

# Certificates



## Maintaining electrical functionality

### Junction boxes FireBox T-series

General building authority test certificate no. P-MPA-E-20-002, valid until 13.02.2025

This is a translation of the original German version, which has neither been checked nor approved by the NRW Materials Testing Office. Only the original German document is valid.

# Fire protection systems for the highest level of safety



Be it in a residential building or an industrial complex – OBO has the appropriate solution for fireproof electrical installations. Our tested and certified fire protection systems cover all the relevant fire protection guidelines and provide you with an electrical installation that really serves its purpose. We will be happy to provide you with more details – on our website or personally.

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## **General building authority test certificate**

**Test certificate number: P-MPA-E-20-002**

**Subject:** Cable systems with integrated maintenance of electrical function in the function maintenance classes E30, E60 and E90 as described in DIN 4102-12: 1998-11 pursuant to the VVTB (Administrative Provision – Technical Building Regulations) of the state of North Rhine-Westphalia

**Applicant:** OBO Bettermann Produktion Deutschland GmbH & Co.  
KG Hüingser Ring 52  
58710 Menden, Germany

**Date of issue:** 14.02.2020

**Valid until:** 13.02.2025

The aforementioned product can be used in compliance with the state building regulations based on this general building authority test certificate.

This general building authority test certificate comprises 8 pages and 13 annexes.

## **1 Subject matter and scope of application**

### **1.1 Subject**

#### **1.1.1**

This general building authority test certificate applies to the manufacture and use of the cable system with integrated maintenance of electrical function as a construction type. The cable system with integrated maintenance of electrical function allows classification into function maintenance classes E30, E60 and E90 (depending on the cable construction type) as described in DIN 4102-12 (edition 11/1998).

#### **1.1.2**

The cable system with integrated maintenance of electrical function must consist of the cable construction types described in Section 2.1 and a cable support structure as described in Section 2.2.

### **1.2 Area of application**

#### **1.2.1**

The area of application is limited to cables with nominal voltages of  $\leq 1$  kV. When dimensioning cable systems with integrated maintenance of electrical function, the possibility of the cables becoming functionally impaired due to thermally induced resistance increases must be considered.

#### **1.2.2**

In the case of inclined and vertical cable installations (e.g. ascending routes and single installations) with integrated maintenance of electrical function, the cables must be supported in the vertical-horizontal transition area, so as to prevent the cable from slipping or kinking at edges.

In the case of continuous vertical cables (e.g. ascending routes and single installations), ensure that effective support (distance  $a \leq 3,500$  mm) is provided.

#### **1.2.3**

A combination of different laying methods is permissible, provided they have the same maintenance of electrical function classes.

#### **1.2.4**

If there are additional requirements, these must be demonstrated separately.

## 2 Provisions for execution

The cable system must be designed in accordance with the following details.

### 2.1 Cable construction types

The only cable construction types that may be used are those made by Dätwyler AG Kabel + Systeme, Gotthardstrasse 31, 6460 Altdorf, Switzerland, LEONI Studer AG, Herrenmattstrasse 20, 4658 Däniken, Switzerland, and Kabelwerk Eupen AG, Malmedyer Strasse 9, 4700 Eupen, Belgium, as listed in Table 1 and with valid VDE approval. The structural design of the cable construction types is on file at MPA NRW.

### 2.2 Cable support structures

Cable support structure must be made of steel (minimum steel grade: S 235). The cable support structure and clips may be coated with plastics or fire protection paint up to a thickness of 1.5 mm.

The following points should be observed:

Components under tensile stress should be dimensioned in such a way that their calculated tensile stress is not greater than  $9 \text{ N/mm}^2$  (classifications E30 and E60) or not greater than  $6 \text{ N/mm}^2$  (classification E90) as defined in Table 109 of DIN 4102-4:1994-03.

Anchors must comply with the specifications of the applicable general building authority approvals issued by Deutsches Institut für Bautechnik (the German Institute of Construction Technology), Berlin, and must also be installed twice as deep as specified in the approval notice – and at least 6 cm deep – unless otherwise stated in the approval; the calculated tensile load per anchor shall not exceed 500 N, cf. DIN 4102-4:1994-03, Section 8.5.7.5. Alternatively, anchors may be used whose suitability for fire protection is demonstrated by a general building authority approval, a European Technical Approval or Assessment, or a general building authority test certificate. They must be installed in accordance with the specifications in the general building authority approval, European Technical Approval or Assessment, or general building authority test certificate.

The general building authority test certificate only applies if:

- the cables or lines are designed without connecting elements;
- it is ensured that cable systems with integrated maintenance of electrical function are not negatively impacted in their function maintenance class by surrounding components.

### 2.3 Classification

The cable systems are allocated to functional maintenance classes as shown in the following table.

