

VBS



**Connection and
fastening systems
India**

2019/2020

Building Connections

OBO
BETTERMANN



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VBS – Connection and fastening systems

VBS is one of a total of seven OBO product units, but of those it is one of the longest-standing and most extensive. Indeed, OBO Bettermann takes part of its

name from one of the most successful ever products from the VBS product unit – the OBO anchor, a metal anchor invented in 1952 that offers the advantage

that it can be fitted “Ohne **BO**hren”, that is, without the need for any drilling.



OBO DÜBEL

mit **M 4 Gewinde**
in Verbindung mit Muttern
für Installationen jeglicher Art

FR. BETTERMANN
Elektrotechnische Fabrik
LENDRINGSSEN (KR. ISERLOHN)



System	Norm	Franz Bettermann o. H. G. Elektrotechnische Fabrik Lendringsen (Kr. Iserlohn)	
Material	20.95.5	F 050/12	
Hersteller		Oba-Dübel M 6, L.Nr. 903	
Maßstab	1:1	Erstellt für: Dresdner Werke	



VBS – Connection and fastening systems

Distribution

- Junction box systems
- Concealed and cavity wall systems
- Terminal systems
- Cable gland systems



Fastening

- Beam clamp systems
- Rail systems
- Clamp clip systems
- Screw-in and knock-in systems





Routing

- Cable and pipe fastening systems
- Pipe systems



Plastic: materials and properties

Essentially plastics can be of one of three types: thermoplastics, elastomers and Duroplast.

Thermoplastics

are plastics that can be shaped within a specific temperature range. This process is reversible, in other words, thermoplastics can theoretically be cooled and then melted down again any number of times. Another unique advantage of thermoplastics is that they can be welded.

Elastomers

have a fixed shape, but can be elastically deformed. They can elastically deform under tensile and compressive stresses, but afterwards will return to their original shape. Elastomers are used for producing seals and membrane entries.

Duroplast

or thermosetting polymers/plastics, are plastics that can no longer be deformed following curing. Duroplast produce hard, glass-like (brittle) polymeric materials with a high thermo-mechanical strength.

Temperature ranges of plastics

	Material	Max. temperature resistance Permanent	Max. temperature resistance Short-time	Min. temperature resistance Static
ABS/ASA	Acrylonitrile butadiene styrene	70 °C	85 °C	-40 °C
UF	Duroplast, Amino-plast, type 131.5	65 °C	90 °C	-40 °C
MF	Duroplast, melamine resin, type 150	80 °C	110 °C	-40 °C
EVA	Ethylene vinyl acetate	55 °C	70 °C	-50 °C
NBR/SBR	Rubber mixture	100 °C	110 °C	-40 °C
NBR	Nitrile rubber	100 °C	110 °C	-30 °C
PA	Polyamide	120 °C	150 °C	-40 °C
PA/GF	Polyamide, fibreglass reinforced	120 °C	160 °C	-20 °C
PBPT	Polybutylene terephthalate	120 °C	140 °C	-40 °C
PC	Polycarbonate	110 °C	125 °C	-35 °C
PE	Polyethylene	70 °C	90 °C	-40 °C
PP	Polypropylene (PP)	90 °C	110 °C	-30 °C
PS	Polystyrene	70 °C	80 °C	-10 °C
PVC	Polyvinylchloride	65 °C	80 °C	-30 °C



Plastic: materials and properties

Risk of stress cracks

Medium	ABS/ASA	UF	MF	EVA	NBR SBR	NBR	PA	PA/GF	PBPT	PC	PE	PP	PS	PVC
Risk of stress cracks	✗	✓	✓	✓	✓	✓	✓	○	○	✓	!	✓	✗	○

Danger of tension cracks:
 ✓ Virtually negligible ○ Low ! High ✗ Very high

Chemical resistance

Medium	ABS/ASA	UF	MF	EVA	NBR SBR	NBR	PA	PA/GF	PBPT	PC	PE	PP	PS	PVC
Petroleum	✓	✓	✓	○	✓	○	✓	✓	✓		○	○	○	✓
Fat	✓	✓	✓	✓	✓	○	✓	✓	✓				○	✓
Benzole	!	✓	✓	○	✓	!	✓	✓	○	!	!	○	!	!
Solvents	!						✓	✓	○				!	!
Formic acid	✓	!									!	○		!
Citric acid	✓	!		○							!			
Lactic acid	✓	!		○							!	○	!	!
Hydrochloric acid	○	!									✓			!
Sulphanic acid	○	!									✓			!
Acetone	!	✓					✓	✓	○	!	!	○	!	!
Petrol	!	✓	✓	○	○	!	✓	✓	✓	✓	!	○	!	✓
Butyric acid	!	!		○							!	○		!
Chlorine	!						!	!	!	!	!	!	!	
Acetic acid	!	!		○							!		!	
Nitric acid	!	!									✓		!	
Ester		✓	✓	○	!	!								
Alcohol		✓	✓	○			✓						✓	
Mild alkalis		✓	✓	✓	✓	✓	○	○	!		✓	✓		✓
Mild acids		○	○	✓	✓	✓	!	!	✓	✓	✓			✓
Ether		✓	✓	○									!	
Water		✓	✓	✓	✓	✓								
Strong acids		!	!	○					!	!	!			!
Strong alkalis		!	!	✓					!		✓	✓		✓
Hydrofluoric acid				○							✓			
Paraffin hydrocarbon				○								○		
Haloalkanes				!										
Ketones				!	!								!	
Aldehyde				✓										
Organic acids				○							!	○		
Water Seawater					✓	✓								
Diesel fuel							✓	✓	✓		○	○	!	
Ammoniac									○				!	

Resistance:
 ✓ Resistant ○ Limited resistance ! Not resistant

Plastic: material properties

HALOGEN FREE

Halogen freedom

Estimates suggest that around 95% of fire victims die not due to the immediate effects of the fire, but of poisoning from the smoke. In addition, the corrosive fire gases created during fires cause immense damage to property and can permanently damage the structure of a building. Therefore, halogen-free installation systems

should or must always be used in public areas (emergency routes, lifts, etc.).

The chemical composition of these halogen-free systems is designed in such a way that, in the case of fire, they produce less hazardous (toxic/corrosive) gases, which could combine with extinguishing agents to form hydrochloric acid. In the sense of the standard DIN VDE 0472, this means that materi-

als are considered halogen-free when "the proportions of the halogens chlorine, bromine and iodine are $\leq 0.2\%$ for chlorine and $\leq 0.1\%$ for fluorine".

OBO Bettermann offers a wide range of halogen-free products that reduce the risk of harm to people and property to a minimum in case of fire.

UV Resistant

UV resistance

Outdoor installations should always be viewed particularly critically with regard to the mounting locations and the selection of the installation materials.

UV radiation is damaging to many plastics, causing them to turn yel-

low and/or brittle or lose their elasticity. However, plastics can be protected against UV damage through the addition of UV stabilisers. Products made from UV-resistant materials are specially marked. In general, besides UV radiation, installations outdoors must also take other environmental influ-

ences into account. Factors such as maximum temperatures, regularity of (extreme) temperature changes, humidity and the location of use/mounting (housing, industry, town, region, continent) all have an important role to play here.



Flame resistance/fire resistance

Materials are described as “flame-resistant” if they prevent the spread of fire or are sufficiently fire-resistant. According to DIN EN 60695-2-11 (VDE 0471 Part 2–11), electrical connection materials must be subjected to a glow wire test, in order to evaluate the fire risk of the end product. When the glow wire test is being carried out, a glowing wire (for temperature see table below) is inserted into the component to be tested for a period of 30 seconds and then removed. After 30 seconds at the latest, the object, if it has caught light, must have extinguished again, in order to specify the flame resistances.



Types of installation systems

Types of samples Test temperatures in °C	Surface-mounted	Con-cealed	Flush-mounted	Cavity wall/ furniture	Concrete structure	Installation duct
Connection sockets	650	650	750	850	650	750
Accessory sockets and device connection sockets	750	650	-	850	650	750
Ceiling lights, connection sockets	750	650	-	850	650	750
Wall light connection sockets	750	650	-	850	650	750
Device connection sockets	750	650	-	850	650	750
Connection sleeves	750	-	-	-	-	750
Insulation sections, which support active parts	960	-	-	-	-	-
Cover for installation sockets	750	-	-	-	-	-
Cover for installation sockets	750	-	-	-	-	-

Metal: corrosion and corrosion protection

A large number of VBS products are made from metal. Metals are much tougher than many other materials, and metal components are less sensitive to mechanical loading.

Corrosion

(from the Latin *corrodere*, “to eat or gnaw to pieces”)

in a technical context is a reaction between a material (generally a metal) and its surroundings leading to a measurable change in the material and potentially impairing the functionality of a component or system.

Corrosion protection

Corrosion protection means all steps taken to prevent corrosion damage to metallic components. It is impossible to prevent corrosion permanently, so corrosion protection measures generally aim to reduce the speed of corrosion so that the component is not damaged by corrosion for the duration of its service life. The term “passive corrosion protection” refers to all measures designed to shield products from corrosive media. Coatings are one way of achieving passive corrosion protection. At OBO, most steel products are protected from corrosion by a layer of zinc. Zinc coatings can be applied to components using a variety of methods.

Zinc slat surface

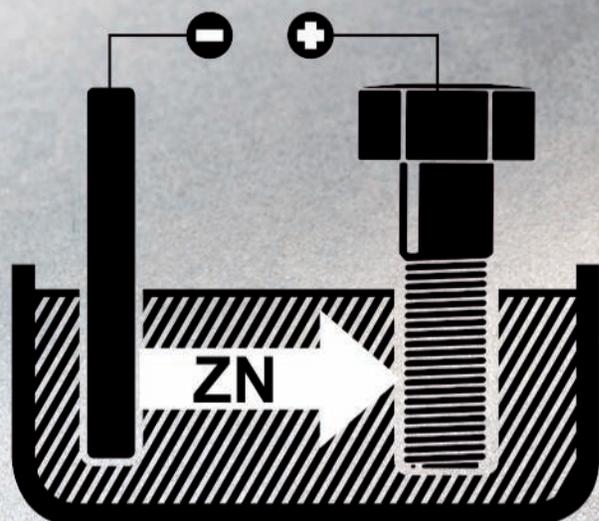
Zinc slat coverings are coatings applied in a non-electrolytic manner. The cathodic protection means that the zinc slat coverings offer very good corrosion protection. This excludes the risk of a break induced by hydrogen, which is caused through the surface coating process.

The main advantage of this coating is the very high level of corrosion protection, which corresponds to the corrosion protection of a hot galvanised coating. This coating achieves a resistance of 480 hrs in the salt spray test for the connection elements. The low layer thickness of the zinc slat covering allows a thin, homogeneous coating, which is particularly important for maintaining the accuracy of threads.



Galvanisation types

Electrogalvanisation

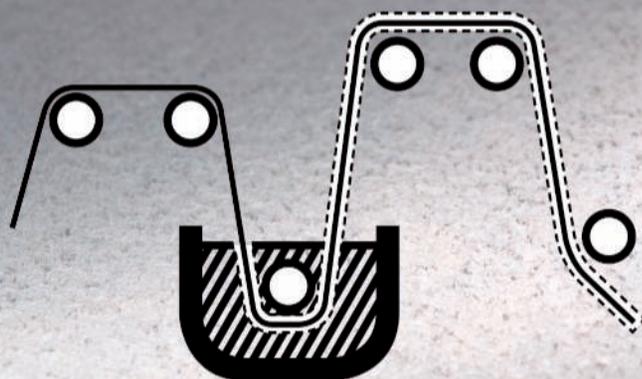


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In electrogalvanisation, the component is coated by dipping it not in molten zinc, but in a zinc electrolyte, through which a direct electric current is passed.

Hot-dip galvanising

In hot-dip galvanisation, steel is coated by dipping it in molten zinc at a temperature of around 450 °C.



FS

“Continuous galvanising” or “strip galvanising” is where a continuous ribbon of steel is galvanised in a continuous line.

FT



“Batch galvanisation” is mainly used for galvanising prefabricated steel parts.

VBS_Typ 0A / en / 2019/03/29 08:25:41 08:26:07 / 2019/03/29 08:26:07 08:26:07



Installation locations

Whether indoors or outdoors, in aggressive atmospheres or under special hygienic conditions: OBO can offer the perfect surface and materials for your installation, no

matter what the requirements may be. OBO products are machined from high-quality sheet steel or steel wire and are available with various surfaces. Different hard-

ning and coating methods ensure tailor-made corrosion protection, specially tailored to the appropriate application:

Application	Material	Surface protection
Indoors 	St Steel	L Painted/ powder-coated
	St Steel	FS Strip-galvanised (ca. 20 µm) DIN EN 10346
	St Steel	G Electrogalvanised (ca. 2,5 - 10 µm) DIN EN 12329
Outdoors 	St Steel	FT Hot galvanised (ca. 40 - 60 µm) DIN EN ISO 1461
	VA Stainless steel A2	
	VA Stainless steel A4	
Especially corrosive areas 	VA Stainless steel A2	
	VA Stainless steel A4	

Contact corrosion

Contact corrosion between two different metals poses a considerable risk to the load capacity and lifespan of the components used.

The level of contact corrosion is primarily determined by the level of the potential difference between the contact partners. Contact corrosion occurs at potential differences of 100 mV or greater and the anodic (electrically negative) partner is at risk of corrosion. Therefore, strongly non-precious metals should never be brought into contact with precious metals.

Additional contact corrosion criteria:

- Level of electrical resistance between the contact partners. The higher the resistance, the lower the contact corrosion. Positive on Al and Ti.
- Occurrence of an electrolyte. An electrolyte, such as perspiration or condensate, attacks the protective layers, increasing conductivity. Dirt increases this effect through released ions.
- Length of the impact of the electrolyte. The longer the electrolyte is at work, the greater the corrosion will be.
- The surface ratios of the contact partners influence the current density. The best thing to have is a small surface ratio of the "precious" to the "less precious" contact partner.

Land climate

Component (large)	Component (small)					
	FT	VA	Alu	Cu	CuZn 37	Zn
Steel, galvanised St FS FT G DD	✓	✓	✓	!	○	✓
Stainless steel VA V2A V4A V5A	✓	✓	○	○	○	✓
Aluminium Alu	✓	✓	✓	!	○	✓
Copper Cu	○	○	○	✓	○	!
Brass CuZn 37	✓	!	○	○	✓	!
Die-cast zinc Zn	○	○	✓	✗	○	✓

Industrial atmosphere

Component (large)	Component (small)					
	FT	VA	Alu	Cu	CuZn 37	Zn
Steel, galvanised St FS FT G DD	✓	✓	○	✗	!	✓
Stainless steel VA V2A V4A V5A	✓	✓	○	○	○	✓
Aluminium Alu	○	○	✓	!	!	✓
Copper Cu	!	!	✗	✓	○	!
Brass CuZn 37	○	○	✗	○	✓	○
Die-cast zinc Zn	✓	✓	✓	✗	!	✓

Sea climate

Component (large)	Component (small)					
	FT	VA	Alu	Cu	CuZn 37	Zn
Steel, galvanised St FS FT G DD	✓	○	✗	✗	!	○
Stainless steel VA V2A V4A V5A	○	✓	✗	○	○	✓
Aluminium Alu	✗	○	✓	!	!	✓
Copper Cu	!	!	✗	✓	○	!
Brass CuZn 37	○	○	✗	○	✓	○
Die-cast zinc Zn	✓	✓	✓	✗	!	✓

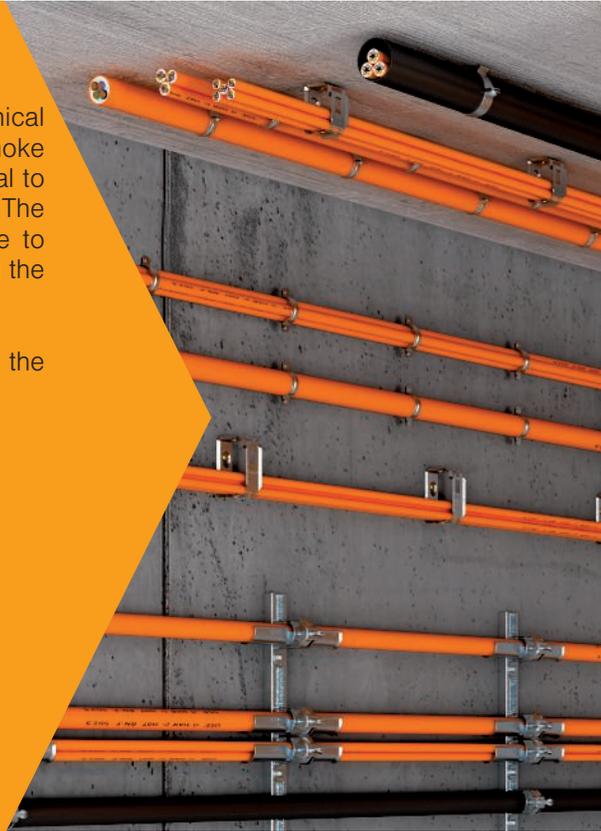
✓ No risk of contact corrosion
 ✗ High risk of contact corrosion
 ○ Low risk of contact corrosion
! Risk in case of small area ratio (area of non-precious metal/area of precious metal)

Maintenance of electrical function

Safety in case of fire

To ensure that emergency and escape routes and important technical equipment such as emergency lighting, fire alarm systems and smoke exhaust systems remain usable in case of fire, it is absolutely essential to provide special protection for the power supply for these systems. The use of special cables and laying systems means that it is possible to maintain the power supply, even in the case of fire, thus guaranteeing the maintenance of electrical function.

You can find detailed information on the subject of fire protection in the OBO BSS fire protection catalogue.



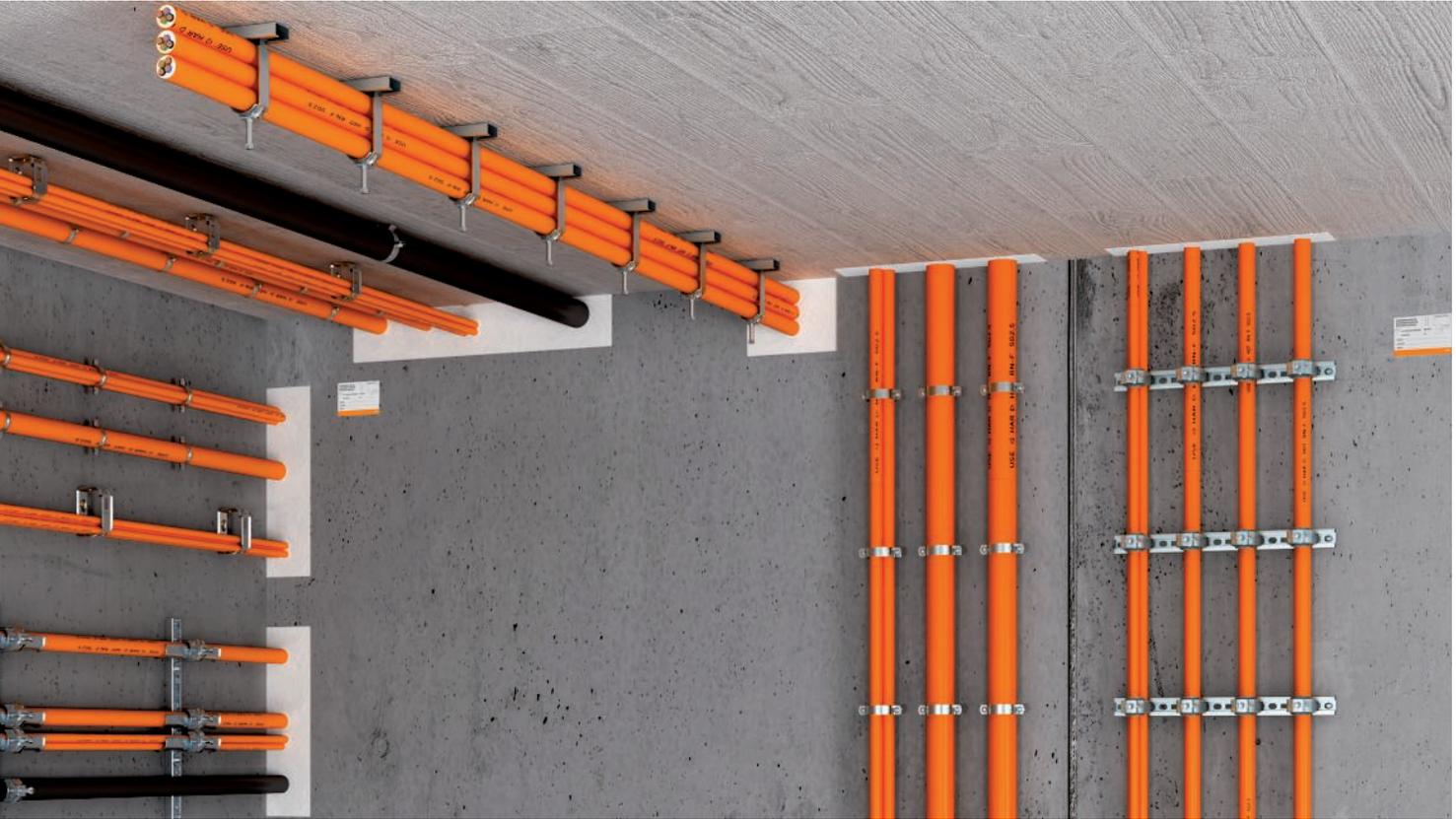
The maintenance of electrical function is particularly important in buildings regularly frequented by large numbers of people. These include public buildings such as schools, hospitals, meeting places, civic buildings and underground stations, but also industrial plants, high-rise buildings, shopping centres and large car parks.

Fire loads of installation systems

According to rules governing wiring systems in the individual German federal states, no fire loads may be installed in emergency and escape routes. OBO's fire-tested steel fastenings fulfil these requirements.



Junction boxes which have the capability to maintain electrical function ensure the fireproof connection of the safety cables. The boxes in the FireBox series are tested and approved to maintain electrical function for 30 to 90 minutes in accordance with DIN 4102-12.



E30

30 minutes: Maintaining electrical function for an evacuation.

The first 30 minutes after the start of a fire are decisive when clearing the affected building.

During this time, the maintenance of electrical function must be guaranteed for the following units:

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

E90

90 minutes: Maintaining electrical function for better firefighting.

To support firefighting operations, it is imperative that certain technical equipment is supplied with sufficient power even up to 90 minutes after a fire breaks out in a building. This equipment includes:

- Systems to increase the pressure of the water for fighting the fire
- Mechanical smoke extraction and smoke protection pressure systems
- Fire brigade lifts, bed lifts in hospitals



Individual routing systems

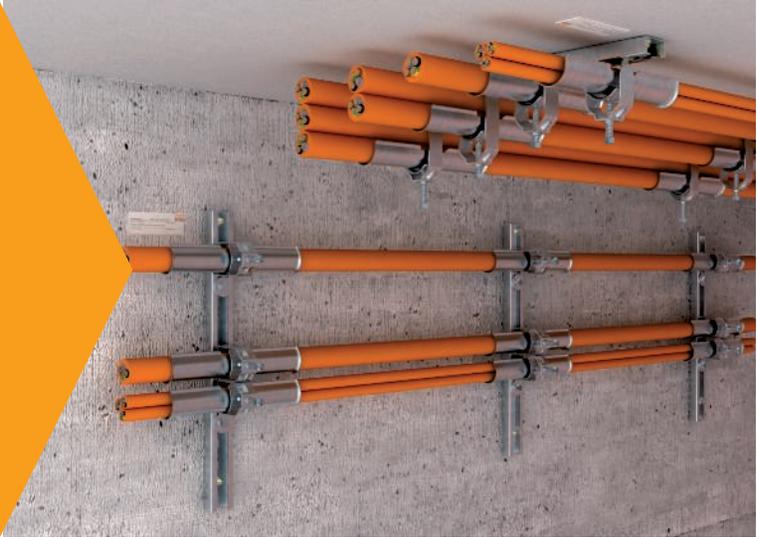
With the individual laying systems, OBO Bettermann can offer a range of practical, flexible mounting options to maintain function of electrical installations. The systems are suited to vertical and horizontal in-

stallation and are approved for the fire protection classes E30 to E90. Standardised supporting constructions as defined in the testing standard, DIN 4102 Part 12, include: The laying of cables with individual

clips and the laying of cables with profile rail, clamp clip and a long trough.

Clamp clip

Standard support construction consisting of clamp clip without long trough for individual laying or bundling cables.

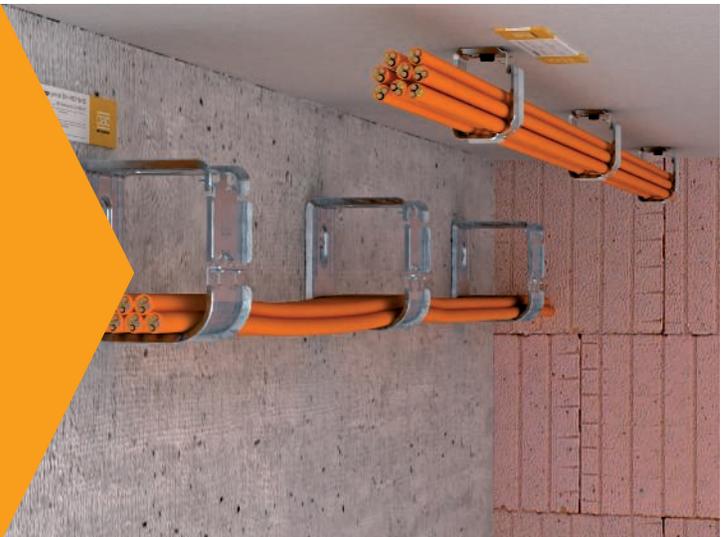


Standard routing type, clamp clip Type 2056

- Wall or ceiling mounting
- Horizontal installation
- Rail mounting: max. 0.3 m
- Anchor spacing in the rail: max. 0.25 m
- Individual cable assignment: diameters of up to 100 mm
- possible
- Assignment with bunched cables: Max. 3 cables with max. diameter 25 mm

Cable tidy

Cable-specific laying type with cable tidies for individual laying, horizontal/vertical mounting on wall or ceiling.



Type 2031/M 15

- Fastening distance: max. 0.5 m
- Cable assignment: max. 1.1 kg/m

Type 2031/M 30

- Fastening distance: max. 0.5 m
- Cable assignment: max. 2.5 kg/m

Type 2031/M 70

- Fastening distance: max. 0.8 m
- Cable assignment: max. 6.0 kg/m



Spacer clips

Standard support construction consisting of spacer clips for individual laying or bundling cables.

Standard routing type, single clip Type 732/733

- Wall or ceiling mounting
- Vertical or horizontal mounting
- Mounting spacing: max. 0.3 m
- Individual cable assignment: diameters of up to 50 mm possible
- Assignment with bunched cables: Max. three cables with max. diameter 25 mm



Pressure clip

Cable-specific laying type with pressure clips for individual laying, mounting on the ceiling.

Type 2033 M

- Fastening distance: max. 0.5 m

Type 2034 M

- Fastening distance: max. 0.5 m

Protection ratings

IP protection rating

The IP protection rating specifies how far a component is protected against contact and foreign bodies and the ingress of water. The IP protection ratings are controlled by the standard DIN EN 60529 (VDE 0470 Part 1). The IP is always made up of two digits.

The first digit

designates the contact and foreign body protection. On the one hand, it specifies how far a housing prevents access to dangerous parts, by preventing or limiting the ingress of body parts or objects held by a person. On the other hand, it specifies how far the housing protects the installed resources against the ingress of solid foreign bodies.



Protection rating

First code digit	...against access to the dangerous parts	...against solid foreign bodies
0	Protected against access to dangerous parts with the back of the hand	Not protected
1	Protected against access to dangerous parts with a finger	Protected against solid foreign bodies of 50 mm diameter and larger
2	Protected against access to dangerous parts with a tool	Protected against solid foreign bodies of 12.5 mm diameter and larger
3	Protected against access to dangerous parts with a wire	Protected against solid foreign bodies of 2.5 mm diameter and larger
4	Protected against access to dangerous parts with a wire	Protected against solid foreign bodies of 1.0 mm diameter and larger
5	Protected against access to dangerous parts with a wire	Dust-protected
6	Protected against access to dangerous parts with a wire	Dust-proof

The second digit

specifies the protection against water. It specifies how far the resource is protected against incoming water and the resulting damage.



Protection rating against the entry of water with a damaging impact

Second code digit	Short description	Definition
0	Not protected	-
1	Protected against water droplets	Droplets falling vertically may have no damaging impact.
2	Protected against water droplets when the housing is tilted to up to 15°	Droplets falling vertically may not have a damaging impact, if the housing is tilted to angle of 15° on either side of the vertical.
3	Protected against spray water	Water being sprayed at an angle of 60° on both sides of the vertical may not have any damaging impact.
4	Protected against spray water	Water spraying the housing from any direction may not have any damaging impact.
5	Protected against water jets	Jets of water pointing at the housing from any direction may not have any damaging impact.
6	Protected against strong water jets	Strong jets of water pointing at the housing from any direction may not have any damaging impact.
7	Protected against the effects of being temporarily immersed in water	If the housing is sometimes underwater under standard pressure and time conditions, then water may not enter in such volumes as would have a damaging impact.
8	Protected against the effects of being continuously immersed in water	If the housing is continuously underwater, then water may not enter in such volumes as would have a damaging impact and this shall be subject to conditions to be agreed between the manufacturer and the user. However, the conditions are more difficult to fulfil than for number 7.



IK code

The IK code to DIN EN 50102 indicates the protection rating of housings against external mechanical loads. It is made up of the code letters IK and a two-digit number from 00 to 10. Each group of num-

bers standards for a load energy value in Joules (J). The IK code always applies to the complete housing, which guarantees the protection of resources against the damaging effects of mechanical

loads. The housings are tested by knocking them with different testing hammers.

IK code	00	01	02	03	04	05	06	07	08	09	10
Stress energy value [J]	-	0.15	0.20	0.35	0.50	0.70	1	2	5	10	20



Protection classes of electrical resources in accordance with VDE 0140

Protection class	
I	Resources with protective conduction connection (protection measure through protective conductor connection on housing)
II	Resources with protective insulation (protection measure through insulation)
III	Resource with protective low voltage (SELV-PELV, protection through measured voltages max. 25/50 V AC and max. 60/120 V DC)



Empty plastic housings correspond to protection class II, housings made of metal/metal plating must be intended for the connection of a protection conductor and thus meet protection class I.

Electrical designations

When using junction boxes, connection sockets and connection terminals, the resources are assigned nominal values, as defined in VDE 0100 Part 200. In the desi-

gnation, a distinction is made between the maximum approved voltage (nominal voltage), the maximum approved current (nominal current) and the maximum appro-

ved cross-section (nominal cross-section of the cables to be connected).

2,5
mm²

Nominal cross-section

Largest tested-approved cross-section of the cable to be connected.

16
A

Nominal current

Largest approved current at the connection point.

660
V

Nominal voltage

Greatest approved voltage at the connection point.

12

No. of poles

Number of connection points of the clamp connector.

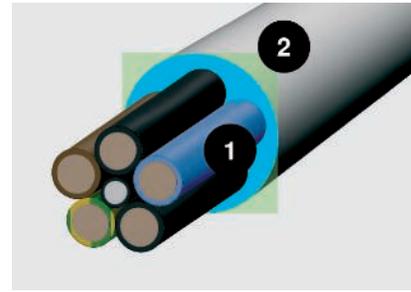
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Number of entries

Number of entries in an electrical connection box or connection socket.

Cable sizes

The term "cable" means a jacketed electrical cable for the transmission of electrical energy and data. Cables are given according to their nominal cross-section. The external diameter and usable cross-section depend on their nominal cross-section and the number of individual wires contained in the cable. Fastening clips are given with their maximum span distance as a nominal size in mm. To determine the correct fastening clip for the component to be fastened, you can find the interplay between the PG sizes and the metric data in the table.



Cable diameter in mm (1)
and space required in cm² (2)

Calculation with the formula $(2r)^2$

The diameter says little about the actual space required by a cable. Calculate: $(2r)^2$

This value reflects the realistic space requirements, including the compartments.

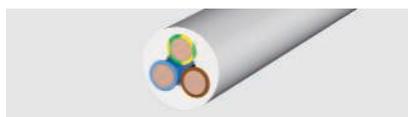
$$(2r)^2$$

Overview of PG and metric sizes

External diameter in mm	PG sizes	External diameter in mm	Metric sizes
12	PG 7	12.5	M 12
13	PG 7	12.5	M 12
15	PG 9	15.2	M 16
16	-	-	M 16
18	PG 11	18.6	M 16/M 20
19	PG 11	18.6	M 16/M 20
20	PG 13.5	20.4	M 20
21	PG 13.5	20.4	M 20/M 25
22	PG 16	22.5	M 20/M 25
23	PG 16	22.5	M 20/M 25
24	-	-	M 20/M 25
25	-	-	M 25
28	PG 21	28.3	M 25/M 32
32	-	-	M 32
37	PG 29	37	M 32/ M 40
40	-	-	M 40
47	PG 36	47	M 40/M 50
50	-	-	M 50
54	PG 42	54	M 50/M 63
59	PG 48	59.3	M 50/M 63
63	-	-	M 63

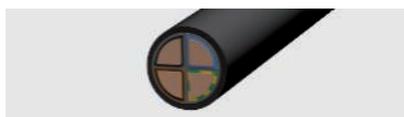


How can I work out the volume of cables?



