

## Filters for Power Lines

Filter Cabinets  
(300 to 1600 A)

**Series/Type:**      **B84299G**

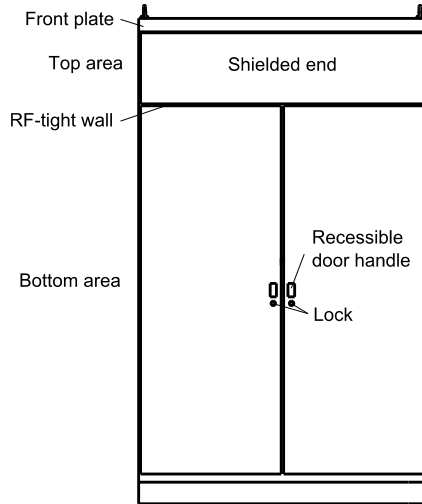
Date: January 2004

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**Filter cabinets (300 to 1600 A)**
**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
- Cable connection in filter eliminating extra mechanical effort
- Insertion loss to CISPR 17
- Stopband attenuation to 40 GHz



SGR0183-S-E

**Design**

The filter cabinet consists of 2 areas.

The bottom area holds the low-frequency filter circuitry consisting of capacitors and chokes.

The top area is RF-tight. This is where the cables leading to the shielded room are connected.

The 2 areas of the cabinet are joined by an RF-tight wall, integrated into which there are coaxial feed-through capacitors. The wall is of high-grade Cr-Ni steel material, ensuring constant and non-corroding contact with the feed-through capacitors even in an unfavorable environment.

**Access and connection**

The bottom area is accessible through two doors, each fitted with a recessible handle and lock. The top area has a specially designed lid with a dual seal that is bolted RF-tight to the cabinet.

In each area there are copper terminal rails for cable connection. Modified cable inlets and outlets are available on inquiry.

**Electrical design**

Filtering is separate for each line. This maintains the specified attenuation even in the presence of leakage current and on full load.

### Capacitor configuration

The capacitors are able to handle peak current far in excess of the rms current. In this way they can discharge high-energy transients without suffering damage.

The capacitors are self-healing and come with integrated overpressure disconnection. Consequently a capacitor will not burst under inadmissible overload or at the end of its service life.

### RF-tight cable routing from top cabinet area to shielding wall

RF-tight cable routing uses flexible connector fittings with an inner diameter of 80 mm. The connector fittings must be ordered separately.

There are matching openings for the connector fittings on the rear of the cabinet. Unused openings can be sealed with special cover flange plates.

Refer to the chapter on installation accessories for connector fittings and cover flange plates.

### Installation

On the front and rear of its base, the filter cabinet has a plate that can be unscrewed. After removing these plates, a cabinet can be simply moved with a forklift truck for example. There is a ring at each corner on the top for use of a crane.

For enhanced protection against shock, there are openings in the bottom so that the cabinet can be bolted to the floor.

### Protective measures (grounding)

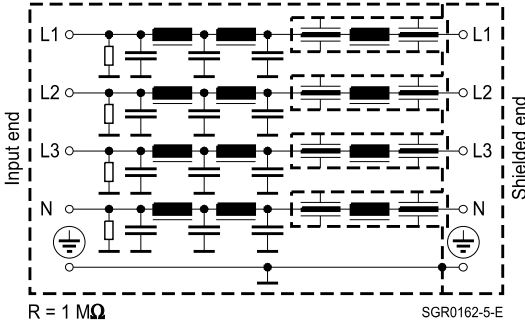
The high capacitances between the lines and ground require special protective measures. If there are no product-specific requirements, protection with a secondary ground wire (cross section min. 10 mm<sup>2</sup>) in accordance with EN 50178 is necessary. For this purpose the filter case have connecting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

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

### EMP protection

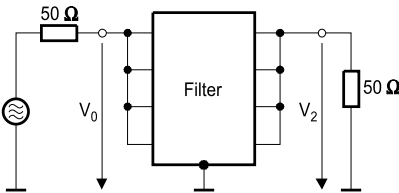
For overvoltage protection, the cabinet can be fitted with block varistors (model SIOV B80K...). The advantage of varistors is the absence of follow-up current once the overvoltage has decayed. These block varistors are also notable for their high discharge capacity (max. 100000 A for an 8/20  $\mu$ s curve per line).

