

Two- and four-line filters
16 to 150 A
Multi-stage
Stopband attenuation up to 40 GHz



Features

- General-purpose use through design with separate lines without intercoupling
- Use of single chokes
- Insertion loss to CISPR 17

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 space 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 (diameter min. 10 mm²) 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.

Installation

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

No welding is needed on the shielding wall, so any subsequent installation is quite simple. And the uniform template of the attachment points allows straightforward replacement of a two-line filter by a four-line filter for example.

Accessories and special versions

RF-tight flexible connector fittings in widths of 25 and 40 mm 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.

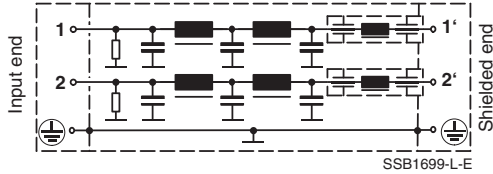
Tests

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.

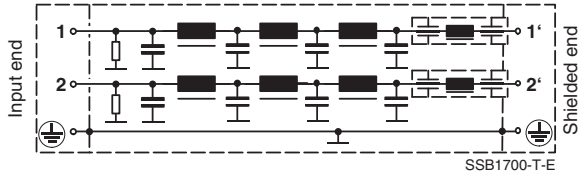
Circuit diagrams

Two-line filters B84299-+1*-B3**

Circuit diagram 1
(16 ... 63 A)

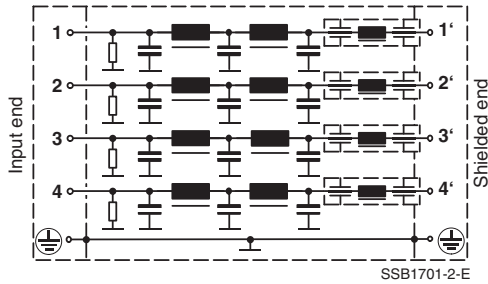


Circuit diagram 2
(100 A)

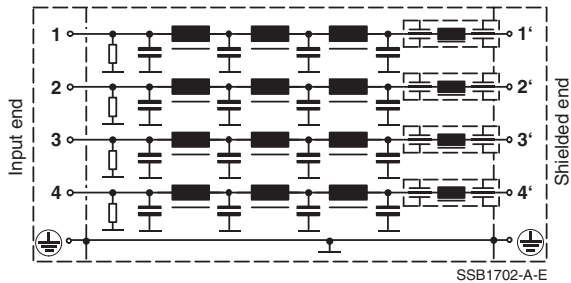


Four-line filters B84299-+1*-E3**

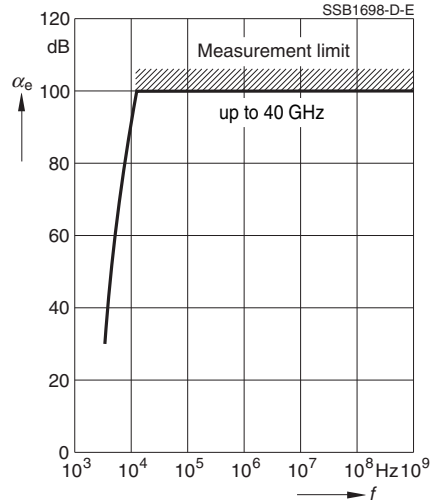
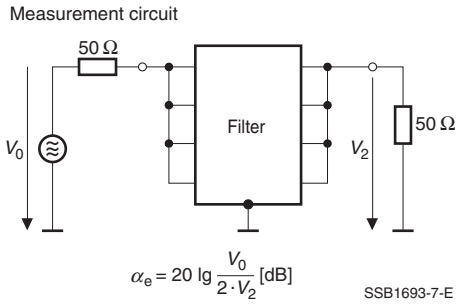
Circuit diagram 3
(16 ... 63 A)



Circuit diagram 4
(100 and 150 A)



Insertion loss α_e (typical values at $Z = 50 \Omega$)



