

ENSTO

Ensto Vulcano

Fire protection junction boxes

E30

E60

E90



Better life.
With electricity.

Maintaining functionality in
the event of a fire.

ensto.com

Because life matters



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.





Hospitals



Commercial buildings



Underground railway systems



Chemicals industry



Hotels and restaurants



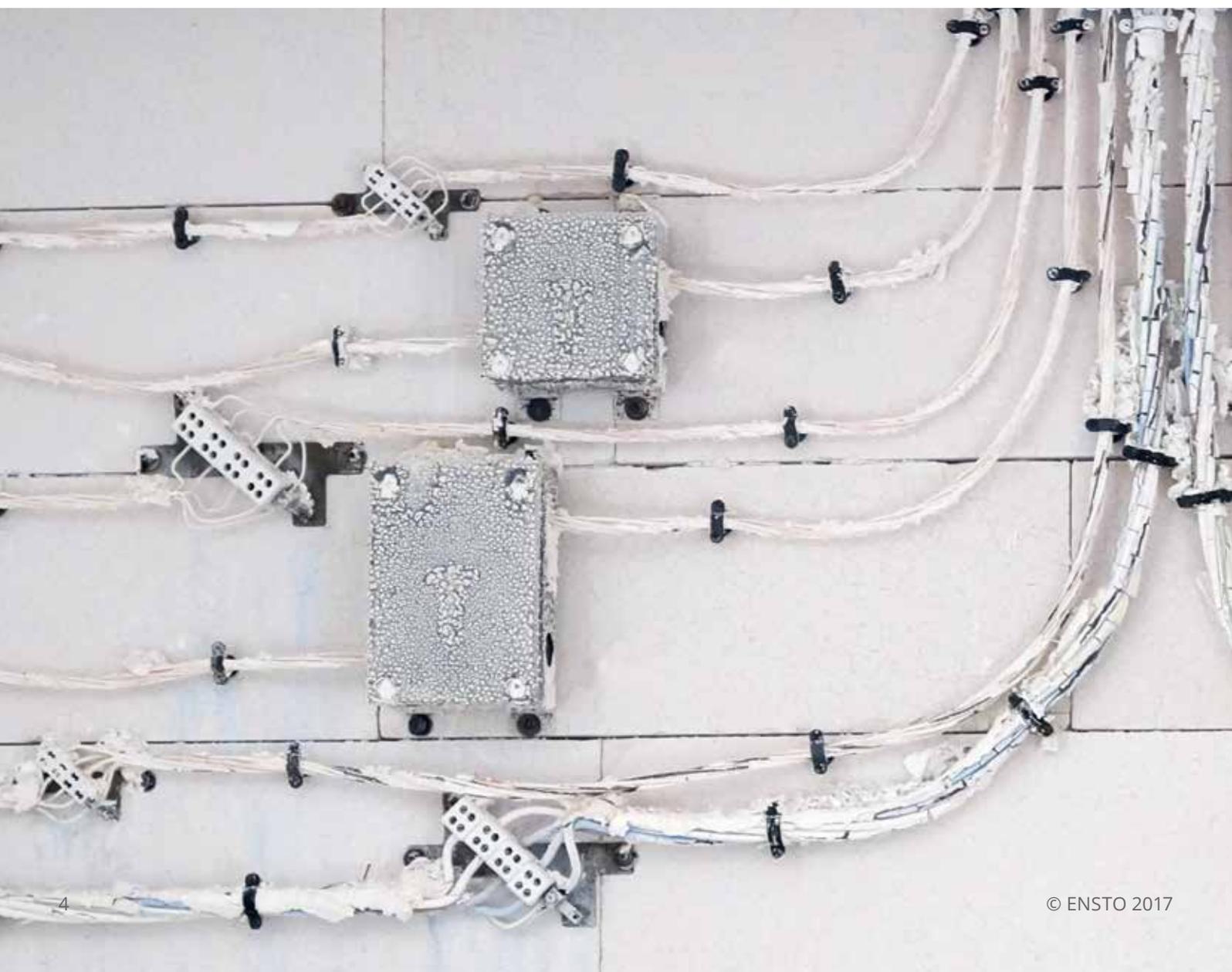
