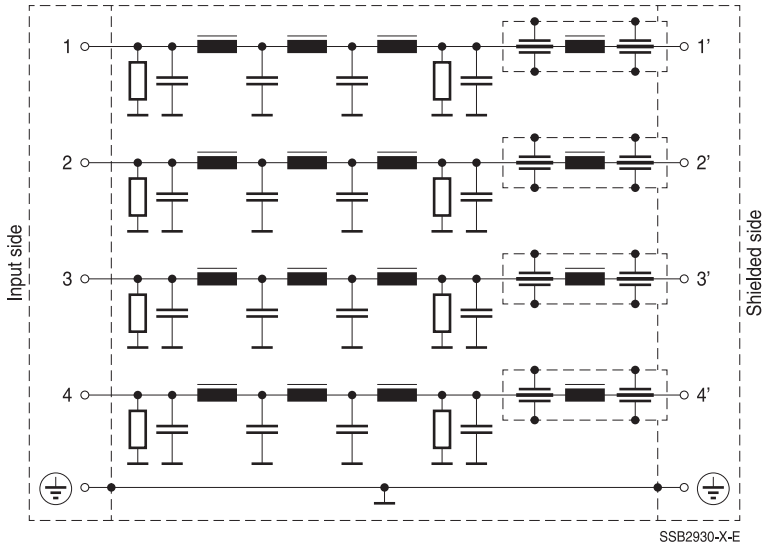
Circuit diagram 4: 4 line filter 63A with 100 dB from 14 kHz and filters 150A with 100 dB at 150 kHz



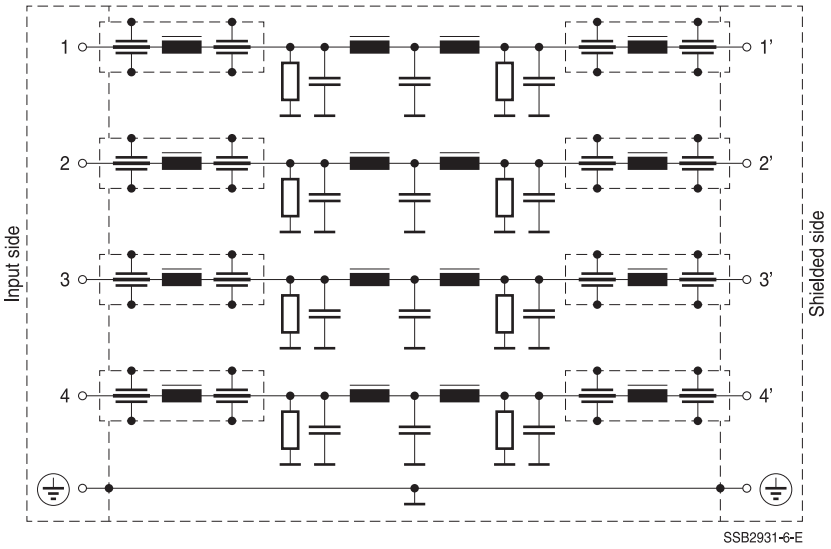
Circuit diagram 5: 2 line filters 100A with 100 dB from 14 kHz



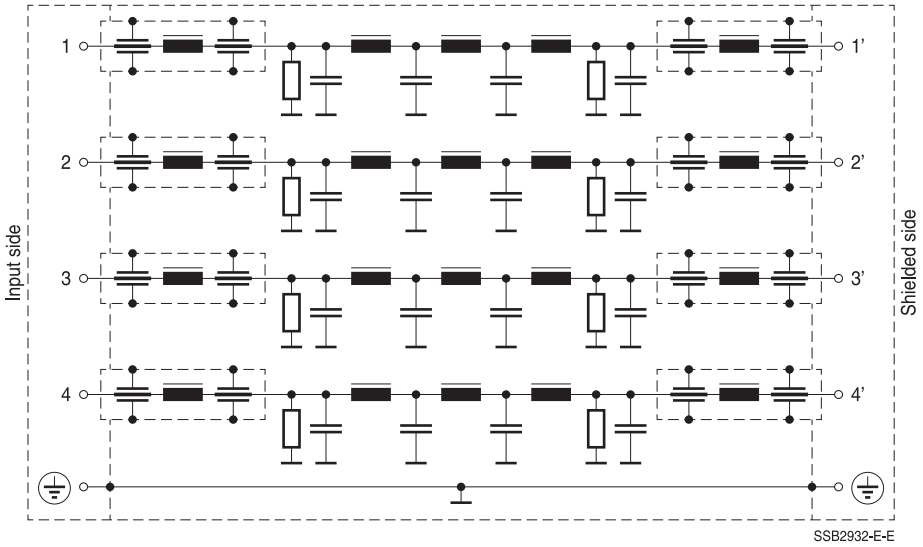
Circuit diagram 6: 4 line filters 100A and 150A with 100 dB from 14 kHz



Circuit diagram 7: 4 line filters 250A with 100 dB from 150 kHz

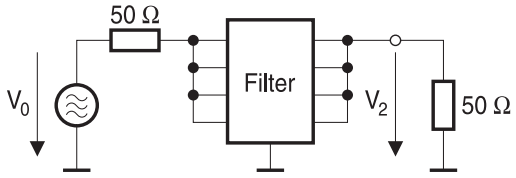


Circuit diagram 8: 4 line filters 250A with 100 dB from 110 kHz



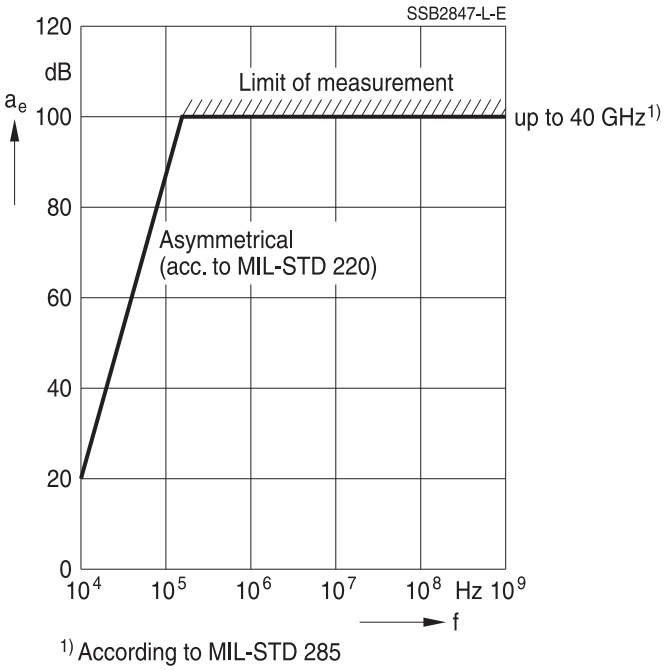
Attenuation diagram 1: Filters with 100dB from 150 kHz up to 40 GHz
Insertion loss a_e as a function of frequency f (typical values at Z = 50 Ohm)

