Data sheet

3-line LCL-filters

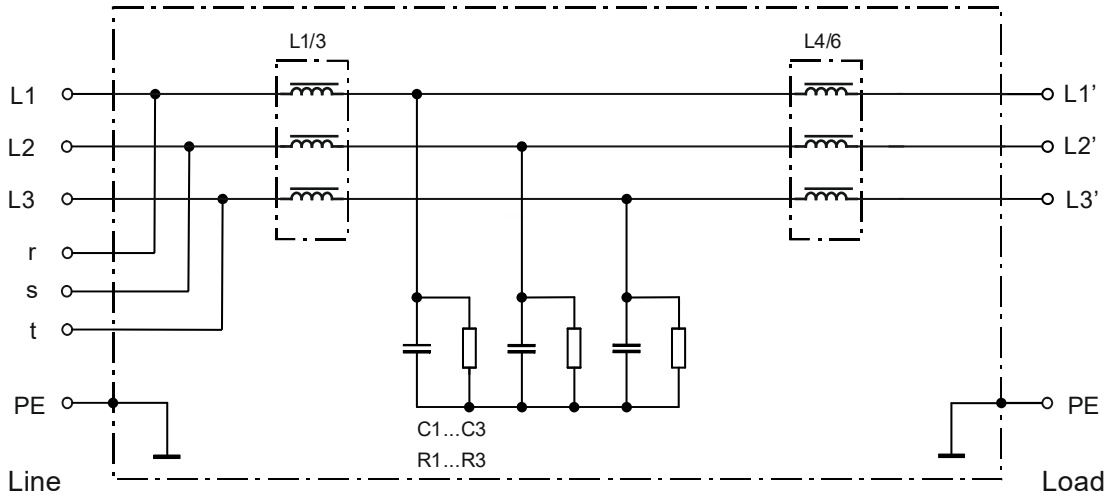
for converters and power electronics

305/530 V, 50/60 Hz, 8 … 1140 A, 50 °C

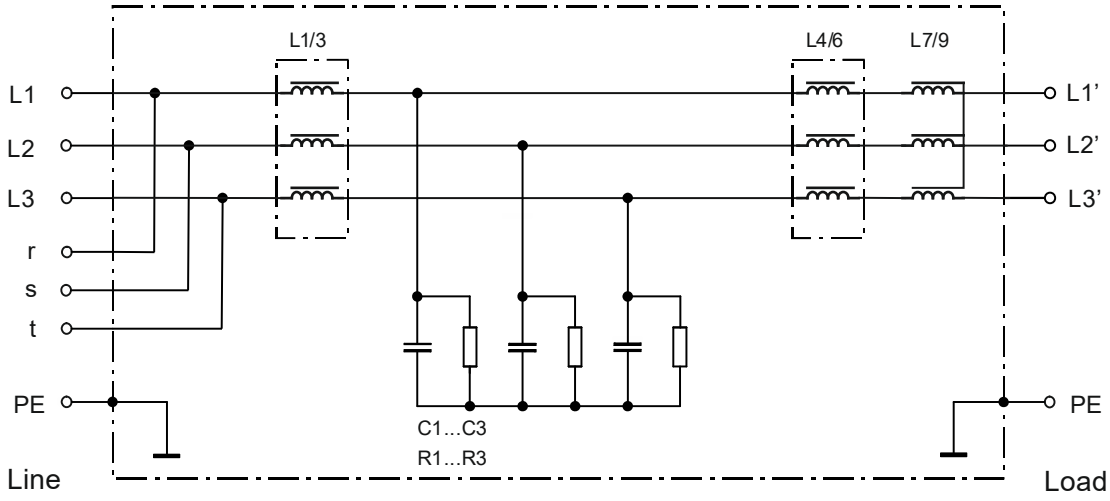
Ordering code:	**B84143G/Q*R/S176**
Date:	**2025-08-21**
Version:	11

Typical circuit diagram

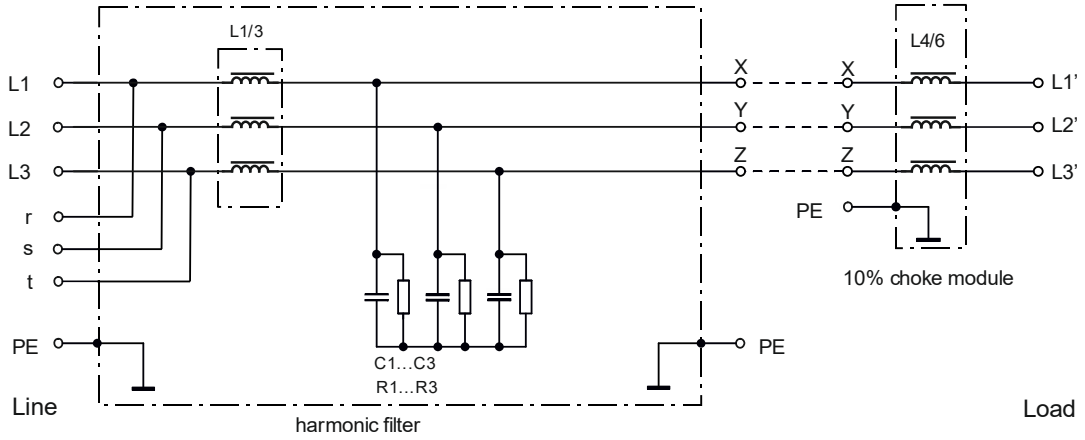
B84143G0008R176, B84143G0016R176, B84143G0030R176



