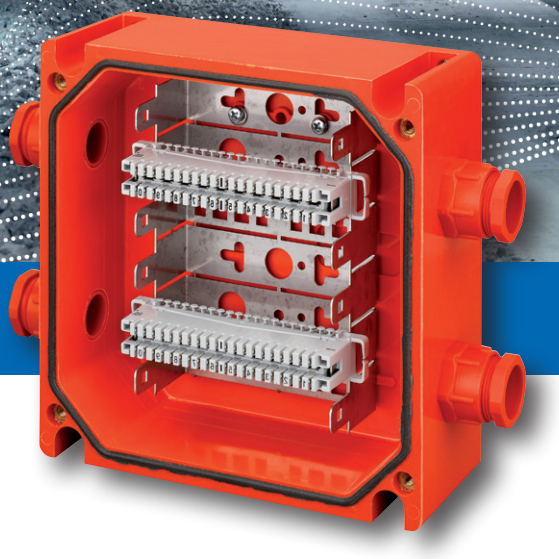
GIFAS ELECTRIC

04A MAIN CATALOGUE



Fire resistant junction boxes

ELECTRIC SOLUTIONS

V0625

Content

Introduction

Modern building architecture places enormous requirements on the reliability of the electrical systems. This applies especially in the case of fire. Here, GIFAS products for electrical functional integrity fulfil a demanding task. They ensure that safety-related systems remain available if there's a fire.

Security of a strong brand

Trademark counterfeiting is becoming an increasing problem in the electrical industry. Counterfeiters flood the market with products that look just like the original brands – with fatal consequences for fire protection. Only a quality electrical product guarantees a defined period of time in which the current continues to flow – valuable minutes that can be essential for rescuing fleeing people, for instance. Higher material quality, improved combustion behaviour and comprehensively tested properties permit this time saving.

Electrical functional integrity

Functional integrity of the electrical systems is when the safety-relevant current continues to flow and there is no short circuit during a fire. As a result, the power supply of the escape and rescue routes should remain intact if exposed to fire from outside. Electrical functional integrity is important at all locations where there are large numbers of people, such as schools, hospitals, public authorities, industrial facilities or shopping centres. Because fires can never be entirely excluded despite the greatest safety precautions, the requirements on material and installation cannot be great enough.

DIN 4102 part 12

To ensure no one is hurt by fire and smoke, the fire regulations of electrical installations are rigorously imposed for the constructional and electrotechnical fields. The functional integrity of electrical cable systems in accordance with DIN 4102 part 12 is of particular importance. This standard stipulates that only complete cable systems including all components, such as the installation system, cables and wall plugs, can be checked for their functional integrity and approved.
All fire protection-products offer demonstrable functional integrity in classes E30 to E90 – for the highest requirements in housing construction and administrative buildings up to large-scale projects for the industrial and transport sectors.

Valuable minutes: E30 to E90

E30

Guarantee of the electrical functional integrity for at least 30 minutes
- Fire alarm systems
- Acoustic systems
- Emergency lighting
- Lifts with evacuation circuit

E60

Guarantee of the electrical functional integrity for at least 60 minutes
- Depending on the use of the building and fire protection concept, functional integrity of E60 is also specified for the emergency power supply.

E90

Guarantee of the electrical functional integrity for at least 90 minutes
- Pressure boosting stations for fire extinguishing water
- Smoke and heat exhaust ventilation systems
- Firefighter lifts
- Emergency power supply

Comprehensive protection: Demonstrable

GIFAS supports users with in-depth expertise and comprehensive test certificates, from Spelsberg of course. The products from the fire protection programme are checked electrically by the German Association for Electrical, Electronic & Information Technologies (VDE) and in terms of fire protection by the material testing institutions. In addition, they undergo the electrical tests in accordance with the national and international standards. Used together with appropriately approved cables and installation systems, they offer electrical functional integrity in classes E30 to E90 in accordance with DIN 4102 part 12.

Laws / Standards / Directives

Legal basis for electrical functional integrity / Regulations that save lives

In the event of a fire in public buildings, important electrical systems such as escape route lighting, lifts and smoke extraction systems must remain functional in order to protect lives. Strict legal requirements for fire protection in buildings are therefore intended to protect people, animals and property. When installing electrical systems, the legal requirements from two areas must be observed: the building regulations and the electrotechnical regulations. The most relevant aspects of fire protection and electrical functional integrity are summarised from a wide range of laws and guidelines.

General requirements

Systems must be **arranged**, **erected**, modified and **maintained** in such a way as not to endanger public safety and order, with particular regard to human life, health and natural resources.