Airports

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



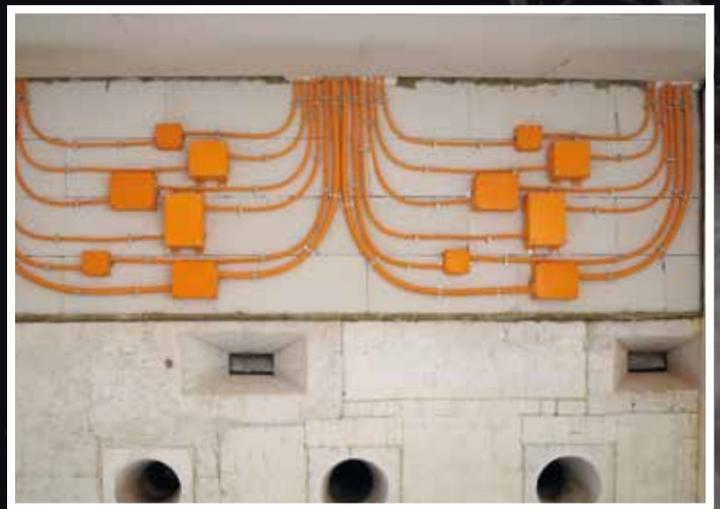
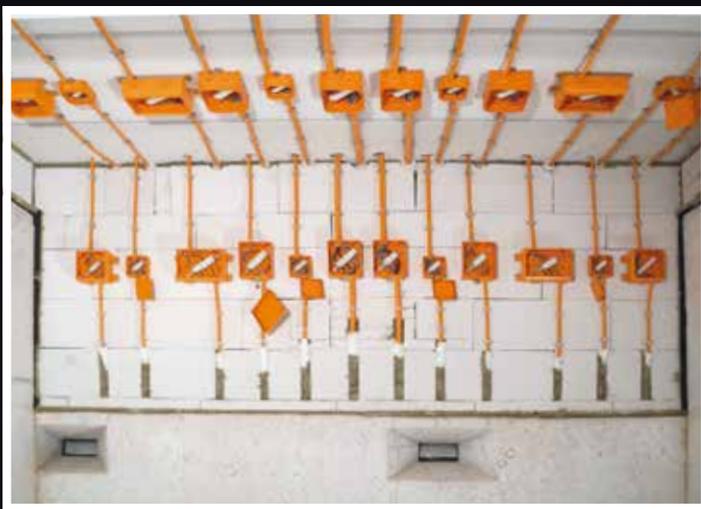
Burn test according to DIN 4102-12

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.

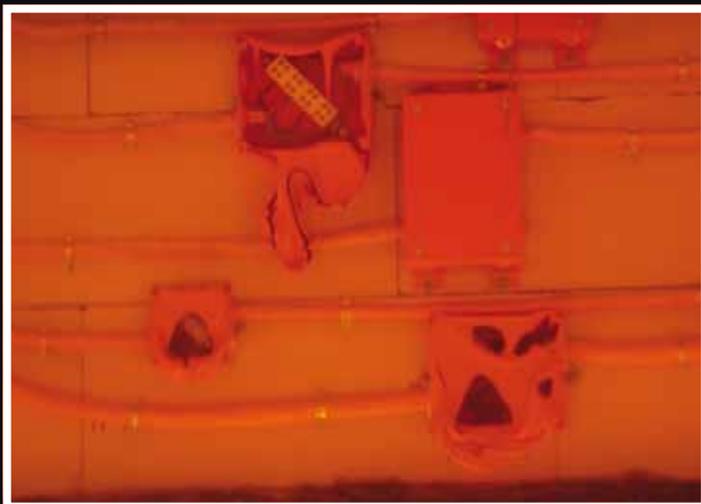
The set-up before the burn test

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.

