Ensto VULCANO
Fire protection junction boxes E30 E60 E90

Maintaining functionality in the event of a fire
Technical equipment with function maintenance is critical at all locations where large numbers of people tend to gather such as airports, hospitals, government agencies and industrial plants. The Ensto Vulcano high-quality fire protection junction boxes are designed to be used in cable systems with system circuit integrity.
Function maintenance required from 30 to 90 minutes in the case of fire

The requirement for electrical installations with function maintenance is part of the construction regulations. Regulations require a power supply to be assured for a specific period of time, even if there is a fire.

Emergency lighting, smoke extractors, and alarms must remain operational for at least 30, 60 or 90 minutes, according to requirements, so people can leave the building and rescue forces can work.

Junction boxes must be verified with EN 60670 conformity. This includes environmental requirements, such as moisture, protection from dust and environmental temperature, corrosion and mechanical stress, as well as electrical testing conditions. In order to meet fire protection requirements, electrical installation systems must operate for 30, 60 or 90 minutes and withstand temperatures of up to 1000 °C, according to DIN 4102-12.
Function maintenance tasks:

**Function maintenance for a safe evacuation and rescue**

**30 minutes**

For buildings to be cleared quickly, function maintenance must be guaranteed e.g. for the following equipment:

- Safety lighting systems
- Lifts with fire control
- Fire alarm systems
- Alarm systems and systems to issue instructions
- Fire extraction systems

**Function maintenance for effective fire-fighting**

**90 minutes**

To support fire-fighting operations, it is important that technical equipment is supplied with sufficient power, even up to 90 minutes after a fire breaks out. This equipment includes:

- Water pressure increase systems for the fire water supply
- Mechanical smoke extraction systems and smoke protection pressure systems
- Fire brigade lifts
The aim of the burn test is to validate the correct operation of the electrical system and to ensure that the critical services, such as emergency lighting and fire alarm systems, remain functional for long enough to organize a rescue in the event of a fire.

The German standard DIN 4102-12 specifies that the complete system of cable trays, accessories and cables must be tested in an oven for a period of 30, 60 or 90 minutes, up to a temperature of 1000°C.

The set-up before the burn test
Cables and wires with intrinsic fire resistance are installed on the ceiling and vertically and horizontally on the wall, whereby each line includes a cable junction box with terminals. The ends of each cable are placed through the wall of the oven and then connected to electrical test circuits from the outside.

The burn test
After completing the installation, the oven is closed and fired up. Within minutes, the ambient temperature will rise, based on the pre-determined temperature curve according to EN 1363-1.

The plastic junction boxes melt within a few minutes. Shortly after, the cables burst with actual fire. The ceramic terminals ensure the continuous flow of current.
After the test

According to DIN 4102-12, the test is passed if the circuit is not disrupted for a fixed period of 30, 60 or 90 minutes.

The test continues for up to 90 minutes.

Even though the plastic enclosure has melted, the current is still flowing.

The burners are closed. The temperature has reached 1000°C.

Metal enclosures and ceramic terminals remain in good condition.
We offer high-quality fire protection junction boxes made from plastics and metals. Our solutions are developed for demanding industrial use requiring durability. The product range comprises junction boxes made of plastic and metal, especially manufactured for fire resistant cable systems. We also produce our own high temperature-resistant ceramic terminals.

**Benefits of using our solution**

- **Save time - ease of installation**
  - Everything factory-mounted
  - Terminal rail, easy to mount/dismount
  - Quick-release cover screws

- **High temperature-resistant ceramic terminals**
  - The conductive terminal body is made of a special alloy with a very high melting point
  - Ensto terminals

- **Tapping blocks**
  - Ceramic 1-pole tapping terminals
  - Large tapping capacity – 4 conductor spaces
  - Easy to expand later on – tapping places may be left as a reserve for later use

- **Compact size**
  - Takes less space at the installation site
  - Stylish solution for a wide range of applications
We have thought of every small detail – for efficient installations

