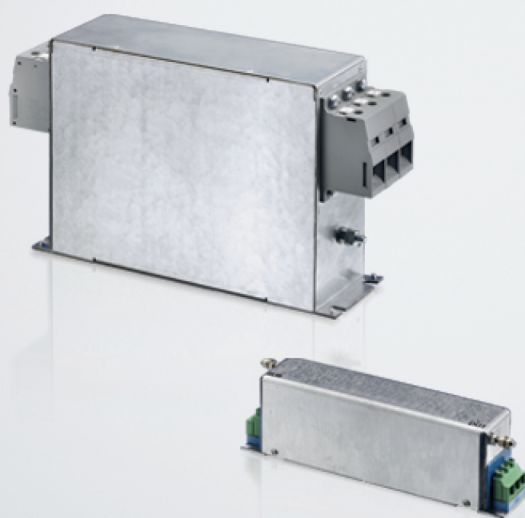


Assembly instructions | EN

AX2090-NF80

Mains filter



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1 Foreword

1.1 Notes on the documentation

This description is only intended for the use of trained specialists in control and automation engineering who are familiar with applicable national standards.

It is essential that the documentation and the following notes and explanations are followed when installing and commissioning the components.

It is the duty of the technical personnel to use the documentation published at the respective time of each installation and commissioning.

The responsible staff must ensure that the application or use of the products described satisfy all the requirements for safety, including all the relevant laws, regulations, guidelines and standards.

Disclaimer

The documentation has been prepared with care. The products described are, however, constantly under development.

We reserve the right to revise and change the documentation at any time and without prior announcement. No claims for the modification of products that have already been supplied may be made on the basis of the data, diagrams and descriptions in this documentation.

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1.2 Documentation issue status

Origin of the document

This documentation was originally written in German. All other languages are derived from the German original.

Product features

Only the product features specified in the current user documentation are valid. Further information given on the product pages of the Beckhoff homepage, in emails or in other publications is not authoritative.

Version	Comment
1.0	First published

1.3 Appropriate use

The mains filters of the series "AX2090-NF80" are exclusively intended for application in the control cabinet as power supply unit of the AX8000. The filters are installed together with the servo drive as components in electrical systems and machinery and may only be used in this way.

2 Safety

2.1 General safety instructions

2.1.1 Personnel qualification

This description is only intended for trained specialists in control, automation and drive engineering who are familiar with the applicable national standards.

2.1.2 Description of safety symbols

The following safety symbols and associated safety instructions are used in this document. These safety instructions must be read and followed.

DANGER

Serious risk of injury!

Failure to follow the safety instructions associated with this symbol directly endangers the life and health of persons.

WARNING

Caution – Risk of injury!

Failure to follow the safety instructions associated with this symbol endangers the life and health of persons.

CAUTION

Personal injuries!

Failure to follow the safety instructions associated with this symbol can lead to injuries to persons.

NOTICE

Damage to the environment or devices!

Failure to follow the safety instructions associated with this symbol can lead to damage to the environment or equipment.

Tip or pointer



This symbol indicates information that contributes to better understanding.

UL note



This symbol indicates important information regarding UL certification.

2.2 Special safety instructions for AX2090-NF80

The safety instructions are designed to avert danger and must be followed during installation, commissioning, production, troubleshooting, maintenance and trial or test assemblies.

The mains filter series AX2090-NF80 are not designed for stand-alone operation and must always be installed in a machine or system. After installation the additional documentation and safety instructions provided by the machine manufacturer must be read and followed.

The responsible staff must ensure that the application or use of the products described satisfy all the requirements for safety, including all the relevant laws, regulations and guidelines.

WARNING

Risk of injury!

Electronic equipment is not fail-safe. The machine manufacturer is responsible for ensuring that the connected motors and the machine are brought into a safe state in the event of a fault in the drive system.

Observe the discharge times of the capacitors

Observe the following delay times after disconnecting from the mains supply:

- AX8600, AX8620 and AX8640 **30 minutes**
- AX8108, AX8118 and AX8206 **30 minutes**
- AX8525 and AX8540 **30 minutes**

Note: In the power supply module the control word can be set to "Fast discharge DC link" in object 0x8000:11. This can trigger a rapid discharge of the DC link when the mains voltage is switched off. This allows the waiting time to be bypassed. Please note the general conditions of the object.

3 Installing the mains filter

⚠ WARNING

Caution - Risk of injury through electric shock!