**Table 1**

<b>Installation type</b>			
<p><b>1 Ceramic terminal type TK 04 and protective conductor terminal type TP 04</b></p> <p>Box closed/with plug-in seals</p> <p>Box mounting with internal/external fastening</p> <p>1.1 Horizontal cable routing on wall 1.2 Vertical cable routing on wall 1.3 Cable routing under ceiling</p> <p><b>2 Ceramic terminal type TK 06, TK 06-2 and protective conductor terminal type TP 25</b></p> <p>Box closed/with plug-in seals</p> <p>Box mounting with internal/external fastening</p> <p>2.1 Horizontal cable routing on wall 2.2 Vertical cable routing on wall 2.3 Cable routing under ceiling</p>	<p><b>3 Ceramic terminal type TK 10, type TK 10-2 and protective conductor terminal type TP 25</b></p> <p>Box closed/with plug-in seals</p> <p>Box mounting with internal/external fastening</p> <p>3.1 Horizontal cable routing on wall 3.2 Vertical cable routing on wall 3.3 Cable routing under ceiling</p> <p><b>4 Ceramic terminal type TK 16, type TK 16-2 and protective conductor terminal type TP 25</b></p> <p>Box closed/with plug-in seals</p> <p>Box mounting with internal/external fastening</p> <p>4.1 Horizontal cable routing on wall 4.2 Vertical cable routing on wall 4.3 Cable routing under ceiling</p>		
<p><b>Cable construction type:</b> Manufacturer's designation <b>EUPEN EUCASAFE</b></p>	<p><b>Installation type no.:</b></p>	<p><b>Dimension:</b> wire count x cross-section [n x mm<sup>2</sup>] or wire count x 2 x diameter [n x 2 mm]</p>	<p><b>Classification:</b> pursuant to DIN 4102-12 1998-11</p>
<p><b>(N)HXH... FE180 E30</b>  VDE 0266  VDE reg. no. 8512 and 7581</p>	2.1	n x 1.5–6	E30, E60
	2.1	n x 1.5	E30, E60, E90
	2.2; 2.3	n x 1.5–6	E30, E60, E90
	3.1	n x 1.5–10	E30, E60
	3.2; 3.3	n x 1.5–10	E30, E60, E90
	4.1	n x 1.5–16	E30, E60
<p><b>(N)HXH... FE180 E90</b>  VDE 0266  VDE reg. no. 8566 and 8513</p>	4.2, 4.3	n x 1.5–16	E30, E60, E90
	2.1	n x 1.5–6	E30, E60
	2.1	n x 1.5	E30, E60, E90
	2.2; 2.3	n x 1.5–6	E30, E60, E90
	3.1	n x 1.5–10	E30, E60
	3.2; 3.3	n x 1.5–10	E30, E60, E90

	4.1	n x 1.5–16	E30, E60
	4.2; 4.3	n x 1.5–16	E30, E60, E90
<b>JE-H(St)H... FE180 E30</b> VDE reg. no. 7510	1.1; 1.2; 1.3	n x 2 x 0.8	E30
<b>JE-H(St)H... FE180 E90</b> VDE reg. no. 7510	1.1; 1.2; 1.3	n x 2 x 0.8	E30, E60, E90

Table 1 (continued)

Installation type			
<p><b>1 Ceramic terminal type TK 04 and protective conductor terminal type TP 04</b></p> <p>Box closed/with plug-in seals</p> <p>Box mounting with internal/external fastening</p> <p>1.1 Horizontal cable routing on wall 1.2 Vertical cable routing on wall 1.3 Cable routing under ceiling</p> <p><b>2 Ceramic terminal type TK 06, TK 06-2 and protective conductor terminal type TP 25</b></p> <p>Box closed/with plug-in seals</p> <p>Box mounting with internal/external fastening</p> <p>2.1 Horizontal cable routing on wall 2.2 Vertical cable routing on wall 2.3 Cable routing under ceiling</p>	<p><b>3 Ceramic terminal type TK 10, type TK 10-2 and protective conductor terminal type TP 25</b></p> <p>Box closed/with plug-in seals</p> <p>Box mounting with internal/external fastening</p> <p>4.1 Horizontal cable routing on wall 4.2 Vertical cable routing on wall 4.3 Cable routing under ceiling</p> <p><b>4 Ceramic terminal type TK 16, type TK 16-2 and protective conductor terminal type TP 25</b></p> <p>Box closed/with plug-in seals</p> <p>Box mounting with internal/external fastening</p> <p>4.1 Horizontal cable routing on wall 4.2 Vertical cable routing on wall 4.3 Cable routing under ceiling</p>		
<p><b>Cable construction type:</b> Manufacturer's designation <b>Dätwyler Pyrofil Keram</b></p>	<p><b>Installation type no.:</b></p>	<p><b>Dimension:</b> wire count x cross-section [n x mm<sup>2</sup>] or wire count x 2 x diameter [n x 2 mm]</p>	<p><b>Classification:</b> pursuant to DIN 4102-12 1998-11</p>
<p><b>(N)HXH... FE180 E30–E60</b> VDE reg. no. 7780</p>	2.1	n x 1.5–6	E30
	2.1	n x 1.5	E30, E60, E90
	2.2; 2.3	n x 1.5–6	E30, E60, E90
	3.1	n x 1.5–10	E30
	3.2; 3.3	n x 1.5–10	E30, E60, E90
	4.1	n x 1.5–16	E30
	4.2; 4.3	n x 1.5–16	E30, E60, E90
<p><b>(N)HXH... FE180 E90</b> VDE reg. no. 7780</p>	2.1	n x 1.5–6	E30
	2.2	n x 1.5–6	E30, E60, E90
	2.3	n x 1.5–6	E30, E60
	2.1; 2.3	n x 1.5	E30, E60, E90
	3.1	n x 1.5–10	E30
	3.2	n x 1.5–10	E30, E60, E90
	3.3	n x 1.5–10	E30, E60