Test setup



$$a_e = 20 \lg \frac{V_0}{2\,V_2}\ [dB]$$

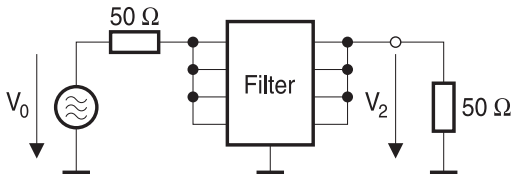
SSB2846-D-E



1) According to MIL-STD 285

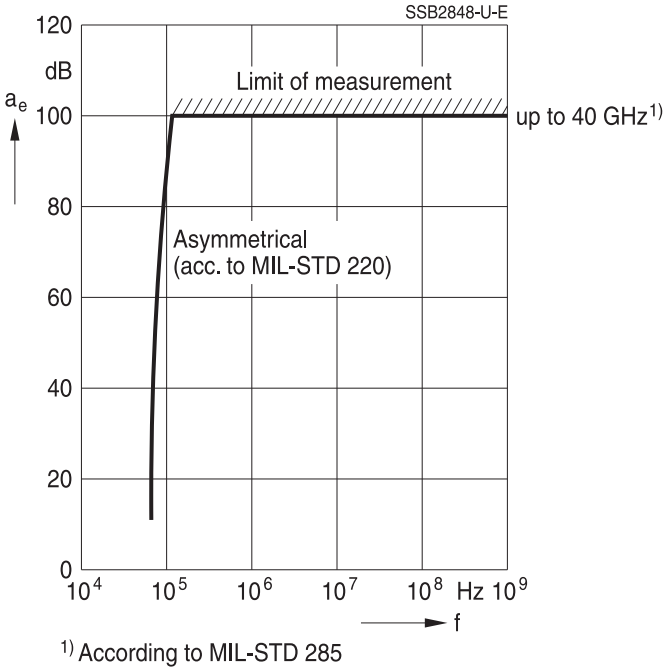
Attenuation diagram 2: Filters with 100dB from 110 kHz up to 40 GHz
Insertion loss a_e as a function of frequency f (typical values at Z = 50 Ohm)

Test setup



$$a_e = 20 \lg \frac{V_0}{2\,V_2}\ [dB]$$

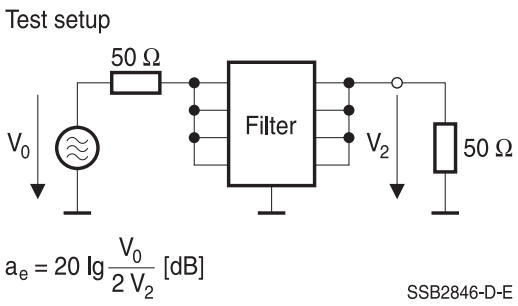
SSB2846-D-E

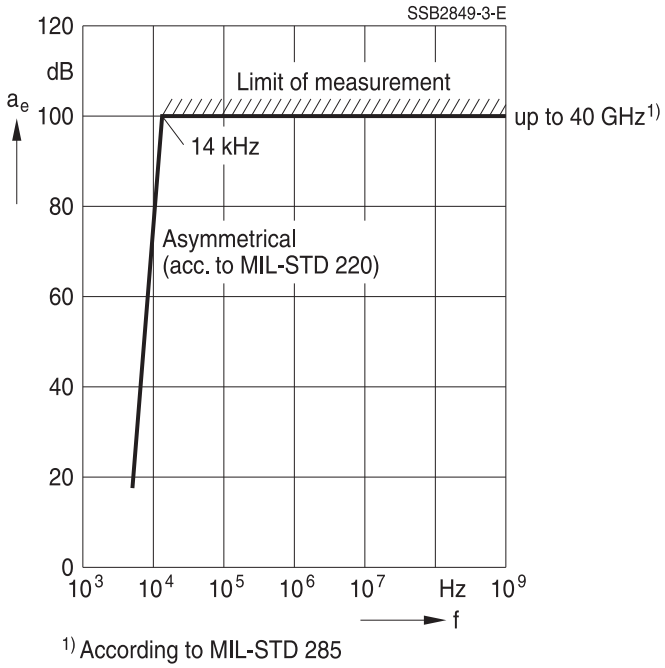


1) According to MIL-STD 285

2017-02-02

Attenuation diagram 3: Filters with 100dB from 14 kHz up to 40 GHz
Insertion loss a_e as a function of frequency f (typical values at Z = 50 Ohm)



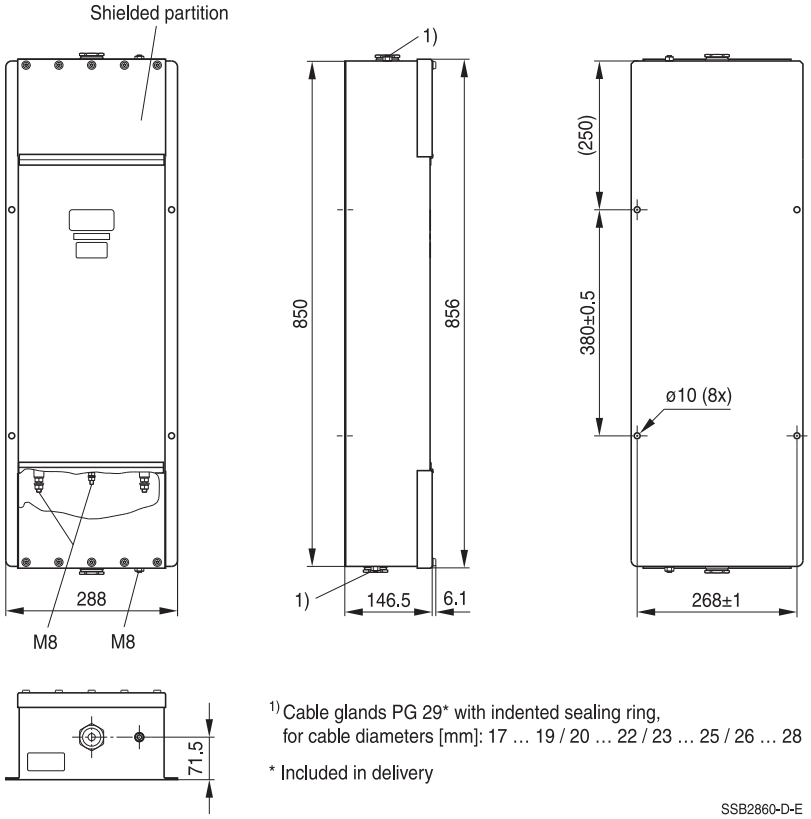


1) According to MIL-STD 285

2017-02-02

Dimensional drawings

Drawing 1 - B84299C1630B001 (2x63A), B84299C1101B001 (2x100A)

