

# BSS



**Fire protection  
systems  
Middle East**

**Building Connections**

**OBO**  
BETTERMANN



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# 1

## First protection aim: Maintenance of the fire sections



The division of buildings into fire sections protects unaffected building sections against the spread of fires for specific periods of time. Insulation maintains the fire sections, thus limiting the spread of fire and smoke. These constructive measures protect people and property, allowing fire brigades to prevent the spread of fires to other parts of the building through extinguishing measures.

### Function of fire walls

Fire walls should ensure that a fire cannot pass to neighbouring buildings or building sections. This creates so-called fire sections. The construction design of these fire walls (materials, fire resistance classes, stress values) is regulated by the building regulations and standards.

Electrical cables and pipes may only be run through walls and ceilings at the ends of rooms when there is a guarantee that they do not present an opportunity for fire and smoke to spread. Insulation systems reliably seal the ceiling and wall penetrations required for installations against fire and smoke.

### Special requirements

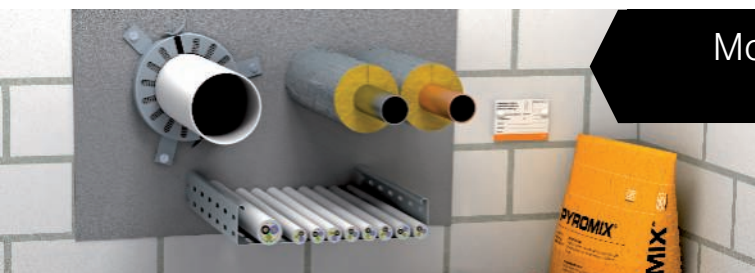
The following requirements apply to cable penetrations with cable insulation:

- The spread of fire and smoke must be prevented
- Room closure must be guaranteed
- On the side of the insulation away from the fire, the surfaces of cables, pipes, cable support systems and the surface of the insulation may not heat up to an impermissible level

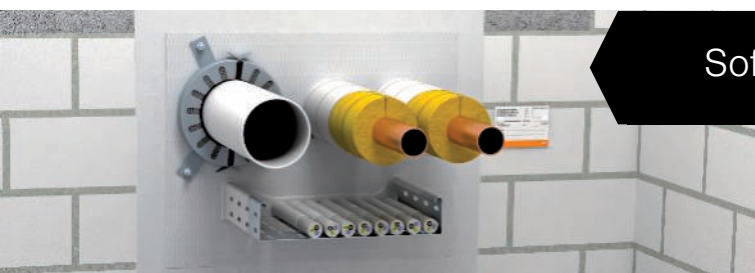
*Insulation systems reliably seal the ceiling and wall penetrations required for installations against fire and smoke.*



# Insulation systems



Mortar insulation systems



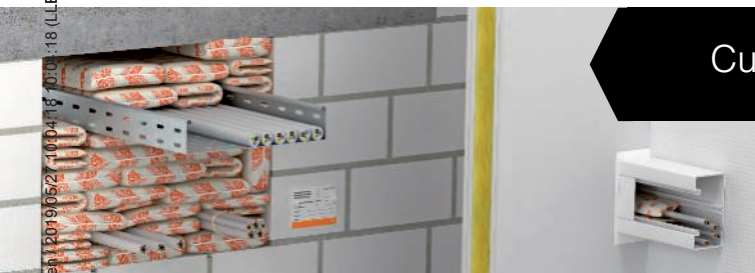
Soft insulation systems



Foam systems



Pipe shell systems



Cushion insulation systems

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# 2

## Second protection aim: Protection of escape routes



### What is an emergency and escape route?

According to the construction regulations, there must be routes in buildings which not only permit access to the building in a horizontal and vertical direction in normal situations, but which also offer the option of rescue in case of fire. It is therefore obligatory to equip buildings with at least one constructive emergency and escape route. Additional emergency and escape routes may also be necessary, depending on the type of building.

These include:

- Necessary staircases (vertical access)
- Connecting rooms between the necessary stairwells and exits to the outside
- Necessary corridors (horizontal access)

There must be a guarantee that, if there is a fire, these routes can be used to leave the building without any risk. In addition to evacuation, the emergency and escape routes also aid the local fire brigades as a point of attack.

In the area of emergency and escape routes, an installation may not pose an additional fire load. This requirement can be fulfilled using an appropriate type of installation:

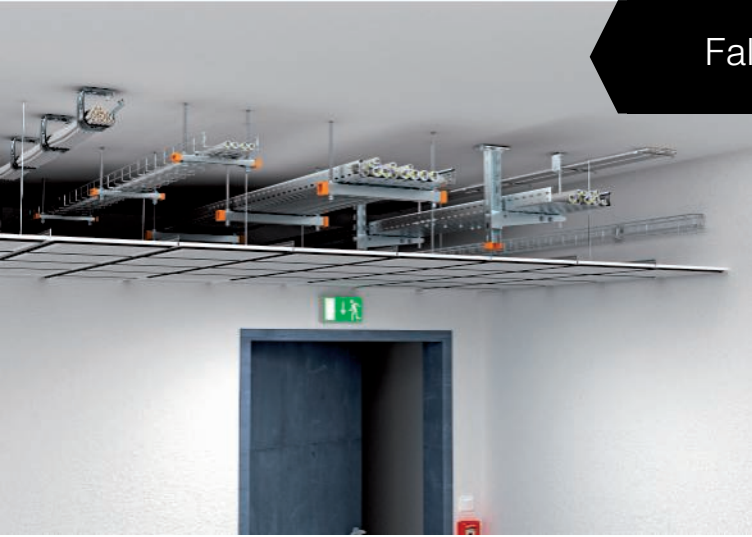
- Concealed installation
- Installation in fire protection duct systems
- Installation above suspended fire protection ceilings
- Use of non-combustible materials
- Routing of cables with improved behaviour in case of fire

*Approximately 95% of all deaths during fires are caused by smoke poisoning! In case of fire, emergency and escape routes are the central lifeline of the building and must remain usable under all circumstances.*

# Escape route installations



False ceiling mounting



Fire protection ducts



Cable bandages



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# 3

## Third protection aim: Maintaining the function of electrical systems



If there is a fire, emergency and escape routes must remain usable and important technical equipment, such as emergency lighting, fire alarm systems and smoke extraction systems, continue to function. Therefore, it is essential that the power supply for these systems is specially protected. In addition, certain technical systems must support the fire brigades in fighting fires for a sufficiently long period of time.

Where is the maintenance of electrical function required?

Technical equipment that maintains electrical function is required for the following buildings and systems:

- Hospitals
- Hotels and restaurants
- Tower blocks
- Meeting points
- Commercial buildings
- Closed large garages
- Underground railway systems
- Chemicals industry
- Power stations
- Tunnels

This could be because these constructions are regularly frequented by many people. This creates an increased safety risk for gatherings of people. However, with certain systems, property and the environment must also be protected.

### E30

#### 30 minutes: Maintenance of electrical function for a safe evacuation and rescue

The first 30 minutes after the start of a fire play an important role. For the affected building to be cleared quickly the maintenance of electrical function must be guaranteed for the following equipment during this time:

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

### E90

#### 90 minutes: Maintenance of electrical function for effective fire-fighting

To support fire-fighting 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:

- Water pressure increase systems for fire water supply
- Mechanical smoke extraction systems and smoke protection pressure systems
- Fire brigade lifts
- Bed lifts in hospitals and similar equipment





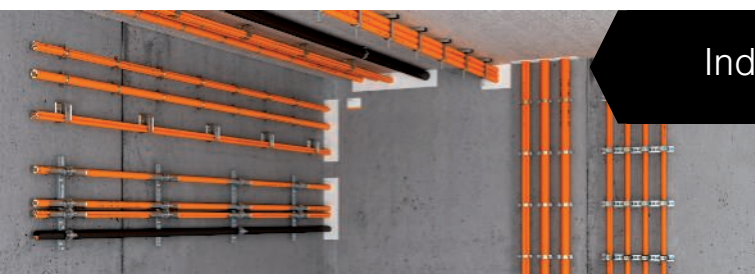
# Systems that maintain the electrical function



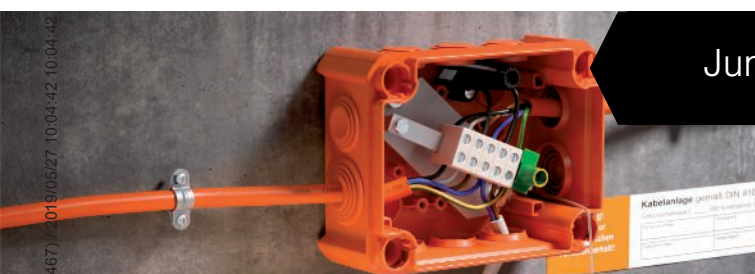
Cable trays and cable ladders



Vertical ladders



Individual routing



Junction boxes

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# Technical support

## Seminars

### **OBO BSS seminars: First-hand knowledge**

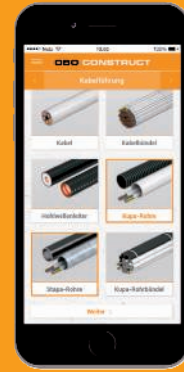
With a comprehensive programme of training courses and seminars on the subject of fire protection systems, OBO is able to support its customers with specialist knowledge from a single source. Alongside the basic theoretical principles, the programme also deals with practical implementation in everyday applications. Special calculation and application examples round off the comprehensive programme of knowledge transfer.





### Construct BSS Online Tool

Works on any computer with Internet access: The BSS software simplifies the planning of suitable fire protection systems. After the basic data has been entered, the user obtains an overview of the approved insulation systems, as well as of necessary and optional system accessories. Thus, they can create, edit and export a personal shopping list in a targeted manner. All the key information on standards and approvals can be found directly with the systems.



### BSS app

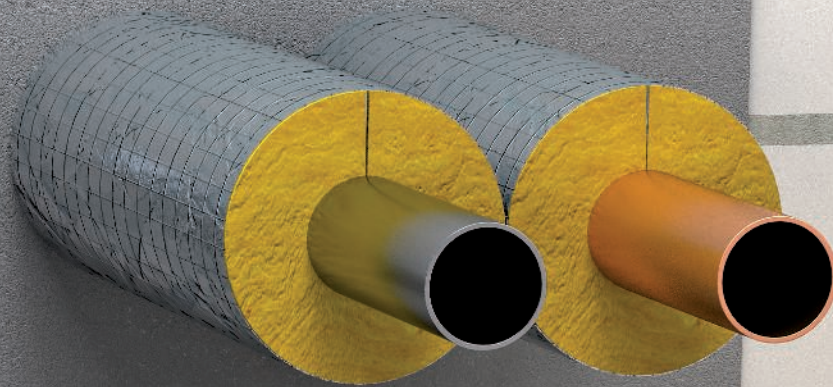
The Construct BSS app makes finding the right product even quicker. In only a short time, the app determines the fire protection systems required for the appropriate project. It offers the full scope of the Construct BSS module, allowing simple planning and material calculations in any location. Practical: The parts list can be sent directly by e-mail. Available for Android and Apple devices for Google Play Store and the iTunes App Store.



### Fire protection guide

In the guide, we wish to explain the interconnections of fire protection in technical building equipment. Perhaps you will find some new aspects which can help you in the planning or implementation of fire protection systems.





Kabelabschottung  
Kombiabschottung  
Rohrabschottung

Exhaust / U.K. No.

Grundstandsklasse  Minuten

Zurückspaltung Nr. \_\_\_\_\_

System: \_\_\_\_\_



Ersteller: \_\_\_\_\_

Datum: \_\_\_\_\_



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# Mortar insulation PYROMIX®

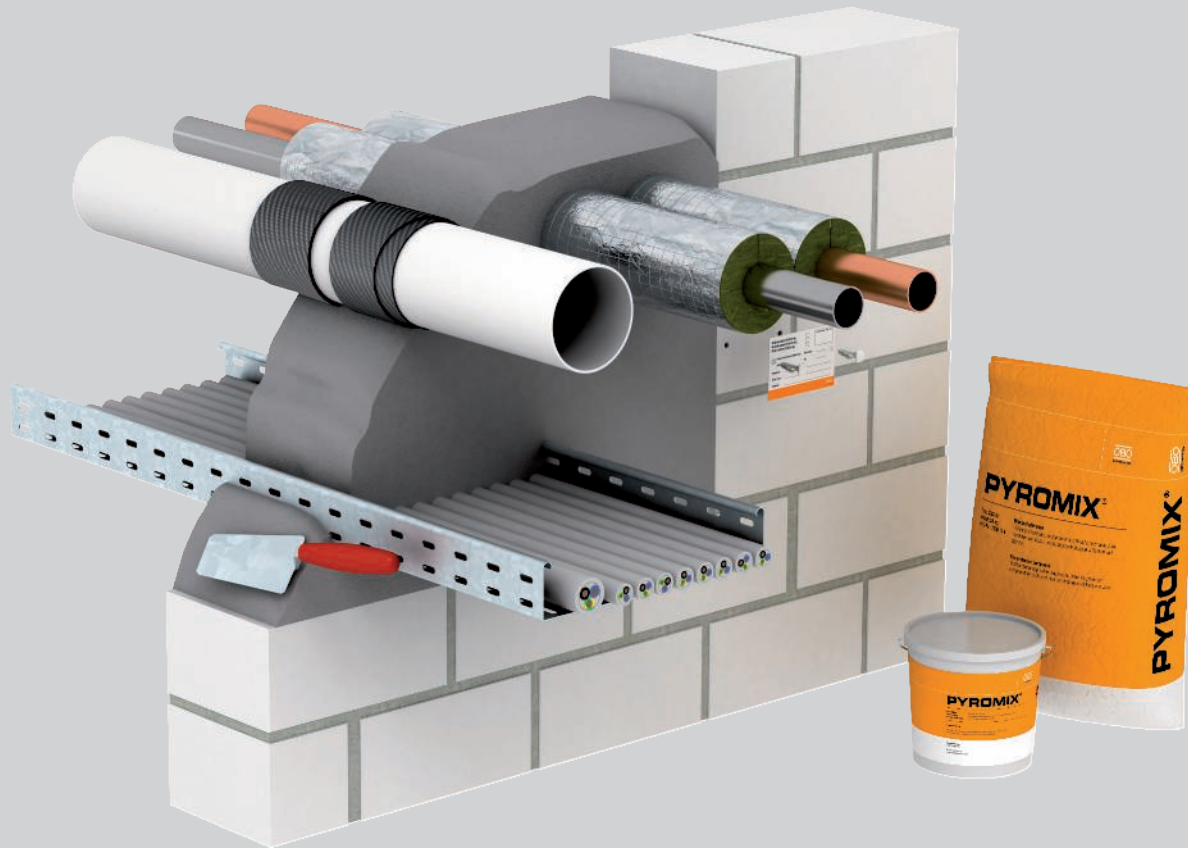
	<b>System description</b>	14
	<b>Products</b>	18

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## Mortar insulation PYROMIX® System description



The PYROMIX® system from OBO is used to create cable and combination insulation made of a mineral fibre-free special mortar. Depending on the amount of water added, the finished compound can be applied to openings by hand, with pumps or with presses. The high level of substrate adhesion makes lining un-

necessary for small insulation areas. The porous consistency of the mortar means that reinstallation is easy. If there is a fire, the fire protection mortar reliably prevents the spread of fire and smoke.



# Mortar insulation PYROMIX®

## Installation principle



Stir the mortar with water until the desired consistency is reached.



Apply mortar to the opening, use lining as necessary.



Use approved section insulation for metal pipes.



Section insulation should also be applied to steel electrical installation pipes.



Mount pipe sleeves for combustible pipes on both sides of the wall.



Apply labelling to combination insulation for various structures.

Classification to DIN

**S30**   **S60**   **S90**

Classification to EN

**EI15**   **EI30**   **EI45**   **EI60**   **EI90**   **EI120**



Erectors of combination insulation require training.

Always indicate the item number when ordering.



## Mortar insulation PYROMIX®


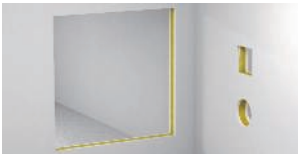












### Registration data

#### Combination insulation in walls/ceilings

<b>Fire resistance class</b>	EI 180, EI 240
<b>Proof of application</b>	European Technical Assessment of DIBt, Berlin
<b>Approval number</b>	ETA-17/0472
<b>Testing standard</b>	EN 1366-3

## Installation locations

### Insulation in walls and ceilings

Component	Rigid walls	Flexible walls	Rigid floors
			
Min. component strength 	15 cm (EI 60 / EI 90 / EI 120)	-	15 cm (S30 / S60 / S90)
Min. insulation thickness 	15 cm (EI 60 / EI 90 / EI 120) 24 cm (EI 120)	-	15 cm (EI 60 / EI 90 / EI 120) 24 cm (EI 120)
Opening size 	≤ 120 cm (for EI 120) ≤ 200 cm	-	≤ 100 cm Unlimited
	  120 cm (for EI 120) ≤ 60 cm x ≤ 60 cm	-	  120 cm (for EI 120) ≤ 60 cm x ≤ 60 cm
	 		 



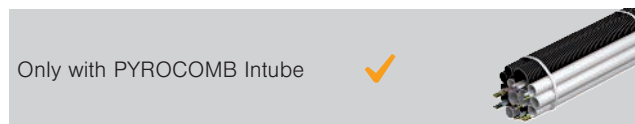


# Mortar insulation PYROMIX® Installations

## Cable



## Pipe bundle of electrical installation pipes



## Cable bundle



## Electrical installation pipe made of steel



## Individual lines for control purposes



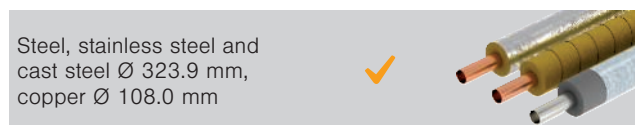
## Cable support systems



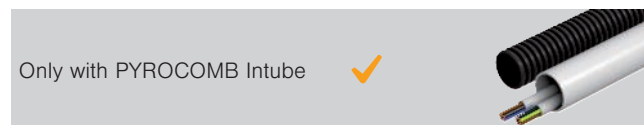
## Electrical installation pipe made of plastic, rigid



## Metal pipes with path insulation



## Electrical installation pipe made of plastic, flexible

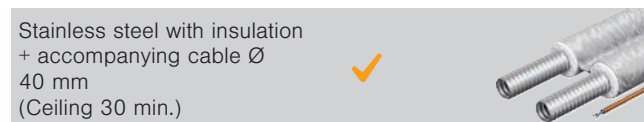


## Plastic pipes

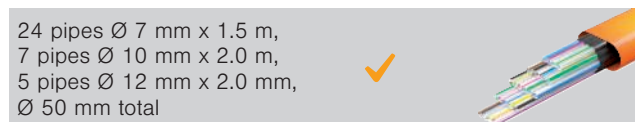


## Special installations

### Double solar pipes



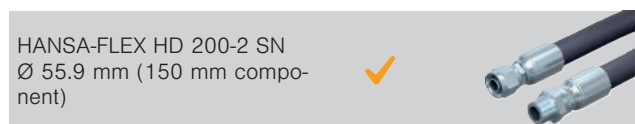
### Speed pipe



### Klimasplit



### Hydraulic hoses



Details on the version can be found in the proof of suitability or mounting instructions.  
All the stated dimensions are maximum values.

## Mortar insulation PYROMIX®

### PYROMIX® dry mortar in paper sack



Type	Contents kg	Pack. Weight		Item No.
		pcs	kg/100 pcs.	
<b>MSX-S1</b>	20	1	2,000.000	<b>7206104</b>

Special mortar

Mortar to create cable and combination insulation in solid walls and ceilings. Suitable for pumping, pressing and for manual installation. Adding approx. 6 litres of water to 20 kg of dry mortar produces about 20 litres of workable compound.

In dry, frost-free rooms, the dry mortar can be stored for at least 12 months in closed original containers.

### PYROMIX® dry mortar in bucket



Type	Contents kg	Pack. Weight		Item No.
		pcs	kg/100 pcs.	
<b>MSX-E1</b>	10	1	1,000.000	<b>7206058</b>

Special mortar

Mortar to create cable and combination insulation in solid walls and ceilings. Suitable for pumping, pressing and for manual installation. Adding approx. 3 litres of water to 10 kg of dry mortar produces about 10 litres of workable compound.

In dry, frost-free rooms, the dry mortar can be stored for at least 12 months in closed original containers.

### Insulation layer creator in a cartridge



Type	Contents ml	Pack. Weight		Item No.
		pcs	kg/100 pcs.	
<b>DSX-K</b>	300	1	50.000	<b>7202300</b>

Intumescent material

Dispersion-based fire protection compound for interior areas, to fill residual joints and close openings. Approved material for closing core drill holes for individual cable glands.

Material class DIN 4102 - B2, normally flammable.

In dry, frost-free rooms, the compound can be stored at temperatures from +5 °C to +25 °C for up to 18 months in closed, upright original containers.

### Insulation layer creator in a bucket



Type	Contents kg	Pack. Weight		Item No.
		pcs	kg/100 pcs.	
<b>DSX-E</b>	5	1	500.000	<b>7202302</b>

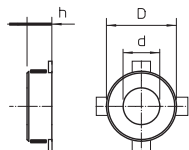
Intumescent material

Dispersion-based fire protection compound for interior areas, to fill residual joints and close openings. Approved material for closing core drill holes for individual cable glands.

Material class DIN 4102 - B2, normally flammable.

In dry, frost-free rooms, the compound can be stored at temperatures from +5 °C to +25 °C for up to 18 months in closed, upright original containers.

### Pipe sleeve with 2 fastening straps



Type	Pipe Ø mm	Dimen- sion h mm	Dimen- sion D mm	Dimen- sion d mm	Pack. Weight		Item No.
					pcs	kg/100 pcs.	
<b>TCX-032</b>	32 - 34	26	50	36	1	6.500	<b>7202200</b>
<b>TCX-040</b>	40 - 42	26	58	44	1	7.000	<b>7202201</b>
<b>TCX-050</b>	50 - 52	26	68	54	1	8.000	<b>7202203</b>

Intumescent material

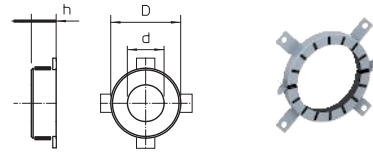
Pipe sleeve for combustible pipes.

If there is a fire, fire protection inserts inside the sheet steel housing expand, exerting a very great pressure onto the burning thermoplastic pipes.

Fastening with anchors or M6 threaded rods.

## Pipe sleeve with 4 fastening straps

Type	Pipe Ø mm	Dimension h mm	Dimension D mm	Dimension d mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>TCX-063</b>	63 - 65	26	94	67	1	15.500	<b>7202204</b>
<b>TCX-075</b>	75 - 77	26	106	79	1	19.000	<b>7202205</b>
<b>TCX-090</b>	90 - 92	26.6	132	94	1	37.000	<b>7202206</b>
<b>TCX-110</b>	110 - 112	26.6	155	114	1	46.000	<b>7202207</b>
<b>TCX-125</b>	125 - 127	40	172	129	1	70.000	<b>7202208</b>



Intumescent material

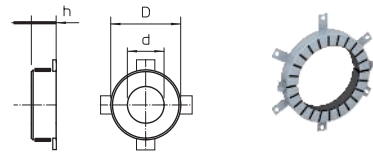
Pipe sleeve for combustible pipes.

If there is a fire, fire protection inserts inside the sheet steel housing expand, exerting a very great pressure onto the burning thermoplastic pipes.

Fastening with anchors of M6 threaded rods up to size 75 mm, then M8.

## Pipe sleeve with 6 fastening straps

Type	Pipe Ø mm	Dimension h mm	Dimension D mm	Dimension d mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>TCX-140</b>	140 - 142	40	200	144	1	106.000	<b>7202209</b>
<b>TCX-160</b>	160 - 162	40	220	164	1	107.000	<b>7202210</b>



Intumescent material

Pipe sleeve for combustible pipes.

If there is a fire, fire protection inserts inside the sheet steel housing expand, exerting a very great pressure onto the burning thermoplastic pipes.

Fastening with anchors or M8 threaded rods.

## Coil for insulation

Type	Contents kg	Length mm	Width mm	Dimension B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FSB-WB 1.5</b>	2.26	10000	125	125	1	220.000	<b>7203163</b>
<b>FSB-WB BS</b>	2.03	10000	100	100	1	215.000	<b>7203165</b>



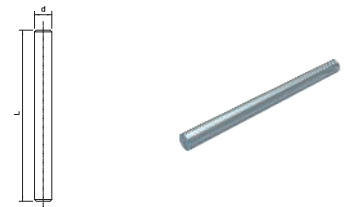
## Threaded rod

Type	Thread	Dimension d mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>TR M8 1M G</b>	M8	8	1000	10	30.000	<b>3141128</b>

**St** Steel

**G** Electrogalvanised

Threaded rod to DIN 976.



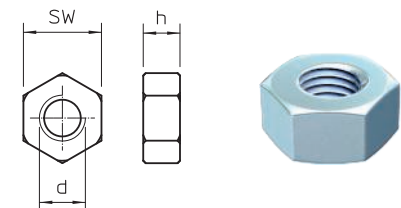
## Hexagonal nut DIN 934

Type	Thread	SW mm	Dimension h mm	Dimension d mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>HN M6 G</b>	M6	10	5.2	6	100	0.225	<b>3400069</b>

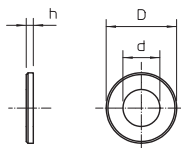
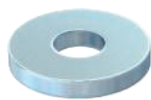
**St** Steel

**G** Electrogalvanised

Hexagonal nut to DIN 934 with metric thread.



## Washer ISO 7093

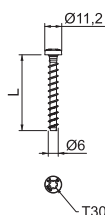


Type	Thread	Dimension d mm	Dimension D mm	Dimension h mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>WS M6 D28 G</b>	M6	6.5	28	2.5	100	1.150	<b>3402207</b>
<b>WS M8 D28 G</b>	M8	8.5	28	2.5	100	1.100	<b>3402215</b>

- St** Steel
- G** Electrogalvanised

Washer of large outer diameter for universal use.

## Fire protection screw tie

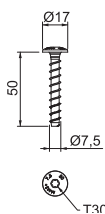


Type	Dimension mm	Bore hole Ø mm	Head Ø mm	Screw system	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MMS-plus 6X50</b>	6 x 50	5	11.2	Torx	50	100	1.000	<b>3498108</b>

- St** Steel
- G** Electrogalvanised

Fire protection screw tie with pan head for direct installation without additional anchors. Drive T30, drill hole 5 mm. Tested anchor according to ETAG 001 – Part 3. Fire resistance class to R120 for concrete and masonry.

## Fire protection screw tie



Type	Dimension mm	Bore hole Ø mm	Head Ø mm	Screw system	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MMS-plus 7.5X50</b>	7,5 x 50	6	17	Torx	100	1.500	<b>3498261</b>

- St** Steel
- G** Electrogalvanised

Fire protection screw tie with large pan head for direct mounting without additional anchors. Drive T30, drill hole 6 mm. Tested anchor according to ETAG 001 - Part 3. Fire resistance class to R120 for concrete and masonry.

## Section insulation for metal pipes



Type	Length mm	Width mm	Thickness mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MIW-MA</b>	8000	500	30	2	1,010.000	<b>7202308</b>

Mineral fibres

Mineral wool mats with aluminium lamination for section insulation on copper and steel pipes. Fastening with winding wire, securing of joints with aluminium adhesive tape.

Applicable in the systems:  
 PYROMIX® mortar insulation  
 PYROSIT® NG fire insulation foam  
 PYROPLATE® Fibre soft insulation  
 PYROPLUG® Block blocks

Material class EN 13501 - A1 non-combustible; melting point ≥ 1,000 °C

## Aluminium adhesive tape for path insulation



Type	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MIW-AT</b>	10000	1	136.900	<b>7202305</b>

Aluminium adhesive tape for applying the aluminium-laminated section insulation. The aluminium adhesive tape is self-adhesive and not classified as combustible according to DIN 4102-1.

## Winding wire for path insulation

Type	Length mm	Pack. pcs	Weight		Item No.
			kg/100	pcs.	
<b>MIW-TD</b>	50000	1	10.000		<b>7202309</b>

SI Steel

VZ Galvanised

The steel wire is used to fix the section insulation. It is non-combustible and guarantees optimum retention of the section insulation on non-combustible pipes and cables.



## Mineral wool

Type	Dimension	Pack. pcs	Weight		Item No.
			kg/100	pcs.	
<b>MIW-S</b>	25 Liter	1	250.000		<b>7202306</b>

Mineral fibres

Universal filling wool for various fire protection applications, packed in compressed form. Material class EN 13 501 - A1, non-combustible; melting point  $\geq 1.000$  °C.



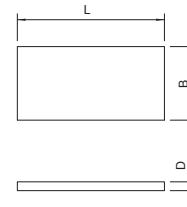
## Calcium silicate plate

Type	Dimen- sion L mm	Dimen- sion B mm	Dimen- sion D mm	Pack. pcs	Weight		Item No.
					kg/100	pcs.	
<b>KSI-P1</b>	500	150	20	1	42.000		<b>7202283</b>
<b>KSI-P2</b>	500	250	30	1	111.000		<b>7202904</b>
<b>KSI-P3</b>	1000	250	30	1	222.000		<b>7202912</b>

Calcium silicate

Calcium silicate plate, as support plate, for the construction of frames in the penetration and to double thin wall thicknesses.

Materials class EN 13501 - A1 non-combustible.



## Retrofit wedge

Type	Dimension	Pack. pcs	Weight		Item No.
			kg/100	pcs.	
<b>NIK-S</b>	25x25/75x300	1	32.000		<b>7206210</b>

Calcium silicate

Retrofit wedges for mortar insulation, to mount in the fresh insulation. 1 set comprises 4 slanted calcium silicate strips. Material class EN 13501 - A1, non-combustible.

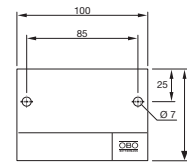


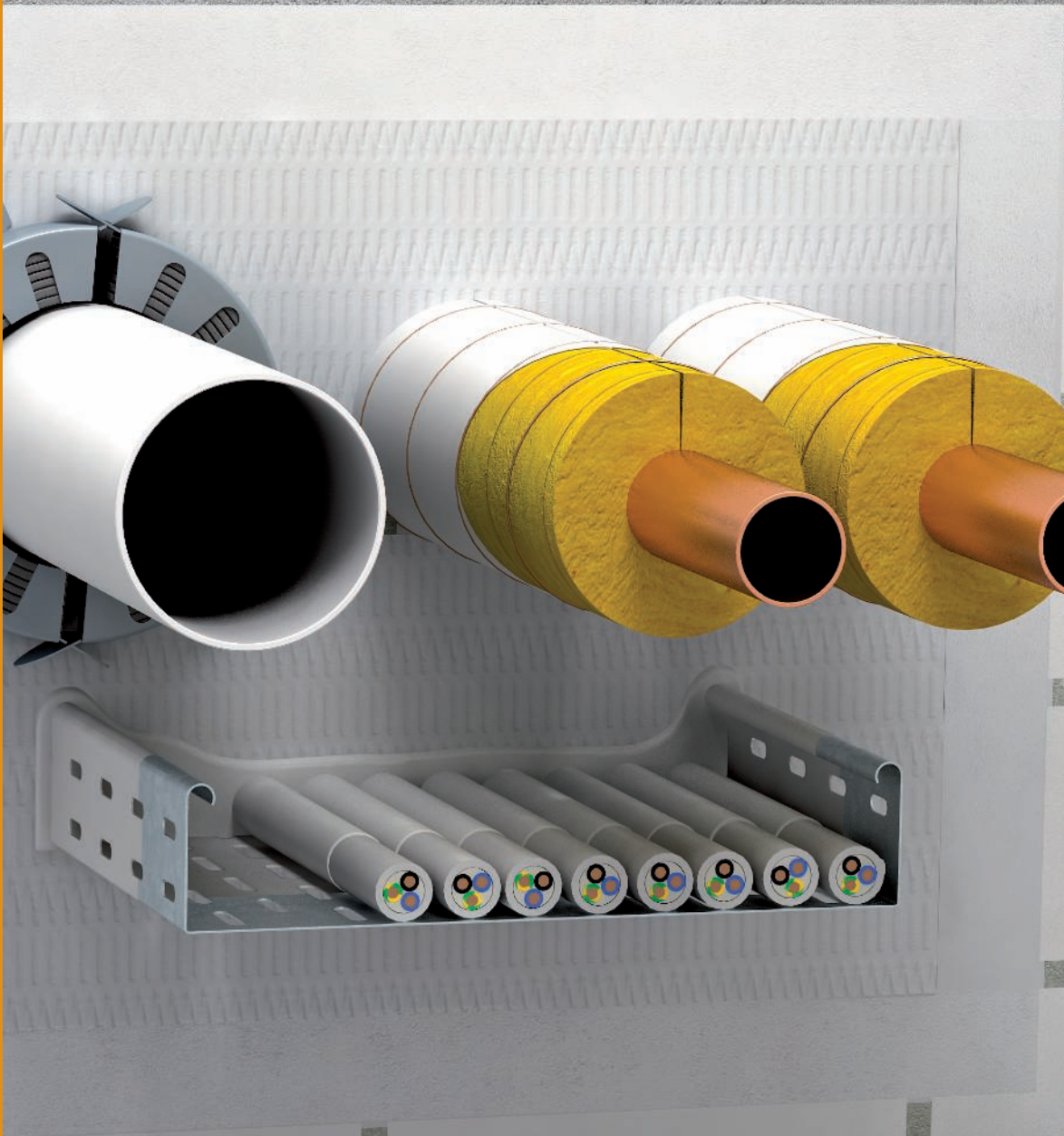
## Identification plate

Type	Language	Pack. pcs	Weight		Item No.
			kg/100	pcs.	
<b>KS-S DE</b>	German	1	2.400		<b>7205425</b>
<b>KS-S SE</b>	Swedish	1	2.400		<b>7205426</b>
<b>KS-S ES</b>	Spanisch	1	2.400		<b>7205427</b>
<b>KS-S EN</b>	English	1	2.400		<b>7205429</b>
<b>KS-S HR</b>	Croatian	1	2.400		<b>7205438</b>
<b>KS-S IT</b>	Italian	1	2.400		<b>7205428</b>
<b>KS-S FR</b>	French	1	2.400		<b>7205430</b>
<b>KS-S NL</b>	Dutch	1	2.400		<b>7205431</b>

PS Polystyrene

Universal identification plate to be written on with waterproof and light-resistant felt-tip pen for all types of OBO insulation. For approved identification, including two push-fit anchors.







Kabelabschottung	<input type="checkbox"/>	Exaktwert / Uhr / Nr.
Kombiabschottung	<input type="checkbox"/>	
Rohrabschottung	<input type="checkbox"/>	
Brandstanzklasse	Minuten	
Abmessung	Nr.	
Item:		
Gr:		



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## Soft insulation, PYROPLATE® Fibre

	<b>System description</b>	24
	<b>Products</b>	28



## Soft insulation, PYROPLATE® Fibre System description



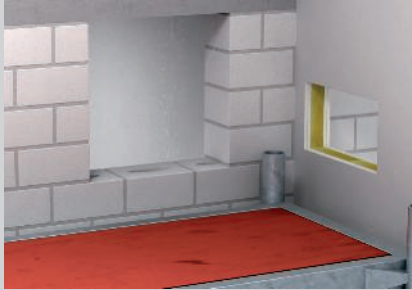
The PYROPLATE® Fibre system from OBO is used to create cable and combination insulation. The core of the system is the mineral fibre plate coated with a moisture-resistant ablation coating. When there is a fire, the fire protection coating creates an insulating carbon foam and, in combination with the mineral fibre plate, prevents the spread of fire and smoke. According to the European Technical Assessment, in ad-

dition to the cables, pipes made of steel, copper or various plastics may also be run through the same insulation. For pipelines, additional fire protection measures, such as section insulation and pipe sleeves, are required. The mortar or soft insulation made of PYROPLATE® Fibre is thus combination insulation which is appropriate for diverse structures.





## Soft insulation, PYROPLATE® Fibre Installation principle



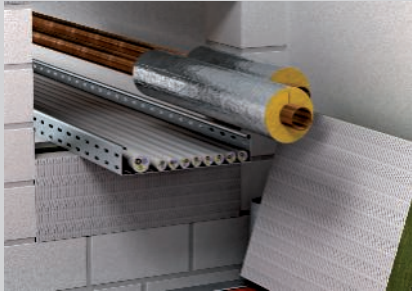
The installation is possible in light-duty partition walls or in solid walls.



Moisten the component layer and apply the coating to the cut edges for adhesion.



The plates can be inserted carefully with a hammer and board.



Use approved section insulation for metal pipes.



Apply the final coating to the surface and the installations.



Secure soft insulation in ceilings against footfall.



Cut the plates for mounting.



Finished installation in a light-duty partition wall.

Classification to DIN



Classification to EN



Erectors of combination insulation require training.

Always indicate the item number when ordering.

# Soft insulation, PYROPLATE® Fibre

## Registration data

### Combination insulation in walls and ceilings

<b>Fire resistance class</b>	EI 15, EI 30, EI 45, EI 60, EI 90, EI 120, EI 180, EI 240
<b>Proof of application</b>	European Technical Assessment of DIBt, Berlin
<b>Approval number</b>	ETA-17/0364
<b>Testing standard</b>	DIN EN 1366 Part 3

## Installation locations

### Insulation in walls and ceilings

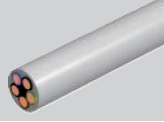
Component		Rigid walls	Flexible walls	Rigid floors
Min. component strength				
		10 cm (EI 15 / EI 30 / EI 60 / EI 90) 10 cm (EI 15 / EI 30 / EI 60 / EI 90/ EI 120) 20 cm (EI 15 / EI 30 / EI 60 / EI 90/ EI 120 / EI 180 / EI240)	10 cm (EI 15 / EI 30 / EI 60 / EI 90 / EI 120)	12.5 cm (EI 15 / EI 30 / EI 60 / EI 90) 15 cm (EI 15 / EI 30 / EI 60 / EI 90/ EI 120) 20 cm (EI 15 / EI 30 / EI 60 / EI 90/ EI 120 / EI 180 / EI240)
Min. insulation thickness		6 cm (EI 15 / EI 30 / EI 60 / EI 90) 12 cm (EI 15 / EI 30 / EI 60 / EI 90/ EI 120) 24 cm (EI 15 / EI 30 / EI 60 / EI 90/ EI 120/ EI 180 / EI 240)	6 cm (EI 15 / EI 30 / EI 60 / EI 90) 12 cm (EI 15 / EI 30 / EI 60 / EI 90/ EI 120)	6 cm (EI 15 / EI 30 / EI 60 / EI 90) 12 cm (EI 15 / EI 30 / EI 60 / EI 90/ EI 120) 24 cm (EI 15 / EI 30 / EI 60 / EI 90/ EI 120/ EI 180 / EI 240)
Opening size for 6 cm insulation thickness		$\leftrightarrow \leq 117.5 \text{ cm}$ $\updownarrow \leq 120 \text{ cm}$	$\leftrightarrow \leq 117.5 \text{ cm}$ $\updownarrow \leq 120 \text{ cm}$	$\leftrightarrow \leq 120 \text{ cm x } \leq 240 \text{ cm}$ $\updownarrow \leq 80 \text{ cm x } \leq \text{unlimited}$
Opening size for 12 cm insulation thickness		$\leftrightarrow \leq 140 \text{ cm}$ $\updownarrow \leq 200 \text{ cm}$	$\leftrightarrow \leq 140 \text{ cm}$ $\updownarrow \leq 200 \text{ cm}$	$\leftrightarrow \leq 140 \text{ cm}$ $\updownarrow \leq 200 \text{ cm}$
Opening size for 24 cm insulation thickness		$\leftrightarrow \leq 60 \text{ cm}$ $\updownarrow \leq 60 \text{ cm}$	-	$\leftrightarrow \leq 60 \text{ cm}$ $\updownarrow \leq \text{Unlimited}$



## Soft insulation, PYROPLATE® Fibre Installations

### Cable

Cable Ø 80 mm



### Pipe bundle of electrical installation pipes

Ø 100 mm, IR Ø 32 mm, cable Ø 21 mm

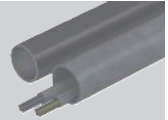


### Cable bundle

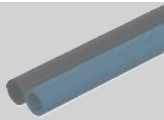
Ø 100 mm, cable Ø 21 mm



### Electrical installation pipe made of steel



### Individual lines for control purposes



### Cable support systems

Steel profiles



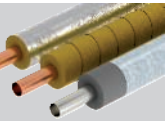
### Electrical installation pipe made of plastic, rigid

Ø 16 mm



### Metal pipes with path insulation

Steel, stainless steel and cast steel Ø 332.9 mm, copper Ø 108.0 mm



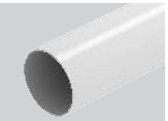
### Electrical installation pipe made of plastic, flexible

Ø 32 mm, cable Ø 21 mm



### Plastic pipes

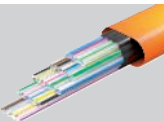
Ø 160 mm



## Special installations

### Speed pipe

24 pipes Ø 7 mm x 1.5 m,  
7 pipes Ø 10 mm x 2.0 m,  
5 pipes Ø 12 mm x 2.0 mm,  
Ø 50 mm total



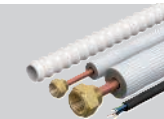
### Double solar pipes

"NanoSUN" DN 16 to DN 40



### Klimasplit

"Tubolit DuoSplit", "Tubolit Split" or comparable  
6.0 mm – 22.0 mm



Details on the version can be found in the proof of suitability or mounting instructions. All the stated dimensions are maximum values.

## Soft insulation, PYROPLATE® Fibre

### Ablation coating in a cartridge



Type	Contents	Pack. pcs	Weight		Item No.
	ml		kg/100	pcs.	
<b>ASX-K</b>	310	1	50.000		<b>7202310</b>

Intumescent material

Combined, endothermic and weatherproof coating for internal and external areas. Universal protection coating for cable and cable support structures. Use as direct filler, and as paint when stirred.

Material class DIN 4102 - B2, normally flammable.

In dry, frost-free rooms, the coating can be stored at temperatures from +5 °C to +25 °C for up to 18 months in closed, upright original containers.

### Ablation coating in a bucket



Type	Contents	Pack. pcs	Weight		Item No.
	kg		kg/100	pcs.	
<b>ASX-E</b>	5	1	500.000		<b>7202312</b>

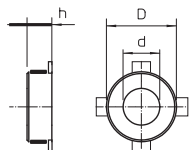
Intumescent material

Combined, endothermic and weatherproof coating for internal and external areas. Universal protection coating for cable and cable support structures. Use as direct filler, and as paint when stirred. Sufficient for an area of 4 m².

Material class DIN 4102 - B2, normally flammable.

In dry, frost-free rooms, the coating can be stored at temperatures from +5 °C to +25 °C for up to 18 months in closed, upright original containers.

### Pipe sleeve with 2 fastening straps



Type	Pipe Ø	Dimen- sion h	Dimen- sion D	Dimen- sion d	Pack. pcs	Weight		Item No.
	mm	mm	mm	mm		kg/100	pcs.	
<b>TCX-032</b>	32 - 34	26	50	36	1	6.500		<b>7202200</b>
<b>TCX-040</b>	40 - 42	26	58	44	1	7.000		<b>7202201</b>
<b>TCX-050</b>	50 - 52	26	68	54	1	8.000		<b>7202203</b>

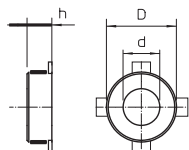
Intumescent material

Pipe sleeve for combustible pipes.

If there is a fire, fire protection inserts inside the sheet steel housing expand, exerting a very great pressure onto the burning thermoplastic pipes.

Fastening with anchors or M6 threaded rods.

### Pipe sleeve with 4 fastening straps



Type	Pipe Ø	Dimen- sion h	Dimen- sion D	Dimen- sion d	Pack. pcs	Weight		Item No.
	mm	mm	mm	mm		kg/100	pcs.	
<b>TCX-063</b>	63 - 65	26	94	67	1	15.500		<b>7202204</b>
<b>TCX-075</b>	75 - 77	26	106	79	1	19.000		<b>7202205</b>
<b>TCX-090</b>	90 - 92	26.6	132	94	1	37.000		<b>7202206</b>
<b>TCX-110</b>	110 - 112	26.6	155	114	1	46.000		<b>7202207</b>
<b>TCX-125</b>	125 - 127	40	172	129	1	70.000		<b>7202208</b>

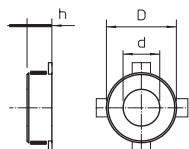
Intumescent material

Pipe sleeve for combustible pipes.

If there is a fire, fire protection inserts inside the sheet steel housing expand, exerting a very great pressure onto the burning thermoplastic pipes.

Fastening with anchors of M6 threaded rods up to size 75 mm, then M8.

### Pipe sleeve with 6 fastening straps



Type	Pipe Ø	Dimen- sion h	Dimen- sion D	Dimen- sion d	Pack. pcs	Weight		Item No.
	mm	mm	mm	mm		kg/100	pcs.	
<b>TCX-140</b>	140 - 142	40	200	144	1	106.000		<b>7202209</b>
<b>TCX-160</b>	160 - 162	40	220	164	1	107.000		<b>7202210</b>

Intumescent material

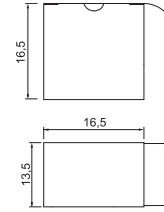
Pipe sleeve for combustible pipes.

If there is a fire, fire protection inserts inside the sheet steel housing expand, exerting a very great pressure onto the burning thermoplastic pipes.

Fastening with anchors or M8 threaded rods.

## Coil for insulation

Type	Contents kg	Length mm	Width mm	Dimension B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FSB-WB 1.5</b>	2.26	10000	125	125	1	220.000	<b>7203163</b>
<b>FSB-WB BS</b>	2.03	10000	100	100	1	215.000	<b>7203165</b>



## Threaded rod

Type	Thread	Dimension d mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>TR M8 1M G</b>	M8	8	1000	10	30.000	<b>3141128</b>

**St** Steel

**G** Electrogalvanised

Threaded rod to DIN 976.



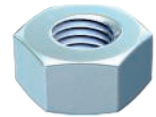
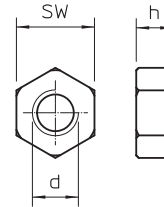
## Hexagonal nut DIN 934

Type	Thread	SW mm	Dimension h mm	Dimension d mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>HN M6 G</b>	M6	10	5.2	6	100	0.225	<b>3400069</b>

**St** Steel

**G** Electrogalvanised

Hexagonal nut to DIN 934 with metric thread.



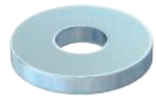
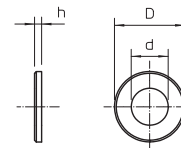
## Washer ISO 7093

Type	Thread	Dimension d mm	Dimension D mm	Dimension h mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>WS M6 D28 G</b>	M6	6.5	28	2.5	100	1.150	<b>3402207</b>
<b>WS M8 D28 G</b>	M8	8.5	28	2.5	100	1.100	<b>3402215</b>

**St** Steel

**G** Electrogalvanised

Washer of large outer diameter for universal use.



## Section insulation for metal pipes

Type	Length mm	Width mm	Thickness mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MIW-MA</b>	8000	500	30	2	1,010.000	<b>7202308</b>

Mineral fibres

Mineral wool mats with aluminium lamination for section insulation on copper and steel pipes. Fastening with winding wire, securing of joints with aluminium adhesive tape.

Applicable in the systems:  
 PYROMIX® mortar insulation  
 PYROSIT® NG fire insulation foam  
 PYROPLATE® Fibre soft insulation  
 PYROPLUG® Block blocks

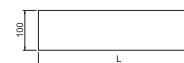
Material class EN 13501 - A1 non-combustible; melting point  $\geq 1,000$  °C



## Aluminium adhesive tape for path insulation

Type	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MIW-AT</b>	10000	1	136.900	<b>7202305</b>

Aluminium adhesive tape for applying the aluminium-laminated section insulation. The aluminium adhesive tape is self-adhesive and not classified as combustible according to DIN 4102-1.



## Soft insulation, PYROPLATE® Fibre

### Winding wire for path insulation



Type	Length	Pack.	Weight	Item No.
	mm	pcs	kg/100 pcs.	
<b>MIW-TD</b>	50000	1	10.000	<b>7202309</b>

SI Steel  
VZ Galvanised

The steel wire is used to fix the section insulation. It is non-combustible and guarantees optimum retention of the section insulation on non-combustible pipes and cables.

### Mineral wool

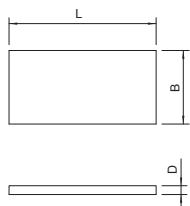
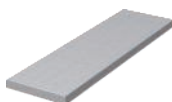


Type	Dimension	Pack.	Weight	Item No.
		pcs	kg/100 pcs.	
<b>MIW-S</b>	25 Liter	1	250.000	<b>7202306</b>

Mineral fibres

Universal filling wool for various fire protection applications, packed in compressed form. Material class EN 13 501 - A1, non-combustible; melting point  $\geq 1.000$  °C.

### Calcium silicate plate



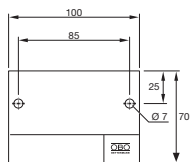
Type	Dimen- sion L	Dimen- sion B	Dimen- sion D	Pack.	Weight	Item No.
	mm	mm	mm	pcs	kg/100 pcs.	
<b>KSI-P1</b>	500	150	20	1	42.000	<b>7202283</b>
<b>KSI-P2</b>	500	250	30	1	111.000	<b>7202904</b>
<b>KSI-P3</b>	1000	250	30	1	222.000	<b>7202912</b>

Calcium silicate

Calcium silicate plate, as support plate, for the construction of frames in the penetration and to double thin wall thicknesses.

Materials class EN 13501 - A1 non-combustible.

### Identification plate



Type	Language	Pack.	Weight	Item No.
		pcs	kg/100 pcs.	
<b>KS-S DE</b>	German	1	2.400	<b>7205425</b>
<b>KS-S SE</b>	Swedish	1	2.400	<b>7205426</b>
<b>KS-S ES</b>	Spanisch	1	2.400	<b>7205427</b>
<b>KS-S EN</b>	English	1	2.400	<b>7205429</b>
<b>KS-S HR</b>	Croatian	1	2.400	<b>7205438</b>
<b>KS-S IT</b>	Italian	1	2.400	<b>7205428</b>
<b>KS-S FR</b>	French	1	2.400	<b>7205430</b>
<b>KS-S NL</b>	Dutch	1	2.400	<b>7205431</b>

PS Polystyrene

Universal identification plate to be written on with waterproof and light-resistant felt-tip pen for all types of OBO insulation. For approved identification, including two push-fit anchors.





Kabelabschottung  
Kombiabschottung  
Rohrabschottung

Produkt-Nr.

Hersteller: OBO

System: \_\_\_\_\_

Ordnung: \_\_\_\_\_

Datum: \_\_\_\_\_



# Bag insulation PYROBAG®



**System description**

34

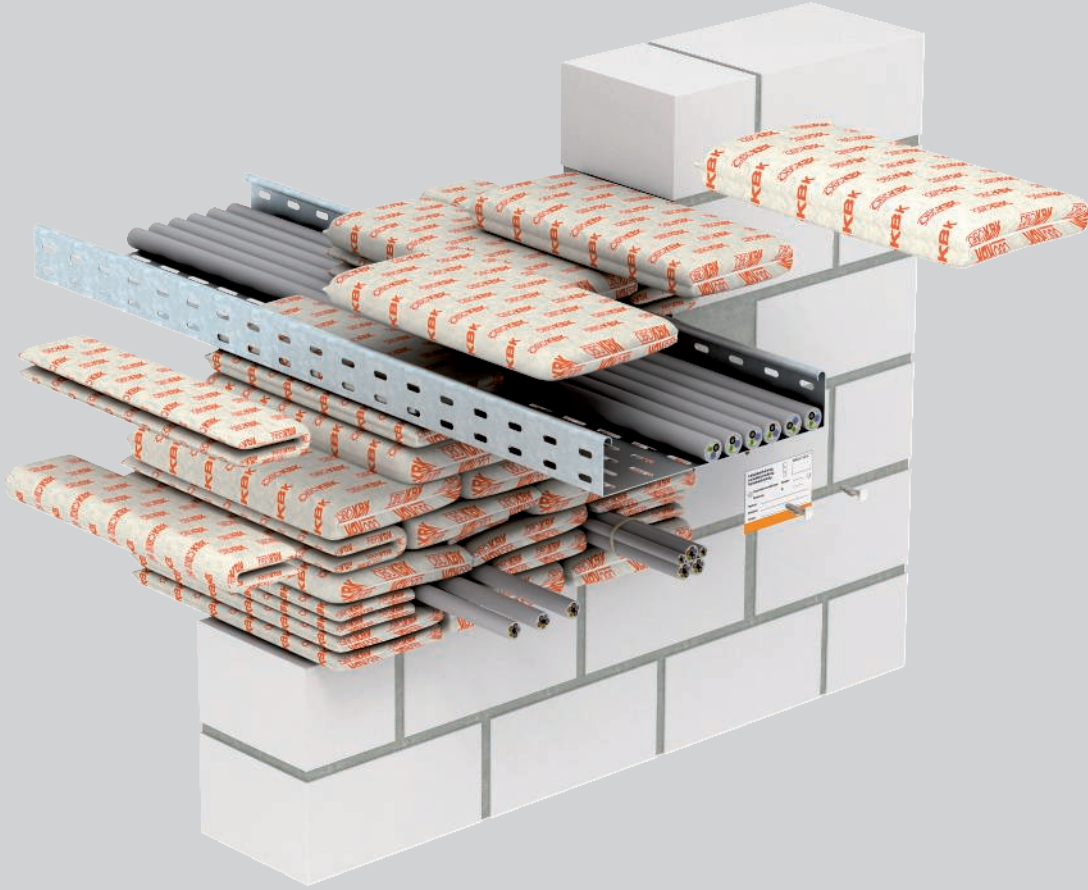


**Products**

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## Bag insulation PYROBAG®

### System description



The PYROBAG® system from OBO is used to create cable insulation from fire protection cushions. The fire protection cushions, which can be shaped in any way, are stacked simply and quickly on top of each other, allowing absolutely tidy and dust-free mounting. The cushions can be used for permanent or temporary insulation in walls and ceilings, e.g. during renovations. The fire protection cushions are an ideal solution for frequent retroinstallations. Additional cables can be in-

stalled quickly, neatly and economically at a later date because the cushions can be used several times over. The cushions consist of a close-knit, dense and mechanically solid glass fabric with a special filling. The shell and the filling are free of mineral fibres and are also weatherproof and waterproof. Neither painting nor the use of filler are required.

# Bag insulation PYROBAG®

## Installation principle



Closing of the opening with cushions – without filler or coating.



Panels as mounting aid for the last cushion layer.



Lock against falling out during ceiling mounting.



Lock against slippage above the floor.



Cushions arranged in the trunking.



Retaining profile to prevent slippage in vertical arrangements.



Discreet attachment of the identification plate.

Classification to DIN



Erectors of combination insulation require training.

Always indicate the item number when ordering.



# Bag insulation PYROBAG®

## Registration data

### Insulation in walls/ceilings

Fire resistance class	S30, S60, S90
Proof of application	General construction approval of DIBt, Berlin
Approval number	Z- 19. 15-1115
Testing standard	DIN 4102 Part 9







### Insulation in cable trunking

Fire resistance class	S90
Proof of application	General construction approval of DIBt, Berlin
Approval number	Z- 19. 15-1119
Testing standard	DIN 4102 Part 9


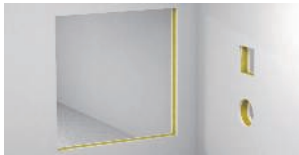

**Note: For this insulation, only a general construction approval of the DIBt, Berlin, is available. In countries where a European Technical Assessment (ETA/ETB) is required, the possible use of these components must be agreed with the local fire protection authorities!**

## Installation locations

### Insulation in walls and ceilings

Component		Rigid walls	Flexible walls	Rigid floors
				
Min. component strength		10 cm (S30/S60/S90)	10 cm (S30/S60/S90)	15 cm (S30 / S60 / S90)
Min. insulation thickness		35 cm (S30 / S60 / S90)	35 cm (S30 / S60 / S90)	35 cm (S30 / S60 / S90)
Opening size		↔ ≤ 100 cm, ↕ ≤ 150 cm	↔ ≤ 100 cm, ↕ ≤ 100 cm	↔ ≤ 60 cm, ↕ unlimited

### Insulation in cable ducts

Component		Rigid walls	Flexible walls	Rigid floors
				
Min. insulation thickness		10 cm (S30 / S60 / S90)	10 cm (S30 / S60 / S90)	15 cm (S30 / S60 / S90)
Duct size		35 cm (S30 / S60 / S90)	35 cm (S30 / S60 / S90)	35 cm (S30 / S60 / S90)
Plastic ducts		21 cm x 10 cm	21 cm x 10 cm	21 cm x 10 cm
Metal ducts		21 cm x 8 cm	21 cm x 8 cm	21 cm x 8 cm



# Bag insulation PYROBAG® Installations

## Cable



## Pipe bundle of electrical installation pipes



## Cable bundle



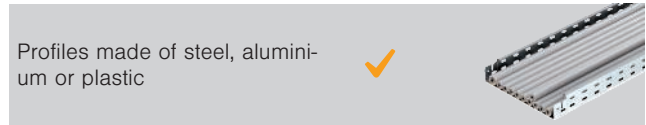
## Electrical installation pipe made of steel



## Individual lines for control purposes



## Cable support systems



## Electrical installation pipe made of plastic, rigid



## Metal pipes with path insulation



## Electrical installation pipe made of plastic, flexible

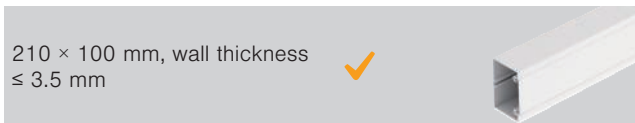


## Plastic pipes

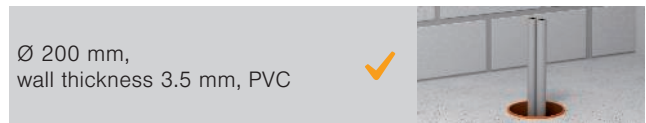


## Special installations

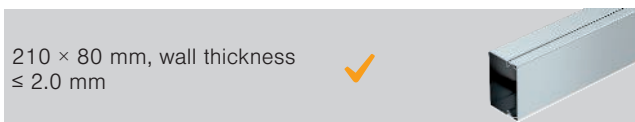
### Plastic ducts



### Insulation in the lining pipe

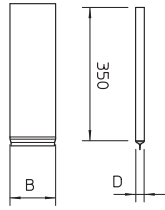


### Metal ducts



Details on the version can be found in the proof of suitability or mounting instructions. All the stated dimensions are maximum values.

## PYROBAG® fire protection cushion

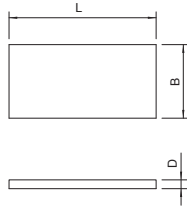
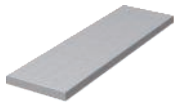


Type	Dimension B mm	Dimension D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KBK-1</b>	120	10	20	18.000	<b>7202709</b>
<b>KBK-2</b>	170	23	20	33.000	<b>7202725</b>
<b>KBK-3</b>	170	40	10	63.000	<b>7202741</b>

Glass mesh with special fire protection filling

Cable fire protection cushions made of dense, closely-knit and mechanically solid glass mesh with a special filling. Free from mineral fibres, weatherproof and water-resistant. Can be stored for an unlimited period of time in dry, frost-free rooms.

## Calcium silicate plate

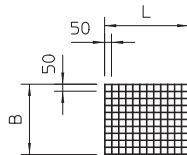
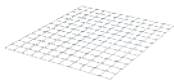


Type	Dimension L mm	Dimension B mm	Dimension D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KSI-P1</b>	500	150	20	1	42.000	<b>7202283</b>
<b>KSI-P2</b>	500	250	30	1	111.000	<b>7202904</b>
<b>KSI-P3</b>	1000	250	30	1	222.000	<b>7202912</b>

Calcium silicate

Calcium silicate plate, as support plate, for the construction of frames in the penetration and to double thin wall thicknesses. Materials class EN 13501 - A1 non-combustible.

## Steel wire grid



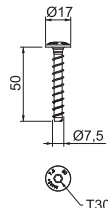
Type	Dimension L mm	Dimension B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>SDG-1</b>	600	500	1	135.000	<b>7202963</b>
<b>SDG-2</b>	1000	600	1	270.000	<b>7202971</b>

**SI** Steel

**FI** Hot-dip galvanised

Steel wire grid as support and protection grid, wire diameter 4 mm.

## Fire protection screw tie



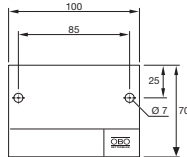
Type	Dimension mm	Bore hole Ø mm	Head Ø mm	Screw system	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MMS-plus 7.5X50</b>	7,5 x 50	6	17	Torx	100	1.500	<b>3498261</b>

**SI** Steel

**G** Electrogalvanised

Fire protection screw tie with large pan head for direct mounting without additional anchors. Drive T30, drill hole 6 mm. Tested anchor according to ETAG 001 - Part 3. Fire resistance class to R120 for concrete and masonry.

## Identification plate



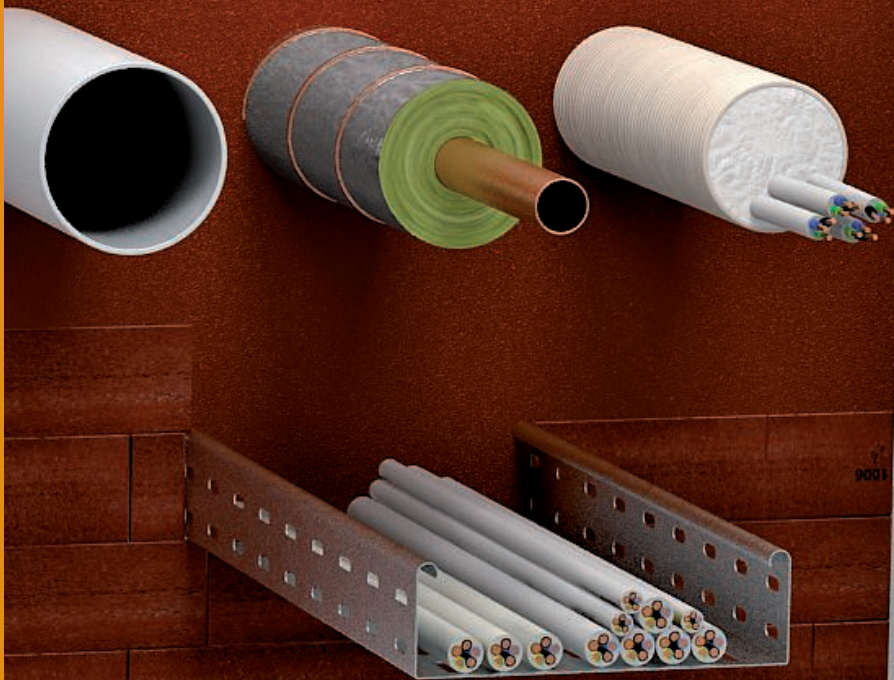
Type	Language	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS-S DE</b>	German	1	2.400	<b>7205425</b>
<b>KS-S SE</b>	Swedish	1	2.400	<b>7205426</b>
<b>KS-S ES</b>	Spanisch	1	2.400	<b>7205427</b>
<b>KS-S EN</b>	English	1	2.400	<b>7205429</b>
<b>KS-S HR</b>	Croatian	1	2.400	<b>7205438</b>
<b>KS-S IT</b>	Italian	1	2.400	<b>7205428</b>
<b>KS-S FR</b>	French	1	2.400	<b>7205430</b>
<b>KS-S NL</b>	Dutch	1	2.400	<b>7205431</b>

**PS** Polystyrene

Universal identification plate to be written on with waterproof and light-resistant felt-tip pen for all types of OBO insulation. For approved identification, including two push-fit anchors.







Kalenderbuchführung	_____
Kundenbuchführung	_____
Polsterbuchführung	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____



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# Fire protection foam PYROSIT® NG



**System description**

42



**Products**

46



## Fire protection foam PYROSIT® NG System description



The PYROPLATE® NG system from OBO is used to create cable and combination insulation made of fire protection foam. The special recipe of the 2-component foam allows simple, "pinpointed" processing. The good substrate adhesion prevents the foam from running out of the opening. Work can easily be interrupted to carry out checks. The system can be installed without dust and fibres. Surface coating is not necessary. According to the construction approval, in

addition to the cables, pipes made of steel, copper or various plastics may also be run through the same insulation. The PYROSIT® NG insulation is suitable as combination insulation for different units. Due to the soft consistency, the insulation made of PYROSIT® NG can be reassigned simply. The insulation system can be combined with the PYROPLUG® Block foam block.

# Fire protection foam PYROSIT® NG

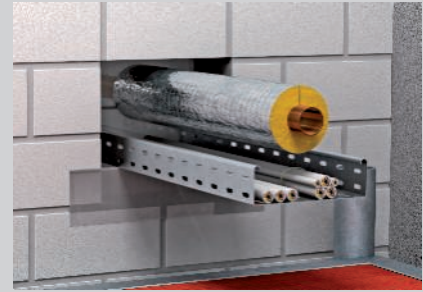
## Installation principle



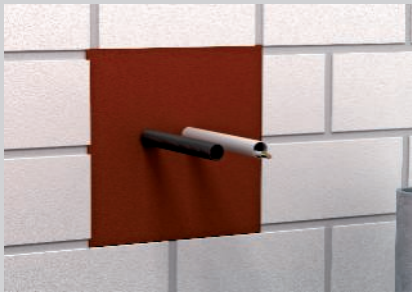
Clean the layer and attach the lining aids, e.g. adhesive tape.



Apply the foam from the rear to the front, and remove residues as necessary.



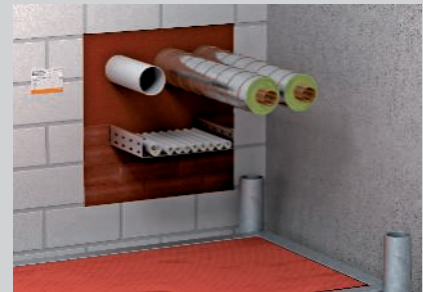
Use approved section insulation for metal pipes.



Electrical installation pipes up to M40, filled with cables or empty.



Combustible pipes up to Ø 50 mm can be run through without additional measures.



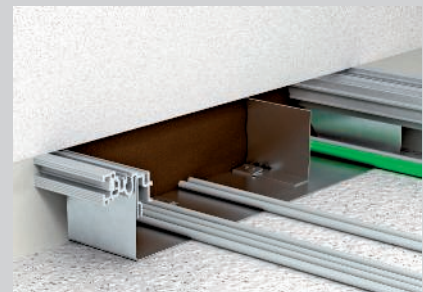
Combination insulation for various structures with labelling.



Application of the fire protection foam directly under the wall.



Labelled underfloor insulation with reserve empty pipe.



Empty pipes with tension wires can be foamed in for assignment at a later date.

Classification to EN

- EI15
- EI30
- EI45
- EI60
- EI90
- EI120



Erectors of combination insulation require training.

Always indicate the item number when ordering.





# Fire protection foam PYROSIT® NG

## Registration data

### Combination insulation in walls/ceilings

<b>Fire resistance class</b>	EI 15, EI 30, EI45, EI 60, EI 90, EI 120
<b>Proof of application</b>	European Technical Assessment of OIB, Vienna
<b>Approval number</b>	ETA-11/0527
<b>Testing standard</b>	EN 1366-3

### Additive proofs

<b>Heat permeation</b>	Fraunhofer IBP Stuttgart, P1-002/2012
<b>Air permeation/pressure resistance</b>	ift Rosenheim, 11-003694-PR03
<b>Noise insulation</b>	HfT Stuttgart, 122-007-04P-186a

## Installation locations

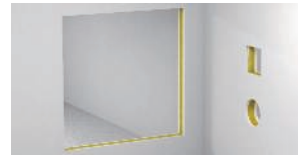
### Insulation in walls and ceilings

#### Component

#### Rigid walls

#### Flexible walls

#### Rigid floors



Min. component strength		10 cm (EI30 / EI60 / EI90 / EI120)	10 cm (EI30 / EI60 / EI90 / EI120)	15 cm (EI30 / EI60 / EI90 / EI120)
Min. insulation thickness		14.4 cm (EI 30, EI 45 /EI 60 / EI 90 ) 20 cm (EI 90 / EI 120)	14.4 cm (EI 30, EI 45 /EI 60 / EI 90 ) 20 cm (EI 90 / EI 120)	14.4 cm (EI 30, EI 45 /EI 60 / EI 90 ) 20 cm (EI 90 / EI 120)
Opening size for 14.4 cm insulation thickness		↔ ≤ 45 cm ↕ ≤ 50 cm	↔ ≤ 45 cm ↕ ≤ 50 cm	↔ ≤ 45 cm ↕ ≤ 45 cm
Opening size for 20 cm insulation thick- ness		↔ ≤ 45 cm ↕ ≤ 50 cm	↔ ≤ 45 cm ↕ ≤ 50 cm	↔ ≤ 45 cm ↕ ≤ 45 cm

# Fire protection foam PYROSIT® NG Installations

## Cable



## Pipe bundle of electrical installation pipes



## Cable bundle



## Electrical installation pipe made of steel



## Individual lines for control purposes



## Cable support systems



## Electrical installation pipe made of plastic, rigid



## Metal pipes with path insulation



## Electrical installation pipe made of plastic, flexible

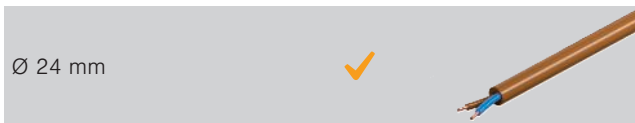


## Plastic pipes



## Special installations

### Cables



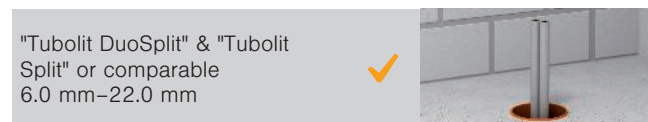
### Open underfloor ducts



### Screed-covered underfloor ducts



### Klimasplit



Details on the version can be found in the proof of suitability or mounting instructions.  
All the stated dimensions are maximum values.



## Fire protection foam PYROSIT® NG

### 2-component fire protection foam PYROSIT® NG



Type	Contents ml	Pack. Weight		Item No.
		pcs	kg/100 pcs.	
<b>FBS-S</b>	380	1	64.600	<b>7203800</b>

PYROSIT® NG 2-component fire protection foam in a cartridge, including 2 mixing tubes.  
To create cable and combination insulation; always process with the cartridge pistols FBS-PH or FBS-PA.

In dry, frost-free rooms, the cartridge can be stored closed and standing upright at temperatures from +5 °C to +30 °C for up to 12 months.

### 2-component fire protection foam PYROSIT® NG



Type	Contents ml	Pack. Weight		Item No.
		pcs	kg/100 pcs.	
<b>FBS-F</b>	380	1	63.700	<b>7203900</b>

PYROSIT® Foam 2-component fire protection foam in a cartridge, including 2 mixing tubes.  
To create cable and combination insulation; always process with the cartridge pistols FBS-PH or FBS-PA.

In dry, frost-free rooms, the cartridge can be stored closed and standing upright at temperatures from +5 °C to +30 °C for up to 12 months.

### Mixer pipe set



Type	Contents	Pack. Weight		Item No.
		PU	kg/100 PUs	
<b>FBS-M</b>		1	10.000	<b>7203803</b>

10 mixing tubes and 5 extension tubes in the set for PYROSIT® NG fire protection foam.

### Fire protection case



Type	Contents	Pack. Weight		Item No.
		pcs	kg/100 pcs.	
<b>FBS-K</b>		1	420.000	<b>7203809</b>

The PYROSIT® NG fire protection case contains all the required products to create foam insulations. The complete set consists of: 3 x FBS-S, 1 x FBS-PH, 6 mixing and 5 extension pipes.

### PYROSIT® NG Starter Set



Type	Contents	Pack. Weight		Item No.
		pcs	kg/100 pcs.	
<b>FBS-ST</b>		1	188.700	<b>7203805</b>

The PYROSIT® NG Starter Set contains all the required products to create foam insulations. The complete set consists of a cartridge of PYROSIT® NG and a cartridge pistol.

### Professional cartridge pistol



Type	Contents	Pack. Weight		Item No.
		pcs	kg/100 pcs.	
<b>FBS-PH</b>		1	120.000	<b>7203806</b>

High-quality 2-component cartridge pistol for use with the PYROSIT® NG fire protection foam.  
The parallel movement of the outlet to the holding grip ensures easy working.

### Tempering box

Type	Pack. pcs	Weight		Item No.
		kg/100	pcs.	
<b>FBS-TB</b>	1	610.100	7203818	

Plastic

When squeezing out cartridges, the right temperature is essential. In order to achieve this, a temperature control box is recommended.



### Section insulation for metal pipes

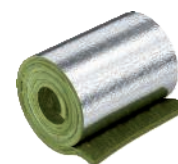
Type	Dimension			Pack. pcs	Weight		Item No.
	Length mm	Width mm	Thickness mm		kg/100	pcs.	
<b>MIW-MA</b>	8000	500	30	2	1,010.000	7202308	

Mineral fibres

Mineral wool mats with aluminium lamination for section insulation on copper and steel pipes. Fastening with winding wire, securing of joints with aluminium adhesive tape.

Applicable in the systems:  
 PYROMIX® mortar insulation  
 PYROSIT® NG fire insulation foam  
 PYROPLATE® Fibre soft insulation  
 PYROPLUG® Block blocks

Material class EN 13501 - A1 non-combustible; melting point ≥ 1,000 °C



### Aluminium adhesive tape for path insulation

Type	Length mm	Pack. pcs	Weight		Item No.
			kg/100	pcs.	
<b>MIW-AT</b>	10000	1	136.900	7202305	

Aluminium adhesive tape for applying the aluminium-laminated section insulation. The aluminium adhesive tape is self-adhesive and not classified as combustible according to DIN 4102-1.



### Winding wire for path insulation

Type	Length mm	Pack. pcs	Weight		Item No.
			kg/100	pcs.	
<b>MIW-TD</b>	50000	1	10.000	7202309	

**St** Steel

**VZ** Galvanised

The steel wire is used to fix the section insulation. It is non-combustible and guarantees optimum retention of the section insulation on non-combustible pipes and cables.



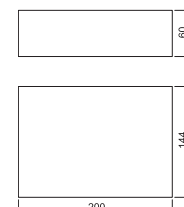
### PYROPLUG® Block foam block

Type	Dimension mm	Pack. pcs	Weight		Item No.
			kg/100	pcs.	
<b>FBA-B200-14</b>	200x144x60	4	44.800	7202505	

Permanently elastic, closed-pore foam

Foam block for cable and combination insulation, can also be used as a filler block in the PYROSIT® NG fire protection foam system.

The blocks must be protected against water in order to guarantee safe expansion in the case of fire.



### Cable coil

Type	Dimension		Pack. pcs	Weight		Item No.
	Width mm	Length mm		kg/100	pcs.	
<b>FBA-WI</b>	150	5000	1	384.000	7202510	

Intumescent material

Self-adhesive, intumescent cable protector, 5 mm thick, for the use with large cable diameters and penetrated cable support systems, applicable in PYROPLUG® systems and PYROSIT® NG.



## Fire protection foam PYROSIT® NG

### Adhesive tape

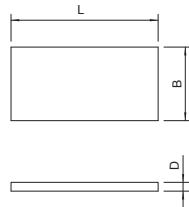


Type	Width mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>SHT</b>	50	5	12.000	<b>7202521</b>

**PE** Polyethylene

Fibre-reinforced, transparent adhesive tape as lining aid for applications with PYROSIT® NG fire protection foam and for universal fix. One roll contains 25 m<sup>2</sup>.

### Calcium silicate plate



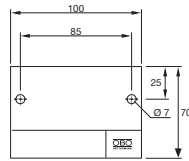
Type	Dimension L mm	Dimension B mm	Dimension D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KSI-P1</b>	500	150	20	1	42.000	<b>7202283</b>
<b>KSI-P2</b>	500	250	30	1	111.000	<b>7202904</b>
<b>KSI-P3</b>	1000	250	30	1	222.000	<b>7202912</b>

Calcium silicate

Calcium silicate plate, as support plate, for the construction of frames in the penetration and to double thin wall thicknesses.

Materials class EN 13501 - A1 non-combustible.

### Identification plate



Type	Language	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS-S DE</b>	German	1	2.400	<b>7205425</b>
<b>KS-S SE</b>	Swedish	1	2.400	<b>7205426</b>
<b>KS-S ES</b>	Spanisch	1	2.400	<b>7205427</b>
<b>KS-S EN</b>	English	1	2.400	<b>7205429</b>
<b>KS-S HR</b>	Croatian	1	2.400	<b>7205438</b>
<b>KS-S IT</b>	Italian	1	2.400	<b>7205428</b>
<b>KS-S FR</b>	French	1	2.400	<b>7205430</b>
<b>KS-S NL</b>	Dutch	1	2.400	<b>7205431</b>

**PS** Polystyrene

Universal identification plate to be written on with waterproof and light-resistant felt-tip pen for all types of OBO insulation. For approved identification, including two push-fit anchors.













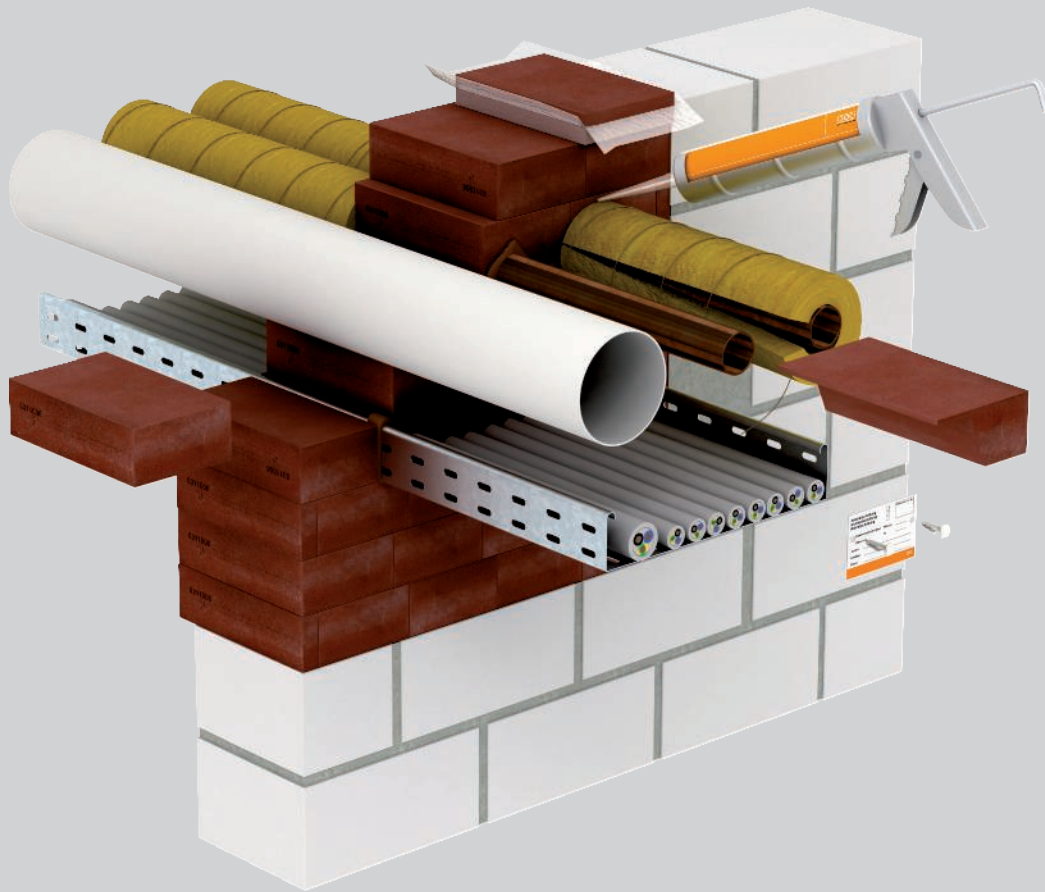


## Foam series PYROPLUG®

	<b>System description, PYROPLUG® BLOCK</b>	52
	<b>System description, PYROPLUG® PEG plugs</b>	56
	<b>System description, PYROPLUG® BOX box insulation</b>	60
	<b>System description, PYROPLUG® Shell pipe shells</b>	64
	<b>System description, PYROMIX® Mini small insulation</b>	68
	<b>Products</b>	72



## PYROPLUG® Block System description



The OBO PYROPLUG® Block combination insulation is created from foam blocks, which, if there is a fire, expand without any noticeable pressure creation. In so doing, they form an insulating carbon foam. This reliably prevents the penetration of fire and smoke through the cable insulation. Combustible pipes can be run in this insulation without an additional sleeve.

Copper and steel pipes can be insulated either with or without section insulation. All the PYROPLUG® Block insulation is completely dust and fibre-free. This also applies to any installations at a later date. This is an aspect, which is particularly important for installation in IT and laboratory rooms.



# PYROPLUG® Block Installation principle



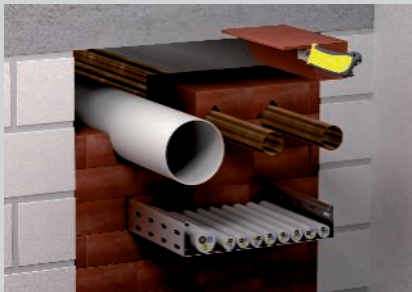
Mounting of the cut blocks.



Vacuum blocks for simple residual gap closing.



Simple reinstallation through removal of individual blocks.



Running of combustible pipes without additional measures.



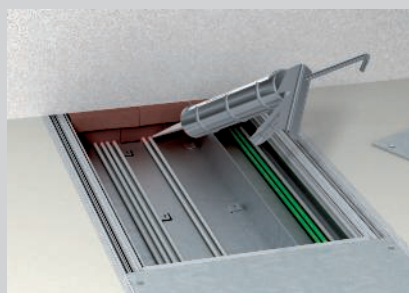
Run-through, non-combustible pipes with section insulation.



Tight-fitting installation of the blocks in the ceiling penetration.



Cut thin strips for the duct compartments.



Close the joints and spandrels between the installed cables and the blocks with a layer of the FBA-SP fire protection compound of at least 2 cm deep.



Close the residual joints between cables and blocks with the FBA-SP filler.

Classification to DIN

**S30**   **S60**   **S90**

Classification to EN

**EI15**   **EI30**   **EI45**   **EI60**   **EI90**   **EI120**



Erectors of combination insulation require training.

Always indicate the item number when ordering.



**Combination insulation in walls/ceilings**


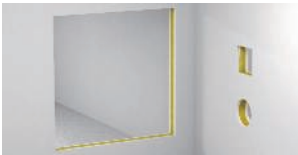










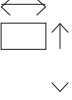












<b>Fire resistance class</b>	EI 15, EI 30, EI 45, EI 60, EI 90, EI 120
<b>Proof of application</b>	European Technical Assessment of OIB, Vienna
<b>Approval number</b>	ETA-15/0803
<b>Testing standard</b>	EN 1366-3

**Additive proofs**

<b>Heat permeation</b>	Fraunhofer IBP Stuttgart, P1-001/2012
<b>Air permeation/pressure resistance</b>	ift Rosenheim, 11-003694-PR02
<b>Noise insulation</b>	HfT Stuttgart, 122-007-04P-186a

**Installation locations**

Insulation in walls and ceilings

Component	Rigid walls	Flexible walls	Rigid floors
			
Min. component strength 	10 cm (EI 30 / EI 60 / EI 90 / EI 120)	10 cm (EI 30 / EI 60 / EI 90 / EI 120)	15 cm (EI 30 / EI 60 / EI 90 / EI 120)
Min. insulation thickness 	14.4 cm (EI 30 / EI 60) 20 cm (EI 90 / EI 120)	14.4 cm (EI 30 / EI 60) 20 cm (EI 90 / EI 120)	14.4 cm (EI 30 / EI 60) 20 cm (EI 90 / EI 120)
Opening size for 14.4 cm insulation thickness 	  ≤ 60 cm ≤ 100 cm	  ≤ 60 cm ≤ 100 cm	  ≤ 40 cm ≤ 60 cm ≤ 45 cm ≤ 225 cm
Opening size for 20 cm insulation thickness 	  ≤ 60 cm ≤ 100 cm	  ≤ 60 cm ≤ 100 cm	  ≤ 40 cm Unlimited ≤ 70 cm ≤ 100 cm
	 	 	 



# PYROPLUG® Block Installations

## Cable

Ø 80 mm



## Pipe bundle of electrical installation pipes

Ø 80 mm cable,  
pipes max. Ø 40 mm



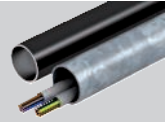
## Cable bundle

Ø 100 mm,  
cable Ø 21 mm

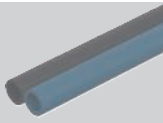


## Electrical installation pipe made of steel

Ø 16 mm

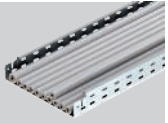


## Individual lines for control purposes



## Cable support systems

Steel profiles



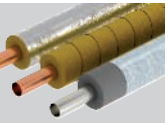
## Electrical installation pipe made of plastic, rigid

Ø 40 mm



## Metal pipes with path insulation

Steel, stainless steel and  
cast steel Ø 88.9 mm,  
copper Ø 88.9 mm



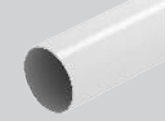
## Electrical installation pipe made of plastic, flexible

Ø 40 mm



## Plastic pipes

Ø 50 mm



## Special installations

### Cables

Ø 24 mm

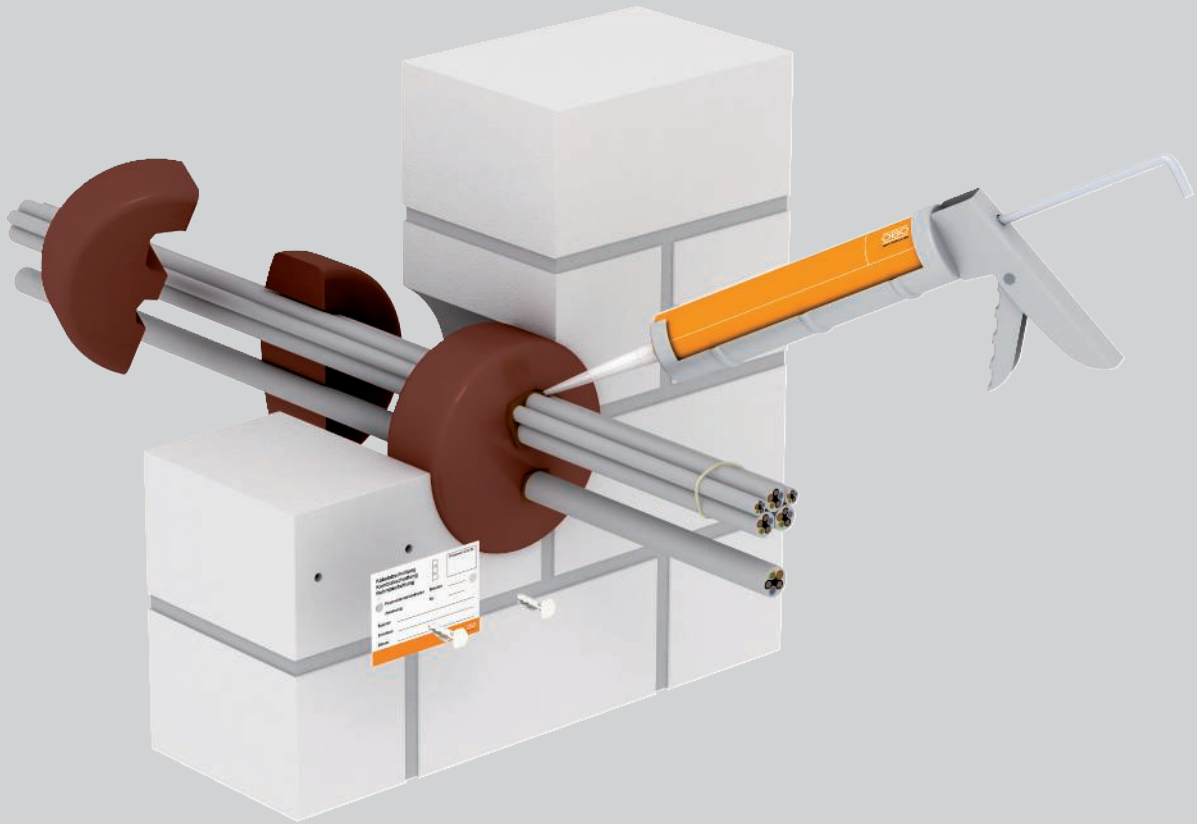


Details on the version can be found in the proof of suitability or mounting instructions.  
All the stated dimensions are maximum values.



## PYROPLUG® Peg foam series

### System description



The PYROPLUG® Peg system from OBO is used to create cable insulation with fire protection foam plugs. The foam plugs are ideal for closing core drill holes in solid walls and concrete ceilings. The foam plugs are made of permanently elastic, closed-pore foam, which expands in the event of fire without any significant pressure build-up, thus creating an insulating plastic foam. This reliably prevents the penetration of fire and

smoke through the cable insulation. The PYROPLUG® Peg insulation system can be used without difficulty in areas of data processing and in laboratories, as mounting is completely clean and is free of dust and fibres. This also applies to any necessary cable installations at a later date. Special tools are not required for processing, a knife is sufficient.





# PYROPLUG® Peg foam series

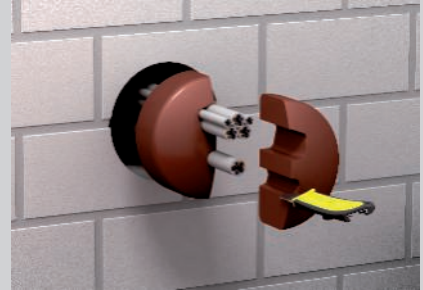
## Installation principle



Ideal for core drill holes of 55 mm to 240 mm.



Cutting of the plugs for cable assignment on the edge of the core hole.