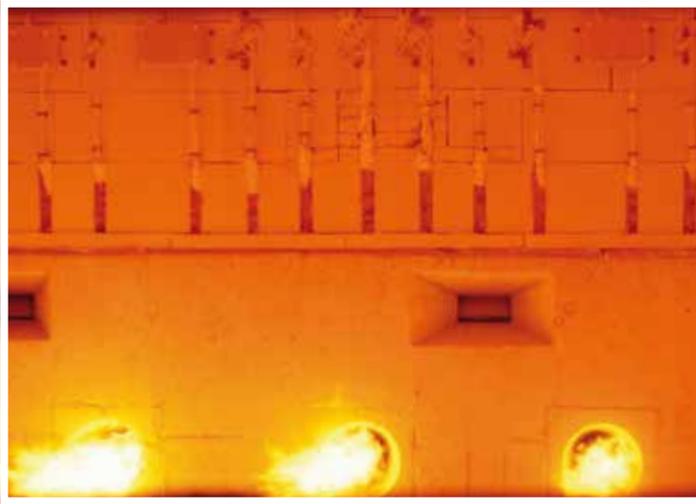


The burn test

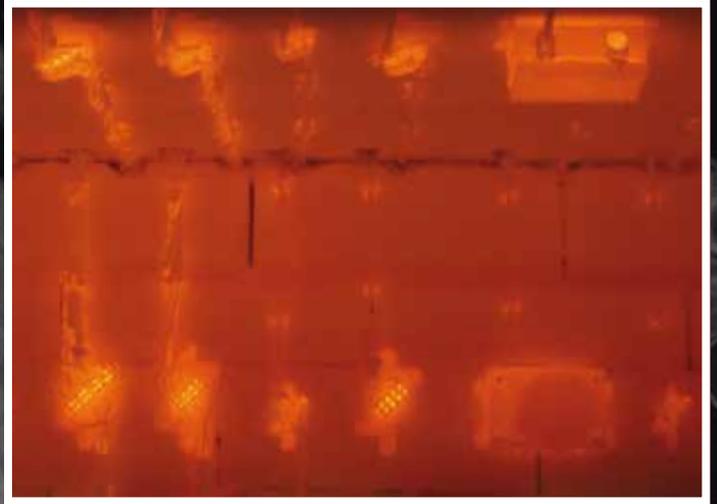
After completing the installation, the oven is closed and fired up. Within minutes, the ambient temperature will rise, based on the pre-determined temperature curve according to EN 1363-1.



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.

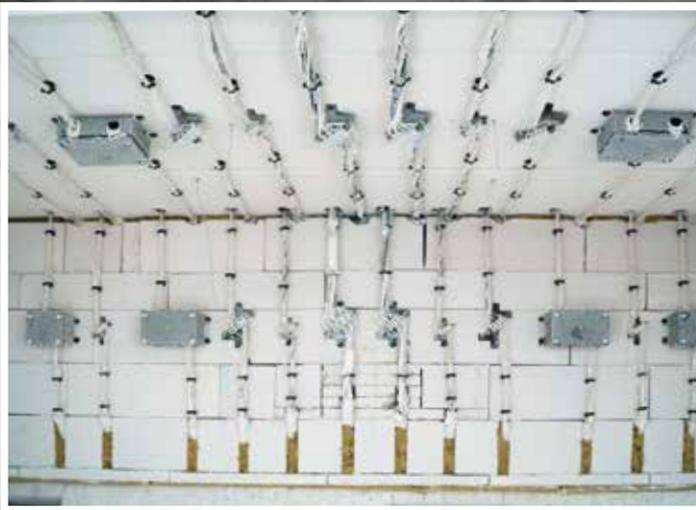


The test continues for up to 90 minutes.



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

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.



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



Metal enclosures and ceramic terminals remain in good condition.

Benefits of using our solution

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.