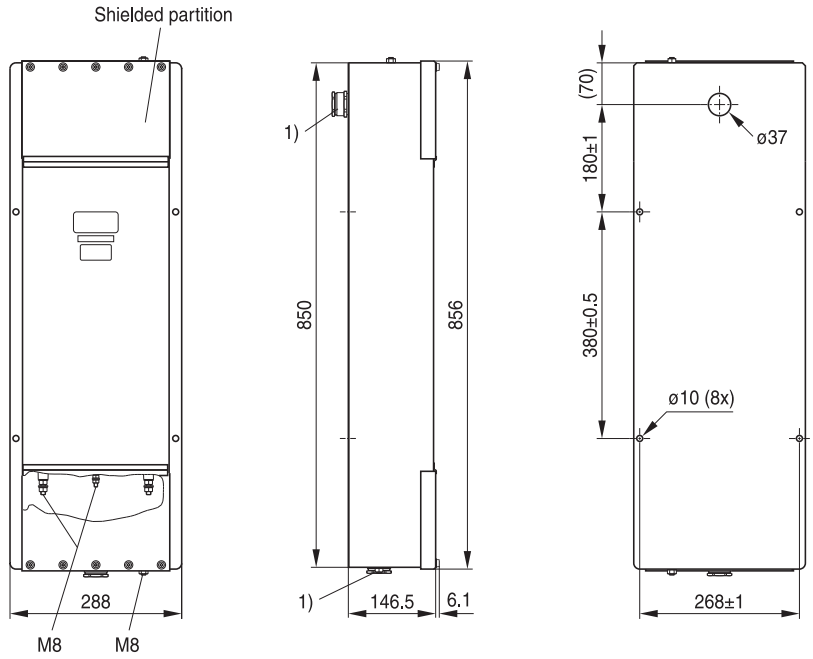


[1] Cable glands PG 29* with indented sealing ring, for cable diameters [mm]: 17 … 19 / 20 … 22 / 23 … 25 / 26 … 28

* Included in delivery

SSB2860-D-E

Drawing 2 - B84299D1630B001 (2x63A), B84299D1101B001 (2x100A)

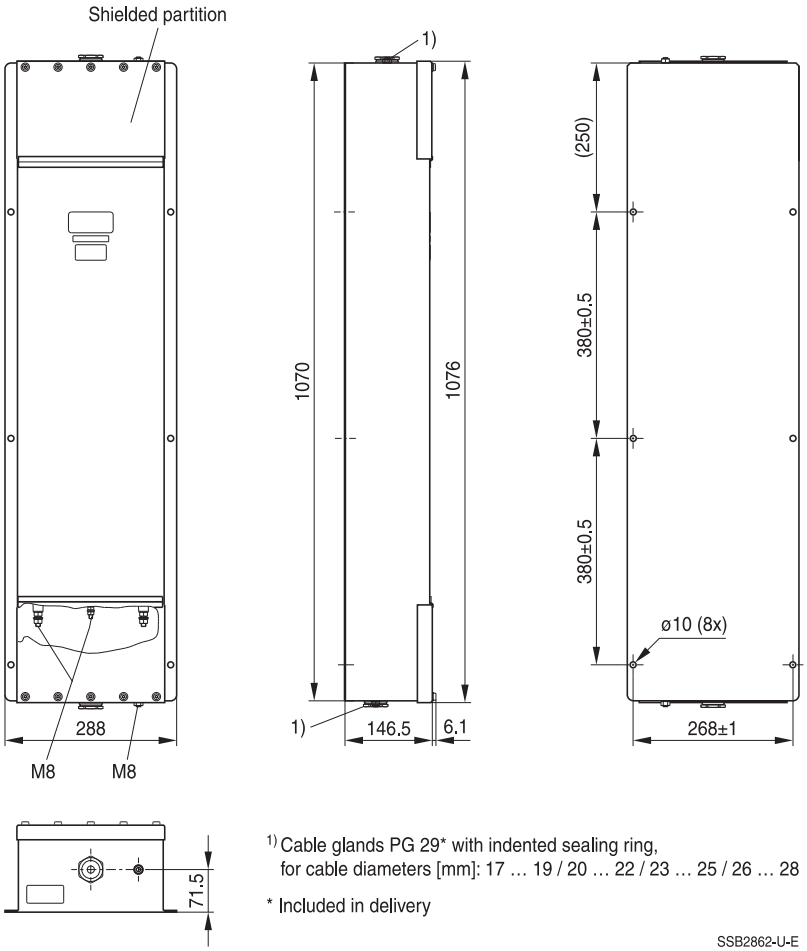


1) Cable glands PG 29* with indented sealing ring,
for cable diameters [mm]: 17 … 19 / 20 … 22 / 23 … 25 / 26 … 28

* Included in delivery

SSB2861-L-E

Drawing 3 - B84299C1630B003 (2x63A)



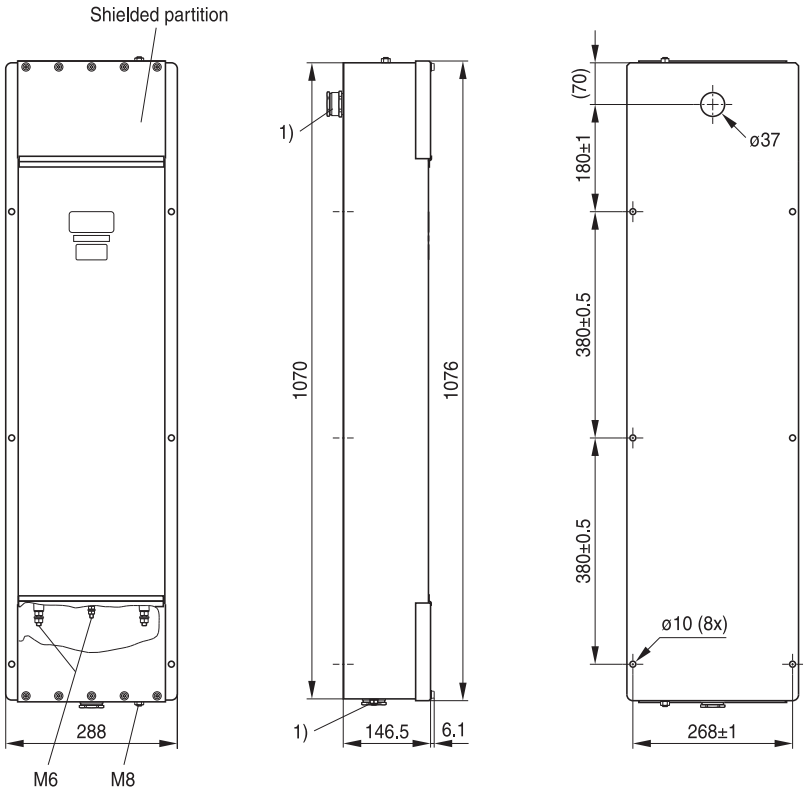
[1] Cable glands PG 29* with indented sealing ring, for cable diameters [mm]: 17 … 19 / 20 … 22 / 23 … 25 / 26 … 28