General technical data

Rated voltage V_R for two-line filters	250 V	line/line line/case
Rated voltage V_R for four-line filters	440 V 250 V	line/line line/case
Rated current I_R	see characteristics (next page)	referred to + 40°C ambient temperature
Max. admissible overcurrent I_{over}	$75 \cdot I_R$ for 50 ms $10 \cdot I_R$ for 1 s $2 \cdot I_R$ for 1 min $1,4 \cdot I_R$ for 15 min	
Rated frequency f_R	50/60 Hz	
Test voltages V_T	1200 Vdc, 2 s 1200 Vdc, 2 s	line/line line/case
Voltage drop/phase ΔV	< 1 %	of V_R at 50 Hz and I_R
DC resistance R_{max}	see characteristics (next page)	per line
Power dissipation P_D	see characteristics (next page)	at I_R
Capacitive reactive current/line $I_{reactive}$	see characteristics (next page)	at 400/230V and 50 Hz (typical value)
Climatic category	25/085/56	(-25 °C/+85 °C/56 days damp heat test) to EN 60068-1
Mechanical version	C	cable glands at both ends or flexible connector fitting
	D	direct connection to shielding wall

Characteristics and ordering codes

I_R	Mechanical version	R_{max} mΩ	P_D W	$I_{reactive}$ A	Dim. drawing	Circuit diagram	Approx. weight kg	Ordering code
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Two-line filters

2 × 16	C	< 50	< 30	2,7	1	1	28	B84299-C1160-B3
2 × 16	D	< 50	< 30	2,7	2	1	28	B84299-D1160-B3
2 × 32	C	< 20	< 40	2,7	1	1	32	B84299-C1320-B3
2 × 32	D	< 20	< 40	2,7	2	1	32	B84299-D1320-B3
2 × 63	C	< 6	< 50	4,9	1	1	36	B84299-C1630-B3
2 × 63	D	< 6	< 50	4,9	2	1	36	B84299-D1630-B3
2 × 100	C	< 3,5	< 70	6,5	3	2	60	B84299-C1101-B3
2 × 100	D	< 3,5	< 70	6,5	4	2	60	B84299-D1101-B3

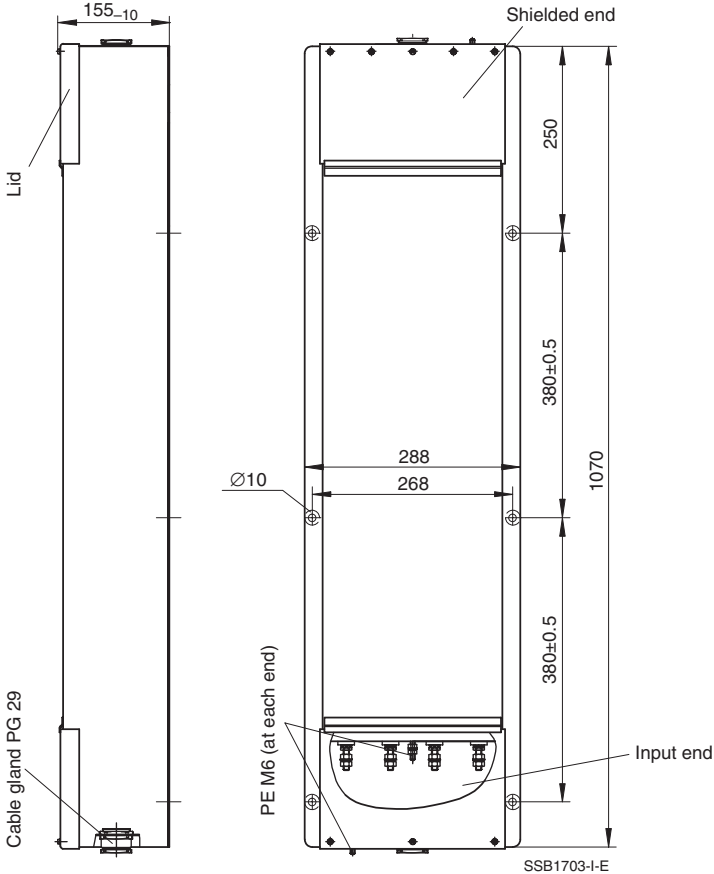
Four-line filters

4 × 16	C	< 50	< 40	2,7	1	3	30	B84299-C1160-E3
4 × 16	D	< 50	< 40	2,7	2	3	30	B84299-D1160-E3
4 × 32	C	< 20	< 60	2,7	1	3	35	B84299-C1320-E3
4 × 32	D	< 20	< 60	2,7	2	3	35	B84299-D1320-E3
4 × 63	C	< 6	< 70	4,9	1	3	40	B84299-C1630-E3
4 × 63	D	< 6	< 70	4,9	2	3	40	B84299-D1630-E3
4 × 100	C	< 3,5	< 100	6,5	3	4	60	B84299-C1101-E3
4 × 100	D	< 3,5	< 100	6,5	4	4	60	B84299-D1101-E3
4 × 150	C	< 2	< 140	6,5	5	4	95	B84299-C1151-E3
4 × 150	D	< 2	< 140	6,5	6	4	95	B84299-D1151-E3