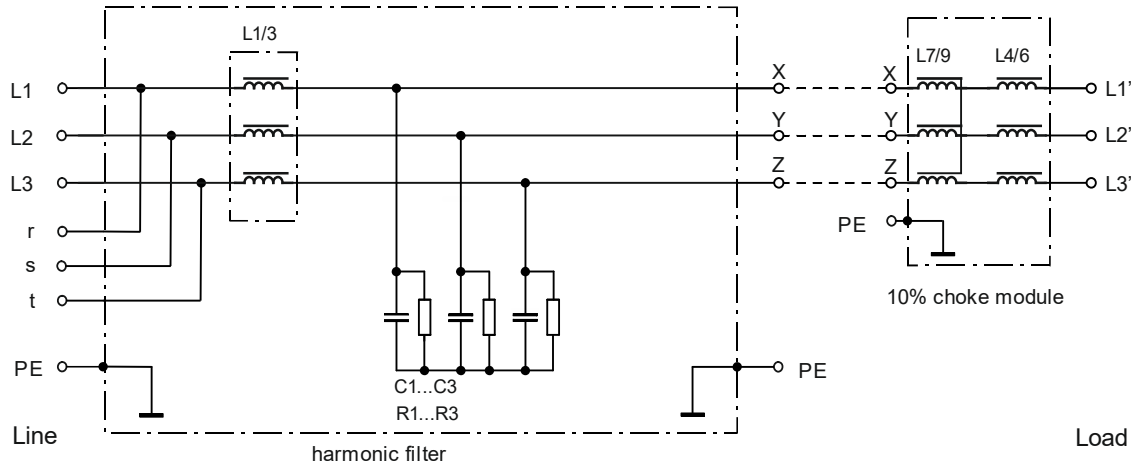
B84143G0043R176, B84143G0058R176



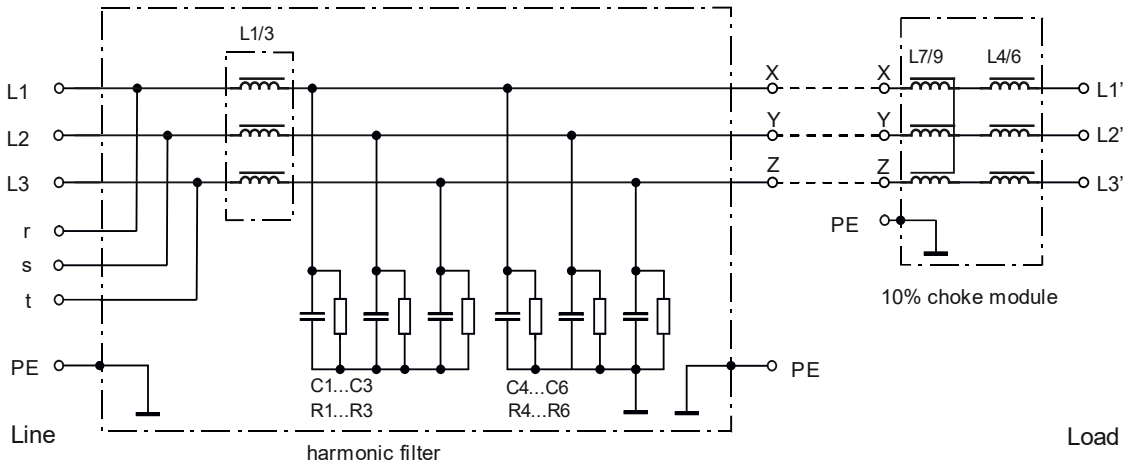
B84143G0086R176



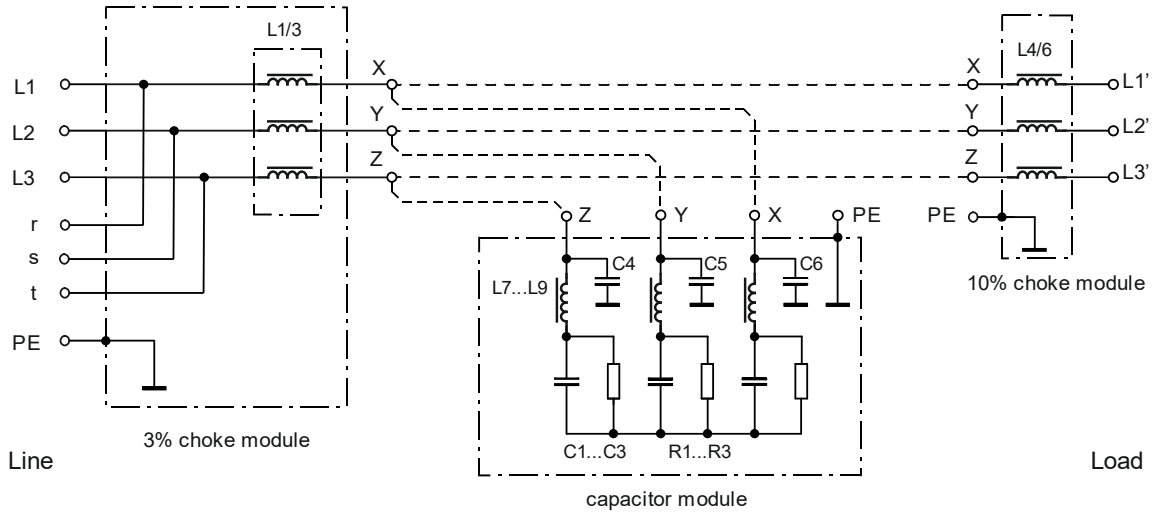
B84143G0145R176



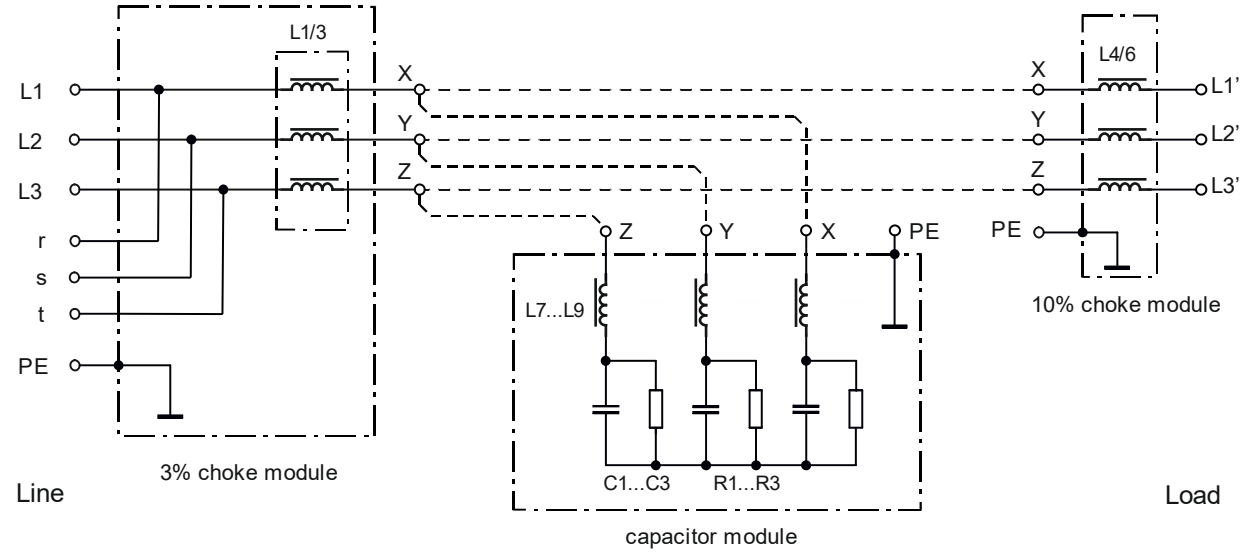
B84143G0210S176, B84143G0300S176



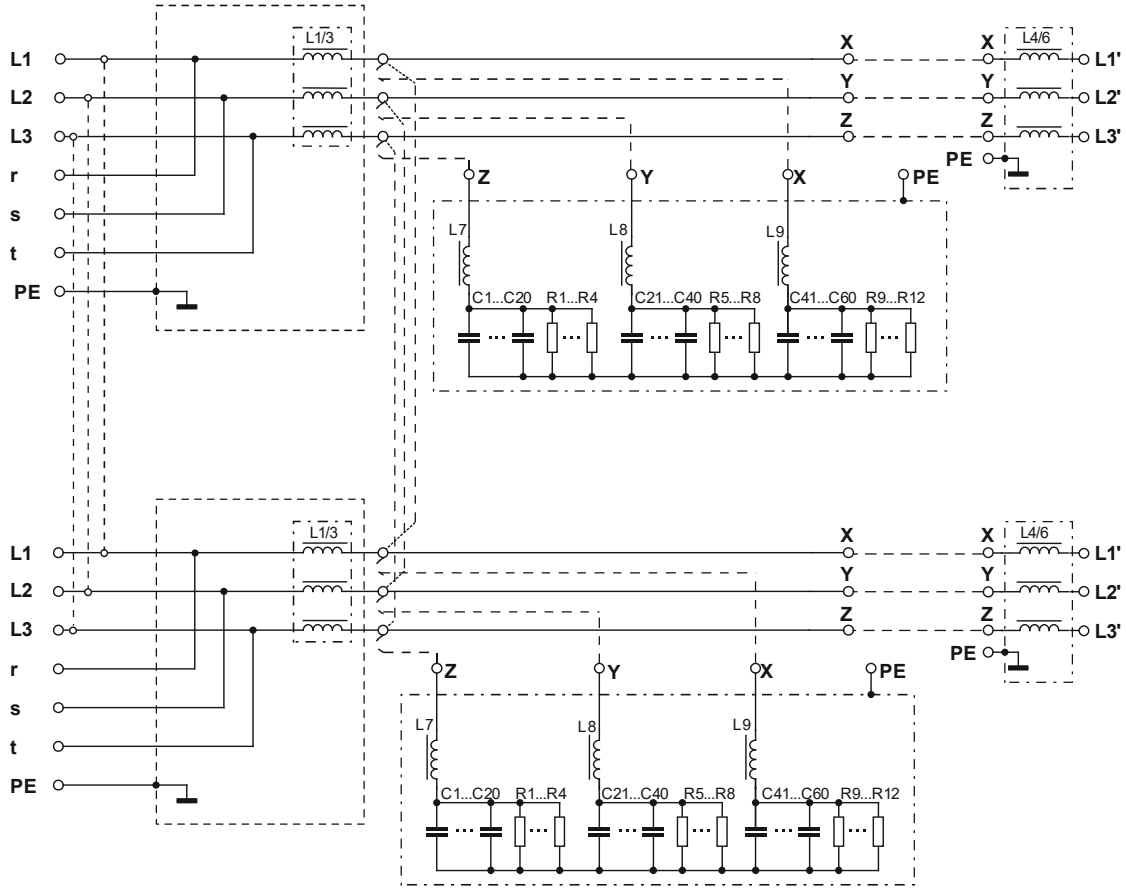
B84143G0410S176



B84143G0560S176



B84143G1140S176



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: 2013)		25/100/21
Degree of protection (IEC 60529: 2015)		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 (2 × 570)	busbar	3940	0.65	2×55	2×185	2×25	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

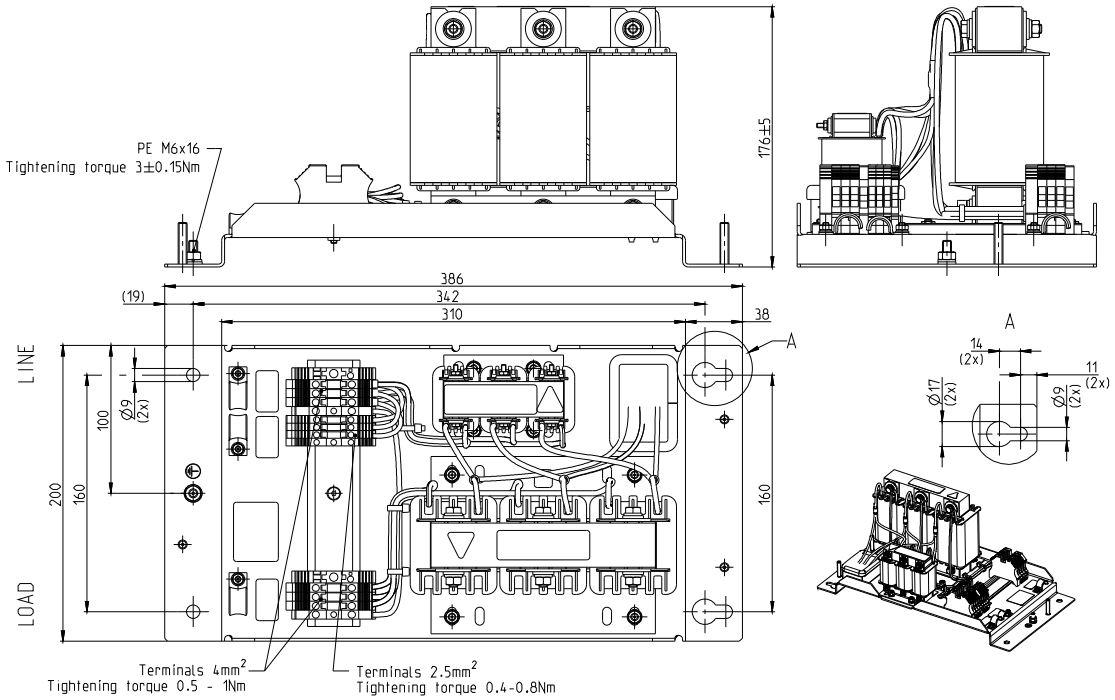
Ordering codes for optional covers

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

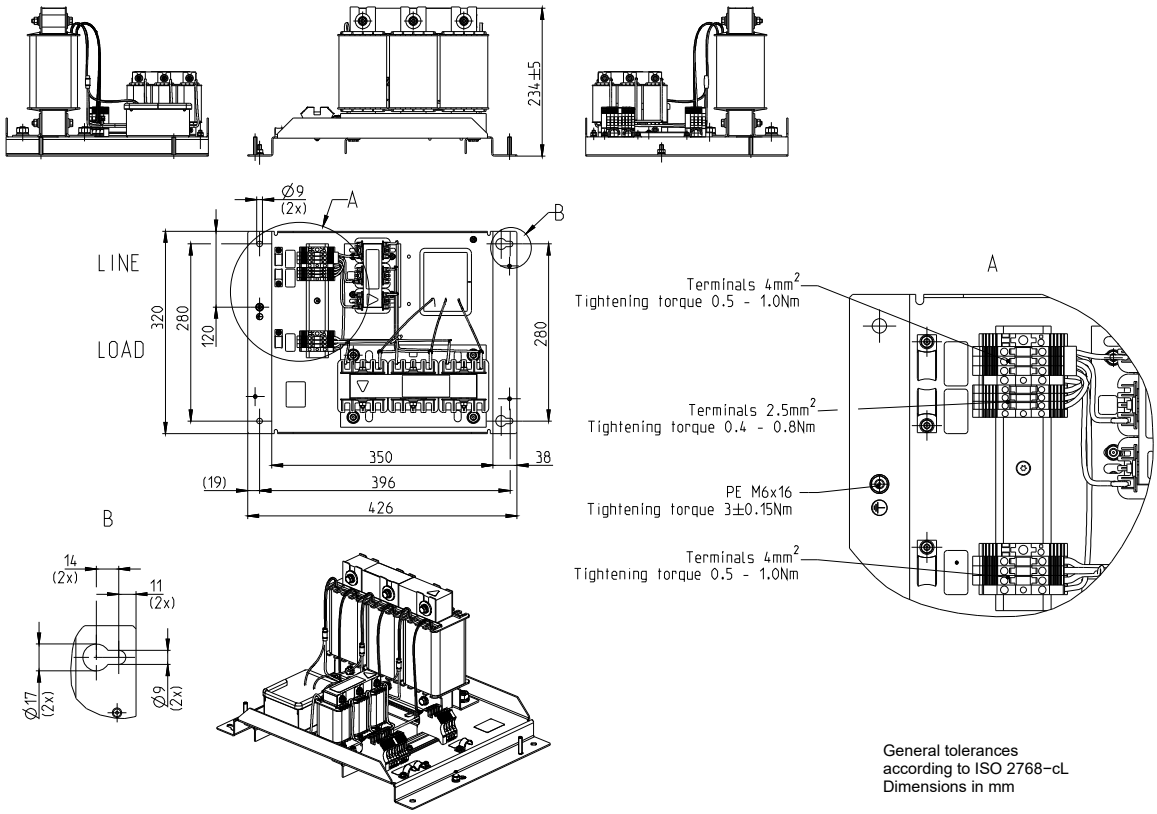
Covers for filter B84143G0086R176 up to B84143G1140S176 not available.