* Included in delivery

SSB2862-U-E

2017-02-02

Drawing 4 - B84299D1630B003 (2x63A)

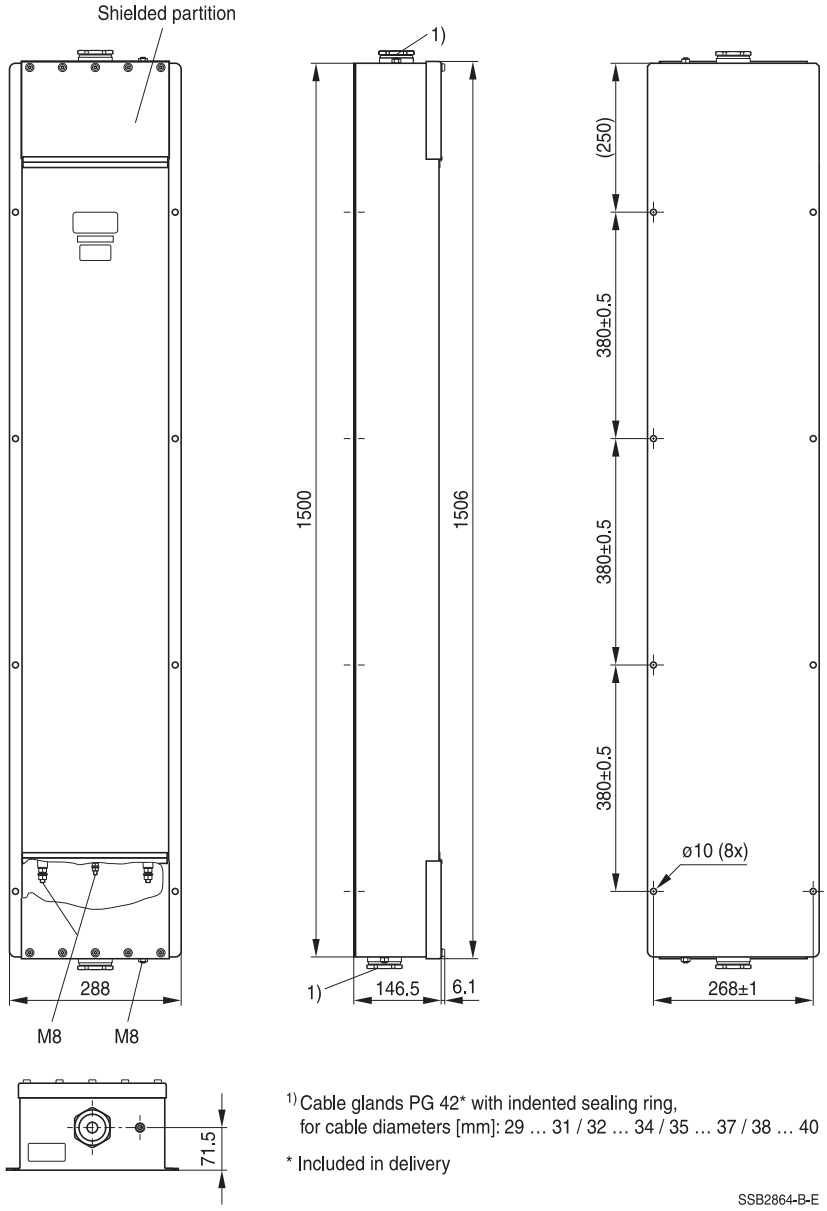


1) Cable glands PG 29* with indented sealing ring,
for cable diameters [mm]: 17 … 19 / 20 … 22 / 23 … 25 / 26 … 28

* Included in delivery

SSB2863-3-E

Drawing 5 - B84299C1101B003 (2x100A)

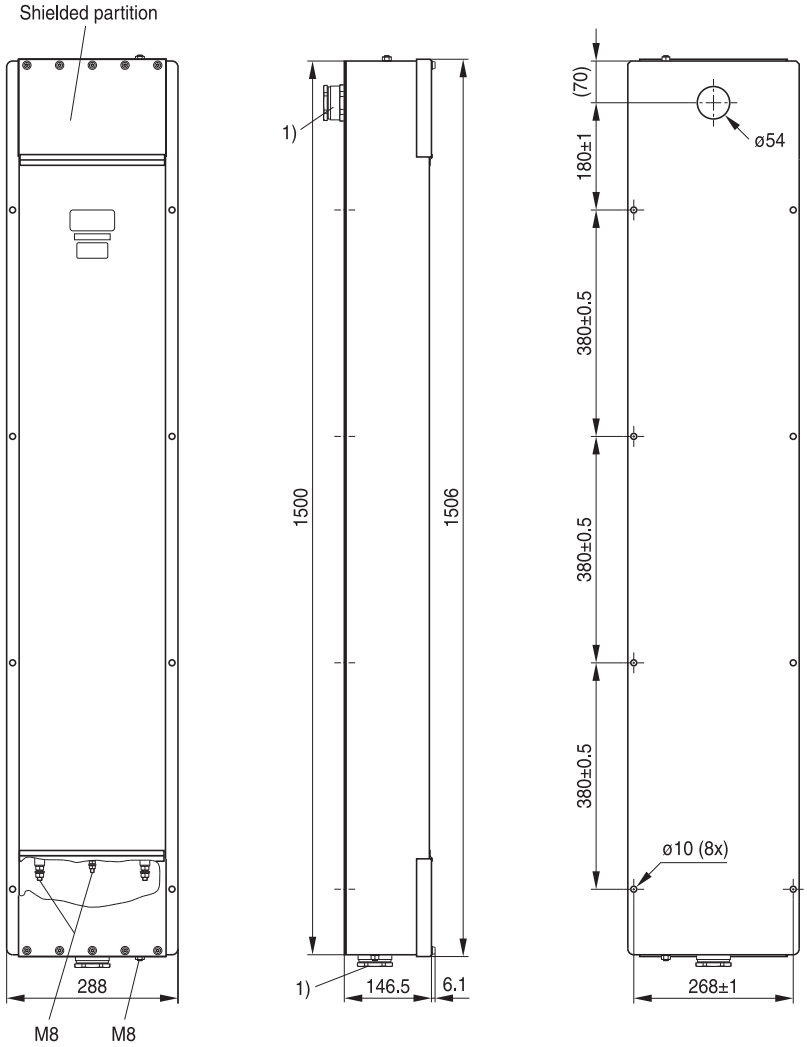


1) Cable glands PG 42* with indented sealing ring, for cable diameters [mm]: 29 … 31 / 32 … 34 / 35 … 37 / 38 … 40

