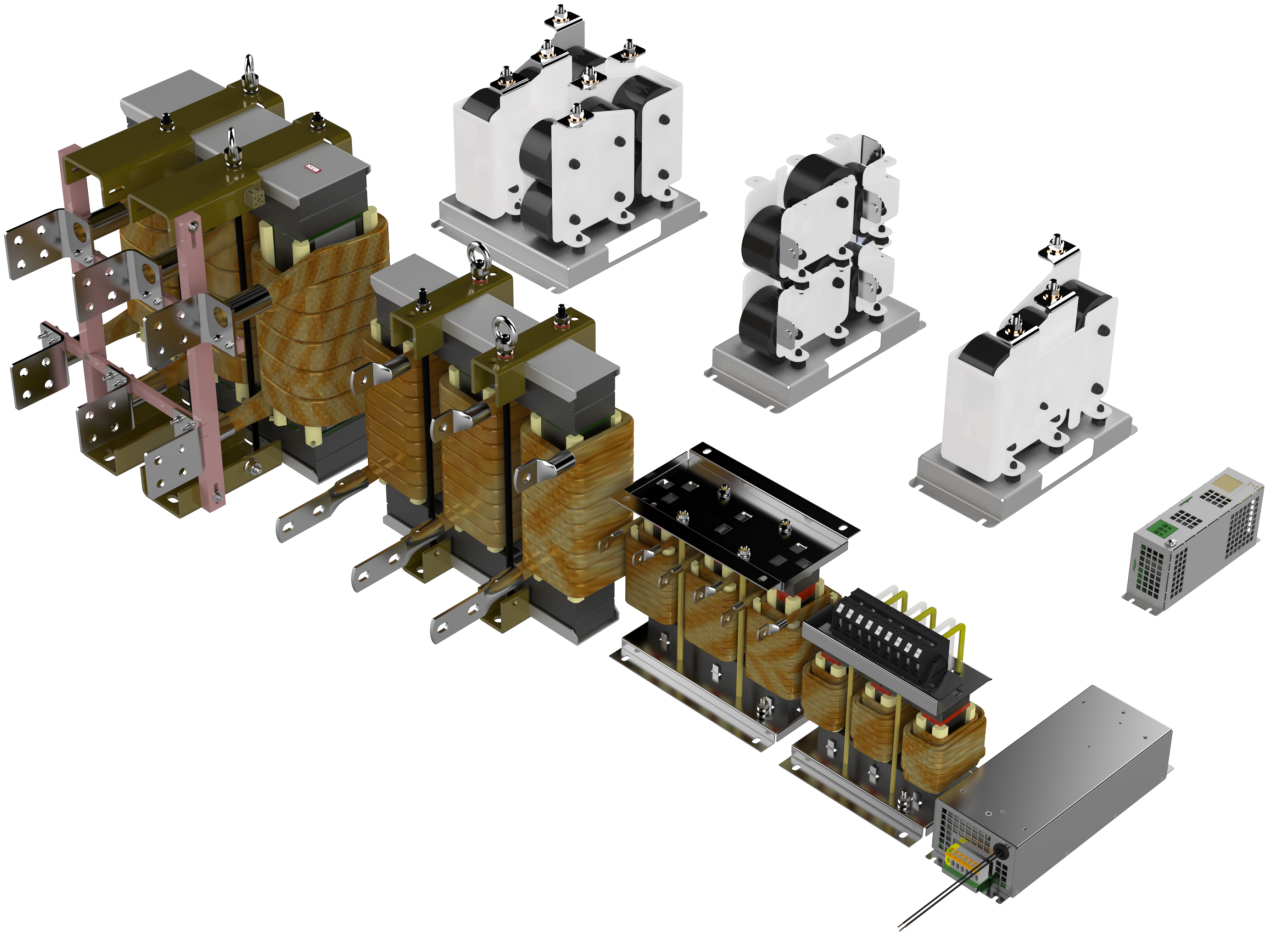


Instructions for Use

COMBILINE Z2

Sine-Wave Filter

Translation of the original manual

Document 20184032 EN 08

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1 Introduction

The described devices, accessories, hardware and/or software are products of KEB Automation KG. The enclosed documents correspond to conditions valid at printing. Misprint, mistakes and technical changes reserved.

1.1 Markings

1.1.1 Warnings

Certain operations can cause hazards during the installation, operation or thereafter. There is safety information in the documentation in front of these operations.

Warnings contain signal words for the severity of the hazard, the type and/or source of the hazard, the consequence of non-compliance and the measures to avoid or reduce the hazard.

⚠ DANGER



Type and/or source of the hazard.

Leads to death or serious bodily injury if not observed.

a) Measures to avoid the hazard.

b) Can be supplemented by an additional danger sign or pictogram.

⚠ WARNING



Type and/or source of the hazard.

May cause death or serious injury if not observed.

a) Measures to avoid the hazard.

b) Can be supplemented by an additional danger sign or pictogram.

⚠ CAUTION



Type and/or source of the hazard.

May cause bodily injury if not observed.

a) Measures to avoid the hazard.

b) Can be supplemented by an additional danger sign or pictogram.

NOTICE



Type and/or source of the hazard.

Can cause damage to property if not observed.

a) Measures to avoid the hazard.

b) Can be supplemented by an additional danger sign or pictogram.

1.1.2 Information notes



Indicates to the user a special condition, prerequisite, scope or simplification.



This is a reference to further documentation. The barcode is for smartphones, the following link is for online users or for typing.

(🌐► https://www.keb-automation.com/search)



Notes on conformity for use in the North American or Canadian market.

1.1.3 Symbols and markers

✓	Condition
a)	Action step
⇨	Result or intermediate result
(≡► Refe [▷ 6])	Reference to a chapter, table or picture with page reference
ru21	Parameter name or parameter index
(🌐►)	Hyperlink
<Strg>	Control code
COMBIVERT	Glossary entry

1.2 Laws and guidelines

KEB Automation KG confirms with the CE mark and the EU declaration of conformity that our device complies with the essential safety requirements.

The EU declaration of conformity can be downloaded on demand via our website.

1.3 Warranty and liability

The warranty and liability on design, material or workmanship for the acquired device is given in the general conditions of sale.



Here you will find our general sales conditions.

(🌐► https://www.keb-automation.com/terms-conditions)

Further agreements or specifications require a written confirmation.

1.4 Support

Through multiple applications, not every possible case has been taken into account. If you require further information or if problems occur which are not treated detailed in the documentation, you can request the necessary information via the local KEB Automation KG agency.

The use of our units in the target products is beyond of our control and therefore exclusively the responsibility of the customer**.**

The information contained in the technical documentation, as well as any support provided verbally, written or through testing, is made to the best of our knowledge and information regarding intended use of KEB products. However, due to technical changes, any information provided is considered non-binding and is subject to change. This also applies to any violation of industrial property rights of a third-party.

Selection of KEB units in view of their suitability for the intended use must be done by the user.

Tests can only be carried out within the scope of the intended end use of the product (Application**) by the** Customer**. They must be repeated, even if only parts of hardware, software or the unit adjustment are modified.**

1.5 Copyright

The customer may use the instructions for use and other documents accompanying the device or parts thereof for internal purposes. Copyrights are with KEB Automation KG and remain valid in its entirety.

Other word and/or figurative marks are trademarks (™) or registered trademarks (®) of their respective owners.

1.6 Validity of this manual

These instructions for use are valid for the units specified in the product description. It can be supplemented by corresponding options or special designs. It contains:

- Safety instructions to be observed
- Information on intended use
- Description of the device
- Technical Data
- Installation
- Connection
- Operation
- Maintenance, service and disposal

2 General Safety Instructions

The products are developed and built according to the state of the art and recognized safety rules. Nevertheless, their use may create dangers to life and limb of the user or third parties or damage to the machine and other material property.

The following safety instructions have been created by the manufacturer for the area of electric drive technology. They can be supplemented by local, country- or application-specific safety instructions. This list is not exhaustive. Non-observance of the safety instructions by the customer, user or other third party leads to the loss of all resulting claims against the manufacturer.

NOTICE



Hazards and risks through ignorance!

a) Read the instructions for use.

b) Observe the safety and warning instructions.

c) Ask if something is unclear.

2.1 Installation

⚠ DANGER



Explosion hazard due to sparking!

a) Do not operate the unit in a potentially explosive environment.

⚠ CAUTION



Design-related edges and heavy weight

Contusions and bruises

a) Never stand under suspended loads.

b) Wear safety shoes.

c) Secure product accordingly when using lifting tools.

2.2 Electrical installation

⚠ DANGER



Large live parts that can be touched

Risk of death from electric shock!

✓ This device is intended for installation in control cabinets or machinery that may be operated at hazardous voltages. Whenever carrying out any work on the device:

a) Switch off the supply voltage to the control cabinet or machine.

b) Prevent the power from being switched on again.

c) Wait until all drives have come to a standstill so that no energy can be generated by the generators.

d) Wait for the capacitor discharge time of the upstream drive controller (at least 5 minutes) to elapse.

e) Check that there is no voltage by taking a measurement.

f) Never bypass upstream protective devices. Not even for testing purposes.

2.3 Start-up and operation

⚠ DANGER



Operation without a motor

Electrical shock

✓ Operation the system without the motor results in an unpredictable discharge time for the capacitors.

a) Operation without the motor is also prohibited, even for testing purposes.

b) Before carrying out any work, check that the system is de-energised.

⚠ CAUTION



High temperatures at the unit!

Burning of the skin

a) Cover hot surfaces safe-to-touch.

b) If necessary, attach warning signs on the system.

c) Before any working let the unit cool down.

d) Check the temperature before touching any parts.

3 Product description

This manual describes the sine-wave filters of the COMBILINE Z2 series.

The sine-wave filters will consist of a motor choke, a capacitor module and a suitable cable set.

Components	Material number	Meaning	
Z2 motor choke	xxZ2F04-1003	xx	Size of the motor choke
Z2 capacitor module	00Z2G24-xxxx	00x5 00x6 00x7	Capacitor modules in housing
		A0x1 A0x2	Capacitor module on a small base
		A0x3 A0x4	Large-footprint capacitor module
		A2xx	Duplicate version
Z2 cable set	00Z2T09-xxxx	0xxx	Wire end ferrules or ring crimp connectors on both sides
		1xxx	Different ring crimp connectors
		2xxx	Ring crimp connector and wire end ferrule
		x010	Cable cross-section in mm2 (example 10mm^2)

The motor choke reduces ripples in the motor current and lowers the du/dt to protect the motor insulation. It can also be used without a capacitor module.

If the capacitor module is connected downstream, a sine-wave filter is obtained. The sine-wave filter acts as a low-pass filter for the switching frequency components of the drive concontroller output voltage and provides a sinusoidal voltage between the phases.

The components can be combined to provide an optimal solution for every application!

3.1 Intended use

The sine-wave filters are intended for installation in electrical systems or machines. Technical data and information for connection conditions shall be taken from the nameplate and from the instructions for use and must be strictly observed.

3.2 Unintended use

Operation of our products outside the limits specified in the technical data leads to the loss of any liability claims and specified approvals/acceptances.

3.3 Product features

The COMBILINE Z2 sine-wave filters are characterised by the following features.

Using a motor choke offers the following advantages:

- Reduction in the rate of voltage rise (du/dt)
- Reduction of motor winding currents
- Reduction of motor losses
- Reduction of engine noise

When using a sine-wave filter (motor choke with a capacitor module connected downstream), the sinusoidal output voltage offers the following advantages:

- Reduction of motor losses

- Reduction of the motor warming
- Reduction of motor noise
- Reduction of motor winding currents
- Reduction of EMC emissions
- The sine-wave filters significantly extend the service life of the motor.

The design of the output filters is characterised by the following features:

- Low-loss winding strands as conductor material
- Core material specially designed for this frequency range
- Specialised capacitors for operation at up to 800 / 1200 / 1600 Hz

4 Technical data

4.1 Operating conditions

4.1.1 Climatic ambient conditions

Storage	Standard	Class	Notes
Ambient temperature	EN 60721-3-1	1K4	-25…55 °C
Relative humidity	EN 60721-3-1	1K3	5…95 % (without condensation)
Storage height	-	-	Max. 3000 m above NHN

Transportation	Standard	Class	Notes
Ambient temperature	EN 60721-3-2	2K3	-25…70 °C
Relative humidity	EN 60721-3-2	2K3	95 % at 40 °C (without condensation)

Operation	Standard	Class	Notes
Ambient temperature	EN 60721-3-3	3K3	5…40 °C (extended to -10…45 °C)
Relative humidity	EN 60721-3-3	3K3	5…85 % (without condensation)
Version and degree of protection	EN 60529	IP00	
Site altitude	-	-	Thrushes: Max. 2000 m above sea level ( ) NHN Capacitor assemblies: Max. 3000 m above NHN From 1000 m, a power reduction of 1 % per 100 m must be taken into account.

4.1.2 Mechanical ambient conditions

Storage	Standard	Class	Notes
Vibration limits	EN 60721-3-1	1M2	Vibration amplitude 1.5 mm (2–9 Hz) Acceleration amplitude 5 m/s² (9…200 Hz)
Shock limit values	EN 60721-3-1	1M2	40 m/s²; 22 ms

Transport	Standard	Class	Notes
Vibration limits	EN 60721-3-2	2M1	Vibration amplitude 3.5 mm (2...9 Hz) Acceleration amplitude 10 m/s² (9...200 Hz)
Shock limit values	EN 60721-3-2	2M1	100 m/s²; 11 ms

Operation	Standard	Class	Notes
Vibration limits	EN 60721-3-3	3M4	Vibration amplitude 0.3 mm (2–9 Hz) Acceleration amplitude 10 m/s² (9–200 Hz)
Shock limit values	EN 60721-3-3	3M4	100 m/s²; 11 ms

4.1.3 Chemical/mechanical active substances

Storage	Standard	Class	Notes
Contamination gases	EN 60721-3-1	1C2	-
Contamination solids	EN 60721-3-1	1S2	-

Transportation	Standard	Class	Notes
Contamination gases	EN 60721-3-2	2C2	-
Contamination solids	EN 60721-3-2	2S2	-

Operation	Standard	Class	Notes
Contamination gases	EN 60721-3-3	3C2	-
Contamination solids	EN 60721-3-3	3S2	-

4.1.4 Electrical operating conditions

4.1.4.1 Device classification

Requirement	Standard	Class	Notes
Pollution degree	EN 60664-1	2	Non-conductive pollution, occasional condensation when PDS is out of operation.

4.2 Electrical data

4.2.1 Motor chokes

Rated voltage	400 V
Rated voltage UL	480 V

Tab. 1: Electrical data of the product line

Material number	Current	Inductance	Resistance	Frequency	Typical power dissipation in watts			Frequency range	Overload (60 s)
-	in A	in mH (max. ±10%)	in mΩ (max. ±10%)	in Hz	at 600 Hz	at 800 Hz	at 1600 Hz	in Hz	as a percentage
07Z2F04-1003	2.6	3.5	407	800	—	18	26.5	0...1600	150
09Z2F04-1003	4,1	2,2	198	800	—	32	44	0...1600	150
10Z2F04-1003	5,8	1,58	172	800	—	48	74	0...1600	150
12Z2F04-1003	9,5	0,88	68	800	—	99	136	0...1600	150
13Z2F04-1003	12	0,766	52	800	—	35	46	0...1600	150
14Z2F04-1003	16,5	0,557	31	800	—	44	61	0...1600	150
15Z2F04-1003	24	0,383	22	800	—	66	92	0...1600	150
16Z2F04-1003	33	0,278	16	800	—	102	135	0...1600	150
17Z2F04-1003	42	0,219	9,52	800	—	115	148	0...1600	150
18Z2F04-1003	50	0,184	6	800	—	92	109	0...1600	150
19Z2F04-1003	60	0,153	6	800	—	124	152	0...1600	150
20Z2F04-1003	75	0,123	6,1	800	—	152	180	0...1600	150
21Z2F04-1003	90	0,102	3,6	800	—	147	177	0...1600	150
22Z2F04-1003	115	0,08	3,7	800	—	224	264	0...1600	150
23Z2F04-1003	150	0,082	2,4	600	264	—	340	0...1600	150
24Z2F04-1003	180	0,068	2,4	600	390	—	530	0...1600	150
25Z2F04-1003	210	0,058	1,5	600	430	—	572	0...1600	125
26Z2F04-1003	250	0,049	1	600	492	—	732	0...1600	125
27Z2F04-1003	300	0,041	1	600	515	—	852	0...1600	125
28Z2F04-1003	370	0,033	0,58	600	515	—	935	0...1600	125
29Z2F04-1003	460	0,027	0,48	600	777	—	1079	0...1600	125
30Z2F04-1003	570	0,021	0,39	600	963	—	1122	0...1600	125
31Z2F04-1003	630	0,019	0,285	600	945	1018	—	0...1000	125
32Z2F04-1003	710	0,017	0,236	600	953	1067	—	0...1000	125
33Z2F04-1003	800	0,015	0,176	600	949	1071	—	0...1000	125

