

**BSS | Catalogue 2012/2013**



# Fire protection systems

**THINK CONNECTED.**

## Welcome to Customer Service

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Use the direct line to OBO Customer Service! On the Service Hotline +49 (0)2373 89-1500, we are available every day from 7.30 a.m. to 5.00 p.m. for any questions about the OBO product range for electrical installations. The newly structured OBO Customer Services can offer you the full works:

- Competent contacts from your region
- All the information on the OBO product range
- Knowledgeable advice on special application topics
- Quick, direct access to all the technical data of the OBO products – we also want to provide the best in customer relations!

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**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.

**Invitations to tender, product information and datasheets**

We can make life easier for you, with our comprehensive selection of materials designed for practical applications, which provide you with effective support with the planning and calculation of a project. These include:

- Invitations to tender
- Product information
- Information sheets
- Datasheets

These documents are continually updated and can be downloaded at no charge at any time from the Internet download area at [www.obode](http://www.obode).

**Invitations to tender on the Internet at [www.ausschreiben.de](http://www.ausschreiben.de)**

More than 10,000 entries from the KTS, BSS, TBS, LFS, EGS and UFS ranges can be called up free of charge. Regular updates and extensions mean that you always have a comprehensive overview of the OBO products. All the current file formats – PDF, DOC, GAEB, HTML, TEXT, XML, ÖNORM – are available.

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## Planning aid

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# Compact fire protection knowledge. The new fire protection guide

Nowadays, fire protection presents many planners and installation engineers of building equipment with almost insurmountable obstacles. Installations run like networks through complex building structures.

The art of the planner is to harmonise the various networks, such as supply and disposal, heating, ventilation and air-conditioning, with the electrical installation. That in itself is difficult. In addition, the thought of building safety has been at the forefront for several years now. The sensitivity towards fire protection in buildings is growing.

As soon as the first step towards fire protection planning has been completed, the appropriate systems and components are installed. Here, too, installation engineers are confronted with requirements which cannot be implemented without further work.

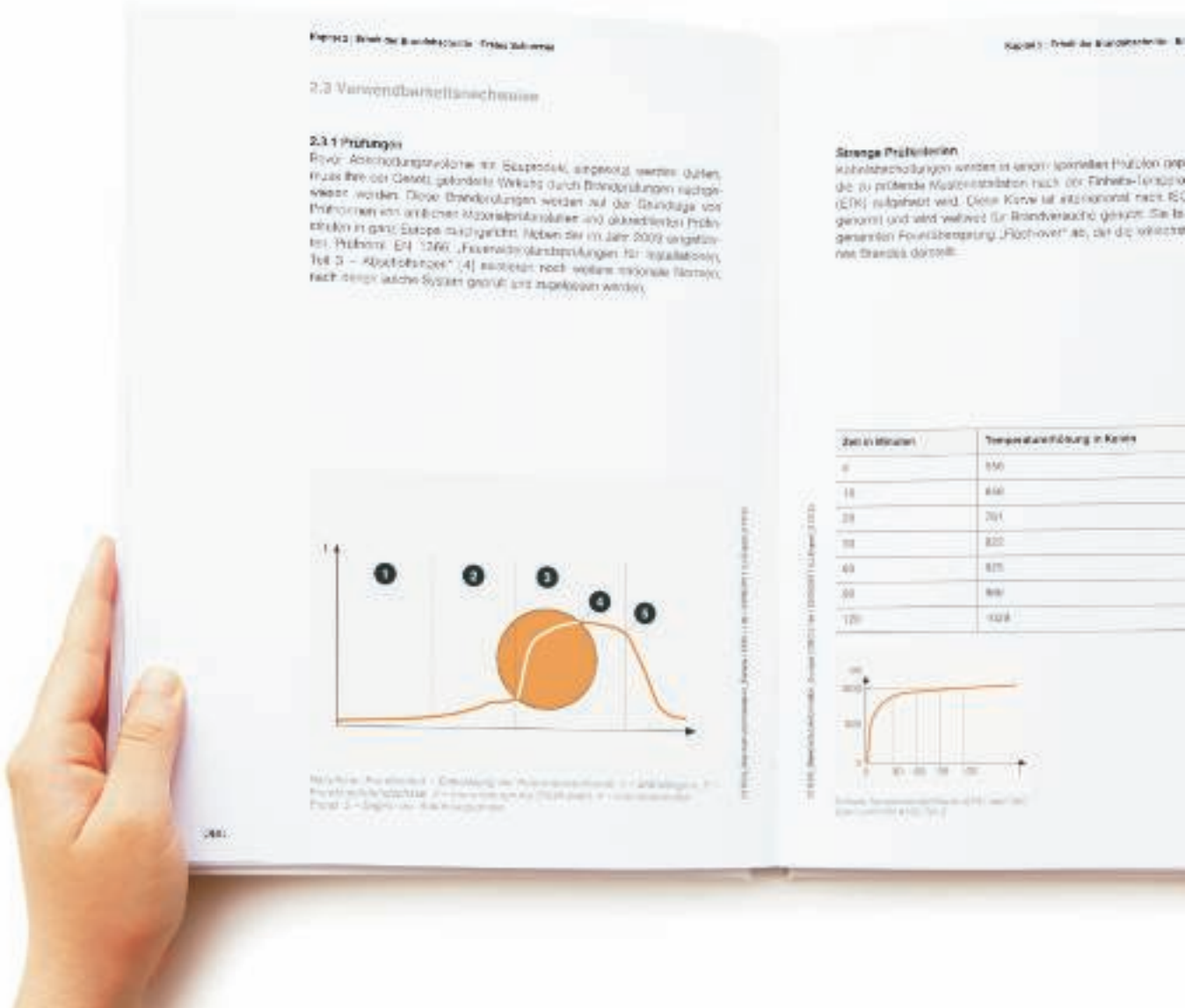


Figure 1: View of the fire curve - Fire curve

## 2.3 Verwendbarkeitsnachweise

### 2.3.1 Prüfungen

Bei der Abschätzung der im Gebäude, eingesetzt werden dürfen, muss ihre bei Gesetz gebotene Wirkung durch Brandprüfungen nachgewiesen werden. Diese Brandprüfungen werden auf der Grundlage von Prüfverfahren von ähnlichen Materialprüfungen und gekennzeichneten Prüfverfahren in ganz Europa durchgeführt. Neben der im Jahr 2009 eingeführten Prüfnorm EN 1366 „Feuerwiderstandsprüfung für tragelastische, Teil 2 – Abstrichprüfungen“ [4] existieren noch weitere nationale Normen, nach denen solche Systeme geprüft und zugelassen werden.

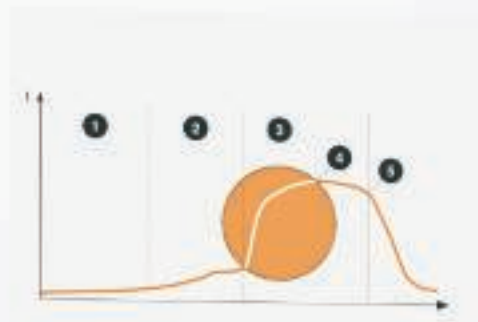


Figure 2: Fire curve - Fire curve

Figure 3: View of the fire curve - Fire curve

### Strenge Prüfverfahren

Kabelabschaltungen werden in einem speziellen Prüfverfahren (EN 1366) geprüft. Diese Prüfung wird nach der Einheits-Temperaturkurve (ETK) durchgeführt. Diese Kurve ist international nach ISO genannt und wird weltweit für Brandversuche genutzt. Sie ist gegenüber der Feuerübertragung „Rück-over“ ab, die die stärkste bei Brandfall darstellt.

Zeit in Minuten	Temperaturerhöhung in Kelvin
0	150
15	400
30	700
45	800
60	875
90	950
120	1000



Figure 4: Fire curve - Fire curve



After erection, the fire protection building equipment must be ready for acceptance. All the installations must be executed properly and the appropriate fire protection proofs must be available.

In the fire protection 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.



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**Request your copy from our Customer Service department now.**



# Practical: the structure of the fire protection guide



## Chapter 1: General introduction

Here, we can give you important basic principles of constructive fire protection:

- Construction law
- What is fire protection?
- Fire protection concepts
- Building types
- What happens during a fire?
- Construction law protection aims



## Chapter 2: Maintenance of the fire sections - First protection aim

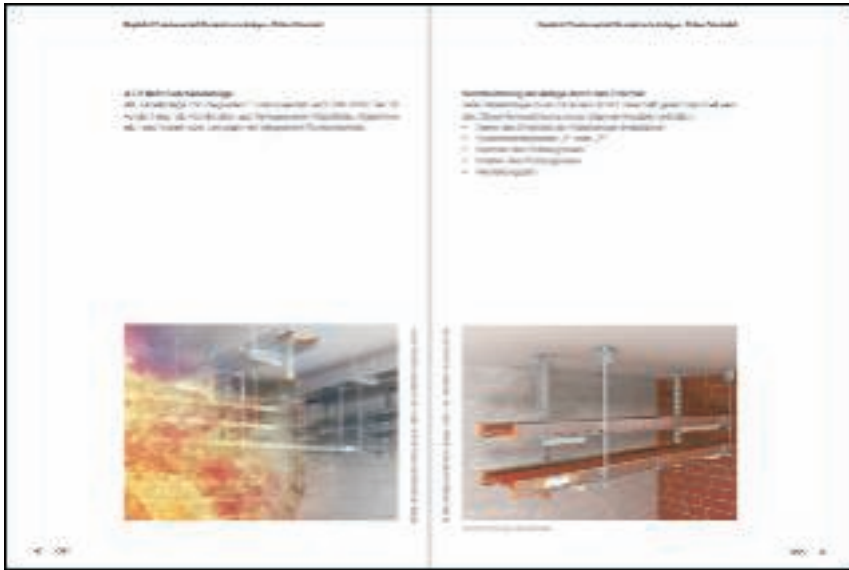
- Components closing rooms, fire walls
- Requirements for cable penetrations
- Proofs of application
- Tests
- Insulation systems, construction types
- Applications and special applications
- Building in old buildings



## Chapter 3: Protection of escape routes – Second protection aim

- What is an emergency and escape route?
- Problem: Fire loads
- Safe routing options
- Proofs of application





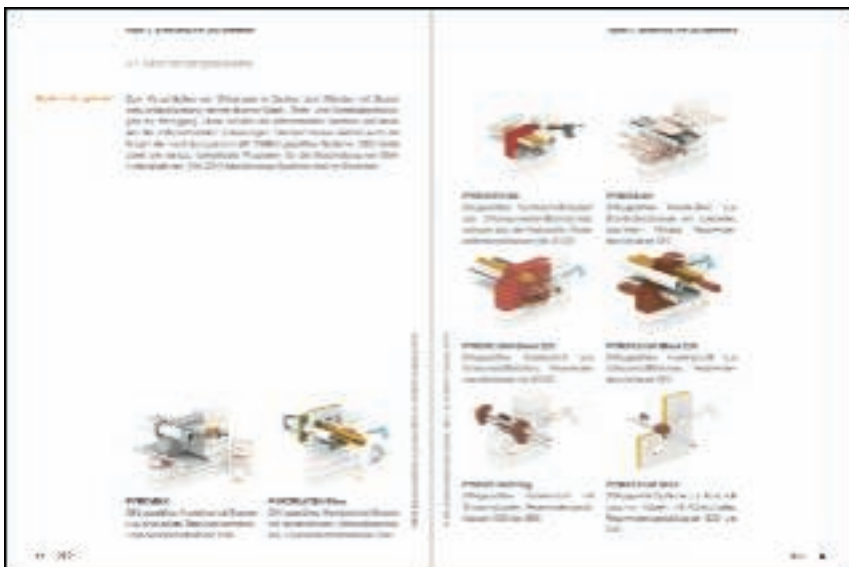
**Chapter 4: Function maintenance for electrical systems – Third protection aim**

- What is electrical function maintenance?
- Tasks of function maintenance
- Proofs of application
- Installation types
- Special features of vertical routing
- Function maintenance with fire protection ducts
- Limits of function maintenance
- Fastenings



**Chapter 5: Additional protection aims**

- Protection of property and the environment
- Industrial fire protection



**Chapter 6: Fire protection from OBO Bettermann**

- Insulation systems
- Escape route installation systems
- Function maintenance systems
- Industrial fire protection systems
- Engineering and support





## The new generation is here: OBO Construct Professional and OBO Construct Web.



We have reinvented our Construct planning software: we have bundled all the electronic planning aids under the name OBO Construct.

### Two versions

There are now two versions of OBO Construct: Construct Web and Construct Professional. They are now aligned to the different requirements of our customers and offer the following scope of service:

### OBO Construct Professional

The completely new tool for professional users. The new multilingual AutoCAD plug-in is available in various languages and offers a wealth of benefits:

- Redesigned user dialogues
- Simplified operation
- Improved component depiction
- Individual adjustment of object display
- Completely new system (runs on 64-bit systems)
- Mass determination with additional materials
- Output of the mass determination in various formats (Excel, PDF, Text)
- Simple updates
- Importable and editable invitations to tender

### OBO Construct Web

The Internet version for rapid help now no longer needs a CAD system and offers the following benefits:

- Simple operation
- For quick and easy application
- Platform-independent
- No installation required
- Access possible from anywhere
- Option of saving project data
- Plans can be printed out as PDFs
- Exact mass determination in an Excel file
- Additional material bookable

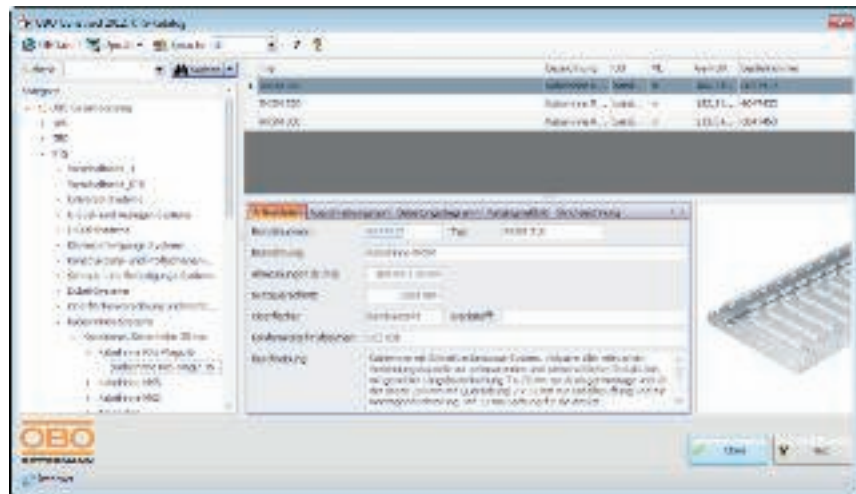
# OBO Construct KTS: Project planning, drawing, generation



## Find out now

Convince yourself about the new OBO Construct: a new support and training concept makes it easier than ever for you to take your first steps. You can find additional information on the Internet or from our Customer Service.

AutoCAD is a registered trademark of Autodesk Corporation, USA.





## Selection aid, insulation in solid components

This overview is intended to help you choose the suitable insulation system for the installations made in solid walls and ceilings. In the case of ceiling insulation, it should be noted that some systems must







be secured on the underside of the ceiling against falling out. In addition, people must be prevented from walking on the insulation measures in ceilings.



					
		Cable	Cable bundle	Hollow shaft conductor	Kupa pipes
	PYROMIX	Yes	Yes	Yes	Yes
	PYROPLATE Fibre	Yes	Yes	-	-
	PYROSIT NG	Yes	Yes	-	Yes
	PYROBAG	Yes	Yes	-	-
	PYROPLUG blocks and plugs	Yes	Yes	-	Yes
	PYROPLUG drill crown and small insulation	Yes	-	-	-
	PYROCOMB	Yes	-	-	Yes
	Insulation layer creator	Yes	-	-	-

# Selection aid, insulation in solid components



					
Stapa pipes	Kupa pipe bundle	Cable support systems	Plastic pipes	Metal pipes	Combination
Yes	-	Yes	Yes	Yes	Yes
-	-	Yes	Yes	Yes	Yes
-	-	Yes	Yes	Yes	Yes
-	-	Yes	-	-	-
-	-	Yes	Yes	Yes	Yes
-	-	-	-	-	-
-	Yes	-	Yes	-	-
-	-	-	-	-	-

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## Selection aid, insulation in light-duty partitions

This overview is intended to help you choose the suitable insulation system for the installations made in light-duty partitions with moisture resistance. The subconstruction of the light-duty partitions is usually made of metal stands and bolts, which are surrounded on

each side by fire protection plates, fastened in two layers. Light-duty partitions are not supporting components, meaning that fire protection fastening, e.g. for function maintenance, cannot be implemented.



					
		Cable	Cable bundle	Hollow shaft conductor	Kupa pipes
	PYROPLATE Fibre	Yes	Yes	-	-
	PYROSIT NG	Yes	Yes	-	Yes
	PYROBAG	Yes	Yes	-	-
	PYROPLUG blocks and plugs	Yes	Yes	-	Yes
	PYROPLUG drill crown and small insulation	Yes	-	-	-
	PYROCOMB	Yes	-	-	Yes
	Insulation layer creator	Yes	-	-	-

# Selection aid, insulation in light-duty partitions




					
Stapa pipes	Kupa pipe bundle	Cable support systems	Plastic pipes	Metal pipes	Combination
-	-	Yes	Yes	Yes	Yes
-	-	Yes	Yes	Yes	Yes
-	-	Yes	-	-	-
-	-	Yes	Yes	Yes	Yes
-	-	-	-	-	-
-	Yes	-	Yes	-	-
-	-	-	-	-	-

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## Selection aid, insulation, special applications

This overview is intended to help you find the suitable insulation system for the special electrical installation applications in the field of cable routing ducts, underfloor systems and case lining pipes.

						
		Underfloor ducts screed-covered	Underfloor ducts screed-flush	Metal ducts	Plastic ducts	PVC lining pipes
	PYROSIT NG	Yes	Yes	-	-	Yes
	PYROBAG	-	-	Yes	Yes	Yes
	PYROPLUG blocks	Yes	Yes	-	-	-

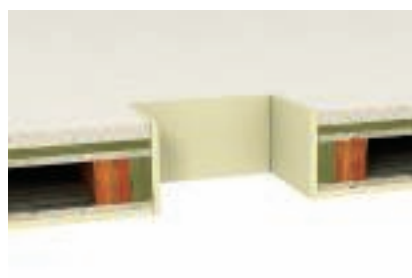




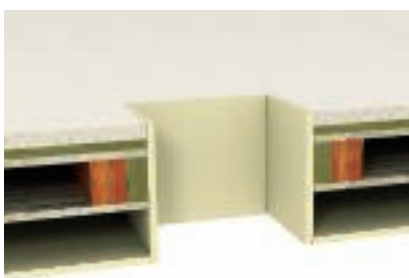
## Special application for refurbishment of buildings (building in existing buildings)

The following applies to all old building ceilings and wall constructions made of special components (sandwich elements): mounting of insulation systems is approved when this kind of application is included in the approval. In conjunction with the construction authorities, insulation systems can be used, which, according to the approval, are approved for a similar application, e.g. within a layer of non-combustible materials.

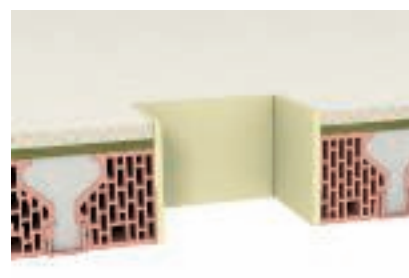
**Important note: Before mounting, always obtain the approval from the client, e.g. construction supervision or fire brigade. Get in touch with us, we'd be glad to help you!**



Wooden beam ceiling



Wooden beam ceiling with fire protection ceiling



Ribbed ceiling



Cavity chamber ceiling



Cap cover



Beamed ceiling



# Planning aid, PYROMIX® mortar insulation



System description, PYROMIX® mortar insulation	20
Installation principle, PYROMIX® mortar insulation	21



## System description, PYROMIX® mortar insulation



Stir the mortar with water to achieve the desired consistency



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



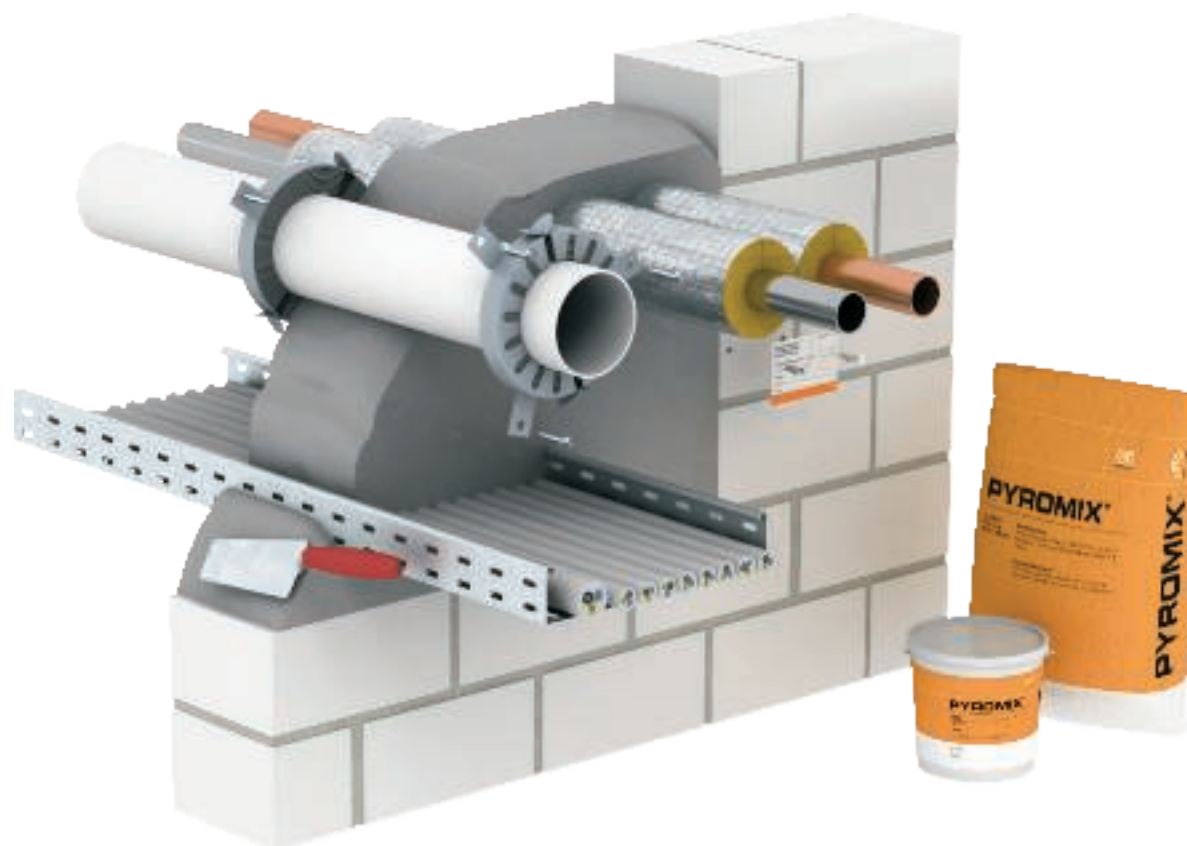
Combination insulation for various structures with labelling

**PYROMIX®** is a special mortar, free of mineral fibres, for the creation of cable and combination insulation. Depending on the amount of water added, the finished compound can be applied to the openings by hand, with pumps or with presses. The high level of substrate adhesion make lining unnecessary for small insulation sizes. A porous consistency makes retroinstallation easy.

### System benefits

- Combination of multiple installations possible
- Many approved section insulations, even Armaflex or Foamglas
- Free of mineral fibres
- Hollow shaft conductors permitted
- Good substrate adhesion
- Can even be used with small component thicknesses
- Required consistency can be achieved by adding water
- Easy retroinstallation

## Installation principle, PYROMIX® mortar insulation



S90

### Mineral special mortar, hard insulation

<b>Fire resistance class</b>	S90
<b>Proof of application</b>	General construction approval of DIBt, Berlin
<b>Approval number</b>	Z-19.15-2046
<b>Testing standard</b>	DIN 4102 Part 9

### Insulation dimensions in cm

Component	Solid wall	Solid ceiling
<b>Min. component strength</b>	10	15
<b>Min. insulation thickness</b>	15	15
<b>Opening width, max.</b>	100 (200)	100
<b>Opening height, max.</b>	200 (100)	-
<b>Max. length</b>	-	Unlimited

Maximum approved assignment of the opening area with installations: 60%. The data in the named proofs of applicability apply.





# Planning aid, PYROPLATE® Fibre soft insulation



System description, PYROPLATE® Fibre soft insulation	24
Installation principle, soft insulation, PYROPLATE® Fibre	25





## System description, PYROPLATE® Fibre soft insulation



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



Use approved section insulation for metal pipes



Apply the final coating to the surface and the installations



Fix pipe sleeves for combustible pipes with threaded rods on both sides



Combination insulation for various structures with labelling



Secure soft insulation in ceilings against footfall

**OBO PYROPLATE® Fibre** is a mineral fibre or soft 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 forms an insulating carbon foam. Together with the mineral fibre plates, this provides effective prevention of the spread of fire and smoke. 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. Therefore, the OBO PYROPLATE® Fibre is combination insulation for various structures. For pipelines, additional fire protection measures (section insulation and pipe sleeves) are required.

### System benefits

- Combination of multiple installations possible
- Many approved section insulations
- Low insulation thickness - "Plate to plate"
- Pre-coated plate with final coating is visually tidy
- Moisture-resistant coating
- Easy reinstallation



## Installation principle, soft insulation, PYROPLATE® Fibre



S90

### Mineral fibre plate with ablation coating, soft insulation

<b>Fire resistance class</b>	S90
<b>Proof of application</b>	General construction approval of DIBt, Berlin
<b>Testing standard</b>	DIN 4102 Part 9

### Insulation dimensions in cm

Component	Solid wall	Light-duty partition wall	Solid ceiling
<b>Min. component strength</b>	10	10	15
<b>Min. insulation thickness</b>	10	10	15
<b>Opening width, max.</b>	120	120	125
<b>Opening height, max.</b>	200	200	-
<b>Max. length</b>	-	-	Unlimited

Maximum approved assignment of the opening area with installations: 60%. The data in the named proofs of applicability apply.





# Planning aid, PYROSIT® NG fire protection foam



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Installation principle, PYROSIT® NG underfloor fire protection foam	31



## System description, PYROSIT® NG fire protection foam



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

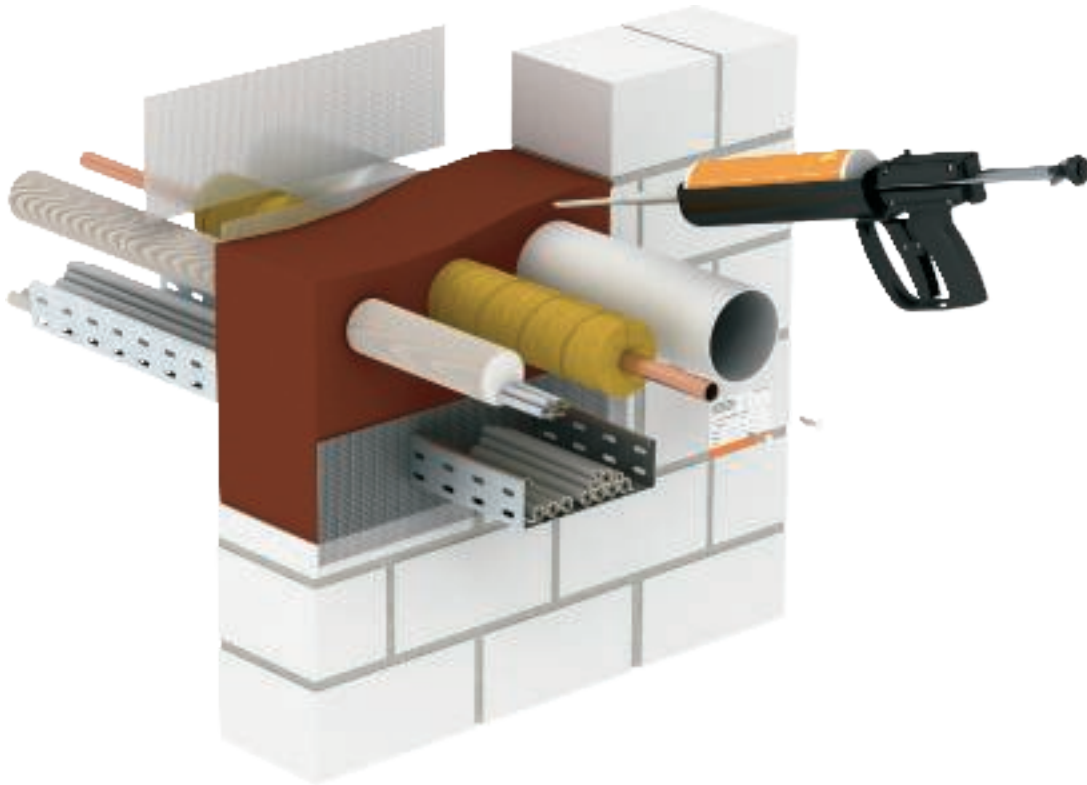
The PYROSIT® NG fire protection foam can offer many benefits in application and handling. Its particular recipe means that the two-component material can offer very homogeneous localised foam insulation. The chemical reaction is perfectly matched to any requirements. The good substrate adhesion prevents the foam from running out of the opening. Work can easily be interrupted to carry out checks. After the reaction process has been completed, PYROSIT® NG has a soft consistency, meaning that retroinstallations are very easy.

In addition to the cables, pipes made of steel, copper or various plastics may also be run through the same insulation. OBO PYROSIT® NG is therefore combination insulation for various structures.

### System benefits

- Simple working, even with brief interruptions
- Good substrate adhesion
- Foam volume per cartridge up to 2.1 litres
- Soft consistency - easy retroinstallation
- No surface coatings required
- Dust and fibre-free installation
- Combination of multiple installations possible
- Many approved section insulations
- Battery pressing gun for large-scale use

## Installation principle, PYROSIT® NG fire protection foam



EI90

EI120

### 2-component fire protection foam, localised foam

<b>Fire resistance class</b>	To EI120	To EI120
<b>Proof of application</b>	European technical approval of OIB, Vienna	Association of Cantonal Fire Insurers VKF, Berne
<b>Approval number</b>	ETA-11/0527	VKF 22552, 22553, 22554, 22555
<b>Testing standard</b>	EN 1366 Part 3	EN 1366 Part 3
<b>Additive properties</b>		
<b>Heat penetration</b>	Fraunhofer IBP Stuttgart	P1-001/2012; P1-002/2012
<b>Air permeation/pressure resistance</b>	ift Rosenheim	11-003694-PR01/02/03
<b>Noise insulation</b>	HfT Stuttgart	122-007-04P-186a

### Insulation dimensions in cm

Component	Solid wall	Light-duty partition wall	Solid ceiling
<b>Min. component strength</b>	10	10	15
<b>Min. insulation thickness (EI90/EI120)</b>	20/25	20/25	20/25
<b>Opening size, max.</b>	45 x 45; Ø 30	45 x 45; Ø 30	45 x 45; Ø 30

Maximum approved assignment of the opening area with installations: 60%. The data in the named proofs of applicability apply.

## System description, PYROSIT® NG underfloor fire protection foam



Invisible insulation in screed-covered underfloor ducts



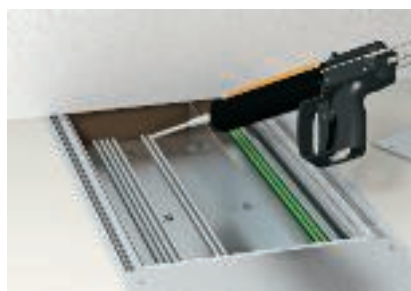
Use of the mixing tube with extension to apply the fire protection foam



Labelled underfloor insulation with reserve empty pipe



Invisible insulation in screed-flush underfloor ducts



Application of the fire protection foam directly under the wall



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

OBO's PYROSIT® NG fire protection foam is a quick and simple type of cable insulation for use in underfloor ducts. If, during an electrical installation, underfloor ducts pass below walls classified for fire protection, then the ducts must be closed against smoke gas penetration and fire.

With an open duct system, the duct lid is removed on both sides of the wall and the foam inserted on both sides. PYROSIT® NG is the ideal solution for use in screed-covered underfloor ducts: mounting is carried out, starting from the underfloor boxes on both sides of the wall. Plastic installation pipes can also be foamed in for later retroinstallations.

### System benefits

- Applications covered by surveyor's comments
- Simple working, even with brief interruptions
- Good substrate adhesion, even on metal ducts
- Foam volume per cartridge up to 2.1 litres
- Soft consistency - easy retroinstallation
- Empty pipes may also be foamed in as a reserve opening
- No surface coatings required
- Dust and fibre-free installation

# Installation principle, PYROSIT® NG underfloor fire protection foam



EI120

## 2-component fire protection foam, localised foam

<b>Fire resistance class</b>	To EI120	To EI120
<b>Proof of application</b>	European technical approval of the OIB, Vienna in conjunction with surveyor's report	Association of Cantonal Fire Insurers VKF, Berne
<b>Approval number</b>	ETA-11/0527	VKF 22552, 22553, 22554, 22555
<b>Testing standard</b>	EN 1366 Part 3	EN 1366 Part 3

## Insulation dimensions in cm

	<b>Screed-covered</b>	<b>Screed-flush (open)</b>
<b>Min. insulation thickness</b>	30 (2 x 15)	20
<b>Max. duct size</b>	35 x 5	60 x 16
<b>Min. screed thickness</b>	3.5	-
<b>Underfloor socket distance</b>	Unlimited	-

Maximum approved assignment of the opening area with installations: 60%. The data in the named proofs of applicability apply.





# Planning aid, PYROBAG® cushion insulation



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Installation principle, PYROBAG® cable routing duct cushion insulation	37



## System description, PYROBAG® cushion insulation



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

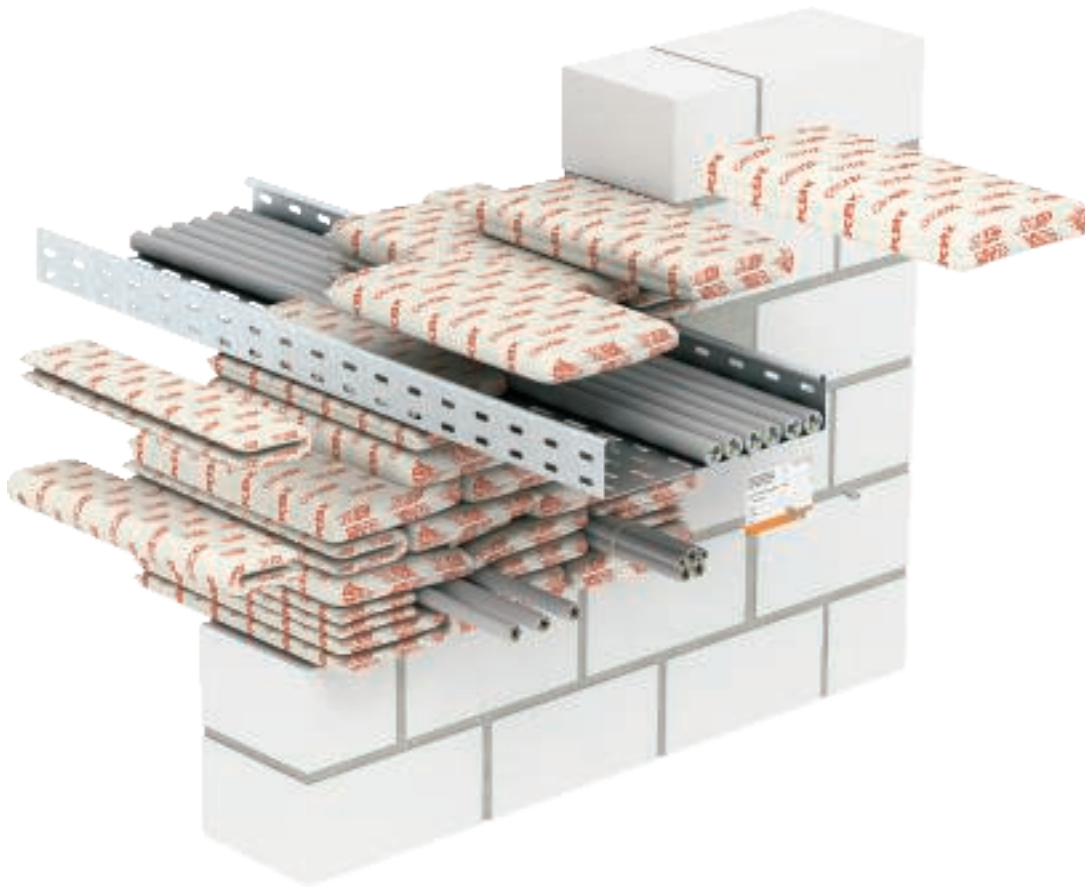
The OBO KBK cable fire protection cushions, which can adopt any shape, are ideal for simple, quick, absolutely tidy and dust-free mounting of the PYROBAG® cable insulation. The cushions can be used for permanent or temporary insulations in walls and ceilings, e.g. during reconstruction. Additional cables can be installed quickly, tidily and economically at a later date, as 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.

### System benefits

- Simple, quick, tidy, dust-free mounting
- No coating or fillers required
- Ideal solution for frequent reinstallation
- For permanent and temporary insulation
- Weatherproof and waterproof
- Free of mineral fibres

## Installation principle, PYROBAG® cushion insulation



**S90**

### Glass mesh cushion with special fire protection filling

<b>Fire resistance class</b>	S90
<b>Proof of application</b>	General construction approval of DIBt, Berlin
<b>Approval number</b>	Z-19.15-1115
<b>Testing standard</b>	DIN 4102 Part 9

### Insulation dimensions in cm

Component	Solid wall	Light-duty partition wall	Solid ceiling
<b>Min. component strength</b>	10	10	15
<b>Min. insulation thickness</b>	35	35	35
<b>Opening width, max.</b>	100	100	60
<b>Opening height, max.</b>	150	100	-
<b>Max. length</b>	-	-	Unlimited

Maximum approved assignment of the opening area with installations: 60%. The data in the named proofs of applicability apply.

## System description, cable routing duct, PYROBAG® cushion insulation



Cushions arranged in the duct



Retaining profile to prevent slippage in vertical arrangements



Discreet attachment of the identification plate

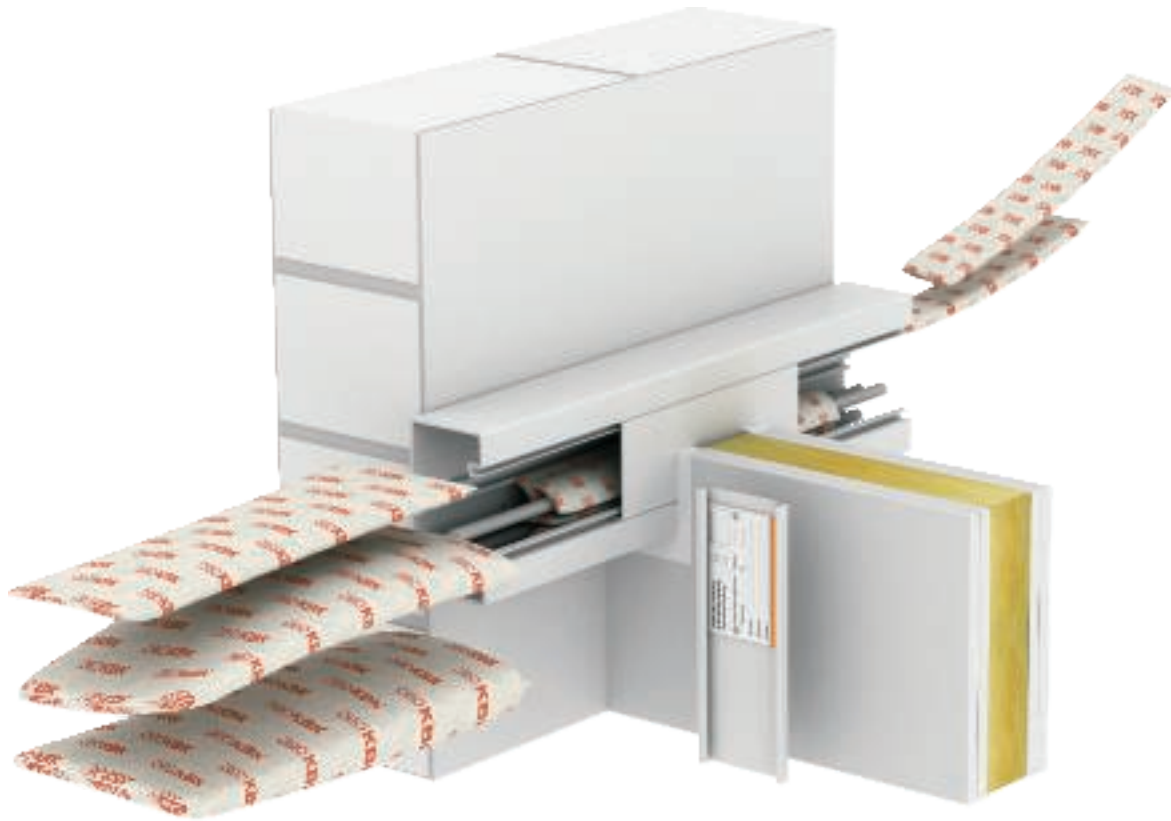
The PYROBAG® cable insulation, together with the OBO KBK cable fire protection cushion, is the ideal solution for insulation in PVC and metal cable routing ducts. Insulation with the cable fire protection cushions, which can be turned into any shape, can be mounted in a manner which is very easy, quick, clean and dust-free.

As the cushions are only mounted within the ducts, the cable insulation cannot be seen from the outside – this is the precondition for a perfect cable duct installation, which is usually subjected to particular optical requirements. The cushions can be used for permanent or temporary insulations in walls and ceilings. Additional cables can be installed quickly, tidily and economically at a later date, as the cushions can be used several times over.

### System benefits

- Ideal solution for insulation in plastic and metal cable routing ducts
- Insulation in the interior of the duct invisible on the outside
- No visual impairment of the duct installation
- Simple, quick, tidy, dust-free mounting
- No coating or fillers required
- Retroinstallations possible at any time

# Installation principle, PYROBAG® cable routing duct cushion insulation



**S90**

## Glass mesh cushion with special fire protection filling

<b>Fire resistance class</b>	S90
<b>Proof of application</b>	General construction approval of DIBt, Berlin
<b>Approval number</b>	Z-19.15-1119
<b>Testing standard</b>	DIN 4102 Part 9

Component	Solid wall	Light-duty partition wall	Solid ceiling
<b>Min. component strength</b>	10	10	15
<b>Min. insulation thickness</b>	35	35	35
<b>Max. metal duct size</b>	21 x 10	21 x 10	21 x 10
<b>Max. plastic duct size</b>	21 x 8	21 x 8	21 x 8

Maximum approved assignment of the opening area with installations: 60%. The data in the named proofs of applicability apply.



## Contents: planning aid, PYROPLUG® foam series



PYROPLUG® Block 200 stones	40
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## System description, PYROPLUG® Block 200 stones



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

The OBO PYROPLUG® Block 200 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.

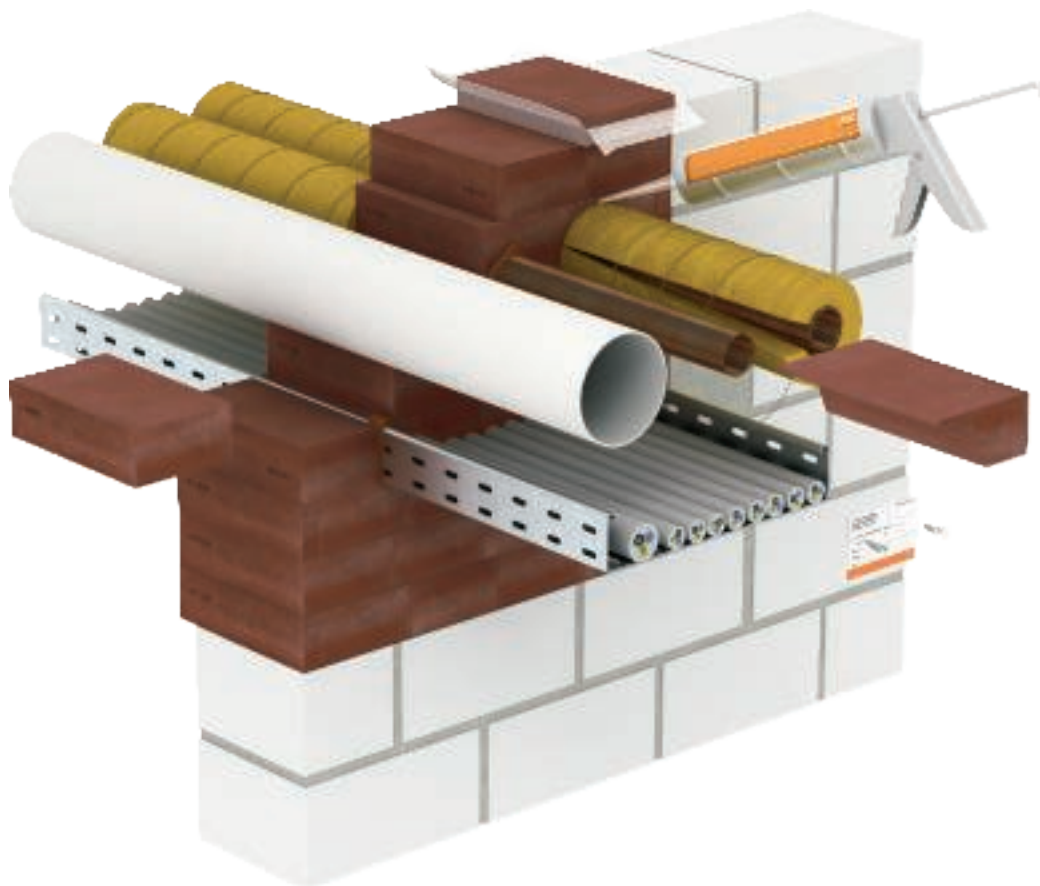
All the PYROPLUG® Block 200 insulation is completely dust and fibre-free. This also applies to any installations at a later date. This is an aspect, which is particularly important for installation in IT and laboratory rooms.

### System benefits

- Combination insulation
- Running of combustible pipes without additional measures
- Running of non-combustible pipes with section insulation
- Simple, dust and fibre-free mounting
- Simple reinstallation
- Residual joints closed with PYROPLUG® Screed filler (type FBA-SP)



## Installation principle, stones PYROPLUG® Block 200



S90

### Foam rubber fitting with fire protection additives

<b>Fire resistance class</b>	S90	S90
<b>Proof of application</b>	General construction approval of DIBt, Berlin	Association of Cantonal Fire Insurers VKF, Berne
<b>Approval number</b>	Z-19.15-1849	VKF 18140, 18141, 18142
<b>Testing standard</b>	DIN 4102 Part 9	DIN 4102 Part 9
<b>Additive properties</b>		
<b>Heat penetration</b>	Fraunhofer IBP Stuttgart	P1-001/2012; P1-002/2012
<b>Air permeation/pressure resistance</b>	ift Rosenheim	11-003694-PR01/02/03
<b>Noise insulation</b>	HfT Stuttgart	122-007-04P-186a

### Insulation dimensions in cm

Component	Solid wall	Light-duty partition wall	Solid ceiling
<b>Min. component strength</b>	10	10	15
<b>Min. insulation thickness</b>	20	20	20
<b>Opening width, max.</b>	100	84 (57)	70
<b>Opening height, max.</b>	100	57 (84)	-
<b>Max. length</b>	-	-	Unlimited

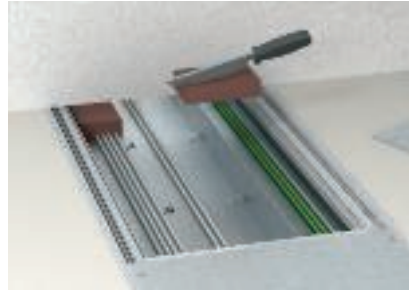
Maximum approved assignment of the opening area with installations: 60%. The data in the named proofs of applicability apply.



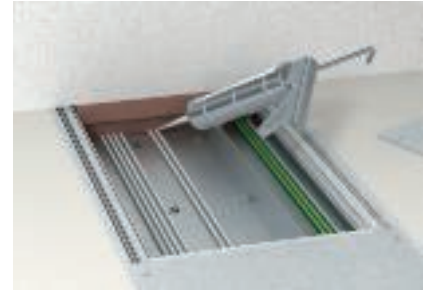
## System description, PYROPLUG® Block 200 underfloor stones



Invisible insulation in screed-flush underfloor ducts



Adjustment of the foam blocks with a knife



Closing of residual joints with the filler FBA-SP



Invisible insulation in screed-covered underfloor ducts



Cutting of thin strips for the duct compartments



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

The OBO PYROPLUG® Block 200 cable insulation is the ideal cable insulation for use in underfloor ducts. If, during an electrical installation, underfloor ducts pass below walls classified for fire protection, then the ducts must be closed against smoke gas penetration and fire.

With an open duct system, the duct lid is removed on both sides of the wall and the blocks inserted on both sides. The PYROPLUG® Block 200 cable insulation can only be mounted on screed-covered underfloor ducts from the underfloor boxes on both sides of the wall. Retroinstallations can be carried out very easily by removing individual blocks.

### System benefits

- Mounting directly in underfloor duct
- Invisible cable insulation
- Mounting of empty pipes to prepare for retroinstallations
- Dust and fibre-free mounting
- Residual joints closed with PYROPLUG® Screed filler (type FBA-SP)

# Installation principle, underfloor stones PYROPLUG® Block 200



**S90**

## Foam rubber fitting with fire protection additives

<b>Fire resistance class</b>	S90	S90
<b>Proof of application</b>	General construction approval of DIBt, Berlin in conjunction with surveyor's report	Association of Cantonal Fire Insurers VKF, Berne
<b>Approval number</b>	Z-19.15-1849	VKF 18140, 18141, 18142
<b>Testing standard</b>	DIN 4102 Part 9	DIN 4102 Part 9

## Insulation dimensions in cm

	<b>Screed-covered</b>	<b>Screed-flush (open)</b>
<b>Min. insulation thickness</b>	40 (2 x 20)	20
<b>Max. duct size</b>	35 x 5	60 x 16
<b>Min. screed thickness</b>	3.5	-
<b>Underfloor socket distance</b>	Unlimited	-

Maximum approved assignment of the opening area with installations: 60%. The data in the named proofs of applicability apply.



## System description, PYROPLUG® Block 220 stones



Mounting of the cut blocks



Cable reels according to the cable diameter and the fire resistance class



Vacuum blocks for simple residual gap closing



Simple reinstallation through removal of individual blocks



Tight-fitting installation of the blocks in the ceiling penetration

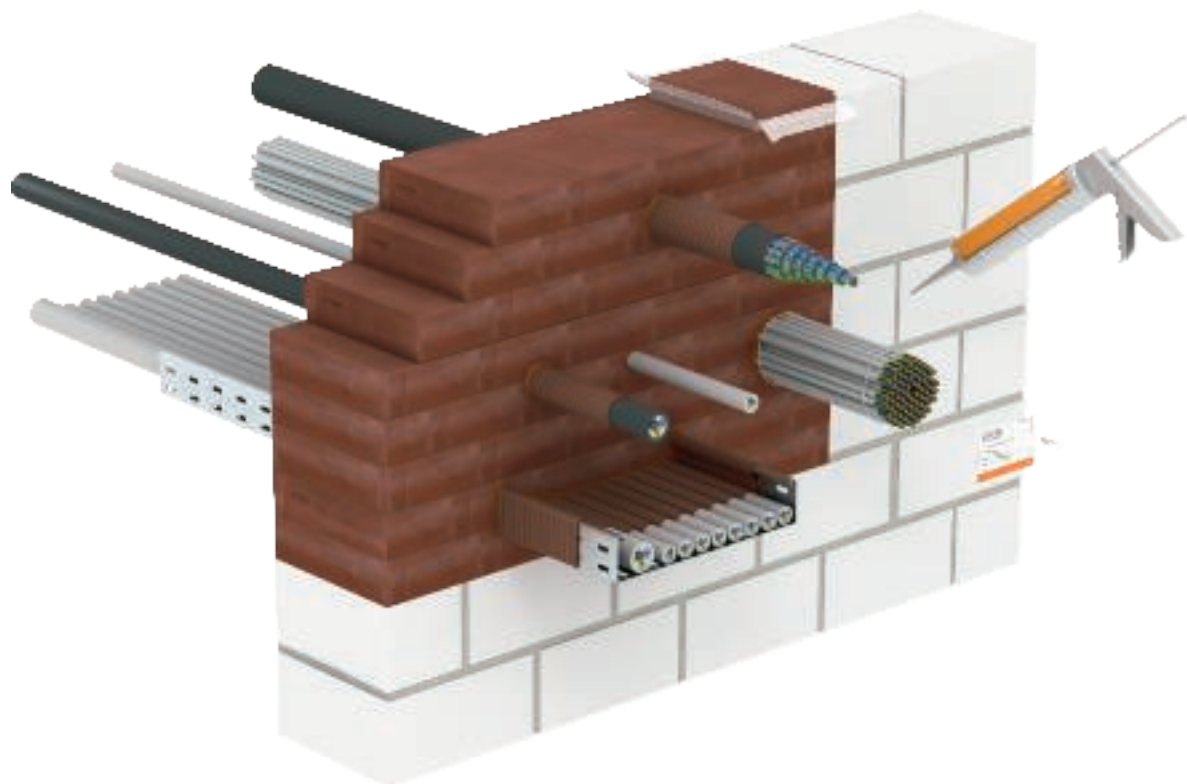
The OBO PYROPLUG® Block 220 cable insulation system is created from special foam blocks. The insulation system is particularly suitable for regular reinstallations, e.g. in the fields of telecommunications and data processing. Here, it is primarily smaller cable cross-sections which are used. According to the ETA approval, a special coil is additionally required for the cables with a larger diameter and according to the fire resistance class. If there is a fire, this foams up and provides the appropriate heat insulation.

The PYROPLUG® Block 220 cable insulation can be created without any dust or fibres. This also applies to any installations at a later date. This is an aspect which is particularly important for installation in data processing and laboratory rooms.

### System benefits

- Large dimensions require less blocks per insulation
- Routing of steel cable support systems permitted
- Ideal solution for use in the field of telecommunications and data processing
- Very suitable for regular reinstallation of small cables
- Simple, dust and fibre-free mounting
- Simple reinstallation
- Residual joints closed with PYROPLUG® Screed filler (type FBA-SP)

## Installation principle, stones PYROPLUG® Block 220



EI120

### Foam rubber fitting with fire protection additives

<b>Fire resistance class</b>	To EI120
<b>Proof of application</b>	European technical approval of OIB, Vienna
<b>Approval number</b>	ETA-11/0237
<b>Testing standard</b>	EN 1366 Part 3

### Insulation dimensions in cm

Component	Solid wall	Light-duty partition wall	Solid ceiling
<b>Min. component strength</b>	10	10	15
<b>Min. insulation thickness</b>	22	22	22
<b>Opening width, max.</b>	100*	100*	41
<b>Opening height, max.</b>	100*	100*	-
<b>Max. length</b>	-	-	Unlimited

\* Maximum area may not exceed 0.6 m<sup>2</sup>.

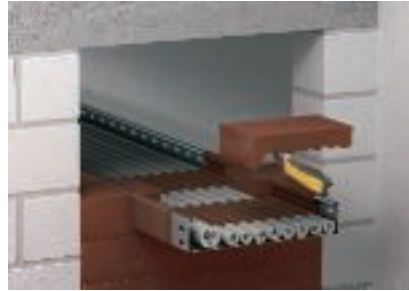
Maximum approved assignment of the opening area with installations: 60%. The data in the named proofs of applicability apply.



## System description, stones, PYROPLUG® Block 120



Cable reels for cables with a diameter of more than 18 mm and for support systems



Mounting of the cut blocks



Vacuum blocks for simple residual gap closing



Simple retroinstallation through removal or cutting of individual blocks



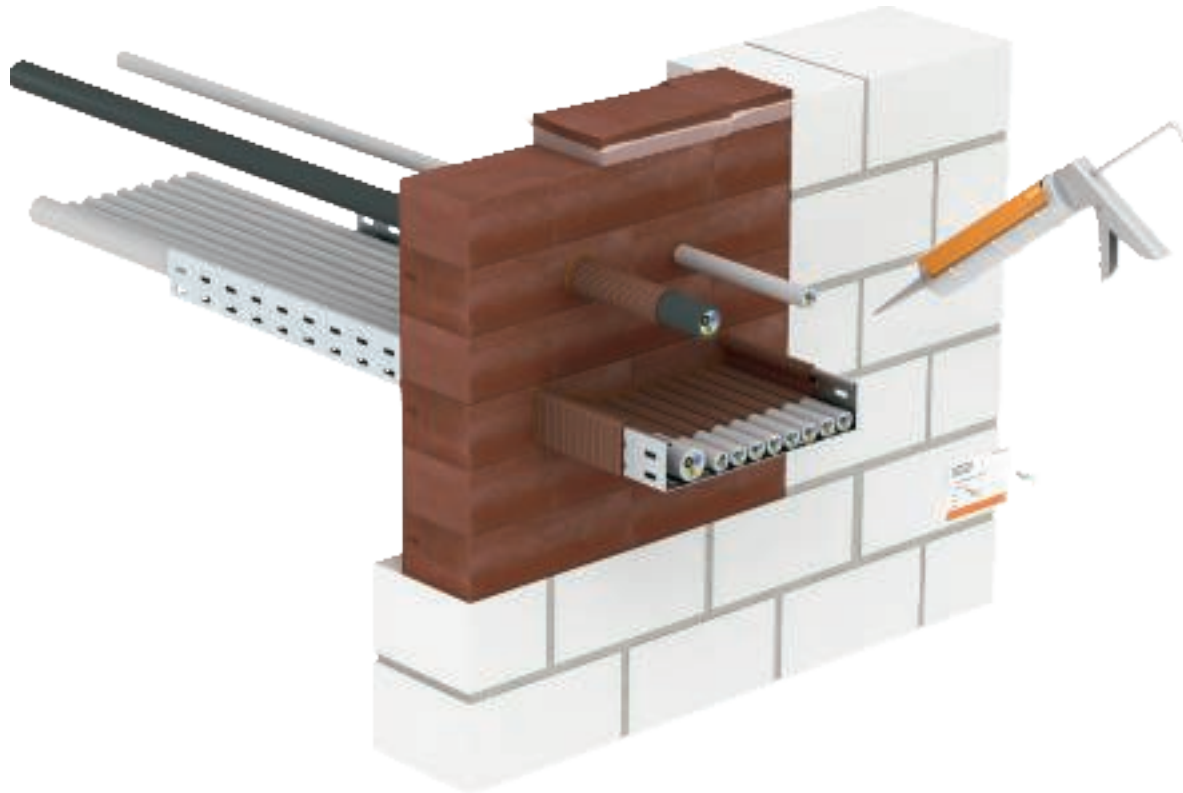
Tight-fitting installation of the blocks in the ceiling penetration

The OBO PYROPLUG® Block 120 cable insulation system is created from special foam blocks. The insulation system is particularly suitable for regular retroinstallations, e.g. in the fields of telecommunications and data processing. Here, it is primarily smaller cable cross-sections which are used. An additional special coil is required for cables of a diameter of more than 18 mm and for support systems run through the insulation. If there is a fire, this foams up and provides the appropriate heat insulation. The PYROPLUG® Block 120 cable insulation can be created without any dust or fibres. This also applies to any installations at a later date. This is an aspect which is particularly important for installation in data processing and laboratory rooms.

### System benefits

- Routing of steel cable support systems permitted
- Ideal solution for use in the field of telecommunications and data processing
- Very suitable for regular retroinstallation of small cables
- Simple, dust and fibre-free mounting
- Simple retroinstallation
- Residual joints closed with PYROPLUG® Screed filler (type FBA-SP)

## Installation principle, stones PYROPLUG® Block 120



S30

S90

### Foam rubber fitting with fire protection additives

<b>Fire resistance class</b>	S90	S90
<b>Proof of application</b>	General construction approval of DIBt, Berlin	Association of Cantonal Fire Insurers VKF, Berne
<b>Approval number</b>	Z-19.15-1850	VKF 18139
<b>Testing standard</b>	DIN 4102 Part 9	DIN 4102 Part 9

### Insulation dimensions in cm

Component	Solid wall	Light-duty partition wall	Solid ceiling
<b>Min. component strength</b>	10	10	15
<b>Min. insulation thickness</b>	12	12	12
<b>Opening width, max.</b>	100	87.5	70
<b>Opening height, max.</b>	100	57.5	-
<b>Max. length</b>	-	-	Unlimited

Maximum approved assignment of the opening area with installations: 60%. The data in the named proofs of applicability apply.





## System description, PYROPLUG® Peg plugs



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



Push cut plugs into the core hole



Mounting of the pipe shell in light-duty partition



Cutting and mounting of the plugs in the pipe shell



In case of full assignment, close off the residual joints with the FBA-SP filler



With retroinstallations, careful cutting and drilling of the plugs

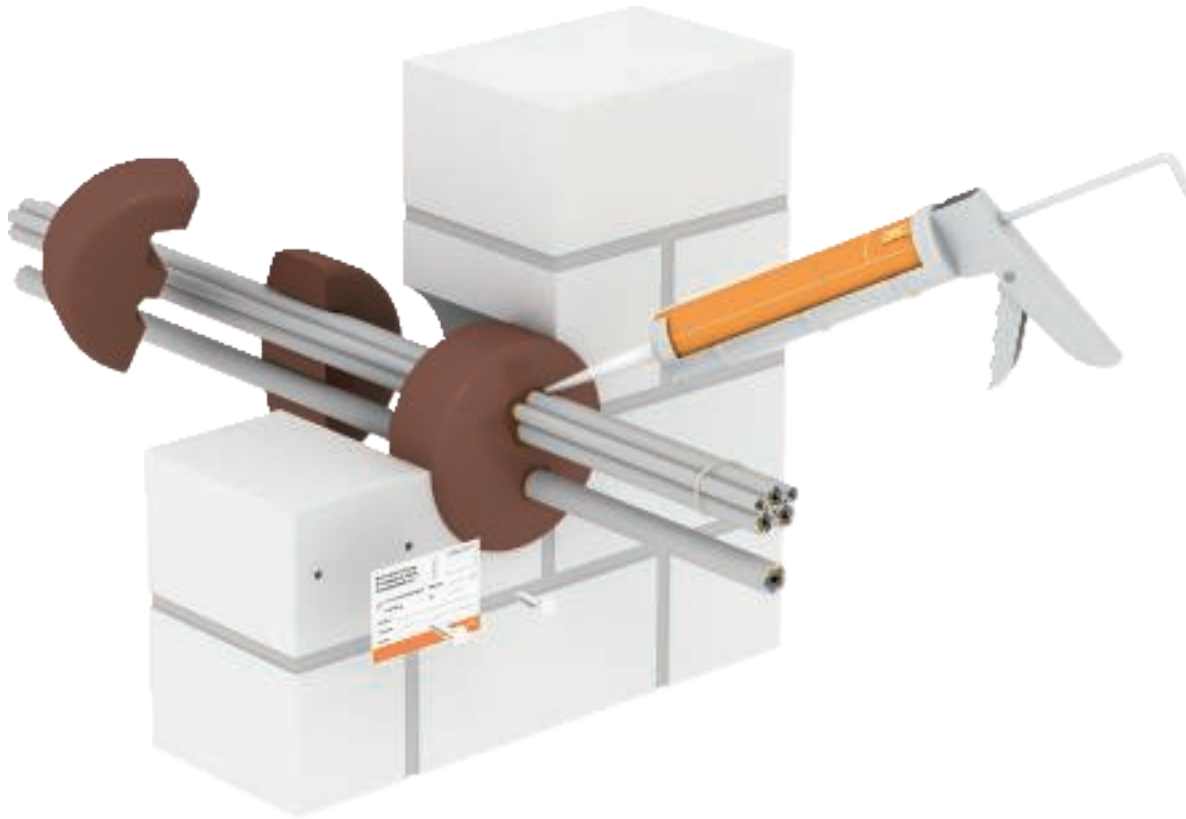
The FBA plug is available in 8 different sizes for creation of the OBO PYROPLUG® Peg cable insulation. They consist of a permanently elastic, closed-pore foam. The FBA plugs are the ideal solution for closing core holes. The pipe shell FBA-SR is also required to create round cable insulation in lightweight partition walls. This variant of the PYROPLUG® Peg cable insulation consists of a two part, fixed pipe shell and two matching FBA plugs. 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.

### System benefits

- Ideal solution for core drill holes in solid walls and concrete ceilings
- Mounting also possible in light-duty partitions in combination with the FBA-SR pipe shell
- Full assignment of the pipe shell possible
- Group formation possible
- Simple, dust and fibre-free mounting
- Simple retroinstallation
- Residual joints closed with PYROPLUG® Screed filler (type FBA-SP)



## Installation principle, PYROPLUG® Peg plug



S30

S90

### Foam rubber fitting with fire protection additives

<b>Fire resistance class</b>	S30/S90	S30/S90
<b>Proof of application</b>	General construction approval of DIBt, Berlin	Association of Cantonal Fire Insurers VKF, Berne
<b>Approval number</b>	Z-19.15-1558	VKF 18816
<b>Testing standard</b>	DIN 4102 Part 9	DIN 4102 Part 9
<b>Additive properties</b>		
<b>Heat penetration</b>	Fraunhofer IBP Stuttgart	P1-001/2012; P1-002/2012
<b>Air permeation/pressure resistance</b>	ift Rosenheim	11-003694-PR01/02/03
<b>Noise insulation</b>	HfT Stuttgart	122-007-04P-186a

### Insulation dimensions in cm

Component F30	Solid wall	Light-duty partition wall	Solid ceiling
<b>Min. component strength</b>	5	7.5	15
<b>Min. insulation thickness</b>	12	12	12
<b>Core drill hole Ø max.</b>	25	25	25
Component F90	Solid wall	Light-duty partition wall	Solid ceiling
<b>Min. component strength</b>	10	10	15
<b>Min. insulation thickness</b>	15	15	15
<b>Core drill hole Ø max.</b>	25	25	25

Maximum approved assignment of the opening area with installations: 60%. The data in the named proofs of applicability apply.



## System description, PYROPLUG® Box box insulation



Insertion of the split frame in light-duty partitions



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 cables



Grouped arrangement of the boxes

The OBO PYROPLUG® Box cable insulation is a special system for simple mounting of cable insulation in light-duty partitions. Installation in solid walls and ceilings is also possible and approved.

The insulation system consists of a two-part frame and two matching internal pieces. As the internal area of the boxes is exactly 60% of the external area, it is impossible to over assign it with cables. This usable area corresponds to the maximum approval cable assignment.

### System benefits

- Ideal solution for cable insulation in light-duty partition walls
- Full cable assignment possible
- Grouped arrangement of the frames approved
- Simple, dust and fibre-free mounting
- Simple retroinstallation
- Residual joints closed with PYROPLUG® Screed filler (type FBA-SP)

## Installation principle, PYROPLUG® Box box insulation



S30

S90

### Foam rubber fitting with fire protection additives

<b>Fire resistance class</b>	S30/S90	S30/S90
<b>Proof of application</b>	General construction approval of DIBt, Berlin	Association of Cantonal Fire Insurers VKF, Berne
<b>Approval number</b>	Z-19.15-1557	VKF 18817
<b>Testing standard</b>	DIN 4102 Part 9	DIN 4102 Part 9

### Insulation dimensions in cm

Component F30	Solid wall	Light-duty partition wall	Solid ceiling
<b>Min. component strength</b>	5	7.5	15
<b>Min. insulation thickness</b>	12	12	12
<b>Opening width, max.</b>	50	50	50
<b>Opening height, max.</b>	50	50	-
<b>Max. length</b>	-	-	50
Component F90	Solid wall	Light-duty partition wall	Solid ceiling
<b>Min. component strength</b>	10	10	15
<b>Min. insulation thickness</b>	20	20	20
<b>Opening width, max.</b>	50	50	50
<b>Opening height, max.</b>	50	50	-
<b>Max. length</b>	-	-	50

Maximum approved assignment of the opening area with installations: 60%. The data in the named proofs of applicability apply.



## System description, PYROPLUG® Shell pipe shells



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

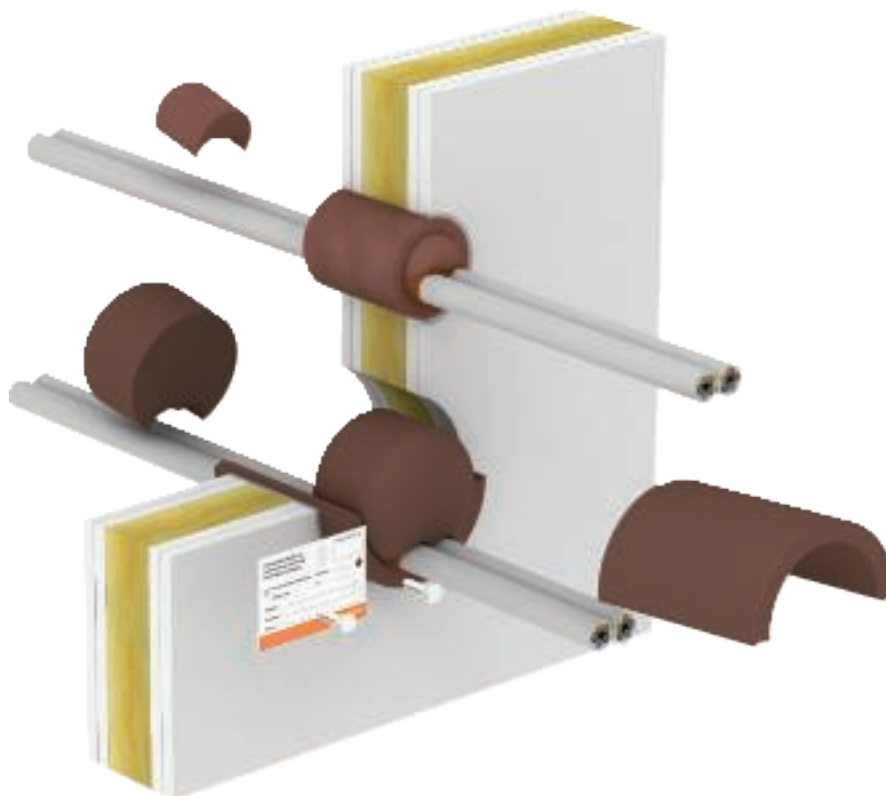
The OBO PYROPLUG® Shell cable insulation is the ideal solution for installing small round cable insulation quickly and simply, especially in light-duty partition walls.

The insulation system consists of a pipe shell and two matching plugs. 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.

### System benefits

- Ideal solution for small, round cable insulation in light-duty partition walls
- Grouped arrangement of the pipe shells permitted
- Full cable assignment possible
- Simple, dust and fibre-free mounting
- Simple retroinstallation
- Residual joints closed with PYROPLUG® Screed filler (type FBA-SP)

## Installation principle, PYROPLUG® Shell pipe shells



S30

S90

### Foam rubber fitting with fire protection additives

<b>Fire resistance class</b>	S30/S90	S30/S90
<b>Proof of application</b>	General construction approval of DIBt, Berlin	Association of Cantonal Fire Insurers VKF, Berne
<b>Approval number</b>	Z-19.15-1559	VKF 18815
<b>Testing standard</b>	DIN 4102 Part 9	DIN 4102 Part 9

### Insulation dimensions in cm

Component F30	Solid wall	Light-duty partition wall	Solid ceiling
<b>Min. component strength</b>	5	7.5	15
<b>Min. insulation thickness</b>	10	10	10
Component F90	Solid wall	Light-duty partition wall	Solid ceiling
<b>Min. component strength</b>	10	10	15
<b>Min. insulation thickness</b>	10	10	10

Maximum approved assignment of the opening area with installations: 60%. The data in the named proofs of applicability apply.





## System description, PYROMIX® Mini small insulation



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

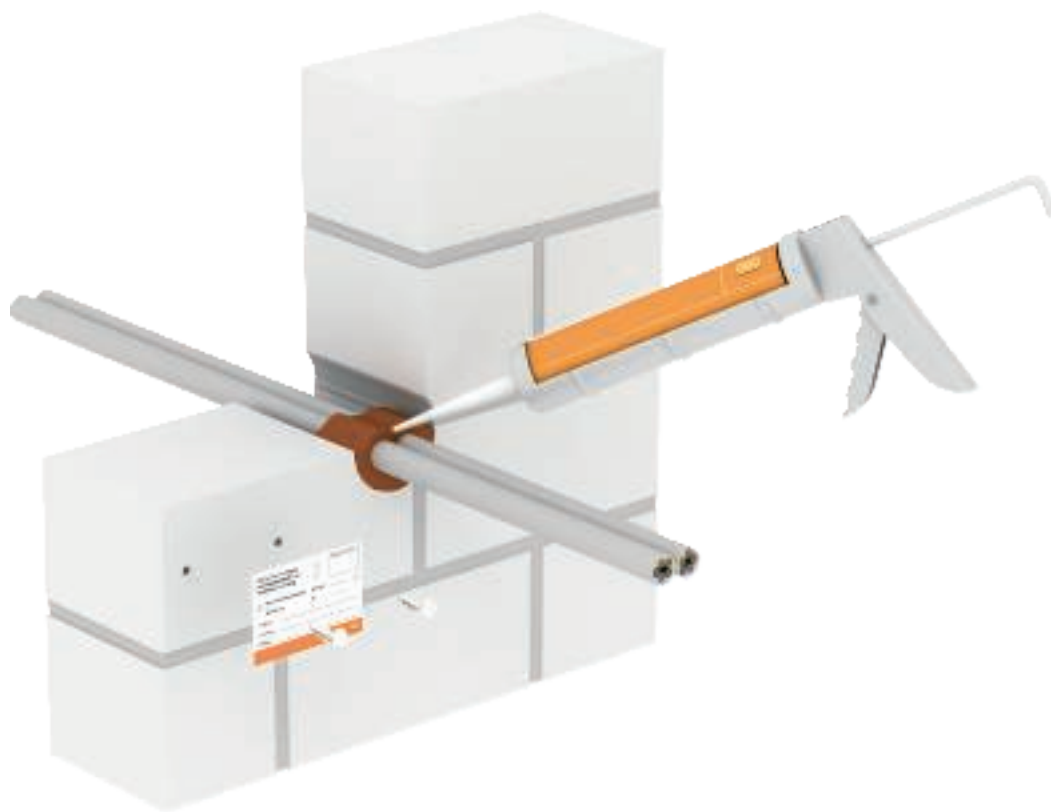
The OBO PYROPLUG® Mini cable insulation is a quick and simple option for creating small round cable insulations. It only consists of the one-component filler PYROPLUG® Screed (type FBA-SP).

The insulation may also be installed in light-duty partitions. The empty mini pipe shells FBA-DR are used to create the layers. The interior of these pipe shells may be completely assigned. Only the residual joints must be filled with the filler.

### System benefits

- Only one component: PYROPLUG® Screed filler (type FBA-SP)
- Simple solution for small round cable insulation in walls and ceilings
- Mounting approved in combination with the mini pipe shell in light-weight partitions
- Simple, dust and fibre-free mounting
- Simple retroinstallation

## Installation principle, PYROPLUG® Mini small insulation



**S90**

### 1-component fire protection compound, dispersion-based

<b>Fire resistance class</b>	S90	S90
<b>Proof of application</b>	General construction approval of DIBt, Berlin	Association of Cantonal Fire Insurers VKF, Berne
<b>Approval number</b>	Z-19.15-1851	VKF 18143
<b>Testing standard</b>	DIN 4102 Part 9	DIN 4102 Part 9

### Insulation dimensions in cm

Component	Solid wall	Light-duty partition wall	Solid ceiling
<b>Min. component strength</b>	10	10	15
<b>Min. insulation thickness</b>	10	10	15
<b>Core drill hole Ø max.</b>	8	8	8

Maximum approved assignment of the opening area with installations: 60%. The data in the named proofs of applicability apply.







# Planning aid, PYROCOMB® pipe sleeve



System description, PYROCOMB® Tubes cable insulation	58
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Installation principle, PYROCOMB® pipe insulation	61



## System description, PYROCOMB® Tubes cable insulation



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

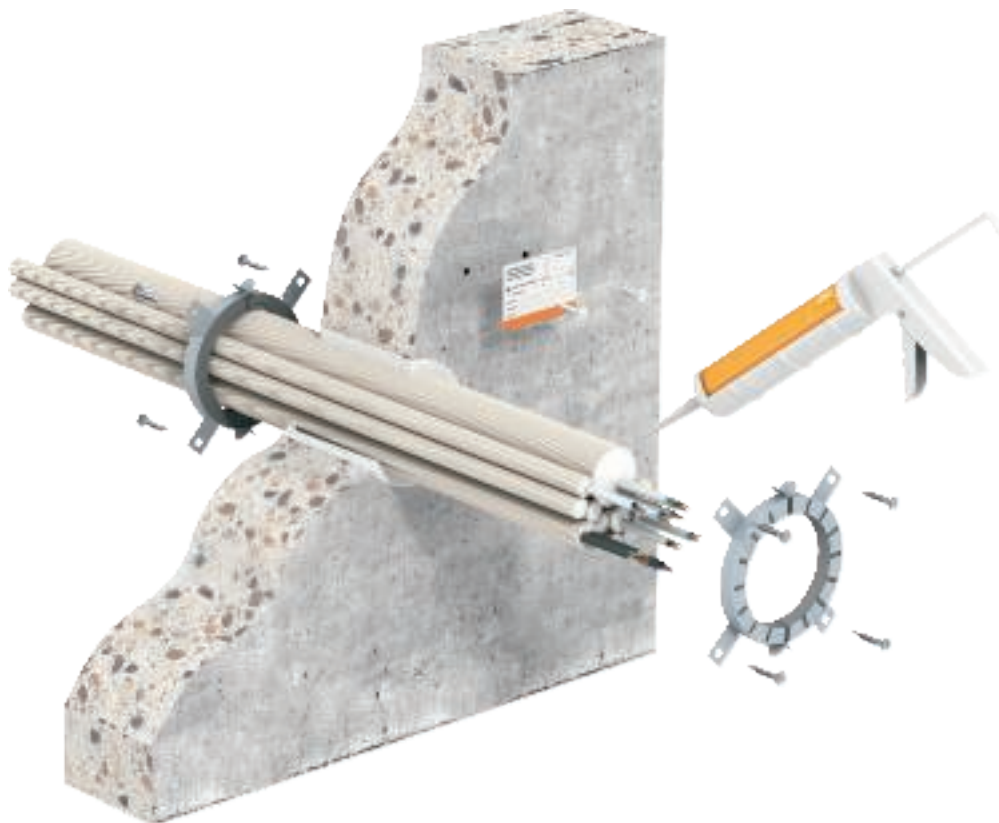
The PYROCOMB® Tubes cable insulation consists of multiple sizes of the pipe sleeve, type TCX, of the PYROCOMB® system. This allows simple insulation of bundles of plastic electrical installation pipes, rigid or flexible. It is irrelevant whether the pipes are filled with cables or are empty.

In case 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.

### System benefits

- Simple solution for electrical installation pipe bundle
- Bundle diameter up to 125 mm
- Maximum pipe diameter in bundle M63
- Rigid and flexible pipes
- Pipes filled with cables (max. Ø 21 mm) or empty
- Pipe and ring gap closure with insulation layer creator DSX

## Installation principle, PYROCOMB® Tubes cable insulation



S90

EI120

### Sleeve with metal housing and fire protection inlays

<b>Fire resistance class</b>	S90	To EI120
<b>Proof of application</b>	General construction approval of DIBt, Berlin	European technical approval of OIB, Vienna
<b>Approval number</b>	Z-19.15-2031	ETA-12/0207
<b>Testing standard</b>	DIN 4102 Part 9	EN 1366 Part 3

### Insulation dimensions in cm

S90 data	Solid wall	Light-duty partition wall	Solid ceiling
<b>Min. component strength</b>	10	10	15
<b>Max. pipe bundle Ø</b>	12.5	12.5	12.5
EI120 data	Solid wall	Light-duty partition wall	Solid ceiling
<b>Min. component strength</b>	10	10	15
<b>Max. pipe bundle Ø</b>	12.5	12.5	12.5

Maximum approved assignment of the opening area with installations: 60%. The data in the named proofs of applicability apply.



## System description, PYROCOMB® pipe insulation



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

The pipe sleeves, type TCX of the PYROCOMB® system, can be used as independent pipe sealing for combustible pipes (e.g. sanitary wastewater pipes). Mounting takes place with metal anchors on each side of the wall. Ceiling penetrations only have a tube seal from the underside. Threaded rods are mounted using the push-through method in dry partition walls.

In case 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.

The PYROCOMB® pipe sleeves may only be used to insulate plastic pipes in the PYROMIX® and PYROPLATE® Fibre systems.