* Included in delivery

SSB2864-B-E

Drawing 6 - B84299D1101B003 (2x100A)

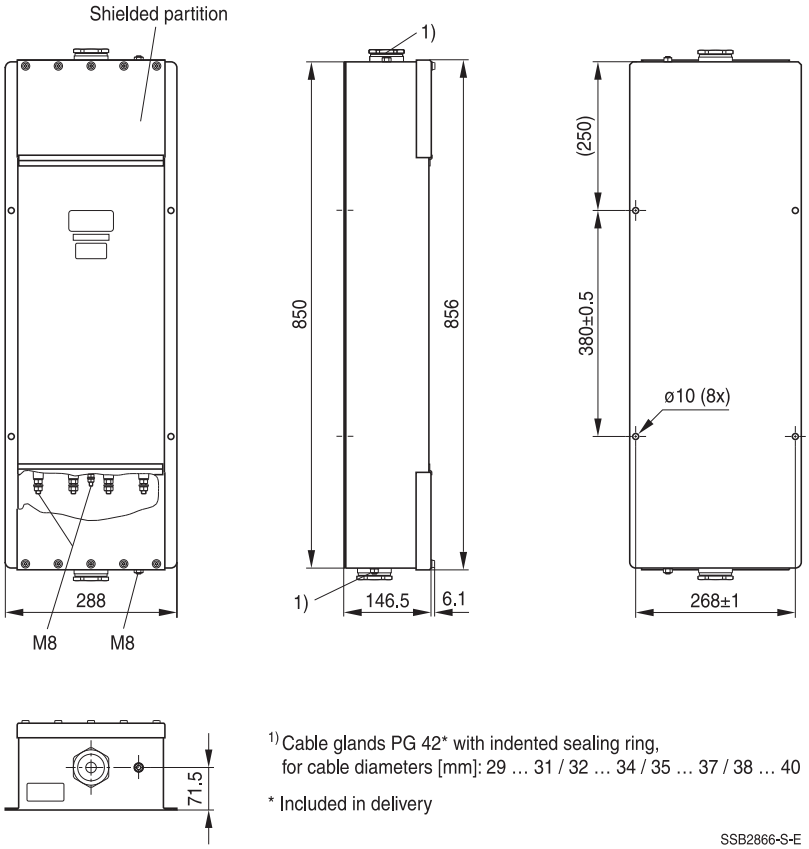


1) Cable glands PG 42* with indented sealing ring,
for cable diameters [mm]: 29 … 31 / 32 … 34 / 35 … 37 / 38 … 40

* Included in delivery

SSB2865-J-E

Drawing 7 - B84299C1630E001 (4x63A), B84299C1101E001 (4x100A)



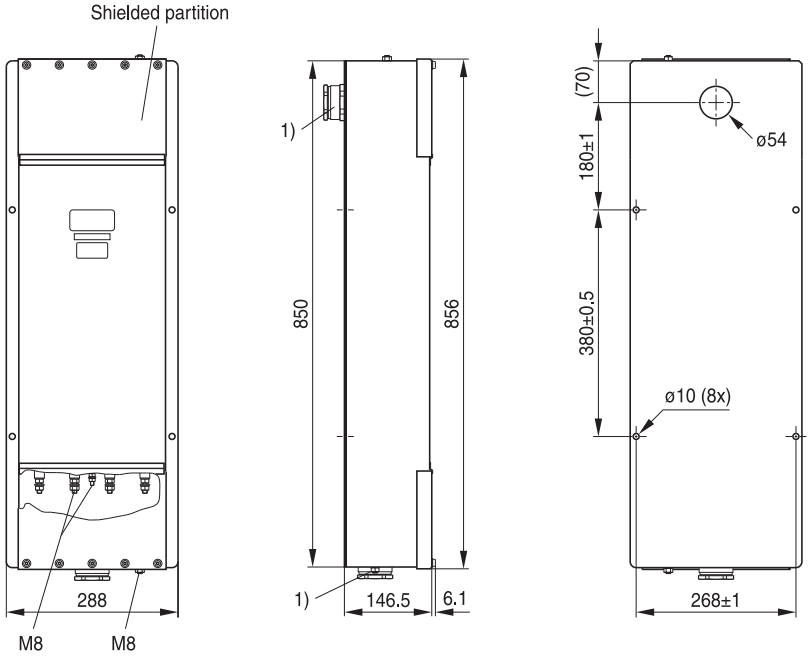
1) Cable glands PG 42* with indented sealing ring,
for cable diameters [mm]: 29 … 31 / 32 … 34 / 35 … 37 / 38 … 40

* Included in delivery

SSB2866-S-E

2017-02-02

Drawing 8 - B84299D1630E001 (4x63A), B84299D1101E001 (4x100A)

