Datasheet

3-line LCL-filters

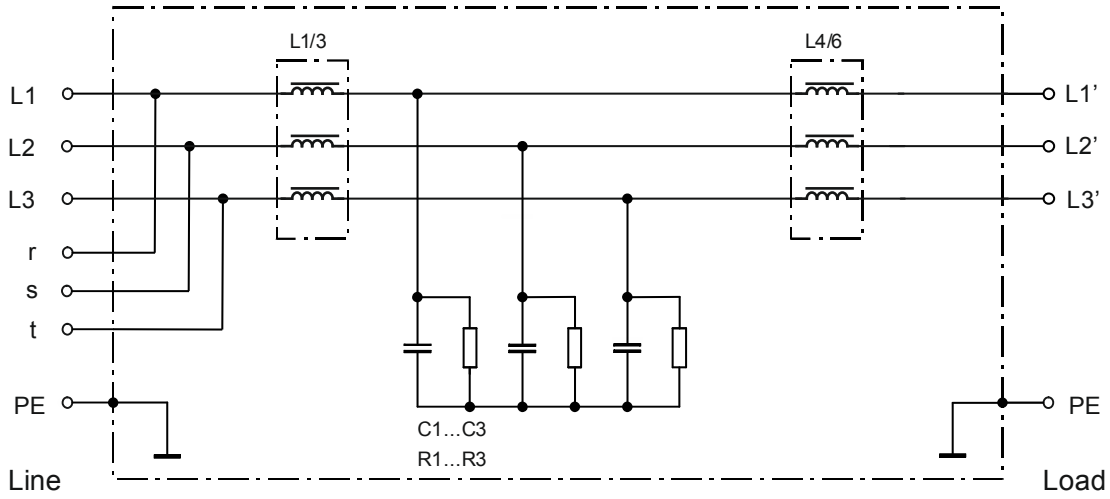
for converters and power electronics

305/530 V, 50/60 Hz, 8…1140 A, 50 °C

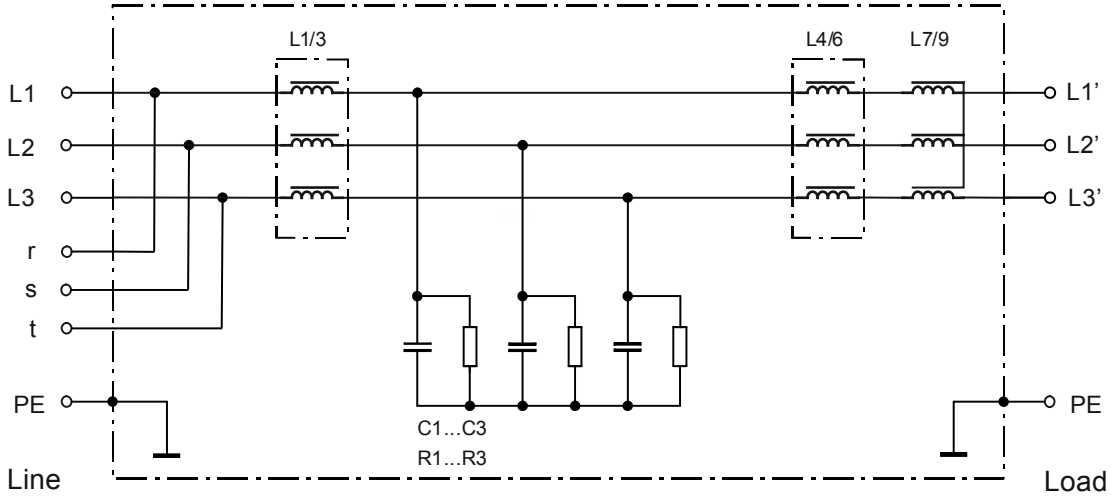
Ordering code:	**B84143G/Q*R/S176**
Date:	**2015-12-15**
Version:	07

Typical circuit diagram

B84143G0008R176, B84143G0016R176, B84143G0030R176



B84143G0043R176, B84143G0058R176



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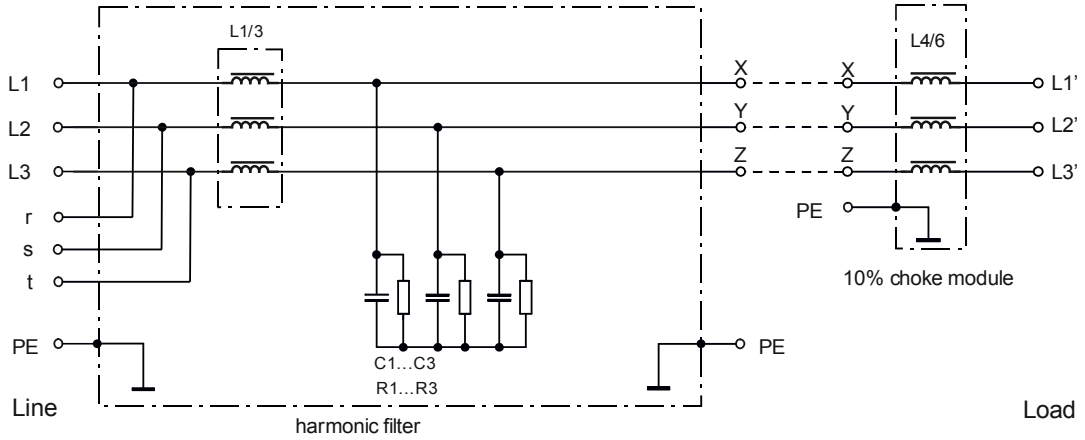

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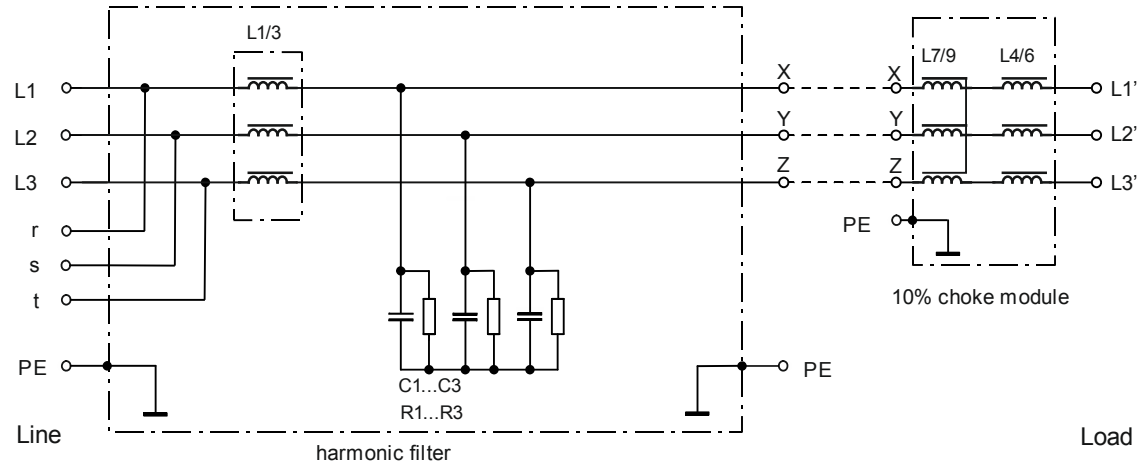
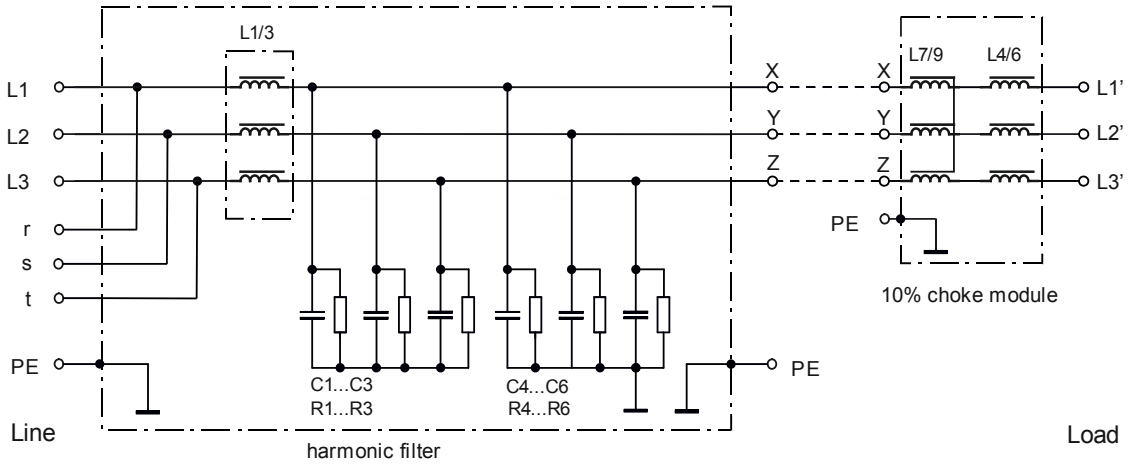


B84143G0210S176, B84143G0300S176



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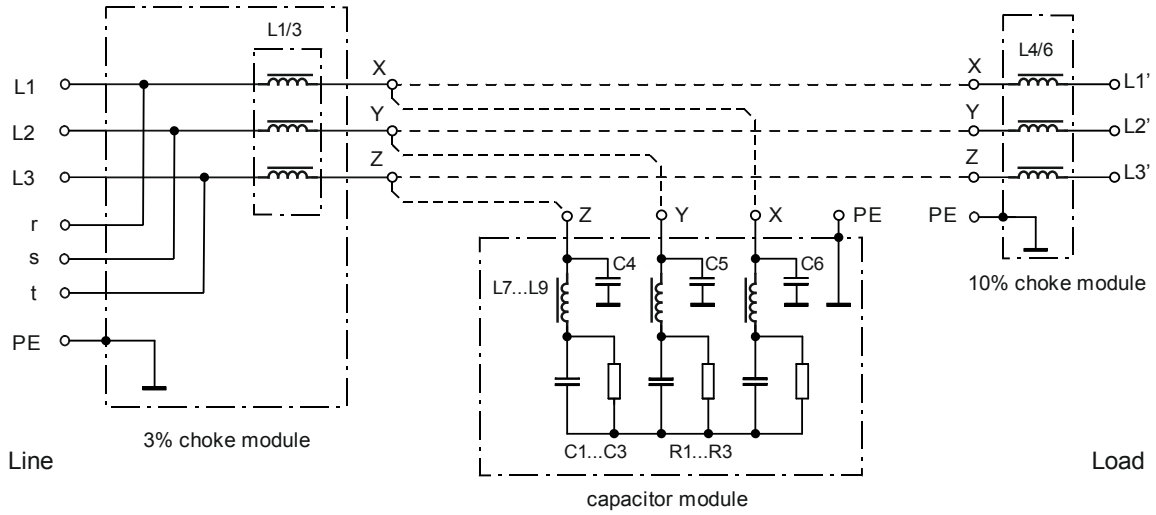