Insulated power cables

Type	Diameter mm	Usable cross-section cm ²
1 x 4	6.5	0.42
1 x 6	7	0.49
1 x 10	8	0.64
1 x 16	9.5	0.9
1 x 25	12.5	1.56
3 x 1.5	8.5	0.72
3 x 2.5	9.5	0.9
3 x 4	11	1.21
4 x 1.5	9	0.81
4 x 2.5	10.5	1.1
4 x 4	12.5	1.56
4 x 6	13.5	1.82
4 x 10	16.5	2.72
4 x 16	19	3.61
4 x 25	23.5	5.52
4 x 35	26	6.76
5 x 1.5	9.5	0.9
5 x 2.5	11	1.21
5 x 4	13.5	1.82
5 x 6	14.5	2.1
5 x 10	18	3.24
5 x 16	21.5	4.62
5 x 25	26	6.76
7 x 1.5	10.5	1.1
7 x 2.5	13	1.69



Insulated power cables

Type	Diameter mm	Usable cross-section cm ²
1 x 10	10.5	1.1
1 x 16	11.5	1.32
1 x 25	12.5	1.56
1 x 35	13.5	1.82
1 x 50	15.5	2.4
1 x 70	16.5	2.72
1 x 95	18.5	3.42
1 x 120	20.5	4.2
1 x 150	22.5	5.06
1 x 185	25	6.25
1 x 240	28	7.84
1 x 300	30	9
3 x 1.5	11.5	1.32
3 x 2.5	12.5	1.56
3 x 10	17.5	3.06
3 x 16	19.5	3.8
3 x 50	26	6.76
3 x 70	30	9
3 x 120	36	12.96
4 x 1.5	12.5	1.56
4 x 2.5	13.5	1.82
4 x 6	16.5	2.72
4 x 10	18.5	3.42
4 x 16	21.5	4.62
4 x 25	25.5	6.5
4 x 35	28	7.84
4 x 50	30	9
4 x 70	34	11.56
4 x 95	39	15.21
4 x 120	42	17.64
4 x 150	47	22
4 x 185	52	27
4 x 240	58	33.6
5 x 1.5	13.5	1.82
5 x 2.5	14.5	2.1
5 x 6	18.5	3.42
5 x 10	20.5	4.2
5 x 16	22.5	5.06
5 x 25	27.5	7.56
5 x 35	34	11.56
5 x 50	40	16



Telecommunications cables

Type	Diameter mm	Usable cross-section cm ²
2 x 2 x 0.6	5	0.25
4 x 2 x 0.6	5.5	0.3
6 x 2 x 0.6	6.5	0.42
10 x 2 x 0.6	7.5	0.56
20 x 2 x 0.6	9	0.81
40 x 2 x 0.6	11	1.12
60 x 2 x 0.6	13	1.69
100 x 2 x 0.6	17	2.89
200 x 2 x 0.6	23	5.29
2 x 2 x 0.8	6	0.36
4 x 2 x 0.8	7	0.49
6 x 2 x 0.8	8.5	0.72
10 x 2 x 0.8	9.5	0.9
20 x 2 x 0.8	13	1.69
40 x 2 x 0.8	16.5	2.72
60 x 2 x 0.8	20	4
100 x 2 x 0.8	25.5	6.5
200 x 2 x 0.8	32	10.24



IT cables type Cat...

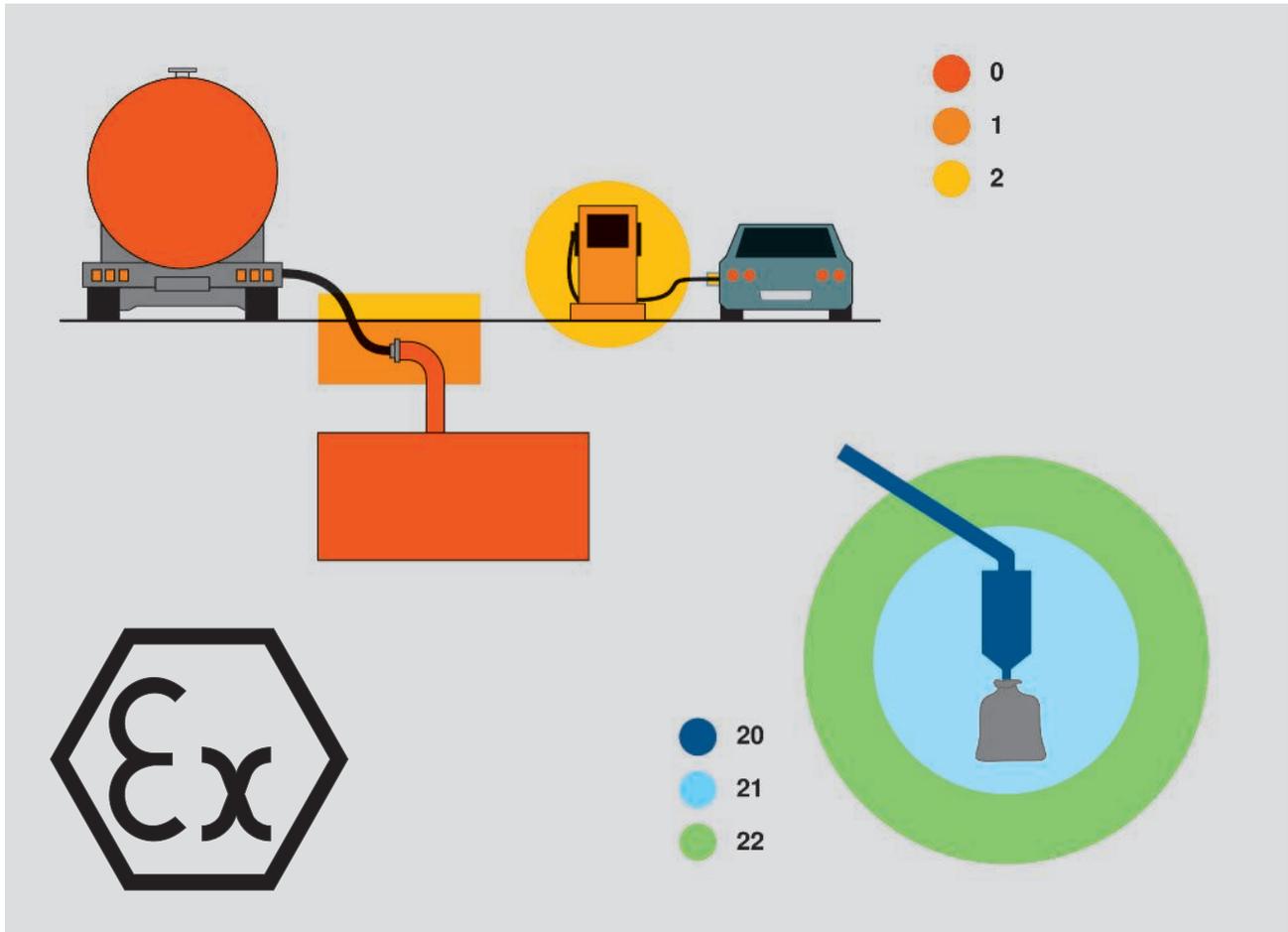
Type	Diameter mm	Usable cross-section cm ²
Cat. 5	8	0.64
Cat. 6	8	0.64



Coax cable (Standard)

Type	Diameter mm	Usable cross-section cm ²
SAT/BK cable	6.8	0.48

Zone division for explosive areas



The ATEX workplace directive 1999/92/EC (also known unofficially as “ATEX 137”, a reference to Article 137 of the EC Treaty), sets out the minimum requirements for improving the safety and health protection of workers potentially at risk from explosive atmospheres. The directive divides areas with dangerous, potentially explosive atmosphere into zones:

Zone allocation of device group II (applied)

Gas	Dust
Explosive gas atmosphere, zone division to DIN EN 60079-10	Explosive dust-air mixtures, zone division to DIN EN 61214-10
Zone 0	Zone 20
An area in which it can be expected that, under normal conditions, an explosive atmosphere of gas occurs continuously or for long periods of time.	An area in which it can be expected that, under normal conditions, an explosive atmosphere of dust/air occurs continuously or for long periods of time.
Zone 1	Zone 21
An area in which it can be expected that, under normal conditions, an explosive atmosphere of gas occasionally occurs.	An area in which it can be expected that, under normal conditions, an explosive atmosphere of dust/air occasionally occurs.
Zone 2	Zone 22
Area, in which it can be expected that, under normal conditions, an explosive atmosphere of gas seldom or only briefly occurs.	Area, in which it can be expected that, under normal conditions, an explosive atmosphere of dust/air seldom or only briefly occurs.



Certificates and test marks



VDE

VDE is the Association for Electrical, Electronic and Information Technologies, their study and the technologies and applications based upon them. The VDE mark on electrical equipment is proof that the equipment complies with VDE regulations and/or European or international harmonised standards, and meets the safety requirements of the applicable directives. The VDE mark indicates that a product is safe in relation to electrical, mechanical, thermal, toxic, radiological and other hazards.



CE symbol

Technical resources included in a legal ordinance, i.e. electrical resources, machines and safety components, must have a CE symbol, with which the manufacturer confirms that the safety requirements of the ordinances are fulfilled. In addition, there must also be a declaration of conformity and technical documentation. The CE symbol is not a quality mark, but simply a declaration by the manufacturer that they have complied with the legal requirements and the codes of practice.



UL

Underwriters Laboratories (UL) is an independent organisation that tests and certifies product safety. UL certification is generally required if a product is to be sold on the US market.

UL offers various certification options: the “UL Listed” test mark indicates that UL has tested representative samples of a product and that it conforms to UL’s safety requirements. The “UL Recognized” component test mark entitles a product to be used in a product or system bearing the “UL Listed” test mark.

Test marks

	AENOR, Producto Certificado, Spain
	STOWARZYSZENIE ELEKTRYKÓW POLSKICH, Poland
	CEBEC, Belgium
	DEMKO, Danmarks Elektriske Materielkontrol, Denmark
	Det Norske Veritas
	ENEC Austria
	ATEX certificate for explosive areas
	ELEKTROTECHNICKÝ ZKUŠEBNÍ ÚSTAV, Czech Republic
	FIMKO, Finland
	Russia, GOST The State Committee for Standards
	KEMA-KEUR, Netherlands
	Indication of metric products
	NEMKO, Norway
	AFNOR Quality symbol of the French standardisation institute
	Underwriters Laboratories Inc., USA + CSA, Canada
	Österreichischer Verband für Elektrotechnik, Austria
	INSTITUTO ITALIANO DEL MARCHO DI QUALITÀ, Italy
	Underwriters Laboratories Inc., USA
	SEMKO An Inchcape Testing Services Company, Sweden
	Eidgenössisches Starkstrominspektorat, Switzerland
	Underwriters Laboratories Inc., USA
	Underwriters Laboratories Inc., USA
	Verband der Elektrotechnik, Elektronik, Informationstechnik e.V., Germany

Pictogram explanation

Surfaces

 FS	Strip-galvanised
st	Strip-galvanised/plastic-coated
 BK	Bright
 F	Hot-dip galvanised
 G	Electro-galvanised
EI	Electrogalvanised/plastic-coated
 GGP	Electrogalvanised, yellow passivated
 GTP	Electrogalvanised, transparently passivated
 L	Painted
 FT	Hot-dip galvanised
 Cu	Copper-plated
 N	Nickel-plated
 ZD	Galvanised, Deltatone 500
 ZDIII	Galvanised, MAGNI 565
 DD	Strip galvanised zinc/aluminium, Double Dip
 GA	Zinc-aluminium coated, Galfan
 FT SO	Hot-dip galvanised 85 µm

Conformity symbol

	Communautés Européennes, EC declaration of conformity according to EC directives
	RoHS-conformant

Quality marks

	Halogen-free; without chlorine, fluorine and bromine
	Flame resistant 650 °C
	Flame resistant 750 °C
	Flame resistant 960 °C
	UV-RESISTANT

Nominal cross-section

	Nominal cross-section 1.5 mm ²
	Nominal cross-section 1.5–2.5 mm ²
	Nominal cross-section 2.5 mm ²
	Nominal cross-section 2.5–4 mm ²
	Nominal cross-section 4 mm ²

Nominal cross-section

	Nominal cross-section 4–6 mm ²
	Nominal cross-section 6 mm ²
	Nominal cross-section 10 mm ²
	Nominal cross-section 16 mm ²

Nominal voltage

	Nominal voltage 400 V
	Nominal voltage 500 V
	Nominal voltage 660 V

Protection rating

	Protection rating IP 20
	Protection rating IP 30
	Protection rating IP 31
	Protection rating IP 54
	Protection rating IP 54
	Protection rating IP 55
	Protection rating IP 65
	Protection rating IP 66
	Protection rating IP 67
	Protection rating IP 68

Entries

	4 cable entries
	6 cable entries
	7 cable entries
	8 cable entries
	9 cable entries
	10 cable entries
	12 cable entries
	10 cable entries ECO
	12 cable entries ECO
	14 cable entries ECO
	16 cable entries
	18 cable entries ECO
	24 cable entries

Pictogram explanation

Polarity

	3-pole
	5-pole
	7-pole
	8-pole
	10-pole
	12-pole

Clamp clip base shapes

	Cable clip for C-profile rail with slot width 11–12 mm
	Cable clip for C profile rail with slot width 16–17 mm
	Clamp clip for C profile rail with slot width 18–22 mm

Slot widths

	Slot width 7.5 mm
	Slot width 11 mm
	Slot width 11–12 mm
	Slot width 12 mm
	Slot width 15 mm
	Slot width 16 mm
	Slot width 16.5 mm
	Slot width 16–17 mm
	Slot width 17 mm
	Slot width 18 mm
	Slot width 22 mm
	Slot width 35 mm

Diameter

	Diameter 60 mm
	Diameter 68 mm
	Diameter 70 mm
	Diameter 74 mm

Gland thread

	Thread metric
	Thread Pg

Screw heads

	Philips screw
	Torx screw
	Phillips screw
	Pozidrive

Entry size

	M20 entry
	M25 entry
	M32 entry
	M40 entry

Materials

	Flat steel
	Angular steel
	U steel
	Round material

Firing devices

	Bolt-firing tool
	Nail device

BSS test marks/material class

	Function maintenance class E30
	Function maintenance class E90

KTS side heights

	Cable tray, side height 35 mm
	Cable tray, side height 60 mm
	Cable tray, side height 85 mm
	Mesh cable tray, slant height 35 mm
	Mesh cable tray, slant height 55 mm

BSS function maintenance installation

	Escape route ceiling mounting with pressure clip
	OBO Grip, wall routing type
	OBO Grip, ceiling routing type
	Pressure clip, function maintenance, ceiling mounting

Pictogram explanation

BSS anchor

	Fire protection anchor
	Fire protection bolt tie

Metals

	Aluminium
	Stainless steel, grade 304
	Stainless steel, 1.4307
	Stainless steel, grade 301
	Stainless steel, grade 316
	Stainless steel, grade 316 L
	Stainless steel, grade 354/1
	Stainless steel, grade 316 Ti
	Brass
	Steel
	Cast iron
	Die-cast zinc

Plastics

	Acrylonitrile butadiene styrene
	Duroplast, Aminoplast, type 131.5
	Duroplast, melamine resin Type 150
	Ethylene vinyl acetate
	Fibre-proof material DIN 28091
	Rubber mixture
	Nitrile rubber
	Polyamide
	Polyamide, fibreglass reinforced
	Polybutylene terephthalate
	Polycarbonate
	Polyethylene
	Polypropylene, Glass-fibre reinforced
	Polystyrene
	Polyvinylchloride
	Cellular polyethylene

Metallic materials

Alu — Aluminium

Alu/St — Aluminium/Steel

VA (1.4113) — Stainless steel, grade 434

VA (1.4301) — Stainless steel, grade 304

VA (1.4303) — Stainless steel, grade 305

VA (1.4310) — Stainless steel, grade 301

VA (1.4401) — Stainless steel, grade 316

VA (1.4404) — Stainless steel, grade 316 L

VA (1.4435) — Stainless steel, grade 316 L

VA (1.4529) — Stainless steel, grade 354/1

VA (1.4571) — Stainless steel, grade 316 Ti

V2A — Stainless steel, A2

V4A — Stainless steel, A4

V5A — Stainless steel, A5

St — Steel

Zn — Die-cast zinc

Plastic materials

ABS/ASA — Acrylonitrile butadiene styrene

Temperature resistance: permanently up to 70 °C, briefly up to 85 °C and to about minus 40 °C.

Resistant to

Formic acid, citric acid, lactic acid.

Conditionally resistant to

Hydrochloric acid, sulphuric acid.

Unstable with

Acetone, petrol, benzene, solvents for paints and butyric acid, chlorine, acetic acid, nitric acid.

Risk of tension cracking

Relatively high, similar to polystyrene.

UF — Duroplast, Aminoplast, type 131.5

for boxes, glands and clips

Temperature resistance:

permanently up to 65 °C, briefly up to 90 °C and to about minus 40 °C.

Resistant to

Alcohol, ester, ether, benzene, petrol, mineral oils, greases, weak alkalis, water.

Conditionally resistant to

Weak acids.

Unstable with

Strong acids, strong alkalis.

Risk of tension cracking

Low risk of stress cracks.

MF — Duroplast, melamine resin Type 150

For terminal blocks

Temperature resistance:

permanently up to 80 °C, briefly up to 110 °C and to about minus 40 °C.

Resistant to

Alcohol, ester, ether, benzene, petrol, mineral oils, greases, weak alkalis, water.

Conditionally resistant to

Weak acids.

Unstable with

Strong acids, strong alkalis.

Risk of tension cracking

Low risk of stress cracks.

EVA — Ethylene vinyl acetate

FA — Fibre-proof material DIN 28091

To DIN 28091, asbestos-free

Temperature resistance:

up to 300 °C.

NBR/SBR — Rubber mixture

NBR — Nitrile rubber

Temperature resistance:

permanently up to 120 °C, briefly up to 150 °C, and to about minus 30 °C.

Resistant to

Oils and petrol.

PA — Polyamide

Temperature resistance:

permanently up to approx. 90 °C, briefly up to about 130 °C and to about minus 40 °C*.

Chem. resistance generally as for polyethylene.

Resistant to

Petrol, benzene, diesel oil, acetone, solvents for paints and lacquers, oils and greases.

Unstable with

Bleach, most acids, chlorine.

Risk of tension cracking

Low in air-humid conditions; only with some aqueous salt solutions.

Highly desiccated parts (high temperature and extremely low air humidity) are highly sensitive to fuels and various solvents.

PA/GF — Polyamide, fibreglass reinforced

Temperature resistance:

permanently up to 100–110 °C, briefly up to 160 °C and to about minus 40 °C*.

Resistant to

Petrol, benzene, diesel oil, acetone, solvents for paints and lacquers, oils and greases.

Slightly susceptible to stress-cracking.

Unstable with

Bleach, most acids, chlorine.

Risk of tension cracking

Low in air-humid conditions; only with some aqueous salt solutions.

Highly desiccated parts (high temperature and extremely low air humidity) are highly sensitive to fuels and various solvents.

PBPT — Polybutylene terephthalate

Thermoplastic polyester

Temperature resistance:

permanently up to 120 °C, briefly up to 140 °C and to approx. minus 40 °C.

Resistant to

Petrol, diesel oil, most weak acids, oils and greases.

Conditionally resistant to

Acetone, ammonia, benzene.

Unstable with

Strong acids, chlorine, fluorine, bromine vapour, bleach, trichloroethylene, methylene chloride.

Risk of tension cracking

Low.

PC — Polycarbonate

Temperature resistance:

permanently up to approx. 110 °C (in water 60 °C), briefly up to 125 °C, and to below minus 35 °C.

Resistant to

Petrol, turpentine, most weak acids.

Unstable with

Acetone, benzene, chlorine, methylene chloride, most concentrated acids.

Risk of tension cracking

Relatively low.

Media which can cause tension cracking include benzene, aromatic hydrocarbons, methanol, butanol, acetone, turpentine.

PE — Polyethylene

Temperature resistance:

hard types permanently up to about 90 °C, briefly up to about 105 °C, soft types permanently up to about 80 °C, briefly up to about 100 °C and to about minus 40 °C*.

Resistant to

Alkalis and inorganic acids.

Conditionally resistant to

Acetone, organic acids, petrol, benzene, diesel oil, most oils.

Unstable with

Chlorine, hydrocarbons, oxidising acids.

Risk of tension cracking

Relatively high.

Stress cracks can be caused by, among other things, acetone, various alcohols, formic acid, ethanol, petrol, benzene, butyric acid, acetic acid, formaldehyde, various oils, petroleum, propanol, nitric acid, hydrochloric acid, sulphuric acid, soap solutions, turpentine, trichloroethylene, citric acid.

PP — Polypropylene, Glass-fibre reinforced

Temperature resistance:

permanently up to approx. 90 °C, briefly up to approx. 110 °C and to approx. minus 30 °C*.

Chem. resistance generally as for polyethylene.

Resistant to

Alkalis and inorganic acids.

Conditionally resistant to

Acetone, organic acids, petrol, benzene, diesel oil, most oils.

Unstable with

Chlorine, hydrocarbons, oxidising acids.

Risk of tension cracking

Low, only with some acids such as chromic acid, hydrofluoric acid and hydrochloric acid, as well as nitrogen oxide.

Plastic materials

PS — Polystyrene

Temperature resistance:

Because of its relatively high sensitivity to the effects of chemicals, its use is not recommended at temperatures above normal room temperature, about 25 °C.

Resistance to cold: to about minus 40 °C*.

Resistant to

Alkalis, most acids, alcohol.

Conditionally resistant to

Oils and greases.

Unstable with

Butyric acid, concentrated nitric acid, concentrated acetic acid, acetone, ether, petrol and benzene, solvents for paints and lacquers, chlorine, diesel fuel.

Risk of tension cracking

Relatively high.

Stress cracks can be caused by, amongst other things, acetone, ether, petrol, cyclohexane, heptane, methanol, propanol and the softeners used in some PVC cable mixes.

PVC — Polyvinylchloride

Temperature resistance:

permanently up to 65 °C, briefly up to 75 °C and to about minus 30 °C.

Resistant to

Weak acids, alkalis, oils and greases, petrol.

Unstable with

Strong acids, benzene, acetone, iodine, toluene, trichloroethylene.

Risk of tension cracking

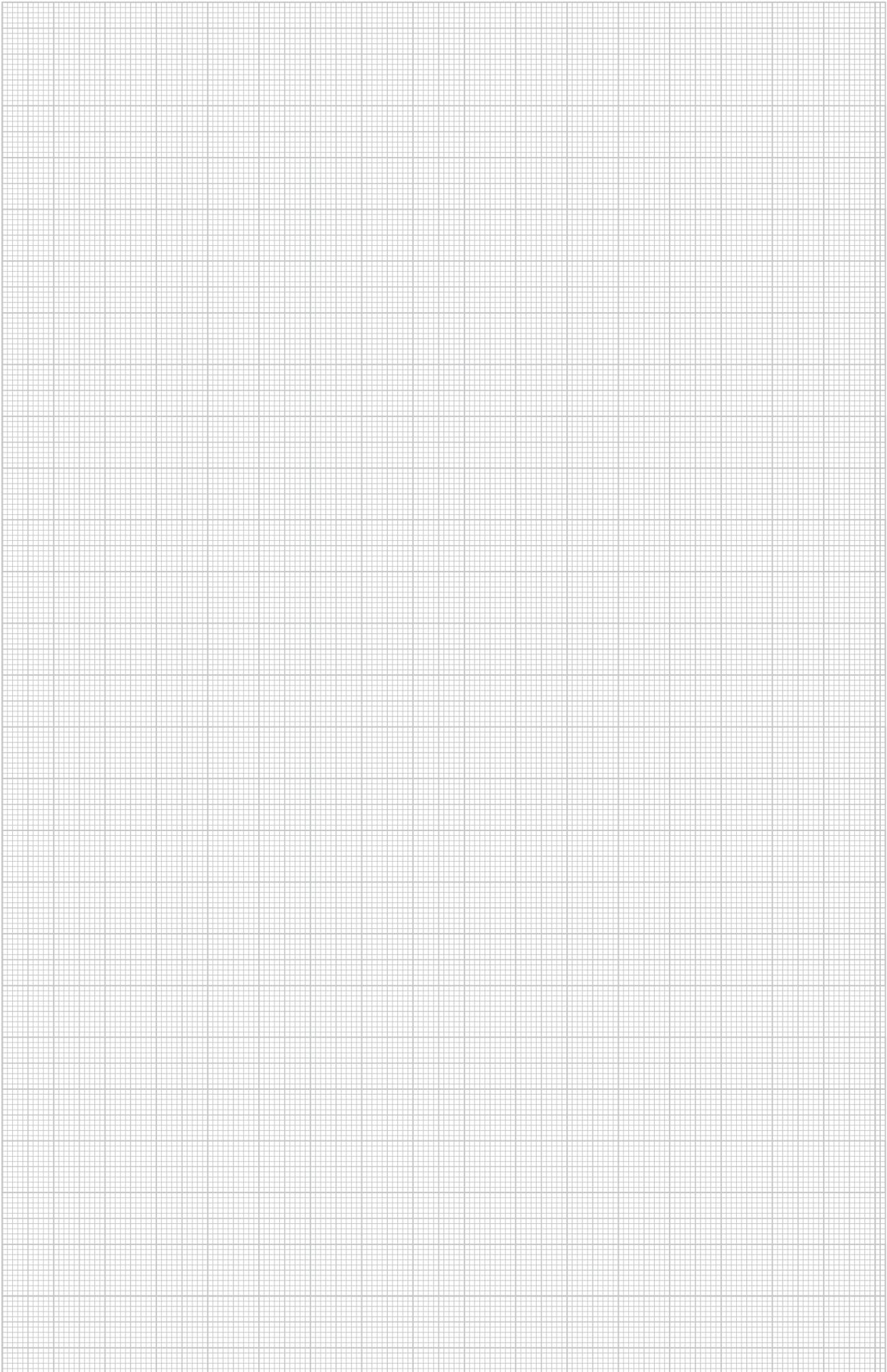
Low, only with some solvents such as benzene and acetone.

ZPE — Cellular polyethylene

*The minus values apply only for parts in the quiescent condition with no severe impact stress.

There is no plastic that is resistant to every chemical. The agents listed are only a small selection. Plastic parts are especially at risk in the presence of chemicals and high temperatures. Stress cracks may occur. If in doubt, please consult us and/or ask for a detailed chemical resistance table.

Stress crack formation: stress cracks may occur if plastic parts under tension are exposed to chemicals at the same time. Parts made of polystyrene and polyethylene are particularly susceptible. Stress cracks may even be caused by agents to which the plastic in question is resistant in the absence of stress. Typical examples of parts under constant stress when used as intended: grip clips, intermediate supports of cable glands, ribbon clips.





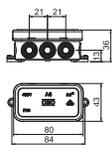
05_175 GA - 100 / 2019/03/29 08:25:41 09:25:41 (L1 - report_00463) - 2019/03/29 08:26:07 09:26:07

Junction box systems

	A series	38
	T series	41
	X series	58



Junction box A 6



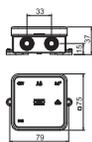
Type

Colour
Dimension LxWxH mm
Clear internal dimensions mm
Pack. pcs
Weight kg/100 pcs.
Item No.

A 6
Light grey
80x43x36
69x32x30
10
2.560
2000001

PE Polyethylene
Protection rating IP55, nominal voltage 400 V, nominal cross-section 2,5 mm², 6 entries for cable diameter 5-14 mm
4 entries for cable diameter 5-9 mm.
Clamshell.
Dimensions: 80 x 43 x 36 mm
Clear internal dimensions: 69x32x30 mm
1 cut-out tool for every 10 boxes

Junction box A 8 with terminal strip



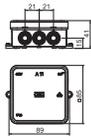
Type

Accessories
Colour
Dimension LxWxH mm
Clear internal dimensions mm
Pack. pcs
Weight kg/100 pcs.
Item No.

A 8 5	A 8
1 terminal strip	without terminal strip
Light grey	Light grey
75x75x36,2	75x75x36,2
65x65x32	65x65x32
10	10
6.500	3.813
2000024	2000016

PE Polyethylene
Protection rating IP55, nominal voltage 400 V, nominal cross-section 2,5 mm², 7 entries for cable diameter 5–14 mm.
Clamshell.
Dimensions: 75 x 75 x 36,2 mm
Clear internal dimensions: 65x65x32 mm
1 cut-out tool for every 10 boxes

Junction box A 11 with terminal strip

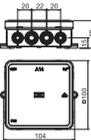


Type	A 11 5	A 11
Accessories	1 terminal strip	without terminal strip
Colour	Light grey	Light grey
Dimension LxWxH mm	85x85x40	85x85x40
Clear internal dimensions mm	75x75x35	75x75x35
Pack. pcs	10	10
Weight kg/100 pcs.	7.640	6.200
Item No.	2000326	2000342

PE Polyethylene

Protection rating IP55, nominal voltage 400 V, nominal cross-section 2,5 mm², 12 entries for cable diameter 5–14 mm.
 Clamshell.
 Dimensions: 85 x 85 x 40 mm
 Clear internal dimensions: 75x75x35 mm
 1 cut-out tool for every 10 boxes

Junction box A 14 with terminal strip



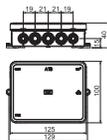
Type	A 14 5	A 14
Accessories	1 terminal strip	without terminal strip
Colour	Light grey	Light grey
Dimension LxWxH mm	100x100x40	100x100x40
Clear internal dimensions mm	90x90x35	90x90x35
Pack. pcs	10	10
Weight kg/100 pcs.	5.855	5.855
Item No.	2000382	2000378

PE Polyethylene

Protection rating IP55, nominal voltage 400 V, nominal cross-section 2,5 mm², 8 entries for cable diameter 5–14 mm
 8 entries for cable diameter 5–11 mm.
 Clamshell.
 Dimensions: 100 x 100 x 40 mm
 Clear internal dimensions: 90x90x35 mm
 1 cut-out tool for every 10 boxes



Junction box A 18 with terminal strip



Type	A 18 5	A 18
Accessories	1 terminal strip	without terminal strip
Colour	Light grey	Light grey
Dimension LxWxH mm	125x100x40	125x100x40
Clear internal dimensions mm	115x90x35	115x90x35
Pack. pcs	10	10
Weight kg/100 pcs.	6.957	6.957
Item No.	2000414	2000410

PE Polyethylene

Protection rating IP55, nominal voltage 400 V, nominal cross-section 2,5 mm², 10 entries for cable diameter 5-14 mm
8 entries for cable diameter 5-11 mm.
Clamshell.
Dimensions: 125 x 100 x 40 mm
Clear internal dimensions: 115x90x35 mm
1 cut-out tool for every 10 boxes

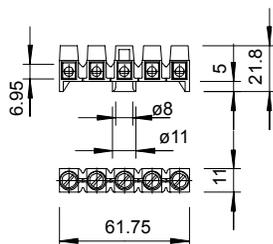
Terminal strip 2.5 mm²



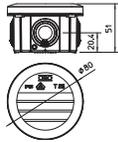
Type	Colour	No. of terminals	Nominal cross-section mm ²	Nom. voltage V	Pack. pcs	Weight kg/100 pcs.	Item No.
689	Light grey	5	0.8 - 2.5	660	50	1.502	2017342

PA Polyamide

Terminal strip, nickel-plated brass, steel screws, galvanised and transparently passivated, nominal cross-section 0,8 - 2,5 mm², nominal voltage 660 V, 5-pole, with terminal sockets, max. connectable cross-sections per terminal: 4 x 2.5 mm², 5 x 1.5 mm² or 6 x 1 mm², unnecessary poles can be cut off and used as individual terminals.



Junction box T 25, plug-in seal



Type	T 25
Colour	Light grey
Entries	4 x M25
Dimension mm	Ø80x51
Clear internal dimensions mm	Ø63x45
Pack. pcs	5
Weight kg/100 pcs.	4.190
Item No.	2007029

PP Polypropylene

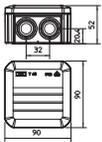
The junction boxes are made of a thermoplastic polypropylene polymer with plug-in seals made of ethylene vinyl acetate (EVA). This plastic is soft, which means that it is malleable. This allows installation of cables either directly through the 4 x M25 seals, or the seals can be cut with a knife at the pre-marked points, in order to create an insertion opening for cables or pipes. In addition, cable glands can be inserted through the openings instead of the seals and locked with a locknut from inside.

The cable junction boxes can be screwed onto an M6 thread or mounted on mounting plates in the openings on the floor using steel bolts 3.5 x 9.5.

Clear internal dimensions: Ø63x45 mm.

Cover with labelling panel.

Junction box T 40, plug-in seal



Type	T 40
Colour	Light grey
Entries	7 x M25
Dimension LxWxH mm	90x90x52
Clear internal dimensions mm	77x77x46
Pack. pcs	5
Weight kg/100 pcs.	6.700
Item No.	2007045

PP Polypropylene

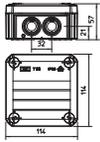
All the T series junction boxes are UV-resistant. They are made of a thermoplastic polypropylene plastic with plug-in seals made of ethylene vinyl acetate (EVA). This plastic is soft, which means that it is malleable. This allows installation of cables through the 7 x M25 seals, or the seals can be cut with a knife at the pre-marked points, in order to create an insertion opening for cables or pipes. Alternatively, instead of seals, cable glands can be inserted through the openings and be countered internally with a locknut.

The junction boxes can be mounted on mounting plates in the openings on the floor using self-tapping screws 3.5 x 9.5.

Clear internal dimensions: 77x77x46 mm



Junction box T 60, plug-in seal



Type
 Entries
 Colour
 Dimension LxWxH mm
 Clear internal dimensions
 mm
 Pack. pcs
 Weight kg/100 pcs.
Item No.

T 60
7 x M25
Light grey
114x114x57
100x100x48
5
12.300
2007061

PP Polypropylene

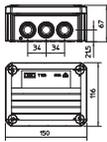
All the T series junction boxes are UV-resistant. They are made of a thermoplastic polypropylene plastic with plug-in seals made of ethylene vinyl acetate (EVA). This plastic is soft, which means that it is malleable. This allows installation of cables through the 7 x M25 seals, or the seals can be cut with a knife at the pre-marked points, in order to create an insertion opening for cables or pipes. Alternatively, instead of seals, cable glands can be inserted through the openings and be countered internally with a locknut.

The junction boxes can be mounted on mounting plates in the openings on the floor using steel bolts 3.5 x 9.5.

Clear internal dimensions: 100x100x48 mm

Cover with labelling panel and lead-sealed.

Junction box T 100, plug-in seal



Type
 Colour
 Entries
 Dimension LxWxH mm
 Clear internal dimensions
 mm
 Pack. pcs
 Weight kg/100 pcs.
Item No.

T 100
Light grey
10 x M25
150x116x67
136x102x57
1
16.270
2007077

PP Polypropylene

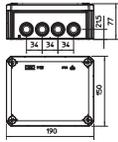
All the T series junction boxes are UV-resistant. They are made of a thermoplastic polypropylene plastic with plug-in seals made of ethylene vinyl acetate (EVA). This plastic is soft, which means that it is malleable. This allows installation of cables through the 10 x M25 seals, or the seals can be cut with a knife at the pre-marked points, in order to create an insertion opening for cables or pipes. Alternatively, instead of seals, cable glands can be inserted through the openings and be countered internally with a locknut.

The junction boxes can be mounted on mounting plates in the openings on the floor using steel bolts 3.5 x 9.5.