	4.1	n x 1.5–16	E30
	4.2	n x 1.5–16	E30, E60, E90
	4.3	n x 1.5–16	E30, E60
<b>JE-H(St)H... FE180 E30 L</b> VDE reg. no. 9361	1.2,	n x 2 x 0.8	E30
	1.1; 1.3	n x 2 x 0.8	E30, E60, E90
<b>JE-H(St)H... FE180 E30–E90</b> VDE reg. no. 9361	1.1; 1.2; 1.3	n x 2 x 0.8	E30

Table 1 (continued)

Installation type			
<b>1 Ceramic terminal type TK 04 and protective conductor terminal type TP 04</b>  Box closed/with plug-in seals  Box mounting with internal/external fastening  1.1 Horizontal cable routing on wall 1.2 Vertical cable routing on wall 1.3 Cable routing under ceiling	<b>3 Ceramic terminal type TK 10, type TK 10-2 and protective conductor terminal type TP 25</b>  Box closed/with plug-in seals  Box mounting with internal/external fastening  4.1 Horizontal cable routing on wall 4.2 Vertical cable routing on wall 4.3 Cable routing under ceiling	<b>2 Ceramic terminal type TK 06, TK 06-2 and protective conductor terminal type TP 25</b>  Box closed/with plug-in seals  Box mounting with internal/external fastening  2.1 Horizontal cable routing on wall 2.2 Vertical cable routing on wall 2.3 Cable routing under ceiling	<b>4 Ceramic terminal type TK 16, type TK 16-2 and protective conductor terminal type TP 25</b>  Box closed/with plug-in seals  Box mounting with internal/external fastening  4.1 Horizontal cable routing on wall 4.2 Vertical cable routing on wall 4.3 Cable routing under ceiling
Cable construction type: Manufacturer's designation <b>LEONI Studer BETAflam</b>	Installation type no.:	Dimension: wire count x cross-section [n x mm <sup>2</sup> ] or wire count x 2 x diameter [n x 2 mm]	Classification: pursuant to DIN 4102-12 1998-11
<b>NHXH... FE180 / E30–E60 S</b>  VDE reg. no. 8849	2.1; 2.2; 2.3	n x 1.5–6	E30, E60
	2.3	n x 1.5	E30, E60, E90
	3.1; 3.2; 3.3	n x 1.5–10	E30, E60
	4.1; 4.2; 4.3	n x 1.5–16	E30, E60
<b>NHXH... FE180 / E90</b>  VDE reg. no. 9803	2.1; 2.2; 2.3	n x 1.5–6	E30, E60, E90
	3.1; 3.2; 3.3	n x 1.5–10	E30, E60, E90
	4.1; 4.3	n x 1.5–16	E30, E60
	4.2	n x 1.5–16	E30, E60, E90
<b>JE-H(St)H... FE180 / E30 S</b>  VDE reg. no. 8619	1.1	n x 2 x 0.8	E30, E60
	1.2; 1.3	n x 2 x 0.8	E30, E60, E90
<b>JE-H(St)H... FE180 / E30–E90</b>  VDE reg. no. 9593	1.1; 1.2; 1.3	n x 2 x 0.8	E30, E60, E90

## **2.4 Labelling**

### **2.4.1 Cable construction types**

The cable must be labelled in accordance with VDE regulations.

### **2.4.2 Cable system with integrated maintenance of electrical function**

Each cable installation must be permanently marked with a plate or sticker attached to the cable support structure and displaying the following information:

- Name of the contractor who manufactured the cable system with integrated maintenance of electrical function;
- Cable system with integrated maintenance of electrical function E90 or E60 or E30 pursuant to DIN 4102-12:1998-11;
- General building authority test certificate no. P-MPA-E-20-002 dated 14.02.2020, MPA Erwitte;
- Holder of the general building authority test certificate OBO-Bettermann GmbH & Co. KG, Hüingser Ring 52, 58710 Menden, Germany;
- Year of manufacture.

## **3 Proof of conformity**

The construction type described in this general building authority test certificate requires proof of conformity (compliance certificate) as defined by the specifications of the VVTB of the state of North Rhine-Westphalia, Part 4 (no. C.4.9), according to which, the manufacturer (contractor) must issue a declaration of conformity.

The contractor who manufactures the cable system must issue a written declaration of conformity to the client certifying that the cable system complies with the provisions of this general building authority test certificate.

## **4 Legal basis**

This general building authority test certificate is issued on the basis of § 17 III of the building regulations of the state of North Rhine-Westphalia (BauO NW) dated 21 July 2018 in conjunction with the VVTB for the state of North Rhine-Westphalia. The state building codes of the other federal states contain equivalent legal bases.

## 5 Legal information

Objection may be raised to this notification, within one month of its publication, at the Gelsenkirchen Administrative Court, Bahnhofsvorplatz 3, 45879 Gelsenkirchen, Germany, in writing, or for the record of the clerk of that court's office. The objection must designate the plaintiff, the defendant and the subject of the claim and should entail a specific request. The facts and evidence serving as grounds must be stated and the original or a copy of the contested notification should be attached. Copies for the other parties involved should be attached to the objection.

## 6 General information

This general building authority test certificate proves the usability of the construction product/applicability of the construction type in compliance with the state building regulations.

The general building authority test certificate does not replace the permits, approvals and certificates required by law when carrying out building projects.

This general building authority test certificate is issued without prejudice to the rights of third parties, in particular private property rights.

Manufacturers and distributors of the construction product/type shall, without prejudice to further regulations in the "Special Provisions", provide the user of the construction product/type with copies of the general building authority test certificate and indicate that the general building authority test certificate must be available at the place of use. Copies of the general building authority test certificate shall be provided to the authorities involved on request.