Dimensional drawings

B84143G0008R176

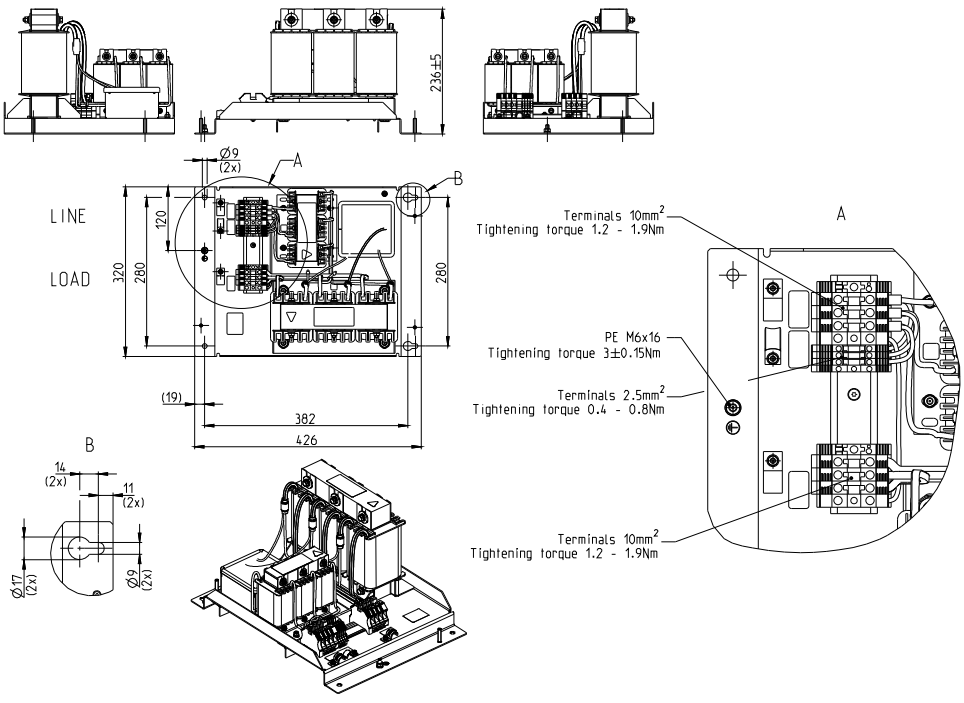


B84143G0016R176

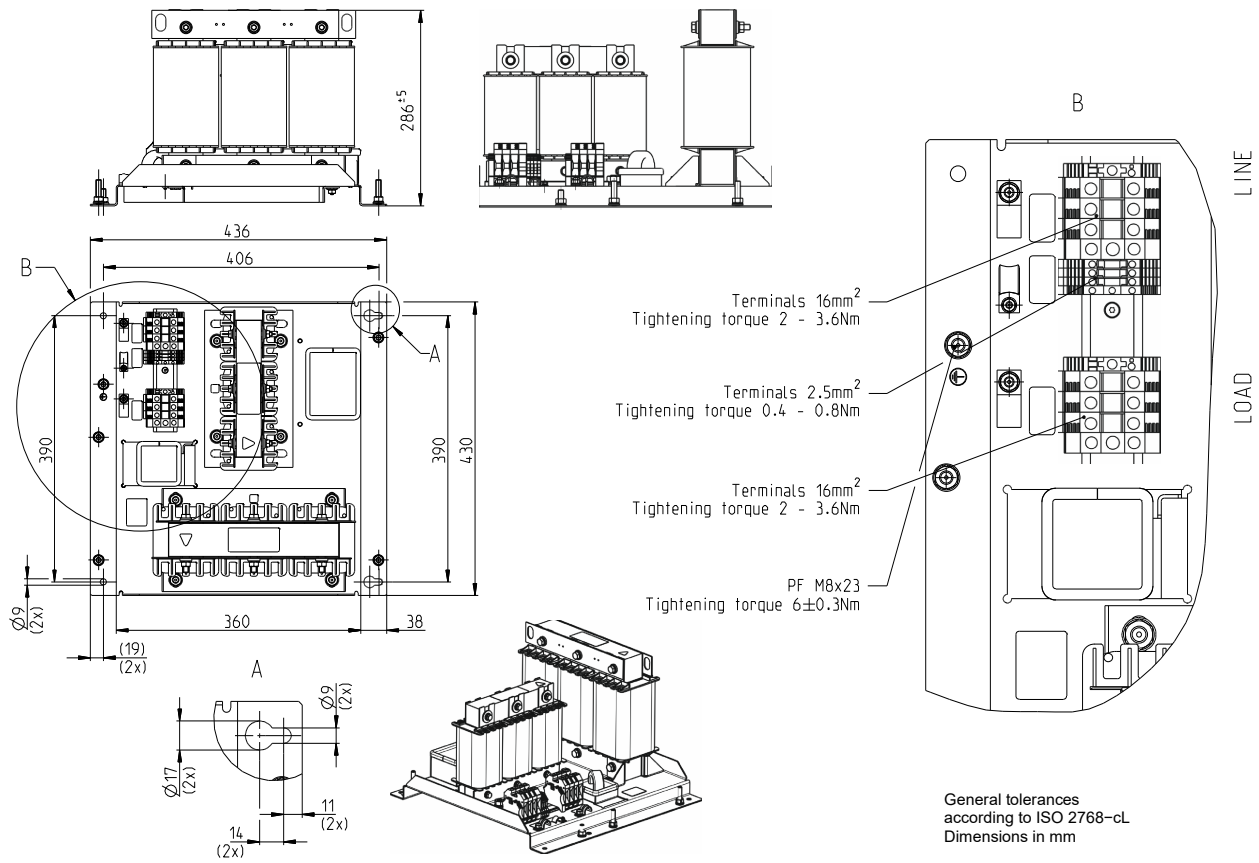


General tolerances
according to ISO 2768-cL
Dimensions in mm

B84143G0030R176

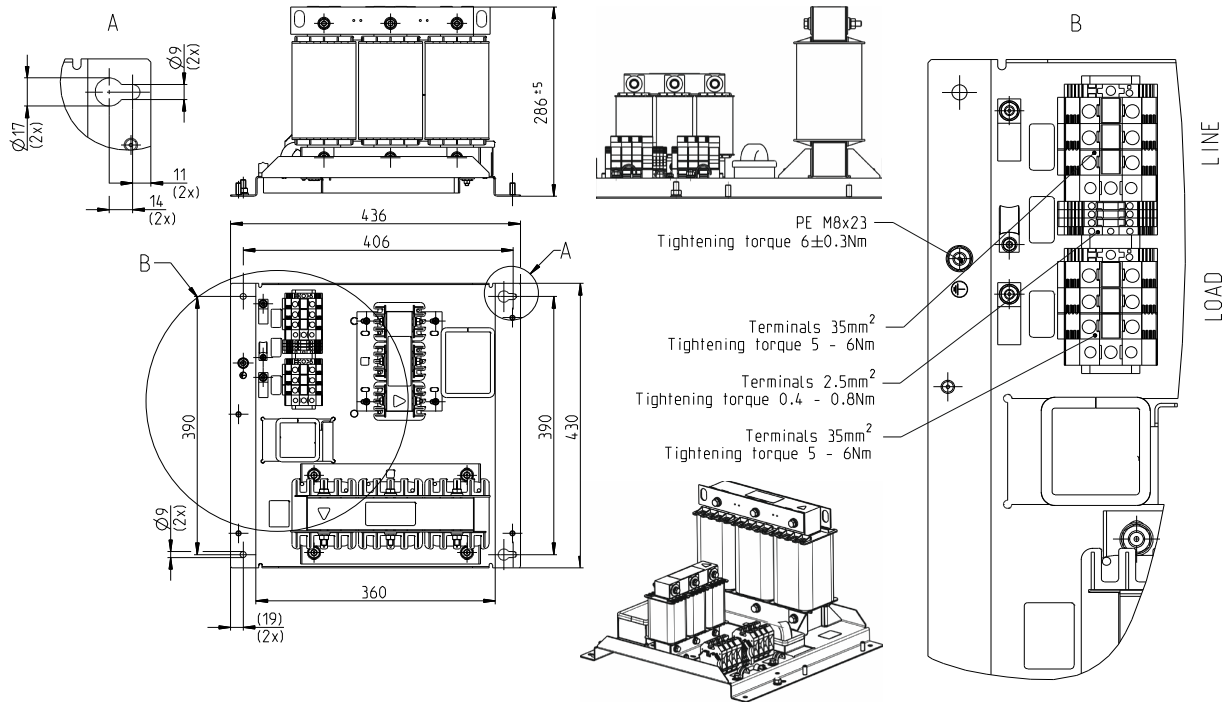


B84143G0043R176



General tolerances
according to ISO 2768-cL
Dimensions in mm

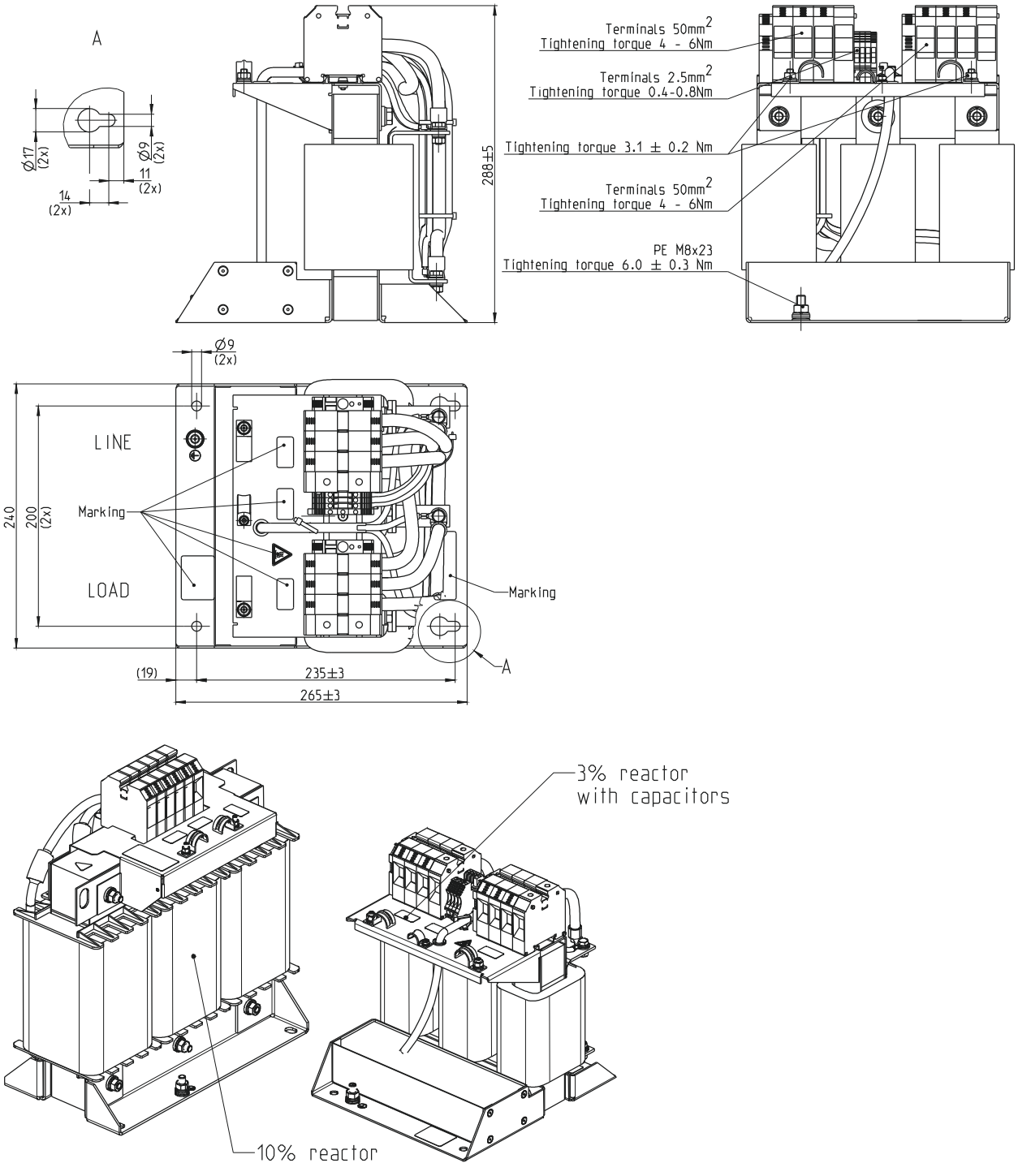
B84143G0058R176



General tolerances
according to ISO 2768-cL
Dimensions in mm

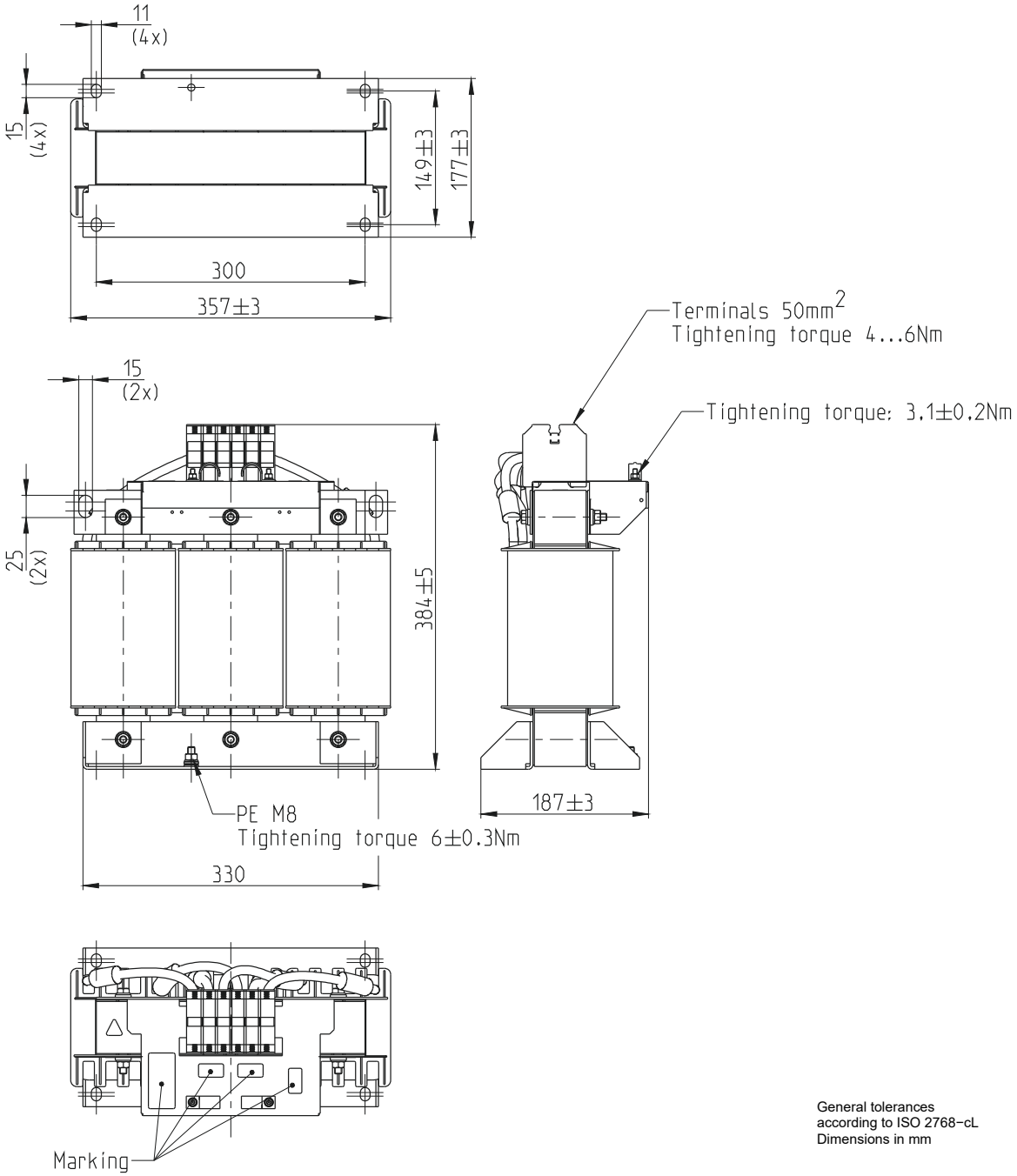
