

## Mounting and Installation Instructions

### Mains Distribution Cabinet with Circuit Integrity Type ESF-E30

Target group, part 1: Skilled electricians acc. to DIN VDE 0105 part 1

Target group, part 2: Electrical instructed persons

 **COOPER** Safety



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#### Part 1

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## Important Notes

### 1. General Information

Mounting work may only be performed by skilled electrical personnel (see DIN VDE 0105 part 1, the German Accident Prevention Regulation BGV A2 of the Association of Commercial and Industrial Workers' Compensation Insurance Carriers, or analogous regulations and guidelines in the country where the equipment is to be installed and operated). Other persons may only perform the activities described in these instructions if

- they have received proper and professional instruction,
- their tasks and activities have been precisely defined and understood,
- the activities are performed under the oversight and supervision of experienced and expert personnel.

When working with these mounting and installation instructions, special attention must be paid to the notes marked with symbols and key words as follows.

#### 1.1 Description of Symbols

In these operating instructions, important safety-related notes are labelled with symbols.



Note:

Provides important tips and advice on the procedures to be followed or on the handling of the device or components described.



**Attention!**

**Draws attention to possible sources of danger that might cause damage to equipment or components, as well as to the environment.**



**Warning!**

**Draws attention to possible sources of danger that might cause personal injury or severe damage to equipment or components, as well as to the environment.**



**Danger!**

**Draws attention to possible sources of danger that might cause life-threatening personal injury or extreme damage that indirectly endangers people or the environment.**



**Warning!**

**The depictions in these mounting and installation instructions only serve, to some extent, as illustrations of the content matter.**

**Wherever**

- dimensionally accurate work or
  - precise drawings adapted to on-site characteristics are required,
- it is mandatory to comply with the drawings that have been specially created for the equipment.**



**Warning!**

**Only perform work for which you possess sufficient technical qualifications and for which you have received instruction regarding the on-site operating conditions!**

**Extensions, modifications, repairs and other routine work not described in these instructions are to be reserved for specially trained specialist and service personnel (from the manufacturer CEAG or from vendors and service providers authorised by CEAG)!**

### 1.2 Information regarding the Mounting and Installation Instructions

Please keep these mounting and installation instructions safe, as they form an integral part of the delivered fire safety enclosure. Safe and approved functioning can only be assured by observing these instructions.

### 1.3 Further Applicable Documents

In addition to these mounting and installation instructions, the mounting and operating instructions for the central battery systems ZB-S, ZB96 and EURO ZB.1 must also be observed.

### 1.4 Liability and Guarantee

All indications and notes in these mounting and installation instructions were compiled taking account of the regulations in effect, the state of the art, and our long-standing knowledge and experience. The mounting and installation instructions must be stored in the immediate vicinity of the device and must be available at all times to all persons who work on or with the device. These mounting and installation instructions must be read carefully before the start of all work performed on or with the device!

### 1.5 Copyright Protection

The mounting and installation instructions are to be handled confidentially. They are exclusively for the use of persons engaged in work on and with the device. All indications, texts, drawings, images and other representations contained in the instructions are protected by copyright law.

### 1.6 Spare Parts

Only use original spare parts from the manufacturer.



Incorrect or faulty spare parts can cause damage, malfunctioning or the complete failure of the device.

The use of unapproved spare parts causes all guarantee, service, damage and liability claims to be forfeited.

### 1.7 Disposal

If no return or disposal agreement has been reached, disassembled components are to be conveyed to be recycled after appropriate dismantling.

## 2. Safety

The device is constructed according to the accepted state-of-the-art technology in effect at the time it was developed and produced, and is classified as safe.

However, this device can present risks if it is used by personnel without specialist training, or is used inappropriately or in an unapproved manner.

The special regulations on pages 2 - 6 in these instructions must be observed.

Observe the VDE and DIN standards and regulations.

Ensure that the requirements of the fire protection authorities are observed and complied with.

Ensure that the requirements of the building control authorities are complied with.

Ensure that the requirements of the technical construction regulations for your federal state are complied with.

Follow the German sample guideline for cable and pipe installation (Musterleitungsanlagen Richtlinie, MLAR).

Ensure that the mounting of the enclosure does not reduce the fire resistance period and the stability of the firewall on which the enclosure is mounted.

Ensure that the enclosure shows no signs of damage, such as cracks or displacement of the insulation.

Ensure that the enclosure is always closed while in operation.

Ensure that the pivoting range of the door is always unobstructed.

Ensure that the enclosure is stable.

The repair of damage or malfunctioning in the enclosure must be performed by CEAG-authorized personnel.

Ensure compliance with the additional notes of the current relevant prospectus.

The regulations of the German general technical approval (allgemeine bauaufsichtliche Zulassung) Z-86.2-1, regarding design, mounting, cable entry point, etc. must be observed.

### 2.1 Approved Use

The mains distribution box with circuit integrity, type ESF-E30, is to be used for the battery-supported monitoring and power supply of safety lighting.

### 2.2 Contents of the Mounting and Installation Instructions

All persons assigned to perform work on or with the device must read and understand the operating instructions before beginning work on the device. This also applies if the person concerned has already worked with an identical or similar device or has been trained by the manufacturer.

### 2.3 Changes and Modifications to the Device

To avoid the risk of danger and to ensure optimal performance, no changes or modifications may be carried out on the device unless expressly approved by the manufacturer.

### 2.4 Responsibility of the Operator

These operating instructions must be stored in the immediate vicinity of the device and must be available at all times to the persons engaged in work on and with the device. The device may only be used when it is technically sound and operationally safe. The device must be checked for soundness before the beginning of every operation. The specifications in the operating instructions must be adhered to completely and thoroughly.

# Mounting and Installation Instructions

## ESF-E30 Mains Distribution Cabinet with Circuit Integrity

### 2.5 Personnel Requirements

Only trained and authorised skilled personnel may work on and with the device. The personnel must have received instruction regarding potential sources of danger. Skilled personnel refers to those able to rely on specialist training, knowledge and experience, as well as knowledge of the relevant regulations, to evaluate the work assigned to them and recognise potential danger.

### 2.6 Operational Safety

Personal injury and property damage during work on and with the device can be avoided by following the safety advice and directions provided in these operating instructions.