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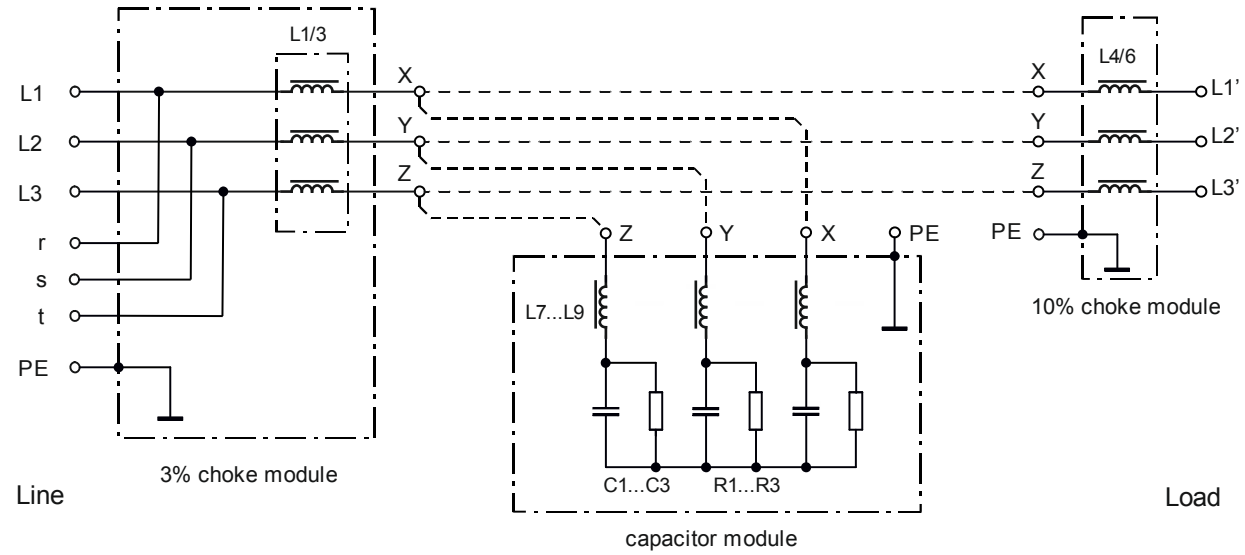

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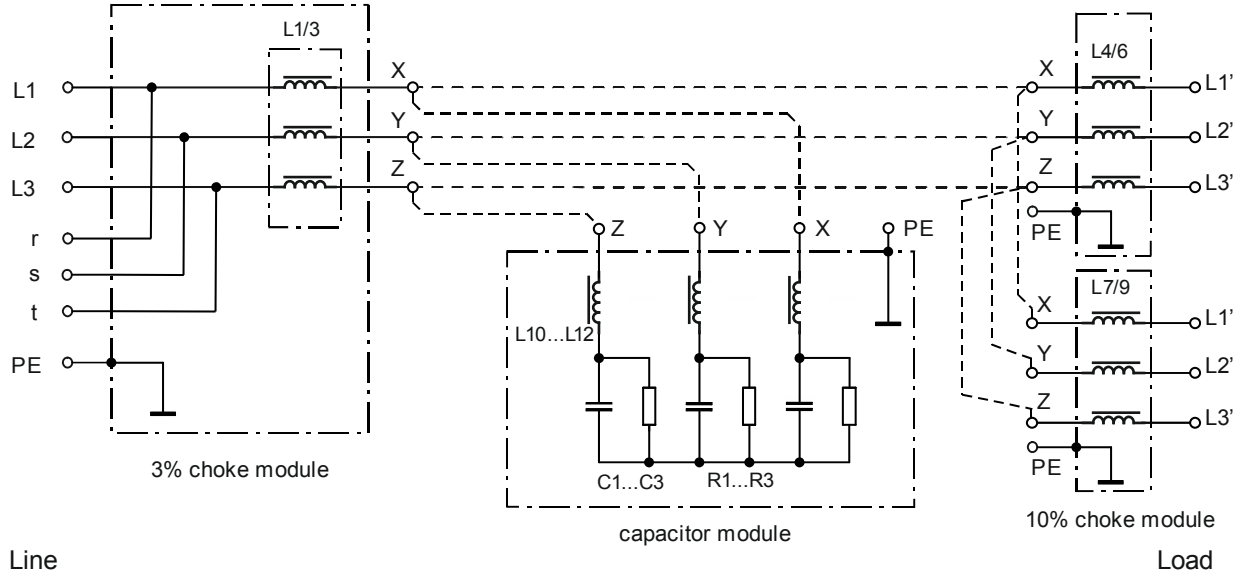


Technical data and measuring conditions

Rated voltage	$U_{R\ [L–PE\ /\ L–L]}$	305/530 V AC (50/60 Hz)
Test voltage line to line for 2 s	U_{test}	2280 V DC
Test voltage line to case for 2 s	U_{test}	3000 V DC
Rated temperature	T_R	50 °C
Climatic category (IEC 60068-1: 1992)		25/100/21
Degree of protection (IEC 60529: 2013)		IP 00
Degree of protection (IEC 60529: 2013) in combination with optional cover B84143Q*R176		IP 20

Characteristics and ordering codes

I_R	Terminal cross section [3]	Power losses [1]	R_{typ}	Approx. weight			Ordering code	Converter type CIMR-	Approvals [2]		
									IEC 60939	UL 1283	CSA C22.2 No.8
A	mm^2	W	mΩ	kg							
8	4	75	268	9			B84143G0008R176	Dx4A0005xxx	D	D	D
16	4	140	98	18			B84143G0016R176	Dx4A0010xxx	D	D	D
30	10	165	38	28			B84143G0030R176	Dx4A0020xxx	D	D	D
43	16	240	26	37			B84143G0043R176	Dx4A0030xxx	D	D	D
58	35	260	17	64			B84143G0058R176	Dx4A0040xxx	D	D	D
				Harmonic filter	10%-choke						
86	50	300	10	20	55		B84143G0086R176	Dx4A0060xxx	D	D	D
145	70	515	6	30	69		B84143G0145R176	Dx4A0100xxx	D	D	D
210	busbar	665	3	39	98		B84143G0210S176	Dx4A0130xxx	D	D	D
300	busbar	855	2.3	42	149		B84143G0300S176	Dx4A0185xxx	D	D	D
				3%-choke	10%-choke	Capacitor module					
410	busbar	1398	1.3	45	163	12	B84143G0410S176	Dx4A0270xxx	D	D	D
560	busbar	1970	1.25	55	185	25	B84143G0560S176	Dx4A0370xxx	D	D	D
1140	busbar	4015	0.64	115	2 x185	50	B84143G1140S176	Dx4A0630xxx	D	D	D

1) Power losses at nominal current and 20°C winding temperature with harmonics
2) **X** = approval granted **P** = pending **D** = designed with reference to **-** = none
3) 2.5 mm² terminal cross section for D1000 voltage detection

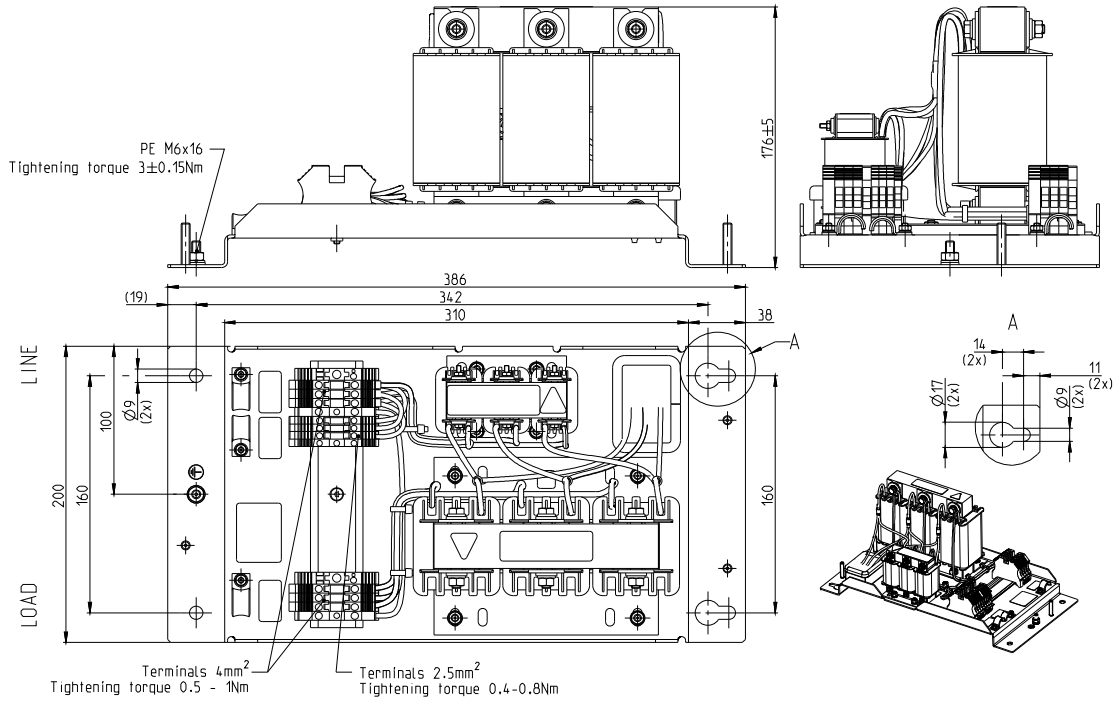
Ordering codes for optional covers

Ordering code cover	Material	Suitable for filter	Weight kg
B84143Q0008R176	Zinc plated sheet metal	B84143G0008R176	1.5
B84143Q0016R176	Zinc plated sheet metal	B84143G0016R176, B84143G0030R176	2.5
B84143Q0043R176	Zinc plated sheet metal	B84143G0043R176, B84143G0058R176	3.7

Covers for filter B84143G0086R176 up to B84143G1140S176 not available.