Clear internal dimensions: 136x102x57 mm

Cover with labelling panel and lead-sealed.

Junction box T 160, plug-in seal



Type	T 160
Colour	Light grey
Entries	7 x M25 5 x M32
Dimension LxWxH mm	190x150x77
Clear internal dimensions mm	176x135x67
Pack. pcs	1
Weight kg/100 pcs.	30.000
Item No.	2007093

PP/GF Polypropylene, Glass-fibre reinforced

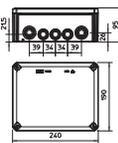
The junction boxes are made of a thermoplastic polypropylene polymer with plug-in seals made of ethylene vinyl acetate (EVA). This allows installation of cables either directly through the 7x M25 + 5x M32 seals, or the seals can be cut with a knife at the pre-marked points, in order to create an insertion opening for cables or pipes. Alternatively, cable glands can be pushed through the openings instead of the seals and locked with a locknut from the inside.

The junction boxes can be mounted on mounting plates in the openings on the floor using steel screws 3.5 x 9.5.

Clear internal dimensions: 176x135x67 mm

Cover with labelling panel and lead-sealed.

Junction box T 250, plug-in seal



Type	T 250
Colour	Light grey
Entries	9 x M25 7 x M32
Dimension LxWxH mm	240x190x95
Clear internal dimensions mm	225x173x86
Pack. pcs	1
Weight kg/100 pcs.	50.000
Item No.	2007109

PP/GF Polypropylene, Glass-fibre reinforced

All the T series junction boxes are UV-resistant. They are made of a thermoplastic polypropylene plastic with plug-in seals made of ethylene vinyl acetate (EVA). This plastic is soft, which means that it is malleable. This allows installation of cables through the 9x M25 + 7x M32 seals, or the seals can be cut with a knife at the pre-marked points, in order to create an insertion opening for cables or pipes. Alternatively, instead of seals, cable glands can be inserted through the openings and be countered internally with a locknut.

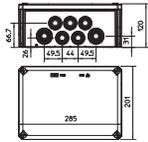
The junction boxes can be mounted on mounting plates in the openings on the floor using steel bolts 3.5 x 9.5.

Clear internal dimensions: 225x173x86 mm

Cover with labelling panel and lead-sealed.



Junction box T 350, plug-in seal



Type

Colour
 Entries
 Dimension LxWxH mm
 Clear internal dimensions mm
 Pack. pcs
 Weight kg/100 pcs.

Type	T 350
Colour	Light grey
Entries	16 x M32 8 x M40
Dimension LxWxH mm	285x201x120
Clear internal dimensions mm	267x182x110
Pack. pcs	1
Weight kg/100 pcs.	63.000
Item No.	2007125

PP/GF Polypropylene, Glass-fibre reinforced

All the T series junction boxes are UV-resistant. They are made of a thermoplastic polypropylene plastic with plug-in seals made of ethylene vinyl acetate (EVA). This plastic is soft, which means that it is malleable. This allows installation of cables through the 16x M32 + 8x M40 seals, or the seals can be cut with a knife at the pre-marked points, in order to create an insertion opening for cables or pipes. Alternatively, instead of seals, cable glands can be inserted through the openings and be countered internally with a locknut.

The junction boxes can be mounted on mounting plates in the openings on the floor using steel bolts 3.5 x 9.5.

Clear internal dimensions: 267x182x110 mm

Cover with labelling panel and lead-sealed.

Junction box T 25, plug-in seal, terminal strip



Type	Colour	Entries	Dimension mm	Clear internal dimensions mm	Pack. pcs	Weight kg/100 pcs.	Item No.
T 25 KL	Light grey	4 x M25	Ø80x51	Ø63x45	5	6.400	2007430

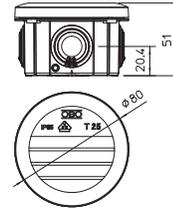
PP Polypropylene

The junction boxes are made of a thermoplastic polypropylene polymer with plug-in seals made of ethylene vinyl acetate (EVA). This plastic is soft, which means that it is malleable. This allows installation of cables either directly through the 4 x M25 seals, or the seals can be cut with a knife at the pre-marked points, in order to create an insertion opening for cables or pipes. In addition, cable glands can be inserted through the openings instead of the seals and locked with a locknut from inside.

The cable junction boxes can be screwed onto an M6 thread or mounted on mounting plates in the openings on the floor using steel bolts 3.5 x 9.5.

Clear internal dimensions: Ø63x45 mm.

Cover with labelling panel.



Junction box T 40, plug-in seal, terminal strip



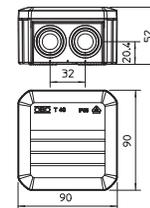
Type	Colour	Entries	Dimension LxWxH mm	Clear internal dimensions mm	Pack. pcs	Weight kg/100 pcs.	Item No.
T 40 KL	Light grey	7 x M25	90x90x52	77x77x46	5	8.900	2007432

PP Polypropylene

All the T series junction boxes are UV-resistant. They are made of a thermoplastic polypropylene plastic with plug-in seals made of ethylene vinyl acetate (EVA). This plastic is soft, which means that it is malleable. This allows installation of cables through the 7 x M25 seals, or the seals can be cut with a knife at the pre-marked points, in order to create an insertion opening for cables or pipes. Alternatively, instead of seals, cable glands can be inserted through the openings and be countered internally with a locknut.

The junction boxes can be mounted on mounting plates in the openings on the floor using self-tapping screws 3.5 x 9.5.

Clear internal dimensions: 77x77x46 mm



Junction box T 60, plug-in seal, terminal strip



Type	Entries	Colour	Dimension LxWxH mm	Clear internal dimensions mm	Pack. pcs	Weight kg/100 pcs.	Item No.
T 60 KL	7 x M25	Light grey	114x114x57	100x100x48	5	16.700	2007434

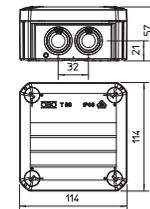
PP Polypropylene

All the T series junction boxes are UV-resistant. They are made of a thermoplastic polypropylene plastic with plug-in seals made of ethylene vinyl acetate (EVA). This plastic is soft, which means that it is malleable. This allows installation of cables through the 7 x M25 seals, or the seals can be cut with a knife at the pre-marked points, in order to create an insertion opening for cables or pipes. Alternatively, instead of seals, cable glands can be inserted through the openings and be countered internally with a locknut.

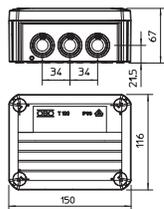
The junction boxes can be mounted on mounting plates in the openings on the floor using steel bolts 3.5 x 9.5.

Clear internal dimensions: 100x100x48 mm

Cover with labelling panel and lead-sealed.



Junction box T 100, plug-in seal, terminal strip



Type	Colour	Entries	Dimension LxWxH mm	Clear internal dimensions mm	Pack. pcs	Weight kg/100 pcs.	Item No.
T 100 KL	Light grey	10 x M25	150x116x67	136x102x57	1	40.000	2007436

PP Polypropylene

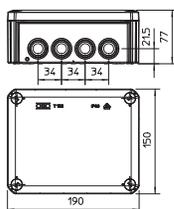
All the T series junction boxes are UV-resistant. They are made of a thermoplastic polypropylene plastic with plug-in seals made of ethylene vinyl acetate (EVA). This plastic is soft, which means that it is malleable. This allows installation of cables through the 10 x M25 seals, or the seals can be cut with a knife at the pre-marked points, in order to create an insertion opening for cables or pipes. Alternatively, instead of seals, cable glands can be inserted through the openings and be countered internally with a locknut.

The junction boxes can be mounted on mounting plates in the openings on the floor using steel bolts 3.5 x 9.5.

Clear internal dimensions: 136x102x57 mm

Cover with labelling panel and lead-sealed.

Junction box T 160, plug-in seal



Type	Colour	Entries	Dimension LxWxH mm	Clear internal dimensions mm	Pack. pcs	Weight kg/100 pcs.	Item No.
T 160 KL	Light grey	7 x M25 5 x M32	190x150x77	176x135x67	1	64.200	2007440

PP/GF Polypropylene, Glass-fibre reinforced

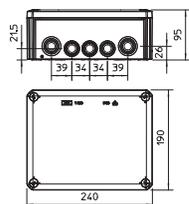
The junction boxes are made of a thermoplastic polypropylene polymer with plug-in seals made of ethylene vinyl acetate (EVA). This allows installation of cables either directly through the 7x M25 + 5x M32 seals, or the seals can be cut with a knife at the pre-marked points, in order to create an insertion opening for cables or pipes. Alternatively, cable glands can be pushed through the openings instead of the seals and locked with a locknut from the inside.

The junction boxes can be mounted on mounting plates in the openings on the floor using steel screws 3.5 x 9.5.

Clear internal dimensions: 176x135x67 mm

Cover with labelling panel and lead-sealed.

Junction box T 250, plug-in seal, terminal strip



Type	Colour	Entries	Dimension LxWxH mm	Clear internal dimensions mm	Pack. pcs	Weight kg/100 pcs.	Item No.
T 250 KL	Light grey	9 x M25 7 x M32	240x190x95	225x173x86	1	79.500	2007444

PP/GF Polypropylene, Glass-fibre reinforced

All the T series junction boxes are UV-resistant. They are made of a thermoplastic polypropylene plastic with plug-in seals made of ethylene vinyl acetate (EVA). This plastic is soft, which means that it is malleable. This allows installation of cables through the 9x M25 + 7x M32 seals, or the seals can be cut with a knife at the pre-marked points, in order to create an insertion opening for cables or pipes. Alternatively, instead of seals, cable glands can be inserted through the openings and be countered internally with a locknut.

The junction boxes can be mounted on mounting plates in the openings on the floor using steel bolts 3.5 x 9.5.

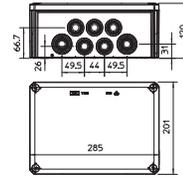
Clear internal dimensions: 225x173x86 mm

Cover with labelling panel and lead-sealed.

Junction box T 350, plug-in seal, terminal strip



Type	Colour	Entries	Dimension LxWxH mm	Clear internal dimensions mm	Pack. pcs	Weight kg/100 pcs.	Item No.
T 350 KL	Light grey	16 x M32 8 x M40	285x201x120	267x182x110	1	95.700	2007448



PP/GF Polypropylene, Glass-fibre reinforced

All the T series junction boxes are UV-resistant. They are made of a thermoplastic polypropylene plastic with plug-in seals made of ethylene vinyl acetate (EVA). This plastic is soft, which means that it is malleable. This allows installation of cables through the 16x M32 + 8x M40 seals, or the seals can be cut with a knife at the pre-marked points, in order to create an insertion opening for cables or pipes. Alternatively, instead of seals, cable glands can be inserted through the openings and be countered internally with a locknut.

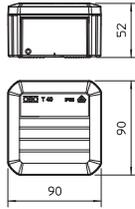
The junction boxes can be mounted on mounting plates in the openings on the floor using steel bolts 3.5 x 9.5.

Clear internal dimensions: 267x182x110 mm

Cover with labelling panel and lead-sealed.



Junction box T 40, closed



Type	Colour	Dimension LxWxH mm	Clear internal dimensions mm	Pack. pcs	Weight kg/100 pcs.	Item No.
T 40 OE	Light grey	90x90x52	77x77x46	5	6.300	2007223

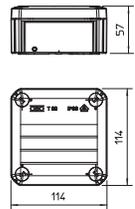
PP Polypropylene

All the T series junction boxes are UV-resistant. They are made from polypropylene (a thermoplastic material) and have closed side walls. This means that the required openings can be made wherever they are required. EDK plug-in seals or cable glands with locknuts can be inserted in these openings, to allow cable insertion.

The junction boxes can be mounted on mounting plates in the openings on the floor using self-tapping screws 3.5 x 9.5.

Clear internal dimensions: 77x77x46 mm

Junction box T 60, closed



Type	Colour	Dimension LxWxH mm	Clear internal dimensions mm	Pack. pcs	Weight kg/100 pcs.	Item No.
T 60 OE	Light grey	114x114x57	100x100x46	5	12.000	2007239

PP Polypropylene

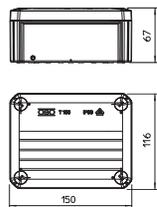
The junction boxes are made of a thermoplastic polypropylene polymer with closed side walls. This means that the required openings can be made wherever they are required. EDK plug-in seals or cable glands with locknuts can be inserted in these openings, to allow cable insertion.

The junction boxes can be mounted on mounting plates in the openings on the floor using steel screws 3.5 x 9.5.

Clear internal dimensions: 100x100x46 mm

Cover with labelling panel and lead-sealed.

Junction box T 100, closed



Type	Colour	Dimension LxWxH mm	Clear internal dimensions mm	Pack. pcs	Weight kg/100 pcs.	Item No.
T 100 OE	Light grey	150x116x67	136x102x57	1	16.200	2007255

PP Polypropylene

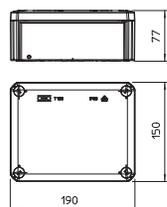
The junction boxes are made of a thermoplastic polypropylene polymer with closed side walls. This means that the required openings can be made wherever they are required. EDK plug-in seals or cable glands with locknuts can be inserted in these openings, to allow cable insertion.

The junction boxes can be mounted on mounting plates in the openings on the floor using steel screws 3.5 x 9.5.

Clear internal dimensions: 136x102x57 mm

Cover with labelling panel and lead-sealed.

Junction box T 160, closed



Type	Colour	Dimension LxWxH mm	Clear internal dimensions mm	Pack. pcs	Weight kg/100 pcs.	Item No.
T 160 OE	Light grey	190x150x77	176x135x67	1	30.000	2007271

PP/GF Polypropylene, Glass-fibre reinforced

The junction boxes are made of a thermoplastic polypropylene polymer with closed side walls. This means that the required openings can be made wherever they are required. EDK plug-in seals or cable glands with locknuts can be inserted in these openings, to allow cable insertion.

The junction boxes can be mounted on mounting plates in the openings on the floor using steel screws 3.5 x 9.5.

Clear internal dimensions: 176x135x67 mm

Cover with labelling panel and lead-sealed.

Junction box T 250, closed

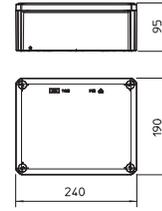


Type	Colour	Dimension	Clear internal	Pack. Weight		Item No.
		LxWxH mm	dimensions mm	pcs	kg/100 pcs.	
T 250 OE	Light grey	240x190x95	225x173x86	1	48.300	2007287

PP/GF Polypropylene, Glass-fibre reinforced

The junction boxes are made of a thermoplastic polypropylene polymer with closed side walls. This means that the required openings can be made wherever they are required. EDK plug-in seals or cable glands with locknuts can be inserted in these openings, to allow cable insertion. The junction boxes can be mounted on mounting plates in the openings on the floor using steel screws 3.5 x 9.5.

Clear internal dimensions: 225x173x86 mm
Cover with labelling panel and lead-sealed.



Junction box T 350, closed

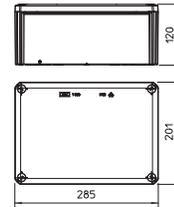


Type	Colour	Dimension	Clear internal	Pack. Weight		Item No.
		LxWxH mm	dimensions mm	pcs	kg/100 pcs.	
T 350 OE	Light grey	285x201x120	267x182x110	1	58.800	2007303

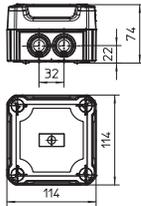
PP/GF Polypropylene, Glass-fibre reinforced

The junction boxes are made of a thermoplastic polypropylene polymer with closed side walls. This means that the required openings can be made wherever they are required. EDK plug-in seals or cable glands with locknuts can be inserted in these openings, to allow cable insertion. The junction boxes can be mounted on mounting plates in the openings on the floor using steel screws 3.5 x 9.5.

Clear internal dimensions: 267x182x110 mm
Cover with labelling panel and lead-sealed.



Junction box T60, plug-in seal, elevated cover

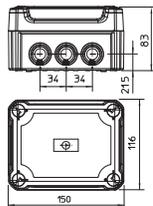


Type	Entries	Dimension LxWxH mm	Clear internal dimensions mm	Pack. pcs	Weight kg/100 pcs.	Item No.
T 60 HD LGR	7xM25	114x114x74	100x100x65	1	17.180	2007710

PP/PC Polypropylene / polycarbonate

The junction boxes consist of thermoplastic material. The bottom parts are made from impact-resistant polypropylene, the box cover is made from extremely hard-wearing, impact-resistant polycarbonate. The high IK 10 impact resistance at -5 °C shows this also. Thanks to the elevated cover, OBO creates significantly more wiring space, therefore offering the facility to install and protect pushbuttons and series terminals, as well as the option to accommodate control sensors, switches and electronic equipment from the housing and installation technology area. Together with the fastening plate, it is an ideal partner in visible installations.

Junction box T100, plug-in seal, elevated cover

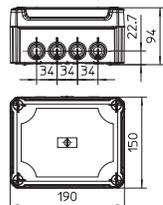


Type	Entries	Dimension LxWxH mm	Clear internal dimensions mm	Pack. pcs	Weight kg/100 pcs.	Item No.
T 100 HD LGR	10xM25	150x116x83	136x102x74	1	22.550	2007712

PP/PC Polypropylene / polycarbonate

The junction boxes consist of thermoplastic material. The bottom parts are made from impact-resistant polypropylene, the box cover is made from extremely hard-wearing, impact-resistant polycarbonate. The high IK 10 impact resistance at -5 °C shows this also. Thanks to the elevated cover, OBO creates significantly more wiring space, therefore offering the facility to install and protect pushbuttons and series terminals, as well as the option to accommodate control sensors, switches and electronic equipment from the housing and installation technology area. Together with the fastening plate, it is an ideal partner in visible installations.

Junction box T160, plug-in seal, elevated cover

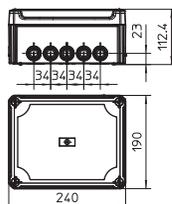


Type	Entries	Dimension LxWxH mm	Clear internal dimensions mm	Pack. pcs	Weight kg/100 pcs.	Item No.
T 160 HD LGR	7xM25 5xM32	190x150x94	176x135x84	1	34.180	2007714

PP/PC Polypropylene / polycarbonate

The junction boxes consist of thermoplastic material. The bottom parts are made from impact-resistant polypropylene, the box cover is made from extremely hard-wearing, impact-resistant polycarbonate. The high IK 10 impact resistance at -5 °C shows this also. Thanks to the elevated cover, OBO creates significantly more wiring space, therefore offering the facility to install and protect pushbuttons and series terminals, as well as the option to accommodate control sensors, switches and electronic equipment from the housing and installation technology area. Together with the fastening plate, it is an ideal partner in visible installations.

Junction box T250, plug-in seal, elevated cover



Type	Entries	Dimension LxWxH mm	Clear internal dimensions mm	Pack. pcs	Weight kg/100 pcs.	Item No.
T 250 HD LGR	9xM25 7xM32	240x190x112	225x173x103	1	52.010	2007716

PP/PC Polypropylene / polycarbonate

The junction boxes consist of thermoplastic material. The bottom parts are made from impact-resistant polypropylene, the box cover is made from extremely hard-wearing, impact-resistant polycarbonate. The high IK 10 impact resistance at -5 °C shows this also. Thanks to the elevated cover, OBO creates significantly more wiring space, therefore offering the facility to install and protect pushbuttons and series terminals, as well as the option to accommodate control sensors, switches and electronic equipment from the housing and installation technology area. Together with the fastening plate, it is an ideal partner in visible installations.

Junction box T350, plug-in seal, elevated cover

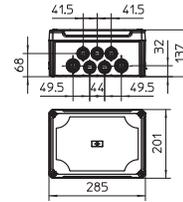


Type	Entries	Dimension LxWxH mm	Clear internal dimensions mm	Pack. pcs	Weight kg/100 pcs.	Item No.
T 350 HD LGR	16xM32 8xM40	285x201x137	267x182x127	1	72.760	2007718

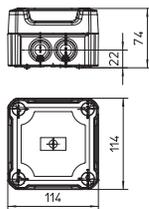
PP/PC Polypropylene / polycarbonate

The junction boxes consist of thermoplastic material. The bottom parts are made from impact-resistant polypropylene, the box cover is made from extremely hard-wearing, impact-resistant polycarbonate. The high IK 10 impact resistance at -5 °C shows this also.

Thanks to the elevated cover, OBO creates significantly more wiring space, therefore offering the facility to install and protect pushbuttons and series terminals, as well as the option to accommodate control sensors, switches and electronic equipment from the housing and installation technology area. Together with the fastening plate, it is an ideal partner in visible installations.



Junction box T60, with plug-in seal, transparent elevated cover



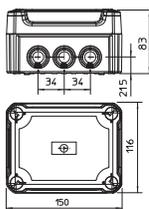
Type	Entries	Dimension LxWxH mm	Clear internal dimensions mm	Pack. pcs	Weight kg/100 pcs.	Item No.
T 60 HD TR	7xM25	114x114x74	100x100x65	1	17.180	2007750

PP/PC Polypropylene / polycarbonate

The junction boxes consist of thermoplastic material. The bottom parts are made from impact-resistant polypropylene, the box cover is made from extremely hard-wearing, impact-resistant polycarbonate. The high IK 10 impact resistance at -5 °C shows this also.

Thanks to the elevated cover, OBO creates significantly more wiring space, therefore offering the facility to install and protect pushbuttons and series terminals, as well as the option to accommodate control sensors, switches and electronic equipment from the housing and installation technology area. Together with the fastening plate, it is an ideal partner in visible installations.

Junction box T100, with plug-in seal, transparent elevated cover



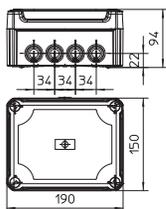
Type	Entries	Dimension LxWxH mm	Clear internal dimensions mm	Pack. pcs	Weight kg/100 pcs.	Item No.
T 100 HD TR	10xM25	150x116x83	136x102x74	1	22.550	2007752

PP/PC Polypropylene / polycarbonate

The junction boxes consist of thermoplastic material. The bottom parts are made from impact-resistant polypropylene, the box cover is made from extremely hard-wearing, impact-resistant polycarbonate. The high IK 10 impact resistance at -5 °C shows this also.

Thanks to the elevated cover, OBO creates significantly more wiring space, therefore offering the facility to install and protect pushbuttons and series terminals, as well as the option to accommodate control sensors, switches and electronic equipment from the housing and installation technology area. Together with the fastening plate, it is an ideal partner in visible installations.

Junction box T160, with plug-in seal, transparent elevated cover



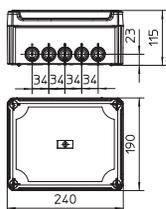
Type	Entries	Dimension LxWxH mm	Clear internal dimensions mm	Pack. pcs	Weight kg/100 pcs.	Item No.
T 160 HD TR	7xM25 5xM32	190x150x94	176x135x84	1	34.180	2007754

PP/PC Polypropylene / polycarbonate

The junction boxes consist of thermoplastic material. The bottom parts are made from impact-resistant polypropylene, the box cover is made from extremely hard-wearing, impact-resistant polycarbonate. The high IK 10 impact resistance at -5 °C shows this also.

Thanks to the elevated cover, OBO creates significantly more wiring space, therefore offering the facility to install and protect pushbuttons and series terminals, as well as the option to accommodate control sensors, switches and electronic equipment from the housing and installation technology area. Together with the fastening plate, it is an ideal partner in visible installations.

Junction box T250, with plug-in seal, transparent elevated cover



Type	Entries	Dimension LxWxH mm	Clear internal dimensions mm	Pack. pcs	Weight kg/100 pcs.	Item No.
T 250 HD TR	9xM25 7xM32	240x190x112	225x173x103	1	52.010	2007756

PP/PC Polypropylene / polycarbonate

The junction boxes consist of thermoplastic material. The bottom parts are made from impact-resistant polypropylene, the box cover is made from extremely hard-wearing, impact-resistant polycarbonate. The high IK 10 impact resistance at -5 °C shows this also.

Thanks to the elevated cover, OBO creates significantly more wiring space, therefore offering the facility to install and protect pushbuttons and series terminals, as well as the option to accommodate control sensors, switches and electronic equipment from the housing and installation technology area. Together with the fastening plate, it is an ideal partner in visible installations.

Junction box T350, with plug-in seal, transparent elevated cover

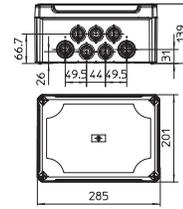


Type	Entries	Dimension LxWxH mm	Clear internal dimensions mm	Pack. pcs	Weight kg/100 pcs.	Item No.
T 350 HD TR	16xM32 8xM40	285x201x137	267x182x127	1	72.760	2007758

PP/PC Polypropylene / polycarbonate

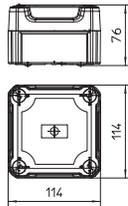
The junction boxes consist of thermoplastic material. The bottom parts are made from impact-resistant polypropylene, the box cover is made from extremely hard-wearing, impact-resistant polycarbonate. The high IK 10 impact resistance at -5 °C shows this also.

Thanks to the elevated cover, OBO creates significantly more wiring space, therefore offering the facility to install and protect pushbuttons and series terminals, as well as the option to accommodate control sensors, switches and electronic equipment from the housing and installation technology area. Together with the fastening plate, it is an ideal partner in visible installations.



Junction box, T series with elevated transparent cover, closed

Junction box T60, closed, transparent elevated cover



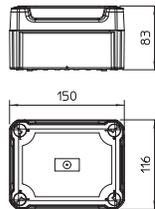
Type	Entries	Dimension LxWxH mm	Clear internal dimensions mm	Pack. pcs	Weight kg/100 pcs.	Item No.
T 60 OE HD TR	None	114x114x74	100x100x63	1	16.600	2007770

PP/PC Polypropylene / polycarbonate

The junction boxes consist of thermoplastic material. The bottom parts are made from impact-resistant polypropylene, the box cover is made from extremely hard-wearing, impact-resistant polycarbonate. The high IK 10 impact resistance at -5°C shows this also.

Thanks to the elevated cover, OBO creates significantly more wiring space, therefore offering the facility to install and protect pushbuttons and series terminals, as well as the option to accommodate control sensors, switches and electronic equipment from the housing and installation technology area. Together with the fastening plate, it is an ideal partner in visible installations.

Junction box T100, closed, transparent elevated cover



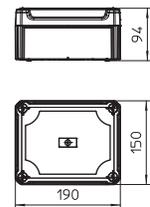
Type	Entries	Dimension LxWxH mm	Clear internal dimensions mm	Pack. pcs	Weight kg/100 pcs.	Item No.
T 100 OE HD TR	None	150x116x83	136x102x74	1	23.650	2007772

PP/PC Polypropylene / polycarbonate

The junction boxes consist of thermoplastic material. The bottom parts are made from impact-resistant polypropylene, the box cover is made from extremely hard-wearing, impact-resistant polycarbonate. The high IK 10 impact resistance at -5°C shows this also.

Thanks to the elevated cover, OBO creates significantly more wiring space, therefore offering the facility to install and protect pushbuttons and series terminals, as well as the option to accommodate control sensors, switches and electronic equipment from the housing and installation technology area. Together with the fastening plate, it is an ideal partner in visible installations.

Junction box T160, closed, transparent elevated cover



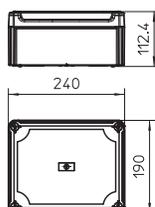
Type	Entries	Dimension LxWxH mm	Clear internal dimensions mm	Pack. pcs	Weight kg/100 pcs.	Item No.
T 160 OE HD TR	None	190x150x94	176x135x84	1	33.920	2007774

PP/PC Polypropylene / polycarbonate

The junction boxes consist of thermoplastic material. The bottom parts are made from impact-resistant polypropylene, the box cover is made from extremely hard-wearing, impact-resistant polycarbonate. The high IK 10 impact resistance at -5°C shows this also.

Thanks to the elevated cover, OBO creates significantly more wiring space, therefore offering the facility to install and protect pushbuttons and series terminals, as well as the option to accommodate control sensors, switches and electronic equipment from the housing and installation technology area. Together with the fastening plate, it is an ideal partner in visible installations.

Junction box T250, closed, transparent elevated cover



Type	Entries	Dimension LxWxH mm	Clear internal dimensions mm	Pack. pcs	Weight kg/100 pcs.	Item No.
T 250 OE HD TR	None	240x190x112	225x173x102	1	100.000	2007776

PP/PC Polypropylene / polycarbonate

The junction boxes consist of thermoplastic material. The bottom parts are made from impact-resistant polypropylene, the box cover is made from extremely hard-wearing, impact-resistant polycarbonate. The high IK 10 impact resistance at -5°C shows this also.

Thanks to the elevated cover, OBO creates significantly more wiring space, therefore offering the facility to install and protect pushbuttons and series terminals, as well as the option to accommodate control sensors, switches and electronic equipment from the housing and installation technology area. Together with the fastening plate, it is an ideal partner in visible installations.

Junction box T350, closed, transparent elevated cover

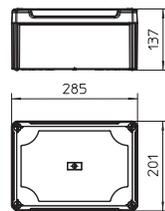


Type	Entries	Dimension LxWxH mm	Clear internal dimensions mm	Pack. pcs	Weight kg/100 pcs.	Item No.
T 350 OE HD TR	None	285x201x137	267x182x127	1	68.660	2007778

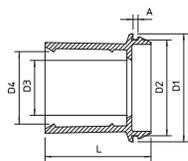
PP/PC Polypropylene / polycarbonate

The junction boxes consist of thermoplastic material. The bottom parts are made from impact-resistant polypropylene, the box cover is made from extremely hard-wearing, impact-resistant polycarbonate. The high IK 10 impact resistance at -5°C shows this also.

Thanks to the elevated cover, OBO creates significantly more wiring space, therefore offering the facility to install and protect pushbuttons and series terminals, as well as the option to accommodate control sensors, switches and electronic equipment from the housing and installation technology area. Together with the fastening plate, it is an ideal partner in visible installations.



Plug-in seal for pipes, T-series junction box, light grey



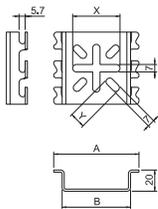
IP 55	M25	M32	M40
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Type	Size	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
EDR 25 16-20 LGR	M25	Light grey	50	0.520	2011506
EDR 25 20-25 LGR	M25	Light grey	50	0.680	2011514
EDR 32 25-32 LGR	M32	Light grey	50	1.170	2011530
EDR 40 32-40 LGR	M40	Light grey	25	2.200	2011546

PVC Polyvinylchloride

Plug-in seal for junction boxes for direct insertion of metric pipes

Mounting plate for mesh cable tray



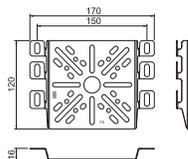
Type	Dimension A mm	Dimension B mm	Dimension x mm	Dimension y mm	Pack. pcs	Weight kg/100 pcs.	Item No.
MPG 65 FT	81	65	45	15	30	9.200	6006486

St Steel

FT Hot-dip galvanised

Mounting plate for screwless wall fastening of mesh cable trays.

Mounting plate



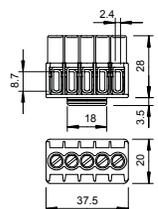
Type	Height mm	Width mm	Pack. pcs	Weight kg/100 pcs.	Item No.
MP UNI FS	115	170	40	13.300	7084773

St Steel

FS Strip-galvanised

Mounting plate, for fastening on the side rail of cable support systems.

Terminal strip 1–4 mm², junction box, T series

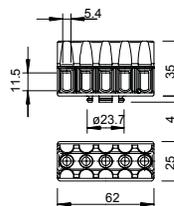


Type	Colour	No. of terminals	Nominal cross-section mm ²	Nom. voltage V	Pack. pcs	Weight kg/100 pcs.	Item No.
KL-T 01-04	Light grey	5	1 - 4	400	10	2.100	2016180

PA Polyamide

Steel terminal block and bolts, galvanised and transparently passivated, nominal 1 - 4 mm², nominal voltage 400 V, 5-pole, with terminal sockets, Max. connectable cross-sections per terminal max. 4 x 2.5 mm², 5 x 1.5 mm² or 6 x 1 mm².

Terminal strip 1.5–6 mm², junction box, T series



Type	Colour	No. of terminals	Nominal cross-section mm ²	Nom. voltage V	Pack. pcs	Weight kg/100 pcs.	Item No.
KL-T 02-06	Light grey	5	1.5 - 6	400	10	4.380	2016185

PA Polyamide

Steel terminal block and bolts, galvanised and transparently passivated, nominal 1,5 - 6 mm², nominal voltage 400 V, 5-pole, with terminal sockets, Max. connectable cross-sections per terminal: 3 x 6 mm², 4 x 4 mm² or 6 x 2.5 mm².

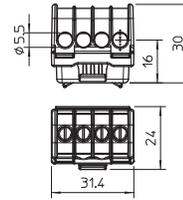
Terminal strip 6–16 mm², junction box, T series



Type	Colour	No. of terminals	Nominal cross-section mm ²	Nom. voltage V	Pack. pcs	Weight kg/100 pcs.	Item No.
KL-T 06-16	Light grey	4	6 - 16	400	10	1.970	2016190

PA Polyamide

Brass terminals, steel screws, electrogalvanised and transparently passivated, nominal cross-section 6 - 16 mm², nominal voltage 400 V, 1-pole, with terminal sockets, Max. connectable conductors per terminal max. 4 x 16 mm², 4 x 10 mm², 8x6 mm² or 12 x 4 mm².



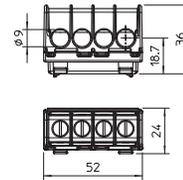
Terminal strip 16–35 mm², junction box, T series



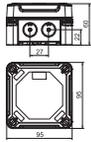
Type	Colour	No. of terminals	Nominal cross-section mm ²	Nom. voltage V	Pack. pcs	Weight kg/100 pcs.	Item No.
KL-T 16-35	Light grey	4	16 - 35	400	10	5.630	2016195

PA Polyamide

Brass terminals, steel screws, electrogalvanised and transparently passivated, nominal cross-section 16 - 35 mm², nominal voltage 400 V, 1-pole, with terminal sockets, Max. connectable conductors per terminal max. 4 x 35 mm², 4 x 25 mm², 8x16 mm² or 12 x 10 mm².