## 3 Technical Data

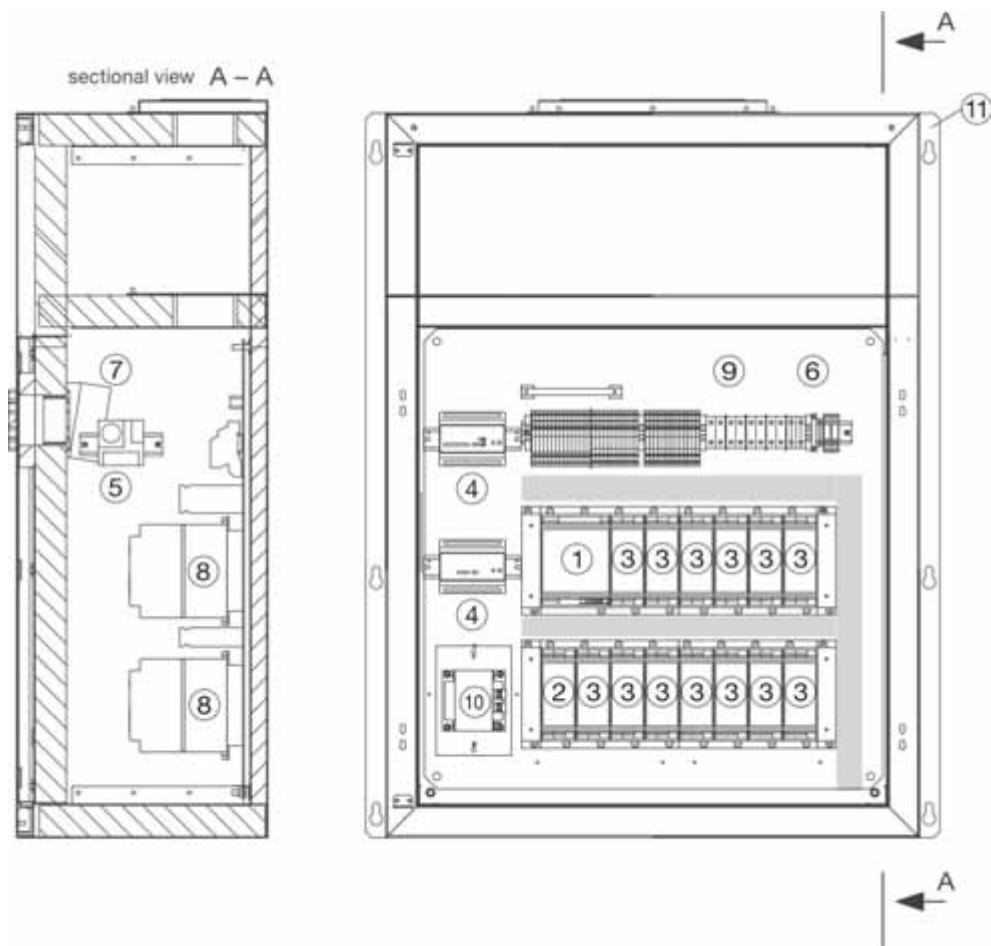
Type	ZB-S		ZB 96/EURO ZB.1	
	ESF-E30/13-S Wall-mounted cabinet	ESF-E30/28-S Floor-mounted cabinet	ESF-E30/17 Wall-mounted cabinet	ESF-E30/28 Floor-mounted cabinet
Technical data of fire protection				
Fire resistance (min)	30			
Max. humidity over 30 min (%)	40	47	40	47
Max. increase of air temperature acc. EN 60439-1 (K)	13	15	13	15
Cabinet details				
Cabinet	Sheet steel			
Cable entries with pre-stamped flange plate	26 x M25 8 x M16 4 x M40	60 x M25 8 x M16 4 x M40	26 x M25 8 x M16 4 x M40	60 x M25 8 x M16 4 x M40
Type of protection	IP 54			
Insulation class	I			
Dimensions (H x W x D in mm)	1150 x 885 x 405	2190 x 885 x 405	1150 x 885 x 405	2190 x 885 x 405
Weight (kg)	235	388	235	388
Closing				
Key cylinder	Cross point			
Electronical data				
Double-bit				
Rated voltage	230 V 50 Hz	400 V 50 Hz	230 V 50 Hz	230 V 50 Hz
Number of module slots	13	28	17	28
Max. conductor size for mains and battery (mm <sup>2</sup> )	16			
Max. conductor size Final circuits (mm <sup>2</sup> )	4	4	2,5	2,5
Noise pressure level (dB)	46	60	46	60

# Mounting and Installation Instructions

## ESF-E30 Mains Distribution Cabinet with Circuit Integrity

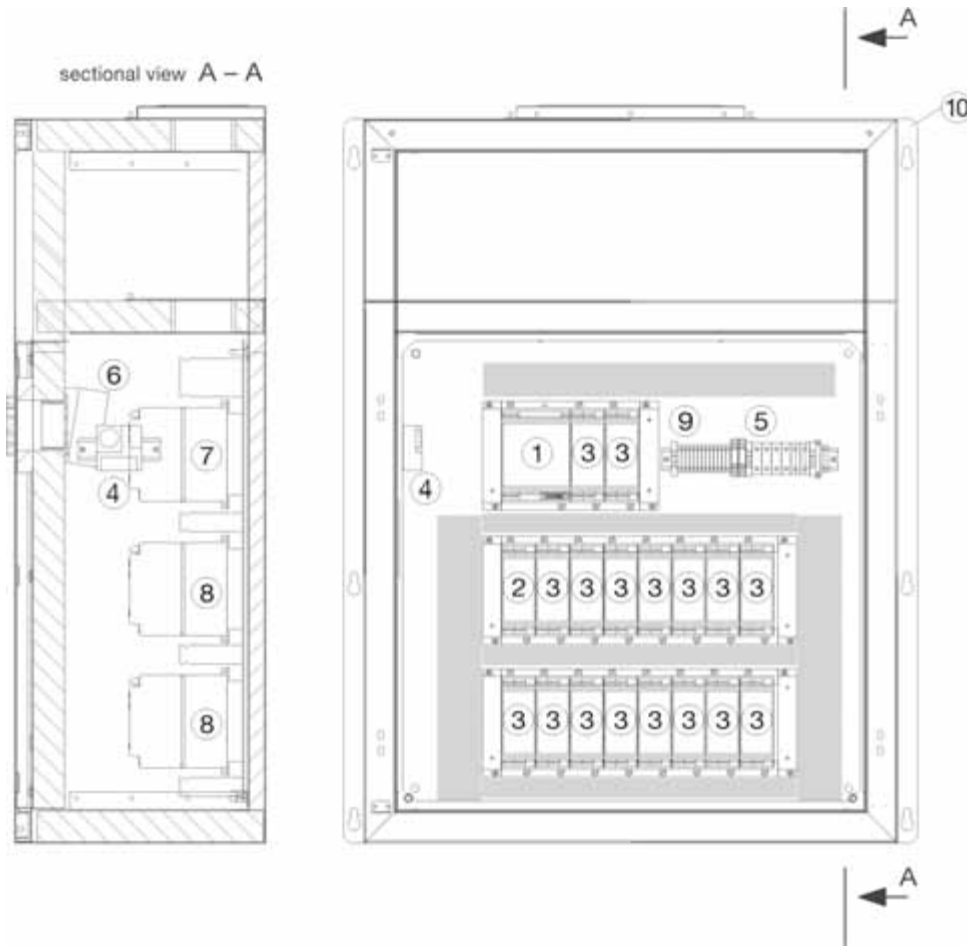
### 4 Layout

#### 4.1 Layout of ESF-E30/13-S



- 1 = Control module ST-S
- 2 = DC/DC-converter
- 3 = Module slots for electrical equipment:  
circuit changer
- 4 = Options and system components
- 5 = Thermostatic control of internal temperature
- 6 = Thermostatic control of external temperature
- 7 = Axial fan 160 m<sup>3</sup>/h
- 8 = Module assembly frame with eight module slots
- 9 = Terminal strip
- 10 = AC-Module
- 11 = Optional wall-mounting plate