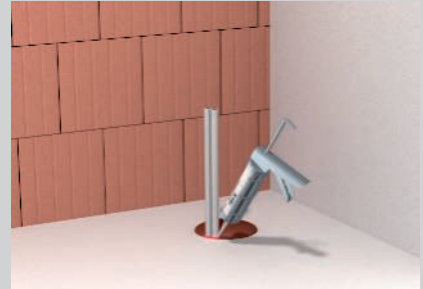
Push cut plugs into the core hole.



Due to the elastically material a quick mounting is possible.



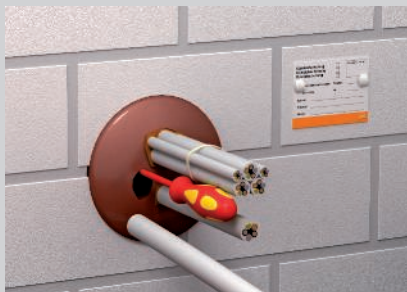
Cutting and mounting of the plugs in ceilings.



Residual joints are closed off with the filler FBA-SP.



Small distance to next core drill hole possible.



With retroinstallations, carefully cut or drill the plugs.

Classification to DIN



Classification to EN



Erectors of combination insulation require training.

Always indicate the item number when ordering.





# PYROPLUG® Peg foam series

## Registration data

### Combination insulation in walls/ceilings

<b>Fire resistance class</b>	EI 30, EI 45, EI 60, EI 90, EI 120
<b>Proof of application</b>	European Technical Assessment of OIB, Vienna
<b>Approval number</b>	ETA-15/0701
<b>Testing standard</b>	EN 1366-3

### Additive proofs

<b>Heat permeation</b>	Fraunhofer IBP Stuttgart, P1-001/2012
<b>Air permeation/pressure resistance</b>	ift Rosenheim, 11-003694-PR01
<b>Noise insulation</b>	HfT Stuttgart, 122-007-04P-186a

## Installation locations

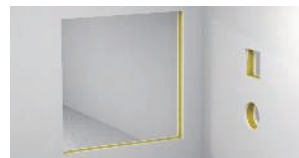
### Insulation in walls and ceilings

#### Component F30

#### Rigid walls






#### Flexible walls



#### Rigid floors



Min. component strength		10 cm (EI 30 / EI 60 / EI 90) 20 cm (EI 90 / EI 120)	10 cm (EI 30 / EI 60 / EI 90) 20 cm (EI 90 / EI 120)	15 cm (EI 30 / EI 60 / EI 90) 20 cm (EI 90 / EI 120)
Min. insulation thickness		>17 cm–<20 cm (EI 30 / EI 60 / EI 90) 20 cm (EI 90 / EI 120)	>17 cm–<20 cm (EI 30 / EI 60 / EI 90) 20 cm (EI 90 / EI 120)	>17 cm–<20 cm (EI 30 / EI 60 / EI 90) 20 cm (EI 90 / EI 120)
Opening size		Ø 55 mm, Ø 68 mm, Ø 97 mm, Ø 112 mm, Ø 124 mm, Ø 155 mm, Ø 190 mm, Ø 240 mm	Ø 55 mm, Ø 68 mm, Ø 97 mm, Ø 112 mm, Ø 124 mm, Ø 155 mm, Ø 190 mm, Ø 240 mm	Ø 55 mm, Ø 68 mm, Ø 97 mm, Ø 112 mm, Ø 124 mm, Ø 155 mm, Ø 190 mm, Ø 240 mm

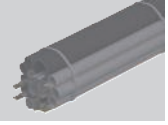
# PYROPLUG® Peg foam series Installations

## Cable

Ø 80 mm

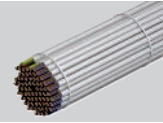


## Pipe bundle of electrical installation pipes



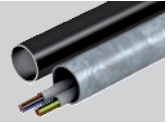
## Cable bundle

Ø 100 mm,  
cable Ø 21 mm

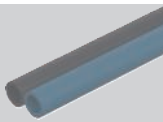


## Electrical installation pipe made of steel

Ø 16 mm

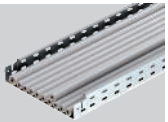


## Individual lines for control purposes



## Cable support systems

Steel profiles



## Electrical installation pipe made of plastic, rigid

Ø 16 mm



## Metal pipes with path insulation

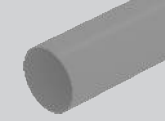


## Electrical installation pipe made of plastic, flexible

Ø 16 mm



## Plastic pipes



## Special installations

### Cables

Ø 24 mm



### Insulation in the lining pipe

PE-HD pipe  
(ceiling)



Details on the version can be found in the proof of suitability or mounting instructions.  
All the stated dimensions are maximum values.



## PYROPLUG® Box box insulation System description



The PYROPLUG® Box system from OBO is used to create cable insulation with boxes made of foam. The system is particularly suitable for simple mounting of cable insulation in lightweight partitions. No layering is required. Installation in solid walls and solid ceilings is also possible and approved. The insulation system consists of a two-part frame and two matching internal pieces. The permanently elastic, closed-pore foam

material expands in the event of fire without any significant pressure build-up, thus creating an insulating plastic foam. This reliably prevents the penetration of fire and smoke through the cable insulation. The usable area of the boxes corresponds to the maximum approval cable assignment area of 60%. It is thus impossible to over assign it with cables.



# PYROPLUG® Box box insulation

## Installation principle



Insertion of the split frame in light-duty partitions, without additional layering.



Mounting of the frame with previously installed cables.



Exact cutting of the internal pieces and then insertion in the frame.



Closing joint component on full assignment with FBA-SP filler.



Grouped arrangement of the boxes.

Classification to DIN



Erectors of combination insulation require training.

Always indicate the item number when ordering.





# PYROPLUG® Box box insulation

## Registration data







### Insulation in wall / ceiling

<b>Fire resistance class</b>	S30, S60, S90
<b>Proof of application</b>	General construction approval of DIBt, Berlin
<b>Approval number</b>	Z-19. 15-1557
<b>Testing standard</b>	DIN 4102 Part 9


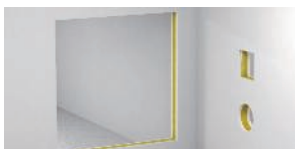




## Installation locations

### Insulation in walls and ceilings

#### Component F30

	Rigid walls	Flexible walls	Rigid floors
			
Min. component strength 	5 cm (S30 / S60 / S90)	7.5 cm (S30 / S60 / S90)	15 cm (S30 / S60 / S90)
Min. insulation thickness 	20 cm (S30 / S60 / S90)	20 cm (S30 / S60 / S90)	20 cm (S30 / S60 / S90)
Opening size 	≤ 50 cm ≤ 50 cm	≤ 50 cm ≤ 50 cm	≤ 50 cm ≤ 50 cm

#### Component F90

	Screed-covered	Flexible walls	Rigid floors
			
Min. component strength 	10 cm (S30 / S60 / S90)	10 cm (S30 / S60 / S90)	15 cm (S30 / S60 / S90)
Min. insulation thickness 	20 cm (S30 / S60 / S90)	20 cm (S30 / S60 / S90)	20 cm (S30 / S60 / S90)
Opening size 	≤ 50 cm ≤ 50 cm	≤ 50 cm ≤ 50 cm	≤ 50 cm ≤ 50 cm

# PYROPLUG® Box box insulation Installations

## Cable



## Pipe bundle of electrical installation pipes



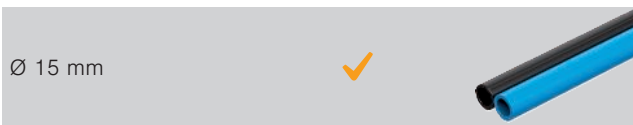
## Cable bundle



## Electrical installation pipe made of steel



## Individual lines for control purposes



## Cable support systems



## Electrical installation pipe made of plastic, rigid



## Metal pipes with path insulation



## Electrical installation pipe made of plastic, flexible



## Plastic pipes

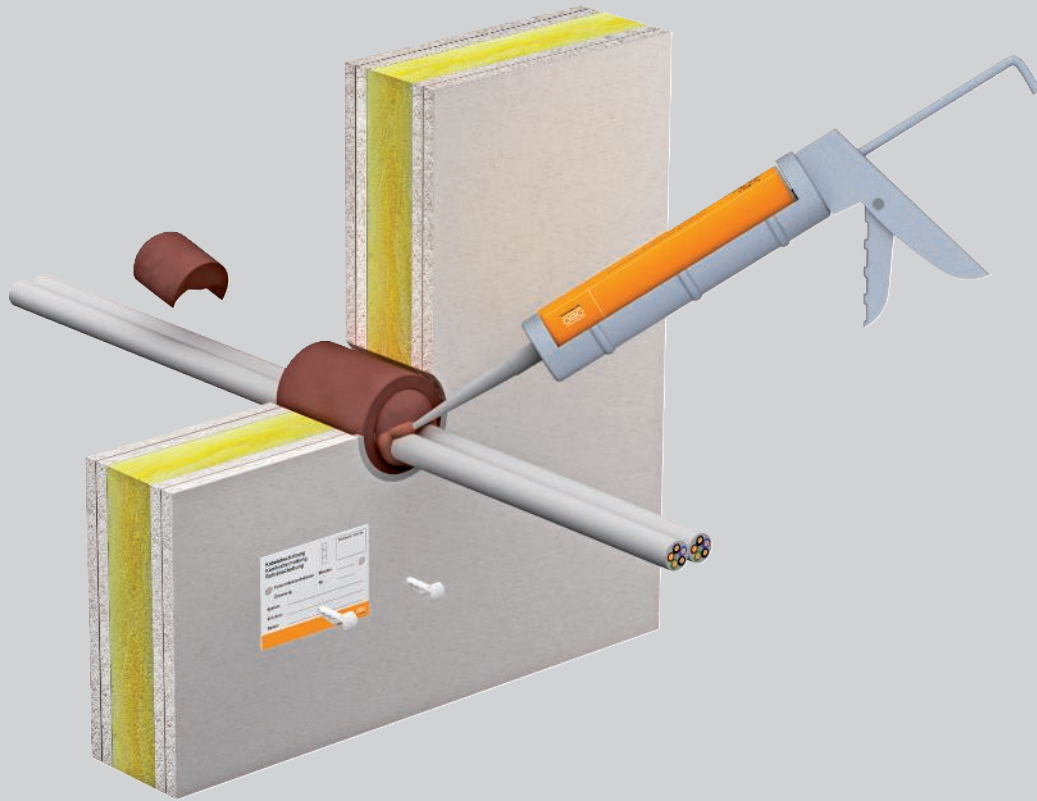


Details on the version can be found in the proof of suitability or mounting instructions. All the stated dimensions are maximum values.



## PYROPLUG® SHELL pipe shells

### System description



The OBO PYROPLUG® Shell system is specially designed for cable insulation in box drill holes in light-duty partitions. The insulation system consists of a pipe shell and two matching plugs. The material is made of permanently elastic, closed-pore foam, which expands in the event of fire without any significant pressure build-up, thus creating an insulating plastic foam. This

reliably prevents the penetration of fire and smoke through the cable insulation. The ratio of the external diameter to the internal diameter of the pipe shell ensures that over assignment with cables is not possible, even at full assignment.



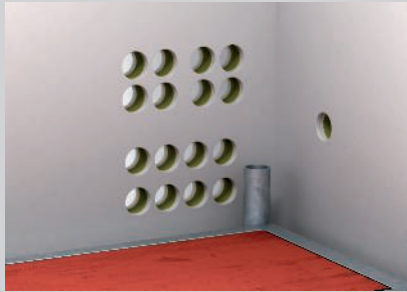


# PYROPLUG® SHELL pipe shells

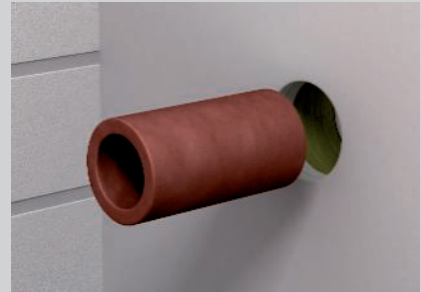
## Installation principle



Drilling of a hole with a drill crown.



Grouped arrangement of the drill holes.



Insertion of the pipe shell in the light-duty partition.



For previously installed cables, cutting of the pipe shell.



Cutting and insertion of the plugs in the pipe shell.



Full assignment of the pipe shell.

Classification to DIN



Erectors of combination insulation require training.

Always indicate the item number when ordering.





# PYROPLUG® SHELL pipe shells

## Registration data

### Insulation in wall / ceiling

<b>Fire resistance class</b>	S30, S60, S90
<b>Proof of application</b>	General construction approval of DIBt, Berlin
<b>Approval number</b>	Z-19. 15-1559
<b>Testing standard</b>	DIN 4102 Part 9

## Installation locations

### Insulation in walls and ceilings

#### Component F30

##### Rigid walls






##### Flexible walls



##### Rigid floors



Min. component strength 	5 cm (S30 / S60 / S90)	7.5 cm (S30 / S60 / S90)	15 cm (S30 / S60 / S90)
Min. insulation thickness 	10 cm (S30 / S60 / S90)	10 cm (S30 / S60 / S90)	10 cm (S30 / S60 / S90)
Opening size 	≤ Ø 10 cm	≤ Ø 10 cm	≤ Ø 10 cm

#### Component F90

##### Screed-covered






##### Flexible walls



##### Rigid floors



Min. component strength 	10 cm (S30 / S60 / S90)	10 cm (S30 / S60 / S90)	15 cm (S30 / S60 / S90)
Min. insulation thickness 	10 cm (S30 / S60 / S90)	10 cm (S30 / S60 / S90)	10 cm (S30 / S60 / S90)
Opening size 	≤ Ø 10 cm	≤ Ø 10 cm	≤ Ø 10 cm

# PYROPLUG® SHELL pipe shells Installations

## Cable



## Pipe bundle of electrical installation pipes



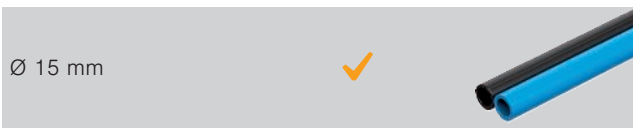
## Cable bundle



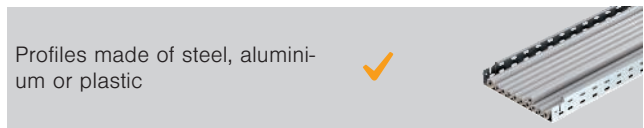
## Electrical installation pipe made of steel



## Individual lines for control purposes



## Cable support systems



## Electrical installation pipe made of plastic, rigid



## Metal pipes with path insulation



## Electrical installation pipe made of plastic, flexible



## Plastic pipes

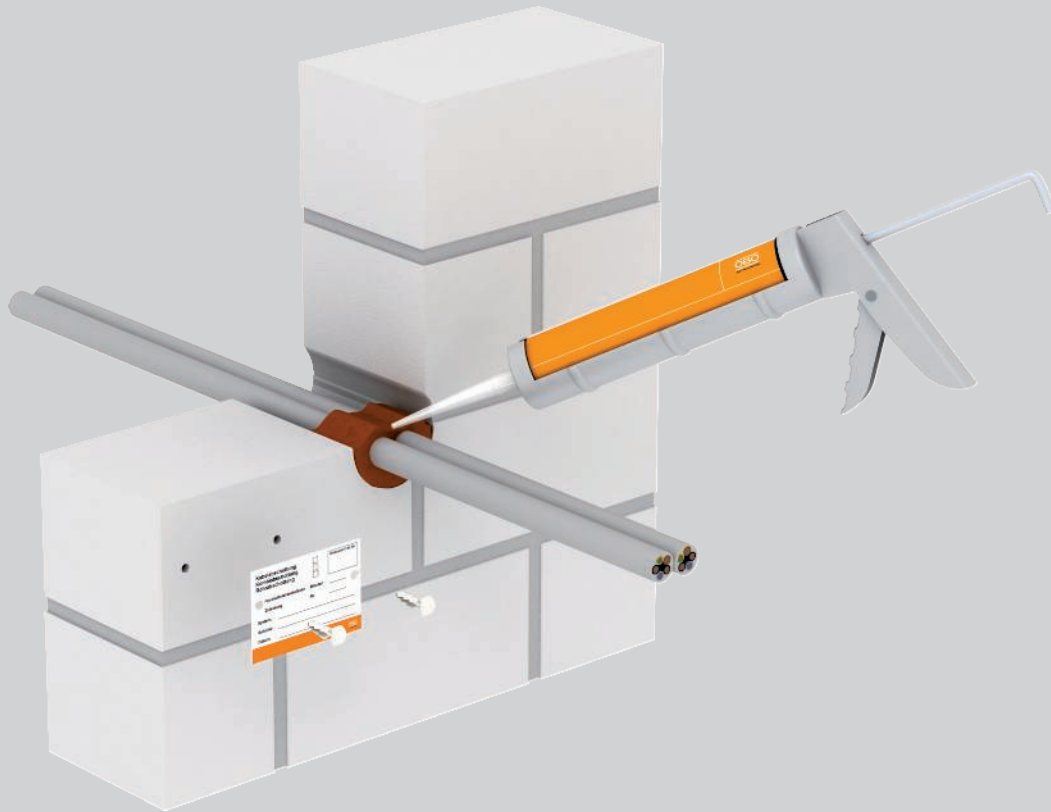


Details on the version can be found in the proof of suitability or mounting instructions. All the stated dimensions are maximum values.



## PYROPLUG® Mini filler

### System description



The OBO PYROPLUG® Mini system is ideal for small, round cable insulations up to a diameter of 8 cm. It only consists of the one-component filler PYROPLUG® Screed. In light-duty partitions, the empty mini pipe shell of the PYROPLUG® Shell system is used as laye-

ring. The interior of these pipe shells may be completely assigned. Only the residual joints must be filled with the filler.



## PYROPLUG® Mini filler Installation principle



Closing of the opening with the filler FBA-SP.



In light-duty partitions, use of the mini pipe shell FBA-DR.



Complete assignment of the mini pipe shell.



Classification to DIN

S30

S60

S90



Erectors of combination insulation require training.

Always indicate the item number when ordering.



# PYROPLUG® Mini filler

## Registration data

### Insulation in wall / ceiling

<b>Fire resistance class</b>	S30, S60, S90
<b>Proof of application</b>	General construction approval of DIBt, Berlin
<b>Approval number</b>	Z-19. 15-1851
<b>Testing standard</b>	DIN 4102 Part 9

## Installation locations

### Insulation in walls and ceilings

#### Component F90

#### Rigid walls






#### Flexible walls



#### Rigid floors



Min. component strength 	10 cm (S30 / S60 / S90)	10 cm (S30 / S60 / S90)	15 cm (S30 / S60 / S90)
Min. insulation thickness 	10 cm (S30 / S60 / S90)	10 cm (S30 / S60 / S90)	15 cm (S30 / S60 / S90)
Opening size 	≤ Ø 8 cm	≤ Ø 8 cm	≤ Ø 8 cm

# PYROPLUG® Mini filler

## Installations

### Cable



### Pipe bundle of electrical installation pipes



### Cable bundle



### Electrical installation pipe made of steel



### Individual lines for control purposes



### Cable support systems



### Electrical installation pipe made of plastic, rigid



### Metal pipes with path insulation



### Electrical installation pipe made of plastic, flexible



### Plastic pipes



Details on the version can be found in the proof of suitability or mounting instructions. All the stated dimensions are maximum values.



### PYROPLUG® Block foam block



Type	Dimension mm	Pack. pcs	Weight		Item No.
			kg/100	pcs.	
<b>FBA-B200-14</b>	200x144x60	4	44.800		<b>7202505</b>

Permanently elastic, closed-pore foam

Foam block for cable and combination insulation, can also be used as a filler block in the PYROSIT® NG fire protection foam system.

The blocks must be protected against water in order to guarantee safe expansion in the case of fire.

### PYROPLUG® Block foam block

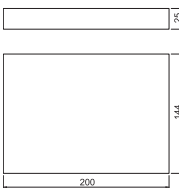


Type	Dimension mm	Length mm	Width mm	Height mm	Pack. pcs	Weight		Item No.
						kg/100	pcs.	
<b>FSU-B7.9</b>	200x130x60	200	130	60	4	55.000		<b>7203903</b>

Foam block for cable and combination insulation, can also be used as a filler block in the PYROSIT® NG fire protection foam system.

The blocks must be protected against water in order to guarantee safe expansion in the case of fire.

### PYROPLUG® Block vacuum block



Type	Dimension mm	Pack. pcs	Weight		Item No.
			kg/100	pcs.	
<b>FBA-BV200-14</b>	200x144x25	1	40.000		<b>7202515</b>

Permanently elastic, closed-pore foam

Vacuum block for cable and combination insulation.

After cutting into the foil, the vacuum block expands to its original size. It can be used with or without foil.

The blocks must be protected against water in order to guarantee safe expansion in the case of fire.

### 2-component fire protection foam PYROSIT® NG



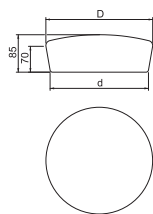
Type	Contents ml	Pack. pcs	Weight		Item No.
			kg/100	pcs.	
<b>FBS-S</b>	380	1	64.600		<b>7203800</b>

PYROSIT® NG 2-component fire protection foam in a cartridge, including 2 mixing tubes.

To create cable and combination insulation; always process with the cartridge pistols FBS-PH or FBS-PA.

In dry, frost-free rooms, the cartridge can be stored closed and standing upright at temperatures from +5 °C to +30 °C for up to 12 months.

### PYROPLUG® Peg plugs



Type	For opening Ø mm	Dimen- sion D mm	Dimen- sion d mm	Pack. pcs	Weight		Item No.
					kg/100	pcs.	
<b>FBA-SN65</b>	55 - 65	75	65	4	8.200		<b>7202553</b>
<b>FBA-SN78</b>	68 - 78	87	78	4	12.600		<b>7202557</b>
<b>FBA-SN107</b>	97 - 107	117	107	4	21.600		<b>7202561</b>
<b>FBA-SN122</b>	112 - 122	132	122	4	28.600		<b>7202565</b>
<b>FBA-SN134</b>	124 - 134	144	134	4	32.900		<b>7202569</b>
<b>FBA-SN165</b>	155 - 165	175	165	2	49.700		<b>7202573</b>
<b>FBA-SN200</b>	190 - 200	210	200	2	74.400		<b>7202577</b>
<b>FBA-SN250</b>	240 - 250	260	250	2	101.400		<b>7202581</b>

Permanently elastic, closed-pore foam

Plug for cable insulation

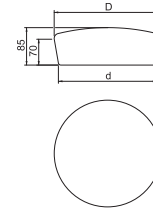
Protect the FBA plugs against water in order to guarantee safe foaming in case of fire.





### PYROPLUG® Peg plugs

Type	For opening Ø mm	Dimension D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FSU-P2.5</b>	63	65	4	14.500	<b>7203909</b>
<b>FSU-P3</b>	76	78	4	18.700	<b>7203912</b>
<b>FSU-P4</b>	101	107	4	33.000	<b>7203915</b>
<b>FSU-P4.5</b>	114	122	4	43.000	<b>7203919</b>
<b>FSU-P5</b>	127	134	4	49.500	<b>7203921</b>



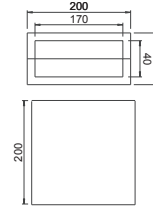
Plug for cable insulation  
Protect the FBA plugs against water in order to guarantee safe foaming in case of fire.

### PYROPLUG® Box box insulation

Type	Dimension mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FBA-F</b>	200 x 200 x 100	1	122.000	<b>7202660</b>

Permanently elastic, closed-pore foam

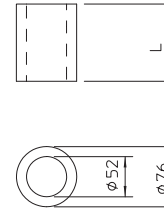
Box for cable insulation.  
Consisting of a two-part, hard frame and two soft internal pieces. Protect the frame and internal pieces against water in order to guarantee safe foaming in case of fire.



### PYROPLUG® Shell drill crown insulation

Type	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FBA-D100</b>	100	1	15.500	<b>7202624</b>
<b>FBA-D150</b>	150	1	19.200	<b>7202628</b>

Permanently elastic, closed-pore foam

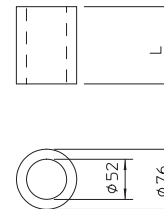


### Empty mini pipe shell

Type	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FBA-DR100</b>	100	1	6.500	<b>7202613</b>
<b>FBA-DR150</b>	150	1	10.200	<b>7202617</b>

Permanently elastic, closed-pore foam

Empty pipe sleeve for use in FBA-SP small insulation in lightweight partitions.  
Protect the pipe sleeves against water in order to guarantee safe foaming in case of fire.



### PYROPLUG® Screed filler

Type	Contents ml	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FBA-SP</b>	310	1	46.000	<b>7202322</b>

Intumescent material

Fire protection filler in a cartridge.  
Usable as small insulation and as joint closing compound in all insulation of the PYROPLUG® series.  
In dry, frost-free rooms, the fire protection filler can be stored for up to 12 months at a temperature of +5 °C to +30 °C.



### PYROPLUG® Screed filler

Type	Contents ml	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FSU-M</b>	310	1	50.000	<b>7203906</b>

Fire protection filler in a cartridge.  
Usable as small insulation and as joint closing compound in all insulation of the PYROPLUG® series.  
In dry, frost-free rooms, the fire protection filler can be stored for up to 12 months at a temperature of +5 °C to +30 °C.



## Section insulation for metal pipes



Type	Length	Width	Thickness	Pack.	Weight	Item No.
	mm	mm	mm	pcs	kg/100 pcs.	
<b>MIW-MA</b>	8000	500	30	2	1,010.000	<b>7202308</b>

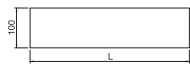
Mineral fibres

Mineral wool mats with aluminium lamination for section insulation on copper and steel pipes. Fastening with winding wire, securing of joints with aluminium adhesive tape.

Applicable in the systems:  
 PYROMIX® mortar insulation  
 PYROSIT® NG fire insulation foam  
 PYROPLATE® Fibre soft insulation  
 PYROPLUG® Block blocks

Material class EN 13501 - A1 non-combustible; melting point  $\geq 1,000$  °C

## Aluminium adhesive tape for path insulation



Type	Length	Pack.	Weight	Item No.
	mm	pcs	kg/100 pcs.	
<b>MIW-AT</b>	10000	1	136.900	<b>7202305</b>

Aluminium adhesive tape for applying the aluminium-laminated section insulation. The aluminium adhesive tape is self-adhesive and not classified as combustible according to DIN 4102-1.

## Winding wire for path insulation



Type	Length	Pack.	Weight	Item No.
	mm	pcs	kg/100 pcs.	
<b>MIW-TD</b>	50000	1	10.000	<b>7202309</b>

- SI** Steel
- VZ** Galvanised

The steel wire is used to fix the section insulation. It is non-combustible and guarantees optimum retention of the section insulation on non-combustible pipes and cables.

## Cable coil

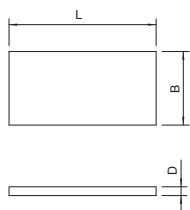


Type	Width	Length	Pack.	Weight	Item No.
	mm	mm	pcs	kg/100 pcs.	
<b>FBA-WI</b>	150	5000	1	384.000	<b>7202510</b>

Intumescent material

Self-adhesive, intumescent cable protector, 5 mm thick, for the use with large cable diameters and penetrated cable support systems, applicable in PYROPLUG® systems and PYROSIT® NG.

## Calcium silicate plate



Type	Dimen- sion L	Dimen- sion B	Dimen- sion D	Pack.	Weight	Item No.
	mm	mm	mm	pcs	kg/100 pcs.	
<b>KSI-P1</b>	500	150	20	1	42.000	<b>7202283</b>
<b>KSI-P2</b>	500	250	30	1	111.000	<b>7202904</b>
<b>KSI-P3</b>	1000	250	30	1	222.000	<b>7202912</b>

Calcium silicate

Calcium silicate plate, as support plate, for the construction of frames in the penetration and to double thin wall thicknesses.

Materials class EN 13501 - A1 non-combustible.



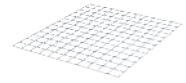
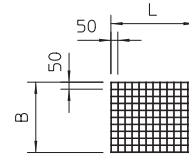
Steel wire grid

Type	Dimension		Pack. pcs	Weight		Item No.
	L mm	B mm		kg/100 pcs.	pcs.	
<b>SDG-1</b>	600	500	1	135.000		<b>7202963</b>
<b>SDG-2</b>	1000	600	1	270.000		<b>7202971</b>

**St** Steel

**FT** Hot-dip galvanised

Steel wire grid as support and protection grid, wire diameter 4 mm.



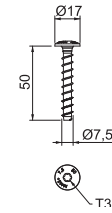
Fire protection screw tie

Type	Dimension mm	Bore		Screw system	Pack. pcs	Weight		Item No.
		hole Ø mm	Head Ø mm			kg/100 pcs.	pcs.	
<b>MMS-plus 7.5X50</b>	7,5 x 50	6	17	Torx	100	1.500		<b>3498261</b>

**St** Steel

**G** Electrogalvanised

Fire protection screw tie with large pan head for direct mounting without additional anchors. Drive T30, drill hole 6 mm. Tested anchor according to ETAG 001 - Part 3. Fire resistance class to R120 for concrete and masonry.

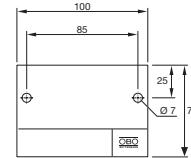


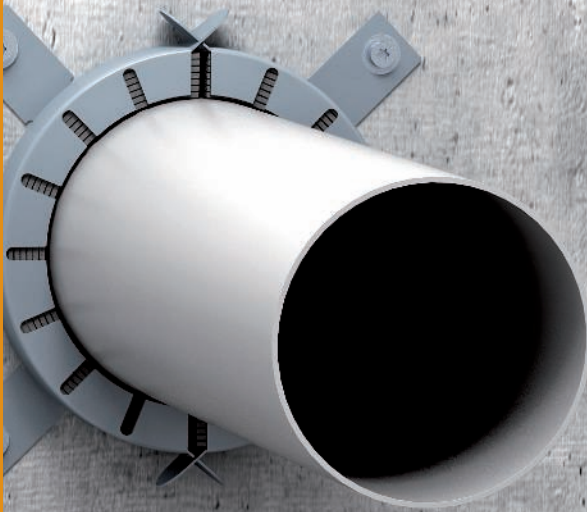
Identification plate

Type	Language	Pack. pcs	Weight		Item No.
			kg/100 pcs.	pcs.	
<b>KS-S DE</b>	German	1	2.400		<b>7205425</b>
<b>KS-S SE</b>	Swedish	1	2.400		<b>7205426</b>
<b>KS-S ES</b>	Spanisch	1	2.400		<b>7205427</b>
<b>KS-S EN</b>	English	1	2.400		<b>7205429</b>
<b>KS-S HR</b>	Croatian	1	2.400		<b>7205438</b>
<b>KS-S IT</b>	Italian	1	2.400		<b>7205428</b>
<b>KS-S FR</b>	French	1	2.400		<b>7205430</b>
<b>KS-S NL</b>	Dutch	1	2.400		<b>7205431</b>
<b>FSU-IP</b>	English	10	2.000		<b>7203924</b>

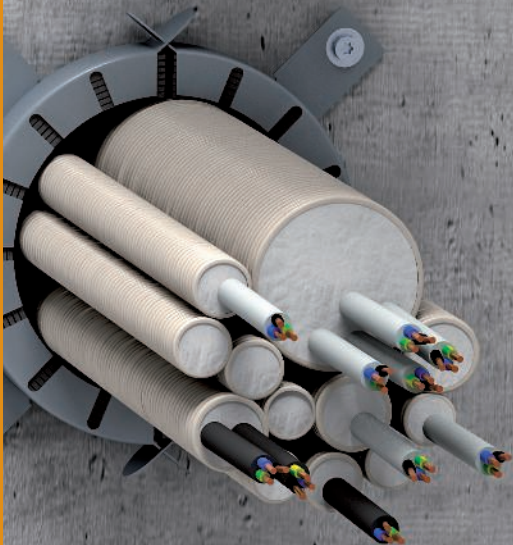
**PS** Polystyrene

Universal identification plate to be written on with waterproof and light-resistant felt-tip pen for all types of OBO insulation. For approved identification, including two push-fit anchors.








Kabelabschottung	<input type="checkbox"/>	Einbaust. / LIC. Nr.
Kombiabschottung	<input type="checkbox"/>	
Rohrabschottung	<input type="checkbox"/>	
Widerstandsklasse	Minuten	
Zufassung	Nr.	
System:		
Erichter:		
Datum:		



Kabelabschottung	<input type="checkbox"/>	Einbaust. / LIC. Nr.
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Rohrabschottung	<input type="checkbox"/>	
Widerstandsklasse	Minuten	
Zufassung	Nr.	
System:		
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## Pipe seal PYROCOMB® Tubes

	<b>System description, PYROCOMB® Tubes cable insulation</b>	78
	<b>System description, PYROCOMB® pipe insulation</b>	82
	<b>Products</b>	86

## PYROCOMB® Tubes pipe sleeve

### System description



The PYROCOMB® Tubes system is used to create cable insulation with pipe sleeves. The system comprises multiple sizes of the pipe sleeve, type TCX. This allows simple insulation of bundles of plastic electrical installation pipes, rigid or flexible, up to a size of M63. It is irrelevant whether the pipes are filled with cables

or are empty. In the event of fire, the fire protection material inserted within the seal foams up after a few minutes under high pressure, closing the softened bundles at a high pressure. This safely prevents the spread of fire and smoke, should a fire occur.

# PYROCOMB® Tubes pipe sleeve

## Installation principle



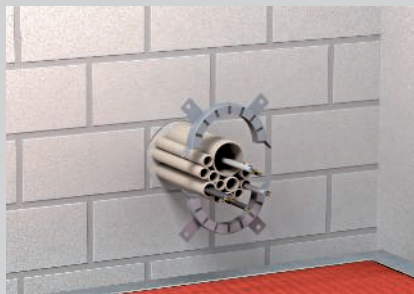
Two-sided arrangement of the pipe sleeves for wall mounting.



Mounting on the underside of the ceiling with metal anchors.



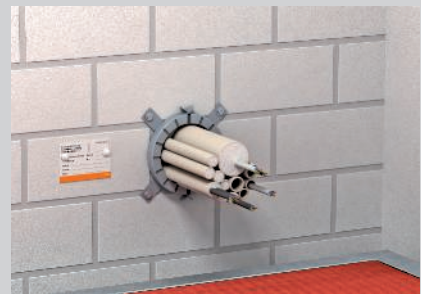
Closing of the ring gap with the insulation layer creator DSX.



Combination of the sleeve halves and fastening on the wall.



Closing of the pipe ends with the insulation layer creator DSX.



Labelled insulation of installation pipe bundles.



Classification to DIN

S30 S60 S90

Classification to EN

EI15 EI30 EI45 EI60 EI90 EI120



Erectors of combination insulation require training.

Always indicate the item number when ordering.



# PYROCOMB® Tubes pipe sleeve







## Registration data

### Combination insulation in walls and ceilings

<b>Fire resistance class</b>	EI 15, EI 30, EI 45, EI 60, EI 90, EI 120
<b>Proof of application</b>	General construction approval of OIB, Vienna
<b>Approval number</b>	ETA-12/0207
<b>Testing standard</b>	EN 1366-3

## Installation locations

### Insulation in walls and ceilings

Component	Rigid walls	Flexible walls	Rigid floors
			
Min. component strength 	10 cm (EI 30 / EI 60 / EI 90 / EI 120)	10 cm (EI 30 / EI 60 / EI 90 / EI 120)	15 cm (EI 30 / EI 60 / EI 90 / EI 120)
Min. insulation thickness 	10 cm (EI 60 / EI 90 / EI 120)	10 cm (EI 60 / EI 90 / EI 120)	15 cm (EI 60 / EI 90 / EI 120)
Opening size 	Ø 32 mm, Ø 40 mm, Ø 50 mm, Ø 63 mm, Ø 75 mm, Ø 90 mm, Ø 110 mm, Ø 125 mm	Ø 32 mm, Ø 40 mm, Ø 50 mm, Ø 63 mm, Ø 75 mm, Ø 90 mm, Ø 110 mm, Ø 125 mm	Ø 32 mm, Ø 40 mm, Ø 50 mm, Ø 63 mm, Ø 75 mm, Ø 90 mm, Ø 110 mm, Ø 125 mm



# PYROCOMB® Tubes pipe sleeve Installations

**Cable**



**Pipe bundle of electrical installation pipes**



**Cable bundle**



**Electrical installation pipe made of steel**



**Individual lines for control purposes**



**Cable support systems**



**Electrical installation pipe made of plastic, rigid**



**Metal pipes with path insulation**



**Electrical installation pipe made of plastic, flexible**



**Plastic pipes**



Details on the version can be found in the proof of suitability or mounting instructions. All the stated dimensions are maximum values.



## PYROCOMB® pipe sleeve

### System description



The PYROCOMB® system can be used as independent pipe sealing for combustible pipes (e.g. sanitary wastewater pipes). It is primarily made up of the pipe sleeves, type TCX. In the event of fire, the fire protection material inserted within the seal foams up after a few minutes under high pressure, closing the soft plastic pipes. This safely prevents the spread of fire and

smoke, should a fire occur. With wall mounting, the pipe sleeves are mounted on both sides of the wall with metal anchors. Ceiling penetrations only have a tube seal from the underside. In light-duty partitions, the pipe sleeves are fastened on passed-through threaded rods and connected together.



# PYROCOMB® pipe sleeve

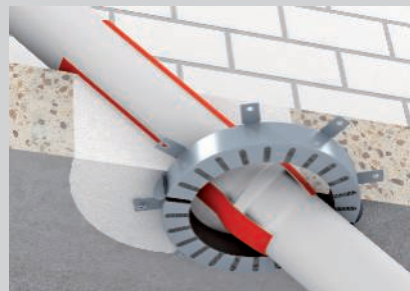
## Installation principle



Two-sided arrangement of the pipe sleeves for wall mounting.



Mounting on the underside of the ceiling with metal anchors.



Sloping pipe penetration up to an angle of 39°.



Pipe sleeves in the area of the penetration.



Eccentric arrangement with max. 3 levels of larger pipe sleeves.



Pipe post systems with 2 accompanying cables.

Classification to DIN



Classification to EN



Erectors of combination insulation require training.

Always indicate the item number when ordering.



# PYROCOMB® pipe sleeve

## Registration data


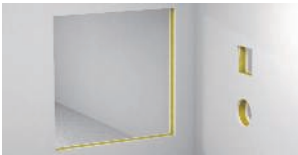




### Pipe insulation in underfloor ducts

<b>Fire resistance class</b>	EI 15, EI 30, EI 45, EI 60, EI 90, EI 120, EI 180, EI 240
<b>Proof of application</b>	General construction approval of OIB, Vienna
<b>Approval number</b>	ETA-12/0182
<b>Testing standard</b>	EN 1366-3



## Installation locations

### Pipe insulation in walls and ceilings

Component	Rigid walls	Flexible walls	Rigid floors
			
Min. component strength 	10 cm (EI 30 / EI 60 / EI 90 / EI 120 / EI 240)	10 cm (EI 30 / EI 60 / EI 90 / EI 120)	15 cm (EI 30 / EI 60 / EI 90 / EI 120) 30 cm (EI 180 / EI 240)
Min. insulation thickness 	10 cm (EI 30 / EI 60 / EI 90 / EI 120 / EI 240)	10 cm (EI 60 / EI 90 / EI 120)	15 cm (EI 30 / EI 60 / EI 90 / EI 120) 30 cm (EI 180 / EI 240)
Opening size 	Ø 32 mm, Ø 40 mm, Ø 50 mm, Ø 63 mm, Ø 75 mm, Ø 90 mm, Ø 110 mm, Ø 125 mm, Ø 140 mm, Ø 160 mm, Ø 180 mm, Ø 200 mm, Ø 225 mm, Ø 250 mm, Ø 280 mm, Ø 300 mm, Ø 315 mm, Ø 355 mm, Ø 400 mm	Ø 32 mm, Ø 40 mm, Ø 50 mm, Ø 63 mm, Ø 75 mm, Ø 90 mm, Ø 110 mm, Ø 125 mm, Ø 140 mm, Ø 160 mm, Ø 180 mm, Ø 200 mm, Ø 225 mm, Ø 250 mm, Ø 280 mm, Ø 300 mm, Ø 315 mm, Ø 355 mm, Ø 400 mm	Ø 32 mm, Ø 40 mm, Ø 50 mm, Ø 63 mm, Ø 75 mm, Ø 90 mm, Ø 110 mm, Ø 125 mm, Ø 140 mm, Ø 160 mm, Ø 180 mm, Ø 200 mm, Ø 225 mm, Ø 250 mm, Ø 280 mm, Ø 300 mm, Ø 315 mm, Ø 355 mm, Ø 400 mm

# PYROCOMB® pipe sleeve Installations

Cable



Pipe bundle of electrical installation pipes



Cable bundle



Electrical installation pipe made of steel



Individual lines for control purposes



Cable support systems



Electrical installation pipe made of plastic, rigid



Metal pipes with path insulation



Electrical installation pipe made of plastic, flexible



Plastic pipes



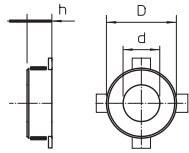
Ø 400 mm



Details on the version can be found in the proof of suitability or mounting instructions. All the stated dimensions are maximum values.



### Pipe sleeve with 2 fastening straps



Type	Pipe Ø mm	Dimen- sion h mm	Dimen- sion D mm	Dimen- sion d mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>TCX-032</b>	32 - 34	26	50	36	1	6.500	<b>7202200</b>
<b>TCX-040</b>	40 - 42	26	58	44	1	7.000	<b>7202201</b>
<b>TCX-050</b>	50 - 52	26	68	54	1	8.000	<b>7202203</b>

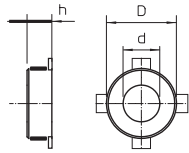
Intumescent material

Pipe sleeve for combustible pipes.

If there is a fire, fire protection inserts inside the sheet steel housing expand, exerting a very great pressure onto the burning thermoplastic pipes.

Fastening with anchors or M6 threaded rods.

### Pipe sleeve with 4 fastening straps



Type	Pipe Ø mm	Dimen- sion h mm	Dimen- sion D mm	Dimen- sion d mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>TCX-063</b>	63 - 65	26	94	67	1	15.500	<b>7202204</b>
<b>TCX-075</b>	75 - 77	26	106	79	1	19.000	<b>7202205</b>
<b>TCX-090</b>	90 - 92	26.6	132	94	1	37.000	<b>7202206</b>
<b>TCX-110</b>	110 - 112	26.6	155	114	1	46.000	<b>7202207</b>
<b>TCX-125</b>	125 - 127	40	172	129	1	70.000	<b>7202208</b>

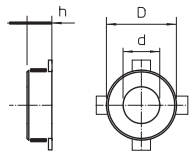
Intumescent material

Pipe sleeve for combustible pipes.

If there is a fire, fire protection inserts inside the sheet steel housing expand, exerting a very great pressure onto the burning thermoplastic pipes.

Fastening with anchors of M6 threaded rods up to size 75 mm, then M8.

### Pipe sleeve with 6 fastening straps



Type	Pipe Ø mm	Dimen- sion h mm	Dimen- sion D mm	Dimen- sion d mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>TCX-140</b>	140 - 142	40	200	144	1	106.000	<b>7202209</b>
<b>TCX-160</b>	160 - 162	40	220	164	1	107.000	<b>7202210</b>

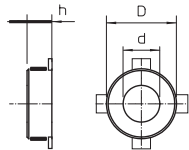
Intumescent material

Pipe sleeve for combustible pipes.

If there is a fire, fire protection inserts inside the sheet steel housing expand, exerting a very great pressure onto the burning thermoplastic pipes.

Fastening with anchors or M8 threaded rods.

### Pipe sleeve with 8 fastening straps



Type	Pipe Ø mm	Dimen- sion h mm	Dimen- sion D mm	Dimen- sion d mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>TCX-180</b>	180 - 182	40	264	184	1	175.000	<b>7202212</b>
<b>TCX-200</b>	200 - 202	40	284	204	1	242.000	<b>7202214</b>

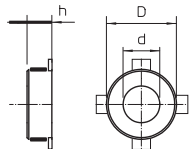
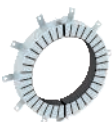
Intumescent material

Pipe sleeve for combustible pipes.

If there is a fire, fire protection inserts inside the sheet steel housing expand, exerting a very great pressure onto the burning thermoplastic pipes.

Fastening with anchors or M8 threaded rods.

### Pipe sleeve with 10 fastening straps



Type	Pipe Ø mm	Dimen- sion h mm	Dimen- sion D mm	Dimen- sion d mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>TCX-225</b>	225 - 227	51.5	328	239	1	306.000	<b>7202213</b>
<b>TCX-250</b>	250 - 252	51.5	353	264	1	346.000	<b>7202215</b>

Intumescent material

**FS** Strip-galvanised

Pipe sleeve for combustible pipes.

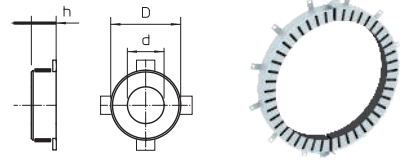
If there is a fire, fire protection inserts inside the sheet steel housing expand, exerting a very great pressure onto the burning thermoplastic pipes.

Fastening with anchors or M8 threaded rods.



## Pipe sleeve with 12 fastening straps

Type	Pipe Ø mm	Dimension h mm	Dimension D mm	Dimension d mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>TCX-280</b>	280 - 282	51.5	378	289	1	398.000	<b>7202216</b>
<b>TCX-300</b>	300 - 302	51.5	403	314	1	405.000	<b>7202217</b>
<b>TCX-315</b>	315 - 317	51.5	417	328	1	425.000	<b>7202218</b>
<b>TCX-355</b>	355 - 357	51.5	459	370	1	460.000	<b>7202219</b>
<b>TCX-400</b>	400 - 402	51.5	504	415	1	520.000	<b>7202220</b>



Intumescent material

**FS** Strip-galvanised

Pipe sleeve for combustible pipes.

If there is a fire, fire protection inserts inside the sheet steel housing expand, exerting a very great pressure onto the burning thermoplastic pipes.

Fastening with anchors or M8 threaded rods.

## Insulation layer creator in a cartridge

Type	Contents ml	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>DSX-K</b>	300	1	50.000	<b>7202300</b>

Intumescent material

Dispersion-based fire protection compound for interior areas, to fill residual joints and close openings. Approved material for closing core drill holes for individual cable glands.

Material class DIN 4102 - B2, normally flammable.

In dry, frost-free rooms, the compound can be stored at temperatures from +5 °C to +25 °C for up to 18 months in closed, upright original containers.



## Mineral wool

Type	Dimension	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MIW-S</b>	25 Liter	1	250.000	<b>7202306</b>

Mineral fibres

Universal filling wool for various fire protection applications, packed in compressed form.

Material class EN 13 501 - A1, non-combustible; melting point ≥ 1.000 °C.



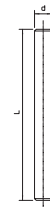
## Threaded rod

Type	Thread	Dimension d mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>TR M8 1M G</b>	M8	8	1000	10	30.000	<b>3141128</b>

**St** Steel

**G** Electrogalvanised

Threaded rod to DIN 976.



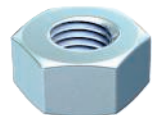
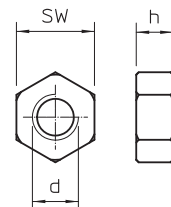
## Hexagonal nut DIN 934

Type	Thread	Dimension SW mm	Dimension h mm	Dimension d mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>HN M6 G</b>	M6	10	5.2	6	100	0.225	<b>3400069</b>

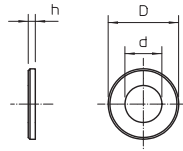
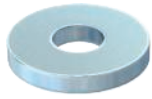
**St** Steel

**G** Electrogalvanised

Hexagonal nut to DIN 934 with metric thread.



## Washer ISO 7093

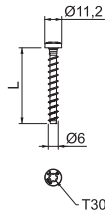


Type	Thread	Dimension d mm	Dimension D mm	Dimension h mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>WS M6 D28 G</b>	M6	6.5	28	2.5	100	1.150	<b>3402207</b>
<b>WS M8 D28 G</b>	M8	8.5	28	2.5	100	1.100	<b>3402215</b>

- St** Steel
- G** Electrogalvanised

Washer of large outer diameter for universal use.

## Fire protection screw tie

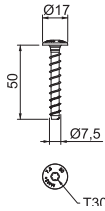


Type	Dimension mm	Bore hole Ø mm	Head Ø mm	Screw system	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MMS-plus 6X50</b>	6 x 50	5	11.2	Torx	50	100	1.000	<b>3498108</b>

- St** Steel
- G** Electrogalvanised

Fire protection screw tie with pan head for direct installation without additional anchors. Drive T30, drill hole 5 mm. Tested anchor according to ETAG 001 – Part 3. Fire resistance class to R120 for concrete and masonry.

## Fire protection screw tie

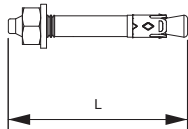


Type	Dimension mm	Bore hole Ø mm	Head Ø mm	Screw system	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MMS-plus 7.5X50</b>	7,5 x 50	6	17	Torx	100	1.500	<b>3498261</b>

- St** Steel
- G** Electrogalvanised

Fire protection screw tie with large pan head for direct mounting without additional anchors. Drive T30, drill hole 6 mm. Tested anchor according to ETAG 001 - Part 3. Fire resistance class to R120 for concrete and masonry.

## Nail anchor N with thread

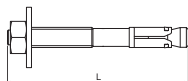


Type	Thread	Bore hole Ø mm	Clamping range mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>N 6-5-10/49</b>	M6	6	5 - 10	49	100	1.160	<b>3498396</b>

- St** Steel
- G** Electrogalvanised

The nail anchor N can be used for multiple fastenings of non-load-bearing systems and in cracked and non-cracked concrete, thereby combining the benefits of a bolt tie with even easier mounting. The nail tie only needs to be hammered into the drill hole. It is not necessary to apply torque subsequently. When the load occurs, the nail tie spreads itself and bolts itself in the drill hole.

## Bolt tie BZ-U



Type	Thread	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BZ-U 8-10-21/75</b>	M8	75	50	3.460	<b>3498320</b>

- 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.

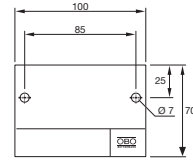


Identification plate

Type	Language	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS-S DE</b>	German	1	2.400	<b>7205425</b>
<b>KS-S SE</b>	Swedish	1	2.400	<b>7205426</b>
<b>KS-S ES</b>	Spanisch	1	2.400	<b>7205427</b>
<b>KS-S EN</b>	English	1	2.400	<b>7205429</b>
<b>KS-S HR</b>	Croatian	1	2.400	<b>7205438</b>
<b>KS-S IT</b>	Italian	1	2.400	<b>7205428</b>
<b>KS-S FR</b>	French	1	2.400	<b>7205430</b>
<b>KS-S NL</b>	Dutch	1	2.400	<b>7205431</b>

**PS** Polystyrene

Universal identification plate to be written on with waterproof and light-resistant felt-tip pen for all types of OBO insulation. For approved identification, including two push-fit anchors.



Kabelabschottung  
 Kombiabschottung  
 Rohrabschottung

Entwurf / LM. Nr. \_\_\_\_\_


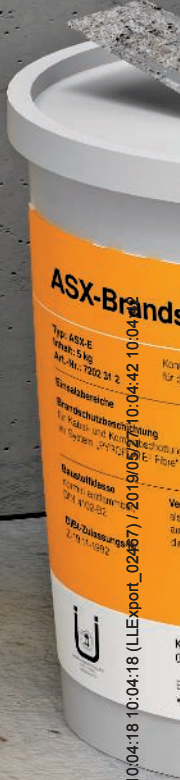
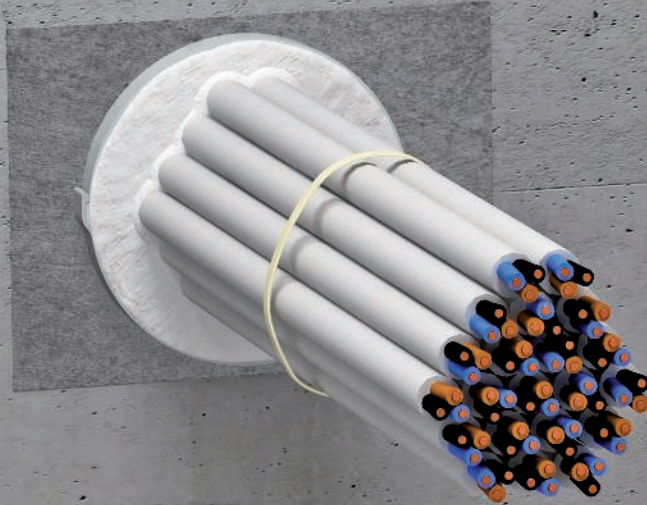
Widerstandsklasse: \_\_\_\_\_ Minuten

Zulassung Nr.: \_\_\_\_\_

System: \_\_\_\_\_

Erichter: \_\_\_\_\_

Datum: \_\_\_\_\_

BSS\_Typ\_0A / en / 2019/05/27 10:04:18 (LLExpert\_02867) / 2019/05/27 10:04:42 10:04:42

# PYROCOMB® Intube pipe shell



## System description

92



## Products

96



## PYROCOMB® Intube pipe shell

### System description



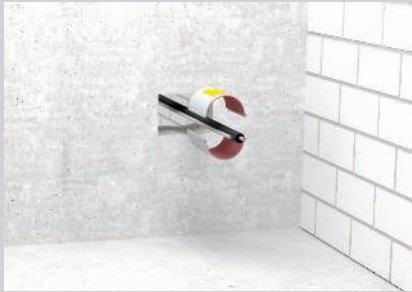
The PYROCOMB® Intube system is used to create cable insulation with pipe shells or half shells. The pipe shell is particularly suitable for core drill holes and can very easily be installed in solid ceilings or walls and also light-duty partitions. For this, two half pipe sleeves are clicked together and bedded in mortar in the core hole. Then the pipe sleeves are closed with seals and the surface is sealed with ASX ablation coating. The cables don't require any coating. The half shell can be used particularly well in the underfloor

area. It is sealed on one side with fire protection plugs and sealed with ASX ablation coating. In case of a fire, the inner coating of the pipe shells or the half shell expands and, in so doing, closes the opening cross-section completely. The transfer of fire and smoke is thus safely prevented. With the PYROCOMB® Intube system, 100% assignment of the interior is possible.



# PYROCOMB® Intube pipe shell

## Installation principle



Mounting of the pipe shell by clicking the half shells together around the existing installation.



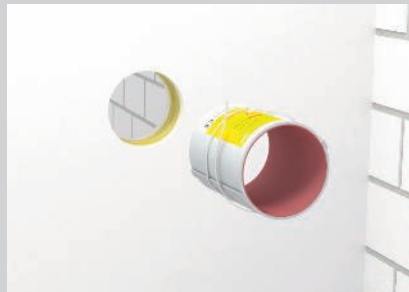
Closing of the opening with PYROMIX® mortar.



Adjust the foam plugs to installations using a knife and create smoke gas-tight sealing of the sealings using the ASX coating compound.



With ceiling mounting, use a lined body to prevent the pipe shell from falling out.



In certain applications, security with metal tensing straps for light-duty partitions is necessary.



Pipe shells with full assignment with cable bundles and electrical installation pipes.



Mounting of the half shell.



Adjusting the foam plug to the cables.



Fully-installed half shell in PYROPLATE® Fibre soft insulation.

Classification to DIN

- EI15
- EI30
- EI45
- EI60
- EI90
- EI120



Erectors of combination insulation require training.

Always indicate the item number when ordering.



# PYROCOMB® Intube pipe shell








## Registration data

### Insulation in wall / ceiling

<b>Fire resistance class</b>	EI 60, EI 90, EI 120
<b>Proof of application</b>	General construction approval of OIB, Vienna
<b>Approval number</b>	ETA - 13/0904
<b>Testing standard</b>	EN 1366-3

## Installation locations

### Insulation in walls and ceilings

Component		Rigid walls	Flexible walls	Rigid floors
				
Min. component strength		10 cm - 15 cm (EI 30 / EI 60 / EI 90) CTS-150	10 cm - 15 cm (EI 30 / EI 60 / EI 90) CTS-150	12.5 cm (EI 30 / EI 45 / EI 60) CTS-150
		15 cm - 30 cm (EI 30 / EI 60 / EI 90 / EI 120) CTS-300	10 cm - 15 cm (EI 30 / EI 60 / EI 90 / EI 120) CTS-300	15 cm (EI 30 / EI 60 / EI 90 / EI 120) CTS-300
Min. insulation thickness		10 cm - 15 cm (EI 30 / EI 60 / EI 90) CTS-150	10 cm - 15 cm (EI 30 / EI 60 / EI 90) CTS-150	12.5 cm (EI 30 / EI 45 / EI 60) CTS-150
		15 cm - 30 cm (EI 30 / EI 60 / EI 90 / EI 120) CTS-300	10 cm - 15 cm (EI 30 / EI 60 / EI 90 / EI 120) CTS-300	15 cm (EI 30 / EI 60 / EI 90 / EI 120) CTS-300
Opening size		Ø 125 mm	Ø 125 mm	Ø 125 mm
		55 mm x 116 mm	55 mm x 116 mm	55 mm x 116 mm

# PYROCOMB® Intube pipe shell Installations

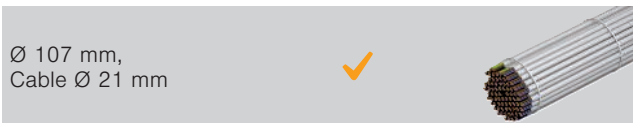
## Cable



## Pipe bundle of electrical installation pipes



## Cable bundle



## Electrical installation pipe made of steel



## Individual lines for control purposes



## Cable support systems



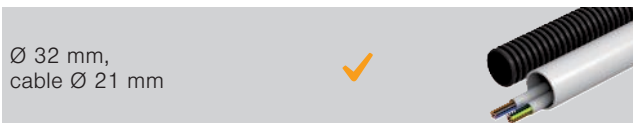
## Electrical installation pipe made of plastic, rigid



## Metal pipes with path insulation



## Electrical installation pipe made of plastic, flexible



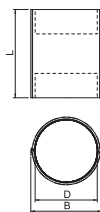
## Plastic pipes



Details on the version can be found in the proof of suitability or mounting instructions.  
All the stated dimensions are maximum values.



## Pipe shell PYROCOMB® Intube



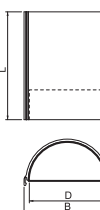
Type	Dimen- sion D mm	Dimen- sion L mm	Dimen- sion B mm	For opening Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>CTS-150</b>	106	150	120	125 - 165	1	35.200	<b>7204300</b>
<b>CTS-300</b>	106	300	120	125 - 165	1	70.000	<b>7204304</b>

**PVC** Polyvinylchloride

Internally coated pipe shells with click lock. The inner space can be fitted with cables and electrical installation pipes completely. Approved in Europe with ETA-13/0904. Fire resistance classes to EI120.

Closing with 2 foam plugs included in the delivery. The surface seal is created with ASX coating. In some applications, the use of metallic tightening strips is prescribed to secure the pipe shells in light-duty partitions. Details can be found in the mounting instructions/approval.

## PYROCOMB® Intube half shell



Type	Diameter mm	Length mm	For opening Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>CTS-HP200</b>	120	200	125 - 165	1	20.000	<b>7204306</b>

**PVC** Polyvinylchloride

Internally coated half shell, the inner space of which can be fully assigned with cables and electrical installation pipes. Approved in Europe with ETA-13/0904. Fire resistance classes to EI120. Closing with foam plug included in the delivery. The surface seal is done with ASX coating. The system is particularly suitable for underfloor areas.

Details can be found in the mounting instructions/approval.

## Ablation coating in a cartridge



Type	Contents ml	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>ASX-K</b>	310	1	50.000	<b>7202310</b>

Intumescent material

Combined, endothermic and weatherproof coating for internal and external areas. Universal protection coating for cable and cable support structures. Use as direct filler, and as paint when stirred.

Material class DIN 4102 - B2, normally flammable.

In dry, frost-free rooms, the coating can be stored at temperatures from +5 °C to +25 °C for up to 18 months in closed, upright original containers.

## Ablation coating in a bucket



Type	Contents kg	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>ASX-E</b>	5	1	500.000	<b>7202312</b>

Intumescent material

Combined, endothermic and weatherproof coating for internal and external areas. Universal protection coating for cable and cable support structures. Use as direct filler, and as paint when stirred. Sufficient for an area of 4 m².

Material class DIN 4102 - B2, normally flammable.

In dry, frost-free rooms, the coating can be stored at temperatures from +5 °C to +25 °C for up to 18 months in closed, upright original containers.

## PYROMIX® dry mortar in bucket



Type	Contents kg	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MSX-E1</b>	10	1	1,000.000	<b>7206058</b>

Special mortar

Mortar to create cable and combination insulation in solid walls and ceilings. Suitable for pumping, pressing and for manual installation. Adding approx. 3 litres of water to 10 kg of dry mortar produces about 10 litres of workable compound.

In dry, frost-free rooms, the dry mortar can be stored for at least 12 months in closed original containers.



## PYROMIX® dry mortar in paper sack

Type	Contents	Pack. pcs	Weight		Item No.
	kg		kg/100 pcs.	pcs.	
<b>MSX-S1</b>	20	1	2,000.000		<b>7206104</b>

Special mortar

Mortar to create cable and combination insulation in solid walls and ceilings. Suitable for pumping, pressing and for manual installation. Adding approx. 6 litres of water to 20 kg of dry mortar produces about 20 litres of workable compound.

In dry, frost-free rooms, the dry mortar can be stored for at least 12 months in closed original containers.



## Metal strip clips, narrow

Type	Length	Width	Pack. pcs	Weight		Item No.
	mm	mm		kg/100 pcs.	pcs.	
<b>MBS 045</b>	450	7	50	0.602		<b>7203104</b>

V2A Stainless steel, grade 304

Metal strip clip in ladder form with single lock. For high-temperature and weatherproof fixing.

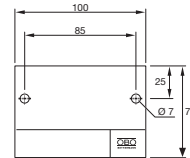


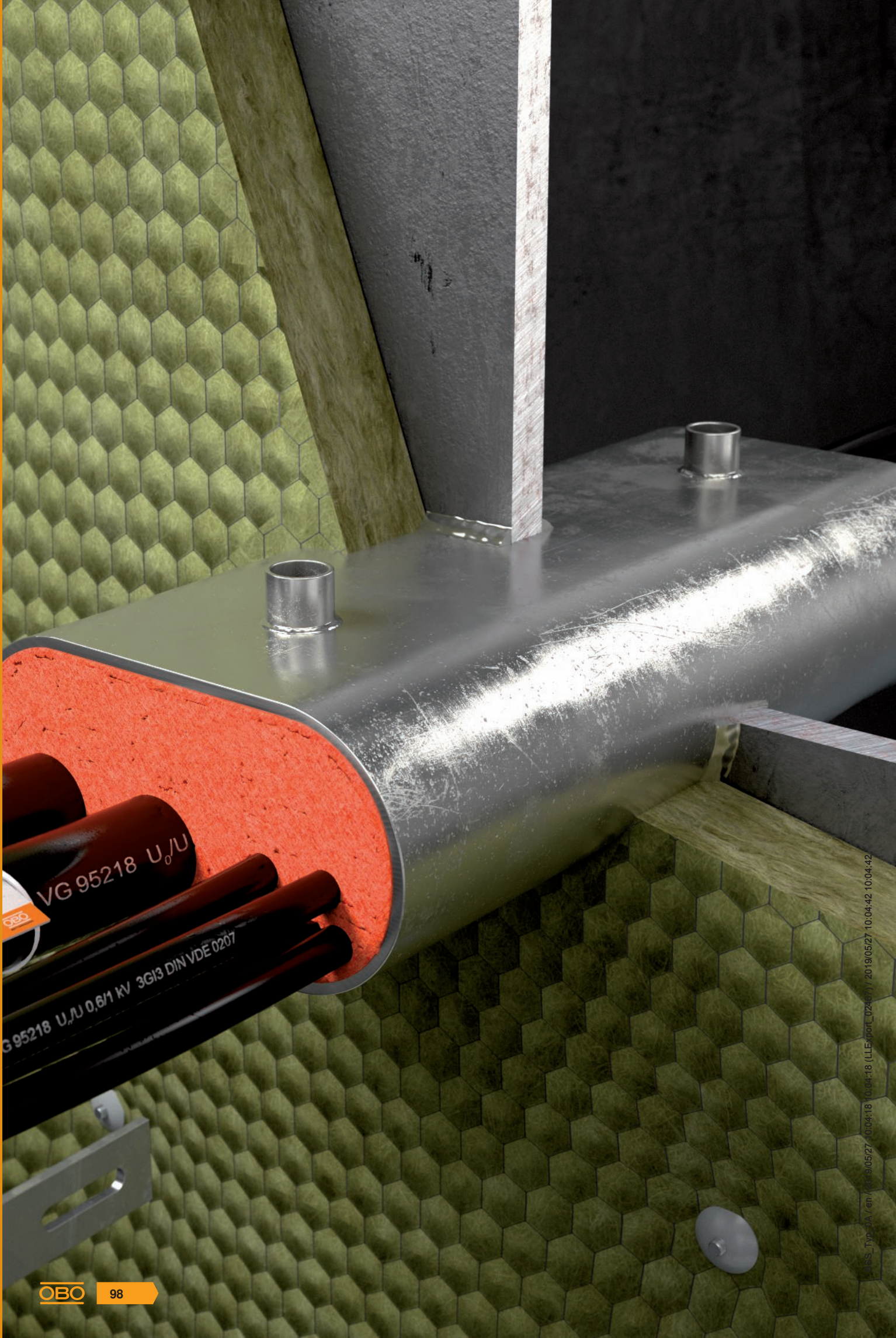
## Identification plate

Type	Language	Pack. pcs	Weight		Item No.
			kg/100 pcs.	pcs.	
<b>KS-S DE</b>	German	1	2.400		<b>7205425</b>
<b>KS-S SE</b>	Swedish	1	2.400		<b>7205426</b>
<b>KS-S ES</b>	Spanisch	1	2.400		<b>7205427</b>
<b>KS-S EN</b>	English	1	2.400		<b>7205429</b>
<b>KS-S HR</b>	Croatian	1	2.400		<b>7205438</b>
<b>KS-S IT</b>	Italian	1	2.400		<b>7205428</b>
<b>KS-S FR</b>	French	1	2.400		<b>7205430</b>
<b>KS-S NL</b>	Dutch	1	2.400		<b>7205431</b>

PS Polystyrene







Universal identification plate to be written on with waterproof and light-resistant felt-tip pen for all types of OBO insulation. For approved identification, including two push-fit anchors.





...S\_Type/A/en/...0527\_00418 10.04.18 (LLE-port\_026...) 2019.05.27 10.04.42 10.04.42

## Casting compound PYROLIQ®

	<b>Sealing compound</b>	104
	<b>Expanding module</b>	104
	<b>Impregnation fluid</b>	104
	<b>Sealing compound</b>	104
	<b>Pipe insulating strip</b>	105
	<b>Identification plate</b>	105

## PYROLIQ® casting compound

### System description

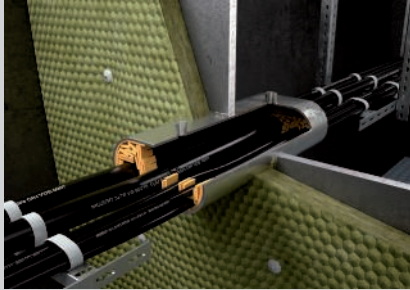


The PYROLIQ® system is used to create cable insulation under the toughest environmental conditions, such as in industry, shipbuilding and in offshore applications. Here, casting cables is the most secure way. The PYROLIQ® system consists of a casting compound, which is gas-tight, water-tight and fire-resistant. The proven fire resistance class A60 according to maritime testing criteria and the approval by DNV GL

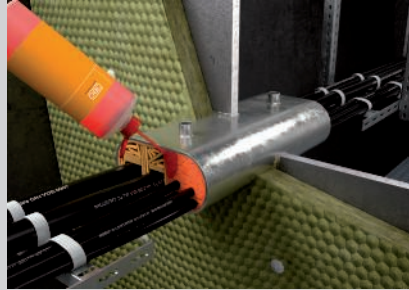
document its high level of safety. The insulation is water-tight up to 2.5 bar and gas-tight up to 30 mbar. In comparison with modular insulation, the use of PYROLIQ® does not require any major planning work and the casting compound is very easy and safe to use.

# PYROLIQ® casting compound

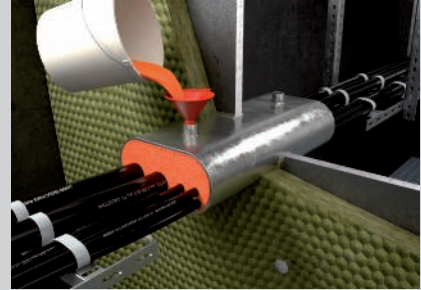
## Installation principle



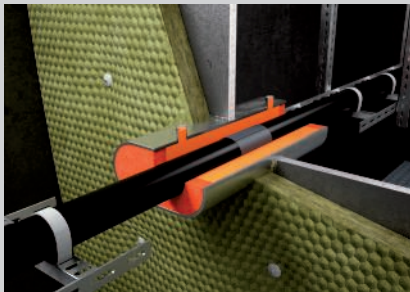
Insert the expanding modules as lost lining in the two front sides. Cables and pipes must be separated using the expanding modules and positioned at a distance to each other.



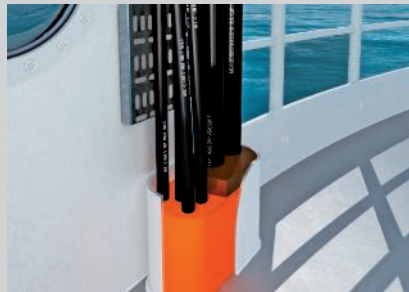
Saturate the expanding modules with impregnation fluid. The lost lining is created by the expansion.



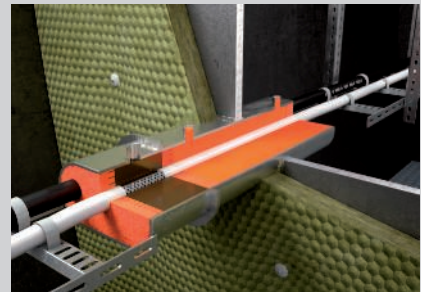
Pour the casting compound, which has been stirred knot-free, through the nozzle in the opening. Expanding modules prevent the compound from escaping.



If the plastic pipe is to be run through a penetration before the casting compound is filled, place two layers of the insulation strip around the pipe and fix it, then push the pipe centrally through the penetration.



To protect deck insulation against salt water, oils and chemicals, the sealing compound must always be used in external areas. Use water-repelling sealing compound in water-filled frames.



With EMC application, flange additional supports onto the insulation and cast them with a conductive sealing compound. This creates a conductive connection to the steel frame using the cable shielding.

Classification to SOLAS/IMO

A15

A30

A60



Erectors of combination insulation require training.

Always indicate the item number when ordering.

# PYROLIQ® casting compound

## Registration data

### Insulation in walls/ceilings

<b>Fire resistance class</b>	A-15, A-30, A-60 to SOLAS / IMO resolution A.754(18)
<b>Proof of application</b>	Cable/pipe GL Type Approval Certificate
<b>Certificate number</b>	TAF00000TU, MEDB00002WZ, MEDD000011C, 11 101 – 14 HH, 11 102 – 14 HH, 11 104 – 14 HH
<b>Directive</b>	Marine Equipment Directive 96/98/EC

## Installation locations

### Insulation in walls and ceilings

Component	Wall	Ceiling
Min. component strength	According to A 60	According to A 60
Min. insulation thickness for cables	23 cm, frame min. 4.5 mm thick	20.5 cm, frame min. 4.5 mm thick
Opening size for cables	$\leq 800$ mm $\leq 300$ mm	$\leq 800$ mm $\leq 300$ mm
Min. insulation thickness for pipes	$\geq 10.2$ cm $\geq 10.2$ cm 23 cm, frame min. 4.5 mm thick	$\geq 9$ cm $\geq 9$ cm 20.5 cm, frame min. 4.5 mm thick
Opening size for pipes	$\leq 50$ cm, $\leq 25$ cm	$\leq 50$ cm, $\leq 25$ cm
	$\geq 9$ cm $\geq 9$ cm	$\geq 10$ cm $\geq 10$ cm

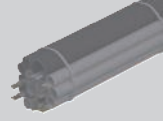
# PYROLIQ® casting compound Installations

## Cable

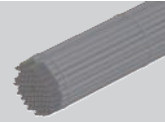
50.8 mm



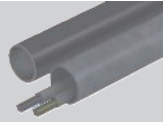
## Pipe bundle of electrical installation pipes



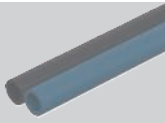
## Cable bundle



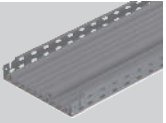
## Electrical installation pipe made of steel



## Individual lines for control purposes



## Cable support systems

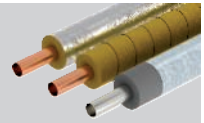


## Electrical installation pipe made of plastic, rigid



## Metal pipes with path insulation

Steel\* Ø 200 mm  
Copper\* Ø 100 mm  
(No path insulation)

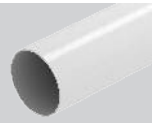


## Electrical installation pipe made of plastic, flexible



## Plastic pipes

Ø 200mm



Details on the version can be found in the proof of suitability or mounting instructions.  
All the stated dimensions are maximum values.

## Sealing compound



Type	Contents kg	Pack. pcs	Weight		Item No.
			kg/100	pcs.	
VMS-TE 1	2.5	1	250.000		7203840
VMS-TE 2	12.5	1	1,250.000		7203843

Special mortar

Dry compound in plastic container to mix with tap water. Makes a gas-tight and watertight seal of fire resistance class A60 to IMO resolution A.754(18). Including measuring cup.

The mixing ratio of water to powder is 1:2. The mixed compound is pumpable for approx. 45 minutes. The mixture is chemically hardened after 72 hours.

Stored in a dry and frost-free environment, the dry compound will keep for 3 years.

## Expanding module, small



Type	Dimension mm	Pack. pcs	Weight		Item No.
			kg/100	pcs.	
VMS-QMK 1	120x25x6	20	0.600		7203846

Foam

Expanding foam modules to replace a casing in the sealing compound system if part of the casing has been lost. The modules expand by a factor of 10 when sprinkled with the impregnating fluid, closing gaps and joints between the cables installed.

After the cables have been impregnated they are hardly flammable, fire-retardant and self-extinguishing.

Stored in a dry environment, the expanding modules have an unlimited lifespan.

## Expanding module, large



Type	Dimension mm	Pack. pcs	Weight		Item No.
			kg/100	pcs.	
VMS-QMG 1	800x25x6	15	5.200		7203849

Foam

Expanding foam modules to replace a casing in the sealing compound system if part of the casing has been lost. The modules expand by a factor of 10 when sprinkled with the impregnating fluid, closing gaps and joints between the cables installed.

After the cables have been impregnated they are hardly flammable, fire-retardant and self-extinguishing.

Stored in a dry environment, the expanding modules have an unlimited lifespan.

## Impregnation fluid



Type	Contents ml	Pack. pcs	Weight		Item No.
			kg/100	pcs.	
VMS-IF 1	1000	1	104.500		7203852

Fluid to sprinkle the expanding module.

When 5 long expanding modules are used, approx. 1 l of impregnation fluid is required.

Stored in a frost-free environment it has a lifespan of 2 years.

## Sealing compound for external use



Type	Contents kg	Pack. pcs	Weight		Item No.
			kg/100	pcs.	
VMS-VA 1	1	1	100.000		7203858

Special mortar

Flame-retardant sealing compound for insulations in sealing compound systems. Watertight and resistant against common technical oils as well as weak/diluted acids. Halogen-free and cold-hardening.

2 components (hardener and resin) in tin with lid to push through. Lifespan of 12 months in original and closed packaging at temperature between +10 and +40 °C.



## Sealing compound, water-repellent

Type	Contents kg	Pack. pcs	Weight		Item No.
			kg/100	pcs.	
VMS-VW 1	1	1	100.000		7203864

Special mortar

Flame-retardant sealing compound for insulations in sealing compound systems for application in water-filled openings.

Watertight and resistant against common technical oils as well as weak/diluted acids. Halogen-free and cold-hardening.

2 components (hardener and resin) in tin with lid to push through. Lifespan of 6 months in original and closed packaging at temperature between +10 and +40 °C.



## Sealing compound, conductive

Type	Contents kg	Pack. pcs	Weight		Item No.
			kg/100	pcs.	
VMS-VL 1	1	1	100.000		7203867

Special mortar

Electrically conductive sealing compound for insulations in sealing compound systems and for the integration of the woven cable shield in EMV-compliant installations. 2 components (hardener and resin) in tin with lid to push through. Lifespan of 6 months when stored in frost-free storage.



## Pipe insulating strip

Type	Dimension mm	Pack. pcs	Weight		Item No.
			kg/100	pcs.	
VMS-RS	1000 x 100 x 3	3	47.000		7203870

Intumescent material

Insulation forming strip for the application in sealing compound system when feeding through flammable pipes.

Please protect against sunlight. When stored in a dry environment it has an unlimited lifespan.



## Identification plate

Type	Language	Pack. pcs	Weight		Item No.
			kg/100	pcs.	
VMS-KS DE	German	1	2.400		7203874
VMS-KS EN	English	1	2.400		7203878
VMS-KS IT	Italian	1	2.400		7203876

PVC Polyvinylchloride

Identification plate for self-labelling of the insulation of the sealing compound system to the IMO A.754(18) with a waterproof and lightproof felt tip pen.

Including 2 cable ties for fastening onto the cable or onto the cable tray system in the area of the insulation.





Kabelabschottung  
 Kombiabschottung  
 Rohrabschottung

Kabelabschottung  
 Kombiabschottung  
 Rohrabschottung

Leistungskategorie:  Mischon

Zurückgang:  No

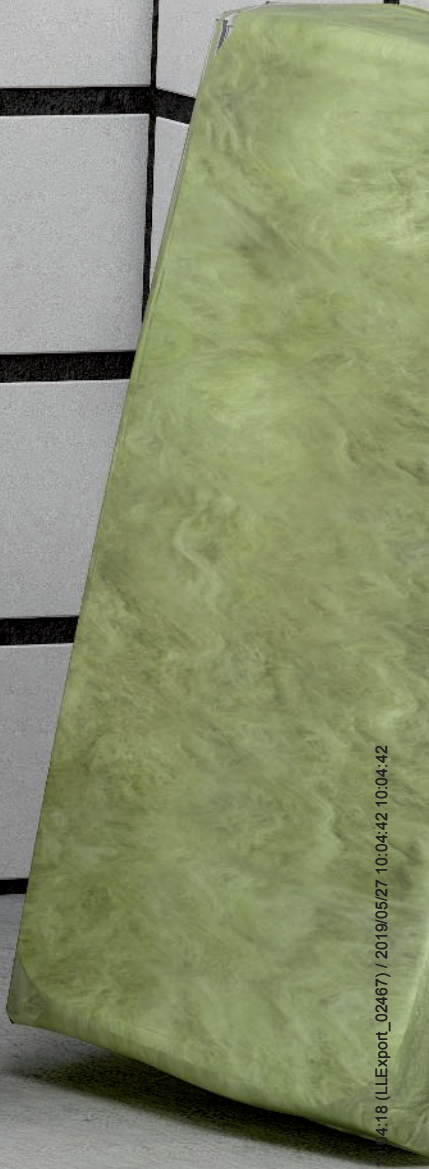
System: \_\_\_\_\_

Hersteller: \_\_\_\_\_

Datum: \_\_\_\_\_





Subjekt / L.Nr. Nr. \_\_\_\_\_

OBO





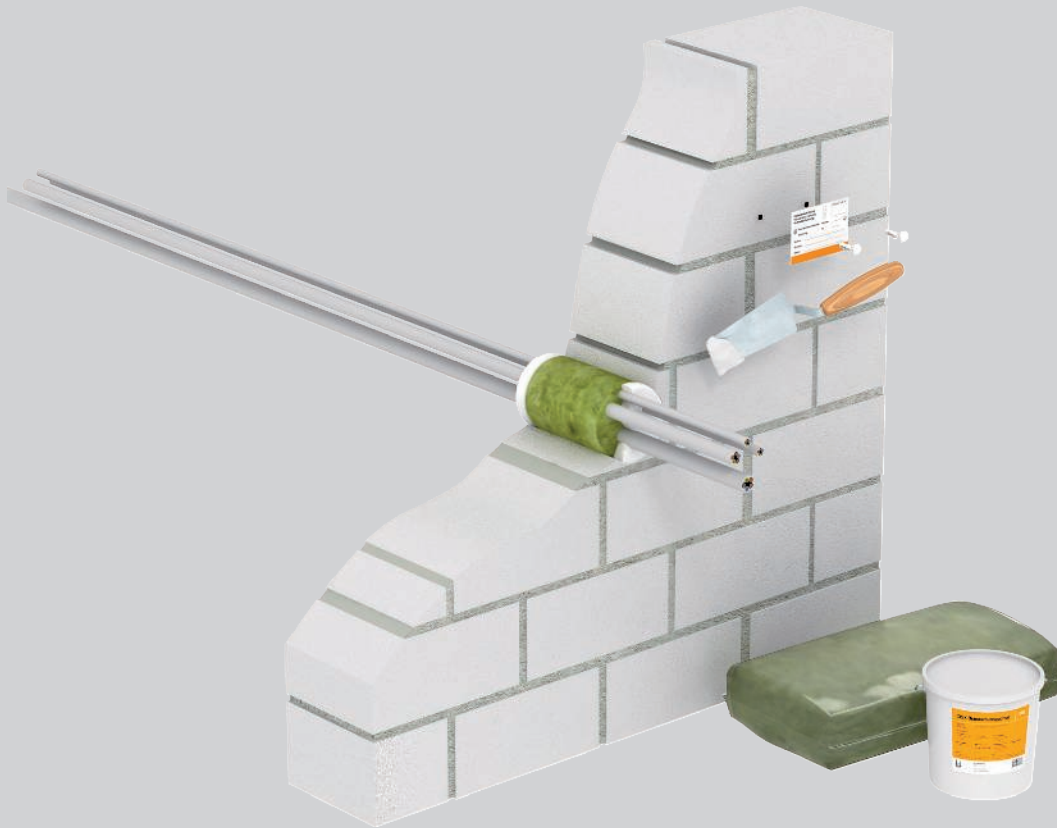
## Bandage, small insulation and individual cables acc. to MLAR

	<b>System description, PYROMIX® Screed small insulation</b>	108
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## PYROMIX® Screed® small insulation

### System description



Small insulation for cables is created using the PYROMIX® Screed system. It consists of OBO's insulation forming material, type DSX, and the MIW mineral wool. As the insulation basis, the opening is first filled using the non-combustible mineral wool (melting point  $\geq 1,000$  °C). Then, both sides of the opening

are sealed with the DSX insulation creator. If there is a fire, the filler foams up, preventing penetration by fire and smoke. When the material foams up, heat is also drawn from the cables, thus considerably reducing the transfer of heat via the copper cores.



## PYROMIX Screed® small insulation Installation principle



Mineral wool with melting point  $\geq 1,000$  °C to plug the opening.



Closure of the surfaces on both sides with the DSX insulation layer creator.  
(Minimum thickness 1 cm on each side.)



Labelling of the small insulation.



Classification to DIN

S30

S60

S90



Erectors of combination insulation require training.

Always indicate the item number when ordering.

# PYROMIX Screed® small insulation


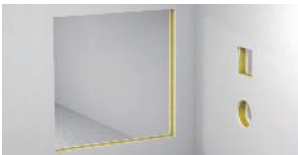








## Registration data

### Insulation in wall / ceiling

Fire resistance class	S30, S60, S90
Proof of application	General construction approval of DIBt, Berlin
Approval number	ETA - Z-19. 15-2044
Testing standard	DIN 4102 Part 9

## Installation locations

### Insulation in walls and ceilings

Component		Rigid walls	Flexible walls	Rigid floors
				
Min. component strength		15 cm (S30 / S60 / S90)	-	15 cm (S30 / S60 / S90)
Min. insulation thickness		15 cm (S30 / S60 / S90)	-	15 cm (S30 / S60 / S90)
Opening size		≤ 10 cm	-	≤ 10 cm
		≤ 10 cm	-	≤ 10 cm
		≤ Ø 10 cm	-	≤ Ø 10 cm
				



# PYROMIX Screed® small insulation Installations

## Cable



## Pipe bundle of electrical installation pipes



## Cable bundle



## Electrical installation pipe made of steel



## Individual lines for control purposes



## Cable support systems



## Electrical installation pipe made of plastic, rigid



## Metal pipes with path insulation



## Electrical installation pipe made of plastic, flexible



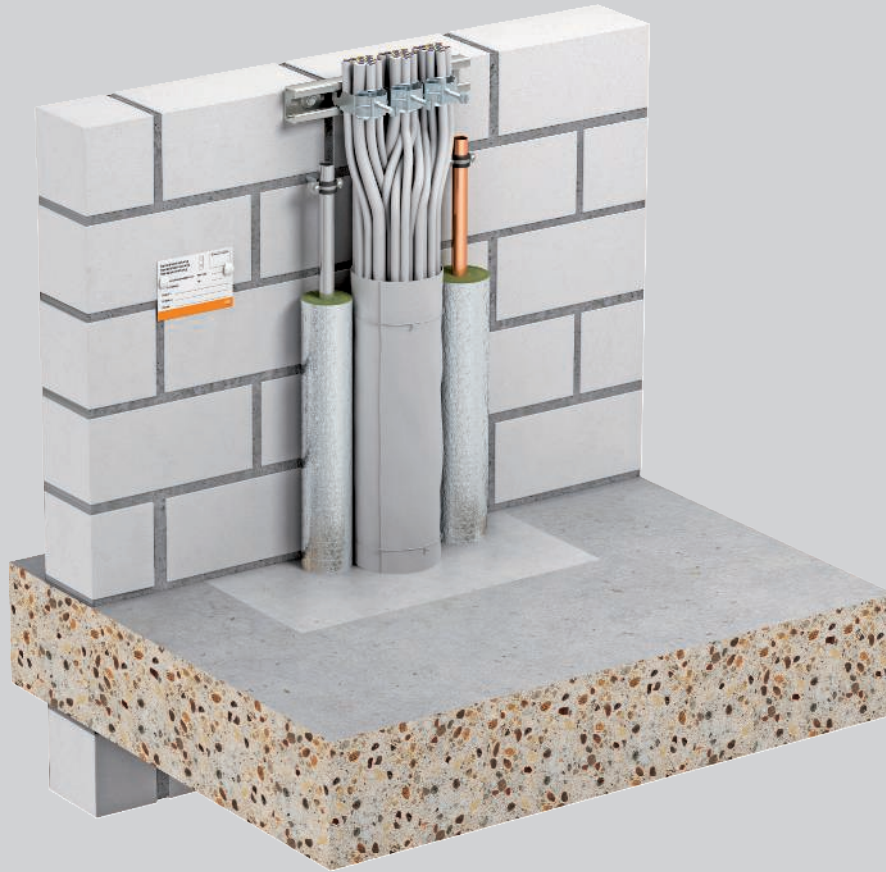
## Plastic pipes



Details on the version can be found in the proof of suitability or mounting instructions.  
All the stated dimensions are maximum values.



## Cable insulation Conlit® Bandage System description



The Conlit® system, consisting of the fire protection bandage, type CL-KS, is used within buildings as cable insulation for individual cables, cable and electrical installation pipe bundles (EIP). The flexible bandage is simply laid around the installations and fixed with a wire. Cable bundles and rigid EIPs must be wound with at least two layers of the bandage and flexible EIPs with at least three layers. In case of a fire,

the material foams up and closes the opening cross-section. The fire protection bandage is suitable for cable and electrical installation pipe bundles up to 100 mm diameter. No spacing is required to many insulated pipes. The system insulates fire sections for a period of max. 90 minutes.





## Cable insulation Conlit® Bandage Installation principle



Preparation of the cable insulation.



Installation of the fire protection bandage.



Fixing of the bandage using winding wire.



Using mortar, close off the residual insulation opening and mount the identification plate.



Using mortar, close off the residual insulation opening and mount the identification plate.



Installation of the fire protection bandage with no distance to the Rockwool Conlit pipe insulation.



Classification to DIN

S30

S60

S90



Erectors of combination insulation require training.

Always indicate the item number when ordering.