The general building authority test certificate may only be duplicated in its entirety. Publication of extracts requires the consent of the testing centre. Text and drawings in promotional literature must not contradict the general building authority test certificate. Translations of the general building authority test certificate must include the note "This is a translation of the original German version and has not been checked by the NRW Materials Testing Office".

This general building authority test certificate is revocable. The provisions of the general building authority test certificate may be added to or amended later, especially if technical findings so dictate.

The test reports for this general building authority test certificate have been communicated to the MFA NRW by the client.

**Erwitte, 14.02.2020**

**On behalf of**

Diekmann  
Director of the Testing Centre

Sample for

### Declaration of Compliance

- Name and address of the contractor who manufactured the cable system with integrated maintenance of electrical function;
- Construction site or building: .....
- Date of manufacture: .....
- Maintenance of electrical function class required by the cable system(s) with integrated maintenance of electrical function: E...

It is hereby confirmed that the cable system(s) with integrated maintenance of electrical function of class E... has/have been manufactured and installed professionally in every respect and in compliance with all the provisions of general building authority test certificate No. P-MPA-E-12-011 issued by MPA NRW on 17.07.2017.

For construction products or individual parts not manufactured by the undersigned (e.g. cable construction types), this is also hereby confirmed on the basis of:

- the markings on the parts in compliance with the provisions of the general building authority test certificate; \*)
- internal checks; \*)
- corresponding written confirmations from the manufacturers of the construction products or parts, which the signatory has kept on file. \*)

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Place, date

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Stamp and signature

(The certificate is to be given to the builder so that it can be passed on to the responsible building inspection authorities.)

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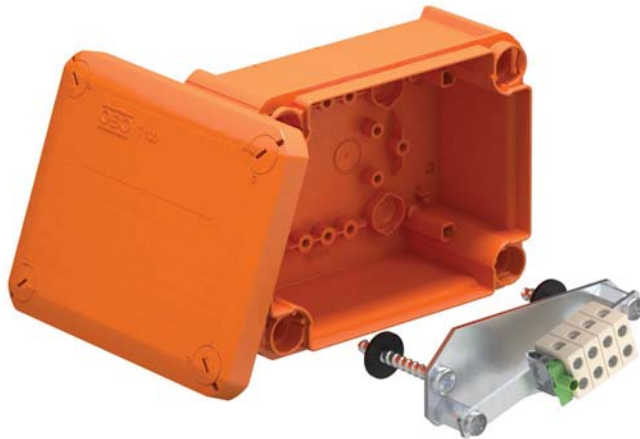
\*) Delete where not applicable

# Technical specifications

## FireBox



### Closed version with internal fastening



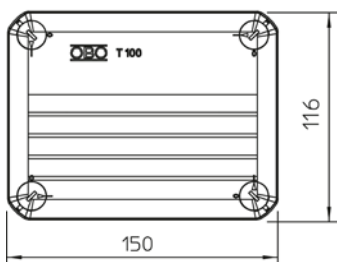
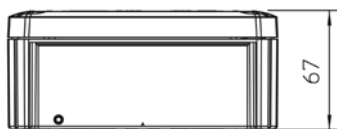
Example of terminal strip configuration

#### Description

Base material:	Polypropylene
Cover material:	Polypropylene
Cover fasteners:	4 twist locks
Cable entry:	Variable position using type V-TEC ... screw fittings
Mounting:	Attached together with the connection unit through the base of the box
Terminal strip:	Optional configuration