### 4.2 Layout of ESF-E30/17

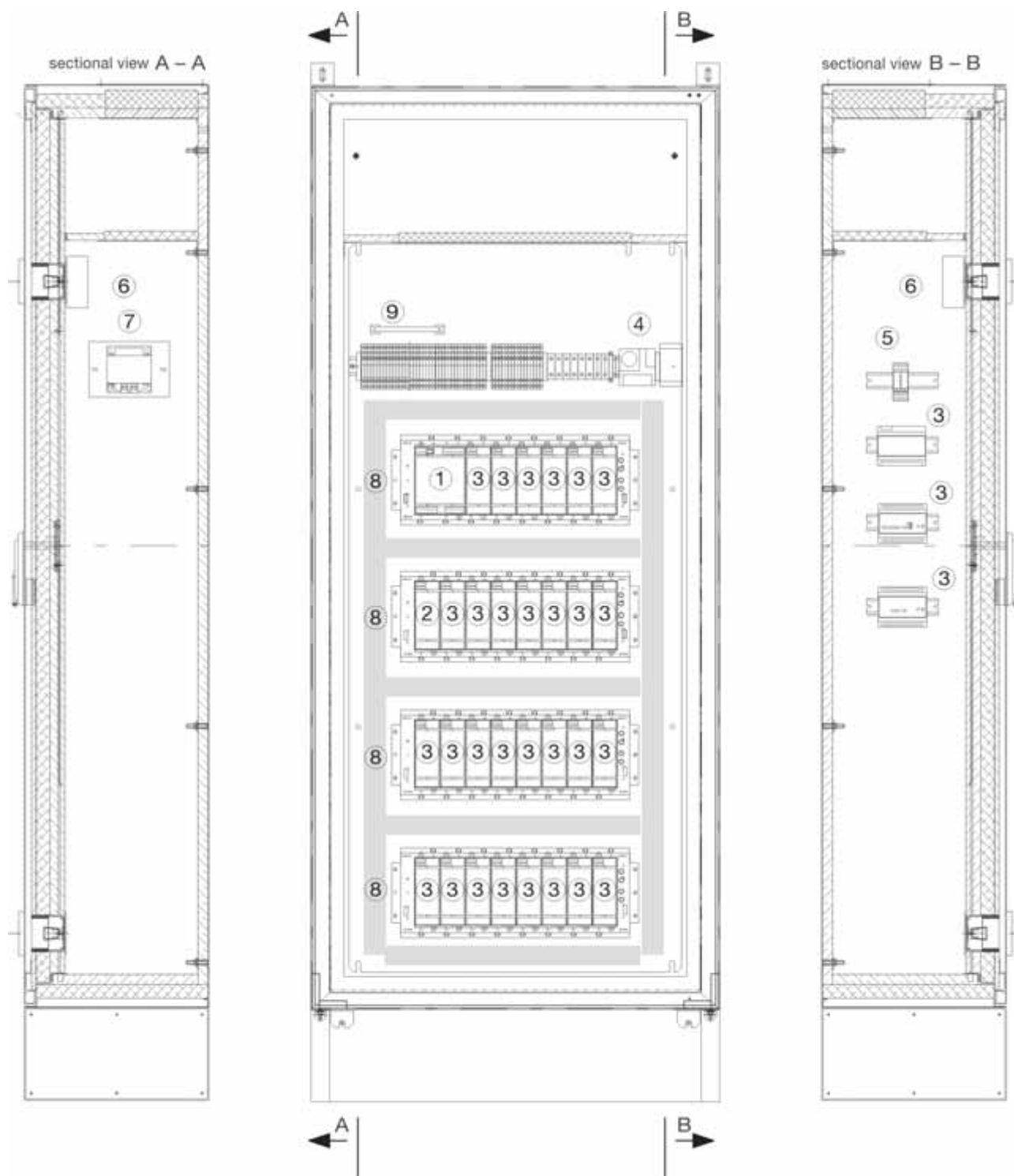


- 1 = Control module ST 20, ST 20 E
- 2 = DC/DC-converter
- 3 = Module slots for electrical equipment:  
     Circuit changer  
     System components and options
- 4 = Thermostatic control of internal temperature
- 5 = Thermostatic control of external temperature
- 6 = Axial fan 160 m<sup>3</sup>/h
- 7 = Module assembly frame with four module slots
- 8 = Module assembly frame with eight module slots
- 9 = Terminal strips
- 10 = Optional wall-mounting plate

# Mounting and Installation Instructions

## ESF-E30 Mains Distribution Cabinet with Circuit Integrity

### 4.3 Layout of ESF-E30/28



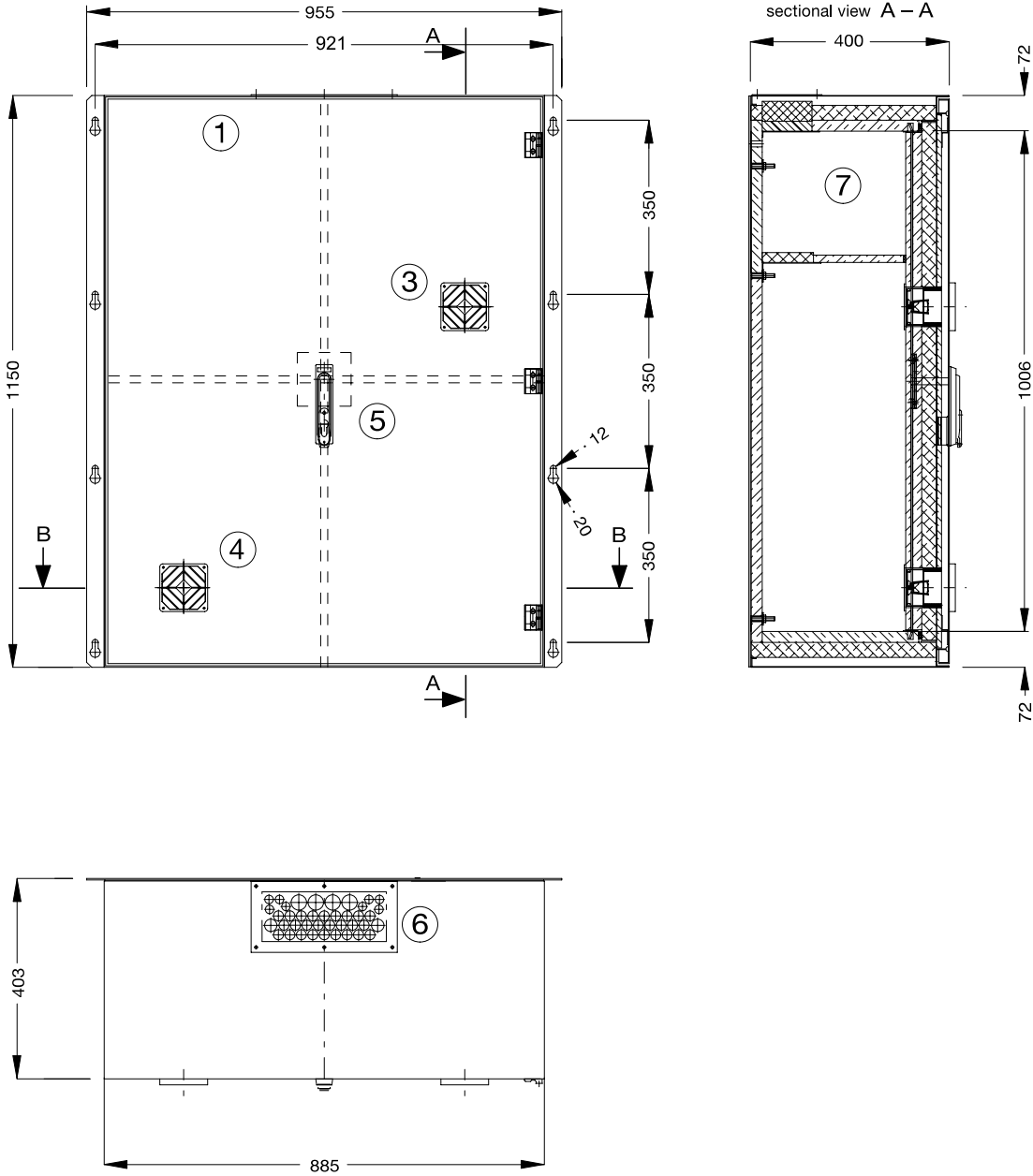
- 1 = Control module ST 20, ST-S
- 2 = DC/DC-converter
- 3 = Module slots for electrical equipment  
circuit changer  
System components and options
- 4 = Thermostatic control of internal temperature

- 5 = Thermostatic control of external temperature
- 6 = Diagonal fan 275 m<sup>3</sup>/h
- 7 = AC transformer
- 8 = Module assembly frame with eight module slots
- 9 = Terminal strip