# Cable insulation Conlit® Bandage

## Registration data

### Insulation in walls/ceilings

<b>Fire resistance class</b>	S30, S60, S90
<b>Proof of application</b>	General construction approval of DIBt, Berlin
<b>Approval number</b>	Z-19.15-1877
<b>Testing standard</b>	DIN 4102 Part 9

## Installation locations

### Insulation in walls and ceilings

#### Component F30

##### Rigid walls






##### Flexible walls



##### Rigid floors



Min. component strength 	5 cm (S30 / S60 / S90)	7.5 cm (S30 / S60 / S90)	15 cm (S30 / S60 / S90)
Min. insulation thickness 	10 cm (S30 / S60 / S90)	10 cm (S30 / S60 / S90)	10 cm (S30 / S60 / S90)
Opening size 	≤ Ø 10 cm	≤ Ø 10 cm	≤ Ø 10 cm

#### Component F90

##### Screed-covered






##### Flexible walls



##### Rigid floors

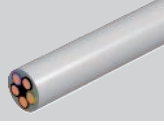


Min. component strength 	10 cm (S30 / S60 / S90)	10 cm (S30 / S60 / S90)	15 cm (S30 / S60 / S90)
Min. insulation thickness 	10 cm (S30 / S60 / S90)	10 cm (S30 / S60 / S90)	10 cm (S30 / S60 / S90)
Opening size 	≤ Ø 10 cm	≤ Ø 10 cm	≤ Ø 10 cm

# Cable insulation Conlit® Bandage Installations

## Cable

all Ø



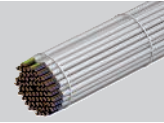
## Pipe bundle of electrical installation pipes

Ø 100 mm



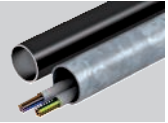
## Cable bundle

Ø 100 mm,  
cable all Ø



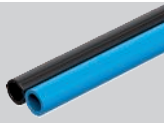
## Electrical installation pipe made of steel

Ø 50 mm,  
cable all Ø

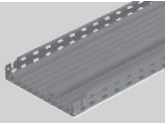


## Individual lines for control purposes

Ø 15 mm



## Cable support systems



## Electrical installation pipe made of plastic, rigid

Ø 40 mm,  
Cable Ø 32 mm



## Metal pipes with path insulation

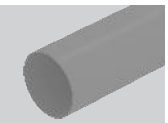


## Electrical installation pipe made of plastic, flexible

Ø 40 mm,  
cable Ø 22 mm



## Plastic pipes

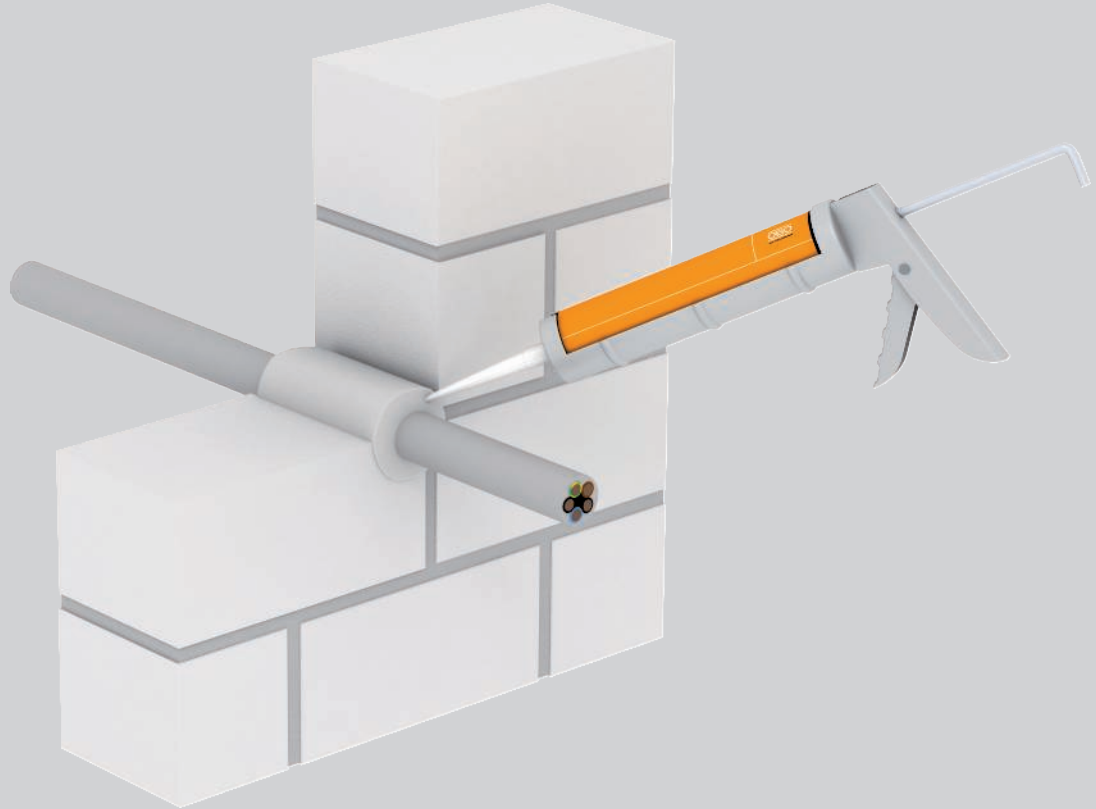


Details on the version can be found in the proof of suitability or mounting instructions. All the stated dimensions are maximum values.



## Individual cables according to MLAR with insulating layer forming agent

### System description



The type DSX insulation forming material from OBO can be used to fill ring gaps around individual cables or multiple cables of a small cross-section routed alongside one another. The ring gap around the cable must be filled with fire protection filler along the entire wall thickness. If there is a fire, the filler foams up,

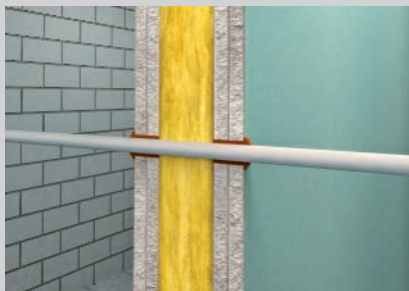
preventing penetration by fire and smoke. When the material foams up, heat is also drawn from the cables, thus considerably reducing the transfer of heat via the copper cores.



## Individual cables according to MLAR with insulating layer forming agent Installation principle



DSX insulation layer creator, suitable for full-wall ring gap closure in solid walls and ceilings.



With light-duty partitions, filling the double plates to both sides is sufficient.

Classification to DIN 4102

F30

F60

F90

### Insulation layer creator on dispersion basis

<b>Material class</b>	B2 – normally flammable
<b>Proof of application</b>	General construction approval of DIBt, Berlin
<b>Approval number</b>	Z-19.11-1991
<b>Testing standard</b>	DIN 4102

### Minimum dimensions of components and their fire resistance period

<b>Min. solid component strength</b>	60	70	80
<b>Fire resistance class</b>	F30	F60	F90
<b>Ring gap max.</b>	15	15	15

All data in mm. The data in the named proofs of applicability applies.



Erectors of combination insulation require training.

Always indicate the item number when ordering.



## Insulation layer creator in a cartridge



Type	Contents ml	Pack. pcs	Weight		Item No.
			kg/100 pcs.	pcs.	
<b>DSX-K</b>	300	1	50.000		<b>7202300</b>

Intumescent material

Dispersion-based fire protection compound for interior areas, to fill residual joints and close openings. Approved material for closing core drill holes for individual cable glands.

Material class DIN 4102 - B2, normally flammable.

In dry, frost-free rooms, the compound can be stored at temperatures from +5 °C to +25 °C for up to 18 months in closed, upright original containers.

## Insulation layer creator in a bucket



Type	Contents kg	Pack. pcs	Weight		Item No.
			kg/100 pcs.	pcs.	
<b>DSX-E</b>	5	1	500.000		<b>7202302</b>

Intumescent material

Dispersion-based fire protection compound for interior areas, to fill residual joints and close openings. Approved material for closing core drill holes for individual cable glands.

Material class DIN 4102 - B2, normally flammable.

In dry, frost-free rooms, the compound can be stored at temperatures from +5 °C to +25 °C for up to 18 months in closed, upright original containers.

## Mineral wool



Type	Dimension 25 Liter	Pack. pcs	Weight		Item No.
			kg/100 pcs.	pcs.	
<b>MIW-S</b>		1	250.000		<b>7202308</b>

Mineral fibres

Universal filling wool for various fire protection applications, packed in compressed form.

Material class EN 13 501 - A1, non-combustible; melting point  $\geq 1.000$  °C.

## Fire protection bandage



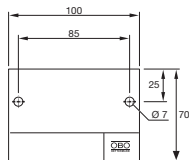
Type	Length mm	Width mm	Pack. pcs	Weight		Item No.
				kg/100 pcs.	pcs.	
<b>CL-KS</b>	1000	380	1	50.000		<b>7202316</b>

Intumescent material

The fire protection bandage is used as cable insulation for individual cables, cable- and electrical installation pipe bundles (EIR). The insulation consists of a flexible bandage, fixed using wire.

When surrounding the cables, take account of how often the appropriate medium must be surrounded. Refer to the approval for details. The bandage can be used directly next to Rockwool pipe insulation. Winding wire is included.

## Identification plate



Type	Language	Pack. pcs	Weight		Item No.
			kg/100 pcs.	pcs.	
<b>KS-S DE</b>	German	1	2.400		<b>7205425</b>
<b>KS-S SE</b>	Swedish	1	2.400		<b>7205426</b>
<b>KS-S ES</b>	Spanisch	1	2.400		<b>7205427</b>
<b>KS-S EN</b>	English	1	2.400		<b>7205429</b>
<b>KS-S HR</b>	Croatian	1	2.400		<b>7205438</b>
<b>KS-S IT</b>	Italian	1	2.400		<b>7205428</b>
<b>KS-S FR</b>	French	1	2.400		<b>7205430</b>
<b>KS-S NL</b>	Dutch	1	2.400		<b>7205431</b>

PS Polystyrene

Universal identification plate to be written on with waterproof and light-resistant felt-tip pen for all types of OBO insulation. For approved identification, including two push-fit anchors.

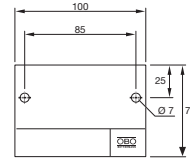


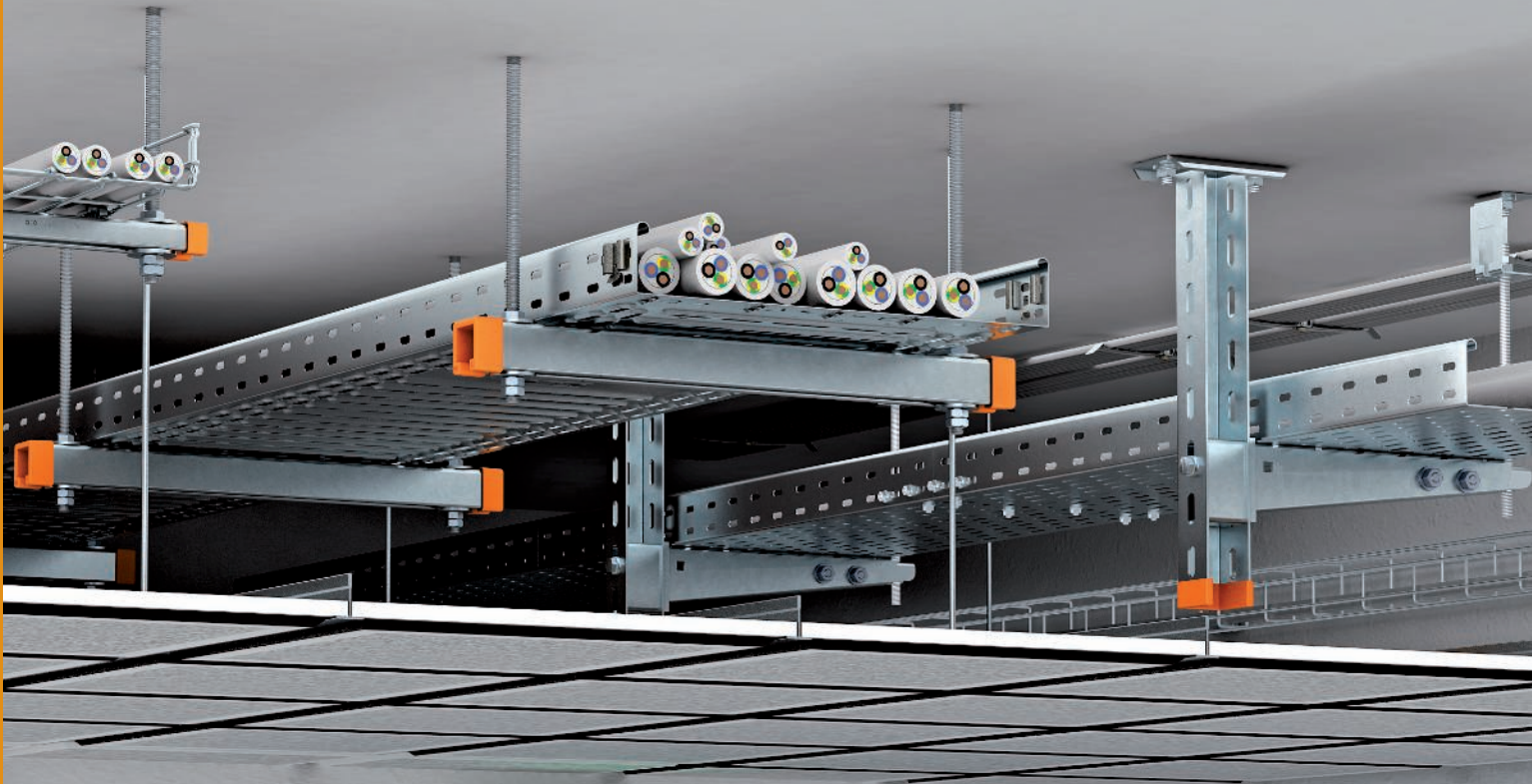
### Identification plate for single cable

Type	Pack.		Weight	Item No.
	pcs	kg/100 pcs.		
<b>KS-LAR DE</b>	1	2.400		<b>7205420</b>
<b>KS-LAR IT</b>	1	2.400		<b>7205421</b>

**PVC** Polyvinylchloride








Identification plate to be written on with waterproof and light-resistant felt-tip pen for fire-safe cable glands according to the cable systems directive (M)LAR, including 2 push-fit anchors.







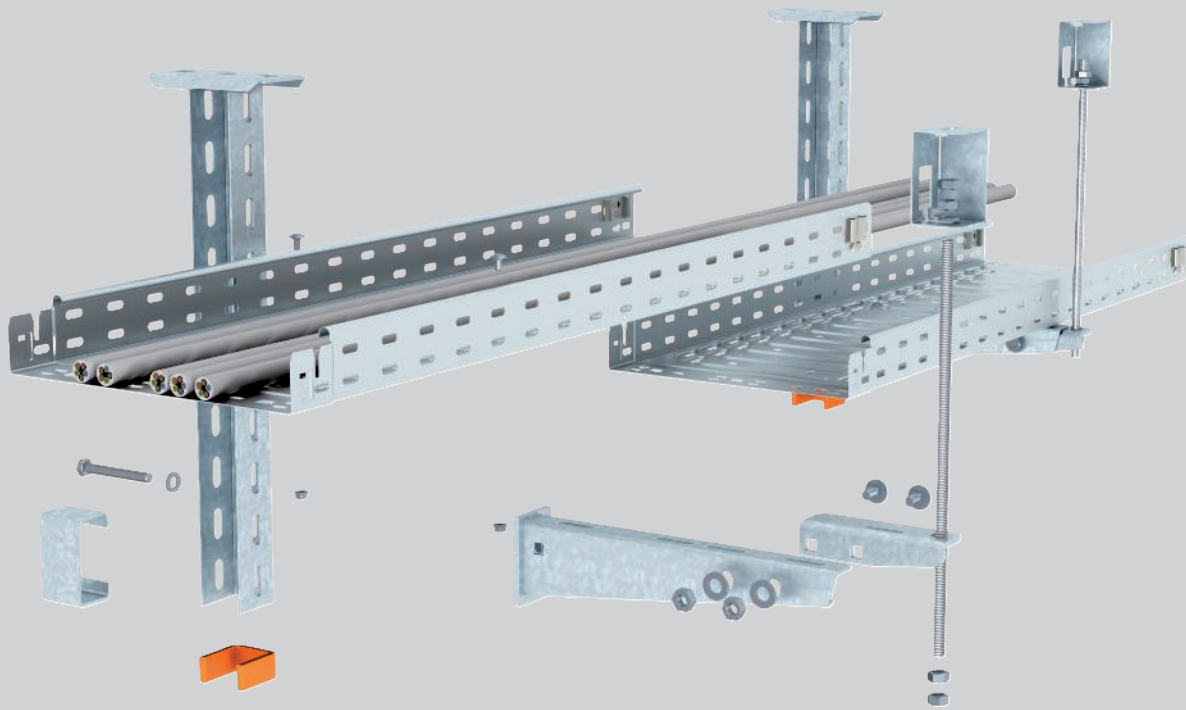
## Escape route installations for hollow ceilings

	<b>System description, RKS-Magic® cable tray</b>	122
	<b>System description, MKS-Magic® cable tray</b>	126
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	<b>System description, Grip M grouped support</b>	144
	<b>Products</b>	147



## RKS-Magic® cable tray

### System description



The tested RKS-Magic® cable tray system is suitable for installation in the false ceiling area of escape and rescue routes. In the event of fire, the system has a proven mechanical stability of 30 minutes. The RKS-Magic® cable tray can be mounted under the ceiling or on the wall with brackets. The brackets are additionally secured on the ceiling with a threaded rod to prevent them from bending if there is a fire. A further option for ceiling mounting is the support of the cable tray on profile rails, each mounted under the ceiling

with two threaded rods. As the cable tray deforms in the event of fire, sufficient distance to the false ceiling must be maintained. This minimum distance is documented in the proof of testing for the various versions of the RKS-Magic® cable trays. If the cable loads and tray widths listed in the proof of testing are maintained and the minimum spacings to the false ceiling taken into account, then multi-layer variants can also be implemented.

# RKS-Magic® cable tray

## Installation principle



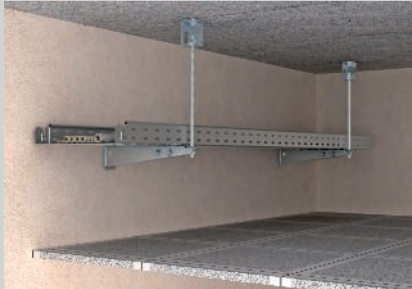
Single-layer ceiling suspension.



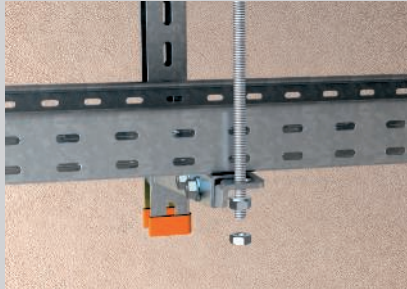
Two-layer ceiling suspension with bracket arrangement on one side.



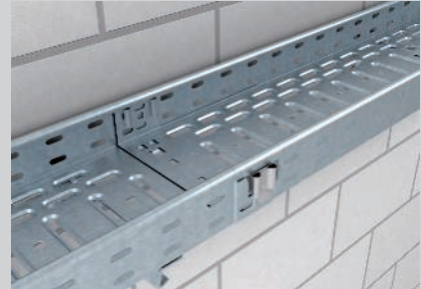
Two-layer ceiling suspension with bracket arrangement on both sides.



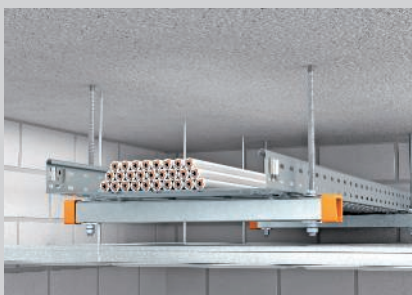
Wall mounting, one and two-layer possible.



Mounting of the threaded rod lock through the connection bracket on the tip of the tray.



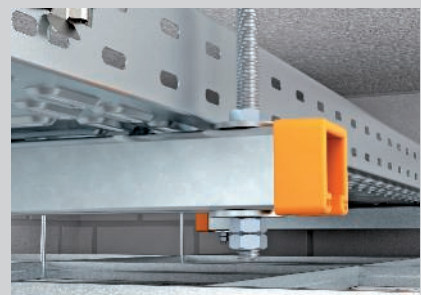
Complete screwless joint connection.



Single-layer ceiling mounting above suspended fire protection ceiling.



Two-layer ceiling mounting above suspended fire protection ceiling.



Clamp fastening for high load capacities.

Tested mounting options



**CAUTION: No maintenance of electrical functionality according to DIN 4102 Part 12!**

Always indicate the item number when ordering.






# RKS-Magic® cable tray

## Proof



### Fire-proof fastening above fire protection ceilings

Fire load	30 minutes
Proof of testing	OBO Bettermann
Document no. - Mounting with suspended support / bracket	05/170503-02
Document no. - Mounting with mounting rails	05/170503-01
Testing principles	In accordance with DIN 4102

### Support spacing for wall / ceiling mounting with suspended support / bracket

Cable tray width	Cable load per cable tray					
200 mm	max. 30 kg/m	max. 1.50 m	max. 1.50 m	max. 1.50 m	max. 1.50 m	max. 1.50 m
300 mm	max. 45 kg/m	max. 1.50 m	max. 1.50 m	max. 1.50 m	max. 1.50 m	max. 1.50 m
400 mm	max. 60 kg/m	max. 1.50 m	max. 1.20 m	max. 1.50 m	max. 1.50 m	max. 1.20 m

### Support spacing for ceiling mounting with mounting rails

Cable tray width	Cable load per cable tray		
100 mm	max. 15 kg/m	max. 1.50 m	max. 1.50 m
200 mm	max. 30 kg/m	max. 1.50 m	max. 1.50 m
300 mm	max. 45 kg/m	max. 1.50 m	max. 1.50 m
400 mm	max. 60 kg/m	max. 1.50 m	max. 1.20 m

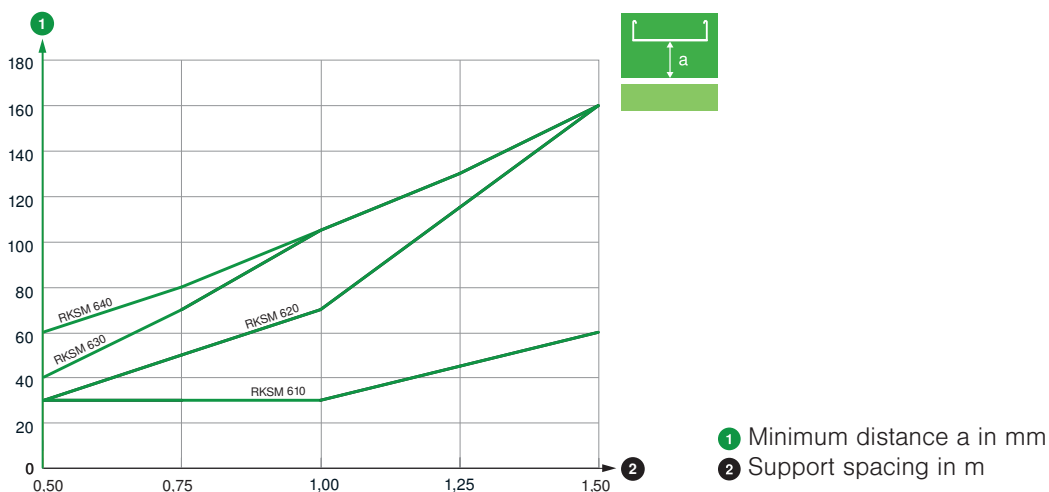
### Required minimum spacing "a" under fire load at different support spacings

Cable tray width	Cable load per cable tray	max. 0.50 m	max. 0.75 m	max. 1.00 m	max. 1.25 m	max. 1.50 m
100 mm	max. 15 kg/m	30 mm	30 mm	30 mm	45 mm	60 mm
200 mm	max. 30 kg/m	30 mm	50 mm	70 mm	115 mm	160 mm
300 mm	max. 45 kg/m	40 mm	70 mm	105 mm	130 mm	160 mm
400 mm	max. 60 kg/m	60 mm	80 mm	105 mm	130 mm	160 mm

The stated values for the wall / ceiling mounting with suspended support / bracket and for ceiling mounting with mounting rails

The minimum spacing "a" relates to the distance of the under side of the cable tray to the top side of the fire protection ceiling.






### Spacing diagram, RKSM cable tray



## RKS-Magic® cable tray



### Components used: RKSM cable tray

#### Wall/ceiling mounting with suspended support/bracket

Component	Type					
Cable tray	RKSM 6... FS	1	2	2	1	2
Support	US 5 K ... FT	1	1	1	0	0
Protective cap	US 5 KS OR	1	1	1	0	0
Wall and support brackets	AW30F... FT	1	2	2	1	2
Spacer	DSK 45	1	2	1	0	0
Hexagonal bolt	SKS 10x 90 F	1	2	1	0	0
Truss-head bolt	FRSB 6x 15 F	2	4	4	2	4
Threaded rod	2078 M12 G	1	2	2	1	2
Hexagonal nut	DIN 934 M12 G	4	5	8	4	5
Washer	966 M12 G	2	3	4	2	3
Connection sleeve	12005 M12 G	0	1	0	0	1
Fire protection clamp	BSB	1	1	2	1	1

Choose the fastening anchors according to the substrate

#### Ceiling mounting with mounting rails

Component	Type		
Cable tray	RKSM 6... FS	1	2
Mounting rail	See table	1	2
Protective cap	MS41... EK	2	4
Threaded rod	2078 M12 G	2	4
Hexagonal nut	DIN 934 M12 G	6	10
Large washer	DIN440 14 F	2	4
Washer	966 M12 G	2	4
Connection sleeve	12005 M12 G	0	2
Truss-head bolt	FRSB 6x 15 F	2	4
Large washer	DIN440 7 F	2	4

Choose the fastening anchors according to the substrate

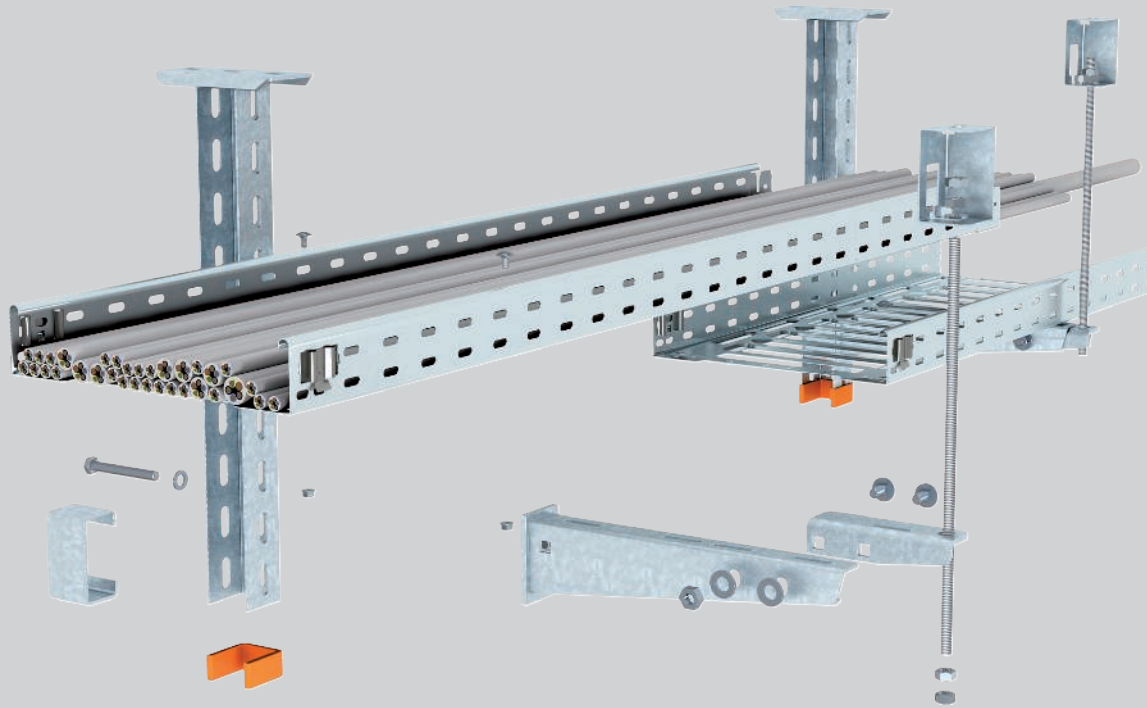
#### Mounting rails to be used according to support spacing

Cable tray type	Cable tray width	max. 0.50 m	max. 0.75 m	max. 1.00 m	max. 1.25 m	max. 1.50 m
RKSM 610 FS	100 mm	MS4121P	MS4121P	MS4121P	MS4121P	MSL4141P
RKSM 620 FS	200 mm	MS4121P	MS4121P	MS4121P	MSL4141P	MSL4141P
RKSM 630 FS	300 mm	MS4121P	MSL4141P	MSL4141P	MSL4141P	MS4141P
RKSM 640 FS	400 mm	MSL4141P	MSL4141P	MSL4141P	MS4141P	MS4141P



## MKS-Magic® cable tray

### System description



The tested MKS-Magic® cable tray system is suitable for installation in the false ceiling area of escape and rescue routes. In the event of fire, the system has a proven mechanical stability of 30 minutes. The MKS-Magic® cable trays can be mounted under the ceiling or on the wall with brackets. The brackets are additionally secured on the ceiling with a threaded rod to prevent them from bending in a fire. As the cable trays deform in a fire, sufficient distance to the false ceiling must be maintained. This minimum distance is documented in the proof of testing of the MKS-Magic® cable trays. If the cable loads and tray widths listed in

the proof of testing are maintained and the minimum spacings to the false ceiling taken into account, then multi-layer variants can also be implemented. A further option for ceiling mounting is the support of the cable trays on profile rails, each mounted under the ceiling with two threaded rods. With this mounting variant, sufficient distances to the false ceiling must be maintained. A two-layer arrangement of the cable trays is possible, providing that the approved tensile stress in the threaded rods is also maintained in the event of fire.

# MKS-Magic® cable tray

## Installation principle



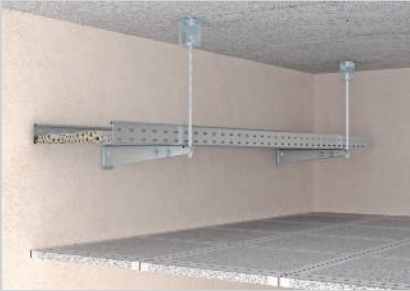
Single-layer ceiling suspension.



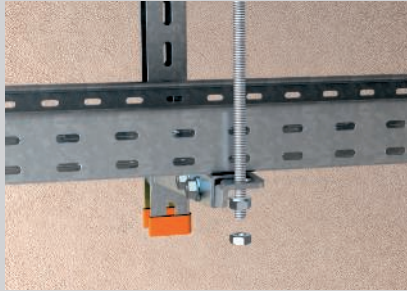
Two-layer ceiling suspension with bracket arrangement on one side.



Two-layer ceiling suspension with bracket arrangement on both sides.



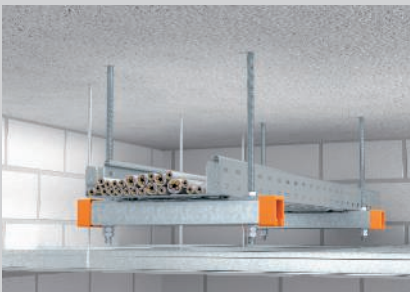
Wall mounting, single and double-layer possible.



Mounting of the threaded rod lock through the connection bracket on the tip of the bracket.



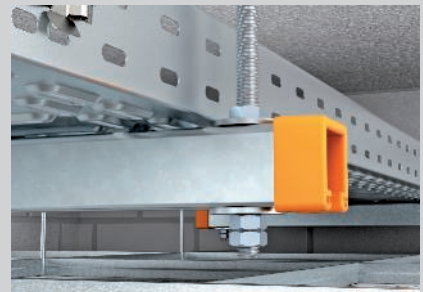
Screwless joint connection, only the base lugs need to be bent.



Single-layer ceiling mounting above suspended fire protection ceiling.



Two-layer ceiling mounting above suspended fire protection ceiling.



Clamp fastening for high load capacities.

Tested mounting options



**CAUTION: No maintenance of electrical functionality according to DIN 4102 Part 12!**






Always indicate the item number when ordering.

### Fire-proof fastening above fire protection ceilings



Fire load	30 minutes
Proof of testing	OBO Bettermann
Document no. - Mounting with suspended support / bracket	05/130301-04
Document no. - Mounting with mounting rails	05/130301-03
Testing principles	In accordance with DIN 4102

Proofs of testing are also available for the MKS cable trays and can be requested accordingly.

### Support spacing for wall / ceiling mounting with suspended support / bracket

Cable tray width	Cable load per cable tray					
200 mm	max. 30 kg/m	max. 1.50 m	max. 1.50 m	max. 1.50 m	max. 1.50 m	max. 1.50 m
300 mm	max. 45 kg/m	max. 1.50 m	max. 1.50 m	max. 1.50 m	max. 1.50 m	max. 1.50 m
400 mm	max. 60 kg/m	max. 1.50 m	max. 1.20 m	max. 1.50 m	max. 1.50 m	max. 1.20 m

### Support spacing for ceiling mounting with mounting rails

Cable tray width	Cable load per cable tray		
100 mm	max. 15 kg/m	max. 1.50 m	max. 1.50 m
200 mm	max. 30 kg/m	max. 1.50 m	max. 1.50 m
300 mm	max. 45 kg/m	max. 1.50 m	max. 1.50 m
400 mm	max. 60 kg/m	max. 1.50 m	max. 1.20 m

### Required minimum spacing "a" under fire load at support spacing max. 1.50 m



Cable tray width	Cable load per cable tray	max. 1.50 m
100 mm	max. 15 kg/m	55 mm
200 mm	max. 30 kg/m	105 mm
300 mm	max. 45 kg/m	180 mm
400 mm	max. 60 kg/m	180 mm

The stated values for the wall / ceiling mounting with suspended support / bracket and for ceiling mounting with mounting rails






The minimum spacing "a" relates to the distance of the under side of the cable tray to the top side of the fire protection ceiling.



# MKS-Magic® cable tray



## Components used, MKSM cable trays

### Wall/ceiling mounting with suspended support/bracket

Component	Type					
Cable tray	MKSM 6... FS	1	2	2	1	2
Support	US 5 K ... FT	1	1	1	0	0
Protective cap	US 5 KS OR	1	1	1	0	0
Wall and support brackets	AW30F... FT	1	2	2	1	2
Spacer	DSK 45	1	2	1	0	0
Hexagonal bolt	SKS 10x 90 F	1	2	1	0	0
Truss-head bolt	FRSB 6x 15 F	2	4	4	2	4
Threaded rod	2078 M12 G	1	2	2	1	2
Hexagonal nut	DIN 934 M12 G	4	5	8	4	5
Washer	966 M12 G	2	3	4	2	3
Connection sleeve	12005 M12 G	0	1	0	0	1
Fire protection clamp	BSB	1	1	2	1	1
Choose the fastening anchors according to the substrate	12005 M12 G	0	1	0	0	1
Fire protection clamp	BSB	1	1	2	1	1

Choose the fastening anchors according to the substrate

### Ceiling mounting with mounting rails

Component	Type		
Cable tray	MKSM 6... FS	1	2
Mounting rail	See table	1	2
Protective cap	MS4141 EK	2	4
Threaded rod	2078 M12 G	2	4
Hexagonal nut	DIN 934 M12 G	6	10
Large washer	DIN440 14 F	2	4
Washer	966 M12 G	2	4
Connection sleeve	12005 M12 G	0	2
Truss-head bolt	FRSB 5x 15 F	2	4
Large washer	DIN440 7 F	2	4

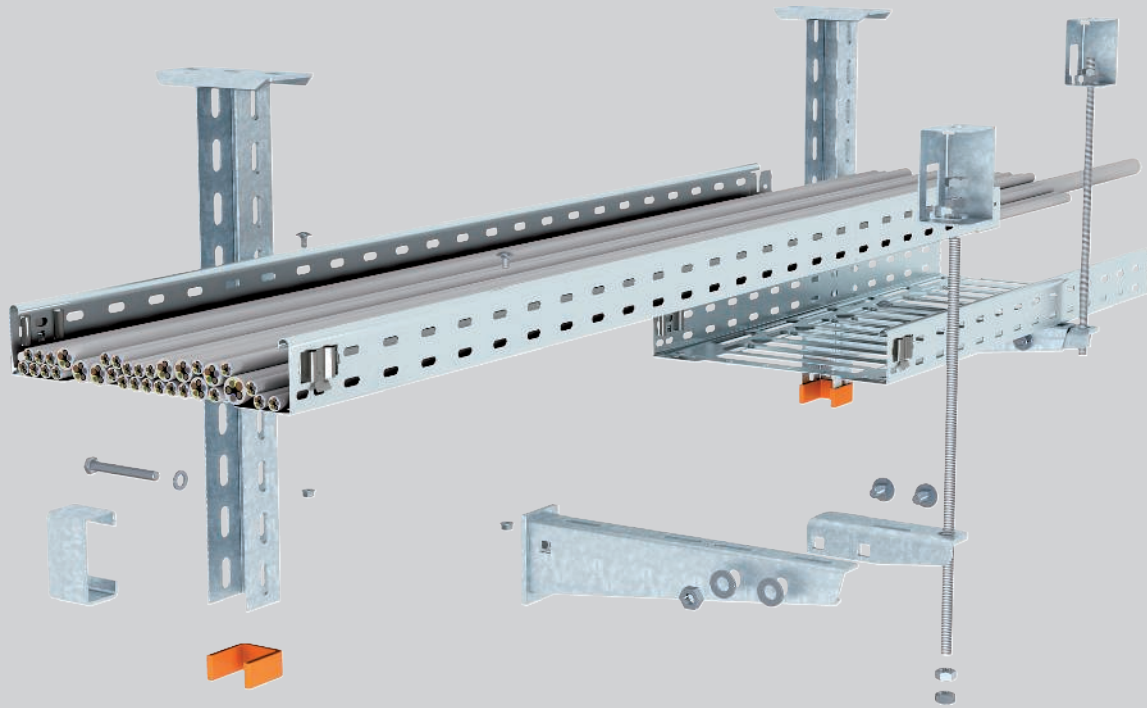
Choose the fastening anchors according to the substrate

### Mounting rails to be used according to support spacing

Cable tray type	Cable tray width	max. 1.50 m
MKSM 610 FS	100 mm	MSL4141P
MKSM 620 FS	200 mm	MSL4141P
MKSM 630 FS	300 mm	MS4141P
MKSM 640 FS	400 mm	MS4141P



## Cable tray SKS-Magic® System description



The tested SKS-Magic® cable trays can be mounted under the ceiling or on the wall with brackets. In the event of fire, the system has a proven mechanical stability of 30 minutes. The SKS-Magic® cable trays can be mounted under the ceiling or on the wall with brackets. The brackets are additionally secured on the ceiling with a threaded rod to prevent them from bending in a fire. As the cable trays deform in a fire, sufficient distance to the false ceiling must be maintained. This minimum distance is documented in the proof of testing of the SKS-Magic® cable trays. If the cable loads and tray widths listed in the proof of tes-

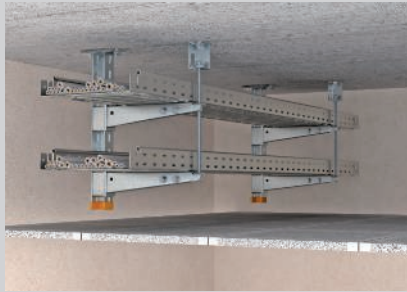
ting are maintained and the minimum spacings to the false ceiling taken into account, then multi-layer variants can also be implemented. A further option for ceiling mounting is the support of the cable trays on profile rails, each mounted under the ceiling with two threaded rods. With this mounting variant, sufficient distances to the false ceiling must also be maintained. A two-layer arrangement of the cable trays is possible, providing that the approved tensile stress in the threaded rod is maintained in the event of fire.



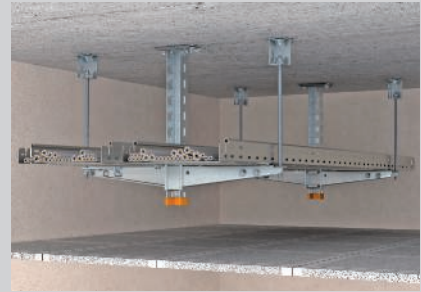
# Cable tray SKS-Magic® Installation principle



Single-layer ceiling suspension.



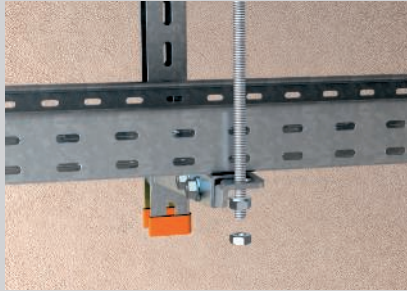
Two-layer ceiling suspension with bracket arrangement on one side.



Two-layer ceiling suspension with bracket arrangement on both sides.



Wall mounting, one and two-layer possible.



Mounting of the threaded rod lock through the connection bracket on the tip of the bracket.



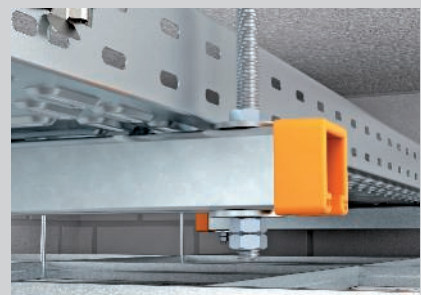
Screwless joint connection, only the base lugs need to be bent.



Single-layer ceiling mounting above suspended fire protection ceiling.



Two-layer ceiling mounting above suspended fire protection ceiling.



Clamp fastening for high load capacities.

Tested mounting options



**CAUTION: No maintenance of electrical functionality according to DIN 4102 Part 12!**

Always indicate the item number when ordering.



# Cable tray SKS-Magic®






## Proof

### Fire-proof fastening above fire protection ceilings



Fire load	30 minutes
Proof of testing	OBO Bettermann
Document no. - Mounting with suspended support / bracket SKSM	05/170601-02
Document no. - Mounting with mounting rails	05/170601-01
Testing principles	In accordance with DIN 4102

Proofs of testing are also available for the SKS cable trays and can be requested accordingly.

### Support spacing for wall / ceiling mounting with suspended support / bracket

Cable tray width	Cable load per cable tray					
200 mm	max. 30 kg/m	max. 1.50 m	max. 1.50 m	max. 1.50 m	max. 1.50 m	max. 1.50 m
300 mm	max. 45 kg/m	max. 1.50 m	max. 1.50 m	max. 1.50 m	max. 1.50 m	max. 1.50 m
400 mm	max. 60 kg/m	max. 1.50 m	max. 1.20 m	max. 1.50 m	max. 1.50 m	max. 1.20 m
500 mm	max. 75 kg/m	max. 1.50 m	max. 0.90 m	max. 1.50 m	max. 1.50 m	max. 0.90 m
600 mm	max. 90 kg/m	max. 1.50 m	max. 0.75 m	max. 1.50 m	max. 1.50 m	max. 0.75 m

### Support spacing for ceiling mounting with mounting rails

Cable tray width	Cable load per cable tray		
100 mm	max. 15 kg/m	max. 1.50 m	max. 1.50 m
200 mm	max. 30 kg/m	max. 1.50 m	max. 1.50 m
300 mm	max. 45 kg/m	max. 1.50 m	max. 1.50 m
400 mm	max. 60 kg/m	max. 1.50 m	max. 1.20 m
500 mm	max. 75 kg/m	max. 1.50 m	max. 0.90 m
600 mm	max. 90 kg/m	max. 1.50 m	max. 0.75 m

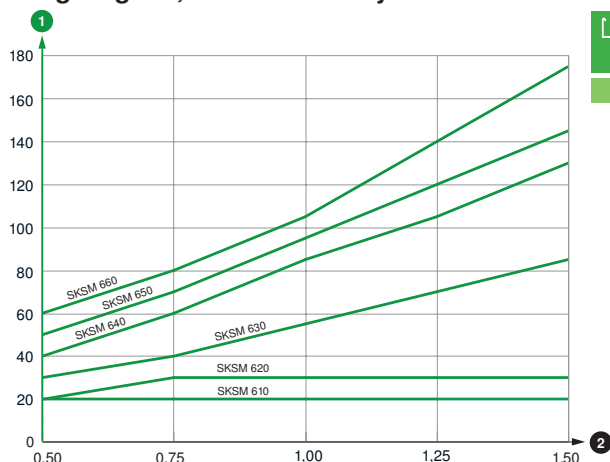
### Required minimum spacing "a" under fire load at different support spacings

Cable tray width	Cable load per cable tray	max. 0.50 m	max. 0.75 m	max. 1.00 m	max. 1.25 m	max. 1.50 m
100 mm	max. 15 kg/m	20 mm	20 mm	20 mm	20 mm	20 mm
200 mm	max. 30 kg/m	20 mm	30 mm	30 mm	30 mm	30 mm
300 mm	max. 45 kg/m	30 mm	40 mm	55 mm	70 mm	85 mm
400 mm	max. 60 kg/m	40 mm	60 mm	85 mm	105 mm	130 mm
500 mm	max. 75 kg/m	50 mm	70 mm	95 mm	120 mm	145 mm
600 mm	max. 90 kg/m	60 mm	80 mm	105 mm	140 mm	175 mm

The stated values for the wall / ceiling mounting with suspended support / bracket and for ceiling mounting with mounting rails

The minimum spacing "a" relates to the distance of the under side of the cable tray to the top side of the fire protection ceiling.

### Spacing diagram, SKSM cable tray








- ① Minimum distance a in mm
- ② Support spacing in m

# Cable tray SKS-Magic®



## Components used, SKSM cable trays

### Wall/ceiling mounting with suspended support/bracket

Component	Type					
Cable tray	SKSM 6... FS	1	2	2	1	2
Support	US 5 K ... FT	1	1	1	0	0
Protective cap	US 5 KS OR	1	1	1	0	0
Wall and support brackets	AW30F... FT	1	2	2	1	2
Spacer	DSK 45	1	2	1	0	0
Hexagonal bolt	SKS 10x 90 F	1	2	1	0	0
Truss-head bolt	FRSB 6x 15 F	2	4	4	2	4
Threaded rod	2078 M12 G	1	2	2	1	2
Hexagonal nut	DIN 934 M12 G	4	5	8	4	5
Washer	966 M12 G	2	3	4	2	3
Connection sleeve	12005 M12 G	0	1	0	0	1
Fire protection clamp	BSB	1	1	2	1	1
Choose the fastening anchors according to the substrate	12005 M12 G	0	1	0	0	1
Fire protection clamp	BSB	1	1	2	1	1

Choose the fastening anchors according to the substrate

### Ceiling mounting with mounting rails

Component	Type		
Cable tray	SKSM 6... FS	1	2
Mounting rail	See table	1	2
Protective cap	MS41... EK	2	4
Threaded rod	2078 M12 G	2	4
Hexagonal nut	DIN 934 M12 G	6	10
Large washer	DIN440 14 F	2	4
Washer	966 M12 G	2	4
Connection sleeve	12005 M12 G	0	2
Truss-head bolt	FRSB 6x 15 F	2	4
Large washer	DIN440 7 F	2	4

Choose the fastening anchors according to the substrate

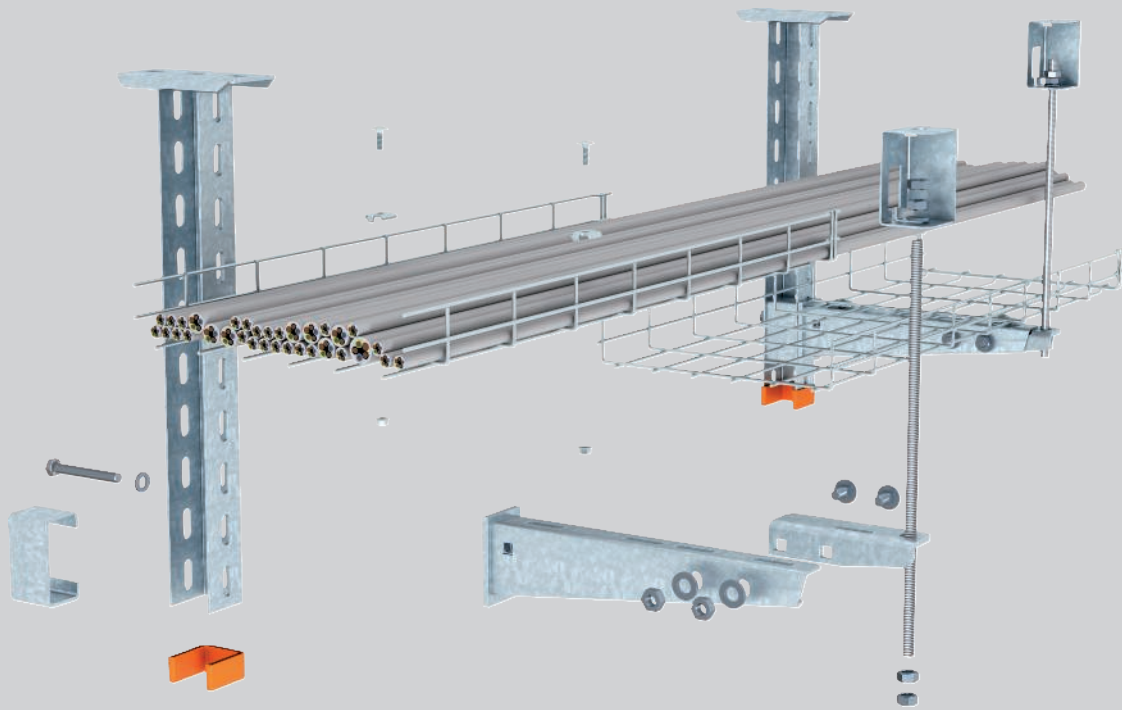
### Mounting rails to be used according to support spacing

Cable tray type	Cable tray width	max. 0.50 m	max. 0.75 m	max. 1.00 m	max. 1.25 m	max. 1.50 m
SKSM 610 FS	100 mm	MS4121P	MS4121P	MS4121P	MS4121P	MSL4141P
SKSM 620 FS	200 mm	MS4121P	MS4121P	MS4121P	MSL4141P	MSL4141P
SKSM 630 FS	300 mm	MS4121P	MSL4141P	MSL4141P	MSL4141P	MS4141P
SKSM 640 FS	400 mm	MSL4141P	MSL4141P	MSL4141P	MS4141P	MS4141P
SKSM 650 FS	500 mm	MS4141P	MS4141P	MS4141P	MS4141P	MS4141P
SKSM 660 FS	600 mm	MS4141P	MS4141P	MS4141P	MS4141P	MS4141P



## GR-Magic® mesh cable tray

### System description



The tested GR-Magic® mesh cable tray system is suitable for installation in the false ceiling area of escape and rescue routes. In the event of fire, the system has a proven mechanical stability of 30 minutes. The GR-Magic® mesh cable tray can be mounted under the ceiling or on the wall with brackets. The brackets are additionally secured on the ceiling with a threaded rod to prevent them from bending in a fire. As the mesh cable tray deforms in a fire, sufficient distance to the false ceiling must be maintained. This minimum distance is documented in the proof of testing for the various versions of the GR-Magic® mesh cable tray. If the cable loads and tray widths listed in the proof of

testing are maintained and the minimum spacings to the false ceiling taken into account, then multi-layer variants can also be implemented. A further option for ceiling mounting is the support of the mesh cable tray on profile rails, each mounted under the ceiling with two threaded rods. With this mounting variant, sufficient distances to the false ceiling must be maintained. A two-layer arrangement of the cable trays is possible, providing that the approved tensile stress in the threaded rods is also maintained in the event of fire.

# GR-Magic® mesh cable tray

## Installation principle



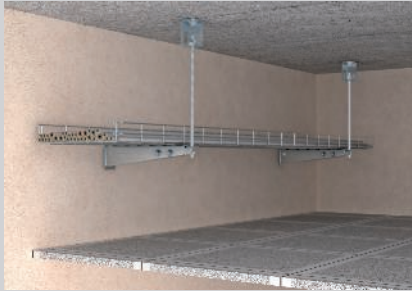
Single-layer ceiling suspension with suspended support and bracket.



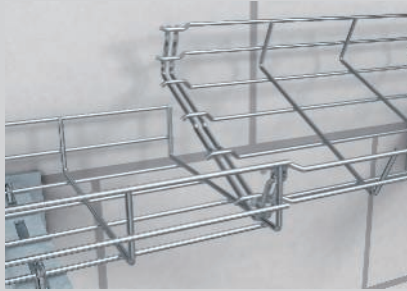
Two-layer ceiling suspension with bracket arrangement on one side.



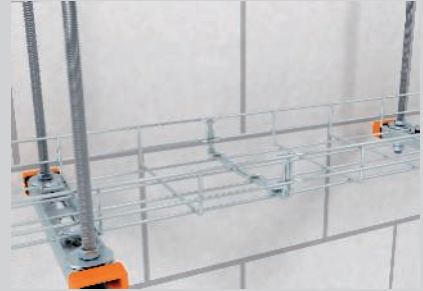
Two-layer ceiling suspension with bracket arrangement on both sides.



Wall mounting, one and two-layer possible.



Interconnecting of two stock lengths of the mesh cable tray.



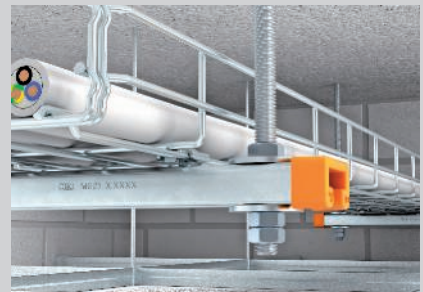
Screwless joint connection.



Single-layer ceiling mounting above suspended fire protection ceiling.



Two-layer ceiling mounting above suspended fire protection ceiling.



Clamp fastening for high load capacities.

Tested mounting options



**CAUTION: No maintenance of electrical functionality according to DIN 4102 Part 12!**

Always indicate the item number when ordering.






# GR-Magic® mesh cable tray

## Proof



### Fire-proof fastening above fire protection ceilings

Fire load	30 minutes
Proof of testing	OBO Bettermann
Document no. - Mounting with suspended support / bracket	05/130301-06
Document no. - Mounting with mounting rails	05/130301-05
Testing principles	In accordance with DIN 4102

### Support spacing for wall / ceiling mounting with suspended support / bracket

Mesh cable tray width	Cable load per mesh cable tray					
200 mm	max. 20 kg/m	max. 1.50 m	max. 1.50 m	max. 1.50 m	max. 1.50 m	max. 1.50 m
300 mm	max. 30 kg/m	max. 1.50 m	max. 1.50 m	max. 1.50 m	max. 1.50 m	max. 1.50 m
400 mm	max. 40 kg/m	max. 1.50 m	max. 1.50 m	max. 1.50 m	max. 1.50 m	max. 1.50 m

### Support spacing for ceiling mounting with mounting rails

Mesh cable tray width	Cable load per mesh cable tray		
100 mm	max. 10 kg/m	max. 1.50 m	max. 1.50 m
200 mm	max. 20 kg/m	max. 1.50 m	max. 1.50 m
300 mm	max. 30 kg/m	max. 1.50 m	max. 1.50 m
400 mm	max. 40 kg/m	max. 1.50 m	max. 1.50 m

### Required minimum spacing "a" under fire load at support spacing max. 1.5 m

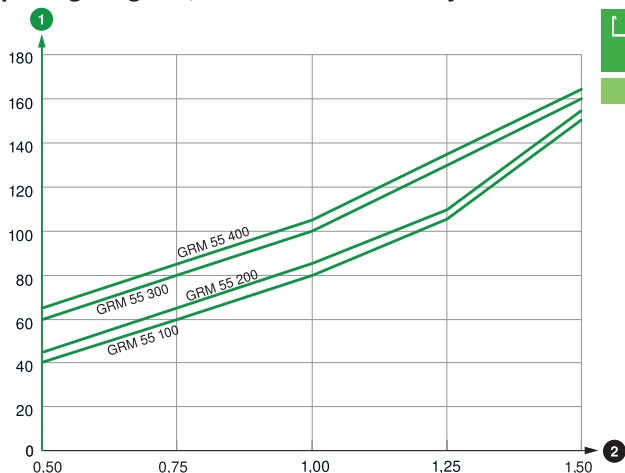


Mesh cable tray width	Cable load per mesh cable tray	max. 1.50 m
100 mm	max. 10 kg/m	150 mm
200 mm	max. 20 kg/m	155 mm
300 mm	max. 30 kg/m	160 mm
400 mm	max. 40 kg/m	165 mm

The stated values for the wall / ceiling mounting with suspended support / bracket and for ceiling mounting with mounting rails

The minimum spacing "a" relates to the distance of the under side of the mesh cable tray to the top side of the fire protection ceiling.

### Spacing diagram, GRM mesh cable tray








- ① Minimum distance a in mm
- ② Support spacing in m



# GR-Magic® mesh cable tray



## Components used, mesh cable trays GRM

### Wall/ceiling mounting with suspended support/bracket

Component	Type					
Mesh cable tray	GRM 55 ... G	1	2	2	1	2
Support	US 5 K ... FT	1	1	1	0	0
Protective cap	US 5 KS OR	1	1	1	0	0
Wall and support brackets	AW30F... FT	1	2	2	1	2
Spacer	DSK 45	1	2	1	0	0
Hexagonal bolt	SKS 10x 90 F	1	2	1	0	0
Clamping piece	GKS 34G	2	4	4	2	4
Threaded rod	2078 M12 G	1	2	2	1	2
Hexagonal nut	DIN 934 M12 G	4	5	8	4	5
Washer	966 M12 G	2	3	4	2	3
Connection sleeve	12005 M12 G	0	1	0	0	1
Fire protection clamp	BSB	1	1	2	1	1

Choose the fastening anchors according to the substrate

### Ceiling mounting with mounting rails

Component	Type		
Mesh cable tray	GRM 55 ... G	1	2
Mounting rail	See table	1	2
Protective cap	MS41... EK	2	4
Threaded rod	2078 M12 G	2	4
Hexagonal nut	DIN 934 M12 G	6	10
Large washer	DIN440 14 F	2	4
Washer	966 M12 G	2	4
Connection sleeve	12005 M12 G	0	2
Clamping piece	GKS 34G	2	4
Large washer	DIN440 7 F	2	4

Choose the fastening anchors according to the substrate

### Mounting rails to be used according to support spacing

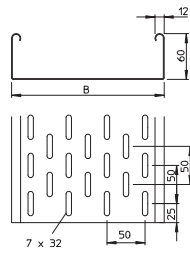
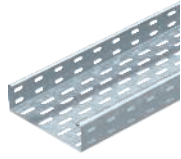
Mesh cable tray type	Mesh cable tray width	max. 1.50 m
GRM 55 100 G	100 mm	MS4121P
GRM 55 200 G	200 mm	MS4121P
GRM 55 300 G	300 mm	MSL4141P
GRM 55 400 G	400 mm	MSL4141P

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Escape route installations - false ceiling mounting



## Cable tray MKS 60



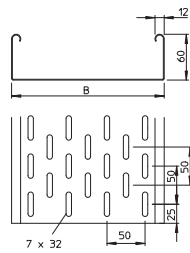
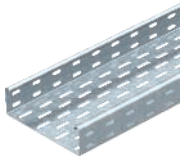
Type	Width mm	Plate thickness mm	Dimen- sion B mm	Pack. m	Weight kg/100 m	Item No.
<b>MKS 610 FS</b>	100	1.00	100	3	173.000	<b>6055109</b>
<b>MKS 620 FS</b>	200	1.00	200	3	246.700	<b>6055206</b>
<b>MKS 630 FS</b>	300	1.00	300	3	312.667	<b>6055303</b>
<b>MKS 640 FS</b>	400	1.00	400	3	380.000	<b>6055400</b>

**St** Steel

**FS** Strip-galvanised

MKS 60 = medium-duty cable tray system with a side height of 60 mm. FS version includes RV 60 straight connector set.

## Cable tray SKS 60



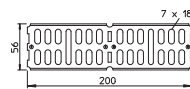
Type	Width mm	Plate thickness mm	Dimen- sion B mm	Pack. m	Weight kg/100 m	Item No.
<b>SKS 610 FS</b>	100	1.50	100	3	239.400	<b>6056105</b>
<b>SKS 620 FS</b>	200	1.50	200	3	364.000	<b>6056202</b>
<b>SKS 630 FS</b>	300	1.50	300	3	463.670	<b>6056296</b>
<b>SKS 640 FS</b>	400	1.50	400	3	564.340	<b>6056407</b>
<b>SKS 650 FS</b>	500	1.50	500	3	663.340	<b>6056504</b>
<b>SKS 660 FS</b>	600	1.50	600	3	762.340	<b>6056601</b>

**St** Steel

**FS** Strip-galvanised

SKS 60 = Heavy-duty cable tray system with 60 mm side height.

## Straight and angle connector 60



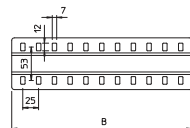
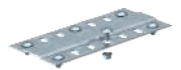
Type	Dimension mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>RWVL 60 FS</b>	200 x 56	10	16.400	<b>6067115</b>

**St** Steel

**FS** Strip-galvanised

Straight and angle connector for cable trays and fittings with a side height of 60 mm.

## Joint plate



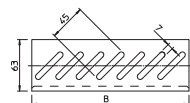
Type	Dimen- sion B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>SSLB 100 FS</b>	100	20	7.700	<b>7070205</b>
<b>SSLB 200 FS</b>	200	20	16.700	<b>7070213</b>
<b>SSLB 300 FS</b>	300	20	25.700	<b>7070217</b>
<b>SSLB 400 FS</b>	400	20	34.700	<b>7070221</b>
<b>SSLB 500 FS</b>	500	20	43.700	<b>7070225</b>
<b>SSLB 600 FS</b>	600	20	52.700	<b>7070233</b>

**St** Steel

**FS** Strip-galvanised

Wide joint plate for use in all cable trays and wide span cable trays.

## Bottom end plate



Type	Width mm	Dimen- sion B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BEB 100 FS</b>	100	100	100	5.400	<b>7083106</b>
<b>BEB 200 FS</b>	200	200	100	11.400	<b>7083203</b>
<b>BEB 300 FS</b>	300	300	100	17.200	<b>7083300</b>
<b>BEB 400 FS</b>	400	400	100	23.100	<b>7083408</b>
<b>BEB 500 FS</b>	500	500	50	29.000	<b>7083505</b>
<b>BEB 600 FS</b>	600	600	50	35.000	<b>7083602</b>

**St** Steel

**FS** Strip-galvanised

Bottom end plate for floor reinforcement at the ends of the cable tray and as cable protection.

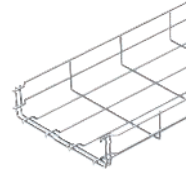
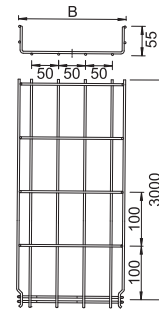
## Mesh cable tray GRM 55

Type	Width mm	Wire Ø mm	Dimen- sion B mm	Pack. Weight		Item No.
				m	kg/100 m	
<b>GRM 55 100 G</b>	100	3.9	100	3	72.400	<b>6001442</b>
<b>GRM 55 200 G</b>	200	3.9	200	3	100.667	<b>6001446</b>
<b>GRM 55 300 G</b>	300	4.8	300	3	194.900	<b>6001448</b>
<b>GRM 55 400 G</b>	400	4.8	400	3	236.700	<b>6001450</b>

St Steel

G Electrogalvanised

Mesh cable tray with shaped connector of side height 55 mm.



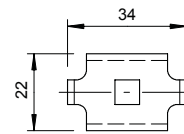
## Clamping piece

Type	Pack. pcs	Weight kg/100 pcs.	Item No.

St Steel

G Electrogalvanised

Clamp for fixing mesh cable trays to wall or support brackets.



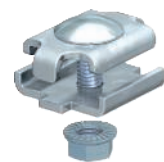
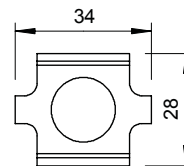
## Connector

Type	Pack. pcs	Weight kg/100 pcs.	Item No.

St Steel

G Electrogalvanised

Screwed version of joint connector for mesh cable trays.



## Bolt cutter

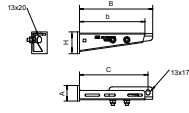
Type	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.

St Steel

Bolt cutter for cutting mesh cable trays.



## Wall and support bracket AW 30 F



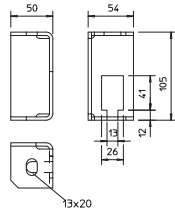
Type	For width mm	Dimension b mm	Dimension B mm	Dimension C mm	Dimension H mm	Dimension A mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>AW30F21 FT</b>	200	210	235	220	70	50	1	79.000	<b>6417027</b>
<b>AW30F31 FT</b>	300	310	335	320	80	50	1	100.000	<b>6417043</b>
<b>AW30F41 FT</b>	400	410	435	420	80	50	1	127.000	<b>6417078</b>
<b>AW30F51 FT</b>	500	510	535	520	90	50	1	170.000	<b>6417094</b>
<b>AW30F61 FT</b>	600	610	635	620	100	50	1	200.000	<b>6417116</b>

**St** Steel

**FT** Hot-dip galvanised

Bracket for mounting on suspended supports or as wall bracket for cable tray routing type above fire protection ceilings and for routing types with cable ladders and cable trays for the maintenance of electrical function according to DIN 4102 Part 12. The brackets are supplied ready-mounted.

## Fire protection clamp



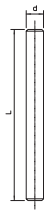
Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSB FT</b>	20	42.400	<b>6418198</b>

**St** Steel

**FT** Hot-dip galvanised

Fire protection clamp for ceiling fastening of the threaded rod lock for routing types with cable ladders and cable trays for the maintenance of electrical function to DIN 4102 Part 12.

## Threaded rod



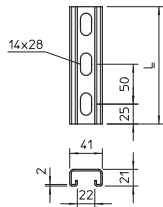
Type	Thread	Dimension d mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>TR M12 1M G</b>	M12	12	1000	10	62.000	<b>3141306</b>

**St** Steel

**G** Electrogalvanised

Threaded rod to DIN 976.

## MS4121 mounting rail, slot width 22 mm, perforated



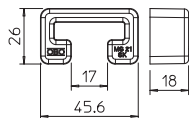
Type	Length mm	Dimension W x H mm	Material thickness mm	Dimension L mm	Pack. m	Weight kg/100 m	Item No.
<b>MS4121P2000FS</b>	2000	41x21	2	2000	2	175.000	<b>1122918</b>
<b>MS4121P3000FS</b>	3000	41x21	2	3000	3	141.900	<b>1122920</b>
<b>MS4121P2000FT</b>	2000	41x21	2	2000	2	183.000	<b>1122923</b>
<b>MS4121P3000FT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

**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.

## Protective cap MS4121



Type	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MS4121 SK</b>	Pastel orange	25	0.650	<b>1122902</b>

**PE** Polyethylene

Protective caps for profile rail, type MS4121.

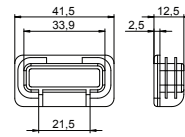


## End cap MS4121

Type	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MS4121 EK</b>	Pastel orange	50	0.645	1122904

PE Polyethylene

End cap for profile rail, type MS4121.



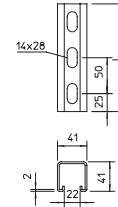
## MS4141 mounting rail, slot width 22 mm, perforated

Type	Length mm	Dimension W x H mm	Material thickness mm	Dimension L mm	Pack. m	Weight kg/100 m	Item No.
<b>MSL4141P3000FT</b>	3000	41x41	2	3000	3	214.700	1122964

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.



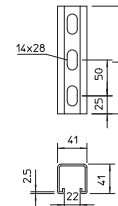
## MS4141 mounting rail, slot width 22 mm, perforated

Type	Length mm	Dimension W x H mm	Material thickness mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MS4141P0400FT</b>	400	41x41	2.5	400	1	104.700	1122525
<b>MS4141P0500FT</b>	500	41x41	2.5	500	1	130.800	1122533
<b>MS4141P0600FT</b>	600	41x41	2.5	600	1	156.900	1122541
<b>MS4141P0700FT</b>	700	41x41	2.5	700	1	183.000	1122568

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.



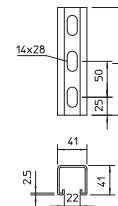
## MS4141 mounting rail, slot width 22 mm, perforated

Type	Length mm	Dimension W x H mm	Material thickness mm	Dimension L mm	Pack. m	Weight kg/100 m	Item No.
<b>MS4141P1000FS</b>	1000	41x41	2.5	1000	1	247.500	1122908
<b>MS4141P3000FS</b>	3000	41x41	2.5	3000	3	247.500	1122910
<b>MS4141P1000FT</b>	1000	41x41	2.5	1000	1	261.400	1122606
<b>MS4141P3000FT</b>	3000	41x41	2.5	3000	3	261.400	1122622

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.

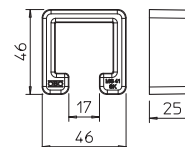


## Protective cap MS4141

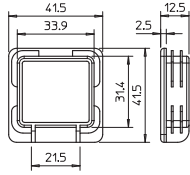
Type	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MS4141 SK</b>	Pastel orange	25	1.320	1122900

PE Polyethylene

Protective caps for profile rail, type MS4141.

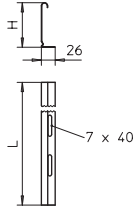


### End cap MS4141



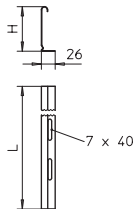
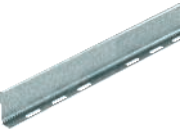
Type	Colour	Pack. Weight		Item No.
		pcs	kg/100 pcs.	
<b>MS4141 EK</b>	Pastel orange	50	0.670	1122906
<b>PE</b> Polyethylene End cap for profile rail, type MS4141.				

### Barrier strip 45



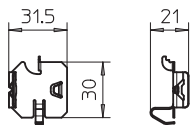
Type	Dimen- sion H mm	Plate thickness mm	Dimen- sion L mm	Pack. Weight		Item No.
				m	kg/100 m	
<b>TSG 45 FS</b>	45	0.75	3000	3	46.700	6062033
<b>St</b> Steel <b>FS</b> Strip-galvanised Separating retainer for separation of cables of different voltages or functions.						

### Barrier strip 60



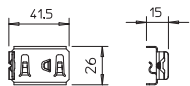
Type	Dimen- sion H mm	Plate thickness mm	Dimen- sion L mm	Pack. Weight		Item No.
				m	kg/100 m	
<b>TSG 60 FS</b>	60	0.75	3000	3	55.700	6062068
<b>St</b> Steel <b>FS</b> Strip-galvanised Separating retainer for separation of cables of different voltages or functions.						

### Hold-down clamp for separating retainer fastening in RKSM



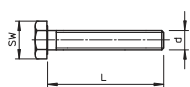
Type	Pack. Weight		Item No.
	pcs	kg/100 pcs.	
<b>KS KR A2</b>	30	0.537	6062280
<b>V2A</b> Stainless steel, A2 Clamping piece for screwless fastening of separating retainer in the cable tray types RKSM, MKS and SKS.			

### Hold-down clamp for separating retainer fastening



Type	Pack. Weight		Item No.
	pcs	kg/100 pcs.	
<b>KS GR A2</b>	30	0.830	6062282
<b>V2A</b> Stainless steel, A2 Hold-down clamp for fastening separating retainer in mesh cable trays.			

### Hexagonal bolt with nut and washer



Type	Dimension mm	Dimen- sion L mm	Dimen- sion d mm	SW mm	Resistance class	Pack. Weight		Item No.
						pcs	kg/100 pcs.	
<b>SKS 10x90 F</b>	M10 x 90	90	10	17	8.8	20	7.800	6418252
<b>St</b> Steel <b>F</b> Hot-dip galvanised Hexagonal bolt for universal fixing of structure components.								

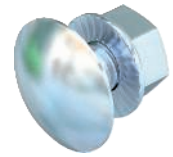
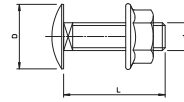
## Truss-head bolt with flange nut

Type	Dimension mm	Dimen- sion L mm	Dimen- sion D mm	Dimen- sion d mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FRSB 6x12 F</b>	M 6 x 12	12	13.5	6	100	0.990	<b>6406122</b>
<b>FRSB 6x16 F</b>	M 6 x 16	16	13.5	6	100	0.800	<b>6406157</b>
<b>FRSB 6x20 F</b>	M 6 x 20	20	13.5	6	100	1.000	<b>6406203</b>

St Steel

F Hot-dip galvanised

Truss-head bolt with square neck including flange nut.



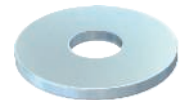
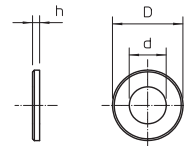
## Large washer

Type	Dimen- sion D mm	Dimen- sion d mm	Dimen- sion h mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>DIN440 7 F</b>	22	6.6	2	100	0.550	<b>6408702</b>
<b>DIN440 14 F</b>	44	13.5	4	50	4.736	<b>6408737</b>

St Steel

F Hot-dip galvanised

Washer of particularly large outer diameter.



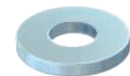
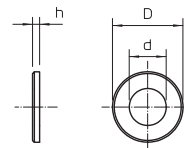
## Washer

Type	Thread	Dimen- sion d mm	Dimen- sion D mm	Dimen- sion h mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>WS M12 D24 G</b>	M12	13	24	2.5	100	0.627	<b>3402126</b>

St Steel

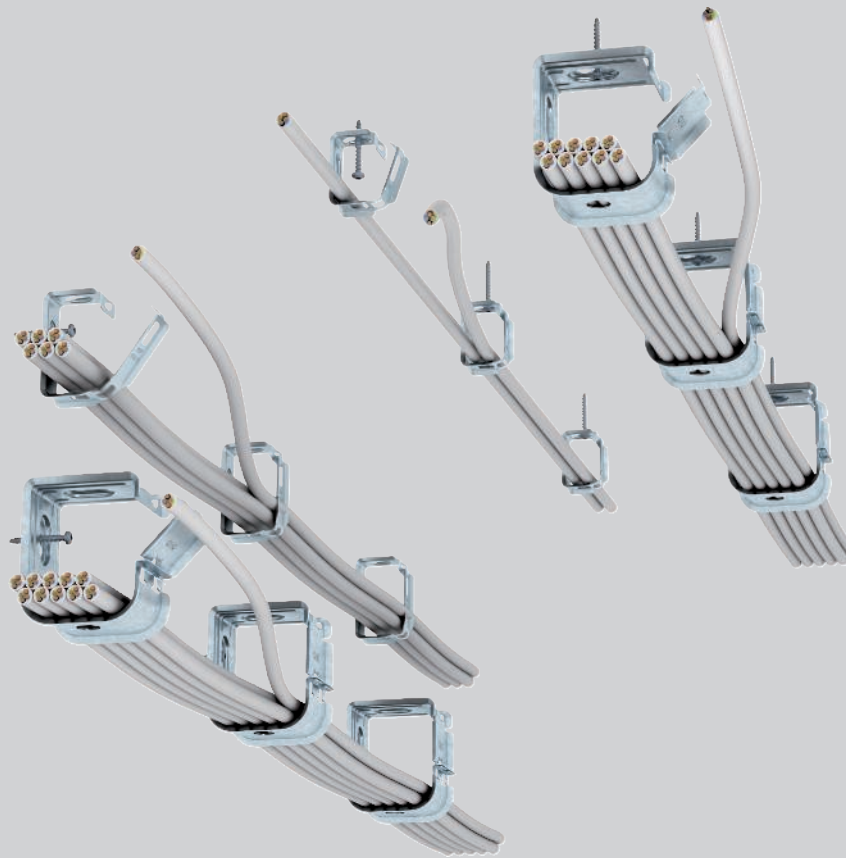
G Electrogalvanised

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



## Grip M grouped support

### System description



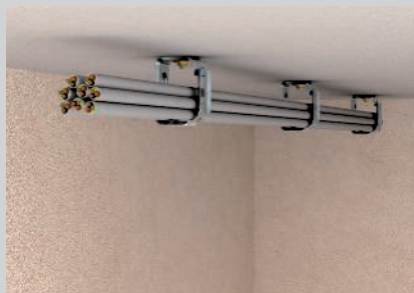
The tested Grip M grouped supports are suitable for installation in the false ceiling area of escape and rescue routes. In the event of a fire, the grouped supports have a proven mechanical stability of 30 to 90 minutes. They can be mounted under the ceiling or on the wall. The grouped supports are made of sheet steel and can be opened and closed easily without

the use of tools. To allow simple cable insertion, the supports remain open during cable routing. Then, the grouped supports are closed through simple locking. The construction of the grouped support and weight of the installed cables prevent the lock from opening itself unintentionally.





## Grip M grouped support Installation principle



Ceiling mounting of the grouped supports 2031 M15 and 2031 M 30.



Wall-mounted grouped supports 2031 M15 and 2031 M 30.



Grouped support 2031 M 70 as wall and ceiling mounting for large cable volume.



Opening of the grouped support and insertion of the cables.



Simple insertion the cables in the opened grouped support.

Tested mounting options



**CAUTION: No maintenance of electrical functionality according to DIN 4102 Part 12!**

Always indicate the item number when ordering.





# Grip M grouped support Proof



## Fire-proof fastening above fire protection ceilings.

Fire load	30 and 90 minutes
Proof of testing	OBO Bettermann
Document no.	05/151214-01
Testing principles	In accordance with DIN 4102



## Grouped support 2031 M 15, mounting parameter and required minimum spacing "a"

Fire load	Fastening spacing	Cable assignment		
30 minutes	max. 0.6 m	max. 3.3 kg/m	80 mm	100 mm
30 minutes	max. 0.8 m	max. 2.5 kg/m	100 mm	120 mm
90 minutes	max. 0.6 m	max. 3.3 kg/m	100 mm	120 mm
90 minutes	max. 0.8 m	max. 2.5 kg/m	120 mm	140 mm

## Grouped support 2031 M 30, mounting parameter and required minimum spacing "a"

Fire load	Fastening spacing	Cable assignment		
30 minutes	max. 0.6 m	max. 5.8 kg/m	80 mm	110 mm
30 minutes	max. 0.8 m	max. 4.3 kg/m	100 mm	130 mm
90 minutes	max. 0.6 m	max. 5.8 kg/m	100 mm	130 mm
90 minutes	max. 0.8 m	max. 4.3 kg/m	120 mm	150 mm

## Grouped support 2031 M 70, mounting parameter and required minimum spacing "a"

Fire load	Fastening spacing	Cable assignment		
30 minutes	max. 0.6 m	max. 20.0 kg/m	80 mm	120 mm
30 minutes	max. 0.8 m	max. 15.0 kg/m	100 mm	140 mm
90 minutes	max. 0.6 m	max. 13.0 kg/m	100 mm	140 mm
90 minutes	max. 0.8 m	max. 10.0 kg/m	120 mm	160 mm

The minimum spacing "a" relates to the distance of the under side of the grouped support to the top side of the fire protection ceiling.



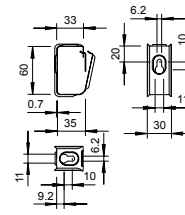
Type	No. of conductors	Shipping box	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>2031 M 15 FS</b>	15	50	50	3.700	<b>2207028</b>

St Steel

FS Strip-galvanised

Metal cable tidy for high mechanical stability, even in case of fire. Suitable for safe mounting above fire protection ceilings. Also approved as a cable-specific variant for the maintenance of electrical function to DIN 4102 part 12. For wall and ceiling mounting. Lock can be opened without tools. Detailed information on the approved routing variants can be found in the appropriate testing documentation.

### GRIP "M" 15



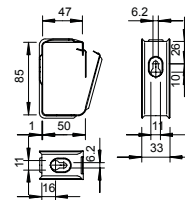
Type	No. of conductors	Shipping box	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>2031 M 30 FS</b>	30	25	25	6.200	<b>2207036</b>

St Steel

FS Strip-galvanised

Metal cable tidy for high mechanical stability, even in case of fire. Suitable for safe mounting above fire protection ceilings. Also approved as a cable-specific variant for the maintenance of electrical function to DIN 4102 part 12. For wall and ceiling mounting. Lock can be opened without tools. Detailed information on the approved routing variants can be found in the appropriate testing documentation.

### GRIP "M" 30



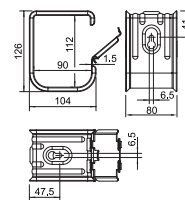
Type	No. of conductors	Shipping box	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>2031 M 70 FS</b>	70	10	10	34.500	<b>2207060</b>

St Steel

FS Strip-galvanised

Metal cable tidy for high mechanical stability, even in case of fire. Suitable for safe mounting above fire protection ceilings. Also approved as a cable-specific variant for the maintenance of electrical function to DIN 4102 part 12. For wall and ceiling mounting. Lock can be opened without tools. Detailed information on the approved routing variants can be found in the appropriate testing documentation.

### GRIP "M" 70

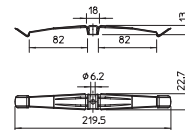


### Pressure clip for 16 cables

Type	Shipping box	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>2033 M A2</b>	25	25	2.310	<b>2204000</b>

V2A Stainless steel, A2

The metal pressure clip is halogen- and fire load-free, and maintains a good mechanical stability even in fires. The pressure clip is also approved as a cable-specific variant for electrical function maintenance to DIN 4102 Part 12. In pressure clips with larger cross-sections, the spacer 2033 D 15 x 3 G (must be ordered separately) increases the clamping height from 10 to 13 mm. The pressure clips are suitable for fireproof mounting above suspended fire protection ceilings in accordance with DIN 4102.

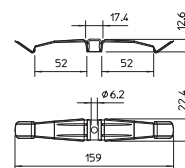


### Pressure clip for 10 cables

Type	Shipping box	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>2034 M A2</b>	50	50	1.860	<b>2204010</b>

V2A Stainless steel, A2

The metal pressure clip is halogen- and fire load-free, and maintains a good mechanical stability even in fires. The pressure clip is also approved as a cable-specific variant for electrical function maintenance to DIN 4102 Part 12. In pressure clips with larger cross-sections, the spacer 2033 D 15 x 3 G (must be ordered separately) increases the clamping height from 10 to 13 mm. The pressure clips are suitable for fireproof mounting above suspended fire protection ceilings in accordance with DIN 4102.



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Artikel: Traytrig  
Größe: 300x100x50 (mm)  
Füllhöhe: 50 (mm)

**Kabeltrig** gemäß DIN 452 Teil 2  
Kabeltrig für ... OBO-Systeme für ...  
Hersteller: OBO  
Produktionsjahr: ...

**OBO**  
Technik

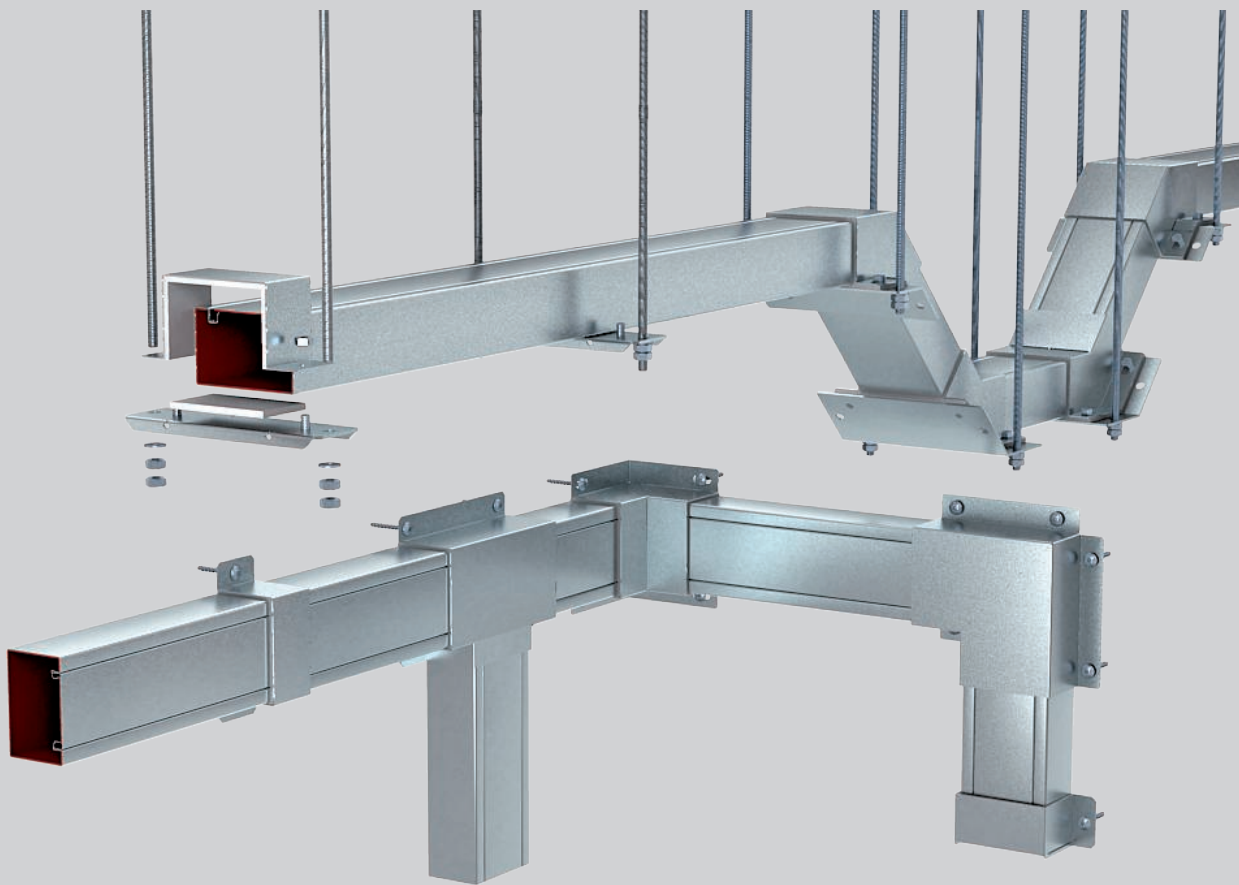
## Fire protection ducts

	<b>System description, PYROLINE® Rapid</b>	150
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	<b>System description, PYROLINE® Sun PV</b>	216
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# PYROLINE® Rapid

## Metal fire protection duct for direct and suspended mounting

### System description



OBO's PYROLINE® Rapid fire protection duct is made from sheet steel with a profiled lid closing contour and an intumescent interior coating. If there is a fire, this provides active fire load encapsulation and safe prevention of the fire spread. This means that the escape and rescue routes remain free from fire and smoke. The PYROLINE® Rapid is tested and approved as an escape route duct for the classes I 30 to I 120. The shape matches the standard Rapid 80 cable routing duct. The fire protection duct can be installed directly on the wall or the ceiling. Mounting on

wall brackets or on a support system suspended from the ceiling is also possible. The lids can be engaged easily in the base, simultaneously creating the equipotential bonding. The connectors can also be used for suspension. Even overhead mounting is possible, as special brackets keep the cable load away from engaged lids. All the components are prefabricated. There are also no screw ends in the interior of the ducts, meaning that cables cannot be damaged.

# PYROLINE® Rapid

## Metal fire protection duct for direct and suspended mounting

### Installation principle



Direct wall and ceiling mounting.



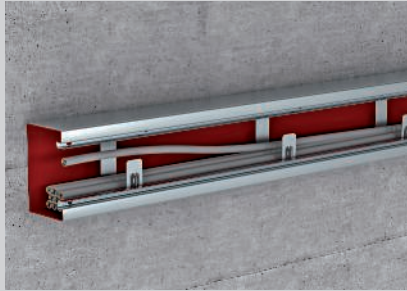
Mounting on raw concrete in system base.



Suspended mounting with vertical bends.



Cable outlet with V-TEC glands, singly or with multiple sealing ring.



Retaining clamps as installation aid to prevent cables from falling out.



Lid mounting without screws.

Classification according to DIN 4102 Part 11



#### Metal installation duct with intumescent inner coating

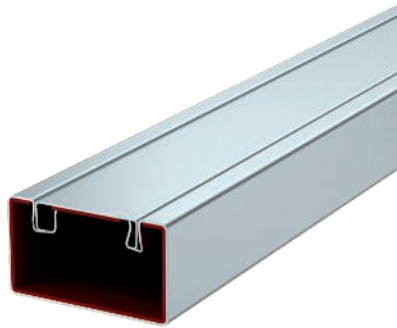
<b>Fire resistance class</b>	I30 to I120
<b>Proof of application</b>	General construction approval of DIBt, Berlin
<b>Approval number</b>	Z-19.30-2229
<b>Testing standard</b>	DIN 4102 Part 11

The data in the named proofs of applicability applies.

Note: For this metal installation duct with intumescent inner coating, only a general construction approval of the DIBt, Berlin, is available. In countries where a European Technical Assessment (ETA/ETB) is required, the possible use of these components must be agreed with the local fire protection authorities!



## Metal fire protection duct, I30 to I120



Type	Dimension B mm	Dimension H mm	Dimension i mm	Length mm	Colour	Pack. m	Weight kg/100 m	Item No.
<b>BSKM 0407</b>	70	40	30	2000	—	2	254.650	<b>7216500</b>
<b>BSKM 0407 RW</b>	70	40	30	2000	Pure white	2	254.650	<b>7216501</b>

**Sl** Steel

**FS** Strip-galvanised **L** Painted

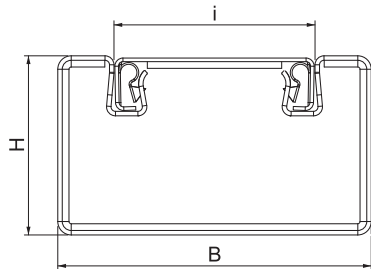
Sheet steel duct with intumescent inner coating.

In case of fire, actively prevents the spread of fire in the duct and protects emergency and escape routes against the impacts of a cable fire. The cover and base are securely interconnected using the self-contacting patented locking brackets. This also creates the equipotential bonding.

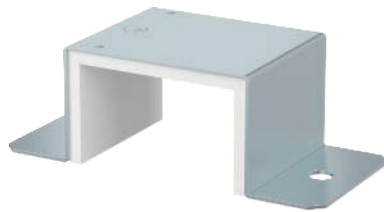
Fire resistance classes I30 to I120 according to DIN 4102 Part 11.

Mounting options: directly on the wall or under the ceiling, beneath system floors on the raw floor, or suspended on support systems or using connector elements (support spacing, max. 1 m).

Included in the delivery: Cover and base as a unit, complete.



## Connector



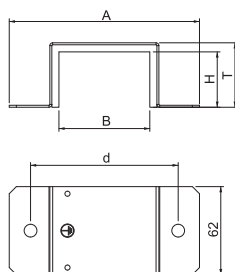
Type	Dimension A mm	Dimension T mm	Dimension B mm	Dimension H mm	Dimension d mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-VD 0407</b>	134	45	70	40	104	—	1	24.000	<b>7216510</b>
<b>BSKM-VD 0407 RW</b>	134	45	70	40	104	Pure white	1	24.000	<b>7216511</b>

**Sl** Steel

**FS** Strip-galvanised **L** Painted

Clamp with integrated seal for BSKM 0407, for connection and smoke-proof sealing of duct joints. Usable at min. 30 mm side distance of the duct to the ceiling or wall. Including loose seal for combination with support profile.

## Dimensions



Type	Dimension A mm	Dimension T mm	Dimension d mm
<b>BSKM-VD 0407</b>	134	45	104
<b>BSKM-VD 0407 RW</b>	134	45	104





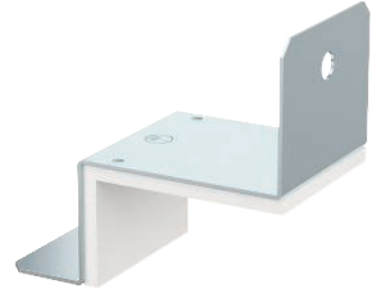
## Connector for corner mounting

Type	Dimension		Dimension B mm	Dimension H mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
	Dimension A mm	Dimension T mm						
<b>BSKM-VE 0407</b>	102	92	70	40	—	5	17.000	<b>7216512</b>
<b>BSKM-VE 0407 RW</b>	102	92	70	40	Pure white	5	17.000	<b>7216513</b>

**St** Steel

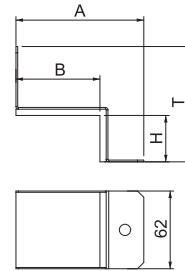
**FS** Strip-galvanised **L** Painted

Clamp with integrated seal for BSKM 0407, for smoke-proof sealing of duct joints in the case of corner mounting without duct spacing to the ceiling or wall.