Junction box X 01

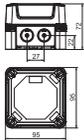


Type
 Colour
 Entries
 Dimension LxWxH mm
 Clear internal dimensions mm
 Pack. pcs
 Weight kg/100 pcs.
Item No.

	X01 LGR	X01 LGR-TR	X01 SW	X01 SW-RO
Colour	Light grey	Grey / transparent	Graphite black	Black / red
Entries	7 x Ø20	7 x Ø20	7 x Ø20	7 x Ø20
Dimension LxWxH mm	—	—	—	—
Clear internal dimensions mm	85x85x45	85x85x45	85x85x45	85x85x45
Pack. pcs	1	1	1	1
Weight kg/100 pcs.	16.000	16.000	16.000	16.000
Item No.	2005000	2005050	2005110	2005140

PC Polycarbonate

Junction box X 02

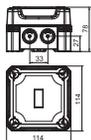


Type
 Colour
 Entries
 Dimension LxWxH mm
 Clear internal dimensions mm
 Pack. pcs
 Weight kg/100 pcs.
Item No.

	X02 LGR	X02 LGR-TR	X02 SW	X02 SW-RO
Colour	Light grey	Grey / transparent	Graphite black	Black / red
Entries	7 x Ø20	7 x Ø20	7 x Ø20	7 x Ø20
Dimension LxWxH mm	—	—	—	—
Clear internal dimensions mm	85x85x57	85x85x57	85x85x57	85x85x57
Pack. pcs	1	1	1	1
Weight kg/100 pcs.	17.800	17.800	17.800	17.800
Item No.	2005004	2005054	2005114	2005144

PC Polycarbonate

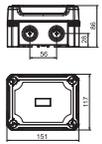
Junction box X 04



Type
 Colour
 Entries
 Dimension LxWxH mm
 Clear internal dimensions mm
 Pack. pcs
 Weight kg/100 pcs.
Item No.

	X04 LGR	X04 LGR-TR	X04 SW	X04 SW-RO
Colour	Light grey	Grey / transparent	Graphite black	Black / red
Entries	7 x Ø20/25	7 x Ø20/25	7 x Ø20/25	7 x Ø20/25
Dimension LxWxH mm	—	—	—	—
Clear internal dimensions mm	102x102x60	102x102x60	102x102x60	102x102x60
Pack. pcs	1	1	1	1
Weight kg/100 pcs.	26.600	26.600	26.600	26.600
Item No.	2005008	2005058	2005118	2005148

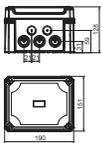
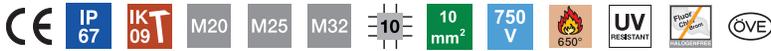
PC Polycarbonate



Type	X06 LGR	X06 LGR-TR	X06 SW	X06 SW-RO
Colour	Light grey	Grey / transparent	Graphite black	Black / red
Entries	8 x Ø20/25	8 x Ø20/25	8 x Ø20/25	8 x Ø20/25
Dimension LxWxH mm	—	—	—	—
Clear internal dimensions mm	137x105x68	137x105x68	137x105x68	137x105x68
Pack. pcs	1	1	1	1
Weight kg/100 pcs.	33.500	33.500	33.500	33.500
Item No.	2005012	2005062	2005122	2005152

PC Polycarbonate

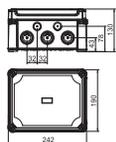
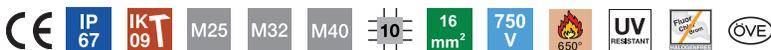
Junction box X 10



Type	X10 LGR	X10 LGR-TR	X10 SW	X10 SW-RO
Colour	Light grey	Grey / transparent	Graphite black	Black / red
Entries	10 x Ø20/25/32	10 x Ø20/25/32	10 x Ø20/25/32	10 x Ø20/25/32
Dimension LxWxH mm	—	—	—	—
Clear internal dimensions mm	177x137x110	177x137x110	177x137x110	177x137x110
Pack. pcs	1	1	1	1
Weight kg/100 pcs.	59.200	59.200	59.200	59.200
Item No.	2005016	2005066	2005126	2005156

PC Polycarbonate

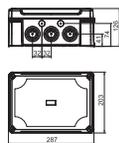
Junction box X 16



Type	X16 LGR	X16 LGR-TR	X16 SW	X16 SW-RO
Colour	Light grey	Grey / transparent	Graphite black	Black / red
Entries	10 x Ø25/32/40	10 x Ø25/32/40	10 x Ø25/32/40	10 x Ø25/32/40
Dimension LxWxH mm	—	—	—	—
Clear internal dimensions mm	227x177x110	227x177x110	227x177x110	227x177x110
Pack. pcs	1	1	1	1
Weight kg/100 pcs.	79.300	79.300	79.300	79.300
Item No.	2005020	2005070	2005130	2005160

PC Polycarbonate

Junction box X 25



Type	X25 LGR	X25 LGR-TR	X25 SW	X25 SW-RO
Colour	Light grey	Grey / transparent	Graphite black	Black / red
Entries	10 x Ø25/40/50	10 x Ø25/40/50	10 x Ø25/40/50	10 x Ø25/40/50
Dimension LxWxH mm	—	—	—	—
Clear internal dimensions mm	271x187x110	271x187x110	271x187x110	271x187x110
Pack. pcs	1	1	1	1
Weight kg/100 pcs.	96.500	96.500	96.500	96.500
Item No.	2005024	2005074	2005134	2005164

PC Polycarbonate



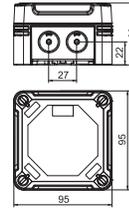
Junction box X 01 with cable gland



Type	Colour	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
X01 G M20 LGR	Light grey	7 x Ø20	1	19.000	2005030

PC Polycarbonate

Type	Dimension LxWxH mm	Clear internal dimensions mm
X01 G M20 LGR	—	85x85x45



Dimensions

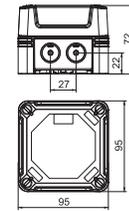
Junction box X 02 with cable gland



Type	Colour	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
X02 G M20 LGR	Light grey	7 x Ø20	1	21.500	2005032

PC Polycarbonate

Type	Dimension LxWxH mm	Clear internal dimensions mm
X02 G M20 LGR	—	85x85x57



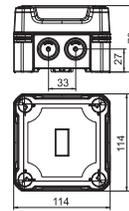
Dimensions



Type	Colour	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
X04 G M20 LGR	Light grey	7 x Ø20/25	1	31.400	2005034

PC Polycarbonate

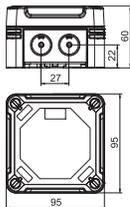
Type	Dimension LxWxH mm	Clear internal dimensions mm
X04 G M20 LGR	—	102x102x60



Dimensions



Junction box X 01 with terminal strip



Type	Colour	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
X01 T LGR	Light grey	7 x Ø20	1	17.500	2005190

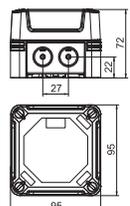
PC Polycarbonate

The scope of delivery contains a 5-pole terminal strip.

Dimensions

Type	Dimension LxWxH mm	Clear internal dimensions mm
X01 T LGR	—	85x85x45

Junction box X 02 with terminal strip



Type	Colour	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
X02 T LGR	Light grey	7 x Ø20	1	19.300	2005194

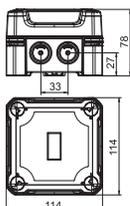
PC Polycarbonate

The scope of delivery contains a 5-pole terminal strip.

Dimensions

Type	Dimension LxWxH mm	Clear internal dimensions mm
X02 T LGR	—	85x85x57

Junction box X 04 with terminal strip



Type	Colour	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
X04 T LGR	Light grey	7 x Ø20/25	1	31.600	2005198

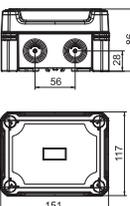
PC Polycarbonate

The scope of delivery contains a 5-pole terminal strip.

Dimensions

Type	Dimension LxWxH mm	Clear internal dimensions mm
X04 T LGR	—	102x102x60

Junction box X 06 with terminal strip



Type	Colour	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
X06 T LGR	Light grey	8 x Ø20/25	1	38.000	2005202

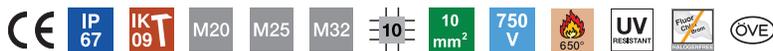
PC Polycarbonate

The scope of delivery contains a 5-pole terminal strip.

Dimensions

Type	Dimension LxWxH mm	Clear internal dimensions mm
X06 T LGR	—	137x105x68

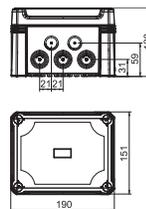
Junction box X 10 with terminal strip



Type	Colour	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
X10 T LGR	Light grey	10 x Ø20/25/32	1	72.000	2005206

PC Polycarbonate

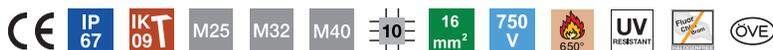
The scope of delivery contains 5 terminal strips, each with 4 terminals.



Dimensions

Type	Dimension LxWxH mm	Clear internal dimensions mm
X10 T LGR	—	177x137x110

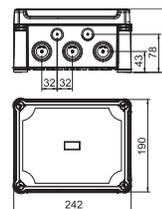
Junction box X 16 with terminal strip



Type	Colour	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
X16 T LGR	Light grey	10 x Ø25/32/40	1	97.500	2005210

PC Polycarbonate

The scope of delivery contains 5 terminal strips, each with 4 terminals.



Dimensions

Type	Dimension LxWxH mm	Clear internal dimensions mm
X16 T LGR	—	227x177x110

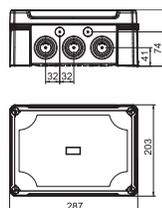
Junction box X 25 with terminal strip



Type	Colour	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
X25 T LGR	Light grey	10 x Ø25/40/50	1	130.000	2005214

PC Polycarbonate

The scope of delivery contains 5 terminal strips, each with 4 terminals.

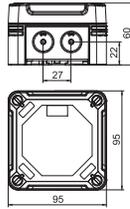


Dimensions

Type	Dimension LxWxH mm	Clear internal dimensions mm
X25 T LGR	—	271x187x110



Junction box X 01 with cable gland and terminal strip



Type	Colour	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
X01 T G M20 LGR	Light grey	7 x Ø20	1	20.500	2005220

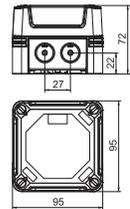
PC Polycarbonate

A terminal strip, three V-TEC M20 cable glands and three matching locknuts are included.

Dimensions

Type	Dimension LxWxH mm	Clear internal dimensions mm
X01 T G M20 LGR	—	85x85x45

Junction box X 02 with cable gland and terminal strip



Type	Colour	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
X02 T G M20 LGR	Light grey	7 x Ø20	1	23.000	2005222

PC Polycarbonate

A terminal strip, three V-TEC M20 cable glands and three matching locknuts are included.

Dimensions

Type	Dimension LxWxH mm	Clear internal dimensions mm
X02 T G M20 LGR	—	85x85x57

Junction box X 01 with cable gland and plug-in terminals

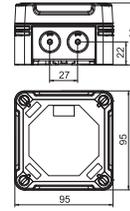


Type	Colour	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
X01 UT G LGR	Light grey	7 x Ø20	1	20.000	2005240

PC Polycarbonate

Three universal clamps (with 5 clamping points), three V-TEC M20 cable glands and three matching locknuts are included.

Type	Dimension LxWxH mm	Clear internal dimensions mm
X01 UT G LGR	—	85x85x45



Dimensions

Junction box X 02 with cable gland and plug-in terminals

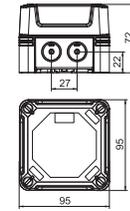


Type	Colour	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
X02 UT G LGR	Light grey	7 x Ø20	1	23.000	2005244

PC Polycarbonate

Three universal clamps (with 5 clamping points), three V-TEC M20 cable glands and three matching locknuts are included.

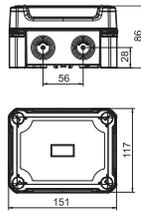
Type	Dimension LxWxH mm	Clear internal dimensions mm
X02 UT G LGR	—	85x85x57



Dimensions



Junction box X 06 with hat profile rail



Type	Colour	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
X06 R LGR-TR	Grey / transparent	8 x Ø20/25	1	37.600	2005092

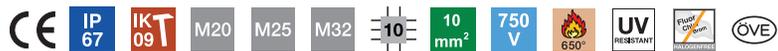
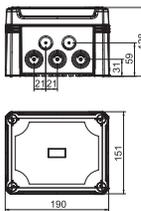
PC Polycarbonate

With transparent cover and hat profile rail, type 2069, with fastening set.

Dimensions

Type	Dimension LxWxH mm	Clear internal dimensions mm
X06 R LGR-TR	—	137x105x68

Junction box X 10 with hat profile rail



Type	Colour	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
X10 R LGR-TR	Grey / transparent	10 x Ø20/25/32	1	65.600	2005092

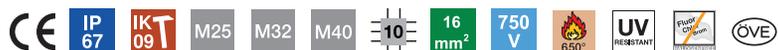
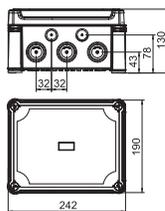
PC Polycarbonate

With transparent cover and hat profile rail, type 2069, with fastening set.

Dimensions

Type	Dimension LxWxH mm	Clear internal dimensions mm
X10 R LGR-TR	—	177x137x110

Junction box X 16 with hat profile rail



Type	Colour	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
X16 R LGR-TR	Grey / transparent	10 x Ø25/32/40	1	87.300	2005100

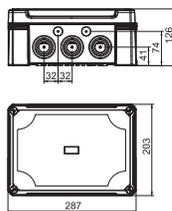
PC Polycarbonate

With transparent cover and hat profile rail, type 2069, with fastening set.

Dimensions

Type	Dimension LxWxH mm	Clear internal dimensions mm
X16 R LGR-TR	—	227x177x110

Junction box X 25 with hat profile rail



Type	Colour	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
X25 R LGR-TR	Grey / transparent	10 x Ø25/40/50	1	107.000	2005104

PC Polycarbonate

With transparent cover and hat profile rail, type 2069, with fastening set.

Dimensions

Type	Dimension LxWxH mm	Clear internal dimensions mm
X25 R LGR-TR	—	271x187x110

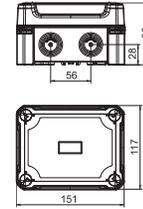
Junction box X 06 with main branch terminal



Type	Colour	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
X06 H25 GP4 LGR	Light grey	8 x Ø20/25	1	56.800	2005304

PC Polycarbonate

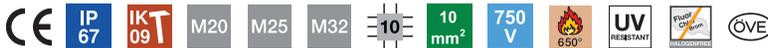
A 4-pole main terminal block is included with 16 clamping points.
For 25 mm² cable cross-section



Dimensions

Type	Dimension LxWxH mm	Clear internal dimensions mm
X06 H25 GP4 LGR	—	137x105x68

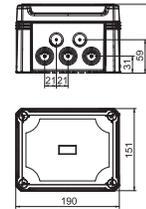
Junction box X 10 with main branch terminal



Type	Colour	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
X10 H25 GNP5 LGR	Light grey	10 x Ø20/25/32	1	104.000	2005308

PC Polycarbonate

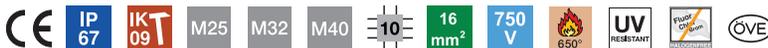
A 5-pole main terminal block is included with 20 clamping points.
For 25 mm² cable cross-section



Dimensions

Type	Dimension LxWxH mm	Clear internal dimensions mm
X10 H25 GNP5 LGR	—	177x137x110

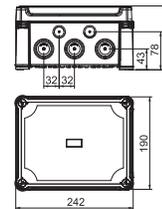
Junction box X 16 with main branch terminal



Type	Colour	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
X16 H25 GNP5 LGR	Light grey	10 x Ø25/32/40	1	111.000	2005312
X16 H35 GNP5 LGR	Light grey	10 x Ø25/32/40	1	125.000	2005316

PC Polycarbonate

A 5-pole main terminal block is included with 20 clamping points.
X16 H25 GNP5 LGR: for 25 mm² conductor cross-section
X16 H35 GNP5 LGR: for 35 mm² conductor cross-section



Dimensions

Type	Dimension LxWxH mm	Clear internal dimensions mm
X16 H25 GNP5 LGR	—	227x177x110
X16 H35 GNP5 LGR	—	227x177x110

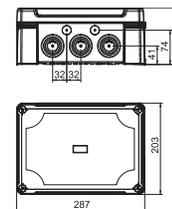
Junction box X 25 with main branch terminal



Type	Colour	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
X25 H35 GNP5 LGR	Light grey	10 x Ø25/40/50	1	145.000	2005320
X25 H50 GNP5 LGR	Light grey	10 x Ø25/40/50	1	165.000	2005324

PC Polycarbonate

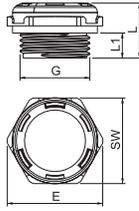
In addition, a main line branch terminal is included:
X25 H25 GNP5 LGR: 7-pole with 28 clamping points for 25 mm² conductor cross-section
X25 H35 GNP5 LGR: 5-pole with 20 clamping points for 35 mm² conductor cross-section
X25 H50 GNP5 LGR: 5-pole with 20 clamping points for 50 mm² conductor cross-section



Dimensions

Type	Dimension LxWxH mm	Clear internal dimensions mm
X25 H35 GNP5 LGR	—	271x187x110
X25 H50 GNP5 LGR	—	271x187x110

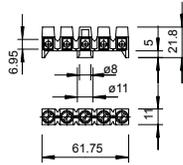
Pressure balance plug 109



Type	Thread	Protection rating	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
109 M20 LGR	M20x1,5	IP68	Light grey	5	0.538	2034680

The pressure compensation element is surrounded by an ePTFE membrane, which is permeable in both directions to air. The air throughput at a pressure difference of 70 mbar is 110 L/h. At the same time, moisture cannot enter the housing from outside.

Terminal strip 2.5 mm²

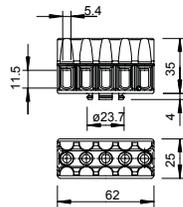


Type	Colour	No. of terminals	Nominal cross-section mm ²	Nom. voltage V	Pack. pcs	Weight kg/100 pcs.	Item No.
689	Light grey	5	0.8 - 2.5	660	50	1.502	2017342

PA Polyamide

Terminal strip, nickel-plated brass, steel screws, galvanised and transparently passivated, nominal cross-section 0,8 - 2,5 mm², nominal voltage 660 V, 5-pole, with terminal sockets, max. connectable cross-sections per terminal: 4 x 2.5 mm², 5 x 1.5 mm² or 6 x 1 mm², unnecessary poles can be cut off and used as individual terminals.

Terminal strip 1.5–6 mm², junction box, T series

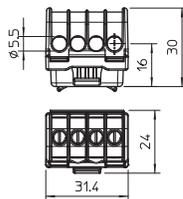


Type	Colour	No. of terminals	Nominal cross-section mm ²	Nom. voltage V	Pack. pcs	Weight kg/100 pcs.	Item No.
KL-T 02-06	Light grey	5	1.5 - 6	400	10	4.380	2016185

PA Polyamide

Steel terminal block and bolts, galvanised and transparently passivated, nominal 1,5 - 6 mm², nominal voltage 400 V, 5-pole, with terminal sockets, Max. connectable cross-sections per terminal: 3 x 6 mm², 4 x 4 mm² or 6 x 2.5 mm².

Terminal strip 6–16 mm², junction box, T series

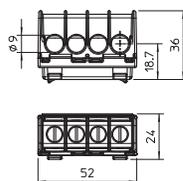


Type	Colour	No. of terminals	Nominal cross-section mm ²	Nom. voltage V	Pack. pcs	Weight kg/100 pcs.	Item No.
KL-T 06-16	Light grey	4	6 - 16	400	10	1.970	2016190

PA Polyamide

Brass terminals, steel screws, electrogalvanised and transparently passivated, nominal cross-section 6 - 16 mm², nominal voltage 400 V, 1-pole, with terminal sockets, Max. connectable conductors per terminal max. 4 x 16 mm², 4 x 10 mm², 8x6 mm² or 12 x 4 mm².

Terminal strip 16–35 mm², junction box, T series



Type	Colour	No. of terminals	Nominal cross-section mm ²	Nom. voltage V	Pack. pcs	Weight kg/100 pcs.	Item No.
KL-T 16-35	Light grey	4	16 - 35	400	10	5.630	2016195

PA Polyamide

Brass terminals, steel screws, electrogalvanised and transparently passivated, nominal cross-section 16 - 35 mm², nominal voltage 400 V, 1-pole, with terminal sockets, Max. connectable conductors per terminal max. 4 x 35 mm², 4 x 25 mm², 8x16 mm² or 12 x 10 mm².

Aquasit cold casting compound, cartridge



Type	Contents	Pack. pcs	Weight	Item No.
	ml		kg/100 pcs.	
KVM 250	250	1	42.000	2363010

Aquasit is a two-component casting compound in a cartridge, for applications in areas with continuous and extremely high levels of moisture. It can also be used against mechanical shock and vibrations. The cartridge is suitable for use in standard cartridge pistols. At room temperature, the unopened aluminium packaging can be stored for up to 18 months. When the cartridge is opened, the material should be used within 24 hours.

Practical experience, tests and approvals valid only in conjunction with OBO junction boxes.

Aquasit properties:

Protection rating with appropriate junction box: IP68 at 1.8 bar/1,000 hrs

Rated voltage: 400 V

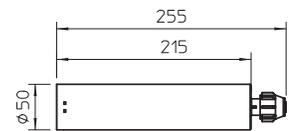
Penetration resistance: >20 kv/mm to VDE 0291 Part 2

Operating temperature: -40 to +90 °C

Processing temperature: 0 to +40 °C

Halogen-free, silicon-free, isocyanite-free

Environmentally friendly and without the need to be labelled



AQUASIT mixer pipe



Type	Pack. PU	Weight	Item No.
		kg/100 PUs	
KVM-M	1	17.000	2363015

10 mixer pipes in the set.

Simple, automatic mixing of OBO AQUASIT when pressing out the compound from the cartridge.



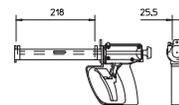
Aquasit cartridge pistol



Type	Pack. pcs	Weight	Item No.
		kg/100 pcs.	
KVM-P	1	100.000	2363019

High-quality one-component cartridge pistol for use with the AQUASIT cold casting compound.

The cartridge pistol can also be used with normal 300 ml cartridges.



Aquasit cold casting compound, mixing bag



Type	Contents ml	Pack. Weight		Item No.
		pcs	kg/100 pcs.	
KVMM 400	400	1	49.800	2363008
KVMM 800	800	1	92.000	2363006
KVMM 1600	1600	1	175.000	2363002

Aquasit is a two-component casting compound in a cartridge, for applications in areas with continuous and extremely high levels of moisture. It can also be used against mechanical shock and vibrations.

The cartridge is suitable for use in standard cartridge pistols. At room temperature, the unopened aluminium packaging can be stored for up to 18 months. When the cartridge is opened, the material should be used within 24 hours.

Practical experience, tests and approvals valid only in conjunction with OBO junction boxes.

Aquasit properties:

Protection rating with appropriate junction box: IP68 at 1.8 bar/1,000 hrs

Rated voltage: 400 V

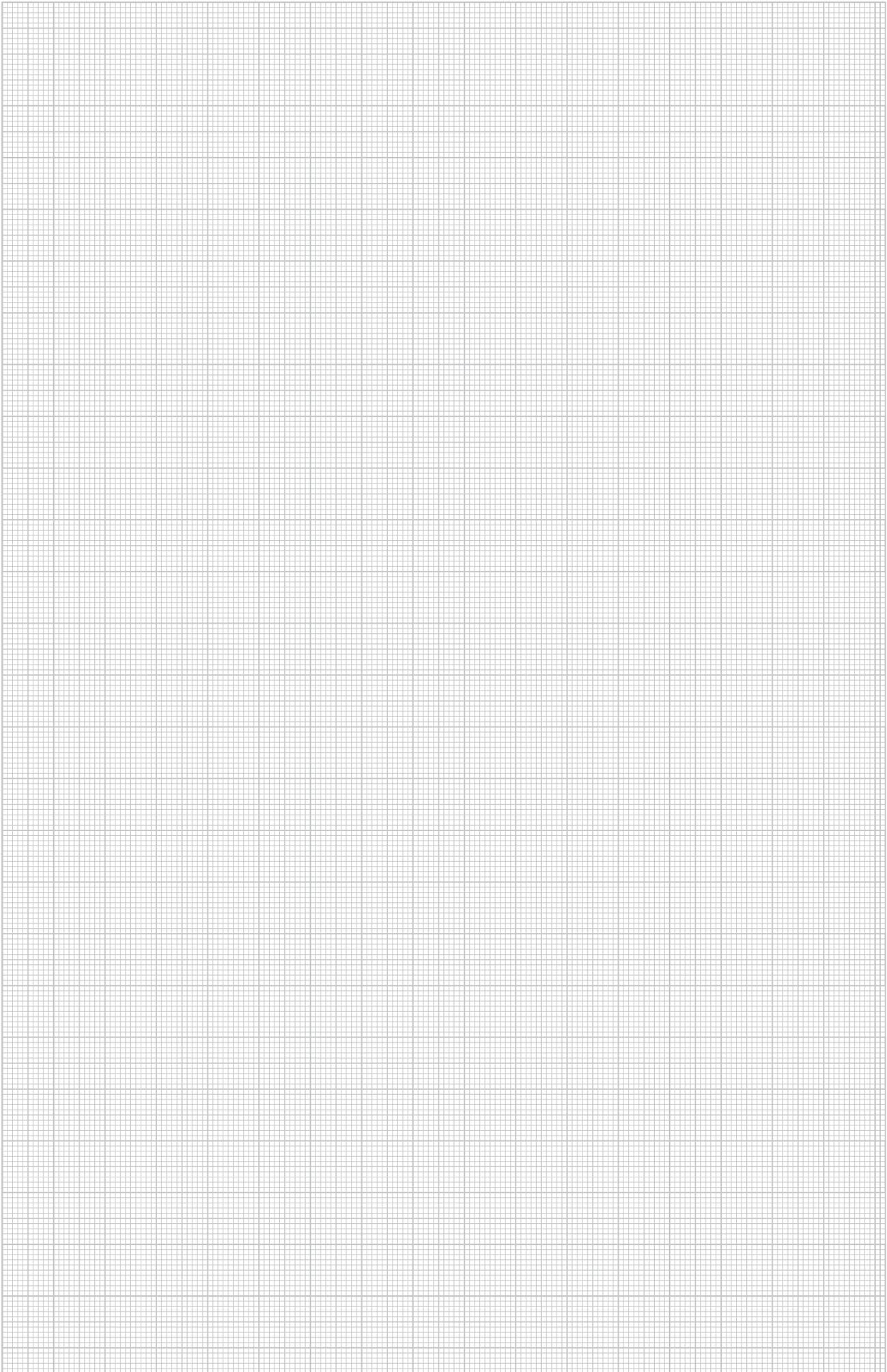
Penetration resistance: >20 kv/mm to VDE 0291 Part 2

Operating temperature: -40 to +90 °C

Processing temperature: 0 to +40 °C

Halogen-free, silicon-free, isocyanite-free

Environmentally friendly and without the need to be labelled





VBS_Typ_0A/1en/2019/03/29/2019/03/29/08:25:41 (LLExpert_02452) / 2019/03/29/08:25:41 08:25:41



Distribution box



Distribution box, 3 division units

74



Distribution box, 5 division units

74



Distribution box, 9 division units

74



Distribution box, 12 division units

74

Distribution box, 3 division units, empty



Type	Colour	Dimension LxWxH mm	Pack. Weight		Item No.
			pcs	kg/100 pcs.	
SDB 03L PC	Light grey	150x190x125	1	78.000	2008860
SDB 03L PS	Light grey	150x190x125	1	69.000	2008820

PS Polystyrene PC Polycarbonate

Surface-mounted distribution box, with protective insulation for max. 3 division units. There are 3 break-out openings (2x Ø20 and 1x Ø20/25) on both the upper and lower sides incl. pre-mounted 35 mm hat profile support rail. The four screw cover caps supplied prevent unwanted "voltage carry over".

The PC distribution boxes are suitable for mounting for interior and exterior use.

Distribution box, 5 division units, empty



Type	Colour	Dimension LxWxH mm	Pack. Weight		Item No.
			pcs	kg/100 pcs.	
SDB 05L PC	Light grey	190x150x125	1	78.500	2008864
SDB 05L PS	Light grey	190x150x125	1	69.500	2008824

PS Polystyrene PC Polycarbonate

Surface-mounted distribution box, with protective insulation for max. 5 division units. There are 5 break-out openings (4x Ø20 and 1x Ø20/25) on both the upper and lower sides incl. pre-mounted 35 mm hat profile support rail. The four screw cover caps supplied prevent unwanted "voltage carry over".

The PC distribution boxes are suitable for mounting for interior and exterior use.

Distribution box, 9 division units, empty



Type	Colour	Dimension LxWxH mm	Pack. Weight		Item No.
			pcs	kg/100 pcs.	
SDB 09L PS	Light grey	240x191x125	1	96.000	2008828
SDB 09L PC	Light grey	240x191x125	1	108.000	2008868

PS Polystyrene PC Polycarbonate

Surface-mounted distribution box, with protective insulation for max. 9 division units. There are 9 break-out openings (8x Ø20 and 1x Ø20/25/32) on both the upper and lower sides incl. pre-mounted 35 mm hat profile support rail. The four screw cover caps supplied prevent unwanted "voltage carry over".

The PS distribution boxes are suitable for mounting in interiors and in protected exteriors.

Distribution box, 12 division units, empty

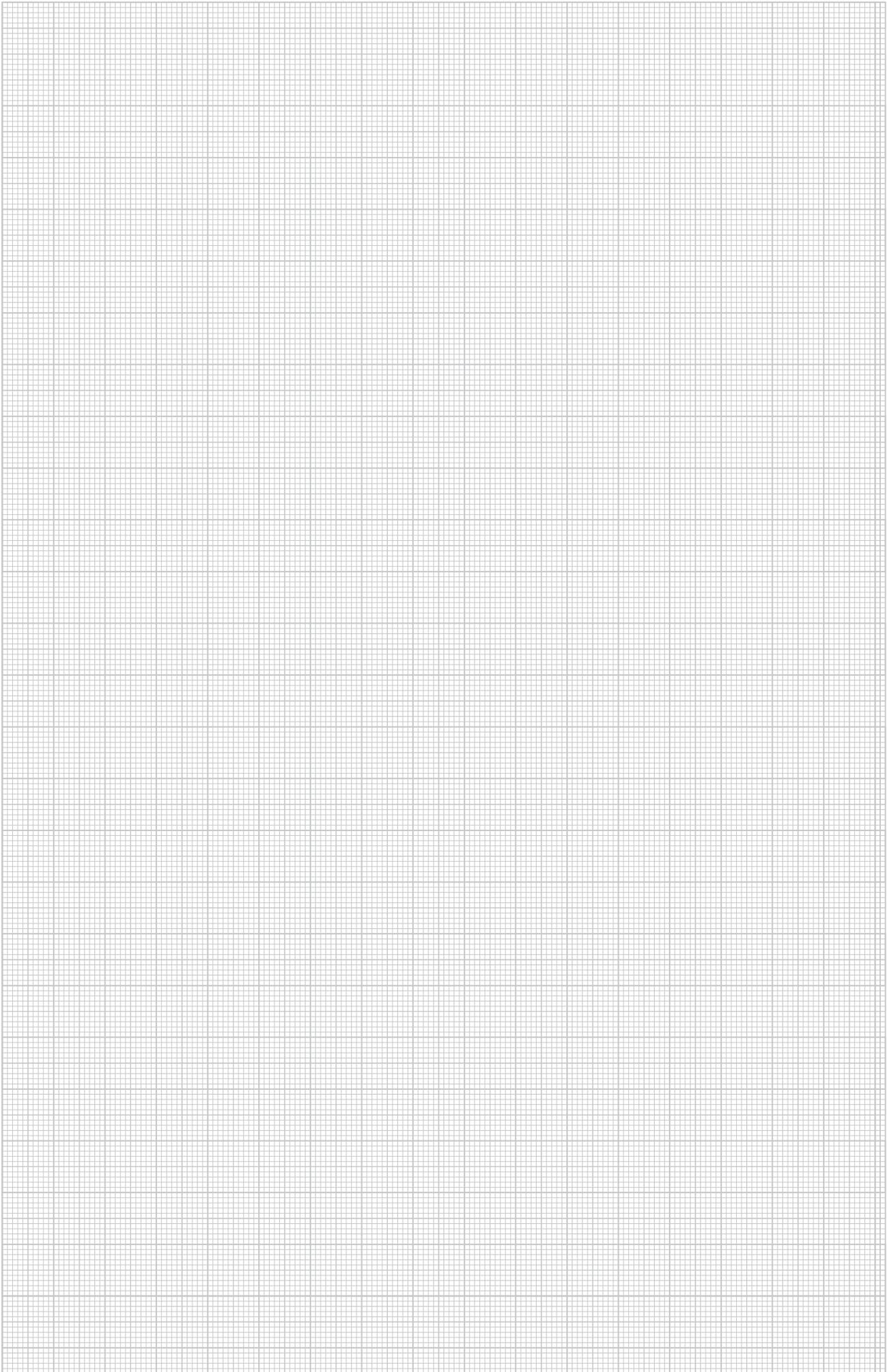


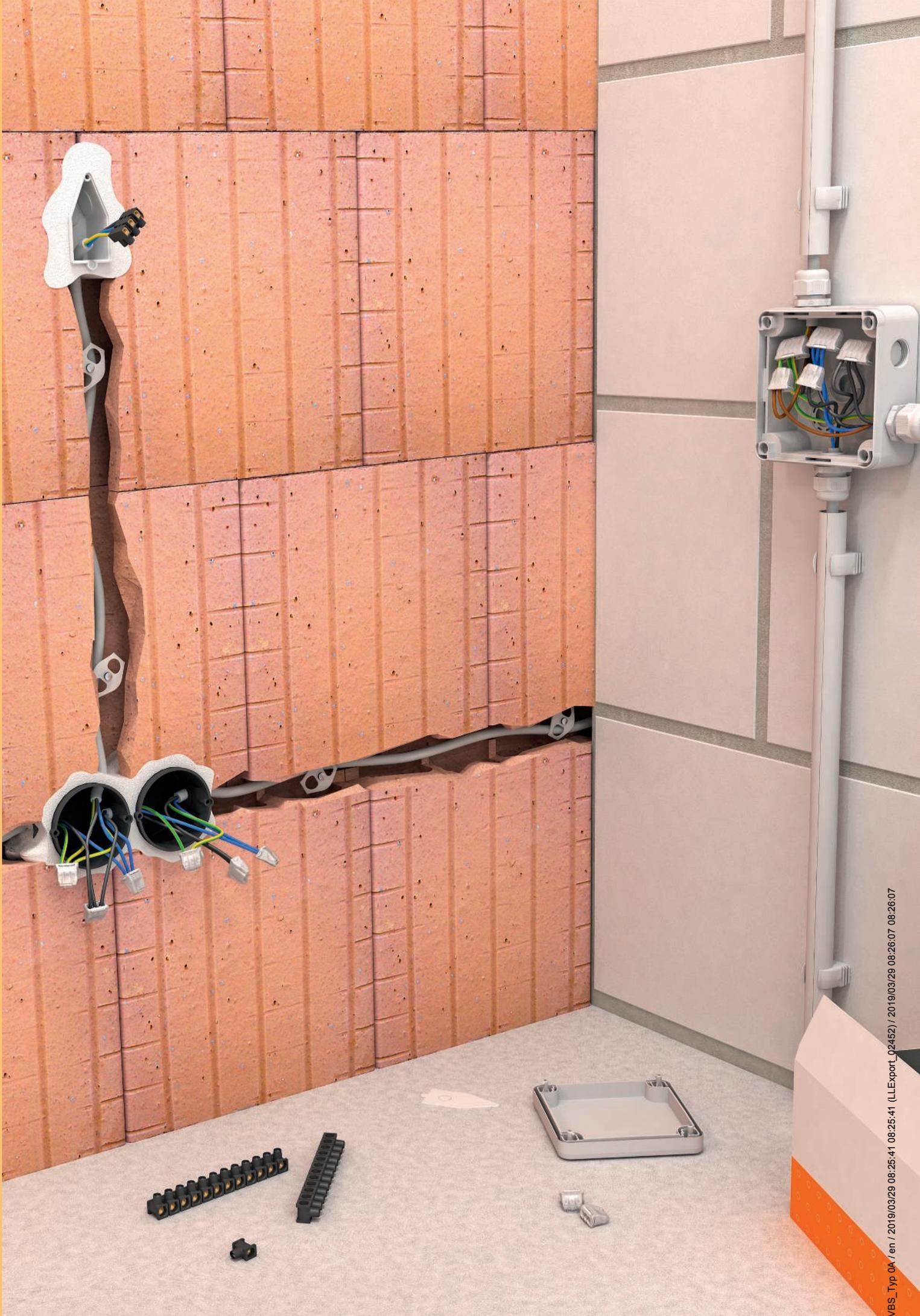
Type	Colour	Dimension LxWxH mm	Pack. Weight		Item No.
			pcs	kg/100 pcs.	
SDB 12L PS	Light grey	286x202x125	1	120.000	2008832
SDB 12L PC	Light grey	286x202x125	1	134.000	2008872

PS Polystyrene PC Polycarbonate

Surface-mounted distribution box, with protective insulation for max. 12 division units. There are 11 break-out openings (10x Ø20 and 1x Ø20/25/32) on both the upper and lower sides incl. pre-mounted 35 mm hat profile support rail. The four screw cover caps supplied prevent unwanted "voltage carry over".