Dimensional drawings

B84143G0008R176



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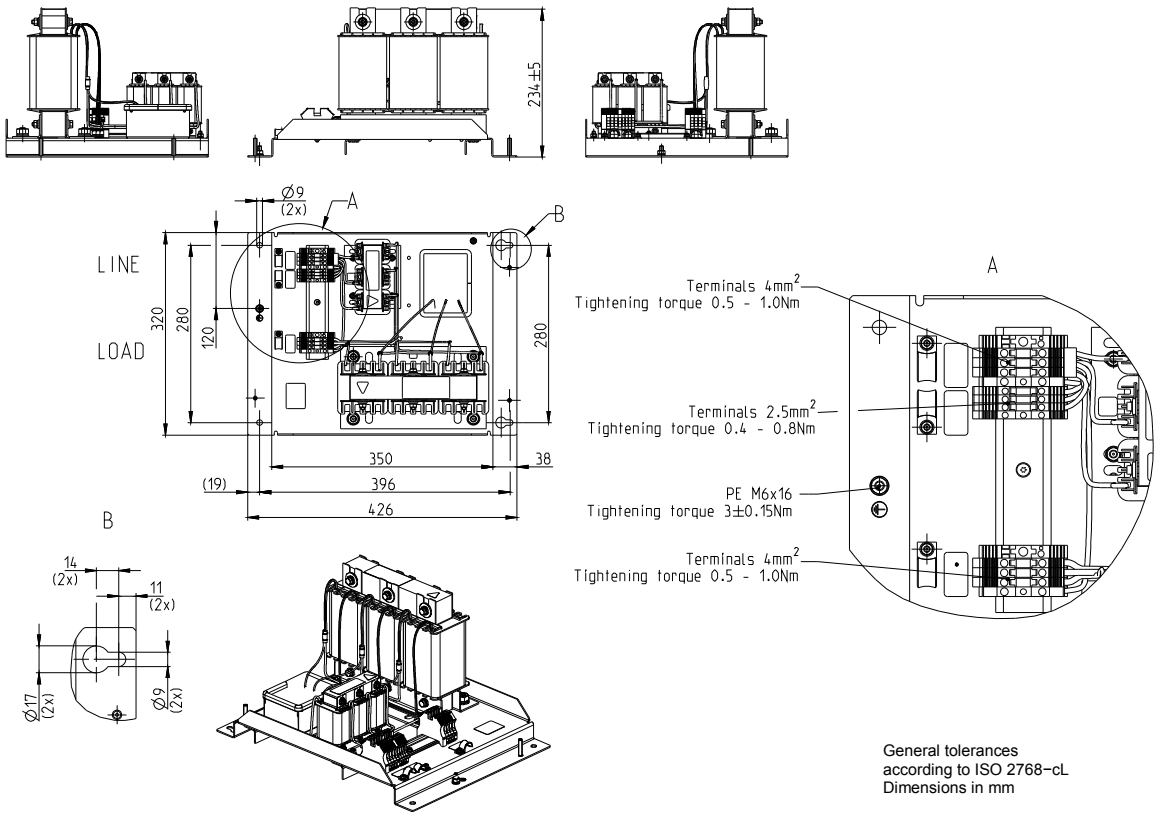

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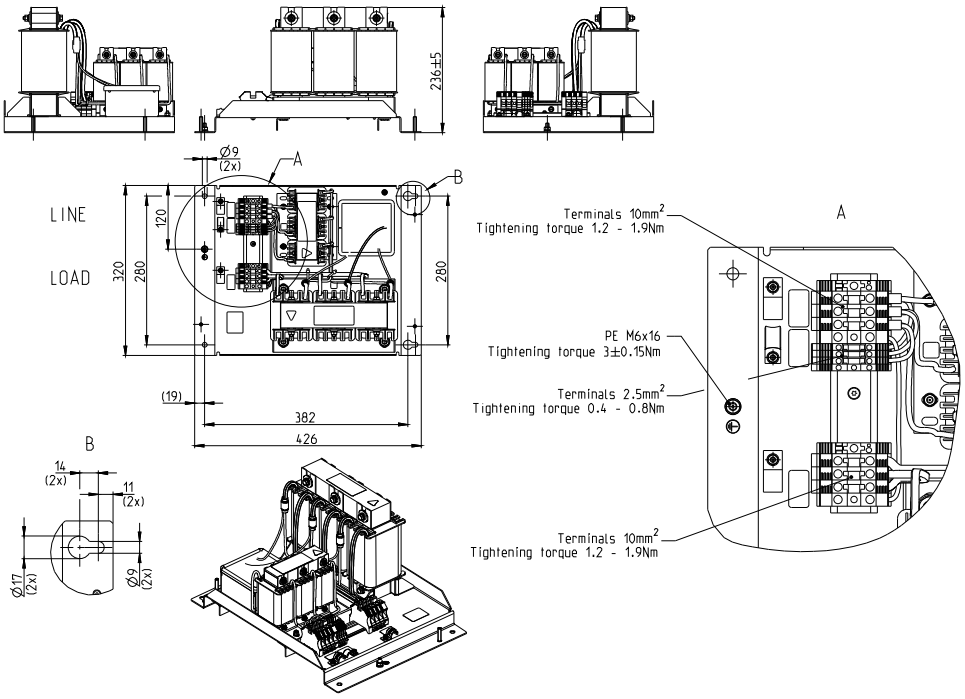

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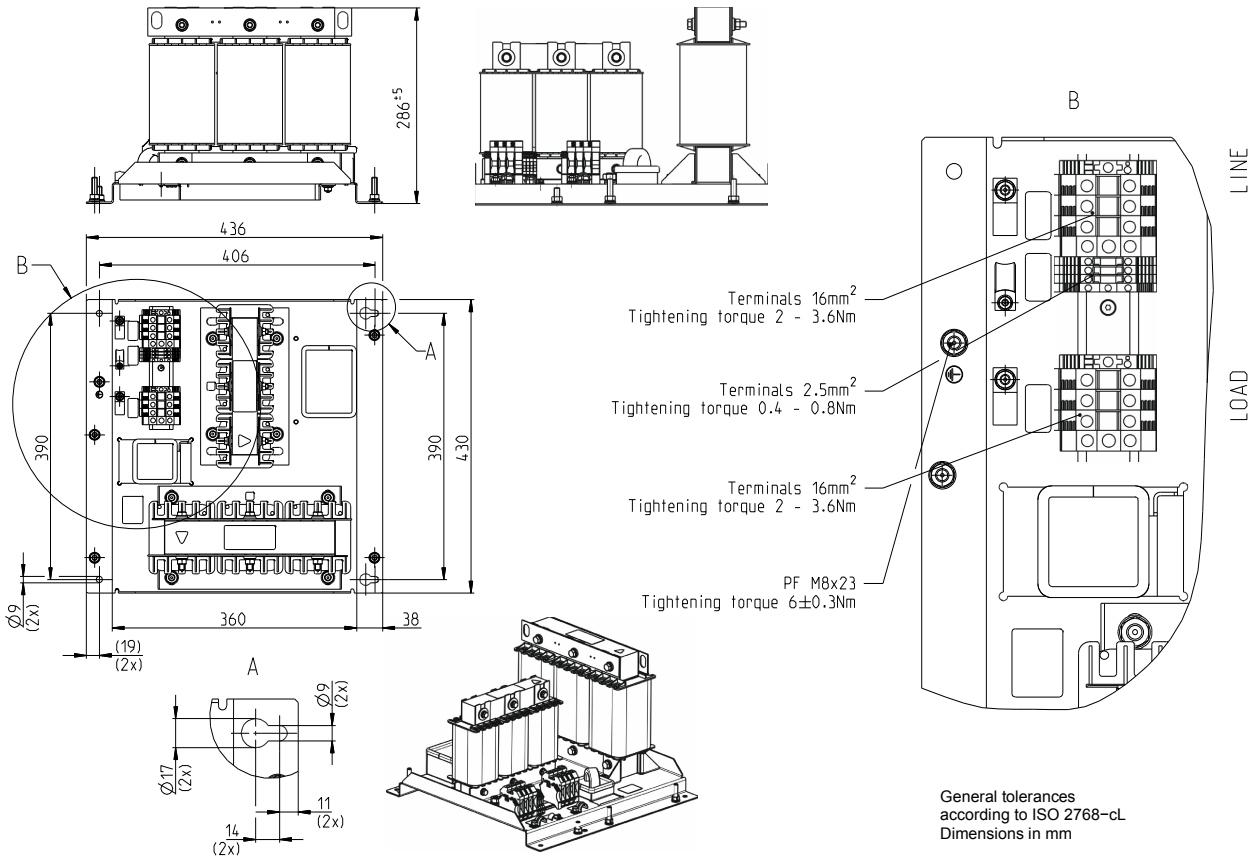
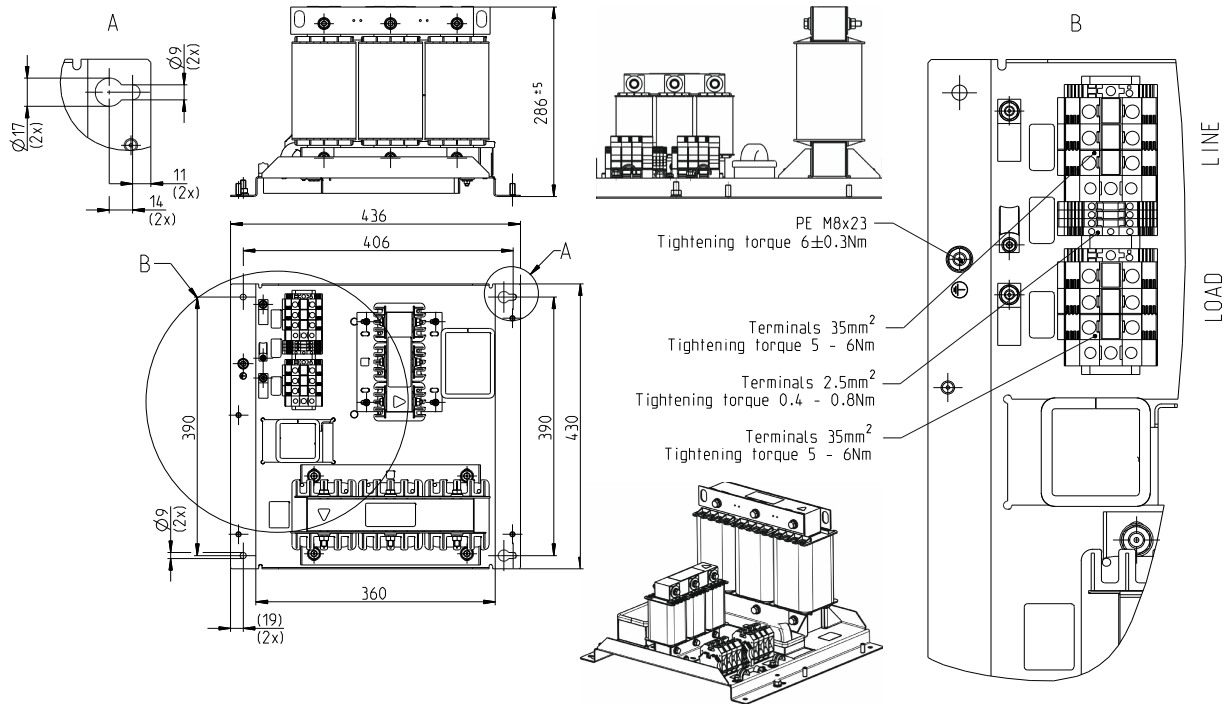