Fire protection

Building systems must be **arranged**, **erected**, modified and **maintained** in such a way that the occurrence of fire and the spread of fire and smoke (fire propagation) is prevented and that the rescue of people and animals as well as effective fire-fighting operations are possible if there is a fire.

Arrangement = planning of the architects / specialist planners
Erection = execution of the works by tradesmen and construction company
Maintenance = ongoing maintenance by the building owners or operators

Definition: Wiring systems

are systems made up of cables, especially of electrical lines or pipelines, as well as the associated fittings, house connection equipment, measurement equipment, control, regulation and safety devices, mains units, distributors and insulating materials for the cables. The cables include their mountings and coatings. Fibre optic cables and electrical cables are considered to be electrical wiring.

Definition: Cabling systems

In the electrical rules and regulations of the VDE, cabling systems are defined as follows under DIN VDE 0100-200 in the main section 826-15:
826-15-01 Cabling systems Assembly made up of one or more insulated conductors, cables or busbars and the parts which secure their fixing and, if necessary, their mechanical protection.
Accessible cable ducts, cable conduits and cable racks are also defined in this section..

DIN 4102

According to relevant implementation of laws and regulations, the cables, junction boxes and distributors must be tested for the electrical functional integrity in accordance with DIN 4102 in particular. The testing details for the fire behaviour of building materials and building components are set out there. Walls, ceilings or stairways, for example, but also cable insulation or installation shafts and ducts as well as electrical cables are considered as building materials or building components. According to DIN 4102, all electrical cables and elements are tested in different fire resistance classes. Part 12 of the DIN 4102 lays down the regulations for the functional integrity of electrical cables. The functional integrity can be certified in classes E30, E60 and E90. That means the electrical systems continue to function for 30, 60 or 90 minutes in case of fire. On the other hand, distribution boxes are tested as space-enclosing components according to part 2 of DIN 4102. Here, a fire resistance (F) of the external walls of the distributor must be demonstrated for a time period of 30, 90 or 120 minutes.

VDE standards for boxes and distributors

DIN EN 60670 (VDE 0606) stipulates the general requirements for boxes and enclosures for household and similar fixed electrical installations. The regulations to which all boxes must correspond for protection against electric shock, protective conductor connections, insulation resistance and high voltage, heat resistance and the resistance of insulation materials to excessive heat and fire, for example, are defined here.
There is also an appropriate test standard for distributors. This is because the many different properties of the individual components must be coordinated in order to function safely – the technical details to be taken into account are described by the standard DIN EN 61439-1 for «Low-voltage switchgear and control gear assemblies; part 1: Type-tested and partially type-tested assemblies».

Insulation integrity

Besides the testing of electrical functional integrity, the testing of their insulation integrity during exposure to flames in accordance with DIN VDE 0472 is also relevant for many electrical installation products for safety in the event of fire.
While complete cable systems are tested in test furnaces at high temperatures (starting from room temperature up to 1›000° C after 90 min.) with electrical functional integrity, but not in direct fire, the testing for insulation integrity involves the direct flame treatment of a cable with a length of 50 cm at 750° C. If, after the test period – normally 180 min., current is still flowing and neither a short-circuit nor any open-circuit has occurred, the test is considered as passed. The cable is given the classification FE 180. FE stands for the effects of flames or fire.

Functionality and insulation integrity

«Why do I need both tests?» some people may ask. In both tests cables are tested with energy applied at extremely high temperatures. But fires have very different characteristics. Hence, a fire can occur in the direct vicinity of a cable installation. Within the shortest time, the flames reach the cables and they must withstand the direct fire.
In other cases, a fire may possibly develop in the adjacent area. The further the fire spreads, the more the adjacent areas heat up. After some time, where the temperature was just 20° C shortly beforehand, more than 1'000° C prevail without flames reaching the cable installation directly.
The aim in both cases is that the products can continue to carry current under these extreme conditions. Both tests provide safety – on the one hand, they test the heat resistance of the material and, on the other hand, they guarantee insulation against direct flames. Only one product – that bears both the marking E30, E60, E90 as well as the marking FE 30, 90, 180 – offers full fire protection.

Polyester junction and distribution boxes GRP

Glass fibre reinforced polyester junction and distribution boxes fireproof

In collaboration with external specialist departments, we have expanded our range to include fire-resistant, glass-fibre reinforced polyester junction boxes.