Dimensional drawing 1

16-, 32- and 63-A filters

Mechanical version C (cable glands at both ends)



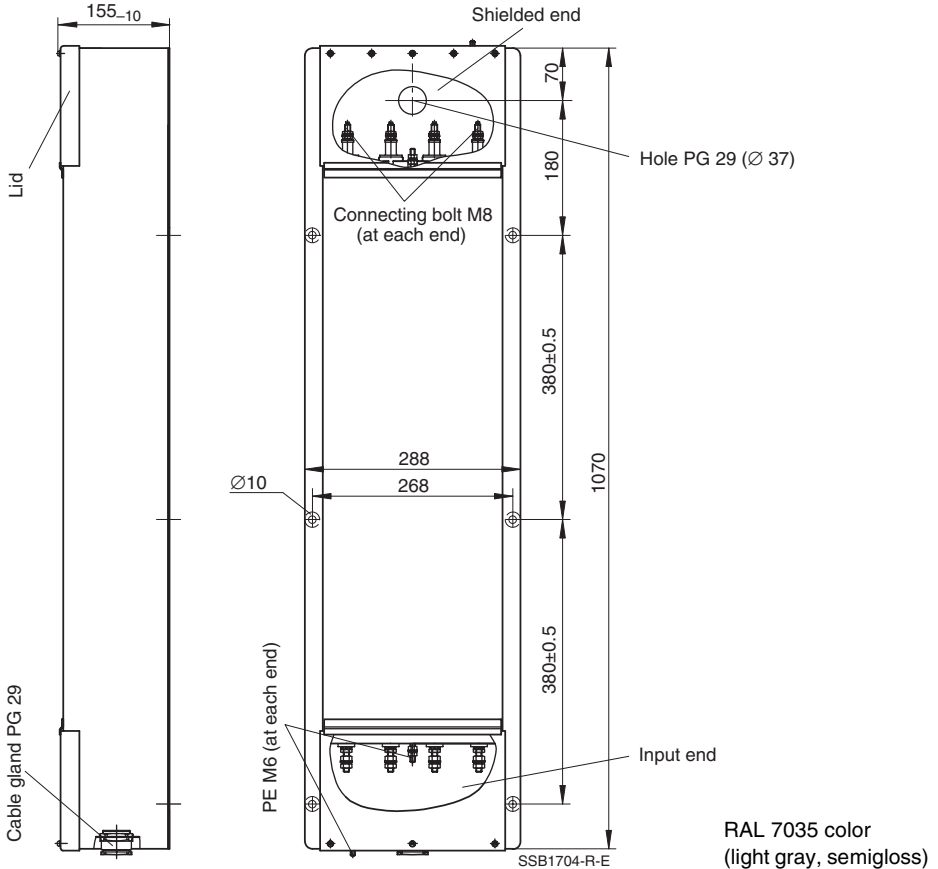
I/R A	Fittings	Suitable for cable outer diameter	Package	Suitable for cable outer diameter
16 32	Cable gland PG 29 with cutout sealing ring	17 to 19 mm 20 to 22 mm 23 to 25 mm 26 to 28 mm	Cable gland PG 21 and reducer rings	9 to 11 mm 12 to 14 mm 15 to 17 mm 18 to 20 mm
63			-	-

RF-tight connection to shielding wall, see page 33.