General tolerances
according to ISO 2768-cL
Dimensions in mm

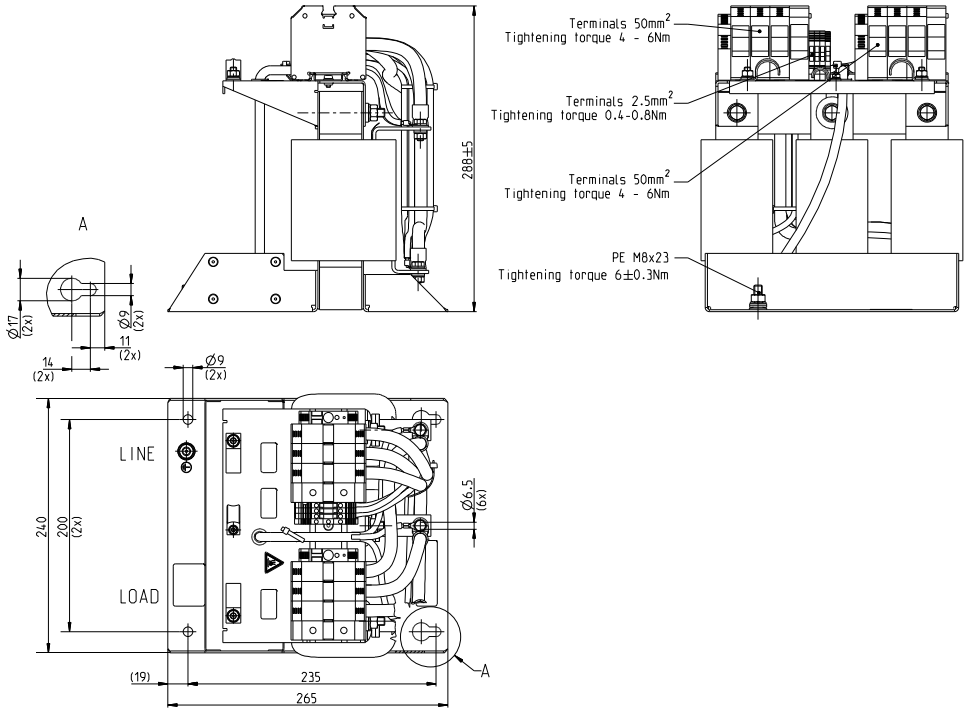
B84143G0058R176



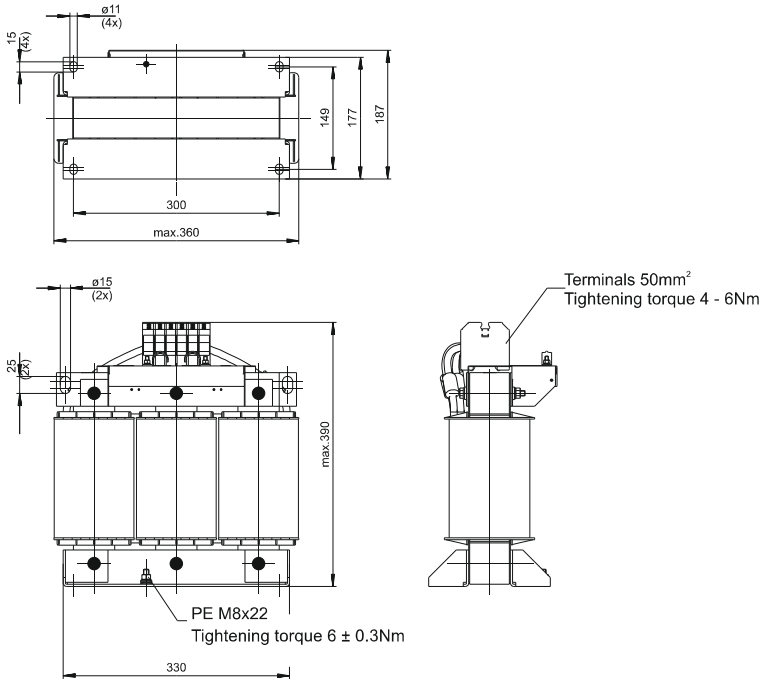
General tolerances
according to ISO 2768-cL
Dimensions in mm

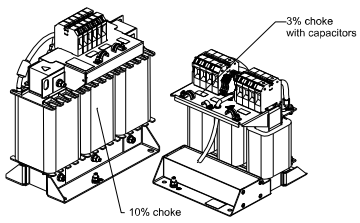
B84143G0086R176

Harmonic filter



10%-choke

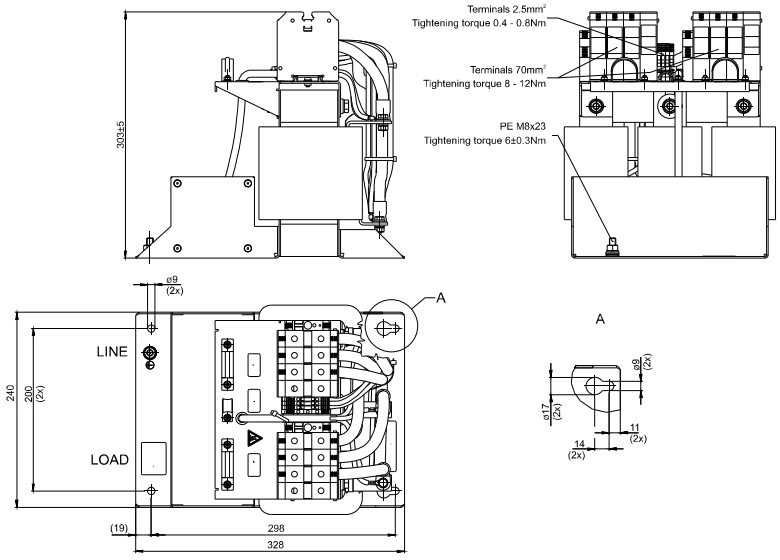




General tolerances
according to ISO 2768−cL
Dimensions in mm

B84143G0145R176

Harmonic filter



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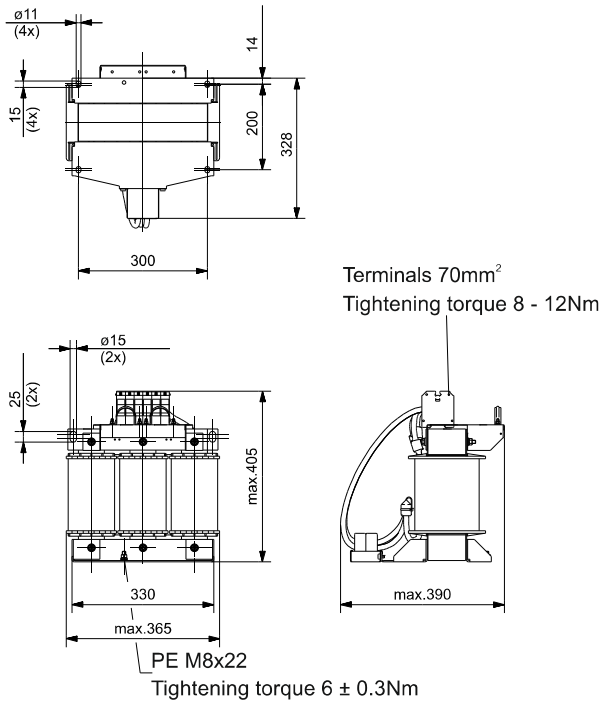
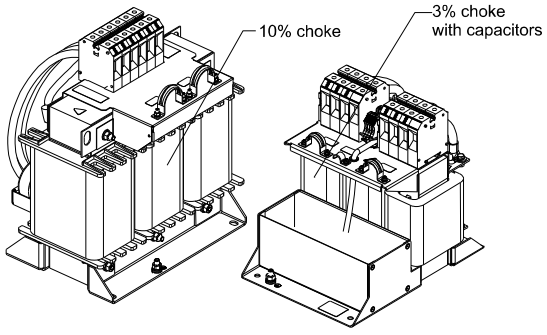
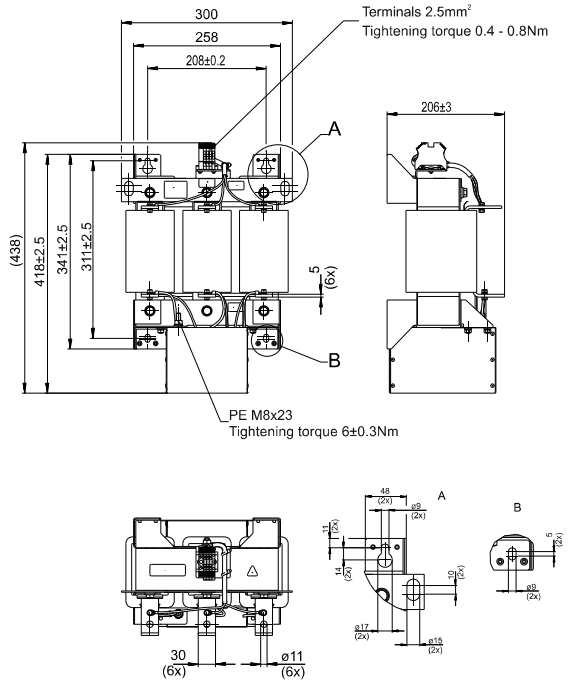