#### Dimensions

##### Type T100E...

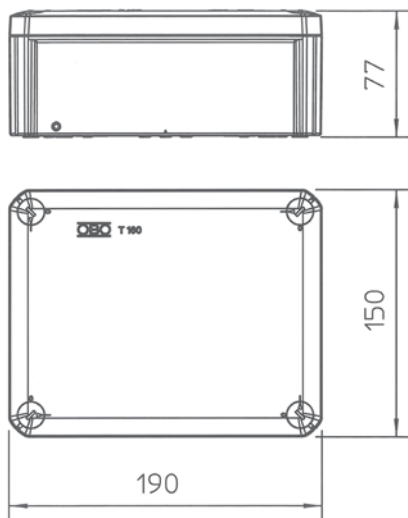


# Technical specifications

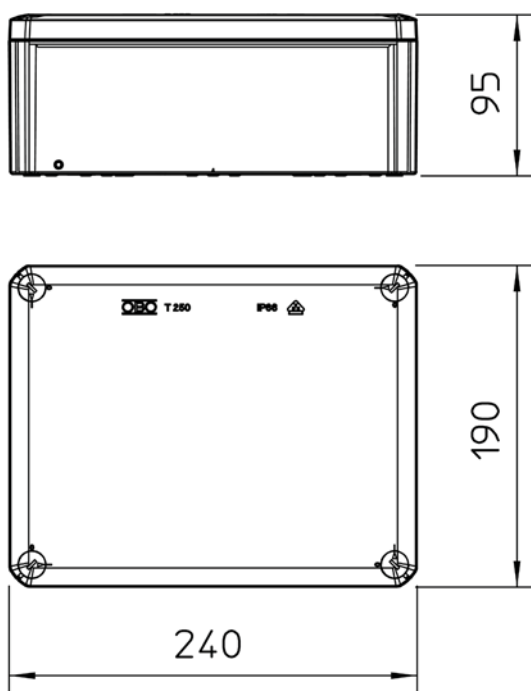
## FireBox



### Type T160E...



### Type T250E...

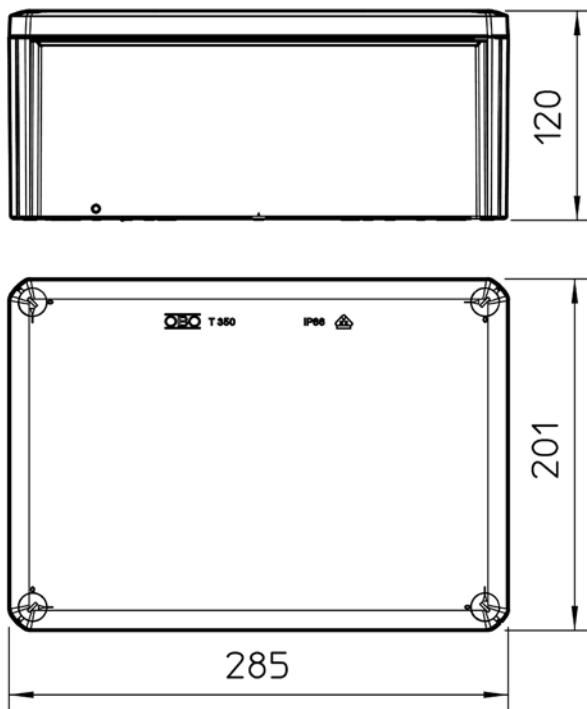


# Technical specifications

## FireBox



Type T350E...



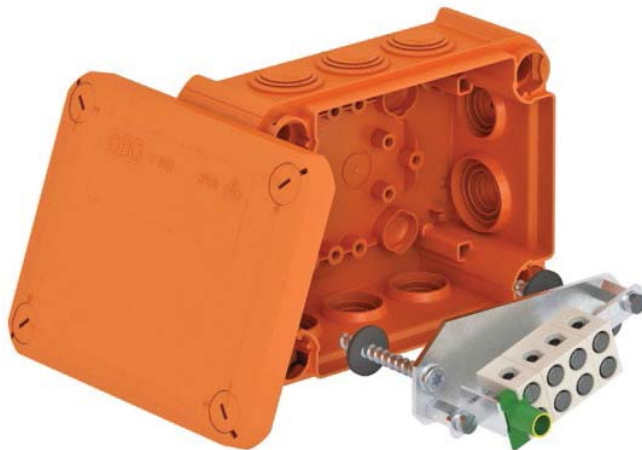


# Technical specifications

## FireBox



### Version with plug-in seals and internal fastening



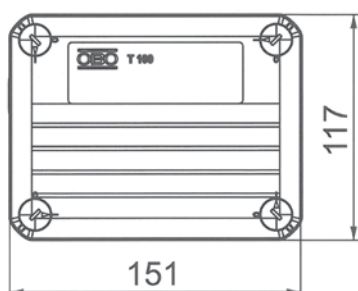
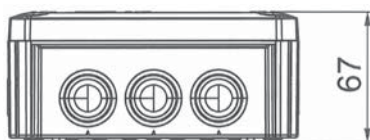
Example of terminal strip configuration

#### Description

Base material:	Polypropylene
Cover material:	Polypropylene
Cover fasteners:	4 twist locks
Cable entry:	Plug-in seals made of ethylene vinyl acetate
Mounting:	Attached together with the connection unit through the base of the box
Terminal strip:	Optional configuration

#### Dimensions

##### Type T100ED...



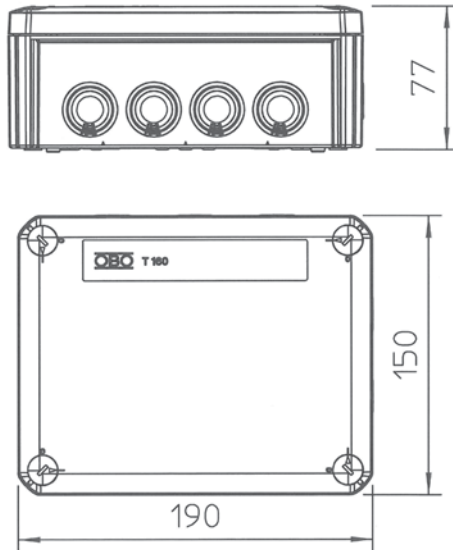
<b>Cable entries:</b>
- 8 x M25
- 2 x M32