### System benefits

- Many approved pipe materials
- Sloping penetration (up to 39°) possible
- Noise insulation on pipes need not be removed
- Slender pipe sleeve structure
- The size of the pipe sleeve may be three levels greater than the diameter of the run-through pipe
- Versatile application in various systems

# Installation principle, PYROCOMB® pipe insulation



**R90** **EI240**

## Sleeve with metal housing and fire protection inlays

<b>Fire resistance class</b>	R90	To EI240
<b>Proof of application</b>	General construction approval of DIBt, Berlin	European technical approval of DIBt, Berlin
<b>Approval number</b>	Z-19.17-2036	ETA-12/0182
<b>Testing standard</b>	DIN 4102 Part 11	EN 1366 Part 3

## Insulation dimensions in cm

<b>S90 data</b>	<b>Solid wall</b>	<b>Light-duty partition wall</b>	<b>Solid ceiling</b>
<b>Min. component strength</b>	10	10	15
<b>Max. pipe Ø</b>	20	16	20
<b>EI120 data</b>	<b>Solid wall</b>	<b>Light-duty partition wall</b>	<b>Solid ceiling</b>
<b>Min. component strength</b>	10	10	15
<b>Max. pipe Ø</b>	20	16	20

The data in the named proofs of applicability apply.



# Planning aid, materials for small insulation and individual cables acc. to MLAR



System description, PYROMIX® Screed small insulation	64
Installation principle, PYROMIX® Screed small insulation	65
System description, individual cables according to MLAR with insulating layer forming agent	66
Installation principle, individual cables according to MLAR with insulating layer forming agent	67





## System description, PYROMIX® Screed small insulation



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



2 cm-deep closure of the surfaces on both sides with the DSX insulation layer creator



Labelling of the small insulation

The PYROMIX® Screed small insulation only consists of two components: OBO's insulation creating material, type DSX, and the MIW mineral wool. The non-combustible mineral wool has a melting point  $\geq 1,000$  °C and serves as a basis for the cable insulation. When the opening has been plugged, 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. The foaming action also draws heat from the cables, thus considerably reducing the transfer of heat via the copper cores.

### System benefits

- Very simple assembly
- Only two components required
- Low-cost, approved components
- In cartridges or in a bucket
- Components can be used in other systems
- Fulfils the requirements of the MLAR regarding so-called aids



## Installation principle, PYROMIX® Screed small insulation



**S90**

### Small insulation made of mineral fibres and fire protection filler

<b>Fire resistance class</b>	S90
<b>Proof of application</b>	General construction approval of DIBt, Berlin
<b>Approval number</b>	Z-19.15-2044
<b>Testing standard</b>	DIN 4102 Part 9

### Insulation dimensions in cm

Component	Solid wall	Solid ceiling
<b>Min. component strength</b>	15	15
<b>Min. insulation thickness</b>	15	15
<b>Opening size, max.</b>	10x10; Ø 10	10x10; Ø 10

Maximum approved assignment of the opening area with installations: 60%. The data in the named proofs of applicability apply.





## System description, individual cables according to MLAR with insulating layer forming agent



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

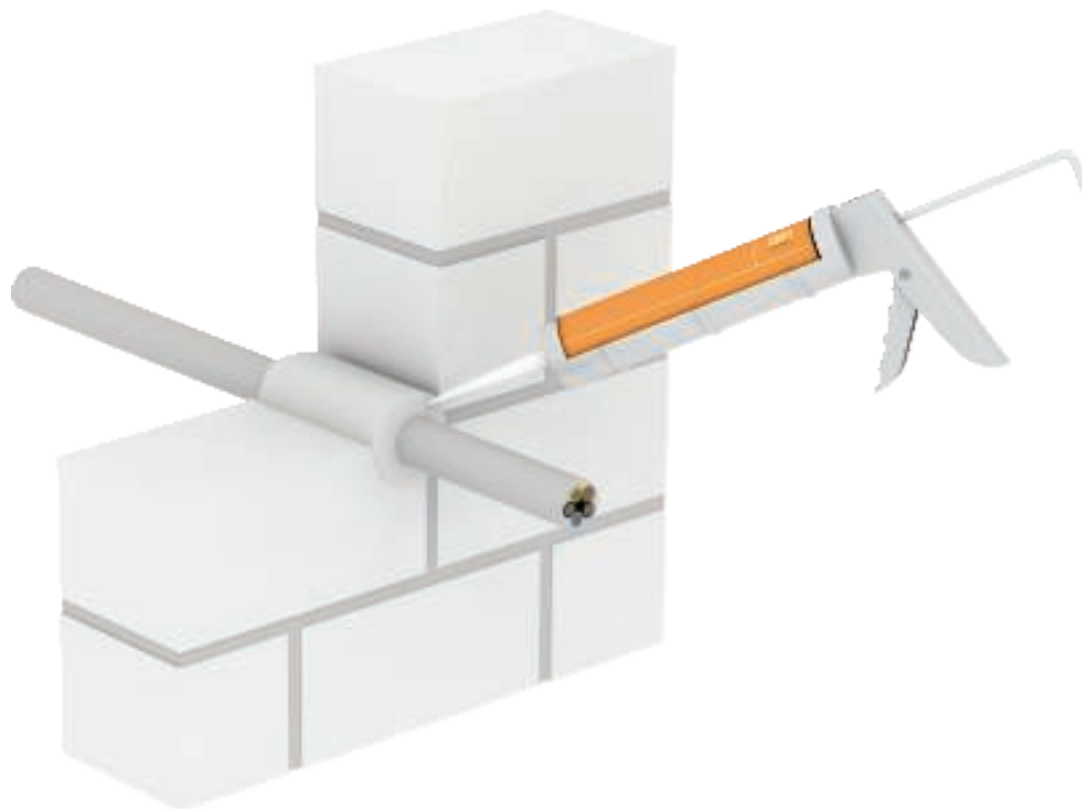
The OBO insulation layer creation material, type DSX, can be used to fill drill holes for penetrations with a single cable or multiple cables of a small cross-section, routed next to each other, through walls and ceilings marking the end of fire sections, in accordance with the cable systems directive.

The ring gap around the cable must be completely closed with fire protection filler. If there is a fire, the filler foams up, preventing penetration by fire and smoke. The foaming action also draws heat from the cables, thus considerably reducing the transfer of heat via the copper cores.

### System benefits

- Low-cost, approved material
- Simple handling
- In cartridges or in a bucket
- Components for other systems

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



F30

F60

F90

### Insulation forming material on dispersion basis

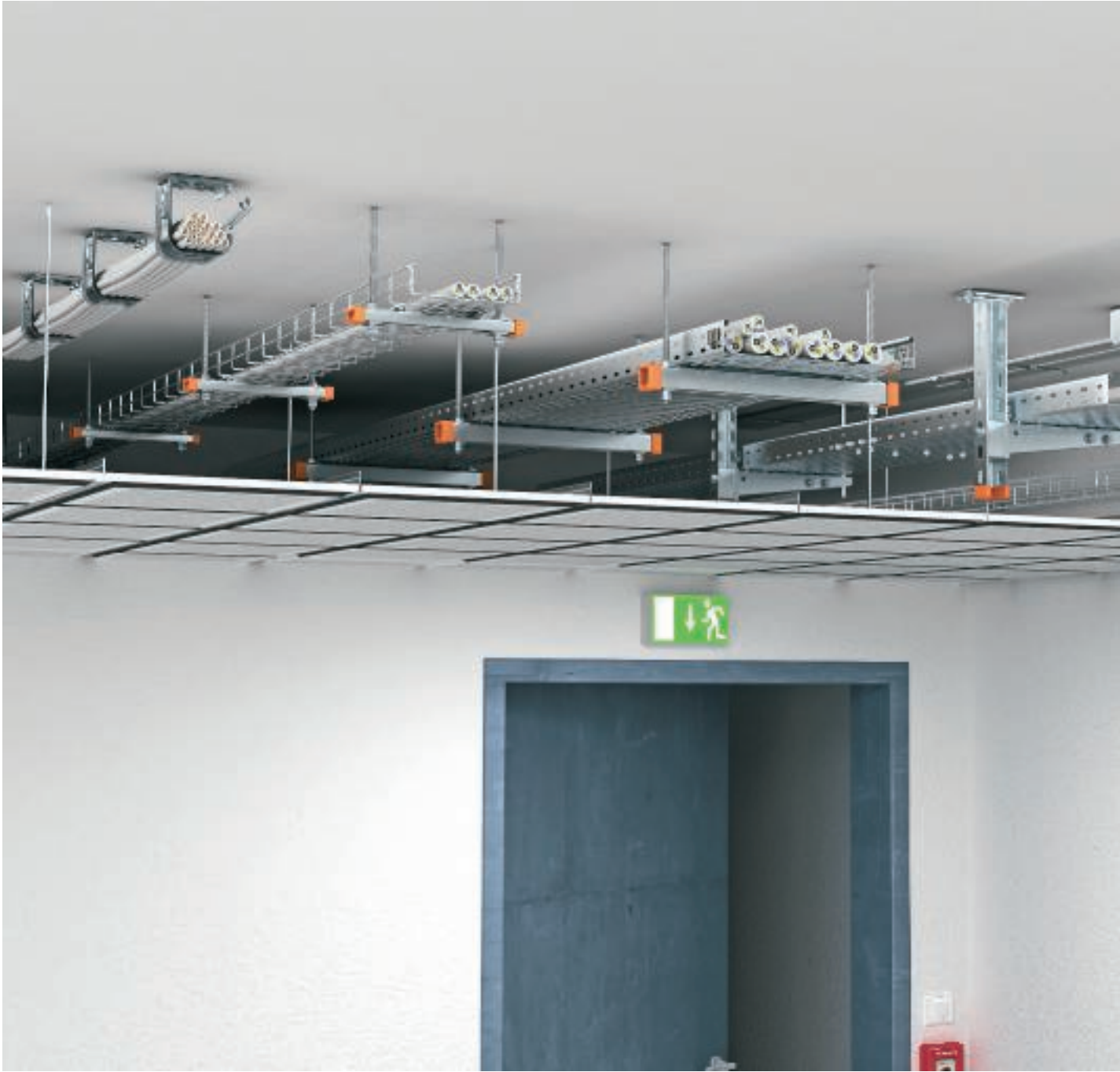
<b>Material class</b>	B2 – normally flammable
<b>Proof of application</b>	General construction approval of DIBt, Berlin
<b>Approval number</b>	Z-19.11-1991
<b>Testing standard</b>	DIN 4102

### 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 apply.





# Planning aid, escape route installations, false ceiling



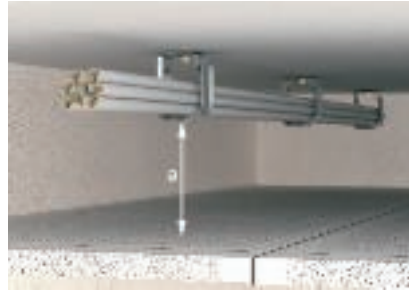
Grip M grouped support	70
Metal pressure clip	72
Cable tray RKS-Magic®	74
Cable tray SKS	78
Mesh cable tray GR-Magic®	82
G mesh cable tray G-GRM	86



## System description, Grip M grouped support



Wall and ceiling mounting above suspended fire protection ceiling



Required minimum spacing to the fire protection ceiling



Simple insertion the cables in the opened grouped support



**The mechanical stability of the grouped supports in case of fire has been proved for wall and ceiling mounting for fire loads of 90 minutes.**

The grouped supports are made of galvanised sheet steel and can be opened and closed easily without the use of tools. To allow simple cable insertion, the grouped supports can remain open during cable routing. The grouped supports are only closed when cable installation is complete. The construction of the grouped support and weight of the installed cables automatically ensures that the lock does not open itself unintentionally.

### System benefits

- Tested routing variant
- Proof of minimum spacing to the fire protection ceiling
- Horizontal wall and ceiling mounting
- Can be closed and reopened without tools
- Various dimensions of the grouped supports
- Full assignment with cables possible

## Installation principle, Grip M grouped support



Planning aid, escape route installations, false ceiling



### Fire-proof fastenings above fire protection ceilings

<b>Fire load</b>	30 and 90 minutes
<b>Testing proof</b>	Materials' testing institute iBMB MPA Braunschweig
<b>Document no.</b>	3054/1495-Mu
<b>Testing principles</b>	In accordance with DIN 4102

### Carrying capacity under fire load and mounting parameters

	Fire load 30 min.	Fire load 90 min.	Max. fastening spacing	Distance "a" min.
<b>2031 M15</b>	-	2.0 kg	60 cm	100 mm
<b>2031 M30</b>	-	3.5 kg	60 cm	100 mm
<b>2031 M70</b>	12 kg	8.0 kg	80 cm	250 mm

#### Caution!

No electrical function maintenance according to DIN 4102 Part 12!

## System description, metal pressure clip



Ceiling mounting above suspended fire protection ceiling



Required minimum spacing to the fire protection ceiling



Simple cable installation through side insertion of the cables

---

**The mechanical stability of the pressure clips in case of fire has been proved for ceiling mounting for fire loads of 30 minutes.**

**The pressure clips are made of sprung, rust-proof steel. Cable assignment is possible from both sides, and the cables simply need be pushed under the hips of the clip. A tool is not required to mount the cables. The edges of the clip are sloping, excluding the possibility of damage to the cables.**

### System benefits

- Tested routing variant
- Proof of minimum spacing to the fire protection ceiling
- Space-saving mounting directly under the ceiling
- Simple pushing in of the cable from the side
- No tool required for cable installation
- 2 different sizes





## Installation principle, metal pressure clip



Planning aid, escape route installations, false ceiling



### Fire-proof fastenings above fire protection ceilings

<b>Fire load</b>	30 minutes
<b>Testing proof</b>	Materials' testing institute iBMB MPA Braunschweig
<b>Document no.</b>	3094/2093-CM
<b>Testing principles</b>	In accordance with DIN 4102

### Carrying capacity under fire load and mounting parameters

	Fire load 30 min.	Cable filling max.	Max. fastening spacing	Distance "a" min.
<b>2033M</b>	0.23 kg/m	16 (2 x 8)	0.5 m	70 mm
<b>2034M</b>	0.23 kg/m	10 (2 x 5)	0.6 m	50 mm

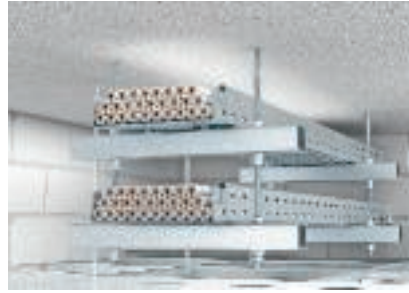
#### Caution!

No electrical function maintenance according to DIN 4102 Part 12!

## System description, cable tray RKS-Magic®



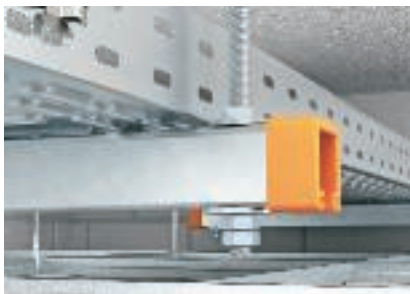
Single-layer ceiling mounting above suspended fire protection ceiling



Two-layer ceiling mounting above suspended fire protection ceiling



Required minimum spacing to the fire protection ceiling



Clamp fastening for high load capacities



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

The mechanical stability of the RKS-Magic® cable trays in case of fire has been proved for fire loads of 30 minutes.

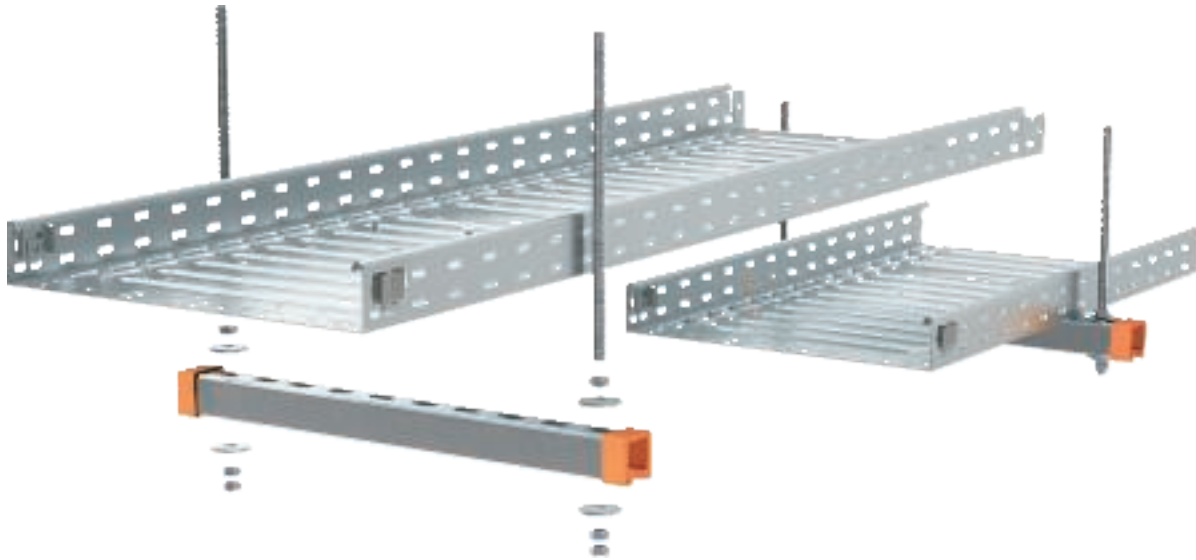
The mounting system consists of the MS41 mounting rail with threaded rod suspension from the ceiling on both sides. A two-layer arrangement of the cable trays up to a width of 300 mm is possible, providing that the approved tensile stress in the threaded rods is maintained in case of fire. Due to the varying deformations in case of fire, select the cable trays according to the space available to the false ceiling. These characteristic deformation values of the appropriate cable trays are documented appropriately.

### System benefits

- Tested routing system
- Space-saving mounting under the ceiling
- Two-layer mounting up to tray width 300 mm possible
- Proof of minimum spacing to the fire protection ceiling
- Full assignment of cable trays possible
- Various widths of the cable tray



## Installation principle, RKS-Magic® cable tray



Planning aid, escape route installations, false ceiling



### Fire-proof fastenings above fire protection ceilings

<b>Fire load</b>	30 minutes
<b>Testing proof</b>	BET, Menden
<b>Document no.</b>	05130/111108-01
<b>Testing principles</b>	In accordance with DIN 4102

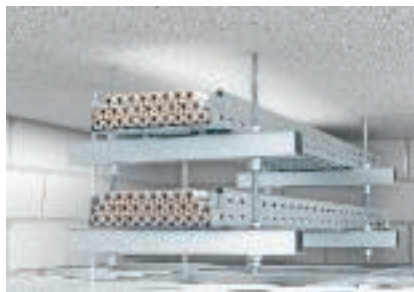
### Carrying capacity under fire load and mounting parameters

Cable tray width in mm	Cable load in kg/m	Max. support spacing in m	Distance "a" in mm
100	15	1.5	70
200	30	1.5	180
300	45	1.5	180
400	60	1.5	180

#### Caution!

No electrical function maintenance according to DIN 4102 Part 12!

## Components used: cable tray RKS-Magic®





False ceiling routing system for mounting under the raw ceiling on U transverse profile with threaded rod pendulum suspension.

Parameters:

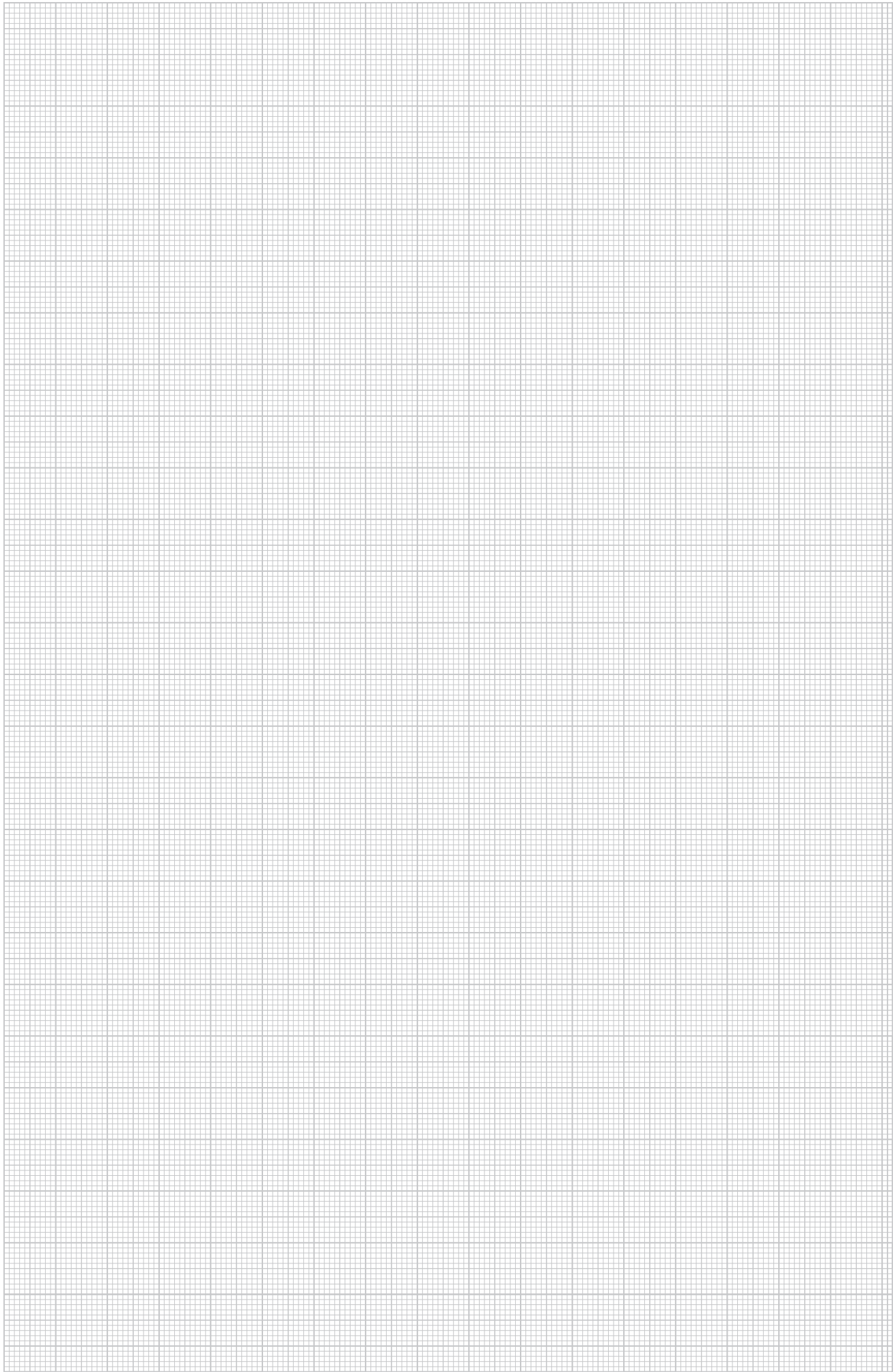
- Span: max. 1.5 m
- Tray width max. 400 mm
- Max. number of layers 2
- Max. cable load 15 kg/m per 100 mm of tray width

### Components used

			
<b>Cable tray</b>	RKSM 6... FS	1	2
<b>Truss-head bolt</b>	FRSB 6x15 F	2	4
<b>Large washer</b>	DIN440 7 F	2	4
<b>Mounting rail</b>	MS 41 L ... FS	1	2
<b>Protective cap</b>	MS 41 SK OR	2	4
<b>Threaded rod</b>	2078 M12 1m G	2	4
<b>Connection sleeve</b>	12005 M12 G	0	2

Two layers limited to maximum 300 mm width; fastening anchors should be chosen according to the substrate. The appropriate amount of hexagonal nuts and washers are required.





## System description, cable tray SKS



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



Required minimum spacing to the fire protection ceiling



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

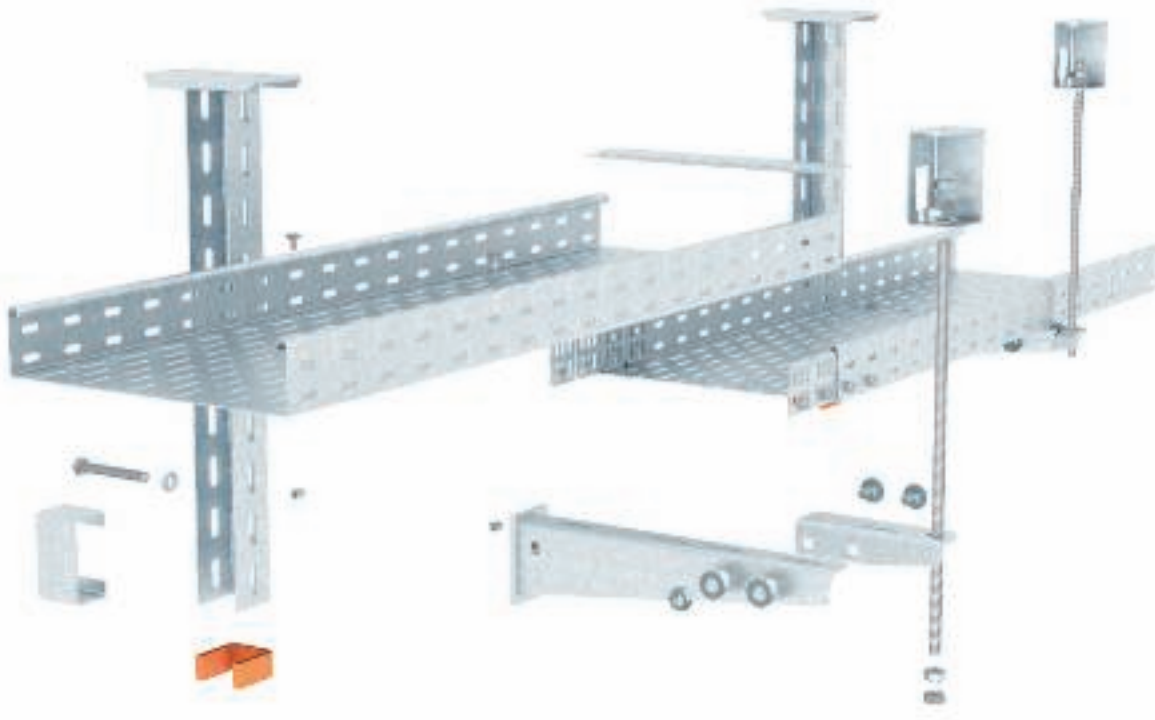
### System benefits

- Tested routing system
- Wall and ceiling mounting
- Two-layer mounting up to tray width 300 mm possible
- Proof of minimum spacing to the fire protection ceiling
- Full assignment of cable trays possible
- Various widths of the cable tray

The mechanical stability of the routing system with SKS cable trays in case of fire has been proved for fire loads of 30 minutes. The tested routing system can be mounted on the wall or under the ceiling. To prevent bending of the brackets in case of fire, a threaded rod lock must be mounted at the bracket tip.

Due to the varying deformations in case of fire, select the cable trays according to the space available to the false ceiling. The fire protection survey documents these spacings. When applied logically, the parameters visible there allow the implementation of multi-layer variants.

## Installation principle, SKS cable tray



### Fire-proof fastenings above fire protection ceilings

<b>Fire load</b>	30 minutes
<b>Testing proof</b>	Materials' testing institute iBMB MPA Braunschweig
<b>Document no.</b>	3059/3644-AR/Mu
<b>Testing principles</b>	In accordance with DIN 4102

### Carrying capacity under fire load and mounting parameters

Cable tray width in mm	Cable load in kg/m	Max. support spacing in m	Distance "a" in mm
200	30	1.5	65
300	45	1.5	95
400	60	1.5	130
500	75	1.5	160
600	90	1.5	190

#### Caution!

No electrical function maintenance according to DIN 4102 Part 12!



## Components used: cable tray SKS






False ceiling routing system for mounting under the raw ceiling with U suspended support, AWF bracket and threaded rod locking.

Parameters:

- Span: max. 1.5 m
- Tray width max. 600 mm
- Max. number of layers 2
- Max. cable load 15 kg/m per 100 mm of tray width

### Components used

				
<b>Cable tray</b>	SKS 6... FS	1	2	2
<b>Connector</b>	RWVL 60 FS	2	4	4
<b>Joint plate</b>	SSLB... FS	1	2	2
<b>Truss-head bolt</b>	FRSB 6x 12 F	1	2	2
<b>Truss-head bolt</b>	FRSB 6x 20 F	1	2	2
<b>US 5 suspended support</b>	US 5 K ... FT	1	1	1
<b>Protective cap</b>	US 5 KS OR	1	1	1
<b>Wall and support brackets</b>	AW30F... FT	1	2	2
<b>Spacer</b>	DSK 45 FT	1	2	1
<b>Hexagonal bolt</b>	SKS 10x 90 F	1	2	1
<b>Threaded rod</b>	2078 M12 1m G	1	2	2
<b>Connection sleeve</b>	12005 M12 G	0	1	0
<b>Fire protection clamp*</b>	BSB FT	1	1	2

\* Alternatively, directly with internal thread anchor; two layers limited to maximum 300 mm width; fastening anchors should be chosen according to the substrate. The appropriate amount of hexagonal nuts and washers are required.





False ceiling routing system for mounting on the wall with AWF bracket and threaded rod locking.

Parameters:

- Span: max. 1.5 m
- Tray width max. 600 mm
- Max. number of layers 2
- Max. cable load 15 kg/m per 100 mm of tray width

### Components used

			
<b>Cable tray</b>	SKS 6... FS	1	2
<b>Connector</b>	RWVL 60 FS	2	4
<b>Joint plate</b>	SSLB... FS	1	2
<b>Truss-head bolt</b>	FRSB 6x 12 F	1	2
<b>Truss-head bolt</b>	FRSB 6x 20 F	1	2
<b>Wall and support brackets</b>	AW30F... FT	1	2
<b>Threaded rod</b>	2078 M12 1m G	1	2
<b>Connection sleeve</b>	12005 M12 G	0	1
<b>Fire protection clamp*</b>	BSB FT	1	1

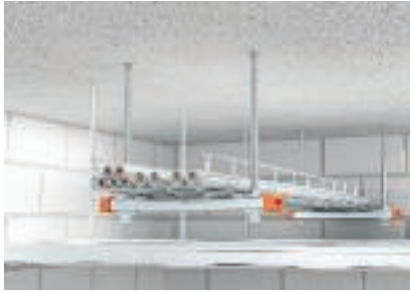
\* Alternatively, directly with internal thread anchor; two layers limited to maximum 300 mm width; fastening anchors should be chosen according to the substrate. The appropriate amount of hexagonal nuts and washers are required.



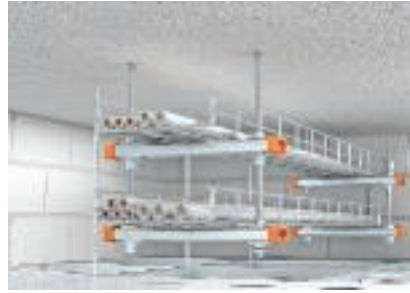




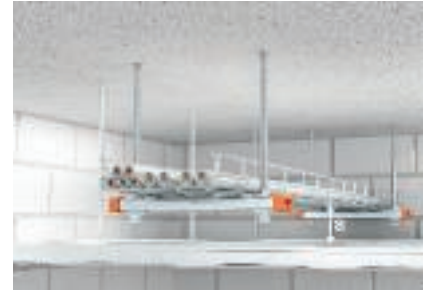
## System description, mesh cable tray GR-Magic®



Single-layer ceiling mounting above suspended fire protection ceiling



Two-layer ceiling mounting above suspended fire protection ceiling



Required minimum spacing to the fire protection ceiling



Clamp fastening for high load capacities



Screwless joint connection



The mechanical stability of the routing system with GR-Magic® mesh cable trays in case of fire has been proved for fire loads of 30 minutes.

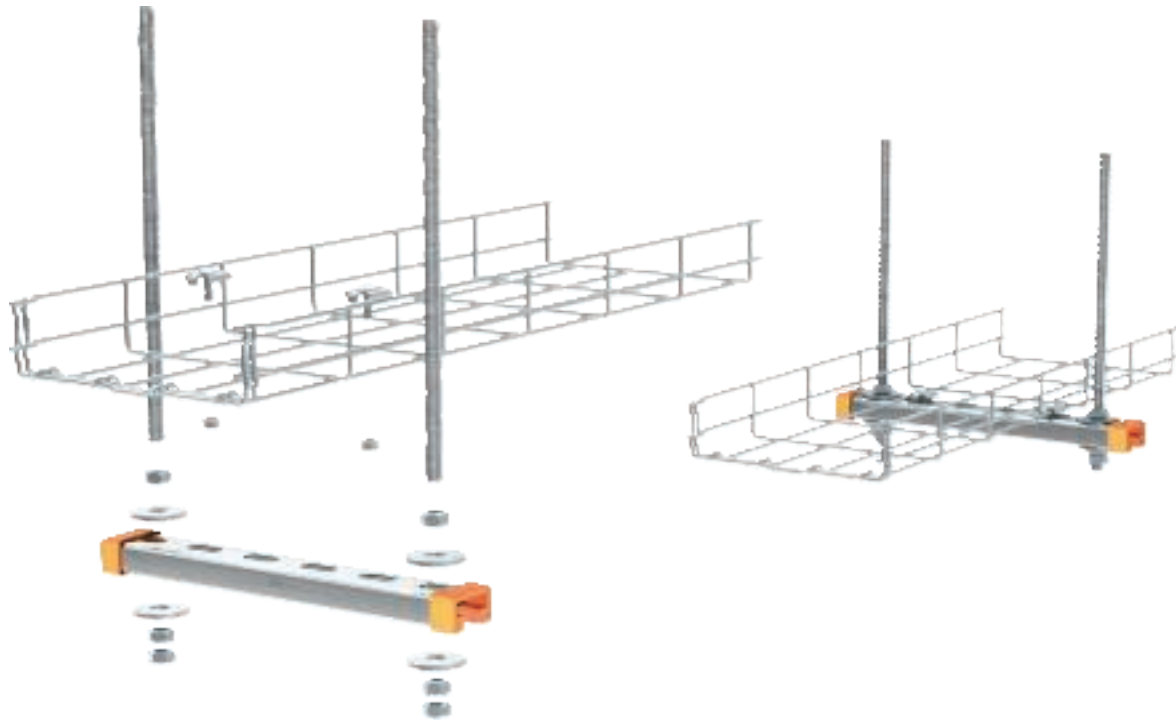
The routing system consists of the mounting rails MS21 and/or MS41 in a pendulum suspension from the ceiling. A two-layer arrangement of the mesh cable trays up to a width of 400 mm is possible, providing that the approved tensile stress in the threaded rods is maintained in case of fire.

Due to the varying deformations in case of fire, select the mesh cable trays according to the space available to the false ceiling. These characteristic deformation values of the appropriate mesh cable trays are documented appropriately.

### System benefits

- Tested routing system
- Space-saving mounting under the ceiling
- Two-layer mounting
- Proof of minimum spacing to the fire protection ceiling
- Various widths of the mesh cable tray

## Installation principle, GR-Magic® mesh cable tray



Planning aid, escape route installations, false ceiling



### Fire-proof fastenings above fire protection ceilings

<b>Fire load</b>	30 minutes
<b>Testing proof</b>	BET, Menden
<b>Document no.</b>	05130/111110-01
<b>Testing principles</b>	In accordance with DIN 4102

### Carrying capacity under fire load and mounting parameters

Mesh cable tray width in mm	Cable load in kg/m	Max. support spacing in m	Distance "a" in mm
100	10	1.5	150
200	20	1.5	155
300	30	1.5	160
400	40	1.5	165

#### Caution!

No electrical function maintenance according to DIN 4102 Part 12!

## Components used: mesh cable tray GR-Magic®





False ceiling routing system for mounting under the raw ceiling on U transverse profile with threaded rod pendulum suspension.

Parameters:

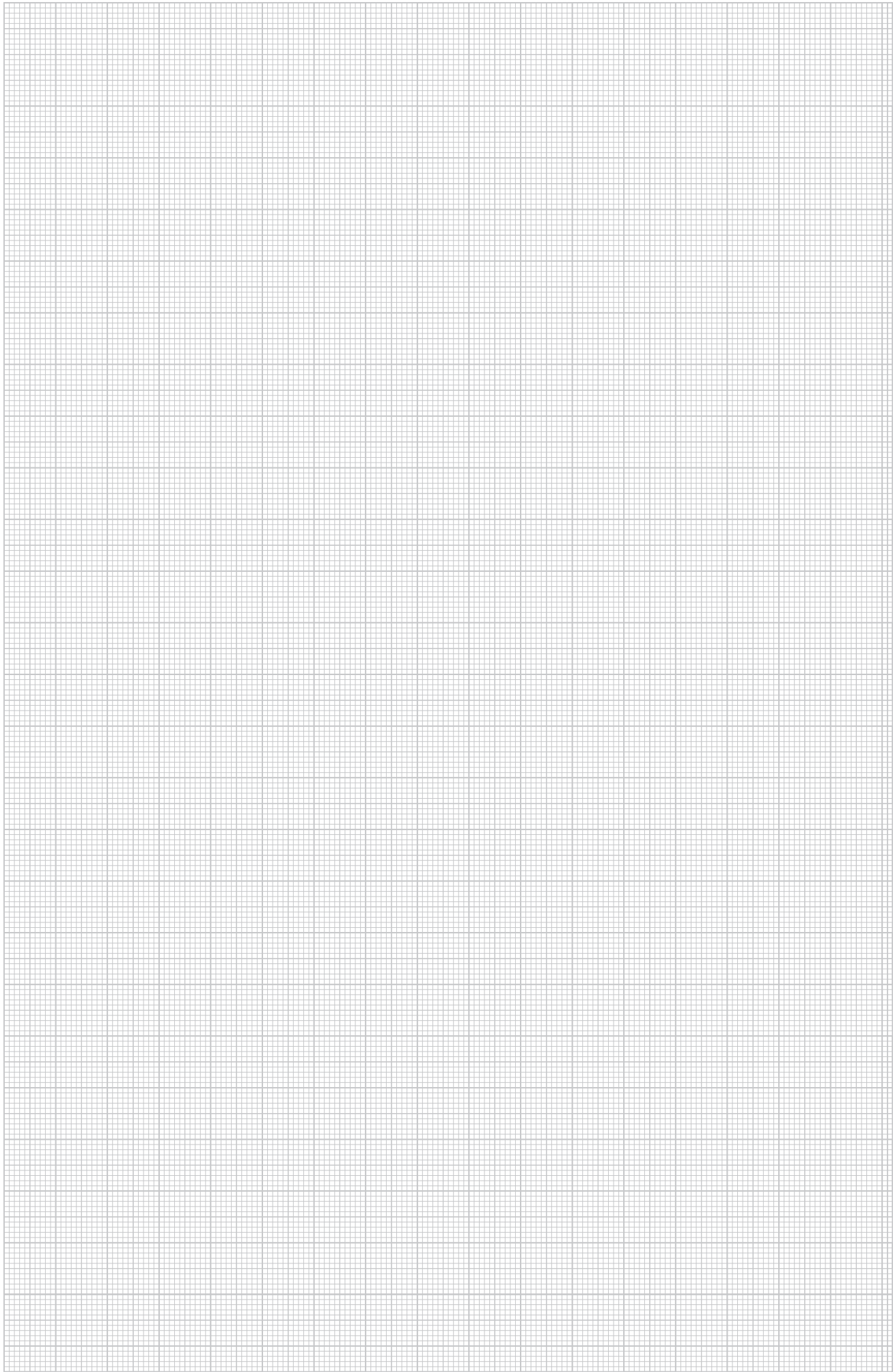
- Span: max. 1.5 m
- Tray width max. 400 mm
- Max. number of layers 2
- Max. cable load 10 kg/m per 100 mm of tray width

### Components used

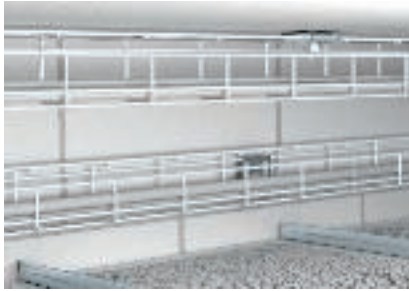
			
<b>Mesh cable tray</b>	GRM 55 ... G	1	2
<b>Clamping piece</b>	GKS 34 G	2	4
<b>Large washer</b>	DIN440 7 F	2	4
<b>Mounting rail</b>	MS 21 L ... FS	1	2
<b>Mounting rail</b>	MS 41 L ... 2 FS	1	2
<b>Protective cap</b>	MS 21 SK OR SP	2	4
<b>Protective cap</b>	MS 41 SK OR SP	2	4
<b>Threaded rod</b>	2078 M12 1m G	2	4
<b>Connection sleeve</b>	12005 M12 G	0	2

Mounting rail MS 21 for widths 100/200 mm, mounting rail MS 41 for widths 300/400 mm. Choose the fastening anchors according to the substrate. The appropriate amount of hexagonal nuts and washers are required.

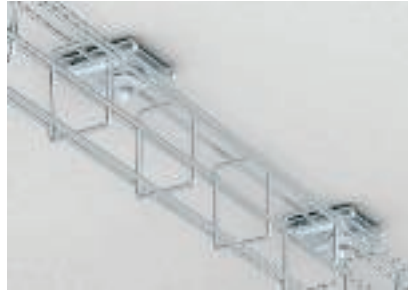




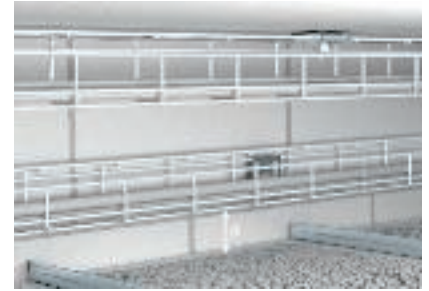
## System description, G mesh cable tray G-GRM



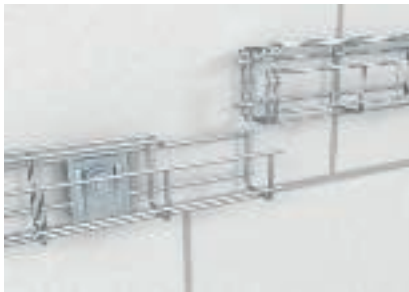
Direct wall and ceiling mounting



Space-saving direct mounting with clamping piece



Required minimum spacing to the fire protection ceiling



Screwless joint connection



Quick and simple insertion of the locking hooks



Securing hook in correct position

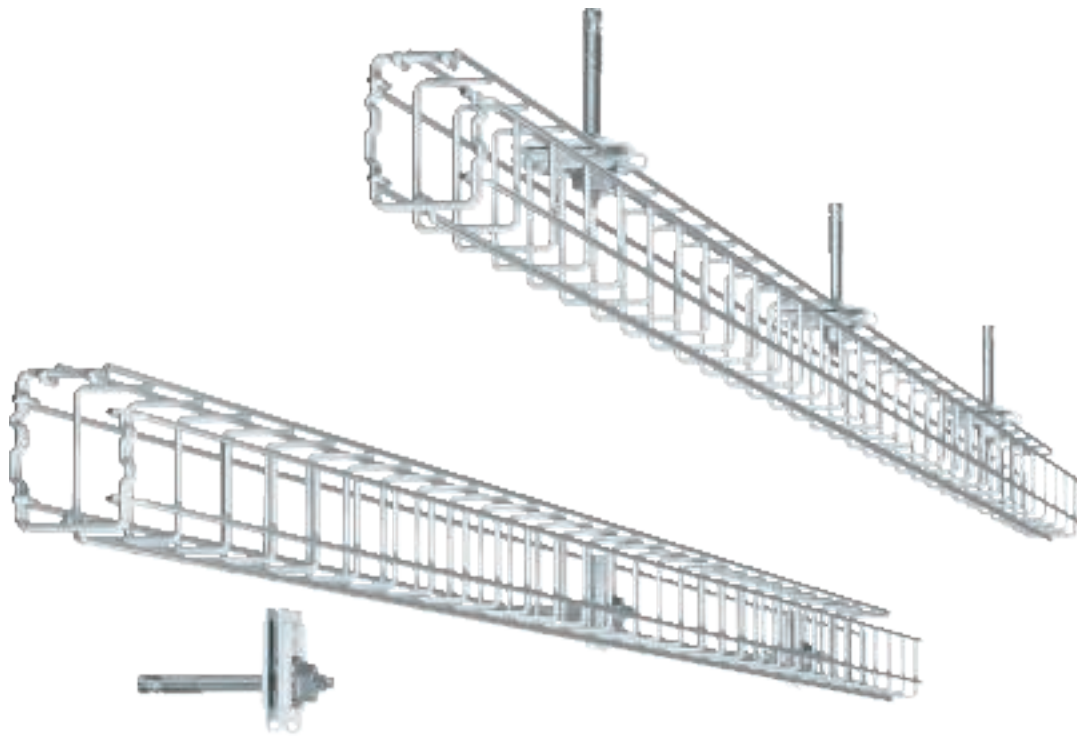
The mechanical stability of the routing system with G-GRM mesh cable trays in case of fire has been proved for fire loads of 30 minutes. The G mesh cable trays can be mounted directly on the wall or under the ceiling. Additional securing hooks must be used to prevent the G mesh cable trays, type G-GRM125 75 and type G-GRM150 100, from opening.

Due to the varying deformations in case of fire, select the G mesh cable trays according to the space available to the false ceiling. These characteristic deformation values of the appropriate G mesh cable trays are documented appropriately.

### System benefits

- Tested routing system
- Horizontal mounting under the ceiling or on the wall
- Space-saving installation variant through the direct fastening
- Full assignment of the G mesh cable trays possible
- Proof of minimum spacing to the fire protection ceiling
- Various dimensions of the G mesh cable tray

## Installation principle, G mesh cable tray G-GRM



Planning aid, escape route installations, false ceiling



### Fire-proof fastenings above fire protection ceilings

<b>Fire load</b>	30 minutes
<b>Testing proof</b>	BET, Menden
<b>Document no.</b>	05130/111114-01
<b>Testing principles</b>	In accordance with DIN 4102

### Carrying capacity under fire load and mounting parameters

Mesh cable tray type	Cable load in kg/m	Max. support width	Distance "a" in mm Ceiling mounting	Distance "a" in mm Wall mounting
<b>G-GRM 50 50</b>	1.5	1.2 m	60	105
<b>G-GRM 75 50</b>	3.0	1.2 m	75	110
<b>G-GRM 125 75</b>	8.5	1.2 m	95	130
<b>G-GRM 150 100</b>	15.0	1.2 m	125	190

#### Caution!

No electrical function maintenance according to DIN 4102 Part 12!





## Planning aid, fire protection ducts



System description, PYROLINE® Rapid	90
Installation principle, PYROLINE® Rapid	91
System description, PYROLINE® Con D	92
Installation principle, PYROLINE® Con D	93
System description, PYROLINE® Con S	94
Installation principle, PYROLINE® Con S	95
System description, PYROLINE® Sun PV	96
Installation principle, PYROLINE® Sun PV	97



## System description, PYROLINE® Rapid Metal fire protection duct for direct and suspended mounting



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 through locking



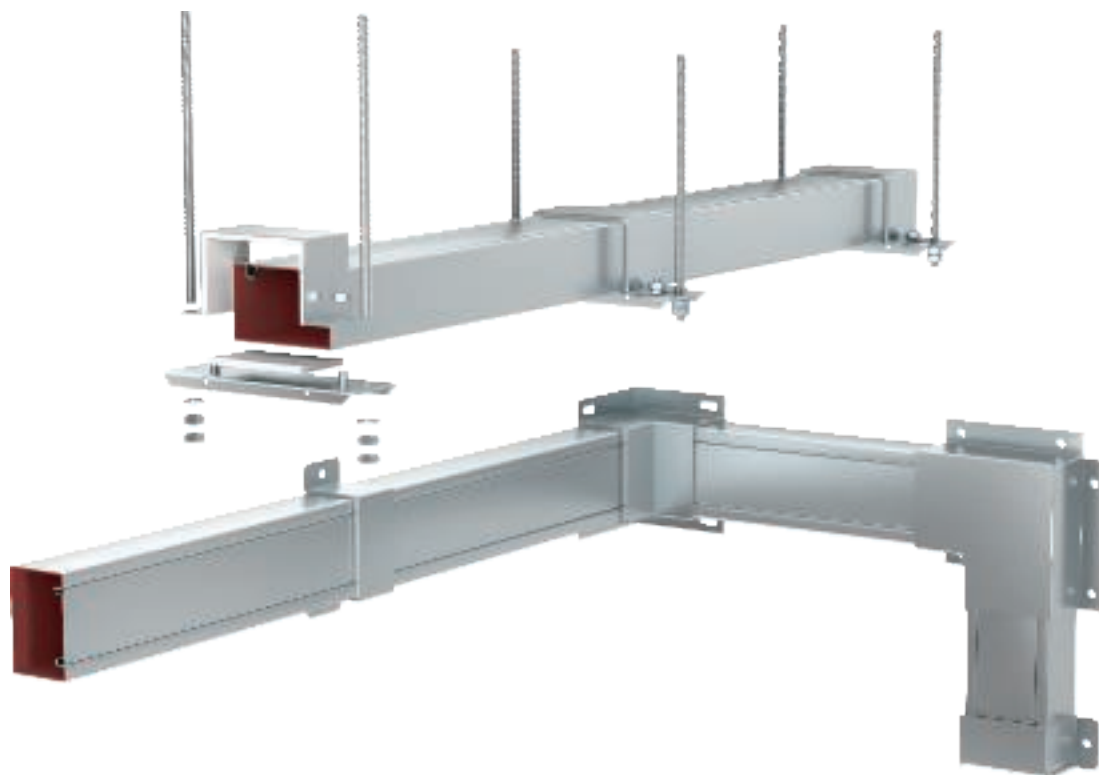
OBO's PYROLINE® Rapid fire protection duct is made from sheet steel with a profiled lid closing contour and an intumescent interior coating. If there is a fire, this provides active fire load encapsulation and safe prevention of the fire spread. This means that the escape and rescue routes remain free from fire and smoke. The PYROLINE® Rapid is tested and approved as an escape route duct for the classes I30 to I120.

The shape matches the standard Rapid 80 cable routing duct and the lids can simply be locked into the base. This also creates the equipotential bonding. The available fittings are mounted with the same connector elements as the section material. The connectors can also be used for suspension. Even overhead mounting is possible, as special brackets keep the cable load away from engaged lids.

### System benefits

- Active fire load encapsulation and safe prevention of fire spread
- Protection of escape routes against cable fire
- Shape factor as with Rapid cable routing duct
- Lid equipotential bonding through locking brackets
- No screw ends in the interior - no risk of cable damage
- No metal workshop required, all components prefabricated
- Flat angle, external and internal corner, vertical bend and end piece fittings available
- Direct wall and ceiling mounting, use on raw floor in system base
- Suspended mounting on the connectors or on lock plates of the fittings
- Suspended fastening distance max. 1 m
- Closure of the wall penetration with mineral wool and plaster filler up to I90 application
- Cable outlets with V-TEC glands made of brass or polyamide up to M50
- Multiple assignment of the glands possible with small cables
- Maximum cable load 30 kg/m

## Installation principle, PYROLINE® Rapid Metal fire protection duct for direct and suspended mounting



I30 I60 I90 I120

### Metal installation duct with intumescent inner coating

<b>Fire resistance class</b>	I30 to I120
<b>Proof of application</b>	General construction test certificate of the NRW Materials' Testing Office, Erwitte
<b>Approval number</b>	P-MPA-E-09-017
<b>Testing standard</b>	DIN 4102 Part 11

The data in the named proofs of applicability apply.

## System description, PYROLINE® Con D Concrete fire protection duct for direct wall and ceiling mounting



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



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 thus hard, smooth and wear-resistant.

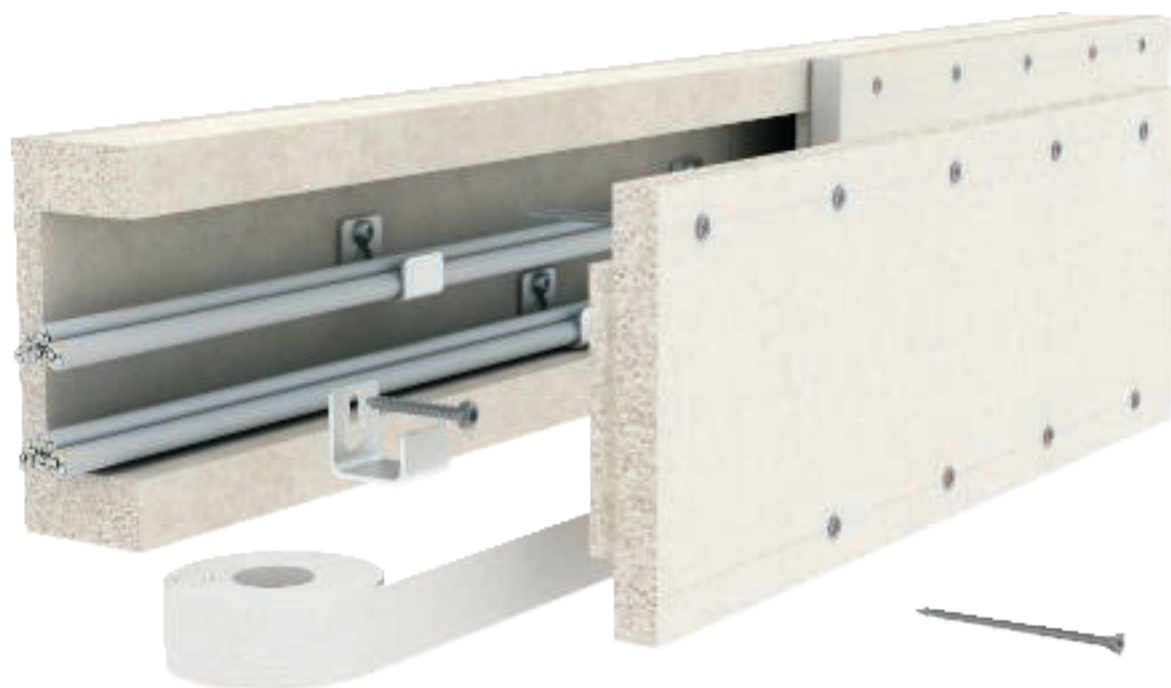
The OBO PYROLINE® Con D is used to protect escape and rescue routes against a possible cable fire. This means that the escape and rescue routes remain free from fire, smoke and heat. As an E duct, it allows function maintenance of the safety-relevant circuits. The fire protection duct can be used for direct mounting on walls and under ceilings. Fittings can be created simply and flexibly on site according to the local circumstances.

### System benefits

- Protection of escape routes against cable fire
- Protects the cables of safety-relevant systems against a fire from outside
- Cable assignment to max. 22.5 kg/m
- Hard, friction-resistant surface
- Painting and papering over the fire protection duct is permitted
- Flexible on-site creation of fittings
- Various dimensions

# Installation principle, PYROLINE® Con D

## Concrete fire protection duct for direct wall and ceiling mounting



**I90** **E30** **I120** **E90**

Planning aid, fire protection ducts

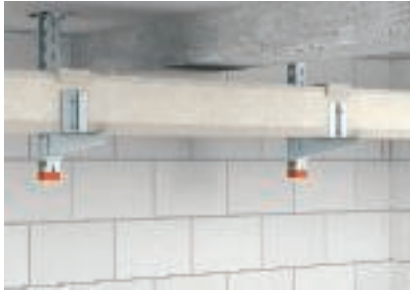


### Installation duct made of fibre-glass reinforced lightweight concrete

<b>Fire resistance class</b>	I90 and I120 Installation in escape routes	E30 and E90 Electrical function maintenance
<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-3108/0988-MPA BS
<b>Testing standard</b>	DIN 4102 Part 11	DIN 4102 Part 12

The data in the named proofs of applicability apply.

## System description, PYROLINE® Con S Concrete fire protection duct for suspended mounting



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



Premounted standard fittings in the section



As with the PYROLINE® Con D, the PYROLINE® Con S fire protection duct consists of fibre-glass light concrete fire protection plates which are resistant to water and frost.

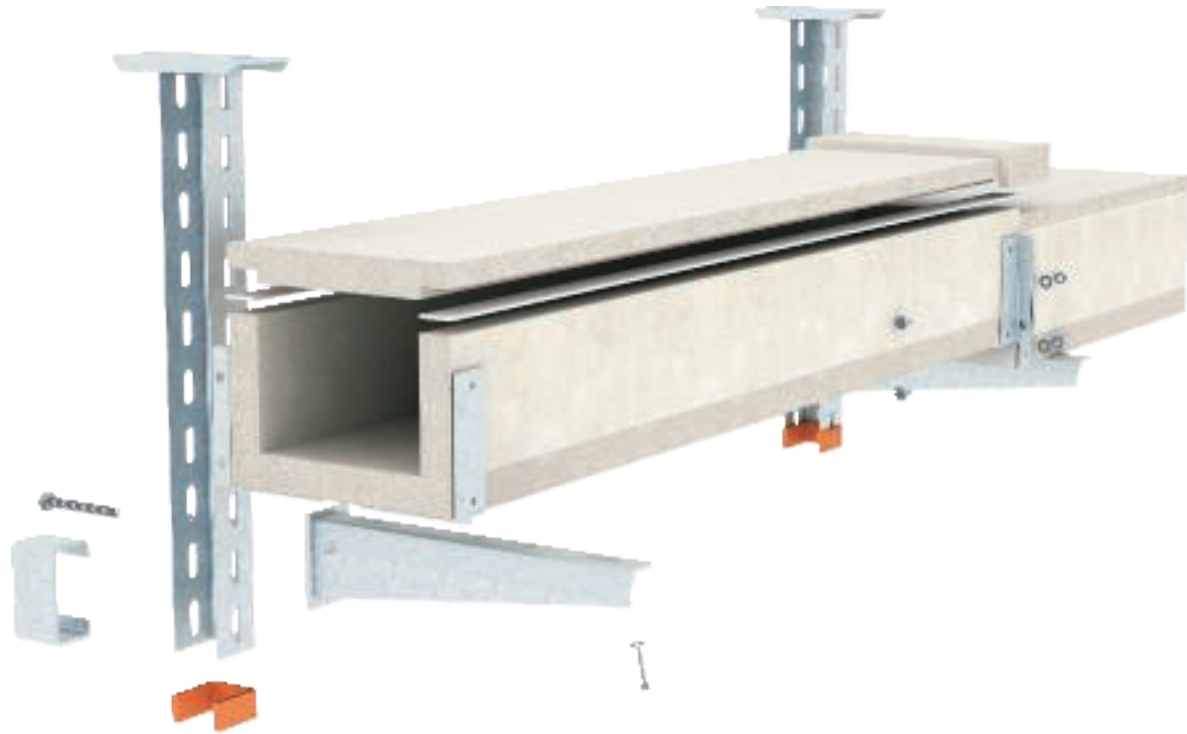
The OBO PYROLINE® Con S is used to protect escape and rescue routes against a possible cable fire. This means that the escape and rescue routes remain free from fire, smoke and heat. As an E duct, it allows function maintenance of the safety-relevant circuits.

The fire protection 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 section in situ, whilst 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.

### System benefits

- Protection of escape routes against cable fire
- Protects the cables of safety-relevant systems against a fire from outside
- Cable assignment to max. 22.5 kg/m
- Hard, friction-resistant surface
- Premounted connection elements
- Fittings for direction changes
- Various dimensions

# Installation principle, PYROLINE® Con S Concrete fire protection duct for suspended mounting



**I90** **E30**

Planning aid, fire protection ducts



## Installation duct made of fibre-glass reinforced lightweight concrete

<b>Fire resistance class</b>	I90 Installation in escape routes	E30 Electrical function maintenance
<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-3108/0988-MPA BS
<b>Testing standard</b>	DIN 4102 Part 11	DIN 4102 Part 12

The data in the named proofs of applicability apply.

## System description, PYROLINE® Sun PV Concrete photovoltaic duct for direct and suspended mounting



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



The PYROLINE® Sun PV fire protection duct is the ideal fire protection duct for fire-proof 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.

The fire protection duct can be installed directly on the wall or under 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 can also be mounted outside the building.

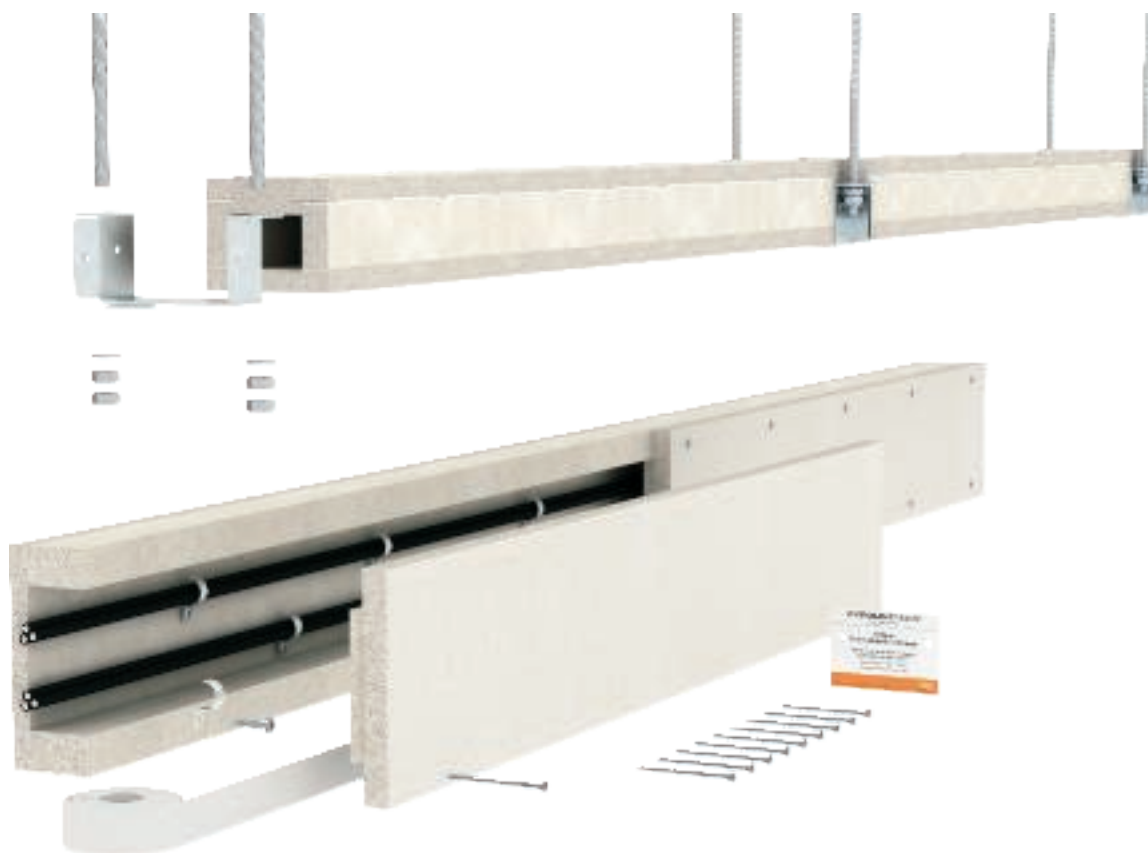
### System benefits

- Protection of escape routes against cable fire
- Protects residents and rescue workers against dangerous contact voltages
- Meets the requirements of the VDE application rule AR 7100
- Non-conductive surface
- Connection elements available for suspended variant
- Fittings can be created flexibly
- Very small external dimensions
- Can be used indoors and outdoors
- Can be painted or papered over, to permit discreet integration in the building



# Installation principle, PYROLINE® Sun PV

## Concrete photovoltaic duct for direct and suspended mounting



I30

Planning aid, fire protection ducts



### Installation duct made of fibre-glass 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 apply.



# Planning aid, cable bandages



System description, FSB-BS cable bandage	100
Installation principle, cable bandage FSB-BS	101
System description, FSB-WB cable bandage	102
Installation principle, cable bandage FSB-WB	103



## System description, FSB-BS cable bandage

### Application in interior areas



Complete encasement of the suspended cable run



Complete encasement of 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



The FSB-BS cable bandage is the ideal solution to prevent fire spread through large cable bundles or cable support systems within the fire sections. 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.

Before mounting FSB-BC cable bandages in emergency and escape routes in existing buildings, obtain the approval of the construction authorities. However, in many cases, this presents the only economic solution compared to fire protection ceilings or panelling with plate materials.

#### System benefits

- Application approval of DIBt
- For horizontal and vertical cable installations
- Prevention of fire spread through foaming fire protection material
- Visually clear distinction between inner and outer sides
- PU-coated mesh - can be wet-wiped
- Large application area

# Installation principle, cable bandage FSB-BS

## Application in interior areas



Planning aid, cable bandages

### Cable jacketing to prevent fire spread

<b>Proof of application</b>	Application approval of DIBt Berlin Material approval of DIBt Berlin
<b>Document no.</b>	Z-56.217-3550 Z-19.11-1892
<b>Prevention of fire spread</b>	min. 90 minutes
<b>Material properties</b>	Exterior grey, interior white Materials class DIN 4102-2: B1 – 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 requires the approval of the construction supervision.

## System description, FSB-WB cable bandage

### Application in industrial areas / outdoors



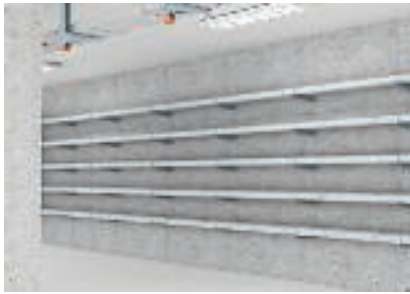
Use of the bandage in aggressive environments, e.g. offshore



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



The FSB-WB bandage is made of weatherproof materials for applications in areas with special ambient conditions. The bandage has construction approval from the DIBt as a highly flame resistant material according to DIN EN 13501-1.

The foaming of the fire protection coating in case of fire safely prevents the spread of a fire via the cables. This can include applications such as cable routing above fire walls on the roof of a building. There is a fire protection survey available especially for this application.

#### System benefits

- Weatherproof
- Resistant to various chemicals and oils
- Material approval according to DIN EN 13501-1
- For horizontal and vertical cable installations
- Prevention of fire spread through foaming fire protection material
- Visually clear distinction between inner and outer sides
- Large application area

# Installation principle, cable bandage FSB-WB

## Application in industrial areas / outdoors



Planning aid, cable bandages



### Cable jacketing to prevent fire spread

<b>Proof of application</b>	IEC test report of the iBMB MPA materials' testing institute, Braunschweig Application approval of Germanischer Lloyd Hamburg Material approval of DIBt Berlin
<b>Document no.</b>	IEC-3630/081/10-AR GL 18 707-11 HH Z-19.11-1971
<b>Prevention of fire spread</b>	min. 120 minutes
<b>Material properties</b>	Exterior grey, interior red Materials class EN 13501-1: B1,do,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.





## Planning aid, function maintenance: cable-specific support structures



Cable tray RKS-Magic®	106
Cable tray RKS-Magic® VA on AHB-T suspension bracket	108
Components used: with RKSM support structures	110
Mesh cable tray GR-Magic®	112
Mesh cable tray GR-Magic® VA on AHB-T	114
Components used: with GRM support structures	116
SL cable ladder	118
Components used: with SL support structures	119



## System description, cable tray RKS-Magic®



One to five-layer ceiling mounting



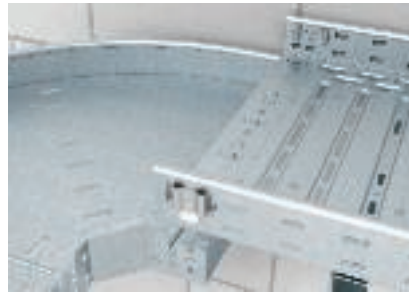
Ceiling suspension with one-sided arrangement of up to 4 brackets



Wall mounting



Connected joint connector, only the base shackles need to be bent



Quick and simple fitting mounting with screwless Magic connection



Separating retainer mounting with truss-head bolts

The RKS-Magic® cable tray has been tested as a cable-specific support construction for electrical function maintenance according to DIN 4102 Part 12 and approved for function maintenance classes E30 to E90.

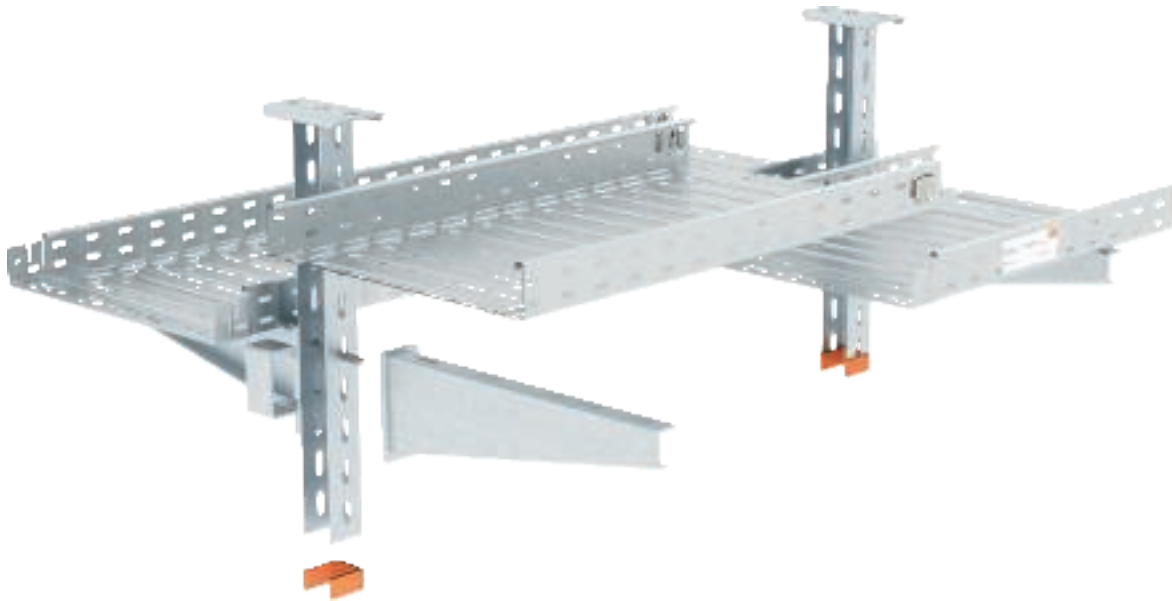
Threaded rod locking is not required at the tip of the bracket. This saves not just material but also considerably simplifies and speeds up the installation of cables. The screwless connection system allows interconnection of the RKS-Magic® cable trays without tools and in a particularly quick and economic manner.

To ensure function maintenance, 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.

### System benefits

- Tested according to DIN 4102, Part 12
- Function maintenance classes E30 and E90
- Multi-layer ceiling mounting (bracket mounting on one and both sides)
- No threaded rod lock required
- Screwless joint connection
- Cable load up to 30 kg/m permitted
- Separating retainer and lid mounting permitted
- Installation of fittings in section permitted

# Installation principle, RKS-Magic® cable tray



E30

E90

## System description

<b>Routing type</b>	Cable-specific support construction
<b>Test certificate no.</b>	P-MPA-E-08-008
<b>Function maintenance classes</b>	E30 to E90
<b>Testing standard</b>	DIN 4102 Part 12
<b>Mounting variant</b>	Wall and ceiling mounting without threaded rod lock

## Approved data

<b>Span, max.</b>	1.5 m
<b>Max. number of layers</b>	5 (unlimited for wall mounting)
<b>Cable weight per layer</b>	20 kg/m to width 300 mm 30 kg/m for width 400 mm
<b>Cable tray width, max.</b>	400 mm

The data in the general construction test certificates of the materials testing office of North Rhine-Westphalia, Erwitte, apply.

## System description, cable tray RKS-Magic® VA On suspension clamp AHB-T



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

The RKS-Magic® cable tray, made of rustproof steel with the AHB-T suspension clamp, has been tested as a cable-specific support construction for electrical function maintenance according to DIN 4102 Part 12 and approved for function maintenance classes E30 to E90. The rustproof steel version permits mounting in areas with more aggressive atmospheres, e.g. in road tunnels.

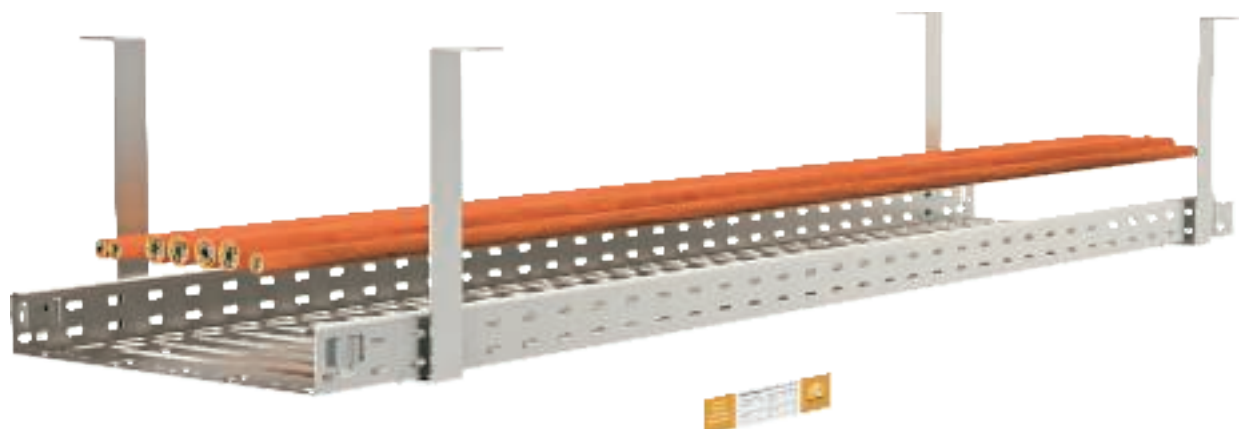
The shape of the suspension clamp, together with the permitted version variants, permits simple, space-saving installation of the cable tray under the ceiling. The benefits of the screwless connection systems of the RKS-Magic® cable trays also apply to this routing type. This makes mounting of RKS-Magic® cable trays, for example in the installation of long sections in increased corrosion protection requirements, an economically viable routing variant.

### System benefits

- Tested according to DIN 4102, Part 12
- Function maintenance classes E30 and E90
- Routing variant made of rust-proof steel, e.g. for road tunnels
- One and two-layer ceiling mounting
- Suspension clamp approved in various versions
- Screwless joint connection thus ideal for long sections
- Maximum approved cable load 30 kg/m
- Separating retainer and lid mounting permitted
- Installation of fittings in section permitted

# Installation principle, RKS-Magic® VA cable tray

## On suspension clamp AHB-T



**E30** **E90**

### System description

<b>Routing type</b>	Cable-specific support construction
<b>Proof of application</b>	General construction test certificate of the NRW Materials' Testing Office, Erwitte
<b>Function maintenance classes</b>	E30 to E90
<b>Testing standard</b>	DIN 4102 Part 12
<b>Mounting variants</b>	Ceiling mounting with VA suspension clamp

### Approved data

<b>Support spacing, max.</b>	1.5 m
<b>Max. number of layers</b>	2
<b>Cable weight per layer</b>	30 kg/m
<b>Cable tray width, max.</b>	300 mm

The data in the named proofs of applicability apply.

Planning aid, function maintenance: cable-specific support structures



## Components used: cable tray RKS-Magic®








Cable-specific routing system for mounting under the raw ceiling with U suspended support, AW bracket without threaded rod locking. Tested and approved with function maintenance cables of the following manufacturers: Dätwyler, Eupen, Leoni Studer, Nexans, Prysmian.

Parameters:

- Span: max. 1.5 m
- Tray width max. 400 mm
- Max. number of layers 5
- Function maintenance classes E30/E90

### Components used

						
<b>Cable tray</b>	RKSM 6... FS	1	2	3	2	3
<b>Truss-head bolt</b>	FRSB 6x 12 F	2	4	6	4	6
<b>US 5 suspended support</b>	US 5 K... FT	1	1	1	1	1
<b>Protective cap</b>	US 5 KS OR	1	1	1	1	1
<b>Wall and support brackets</b>	AW 30 11 and 21 FS	1	2	3	2	3
<b>Wall and support brackets</b>	AW 55 31 and 41 FS	1	2	3	2	3
<b>Hexagonal bolt</b>	SKS 10x 90 F	1	2	3	1	2
<b>Spacer</b>	DSK 45 FT	1	2	3	1	2
<b>Large washer</b>	DIN440 10 F	1	2	3	0	1

Choose the fastening anchors according to the substrate.




Cable-specific routing system for wall mounting with AW bracket without threaded rod locking. Tested and approved with function maintenance cables of the following manufacturers: Dätwyler, Eupen, Leoni Studer, Nexans, Prysmian.

Parameters:

- Span: max. 1.5 m
- Tray width max. 400 mm
- Unlimited number of layers
- Function maintenance classes E30/E90

### Components used

		
<b>Cable tray</b>	RKSM 6... FS	1
<b>Truss-head bolt</b>	FRSB 6x 12 F	2
<b>Wall and support brackets</b>	AW 30 11 and 21 FS	1
<b>Wall and support brackets</b>	AW 55 31 and 41 FS	1

Choose the fastening anchors according to the substrate.

## Components used: cable tray RKS-Magic® VA on AHB-T





Cable-specific routing system, made of stainless steel, for mounting under the raw screed with suspension clamp AHB-T. Tested and approved with function maintenance cables of various manufacturers.

Parameters:

- Span: max. 1.5 m
- Tray width max. 300 mm
- Max. number of layers 2
- Function maintenance classes E30/E90

### Components used

			
<b>Cable tray</b>	RKSM 6... VA4571	1	2
<b>Truss-head bolt</b>	FRS 6x 12 VA4401	2	4
<b>Suspension clamp</b>	AHB-T	1	1
<b>Intermediate clamp</b>	AHB-TZ	0	1
<b>Truss-head bolt</b>	FRSB 6x 16 VA4401	0	2

Choose the fastening anchors according to the substrate. Intermediate clamp AHB-TZ on request



## System description, mesh cable tray GR-Magic®



Ceiling mounting with brackets mounted on one side



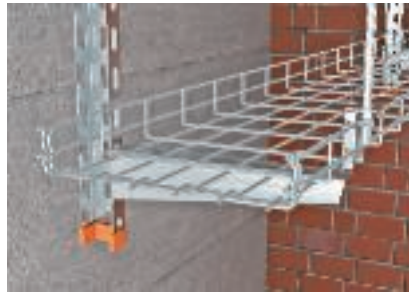
Ceiling mounting with brackets arranged on both sides



Multi-layer wall mounting



Screwless joint connection



Screwless mesh cable tray fastening on the bracket



Screwless fastening of the connection component to the side wires

The GR-Magic® mesh cable tray has been tested as a cable-specific support construction for electrical function maintenance according to DIN 4102 Part 12 and approved for function maintenance classes E30 to E90.

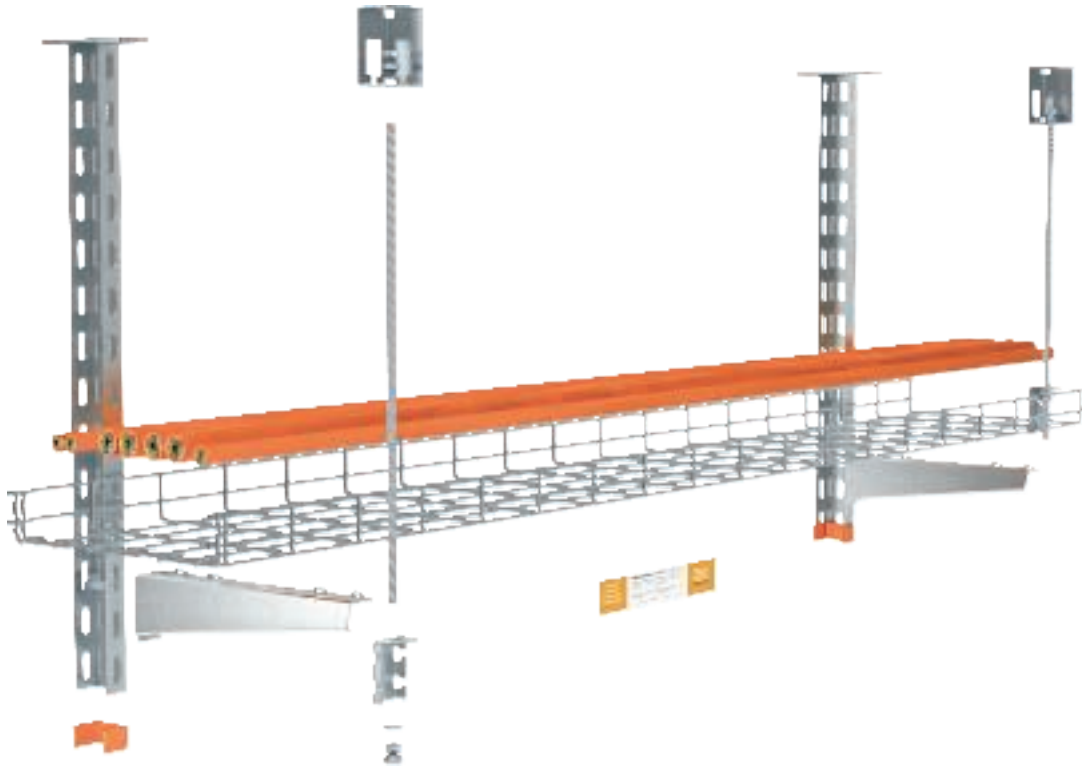
The threaded rod lock is mounted directly on the tray rail, using the ABG connection component. This is just attached to the side lengthwise wires of the mesh cable tray. Mounting the threaded rod secures the component against unintentional release. The screwless connection system of the GR-Magic® mesh cable trays ensures toolless, and thus particularly rapid and economic, mounting.