B84143G0086R176

Harmonic filter



General tolerances
according to ISO 2768-cL
Dimensions in mm

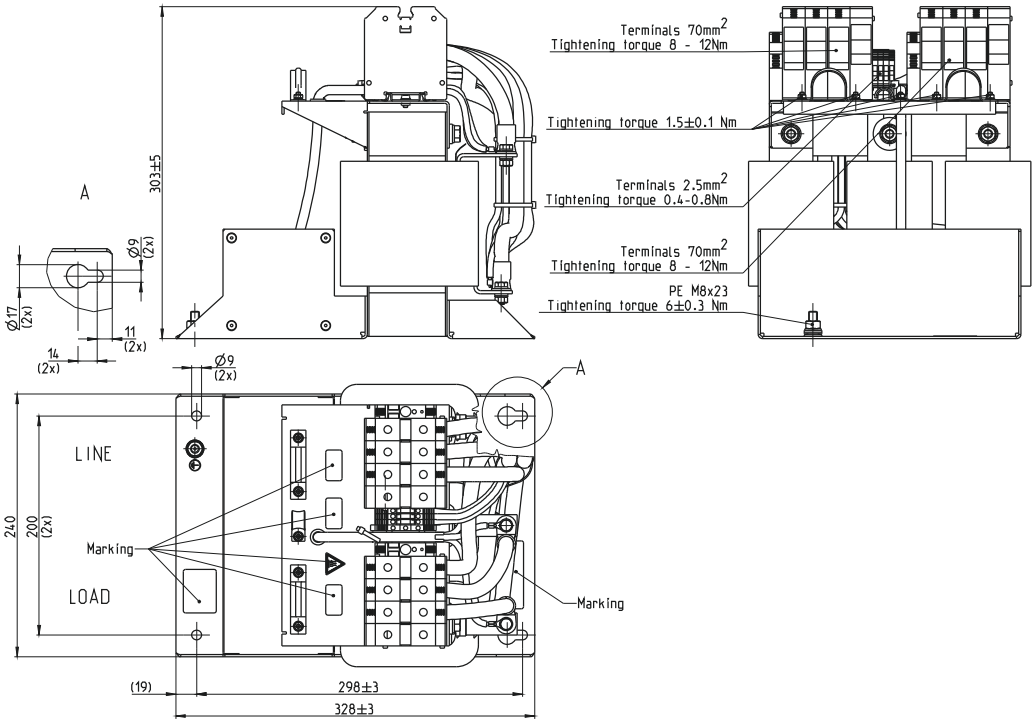
10%-choke



General tolerances
according to ISO 2768-cL
Dimensions in mm

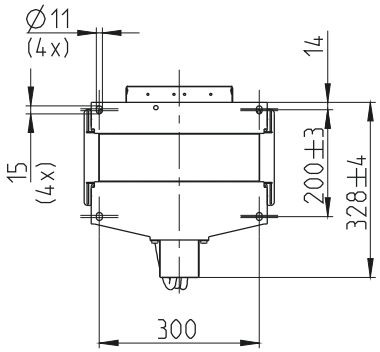
B84143G0145R176

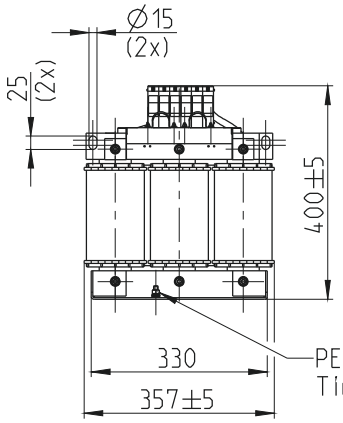
Harmonic filter

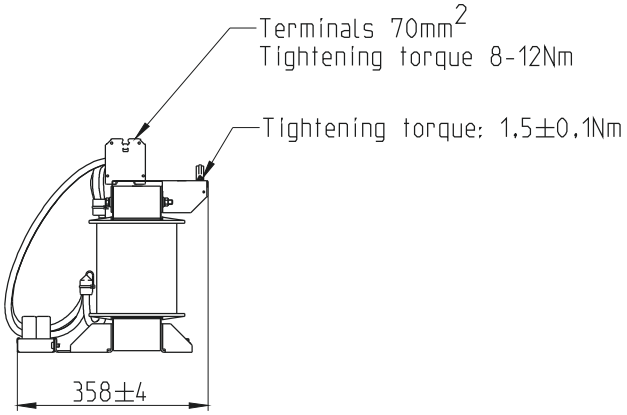


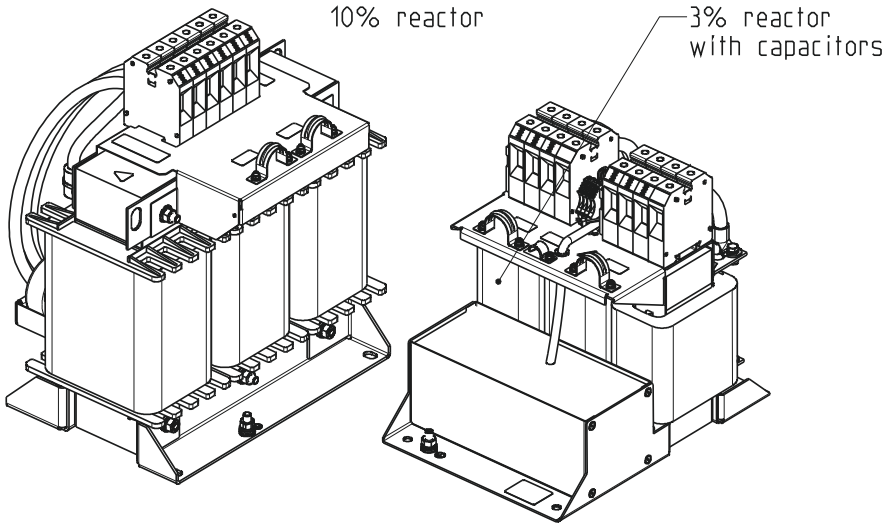
General tolerances
according to ISO 2768-cL
Dimensions in mm