Design approved to IP66/68

Along to Test Report APM Technica: APM_BE_3301389 water and dust in accordance with DIN EN 60529:2014

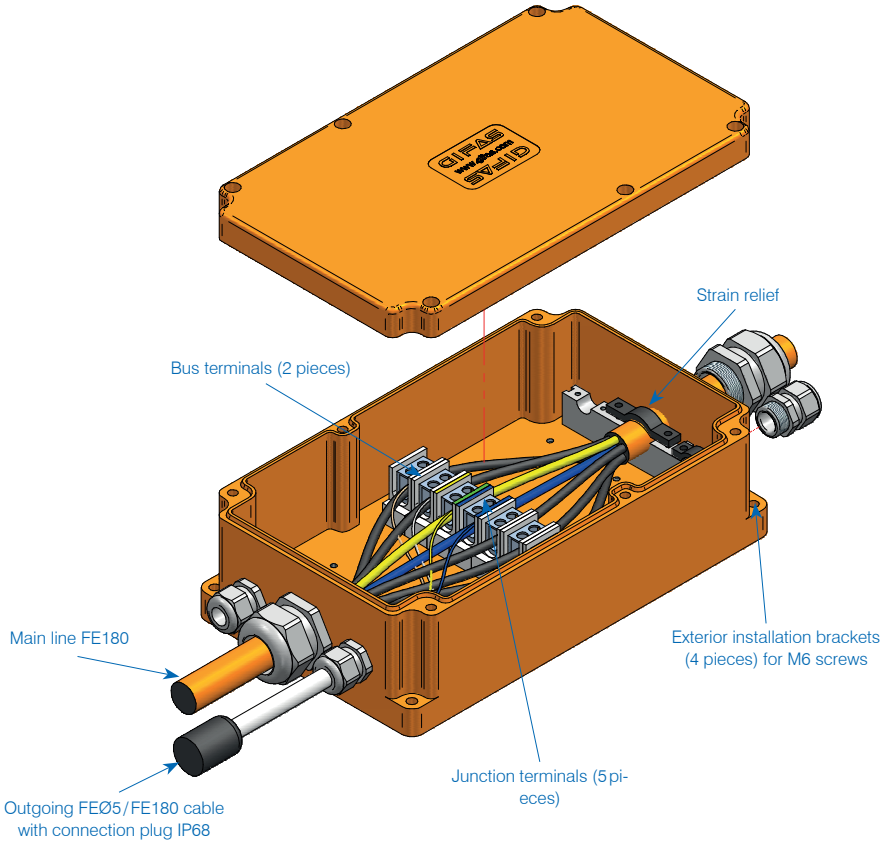
Functional integrity E30 based on DIN 4102 part 12 E30

According to report MPA-Dresden 20190264 in accordance with DIN EN 1363-1; 2012-10

As a result of the higher protection category and the certification according to DIN 4102 Part, the boxes are ideal for adaptive, lane and safety lighting, especially in the national road network and tunnels - individual equipment to customer requirements possible.

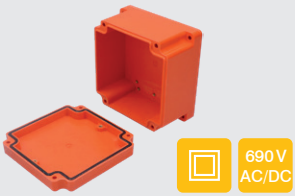
Special features

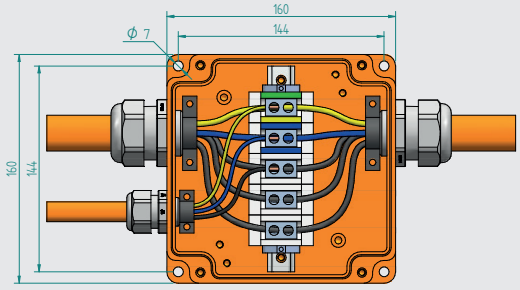
- safety insulated
- impact-resistant
- UV resistant - halogen free
- resistant to aging and temperature resistant
- resistant to oil and acid
- widely resistant to chemicals
- flame retardant, self-extinguishing
- non-flammable
- max. equipment: screw terminals up to 35 mm² (type 3018)
- audited functional integrity of at least 30 minutes at temperatures up to 900°C



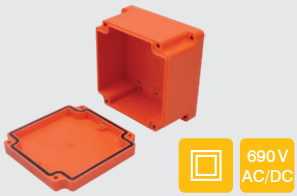
Polyester junction and distribution boxes GRP