The PS distribution boxes are suitable for mounting in interiors and in protected exteriors.





Terminal systems



Individual connection terminals, plug-in

78

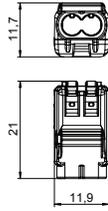


Individual connection terminals, screw-in

79



Universal plug-in terminal, 2-pole



Colour

Type

61 225 FL | Transparent

PC Polycarbonate

Tested according to EN 60998

Screwless terminal to connect electrical conductors. The type of conductor can either be flexible, multi-wire or rigid.

If rigid conductors are used, an opening of the release lever is not necessary. The conductor can be plugged into the terminal directly.

To extract the conductors, simply open the release lever. The strand can then be easily pulled-out.

Nominal cross-section:

2 x 0.2 - 2.5 mm² multi-wire cables / single-wire conductors

Rated voltage 600 V

Rated current 20 A

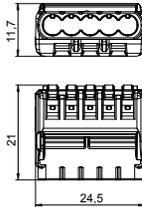
Stripping length: 9 mm (+1 mm)

Inspection opening: Phase tester and testing pin (max. Ø 2 mm), very easily accessible on the top side of the terminal

Max. approved ambient temperature according to EN 60998: 85 °C.

Pack. pcs	Weight kg/100 pcs.	Item No.
100	0.200	2054450

Universal plug-in terminal, 5-pole



Colour

Type

61 525 FL | Transparent

PC Polycarbonate

Tested according to EN 60998

Screwless terminal to connect electrical conductors. The type of conductor can either be flexible, multi-wire or rigid.

If rigid conductors are used, an opening of the release lever is not necessary. The conductor can be plugged into the terminal directly.

To extract the conductors, simply open the release lever. The strand can then be easily pulled-out.

Nominal cross-section:

5 x 0.2 - 2.5 mm² multi-wire cables / single-wire conductors

Rated voltage 600 V

Rated current 20 A

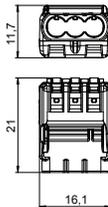
Stripping length: 9 mm (+1 mm)

Inspection opening: Phase tester and testing pin (max. Ø 2 mm), very easily accessible on the top side of the terminal

Max. approved ambient temperature according to EN 60998: 85 °C.

Pack. pcs	Weight kg/100 pcs.	Item No.
50	0.410	2054458

Universal plug-in terminal, 3-pole



Colour

Type

61 325 FL | Transparent

PC Polycarbonate

Tested according to EN 60998

Screwless terminal to connect electrical conductors. The type of conductor can either be flexible, multi-wire or rigid.

If rigid conductors are used, an opening of the release lever is not necessary. The conductor can be plugged into the terminal directly.

To extract the conductors, simply open the release lever. The strand can then be easily pulled-out.

Nominal cross-section:

3 x 0.2 - 2.5 mm² multi-wire cables / single-wire conductors

Rated voltage 600 V

Rated current 20 A

Stripping length: 9 mm (+1 mm)

Inspection opening: Phase tester and testing pin (max. Ø 2 mm), very easily accessible on the top side of the terminal

Max. approved ambient temperature according to EN 60998: 85 °C.

Pack. pcs	Weight kg/100 pcs.	Item No.
75	0.270	2054454

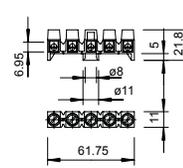


Terminal strip 2.5 mm²

Type	Colour	No. of terminals	Nominal cross-section mm ²	Nom. voltage V	Pack. pcs	Weight kg/100 pcs.	Item No.
689	Light grey	5	0.8 - 2.5	660	50	1.502	2017342

PA Polyamide

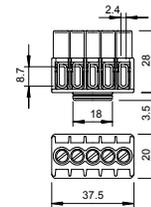
Terminal strip, nickel-plated brass, steel screws, galvanised and transparently passivated, nominal cross-section 0,8 - 2,5 mm², nominal voltage 660 V, 5-pole, with terminal sockets, max. connectable cross-sections per terminal: 4 x 2.5 mm², 5 x 1.5 mm² or 6 x 1 mm², unnecessary poles can be cut off and used as individual terminals.

Terminal strip 1–4 mm², junction box, T series

Type	Colour	No. of terminals	Nominal cross-section mm ²	Nom. voltage V	Pack. pcs	Weight kg/100 pcs.	Item No.
KL-T 01-04	Light grey	5	1 - 4	400	10	2.100	2016180

PA Polyamide

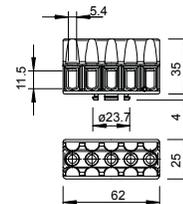
Steel terminal block and bolts, galvanised and transparently passivated, nominal 1 - 4 mm², nominal voltage 400 V, 5-pole, with terminal sockets, Max. connectable cross-sections per terminal max. 4 x 2.5 mm², 5 x 1.5 mm² or 6 x 1 mm².

Terminal strip 1.5–6 mm², junction box, T series

Type	Colour	No. of terminals	Nominal cross-section mm ²	Nom. voltage V	Pack. pcs	Weight kg/100 pcs.	Item No.
KL-T 02-06	Light grey	5	1.5 - 6	400	10	4.380	2016185

PA Polyamide

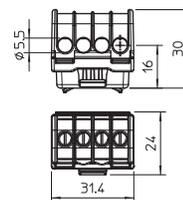
Steel terminal block and bolts, galvanised and transparently passivated, nominal 1,5 - 6 mm², nominal voltage 400 V, 5-pole, with terminal sockets, Max. connectable cross-sections per terminal: 3 x 6 mm², 4 x 4 mm² or 6 x 2.5 mm².

Terminal strip 6–16 mm², junction box, T series

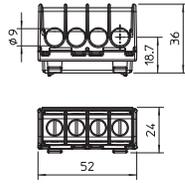
Type	Colour	No. of terminals	Nominal cross-section mm ²	Nom. voltage V	Pack. pcs	Weight kg/100 pcs.	Item No.
KL-T 06-16	Light grey	4	6 - 16	400	10	1.970	2016190

PA Polyamide

Brass terminals, steel screws, electrogalvanised and transparently passivated, nominal cross-section 6 - 16 mm², nominal voltage 400 V, 1-pole, with terminal sockets, Max. connectable conductors per terminal max. 4 x 16 mm², 4 x 10 mm², 8x6 mm² or 12 x 4 mm².



Terminal strip 16–35 mm², junction box, T series

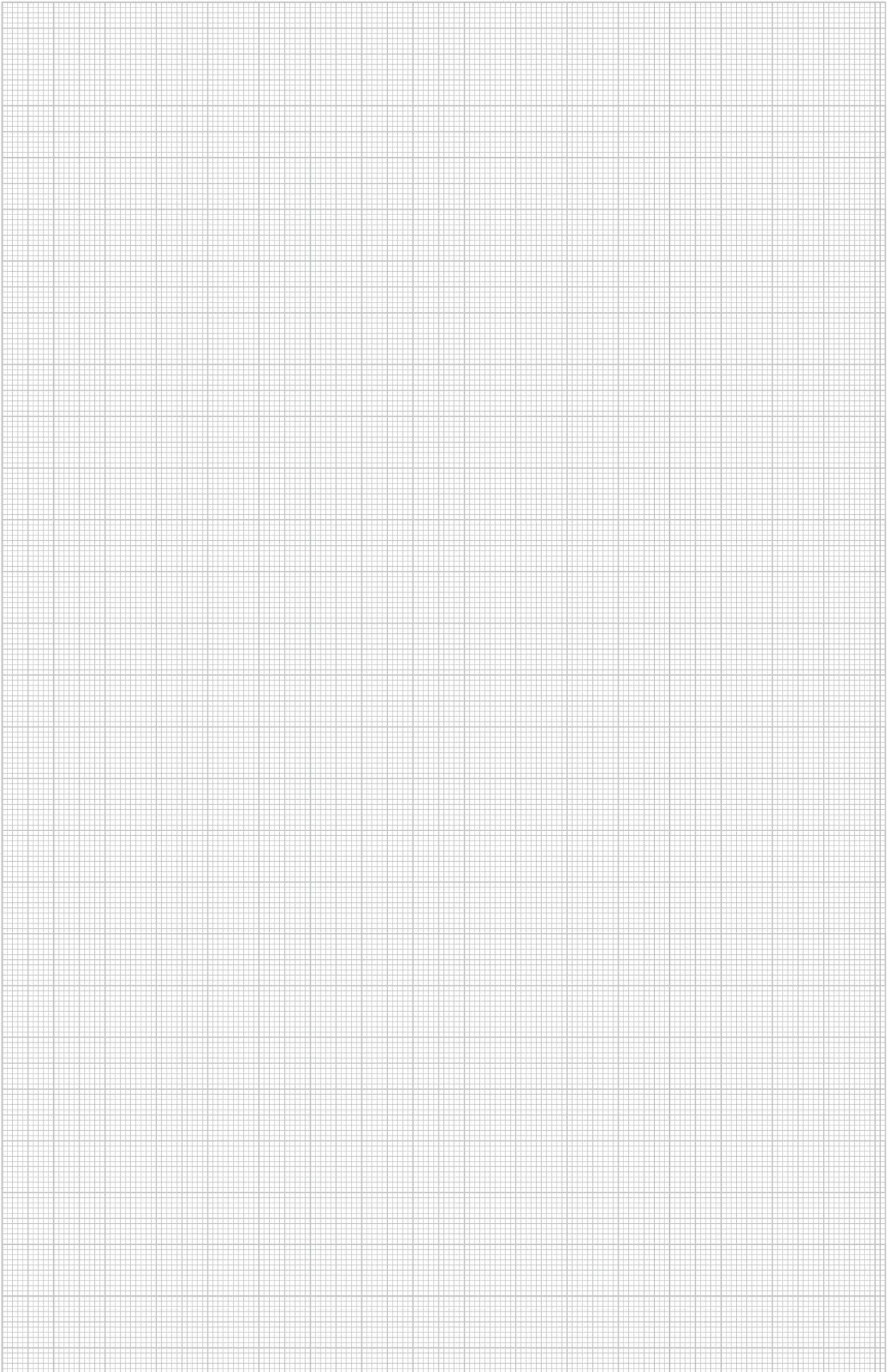


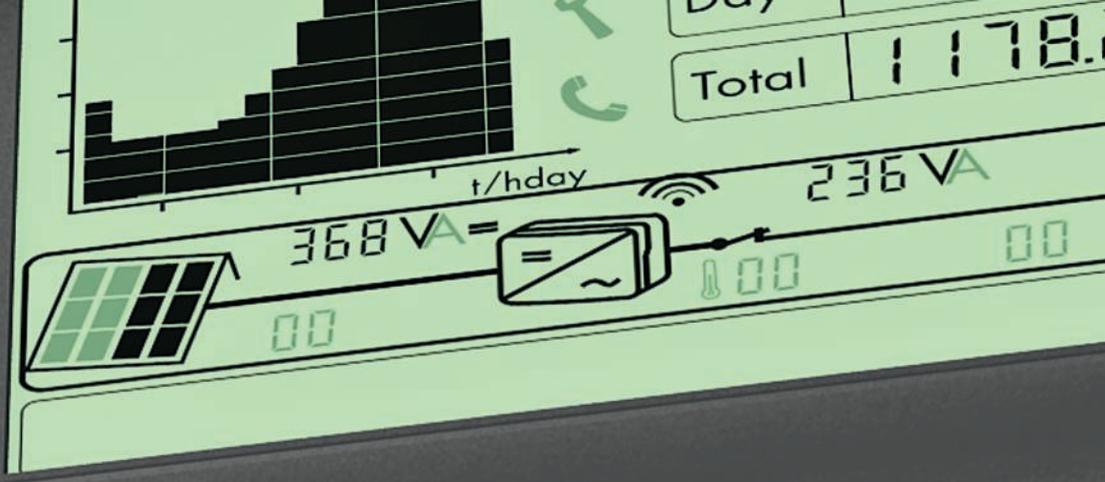
Type	Colour	No. of terminals	Nominal cross-section mm ²	Nom. voltage V	Pack. pcs	Weight kg/100 pcs.	Item No.
KL-T 16-35	Light grey	4	16 - 35	400	10	5.630	2016195

PA Polyamide

Brass terminals, steel screws, electrogalvanised and transparently passivated, nominal cross-section 16 - 35 mm², nominal voltage 400 V, 1-pole, with terminal sockets, Max. connectable conductors per terminal max. 4 x 35 mm², 4 x 25 mm², 8x16 mm² or 12 x 10 mm².







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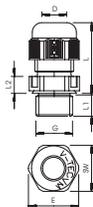


Cable gland systems, plastic

	Cap nut cable gland	84
	Locknuts	86
	Cable entry	88



Cable gland, metric thread, light grey



Type	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
V-TEC VM12 LGR	Light grey	50	0.318	2022862
V-TEC VM16 LGR	Light grey	50	0.638	2022864
V-TEC VM20 LGR	Light grey	50	0.856	2022866
V-TEC VM25 LGR	Light grey	25	1.360	2022868
V-TEC VM32 LGR	Light grey	20	2.235	2022870
V-TEC VM40 LGR	Light grey	10	3.467	2022872
V-TEC VM50 LGR	Light grey	5	5.466	2022874
V-TEC VM63 LGR	Light grey	5	8.306	2022876

PA Polyamide

The quickest and most convenient way of providing strain relief and tightness with cable glands on junction boxes and housings is with the tried-and-trusted V-TEC VM cable glands from OBO. With the integrated sealing lip and the special OBO slat technology, protection class IP68 is achieved. Strain relief and tightness have been tested to DIN EN 62444.

The connecting threads of the cable glands are metric or PG and are therefore suitable for universal use. Once screwed in place, the installation is there forever, as the optimum thread adjustment with the right pitch ensures permanent resistance to shaking.

Applications: From private housing with junction boxes up to industrial applications in the distributor cabinet. Temperature range: -20 °C to +65 °C.

Dimensions

Type	Thread	Sealing range D mm	SW mm	Dimension E mm	Dimension L min. mm	Dimension L max. mm	Dimension L1 mm	Dimension L2 mm	Installation torque Nm
V-TEC VM12 LGR	M12 x 1,5	3.5 - 7	15	16.5	18.5	23.5	8	5	2
V-TEC VM16 LGR	M16 x 1,5	4.5 - 10	20	22	21.5	23.5	8	5	2
V-TEC VM20 LGR	M20 x 1,5	6 - 13	24	27	23.5	30.5	9	5	3.8
V-TEC VM25 LGR	M25 x 1,5	9 - 17	29	32	26	35	10	6	5
V-TEC VM32 LGR	M32 x 1,5	15 - 21	36	41	29	40	11	6	7.5
V-TEC VM40 LGR	M40 x 1,5	16 - 28	44	50	36	46	11	7	10
V-TEC VM50 LGR	M50 x 1,5	23 - 35	54	60	43	52	12	8	12
V-TEC VM63 LGR	M63 x 1,5	36 - 48	67	75	48	60	12	9	15



Cable gland, PG thread, light grey



Type	Thread	Colour	Shipping box pcs	Pack. pcs	Weight kg/100 pcs.	Item No.
V-TEC PG7 LGR	Pg 7	Light grey	500	50	0.410	2024705
V-TEC PG9 LGR	Pg 9	Light grey	500	50	0.630	2024713
V-TEC PG11 LGR	Pg 11	Light grey	500	50	0.890	2024721
V-TEC PG13 LGR	Pg 13,5	Light grey	400	50	1.020	2024748
V-TEC PG16 LGR	Pg 16	Light grey	250	25	1.380	2024756
V-TEC PG21 LGR	Pg 21	Light grey	300	25	2.290	2024764
V-TEC PG29 LGR	Pg 29	Light grey	240	20	4.020	2024772
V-TEC PG36 LGR	Pg 36	Light grey	120	10	6.030	2024780
V-TEC PG42 LGR	Pg 42	Light grey	60	5	7.650	2024799
V-TEC PG48 LGR	Pg 48	Light grey	60	5	9.460	2024802

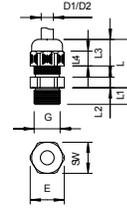
PA Polyamide

The quickest and most convenient way of providing strain relief and tightness with cable glands on junction boxes and housings is with the tried-and-trusted V-TEC VM cable glands from OBO. With the integrated sealing lip and the special OBO slat technology, protection class IP68 is achieved. Strain relief and tightness have been tested to DIN EN 62444.

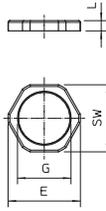
The connecting threads of the cable glands are metric or PG and are therefore suitable for universal use. Once screwed in place, the installation is there forever, as the optimum thread adjustment with the right pitch ensures permanent resistance to shaking.

Applications: From private housing with junction boxes up to industrial applications in the distributor cabinet.

Temperature range: -20 °C to +65 °C.



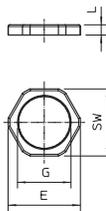
Locknut, metric thread



Type	Thread	Colour	SW mm	Dimen- sion E mm	Dimen- sion L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
116 M12 LGR PA	M12x1,5	Light grey	17	19	5	100	0.100	2048906
116 M16 LGR PA	M16x1,5	Light grey	22	25	5	100	0.160	2048914
116 M20 LGR PA	M20x1,5	Light grey	26	29	6	100	0.173	2048922
116 M25 LGR PA	M25x1,5	Light grey	32	36	6.5	100	0.297	2048930
116 M32 LGR PA	M32x1,5	Light grey	41	46	7	50	0.610	2048949
116 M40 LGR PA	M40x1,5	Light grey	50	56	7	25	1.683	2048957
116 M50 LGR PA	M50x1,5	Light grey	60	68	8	25	0.890	2048965
116 M63 LGR PA	M63x1,5	Light grey	75	83	8	25	1.467	2048973

PA Polyamide

Locknut, PG thread



Type	Thread	Colour	SW mm	Dimen- sion E mm	Dimen- sion L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
116 VDE PG7 PA	Pg 7	Light grey	19	21	5	100	0.093	2048078
116 VDE PG 9 PA	Pg 9	Light grey	22	24	5	100	0.169	2048094
116 VDE PG11 PA	Pg 11	Light grey	24	26	5	100	0.184	2048116
116 VDE PG13.5PA	Pg 13,5	Light grey	27	29	6	100	0.256	2048132
116 VDE PG16 PA	Pg 16	Light grey	30	33	6	100	0.325	2048167
116 VDE PG21 PA	Pg 21	Light grey	36	39	7	100	0.466	2048221
116 VDE PG29 PA	Pg 29	Light grey	46	50	7	50	1.100	2048299
116 VDE PG36 PA	Pg 36	Light grey	60	66	8	25	1.683	2048361
116 VDE PG42 PA	Pg 42	Light grey	65	73	8	25	1.756	2048426
116 VDE PG48 PA	Pg 48	Light grey	70	78	8	25	1.830	2048485

PA Polyamide

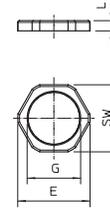
Locknut, PG thread



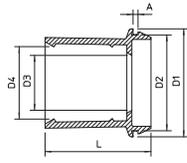
Type	Thread	Colour	SW mm	Dimen- sion E mm	Dimen- sion L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
116 VDE PG7 PA	Pg 7	Light grey	19	21	5	100	0.093	2048078
116 VDE PG 9 PA	Pg 9	Light grey	22	24	5	100	0.169	2048094
116 VDE PG11 PA	Pg 11	Light grey	24	26	5	100	0.184	2048116
116 VDE PG13.5PA	Pg 13,5	Light grey	27	29	6	100	0.256	2048132
116 VDE PG16 PA	Pg 16	Light grey	30	33	6	100	0.325	2048167
116 VDE PG21 PA	Pg 21	Light grey	36	39	7	100	0.466	2048221
116 VDE PG29 PA	Pg 29	Light grey	46	50	7	50	1.100	2048299
116 VDE PG36 PA	Pg 36	Light grey	60	66	8	25	1.683	2048361
116 VDE PG42 PA	Pg 42	Light grey	65	73	8	25	1.756	2048426
116 VDE PG48 PA	Pg 48	Light grey	70	78	8	25	1.830	2048485

PA Polyamide

Locknut DIN 46320, with PG thread DIN 40430.



Plug-in seal for pipes, T-series junction box, light grey



IP 55 M25 M32 M40

Type	Size	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
EDR 25 16-20 LGR	M25	Light grey	50	0.520	2011506
EDR 25 20-25 LGR	M25	Light grey	50	0.680	2011514
EDR 32 25-32 LGR	M32	Light grey	50	1.170	2011530
EDR 40 32-40 LGR	M40	Light grey	25	2.200	2011546

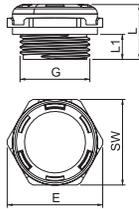
PVC Polyvinylchloride

Plug-in seal for junction boxes for direct insertion of metric pipes

Dimensions

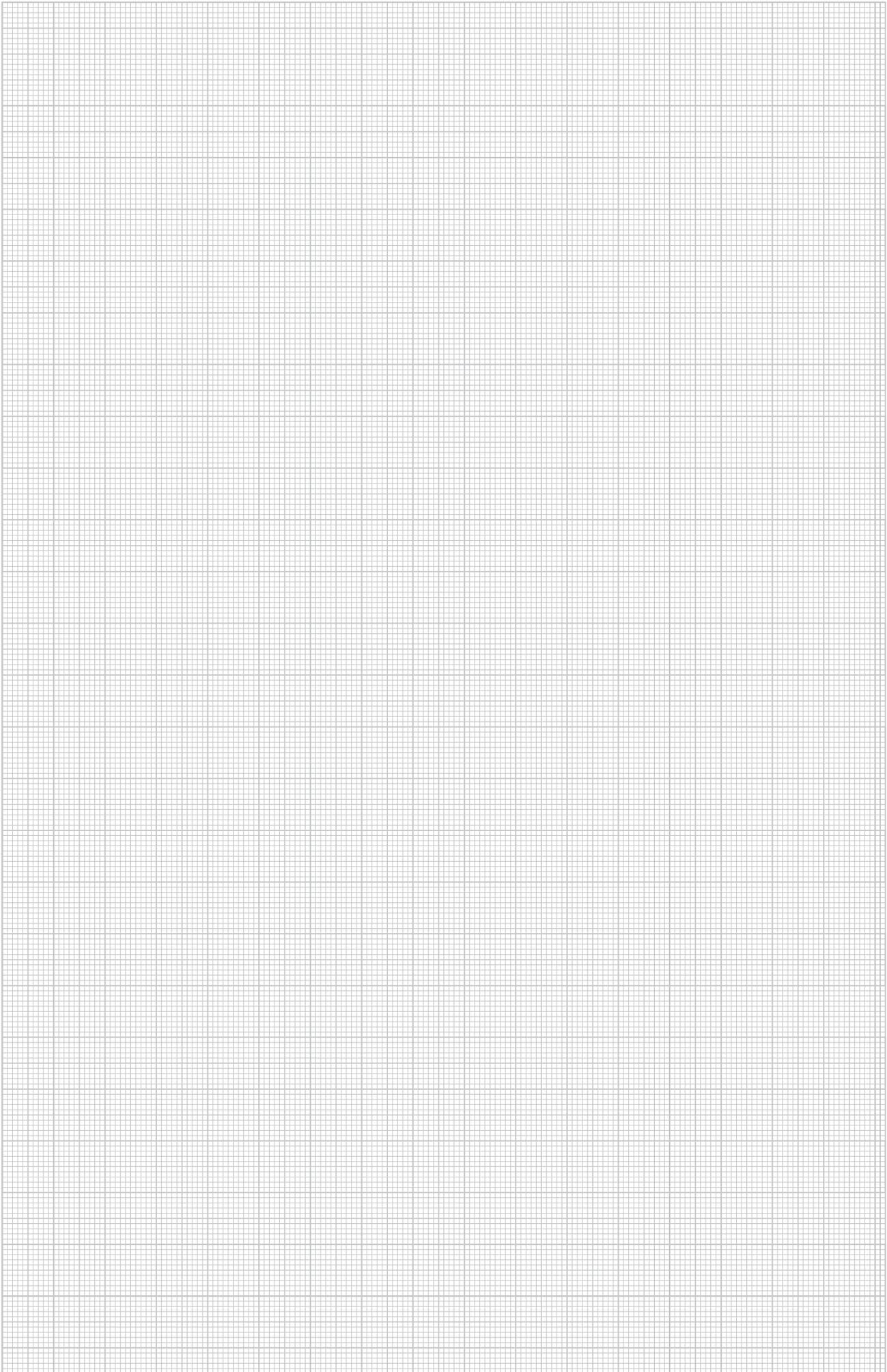
G	L mm	A mm	D1 mm	D2 mm	D3 mm	D4 mm
M25	30	2.2	29.5	25.3	15.0	18.4
M25	30	2.2	29.5	25.3	18.5	24.2
M32	36	2.2	37	32.3	24	31.2
M40	49	2.2	46	42.3	31	39.2

Pressure balance plug 109



Type	Thread	Protection rating	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
109 M20 LGR	M20x1,5	IP68	Light grey	5	0.538	2034680









Cable/pipe fastening systems, plastic



Quick clip

92

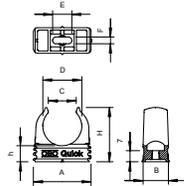


Fastening clip

95



Quick clip



Type	Nominal size	Colour	Shipping box pcs	Pack. pcs	Weight kg/100 pcs.	Item No.
2955 M16	M16	Light grey	1200	100	0.252	2149004
2955 M20	M20	Light grey	1200	100	0.325	2149010
2955 M25	M25	Light grey	1200	100	0.433	2149016
2955 M32	M32	Light grey	600	50	0.630	2149022
2955 M40	M40	Light grey	600	50	0.835	2149028
2955 M50	M50	Light grey	300	25	1.454	2149034
2955 M63	M63	Light grey	240	20	2.203	2149040

PP Polypropylene

OBO Quick clip, type 2955/...: for all metric steel armoured pipes, as well as light-duty and heavy-duty metric insulation pipes. Suitable for mounting the OBO Quick pipe.

Pipe centring aids allow optimal attachment of the pipe and automatically turn the clip into the correct position.

Universal fastening option; can be arranged with the OBO Multi-quick and starQuick clip.

Slot for side alignment during mounting with wood screw or knock-in anchor.

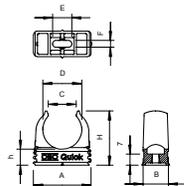
Size M16-M32 can be screwed onto an M6 thread.

Recommended fastening spacing 50–60 cm, for max. extraction values F at a room temperature of 20 °C, see the table.

Dimensions

Type	Nominal size	Dimension A mm	Dimension B mm	Dimension C mm	Dimension D mm	Dimension E mm	Dimension F mm	Dimension H mm	Dimension h mm	Pull-out value N
2955 M16	M16	25.3	16	11,5	15.5	7	4.2	25	10	75
2955 M20	M20	30.3	16	14	19.4	9	4.2	29.5	10	90
2955 M25	M25	36.3	16	17,5	24.3	12	4.2	34	10	100
2955 M32	M32	46.3	16	22,4	31.4	12	4.2	42	11	120
2955 M40	M40	57.3	16	26	39.2	11	4.6	51	12	140
2955 M50	M50	70.3	18	32	49	12	6	63	14	165
2955 M63	M63	87.3	20	43	61.5	12	6	74.5	15	230

Quick clip, black



Type	Nominal size	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
2955 M16 SW	M16	Jet black	100	0.252	2149559
2955 M20 SW	M20	Jet black	100	0.325	2149563
2955 M25 SW	M25	Jet black	100	0.433	2149567
2955 M32 SW	M32	Jet black	50	0.630	2149571
2955 M40 SW	M40	Jet black	50	0.835	2149575
2955 M50 SW	M50	Jet black	25	1.454	2149579
2955 M63 SW	M63	Jet black	20	2.203	2149583

PP Polypropylene

OBO Quick clip, type 2955/...: for all metric steel armoured pipes, as well as light-duty and heavy-duty metric insulation pipes. Suitable for mounting the OBO Quick pipe.

Pipe centring aids allow optimal attachment of the pipe and automatically turn the clip into the correct position.

Universal fastening option; can be arranged with the OBO Multi-quick and starQuick clip.

Slot for side alignment during mounting with wood screw or knock-in anchor.

Size M16-M32 can be screwed onto an M6 thread.

Recommended fastening spacing 50–60 cm, for max. extraction values F at a room temperature of 20 °C, see the table.

Dimensions

Type	Nominal size	Dimension A mm	Dimension B mm	Dimension C mm	Dimension D mm	Dimension E mm	Dimension F mm	Dimension H mm	Dimension h mm	Pull-out value N
2955 M16 SW	M16	15	21.5	11,2	—	—	—	17.6	—	75
2955 M20 SW	M20	30.3	16	14	19.4	9	4.2	29.5	10	90
2955 M25 SW	M25	36.3	16	17,5	24.3	12	4.2	34	10	100
2955 M32 SW	M32	46.3	16	22,4	31.4	12	4.2	42	11	120
2955 M40 SW	M40	57.3	16	26	39.2	11	4.6	51	12	140
2955 M50 SW	M50	70.3	18	32	49	12	6	63	14	165
2955 M63 SW	M63	87.3	20	43	61.5	12	6	74.5	15	230

Multi-Quick clip, metric



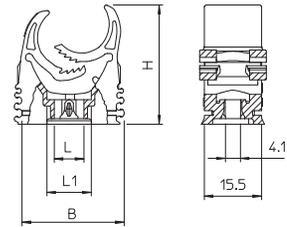
Type	Clamping range D		Colour	Pack. Weight		Item No.
	mm	mm		pcs	kg/100 pcs.	
M-Quick M20 LGR	16 - 20		Light grey	100	0.600	2153718
M-Quick M25 LGR	20 - 25		Light grey	50	0.930	2153726
M-Quick M32 LGR	25 - 32		Light grey	50	1.390	2153734

PA Polyamide

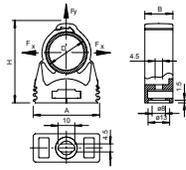
- Multi-quick metric
- Simple fastening
- Secure locking
- Radial arrangement
- Simplified storage
- Universally applicable



Type	Clamping range D mm	Dimen- sion B mm	Dimen- sion H mm	Dimen- sion L mm	Dimen- sion L1 mm	Pull- out value N
M-Quick M20 LGR	16 - 20	27.5	32	8	12	40
M-Quick M25 LGR	20 - 25	33	37	9	13	50
M-Quick M32 LGR	25 - 32	43	46	12	16	60



starQuick clip



Type	Clamping range D mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
SQ-10 LGR	9.5 - 12	Light grey	100	0.568	2146053
SQ-12 LGR	11.5 - 15	Light grey	100	0.540	2146061
SQ-15 LGR	14 - 16.5	Light grey	100	0.584	2146096
SQ-17 LGR	16 - 20	Light grey	100	0.640	2146118
SQ-20 LGR	19.5 - 23.5	Light grey	50	0.670	2146134
SQ-25 LGR	24 - 28	Light grey	50	0.970	2146207
SQ-28 LGR	27.5 - 32	Light grey	50	1.070	2146215
SQ-32 LGR	31.2 - 35.8	Light grey	50	1.230	2146258
SQ-36 LGR	35 - 40.1	Light grey	25	1.510	2146290
SQ-40 LGR	39.3 - 44.5	Light grey	25	1.710	2146320
SQ-47 LGR	44 - 50	Light grey	25	1.980	2146363
SQ-51 LGR	48 - 55	Light grey	15	2.250	2146444
SQ-59 LGR	58.5 - 65	Light grey	15	3.300	2146487

PA Polyamide

Can be arranged next to each other to size SQ-28.