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



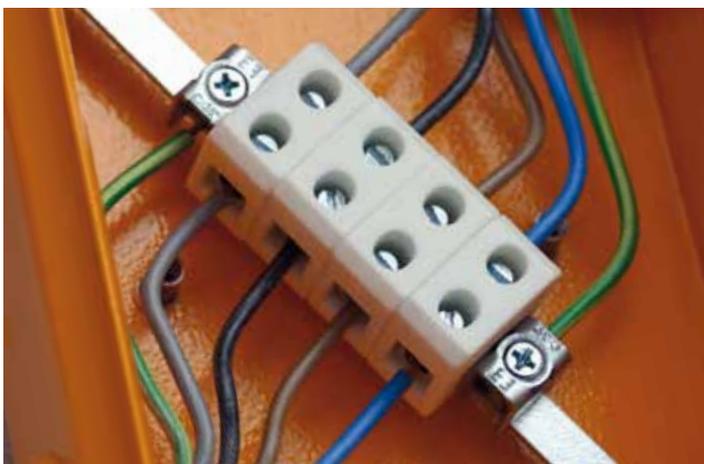
Tapping blocks

- 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

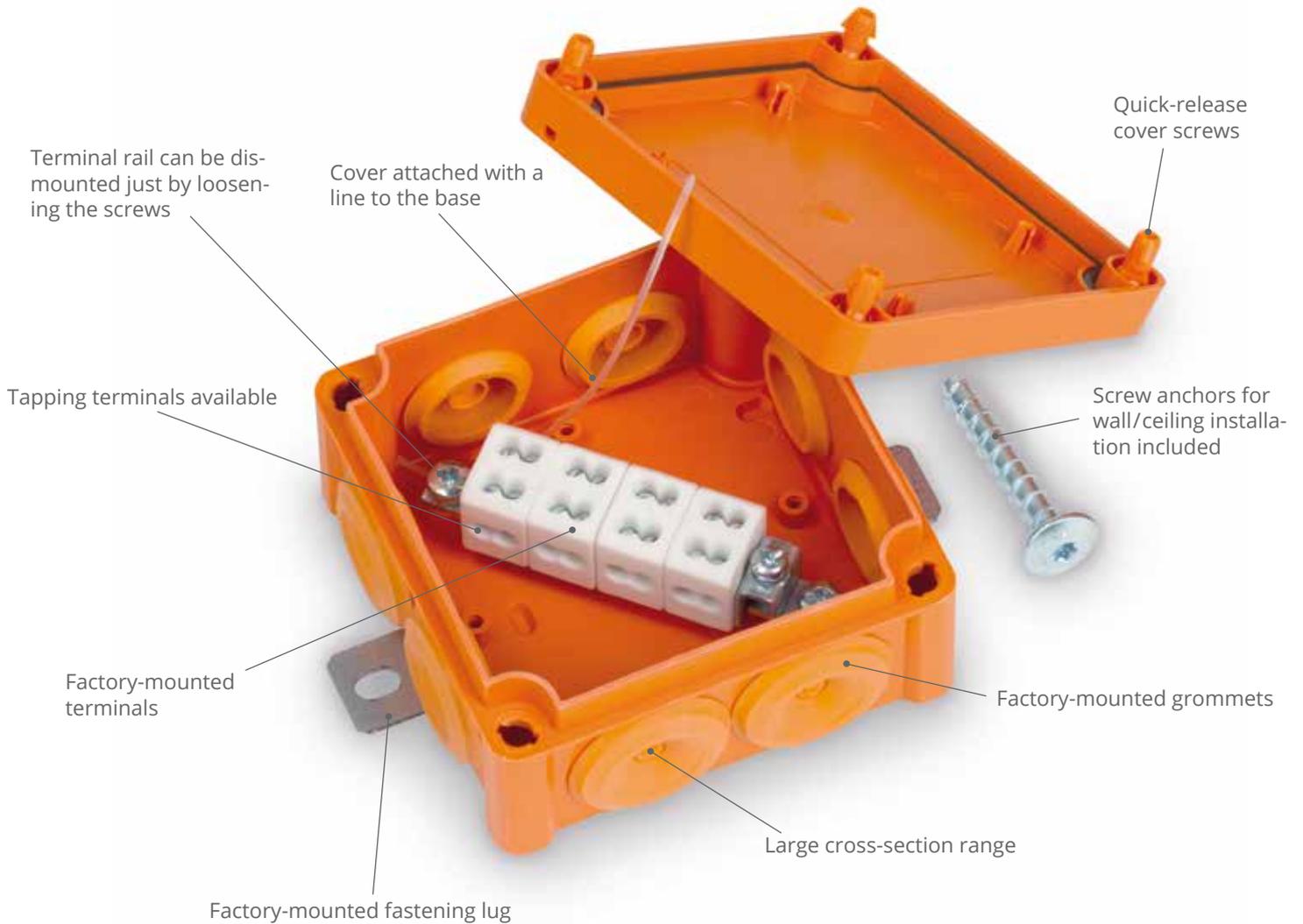


Compact size

- 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



Ensto Vulcano plastic junction boxes

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	
CE  	
Standards	
Boxes for household and similar fixed electrical installations	EN 60670-1:2005 EN 60670-22:2006
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 mm ²
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 (mm ²)	Number of terminals	Number of termination points/terminal	Earthing terminal cross section (mm ²)	Rubber grommets	Knock-outs	Package size (pcs)	Weight (kg)	GTIN-13
FPT1010PP46	100 x 100 x 50	1.5 - 6	4	2	16	8 x M25	2 x M25	8	0.290	6438100180782
FPT1010PP46.4	100 x 100 x 50	1.5 - 6	4	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	4	35	2 x M32 + 2 x M40	2 x M25 + 6 x M32	6	0.900	6438100180812