General tolerances
according to ISO 2768−cL
Dimensions in mm

B84143G0210S176

Harmonic filter



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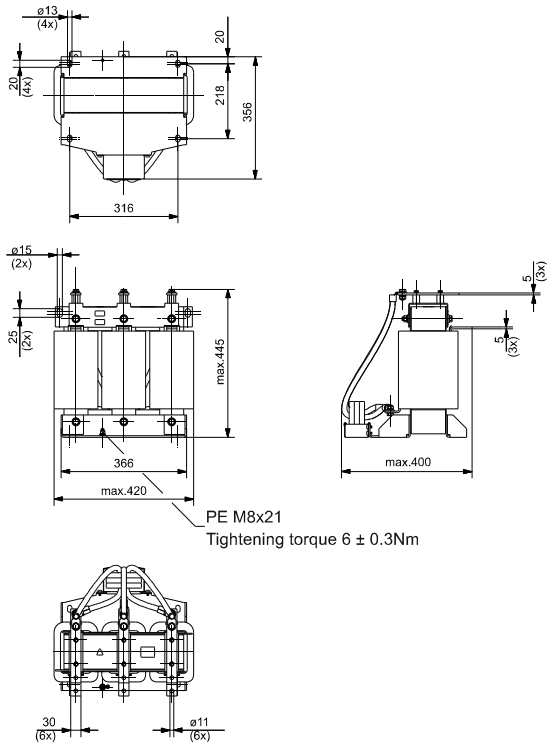
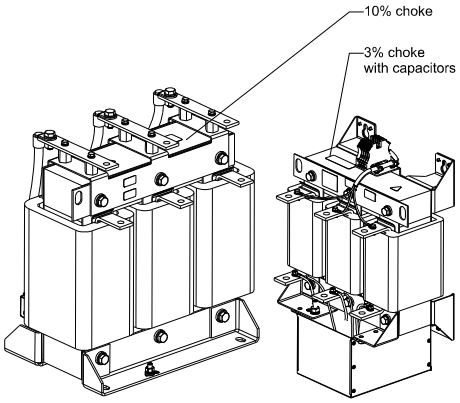
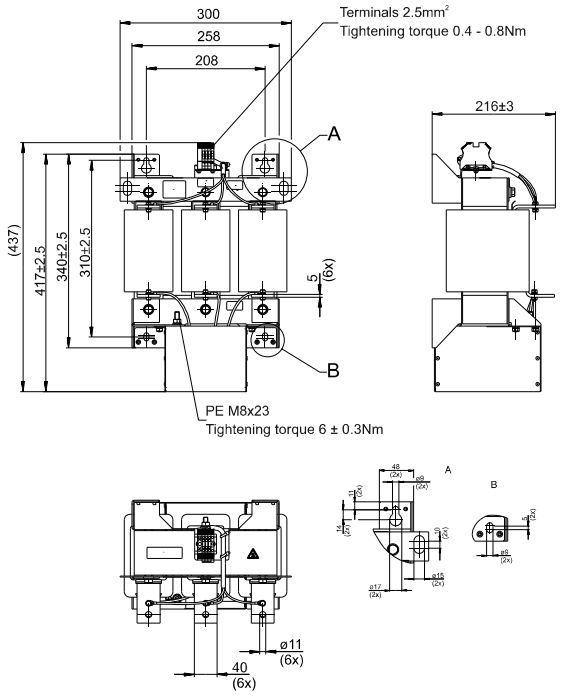




General tolerances
according to ISO 2768−cL
Dimensions in mm

B84143G0300S176

Harmonic filter



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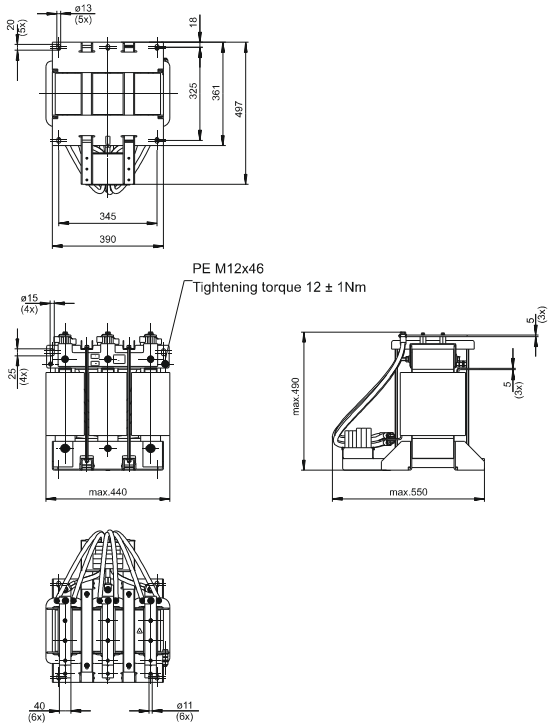
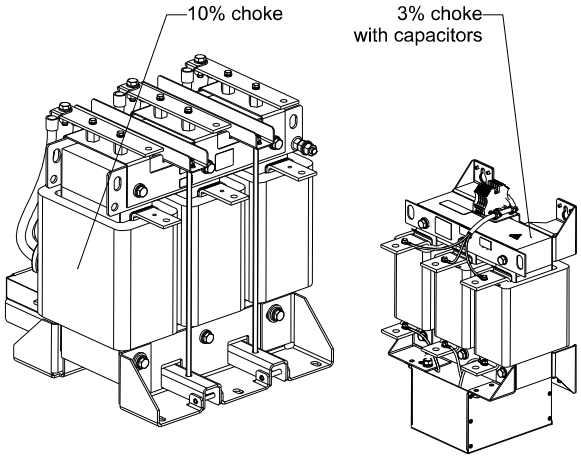
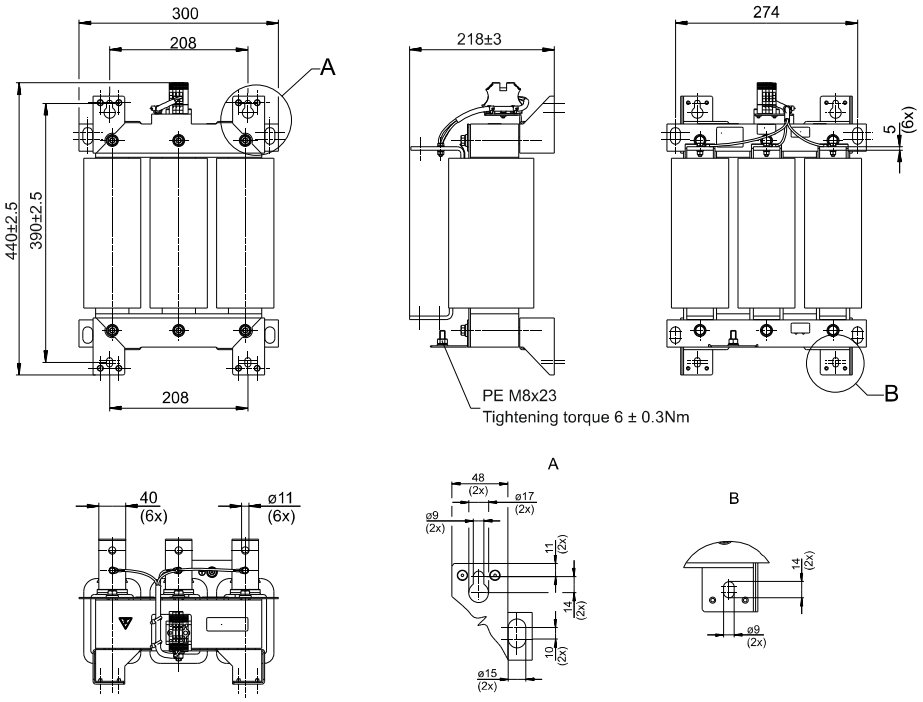




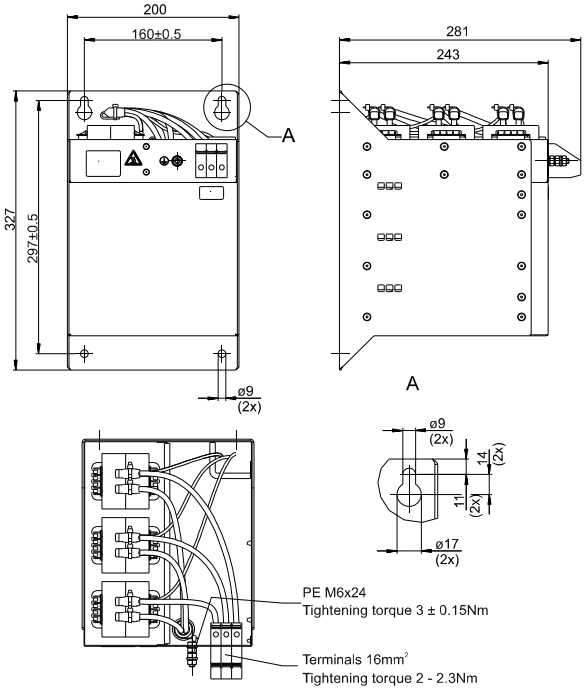
General tolerances
according to ISO 2768−cL
Dimensions in mm