# Mounting and Installation Instructions

## ESF-E30 Mains Distribution Cabinet with Circuit Integrity

### 4.4 Dimensional Drawings of ESF-E30/13 and ESF-E30/17 with optional Wall Mounting Plate

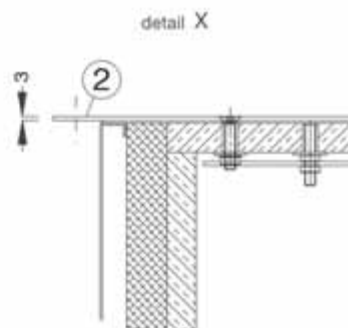
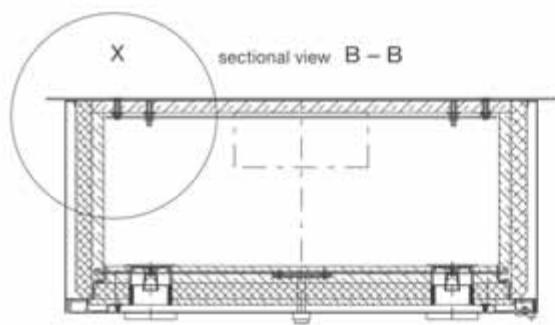
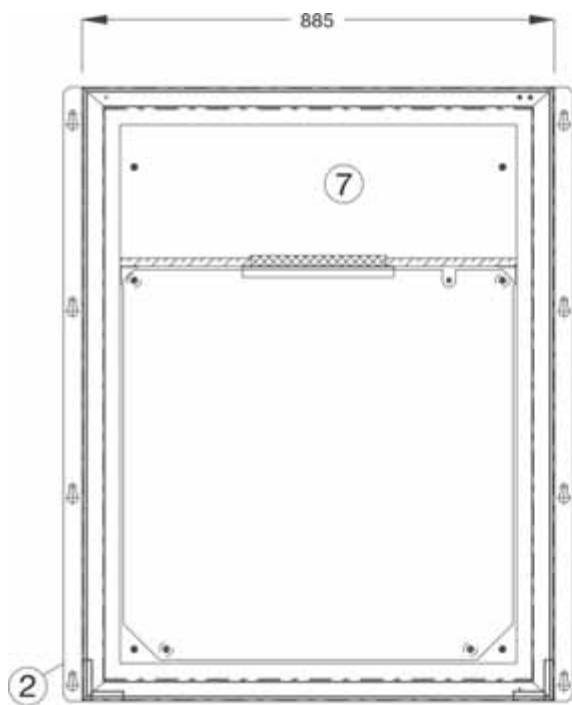


Cable entries prepared for:

- 26 pcs. M25
- 8 pcs. M16
- 4 pcs. M40

# Mounting and Installation Instructions

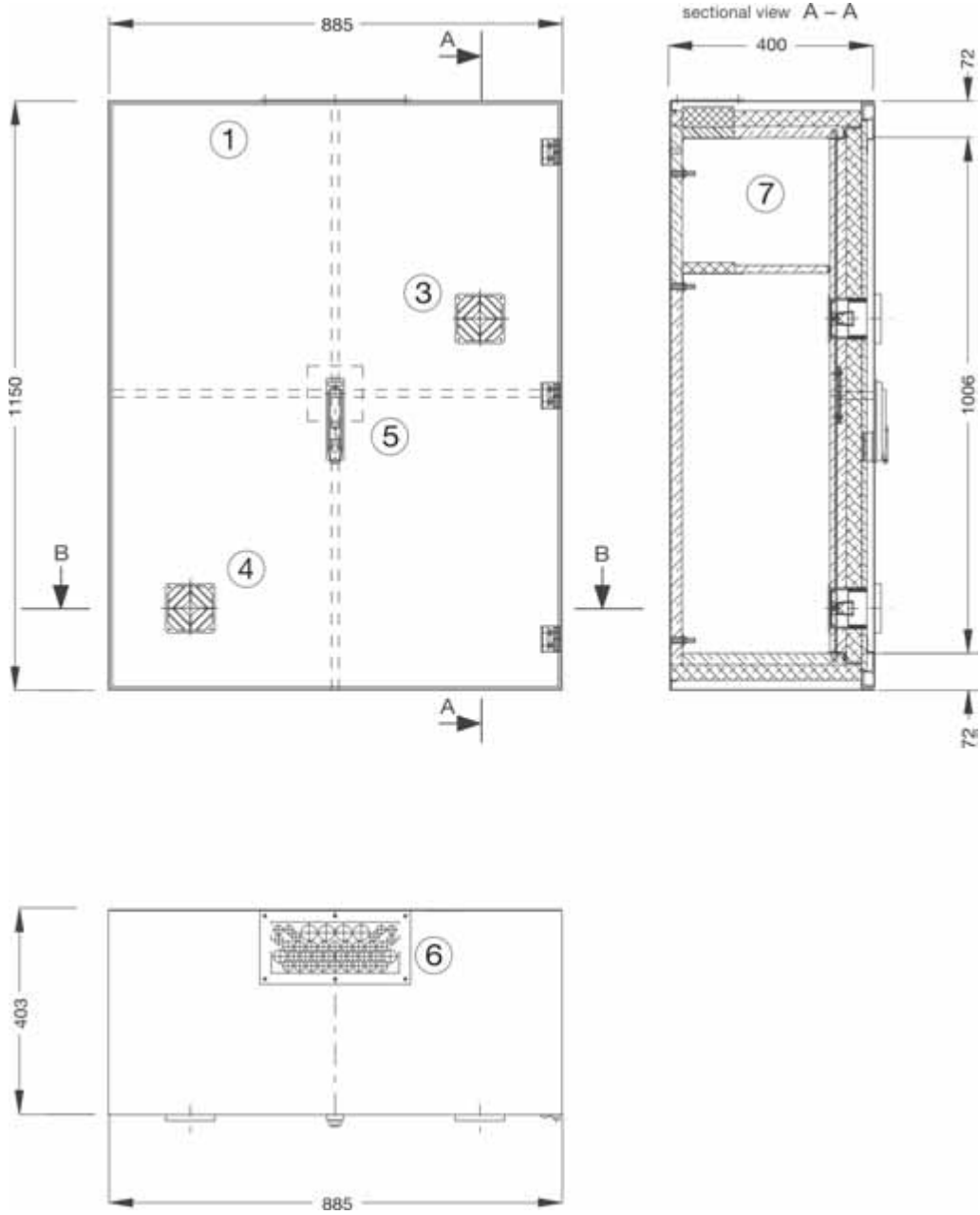
## ESF-E30 Mains Distribution Cabinet with Circuit Integrity



- 1 = Sheet steel cabinet
- 2 = Optional mounting area
- 3 = Ventilation grid (outlet) incl. filter pad
- 4 = Ventilation grid (inlet) incl. filter pad

- 5 = Bar locking system with crosspoint closing
- 6 = Cable entries
- 7 = Cable cooling room