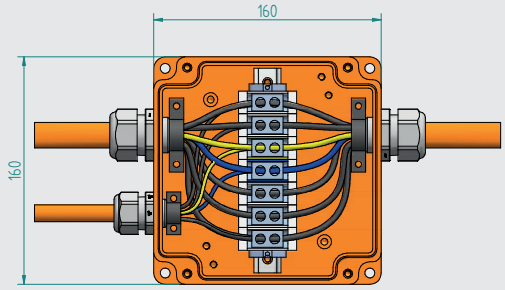
Type 1616



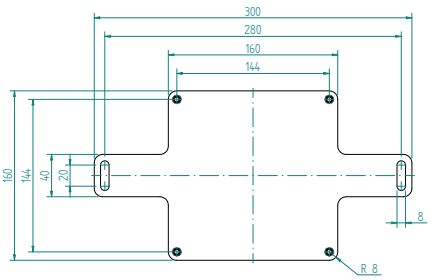


Item no.	205667
Housing type	1616 FE180/E30
Housing material	Polyester enhanced glass fiber reinforced
Housing colour	orange
Dimensions	160×160×100 mm
Protection category	IP68
Impact resistance	IK07
Input	1×M20, 2×M32
Terminal	5×16 mm²
Remarks	4 external fitting holes





Item no.	205668
Housing type	1616 FE180 E30
Housing material	Polyester enhanced glass fiber reinforced
Housing colour	orange
Dimensions	160×160×100 mm
Protection category	IP68
Impact resistance	IK07
Input	1×M20, 2×M25
Terminal	7×6 mm²
Remarks	4 external fitting holes

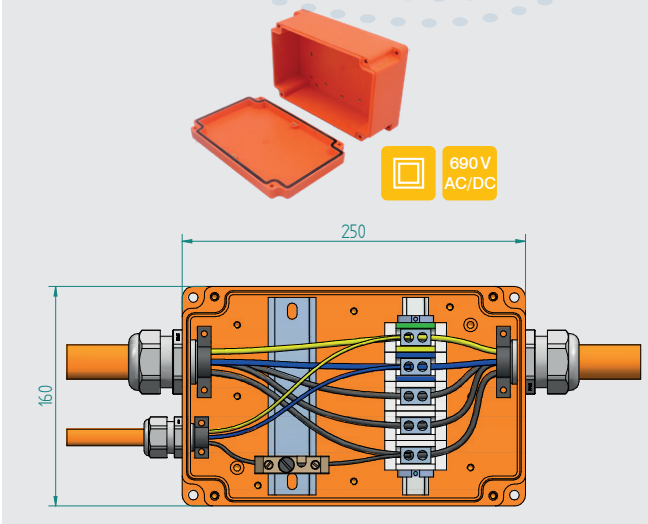


Accessories

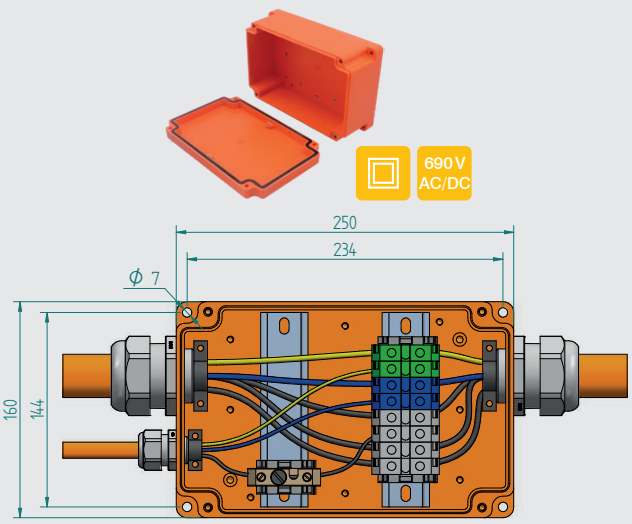
207053 ✓ Mounting plate, crosswise, V4A stainless steel for type 1616

Polyester junction and distribution boxes GRP

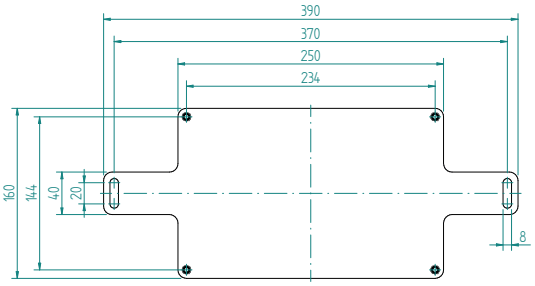
Type 2516



Item no.	205665
Housing type	2516 FE180/E30
Housing material	Polyester enhanced glass fiber reinforced
Housing colour	orange
Dimensions	250×160×100 mm
Protection category	IP66
Impact resistance	IK07
Input	1×M20, 2×M32
Terminal	5×16 mm²
Remarks	4 external fitting holes