Type	Dimension	
	Dimension A mm	Dimension T mm
<b>BSKM-VE 0407</b>	102	92
<b>BSKM-VE 0407 RW</b>	102	92

### Dimensions



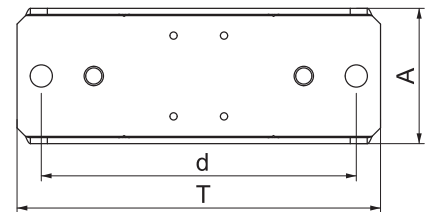
## Support

Type	Dimension T mm	Dimension A mm	Dimension d mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-AD 0407 RW</b>	180	67	156	Pure white	1	35.700	<b>7216516</b>

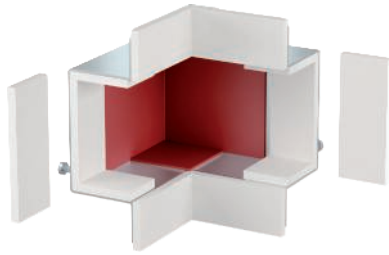
**St** Steel

**FS** Strip-galvanised **L** Painted

Support profile for suspended mounting of BSKM 0407, suitable as a suspension point to accept two M10 threaded rods and as the counter bearing to seal the joint, including nuts.



## External corner



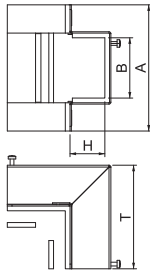
Type	Dimen-	Dimen-	Dimen-	Colour	Pack.	Weight	Item No.	
	sion A	sion T	sion B					sion H
	mm	mm	mm	mm	pcs	kg/100 pcs.		
<b>BSKM-AE 0407</b>	134	110	70	40	—	1	60.728	<b>7216520</b>
<b>BSKM-AE 0407 RW</b>	134	110	70	40	Pure white	1	60.700	<b>7216504</b>

**Sl** Steel

**FS** Strip-galvanised **L** Painted

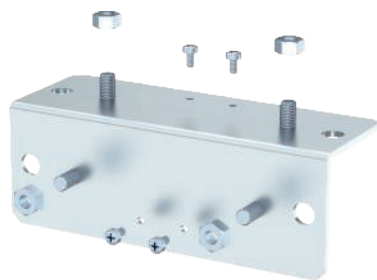
Fitting hood to cover two BSKM 0407 duct ends as external corner for direct wall and ceiling mountings. Including glued-in seals for closing the joints and loose seals when combining with lock plate.

### Dimensions



Type	Dimen-	Dimen-
	sion T	sion A
	mm	mm
<b>BSKM-AE 0407</b>	110	134
<b>BSKM-AE 0407 RW</b>	110	134

## Lock plate for external corner

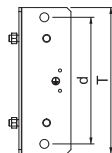
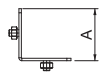


Type	Dimen-	Dimen-	Dimen-	Colour	Pack.	Weight	Item No.
	sion T	sion A	sion d				
	mm	mm	mm		pcs	kg/100 pcs.	
<b>BSKM-GA 0407</b>	180	65	156	—	1	56.807	<b>7216522</b>
<b>BSKM-GA 0407 RW</b>	180	65	156	Pure white	1	56.807	<b>7216505</b>

**Sl** Steel

**FS** Strip-galvanised **L** Painted

Adapter plate for suspended mounting of the external corner hood BSKM-AE 0407, with acceptance option for M10 threaded rods, including nuts.



Internal corner

Type	Dimension				Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
	Dimension A mm	Dimension T mm	Dimension B mm	Dimension H mm				
<b>BSKM-IE 0407</b>	134	110	70	40	—	1	63.129	<b>7216528</b>
<b>BSKM-IE 0407 RW</b>	134	110	70	40	Pure white	1	63.100	<b>7216508</b>

St Steel

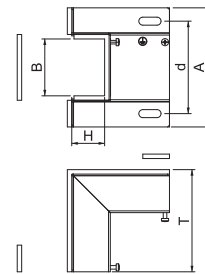
FS Strip-galvanised L Painted

Fitting hood to cover two BSKM 0407 duct ends as internal corner for direct wall and ceiling mountings. Including glued-in seals for closing the joints and loose seals when combining with lock plate; screws for equipotential bonding also included.



Type	Dimension T mm	Dimension A mm	Dimension d mm
	<b>BSKM-IE 0407</b>	110	134
<b>BSKM-IE 0407 RW</b>	110	134	104

Dimensions



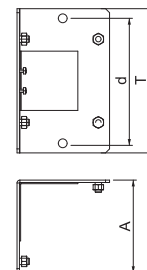
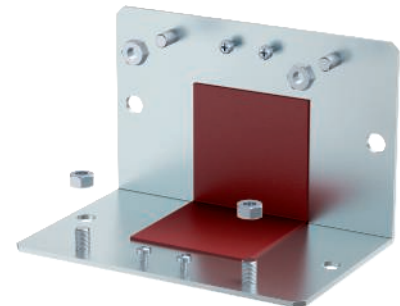
Lock plate for internal corner

Type	Dimension T mm	Dimension A mm	Dimension d mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
	<b>BSKM-GI 0407</b>	180	115				
<b>BSKM-GI 0407 RW</b>	180	115	156	Pure white	1	77.718	<b>7216509</b>

St Steel

FS Strip-galvanised L Painted

Adapter plate for suspended mounting of the internal corner hood BSKM-IE 0407, with acceptance option for M10 threaded rods, including nuts.



Flat angle



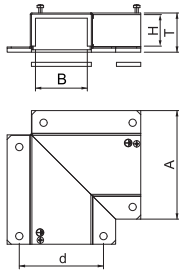
Type	Dimension A mm	Dimension T mm	Dimension B mm	Dimension H mm	Dimension d mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-FW 0407</b>	165	48	70	40	104	—	1	64.621	<b>7216524</b>
<b>BSKM-FW 0407 RW</b>	165	48	70	40	104	Pure white	1	64.600	<b>7216506</b>

Sl Steel

FS Strip-galvanised L Painted

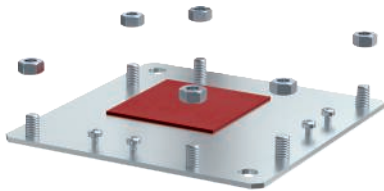
Fitting hood to cover two BSKM 0407 duct ends as flat angle for direct wall and ceiling mounting. Including glued-in seals for closing the joints and loose seals when combining with lock plate; screws for equipotential bonding also included.

Dimensions



Type	Dimension T mm	Dimension A mm	Dimension d mm
<b>BSKM-FW 0407</b>	48	165	104
<b>BSKM-FW 0407 RW</b>	48	165	104

Lock plate for flat angle

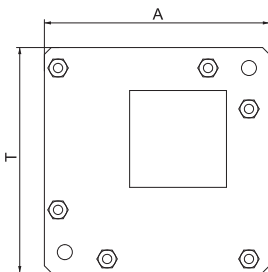


Type	Dimension T mm	Dimension A mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-GF 0407</b>	165	165	—	1	71.118	<b>7216526</b>
<b>BSKM-GF 0407 RW</b>	165	165	Pure white	1	71.118	<b>7216507</b>

Sl Steel

FS Strip-galvanised L Painted

Adapter plate for suspended mounting of the flat angle hood BSKM-FW 0407, with acceptance option for M10 threaded rods, including nuts.



T branch hood

Type	Dimension A mm	Dimension T mm	Dimension B mm	Dimension H mm	Dimension d mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-TA 0407</b>	134	48	70	40	104	—	1	65.555	<b>7216532</b>
<b>BSKM-TA 0407 RW</b>	134	48	70	40	104	Pure white	1	65.500	<b>7216563</b>

**St** Steel

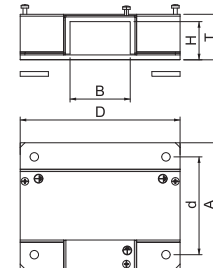
**FS** Strip-galvanised **L** Painted

Fitting hood to cover three BSKM 0407 duct ends running towards each other in a T shape. Including glued-in seals for closing the joints and loose seals when combining with lock plate; screws for equipotential bonding also included.



Type	Dimension T mm	Dimension A mm	Dimension D mm	Dimension d mm
<b>BSKM-TA 0407</b>	48	134	170	104
<b>BSKM-TA 0407 RW</b>	48	134	170	104

Dimensions



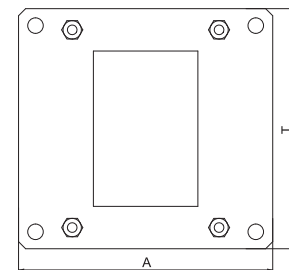
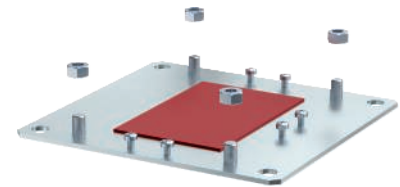
Lock plate, T branch piece

Type	Dimension T mm	Dimension A mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-GT 0407</b>	180	170	—	1	80.278	<b>7216534</b>
<b>BSKM-GT 0407 RW</b>	180	170	Pure white	1	80.278	<b>7216565</b>

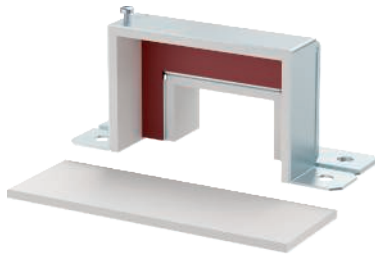
**St** Steel

**FS** Strip-galvanised **L** Painted

Adapter plate for suspended mounting of a BSKM-TA 0407 T branch, with acceptance option for M10 threaded rods, including nuts.



## Reducer hood



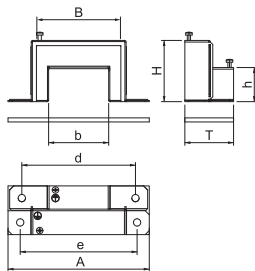
Type	Dimension B mm	Dimension H mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-RE 0711</b>	110	70	—	1	31.500	<b>7216393</b>
<b>BSKM-RE 0711 RW</b>	110	70	Pure white	1	32.300	<b>7216624</b>

**Sl** Steel

**FS** Strip-galvanised **L** Painted

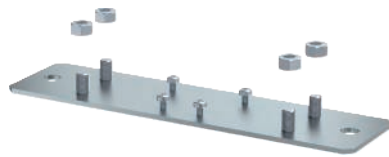
Fitting hood to cover a symmetrical reduction on a straight stretch of BSKM 0711 to BSKM 0407. Including glued-in seals for closing the joints and loose seals when combining with lock plate; screws for equipotential bonding also included.

### Dimensions



Type	Dimension h mm	Dimension b mm	Dimension T mm	Dimension A mm	Dimension d mm	Dimension e mm
<b>BSKM-RE 0711</b>	40	70	61	174	140	144
<b>BSKM-RE 0711 RW</b>	40	70	61	174	140	144

## Lock plate, T reducing branch piece

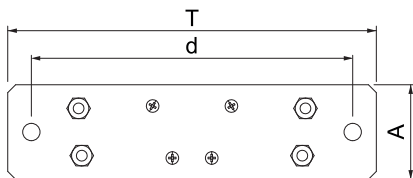


Type	Dimension T mm	Dimension A mm	Dimension d mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-RG 0711</b>	234	60	204	—	1	37.319	<b>7216395</b>
<b>BSKM-RG 0711 RW</b>	234	60	204	Pure white	1	37.319	<b>7216626</b>

**Sl** Steel

**FS** Strip-galvanised **L** Painted

Adapter plate for suspended mounting of a symmetrical BSKM-RE 0711 reducing piece, with acceptance option for M10 threaded rods, including nuts.



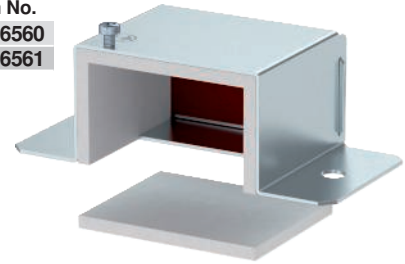
End piece

Type	Dimension					Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
	Dimension A mm	Dimension T mm	Dimension B mm	Dimension H mm	Dimension d mm				
<b>BSKM-VK 0407</b>	134	45	70	40	104	—	1	30.500	<b>7216560</b>
<b>BSKM-VK 0407 RW</b>	134	45	70	40	104	Pure white	1	30.500	<b>7216561</b>

**St** Steel

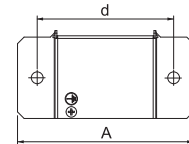
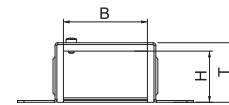
**FS** Strip-galvanised **L** Painted

For smoke-tight end closure of the BSKM 0407 duct for direct wall and ceiling mounting, in connection with the support profile BSKM-AD 0407, even for suspended mounting. Including glued-in seals to close the joints and loose seal when combined with a support; screw for equipotential bonding also included.



Type	Dimension T mm	Dimension A mm	Dimension d mm
	<b>BSKM-VK 0407</b>	45	134
<b>BSKM-VK 0407 RW</b>	45	134	104

Dimensions

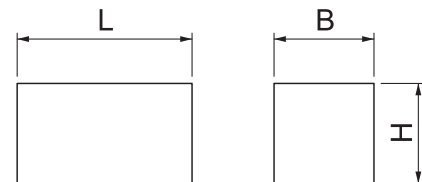
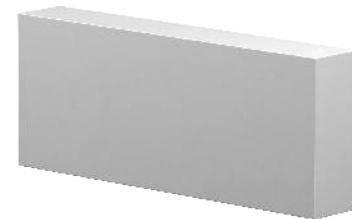


Foam seal for BSKM 0407 cable exit

Type	Dimension L mm	Dimension B mm	Dimension H mm	Pack. pcs	Weight kg/100 pcs.	Item No.
	<b>BSKM-KA 0407</b>	70	40			

Foam

Flexible adjustable foam seal for the sealing of cable bundles or cables with a large outer diameter when conducting them out of the cable end or a BSKM 0407 T branch. To seal the surface ASX ablation coating is required.



## Connector screw

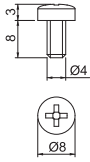


Type	Dimension	Pack.		Weight	Item No.
		pcs	kg/100 pcs.		
<b>BSKM-S4008</b>	M4x8	100	0.160		<b>3498092</b>

**S** Steel

**G** Electrogalvanised

Self-tapping screw for the fastening of BSKM fire protection ducts on supports and all lock plates with suspended mounting.





## Metal fire protection duct, I30 to I120

Type	Dimension B mm	Dimension H mm	Dimension i mm	Length mm	Colour	Pack. m	Weight kg/100 m	Item No.
<b>BSKM 0711</b>	110	70	60	2000	—	2	387.000	<b>7216300</b>
<b>BSKM 0711RW</b>	110	70	60	2000	Pure white	2	387.000	<b>7216600</b>

**St** Steel

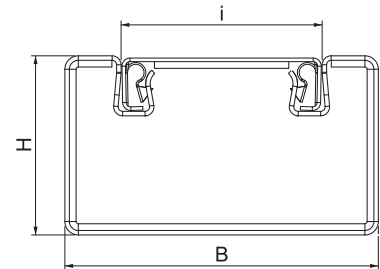
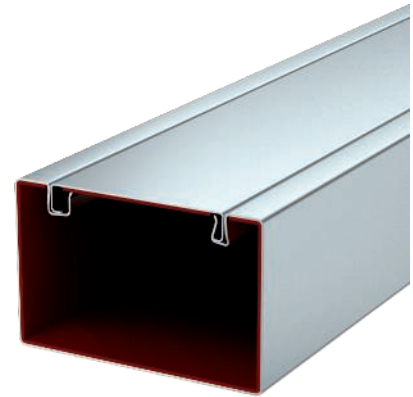
**FS** Strip-galvanised **L** Painted

Sheet steel duct with intumescent inner coating.

In case of fire, actively prevents the spread of fire in the duct and protects emergency and escape routes against the impacts of a cable fire. The cover and base are securely interconnected using the self-contacting patented locking brackets. This also creates the equipotential bonding. Fire resistance classes I30 to I120 according to DIN 4102 Part 11.

Mounting options: directly on the wall or under the ceiling, beneath system floors on the raw floor, or suspended on support systems or using connector elements (support spacing, max. 1 m).

Included in the delivery: Cover and base as a unit, complete.



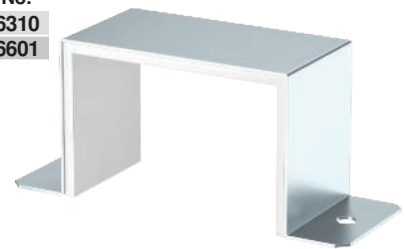
### Connector

Type	Dimension A mm	Dimension T mm	Dimension B mm	Dimension H mm	Dimension d mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-VD 0711</b>	174	75	110	70	144	—	1	37.800	<b>7216310</b>
<b>BSKM-VD 0711RW</b>	174	75	110	70	144	Pure white	1	37.800	<b>7216601</b>

**St** Steel

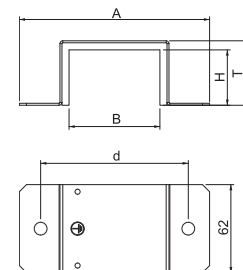
**FS** Strip-galvanised **L** Painted

Clamp with integrated seal for BSKM 0711, for connection and smoke-proof sealing of duct joints. Usable at min. 30 mm side distance of the duct to the ceiling or wall. Including loose seal for combination with support profile.



Type	Dimension A mm	Dimension T mm	Dimension d mm
<b>BSKM-VD 0711</b>	174	75	144
<b>BSKM-VD 0711RW</b>	174	75	144

### Dimensions



## Connector for corner mounting



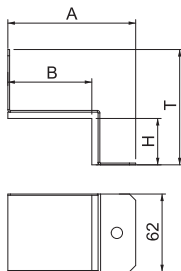
Type	Dimen-	Dimen-	Dimen-	Colour	Pack.	Weight	Item No.	
	sion A	sion T	sion B					sion H
	mm	mm	mm	mm	pcs	kg/100 pcs.		
<b>BSKM-VE 0711</b>	142	122	110	70	—	5	25.500	<b>7216312</b>
<b>BSKM-VE 0711RW</b>	142	122	110	70	Pure white	5	25.500	<b>7216602</b>

**St** Steel

**FS** Strip-galvanised **L** Painted

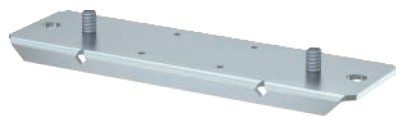
Clamp with integrated seal for BSKM 0711, for smoke-proof sealing of duct joints in the case of corner mounting without duct spacing to the ceiling or wall.

### Dimensions



Type	Dimen-	Dimen-
	sion A	sion T
	mm	mm
<b>BSKM-VE 0711</b>	142	122
<b>BSKM-VE 0711RW</b>	142	122

## Support

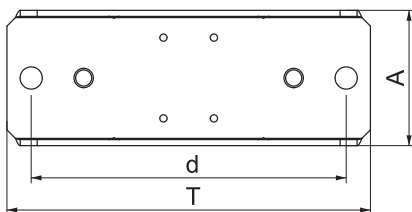


Type	Dimen-	Dimen-	Dimen-	Colour	Pack.	Weight	Item No.
	sion T	sion A	sion d				
	mm	mm	mm	mm	pcs	kg/100 pcs.	
<b>BSKM-AD 0711</b>	220	67	196	—	1	43.500	<b>7216315</b>
<b>BSKM-AD 0711RW</b>	220	67	196	Pure white	1	43.500	<b>7216603</b>

**St** Steel

**FS** Strip-galvanised **L** Painted

Support profile for suspended mounting of BSKM 0711, suitable as a suspension point to accept two M10 threaded rods and as the counter bearing to seal the joint, including nuts.



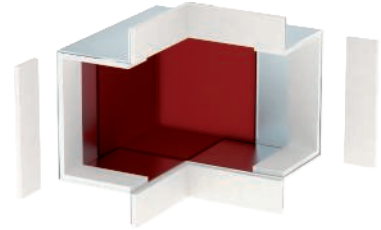
External corner

Type	Dimension				Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
	Dimension A mm	Dimension T mm	Dimension B mm	Dimension H mm				
<b>BSKM-AE 0711</b>	174	170	110	70	—	1	128.500	<b>7216320</b>
<b>BSKM-AE 0711RW</b>	174	170	110	70	Pure white	1	128.500	<b>7216604</b>

**St** Steel

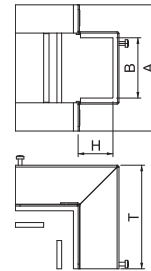
**FS** Strip-galvanised **L** Painted

Fitting hood to cover two BSKM 0711 duct ends as external cover for direct wall and ceiling mountings. Including glued-in seals for closing the joints and loose seals when combining with lock plate.



Type	Dimension	
	Dimension T mm	Dimension A mm
<b>BSKM-AE 0711</b>	170	174
<b>BSKM-AE 0711RW</b>	170	174

Dimensions



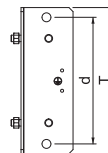
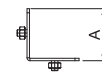
Lock plate for external corner

Type	Dimension			Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
	Dimension T mm	Dimension A mm	Dimension d mm				
<b>BSKM-GA 0711</b>	220	95	196	—	1	99.600	<b>7216325</b>
<b>BSKM-GA 0711RW</b>	220	95	196	Pure white	1	99.600	<b>7216605</b>

**St** Steel

**FS** Strip-galvanised **L** Painted

Adapter plate for suspended mounting of the external corner hood BSKM-AE 0711, with acceptance option for M10 threaded rods, including nuts.



Internal corner



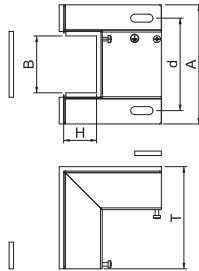
Type	Dimension					Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
	Dimension A mm	Dimension T mm	Dimension B mm	Dimension H mm	Dimension d mm				
<b>BSKM-IE 0711</b>	174	135	110	70	144	—	1	94.000	<b>7216340</b>
<b>BSKM-IE 0711RW</b>	174	135	110	70	144	Pure white	1	94.000	<b>7216608</b>

**Sl** Steel

**FS** Strip-galvanised **L** Painted

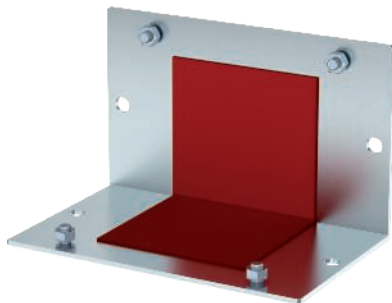
Fitting hood to cover two BSKM 0711 duct ends as internal cover for direct wall and ceiling mountings. Including glued-in seals for closing the joints and loose seals when combining with lock plate; screws for equipotential bonding also included.

Dimensions



Type	Dimension		
	Dimension T mm	Dimension A mm	Dimension d mm
<b>BSKM-IE 0711</b>	135	174	144
<b>BSKM-IE 0711RW</b>	135	174	144

Lock plate for internal corner

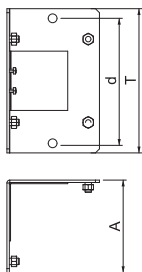


Type	Dimension			Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
	Dimension T mm	Dimension A mm	Dimension d mm				
<b>BSKM-GI 0711</b>	220	135	196	—	1	145.800	<b>7216345</b>
<b>BSKM-GI 0711RW</b>	220	135	196	Pure white	1	145.800	<b>7216609</b>

**Sl** Steel

**FS** Strip-galvanised **L** Painted

Adapter plate for suspended mounting of the internal corner hood BSKM-IE 0711, with acceptance option for M10 threaded rods, including nuts.



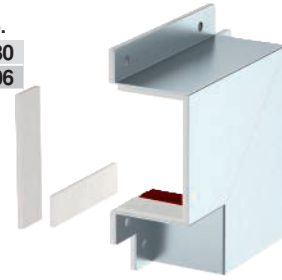
Flat angle

Type	Dimension A mm	Dimension T mm	Dimension B mm	Dimension H mm	Dimension d mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-FW 0711</b>	209	78	110	70	144	—	1	116.300	<b>7216330</b>
<b>BSKM-FW 0711RW</b>	209	78	110	70	144	Pure white	1	116.300	<b>7216606</b>

**St** Steel

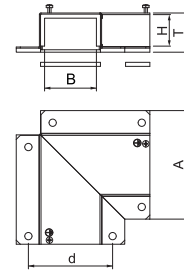
**FS** Strip-galvanised **L** Painted

Fitting hood to cover two BSKM 0711 duct ends as flat angle for direct wall and ceiling mountings. Including glued-in seals for closing the joints and loose seals when combining with lock plate; screws for equipotential bonding also included.



Type	Dimension T mm	Dimension A mm	Dimension d mm
<b>BSKM-FW 0711</b>	78	209	144
<b>BSKM-FW 0711RW</b>	78	209	144

Dimensions



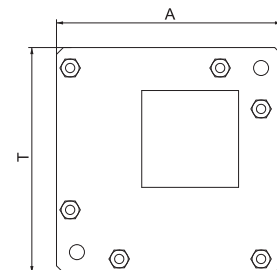
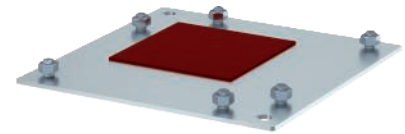
Lock plate for flat angle

Type	Dimension T mm	Dimension A mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-GF 0711</b>	210	210	—	1	122.400	<b>7216335</b>
<b>BSKM-GF 0711RW</b>	210	210	Pure white	1	122.400	<b>7216607</b>

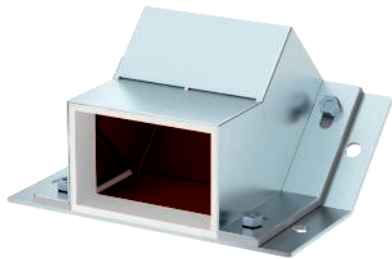
**St** Steel

**FS** Strip-galvanised **L** Painted

Adapter plate for suspended mounting of the flat angle hood BSKM-FW 0711, with acceptance option for M10 threaded rods, including nuts.



45° vertical bend, rising



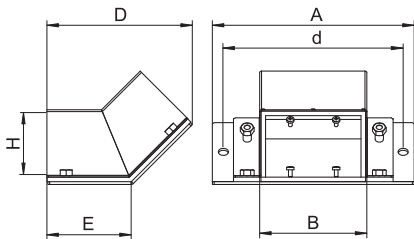
Type	Dimension B mm	Dimension H mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-ES 0711</b>	110	70	—	1	180.900	<b>7216350</b>
<b>BSKM-ES 0711RW</b>	110	70	Pure white	1	180.900	<b>7216610</b>

St Steel

FS Strip-galvanised L Painted

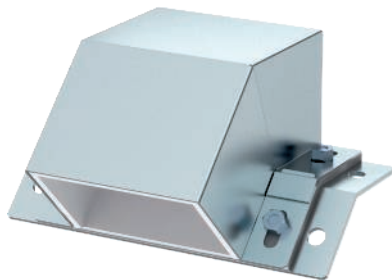
Rising vertical bend for creation of vertical jumps for suspended mounting of the BSKM 0711, with acceptance option for M10 threaded rods, including seals and nuts as well as screws for equipotential bonding.

Dimensions



Type	Dimension A mm	Dimension D mm	Dimension d mm	Dimension E mm
<b>BSKM-ES 0711</b>	220	159	144	92
<b>BSKM-ES 0711RW</b>	220	159	144	92

45° vertical bend, falling



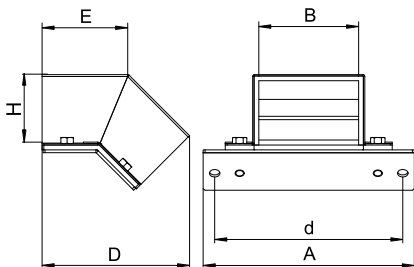
Type	Dimension B mm	Dimension H mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-EF 0711</b>	110	70	—	1	139.400	<b>7216355</b>
<b>BSKM-EF 0711RW</b>	110	70	Pure white	1	139.400	<b>7216611</b>

St Steel

FS Strip-galvanised L Painted

Falling vertical bend for the creation of vertical jumps for suspended mounting of the BSKM 0711, with the acceptance option for M10 threaded rods, including seals and nuts as well as screws for equipotential bonding.

Dimensions



Type	Dimension A mm	Dimension D mm	Dimension d mm	Dimension E mm
<b>BSKM-EF 0711</b>	220	154	144	89
<b>BSKM-EF 0711RW</b>	220	154	144	89

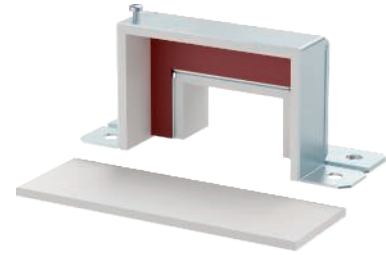
Reducer hood

Type	Dimension B mm	Dimension H mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-RE 0711</b>	110	70	—	1	31.500	<b>7216393</b>
<b>BSKM-RE 0711 RW</b>	110	70	Pure white	1	32.300	<b>7216624</b>

Sl Steel

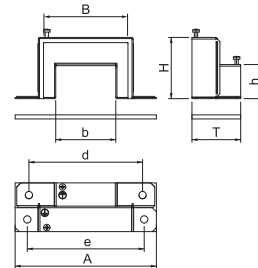
FS Strip-galvanised L Painted

Fitting hood to cover a symmetrical reduction on a straight stretch of BSKM 0711 to BSKM 0407. Including glued-in seals for closing the joints and loose seals when combining with lock plate; screws for equipotential bonding also included.



Type	Dimension h mm	Dimension b mm	Dimension T mm	Dimension A mm	Dimension d mm	Dimension e mm
<b>BSKM-RE 0711</b>	40	70	61	174	140	144
<b>BSKM-RE 0711 RW</b>	40	70	61	174	140	144

Dimensions



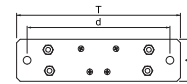
Lock plate, T reducing branch piece

Type	Dimension T mm	Dimension A mm	Dimension d mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-RG 0711</b>	234	60	204	—	1	37.319	<b>7216395</b>
<b>BSKM-RG 0711 RW</b>	234	60	204	Pure white	1	37.319	<b>7216626</b>

Sl Steel

FS Strip-galvanised L Painted

Adapter plate for suspended mounting of a symmetrical BSKM-RE 0711 reducing piece, with acceptance option for M10 threaded rods, including nuts.



Type	Dimension B mm	Dimension H mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-RE 1025</b>	250	100	—	1	73.200	<b>7216404</b>
<b>BSKM-RE 1025RW</b>	250	100	Pure white	1	73.200	<b>7216631</b>

Sl Steel

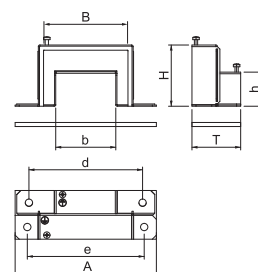
FS Strip-galvanised L Painted

Fitting hood to cover a symmetrical reduction on a straight stretch of BSKM 1025 to BSKM 0711. Including glued-in seals for closing the joints and loose seals when combining with lock plate; screws for equipotential bonding also included.

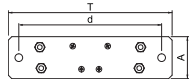


Type	Dimension h mm	Dimension b mm	Dimension T mm	Dimension A mm	Dimension d mm	Dimension e mm
<b>BSKM-RE 1025</b>	70	110	61	314	220	284
<b>BSKM-RE 1025RW</b>	70	110	61	314	220	284

Dimensions



## Lock plate, T reducing branch piece



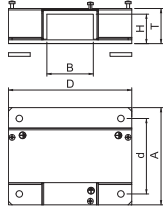
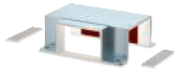
Type	Dimension T mm	Dimension A mm	Dimension d mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-RG 0711</b>	234	60	204	—	1	37.319	<b>7216395</b>
<b>BSKM-RG 0711 RW</b>	234	60	204	Pure white	1	37.319	<b>7216626</b>

**St** Steel

**FS** Strip-galvanised **L** Painted

Adapter plate for suspended mounting of a symmetrical BSKM-RE 0711 reducing piece, with acceptance option for M10 threaded rods, including nuts.

## T branch hood



Type	Dimension A mm	Dimension T mm	Dimension B mm	Dimension H mm	Dimension d mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-TA 0711</b>	174	78	110	70	144	—	1	110.000	<b>7216362</b>
<b>BSKM-TA 0711RW</b>	174	78	110	70	144	Pure white	1	110.800	<b>7216613</b>

**St** Steel

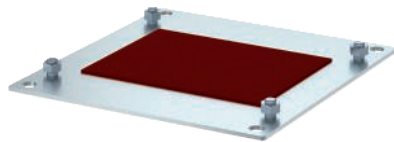
**FS** Strip-galvanised **L** Painted

Fitting hood to cover three BSKM 0711 duct ends running towards each other in a T shape. Including glued-in seals for closing the joints and loose seals when combining with lock plate; screws for equipotential bonding also included.

### Dimensions

Type	Dimension T mm	Dimension A mm	Dimension D mm	Dimension d mm
<b>BSKM-TA 0711</b>	78	174	210	144
<b>BSKM-TA 0711RW</b>	78	174	210	144

## Lock plate, T branch piece

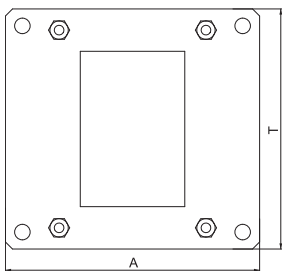


Type	Dimension T mm	Dimension A mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-GT 0711</b>	220	170	—	1	114.900	<b>7216364</b>
<b>BSKM-GT 0711RW</b>	220	170	Pure white	1	114.900	<b>7216614</b>

**St** Steel

**FS** Strip-galvanised **L** Painted

Adapter plate for suspended mounting of a BSKM-TA 0711 T branch, with acceptance option for M10 threaded rods, including nuts.





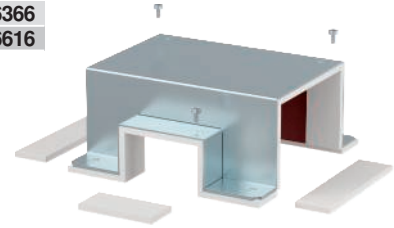
### T reducing branch piece

Type	Dimension					Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
	Dimension A mm	Dimension T mm	Dimension B mm	Dimension D mm	Dimension d mm				
<b>BSKM-TR 0711</b>	174	78	70	170	144	—	1	118.000	<b>7216366</b>
<b>BSKM-TR 0711RW</b>	174	78	70	170	144	Pure white	1	118.000	<b>7216616</b>

**St** Steel

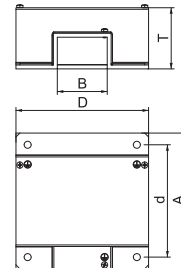
**FS** Strip-galvanised **L** Painted

Hood for the covering of three duct ends running towards each other in a T shape. Straight stretch, twice BSKM 0711, branch reduced to BSKM 0407. Including glued-in seals for closing the joints and loose seals when combining with lock plate; screws for equipotential bonding also included.



Type	Dimension T mm	Dimension A mm	Dimension D mm	Dimension d mm
	<b>BSKM-TR 0711</b>	78	174	170
<b>BSKM-TR 0711RW</b>	78	174	170	144

Dimensions



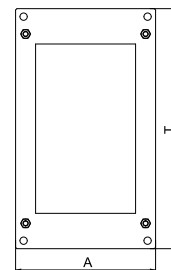
### Lock plate, T reducing branch piece

Type	Dimension T mm	Dimension A mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
	<b>BSKM-GR 0711</b>	220				
<b>BSKM-GR 0711RW</b>	220	170	Pure white	1	94.000	<b>7216617</b>

**St** Steel

**FS** Strip-galvanised **L** Painted

Adapter plate for suspended mounting of a BSKM-TR 0711 T reducing branch, with acceptance option for M10 threaded rods, including nuts.



## BSKM intersection, duct height 110

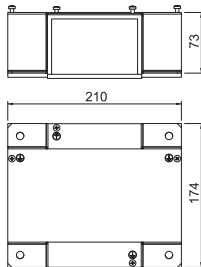


Type	Colour	Pack. Weight		Item No.
		pcs	kg/100 pcs.	
<b>BSKM-KR 0711</b>	—	1	116.000	<b>7216365</b>
<b>BSKM-KR 0711RW</b>	Pure white	1	116.000	<b>7216615</b>

**St** Steel

**FS** Strip-galvanised **L** Painted

Intersection as a cover of intersecting cable ends BSKM 0711. Wall and ceiling mounting is intended. Including seals for closing the joints.



## End piece



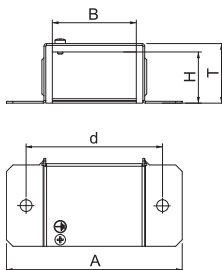
Type	Dimension					Colour	Pack. Weight		Item No.
	Dimension A mm	Dimension T mm	Dimension B mm	Dimension H mm	Dimension d mm		pcs	kg/100 pcs.	
<b>BSKM-VK 0711</b>	174	75	110	70	144	—	1	51.300	<b>7216360</b>
<b>BSKM-VK 0711RW</b>	174	75	110	70	144	Pure white	1	51.300	<b>7216612</b>

**St** Steel

**FS** Strip-galvanised **L** Painted

For smoke-tight end closure of the BSKM 0711 duct for direct wall and ceiling mounting, in connection with the support profile BSKM-AD 0711, even for suspended mounting. Including glued-in seals to close the joints and loose seal when combined with a support; screw for equipotential bonding also included.

## Dimensions



Type	Dimension T mm	Dimension A mm	Dimension d mm
	<b>BSKM-VK 0711</b>	75	174
<b>BSKM-VK 0711RW</b>	75	174	144

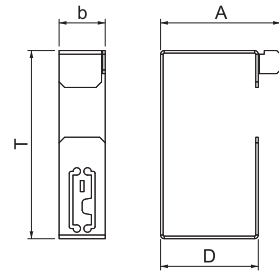
### Cable clamp for wall mounting

Type	Dimension				Pack. pcs	Weight kg/100 pcs.	Item No.
	Dimension A mm	Dimension T mm	Dimension D mm	Dimension b mm			
<b>BSKM-BW 0711</b>	65	102	53	25	10	7.400	<b>7216370</b>

**St** Steel

**FS** Strip-galvanised

Installation aid to prevent the cables from falling out for wall mounting of the BSKM 0711.



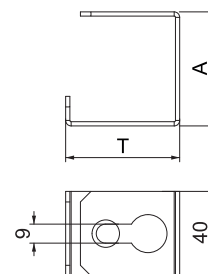
### Cable clamp for ceiling mounting

Type	Dimension		Pack. pcs	Weight kg/100 pcs.	Item No.
	Dimension A mm	Dimension T mm			
<b>BSKM-BD 0711</b>	54	54	10	9.200	<b>7216372</b>

**St** Steel

**FS** Strip-galvanised

Installation aid to prevent the cables from falling out for ceiling mounting of the BSKM 0711.



## Wall connection I120



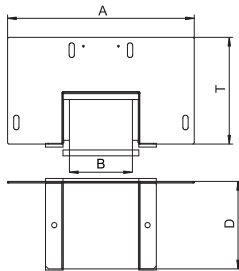
Type	Dimen-	Dimen-	Dimen-	Colour	Pack.	Weight	Item No.	
	sion B	sion T	sion A					sion D
	mm	mm	mm	mm	pcs	kg/100 pcs.		
<b>BSKM-WA 0711</b>	110	183	320	150	—	1	252.000	<b>7216380</b>
<b>BSKM-WA 0711RW</b>	110	183	320	150	Pure white	1	252.000	<b>7216620</b>

**St** Steel

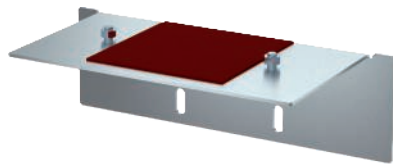
**FS** Strip-galvanised **L** Painted

Frame as additional insulation in the area of the wall transition for direct wall and ceiling mounting of the BSKM-WA 0711. Including screen and glued-in seals to close the joints, loose seal when combined with a support and with screw for equipotential bonding.

Only needed for I120 requirements.



## Lock plate for wall connection I120



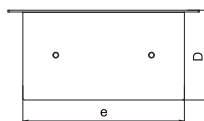
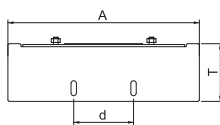
Type	Dimen-	Dimen-	Dimen-	Dimen-	Colour	Pack.	Weight	Item No.	
	sion A	sion T	sion D	sion d					sion e
	mm	mm	mm	mm	mm	pcs	kg/100 pcs.		
<b>BSKM-GW 0711</b>	320	96	150	100	270	—	1	169.300	<b>7216385</b>
<b>BSKM-GW 0711RW</b>	320	96	150	100	270	Pure white	1	169.300	<b>7216621</b>

**St** Steel

**FS** Strip-galvanised **L** Painted

Adapter plate for suspended mounting of the wall connection BSKM-WA 0711, with acceptance option for M10 threaded rods, including nuts.

### Dimensions



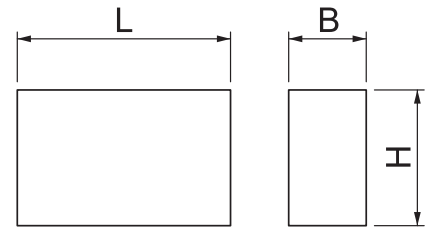
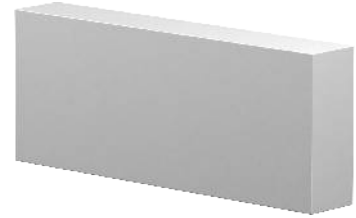
Type	Dimen-	Dimen-	Dimen-	Dimen-	Dimen-
	sion A	sion D	sion T	sion e	sion d
	mm	mm	mm	mm	mm
<b>BSKM-GW 0711</b>	320	150	96	270	100
<b>BSKM-GW 0711RW</b>	320	150	96	270	100

### Foam seal for BSKM 0711 cable exit

Type	Dimension L mm	Dimension B mm	Dimension H mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-KA 0711</b>	110	40	70	1	0.300	<b>7216390</b>

Foam

Flexible adjustable foam seal for the sealing of cable bundles or cables with a large outer diameter when conducting them out of the cable end or a BSKM 0711 T branch. To seal the surface ASX ablation coating is required.



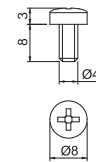
### Connector screw

Type	Dimension	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-S4008</b>	M4x8	100	0.160	<b>3498092</b>

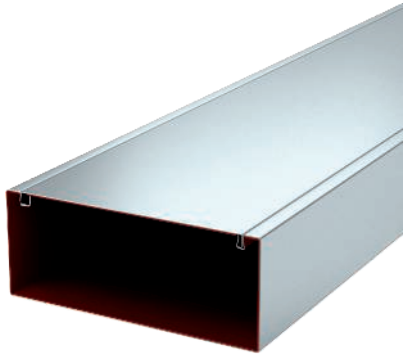
**St** Steel

**G** Electrogalvanised

Self-tapping screw for the fastening of BSKM fire protection ducts on supports and all lock plates with suspended mounting.



## Metal fire protection duct, I30 to I120



Type	Dimension B mm	Dimension H mm	Dimension i mm	Length mm	Colour	Pack. m	Weight kg/100 m	Item No.
<b>BSKM 1025</b>	250	100	200	2000	—	2	710.600	<b>7216400</b>
<b>BSKM 1025RW</b>	250	100	200	2000	Pure white	2	638.750	<b>7216630</b>

**Sl** Steel

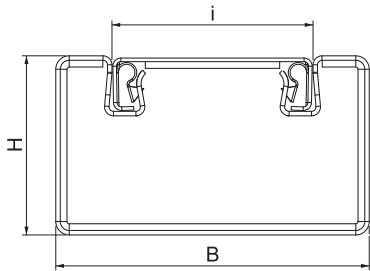
**FS** Strip-galvanised **L** Painted

Sheet steel duct with intumescent inner coating.

In case of fire, actively prevents the spread of fire in the duct and protects emergency and escape routes against the impacts of a cable fire. The cover and base are securely interconnected using the self-contacting patented locking brackets. This also creates the equipotential bonding. Fire resistance classes I30 to I120 according to DIN 4102 Part 11.

Mounting options: directly on the wall or under the ceiling, beneath system floors on the raw floor, or suspended on support systems or using connector elements (support spacing, max. 1 m).

Included in the delivery: Cover and base as a unit, complete.



## Connector



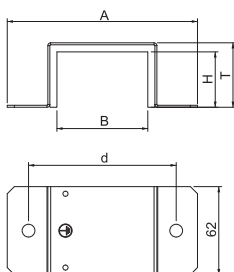
Type	Dimension A mm	Dimension T mm	Dimension B mm	Dimension H mm	Dimension d mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-VD 1025</b>	314	105	250	100	284	—	1	67.200	<b>7216410</b>
<b>BSKM-VD 1025RW</b>	314	105	250	100	284	Pure white	1	67.200	<b>7216633</b>

**Sl** Steel

**FS** Strip-galvanised **L** Painted

Clamp with integrated seal for BSKM 1025, for connection and smoke-proof sealing of duct joints. Usable at min. 30 mm side distance of the duct to the ceiling or wall. Including loose seal for combination with support profile.

## Dimensions



Type	Dimension A mm	Dimension T mm	Dimension d mm
<b>BSKM-VD 1025</b>	314	105	284
<b>BSKM-VD 1025RW</b>	314	105	284

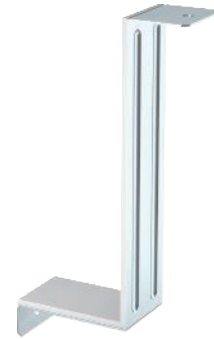
### Connector for corner mounting

Type	Dimension				Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
	Dimension A mm	Dimension T mm	Dimension B mm	Dimension H mm				
<b>BSKM-VE 1025</b>	282	152	250	100	—	5	45.200	<b>7216412</b>
<b>BSKM-VE 1025RW</b>	282	152	250	100	Pure white	5	45.200	<b>7216634</b>

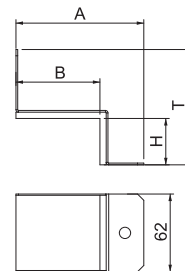
**St** Steel

**FS** Strip-galvanised **L** Painted

Clamp with integrated seal for BSKM 1025, for smoke-proof sealing of duct joints in the case of corner mounting without duct spacing to the ceiling or wall.



#### Dimensions



Type	Dimension	
	Dimension A mm	Dimension T mm
<b>BSKM-VE 1025</b>	282	152
<b>BSKM-VE 1025RW</b>	282	152

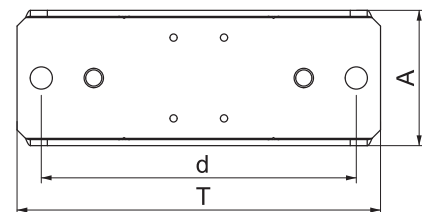
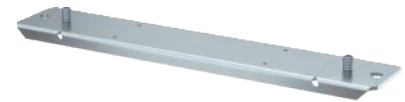
### Support

Type	Dimension T mm	Dimension A mm	Dimension d mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-AD 1025</b>	360	67	336	—	1	70.100	<b>7216415</b>
<b>BSKM-AD 1025RW</b>	360	67	336	Pure white	1	70.100	<b>7216635</b>

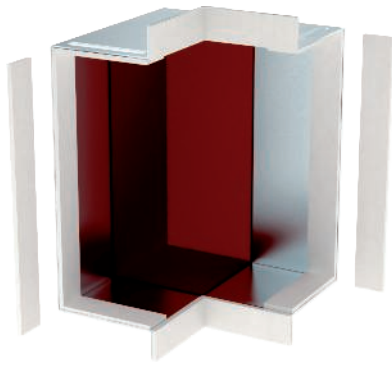
**St** Steel

**FS** Strip-galvanised **L** Painted

Support profile for suspended mounting of BSKM 1025, suitable as a suspension point to accept two M10 threaded rods and as the counter bearing to seal the joint, including nuts.



External corner



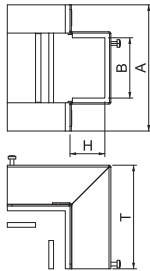
Type	Dimen-	Dimen-	Dimen-	Colour	Pack.	Weight	Item No.	
	sion A	sion T	sion B					sion H
	mm	mm	mm	mm	pcs	kg/100 pcs.		
<b>BSKM-AE 1025</b>	314	200	250	100	—	1	245.300	<b>7216420</b>
<b>BSKM-AE 1025RW</b>	314	200	250	100	Pure white	1	214.700	<b>7216636</b>

**Sl** Steel

**FS** Strip-galvanised **L** Painted

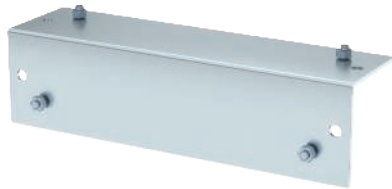
Fitting hood to cover two BSKM 1025 duct ends as external corner for direct wall and ceiling mountings. Including glued-in seals for closing the joints and loose seals when combining with lock plate.

Dimensions



Type	Dimen-	Dimen-
	sion T	sion A
	mm	mm
<b>BSKM-AE 1025</b>	200	314
<b>BSKM-AE 1025RW</b>	200	314

Lock plate for external corner

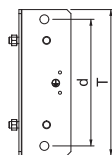
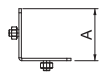


Type	Dimen-	Dimen-	Dimen-	Colour	Pack.	Weight	Item No.
	sion T	sion A	sion d				
	mm	mm	mm	mm	pcs	kg/100 pcs.	
<b>BSKM-GA 1025</b>	360	95	336	—	1	160.800	<b>7216425</b>
<b>BSKM-GA 1025RW</b>	360	95	336	Pure white	1	160.800	<b>7216637</b>

**Sl** Steel

**FS** Strip-galvanised **L** Painted

Adapter plate for suspended mounting of the external corner hood BSKM-AE 1025, with acceptance option for M10 threaded rods, including nuts.





Internal corner

Type	Dimension A mm	Dimension T mm	Dimension B mm	Dimension H mm	Dimension d mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-IE 1025</b>	314	165	250	100	284	—	1	157.600	<b>7216440</b>
<b>BSKM-IE 1025RW</b>	314	165	250	100	284	Pure white	1	157.600	<b>7216640</b>

**St** Steel

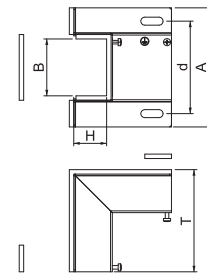
**FS** Strip-galvanised **L** Painted

Fitting hood to cover two BSKM 1025 duct ends as internal corner for direct wall and ceiling mountings. Including glued-in seals for closing the joints and loose seals when combining with lock plate; screws for equipotential bonding also included.



Type	Dimension T mm	Dimension A mm	Dimension d mm
<b>BSKM-IE 1025</b>	165	314	284
<b>BSKM-IE 1025RW</b>	165	314	284

Dimensions



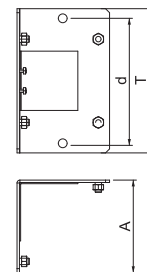
Lock plate for internal corner

Type	Dimension T mm	Dimension A mm	Dimension d mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-GI 1025</b>	360	165	336	—	1	275.800	<b>7216445</b>
<b>BSKM-GI 1025RW</b>	360	165	336	Pure white	1	275.800	<b>7216641</b>

**St** Steel

**FS** Strip-galvanised **L** Painted

Adapter plate for suspended mounting of the internal corner hood BSKM-IE 1025, with acceptance option for M10 threaded rods, including nuts.



## Flat angle



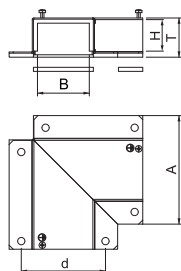
Type	Dimension A mm	Dimension T mm	Dimension B mm	Dimension H mm	Dimension d mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-FW 1025</b>	349	108	250	100	284	—	1	289.800	<b>7216430</b>
<b>BSKM-FW 1025RW</b>	349	108	250	100	284	Pure white	1	289.800	<b>7216638</b>

**St** Steel

**FS** Strip-galvanised **L** Painted

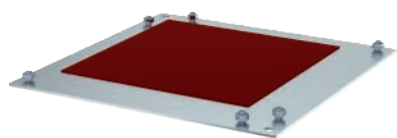
Fitting hood to cover two BSKM 1025 duct ends as flat angle for direct wall and ceiling mounting. Including glued-in seals for closing the joints and loose seals when combining with lock plate; screws for equipotential bonding also included.

### Dimensions



Type	Dimension T mm	Dimension A mm	Dimension d mm
<b>BSKM-FW 1025</b>	108	349	284
<b>BSKM-FW 1025RW</b>	108	349	284

## Lock plate for flat angle

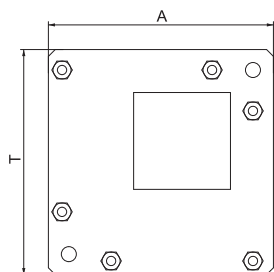


Type	Dimension T mm	Dimension A mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-GF 1025</b>	350	350	—	1	307.700	<b>7216435</b>
<b>BSKM-GF 1025RW</b>	350	350	Pure white	1	307.700	<b>7216639</b>

**St** Steel

**FS** Strip-galvanised **L** Painted

Adapter plate for suspended mounting of the flat angle hood BSKM-FW 1025, with acceptance option for M10 threaded rods, including nuts.



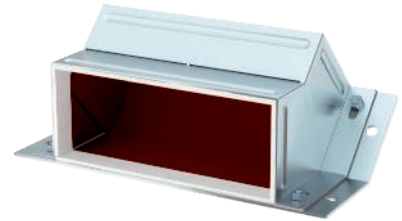
45° vertical bend, rising

Type	Dimension B mm	Dimension H mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-ES 1025</b>	250	100	—	1	282.900	<b>7216450</b>
<b>BSKM-ES 1025RW</b>	250	100	Pure white	1	282.900	<b>7216642</b>

St Steel

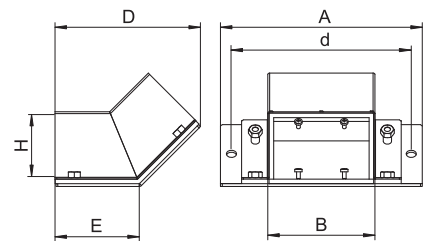
FS Strip-galvanised L Painted

Rising vertical bend for creation of vertical jumps for suspended mounting of the BSKM 1025, with acceptance option for M10 threaded rods, including seals and nuts as well as screws for equipotential bonding.



Type	Dimension A mm	Dimension D mm	Dimension d mm	Dimension E mm
<b>BSKM-ES 1025</b>	360	176	284	102
<b>BSKM-ES 1025RW</b>	360	176	284	102

Dimensions



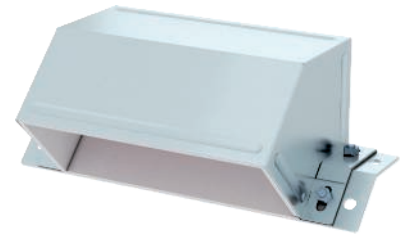
45° vertical bend, falling

Type	Dimension B mm	Dimension H mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-EF 1025</b>	250	100	—	1	242.400	<b>7216455</b>
<b>BSKM-EF 1025RW</b>	250	100	Pure white	1	242.400	<b>7216643</b>

St Steel

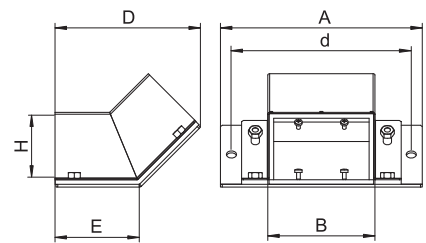
FS Strip-galvanised L Painted

Falling vertical bend for the creation of vertical jumps for suspended mounting of the BSKM 1025, with an acceptance option for M10 threaded rods, including seals and nuts as well as screws for equipotential bonding.



Type	Dimension A mm	Dimension D mm	Dimension d mm	Dimension E mm
<b>BSKM-EF 1025</b>	360	171	284	99
<b>BSKM-EF 1025RW</b>	360	171	284	99

Dimensions



## Reducing piece



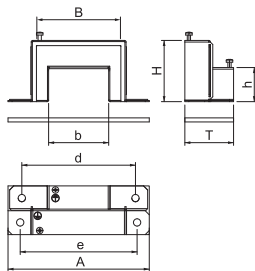
Type	Dimension B mm	Dimension H mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-RE 1025</b>	250	100	—	1	73.200	<b>7216404</b>
<b>BSKM-RE 1025RW</b>	250	100	Pure white	1	73.200	<b>7216631</b>

Sl Steel

FS Strip-galvanised L Painted

Fitting hood to cover a symmetrical reduction on a straight stretch of BSKM 1025 to BSKM 0711. Including glued-in seals for closing the joints and loose seals when combining with lock plate; screws for equipotential bonding also included.

### Dimensions



Type	Dimension h mm	Dimension b mm	Dimension T mm	Dimension A mm	Dimension d mm	Dimension e mm
<b>BSKM-RE 1025</b>	70	110	61	314	220	284
<b>BSKM-RE 1025RW</b>	70	110	61	314	220	284

## Lock plate reducing piece

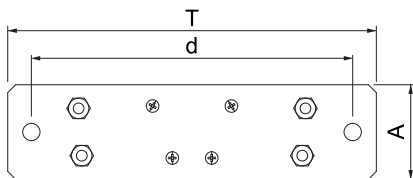


Type	Dimension T mm	Dimension A mm	Dimension d mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-RG 1025</b>	360	67	336	—	1	73.200	<b>7216406</b>
<b>BSKM-RG 1025RW</b>	360	67	336	Pure white	1	73.200	<b>7216632</b>

Sl Steel

FS Strip-galvanised L Painted

Adapter plate for suspended mounting of a symmetrical BSKM-RE 1025 reducing piece, with acceptance option for M10 threaded rods, including nuts.



T branch hood

Type	Dimension					Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
	Dimension A mm	Dimension T mm	Dimension B mm	Dimension H mm	Dimension d mm				
<b>BSKM-TA 1025</b>	314	108	250	100	284	—	1	263.100	<b>7216462</b>
<b>BSKM-TA 1025RW</b>	314	108	250	100	284	Pure white	1	263.100	<b>7216645</b>

**St** Steel

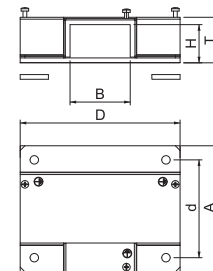
**FS** Strip-galvanised **L** Painted

Hood for covering of three BSKM 1025 duct ends running towards each other in a T shape. Including glued-in seals for closing the joints and loose seals when combining with lock plate; screws for equipotential bonding also included.



Type	Dimension T mm	Dimension A mm	Dimension D mm	Dimension d mm
	<b>BSKM-TA 1025</b>	108	314	350
<b>BSKM-TA 1025RW</b>	108	314	350	284

Dimensions



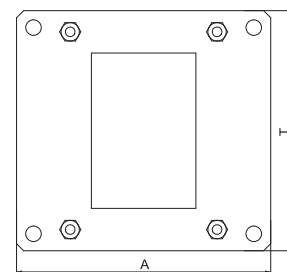
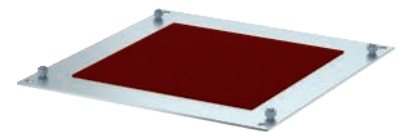
Lock plate, T branch piece

Type	Dimension T mm	Dimension A mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
	<b>BSKM-GT 1025</b>	360				
<b>BSKM-GT 1025RW</b>	360	350	Pure white	1	313.000	<b>7216646</b>

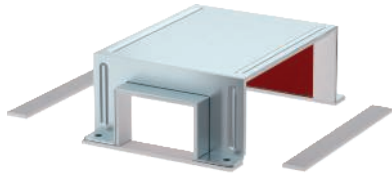
**St** Steel

**FS** Strip-galvanised **L** Painted

Adapter plate for suspended mounting of a BSKM-TA 1025 T branch, with acceptance option for M10 threaded rods, including nuts.



## T reducing branch piece



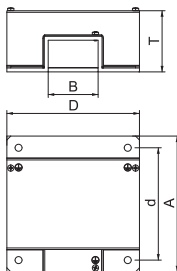
Type	Dimension					Colour	Pack. Weight		Item No.
	Dimension A mm	Dimension T mm	Dimension B mm	Dimension D mm	Dimension d mm		pcs	kg/100 pcs.	
<b>BSKM-TR 1025</b>	314	108	110	210	284	—	1	153.200	<b>7216466</b>
<b>BSKM-TR 1025RW</b>	314	108	110	210	284	Pure white	1	153.200	<b>7216647</b>

**St** Steel

**FS** Strip-galvanised **L** Painted

Hood for the covering of three duct ends running towards each other in a T shape. Straight stretch, twice BSKM 1025, branch reduced to BSKM 0711. Including glued-in seals for closing the joints and loose seals when combining with lock plate; screws for equipotential bonding also included.

### Dimensions



Type	Dimension T mm	Dimension A mm	Dimension D mm	Dimension d mm
	<b>BSKM-TR 1025</b>	108	314	210
<b>BSKM-TR 1025RW</b>	108	314	210	284

## Lock plate, T reducing branch piece

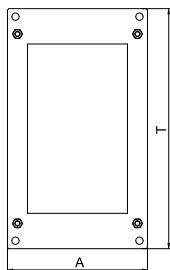


Type	Dimension T mm	Dimension A mm	Colour	Pack. Weight		Item No.
	mm	mm		pcs	kg/100 pcs.	
<b>BSKM-GR 1025</b>	360	210	—	1	189.000	<b>7216468</b>
<b>BSKM-GR 1025RW</b>	360	210	Pure white	1	189.000	<b>7216649</b>

**St** Steel

**FS** Strip-galvanised **L** Painted

Adapter plate for suspended mounting of a BSKM-TR 1025 T reducing branch, with acceptance option for M10 threaded rods, including nuts.



### T reducing branch piece

Type	Dimension				Dimension d mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
	Dimension A mm	Dimension T mm	Dimension B mm	Dimension D mm					
<b>BSKM-TRK 1025</b>	314	108	70	170	284	—	1	198.000	<b>7216467</b>
<b>BSKM-TRK 1025RW</b>	314	108	70	170	284	Pure white	1	196.000	<b>7216648</b>

**St** Steel

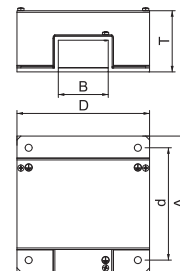
**FS** Strip-galvanised **L** Painted

Hood for the covering of three duct ends running towards each other in a T shape. Straight stretch, twice BSKM 1025, branch reduced to BSKM 0407. Including glued-in seals for closing the joints and loose seals when combining with lock plate; screws for equipotential bonding also included.



Type	Dimension T mm	Dimension A mm	Dimension D mm	Dimension d mm
	<b>BSKM-TRK 1025</b>	108	314	170
<b>BSKM-TRK 1025RW</b>	108	314	170	284

#### Dimensions



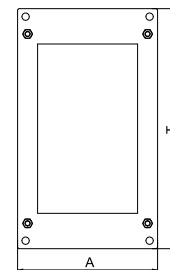
### Lock plate, T reducing branch piece

Type	Dimension T mm	Dimension A mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
	<b>BSKM-GRK 1025</b>	360				
<b>BSKM-GRK 1025RW</b>	360	170	Pure white	1	153.000	<b>7216650</b>

**St** Steel

**FS** Strip-galvanised **L** Painted

Adapter plate for suspended mounting of a BSKM-TRK 1025 T reducing branch, with acceptance option for M10 threaded rods, including nuts.



End piece



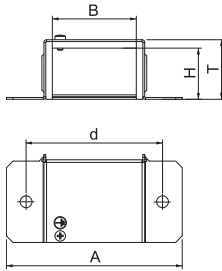
Type	Dimension					Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
	Dimension A mm	Dimension T mm	Dimension B mm	Dimension H mm	Dimension d mm				
<b>BSKM-VK 1025</b>	314	105	250	100	284	—	1	106.400	<b>7216460</b>
<b>BSKM-VK 1025RW</b>	314	105	250	100	284	Pure white	1	106.400	<b>7216644</b>

**St** Steel

**FS** Strip-galvanised **L** Painted

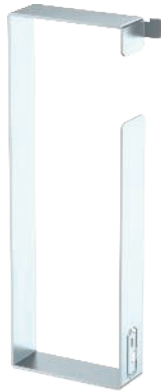
For smoke-tight end closure of the BSKM 1025 duct for direct wall and ceiling mounting, in connection with the support profile BSKM-AD 1025, even for suspended mounting. Including glued-in seals to close the joints and loose seal when combined with a support; screw for equipotential bonding also included.

Dimensions



Type	Dimension		
	Dimension T mm	Dimension A mm	Dimension d mm
<b>BSKM-VK 1025</b>	105	314	284
<b>BSKM-VK 1025RW</b>	105	314	284

Cable clamp for wall mounting

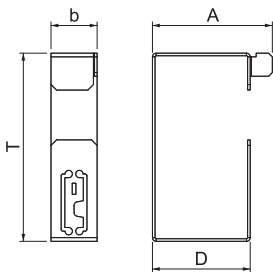


Type	Dimension				Pack. pcs	Weight kg/100 pcs.	Item No.
	Dimension A mm	Dimension T mm	Dimension D mm	Dimension b mm			
<b>BSKM-BW 1025</b>	95	243	83	30	10	28.000	<b>7216470</b>

**St** Steel

**FS** Strip-galvanised

Installation aid to prevent the cables from falling out for wall mounting of the BSKM 1025.





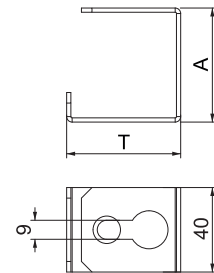
### Cable clamp for ceiling mounting

Type	Dimension		Pack. pcs	Weight kg/100 pcs.	Item No.
	A mm	T mm			
<b>BSKM-BD 1025</b>	84	124	10	19.200	<b>7216472</b>

**St** Steel

**FS** Strip-galvanised

Installation aid to prevent the cables from falling out for ceiling mounting of the BSKM 1025.



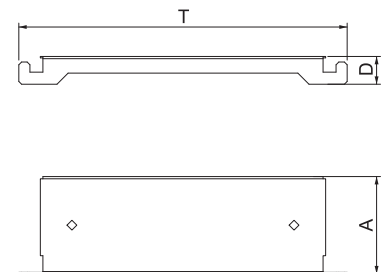
### Lid support

Type	Dimension			Pack. pcs	Weight kg/100 pcs.	Item No.
	A mm	T mm	D mm			
<b>BSKM-DS 1025</b>	70	237	20	10	16.400	<b>7216474</b>

**St** Steel

**FS** Strip-galvanised

Stiffener with intumescent coating (one-sided) for lid support in the joint area of the BSKM 1025. Arrangement: 2 pieces on each side of the pre-marked breaking point in the wall penetration, in the case of duct connections, 1 piece centrally over the joint.



## Wall connection I120



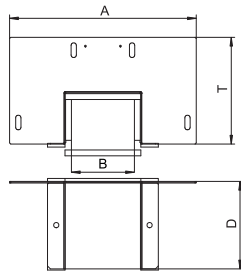
Type	Dimen-	Dimen-	Dimen-	Colour	Pack.	Weight	Item No.	
	sion B	sion T	sion A					sion D
	mm	mm	mm	mm	pcs	kg/100 pcs.		
<b>BSKM-WA 1025</b>	250	213	460	150	—	1	408.500	<b>7216480</b>
<b>BSKM-WA 1025RW</b>	250	213	460	150	Pure white	1	408.500	<b>7216654</b>

**St** Steel

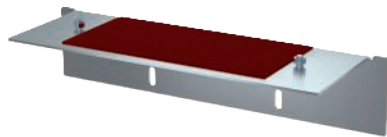
**FS** Strip-galvanised **L** Painted

Frame as additional insulation in the area of the wall transition for direct wall and ceiling mounting of the BSKM 1025. Including screen and glued-in seals to close the joints and loose seal when combined with a support; with screw for equipotential bonding.

Only needed for I120 requirements.



## Lock plate for wall connection I120



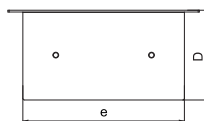
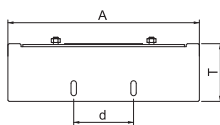
Type	Dimen-	Dimen-	Dimen-	Dimen-	Colour	Pack.	Weight	Item No.	
	sion A	sion T	sion D	sion d					sion e
	mm	mm	mm	mm	mm	pcs	kg/100 pcs.		
<b>BSKM-GW 1025</b>	460	96	150	180	406	—	1	259.500	<b>7216485</b>
<b>BSKM-GW 1025RW</b>	460	96	150	180	406	Pure white	1	259.500	<b>7216655</b>

**St** Steel

**FS** Strip-galvanised **L** Painted

Adapter plate for suspended mounting of the wall connection BSKM-WA 1025, with acceptance option for M10 threaded rods, including nuts.

### Dimensions



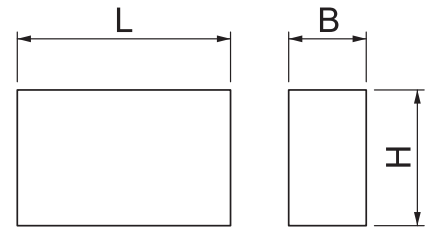
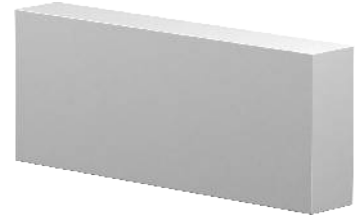
Type	Dimen-	Dimen-	Dimen-	Dimen-	Dimen-
	sion A	sion D	sion T	sion e	sion d
	mm	mm	mm	mm	mm
<b>BSKM-GW 1025</b>	460	150	96	406	180
<b>BSKM-GW 1025RW</b>	460	150	96	406	180

### Foam seal for BSKM 1025 cable exit

Type	Dimension L mm	Dimension B mm	Dimension H mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-KA 1025</b>	250	40	100	1	1.000	<b>7216490</b>

Foam

Flexible adjustable foam seal for the sealing of cable bundles or cables with a large outer diameter when conducting them out of the cable end or a BSKM 1025 T branch. To seal the surface ASX ablation coating is required.



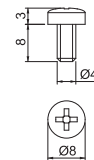
### Connector screw

Type	Dimension	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-S4008</b>	M4x8	100	0.160	<b>3498092</b>

**St** Steel

**G** Electrogalvanised

Self-tapping screw for the fastening of BSKM fire protection ducts on supports and all lock plates with suspended mounting.



## Cable gland, metric thread



Type	Thread	Pack. pcs	Weight kg/100 pcs.	Item No.
V-TEC VM12 MS	M12 x 1,5	50	1.200	2086018
V-TEC VM16 MS	M16 x 1,5	50	1.640	2086024
V-TEC VM20 MS	M20 x 1,5	25	3.140	2086030
V-TEC VM25 MS	M25 x 1,5	25	4.260	2086036
V-TEC VM32 MS	M32 x 1,5	20	7.160	2086042
V-TEC VM40 MS	M40 x 1,5	5	12.240	2086048
V-TEC VM50 MS	M50 x 1,5	5	22.700	2086054

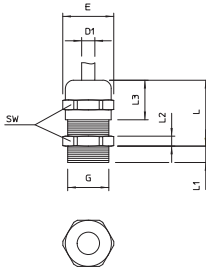
**CuZn** Brass

**N** Nickel-plated

With metric connecting thread to IEC 423, robust cap-nut cable gland with large sealing area. Strain relief, wringing protection and tightness over the whole clamping area. Neoprene sealing ring. Polyamide terminal insert. With pre-mounted O sealing ring on connection thread, VDE-tested to DIN EN 50262, protection rating IP68 at 5 bar for 1 hr, max. permitted ambient temperature -20 - 100°C.

\* Prices according to DEL notation.

### Dimensions



G	D1	WAF	E	L max. mm	L1	L2	L3
M12 x 1.5	3-6	14	15.5	20	5	3	11.5
M16 x 1.5	5-9	17	19	24	5	3	15
M20 x 1.5	9-13	22	24	27	6	3.5	16.5
M25 x 1.5	11-16	27	30	29.5	7	4	17
M32 x 1.5	14-21	34	36	30	8	4.5	18.5
M40 x 1.5	19-27	43	46	33	8	4.5	21
M50 x 1.5	24-35	55	60	38.5	9	4.5	25

## Locknut, metric thread



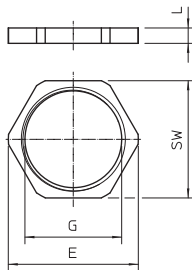
Type	Thread	SW mm	Dimension E mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
169 MS M12	M12 x 1,5	15	16.6	3	100	0.220	2091607
169 MS M16	M16 x 1,5	20	22.1	2.8	100	0.310	2091615
169 MS M20	M20 x 1,5	24	25.6	3	100	0.580	2091623
169 MS M25	M25 x 1,5	30	33.2	3.5	100	0.880	2091631
169 MS M32	M32 x 1,5	35	38.7	4	100	1.120	2091658
169 MS M40	M40 x 1,5	45	49.8	4.5	50	1.920	2091666
169 MS M50	M50 x 1,5	55	60.4	5.5	50	3.070	2091674

**CuZn** Brass

**N** Nickel-plated

Locknuts DIN 46319 with metric thread IEC 423.

\* Prices according to DEL notation.



Cable gland, metric thread, silver grey

Type	Thread	Pack. pcs	Weight kg/100 pcs.	Item No.
V-TEC VM12 SGR	M12 x 1,5	50	0.318	2022843
V-TEC VM16 SGR	M16 x 1,5	50	0.638	2022845
V-TEC VM20 SGR	M20 x 1,5	50	0.856	2022847
V-TEC VM25 SGR	M25 x 1,5	25	1.360	2022849
V-TEC VM32 SGR	M32 x 1,5	20	2.230	2022851
V-TEC VM40 SGR	M40 x 1,5	10	3.467	2022853
V-TEC VM50 SGR	M50 x 1,5	5	5.466	2022855

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 lamella 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.

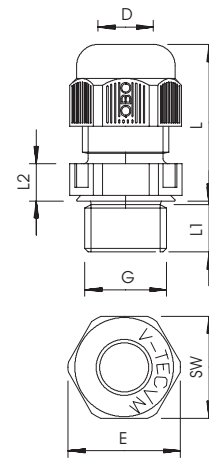
Applications: From private housing with junction boxes up to industrial applications in the distributor cabinet.

Temperature range: -20 °C to +65 °C.



G	D	WAF	E	L min.	L max.	L1	L2
	mm	mm	mm	mm	mm	mm	mm
M12 x 1.5	3.5 - 7	15	16.5	18.5	23.5	8	5
M16 x 1.5	4.5 - 10	20	22	21.5	29	8	5
M20 x 1.5	6 - 13	24	27	23.5	30.5	10	6
M25 x 1.5	9 - 17	29	32	26	35	10	6
M32 x 1.5	15 - 21	36	41	29	40	11	6
M40 x 1.5	16 - 28	44	50	36	46	11	7
M50 x 1.5	23 - 35	54	60	43	52	12	8

Dimensions

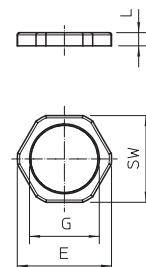
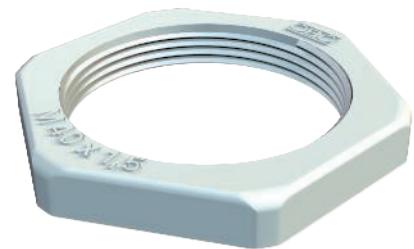


Cable outlet, plastic locknut

Type	Thread	Colour	SW mm	Dimension E mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
116 M12 SGR PA	M12x1,5	Silver grey	17	19	5	100	0.078	2048752
116 M16 SGR PA	M16x1,5	Silver grey	22	25	5	100	0.160	2048760
116 M20 SGR PA	M20x1,5	Silver grey	26	29	6	100	0.177	2048779
116 M25 SGR PA	M25x1,5	Silver grey	32	36	6.5	100	0.266	2048787
116 M32 SGR PA	M32x1,5	Silver grey	41	46	7	50	0.610	2048795
116 M40 SGR PA	M40x1,5	Silver grey	50	56	7	25	0.466	2048809
116 M50 SGR PA	M50x1,5	Silver grey	60	68	8	25	1.756	2048817

PA Polyamide

Locknut DIN 46319, with metric thread IEC 423.



## Ablation coating in a cartridge



Type	Contents ml	Pack.		Weight kg/100 pcs.	Item No.
		pcs			
<b>ASX-K</b>	310	1		50.000	<b>7202310</b>

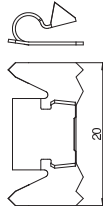
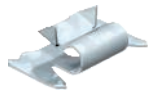
Intumescent material

Combined, endothermic and weatherproof coating for internal and external areas. Universal protection coating for cable and cable support structures. Use as direct filler, and as paint when stirred.

Material class DIN 4102 - B2, normally flammable.

In dry, frost-free rooms, the coating can be stored at temperatures from +5 °C to +25 °C for up to 18 months in closed, upright original containers.

## Locking bracket

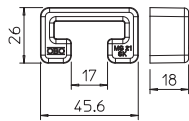


Type	Pack.		Weight kg/100 pcs.	Item No.
	pcs			
<b>RKV3V</b>	20		0.085	<b>6288700</b>

St Steel

Locking bracket for the mechanical and electrical connection of trunking covers and trunking bases. Suitable for covers of Rapid 45, Rapid 80 and ISS systems.

## Protective cap MS4121

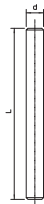


Type	Colour	Pack.		Weight kg/100 pcs.	Item No.
		pcs			
<b>MS4121 SK</b>	Pastel orange	25		0.650	<b>1122902</b>

PE Polyethylene

Protective caps for profile rail, type MS4121.

## Threaded rod



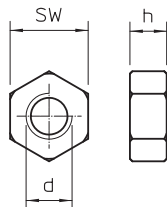
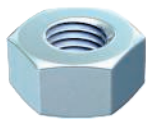
Type	Thread	Dimen- sion		Pack. pcs	Weight kg/100 pcs.	Item No.
		d mm	L mm			
<b>TR M10 1M G</b>	M10	10	1000	10	49.000	<b>3141209</b>

St Steel

G Electrogalvanised

Threaded rod to DIN 976.

## Hexagonal nut DIN 934



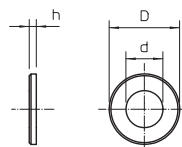
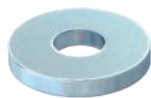
Type	Thread	Dimen- sion			Pack. pcs	Weight kg/100 pcs.	Item No.
		SW mm	h mm	d mm			
<b>HN M10 G</b>	M10	17	8.4	10	100	1.084	<b>3400107</b>

St Steel

G Electrogalvanised

Hexagonal nut to DIN 934 with metric thread.

## Washer ISO 7093



Type	Thread	Dimen- sion			Pack. pcs	Weight kg/100 pcs.	Item No.
		d mm	D mm	h mm			
<b>WS M10 D28 G</b>	M10	11	28	2.5	100	1.020	<b>3402223</b>

St Steel

G Electrogalvanised

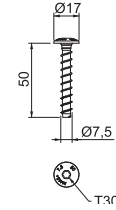
Washer of large outer diameter for universal use.

### Fire protection screw tie

Type	Dimension mm	Bore		Screw system	Pack. pcs	Weight kg/100 pcs.	Item No.
		hole Ø mm	Head Ø mm				
<b>MMS-plus 7.5X50</b>	7,5 x 50	6	17	Torx	100	1.500	<b>3498261</b>

- St Steel
- G Electrogalvanised

Fire protection screw tie with large pan head for direct mounting without additional anchors. Drive T30, drill hole 6 mm. Tested anchor according to ETAG 001 - Part 3. Fire resistance class to R120 for concrete and masonry.

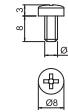


### Connector screw

Type	Dimension	Pack. pcs	Weight kg/100 pcs.	Item No.

- St Steel
- G Electrogalvanised

Self-tapping screw for the fastening of BSKM fire protection ducts on supports and all lock plates with suspended mounting.

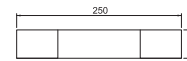


### Identification plate

Type	Language	Pack. pcs	Weight kg/100 pcs.	Item No.

- PVC Polyvinylchloride

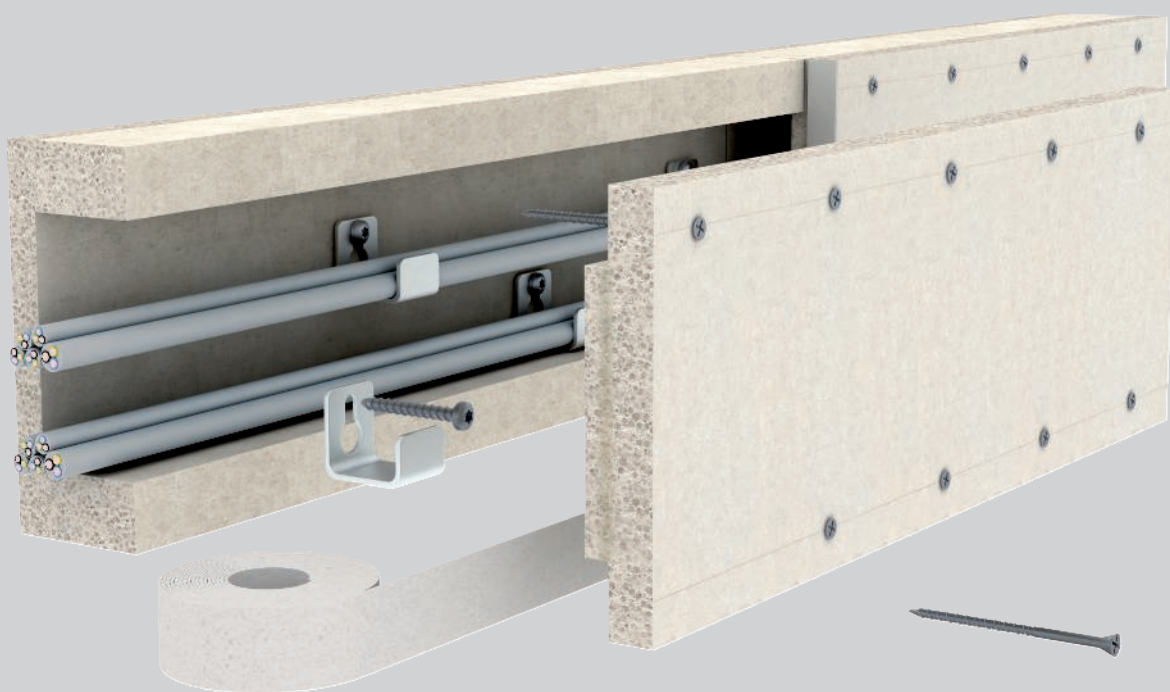
Self-adhesive identification plate for approved cable duct labelling as an installation duct as required by DIN 4102 Part 11.



## PYROLINE® Con D

### Fire protection duct for direct wall and ceiling mounting

#### System description



The PYROLINE® Con D fire protection duct consists of fibreglass light concrete fire protection plates which are resistant to water and frost. The fire protection plates, which are classed as non-combustible (material class A1), have a compacted surface, which is hard, smooth and wear-resistant. The OBO PYROLINE® Con D is used as an I duct to protect escape and rescue routes against the effects of a possible cable fire. This means that the escape and rescue routes remain free

from fire, smoke and heat. As an E duct, PYROLINE® Con D allows the maintenance of electrical functionality of the safety-relevant circuits. The fire protection duct is mounted directly on solid walls and ceilings. Possibly necessary fittings can be created simply and flexibly on-site according to requirements. The fire protection ducts can be painted or papered over, as required.



# PYROLINE® Con D

## Fire protection duct for direct wall and ceiling mounting

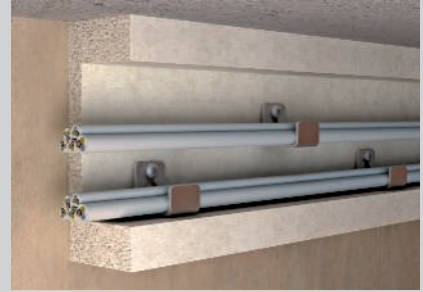
### Installation principle



Mounted fire protection duct on wall and ceiling as I and E duct.



Flexible duct routing through individually creatable fittings.



Retaining profile and retaining clamp as mounting aid for cable insertion.



Cable fastening for vertical duct mounting with clips.



Closing surface treatment through painting or papering.



Minor damage can be eliminated at any time.

Classification according to DIN 4102 part 11 and part 12



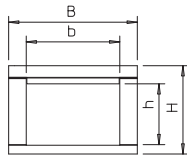
#### Installation duct made of fibreglass reinforced lightweight concrete

<b>Fire resistance class</b>	I90 and I120 Installation in escape routes	E30 and E90 Maintenance of electrical functionality
<b>Proof of application</b>	General construction test certificate of the materials testing institute iBMB MPA Braunschweig	General construction test certificate of the materials testing institute iBMB MPA Braunschweig
<b>Approval number</b>	P-3109/0998-MPA BS	P-3320/381/14-MPA BS
<b>Testing standard</b>	DIN 4102 Part 11	DIN 4102 Part 12

The data in the named proofs of applicability applies.



### Fire protection duct I90/E30, internal height 50 mm

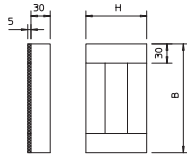


Type	Dimension h mm	Dimension b mm	Dimension H mm	Dimension B mm	Length mm	Pack. m	Weight kg/100 m	Item No.
<b>BSK 090506</b>	50	60	95	120	1000	1	730.000	<b>7215150</b>
<b>BSK 090511</b>	50	110	95	170	1000	1	940.000	<b>7215154</b>
<b>BSK 090521</b>	50	210	95	270	1000	1	1,350.000	<b>7215158</b>

Glass-fibre lightweight concrete

Fire protection duct I90/E30, to DIN 4102 part 11 and part 12, including 12 x countersunk head screws and 3 x 1 m sealing strip.

### End piece I90/E30 for internal height 50 mm

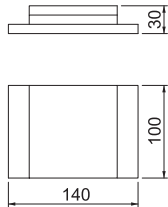


Type	Dimension B mm	Dimension H mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSK-E090506</b>	120	95	1	38.000	<b>7215250</b>
<b>BSK-E090511</b>	170	95	1	51.000	<b>7215252</b>
<b>BSK-E090521</b>	270	95	1	78.000	<b>7215254</b>

Glass-fibre lightweight concrete

End piece for fire protection duct BSK I90/E30, including bolts and sealing strip.

### Wall connection collar I90 for internal height 50 mm

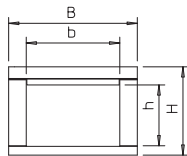


Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSK-K0506</b>	1	40.000	<b>7215533</b>
<b>BSK-K0511</b>	1	45.000	<b>7215537</b>
<b>BSK-K0521</b>	1	55.000	<b>7215541</b>

Glass-fibre lightweight concrete

Wall connection collar for BSK, consisting of three single plates, to double the insulation for wall penetrations. Including fastening material. Only for I90 classification.

### Fire protection duct I90/E30, internal height 50 mm

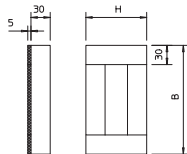


Type	Dimension h mm	Dimension b mm	Dimension H mm	Dimension B mm	Length mm	Pack. m	Weight kg/100 m	Item No.
<b>BSK 091016</b>	105	160	150	220	1000	1	1,430.000	<b>7215162</b>
<b>BSK 091026</b>	105	260	150	320	1000	1	1,830.000	<b>7215166</b>

Glass-fibre lightweight concrete

Fire protection duct I90/E30, to DIN 4102 part 11 and part 12, including 12 x countersunk head screws and 3 x 1 m sealing strip.

### End piece I90/E30 for internal height 105 mm

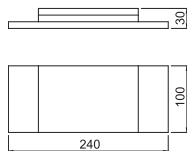


Type	Dimension B mm	Dimension H mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSK-E091016</b>	220	150	1	93.000	<b>7215256</b>
<b>BSK-E091026</b>	320	150	1	131.000	<b>7215258</b>

Glass-fibre lightweight concrete

End piece for fire protection duct BSK I90/E30, including bolts and sealing strip.

### Wall connection collar I90 for internal height 105 mm



Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSK-K1016</b>	1	65.000	<b>7215545</b>
<b>BSK-K1026</b>	1	75.000	<b>7215549</b>

Glass-fibre lightweight concrete

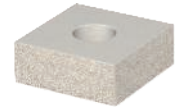
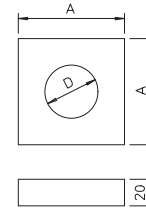
Wall connection collar for BSK, consisting of three single plates, to double the insulation for wall penetrations. Including fastening material. Only for I90 classification.

### Doubler I90

Type	Dimension A mm	Dimension D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSK-A0908</b>	80	40	1	10.000	<b>7215452</b>
<b>BSK-A0910</b>	100	60	1	14.000	<b>7215458</b>

Glass-fibre lightweight concrete

Doubler for cable routing for BSK I90 and for BSKH I90.  
BSK-A0908 for duct heights to 95 mm, BSK-A0910 for duct heights from 110 mm.  
Including fastening screws.



### Sealing strip I90/E30

Type	Dimension mm	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSK-D0930</b>	5 x 30	15000	1	37.500	<b>7215423</b>

Foam

Self-adhesive sealing strip for BSK I90/E30 and BSKH I90/E30



### Lid screws

Type	Dimension mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSK-S0955</b>	4,0 x 55	50	0.340	<b>7215400</b>

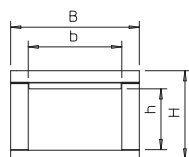
**St** Steel

**G** Electrogalvanised

Countersunk head screw for fire protection duct I90/E30, for lid and doubler fastening.