10%-choke





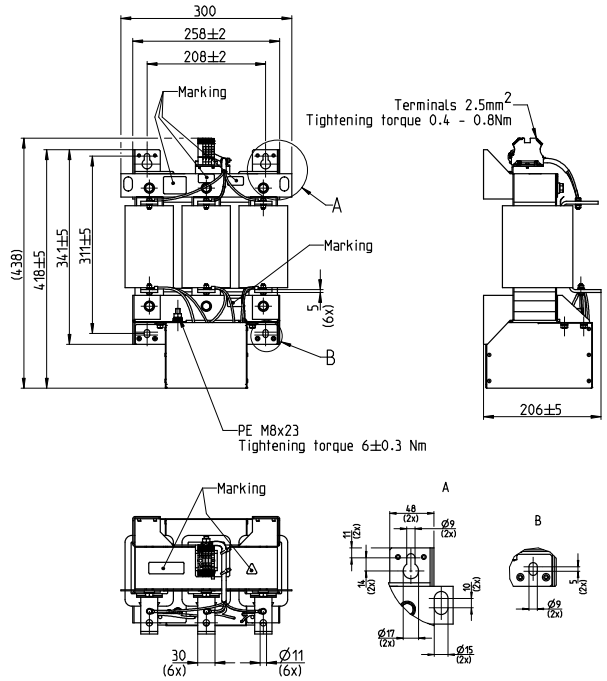


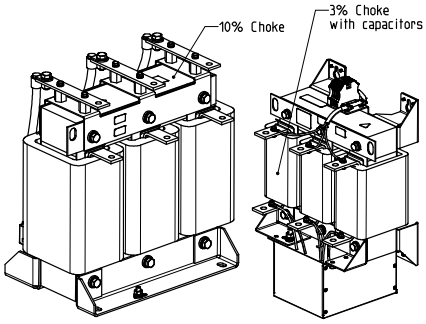


General tolerances
according to ISO 2768-cL
Dimensions in mm

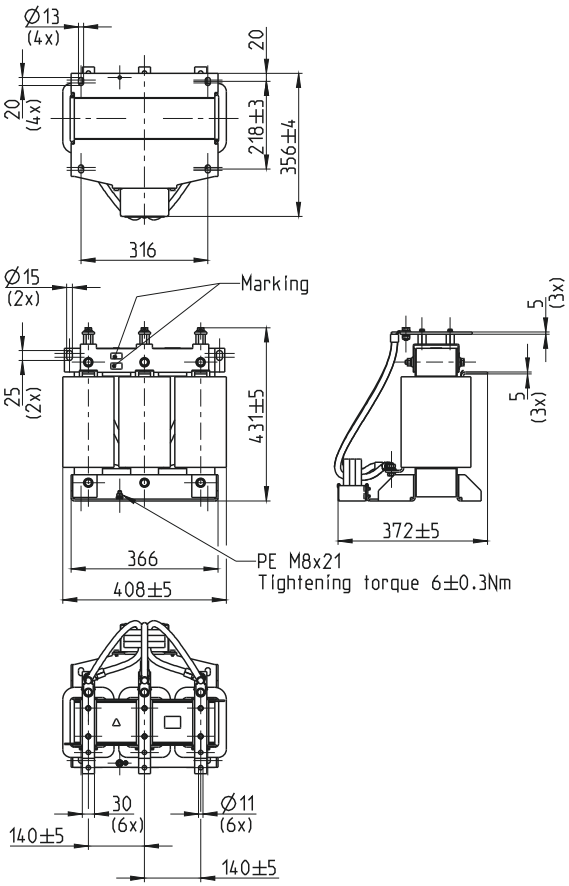
B84143G0210S176

Harmonic filter





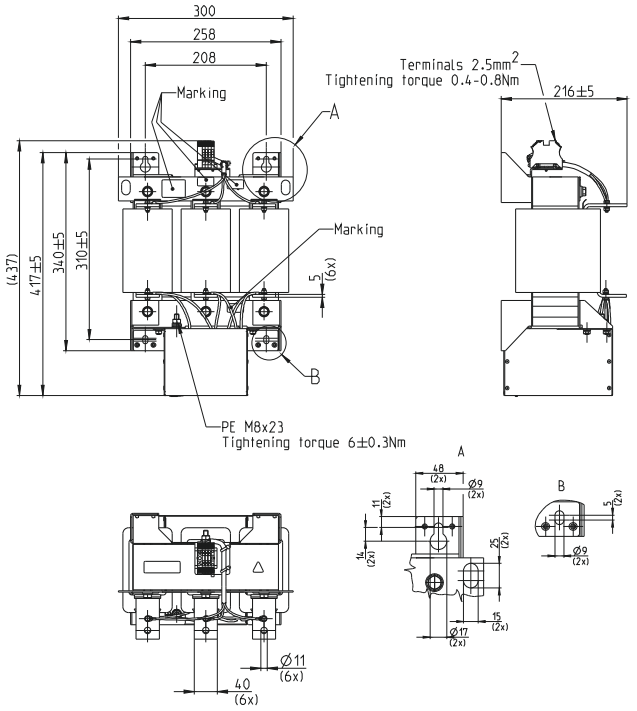
10%-choke



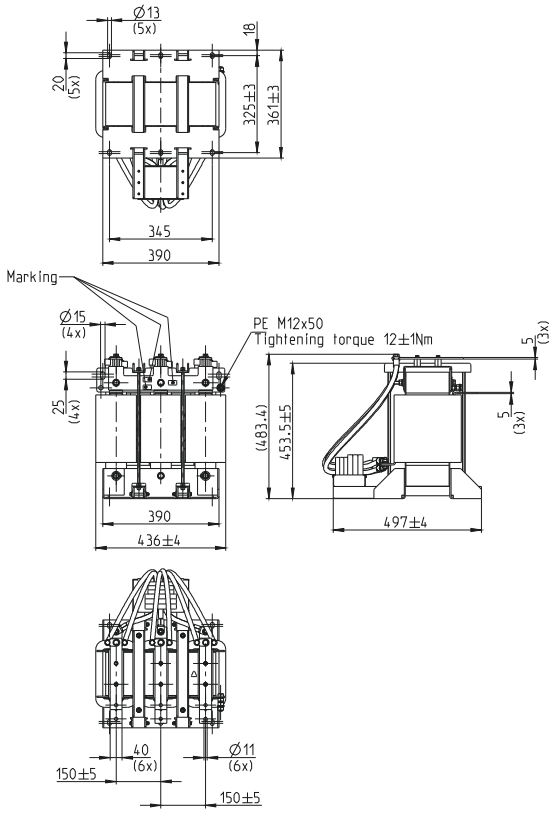
General tolerances
according to ISO 2768-cL
Dimensions in mm

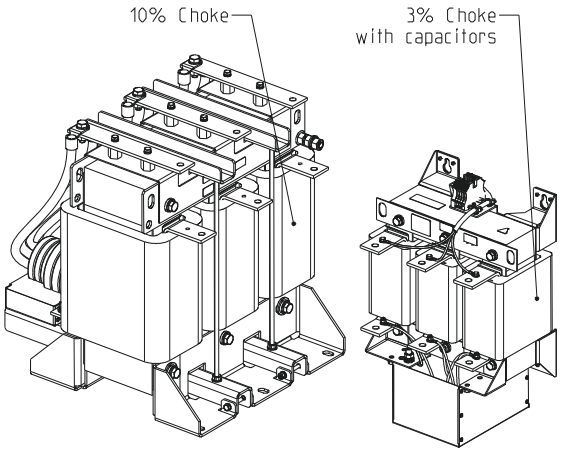
B84143G0300S176

Harmonic filter



10%-choke

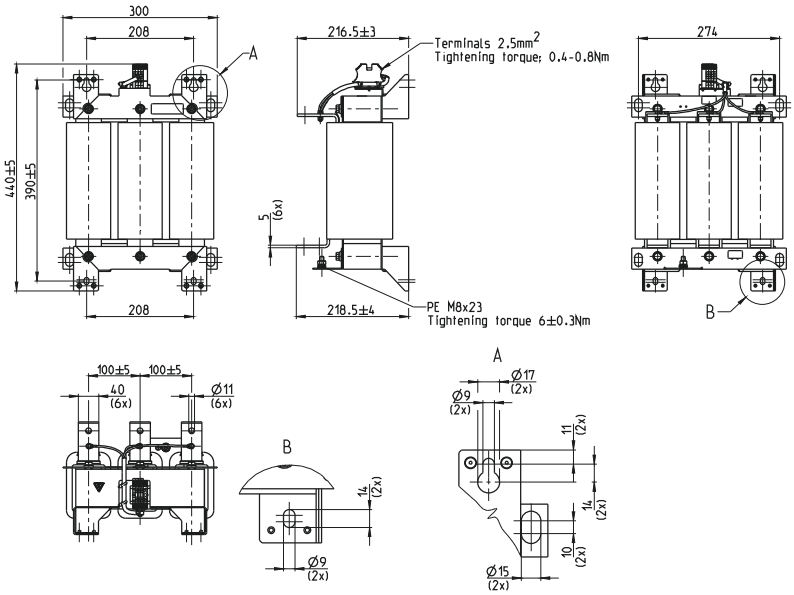




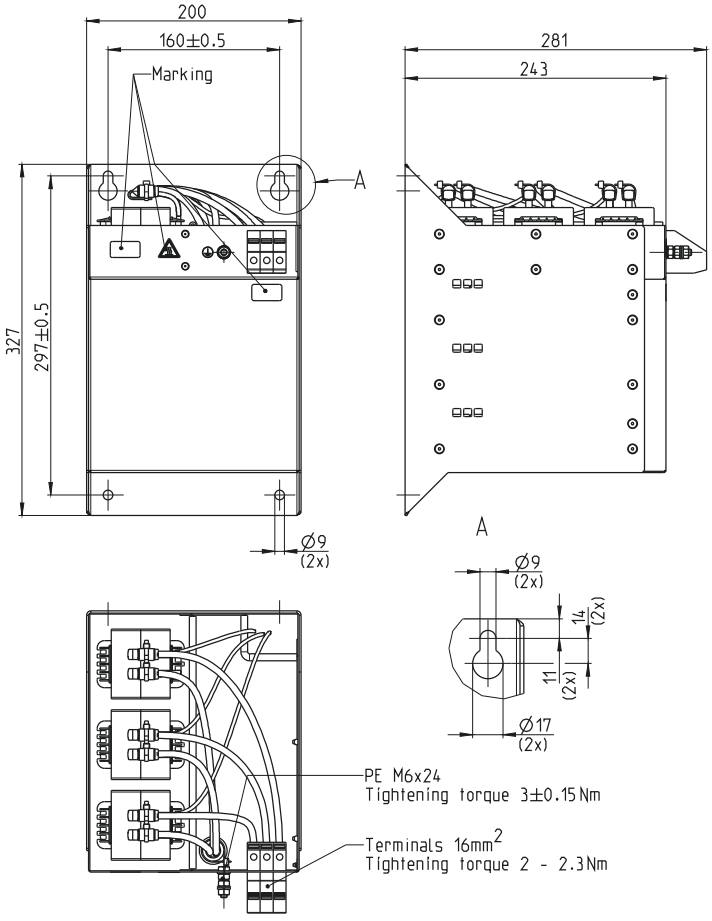
General tolerances
according to ISO 2768−cL
Dimensions in mm