Break load: with bolt DIN 96; diameter 4.5 mm, minimum break load at 20°.

starQuick clip Type SQ... a comprehensive programme of quality clips ideal for the use in outside areas such as parking garages, under bridges and on the exterior of steel structures. Climate conditions have no chance: the starQuick clips are made from UV weather-resistant polyamide.

The starQuick clips are available in 13 different sizes with a clamping range of 10–65 mm, allowing a problem-free installation on different pipe systems. starQuick is suitable for plastic and metal pipes, as well as electrical and sanitary installations. The clips can be installed on the wall and ceiling. Mounting is amazingly fast and uncomplicated, without the use of tools. Mounting of multiple pipes is also really easy:

- By arranging the single clips.
- By using the double bracket, allowing a firm hold and spacing by heavy loads.
- A rail system allows for an open spacing and numbering of the clips.

starQuick is reliable and can support heavy loads. A patented safety system guarantees that the pipes stay where they are. The pipe is secure in the all around closed clip.

Dimensions

Type	Clamping range D mm	Dimen- sion A mm	Dimen- sion B mm	Dimen- sion H mm	Breaking load kN
SQ-10 LGR	9.5 - 12	29	17	31.6	0.5
SQ-12 LGR	11.5 - 15	29	17	34.5	0.55
SQ-15 LGR	14 - 16.5	29	17	35.7	0.6
SQ-17 LGR	16 - 20	29	17	39.8	0.7
SQ-20 LGR	19.5 - 23.5	29	17	43.5	0.8
SQ-25 LGR	24 - 28	40	17	49.5	0.85
SQ-28 LGR	27.5 - 32	40	17	52.8	0.9
SQ-32 LGR	31.2 - 35.8	43	17	57.3	1
SQ-36 LGR	35 - 40.1	47	17	65.8	1.1
SQ-40 LGR	39.3 - 44.5	52	17	69.5	1.2
SQ-47 LGR	44 - 50	57	17	75.5	1.2
SQ-51 LGR	48 - 55	63	17	81	1.4
SQ-59 LGR	58.5 - 65	74	20	94.3	1.5

Series pressure clip, light grey



Type	Clamping range D mm	Colour	Shipping box pcs	Pack. pcs	Weight kg/100 pcs.	Item No.
2037 3-7 LGR	3 - 7	Light grey	1000	100	0.260	2250071
2037 6-13 LGR	6 - 13	Light grey	1200	100	0.359	2250136
2037 12-20 LGR	12 - 20	Light grey	500	50	0.572	2250209
2037 16-24 LGR	16 - 24	Light grey	600	50	0.838	2250241
2037 18-30 LGR	18 - 30	Light grey	300	25	0.997	2250306
2037 27-43 LGR	27 - 43	Light grey	300	25	1.615	2250438

PA Polyamide

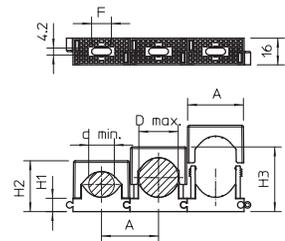
Universal clip for the single fastening of cables and pipes, all sizes can be seamlessly expanded among each other, with adhesive foot, slot and for screwing to M6 thread.

To stick the polyamide clips to masonry and concrete, use Impu-Fix ribbon conductor quick adhesive, type 509.

*Sizes 3–7 are not suitable for nail guns.



Type	Clamping range D mm	Dimension A mm	Dimension H1 mm	Dimension H2 mm	Dimension H3 mm	Dimension d min. mm	Dimension d max. mm	Dimension F mm
2037 3-7 LGR	3 - 7	14.5	7.5	15.5	19.5	3	7	6
2037 6-13 LGR	6 - 13	20	8.5	20	27	6	13	13
2037 12-20 LGR	12 - 20	28	8.5	26	34	12	20	14
2037 16-24 LGR	16 - 24	34.5	8.5	31	39	16	24	12
2037 18-30 LGR	18 - 30	40	9	34	46	18	30	12
2037 27-43 LGR	27 - 43	55	10.5	46	62	27	43	15





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Planungsbezeichnung: 088-Erdbeuge-04		
System: 088-04		
Hersteller: Erdbege Industrietechnik GmbH		
Datum: 2019-03-29		

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Planungsbezeichnung: 088-Erdbeuge-04		
System: 088-04		
Hersteller: Erdbege Industrietechnik GmbH		
Datum: 2019-03-29		

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Planungsbezeichnung: 088-Erdbeuge-04		
System: 088-04		
Hersteller: Erdbege Industrietechnik GmbH		
Datum: 2019-03-29		



Cable/pipe fastening systems, metal



Cable and pipe spacer clip

98



Cable and pipe spacer clip 733



Type	Clamping range D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
733 19 G	17 - 19	50	2.500	1361198
733 21 G	19 - 21	50	2.730	1361201
733 23 G	21 - 23	50	2.870	1361236
733 29 G	24 - 29	50	3.480	1361295
733 38 G	30 - 38	25	4.040	1361384
733 48 G	39 - 48	25	4.810	1361481
733 54 G	48 - 54	25	5.800	1361511
733 61 G	53 - 61	20	6.370	1361619
733 63 G	63	20	6.940	1361635

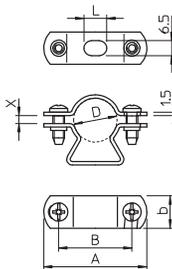
SI Steel

G Electrogalvanised

* Size M16 is not suitable for nail device

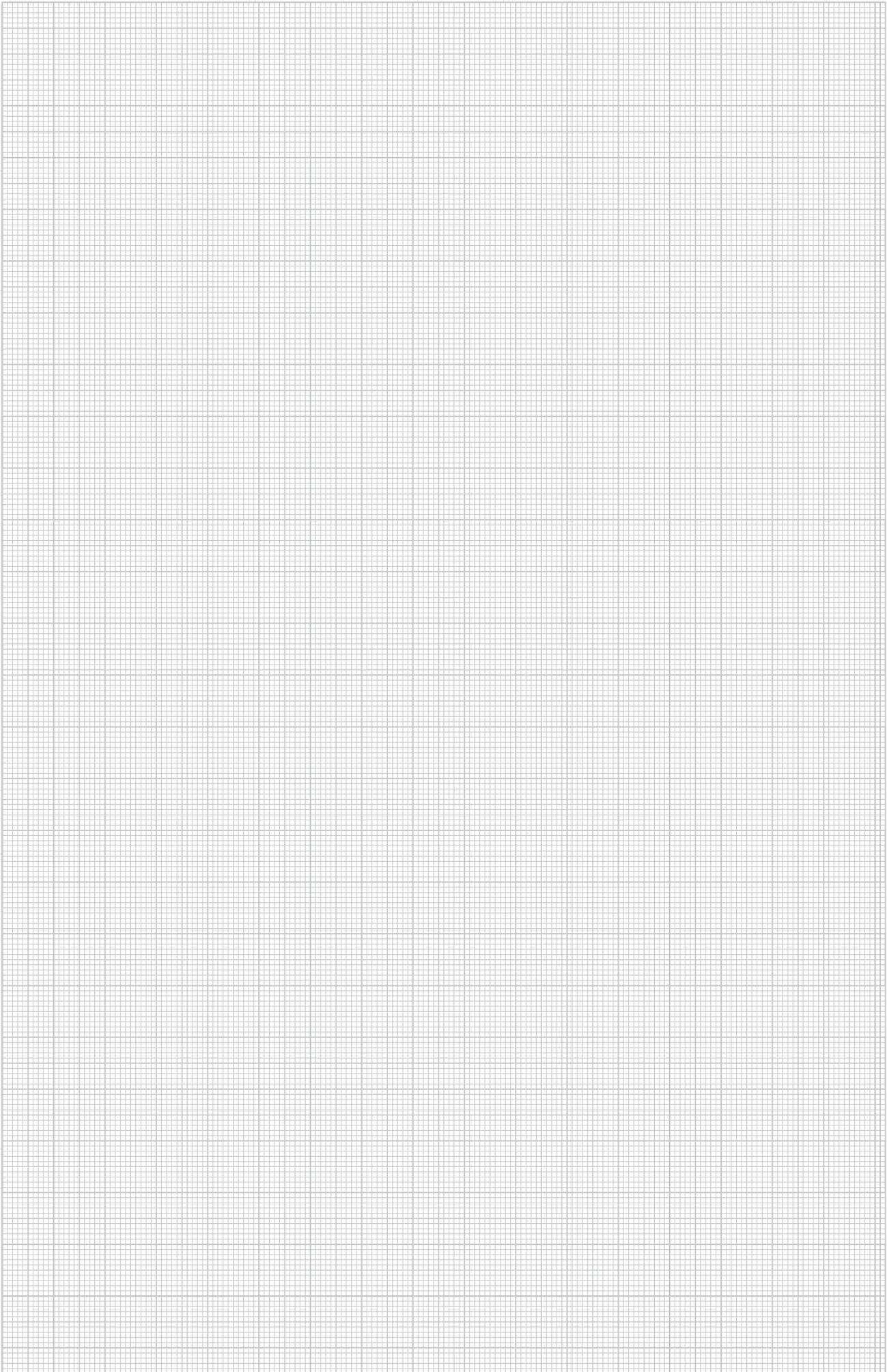
* Sizes M16 - PG16 are not suitable for bolt-firing tool

Dimensions



Type	Clamping range D mm	Dimension A mm	Dimension B mm	Dimension L mm	Dimension b mm	Dimension x mm	Bolt
733 19 G	17 - 19	45	32	10	14	10.25	M5 x 14
733 21 G	19 - 21	50	37	10	14	9	M5 x 14
733 23 G	21 - 23	52	39	10	14	9.25	M5 x 14
733 29 G	24 - 29	58	42	10	16	11	M5 x 18
733 38 G	30 - 38	70	54	10	16	11.5	M5 x 18
733 48 G	39 - 48	80	64	14	16	13.25	M5 x 18
733 54 G	48 - 54	86	68	14	18	11.75	M5 x 18
733 61 G	53 - 61	96	78	14	18	12.5	M5 x 18
733 63 G	63	101	83	18	16	3	M5 x 18







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Cable routing and mounting systems



Cable tie

102



Installation strip

103



Cable tie, black, UV and weather-resistant

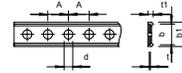


Type	Dimension B mm	Dimension L mm	Dimension t mm	Tensile strength N	Max. bundle Ø mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
565 2.5x100 SWUV	2.5	100	1	80	22	Black	100	0.025	2331812
565 2.5x150 SWUV	2.5	150	1.3	80	39	Black	100	0.047	2331818
565 2.5x200 SWUV	2.5	200	1.3	80	55	Black	100	0.062	2331824
565 3.6x150 SWUV	3.6	150	1.4	180	36	Black	100	0.070	2331832
565 3.6x200 SWUV	3.6	200	1.4	180	52	Black	100	0.104	2331838
565 3.6x290 SWUV	3.6	290	1.4	180	82	Black	100	0.140	2331844
565 3.6x365 SWUV	3.6	365	1.4	180	105	Black	100	0.183	2331850
565 4.8x120 SWUV	4.8	120	1.5	220	27	Black	100	0.089	2331862
565 4.8x160 SWUV	4.8	160	1.6	220	39	Black	100	0.120	2331868
565 4.8x200 SWUV	4.8	200	1.6	220	52	Black	100	0.149	2331874
565 4.8x300 SWUV	4.8	300	1.5	220	83	Black	100	0.201	2331880
565 4.8x365 SWUV	4.8	365	1.5	220	105	Black	100	0.251	2331886
565 4.8x430 SWUV	4.8	430	1.5	220	125	Black	100	0.288	2331892
565 7.6x200 SWUV	7.6	200	1.8	530	52	Black	100	0.287	2331912
565 7.6x300 SWUV	7.6	300	1.6	530	80	Black	100	0.334	2331918
565 7.6x380 SWUV	7.6	380	1.8	530	105	Black	100	0.533	2331924
565 7.6x450 SWUV	7.6	450	2	530	128	Black	100	0.717	2331936
565 9x760 SWUV	9	760	2	800	227	Black	100	1.311	2331946

PA Polyamide

Cable ties are used for quick, uncomplicated fixing or bundling of cables and pipes to cable support systems or other mounting structures.

Perforated steel strap, plastic-coated



Type	Dimension mm	Dimen- sion d mm	Dimen- sion A mm	per roll m	Pack. pcs	Weight kg/100 pcs.	Item No.
5055 L PE I 14	14 x 3	5.2	12	10	1	70.000	1473220
5055 L PE II 19	19 x 3	6.5	15	10	1	100.500	1473271
5055 L PE III 28	28 x 3,7	8.5	20	10	1	167.500	1473360

St Steel

FSK Strip galvanised/plastic-coated

Perforated steel strap with PE plastic jacketing.





738
1420
48-34

OBO

OBO

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Pipe systems



System accessories

106



Quick pipe system

107

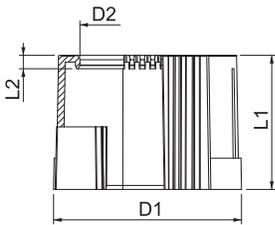
Pipe end cap, splittable, light grey



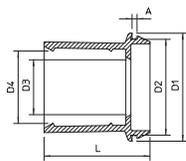
Type	Size	Dimension D1 mm	Dimension D2 mm	Dimension L1 mm	Dimension L2 mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
129 TB PG9	PG9	20	10	30	3	Light grey	50	0.400	2044509
129 TB PG11	PG11	24	12.5	30	3	Light grey	50	0.430	2044511
129 TB PG13,5	PG13,5	26	15	30	3	Light grey	50	0.460	2044513
129 TB PG16	PG16	28	16	30	3	Light grey	50	0.500	2044516
129 TB PG21	PG21	34	21.5	30	3	Light grey	50	0.590	2044521
129 TB PG29	PG29	38	30	30	3	Light grey	50	0.700	2044529
129 TB PG36	PG36	48	40.5	30	3	Light grey	30	0.870	2044536
129 TB PG42	PG42	60	47.5	30	3	Light grey	30	0.980	2044542
129 TB PG48	PG48	66	52	30	3	Light grey	20	1.060	2044548

PE Polyethylene

Separable pipe end cap to slot onto PG electrical installation pipes.
The separable pipe end cap can be used for repairs on existing installations according to regulations. It is not necessary to disconnect the cables, allowing quick mounting.



Plug-in seal for pipes, T-series junction box, light grey



Type	Size	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
EDR 25 16-20 LGR	M25	Light grey	50	0.520	2011506
EDR 25 20-25 LGR	M25	Light grey	50	0.680	2011514
EDR 32 25-32 LGR	M32	Light grey	50	1.170	2011530
EDR 40 32-40 LGR	M40	Light grey	25	2.200	2011546

PVC Polyvinylchloride

Plug-in seal for junction boxes for direct insertion of metric pipes



Quick pipe, light grey



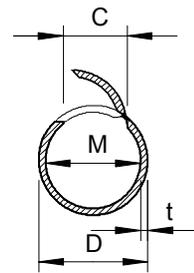
Type	Size	Colour	Length mm	Dimen- sion t mm	Dimen- sion C mm	Pack. m	Weight kg/100 m	Item No.
2953 M16 LGR	M16	Light grey	2000	1.2	8.2	50	7.000	2153904
2953 M20 LGR	M20	Light grey	2000	1.5	10	40	11.500	2153912
2953 M25 LGR	M25	Light grey	2000	1.6	13.6	30	16.000	2153920
2953 M32 LGR	M32	Light grey	2000	1.6	17	20	21.500	2153939

PVC Polyvinylchloride

Quick Pipe combines the advantages of cable duct and installation pipe in an intelligent system. This system allows tidy and safe surface-mounted installation of all kinds of cables on walls and ceilings. Quick pipe is available in four metric sizes: M16, M20, M25 and M32. The stock length is 2 m.

The system is VDE-tested and achieves a protection rating of IP44. The Quick Pipe can be used in the temperature range between -25 and +60 °C and is resistant against impact energy of 5 J.

The fittings are a component part of the system. The smallest shipped quantity is one shipping box.



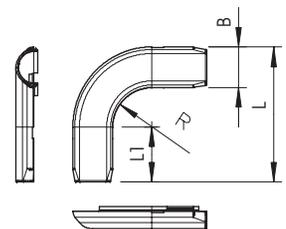
90° Quick pipe bend, light grey



Type	Size	Colour	Dimen- sion B mm	Dimen- sion L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
2953 B M16 LGR	M16	Light grey	20.4	68.4	5	1.057	2153864
2953 B M20 LGR	M20	Light grey	25.5	82.5	5	1.871	2153866
2953 B M25 LGR	M25	Light grey	31.2	91.2	5	2.565	2153868
2953 B M32 LGR	M32	Light grey	38.7	102.7	5	3.917	2153870

PVC Polyvinylchloride

The Quick Pipe bends 90° are VDE-tested and consist of two interconnectable half shells, which can be closed around the Quick Pipe.



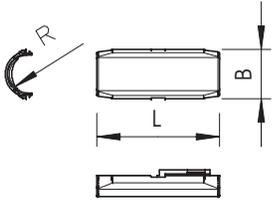
Quick pipe connecting sleeve, light grey



Type	Size	Colour	Dimension L mm	Dimension B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
2953 M M16 LGR	M16	Light grey	52	20.4	10	0.538	2153829
2953 M M20 LGR	M20	Light grey	65	25.5	10	1.015	2153831
2953 M M25 LGR	M25	Light grey	72	31.2	10	1.348	2153833
2953 M M32 LGR	M32	Light grey	80	38.7	10	2.084	2153835

PVC Polyvinylchloride

The Quick Pipe connection sleeves are VDE-tested and consist of two interconnectable half shells, which can be closed around the Quick Pipe.



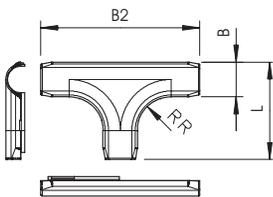
Quick pipe T piece, light grey



Type	Size	Colour	Dimension L mm	Dimension B mm	Dimension B2 mm	Pack. pcs	Weight kg/100 pcs.	Item No.
2953 T M16 LGR	M16	Light grey	57.4	20.4	94.4	5	1.421	2153872
2953 T M20 LGR	M20	Light grey	67.5	25.5	109.5	5	2.340	2153874
2953 T M25 LGR	M25	Light grey	77.2	31.2	123.2	5	3.203	2153876
2953 T M32 LGR	M32	Light grey	86.7	38.7	134.7	5	4.639	2153878

PVC Polyvinylchloride

The Quick Pipe T pieces are VDE-tested and consist of two interconnectable half shells, which can be closed around the Quick Pipe.





Type	Nominal size	Colour	Shipping box pcs	Pack. pcs	Weight kg/100 pcs.	Item No.
2955 M16	M16	Light grey	1200	100	0.252	2149004
2955 M20	M20	Light grey	1200	100	0.325	2149010
2955 M25	M25	Light grey	1200	100	0.433	2149016
2955 M32	M32	Light grey	600	50	0.630	2149022
2955 M40	M40	Light grey	600	50	0.835	2149028
2955 M50	M50	Light grey	300	25	1.454	2149034
2955 M63	M63	Light grey	240	20	2.203	2149040

PP Polypropylene

OBO Quick clip, type 2955/...: for all metric steel armoured pipes, as well as light-duty and heavy-duty metric insulation pipes. Suitable for mounting the OBO Quick pipe.

Pipe centring aids allow optimal attachment of the pipe and automatically turn the clip into the correct position.

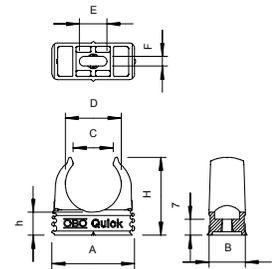
Universal fastening option; can be arranged with the OBO Multi-quick and starQuick clip.

Slot for side alignment during mounting with wood screw or knock-in anchor.

Size M16-M32 can be screwed onto an M6 thread.

Recommended fastening spacing 50–60 cm, for max. extraction values F at a room temperature of 20 °C, see the table.

Type	Nominal size	Dimension A mm	Dimension B mm	Dimension C mm	Dimension D mm	Dimension E mm	Dimension F mm	Dimension H mm	Dimension h mm	Pull-out value N
2955 M16	M16	25.3	16	11,5	15.5	7	4.2	25	10	75
2955 M20	M20	30.3	16	14	19.4	9	4.2	29.5	10	90
2955 M25	M25	36.3	16	17,5	24.3	12	4.2	34	10	100
2955 M32	M32	46.3	16	22,4	31.4	12	4.2	42	11	120
2955 M40	M40	57.3	16	26	39.2	11	4.6	51	12	140
2955 M50	M50	70.3	18	32	49	12	6	63	14	165
2955 M63	M63	87.3	20	43	61.5	12	6	74.5	15	230





Beam clamp systems



Beam clamps for knocking in, light-duty

112



Beam clamps for screwing in, light-duty

114



Beam clamps for knocking in, light-duty

Beam clamp, with female thread

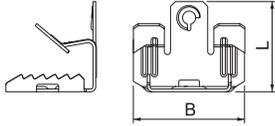


Type	Flange thickness mm	Thread	Fastening hole mm	Breaking load N	Pack. pcs	Weight kg/100 pcs.	Item No.
BCUIT 3-7 M6	3 - 7	M6	7	350	100	2.100	1483621
BCUIT 8-12,5 M6	8 - 12	M6	7	500	100	2.450	1483623
BCUIT 14-20 M6	14 - 20	M6	7	500	100	2.700	1483625

St Steel

ZL Zinc scale

Beam clamp for knocking in with internal thread as individual fastening solution on the beam.



Beam clamp, for threaded rod

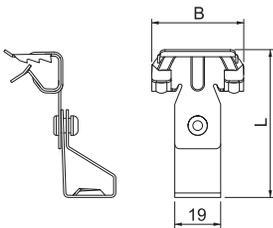


Type	Flange thickness mm	Thread	Breaking load N	Pack. pcs	Weight kg/100 pcs.	Item No.
BCTR 4-8 M6	4 - 8	M6	650	50	3.100	1483661
BCTR 8-14 M6	8 - 14	M6	650	50	3.300	1483663
BCTR 4-8 M8	4 - 8	M8	700	50	3.100	1483665
BCTR 8-14 M8	8 - 14	M8	700	50	3.100	1483667
BCTR 4-8 M10	4 - 8	M10	750	50	3.100	1483669
BCTR 8-14 M10	8 - 14	M10	750	50	3.200	1483671

St Steel

ZL Zinc scale

Beam clamp for knocking in with threaded rod seat as individual fastening solution on the beam.



Beam clamp, for pipes



Type	Flange thickness mm	Clamping range D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
BCC 2-4 D14	2 - 4	12 - 14	100	0.550	1483911
BCC 2-4 D18	2 - 4	15 - 18	100	0.700	1483915
BCC 2-4 D24	2 - 4	19 - 24	100	0.800	1483919
BCC 2-4 D30	2 - 4	25 - 30	100	0.900	1483923
BCC 4-7 D14	4 - 7	12 - 14	100	0.700	1483941
BCC 4-7 D18	4 - 7	15 - 18	100	0.800	1483945
BCC 4-7 D24	4 - 7	19 - 24	100	0.900	1483951
BCC 4-7 D30	4 - 7	25 - 30	100	1.100	1483955
BCC 8-12 D14	8 - 12	12 - 14	100	0.800	1483969
BCC 8-12 D18	8 - 12	15 - 18	100	0.900	1483973
BCC 8-12 D24	8 - 12	19 - 24	100	1.100	1483977
BCC 8-12 D30	8 - 12	25 - 30	100	1.100	1483981

St Steel

ZL Zinc scale

Beam clamp for knocking in for cables as individual fastening solution on the beam.

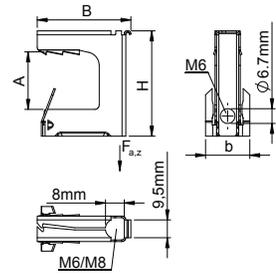
Beam clamp, multifunctional

Type	Flange		Width	Breaking load	Pack. pcs	Weight kg/100 pcs.	Item No.
	thickness mm	Height mm					
TK MULTI 8	2 - 8	30	30	1.2	100	0.100	1485140
TK MULTI 16	8 - 16	38	32	1.2	100	0.120	1485144
TK MULTI 24	16 - 24	48	42	1.2	50	0.170	1485148

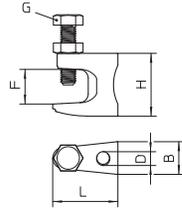
St Steel

ZDM Galvanised, MAGNI 565

The multifunctional beam clamp is suitable for fastening cables, protective pipes and cable sections on steel girders of any size (one clip for every application). Here, the beam clamp is very versatile thanks to various fastening options. Mounting of the beam clamp is quick and efficient, with no need for welding or drilling. It is simply mounted by hammering or pushing into place. The beam clamp can be used in both internal and external areas.



Screw-in beam clamp, with thread

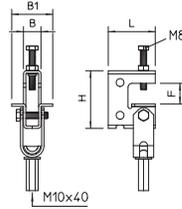


Type	Flange thickness mm	Height mm	For threaded rod	Breaking load kN	Pack. pcs	Weight kg/100 pcs.	Item No.
FL1-G M8 TG	0 - 18	35	M8	1.2	50	8.500	1488074
FL2-G M10 TG	0 - 20	42	M10	2.5	50	14.000	1488082
FL3-G M12 TG	0 - 26	54	M12	3.5	25	22.000	1488090

TG Cast iron

With thread.

Screw-in beam clamp, with hinge



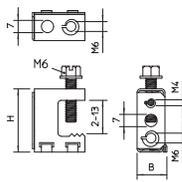
Type	Flange thickness mm	For threaded rod	Breaking load kN	Pack. pcs	Weight kg/100 pcs.	Item No.
TK FL G	0 - 24	M10	0.9 - 2.8	10	34.000	1488111

St Steel

ZL Zinc scale

Two-hinge beam clamp for fastening on beams without welding and drilling. The maximum load is dependent on the load direction.

Screw-in beam clamp, universal



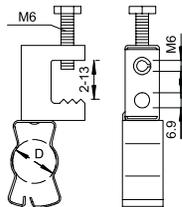
Type	Flange thickness mm	Height mm	Width mm	Breaking load kN	Pack. pcs	Weight kg/100 pcs.	Item No.
TK 213	2 - 13	35	—	1.35	100	2.720	1484702

St Steel

ZL Zinc scale

Various fastening options (horizontal and vertical).

Screw-in beam clamp, for pipes and cables

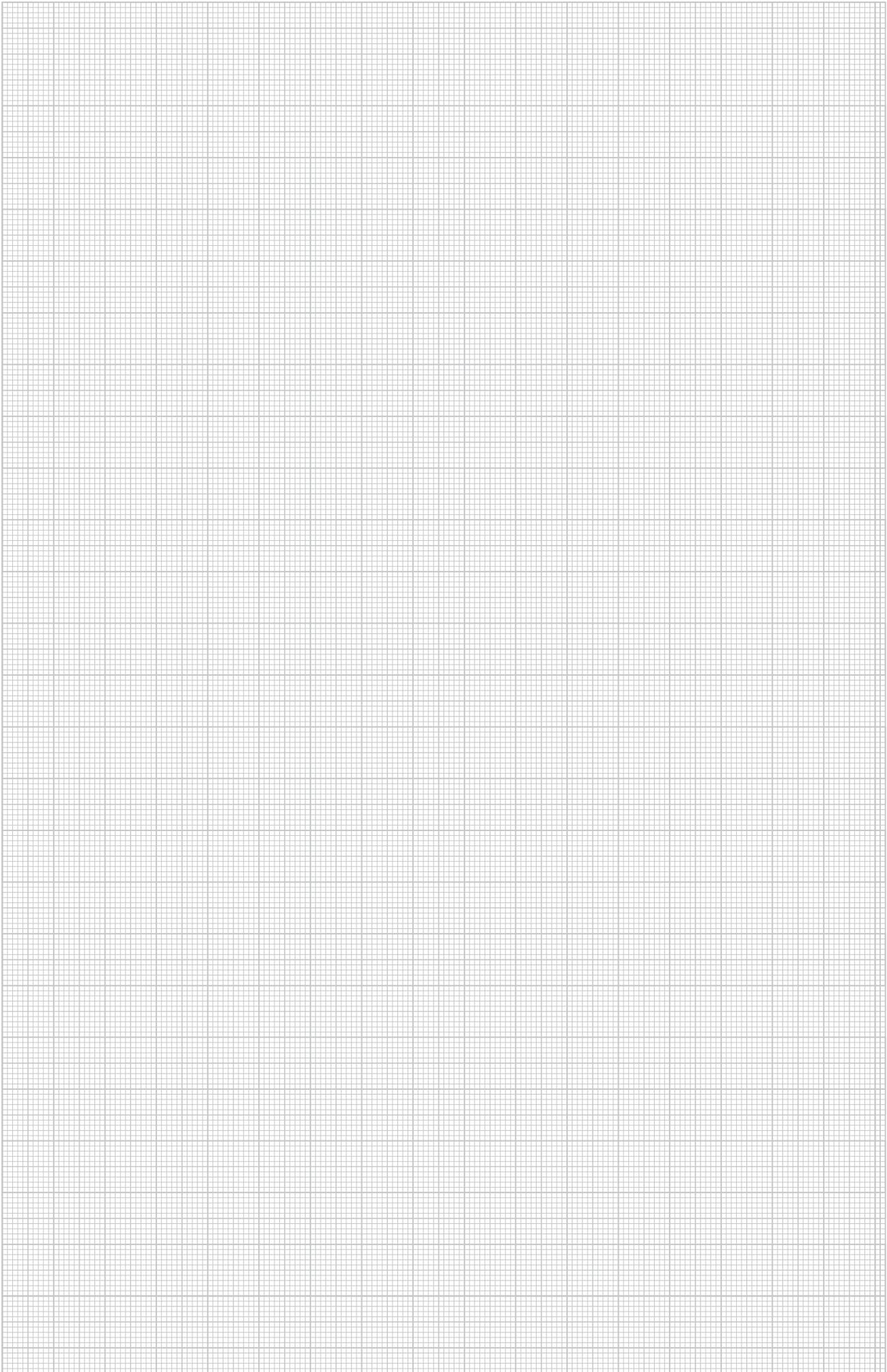


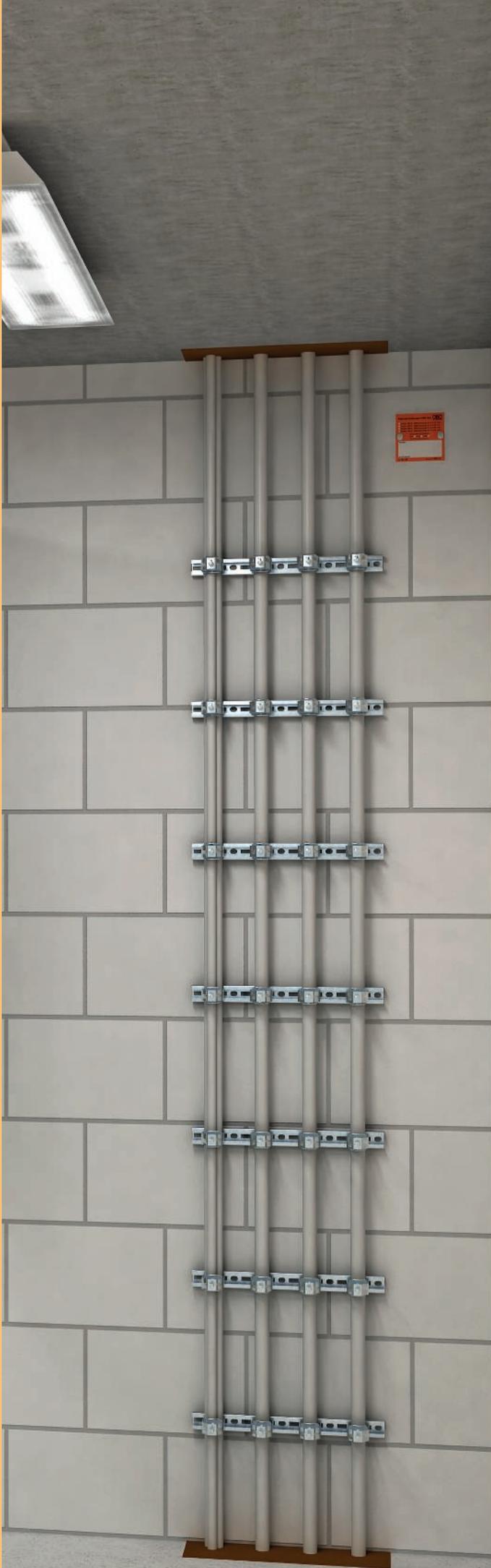
Type	Flange thickness mm	Clamping range D mm	Breaking load kN	Pack. pcs	Weight kg/100 pcs.	Item No.
TKS 213-25	2 - 17	23 - 25	0.45	50	3.990	1484818
TKS 213-32	2 - 17	26 - 32	0.45	50	4.170	1484826
TKS 213-42	2 - 17	33 - 40	0.45	50	5.450	1484838

St Steel

ZL Zinc scale

With rotating clip to accept pipes and cables, lockable.







Rail systems



Profile rail, medium-duty

118

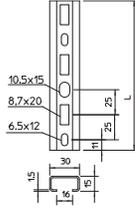


Profile rail, heavy-duty

124



CM3015 profile rail, slot 16 mm, perforated



Type	Length mm	Dimension W x H mm	Material thickness mm	Dimen- sion L mm	Pack. m	Weight kg/100 m	Item No.
CM3015P2000FS	2000	30 x 15	1.5	2000	2	69.000	1110002
CM3015P2000FT	2000	30 x 15	1.5	2000	20	73.000	1109871

Sl Steel

FS Strip-galvanised FT Hot-dip galvanised

Profile rail, perforated, slot width 16 mm.