Dimensional drawing 2

16-, 32- and 63-A filters

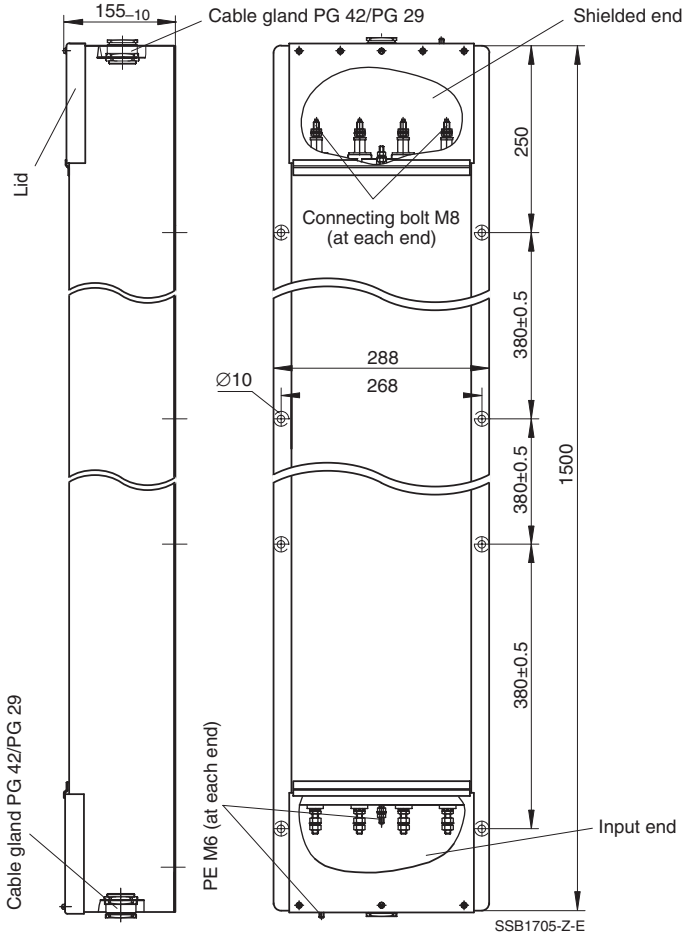
Mechanical version D (direct connection to shielding wall)



I_R A	Fittings	Suitable for cable outer diameter	Package	Suitable for cable outer diameter
16	Cable gland PG 29 with cutout sealing ring	17 to 19 mm	Cable gland PG 21 and reducer rings	9 to 11 mm
32		20 to 22 mm		12 to 14 mm
		23 to 25 mm		15 to 17 mm
		26 to 28 mm		18 to 20 mm
63			—	—

RF-tight connection to shielding wall, see page 33.

Dimensional drawing 3 – 100-A filters
Mechanical version C (cable glands at both ends)