B84143G0410S176

3%-choke

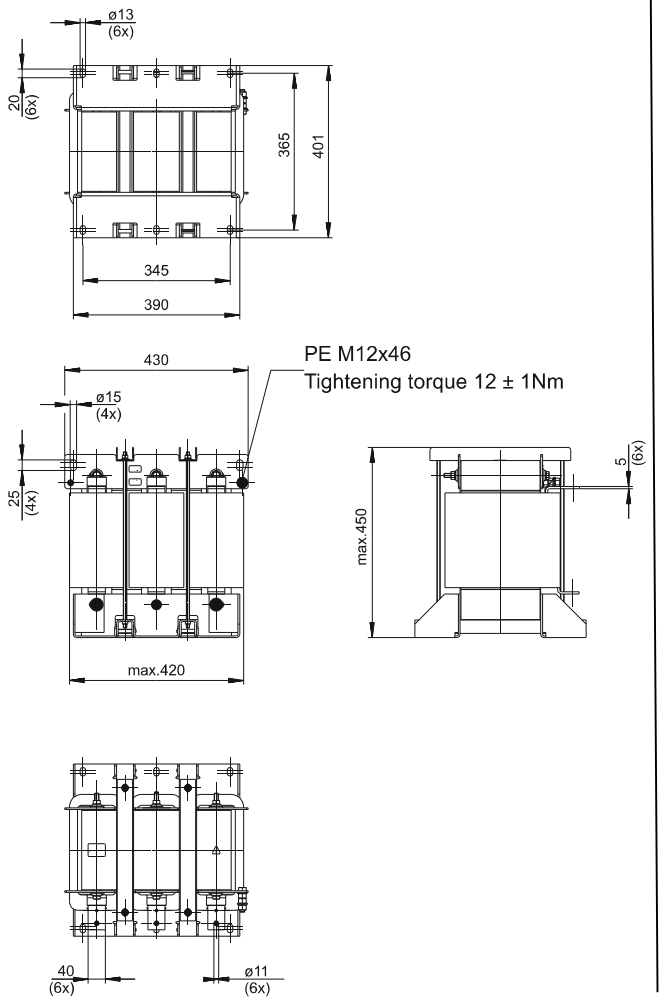


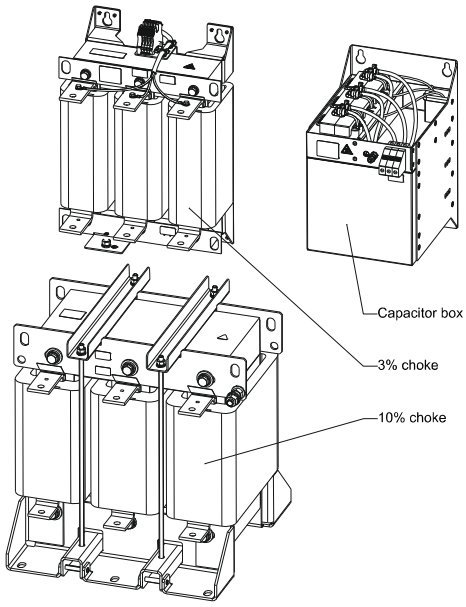
Capacitor box



General tolerances
according to ISO 2768−cL
Dimensions in mm

10%-choke





General tolerances
according to ISO 2768−cL
Dimensions in mm

B84143G0560S176

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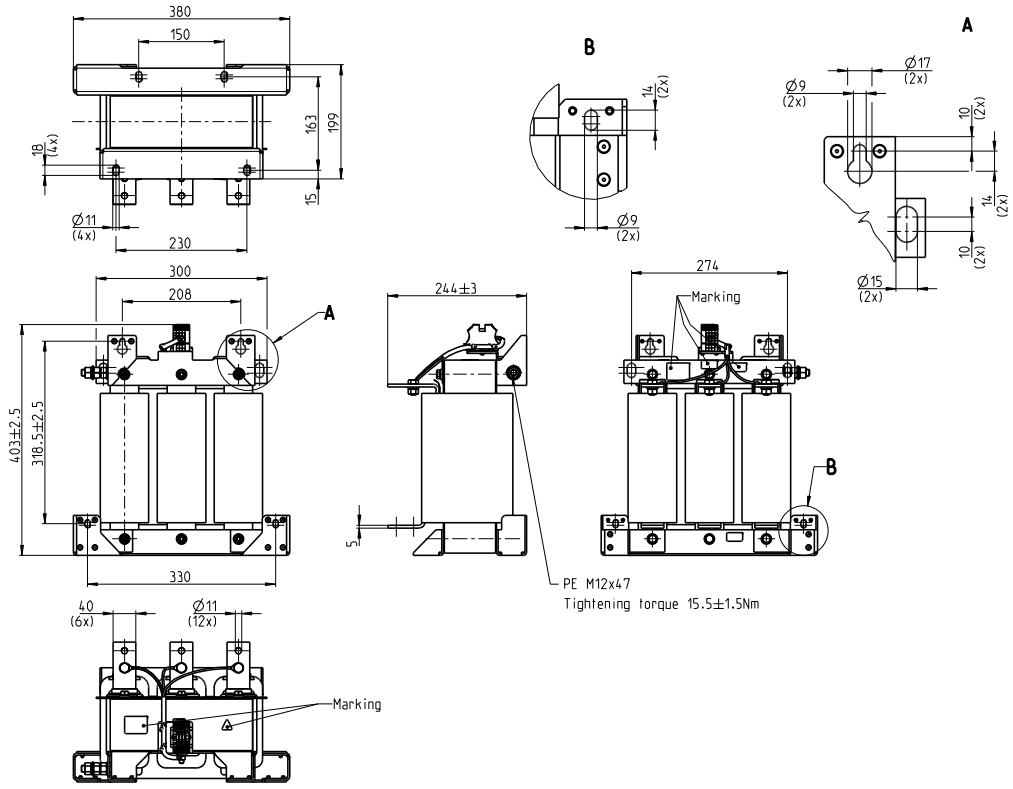
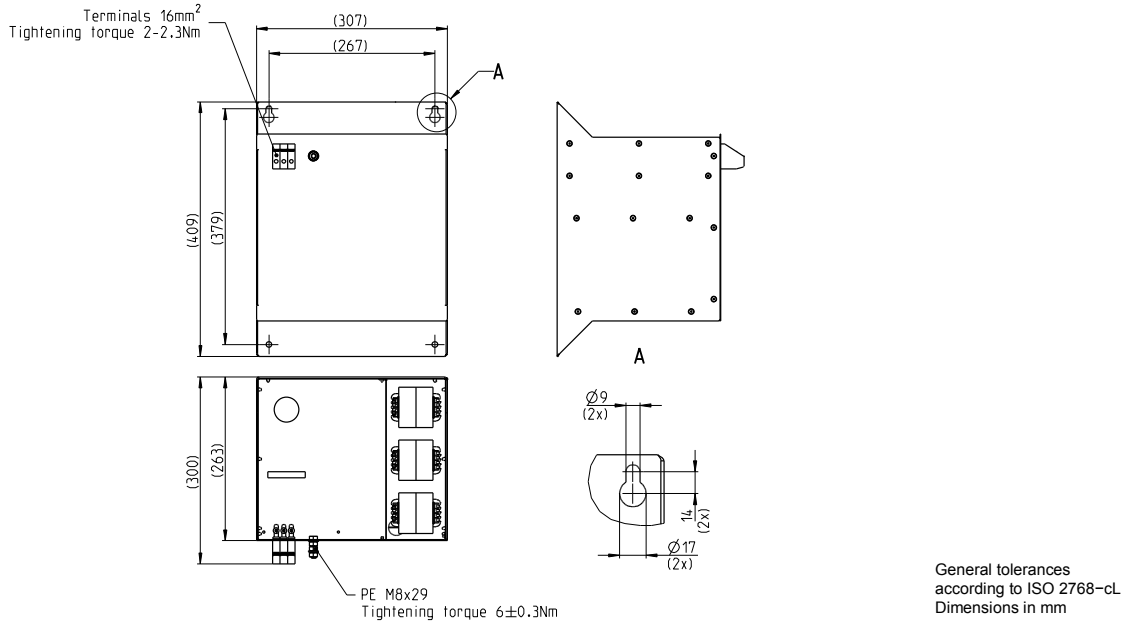
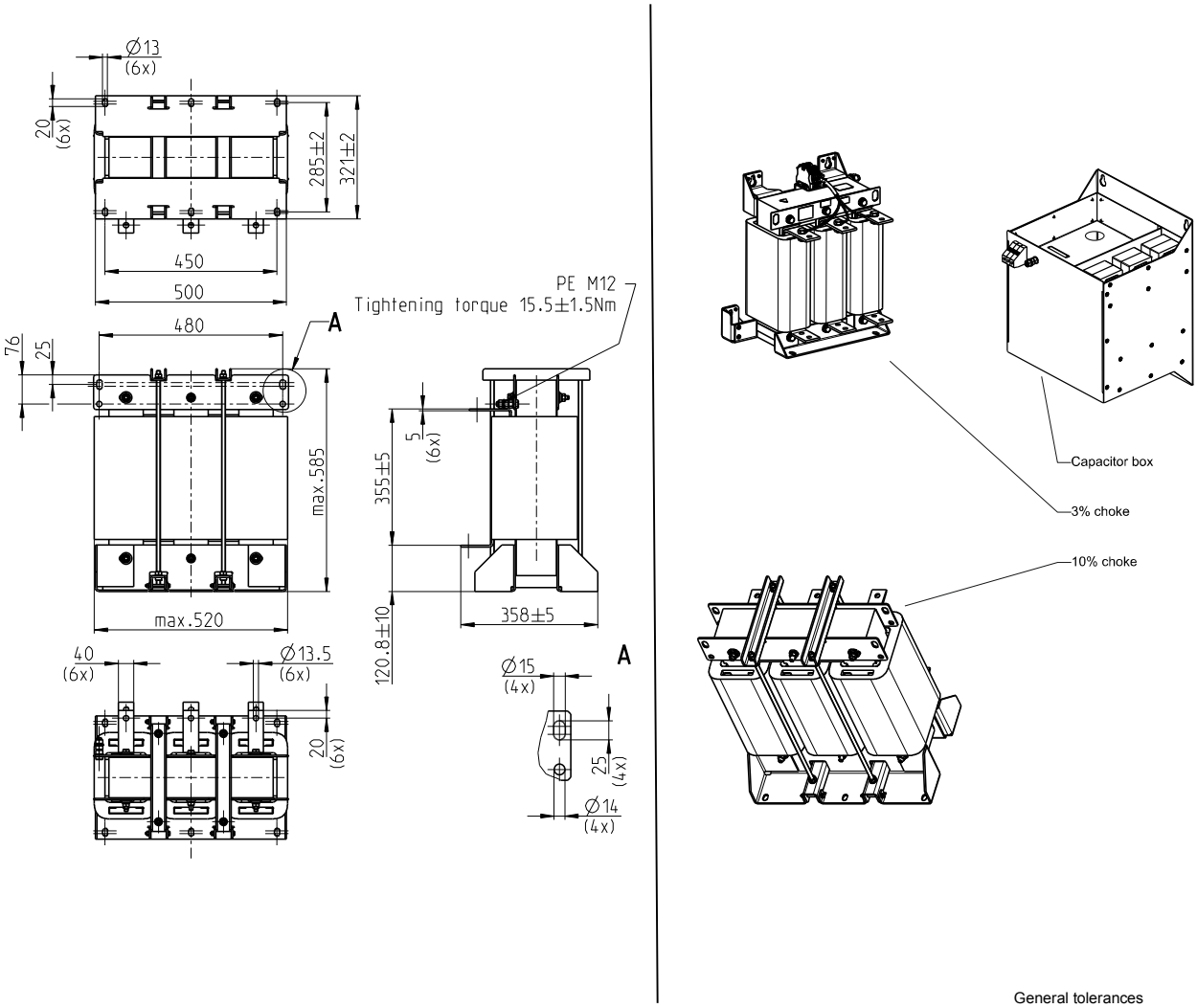