## 4.5 Dimensional Drawings of ESF-E30/13 and ESF-E30/17 without Wall Mounting Plate

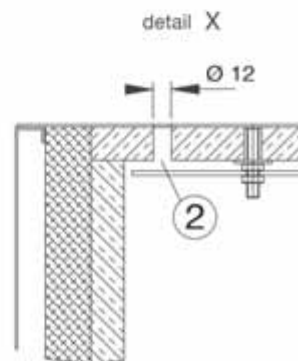
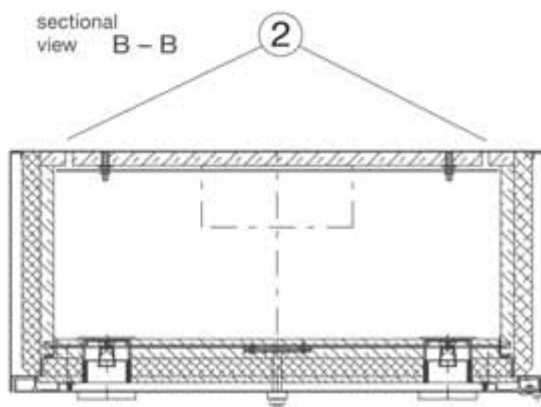
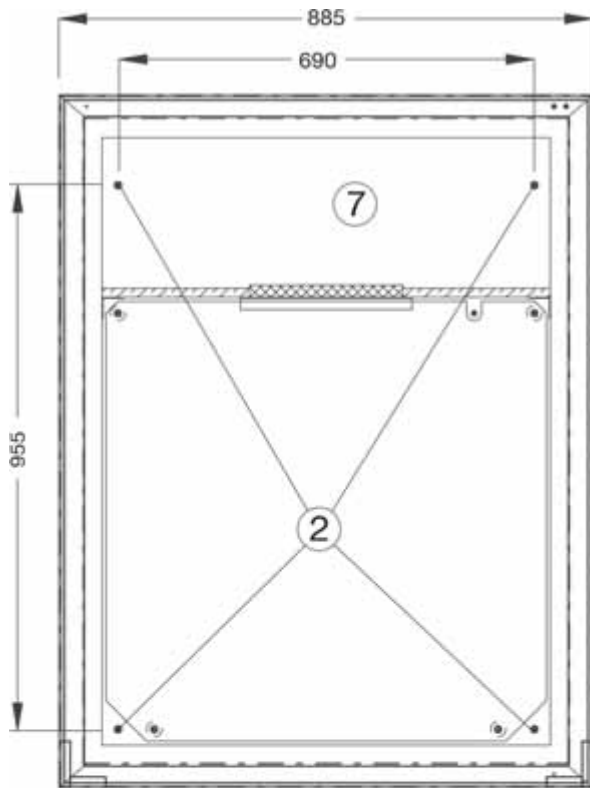


Cable entries prepared for:

- 26 pcs. M25
- 8 pcs. M16
- 4 pcs. M40

# Mounting and Installation Instructions

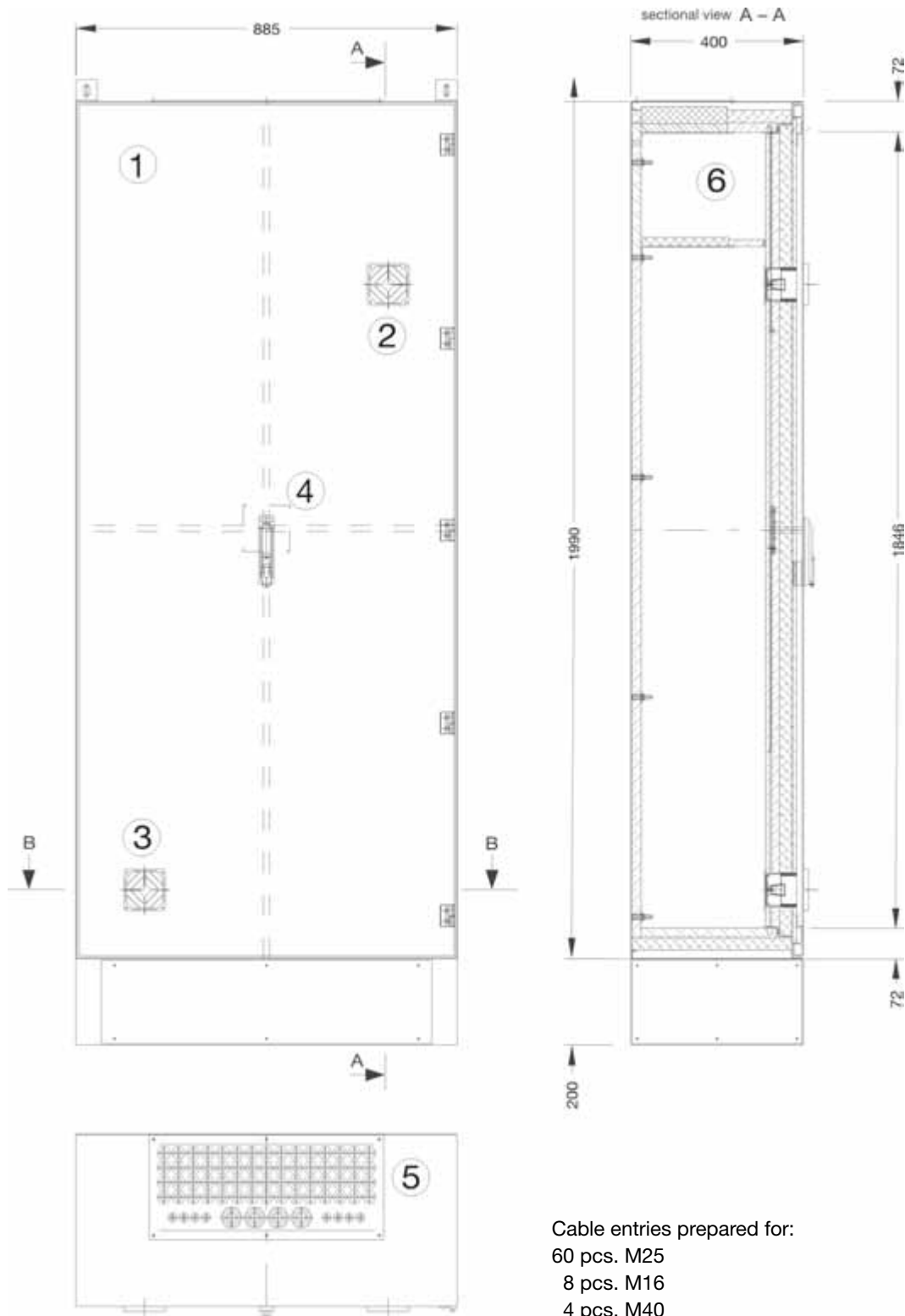
## ESF-E30 Mains Distribution Cabinet with Circuit Integrity



- 1 = Sheet steel cabinet
- 2 = Fixing holes Ø 12 mm
- 3 = Ventilation grid (outlet) incl. filter pad
- 4 = Ventilation grid (inlet) incl. filter pad

- 5 = Bar locking system with crosspoint closing
- 6 = Cable entries
- 7 = Cable cooling room