- Terminal rail can be dismounted just by loosening the screws
- Cover attached with a line to the base
- Tapping terminals available
- Factory-mounted terminals
- Factory-mounted fastening lug
- Factory-mounted grommets
- Large cross-section range
- Quick-release cover screws
- Screw anchors for wall/ceiling installation included

With Ensto Vulcano: everything factory-mounted
With other suppliers: DIY
The Ensto Vulcano plastic fire protection junction boxes are manufactured from halogen-free thermoplastic with ceramic terminals. Junction boxes are tested to E30, E60, E90, according to DIN 4102-12. The degree of protection is IP65.

Plastic junction boxes in brief
- Halogen-free elastic thermoplastic
- Compact sizes
- Available in two sizes
- Factory-mounted cable entries and fastening lugs
- Screw anchors for wall / ceiling installation included
- Terminal rail easy to mount / dismount
- Quick-release cover screws
- Cover and cover screws equipped with sealing holes
- Cover attached with a line to the base to prevent losing the cover
- Available with single terminal blocks or tapping terminals

Contents of product package
- Enclosure base
- Cover
- Cover screws
- Cover line
- Fastening plate
- Screw anchors for wall/ceiling mounting
- Terminal rail
- Terminal rail mounting screws
- Ceramic terminals
- PE terminal(s)
- Rubber grommets

Conformity

Standards
- Boxes for household and similar fixed electrical installations EN 60670-1:2005
- Terminal blocks for copper conductors EN 60947-7-1:2009
- Connecting devices for household EN 60998-2-1:2004
- Fire resistance of electric cable systems DIN 4102-12

Technical information
- Degree of protection IP65
- Cross-section range Cu 1.5 – 16 mm²
- Nominal current range 41 – 76 A
- Nominal insulation voltage 750 V
- Ambient temperature (min.) -25 °C
- Ambient temperature (max.) +40 °C
- Ambient temperature (24 h) +35 °C
- Fire resistance class E30 – E90

Material
- Enclosure Polypropylene
- Screws Polycarbonate
- Gasket PUR (polyurethane)

Mechanical features
- Cable entries Rubber grommets and knockouts
- Colour RAL 2003 orange

Product code | Enclosure size | Cross-section (mm²) | Number of terminals | Earthing terminal cross section (mm²) | Rubber grommets | Knock-outs | Package size (pcs) | Weight (kg) | GTIN-13
--- | --- | --- | --- | --- | --- | --- | --- | --- | ---
FPT1010PP46 | 100 x 100 x 50 | 1.5 - 6 | 4 | 16 | 8 x M25 | 2 x M25 | 8 | 0.290 | 6438100180782
FPT1010PP46.4 | 100 x 100 x 50 | 1.5 - 6 | 4 | 16 | 8 x M25 | 2 x M25 | 8 | 0.307 | 6438100180799
FPT1815PP416 | 175 x 150 x 80 | 2.5 - 16 | 4 | 2 | 35 | 2 x M32 + 2 x M40 | 2 x M25 + 6 x M32 | 6 | 0.745 | 6438100180805
FPT1815PP416.4 | 175 x 150 x 80 | 2.5 - 16 | 4 | 2 | 35 | 2 x M32 + 2 x M40 | 2 x M25 + 6 x M32 | 6 | 0.900 | 6438100180812
Ensto Vulcano steel fire protection junction boxes are manufactured from polyester painted mild steel. They meet the degree of protection of IP65 and impact resistance of IK09. The boxes are equipped with ceramic terminals.