# Technical specifications

## FireBox

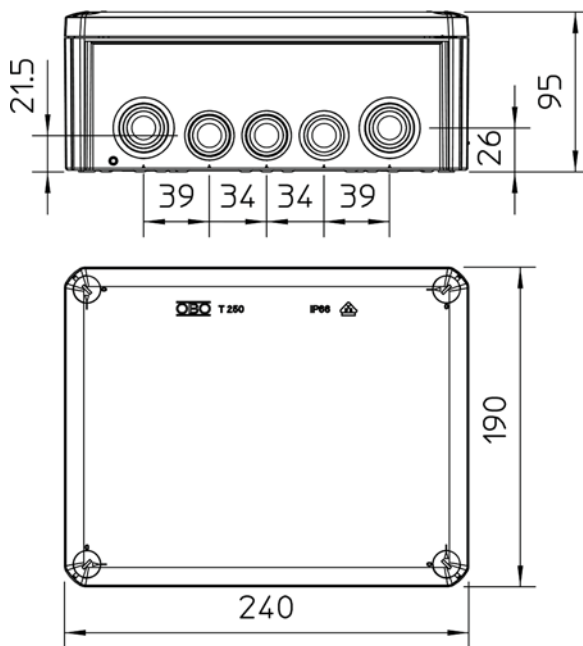


### Type T160ED...



- Cable entries:**
- 7 x M25
  - 5 x M32

### Type T250ED...



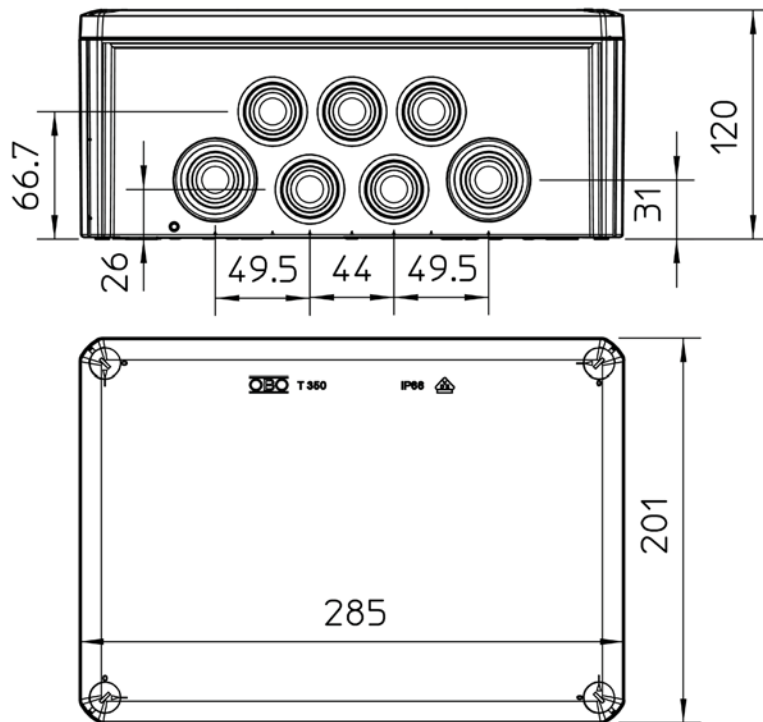
- Cable entries:**
- 9 x M25
  - 7 x M32

# Technical specifications

## FireBox



Type T350ED...



- Cable entries:**
- 16 x M32
  - 8 x M40

# Technical specifications

## FireBox



### Version with plug-in seals and external fastening



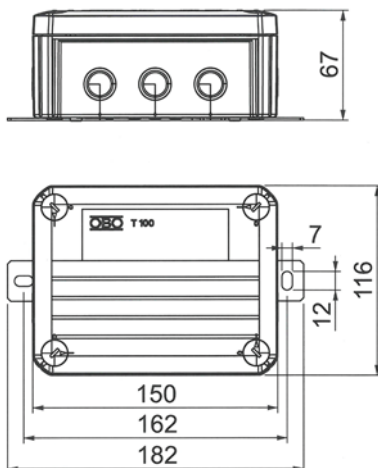
Example of terminal strip configuration

### Description

Base material:	Polypropylene
Cover material:	Polypropylene
Cover fasteners:	4 twist locks
Cable entry:	Plug-in seals made of ethylene vinyl acetate
Connection unit:	Screwed to the outer support plate from the inside
Box mounting:	On the protruding lugs of the support plate
Terminal strip:	Optional configuration