Capacitor box



General tolerances
according to ISO 2768-cL
Dimensions in mm

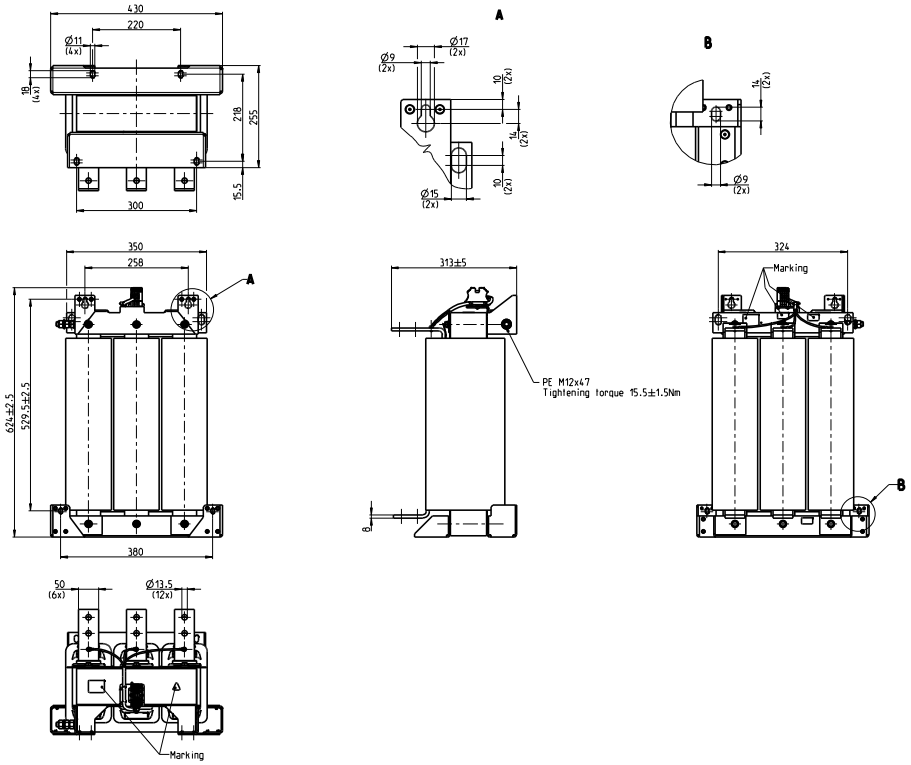
10%-choke



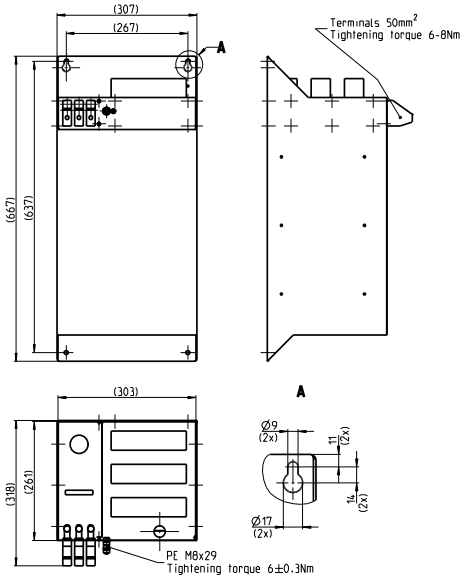
General tolerances
according to ISO 2768-cL
Dimensions in mm