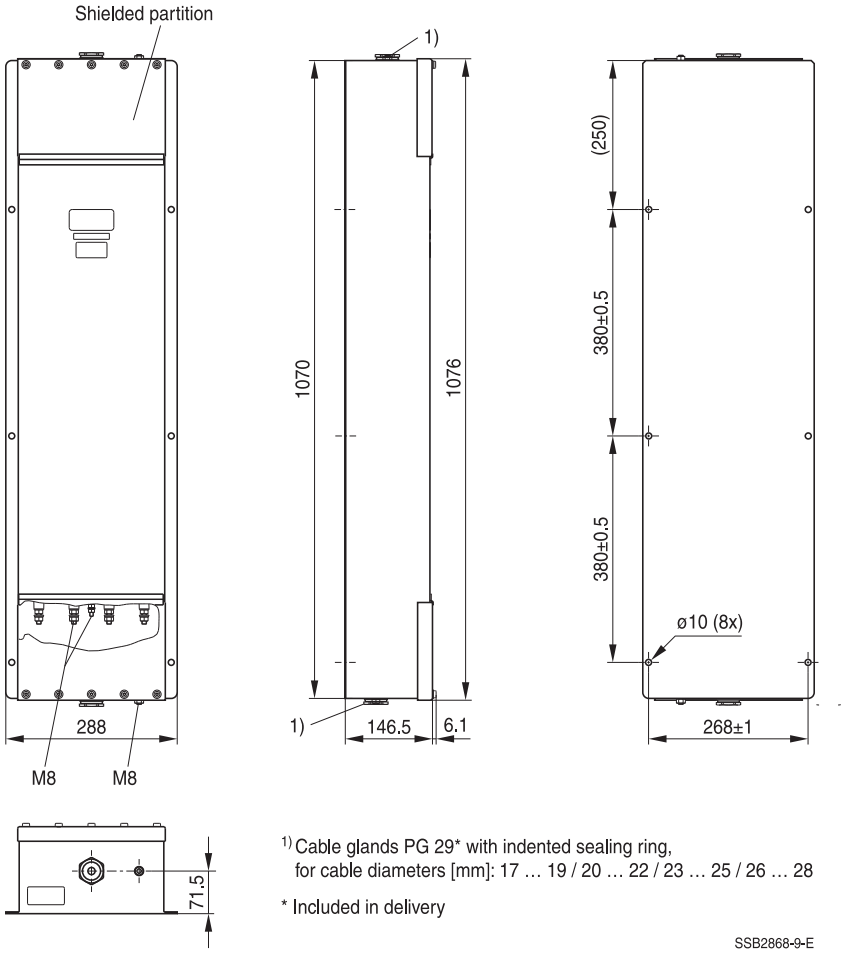


1) Cable glands PG 42* with indented sealing ring,
for cable diameters [mm]: 29 … 31 / 32 … 34 / 35 … 37 / 38 … 40

* Included in delivery

SSB2867-1-E

Drawing 9 - B84299C1630E003 (4x63A)



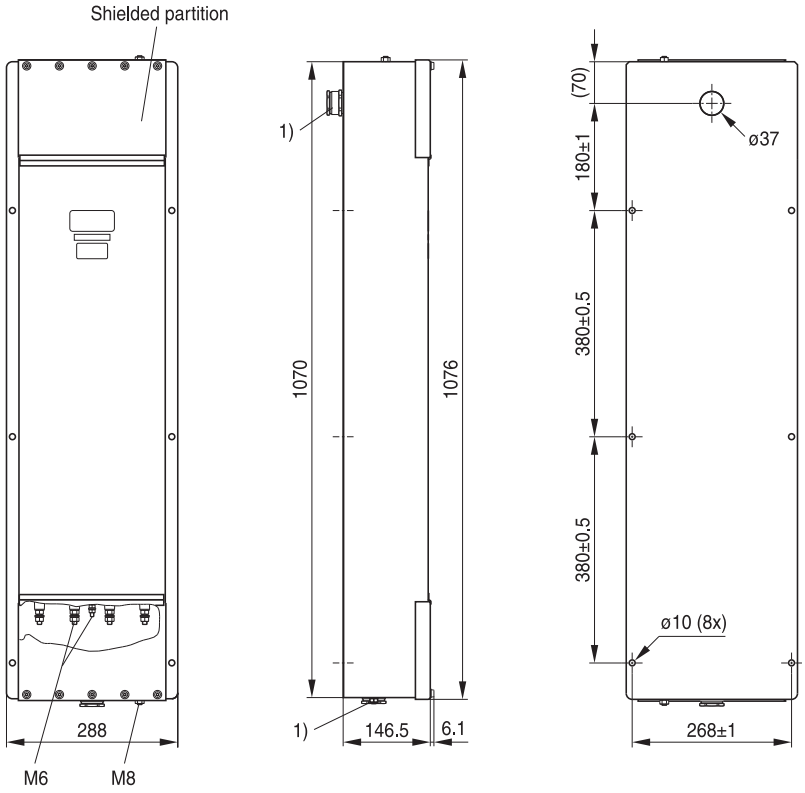
1) Cable glands PG 29* with indented sealing ring,
for cable diameters [mm]: 17 … 19 / 20 … 22 / 23 … 25 / 26 … 28

* Included in delivery

SSB2868-9-E

2017-02-02

Drawing 10 - B84299D1630E003 (4x63A)

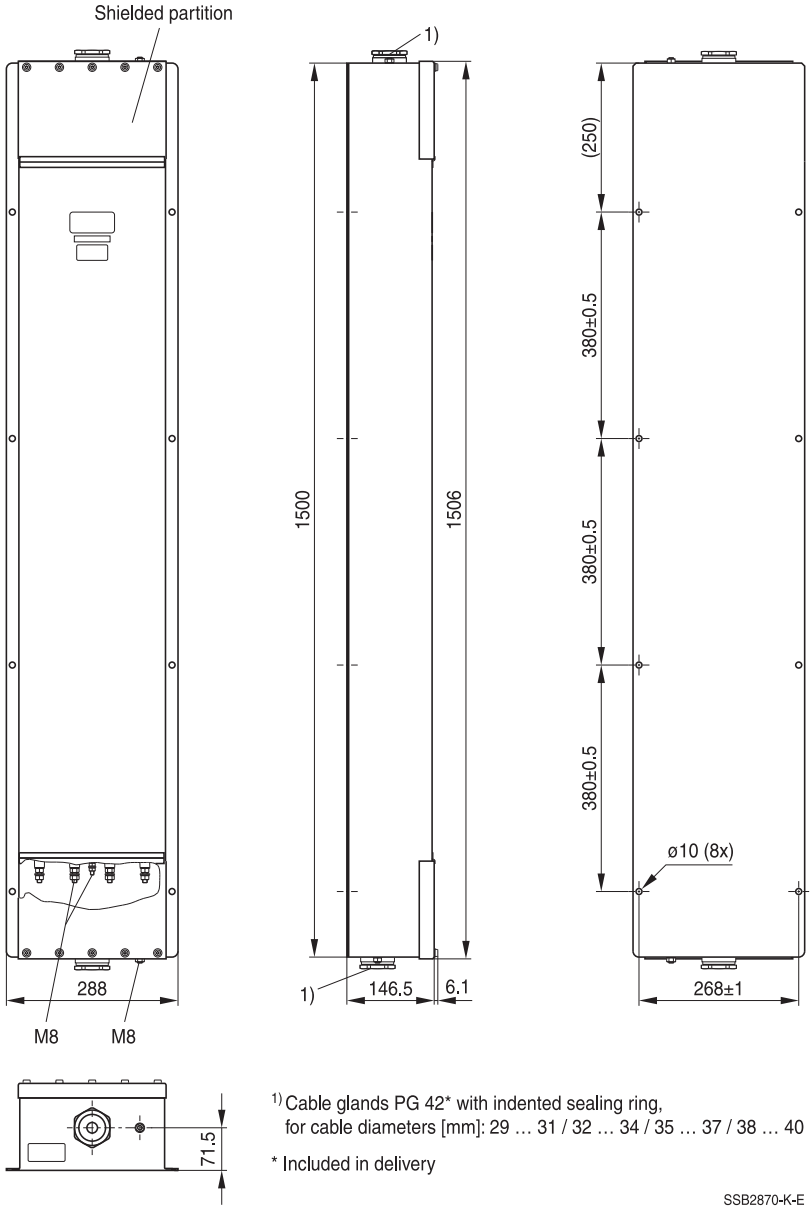


1) Cable glands PG 29* with indented sealing ring,
for cable diameters [mm]: 17 … 19 / 20 … 22 / 23 … 25 / 26 … 28