## Fire protection duct I120/E90, internal height 50 mm

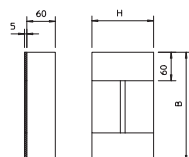


Type	Dimension h mm	Dimension b mm	Dimension H mm	Dimension B mm	Length mm	Pack. m	Weight kg/100 m	Item No.
<b>BSK 120506</b>	50	60	130	180	1000	1	1,490.000	<b>7215210</b>
<b>BSK 120511</b>	50	110	130	230	1000	1	1,800.000	<b>7215216</b>
<b>BSK 120521</b>	50	210	130	330	1000	1	2,420.000	<b>7215222</b>

Glass-fibre lightweight concrete

Fire protection duct I120/E90, to DIN 4102 part 11 and part 12, including 12 x countersunk head screws and 3 x 1 m sealing strip.

## End piece I120/E90 for internal height 50 mm

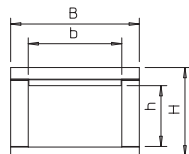


Type	Dimension B mm	Dimension H mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSK-E120506</b>	180	130	1	124.000	<b>7215270</b>
<b>BSK-E120511</b>	230	130	1	156.000	<b>7215272</b>
<b>BSK-E120521</b>	330	130	1	221.000	<b>7215274</b>

Glass-fibre lightweight concrete

End piece for fire protection duct BSK I120/E90, including bolts and sealing strip.

## Fire protection duct I120/E90, internal height 105 mm

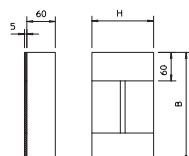


Type	Dimension h mm	Dimension b mm	Dimension H mm	Dimension B mm	Length mm	Pack. m	Weight kg/100 m	Item No.
<b>BSK 121016</b>	105	160	185	280	1000	1	2,570.000	<b>7215228</b>
<b>BSK 121026</b>	105	260	185	380	1000	1	3,190.000	<b>7215234</b>

Glass-fibre lightweight concrete

Fire protection duct I120/E90, to DIN 4102 part 11 and part 12, including 12 x countersunk head screws and 3 x 1 m sealing strip.

## End piece I 120/E 90 for internal height 105 mm



Type	Dimension B mm	Dimension H mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSK-E121016</b>	280	185	1	256.000	<b>7215276</b>
<b>BSK-E121026</b>	380	185	1	342.000	<b>7215278</b>

Glass-fibre lightweight concrete

End piece for fire protection duct BSK I120/E90, including bolts and sealing strip.

## Sealing strip I120/E90



Type	Dimension mm	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSK-D1260</b>	5 x 60	15000	1	74.200	<b>7215432</b>

Foam

Self-adhesive sealing strip for BSK I120/E90.

## Counter-sunk head screw I120/E90



Type	Dimension mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSK-S1280</b>	4,5 x 80	50	0.500	<b>7215412</b>

**S** Steel

**G** Electrogalvanised

Countersunk head screw for BSK I120/E90, for cover fastening.

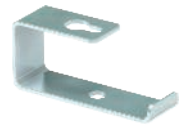
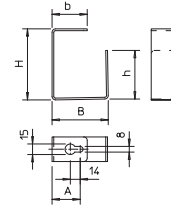
### Separating clamp for ceiling mounting

Type	Dimension H mm	Dimension h mm	Dimension B mm	Dimension b mm	Dimension A mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSK-B0511</b>	46	18	55	37.5	36.5	25	7.500	<b>7215356</b>
<b>BSK-B0521</b>	46	18	105	62.5	52.5	25	14.500	<b>7215362</b>
<b>BSK-B1016</b>	101	69	80	50	40	25	19.000	<b>7215368</b>
<b>BSK-B1026</b>	101	69	130	75	65	25	29.000	<b>7215374</b>

**St** Steel

**FS** Strip-galvanised

Separating clamp for BSK fire protection duct, as installation aid for ceiling mounting. Fastening by clamping under the fire protection bolt tie.



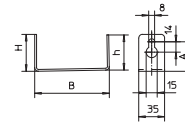
### Separating bracket for wall mounting

Type	Dimension H mm	Dimension h mm	Dimension B mm	Dimension A mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSK-W0511</b>	37.5	22.5	46	37.5	25	5.000	<b>7215312</b>
<b>BSK-W0521</b>	62.5	52.5	46	52.5	25	9.000	<b>7215318</b>
<b>BSK-W1016</b>	50	40	101	40	25	12.500	<b>7215324</b>
<b>BSK-W1026</b>	75	97.5	101	65	25	17.500	<b>7215330</b>

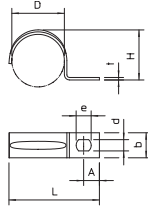
**St** Steel

**FS** Strip-galvanised

Separating bracket for BSK fire protection duct, as installation aid for wall mounting. Fastening by clamping under the fire protection bolt tie.



## Fastening clip 604, light-duty



Type	For Ø mm	Hole size mm	Material thickness mm	Pack. pcs	Weight kg/100 pcs.	Item No.
604 3 G	3	4,5 x 6	0.7	100	0.052	1003038
604 4 G	4	4,5 x 6	0.7	100	0.067	1003046
604 5 G	5	4,5 x 6	0.7	100	0.084	1003054
604 6 G	6	4,5 x 6	0.7	100	0.099	1003062
604 7 G	7	4,5 x 6	0.7	100	0.120	1003070
604 8 G	8	4,5 x 6	0.7	100	0.123	1003089
604 9 G	9	4,5 x 6	0.7	100	0.139	1003097
604 10 G	10	4,5 x 6	0.7	100	0.150	1003100
604 11 G	11	4,5 x 6	1	100	0.270	1003119
604 12 G	12	4,5 x 6	0.7	100	0.240	1003127
604 13 G	13	4,5 x 6	1	100	0.280	1003135
604 16 G	16	4,5 x 6	1	100	0.348	1003178
604 19 G	19	4,5 x 6	1	100	0.411	1003194
604 20 G	20	4,5 x 6	1	100	0.431	1003208
604 21 G	21	4,5 x 6	1	100	0.447	1003216
604 23 G	23	4,5 x 6	1	100	0.490	1003232
604 25 G	25	4,5 x 6	1	100	0.900	1003259
604 28 G	28	4,5 x 6	1	100	0.874	1003283
604 32 G	32	4,5 x 6	1	100	1.462	1003321
604 35 G	35	5,5 x 7	1.5	100	1.355	1003356
604 37 G	37	5,5 x 7	1.5	100	1.567	1003372
604 40 G	40	5,5 x 7	1.5	100	1.860	1003402
604 47 G	47	5,5 x 7	1.5	50	2.484	1003461

**St** Steel

**G** Electrogalvanised

Single-lobe fastening clip for cables and pipes.

\* Sizes 3 and 4 are not suitable for nail device

\* Sizes 3 to 21 are not suitable for bolt-firing tool

### Dimensions

D mm	L mm	H mm	b mm	t mm	d mm	e mm	A mm
3	12	2.4	7	0.7	4.5	6	4
4	14	3.3	7	0.7	4.5	6	4
5	16.5	4.5	7	0.7	4.5	6	5
6	17.5	5.2	8	0.7	4.5	6	5
7	19.5	6.5	8	0.7	4.5	6	5
8	21	7	8	0.7	4.5	6	5.5
9	21.5	8	8	0.7	4.5	6	5.75
10	22	9	8	0.7	4.5	6	5
11	24	10	10	1	4.5	6	5.5
12	27	11	10	0.7	4.5	6	6.5
13	27	11.5	10	1	4.5	6	6
16	31	14.5	10	1	4.5	6	6.5
19	33	17	10	1	4.5	6	6.5
20	35	18	10	1	4.5	6	6.3
21	36	19	10	1	4.5	6	6.3
23	39	21.5	10	1	4.5	6	7
25	41.3	23	15	1	4.5	6	7
28	45	24.8	15	1	4.5	6	7
32	48.8	30	15	1.5	5.5	7	8
35	54	30	14	1.5	5.5	7	8.75
37	56	34	14	1.5	5.5	7	7.5
40	63	38	14	1.5	5.5	7	10.5
47	69	43.8	14	1.5	5.5	7	10

## Bolt for cable fastening



Type	Dimension	Pack. pcs	Weight kg/100 pcs.	Item No.
BSKP-S5016	5x16	100	0.240	3498096
BSKP-S5020	5x20	100	0.260	3498098

**St** Steel

**GTP** Electrogalvanised, transparently passivated

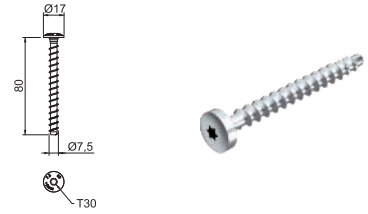
Bolt with special milled ribs for universal fastening of cable clips, connector elements and separating retainers in fibre glass light-weight concrete of the BSK fire protection ducts.

**Bolt tie**

Type	Dimension mm	Bore		Screw system	Pack. pcs	Weight kg/100 pcs.	Item No.
		hole Ø mm	Head Ø mm				
<b>MMS-plus 7.5X80</b>	7,5 x 80	6	13.2	Torx	50	1.600	<b>3498272</b>

- St** Steel
- G** Electrogalvanised

Fire protection bolt tie with pan head for direct mounting without anchors. Drive T40, drill hole 6 mm. Tested anchor according to ETAG 001 - Part 3. Fire resistance class to R120 for concrete and masonry.



**Mortar**

Type	Pack. pcs	Weight kg/100 pcs.	Item No.

Special mortar

Fire protection duct mortar, dried ready-to-use mortar in a bucket for filling joints and small cracks when mounting the fire protection ducts BSK and BSKH.

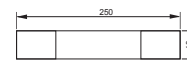


**Identification plate for function maintenance**

Type	Language	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS-E EN</b>	English	10	0.600	<b>7205432</b>
<b>KS-E HU</b>	Hungarian	10	0.600	<b>7205434</b>
<b>KS-E SE</b>	Swedish	10	0.600	<b>7205424</b>
<b>KS-E IT</b>	Italian	10	0.600	<b>7205435</b>
<b>KS-E PL</b>	Polish	10	0.600	<b>7205436</b>
<b>KS-E FI</b>	Finnish	10	0.600	<b>7205437</b>
<b>KS-E NL</b>	Dutch	10	0.600	<b>7205405</b>

**PVC** Polyvinylchloride

Self-adhesive identification plate for approved cable system labelling for maintenance of electrical function as required by DIN 4102 part 12.

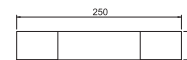


**Identification plate**

Type	Language	Pack. pcs	Weight kg/100 pcs.	Item No.

**PVC** Polyvinylchloride

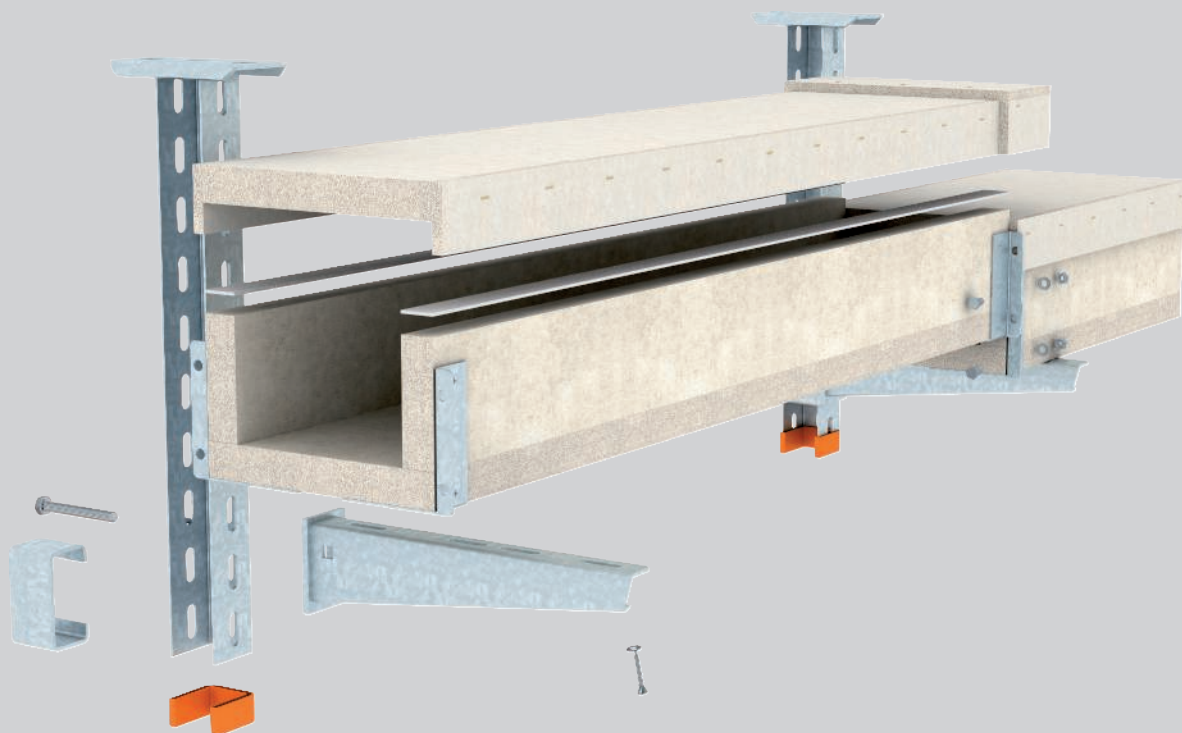
Self-adhesive identification plate for approved cable duct labelling as an installation duct as required by DIN 4102 Part 11.



## PYROLINE® Con S

### Fire protection duct for suspended mounting

#### System description



The PYROLINE® Con S, like the PYROLINE® Con D, fire protection duct consists of fibre-glass light concrete fire protection plates which are resistant to water and frost. The OBO PYROLINE® ConS is used as an I duct to protect escape and rescue routes against the effects of a possible cable fire. This means that the escape and rescue routes remain free from fire, smoke and heat. As an E duct, it allows function maintenance of the safety-relevant circuits. The fire protecti-

on duct can be installed on wall brackets or on one of the support systems suspended from the ceiling. Mounted connectors permit quick connection of the duct sections in situ, while loosely placed covers permit quick inspection and reassignment. The duct allows elegant avoidance of objects from other areas such as heating, ventilation and sanitary applications.



# PYROLINE® Con S

## Fire protection duct for suspended mounting

### Installation principle



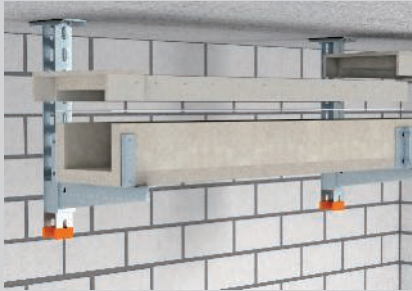
Suspended ceiling mounting as I duct.



Wall mounting as I duct.



Mounting as E duct with additional threaded rod locking.



Secure joint connection by screwing on the pre-mounted armatures.



Loose-fitting lid for quick inspection and retro-assignment.



Pre-mounted standard fittings in the section.

Classification according to DIN 4102 part 11 and part 12



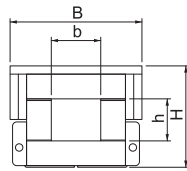
#### Installation duct made of fibreglass reinforced lightweight concrete

<b>Fire resistance class</b>	I90 Installation in escape routes	E30 Maintenance of electrical functionality
<b>Proof of application</b>	General construction test certificate of the materials testing institute iBMB MPA Braunschweig	General construction test certificate of the materials testing institute iBMB MPA Braunschweig
<b>Approval number</b>	P-3109/0998-MPA BS	P-3320/381/14-MPA BS
<b>Testing standard</b>	DIN 4102 Part 11	DIN 4102 Part 12

The data in the named proofs of applicability applies.



## Fire protection duct, internal height 50 mm



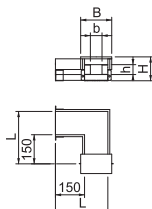
Type	Dimen- sion B mm	Dimen- sion H mm	Dimen- sion b mm	Dimen- sion h mm	Length mm	Pack. m	Weight kg/100 m	Item No.
<b>BSKH 090506</b>	160	120	60	50	1000	1	970.000	<b>7215174</b>
<b>BSKH 090511</b>	210	120	110	50	1000	1	1,200.000	<b>7215178</b>
<b>BSKH 090521</b>	310	120	210	50	1000	1	1,720.000	<b>7215182</b>

Glass-fibre lightweight concrete

The fibre glass light-duty concrete ducts, which can be flamed on four sides, can be mounted on OBO mounting systems, thus offering the greatest possible flexibility in cable routing in emergency and escape routes (installation duct to DIN 4102 Part 11) or in the maintenance of electrical function (to DIN 4102 Part 12). This allows elegant avoidance of objects from other areas such as heating, ventilation and sanitary applications.

Mounting under the ceiling is simple, using U-shaped suspended supports and a bracket, or on a U transverse profile suspended with threaded rods. The OBO BSKH is simply attached loosely. Mounted connectors ensure quick mounting in situ, whilst loosely placed covers ensure quick inspection and reassignment.

## 90° bend I90/E30, internal height 50 mm

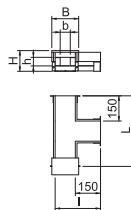


Type	Dimen- sion h mm	Dimen- sion b mm	Dimen- sion H mm	Dimen- sion B mm	Dimen- sion L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKH-FB090506</b>	50	60	120	160	280	1	460.000	<b>7215603</b>
<b>BSKH-FB090511</b>	50	110	120	210	330	1	630.000	<b>7215607</b>
<b>BSKH-FB090521</b>	50	210	120	310	430	1	1,040.000	<b>7215611</b>

Glass-fibre lightweight concrete

90° bend for BSKH I90/E30, to DIN 4102 Part 11 and Part 12, for installation on OBO mounting systems. Fittings must be supported by additional brackets. Including mounted connector on both duct ends, 3x 1 m self-adhesive sealing strips and connecting bolts.

## T piece I90/E30, internal height 50 mm

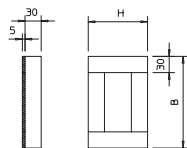


Type	Dimen- sion h mm	Dimen- sion b mm	Dimen- sion H mm	Dimen- sion B mm	Dimen- sion L mm	Dimen- sion l mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKH-FT090506</b>	50	60	120	160	420	280	1	610.000	<b>7215632</b>
<b>BSKH-FT090511</b>	50	110	120	210	470	330	1	780.000	<b>7215636</b>
<b>BSKH-FT090521</b>	50	210	120	310	570	430	1	1,250.000	<b>7215640</b>

Glass-fibre lightweight concrete

T piece for BSKH I90/E30, to DIN 4102 Part 11 and Part 12, for installation on OBO mounting systems. Fittings must be supported by additional brackets. Including mounted connector on all duct ends, 3x 1 m self-adhesive sealing strips and connecting bolts.

## End piece I90/E30 for internal height 50 mm



Type	Dimen- sion B mm	Dimen- sion H mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKH-E090506</b>	120	110	1	42.000	<b>7215590</b>
<b>BSKH-E090511</b>	170	110	1	57.000	<b>7215592</b>
<b>BSKH-E090521</b>	270	110	1	87.000	<b>7215594</b>

Glass-fibre lightweight concrete

End piece for fire protection duct BSKH I90/E30  
Including bolts and sealing strip.

## Wall connection collar I90 for internal height 50 mm



Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKH-K0506</b>	1	40.000	<b>7215571</b>
<b>BSKH-K0511</b>	1	50.000	<b>7215575</b>
<b>BSKH-K0521</b>	1	68.000	<b>7215579</b>

Glass-fibre lightweight concrete

Wall connection collar for BSKH, consisting of four single plates, to double the insulation for wall penetrations. Incl. fastening material Only for I90 classification.

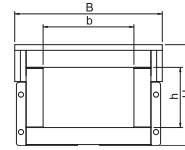
### Fire protection duct I90/E30, internal height 105 mm

Type	Dimension B mm	Dimension H mm	Dimension b mm	Dimension h mm	Length mm	Pack. pcs	Weight kg/100 pcs	Item No.
<b>BSKH 091016</b>	260	175	160	105	1000	1	1,720.000	<b>7215186</b>
<b>BSKH 091026</b>	360	175	260	105	1000	1	2,240.000	<b>7215190</b>

Glass-fibre lightweight concrete

The fibre glass light-duty concrete ducts, which can be flamed on four sides, can be mounted on OBO mounting systems, thus offering the greatest possible flexibility in cable routing in emergency and escape routes (installation duct to DIN 4102 Part 11) or in the maintenance of electrical function (to DIN 4102 Part 12). This allows elegant avoidance of objects from other areas such as heating, ventilation and sanitary applications.

Mounting under the ceiling is simple, using U-shaped suspended supports and a bracket, or on a U transverse profile suspended with threaded rods. The OBO BSKH is simply attached loosely. Mounted connectors ensure quick mounting in situ, whilst loosely placed covers ensure quick inspection and reassignment.

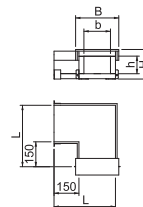


### 90° bend I90/E30, internal height 105 mm

Type	Dimension h mm	Dimension b mm	Dimension H mm	Dimension B mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs	Item No.
<b>BSKH-FB091016</b>	105	160	175	260	380	1	1,010.000	<b>7215615</b>
<b>BSKH-FB091026</b>	105	260	175	360	480	1	1,390.000	<b>7215619</b>

Glass-fibre lightweight concrete

90° bend for BSKH I90/E30, to DIN 4102 Part 11 and Part 12, for installation on OBO mounting systems. Fittings must be supported by additional brackets. Including mounted connector on both duct ends, 3x 1 m self-adhesive sealing strips and connecting bolts.

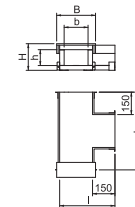


### T piece I90/E30, internal height 105 mm

Type	Dimension h mm	Dimension b mm	Dimension H mm	Dimension B mm	Dimension L mm	Dimension l mm	Pack. pcs	Weight kg/100 pcs	Item No.
<b>BSKH-FT091016</b>	105	160	175	260	520	380	1	1,180.000	<b>7215644</b>
<b>BSKH-FT091026</b>	105	260	175	360	620	480	1	1,650.000	<b>7215648</b>

Glass-fibre lightweight concrete

T piece for BSKH I90/E30, to DIN 4102 Part 11 and Part 12, for installation on OBO mounting systems. Fittings must be supported by additional brackets. Including mounted connector on all duct ends, 3x 1 m self-adhesive sealing strips and connecting bolts.

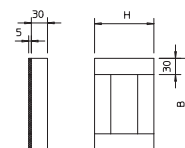


### End piece I90/E30 for internal height 105 mm

Type	Dimension B mm	Dimension H mm	Pack. pcs	Weight kg/100 pcs	Item No.
<b>BSKH-E091016</b>	220	165	1	101.000	<b>7215596</b>
<b>BSKH-E091026</b>	320	165	1	142.000	<b>7215598</b>

Glass-fibre lightweight concrete

End piece for fire protection duct BSKH I90/E30 including bolts and sealing strip.



### Wall connection collar I90 for internal height 105 mm

Type	Pack. pcs	Weight kg/100 pcs	Item No.
<b>BSKH-K1016</b>	1	68.000	<b>7215583</b>
<b>BSKH-K1026</b>	1	88.000	<b>7215587</b>

Glass-fibre lightweight concrete

Wall connection collar for BSKH, consisting of four single plates, to double the insulation for wall penetrations. Incl. fastening material Only for I90 classification.



## Sealing strip I90/E30

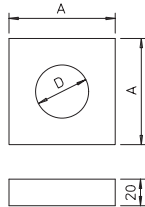
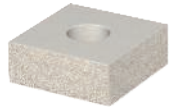


Type	Dimension		Length mm	Pack. pcs	Weight		Item No.
	mm	mm			kg/100 pcs.	pcs.	
<b>BSK-D0930</b>	5 x 30		15000	1	37.500		<b>7215423</b>

Foam

Self-adhesive sealing strip for BSK I90/E30 and BSKH I90/E30

## Doubler I90



Type	Dimension		Pack. pcs	Weight		Item No.
	A mm	D mm		kg/100 pcs.	pcs.	
<b>BSK-A0908</b>	80	40	1	10.000		<b>7215452</b>
<b>BSK-A0910</b>	100	60	1	14.000		<b>7215458</b>

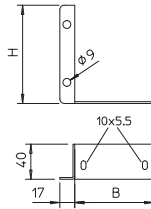
Glass-fibre lightweight concrete

Doubler for cable routing for BSK I90 and for BSKH I90.

BSK-A0908 for duct heights to 95 mm, BSK-A0910 for duct heights from 110 mm.

Including fastening screws.

## Connector set



Type	Dimension		Pack. pcs	Weight		Item No.
	B mm	H mm		kg/100 pcs.	pcs.	
<b>BSKH-V050</b>	58	55	1	22.000		<b>7215381</b>
<b>BSKH-V052</b>	90	55	1	26.000		<b>7215385</b>
<b>BSKH-V101</b>	90	112	1	40.000		<b>7215389</b>

SI Steel

FS Strip-galvanised

Connection set as replacement, consisting of a pair of connection plates, left/right, bolts for fastening the connectors to the duct and bolts with nuts to connect the individual duct lengths.

BSKH-V050 for BSKH 090506 and BSKH 090511

BSKH-V052 for BSKH 090521

BSKH-V101 for BSKH 091016, BSKH 091026 and BSKHF-0808

## Mortar



Type	Pack. pcs	Weight		Item No.
		kg/100 pcs.	pcs.	
<b>BSK-M</b>	1	350.000		<b>7215500</b>

Special mortar

Fire protection duct mortar, dried ready-to-use mortar in a bucket for filling joints and small cracks when mounting the fire protection ducts BSK and BSKH.

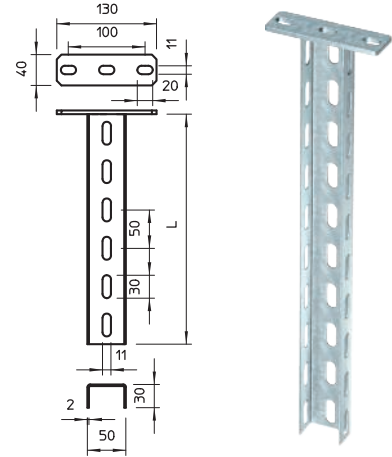
US 3 support

Type	Length mm	Material thickness mm	Dimen- sion L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
US 3 K 20 FT	200	2	200	1	50.500	6342351
US 3 K 30 FT	300	2	300	1	64.400	6342353
US 3 K 40 FT	400	2	400	1	78.300	6342355
US 3 K 50 FT	500	2	500	1	92.300	6342357
US 3 K 60 FT	600	2	600	1	106.200	6342359
US 3 K 70 FT	700	2	700	1	120.200	6342362
US 3 K 80 FT	800	2	800	1	134.100	6342364
US 3 K 90 FT	900	2	900	1	147.800	6342366
US 3 K 100 FT	1000	2	1000	1	162.000	6342368
US 3 K 110 FT	1100	2	1100	1	175.900	6342370
US 3 K 120 FT	1200	2	1200	1	189.900	6342372

St Steel

FT Hot-dip galvanised

Suspended support (U profile) of dimensions 50 x 30 mm with welded head plate.



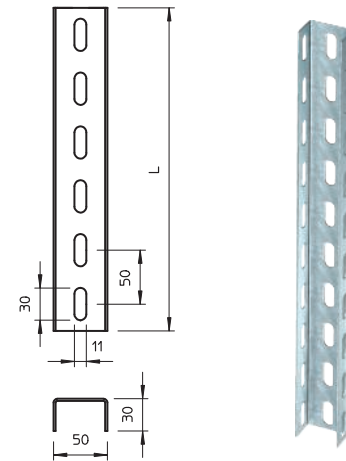
US 3 support

Type	Length mm	Material thickness mm	Dimen- sion L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
US 3 20 FS	200	2	200	1	27.000	6342302
US 3 30 FS	300	2	300	1	40.000	6342304
US 3 40 FS	400	2	400	1	53.000	6342306

St Steel

FS Strip-galvanised

U support in fixed lengths. Dimensions 30 x 50 mm.

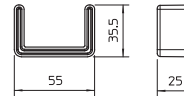


End cap

Type	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
US 3 KS OR	Pastel orange	20	1.068	6338458

PE Polyethylene

End cap to cover the ends of US 3 supports.



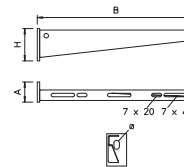
Wall and support bracket AW 15

Type	Width mm	Dimen- sion H mm	Dimen- sion A mm	Dimen- sion B mm	Hole Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
AW 15 16 FT	160	55	40	160	11	30	20.000	6420664
AW 15 21 FT	210	60	40	210	11	30	24.000	6420680
AW 15 31 FT	310	65	40	310	11	30	39.900	6420710
AW 15 41 FT	410	70	40	410	11	30	54.000	6420745

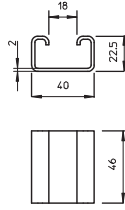
St Steel

FT Hot-dip galvanised

Light-duty wall and support bracket with welded head plate.



## Spacer



### Type

**DSK 25 FT**

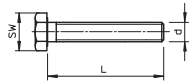
**St** Steel

**FT** Hot-dip galvanised

Spacer for use in U 3 supports.

Pack. pcs	Weight kg/100 pcs.	Item No.
20	7.500	6416446

## Hexagonal bolt with nut and washer



### Type

**SKS 10x80 F**

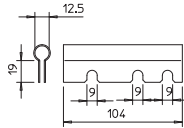
**St** Steel

**F** Hot-dip galvanised

Hexagonal bolt for universal fixing of structure components.

Type	Dimension mm	Dimension L mm	Dimension d mm	SW mm	Resistance class	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>SKS 10x80 F</b>	M10 x 80	80	10	17	8.8	20	7.700	6418250

## Threaded rod adapter E30



### Type

**BSKH-G**

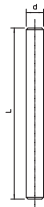
**St** Steel

**FS** Strip-galvanised

Adapter to accept threaded rods for the E duct application for the maintenance of electrical function. The adapter is clamped between the connectors.

Pack. pcs	Weight kg/100 pcs.	Item No.
1	5.700	7215395

## Threaded rod



### Type

**TR M10 1M G**

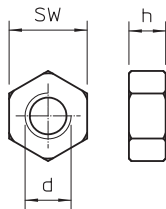
**St** Steel

**G** Electrogalvanised

Threaded rod to DIN 976.

Type	Thread	Dimension d mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>TR M10 1M G</b>	M10	10	1000	10	49.000	3141209

## Hexagonal nut DIN 934



### Type

**HN M10 G**

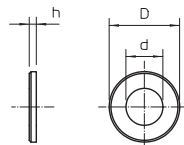
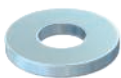
**St** Steel

**G** Electrogalvanised

Hexagonal nut to DIN 934 with metric thread.

Pack. pcs	Weight kg/100 pcs.	Item No.
100	1.084	3400107

## Washer



### Type

**WS M10 D20 G**

**St** Steel

**G** Electrogalvanised

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

Type	Thread	Dimension d mm	Dimension D mm	Dimension h mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>WS M10 D20 G</b>	M10	10.5	20	2	100	0.408	3402096

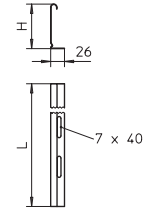
### Barrier strip 45

Type	Dimension H mm	Plate thickness mm	Dimension L mm	Pack. m	Weight kg/100 m	Item No.
<b>TSG 45 FS</b>	45	0.75	3000	3	46.700	<b>6062033</b>

**St** Steel

**FS** Strip-galvanised

Separating retainer for separation of cables of different voltages or functions.



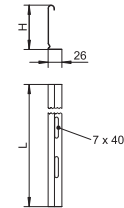
### Barrier strip 85

Type	Dimension H mm	Plate thickness mm	Dimension L mm	Pack. m	Weight kg/100 m	Item No.
<b>TSG 85 FS</b>	85	0.75	3000	3	70.300	<b>6062114</b>

**St** Steel

**FS** Strip-galvanised

Separating retainer for separation of cables of different voltages or functions.



### Bolt for separating retainer and fittings

Type	Dimension	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKH-S6030</b>	6x30	200	0.276	<b>3498100</b>

**St** Steel

**GTP** Electrogalvanised, transparently passivated

Bolt with special milled ribs for universal fastening of cable clips, connector elements and separating retainers in fibre glass light-weight concrete of the BSK fire protection ducts.

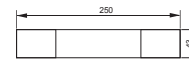


### Identification plate for function maintenance

Type	Language	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS-E DE</b>	German	10	0.600	<b>7205423</b>
<b>KS-E EN</b>	English	10	0.600	<b>7205432</b>
<b>KS-E HU</b>	Hungarian	10	0.600	<b>7205434</b>
<b>KS-E SE</b>	Swedish	10	0.600	<b>7205424</b>
<b>KS-E IT</b>	Italian	10	0.600	<b>7205435</b>
<b>KS-E PL</b>	Polish	10	0.600	<b>7205436</b>
<b>KS-E FI</b>	Finnish	10	0.600	<b>7205437</b>
<b>KS-E NL</b>	Dutch	10	0.600	<b>7205405</b>

**PVC** Polyvinylchloride

Self-adhesive identification plate for approved cable system labelling for maintenance of electrical function as required by DIN 4102 part 12.

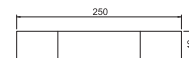


### Identification plate

Type	Language	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS-K DE</b>	German	10	0.600	<b>7214734</b>

**PVC** Polyvinylchloride

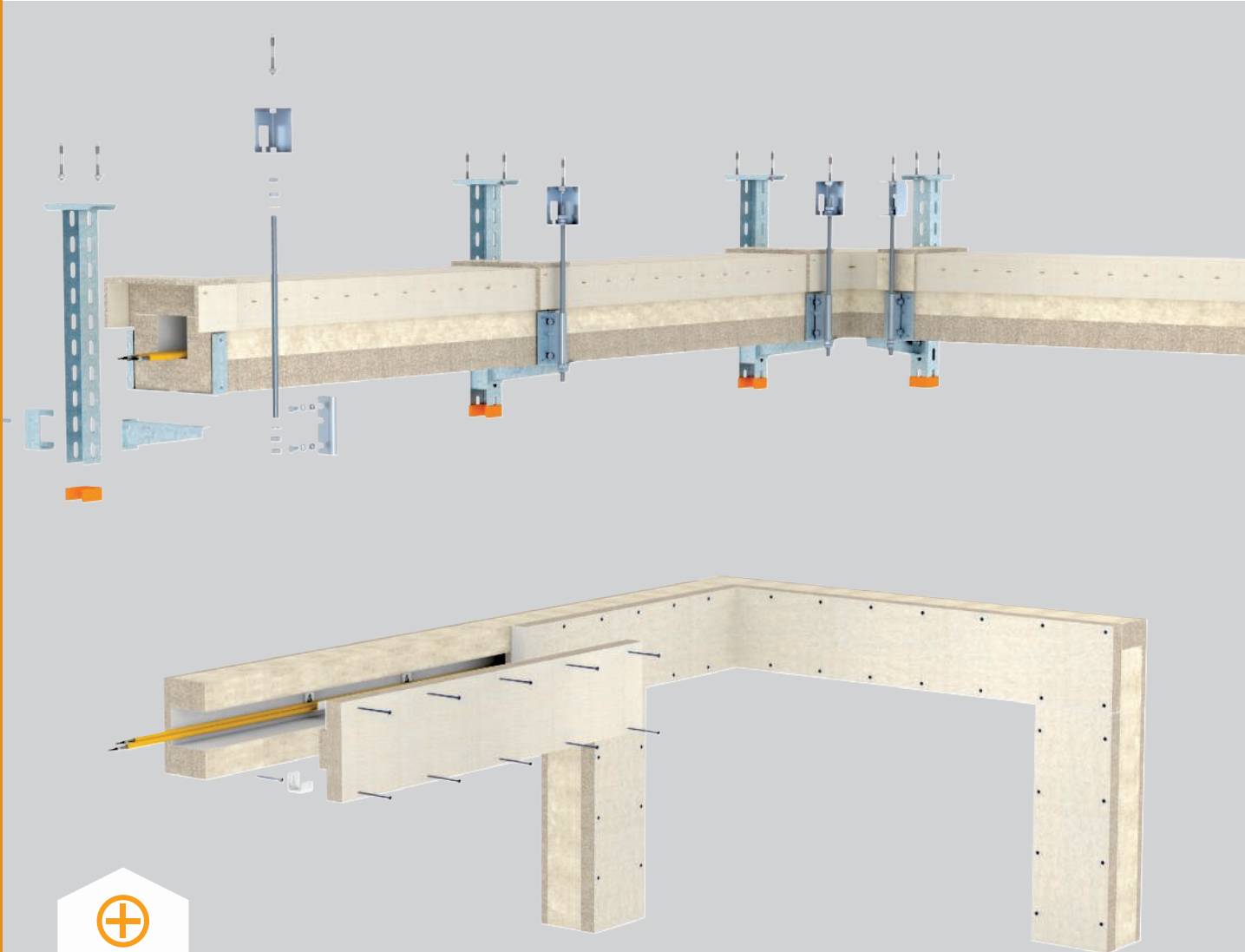
Self-adhesive identification plate for approved cable duct labelling as an installation duct as required by DIN 4102 Part 11.



# PYROLINE® Fibre Optics

## Fire protection duct for suspended mounting

### System description



Communication systems must continue to function even if there is a fire. Increasingly often, they are equipped with fibre optic cables, in order to process large data volumes securely. In industrial systems too, optical data transmission systems are used for process control. In the case of a fire, the processes must be ended in a controlled fashion, in order to prevent damage to people and the environment. For this reason, the fibre optic cables must be routed with special

protection in the event of fire.

Fibre optic cables cannot be evaluated according to the testing standard DIN 4102 Part 12, as the basic criteria only relate to copper conductors. The PYROLINE® Fibre Optics fire protection duct protects the fibre optic cables against an external fire for a period of 90 minutes. The achieved maintenance of electrical functionality class is "E 90".



# PYROLINE® Fibre Optics

## Fire protection duct for suspended mounting

### Installation principle



Direct wall and ceiling mounting.



Wall mounting on brackets and additional threaded rod lock.



Suspended ceiling mounting with additional threaded rod lock.



Retaining profile as mounting aid for insertion of the fibre optic cables.



With direct mounting, flexible duct routing through individually creatable fittings.



Prefabricated fittings for direction changes with suspended mounting.

Classification according to DIN 4102 Part 12



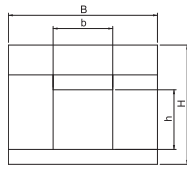
#### Fire protection duct made of fibreglass reinforced lightweight concrete

<b>Maintenance of electrical functionality class</b>	E30 to E90
<b>Proof of application</b>	General construction test certificate of the materials testing institute iBMB MPA Braunschweig
<b>Approval number</b>	P-3320/381/14-MPA BS
<b>Testing standard</b>	DIN 4102 Part 12
<b>Application with fibre optic cables</b>	Surveyor's report no. GA-2017/012-Nau of Ingenieurbüro für Brandschutz von Bauarten, IBB
<b>Mounting variants</b>	Direct wall and ceiling mounting Suspended mounting

The data in the named proofs of applicability applies



### Fire protection duct E90, internal height 80 mm

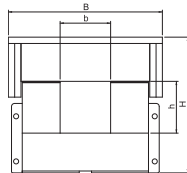


Type	Dimension h mm	Dimension b mm	Dimension H mm	Dimension B mm	Length mm	Pack. m	Weight kg/100 m	Item No.
<b>BSKF-0808</b>	80	80	160	200	1000	1	2,050.000	<b>7214800</b>

Glass-fibre lightweight concrete

Fire protection duct for direct wall and ceiling mounting, consisting of water and frost-resistant fibre glass lightweight concrete of material class A1 in accordance with EN 13501 Part 1 for fireproof routing of fibre optic cables according to the the maintenance of electrical function to DIN 4102 Part 12, classified for E30 and E90. Including 10 counter-sunk head screws and 3 x 1 m of sealing strips.

### Fire-proofing duct E90, internal height 80 mm

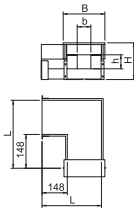


Type	Dimension h mm	Dimension b mm	Dimension H mm	Dimension B mm	Length mm	Pack. m	Weight kg/100 m	Item No.
<b>BSKHF-0808</b>	80	80	200	200	1000	1	2,920.000	<b>7214840</b>

Glass-fibre lightweight concrete

Fire protection duct for suspended ceiling mounting consists of fibreglass light concrete according to EN 13501 part 1 (material class A1) which is resistant to water and frost. The fireproof duct serves to install fibre optic cables, classified for electrical the maintenance of electrical function according to DIN 4102 part 12 class E30 and E90. Including 12 x countersunk head screws and 3 x 1 m sealing strips.

### 90° bend, E90, internal height 80 mm

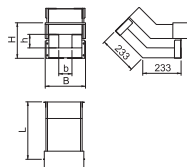


Type	Dimension h mm	Dimension b mm	Dimension H mm	Dimension B mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKHF-FB0808</b>	80	80	200	248	352	1	1,520.000	<b>7214852</b>

Glass-fibre lightweight concrete

90° bend in horizontal direction for fire protection duct BSKHF-0808, consisting of water and frost-resistant fibre glass lightweight concrete of material class A1 according to EN 13501 Part 1, for installation on OBO mounting systems. Including mounted connector on both duct ends, connecting bolts and sealing strip. Fittings must be supported by additional brackets.

### 45° vertical bend, rising, E90, internal height 80 mm

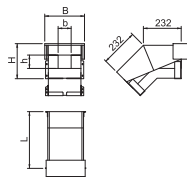


Type	Dimension h mm	Dimension b mm	Dimension H mm	Dimension B mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKHF-ES0808</b>	80	80	200	248	398	1	1,200.000	<b>7214856</b>

Glass-fibre lightweight concrete

Vertical bend, 45° rising, for fire protection duct BSKHF-0808, consisting of water and frost-resistant fibre glass lightweight concrete of material class A1 according to EN 13501 Part 1, for installation on OBO mounting systems. Including mounted connector on both duct ends, connecting bolts and sealing strip. Fittings must be supported by additional brackets.

### 45° vertical bend, falling, E90, internal height 80 mm



Type	Dimension h mm	Dimension b mm	Dimension H mm	Dimension B mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKHF-EF0808</b>	80	80	200	248	276	1	1,250.000	<b>7214858</b>

Glass-fibre lightweight concrete

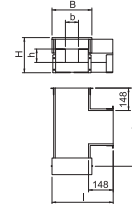
Vertical bend, 45° falling, for fire protection duct BSKHF-0808, consisting of water and frost-resistant fibre glass lightweight concrete of material class A1 according to EN 13501 Part 1, for installation on OBO mounting systems. Including mounted connector on both duct ends, connecting bolts and sealing strip. Fittings must be supported by additional brackets.

### T piece E90, internal height 80 mm

Type	Dimension h mm	Dimension b mm	Dimension H mm	Dimension B mm	Dimension L mm	Dimension I mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKHF-FT0808</b>	80	80	200	248	500	352	1	1,930.000	7214854

Glass-fibre lightweight concrete

T piece for fire protection duct BSKHF-0808, consisting of water and frost-resistant fibre glass lightweight concrete of material class A1 according to EN 13501 Part 1, for installation on OBO mounting systems. Including mounted connector on all duct ends, connecting bolts and sealing strip. Fittings must be supplied by additional brackets.



### Wall connection collar BSKHF, E90, internal height 80 mm

Type	Length mm	Width mm	Height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKHF-WA0808</b>	1250	70	60	1	400.000	7214862

Glass-fibre lightweight concrete

Wall connection collar for fire protection duct BSKHF-0808, consisting of water and frost-resistant fibre glass lightweight concrete of material class A1 according to EN 13501 Part 1, for doubling insulation on wall connections. Including counter-sunk head screws and sealing strip.

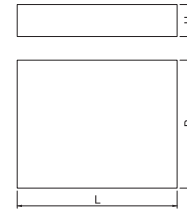


### End piece BSKF, E90, internal height 80 mm

Type	Dimension L mm	Dimension H mm	Dimension B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKF-E0808</b>	200	60	160	1	150.000	7214810

Glass-fibre lightweight concrete

End piece for fire protection duct BSKF-0808, consisting of water and frost-resistant fibre glass lightweight concrete of material class A1 according to EN 13501 Part 1. Including counter-sunk head screws and sealing strips.

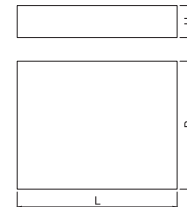


### End piece BSKHF, E90, internal height 80 mm

Type	Dimension L mm	Dimension H mm	Dimension B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKHF-E0808</b>	200	60	200	1	180.000	7214860

Glass-fibre lightweight concrete

End piece for fire protection duct BSKHF-0808, consisting of water and frost-resistant fibre glass lightweight concrete of material class A1 according to EN 13501 Part 1. Including counter-sunk head screws and sealing strips.



### Sealing strip I120/E90

Type	Dimension mm	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSK-D1260</b>	5 x 60	15000	1	74.200	7215432

Foam

Self-adhesive sealing strip for BSK I120/E90.



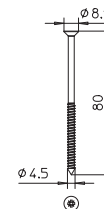
### Counter-sunk head screw I120/E90

Type	Dimension mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSK-S1280</b>	4,5 x 80	50	0.500	7215412

**St** Steel

**G** Electrogalvanised

Countersunk head screw for BSK I120/E90, for cover fastening.



## Bolt tie



Type	Dimension mm	Bore			Pack. pcs	Weight kg/100 pcs.	Item No.
		hole Ø mm	Head Ø mm	Screw system			
<b>MMS-plus 7.5X80</b>	7,5 x 80	6	13.2	Torx	50	1.600	<b>3498272</b>

- St** Steel
- G** Electrogalvanised

Fire protection bolt tie with pan head for direct mounting without anchors. Drive T40, drill hole 6 mm. Tested anchor according to ETAG 001 - Part 3. Fire resistance class to R120 for concrete and masonry.

## Mortar



Type	Pack. pcs	Weight kg/100 pcs.	Item No.

Special mortar

Fire protection duct mortar, dried ready-to-use mortar in a bucket for filling joints and small cracks when mounting the fire protection ducts BSK and BSKH.

## Identification plate for function maintenance

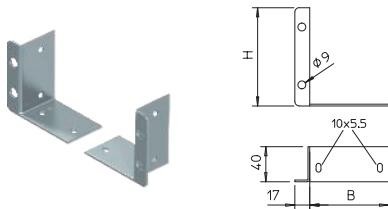


Type	Language	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS-E EN</b>	English	10	0.600	<b>7205432</b>
<b>KS-E HU</b>	Hungarian	10	0.600	<b>7205434</b>
<b>KS-E SE</b>	Swedish	10	0.600	<b>7205424</b>
<b>KS-E IT</b>	Italian	10	0.600	<b>7205435</b>
<b>KS-E PL</b>	Polish	10	0.600	<b>7205436</b>
<b>KS-E FI</b>	Finnish	10	0.600	<b>7205437</b>
<b>KS-E NL</b>	Dutch	10	0.600	<b>7205405</b>

**PVC** Polyvinylchloride

Self-adhesive identification plate for approved cable system labelling for maintenance of electrical function as required by DIN 4102 part 12.

## Connector set



Type	Dimen- sion B mm	Dimen- sion H mm	Pack. pcs	Weight kg/100 pcs.	Item No.

- St** Steel
- FS** Strip-galvanised

Connection set as replacement, consisting of a pair of connection plates, left/right, bolts for fastening the connectors to the duct and bolts with nuts to connect the individual duct lengths.

BSKH-V050 for BSKH 090506 and BSKH 090511

BSKH-V052 for BSKH 090521

BSKH-V101 for BSKH 091016, BSKH 091026 and BSKHF-0808

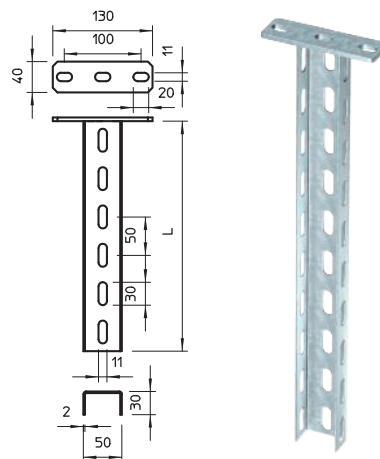
### US 3 support

Type	Length mm	Material thickness mm	Dimen- sion L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
US 3 K 20 FT	200	2	200	1	50.500	6342351
US 3 K 30 FT	300	2	300	1	64.400	6342353
US 3 K 40 FT	400	2	400	1	78.300	6342355
US 3 K 50 FT	500	2	500	1	92.300	6342357
US 3 K 60 FT	600	2	600	1	106.200	6342359
US 3 K 70 FT	700	2	700	1	120.200	6342362
US 3 K 80 FT	800	2	800	1	134.100	6342364
US 3 K 90 FT	900	2	900	1	147.800	6342366
US 3 K 100 FT	1000	2	1000	1	162.000	6342368
US 3 K 110 FT	1100	2	1100	1	175.900	6342370
US 3 K 120 FT	1200	2	1200	1	189.900	6342372

St Steel

FT Hot-dip galvanised

Suspended support (U profile) of dimensions 50 x 30 mm with welded head plate.



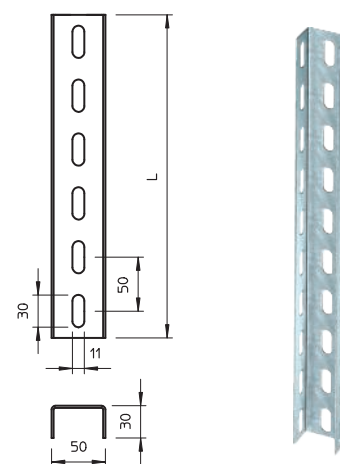
### US 3 support

Type	Length mm	Material thickness mm	Dimen- sion L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
US 3 20 FS	200	2	200	1	27.000	6342302
US 3 30 FS	300	2	300	1	40.000	6342304
US 3 40 FS	400	2	400	1	53.000	6342306

St Steel

FS Strip-galvanised

U support in fixed lengths. Dimensions 30 x 50 mm.

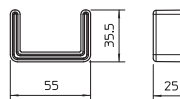


### End cap

Type	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
US 3 KS OR	Pastel orange	20	1.068	6338458

PE Polyethylene

End cap to cover the ends of US 3 supports.



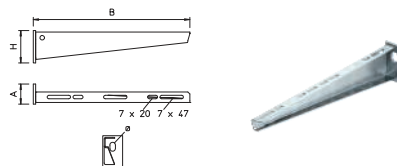
### Wall and support bracket AW 15

Type	Width mm	Dimen- sion H mm	Dimen- sion A mm	Dimen- sion B mm	Hole Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
AW 15 21 FT	210	60	40	210	11	30	24.000	6420680

St Steel

FT Hot-dip galvanised

Light-duty wall and support bracket with welded head plate.



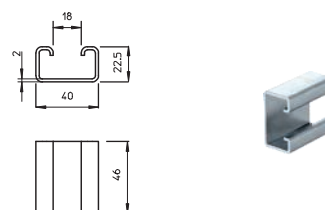
### Spacer

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
DSK 25 FT	20	7.500	6416446

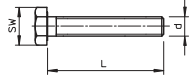
St Steel

FT Hot-dip galvanised

Spacer for use in U 3 supports.



## Hexagonal bolt with nut and washer

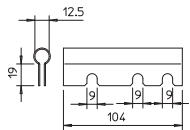


Type	Dimension mm	Dimension L mm	Dimension d mm	SW mm	Resistance class	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>SKS 10x80 F</b>	M10 x 80	80	10	17	8.8	20	7.700	6418250

- St** Steel
- F** Hot-dip galvanised

Hexagonal bolt for universal fixing of structure components.

## Threaded rod adapter E30

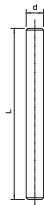


Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKH-G</b>	1	5.700	7215395

- St** Steel
- FS** Strip-galvanised

Adapter to accept threaded rods for the E duct application for the maintenance of electrical function. The adapter is clamped between the connectors.

## Threaded rod

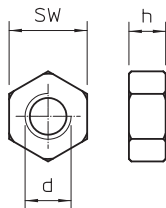
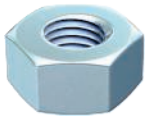


Type	Thread	Dimension d mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>TR M10 1M G</b>	M10	10	1000	10	49.000	3141209

- St** Steel
- G** Electrogalvanised

Threaded rod to DIN 976.

## Hexagonal nut DIN 934



Type	Thread	SW mm	Dimension h mm	Dimension d mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>HN M10 G</b>	M10	17	8.4	10	100	1.084	3400107

- St** Steel
- G** Electrogalvanised

Hexagonal nut to DIN 934 with metric thread.



# PYROLINE® Sun PV

## Concrete photovoltaic duct for direct and suspended mounting

### System description



The PYROLINE® Sun PV fire protection duct is the ideal fire protection duct for fireproof routing of photovoltaic DC cables. If there is a fire, its non-conductive surface ensures protection against dangerous contact voltages. In addition, the duct fulfils the requirements as an I duct according to DIN 4102 Part 11 for cable installations in emergency and escape routes. In addition, it meets the requirements of the VDE application

rule AR 2100-712. The fire protection duct can be installed directly on the wall or the ceiling. The appropriate connection armatures mean that suspended mounting is also possible. The duct is made of water and frost-resistant glass fibre lightweight concrete fire protection plates (non-combustible, material class A1), meaning that it is suitable for external areas.



# PYROLINE® Sun PV

## Concrete photovoltaic duct for direct and suspended mounting

### Installation principle



Direct wall and ceiling mounting.



Flexible duct routing through individually creatable fittings.



Can be painted or papered over, to permit discreet integration in the building.



Suspended mounting on the connector elements.



Contact protection begins directly with the converter.



Labelling according to the VDE application rule.

Classification according to DIN 4102 Part 11

**I30**

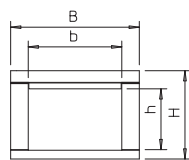
#### Installation duct made of fibreglass reinforced lightweight concrete

<b>Fire resistance class</b>	I30 Installation in escape routes
<b>Proof of application</b>	General construction test certificate of the materials testing institute iBMB MPA Braunschweig
<b>Approval number</b>	P-3109/0998-MPA BS
<b>Testing standard</b>	DIN 4102 Part 11
<b>Photovoltaic application</b>	According to VDE application rule for fireproof routing of PV-DC cables

The data in the named proofs of applicability applies.



## Fire protection duct

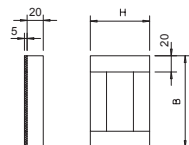


Type	Dimension h mm	Dimension b mm	Dimension H mm	Dimension B mm	Length mm	Pack. m	Weight kg/100 m	Item No.
<b>BSKP 0406</b>	40	60	80	100	1000	1	480.000	<b>7214700</b>

**BET** Concrete

Fire protection duct for fireproof routing of photovoltaic cables and inside and outside buildings. Consists of non-conductive, frost-resistant fibre glass lightweight concrete and fulfils the requirements for the contact protection of rescue services in case of fire. Tested and approved to DIN 4102 Part 11, as an I30 duct, may therefore be used in emergency and escape routes. Including lid screws and 3 m of sealing strip.

## End piece



Type	Dimension B mm	Dimension H mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKP-E0406</b>	100	80	1	14.000	<b>7214705</b>

**BET** Concrete

End piece for fire protection duct BSKP I30, including bolts and sealing strip.

## Sealing strip

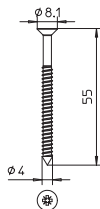


Type	Dimension mm	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKP-D0320</b>	20x5	1000	1	16.000	<b>7214710</b>

Foam

Self-adhesive sealing strip for BSKP 0406

## Lid screws



Type	Dimension mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSK-S0955</b>	4,0 x 55	50	0.340	<b>7215400</b>

**St** Steel

**G** Electrogalvanised

Countersunk head screw for fire protection duct I90/E30, for lid and doubler fastening.

## Connector for suspended mounting



Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKP-V 0406</b>	1	22.000	<b>7214715</b>

**St** Steel

**FS** Strip-galvanised

Connection shackle for use of the fire protection duct BSKP 0406, as suspended variant. The set contains 2 connectors and the appropriate quantity of fastening and connection screws.

## Bolt for cable fastening



Type	Dimension	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKP-S5020</b>	5x20	100	0.260	<b>3498098</b>

**St** Steel

**GTP** Electrogalvanised, transparently passivated

Bolt with special milled ribs for universal fastening of cable clips, connector elements and separating retainers in fibre glass light-weight concrete of the BSK fire protection ducts.

Threaded rod

Type	Thread	Dimension d mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>TR M10 1M G</b>	M10	10	1000	10	49.000	3141209

St Steel

G Electrogalvanised

Threaded rod to DIN 976.



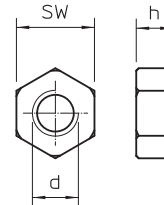
Hexagonal nut DIN 934

Type	Thread	SW mm	Dimension h mm	Dimension d mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>HN M10 G</b>	M10	17	8.4	10	100	1.084	3400107

St Steel

G Electrogalvanised

Hexagonal nut to DIN 934 with metric thread.



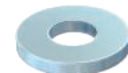
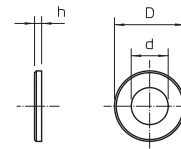
Washer

Type	Thread	Dimension d mm	Dimension D mm	Dimension h mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>WS M10 D20 G</b>	M10	10.5	20	2	100	0.408	3402096

St Steel

G Electrogalvanised

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



Fastening clip 604, light-duty

Type	For Ø mm	Hole size mm	Material thickness mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>604 4 G</b>	4	4,5 x 6	0.7	100	0.067	1003046
<b>604 5 G</b>	5	4,5 x 6	0.7	100	0.084	1003054
<b>604 6 G</b>	6	4,5 x 6	0.7	100	0.099	1003062
<b>604 7 G</b>	7	4,5 x 6	0.7	100	0.120	1003070
<b>604 8 G</b>	8	4,5 x 6	0.7	100	0.123	1003089
<b>604 9 G</b>	9	4,5 x 6	0.7	100	0.139	1003097
<b>604 10 G</b>	10	4,5 x 6	0.7	100	0.150	1003100

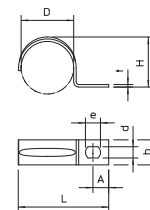
St Steel

G Electrogalvanised

Single-lobe fastening clip for cables and pipes.

\* Sizes 3 and 4 are not suitable for nail device

\* Sizes 3 to 21 are not suitable for bolt-firing tool



D mm	L mm	H mm	b mm	t mm	d mm	e mm	A mm
4	14	3.3	7	0.7	4.5	6	4
5	16.5	4.5	7	0.7	4.5	6	5
6	17.5	5.2	8	0.7	4.5	6	5
7	19.5	6.5	8	0.7	4.5	6	5
8	21	7	8	0.7	4.5	6	5.5
9	21.5	8	8	0.7	4.5	6	5.75
10	22	9	8	0.7	4.5	6	5

Dimensions

Bolt for cable fastening

Type	Dimension	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKP-S5016</b>	5x16	100	0.240	3498096

St Steel

GTP Electrogalvanised, transparently passivated

Bolt with special milled ribs for universal fastening of cable clips, connector elements and separating retainers in fibre glass light-weight concrete of the BSK fire protection ducts.



## Bolt tie



Type	Dimension mm	Bore		Screw system	Pack. pcs	Weight kg/100 pcs.	Item No.
		hole Ø mm	Head Ø mm				
<b>MMS-plus 7.5X80</b>	7,5 x 80	6	13.2	Torx	50	1.600	<b>3498272</b>

**St** Steel

**G** Electrogalvanised

Fire protection bolt tie with pan head for direct mounting without anchors. Drive T40, drill hole 6 mm. Tested anchor according to ETAG 001 - Part 3. Fire resistance class to R120 for concrete and masonry.

## Mortar



Type	Pack. pcs	Weight kg/100 pcs.	Item No.

Special mortar

Fire protection duct mortar, dried ready-to-use mortar in a bucket for filling joints and small cracks when mounting the fire protection ducts BSK and BSKH.

## Identification plate

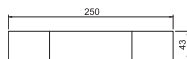


Type	Language	Pack. pcs	Weight kg/100 pcs.	Item No.

**PVC** Polyvinylchloride

Information panel to label the fire protection duct as a photovoltaic duct according to the VDE application rule. Incl. two push-fit anchors.

## Identification plate



Type	Language	Pack. pcs	Weight kg/100 pcs.	Item No.

**PVC** Polyvinylchloride




Self-adhesive identification plate for approved cable duct labelling as an installation duct as required by DIN 4102 Part 11.





BSS\_Typ\_0A / en / 2019/05/27 10:04:18 (LLExpert\_02467) / 2019/05/27 10:04:42 10:04:42

## Cable bandages

	<b>System description, PYROWRAP® Wet FSB-WLS</b>	224
	<b>System description, PYROWRAP® Wet FSB-WB</b>	226
	<b>Products</b>	228

# PYROWRAP® Wet FSB-WLS

## Application in interior areas and wet rooms

### System description



The PYROWRAP® Wet FSB-WLS system can be used to wrap large cable bundles or cable support systems within the fire sections, in order to prevent the spread of a fire. The mesh possesses a fire protection coating, which stops a fire in its tracks at an early stage, e.g. in the case of a short circuit. If there is fire coming in from the outside, the material is not involved in the course of the fire, effectively preventing the spread of the fire, both in vertical and horizontal directions.

In the escape and rescue routes of small buildings, the mounting of a cable bandage is permitted, as only low smoke development is to be expected and only a small number of people must be evacuated. In larger buildings, the residual risk of smoke development is accepted, even if considerably more people must be evacuated. Here, the fire protection bandage frequently presents the only economic solution compared to fire protection ceilings or panelling with plate materials.



# PYROWRAP® Wet FSB-WLS

## Application in interior areas and wet rooms

### Installation principle



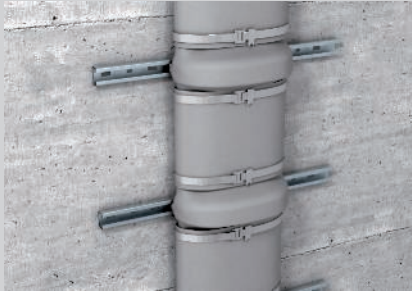
Complete encasement of the suspended cable run.



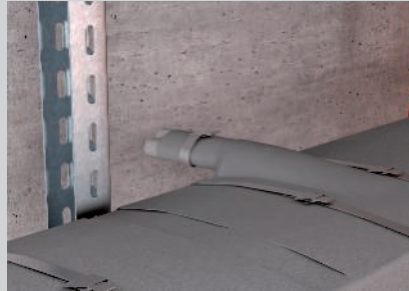
Complete encasement of the cables in a cable run as wall mounting.



Bandage fastening with metallic rails in a single-clip installation.



Bandage fastening with metallic tightening straps in a rail installation.



Cable exit with bandaging.



Bandaging of the cable bundles on support systems.

### Cable jacketing to prevent fire spread

<b>Proof of application</b>	Application approval of DIBt Berlin Material approval of DIBt Berlin
<b>Documents</b>	Z-56.217-3600 Z-19.11-2183
<b>Prevention of fire spread</b>	min. 90 minutes
<b>Material properties</b>	Exterior grey glass fibre mesh, interior light grey materials class C-s2,d0 according to EN 13501-1 – hardly flammable
<b>Max. fastening spacing</b>	0.5 m
<b>Cable types and cross-sections</b>	No restriction

### Caution!

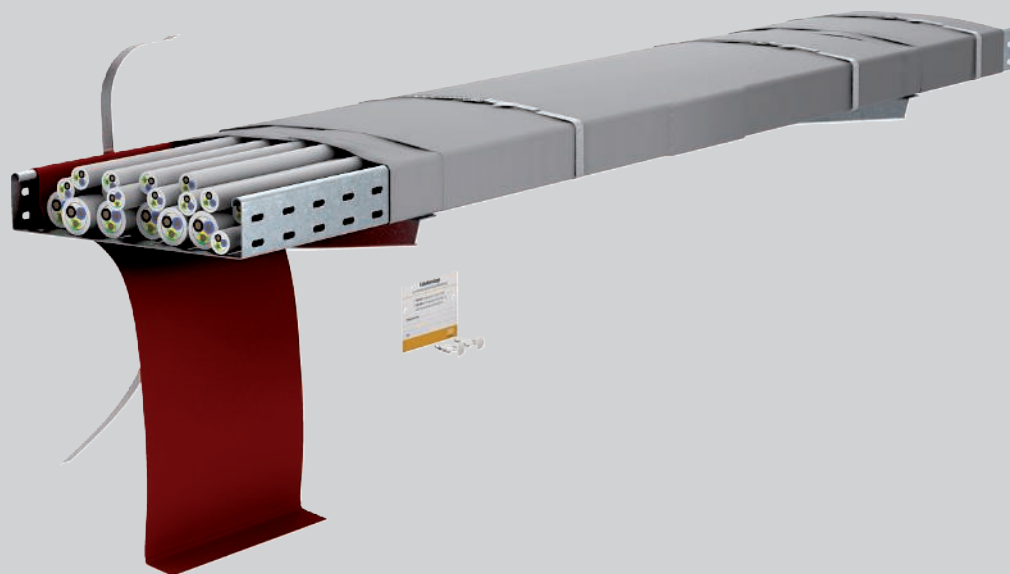
Use in emergency and escape routes of building classes 4 and 5 may require the approval of the construction supervision, e.g. through a fire protection concept.



## PYROWRAP® Wet FSB-WB

### Application in industrial areas / outdoors

### System description



The PYROWRAP® Wet FSB-WB system comprises a fire protection bandage, which is used in areas with special environmental conditions. The fire protection bandage can be used to wrap large cable bundles or cable support systems, in order to prevent the spread of fire. The bandage is made of a weatherproof material, which is insensitive to various chemicals and oils.

It has construction approval from the DIBt as a highly flame-resistant material according to DIN EN 13501-1. When the fire protection coating foams up in the event of fire, this safely prevents the spread of fire via the cables.

# PYROWRAP® Wet FSB-WB

## Application in industrial areas / outdoors

### Installation principle



Use of the bandage in aggressive environments, e.g. offshore.



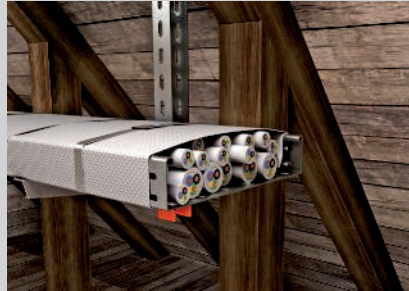
Bandaged rising section in the tower of a wind power plant.



Use on support systems in supply rooms or production halls.



Cable tunnel with bandages in power stations.



Bandaged cable support systems in areas with many combustible materials.



Use for photovoltaic cables run over a fire wall.

### Cable jacketing to prevent fire spread

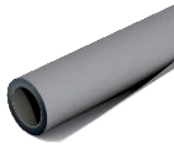
<b>Proof of application</b>	IEC test report of the iBMB MPA materials testing institute, Braunschweig National and European material approval of DIBt Berlin
<b>Document no.</b>	IEC-3630/081/10-AR Z-19.11-1971 ETA-13/0158
<b>Prevention of fire spread</b>	min. 120 minutes
<b>Material properties</b>	Exterior grey glass fibre mesh, interior red Materials class EN 13501-1: B1,d0,s1 – hardly flammable Weather-resistant, resistant to various chemicals and oils
<b>Max. fastening spacing</b>	0.5 m
<b>Cable types and cross-sections</b>	No restriction

### Caution!

The use of photovoltaic cables over fire walls may require the approval of the local construction authorities. A positive special report is available.



### Cable bandage for dry areas

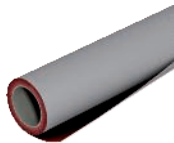


Type	Width	Length	Pack.	Weight	Item No.
	mm	mm		pcs	
<b>FSB-WLS</b>	1100	10000	1	1,000.000	<b>7203170</b>

Intumescent material

Fire protection jacketing made of flexible mesh with fire protection coating to prevent fire spreading via cables and cable support systems. If there is a fire, the bandage only creates very little smoke, and is thus approved by the MBO building regulations as a measure for improved behaviour in case of fire in building classes 1 to 3. Hardly-flammable substance, according to EN 13501-1 - Class C-s2, d0). External side grey, internal side light grey. Can be moist wiped, use in interiors and wet rooms. One roll contains 11 m<sup>2</sup>, nominal thickness 0.7 mm.

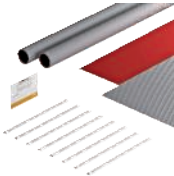
### Cable bandage for wet areas



Type	Width	Length	Pack.	Weight	Item No.
	mm	mm		pcs	
<b>FSB-WB</b>	1100	20000	1	2,200.000	<b>7203160</b>

Waterproof fire protection jacketing made of flexible mesh with fire protection coating to prevent fire spreading via cables and cable support systems. External side grey, internal side red. One roll contains 22 m<sup>2</sup>.

### Complete set



Type	Length	Width	Pack.	Weight	Item No.
	mm	mm		pcs	
<b>FSB-K32</b>	550	380	1	96.000	<b>7203150</b>
<b>FSB-K82</b>	550	880	1	213.000	<b>7203154</b>

Intumescent material

Complete set for covering cable bundles or cable support systems without lid to prevent fire spreading. Application in outdoor areas. Each of the sets contains 4 sections of the weather-resistant cable bandage FSB-WB, 8 metal strip clips and an identification plate. Sufficient for approx. 2 m length.

Dimension data: sections of the bandage FSB-WB

Scope of the surrounding cable support systems:  
 FSB-K32 maximum 320 mm  
 FSB-K82 maximum 820 mm  
 (including min. 5 cm bandage overlap)

### Metal strip clips, narrow



Type	Length	Width	Pack.	Weight	Item No.
	mm	mm		pcs	
<b>MBS 015</b>	150	7	100	0.230	<b>7203100</b>
<b>MBS 030</b>	300	7	100	0.399	<b>7203102</b>
<b>MBS 045</b>	450	7	50	0.602	<b>7203104</b>
<b>MBS 061</b>	610	7	50	0.806	<b>7203106</b>

V2A Stainless steel, grade 304

Metal strip clip in ladder form with single lock. For high-temperature and weatherproof fixing.

### Metal strip clips, wide



Type	Length	Width	Pack.	Weight	Item No.
	mm	mm		pcs	
<b>MBS 075</b>	750	12	25	2.300	<b>7203108</b>
<b>MBS 100</b>	1000	12	25	3.000	<b>7203110</b>
<b>MBS 120</b>	1200	12	25	3.600	<b>7203112</b>
<b>MBS 150</b>	1500	12	25	4.400	<b>7203114</b>

V2A Stainless steel, grade 304

Metal strip clip in ladder form with single lock. For high-temperature and weatherproof fixing.

## Pliers for metal strip clips

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MBS-Z</b>	1	55.500	7203120

St Steel

High-quality spring chuck with cutting tool for metal strip clips, type MBS.

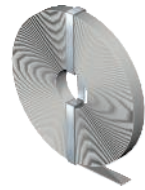


## Tightening strap for fastening of cable bandages

Type	Width mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FSB-SB 100</b>	15	1	220.000	7203131

St Steel

100 m roll of lightweight, galvanised tightening strap, for universal fastening.

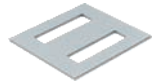


## Tightening strap lock

Type	Length mm	Width mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FSB-SV</b>	26	24	50	0.340	7203132

St Steel

Tightening strap lock with buckle, for simple fixing of the tightening straps FSB-SB.



## Securing clip

Type	Width mm	Height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FSB-SC</b>	16	34	50	0.180	7203134

V2A Stainless steel, grade 304

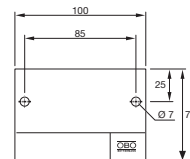
Stainless steel clip to secure the bend tightening strap. Provides prevention of removal from the lock.



## Identification plate

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS-FSB DE</b>	1	2.400	7203140
<b>KS-FSB IT</b>	1	2.400	7203143







PVC Polyvinylchloride





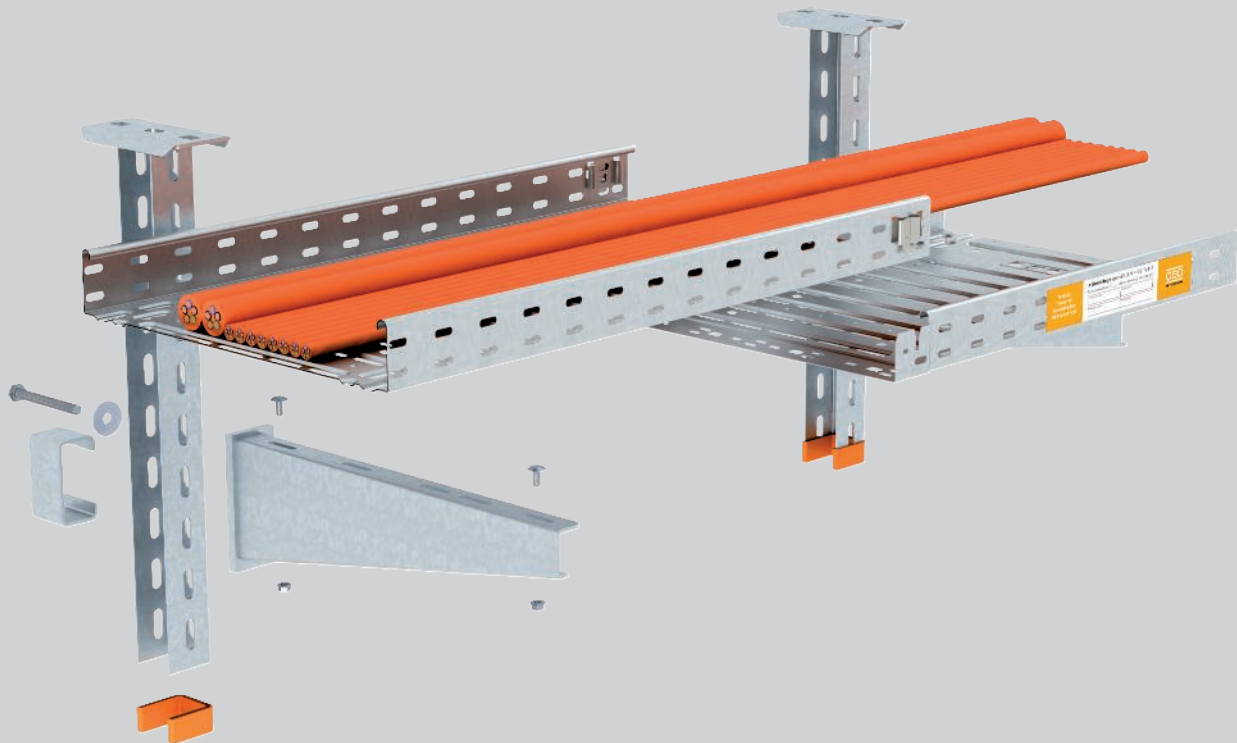
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## Maintaining electrical function– cable-specific support structures

	<b>System description, RKS-Magic® cable tray</b>	232
	<b>System description, mesh cable tray GR-Magic®</b>	236
	<b>Products cable trays, mesh cable trays and mounting components</b>	240
	<b>System description, cable tray RKS-Magic® VA</b>	246
	<b>System description, mesh cable tray GR-Magic® VA</b>	250
	<b>Products cable trays, mesh cable trays and mounting components VA</b>	254

## Cable tray systems RKS-Magic®

### System description



The RKS-Magic® cable tray has been tested as a cable-specific support construction for the maintenance of electrical functionality according to DIN 4102 Part 12 and approved for the maintenance of electrical functionality classes E 30 to E 90. Threaded rod locking is not required at the tip of the bracket. This saves not just material but also considerably simplifies and speeds up the installation of cables. The screwless connection system allows interconnection of the RKS-Magic® cable trays without tools and in a

particularly quick and economic manner. To ensure the maintenance of electrical functionality, only the locking lugs in the base need to be bent after the trays have been connected. The double material thickness in the joint area and the beading in the base mean that the cable tray has a very high load capacity. The installation of fittings in the section route is permitted, as is the mounting of separating retainers.



# Cable tray systems RKS-Magic®

## Installation principle



Ceiling mounting on both sides with max. three layers (2+1).



One-sided arrangement with max. two layers.



Wall mounting.



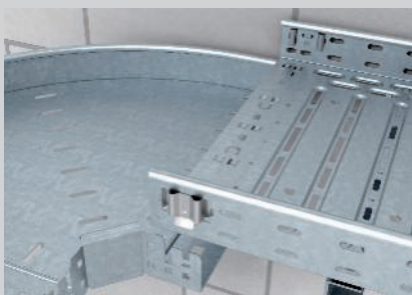
Creation of a straight connector through interconnection of the cable trays.



Bending the locking straps in the base.



Complete screwless joint connection.



Quick and simple fitting mounting with screwless Magic connection.



Separating retainer mounting with truss-head bolts.

Classification according to DIN 4102 Part 12

E30

E60

E90

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Function maintenance - Cable-specific support structures







## Cable tray systems RKS-Magic®

### Proof


#### Maintenance of electrical functionality system according to DIN 4102 Part 12

<b>Routing type</b>	Cable-specific support construction
<b>Test certificate no.</b>	P-MPA-E-13-002
<b>Maintenance of electrical functionality classes</b>	E30 to E90
<b>Testing standard</b>	DIN 4102 Part 12
<b>Mounting variant</b>	Ceiling mounting with suspended support and bracket without threaded rod lock Wall mounting with bracket without threaded rod lock
<b>Material version</b>	Galvanised steel

#### Support spacing for ceiling mounting with suspended support/bracket

Cable tray width	Cable load per cable tray				
100 mm	max. 20 kg/m	max. 1.50 m	max. 1.50 m	max. 1.50 m	max. 1.50 m
200 mm	max. 20 kg/m	max. 1.50 m	max. 1.50 m	max. 1.50 m	max. 1.50 m
300 mm	max. 20 kg/m	max. 1.50 m	max. 1.50 m	max. 1.50 m	max. 1.50 m
400 mm	max. 20 kg/m	max. 1.50 m	max. 1.50 m	max. 1.50 m	max. 1.50 m





#### Support spacing for wall mounting with bracket

Cable tray width	Cable load per cable tray	
100 mm	max. 20 kg/m	max. 1.50 m
200 mm	max. 20 kg/m	max. 1.50 m
300 mm	max. 20 kg/m	max. 1.50 m
400 mm	max. 20 kg/m	max. 1.50 m

# Cable tray systems RKS-Magic®


## Components used

### Ceiling mounting with suspended support/bracket

Component	Type				
Cable tray	RKSM 6... FS	1	2	2	3
Support	US 5 K ... FT	1	1	1	1
Protective cap	US 5 KS OR	1	1	1	1
Wall and support brackets	AW 30 11 FT, AW 55 21 FT, ... 31 FT, ... 41 FT	1	2	2	3
Spacer	DSK 45	1	2	1	2
Hexagonal bolt	SKS 10x 90 F	1	2	1	2
Large washer	DIN440 11 F	1	2	0	1
Truss-head bolt	FRSB 6x 15 F	2	4	4	6

Choose the fastening anchors according to the substrate

### Wall mounting with bracket

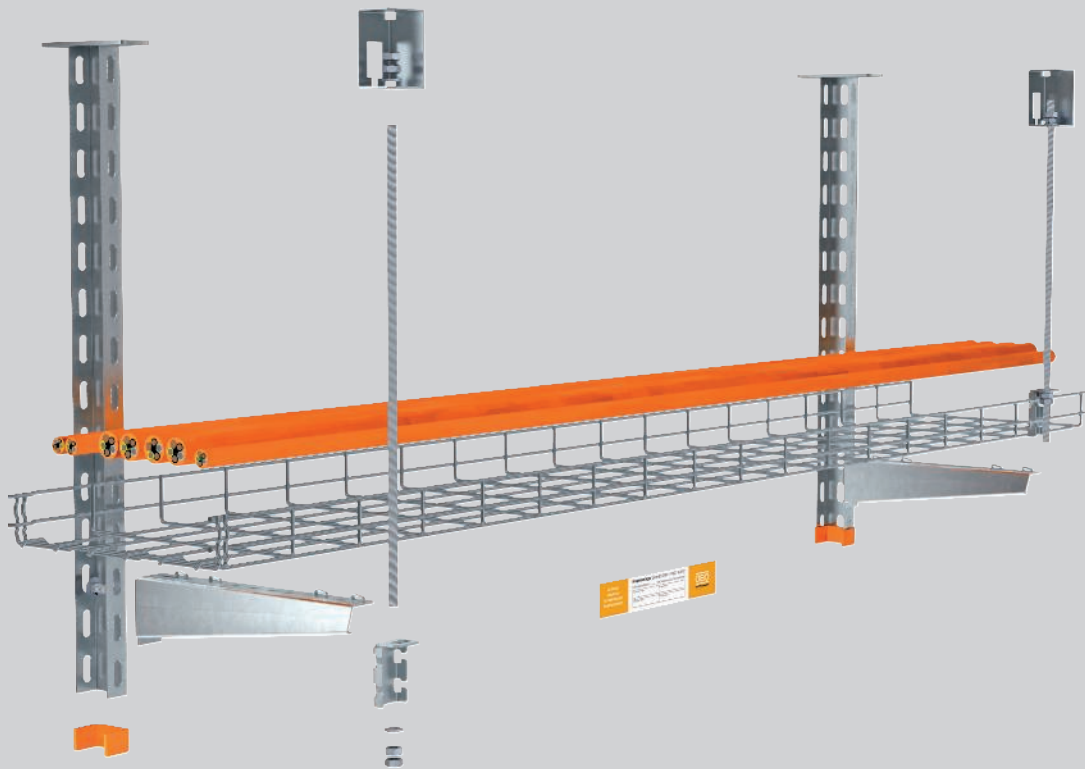
Component	Type	
Cable tray	RKSM 6... FS	1
Wall and support brackets	AW 30 11 FT, AW 55 21 FT, ... 31 FT, ... 41 FT	1
Truss-head bolt	FRSB 6x 15 F	2

Choose the fastening anchors according to the substrate



## GR-Magic® mesh cable trays

### System description

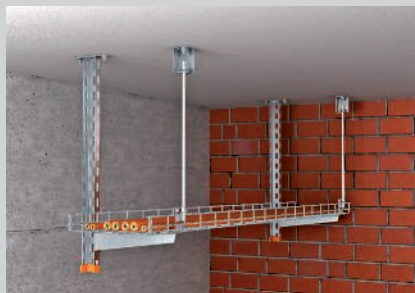


The GR-Magic® mesh cable tray has been tested as a cable-specific support construction for the maintenance of electrical functionality according to DIN 4102 Part 12 and approved for the maintenance of electrical functionality classes E 30 to E 90. The threaded rod lock is mounted directly on the tray rail, using the ABG connection component. This is just at-

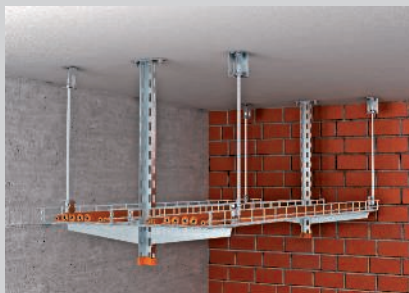
tached to the side lengthwise wires of the mesh cable tray. When the threaded rod has been mounted, the component is secured against unintentional release. The screwless connection system of the GR-Magic® mesh cable trays ensures toolless, and thus particularly rapid and economic, mounting.

# GR-Magic® mesh cable trays

## Installation principle



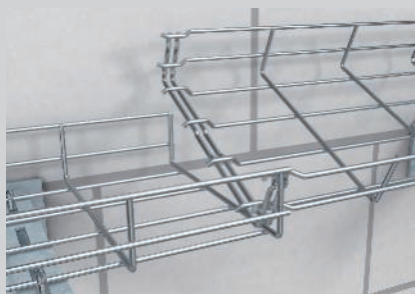
Ceiling mounting with brackets mounted on one side.



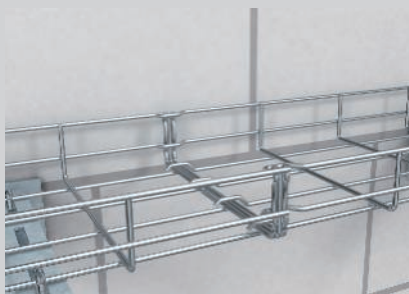
Ceiling mounting with brackets arranged on both sides.



Multi-layer wall mounting.



Interconnecting of two stock lengths of the mesh cable tray.



Finished screwless joint connection



Screwless mesh cable tray fastening on the bracket.



Screwless fastening of the connection component to the side wires.

Classification according to DIN 4102 Part 12

E30

E60

E90








## GR-Magic® mesh cable trays

### Proof




#### Maintenance of electrical functionality system according to DIN 4102 Part 12

<b>Routing type</b>	Cable-specific support construction
<b>Test certificate no.</b>	P-MPA-E-12-011
<b>Maintenance of electrical functionality classes</b>	E30 to E90
<b>Testing standard</b>	DIN 4102 Part 12
<b>Mounting variant</b>	Ceiling mounting with suspended support and bracket with threaded rod lock Wall mounting with bracket and threaded rod lock
<b>Material version</b>	Galvanised steel

#### Support spacing for ceiling mounting with suspended support/bracket

Cable tray width	Cable load per cable tray					
100 mm	max. 15 kg/m	max. 1.50 m	max. 1.50 m	max. 1.50 m	max. 1.50 m	max. 1.50 m
200 mm	max. 15 kg/m	max. 1.50 m	max. 1.50 m	max. 1.50 m	max. 1.50 m	max. 1.50 m
300 mm	max. 15 kg/m	max. 1.50 m	max. 1.50 m	max. 1.50 m	max. 1.50 m	max. 1.50 m
400 mm	max. 15 kg/m	max. 1.50 m	max. 1.50 m	max. 1.50 m	max. 1.50 m	max. 1.50 m






#### Support spacing for wall mounting with bracket

Cable tray width	Cable load per cable tray			
100 mm	max. 15 kg/m	max. 1.50 m	max. 1.50 m	max. 1.50 m
200 mm	max. 15 kg/m	max. 1.50 m	max. 1.50 m	max. 1.50 m
300 mm	max. 15 kg/m	max. 1.50 m	max. 1.50 m	max. 1.50 m
400 mm	max. 15 kg/m	max. 1.50 m	max. 1.50 m	max. 1.50 m

## GR-Magic® mesh cable trays




### Components used

#### Ceiling mounting with suspended support/bracket

Component	Type					
Mesh cable tray	GRM 55 ... G	1	2	3	2	3
Support	US 3 K ... FT	1	1	1	1	1
Protective cap	US 3 KS OR	1	1	1	1	1
Wall and support brackets	AWG 15 ... FT	1	2	3	2	3
Truss-head bolt	FRS 10x 25 F	1	2	3	2	3
Connection component	ABG FT	1	2	3	2	3
Threaded rod	2078 M10 G	1	2	0	2	3
Threaded rod	2078 M12 G	0	0	3	0	0
Hexagonal nut	DIN 934 M10 G	4	5	0	8	9
Hexagonal nut	DIN 934 M12 G	0	0	6	0	0
Washer	966 M10 G	2	3	0	4	5
Washer	966 M12 G	0	0	4	0	0
Connection sleeve	12005 M10 G	0	1	0	0	1
Connection sleeve	12005 M12 G	0	0	2	0	0
Fire protection clamp	BSB	1	1	1	2	2

Choose the fastening anchors according to the substrate

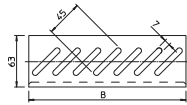
#### Wall mounting with bracket

Component	Type			
Mesh cable tray	GRM 55 ... G	1	2	3
Wall and support brackets	AWG 15 ... FT	1	2	3
Connection component	ABG FT	1	2	3
Threaded rod	2078 M10 G	1	2	0
Threaded rod	2078 M12 G	0	0	3
Hexagonal nut	DIN 934 M10 G	4	5	0
Hexagonal nut	DIN 934 M12 G	0	0	6
Washer	966 M10 G	2	3	0
Washer	966 M12 G	0	0	4
Connection sleeve	12005 M10 G	0	1	0
Connection sleeve	12005 M12 G	0	0	2
Fire protection clamp	BSB	1	1	1

Choose the fastening anchors according to the substrate



## Bottom end plate



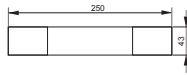
Type	Width mm	Dimension B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BEB 100 FS</b>	100	100	100	5.400	<b>7083106</b>
<b>BEB 200 FS</b>	200	200	100	11.400	<b>7083203</b>
<b>BEB 300 FS</b>	300	300	100	17.200	<b>7083300</b>
<b>BEB 400 FS</b>	400	400	100	23.100	<b>7083408</b>
<b>BEB 100 DD</b>	100	100	100	5.400	<b>7083618</b>
<b>BEB 200 DD</b>	200	200	100	11.400	<b>7083626</b>
<b>BEB 300 DD</b>	300	300	100	17.200	<b>7083630</b>
<b>BEB 400 DD</b>	400	400	100	23.100	<b>7083634</b>

**SI** Steel

**FS** Strip-galvanised **DD** Strip galvanised zinc/aluminium, Double Dip

Bottom end plate for floor reinforcement at the ends of the cable tray and as cable protection.

## Identification plate for function maintenance



Type	Language	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS-E DE</b>	German	10	0.600	<b>7205423</b>
<b>KS-E EN</b>	English	10	0.600	<b>7205432</b>
<b>KS-E HU</b>	Hungarian	10	0.600	<b>7205434</b>
<b>KS-E PL</b>	Polish	10	0.600	<b>7205436</b>
<b>KS-E FI</b>	Finnish	10	0.600	<b>7205437</b>
<b>KS-E SE</b>	Swedish	10	0.600	<b>7205424</b>
<b>KS-E IT</b>	Italian	10	0.600	<b>7205435</b>
<b>KS-E NL</b>	Dutch	10	0.600	<b>7205405</b>

**PVC** Polyvinylchloride

Self-adhesive identification plate for approved cable system labelling for maintenance of electrical function as required by DIN 4102 part 12.