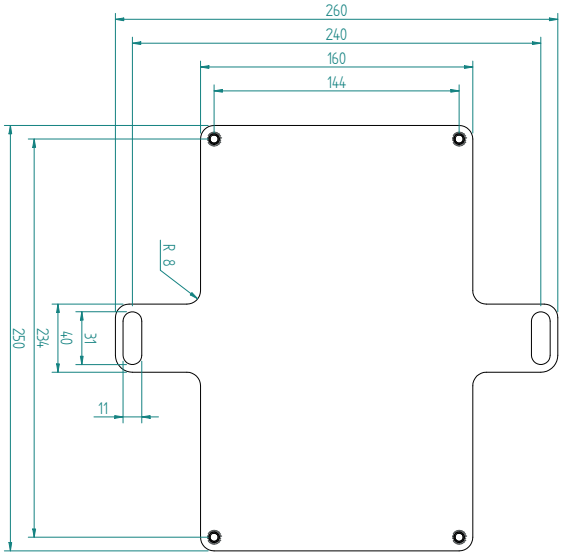


Item no.	205666
Housing type	2516 FE180/E30
Housing material	Polyester enhanced glass fiber reinforced
Housing colour	orange
Dimensions	250×160×100 mm
Protection category	IP66
Impact resistance	IK07
Input	1×M20, 2×M40
Terminal	8×16 mm²
Remarks	4 external fitting holes



Accessories

207052 ✓ Mounting plate, crosswise, V4A stainless steel for type 2516

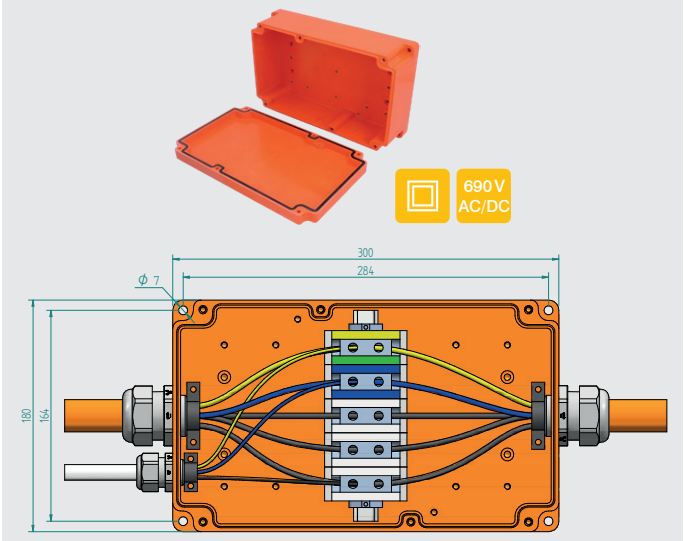


Accessories

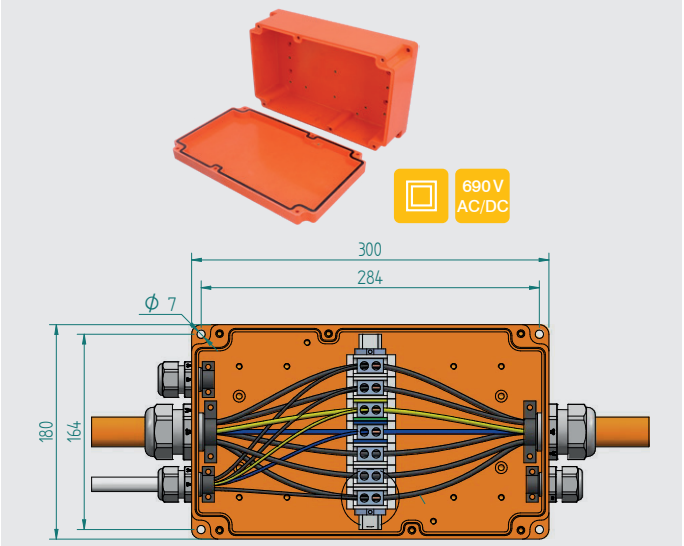
205559 ✓ Mounting plate, vertical, V4A stainless steel for boxes type 2516