* Included in delivery

SSB2869-H-E

Drawing 11 - B84299C1101E003 (4x100A)

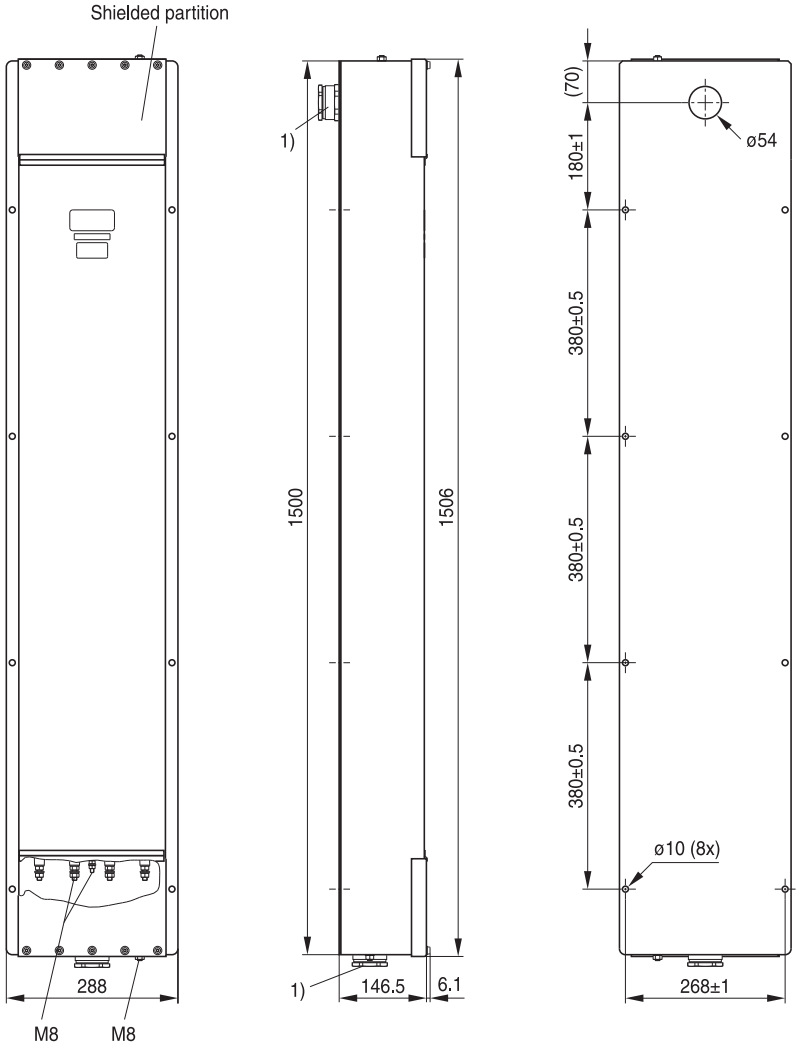


1) Cable glands PG 42* with indented sealing ring, for cable diameters [mm]: 29 … 31 / 32 … 34 / 35 … 37 / 38 … 40

* Included in delivery

SSB2870-K-E

Drawing 12 - B84299D1101E003 (4x100A)

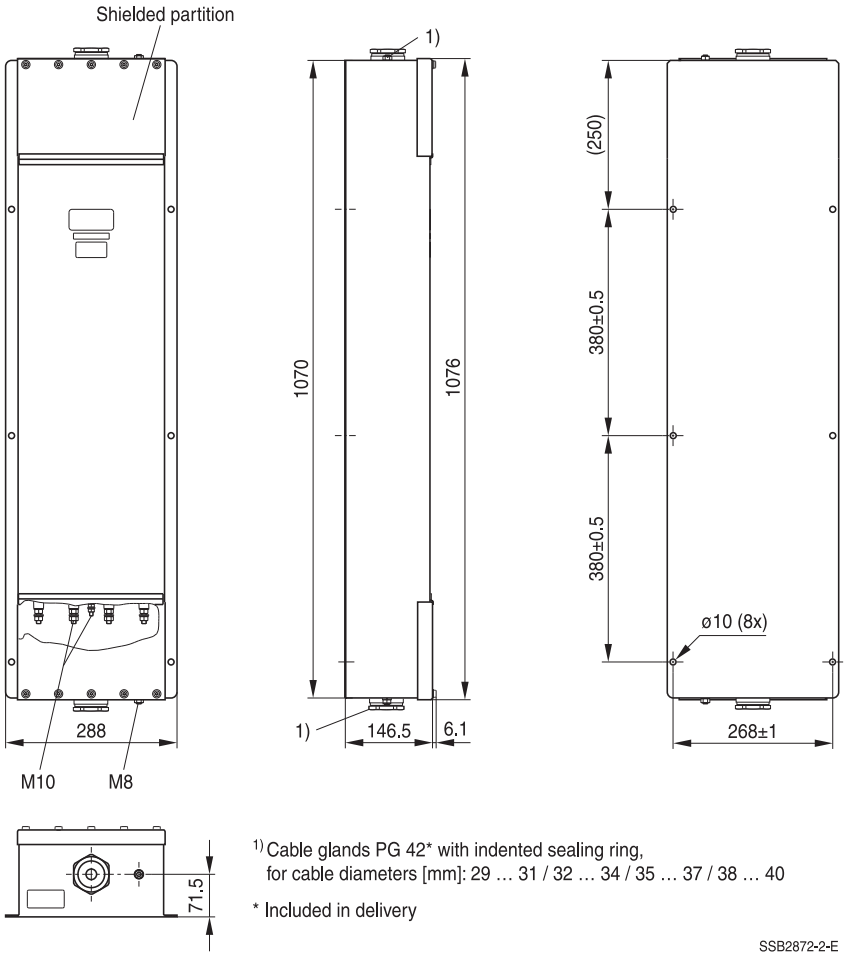


1) Cable glands PG 42* with indented sealing ring,
for cable diameters [mm]: 29 … 31 / 32 … 34 / 35 … 37 / 38 … 40