De-energize all electrical components (servo drive, control cabinet etc.) before commencing the installation or deinstallation of the mains filter.

⚠ WARNING

Caution - Risk of injury through electric shock!

Mains filters contain components that can store electrical charge. Wait 5 minutes after disconnecting the filters and measure the voltage on conductors L1 to L3. The device is safe once the voltage has fallen below 50 V.

⚠ CAUTION

Personal injuries!

When installing the mains filter, the protective earth cables must be connected first as a matter of principle. They must be disconnected last when deinstalling. Depending on the size of the leakage current, the special regulations for the implementation of the protective earth connection must be observed. Minimum requirement for the protective conductor KU-value ¹⁾ = 4.5 for leakage currents $I_L < 10 \text{ mA}$ or $KU = 6$ for $I_L > 10 \text{ mA}$.

¹⁾ The KU-value is a variable for the classification of safety-related types of failure for protection against dangerous shock current and excessive heating. A value of $KU = 4.5$ in relation to interruption is attained:

- with a permanently attached protective conductor $\geq 1.5 \text{ mm}^2$
- for protective conductor connection $\geq 2.5 \text{ mm}^2$ with plug connector for industrial systems (IEC 60309-2).

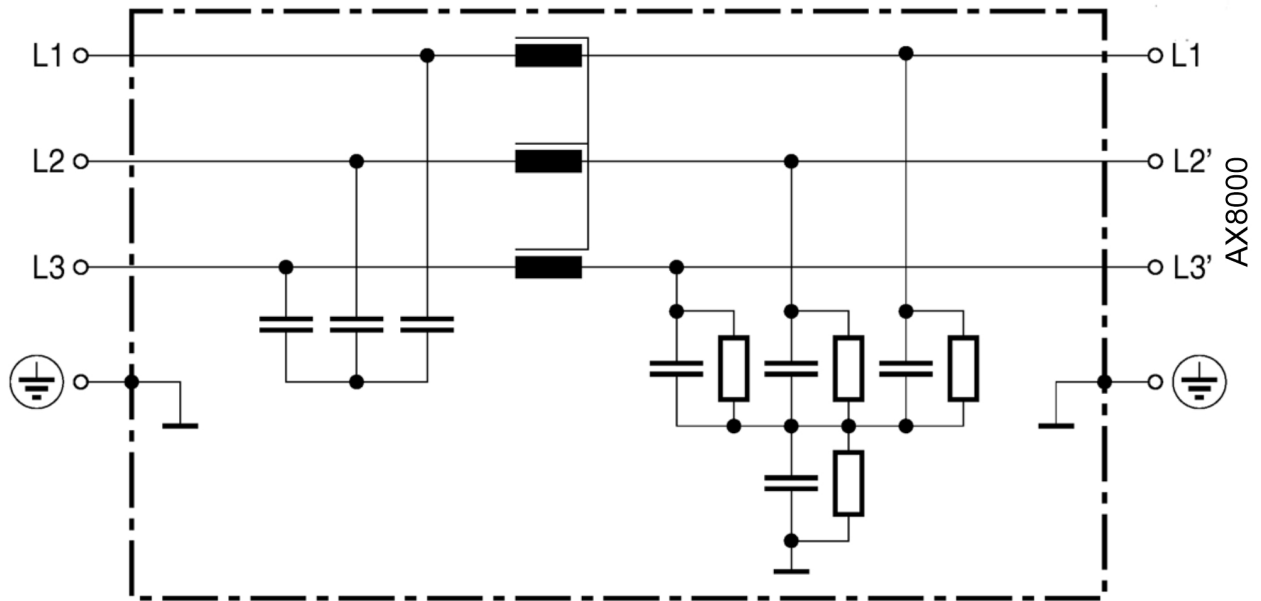
$KU = 6$ in relation to interruption is attained with permanently connected conductors $\geq 10 \text{ mm}^2$, wherein the type of connection and routing must comply with the standards applicable to PEN conductors.

NOTICE

Destruction of the mains filter

The mains filters must be protected by means of an appropriate overcurrent protection device against the impermissible exceeding of the rated current.