Tab. 2: Electrical data of the motor chokes

4.2.2 Capacitor modules

Rated voltage	400 V
Rated voltage UL	480 V

Tab. 3: Electrical data of the product line

	Max. current at max. frequency	Max. frequency	Capacity in delta (±10%)	power dissipation	Design type
00Z2G24-0005	0.21 A	1600 Hz	3 x 0.0226 µF	< 10 W	A
00Z2G24-0015	0.45 A	1600 Hz	3 x 0.05 µF	< 10 W	A
00Z2G24-0025	0.68 A	1600 Hz	3 x 0.073 µF	< 10 W	A
00Z2G24-0035	1 A	1600 Hz	3 x 0.11 µF	< 10 W	A
00Z2G24-0045	1.45 A	1600 Hz	3 x 0.157 µF	< 10 W	A
00Z2G24-0055	2 A	1600 Hz	3 x 0.227 µF	< 10 W	A
00Z2G24-0065	3 A	1600 Hz	3 x 0.33 µF	< 10 W	A
00Z2G24-0006	4.5 A	1600 Hz	3 x 0.49 µF	< 15 W	A
00Z2G24-0016	6.1 A	1600 Hz	3 x 0.67 µF	< 15 W	A
00Z2G24-0007	7.6 A	1600 Hz	3 x 0.82 µF	< 15 W	A
00Z2G24-0017	9.2 A	1600 Hz	3 x 1 µF	< 15 W	A
00Z2G24-0027	10.6 A	1600 Hz	3 x 1.15 µF	< 20 W	A
00Z2G24-0037	12.3 A	1600 Hz	3 x 1.33 µF	< 20 W	A
00Z2G24-0047	15.3 A	1600 Hz	3 x 1.67 µF	< 20 W	A
00Z2G24-0057	18.4 A	1600 Hz	3 x 2 µF	< 20 W	A
00Z2G24-A001	80 A	1600 Hz	3 x 8.5 µF	< 70 W	G
00Z2G24-A002	150 A	1600 Hz	3 x 18.5 µF	< 120 W	G
00Z2G24-A011	80 A	1600 Hz	3 x 10 µF	< 70 W	G
00Z2G24-A012	150 A	1600 Hz	3 × 21 µF	< 70 W	G
00Z2G24-A014	420 A	800 Hz	3 x 132 µF	< 220 W	H
00Z2G24-A041	115 A	800 Hz	3 x 33 µF	< 70 W	G
00Z2G24-A042	230 A	1600 Hz	3 × 42 µF	< 120 W	G
00Z2G24-A043	345 A	800 Hz	3 x 99 µF	< 170 W	H
00Z2G24-A052	230 A	1200 Hz	3 × 48 µF	< 120 W	G
00Z2G24-A062	230 A	800 Hz	3 x 66 µF	< 120 W	G
00Z2G24-A241	2 x 115 A	800 Hz	2 x 3 x 33 µF	< 120 W	J
00Z2G24-A021	110 A	1600 Hz	3 × 12.6 µF	< 120 W	G
00Z2G24-A022	140 A	1200 Hz	3 × 27 µF	< 70 W	G
00Z2G24-A031	120 A	1600 Hz	3 × 17 µF	< 120 W	G
00Z2G24-A033	345 A	1200 Hz	3 × 81 µF	< 170 W	H
00Z2G24-A063	345 A	1600 Hz	3 × 63 µF	< 170 W	H
00Z2G24-A071	60 A	1600 Hz	3 x 6.3µF	< 70 W	G
00Z2G24-A072	230 A	1200 Hz	3 × 54 µF	< 120 W	G

Schematic diagrams

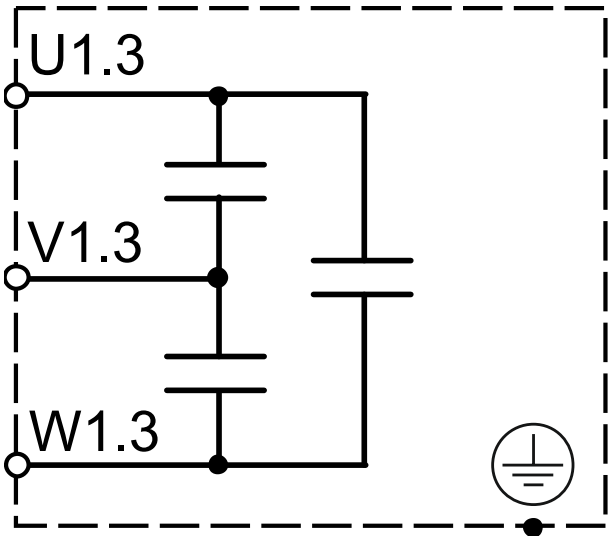


Fig. 1: Schematic diagram 00Z2G24-xxxx, design A and G

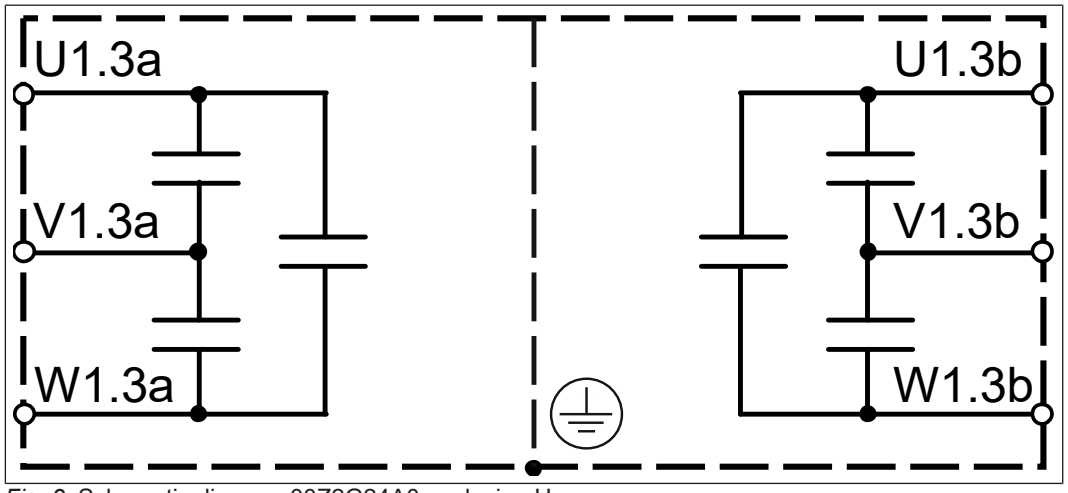


Fig. 2: Schematic diagram 00Z2G24A0xx, design H

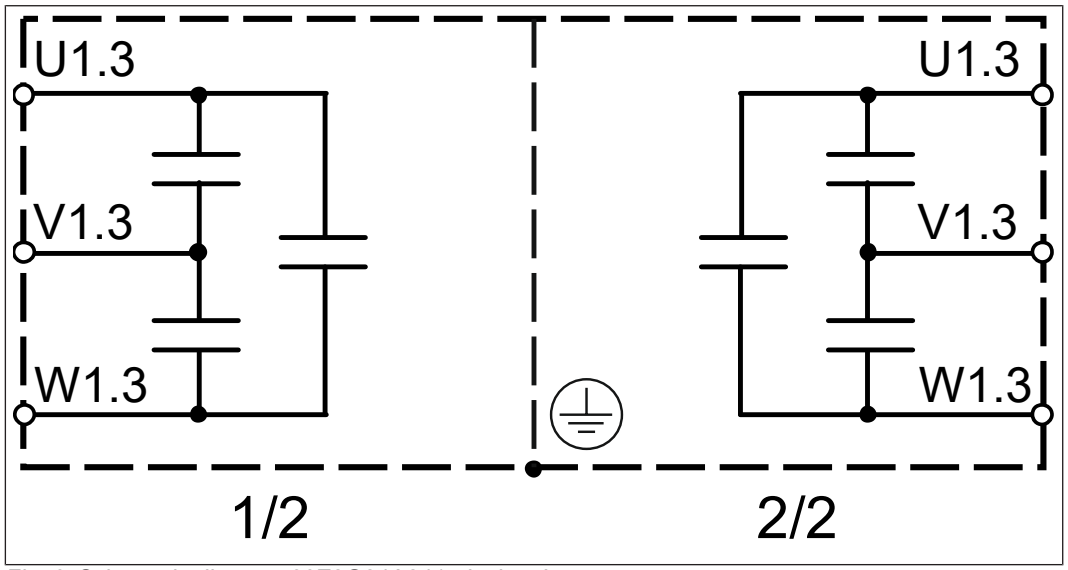


Fig. 3: Schematic diagram 00Z2G24A241, design J

4.3 Possible combinations

A sine-wave filter consists of a motor choke, one or two capacitor modules and one or more cable assembly. The cable assembly is designed in accordance with CE standards.

Motor choke		Capacitor modules and (cable assembly)				
Current in A	Item no.	0…600 Hz	0…800 Hz	0…1000 Hz	0…1200 Hz	0…1600 Hz
2.6	07Z2F04-1003	—	00Z2G24-0006 (00Z2T09-0002)	00Z2G24-0065 (00Z2T09-0002)	00Z2G24-0055 (00Z2T09-0002)	00Z2G24-0035 (00Z2T09-0002)
4.1	09Z2F04-1003	—	00Z2G24-0016 (00Z2T09-0002)	00Z2G24-0007 (00Z2T09-0002)	00Z2G24-0065 (00Z2T09-0002)	00Z2G24-0055 (00Z2T09-0002)
5.8	10Z2F04-1003	—	00Z2G24-0017 (00Z2T09-0002)	00Z2G24-0007 (00Z2T09-0002)	00Z2G24-0006 (00Z2T09-0002)	00Z2G24-0055 (00Z2T09-0002)
9,5	12Z2F04-1003	—	00Z2G24-0047 (00Z2T09-0002)	00Z2G24-0037 (00Z2T09-0002)	00Z2G24-0007 (00Z2T09-0002)	00Z2G24-0006 (00Z2T09-0002)
12	13Z2F04-1003	—	00Z2G24-0057 (00Z2T09-0002)	00Z2G24-0047 (00Z2T09-0002)	00Z2G24-0017 (00Z2T09-0002)	00Z2G24-0006 (00Z2T09-0002)
16,5	14Z2F04-1003	—	00Z2G24-0035 + 00Z2G24-0055 (2 x 00Z2T09-0002)	00Z2G24-0057 (00Z2T09-0002)	00Z2G24-0047 (00Z2T09-0002)	00Z2G24-0016 (00Z2T09-0002)
24	15Z2F04-1003	—	00Z2G24-0055 + 00Z2G24-0055 (2 x 00Z2T09-0002)	00Z2G24-0035 + 00Z2G24-0055 (2 x 00Z2T09-0002)	00Z2G24-0057 (00Z2T09-0002)	00Z2G24-0017 (00Z2T09-0002)
33	16Z2F04-1003	—	00Z2G24-A071 (00Z2T09-2010)	00Z2G24-0055 + 00Z2G24-0055 (2 x 00Z2T09-0002)	00Z2G24-0035 + 00Z2G24-0055 (2 x 00Z2T09-0002)	00Z2G24-0037 (00Z2T09-0002)
42	17Z2F04-1003	—	00Z2G24-A001 (00Z2T09-2010)	00Z2G24-A071 (00Z2T09-2010)	00Z2G24-0055 + 00Z2G24-0055 (2 x 00Z2T09-0002)	00Z2G24-0047 (00Z2T09-0002)
50	18Z2F04-1003	—	00Z2G24-A011 00Z2T09-2010	00Z2G24-A071 00Z2T09-2010	00Z2G24-A071 00Z2T09-2010	00Z2G24-005/ (00Z2T09-0002)
60	19Z2F04-1003	—	00Z2G24-A011 (00Z2T09-2010)	00Z2G24-A001 (00Z2T09-2010)	00Z2G24-A071 (00Z2T09-2010)	00Z2G24-0055 + 00Z2G24-0055 (2 x 00Z2T09-0002)
75	20Z2F04-1003	—	00Z2G24-A021 (00Z2T09-1010)	00Z2G24-A011 (00Z2T09-1010)	00Z2G24-A001 (00Z2T09-1010)	00Z2G24-A071 (00Z2T09-1010)
90	21Z2F04-1003	—	00Z2G24-A012 (00Z2T09-1010)	00Z2G24-A011 (00Z2T09-1010)	00Z2G24-A011 (00Z2T09-1010)	00Z2G24-A071 (00Z2T09-1010)
115	22Z2F04-1003	—	00Z2G24-A012 (00Z2T09-1010)	00Z2G24-A021 (00Z2T09-1010)	00Z2G24-A011 (00Z2T09-1010)	00Z2G24-A001 (00Z2T09-1010)
150	23Z2F04-1003	00Z2G24-A041 (00Z2T09-1025)	00Z2G24-A022 (00Z2T09-1025)	00Z2G24-A012 (00Z2T09-1025)	00Z2G24-A011 (00Z2T09-1010)	00Z2G24-A011 (00Z2T09-1010)

Motor choke		Capacitor modules and (cable assembly)				
Current in A	Item no.	0…600 Hz	0…800 Hz	0…1000 Hz	0…1200 Hz	0…1600 Hz
180	24Z2F04-1003	00Z2G24-A052 (00Z2T09-1025)	00Z2G24-A041 (00Z2T09-1025)	00Z2G24-A012 (00Z2T09-1025)	00Z2G24-A011 (00Z2T09-1010)	00Z2G24-A011 (00Z2T09-1010)
210	25Z2F04-1003	00Z2G24-A052 (00Z2T09-1025)	00Z2G24-A041 (00Z2T09-1025)	00Z2G24-A012 (00Z2T09-1025)	00Z2G24-A012 (00Z2T09-1025)	00Z2G24-A011 (00Z2T09-1010)
250	26Z2F04-1003	00Z2G24-A062 (00Z2T09-0035)	00Z2G24-A041 (00Z2T09-0025)	00Z2G24-A012 (00Z2T09-0025)	00Z2G24-A012 (00Z2T09-0025)	00Z2G24-A012 (00Z2T09-0035)
300	27Z2F04-1003	00Z2G24-A062 (00Z2T09-0035)	00Z2G24-A052 (00Z2T09-0035)	00Z2G24-A022 (00Z2T09-0025)	00Z2G24-A012 (00Z2T09-0025)	00Z2G24-A012 (00Z2T09-0035)
370	28Z2F04-1003	00Z2G24-A043 (00Z2T09-0025 + 00Z2T09-0035)	00Z2G24-A062 (2 x 00Z2T09-0035)	00Z2G24-A022 (00Z2T09-0025)	00Z2G24-A022 (00Z2T09-0035)	00Z2G24-A012 (00Z2T09-0035)
460	29Z2F04-1003	00Z2G24-A043 (00Z2T09-0025 + 00Z2T09-0035)	00Z2G24-A062 (2 x 00Z2T09-0035)	00Z2G24-A052 (00Z2T09-0070)	00Z2G24-A022 (00Z2T09-0035)	00Z2G24-A012 (00Z2T09-0035)
570	30Z2F04-1003	00Z2G24-A014 (2 x 00Z2T09-0070)	00Z2G24-A072 (00Z2T09-0025 + 00Z2T09-0095)	00Z2G24-A072 (00Z2T09-0070)	00Z2G24-A052 (00Z2T09-0070)	00Z2G24-A012 (00Z2T09-0035)
630	31Z2F04-1003	00Z2G24-A014 (2 x 00Z2T09-0070)	00Z2G24-A043 (00Z2T09-0025 + 00Z2T09-0095)	—	—	—
710	32Z2F04-1003	00Z2G24-A041 + 00Z2G24-A014 00Z2T09-1025 + 2 x 00Z2T09-0070	00Z2G24-A043 (00Z2T09-0025 + 00Z2T09-0095)	—	—	—
800	33Z2F04-1003	00Z2G24-A041 + 00Z2G24-A014 (00Z2T09-1025 + 2 x 00Z2T09-0070)	00Z2G24-A043 (00Z2T09-0025 + 00Z2T09-0095)	—	—	—

Tab. 4: Combinations of motor chokes, capacitor modules and cable assemblies

4.4 Mechanical data

4.4.1 Weights

4.4.1.1 Motor chokes

Material number	Weight in kg	Weight in lb
07Z2F04-1003	3.5	7.72
09Z2F04-1003	4,3	9,48
10Z2F04-1003	4,1	9,04
12Z2F04-1003	4,7	10,36
13Z2F04-1003	5,2	11,46
14Z2F04-1003	5,5	12,13

Material number	Weight in kg	Weight in lb
15Z2F04-1003	6,6	14,55
16Z2F04-1003	7,0	15,43
17Z2F04-1003	10,0	22,05
18Z2F04-1003	11,2	24,69
19Z2F04-1003	11,7	25,79
20Z2F04-1003	15,0	33,07
21Z2F04-1003	17,3	38,14
22Z2F04-1003	17,0	37,48
23Z2F04-1003	32,0	70,55
24Z2F04-1003	32,8	72,31
25Z2F04-1003	35,0	77,16
26Z2F04-1003	41,0	90,39
27Z2F04-1003	45,0	99,21
28Z2F04-1003	58,5	128,97
29Z2F04-1003	62,0	136,69
30Z2F04-1003	72,0	158,73
31Z2F04-1003	97,0	213,85
32Z2F04-1003	109	240,30
33Z2F04-1003	135	297,62

Tab. 5: Weight of the motor chokes

4.4.1.2 Capacitor modules

	Weight in kg	Weight in lb
00Z2G24-0005	1.6 kg	3.53 lb
00Z2G24-0006	1.6 kg	3.53 lb
00Z2G24-0007	1.6 kg	3.53 lb
00Z2G24-0015	1.6 kg	3.53 lb
00Z2G24-0016	1.6 kg	3.53 lb
00Z2G24-0017	1.6 kg	3.53 lb
00Z2G24-0025	1.6 kg	3.53 lb
00Z2G24-0027	1.6 kg	3.53 lb
00Z2G24-0035	1.6 kg	3.53 lb
00Z2G24-0037	1.6 kg	3.53 lb
00Z2G24-0045	1.6 kg	3.53 lb
00Z2G24-0047	1.6 kg	3.53 lb
00Z2G24-0055	1.6 kg	3.53 lb
00Z2G24-0057	1.6 kg	3.53 lb
00Z2G24-0065	1.6 kg	3.53 lb
00Z2G24-A001	4.3 kg	9.48 lb
00Z2G24-A002	6.5 kg	14.33 lb
00Z2G24-A011	4.6 kg	10.14 lb
00Z2G24-A012	4.1 kg	9.04 lb
00Z2G24-A014	15.2 kg	33.51 lb
00Z2G24-A041	5.0 kg	11.02 lb
00Z2G24-A042	5.9 kg	13.01 lb

	Weight in kg	Weight in lb
00Z2G24-A043	12.5 kg	27.56 lb
00Z2G24-A052	6.8 kg	14.99 lb
00Z2G24-A062	7.7 kg	16.98 lb
00Z2G24-A241	7.4 kg	16.31 lb
00Z2G24-A021	5.9 kg	13.01 lb
00Z2G24-A022	4.8 kg	10.58 lb
00Z2G24-A031	6.2 kg	13.67 lb
00Z2G24-A033	12.5 kg	27.56 lb
00Z2G24-A063	9.8 kg	21.61 lb
00Z2G24-A071	4.1 kg	9.04 lb
00Z2G24-A072	7.7 kg	16.98 lb

4.4.2 Dimensions

4.4.2.1 Motor chokes

The windings of the motor chokes can have large tolerances in geometry for manufacturing reasons.