* Included in delivery

SSB2871-T-E

Drawing 13 - B84299C1151E001 (4x150A)

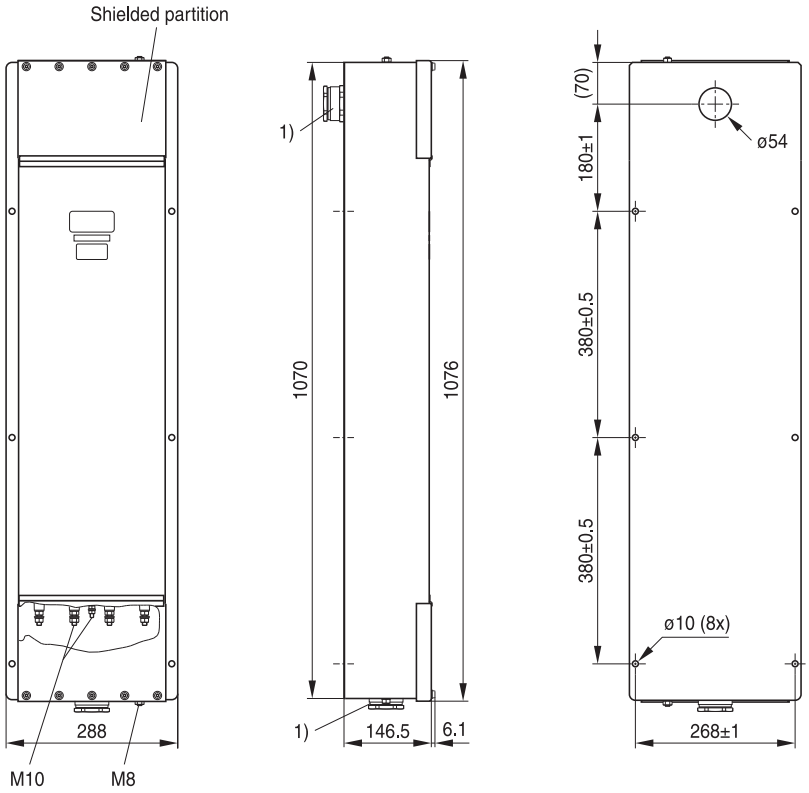


1) Cable glands PG 42* with indented sealing ring, for cable diameters [mm]: 29 … 31 / 32 … 34 / 35 … 37 / 38 … 40

* Included in delivery

SSB2872-2-E

Drawing 14 - B84299D1151E001 (4x150A)

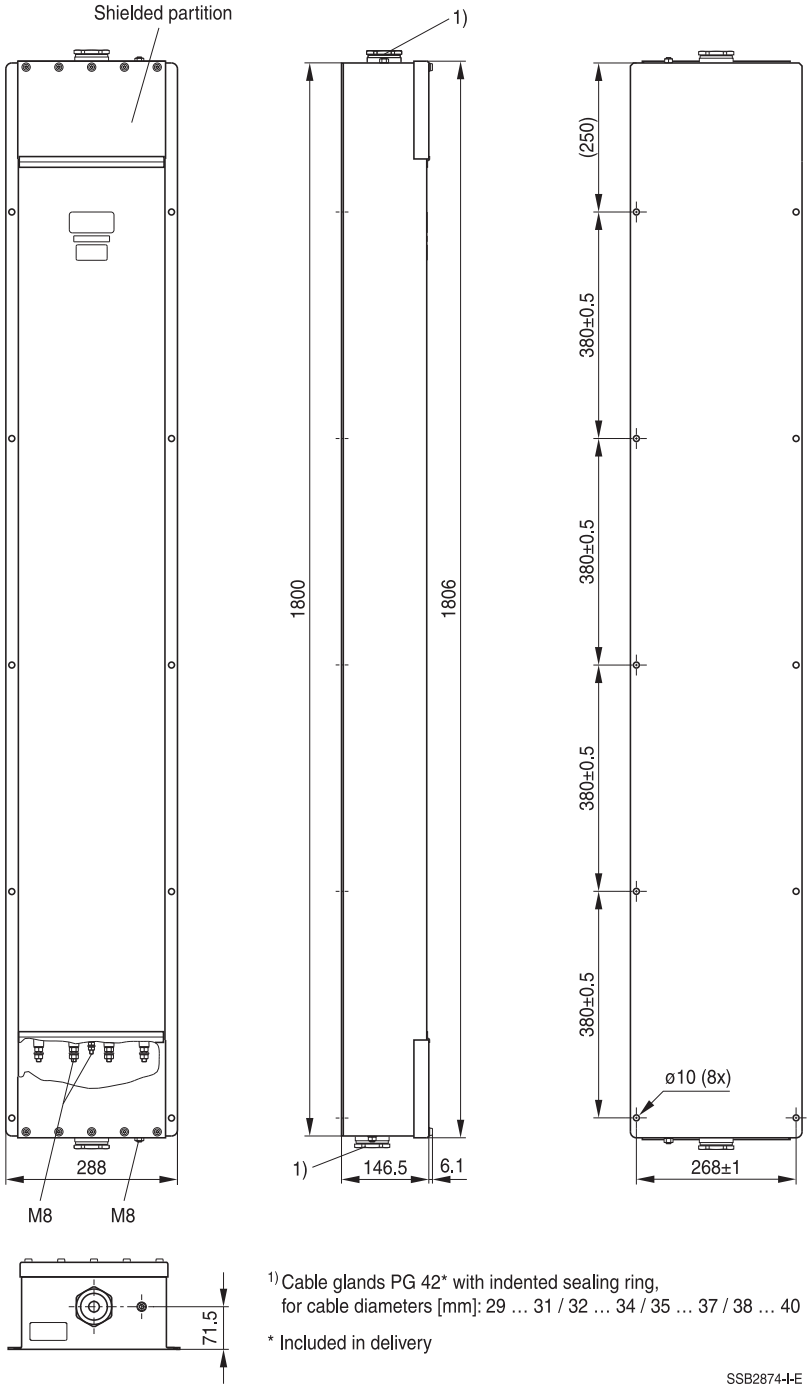


1) Cable glands PG 42* with indented sealing ring,
for cable diameters [mm]: 29 … 31 / 32 … 34 / 35 … 37 / 38 … 40

* Included in delivery

SSB2873-A-E

Drawing 15 - B84299C1151E003 (4x150A)



1) Cable glands PG 42* with indented sealing ring, for cable diameters [mm]: 29 … 31 / 32 … 34 / 35 … 37 / 38 … 40

* Included in delivery

SSB2874-I-E

2017-02-02