### System benefits

- Tested according to DIN 4102, Part 12
- Function maintenance classes E30 and E90
- Multi-layer wall and ceiling mounting
- Screwless mesh cable tray mounting on the bracket
- Screwless mounting of the connection component for the threaded rod lock
- Screwless joint connection
- Maximum approved cable load 15 kg/m



# Installation principle, GR-Magic® mesh cable tray



E30

E90

## System description

<b>Routing type</b>	Cable-specific support construction
<b>Proof of application</b>	General construction test certificate of the NRW Materials' Testing Office, Erwitte
<b>Function maintenance classes</b>	E30 to E90
<b>Testing standard</b>	DIN 4102 Part 12
<b>Mounting variants</b>	Wall and ceiling mounting with threaded rod lock

## Approved data

<b>Span, max.</b>	1.2 m
<b>Max. number of layers</b>	3
<b>Cable weight per layer</b>	15 kg/m
<b>Mesh cable tray width, max.</b>	300 mm

The data in the named proofs of applicability apply.



## System description, mesh cable tray GR-Magic® VA on AHB-T



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

The GR-Magic® mesh cable tray, made from rustproof steel, has been tested as a cable-specific support construction for electrical function maintenance according to DIN 4102 Part 12 and approved for function maintenance classes E30 to E90. The rustproof steel version permits mounting in areas with more aggressive ambient conditions.

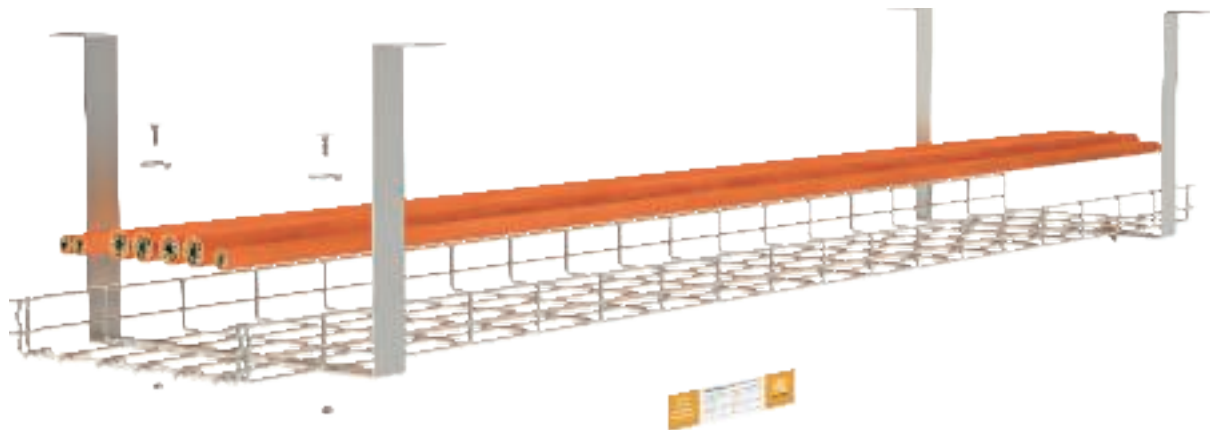
The shape of the suspension clamp, together with the permitted version variants, permits simple, space-saving installation of the mesh cable tray under the ceiling. The benefits of the screwless connection systems of the GR-Magic® mesh cable trays also apply to this routing type. This makes mounting of mesh cable trays, for example in the installation of long sections in increased corrosion protection requirements, an economically viable routing variant.

### System benefits

- Tested according to DIN 4102, Part 12
- Function maintenance classes E30 and E90
- Routing variant made of rust-proof steel
- One and two-layer ceiling mounting
- Suspension clamp approved in various versions
- Screwless joint connection thus ideal for long sections
- Maximum approved cable load 20 kg/m
- Separating retainer and lid mounting permitted



# Installation principle, GR-Magic® VA mesh cable tray to AHB-T



E30

E90

## System description

<b>Routing type</b>	Cable-specific support construction
<b>Proof of application</b>	General construction test certificate of the NRW Materials' Testing Office, Erwitte
<b>Function maintenance classes</b>	E30 to E90
<b>Testing standard</b>	DIN 4102 Part 12
<b>Mounting variants</b>	Ceiling mounting with VA suspension clamp

## Approved data

<b>Support spacing, max.</b>	1.5 m
<b>Max. number of layers</b>	2
<b>Cable weight per layer</b>	20 kg/m
<b>Mesh cable tray width, max.</b>	300 mm

The data in the named proofs of applicability apply.



## Components used: mesh cable tray GR-Magic®








Cable-specific routing system for mounting under the raw ceiling with U suspended support, AWG bracket and threaded rod locking. Tested and approved with function maintenance cables of various manufacturers.

Parameters:

- Span: max. 1.2 m
- Tray width max. 300 mm
- Max. number of layers 3
- Function maintenance classes E30/E90

### Components used

						
<b>Mesh cable tray</b>	GRM 55 ... G	1	2	3	2	3
<b>US 3 suspended support</b>	US 3 K... FT	1	1	1	1	1
<b>Protective cap</b>	US 3 KS OR	1	1	1	1	1
<b>Wall and support brackets</b>	AWG 15 ... FT	1	2	3	2	3
<b>Truss-head bolt</b>	FRS 10x 25 F	1	2	3	2	3
<b>Connection component</b>	ABG FT	1	2	3	2	3
<b>Threaded rod</b>	2078 M10 1m G	1	2	0	2	3
<b>Threaded rod</b>	2078 M12 1m G	0	0	3	0	0
<b>Connection sleeve</b>	12005 M10 G	0	1	0	0	1
<b>Connection sleeve</b>	12005 M12 G	0	0	2	0	0
<b>Fire protection clamp*</b>	BSB FT	1	1	1	2	2

\* Alternatively, direct with internal thread anchor. Choose the fastening anchors according to the substrate. The appropriate amount of hexagonal nuts and washers are required.






Cable-specific routing system for wall mounting with AWG bracket and threaded rod locking. Tested and approved with function maintenance cables of various manufacturers.

Parameters:

- Span: max. 1.2 m
- Tray width max. 300 mm
- Max. number of layers 3
- Function maintenance classes E30/E90

### Components used

				
<b>Mesh cable tray</b>	GRM 55 ... G	1	2	3
<b>Wall and support brackets</b>	AWG 15 ... FT	1	2	3
<b>Connection component</b>	ABG FT	1	2	3
<b>Threaded rod</b>	2078 M10 1m G	1	2	0
<b>Threaded rod</b>	2078 M12 1m G	0	0	3
<b>Connection sleeve</b>	12005 M10 G	0	1	0
<b>Connection sleeve</b>	12005 M12 G	0	0	2
<b>Fire protection clamp*</b>	BSB FT	1	1	1

\* Alternatively, direct with internal thread anchor. Choose the fastening anchors according to the substrate. The appropriate amount of hexagonal nuts and washers are required.

## Components used: mesh cable tray GR-Magic® VA on AHB-T





Cable-specific routing system, made of stainless steel, for mounting under the raw screed with suspension clamp AHB-T. Tested and approved with function maintenance cables of various manufacturers.

Parameters:

- Span: max. 1.5 m
- Tray width max. 300 mm
- Max. number of layers 2
- Function maintenance classes E30/E90

### Components used

			
<b>Mesh cable tray</b>	GRM 55 ... VA4401	1	2
<b>Clamping piece</b>	GKS 34 VA4401	2	4
<b>Suspension clamp</b>	AHB-T	1	1
<b>Intermediate clamp</b>	AHB-TZ	0	1
<b>Truss-head bolt</b>	FRSB 6x 16 VA4401	0	2

Choose the fastening anchors according to the substrate. Intermediate clamp AHB-TZ on request



## System description, cable ladder SL



Ceiling mounting with bracket arrangement on one side



Ceiling mounting with bracket arrangement on both sides



Wall mounting with vertical threaded rod locking



Bracket mounting with spacer and hexagonal bolt



Connection component at a spacing of max. 100 mm next to the bracket



Threaded rod mounting for multi-layer route arrangement

The cable-specific routing variant with type SL cable ladders and U suspended supports fulfils the requirements of DIN 4102 Part 12 for function maintenance classes E30 and E90. This routing variant permits mounting parameters which extend beyond the maximum values of the standard support structures with cable ladders.

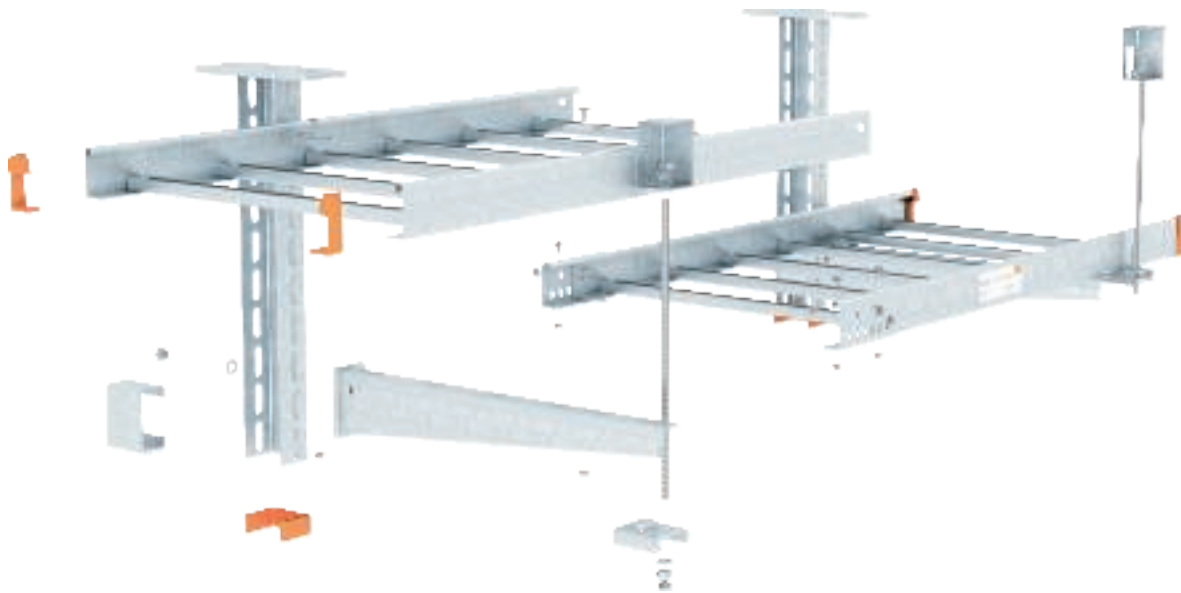
The threaded rod lock is mounted directly beside the bracket on the ladder rail, using the ABL connection component. This is simply attached to the underbelt of the ladder rail, with no need to screw it on. When the threaded rod has been mounted, the connection component is secured against unintentional release.

The position of the joints between the brackets can be chosen freely. The external connectors used are placed over the rails of the cable ladders and screwed on appropriately.

### System benefits

- Tested according to DIN 4102, Part 12
- Function maintenance classes E30 and E90
- Multi-layer wall and ceiling mounting (bracket mounting on one and both sides)
- Span: max. 1.5 m
- Cable load: max. 20 kg/m
- Width of the cable ladders: max. 500 mm

# Installation principle, SL cable ladder



E30

E90

## System description

<b>Routing type</b>	Cable-specific support construction
<b>Function maintenance classes</b>	E30 to E90
<b>Testing standard</b>	DIN 4102 Part 12
<b>Mounting variant</b>	Wall and ceiling mounting with threaded rod lock

## Approved data

<b>Span, max.</b>	1.5 m
<b>Max. number of layers</b>	3
<b>Cable weight per layer</b>	20 kg/m
<b>Cable ladder width, max.</b>	500 mm

The data in the general construction test certificates apply.

## Components used: cable ladder SL








Cable-specific routing system for mounting under the raw ceiling with U suspended support, AW bracket and threaded rod locking. Tested and approved with function maintenance cables of various manufacturers.

Parameters:

- Span: max. 1.5 m
- Ladder width max. 500 mm
- Max. number of layers 3
- Function maintenance classes E30/E90

### Components used

						
<b>Cable ladder</b>	SL 6... VSF F	1	2	3	2	3
<b>External connector</b>	AVL 60 FS	2	4	6	4	6
<b>Clamping piece</b>	LKS 40 FS	2	4	6	4	6
<b>US 5 suspended support</b>	US 5 K... FT	1	1	1	1	1
<b>Protective cap</b>	US 5 KS OR	1	1	1	1	1
<b>Wall and support brackets</b>	AW 30 ... FT	1	2	3	2	3
<b>Hexagonal bolt</b>	SKS 10x 90 F	1	2	3	1	2
<b>Spacer</b>	DSK 45 FT	1	2	3	1	2
<b>Connection component</b>	ABL FT	1	2	3	1	2
<b>Threaded rod</b>	2078 M10 1m G	1	0	0	2	0
<b>Threaded rod</b>	2078 M12 1m G	0	2	3	0	3
<b>Connection sleeve</b>	12005 M10 G	0	0	0	0	0
<b>Connection sleeve</b>	12005 M12 G	0	1	1	0	1
<b>Fire protection clamp*</b>	BSB FT	1	1	2	2	2

\* Alternatively, direct with internal thread anchor. Choose the fastening anchors according to the substrate. The appropriate amount of hexagonal nuts and washers are required.






Cable-specific routing system for wall mounting with AW bracket and threaded rod locking. Tested and approved with function maintenance cables of various manufacturers.

Parameters:

- Span: max. 1.5 m
- Tray width max. 500 mm
- Max. number of layers 3
- Function maintenance classes E30/E90

### Components used

				
<b>Cable ladder</b>	SL 6... VSF F	1	2	3
<b>External connector</b>	AVL 60 FS	2	4	6
<b>Clamping piece</b>	LKS 40 FS	2	4	6
<b>Wall and support brackets</b>	AW 30 ... FT	1	2	3
<b>Connection component</b>	ABL FT	1	2	3
<b>Threaded rod</b>	2078 M10 1m G	1	0	0
<b>Threaded rod</b>	2078 M12 1m G	0	2	3
<b>Connection sleeve</b>	12005 M12 G	0	1	1
<b>Fire protection clamp*</b>	BSB FT	1	1	2

\* Alternatively, direct with internal thread anchor. Choose the fastening anchors according to the substrate. The appropriate amount of hexagonal nuts and washers are required.







## Planning aid, function maintenance: standard support structures



SKS cable tray with U suspended support	124
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Components used: SKS support structures	130
LG cable ladder with U suspended support	132
LG cable ladder with U transverse profile	134
LG cable ladder, wall mounting	136
Components used: LG support structures	138

## System description, cable tray SKS, with U suspended support



Ceiling suspension with bracket arrangement on one side



Ceiling suspension with bracket arrangement on both sides



Mounting of two cable trays jointly on one bracket



Mounting under sloping ceiling with variable head plate



Bracket mounting on suspended support with truss-head bolt



Threaded rod fastening on the tray with multi-layer arrangement

The routing type "Cable trays, type SKS, on U suspended supports under the ceiling" fulfils all the requirements of DIN 4102 Part 12 as a standard support structure for function maintenance classes E30 to E90.

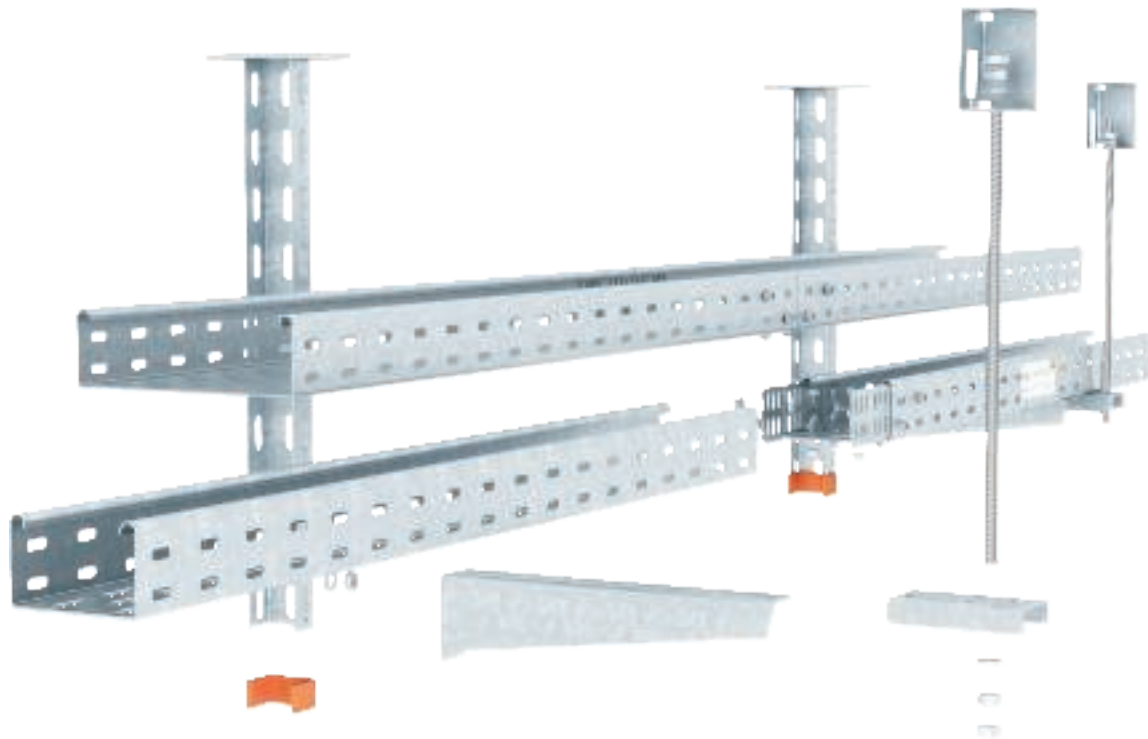
The cable trays can be mounted on the U suspended support on one or both sides with up to 6 layers. The threaded rod lock is fastened with a maximum spacing of 100 mm beside the bracket. For this, the ABR connection component should be screwed under the tray base.

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.

### System benefits

- Standard support structure to DIN 4102 Part 12
- Function maintenance classes E30 and E90
- Free choice of cables
- Multi-layer section mounting (on one or both sides)
- Mounting of two cable trays permitted on one bracket
- Lightweight components
- Mounting of the bracket on the suspended support without spacer
- Free joint positioning
- Threaded rod mounting under the ceiling with fire protection clamp or internal thread anchor

# Installation principle, SKS cable tray with U suspension support



E30

E90

## System description

<b>Routing type</b>	Standard support system
<b>Surveyor's comments no.</b>	3038/625/11-2 - CM
<b>Function maintenance classes</b>	E30 to E90
<b>Testing standard</b>	DIN 4102 Part 12
<b>Mounting variant</b>	Ceiling mounting with U suspended support and threaded rod lock

## Approved data

<b>Span, max.</b>	1.2 m
<b>Max. number of layers</b>	3 (6 for 1 tray per bracket)
<b>Cable weight per layer</b>	10 kg/m
<b>Cable tray width, max.</b>	300 mm
<b>Max. cable trays per bracket</b>	2
<b>Max. total width</b>	500 mm

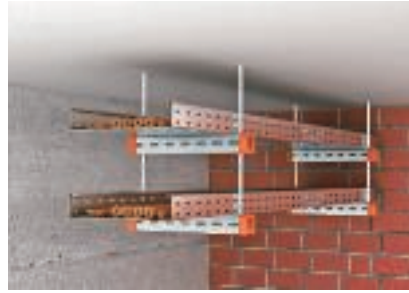
The data of the surveyor's comments, together with a valid, general construction test certificate of a materials testing institute for the cable type to be used, apply.



## System description, cable tray SKS, with U transverse profile



Single-layer ceiling suspension



Two-layer ceiling suspension



Threaded rod mounting with hexagonal nuts and large washers

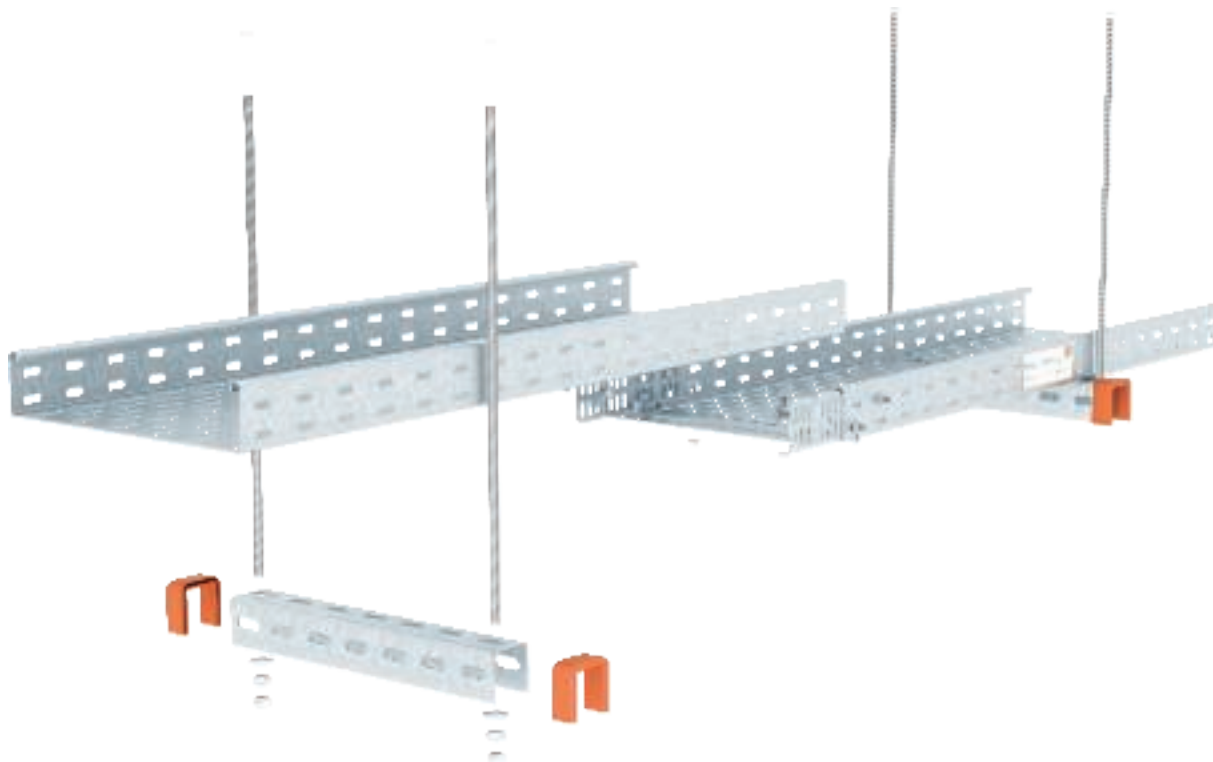
The routing type "Cable trays, type SKS, on U transverse profiles under the ceiling" fulfils all the requirements of DIN 4102 Part 12 as a standard support structure for function maintenance classes E30 to E90.

This routing variant is a particularly space-saving routing type: the construction height of the transverse profile is just 30 mm. Versions with one or two-layer mounting variants are approved. The position of the joints between the individual support points can be chosen freely. Connectors are screwed into the side rails and an additional joint plate to the base, in order to interconnect the cable trays.

### System benefits

- Standard support structure to DIN 4102 Part 12
- Function maintenance classes E30 and E90
- Free choice of cables
- One and two-layer section mounting permitted
- Low construction height of the U transverse profile
- Space-saving ceiling fastening
- Free joint positioning

## Installation principle, SKS cable tray with U transverse profile



E30

E90

### System description

<b>Routing type</b>	Standard support system
<b>Surveyor's comments no.</b>	3038/625/11-2 - CM
<b>Function maintenance classes</b>	E30 to E90
<b>Testing standard</b>	DIN 4102 Part 12
<b>Mounting variant</b>	Ceiling mounting with U cross-section

### Approved data

<b>Span, max.</b>	1.2 m
<b>Max. number of layers</b>	1
<b>Cable weight per layer</b>	10 kg/m
<b>Cable tray width, max.</b>	300 mm
<b>Max. cable trays per bracket</b>	2
<b>Max. total width</b>	400 mm

The data of the surveyor's comments, together with a valid, general construction test certificate of a materials testing institute for the cable type to be used, apply.



## System description, cable tray SKS, wall mounting



Wall mounting, multi-layer, with vertical threaded rod locking



Wall mounting with diagonal threaded rod locking



Ceiling fastening of the threaded rods with internal thread clamps



Mounting of the brackets and the connection components on the wall



Fastening of the sloping connection component

The routing type "Cable trays, type SKS, with wall brackets on the wall" fulfils all the requirements of DIN 4102 Part 12 as a standard support structure for the function maintenance classes E30 to E90.

When the cable trays are mounted on the wall, up to three 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.

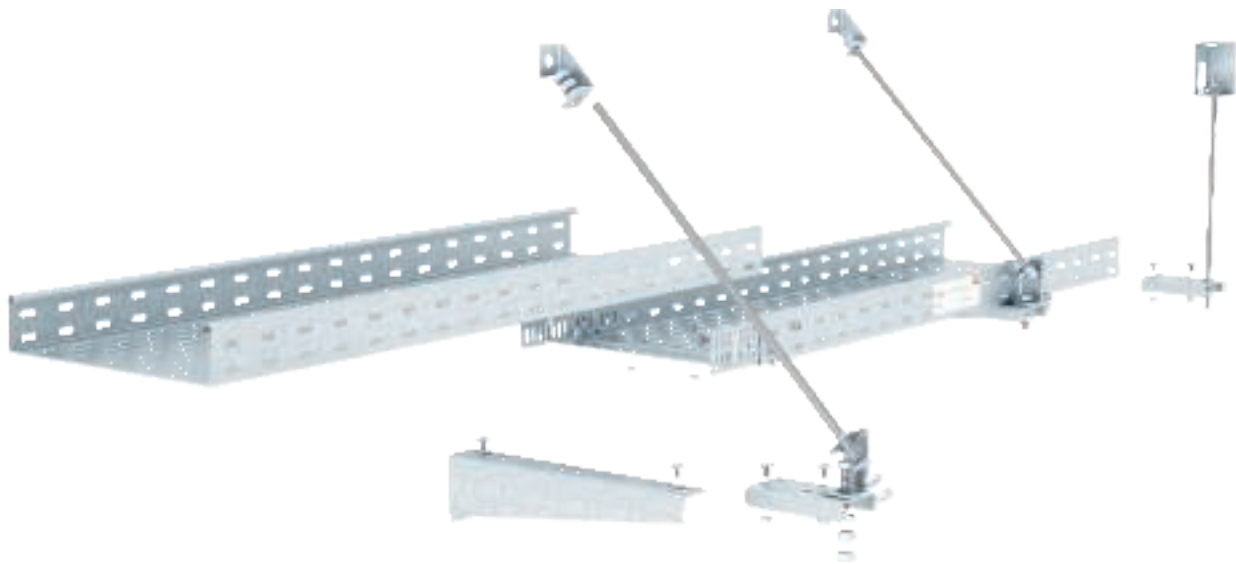
Joints can be positioned freely between the individual support points. Connectors are screwed into the side rails and an additional joint plate to the base, in order to connect the cable trays.

### System benefits

- Standard support structure to DIN 4102 Part 12
- Function maintenance classes E30 and E90
- Free choice of cables
- Multi-layer section mounting with vertical threaded rod locking
- Single-layer section mounting with sloping threaded rod locking
- Light-duty bracket
- Free joint positioning



## Installation principle, SKS cable tray, wall mounting



E30

E90

### System description

<b>Routing type</b>	Standard support system
<b>Surveyor's comments no.</b>	3038/625/11-2 - CM
<b>Function maintenance classes</b>	E30 to E90
<b>Testing standard</b>	DIN 4102 Part 12
<b>Mounting variant</b>	Wall mounting with threaded rod locking

### Approved data

<b>Span, max.</b>	1.2 m
<b>Max. number of layers</b>	3
<b>Cable weight per layer</b>	10 kg/m
<b>Cable tray width, max.</b>	300 mm
<b>Max. cable trays per bracket</b>	2
<b>Max. total width</b>	500 mm

The data of the surveyor's comments, together with a valid, general construction test certificate of a materials testing institute for the cable type to be used, apply.



## Components used: cable tray SKS, ceiling mounting








Standard support construction for mounting under the raw ceiling with U suspended support and MWA bracket and threaded rod locking. Tested and approved with function maintenance cables of all manufacturers in conjunction with a valid test certificate.

Parameters:

- Span: max. 1.2 m
- Tray width max. 300 mm
- Max. number of layers 6
- Max. cable load 10 kg/m per tray
- Function maintenance classes E30/E90

### Components used

						
<b>Cable tray</b>	SKS 6... FS	1	2	3	2	3
<b>Connector</b>	RWVL 60 FS	2	4	6	4	6
<b>Joint plate</b>	SSLB... FS	1	2	3	2	3
<b>Truss-head bolt</b>	FRSB 6x12 F	2	4	6	4	6
<b>US 3 suspended support</b>	US 3 K ... FT	1	1	1	1	1
<b>Protective cap</b>	US 3 KS OR	1	1	1	1	1
<b>Wall and support brackets</b>	MWA 12 ... FS	1	2	3	2	3
<b>Connection component</b>	ABR FT	1	2	3	2	3
<b>Threaded rod</b>	2078 M10 1m G	1	2	3	2	3
<b>Connection sleeve</b>	12005 M10 G	0	1	2	0	1
<b>Fire protection clamp*</b>	BSB FT	1	1	1	2	2

\* Alternatively, direct with internal thread anchor. Choose the fastening anchors according to the substrate. The appropriate amount of hexagonal nuts and washers are required.





Standard support structure for mounting under the raw ceiling on U transverse profile with threaded rod pendulum suspension. Tested and approved with function maintenance cables of all manufacturers in conjunction with a valid test certificate.

Parameters:

- Span: max. 1.2 m
- Tray width max. 300 mm
- Max. number of layers 2
- Max. cable load 10 kg/m per tray
- Function maintenance classes E30/E90

### Components used

			
<b>Cable tray</b>	SKS 6... FS	1	2
<b>Connector</b>	RWVL 60 FS	2	4
<b>Joint plate</b>	SSLB ... FS	1	2
<b>Truss-head bolt</b>	FRSB 6x20 F	2	4
<b>Large washer</b>	DIN440 7 F	2	4
<b>US 3 support</b>	US 3 ... FT	1	2
<b>Protective cap</b>	US 3 KS OR	2	4
<b>Threaded rod</b>	2078 M10 1m G	2	4
<b>Connection sleeve</b>	12005 M10 G	0	2

Choose the fastening anchors according to the substrate. The appropriate amount of hexagonal nuts and washers are required.



## Components used: cable tray SKS, wall mounting






Standard support construction for wall mounting with MWA bracket and threaded rod locking vertically to the ceiling. Tested and approved with function maintenance cables of all manufacturers in conjunction with a valid test certificate.

Parameters:

- Span: max. 1.2 m
- Tray width max. 300 mm
- Max. number of layers 2
- Max. cable load 10 kg/m per tray
- Function maintenance classes E30/E90

### Components used

				
<b>Cable tray</b>	SKS 6... FS	1	2	3
<b>Connector</b>	RWVL 60 FS	2	4	6
<b>Joint plate</b>	SSLB ... FS	1	2	3
<b>Truss-head bolt</b>	FRSB 6x12 F	2	4	6
<b>Wall and support brackets</b>	MWA 12 ... FS	1	2	3
<b>Connection component</b>	ABR FT	1	2	3
<b>Threaded rod</b>	2078 M10 1m G	1	2	3
<b>Connection sleeve</b>	12005 M10 G	0	1	2
<b>Fire protection clamp*</b>	BSB FT	1	1	1

\* Alternatively, direct with internal thread anchor. Choose the fastening anchors according to the substrate. The appropriate amount of hexagonal nuts and washers are required.




Standard support construction for wall mounting with MWA bracket and threaded rod locking diagonally to the wall. Tested and approved with function maintenance cables of all manufacturers in conjunction with a valid test certificate.

Parameters:

- Span: max. 1.2 m
- Tray width max. 300 mm
- Max. number of layers 1
- Max. cable load 10 kg/m per tray
- Function maintenance classes E30/E90

### Components used

		
<b>Cable tray</b>	SKS 6... FS	1
<b>Connector</b>	RWVL 60 FS	2
<b>Joint plate</b>	SSLB ... FS	1
<b>Truss-head bolt</b>	FRSB 6x12 F	2
<b>Wall and support brackets</b>	MWA 12 ... FS	1
<b>Connection component</b>	ABR FT	1
<b>Connection component, sloping</b>	ABS FS	2
<b>Hexagonal bolt</b>	SKS M10x40 F	1
<b>Threaded rod</b>	2078 M10 1m G	1

Choose the fastening anchors according to the substrate. The appropriate amount of hexagonal nuts and washers are required.



## System description, cable ladder LG-VS/F, with U suspended support



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 underbelt of the ladder rail



Attachment of the threaded rod in the fire protection clamp

Planning aid, function maintenance: standard support structures

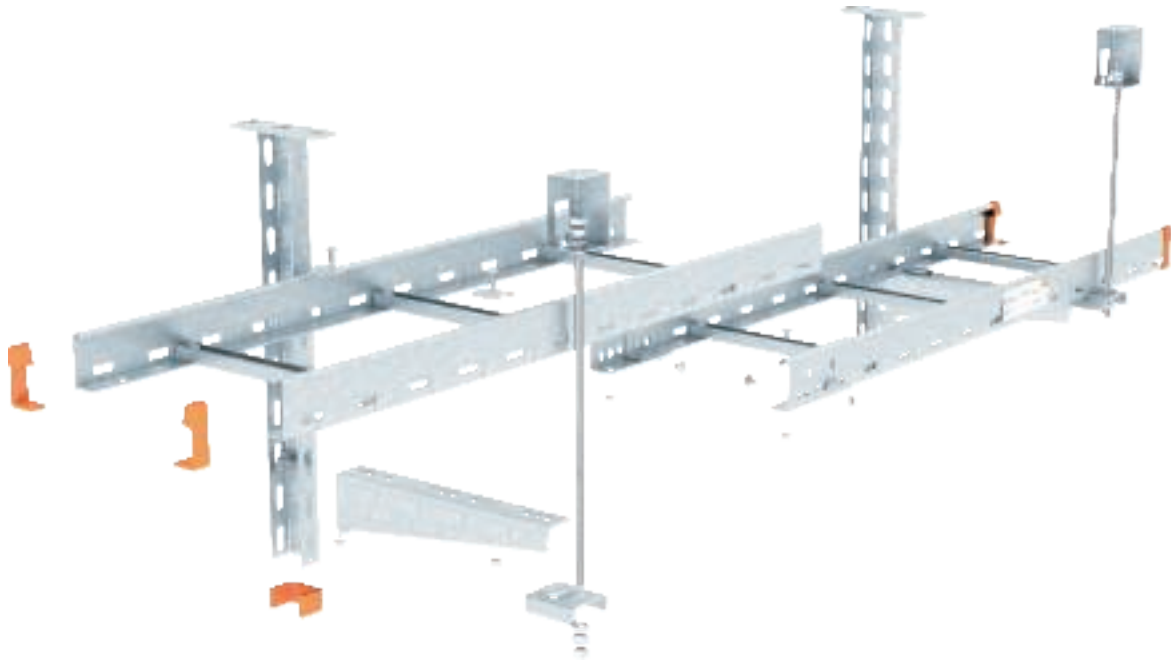
The routing type "Cable ladders, type LG, with U suspended supports under the ceiling" fulfils all the requirements of DIN 4102 Part 12 as a standard support structure.

The cable ladders can be mounted on the U suspended support on one or both sides with up to 3 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 underbelt of the ladder rail. Mounting of the threaded rod secures the connection component against slipping. The rung spacing in the cable ladder is 150 mm. Therefore, no additional run support plates are required. The position of the joints between the individual support points can be chosen freely.

### System benefits

- Standard support structure to DIN 4102 Part 12
- Function maintenance classes E30 and E90
- Free choice of cables
- Multi-layer section mounting (on one or both sides)
- Lightweight components
- Mounting of the bracket on the suspended support without spacer
- Screwless mounting of the connection component to the ladder rail
- No additional run support plates required
- Free joint positioning
- Threaded rod mounting under the ceiling with fire protection clamp or internal thread anchor

# Installation principle, LG-VS/F cable ladder with U suspended support



E30

E90

## System description

<b>Routing type</b>	Standard support system
<b>Surveyor's comments no.</b>	3917/4635-1-Mu
<b>Function maintenance classes</b>	E30 to E90
<b>Testing standard</b>	DIN 4102 Part 12
<b>Mounting variant</b>	Ceiling mounting with U suspended support and threaded rod lock

## Approved data

<b>Span, max.</b>	1.2 m
<b>Max. number of layers</b>	3
<b>Cable weight per layer</b>	20 kg/m
<b>Cable ladder width, max.</b>	400 mm

The data of the surveyor's comments, together with a valid, general construction test certificate of a materials testing institute for the cable type to be used, apply.



## System description, cable ladder LG-VS/F, with U transverse profile



Single-layer ceiling suspension



Two-layer ceiling suspension



Threaded rod mounting with hexagonal nuts and large washers



Mounting on transverse profile with clamping piece, truss-head bolts and large washers

Planning aid, function maintenance: standard support structures

The routing type "Cable ladders, type LG, with U cross-sections mounted under the ceiling" fulfils all the requirements of DIN 4102 Part 12 as a standard support structure for function maintenance classes E30 to E90.

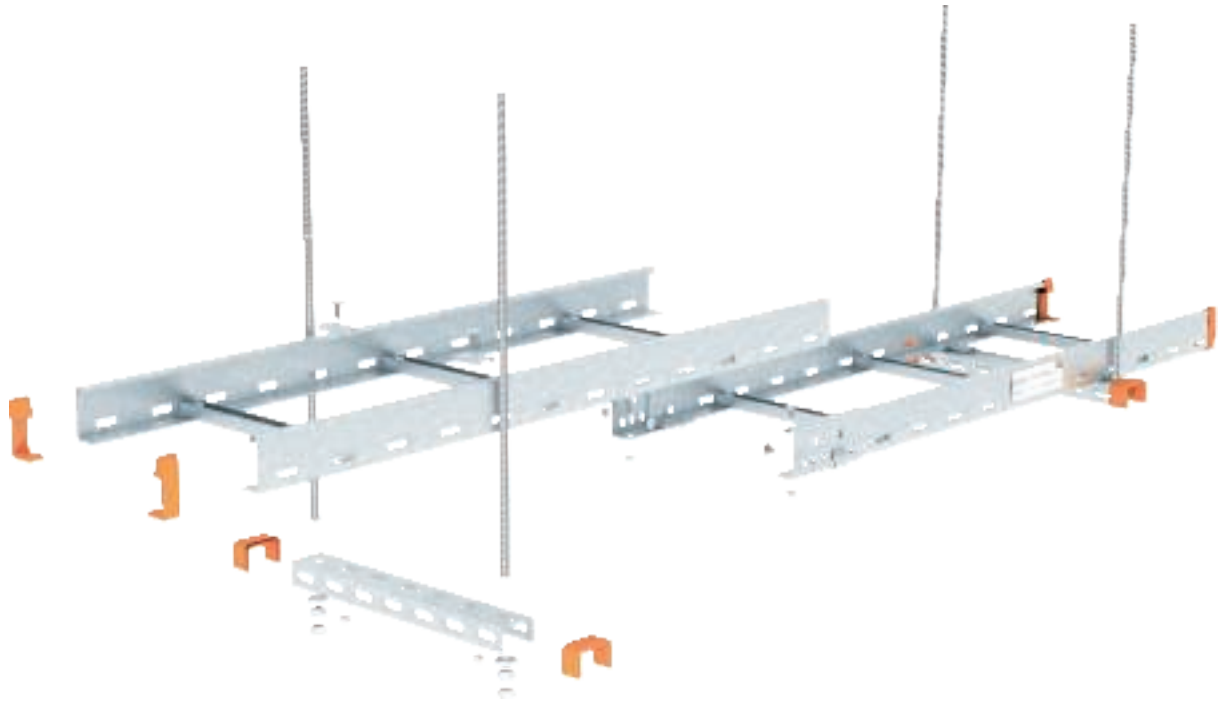
The threaded rod suspension from the ceiling on both sides and the low construction height of the cross-section, just 30 mm, means that this routing type saves a lot of space. Versions with one or two-layer mounting variants are approved. The rung distance of just 150 mm means that there is no necessity for additional mounting of rung support plates.

The joints of the ladder rails are connected using external connectors, which are screwed to the rails. The position of the joints between the cross-sections can be chosen freely.

### System benefits

- Standard support structure to DIN 4102 Part 12
- Function maintenance classes E30 and E90
- Free choice of cables
- One and two-layer section mounting permitted
- Low construction height of the U transverse profile
- Space-saving ceiling fastening
- Free joint positioning
- No additional run support plates required

# Installation principle, LG-VS/F cable ladder with U transverse profile



**E30** **E90**

## System description

<b>Routing type</b>	Standard support system
<b>Surveyor's comments no.</b>	3917/4635-1-Mu
<b>Function maintenance classes</b>	E30 to E90
<b>Testing standard</b>	DIN 4102 Part 12
<b>Mounting variant</b>	Ceiling mounting with U cross-section

## Approved data

<b>Span, max.</b>	1.2 m
<b>Max. number of layers</b>	1
<b>Cable weight per layer</b>	20 kg/m
<b>Cable ladder width, max.</b>	400 mm

The data of the surveyor's comments, together with a valid, general construction test certificate of a materials testing institute for the cable type to be used, apply.



## System description, cable ladder LG-VS/F, wall mounting



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



Fastening of the vertical threaded rod on the connection component



Diagonal mounting of the connection component using hexagonal bolt and hexagonal nuts

The routing type "Cable ladders, 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 3 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 underbelt 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 a angle of 45° to the wall.

### System benefits

- Standard support structure to DIN 4102 Part 12
- Function maintenance classes E30 and E90
- Free choice of cables
- Multi-layer section mounting with vertical threaded rod locking
- Single-layer section mounting with sloping threaded rod locking
- Light-duty bracket
- Screwless mounting of the connection component to the ladder rail
- No additional run support plates required
- Free joint positioning





## Installation principle, LG-VS/F cable ladder, wall mounting



E30

E90

### System description

<b>Routing type</b>	Standard support system
<b>Surveyor's comments no.</b>	3917/4635-1-Mu
<b>Function maintenance classes</b>	E30 to E90
<b>Testing standard</b>	DIN 4102 Part 12
<b>Mounting variant</b>	Wall mounting with threaded rod locking

### Approved data

<b>Span, max.</b>	1.2 m
<b>Max. number of layers</b>	3
<b>Cable weight per layer</b>	20 kg/m
<b>Cable ladder width, max.</b>	400 mm

The data of the surveyor's comments, together with a valid, general construction test certificate of a materials testing institute for the cable type to be used, apply.



## Components used: cable ladder LG-VS/F, ceiling mounting








Standard support construction for mounting under the raw ceiling with U suspended support, MWA bracket and threaded rod locking. Tested and approved with function maintenance cables of all manufacturers in conjunction with a valid test certificate.

Parameters:

- Span: max. 1.2 m
- Ladder width max. 400 mm
- Max. number of layers 3
- Max. cable load 20 kg/m per ladder
- Function maintenance classes E30/E90

### Components used

						
<b>Cable ladder</b>	LG 6... VSF6000 FS	1	2	3	2	3
<b>External connector</b>	AVL 60 FS	2	4	6	4	6
<b>Clamping piece</b>	LKS 40 FS	2	4	6	4	6
<b>US 3 suspended support</b>	US 3 K... FT	1	1	1	1	1
<b>Protective cap</b>	US 3 KS OR	1	1	1	1	1
<b>Wall and support brackets</b>	MWA 12 ... FS	1	2	3	2	3
<b>Connection component</b>	ABL FT	1	2	3	1	2
<b>Threaded rod</b>	2078 M10 1m G	1	2	0	2	3
<b>Threaded rod</b>	2078 M12 1m G	0	0	3	0	0
<b>Connection sleeve</b>	12005 M10 G	0	1	0	0	1
<b>Connection sleeve</b>	12005 M12 G	0	0	2	0	0
<b>Fire protection clamp*</b>	BSB FT	1	1	1	2	2

\* Alternatively, direct with internal thread anchor. Choose the fastening anchors according to the substrate. The appropriate amount of hexagonal nuts and washers are required.





Standard support structure for mounting under the raw ceiling on U transverse profile with threaded rod pendulum suspension. Tested and approved with function maintenance cables of all manufacturers in conjunction with a valid test certificate.

Parameters:

- Span: max. 1.2 m
- Ladder width max. 400 mm
- Max. number of layers 2
- Max. cable load 20 kg/m per ladder
- Function maintenance classes E30/E90

### Components used

			
<b>Cable ladder</b>	LG 6... VSF6000 FS	1	2
<b>External connector</b>	AVL 60 FS	2	4
<b>Clamping piece</b>	LKS 40 FS	2	4
<b>Large washer</b>	DIN440 7 F	2	4
<b>US 3 support</b>	US 3... FT	1	2
<b>Protective cap</b>	US 3 KS OR	2	4
<b>Threaded rod</b>	2078 M10 1m G	2	4
<b>Connection sleeve</b>	12005 M10 G	0	2

Choose the fastening anchors according to the substrate. The appropriate amount of hexagonal nuts and washers are required.



## Components used: cable ladder LG-VS/F, wall mounting






Standard support construction for wall mounting with MWA bracket and threaded rod locking vertically to the ceiling. Tested and approved with function maintenance cables of all manufacturers in conjunction with a valid test certificate.

Parameters:

- Span: max. 1.2 m
- Ladder width max. 400 mm
- Max. number of layers 2
- Max. cable load 20 kg/m per ladder
- Function maintenance classes E30/E90

### Components used

				
<b>Cable ladder</b>	LG 6... VSF6000FS	1	2	3
<b>External connector</b>	AVL 60 FS	2	4	6
<b>Clamping piece</b>	LKS 40 FS	2	4	6
<b>Wall and support brackets</b>	MWA 12 ... FS	1	2	3
<b>Connection component</b>	ABL FT	1	2	3
<b>Threaded rod</b>	2078 M10 1m G	1	2	0
<b>Threaded rod</b>	2078 M12 1m G	0	0	3
<b>Connection sleeve</b>	12005 M10 G	0	1	0
<b>Connection sleeve</b>	12005 M12 G	0	0	2
<b>Fire protection clamp*</b>	BSB FT	1	1	1

\* Alternatively, direct with internal thread anchor. Choose the fastening anchors according to the substrate. The appropriate amount of hexagonal nuts and washers are required.




Standard support construction for wall mounting with MWA bracket and threaded rod locking diagonally to the wall. Tested and approved with function maintenance cables of all manufacturers in conjunction with a valid test certificate.

Parameters:

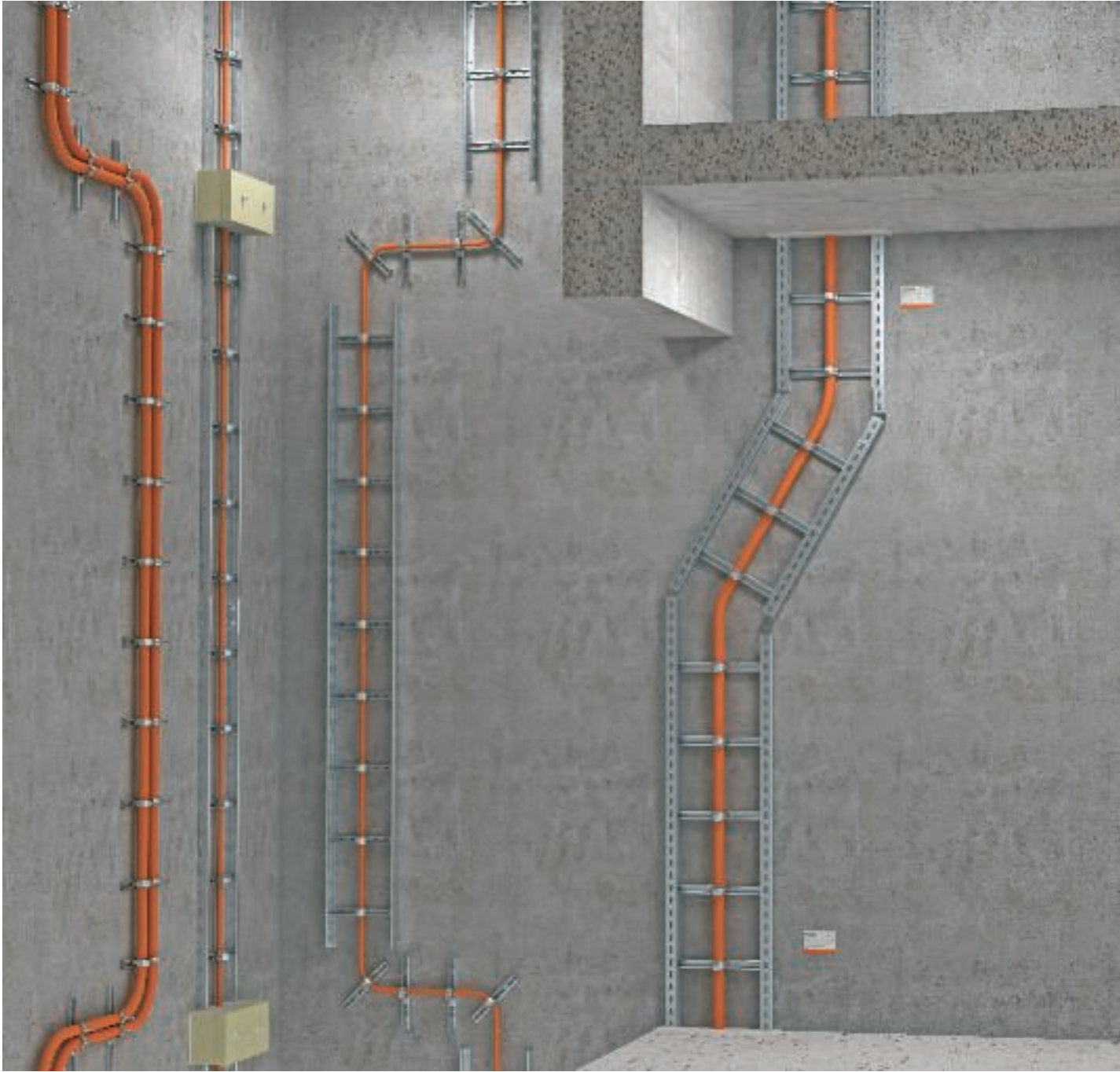
- Span: max. 1.2 m
- Ladder width max. 400 mm
- Max. number of layers 1
- Max. cable load 20 kg/m per ladder
- Function maintenance classes E30/E90

### Components used

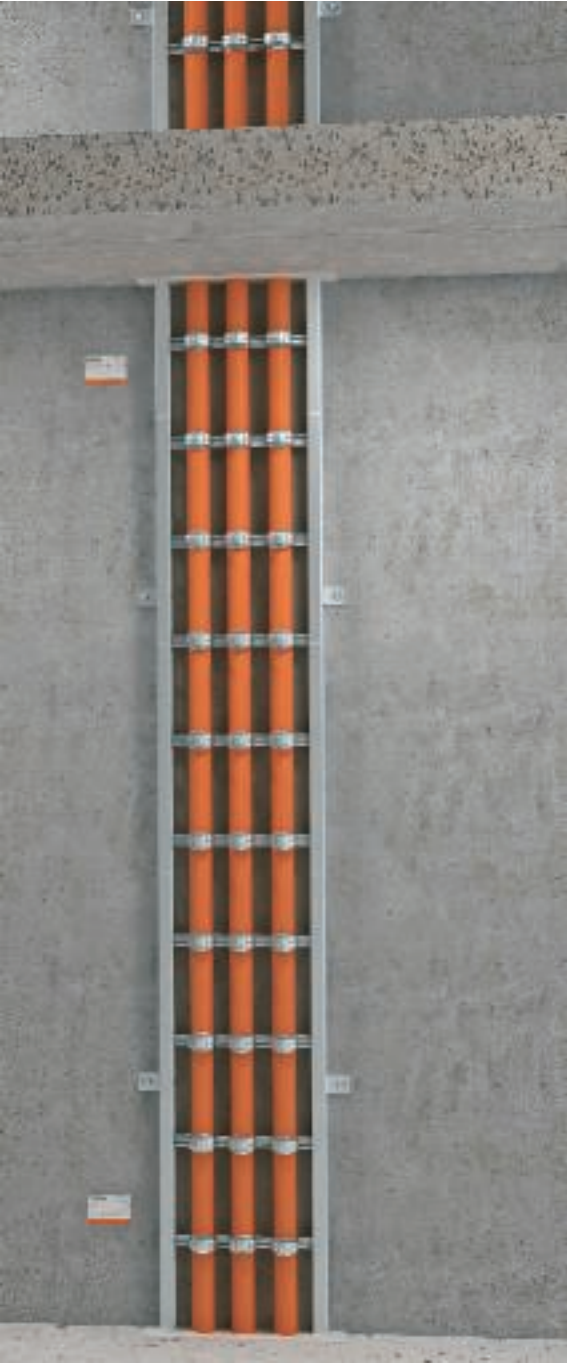
		
<b>Cable ladder</b>	LG 6... VSF6000FS	1
<b>External connector</b>	AVL 60 FS	2
<b>Clamping piece</b>	LKS 40 FS	2
<b>Wall and support brackets</b>	MWA 12 ... FS	1
<b>Connection component</b>	ABL FT	1
<b>Connection component, sloping</b>	ABS FS	2
<b>Hexagonal bolt</b>	SKS M10x40 F	1
<b>Threaded rod</b>	2078 M10 1m G	1

Choose the fastening anchors according to the substrate. The appropriate amount of hexagonal nuts and washers are required.





# Planning aid, function maintenance: vertical ladders



Light-duty vertical ladder	142
Heavy-duty vertical ladder	144
Industrial vertical ladder	146
Strain relief ZSE90	148



## System description, light-duty vertical ladders



Direct mounting of the vertical ladder on solid walls



Joint connection with screwed-on connector



Joint design without connector



Fastening of the cables, either individually or as a bundle with clamp clips



Effective support measure with ZSE90 strain relief



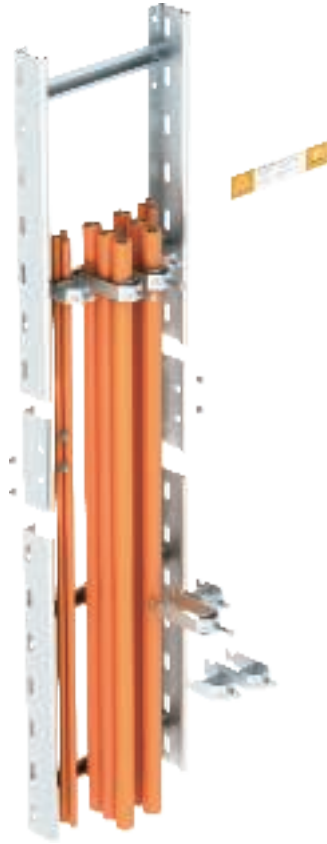
Vertical ladders of type LG fulfil all the requirements of DIN 4102 Part 12 as a standard support structure.

The vertical ladders are fastened directly to the wall through the underbelt ladder rails at a spacing of maximum 1.2 m. Alternatively, fastening can also take place from outside with additional fastening brackets on the rail of the vertical ladder. Mounting of screwed-on connectors is approved and they can be positioned freely. The rung distance is 30 cm and the cables are fastened using clamp clips, type 2056 M (clamp clips with metal pressure trough). Mounting of the strain relief 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.

### System benefits

- Standard support structure to DIN 4102 Part 12
- Function maintenance classes E30 and E90
- Free choice of cables
- Light-duty version of the vertical ladder in the widths 200 mm to 400 mm
- Mounting directly on the wall
- Cable bundling (max. 3 cables) possible
- Continuous vertical ladder when mounting the strain relief ZSE90

# Installation principle, light-duty vertical ladders



**E30** **E90**

## System description

<b>Routing type</b>	Standard support system
<b>Surveyor's comments no.</b>	3917/4635-4-Mu
<b>Function maintenance classes</b>	E30 to E90
<b>Testing standard</b>	DIN 4102 Part 12

## Approved data

<b>Max. fastening distance</b>	1.2 m
<b>Cable weight, max.</b>	20 kg/m
<b>Rung distance max.</b>	0.3 m
<b>Rising section width, max.</b>	400 mm
<b>Max. individual cable diameter</b>	Unlimited
<b>Cable bundle max.</b>	3 x Ø 25 mm

The data of the surveyor's comments, together with a valid, general construction test certificate of a materials testing institute for the cable type to be used, apply.



## System description, heavy-duty vertical ladders



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



Effective support measure with ZSE90 strain relief



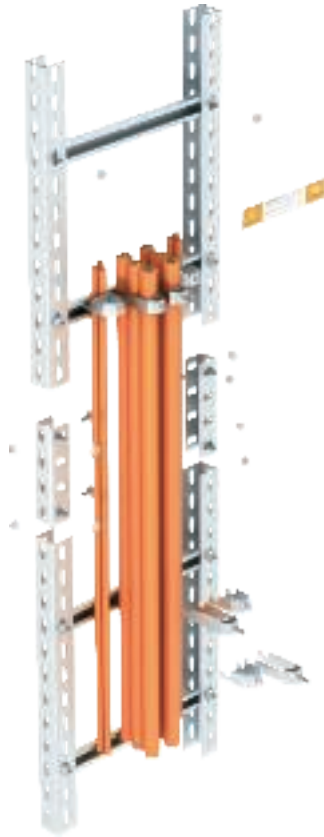
Vertical ladders of type SLM fulfil all the requirements of DIN 4102 Part 12 as a standard support structure. The vertical ladders are fastened directly to the wall through the ladder rails at a spacing of maximum 1.2 m. Individual lengths may be screwed on with connectors. They can be positioned freely. Cables must be fastened on each rung with clamp clips of type 2056 UM with a metal pressure trough, at a spacing of 30 cm. There is no limit to the diameter of installed individual cables with clamp clips. Bundling of up to three cables is possible with this standard support structure. Mounting of the strain relief 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.

### System benefits

- Standard support structure to DIN 4102 Part 12
- Function maintenance classes E30 and E90
- Free choice of cables
- Heavy-duty version of the vertical ladder in the widths 400 mm to 600 mm
- Mounting directly on the wall through the ladder rail
- Cable bundling (max. 3 cables) possible
- Continuous vertical ladder when mounting the strain relief ZSE90



## Installation principle, heavy-duty vertical ladders



E30

E90

### System description

<b>Routing type</b>	Standard support system
<b>Surveyor's comments no.</b>	3917/4635-4-Mu
<b>Function maintenance classes</b>	E30 to E90
<b>Testing standard</b>	DIN 4102 Part 12

### Approved data

<b>Max. fastening distance</b>	1.2 m
<b>Cable weight, max.</b>	20 kg/m
<b>Rung distance max.</b>	0.3 m
<b>Rising section width, max.</b>	600 mm
<b>Max. individual cable diameter</b>	Unlimited
<b>Cable bundle max.</b>	3 x Ø 25 mm

The data of the surveyor's comments, together with a valid, general construction test certificate of a materials testing institute for the cable type to be used, apply.



## System description, industrial vertical ladders



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



Effective support measure with ZSE90 strain relief



**Industrial vertical ladders, type SLS, fulfil all the requirements of DIN 4102 Part 12 as a standard support structure.**

The vertical ladders are fastened at a spacing of maximum 1.2 m using fastening brackets, which are screwed to the ladder rails. When mounting rungs, maintain a spacing of maximum 30 cm. The cables must be fastened on each rung with clamp clips of type 2056 UM with a riveted metal pressure sleeve. There is no limit on the external diameter of individual cables. Up to 3 cables can be bundled together under a clamp clip. For storey heights of more than 3.5 m, the strain relief ZSE90 may be mounted over the vertical ladder. The vertical ladder need not be interrupted for it.

### System benefits

- Standard support structure to DIN 4102 Part 12
- Function maintenance classes E30 and E90
- Free choice of cables
- Heavy-duty industrial version of the vertical ladder in the widths 400 mm to 600 mm
- Mounting with fastening bracket on the wall
- Cable bundling (max. 3 cables) possible
- Continuous vertical ladder when mounting the strain relief ZSE90

## Installation principle, industrial vertical ladders



E30

E90

### System description

<b>Routing type</b>	Standard support system
<b>Surveyor's comments no.</b>	3917/4635-4-Mu
<b>Function maintenance classes</b>	E30 to E90
<b>Testing standard</b>	DIN 4102 Part 12

### Approved data

<b>Max. fastening distance</b>	1.2 m
<b>Cable weight, max.</b>	20 kg/m
<b>Rung distance max.</b>	0.3 m
<b>Rising section width, max.</b>	600 mm
<b>Max. individual cable diameter</b>	Unlimited
<b>Cable bundle max.</b>	3 x Ø 25 mm

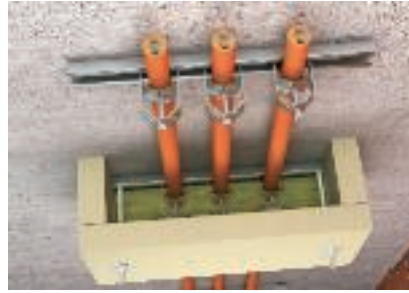
The data of the surveyor's comments, together with a valid, general construction test certificate of a materials testing institute for the cable type to be used, apply.



## System description, strain relief ZSE90



Mounting of the strain relief in combination with single clip routing



Mounting of the strain relief in combination with cable routing on profile rails



Mounting of the strain relief in combination with vertical ladders



Fastening points next to the cables directly on the wall



Fastening with threaded rods and slide nuts in the rungs



Mineral wool filling for flexible cable assignment



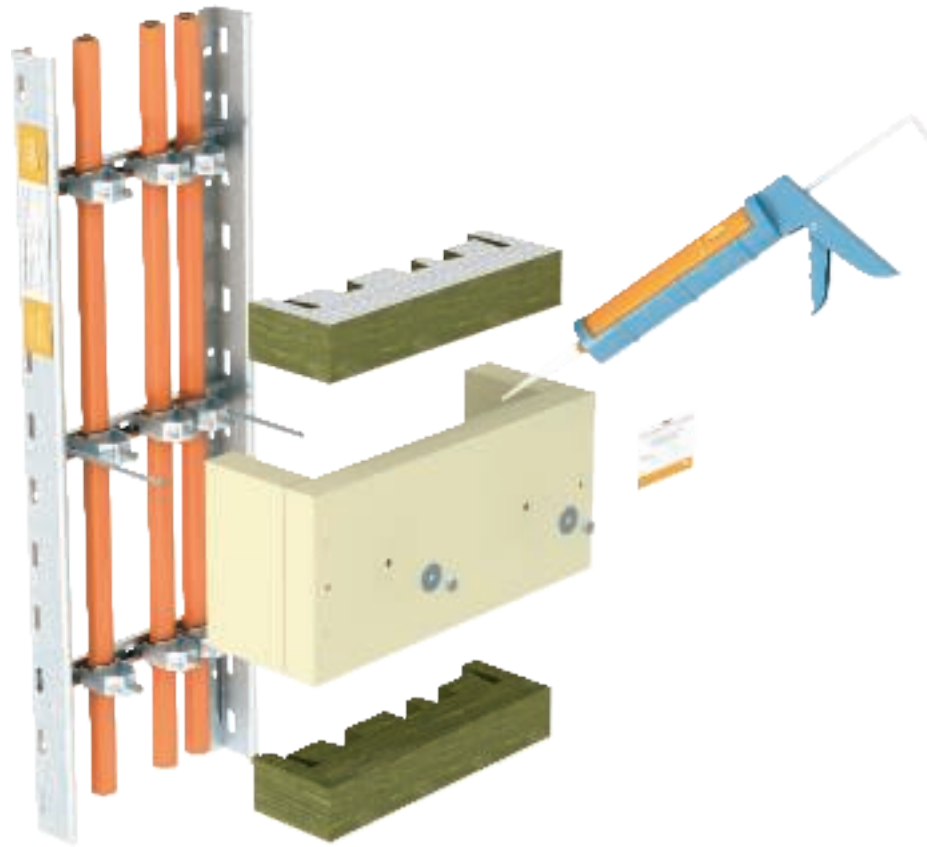
In the case of continuous, vertical routing of function maintenance cables according to DIN 4102 Part 12, the standard requires effective cable support at a maximum spacing of 3.5 m. The OBO strain relief ZSE90 allows fulfilment of this requirement. The ZSE 90 is approved for all function maintenance classes 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 case 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 sure function maintenance.

### System benefits

- Standard support structure to DIN 4102 Part 12
- Function maintenance classes E30 and E90
- Free choice of cables
- For vertical ladders with widths up to 600 mm
- 8 different sizes
- Vertical ladders need not be interrupted
- Side fastening on the wall possible next to the installed cables
- Using slide nuts, fastening possible to profile rails or the rungs of the vertical ladders

## Installation principle, strain relief ZSE90



E30

E90

### System description

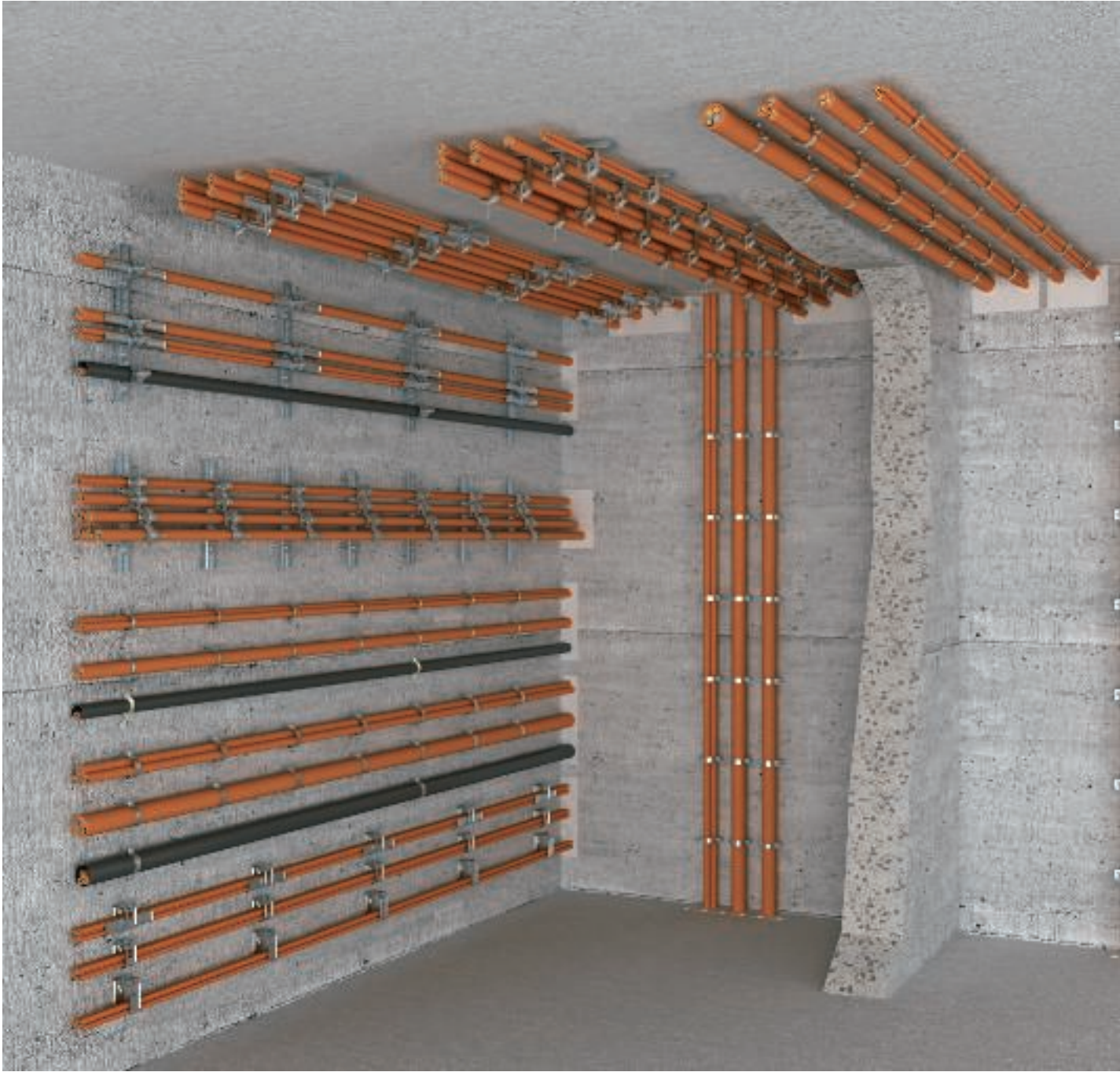
<b>Routing type</b>	Standard support structure Effective support for vertical cable routing
<b>Surveyor's comments no.</b>	8357/2007-MPA BS
<b>Function maintenance classes</b>	E30 to E90
<b>Testing standard</b>	DIN 4102 Part 12

### Approved data

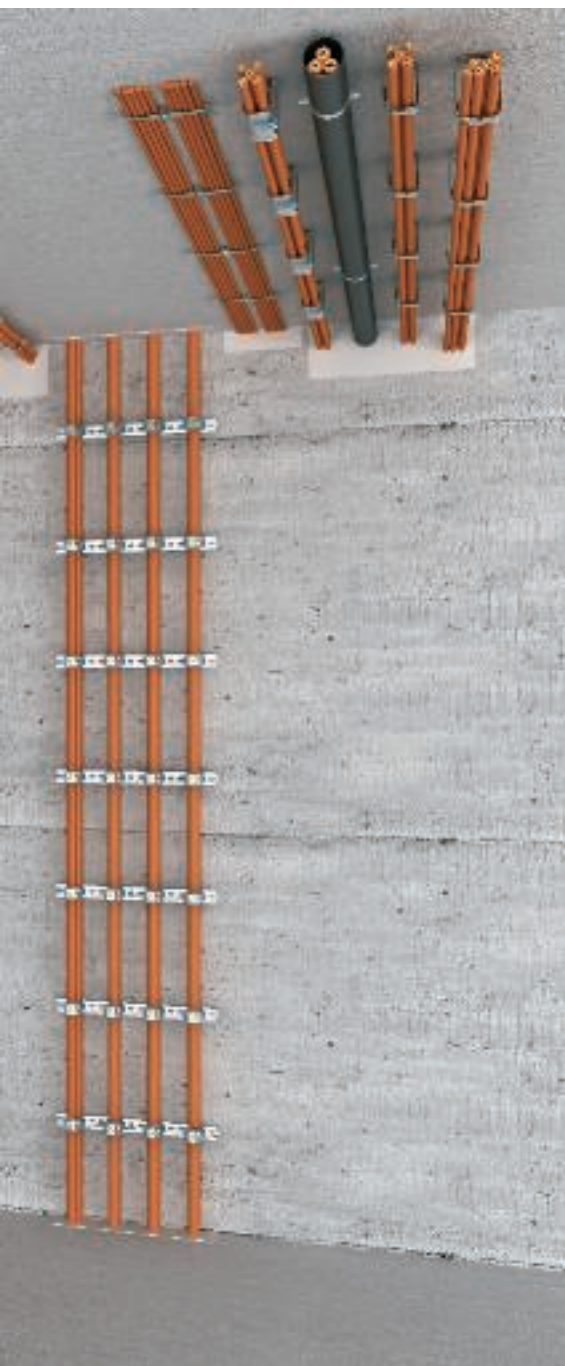
<b>Max. fastening distance</b>	3.5 m
<b>Ladder types</b>	All
<b>Individual fastenings</b>	All
<b>Rising section width, max.</b>	600 mm
<b>Cable types</b>	No restrictions
<b>Max. individual cable diameter</b>	Unlimited

The data of the surveyor's comments, together with a valid, general construction test certificate of a materials testing institute for the cable type to be used, apply.





## Planning aid, function maintenance: individual routing, pipes and metal duct



Grip M grouped support	152
Metal pressure clip	154
Clamp clips with profile rails	156
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LKM cable routing duct	162

## System description, Grip M grouped support



Horizontal wall and ceiling mounting



Mounting of the grouped support 2031 M 15 with long trough



Easy insertion the cables in the opened grouped support.

**Cable routing with metal grouped supports is approved as a cable-specific routing type for the function maintenance classes E30 to E90 according to DIN 4102 Part 12.**

The grouped supports 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.

### System benefits

- Tested according to DIN 4102, Part 12
- Function maintenance classes E30 and E90
- Wall and ceiling mounting permitted
- 3 different sizes
- High cable load with simultaneous large fastening spacing
- Can be closed and opened without tools
- Can remain open during cable installation





## Installation principle, Grip M grouped support



E30

E90

### System description

<b>Routing type</b>	Cable-specific support construction
<b>Function maintenance classes</b>	E30 to E90
<b>Testing standard</b>	DIN 4102 Part 12

### Approved data

Type	Fastening distance	Cable filling 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

The data in the general construction test certificates of a materials testing institute for the appropriate cable type apply.



## System description, metal pressure clip



Space-saving cable routing directly under the ceiling



Simple cable installation through side insertion of the cables

Cable routing with rust-proof steel pressure clips is approved as a cable-specific routing type for function maintenance class E30 according to DIN 4102 Part 12.

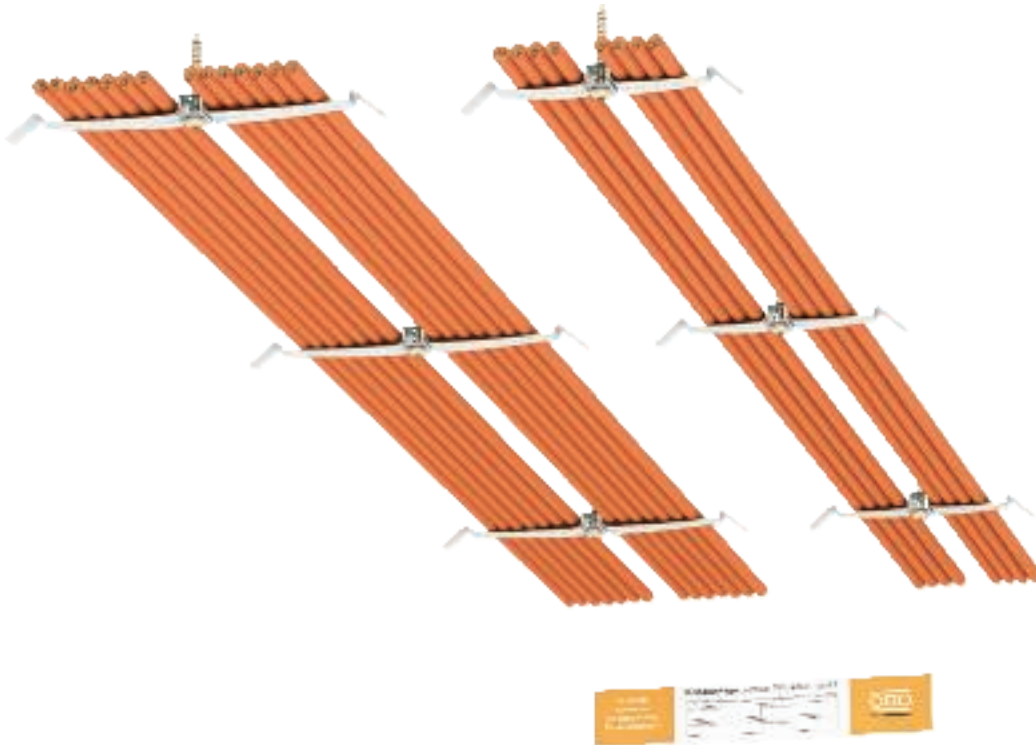
This routing variant is particularly suitable when there is only little mounting height available under the ceiling. With just small additions, fire signal cables and also power cables for safety lighting systems can be routed in a space-saving way. For this, the hips of the pressure clips are simply bent downwards and the cables pushed in from the side.

### System benefits

- Tested according to DIN 4102, Part 12
- Function maintenance class E30
- Ceiling mounting permitted
- 2 different sizes
- Very easy cable insertion
- Small space requirements through low mounting height
- Terminal area can be expanded with spacer



## Installation principle, metal pressure clip



**E30**

### Fire-proof fastenings above fire protection ceilings

<b>Routing type</b>	Cable-specific support construction
<b>Function maintenance classes</b>	E30
<b>Testing standard</b>	DIN 4102 Part 12

### Approved data

Type	Fastening spacing	Cable filling max.
2033M	0.5 m	2 x 9
2034M	0.5 m	2 x 7

The data in the general construction test certificates of a materials testing institute for the appropriate cable type apply.



## System description, clamp clips with profile rails



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



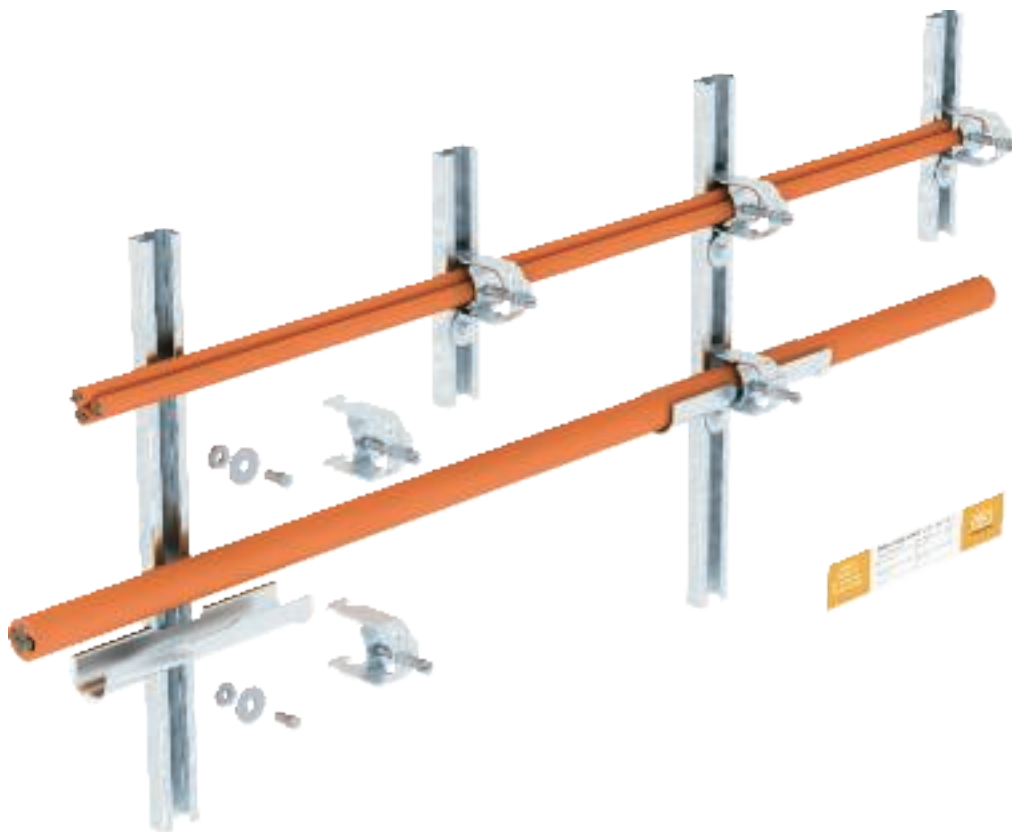
The routing types with clamp clips fulfil all the requirements of DIN 4102 Part 12 as a standard support structure. In addition, mounting as a cable-specific routing type is possible, depending on the specifications of the cable manufacturer.

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.

### System benefits

- Tested according to DIN 4102 Part 12
- Function maintenance classes E30 and E90
- Free choice of cable when used as standard support structure
- Large choice of cables when used as cable-specific support structure
- Horizontal mounting under the ceiling and on the wall
- Vertical cable routing on the wall
- Cable bundling (max. 3 cables) possible as standard support structure
- Mounting approved in combination with the strain relief ZSE90

## Installation principle, clamp clips with profile rails



E30

E90

### System description

<b>Routing type</b>	Standard support structure Cable-specific support construction
<b>Surveyor's comments no.</b>	3917/4635-3-Mer (standard) 3917/4635-4-Mu (standard)
<b>Function maintenance 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)
<b>Rail fastening distance, max.</b>	0.6 m (with long trough)
<b>Max. anchor spacing in rail</b>	0.25 m
<b>Max. individual cable diameter</b>	62 mm
<b>Cable bundle max.</b>	3 x 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 comments, together with a valid, general construction test certificate of a materials testing institute for the cable type to be used, apply.

#### 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.



## System description, screw-in spacer clips



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



The routing types with individual clips fulfil all the requirements of DIN 4102 Part 12 as a standard support structure for the function maintenance classes E30 to E90. In addition, mounting of the individual clips as a cable-specific routing type is possible, depending on the specifications of the cable manufacturer.

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.

### System benefits

- Tested according to DIN 4102, Part 12
- Function maintenance classes E30 and E90
- Free choice of cable when used as standard support structure
- Large choice of cables when used as cable-specific support structure
- Horizontal mounting under the ceiling and on the wall
- Vertical cable routing on the wall
- Cable bundling (max. 3 cables) possible as standard support structure
- Mounting approved in combination with the strain relief ZSE90

## Installation principle, screw-in spacer clips



E30

E90

### System description

<b>Routing type</b>	Standard support structure Cable-specific support construction
<b>Surveyor's comments no.</b>	3917/4635-3-Mer (standard) 3917/4635-4-Mu (standard)
<b>Function maintenance classes</b>	E30 to E90
<b>Testing standard</b>	DIN 4102 Part 12

<b>Max. fastening distance</b>	0.3 m
<b>Max. individual cable diameter</b>	50 mm
<b>Cable bundle max.</b>	3 x 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 comments, together with a valid, general construction test certificate of a materials testing institute for the cable type to be used, apply.