4.4.2.1.1 Size 07–12

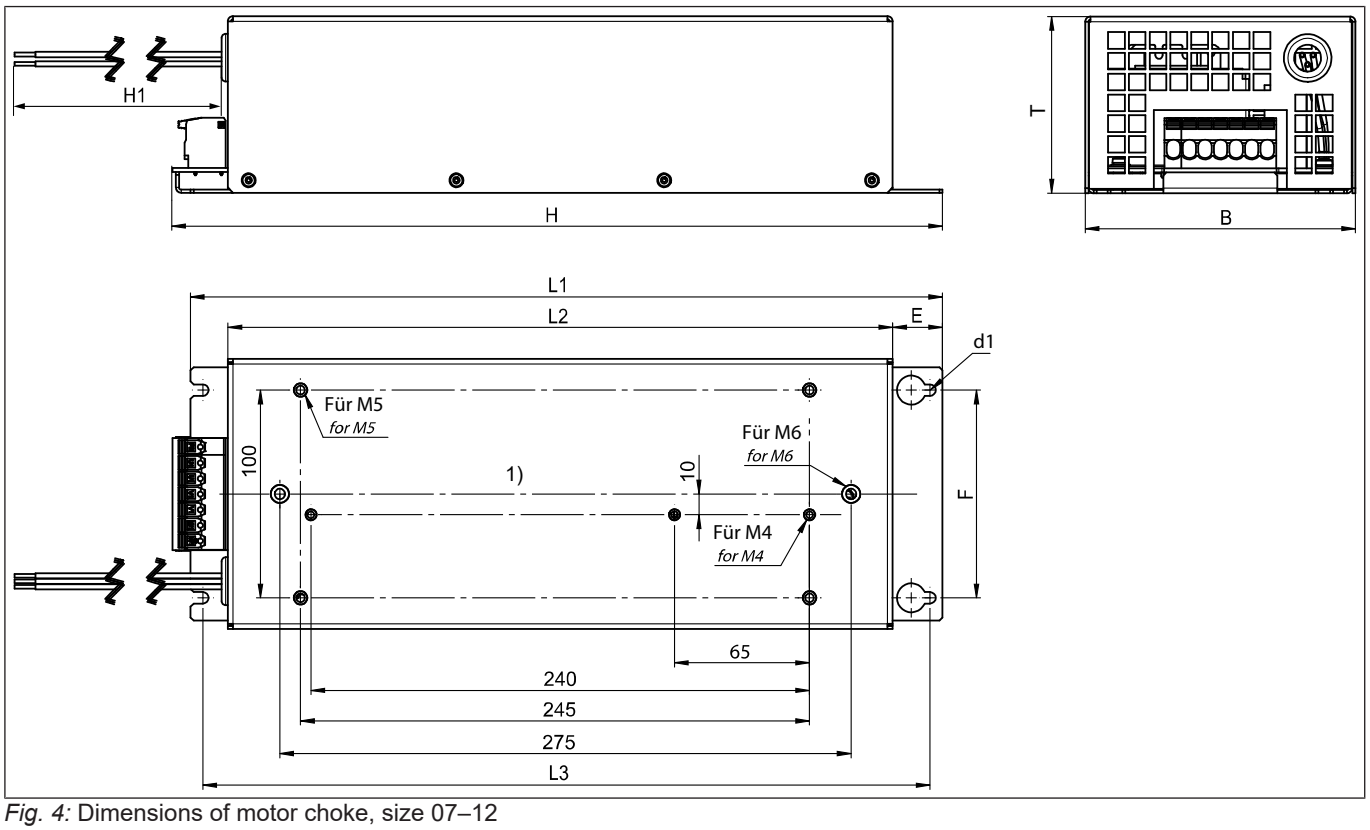


Fig. 4: Dimensions of motor choke, size 07–12

Material number	B	H	H1	T	L1	L2	L3	d1
07Z2F04-1003	130	371	200	85	362	320	350	5,5
09Z2F04-1003	130	371	200	85	362	320	350	5,5
10Z2F04-1003	130	371	200	85	362	320	350	5,5

Material number	B	H	H1	T	L1	L2	L3	d1
12Z2F04-1003	130	371	200	85	362	320	350	5,5

1. All dimensions are in mm. Mounting holes suitable for S6, F6 housings 2 and 4, and G6 housings A, B and C. Screw-in depth 10 mm.

4.4.2.1.2 Size 13-19

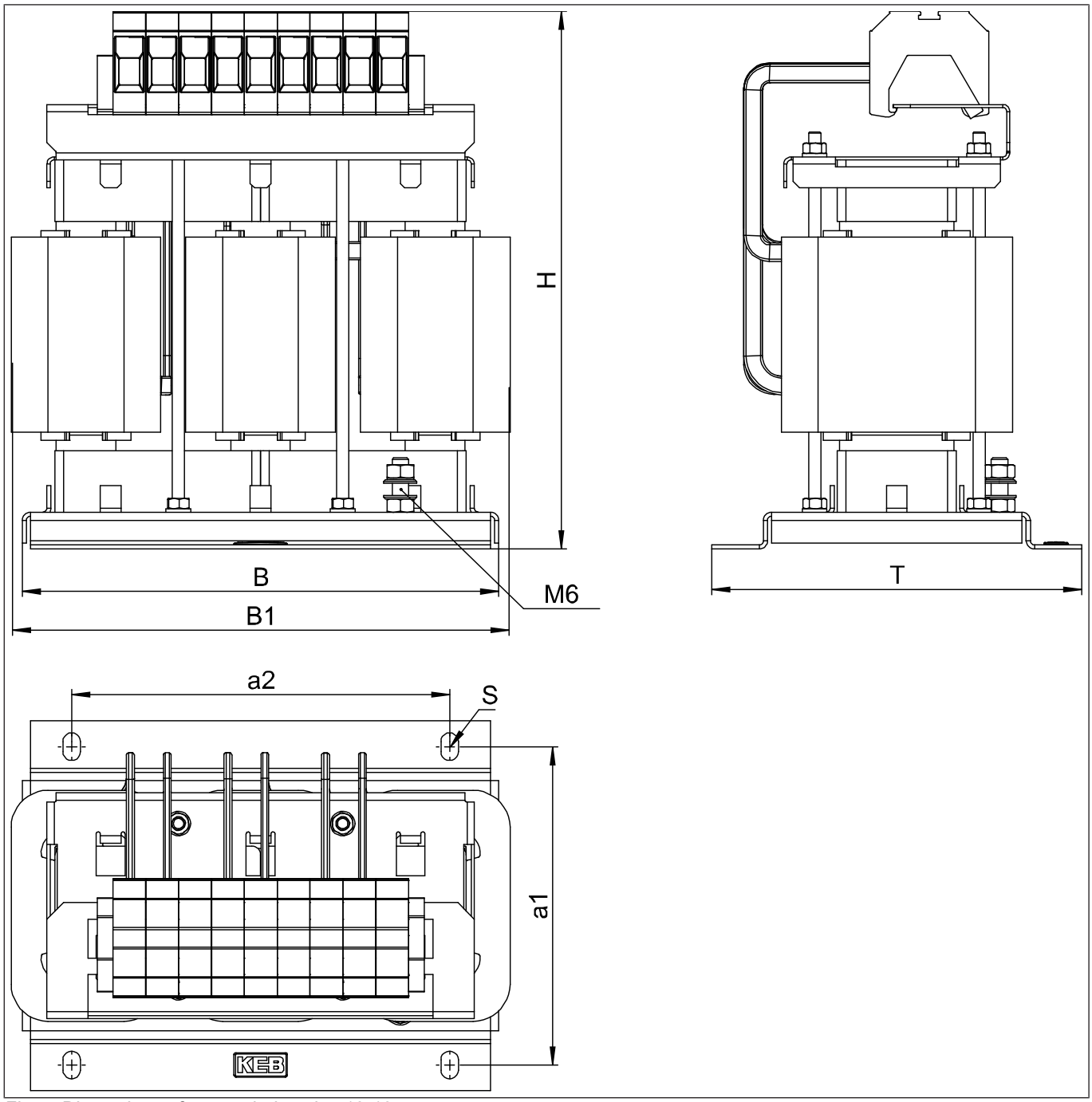


Fig. 5: Dimensions of motor choke, size 13-19

Material number	B	B1	T	H	a1	a2	S
13Z2F04-1003	168	-	160	274	140	120	M6
14Z2F04-1003	168	-	160	273	140	120	M6
15Z2F04-1003	168	-	160	302	140	120	M6

Material number	B	B1	T	H	a1	a2	S
16Z2F04-1003	168	-	160	303	140	120	M6
17Z2F04-1003	232	242	180	249	155	184	M8
18Z2F04-1003	232	242	180	252	155	184	M8
19Z2F04-1003	232	242	180	262	155	184	M8

All dimensions in mm

4.4.2.1.3 Size 20-22

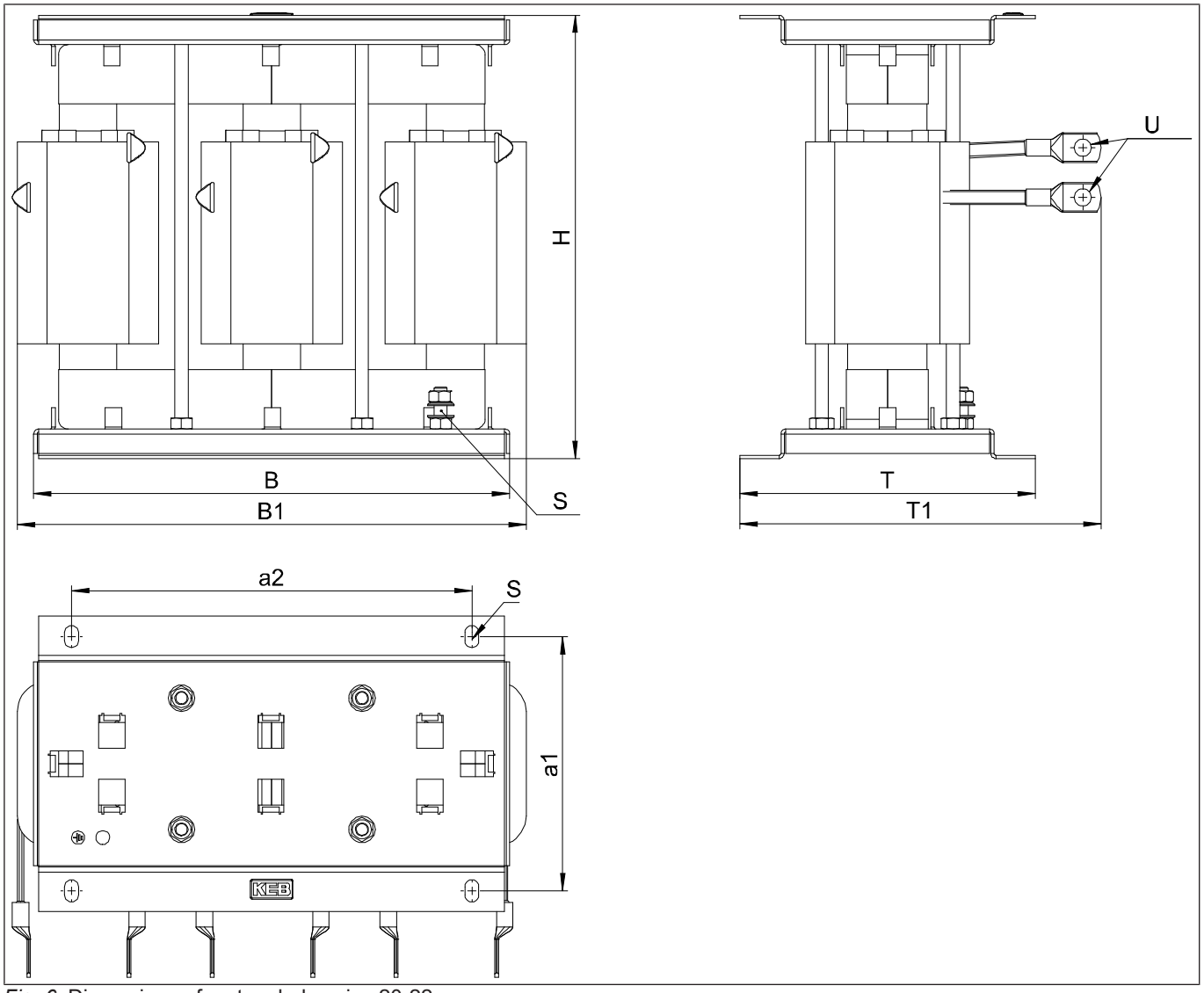


Fig. 6: Dimensions of motor choke, size 20-22

Material number	B	B1	T	T1	H	a1	a2	S	U
20Z2F04-1003	290	313	180	220	270	155	244	M8	M10
21Z2F04-1003	290	314	180	220	266	155	244	M8	M10
22Z2F04-1003	290	322	180	250	250	155	244	M8	M10