### Dimensions

#### Type T100ED...A



#### Cable entries:

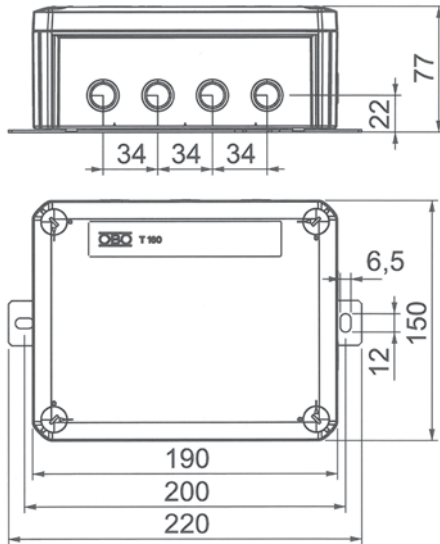
- 8 x M25
- 2 x M32

# Technical specifications

## FireBox



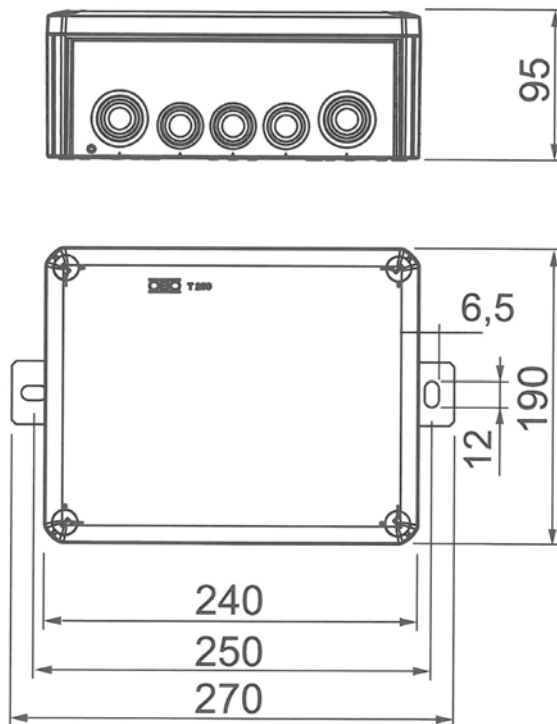
### Type T160ED...A



**Cable entries:**

- 7 x M25
- 5 x M32

### Type T250ED...A



**Cable entries:**

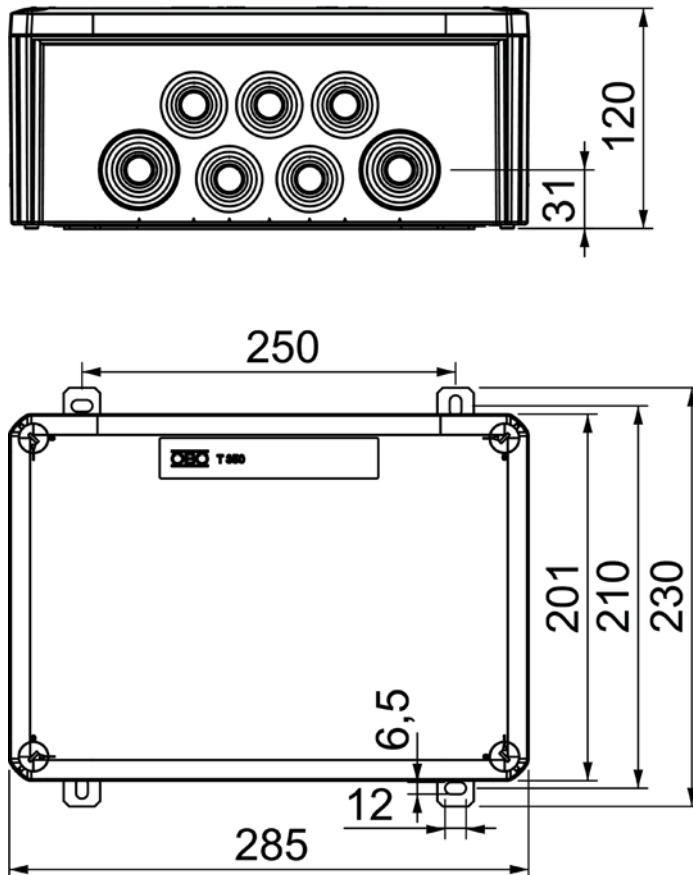
- 9 x M25
- 7 x M32

# Technical specifications

## FireBox



Type T350ED...A



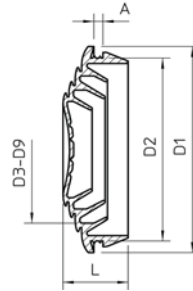
- Cable entries:**
- 16 x M32
  - 8 x M40

# Technical specifications

## FireBox Accessories



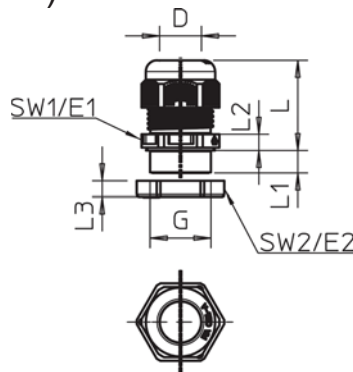
### Plug-in seals



Type	Size	For Ø mm	A mm	D1 mm	D2 mm	L mm
EDK 25 OR	M25	0–22	2.2	29.5	25.4	10.1
EDK 32 OR	M32	0–27	2.2	36.4	32.3	11.4
EDK 40 OR	M40	0–34	2.2	44.1	40.2	13.4

Material: Ethylene vinyl acetate

### Glands (complete with locknut)



Type	G	D mm	SW1 mm	E1 mm	SW2 mm	E2 mm	L mm	L1 mm	L2 mm	L3 mm
V-TEC VM16 OR	M16x1.5	4.5–10	20	22	22	25	21.5–29	8	5	5
V-TEC VM20 OR	M20x1.5	6–13	24	27	24	29	23.5–30.5	9	5	6
V-TEC VM25 OR	M25x1.5	9–17	29	32	32	36	26–35	10	6	6.5
V-TEC VM32 OR	M32x1.5	15–21	36	41	41	46	29–40	11	6	7
V-TEC VM40 OR	M40x1.5	16–28	44	50	50	56	36–46	11	7	7.5

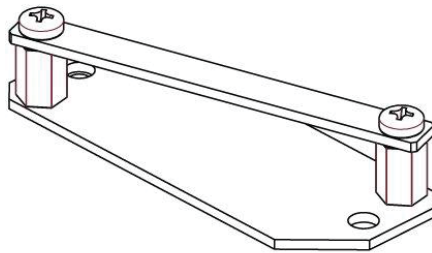
Material: Polyamide

# Technical specifications

## FireBox Accessories



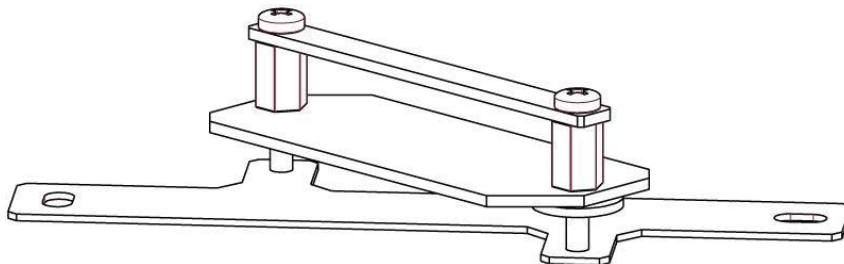
### Connection unit for internal fastening