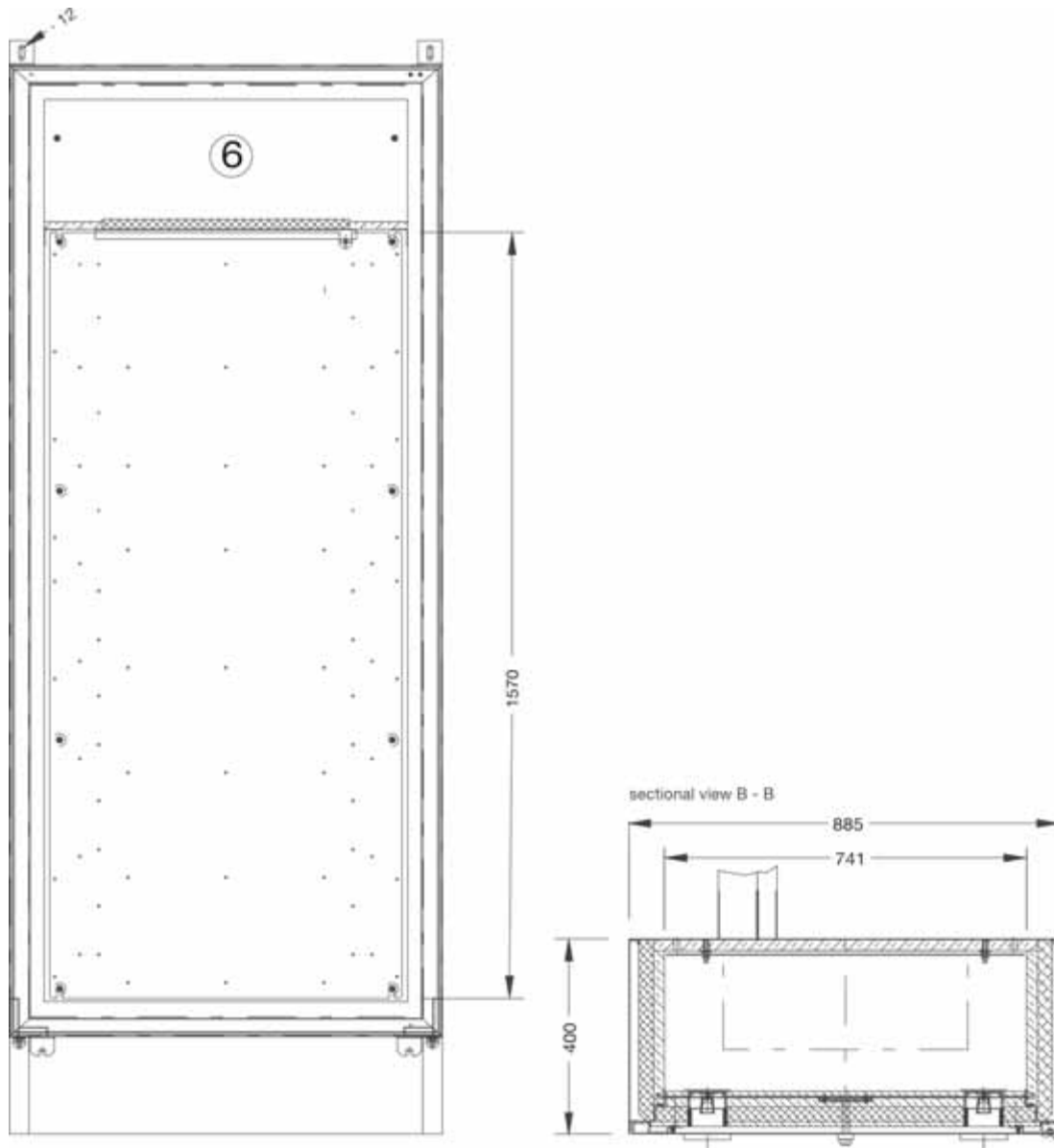
## 4.6 Maßbild ESF-E30/28



Cable entries prepared for:  
 60 pcs. M25  
 8 pcs. M16  
 4 pcs. M40

# Mounting and Installation Instructions

## ESF-E30 Mains Distribution Cabinet with Circuit Integrity



- 1 = Sheet steel cabinet
- 2 = Ventilation grid (outlet) incl. filter pad
- 3 = Ventilation grid (inlet) incl. filter pad
- 4 = Bar locking system with crosspoint closing
- 5 = Cable entries
- 6 = Cable cooling room

### 5 Transport

The cabinet or enclosure must remain closed during transport. The doors must remain closed when the device is turned over. When positioning the distributor, and especially when turning it over, avoid creating any one-sided strain, as this could potentially cause damage to the fire protection system, thereby impairing the functioning of the enclosure.

Note: Improper handling during transport can cause damage to the enclosure or the insulation, thereby impairing functioning.

### 6 Mounting and Installation

#### Alignment

Enclosures must be screwed to the masonry with dowels that have a general technical approval. Static factors must be taken into account. The process of screwing on must not subject the enclosure to any tension.

It must be ensured that setup or mounting of the electrical distributor does not impair the stability, sound insulation and fire resistance duration of the adjacent building construction section, even in cases of fire.

The electrical distributors of type ,ESF-E30-13‘, ,ESF-E30-17‘ and ,ESF-E30-28‘ must be mounted to at least 100 mm thick solid walls according to DIN 4102-42 or to solid ceilings according to DIN 4102-42 with a floor construction of non-flammable (building material class DIN 4102-A) 3 construction materials. These components adjacent to the electrical distributor must adhere at least to fire resistance class F30 in accordance with DIN 4102-4.

#### Sealing

All types of cable insertion must be performed by specialists.

#### Insertion of cables in the enclosure

It must be ensured that fire safety cables are always inserted in the enclosure vertically and without tension. Depending on the cable equipment, the general appraisal certificate (allgemeines bauaufsichtliches Prüfzeugnis, ABP) or general technical approval (allgemeine bauaufsichtliche Zulassung, ABZ) of the relevant manufacturer must be observed outside the enclosure. Within the enclosure, it must also be ensured that the cables are straight before they are looped around and distributed.

The maximum admissible single conductor and complete conductor cross-sections for cables intended for infeed into the electrical distributors are listed in Table 1 below.

Table 1: Cable conductor cross-sections [mm<sup>2</sup>]

Type	ESF-E30-13	ESF-E30-17	ESF-E30-28
max. single conductor cross-section	16	16	16
max. total conductor cross-section	206	206	381

Cables entering the distributors must comply with legislative national regulations concerning cable systems (directive for fire protection requirements with cable systems according to MLAR sample cable systems directive, version from November 2005) and technical requirements (e.g. VDE specifications). The cables must ensure power supply of the electrical distributor and connected building regulations-compliant safety lighting systems for the duration of functionality.

#### Inspection

The enclosure is to be inspected for proper installation by a fire expert authorised for this purpose. The inspection should be used to create a protocol that is to be stored together with these instructions.

#### Power Loss

Enclosures must have dimensions which allow them to radiate the power loss of the electrical consumer unit (see DIN EN 60439-1).

# Mounting and Installation Instructions

## ESF-E30 Mains Distribution Cabinet with Circuit Integrity

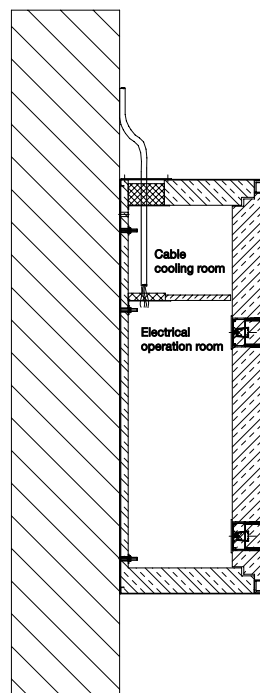
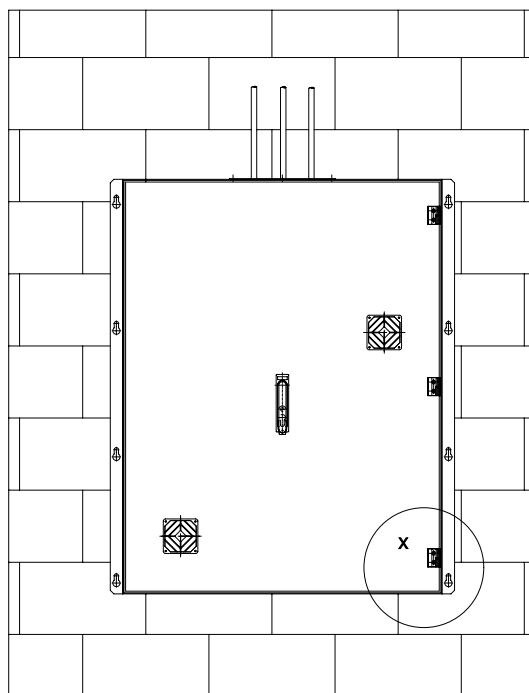
### 6.1 Special regulations for ESF-E30/13 and ESF-E30/17 with optional Wall Mounting

#### Alignment

Enclosures must be fitted to the masonry horizontally. The masonry must be designed for a circuit integrity of at least 30 minutes. The circuit integrity of the masonry must not be impaired by assembly (see section 6).