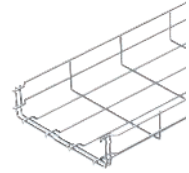
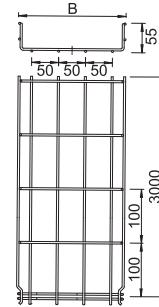


### Mesh cable tray GRM 55

Type	Wire Dimension			Pack. m	Weight kg/100 m	Item No.
	Width mm	Ø mm	Dimension B mm			
<b>GRM 55 200 4.8 G</b>	200	4.8	200	3	151.000	<b>6001447</b>
<b>GRM 55 300 G</b>	300	4.8	300	3	194.900	<b>6001448</b>
<b>GRM 55 400 G</b>	400	4.8	400	3	236.700	<b>6001450</b>

- St** Steel
- G** Electrogalvanised

Mesh cable tray with shaped connector of side height 55 mm.

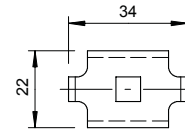


### Clamping piece

Type	Pack. pcs	Weight kg/100 pcs.	Item No.

- St** Steel
- G** Electrogalvanised

Clamp for fixing mesh cable trays to wall or support brackets.

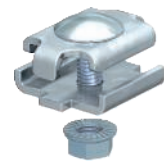
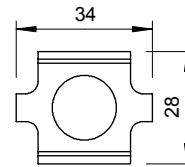


### Connector

Type	Pack. pcs	Weight kg/100 pcs.	Item No.

- St** Steel
- G** Electrogalvanised

Screwed version of joint connector for mesh cable trays.

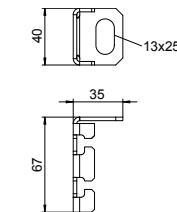


### Connection component

Type	Pack. pcs	Weight kg/100 pcs.	Item No.

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

Seat for threaded rod on mesh cable tray.

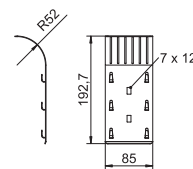


### Drop-out plate

Type	Pack. pcs	Weight kg/100 pcs.	Item No.

- St** Steel
- FS** Strip-galvanised

Drop-out plate for mesh cable trays.

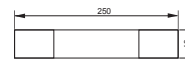


### Identification plate for function maintenance

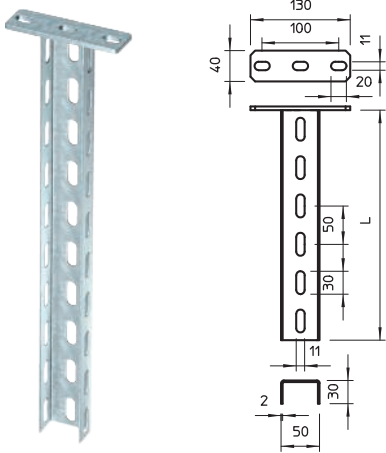
Type	Language	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS-E EN</b>	English	10	0.600	<b>7205432</b>
<b>KS-E HU</b>	Hungarian	10	0.600	<b>7205434</b>
<b>KS-E PL</b>	Polish	10	0.600	<b>7205436</b>
<b>KS-E FI</b>	Finnish	10	0.600	<b>7205437</b>
<b>KS-E SE</b>	Swedish	10	0.600	<b>7205424</b>
<b>KS-E IT</b>	Italian	10	0.600	<b>7205435</b>
<b>KS-E NL</b>	Dutch	10	0.600	<b>7205405</b>

- PVC** Polyvinylchloride

Self-adhesive identification plate for approved cable system labelling for maintenance of electrical function as required by DIN 4102 part 12.



### US 3 support



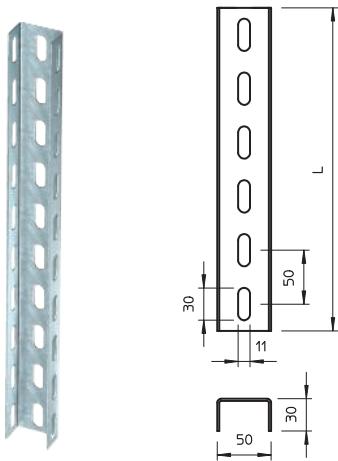
Type	Length mm	Material thickness mm	Dimen- sion L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>US 3 K 20 FT</b>	200	2	200	1	50.500	<b>6342351</b>
<b>US 3 K 30 FT</b>	300	2	300	1	64.400	<b>6342353</b>
<b>US 3 K 40 FT</b>	400	2	400	1	78.300	<b>6342355</b>
<b>US 3 K 50 FT</b>	500	2	500	1	92.300	<b>6342357</b>
<b>US 3 K 60 FT</b>	600	2	600	1	106.200	<b>6342359</b>
<b>US 3 K 70 FT</b>	700	2	700	1	120.200	<b>6342362</b>
<b>US 3 K 80 FT</b>	800	2	800	1	134.100	<b>6342364</b>
<b>US 3 K 90 FT</b>	900	2	900	1	147.800	<b>6342366</b>
<b>US 3 K 100 FT</b>	1000	2	1000	1	162.000	<b>6342368</b>
<b>US 3 K 110 FT</b>	1100	2	1100	1	175.900	<b>6342370</b>
<b>US 3 K 120 FT</b>	1200	2	1200	1	189.900	<b>6342372</b>

**St** Steel

**FT** Hot-dip galvanised

Suspended support (U profile) of dimensions 50 x 30 mm with welded head plate.

### US 3 support



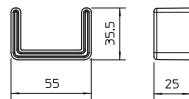
Type	Length mm	Material thickness mm	Dimen- sion L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>US 3 20 FS</b>	200	2	200	1	27.000	<b>6342302</b>
<b>US 3 30 FS</b>	300	2	300	1	40.000	<b>6342304</b>
<b>US 3 40 FS</b>	400	2	400	1	53.000	<b>6342306</b>
<b>US 3 50 FS</b>	500	2	500	1	67.000	<b>6342308</b>
<b>US 3 60 FS</b>	600	2	600	1	80.000	<b>6342310</b>
<b>US 3 70 FS</b>	700	2	700	1	93.000	<b>6342312</b>
<b>US 3 80 FS</b>	800	2	800	1	107.000	<b>6342314</b>
<b>US 3 90 FS</b>	900	2	900	1	120.000	<b>6342316</b>
<b>US 3 100 FS</b>	1000	2	1000	1	133.000	<b>6342318</b>

**St** Steel

**FS** Strip-galvanised

U support in fixed lengths. Dimensions 30 x 50 mm.

### End cap

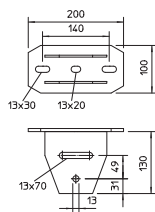


Type	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>US 3 KS OR</b>	Pastel orange	20	1.068	<b>6338458</b>

**PE** Polyethylene

End cap to cover the ends of US 3 supports.

### Head plate, variable



Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KU 7 VQP FT</b>	10	181.600	<b>6349153</b>

**St** Steel

**FT** Hot-dip galvanised

Variable head plate for installation on US 7 support.

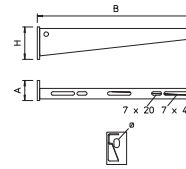
### Wall and support bracket AW 15

Type	Width mm	Dimen- sion H mm	Dimen- sion A mm	Dimen- sion B mm	Hole Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>AW 15 21 FT</b>	210	60	40	210	11	30	24.000	<b>6420680</b>
<b>AW 15 31 FT</b>	310	65	40	310	11	30	39.900	<b>6420710</b>
<b>AW 15 41 FT</b>	410	70	40	410	11	30	54.000	<b>6420745</b>

**St** Steel

**FT** Hot-dip galvanised

Light-duty wall and support bracket with welded head plate.



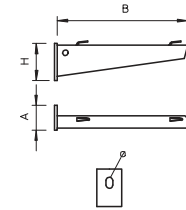
### Wall and support bracket AWG 15

Type	Width mm	Dimen- sion H mm	Dimen- sion A mm	Dimen- sion B mm	Hole Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>AW G 15 21 FT</b>	210	60	40	210	11	30	26.000	<b>6420608</b>
<b>AW G 15 31 FT</b>	310	65	40	310	11	30	35.000	<b>6420610</b>
<b>AW G 15 41 FT</b>	410	70	40	410	11	30	56.000	<b>6420612</b>

**St** Steel

**FT** Hot-dip galvanised

Light-duty wall and support bracket with welded head plate for screwless mesh cable tray fastening.



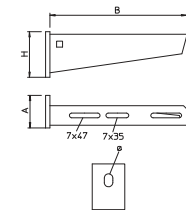
### Wall and support bracket AW 30

Type	Width mm	Dimen- sion H mm	Dimen- sion A mm	Dimen- sion B mm	Hole Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>AW 30 11 FT</b>	110	60	50	110	11	1	22.000	<b>6419704</b>

**St** Steel

**FT** Hot-dip galvanised

Medium-duty wall and support bracket with welded head plate.



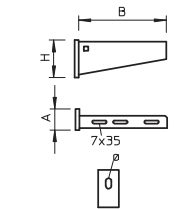
### Wall and support bracket AW 55

Type	Width mm	Dimen- sion B mm	Dimen- sion H mm	Dimen- sion A mm	Hole Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>AW 55 21 FT</b>	210	210	90	50	13.5	1	75.700	<b>6418554</b>
<b>AW 55 31 FT</b>	310	310	110	50	13.5	1	123.000	<b>6418570</b>
<b>AW 55 41 FT</b>	410	410	130	50	13.5	1	167.000	<b>6418597</b>

**St** Steel

**FT** Hot-dip galvanised

Heavy-duty wall and support bracket with welded head plate.



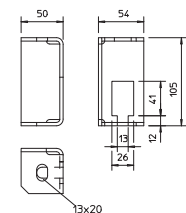
### Fire protection clamp

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSB FT</b>	20	42.400	<b>6418198</b>

**St** Steel

**FT** Hot-dip galvanised

Fire protection clamp for ceiling fastening of the threaded rod lock for routing types with cable ladders and cable trays for the maintenance of electrical function to DIN 4102 Part 12.



### Threaded rod

Type	Thread	Dimen- sion d mm	Dimen- sion L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>TR M10 1M G</b>	M10	10	1000	10	49.000	<b>3141209</b>
<b>TR M12 1M G</b>	M12	12	1000	10	62.000	<b>3141306</b>

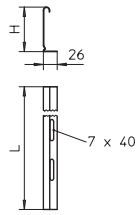
**St** Steel

**G** Electrogalvanised

Threaded rod to DIN 976.



### Barrier strip 45

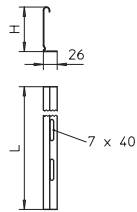


Type	Dimen- sion H mm	Plate thickness mm	Dimen- sion L mm	Pack. m	Weight kg/100 m	Item No.
<b>TSG 45 FS</b>	45	0.75	3000	3	46.700	<b>6062033</b>

- St** Steel
- FS** Strip-galvanised

Separating retainer for separation of cables of different voltages or functions.

### Barrier strip 60

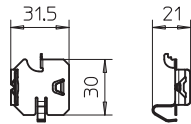


Type	Dimen- sion H mm	Plate thickness mm	Dimen- sion L mm	Pack. m	Weight kg/100 m	Item No.
<b>TSG 60 FS</b>	60	0.75	3000	3	55.700	<b>6062068</b>

- St** Steel
- FS** Strip-galvanised

Separating retainer for separation of cables of different voltages or functions.

### Hold-down clamp for separating retainer fastening in RKSM

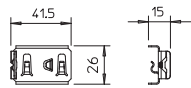


Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS KR A2</b>	30	0.537	<b>6062280</b>

- V2A** Stainless steel, A2

Clamping piece for screwless fastening of separating retainer in the cable tray types RKSM, MKS and SKS.

### Hold-down clamp for separating retainer fastening

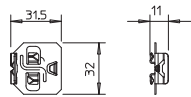


Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS GR A2</b>	30	0.830	<b>6062282</b>

- V2A** Stainless steel, A2

Hold-down clamp for fastening separating retainer in mesh cable trays.

### Hold-down clamp for separating retainer fastening VA

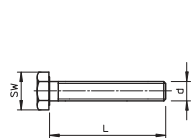


Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS KL A2</b>	30	0.512	<b>6062284</b>

- V2A** Stainless steel, A2

Hold-down clamp for screwless fastening of separating retainer in cable ladders.

### Hexagonal bolt with nut and washer



Type	Dimension mm	Dimen- sion L mm	Dimen- sion d mm	SW mm	Resistance class	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>SKS 10x80 F</b>	M10 x 80	80	10	17	8.8	20	7.700	<b>6418250</b>
<b>SKS 10x90 F</b>	M10 x 90	90	10	17	8.8	20	7.800	<b>6418252</b>

- St** Steel
- F** Hot-dip galvanised

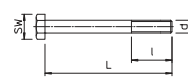
Hexagonal bolt for universal fixing of structure components.

### Hexagonal bolt with hexagonal nut, washer and tooth lock washer

Type	Dimension mm	Dimension L mm	Dimension l mm	Dimension d mm	SW mm	Resistance class	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>SKS 12x80 F</b>	M12 x 80	80	30	12	19	8.8	20	11.800	<b>6418287</b>
<b>SKS 12x100 F</b>	M12 x 100	100	30	12	19	8.8	20	12.600	<b>6418295</b>
<b>SKS 12x110 F</b>	M12 x 110	110	30	12	19	8.8	20	14.500	<b>6418317</b>

- St** Steel
- F** Hot-dip galvanised

Hexagonal bolt with hexagonal nut, washer and tooth lock washer.

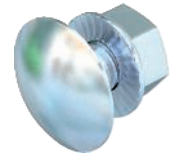
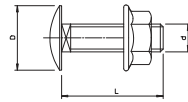


### Truss-head bolt with flange nut

Type	Dimension mm	Dimension L mm	Dimension D mm	Dimension d mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FRSB 6x12 F</b>	M 6 x 12	12	13.5	6	100	0.990	<b>6406122</b>
<b>FRSB 6x16 F</b>	M 6 x 16	16	13.5	6	100	0.800	<b>6406157</b>
<b>FRSB 6x20 F</b>	M 6 x 20	20	13.5	6	100	1.000	<b>6406203</b>

- St** Steel
- F** Hot-dip galvanised

Truss-head bolt with square neck including flange nut.

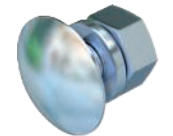
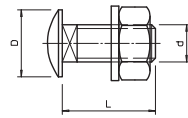


### Truss-head bolt with nut and washer

Type	Dimension mm	Dimension L mm	Dimension D mm	Dimension d mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FRS 10x25 F</b>	M 10 x 25	25	24	10	50	4.500	<b>6407528</b>

- St** Steel
- F** Hot-dip galvanised

Truss-head bolt with square neck. With washer and hexagonal nut.

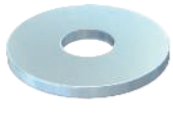
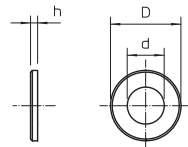


### Large washer

Type	Dimension D mm	Dimension d mm	Dimension h mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>DIN440 11 F</b>	34	11	3	100	1.985	<b>6408729</b>
<b>DIN440 14 F</b>	44	13.5	4	50	4.736	<b>6408737</b>

- St** Steel
- F** Hot-dip galvanised

Washer of particularly large outer diameter.

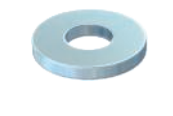
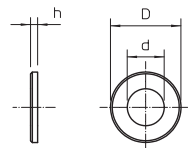


### Washer

Type	Thread	Dimension d mm	Dimension D mm	Dimension h mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>WS M10 D20 G</b>	M10	10.5	20	2	100	0.408	<b>3402096</b>
<b>WS M12 D24 G</b>	M12	13	24	2.5	100	0.627	<b>3402126</b>

- St** Steel
- G** Electrogalvanised

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

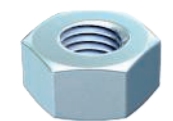
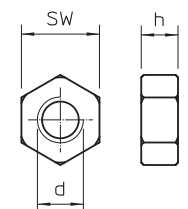


### Hexagonal nut DIN 934

Type	Thread	SW mm	Dimension h mm	Dimension d mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>HN M10 G</b>	M10	17	8.4	10	100	1.084	<b>3400107</b>

- St** Steel
- G** Electrogalvanised

Hexagonal nut to DIN 934 with metric thread.



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Function maintenance - Cable-specific support structures

## Cable trays, RKS-Magic® VA System description



The RKS-Magic® cable tray has been tested as a cable-specific support construction for the maintenance of electrical functionality according to DIN 4102 Part 12 and approved for the maintenance of electrical functionality classes E 30 to E 90. Threaded rod locking is not required at the tip of the bracket. This saves not just material but also considerably simplifies and speeds up the installation of cables. The screwless connection system allows interconnection of the RKS-Magic® cable trays without tools and in a

particularly quick and economic manner. To ensure the maintenance of electrical functionality, only the locking lugs in the base need to be bent after the trays have been connected. The double material thickness in the joint area and the beading in the base mean that the cable tray has a very high load capacity. The installation of fittings in the section route is permitted, as is the mounting of separating retainers.

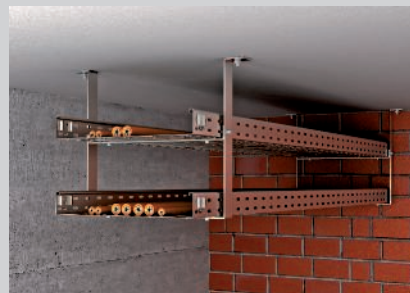
## Cable trays, RKS-Magic® VA Installation principle



Single-layer ceiling mounting with suspension clamp.



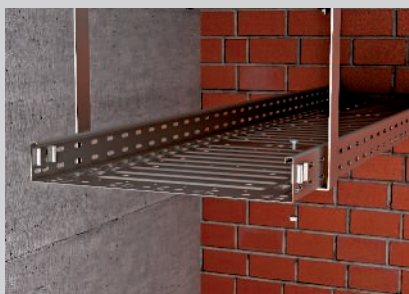
Mounting under sloping ceiling with individually adapted suspension clamp.



Two-layer ceiling mounting with suspension clamp and intermediate clamp.



Two-layer ceiling mounting with suspension clamp and extension.



Fastening of the cable tray with truss-head bolts.



Joint connection without additional gland.

Classification according to DIN 4102 Part 12

**E30**   **E60**   **E90**





## Cable trays, RKS-Magic® VA Proof

### Maintenance of electrical functionality system according to DIN 4102 Part 12

<b>Routing type</b>	Cable-specific support construction
<b>Test certificate no.</b>	P-MPA-E-12-003
<b>Maintenance of electrical functionality classes</b>	E30 to E90
<b>Testing standard</b>	DIN 4102 Part 12
<b>Mounting variant</b>	Ceiling mounting with suspension clamp
<b>Material version</b>	Rustproof steel

### Support spacing for ceiling mounting with suspension clamp



Cable tray width	Cable load per cable tray		
100 mm	max. 30 kg/m	max. 1.50 m	max. 1.50 m
200 mm	max. 30 kg/m	max. 1.50 m	max. 1.50 m
300 mm	max. 30 kg/m	max. 1.50 m	max. 1.50 m
400 mm	max. 30 kg/m	max. 1.50 m	max. 1.50 m



## Cable trays, RKS-Magic® VA

### Components used

#### Ceiling mounting with suspension clamp

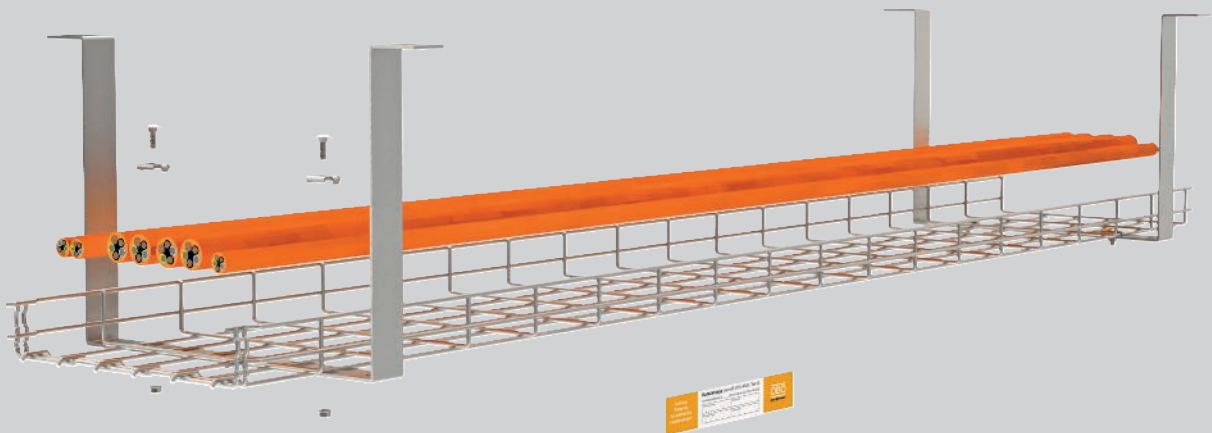
Component	Type		
Cable tray	RKSM 6... VA4571	1	2
Suspension clamp	AHB-T	1	1
Truss-head bolt	FRSB 6x12 A4	2	4
Intermediate clamp	AHB-TZ	0	1
Truss-head bolt	FRSB 6x16 A4	0	2

Choose the fastening anchors according to the substrate  
Intermediate clamp AHB-TZ on request



## GR-Magic® mesh cable trays VA

### System description

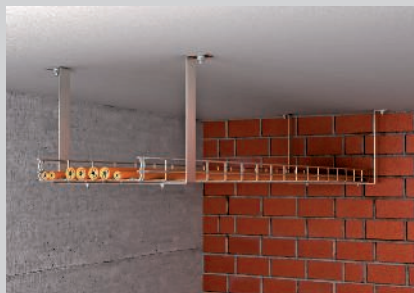


The GR-Magic® mesh cable tray, made from rust-proof steel, has been tested as a cable-specific support structure for the maintenance of electrical functionality according to DIN 4102 Part 12 and approved for the maintenance of electrical functionality classes E 30 to E 90. The rustproof steel version permits mounting in areas with more aggressive ambient conditions. The design of the AHB-T suspension clamp means that it can be mounted on straight, slanting or curved ceilings, thus allowing simple, space-saving in-

stallation of the mesh cable tray. The benefits of the screwless connection systems of the GR-Magic® mesh cable trays also apply to this routing type. This makes mounting of mesh cable trays, for example in the installation of long sections in increased corrosion protection requirements, an economically viable routing variant. With this system, the mounting of separating retainers and lids is permitted.

# GR-Magic® mesh cable trays VA

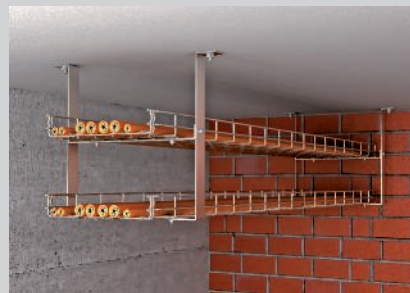
## Installation principle



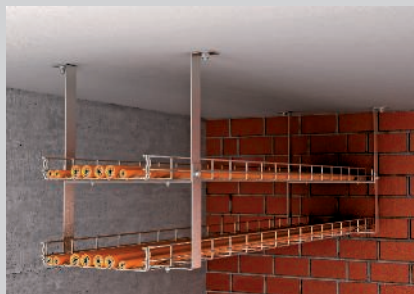
Single-layer ceiling mounting with suspension clamp.



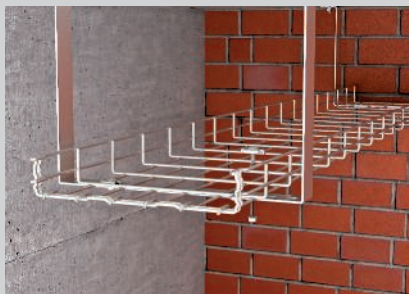
Mounting under sloping ceiling with individually adapted suspension clamp.



Two-layer ceiling mounting with suspension clamp and intermediate clamp.



Two-layer ceiling mounting with suspension clamp and extension.



Fastening of the mesh cable tray with clamping piece and truss-head bolts.



Joint connection without additional gland.

Classification according to DIN 4102 Part 12

**E30** **E60** **E90**

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Always indicate the item number when ordering.





## GR-Magic® mesh cable trays VA Proof

### Maintenance of electrical functionality system according to DIN 4102 Part 12

<b>Routing type</b>	Cable-specific support construction
<b>Test certificate no.</b>	P-MPA-E-12-003
<b>Maintenance of electrical functionality classes</b>	E30 to E90
<b>Testing standard</b>	DIN 4102 Part 12
<b>Mounting variant</b>	Ceiling mounting with suspension clamp
<b>Material version</b>	Rustproof steel



### Support spacing for ceiling mounting with suspension clamp

Cable tray width	Cable load per cable tray		
100 mm	max. 20 kg/m	max. 1.50 m	max. 1.50 m
200 mm	max. 20 kg/m	max. 1.50 m	max. 1.50 m
300 mm	max. 20 kg/m	max. 1.50 m	max. 1.50 m
400 mm	max. 20 kg/m	max. 1.50 m	max. 1.50 m

## GR-Magic® mesh cable trays VA

### Components used

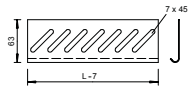
#### Ceiling mounting with suspension clamp

Component	Type		
Mesh cable tray	GRM 55 ... VA4401	1	2
Suspension clamp	AHB-T	1	1
Clamping piece	GKS 34 VA4401	2	4
Intermediate clamp	AHB-TZ	0	1
Truss-head bolt	FRSB 6x16 A4	0	2

Choose the fastening anchors according to the substrate  
Intermediate clamp AHB-TZ on request



## Bottom end plate

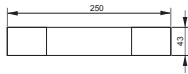


Type	Dimension		Pack. pcs	Weight		Item No.
	Width mm	sion B mm		kg/100 pcs.		
<b>BEB 100 A2</b>	100	100	100	5.400		<b>7084013</b>
<b>BEB 200 A2</b>	200	200	100	11.400		<b>7084048</b>
<b>BEB 300 A2</b>	300	300	100	17.200		<b>7084064</b>
<b>BEB 100 A4</b>	100	100	100	5.400		<b>7084141</b>
<b>BEB 200 A4</b>	200	200	100	11.400		<b>7084143</b>
<b>BEB 300 A4</b>	300	300	100	17.200		<b>7084145</b>

V2A Stainless steel, A2 V4A Stainless steel, A4

For base reinforcement at the ends of the tray and as cable protection.

## Identification plate for function maintenance



Type	Language	Pack. pcs	Weight		Item No.
			kg/100 pcs.		
<b>KS-E DE</b>	German	10	0.600		<b>7205423</b>
<b>KS-E EN</b>	English	10	0.600		<b>7205432</b>
<b>KS-E HU</b>	Hungarian	10	0.600		<b>7205434</b>
<b>KS-E PL</b>	Polish	10	0.600		<b>7205436</b>
<b>KS-E FI</b>	Finnish	10	0.600		<b>7205437</b>
<b>KS-E SE</b>	Swedish	10	0.600		<b>7205424</b>
<b>KS-E IT</b>	Italian	10	0.600		<b>7205435</b>
<b>KS-E NL</b>	Dutch	10	0.600		<b>7205405</b>

PVC Polyvinylchloride

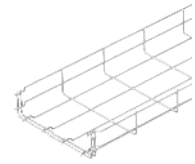
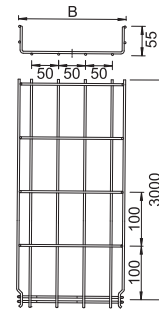
Self-adhesive identification plate for approved cable system labelling for maintenance of electrical function as required by DIN 4102 part 12.

### Mesh cable tray GR-Magic® 55

Type	Width mm	Wire Ø mm	Dimen- sion B mm	Pack. m	Weight kg/100 m	Item No.
<b>GRM 55 300 A4</b>	300	4.8	300	3	191.100	<b>6001093</b>

V2A Stainless steel, A2 V4A Stainless steel, A4  
GB Stained

Mesh cable tray with shaped connector of side height 55 mm.

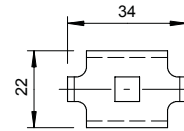


### Clamping piece

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>GKS 34 A4</b>	10	2.000	<b>6016859</b>

V2A Stainless steel, A2 V4A Stainless steel, A4

Hold-down clamp for fixing mesh cable trays to wall or support brackets.

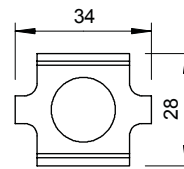


### Joint connector

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>GSV 34 A4</b>	20	3.000	<b>6016648</b>

V2A Stainless steel, A2 V4A Stainless steel, A4

Screwed version of joint connector for mesh cable trays.

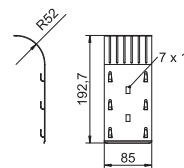


### Drop-out plate

Type	Pack. pcs	Weight kg/100 pcs.	Item No.

V2A Stainless steel, A2

Drop-out plate for mesh cable trays.

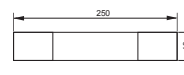


### Identification plate for function maintenance

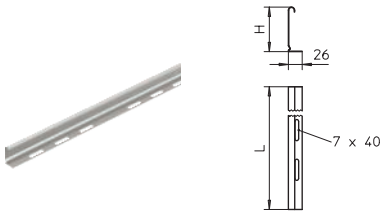
Type	Language	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS-E EN</b>	English	10	0.600	<b>7205432</b>
<b>KS-E HU</b>	Hungarian	10	0.600	<b>7205434</b>
<b>KS-E PL</b>	Polish	10	0.600	<b>7205436</b>
<b>KS-E FI</b>	Finnish	10	0.600	<b>7205437</b>
<b>KS-E SE</b>	Swedish	10	0.600	<b>7205424</b>
<b>KS-E IT</b>	Italian	10	0.600	<b>7205435</b>
<b>KS-E NL</b>	Dutch	10	0.600	<b>7205405</b>

PVC Polyvinylchloride

Self-adhesive identification plate for approved cable system labelling for maintenance of electrical function as required by DIN 4102 part 12.



### Barrier strip 45

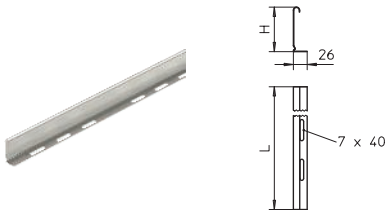


Type	Dimen- sion H mm	Plate thickness mm	Dimen- sion L mm	Pack. m	Weight kg/100 m	Item No.
<b>TSG 45 A2</b>	45	0.75	3000	3	47.000	<b>6062025</b>
<b>TSG 45 A4</b>	45	0.75	3000	3	48.000	<b>6062028</b>

V2A Stainless steel, A2 V4A Stainless steel, A4

Separating retainer for separation of cables of different voltages or functions.

### Barrier strip 60

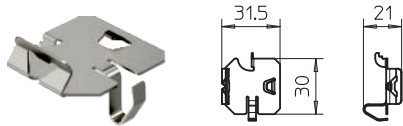


Type	Dimen- sion H mm	Plate thickness mm	Dimen- sion L mm	Pack. m	Weight kg/100 m	Item No.
<b>TSG 60 A2</b>	60	0.75	3000	3	55.000	<b>6062084</b>
<b>TSG 60 A4</b>	60	0.75	3000	3	56.670	<b>6062086</b>

V2A Stainless steel, A2 V4A Stainless steel, A4

Separating retainer for separation of cables of different voltages or functions.

### Hold-down clamp for separating retainer fastening in RKSM

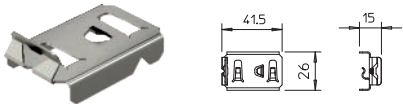


Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS KR A2</b>	30	0.537	<b>6062280</b>

V2A Stainless steel, A2

Clamping piece for screwless fastening of separating retainer in the cable tray types RKSM, MKS and SKS.

### Hold-down clamp for separating retainer fastening

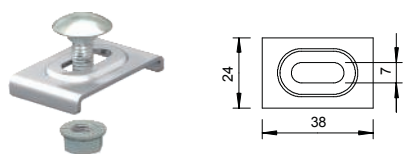


Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS GR A2</b>	30	0.830	<b>6062282</b>

V2A Stainless steel, A2

Hold-down clamp for fastening separating retainer in mesh cable trays.

### Hold-down clamp

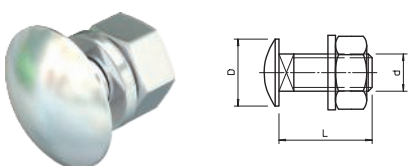


Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>GKT 38 A2</b>	20	2.200	<b>6017045</b>
<b>GKT 38 A4</b>	10	2.200	<b>6017092</b>

V2A Stainless steel, A2 V4A Stainless steel, A4

Clamp for fastening barrier strip in mesh cable trays.

### Truss-head bolt with nut and washer



Type	Dimension mm	Dimen- sion L mm	Dimen- sion D mm	Dimen- sion d mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FRS 6x12 A2</b>	M 6 x 12	12	13.5	6	100	0.760	<b>6406521</b>
<b>FRS 6x16 A2</b>	M 6 x 16	15	13.5	6	100	0.900	<b>6406556</b>

V2A Stainless steel, A2

Truss-head bolt with square neck including washer and hexagonal nut.

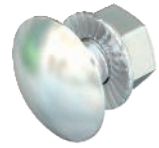
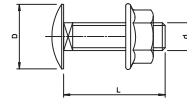


## Truss-head bolt with flange nut

Type	Dimension mm	Dimen- sion L mm	Dimen- sion D mm	Dimen- sion d mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FRSB 6x12 A4</b>	M 6 x 12	12	13.5	6	100	0.796	<b>6406142</b>
<b>FRSB 6x16 A4</b>	M 6 x 16	16	13.5	6	100	0.800	<b>6406193</b>

V4A Stainless steel, A4

Truss-head bolt with square neck including flange nut.



## Securing hook for G-GRM

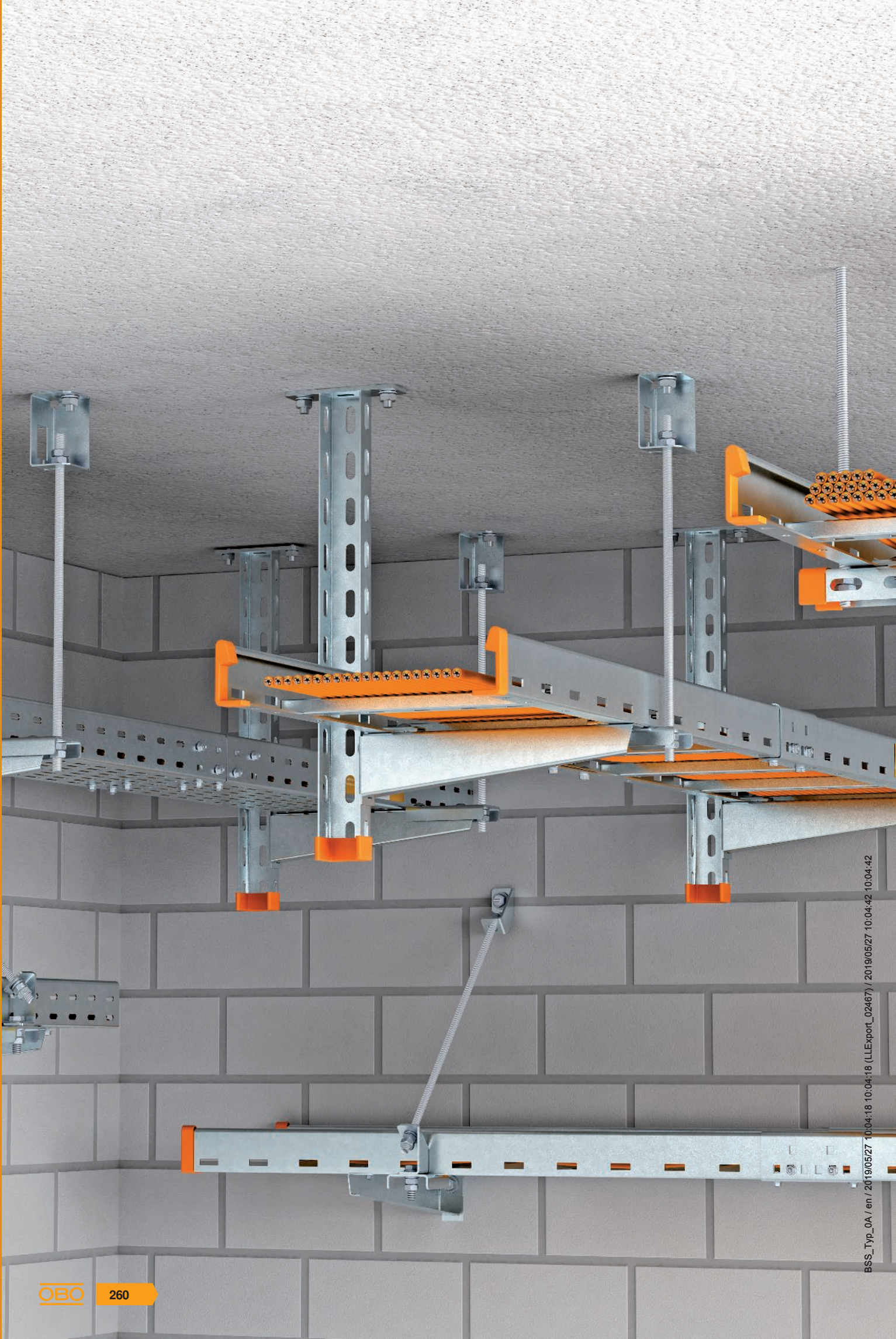


Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>G-GRM-SH 4401</b>	50	0.740	<b>6005650</b>

V4A Stainless steel, grade 316










For protection against bending in case of fire; usable in the types G-GRM 125 75 and G-GRM 150 100





BSS\_Typ\_0A / en / 2019/05/27 10:04:18 (LLExpert\_02467) / 2019/05/27 10:04:42 10:04:42

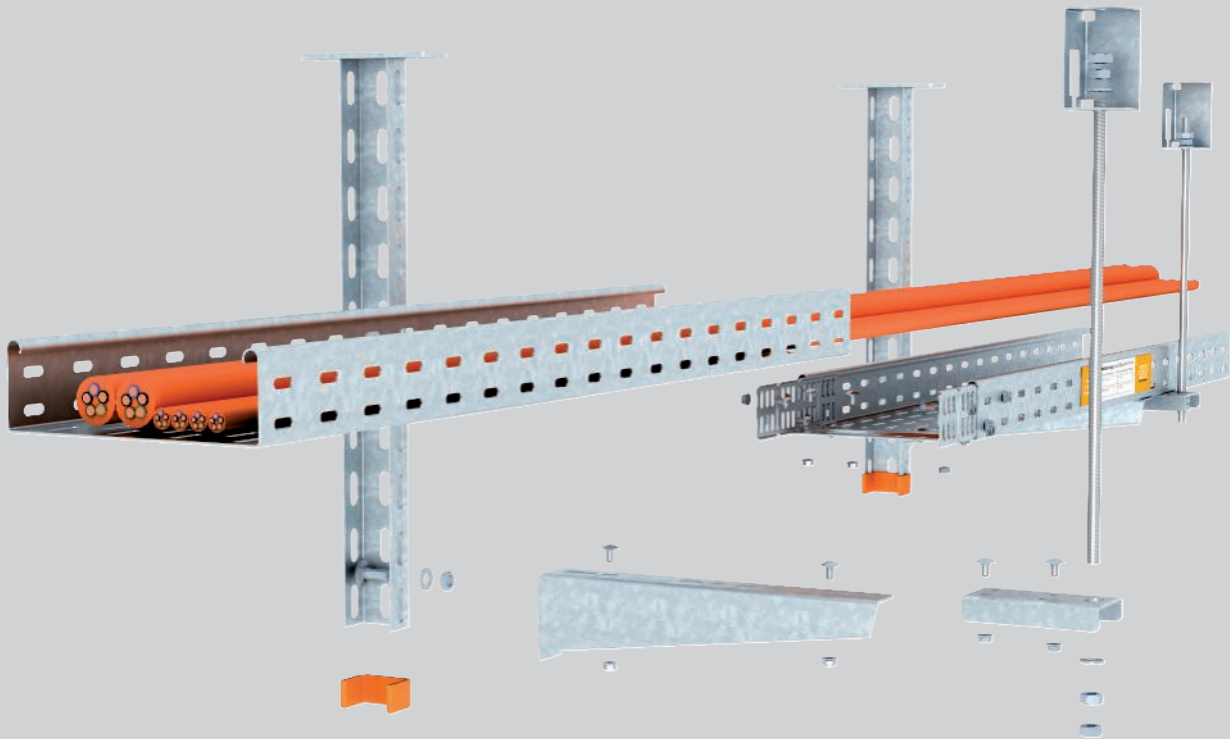
## Maintaining electrical function – standard support structures, vertical ladders – strain relief

	<b>System description, cable tray SKS</b>	262
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## Cable trays SKS6..., ceiling mounting

### System description



The routing type under the ceiling of cable trays of types SKS with U suspended supports and SKS on U transverse profiles fulfils all the requirements of DIN 4102 Part 12 as a standard support structure for the maintenance of electrical functionality classes E 30 to E 90.

The cable trays can be mounted on the U suspended support on one or both sides with up to six tray layers. The threaded rod lock is fastened with a maximum spacing of 100 mm beside the bracket. For this, the ABR connection component should be screwed under the tray base.

Due to the low construction height of the U transverse profile and threaded rod suspension on both sides saves a lot of space. Versions with one or two-layer mounting variants are approved.

With both types, the position of the joints between the individual support points can be chosen freely. The cable trays are screwed on using connectors in the side rail and an additional joint plate in the base of the tray.

## Cable trays SKS6..., ceiling mounting

### Installation principle



Ceiling suspension with bracket arrangement on one side.



Ceiling suspension with bracket arrangement on both sides.



Mounting under sloping ceiling with variable head plate.



Bracket mounting on suspended support with truss-head bolt.



Fasten straight connectors and joint plate using truss-head bolts.



Threaded rod fastening on the tray with multi-layer arrangement.

Classification according to DIN 4102 Part 12

E30

E60

E90








## Cable trays SKS6..., ceiling mounting

### Proof



#### Maintenance of electrical functionality system according to DIN 4102 Part 12

<b>Routing type</b>	Standard support system
<b>Test certificate no.</b>	GS 3.2/17-436-2
<b>Maintenance of electrical functionality classes</b>	E30 to E90
<b>Testing standard</b>	DIN 4102 Part 12
<b>Mounting variants</b>	Ceiling mounting with suspended support, bracket and threaded rod lock Ceiling mounting with transverse profile and threaded rod lock on both sides
<b>Material version</b>	Galvanised steel

#### Support spacing for ceiling mounting with suspended support, bracket and threaded rod lock

Cable tray width	Cable load per cable tray					
100 mm	max. 10 kg/m	max. 1.20 m	max. 1.20 m	max. 1.20 m	max. 1.20 m	max. 1.20 m
200 mm	max. 10 kg/m	max. 1.20 m	max. 1.20 m	max. 1.20 m	max. 1.20 m	max. 1.20 m
300 mm	max. 10 kg/m	max. 1.20 m	max. 1.20 m	max. 1.20 m	max. 1.20 m	max. 1.20 m

#### Support spacing for ceiling mounting with transverse profile and threaded rod suspension on both sides






Cable tray width	Cable load per cable tray		
100 mm	max. 10 kg/m	max. 1.20 m	max. 1.20 m
200 mm	max. 10 kg/m	max. 1.20 m	max. 1.20 m
300 mm	max. 10 kg/m	max. 1.20 m	max. 1.20 m







## Cable trays SKS6..., ceiling mounting

### Components used

Component	Type					
Cable tray	SKS 6... FS	1	2	3	2	3
Connector	RWVL 60 FS	2	4	6	4	6
Joint plate	SSLB ... FS	1	2	3	2	3
Support	US 3 K ... FT	1	1	1	1	1
Protective cap	US 3 KS OR	1	1	1	1	1
Wall and support brackets	MWA12... FS	1	2	3	2	3
Truss-head bolt	FRSB 6x 15 F	2	4	6	4	6
Connection component	ABR FT	1	2	3	2	3
Threaded rod	2078 M10 G	1	2	3	2	3
Hexagonal nut	DIN 934 M10 G	4	5	6	8	9
Washer	966 M10 G	2	3	4	4	5
Connection sleeve	12005 M10 G	0	1	2	0	1
Fire protection clamp	BSB	1	1	1	2	2

Choose the fastening anchors according to the substrate

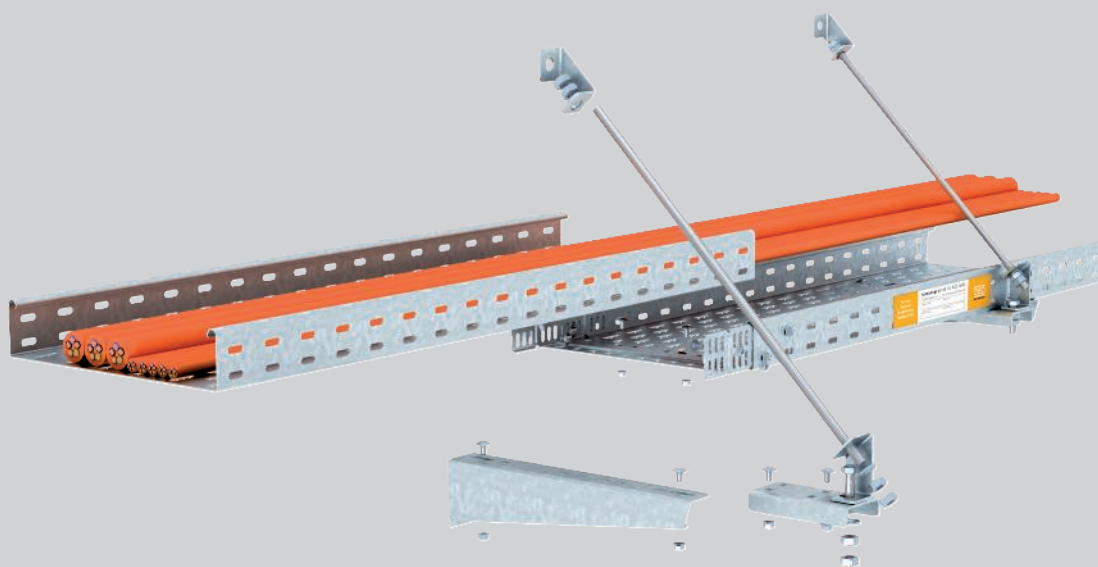
Component	Type		
Cable tray	SKS 6... FS	1	2
Connector	RWVL 60 FS	2	4
Joint plate	SSLB ... FS	1	2
Support	US 3 ... FS	1	2
Protective cap	US 3 KS OR	2	4
Threaded rod	2078 M10 G	2	4
Hexagonal nut	DIN 934 M10 G	6	10
Large washer	DIN440 11 F	4	8
Connection sleeve	12005 M10 G	0	2
Truss-head bolt	FRSB 6x 20 F	2	4
Large washer	DIN440 7 F	2	4

Choose the fastening anchors according to the substrate



## Cable trays SKS6..., wall mounting

### System description



The routing type of cable trays of type SKS with wall brackets on the wall fulfils all the requirements of DIN 4102 Part 12 as a standard support structure for the maintenance of electrical functionality classes E 30 to E 90. When the cable trays are mounted on the wall, up to three tray layers can be arranged vertically. The threaded rod lock is fastened vertically under the ceiling with a maximum spacing of 100 mm beside the bracket using an ABR connection component

screwed on beneath the tray base. In the case of one-layer section mounting, the threaded rod lock can alternatively be created using sloping connection components at an angle of 45° to the wall. Joints can be positioned freely between the individual support points. Connectors are screwed into the side rails and an additional joint plate to the base, in order to connect the cable trays.



## Cable trays SKS6..., wall mounting

### Installation principle



Wall mounting, multi-layer, with vertical threaded rod locking.



Wall mounting with diagonal threaded rod locking.



Ceiling fastening of the threaded rods with fire protection clamps.



Threaded rod fastening on the cable tray with multilayer arrangement.



Fastening of the vertical threaded rod on the lowest cable tray.



Mounting of the brackets and the sloping connection components on a wall.



Fastening of the sloping connection component.

Classification according to DIN 4102 Part 12

E30

E60

E90






## Cable trays SKS6..., wall mounting Proof


### Maintenance of electrical functionality system according to DIN 4102 Part 12

<b>Routing type</b>	Standard support system
<b>Test certificate no.</b>	GS 3.2/17-436-2
<b>Maintenance of electrical functionality classes</b>	E30 to E90
<b>Testing standard</b>	DIN 4102 Part 12
<b>Mounting variants</b>	Wall mounting with bracket and vertical threaded rod lock Wall mounting with bracket and diagonal threaded rod lock
<b>Material version</b>	Galvanised steel

### Support spacing for wall mounting with bracket and vertical threaded rod lock

Cable tray width	Cable load per cable tray			
100 mm	max. 10 kg/m	max. 1.20 m	max. 1.20 m	max. 1.20 m
200 mm	max. 10 kg/m	max. 1.20 m	max. 1.20 m	max. 1.20 m
300 mm	max. 10 kg/m	max. 1.20 m	max. 1.20 m	max. 1.20 m



### Support spacing for wall mounting with bracket and diagonal threaded rod lock

Cable tray width	Cable load per cable tray	
100 mm	max. 10 kg/m	max. 1.20 m
200 mm	max. 10 kg/m	max. 1.20 m
300 mm	max. 10 kg/m	max. 1.20 m




## Cable trays SKS6..., wall mounting

### Components used

Component	Type		
Cable tray	SKS 6... FS	1	2
Connector	RWVL 60 FS	2	4
Joint plate	SSLB ... FS	1	2
Support	US 3 K ... FT	1	1
Protective cap	US 3 KS OR	1	1
Wall and support brackets	MWA12... FS	1	2
Truss-head bolt	FRSB 6x 15 F	2	4
Connection component	ABR FT	1	2
Threaded rod	2078 M10 G	1	2
Hexagonal nut	DIN 934 M10 G	4	5
Washer	966 M10 G	2	3
Connection sleeve	12005 M10 G	0	1
Fire protection clamp	BSB	1	1

Choose the fastening anchors according to the substrate

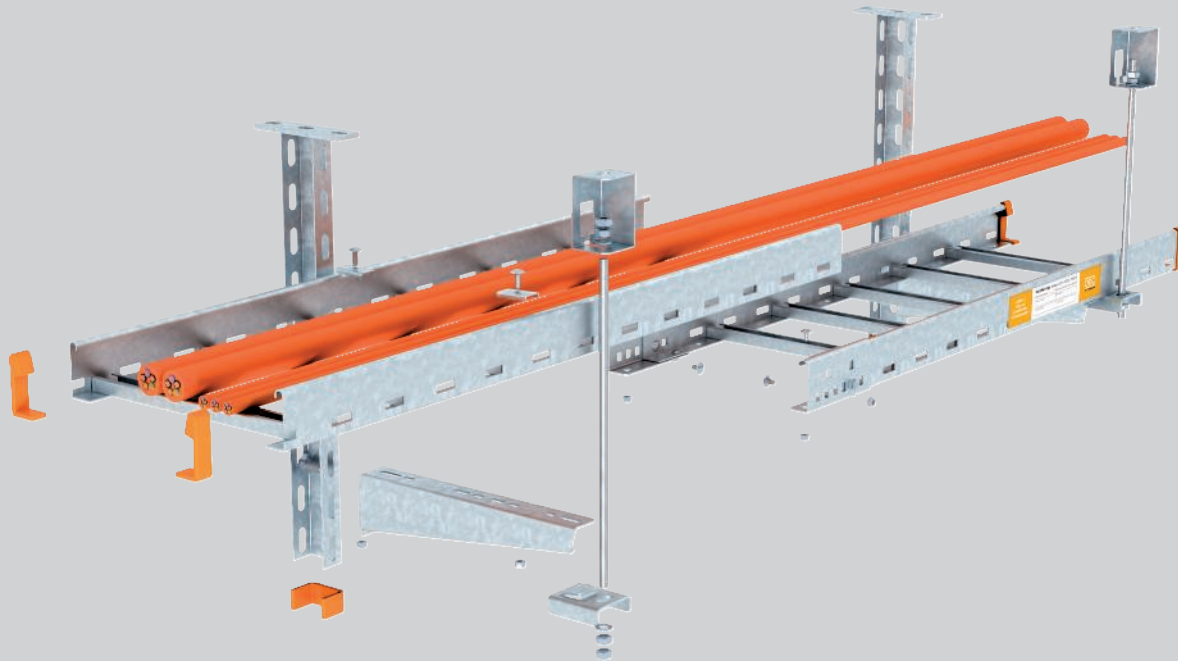
Component	Type	
Cable tray	SKS 6... FS	1
Connector	RWVL 60 FS	2
Joint plate	SSLB ... FS	1
Wall and support brackets	MWA12... FS	1
Truss-head bolt	FRSB 6x 15 F	2
Connection component	ABR FT	1
Connection component	ABS FS	2
Hexagonal bolt	SKS M10x40 F	1
Threaded rod	2078 M10 G	1
Hexagonal nut	DIN 934 M10 G	5
Washer	966 M10 G	2

Choose the fastening anchors according to the substrate



## Cable ladders LG6...VSF, ceiling mounting

### System description



The routing type under the ceiling of cable ladders of types LG with U suspended supports and LG with U transverse profiles fulfils all the requirements of DIN 4102 Part 12 as a standard support structure for the maintenance of electrical functionality classes E 30 to E 90.

The cable ladders can be mounted on the U suspended support on one or both sides with up to three layers. The threaded rod lock is fastened with a maximum spacing of 100 mm beside the bracket. The ABL connection component need simply be attached to the lower flange of the ladder rail. Mounting of the threaded rod secures the connection component against slipping.

Due to the low construction height of the transverse profile of just 30 mm, the routing variant with U transverse profile and threaded rod suspension on both sides saves a lot of space. Versions with one or two-layer mounting variants are approved.

With both cable ladder types, the joints of the ladder rails are connected using external connectors, which are screwed to the rails. The position of the joints between the individual support points can be chosen freely. The rung spacing for both cable ladder types is 150 mm. Therefore, no additional rung support plates are required.

## Cable ladders LG6...VSF, ceiling mounting Installation principle



Ceiling suspension with bracket arrangement on one side.



Ceiling suspension with bracket arrangement on both sides.



Mounting under sloping ceiling with variable head plate.



Mounting of the straight connectors using truss-head bolts.



Attachment of the connection component on the lower flange of the ladder rail.



Attachment of the threaded rod in the fire protection clamp.



Single-layer ceiling mounting with U cross-section.



Two-layer ceiling mounting with U cross-section.



Mounting on transverse profile with clamping piece, truss-head bolts and large washers.

Classification according to DIN 4102 Part 12

E30

E60

E90








## Cable ladders LG6...VSF, ceiling mounting Proof



### Maintenance of electrical functionality system according to DIN 4102 Part 12

<b>Routing type</b>	Standard support system
<b>Test certificate no.</b>	GS 3.2/17-436-1
<b>Maintenance of electrical functionality classes</b>	E30 to E90
<b>Testing standard</b>	DIN 4102 Part 12
<b>Mounting variants</b>	Ceiling mounting with suspended support, bracket and threaded rod lock Ceiling mounting with transverse profile and threaded rod lock on both sides
<b>Material version</b>	Galvanised steel

### Support spacing for ceiling mounting with suspended support, bracket and threaded rod lock

Cable ladder width	Cable load per cable ladder					
200 mm	max. 20 kg/m	max. 1.20 m	max. 1.20 m	max. 1.20 m	max. 1.20 m	max. 1.20 m
300 mm	max. 20 kg/m	max. 1.20 m	max. 1.20 m	max. 1.20 m	max. 1.20 m	max. 1.20 m
400 mm	max. 20 kg/m	max. 1.20 m	max. 1.20 m	max. 1.20 m	max. 1.20 m	max. 1.20 m

### Support spacing for ceiling mounting with transverse profile and threaded rod suspension on both sides






Cable ladder width	Cable load per cable ladder		
200 mm	max. 20 kg/m	max. 1.20 m	max. 1.20 m
300 mm	max. 20 kg/m	max. 1.20 m	max. 1.20 m
400 mm	max. 20 kg/m	max. 1.20 m	max. 1.20 m







## Cable ladders LG6...VSF, ceiling mounting

### Components used

Component	Type					
Cable ladder	LG 6... VSF FS	1	2	3	2	3
External connector	AVL 60 FS	2	4	6	4	6
Support	US 3 K ... FT	1	1	1	1	1
Protective cap	US 3 KS OR	1	1	1	1	1
Wall and support brackets	MWA12... FS	1	2	3	2	3
Clamping piece	LKS 40 FS	2	4	6	4	6
Connection component	ABL FT	1	2	3	2	3
Threaded rod	2078 M10 G	1	2	0	2	3
Threaded rod	2078 M12 G	0	0	3	0	0
Hexagonal nut	DIN 934 M10 G	4	5	0	8	9
Hexagonal nut	DIN 934 M12 G	0	0	6	0	0
Washer	966 M10 G	2	3	0	4	5
Washer	966 M12 G	0	0	4	0	0
Connection sleeve	12005 M10 G	0	1	0	0	1
Connection sleeve	12005 M12 G	0	0	2	0	0
Fire protection clamp	BSB	1	1	1	2	2

Choose the fastening anchors according to the substrate

Component	Type		
Cable ladder	LG 6... VSF FS	1	2
External connector	AVL 60 FS	2	4
Support	US 3 ... FS	1	2
Protective cap	US 3 KS OR	2	4
Threaded rod	2078 M10 G	2	4
Hexagonal nut	DIN 934 M10 G	6	10
Large washer	DIN440 11 F	4	8
Connection sleeve	12005 M10 G	0	2
Clamping piece	LKS 40 FS	2	4
Large washer	DIN440 7 F	2	4

Choose the fastening anchors according to the substrate

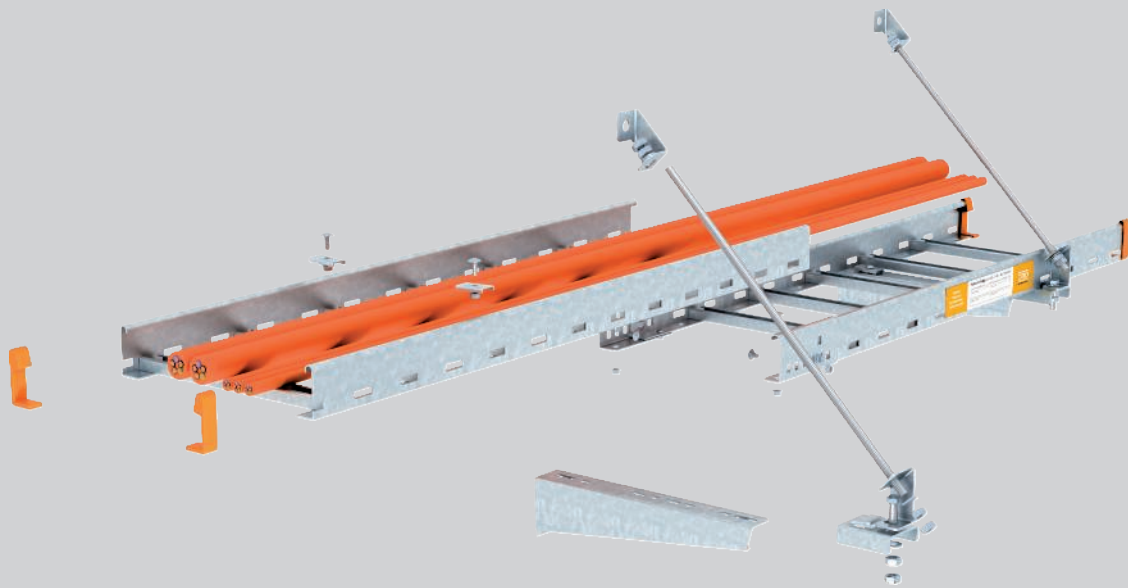
BSS\_Typ\_0A / en / 2019/05/27 10:04:18 (LLE:export\_02467) / 2019/05/27 10:04:42 10:04:42

Function maintenance – Standard support structures, vertical ladders, strain relief



## Cable ladders LG6...VSF, wall mounting

### System description



The routing type of cable ladders of type LG with wall brackets on the wall fulfils all the requirements of DIN 4102 Part 12 as a standard support structure. When cable ladders are mounted on the wall, up to two layers can be arranged on top of one another. The threaded rod lock to the ceiling is fastened vertically without screws using the ABL connection component attached to the lower flange of the ladder rail. The

maximum distance between the connection component and the bracket may be 100 mm. When only one cable ladder is mounted on the wall, the threaded rod lock can alternatively be created using sloping connection components at an angle of 45° to the wall.

## Cable ladders LG6...VSF, wall mounting

### Installation principle



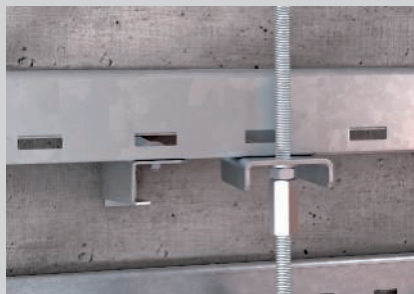
Wall mounting, multi-layer, with vertical threaded rod locking.



Wall mounting with diagonal threaded rod locking.



Ceiling fastening of the threaded rods with fire protection clamps.



Threaded rod fastening on the cable ladder with multilayer arrangement.



Fastening of the vertical threaded rod on the connection component.



Mounting of the brackets and the sloping connection components on a wall.



Diagonal mounting of the connection component using hexagonal bolt and hexagonal nuts.

Classification according to DIN 4102 Part 12

E30

E60

E90






## Cable ladders LG6...VSF, wall mounting Proof


### Maintenance of electrical functionality system according to DIN 4102 Part 12

<b>Routing type</b>	Standard support system
<b>Test certificate no.</b>	GS 3.2/17-436-1
<b>Maintenance of electrical functionality classes</b>	E30 to E90
<b>Testing standard</b>	DIN 4102 Part 12
<b>Mounting variants</b>	Wall mounting with bracket and vertical threaded rod lock Wall mounting with bracket and diagonal threaded rod lock
<b>Material version</b>	Galvanised steel

### Support spacing for wall mounting with bracket and vertical threaded rod lock

Cable ladder width	Cable load per cable ladder			
200 mm	max. 20 kg/m	max. 1.20 m	max. 1.20 m	max. 1.20 m
300 mm	max. 20 kg/m	max. 1.20 m	max. 1.20 m	max. 1.20 m
400 mm	max. 20 kg/m	max. 1.20 m	max. 1.20 m	max. 1.20 m




### Support spacing for wall mounting with bracket and diagonal threaded rod lock

Cable ladder width	Cable load per cable ladder	
200 mm	max. 20 kg/m	max. 1.20 m
300 mm	max. 20 kg/m	max. 1.20 m
400 mm	max. 20 kg/m	max. 1.20 m




## Cable ladders LG6...VSF, wall mounting

### Components used

Component	Type			
Cable ladder	LG 6... VSF FS	1	2	3
External connector	AVL 60 FS	2	4	6
Wall and support brackets	MWA12... FS	1	2	3
Clamping piece	LKS 40 FS	2	4	6
Connection component	ABL FT	1	2	3
Threaded rod	2078 M10 G	1	2	0
Threaded rod	2078 M12 G	0	0	3
Hexagonal nut	DIN 934 M10 G	4	5	0
Hexagonal nut	DIN 934 M12 G	0	0	6
Washer	966 M10 G	2	3	0
Washer	966 M12 G	0	0	4
Connection sleeve	12005 M10 G	0	1	0
Connection sleeve	12005 M12 G	0	0	2
Fire protection clamp	BSB	1	1	1

Choose the fastening anchors according to the substrate

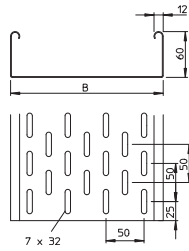
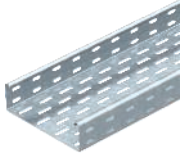
Component	Type	
Cable ladder	LG 6...VSF FS	1
External connector	AVL 60 FS	2
Wall and support brackets	MWA12... FS	1
Clamping piece	LKS 40 FS	2
Connection component	ABR FT	1
Connection component	ABS FS	2
Hexagonal bolt	SKS M10x40 F	1
Threaded rod	2078 M10 G	1
Hexagonal nut	DIN 934 M10 G	5
Washer	966 M10 G	2

Choose the fastening anchors according to the substrate



## Cable tray SKS

### Cable tray SKS 60



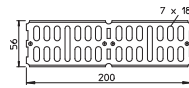
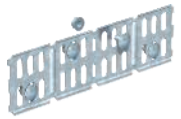
Type	Width mm	Plate thickness mm	Dimen- sion B mm	Pack. m	Weight kg/100 m	Item No.
<b>SKS 610 FS</b>	100	1.50	100	3	239.400	<b>6056105</b>
<b>SKS 620 FS</b>	200	1.50	200	3	364.000	<b>6056202</b>
<b>SKS 630 FS</b>	300	1.50	300	3	463.670	<b>6056296</b>

**St** Steel

**FS** Strip-galvanised

SKS 60 = Heavy-duty cable tray system with 60 mm side height.

### Straight and angle connector 60



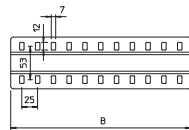
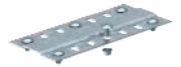
Type	Dimension mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>RWVL 60 FS</b>	200 x 56	10	16.400	<b>6067115</b>

**St** Steel

**FS** Strip-galvanised

Straight and angle connector for cable trays and fittings with a side height of 60 mm.

### Joint plate



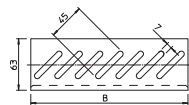
Type	Dimen- sion B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>SSLB 100 FS</b>	100	20	7.700	<b>7070205</b>
<b>SSLB 200 FS</b>	200	20	16.700	<b>7070213</b>
<b>SSLB 300 FS</b>	300	20	25.700	<b>7070217</b>

**St** Steel

**FS** Strip-galvanised

Wide joint plate for use in all cable trays and wide span cable trays.

### Bottom end plate



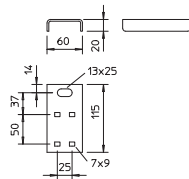
Type	Width mm	Dimen- sion B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BEB 100 FS</b>	100	100	100	5.400	<b>7083106</b>
<b>BEB 200 FS</b>	200	200	100	11.400	<b>7083203</b>
<b>BEB 300 FS</b>	300	300	100	17.200	<b>7083300</b>

**St** Steel

**FS** Strip-galvanised

Bottom end plate for floor reinforcement at the ends of the cable tray and as cable protection.

### Connection component



Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>ABR FT</b>	20	23.000	<b>6364942</b>
<b>ABR VA4571</b>	20	22.000	<b>6364947</b>

**St** Steel **V4A** Stainless steel, grade 316 Ti

**FT** Hot-dip galvanised

The connection component is the connection between the threaded rod lock and the suspension system for the routing types with cable trays for the maintenance of electrical function to DIN 4102 Part 12. Including bolts and nuts.

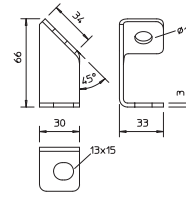
## Connection component, sloping

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>ABS FS</b>	20	7.200	<b>6365027</b>
<b>ABS FT</b>	20	7.800	<b>6365035</b>

**St** Steel

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

The connection component is the connecting element for the sloping arrangement of the threaded rod locking for wall mounting of the standard routing types with cable ladders and cable trays for the maintenance of electrical function to DIN 4102 Part 12.

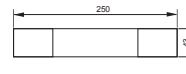


## Identification plate for function maintenance

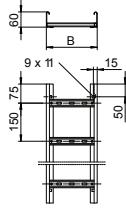
Type	Language	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS-E DE</b>	German	10	0.600	<b>7205423</b>
<b>KS-E EN</b>	English	10	0.600	<b>7205432</b>
<b>KS-E HU</b>	Hungarian	10	0.600	<b>7205434</b>
<b>KS-E PL</b>	Polish	10	0.600	<b>7205436</b>
<b>KS-E FI</b>	Finnish	10	0.600	<b>7205437</b>
<b>KS-E SE</b>	Swedish	10	0.600	<b>7205424</b>
<b>KS-E IT</b>	Italian	10	0.600	<b>7205435</b>
<b>KS-E NL</b>	Dutch	10	0.600	<b>7205405</b>

**PVC** Polyvinylchloride

Self-adhesive identification plate for approved cable system labelling for maintenance of electrical function as required by DIN 4102 part 12.



### Cable ladder

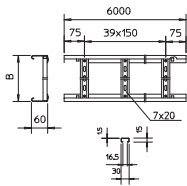


Type	Width mm	Length mm	Rung spacing mm	Dimen- sion B mm	Pack. m	Weight kg/100 m	Item No.
<b>LG 620 VSF6000FS</b>	200	6000	150	200	6	324.700	<b>6207501</b>
<b>LG 630 VSF6000FS</b>	300	6000	150	300	6	373.300	<b>6207505</b>
<b>LG 640 VSF6000FS</b>	400	6000	150	400	6	422.000	<b>6207509</b>
<b>LG 620 VSF FT</b>	200	6000	150	200	6	351.700	<b>6207523</b>
<b>LG 630 VSF FT</b>	300	6000	150	300	6	403.300	<b>6207527</b>
<b>LG 640 VSF FT</b>	400	6000	150	400	6	455.000	<b>6207531</b>

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

Maintenance of electrical function class E30 to E90  
 Standard routing system DIN 4102 Part 12  
 For the cable ladder routing type, a cable ladder is used with a rail height of 60 mm, a material thickness of 1.5 mm and a rung distance of 150 mm.  
 Cable ladder with riveted C profile rungs which are open in an upwards direction. Rolled side rail for reinforcement and as edge protection.

### Cable ladder SL VSF F



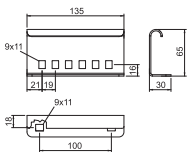
**E30** **E90**

Type	Width mm	Length mm	Rung spacing mm	Dimen- sion B mm	Pack. m	Weight kg/100 m	Item No.
<b>SL 620 VSF F</b>	200	6000	150	200	6	409.000	<b>6207928</b>
<b>SL 630 VSF F</b>	300	6000	150	300	6	457.600	<b>6207932</b>
<b>SL 640 VSF F</b>	400	6000	150	400	6	506.300	<b>6207936</b>
<b>SL 650 VSF F</b>	500	6000	150	500	6	555.000	<b>6207940</b>

**St** Steel  
**FS** Strip-galvanised

Heavy-weight cable ladder for electrical function maintenance to DIN 4102 Part 12. Material thickness 2 mm

### External connector

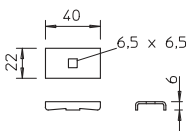


Type	Width mm	Side height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>AVL 60 FS</b>	135	65	10	23.200	<b>6208770</b>
<b>AVL 60 FT</b>	135	65	10	23.400	<b>6208778</b>

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

External connector for mechanical connection of cable ladder sections for routing types with cable ladders for the maintenance of electrical function to DIN 4102 Part 12. Including bolts.

### Clamping piece

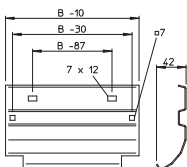
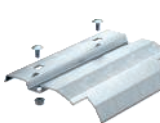


Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>LKS 40 FS</b>	10	2.300	<b>6221076</b>

**St** Steel  
**FS** Strip-galvanised

Hold-down clamp for fastening cable ladders.

### Drop-out plate



Type	Width mm	Side height mm	Dimen- sion B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>LAB 20 FT</b>	200	45	200	20	37.000	<b>6220436</b>
<b>LAB 30 FT</b>	300	45	300	25	58.000	<b>6220444</b>
<b>LAB 40 FT</b>	400	45	400	25	78.000	<b>6220452</b>

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

Exit plate for installation on the rung for vertically exiting cables.

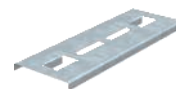
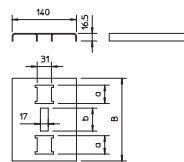


### Rung support plate for function maintenance

Type	Dimension B mm	Dimension a mm	Dimension b mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>SAB20 FS</b>	180	40	50	25	31.000	<b>6222943</b>
<b>SAB30 FS</b>	280	60	80	25	50.000	<b>6222951</b>
<b>SAB40 FS</b>	380	60	75	25	65.000	<b>6222978</b>
<b>SAB30 FT</b>	280	60	80	25	52.000	<b>6223036</b>
<b>SAB40 FT</b>	380	60	75	25	71.000	<b>6223044</b>

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

Rung support plates to increase the support area for the cables in the fittings for routing types with cable ladders for function maintenance to DIN 4102 Part 12. Use the support plates to ensure the largest possible support surface in the cable ladder fittings for cables that maintain electrical function in the event of fire. The rung support plates are just laid loosely on the rungs of the cable ladder fittings. The lugs pointing down prevent slippage.



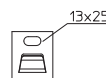
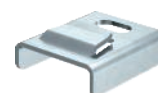
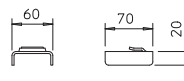
### Connection component

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>ABL FT</b>	20	14.300	<b>6221467</b>

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

The connection component is the connection between the threaded rod lock and the suspension system for the routing types with cable ladders for that maintain electrical function to DIN 4102 Part 12.

It is attached to the under-belt of the ladder rail at a distance of max. 100 mm from the bracket. When the threaded rod has been mounted, the connection component is secured against slipping.

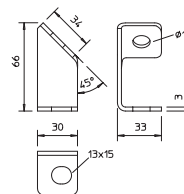


### Connection component, sloping

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>ABS FS</b>	20	7.200	<b>6365027</b>

**St** Steel  
**FS** Strip-galvanised

The connection component is the connecting element for the sloping arrangement of the threaded rod locking for wall mounting of the standard routing types with cable ladders and cable trays for the maintenance of electrical function to DIN 4102 Part 12.

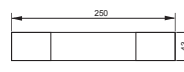


### Identification plate for function maintenance

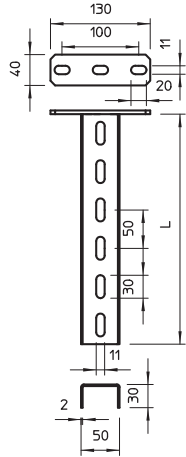
Type	Language	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS-E DE</b>	German	10	0.600	<b>7205423</b>
<b>KS-E EN</b>	English	10	0.600	<b>7205432</b>
<b>KS-E HU</b>	Hungarian	10	0.600	<b>7205434</b>
<b>KS-E PL</b>	Polish	10	0.600	<b>7205436</b>
<b>KS-E FI</b>	Finnish	10	0.600	<b>7205437</b>
<b>KS-E SE</b>	Swedish	10	0.600	<b>7205424</b>
<b>KS-E IT</b>	Italian	10	0.600	<b>7205435</b>
<b>KS-E NL</b>	Dutch	10	0.600	<b>7205405</b>

**PVC** Polyvinylchloride

Self-adhesive identification plate for approved cable system labelling for maintenance of electrical function as required by DIN 4102 part 12.



### US 3 support



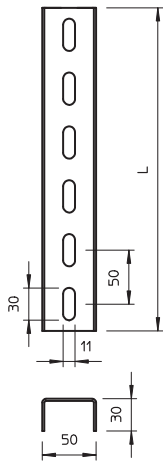
Type	Length mm	Material thickness mm	Dimen- sion L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
US 3 K 20 FT	200	2	200	1	50.500	6342351
US 3 K 30 FT	300	2	300	1	64.400	6342353
US 3 K 40 FT	400	2	400	1	78.300	6342355
US 3 K 50 FT	500	2	500	1	92.300	6342357
US 3 K 60 FT	600	2	600	1	106.200	6342359
US 3 K 70 FT	700	2	700	1	120.200	6342362
US 3 K 80 FT	800	2	800	1	134.100	6342364
US 3 K 90 FT	900	2	900	1	147.800	6342366
US 3 K 100 FT	1000	2	1000	1	162.000	6342368
US 3 K 110 FT	1100	2	1100	1	175.900	6342370
US 3 K 120 FT	1200	2	1200	1	189.900	6342372

SI Steel

FT Hot-dip galvanised

Suspended support (U profile) of dimensions 50 x 30 mm with welded head plate.

### US 3 support



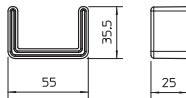
Type	Length mm	Material thickness mm	Dimen- sion L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
US 3 20 FS	200	2	200	1	27.000	6342302
US 3 30 FS	300	2	300	1	40.000	6342304
US 3 40 FS	400	2	400	1	53.000	6342306
US 3 50 FS	500	2	500	1	67.000	6342308
US 3 60 FS	600	2	600	1	80.000	6342310
US 3 70 FS	700	2	700	1	93.000	6342312
US 3 80 FS	800	2	800	1	107.000	6342314
US 3 90 FS	900	2	900	1	120.000	6342316
US 3 100 FS	1000	2	1000	1	133.000	6342318
US 3 150 FS	1500	2	1500	1	200.000	6342328
US 3 200 FS	2000	2	2000	1	266.000	6342338

SI Steel

FS Strip-galvanised

U support in fixed lengths. Dimensions 30 x 50 mm.

### End cap

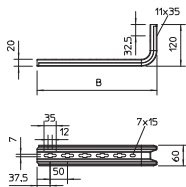
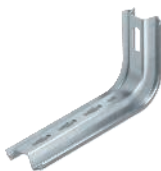


Type	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
US 3 KS OR	Pastel orange	20	1.068	6338458

PE Polyethylene

End cap to cover the ends of US 3 supports.

### Bracket TPSA



Type	For width mm	Dimen- sion B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
TPSA 195 FS	100	195	1	38.000	6364152
TPSA 295 FS	200	295	1	52.000	6364268
TPSA 395 FS	300	395	1	65.000	6364276

SI Steel

FS Strip-galvanised

Bracket for mounting on TPS suspended supports or as wall bracket for standard cable tray routing type for function maintenance to DIN 4102 Part 12.

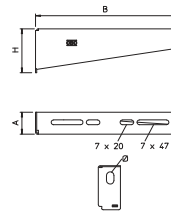
### Wall and support bracket MWA 12

Type	Width mm	Dimen- sion H mm	Dimen- sion A mm	Dimen- sion B mm	Hole Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MWA 12 11S FS</b>	110	53	32.5	110	11	30	17.200	<b>6424716</b>
<b>MWA 12 21S FS</b>	210	65	32.5	210	11	30	29.000	<b>6424732</b>
<b>MWA 12 31S FS</b>	310	75	38	310	11	30	50.300	<b>6424740</b>
<b>MWA 12 41S FS</b>	410	83	38	410	11	30	68.000	<b>6424759</b>

**St** Steel

**FS** Strip-galvanised

Light-duty wall and support bracket.



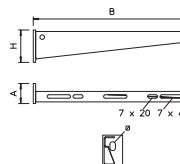
### Wall and support bracket AW 15

Type	Width mm	Dimen- sion H mm	Dimen- sion A mm	Dimen- sion B mm	Hole Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>AW 15 11 FT</b>	110	50	40	110	11	30	14.000	<b>6420656</b>
<b>AW 15 21 FT</b>	210	60	40	210	11	30	24.000	<b>6420680</b>
<b>AW 15 31 FT</b>	310	65	40	310	11	30	39.900	<b>6420710</b>
<b>AW 15 41 FT</b>	410	70	40	410	11	30	54.000	<b>6420745</b>

**St** Steel

**FT** Hot-dip galvanised

Light-duty wall and support bracket with welded head plate.



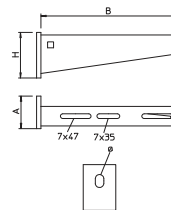
### Wall and support bracket AW 30

Type	Width mm	Dimen- sion H mm	Dimen- sion A mm	Dimen- sion B mm	Hole Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>AW 30 21 FT</b>	210	70	50	210	13	1	39.300	<b>6419720</b>
<b>AW 30 31 FT</b>	310	80	50	310	13	1	63.000	<b>6419747</b>
<b>AW 30 41 FT</b>	410	80	50	410	13	1	89.000	<b>6419763</b>

**St** Steel

**FT** Hot-dip galvanised

Medium-duty wall and support bracket with welded head plate.



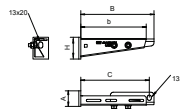
### Wall and support bracket AW 30 F

Type	For width mm	Dimen- sion b mm	Dimen- sion B mm	Dimen- sion C mm	Dimen- sion H mm	Dimen- sion A mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>AW30F21 FT</b>	200	210	235	220	70	50	1	79.000	<b>6417027</b>
<b>AW30F31 FT</b>	300	310	335	320	80	50	1	100.000	<b>6417043</b>
<b>AW30F41 FT</b>	400	410	435	420	80	50	1	127.000	<b>6417078</b>

**St** Steel

**FT** Hot-dip galvanised

Bracket for mounting on suspended supports or as wall bracket for cable tray routing type above fire protection ceilings and for routing types with cable ladders and cable trays for the maintenance of electrical function according to DIN 4102 Part 12. The brackets are supplied ready-mounted.



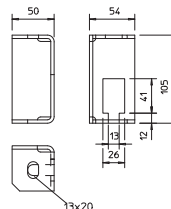
### Fire protection clamp

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSB FT</b>	20	42.400	<b>6418198</b>

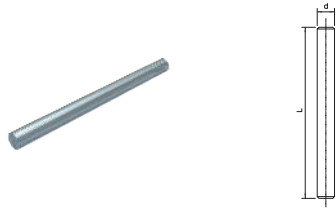
**St** Steel

**FT** Hot-dip galvanised

Fire protection clamp for ceiling fastening of the threaded rod lock for routing types with cable ladders and cable trays for the maintenance of electrical function to DIN 4102 Part 12.



### Threaded rod

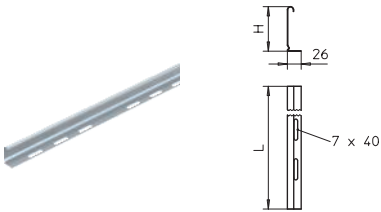


Type	Thread	Dimension d mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>TR M8 1M G</b>	M8	8	1000	10	30.000	<b>3141128</b>
<b>TR M10 1M G</b>	M10	10	1000	10	49.000	<b>3141209</b>
<b>TR M12 1M G</b>	M12	12	1000	10	62.000	<b>3141306</b>

**St** Steel  
**G** Electrogalvanised

Threaded rod to DIN 976.

### Barrier strip 45

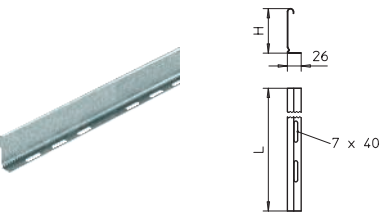


Type	Dimension H mm	Plate thickness mm	Dimension L mm	Pack. m	Weight kg/100 m	Item No.
<b>TSG 45 FS</b>	45	0.75	3000	3	46.700	<b>6062033</b>

**St** Steel  
**FS** Strip-galvanised

Separating retainer for separation of cables of different voltages or functions.

### Barrier strip 60

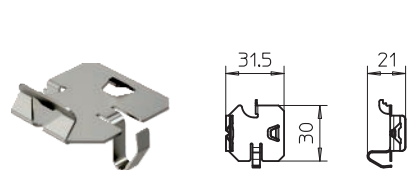


Type	Dimension H mm	Plate thickness mm	Dimension L mm	Pack. m	Weight kg/100 m	Item No.
<b>TSG 60 FS</b>	60	0.75	3000	3	55.700	<b>6062068</b>

**St** Steel  
**FS** Strip-galvanised

Separating retainer for separation of cables of different voltages or functions.

### Hold-down clamp for separating retainer fastening in RKSM

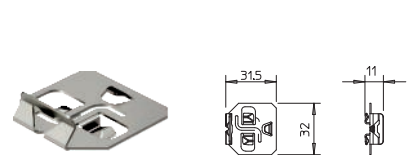


Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS KR A2</b>	30	0.537	<b>6062280</b>

**V2A** Stainless steel, A2

Clamping piece for screwless fastening of separating retainer in the cable tray types RKSM, MKS and SKS.

### Hold-down clamp for separating retainer fastening VA

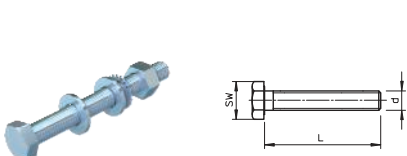


Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS KL A2</b>	30	0.512	<b>6062284</b>

**V2A** Stainless steel, A2

Hold-down clamp for screwless fastening of separating retainer in cable ladders.

### Hexagonal bolt with nut and washer



Type	Dimension mm	Dimension L mm	Dimension d mm	SW mm	Resistance class	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>SKS 10x40 F</b>	M10 x 40	40	10	17	8.8	50	4.900	<b>3160750</b>
<b>SKS 10x60 F</b>	M10 x 60	60	10	17	8.8	20	6.000	<b>6408516</b>
<b>SKS 10x80 F</b>	M10 x 80	80	10	17	8.8	20	7.700	<b>6418250</b>

**St** Steel  
**F** Hot-dip galvanised

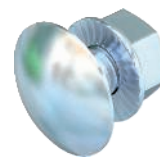
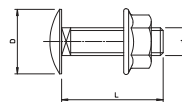
Hexagonal bolt for universal fixing of structure components.

### Truss-head bolt with flange nut

Type	Dimension mm	Dimen- sion L mm	Dimen- sion D mm	Dimen- sion d mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FRSB 6x12 F</b>	M 6 x 12	12	13.5	6	100	0.990	<b>6406122</b>
<b>FRSB 6x16 F</b>	M 6 x 16	16	13.5	6	100	0.800	<b>6406157</b>
<b>FRSB 6x20 F</b>	M 6 x 20	20	13.5	6	100	1.000	<b>6406203</b>

- St Steel
- F Hot-dip galvanised

Truss-head bolt with square neck including flange nut.

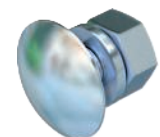
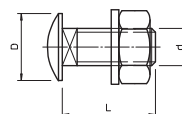


### Truss-head bolt with nut and washer

Type	Dimension mm	Dimen- sion L mm	Dimen- sion D mm	Dimen- sion d mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FRS 10x25 F</b>	M 10 x 25	25	24	10	50	4.500	<b>6407528</b>
<b>FRS 10x25 TPS F</b>	M10 x 25	25	18	10	50	4.300	<b>6407536</b>
<b>FRS 12x25 F</b>	M12 x 25	25	30	12	10	6.400	<b>6406254</b>

- St Steel
- F Hot-dip galvanised

Truss-head bolt with square neck. With washer and hexagonal nut.

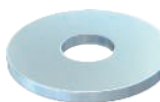
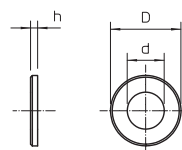


### Large washer

Type	Dimen- sion D mm	Dimen- sion d mm	Dimen- sion h mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>DIN440 7 F</b>	22	6.6	2	100	0.550	<b>6408702</b>
<b>DIN440 11 F</b>	34	11	3	100	1.985	<b>6408729</b>

- St Steel
- F Hot-dip galvanised

Washer of particularly large outer diameter.

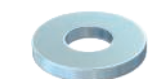
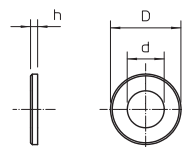


### Washer

Type	Thread	Dimen- sion d mm	Dimen- sion D mm	Dimen- sion h mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>WS M10 D20 G</b>	M10	10.5	20	2	100	0.408	<b>3402096</b>
<b>WS M12 D24 G</b>	M12	13	24	2.5	100	0.627	<b>3402126</b>

- St Steel
- G Electrogalvanised

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

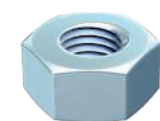
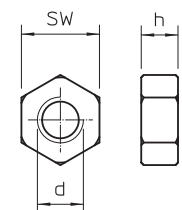


### Hexagonal nut DIN 934

Type	Thread	SW mm	Dimen- sion h mm	Dimen- sion d mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>HN M10 G</b>	M10	17	8.4	10	100	1.084	<b>3400107</b>

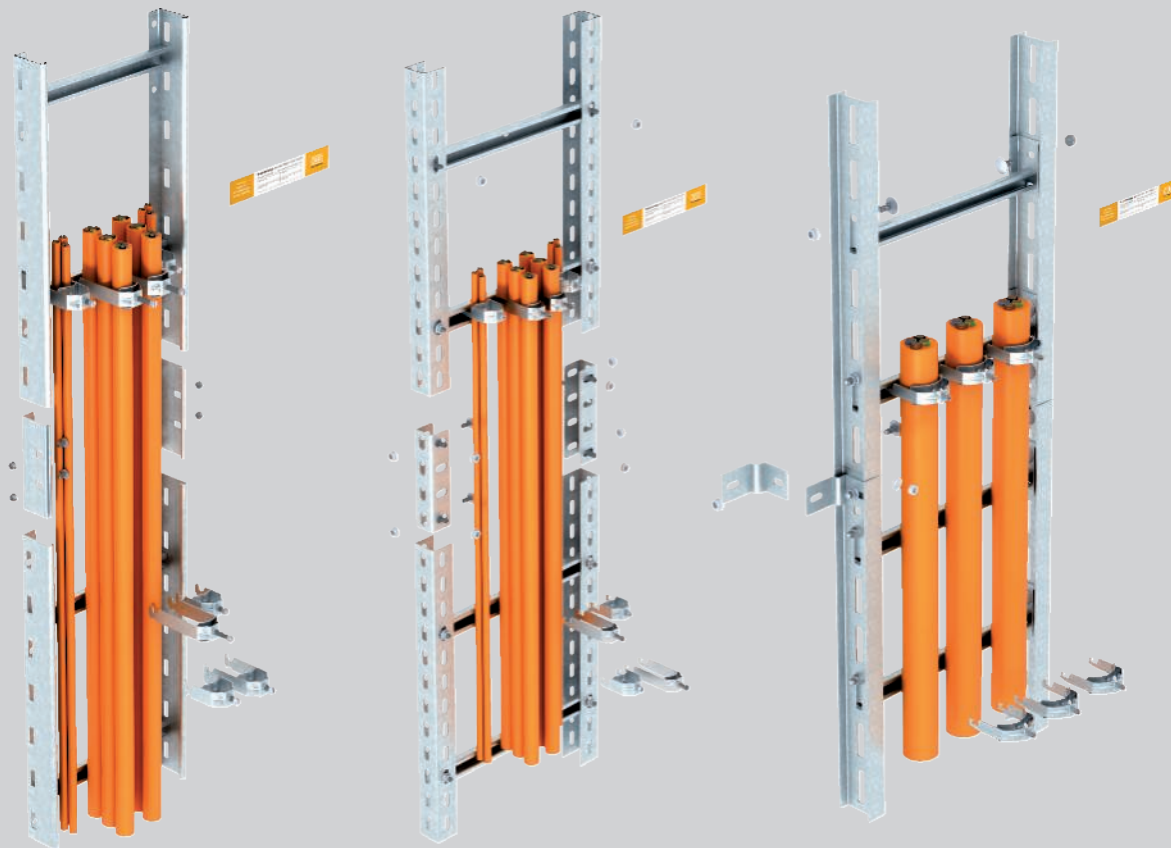
- St Steel
- G Electrogalvanised

Hexagonal nut to DIN 934 with metric thread.