B84143G0410S176

3%-choke

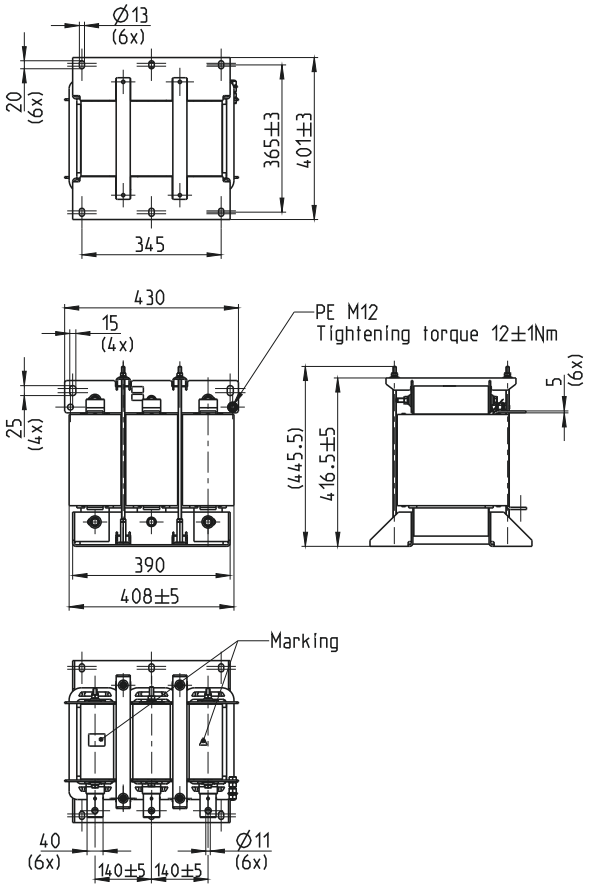


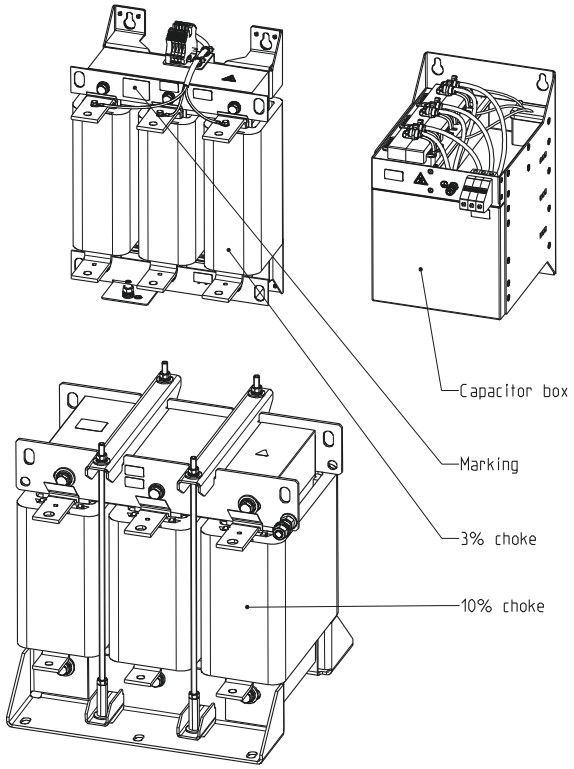
Capacitor box



General tolerances
according to ISO 2768-cL
Dimensions in mm

10%-choke

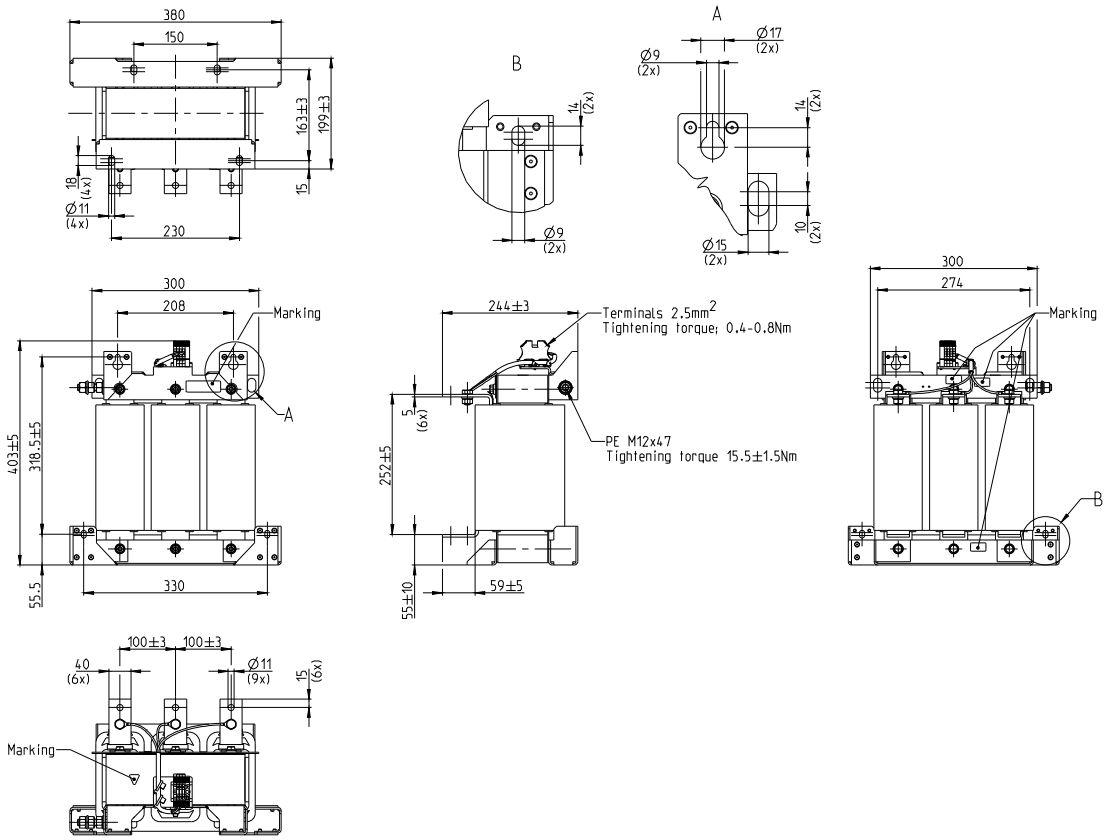




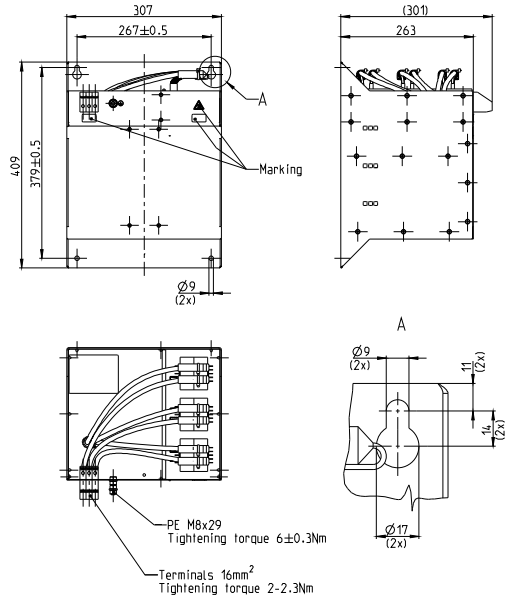
General tolerances
according to ISO 2768-cL
Dimensions in mm