Polyester junction and distribution boxes GRP

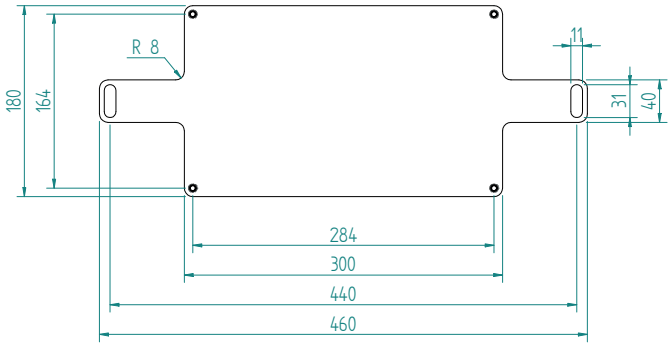
Type 3018



Item no.	**189886**
Housing type	3018 FE180/E30
Housing material	Polyester enhanced glass fiber reinforced
Housing colour	orange
Dimensions	300×180×100 mm
Protection category	IP66
Impact resistance	IK07
Input	1×M20, 2×M32
Terminal	5×35 mm²
Remarks	4 external fitting holes

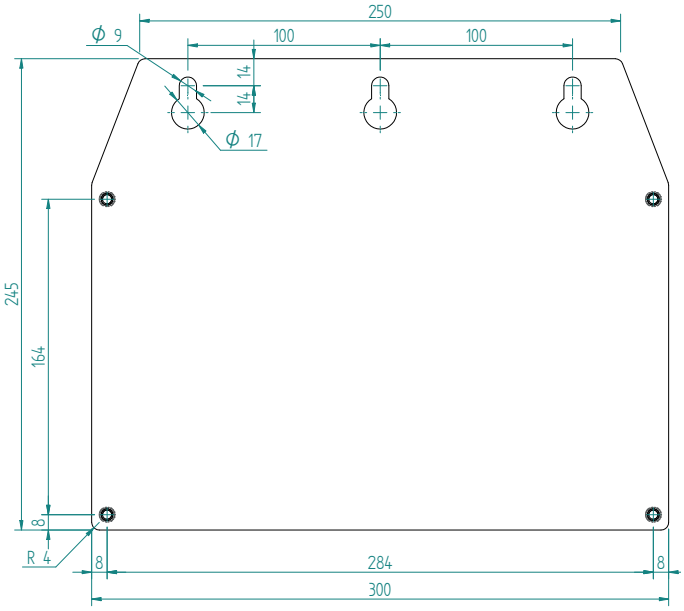


Item no.	**189887**
Housing type	3018 FE180/E30
Housing material	Polyester enhanced glass fiber reinforced
Housing colour	orange
Dimensions	300×180×100 mm
Protection category	IP66
Impact resistance	IK07
Input	3×M20, 2×M32
Terminal	7×10 mm²
Remarks	4 external fitting holes



Accessories

189869 ✓ Mounting plate, crosswise, V4A stainless steel for type 3018

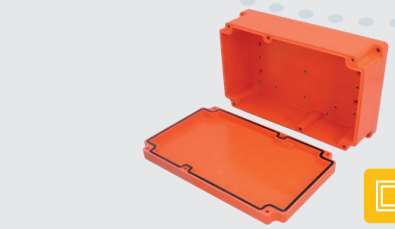


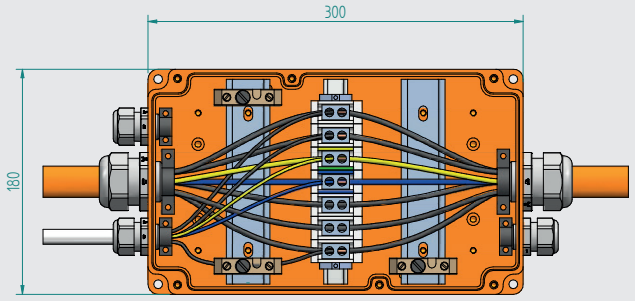
Accessories

206819 ✓ Mounting plate, crosswise, V4A stainless steel for type 3018

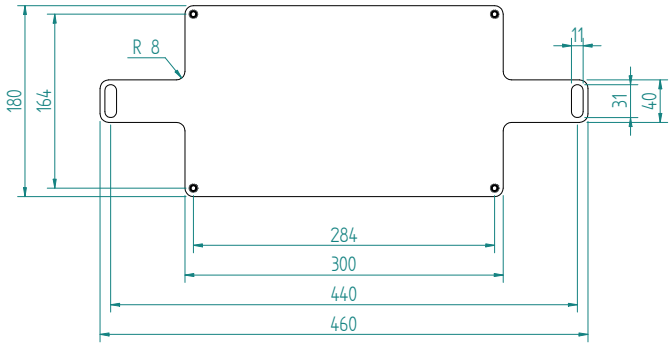
Polyester junction and distribution boxes GRP