All dimensions in mm

4.4.2.1.4 Size 23-30

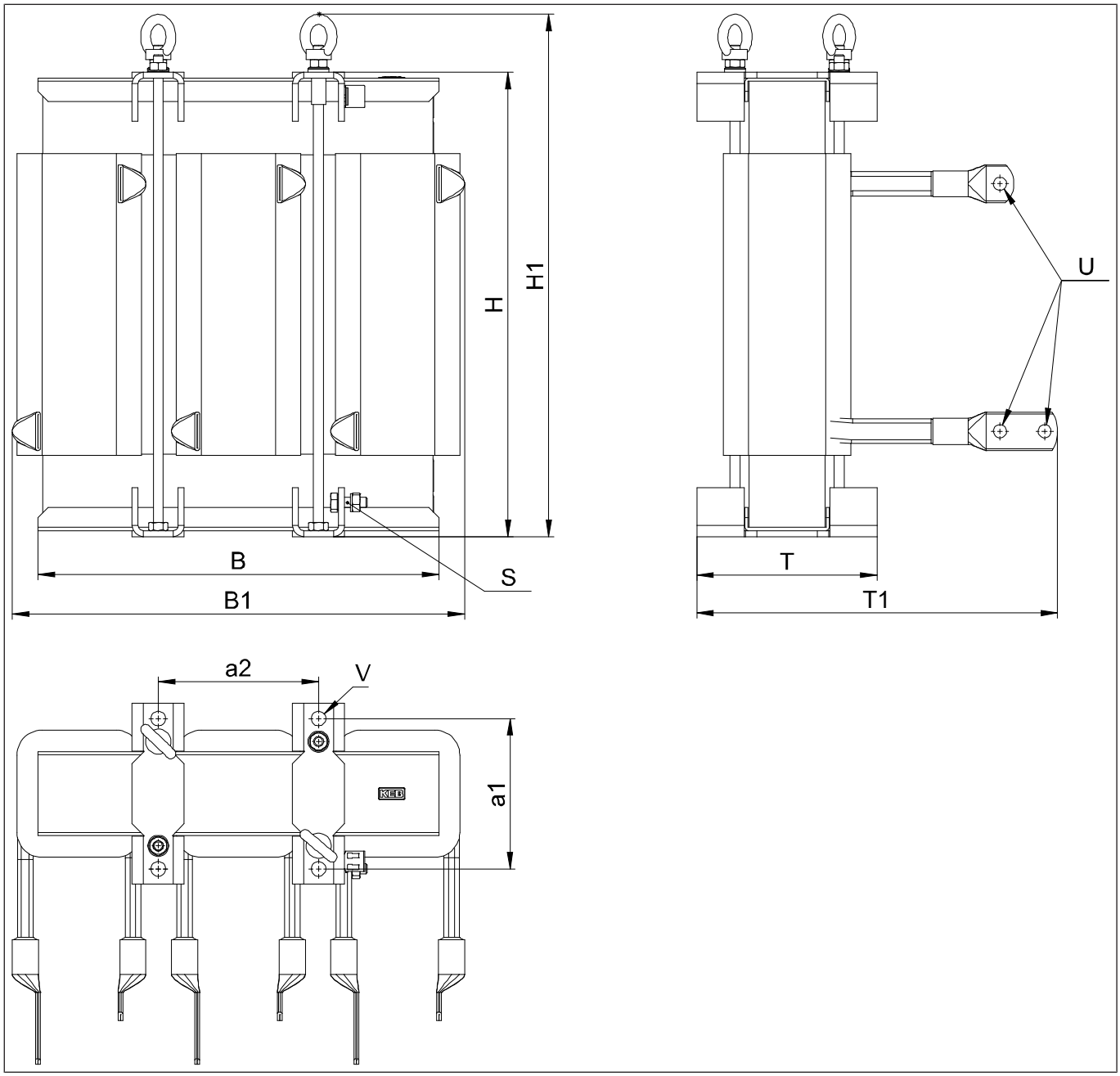


Fig. 7: Dimensions of motor chokes, sizes 23–30

Material number	B	B1	T	T1	H	H1	a1	a2	S	U	V
23Z2F04-1003	310	360	170	285	331	389	144	120	M10	M10	M12
24Z2F04-1003	310	360	170	285	343	401	144	120	M10	M10	M12
25Z2F04-1003	310	344	170	285	355	413	144	120	M10	M10	M12
26Z2F04-1003	310	362	170	315	368	426	144	120	M10	M12	M12
27Z2F04-1003	400	454	180	330	388	446	150	160	M10	M12	M12
28Z2F04-1003	400	441	180	325	407	465	150	160	M10	M12	M12
29Z2F04-1003	400	447	180	350	421	479	150	160	M10	M12	M12
30Z2F04-1003	400	451	180	360	463	521	150	160	M10	M12	M12

All dimensions in mm

4.4.2.1.5 Size 31-33

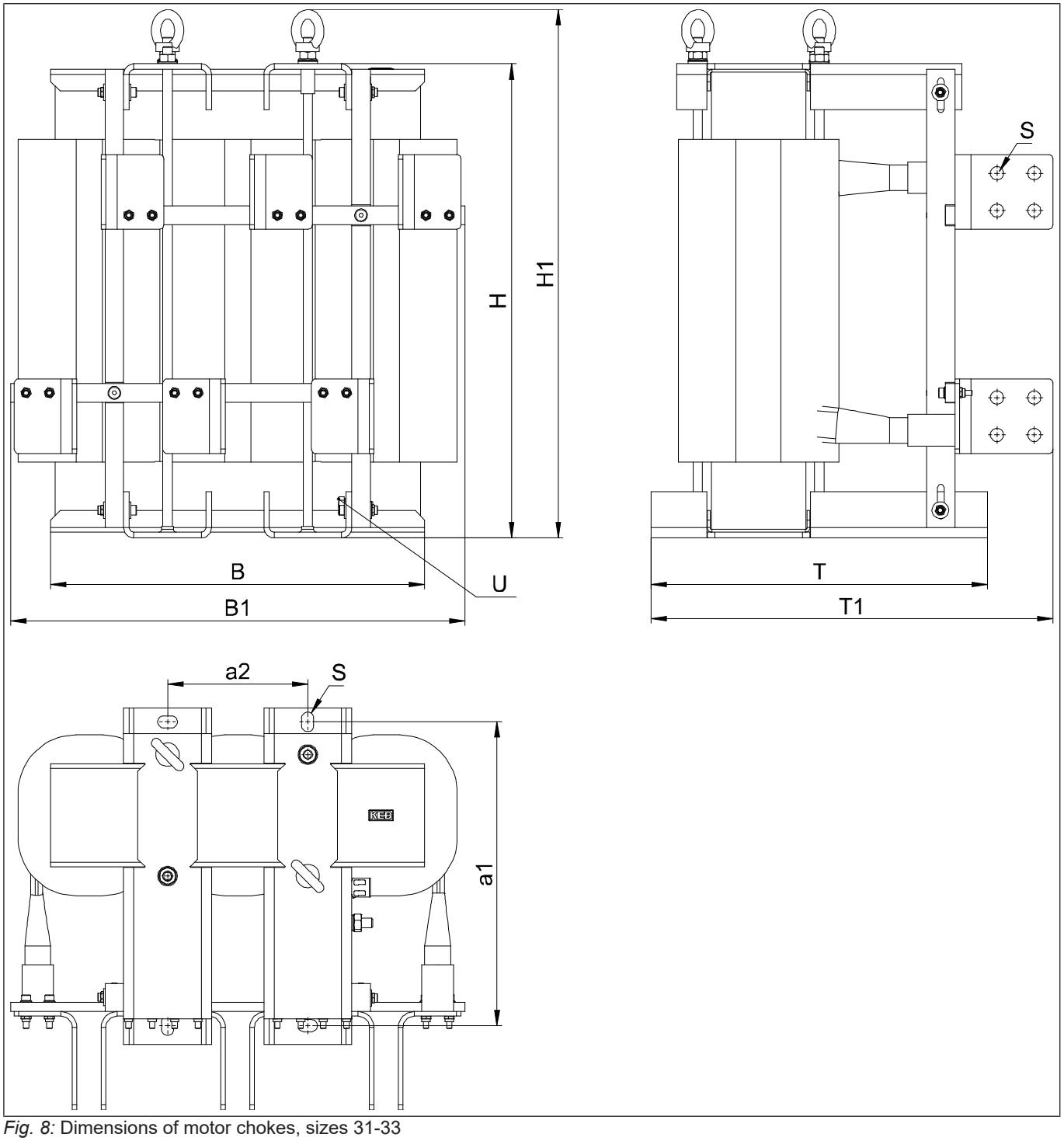


Fig. 8: Dimensions of motor chokes, sizes 31-33

Material number	B	B1	T	T1	H	H1	a1	a2	S	U
31Z2F04-1003	400	486	360	430	460	518	325	150	M12	M10
32Z2F04-1003	400	486	360	430	507	564	325	150	M12	M10
33Z2F04-1003	400	486	385	455	503	561	350	150	M12	M10

All dimensions in mm

4.4.2.2 Capacitor modules

All dimensions are in mm. Tolerances in accordance with ISO 8015.

4.4.2.2.1 Dimensions 00Z2G24-00xx, Design A

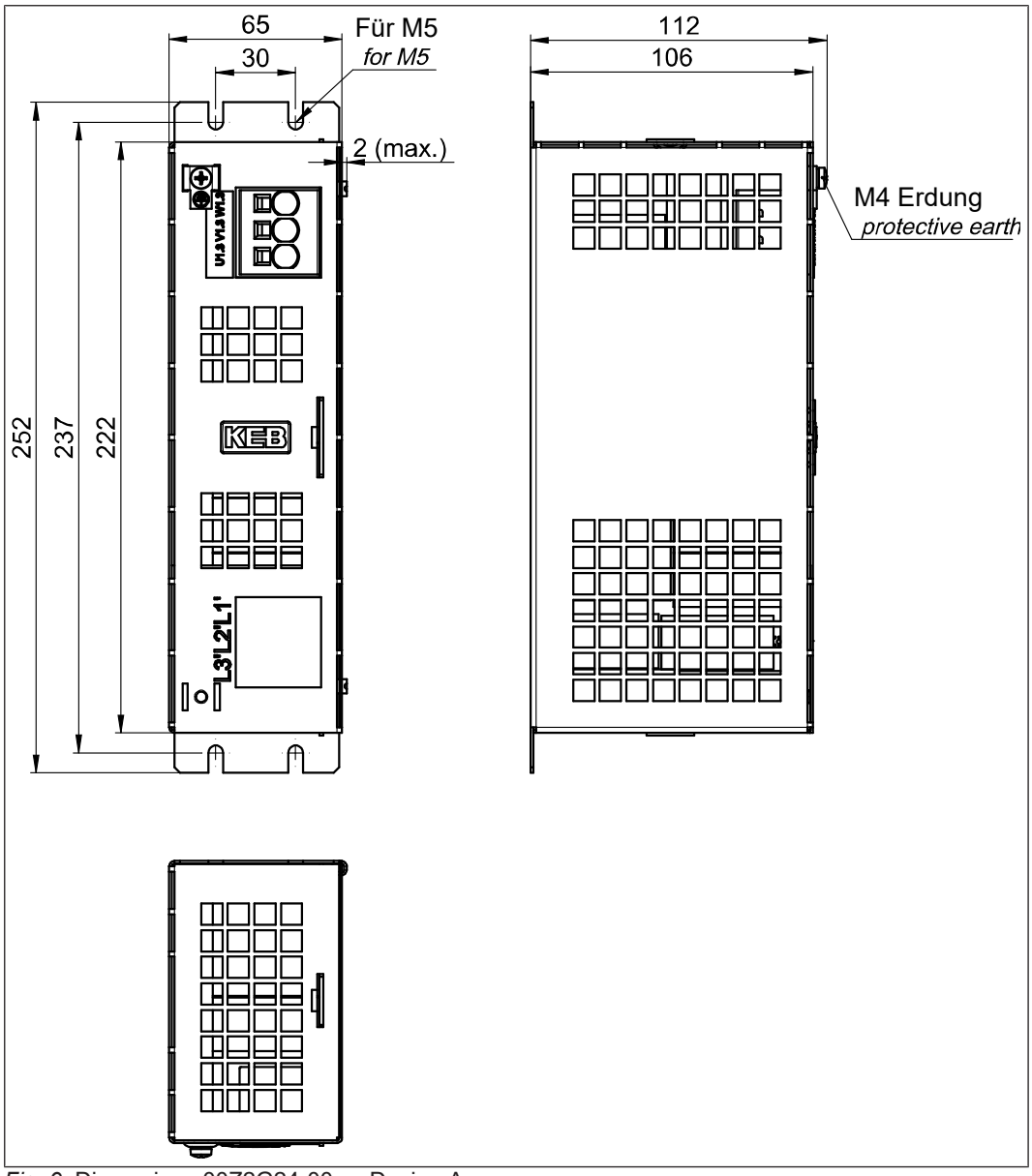


Fig. 9: Dimensions 00Z2G24-00xx, Design A

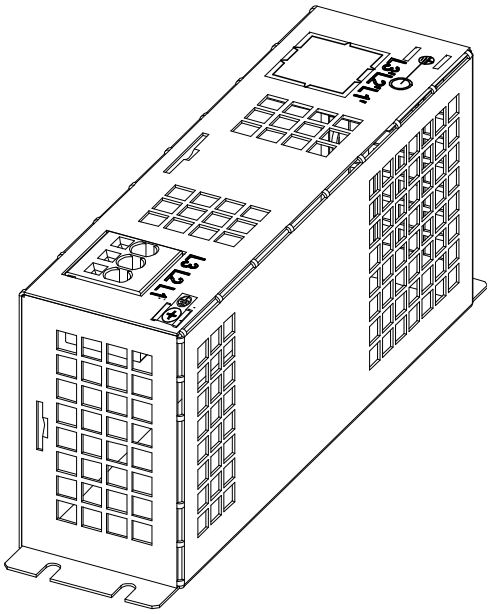


Fig. 10: 3D view 00Z2G24-00xx Design A

4.4.2.2.2 Dimensions 00Z2G24-A0x(1|2) Design G

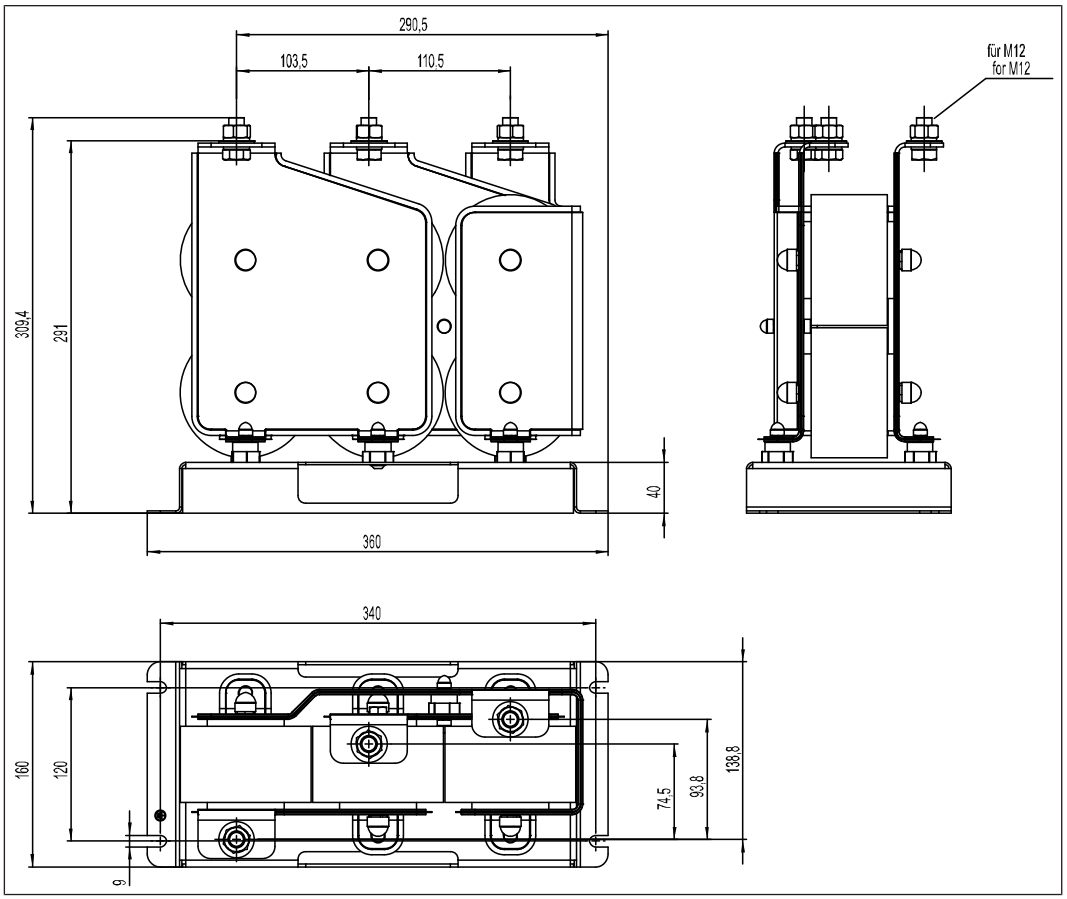


Fig. 11: Dimensions 00Z2G24-A0x1 and 00Z2G24-A0x2, Design G (the film may be black or white)