## Vertical ladders

### System description



Vertical ladders of type LM, type SLM and type SLS fulfil all the requirements of DIN 4102 Part 12 as a standard support structure for the maintenance of electrical functionality classes E30, E60 and E90. They are available in the widths 200 to 400 mm (type LG) and in the widths 400 to 600 mm (type SLM and type SLS). The vertical ladders are made up of straight profiles with riveted or screwed rungs. The rung spacing is 30 mm.

The vertical ladders are fastened directly to the wall through the ladder rails (type LG and type SLM) or

with fastening brackets (type SLS) at a spacing of maximum 1.2 m. Mounting of screwed-on connectors is approved and they can be positioned freely.

The cables must be fastened on each rung with clamp clips with a riveted metal pressure sleeve. Mounting of the strain relief, type ZSE90..., is approved for storey heights of more than 3.5 m. The vertical ladder need not be interrupted as the strain relief is mounted via the continuous vertical ladder.



## Vertical ladders Installation principle



Direct mounting of the vertical ladder on solid walls.



Joint connection with screwed-on connector.



Fastening of the cables, either individually or as a bundle with clamp clips.



Direct mounting of the rising section on solid walls.



Joint design with screwed-on connector.



Installation of the cables with clamp clips, also possible in the case of multiple assignment.



Direct mounting of the vertical ladder on solid walls.



Mounting with screwed-on fastening brackets.



Cable installation with clamp clips on the rungs of the vertical ladder.

Classification according to DIN 4102 Part 12

E30

E60

E90



## Vertical ladders

### Proof

#### Maintenance of electrical functionality system according to DIN 4102 Part 12

<b>Routing type</b>	Standard support system
<b>Proof</b>	Surveyor's report no. GS 3.2/17-436-3
<b>Maintenance of electrical functionality classes</b>	E30 to E90
<b>Testing standard</b>	DIN 4102 Part 12
<b>Material version</b>	Galvanised steel

Note:

The surveyor's report is only valid in conjunction with valid general construction test certificates of a testing office for the appropriate installed cable type.

#### Mounting parameters, light-duty vertical ladder (type LG)

<b>Fastening spacing</b>	max. 1.2 m
<b>Cable load</b>	max. 20 kg/m
<b>Rung distance</b>	30 cm
<b>Width</b>	max. 400 mm
<b>Suitable clamp clip</b>	Type 2056 M ...
<b>Individual cable diameter</b>	Unlimited
<b>Quantity of cables on bundling</b>	max. 3
<b>Cable diameter on bundling</b>	max. 25 mm

#### Mounting parameters, heavy-duty vertical ladder (type SLM)

<b>Fastening spacing</b>	max. 1.2 m
<b>Cable load</b>	max. 20 kg/m
<b>Rung distance</b>	30 cm
<b>Width</b>	max. 600 mm
<b>Suitable clamp clip</b>	Type 2056 UM ...
<b>Individual cable diameter</b>	Unlimited
<b>Quantity of cables on bundling</b>	max. 3
<b>Cable diameter on bundling</b>	max. 25 mm

#### Mounting parameters, industrial vertical ladder (type SLS)

<b>Fastening spacing</b>	max. 1.2 m
<b>Cable load</b>	max. 20 kg/m
<b>Rung distance</b>	30 cm
<b>Width</b>	max. 600 mm
<b>Suitable clamp clip</b>	Type 2056 UM ...
<b>Individual cable diameter</b>	Unlimited
<b>Quantity of cables on bundling</b>	max. 3
<b>Cable diameter on bundling</b>	max. 25 mm





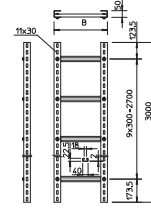
Vertical ladder, SLM50

Type	Width mm	Rung spacing mm	Dimension B mm	Length mm	Weight kg/100 m	Item No.
<b>SLM50C40F 40 FT</b>	400	300	400	3000	766.000	<b>6010008</b>
<b>SLM50C40F 50 FT</b>	500	300	500	3000	821.000	<b>6010016</b>
<b>SLM50C40F 60 FT</b>	600	300	600	3000	876.000	<b>6010024</b>

St Steel

FT Hot-dip galvanised

Heavyweight vertical ladder system for the maintenance of electrical function to DIN 4102 Part 12. Approved clips, type 2056 U/M. Supplied unmounted.



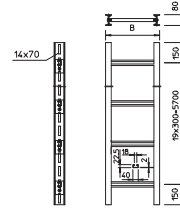
Vertical ladder, SLS80

Type	Width mm	Rung spacing mm	Dimension B mm	Length mm	Weight kg/100 m	Item No.
<b>SLS80C40F 40 FT</b>	400	300	400	3000	1,487.000	<b>6010105</b>
<b>SLS80C40F 50 FT</b>	500	300	500	3000	1,542.000	<b>6010113</b>
<b>SLS80C40F 60 FT</b>	600	300	600	3000	1,597.000	<b>6010121</b>

St Steel

FT Hot-dip galvanised

Industrial vertical ladder system for the maintenance of electrical function to DIN 4102 Part 12. Approved clips, type 2056 U/M. Supplied unmounted.



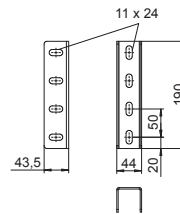
U support connector

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>VUS 5 FT</b>	10	44.000	<b>6018505</b>

St Steel

FT Hot-dip galvanised

U support connector to connect US 5 supports.



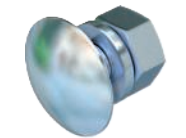
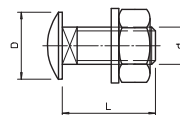
Truss-head bolt with nut and washer

Type	Dimension mm	Dimension L mm	Dimension D mm	Dimension d mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FRS 8x16 F 8.8</b>	M 8 x 16	16	20	8	50	2.200	<b>6406963</b>
<b>FRS 8x25 F</b>	M 8 x 25	25	20	8	50	2.300	<b>6406998</b>
<b>FRS 10x25 F 8.8</b>	M10 x 25	25	24	10	50	4.500	<b>6407560</b>
<b>FRS 12x25 F</b>	M12 x 25	25	30	12	10	6.400	<b>6406254</b>

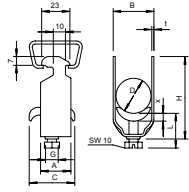
St Steel

F Hot-dip galvanised

Truss-head bolt with square neck. With washer and hexagonal nut.



### 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

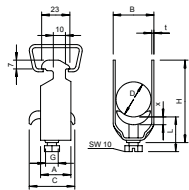
Suitable for all C profile rails with slot width 16–17 mm.

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

#### Dimensions

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

### Clamp clip, double, metal pressure trough



Type	Clamping range D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
2056 M2 12 FT	8 - 12	50	3.980	1156179
2056 M2 16 FT	12 - 16	50	4.750	1156187
2056 M2 22 FT	16 - 22	50	6.900	1156195
2056 M2 28 FT	22 - 28	50	7.800	1156209

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.

#### Dimensions

D mm	A mm	B mm	C mm	G	t mm	x mm	H mm	L mm
8-12	23	16	34	M6	1.5	5	52	34
12-16	23	20	34	M6	1.5	5	61	34
16-22	23	27	34	M6	1.5	5	73	47
22-28	23	33	34	M6	2	5	87	47



## Clamp clip, triple, metal pressure trough

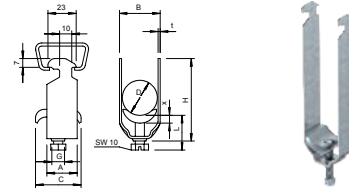
Type	Clamping range D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
2056 M3 12 FT	8 - 12	50	4.050	1156241
2056 M3 16 FT	12 - 16	50	5.800	1156268
2056 M3 22 FT	16 - 22	50	6.500	1156276
2056 M3 28 FT	22 - 28	50	9.500	1156284

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.



## Dimensions

D mm	A mm	B mm	C mm	G	t mm	x mm	H mm	L mm
8-12	23	16	34	M6	1.2	5	70	47
12-16	23	20	34	M6	1.5	5	82	47
16-22	23	27	34	M6	1.5	5	101	47
22-28	23	33	34	M6	2	5	121	47

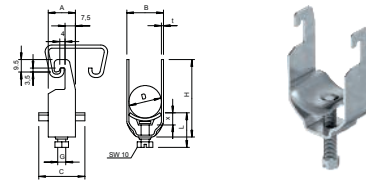
## Clamp clip, single, metal pressure trough

Type	Clamping range D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
2056U M 12 FT	8 - 12	100	3.300	1158007
2056U M 16 FT	12 - 16	100	3.520	1158015
2056U M 22 FT	16 - 22	100	3.960	1158023
2056U M 28 FT	22 - 28	100	5.890	1158031
2056U M 34 FT	28 - 34	100	7.650	1158058
2056U M 40 FT	34 - 40	100	8.360	1158066
2056U M 46 FT	40 - 46	100	10.890	1158074
2056U M 52 FT	46 - 52	100	11.660	1158082
2056U M 58 FT	52 - 58	100	14.740	1158090
2056U M 64 FT	58 - 64	100	15.730	1158104
2056U M 70 FT	64 - 70	50	18.200	1158112
2056U M 76 FT	70 - 76	25	20.600	1158120

St Steel

FT Hot-dip galvanised

Suitable for all C profile rails with slot width 18 mm and 22 mm.

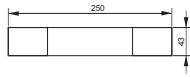


## Dimensions

D mm	A mm	B mm	C mm	G	t mm	x mm	H mm	L mm
8-12	20	16	34	M6	1.5	5	42	34
12-16	20	20	34	M6	1.5	5	46	34
16-22	20	27	34	M6	1.5	5	53	34
22-28	20	33	34	M6	2	5	59	34
28-34	20	39	34	M8	2	5.5	67	37.5
34-40	20	45	34	M8	2	5.5	73	37.5
40-46	20	51	40	M8	2	5.5	79	37.5
46-52	20	57	40	M8	2	6.5	85	38.5
52-58	23	64	40	M8	2.5	6.5	91	38.5
58-64	23	70	40	M8	2.5	6.5	97	38.5
64-70	23	76	40	M8	2.5	6.5	103	38.5
70-76	25	82	40	M8	2.5	6.5	110	45.5



## Identification plate for function maintenance



Type	Language	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS-E DE</b>	German	10	0.600	<b>7205423</b>
<b>KS-E EN</b>	English	10	0.600	<b>7205432</b>
<b>KS-E HU</b>	Hungarian	10	0.600	<b>7205434</b>
<b>KS-E PL</b>	Polish	10	0.600	<b>7205436</b>
<b>KS-E FI</b>	Finnish	10	0.600	<b>7205437</b>
<b>KS-E SE</b>	Swedish	10	0.600	<b>7205424</b>
<b>KS-E IT</b>	Italian	10	0.600	<b>7205435</b>
<b>KS-E NL</b>	Dutch	10	0.600	<b>7205405</b>

**PVC** Polyvinylchloride

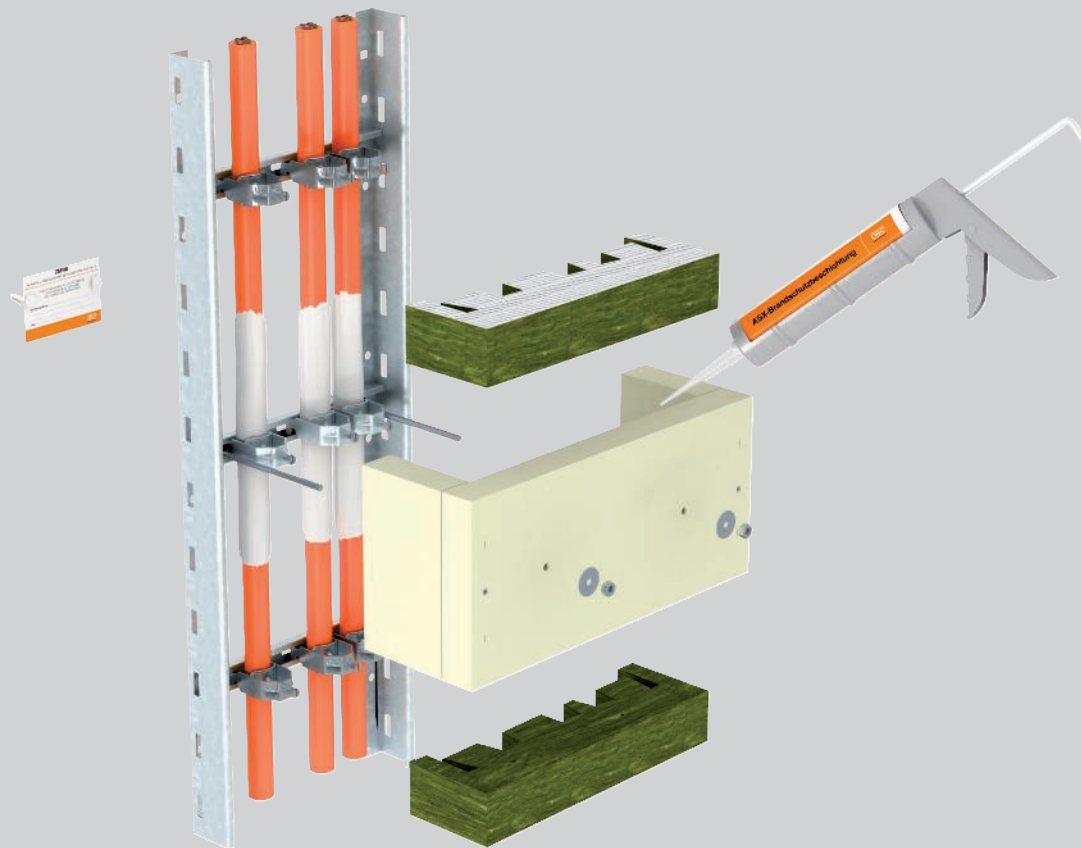
Self-adhesive identification plate for approved cable system labelling for maintenance of electrical function as required by DIN 4102 part 12.





## Strain relief ZSE90

### System description

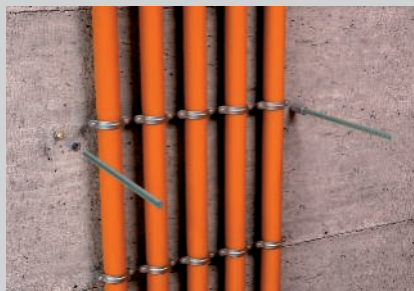


In the case of continuous, vertical routing of cables to maintain electrical functionality according to DIN 4102 Part 12, the standard requires effective cable support at a maximum spacing of 3.5 m. This requirement can be fulfilled with the OBO ZSE90 strain relief. The ZSE90 is approved for all classes ensuring the maintenance of electrical functionality from E30 to E90 in combination with standard support structures. It can be used for all rising section widths and also for vertical single-clip installations. The ZSE90 strain relief covers the fastening point of the cables on profile rails,

rungs or with single clips. In the event of fire, it prevents direct fire loads on the clips, meaning that they stay "relatively" cold. The weight of the cable is dissipated safely. There is no risk of the cables tearing through their intrinsic weight if there is a fire. This guarantees secure maintenance of electrical functionality. The strain relief can be fastened using slide nuts on profile rails, on the rungs of vertical ladders or on the wall next to installed cables.



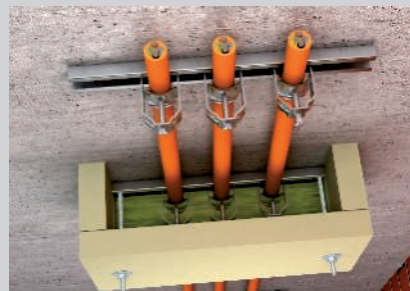
## Strain relief ZSE90 Installation principle



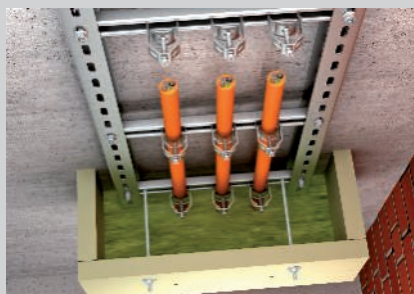
Fastening points next to the cables directly on the wall.



Fastening with threaded rods and slide nuts in the rungs.



Mounting of the strain relief in combination with cable routing on profile rails.



Effective support measure with ZSE90 strain relief.



Mineral wool filling for flexible cable assignment.



Closing all the remaining joints using the ASX fire protection compound.

Classification according to DIN 4102 Part 12

E30

E60

E90



## Strain relief ZSE90

### Proof

#### Maintenance of electrical functionality system according to DIN 4102 Part 12

<b>Routing type</b>	Standard support structure Effective support for vertical routing
<b>Proof</b>	Surveyor's report no. GS 3.2/17-361-1
<b>Maintenance of electrical functionality classes</b>	E30 to E90
<b>Testing standard</b>	DIN 4102 Part 12

Note:

The surveyor's report is only valid in conjunction with valid general construction test certificates of a testing office for the appropriate installed cable type.

#### Mounting parameters

<b>Fastening spacing</b>	max. 3.5 m
<b>Application area</b>	Individual clip routing Cable routing on profile rails Vertical ladders
<b>Fastening options</b>	With threaded rods directly on the wall With threaded rods on profile rails With threaded rods on the rungs of the vertical ladders
<b>Housing width (interior)</b>	250–650 mm
<b>Housing height (interior)</b>	115 mm / 175 mm
<b>Individual cable diameter</b>	Unlimited
<b>Cable types</b>	No restrictions

#### Combination options of strain relief with vertical cable installations

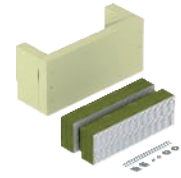
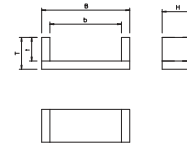
Strain relief type	Cable routing with individual clips	Cable routing on profile rails	Vertical ladder, type LG	Vertical ladder, type SLM	Vertical ladder, type SLS
ZSE90-25-11	✓	✓	✓	✗	✗
ZSE90-35-11	✓	✓	✓	✗	✗
ZSE90-45-11	✓	✓	✓	✓	✓
ZSE90-25-17	✓	✓	✓	✗	✗
ZSE90-35-17	✓	✓	✓	✗	✗
ZSE90-45-17	✓	✓	✓	✓	✓
ZSE90-55-17	✓	✓	✗	✓	✓
ZSE90-65-17	✓	✓	✗	✓	✓





### Strain relief, internal height 115 mm

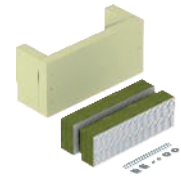
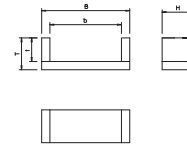
Type	Dimension b mm	Dimension t mm	Dimension H mm	Dimension B mm	Dimension T mm	Pack. pcs	Weight kg/100 pcs.	Item No.
ZSE90-25-11	250	115	140	340	160	1	376.000	7215702
ZSE90-35-11	350	115	140	440	160	1	466.000	7215706
ZSE90-45-11	450	115	140	540	160	1	506.000	7215709



Strain relief as an effective support measure for vertical cable routing, according to DIN 4102 part 12, approved for all cable types and all vertical routing systems. Maintenance of electrical function classes E30 to E90. Housing including mineral fibre panels, fastening material, ASX fire protection coating in cartridge and identification plate.

### Strain relief, internal height 175 mm

Type	Dimension b mm	Dimension t mm	Dimension H mm	Dimension B mm	Dimension T mm	Pack. pcs	Weight kg/100 pcs.	Item No.
ZSE90-25-17	250	175	160	340	220	1	484.000	7215713
ZSE90-35-17	350	175	160	440	220	1	600.000	7215716
ZSE90-45-17	450	175	160	540	220	1	700.000	7215719
ZSE90-55-17	550	175	160	640	220	1	770.000	7215726
ZSE90-65-17	650	175	160	740	220	1	822.000	7215730

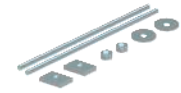


Strain relief as an effective support measure for vertical cable routing, according to DIN 4102 part 12, approved for all cable types and all vertical routing systems. Maintenance of electrical function classes E30 to E90. Housing including mineral fibre panels, fastening material, ASX fire protection coating in cartridge and identification plate.

### Mounting set, strain relief ZSE90



Type	Pack. pcs	Weight kg/100 pcs.	Item No.
ZSE90 M1	1	32.000	7215741
ZSE90 M2	1	35.000	7215745



Spare parts in mounting set with all the small parts for mounting the ZSE 90 strain relief on and next to rising tracks for function maintenance. Type ZSE90 M1 for strain relief with construction height 115 mm, type ZSE90 M2 for strain relief with construction height 175 mm.

### Ablation coating in a cartridge

Type	Contents ml	Pack. pcs	Weight kg/100 pcs.	Item No.
ASX-K	310	1	50.000	7202310

Intumescent material

Combined, endothermic and weatherproof coating for internal and external areas. Universal protection coating for cable and cable support structures. Use as direct filler, and as paint when stirred.

Material class DIN 4102 - B2, normally flammable.

In dry, frost-free rooms, the coating can be stored at temperatures from +5 °C to +25 °C for up to 18 months in closed, upright original containers.



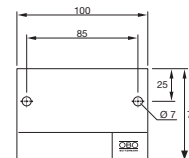
### Identification plate for strain relief



Type	Language	Pack. pcs	Weight kg/100 pcs.	Item No.
KS-ZSE DE	German	1	2.400	7215750
KS-ZSE SE	Swedish	1	2.400	7215751
KS-ZSE IT	Italian	1	2.400	7215753

PVC Polyvinylchloride

Universal identification plate to be written on with waterproof and light-resistant felt-tip pen for the ZSE90 strain relief. For approved identification, according to DIN 4102 Part 12. Incl. two push-fit anchors.



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Function maintenance – Standard support structures, vertical ladders, strain relief

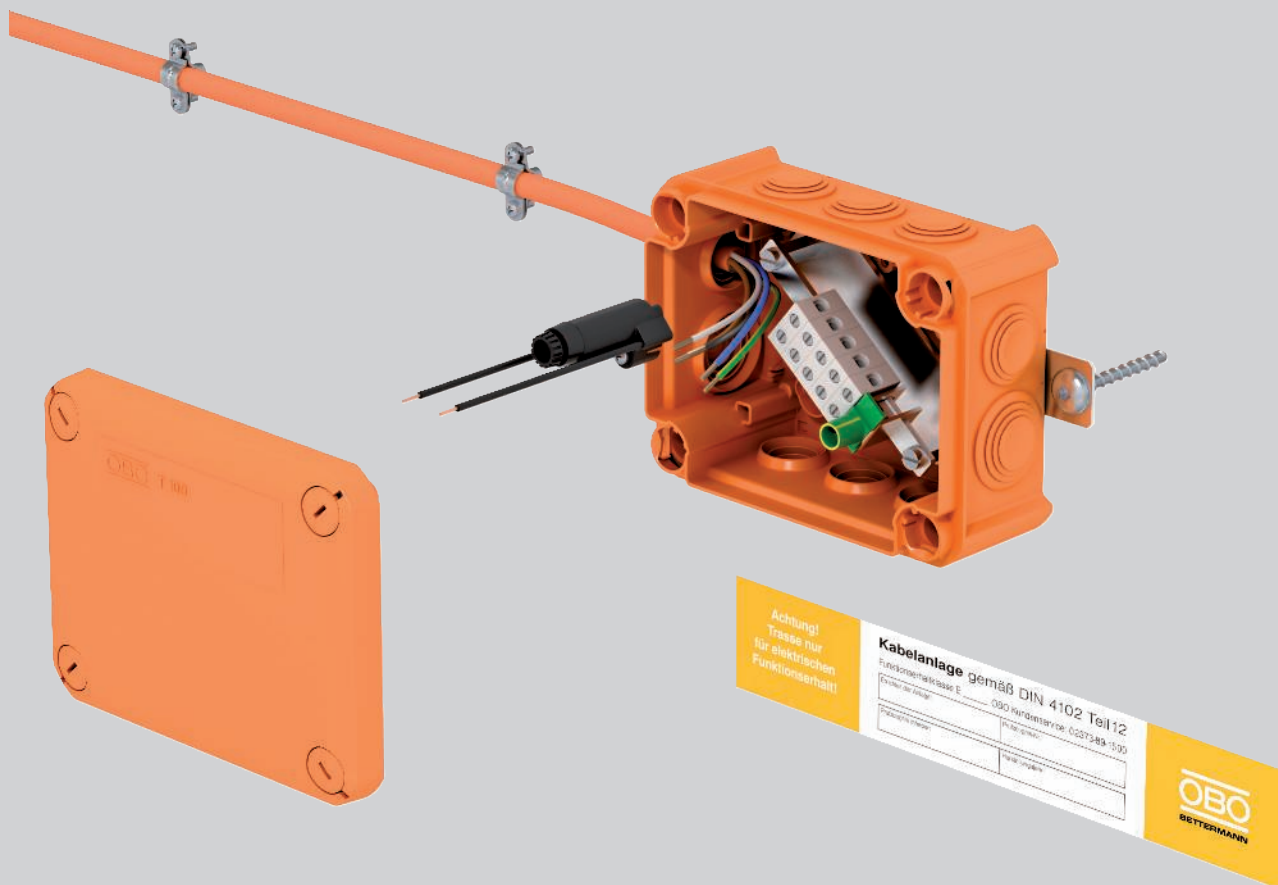




## Maintaining electrical function - Junction boxes, individual routing, pipes and metal duct

	<b>System description, junction boxes of the Firebox T series</b>	300
	<b>Products</b>	302
	<b>System description, Grip M grouped support</b>	314
	<b>System description, metal pressure clip</b>	316
	<b>Products</b>	318
	<b>System description, rail and clamp clips</b>	322
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	<b>Products</b>	330
	<b>System description, steel pipes</b>	334
	<b>Products</b>	336
	<b>System overview, metal cable ducts</b>	340
	<b>Products</b>	342

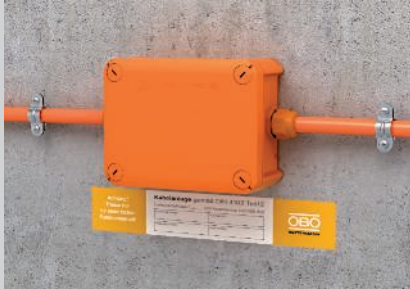
## Junction box, FireBox System description



Junction boxes of the FireBox series are available for connecting and branching safety cables. These are equipped with a high-temperature-resistant connection unit with ceramic terminals and offer terminal areas of 0.5 mm<sup>2</sup> to 16 mm<sup>2</sup> of copper cross-section. The T series FireBoxes possesses all the benefits of thermo-plastic cable junction boxes. These include the high IP protection rating of up to IP66 and the maximum impact resistance of up to IK10 and a high resistance to breakage. Boxes with soft plug-in seals or closed variants are available. Here, the cable glands can be located freely. Fastening either takes place on the ou-

ter straps or through the box base with fire protection bolt ties. The high-temperature-resistant terminals are pre-mounted on the connection unit. The protective conductor terminal is connected to the support clamp, meaning that covers of the metal parts are not required. The FireBox is tested and approved as a connection socket for maintenance of electrical functionality to DIN 4102 Part 12 with the classes E30, E60 and E90. A separate fuse holder allows protection of a branch.

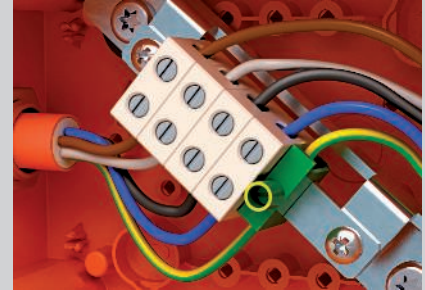
# Junction box, FireBox Installation principle



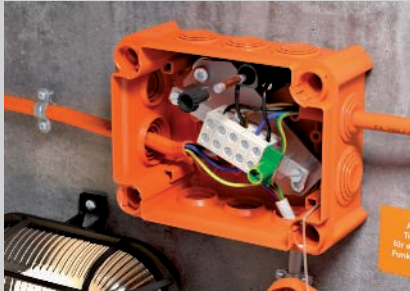
Fully installed FireBox with identification plate.



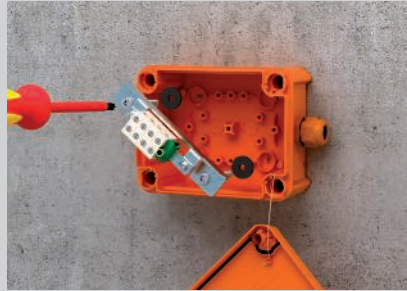
FireBox mounting with mounting plate on cable tray.



Version with 4 terminals and protective conductor terminal for power cables.



Cable entry with plug-in seals.



Mounting with fire protection bolt tie through the clamp and base of the FireBox.



Quick lid mounting through 90° rotation of the corner screws.

Classification according to DIN 4102 Part 12

E30

E60






















E90

## System description

<b>Routing type</b>	Thermoplastic junction box with high-temperature-resistant connection unit
<b>Test certificate no.</b>	P-MPA-E-08-016 in conjunction with the surveyor's report 210005956-6 and GS 3-2/13-370-1
<b>Maintenance of electrical functionality classes</b>	E30 to E90
<b>Testing standard</b>	DIN 4102 Part 12

## Approved data

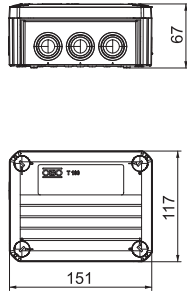
### Clamping capacity of the ceramic terminals

	0.5 mm <sup>2</sup>	1.5 mm <sup>2</sup>	2.5 mm <sup>2</sup>	4 mm <sup>2</sup>	6 mm <sup>2</sup>	10 mm <sup>2</sup>	16 mm <sup>2</sup>
4 mm <sup>2</sup>					-	-	-
6 mm <sup>2</sup>						-	-
10 mm <sup>2</sup>	-						-
16 mm <sup>2</sup>	-						

The data in the general construction test certificates of the materials testing office of North Rhine-Westphalia, Erwitte, applies.

Always indicate the item number when ordering.

## FireBox T100ED with plug-in seal and internal fastening



Type	Nominal cross-section mm <sup>2</sup>	Number of terminals	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>T 100 ED 6-5</b>	6	5	8x M25 2x M32	1	34.000	<b>7205530</b>
<b>T 100 ED 10-5</b>	10	5	8x M25 2x M32	1	35.900	<b>7205533</b>

PP Polypropylene

Halogen-free junction box with pre-mounted, soft plug-in seals, approved for maintaining electrical functionality according to DIN 4102 Part 12. Maintenance of electrical functionality to classes E30 to E90.

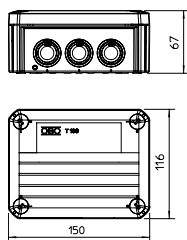
Colour: Pastel orange.

Including pre-mounted connection unit made of high temperature-resistant special ceramic and labelled protective conductor terminal. Supplied with 2 MMS 6x50 fire protection screw ties for anchorless fastening.

Power cable nominal cross-sections: 1.5 to 10 mm<sup>2</sup> depending on the type, data cables with 0.8 mm wire Ø. Several rigid copper wires with smaller cross-sections per terminal possible. High protection rating IP66, impact resistance class IK08.

Details on the cable types and manufacturers can be found in the general construction test certificate of the material testing institute NRW, Erwitte.

## FireBox T100ED with internal fastening and fuse holder



Type	Nominal cross-section mm <sup>2</sup>	Number of terminals	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>T 100 ED 6-6 F</b>	6	6	8x M25 2x M32	1	38.650	<b>7205550</b>
<b>T 100 ED 10-6 F</b>	10	6	8x M25 2x M32	1	38.650	<b>7205553</b>

PP Polypropylene

Halogen-free junction box with pre-mounted, soft plug-in seals, approved for maintaining electrical functionality according to DIN 4102 Part 12. Maintenance of electrical functionality to classes E30 to E90.

Colour: Pastel orange.

Including pre-mounted connection unit made of high temperature-resistant special ceramic and labelled protective conductor terminal. Supplied with fuse holder TE-FH 520 for VDE-conformant, reaction-free protection of consumers and 2 fire protection screw ties MMS 6x50 for anchorless fastening.

Power cable nominal cross-sections: 1.5 to 10 mm<sup>2</sup> depending on the type, data cables with 0.8 mm wire Ø. Several rigid copper wires with smaller cross-sections per terminal possible. High protection rating IP66, impact resistance class IK08.

Details on the cable types and manufacturers can be found in the general construction test certificate of the material testing institute NRW, Erwitte.

## FireBox T160ED with internal fastening and fuse holder

Type	Nominal cross-section mm <sup>2</sup>	Number of terminals	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>T 160 ED 16-6 F</b>	16	6	7x M25 5x M32	1	64.000	<b>7205556</b>

PP Polypropylene

Halogen-free junction box with pre-mounted, soft plug-in seals, approved for maintaining electrical functionality according to DIN 4102 Part 12. Maintenance of electrical functionality to classes E30 to E90.

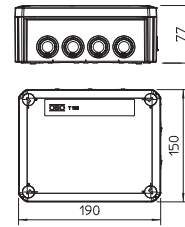
Colour: Pastel orange.

Including pre-mounted connection unit made of high temperature-resistant special ceramic and labelled protective conductor terminal. Supplied with fuse holder TE-FH 520 for VDE-conformant, reaction-free protection of consumers and 2 fire protection screw ties MMS 6x50 for anchorless fastening.

Power cable nominal cross-sections: Up to 16 mm<sup>2</sup>. Several rigid copper wires with smaller cross-sections per terminal possible.

High protection rating IP66, impact resistance class IK05.

Details on the cable types and manufacturers can be found in the general construction test certificate of the material testing institute NRW, Erwitte.



## FireBox T160ED with internal fastening

Type	Nominal cross-section mm <sup>2</sup>	Number of terminals	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>T 160 ED 16-5</b>	16	5	7x M25 5x M32	1	62.500	<b>7205536</b>

PP Polypropylene

Halogen-free junction box with pre-mounted, soft plug-in seals, approved for maintaining electrical functionality according to DIN 4102 Part 12. Maintenance of electrical functionality to classes E30 to E90.

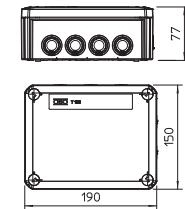
Colour: Pastel orange.

Including pre-mounted connection unit made of high temperature-resistant special ceramic and labelled protective conductor terminal. Supplied with 2 MMS 6x50 fire protection screw ties for anchorless fastening.

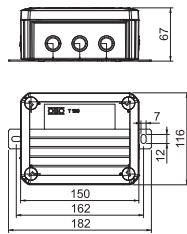
Power cable nominal cross-sections: Up to 16 mm<sup>2</sup>. Several rigid copper wires with smaller cross-sections per terminal possible.

High protection rating IP66, impact resistance class IK05.

Details on the cable types and manufacturers can be found in the general construction test certificate of the material testing institute NRW, Erwitte.



### FireBox T100ED with external fastening



Type	Nominal cross-section mm <sup>2</sup>	Number of terminals	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>T 100 ED 6-5 A</b>	6	5	8x M25 2x M32	1	38.500	<b>7205540</b>
<b>T 100 ED 10-5 A</b>	10	5	8x M25 2x M32	1	40.600	<b>7205543</b>

PP Polypropylene

Halogen-free junction box with pre-mounted, soft plug-in seals, approved for maintaining electrical functionality according to DIN 4102 Part 12. Maintenance of electrical functionality to classes E30 to E90.

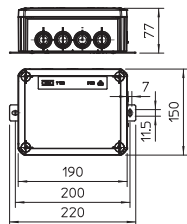
Colour: Pastel orange.

Fully mounted connection unit made of high temperature-resistant special ceramic and labelled protective conductor terminal. Supplied with 2 MMS 6x50 fire protection screw ties for anchorless fastening on the external straps.

Power cable nominal cross-sections: 1.5 to 10 mm<sup>2</sup> depending on the type, data cables with 0.8 mm wire Ø. Several rigid copper wires with smaller cross-sections per terminal possible. High protection rating IP66, impact resistance class IK08.

Details on the cable types and manufacturers can be found in the general construction test certificate of the material testing institute NRW, Erwitte.

### FireBox T160ED with external fastening



Type	Nominal cross-section mm <sup>2</sup>	Number of terminals	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>T 160 ED 16-5 A</b>	16	5	7x M25 5x M32	1	60.000	<b>7205546</b>

PP Polypropylene

Halogen-free junction box with pre-mounted, soft plug-in seals, approved for maintaining electrical functionality according to DIN 4102 Part 12. Maintenance of electrical functionality to classes E30 to E90.

Colour: Pastel orange.

Fully mounted connection unit made of high temperature-resistant special ceramic and labelled protective conductor terminal. Supplied with 2 MMS 6x50 fire protection screw ties for anchorless fastening on the external straps.

Power cable nominal cross-sections: Up to 16 mm<sup>2</sup>. Several rigid copper wires with smaller cross-sections per terminal possible. High protection rating IP66, impact resistance class IK05.

Details on the cable types and manufacturers can be found in the general construction test certificate of the material testing institute NRW, Erwitte.



## FireBox T100ED external fastening with fuse holder

Type	Nominal cross-section mm <sup>2</sup>	Number of terminals	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>T 100 ED 6-6 AF</b>	6	6	8x M25 2x M32	1	43.330	<b>7205560</b>
<b>T 100 ED 10-6 AF</b>	10	6	8x M25 2x M32	1	43.340	<b>7205563</b>

PP Polypropylene

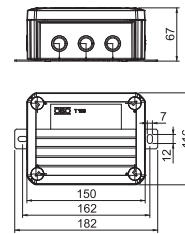
Halogen-free junction box with pre-mounted, soft plug-in seals, approved for maintaining electrical functionality according to DIN 4102 Part 12. Maintenance of electrical functionality to classes E30 to E90.

Colour: Pastel orange.

Fully mounted connection unit made of high temperature-resistant special ceramic and labelled protective conductor terminal. Supplied with fuse holder TE-FH 520 for VDE-conformant, reaction-free protection of consumers and 2 fire protection screw ties MMS 6x50 for anchorless fastening on the external shackles.

Power cable nominal cross-sections: 1.5 to 10 mm<sup>2</sup> depending on the type, data cables with 0.8 mm wire Ø. Several rigid copper wires with smaller cross-sections per terminal possible. High protection rating IP66, impact resistance class IK08.

Details on the cable types and manufacturers can be found in the general construction test certificate of the material testing institute NRW, Erwitte.



## FireBox T160ED with external fastening and fuse holder

Type	Nominal cross-section mm <sup>2</sup>	Number of terminals	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>T 160 ED 16-6 AF</b>	16	6	7x M25 5x M32	1	60.000	<b>7205566</b>

PP Polypropylene

Halogen-free junction box with pre-mounted, soft plug-in seals, approved for maintaining electrical functionality according to DIN 4102 Part 12. Maintenance of electrical functionality to classes E30 to E90.

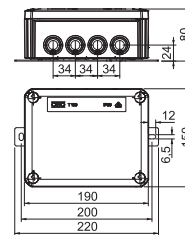
Colour: Pastel orange.

Fully mounted connection unit made of high temperature-resistant special ceramic and labelled protective conductor terminal. Supplied with fuse holder TE-FH 520 for VDE-conformant, reaction-free protection of consumers and 2 fire protection screw ties MMS 6x50 for anchorless fastening on the external shackles.

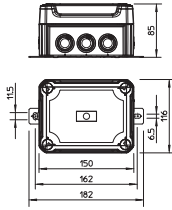
Power cable nominal cross-sections: Up to 16 mm<sup>2</sup>. Several rigid copper wires with smaller cross-sections per terminal possible.

High protection rating IP66, impact resistance class IK05.

Details on the cable types and manufacturers can be found in the general construction test certificate of the material testing institute NRW, Erwitte.



## FireBox T100ED with external fastening and impact-proof cover



Type	Nominal cross-section mm <sup>2</sup>	Number of terminals	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>T100ED 6-5 AS</b>	6	5	8x M25 2x M32	1	44.500	<b>7205620</b>
<b>T100ED 10-5 AS</b>	10	5	8x M25 2x M32	1	46.600	<b>7205623</b>

PP/PC Polypropylene / polycarbonate

Halogen-free junction box with impact-proof cover and pre-mounted, soft plug-in seals, approved for the maintenance of electrical functionality according to DIN 4102 Part 12. Maintenance of electrical functionality to classes E30 to E90.

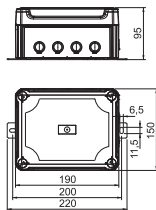
Colour: Pastel orange.

Fully mounted connection unit made of high temperature-resistant special ceramic and labelled protective conductor terminal. Supplied with 2 MMS 6x50 fire protection screw ties for anchorless fastening on the external straps.

Power cable nominal cross-sections: 1.5 to 10 mm<sup>2</sup> depending on the type, data cables with 0.8 mm wire Ø. Several rigid copper wires with smaller cross-sections per terminal possible. High protection rating IP66, impact resistance class IK09.

Details on the cable types and manufacturers can be found in the general construction test certificate of the material testing institute NRW, Erwitte.

## FireBox T160ED with external fastening and impact-proof cover



Type	Nominal cross-section mm <sup>2</sup>	Number of terminals	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>T160ED 16-5 AS</b>	16	5	7x M25 5x M32	1	65.000	<b>7205626</b>

PP/PC Polypropylene / polycarbonate

Halogen-free junction box with impact-proof cover and pre-mounted, soft plug-in seals, approved for the maintenance of electrical functionality according to DIN 4102 Part 12. Maintenance of electrical functionality to classes E30 to E90.

Colour: Pastel orange.

Fully mounted connection unit made of high temperature-resistant special ceramic and labelled protective conductor terminal. Supplied with 2 MMS 6x50 fire protection screw ties for anchorless fastening on the external straps.

Power cable nominal cross-sections: Up to 16 mm<sup>2</sup>. Several rigid copper wires with smaller cross-sections per terminal possible.

High protection rating IP66, impact resistance class IK10.

Details on the cable types and manufacturers can be found in the general construction test certificate of the material testing institute NRW, Erwitte.

## FireBox T100ED with external fastening, fuse holder and impact-proof cover

Type	Nominal cross-section mm <sup>2</sup>	Number of terminals	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>T100ED 6-6 AFS</b>	6	6	8x M25 2x M32	1	49.200	<b>7205630</b>
<b>T100ED 10-6 AFS</b>	10	6	8x M25 2x M32	1	49.300	<b>7205633</b>

**PP/PC** Polypropylene / polycarbonate

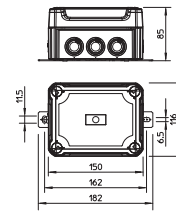
Halogen-free junction box with impact-proof cover and pre-mounted, soft plug-in seals, approved for the maintenance of electrical functionality according to DIN 4102 Part 12. Maintenance of electrical functionality to classes E30 to E90.

Colour: Pastel orange.

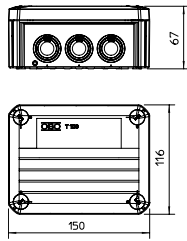
Fully mounted connection unit made of high temperature-resistant special ceramic and labelled protective conductor terminal. Supplied with fuse holder TE-FH 520 for VDE-conformant, reaction-free protection of consumers and 2 fire protection screw ties MMS 6x50 for anchorless fastening on the external shackles.

Power cable nominal cross-sections: 1.5 to 10 mm<sup>2</sup> depending on the type, data cables with 0.8 mm wire Ø. Several rigid copper wires with smaller cross-sections per terminal possible. High protection rating IP66, impact resistance class IK09.

Details on the cable types and manufacturers can be found in the general construction test certificate of the material testing institute NRW, Erwitte.



### FireBox T100ED for data technology with internal fastening



Type	Nominal cross-section mm <sup>2</sup>	Number of terminals	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>T 100 ED 4-10 D</b>	4	10	8x M25 2x M32	1	38.300	<b>7205580</b>

PP Polypropylene

Halogen-free junction box with pre-mounted, soft plug-in seals, approved for maintaining electrical functionality according to DIN 4102 Part 12. Maintenance of electrical functionality to classes E30 to E90.

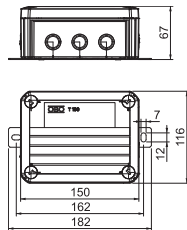
Colour: Pastel orange.

Fully mounted connection unit made of high temperature-resistant special ceramic and labelled protective conductor terminals. Supplied with 2 MMS 6x50 fire protection screw ties for anchorless fastening on the external straps.

For data cables with wire Ø 0.8 mm. Up to 6 rigid copper wires (0.5 mm<sup>2</sup>) possible on each terminal. High protection rating IP66, impact resistance class IK08.

Details on the cable types and manufacturers can be found in the general construction test certificate of the material testing institute NRW, Erwitte.

### FireBox T100ED for data technology with external fastening



Type	Nominal cross-section mm <sup>2</sup>	Number of terminals	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>T 100 ED 4-10 AD</b>	4	10	8x M25 2x M32	1	45.600	<b>7205583</b>

PP Polypropylene

Halogen-free junction box with pre-mounted, soft plug-in seals, approved for maintaining electrical functionality according to DIN 4102 Part 12. Maintenance of electrical functionality to classes E30 to E90.

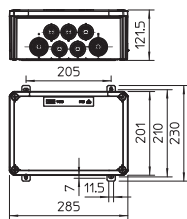
Colour: Pastel orange.

Fully mounted connection unit made of high temperature-resistant special ceramic and labelled protective conductor terminals. Supplied with 2 MMS 6x50 fire protection screw ties for anchorless fastening on the external straps.

For data cables with wire Ø 0.8 mm. Up to 6 rigid copper wires (0.5 mm<sup>2</sup>) possible on each terminal. High protection rating IP66, impact resistance class IK08.

Details on the cable types and manufacturers can be found in the general construction test certificate of the material testing institute NRW, Erwitte.

### FireBox T350ED for data technology with external fastening



Type	Nominal cross-section mm <sup>2</sup>	Number of terminals	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>T 350 ED 4-28 AD</b>	4	28	16x M32 8x M40	1	163.000	<b>7205590</b>

PP Polypropylene

Halogen-free junction box as small data distributor with pre-mounted, soft plug-in seals, approved for the maintenance of electrical functionality according to DIN 4102 Part 12. Maintenance of electrical functionality to classes E30 to E90.

Colour: Pastel orange.

Fully mounted connection unit made of high temperature-resistant special ceramic and labelled protective conductor terminals. Supplied with 4 MMS 6x50 fire protection screw ties for anchorless fastening on the external straps.

For data cables with wire Ø 0.8 mm. Up to 6 rigid copper wires (0.5 mm<sup>2</sup>) possible on each terminal. High protection rating IP66, impact resistance class IK06.

Details on the cable types and manufacturers can be found in the general construction test certificate of the material testing institute NRW, Erwitte.

## FireBox T100ED for data equipment, external fastening and impact-proof cover

Type	Nominal cross-section mm <sup>2</sup>	Number of terminals	Entries	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>T100ED 4-10 ADS</b>	4	10	8x M25 2x M32	1	51.600	<b>7205640</b>

PP/PC Polypropylene / polycarbonate

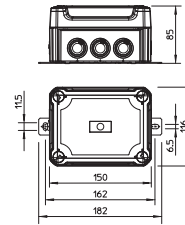
Halogen-free junction box with impact-proof cover and pre-mounted, soft plug-in seals, approved for the maintenance of electrical functionality according to DIN 4102 Part 12. Maintenance of electrical functionality to classes E30 to E90.

Colour: Pastel orange.

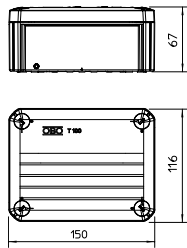
Fully mounted connection unit made of high temperature-resistant special ceramic and labelled protective conductor terminals. Supplied with 2 MMS 6x50 fire protection screw ties for anchorless fastening on the external straps.

For data cables with wire Ø 0.8 mm. Up to 6 rigid copper wires (0.5 mm<sup>2</sup>) possible on each terminal. High protection rating IP66, impact resistance class IK09.

Details on the cable types and manufacturers can be found in the general construction test certificate of the material testing institute NRW, Erwitte.



### FireBox T100E with internal fastening



Type	Nominal cross-section mm <sup>2</sup>	Number of terminals	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>T 100 E 4-5</b>	4	5	1	27.400	<b>7205510</b>

PP Polypropylene

Halogen-free junction box, approved for the maintenance of electrical functionality according to DIN 4102 Part 12. Maintenance of electrical functionality to classes E30 to E90.

Colour: Pastel orange.

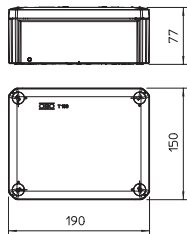
Including pre-mounted connection unit made of high temperature-resistant special ceramic and labelled protective conductor terminal. Supplied with fire protection screw ties for anchorless fastening.

Power cable nominal cross-sections: 1.5 to 4 mm<sup>2</sup>, data cables with 0.8 mm wire Ø. Maximum of two 1.5 mm<sup>2</sup> rigid copper cables per terminal (remove wire protection).

High protection rating IP66, impact resistance class IK07.

Details on the cable types and manufacturers can be found in the general construction test certificate of the material testing institute NRW, Erwitte.

### FireBox T160E with internal fastening



Type	Nominal cross-section mm <sup>2</sup>	Number of terminals	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>T 160 E 10-5</b>	10	5	1	48.700	<b>7205524</b>
<b>T 160 E 16-5</b>	16	5	1	53.800	<b>7205528</b>

PP Polypropylene

Halogen-free junction box, approved for the maintenance of electrical functionality according to DIN 4102 Part 12. Maintenance of electrical functionality to classes E30 to E90.

Colour: Pastel orange.

Including pre-mounted connection unit made of high temperature-resistant special ceramic and labelled protective conductor terminal. Supplied with fire protection screw ties for anchorless fastening.

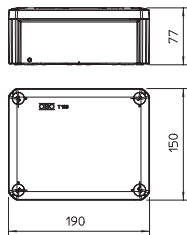
Nominal cross-sections of the power cable: 10 or 16 mm<sup>2</sup>

A maximum of 2 rigid copper cables of 2.5 mm<sup>2</sup> or 4 mm<sup>2</sup> per terminal (remove wire protection).

High protection rating IP66, impact resistance class IK06.

Details on the cable types and manufacturers can be found in the general construction test certificate of the material testing institute NRW, Erwitte.

### FireBox T160E for data technology with internal fastening



Type	Nominal cross-section mm <sup>2</sup>	Number of terminals	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>T 160 E 4-8D</b>	4	8	1	46.500	<b>7205520</b>

PP Polypropylene

Halogen-free junction box, approved for the maintenance of electrical functionality according to DIN 4102 Part 12. Maintenance of electrical functionality to classes E30 to E90.

Colour: Pastel orange.

Including pre-mounted connection unit made of high temperature-resistant special ceramic with fire protection screw ties for anchorless fastening.

Nominal cross-section: data cables with 0.8 mm wire Ø.

High protection rating IP66, impact resistance class IK06.

Details on the cable types and manufacturers can be found in the general construction test certificate of the material testing institute NRW, Erwitte.

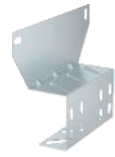
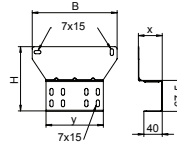
## Mounting plate for FireBox T series

Type	Dimen-	Dimen-	Dimen-	Dimen-	Pack.	Weight	Item No.
	sion H	sion B	sion x	sion y			
	mm	mm	mm	mm	pcs	kg/100 pcs.	
<b>MP T610</b>	141	185	52	125	1	23.600	<b>7205480</b>
<b>MP T616</b>	159	220	63	165	1	34.500	<b>7205484</b>

**Sl** Steel

**DD** Strip galvanised zinc/aluminium, Double Dip

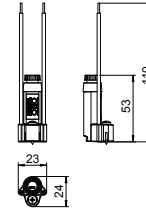
Mounting plate for the fastening of junction boxes of the FireBox T series (with external fastening) onto cable trays or cable ladders with a side height of 60 mm. The angled construction from sheet steel reinforced through crimps enables the secure mounting of cables that maintain electrical functionality, without having to bend the cable over the side rail.



## Fuse holder for FireBox T series

Type	Pack.	Weight	Item No.
<b>TE-FH 520</b>	1	1.800	<b>7205570</b>

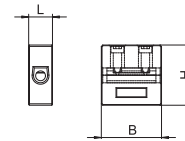
Fuse holder with bayonet lock for fine-wire fuse for dimensions  $\varnothing 5 \times 20$  mm. Connection wires that maintain electrical functionality with nominal cross-section  $2.5 \text{ mm}^2$ , ready-stripped. For mounting on one of the exposed domes in the junction box of the FireBox T series using the supplied screw.



## Ceramic terminal

Type	Nominal	Dimen-	Dimen-	Dimen-	Pack.	Weight	Item No.
	cross-	sion B	sion H	sion L			
	section	mm	mm	mm	pcs	kg/100 pcs.	
<b>TK 04</b>	0.5 - 4	21.5	21.5	8.5	5	0.880	<b>7205700</b>
<b>TK 06</b>	6	21.5	21.5	8.5	5	0.880	<b>7205702</b>
<b>TK 10</b>	10	24	24	12.5	5	1.840	<b>7205704</b>
<b>TK 16</b>	16	28	28	15	5	3.160	<b>7205706</b>

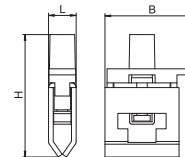
High temperature-resistant ceramic terminal for refitting of the FireBox T series.



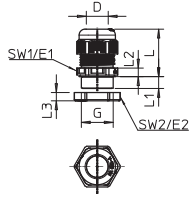
## Protective conductor terminal

Type	Nominal	Dimen-	Dimen-	Dimen-	Pack.	Weight	Item No.
	cross-	sion B	sion H	sion L			
	section	mm	mm	mm	pcs	kg/100 pcs.	
<b>TPE 04</b>	4	19	26	6	5	0.400	<b>7205708</b>
<b>TPE 25</b>	25	23	42	12	5	1.440	<b>7205710</b>

Productive conductor terminal for retro-fitting the FireBox T series with green-yellow identification.



## Cable gland with locknut as a set



Type	Thread	Shipping box pcs	Pack. pcs	Weight kg/100 pcs.	Item No.
V-TEC VM20+ OR	M20 x 1,5	100	10	1.106	7205660
V-TEC VM25+ OR	M25 x 1,5	100	10	1.710	7205663
V-TEC VM32+ OR	M32 x 1,5	100	10	2.840	7205666
V-TEC VM40+ OR	M40 x 1,5	120	10	5.150	7205669

PA Polyamide

Robust cap nut cable gland with metric connecting thread to IEC 423, including pre-mounted locknut.

For high tightness requirements. Strain relief, wringing protection and tightness over the whole clamping area. Sealing ring made of polychloroprene/acrylonitrile butadiene rubber. Moulded shaped sealing lip on intermediate support, no connection thread sealing ring required.

VDE-tested according to DIN EN 50262, protection rating IP68 at 5 bar for 1 hr.

For maintenance of electrical function according to DIN 4102 Part 12 in connection with the junction boxes of the FireBox T series.

Colour: Pastel orange.

### Dimensions

G	D mm	SW1 mm	E1 mm	SW2 mm	E2 mm	L min. mm	L max. mm	L1 mm	L2 mm	L3 mm
M20 x 1.5	6-13	24	27	24	27	23.5	30.5	9	5	6
M25 x 1.5	9-17	29	32	32	36	26	35	10	6	6.5
M32 x 1.5	15-21	36	41	41	46	29	40	11	6	7
M40 x 1.5	16-28	44	50	50	56	36	46	11	7	7.5

## Plug-in seal for FireBox T series



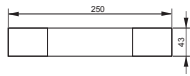
Type	Size	For Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
EDK 25 OR	M25	0 - 22	10	0.165	7205675
EDK 32 OR	M32	0 - 27	10	0.274	7205677
EDK 40 OR	M40	0 - 34	10	0.420	7205679

TPE Thermoplastic elastomer

The soft plug-in seal can be cut back step by step to suit the relevant cable diameter.

Colour: Pastel orange.

## Identification plate for function maintenance



Type	Language	Pack. pcs	Weight kg/100 pcs.	Item No.
KS-E DE	German	10	0.600	7205423
KS-E EN	English	10	0.600	7205432
KS-E HU	Hungarian	10	0.600	7205434
KS-E PL	Polish	10	0.600	7205436
KS-E FI	Finnish	10	0.600	7205437
KS-E SE	Swedish	10	0.600	7205424
KS-E IT	Italian	10	0.600	7205435
KS-E NL	Dutch	10	0.600	7205405

PVC Polyvinylchloride

Self-adhesive identification plate for approved cable system labelling for maintenance of electrical function as required by DIN 4102 part 12.





## Grip M grouped support

### System description



Cable routing with metal grouped supports is approved as a cable-specific routing type for the maintenance of electrical functionality classes E 30, E 60 and E 90 according to DIN 4102 Part 12. The collecting clamps used are made of sheet steel and can be opened and closed easily without the use of tools. To allow simple cable insertion, the supports can remain open during cable routing. Grouped supports for wall

and ceiling mounting are suitable. Depending on the tested cables and the grouped supports used for the tests, fastening spacings of maximum 0.8 m and a cable assignment of up to 6 kg/m are permitted. The instructions of the various cable manufacturers should be complied with.

## Grip M grouped support Installation principle



Horizontal wall and ceiling mounting.



Mounted grouped support 2031 M 15.



Easy insertion of the cables into the opened grouped support.

Classification according to DIN 4102 Part 12

E30

E60

E90

### System description

<b>Routing type</b>	Cable-specific support construction
<b>Test certificate no. M15/M30/M70</b>	P-MPA-E-09-007
<b>Test certificate no. M15/M30</b>	P-3846/9913-MPA BS
<b>Maintenance of electrical functionality classes</b>	E30 to E90
<b>Testing standard</b>	DIN 4102 Part 12

### Approved data

Type	Fastening spacing	Cable assignment, max.
<b>2031 M15</b>	0.5 m	1.1 kg
<b>2031 M30</b>	0.5 m	2.5 kg
<b>2031 M70</b>	0.8 m	6.0 kg

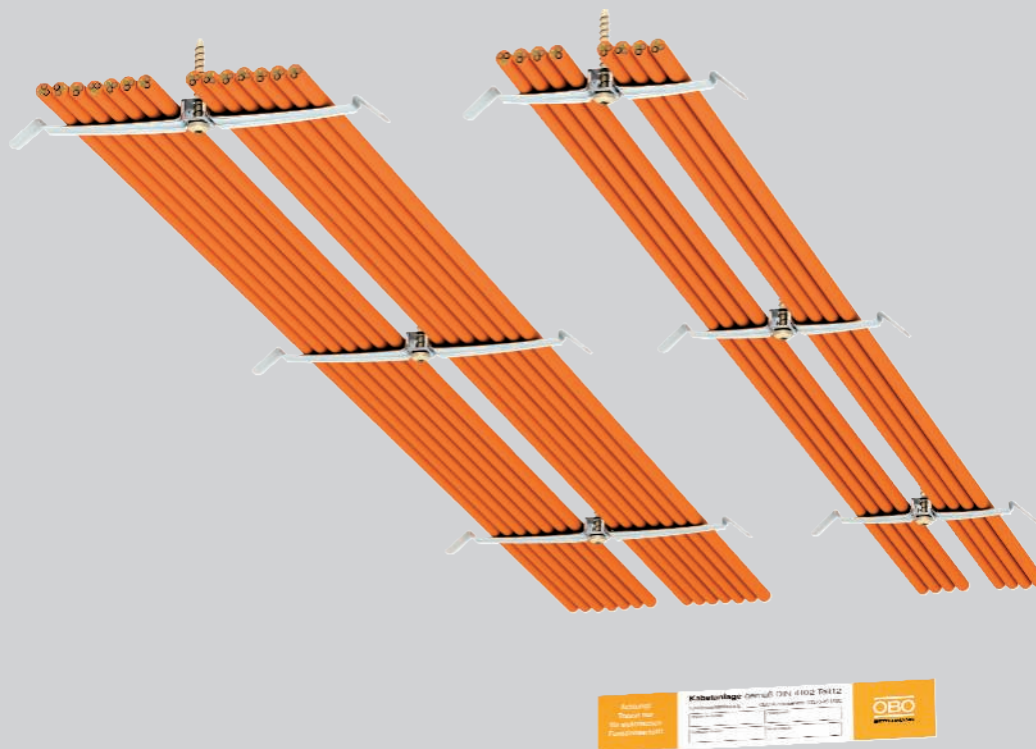
With regard to the fastening distance and cable assignment, deviating values are possible, depending on the test certificates of the cable manufacturers.

During mounting, ensure that the closure of the grouped support is located at the side.

Always indicate the item number when ordering.

## Metal pressure clips

### System description



Cable routing with rustproof steel pressure clips is approved as a cable-specific routing type for the maintenance of electrical functionality class E 30 according to DIN 4102 Part 12. This routing variant is ideal when there is only little mounting height available under the ceiling. With just small additions, fire alarm ca-

bles and also power cables for safety lighting systems can be routed in a space-saving way. For installation, the hips of the pressure clips are simply bent downwards and the cables pushed in from the side. The clamping area can be expanded with spacers.

## Metal pressure clips

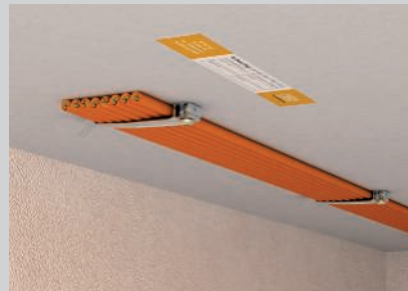
### Installation principle



Space-saving cable routing directly under the ceiling.



Simple cable installation through side insertion of the cables.



Single-sided version for low cable volume.

Classification according to DIN 4102 Part 12

**E30**

#### System description

<b>Routing type</b>	Cable-specific support construction
<b>Test certificate no.</b>	P-MPA-E-17-005
<b>Function maintenance classes</b>	E30
<b>Testing standard</b>	DIN 4102 Part 12

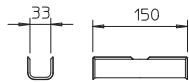
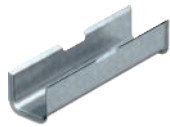
#### Approved data

Type	Fastening spacing	Cable assignment, max.
2033 M ...	0.5 m	2 x 9
2034 M ...	0.5 m	2 x 7
2035 M ...	0.5 m	1 x 9

The data in the general construction test certificates of a materials testing institute for the appropriate cable type applies.



## Long trough for grouped support GRIP "M" 15



**Type**

**2031 LW15**

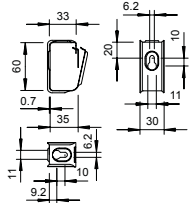
**St** Steel

**FS** Strip-galvanised

Long trough for grouped support type 2031/M15, for the maintenance of electrical function as cable-specific mounting variant.

Type	Pack. Weight		Item No.
	pcs	kg/100 pcs.	
2031 LW15	25	8.200	2207184

## GRIP "M" 15



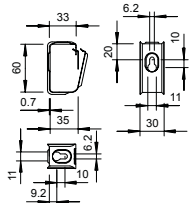
Type	No. of conductors	Shipping box pcs	Pack. Weight		Item No.
			pcs	kg/100 pcs.	
2031 M 15 FS	15	50	50	3.700	2207028

**St** Steel

**FS** Strip-galvanised

Metal cable tidy for high mechanical stability, even in case of fire. Suitable for safe mounting above fire protection ceilings. Also approved as a cable-specific variant for the maintenance of electrical function to DIN 4102 part 12. For wall and ceiling mounting. Lock can be opened without tools. Detailed information on the approved routing variants can be found in the appropriate testing documentation.

## GRIP "M" 15

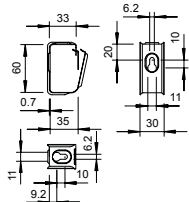


Type	No. of conductors	Shipping box pcs	Pack. Weight		Item No.
			pcs	kg/100 pcs.	
2031 M 15 A2	15	50	50	3.000	2207080

**V2A** Stainless steel, A2

Metal cable tidy for high mechanical stability, even in case of fire. Suitable for secure mounting above fire protection ceilings. Also approved as a cable-specific variant for the maintenance of electrical function to DIN 4102 part 12. For wall and ceiling mounting. Lock can be opened without tools. Detailed information on the approved routing variants can be found in the appropriate testing documentation.

## GRIP "M" 15

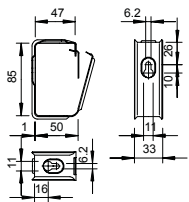


Type	No. of conductors	Shipping box pcs	Pack. Weight		Item No.
			pcs	kg/100 pcs.	
2031 M 15 A4	15	50	50	3.000	2207132

**V4A** Stainless steel, A4

Metal cable tidy for high mechanical stability, even in case of fire. Suitable for safe mounting above fire protection ceilings. Also approved as a cable-specific variant for the maintenance of electrical function to DIN 4102 part 12. For wall and ceiling mounting. Lock can be opened without tools. Detailed information on the approved routing variants can be found in the appropriate testing documentation.

## GRIP "M" 30



Type	No. of conductors	Shipping box pcs	Pack. Weight		Item No.
			pcs	kg/100 pcs.	
2031 M 30 FS	30	25	25	6.200	2207036

**St** Steel

**FS** Strip-galvanised

Metal cable tidy for high mechanical stability, even in case of fire. Suitable for safe mounting above fire protection ceilings. Also approved as a cable-specific variant for the maintenance of electrical function to DIN 4102 part 12. For wall and ceiling mounting. Lock can be opened without tools. Detailed information on the approved routing variants can be found in the appropriate testing documentation.

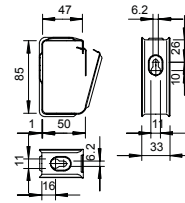


Type	No. of conductors	Shipping box	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>2031 M 30 A2</b>	30	25	25	6.500	<b>2207088</b>

V2A Stainless steel, A2

Metal cable tidy for high mechanical stability, even in case of fire. Suitable for safe mounting above fire protection ceilings. Also approved as a cable-specific variant for the maintenance of electrical function to DIN 4102 part 12. For wall and ceiling mounting. Lock can be opened without tools. Detailed information on the approved routing variants can be found in the appropriate testing documentation.

GRIP "M" 30

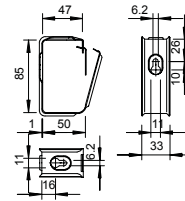


Type	No. of conductors	Shipping box	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>2031 M 30 A4</b>	30	25	25	6.500	<b>2207140</b>

V4A Stainless steel, A4

Metal cable tidy for high mechanical stability, even in case of fire. Suitable for safe mounting above fire protection ceilings. Also approved as a cable-specific variant for the maintenance of electrical function to DIN 4102 part 12. For wall and ceiling mounting. Lock can be opened without tools. Detailed information on the approved routing variants can be found in the appropriate testing documentation.

GRIP "M" 30



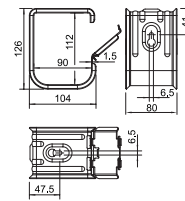
Type	No. of conductors	Shipping box	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>2031 M 70 FS</b>	70	10	10	34.500	<b>2207060</b>

St Steel

FS Strip-galvanised

Metal cable tidy for high mechanical stability, even in case of fire. Suitable for safe mounting above fire protection ceilings. Also approved as a cable-specific variant for the maintenance of electrical function to DIN 4102 part 12. For wall and ceiling mounting. Lock can be opened without tools. Detailed information on the approved routing variants can be found in the appropriate testing documentation.

GRIP "M" 70

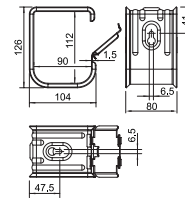


Type	No. of conductors	Shipping box	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>2031 M 70 A2</b>	70	10	10	37.000	<b>2207112</b>

V2A Stainless steel, A2

Metal cable tidy for high mechanical stability, even in case of fire. Suitable for safe mounting above fire protection ceilings. Also approved as a cable-specific variant for the maintenance of electrical function to DIN 4102 part 12. For wall and ceiling mounting. Lock can be opened without tools. Detailed information on the approved routing variants can be found in the appropriate testing documentation.

GRIP "M" 70

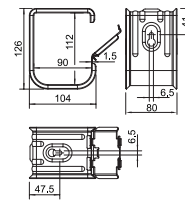


Type	No. of conductors	Shipping box	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>2031 M 70 A4</b>	70	10	10	37.000	<b>2207164</b>

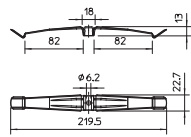
V4A Stainless steel, A4

Metal cable tidy for high mechanical stability, even in case of fire. Suitable for safe mounting above fire protection ceilings. Also approved as a cable-specific variant for the maintenance of electrical function to DIN 4102 part 12. For wall and ceiling mounting. Lock can be opened without tools. Detailed information on the approved routing variants can be found in the appropriate testing documentation.

GRIP "M" 70



### Pressure clip for 16 cables

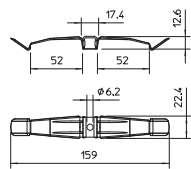


Type	Shipping box pcs	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>2033 M A2</b>	25	25	2.310	<b>2204000</b>

V2A Stainless steel, A2

The metal pressure clip is halogen- and fire load-free, and maintains a good mechanical stability even in fires. The pressure clip is also approved as a cable-specific variant for electrical function maintenance to DIN 4102 Part 12. In pressure clips with larger cross-sections, the spacer 2033 D 15 x 3 G (must be ordered separately) increases the clamping height from 10 to 13 mm. The pressure clips are suitable for fireproof mounting above suspended fire protection ceilings in accordance with DIN 4102.

### Pressure clip for 10 cables

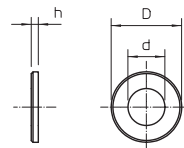
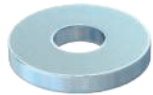


Type	Shipping box pcs	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>2034 M A2</b>	50	50	1.860	<b>2204010</b>

V2A Stainless steel, A2

The metal pressure clip is halogen- and fire load-free, and maintains a good mechanical stability even in fires. The pressure clip is also approved as a cable-specific variant for electrical function maintenance to DIN 4102 Part 12. In pressure clips with larger cross-sections, the spacer 2033 D 15 x 3 G (must be ordered separately) increases the clamping height from 10 to 13 mm. The pressure clips are suitable for fireproof mounting above suspended fire protection ceilings in accordance with DIN 4102.

### Spacer

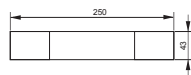


Type	Dimension D mm	Dimension d mm	Dimension h mm	Shipping box pcs	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>2033 D 15x3 G</b>	15	6.4	3	3000	50	0.340	<b>2205097</b>

St Steel  
G Electrogalvanised

To increase the clamping height of pressure clips from 10 to 13 mm for large cable cross-sections.

### Identification plate for function maintenance



Type	Language	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS-E DE</b>	German	10	0.600	<b>7205423</b>
<b>KS-E EN</b>	English	10	0.600	<b>7205432</b>
<b>KS-E HU</b>	Hungarian	10	0.600	<b>7205434</b>
<b>KS-E PL</b>	Polish	10	0.600	<b>7205436</b>
<b>KS-E FI</b>	Finnish	10	0.600	<b>7205437</b>
<b>KS-E SE</b>	Swedish	10	0.600	<b>7205424</b>
<b>KS-E IT</b>	Italian	10	0.600	<b>7205435</b>
<b>KS-E NL</b>	Dutch	10	0.600	<b>7205405</b>

PVC Polyvinylchloride

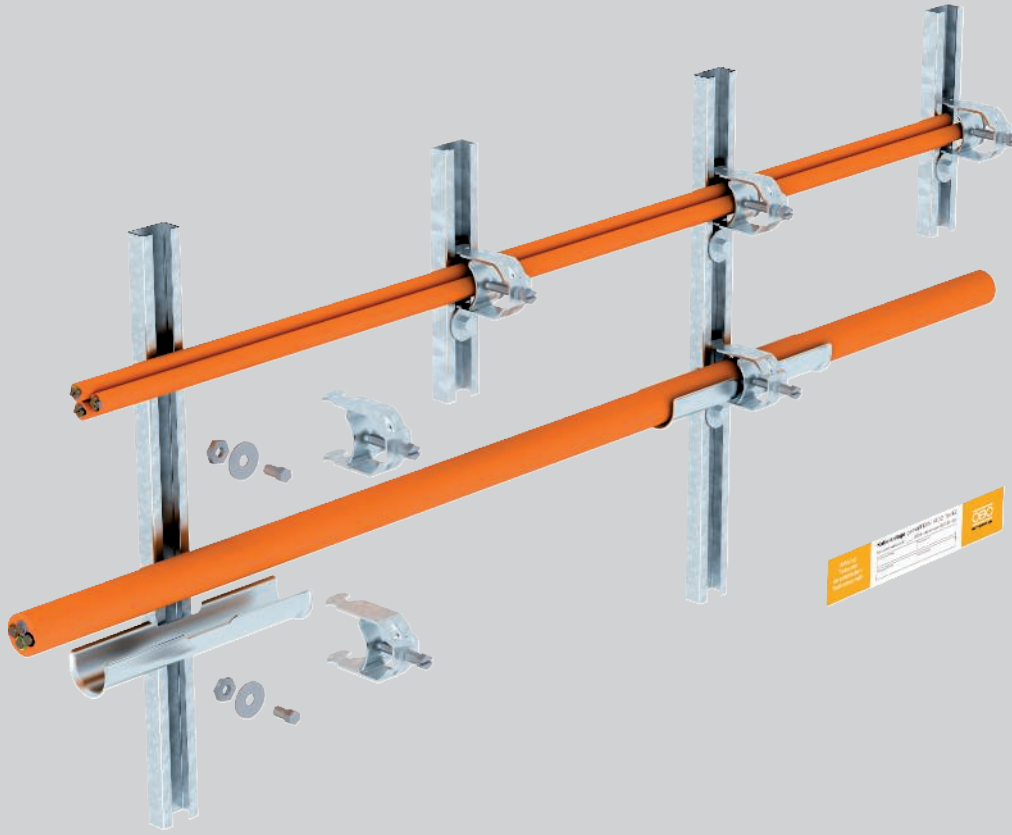
Self-adhesive identification plate for approved cable system labelling for maintenance of electrical function as required by DIN 4102 part 12.





## Clamp clips with profile rails

### System description



The routing types with clamp clips fulfil all the requirements of DIN 4102 Part 12 as a standard support structure for the maintenance of electrical functionality classes E30 and E90. Mounting as a cable-specific routing type is possible, depending on the specifications of the cable manufacturer. The clamp clips can be used for horizontal cable routing on walls and ceilings and vertical routing on walls. The clamp clips are made of sheet steel with a riveted metal pressure

trough. Long troughs made of galvanised sheet steel can be used to increase the support area for the cables. These are inserted loosely between the cables and the metal pressure troughs of the clamp clips. Bundling of up to three cables in a clamp clip is possible. The individual diameter of the bundled cables may not exceed 25 mm. If only individual cables are installed, then there is no limit to the cable diameter.

# Clamp clips with profile rails

## Installation principle



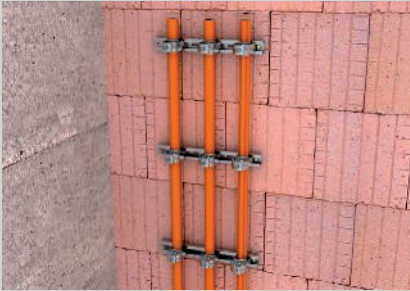
Horizontal mounting with clamp clips and long troughs on the wall and under the ceiling.



Horizontal cable mounting with clamp clips on the wall.



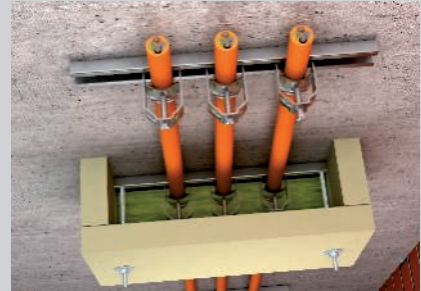
Horizontal cable mounting with clamp clips under the ceiling.



Vertical cable mounting with clamp clips on the wall.



Installation of the cables, either individually or as a bundle.



Effective support measure with ZSE90 strain relief.

Classification according to DIN 4102 Part 12



### System description

<b>Routing type</b>	Standard support structure Cable-specific support construction
<b>Surveyor's report no.</b>	3038/625/11-3-CM (standard)
<b>Maintenance of electrical functionality classes</b>	E30 to E90
<b>Testing standard</b>	DIN 4102 Part 12

### Approved data

<b>Rail fastening distance, max.</b>	0.3 m (without long trough) as standard support structure
<b>Rail fastening distance, max.</b>	0.6 m (with long trough) as standard support structure
<b>Max. anchor spacing in rail</b>	0.25 m
<b>Max. individual cable diameter</b>	62 mm with long trough, 100 mm without long trough
<b>Max. cable bundle</b>	3x Ø 25 mm as standard support structure
<b>Cable-specific</b>	Cable types and mounting parameters dependent on the cable manufacturer

#### Standard routing type:

The data of the surveyor's report applies, together with a valid, general construction test certificate of a materials testing institute for the cable type to be used.

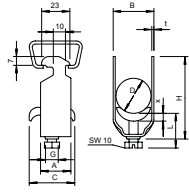
#### Cable-specific routing type:

A general construction test certificate of a materials testing institute for the cable type to be used is sufficient as proof.

With regard to the fastening distance and cable assignment, the details from the appropriate test certificate must be taken into account.

Always indicate the item number when ordering.

## 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

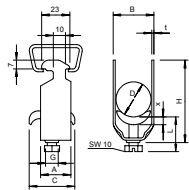
Suitable for all C profile rails with slot width 16–17 mm.

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

### Dimensions

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

## Clamp clip, double, metal pressure trough



Type	Clamping range D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
2056 M2 12 FT	8 - 12	50	3.980	1156179
2056 M2 16 FT	12 - 16	50	4.750	1156187
2056 M2 22 FT	16 - 22	50	6.900	1156195
2056 M2 28 FT	22 - 28	50	7.800	1156209

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.

### Dimensions

D mm	A mm	B mm	C mm	G	t mm	x mm	H mm	L mm
8-12	23	16	34	M6	1.5	5	52	34
12-16	23	20	34	M6	1.5	5	61	34
16-22	23	27	34	M6	1.5	5	73	47
22-28	23	33	34	M6	2	5	87	47

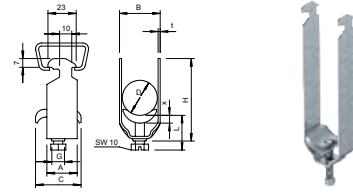
### Clamp clip, triple, metal pressure trough

Type	Clamping range D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
2056 M3 12 FT	8 - 12	50	4.050	1156241
2056 M3 16 FT	12 - 16	50	5.800	1156268
2056 M3 22 FT	16 - 22	50	6.500	1156276
2056 M3 28 FT	22 - 28	50	9.500	1156284

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.



#### Dimensions

D mm	A mm	B mm	C mm	G	t mm	x mm	H mm	L mm
8-12	23	16	34	M6	1.2	5	70	47
12-16	23	20	34	M6	1.5	5	82	47
16-22	23	27	34	M6	1.5	5	101	47
22-28	23	33	34	M6	2	5	121	47

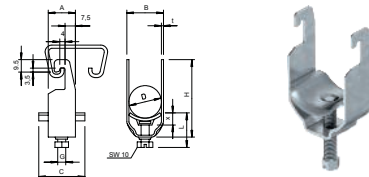
### Clamp clip, single, metal pressure trough

Type	Clamping range D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
2056U M 12 FT	8 - 12	100	3.300	1158007
2056U M 16 FT	12 - 16	100	3.520	1158015
2056U M 22 FT	16 - 22	100	3.960	1158023
2056U M 28 FT	22 - 28	100	5.890	1158031
2056U M 34 FT	28 - 34	100	7.650	1158058
2056U M 40 FT	34 - 40	100	8.360	1158066
2056U M 46 FT	40 - 46	100	10.890	1158074
2056U M 52 FT	46 - 52	100	11.660	1158082
2056U M 58 FT	52 - 58	100	14.740	1158090
2056U M 64 FT	58 - 64	100	15.730	1158104
2056U M 70 FT	64 - 70	50	18.200	1158112
2056U M 76 FT	70 - 76	25	20.600	1158120

St Steel

FT Hot-dip galvanised

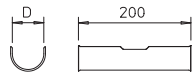
Suitable for all C profile rails with slot width 18 mm and 22 mm.



#### Dimensions

D mm	A mm	B mm	C mm	G	t mm	x mm	H mm	L mm
8-12	20	16	34	M6	1.5	5	42	34
12-16	20	20	34	M6	1.5	5	46	34
16-22	20	27	34	M6	1.5	5	53	34
22-28	20	33	34	M6	2	5	59	34
28-34	20	39	34	M8	2	5.5	67	37.5
34-40	20	45	34	M8	2	5.5	73	37.5
40-46	20	51	40	M8	2	5.5	79	37.5
46-52	20	57	40	M8	2	6.5	85	38.5
52-58	23	64	40	M8	2.5	6.5	91	38.5
58-64	23	70	40	M8	2.5	6.5	97	38.5
64-70	23	76	40	M8	2.5	6.5	103	38.5
70-76	25	82	40	M8	2.5	6.5	110	45.5

## Long trough



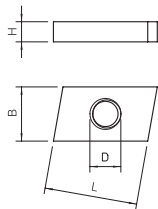
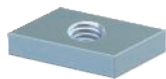
Type	Clamping range D for clip		Pack. pcs	Weight kg/100 pcs.	Item No.
	mm	2056/M			
2058 LW 10	6 - 10	8 - 12	50	4.000	1195794
2058 LW 14	10 - 14	12 - 16	50	5.340	1195808
2058 LW 20	14 - 20	16 - 22	50	7.380	1195816
2058 LW 26	20 - 26	22 - 28	25	9.000	1195824
2058 LW 32	26 - 32	28 - 34	25	11.000	1195832
2058 LW 38	32 - 38	34 - 40	25	12.500	1195840
2058 LW 44	38 - 44	40 - 46	25	14.300	1195859
2058 LW 50	44 - 50	46 - 52	25	16.200	1195867
2058 LW 56	50 - 56	52 - 58	25	17.800	1195875
2058 LW 62	56 - 62	58 - 64	25	19.700	1195883

St Steel

FS Strip-galvanised

In addition to the clamp clip, to increase the support area for cables with integrated maintenance of electrical function, a long trough (L = 200 mm) is mounted.

## Slide nut



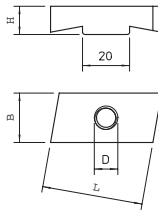
Type	Dimension L mm	Dimension B mm	Dimension H mm	Pack. pcs	Weight kg/100 pcs.	Item No.
ACMSN M6 ZL	26	16.5	4	100	1.740	1147056

St Steel

ZL Zinc scale

Slide nut for use with CM3015, CM3518 and AM3518 profile rails

## Slide nut



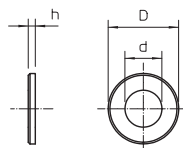
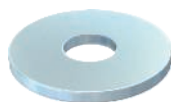
Type	Dimension L mm	Dimension B mm	Dimension H mm	Pack. pcs	Weight kg/100 pcs.	Item No.
MS40SN M6 ZL	35	17	10	50	3.750	1147106

St Steel

ZL Zinc scale

Slide nut for use with MS4022 profile rail

## Large washer



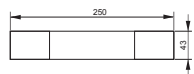
Type	Dimension D mm	Dimension d mm	Dimension h mm	Pack. pcs	Weight kg/100 pcs.	Item No.
DIN440 7 F	22	6.6	2	100	0.550	6408702

St Steel

F Hot-dip galvanised

Washer of particularly large outer diameter.

## Identification plate for function maintenance



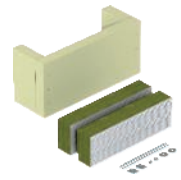
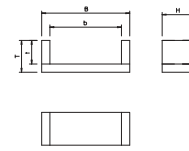
Type	Language	Pack. pcs	Weight kg/100 pcs.	Item No.
KS-E DE	German	10	0.600	7205423
KS-E EN	English	10	0.600	7205432
KS-E HU	Hungarian	10	0.600	7205434
KS-E PL	Polish	10	0.600	7205436
KS-E FI	Finnish	10	0.600	7205437
KS-E SE	Swedish	10	0.600	7205424
KS-E IT	Italian	10	0.600	7205435
KS-E NL	Dutch	10	0.600	7205405

PVC Polyvinylchloride

Self-adhesive identification plate for approved cable system labelling for maintenance of electrical function as required by DIN 4102 part 12.

### Strain relief, internal height 115 mm

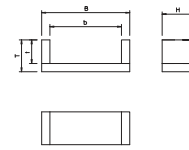
Type	Dimension b mm	Dimension t mm	Dimension H mm	Dimension B mm	Dimension T mm	Pack. pcs	Weight kg/100 pcs.	Item No.
ZSE90-25-11	250	115	140	340	160	1	376.000	7215702
ZSE90-35-11	350	115	140	440	160	1	466.000	7215706
ZSE90-45-11	450	115	140	540	160	1	506.000	7215709



Strain relief as an effective support measure for vertical cable routing, according to DIN 4102 part 12, approved for all cable types and all vertical routing systems. Maintenance of electrical function classes E30 to E90. Housing including mineral fibre panels, fastening material, ASX fire protection coating in cartridge and identification plate.

### Strain relief, internal height 175 mm

Type	Dimension b mm	Dimension t mm	Dimension H mm	Dimension B mm	Dimension T mm	Pack. pcs	Weight kg/100 pcs.	Item No.
ZSE90-25-17	250	175	160	340	220	1	484.000	7215713
ZSE90-35-17	350	175	160	440	220	1	600.000	7215716
ZSE90-45-17	450	175	160	540	220	1	700.000	7215719
ZSE90-55-17	550	175	160	640	220	1	770.000	7215726
ZSE90-65-17	650	175	160	740	220	1	822.000	7215730



Strain relief as an effective support measure for vertical cable routing, according to DIN 4102 part 12, approved for all cable types and all vertical routing systems. Maintenance of electrical function classes E30 to E90. Housing including mineral fibre panels, fastening material, ASX fire protection coating in cartridge and identification plate.

### Ablation coating in a cartridge

Type	Contents ml	Pack. pcs	Weight kg/100 pcs.	Item No.
ASX-K	310	1	50.000	7202310

Intumescent material

Combined, endothermic and weatherproof coating for internal and external areas. Universal protection coating for cable and cable support structures. Use as direct filler, and as paint when stirred.

Material class DIN 4102 - B2, normally flammable.

In dry, frost-free rooms, the coating can be stored at temperatures from +5 °C to +25 °C for up to 18 months in closed, upright original containers.

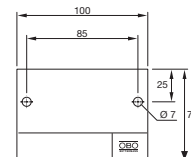


### Identification plate for strain relief

Type	Language	Pack. pcs	Weight kg/100 pcs.	Item No.
KS-ZSE DE	German	1	2.400	7215750
KS-ZSE SE	Swedish	1	2.400	7215751
KS-ZSE IT	Italian	1	2.400	7215753

PVC Polyvinylchloride

Universal identification plate to be written on with waterproof and light-resistant felt-tip pen for the ZSE90 strain relief. For approved identification, according to DIN 4102 Part 12. Incl. two push-fit anchors.



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Function maintenance - Junction boxes, individual routing, pipes and metal duct

## Screw-in spacer clips

### System description



The routing types with single clips fulfil all the requirements of DIN 4102 Part 12 as a standard support structure for the maintenance of electrical functionality classes E 30, E 60 and E 90. In addition, mounting of the single clips as a cable-specific routing type is possible, depending on the specifications of the cable manufacturer. The screw-in spacer clips can be used for horizontal cable routing on walls and ceilings and vertical routing on walls. The closed screw-in spacer clips are made of galvanised sheet steel. Mounting is

carried out either by pushing through the slots of the clips or by screwing onto a fire protection anchor with threaded tip M6. Bundling of up to three cables together in a single clamp clip is possible for mounting as a standard support structure. The individual diameter of the bundled cables may not exceed 25 mm. There is no limit to the diameter of installed individual cables with screw-in spacer clips.



# Screw-in spacer clips

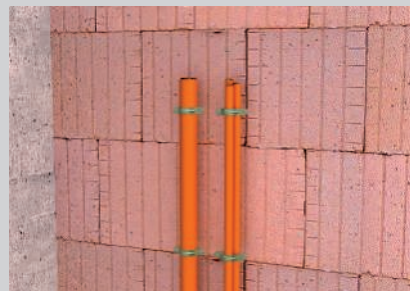
## Installation principle



Horizontal cable mounting on the wall.



Mounting under the ceiling.



Vertical cable installation as individual and bundle routing on the wall.



Bundled cable routing under the ceiling.



Effective support measure with ZSE90 strain relief.

Classification according to DIN 4102 Part 12



### System description

<b>Routing type</b>	Standard support structure Cable-specific support construction
<b>Surveyor's report no.</b>	3038/625/11-3-CM (standard)
<b>Maintenance of electrical functionality classes</b>	E30 to E90
<b>Testing standard</b>	DIN 4102 Part 12

### Approved data

<b>Max. fastening spacing</b>	0.3 m as standard support structure
<b>Max. individual cable diameter</b>	63 mm
<b>Max. cable bundle</b>	3x Ø 25 mm
<b>Cable-specific</b>	Cable types and mounting parameters dependent on the cable manufacturer

#### Standard routing type:

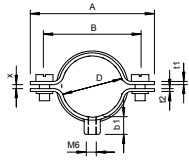
The data of the surveyor's report applies, together with a valid, general construction test certificate of a materials testing institute for the cable type to be used.

#### Cable-specific routing type:

A general construction test certificate of a materials testing institute for the cable type to be used is sufficient as proof.

With regard to the fastening distance and cable assignment, the details from the appropriate test certificate must be taken into account.