#### 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.



## System description, cable routing in pipes



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

**Cable routing in the 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 function maintenance classes E30 to E90.**

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.

### System benefits

- Cable-specific support construction to DIN 4102 Part 12
- Function maintenance classes E30 and E90
- Additional mechanical protection of the installed cables
- Cables can be installed at a different time to the pipe
- Horizontal mounting under the ceiling and on the wall
- Cable assignment possible with individual cables or multiple cables





## Installation principle, cable routing in pipes



E30

E90

### Fire-proof fastenings above fire protection ceilings

<b>Routing type</b>	Cable-specific support construction
<b>Function maintenance 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 apply.



## System description, cable routing duct LKM



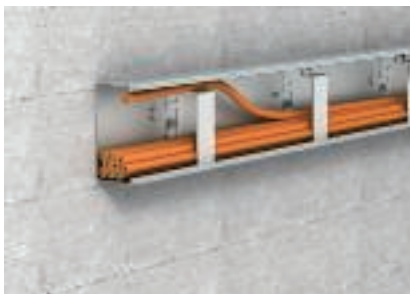
Horizontal wall and ceiling mounting



Routing of power, data or fire alarm cables in the duct, type LKM60100



Tidy routing of data and fire alarm cables in the duct, 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 duct by simple locking of the lid onto the duct base

**Cable routing with metal cable routing ducts, type LKM, is approved as a cable-specific routing type for the function maintenance classes E30 to E90 according to DIN 4102 Part 12.**

The ducts offer additional mechanical protection of the installed cables. This mounting variant permits sure fulfilment of existing requirements of specifications or of building use. This installation variant is also used if, for reasons of appearance, open routing of the cables with function maintenance is not wanted.

A retaining clamp is available as an installation aid for the duct type LKM60100. This prevents cables from falling out in the case of wall and ceiling mounting. When cable installation has been completed, the duct lid is locked onto the duct base.

### System benefits

- Cable-specific routing variant to DIN 4102 Part 12
- Function maintenance classes E30 and E90
- Horizontal wall and ceiling mounting permitted
- 2 different sizes
- LKM20030 duct tested for fire and telecommunications cables
- LKM60100 duct tested for power cables and for fire and telecommunications cables
- Retaining clamp as installation aid
- Lid can be mounted without tools



## Installation principle, LKM cable routing duct



E30

E90

### System description

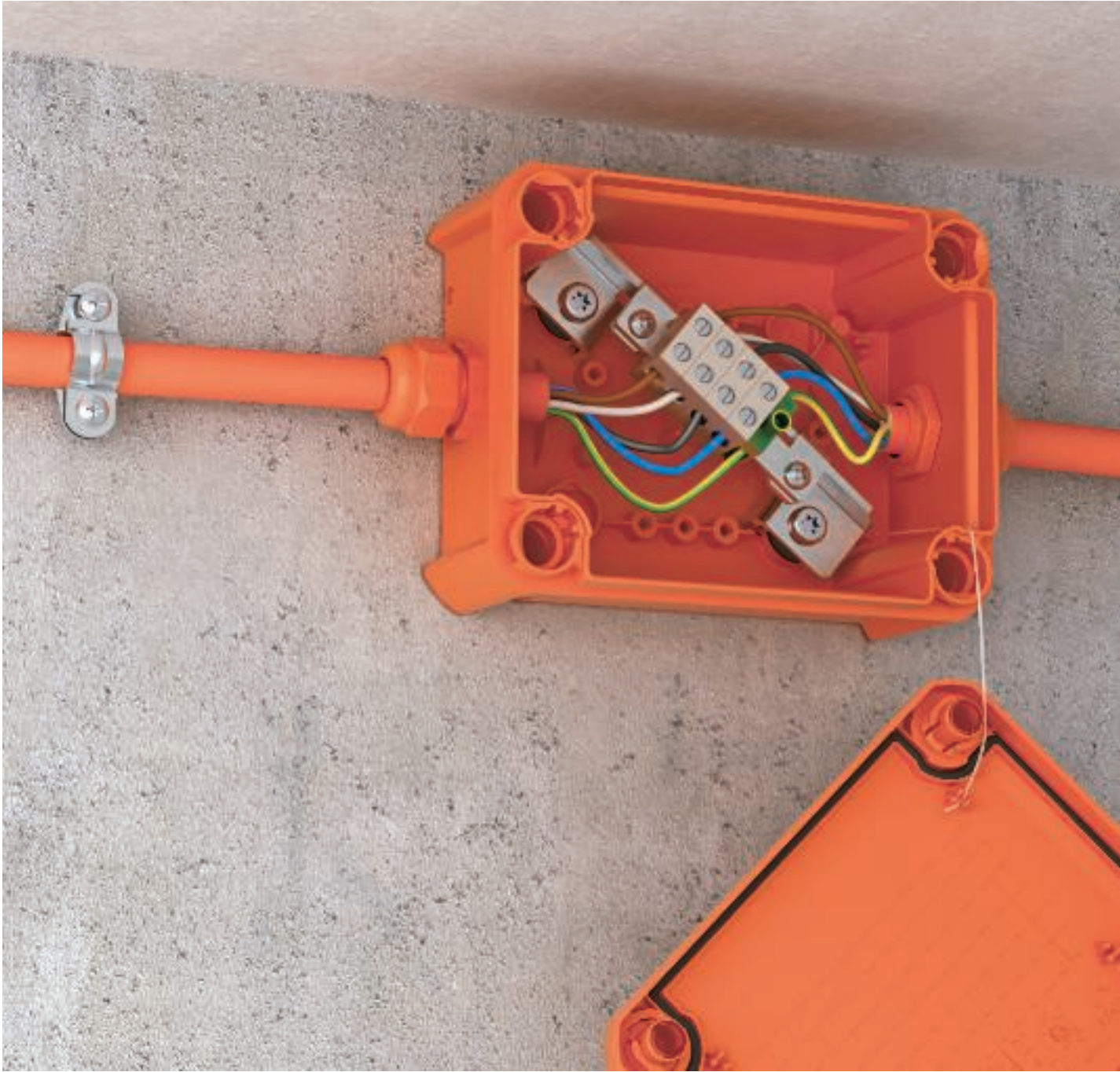
<b>Routing type</b>	Cable-specific support construction
<b>Test certificate no.</b>	P-MPA-E-11-008
<b>Function maintenance classes</b>	E30 and E90
<b>Testing standard</b>	DIN 4102 Part 12

### Approved data

Type	Cable types	Fastening spacing	Cable load
<b>LKM 20030</b>	Data cable	max. 40 cm	max. 0.3 kg/m
<b>LKM 60100</b>	Power cable	max. 49 cm	max. 3.0 kg/m

The data in the general construction test certificates of a materials testing institute for the appropriate cable type apply.





# Planning aid, function maintenance: junction boxes

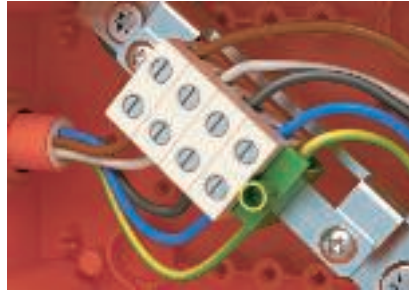


System description, FireBox junction box	166
Installation principle, FireBox junction box	167

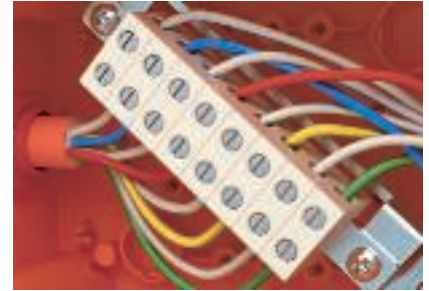
## System description, FireBox junction box



Fully installed FireBox with identification plate



Version with 4 terminals and protective conductor terminal for power cables



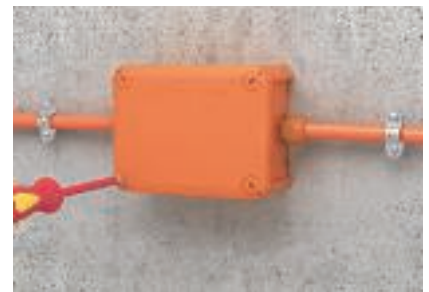
Version with 8 terminals for data and fire alarm cables



Cable entry with V-TEC cable glands



Mounting with fire protection bolt tie through the clamp and base of the FireBox



Quick lid mounting through 90° rotation of the corner screws

The T series of the FireBoxes possesses all the benefits of normal cable junction boxes and are made of a thermoplastic polymer. These include the resistance to breakages, resistance to knocks and the high IP protection rating. There is also the freely selectable positioning of the cable entries with V-TEC cable glands. The FireBox is tested and approved as a connection socket for electrical function maintenance to DIN 4102 Part 12 with the classes E30 to E90.

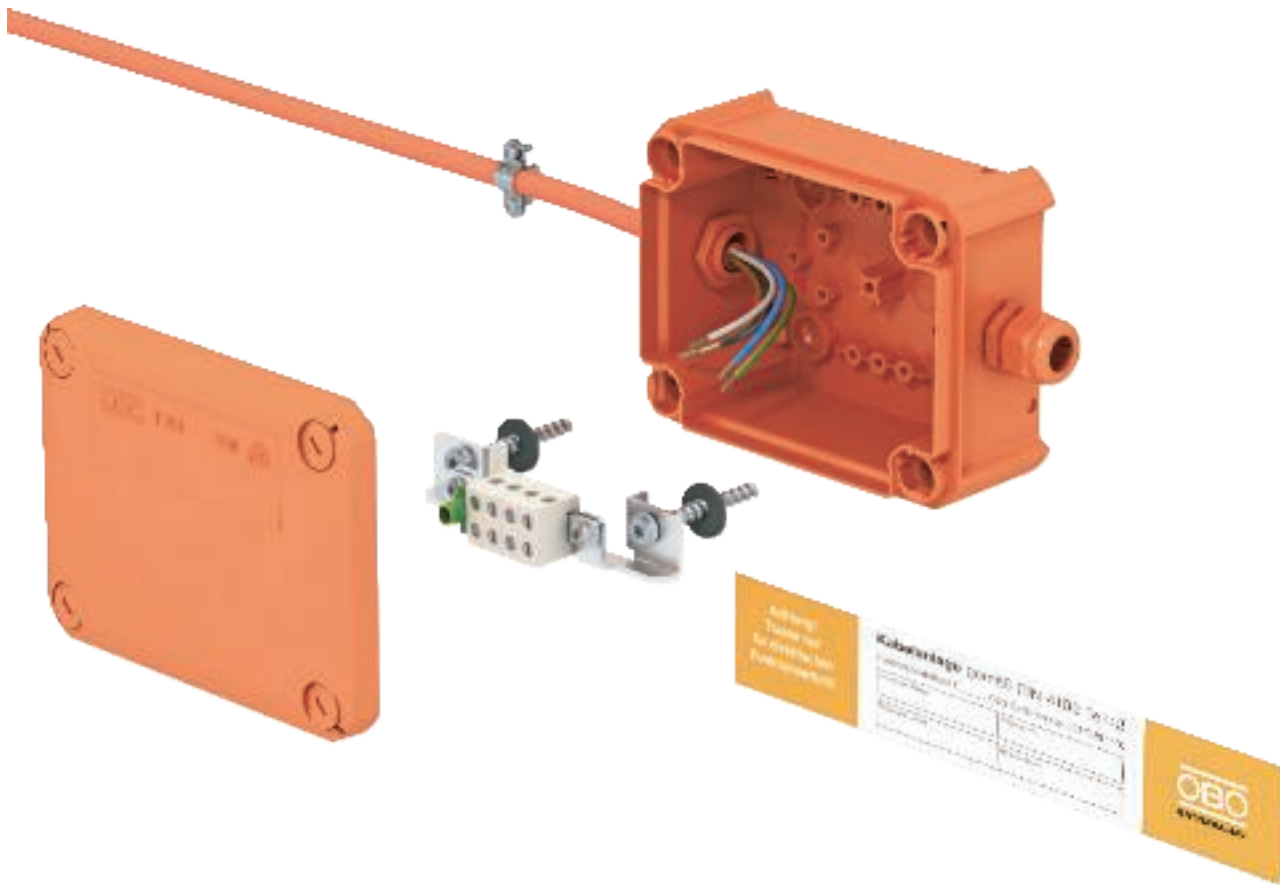
The high temperature-resistant terminals to connect the individual cable wires are premounted to form a connection unit. The protective conductor terminal is connected to the support clamp, meaning that covers of the metal parts are not required.

### System benefits

- Cable-specific routing variant to DIN 4102 Part 12
- Function maintenance classes E30 and E90
- VDE-tested
- Wall and ceiling mounting permitted
- Box made of elastic, yet impact-resistant, thermoplastic
- 2 different sizes with 4 different connection units
- Tested for power cables of up to 16 mm<sup>2</sup>
- Tested for fire and telecommunications cables with 0.8 mm wire diameter
- Complete scope of delivery with equipped connection unit and fire protection bolt ties
- Cable entry with freely-positionable V-TEC cable glands
- Quick lid fastening through 90° rotation of the corner screws



## Installation principle, FireBox junction box



E30

E90

### System description

<b>Routing type</b>	Duroplastic cable-specific connection with high temperature-resistant connection unit
<b>Test certificate no.</b>	P-MPA-E-08-016
<b>Function maintenance classes</b>	E30 to E90
<b>Testing standard</b>	DIN 4102 Part 12

### Approved data

Type	Nominal wire cross-sections	Nominal wire cross-sections Double assignment
<b>T100E 4-5</b>	5 x 4 mm <sup>2</sup>	Max. 2 x 1.5 mm <sup>2</sup>
<b>T160E 10-5</b>	5 x 10 mm <sup>2</sup>	Max. 2 x 4 mm <sup>2</sup>
<b>T160E 16-5</b>	5 x 16 mm <sup>2</sup>	Max. 2 x 6 mm <sup>2</sup>
<b>T160E 4-8D</b>	Wire diameter 0.8 mm	

The data in the general construction test certificates of the materials testing office of North Rhine-Westphalia, Erwitte, apply.







# Planning aid, anchorings



Metal spreading anchor	170
Injection tie	172
Bolt tie	174



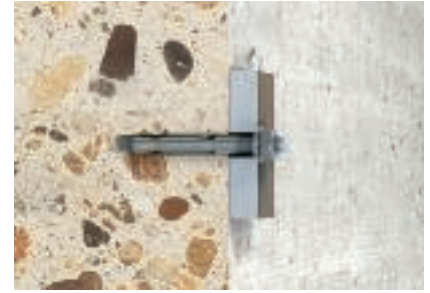
## System description, metal spreading anchor



Bolt tie, type FAZ II



Nail tie, type FNA II, with flat head



Nail tie, type FNA II, with thread end



Internal thread anchor, type FZEA II



Cavity ceiling tie, type FHY

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OBO Bettermann's fire protection 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 are contained in the appropriate European technical approvals and appropriate test documentation. Although, during a fire, the load capacity of the anchors is below the load capacity when cold, it is completely sufficient for fireproof fastening of the various components of the different routing types.

### System benefits

- Anchor tested and approved for fire
- Determined load capacity according to fire resistance period
- Fastening option in concrete components
- Fastening option in false ceilings
- Various dimensions for the different routing components and applications



# Installation principle, metal spreading anchor



## System description

<b>Anchoring type</b>	Anchor with spreading metal cone
<b>Fire resistance class</b>	To R120 according to European technical approval ETA
<b>Substrate</b>	Concrete

## Approved data

Type	Approved load at 30 minutes	Approved load at 90 minutes
<b>FAZ II M8</b>	1.30 kN	0.90 kN
<b>FAZ II M10</b>	2.30 kN	1.90 kN
<b>FAZ II M12</b>	4.00 kN	3.20 kN
<b>FNA II M6 thread</b>	0.35 kN	0.30 kN
<b>FNA II nail head</b>	1.60 kN	0.70 kN
<b>FZEA II M8</b>	1.00 kN	0.80 kN
<b>FZEA II M10</b>	1.80 kN	1.60 kN
<b>FZEA II M12</b>	1.80 kN	1.80 kN
<b>FHY M8</b>	1.60 kN	0.75 kN
<b>FHY M10</b>	2.50 kN	1.30 kN

The data of the approval documents and any fire testing reports apply.



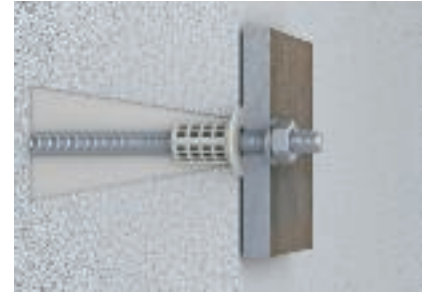
## System description, injection tie



Mounting in hollow brick



Mounting with plastic wire sleeves permitted



Mounting with centring sleeve and anchor rod in porous concrete

The FIS V injection mortar system is particularly suitable for fire-protection fastening in hollow brick, cavity concrete blocks or even in porous concrete. The non-spreading connection is created through the use of the mortar with plastic wire sleeves and a threaded anchor rods. The components are tested and approved for a fire-resistance period of 90 minutes, rising to 120 minutes in porous concrete.

The maximum load capacity depending on the fire resistance period and the fastening substrate. These maximum load capacities are stated in the appropriate test documentation. Although, during a fire, the load capacity of the anchors is below the load capacity when cold, this load capacity is completely sufficient for fireproof fastening of the various components of the different routing types.

### System benefits

- Injection tie tested and approved for fire
- Determined load capacity according to fire resistance period
- Use in hollow brick, cavity concrete blocks or even in porous concrete
- Various dimensions for the different routing components and applications
- Proven fastening with plastic wire sleeves



## Installation principle, injection tie



R30 R60 R90 R120

### System description

<b>Anchoring type</b>	Spread-free connection with special mortar
<b>Fire resistance class</b>	To R120 according to European technical approval ETA
<b>Substrate</b>	Concrete, porous concrete, hollow brick, hollow blocks
<b>Load classes</b>	Dependent on the resistances of the substrates, see approval

The data of the approval documents and fire testing reports apply.



## System description, bolt tie



Version with truss head and T drive



Version with large truss head and T drive



Version with hexagonal head



Version as shaft tie with M6 threaded tip



Version with countersunk cone head and T drive

OBO Bettermann's fire protection bolt ties, type MMS, were fire-tested in a manner similar to DIN 4102. 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.

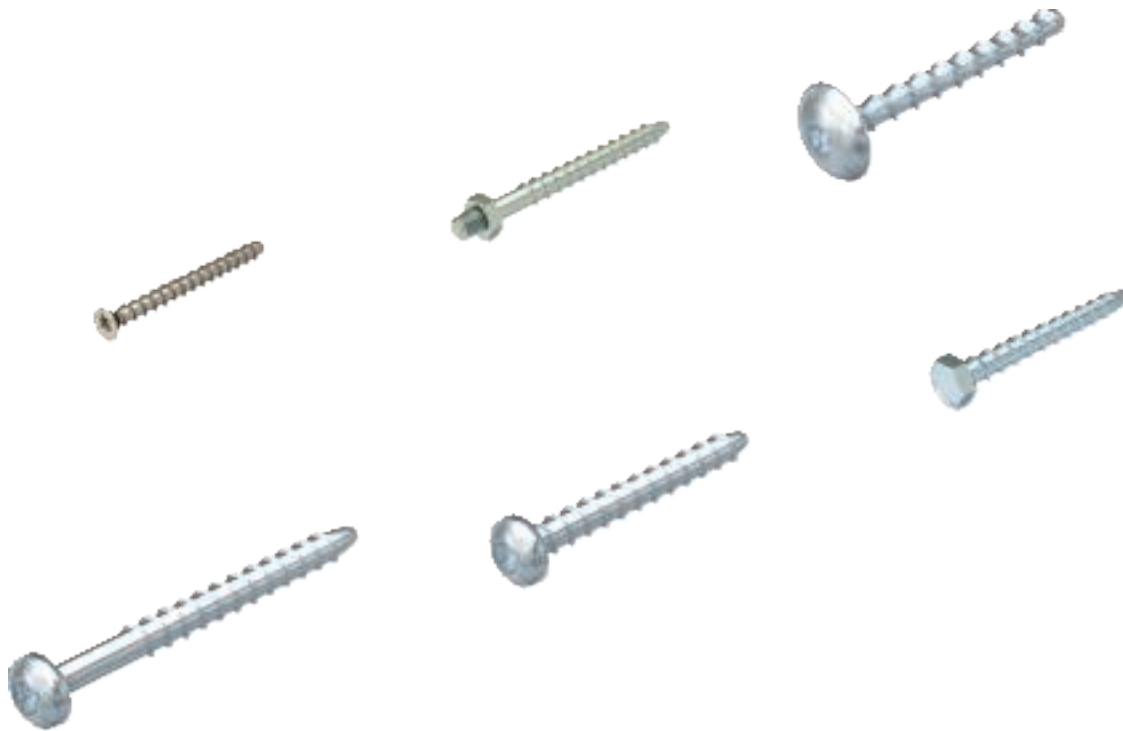
Taking the occurring loads for the function maintenance application and for false ceiling mounting into account, the determined load capacities for the different masonry types are absolutely sufficient. The fire protection bolt ties are screwed directly into the drill hole. There is no need for an additional anchor. No spreading forces develop and mounting near masonry edges is not required.

### System benefits

- Bolt tie tested and approved for fire
- Determined load capacity according to fire resistance period
- Fastening option in solid masonry types
- Various dimensions and head shapes for the different routing components



## Installation principle, bolt tie



F30

F60

F90

F120

### System description

<b>Anchoring type</b>	Spread-free connection with self-tapping thread
<b>Fire resistance class</b>	To F120 according to general building inspectorate approval
<b>Substrate</b>	Concrete Masonry: Full calcareous and hollow brick, brickwork

### Approved data

Type	Approved load at 30 minutes	Approved load at 90 minutes
<b>MMS 10</b>	1.44 kN	0.79 kN
<b>MMS 6</b>	0.52 kN	0.28 kN
<b>MMS 7.5</b>	0.78 kN	0.42 kN
<b>MMS-MS</b>	0.78 kN	0.42 kN
<b>MMS-ST</b>	0.52 kN	0.28 kN
<b>HMS-KS</b>	0.31 kN	0.17 kN





The data of the approval documents and any fire testing reports apply.







## Contents, PYROMIX® mortar insulation

	Mortar	178
	Insulation layer creator	178
	Pipe sleeves	178
	Identification plate	180





## Mortar insulation PYROMIX®

### Dry mortar in paper sack



Type	Contents	Pack.	Weight	Item No.
	kg	pcs	kg/100 pcs.	
<b>MSX-S1</b>	20	1	2,000.000	<b>7206 10 4</b>

Special mortar /pc.

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.

### Dry mortar in bucket



Type	Contents	Pack.	Weight	Item No.
	kg	pcs	kg/100 pcs.	
<b>MSX-E1</b>	10	1	1,000.000	<b>7206 05 8</b>

Special mortar /pc.

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	Pack.	Weight	Item No.
	ml	pcs	kg/100 pcs.	
<b>DSX-K</b>	300	1	50.000	<b>7202 30 0</b>

Intumescent material /pc.

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 12 months in closed, upright original containers.

### Insulation layer creator in a bucket



Type	Contents	Pack.	Weight	Item No.
	kg	pcs	kg/100 pcs.	
<b>DSX-E</b>	5	1	500.000	<b>7202 30 2</b>

Intumescent material /pc.

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 12 months in closed, upright original containers.

### Pipe sleeve with 2 fastening straps



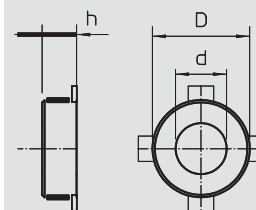
Type	Pipe Ø	Dimension h	Dimension D	Dimension d	Pack.	Weight	Item No.
	mm	mm	mm	mm	pcs	kg/100 pcs.	
<b>TCX-032</b>	32	26	50	36	1	6.500	<b>7202 20 0</b>
<b>TCX-040</b>	40	26	58	44	1	7.000	<b>7202 20 1</b>
<b>TCX-050</b>	50	26	68	54	1	8.000	<b>7202 20 3</b>

Intumescent material /pc.

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



### Pipe sleeve with 4 fastening straps



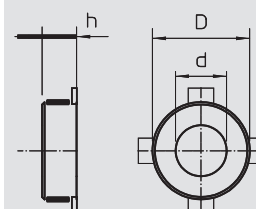
Type	Pipe Ø	Dimension h	Dimension D	Dimension d	Pack.	Weight	Item No.
	mm	mm	mm	mm	pcs	kg/100 pcs.	
<b>TCX-063</b>	63	26	94	67	1	15.500	<b>7202 20 4</b>
<b>TCX-075</b>	75	26	106	79	1	19.000	<b>7202 20 5</b>
<b>TCX-090</b>	90	26.6	132	94	1	37.000	<b>7202 20 6</b>
<b>TCX-110</b>	110	26.6	155	114	1	46.000	<b>7202 20 7</b>
<b>TCX-125</b>	125	40	172	129	1	70.000	<b>7202 20 8</b>

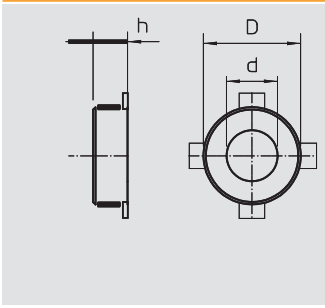
Intumescent material /pc.

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, then M8





Pipe sleeve with 6 fastening straps

Type	Pipe Ø	Dimension h	Dimension D	Dimension d	Pack.	Weight	Item No.
	mm	mm	mm	mm	pcs	kg/100 pcs.	
<b>TCX-140</b>	140	40	200	144	1	106.000	<b>7202 20 9</b>
<b>TCX-160</b>	160	40	220	164	1	107.000	<b>7202 21 0</b>



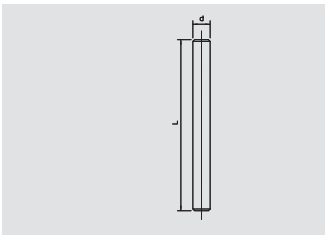
Intumescent material

/pc.

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 M8 threaded rods



Threaded rod

Type	Thread	Dimension d	Dimension L	Pack.	Weight	Item No.
		mm	mm	pcs	kg/100 pcs.	
<b>2078 M6 1M G</b>	M6	6	1,000	100	18.300	<b>3141 04 7</b>
<b>2078 M8 1M G</b>	M8	8	1,000	50	30.000	<b>3141 12 8</b>

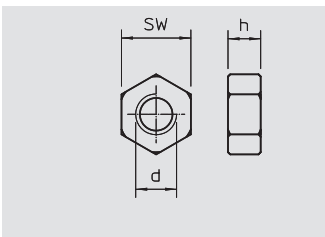


St Steel

G Electrogalvanised

/100 pc.

Threaded rod to DIN 976.



Hexagonal nut

Type	Thread	Dimension d	Dimension h	SW	Pack.	Weight	Item No.
		mm	mm	mm	pcs	kg/100 pcs.	
<b>DIN 934 M6 G</b>	M6	6	5.2	10	100	0.225	<b>3400 06 9</b>
<b>DIN 934 M8 G</b>	M8	8	6.8	13	100	0.474	<b>3400 08 5</b>

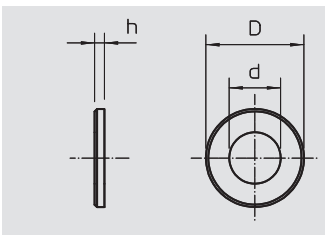


St Steel

G Electrogalvanised

/100 pc.

Hexagonal nut to DIN 934 with metric thread.



Washer

Type	Thread	Dimension D	Dimension d	Dimension h	Pack.	Weight	Item No.
		mm	mm	mm	pcs	kg/100 pcs.	
<b>967 M6 G</b>	M6	28	6.5	2.5	100	1.150	<b>3402 20 7</b>
<b>967 M8 G</b>	M8	28	8.5	2.5	100	1.100	<b>3402 21 5</b>

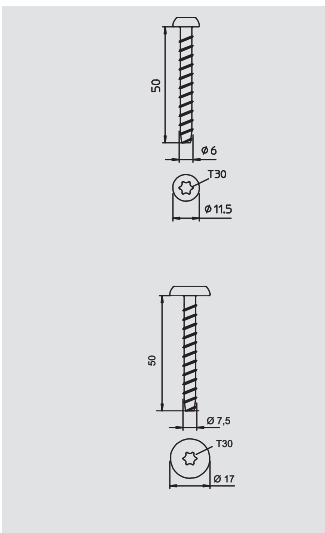


St Steel

G Electrogalvanised

/100 pc.

Washer of large outer diameter for universal use.



Bolt tie

Type	Dimension	Bore hole Ø	Pack.	Weight	Item No.
	mm	mm	pcs	kg/100 pcs.	
<b>MMS6X50</b>	6 x 50	5	100	0.960	<b>3498 10 7</b>

St Steel

GC Electrogalvanised, yellow-chromated

/100 pc.

Fire protection bolt tie with pan head for direct mounting without additional anchors. Drive T30, drill hole 5 mm. Fire protection tested according to DIN 4102 for concrete and masonry.

Type	Dimension	Head Ø	Bore hole Ø	Pack.	Weight	Item No.
	mm	mm	mm	pcs	kg/100 pcs.	
<b>MMS-MS7,5x50</b>	7.5 x 50	17	6	100	1.522	<b>3498 26 0</b>

St Steel

G Electrogalvanised

/100 pc.

Fire protection bolt tie with large pan head for direct mounting without additional anchors. Drive T30, drill hole 6 mm. Fire protection tested according to DIN 4102 for concrete and masonry.



Mineral wool

Type	Dimension	Pack.	Weight	Item No.
		pcs	kg/100 pcs.	
<b>MIW-S</b>	25 Liter	1	250.000	<b>7202 30 6</b>

Mineral fibres

/pc.

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





## Mortar insulation PYROMIX®

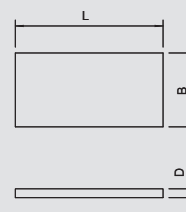


### Calcium silicate plate

Type	Dimen- sion L mm	Dimen- sion B mm	Dimen- sion D mm	Pack.	Weight	Item No.
				pcs	kg/100 pcs.	
<b>KSI-P1</b>	500	150	20	1	42.000	<b>7202 28 3</b>
<b>KSI-P2</b>	500	250	30	1	111.000	<b>7202 90 4</b>
<b>KSI-P3</b>	1,000	250	30	1	222.000	<b>7202 91 2</b>

Calcium silicate /pc.

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.

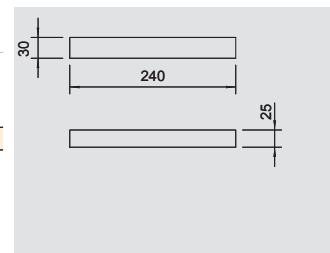


### Retrofit wedge

Type	Dimen- sion mm	Pack.	Weight	Item No.
		pcs	kg/100 pcs.	
<b>NIK-G</b>	25 x 30 x 240	1	67.000	<b>7206 20 8</b>

Calcium silicate /pc.

Retrofit wedge set for mortar ballast, for installation in the fresh ballast. 1 set consists of 4 straight calcium silicate strips.  
Materials class EN 13501 A1 non-combustible.

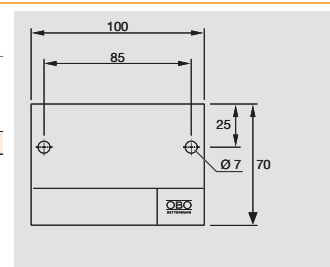


### Identification plate

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>KS-S DE</b>	1	2.400	<b>7205 42 5</b>

/pc.



Universal identification plate to be written on for all OBO insulation. For approved identification, including two push-fit anchors.



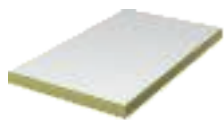




## Contents, soft insulation, PYROPLATE® Fibre

	Mineral fibre plate	184
	Ablation coating	184
	Pipe sleeves	184
	Identification plate	185

## Soft insulation, PYROPLATE® Fibre

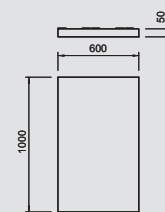


## Mineral fibre plate, pre-coated

Type	Length mm	Width mm	Height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>PSX-P</b>	1,000	600	50	4	625.000	<b>7202 29 5</b>

Mineral fibres /pc.

Mineral fibre plate, pre-coated with the ablation coating ASX, as the basis for the soft insulation.



## Ablation coating in a cartridge

Type	Contents ml	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>ASX-K</b>	300	1	50.000	<b>7202 31 0</b>

Intumescent material /pc.

Combined, endothermic and weatherproof coating for internal and external areas. Universal protection coating for cable and cable support structures. Use as direct filler, 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>7202 31 2</b>

Intumescent material /pc.

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



## Pipe sleeve with 2 fastening straps

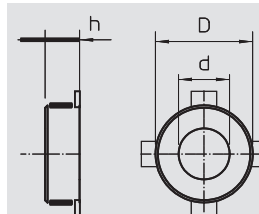
Type	Pipe Ø mm	Dimen- sion h mm	Dimen- sion D mm	Dimen- sion d mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>TCX-032</b>	32	26	50	36	1	6.500	<b>7202 20 0</b>
<b>TCX-040</b>	40	26	58	44	1	7.000	<b>7202 20 1</b>
<b>TCX-050</b>	50	26	68	54	1	8.000	<b>7202 20 3</b>

Intumescent material /pc.

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



## Pipe sleeve with 4 fastening straps

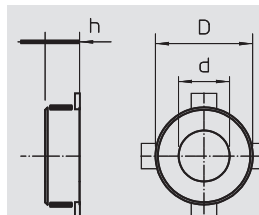
Type	Pipe Ø mm	Dimen- sion h mm	Dimen- sion D mm	Dimen- sion d mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>TCX-063</b>	63	26	94	67	1	15.500	<b>7202 20 4</b>
<b>TCX-075</b>	75	26	106	79	1	19.000	<b>7202 20 5</b>
<b>TCX-090</b>	90	26.6	132	94	1	37.000	<b>7202 20 6</b>
<b>TCX-110</b>	110	26.6	155	114	1	46.000	<b>7202 20 7</b>
<b>TCX-125</b>	125	40	172	129	1	70.000	<b>7202 20 8</b>

Intumescent material /pc.

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, then M8



## Pipe sleeve with 6 fastening straps

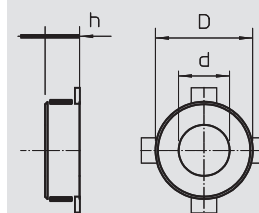
Type	Pipe Ø mm	Dimen- sion h mm	Dimen- sion D mm	Dimen- sion d mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>TCX-140</b>	140	40	200	144	1	106.000	<b>7202 20 9</b>
<b>TCX-160</b>	160	40	220	164	1	107.000	<b>7202 21 0</b>

Intumescent material /pc.

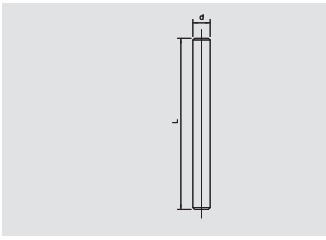
Pipe sleeve for combustible pipes

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 M8 threaded rods



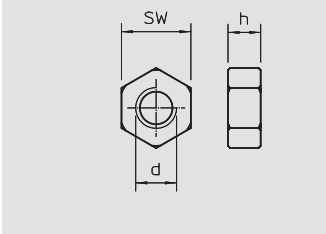




### Threaded rod

Type	Thread	Dimension d mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>2078 M6 1M G</b>	M6	6	1,000	100	18.300	<b>3141 04 7</b>
<b>2078 M8 1M G</b>	M8	8	1,000	50	30.000	<b>3141 12 8</b>

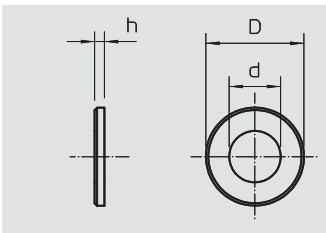
**St** Steel **G** Electrogalvanised /100 pc.  
Threaded rod to DIN 976.



### Hexagonal nut

Type	Thread	Dimension d mm	Dimension mm	SW mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>DIN 934 M6 G</b>	M6	6	5.2	10	100	0.225	<b>3400 06 9</b>
<b>DIN 934 M8 G</b>	M8	8	6.8	13	100	0.474	<b>3400 08 5</b>

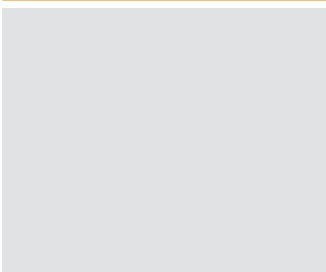
**St** Steel **G** Electrogalvanised /100 pc.  
Hexagonal nut to DIN 934 with metric thread.



### Washer

Type	Thread	Dimension D mm	Dimension d mm	Dimension h mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>967 M6 G</b>	M6	28	6.5	2.5	100	1.150	<b>3402 20 7</b>
<b>967 M8 G</b>	M8	28	8.5	2.5	100	1.100	<b>3402 21 5</b>

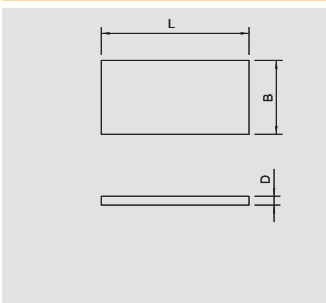
**St** Steel **G** Electrogalvanised /100 pc.  
Washer of large outer diameter for universal use.



### Mineral wool

Type	Dimension	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MIW-S</b>	25 Liter	1	250.000	<b>7202 30 6</b>

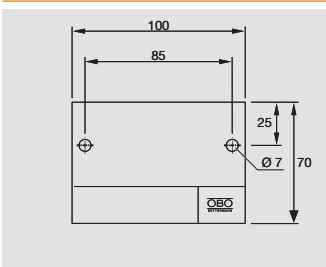
Mineral fibres /pc.  
Universal filling wool for various fire protection applications, packed in compressed form.  
Material class EN 13 501 - A1, non-combustible; melting point ≥ 1,000 °C



### 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>7202 28 3</b>
<b>KSI-P2</b>	500	250	30	1	111.000	<b>7202 90 4</b>
<b>KSI-P3</b>	1,000	250	30	1	222.000	<b>7202 91 2</b>

Calcium silicate /pc.  
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	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS-S DE</b>	1	2.400	<b>7205 42 5</b>

/pc.  
Universal identification plate to be written on for all OBO insulation. For approved identification, including two push-fit anchors.





## Contents, PYROSIT® NG fire protection foam

	Fire protection foam	188
	Fire protection case	188
	Cartridge pistols	188
	Identification plate	189



# Fire protection foam PYROSIT® NG



## 2-component fire protection foam

Type	Contents	Pack.	Weight	Item No.
	ml	pcs	kg/100 pcs.	
<b>FBS-S</b>	380	1	64.600	<b>7203 80 0</b>

/pc.

PYROSIT® NG 2-component fire protection foam in a cartridge, including 2 mixer pipes. To create cable and combination insulation; always process with the cartridge pistols FBS-PH or FBS-PA. In dry, frost-free rooms, the compound can be stored at temperatures from +5 °C to +30 °C for up to 12 months in closed, upright original containers.



## Mixer pipe set

Type	Pack.	Weight	Item No.
	PU	kg/100 PUs	
<b>FBS-M</b>	1	10.000	<b>7203 80 3</b>

/pc.

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



## Fire protection case

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>FBS-K</b>	1	420.000	<b>7203 80 9</b>

/pc.

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



## Professional cartridge pistol

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>FBS-PH</b>	2	120.000	<b>7203 80 6</b>

/pc.

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.



## Battery-operated cartridge pistol

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>FBS-PA</b>	1	630.000	<b>7203 81 2</b>

/pc.

High-quality, motor-operated 2-component cartridge pistol for use with the PYROSIT® NG fire protection foam. The hard-shell case contains a FBS-PA pistol, a charging device and a rechargeable battery.



## Replacement battery

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>FBS-EA</b>	1		<b>7203 81 5</b>

/pc.

Replacement battery for motor-operated cartridge pistol FBS-PA



## Cable coil

Type	Width	Length	Pack.	Weight	Item No.
	mm	mm	pcs	kg/100 pcs.	
<b>FBA-WI</b>	150	5,000	2	83.000	<b>7202 51 0</b>

/pc.

Intumescent material  
Selfadhesive, intumescent cable coil for use in cable insulation FBA-B120 for cable diameters > 18 mm (also on executed cable support systems).

## Adhesive tape

Type	Width mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>SHT</b>	50	5	12.000	<b>7202 52 1</b>

**PE** Polyethylene

/pc.

Fibre-reinforced, transparent adhesive tape as insulation 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>7202 28 3</b>
<b>KSI-P2</b>	500	250	30	1	111.000	<b>7202 90 4</b>
<b>KSI-P3</b>	1,000	250	30	1	222.000	<b>7202 91 2</b>

Calcium silicate

/pc.

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.

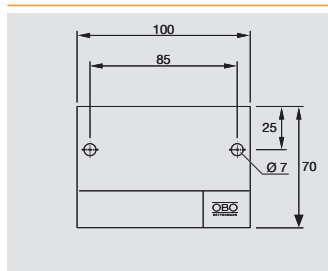
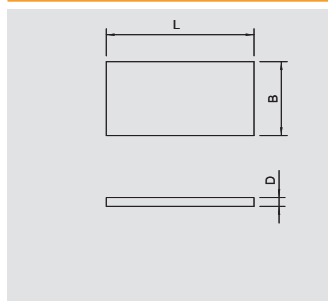
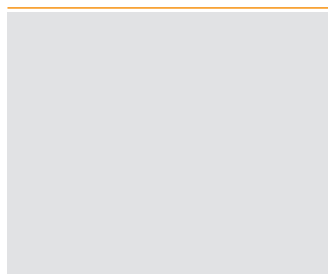


## Identification plate

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS-S DE</b>	1	2.400	<b>7205 42 5</b>



/pc.

Universal identification plate to be written on for all OBO insulation. For approved identification, including two push-fit anchors.





## Contents, PYROBAG® cushion insulation

	Cushion	192
	Identification plate	192

# Cushion insulation PYROBAG®

Cushion insulation PYROBAG®



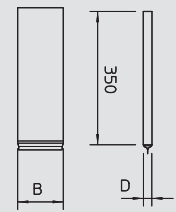
## Fire protection cushion

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>7202 70 9</b>
<b>KBK-2</b>	170	23	20	33.000	<b>7202 72 5</b>
<b>KBK-3</b>	170	40	10	63.000	<b>7202 74 1</b>

Glass mesh with special fire protection filling

/pc.

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.



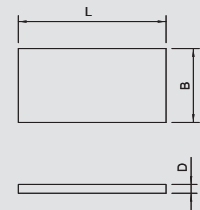
## Calcium silicate plate

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>7202 28 3</b>
<b>KSI-P2</b>	500	250	30	1	111.000	<b>7202 90 4</b>
<b>KSI-P3</b>	1,000	250	30	1	222.000	<b>7202 91 2</b>

Calcium silicate

/pc.

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

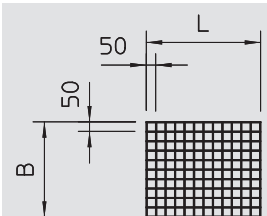
Type	Dimension L mm	Dimension B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>SDG-1</b>	600	500	1	135.000	<b>7202 96 3</b>
<b>SDG-2</b>	1,000	600	1	270.000	<b>7202 97 1</b>

**St** Steel

**FT** Hot-dip galvanised

/pc.

Steel wire grid as support and protection grid, wire diameter 2 mm

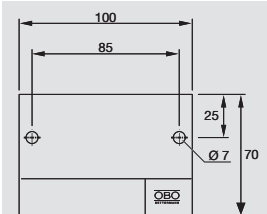


## Identification plate

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS-S DE</b>	1	2.400	<b>7205 42 5</b>

/pc.

Universal identification plate to be written on for all OBO insulation. For approved identification, including two push-fit anchors.















## Contents, PYROPLUG® foam series

	Foam block	196
	Box insulation	196
	Plugs	196
	Pipe shells	196
	Filler	197
	Identification plate	198



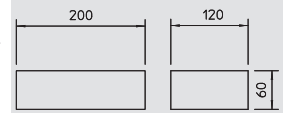
# PYROPLUG® foam series

PYROPLUG® foam series



## FBA-B200 foam block

Type	Dimension mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FBA-B200</b>	200 x 120 x 60	20	40.000	<b>7202 50 6</b>

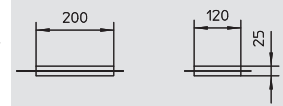


Permanently elastic, closed-pore foam /pc.  
 Foam block for cable and combination insulation  
 Protect the blocks against water in order to guarantee safe foaming in case of fire.



## FBA-BV200 vacuum block

Type	Dimension mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FBA-BV200</b>	200 x 120 x 25	10	40.000	<b>7202 51 6</b>

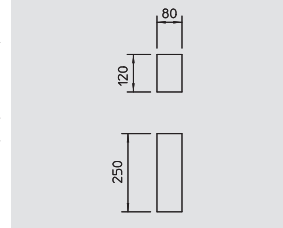


Permanently elastic, closed-pore foam /pc.  
 Vacuum block for cable and combination insulation  
 On cutting the film, the vacuum block expands to its original size. Can be used with or without film.  
 Protect the blocks against water in order to guarantee safe foaming in case of fire.



## FBA-B120 foam block

Type	Dimension mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FBA-B120</b>	250 x 120 x 80	10	66.000	<b>7202 50 8</b>

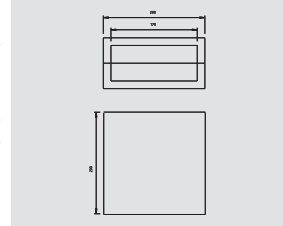


Permanently elastic, closed-pore foam /pc.  
 Foam block for cable insulation  
 Protect the blocks against water in order to guarantee safe foaming in case of fire.



## FBA-F 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>7202 66 0</b>

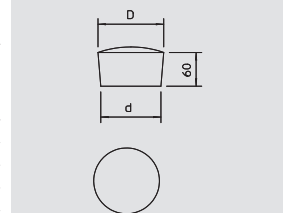


Permanently elastic, closed-pore foam /pc.  
 Box for cable insulation consisting of a two-part, hard frame and two internal pieces. Protect the box and internal pieces against water in order to guarantee safe foaming in case of fire.



## FBA-S plug

Type	For opening Ø mm	Dimension D mm	Dimension d mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FBA-S65</b>	65	75	65	20	8.000	<b>7202 55 1</b>
<b>FBA-S78</b>	78	87	78	20	11.000	<b>7202 55 5</b>
<b>FBA-S107</b>	107	117	107	20	19.000	<b>7202 55 9</b>
<b>FBA-S122</b>	122	132	122	20	23.100	<b>7202 56 3</b>
<b>FBA-S134</b>	134	144	134	20	28.600	<b>7202 56 7</b>
<b>FBA-S165</b>	165	175	165	20	43.200	<b>7202 57 1</b>
<b>FBA-S200</b>	200	210	200	20	67.000	<b>7202 57 5</b>
<b>FBA-S250</b>	250	260	250	10	86.500	<b>7202 57 9</b>

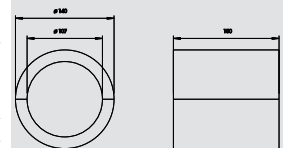


Permanently elastic, closed-pore foam /pc.  
 Plug for cable insulation  
 Protect the FBA plugs against water in order to guarantee safe foaming in case of fire.



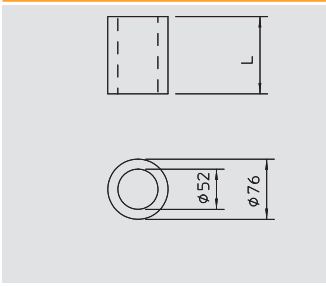
## FBA-SR pipe shell

Type	For opening Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FBA-SR</b>	140	4	73.000	<b>7202 58 6</b>



Permanently elastic, closed-pore foam /pc.  
 Pipe shell for cable insulation consisting of a two-part, hard pipe sleeve and two soft plugs of 107 mm diameter. Protect the pipe sleeves and plugs against water in order to guarantee safe foaming in case of fire.

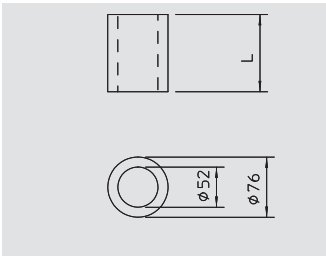
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**FBA-D drilling crown insulation**

Type	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FBA-D100</b>	100	4	15.500	<b>7202 62 4</b>
<b>FBA-D150</b>	150	8	19.200	<b>7202 62 8</b>

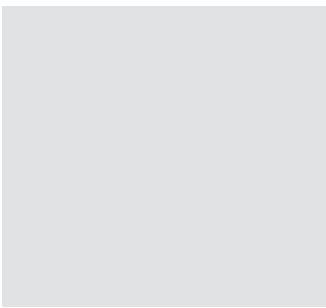
Permanently elastic, closed-pore foam /pc.  
Pipe shell for cable insulation consisting of a one-part, hard pipe sleeve and two soft plugs of 50 mm diameter. Protect the pipe sleeves and plugs against water in order to guarantee safe foaming in case of fire.



**FBA-DR empty mini pipe shell**

Type	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FBA-DR100</b>	100	6	6.500	<b>7202 61 3</b>
<b>FBA-DR150</b>	150	9	10.200	<b>7202 61 7</b>

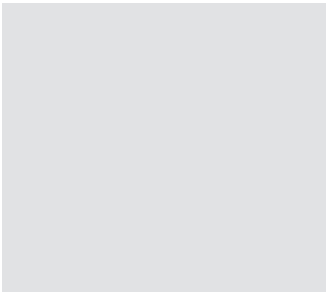
Permanently elastic, closed-pore foam /pc.  
Empty pipe sleeve for use in FBA-SP small insulation in lightweight partitions. Protect the pipe sleeves against water in order to guarantee safe foaming in case of fire.



**PYROPLUG® Screed filler**

Type	Contents ml	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FBA-SP</b>	310	1	46.000	<b>7202 32 2</b>

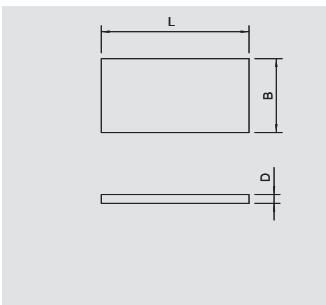
Intumescent material /pc.  
Fire protection filler in a cartridge  
Usable as small insulation and as joint closing compound in all insulation of the PYROPLUG® series.  
In dry, frost-free rooms, the fire protection filler can be stored for up to 12 months at a temperature of +5 °C to +30 °C.



**Cable coil**

Type	Width mm	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FBA-WI</b>	150	5,000	2	83.000	<b>7202 51 0</b>

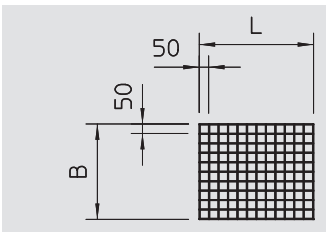
Intumescent material /pc.  
Selfadhesive, intumescent cable coil for use in cable insulation FBA-B120 for cable diameters > 18 mm (also on executed cable support systems).



**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>7202 28 3</b>
<b>KSI-P2</b>	500	250	30	1	111.000	<b>7202 90 4</b>
<b>KSI-P3</b>	1,000	250	30	1	222.000	<b>7202 91 2</b>

Calcium silicate /pc.  
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>7202 96 3</b>
<b>SDG-2</b>	1,000	600	1	270.000	<b>7202 97 1</b>

St Steel FT Hot-dip galvanised /pc.  
Steel wire grid as support and protection grid, wire diameter 2 mm



# PYROPLUG® foam series

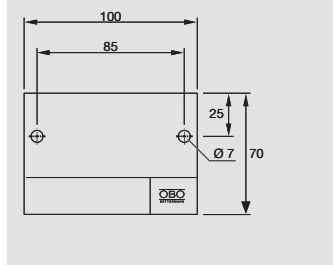


## Identification plate

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>KS-S DE</b>	1	2.400	<b>7205 42 5</b>

/pc.

Universal identification plate to be written on for all OBO insulation. For approved identification, including two push-fit anchors.












## Contents, PYROCOMB® pipe sleeve

	Pipe sleeve	202
	Insulation layer creator	202
	Identification plate	203



# PYROCOMB® pipe sleeve

PYROCOMB® pipe sleeve

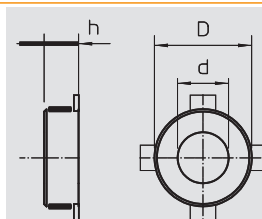


## Pipe sleeve with 2 fastening straps

Type	Pipe Ø	Dimension h	Dimension D	Dimension d	Pack.	Weight	Item No.
	mm	mm	mm	mm	pcs	kg/100 pcs.	
<b>TCX-032</b>	32	26	50	36	1	6.500	<b>7202 20 0</b>
<b>TCX-040</b>	40	26	58	44	1	7.000	<b>7202 20 1</b>
<b>TCX-050</b>	50	26	68	54	1	8.000	<b>7202 20 3</b>

Intumescent material /pc.

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

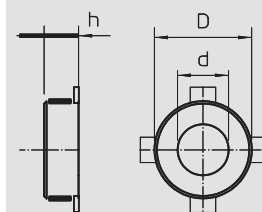


## Pipe sleeve with 4 fastening straps

Type	Pipe Ø	Dimension h	Dimension D	Dimension d	Pack.	Weight	Item No.
	mm	mm	mm	mm	pcs	kg/100 pcs.	
<b>TCX-063</b>	63	26	94	67	1	15.500	<b>7202 20 4</b>
<b>TCX-075</b>	75	26	106	79	1	19.000	<b>7202 20 5</b>
<b>TCX-090</b>	90	26.6	132	94	1	37.000	<b>7202 20 6</b>
<b>TCX-110</b>	110	26.6	155	114	1	46.000	<b>7202 20 7</b>
<b>TCX-125</b>	125	40	172	129	1	70.000	<b>7202 20 8</b>

Intumescent material /pc.

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, then M8

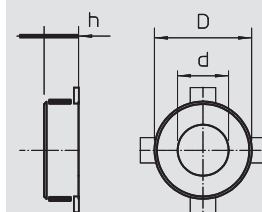


## Pipe sleeve with 6 fastening straps

Type	Pipe Ø	Dimension h	Dimension D	Dimension d	Pack.	Weight	Item No.
	mm	mm	mm	mm	pcs	kg/100 pcs.	
<b>TCX-140</b>	140	40	200	144	1	106.000	<b>7202 20 9</b>
<b>TCX-160</b>	160	40	220	164	1	107.000	<b>7202 21 0</b>

Intumescent material /pc.

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 M8 threaded rods



## Insulation layer creator in a cartridge

Type	Contents	Pack.	Weight	Item No.
	ml	pcs	kg/100 pcs.	
<b>DSX-K</b>	300	1	50.000	<b>7202 30 0</b>

Intumescent material /pc.

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 12 months in closed, upright original containers.



## Mineral wool

Type	Dimension	Pack.	Weight	Item No.
		pcs	kg/100 pcs.	
<b>MIW-S</b>	25 Liter	1	250.000	<b>7202 30 6</b>

Mineral fibres /pc.

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



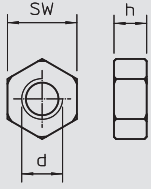
## Threaded rod

Type	Thread	Dimension d	Dimension L	Pack.	Weight	Item No.
		mm	mm	pcs	kg/100 pcs.	
<b>2078 M6 1M G</b>	M6	6	1,000	100	18.300	<b>3141 04 7</b>
<b>2078 M8 1M G</b>	M8	8	1,000	50	30.000	<b>3141 12 8</b>

**St** Steel **G** Electrogalvanised /100 pc.

Threaded rod to DIN 976.

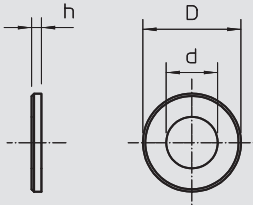




**Hexagonal nut**

Type	Thread	Dimension d mm	Dimension h mm	SW mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>DIN 934 M6 G</b>	M6	6	5.2	10	100	0.225	<b>3400 06 9</b>
<b>DIN 934 M8 G</b>	M8	8	6.8	13	100	0.474	<b>3400 08 5</b>

**St** Steel **G** Electrogalvanised /100 pc.  
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>967 M6 G</b>	M6	28	6.5	2.5	100	1.150	<b>3402 20 7</b>
<b>967 M8 G</b>	M8	28	8.5	2.5	100	1.100	<b>3402 21 5</b>

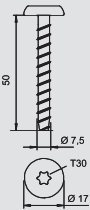
**St** Steel **G** Electrogalvanised /100 pc.  
Washer of large outer diameter for universal use.



**Bolt tie**

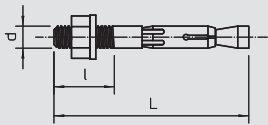
Type	Dimension mm	Bore hole Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MMS6X50</b>	6 x 50	5	100	0.960	<b>3498 10 7</b>

**St** Steel **GC** Electrogalvanised, yellow-chromated /100 pc.  
Fire protection bolt tie with pan head for direct mounting without additional anchors. Drive T30, drill hole 5 mm. Fire protection tested according to DIN 4102 for concrete and masonry.



Type	Dimension mm	Head Ø mm	Bore hole Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MMS-MS7,5x50</b>	7.5 x 50	17	6	100	1.522	<b>3498 26 0</b>

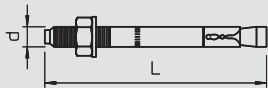
**St** Steel **G** Electrogalvanised /100 pc.  
Fire protection bolt tie with large pan head for direct mounting without additional anchors. Drive T30, drill hole 6 mm. Fire protection tested according to DIN 4102 for concrete and masonry.



**Metal spreading anchor**

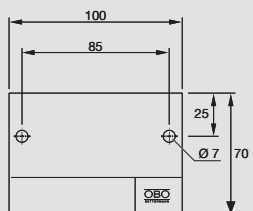
Type	Thread	Clamping range mm	Dimension d mm	Dimension l mm	Dimension L mm	Bore hole Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FNA II 6X30 M6/5</b>	M6	5	6	13	53	6	100	1.400	<b>3498 42 5</b>

**St** Steel **G** Electrogalvanised /100 pc.  
Bolt tie with M6 thread. European technical approval for concrete. Fire resistance class to F120 according to fire protection testing report.



Type	Thread	Dimension L mm	Dimension d mm	Clamping range mm	Bore hole Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FAZ II 8 10 GS</b>	M8	75	8	10	8	50	3.720	<b>3498 50 6</b>

**St** Steel **G** Electrogalvanised /100 pc.  
Bolt tie for fastening high loads. Matches OBO mounting systems and wall support brackets and supports.



**Identification plate**




Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS-S DE</b>	1	2.400	<b>7205 42 5</b>

/pc.  
Universal identification plate to be written on for all OBO insulation. For approved identification, including two push-fit anchors.





## Contents, materials for small insulation and individual cables acc. to MLAR

	Insulation layer creator	206
	Mineral wool	206
	Identification plate	206



# Materials for small insulation and individual cables acc. to MLAR

Materials for small insulation and individual cables acc. to MLAR



## Insulation layer creator in a cartridge

Type	Contents	Pack.	Weight	Item No.
	ml	pcs	kg/100 pcs.	
<b>DSX-K</b>	300	1	50.000	<b>7202 30 0</b>

Intumescent material /pc.  
 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 12 months in closed, upright original containers.



## Insulation layer creator in a bucket

Type	Contents	Pack.	Weight	Item No.
	kg	pcs	kg/100 pcs.	
<b>DSX-E</b>	5	1	500.000	<b>7202 30 2</b>

Intumescent material /pc.  
 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 12 months in closed, upright original containers.



## Mineral wool

Type	Dimension	Pack.	Weight	Item No.
		pcs	kg/100 pcs.	
<b>MIW-S</b>	25 Liter	1	250.000	<b>7202 30 6</b>

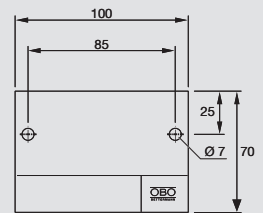
Mineral fibres /pc.  
 Universal filling wool for various fire protection applications, packed in compressed form. Material class EN 13 501 - A1, non-combustible; melting point ≥ 1,000 °C



## Identification plate for small insulation

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>KS-S DE</b>	1	2.400	<b>7205 42 5</b>

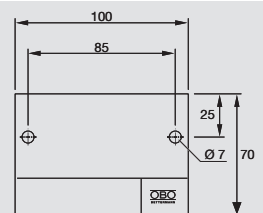
Universal identification plate to be written on for all OBO insulation. For approved identification, including two push-fit anchors.



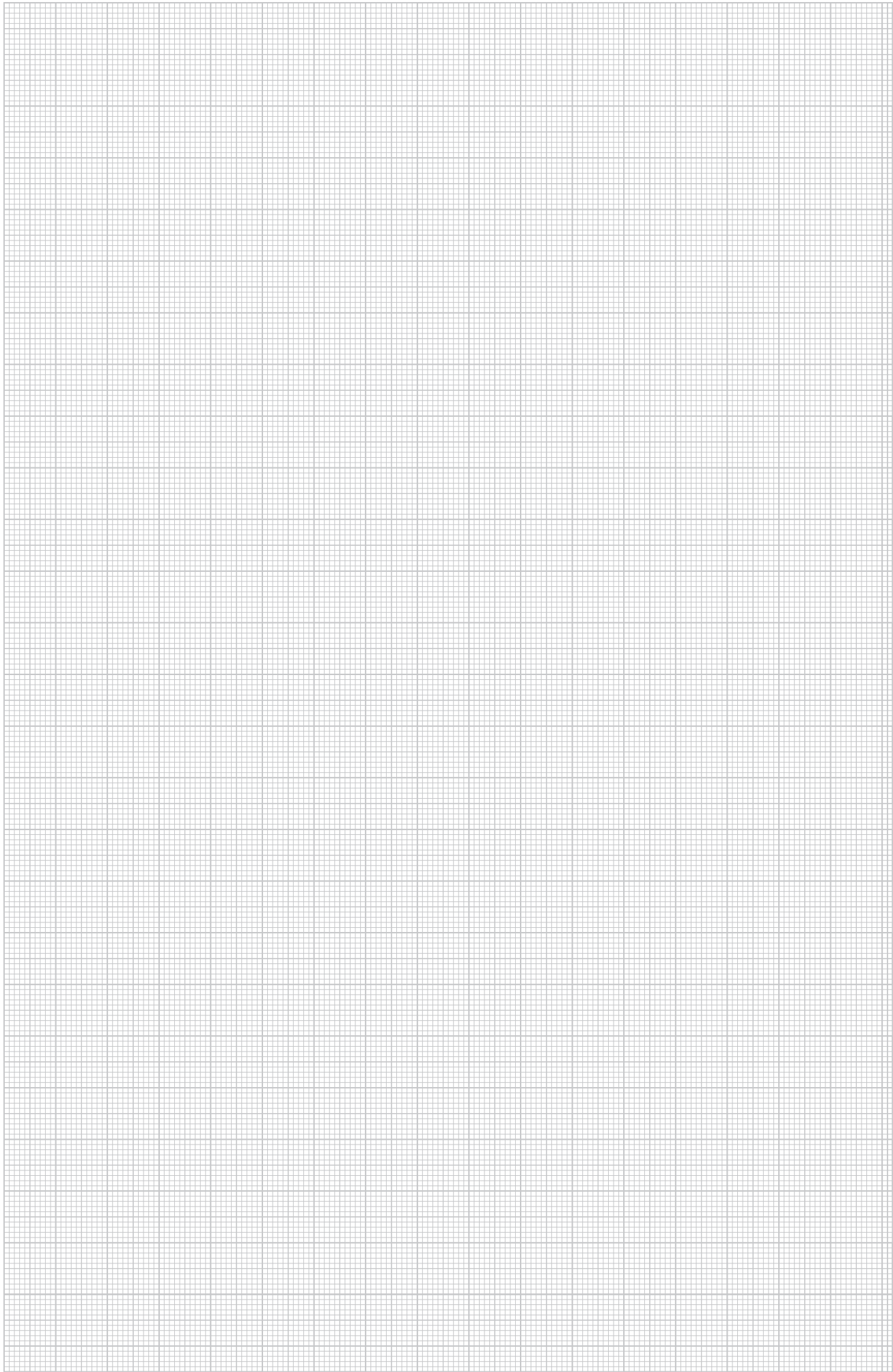
## Identification plate for single cable

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>KS-LAR DE</b>	1	2.400	<b>7205 42 0</b>

**PVC** Polyvinylchloride /pc.  
 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.





05\_BSS\_Masterkatalog\_Länder\_2012 / en / 17/07/2012 (LLExpert\_04003) / 18/07/2012







## Contents, false ceiling escape route installations

	Grip M grouped support	210
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	Mesh cable tray GR-Magic®	213
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# False ceiling, grouped support and pressure clip



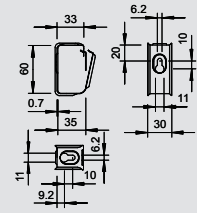
## Grouped support GRIP "M" 15

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>2031 M 15 FS</b>	50	3.700	<b>2207 02 8</b>

**St** Steel **FS** Strip-galvanised /100 pc.

Metal grouped support for high mechanical stability, even in case of fire. Halogen-free, fire load-free. Suitable for secure mounting above fire protection ceilings. Also approved as a cable-specific variant for electrical function maintenance to DIN 4102 Part 12. For wall and ceiling mounting. Lock can be opened without tools. Type 2031 M 70 FS incl. fire protection screw tie MMS 6x50.

Detailed information on the approved routing variants can be found in the appropriate testing documentation.



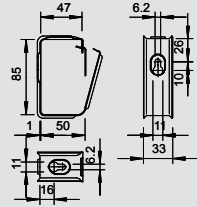
## Grouped support GRIP "M" 30

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>2031 M 30 FS</b>	25	6.200	<b>2207 03 6</b>

**St** Steel **FS** Strip-galvanised /100 pc.

Metal grouped support for high mechanical stability, even in case of fire. Halogen-free, fire load-free. Suitable for secure mounting above fire protection ceilings. Also approved as a cable-specific variant for electrical function maintenance to DIN 4102 Part 12. For wall and ceiling mounting. Lock can be opened without tools. Type 2031 M 70 FS incl. fire protection screw tie MMS 6x50.

Detailed information on the approved routing variants can be found in the appropriate testing documentation.



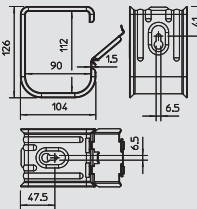
## Grouped support GRIP "M" 70

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>2031 M 70 FS</b>	10	34.500	<b>2207 06 0</b>

**St** Steel **FS** Strip-galvanised /100 pc.

Metal grouped support for high mechanical stability, even in case of fire. Halogen-free, fire load-free. Suitable for secure mounting above fire protection ceilings. Also approved as a cable-specific variant for electrical function maintenance to DIN 4102 Part 12. For wall and ceiling mounting. Lock can be opened without tools. Type 2031 M 70 FS incl. fire protection screw tie MMS 6x50.

Detailed information on the approved routing variants can be found in the appropriate testing documentation.



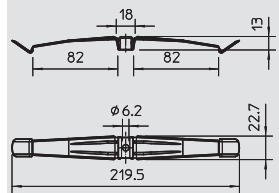
## Metal pressure clip, for 16 cables

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>2033 M</b>	25	2.310	<b>2204 00 0</b>

**V2A** Stainless steel, grade 301 /100 pc.

Metal pressure clip for space-saving mounting with high mechanical stability, even in case of fire. Halogen-free, fire load-free. Also suitable for secure mounting above fire protection ceilings. Tested and approved as a cable-specific variant for electrical function maintenance to DIN 4102 Part 12. For ceiling mounting. Clamping height 10 mm – extendable to 13 mm with spacer. Fastening hole Ø 6 mm.

Detailed information on the approved routing variants can be found in the appropriate testing documentation.



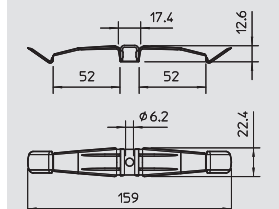
## Metal pressure clip, for 10 cables

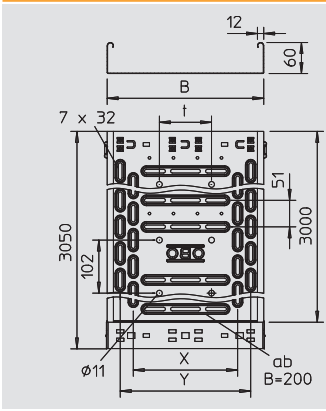
Type	Shipping box	Pack.	Weight	Item No.
	pcs	pcs	kg/100 pcs.	
<b>2034 M</b>	50	50	1.860	<b>2204 01 0</b>

**V2A** Stainless steel, grade 301 /100 pc.

Metal pressure clip for space-saving mounting with high mechanical stability, even in case of fire. Halogen-free, fire load-free. Also suitable for secure mounting above fire protection ceilings. Tested and approved as a cable-specific variant for electrical function maintenance to DIN 4102 Part 12. For ceiling mounting. Clamping height 10 mm – extendable to 13 mm with spacer. Fastening hole Ø 6 mm.

Detailed information on the approved routing variants can be found in the appropriate testing documentation.



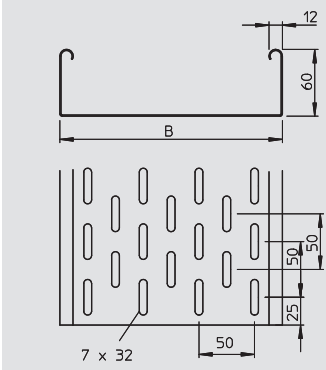


## Cable tray RKSM 60

Type	Width	Plate thickness	Length	Dimension x	Dimension y	Dimension t	Weight	Item No.
	mm	mm	mm	mm	mm	mm	kg/100 m	
<b>RKSM 610 FS</b>	100	0.75	3,050	—	50	—	134.300	<b>6047 61 1</b>
<b>RKSM 620 FS</b>	200	0.75	3,050	100	150	—	183.000	<b>6047 63 8</b>
<b>RKSM 630 FS</b>	300	0.75	3,050	200	250	100	239.000	<b>6047 65 4</b>
<b>RKSM 640 FS</b>	400	0.9	3,050	300	350	200	331.300	<b>6047 68 9</b>

**St** Steel **FS** Strip-galvanised /m

RKSM 60 = efficient magic cable tray system with 60 mm side height.

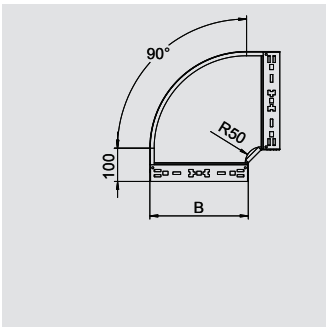


## Cable tray SKS 60

Type	Length	Width	Plate thickness	Weight	Item No.
	mm	mm	mm	kg/100 m	
<b>SKS 620 FS</b>	3,000	200	1.5	356.800	<b>6056 20 2</b>
<b>SKS 630 FS</b>	3,000	300	1.5	455.300	<b>6056 29 6</b>
<b>SKS 640 FS</b>	3,000	400	1.5	522.000	<b>6056 40 7</b>
<b>SKS 650 FS</b>	3,000	500	1.5	650.300	<b>6056 50 4</b>
<b>SKS 660 FS</b>	3,000	600	1.5	749.300	<b>6056 60 1</b>

**St** Steel **FS** Strip-galvanised /m

SKS 60 = heavy-duty cable tray system with 60 mm side height. FS version includes RV 60 straight connector set.

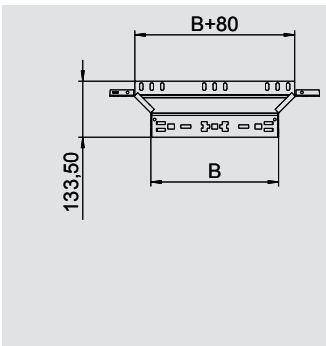


## 90° bend

Type	Width	Pack.	Weight	Item No.
	mm	pcs	kg/100 pcs.	
<b>RBM 90 610 FS</b>	100	1	65.700	<b>6041 13 0</b>
<b>RBM 90 620 FS</b>	200	1	122.100	<b>6041 13 4</b>
<b>RBM 90 630 FS</b>	300	1	192.800	<b>6041 13 6</b>
<b>RBM 90 640 FS</b>	400	1	275.400	<b>6041 13 8</b>
<b>RBM 90 650 FS</b>	500	1	377.200	<b>6041 14 0</b>
<b>RBM 90 660 FS</b>	600	1	494.300	<b>6041 14 2</b>

**St** Steel **FS** Strip-galvanised /pc.

90° bend with quick connector system. For all cable tray types of 60 mm side height.

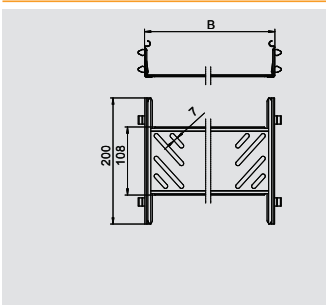


## Mounting/branch piece

Type	Width	Pack.	Weight	Item No.
	mm	pcs	kg/100 pcs.	
<b>RAAM 610 FS</b>	100	1	37.900	<b>6041 23 0</b>
<b>RAAM 620 FS</b>	200	1	50.600	<b>6041 23 4</b>
<b>RAAM 630 FS</b>	300	1	63.500	<b>6041 23 6</b>
<b>RAAM 640 FS</b>	400	1	76.500	<b>6041 23 8</b>
<b>RAAM 650 FS</b>	500	1	89.300	<b>6041 24 0</b>
<b>RAAM 660 FS</b>	600	1	102.700	<b>6041 24 2</b>

**St** Steel **FS** Strip-galvanised /pc.

Mounting/branch piece with quick connector system. For all cable tray types of 60 mm side height.



## Connector for RKSM

Type	Side height	Width	Pack.	Weight	Item No.
	mm	mm	pcs	kg/100 pcs.	
<b>KTSMV 610 FS</b>	60	100	1	30.500	<b>6068 91 4</b>
<b>KTSMV 620 FS</b>	60	200	1	37.200	<b>6068 91 8</b>
<b>KTSMV 630 FS</b>	60	300	1	44.000	<b>6068 92 0</b>
<b>KTSMV 640 FS</b>	60	400	1	50.700	<b>6068 92 2</b>

**St** Steel **FS** Strip-galvanised /pc.

Cable tray connector with quick fastening for straight, screwless connection of cable trays and fittings with a side height of 60 mm.



# False ceiling, cable tray

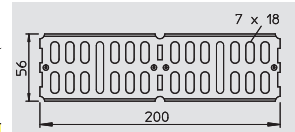


## Connector for SKS

Type	Dimension mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>RWVL 60 FS</b>	200 x 56	10	15.600	<b>6067 11 5</b>

**St** Steel **FS** Strip-galvanised /pc.

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

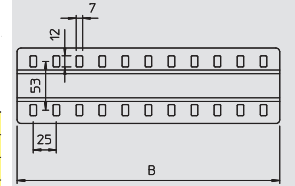


## Joint plate for SKS

Type	Width mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>SSLB 200 FS</b>	185	20	16.700	<b>7070 21 3</b>
<b>SSLB 300 FS</b>	285	20	25.700	<b>7070 21 7</b>
<b>SSLB 400 FS</b>	385	20	34.700	<b>7070 22 1</b>
<b>SSLB 500 FS</b>	485	20	43.700	<b>7070 22 5</b>
<b>SSLB 600 FS</b>	585	20	52.700	<b>7070 23 3</b>

**St** Steel **FS** Strip-galvanised /pc.

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

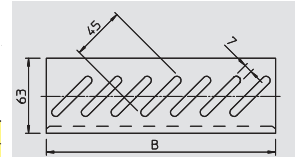


## Floor end plate

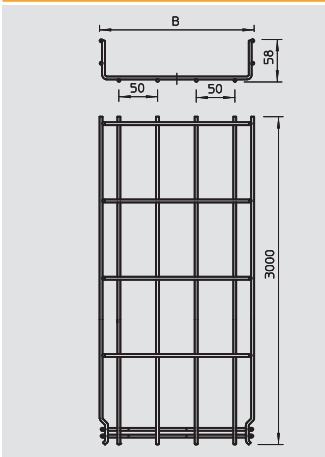
Type	Width mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BEB 100 FS</b>	100	100	5.400	<b>7083 10 6</b>
<b>BEB 200 FS</b>	200	100	11.400	<b>7083 20 3</b>
<b>BEB 300 FS</b>	300	100	17.200	<b>7083 30 0</b>
<b>BEB 400 FS</b>	400	100	23.100	<b>7083 40 8</b>
<b>BEB 500 FS</b>	500	50	29.000	<b>7083 50 5</b>
<b>BEB 600 FS</b>	600	50	35.000	<b>7083 60 2</b>

**St** Steel **FS** Strip-galvanised /pc.

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



# False ceiling, mesh cable tray

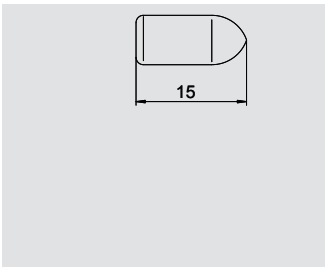
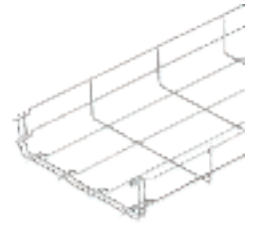


## Mesh cable tray GRM 55

Type	Width	Wire Ø	Length	Weight	Item No.
	mm	mm	mm	kg/100 m	
<b>GRM 55 100 G</b>	100	3.9	3,000	72.400	<b>6001 44 2</b>
<b>GRM 55 200 G</b>	200	3.9	3,000	100.000	<b>6001 44 6</b>
<b>GRM 55 300 G</b>	300	4.8	3,000	194.900	<b>6001 44 8</b>
<b>GRM 55 400 G</b>	400	4.8	3,000	236.700	<b>6001 45 0</b>

**St** Steel **G** Electrogalvanised /m

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

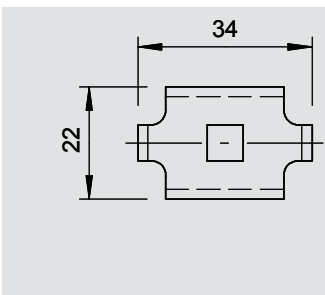


## Protective cap for mesh cable tray

Type	Wire Ø	Colour	Pack.	Weight	Item No.
	mm		pcs	kg/100 pcs.	
<b>GR KS 3.9 OR</b>	3.9	Pastel orange	500	0.025	<b>6003 75 0</b>
<b>GR KS 4.8 OR</b>	4.8	Pastel orange	500	0.030	<b>6003 75 4</b>

**PE** Polyethylene /100 pc.

Protective cap for attachment to cut wire ends of mesh cable trays.

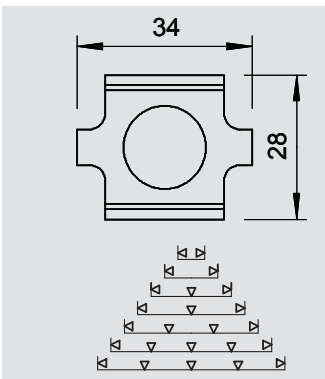


## Clamping piece

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>GKS 34 G</b>	100	2.000	<b>6016 85 5</b>

**St** Steel **G** Electrogalvanised /pc.

Clamping piece for fastening mesh cable trays to wall or support brackets.



## Connector

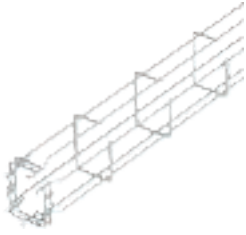
Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>GSV 34 G</b>	25	3.000	<b>6016 59 6</b>

**St** Steel **G** Electrogalvanised /pc.

Screwed version of joint connector for cable trays.



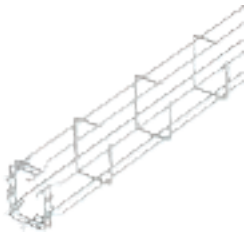
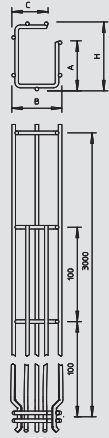
# False ceiling, G mesh cable tray



## G mesh cable tray G-GRM

Type	Dimension B mm	Dimension H mm	Dimension C mm	Dimension A mm	Length mm	Weight kg/100 m	Item No.
<b>G-GRM 50 50 G</b>	55	55	33	40	3,000	67.100	<b>6005 53 5</b>
<b>G-GRM 75 50 G</b>	53	73	40	53	3,000	79.900	<b>6005 53 8</b>

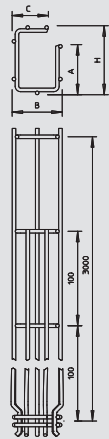
**St** Steel      **G** Electrogalvanised      /m  
G-shaped mesh cable tray made of spot-welded steel wire with different side heights and widths.