B84143G1140S176

3%-choke

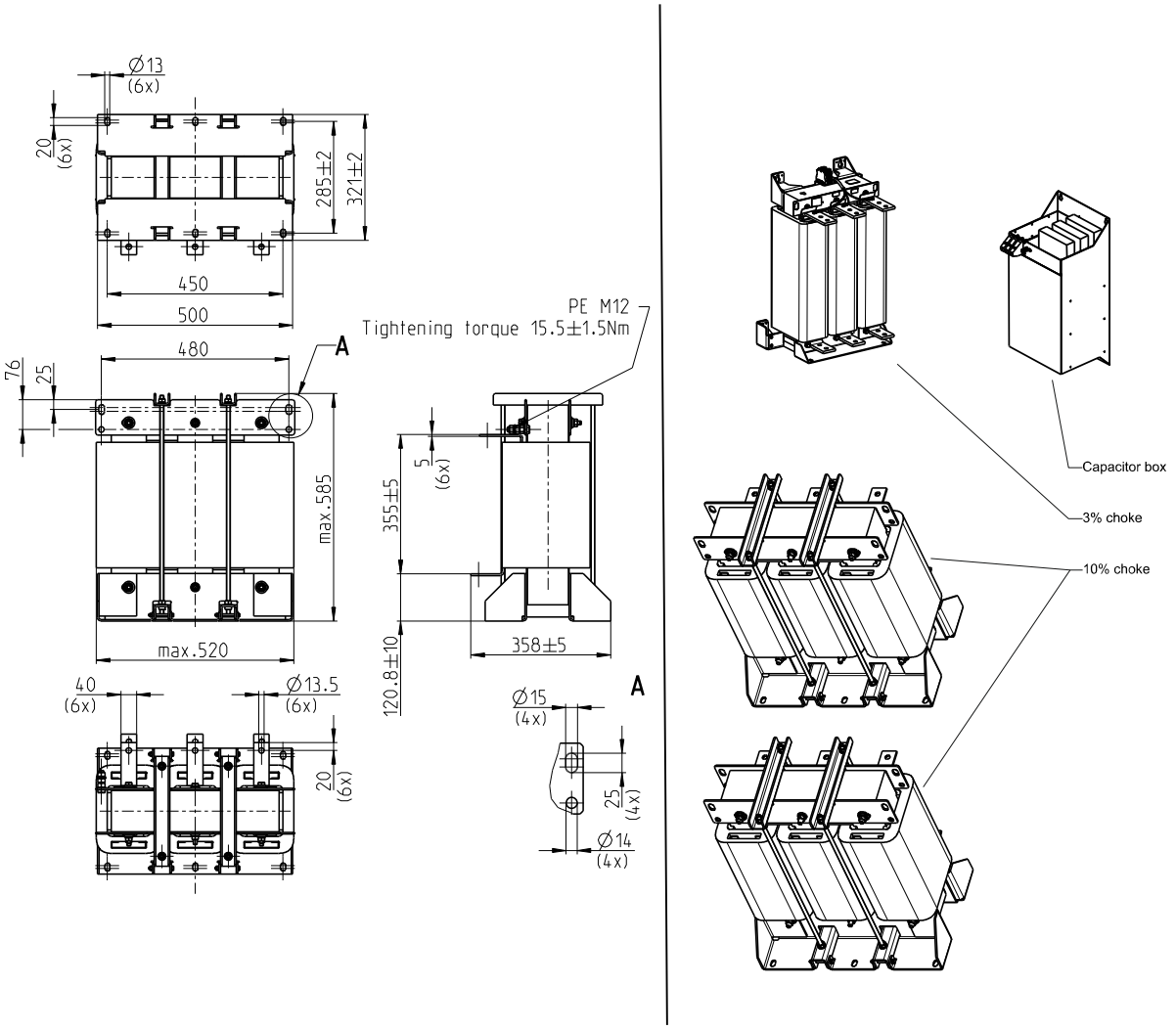


Capacitor box



General tolerances
according to ISO 2768-cL
Dimensions in mm

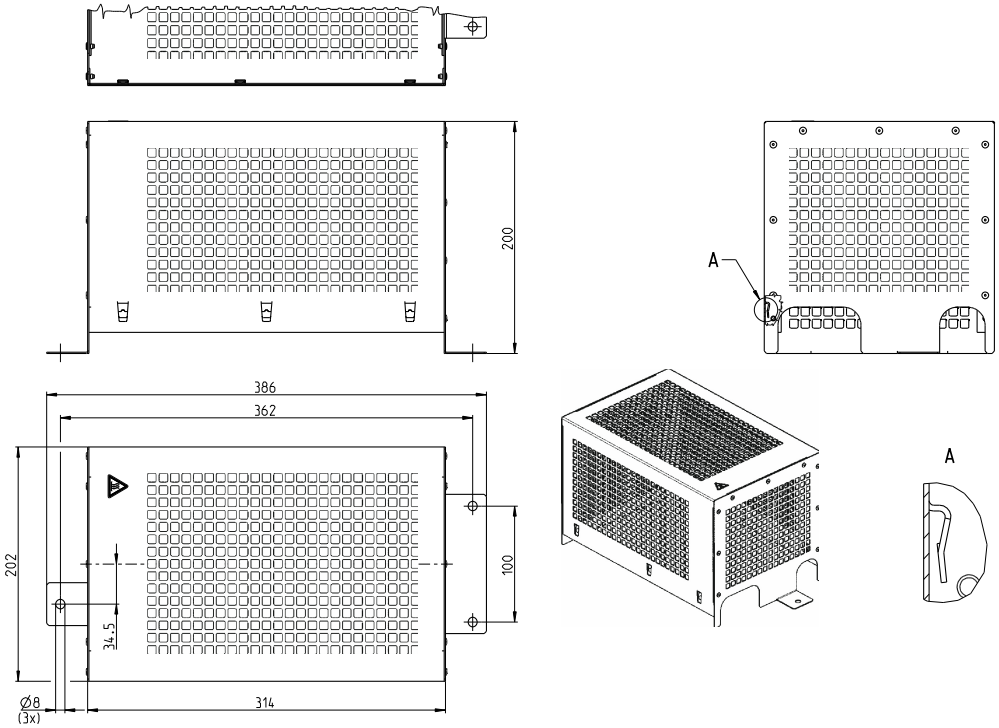
10%-choke



General tolerances
according to ISO 2768−cL
Dimensions in mm

Dimensional drawings for optional covers

B84143Q0008R176



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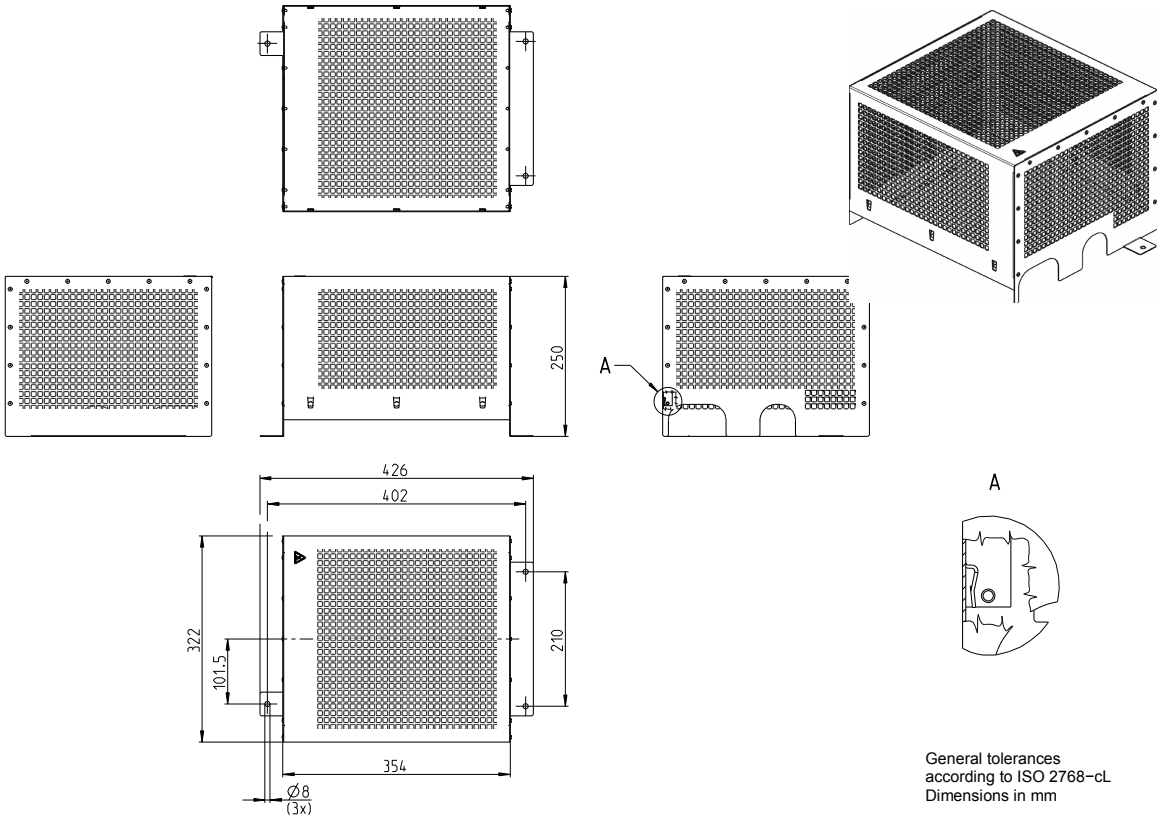
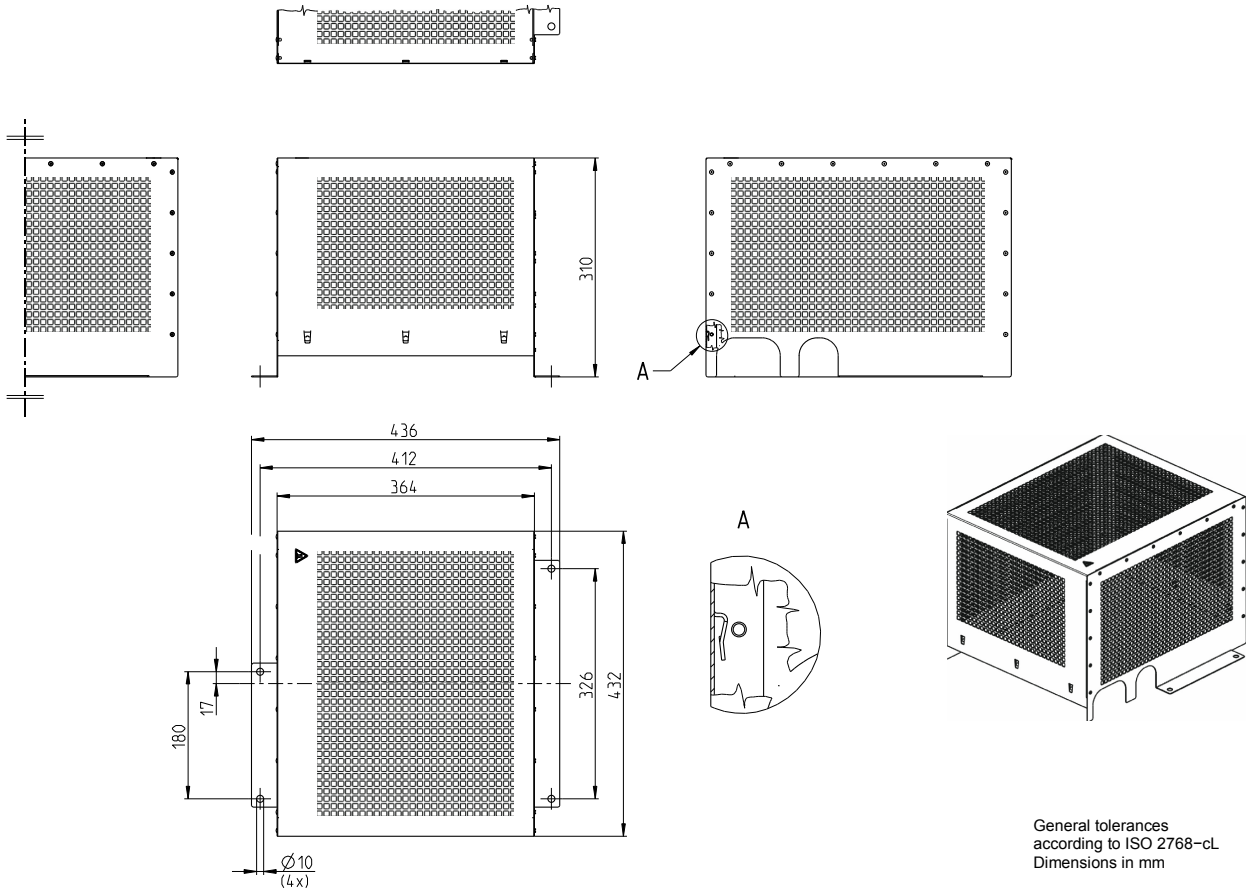


General tolerances
according to ISO 2768−cL
Dimensions in mm

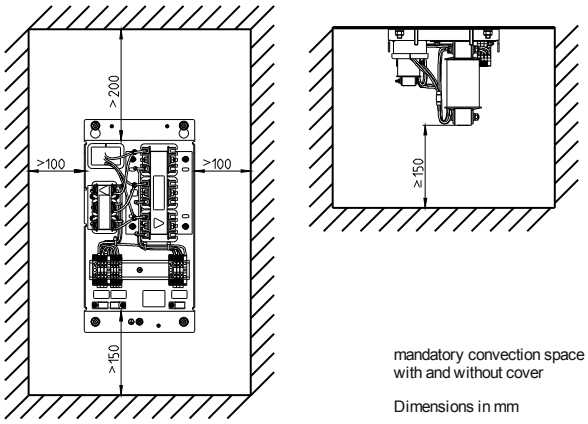
B84143Q0043R176



General tolerances
according to ISO 2768−cL
Dimensions in mm

Mounting and convection space

convection space



mandatory convection space
with and without cover

Dimensions in mm

mounting direction

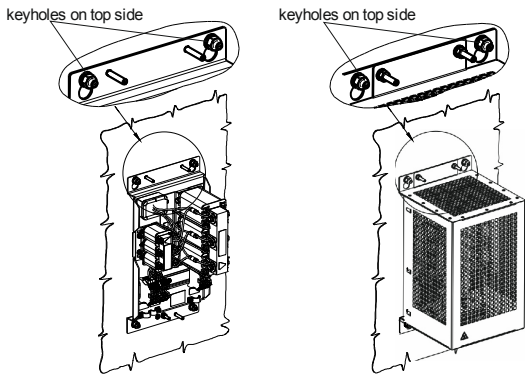
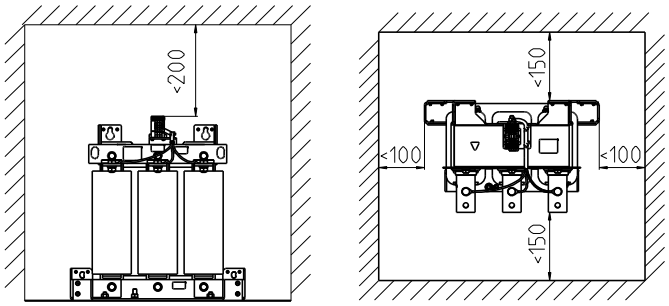
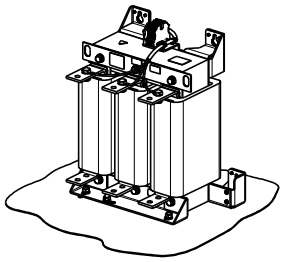


illustration with optional cover

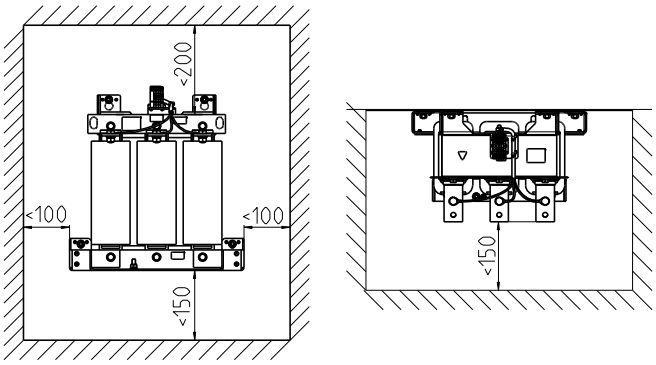
convection spacefor floor mounted design



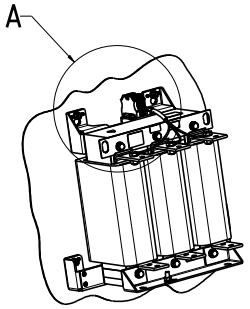
mounting direction for floor mounted design

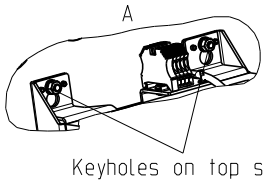


convection spacefor wall mounted design



mounting direction for wall mounted design





Dimensions in mm

Cautions and warnings

- Please note the advices in our data book “EMC Filters” (latest edition); attention should be paid to the chapter “General safety notes”.
- It shall be ensured that only qualified persons (electricity specialists) are engaged on work such as planning, assembly, installation, operation, repair and maintenance. They must be provided with the corresponding documentation.
- Danger of electric shock. filters contain components that store an electric charge. Dangerous voltages can continue to exist at the filter terminals for longer than five minutes even after the power has been switched off.
- The protective earth connections shall be the first to be made when the filter is installed and the last to be disconnected. Depending on the magnitude of the leakage currents, the particular specifications for making the protective−earth connection must be observed.
- Impermissible overloading of the filter, such as with circuits able to cause resonances, impermissible voltages at higher frequencies etc. can lead to bodily injury and death as well as cause substantial material damages (e.g. destruction of the filter housing).
- Filters must be protected in the application against impermissible exceeding of the rated currents by overcurrent protective devices.
- In case of leakage currents > 3.5 mA you shall mount the PE conductor stationary with the required cross section before beginning of operation and save it against disconnecting. For leakage currents I_L [a)] ≤10 mA the PE conductor must have a KU value [b)] of 4.5; for leakage currents I_{LK} > 10 mA the PE conductor must have a KU value of 6.
- Output chokes and output filters must be protected in the application against impermissible exceeding of the component temperature.
- The converter output frequency must be within the specified range to avoid resonances and uncontrolled warming of the output chokes and output filters.

a) I_L = Leakage current let−go
b) The KU value (symbol KU) is a classification parameter of safety−referred failure types designed to ensure protection against hazardous body currents and excessive heating.(DIN VDE 0800-1, 0800-8, 0800-9)
A value of KU = 4.5 with respect to interruptions is attained:
− with a permanently connected protective earth connections ≥ 1.5 mm^2
− with a protective earth connection ≥ 2.5 mm^2 via connectors for industrial equipment (IEC 60309−2).
KU = 6 with respect to interruptions is achieved for fixed-connection lines ≥ 10 mm^2, where the type of connection and installation is conform to the specification for PEN conductors according to DIN VDE 0100-540.

Display of ordering codes for EPCOS products

The ordering code for one and the same EPCOS product can be represented differently in data sheets, data books, other publications, on the EPCOS website, or in order-related documents such as shipping notes, order confirmations and product labels. **The varying representations of the ordering codes are due to different processes employed and do not affect the specifications of the respective products**. Detailed information can be found on the Internet under www.epcos.com/orderingcodes

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3. **The warnings, cautions and product-specific notes must be observed.**

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