## Cable and pipe spacer clip 732 with threaded connection V4A



Type	Clamping range D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
732 6 A4	5 - 6	100	1.364	1360644
732 8 A4	7 - 8	100	1.376	1360646
732 10 A4	9 - 10	100	1.467	1360648
732 12 A4	10.5 - 12	100	1.622	1360650
732 14 A4	12.5 - 14	100	1.710	1360652
732 15 A4	13.5 - 15	100	1.791	1360654
732 16 A4	14.5 - 16	100	1.845	1360656
732 18 A4	16.5 - 18	100	1.889	1360658
732 20 A4	18.5 - 20	50	1.960	1360660
732 22 A4	20 - 22	50	1.999	1360662
732 24 A4	22 - 24	50	2.062	1360664
732 26 A4	24 - 26	50	2.083	1360666
732 28 A4	26 - 28	50	2.923	1360668
732 30 A4	28 - 30	50	3.047	1360670
732 33 A4	31 - 33	25	3.186	1360672
732 38 A4	36 - 38	25	3.453	1360676
732 40 A4	38 - 40	25	3.554	1360678
732 42 A4	40 - 42	25	3.650	1360680
732 45 A4	43 - 45	25	3.810	1360682
732 48 A4	46 - 48	25	3.972	1360684
732 50 A4	48 - 50	25	4.045	1360686
732 60 A4	58 - 60	25	4.582	1360688
732 63 A4	61 - 63	25	4.712	1360690

V4A Stainless steel, A4

Mounting with screw-in spacer clips. Spacer clips and screw-in spacer clips are available in various materials: in V2A stainless steel, in electrogalvanised, hot-dip galvanised steel or in aluminium. Fastening can be take place with bolt ties or Angler anchors and Sprint screws. Depending on the design, the clips can be "shot" using a bolt-firing tool or nail device.

### Dimensions

D mm	A mm	B mm	x mm	b1 mm	t1 mm	t2 mm	M
5-6	35	23	1	9.8	1	1.25	M5 x 10
7-8	34	22	1	9.8	1	1.25	M5 x 10
9-10	36	24	1	9.8	1	1.25	M5 x 12
10.5-12	38	26	1.5	9.8	1	1.25	M5 x 12
12.5-14	40	28	1.5	9.8	1	1.25	M5 x 12
13.5-15	41	29	1.5	9.8	1	1.25	M5 x 12
14.5-16	42	30	1.5	9.8	1	1.25	M5 x 12
16.5-18	44	22	1.5	9.8	1	1.25	M5 x 12
18.5-20	46	34	1.5	9.8	1	1.25	M5 x 12
20-22	48	36	2	9.8	1	1.25	M5 x 12
22-24	50	38	2	9.8	1	1.25	M5 x 12
24-26	52	40	2	10	1	1.25	M5 x 12
26-28	59	45	2	10	1.5	1.5	M5 x 12
28-30	61	47	2	10	1.5	1.5	M5 x 12
31-33	64	50	2	10	1.5	1.5	M5 x 12
36-38	69	55	2	10	1.5	1.5	M5 x 12
38-40	71	57	2	10	1.5	1.5	M5 x 12
40-42	73	59	2	10	1.5	1.5	M5 x 12
43-45	76	62	2	10	1.5	1.5	M5 x 12
46-48	79	65	2	10	1.5	1.5	M5 x 12
48-50	81	67	2	10	1.5	1.5	M5 x 14
58-60	91	77	2	10	1.5	1.5	M5 x 14
61-63	94	80	2	10	1.5	1.5	M5 x 14



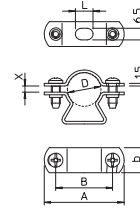
## Cable and pipe spacer clip 733

Type	Clamping range D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
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
733 19 FT	17 - 19	50	2.500	1361097
733 23 FT	21 - 23	50	2.870	1361103
733 29 FT	24 - 29	50	3.480	1361106
733 38 FT	30 - 38	25	4.040	1361109
733 48 FT	39 - 48	25	4.810	1361112
733 54 FT	48 - 54	25	5.400	1361117
733 61 FT	53 - 61	20	6.100	1361115
733 63 FT	63	20	7.250	1361118

St Steel

G Electrogalvanised FT Hot-dip galvanised

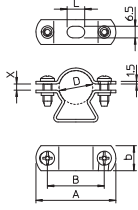
D mm	A mm	B mm	L mm	b mm	x mm
19-21	50	37	10	14	2
21-23	52	39	10	14	2.5
24-29	58	42	10	16	7
30-38	70	54	10	16	10
39-48	80	64	14	16	12.5
48-54	86	68	14	18	7.5
53-61	96	78	14	18	10
63	101	83	18	16	3
17 - 19	45	32	10	14	3.5
21- 23	52	39	10	14	2.5
24 - 29	58	42	10	16	7
30 - 38	70	54	10	16	10
39 - 48	80	64	14	16	12.5
48-54	86	68	14	18	7.5
53-61	96	78	14	18	10
63	101	83	18	16	3



## Dimensions



## Cable and pipe spacer clip 733 V2A



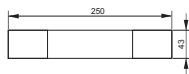
Type	Clamping range D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
733 19 A2	17 - 19	50	2.800	1362038
733 21 A2	19 - 21	50	2.740	1362046
733 23 A2	21 - 23	50	2.800	1362054
733 29 A2	24 - 29	50	3.475	1362062
733 38 A2	30 - 38	25	4.500	1362070
733 48 A2	39 - 48	25	5.200	1362089
733 54 A2	48 - 54	25	5.800	1362097
733 61 A2	53 - 61	20	6.800	1362100
733 19 A4	17 - 19	50	2.500	1361651
733 21 A4	19 - 21	50	2.730	1361655
733 23 A4	21 - 23	50	2.710	1361659
733 29 A4	24 - 29	50	3.420	1361663
733 38 A4	30 - 38	25	4.040	1361667
733 48 A4	39 - 48	25	4.810	1361671
733 54 A4	48 - 54	25	5.800	1361675
733 61 A4	53 - 61	20	6.370	1361679
733 63 A4	63	20	6.940	1361683

V2A Stainless steel, A2 V4A Stainless steel, A4

### Dimensions

D mm	A mm	B mm	L mm	b mm	x mm
17-19	45	32	10	14	3.5
19-21	50	37	10	14	2
21-23	52	39	10	14	2.5
24-29	58	42	10	16	7
30-38	70	54	10	16	10
39-48	80	64	14	16	12.5
48-54	86	68	14	18	7.5
53-61	96	78	14	18	10
17 - 19	45	32	10	14	3.5
19 - 21	50	37	10	14	2
21 - 23	52	39	10	14	2.5
24 - 29	58	42	10	16	7
30 - 38	70	54	10	16	10
39 - 48	80	64	14	16	12.5
48-54	86	68	14	18	7.5
53-61	96	78	14	18	10
63	101	83	18	16	3

## Identification plate for function maintenance



Type	Language	Pack. pcs	Weight kg/100 pcs.	Item No.
KS-E DE	German	10	0.600	7205423
KS-E EN	English	10	0.600	7205432
KS-E HU	Hungarian	10	0.600	7205434
KS-E PL	Polish	10	0.600	7205436
KS-E FI	Finnish	10	0.600	7205437
KS-E SE	Swedish	10	0.600	7205424
KS-E IT	Italian	10	0.600	7205435
KS-E NL	Dutch	10	0.600	7205405

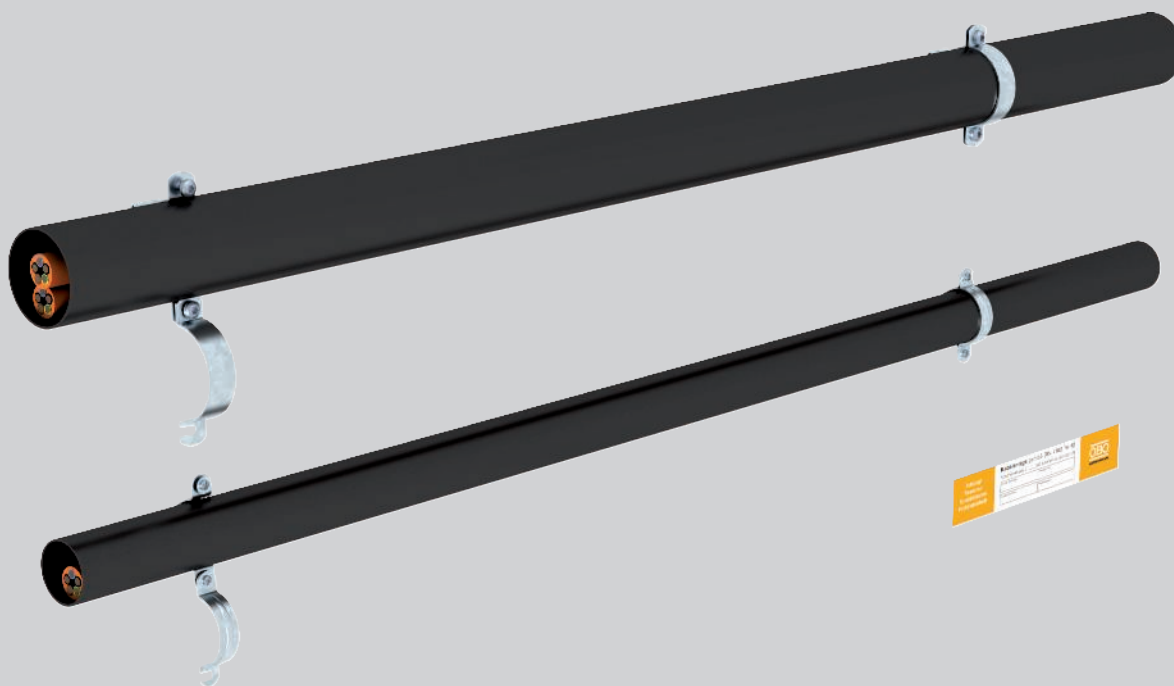
PVC Polyvinylchloride

Self-adhesive identification plate for approved cable system labelling for maintenance of electrical function as required by DIN 4102 part 12.



## Cable routing in pipes

### System description



Cable routing in the steel pipe, in combination with clamp clips or with screw-in spacer clips, fulfils the requirements of DIN 4102 Part 12 as a cable-specific routing type for the maintenance of electrical functionality classes E 30, E 60 and E 90. The steel pipes may be routed horizontally on the wall or under the ceiling and offer additional mechanical protection of the installed cables. Sheet steel clamp clips are used

together with a riveted metal pressure sleeve and the appropriate profile rails, or closed screw-in spacer clips made of galvanised sheet steel. Refer to the available test certificates of the cable manufacturer for the maximum possible dimensions of the pipes, the maximum fastening spacing of the clips and the number of cables to be run in the pipe.

# Cable routing in pipes

## Installation principle



Ceiling mounting with screw-in spacer clip and clamp clip.



Horizontal wall mounting with screw-in spacer clip and clamp clip.



Space-saving installation of multiple pipes next to one another with clamp clips.



Insertion into the screw-in spacer clip by hooking the cover under the screw.



Multiple assignment according to the data of the test reports.

Classification according to DIN 4102 Part 12

**E30**   **E60**   **E90**

### System description

<b>Routing type</b>	Cable-specific support construction
<b>Maintenance of electrical functionality classes</b>	E30 to E90
<b>Testing standard</b>	DIN 4102 Part 12

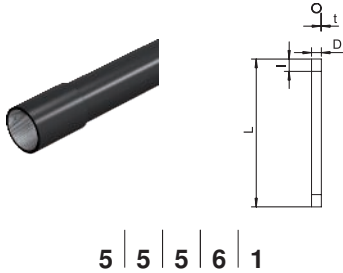
### Approved data

<b>Cable-specific</b>	Cable types and mounting parameters dependent on the cable manufacturer
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The data in the general construction test certificates applies.



### Armoured steel pipe with thread, black



Type	Thread	Dimension D mm	Dimension L mm	Dimension I mm	Dimension t mm	Colour	Pack. m	Weight kg/100 m	Item No.
SM16W SW	M16x1,5	16	3000	13	1.3	Jet black	30	50.000	2046500
SM20W SW	M20x1,5	20	3000	13	1.5	Jet black	30	73.000	2046501
SM25W SW	M25x1,5	25	3000	18	1.5	Jet black	30	92.000	2046502
SM32W SW	M32x1,5	32	3000	18	1.5	Jet black	21	120.000	2046503
SM40W SW	M40x1,5	40	3000	20.5	1.5	Jet black	15	152.000	2046505
SM50W SW	M50x1,5	50	3000	25	1.5	Jet black	15	190.700	2046506
SM63W SW	M63x1,5	63	3000	25	1.7	Jet black	9	287.700	2046507

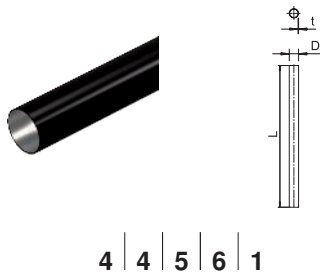
SI Steel

PE50 PES50 - Polyester/epoxy

Electrical installation pipe according to EN 61386-1 with threaded ends to EN 60423 for mechanical protection of cables.

With burr-free inner wall. One coupling is already screwed onto each pipe.

### Armoured steel pipe without thread, black



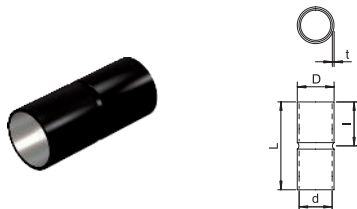
Type	Dimension D mm	Dimension L mm	Dimension t mm	Colour	Pack. m	Weight kg/100 m	Item No.
S16W SW	16	3000	1	Jet black	30	37.000	2046565
S20W SW	20	3000	1	Jet black	30	44.700	2046566
S25W SW	25	3000	1.2	Jet black	30	70.400	2046567
S32W SW	32	3000	1.2	Jet black	21	91.200	2046568
S40W SW	40	3000	1.2	Jet black	15	139.700	2046569
S50W SW	50	3000	1.2	Jet black	15	176.000	2046570
S63W SW	63	3000	1.2	Jet black	9	223.000	2046571

SI Steel

PE50 PES50 - Polyester/epoxy

Electrical installation pipe without threaded ends according to EN 61386-1 for mechanical protection of cables. With burr-free inner wall.

### Armoured steel pipe connection sleeve without thread, black



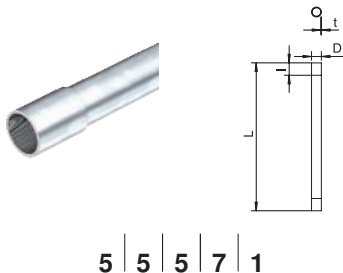
Type	Dimension D mm	Dimension d mm	Dimension L mm	Dimension I mm	Dimension t mm	Colour	Pack. pcs	Weight kg/100 pcs	Item No.
SV16W SW	18.6	16.6	50	25	1	Jet black	25	2.400	2046582
SV20W SW	23.1	20.7	60	30	1.2	Jet black	50	3.200	2046583
SV25W SW	28.1	25.7	60	30	1.2	Jet black	50	5.200	2046584
SV32W SW	35.2	32.8	70	35	1.2	Jet black	50	7.200	2046585
SV40W SW	43.8	40.8	80	40	1.5	Jet black	25	13.200	2046586
SV50W SW	54	51	100	50	1.5	Jet black	10	20.000	2046587
SV63W SW	67	64	100	50	1.5	Jet black	5	28.000	2046588

SI Steel

PE50 PES50 - Polyester/epoxy

Accessory part: plug-in sleeve for the connections between electrical installation pipes. With burr-free inner wall.

### Electrogalvanised steel pipe, with thread



Type	Thread	Dimension D mm	Dimension L mm	Dimension I mm	Dimension t mm	Pack. m	Weight kg/100 m	Item No.
SM16W G	M16x1,5	16	3000	13	1.3	30	50.390	2046861
SM20W G	M20x1,5	20	3000	13	1.5	30	66.667	2046862
SM25W G	M25x1,5	25	3000	18	1.5	30	92.290	2046863
SM32W G	M32x1,5	32	3000	18	1.5	21	120.000	2046864
SM40W G	M40x1,5	40	3000	20.5	1.5	15	151.450	2046865
SM50W G	M50x1,5	50	3000	25	1.5	15	190.000	2046866
SM63W G	M63x1,5	63	3000	25	1.7	9	287.700	2046867

SI Steel

G Electrogalvanised

Electrical installation pipe according to EN 61386-1 with threaded ends to EN 60423 for mechanical protection of cables.

With burr-free inner wall. One coupling is already screwed onto each pipe.



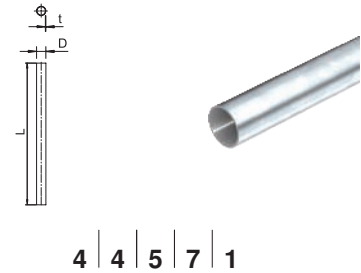
## Armoured steel pipe without thread, electrogalvanised

Type	Dimension D mm	Dimension L mm	Dimension t mm	Pack. m	Weight kg/100 m	Item No.
<b>S16W G</b>	16	3000	1	30	37.000	<b>2046840</b>
<b>S20W G</b>	20	3000	1	30	44.700	<b>2046841</b>
<b>S25W G</b>	25	3000	1.2	30	70.400	<b>2046842</b>
<b>S32W G</b>	32	3000	1.2	21	91.200	<b>2046843</b>
<b>S40W G</b>	40	3000	1.2	15	139.700	<b>2046844</b>
<b>S50W G</b>	50	3000	1.2	15	176.000	<b>2046845</b>
<b>S63W G</b>	63	3000	1.2	9	223.000	<b>2046846</b>

St Steel

G Electrogalvanised

Electrical installation pipe without threaded ends according to EN 61386-1 for mechanical protection of cables. With burr-free inner wall.



4 | 4 | 5 | 7 | 1

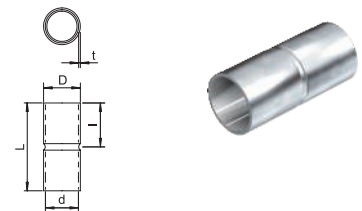
## Armoured steel pipe connection sleeve without thread, electrogalvanised

Type	Dimension D mm	Dimension d mm	Dimension L mm	Dimension l mm	Dimension t mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>SV16W G</b>	18.6	16.6	50	25	1	25	2.400	<b>2046854</b>
<b>SV20W G</b>	23.1	20.7	60	30	1.2	50	4.000	<b>2046855</b>
<b>SV25W G</b>	28.1	25.7	60	30	1.2	50	5.200	<b>2046856</b>
<b>SV32W G</b>	35.2	32.8	70	35	1.2	50	7.200	<b>2046857</b>
<b>SV40W G</b>	43.8	43.8	80	40	1.5	25	13.200	<b>2046858</b>
<b>SV50W G</b>	54	51	100	50	1.5	10	20.000	<b>2046859</b>
<b>SV63W G</b>	67	64	100	50	1.5	5	28.000	<b>2046860</b>

St Steel

G Electrogalvanised

Accessory part: plug-in sleeve for the connections between electrical installation pipes. With burr-free inner wall.



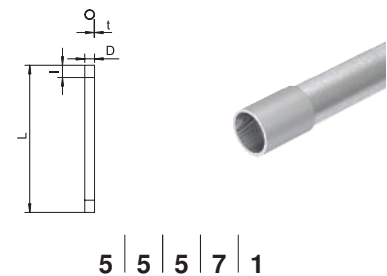
## Hot-dip galvanised steel pipe, with thread

Type	Thread	Dimension D mm	Dimension L mm	Dimension l mm	Dimension t mm	Pack. m	Weight kg/100 m	Item No.
<b>SM16W FT</b>	M16x1,5	16	3000	13	1.3	30	54.000	<b>2046533</b>
<b>SM20W FT</b>	M20x1,5	20	3000	13	1.5	30	79.000	<b>2046534</b>
<b>SM25W FT</b>	M25x1,5	25	3000	18	1.5	30	99.000	<b>2046535</b>
<b>SM32W FT</b>	M32x1,5	32	3000	18	1.5	21	130.000	<b>2046536</b>
<b>SM40W FT</b>	M40x1,5	40	3000	20.5	1.5	15	164.000	<b>2046537</b>
<b>SM50W FT</b>	M50x1,5	50	3000	25	1.5	15	206.000	<b>2046538</b>
<b>SM63W FT</b>	M63x1,5	63	3000	26	1.8	9	324.700	<b>2046540</b>

St Steel

FT Hot-dip galvanised

Electrical installation pipe according to EN 61386-1 with threaded ends to EN 60423 for mechanical protection of cables.  
With burr-free inner wall. Corrosion protection class 4 (high). One coupling is already screwed onto each pipe.



5 | 5 | 5 | 7 | 1

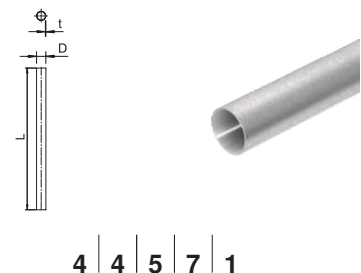
## Hot-dip galvanised steel pipe, without thread

Type	Dimension D mm	Dimension L mm	Dimension t mm	Pack. m	Weight kg/100 m	Item No.
<b>S16W FT</b>	16	3000	1	30	37.000	<b>2046593</b>
<b>S20W FT</b>	20	3000	1	30	44.700	<b>2046594</b>
<b>S25W FT</b>	25	3000	1.2	30	70.400	<b>2046595</b>
<b>S32W FT</b>	32	3000	1.2	21	91.200	<b>2046596</b>
<b>S40W FT</b>	40	3000	1.2	15	139.700	<b>2046597</b>
<b>S50W FT</b>	50	3000	1.2	15	176.000	<b>2046598</b>
<b>S63W FT</b>	63	3000	1.2	9	223.000	<b>2046599</b>

St Steel

FT Hot-dip galvanised

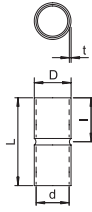
Electrical installation pipe without threaded ends according to EN 61386-1 for mechanical protection of cables. With burr-free inner wall. Corrosion protection class 4 (high).



4 | 4 | 5 | 7 | 1



## Hot-dip galvanised steel sleeve, without thread



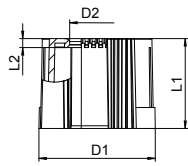
Type	Dimension D mm	Dimension d mm	Dimension L mm	Dimension l mm	Dimension t mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>SV16W FT</b>	18.6	16.6	50	25	1	25	2.200	<b>2046620</b>
<b>SV20W FT</b>	23.1	20.7	60	30	1.2	50	3.200	<b>2046621</b>
<b>SV25W FT</b>	28.1	25.7	60	30	1.2	50	5.600	<b>2046622</b>
<b>SV32W FT</b>	35.2	32.8	70	35	1.2	50	7.800	<b>2046623</b>
<b>SV40W FT</b>	43.8	40.8	80	40	1.5	25	14.400	<b>2046624</b>
<b>SV50W FT</b>	54	51	100	50	1.5	10	22.000	<b>2046625</b>
<b>SV63W FT</b>	67	63	100	50	1.5	5	28.000	<b>2046626</b>

**St** Steel

**FT** Hot-dip galvanised

Accessory part: plug-in sleeve for the connections between electrical installation pipes. With burr-free inner wall.

## Pipe end cap, splittable, metric, light grey



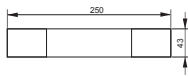
Type	Size	Dimension D1 mm	Dimension D2 mm	Dimension L1 mm	Dimension L2 mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>129 TB M16</b>	M16	20	10	30	3	Light grey	50	0.400	<b>2047812</b>
<b>129 TB M20</b>	M20	24	13.4	30	3	Light grey	50	0.440	<b>2047831</b>
<b>129 TB M25</b>	M25	30	18.4	30	3	Light grey	50	0.500	<b>2047839</b>
<b>129 TB M32</b>	M32	36	25.4	30	3	Light grey	50	0.656	<b>2047855</b>

**PE** Polyethylene

Separable pipe end cap to slot onto metric 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.

## Identification plate for function maintenance



Type	Language	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS-E DE</b>	German	10	0.600	<b>7205423</b>
<b>KS-E EN</b>	English	10	0.600	<b>7205432</b>
<b>KS-E HU</b>	Hungarian	10	0.600	<b>7205434</b>
<b>KS-E PL</b>	Polish	10	0.600	<b>7205436</b>
<b>KS-E FI</b>	Finnish	10	0.600	<b>7205437</b>
<b>KS-E SE</b>	Swedish	10	0.600	<b>7205424</b>
<b>KS-E IT</b>	Italian	10	0.600	<b>7205435</b>
<b>KS-E NL</b>	Dutch	10	0.600	<b>7205405</b>

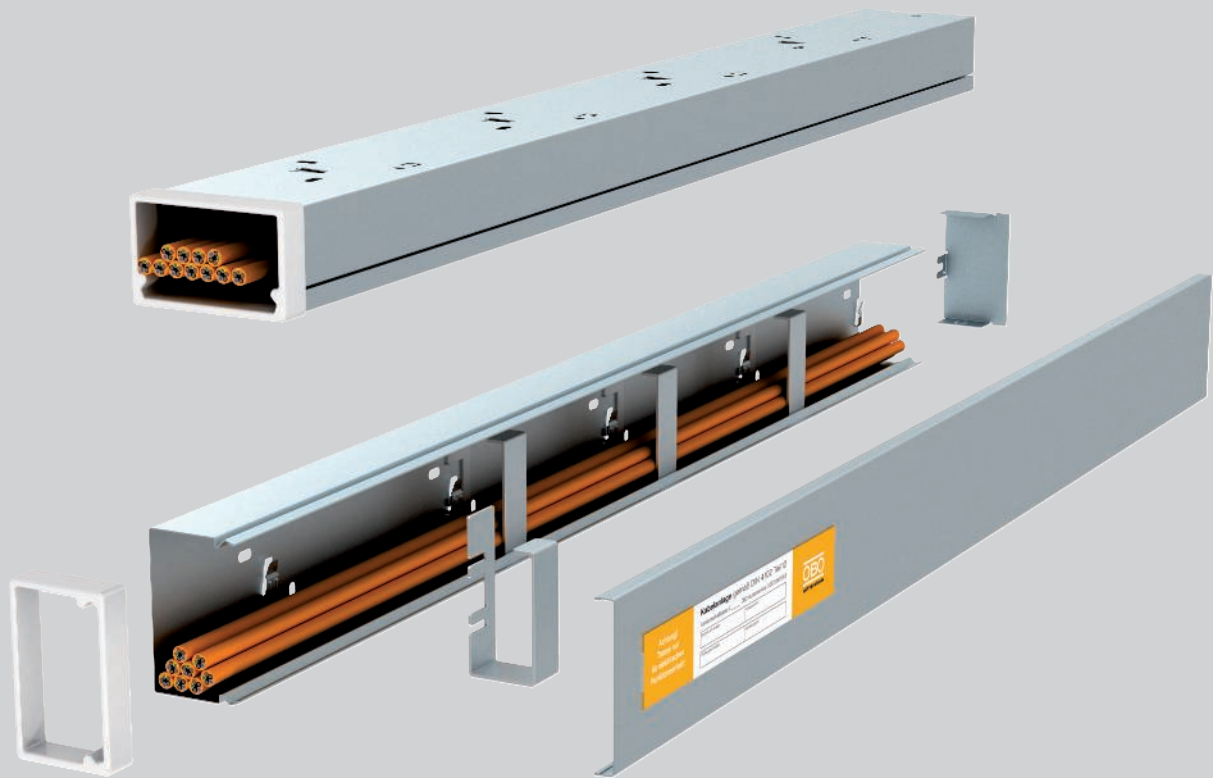
**PVC** Polyvinylchloride

Self-adhesive identification plate for approved cable system labelling for maintenance of electrical function as required by DIN 4102 part 12.



## LKM cable trunking

### System description

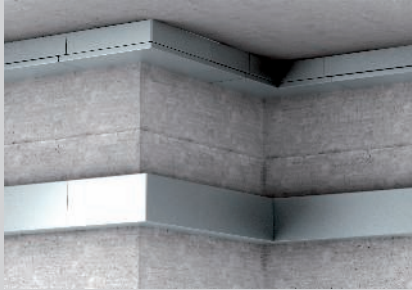


Cable routing with metal cable trunking, type LKM, is approved as a cable-specific routing type for the maintenance of electrical function classes E 30, E 60 and E 90 according to DIN 4102 Part 12. The trunking may be routed horizontally on the wall or under the ceiling and offer additional mechanical protection of the installed cables. This installation variant is also used if, for reasons of appearance, open routing of

the cables with the maintenance of electrical function is not wanted. A retaining clamp is available as an installation aid for the trunking type LKM60100. This prevents cables from falling out in the case of wall and ceiling mounting. When cable installation has been completed, the trunking cover is locked onto the trunking base.

# LKM cable trunking

## Installation principle



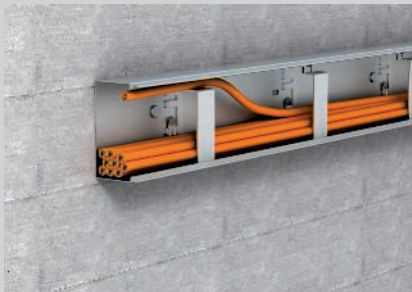
Horizontal wall and ceiling mounting.



Routing of power, data or fire alarm cables in the trunking, type LKM60100.



Tidy routing of data and fire alarm cables in the trunking, type 20030.



Retaining clamps locked into the base as installation aid for wall mounting.



Retaining clamps as mounting aid for the insertion of cables for ceiling mounting.



Closing of the trunking by simple locking of the lid onto the trunking base.

Classification according to DIN 4102 Part 12

E30

E60

E90

### System description

<b>Routing type</b>	Cable-specific support construction
<b>Test certificate no.</b>	P-MPA-E-11-008
<b>Maintenance of electrical functionality classes</b>	E30 and E90
<b>Testing standard</b>	DIN 4102 Part 12

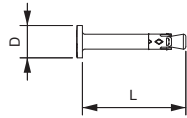
### Approved data

Type	Cable types	Fastening spacing	Cable load
LKM 20030	Data cable	max. 40 cm	max. 0.3 kg/m
LKM 60100	Power cable	max. 49 cm	max. 3.0 kg/m

The data in the general construction test certificates for the appropriate cable type applies.



## Nail anchor N-K with nail head

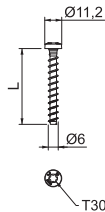


Type	Bore hole Ø mm	Bore hole depth mm	Clamping range mm	Dimension L mm	Dimension D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>N-K 6-5-10/44</b>	6	40	5 - 10	44	13	100	1.135	<b>3498390</b>

- St** Steel
- G** Electrogalvanised

The nail anchor N-K can be used for multiple fastenings of non-load-bearing systems and in cracked and non-cracked concrete, thereby combining the benefits of a bolt tie with an even easier mounting. The nail anchor only needs to be hammered into the drill hole. When the load occurs, the nail anchor spreads itself and bolts itself in the drill hole.

## Fire protection screw tie

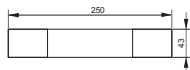


Type	Dimension mm	Bore hole Ø mm	Head Ø mm	Screw system	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MMS-plus 6X50</b>	6 x 50	5	11.2	Torx	50	100	1.000	<b>3498108</b>

- St** Steel
- G** Electrogalvanised

Fire protection screw tie with pan head for direct installation without additional anchors. Drive T30, drill hole 5 mm. Tested anchor according to ETAG 001 – Part 3. Fire resistance class to R120 for concrete and masonry.

## Identification plate for function maintenance

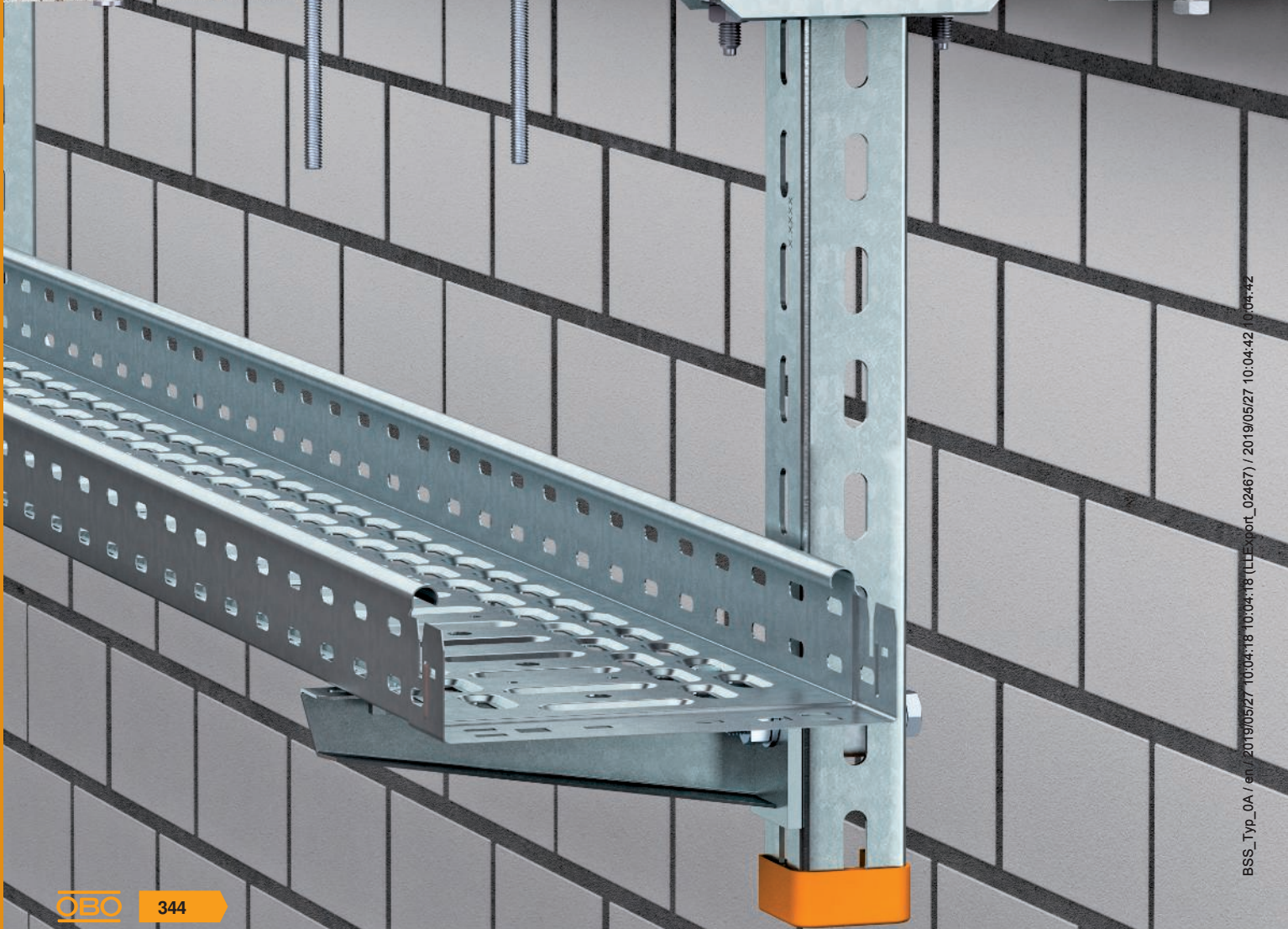
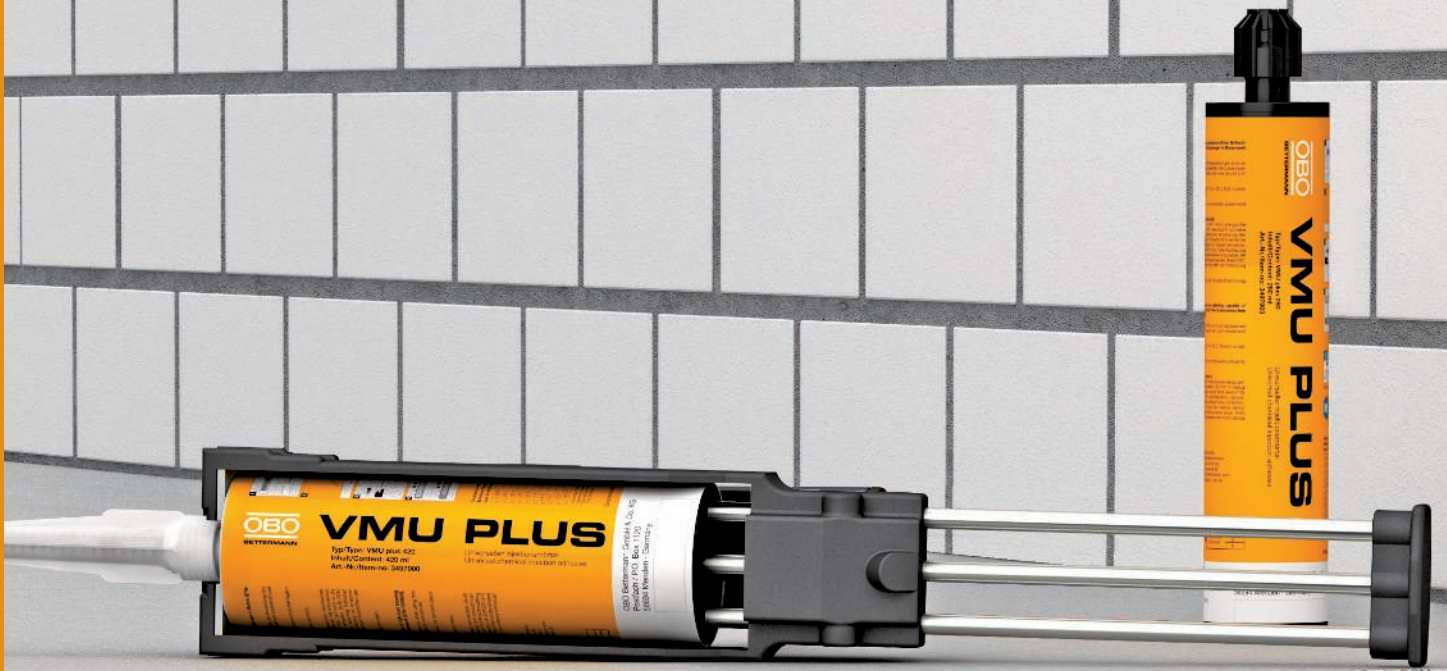


Type	Language	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS-E DE</b>	German	10	0.600	<b>7205423</b>
<b>KS-E EN</b>	English	10	0.600	<b>7205432</b>
<b>KS-E HU</b>	Hungarian	10	0.600	<b>7205434</b>
<b>KS-E PL</b>	Polish	10	0.600	<b>7205436</b>
<b>KS-E FI</b>	Finnish	10	0.600	<b>7205437</b>
<b>KS-E SE</b>	Swedish	10	0.600	<b>7205424</b>
<b>KS-E IT</b>	Italian	10	0.600	<b>7205435</b>
<b>KS-E NL</b>	Dutch	10	0.600	<b>7205405</b>

- PVC** Polyvinylchloride

Self-adhesive identification plate for approved cable system labelling for maintenance of electrical function as required by DIN 4102 part 12.










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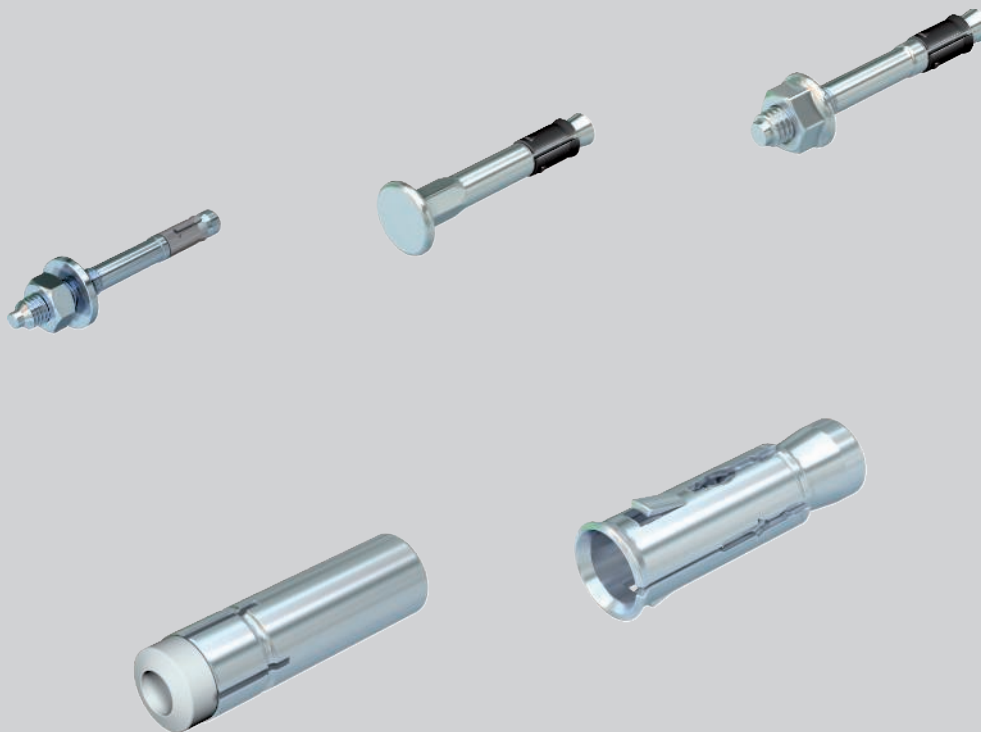
## Anchoring

	<b>System description, metal spreading anchor</b>	346
	<b>Products</b>	348
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## Metal spreading anchor

### System description



OBO Bettermann's metal spreading anchors for mounting in concrete components were tested for fire protection. Appropriate proofs are available for the tests carried out. Depending on the fire resistance length (up to 120 minutes), a maximum load capacity was determined when anchored in concrete. This load data is contained in the appropriate European Techni-

cal Assessments and appropriate test documentation. Although the load capacity of the anchors during a fire is below the load capacity when cold, this load capacity is completely sufficient for fireproof fastening of the different routing types. Special metal spreading anchors are offered for false ceilings.



## Metal spreading anchor Installation principle



Nail tie, type N 6, with thread end.



Nail tie, type N-K 6, with flat head.



Bolt tie, type BZ.



Bolt tie, type BZ-IG.



Hollow core anchor, Easy type.

Classification according to proof of application

R30

R60

R90

R120

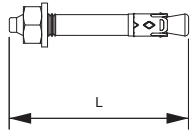
### System description

<b>Anchoring type</b>	Anchor with spreading metal cone
<b>Fire resistance classes</b>	To R120 according to European Technical Assessment ETA
<b>Substrate</b>	Concrete

The data of the approval documents and any fire testing reports apply



### Nail anchor N with thread

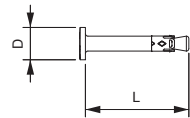


Type	Thread	Bore hole Ø mm	Clamping range mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>N 6-5-10/49</b>	M6	6	5 - 10	49	100	1.160	<b>3498396</b>

- St Steel
- G Electrogalvanised

The nail anchor N can be used for multiple fastenings of non-load-bearing systems and in cracked and non-cracked concrete, thereby combining the benefits of a bolt tie with even easier mounting. The nail tie only needs to be hammered into the drill hole. It is not necessary to apply torque subsequently. When the load occurs, the nail tie spreads itself and bolts itself in the drill hole.

### Nail anchor N-K with nail head



Type	Bore hole Ø mm	Bore hole depth mm	Clamping range mm	Dimension L mm	Dimension D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>N-K 6-5-10/44</b>	6	40	5 - 10	44	13	100	1.135	<b>3498390</b>

- St Steel
- G Electrogalvanised

The nail anchor N-K can be used for multiple fastenings of non-load-bearing systems and in cracked and non-cracked concrete, thereby combining the benefits of a bolt tie with an even easier mounting. The nail anchor only needs to be hammered into the drill hole. When the load occurs, the nail anchor spreads itself and bolts itself in the drill hole.

### Bolt tie BZ



Type	Thread	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BZ10-100-120/180</b>	M10	180	25	10.320	<b>3498342</b>
<b>BZ 12-15-35/110</b>	M12	110	25	10.320	<b>3498350</b>

- St Steel
- G Electrogalvanised

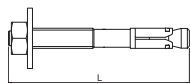
Wedge anchor BZ for the anchoring of medium-duty to heavy-duty loads, both in cracked and non-cracked concrete. It combines high approved loads with small edge distances and axial spacings.

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.

### Bolt tie BZ-U



Type	Thread	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BZ-U 8-10-21/75</b>	M8	75	50	3.460	<b>3498320</b>
<b>BZ-U 8-30-41/95</b>	M8	95	50	4.010	<b>3498326</b>
<b>BZ-U 10-10-30/90</b>	M10	90	50	6.720	<b>3498334</b>
<b>BZ-U10-30-50/110</b>	M10	110	25	7.900	<b>3498340</b>

- 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.

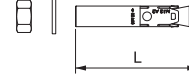
Proof of suitability in the case of seismic impacts, categories C1 and C2.

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



**Bolt tie BZ-IG**

Type	Thread	Bore		Dimension L	Pack. pcs	Weight kg/100 pcs.	Item No.
		hole Ø mm	hole depth mm				
<b>BZ-IG M 6-0</b>	M6	8	60	50	20	1.830	<b>3498370</b>
<b>BZ-IG M 8-0</b>	M8	10	75	62	20	3.333	<b>3498372</b>
<b>BZ-IG M 10-0</b>	M10	12	90	70	20	5.700	<b>3498374</b>
<b>BZ-IG M 12-0</b>	M12	16	105	86	20	12.000	<b>3498376</b>



- St** Steel
- G** Electrogalvanised

Bolt tie BZ-IG with internal thread 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. Undercutting the drill holes is not necessary.

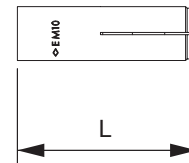
The fastening of the component is possible with hexagonal screws or with countersunk head screws as well as with a system of nut and washer and a standard threaded rod.

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

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

**Drop-in anchor E**

Type	Thread	Bore		Dimension L	Pack. pcs	Weight kg/100 pcs.	Item No.
		hole Ø mm	hole depth mm				
<b>E M 6x30</b>	M6	8	30	30	100	0.840	<b>3492900</b>
<b>E M 8x40</b>	M8	10	40	40	100	1.490	<b>3492910</b>
<b>E M 10x40</b>	M10	12	40	40	50	2.140	<b>3492920</b>
<b>E M 12x50</b>	M12	15	50	50	50	4.420	<b>3492930</b>



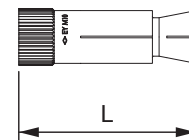
- St** Steel
- G** Electrogalvanised

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.

**Hollow core anchor Easy**

Type	Thread	Bore		Dimension L	Pack. pcs	Weight kg/100 pcs.	Item No.
		hole Ø mm	Dimension mm				
<b>Easy M8</b>	M8	12	44		25	1.500	<b>3498770</b>
<b>Easy M10</b>	M10	16	53		25	3.320	<b>3498774</b>



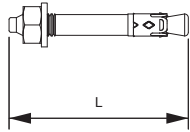
- St** Steel
- G** Electrogalvanised

Hollow core anchor "Easy" for mounting in prestressed hollow concrete slabs. When the screw or the nut is tightened, the cone is released from the anchor sleeve and pulled into it. This makes the anchor expand in the hollow space, thereby creating form lock. The hollow core anchor can also be used when the expansion area is not located in the cavity.

The fastening of the component can be done with standard screws and threaded rods.



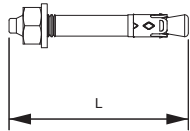
### Nail anchor N with thread, V4A



Type	Thread	Bore hole		Fixture thickness	Dimension L	Pack. pcs	Weight kg/100 pcs.	Item No.
		mm	mm					
<b>N 6-5/49 A4</b>	M6	6	40	5	49	50	1.200	<b>3498399</b>
V4A Stainless steel, A4								

The nail anchor N can be used for multiple fastenings of non-load-bearing systems, indoors and outdoors, in cracked and non-cracked concrete, thereby combining the benefits of a bolt tie with an even easier mounting. The nail anchor only needs to be hammered into the drill hole. It is not necessary to apply torque subsequently. When the load occurs, the nail anchor spreads itself and bolts itself in the drill hole.

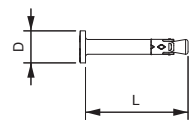
### Nail anchor N with thread, A5



Type	Thread	Bore hole		Fixture thickness	Dimension L	Pack. pcs	Weight kg/100 pcs.	Item No.
		mm	mm					
<b>N 6-5/49 HCR</b>	M6	6	40	5	49	50	1.200	<b>3498398</b>
V5A Stainless steel, A5								

The nail anchor N can be used for multiple fastenings of non-load-bearing systems in areas with highly corrosive impacts in cracked and non-cracked concrete, thereby combining the benefits of a bolt tie with an even easier mounting. The nail anchor only needs to be hammered into the drill hole. It is not necessary to apply torque subsequently. When the load occurs, the nail anchor spreads itself and bolts itself in the drill hole.

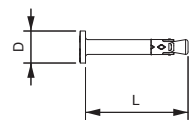
### Nail anchor N-K with nail head, V4A



Type	Bore hole Ø	Bore hole depth	Fixture thickness	Dimension L	Dimension D	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>N-K 6-5/44 A4</b>	6	40	5	44	13	50	1.140	<b>3498392</b>
V4A Stainless steel, A4								

The nail anchor N can be used for multiple fastenings of non-load-bearing systems, indoors and outdoors, in cracked and non-cracked concrete, thereby combining the benefits of a bolt tie with an even easier mounting. The nail anchor only needs to be hammered into the drill hole. When the load occurs, the nail anchor spreads itself and bolts itself in the drill hole.

### Nail anchor N-K with nail head, A5



Type	Bore hole Ø	Bore hole depth	Fixture thickness	Dimension L	Dimension D	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>N-K 6-5/44 HCR</b>	6	40	5	44	13	50	1.135	<b>3498392</b>
V5A Stainless steel, A5								

The nail anchor N can be used for multiple fastenings of non-load-bearing systems in areas with highly corrosive impacts in cracked and non-cracked concrete, thereby combining the benefits of a bolt tie with an even easier mounting.

The nail anchor only needs to be hammered into the drill hole. When the load occurs, the nail anchor spreads itself and bolts itself in the drill hole.

### Bolt tie BZ



Type	Thread	Dimension L	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BZ 8-10-21/75HCR</b>	M8	75	100	3.080	<b>3498516</b>
<b>BZ10-10-30/90HCR</b>	M10	90	50	6.040	<b>3498556</b>
V5A Stainless steel, A5					

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

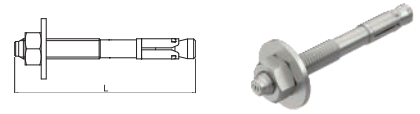


Bolt tie BZ-U

Type	Thread	Dimension L		Pack. pcs	Weight kg/100 pcs.	Item No.
		mm	mm			
<b>BZ-U8-10-21/75A4</b>	M8	75		50	3.460	<b>3498322</b>
<b>BZU10-10-30/90A4</b>	M10	90		50	6.740	<b>3498336</b>

V4A Stainless steel, A4

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



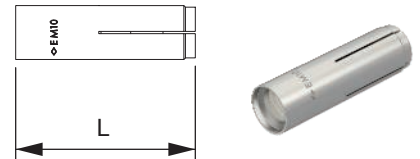
Drop-in anchor E A4

Type	Thread	Bore hole Ø mm	Bore hole depth mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>E M 10x40 A4</b>	M10	12	40	40	50	2.160	<b>3492922</b>
<b>E M 12x50 A4</b>	M12	15	50	50	50	4.380	<b>3492932</b>

V4A Stainless steel, A4

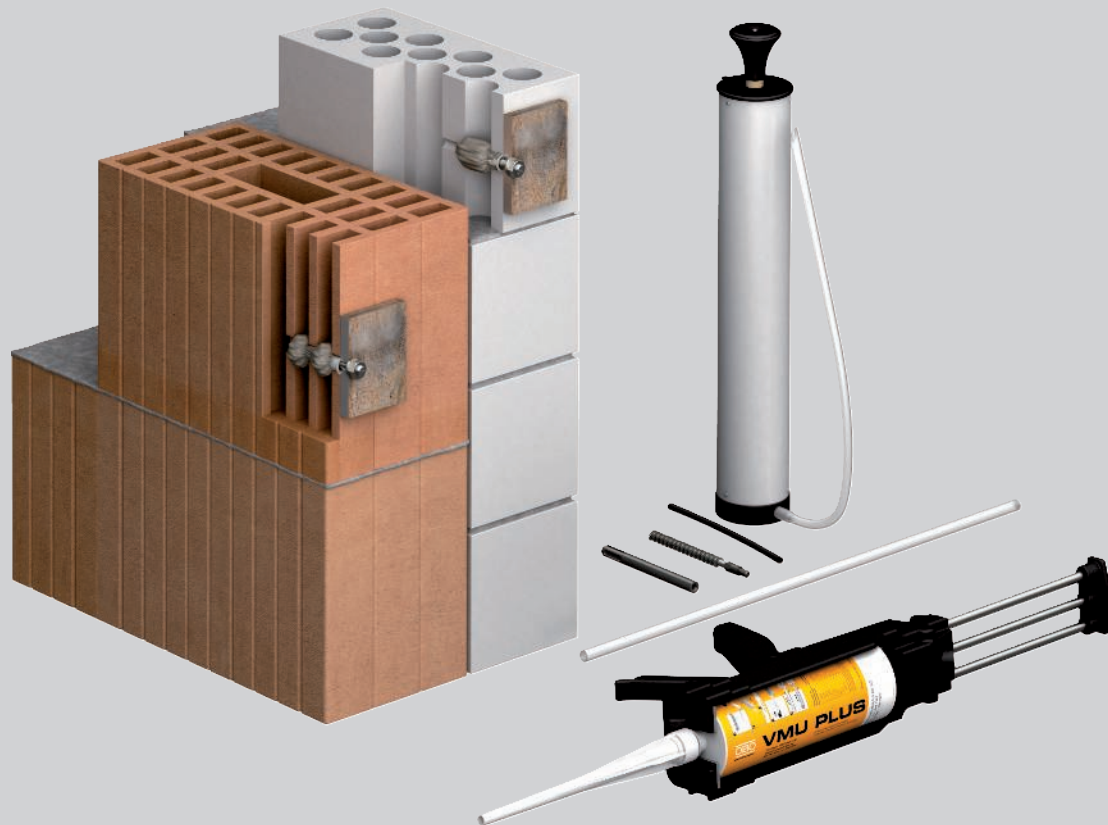
The drop-in anchor E can be used for single fixings in non-cracked concrete as well as for multiple fixings in cracked concrete of non-load-bearing systems.

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.



## Injection tie VMU Plus

### System description



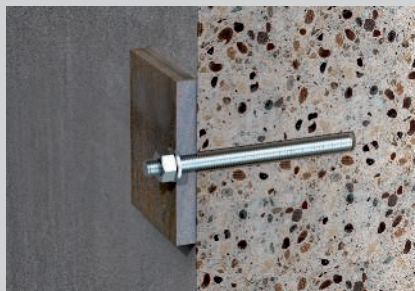
The VMS Plus injection mortar system is particularly suitable for fire protection fastening in hollow brick, concrete and porous concrete, calcareous limestone, sand-lime brick and masonry. The connection is free from spreading pressure and is created through the form fitting of the injection mortar with the substrate and an anchor rod. The components are tested and approved for a fire resistance period of 90 minutes.

The maximum load capacity depending on the fire resistance period and the fastening substrate is documented accordingly in the available fire protection certificate. Although the load capacity of the injection mortar system is below the load capacity when cold, this load capacity is completely sufficient for fireproof fastening of the different routing types.

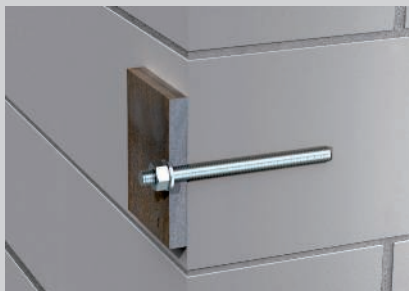




## Injection tie VMU Plus Installation principle



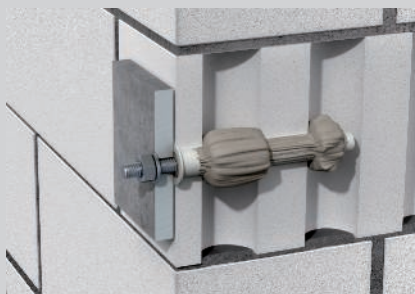
Anchor rod mounted in concrete without wire sleeve.



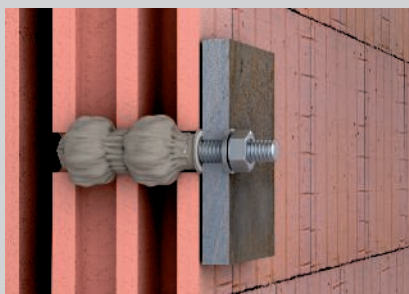
Anchor rod mounted in calcareous limestone full brick without wire sleeve.



In full brick, mount the anchor rod without a wire sleeve.



Anchor rod mounted in hollow calcareous limestone with wire sleeve.



Anchor rod mounted in hollow brick without wire sleeve.

Classification according to proof of application

R30

R60

R90

### System description

<b>Anchoring type</b>	Spread-free connection with special mortar
<b>Fire resistance classes</b>	To R90 according to proof of fire protection
<b>Substrate</b>	Concrete, solid calcareous limestone brick, porous calcareous limestone brick, porous brick, full brick, porous concrete block
<b>Load classes</b>	Dependent on the resistances of the substrates, see approval

The data of the approval documents and any fire testing reports apply



## Injection mortar in cartridge, 280 ml



Type	Contents ml	Pack. Weight		Item No.
		pcs	kg/100 pcs.	
<b>VMU plus 280</b>	280	1	56.000	<b>3497800</b>

The injection mortar VMU is a 2-component mortar, which sticks the anchor rods and internal thread sleeves in concrete or masonry without any spreading pressure. Depending on the size of the means of fastening, loads of different magnitudes can be fastened to the anchor rods or internal thread sleeves.

## Injection mortar in cartridge, 420 ml



Type	Contents ml	Pack. Weight		Item No.
		pcs	kg/100 pcs.	
<b>VMU plus 420</b>	420	1	83.000	<b>3497803</b>

Styrene-free, vinyl ester composite mortar for spread-free anchoring of high loads with threaded anchor rods. Coaxial cartridge, including one mixing tube, to be worked with the pressing gun, type VM-P 380 Profi.

European Technical Assessment for cracked and uncracked concrete, as well as for masonry of full and hollow brick. Earthquake-proof in concrete according to Category C1. Fire protection approval for concrete and masonry with fire resistance classes up to 120 minutes.

Substrate temperature during processing  $-10\text{ }^{\circ}\text{C}$  to  $+40\text{ }^{\circ}\text{C}$  (concrete), ambient temperature after complete hardening  $-40\text{ }^{\circ}\text{C}$  to  $+120\text{ }^{\circ}\text{C}$  (in concrete). If stored in a dark, cool and dry place, will keep for at least 18 months.

## Pressing gun for 280 ml and side-by-side cartridges



Type	Pack. Weight		Item No.
	pcs	kg/100 pcs.	
<b>VM-P 345 Profi</b>	1	100.000	<b>3497906</b>

Plastic

Side-by-side cartridge pistol for the use of standard cartridges or side-by-side cartridges. The cartridge pistol is suitable for the injection mortar VMU plus 280 and can also be used with normal 300 ml cartridges.

## Pressing gun for 10:1 coaxial cartridges

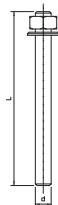


Type	Pack. Weight		Item No.
	pcs	kg/100 pcs.	
<b>VM-P 380 Profi</b>	1	110.000	<b>3497909</b>

Plastic

High-quality 2-component cartridge pistol. The parallel movement of the outlet to the holding grip ensures easy working. Suitable for the injection mortar type VMU plus 420.

## Anchor rod



Type	Dimen- sion L mm	Dimen- sion d mm	SW		Pack. Weight		Item No.
			Thread	mm	pcs	kg/100 pcs.	
<b>VMU-A 8-110vz</b>	110	6.5	M8	13	10	4.350	<b>3497820</b>
<b>VMU-A 10-130vz</b>	130	8.2	M10	17	10	8.150	<b>3497822</b>
<b>VMU-A 10-150vz</b>	150	8.2	M10	17	10	9.150	<b>3497824</b>
<b>VMU-A 12-155vz</b>	155	9.9	M12	19	10	13.850	<b>3497826</b>

**St** Steel

**G** Electrogalvanised

With the anchor rod and matching plastic wire sleeve, loads are fastened without spreading pressure in masonry walls using the VMS plus injection mortar. The system is also used for fastening in concrete ceilings. On concrete and full brick walls, the anchor rod is only mounted with the injection mortar VMU plus, without a wire sleeve.

Use the wire sleeve VMU-SH 12x50 for the anchor rods M6 (L=65 mm) and M8 (L=65 mm). Should the anchor rods M8 (L=120 mm), M10 (L=140 mm), M10 (L=160 mm) and M12 (L=165 mm) be used, then use the wire sleeve VMU-SH 18x95.



## Anchor rod

Type	Dimension L mm	Dimension d mm	Thread	SW mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>VMU-A 8-110A4</b>	110	6.5	M8	13	10	4.350	<b>3497830</b>
<b>VMU-A 10-130A4</b>	130	8.2	M10	17	10	8.150	<b>3497832</b>
<b>VMU-A 12-155A4</b>	155	9.9	M12	19	10	13.850	<b>3497834</b>

With the anchor rod and matching plastic wire sleeve, loads are fastened without spreading pressure in masonry walls using the VMS plus injection mortar. The system is also used for fastening in concrete ceilings. On concrete and full brick walls, the anchor rod is only mounted with the injection mortar VMU plus, without a wire sleeve.

Use the wire sleeve VMU-SH 12x50 for the anchor rods M6 (L=65 mm) and M8 (L=65 mm). Should the anchor rods M8 (L=120 mm), M10 (L=140 mm), M10 (L=160 mm) and M12 (L=165 mm) be used, then use the wire sleeve VMU-SH 18x95.

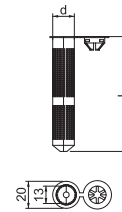


## Plastic wire sleeve

Type	Dimension L mm	Dimension d mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>VMU-SH 12x80</b>	80	12	10	0.200	<b>3497860</b>
<b>VMU-SH 16x85</b>	85	16	10	0.300	<b>3497862</b>
<b>VMU-SH 16x130</b>	130	16	10	0.400	<b>3497864</b>
<b>VMU-SH 20x85</b>	85	20	10	0.400	<b>3497866</b>

PA Polyamide

The plastic wire sleeve is a supplement to the anchor rod or internal thread sleeve and is used to mount loads on masonry.



## Perforated sleeve, metal

Type	Dimension L mm	Dimension d mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>VM-SH 12x1000</b>	1000	12	1	6.000	<b>3497972</b>
<b>VM-SH 16x1000</b>	1000	16	1	7.000	<b>3497975</b>
<b>VM-SH 22x1000</b>	1000	22	1	10.000	<b>3497978</b>

St Steel

Metal wire sleeve for use in hollow brick and stones in combination with injection mortar system VMU plus.



## Metallic internal thread sleeve

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>VMU-IG M6x80vz</b>	10	3.350	<b>3497840</b>
<b>VMU-IG M8x80vz</b>	10	4.650	<b>3497842</b>
<b>VMU-IG M10x80vz</b>	10	8.750	<b>3497844</b>
<b>VMU-IG M6x80A4</b>	10	3.350	<b>3497850</b>
<b>VMU-IG M8x80A4</b>	10	4.650	<b>3497852</b>
<b>VMU-IG M10x80A4</b>	10	8.750	<b>3497854</b>

St Steel

G Electrogalvanised

With the internal thread sleeve and matching plastic wire sleeve, loads are fastened without spreading pressure in concrete and masonry walls and ceilings using the VMS plus injection mortar.

## Blow pump for drill holes

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>VM-AP 360</b>	1	27.000	<b>3497912</b>

Plastic

Manual pump with 750 ml air volume to blowing out drill holes according to anchor approval.



## Steel cleaning brush for drill holes



Type	Diameter mm	Length mm	Thread	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>RB 10 M 6</b>	10	130	M6	1	5.000	<b>3497870</b>
<b>RB 12 M 6</b>	12	140	M6	1	5.000	<b>3497872</b>
<b>RB 14 M 6</b>	14	180	M6	1	5.000	<b>3497874</b>
<b>RB 18 M 6</b>	18	200	M6	1	5.000	<b>3497876</b>

**St** Steel

**G** Electrogalvanised

Using the steel wire brush, drill holes must be mechanically cleaned according to the anchor approval, in order to obtain a clean adhesion substrate for the injection mortar.

## SDS adapter



Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>RBL M6 SDS</b>	1	6.000	<b>3497915</b>

**St** Steel

Adapter for accepting steel wire brushes for mechanical cleaning of drill holes according to the anchor approval. Suitable for drills with SDS seat.

## SDS extension



Type	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>RB-L 150 M6</b>	150	1	9.700	<b>3497932</b>

**St** Steel

Extension with internal and external M6 thread for the connection of the SDS adapter with steel wire brush in difficult to access drill holes.

## Mixer pipe for mortar cartridge



Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>VM-X</b>	12	1.000	<b>3497981</b>

**PA** Polyamide

Mixing tubes for attachment to the cartridges of the VMU plus injection mortar system.

## Extension pipe



Type	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>VM-XE 10/200</b>	200	12	1.000	<b>3497984</b>
<b>VM-XE 10/500</b>	500	10	2.000	<b>3497987</b>

**PA** Polyamide

Fixed length extension tube for use on the mixing tube tips in the VMU plus injection mortar system.





## Bolt tie

### System description



OBO Bettermann's fire protection bolt ties were fire-tested according to ETAG 001 Part 3. The maximum load capacity, depending on fire resistance periods of up to 120 minutes, was determined for different types of solid masonry. These values are documented in the appropriate test certificates. Taking the occurring loads for the maintenance of electrical function application and for false ceiling mounting into account, the

determined load capacities for the different masonry types are absolutely sufficient. The fire protection bolt ties are screwed directly into the drill hole. There is no need for an additional anchor. No spreading forces develop and mounting near masonry edges is not required. The bolt tie is equally suitable for cracked concrete in ceilings.



## Bolt tie

### Installation principle



Version with truss head and T drive.



Version with large truss head and T drive.



Version with hexagonal head. T drive.



Version as shaft tie with M6 threaded tip.



Version with countersunk cone head and T drive.

Classification according to proof of application

F30

F60

F90

F120

#### System description

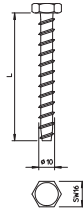
<b>Anchoring type</b>	Spread-free connection with self-tapping thread
<b>Fire resistance classes</b>	To F120 according to general building inspectorate approval
<b>Substrate</b>	Concrete Masonry: Solid calcareous limestone brick, porous calcareous limestone brick, full brick

The data of the approval documents and any fire testing reports apply



## Bolt tie

### MMS hex

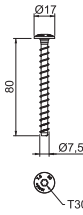


Type	Dimension mm	Dimension L mm	Bore		Pack. pcs	Weight kg/100 pcs.	Item No.
			hole Ø mm	SW mm			
<b>MMS-plus 10x80</b>	10 x 80	80	8	13	25	4.000	<b>3498124</b>
<b>MMS-plus 10x100</b>	10 x 100	100	8	13	25	4.800	<b>3498159</b>

- St Steel
- G Electrogalvanised

Fire protection screw tie with hexagonal head for direct mounting without additional anchor. WAF 13, drill hole 8 mm. Tested anchor according to ETAG 001 - Part 3. Fire resistance class to R120 for concrete and masonry.

### Bolt tie

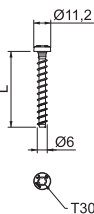


Type	Dimension mm	Bore hole Ø mm	Head Ø mm	Screw system	Pack. pcs	Weight kg/100 pcs.	Item No.

- St Steel
- G Electrogalvanised

Fire protection bolt tie with pan head for direct mounting without anchors. Drive T40, drill hole 6 mm. Tested anchor according to ETAG 001 - Part 3. Fire resistance class to R120 for concrete and masonry.

### Fire protection screw tie

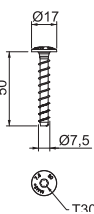


Type	Dimension mm	Bore		Screw system	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
		hole Ø mm	Head Ø mm					
<b>MMS-plus 6X50</b>	6 x 50	5	11.2	Torx	50	100	1.000	<b>3498108</b>

- St Steel
- G Electrogalvanised

Fire protection screw tie with pan head for direct installation without additional anchors. Drive T30, drill hole 5 mm. Tested anchor according to ETAG 001 - Part 3. Fire resistance class to R120 for concrete and masonry.

### Fire protection screw tie

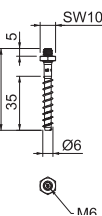


Type	Dimension mm	Bore		Screw system	Pack. pcs	Weight kg/100 pcs.	Item No.
		hole Ø mm	Head Ø mm				
<b>MMS-plus 7.5X50</b>	7,5 x 50	6	17	Torx	100	1.500	<b>3498261</b>

- St Steel
- G Electrogalvanised

Fire protection screw tie with large pan head for direct mounting without additional anchors. Drive T30, drill hole 6 mm. Tested anchor according to ETAG 001 - Part 3. Fire resistance class to R120 for concrete and masonry.

### MMS-ST with thread



Type	Dimension mm	Anchor length mm	Bore		SW	Pack. pcs	Weight kg/100 pcs.	Item No.
			hole Ø mm	Thread mm				
<b>MMS-plus ST 6x55</b>	6x55	60	5	M6	10	100	1.030	<b>3498264</b>

- St Steel
- G Electrogalvanised

Fire protection bolt tie with M6 thread and hexagonal head for direct mounting without additional anchors. WAF 10, drill hole 5 mm. Tested anchor according to ETAG 001 - Part 3. Fire resistance class to R120 for concrete and masonry.





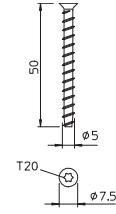
## Screw anchor

Type	Dimension mm	Bore		Screw system	Pack. pcs	Weight kg/100 pcs.	Item No.
		hole Ø mm	Head Ø mm				
<b>MMS-plus KS 5x50</b>	5 x 50	4	7.5	Torx	200	0.460	<b>3498204</b>

**St** Steel

**G** Electrogalvanised

Screw anchor with countersunk cone head for mounting without additional anchors. Drive T20, drill hole 4 mm. Fire protection-tested according to DIN 4102 for concrete and masonry. Fire resistance class to F90.



## Wood screws

### System description



Wood is a combustible material and, as with steel constructions, wooden components are firstly only suitable under certain conditions for the fastening of fire-tested electrical installations. Coatings and panelling are also used in the constructions, in order to achieve a fire resistance class at all. However, if there is a fire, wood has a very good property: When burning, an insulated layer is created which delays further combustion. The wooden component must be dimensioned in such a way that failure of the carrying capacity cannot occur at an early stage. The combustion rates are a standard means for calculating the required wood cross-section, depending on the desired fire resistance class. The combustion rates depend on the type of

wood and the moisture content of the wood. Taking the combustion rates into account, various cable support systems for electrical safety systems with the maintenance of electrical functionality classes E30 and E60 can be fastened to wooden components. Wood screws with a suitable steel cross-section and sufficient embedment depth are used for fastening. The long screws drill deep into the cross-section of the wooden beam, ensuring a secure hold of the mounted support systems, despite burning. Various mounting variants are documented in a fire protection survey.



## Wood screws

### Installation principle



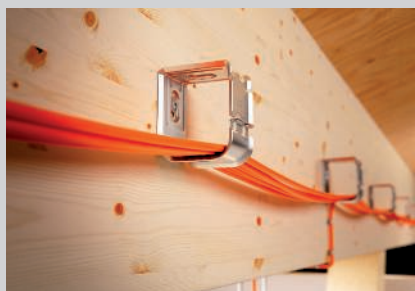
Bracket mounting on the side of the wooden beam with rear fire protection plate.



Suspended support mounting under the wooden beam with rear fire protection plate.



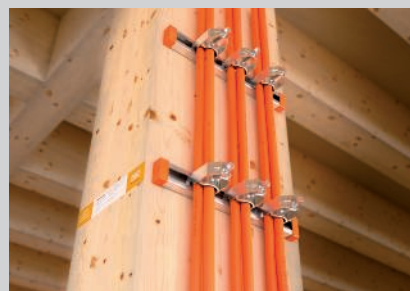
Cable routing with single clips and in the pipe, at the side on the wooden beam.



Cable routing with grouped support on the side on the wooden beam.



Mounting of the OBO FireBox on a wooden beam.



Vertical cable routing with rails and clips on a wooden beam.

Classification according to proof of application

E30

E60

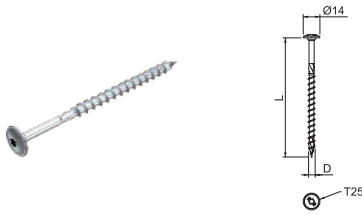
#### System description

<b>Anchoring type</b>	Self-tapping wood screw
<b>Maintenance of electrical functionality classes</b>	E30 to E60
<b>Substrate</b>	Supporting components, that close off or do not close off rooms, (walls, ceiling or supports) made of solid wood
<b>Proof of application</b>	Surveyor's report of Ingenieurbüro für Brandschutz von Bauarten, IBB
<b>Certificate number</b>	GA-2016/034-Mey

The data in the named proofs of applicability applies



## Flange head-screw HT 6

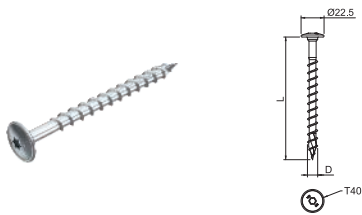


Type	Dimension D mm	Dimension L mm	Head Ø mm	Screw system	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>HT 6x60 TD</b>	6	60	14	Torx	200	0.850	<b>3498130</b>
<b>HT 6x80 TD</b>	6	80	14	Torx	100	0.110	<b>3498132</b>
<b>HT 6x100 TD</b>	6	100	14	Torx	100	0.130	<b>3498134</b>
<b>HT 6x120 TD</b>	6	120	14	Torx	100	0.150	<b>3498136</b>

- St** Steel
- G** Electrogalvanised

Self-tapping wood screw for fireproof fastening of cable systems for the maintenance of electrical function according to DIN 4102 Part 12 on supporting wooden structures. The flange head shape allows installation without an additional washer.

## Flange head-screw HT 10

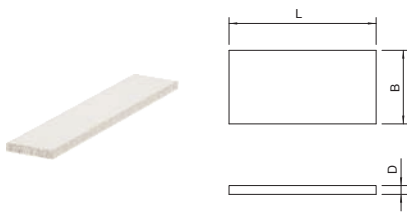


Type	Dimension D mm	Dimension L mm	Head Ø mm	Screw system	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>HT 10x80 TD</b>	10	80	22.5	Torx	50	0.310	<b>3498140</b>
<b>HT 10x100 TD</b>	10	100	22.5	Torx	50	0.370	<b>3498142</b>
<b>HT 10x120 TD</b>	10	120	22.5	Torx	50	0.430	<b>3498144</b>
<b>HT 10x140 TD</b>	10	140	22.5	Torx	50	0.490	<b>3498146</b>

- St** Steel
- G** Electrogalvanised

Self-tapping wood screw for fireproof fastening of cable systems for the maintenance of electrical function according to DIN 4102 Part 12 on supporting wooden structures. The flange head shape allows installation without an additional washer.

## Fire protection plate



Type	Dimension L mm	Dimension B mm	Dimension D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>GLB-P1</b>	600	120	20	1	100.000	<b>7205470</b>
<b>GLB-P2</b>	600	120	30	1	150.000	<b>7205472</b>

Glass-fibre lightweight concrete

Fire protection plate (material class A1) as effective panelling measure for fastening on supporting wooden components for the maintenance of electrical function according to DIN 4102 Part 12. Made of fibreglass light concrete which is resistant to water and frost.



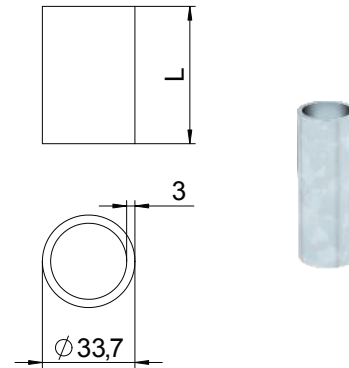
## Spacer sleeve for insulated ceilings

Type	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
DHI 050	50	30	11.600	7205900
DHI 060	60	24	14.000	7205901
DHI 070	70	20	16.200	7205902
DHI 080	80	20	18.200	7205903
DHI 090	90	14	20.800	7205904
DHI 100	100	14	23.400	7205905
DHI 110	110	12	24.600	7205906
DHI 120	120	12	27.600	7205907
DHI 130	130	12	30.400	7205908
DHI 140	140	12	32.800	7205909
DHI 150	150	12	35.000	7205910

St Steel

FT Hot-dip galvanised

Spacer sleeve for mounting suspension components under insulated ceilings. They prevent the insulation from pushing in when the fastening screws are tightened.  
Burr arm, galvanised internally and externally.



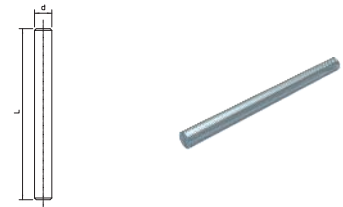
## Threaded rod

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.



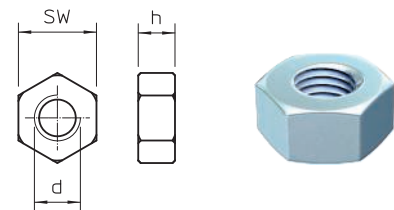
## Hexagonal nut DIN 934

Type	Thread	SW mm	Dimension h mm	Dimension d mm	Pack. pcs	Weight kg/100 pcs.	Item No.
HN M10 G	M10	17	8.4	10	100	1.084	3400107

St Steel

G Electrogalvanised

Hexagonal nut to DIN 934 with metric thread.



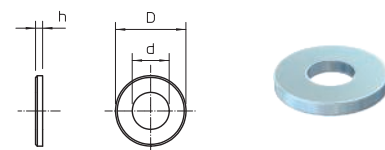
## Washer

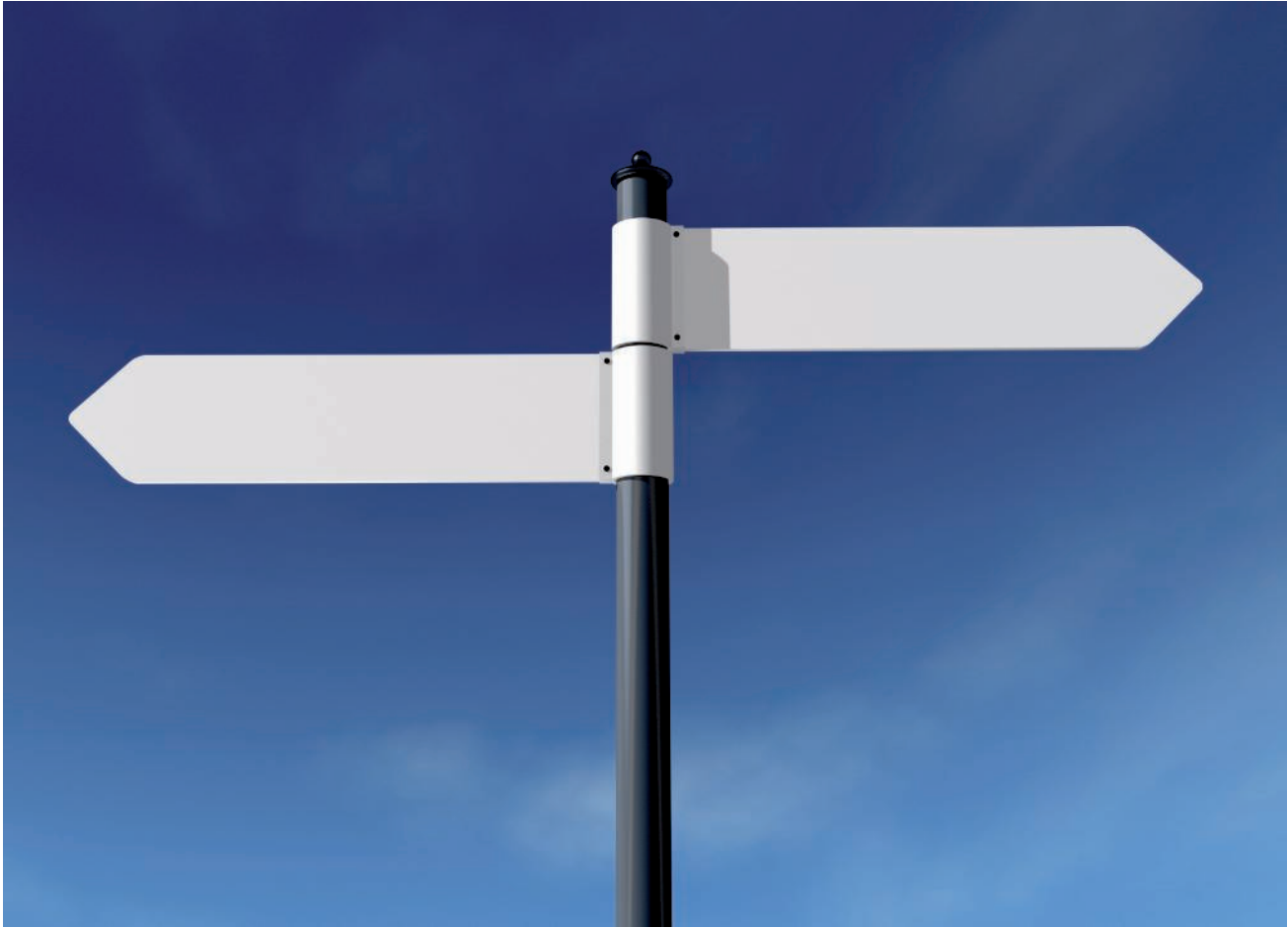
Type	Thread	Dimension d mm	Dimension D mm	Dimension h mm	Pack. pcs	Weight kg/100 pcs.	Item No.
WS M10 D20 G	M10	10.5	20	2	100	0.408	3402096
WS M12 D24 G	M12	13	24	2.5	100	0.627	3402126

St Steel

G Electrogalvanised

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





## Directories



**Numeric directory**

368



**Type listing**

371

GTIN	Art. no.	Page	GTIN	Art. no.	Page	GTIN	Art. no.	Page	GTIN	Art. no.	Page	GTIN	Art. no.	Page
5000792	/100 pc. <b>1003038</b>	198	5498919	/100 pc. <b>1158120</b>	291	5781080	price/100 <b>2046503</b>	336	5809593	/100 pc. <b>2086036</b>	188	6464920	/100 pc. <b>3497978</b>	355
5000853	<b>1003046</b>	198	5082033	<b>1195794</b>	326	5781127	<b>2046505</b>	336	5809777	<b>2086042</b>	188		/pc.	
5000914	<b>1003054</b>	198	5082095	<b>1195808</b>	326	5781134	<b>2046506</b>	336	5809890	<b>2086048</b>	188	6464937	<b>3497981</b>	356
5000976	<b>1003062</b>	198	5082156	<b>1195816</b>	326	5781141	<b>2046507</b>	336	5810070	<b>2086054</b>	188	6464944	<b>3497984</b>	356
5001034	<b>1003070</b>	198	5082217	<b>1195824</b>	326	5781424	<b>2046533</b>	337				6464951	<b>3497987</b>	356
5001096	<b>1003089</b>	198	5082279	<b>1195832</b>	326	5781431	<b>2046534</b>	337	5474135	<b>2091607</b>	188			
5001157	<b>1003097</b>	198	5082330	<b>1195840</b>	326	5781448	<b>2046535</b>	337	5931690	<b>2091615</b>	188		/100 pc.	
5001218	<b>1003100</b>	198	5082392	<b>1195859</b>	326	5781486	<b>2046536</b>	337	5931751	<b>2091623</b>	188	6029099	<b>3498092</b>	160
5001270	<b>1003119</b>	198	5082453	<b>1195867</b>	326	5781493	<b>2046537</b>	337	5931812	<b>2091631</b>	188	5918905	<b>3498096</b>	198
5001331	<b>1003127</b>	198	5082514	<b>1195875</b>	326	5781509	<b>2046538</b>	337	5931874	<b>2091658</b>	188	5918912	<b>3498098</b>	198
5001393	<b>1003135</b>	198	5237853	<b>1195883</b>	326	5781547	<b>2046540</b>	337	5474197	<b>2091666</b>	188	5850069	<b>3498100</b>	207
5001454	<b>1003178</b>	198				5782032	<b>2046565</b>	336	5474791	<b>2091674</b>	188	6559657	<b>3498108</b>	20
5001515	<b>1003194</b>	198				5782049	<b>2046566</b>	336				6559626	<b>3498124</b>	360
5001577	<b>1003208</b>	198	5912378	<b>1360644</b>	330	5782070	<b>2046567</b>	336	5036616	<b>2204000</b>	147	6563920	<b>3498130</b>	364
5001638	<b>1003216</b>	198	5912385	<b>1360646</b>	330	5782087	<b>2046568</b>	336	5210672	<b>2204010</b>	147	6563937	<b>3498132</b>	364
5001690	<b>1003232</b>	198	5912392	<b>1360648</b>	330	5782094	<b>2046569</b>	336				6563944	<b>3498134</b>	364
5566892	<b>1003259</b>	198	5912408	<b>1360650</b>	330	5782100	<b>2046570</b>	336	5044970	<b>2205097</b>	320	6563951	<b>3498136</b>	364
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5566953	<b>1003321</b>	198	5912422	<b>1360654</b>	330				5863953	<b>2207028</b>	147	6563975	<b>3498142</b>	364
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5487036	<b>1122568</b>	141	5912514	<b>1360672</b>	330	5782148	price/100 <b>2046593</b>	337	5864011	<b>2207184</b>	318	6411825	<b>3498322</b>	351
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5487876	<b>1122622</b>	141	5912583	<b>1360680</b>	330	5782209	<b>2046596</b>	337	5253396	<b>3141209</b>	190	6411863	<b>3498336</b>	351
			5912590	<b>1360682</b>	330	5782216	<b>2046597</b>	337	5253457	<b>3141306</b>	140	6411870	<b>3498340</b>	348
5686200	/100 pc. <b>1122900</b>	141	5912606	<b>1360684</b>	330	5782223	<b>2046598</b>	337				6411887	<b>3498342</b>	348
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						5782391	<b>2046621</b>	338	5298212	<b>3400107</b>	190	6429516	<b>3498374</b>	349
5697503	price/100 <b>1122908</b>	141	5029809	<b>1361097</b>	331	5782407	<b>2046622</b>	338				6429523	<b>3498376</b>	349
5686224	<b>1122910</b>	141	5029823	<b>1361103</b>	331	5782445	<b>2046623</b>	338	5300137	<b>3402096</b>	206	6411924	<b>3498390</b>	342
5686262	<b>1122918</b>	140	5029861	<b>1361106</b>	331	5782452	<b>2046624</b>	338	5300199	<b>3402126</b>	143	6411931	<b>3498392</b>	350
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6887774	<b>7215412</b>	196	5917557	<b>7216435</b>	178	6532315	<b>7216641</b>	177
	/pc.		5917564	<b>7216440</b>	177	6532322	<b>7216642</b>	179
6025558	<b>7215423</b>	195	5917571	<b>7216445</b>	177	6532339	<b>7216643</b>	179
6645978	<b>7215432</b>	196	5917588	<b>7216450</b>	179	6532346	<b>7216644</b>	184
6779055	<b>7215452</b>	195	5917625	<b>7216455</b>	179	6532353	<b>7216645</b>	181
6779116	<b>7215458</b>	195	5917632	<b>7216460</b>	184	6532360	<b>7216646</b>	181
6888214	<b>7215500</b>	199	5989110	<b>7216462</b>	181	6532377	<b>7216647</b>	182
6025923	<b>7215533</b>	194	5989127	<b>7216464</b>	181	6532384	<b>7216648</b>	183
6026043	<b>7215537</b>	194	5989134	<b>7216466</b>	182	6532391	<b>7216649</b>	182
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6026289	<b>7215545</b>	194	5989141	<b>7216468</b>	182	6532445	<b>7216654</b>	186
6026401	<b>7215549</b>	194	6462223	<b>7216469</b>	183	6532452	<b>7216655</b>	186
6461639	<b>7215571</b>	202	5917649	<b>7216470</b>	184			
6461646	<b>7215575</b>	202	5917656	<b>7216472</b>	185			
6461677	<b>7215579</b>	202	5917663	<b>7216474</b>	185			
6461769	<b>7215583</b>	203	5917670	<b>7216480</b>	186			
6461790	<b>7215587</b>	203	5917687	<b>7216485</b>	186			
5430490	<b>7215590</b>	202	6090358	<b>7216490</b>	187			
5430506	<b>7215592</b>	202		/m				
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5430544	<b>7215596</b>	203	6532469	<b>7216501</b>	152			
5430551	<b>7215598</b>	203		/pc.				
6461523	<b>7215603</b>	202	6620050	<b>7216504</b>	154			
6461561	<b>7215607</b>	202	6620074	<b>7216505</b>	154			
6461578	<b>7215611</b>	202	6620081	<b>7216506</b>	156			
6461707	<b>7215615</b>	203	6620098	<b>7216507</b>	156			
6461738	<b>7215619</b>	203	6620142	<b>7216508</b>	155			
6461585	<b>7215632</b>	202	6620104	<b>7216509</b>	155			
6461615	<b>7215636</b>	202	6462094	<b>7216510</b>	152			
6461622	<b>7215640</b>	202	6532476	<b>7216511</b>	152			
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6461752	<b>7215648</b>	203	6532483	<b>7216513</b>	153			
5958857	<b>7215702</b>	297	6462117	<b>7216515</b>	153			
5958864	<b>7215706</b>	297	6532490	<b>7216516</b>	153			
5958871	<b>7215709</b>	297	6620173	<b>7216520</b>	154			
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5809654	<b>7215750</b>	297	6462124	<b>7216560</b>	159			
6461998	<b>7215751</b>	297	6532506	<b>7216561</b>	159			
6515325	<b>7215753</b>	297	6620166	<b>7216563</b>	157			
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5917229	<b>7216300</b>	161	6462162	<b>7216590</b>	159			
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5925613	<b>7216312</b>	162		/pc.				
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5917298	<b>7216335</b>	165	6532544	<b>7216605</b>	163			
5917304	<b>7216340</b>	164	6532575	<b>7216606</b>	165			
5917311	<b>7216345</b>	164	6532582	<b>7216607</b>	165			
5917328	<b>7216350</b>	166	6532599	<b>7216608</b>	164			
5917335	<b>7216355</b>	166	6532605	<b>7216609</b>	164			
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116 M25 SGR PA	5446651	2048787	189
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