## G mesh cable tray G-GRM

Type	Dimension B mm	Dimension H mm	Dimension C mm	Dimension A mm	Length mm	Weight kg/100 m	Item No.
<b>G-GRM 125 75 G</b>	75	125	40	96	3,000	109.000	<b>6005 54 1</b>
<b>G-GRM 150 100 G</b>	100	155	70	120	3,000	128.000	<b>6005 54 4</b>

**St** Steel      **G** Electrogalvanised      /m  
G-shaped mesh cable tray made of spot-welded steel wire with different side heights and widths.

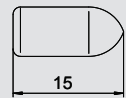


## Protective cap for mesh cable tray



Type	Wire Ø mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>GR KS 3.9 OR</b>	3.9	Pastel orange	500	0.025	<b>6003 75 0</b>

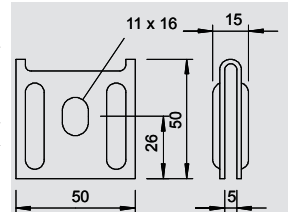
**PE** Polyethylene      /100 pc.  
Protective cap for attachment to cut wire ends of mesh cable trays.



## Clamping piece

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>K 12 1818 FS</b>	25	7.600	<b>6437 10 9</b>

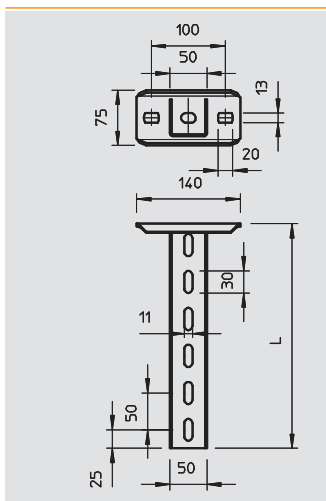
**St** Steel      **FS** Strip-galvanised      /pc.  
Wall clamp and central hanger for mesh cable trays.



## Securing hook

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>G-GRM-SH 4401</b>	50	0.740	<b>6005 65 0</b>

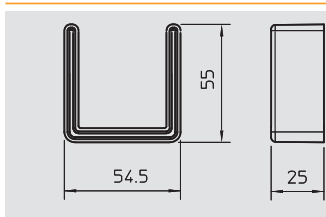
**V4A** Stainless steel, grade 316      /pc.  
For protection against bending in case of fire; usable in the types G-GRM 125 75 and G-GRM 150 100



## US 5 suspended support

Type	Length mm	Material thickness mm	Pack. pcs	Weight kg/100 pcs.	Item No.
US 5 K 20 FT	200	2.5	2	85.000	6341 52 7
US 5 K 30 FT	300	2.5	2	110.000	6341 53 5
US 5 K 40 FT	400	2.5	2	136.000	6341 54 3
US 5 K 50 FT	500	2.5	2	161.000	6341 55 1
US 5 K 60 FT	600	2.5	2	185.000	6341 57 8
US 5 K 70 FT	700	2.5	2	210.000	6341 58 6
US 5 K 80 FT	800	2.5	2	236.000	6341 59 4
US 5 K 90 FT	900	2.5	2	261.000	6341 60 8
US 5 K 100 FT	1,000	2.5	2	286.000	6341 61 6
US 5 K 110 FT	1,100	2.5	2	311.000	6341 62 4
US 5 K 120 FT	1,200	2.5	2	337.000	6341 63 2

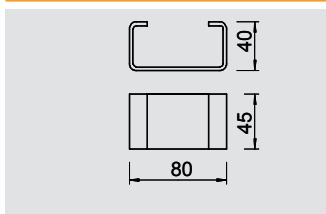
**St** Steel **FT** Hot-dip galvanised /pc.  
 U support of dimensions 50 x 50 mm with welded head plate.



## Protective cap for US 5 support

Type	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
US 5 KS OR	Pastel orange	20	1.300	6338 46 2

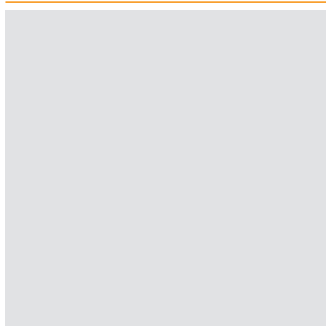
**PE** Polyethylene /pc.  
 Protective cap for end covering of US 5 supports.



## Spacer DSK 45

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
DSK 45 FT	25	19.000	6416 50 0

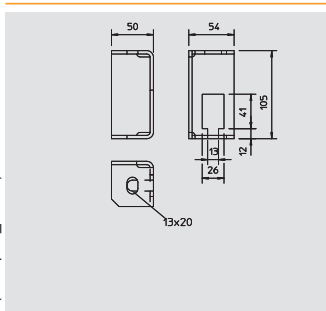
**St** Steel **FT** Hot-dip galvanised /pc.  
 Spacer for use in U 5 support and in the head plate, type KU 7 VQP.



## Wall and support bracket AW 30F

Type	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
AW30F21 FT	210	20	75.000	6417 02 7
AW30F31 FT	310	20	100.000	6417 04 3
AW30F41 FT	410	20	125.000	6417 07 8
AW30F51 FT	510	10	165.000	6417 09 4
AW30F61 FT	610	10	183.000	6417 11 6

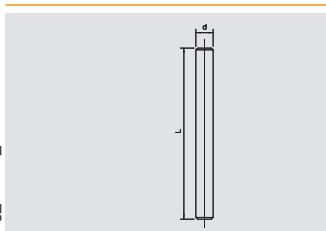
**St** Steel **FT** Hot-dip galvanised /pc.  
 Bracket for mounting on suspended supports or as wall bracket for cable tray routing type above fire protection ceilings. The brackets are supplied unmounted.



## Fire protection clamp

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
BSB FT	20	42.400	6418 19 8

**St** Steel **FT** Hot-dip galvanised /pc.  
 Fire protection clamp for ceiling fastening of the threaded rod lock for routing types with cable ladders and cable trays for function maintenance 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.
2078 M12 1M G	M12	12	1,000	20	100.000	3141 30 6

**St** Steel **G** Electrogalvanised /100 pc.  
 Threaded rod to DIN 976.



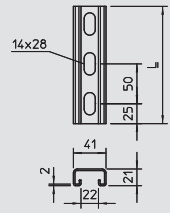
# False ceiling, mounting systems

## Mounting rail, MS 21



Type	Version	Dimension b x h mm	Material thickness mm	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MS 21 L 200 FT</b>	Perforated	41x21	2	200	30	30.300	<b>1122 93 3</b>
<b>MS 21 L 300 FT</b>	Perforated	41x21	2	300	25	45.500	<b>1122 93 4</b>

**St** Steel **FT** Hot-dip galvanised /100 pc.  
Heavy-duty profile/mounting rail with continuous perforation in base, slot width 22 mm.

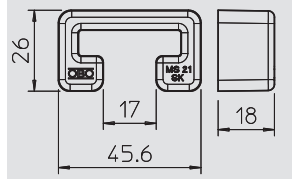


## Protective cap for mounting rail MS21



Type	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MS 21 SK OR SP</b>	Pastel orange	25	0.650	<b>1122 90 2</b>

**PE** Polyethylene /100 pc.  
Protective caps for profile rail, types MS 21.

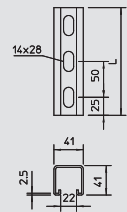


## Mounting rail, MS 41



Type	Version	Dimension b x h mm	Material thickness mm	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MS 41 L 200 FT</b>	Perforated	41x41	2.5	200	6	52.400	<b>1122 50 9</b>
<b>MS 41 L 300 FT</b>	Perforated	41x41	2.5	300	6	78.500	<b>1122 51 7</b>
<b>MS 41 L 400 FT</b>	Perforated	41x41	2.5	400	6	104.700	<b>1122 52 5</b>
<b>MS 41 L 500 FT</b>	Perforated	41x41	2.5	500	6	130.800	<b>1122 53 3</b>

**St** Steel **FT** Hot-dip galvanised /100 pc.  
Heavy-duty profile/mounting rail with continuous perforation in base, slot width 22 mm.

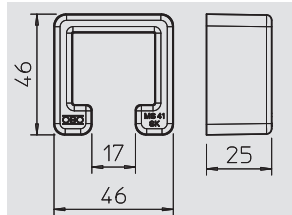


## Protective cap for mounting rail MS41



Type	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MS 41 SK OR SP</b>	Pastel orange	25	1.320	<b>1122 90 0</b>

**PE** Polyethylene /100 pc.  
Protective caps for profile rail, types MS 41.



## Separating retainer



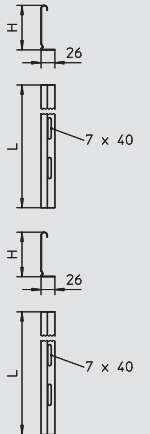
Type	Side height mm	Length mm	Pack. m	Weight kg/100 m	Item No.
<b>TSG 45 FS</b>	45	3,000	45	46.700	<b>6062 03 3</b>

**St** Steel **FS** Strip-galvanised /m  
Separating retainer for separation of cables of different voltages or functions.



Type	Side height mm	Length mm	Weight kg/100 m	Item No.
<b>TSG 60 FS</b>	60	3,000	55.700	<b>6062 06 8</b>

**St** Steel **FS** Strip-galvanised /m  
Separating retainer for separation of cables of different voltages or functions.

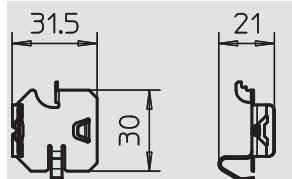


## Separating retainer clamping piece for cable tray



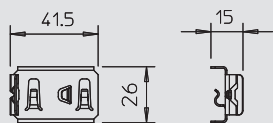
Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS KR VA4310</b>	30	0.580	<b>6062 28 0</b>

**V2A** Stainless steel, grade 301 /100 pc.  
Clamping piece for screwless fastening of separating retainers in the cable tray types RKSM, MKS and SKS.





## Separating retainer clamping piece for mesh cable tray



Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>KS GR VA4310</b>	30	0.830	<b>6062 28 2</b>

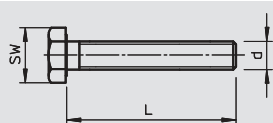
V2A Stainless steel, grade 301

/100 pc.

Clamping piece for fastening separating retainers in mesh cable trays.



## Hexagonal bolt with continuous thread



Type	Dimension	Dimension L	Dimension d	SW	Pack.	Weight	Item No.
	mm	mm	mm	mm	pcs	kg/100 pcs.	
<b>SKS 10X90 F</b>	M10 x 90	90	10	17	20	7.800	<b>6418 25 2</b>

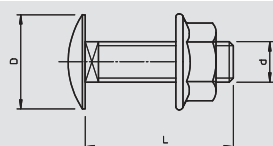
St Steel F Hot-dip galvanised

/100 pc.

Hexagonal bolt for universal fixing of structure components.



## Truss-head bolt



Type	Thread	Length	Dimension D	Dimension d	SW	Pack.	Weight	Item No.
		mm	mm	mm	mm	pcs	kg/100 pcs.	
<b>FRSB 6X12 F</b>	M6	12	13.5	6	10	100	0.990	<b>6406 12 2</b>
<b>FRSB 6X15 F</b>	M6	16	13.5	6	10	100	0.800	<b>6406 15 7</b>
<b>FRSB 6X20 F</b>	M6	20	13.5	6	10	100	1.000	<b>6406 20 3</b>

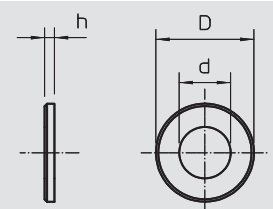
St Steel F Hot-dip galvanised

/100 pc.

Truss-head bolt with square neck including nut-and-washer assembly.



## Large washer



Type	Dimension D	Dimension d	Dimension h	Pack.	Weight	Item No.
	mm	mm	mm	pcs	kg/100 pcs.	
<b>DIN440 7 F</b>	22	6.6	2	100	0.550	<b>6408 70 2</b>
<b>DIN440 14 F</b>	44	13.5	4	50	4.736	<b>6408 73 7</b>

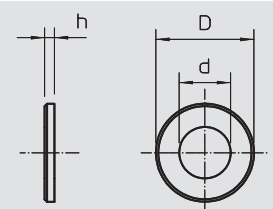
St Steel F Hot-dip galvanised

/100 pc.

Washer of particularly large outer diameter.



## Washer



Type	Thread	Dimension D	Dimension d	Dimension h	Pack.	Weight	Item No.
		mm	mm	mm	pcs	kg/100 pcs.	
<b>966 M12 G</b>	M12	24	13	2.5	100	0.627	<b>3402 12 6</b>

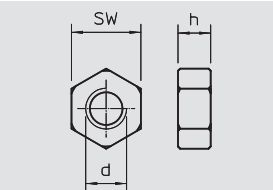
St Steel G Electrogalvanised

/100 pc.

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



## Hexagonal nut



Type	Thread	Dimension d	Dimension h	SW	Pack.	Weight	Item No.
		mm	mm	mm	pcs	kg/100 pcs.	
<b>DIN 934 M12 G</b>	M12	12	10.8	19	100	1.730	<b>3400 12 3</b>

St Steel G Electrogalvanised

/100 pc.

Hexagonal nut to DIN 934 with metric thread.





## Contents, fire protection ducts

	PYROLINE® Rapid - Fire protection duct for direct and suspended mounting	BSKM 07 fire protection duct I30 to I120	220
		BSKM 1025 fire protection duct I30 to I120	223
		BSKM accessories	226
	PYROLINE® Con D - Fire protection duct for direct wall and ceiling mounting	BSK 09 fire protection duct I90 and E30	228
		BSK 12 fire protection duct I120 and E90	230
		BSK accessories	231
	PYROLINE® Con S - Fire protection duct for suspended mounting	BSKH 09 fire protection duct I90 and E30	234
		BSKH 09 mounting systems	237
	PYROLINE® Sun PV - Concrete photovoltaic duct for direct and suspended mounting	BSKP fire protection duct I30	240



# Fire protection duct PYROLINE® Rapid - BSKM 0711



## Metal fire protection duct, I30 to I120

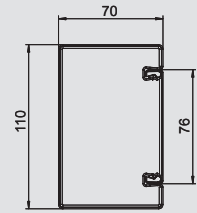
Type	Height	Width	Length	Pack.	Weight	Item No.
	mm	mm	mm	m	kg/100 m	
<b>BSKM 0711</b>	70	110	2,000	2	387.000	<b>7216 30 0</b>

**St** Steel **FS** Strip-galvanised /m

Sheet steel duct with intumescent interior 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).

Scope of delivery: cover and base as complete unit  
Coloured versions available on request in various RAL shades.

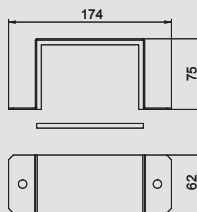


## Connector

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>BSKM-VD 0711</b>	1	37.600	<b>7216 31 0</b>

**St** Steel **FS** Strip-galvanised /pc.

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.

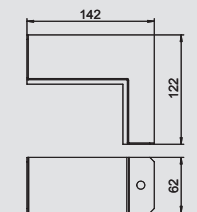


## Connector for corner mounting

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>BSKM-VE 0711</b>	5	25.600	<b>7216 31 2</b>

**St** Steel **FS** Strip-galvanised /pc.

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.

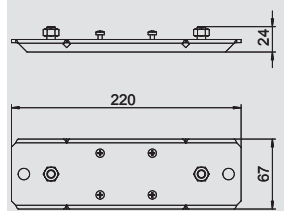


## Support

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>BSKM-AD 0711</b>	1	45.000	<b>7216 31 5</b>

**St** Steel **FS** Strip-galvanised /pc.

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

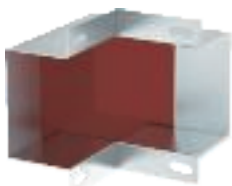
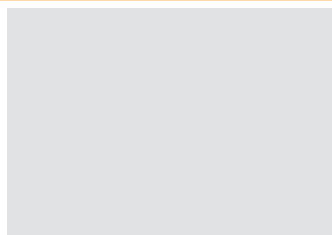


## Connecting screw

Type	Dimension	Pack.	Weight	Item No.
		pcs	kg/100 pcs.	
<b>BSKM-S4010</b>	M4x10	100		<b>3498 09 4</b>

**St** Steel **G** Electrogalvanised /100 pc.

Self-tapping screw to fix the BSKM fire protection ducts to the BSKM-AD support profiles and to secure the lid support on the BSKM 1025.

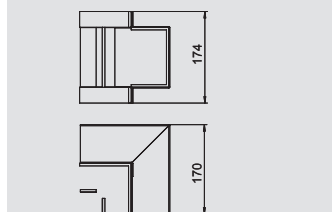


## External corner

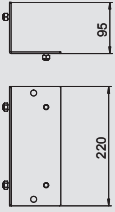
Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>BSKM-AE 0711</b>	1	124.200	<b>7216 32 0</b>

**St** Steel **FS** Strip-galvanised /pc.

Hood to cover two BSKM 0711 duct ends as external corner for direct wall and ceiling mountings, including seals.



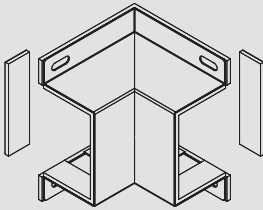
# Fire protection duct PYROLINE® Rapid - BSKM 0711



## Lock plate for external corner

Type	Pack.	Weight	Item No.
<b>BSKM-GA 0711</b>	1	99.600	<b>7216 32 5</b>

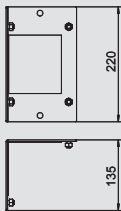
**St** Steel **FS** Strip-galvanised /pc.  
 Adapter plate for suspended mounting of the external corner hood BSKM-AE 0711, with acceptance option for M10 threaded rods, including nuts.



## Internal corner

Type	Pack.	Weight	Item No.
<b>BSKM-IE 0711</b>	1	94.000	<b>7216 34 0</b>

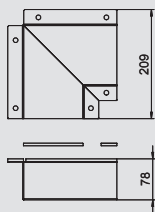
**St** Steel **FS** Strip-galvanised /pc.  
 Hood to cover two BSKM 0711 duct ends as internal corner for direct wall and ceiling mountings, including seals.



## Lock plate for internal corner

Type	Pack.	Weight	Item No.
<b>BSKM-GI 0711</b>	1	145.800	<b>7216 34 5</b>

**St** Steel **FS** Strip-galvanised /pc.  
 Adapter plate for suspended mounting of the internal corner hood BSKM-IE 0711, with acceptance option for M10 threaded rods, including nuts.



## Flat angle

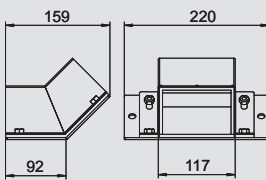
Type	Pack.	Weight	Item No.
<b>BSKM-FW 0711</b>	1	116.300	<b>7216 33 0</b>

**St** Steel **FS** Strip-galvanised /pc.  
 Hood to cover two BSKM 0711 duct ends as flat angle for direct wall and ceiling mountings, including seals.



Type	Pack.	Weight	Item No.
<b>BSKM-GF 0711</b>	1	122.400	<b>7216 33 5</b>

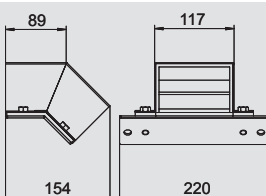
**St** Steel **FS** Strip-galvanised /pc.  
 Adapter plate for suspended mounting of the flat angle hood BSKM-FW 0711, with acceptance option for M10 threaded rods, including nuts.



## 45° vertical bend, rising

Type	Pack.	Weight	Item No.
<b>BSKM-ES 0711</b>	1	181.000	<b>7216 35 0</b>

**St** Steel **FS** Strip-galvanised /pc.  
 For creation of vertical jumps for suspended mounting of the BSKM 0711, with acceptance option for M10 threaded rods, including seals and nuts.



## 45° vertical bend, falling

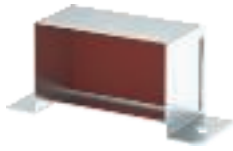
Type	Pack.	Weight	Item No.
<b>BSKM-EF 0711</b>	1	139.400	<b>7216 35 5</b>

**St** Steel **FS** Strip-galvanised /pc.  
 For creation of vertical jumps for suspended mounting of the BSKM 0711, with acceptance option for M10 threaded rods, including seals and nuts.



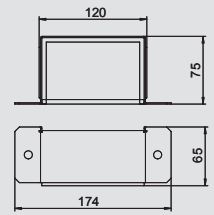
# Fire protection duct PYROLINE® Rapid - BSKM 0711

## End piece



Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>BSKM-VK 0711</b>	1	51.300	<b>7216 36 0</b>

**St** Steel **FS** Strip-galvanised /pc.  
 For smoke-tight end closure of the BSKM 0711 for direct wall and ceiling mounting, in connection with the support profile BSKM-AD 0711, even for suspended mounting; including seals.



## Cable clamp for wall mounting



Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>BSKM-BW 0711</b>	10	7.400	<b>7216 37 0</b>

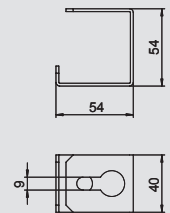
**St** Steel **FS** Strip-galvanised /pc.  
 Installation aid to prevent the cables from falling out; for wall mounting of the BSKM 0711

## Cable clamp for ceiling mounting



Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>BSKM-BD 0711</b>	10	9.200	<b>7216 37 2</b>

**St** Steel **FS** Strip-galvanised /pc.  
 Installation aid to prevent the cables from falling out; for ceiling mounting of the BSKM 0711



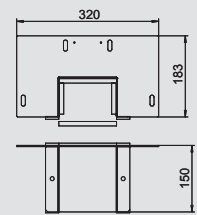
## Wall connection I120



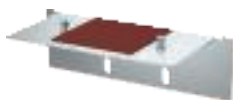
Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>BSKM-WA 0711</b>	1	252.000	<b>7216 38 0</b>

**St** Steel **FS** Strip-galvanised /pc.  
 Frame as additional insulation in the area of the wall transition for direct wall and ceiling mounting of the BSKM 0711, including seals and screen.

Only needed for I120 requirements.

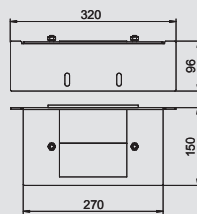


## Lock plate for wall connection I120

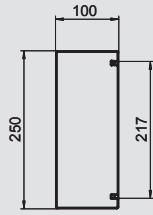


Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>BSKM-GW 0711</b>	1	299.200	<b>7216 38 5</b>

**St** Steel **FS** Strip-galvanised /pc.  
 Adapter plate for suspended mounting of the wall connection BSKM-WA 0711, with acceptance option for M10 threaded rods, including nuts.



# Fire protection duct PYROLINE® Rapid - BSKM 1025



## Metal fire protection duct, I30 to I120

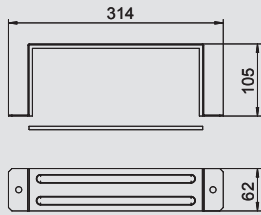
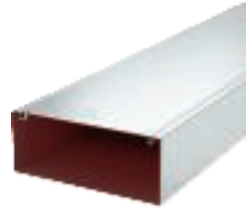
Type	Height mm	Width mm	Length mm	Pack. m	Weight kg/100 m	Item No.
<b>BSKM 1025</b>	100	250	2,000	2	710.600	<b>7216 40 0</b>

**St** Steel **FS** Strip-galvanised /m

Sheet steel duct with intumescent interior 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).

Scope of delivery: cover and base as complete unit  
Coloured versions available on request in various RAL shades.

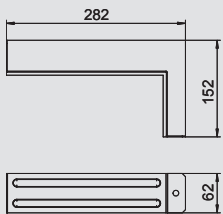


## Connector

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-VD 1025</b>	1	67.200	<b>7216 41 0</b>

**St** Steel **FS** Strip-galvanised /pc.

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.

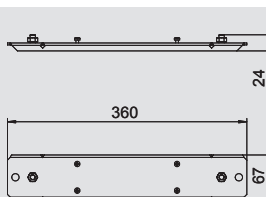


## Connector for corner mounting

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-VE 1025</b>	5	45.200	<b>7216 41 2</b>

**St** Steel **FS** Strip-galvanised /pc.

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.



## Support

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-AD 1025</b>	5	70.100	<b>7216 41 5</b>

**St** Steel **FS** Strip-galvanised /pc.

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

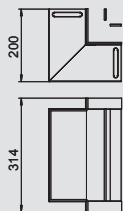


## Connecting screw

Type	Dimension	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-S4010</b>	M4x10	100		<b>3498 09 4</b>

**St** Steel **G** Electrogalvanised /100 pc.

Self-tapping screw to fix the BSKM fire protection ducts to the BSKM-AD support profiles and to secure the lid support on the BSKM 1025.



## External corner

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKM-AE 1025</b>	1	245.300	<b>7216 42 0</b>

**St** Steel **FS** Strip-galvanised /pc.

Hood to cover two BSKM 1025 duct ends as external corner for direct wall and ceiling mountings, including seals.



# Fire protection duct PYROLINE® Rapid - BSKM 1025

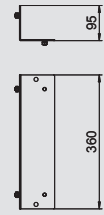
## Lock plate for external corner



Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>BSKM-GA 1025</b>	1	160.800	<b>7216 42 5</b>

**St** Steel **FS** Strip-galvanised /pc.

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



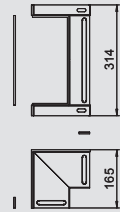
## Internal corner



Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>BSKM-IE 1025</b>	1	157.600	<b>7216 44 0</b>

**St** Steel **FS** Strip-galvanised /pc.

Hood to cover two BSKM 1025 duct ends as internal corner for direct wall and ceiling mountings, including seals.



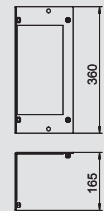
## Lock plate for internal corner



Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>BSKM-GI 1025</b>	1	275.800	<b>7216 44 5</b>

**St** Steel **FS** Strip-galvanised /pc.

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



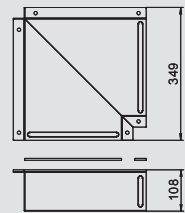
## Flat angle



Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>BSKM-FW 1025</b>	1	289.800	<b>7216 43 0</b>

**St** Steel **FS** Strip-galvanised /pc.

Hood to cover two BSKM 1025 duct ends as flat angle for direct wall and ceiling mountings, including seals.



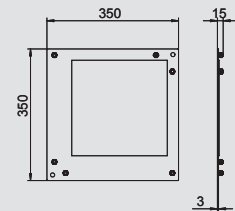
## Lock plate for flat angle



Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>BSKM-GF 1025</b>	1	295.600	<b>7216 43 5</b>

**St** Steel **FS** Strip-galvanised /pc.

Adapter plate for suspended mounting of the flat angle hood BSKM-FW 1025, with acceptance option for M10 threaded rods, including nuts.



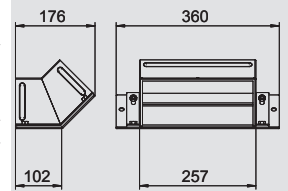
## 45° vertical bend, rising



Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>BSKM-ES 1025</b>	1	282.900	<b>7216 45 0</b>

**St** Steel **FS** Strip-galvanised /pc.

For creation of vertical jumps for suspended mounting of the BSKM 1025, with acceptance option for M10 threaded rods, including seals and nuts.



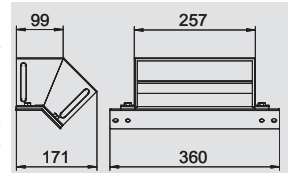
## 45° vertical bend, falling



Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>BSKM-EF 1025</b>	1	235.000	<b>7216 45 5</b>

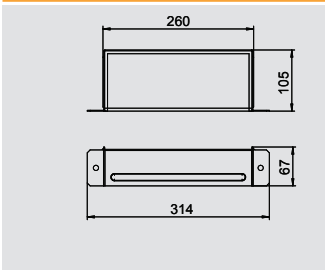
**St** Steel **FS** Strip-galvanised /pc.

For creation of vertical jumps for suspended mounting of the BSKM 1025, with acceptance option for M10 threaded rods, including seals and nuts.





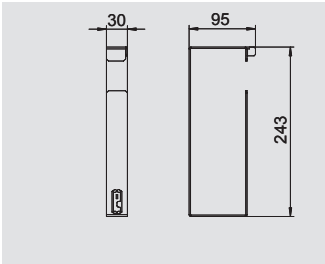
# Fire protection duct PYROLINE® Rapid - BSKM 1025



## End piece

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>BSKM-VK 1025</b>	1	106.900	<b>7216 46 0</b>

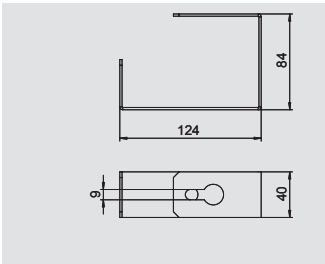
**St** Steel **FS** Strip-galvanised /pc.  
For smoke-tight end closure of the BSKM 1025 for direct wall and ceiling mounting, in connection with the support profile BSKM-AD 1025, even for suspended mounting; including seals.



## Cable clamp for wall mounting

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>BSKM-BW 1025</b>	10	16.500	<b>7216 47 0</b>

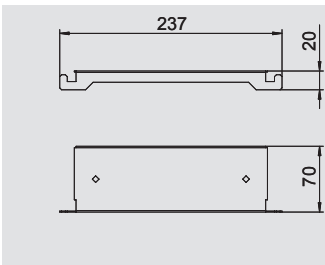
**St** Steel **FS** Strip-galvanised /pc.  
Installation aid to prevent the cables from falling out; for wall mounting of the BSKM 1025



## Cable clamp for ceiling mounting

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>BSKM-BD 1025</b>	10	19.200	<b>7216 47 2</b>

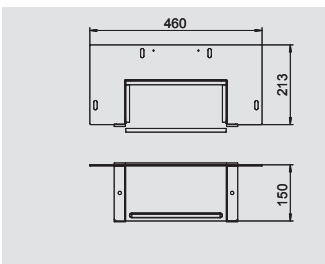
**St** Steel **FS** Strip-galvanised /pc.  
Installation aid to prevent the cables from falling out; for ceiling mounting of the BSKM 1025



## Lid support

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>BSKM-DS 1025</b>	10	13.500	<b>7216 47 4</b>

**St** Steel **FS** Strip-galvanised /pc.  
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



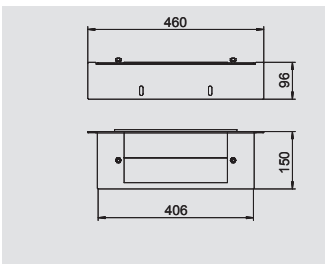
## Wall connection I120

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>BSKM-WA 1025</b>	1	408.500	<b>7216 48 0</b>

**St** Steel **FS** Strip-galvanised /pc.  
Frame as additional insulation in the area of the wall transition for direct wall and ceiling mounting of the BSKM 1025, including seals and screen.



Only needed for I120 requirements.



## Lock plate for wall connection I120

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>BSKM-GW 1025</b>	1	125.000	<b>7216 48 5</b>

**St** Steel **FS** Strip-galvanised /pc.  
Adapter plate for suspended mounting of the wall connection BSKM-WA 1025, with acceptance option for M10 threaded rods, including nuts.



Fire protection ducts



# Fire protection duct PYROLINE® Rapid - BSKM accessories



## V-Tec brass cable outlet

Type	Thread	Pack.	Weight	Item No.
		pcs	kg/100 pcs.	
V-TEC VM12 MS	M12 x 1,5	50	1.200	2086 01 8
V-TEC VM16 MS	M16 x 1,5	50	1.640	2086 02 4
V-TEC VM20 MS	M20 x 1,5	25	3.140	2086 03 0
V-TEC VM25 MS	M25 x 1,5	25	4.260	2086 03 6
V-TEC VM32 MS	M32 x 1,5	20	7.160	2086 04 2
V-TEC VM40 MS	M40 x 1,5	5	12.240	2086 04 8
V-TEC VM50 MS	M50 x 1,5	5	22.700	2086 05 4

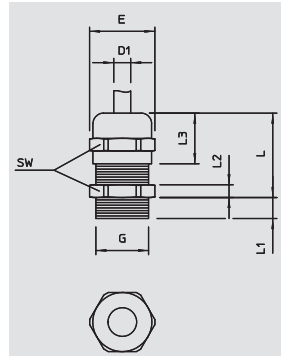
**CuZn** Brass **N** Nickel-plated /100 pc.

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 sealing ring on connection thread, VDE-tested to DIN EN 50262, protection rating IP 68 at 5 bar for 1 hr.

\* Prices according to DEL notation.

### Important dimensions, brass cable gland

G	D1	SW	E	L max.	L1
	mm	mm	mm	mm	mm
M12 x 1.5	3-6	14	15.5	20	5
M16 x 1.5	5-9	17	19	24	5
M20 x 1.5	9-13	22	24	27	6
M25 x 1.5	11-16	27	30	29.5	7
M32 x 1.5	14-21	34	36	30	8
M40 x 1.5	19-27	43	46	33	8
M50 x 1.5	24-35	55	60	38.5	9



## Cable outlet, locknut, brass

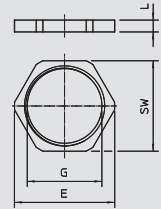
Type	Thread	SW	Dimension E	Dimension L	Pack.	Weight	Item No.
		mm	mm	mm	pcs	kg/100 pcs.	
169 MS M12	M12 x 1,5	15	16.6	3	100	0.220	2091 60 7
169 MS M16	M16 x 1,5	20	22.1	2.8	100	0.310	2091 61 5
169 MS M20	M20 x 1,5	24	25.6	3	100	0.580	2091 62 3
169 MS M25	M25 x 1,5	30	33.2	3.5	100	0.880	2091 63 1
169 MS M32	M32 x 1,5	35	38.7	4	100	1.120	2091 65 8
169 MS M40	M40 x 1,5	45	49.8	4.5	50	1.920	2091 66 6
169 MS M50	M50 x 1,5	55	66.4	5.5	50	3.070	2091 67 4

**CuZn** Brass **N** Nickel-plated /100 pc.

Locknuts DIN 46319 with metric thread IEC 423.

\* Price according to DEL notation.

G	SW	E	L
mm	mm	mm	mm

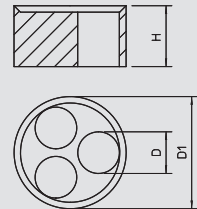


## Cable outlet, multiple sealing ring for V-Tec

Type	Size	Dimension D	Dimension H	Dimension D1	Number of drill holes	Pack.	Weight	Item No.
	mm	mm	mm	mm		pcs	kg/100 pcs.	
107 C VM 20 2x4	M20	4	8.1	15.1	2	50	0.130	2029 67 2
107 C VM 20 4x5	M20	5	8.1	15.1	4	50	0.080	2029 67 5
107 C VM 20 2x6	M20	6	8.1	15.1	2	50	0.100	2029 67 7
107 C VM 25 5x4	M25	4	10	19.8	5	50	0.180	2029 67 9
107 C VM 25 3x6	M25	6	10	19.8	3	50	0.210	2029 68 2
107 C VM 25 2x6	M25	6	10	19.8	2	50	0.260	2029 68 5
107 C VM 25 3x7	M25	7	10	19.8	3	50	0.180	2029 68 8
107 C VM 25 2x8	M25	8	10	19.8	2	50	0.200	2029 69 0
107 C VM 32 2x8	M32	8	13.4	25.1	2	25	0.530	2029 69 3
107 C VM 32 4x8	M32	8	13.4	25.1	4	25	0.400	2029 69 6

**NBR-SBR** Rubber mixture /100 pc.

Use to insert multiple thin cables in the V-TEC VM cable glands, is replaced with the simple sealing ring of the cable gland.



## Locking bracket

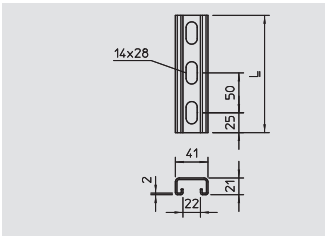
Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
RKV3V	20	0.120	6288 70 0

/pc.

Locking bracket for the mechanical and electrical connection of trunking covers and trunking bases.



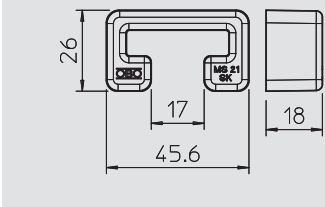
# Fire protection duct PYROLINE® Rapid - BSKM accessories



## Profile rail in fixed lengths

Type	Version	Dimension b x h mm	Material thickness mm	Length mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MS 21 L 200 FT</b>	Perforated	41x21	2	200	30	30.300	<b>1122 93 3</b>
<b>MS 21 L 400 FT</b>	Perforated	41x21	2	400	10	60.600	<b>1122 93 5</b>

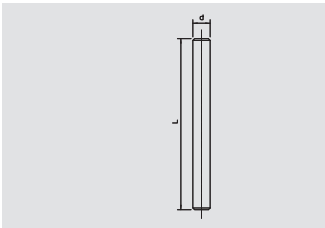
**St** Steel **FT** Hot-dip galvanised /100 pc.  
Heavy-duty profile/mounting rail with continuous perforation in base, slot width 22 mm.



## Protective cap for profile rail

Type	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MS 21 SK OR SP</b>	Pastel orange	25	0.650	<b>1122 90 2</b>

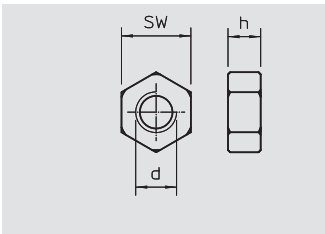
**PE** Polyethylene /100 pc.  
Protective caps for profile rail, types MS 21.



## Threaded rod

Type	Thread	Dimension d mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>2078 M10 1M G</b>	M10	10	1,000	25	49.000	<b>3141 20 9</b>

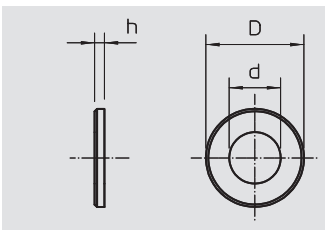
**St** Steel **G** Electrogalvanised /100 pc.  
Threaded rod to DIN 976.



## Hexagonal nut

Type	Thread	Dimension d mm	Dimension h mm	SW mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>DIN 934 M10 G</b>	M10	10	8.4	17	100	1.084	<b>3400 10 7</b>

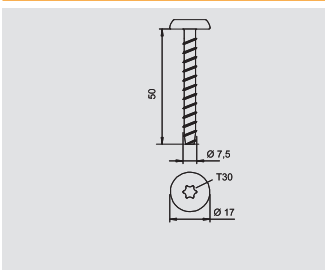
**St** Steel **G** Electrogalvanised /100 pc.  
Hexagonal nut to DIN 934 with metric thread.



## Large washer

Type	Thread	Dimension D mm	Dimension d mm	Dimension h mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>967 M10 G</b>	M10	28	11	2.5	100	1.020	<b>3402 22 3</b>

**St** Steel **G** Electrogalvanised /100 pc.  
Washer of large outer diameter for universal use.



## Fire protection bolt tie

Type	Dimension mm	Head Ø mm	Bore hole Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MMS-MS7,5x50</b>	7.5 x 50	17	6	100	1.522	<b>3498 26 0</b>

**St** Steel **G** Electrogalvanised /100 pc.  
Fire protection bolt tie with large pan head for direct mounting without additional anchors. Drive T30, drill hole 6 mm. Fire protection tested according to DIN 4102 for concrete and masonry.



# Fire protection duct PYROLINE® Con D - BSK 09

## Fire protection duct I90/E30, internal height 50 mm

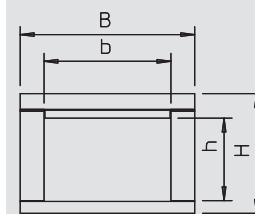


Type	Dimension h mm	Dimension b mm	Dimension H mm	Dimension B mm	Length mm	Weight kg/100 m	Item No.
<b>BSK 090506</b>	50	60	95	120	1,000	730.000	<b>7215 15 0</b>
<b>BSK 090511</b>	50	110	95	170	1,000	940.000	<b>7215 15 4</b>
<b>BSK 090521</b>	50	210	95	270	1,000	1,350.000	<b>7215 15 8</b>

Glass-fibre lightweight concrete

/m

Fire protection duct I90/I30, to DIN 4102 Part 11 and Part 12, incl. 12 x countersunk head screws and 3 x 1 m sealing strip.



## End piece I90/E30 for internal height 50 mm

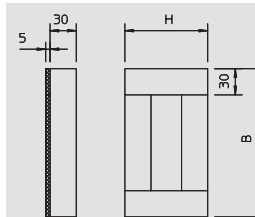


Type	Dimension B mm	Dimension H mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSK-E090506</b>	120	95	1	38.000	<b>7215 25 0</b>
<b>BSK-E090511</b>	170	95	1	51.000	<b>7215 25 2</b>
<b>BSK-E090521</b>	270	95	1	78.000	<b>7215 25 4</b>

Glass-fibre lightweight concrete

/pc.

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>7215 53 3</b>
<b>BSK-K0511</b>	1	45.000	<b>7215 53 7</b>
<b>BSK-K0521</b>	1	55.000	<b>7215 54 1</b>

Glass-fibre lightweight concrete

/pc.

Wall connection collar for BSK, consisting of three 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

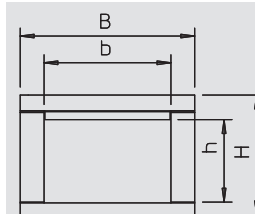


Type	Dimension h mm	Dimension b mm	Dimension H mm	Dimension B mm	Length mm	Weight kg/100 m	Item No.
<b>BSK 091016</b>	105	160	150	220	1,000	1,430.000	<b>7215 16 2</b>
<b>BSK 091026</b>	105	260	150	320	1,000	1,830.000	<b>7215 16 6</b>

Glass-fibre lightweight concrete

/m

Fire protection duct I90/I30, to DIN 4102 Part 11 and Part 12, incl. 12 x countersunk head screws and 3 x 1 m sealing strip.



## End piece I90/E30 for internal height 105 mm

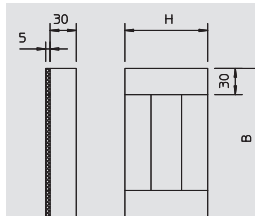


Type	Dimension B mm	Dimension H mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSK-E091016</b>	220	150	1	93.000	<b>7215 25 6</b>
<b>BSK-E091026</b>	320	150	1	131.000	<b>7215 25 8</b>

Glass-fibre lightweight concrete

/pc.

End piece for fire protection duct BSK I90/E30  
Including bolts and sealing strip.



## Wall connection collar I90 for internal height 105 mm



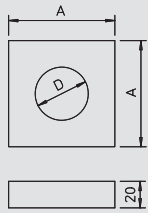
Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSK-K1016</b>	1	65.000	<b>7215 54 5</b>
<b>BSK-K1026</b>	1	75.000	<b>7215 54 9</b>

Glass-fibre lightweight concrete

/pc.

Wall connection collar for BSK, consisting of three single plates, to double the insulation for wall penetrations. Incl. fastening material. Only for I90 classification.

# Fire protection duct PYROLINE® Con D - BSK 09



## Doubler I90

Type	Dimension A mm	Dimension D mm	Pack.	Weight	Item No.
			pcs	kg/100 pcs.	
<b>BSK-A0908</b>	80	40	1	10.000	<b>7215 45 2</b>
<b>BSK-A0910</b>	100	60	1	14.000	<b>7215 45 8</b>



Glass-fibre lightweight concrete

/pc.

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 m	Weight	Item No.
			kg/100 pcs.	
<b>BSK-D0930</b>	5 x 30	15	37.500	<b>7215 42 3</b>

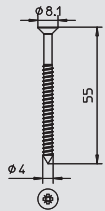


Foam

/pc.

Self-adhesive sealing strip for BSK I90/E30 and BSKH I90/E30

## Counter-sunk head screw I90/E30



Type	Dimension mm	Length m	Pack.	Weight	Item No.
			pcs	kg/100 pcs.	
<b>BSK-S0955</b>	4.0 x 55		50	0.340	<b>7215 40 0</b>



**St** Steel

**G** Electrogalvanised

/100 pc.

Counter-sunk head screw for fire protection duct I90/E30, for lid and doubler fastening.



# Fire protection duct PYROLINE® Con D - BSK 12

## Fire protection duct I120/E90, internal height 50 mm

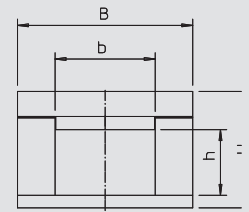


Type	Dimension h mm	Dimension b mm	Dimension H mm	Dimension B mm	Length mm	Weight kg/100 m	Item No.
<b>BSK 120506</b>	50	60	130	180	1,000	1,490.000	<b>7215 21 0</b>
<b>BSK 120511</b>	50	110	130	230	1,000	1,800.000	<b>7215 21 6</b>
<b>BSK 120521</b>	50	210	130	330	1,000	2,420.000	<b>7215 22 2</b>

Glass-fibre lightweight concrete

/m

Fire protection duct I120/E90, to DIN 4102 Part 11 and Part 12, incl. 12 x countersunk head screws and 3 x 1 m sealing strip.



## End piece I120/E90 for internal height 50 mm

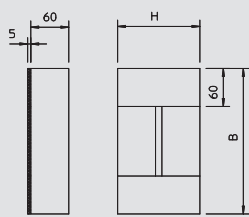


Type	Dimension B mm	Dimension H mm	Pack. pcs	Item No.
<b>BSK-E120506</b>	180	130	1	<b>7215 27 0</b>
<b>BSK-E120511</b>	230	130	1	<b>7215 27 2</b>
<b>BSK-E120521</b>	330	130	1	<b>7215 27 4</b>

Glass-fibre lightweight concrete

/pc.

End piece for fire protection duct BSK I120/E90 including bolts and sealing strip.



## Fire protection duct I120/E90, internal height 105 mm

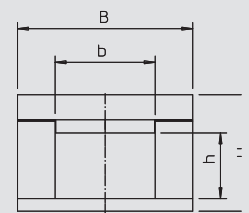


Type	Dimension h mm	Dimension b mm	Dimension H mm	Dimension B mm	Length mm	Weight kg/100 m	Item No.
<b>BSK 121016</b>	105	160	185	280	1,000	2,570.000	<b>7215 22 8</b>
<b>BSK 121026</b>	105	260	185	380	1,000	3,190.000	<b>7215 23 4</b>

Glass-fibre lightweight concrete

/m

Fire protection duct I120/E90, to DIN 4102 Part 11 and Part 12, incl. 12 x countersunk head screws and 3 x 1 m sealing strip.



## End piece I 120/E 90 for internal height 105 mm

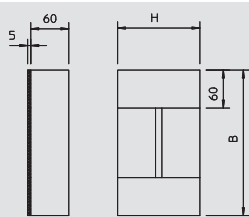


Type	Dimension B mm	Dimension H mm	Pack. pcs	Item No.
<b>BSK-E121016</b>	280	185	1	<b>7215 27 6</b>
<b>BSK-E121026</b>	380	185	1	<b>7215 27 8</b>

Glass-fibre lightweight concrete

/pc.

End piece for fire protection duct BSK I120/E90 including bolts and sealing strip.



## Sealing strip I120/E90



Type	Dimension mm	Length m	Weight kg/100 pcs.	Item No.
<b>BSK-D1260</b>	5 x 60	15	74.200	<b>7215 43 2</b>

Foam

/pc.

Self-adhesive sealing strip for BSK I120/E90.

## Counter-sunk head screw I120/E90

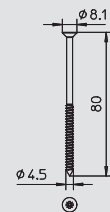


Type	Dimension mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSK-S1280</b>	4.5 x 80	50	0.500	<b>7215 41 2</b>

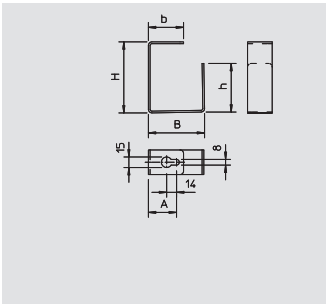
**St** Steel **G** Electrogalvanised

/100 pc.

Countersunk head screw for BSK I120/E90, for cover fastening.



# Fire protection duct PYROLINE® Con D - BSK accessories

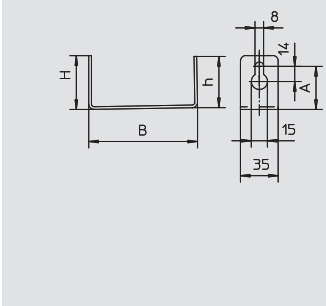


## Separating clamp for ceiling mounting

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>7215 35 6</b>
<b>BSK-B0521</b>	46	18	105	62.5	52.5	25	14.500	<b>7215 36 2</b>
<b>BSK-B1016</b>	101	69	80	50	40	25	19.000	<b>7215 36 8</b>
<b>BSK-B1026</b>	101	69	130	75	65	25	29.000	<b>7215 37 4</b>

**St** Steel **FS** Strip-galvanised /100 pc.

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 B mm	Dimension H mm	Dimension h mm	Dimension A mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSK-W0511</b>	46	37.5	22.5	37.5	25	5.000	<b>7215 31 2</b>
<b>BSK-W0521</b>	46	62.5	52.5	52.5	25	9.000	<b>7215 31 8</b>
<b>BSK-W1016</b>	101	50	40	40	25	12.500	<b>7215 32 4</b>
<b>BSK-W1026</b>	101	75	97.5	65	25	17.500	<b>7215 33 0</b>

**St** Steel **FS** Strip-galvanised /100 pc.

Separating bracket for BSK fire protection duct, as installation aid for wall mounting. Fastening by clamping under the fire protection bolt tie.



# Fire protection duct PYROLINE® Con D - BSK accessories



## Fastening clips

Type	For Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
604 3 G	3	100	0.052	1003 03 8
604 4 G	4	100	0.067	1003 04 6
604 5 G	5	100	0.084	1003 05 4
604 6 G	6	100	0.099	1003 06 2
604 7 G	7	100	0.120	1003 07 0
604 8 G	8	100	0.123	1003 08 9
604 9 G	9	100	0.139	1003 09 7
604 10 G	10	100	0.150	1003 10 0
604 11 G	11	100	0.270	1003 11 9
604 12 G	12	100	0.240	1003 12 7
604 13 G	13	100	0.280	1003 13 5
604 16 G	16	100	0.348	1003 17 8
604 19 G	19	100	0.411	1003 19 4
604 20 G	20	100	0.431	1003 20 8
604 21 G	21	100	0.447	1003 21 6
604 23 G	23	100	0.490	1003 23 2
604 25 G	25	100	0.560	1003 25 9
604 28 G	28	100	0.874	1003 28 3
604 32 G	32	100	1.420	1003 32 1
604 35 G	35	100	1.355	1003 35 6
604 37 G	37	100	1.567	1003 37 2
604 40 G	40	100	1.860	1003 40 2
604 47 G	47	50	2.484	1003 46 1

**St** Steel **G** Electrogalvanised /100 pc.

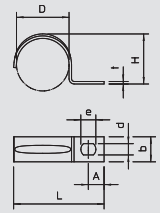
Single-lobe fastening clip for cables and pipes.

\* Sizes 3 and 4 not suitable for nail device.

\* Sizes 3 to 21 not suitable for bolt-firing tool.

### Important dimensions, fastening clip

D	L	H	b	t	d	e	A
mm	mm	mm	mm	mm	mm	mm	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	3498 09 6
BSKP-S5020	5x20	100	0.260	3498 09 8

**St** Steel **GTP** Electrogalvanised, transparently passivated /100 pc.

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.

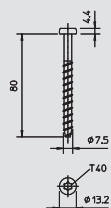


## Bolt tie

Type	Dimension mm	Bore hole Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
MMS7.5X80	7.5 x 80	6	50	2.174	3498 27 1

**St** Steel **G** Electrogalvanised /100 pc.

Fire protection bolt tie with pan head for direct mounting without additional anchors. Drive T40, drill hole 6 mm. Fire protection tested according to DIN 4102 for concrete and masonry. Fire resistance class to F90.





# Fire protection duct PYROLINE® Con D - BSK accessories

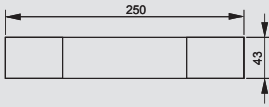
## Mortar

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>BSK-M</b>	1	350.000	<b>7215 50 0</b>

Special mortar /pc.  
 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	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>KS-E DE</b>	10	0.600	<b>7205 42 3</b>

**PVC** Polyvinylchloride /pc.  
 Self-adhesive identification plate for approved cable system labelling for function maintenance as required by DIN 4102 Part 12.



# Fire protection duct PYROLINE® Con S - BSKH 09

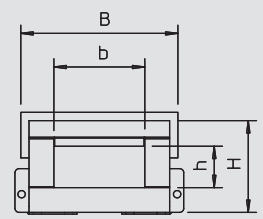
## Fire protection duct, internal height 50 mm



Type	Dimension h mm	Dimension b mm	Dimension H mm	Dimension B mm	Length mm	Weight kg/100 m	Item No.
<b>BSKH 090506</b>	50	60	110	120	1,000	915.000	<b>7215 17 3</b>
<b>BSKH 090511</b>	50	110	110	170	1,000	1,195.000	<b>7215 17 7</b>
<b>BSKH 090521</b>	50	210	110	270	1,000	1,640.000	<b>7215 18 1</b>

Glass-fibre lightweight concrete /m

Fire protection duct BSKH I90/E30, suspended, flammable on four sides, to DIN 4102 Part 11 and Part 12, for installation on OBO mounting systems. Including mounted connector on both duct ends, 3x 1 m self-adhesive sealing strip and connecting bolts.



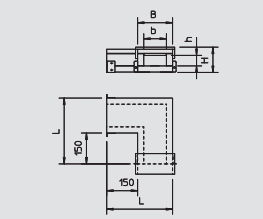
## 90° bend, internal height 50 mm



Type	Dimension h mm	Dimension b mm	Dimension H mm	Dimension B mm	Dimension L mm	Weight kg/100 pcs.	Item No.
<b>BSKH-FB090506</b>	50	60	110	120	270	430.000	<b>7215 60 2</b>
<b>BSKH-FB090511</b>	50	110	110	170	320	595.000	<b>7215 60 6</b>
<b>BSKH-FB090521</b>	50	210	110	270	420	1,005.000	<b>7215 61 0</b>

Glass-fibre lightweight concrete /pc.

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 strip and connecting bolts.



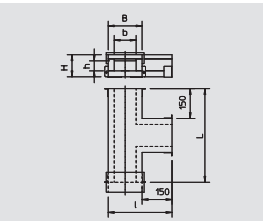
## T piece, internal height 50 mm



Type	Dimension h mm	Dimension b mm	Dimension H mm	Dimension B mm	Dimension L mm	Dimension I mm	Weight kg/100 pcs.	Item No.
<b>BSKH-FT090506</b>	50	60	110	120	420	270	565.000	<b>7215 63 1</b>
<b>BSKH-FT090511</b>	50	110	110	170	470	320	747.000	<b>7215 63 5</b>
<b>BSKH-FT090521</b>	50	210	110	270	570	420	1,225.000	<b>7215 63 9</b>

Glass-fibre lightweight concrete /pc.

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 strip and connecting bolts.



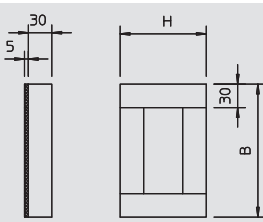
## End piece for internal height 50 mm



Type	Dimension B mm	Dimension H mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKH-E090506</b>	120	110	1	42.000	<b>7215 59 0</b>
<b>BSKH-E090511</b>	170	110	1	57.000	<b>7215 59 2</b>
<b>BSKH-E090521</b>	270	110	1	87.000	<b>7215 59 4</b>

Glass-fibre lightweight concrete /pc.

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	53.000	<b>7215 57 0</b>
<b>BSKH-K0511</b>	1	64.000	<b>7215 57 4</b>
<b>BSKH-K0521</b>	1	83.000	<b>7215 57 8</b>

Glass-fibre lightweight concrete /pc.

Wall connection collar for BSKH, consisting of four single plates, to double the insulation for wall penetrations. Incl. fastening material Only for I90 classification.

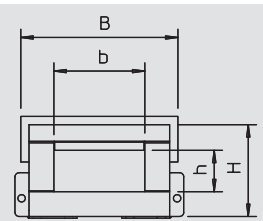
## Fire protection duct, internal height 105 mm



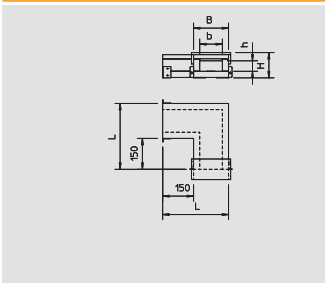
Type	Dimension h mm	Dimension b mm	Dimension H mm	Dimension B mm	Length mm	Weight kg/100 m	Item No.
<b>BSKH 091016</b>	105	160	165	220	1,000	1,705.000	<b>7215 18 5</b>
<b>BSKH 091026</b>	105	260	165	320	1,000	2,245.000	<b>7215 18 9</b>

Glass-fibre lightweight concrete /m

Fire protection duct BSKH I90/E30, suspended, flammable on four sides, to DIN 4102 Part 11 and Part 12, for installation on OBO mounting systems. Including mounted connector on both duct ends, 3x 1 m self-adhesive sealing strip and connecting bolts.



# Fire protection duct PYROLINE® Con S - BSKH 09



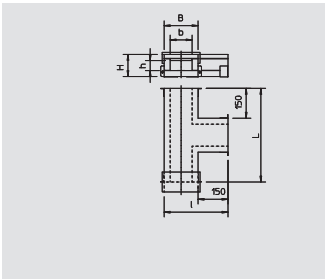
## 90° bend, internal height 105 mm

Type	Dimension h mm	Dimension b mm	Dimension H mm	Dimension B mm	Dimension L mm	Weight kg/100 pcs.	Item No.
<b>BSKH-FB091016</b>	105	160	165	220	370	920.000	<b>7215 61 4</b>
<b>BSKH-FB091026</b>	105	260	165	320	470	1,405.000	<b>7215 61 8</b>

Glass-fibre lightweight concrete

/pc.

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 strip and connecting bolts.



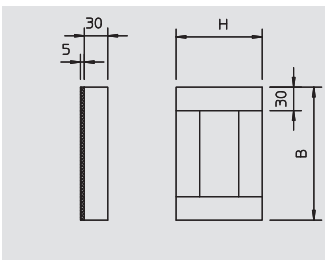
## T piece, internal height 105 mm

Type	Dimension h mm	Dimension b mm	Dimension H mm	Dimension B mm	Dimension L mm	Dimension I mm	Weight kg/100 pcs.	Item No.
<b>BSKH-FT091016</b>	105	160	165	220	520	370	1,180.000	<b>7215 64 3</b>
<b>BSKH-FT091026</b>	105	260	165	320	620	470	1,715.000	<b>7215 64 7</b>

Glass-fibre lightweight concrete

/pc.

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 strip and connecting bolts.



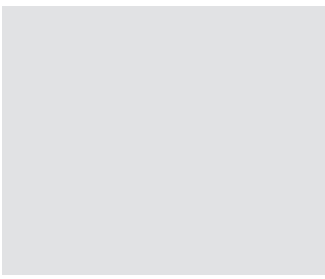
## End piece for internal height 105 mm

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>7215 59 6</b>
<b>BSKH-E091026</b>	320	165	1	142.000	<b>7215 59 8</b>

Glass-fibre lightweight concrete

/pc.

End piece for fire protection duct BSKH I90/E30  
Including bolts and sealing strip.



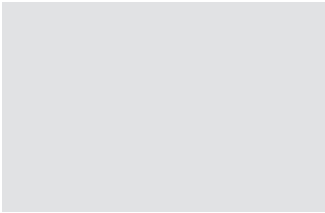
## Wall connection collar I90 for internal height 105 mm

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKH-K1016</b>	1	87.000	<b>7215 58 2</b>
<b>BSKH-K1026</b>	1	105.000	<b>7215 58 6</b>

Glass-fibre lightweight concrete

/pc.

Wall connection collar for BSKH, consisting of four single plates, to double the insulation for wall penetrations. Incl. fastening material Only for I90 classification.



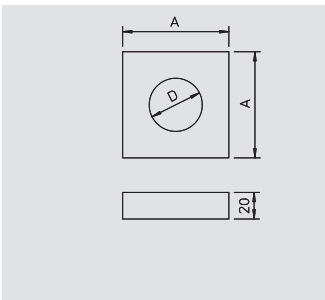
## Sealing strip I90/E30

Type	Dimension mm	Length m	Weight kg/100 pcs.	Item No.
<b>BSK-D0930</b>	5 x 30	15	37.500	<b>7215 42 3</b>

Foam

/pc.

Self-adhesive sealing strip for BSK I90/E30 and BSKH I90/E30



## 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>7215 45 2</b>
<b>BSK-A0910</b>	100	60	1	14.000	<b>7215 45 8</b>

Glass-fibre lightweight concrete

/pc.

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.



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Fire protection ducts



# Fire protection duct PYROLINE® Con S - BSKH 09

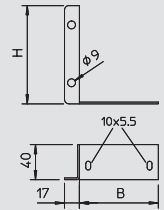


## Connector set

Type	Dimension B mm	Dimension H mm	Pack.	Weight	Item No.
			pcs	kg/100 pcs.	
<b>BSKH-V050</b>	58	55	1	22.000	<b>7215 38 1</b>
<b>BSKH-V052</b>	90	55	1	26.000	<b>7215 38 5</b>
<b>BSKH-V101</b>	90	112	1	40.000	<b>7215 38 9</b>

**St** Steel **FS** Strip-galvanised /pc.

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 ...090506 and ...090511  
 BSKH-V052 for ...090521  
 BSKH-V101 for ...091016 and ...091026



## Mortar

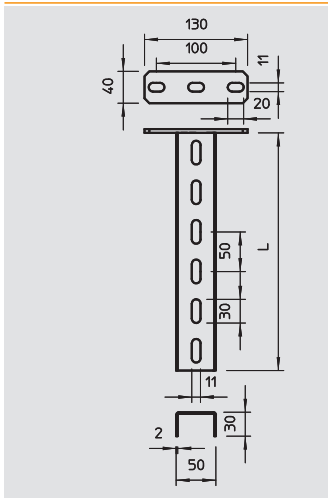
Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>BSK-M</b>	1	350.000	<b>7215 50 0</b>

Special mortar /pc.

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.



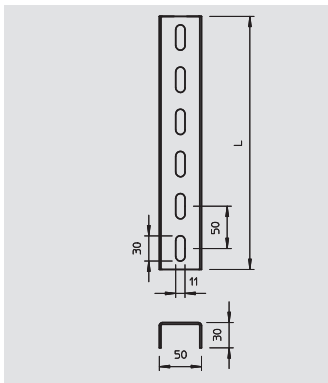
# Fire protection duct PYROLINE® Con S - BSKH mounting systems



## US 3 suspended support

Type	Length	Material thickness	Pack.	Weight	Item No.
	mm	mm	pcs	kg/100 pcs.	
US 3 K 20 FT	200	2	4	50.500	6342 35 1
US 3 K 30 FT	300	2	4	64.400	6342 35 3
US 3 K 40 FT	400	2	4	78.300	6342 35 5
US 3 K 50 FT	500	2	4	92.300	6342 35 7
US 3 K 60 FT	600	2	4	106.200	6342 35 9
US 3 K 70 FT	700	2	4	120.200	6342 36 2
US 3 K 80 FT	800	2	4	134.100	6342 36 4
US 3 K 90 FT	900	2	4	147.800	6342 36 6
US 3 K 100 FT	1,000	2	4	162.000	6342 36 8
US 3 K 110 FT	1,100	2	4	175.900	6342 37 0
US 3 K 120 FT	1,200	2	4	189.900	6342 37 2

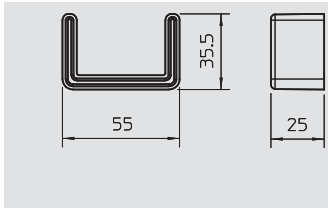
**St** Steel **FT** Hot-dip galvanised /pc.  
Suspended support (U profile) of dimensions 50 x 30 mm with welded head plate.



## US 3 support

Type	Length	Material thickness	Pack.	Weight	Item No.
	mm	mm	pcs	kg/100 pcs.	
US 3 20 FS	200	2	4	27.000	6342 30 2
US 3 30 FS	300	2	4	40.000	6342 30 4
US 3 40 FS	400	2	4	53.000	6342 30 6

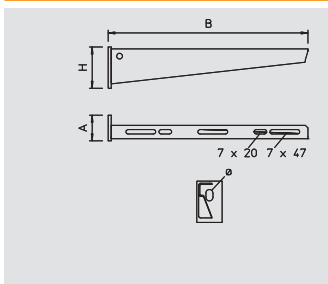
**St** Steel **FS** Strip-galvanised /pc.  
U support in fixed lengths. Dimensions 30 x 50 mm.



## Protective cap for US 3 support

Type	Colour	Pack.	Weight	Item No.
		pcs	kg/100 pcs.	
US 3 KS OR	Pastel orange	20	1.070	6338 45 8

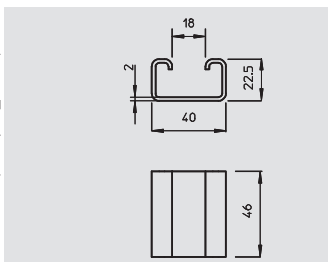
**PE** Polyethylene /pc.  
Protective cap to cover the ends of US 3 supports.



## Wall and support bracket AW 15

Type	Width	Dimension H	Dimension A	Hole- Ø	Pack.	Weight	Item No.
	mm	mm	mm	mm	pcs	kg/100 pcs.	
AW 15 16 FT	160	55	40	11	30	21.000	6420 66 4
AW 15 21 FT	210	60	40	11	30	26.000	6420 68 0
AW 15 31 FT	310	65	40	11	30	32.500	6420 71 0
AW 15 41 FT	410	70	40	11	30	55.000	6420 74 5

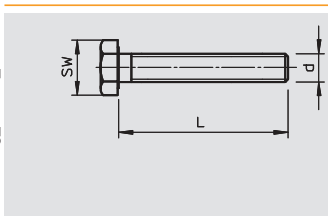
**St** Steel **FT** Hot-dip galvanised /pc.  
Light-duty wall and support bracket with welded head plate.



## Spacer DSK 25

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
DSK 25 FT	25	7.500	6416 44 6

**St** Steel **FT** Hot-dip galvanised /pc.  
Spacer for use in U 3 supports.



## Hexagonal bolt

Type	Dimension	Dimension L	Dimension d	SW	Pack.	Weight	Item No.
	mm	mm	mm	mm	pcs	kg/100 pcs.	
SKS 10X80 F	M10 x 80	80	10	17	20	7.700	6418 25 0

**St** Steel **F** Hot-dip galvanised /100 pc.  
Hexagonal bolt for universal fixing of structure components.



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Fire protection ducts

# Fire protection duct PYROLINE® Con S - BSKH mounting systems

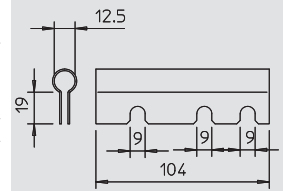


## Threaded rod adapter E30

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>BSKH-G</b>	1	5.700	<b>7215 39 5</b>

**St** Steel **FS** Strip-galvanised /pc.

Adapter to accept threaded rods for the E duct application for function maintenance. The adapter is clamped between the connectors.



## Threaded rod

Type	Thread	Dimension d	Dimension L	Pack.	Weight	Item No.
		mm	mm	pcs	kg/100 pcs.	
<b>2078 M10 1M G</b>	M10	10	1,000	25	49.000	<b>3141 20 9</b>

**St** Steel **G** Electrogalvanised /100 pc.

Threaded rod to DIN 976.

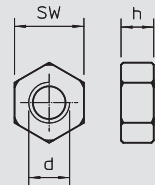


## Hexagonal nut

Type	Thread	Dimension d	Dimension h	SW	Pack.	Weight	Item No.
		mm	mm	mm	pcs	kg/100 pcs.	
<b>DIN 934 M10 G</b>	M10	10	8.4	17	100	1.084	<b>3400 10 7</b>

**St** Steel **G** Electrogalvanised /100 pc.

Hexagonal nut to DIN 934 with metric thread.

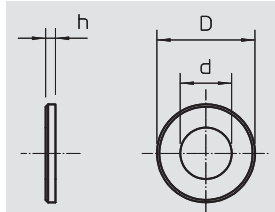


## Washer

Type	Thread	Dimension D	Dimension d	Dimension h	Pack.	Weight	Item No.
		mm	mm	mm	pcs	kg/100 pcs.	
<b>966 M10 G</b>	M10	20	10.5	2	100	0.408	<b>3402 09 6</b>

**St** Steel **G** Electrogalvanised /100 pc.

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



Fire protection ducts

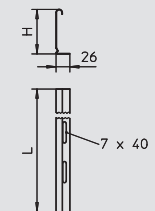


## Separating retainer for 50 mm internal height

Type	Side height	Length	Pack.	Weight	Item No.
	mm	mm	m	kg/100 m	
<b>TSG 45 FS</b>	45	3,000	45	46.700	<b>6062 03 3</b>

**St** Steel **FS** Strip-galvanised /m

Separating retainer for separation of cables of different voltages or functions.

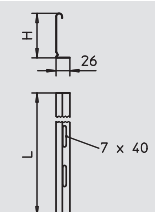


## Separating retainer for 105 mm internal height

Type	Side height	Length	Pack.	Weight	Item No.
	mm	mm	m	kg/100 m	
<b>TSG 85 FS</b>	85	3,000	45	70.300	<b>6062 11 4</b>

**St** Steel **FS** Strip-galvanised /m

Separating retainer for separation of cables of different voltages or functions.



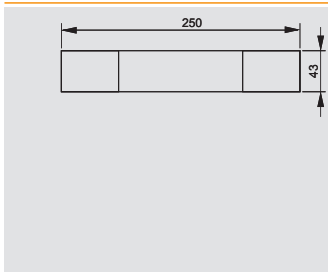
## Bolt for separating retainer and fittings

Type	Dimension	Pack.	Weight	Item No.
		pcs	kg/100 pcs.	
<b>BSKH-S6030</b>	6x30	200	0.276	<b>3498 10 0</b>

**St** Steel **GTP** Electrogalvanised, transparently passivated /100 pc.

Bolt with special milled ribs for universal fastening of cable clips, connector elements and separating retainers in fibre glass lightweight concrete of the BSK fire protection ducts.

# Fire protection duct PYROLINE® Con S - BSKH mounting systems



## Identification plate for function maintenance

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>KS-E DE</b>	10	0.600	<b>7205 42 3</b>

**PVC** Polyvinylchloride /pc.  
 Self-adhesive identification plate for approved cable system labelling for function maintenance as required by DIN 4102 Part 12.



# Fire protection duct PYROLINE® Sun PV

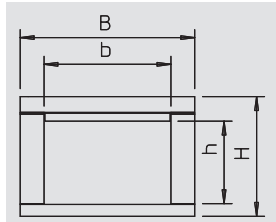
## Fire protection duct



Type	Dimension h mm	Dimension b mm	Dimension H mm	Dimension B mm	Length mm	Weight kg/100 m	Item No.
<b>BSKP 0406</b>	40	60	80	100	1,000	480.000	<b>7214 70 0</b>

Concrete /m

Fire protection duct for fire-proof 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.



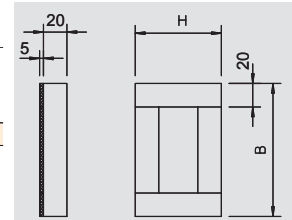
## End piece



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>7214 70 5</b>

Concrete /pc.

End piece for fire protection duct BSKP I30, including bolts and sealing strip.



## Sealing strip



Type	Dimension mm	Length mm	Weight kg/100 pcs.	Item No.
<b>BSKP-D0320</b>	20 x 5	1,000	16.000	<b>7214 71 0</b>

Foam /pc.

Self-adhesive sealing strip for BSKP 0406

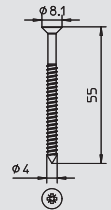
## Lid screws



Type	Dimension mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSK-S0955</b>	4.0 x 55	50	0.340	<b>7215 40 0</b>

**St** Steel **G** Electrogalvanised /100 pc.

Counter-sunk head screw for fire protection duct I90/E30, for lid and doubler fastening.



## Connector for suspended mounting



Type	Weight kg/100 pcs.	Item No.
<b>BSKP-V 0406</b>	22.000	<b>7214 71 5</b>

**St** Steel **FS** Strip-galvanised /pc.

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 connector



Type	Dimension	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKP-S5020</b>	5x20	100	0.260	<b>3498 09 8</b>

**St** Steel **GTP** Electrogalvanised, transparently passivated /100 pc.

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



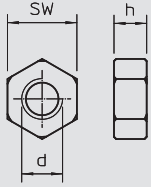
Type	Thread	Dimension d mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>2078 M10 1M G</b>	M10	10	1,000	25	49.000	<b>3141 20 9</b>

**St** Steel **G** Electrogalvanised /100 pc.

Threaded rod to DIN 976.





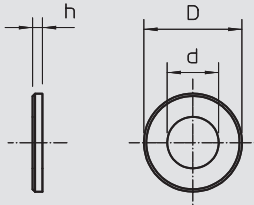


## Hexagonal nut

Type	Thread	Dimension d mm	Dimension h mm	SW mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>DIN 934 M10 G</b>	M10	10	8.4	17	100	1.084	<b>3400 10 7</b>

**St** Steel **G** Electrogalvanised /100 pc.

Hexagonal nut to DIN 934 with metric thread.

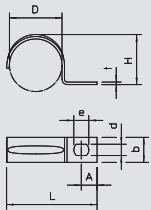


## Washer

Type	Thread	Dimension D mm	Dimension d mm	Dimension h mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>966 M10 G</b>	M10	20	10.5	2	100	0.408	<b>3402 09 6</b>

**St** Steel **G** Electrogalvanised /100 pc.

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



## Fastening clips

Type	For Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>604 4 G</b>	4	100	0.067	<b>1003 04 6</b>
<b>604 5 G</b>	5	100	0.084	<b>1003 05 4</b>
<b>604 6 G</b>	6	100	0.099	<b>1003 06 2</b>
<b>604 7 G</b>	7	100	0.120	<b>1003 07 0</b>
<b>604 8 G</b>	8	100	0.123	<b>1003 08 9</b>
<b>604 9 G</b>	9	100	0.139	<b>1003 09 7</b>
<b>604 10 G</b>	10	100	0.150	<b>1003 10 0</b>

**St** Steel **G** Electrogalvanised /100 pc.

Single-lobe fastening clip for cables and pipes.

\* Sizes 3 and 4 not suitable for nail device.

\* Sizes 3 to 21 not suitable for bolt-firing tool.

### Important dimensions, fastening clip

D	L	H	b	t	d	e	A
mm	mm	mm	mm	mm	mm	mm	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

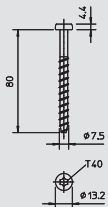


## Bolt for cable fastening

Type	Dimension	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BSKP-S5016</b>	5x16	100	0.240	<b>3498 09 6</b>

**St** Steel **GTP** Electrogalvanised, transparently passivated /100 pc.

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 hole Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MMS7.5X80</b>	7.5 x 80	6	50	2.174	<b>3498 27 1</b>

**St** Steel **G** Electrogalvanised /100 pc.

Fire protection bolt tie with pan head for direct mounting without additional anchors. Drive T40, drill hole 6 mm. Fire protection tested according to DIN 4102 for concrete and masonry. Fire resistance class to F90.



# Fire protection duct PYROLINE® Sun PV

## Mortar



Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>BSK-M</b>	1	350.000	<b>7215 50 0</b>

Special mortar /pc.

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	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>KS-BSKP DE</b>	1	2.400	<b>7214 72 5</b>

/pc.





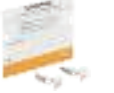
Information panel to label the fire protection duct as a photovoltaic duct according to the VDE application rule. Incl. two push-fit anchors.







## Contents, cable bandages

	Cable bandage for dry areas		246
	Cable bandage for wet areas	BSKM fire protection duct	246
	Complete set	Fittings	246
	Fastening agent	Connector	246
	Identification plate	BSK fire protection duct I90 and E30	247

# Cable bandages

## Mesh for dry areas



Type	Width	Length	Pack.	Weight	Item No.
	mm	mm	pcs	kg/100 pcs.	
<b>FSB-BS</b>	1,100	10,000	1	1,000.000	<b>7202 26 5</b>

/pc.

Fire protection jacketing made of flexible mesh with fire protection coating to prevent fire spreading via cables and cable support systems. Use in escape routes in existing buildings requires approval. External side grey, internal side white. Can be moist wiped, use only in interiors. One roll contains 11 m<sup>2</sup>.

## Mesh for wet areas

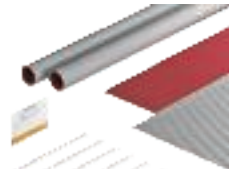


Type	Width	Length	Pack.	Weight	Item No.
	mm	mm	pcs	kg/100 pcs.	
<b>FSB-WB</b>	1,100	20,000	1	2,200.000	<b>7203 16 0</b>

/pc.

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	kg/100 pcs.	
<b>FSB-K32</b>	550	380	1	96.000	<b>7203 15 0</b>
<b>FSB-K82</b>	550	880	1	213.000	<b>7203 15 4</b>

Intumescent material

/pc.

Complete set for covering cable bundles or cable support systems without lid to prevent fire spread. 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

Cable bandages



Type	Dimension B	Dimension L	Pack.	Weight	Item No.
	mm	mm	pcs	kg/100 pcs.	
<b>MBS 015</b>	7	150	100	0.230	<b>7203 10 0</b>
<b>MBS 030</b>	7	300	100	0.399	<b>7203 10 2</b>
<b>MBS 045</b>	7	450	50	0.602	<b>7203 10 4</b>
<b>MBS 061</b>	7	610	50	0.806	<b>7203 10 6</b>

V2A Stainless steel, grade 304

/100 pc.

Metal ribbon clip in ladder form with single lock, 7 mm wide in various fixed lengths. For high-temperature and weatherproof fixing.

## Metal strip clips, wide



Type	Dimension B	Dimension L	Pack.	Weight	Item No.
	mm	mm	pcs	kg/100 pcs.	
<b>MBS 075</b>	12	750	25	2.300	<b>7203 10 8</b>
<b>MBS 100</b>	12	1,000	25	3.000	<b>7203 11 0</b>
<b>MBS 120</b>	12	1,200	25	3.600	<b>7203 11 2</b>
<b>MBS 150</b>	12	1,500	25	4.400	<b>7203 11 4</b>

V2A Stainless steel, grade 304

/100 pc.

Metal ribbon clip in ladder form with single lock, 12 mm wide in various fixed lengths. For high-temperature and weatherproof fixing.

## Pliers for metal strip clips



Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>MBS-Z</b>	1	55.500	<b>7203 12 0</b>

St Steel

/pc.

High-quality spring chuck with cutting tool for metal strip clips, type MBS.

## Tightening strap

Type	Width mm	Per roll m	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FSB-SB</b>	15	50	1	110.000	<b>7203 13 0</b>

**St** Steel

/pc.

Roll of lightweight, galvanised tightening strap, for universal fastening.



## Tightening strap lock

Type	Length mm	Width mm	Material thickness mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FSB-SV</b>	26	24	0.9	50	0.340	<b>7203 13 2</b>

**St** Steel

/100 pc.

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	<b>7203 13 4</b>

**V2A** Stainless steel, grade 304

/100 pc.

Stainless steel clip to secure the bend tightening strap. Provides secure prevention of removal from the lock.



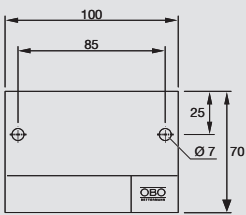
## Identification plate

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS-FSB DE</b>	1	2.400	<b>7203 14 0</b>

**PVC** Polyvinylchloride

/pc.








Identification plate for cable bandages, with pre-printed fields for identification.







## Contents, function maintenance: cable-specific support structures

	Galvanised support systems	Cable tray RKS-Magic®	250
		Mesh cable tray GR-Magic®	253
		SL cable ladder	255
		Mounting systems	257
	Stainless steel support systems	Cable tray RKS-Magic® VA	264
		Mesh cable tray GR-Magic® VA	267
		Mounting systems, VA	269

# Cable tray RKS-Magic®

Function maintenance: cable-specific support structures

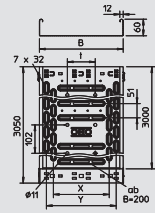


## Cable tray RKS-Magic®

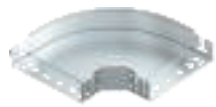
Type	Width	Plate thickness	Length	Dimension x	Dimension y	Dimension t	Weight	Item No.
	mm	mm	mm	mm	mm	mm	kg/100 m	
<b>RKSM 610 FS</b>	100	0.75	3,050	—	50	—	134.300	<b>6047 61 1</b>
<b>RKSM 620 FS</b>	200	0.75	3,050	100	150	—	183.000	<b>6047 63 8</b>
<b>RKSM 630 FS</b>	300	0.75	3,050	200	250	100	239.000	<b>6047 65 4</b>
<b>RKSM 640 FS</b>	400	0.9	3,050	300	350	200	331.300	<b>6047 68 9</b>
<b>RKSM 610 FT</b>	100	0.75	3,050	—	50	—	151.000	<b>6047 61 2</b>
<b>RKSM 620 FT</b>	200	0.75	3,050	100	150	—	183.000	<b>6047 63 9</b>
<b>RKSM 630 FT</b>	300	0.75	3,050	200	250	100	239.000	<b>6047 65 5</b>
<b>RKSM 640 FT</b>	400	0.9	3,050	300	350	200	331.300	<b>6047 69 0</b>

**St** Steel **FS** Strip-galvanised **FT** Hot-dip galvanised /m

RKSM 60 = efficient magic cable tray system with 60 mm side height.