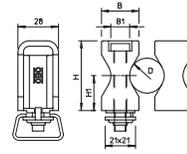
Series clip



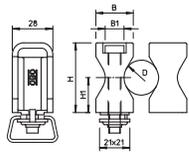
Type	Clamping range D		Bolt	Colour	Pack. pcs	Weight		Item No.
	mm					kg/100 pcs.		
2054 14-48 LGR	14 - 48		M8 x 55	Light grey	25	5.120		2255014
2055 24-72 LGR	24 - 72		M8 x 75	Light grey	20	6.471		2255022

PA Polyamide

Heavy-duty version, also suitable for rails of 16 - 17 mm slot width; polyamide clip element, light grey RAL 7035.
Metal parts: electrogalvanised steel.



Series clip



Type	Clamping range D		Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
	mm	Bolt				
2054 14-48 LGR	14 - 48	M8 x 55	Light grey	25	5.120	2255014
2055 24-72 LGR	24 - 72	M8 x 75	Light grey	20	6.471	2255022

PA Polyamide

Heavy-duty version, also suitable for rails of 16 - 17 mm slot width; polyamide clip element, light grey RAL 7035.

Metal parts: electrogalvanised steel.



Profile rail 2068, slot width 16.5, perforated

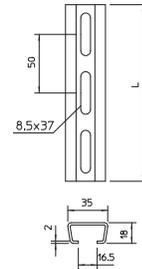


Type	Length	Dimension	Material	Dimension	Pack.	Weight	Item No.
	mm	W x H	thickness	mm			
AML3518P2000FT	2000	35 x 18	1.5	2000	20	89.000	1119656

St Steel

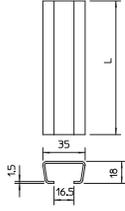
FT Hot-dip galvanised

Central C profile rail for cable routing, in conjunction with clamp clips with a hammerhead foot. Can also be used as suspension construction for cable support systems.



Anchor rail AM3518, medium-duty

Anchor rail AM3518, slot 16.5 mm, unperforated



Type	Length mm	Dimension W x H mm	Material thickness mm	Dimen- sion L mm	Pack. m	Weight kg/100 m	Item No.
AML3518UP2000FT	2000	35 x 18	1.5	2000	20	89.400	1118129

St Steel

FT Hot-dip galvanised

Central C profile rail for cable routing, in conjunction with clamp clips with a hammerhead foot. Can also be used as suspension construction for cable support systems.

Anchor rail AMS3518, slot 16.5 mm, perforated

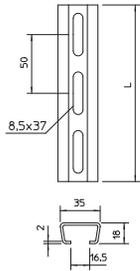


Type	Length mm	Dimension W x H mm	Material thickness mm	Dimen- sion L mm	Pack. m	Weight kg/100 m	Item No.
AMS3518P2000FT	2000	35 x 18	2	2000	20	122.000	1112759

St Steel

FT Hot-dip galvanised

Central C profile rail for cable routing, in conjunction with clamp clips with a hammerhead foot. Can also be used as suspension construction for cable support systems.



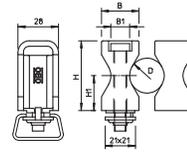
Series clip



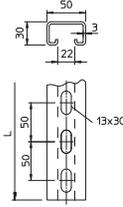
Type	Clamping range D		Bolt	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
	mm						
2054 14-48 LGR	14 - 48		M8 x 55	Light grey	25	5.120	2255014
2055 24-72 LGR	24 - 72		M8 x 75	Light grey	20	6.471	2255022

PA Polyamide

Heavy-duty version, also suitable for rails of 16 - 17 mm slot width; polyamide clip element, light grey RAL 7035.
Metal parts: electrogalvanised steel.



MS5030 mounting rail, slot 22 mm, perforated



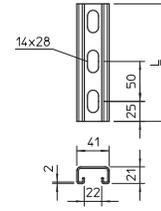
Type	Length mm	Dimension W x H mm	Material thickness mm	Dimen- sion L mm	Pack. m	Weight kg/100 m	Item No.
MS5030P2000FT	2000	50 x 30	3	2000	2	282.500	1121464

- St** Steel
- FT** Hot-dip galvanised

Heavy-duty C profile rail for individual installation of support constructions, e.g. for cable trays or as a panel for switchgear cabinets. Can also be used for cable routing, in conjunction with clamp clips with a U foot.



MS4121 mounting rail, slot width 22 mm, perforated



Type	Length mm	Dimension W x H mm	Material thickness mm	Dimen- sion L mm	Pack. m	Weight kg/100 m	Item No.
MS4121P2000FS	2000	41x21	2	2000	2	175.000	1122918
MS4121P3000FS	3000	41x21	2	3000	3	141.900	1122920
MS4121P2000FT	2000	41x21	2	2000	2	183.000	1122923
MS4121P3000FT	3000	41x21	2	3000	3	151.300	1122924

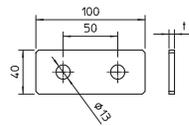
St Steel

FS Strip-galvanised **FT** Hot-dip galvanised

Heavy-duty C profile rail for individual installation of support constructions, e.g. for cable trays or as a panel for switchgear cabinets. Can also be used for cable routing, in conjunction with clamp clips with a U foot.



Connection plate with 2 holes

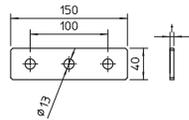


Type	Material thickness mm	Pack. pcs	Weight kg/100 pcs.	Item No.
GMS 2 VP FT	5	10	14.000	1124645

- St** Steel
- FT** Hot-dip galvanised

Connection plate with two holes for straight connection of profile rails 41 x 41 mm and 41 x 21 mm.

Connection plate with 3 holes

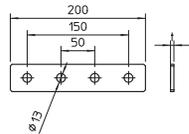


Type	Material thickness mm	Pack. pcs	Weight kg/100 pcs.	Item No.
GMS 3 VP FT	5	20	24.010	1124647

- St** Steel
- FT** Hot-dip galvanised

Connection plate with three holes for straight connection of profile rails 41 x 41 mm and 41 x 21 mm.

Connection plate with 4 holes

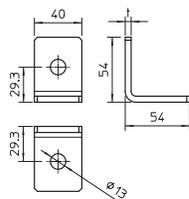


Type	Material thickness mm	Pack. pcs	Weight kg/100 pcs.	Item No.
GMS 4 VP FT	5	10	35.580	1124649

- St** Steel
- FT** Hot-dip galvanised

Connection plate with four holes for straight connection of profile rails 41 x 41 mm and 41 x 21 mm.

Mounting bracket, 90° with 2 holes

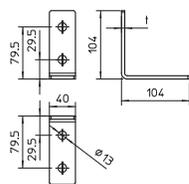


Type	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
GMS 2 VW 90 FT	90° angle	10	14.000	1124659

- St** Steel
- FT** Hot-dip galvanised

Mounting bracket with two holes to connect profile rails 41 x 41 mm and 41 x 21 mm at an angle of 90°.

Mounting bracket, 90° with 4 holes

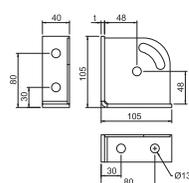


Type	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
GMS 4 VW 90 FT	90° angle	10	32.000	1124663

- St** Steel
- FT** Hot-dip galvanised

Mounting bracket with two holes to connect profile rails 41 x 41 mm and 41 x 21 mm at an angle of 90°.

Mounting bracket, 90° with 6 holes



Type	Version	Pack. pcs	Weight kg/100 pcs.	Item No.
GMS 6 KD FT	90° bracket	10	50.900	1124792
GMS 6 KD A2	90° bracket	10	48.800	1124796
GMS 6 KD A4	90° bracket	10	48.800	1124798

- St** Steel
- V2A** Stainless steel, A2
- V4A** Stainless steel, A4

- FT** Hot-dip galvanised

Reinforced mounting bracket with 6 holes to connect profile rails 41 x 41 mm and 41 x 21 mm at an angle of 90°. Additional fastening option for a strut at an angle of 45° with an adjusting range of +/- 30°. Can be used for angles between 15° and 75°.

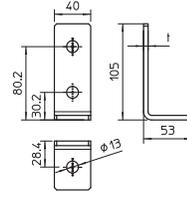


Mounting bracket, 90° with 3 holes

Type	Version		Pack. pcs	Weight		Item No.
				kg/100	pcs.	
GMS 3 VW 90 FT	90°	angle	10	25.910		1124661

- St Steel
- FT Hot-dip galvanised

Installation profile with three holes to connect profile rails 41 x 41 mm and 41 x 21 mm at an angle of 90°.

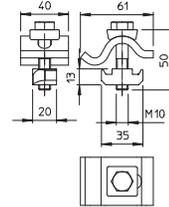


Chuck jaw, light-duty TKH

Type	Height		Pack. pair	Weight		Item No.
	mm	F in kN		kg/100	pairs	
TKH-L-25 FT	25	10	10	46.000		6355812

- St Steel
- FT Hot-dip galvanised

Light-duty tensioning claw with slide nut for fixing mounting rails to steel girder flanges.

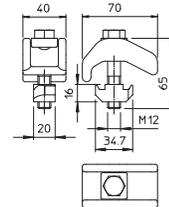


Chuck jaw, heavy-duty TKH

Type	Height		Pack. pair	Weight		Item No.
	mm	F in kN		kg/100	pairs	
TKH-S-30 FT	30	21	10	88.600		6355804

- St Steel
- FT Hot-dip galvanised

Heavy-duty chuck jaw with slide nut for fastening profile rails to steel girders.







Clamp clip systems

	Clamp clips, hammer-head base	130
	Fastening to flat steel	135
	Clamp clip, special application	136
	Clamp clips, system accessories	137



Clamp clip, single, plastic pressure trough



Type	Clamping range D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
2056 12 FT	8 - 12	100	3.540	1160125
2056 16 FT	12 - 16	100	3.820	1160168
2056 22 FT	16 - 22	100	4.508	1160222
2056 28 FT	22 - 28	100	6.240	1160281
2056 34 FT	28 - 34	100	7.680	1160346
2056 40 FT	34 - 40	100	8.260	1160400
2056 46 FT	40 - 46	100	10.900	1160451
2056 52 FT	46 - 52	100	11.900	1160524
2056 58 FT	52 - 58	100	14.300	1160583
2056 64 FT	58 - 64	100	15.600	1160648
2056 70 FT	64 - 70	50	18.200	1160702
2056 76 FT	70 - 76	25	20.600	1160761
2056 82 FT	76 - 82	25	22.000	1160826
2056 90 FT	82 - 90	25	26.200	1160907
2056 100 FT	90 - 100	25	27.800	1160990

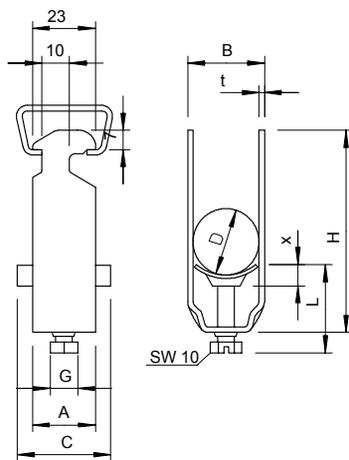
SI Steel

FT Hot-dip galvanised

Suitable for all C profile rails with slot width 16–17 mm.

Hot-dip galvanised steel clip and bolt, polypropylene pressure trough, halogen-free, colour light grey RAL 7035.

Dimensions



Type	Clamping range D mm	Dimension A mm	Dimension B mm	Dimension C mm	Dimension G mm	Dimension t mm	Dimension x mm	Dimension H mm	Dimension L mm	Max. torque Nm
2056 12 FT	8 - 12	23	16	34	M6	1.5	5	40	34	3
2056 16 FT	12 - 16	23	20	34	M6	1.5	5	44	34	3
2056 22 FT	16 - 22	23	27	34	M6	1.5	5	50	34	3
2056 28 FT	22 - 28	23	33	34	M6	2	5	58	34	3
2056 34 FT	28 - 34	23	39	34	M8	2	5.5	66	34	5
2056 40 FT	34 - 40	23	45	34	M8	2	5.5	72	37.5	5
2056 46 FT	40 - 46	23	51	40	M8	2	5.5	79	44.5	5
2056 52 FT	46 - 52	23	57	40	M8	2	6.5	86	44.5	5
2056 58 FT	52 - 58	23	64	40	M8	2.5	6.5	93	45.5	5
2056 64 FT	58 - 64	23	70	40	M8	2.5	6.5	99	45.5	5
2056 70 FT	64 - 70	23	76	40	M8	2.5	6.5	106	45.5	5
2056 76 FT	70 - 76	25	82	40	M8	2.5	6.5	114	45.5	5
2056 82 FT	76 - 82	25	88	40	M8	2.5	6.5	121	45.5	5
2056 90 FT	82 - 90	25	97	40	M8	3	6.5	130	57.5	5
2056 100 FT	90 - 100	25	107	40	M8	3	6.5	140	57.5	5

Clamp clip, double, plastic pressure trough



Type	Clamping range D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
2056 2 12 FT	8 - 12	50	4.100	1161121
2056 2 16 FT	12 - 16	50	4.650	1161164
2056 2 22 FT	16 - 22	50	5.120	1161229
2056 2 28 FT	22 - 28	50	7.700	1161288
2056 2 34 FT	28 - 34	50	10.200	1161342
2056 2 40 FT	34 - 40	50	11.450	1161407
2056 2 46 FT	40 - 46	50	14.900	1161466
2056 2 52 FT	46 - 52	50	16.700	1161520
2056 2 58 FT	52 - 58	50	21.400	1161571
2056 2 64 FT	58 - 64	50	24.250	1161644

St Steel

FT Hot-dip galvanised

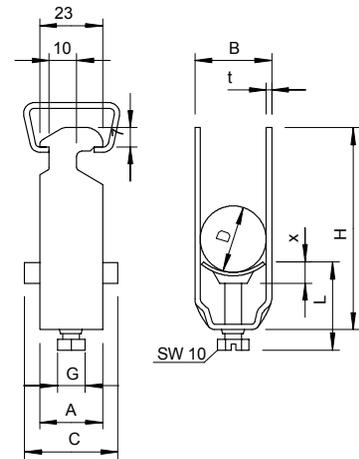
Suitable for all C profile rails with slot width 16–17 mm.

Hot-dip galvanised steel clip and bolt, polypropylene pressure trough, halogen-free, colour light grey RAL 7035.



Type	Clamping range D mm	Dimen- sion A mm	Dimen- sion B mm	Dimen- sion C mm	Dimen- sion G mm	Dimen- sion t mm	Dimen- sion x mm	Dimen- sion H mm	Dimen- sion L mm	Max. torque Nm
2056 2 12 FT	8 - 12	23	16	34	M6	1.5	4.5	52	34	3
2056 2 16 FT	12 - 16	23	20	34	M6	1.5	4.5	61	34	3
2056 2 22 FT	16 - 22	23	27	34	M6	1.5	5	73	47	3
2056 2 28 FT	22 - 28	23	33	34	M6	2	5	87	47	3
2056 2 34 FT	28 - 34	23	39	34	M8	2	6	101	44.5	5
2056 2 40 FT	34 - 40	23	45	34	M8	2	6	114	44.5	5
2056 2 46 FT	40 - 46	23	51	40	M8	2	6	129	44.5	5
2056 2 52 FT	46 - 52	23	57	40	M8	2	6.5	129	45.5	5
2056 2 58 FT	52 - 58	23	64	40	M8	2.5	6.5	154	45.5	5
2056 2 64 FT	58 - 64	23	70	40	M8	2.5	6.5	167	44.5	5

Dimensions



Clamp clip, triple, plastic pressure trough



Type	Clamping range D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
2056 3 12 FT	8 - 12	50	4.900	1162128
2056 3 16 FT	12 - 16	50	6.200	1162160
2056 3 22 FT	16 - 22	50	7.100	1162225
2056 3 28 FT	22 - 28	50	10.650	1162284
2056 3 34 FT	28 - 34	50	13.100	1162349
2056 3 40 FT	34 - 40	50	14.350	1162403
2056 3 46 FT	40 - 46	25	19.800	1162462

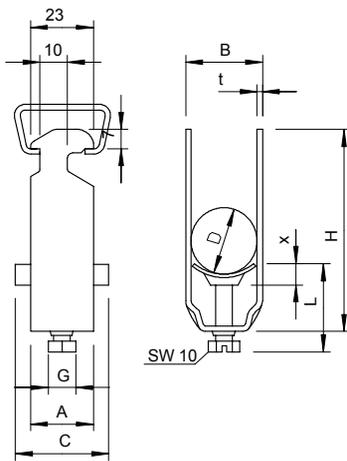
St Steel

FT Hot-dip galvanised

Suitable for all C profile rails with slot width 16–17 mm.

Hot-dip galvanised steel clip and bolt, polypropylene pressure trough, halogen-free, colour light grey RAL 7035.

Dimensions



Type	Clamping range D mm	Dimension A mm	Dimension B mm	Dimension C mm	Dimension G mm	Dimension t mm	Dimension x mm	Dimension H mm	Dimension L mm	Max. torque Nm
2056 3 12 FT	8 - 12	23	16	34	M6	1.5	5	70	47	3
2056 3 16 FT	12 - 16	23	20	34	M6	1.5	5	82	47	3
2056 3 22 FT	16 - 22	23	27	34	M6	1.5	5	101	47	3
2056 3 28 FT	22 - 28	23	33	34	M6	2	5	121	47	3
2056 3 34 FT	28 - 34	23	39	34	M8	2	6	142	56.5	5
2056 3 40 FT	34 - 40	23	45	34	M8	2	6	162	56.5	5
2056 3 46 FT	40 - 46	23	51	40	M8	2	6	184	56.5	5

Clamp clip, single, metal pressure trough



Type	Clamping range D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
2056 M 12 FT	8 - 12	100	3.200	1156004
2056 M 16 FT	12 - 16	100	3.500	1156012
2056 M 22 FT	16 - 22	100	4.400	1156020
2056 M 28 FT	22 - 28	100	6.100	1156039
2056 M 34 FT	28 - 34	100	7.700	1156047
2056 M 40 FT	34 - 40	100	8.600	1156055
2056 M 46 FT	40 - 46	100	9.600	1156063
2056 M 52 FT	46 - 52	100	10.400	1156071
2056 M 58 FT	52 - 58	100	13.100	1156098
2056 M 64 FT	58 - 64	100	14.500	1156101
2056 M 70 FT	64 - 70	50	16.100	1156128
2056 M 76 FT	70 - 76	25	18.300	1156136
2056 M 82 FT	76 - 82	25	19.100	1156144
2056 M 90 FT	82 - 90	25	23.300	1156152
2056 M 100 FT	90 - 100	25	24.500	1156160

St Steel

FT Hot-dip galvanised

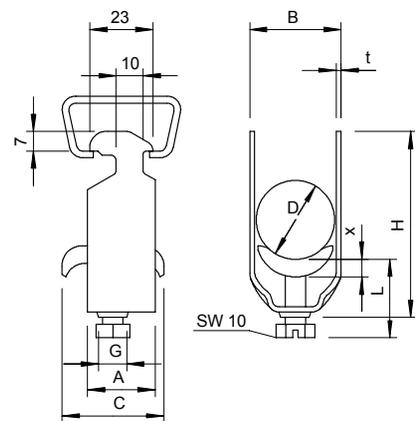
Suitable for all C profile rails with slot width 16–17 mm.

Clip, bolt and pressure trough made of hot-dip galvanised steel.



Type	Clamping range D mm	Dimen- sion A mm	Dimen- sion B mm	Dimen- sion C mm	Dimen- sion G mm	Dimen- sion t mm	Dimen- sion x mm	Dimen- sion H mm	Dimen- sion L mm	Max. torque Nm
2056 M 12 FT	8 - 12	23	16	30	M6	1.5	3.5	40	32.5	3
2056 M 16 FT	12 - 16	23	20	30	M6	1.5	3.5	44	32.5	3
2056 M 22 FT	16 - 22	23	27	30	M6	1.5	4.5	50	46.5	3
2056 M 28 FT	22 - 28	23	33	30	M6	2	4.5	58	46.5	3
2056 M 34 FT	28 - 34	23	39	35	M8	2	5	66	44	5
2056 M 40 FT	34 - 40	23	45	35	M8	2	5	72	44	5
2056 M 46 FT	40 - 46	23	51	35	M8	2	5	79	44	5
2056 M 52 FT	46 - 52	23	57	35	M8	2	5	86	44	5
2056 M 58 FT	52 - 58	23	64	35	M8	2.5	5	93	44	5
2056 M 64 FT	58 - 64	23	70	35	M8	2.5	5	99	56	5
2056 M 70 FT	64 - 70	25	76	35	M8	2.5	5	106	56	5
2056 M 76 FT	70 - 76	25	82	40	M8	2.5	5	114	56	5
2056 M 82 FT	76 - 82	25	88	40	M8	2.5	5	121	56	5
2056 M 90 FT	82 - 90	25	97	40	M8	3	5	130	56	5
2056 M 100 FT	90 - 100	25	107	40	M8	3	5	140	56	5

Dimensions



Clamp clip, fastening earthing strips



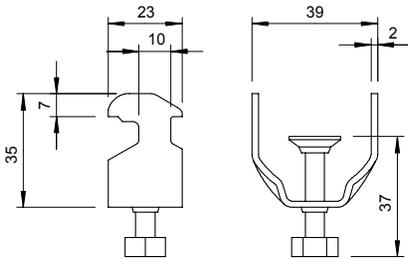
Type	For rail with slot width mm	Pack. Weight		Item No.
		pcs	kg/100 pcs.	
2056 BE FT	16 - 17	25	4.700	1174053

Sl Steel

FT Hot-dip galvanised

To fasten earthing strips with widths of up to 30 mm to profile rails, suitable for all C profile rails with 16–17 mm slot width.

Dimensions



Clamp clip, single, plastic pressure trough FT



Type	Clamping range D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
2056F 12 FT	8 - 12	100	3.700	1169122

St. Steel

FT Hot-dip galvanised

Suitable for flat, bracket and U irons of 4–12 mm material thickness.

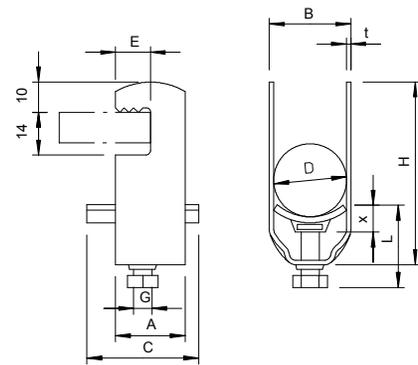
Clip and bolt made of hot-dip galvanised steel.

Polypropylene pressure trough, halogen-free, colour light grey RAL 7035.



Type	Clamping range D mm	Dimension A mm	Dimension B mm	Dimension C mm	Dimension G mm	Dimension t mm	Dimension x mm	Dimension H mm	Dimension L mm	Max. torque Nm
2056F 12 FT	8 - 12	23	16	34	M6	1.5	5	43	34	3

Dimensions



Clamp clip, single, metal pressure trough, round profiles/pipes



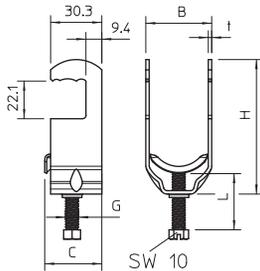
Type	Clamping range D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
2056RS M 16 FT	12 - 16	100	4.000	1158305
2056RS M 22 FT	16 - 22	100	5.200	1158309
2056RS M 28 FT	22 - 28	100	7.500	1158313
2056RS M 34 FT	28 - 34	100	9.000	1158317
2056RS M 40 FT	34 - 40	100	10.000	1158321
2056RS M 46 FT	40 - 46	100	10.900	1158325
2056RS M 52 FT	46 - 52	100	12.200	1158329
2056RS M 58 FT	52 - 58	100	15.000	1158333
2056RS M 64 FT	58 - 64	100	16.500	1158337

St Steel

FT Hot-dip galvanised

Suitable for all round profile irons or pipes of diameters to 22 mm; clip, pressure trough and bolt made of steel, hot-dip galvanised; the metal troughs have strongly rounded edges on all sides, so that no damage to the cables need be feared.

Dimensions



Type	Clamping range D mm	Dimen- sion B mm	Dimen- sion C mm	Dimen- sion G mm	Dimen- sion t mm	Dimen- sion H mm	Dimen- sion L mm	Max. torque Nm
2056RS M 16 FT	12 - 16	20	28	M6	1.5	57	26	3
2056RS M 22 FT	16 - 22	27	28	M6	1.5	69	30	3
2056RS M 28 FT	22 - 28	33	28	M6	2	73	38	3
2056RS M 34 FT	28 - 34	39	33	M8	2	79	33	5
2056RS M 40 FT	34 - 40	45	33	M8	2	86	33	5
2056RS M 46 FT	40 - 46	51	33	M8	2	92	33	5
2056RS M 52 FT	46 - 52	57	33	M8	2	97	33	5
2056RS M 58 FT	52 - 58	64	33	M8	2.5	103	33	5
2056RS M 64 FT	58 - 64	70	33	M8	2.5	112	33	5

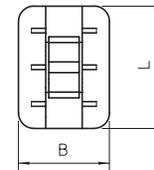
Counter-trough, plastic 16–17 mm slot width



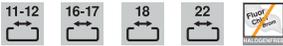
Type	Clamping range D mm	Dimension L mm	Dimension B mm	Dimension H mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
2058 12 LGR	8 - 12	34	12	5.4	Light grey	100	0.146	1195123
2058 16 LGR	12 - 16	34	15.5	6	Light grey	100	0.162	1195166
2058 22 LGR	16 - 22	34	20	6.7	Light grey	100	0.172	1195220
2058 28 LGR	22 - 28	34	25	8.1	Light grey	100	0.200	1195271
2058 34 LGR	28 - 34	40	30	9.5	Light grey	100	0.302	1195344
2058 40 LGR	34 - 40	40	35	10.8	Light grey	100	0.331	1195409
2058 46 LGR	40 - 46	40	40	12.2	Light grey	100	0.385	1195468
2058 52 LGR	46 - 52	40	42	11	Light grey	100	0.391	1195522
2058 58 LGR	52 - 58	40	45	11.5	Light grey	100	0.430	1195581
2058 64 LGR	58 - 64	40	48	11.8	Light grey	50	0.432	1195646
2058 70 LGR	64 - 70	40	50	11.5	Light grey	50	0.453	1195700

PP Polypropylene

Area of use rails with slot width 16–17 mm. Counter-trough is clamped into the slot width as protection between the cable and rail.



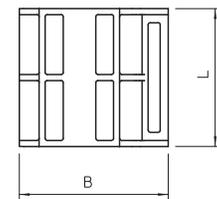
Counter-trough, plastic, universal



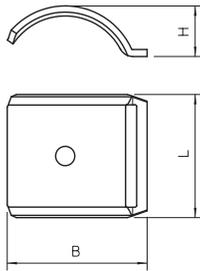
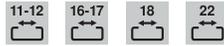
Type	Clamping range D mm	Dimension L mm	Dimension B mm	Dimension H mm	Pack. pcs	Weight kg/100 pcs.	Item No.
2058FW 12 LGR	8 - 12	34	16.5	5	100	0.102	1197126
2058FW 16 LGR	12 - 16	34	20	5	100	0.131	1197169
2058FW 22 LGR	16 - 22	34	25.5	5.8	100	0.164	1197223
2058FW 28 LGR	22 - 28	34	31.5	7.2	100	0.206	1197282
2058FW 34 LGR	28 - 34	34	37	8.4	100	0.289	1197347
2058FW 40 LGR	34 - 40	34	42.5	9.7	100	0.311	1197401
2058FW 46 LGR	40 - 46	40	48	11	100	0.416	1197460
2058FW 52 LGR	46 - 52	40	51.5	9.8	100	0.420	1197525
2058FW 58 LGR	52 - 58	40	57	10.6	100	0.444	1197584
2058FW 64 LGR	58 - 64	40	61.2	10.4	50	0.500	1197649
2058FW 70 LGR	64 - 70	40	67.2	10.4	50	0.536	1197703
2058FW 76 LGR	70 - 76	40	71.4	11	25	0.637	1197762
2058FW 82 LGR	76 - 82	40	75.6	11	25	0.641	1197827
2058FW 90 LGR	82 - 90	40	82.6	12	25	0.870	1197908
2058FW 100 LGR	90 - 100	40	89.5	12	25	0.900	1197991

PP Polypropylene

Irrespective of the rail, universally applicable by pushing onto a limb of the BBS clamp clip.



Counter-trough, metal, universal



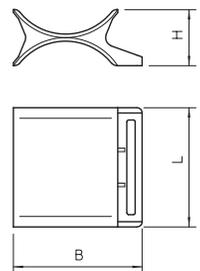
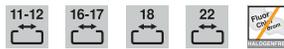
Type	Clamping range D mm	Dimension L mm	Dimension B mm	Dimension H mm	Pack. pcs	Weight kg/100 pcs.	Item No.
2058FW M 12 FT	8 - 12	35	17.5	6.5	100	0.940	1199846
2058FW M 16 FT	12 - 16	35	21.5	7.7	100	1.100	1199854
2058FW M 22 FT	16 - 22	35	28	8.8	100	1.200	1199862
2058FW M 28 FT	22 - 28	35	34	10.4	100	1.400	1199870
2058FW M 34 FT	28 - 34	35	40	13.5	100	2.160	1199889
2058FW M 40 FT	34 - 40	35	46	15.1	100	2.490	1199897
2058FW M 46 FT	40 - 46	35	52	17.2	100	3.270	1199900
2058FW M 52 FT	46 - 52	35	58	19.2	50	3.460	1199919
2058FW M 58 FT	52 - 58	35	64	20.3	50	3.620	1199927
2058FW M 64 FT	58 - 64	35	70	22.4	50	4.280	1199935
2058FW M 70 FT	64 - 70	35	76	24.5	50	4.590	1199943

SI Steel

FT Hot-dip galvanised

Irrespective of the rail, universally applicable by pushing onto a limb of the BBS clamp clip.

Double trough, plastic



Type	Clamping range D mm	Dimension L mm	Dimension B mm	Dimension H mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
2058 2 12 LGR	8 - 12	34	16.5	7	Light grey	50	0.126	1196111
2058 2 16 LGR	12 - 16	34	20	9	Light grey	50	0.166	1196162
2058 2 22 LGR	16 - 22	34	25.5	11	Light grey	50	0.210	1196227
2058 2 28 LGR	22 - 28	34	31.5	14	Light grey	50	0.278	1196286
2058 2 34 LGR	28 - 34	34	37	16	Light grey	50	0.336	1196340
2058 2 40 LGR	34 - 40	34	42	18	Light grey	50	0.427	1196405
2058 2 46 LGR	40 - 46	40	47.5	20	Light grey	50	0.676	1196464
2058 2 52 LGR	46 - 52	40	53	22	Light grey	50	0.775	1196529
2058 2 58 LGR	52 - 58	40	58	24	Light grey	50	0.832	1196588

PP Polypropylene

Clamp clips allows both cables and pipes to be fastened to profile rails. The clamp clips are hooked into the appropriate slot widths of the profile rails and the component to be fastened is pressed onto the profile rail with the pressure trough of the clamp clip and held in place.

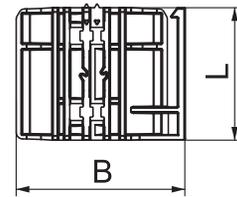
Counter-trough, plastic, universal



Type	Clamping range D mm	Dimension L mm	Dimension B mm	Dimension H mm	Colour	Shipping box pcs	Pack. pcs	Item No.
2058UW 12 LGR	8 - 12	37	18.5	5.8	Light grey	1500	100	1198012
2058UW 16 LGR	12 - 16	37	21.5	5.8	Light grey	1600	100	1198016
2058UW 22 LGR	16 - 22	37	27.5	6.8	Light grey	1500	100	1198022
2058UW 28 LGR	22 - 28	37	33.5	8.3	Light grey	1200	100	1198028
2058UW 34 LGR	28 - 34	37	45.5	9.8	Light grey	1200	100	1198034
2058UW 40 LGR	34 - 40	37	45.5	10.8	Light grey	600	50	1198040
2058UW 46 LGR	40 - 46	40	51.5	11.8	Light grey	600	50	1198046
2058UW 52 LGR	46 - 52	40	57.5	11.8	Light grey	600	50	1198052
2058UW 58 LGR	52 - 58	40	63.5	11.8	Light grey	600	50	1198058
2058UW 64 LGR	58 - 64	40	69.5	11.8	Light grey	600	50	1198064
2058UW 70 LGR	64 - 70	40	75.5	12.3	Light grey	300	25	1198070
2058UW 76 LGR	70 - 76	40	81.5	12.3	Light grey	300	25	1198076
2058UW 82 LGR	76 - 82	40	87.5	12.3	Light grey	300	25	1198082
2058UW 90 LGR	82 - 90	40	96	12.8	Light grey	300	25	1198090
2058UW 100 LGR	90 - 100	40	106	12.8	Light grey	300	25	1198100

PP Polypropylene

Irrespective of the rail, universally applicable by pushing onto a limb of the clamp clip. Can be combined with the double trough due to the intelligent contour on the rear side. Installation at a later time possible without dismantling of the clamp clip.

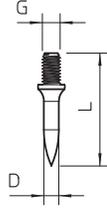




Screw-in and knock-in systems

	OBO anchor	142
	Heavy-duty anchor	143
	Wood screws	145
	Metric bolts and accessories	146

OBO anchor



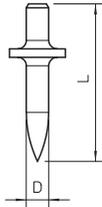
Type	Shank length mm	Dimension L mm	Dimension D Ø mm	Dimension G mm	Pack. pcs	Weight kg/100 pcs.	Item No.
903 15 G	15	23	4	M6	100	0.330	3100154
903 18 G	18	26	4	M6	100	0.360	3100189
903 25 G	25	33	4	M6	100	0.404	3100251
903 30 G	30	38	4	M6	100	0.470	3100308
903 40 G	40	48	4	M6	100	0.571	3100405

St Steel

G Electrogalvanised

Hardened steel, electrogalvanised with M6 x 8 mm thread.

OBO anchor

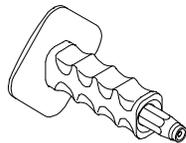


Type	Shank length mm	Dimension L mm	Dimension D Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
903 RB 15	15	21	4	200	0.295	3105016
903 RB 18	18	24	4	200	0.348	3105024
903 RB 22	22	30	4	200	0.325	3105032

St Steel

Hardened steel, shiny without thread.

Flattener with hand protection



Type	Pack. pcs	Weight kg/100 pcs.	Item No.
915 RBS M4	1	52.000	3031500

St Steel

Flattener with hand protection for OBO anchors 903/RB Ø 4 mm and also for OBO anchors 904 with M4 thread.