Circuit diagramm



Insertion loss  $\alpha_e$  (typical values at Z = 50 Ω)

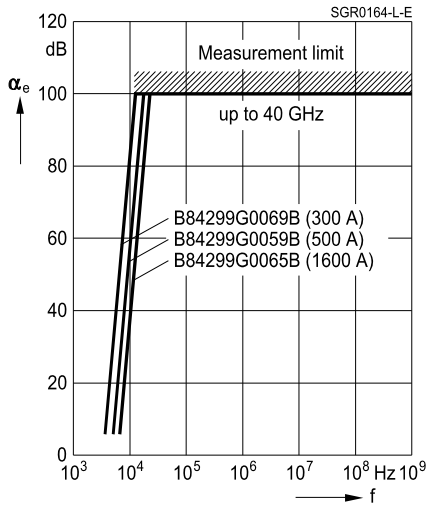
Measurement circuit



$$\alpha_e = 20 \lg \frac{V_0}{2 \cdot V_2} \text{ [dB]}$$

SGR0163-D-E

Asymmetrical measurement circuit to MIL-STD-220A



**Filters for power lines**
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**Filter cabinets (300 to 1600 A)**
**General technical data**

Rated voltage	$V_R$	440	V	Line/line
		250	V	Line/case
Number of lines		4		
Rated frequency	$f_R$	50/60	Hz	
Rated current	$I_R$	See characteristics		Referred to +40 °C ambient temperature
Maximum admissible overcurrent	$I_{over}$	75 · $I_R$ for 50 ms 10 · $I_R$ for 1 s 2 · $I_R$ for 1 min 1.4 · $I_R$ for 15 min		
Test voltage	$V_{test}$	1200 VDC, 2 s		Line/line
		1200 VDC, 2 s		Line/case
Voltage drop/phase	$\Delta V$	<1	%	Of $V_R$ at 50 Hz and $I_R$
Maximum DC resistance	$R_{max}$	See characteristics		Per line
Permissible ambient temperature	$T_A$	-25/+40	°C	
Climatic category (EN 60068-1)		25/085/56		-25 °C/+85 °C/56 days damp heat test

**Characteristics and ordering codes**

$I_R$ A	$R_{max}$ mΩ	Dimensional drawing	Approx. weight kg	Ordering code <sup>1)</sup>
300	< 1	1	400	B84299G0069B...
500	< 0.5	1	450	B84299G0059B...
1600	< 0.03	2	800	B84299G0065B...

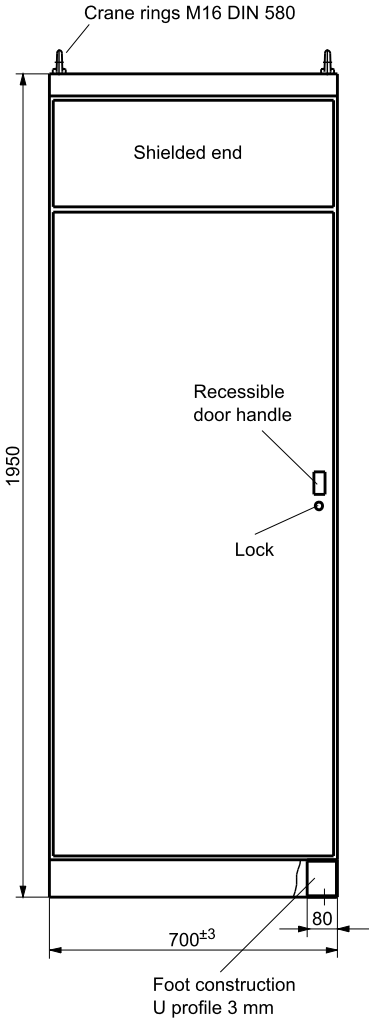
1) ... = Ordering code will be completed by the producer.

Dimensional drawings

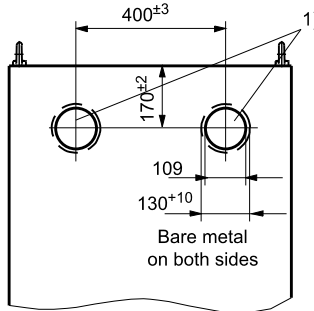
Dimensional drawing 1

4 x 300 A / 4 x 500 A

Top view

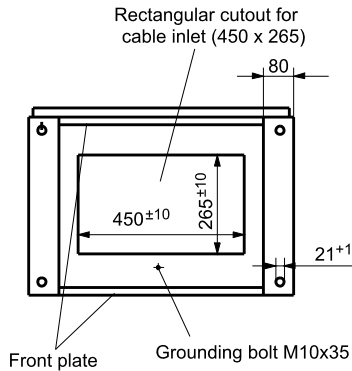


Rear view



1) Connecting to shielding wall  
by flexible connector fittings  
(must be ordered separately)