3.1 Circuit diagram



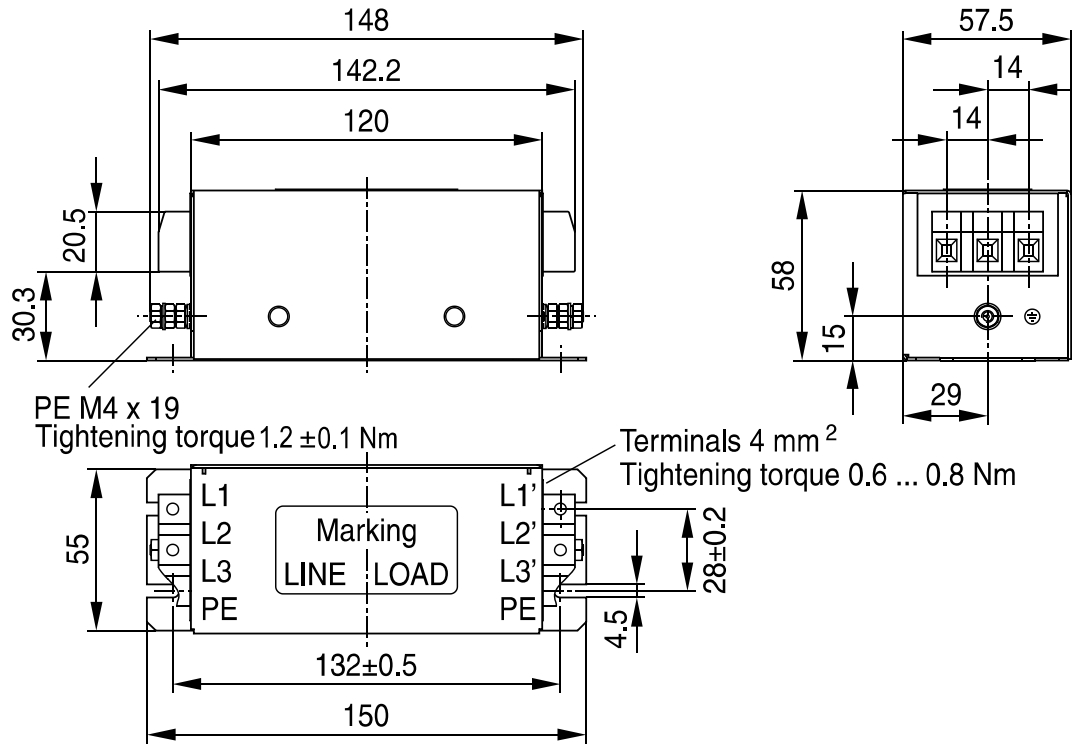
Connection cables

The length of the connecting cable from the mains filter to the AX8000 must not exceed 0.4 m. Use exclusively shielded connecting cables.