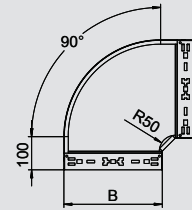
## 90° bend



Type	Width	Pack.	Weight	Item No.
	mm	pcs	kg/100 pcs.	
<b>RBM 90 610 FS</b>	100	1	65.700	<b>6041 13 0</b>
<b>RBM 90 620 FS</b>	200	1	122.100	<b>6041 13 4</b>
<b>RBM 90 630 FS</b>	300	1	192.800	<b>6041 13 6</b>
<b>RBM 90 640 FS</b>	400	1	275.400	<b>6041 13 8</b>
<b>RBM 90 610 FT</b>	100	1	70.500	<b>6041 15 0</b>
<b>RBM 90 620 FT</b>	200	1	130.900	<b>6041 15 4</b>
<b>RBM 90 630 FT</b>	300	1	206.800	<b>6041 15 6</b>
<b>RBM 90 640 FT</b>	400	1	295.300	<b>6041 15 8</b>

**St** Steel **FS** Strip-galvanised **FT** Hot-dip galvanised /pc.

90° bend with quick connector system. For all cable tray types of 60 mm side height.



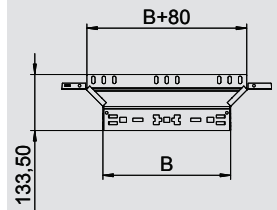
## Mounting/branch piece



Type	Width	Pack.	Weight	Item No.
	mm	pcs	kg/100 pcs.	
<b>RAAM 610 FS</b>	100	1	37.900	<b>6041 23 0</b>
<b>RAAM 620 FS</b>	200	1	50.600	<b>6041 23 4</b>
<b>RAAM 630 FS</b>	300	1	63.500	<b>6041 23 6</b>
<b>RAAM 640 FS</b>	400	1	76.500	<b>6041 23 8</b>
<b>RAAM 610 FT</b>	100	1	40.600	<b>6041 25 0</b>
<b>RAAM 620 FT</b>	200	1	54.300	<b>6041 25 4</b>
<b>RAAM 630 FT</b>	300	1	68.100	<b>6041 25 7</b>
<b>RAAM 640 FT</b>	400	1	82.000	<b>6041 25 9</b>

**St** Steel **FS** Strip-galvanised **FT** Hot-dip galvanised /pc.

Mounting/branch piece with quick connector system. For all cable tray types of 60 mm side height.



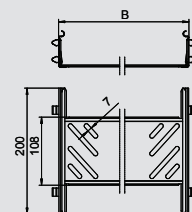
## Connector



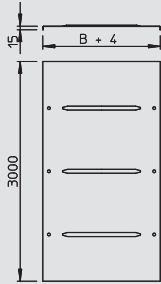
Type	Side height	Width	Pack.	Weight	Item No.
	mm	mm	pcs	kg/100 pcs.	
<b>KTSMV 610 FS</b>	60	100	1	30.500	<b>6068 91 4</b>
<b>KTSMV 620 FS</b>	60	200	1	37.200	<b>6068 91 8</b>
<b>KTSMV 630 FS</b>	60	300	1	44.000	<b>6068 92 0</b>
<b>KTSMV 640 FS</b>	60	400	1	50.700	<b>6068 92 2</b>
<b>KTSMV 610 DD</b>	60	100	1	30.500	<b>6068 93 6</b>
<b>KTSMV 620 DD</b>	60	200	1	37.200	<b>6068 94 0</b>
<b>KTSMV 630 DD</b>	60	300	1	44.000	<b>6068 94 2</b>
<b>KTSMV 640 DD</b>	60	400	1	50.700	<b>6068 94 4</b>

**St** Steel **FS** Strip-galvanised **DD** Zinc-aluminium coated, double-dip /pc.

Cable tray connector with quick fastening for straight, screwless connection of cable trays and fittings with a side height of 60 mm.



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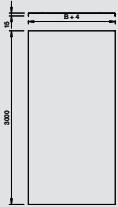


Cover with turn buckle

Type	Width	Plate thickness	Length	Weight	Item No.
	mm	mm	mm	kg/100 m	
<b>DRL 100 FS</b>	100	0.75	3,000	101.300	<b>6052 09 6</b>
<b>DRL 200 FS</b>	200	1	3,000	179.800	<b>6052 20 7</b>
<b>DRL 300 FS</b>	300	1	3,000	258.300	<b>6052 30 4</b>
<b>DRL 400 FS</b>	400	1	3,000	337.000	<b>6052 40 1</b>
<b>DRL 100 DD</b>	100	0.75	3,000	76.600	<b>6052 70 3</b>
<b>DRL 200 DD</b>	200	1	3,000	179.800	<b>6052 70 9</b>
<b>DRL 300 DD</b>	300	1	3,000	258.300	<b>6052 71 2</b>
<b>DRL 400 DD</b>	400	1	3,000	337.700	<b>6052 71 5</b>

St Steel FS Strip-galvanised DD Zinc-aluminium coated, double-dip /m

Cover for cable trays and cable ladders with three pairs of turn buckles.

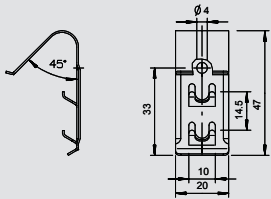


Lid, unperforated

Type	Width	Plate thickness	Length	Weight	Item No.
	mm	mm	mm	kg/100 m	
<b>DRLU 100 FS</b>	100	0.75	3,000	74.200	<b>6052 10 3</b>
<b>DRLU 200 FS</b>	200	1	3,000	177.400	<b>6052 21 0</b>
<b>DRLU 300 FS</b>	300	1	3,000	255.900	<b>6052 30 7</b>
<b>DRLU 400 FS</b>	400	1	3,000	334.500	<b>6052 40 5</b>
<b>DRLU 100 DD</b>	100	0.75	3,000	74.200	<b>6052 64 3</b>
<b>DRLU 200 DD</b>	200	1	3,000	177.400	<b>6052 65 0</b>
<b>DRLU 300 DD</b>	300	1	3,000	255.900	<b>6052 65 6</b>
<b>DRLU 400 DD</b>	400	1	3,000	338.300	<b>6052 66 2</b>

St Steel FS Strip-galvanised DD Zinc-aluminium coated, double-dip /m

Cover for cable trays and mesh cable trays.

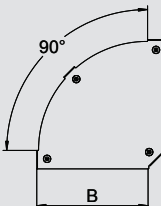


Lid clamp

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>DKU 60 VA4310</b>	60	0.800	<b>6065 60 0</b>

V2A Stainless steel, grade 301 /100 pc.

Cover clamp for universal fastening of covers on cable trays, mesh cable trays and AZ small ducts.

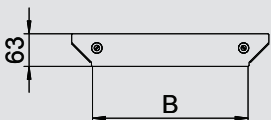


Lid for 90° bend

Type	Width	Plate thickness	Pack.	Weight	Item No.
	mm	mm	pcs	kg/100 pcs.	
<b>DFBM 90 100 FS</b>	100	1.25	1	17.100	<b>7138 50 0</b>
<b>DFBM 90 200 FS</b>	200	1.25	1	43.000	<b>7138 50 4</b>
<b>DFBM 90 300 FS</b>	300	1.25	1	81.600	<b>7138 50 6</b>
<b>DFBM 90 400 FS</b>	400	1.25	1	165.000	<b>7138 50 8</b>
<b>DFBM 90 100 DD</b>	100	1.25	1	17.100	<b>7138 54 0</b>
<b>DFBM 90 200 DD</b>	200	1.25	1	43.000	<b>7138 54 4</b>
<b>DFBM 90 300 DD</b>	300	1.25	1	81.600	<b>7138 54 6</b>
<b>DFBM 90 400 DD</b>	400	1.25	1	165.000	<b>7138 54 8</b>

St Steel FS Strip-galvanised DD Zinc-aluminium coated, double-dip /pc.

Lid for 90° bend with pre-mounted turn buckles.



Lid for mounting/branch piece

Type	Width	Plate thickness	Pack.	Weight	Item No.
	mm	mm	pcs	kg/100 pcs.	
<b>DFAAM 100 FS</b>	100	1.25	1	9.700	<b>7138 64 0</b>
<b>DFAAM 200 FS</b>	200	1.25	1	14.500	<b>7138 64 4</b>
<b>DFAAM 300 FS</b>	300	1.25	1	19.500	<b>7138 64 6</b>
<b>DFAAM 400 FS</b>	400	1.25	1	30.300	<b>7138 64 8</b>
<b>DFAAM 100 DD</b>	100	1.25	1	9.700	<b>7138 68 0</b>
<b>DFAAM 200 DD</b>	200	1.25	1	14.500	<b>7138 68 4</b>
<b>DFAAM 300 DD</b>	300	1.25	1	19.500	<b>7138 68 6</b>
<b>DFAAM 400 DD</b>	400	1.25	1	30.300	<b>7138 68 8</b>

St Steel FS Strip-galvanised DD Zinc-aluminium coated, double-dip /pc.

Cover for add-on tee with pre-mounted turn-buckles.



# Cable tray RKS-Magic®

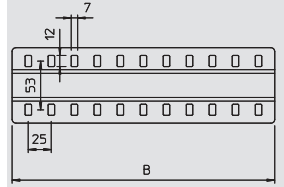


## Joint plate

Type	Width mm	Pack. pcs	Weight kg/100 pcs.	Item No.
SSLB 100 FS	85	20	7.700	7070 20 5
SSLB 200 FS	185	20	16.700	7070 21 3
SSLB 300 FS	285	20	25.700	7070 21 7
SSLB 400 FS	385	20	34.700	7070 22 1
SSLB 100 DD	85	20	7.700	7070 30 6
SSLB 200 DD	185	20	16.700	7070 31 4
SSLB 300 DD	285	20	25.700	7070 31 8
SSLB 400 DD	385	20	34.700	7070 32 2

St Steel    
 FS Strip-galvanised    
 DD Zinc-aluminium coated, double-dip    
 /pc.

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

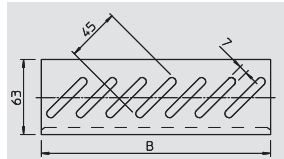


## Floor end plate

Type	Width mm	Pack. pcs	Weight kg/100 pcs.	Item No.
BEB 100 FS	100	100	5.400	7083 10 6
BEB 200 FS	200	100	11.400	7083 20 3
BEB 300 FS	300	100	17.200	7083 30 0
BEB 400 FS	400	100	23.100	7083 40 8
BEB 100 DD	100	100	5.400	7083 61 8
BEB 200 DD	200	100	11.400	7083 62 6
BEB 300 DD	300	100	17.200	7083 63 0
BEB 400 DD	400	100	23.100	7083 63 4

St Steel    
 FS Strip-galvanised    
 DD Zinc-aluminium coated, double-dip    
 /pc.

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

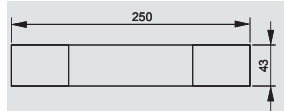


## Identification plate for cable system

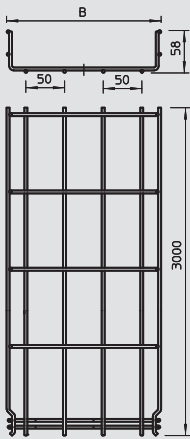
Type	Pack. pcs	Weight kg/100 pcs.	Item No.
KS-E DE	10	0.600	7205 42 3

PVC Polyvinylchloride    
 /pc.

Self-adhesive identification plate for approved cable system labelling for function maintenance as required by DIN 4102 Part 12.



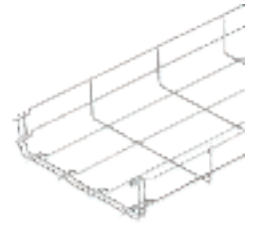
## Mesh cable tray GR-Magic®, electrogalvanised



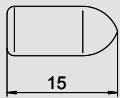
Type	Width mm	Wire Ø mm	Length mm	Weight kg/100 m	Item No.
<b>GRM 55 200 4.8 G</b>	200	4.8	3,000	151.000	<b>6001 44 7</b>
<b>GRM 55 300 G</b>	300	4.8	3,000	194.900	<b>6001 44 8</b>
<b>GRM 55 400 G</b>	400	4.8	3,000	236.700	<b>6001 45 0</b>

**St** Steel **G** Electrogalvanised /m

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



## Protective cap for mesh cable tray



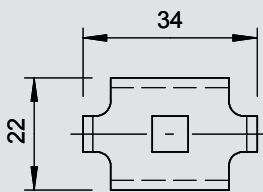
Type	Wire Ø mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>GR KS 4.8 OR</b>	4.8	Pastel orange	500	0.030	<b>6003 75 4</b>

**PE** Polyethylene /100 pc.

Protective cap for attachment to cut wire ends of mesh cable trays.



## Clamping piece



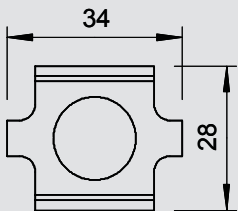
Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>GKS 34 G</b>	100	2.000	<b>6016 85 5</b>

**St** Steel **G** Electrogalvanised /pc.

Clamping piece for fastening mesh cable trays to wall or support brackets.



## Connector



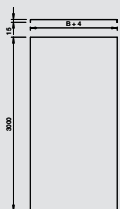
Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>GSV 34 G</b>	25	3.000	<b>6016 59 6</b>

**St** Steel **G** Electrogalvanised /pc.

Screwed version of joint connector for cable trays.



## Lid, unperforated



Type	Width mm	Plate thick- ness mm	Length mm	Weight kg/100 m	Item No.
<b>DRLU 200 FS</b>	200	1	3,000	177.400	<b>6052 21 0</b>
<b>DRLU 300 FS</b>	300	1	3,000	255.900	<b>6052 30 7</b>
<b>DRLU 400 FS</b>	400	1	3,000	334.500	<b>6052 40 5</b>

**St** Steel **FS** Strip-galvanised /m

Cover for cable trays and mesh cable trays.



# Mesh cable tray GR-Magic®

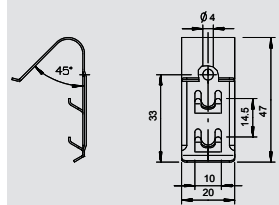
## Lid clamp



Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>DKU 60 VA4310</b>	60	0.800	<b>6065 60 0</b>

V2A Stainless steel, grade 301 /100 pc.

Cover clamp for universal fastening of covers on cable trays, mesh cable trays and AZ small ducts.



## Connection component



Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>ABG FT</b>	20	0.850	<b>6015 34 5</b>

St Steel FT Hot-dip galvanised /pc.

Seat for threaded rod on mesh cable tray

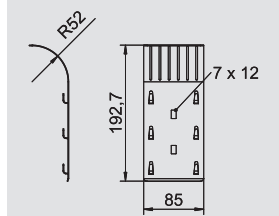
## Cable exit plate



Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>KAB GR FS</b>	10	14.100	<b>6220 13 9</b>

St Steel FS Strip-galvanised /pc.

Cable exit plate for mesh cable trays.



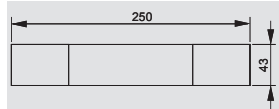
## Identification plate for cable system

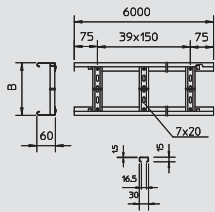


Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>KS-E DE</b>	10	0.600	<b>7205 42 3</b>

PVC Polyvinylchloride /pc.

Self-adhesive identification plate for approved cable system labelling for function maintenance as required by DIN 4102 Part 12.



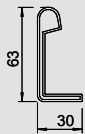


## Cable ladder

Type	Width mm	Length mm	Frame distance mm	Weight kg/100 m	Item No.
<b>SL 620 VSF F</b>	200	6,000	150	409.000	<b>6207 92 8</b>
<b>SL 630 VSF F</b>	300	6,000	150	457.600	<b>6207 93 2</b>
<b>SL 640 VSF F</b>	400	6,000	150	506.300	<b>6207 93 6</b>
<b>SL 650 VSF F</b>	500	6,000	150	555.000	<b>6207 94 0</b>

**St** Steel **FS** Strip-galvanised /m

Heavy-weight cable ladder for electrical function maintenance to DIN 4102 Part 12. Material thickness 2 mm

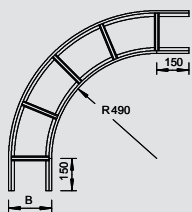


## Protective cap for cable ladders

Type	Colour	Pack. pair	Weight kg/100 pairs	Item No.
<b>SKH 60 OR</b>	<b>Pastel orange</b>	40	1.100	<b>6222 53 7</b>

**PE** Polyethylene /pair

Protective cap to cover cable ladder ends of side height 60 mm.

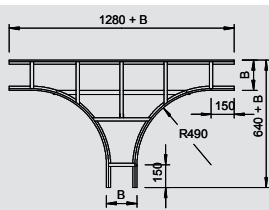


## 90° bend

Type	Width mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>LBI 90 620 VS FS</b>	200	1	358.000	<b>6211 22 4</b>
<b>LBI 90 630 VS FS</b>	300	1	412.000	<b>6211 23 2</b>
<b>LBI 90 640 VS FS</b>	400	1	497.000	<b>6211 24 0</b>
<b>LBI 90 650 VS FS</b>	500	1	558.000	<b>6211 25 9</b>

**St** Steel **FS** Strip-galvanised /pc.

90° bend, horizontal, for cable ladders with VS rungs and a side height of 60 mm.

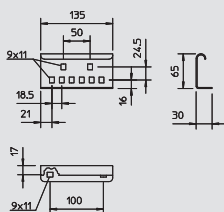
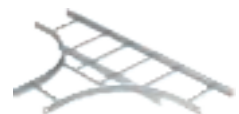


## T piece

Type	Width mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>LT 620 VS FS</b>	200	1	677.000	<b>6213 72 3</b>
<b>LT 630 VS FS</b>	300	1	789.000	<b>6213 73 1</b>
<b>LT 640 VS FS</b>	400	1	871.000	<b>6213 75 8</b>
<b>LT 650 VS FS</b>	500	1	952.000	<b>6213 76 6</b>

**St** Steel **FS** Strip-galvanised /pc.

T piece, horizontal, for cable ladders with VS rungs and a side height of 60 mm.

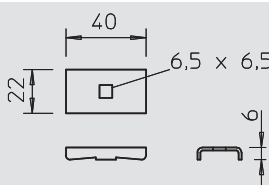


## External connector

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>6208 77 0</b>

**St** Steel **FS** Strip-galvanised /pc.

External connector for mechanical connection of cable ladder sections for routing types with cable ladders for function maintenance to DIN 4102 Part 12. Including bolts.

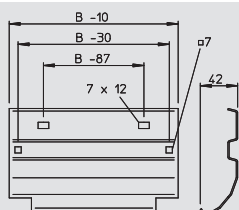


## Clamping piece

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>LKS 40 FS</b>	50	3.400	<b>6221 07 6</b>

**St** Steel **FS** Strip-galvanised /pc.

Clamping piece for fastening cable ladders.

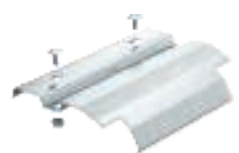


## Exit plate

Type	Width mm	Side height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>LAB 20 FT</b>	200	45	20	37.000	<b>6220 43 6</b>
<b>LAB 30 FT</b>	300	45	25	58.000	<b>6220 44 4</b>
<b>LAB 40 FT</b>	400	45	25	78.000	<b>6220 45 2</b>
<b>LAB 50 FT</b>	500	45	15	99.000	<b>6220 46 0</b>

**St** Steel **FT** Hot-dip galvanised /pc.

Exit plate for mounting on the rung for vertically exiting cables.



# SL cable ladder

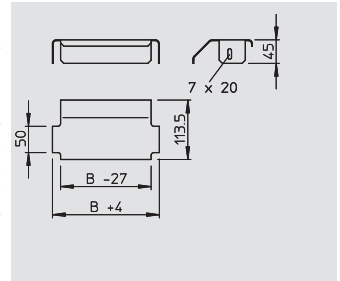
## Support plate



Type	Width mm	Side height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
LALB 20 FT	200	45	10	36.000	6221 85 8
LALB 30 FT	300	45	10	53.000	6221 86 6
LALB 40 FT	400	45	10	70.000	6221 87 4
LALB 50 FT	500	45	10	86.000	6221 88 2

**St** Steel **FT** Hot-dip galvanised /pc.

Support plate to increase the cable volume and for cable protection



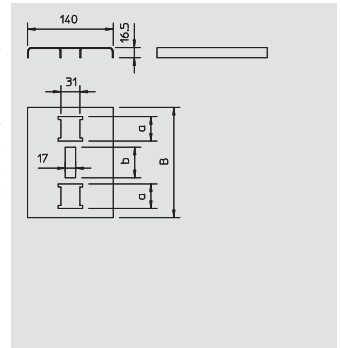
## Rung support plate for fitting



Type	Dimension B mm	Pack. pcs	Weight kg/100 pcs.	Item No.
SAB20 FS	180	25	31.000	6222 94 3
SAB30 FS	280	25	50.000	6222 95 1
SAB40 FS	380	25	65.000	6222 97 8

**St** Steel **FS** Strip-galvanised /pc.

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 the function maintenance cables in case 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

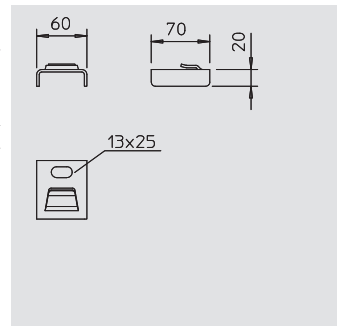


Type	Pack. pcs	Weight kg/100 pcs.	Item No.
ABL FT	20	15.000	6221 46 7

**St** Steel **FT** Hot-dip galvanised /pc.

The connection component is the connection between the threaded rod lock and the suspension system for the routing types with cable ladders for function maintenance 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.



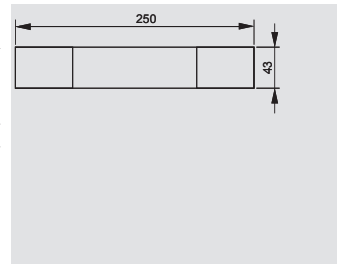
## Identification plate for cable system



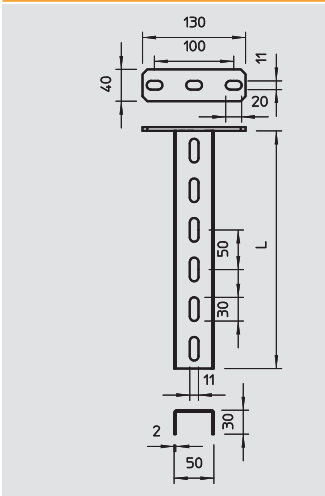
Type	Pack. pcs	Weight kg/100 pcs.	Item No.
KS-E DE	10	0.600	7205 42 3

**PVC** Polyvinylchloride /pc.

Self-adhesive identification plate for approved cable system labelling for function maintenance as required by DIN 4102 Part 12.





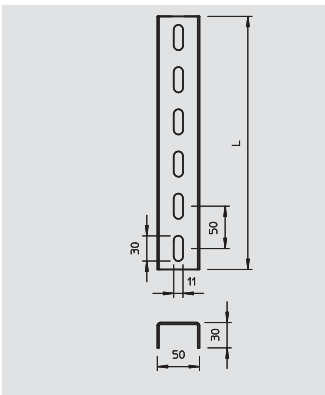


## US 3 suspended support

Type	Length mm	Material thickness mm	Pack. pcs	Weight kg/100 pcs.	Item No.
US 3 K 20 FT	200	2	4	50.500	6342 35 1
US 3 K 30 FT	300	2	4	64.400	6342 35 3
US 3 K 40 FT	400	2	4	78.300	6342 35 5
US 3 K 50 FT	500	2	4	92.300	6342 35 7
US 3 K 60 FT	600	2	4	106.200	6342 35 9
US 3 K 70 FT	700	2	4	120.200	6342 36 2
US 3 K 80 FT	800	2	4	134.100	6342 36 4
US 3 K 90 FT	900	2	4	147.800	6342 36 6
US 3 K 100 FT	1,000	2	4	162.000	6342 36 8
US 3 K 110 FT	1,100	2	4	175.900	6342 37 0
US 3 K 120 FT	1,200	2	4	189.900	6342 37 2

**St** Steel **FT** Hot-dip galvanised /pc.

Suspended support (U profile) of dimensions 50 x 30 mm with welded head plate.

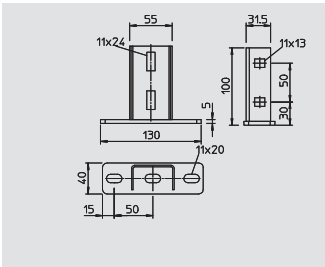


## US 3 support

Type	Length mm	Material thickness mm	Pack. pcs	Weight kg/100 pcs.	Item No.
US 3 20 FS	200	2	4	27.000	6342 30 2
US 3 30 FS	300	2	4	40.000	6342 30 4
US 3 40 FS	400	2	4	53.000	6342 30 6
US 3 50 FS	500	2	4	67.000	6342 30 8
US 3 60 FS	600	2	4	80.000	6342 31 0
US 3 70 FS	700	2	4	93.000	6342 31 2
US 3 80 FS	800	2	4	107.000	6342 31 4
US 3 90 FS	900	2	4	120.000	6342 31 6
US 3 100 FS	1,000	2	4	133.000	6342 31 8

**St** Steel **FS** Strip-galvanised /pc.

U support in fixed lengths. Dimensions 30 x 50 mm.

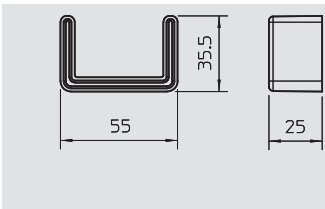


## Head plate for US 3 support

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
KU 3 FT	10	46.800	6348 87 4

**St** Steel **FT** Hot-dip galvanised /pc.

Head plate for mounting on US 3 supports.

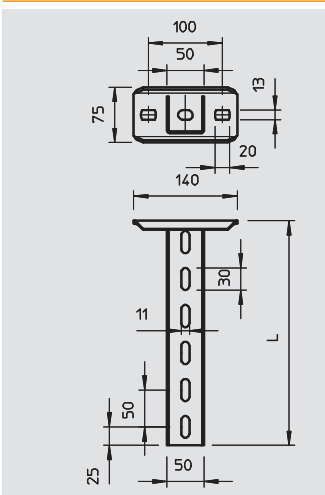


## Protective cap for US 3 support

Type	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
US 3 KS OR	Pastel orange	20	1.070	6338 45 8

**PE** Polyethylene /pc.

Protective cap to cover the ends of US 3 supports.



## US 5 suspended support

Type	Length mm	Material thickness mm	Pack. pcs	Weight kg/100 pcs.	Item No.
US 5 K 20 FT	200	2.5	2	85.000	6341 52 7
US 5 K 30 FT	300	2.5	2	110.000	6341 53 5
US 5 K 40 FT	400	2.5	2	136.000	6341 54 3
US 5 K 50 FT	500	2.5	2	161.000	6341 55 1
US 5 K 60 FT	600	2.5	2	185.000	6341 57 8
US 5 K 70 FT	700	2.5	2	210.000	6341 58 6
US 5 K 80 FT	800	2.5	2	236.000	6341 59 4
US 5 K 90 FT	900	2.5	2	261.000	6341 60 8
US 5 K 100 FT	1,000	2.5	2	286.000	6341 61 6
US 5 K 110 FT	1,100	2.5	2	311.000	6341 62 4
US 5 K 120 FT	1,200	2.5	2	337.000	6341 63 2

**St** Steel **FT** Hot-dip galvanised /pc.

U support of dimensions 50 x 50 mm with welded head plate.



# Mounting systems

## US 5 support



Type	Length	Material thickness	Pack.	Weight	Item No.
US 5 20 FT	200	2.5	4	53.000	6340 88 1
US 5 30 FT	300	2.5	4	79.000	6340 90 3
US 5 40 FT	400	2.5	4	106.000	6340 91 1
US 5 50 FT	500	2.5	4	133.000	6340 93 8
US 5 60 FT	600	2.5	4	160.000	6340 94 6
US 5 70 FT	700	2.5	4	175.000	6340 95 0
US 5 80 FT	800	2.5	4	200.000	6340 95 4
US 5 90 FT	900	2.5	4	227.000	6340 95 8
US 5 100 FT	1,000	2.5	4	265.000	6340 96 2
US 5 150 FT	1,500	2.5	1	395.000	6340 96 6
US 5 200 FT	2,000	2.5	1	506.000	6340 97 0

**St** Steel **FT** Hot-dip galvanised /pc.

U support in fixed lengths. Dimensions 50 x 50 mm.

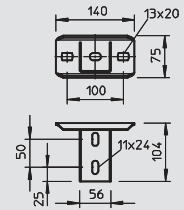


## Head plate for US 5 support

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
KUS 5 FT	10	75.000	6348 90 4

**St** Steel **FT** Hot-dip galvanised /pc.

Head plate for installation in US 5 support.

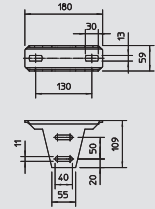


## Head plate for US 5 support, variable

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
KU 5 V FT	4	82.000	6348 92 0

**St** Steel **FT** Hot-dip galvanised /pc.

Variable head plate for mounting on US 5 support.

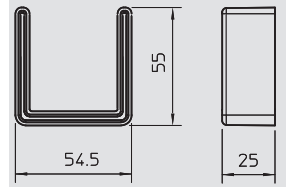


## Protective cap for US 5 support

Type	Colour	Pack.	Weight	Item No.
		pcs	kg/100 pcs.	
US 5 KS OR	Pastel orange	20	1.300	6338 46 2

**PE** Polyethylene /pc.

Protective cap for end covering of US 5 supports.

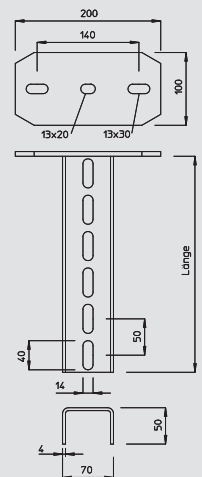


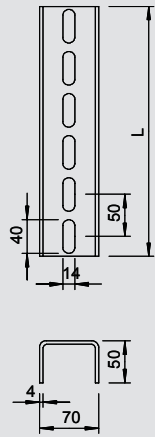
## US 7 suspended support

Type	Length	Material thickness	Pack.	Weight	Item No.
US 7 K 20 FT	200	4	2	176.000	6339 01 8
US 7 K 30 FT	300	4	2	216.000	6339 03 4
US 7 K 40 FT	400	4	2	257.000	6339 05 0
US 7 K 50 FT	500	4	2	297.000	6339 07 7
US 7 K 60 FT	600	4	2	337.000	6339 09 3
US 7 K 70 FT	700	4	2	378.000	6339 11 5
US 7 K 80 FT	800	4	2	418.000	6339 13 1
US 7 K 90 FT	900	4	2	458.000	6339 16 6
US 7 K 100 FT	1,000	4	2	499.000	6339 18 2
US 7 K 110 FT	1,100	4	2	539.000	6339 19 0
US 7 K 120 FT	1,200	4	2	579.000	6339 20 4
US 7 K 130 FT	1,300	4	2	620.000	6339 21 2
US 7 K 140 FT	1,400	4	2	660.000	6339 22 0
US 7 K 150 FT	1,500	4	2	701.000	6339 23 9
US 7 K 160 FT	1,600	4	2	741.000	6339 24 7
US 7 K 170 FT	1,700	4	2	781.000	6339 25 5
US 7 K 180 FT	1,800	4	2	822.000	6339 26 3
US 7 K 190 FT	1,900	4	2	862.000	6339 27 1
US 7 K 200 FT	2,000	4	2	902.000	6339 29 8

**St** Steel **FT** Hot-dip galvanised /pc.

Suspended support (U profile) of dimensions 70 x 50 mm with welded head plate.



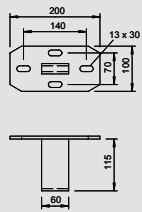


## US 7 support

Type	Length mm	Material thickness mm	Pack. pcs	Weight kg/100 pcs.	Item No.
US 7 20 FT	200	4	4	81.000	6340 01 6
US 7 30 FT	300	4	4	121.000	6340 03 2
US 7 40 FT	400	4	4	161.000	6340 05 9
US 7 50 FT	500	4	4	202.000	6340 07 5
US 7 60 FT	600	4	4	242.000	6340 09 1
US 7 70 FT	700	4	4	283.000	6340 11 3
US 7 80 FT	800	4	4	323.000	6340 14 8
US 7 90 FT	900	4	2	363.000	6340 16 4
US 7 100 FT	1,000	4	2	404.000	6340 18 0
US 7 110 FT	1,100	4	1	444.000	6340 19 9
US 7 120 FT	1,200	4	1	484.000	6340 20 2
US 7 130 FT	1,300	4	1	525.000	6340 21 0
US 7 140 FT	1,400	4	1	565.000	6340 22 9
US 7 150 FT	1,500	4	2	606.000	6340 23 7
US 7 160 FT	1,600	4	1	646.000	6340 24 5
US 7 170 FT	1,700	4	1	686.000	6340 25 3
US 7 180 FT	1,800	4	1	727.000	6340 26 1
US 7 190 FT	1,900	4	1	767.000	6340 28 8
US 7 200 FT	2,000	4	2	807.000	6340 29 6

**St** Steel      **FT** Hot-dip galvanised      /pc.

U support in fixed lengths. Dimensions 70 x 50 mm.

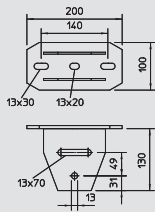


## Head plate for US 7 support

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KU 7 FT</b>	10	160.000	6349 10 2

**St** Steel      **FT** Hot-dip galvanised      /pc.

Light-duty head plate for mounting on US 7 support.

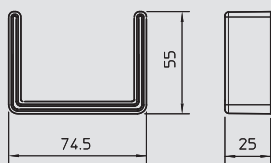


## Head plate for US 7 support, variable

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KU 7 VQP FT</b>	10	180.000	6349 15 3

**St** Steel      **FT** Hot-dip galvanised      /pc.

Variable head plate for mounting on US 7 support.

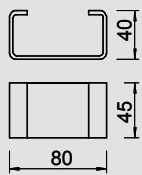


## Protective cap for US 7 support

Type	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>US 7 KS OR</b>	Pastel orange	20	1.800	6338 49 7

**PE** Polyethylene      /pc.

Protective cap to cover the ends of US 7 supports.

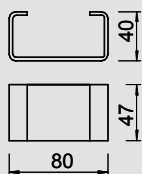


## Spacer DSK 45

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>DSK 45 FT</b>	25	19.000	6416 50 0

**St** Steel      **FT** Hot-dip galvanised      /pc.

Spacer for use in U 5 support and in the head plate, type KU 7 VQP.



## Spacer DSK 47

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>DSK 47 FT</b>	25	16.000	6416 50 4

**St** Steel      **FT** Hot-dip galvanised      /pc.

Spacer for use in head plate, type KU 5 V.



# Mounting systems

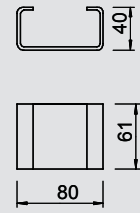
Function maintenance: cable-specific support structures



## Spacer DSK 61

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>DSK 61 FT</b>	20	26.000	<b>6416 51 9</b>

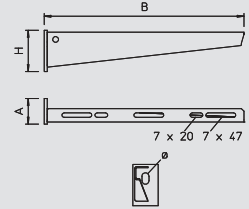
**St** Steel **FT** Hot-dip galvanised /pc.  
 Spacer for use in U 7 supports.



## Wall and support bracket AW 15

Type	Width	Dimension H	Dimension A	Hole- Ø	Pack.	Weight	Item No.
	mm	mm	mm	mm	pcs	kg/100 pcs.	
<b>AW 15 21 FT</b>	210	60	40	11	30	26.000	<b>6420 68 0</b>
<b>AW 15 31 FT</b>	310	65	40	11	30	32.500	<b>6420 71 0</b>
<b>AW 15 41 FT</b>	410	70	40	11	30	55.000	<b>6420 74 5</b>

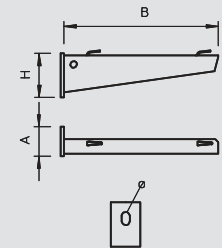
**St** Steel **FT** Hot-dip galvanised /pc.  
 Light-duty wall and support bracket with welded head plate.



## Wall and support bracket AWG 15

Type	Width	Dimension H	Dimension A	Hole- Ø	Pack.	Weight	Item No.
	mm	mm	mm	mm	pcs	kg/100 pcs.	
<b>AW G 15 21 FT</b>	210	60	40	11	30	26.000	<b>6420 60 8</b>
<b>AW G 15 31 FT</b>	310	65	40	11	30	35.000	<b>6420 61 0</b>
<b>AW G 15 41 FT</b>	410	70	40	11	30	56.000	<b>6420 61 2</b>

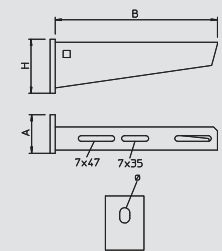
**St** Steel **FT** Hot-dip galvanised /pc.  
 Light-duty wall and support bracket with welded head plate for screwless mesh cable tray fastening.



## Wall and support bracket AW 30

Type	Width	Dimension H	Dimension A	Hole- Ø	Pack.	Weight	Item No.
	mm	mm	mm	mm	pcs	kg/100 pcs.	
<b>AW 30 11 FT</b>	110	60	50	11	30	22.000	<b>6419 70 4</b>
<b>AW 30 21 FT</b>	210	70	50	13	25	42.000	<b>6419 72 0</b>
<b>AW 30 31 FT</b>	310	80	50	13	25	63.000	<b>6419 74 7</b>
<b>AW 30 41 FT</b>	410	80	50	13	20	89.000	<b>6419 76 3</b>
<b>AW 30 51 FT</b>	510	90	50	13	10	132.500	<b>6419 79 8</b>

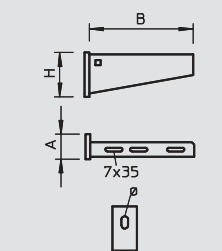
**St** Steel **FT** Hot-dip galvanised /pc.  
 Medium-duty wall and support bracket with welded head plate.



## Wall and support bracket AW 55

Type	Width	Dimension H	Dimension A	Hole- Ø	Pack.	Weight	Item No.
	mm	mm	mm	mm	pcs	kg/100 pcs.	
<b>AW 55 21 FT</b>	210	90	50	13.5	1	77.000	<b>6418 55 4</b>
<b>AW 55 31 FT</b>	310	110	50	13.5	1	123.000	<b>6418 57 0</b>
<b>AW 55 41 FT</b>	410	130	50	13.5	1	167.000	<b>6418 59 7</b>

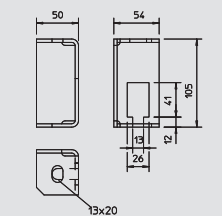
**St** Steel **FT** Hot-dip galvanised /pc.  
 Heavy-duty wall and support bracket with welded head plate.



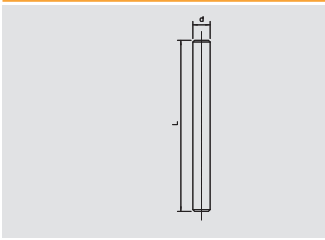
## Fire protection clamp

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>BSB FT</b>	20	42.400	<b>6418 19 8</b>

**St** Steel **FT** Hot-dip galvanised /pc.  
 Fire protection clamp for ceiling fastening of the threaded rod lock for routing types with cable ladders and cable trays for function maintenance to DIN 4102 Part 12.



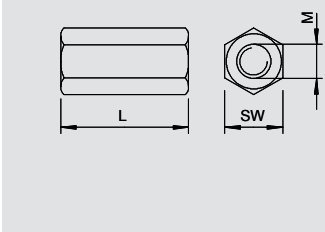
05\_BSS\_Masterkatalog\_Länder\_2012 / en / 17/07/2012 (LLEExport\_04003) / 18/07/2012



## Threaded rod

Type	Thread	Dimension d mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>2078 M10 1M G</b>	M10	10	1,000	25	49.000	<b>3141 20 9</b>
<b>2078 M12 1M G</b>	M12	12	1,000	20	100.000	<b>3141 30 6</b>

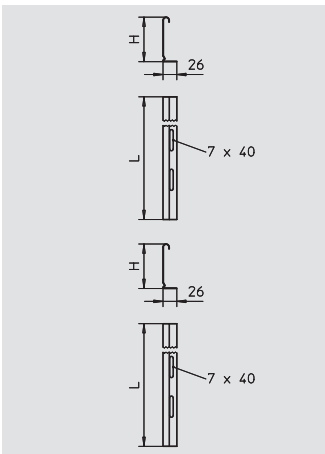
**St** Steel **G** Electrogalvanised /100 pc.  
Threaded rod to DIN 976.



## Connection sleeve

Type	Thread	Dimension M mm	Dimension L mm	SW mm	Shipping box pcs	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>12005 M10 G</b>	M10	M10	40	17	200	50	6.000	<b>6410 10 3</b>
<b>12005 M12 G</b>	M12	M12	40	19	150	25	7.000	<b>6410 11 1</b>

**St** Steel **G** Electrogalvanised /100 pc.  
Connection sleeve with continuous internal thread.



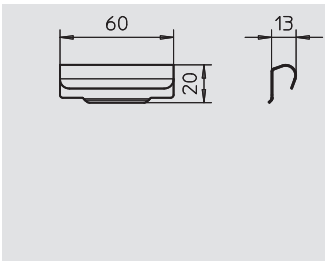
## Separating retainer

Type	Side height mm	Length mm	Pack. m	Weight kg/100 m	Item No.
<b>TSG 45 FS</b>	45	3,000	45	46.700	<b>6062 03 3</b>

**St** Steel **FS** Strip-galvanised /m  
Separating retainer for separation of cables of different voltages or functions.

Type	Side height mm	Length mm	Weight kg/100 m	Item No.
<b>TSG 60 FS</b>	60	3,000	55.700	<b>6062 06 8</b>

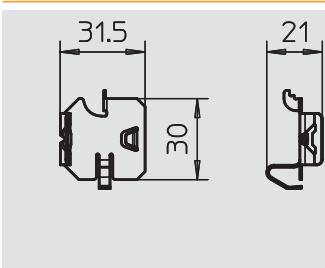
**St** Steel **FS** Strip-galvanised /m  
Separating retainer for separation of cables of different voltages or functions.



## Separating retainer connector

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>TSGV VA4310</b>	10	1.000	<b>6067 97 0</b>

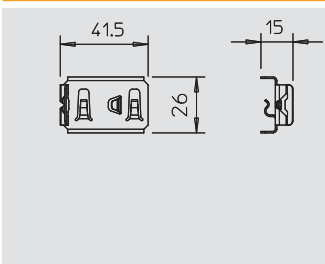
**V2A** Stainless steel, grade 301 /pc.  
Separating retainer connector for screwless connection of the TSG separating retainer in all side heights.



## Separating retainer clamping piece for cable tray

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS KR VA4310</b>	30	0.580	<b>6062 28 0</b>

**V2A** Stainless steel, grade 301 /100 pc.  
Clamping piece for screwless fastening of separating retainers in the cable tray types RKSM, MKS and SKS.



## Separating retainer clamping piece for mesh cable tray

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS GR VA4310</b>	30	0.830	<b>6062 28 2</b>

**V2A** Stainless steel, grade 301 /100 pc.  
Clamping piece for fastening separating retainers in mesh cable trays.



# Mounting systems

## Separating retainer clamping piece for cable ladder

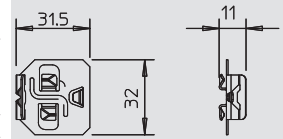


Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>KS KL VA4310</b>	30	0.512	<b>6062 28 4</b>

V2A Stainless steel, grade 301

/100 pc.

Clamping piece for screwless fastening of separating retainers in cable ladders.



## Hexagonal bolt with continuous thread

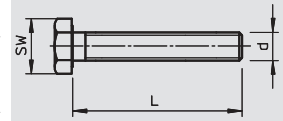


Type	Dimension mm	Dimension L mm	Dimension d mm	SW mm	Pack.	Weight kg/100 pcs.	Item No.
<b>SKS 10X80 F</b>	M10 x 80	80	10	17	20	7.700	<b>6418 25 0</b>
<b>SKS 10X90 F</b>	M10 x 90	90	10	17	20	7.800	<b>6418 25 2</b>

St Steel F Hot-dip galvanised

/100 pc.

Hexagonal bolt for universal fixing of structure components.



## Hexagonal bolt with shaft and thread

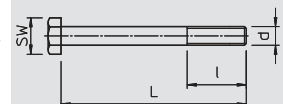


Type	Dimension mm	Dimension L mm	Dimension l mm	Dimension d mm	SW mm	Pack.	Weight kg/100 pcs.	Item No.
<b>SKS 12X80 F</b>	M12 x 80	80	30	12	19	20	11.800	<b>6418 28 7</b>
<b>SKS 12X100 F</b>	M12 x 100	100	30	12	19	20	12.600	<b>6418 29 5</b>
<b>SKS 12X110 F</b>	M12 x 110	110	30	12	19	20	14.500	<b>6418 31 7</b>

St Steel F Hot-dip galvanised

/100 pc.

Hexagonal bolt with hexagonal nut, washer and toothed disc.



## Truss-head bolt with combination nut

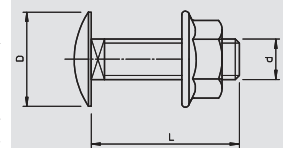


Type	Thread	Length mm	Dimension D mm	Dimension d mm	SW mm	Pack.	Weight kg/100 pcs.	Item No.
<b>FRSB 6X12 F</b>	M6	12	13.5	6	10	100	0.990	<b>6406 12 2</b>
<b>FRSB 6X15 F</b>	M6	16	13.5	6	10	100	0.800	<b>6406 15 7</b>
<b>FRSB 6X20 F</b>	M6	20	13.5	6	10	100	1.000	<b>6406 20 3</b>

St Steel F Hot-dip galvanised

/100 pc.

Truss-head bolt with square neck including nut-and-washer assembly.



## Truss-head bolt with nut and washer

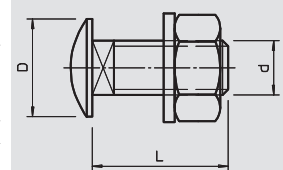


Type	Thread	Dimension L mm	Dimension D mm	Dimension d mm	SW mm	Pack.	Weight kg/100 pcs.	Item No.
<b>FRS 10X25 F</b>	M10	25	24	10	17	50	4.500	<b>6407 52 8</b>

St Steel F Hot-dip galvanised

/100 pc.

Truss-head bolt with square neck. With washer and hexagonal nut.



## Large washer DIN 440

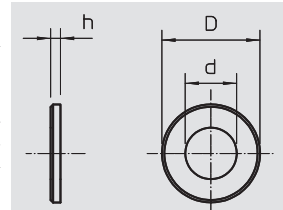


Type	Dimension D mm	Dimension d mm	Dimension h mm	Pack.	Weight kg/100 pcs.	Item No.
<b>DIN440 11 F</b>	34	11	3	100	1.985	<b>6408 72 9</b>
<b>DIN440 14 F</b>	44	13.5	4	50	4.736	<b>6408 73 7</b>

St Steel F Hot-dip galvanised

/100 pc.

Washer of particularly large outer diameter.



## Washer

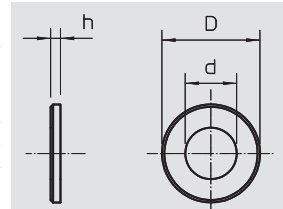


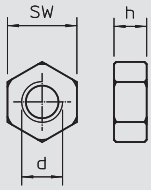
Type	Thread	Dimension D mm	Dimension d mm	Dimension h mm	Pack.	Weight kg/100 pcs.	Item No.
<b>966 M10 G</b>	M10	20	10.5	2	100	0.408	<b>3402 09 6</b>
<b>966 M12 G</b>	M12	24	13	2.5	100	0.627	<b>3402 12 6</b>

St Steel G Electrogalvanised

/100 pc.

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





## Hexagonal nut

Type	Thread	Dimension d mm	Dimension h mm	SW mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>DIN 934 M10 G</b>	M10	10	8.4	17	100	1.084	<b>3400 10 7</b>
<b>DIN 934 M12 G</b>	M12	12	10.8	19	100	1.730	<b>3400 12 3</b>

**St** Steel                      **G** Electrogalvanised

Hexagonal nut to DIN 934 with metric thread.

/100 pc.



# Cable tray RKS-Magic® VA

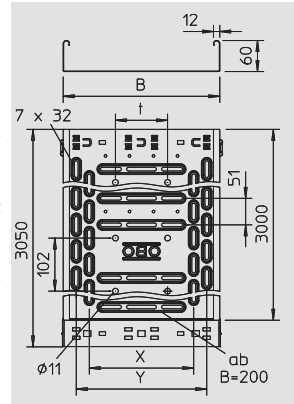


## Cable tray RKS-Magic®

Type	Width mm	Plate thickness mm	Length mm	Weight kg/100 m	Item No.
<b>RKSM 610 VA4301</b>	100	0.75	3,050	134.300	<b>6047 61 3</b>
<b>RKSM 620 VA4301</b>	200	0.75	3,050	183.000	<b>6047 64 0</b>
<b>RKSM 630 VA4301</b>	300	0.75	3,050	239.000	<b>6047 65 6</b>
<b>RKSM 610 VA4571</b>	100	0.75	3,050	134.300	<b>6047 61 4</b>
<b>RKSM 620 VA4571</b>	200	0.75	3,050	183.000	<b>6047 64 1</b>
<b>RKSM 630 VA4571</b>	300	0.75	3,050	239.000	<b>6047 65 7</b>

V2A Stainless steel, grade 304 V4A Stainless steel, grade 316 Ti Stained /m

RKSM 60 = efficient magic cable tray system with 60 mm side height.



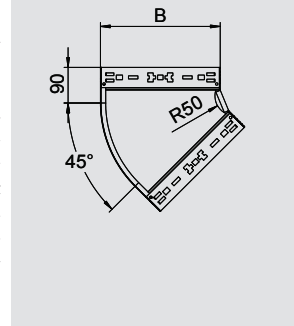
## 45° bend



Type	Width mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>RBM 45 610VA4301</b>	100	1	50.400	<b>6041 08 0</b>
<b>RBM 45 620VA4301</b>	200	1	86.000	<b>6041 08 4</b>
<b>RBM 45 630VA4301</b>	300	1	128.300	<b>6041 08 6</b>
<b>RBM 45 610VA4571</b>	100	1	50.400	<b>6041 10 0</b>
<b>RBM 45 620VA4571</b>	200	1	86.000	<b>6041 10 4</b>
<b>RBM 45 630VA4571</b>	300	1	128.300	<b>6041 10 6</b>

V2A Stainless steel, grade 304 V4A Stainless steel, grade 316 Ti Bright /pc.

45° bend with quick connector system. For all cable tray types of 60 mm side height.



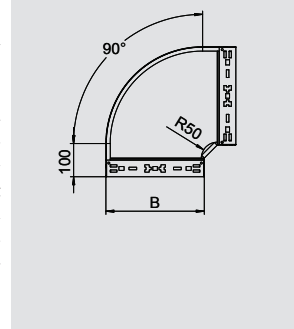
## 90° bend



Type	Width mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>RBM 90 610VA4301</b>	100	1	65.700	<b>6041 18 0</b>
<b>RBM 90 620VA4301</b>	200	1	122.100	<b>6041 18 4</b>
<b>RBM 90 630VA4301</b>	300	1	192.800	<b>6041 18 6</b>
<b>RBM 90 610VA4571</b>	100	1	65.700	<b>6041 20 0</b>
<b>RBM 90 620VA4571</b>	200	1	122.100	<b>6041 20 4</b>
<b>RBM 90 630VA4571</b>	300	1	192.800	<b>6041 20 6</b>

V2A Stainless steel, grade 304 V4A Stainless steel, grade 316 Ti Bright /pc.

90° bend with quick connector system. For all cable tray types of 60 mm side height.



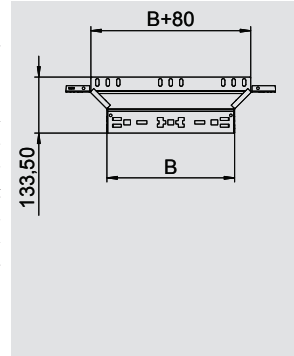
## Mounting/branch piece



Type	Width mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>RAAM 610 VA4301</b>	100	1	37.900	<b>6041 27 0</b>
<b>RAAM 620 VA4301</b>	200	1	50.600	<b>6041 27 5</b>
<b>RAAM 630 VA4301</b>	300	1	63.500	<b>6041 27 7</b>
<b>RAAM 610 VA4571</b>	100	1	37.900	<b>6041 29 0</b>
<b>RAAM 620 VA4571</b>	200	1	50.600	<b>6041 29 4</b>
<b>RAAM 630 VA4571</b>	300	1	63.500	<b>6041 29 6</b>

V2A Stainless steel, grade 304 V4A Stainless steel, grade 316 Ti Bright /pc.

Mounting/branch piece with quick connector system. For all cable tray types of 60 mm side height.



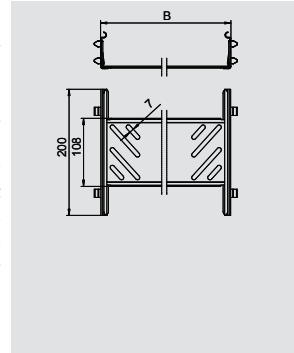
## Connector



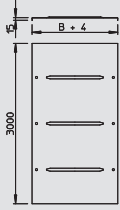
Type	Side height mm	Width mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KTSMV 610 VA4301</b>	60	100	1	30.500	<b>6068 95 8</b>
<b>KTSMV 620 VA4301</b>	60	200	1	37.200	<b>6068 96 2</b>
<b>KTSMV 630 VA4301</b>	60	300	1	44.000	<b>6068 96 4</b>
<b>KTSMV 610 VA4571</b>	60	100	1	30.500	<b>6068 98 0</b>
<b>KTSMV 620 VA4571</b>	60	200	1	37.200	<b>6068 98 4</b>
<b>KTSMV 630 VA4571</b>	60	300	1	44.000	<b>6068 98 6</b>

V2A Stainless steel, grade 304 V4A Stainless steel, grade 316 Ti Bright /pc.

Cable tray connector with quick fastening for straight, screwless connection of cable trays and fittings with a side height of 60 mm.





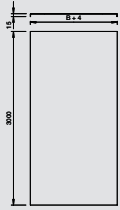


## Cover with turn buckle

Type	Width mm	Plate thick- ness mm	Length mm	Weight kg/100 m	Item No.
<b>DRL 100 VA4301</b>	100	1	3,000	105.000	<b>6052 87 8</b>
<b>DRL 200 VA4301</b>	200	1	3,000	185.000	<b>6052 89 4</b>
<b>DRL 300 VA4301</b>	300	1	3,000	264.000	<b>6052 90 8</b>
<b>DRL 100 VA4571</b>	100	—	3,000	105.000	<b>6052 98 0</b>
<b>DRL 200 VA4571</b>	200	—	3,000	185.000	<b>6052 98 1</b>
<b>DRL 300 VA4571</b>	300	—	3,000	275.000	<b>6052 98 3</b>

V2A Stainless steel, grade 304 V4A Stainless steel, grade 316 Ti /m

Cover for cable trays and cable ladders with three pairs of turn buckles.

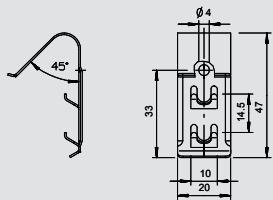


## Lid, unperforated

Type	Width mm	Plate thick- ness mm	Length mm	Weight kg/100 m	Item No.
<b>DRLU 100 VA4301</b>	100	1	3,000	104.000	<b>6052 82 4</b>
<b>DRLU 200 VA4301</b>	200	1	3,000	178.000	<b>6052 83 1</b>
<b>DRLU 300 VA4301</b>	300	1	3,000	256.000	<b>6052 83 4</b>
<b>DRLU 100 VA4571</b>	100	1	3,000	99.000	<b>6052 99 1</b>
<b>DRLU 200 VA4571</b>	200	1	3,000	178.000	<b>6052 99 3</b>
<b>DRLU 300 VA4571</b>	300	1	3,000	256.000	<b>6052 99 4</b>

V2A Stainless steel, grade 304 V4A Stainless steel, grade 316 Ti /m

Cover for cable trays and mesh cable trays.

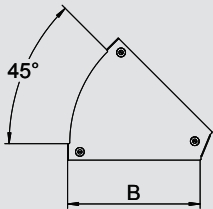


## Lid clamp

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>DKU 60 VA4310</b>	60	0.800	<b>6065 60 0</b>

V2A Stainless steel, grade 301 /100 pcs.

Cover clamp for universal fastening of covers on cable trays, mesh cable trays and AZ small ducts.

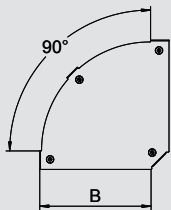


## Lid for 45° bend

Type	Width mm	Plate thick- ness mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>DFBM 45 100 V2A</b>	100	1.25	1	13.100	<b>7138 43 0</b>
<b>DFBM 45 200 V2A</b>	200	1.25	1	28.100	<b>7138 43 4</b>
<b>DFBM 45 300 V2A</b>	300	1.25	1	49.300	<b>7138 43 6</b>
<b>DFBM 45 100 V4A</b>	100	1.25	1	13.100	<b>7138 45 0</b>
<b>DFBM 45 200 V4A</b>	200	1.25	1	28.100	<b>7138 45 4</b>
<b>DFBM 45 300 V4A</b>	300	1.25	1	49.300	<b>7138 45 6</b>

V2A Stainless steel, grade 304 V4A Stainless steel, grade 316 Ti Bright /pc.

Cover for 45° bend with pre-mounted turn buckles.



## Lid for 90° bend

Type	Width mm	Plate thick- ness mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>DFBM 90 100 V2A</b>	100	1.25	1	18.500	<b>7138 57 0</b>
<b>DFBM 90 200 V2A</b>	200	1.25	1	44.400	<b>7138 57 4</b>
<b>DFBM 90 300 V2A</b>	300	1.25	1	83.000	<b>7138 57 6</b>
<b>DFBM 90 100 V4A</b>	100	1.25	1	18.500	<b>7138 59 0</b>
<b>DFBM 90 200 V4A</b>	200	1.25	1	44.400	<b>7138 59 4</b>
<b>DFBM 90 300 V4A</b>	300	1.25	1	83.000	<b>7138 59 6</b>

V2A Stainless steel, grade 304 V4A Stainless steel, grade 316 Ti Bright /pc.

Cover for 90° bend with pre-mounted turn buckles.



# Cable tray RKS-Magic® VA

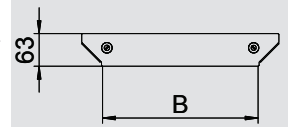
## Lid for mounting/branch piece



Type	Width mm	Plate thick- ness mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>DFAAM 100 V2A</b>	100	1.25	1	11.100	<b>7138 72 0</b>
<b>DFAAM 200 V2A</b>	200	1.25	1	14.500	<b>7138 72 4</b>
<b>DFAAM 300 V2A</b>	300	1.25	1	20.900	<b>7138 72 6</b>
<b>DFAAM 100 V4A</b>	100	1.25	1	11.100	<b>7138 74 0</b>
<b>DFAAM 200 V4A</b>	200	1.25	1	14.500	<b>7138 74 4</b>
<b>DFAAM 300 V4A</b>	300	1.25	1	20.900	<b>7138 74 6</b>

V2A Stainless steel, grade 304 V4A Stainless steel, grade 316 Ti Bright /pc.

Cover for add-on tee with pre-mounted turn buckles.



## Floor end plate



Type	Width mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BEB 100 VA4301</b>	100	100	5.500	<b>7084 01 3</b>
<b>BEB 200 VA4301</b>	200	100	11.400	<b>7084 04 8</b>
<b>BEB 300 VA4301</b>	300	100	17.200	<b>7084 06 4</b>
<b>BEB 100 VA4571</b>	100	100	5.500	<b>7084 14 1</b>
<b>BEB 200 VA4571</b>	200	100	11.400	<b>7084 14 3</b>
<b>BEB 300 VA4571</b>	300	100	17.200	<b>7084 14 5</b>

V2A Stainless steel, grade 304 V4A Stainless steel, grade 316 Ti /pc.

For base reinforcement at the ends of the tray and as cable protection.



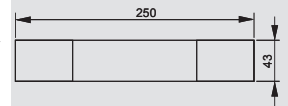
## Identification plate for cable system



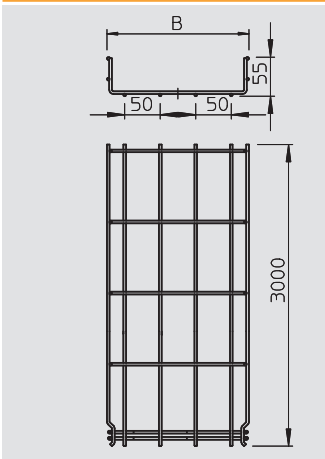
Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS-E DE</b>	10	0.600	<b>7205 42 3</b>

PVC Polyvinylchloride /pc.

Self-adhesive identification plate for approved cable system labelling for function maintenance as required by DIN 4102 Part 12.



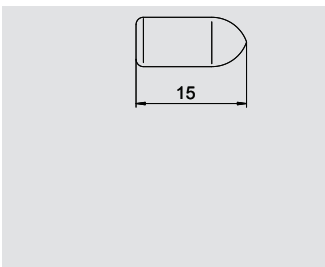
# Mesh cable tray GR-Magic® VA



## Mesh cable tray GR-Magic®

Type	Width mm	Wire Ø mm	Length mm	Weight kg/100 m	Item No.
<b>GRM 55 300VA4301</b>	300	4.8	3,000	191.100	<b>6001 07 8</b>
<b>GRM 55 300VA4401</b>	300	4.8	3,000	191.100	<b>6001 09 3</b>

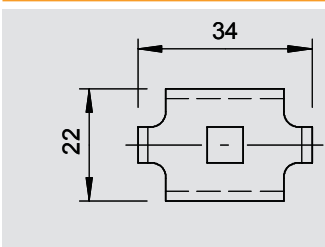
V2A Stainless steel, grade 304 V4A Stainless steel, grade 316 Stained /m  
Mesh cable tray with shaped connector of side height 55 mm.



## Protective cap for mesh cable tray

Type	Wire Ø mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>GR KS 4.8 OR</b>	4.8	Pastel orange	500	0.030	<b>6003 75 4</b>

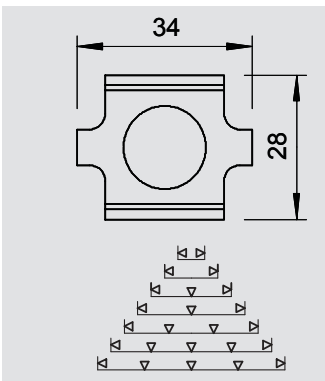
PE Polyethylene /100 pc.  
Protective cap for attachment to cut wire ends of mesh cable trays.



## Clamping piece

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>GKS 34 VA4301</b>	100	2.000	<b>6016 83 9</b>
<b>GKS 34 VA4401 SP</b>	10	2.000	<b>6016 85 9</b>

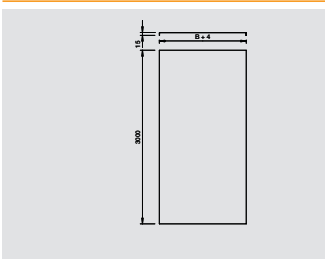
V2A Stainless steel, grade 304 V4A Stainless steel, grade 316 /pc.  
Clamping piece for fixing mesh cable trays to wall or support brackets.



## Connector

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>GSV 34 VA4301</b>	25	3.000	<b>6016 64 2</b>
<b>GSV 34 VA4401</b>	10	3.000	<b>6016 64 8</b>

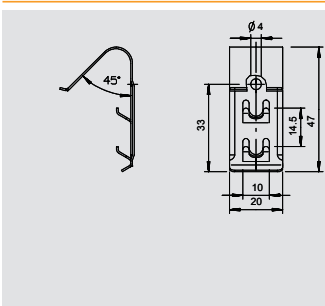
V2A Stainless steel, grade 304 V4A Stainless steel, grade 316 /pc.  
Screwed version of joint connector for mesh cable trays.



## Lid, unperforated

Type	Width mm	Plate thick- ness mm	Length mm	Weight kg/100 m	Item No.
<b>DRLU 300 VA4301</b>	300	1	3,000	256.000	<b>6052 83 4</b>
<b>DRLU 300 VA4571</b>	300	1	3,000	256.000	<b>6052 99 4</b>

V2A Stainless steel, grade 304 V4A Stainless steel, grade 316 Ti /m  
Cover for cable trays and mesh cable trays.



## Lid clamp

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>DKU 60 VA4310</b>	60	0.800	<b>6065 60 0</b>

V2A Stainless steel, grade 301 /100 pc.  
Cover clamp for universal fastening of covers on cable trays, mesh cable trays and AZ small ducts.



Function maintenance: cable-specific support structures

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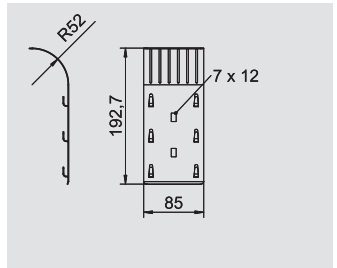
# Mesh cable tray GR-Magic® VA



## Cable exit plate

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>KAB GR VA 1.4301</b>	10	14.100	<b>6220 14 5</b>

V2A Stainless steel, grade 304 Bright /pc.  
 Cable exit plate for mesh cable trays.

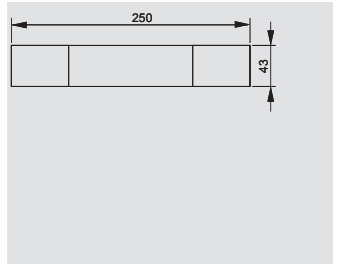


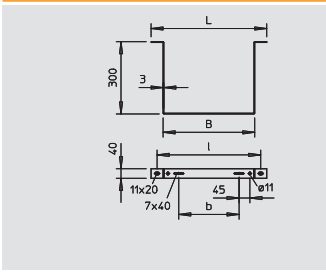
## Identification plate for cable system



Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>KS-E DE</b>	10	0.600	<b>7205 42 3</b>

PVC Polyvinylchloride /pc.  
 Self-adhesive identification plate for approved cable system labelling for function maintenance as required by DIN 4102 Part 12.





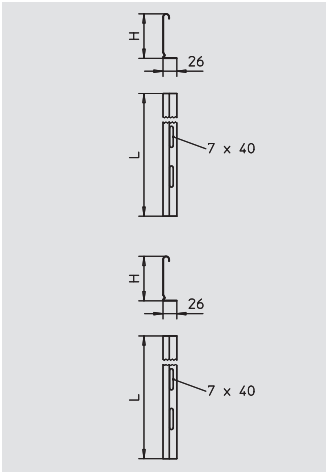
## Suspension clamp

Type	Dimension B mm	Dimension L mm	Dimension b mm	Dimension l mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>AHB-T 200</b>	280	380	150	330	1	94.000	<b>6363 88 8</b>
<b>AHB-T 300</b>	380	480	250	430	1	103.000	<b>6363 89 2</b>

V5A Stainless steel, 1.4529

/pc.

Special suspension clamp for cable support systems in tunnels. Additional variants, such as adapter or connection clamps, as well as various head shapes, on request.



## Separating retainer

Type	Side height mm	Length mm	Weight kg/100 m	Item No.
<b>TSG 45 VA4301</b>	—	3,000	46.700	<b>6062 02 5</b>
<b>TSG 45 VA4571</b>	—	3,000	46.700	<b>6062 02 8</b>

V2A Stainless steel, grade 304 V4A Stainless steel, grade 316 Ti

/m

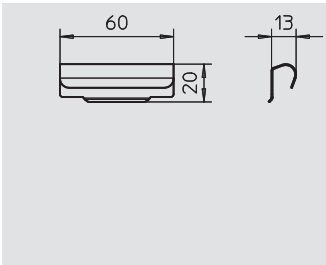
Barrier strip for separation of cables of different voltages or functions.

Type	Side height mm	Length mm	Weight kg/100 m	Item No.
<b>TSG 60 VA4301</b>	60	3,000	55.700	<b>6062 08 4</b>
<b>TSG 60 VA4571</b>	60	3,000	55.700	<b>6062 08 6</b>

V2A Stainless steel, grade 304 V4A Stainless steel, grade 316 Ti

/m

Barrier strip for separation of cables of different voltages or functions.



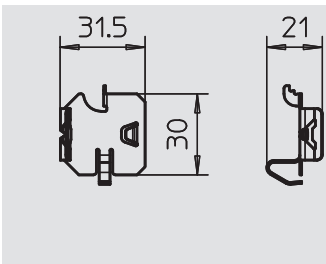
## Separating retainer connector

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>TSGV VA4310</b>	10	1.000	<b>6067 97 0</b>

V2A Stainless steel, grade 301

/pc.

Separating retainer connector for screwless connection of the TSG separating retainer in all side heights.



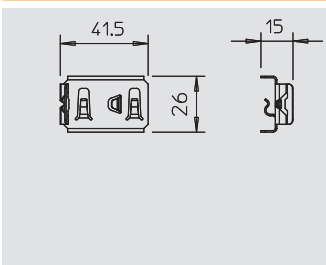
## Separating retainer clamping piece for cable tray

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS KR VA4310</b>	30	0.580	<b>6062 28 0</b>

V2A Stainless steel, grade 301

/100 pc.

Clamping piece for screwless fastening of separating retainers in the cable tray types RKSM, MKS and SKS.



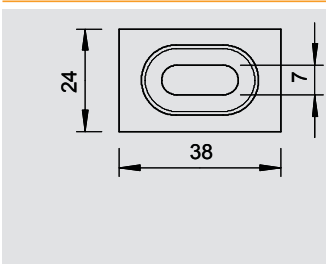
## Separating retainer clamping piece for mesh cable tray

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS GR VA4310</b>	30	0.830	<b>6062 28 2</b>

V2A Stainless steel, grade 301

/100 pc.

Clamping piece for fastening separating retainers in mesh cable trays.



## Separating retainer clamping piece for mesh cable tray, screwed on

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>GKT 38 VA4301</b>	100	2.200	<b>6017 04 5</b>
<b>GKT 38 VA4401 SP</b>	10	2.200	<b>6017 09 2</b>

V2A Stainless steel, grade 304 V4A Stainless steel, grade 316

/pc.

Clamping piece for fastening separating retainers in mesh cable trays.



# Mounting systems, VA



## Truss-head bolt with combination nut

Type	Thread	Dimension L mm	Dimension D mm	Dimension d mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FRS 6X12 VA4301</b>	M6	12	13.5	6	100	0.760	<b>6406 52 1</b>
<b>FRS 6X16 VA4301</b>	M6	15	13.5	6	100	0.900	<b>6406 55 6</b>

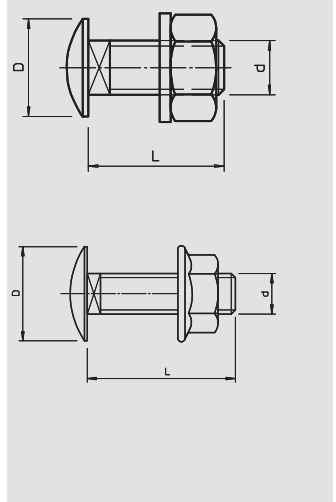
V2A Stainless steel, grade 304 /100 pc.

Truss-head bolt with square neck including washer and hexagonal nut.

Type	Thread	Dimension L mm	Dimension D mm	Dimension d mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FRSB 6X12 VA4401</b>	M6	12	13.5	6	100	0.796	<b>6406 14 2</b>
<b>FRSB 6X16 VA4401</b>	M6	16	13.5	6	100	0.800	<b>6406 19 3</b>

V4A Stainless steel, grade 316 /100 pc.

Truss-head bolt with square neck including combination nut.

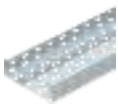










## Contents, function maintenance: standard support structures

	Cable tray SKS	274
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# Cable tray SKS

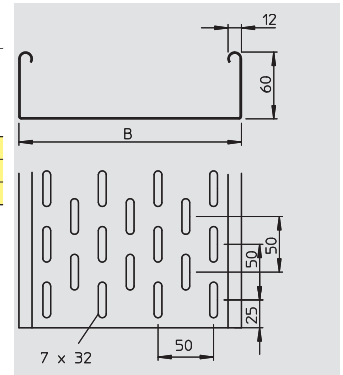
## Cable tray SKS



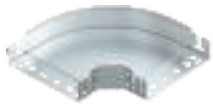
Type	Length mm	Width mm	Plate thick- ness mm	Weight kg/100 m	Item No.
<b>SKS 610 FS</b>	3,000	100	1.5	239.400	<b>6056 10 5</b>
<b>SKS 620 FS</b>	3,000	200	1.5	356.800	<b>6056 20 2</b>
<b>SKS 630 FS</b>	3,000	300	1.5	455.300	<b>6056 29 6</b>

**St** Steel **FS** Strip-galvanised /m

SKS 60 = heavy-duty cable tray system with 60 mm side height. FS version includes RV 60 straight connector set.



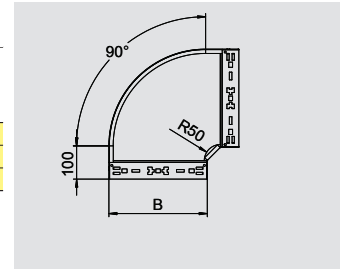
## 90° bend



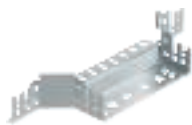
Type	Width mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>RBM 90 610 FS</b>	100	1	65.700	<b>6041 13 0</b>
<b>RBM 90 620 FS</b>	200	1	122.100	<b>6041 13 4</b>
<b>RBM 90 630 FS</b>	300	1	192.800	<b>6041 13 6</b>

**St** Steel **FS** Strip-galvanised /pc.

90° bend with quick connector system. For all cable tray types of 60 mm side height.



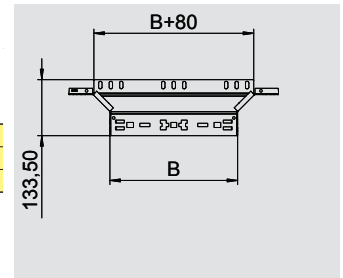
## Mounting/branch piece



Type	Width mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>RAAM 610 FS</b>	100	1	37.900	<b>6041 23 0</b>
<b>RAAM 620 FS</b>	200	1	50.600	<b>6041 23 4</b>
<b>RAAM 630 FS</b>	300	1	63.500	<b>6041 23 6</b>

**St** Steel **FS** Strip-galvanised /pc.

Mounting/branch piece with quick connector system. For all cable tray types of 60 mm side height.



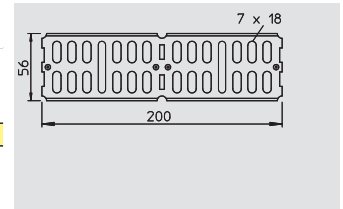
## Angle connector



Type	Dimen- sion mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>RWVL 60 FS</b>	200 x 56	10	15.600	<b>6067 11 5</b>

**St** Steel **FS** Strip-galvanised /pc.

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



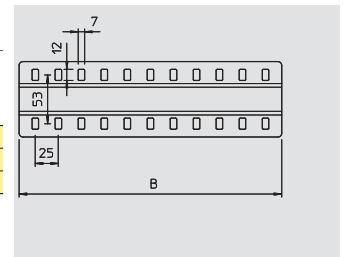
## Joint plate



Type	Width mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>SSLB 100 FS</b>	85	20	7.700	<b>7070 20 5</b>
<b>SSLB 200 FS</b>	185	20	16.700	<b>7070 21 3</b>
<b>SSLB 300 FS</b>	285	20	25.700	<b>7070 21 7</b>

**St** Steel **FS** Strip-galvanised /pc.

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



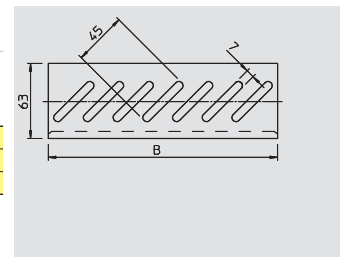
## Floor end plate



Type	Width mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>BEB 100 FS</b>	100	100	5.400	<b>7083 10 6</b>
<b>BEB 200 FS</b>	200	100	11.400	<b>7083 20 3</b>
<b>BEB 300 FS</b>	300	100	17.200	<b>7083 30 0</b>

**St** Steel **FS** Strip-galvanised /pc.

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



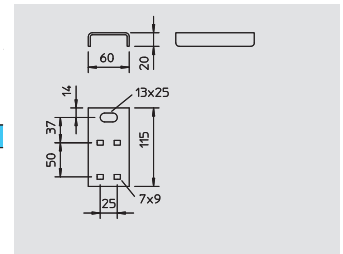
## Connection component

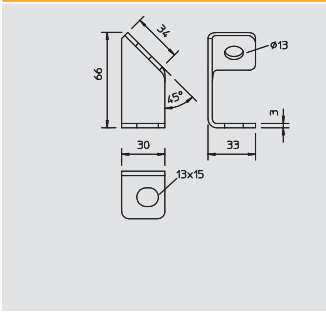


Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>ABR FT</b>	20	23.000	<b>6364 94 2</b>

**St** Steel **FT** Hot-dip galvanised /pc.

The connection component is the connection between the threaded rod lock and the suspension system for the routing types with cable trays for function maintenance to DIN 4102 Part 12. Including bolts and nuts.



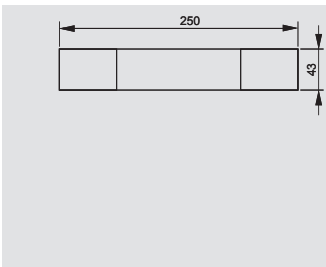


**Connection component, sloping**

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>ABS FS</b>	20	7.500	<b>6365 02 7</b>

**St** Steel      **FS** Strip-galvanised      /pc.

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 function maintenance to DIN 4102 Part 12.



**Identification plate for cable system**

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>KS-E DE</b>	10	0.600	<b>7205 42 3</b>

**PVC** Polyvinylchloride      /pc.

Self-adhesive identification plate for approved cable system labelling for function maintenance as required by DIN 4102 Part 12.



# Cable ladder LG-VS/F

## Cable ladder



Type	Width mm	Length mm	Frame distance mm	Weight kg/100 m	Item No.
<b>LG 620 VSF6000FS</b>	200	6,000	150	324.700	<b>6207 50 1</b>
<b>LG 630 VSF6000FS</b>	300	6,000	150	373.300	<b>6207 50 5</b>
<b>LG 640 VSF6000FS</b>	400	6,000	150	422.000	<b>6207 50 9</b>

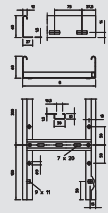
**St** Steel **FS** Strip-galvanised /m

Function maintenance 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.



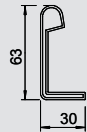
## Protective cap for cable ladders



Type	Colour	Pack. pair	Weight kg/100 pairs	Item No.
<b>SKH 60 OR</b>	Pastel orange	40	1.100	<b>6222 53 7</b>

**PE** Polyethylene /pair

Protective cap to cover cable ladder ends of side height 60 mm.



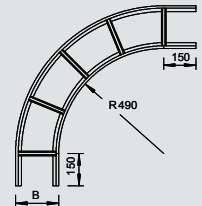
## 90° bend



Type	Width mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>LBI 90 620 VS FS</b>	200	1	358.000	<b>6211 22 4</b>
<b>LBI 90 630 VS FS</b>	300	1	412.000	<b>6211 23 2</b>
<b>LBI 90 640 VS FS</b>	400	1	497.000	<b>6211 24 0</b>

**St** Steel **FS** Strip-galvanised /pc.

90° bend, horizontal, for cable ladders with VS rungs and a side height of 60 mm.



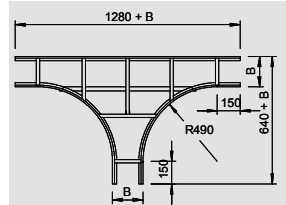
## T piece



Type	Width mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>LT 620 VS FS</b>	200	1	677.000	<b>6213 72 3</b>
<b>LT 630 VS FS</b>	300	1	789.000	<b>6213 73 1</b>
<b>LT 640 VS FS</b>	400	1	871.000	<b>6213 75 8</b>

**St** Steel **FS** Strip-galvanised /pc.

T piece, horizontal, for cable ladders with VS rungs and a side height of 60 mm.



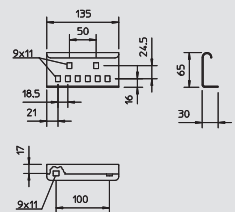
## External connector



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>6208 77 0</b>

**St** Steel **FS** Strip-galvanised /pc.

External connector for mechanical connection of cable ladder sections for routing types with cable ladders for function maintenance to DIN 4102 Part 12. Including bolts.