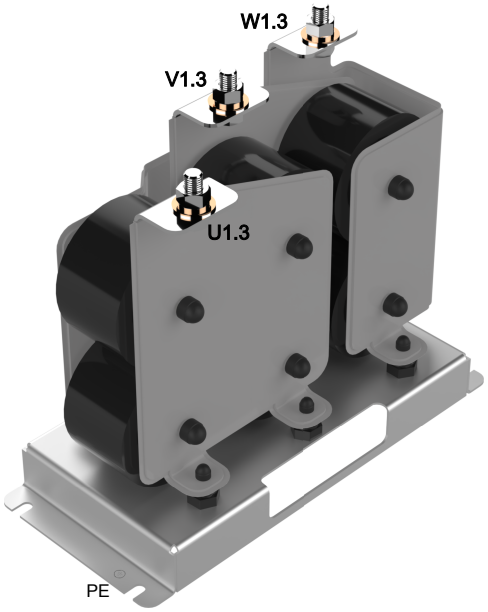


Fig. 12: 3D view of 00Z2G24-A0x1 and 00Z2G24-A0x2, Design G

4.4.2.2.3 Dimensions 00Z2G24-A0x(3|4) Design H

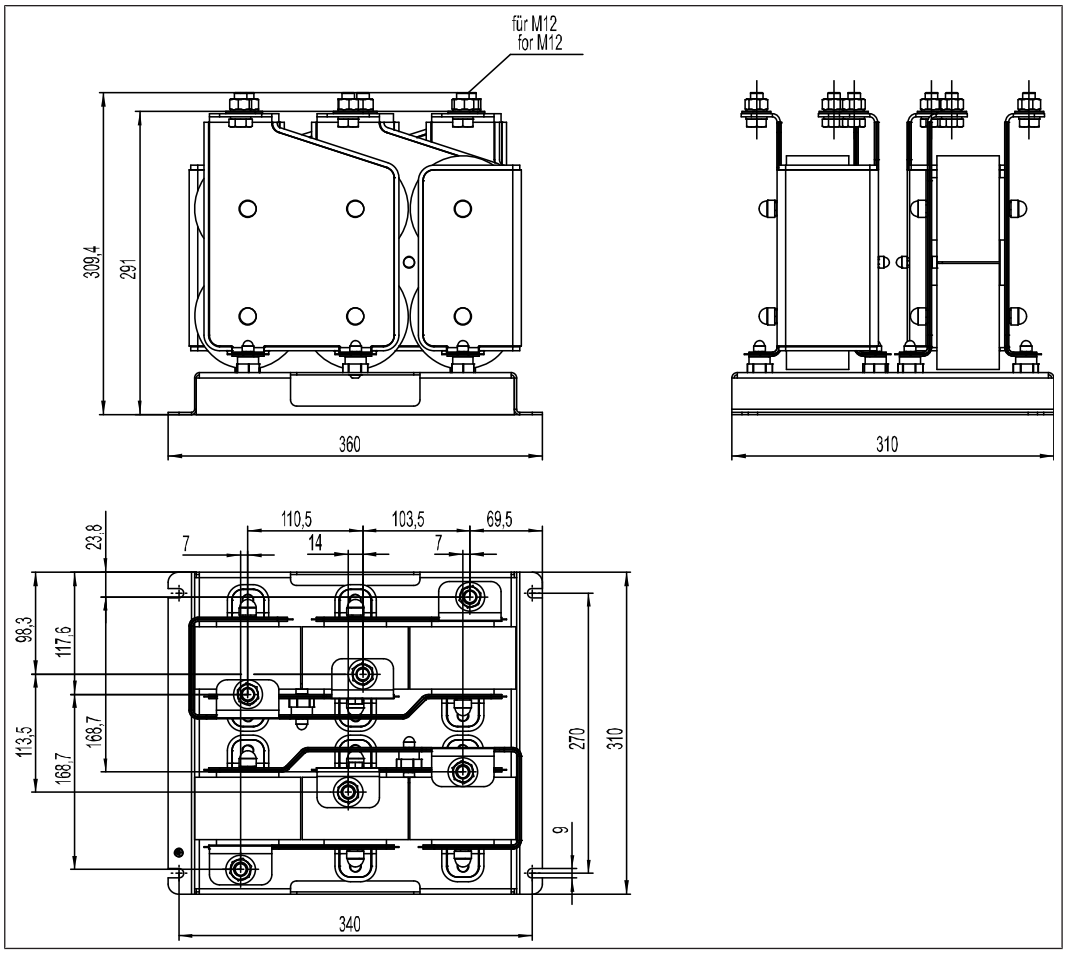


Fig. 13: Dimensions 00Z2G24-A0xx, Type H (the film may be black or white)

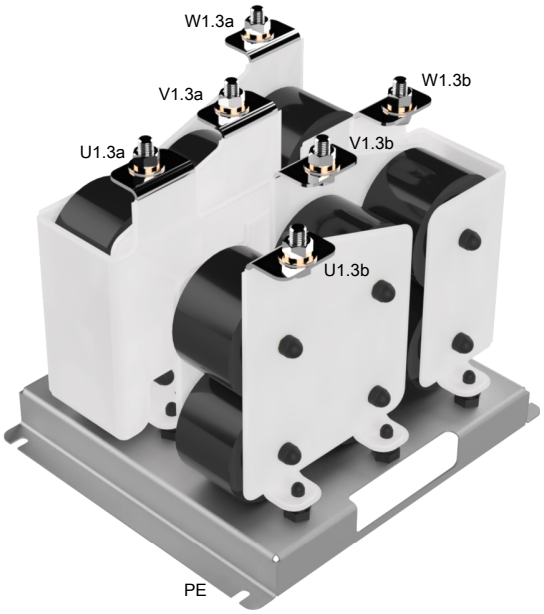


Fig. 14: 3D view of 00Z2G24A0x3 and 00Z2G24-A0x4, Design H

4.4.2.2.4 Dimensions 00Z2G24-A241, Design J

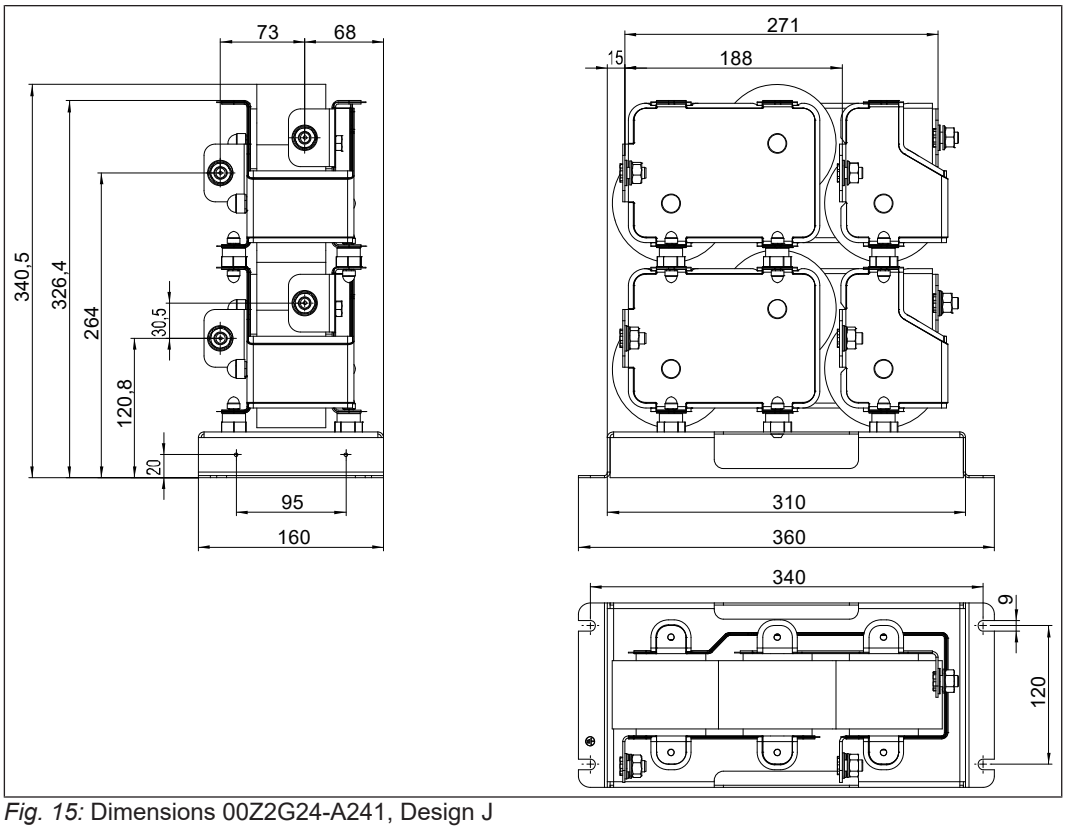


Fig. 15: Dimensions 00Z2G24-A241, Design J

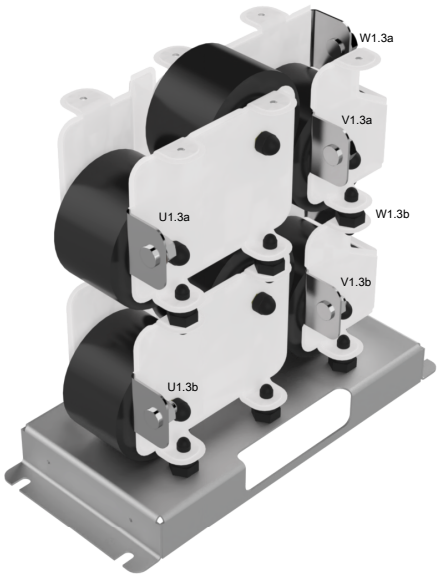


Fig. 16: 3D view 00Z2G24A241 Design J

5 Assembly

5.1 Installation instructions

⚠ WARNING



Lifting eyes are designed to support only the weight of the device itself!

If used incorrectly, the eyelets may tear out.

a) The unit must only be transported individually by the lifting eyes.

b) Always attach the device to two lifting eyes at the same time.

c) Maintain a chain angle of max. 60°.

d) Only place the device on its stand.

e) Never stand beneath the load during transportation.



Fig. 17: For crane transport, max. 60° from size 23 onwards

Please note the following during installation:

- The sine-wave filters are designed for installation in an enclosure or control cabinet.
- The minimum installation clearances must be observed.
- Please note the mounting position: wall-mounted or floor-mounted.
- To prevent heat build-up, the capacitor module must not be positioned above the choke.
- If no protection against accidental contact is provided on site, appropriate warning signs must be displayed.

The dielectric strength of the coating is 600 V.

5.2 Control cabinet installation

NOTICE

Fault caused by overheating

a) Please note the device's power dissipation.

b) Ensure that the mounting orientation and spacing from other devices are correct.

c) Do not use preheated air from other components to ventilate the unit.

5.2.1 Mounting orientation

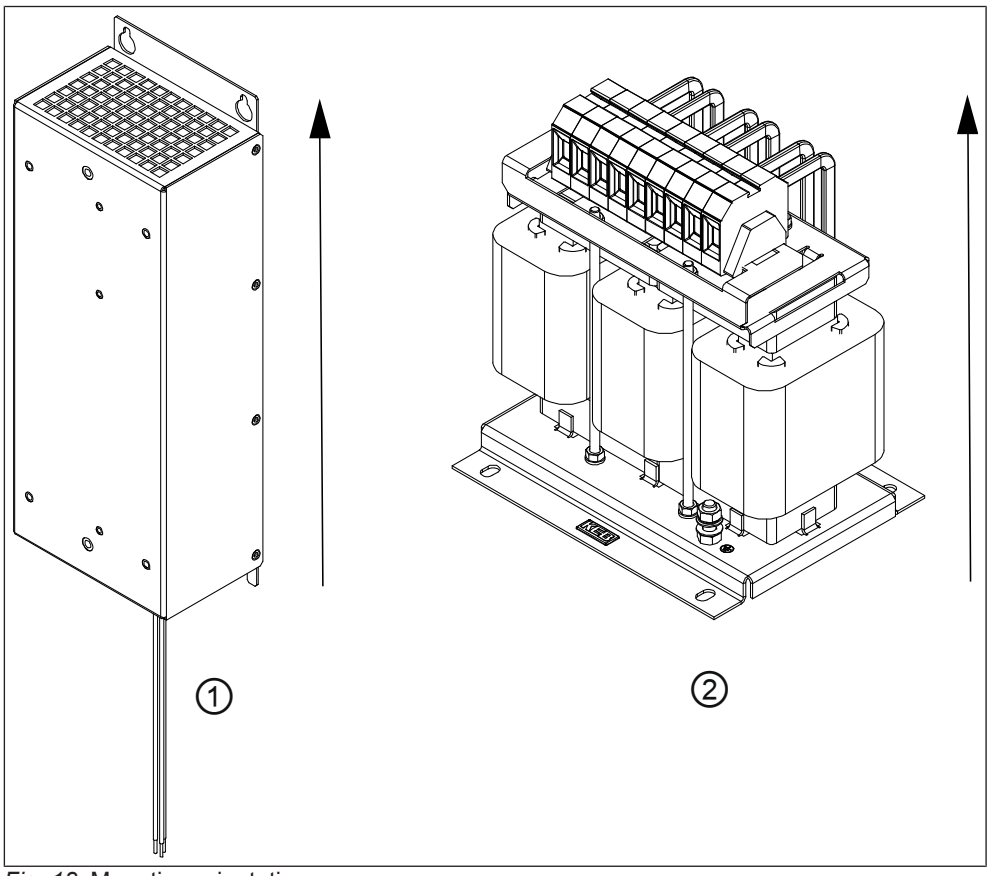


Fig. 18: Mounting orientation

1 Wall mounting	2 Floor mounting

Mounting orientation of the motor chokes

Material number	Mounting orientation
07Z2F04-1003…12Z2F04-1003	Wall mounting (suspended, vertical)
13Z2F04-1003…33Z2F04-1003	Floor-mounted (upright)

Ventilation of motor chokes from size 25 upwards

Motor chokes must be ventilated from size 25 up to size 30 and from an operating frequency of 600 Hz. Ventilation must take place in the lower third (A) of the motor choke. The air flow must be at least 15 m³ / min.

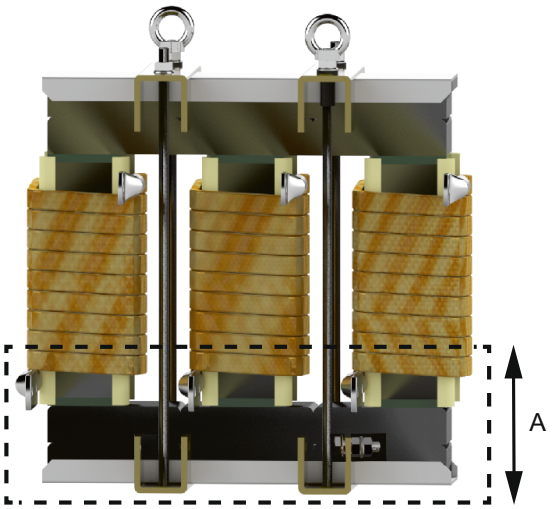


Fig. 19: Ventilation of motor chokes, sizes 25–30

Mounting orientation of the capacitor modules

Material number	Mounting orientation
00Z2G24-00x5...00Z2G24-00x7	Wall and floor mounting
00Z2G24-Axxx	Floor mounting

5.2.2 Installation distances

5.2.2.1 Wall mounting

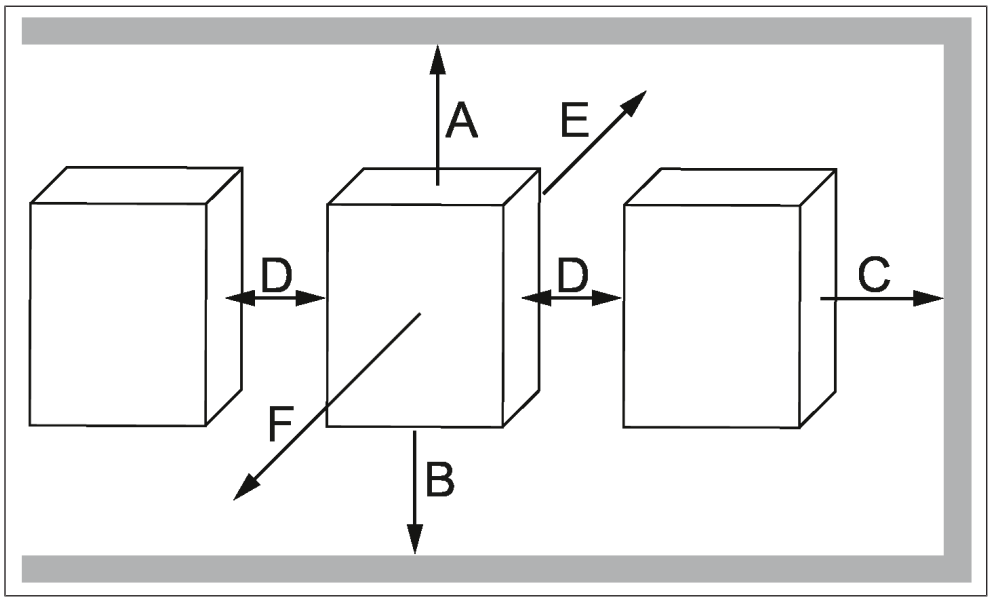


Fig. 20: Installation spacing for wall mounting

A 150 mm / 6 inches	B 150 mm / 6 inches
C 150 mm / 6 inches	D 150 mm / 6 inches
E 0 mm / 0 inches	F 150 mm / 6 inches

5.2.2.2 Floor mounting

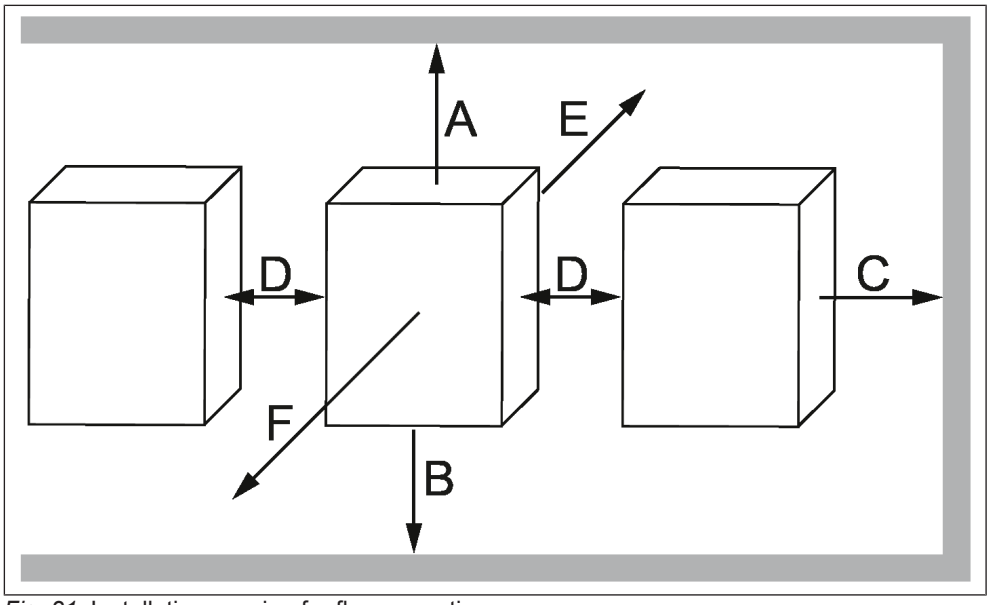


Fig. 21: Installation spacing for floor mounting

A 100 mm / 4 inches	B 0 mm / 0 inches
C 100 mm / 4 inches	D 100 mm / 4 inches
E 100 mm / 4 inches	F 100 mm / 4 inches

5.3 Fixing material

Motor chokes

Motor choke	Number	Fixing materials	Tightening torque
07-12Z2F04-1003	4 items	M5 - 8.8 screw Flat washer ISO 7092-5-200 HV	6 Nm 53 lbin
13-15Z2F04-1003	4 items	M6 - 8.8 screw Flat washer ISO 7092-6-200 HV	10 Nm 89 lbin
17-22Z2F04-1003	4 items	M8 - 8.8 screw Flat washer ISO 7092-8-200 HV	25 Nm 220 lbin
23-30Z2F04-1003	4 items	M10 - 8.8 screw Flat washer ISO 7092-10-200 HV	50 Nm 440 lbin
31-33Z2F04-1003	4 items	M12 - 8.8 screw Flat washer ISO 7092-12-200 HV	85 Nm 750 lbin

Capacitor modules

Capacitor module	Number	Fixing materials	Tightening torque
00Z2G24-00x5 00Z2G24-00x6 00Z2G24-00x7	4 items	M5 - 8.8 screw Flat washer ISO 7092-5-200 HV	6 Nm 53 lbin
00Z2G24-Axxx	4 pcs	Screw M8 - 8.8 Flat washer ISO 7092-8-200 HV	8 Nm 70 lbin

6 Installation

NOTICE

Mechanical faults caused by vibrations

a) Mechanically interception of connection cables at a distance of 100 mm to ensure vibration resistance.