B84143G0560S176

3%-choke

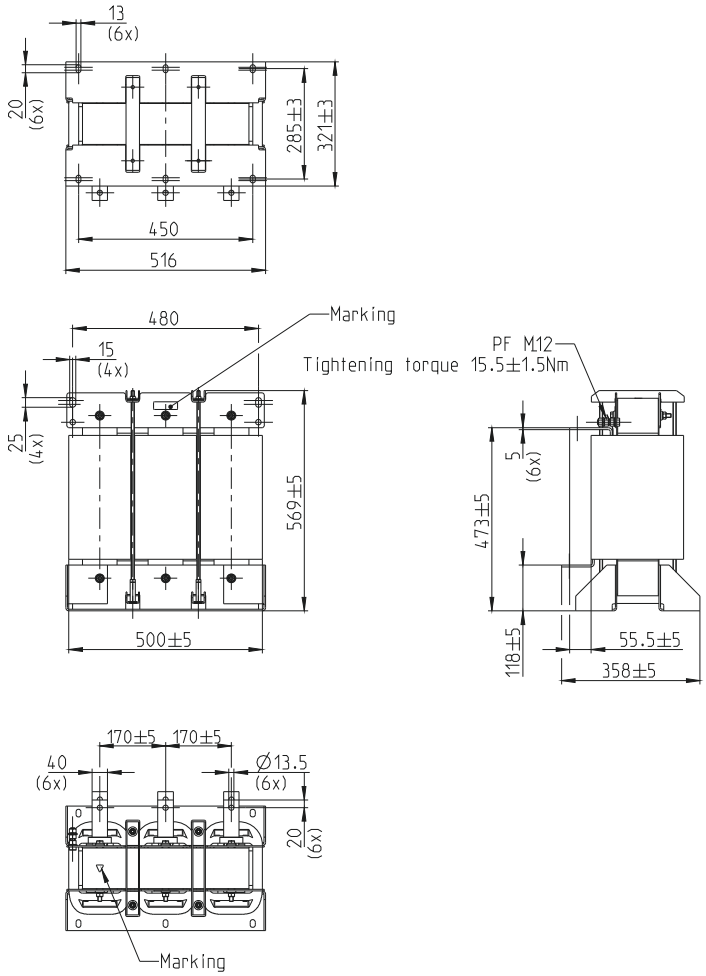


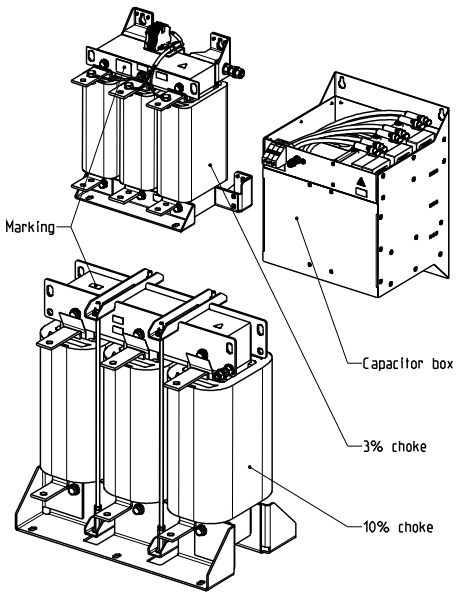
Capacitor box



General tolerances
according to ISO 2768-cL
Dimensions in mm

10%-choke

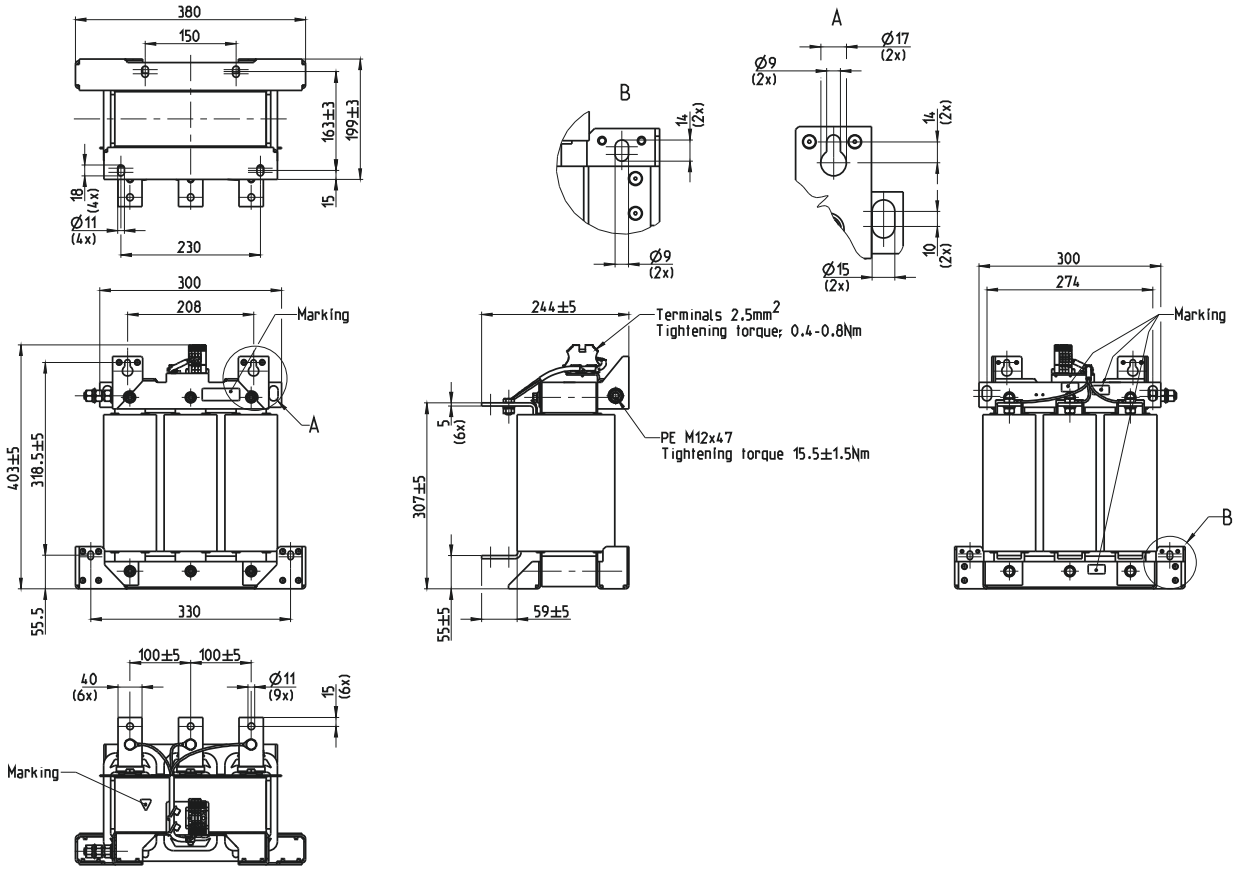




General tolerances
according to ISO 2768-cL
Dimensions in mm

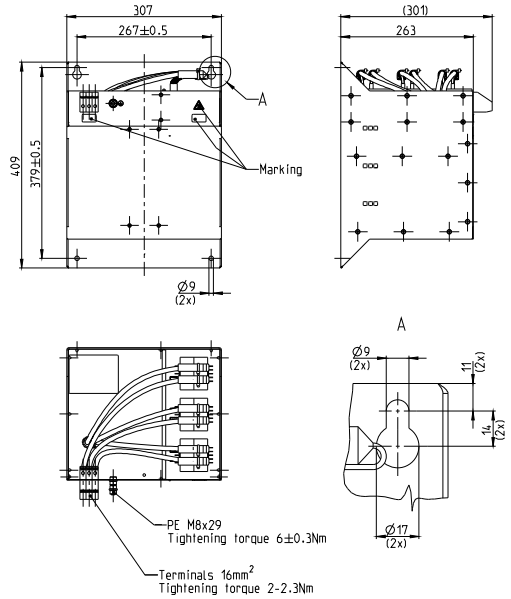
B84143G1140S176

3%-choke



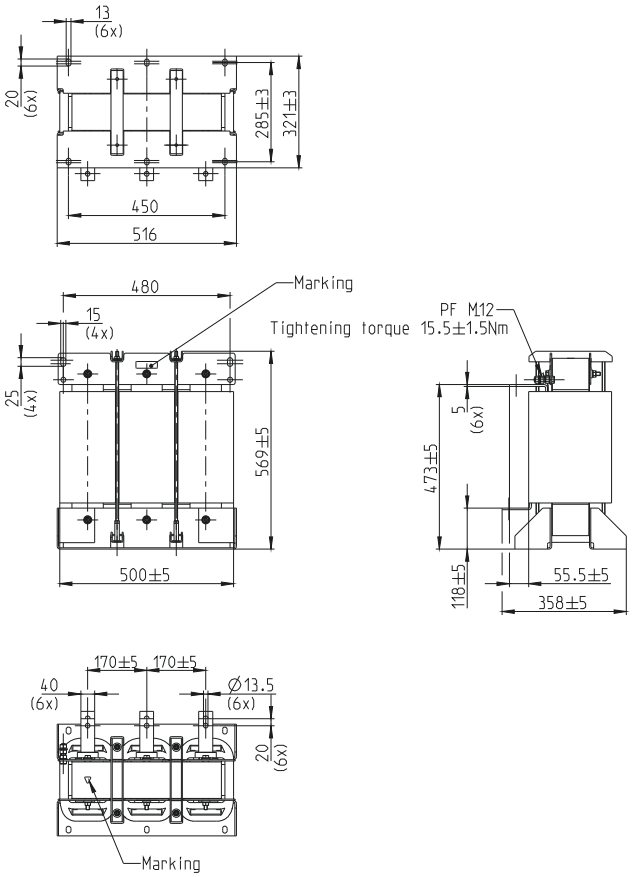
General tolerances
according to ISO 2768-cL
Dimensions in mm

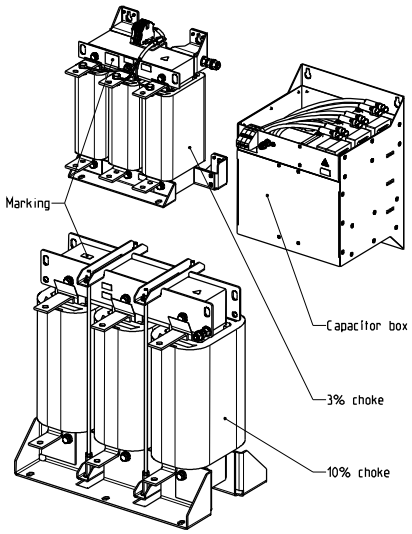
Capacitor box



General tolerances
according to ISO 2768-cL
Dimensions in mm

10%-choke

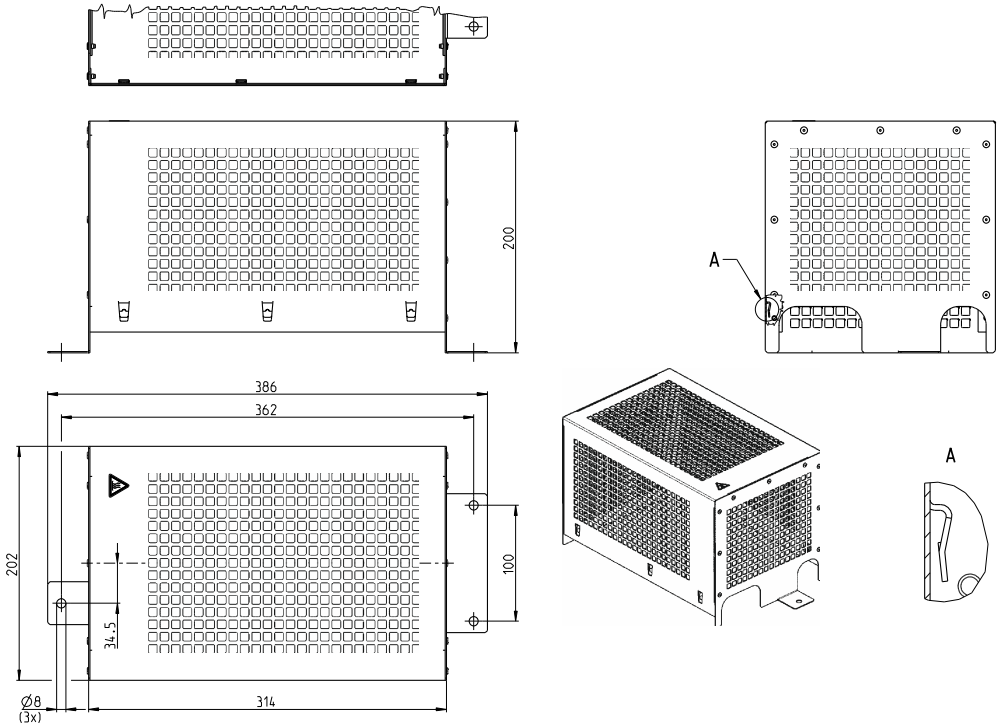




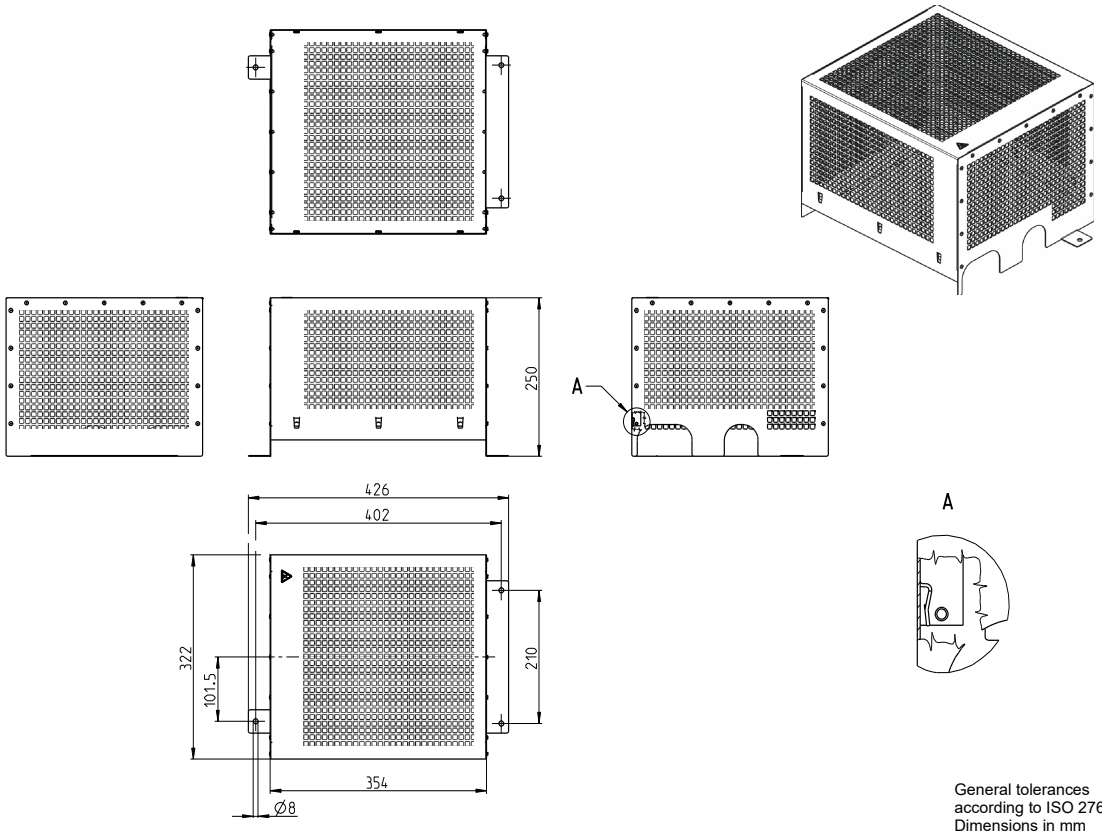
General tolerances
according to ISO 2768-cL
Dimensions in mm