FPT1010PP46



FPT1010PP46.4



FPT1815PP416



FPT1815PP416.4

Ensto Vulcano steel junction boxes

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	
CE RoHS (F)	
Standards	
Boxes for household and similar fixed electrical installations	EN 60670-1:2005 EN 60670-22:2006
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 mm ²
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

Product code	Enclosure size	Cross-section (mm ²)	Number of terminals	Number of termination points / terminal	Earthing terminal cross-section (mm ²)	Rubber grommets	Knock-outs	Package size (pcs)	Weight (kg)	GTIN-13
FPT1515FE46	150 x 150 x 80	1.5 - 6	4	2	16	4 x M25	4 x M25	1	1.430	6438100180829
FPT1515FE46.4	150 x 150 x 80	1.5 - 6	4	4	16	4 x M25	4 x M25	1	1.455	6438100180836
FPT2215FE416	220 x 150 x 80	2.5 - 16	4	2	35	4 x M32	2 x M32 + 4 x M25	1	1.965	6438100180843
FPT2215FE416.4	220 x 150 x 80	2.5 - 16	4	4	35	4 x M32	2 x M32 + 4 x M25	1	2.115	6438100180850
FPT2222FE416	220 x 220 x 100	2.5 - 16	4	2	35	2 x M32 + 2 x M40	4 x M25 + 2 x M32 + 2 x M40	1	2.600	6438100180867
FPT2222FE416.4	220 x 220 x 100	2.5 - 16	4	4	35	2 x M32 + 2 x M40	4 x M25 + 2 x M32 + 2 x M40	1	2.750	6438100180874



FPT1515FE46



FPT1515FE46.4



FPT2215FE416

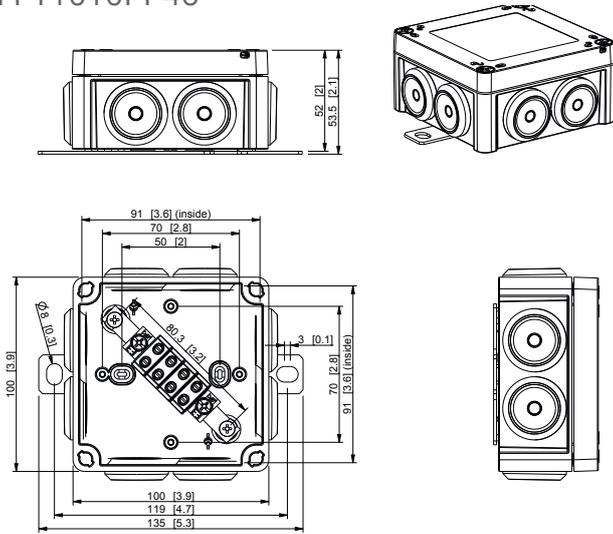


FPT2222FE416.4

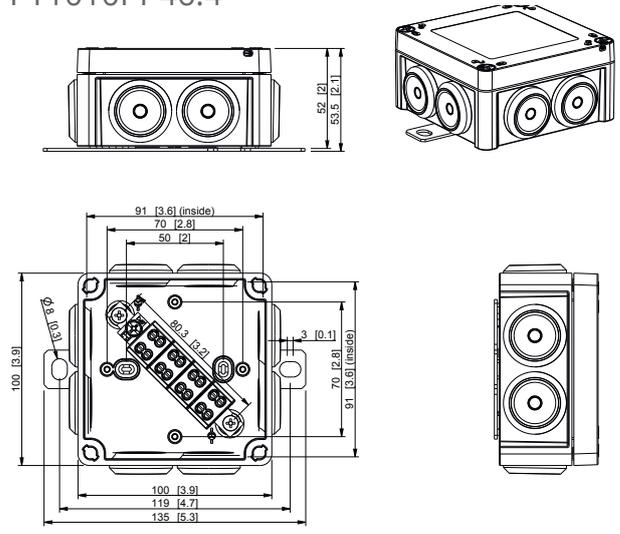
Dimensional drawings

Dimensions in mm [inch]