NOTICE! Wiring instructions

- Keep the connections between the drive controller and the output filter as short as possible.
- Do not lay any other cables parallel to the motor cables.
- Only use shielded cables between the output filter and the motor.
- For chokes with a double-hole cable lug, the inner hole must be used for the motor connection and the outer hole for the capacitor connection.
- Secure the capacitor terminals to prevent them from twisting when tightening the screws.
- Remove the oxide layer from the capacitor terminals and apply contact grease to ensure better contact.

6.1 Connection of the output filter (schematic diagram)

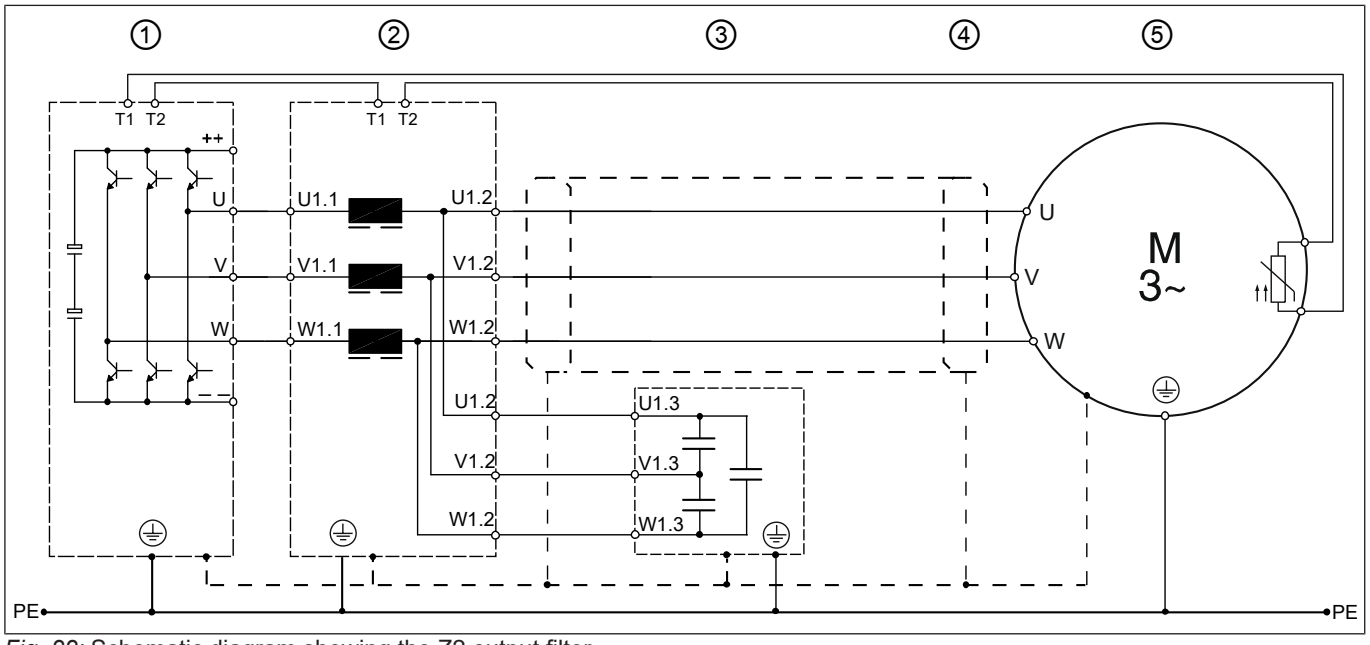


Fig. 22: Schematic diagram showing the Z2 output filter

1	Drive controller	2	Motor choke
3	Capacitor module	4	Shielded motor cable
5	Motor	T1, T2	Connection temperature monitoring
U, V, W	Motor output from the drive controller	U1.1, V1.1, W1.1	Input motor choke
U1.2, V1.2, W1.2	Output motor choke	U1.3, V1.3, W1.3	Connection capacitor
PE /	Connection protective earth	— — —	Functional potential equalization via metal housing on galvanised mounting plate

6.2 Motor cable

The maximum motor cable length is 50m.

From a motor frequency of >200Hz, high inductances can be generated in case of long motor cable lengths, which can cause voltage differences at the motor.

The motor cable cross-section of the motor cable depends on the following factors:

- Characteristics of the output current (e.g. harmonic content)
- true RMS value of the motor current
- Cable length
- type of cable used
- Environmental conditions such as bundling and temperature
- Motor frequency (skin effect)

6.3 Overtemperature shutdown

To protect the system from inadmissible temperatures, motor chokes from size 25 upwards are fitted with temperature switches. This must be connected with the input terminals T1/T2 of the drive controller.

Rated data for the temperature switch

Description	Value
Type	NC contact
Tripping temperature	155°C
AC cos φ = 1.0	2.5 A / 250 V
AC cos φ = 0.6	1.6 A / 250 V
DC ohmic	1.6 A / 24 V
DC ohmic	1.25 A / 48 V

NOTICE

Measurement errors and sooting of the contacts!

a) For devices with PT100/KTY or analog signal evaluation, no temperature switches may be installed in the detection chain as these can distort the signal and lead to incorrect measurements.

b) For devices with a temperature switch, another protective measure must be used.

6.4 Cable sets

Cupal washers must be used between the aluminium connection and the copper line at the capacitor.

Material number	Cable lengths in mm	Conductor cross-section in mm²	Conductor connection		Max. current per leader in A
00Z2T09-0002	3 x 300	1,5	Wire end ferrule 1.5 mm²	Wire end ferrule 1.5 mm²	26
00Z2T09-0010	3 x 1000	10	Ring crimp connector M12	Ring crimp connector M12	80

Material number	Cable lengths in mm	Conductor cross-section in mm²	Conductor connection		Max. current per leader in A
00Z2T09-1010	3 x 1000	10	Ring crimp connector M12	Ring crimp connector M10	80
00Z2T09-2010	3 x 1000	10	Ring crimp connector M12	Wire end ferrule 10 mm²	80
00Z2T09-3010	3 x 1000	10	Ring crimp connector M6	Wire end ferrule 10 mm²	80
00Z2T09-4010	3 x 1000	10	Ring crimp connector M6	Ring crimp connector M10	80
00Z2T09-0025	3 x 1000	25	Ring crimp connector M12	Ring crimp connector M12	140
00Z2T09-1025	3 x 1000	25	Ring crimp connector M12	Ring crimp connector M10	140
00Z2T09-1035	3 x 1000	35	Ring crimp connector M12	Ring crimp connector M10	174
00Z2T09-0035	3 x 1000	35	Ring crimp connector M12	Ring crimp connector M12	174
00Z2T09-0070	3 x 1000	70	Ring crimp connector M12	Ring crimp connector M12	273
00Z2T09-0095	3 x 1000	95	Ring crimp connector M12	Ring crimp connector M12	334

Tab. 6: Description of the cable harnesses

6.5 Connection of the motor chokes

6.5.1 Connection terminals

Material number	Connection			Cross-section area in mm² / AWG	Tightening torque in Nm / lb-in		With a temperature switch
	Type	U, V, W	PE		U, V, W	PE	
07Z2F04-1003	Terminal	Push-Lock		0.2…6 / 24…10	—	—	—
09Z2F04-1003							—
10Z2F04-1003							—
12Z2F04-1003							—
13Z2F04-1003		RK 6-10/35	M6	0,2…10 / 22…8	2 / 17.7	4,5 / 39.8	—
14Z2F04-1003							—
15Z2F04-1003							—
16Z2F04-1003							—
17Z2F04-1003		RK 16/35	M8	2,5...16 / 10..6	4 / 35.4	10 / 88.5	—
18Z2F04-1003							—
19Z2F04-1003		RK 35/35		2,5...35 / 12...2	5 / 44.3		—
20Z2F04-1003		M10		—	20 / 177		—
21Z2F04-1003				—			—
22Z2F04-1003				—			—
23Z2F04-1003				—			—
24Z2F04-1003				—			—

Material number	Connection			Cross-section area in mm² / AWG	Tightening torque in Nm / lb-in		With a temperature switch
25Z2F04-1003	Bolt		M10	—	40 / 354	20 / 177	✓
26Z2F04-1003		M12		—			✓
27Z2F04-1003				—			✓
28Z2F04-1003				—			✓
29Z2F04-1003				—			✓
30Z2F04-1003				—			✓
31Z2F04-1003				—			✓
32Z2F04-1003				—			✓
33Z2F04-1003				—			✓

Tab. 7: Description of the motor choke terminal blocks

6.5.2 Size 07–12

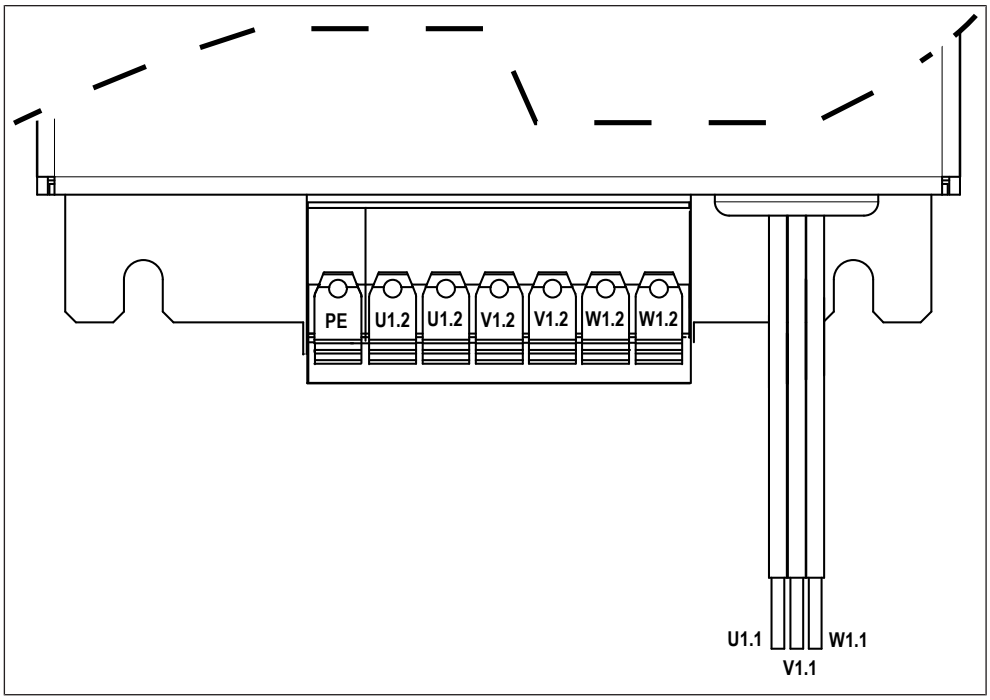


Fig. 23: Connection for motor choke, size 07–12

PE	Protective earth connection
U1.1, V1.1, W1.1	Input motor choke at the stranded wires
U1.2, V1.2, W1.2	Output motor choke at the terminal block

6.5.3 Size 13-19

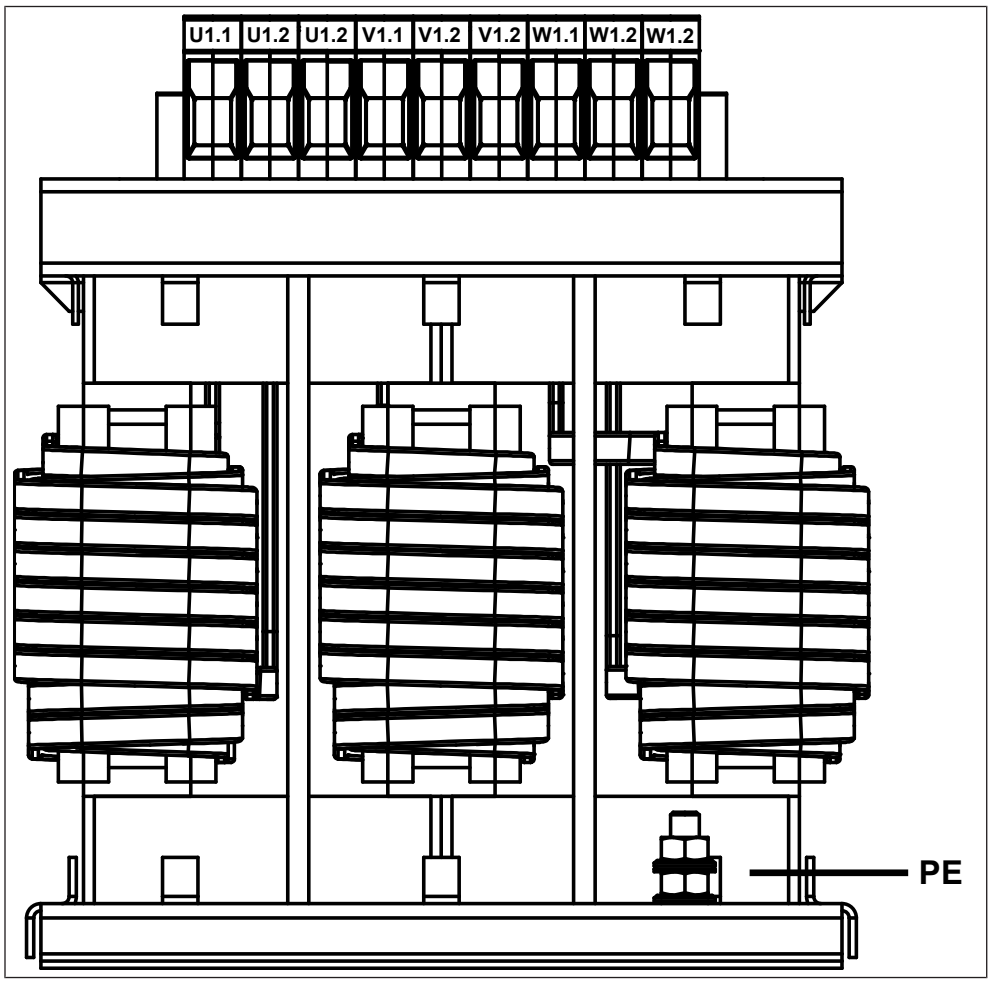


Fig. 24: Connection for motor choke, size 13-19

PE	Protective earth connection
U1.1, V1.1, W1.1	Input motor choke
U1.2, V1.2, W1.2	Output motor choke