Bottom view

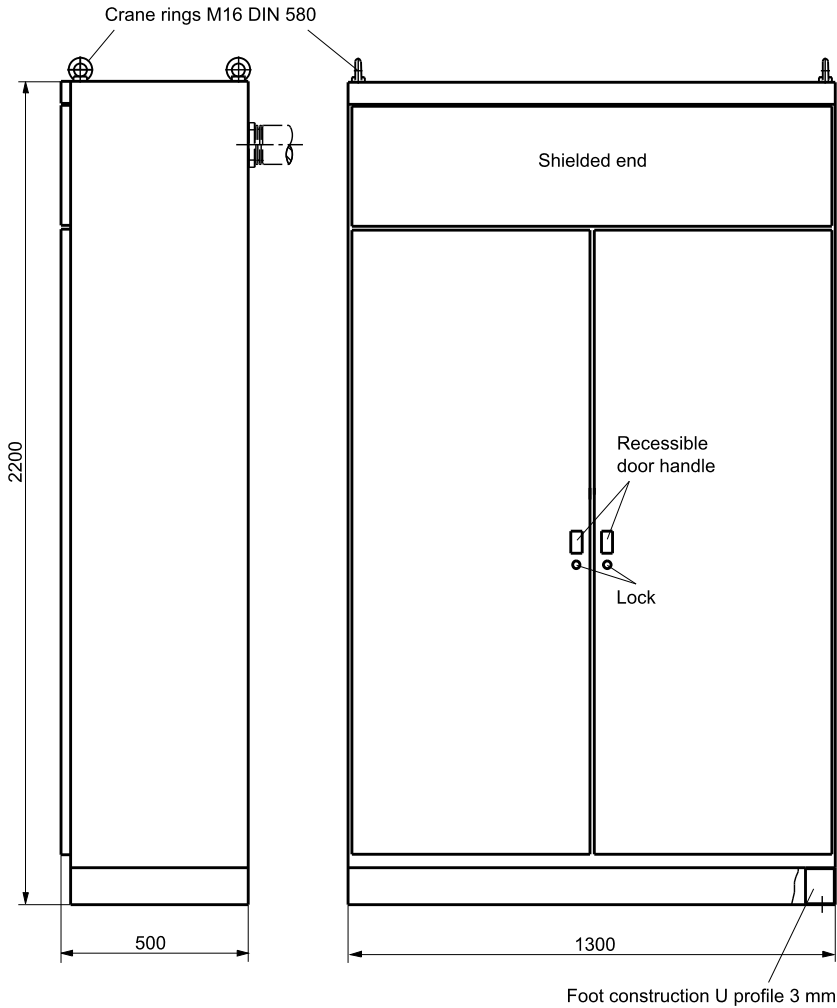


SGR0327-U-E

Paint color: RAL 7035 (light gray, semigloss)

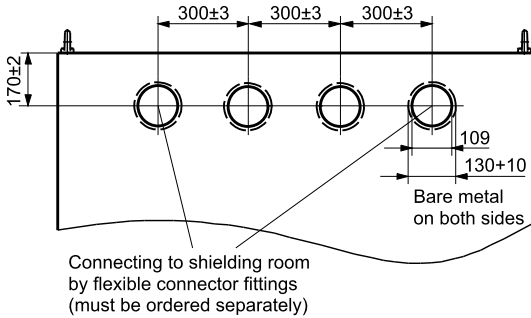
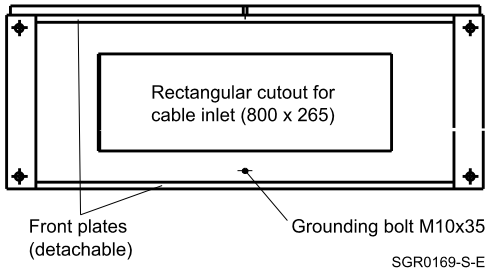
**Dimensional drawing 2**

**4 x 1600 A**



SGR0168-J-E

Paint color: RAL 7035 (light gray, semigloss)

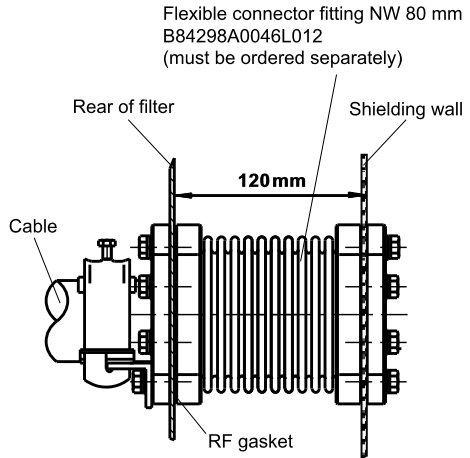
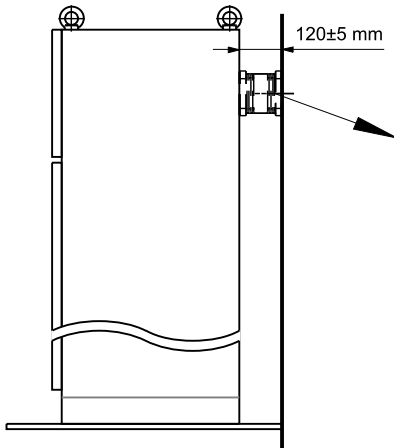
**Dimensional drawing 2 (continued)**
**Rear view**

**Bottom view**


Inquire for modified cable inlets and outlets.

Must be ordered separately:	Ordering code
Connector fitting (inner diameter = 80 mm)	B84298A0046L***
Cover flange for RF-tight sealing of unused connector openings	B84298M0080C001



**Example of RF-tight installation with connector fitting**



SGR0170-V-E