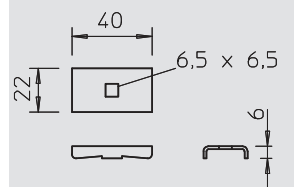
## Clamping piece



Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>LKS 40 FS</b>	50	3.400	<b>6221 07 6</b>

**St** Steel **FS** Strip-galvanised /pc.

Clamping piece for fastening cable ladders.



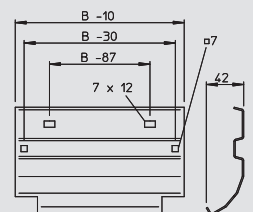
## Exit plate

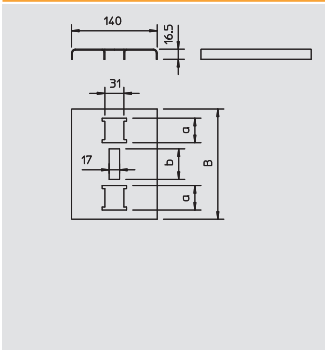


Type	Width mm	Side height mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>LAB 20 FT</b>	200	45	20	37.000	<b>6220 43 6</b>
<b>LAB 30 FT</b>	300	45	25	58.000	<b>6220 44 4</b>
<b>LAB 40 FT</b>	400	45	25	78.000	<b>6220 45 2</b>

**St** Steel **FT** Hot-dip galvanised /pc.

Exit plate for mounting on the rung for vertically exiting cables.



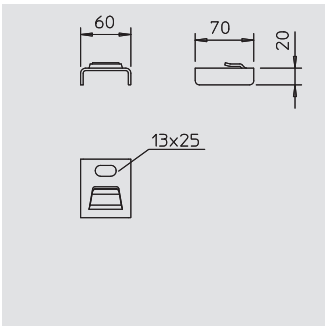


**Rung support plate for fitting**

Type	Dimension B mm	Pack.	Weight	Item No.
		pcs	kg/100 pcs.	
<b>SAB20 FS</b>	180	25	31.000	<b>6222 94 3</b>
<b>SAB30 FS</b>	280	25	50.000	<b>6222 95 1</b>
<b>SAB40 FS</b>	380	25	65.000	<b>6222 97 8</b>

**St** Steel **FS** Strip-galvanised /pc.

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 the function maintenance cables in case of fire. The rung support plates are just laid loosely on the rungs of the cable ladder fittings. The lugs pointing down prevent slippage.



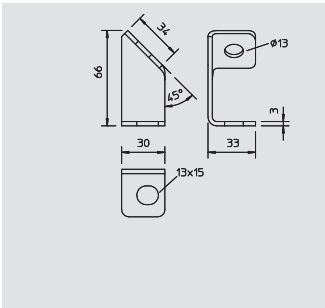
**Connection component**

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>ABL FT</b>	20	15.000	<b>6221 46 7</b>

**St** Steel **FT** Hot-dip galvanised /pc.

The connection component is the connection between the threaded rod lock and the suspension system for the routing types with cable ladders for function maintenance 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.

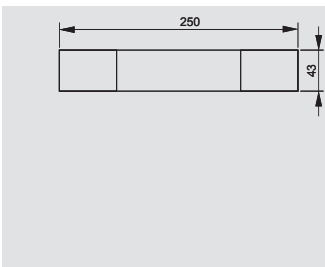


**Connection component, sloping**

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>ABS FS</b>	20	7.500	<b>6365 02 7</b>

**St** Steel **FS** Strip-galvanised /pc.

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 function maintenance to DIN 4102 Part 12.



**Identification plate for cable system**

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>KS-E DE</b>	10	0.600	<b>7205 42 3</b>

**PVC** Polyvinylchloride /pc.

Self-adhesive identification plate for approved cable system labelling for function maintenance as required by DIN 4102 Part 12.



# Mounting systems

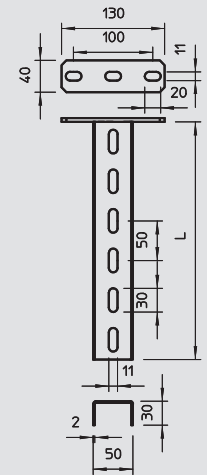


## US 3 suspended support

Type	Length	Material thickness	Pack.	Weight	Item No.
	mm	mm	pcs	kg/100 pcs.	
US 3 K 20 FT	200	2	4	50.500	6342 35 1
US 3 K 30 FT	300	2	4	64.400	6342 35 3
US 3 K 40 FT	400	2	4	78.300	6342 35 5
US 3 K 50 FT	500	2	4	92.300	6342 35 7
US 3 K 60 FT	600	2	4	106.200	6342 35 9
US 3 K 70 FT	700	2	4	120.200	6342 36 2
US 3 K 80 FT	800	2	4	134.100	6342 36 4
US 3 K 90 FT	900	2	4	147.800	6342 36 6
US 3 K 100 FT	1,000	2	4	162.000	6342 36 8
US 3 K 110 FT	1,100	2	4	175.900	6342 37 0
US 3 K 120 FT	1,200	2	4	189.900	6342 37 2

**St** Steel **FT** Hot-dip galvanised /pc.

Suspended support (U profile) of dimensions 50 x 30 mm with welded head plate.

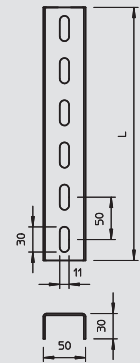


## US 3 support

Type	Length	Material thickness	Pack.	Weight	Item No.
	mm	mm	pcs	kg/100 pcs.	
US 3 20 FS	200	2	4	27.000	6342 30 2
US 3 30 FS	300	2	4	40.000	6342 30 4
US 3 40 FS	400	2	4	53.000	6342 30 6
US 3 50 FS	500	2	4	67.000	6342 30 8
US 3 60 FS	600	2	4	80.000	6342 31 0
US 3 70 FS	700	2	4	93.000	6342 31 2
US 3 80 FS	800	2	4	107.000	6342 31 4
US 3 90 FS	900	2	4	120.000	6342 31 6
US 3 100 FS	1,000	2	4	133.000	6342 31 8
US 3 150 FS	1,500	2	1	200.000	6342 32 8
US 3 200 FS	2,000	2	1	266.000	6342 33 8

**St** Steel **FS** Strip-galvanised /pc.

U support in fixed lengths. Dimensions 30 x 50 mm.

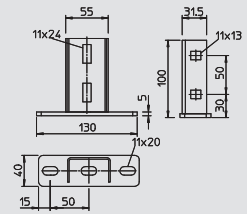


## Head plate for US 3 support

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
KU 3 FT	10	46.800	6348 87 4

**St** Steel **FT** Hot-dip galvanised /pc.

Head plate for mounting on US 3 supports.

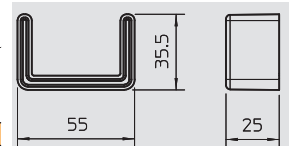


## Protective cap for US 3 support

Type	Colour	Pack.	Weight	Item No.
		pcs	kg/100 pcs.	
US 3 KS OR	Pastel orange	20	1.070	6338 45 8

**PE** Polyethylene /pc.

Protective cap to cover the ends of US 3 supports.

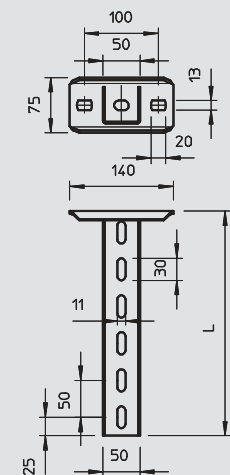


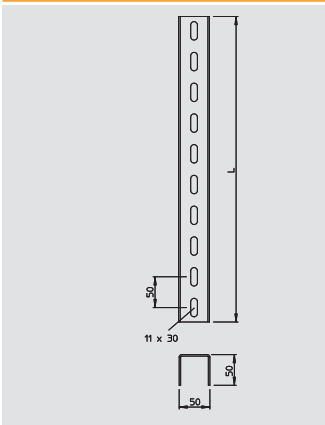
## US 5 suspended support

Type	Length	Material thickness	Pack.	Weight	Item No.
	mm	mm	pcs	kg/100 pcs.	
US 5 K 20 FT	200	2.5	2	85.000	6341 52 7
US 5 K 30 FT	300	2.5	2	110.000	6341 53 5
US 5 K 40 FT	400	2.5	2	136.000	6341 54 3
US 5 K 50 FT	500	2.5	2	161.000	6341 55 1
US 5 K 60 FT	600	2.5	2	185.000	6341 57 8
US 5 K 70 FT	700	2.5	2	210.000	6341 58 6
US 5 K 80 FT	800	2.5	2	236.000	6341 59 4
US 5 K 90 FT	900	2.5	2	261.000	6341 60 8
US 5 K 100 FT	1,000	2.5	2	286.000	6341 61 6
US 5 K 110 FT	1,100	2.5	2	311.000	6341 62 4
US 5 K 120 FT	1,200	2.5	2	337.000	6341 63 2

**St** Steel **FT** Hot-dip galvanised /pc.

U support of dimensions 50 x 50 mm with welded head plate.



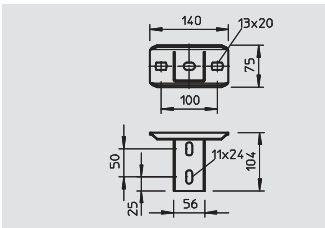


## US 5 support

Type	Length mm	Material thickness mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>US 5 30 FT</b>	300	2.5	4	79.000	<b>6340 90 3</b>
<b>US 5 40 FT</b>	400	2.5	4	106.000	<b>6340 91 1</b>
<b>US 5 50 FT</b>	500	2.5	4	133.000	<b>6340 93 8</b>
<b>US 5 60 FT</b>	600	2.5	4	160.000	<b>6340 94 6</b>
<b>US 5 70 FT</b>	700	2.5	4	175.000	<b>6340 95 0</b>
<b>US 5 80 FT</b>	800	2.5	4	200.000	<b>6340 95 4</b>
<b>US 5 90 FT</b>	900	2.5	4	227.000	<b>6340 95 8</b>
<b>US 5 100 FT</b>	1,000	2.5	4	265.000	<b>6340 96 2</b>
<b>US 5 150 FT</b>	1,500	2.5	1	395.000	<b>6340 96 6</b>
<b>US 5 200 FT</b>	2,000	2.5	1	506.000	<b>6340 97 0</b>

**St** Steel **FT** Hot-dip galvanised /pc.

U support in fixed lengths. Dimensions 50 x 50 mm.

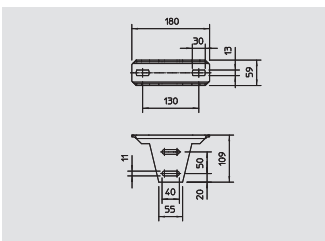


## Head plate for US 5 support

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KUS 5 FT</b>	10	75.000	<b>6348 90 4</b>

**St** Steel **FT** Hot-dip galvanised /pc.

Head plate for installation in US 5 support.

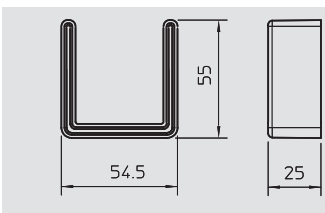


## Head plate for US 5 support, variable

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KU 5 V FT</b>	4	82.000	<b>6348 92 0</b>

**St** Steel **FT** Hot-dip galvanised /pc.

Variable head plate for mounting on US 5 support.

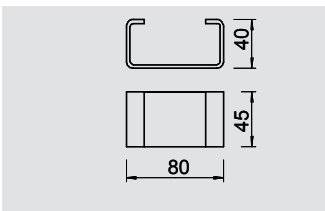


## Protective cap for US 5 support

Type	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>US 5 KS OR</b>	Pastel orange	20	1.300	<b>6338 46 2</b>

**PE** Polyethylene /pc.

Protective cap for end covering of US 5 supports.

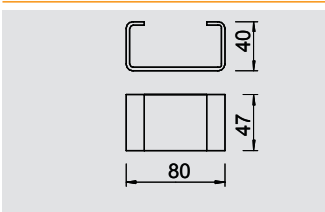


## Spacer DSK 45

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>DSK 45 FT</b>	25	19.000	<b>6416 50 0</b>

**St** Steel **FT** Hot-dip galvanised /pc.

Spacer for use in U 5 support and in the head plate, type KU 7 VQP.

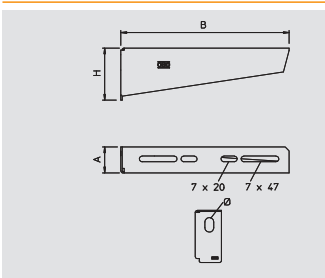


## Spacer DSK 47

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>DSK 47 FT</b>	25	16.000	<b>6416 50 4</b>

**St** Steel **FT** Hot-dip galvanised /pc.

Spacer for use in head plate, type KU 5 V.



## Wall and support bracket MWA 12

Type	Width mm	Dimen- sion H mm	Dimen- sion A mm	Hole- Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MWA 12 11S FS</b>	110	53	32.5	11	30	12.700	<b>6424 71 6</b>
<b>MWA 12 21S FS</b>	210	65	32.5	11	30	24.500	<b>6424 73 2</b>
<b>MWA 12 31S FS</b>	310	75	38	11	30	57.000	<b>6424 74 0</b>
<b>MWA 12 41S FS</b>	410	83	38	11	30	68.000	<b>6424 75 9</b>

**St** Steel **FS** Strip-galvanised /pc.

Folded light-duty wall and support bracket.



# Mounting systems

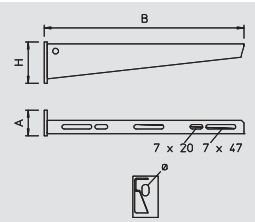
## Wall and support bracket AW 15



Type	Width	Dimension H	Dimension A	Hole- Ø	Pack.	Weight	Item No.
	mm	mm	mm	mm	pcs	kg/100 pcs.	
<b>AW 15 11 FT</b>	110	50	40	11	30	14.500	<b>6420 65 6</b>
<b>AW 15 21 FT</b>	210	60	40	11	30	26.000	<b>6420 68 0</b>
<b>AW 15 31 FT</b>	310	65	40	11	30	32.500	<b>6420 71 0</b>
<b>AW 15 41 FT</b>	410	70	40	11	30	55.000	<b>6420 74 5</b>

**St** Steel **FT** Hot-dip galvanised /pc.

Light-duty wall and support bracket with welded head plate.



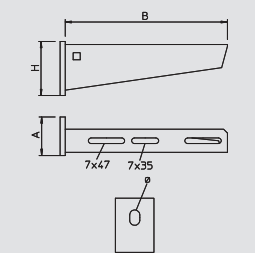
## Wall and support bracket AW 30



Type	Width	Dimension H	Dimension A	Hole- Ø	Pack.	Weight	Item No.
	mm	mm	mm	mm	pcs	kg/100 pcs.	
<b>AW 30 21 FT</b>	210	70	50	13	25	42.000	<b>6419 72 0</b>
<b>AW 30 31 FT</b>	310	80	50	13	25	63.000	<b>6419 74 7</b>
<b>AW 30 41 FT</b>	410	80	50	13	20	89.000	<b>6419 76 3</b>

**St** Steel **FT** Hot-dip galvanised /pc.

Medium-duty wall and support bracket with welded head plate.



## Wall and support bracket AW 30 F



Type	Length	Pack.	Weight	Item No.
	mm	pcs	kg/100 pcs.	
<b>AW30F21 FT</b>	210	20	75.000	<b>6417 02 7</b>
<b>AW30F31 FT</b>	310	20	100.000	<b>6417 04 3</b>
<b>AW30F41 FT</b>	410	20	125.000	<b>6417 07 8</b>

**St** Steel **FT** Hot-dip galvanised /pc.

Bracket for mounting on suspended supports or as wall bracket for cable tray routing type above fire protection ceilings. The brackets are supplied unmounted.

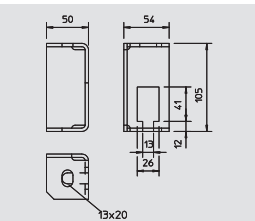
## Fire protection clamp



Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>BSB FT</b>	20	42.400	<b>6418 19 8</b>

**St** Steel **FT** Hot-dip galvanised /pc.

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



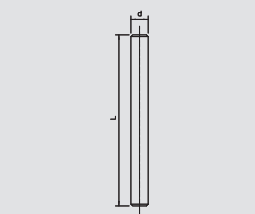
## Threaded rod



Type	Thread	Dimension d	Dimension L	Pack.	Weight	Item No.
		mm	mm	pcs	kg/100 pcs.	
<b>2078 M8 1M G</b>	M8	8	1,000	50	30.000	<b>3141 12 8</b>
<b>2078 M10 1M G</b>	M10	10	1,000	25	49.000	<b>3141 20 9</b>
<b>2078 M12 1M G</b>	M12	12	1,000	20	100.000	<b>3141 30 6</b>

**St** Steel **G** Electrogalvanised /100 pc.

Threaded rod to DIN 976.



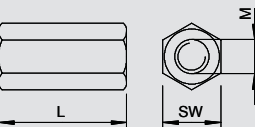
## Connection sleeve



Type	Thread	Dimension M	Dimension L	SW	Shipping box	Pack.	Weight	Item No.
		mm	mm	mm	pcs	pcs	kg/100 pcs.	
<b>12005 M8 G</b>	M8	8	30	13	600	50	2.000	<b>6410 08 1</b>
<b>12005 M10 G</b>	M10	M10	40	17	200	50	6.000	<b>6410 10 3</b>
<b>12005 M12 G</b>	M12	M12	40	19	150	25	7.000	<b>6410 11 1</b>

**St** Steel **G** Electrogalvanised /100 pc.

Connection sleeve with continuous internal thread.



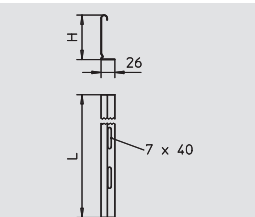
## Separating retainer



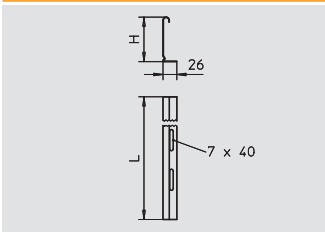
Type	Side height	Length	Pack.	Weight	Item No.
	mm	mm	m	kg/100 m	
<b>TSG 45 FS</b>	45	3,000	45	46.700	<b>6062 03 3</b>

**St** Steel **FS** Strip-galvanised /m

Separating retainer for separation of cables of different voltages or functions.





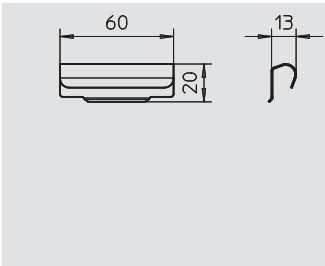


## Separating retainer

Type	Side height mm	Length mm	Weight kg/100 m	Item No.
<b>TSG 60 FS</b>	60	3,000	55.700	<b>6062 06 8</b>

**St** Steel **FS** Strip-galvanised /m

Separating retainer for separation of cables of different voltages or functions.

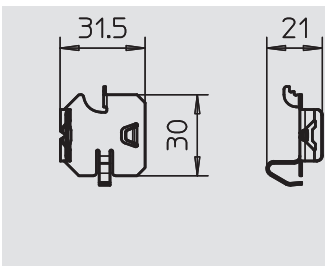


## Separating retainer connector

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>TSGV VA4310</b>	10	1.000	<b>6067 97 0</b>

**V2A** Stainless steel, grade 301 /pc.

Separating retainer connector for screwless connection of the TSG separating retainer in all side heights.

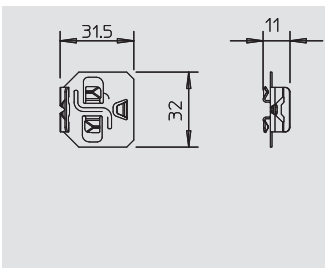


## Separating retainer clamping piece for cable tray

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS KR VA4310</b>	30	0.580	<b>6062 28 0</b>

**V2A** Stainless steel, grade 301 /100 pc.

Clamping piece for screwless fastening of separating retainers in the cable tray types RKSM, MKS and SKS.

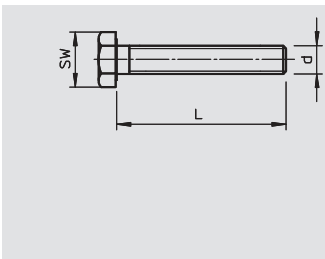


## Separating retainer clamping piece for cable ladder

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS KL VA4310</b>	30	0.512	<b>6062 28 4</b>

**V2A** Stainless steel, grade 301 /100 pc.

Clamping piece for screwless fastening of separating retainers in cable ladders.

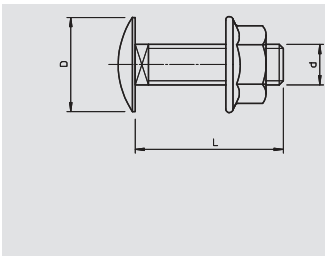


## Hexagonal bolt with continuous thread

Type	Dimension mm	Dimension L mm	Dimension d mm	SW mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>SKS 10X40 F</b>	M10 x 40	40	10	17	50	4.900	<b>3160 75 0</b>
<b>SKS 10X60 F</b>	M10 x 60	60	10	17	20	6.000	<b>6408 51 6</b>
<b>SKS 10X80 F</b>	M10 x 80	80	10	17	20	7.700	<b>6418 25 0</b>

**St** Steel **F** Hot-dip galvanised /100 pc.

Hexagonal bolt for universal fixing of structure components.

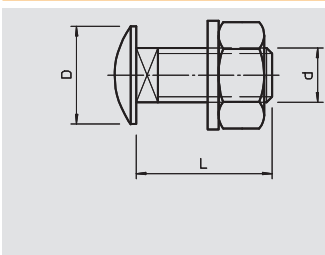


## Truss-head bolt with combination nut

Type	Thread	Length mm	Dimension D mm	Dimension d mm	SW mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FRSB 6X12 F</b>	M6	12	13.5	6	10	100	0.990	<b>6406 12 2</b>
<b>FRSB 6X15 F</b>	M6	16	13.5	6	10	100	0.800	<b>6406 15 7</b>
<b>FRSB 6X20 F</b>	M6	20	13.5	6	10	100	1.000	<b>6406 20 3</b>

**St** Steel **F** Hot-dip galvanised /100 pc.

Truss-head bolt with square neck including nut-and-washer assembly.



## Truss-head bolt with nut and washer

Type	Thread	Dimension L mm	Dimension D mm	Dimension d mm	SW mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FRS 10X25 F</b>	M10	25	24	10	17	50	4.500	<b>6407 52 8</b>
<b>FRS 10X25 F TPS</b>	M10	25	18	10	17	50	4.300	<b>6407 53 6</b>
<b>FRS 12X25 F</b>	M12	25	30	12	19	10	6.400	<b>6406 25 4</b>

**St** Steel **F** Hot-dip galvanised /100 pc.

Truss-head bolt with square neck. With washer and hexagonal nut.



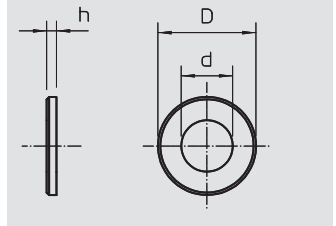
# Mounting systems



## Large washer DIN 440

Type	Dimension D mm	Dimension d mm	Dimension h mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>DIN440 7 F</b>	22	6.6	2	100	0.550	<b>6408 70 2</b>
<b>DIN440 11 F</b>	34	11	3	100	1.985	<b>6408 72 9</b>

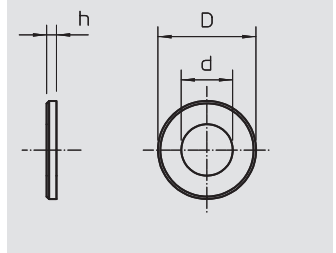
**St** Steel      **F** Hot-dip galvanised      /100 pc.  
Washer of particularly large outer diameter.



## Washer 966

Type	Thread	Dimension D mm	Dimension d mm	Dimension h mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>966 M8 G</b>	M8	16	8.4	1.6	100	0.214	<b>3402 08 8</b>
<b>966 M10 G</b>	M10	20	10.5	2	100	0.408	<b>3402 09 6</b>
<b>966 M12 G</b>	M12	24	13	2.5	100	0.627	<b>3402 12 6</b>

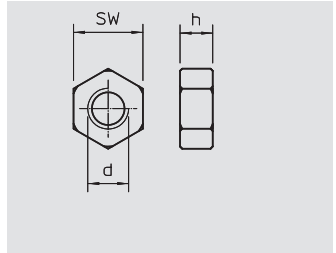
**St** Steel      **G** Electrogalvanised      /100 pc.  
Washer according to DIN 125, shape A, for universal use.



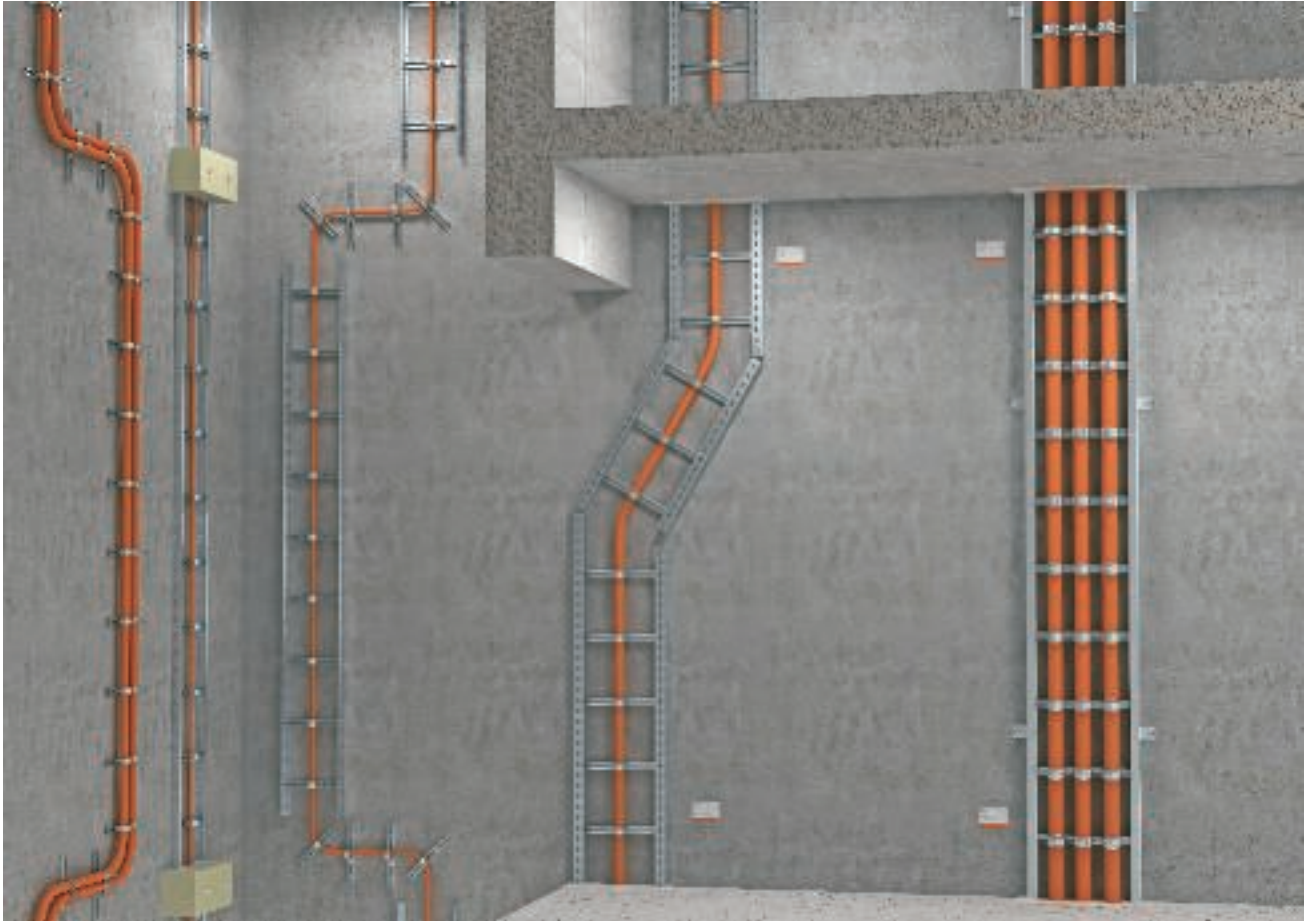
## Hexagonal nut

Type	Thread	Dimension d mm	Dimension h mm	SW mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>DIN 934 M8 G</b>	M8	8	6.8	13	100	0.474	<b>3400 08 5</b>
<b>DIN 934 M10 G</b>	M10	10	8.4	17	100	1.084	<b>3400 10 7</b>
<b>DIN 934 M12 G</b>	M12	12	10.8	19	100	1.730	<b>3400 12 3</b>




**St** Steel      **G** Electrogalvanised      /100 pc.  
Hexagonal nut to DIN 934 with metric thread.







## Contents, vertical ladders

	Vertical ladders	286
	Clamp clips	287
	Effective support for vertical routing	289



# Vertical ladders

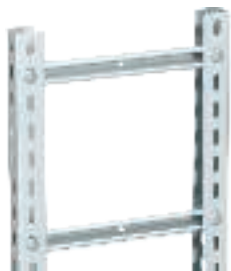
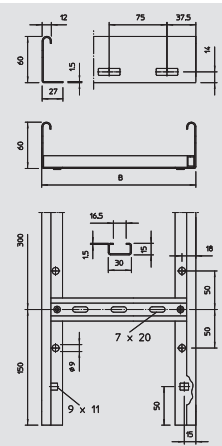


## Vertical ladder, LG 60 VS

Type	Width mm	Frame distance mm	Length mm	Weight kg/100 m	Item No.
<b>LG 620 VS 6000FS</b>	200	300	6,000	273.800	<b>6208 62 7</b>
<b>LG 630 VS 6000FS</b>	300	300	6,000	298.000	<b>6208 63 0</b>
<b>LG 640 VS 6000FS</b>	400	300	6,000	322.200	<b>6208 63 3</b>

**St** Steel **FS** Strip-galvanised /m

Cable ladder with perforated side rail of side height 60 mm with riveted C profile rungs, open in an upwards direction (VS version).

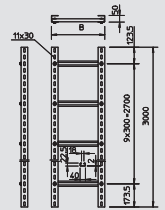


## Vertical ladder, SLM50

Type	Width mm	Frame distance mm	Length mm	Weight kg/100 m	Item No.
<b>SLM50C40F 40 FT</b>	400	300	3,000	766.000	<b>6010 00 8</b>
<b>SLM50C40F 50 FT</b>	500	300	3,000	821.000	<b>6010 01 6</b>
<b>SLM50C40F 60 FT</b>	600	300	3,000	876.000	<b>6010 02 4</b>

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

Heavyweight vertical ladder system for electrical function maintenance to DIN 4102 Part 12. Approved clips, type 2056 U/M. Supplied unmounted.

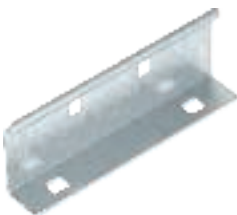
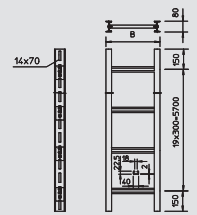


## Vertical ladder, SLS80

Type	Width mm	Frame distance mm	Length mm	Weight kg/100 m	Item No.
<b>SLS80C40F 40 FT</b>	400	300	3,000	1,487.000	<b>6010 10 5</b>
<b>SLS80C40F 50 FT</b>	500	300	3,000	1,542.000	<b>6010 11 3</b>
<b>SLS80C40F 60 FT</b>	600	300	3,000	1,597.000	<b>6010 12 1</b>

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

Industrial vertical ladder system for electrical function maintenance to DIN 4102 Part 12. Approved clips, type 2056 U/M. Supplied unmounted.

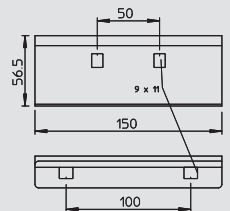


## Straight connector

Type	Side height mm	Pack.	Weight kg/100 pcs.	Item No.
<b>LLV 60 FS</b>	60	20	18.000	<b>6208 80 0</b>

**St** Steel **FS** Strip-galvanised /pc.

Straight connectors as internal connectors to connect cable ladders and fittings of 60 mm side height.

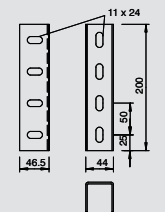


## U support connector

Type	Pack.	Weight kg/100 pcs.	Item No.
<b>VUS 5 FT</b>	10	80.000	<b>6018 50 5</b>

**St** Steel **FT** Hot-dip galvanised /pc.

U support connector to connect US 5 supports.

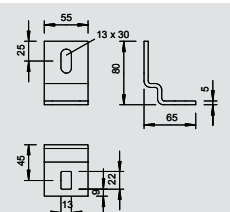


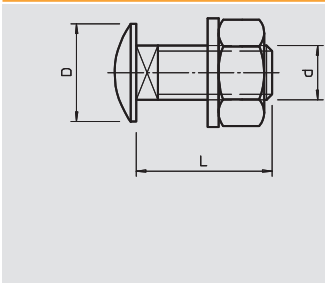
## Fastening bracket

Type	Pack.	Weight kg/100 pcs.	Item No.
<b>BW 80 55 FT</b>	10	26.400	<b>6019 52 8</b>

**St** Steel **FT** Hot-dip galvanised /pc.

Mounting angle for mounting IS 8 supports on the wall.



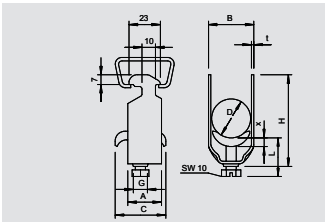


## Truss-head bolt

Type	Thread	Dimension L mm	Dimension D mm	Dimension d mm	SW	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FRS 8X16 F 8.8</b>	M8	16	20	8	13	50	2.200	<b>6406 96 3</b>
<b>FRS 8X35 F</b>	M8	35	20	8	13	50	2.700	<b>6407 04 8</b>
<b>FRS 10X25 F 8.8</b>	M10	25	24	10	17	50	4.500	<b>6407 56 0</b>
<b>FRS 12X25 F</b>	M12	25	30	12	19	10	6.400	<b>6406 25 4</b>

**St** Steel **F** Hot-dip galvanised /100 pc.

Truss-head bolt with square neck. With washer and hexagonal nut.



## Clamp clip, single, metal pressure trough

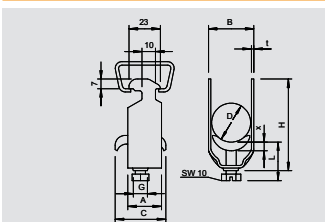
Type	Clamping range D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>2056 M 12 FT</b>	8-12	100	3.200	<b>1156 00 4</b>
<b>2056 M 16 FT</b>	12-16	100	3.500	<b>1156 01 2</b>
<b>2056 M 22 FT</b>	16-22	100	4.400	<b>1156 02 0</b>
<b>2056 M 28 FT</b>	22-28	100	6.100	<b>1156 03 9</b>
<b>2056 M 34 FT</b>	28-34	100	7.700	<b>1156 04 7</b>
<b>2056 M 40 FT</b>	34-40	100	8.600	<b>1156 05 5</b>
<b>2056 M 46 FT</b>	40-46	100	9.600	<b>1156 06 3</b>
<b>2056 M 52 FT</b>	46-52	100	10.400	<b>1156 07 1</b>
<b>2056 M 58 FT</b>	52-58	100	13.100	<b>1156 09 8</b>
<b>2056 M 64 FT</b>	58-64	100	14.500	<b>1156 10 1</b>
<b>2056 M 70 FT</b>	64-70	50	16.100	<b>1156 12 8</b>
<b>2056 M 76 FT</b>	70-76	25	18.300	<b>1156 13 6</b>
<b>2056 M 82 FT</b>	76-82	25	19.100	<b>1156 14 4</b>
<b>2056 M 90 FT</b>	82-90	25	23.300	<b>1156 15 2</b>
<b>2056 M 100 FT</b>	90-100	25	25.400	<b>1156 16 0</b>

**St** Steel **FT** Hot-dip galvanised /100 pc.

Suitable for all C profile rails with slot width 16–17 mm.  
Clip, bolt and pressure trough made of hot-dip galvanised steel.

### Important dimensions, clamp clip

D	A	B	C	G	t	x	H	L
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.
<b>2056 M2 12 FT</b>	8-12	50	3.980	<b>1156 17 9</b>
<b>2056 M2 16 FT</b>	12-16	50	4.750	<b>1156 18 7</b>
<b>2056 M2 22 FT</b>	16-22	50	6.900	<b>1156 19 5</b>
<b>2056 M2 28 FT</b>	22-28	50	7.800	<b>1156 20 9</b>

**St** Steel **FT** Hot-dip galvanised /100 pc.

Suitable for all C profile rails with slot width 16–17 mm.  
Clip, bolt and pressure trough made of hot-dip galvanised steel.

D	A	B	C	G	t	x	H	L
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



# Vertical ladders



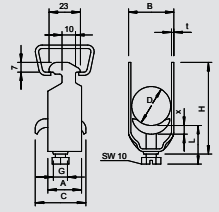
## Clamp clip, triple, metal pressure trough

Type	Clamping range D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
2056 M3 16 FT	12-16	50	5.800	1156 26 8
2056 M3 22 FT	16-22	50	6.500	1156 27 6
2056 M3 28 FT	22-28	50	9.500	1156 28 4

**St** Steel **FT** Hot-dip galvanised /100 pc.

Suitable for all C profile rails with slot width 16–17 mm. Clip, bolt and pressure trough made of hot-dip galvanised steel.

D	A	B	C	G	t	x	H	L
mm	mm	mm	mm		mm	mm	mm	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

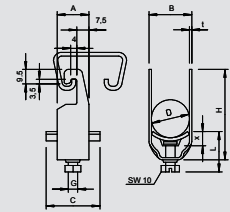
Type	Clamping range D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
2056U M 16 FT	12-16	100	3.520	1158 01 5
2056U M 22 FT	16-22	100	3.960	1158 02 3
2056U M 28 FT	22-28	100	5.890	1158 03 1
2056U M 34 FT	28-34	100	7.650	1158 05 8
2056U M 40 FT	34-40	100	8.360	1158 06 6
2056U M 46 FT	40-46	100	10.890	1158 07 4
2056U M 52 FT	46-52	100	11.660	1158 08 2
2056U M 58 FT	52-58	100	14.740	1158 09 0
2056U M 64 FT	58-64	100	15.730	1158 10 4
2056U M 70 FT	64-70	50	18.200	1158 11 2
2056U M 76 FT	70-76	25	20.600	1158 12 0

**St** Steel **FT** Hot-dip galvanised /100 pc.

Suitable for all C profile rails with slot width 18 and 22 mm. Also suitable for flat, angle and U irons of 4 - 12 mm material thickness.

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

D	A	B	C	G	t	x	H	L
mm	mm	mm	mm		mm	mm	mm	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

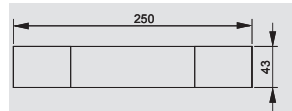


## Identification plate for cable system

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

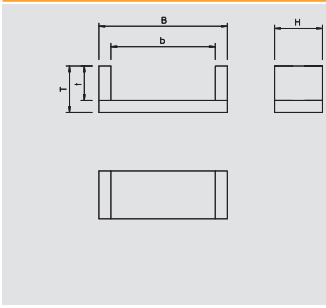
**PVC** Polyvinylchloride /pc.

Self-adhesive identification plate for approved cable system labelling for function maintenance as required by DIN 4102 Part 12.





# Effective support for vertical routing

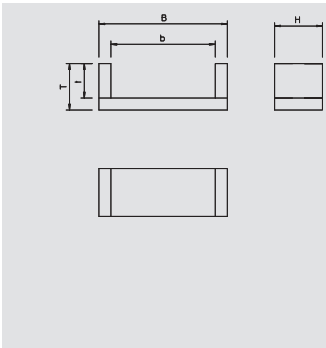
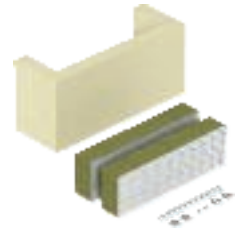


## Strain relief, internal height 115 mm

Type	Dimension b mm	Dimension t mm	Dimension H mm	Dimension B mm	Dimension T mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>ZSE90-13</b>	250	115	160	330	155	1	375.000	<b>7215 70 1</b>
<b>ZSE90-14</b>	350	115	160	430	155	1	445.000	<b>7215 70 5</b>
<b>ZSE90-15</b>	450	115	160	530	155	1	515.000	<b>7215 70 8</b>

/pc.

Strain relief for vertical cable routing, approved for all cable types and all vertical routing systems. Function maintenance classes E30 to E90. Housing including mineral fibre plates, fastening material and cartridge with fire protection filler.

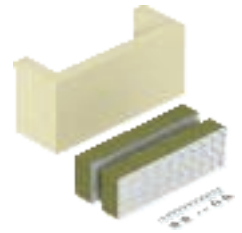


## Strain relief, internal height 175 mm

Type	Dimension b mm	Dimension t mm	Dimension H mm	Dimension B mm	Dimension T mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>ZSE90-23</b>	250	175	180	330	215	1	510.000	<b>7215 71 2</b>
<b>ZSE90-24</b>	350	175	180	430	215	1	610.000	<b>7215 71 5</b>
<b>ZSE90-25</b>	450	175	180	530	215	1	680.000	<b>7215 71 8</b>
<b>ZSE90-26</b>	550	175	180	630	215	1	795.000	<b>7215 72 5</b>
<b>ZSE90-27</b>	650	175	180	730	215	1	884.000	<b>7215 72 9</b>

/pc.

Strain relief for vertical cable routing, approved for all cable types and all vertical routing systems. Function maintenance classes E30 to E90. Housing including mineral fibre plates, fastening material and cartridge with fire protection filler.



## Ablation coating in a cartridge

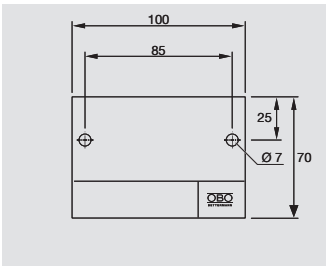
Type	Contents ml	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>ASX-K</b>	300	1	50.000	<b>7202 31 0</b>

Intumescent material

/pc.

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

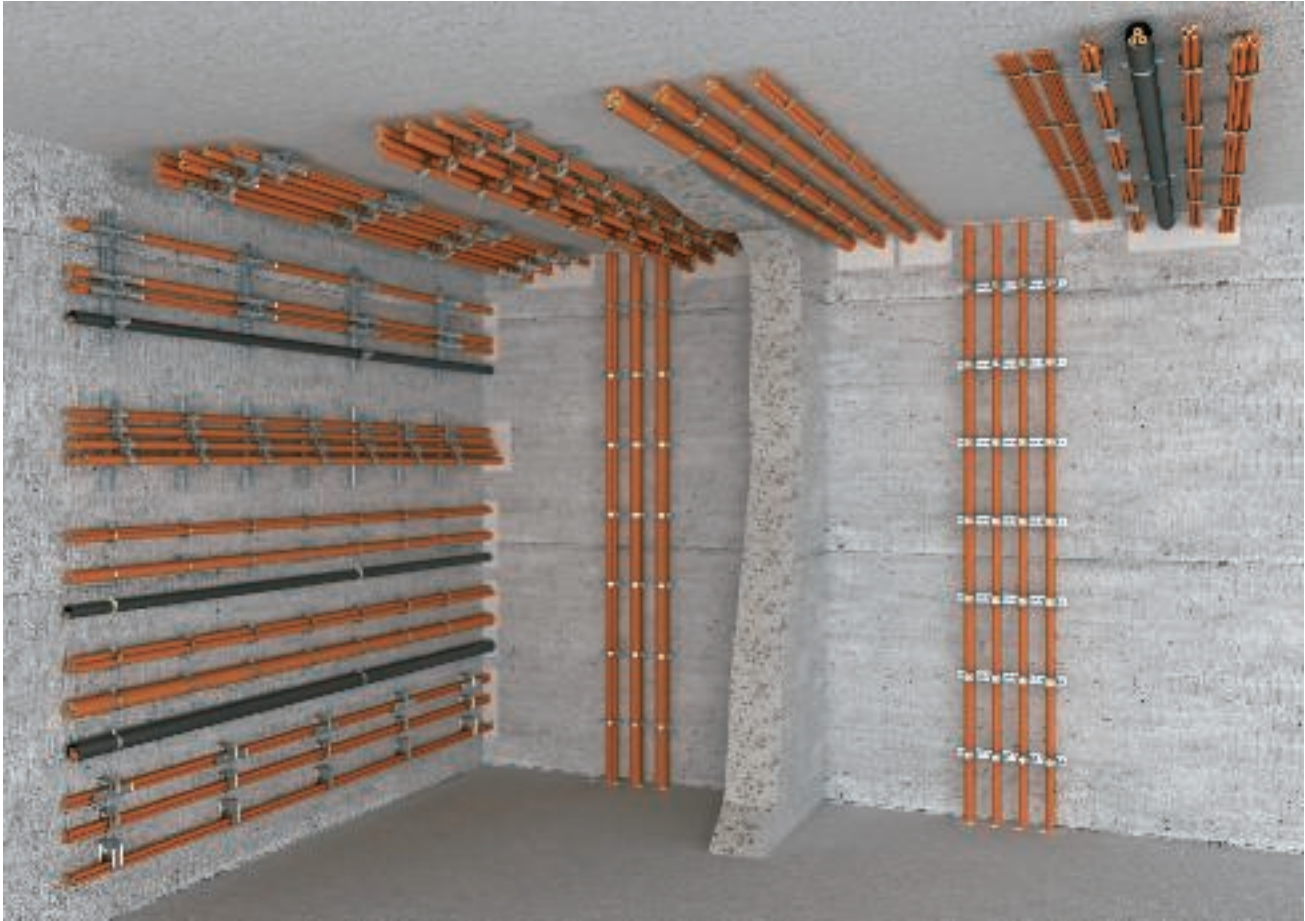


## Identification plate for strain relief

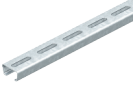

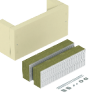



Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS-ZSE DE</b>	1	2.400	<b>7215 75 0</b>
<b>PVC</b> Polyvinylchloride			/pc.

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.





## Contents, function maintenance: individual routing, pipes and metal duct

	Profile rails and clamp clips	292
	Screw-in spacer clips	295
	Effective support for vertical routing	297
	Grouped supports and pressure clips	298
	Pipe installations	301
	LKM cable routing duct	303



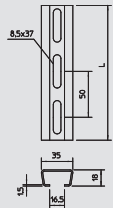
# Profile rails and clamp clips

## Profile rail, slot 16.5 mm



Type	Length mm	Material thickness mm	Pack. m	Weight kg/100 m	Item No.
<b>2068 L 2M FT</b>	2,000	1.5	20	89.000	<b>1119 65 6</b>

**St** Steel **FT** Hot-dip galvanised /100 m  
Profile rail, perforated, slot width 16.5 mm.

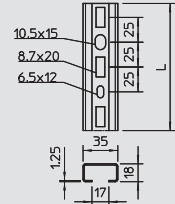


## Profile rail, slot 17 mm



Type	Length mm	Material thickness mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>1268 L 200 FS</b>	200	1.25	25	14.200	<b>1104 26 8</b>
<b>1268 L 300 FS</b>	300	1.25	25	21.300	<b>1104 28 4</b>
<b>1268 L 400 FS</b>	400	1.25	10	28.400	<b>1104 29 2</b>
<b>1268 L 500 FS</b>	500	1.25	10	35.500	<b>1104 30 6</b>
<b>1268 L 2M FS</b>	2,000	1.25	20	71.000	<b>1104 50 0</b>

**St** Steel **FS** Strip-galvanised /100 m /100 pc.  
Light-duty profile rail, perforated, slot width 17 mm.

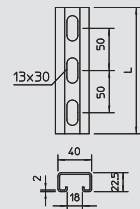


## Profile rail, slot 18 mm



Type	Version	Dimension b x h mm	Material thickness mm	Length mm	Pack. m	Weight kg/100 m	Item No.
<b>CPS 4L 2M FT</b>	perforated	40 x 22,5	2	2,000	10	160.000	<b>1121 97 9</b>

**St** Steel **FT** Hot-dip galvanised /100 m  
Heavy-duty profile rail, perforated, slot width 18 mm.



## Clamp clip, single, metal pressure trough

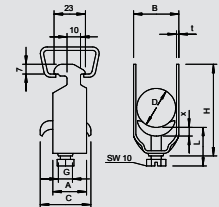


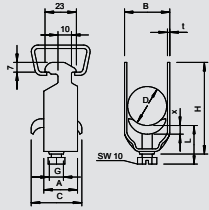
Type	Clamping range D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>2056 M 12 FT</b>	8-12	100	3.200	<b>1156 00 4</b>
<b>2056 M 16 FT</b>	12-16	100	3.500	<b>1156 01 2</b>
<b>2056 M 22 FT</b>	16-22	100	4.400	<b>1156 02 0</b>
<b>2056 M 28 FT</b>	22-28	100	6.100	<b>1156 03 9</b>
<b>2056 M 34 FT</b>	28-34	100	7.700	<b>1156 04 7</b>
<b>2056 M 40 FT</b>	34-40	100	8.600	<b>1156 05 5</b>
<b>2056 M 46 FT</b>	40-46	100	9.600	<b>1156 06 3</b>
<b>2056 M 52 FT</b>	46-52	100	10.400	<b>1156 07 1</b>
<b>2056 M 58 FT</b>	52-58	100	13.100	<b>1156 09 8</b>
<b>2056 M 64 FT</b>	58-64	100	14.500	<b>1156 10 1</b>
<b>2056 M 70 FT</b>	64-70	50	16.100	<b>1156 12 8</b>
<b>2056 M 76 FT</b>	70-76	25	18.300	<b>1156 13 6</b>
<b>2056 M 82 FT</b>	76-82	25	19.100	<b>1156 14 4</b>
<b>2056 M 90 FT</b>	82-90	25	23.300	<b>1156 15 2</b>
<b>2056 M 100 FT</b>	90-100	25	25.400	<b>1156 16 0</b>

**St** Steel **FT** Hot-dip galvanised /100 pc.  
Suitable for all C profile rails with slot width 16–17 mm.  
Clip, bolt and pressure trough made of hot-dip galvanised steel.

### Important dimensions, clamp clip

D	A	B	C	G	t	x	H	L
mm	mm	mm	mm	mm	mm	mm	mm	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





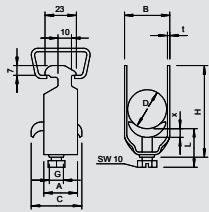
**Clamp clip, double, metal pressure trough**

Type	Clamping range D mm	Pack.	Weight	Item No.
		pcs	kg/100 pcs.	
2056 M2 12 FT	8-12	50	3.980	1156 17 9
2056 M2 16 FT	12-16	50	4.750	1156 18 7
2056 M2 22 FT	16-22	50	6.900	1156 19 5
2056 M2 28 FT	22-28	50	7.800	1156 20 9

St Steel FT Hot-dip galvanised /100 pc.

Suitable for all C profile rails with slot width 16–17 mm.  
Clip, bolt and pressure trough made of hot-dip galvanised steel.

D	A	B	C	G	t	x	H	L
mm	mm	mm	mm	mm	mm	mm	mm	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



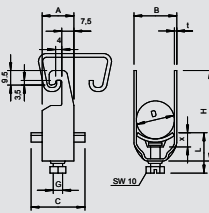
**Clamp clip, triple metal pressure trough**

Type	Clamping range D mm	Pack.	Weight	Item No.
		pcs	kg/100 pcs.	
2056 M3 12 FT	8-12	50	4.050	1156 24 1
2056 M3 16 FT	12-16	50	5.800	1156 26 8
2056 M3 22 FT	16-22	50	6.500	1156 27 6
2056 M3 28 FT	22-28	50	9.500	1156 28 4

St Steel FT Hot-dip galvanised /100 pc.

Suitable for all C profile rails with slot width 16–17 mm.  
Clip, bolt and pressure trough made of hot-dip galvanised steel.

D	A	B	C	G	t	x	H	L
mm	mm	mm	mm	mm	mm	mm	mm	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.	Weight	Item No.
		pcs	kg/100 pcs.	
2056U M 12 FT	8-12	100	3.300	1158 00 7
2056U M 16 FT	12-16	100	3.520	1158 01 5
2056U M 22 FT	16-22	100	3.960	1158 02 3
2056U M 28 FT	22-28	100	5.890	1158 03 1
2056U M 34 FT	28-34	100	7.650	1158 05 8
2056U M 40 FT	34-40	100	8.360	1158 06 6
2056U M 46 FT	40-46	100	10.890	1158 07 4
2056U M 52 FT	46-52	100	11.660	1158 08 2
2056U M 58 FT	52-58	100	14.740	1158 09 0
2056U M 64 FT	58-64	100	15.730	1158 10 4
2056U M 70 FT	64-70	50	18.200	1158 11 2
2056U M 76 FT	70-76	25	20.600	1158 12 0

St Steel FT Hot-dip galvanised /100 pc.

Suitable for all C profile rails with slot width 18 and 22 mm. Also suitable for flat, angle and U irons of 4 - 12 mm material thickness.  
Clip, bolt and pressure trough made of hot-dip galvanised steel.

D	A	B	C	G	t	x	H	L
mm	mm	mm	mm	mm	mm	mm	mm	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



# Profile rails and clamp clips

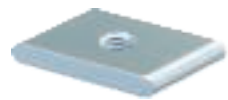
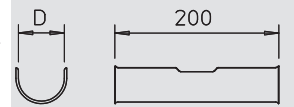


## Long trough

Type	Clamping range D mm	For clip 2056/M	Pack. pcs	Weight kg/100 pcs.	Item No.
2058 LW 10	6-10	8-12	50	4.000	1195 79 4
2058 LW 14	10-14	12-16	50	5.340	1195 80 8
2058 LW 20	14-20	16-22	50	7.380	1195 81 6
2058 LW 26	20-26	22-28	25	9.270	1195 82 4
2058 LW 32	26-32	28-34	25	11.000	1195 83 2
2058 LW 38	32-38	34-40	25	12.500	1195 84 0
2058 LW 44	38-44	40-46	25	14.300	1195 85 9
2058 LW 50	44-50	46-52	25	16.200	1195 86 7
2058 LW 56	50-56	52-58	25	17.800	1195 87 5
2058 LW 62	56-62	58-64	25	19.700	1195 88 3

**St** Steel **FS** Strip-galvanised /100 pc.

In addition to the clamp clip, to increase the support area for cables with integrated function maintenance, a long trough (L = 200 mm) is mounted.

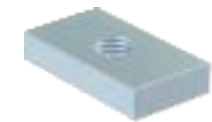
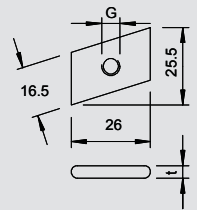


## Slip protection, slide nut for slot widths up to 17 mm

Type	Dimension G mm	Dimension t mm	Pack. pcs	Weight kg/100 pcs.	Item No.
5019 M6 OS G	6	4	100	1.150	1144 10 3

**St** Steel **G** Electrogalvanised /100 pc.

Slide nut for profile rails with a slot width of 16–17 mm.

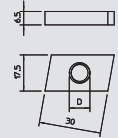


## Slip protection, slide nut for 18 mm slot width

Type	Dimension D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
GMH18 M6 G	6	50	2.400	1146 50 5

**St** Steel **G** Electrogalvanised /100 pc.

Slide nut for profile rails with a slot width of 18 mm.

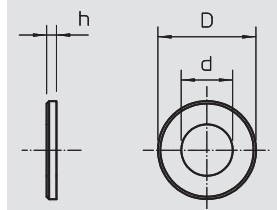


## Washer for slip protection

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	6408 70 2

**St** Steel **F** Hot-dip galvanised /100 pc.

Washer of particularly large outer diameter.

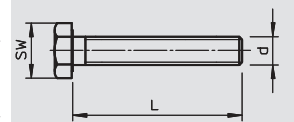


## Hexagonal bolt for slip protection

Type	Thread	Length mm	Dimension d mm	SW mm	Pack. pcs	Weight kg/100 pcs.	Item No.
342 M6X16 G	M6	16	6	10	100	0.494	3156 14 1

**St** Steel **G** Electrogalvanised /100 pc.

Hexagonal bolt to ISO 4017 with metric thread

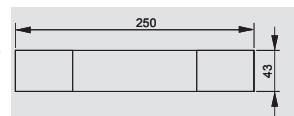


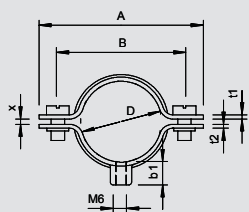
## Identification plate for cable system

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
KS-E DE	10	0.600	7205 42 3

**PVC** Polyvinylchloride /pc.

Self-adhesive identification plate for approved cable system labelling for function maintenance as required by DIN 4102 Part 12.





## Cable and pipe spacer clip 732



Type	Clamping range D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>732 6 GTP</b>	5-6	100	1.160	<b>1360 05 1</b>
<b>732 8 GTP</b>	7-8	100	1.310	<b>1360 08 6</b>
<b>732 10 GTP</b>	9-10	100	1.360	<b>1360 10 8</b>
<b>732 12 GTP</b>	10.5-12	100	1.460	<b>1360 12 4</b>
<b>732 14 GTP</b>	12.5-14	100	1.480	<b>1360 14 0</b>
<b>732 15 GTP</b>	13.5-15	100	1.530	<b>1360 15 9</b>
<b>732 16 GTP</b>	14.5-16	100	1.590	<b>1360 16 7</b>
<b>732 18 GTP</b>	16.5-18	100	1.620	<b>1360 18 3</b>
<b>732 20 GTP</b>	18.5-20	50	1.730	<b>1360 20 5</b>
<b>732 22 GTP</b>	20-22	50	1.780	<b>1360 22 1</b>
<b>732 24 GTP</b>	22-24	50	1.840	<b>1360 24 8</b>
<b>732 26 GTP</b>	24-26	50	1.920	<b>1360 26 4</b>
<b>732 28 GTP</b>	26-28	50	2.840	<b>1360 28 0</b>
<b>732 30 GTP</b>	28-30	50	3.040	<b>1360 30 2</b>
<b>732 33 GTP</b>	31-33	25	3.120	<b>1360 33 7</b>
<b>732 35 GTP</b>	33-35	25	3.280	<b>1360 35 3</b>
<b>732 38 GTP</b>	36-38	25	3.490	<b>1360 38 8</b>
<b>732 40 GTP</b>	38-40	25	3.600	<b>1360 39 6</b>
<b>732 42 GTP</b>	40-42	25	3.840	<b>1360 42 6</b>
<b>732 45 GTP</b>	43-45	25	3.990	<b>1360 45 0</b>
<b>732 48 GTP</b>	46-48	25	4.040	<b>1360 48 5</b>
<b>732 50 GTP</b>	48-50	25	4.160	<b>1360 50 7</b>
<b>732 60 GTP</b>	58-60	25	4.960	<b>1360 60 4</b>
<b>732 63 GTP</b>	61-63	25	5.000	<b>1360 63 9</b>

**St** Steel

**GTP** Electrogalvanised, transparently passivated

/100 pc.

With M6 thread.

### Important dimensions, cable and pipe spacer clip

D	A	B	x	b1	t1	t2	M
mm	mm	mm	mm	mm	mm	mm	
5-6	35	23	1	15	1	1.25	M5 x 10
7-8	34	22	1	18	1	1.25	M5 x 10
9-10	36	24	1	18	1	1.25	M5 x 12
10.5-12	38	26	1.5	18	1	1.25	M5 x 12
12.5-14	40	28	1.5	18	1	1.25	M5 x 12
13.5-15	41	29	1.5	18	1	1.25	M5 x 12
14.5-16	42	30	1.5	18	1	1.25	M5 x 12
16.5-18	44	22	1	18	1	1.25	M5 x 12
18.5-20	46	34	1.5	18	1	1.25	M5 x 12
20-22	48	36	2	18	1	1.25	M5 x 12
22-24	50	38	2	18	1	1.25	M5 x 12
24-26	52	40	2	18	1	1.25	M5 x 12
26-28	59	45	2	18	1.5	1.5	M5 x 12
28-30	61	47	2	18	1.5	1.5	M5 x 12
31-33	64	50	2	18	1.5	1.5	M5 x 12
33-35	66	52	2	18	1.5	1.5	M5 x 12
36-38	69	55	2	18	1.5	1.5	M5 x 12
38-40	71	57	2	18	1.5	1.5	M5 x 12
40-42	73	59	2	18	1.5	1.5	M5 x 12
43-45	76	62	2	18	1.5	1.5	M5 x 12
46-48	79	65	2	18	1.5	1.5	M5 x 12
48-50	81	67	2	18	1.5	1.5	M5 x 14
58-60	91	77	2	18	1.5	1.5	M5 x 14
61-63	94	80	2	18	1.5	1.5	M5 x 14



# Screw-in spacer clips



## Cable and pipe spacer clip 733

Type	Clamping range D mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>733 21 G</b>	19-21	50	2.730	<b>1361 20 1</b>
<b>733 23 G</b>	21-23	50	2.870	<b>1361 23 6</b>
<b>733 29 G</b>	24-29	50	3.480	<b>1361 29 5</b>
<b>733 38 G</b>	30-38	25	4.040	<b>1361 38 4</b>
<b>733 48 G</b>	39-48	25	4.810	<b>1361 48 1</b>
<b>733 54 G</b>	48-54	25	5.800	<b>1361 51 1</b>
<b>733 61 G</b>	53-61	20	6.370	<b>1361 61 9</b>
<b>733 63 G</b>	63	20	6.940	<b>1361 63 5</b>

**St** Steel

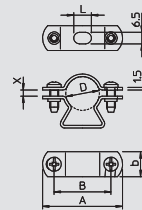
**G** Electrogalvanised

/100 pc.

Steel bolt material. \* Size M16 are not suitable for nail device.  
\* Sizes M16 to PG16 not suitable for bolt-firing tool.

### Important dimensions, cable and pipe spacer clip

D	A	B	L	b	x
mm	mm	mm	mm	mm	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



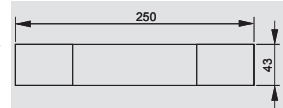
## Identification plate for cable system

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS-E DE</b>	10	0.600	<b>7205 42 3</b>

**PVC** Polyvinylchloride

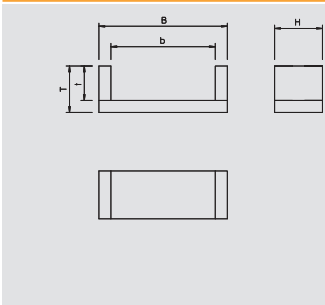
/pc.

Self-adhesive identification plate for approved cable system labelling for function maintenance as required by DIN 4102 Part 12.





# Effective support for vertical routing

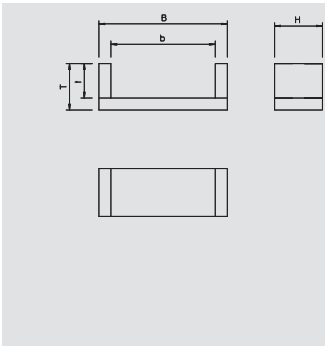
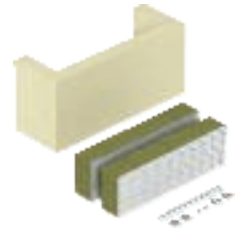


## Strain relief, internal height 115 mm

Type	Dimension b mm	Dimension t mm	Dimension H mm	Dimension B mm	Dimension T mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>ZSE90-13</b>	250	115	160	330	155	1	375.000	<b>7215 70 1</b>
<b>ZSE90-14</b>	350	115	160	430	155	1	445.000	<b>7215 70 5</b>
<b>ZSE90-15</b>	450	115	160	530	155	1	515.000	<b>7215 70 8</b>

/pc.

Strain relief for vertical cable routing, approved for all cable types and all vertical routing systems. Function maintenance classes E30 to E90. Housing including mineral fibre plates, fastening material and cartridge with fire protection filler.

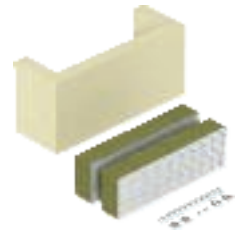


## Strain relief, internal height 175 mm

Type	Dimension b mm	Dimension t mm	Dimension H mm	Dimension B mm	Dimension T mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>ZSE90-23</b>	250	175	180	330	215	1	510.000	<b>7215 71 2</b>
<b>ZSE90-24</b>	350	175	180	430	215	1	610.000	<b>7215 71 5</b>
<b>ZSE90-25</b>	450	175	180	530	215	1	680.000	<b>7215 71 8</b>
<b>ZSE90-26</b>	550	175	180	630	215	1	795.000	<b>7215 72 5</b>
<b>ZSE90-27</b>	650	175	180	730	215	1	884.000	<b>7215 72 9</b>

/pc.

Strain relief for vertical cable routing, approved for all cable types and all vertical routing systems. Function maintenance classes E30 to E90. Housing including mineral fibre plates, fastening material and cartridge with fire protection filler.



## Ablation coating in a cartridge

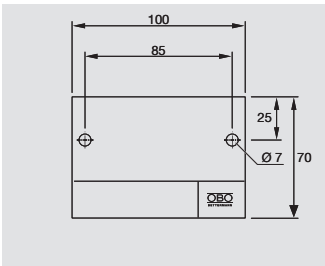
Type	Contents ml	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>ASX-K</b>	300	1	50.000	<b>7202 31 0</b>

Intumescent material

/pc.

Combined, endothermic and weatherproof coating for internal and external areas. Universal protection coating for cable and cable support structures. Use as direct filler, 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	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS-ZSE DE</b>	1	2.400	<b>7215 75 0</b>
<b>PVC</b> Polyvinylchloride			/pc.

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.



# Grouped supports and pressure clips

## Grouped support GRIP "M" 15



Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>2031 M 15 FS</b>	50	3.700	<b>2207 02 8</b>

**St** Steel **FS** Strip-galvanised /100 pc.

Metal grouped support for high mechanical stability, even in case of fire. Halogen-free, fire load-free. Suitable for secure mounting above fire protection ceilings. Also approved as a cable-specific variant for electrical function maintenance to DIN 4102 Part 12. For wall and ceiling mounting. Lock can be opened without tools. Type 2031 M 70 FS incl. fire protection screw tie MMS 6x50.

Detailed information on the approved routing variants can be found in the appropriate testing documentation.

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>2031 M 15 VA</b>	50	3.000	<b>2207 08 0</b>

**V2A** Stainless steel, grade 304 /100 pc.

Metal grouped support for high mechanical stability, even in case of fire. Halogen-free, fire load-free. Suitable for secure mounting above fire protection ceilings. Also approved as a cable-specific variant for electrical function maintenance to DIN 4102 Part 12. For wall and ceiling mounting. Lock can be opened without tools. Type 2031 M 70 FS incl. fire protection screw tie MMS 6x50.

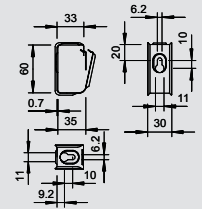
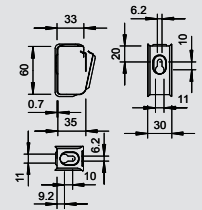
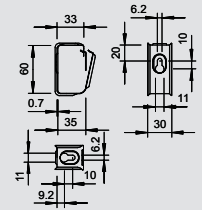
Detailed information on the approved routing variants can be found in the appropriate testing documentation.

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>2031 M 15 V4A</b>	50	3.000	<b>2207 13 2</b>

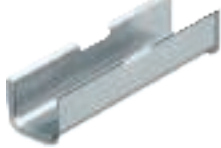
**V4A** Stainless steel, grade 316 Ti /100 pc.

Metal grouped support for high mechanical stability, even in case of fire. Halogen-free, fire load-free. Suitable for secure mounting above fire protection ceilings. Also approved as a cable-specific variant for electrical function maintenance to DIN 4102 Part 12. For wall and ceiling mounting. Lock can be opened without tools. Type 2031 M 70 FS incl. fire protection screw tie MMS 6x50.

Detailed information on the approved routing variants can be found in the appropriate testing documentation.



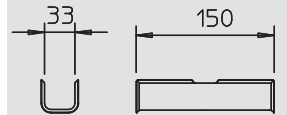
## Long trough for grouped support GRIP "M" 15



Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>2031 LW15</b>	25	8.200	<b>2207 18 4</b>

**St** Steel **FS** Strip-galvanised /100 pc.

Long trough for grouped support type 2031/M15, for function maintenance as cable-specific mounting variant.



## Grouped support GRIP "M" 30



Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>2031 M 30 FS</b>	25	6.200	<b>2207 03 6</b>

**St** Steel **FS** Strip-galvanised /100 pc.

Metal grouped support for high mechanical stability, even in case of fire. Halogen-free, fire load-free. Suitable for secure mounting above fire protection ceilings. Also approved as a cable-specific variant for electrical function maintenance to DIN 4102 Part 12. For wall and ceiling mounting. Lock can be opened without tools. Type 2031 M 70 FS incl. fire protection screw tie MMS 6x50.

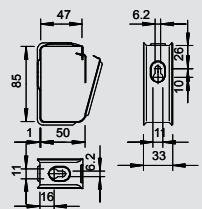
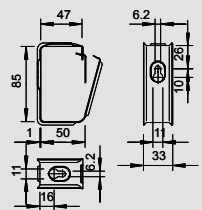
Detailed information on the approved routing variants can be found in the appropriate testing documentation.

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>2031 M 30 VA</b>	25	6.500	<b>2207 08 8</b>

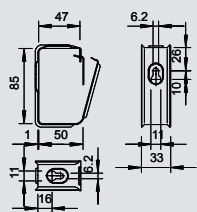
**V2A** Stainless steel, grade 304 /100 pc.

Metal grouped support for high mechanical stability, even in case of fire. Halogen-free, fire load-free. Suitable for secure mounting above fire protection ceilings. Also approved as a cable-specific variant for electrical function maintenance to DIN 4102 Part 12. For wall and ceiling mounting. Lock can be opened without tools. Type 2031 M 70 FS incl. fire protection screw tie MMS 6x50.

Detailed information on the approved routing variants can be found in the appropriate testing documentation.



# Grouped supports and pressure clips



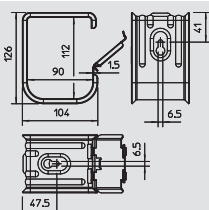
## Grouped support GRIP "M" 30

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>2031 M 30 V4A</b>	25	6.500	<b>2207 14 0</b>

**V4A** Stainless steel, grade 316 Ti /100 pc.

Metal grouped support for high mechanical stability, even in case of fire. Halogen-free, fire load-free. Suitable for secure mounting above fire protection ceilings. Also approved as a cable-specific variant for electrical function maintenance to DIN 4102 Part 12. For wall and ceiling mounting. Lock can be opened without tools. Type 2031 M 70 FS incl. fire protection screw tie MMS 6x50.

Detailed information on the approved routing variants can be found in the appropriate testing documentation.



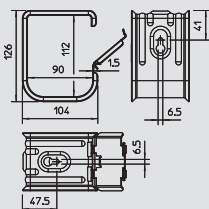
## Grouped support GRIP "M" 70

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>2031 M 70 FS</b>	10	34.500	<b>2207 06 0</b>

**St** Steel **FS** Strip-galvanised /100 pc.

Metal grouped support for high mechanical stability, even in case of fire. Halogen-free, fire load-free. Suitable for secure mounting above fire protection ceilings. Also approved as a cable-specific variant for electrical function maintenance to DIN 4102 Part 12. For wall and ceiling mounting. Lock can be opened without tools. Type 2031 M 70 FS incl. fire protection screw tie MMS 6x50.

Detailed information on the approved routing variants can be found in the appropriate testing documentation.

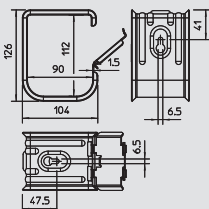


Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>2031 M 70 VA</b>	10	37.000	<b>2207 11 2</b>

**V2A** Stainless steel, grade 304 /100 pc.

Metal grouped support for high mechanical stability, even in case of fire. Halogen-free, fire load-free. Suitable for secure mounting above fire protection ceilings. Also approved as a cable-specific variant for electrical function maintenance to DIN 4102 Part 12. For wall and ceiling mounting. Lock can be opened without tools. Type 2031 M 70 FS incl. fire protection screw tie MMS 6x50.

Detailed information on the approved routing variants can be found in the appropriate testing documentation.

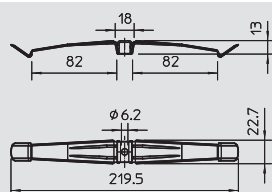


Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>2031 M 70 V4A</b>	10	37.000	<b>2207 16 4</b>

**V4A** Stainless steel, grade 316 Ti /100 pc.

Metal grouped support for high mechanical stability, even in case of fire. Halogen-free, fire load-free. Suitable for secure mounting above fire protection ceilings. Also approved as a cable-specific variant for electrical function maintenance to DIN 4102 Part 12. For wall and ceiling mounting. Lock can be opened without tools. Type 2031 M 70 FS incl. fire protection screw tie MMS 6x50.

Detailed information on the approved routing variants can be found in the appropriate testing documentation.



## Metal pressure clip, for 18 cables

Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
<b>2033 M</b>	25	2.310	<b>2204 00 0</b>

**V2A** Stainless steel, grade 301 /100 pc.

Metal pressure clip for space-saving mounting with high mechanical stability, even in case of fire. Halogen-free, fire load-free. Also suitable for secure mounting above fire protection ceilings. Tested and approved as a cable-specific variant for electrical function maintenance to DIN 4102 Part 12. For ceiling mounting. Clamping height 10 mm – extendable to 13 mm with spacer. Fastening hole Ø 6 mm.

Detailed information on the approved routing variants can be found in the appropriate testing documentation.



Function maintenance: individual routing, pipes and metal duct



## Grouped supports and pressure clips



### Metal pressure clip, for 14 cables

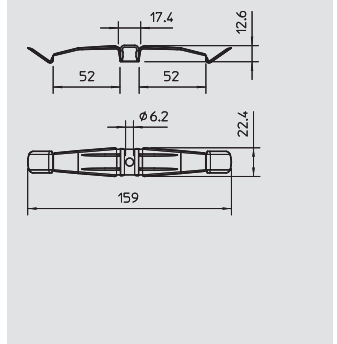
Type	Shipping box pcs	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>2034 M</b>	50	50	1.860	<b>2204 01 0</b>

V2A Stainless steel, grade 301

/100 pc.

Metal pressure clip for space-saving mounting with high mechanical stability, even in case of fire. Halogen-free, fire load-free. Also suitable for secure mounting above fire protection ceilings. Tested and approved as a cable-specific variant for electrical function maintenance to DIN 4102 Part 12. For ceiling mounting. Clamping height 10 mm – extendable to 13 mm with spacer. Fastening hole  $\varnothing$  6 mm.

Detailed information on the approved routing variants can be found in the appropriate testing documentation.



### Spacer for pressure clips

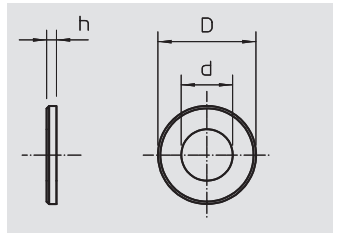
Type	Dimension D mm	Dimension d mm	Dimension h mm	Shipping box pcs	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>2033 D 15x3 G</b>	15	6.4	3	3,000	50	0.340	<b>2205 09 7</b>

St Steel

G Electrogalvanised

/100 pc.

To increase the clamping height of pressure clips from 10 to 13 mm for large cable cross-sections.



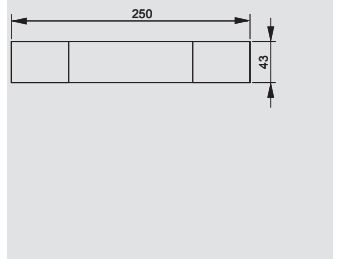
### Identification plate for cable system

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS-E DE</b>	10	0.600	<b>7205 42 3</b>

PVC Polyvinylchloride

/pc.

Self-adhesive identification plate for approved cable system labelling for function maintenance as required by DIN 4102 Part 12.



**Stapa pipe without thread, black, powder-coated**



Type	Dimension M	Dimension L mm	Dimension t mm	Colour	Pack. m	Weight kg/100 m	Item No.
<b>S16W SW</b>	M16	3,000	1	Black	30	37.000	<b>2046 56 5</b>
<b>S20W SW</b>	M20	3,000	1	Black	30	47.000	<b>2046 56 6</b>
<b>S25W SW</b>	M25	3,000	1.2	Black	30	70.000	<b>2046 56 7</b>
<b>S32W SW</b>	M32	3,000	1.2	Black	21	91.000	<b>2046 56 8</b>
<b>S40W SW</b>	M40	3,000	1.2	Black	15	114.700	<b>2046 56 9</b>
<b>S50W SW</b>	M50	3,000	1.2	Black	15	144.000	<b>2046 57 0</b>
<b>S63W SW</b>	M63	3,000	1.2	Black	9	182.700	<b>2046 57 1</b>

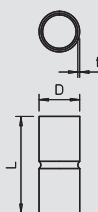
**St** Steel **L** Painted /100 m

Electrical installation pipe without threaded ends to EN 61386-1 for mechanical protection of cables. With burr-free inner wall.



4 | 4 | 5 | 6 | 1

**Stapa pipe connection sleeve, without thread, black, powder-coated**



Type	Dimension M	Dimension L mm	Dimension D mm	Dimension t mm	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>SV16W SW</b>	M16	50	18.6	1	Black	25	2.400	<b>2046 58 2</b>
<b>SV20W SW</b>	M20	60	23.1	1.2	Black	50	4.000	<b>2046 58 3</b>
<b>SV25W SW</b>	M25	60	28.1	1.2	Black	50	5.200	<b>2046 58 4</b>
<b>SV32W SW</b>	M32	70	35.2	1.2	Black	50	7.200	<b>2046 58 5</b>
<b>SV40W SW</b>	M40	80	43.8	1.5	Black	25	13.200	<b>2046 58 6</b>
<b>SV50W SW</b>	M50	100	54	1.5	Black	10	20.000	<b>2046 58 7</b>
<b>SV63W SW</b>	M63	100	67	1.5	Black	5	26.000	<b>2046 58 8</b>

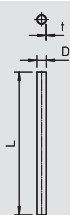
**St** Steel **L** Painted /100 pc.

Accessory part: plug-in sleeve for the connections between electrical installation pipes. With burr-free inner wall.



4 | 4 | 5 | 6 | 1

**Stapa pipe without thread, electrogalvanised**



Type	Dimension M	Dimension L mm	Dimension t mm	Pack. m	Weight kg/100 m	Item No.
<b>S16 W G</b>	M16	3,000	1	30	37.000	<b>2046 84 0</b>
<b>S20 W G</b>	M20	3,000	1	30	38.000	<b>2046 84 1</b>
<b>S25 W G</b>	M25	3,000	1.2	30	70.000	<b>2046 84 2</b>
<b>S32 W G</b>	M32	3,000	1.2	21	90.000	<b>2046 84 3</b>
<b>S40 W G</b>	M40	3,000	1.2	15	113.400	<b>2046 84 4</b>
<b>S50 W G</b>	M50	3,000	1.2	15	143.400	<b>2046 84 5</b>
<b>S63 W G</b>	M63	3,000	1.2	9	183.400	<b>2046 84 6</b>

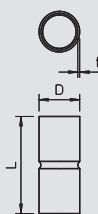
**St** Steel **G** Electrogalvanised /100 m

Electrical installation pipe without threaded ends to EN 61386-1 for mechanical protection of cables. With burr-free inner wall.



4 | 4 | 5 | 7 | 1

**Stapa pipe connection sleeve, without thread, electrogalvanised**



Type	Dimension M	Dimension L mm	Dimension D mm	Dimension t mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>SV16 W G</b>	M16	50	18.6	1	25	2.000	<b>2046 85 4</b>
<b>SV20 W G</b>	M20	60	23.1	1.2	50	4.000	<b>2046 85 5</b>
<b>SV25 W G</b>	M25	60	28.1	1.2	50	5.000	<b>2046 85 6</b>
<b>SV32 W G</b>	M32	70	35.2	1.2	50	7.000	<b>2046 85 7</b>
<b>SV40 W G</b>	M40	80	43.8	1.5	25	13.000	<b>2046 85 8</b>
<b>SV50 W G</b>	M50	100	54	1.5	10	20.000	<b>2046 85 9</b>
<b>SV63 W G</b>	M63	100	67	1.5	5	26.000	<b>2046 86 0</b>

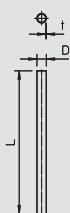
**St** Steel **G** Electrogalvanised /100 pc.

Accessory part: plug-in sleeve for the connections between electrical installation pipes. With burr-free inner wall.