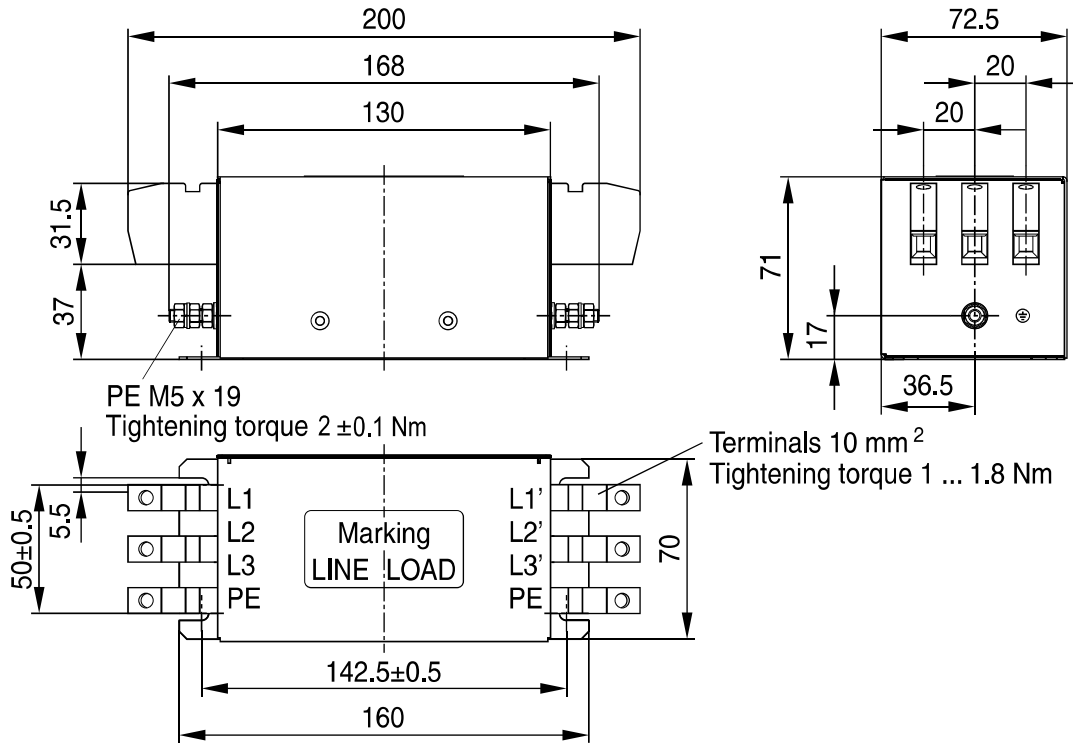
3.2 Dimensions and dimensional drawings

- All dimensions are in mm
- General tolerances according to ISO 2768

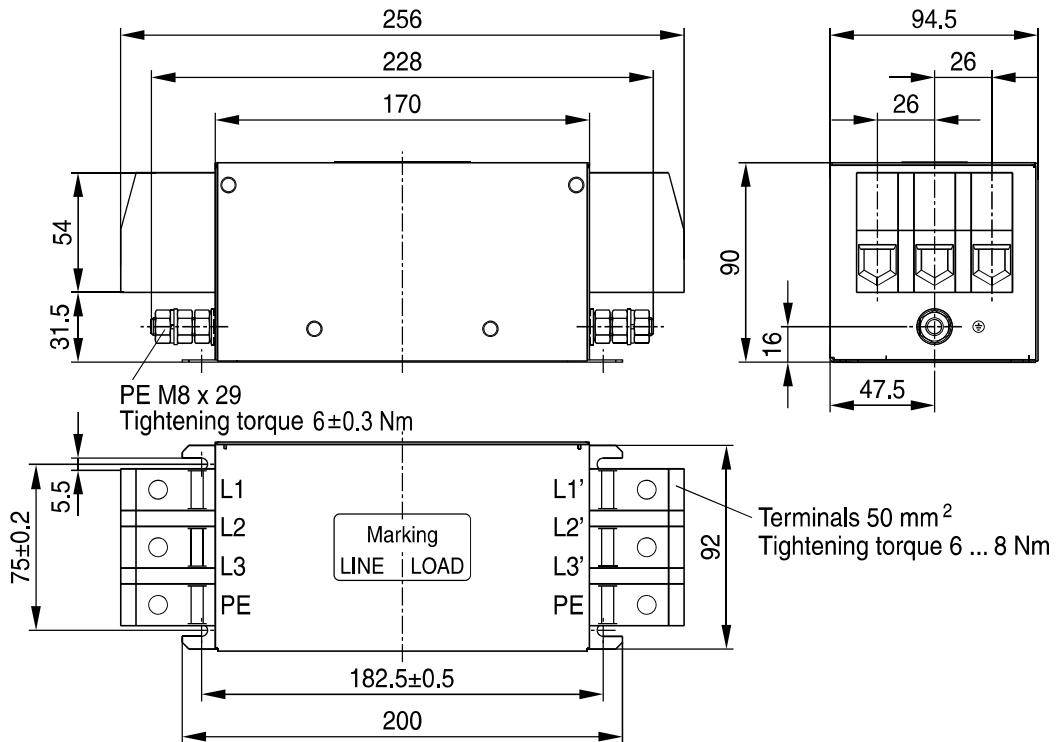
3.2.1 AX2090-NF80-0020 (20 A)



3.2.2 AX2090-NF80-0040 (35 A)



3.2.3 AX2090-NF80-0080 (80 A)



4 Technical data

Data	AX2090-NF80-		
	0020	0040	0080
Nominal voltage [V _{AC}]	300 – 520		
Nominal frequency [Hz]	50 / 60		
Nominal current [A]	20	35	80
Voltage cable/cable for 2 s [V _{DC}]	2240		
Voltage cable/housing for 2 s [V _{DC}]	2720		
Nominal temperature [°C]	50		
Climate category (IEC 60068-1)	25 / 100 / 21		
Resistance [mΩ]	3.3	1.7	0.6
Leakage current [mA]	3.1	3.4	3.4
Overload capacity (thermal)	1.5 x Rated current for 3 min per hour or 2.5 x Rated current for 30 s per hour		
Weight [kg]	0.6	0.9	2.4
Connection cross-section [mm ²]	4	10	50
Approvals	IEC 60939, UL 1283, CSA C22.2 No.8		

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