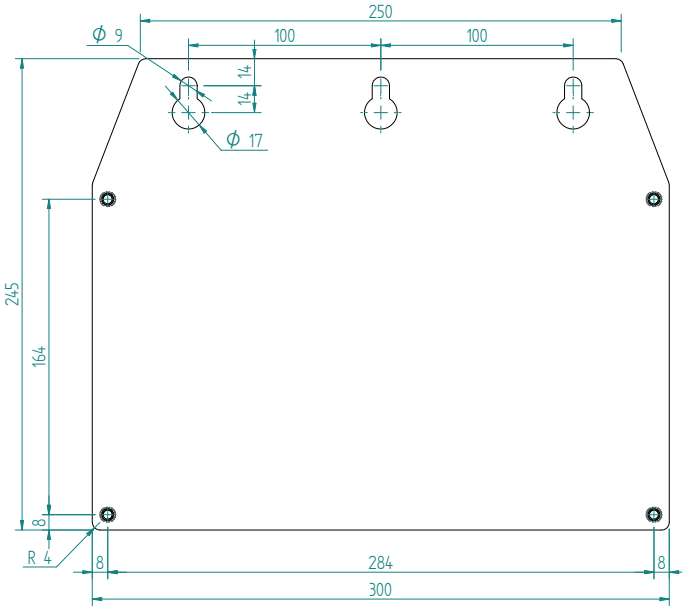
Type 3018





Item no.	**189888**
Housing type	3018 FE180/E30
Housing material	Polyester enhanced glass fiber reinforced
Housing colour	orange
Dimensions	300×180×100 mm
Protection category	IP66
Impact resistance	IK07
Input	3×M20, 2×M32
Terminal	7×10 mm²
Remarks	4 external fitting holes





Accessories

189869 ✓ Mounting plate, crosswise, V4A stainless steel for type 3018

Accessories

206819 ✓ Mounting plate, crosswise, V4A stainless steel for type 3018

DECONTACTOR™ DS F400

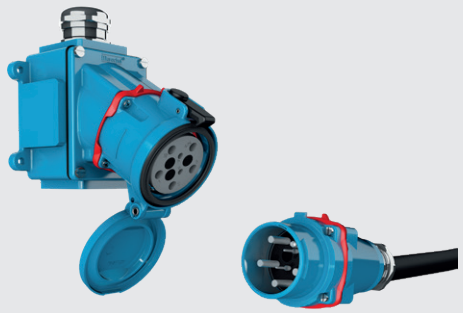
Fireproof plug-in device for fans

Plug-in device with front pressure contacts and integrated switching function in accordance with IEC/EN 60309-1 and IEC/EN 60309-4 up to 125 A and a rated voltage of 690 VAC. Disconnecting under load by pushing the button in accordance with AC22 and AC23. The plug and socket unit has IP66/IP67 protection automatically when plugged in. A rotating safety disc increases protection against contact with live parts. The metal housing is highly resistant to chemical and mechanical loads (IK09) and UV radiation.

The DS F400 plug-in devices facilitate customisation:

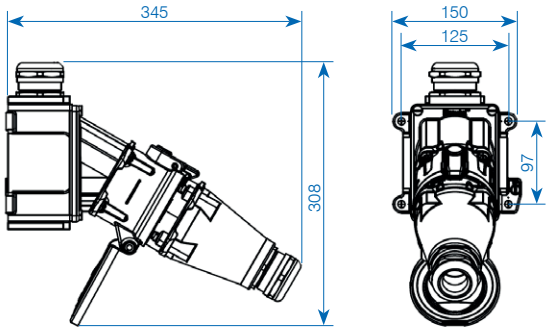
- **of electrical machines**
  - to the European Machinery Directive N° 2006/42/CE regarding the disconnecting device and to EN 60204-1 standard: Safety
  - to the standard EN ISO 14118: Safety
  - avoiding unexpected start-up
  - of smoke and heat exhaust ventilators according to standard EN 12101-3 (400° C/2 h)

- **The DS F400 plug connections comply with:**
  - the European Low Voltage Directive 2014/35/EC (with CE marking) and the RoHS Directive
  - the European REACH Regulation 1907/2006/EC
  - the breaking capacity standard IEC/EN 60947-3/AC-22 and AC-23