Dimensional drawings for optional covers

B84143Q0008R176

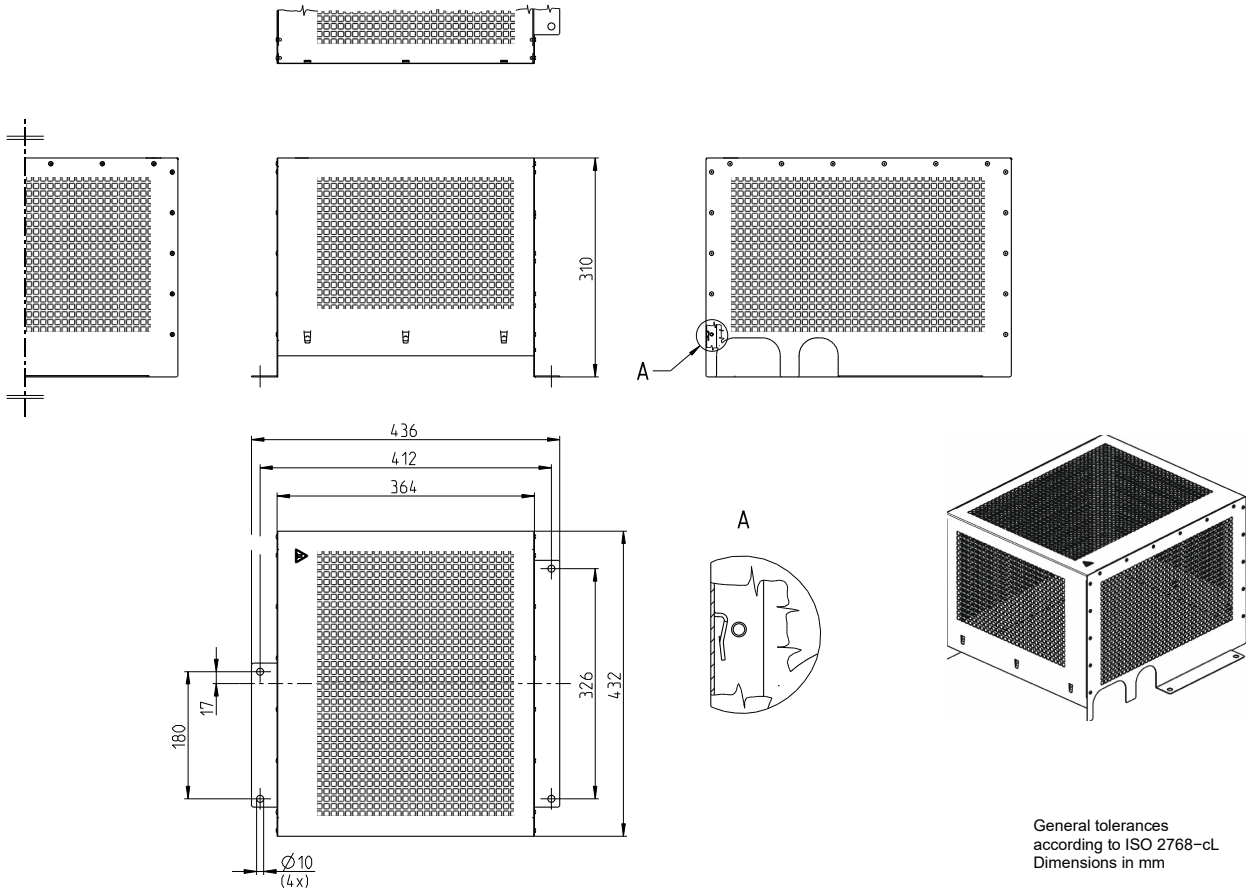


B84143Q0016R176



General tolerances
according to ISO 2768−cL
Dimensions in mm

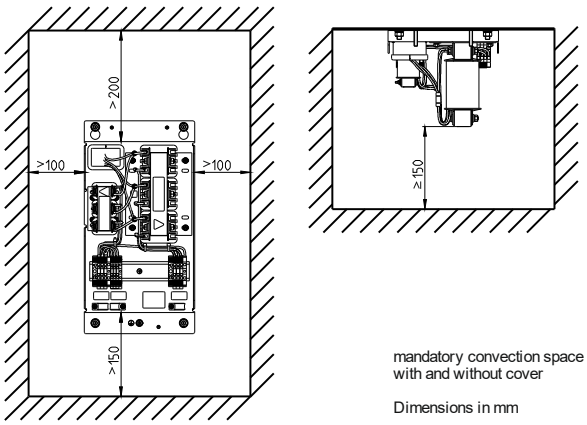
B84143Q0043R176



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

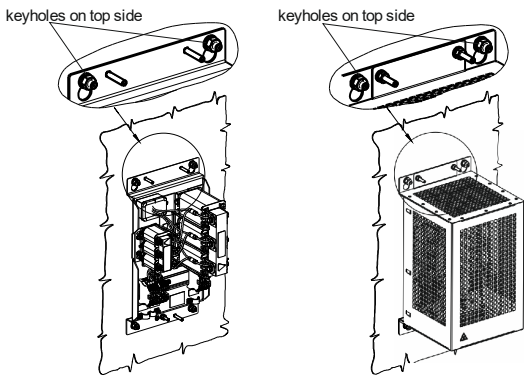
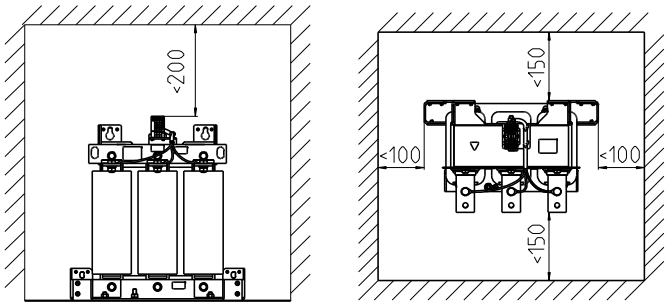
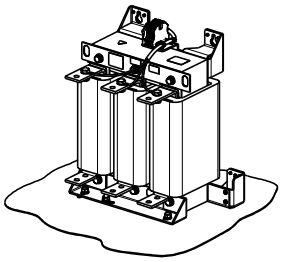


illustration with optional cover

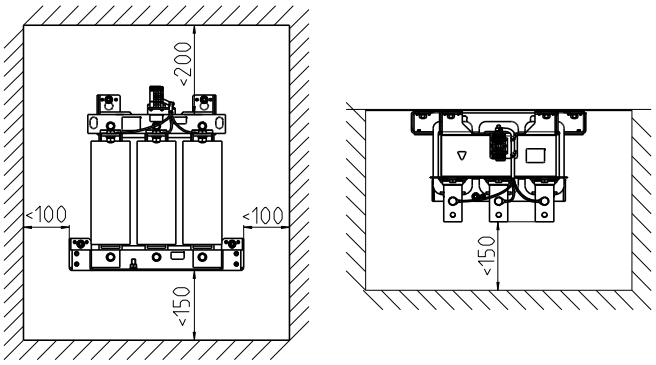
convection spacefor floor mounted design



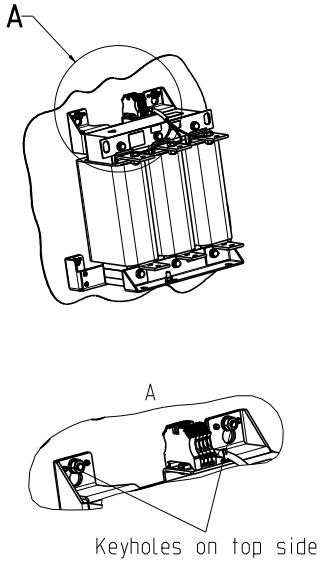
mounting direction for floor mounted design



convection spacefor wall mounted design



mounting direction for wall mounted design



Dimensions in mm

Cautions and warnings

- Please note further advice in our website www.tdk-electronics.tdk.com/**pemc_filters_gti**
- 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: The products contain components that store an electric charge. Dangerous voltages can continue to exist at the product 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 product is installed and secured against loosening by defined tightening torque. Remove them at last, when uninstalling. Depending on the magnitude of the leakage currents, the particular specifications for making the protective−earth connection must be observed.
- Impermissible overloading of the product, 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 product housing).
- The Products must be protected in the application against impermissible exceeding of the rated currents by overcurrent protective devices.
- For leakage currents >10 mA, a fixed connection of the protective earth conductor to the public power grid is required. This means that connection via plug connectors is not permitted. The protective conductor must have a minimum cross-section of 10 mm^2 Cu or 16 mm^2 Al over its entire length. Alternatively, two separate protective conductors with the minimum cross-section specified in each case can also be connected.
- For leakage currents 3.5 mA < I_{LK} [a] ≤ 10 mA, the following solutions are possible:
  - Stationary device with fixed connection
  - Stationary device with type B plug-in connection (industrial plug-in connection according to IEC 60309) and cross-section ≥ 2.5 mm^2
  - Stationary device with type A plug-in connection (non-industrial plug-in device) and additional second protective earth connection
  - Movable equipment with type A plug-in connection and additional second protective earth connection in premises with restricted access
- The products must be protected in the application against impermissible exceeding of the specification parameter.
- The converter output frequency must be within the specified range to avoid resonances and uncontrolled warming of the output chokes and output filters.
- The components can become very hot during operation, there is the risk of burns if touched. The product can remain hot for some time after the power is switched off!
- The products are only to be attached to the fixings or mounting holes provided for this purpose in accordance with the data sheet. It is not permitted for the product specified in the data sheet to assume a mechanical function in the final application, in particular any type of tension or pressure on the product must be prevented.

[a] I_{LK} = Leakage current

Display of ordering codes for TDK Electronics products

The ordering code for one and the same product can be represented differently in data sheets, data books, other publications, on the company 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.tdk-electronics.tdk.com/orderingcodes.

Important notes

The following applies to all products named in this publication:

1. Some parts of this publication contain **statements about the suitability of our products for certain areas of application**. These statements are based on our knowledge of typical requirements that are often placed on our products in the areas of application concerned. We nevertheless expressly point out **that such statements cannot be regarded as binding statements about the suitability of our products for a particular customer application.** As a rule we are either unfamiliar with individual customer applications or less familiar with them than the customers themselves. For these reasons, it is always ultimately incumbent on the customer to check and decide whether a product with the properties described in the product specification is suitable for use in a particular customer application.
2. We also point out that **in individual cases, a malfunction of electronic components or failure before the end of their usual service life cannot be completely ruled out in the current state of the art, even if they are operated as specified.** In customer applications requiring a very high level of operational safety and especially in customer applications in which the malfunction or failure of an electronic component could endanger human life or health (e.g. in accident prevention or life-saving systems), it must therefore be ensured by means of suitable design of the customer application or other action taken by the customer (e.g. installation of protective circuitry or redundancy) that no injury or damage is sustained by third parties in the event of malfunction or failure of an electronic component.
3. **The warnings, cautions and product-specific notes must be observed.**
4. In order to satisfy certain technical requirements, **some of the products described in this publication may contain substances subject to restrictions in certain jurisdictions (e.g. because they are classed as hazardous)**. Useful information on this will be found in our Material Data Sheets on the Internet (www.tdk-electronics.tdk.com/material). Should you have any more detailed questions, please contact our sales offices.
5. We constantly strive to improve our products. Consequently, **the products described in this publication may change from time to time**. The same is true of the corresponding product specifications. Please check therefore to what extent product descriptions and specifications contained in this publication are still applicable before or when you place an order.

   We also **reserve the right to discontinue production and delivery of products**. Consequently, we cannot guarantee that all products named in this publication will always be available. The aforementioned does not apply in the case of individual agreements deviating from the foregoing for customer-specific products.
6. Unless otherwise agreed in individual contracts, **all orders are subject to our General Terms and Conditions of Supply.**
7. **Our manufacturing sites serving the automotive business apply the IATF 16949 standard.** The IATF certifications confirm our compliance with requirements regarding the quality management system in the automotive industry. Referring to customer requirements and customer specific requirements (“CSR”) TDK always has and will continue to have the policy of respecting individual agreements. Even if IATF 16949 may appear to support the acceptance of unilateral requirements, we hereby like to emphasize that **only requirements mutually agreed upon can and will be implemented in our Quality Management System.** For clarification purposes we like to point out that obligations from IATF 16949 shall only become legally binding if individually agreed upon.
8. The trade names EPCOS, CarXield, CeraCharge, CeraDiode, CeraLink, CeraPad, CeraPlas, CSMP, CTVS, DeltaCap, DigiSiMic, FilterCap, FormFit, InsuGate, LeaXield, MediPlas, MiniBlue, MiniCell, MKD, MKK, ModCap, MotorCap, PCC, PhaseCap, PhaseCube, PhaseMod, PhiCap, PiezoBrush, PlasmaBrush, PowerHap, PQSine, PQvar, SIFERRIT, SIFI, SIKOREL, SilverCap, SIMDAD, SiMic, SIMID, SineFormer, SIOV, SurfIND, ThermoFuse, WindCap, XieldCap are **trademarks registered or pending** in Europe and in other countries. Further information will be found on the Internet at www.tdk-electronics.tdk.com/trademarks.

Release 2024-02