#### Description

- Base plate with screwed-on crossbar
- Dimensions suitable for the relevant FireBox
- Fastening holes  $\varnothing$  7 mm
- Material: steel/stainless steel

### Connection unit for external fastening



#### Description

- Base plate with screwed-on crossbar
- Base plate screwed to the outer support plate through the bottom of the box
- Dimensions suitable for the relevant FireBox
- Fastening holes  $\varnothing$  7 mm
- Material: steel/stainless steel



# Technical specifications

## FireBox Accessories



### Ceramic terminals



	Nominal cross-section mm <sup>2</sup>	Clamping screw	L mm	H mm	B mm
Type TK 04	0.5–4	M3	8.5	21.5	21.5
Type TK 06	6	M3	8.5	21.5	21.5
Type TK 06-2	6	M3	15.5	23	21.5
Type TK 10	10	M4	12.5	24	24
Type TK 10-2	10	M4	22.5	26	24
Type TK 16	16	M5	15.0	28	28
Type TK 16-2	16	M5	25.0	30	28

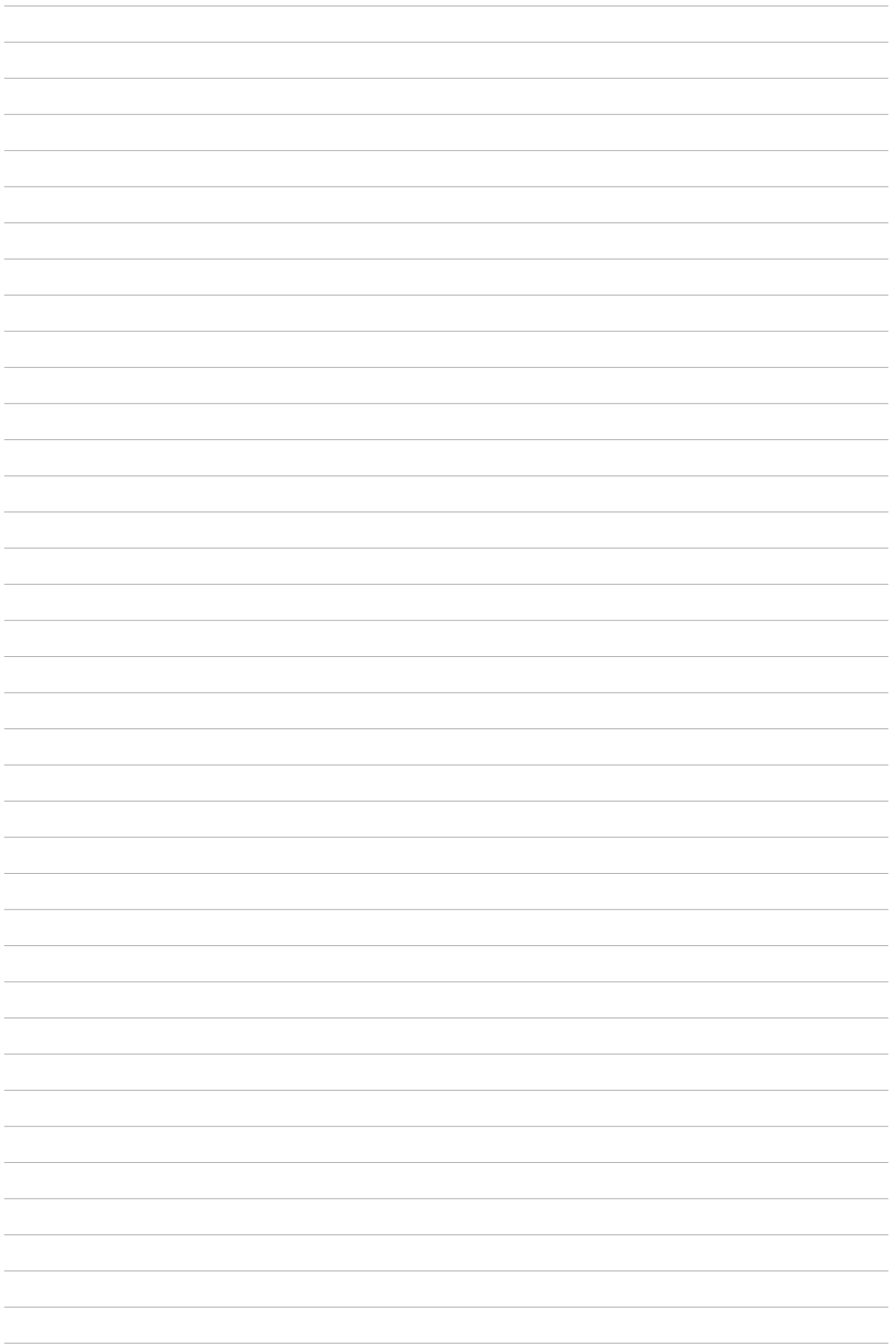
Terminal material: Brass  
 Clamping screw material: Steel  
 Housing material: Steatite  
 Opening for lining up: 10.5 x 3 mm

### Protective conductor terminals



	Nominal cross-section mm <sup>2</sup>	L mm	H mm	B mm
Type TP 04	4	6	26	19
Type TK 25	16	12	42	23

Material: Steel  
 Opening for lining up: 10.5 x 3 mm





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