6.5.4 Size 20-22

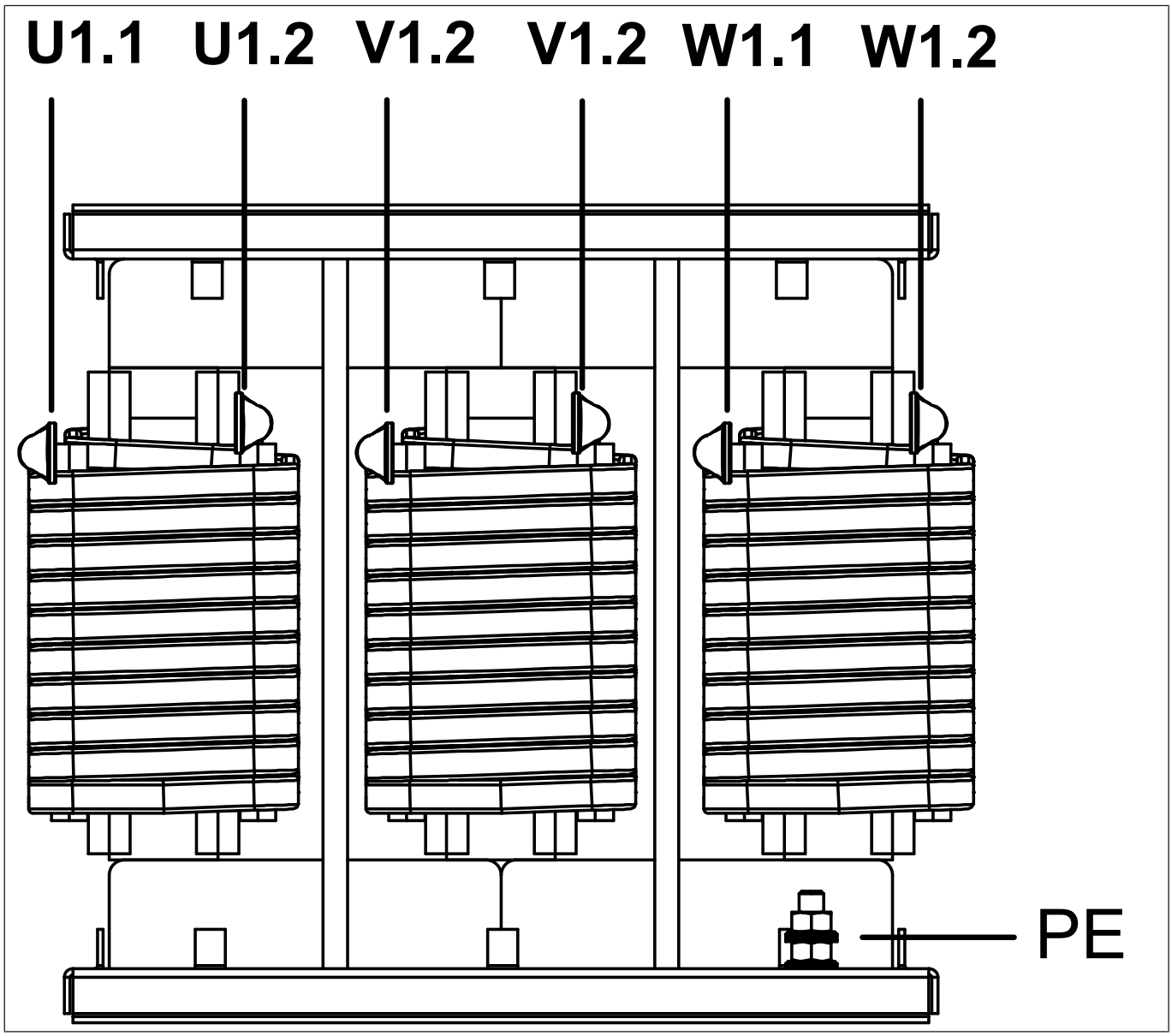


Fig. 25: Connection for motor choke, size 20-22

PE	Protective earth connection
U1.1, V1.1, W1.1	Input motor choke
U1.2, V1.2, W1.2	Output motor choke

6.5.5 Size 23-30

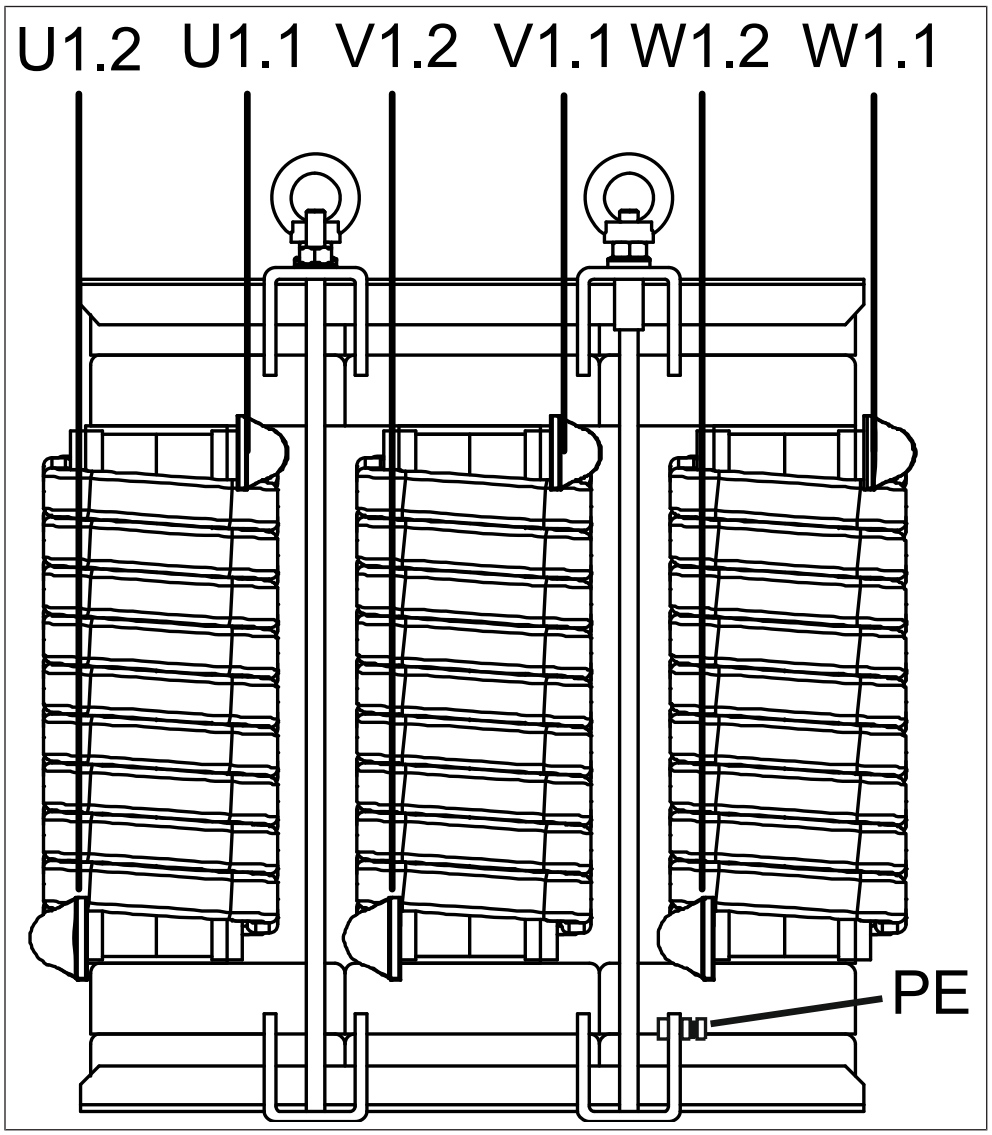


Fig. 26: Connection for motor choke, size 23-30

PE	Protective earth connection
U1.1, V1.1, W1.1	Input motor choke
U1.2, V1.2, W1.2	Output motor choke

The motor chokes of sizes 25 to 30 have a temperature switch (NC). This must be connected with the input terminals T1/T2 of the drive controller.

6.5.6 Size 31-33

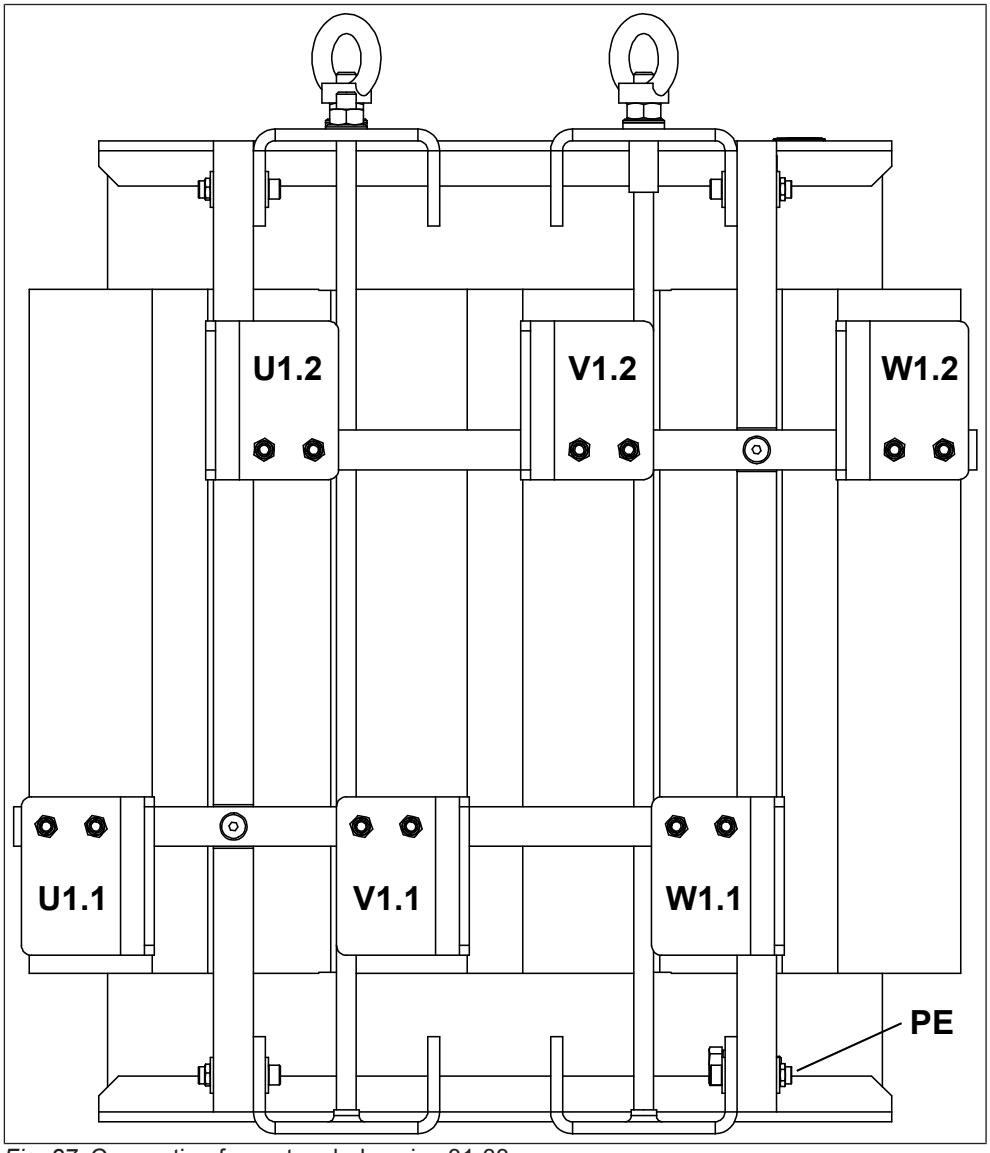


Fig. 27: Connection for motor choke, size 31-33

PE	Protective earth connection
U1.1, V1.1, W1.1	Input motor choke at the stranded wires
U1.2, V1.2, W1.2	Output motor choke at the terminal block

The motor chokes of sizes 30 to 31 have a temperature switch (NC). This must be connected with the input terminals T1/T2 of the drive controller.

6.6 Connection of the capacitor modules

6.6.1 Connection terminals

Material number	Connection		Tightening torque , U1.3, V1.3, W1.3		Tightening torque PE	
	U1.3, V1.3, W1.3	PE	Nm	lbin	Nm	lbin
00Z2G24-00x5	Push-Lock Terminal 3x10 mm²	Crimp connector M4	—	—	2,5	21
00Z2G24-00x6						
00Z2G24-00x7						

Material number	Connection		Tightening torque , U1.3, V1.3, W1.3		Tightening torque PE	
	0.2…6 mm² / AWG 24…10					
00Z2G24-A0x1	3 x M12 bolt	Crimp connector M8	25	354	8	70
00Z2G24-A0x2						
00Z2G24-A0x3	6 x M12 bolt	Crimp connector M8	25	354	8	70
00Z2G24-A0x4	If the cable cross-sections differ, connect the smaller cross-section to terminals a!					
00Z2G24-A241	6 x M12 bolt	Crimp connector M8	25	354	8	70

Tab. 8: Description of the motor choke terminal blocks

6.6.2 Assembly the Cupal washers

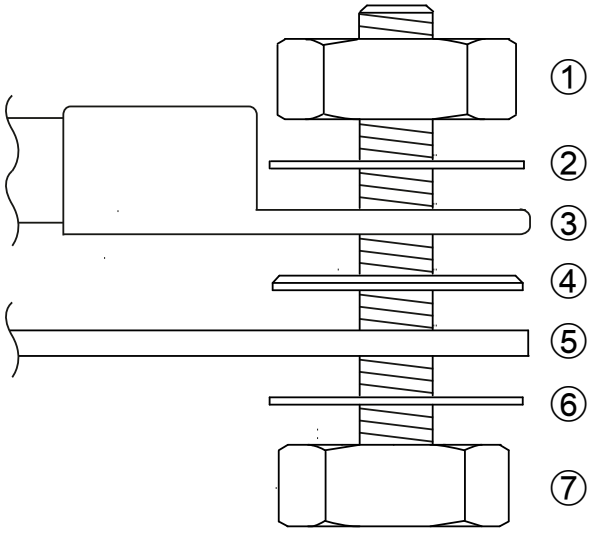


Fig. 28: Fixing screw for connecting cables

① Nut	② Washer
③ Ring cable lug	④ Cupal washer (copper side facing upwards)
⑤ Aluminium sheet	⑥ Washer
⑦ Screw	

NOTICE! Fitting the Cupal washer: Aluminium side to aluminium sheet! Copper side to cable lug!