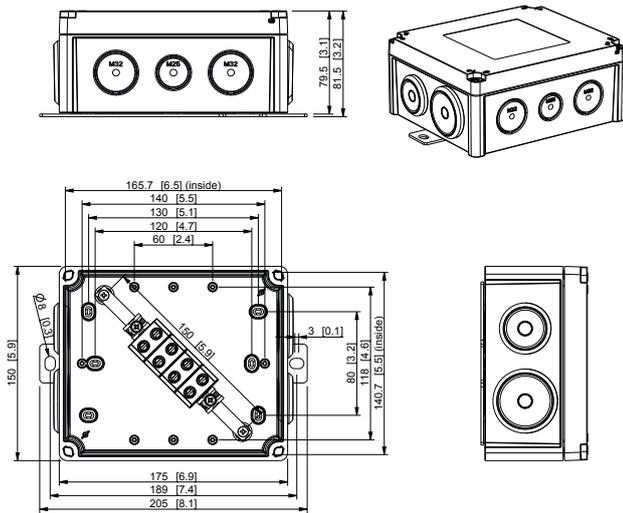
FPT1010PP46



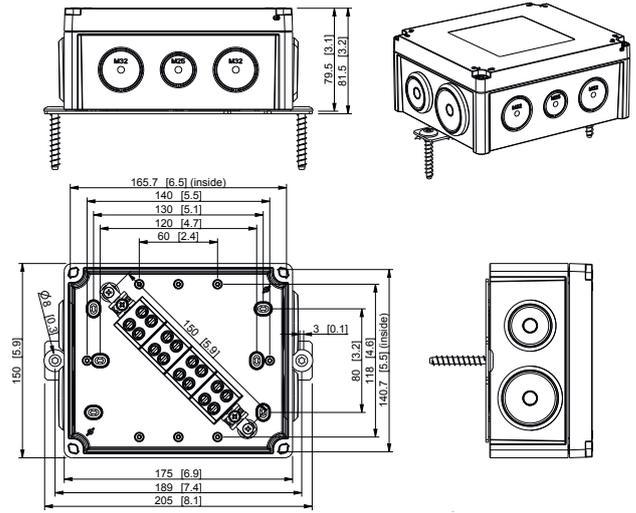
FPT1010PP46.4



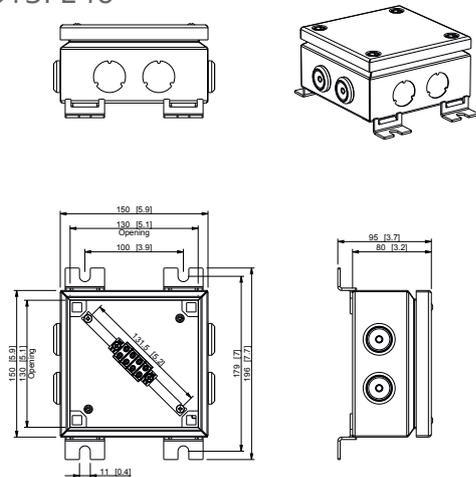
FPT1815PP416



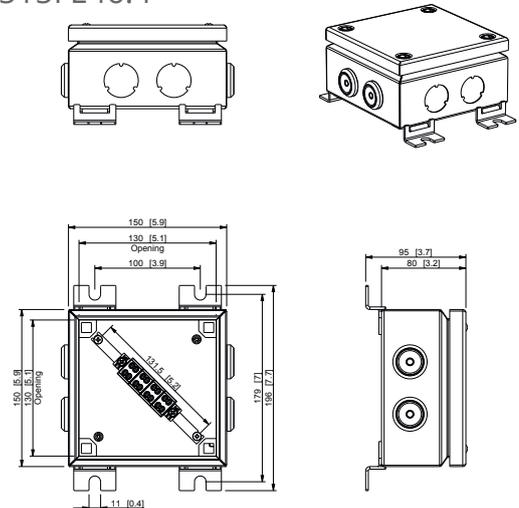
FPT1815PP416.4



FPT1515FE46



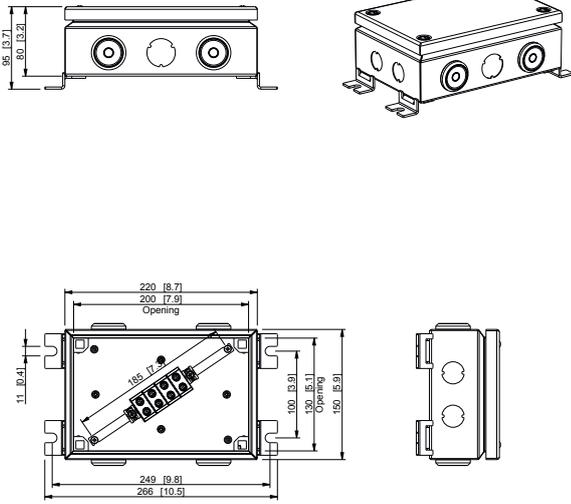
FPT1515FE46.4



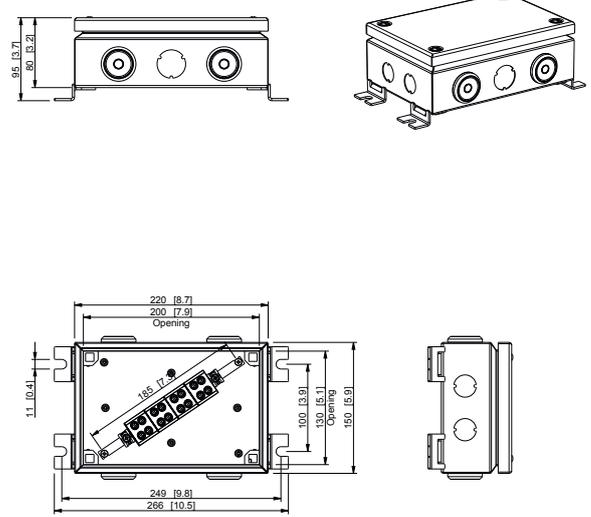
Dimensional drawings

Dimensions in mm [inch]

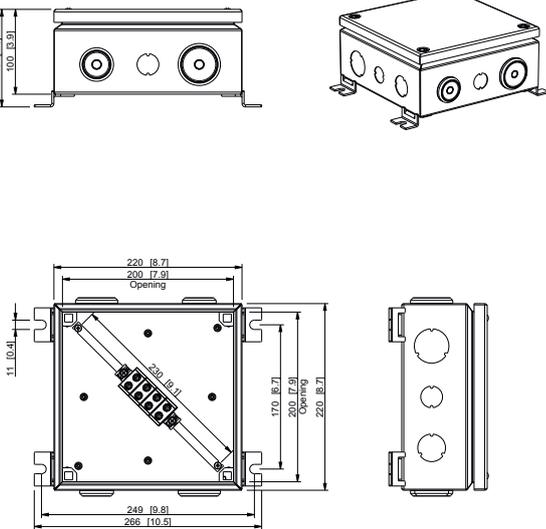
FPT2215FE416



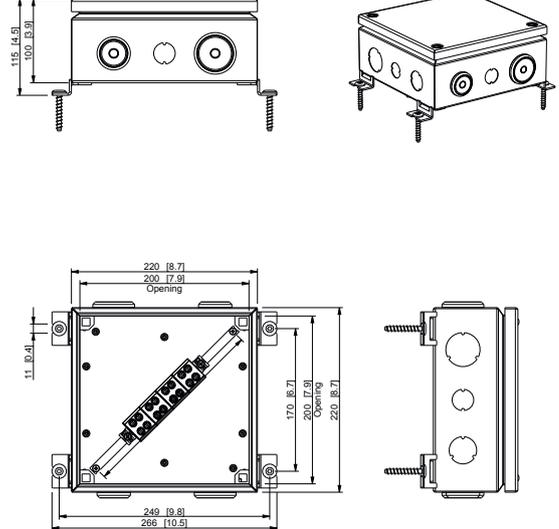
FPT2215FE416.4



FTP2222FE416



FTP2222FE416.4



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





Legal notice

The information in this brochure is to the best of Ensto´s knowledge and belief correct and reliable. We reserve the right to make changes in the specifications, materials and production methods without further notice. Be aware of that you have to evaluate independently the suitability of each product for the intended application. Ensto does not give any assurance of any particular quality or performance. Our responsibilities for the products are set forth in the "Orgalime S 2000 General Conditions for the Supply of Mechanical, Electrical and Electronic Products". The products shall be installed only by a competent person having nationally required knowledge. Ensto is not responsible for its distributors or for any misuse, incorrect installation or ignored national safety or other national provisions.

Copyright Ensto Oy 2017, Ensto™

Photo: Teemu Paappanen, burn show 2015



ENSTO

Ensto Finland Oy
Ensio Miettisen Katu 2, P.O. Box 77
FIN-06101 Porvoo, Finland
Tel. +358 204 76 21
electrification@ensto.com

ensto.com