Steel junction boxes in brief
- Available in three sizes
- Factory-mounted cable entries and fastening lugs
- Screw anchors for wall/ceiling installation included
- Terminal rail easy to mount/dismount
- Available with single terminal blocks or tapping terminals

Contents of product package
- Enclosure base
- Cover
- Cover screws with gaskets and cage nuts
- Screw anchors for wall/ceiling mounting
- Terminal rail
- Terminal rail mounting screws
- Ceramic terminals
- PE terminal(s)
- Rubber grommets
- Accessories for earthing the cover

Conformity

Standards
- Boxes for household and similar fixed electrical installations: EN 60670-1:2005
- Terminal blocks for copper conductors: EN 60947-7-1:2009
- Connecting devices for household: EN 60998-2-1:2004
- Fire resistance of electric cable systems: DIN 4102-12

Technical information
- Degree of protection: IP65
- Impact resistance: IK09
- Cross-section range: Cu 1.5 – 16 mm²
- Nominal current range: 41 – 76 A
- Nominal insulation voltage: 750 V
- Ambient temperature (min.): -25 °C
- Ambient temperature (max.): +40 °C
- Ambient temperature (24 h): +35 °C
- Fire protection: E30 – E90

Material
- Enclosure: Polyester painted mild steel
- Screws: Steel
- Gasket: PUR (polyurethane)

Mechanical features
- Cable entries: Rubber grommets and knockouts
- Colour: RAL 2003E orange

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<th>Number of terminals</th>
<th>Number of termination points</th>
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Dimensional drawings

FPT2215FE416

FPT2215FE416.4

FTP2222FE416

FTP2222FE416.4

Material: Mild steel, polyester painted
Color: RAL2003
Weight (kg): 2.374, 2.107, 2.954

Sheet No:
Fire safety box
Code:
Ref:
Drw No:
Replaced:
Replaces:
Date Scale:

Ensto Finland Oy
Ensto Industrial Solutions
Ensto Vulcano
Functions Under Fire

Set it on fire. It still works fine.

In case of fire in a public space, the first priority is evacuation to safety. Patients are removed from hospitals, passengers escorted from airports, or industrial plants cleared of workers.

Ensto Vulcano, one of the industry’s most durable junction boxes for fire resistant circuits, buys time for rescue workers to perform this important evacuation work. Ensto Vulcano can provide up to 90 precious life-saving minutes, keeping electricity flowing, safety lighting systems operational, and water pressure systems intact.

Leveraging years of Ensto experience with enclosures for hazardous environments, Ensto Vulcano junction boxes give designers new flexibility and options in making sure their buildings comply with directives and standards and are as safe as they can possibly be.

Still working above 1,000 degrees

Ensto Vulcano is designed to be used in cable systems with system circuit integrity. “We wanted a product for the extreme environment of fire safety,” says Riitta Seeck, Ensto Product Manager. “And Ensto is the only Nordic manufacturer to offer one.”

Ensto Vulcano’s ceramic terminals are so durable they could be used again after a thousand-degree fire bath. When the temperature reaches 1,000 degrees Celsius, plastic enclosures have melted away, but Ensto’s special copper alloy terminals inside ceramic housings retain their shape and continue to function.

The product meets the German standard DIN 4102-12 and keeps electricity flowing for periods up to 90 minutes in order to keep, for example, safety lighting systems and water pressure systems intact.

Even faster installation

Vulcano breaks new ground in installation, as well. “Typically,” says Seeck, “this type of product comes like children’s building blocks, loose parts stuffed in a plastic bag. Ensto Vulcano terminals come already mounted in their enclosures, the only separate parts being screw anchors.”

Tapping terminals are another advantage in installation. One incoming conductor space has three outgoing spaces. “This eliminates the need to put many conductors under one screw,” explains Seeck.

Because life matters

Roman myth instructs that Vulcan, god of fire, made a helmet for Pluto, a trident for Neptune, and the armor of Achilles and Aeneas. It’s said he taught men the malleability and polishing of metals. And he would surely be pleased that Ensto has produced a legendarily durable fire protection junction box worthy of the Vulcan name.

Because life matters Ensto Vulcano will find a home wherever people gather and equipment with function maintenance is critical.

Author: Scott Diel
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