6.6.3 Connecting the Design A capacitor module

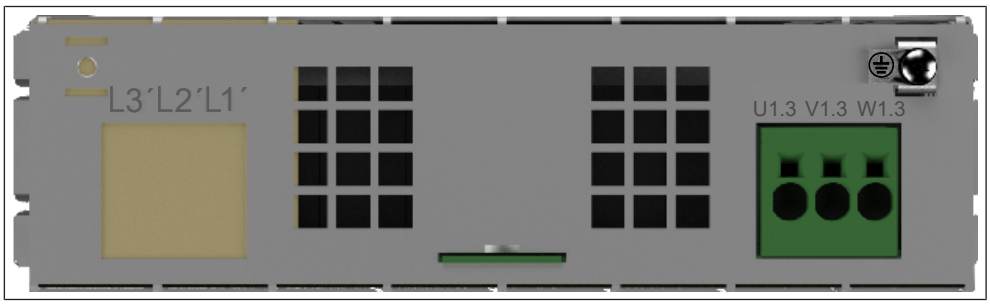


Fig. 29: Connection to capacitor module, design A

⏚	Protective earth connection
U1.3, V1.3, W1.3	Capacitor connection

6.6.4 Connecting the Design G capacitor module

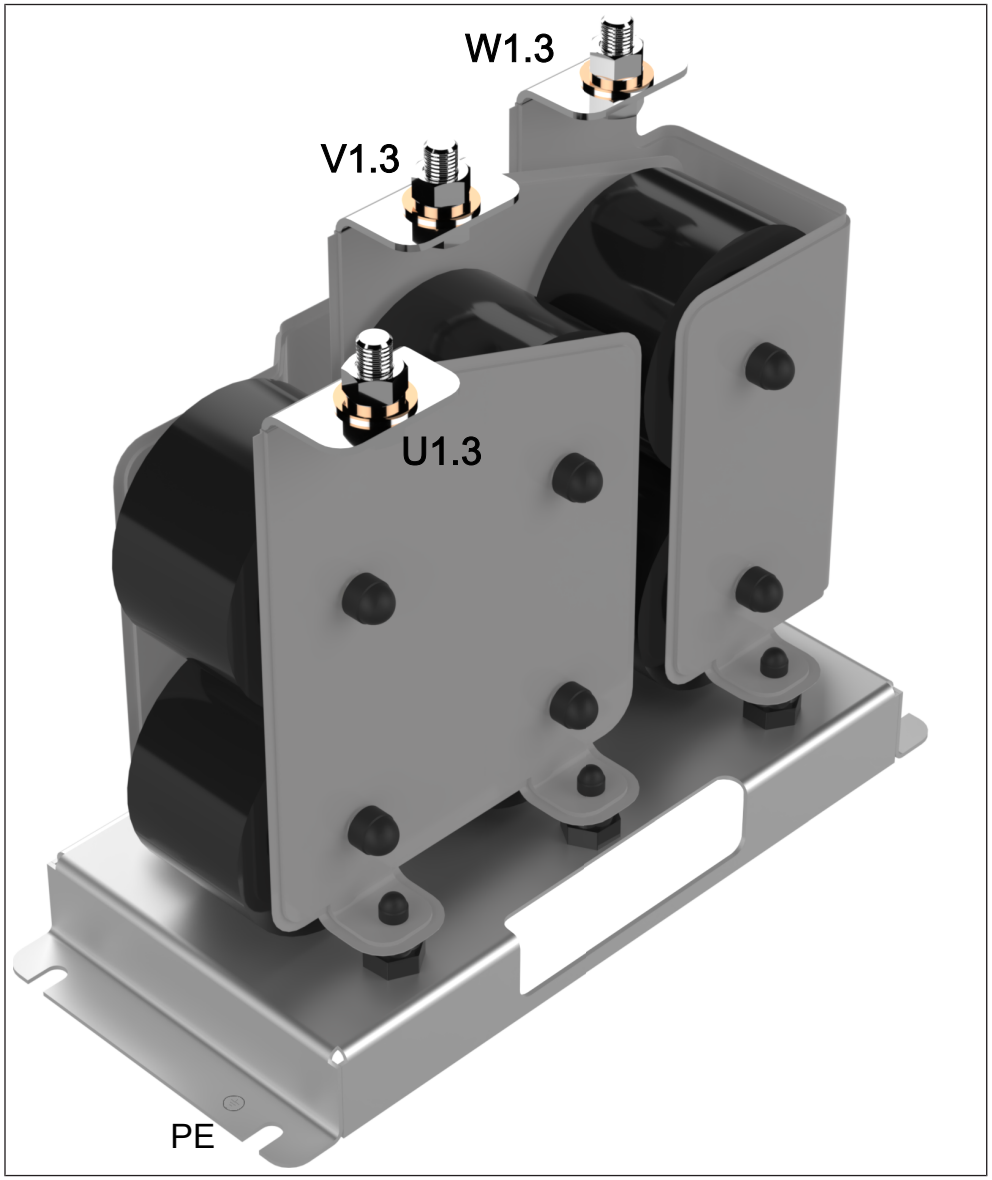


Fig. 30: Connection to capacitor module, design G

⏚	Protective earth connection
U1.3, V1.3, W1.3	M12 bolt with cupal washer

6.6.5 Connecting the Design H capacitor module

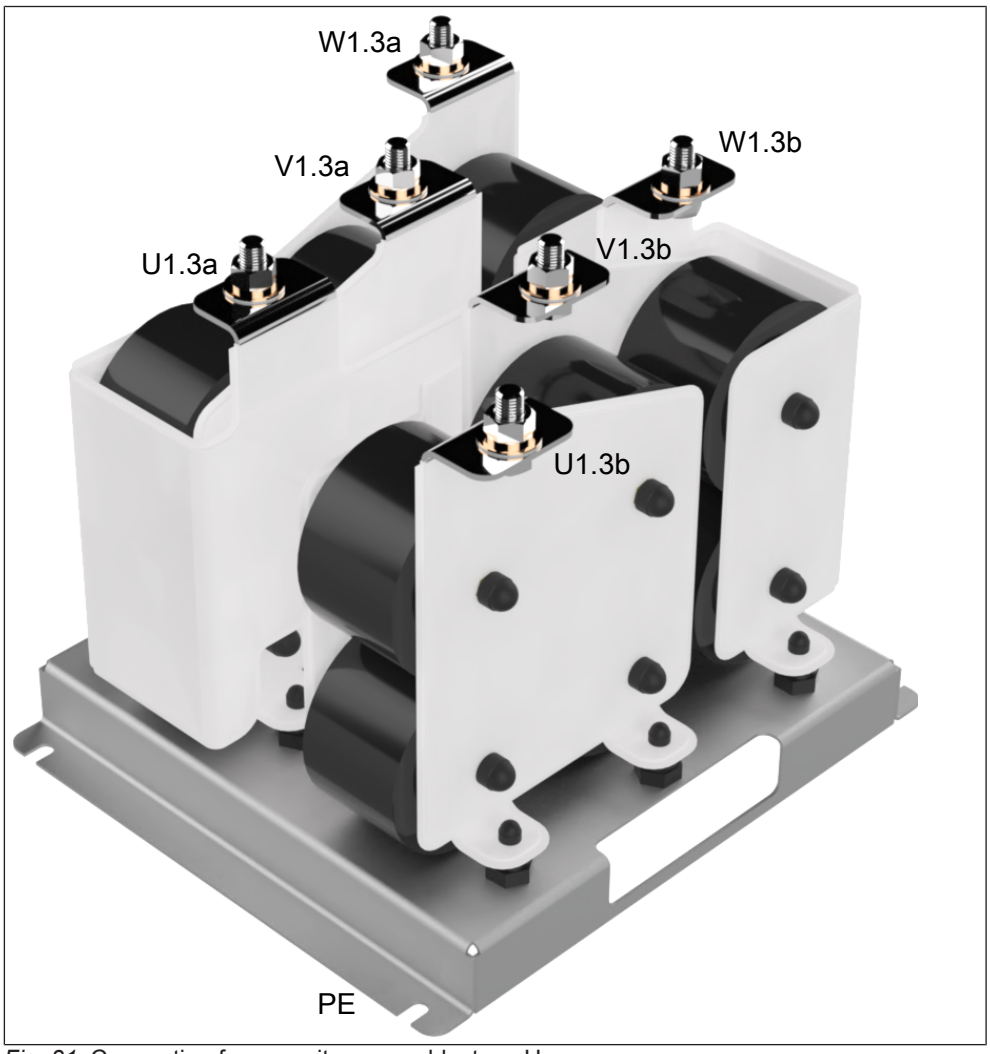


Fig. 31: Connection for capacitor assembly, type H

⏚	Protective earth connection
U1.3a, V1.3a, W1.3a	M12 screw with cupal washer. If the cable cross-sections differ, connect the smaller cross-section to terminals a!
U1.3b, V1.3b, W1.3b	M12 bolt with cupal washer

6.6.6 Connecting the Design J capacitor module

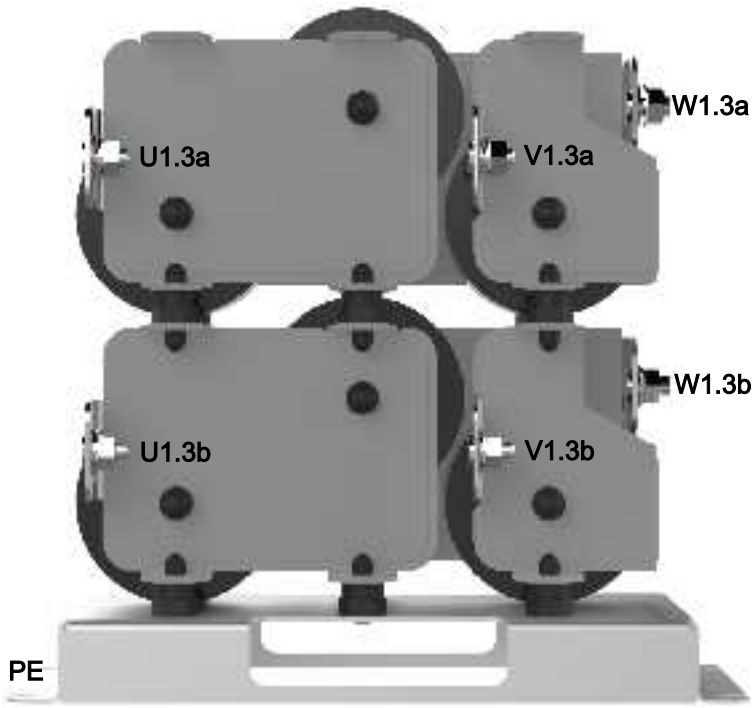


Fig. 32: 3D view of connections 00Z2G24-A241, design J

⏚	Protective earth connection
U1.3, V1.3, W1.3	M10 bolt with cupal washer (capacitor 1 of 2)
U1.3, V1.3, W1.3	M10 bolt with cupal washer (capacitor 2 of 2)

7 Maintenance, service and disposal

⚠ DANGER



Electrical voltage at terminals and in the device!

Danger to life due to electric shock !

✓ For any work on the device

a) Switch off the supply voltage.

b) Secure it against switching on.

c) Wait until all drives has been stopped in order that no regenerative energy can be generated.

d) Await capacitor discharge time (min. 5 minutes). Measure DC voltage at the terminals.

e) Never bridge upstream protective devices. Also not for test purposes.

7.1 Maintenance

The following maintenance work must be carried out as required, but at least once a year, by authorised and instructed personnel.

- Check the system for loose screws and plugs and tighten if necessary.
- Remove dirt and dust deposits from the devices.
- Checking or cleaning ventilation inlets and outlets. Pay particular attention to cooling fins and protective grilles of fans (if available).
- Check or clean the exhaust air filter and the supply air filter of the control cabinet.
- If available, check the function of the fans of the device. If there are audible vibrations or squeaking, replace the fans.
- In the case of liquid-cooled devices, a visual inspection of the cooling circuit for leaks and corrosion must be carried out. If a system shall be switched off for a longer time, the cooling circuit must be completely drained. At temperatures below 0 °C, the cooling circuit must also be blown out with compressed air.

7.2 Service

In case of malfunction, unusual noises or smells inform a person in charge!

Technical support and repairs

KEB offers wide-ranging, complete after-sales technical support. The staff who deal with this handle questions on the entire range of products skilfully, quickly, and efficiently.

You can phone our staff in the service department, and they will give you complete, prompt advice on how to resolve your problems.

Telephone: +49 (0) 5263 401-0

Fax: +49 (0) 5263 401-116

E-Mail: (🌐► service@keb.de)

7.3 Disposal

Electronic devices of KEB Automation KG are intended for professional, commercial processing (so-called B2B devices).

Manufacturers of B2B devices are obliged to take back and recycle devices manufactured after 14.08.2018. In principle, these devices may not be left at public or communal recycling or collection points.



Unless otherwise agreed between the customer and KEB or unless there is a deviating mandatory legal regulation, KEB products labelled in this way can be returned. Company and keyword for the return point can be found in the list below.

Shipping costs are at the expense of the customer. The devices are then professionally recycled and disposed of.

The entry numbers are listed country-specifically in the following table. KEB addresses can be found on our website.

Withdrawal by	WEEE registration no.	Keyword
Germany		
KEB Automation KG	EAR: DE12653519	Keyword: "Withdrawal WEEE"
France		
RÉCYLUM – Recycle point	ADEME: FR021806	Mots clés "KEB DEEE"
Italy		
COBAT	AEE: (IT) 19030000011216	Parola chiave "Ritiro RAEE"
Austria		
KEB Automation GmbH	ERA: 51976	Keyword: "Withdrawal WEEE"
Spain		
KEB Automation KG	RII-AEE: 7427	Palabra clave "Retirada RAEE"
Czech republic		
KEB Automation KG	RETELA: 09281/20-ECZ	Kličové slovo "Zpětný odběr OEEZ"
Slovakia		
KEB Automation KG	ASEKOL: RV22EEZ0000421	Kľúčové slovo: "Spätný odber OEEZ

The packaging must be sent for paper and cardboard recycling.

8 Certifications and approvals

Current certificates, declarations and revision lists for your product can be viewed or downloaded from our website at the following link:

(🌐► keb-automation.com/search)

By entering the article number, you will receive a list of the corresponding documents in the "Certificates" drop-down menu.

If you need help or further documentation, please contact our customer service.

8.1 CE marking

Conformity with the EU directives and guidelines applicable on the production date is confirmed by the CE mark on the nameplate.

The current EU Declaration of Conformity for this product is available via the link above.

8.2 UL certification

UL (Underwriters Laboratories) approval ensures that a product fulfils the safety-related requirements for the North American market. UL is an independent organisation that tests and certifies products, components and systems for safety, quality and conformity with applicable standards.

Products that have received UL approval are marked with the UL logo on the nameplate. This symbol indicates that the product has been successfully tested in accordance with UL specifications and is approved for use in the USA or Canada. Depending on the type of approval, the logo with the UL file can also be marked with additional information (e.g. "cULus" for Canada and the USA).

The approval is linked to certain requirements. These are marked accordingly in this and/or further instructions. Only the assemblies/components described in the approval may be used.

A deviation from the tested specifications or the use of non-certified parts can lead to the loss of UL approval and thus jeopardise the operating permit in the target market.

8.3 UL Notes

To be conform in accordance with UL for use on the North American and Canadian Market the following additionally instructions must be observed (original text of the UL-File):

All models

- Maximum Surrounding Air Temperature: 45°C
- Use 75°C Copper Conductors Only

This marking is only applicable for all power field wiring terminals.

- For installations in accordance with Canadian National Standard C22.2 No. 274-13:
- For use in Pollution Degree 2 and Overvoltage Category III environments only.

Models with UR-marking

Conditions of Acceptability - In order to be judged acceptable as a component of electrical equipment, the following conditions shall be met:

When operated at 601 – 1600 Hz, these devices shall be mounted into an ultimate enclosure having an actively fan-forced air cooling, as follows:

Models	Maximum distance from the choke	Min. fan performance	No. of fans
All	300 mm	15 m³/min	1

Field wiring terminals are marked to show a nominal value of tightening torque in pound-inches (Nm) to be applied to the terminals as shown below:

- Power terminals:
  Model 25Z2F (M10) – 177.0 lb-in (20.0 Nm)
  All other models – 354.0 lb-in (40.0 Nm)

  Grounding terminal:
  All models (M12) – 354.0 lb-in (40.0 Nm)

  Control supply (thermal protector) – 4.4…5.3 lb-in (0.5…0.6 Nm)
- Control Circuit Overcurrent Protection Required
- Only for use in non-corner grounded type WYE source not exceeding 230V, 277V, 346V phase to ground

Models with UL-marking

Field wiring terminals are marked to show a nominal value of tightening torque in pound-inches (Nm) to be applied to the terminals as shown below:

- Core designations E55/25, E65/27, E70/32:
  Power terminals – Push-Lock
  Grounding terminal – Push-Lock

  Core sizes 130x180x36, 130x210x36, 200x160x58, 260x202x50, 260x192x50, 300x280x58

Power Terminals and Grounding Terminals (depending on the max. Current) – see table:

- Terminal tightening torque
  , RK 6-10/35 17.7 lb-in (2 Nm),
  , RK 16/35 35.4 lb-in (4 Nm),
  , RK 35/35 44.3 lb-in (5 Nm),
  , WFF 35 39.8 lb-in (4.5 Nm),
  WFF 70 88.5 lb-in (10 Nm)
  HSKG 120 88.5–177 lb-in (10–20 Nm)
  WFF 120 132 lb-in (15 Nm)
  WFF 185 177 lb-in (20 Nm)
  HSKG 185 123.9–274.4 lb-in (14–31 Nm)
  HSKG 300 221.3–531 lb-in (25–60 Nm)
  WFF 300 354 lb-in (40 Nm)

- By using cable lugs (depending on the max. Current):
  Screw size M10 – 177.0 lb-in (20.0 Nm)
  ; Screw size M12 – 354.0 lb-in (40.0 Nm)
- Earth terminal:
  Screw size M12 – 354.0 lb-in (40.0 Nm)
- All power terminals (M12) for units 00Z2G24-xxx1:
  88.5 lb-in (40.0 Nm)

- All power terminals (M12 screw with nut) for units 00Z2G24-xxxy, where y can be 2, 3 or 4:
  354 lb-in (40 Nm)

  Grounding terminal (M8):
  70.8 lb-in (8 Nm)
- All power terminals for units 00Z2G24-xxxz, where z can be 5, 6 or 7: Push-in spring connection
  Grounding terminal (M4)
  21.1 lb-in (2.5 Nm)

- These products are not intended for use in corner-grounded delta systems, the phase-to-ground rated system voltage is 277V ac.

8.4 Further markings

Other markings and approvals not listed here are identified by a corresponding logo on the rating plate or device, if applicable. The corresponding certificates are available on our website.

9 Revision history

Edition	Version	Note
2018-09	00	Completion of the pre-series version.
2019-02	01	Completion of the series version
2020-01	02	Corrections to the drawings. Editorial changes.
2020-06	03	Dimensions adapted to size 23-26Z2. Editorial changes.
2021-04	04	Note on winding tolerances included.
2022-08	05	Accommodation of chokes in sizes 31...33. UL and UR certification updated.
2025-08	06	Adaptation of technical drawings. Editorial changes.
2026-06	07	New capacitor modules have been added. Complete editorial revision.
2026-09	08	Terminal marking for type J has been changed.

Glossary

Application

The application is the intended use of the KEB product.

COMBIVERT

Proper name for a KEB Drive Controller.

Customer

The customer has purchased a product from KEB and integrates the KEB product into his product (customer product) or resells the KEB product (re-seller).

EN 60529

Degrees of protection provided by enclosures (IP-Code).

EN 60664-1

Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests.

EN 60721-3-1

Classification of environmental conditions - Part 3-1: Classification of groups of environmental parameters and their severities - Main section: Long-term storage (IEC 60721-3-1)

EN 60721-3-2

Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severitiesMain section 2: Transportation and Handling (IEC 60721-3-2)

EN 60721-3-3

Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severitiesMain section 3: Stationary use at weatherprotected locations (IEC 60721-3-3)

NHN

Standard altitude zero; related to the established height definition in Germany (DHHN2016). The international data usually deviate from this by only a few cm to dm, so that the value is given can be taken from the regionally applicable definition.

PDS

Power drive system incl. motor and measuring probe

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Notes



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