Flattener



Type	Dimension L mm	Dimension D mm	Size	Pack. pcs	Weight kg/100 pcs.	Item No.
915 S M6	135	14	M6	1	17.000	3031012

St Steel

Flattener for OBO anchors 903 with M6 thread.

Bolt tie BZ

Type	Thread	Dimension L	Pack. pcs	Weight kg/100 pcs.	Item No.
		mm			
BZ 12-15-35/110	M12	110	25	10.320	3498350

St Steel

G Electrogalvanised

Wedge anchor BZ for the anchoring of medium-duty to heavy-duty loads, both in cracked and non-cracked concrete. It combines high approved loads with small edge distances and axial spacings.

European technical approval ETA-99/0010, including characteristic values under fire exposure to fire resistance R 120.

Proof of suitability in the case of seismic impacts, categories C1 and C2.

Shock approval by the Federal Office for Civil Protection in Bern, Switzerland.



Load

Standard anchoring depth

Loads and Characteristics	Anchoring depth	Bore hole Ø	Bore hole depth	Clamping strength	Approved load area, tension zone
	mm	mm	mm	mm	kN
M 8-100/165	46	8	60	100	2.4
M 10-75/155	60	10	75	75	4.3
M 10-100/180	60	10	75	100	4.3
M 10-150/230	60	10	75	150	4.3
M 12-15/110	70	12	90	15	7.6
M 12-85/180	70	12	90	85	7.6
M 12-105/200	70	12	90	105	7.6
M 12-160/255	70	12	90	160	7.6
M 16-15/135	85	16	110	15	11.9

Reduced anchoring depth

Loads and Characteristics	Anchoring depth	Bore hole Ø	Bore hole depth	Clamping strength	Approved load area, tension zone
	mm	mm	mm	mm	kN
M 8-111/165	35	8	49	111	2.4
M 10-95/155	40	10	55	95	3.6
M 10-120/180	40	10	55	120	3.6
M 12-35/110	50	12	70	35	6.1
M 12-105/180	50	12	70	105	6.1
M 12-125/200	50	12	70	125	6.1
M 16-35/135	65	16	90	35	9.0

Bolt tie BZ-U

Type	Thread	Dimension L	Pack. pcs	Weight kg/100 pcs.	Item No.
		mm			
BZ-U 8-30-41/95	M8	95	50	4.010	3498326
BZ-U 10-10-30/90	M10	90	50	6.720	3498334
BZ-U 10-30-50/110	M10	110	25	7.900	3498340

St Steel

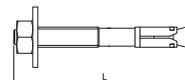
G Electrogalvanised

Bolt tie BZ for the anchoring of medium-duty to heavy-duty loads, both in cracked and non-cracked concrete. It combines high approved loads with small edge distances and axial spacings.

European technical approval ETA-99/0010, including characteristic values under fire exposure to fire resistance R 120.

Proof of suitability in the case of seismic impacts, categories C1 and C2.

Shock approval by the Federal Office for Civil Protection in Bern, Switzerland.



Load

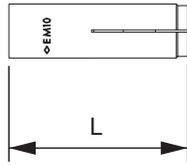
Standard anchoring depth

Loads and Characteristics	Anchoring depth	Bore hole Ø	Bore hole depth	Clamping strength	Approved load area, tension zone
	mm	mm	mm	mm	kN
M 8-10/75	46	8	60	10	2,4
M 8-30/75	46	8	60	30	2,4
M 10-10/90	60	10	75	10	4,3
M 10-30/110	60	10	75	30	4,3

Reduced anchoring depth

Loads and Characteristics	Anchoring depth	Bore hole Ø	Bore hole depth	Clamping strength	Approved load area, tension zone
	mm	mm	mm	mm	kN
M 8-21/75	35	8	49	21	2,4
M 8-41/95	35	8	49	41	2,4
M 10-30/90	40	10	55	30	3,6
M 10-50/110	40	10	55	50	3,6

Drop-in anchor E



Type	Thread	Screw-in depth min.-max. mm	Bore hole Ø mm	Bore hole depth mm	Dimension L mm	Perm. load range, tension zone kN	Pack. pcs	Weight kg/100 pcs.	Item No.
E M 8x40	M8	9 - 20	10	40	40	2	100	1.490	3492910
E M 10x40	M10	11 - 15	12	40	40	2	50	2.140	3492920

St Steel

G Electrogalvanised

The drop-in anchor E can be used for single fixings in non-cracked concrete as well as for multiple fixings in cracked concrete of non-load-bearing systems.

The setting tool is placed onto the anchor sleeve thereby creating a visible mark which confirms the correct installation. Through the controlled expansion, the necessary axial spacings and edge distances are decreased significantly.

European Technical Approval ETA-02/0020 (option 7) for single fixings in non-cracked concrete and European Technical Approval ETA-05/0116 for multiple fixings in cracked and non-cracked concrete, including characteristic values under fire exposure to fire protection R 120.

Spax screw, with torx, stainless steel

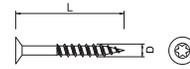


Type	Dimension L mm	Dimension D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
OTSC 3,5x30 A4	30	3.5	100	0.090	3191050
OTSC 3,5x40 A4	40	3.5	100	0.210	3191052
OTSC 4,0x25 A4	25	4	100	0.125	3191056
OTSC 4,0x30 A4	30	4	100	0.220	3191058
OTSC 4,0x40 A4	40	4	100	0.240	3191060
OTSC 4,0x50 A4	50	4	100	3.100	3191062
OTSC 4,5x30 A4	30	4.5	100	0.290	3191066
OTSC 4,5x40 A4	40	4.5	100	0.310	3191068
OTSC 4,5x50 A4	50	4.5	100	0.400	3191070
OTSC 5,0x40 A4	40	5	100	0.455	3191074
OTSC 5,0x50 A4	50	5	100	0.460	3191076
OTSC 5,0x60 A4	60	5	100	0.465	3191078
OTSC 6,0x40 A4	40	6	100	0.710	3191082
OTSC 6,0x50 A4	50	6	100	0.830	3191084
OTSC 6,0x60 A4	60	6	100	0.960	3191086

V4A Stainless steel, A4

Stainless steel wood screw with countersunk head and Torx drive for fastenings in interior and exterior areas.

Areas of use: Wood, chipboard, plasterboard panels and plastic anchors.



Spax screw, with torx, panhead, stainless steel

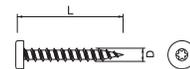


Type	Dimension L mm	Dimension D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
OTSP 3,5x30 A4	30	3.5	100	0.165	3191000
OTSP 3,5x40 A4	40	3.5	100	0.210	3191002
OTSP 4,0x25 A4	25	4	100	0.185	3191006
OTSP 4,0x30 A4	30	4	100	0.215	3191008
OTSP 4,0x40 A4	40	4	100	0.265	3191010
OTSP 4,0x50 A4	50	4	100	0.325	3191012
OTSP 4,5x30 A4	30	4.5	100	0.260	3191016
OTSP 4,5x40 A4	40	4.5	100	0.330	3191018
OTSP 4,5x50 A4	50	4.5	100	0.395	3191020
OTSP 5,0x40 A4	40	5	100	0.450	3191024
OTSP 5,0x50 A4	50	5	100	0.530	3191026
OTSP 5,0x60 A4	60	5	100	0.600	3191028
OTSP 6,0x40 A4	40	6	100	0.720	3191032
OTSP 6,0x50 A4	50	6	100	0.830	3191034
OTSP 6,0x60 A4	60	6	100	0.960	3191036

V4A Stainless steel, A4

Stainless steel wood screw with lens head and Torx drive for fastenings in interior and exterior areas.

Areas of use: Wood, chipboard, plasterboard panels and plastic anchors.



Threaded rod

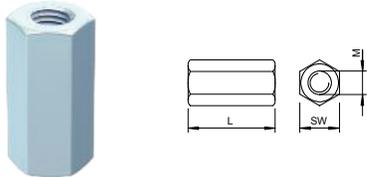


Type	Thread	Dimension d mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
TR M8 1M G	M8	8	1000	10	30.000	3141128
TR M10 1M G	M10	10	1000	10	49.000	3141209
TR M12 1M G	M12	12	1000	10	62.000	3141306

St Steel
G Electrogalvanised

Threaded rod to DIN 976.

Connection sleeve

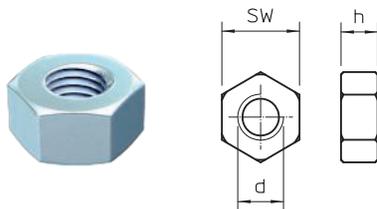


Type	Thread	Dimension L mm	SW mm	Pack. pcs	Weight kg/100 pcs.	Item No.
CSTR M8 G	M8	24	13	50	1.880	6410081
CSTR M10 G	M10	30	17	50	4.150	6410103
CSTR M12 G	M12	40	19	25	7.000	6410111

St Steel
G Electrogalvanised

Connection sleeve with continuous internal thread.

Hexagonal nut DIN 934

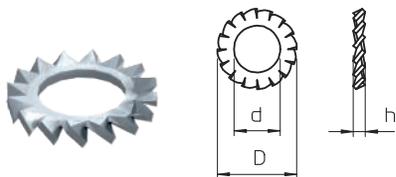


Type	Thread	SW mm	Dimension h mm	Dimension d mm	Pack. pcs	Weight kg/100 pcs.	Item No.
HN M8 G	M8	13	6.8	8	100	0.474	3400085
HN M10 G	M10	17	8.4	10	100	1.084	3400107
HN M12 G	M12	19	10.8	12	100	1.730	3400123

St Steel
G Electrogalvanised

Hexagonal nut to DIN 934 with metric thread.

Serrated washer DIN 6798

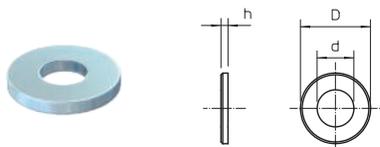


Type	Thread	Dimension d mm	Dimension D mm	Dimension h mm	Pack. pcs	Weight kg/100 pcs.	Item No.
SWS M8 G	M8	8.4	15	2.4	100	0.080	3404080
SWS M10 G	M10	10.5	18	2.7	100	0.125	3404102
SWS M12 G	M12	13	20.5	3	100	0.160	3404129

St Steel
G Electrogalvanised

Serrated washer to DIN 6798, shape A.

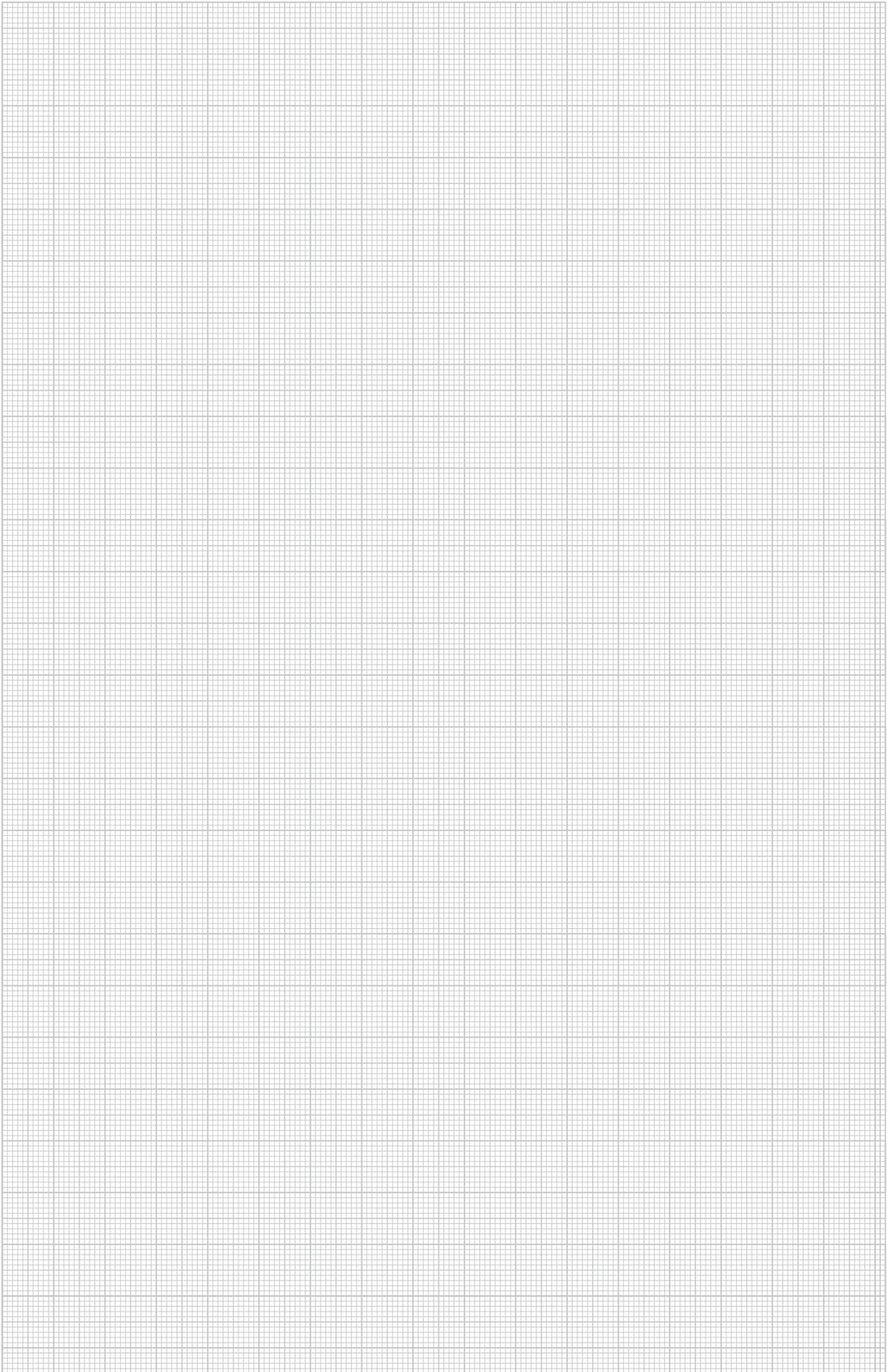
Washer

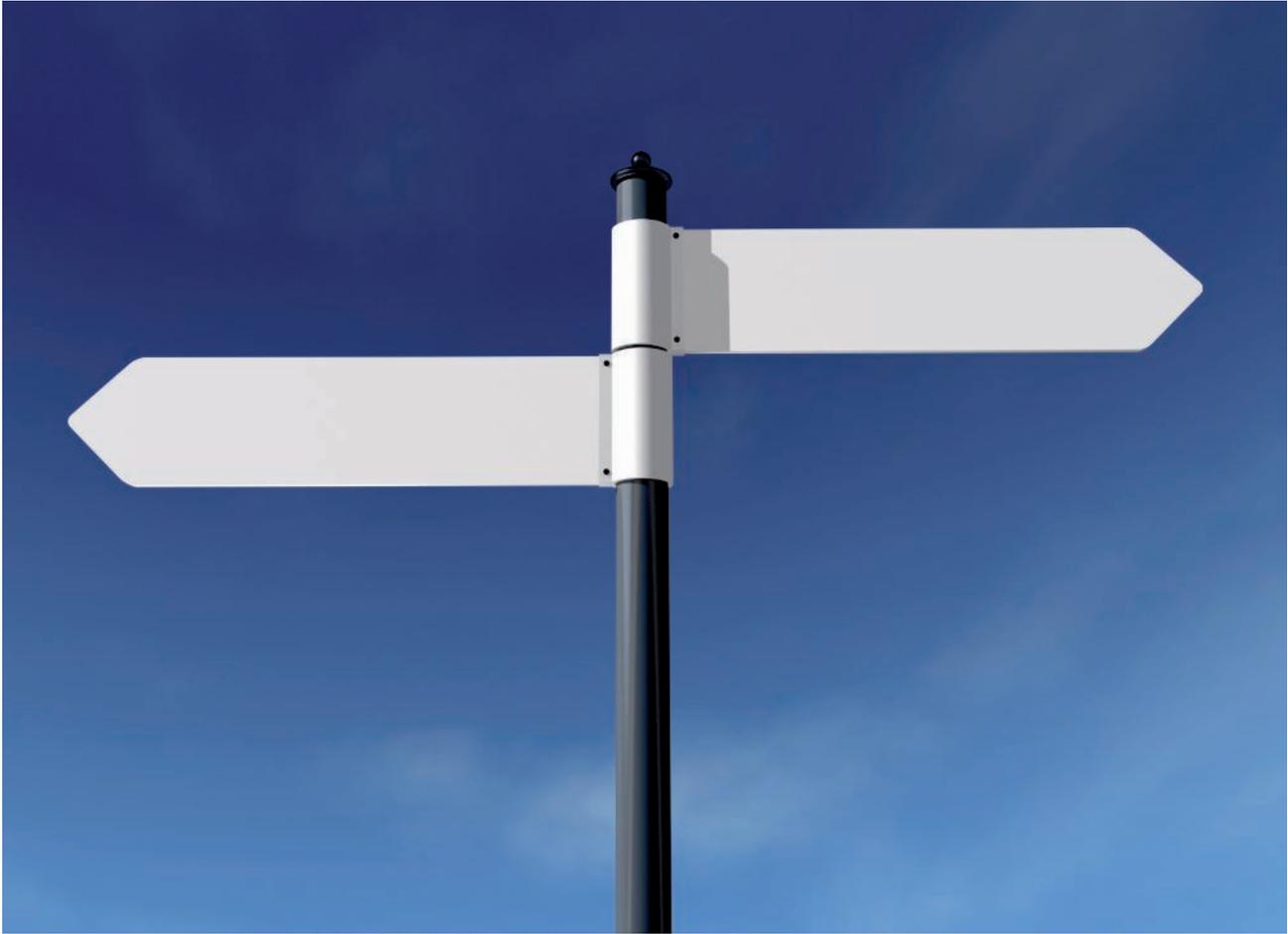


Type	Thread	Dimension d mm	Dimension D mm	Dimension h mm	Pack. pcs	Weight kg/100 pcs.	Item No.
WS M8 D16 G	M8	8.4	16	1.6	100	0.214	3402088
WS M10 D20 G	M10	10.5	20	2	100	0.408	3402096
WS M12 D24 G	M12	13	24	2.5	100	0.627	3402126

St Steel
G Electrogalvanised

Washer according to DIN 125, shape A, for universal use.







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5041771	price/100 1109871	118	5067153	/100 pc. 1162284	132	5116530	/100 pc. 1361635	98	6580569	/100 pc. 2005148	58	5533658	/100 pc. 2022866	84
5053897	1110002	118	5067214	1162349	132				6580606	2005152	59	5533719	2022868	84
5632535	1112759	122	5067276	1162403	132		/pc.		6580613	2005156	59	5533771	2022870	84
5047056	1118129	122	5067337	1162462	132	5139393	1473220	103	6580620	2005160	59	5533832	2022872	84
5047599	1119656	121	5070634	1169122	135	5139454	1473271	103	6580675	2005164	60	5533894	2022874	84
5049210	1121464	124	5072492	1174053	134	5139515	1473360	103	6584420	2005190	62	5533955	2022876	84
5686262	1122918	125					/100 pc.		6584437	2005194	62			
5686279	1122920	125	5081371	1195123	137	6502295	1483621	112	6584444	2005198	62	5446774	2024705	85
5686293	1122924	125	5081432	1195166	137	6502301	1483623	112	6584451	2005202	62	5446835	2024713	85
			5081494	1195220	137	6502318	1483625	112	6584468	2005206	63	5446897	2024721	85
5486022	/100 pc. 1124645	126	5081555	1195271	137	6502486	1483661	112	6584475	2005210	63	5446958	2024748	85
5486039	1124647	126	5081616	1195344	137	6502493	1483663	112	6584482	2005214	63	5447016	2024756	85
5486046	1124649	126	5081678	1195409	137	6502509	1483665	112	6584499	2005220	64	5447078	2024764	85
5486091	1124659	126	5081739	1195468	137	6502554	1483671	112	6584505	2005222	64	5447139	2024772	85
5486107	1124661	127	5081791	1195522	137	6502570	1483667	112	6584529	2005240	65	5447191	2024780	85
5486114	1124663	126	5081852	1195581	137	6502547	1483669	112	6584550	2005244	65	5447252	2024799	85
6559824	1124792	126	5081913	1195646	137	6502554	1483671	112	6584584	2005308	67	5447313	2024802	85
6559831	1124796	126	5081975	1195700	137	6503407	1483911	112	6585854	2005308	67			
6559848	1124798	126	5082576	1196111	138	6503438	1483915	112	6585861	2005312	67			
5062714	1156004	133	5082637	1196162	138	6503445	1483919	112	6585878	2005316	67	6595723	/pc. 2034680	68
5062776	1156012	133	5082699	1196227	138	6503452	1483923	112	6585885	2005320	67			
5062837	1156020	133	5082750	1196286	138	6503520	1483941	112	6585892	2005324	67		/100 pc.	
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5062950	1156047	133	5082873	1196405	138	6503568	1483951	112	5246756	2007045	41	6594108	2044511	106
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5063070	1156063	133	5082996	1196529	138	6503636	1483969	112	5246794	2007077	42	6594122	2044516	106
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5063193	1156098	133	5083115	1197126	137	6503674	1483977	112	5246817	2007109	43	6594146	2044529	106
5063254	1156101	133	5083177	1197169	137	6503681	1483981	112	5246824	2007125	44	6594153	2044536	106
5063315	1156128	133	5083238	1197223	137	5145936	1484702	114	5246831	2007223	48	6594160	2044542	106
5063377	1156136	133	5083290	1197282	137	5145998	1484818	114	5246848	2007239	48	6594177	2044548	106
5063438	1156144	133	5083351	1197347	137	5146056	1484826	114	5246855	2007255	48	5182412	2048078	86
5063490	1156152	133	5083412	1197401	137	6471355	1484838	114	5246862	2007271	48	5182474	2048094	86
5063551	1156160	133	5083474	1197460	137	5928126	1485140	113	5246879	2007287	49	5182535	2048116	86
5358411	1158305	136	5083535	1197525	137	5928133	1485144	113	5246886	2007303	49	5182597	2048132	86
5358428	1158309	136	5083597	1197584	137	5928140	1485148	113	5441168	2007430	45	5182658	2048167	86
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5358442	1158317	136	5083711	1197703	137	5151098	1488082	114	5441182	2007434	45	5182771	2048299	86
5358473	1158321	136	5083771	1197762	137	5151159	1488090	114	5441212	2007436	46	5182832	2048361	86
5358480	1158325	136	5083832	1197827	137	5151714	1488111	114	5682189	2007440	46	5182894	2048426	86
5358497	1158329	136	5083894	1197908	137	5917069	2000001	38	5682196	2007444	46	5182955	2048485	86
5358503	1158333	136	5083955	1197991	137	5151395	2000016	38	5682202	2007448	47	5874157	2048906	86
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5064572	1160222	130	6636174	1198028	139	5917090	2000378	39	5985884	2007716	50	5944652	2048949	86
5064633	1160281	130	6636181	1198034	139	5917106	2000382	39	5985891	2007718	51	5088998	2048957	86
5064695	1160346	130	6636198	1198040	139	5917137	2000410	40	5985894	2007718	51	5089056	2048965	86
5064756	1160400	130	6636204	1198046	139	5917144	2000414	40	5985952	2007754	52	5089117	2048973	86
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5064879	1160524	130	6636228	1198058	139	6577378	2005004	58	5985983	2007770	54	6334650	2054454	78
5064930	1160583	130	6636235	1198064	139	6577385	2005008	58	5985990	2007774	54	6334667	2054458	78
5064992	1160648	130	6636242	1198070	139	6577422	2005012	59	5986003	2007776	54	5595359	2146053	94
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						6582716	2005034	61	6465729	2008828	74	5595779	2146215	94
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5065418	1161164	131	5442097	1199854	138	6577477	2005054	58	6465781	2008860	74	5204275	2146290	94
5065470	1161229	131	5442158	1199862	138	6577484	2005058	58	6465798	2008864	74	5595892	2146320	94
5065531	1161288	131	5442219											

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	/100 pc.			/100 pc.	
5742395	2153718	93	6621439	3191010	145
5741732	2153726	93	6621446	3191012	145
5741671	2153734	93	6621453	3191016	145
	/pc.		6621460	3191018	145
5509950	2153829	108	6621477	3191020	145
5469391	2153831	108	6621484	3191024	145
5510017	2153833	108	6621491	3191026	145
5510079	2153835	108	6621507	3191028	145
5510130	2153864	107	6621514	3191032	145
5469452	2153866	107	6621521	3191034	145
5510192	2153868	107	6621538	3191036	145
5510253	2153870	107	6621545	3191050	145
5510314	2153872	108	6621552	3191052	145
5469575	2153874	108	6621576	3191056	145
5510376	2153876	108	6621583	3191058	145
5510437	2153878	108	6621590	3191060	145
	price/100		6621606	3191062	145
5028093	2153904	107	6621613	3191066	145
5027799	2153912	107	6621620	3191068	145
5025214	2153920	107	6621637	3191070	145
5025153	2153939	107	6621644	3191074	145
	/100 pc.		6621651	3191076	145
5221296	2250071	95	6621668	3191078	145
5221357	2250136	95	6621675	3191082	145
5221418	2250209	95	6621682	3191084	145
5221470	2250241	95	6621699	3191086	145
5221531	2250306	95	5298151	3400085	146
5221593	2250438	95	5298212	3400107	146
			5298274	3400123	146
5222798	2255014	119	5300076	3402088	146
5222859	2255022	119	5300137	3402096	146
6416950	2331812	102	5300199	3402126	146
6416981	2331818	102	5301691	3404080	146
6417001	2331824	102	5301752	3404102	146
6417032	2331832	102	5301813	3404129	146
6417056	2331838	102	6411979	3492910	144
6417117	2331844	102	6411993	3492920	144
6417131	2331850	102	6411832	3498326	143
6417162	2331862	102	6411856	3498334	143
6417186	2331868	102	6411870	3498340	143
6417216	2331874	102	6411894	3498350	143
6417230	2331880	102		/pc.	
6417254	2331886	102	6933259	6006486	56
6417285	2331892	102		/pair	
6417308	2331912	102	6579259	6355812	127
6417346	2331918	102		/100 pc.	
6417353	2331924	102	6202218	6410081	146
6417377	2331936	102	6202270	6410103	146
6417391	2331946	102	6202331	6410111	146
6657766	2363002	70		/pc.	
6657759	2363006	70	6146895	7084773	56
6657728	2363008	70		/100 pc.	
	/pc.		5245773	3100154	142
5577768	2363010	69	5245834	3100189	142
	/VPE		5245896	3100251	142
5686354	2363015	69	5245957	3100308	142
	/pc.		5246015	3100405	142
5687771	2363019	69	5851059	3105016	142
5241690	3031012	142	5851110	3105024	142
5851417	3031500	142	5851172	3105032	142
	/100 pc.		5253334	3141128	146
5245773	3100154	142	5253396	3141209	146
5245834	3100189	142	5253457	3141306	146
5245896	3100251	142	6621392	3191000	145
5245957	3100308	142	6621408	3191002	145
5246015	3100405	142	6621415	3191006	145
5851059	3105016	142	6621422	3191008	145
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109 M20 LGR	6595723	2034680	68
109 M20 LGR	6595723	2034680	88
		/pc.	
116 M12 LGR PA	5874157	2048906	86
116 M16 LGR PA	5874218	2048914	86
116 M20 LGR PA	5944539	2048922	86
116 M25 LGR PA	5944591	2048930	86
116 M32 LGR PA	5944652	2048949	86
116 M40 LGR PA	5088998	2048957	86
116 M50 LGR PA	5089056	2048965	86
116 M63 LGR PA	5089117	2048973	86
116 VDE PG 9 PA	5182474	2048094	86
116 VDE PG 9 PA	5182474	2048094	87
116 VDE PG11 PA	5182535	2048116	86
116 VDE PG11 PA	5182535	2048116	87
116 VDE PG13.5PA	5182597	2048132	86
116 VDE PG13.5PA	5182597	2048132	87
116 VDE PG16 PA	5182658	2048167	86
116 VDE PG16 PA	5182658	2048167	87
116 VDE PG21 PA	5182719	2048221	86
116 VDE PG21 PA	5182719	2048221	87
116 VDE PG29 PA	5182771	2048299	86
116 VDE PG29 PA	5182771	2048299	87
116 VDE PG36 PA	5182832	2048361	86
116 VDE PG36 PA	5182832	2048361	87
116 VDE PG42 PA	5182894	2048426	86
116 VDE PG42 PA	5182894	2048426	87
116 VDE PG48 PA	5182955	2048485	86
116 VDE PG48 PA	5182955	2048485	87
116 VDE PG7 PA	5182412	2048078	86
116 VDE PG7 PA	5182412	2048078	87
129 TB PG11	6594108	2044511	106
129 TB PG13,5	6594115	2044513	106
129 TB PG16	6594122	2044516	106
129 TB PG21	6594139	2044521	106
129 TB PG29	6594146	2044529	106
129 TB PG36	6594153	2044536	106
129 TB PG42	6594160	2044542	106
129 TB PG48	6594177	2044548	106
129 TB PG9	6594092	2044509	106
2037 12-20 LGR	5221418	2250209	95
2037 16-24 LGR	5221470	2250241	95
2037 18-30 LGR	5221531	2250306	95
2037 27-43 LGR	5221593	2250438	95
2037 3-7 LGR	5221296	2250071	95
2037 6-13 LGR	5221357	2250136	95
2054 14-48 LGR	5222798	2255014	119
2054 14-48 LGR	5222798	2255014	120
2054 14-48 LGR	5222798	2255014	123
2055 24-72 LGR	5222859	2255022	119
2055 24-72 LGR	5222859	2255022	120
2055 24-72 LGR	5222859	2255022	123
2056 100 FT	5065296	1160990	130
2056 12 FT	5064459	1160125	130
2056 16 FT	5064510	1160168	130
2056 2 12 FT	5065357	1161121	131
2056 2 16 FT	5065418	1161164	131
2056 2 22 FT	5065470	1161229	131
2056 2 28 FT	5065531	1161288	131
2056 2 34 FT	5065593	1161342	131
2056 2 40 FT	5065654	1161407	131
2056 2 46 FT	5065715	1161466	131
2056 2 52 FT	5065777	1161520	131
2056 2 58 FT	5065838	1161571	131
2056 2 64 FT	5065890	1161644	131
2056 22 FT	5064572	1160222	130
2056 28 FT	5064633	1160281	130
2056 3 12 FT	5066972	1162128	132
2056 3 16 FT	5067030	1162160	132
2056 3 22 FT	5067092	1162225	132
2056 3 28 FT	5067153	1162284	132
2056 3 34 FT	5067214	1162349	132
2056 3 40 FT	5067276	1162403	132
2056 3 46 FT	5067337	1162462	132
2056 34 FT	5064695	1160346	130
2056 40 FT	5064756	1160400	130
2056 46 FT	5064817	1160451	130
2056 52 FT	5064879	1160524	130

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2056 64 FT	5064992	1160648	130
2056 70 FT	5065050	1160702	130
2056 76 FT	5065111	1160761	130
2056 82 FT	5065173	1160826	130
2056 90 FT	5065234	1160907	130
2056 BE FT	5072492	1174053	134
2056 M 100 FT	5063551	1156160	133
2056 M 12 FT	5062714	1156004	133
2056 M 16 FT	5062776	1156012	133
2056 M 22 FT	5062837	1156020	133
2056 M 28 FT	5062899	1156039	133
2056 M 34 FT	5062950	1156047	133
2056 M 40 FT	5063018	1156055	133
2056 M 46 FT	5063070	1156063	133
2056 M 52 FT	5063131	1156071	133
2056 M 58 FT	5063193	1156098	133
2056 M 64 FT	5063254	1156101	133
2056 M 70 FT	5063315	1156128	133
2056 M 76 FT	5063377	1156136	133
2056 M 82 FT	5063438	1156144	133
2056 M 90 FT	5063490	1156152	133
2056F 12 FT	5070634	1169122	135
2056RS M 16 FT	5358411	1158305	136
2056RS M 22 FT	5358428	1158309	136
2056RS M 28 FT	5358435	1158313	136
2056RS M 34 FT	5358442	1158317	136
2056RS M 40 FT	5358473	1158321	136
2056RS M 46 FT	5358480	1158325	136
2056RS M 52 FT	5358497	1158329	136
2056RS M 58 FT	5358503	1158333	136
2056RS M 64 FT	5358534	1158337	136
2058 12 LGR	5081371	1195123	137
2058 16 LGR	5081432	1195166	137
2058 2 12 LGR	5082576	1196111	138
2058 2 16 LGR	5082637	1196162	138
2058 2 22 LGR	5082699	1196227	138
2058 2 28 LGR	5082750	1196286	138
2058 2 34 LGR	5082811	1196340	138
2058 2 40 LGR	5082873	1196405	138
2058 2 46 LGR	5082934	1196464	138
2058 2 52 LGR	5082996	1196529	138
2058 2 58 LGR	5083054	1196588	138
2058 22 LGR	5081494	1195220	137
2058 28 LGR	5081555	1195271	137
2058 34 LGR	5081616	1195344	137
2058 40 LGR	5081678	1195409	137
2058 46 LGR	5081739	1195468	137
2058 52 LGR	5081791	1195522	137
2058 58 LGR	5081852	1195581	137
2058 64 LGR	5081913	1195646	137
2058 70 LGR	5081975	1195700	137
2058FW 100 LGR	5083955	1197991	137
2058FW 12 LGR	5083115	1197126	137
2058FW 16 LGR	5083177	1197169	137
2058FW 22 LGR	5083238	1197223	137
2058FW 28 LGR	5083290	1197282	137
2058FW 34 LGR	5083351	1197347	137
2058FW 40 LGR	5083412	1197401	137
2058FW 46 LGR	5083474	1197460	137
2058FW 52 LGR	5083535	1197525	137
2058FW 58 LGR	5083597	1197584	137
2058FW 64 LGR	5083658	1197649	137
2058FW 70 LGR	5083719	1197703	137
2058FW 76 LGR	5083771	1197762	137
2058FW 82 LGR	5083832	1197827	137
2058FW 90 LGR	5083894	1197908	137
2058FW M 12 FT	5442035	1199846	138
2058FW M 16 FT	5442097	1199854	138
2058FW M 22 FT	5442158	1199862	138
2058FW M 28 FT	5442219	1199870	138
2058FW M 34 FT	5442271	1199889	138
2058FW M 40 FT	5442332	1199897	138
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