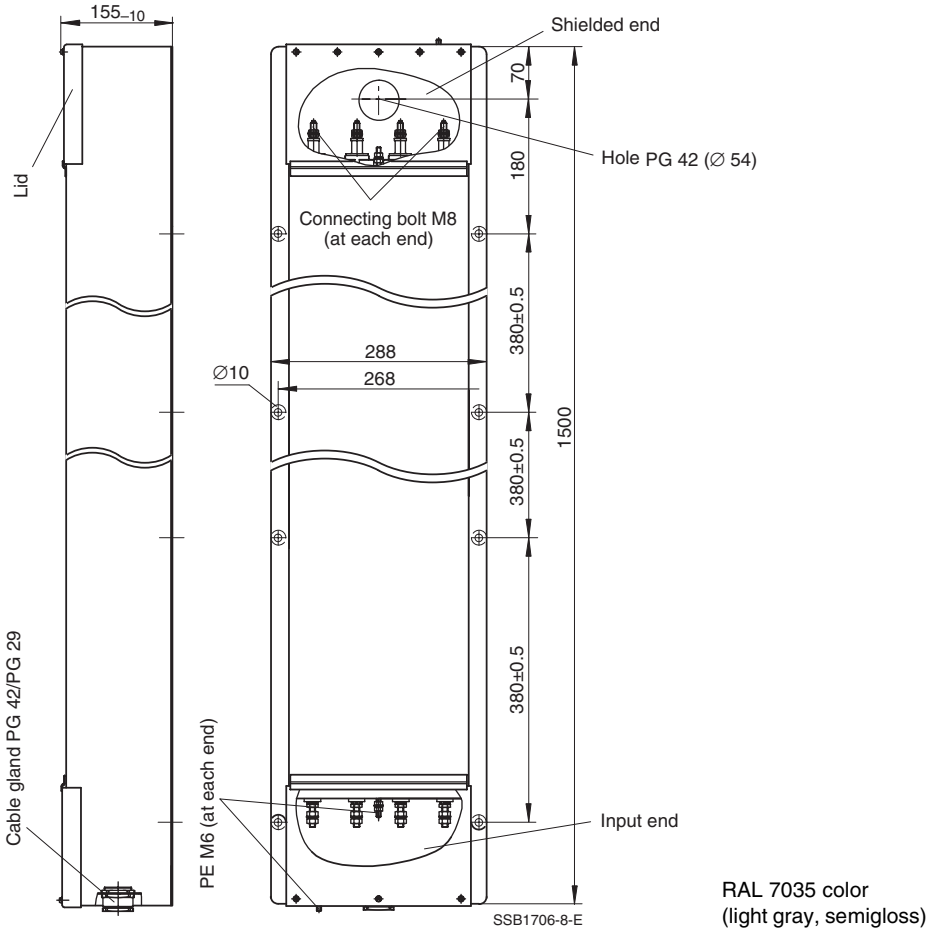


RAL 7035 color
(light gray, semigloss)

I _R A	Fittings	Suitable for cable outer diameter	Package	Suitable for cable outer diameter
100	Cable gland PG 42 with cutout sealing ring	29 to 31 mm 32 to 34 mm 35 to 37 mm 38 to 40 mm	Cable gland PG 29 with cutout sealing ring	17 to 19 mm 20 to 22 mm 23 to 25 mm 26 to 28 mm

RF-tight connection to shielding wall, see page 33.

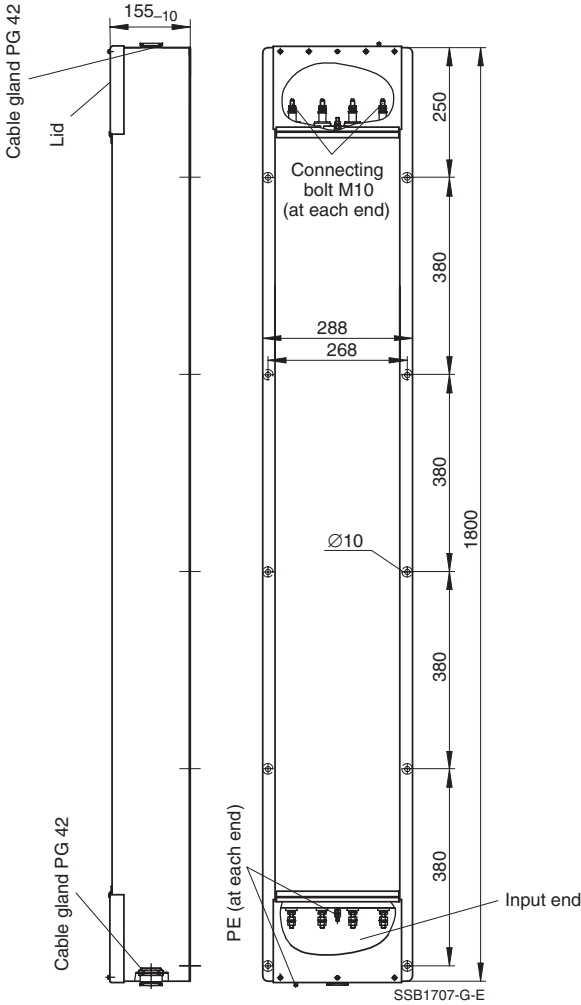
Dimensional drawing 4 – 100-A filters
 Mechanical version D (direct connection to shielding wall)



/R A	Fittings	Suitable for cable outer diameter	Package	Suitable for cable outer diameter
100	Cable gland PG 42 with cutout sealing ring	29 to 31 mm 32 to 34 mm 35 to 37 mm 38 to 40 mm	Cable gland PG 29 with cutout sealing ring	17 to 19 mm 20 to 22 mm 23 to 25 mm 26 to 28 mm

RF-tight connection to shielding wall, see page 33.

Dimensional drawing 5 – 150-A filters
 Mechanical version C (cable glands at both ends)