#### Screw connection

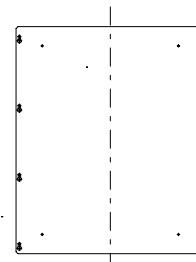
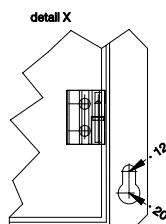
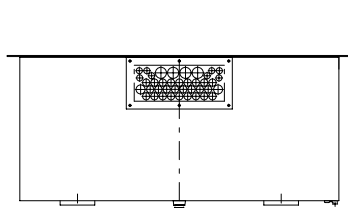
Enclosures must be screwed to the masonry with dowels (at least M10) that have a general technical approval and which are designed to accommodate the total weight. Static factors must be taken into account. The screw connection must not subject the enclosure to any tension. For mounting the distributor housing to adjacent solid construction components, dowels and steel screws must be used that are suitable for this purpose and that comply to the static requirements and general constructional or European technical approvals. The special requirements of specific general constructional approvals or European technical approvals must be observed. In addition, steel screws used must have a recess depth of at least 70 mm; the screws must be of galvanised steel, of at least strength class 5.8 and with a diameter of at least M10.



#### Cable seizure

The cables have to meet circuit integrity which is required on-site.

Put the cable sheaths through the cable cooling room and insert the cable cores into the electrical operating room by using the second separation.



#### Insertion of cables in the enclosure

It must be ensured that cables with circuit integrity are inserted in the enclosure vertically and without tension. Depending on the cable equipment, the general appraisal certificate (allgemeines bauaufsichtliches Prüfzeugnis, ABP) or general technical approval (allgemeine bauaufsichtliche Zulassung, ABZ) of the relevant manufacturer must be observed outside the enclosure.

Exterior wall mounting by optional wall mounting plate with CEAG-part-no.: 40071347730

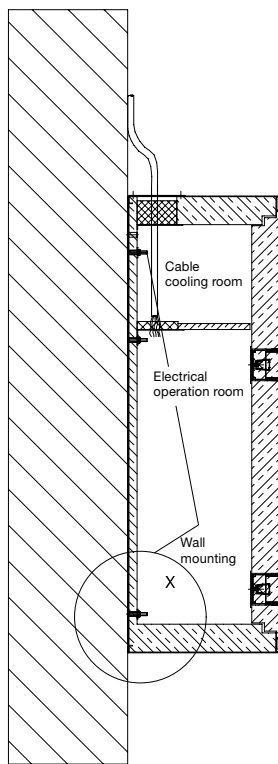
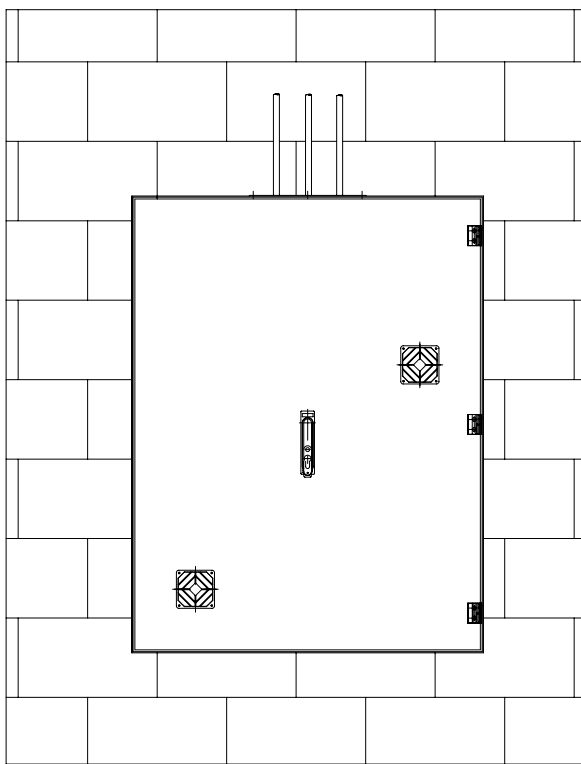
### 6.2 Special regulations for ESF-E30/13 and ESF-E30/17 without optional Wall Mounting

#### Alignment

Enclosures must be fitted to the masonry horizontally. The masonry must be designed for a circuit integrity of at least 30 minutes. The circuit integrity of the masonry must not be impaired by assembly (see section 6).

#### Screw connection

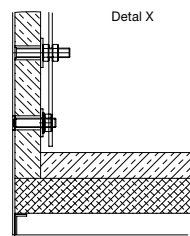
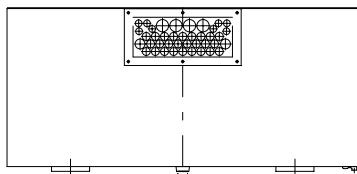
For mounting the distributor housing to adjacent solid construction components, dowels (at least M8) and steel screws must be used that are suitable for this purpose and that comply to the static requirements and general constructional or European technical approvals. The special requirements of specific general constructional approvals or European technical approvals must be observed. Mounting of the electrical distributors to adjacent solid constructional components must be implemented via factory-processed mounting facilities – holes in the rear wall on the inner of the distributor housing. The screw connection must not subject the enclosure to any tension.



#### Cable seizure

The cables have to meet circuit integrity which is required on-site.

Put the cable sheaths through the cable cooling room and insert the cable cores into the electrical operating room by using the second separation.



#### Insertion of cables in the enclosure

It must be ensured that cables with circuit integrity are inserted in the enclosure vertically and without tension. Depending on the cable equipment, the general appraisal certificate (allgemeines bauaufsichtliches Prüfzeugnis, ABP) or general technical approval (allgemeine bauaufsichtliche Zulassung, ABZ) of the relevant manufacturer must be observed outside the enclosure.

Interior wall-mounting by wall-mounting-holes.

# Mounting and Installation Instructions

## ESF-E30 Mains Distribution Cabinet with Circuit Integrity

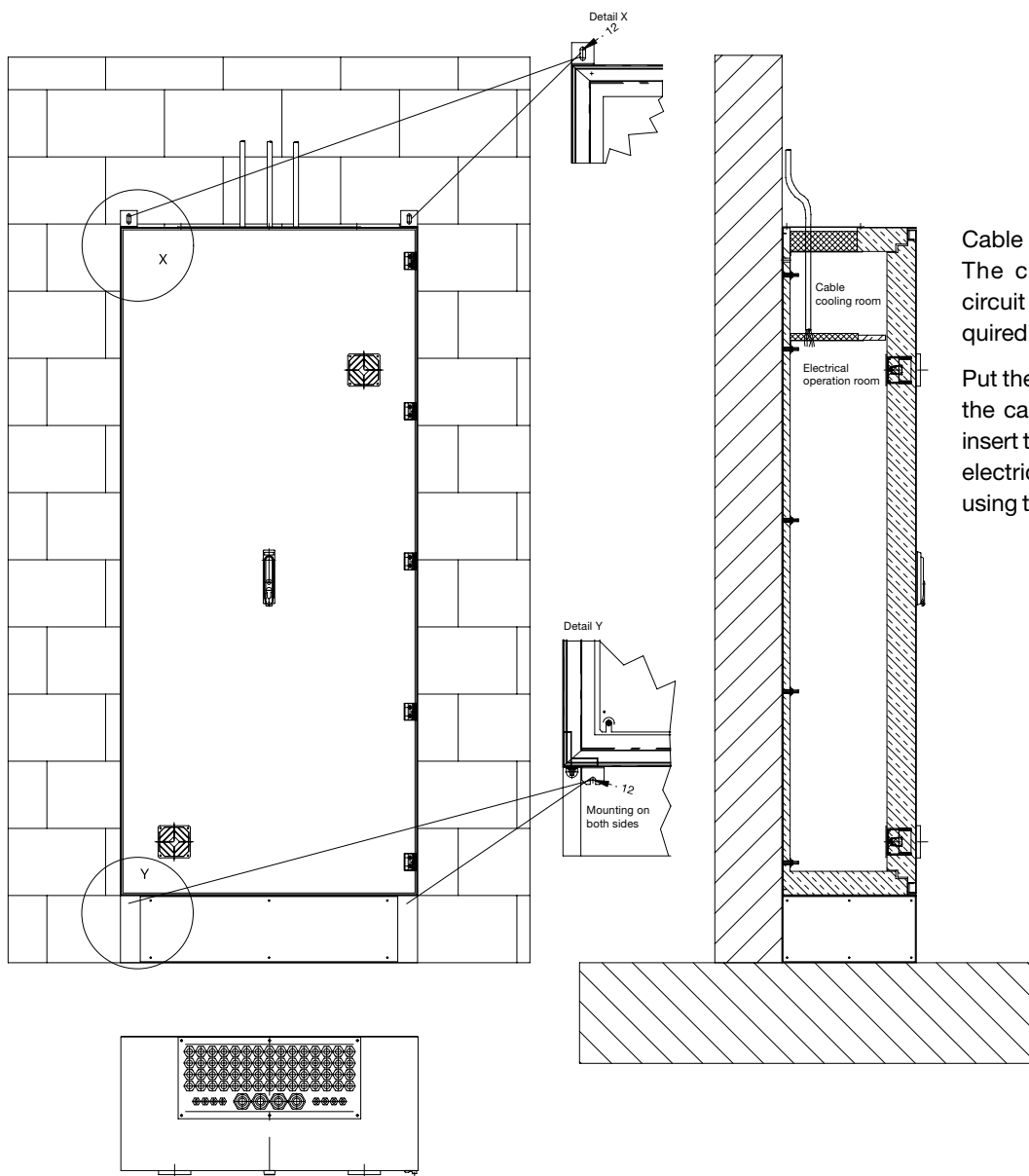
### 6.3 Special regulations for ESF-E30/28 with socket