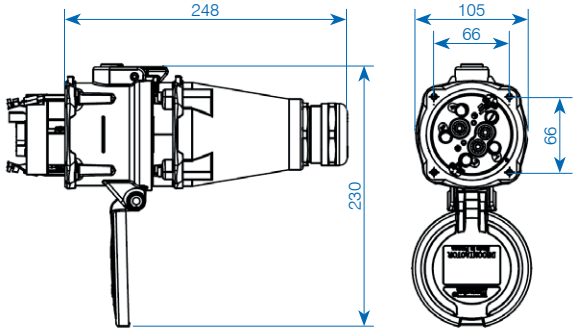


Material	Metal
Testing	DIN EN 12101-3 tested
Protection category	IP66/IP67
Impact resistance	IK09
Temperature range	–40° C to +60° C

Surface mounted socket with plug



Mounting socket with plug



Assortment

254467	Flush-mounted socket DS F400 125 A 400 V 3L+PE
254470	Wall plinth 30° with thread M32 (without cable gland)
254469	Wall plinth 30° with thread M40 (without cable gland)
254468	Wall plinth 30° with thread M50 (without cable gland)
222117	Cable gland M32 (16-24 mm)
222118	Cable gland M40 (22-32 mm)
254734	Cable gland M50 (34-44 mm)
254997	Flush-mounted plug DS F400 125 A 400 V 3L+PE
254998	Straight handle with thread M32 (without cable gland)
254999	Straight handle with thread M40 (without cable gland)
255000	Straight handle with thread M50 (without cable gland)

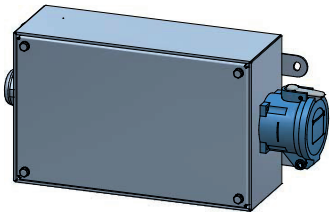
HT 3625

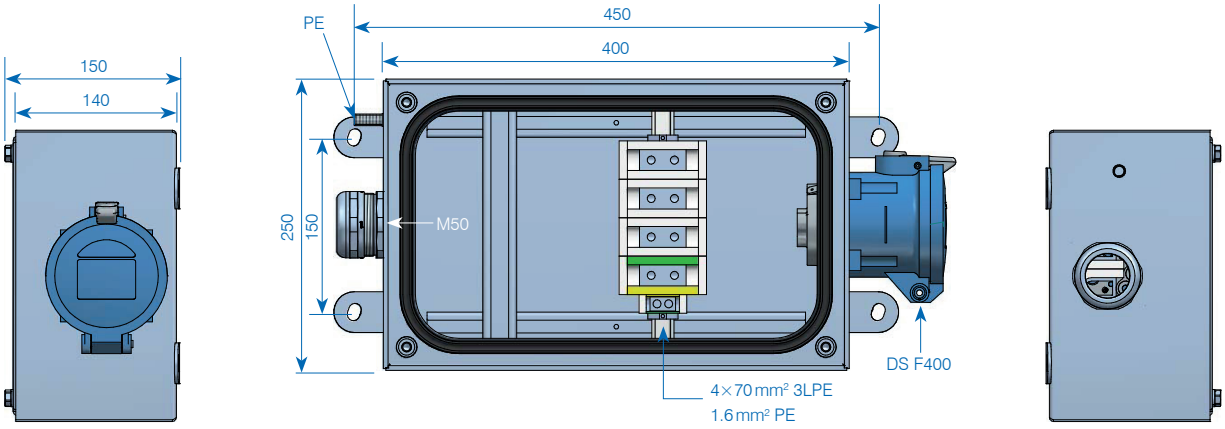
Polyester junction and distribution boxes for tunnel ventilation

The European standard DIN EN 12101 part 3 stipulates product characteristics for power-operated smoke and heat exhaust ventilators that are installed in construction works as part of a mechanical smoke and heat exhaust ventilation system.

- **Specially developed for motor-driven smoke and heat suction fans**
- Proof of function duration at 400° C during 120 min
- Meets all ASTRA regulations in full
- Tested and certified special connector system
- Pluggable tunnel ventilation = greatly facilitates maintenance and repair work
- Entire socket made of rust-free V4A

Item no.	**231165**
Material	Stainless steel 1.4571 (316 Ti)
Dimensions	400×250×150 mm
Protection category	IP66/IP69
Impact resistance	IK10
Testing	DIN EN 12101-3 tested
Internal wiring	in accordance with customer requirement
Cable entries	with a range of sizes depending on the project Cable screw fittings available with or without plug connector
Wall mounting	Hanging brackets V4A
Bemerkung	Execution with Maréchal-socket DS F400* (IP66/67) * not compatible with DS6 series





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