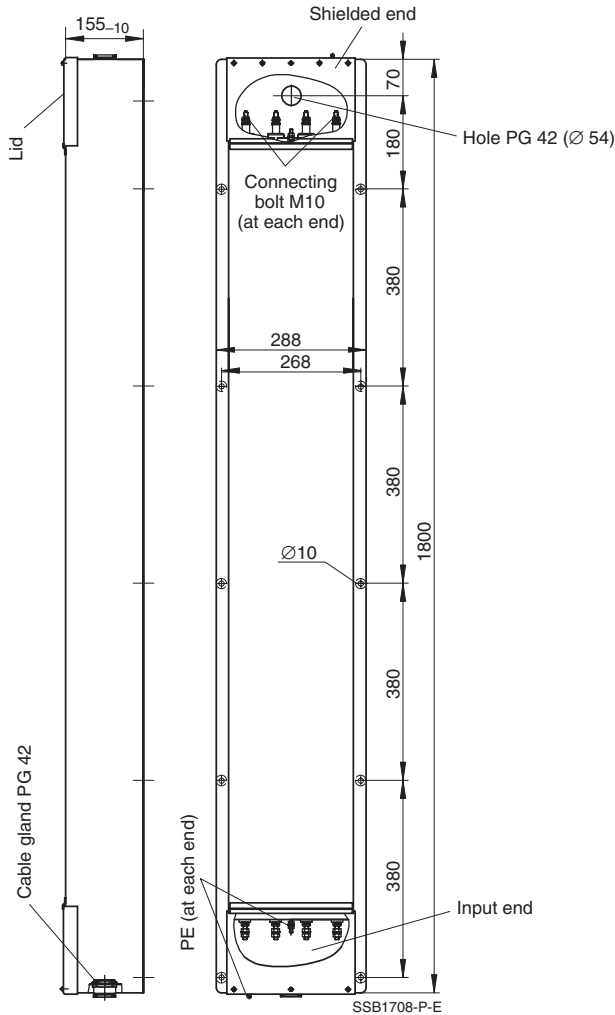
RAL 7035 color
 (light gray, semigloss)

/R	Fittings	Suitable for cable outer diameter		Package
150 A	Cable gland PG 42 with cutout sealing ring	29 to 31 mm 32 to 34 mm	35 to 37 mm 38 to 40 mm	—

RF-tight connection to shielding wall, see page 33.

Dimensional drawing 6 – 150-A filters

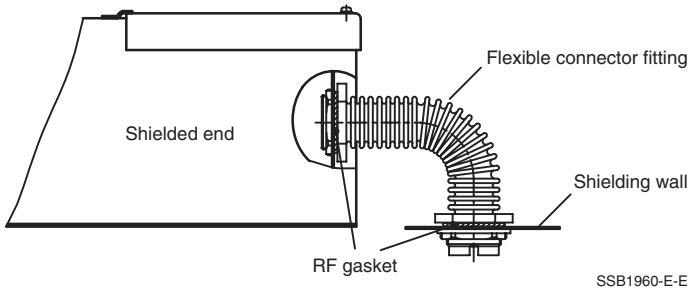
Mechanical version D (direct connection to shielding wall)


 RAL 7035 color
 (light gray, semigloss)

I _R	Fittings	Suitable for cable outer diameter		Package
150 A	Cable gland PG 42 with cutout sealing ring	29 to 31 mm 32 to 34 mm	35 to 37 mm 38 to 40 mm	—

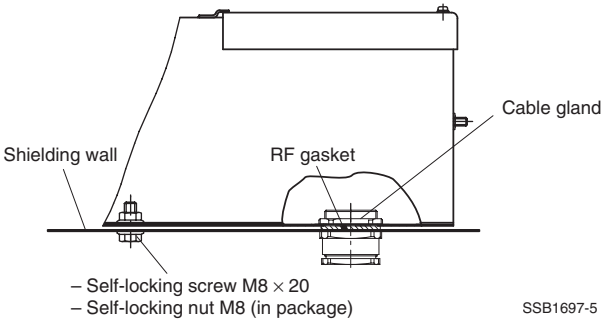
RF-tight connection to shielding wall, see page 33.

RF-tight connection to shielding wall with flexible connector fitting (mechanical version C)



I _R A	Flexible connector fitting (must be ordered separately)	Ordering code ¹⁾
16 ... 63	Width 25 mm	B84298-A42-L**
100, 150	Width 40 mm	B84298-A44-L**

RF-tight connection to shielding wall (mechanical version D)



I _R A	Cable gland	Hole in shielding wall	Bare metal area on shielding wall	Package
16 ... 63	PG 29 with long thread and RF gasket	∅ 37 + 0,5 mm	∅ 55 +5 mm	Check nut
100, 150	PG 42 with long thread and RF gasket	∅ 54 + 0,5 mm	∅ 70 +5 mm	

1) ** add required length in cm (see also page 107 ff)

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