#### Alignment

Enclosures must be fitted to the masonry horizontally. The masonry must be designed for a circuit integrity of at least 30 minutes. The circuit integrity of the masonry must not be impaired by assembly.

#### Screw connection

For mounting the distributor housing to adjacent solid construction components, dowels (at least M10) and steel screws must be used that are suitable for this purpose and that comply to the static requirements and general constructional or European technical approvals. The special requirements of specific general constructional approvals or European technical approvals must be observed. Mounting of the electrical distributors to adjacent solid constructional components must be implemented via factory-processed mounting facilities – so-called fixing straps. Only steel dowels and steel screws must be used. The screw connection must not subject the enclosure to any tension.



#### Cable seizure

The cables have to meet circuit integrity which is required on-site.

Put the cable sheaths through the cable cooling room and insert the cable cores into the electrical operating room by using the second separation.

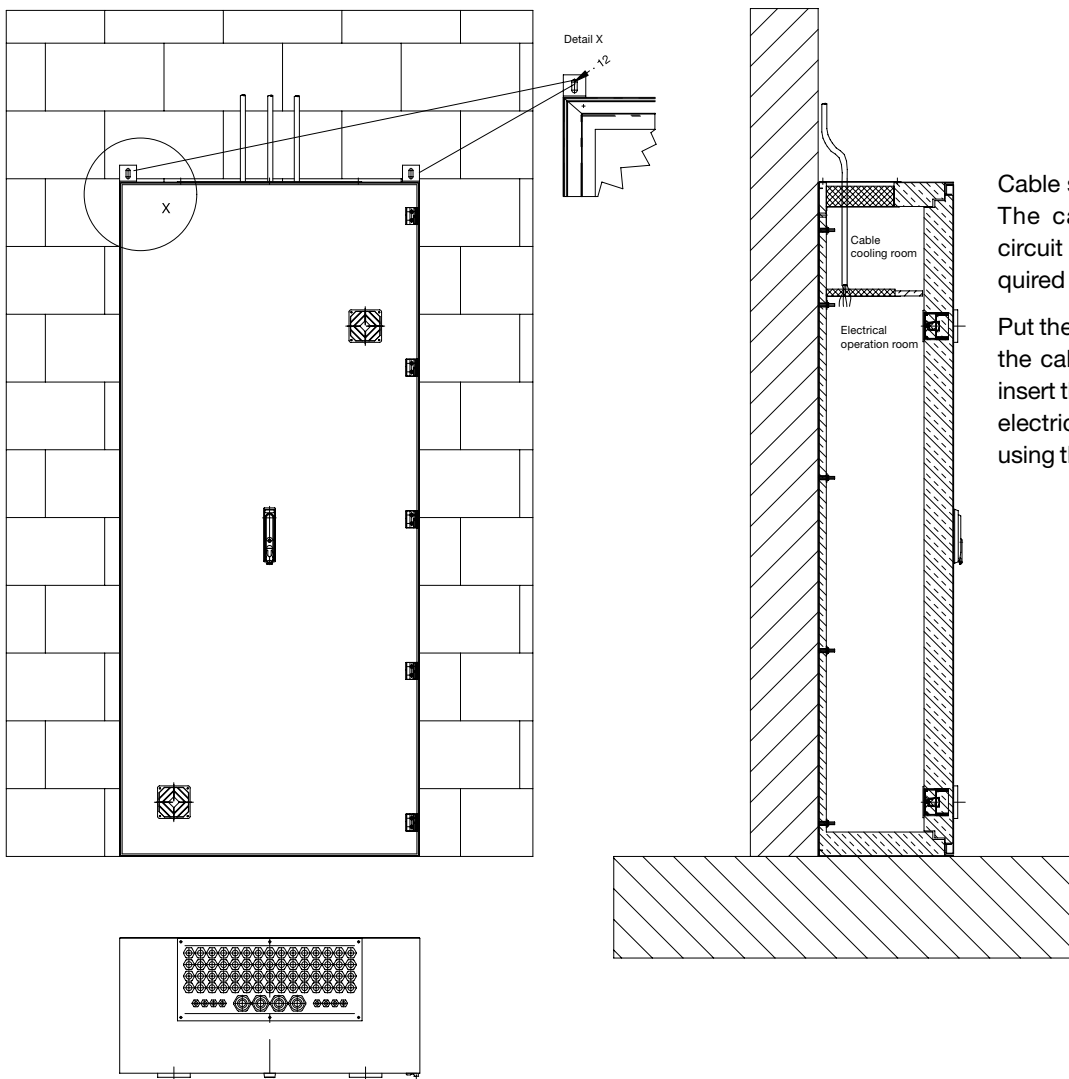
### 6.4 Special regulations for ESF-E30/28 without socket

#### Alignment

Enclosures must be fitted to the masonry horizontally.

#### Screw connection

For mounting the distributor housing to adjacent solid construction components, dowels (at least M10) and steel screws must be used that are suitable for this purpose and that comply to the static requirements and general constructional or European technical approvals. The special requirements of specific general constructional approvals or European technical approvals must be observed. Mounting of the electrical distributors to adjacent solid constructional components must be implemented via factory-processed mounting facilities – so-called fixing straps. Only steel dowels and steel screws must be used. The screw connection must not subject the enclosure to any tension.



#### Cable seizure

The cables have to meet circuit integrity which is required on-site.

Put the cable sheaths through the cable cooling room and insert the cable cores into the electrical operating room by using the second separation.

#### Insertion of cables in the enclosure

It must be ensured that cables with circuit integrity are inserted in the enclosure vertically and without tension. Depending on the cable equipment, the general appraisal certificate (allgemeines bauaufsichtliches Prüfzeugnis, ABP) or general technical approval (allgemeine bauaufsichtliche Zulassung, ABZ) of the relevant manufacturer must be observed outside the enclosure.

### **7 Specification**

The programming, configuration and operation of the device are described in separate assembly and operating instructions.

### **8 Maintenance**

The surface of the enclosure is made of powdered steel and can be cleaned with conventional (paint) maintenance agents. The enclosure is a safety-related device and should be checked at least once a year, depending on installation location, and the seals, filter pads and cable bulkhead should also be visually inspected. If on-site conditions are aggravated, the enclosure should be inspected more often.

# Mounting and Installation Instructions

## ESF-E30 Mains Distribution Cabinet with Circuit Integrity

### Notes

# Mounting and Installation Instructions

## ESF-E30 Mains Distribution Cabinet with Circuit Integrity



### Notes

**CEAG Notlichtsysteme GmbH**

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