4 | 4 | 5 | 7 | 1

**Stapa pipe without thread, hot-dip galvanised**



Type	Dimension M	Dimension L mm	Dimension t mm	Pack. m	Weight kg/100 m	Item No.
<b>S16W FT</b>	M16	3,000	1	30	40.000	<b>2046 59 3</b>
<b>S20W FT</b>	M20	3,000	1	30	51.000	<b>2046 59 4</b>
<b>S25W FT</b>	M25	3,000	1.2	30	76.000	<b>2046 59 5</b>
<b>S32W FT</b>	M32	3,000	1.2	21	98.000	<b>2046 59 6</b>
<b>S40W FT</b>	M40	3,000	1.2	15	124.000	<b>2046 59 7</b>
<b>S50W FT</b>	M50	3,000	1.2	15	156.000	<b>2046 59 8</b>
<b>S63W FT</b>	M63	3,000	1.2	9	198.000	<b>2046 59 9</b>

**St** Steel **FT** Hot-dip galvanised /100 m

Electrical installation pipe without threaded ends according to EN 61386-1 for mechanical protection of cables. With burr-free interior wall.



4 | 4 | 5 | 7 | 1

Function maintenance: individual routing, pipes and metal duct



# Pipes

## Stapa pipe connection sleeve, without thread, hot-dip galvanised

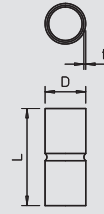


4 | 4 | 5 | 7 | 1

Type	Dimension M	Dimension L	Dimension D	Dimension t	Pack.	Weight	Item No.
	mm	mm	mm	mm	pcs	kg/100 pcs.	
SV16W FT	M16	50	18.6	1	25	2.400	2046 62 0
SV20W FT	M20	60	23.1	1.2	50	4.400	2046 62 1
SV25W FT	M25	60	28.1	1.2	50	5.600	2046 62 2
SV32W FT	M32	70	35.2	1.2	50	7.800	2046 62 3
SV40W FT	M40	80	43.8	1.5	25	14.400	2046 62 4
SV50W FT	M50	100	54	1.5	10	22.000	2046 62 5
SV63W FT	M63	100	67	1.5	5	28.000	2046 62 6

**St** Steel **FT** Hot-dip galvanised /100 pc.

Accessory part: plug-in sleeve for the connections between electrical installation pipes. With burr-free inner wall.



## Stapa pipe end socket



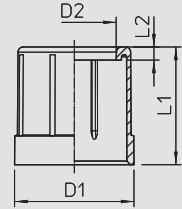
Type	Size	Colour	Pack.	Weight	Item No.
			pcs	kg/100 pcs.	
129 M16	M16	Light grey	100	0.235	2047 81 0
129 M20	M20	Light grey	100	0.326	2047 82 9
129 M25	M25	Light grey	50	0.614	2047 83 7
129 M32	M32	Light grey	50	1.070	2047 85 3
129 M40	M40	Light grey	50	1.444	2047 86 1
129 M50	M50	Light grey	25	2.176	2047 88 8
129 M63	M63	Light grey	25	2.808	2047 89 6
129 M16 SW	M16	Black	100	0.235	2047 93 4
129 M20 SW	M20	Black	100	0.326	2047 94 2
129 M25 SW	M25	Black	50	0.614	2047 95 0
129 M32 SW	M32	Black	50	1.070	2047 96 9
129 M40 SW	M40	Black	50	1.444	2047 97 7
129 M50 SW	M50	Black	25	2.176	2047 98 5
129 M63 SW	M63	Black	25	2.808	2047 99 3

**PE** Polyethylene /100 pc.

Cable protection sleeve for attachment on electrical installation pipes.

### Important dimensions, pipe end socket

G	D1	D2	L1	L2
	mm	mm	mm	mm
M16	19.4	12.5	18	2
M20	23.4	16	22.5	2.5
M25	28.4	21	27.5	2.5
M32	35.4	27.5	34	3
M40	43.4	35	41	3
M50	53.4	44.5	48	3
M63	66.4	55	59	4



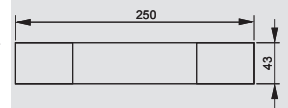
## Identification plate for cable system

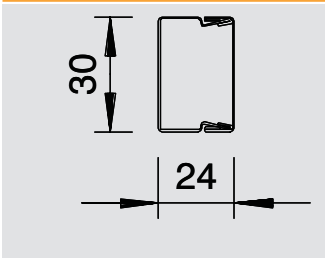


Type	Pack.	Weight	Item No.
	pcs	kg/100 pcs.	
KS-E DE	10	0.600	7205 42 3

**PVC** Polyvinylchloride /pc.

Self-adhesive identification plate for approved cable system labelling for function maintenance as required by DIN 4102 Part 12.



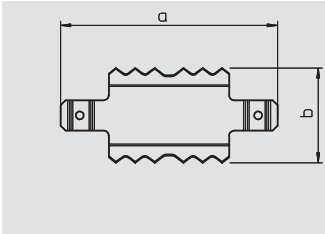


## LKM duct 20030

Type	Length mm	Surface finish	Pack. m	Weight kg/100 m	Item No.
<b>LKM20030FS</b>	2,000	Strip-galvanised	24	58.000	<b>6246 97 4</b>

**St** Steel **FS** Strip-galvanised /m

Trunking cover and base with base perforation.  
Equipotential bonding is guaranteed between the cover and the base without any additional aids.

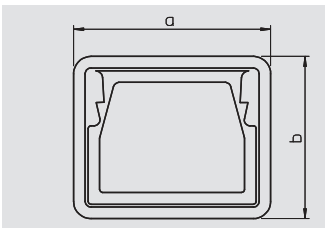


## LKM joint connector

Type	Dimen- sion a mm	Dimen- sion b mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>LKM SV30</b>	53.8	29.5	10	0.400	<b>6247 43 4</b>

**St** Steel **G** Electrogalvanised /pc.

Joint connector for connecting the bases.  
This creates the equipotential bonding between the trunking bases.

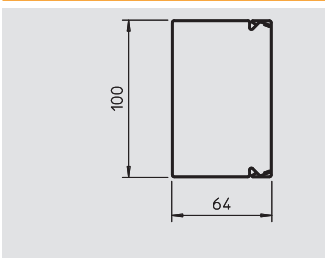


## LKM edge protection ring

Type	Colour	Dimen- sion a mm	Dimen- sion b mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KSR20030</b>	Grey	34	28	10	1.100	<b>6249 84 4</b>

**PE** Polyethylene /pc.

Edge protection ring for the open ends of LKM cable trunking.

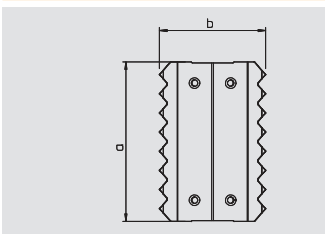


## LKM duct 60100

Type	Length mm	Pack. m	Weight kg/100 m	Item No.
<b>LKM60100FS</b>	2,000	8	221.700	<b>6247 11 3</b>

**St** Steel **FS** Strip-galvanised /m

Trunking cover and base with base perforation.  
Equipotential bonding is guaranteed between the cover and the base without any additional aids.

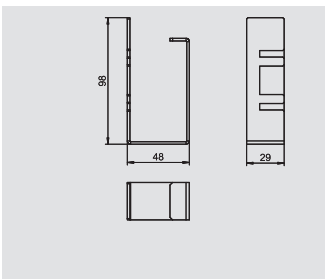


## LKM joint connector

Type	Dimen- sion a mm	Dimen- sion b mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>LKM SV60</b>	75	50	10	1.600	<b>6247 46 6</b>

**V2A** Stainless steel, grade 301 /pc.

Joint connector to connect the bases.  
This creates the equipotential bonding between the trunking bases.

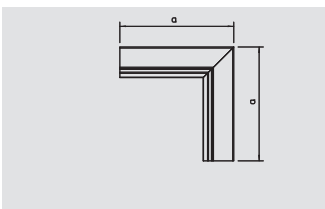


## LKM duct clamp, function maintenance

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>LKM KF 60100</b>	10	9.800	<b>6249 88 1</b>

**St** Steel **FS** Strip-galvanised /pc.

Duct clamp for metal cable routing duct, type LKM 60100FS. The duct clamp is essential if the duct is used in cable systems with integrated function maintenance to DIN 4102, Part 12. You can find more detailed information in the BSS catalogue and in the current test certificates on the Internet.



## LM fitting, internal corner

Type	Dimen- sion a mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>LKM I60100FS</b>	180	4	39.400	<b>6248 14 4</b>

**St** Steel **FS** Strip-galvanised /pc.

Internal corner for changing the direction of the LKM trunking.



# LKM cable routing duct

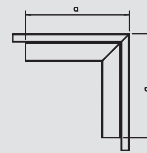


## LKM fitting, external corner

Type	Dimension a mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>LKM A60100FS</b>	180	4	73.100	<b>6248 06 3</b>

**St** Steel **FS** Strip-galvanised /pc.

External corner including cover for changing the direction of the LKM trunking.

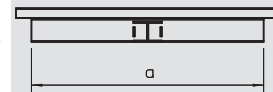


## LKM fitting, T piece

Type	Dimension a mm	Dimension b mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>LKM T60100FS</b>	340	220	4	69.200	<b>6248 20 9</b>

**St** Steel **FS** Strip-galvanised /pc.

T piece including cover for changing the direction of the LKM trunking.

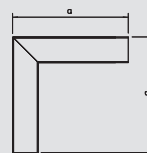


## LK fitting, flat angle

Type	Dimension a mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>LKM F60100FS</b>	220	4	63.400	<b>6248 00 4</b>

**St** Steel **FS** Strip-galvanised /pc.

Flat angle including cover for changing the direction of the LKM trunking.

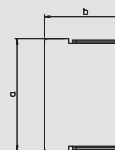


## LKM end piece

Type	Dimension a mm	Dimension b mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>LKM E60100FS</b>	100	63	10	6.200	<b>6248 30 6</b>

**St** Steel **FS** Strip-galvanised /pc.

End piece for closing the LKM trunking.

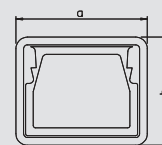


## LKM edge protection ring

Type	Colour	Dimension a mm	Dimension b mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KSR60100</b>	Grey	104	67.7	5	3.400	<b>6249 85 2</b>

**PE** Polyethylene /pc.

Edge protection ring for the open ends of LKM cable trunking.

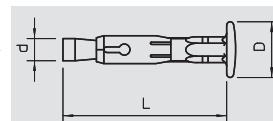


## Nail tie

Type	Clamping range mm	Dimension d mm	Dimension L mm	Dimension D mm	Bore hole Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FNA II 6X30/5</b>	5	6	40	15	6	100	1.120	<b>3498 46 8</b>

**St** Steel **G** Electrogalvanised /100 pc.

Nail tie with drive-in head. European technical approval for concrete. Fire resistance class to F 120 according to fire protection testing report.



Function maintenance: individual routing, pipes and metal duct

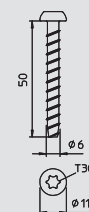


## Bolt tie

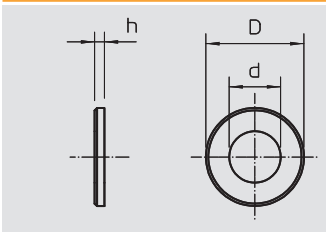
Type	Dimension mm	Bore hole Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MMS6X50</b>	6 x 50	5	100	0.960	<b>3498 10 7</b>

**St** Steel **GC** Electrogalvanised, yellow-chromated /100 pc.

Fire protection bolt tie with pan head for direct mounting without additional anchors. Drive T30, drill hole 5 mm. Fire protection tested according to DIN 4102 for concrete and masonry.







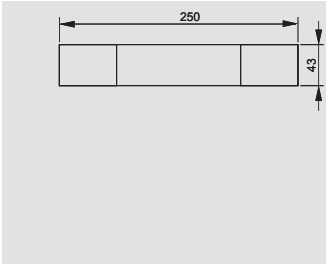
## Washer

Type	Thread	Dimension D mm	Dimension d mm	Dimension h mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>964 M6 G25 G</b>	M6	25	6.4	1.2	100	0.415	<b>3403 08 4</b>

**St** Steel      **G** Electrogalvanised

/100 pc.

Washer of particularly large outer diameter.



## Identification plate for cable system

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS-E DE</b>	10	0.600	<b>7205 42 3</b>

**PVC** Polyvinylchloride



/pc.

Self-adhesive identification plate for approved cable system labelling for function maintenance as required by DIN 4102 Part 12.





## Contents, function maintenance: junction boxes

	FireBox	308
	FireBox accessories	309

## FireBox T100E



Type	Nominal cross section mm <sup>2</sup>	Number of terminals	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>T 100 E 4-5</b>	4	5	Pastel orange	1	27.400	<b>7205 51 0</b>

PP Polypropylene /pc.

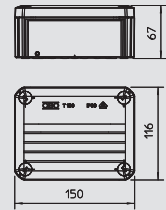
Halogen-free junction box, approved for electrical function maintenance according to DIN 4102 Part 12. Function maintenance classes E30 to E90

Including premounted 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 2 1.5 mm<sup>2</sup> rigid copper cables per terminal (remove wire protection). High protection rating IP65, impact resistance class IK07. VDE-tested.

Details on the cable types and manufacturers can be found in the general construction test certificate of the material testing institute MPA NRW, Erwitte.

Number of terminals including protective conductor terminal  
Internal clearance: 136 x 102 x 57 mm



## FireBox T160E



Type	Nominal cross section mm <sup>2</sup>	Number of terminals	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>T 160 E 10-5</b>	10	5	Pastel orange	1	48.700	<b>7205 52 4</b>

PP Polypropylene /pc.

Halogen-free junction box, approved for electrical function maintenance according to DIN 4102 Part 12. Function maintenance classes E30 to E90

Including premounted 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: 10 mm<sup>2</sup>, data cables with 0.8 mm wire Ø. Maximum of 2 4 mm<sup>2</sup> rigid copper cables per terminal (remove wire protection). High protection rating IP65, impact resistance class IK07. VDE-tested.

Details on the cable types and manufacturers can be found in the general construction test certificate of the material testing institute MPA NRW, Erwitte.

Number of terminals including protective conductor terminal  
Internal clearance: 176 x 135 x 67 mm

Type	Nominal cross section mm <sup>2</sup>	Number of terminals	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>T 160 E 16-5</b>	16	5	Pastel orange	1	53.800	<b>7205 52 8</b>

PP Polypropylene /pc.

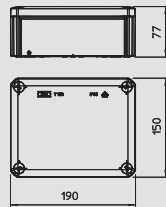
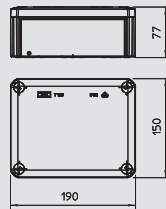
Halogen-free junction box, approved for electrical function maintenance according to DIN 4102 Part 12. Function maintenance classes E30 to E90

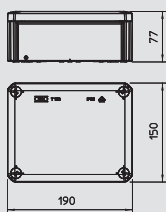
Including premounted connection unit made of high temperature-resistant special ceramic and labelled protective conductor terminal. Supplied with fire protection screw ties for anchorless fastening.

Power cable nominal cross-sections: 16 mm<sup>2</sup>, data cables with 0.8 mm wire Ø. Maximum of 2 6 mm<sup>2</sup> rigid copper cables per terminal (remove wire protection). High protection rating IP65, impact resistance class IK07. VDE-tested.

Details on the cable types and manufacturers can be found in the general construction test certificate of the material testing institute MPA NRW, Erwitte.

Number of terminals including protective conductor terminal  
Internal clearance: 176 x 135 x 67 mm





### FireBox T160E for data cables

Type	Nominal cross section mm <sup>2</sup>	Number of terminals	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>T 160 E 4-8D</b>	4	8	Pastel orange	1	46.500	<b>7205 52 0</b>

**PP** Polypropylene /pc.

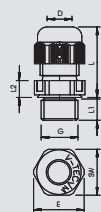
Halogen-free junction box, approved for electrical function maintenance according to DIN 4102 Part 12. Function maintenance classes E30 to E90

Including premounted 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 IP65, impact resistance class IK06. VDE-tested.

Details on the cable types and manufacturers can be found in the general construction test certificate of the material testing institute MPA NRW, Erwitte.

Number of terminals without protective conductor terminal  
Internal clearance: 176 x 135 x 67 mm



### Cap nut cable gland

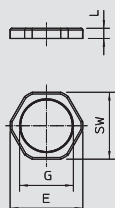
Type	Thread	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>V-TEC VM20 OR</b>	M20 x 1,5	Pastel orange	50	0.856	<b>7205 59 4</b>
<b>V-TEC VM25 OR</b>	M25 x 1,5	Pastel orange	25	1.360	<b>7205 59 7</b>
<b>V-TEC VM32 OR</b>	M32 x 1,5	Pastel orange	20	2.235	<b>7205 60 0</b>
<b>V-TEC VM40 OR</b>	M40 x 1,5	Pastel orange	10	3.496	<b>7205 60 3</b>

**PA** Polyamide /100 pc.

Robust cap nut cable gland with metric connecting thread to IEC 423. For high tightness requirements. Strain relief, wringing protection and tightness over the whole clamping area. Sealing ring made of polychloroprene/acrylnitrilbutadiene rubber. Moulded shaped sealing lip on intermediate support, no connection thread sealing ring required.

VDE-tested to DIN EN 50262, protection rating IP 68 at 5 bar for 1 hr.  
For electrical function maintenance according to DIN 4102 Part 12 in connection with the junction boxes of the FireBox T series.

G	D	SW	E	L min.	L max.	L1	L2
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

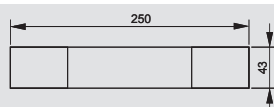


### Locknut

Type	Thread	SW	Dimension E	Dimension L	Colour	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>116 M20 OR PA</b>	M20 x 1,5	26	29	6	Pastel orange	100	0.250	<b>7205 64 4</b>
<b>116 M25 OR PA</b>	M25 x 1,5	32	36	6.5	Pastel orange	100	0.350	<b>7205 64 7</b>
<b>116 M32 OR PA</b>	M32 x 1,5	41	46	7	Pastel orange	50	0.570	<b>7205 65 0</b>
<b>116 M40 OR PA</b>	M40 x 1,5	50	56	7.5	Pastel orange	25	0.466	<b>7205 65 3</b>

**PA** Polyamide /100 pc.

Locknut DIN 46319, with metric thread IEC 423.  
For electrical function maintenance according to DIN 4102 Part 12 in connection with the junction boxes of the FireBox T series.



### Identification plate for cable system

Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>KS-E DE</b>	10	0.600	<b>7205 42 3</b>





**PVC** Polyvinylchloride /pc.

Self-adhesive identification plate for approved cable system labelling for function maintenance as required by DIN 4102 Part 12.





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# Metal spreading anchor

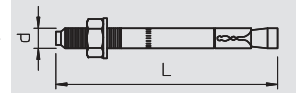
## Bolt tie



Type	Thread	Dimension L mm	Dimension d mm	Clamping range mm	Bore hole Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FAZ II 8 30 GS</b>	M8	97	8	30	8	50	3.800	<b>3498 48 4</b>
<b>FAZ II 10 10 GS</b>	M10	95	10	10	10	50	7.680	<b>3498 54 9</b>
<b>FAZ II 10 30</b>	M10	115	10	30	10	25	7.520	<b>3498 58 1</b>
<b>FAZ II 12 10</b>	M12	110	12	10	12	20	10.400	<b>3498 65 4</b>

**St** Steel **G** Electrogalvanised /100 pc.

Bolt tie for fastening high loads. Matches OBO mounting systems and wall support brackets and supports.



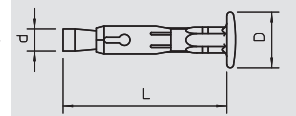
## Nail tie with nail head



Type	Clamping range mm	Dimension d mm	Dimension L mm	Dimension D mm	Bore hole Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FNA II 6X30/5</b>	5	6	40	15	6	100	1.120	<b>3498 46 8</b>

**St** Steel **G** Electrogalvanised /100 pc.

Nail tie with drive-in head. European technical approval for concrete. Fire resistance class to F 120 according to fire protection testing report.



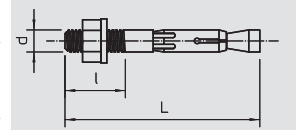
## Nail tie with thread end



Type	Thread	Clamping range mm	Dimension d mm	Dimension L mm	Dimension I mm	Bore hole Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FNA II 6X30 M6/5</b>	M6	5	6	13	53	6	100	1.400	<b>3498 42 5</b>

**St** Steel **G** Electrogalvanised /100 pc.

Bolt tie with M6 thread. European technical approval for concrete. Fire resistance class to F120 according to fire protection testing report.



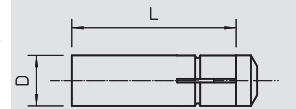
## Internal thread anchor



Type	Thread	Dimension D mm	Dimension L mm	Screw-in depth min.-max. mm	Bore hole Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FZEA II 10X40 G</b>	M8	10	40	11-17	10	100	1.550	<b>3492 03 6</b>
<b>FZEA II 12X40 G</b>	M10	12	40	13-19	12	100	2.075	<b>3492 06 0</b>
<b>FZEA II 14X40 G</b>	M12	14	40	15-21	14	50	2.750	<b>3492 09 5</b>

**St** Steel **G** Electrogalvanised /100 pc.

Undercut steel anchor with internal thread.



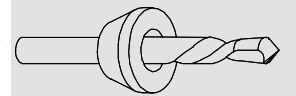
## Universal drill for internal thread anchor



Type	Bore hole Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FZUB 10X40</b>	10	1	11.800	<b>3492 33 8</b>
<b>FZUB 12X40</b>	12	1	12.200	<b>3492 36 2</b>
<b>FZUB 14X40</b>	14	1	12.500	<b>3492 39 7</b>

**St** Steel Bright /pc.

The universal drill for SDS seats guarantees correct, approved mounting of the FZEA tie.



## Impact mandrel for internal thread anchor



Type	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FZED 10X40 G</b>	5	10.500	<b>3492 62 1</b>
<b>FZED 12X40 G</b>	5	17.800	<b>3492 66 4</b>
<b>FZED 14X40 G</b>	5	25.000	<b>3492 69 9</b>

**St** Steel **G** Electrogalvanised /pc.

The impact mandrel guarantees correct, approved mounting of the FZEA tie.

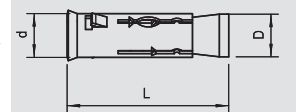
## Cavity ceiling tie



Type	Thread	Bore hole Ø mm	Dimension d mm	Dimension L mm	Dimension D mm	Screw-in depth min.-max. mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FHY M8</b>	M8	12	8	43	12	43-55	25	1.300	<b>3498 76 0</b>
<b>FHY M10</b>	M10	16	10	52	16	52-60	20	3.200	<b>3498 76 4</b>

**St** Steel **G** Electrogalvanised /100 pc.

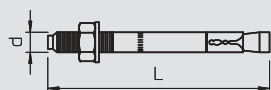
Cavity ceiling tie with internal thread for use in stressed concrete core slab ceilings.





# Metal spreading anchor VA

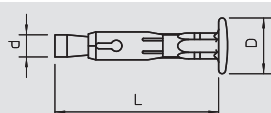
## Bolt tie



Type	Thread	Dimension L mm	Dimension d mm	Clamping range mm	Perm. load range, tension zone kN	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FAZ II 810VA4401</b>	M8	75	8	10	2.4	50	3.720	<b>3498 50 9</b>
<b>FAZ II 830VA4401</b>	M8	95	8	30	2.4	50	3.800	<b>3498 48 7</b>
<b>FAZ II 10/10GS V</b>	M 10	95	10	10	4.3	50	7.680	<b>3498 82 4</b>
<b>FAZ II 10/50 V4A</b>	M10	135	10	50	4.3	20	8.280	<b>3498 83 5</b>
<b>FAZ II 12/10 VA</b>	M12	110	12	10	4.76	20	10.400	<b>3498 85 9</b>
<b>FAZ II 10 10CV5A</b>	M10	95	10	10	4.3	10	6.909	<b>3498 55 4</b>

V4A Stainless steel, grade 316 V5A Stainless steel, 1.4529 Stained /100 pc.

Bolt tie for fastening high loads. Matches OBO mounting systems and wall support brackets and supports.

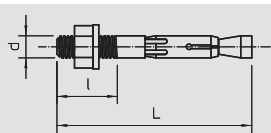


## Nail tie with nail head

Type	Clamping range mm	Dimension d mm	Dimension L mm	Head Ø mm	Bore hole Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FNA II 6x30/5</b>	5	6	40	15	6	100	1.120	<b>3498 46 9</b>

V5A Stainless steel, 1.4529 /100 pc.

Nail tie with drive-in head. European technical approval for concrete. Fire resistance class to F120 according to fire protection testing report.



## Nail tie with thread end

Type	Thread	Clamping range mm	Dimension d mm	Dimension l mm	Dimension L mm	Bore hole Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FNA II 6x30 M6/5</b>	M6	5	6	13	53	6	100	1.400	<b>3498 42 6</b>

V5A Stainless steel, 1.4529 /100 pc.

Nail tie with M6 thread. European technical approval for concrete. Fire resistance class to F120 according to fire protection testing report.



## Internal thread anchor

Type	Thread	Dimension D mm	Dimension L mm	Screw-in depth min.-max. mm	Bore hole Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>FZEA II 10X40 VA</b>	M8	10	40	11-17	10	100	1.550	<b>3492 14 5</b>
<b>FZEA II 12X40 VA</b>	M10	12	40	13-19	12	100	2.075	<b>3492 15 0</b>
<b>FZEA II 14X40V4A</b>	M12	14	40	15-21	14	50	2.750	<b>3492 09 7</b>
<b>FZEA II12x40CV5A</b>	M10	12	40	13-19	12	1	2.028	<b>3492 17 2</b>

V4A Stainless steel, grade 316 V5A Stainless steel, 1.4529 /100 pc.

Impact tie with internal thread



# Injection tie



## 2-component mortar cartridge

Type	Unit TE	Contents	Pack.	Weight	Item No.
		ml	pcs	kg/100 pcs.	
<b>FIS V 360 S</b>	180	360	6	133.333	<b>3488 40 3</b>

/pc.

Two-component injection mortar for universal, spread-free anchoring in concrete and stone substrates.



## Anchor rod

Type	Dimension L	Dimension d	SW	Pack.	Weight	Item No.
	mm	mm	mm	pcs	kg/100 pcs.	
<b>FIS A M6X70</b>	70	6	10	10	1.800	<b>3488 29 2</b>
<b>FIS A M8X90</b>	90	8	13	10	3.800	<b>3488 29 8</b>

**St** Steel

**G** Electrogalvanised

/100 pc.

Injection threaded rod for use in injection mortar.



## Plastic wire sleeve

Type	Dimension d	Dimension L	Consumption TE	Bore hole Ø	Pack.	Weight	Item No.
	mm	mm	TE	mm	pcs	kg/100 pcs.	
<b>FIS H 12X50 K</b>	12	50	5	12	50	0.225	<b>3488 45 2</b>
<b>FIS H 12X85 K</b>	12	85	10	12	50	0.420	<b>3488 46 4</b>
<b>FIS H 16X85 K</b>	16	75	12	16	50	1.000	<b>3488 46 2</b>

**PP** Polypropylene

/100 pc.

Injection tie sleeve for use in hollow brick and stones in combination with injection mortar system.



## Pressing gun

Type	Colour	Pack.	Weight	Item No.
		pcs	kg/100 pcs.	
<b>FIS DMS</b>	Red	1	107.030	<b>3488 52 7</b>

/pc.

Pressing gun for two-component injection mortar.



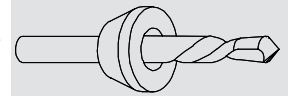
## Conical drill for porous concrete

Type	Bore hole Ø	Pack.	Weight	Item No.
	mm	pcs	kg/100 pcs.	
<b>FIS PBB</b>	15	1	22.570	<b>3488 52 5</b>

**St** Steel

/pc.

Conical drill PBB with SDS chuck for correct, approval mounting of the injection tie system in porous concrete.



## Centring sleeve for porous concrete

Type	Dimension d	Pack.	Weight	Item No.
	mm	pcs	kg/100 pcs.	
<b>FIS PBZ</b>	15	10	0.350	<b>3488 51 5</b>

**PP** Polypropylene

/100 pc.

Centring sleeve for using the injection tie system in porous concrete



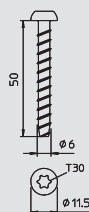


## MMS hex

Type	Dimension mm	Bore hole Ø mm	Dimension L mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MMS10X80</b>	10 x 80	8	80	50	3.800	<b>3498 12 3</b>
<b>MMS10X100</b>	10 x 100	8	100	50	4.600	<b>3498 15 8</b>

**St** Steel **G** Electrogalvanised /100 pc.

Fire protection bolt tie with hexagonal head for direct mounting without additional anchors. WAF 16. Drill hole 8 mm. Fire protection tested according to DIN 4102 for concrete and masonry. Fire resistance class to F90.

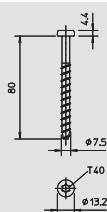


## MMS 6 pan head

Type	Dimension mm	Bore hole Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MMS6X50</b>	6 x 50	5	100	0.960	<b>3498 10 7</b>

**St** Steel **GC** Electrogalvanised, yellow-chromated /100 pc.

Fire protection bolt tie with pan head for direct mounting without additional anchors. Drive T30, drill hole 5 mm. Fire protection tested according to DIN 4102 for concrete and masonry.

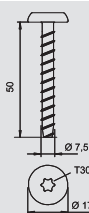


## MMS 7.5 pan head

Type	Dimension mm	Bore hole Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MMS7.5X80</b>	7.5 x 80	6	50	2.174	<b>3498 27 1</b>

**St** Steel **G** Electrogalvanised /100 pc.

Fire protection bolt tie with pan head for direct mounting without additional anchors. Drive T40, drill hole 6 mm. Fire protection tested according to DIN 4102 for concrete and masonry. Fire resistance class to F90.

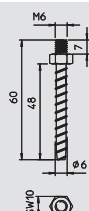


## MMS-MS pan head

Type	Dimension mm	Head Ø mm	Bore hole Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MMS-MS7,5x50</b>	7.5 x 50	17	6	100	1.522	<b>3498 26 0</b>

**St** Steel **G** Electrogalvanised /100 pc.

Fire protection bolt tie with large pan head for direct mounting without additional anchors. Drive T30, drill hole 6 mm. Fire protection tested according to DIN 4102 for concrete and masonry.

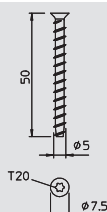


## MMS-ST with thread

Type	Thread	Dimension mm	Bore hole Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>MMS-ST6X60</b>	M6	6 x 60	5	100	1.400	<b>3498 26 3</b>

**St** Steel **G** Electrogalvanised /100 pc.

Fire protection bolt tie with M6 thread and hexagonal head for direct mounting without additional anchors. WAF 10, drill hole 5 mm. Fire protection tested according to DIN 4102 for concrete and masonry. Fire resistance class to F90.



## HMS-KS countersunk head

Type	Dimension mm	Bore hole Ø mm	Pack. pcs	Weight kg/100 pcs.	Item No.
<b>HMS-KS5X50</b>	5 x 50	4	200	0.460	<b>3498 20 4</b>





**St** Steel **G** Electrogalvanised /100 pc.

Fire protection bolt tie with countersunk cone head for direct installation 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.





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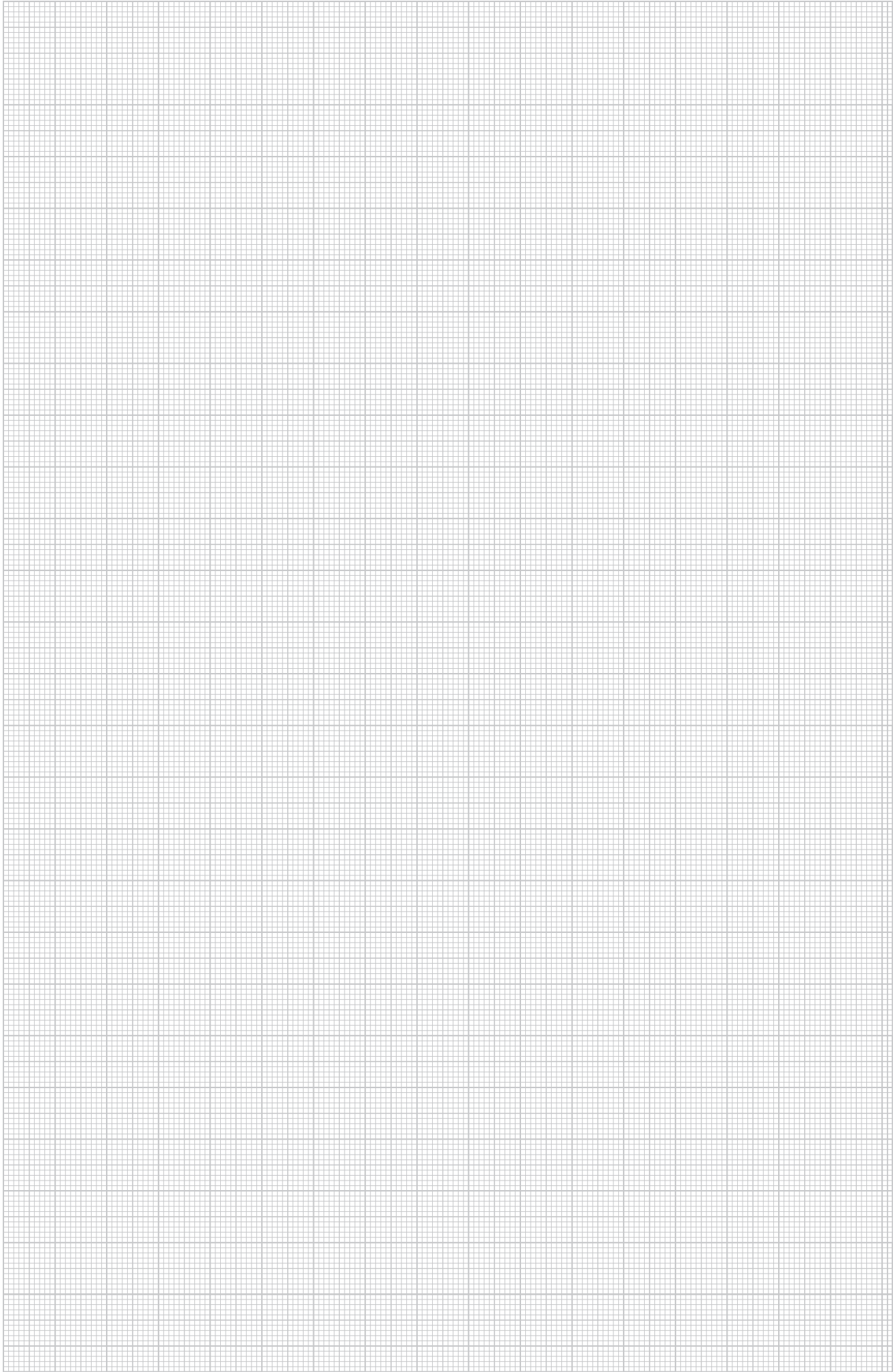
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644689	<b>6018 50 5</b>		286	603877	<b>6052 70 3</b>		251	615103	<b>6213 75 8</b>		255	618859	<b>6340 25 3</b>		259
				603889	<b>6052 70 9</b>		251	615109	<b>6213 76 6</b>		255	618865	<b>6340 26 1</b>		259
601453	<b>6019 52 8</b>		286	603895	<b>6052 71 2</b>		251					618871	<b>6340 28 8</b>		259
				603901	<b>6052 71 5</b>		251	567793	<b>6220 13 9</b>		254	618877	<b>6340 29 6</b>		259
588167	<b>6041 08 0</b>		264	603193	<b>6052 82 4</b>		265	580715	<b>6220 14 5</b>		268	695900	<b>6340 88 1</b>		258
588169	<b>6041 08 4</b>		264	603205	<b>6052 83 1</b>		265	616339	<b>6220 43 6</b>		255	695906	<b>6340 90 3</b>		258
588170	<b>6041 08 6</b>		264	603217	<b>6052 83 4</b>		265	616345	<b>6220 44 4</b>		255	695912	<b>6340 91 1</b>		258
588174	<b>6041 10 0</b>		264	605887	<b>6052 87 8</b>		265	616351	<b>6220 45 2</b>		255	695918	<b>6340 93 8</b>		258
588176	<b>6041 10 4</b>		264	605893	<b>6052 89 4</b>		265	616357	<b>6220 46 0</b>		255	660175	<b>6340 94 6</b>		258
588177	<b>6041 10 6</b>		264	605899	<b>6052 90 8</b>		265					604392	<b>6340 95 0</b>		258
				567567	<b>6052 98 0</b>		265	616453	<b>6221 07 6</b>		255	604404	<b>6340 95 4</b>		258
588181	<b>6041 13 0</b>		211	586616	<b>6052 98 1</b>		265	697688	<b>6221 46 7</b>		256	604416	<b>6340 95 8</b>		258
588183	<b>6041 13 4</b>		211	695581	<b>6052 98 3</b>		265	616615	<b>6221 85 8</b>		256	628417	<b>6340 96 2</b>		258
588184	<b>6041 13 6</b>		211	502112	<b>6052 99 1</b>		265	616621	<b>6221 86 6</b>		256	643759	<b>6340 96 6</b>		258
588185	<b>6041 13 8</b>		211	502115	<b>6052 99 3</b>		265	616627	<b>6221 87 4</b>		256	643765	<b>6340 97 0</b>		258
588186	<b>6041 14 0</b>		211	502116	<b>6052 99 4</b>		265	616633	<b>6221 88 2</b>		256				
588187	<b>6041 14 2</b>		211												
				606019	<b>6056 10 5</b>		274					/pair	653677	<b>6341 52 7</b>	215
588188	<b>6041 15 0</b>		250	606025	<b>6056 20 2</b>		211	566800	<b>6222 53 7</b>		255	653671	<b>6341 53 5</b>		215
588190	<b>6041 15 4</b>		250	606031	<b>6056 29 6</b>		211					/pc.	653665	<b>6341 54 3</b>	215
588191	<b>6041 15 6</b>		250	606037	<b>6056 40 7</b>		211	655585	<b>6222 94 3</b>		256	653659	<b>6341 55 1</b>		215
588192	<b>6041 15 8</b>		250	606043	<b>6056 50 4</b>		211	655591	<b>6222 95 1</b>		256	653653	<b>6341 57 8</b>		215
588195	<b>6041 18 0</b>		264	606049	<b>6056 60 1</b>		211	655597	<b>6222 97 8</b>		256	653647	<b>6341 58 6</b>		215
587832	<b>6041 18 4</b>		264									653641	<b>6341 59 4</b>		215
587833	<b>6041 18 6</b>		264	569444	<b>6062 02 5</b>		269					653635	<b>6341 60 8</b>		215
587840	<b>6041 20 0</b>		264	569447	<b>6062 02 8</b>		269					653629	<b>6341 61 6</b>		215
587845	<b>6041 20 4</b>		264	569448	<b>6062 03 3</b>		216	611887	<b>6246 97 4</b>	/m	303	653623	<b>6341 62 4</b>		215
587846	<b>6041 20 6</b>		264									653617	<b>6341 63 2</b>		215
				569454	<b>6062 06 8</b>		216	631213	<b>6247 11 3</b>		303				
587856	<b>6041 23 0</b>		211									/pc.			
587858	<b>6041 23 4</b>		211	569455	<b>6062 08 4</b>		269	611899	<b>6247 43 4</b>		303	622177	<b>6342 30 2</b>		237
587862	<b>6041 23 6</b>		211	569456	<b>6062 08 6</b>		269	631531	<b>6247 46 6</b>		303	622201	<b>6342 30 4</b>		237
587863	<b>6041 23 8</b>		211	569457	<b>6062 11 4</b>		238					622207	<b>6342 30 6</b>		237
587864	<b>6041 24 0</b>		211					631255	<b>6248 00 4</b>	/100 pc.	304	622231	<b>6342 30 8</b>		257
587868	<b>6041 24 2</b>		211	569461	<b>6062 28 0</b>		216	631297	<b>6248 06 3</b>		304	622237	<b>6342 31 0</b>		257
				569462	<b>6062 28 2</b>		217	631339	<b>6248 14 4</b>		303	622243	<b>6342 31 2</b>		257
587869	<b>6041 25 0</b>		250	569465	<b>6062 28 4</b>		262	631783	<b>6248 20 9</b>		304	622249	<b>6342 31 4</b>		257
587874	<b>6041 25 4</b>		250					657559	<b>6248 30 6</b>		304	622351	<b>6342 31 6</b>		257
587875	<b>6041 25 7</b>		250	644137	<b>6065 60 0</b>		251					622357	<b>6342 31 8</b>		257
587876	<b>6041 25 9</b>		250					601871	<b>6249 84 4</b>		303	622363	<b>6342 32 8</b>		278
587879	<b>6041 27 0</b>		264					502032	<b>6249 85 2</b>		304	622429	<b>6342 33 8</b>		278
587881	<b>6041 27 5</b>		264					568508	<b>6249 88 1</b>		303				
587882	<b>6041 27 7</b>		264	606553	<b>6067 11 5</b>		212					622447			

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690145	<b>6348 92 0</b>		258	620731	<b>6420 74 5</b>		237	585667	<b>7202 20 8</b>		178	626413	<b>7206 20 8</b>		180
								585668	<b>7202 20 9</b>		179				
619141	<b>6349 10 2</b>		259	663685	<b>6424 71 6</b>		279	585671	<b>7202 21 0</b>		179			/m	
619147	<b>6349 15 3</b>		259	663697	<b>6424 73 2</b>		279	544823	<b>7202 26 5</b>		246	591886	<b>7214 70 0</b>		240
				663703	<b>6424 74 0</b>		279	584785	<b>7202 28 3</b>		180			/pc.	
507972	<b>6363 88 8</b>		269	663709	<b>6424 75 9</b>		279	585012	<b>7202 29 5</b>		184	595393	<b>7214 70 5</b>		240
507973	<b>6363 89 2</b>		269					585013	<b>7202 30 0</b>		178	591887	<b>7214 71 0</b>		240
								585014	<b>7202 30 2</b>		178	591888	<b>7214 71 5</b>		240
650173	<b>6364 94 2</b>		274	620887	<b>6437 10 9</b>		214	591892	<b>7202 30 6</b>		179	591889	<b>7214 72 5</b>		242
								585018	<b>7202 31 0</b>		184				
646981	<b>6365 02 7</b>		275					585019	<b>7202 31 2</b>		184			/m	
				607997	<b>7070 20 5</b>		252	542819	<b>7202 32 2</b>		197	602483	<b>7215 15 0</b>		228
				609488	<b>7070 21 3</b>		212	542820	<b>7202 50 6</b>		196	602495	<b>7215 15 4</b>		228
				609494	<b>7070 21 7</b>		212	542821	<b>7202 50 8</b>		196	602507	<b>7215 15 8</b>		228
619981	<b>6406 12 2</b>	/100 pc.	217	609500	<b>7070 22 1</b>		212	542827	<b>7202 51 0</b>		188	602519	<b>7215 16 2</b>		228
				609506	<b>7070 22 5</b>		212	542822	<b>7202 51 6</b>		196	602531	<b>7215 16 6</b>		228
607837	<b>6406 14 2</b>		270	609518	<b>7070 23 3</b>		212	584791	<b>7202 52 1</b>		189	507780	<b>7215 17 3</b>		234
619987	<b>6406 15 7</b>		217					614221	<b>7202 55 1</b>		196	507781	<b>7215 17 7</b>		234
607843	<b>6406 19 3</b>		270	609524	<b>7070 30 6</b>		252	614227	<b>7202 55 5</b>		196	507782	<b>7215 18 1</b>		234
619999	<b>6406 20 3</b>		217	609536	<b>7070 31 4</b>		252	614233	<b>7202 55 9</b>		196	507785	<b>7215 18 5</b>		234
620005	<b>6406 25 4</b>		281	609542	<b>7070 31 8</b>		252	614239	<b>7202 56 3</b>		196	507786	<b>7215 18 9</b>		234
620023	<b>6406 52 1</b>		270	609548	<b>7070 32 2</b>		252	614245	<b>7202 56 7</b>		196	664579	<b>7215 21 0</b>		230
620029	<b>6406 55 6</b>		270					614251	<b>7202 57 1</b>		196	664585	<b>7215 21 6</b>		230
620125	<b>6406 96 3</b>		287					614257	<b>7202 57 5</b>		196	688747	<b>7215 22 2</b>		230
				623107	<b>7083 10 6</b>		212	614263	<b>7202 57 9</b>		196	688753	<b>7215 22 8</b>		230
620143	<b>6407 04 8</b>		287	623119	<b>7083 20 3</b>		212	614269	<b>7202 58 6</b>		196	688759	<b>7215 23 4</b>		230
620179	<b>6407 52 8</b>		262	623125	<b>7083 30 0</b>		212	542833	<b>7202 61 3</b>		197			/pc.	
				623131	<b>7083 40 8</b>		212	542834	<b>7202 61 7</b>		197	543036	<b>7215 25 0</b>		228
620185	<b>6407 53 6</b>		281	623137	<b>7083 50 5</b>		212	614281	<b>7202 62 4</b>		197	543038	<b>7215 25 2</b>		228
				623149	<b>7083 60 2</b>		212	614293	<b>7202 62 8</b>		197	543039	<b>7215 25 4</b>		228
620191	<b>6407 56 0</b>		287					614401	<b>7202 66 0</b>		196	543040	<b>7215 25 6</b>		228
				698372	<b>7083 61 8</b>		252	646099	<b>7202 70 9</b>		192	543041	<b>7215 25 8</b>		228
				698294	<b>7083 62 6</b>		252	646087	<b>7202 72 5</b>		192	543042	<b>7215 27 0</b>		230
620215	<b>6408 51 6</b>		281	698288	<b>7083 63 0</b>		252	646075	<b>7202 74 1</b>		192	543043	<b>7215 27 2</b>		230
647995	<b>6408 70 2</b>		217	602425	<b>7083 63 4</b>		252	584786	<b>7202 90 4</b>		180	543044	<b>7215 27 4</b>		230
648007	<b>6408 72 9</b>		262					584787	<b>7202 91 2</b>		180	543047	<b>7215 27 6</b>		230
648013	<b>6408 73 7</b>		217	623203	<b>7084 01 3</b>		266	584788	<b>7202 96 3</b>		192	543048	<b>7215 27 8</b>		230
				623209	<b>7084 04 8</b>		266	584789	<b>7202 97 1</b>		192			/100 pc.	
				623215	<b>7084 06 4</b>		266					689611	<b>7215 31 2</b>		231
620221	<b>6410 08 1</b>		280	586633	<b>7084 14 1</b>		266			/100 pc.	246	689617	<b>7215 31 8</b>		231
620227	<b>6410 10 3</b>		261	586634	<b>7084 14 3</b>		266	569334	<b>7203 10 0</b>		246	689623	<b>7215 32 4</b>		231
620233	<b>6410 11 1</b>		261	586635	<b>7084 14 5</b>		266	569335	<b>7203 10 2</b>		246	689629	<b>7215 33 0</b>		231
								569336	<b>7203 10 4</b>		246	689635	<b>7215 35 6</b>		231
				592894	<b>7138 43 0</b>		265	569337	<b>7203 10 6</b>		246	689641	<b>7215 36 2</b>		231
				592896	<b>7138 43 4</b>		265	569338	<b>7203 10 8</b>		246	689647	<b>7215 36 8</b>		231
622927	<b>6416 44 6</b>	/pc.	237	592897	<b>7138 43 6</b>		265	569339	<b>7203 11 0</b>		246	689653	<b>7215 37 4</b>		231
620281	<b>6416 50 0</b>		215	592901	<b>7138 45 0</b>		265	569340	<b>7203 11 2</b>		246			/pc.	
689425	<b>6416 50 4</b>		259	592903	<b>7138 45 4</b>		265	569341	<b>7203 11 4</b>		246	507787	<b>7215 38 1</b>		236
620287	<b>6416 51 9</b>		260	592904	<b>7138 45 6</b>		265			/pc.	246	507788	<b>7215 38 5</b>		236
				592909	<b>7138 50 0</b>		251	569342	<b>7203 12 0</b>		246	507791	<b>7215 38 9</b>		236
665059	<b>6417 02 7</b>		215	592911	<b>7138 50 4</b>		251	569343	<b>7203 13 0</b>		247	507792	<b>7215 39 5</b>		238
665065	<b>6417 04 3</b>		215	592912	<b>7138 50 6</b>		251			/100 pc.	247	688765	<b>7215 40 0</b>		229
665071	<b>6417 07 8</b>		215	592913	<b>7138 50 8</b>		251	569344	<b>7203 13 2</b>		247	688777	<b>7215 41 2</b>		230
665077	<b>6417 09 4</b>		215	592919	<b>7138 54 0</b>		251	572642	<b>7203 13 4</b>		247			/pc.	
665083	<b>6417 11 6</b>		215	592921	<b>7138 54 4</b>		251			/pc.	247	602555	<b>7215 42 3</b>		229
				592922	<b>7138 54 6</b>		251	581167	<b>7203 14 0</b>		246	664597	<b>7215 43 2</b>		230
620431	<b>6418 19 8</b>		215	592923	<b>7138 54 8</b>		251	592185	<b>7203 15 0</b>		246	677905	<b>7215 45 2</b>		229
				592926	<b>7138 57 0</b>		265	592186	<b>7203 15 4</b>		246	677911	<b>7215 45 8</b>		229
		/100 pc.		592928	<b>7138 57 4</b>		265	570643	<b>7203 16 0</b>		188	688821	<b>7215 50 0</b>		233
643747	<b>6418 25 0</b>		237	592929	<b>7138 57 6</b>		265	581749	<b>7203 80 0</b>		188	602592	<b>7215 53 3</b>		228
651847	<b>6418 25 2</b>		217	592933	<b>7138 59 0</b>		265	581750	<b>7203 80 3</b>		188	602604	<b>7215 53 7</b>		228
620443	<b>6418 28 7</b>		262	592935	<b>7138 59 4</b>		265	581753	<b>7203 80 6</b>		188	602616	<b>7215 54 1</b>		228
620449	<b>6418 29 5</b>		262	592936	<b>7138 59 6</b>		265	581754	<b>7203 80 9</b>		188	602628	<b>7215 54 5</b>		228
620455	<b>6418 31 7</b>		262	593058	<b>7138 64 0</b>		251	581755	<b>7203 81 2</b>		188	602640	<b>7215 54 9</b>		228
				593060	<b>7138 64 4</b>		251	581756	<b>7203 81 5</b>		188	507793	<b>7215 57 0</b>		234
				593061	<b>7138 64 6</b>		251				206	507794	<b>7215 57 4</b>		234
620473	<b>6418 55 4</b>	/pc.	260	593062	<b>7138 64 8</b>		251	580964	<b>7205 42 0</b>		233	507797	<b>7215 57 8</b>		234
620479	<b>6418 57 0</b>		260	593065	<b>7138 68 0</b>		251	584783	<b>7205 42 3</b>		180	507798	<b>7215 58 2</b>		235
620485	<b>6418 59 7</b>		260	593067	<b>7138 68 4</b>		251	544825	<b>7205 42 5</b>		308	507799	<b>7215 58 6</b>		235
				593068	<b>7138 68 6</b>		251	593014	<b>7205 51 0</b>		309	543049	<b>7215 59 0</b>		234

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544745	<b>7215 71 2</b>		289
544746	<b>7215 71 5</b>		289
544747	<b>7215 71 8</b>		289
544748	<b>7215 72 5</b>		289
544749	<b>7215 72 9</b>		289
580965	<b>7215 75 0</b>		289
591722	<b>7216 30 0</b>	/m	220
591724	<b>7216 31 0</b>	/pc.	220
592561	<b>7216 31 2</b>		220
591725	<b>7216 31 5</b>		220
591727	<b>7216 32 0</b>		220
591726	<b>7216 32 5</b>		221
591728	<b>7216 33 0</b>		221
591729	<b>7216 33 5</b>		221
591730	<b>7216 34 0</b>		221
591731	<b>7216 34 5</b>		221
591732	<b>7216 35 0</b>		221
591733	<b>7216 35 5</b>		221
591734	<b>7216 36 0</b>		222
591738	<b>7216 37 0</b>		222
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591740	<b>7216 38 0</b>		222
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591723	<b>7216 40 0</b>	/m	223
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591745	<b>7216 41 5</b>		223
591746	<b>7216 42 0</b>		223
591749	<b>7216 42 5</b>		224
591754	<b>7216 43 0</b>		224
591755	<b>7216 43 5</b>		224
591756	<b>7216 44 0</b>		224
591757	<b>7216 44 5</b>		224
591758	<b>7216 45 0</b>		224
591762	<b>7216 45 5</b>		224
591763	<b>7216 46 0</b>		225
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107 C VM 20 2x4	M204 / NBR-SBR	5035831	2029 67 2	/100 pc.	226	732 26 GTP	24-26 / St / GTP	5115151	1360 26 4	/100 pc.	295	
107 C VM 20 2x6	M206 / NBR-SBR	5035954	2029 67 7		226	732 28 GTP	26-28 / St / GTP	5115212	1360 28 0		295	
107 C VM 20 4x5	M205 / NBR-SBR	5035893	2029 67 5		226	732 30 GTP	28-30 / St / GTP	5115274	1360 30 2		295	
107 C VM 25 2x6	M256 / NBR-SBR	5036135	2029 68 5		226	732 33 GTP	31-33 / St / GTP	5115335	1360 33 7		295	
107 C VM 25 2x8	M258 / NBR-SBR	5036258	2029 69 0		226	732 35 GTP	33-35 / St / GTP	5115397	1360 35 3		295	
107 C VM 25 3x6	M256 / NBR-SBR	5036074	2029 68 2		226	732 38 GTP	36-38 / St / GTP	5115458	1360 38 8		295	
107 C VM 25 3x7	M257 / NBR-SBR	5036197	2029 68 8		226	732 40 GTP	38-40 / St / GTP	5115519	1360 39 6		295	
107 C VM 25 5x4	M254 / NBR-SBR	5036012	2029 67 9		226	732 42 GTP	40-42 / St / GTP	5115571	1360 42 6		295	
107 C VM 32 2x8	M328 / NBR-SBR	5036319	2029 69 3		226	732 45 GTP	43-45 / St / GTP	5115632	1360 45 0		295	
107 C VM 32 4x8	M328 / NBR-SBR	5036371	2029 69 6		226	732 48 GTP	46-48 / St / GTP	5115694	1360 48 5		295	
							732 50 GTP	48-50 / St / GTP	5115755		1360 50 7	295
							732 6 GTP	5-6 / St / GTP	5114499		1360 05 1	295
116 M20 OR PA	M20 x 1,526/ PA	5875314	7205 64 4		309	732 60 GTP	58-60 / St / GTP	5115878	1360 60 4		295	
116 M25 OR PA	M25 x 1,532/ PA	5875321	7205 64 7		309	732 63 GTP	61-63 / St / GTP	5569114	1360 63 9		295	
116 M32 OR PA	M32 x 1,541/ PA	5810841	7205 65 0		309	732 8 GTP	7-8 / St / GTP	5114550	1360 08 6		295	
116 M40 OR PA	M40 x 1,550/ PA	5810889	7205 65 3		309							
							733 21 G	19-21 / St / G	5116110		1361 20 1	296
							733 23 G	21-23 / St / G	5116172		1361 23 6	296
129 M16	M16 Light grey/ PE	5490753	2047 81 0		302	733 29 G	24-29 / St / G	5116233	1361 29 5		296	
129 M16 SW	M16 Black/ PE	5468851	2047 93 4		302	733 38 G	30-38 / St / G	5116295	1361 38 4		296	
129 M20	M20 Light grey/ PE	5490692	2047 82 9	302	733 48 G	39-48 / St / G	5116356	1361 48 1	296			
129 M20 SW	M20 Black/ PE	5468912	2047 94 2	302	733 54 G	48-54 / St / G	5116417	1361 51 1	296			
129 M25	M25 Light grey/ PE	5490630	2047 83 7	302	733 61 G	53-61 / St / G	5116479	1361 61 9	296			
129 M25 SW	M25 Black/ PE	5468974	2047 95 0	302	733 63 G	63-63 / St / G	5116530	1361 63 5	296			
129 M32	M32 Light grey/ PE	5487692	2047 85 3	302								
129 M32 SW	M32 Black/ PE	5469155	2047 96 9	302								
129 M40	M40 Light grey/ PE	5037699	2047 86 1	302	964 M6 G25 G	M625-25 / ST / G	5868095	3403 08 4	305			
129 M40 SW	M40 Black/ PE	5469216	2047 97 7	302								
129 M50	M50 Light grey/ PE	5037637	2047 88 8	302	966 M10 G	M1020/ ST / G	5300137	3402 09 6	238			
129 M50 SW	M50 Black/ PE	5469278	2047 98 5	302	966 M10 G	M1020/ ST / G	5300137	3402 09 6	241			
129 M63	M63 Light grey/ PE	5037576	2047 89 6	302	966 M10 G	M1020/ ST / G	5300137	3402 09 6	262			
129 M63 SW	M63 Black/ PE	5469339	2047 99 3	302	966 M10 G	M1020/ ST / G	5300137	3402 09 6	282			
					966 M12 G	M1224/ ST / G	5300199	3402 12 6	217			
					966 M12 G	M1224/ ST / G	5300199	3402 12 6	262			
169 MS M12	M12 x 1,515/ CuZn / N	5474135	2091 60 7	226	966 M12 G	M1224/ ST / G	5300199	3402 12 6	282			
169 MS M16	M16 x 1,520/ CuZn / N	5931690	2091 61 5	226	966 M8 G	M816/ ST / G	5300076	3402 08 8	282			
169 MS M20	M20 x 1,524/ CuZn / N	5931751	2091 62 3	226								
169 MS M25	M25 x 1,530/ CuZn / N	5931812	2091 63 1	226	967 M10 G	M1028/ ST / G	5300434	3402 22 3	227			
169 MS M32	M32 x 1,535/ CuZn / N	5931874	2091 65 8	226	967 M6 G	M628/ ST / G	5300311	3402 20 7	179			
169 MS M40	M40 x 1,545/ CuZn / N	5474197	2091 66 6	226	967 M6 G	M628/ ST / G	5300311	3402 20 7	185			
169 MS M50	M50 x 1,555/ CuZn / N	5474791	2091 67 4	226	967 M6 G	M628/ ST / G	5300311	3402 20 7	203			
					967 M8 G	M828/ ST / G	5300373	3402 21 5	179			
					967 M8 G	M828/ ST / G	5300373	3402 21 5	185			
342 M6X16 G	M616/ St / G	5255437	3156 14 1	294	967 M8 G	M828/ ST / G	5300373	3402 21 5	203			
604 10 G	10/ St / G	5001218	1003 10 0	241	1268 L 200 FS	2001,25/ ST / FS	5038290	1104 26 8	/100 m	292		
604 10 G	10/ St / G	5001218	1003 10 0	232								
604 11 G	11/ St / G	5001270	1003 11 9	232	1268 L 2M FS	20001,25/ ST / FS	5038771	1104 50 0		292		
604 12 G	12/ St / G	5001331	1003 12 7	232						/100 pc.		
604 13 G	13/ St / G	5001393	1003 13 5	232	1268 L 300 FS	3001,25/ ST / FS	5038351	1104 28 4			292	
604 16 G	16/ St / G	5001454	1003 17 8	232	1268 L 400 FS	4001,25/ ST / FS	5836353	1104 29 2			292	
604 19 G	19/ St / G	5001515	1003 19 4	232	1268 L 500 FS	5001,25/ ST / FS	5038412	1104 30 6			292	
604 20 G	20/ St / G	5001577	1003 20 8	232								
604 21 G	21/ St / G	5001638	1003 21 6	232	2031 LW15	/ St / FS	5864011	2207 18 4			298	
604 23 G	23/ St / G	5001690	1003 23 2	232	2031 M 15 FS	/ St / FS	5863953	2207 02 8			210	
604 25 G	25/ St / G	5566892	1003 25 9	232	2031 M 15 FS	/ St / FS	5863953	2207 02 8			298	
604 28 G	28/ St / G	5001751	1003 28 3	232	2031 M 15 V4A	/ V4A	5809456	2207 13 2			298	
604 3 G	3/ St / G	5000792	1003 03 8	232	2031 M 15 VA	/ V2A	5809395	2207 08 0			298	
604 32 G	32/ St / G	5566953	1003 32 1	232	2031 M 30 FS	/ St / FS	5798798	2207 03 6		210		
604 35 G	35/ St / G	5001812	1003 35 6	232	2031 M 30 FS	/ St / FS	5798798	2207 03 6		298		
604 37 G	37/ St / G	5001874	1003 37 2	232	2031 M 30 V4A	/ V4A	5809463	2207 14 0		299		
604 4 G	4/ St / G	5000853	1003 04 6	241	2031 M 30 VA	/ V2A	5809401	2207 08 8		298		
604 4 G	4/ St / G	5000853	1003 04 6	232	2031 M 70 FS	/ St / FS	5022497	2207 06 0		210		
604 40 G	40/ St / G	5001935	1003 40 2	232	2031 M 70 FS	/ St / FS	5022497	2207 06 0		299		
604 47 G	47/ St / G	5002055	1003 46 1	232	2031 M 70 V4A	/ V4A	5809470	2207 16 4		299		
604 5 G	5/ St / G	5000914	1003 05 4	241	2031 M 70 VA	/ V2A	5809449	2207 11 2	299			
604 5 G	5/ St / G	5000914	1003 05 4	232								
604 6 G	6/ St / G	5000976	1003 06 2	241	2033 D 15x3 G	156,4/ St / G	5044970	2205 09 7	300			
604 6 G	6/ St / G	5000976	1003 06 2	232	2033 M	/ V2A	5036616	2204 00 0	210			
604 7 G	7/ St / G	5001034	1003 07 0	241	2033 M	/ V2A	5036616	2204 00 0	299			
604 7 G	7/ St / G	5001034	1003 07 0	232								
604 8 G	8/ St / G	5001096	1003 08 9	241	2034 M	50/ V2A	5210672	2204 01 0	210			
604 8 G	8/ St / G	5001096	1003 08 9	232	2034 M	50/ V2A	5210672	2204 01 0	300			
604 9 G	9/ St / G	5001157	1003 09 7	241								
604 9 G	9/ St / G	5001157	1003 09 7	232	2056 M 100 FT	90-100 / ST / FT	5063551	1156 16 0	287			
					2056 M 100 FT	90-100 / ST / FT	5063551	1156 16 0	292			
732 10 GTP	9-10 / St / GTP	5114611	1360 10 8	295	2056 M 12 FT	8-12 / ST / FT	5062714	1156 00 4	287			
732 12 GTP	10,5-12 / St / GTP	5114673	1360 12 4	295	2056 M 12 FT	8-12 / ST / FT	5062714	1156 00 4	292			
732 14 GTP	12,5-14 / St / GTP	5114734	1360 14 0	295	2056 M 16 FT	12-16 / ST / FT	5062776	1156 01 2	287			
732 15 GTP	13,5-15 / St / GTP	5114796	1360 15 9	295	2056 M 16 FT	12-16 / ST / FT	5062776	1156 01 2	292			
732 16 GTP	14,5-16 / St / GTP	5114857	1360 16 7	295	2056 M 22 FT	16-22 / ST / FT	5062837	1156 02 0	287			
732 18 GTP	16,5-18 / St / GTP	5114918	1360 18 3	295	2056 M 22 FT	16-22 / ST / FT	5062837	1156 02 0	292			
732 20 GTP	18,5-20 / St / GTP	5114970	1360 20 5	295	2056 M 28 FT	22-28 / ST / FT	5062899	1156 03 9	287			
732 22 GTP	20-22 / St / GTP	5115038	1360 22 1	295	2056 M 28 FT	22-28 / ST / FT	5062899	1156 03 9	292			
732 24 GTP	22-24 / St / GTP	5115090	1360 24 8	295	2056 M 34 FT	28-34 / ST / FT	5062950	1156 04 7	287			

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Type	Dimensions/Colour/Div.	GTIN	Art. no.	Price	Page	Type	Dimensions/Colour/Div.	GTIN	Art. no.	Price	Page
				/100 pc.						/100 pc.	
2056 M 34 FT	28-34 / St / FT	5062950	1156 04 7		292	2078 M8 1M G	M88 / St / G	5253334	3141 12 8		280
2056 M 40 FT	34-40 / St / FT	5063018	1156 05 5		287	2078 M8 1M G	M88 / St / G	5253334	3141 12 8		179
2056 M 40 FT	34-40 / St / FT	5063018	1156 05 5		292	2078 M8 1M G	M88 / St / G	5253334	3141 12 8		185
2056 M 46 FT	40-46 / St / FT	5063070	1156 06 3		287	2078 M8 1M G	M88 / St / G	5253334	3141 12 8		202
2056 M 46 FT	40-46 / St / FT	5063070	1156 06 3		292						
2056 M 52 FT	46-52 / St / FT	5063131	1156 07 1		287	5019 M6 0S G	64 / St / G	5053712	1144 10 3		294
2056 M 52 FT	46-52 / St / FT	5063131	1156 07 1		292						
2056 M 58 FT	52-58 / St / FT	5063193	1156 09 8		287	12005 M10 G	M10 M10 / St / G	6202270	6410 10 3		261
2056 M 58 FT	52-58 / St / FT	5063193	1156 09 8		292	12005 M10 G	M10 M10 / St / G	6202270	6410 10 3		280
2056 M 64 FT	58-64 / St / FT	5063254	1156 10 1		287	12005 M12 G	M12 M12 / St / G	6202331	6410 11 1		261
2056 M 64 FT	58-64 / St / FT	5063254	1156 10 1		292	12005 M12 G	M12 M12 / St / G	6202331	6410 11 1		280
2056 M 70 FT	64-70 / St / FT	5063315	1156 12 8		287	12005 M8 G	M8 8 / St / G	6202218	6410 08 1		280
2056 M 70 FT	64-70 / St / FT	5063315	1156 12 8		292						
2056 M 76 FT	70-76 / St / FT	5063377	1156 13 6		287						
2056 M 76 FT	70-76 / St / FT	5063377	1156 13 6		292						
2056 M 82 FT	76-82 / St / FT	5063438	1156 14 4		287	ABG FT	/ St / FT	5938682	6015 34 5	/pc.	254
2056 M 82 FT	76-82 / St / FT	5063438	1156 14 4		292						
2056 M 90 FT	82-90 / St / FT	5063490	1156 15 2		287						
2056 M 90 FT	82-90 / St / FT	5063490	1156 15 2		292	ABL FT	/ St / FT	6976881	6221 46 7		256
2056 M2 12 FT	8-12 / St / FT	5494836	1156 17 9		287	ABL FT	/ St / FT	6976881	6221 46 7		277
2056 M2 12 FT	8-12 / St / FT	5494836	1156 17 9		293						
2056 M2 16 FT	12-16 / St / FT	5494898	1156 18 7		287	ABR FT	/ St / FT	6501731	6364 94 2		274
2056 M2 16 FT	12-16 / St / FT	5494898	1156 18 7		293						
2056 M2 22 FT	16-22 / St / FT	5494959	1156 19 5		287	ABS FS	/ St / FS	6469819	6365 02 7		275
2056 M2 22 FT	16-22 / St / FT	5494959	1156 19 5		293	ABS FS	/ St / FS	6469819	6365 02 7		277
2056 M2 28 FT	22-28 / St / FT	5958703	1156 20 9		287						
2056 M2 28 FT	22-28 / St / FT	5958703	1156 20 9		293	AHB-T 200	280380 / v5A	5079729	6363 88 8		269
2056 M3 12 FT	8-12 / St / FT	5958765	1156 24 1		288	AHB-T 300	380480 / v5A	5079736	6363 89 2		269
2056 M3 12 FT	8-12 / St / FT	5958765	1156 24 1		293						
2056 M3 16 FT	12-16 / St / FT	5958826	1156 26 8		288						
2056 M3 16 FT	12-16 / St / FT	5958826	1156 26 8		293	ASX-E		5850199	7202 31 2		184
2056 M3 22 FT	16-22 / St / FT	5958888	1156 27 6		288	ASX-K		5850182	7202 31 0		184
2056 M3 22 FT	16-22 / St / FT	5958888	1156 27 6		293	ASX-K		5850182	7202 31 0		289
2056 M3 28 FT	22-28 / St / FT	5958949	1156 28 4		288	ASX-K		5850182	7202 31 0		297
2056 M3 28 FT	22-28 / St / FT	5958949	1156 28 4		293						
2056U M 12 FT	8-12 / St / FT	5498254	1158 00 7		288						
2056U M 12 FT	8-12 / St / FT	5498254	1158 00 7		293	AVL 60 FS	13565 / St / FS	6960262	6208 77 0		255
2056U M 16 FT	12-16 / St / FT	5498315	1158 01 5		288	AVL 60 FS	13565 / St / FS	6960262	6208 77 0		276
2056U M 16 FT	12-16 / St / FT	5498315	1158 01 5		293						
2056U M 22 FT	16-22 / St / FT	5498377	1158 02 3		288						
2056U M 22 FT	16-22 / St / FT	5498377	1158 02 3		293	AW 15 11 FT	11050 / St / FT	6207077	6420 65 6		280
2056U M 28 FT	22-28 / St / FT	5498438	1158 03 1		288	AW 15 16 FT	16055 / St / FT	6207138	6420 66 4		237
2056U M 28 FT	22-28 / St / FT	5498438	1158 03 1		293	AW 15 21 FT	21060 / St / FT	6207190	6420 68 0		260
2056U M 34 FT	28-34 / St / FT	5498490	1158 05 8		288	AW 15 21 FT	21060 / St / FT	6207190	6420 68 0		237
2056U M 34 FT	28-34 / St / FT	5498490	1158 05 8		293	AW 15 21 FT	21060 / St / FT	6207190	6420 68 0		280
2056U M 40 FT	34-40 / St / FT	5498551	1158 06 6		288	AW 15 31 FT	31065 / St / FT	6207251	6420 71 0		260
2056U M 40 FT	34-40 / St / FT	5498551	1158 06 6		293	AW 15 31 FT	31065 / St / FT	6207251	6420 71 0		237
2056U M 46 FT	40-46 / St / FT	5498612	1158 07 4		288	AW 15 31 FT	31065 / St / FT	6207251	6420 71 0		280
2056U M 46 FT	40-46 / St / FT	5498612	1158 07 4		293	AW 15 41 FT	41070 / St / FT	6207312	6420 74 5		260
2056U M 52 FT	46-52 / St / FT	5498674	1158 08 2		288	AW 15 41 FT	41070 / St / FT	6207312	6420 74 5		237
2056U M 52 FT	46-52 / St / FT	5498674	1158 08 2		293	AW 15 41 FT	41070 / St / FT	6207312	6420 74 5		280
2056U M 58 FT	52-58 / St / FT	5498735	1158 09 0		288						
2056U M 58 FT	52-58 / St / FT	5498735	1158 09 0		293	AW 30 11 FT	11060 / St / FT	6206599	6419 70 4		260
2056U M 64 FT	58-64 / St / FT	5498797	1158 10 4		288	AW 30 21 FT	21070 / St / FT	6206711	6419 72 0		260
2056U M 64 FT	58-64 / St / FT	5498797	1158 10 4		293	AW 30 21 FT	21070 / St / FT	6206711	6419 72 0		280
2056U M 70 FT	64-70 / St / FT	5498858	1158 11 2		288	AW 30 31 FT	31080 / St / FT	6206773	6419 74 7		260
2056U M 70 FT	64-70 / St / FT	5498858	1158 11 2		293	AW 30 31 FT	31080 / St / FT	6206773	6419 74 7		280
2056U M 76 FT	70-76 / St / FT	5498919	1158 12 0		288	AW 30 41 FT	41080 / St / FT	6206834	6419 76 3		260
2056U M 76 FT	70-76 / St / FT	5498919	1158 12 0		293	AW 30 41 FT	41080 / St / FT	6206834	6419 76 3		280
						AW 30 51 FT	51090 / St / FT	6206896	6419 79 8		260
2058 LW 10	6-10 8-12 / St / FS	5082033	1195 79 4		294						
2058 LW 14	10-14 12-16 / St / FS	5082095	1195 80 8		294						
2058 LW 20	14-20 16-22 / St / FS	5082156	1195 81 6		294	AW 55 21 FT	21090 / St / FT	6204731	6418 55 4		260
2058 LW 26	20-26 22-28 / St / FS	5082217	1195 82 4		294	AW 55 31 FT	310110 / St / FT	6204793	6418 57 0		260
2058 LW 32	26-32 28-34 / St / FS	5082279	1195 83 2		294	AW 55 41 FT	410130 / St / FT	6204854	6418 59 7		260
2058 LW 38	32-38 34-40 / St / FS	5082330	1195 84 0		294						
2058 LW 44	38-44 40-46 / St / FS	5082392	1195 85 9		294	AW G 15 21 FT	21060 / St / FT	6662531	6420 60 8		260
2058 LW 50	44-50 46-52 / St / FS	5082453	1195 86 7		294	AW G 15 31 FT	31065 / St / FT	6662593	6420 61 0		260
2058 LW 56	50-56 52-58 / St / FS	5082514	1195 87 5		294	AW G 15 41 FT	41070 / St / FT	6662654	6420 61 2		260
2058 LW 62	56-62 58-64 / St / FS	5237853	1195 88 3		294						
2068 L 2M FT	2000 1,5 / St / FT	5047599	1119 65 6		292	AW30F21 FT	210 / St / FT	6650590	6417 02 7		215
						AW30F21 FT	210 / St / FT	6650590	6417 02 7		280
						AW30F31 FT	310 / St / FT	6650651	6417 04 3		215
						AW30F31 FT	310 / St / FT	6650651	6417 04 3		280
						AW30F41 FT	410 / St / FT	6650712	6417 07 8		215
						AW30F41 FT	410 / St / FT	6650712	6417 07 8		280
						AW30F51 FT	510 / St / FT	6650774	6417 09 4		215
						AW30F61 FT	610 / St / FT	6650835	6417 11 6		215
2078 M10 1M G	M10 10 / St / G	5253396	3141 20 9		227						
2078 M10 1M G	M10 10 / St / G	5253396	3141 20 9		238	BEB 100 DD	100 / St / DD	6983728	7083 61 8		252
2078 M10 1M G	M10 10 / St / G	5253396	3141 20 9		240						
2078 M10 1M G	M10 10 / St / G	5253396	3141 20 9		261						
2078 M10 1M G	M10 10 / St / G	5253396	3141 20 9		280						
2078 M12 1M G	M12 12 / St / G	5253457	3141 30 6		215						
2078 M12 1M G	M12 12 / St / G	5253457	3141 30 6		261	BEB 100 FS	100 / St / FS	6231072	7083 10 6		252
2078 M12 1M G	M12 12 / St / G	5253457	3141 30 6		280	BEB 100 FS	100 / St / FS	6231072	7083 10 6		274
2078 M6 1M G	M66 / St / G	5253211	3141 04 7		179	BEB 100 FS	100 / St / FS	6231072	7083 10 6		212
2078 M6 1M G	M66 / St / G	5253211	3141 04 7		185						
2078 M6 1M G	M66 / St / G	5253211	3141 04 7		202						

# Type listing

Structure of the GTIN: Country code **40** Manufacturer code **1219** Individual GTIN **5647589**

Type	Dimensions/Colour/Div.	GTIN	Art. no.	Price	Page	Type	Dimensions/Colour/Div.	GTIN	Art. no.	Price	Page
BEB 100 VA4301	100/ v2A	6232031	7084 01 3	/pc.	266	BSKH-FT090511	50110	5084341	7215 63 5	/pc.	234
BEB 100 VA4571	100/ v4A	5866336	7084 14 1		266	BSKH-FT090521	50210	5084358	7215 63 9		234
BEB 200 DD	200/ st / DD	6982943	7083 62 6		252	BSKH-FT091016	105160	5084365	7215 64 3		235
BEB 200 FS	200/ st / FS	6231195	7083 20 3		252	BSKH-FT091026	105260	5084396	7215 64 7		235
BEB 200 FS	200/ st / FS	6231195	7083 20 3		274	BSKH-G	/ St / FS	5077923	7215 39 5		238
BEB 200 FS	200/ st / FS	6231195	7083 20 3		212	BSKH-K0506		5077930	7215 57 0		234
BEB 200 FS	200/ st / FS	6231195	7083 20 3		212	BSKH-K0511		5077947	7215 57 4		234
BEB 200 VA4301	200/ v2A	6232093	7084 04 8		266	BSKH-K0521		5077978	7215 57 8		234
BEB 200 VA4571	200/ v4A	5866343	7084 14 3		266	BSKH-K1016		5077985	7215 58 2		235
BEB 300 DD	300/ st / DD	6982882	7083 63 0		252	BSKH-K1026		5077992	7215 58 6		235
BEB 300 FS	300/ st / FS	6231256	7083 30 0		252	BSKH-S6030	/ St / GTP	5850069	3498 10 0	/100 pc.	238
BEB 300 FS	300/ st / FS	6231256	7083 30 0		274						
BEB 300 FS	300/ st / FS	6231256	7083 30 0		212						
BEB 300 VA4301	300/ v2A	6232154	7084 06 4		266	BSKH-V050	5855/ St / FS	5077879	7215 38 1	/pc.	236
BEB 300 VA4571	300/ v4A	5866350	7084 14 5		266	BSKH-V052	9055/ St / FS	5077886	7215 38 5		236
BEB 400 DD	400/ st / DD	6024254	7083 63 4		252	BSKH-V101	90112/ St / FS	5077916	7215 38 9		236
BEB 400 FS	400/ st / FS	6231317	7083 40 8		252	BSK-K0506		6025923	7215 53 3		228
BEB 400 FS	400/ st / FS	6231317	7083 40 8		212	BSK-K0511		6026043	7215 53 7		228
BEB 500 FS	500/ st / FS	6231379	7083 50 5		212	BSK-K0521		6026166	7215 54 1		228
BEB 600 FS	600/ st / FS	6231492	7083 60 2		212	BSK-K1016		6026289	7215 54 5		228
						BSK-K1026		6026401	7215 54 9		228
						BSK-M		6888214	7215 50 0		233
						BSK-M		6888214	7215 50 0		236
BSB FT	/ St / FT	6204311	6418 19 8		215	BSK-M		6888214	7215 50 0		242
BSB FT	/ St / FT	6204311	6418 19 8		260						
BSB FT	/ St / FT	6204311	6418 19 8		280						
						BSKM 0711	70110/ St / FS	5917229	7216 30 0	/m	220
						BSKM 1025	100250/ St / FS	5917236	7216 40 0	/pc.	223
BSK 090506	5060	6024834	7215 15 0	/m	228	BSKM-AD 0711	/ St / FS	5917250	7216 31 5		220
BSK 090511	50110	6024957	7215 15 4		228	BSKM-AD 1025	/ St / FS	5917458	7216 41 5		223
BSK 090521	50210	6025077	7215 15 8		228	BSKM-AE 0711	/ St / FS	5917274	7216 32 0		220
BSK 091016	105160	6025190	7215 16 2		228	BSKM-AE 1025	/ St / FS	5917465	7216 42 0		223
BSK 091026	105260	6025312	7215 16 6		228	BSKM-BD 0711	/ St / FS	5917397	7216 37 2		222
BSK 120506	5060	6645794	7215 21 0		230	BSKM-BD 1025	/ St / FS	5917656	7216 47 2		225
BSK 120511	50110	6645855	7215 21 6		230	BSKM-BW 0711	/ St / FS	5917380	7216 37 0		222
BSK 120521	50210	6887477	7215 22 2		230	BSKM-BW 1025	/ St / FS	5917649	7216 47 0		225
BSK 121016	105160	6887538	7215 22 8		230	BSKM-DS 1025	/ St / FS	5917663	7216 47 4		225
BSK 121026	105260	6887590	7215 23 4		230	BSKM-EF 0711	/ St / FS	5917335	7216 35 5		221
						BSKM-EF 1025	/ St / FS	5917625	7216 45 5		224
						BSKM-ES 0711	/ St / FS	5917328	7216 35 0		221
BSK-A0908	8040	6779055	7215 45 2	/pc.	229	BSKM-ES 1025	/ St / FS	5917588	7216 45 0		224
BSK-A0908	8040	6779055	7215 45 2		235	BSKM-FW 0711	/ St / FS	5917281	7216 33 0		221
BSK-A0910	10060	6779116	7215 45 8		229	BSKM-FW 1025	/ St / FS	5917540	7216 43 0		224
BSK-A0910	10060	6779116	7215 45 8		235	BSKM-GA 0711	/ St / FS	5917267	7216 32 5		221
						BSKM-GA 1025	/ St / FS	5917496	7216 42 5		224
BSK-B0511	4618/ st / FS	6896356	7215 35 6	/100 pc.	231	BSKM-GF 0711	/ St / FS	5917298	7216 33 5		221
BSK-B0521	4618/ st / FS	6896417	7215 36 2		231	BSKM-GF 1025	/ St / FS	5917557	7216 43 5		224
BSK-B1016	10169/ st / FS	6896479	7215 36 8		231	BSKM-GI 0711	/ St / FS	5917311	7216 34 5		221
BSK-B1026	10169/ st / FS	6896530	7215 37 4		231	BSKM-GI 1025	/ St / FS	5917571	7216 44 5		224
						BSKM-GW 0711	/ St / FS	5917434	7216 38 5		222
BSK-D0930	5 x 3015	6025558	7215 42 3	/pc.	229	BSKM-GW 1025	/ St / FS	5917687	7216 48 5		225
BSK-D0930	5 x 3015	6025558	7215 42 3		235	BSKM-HE 0711	/ St / FS	5917304	7216 34 0		221
BSK-D1260	5 x 6015	6645978	7215 43 2		230	BSKM-HE 1025	/ St / FS	5917564	7216 44 0		224
BSK-E090506	12095	5430360	7215 25 0		228						
BSK-E090511	17095	5430384	7215 25 2		228						
BSK-E090521	27095	5430391	7215 25 4		228	BSKM-S4010	/ St / G	5917694	3498 09 4	/100 pc.	220
BSK-E091016	220150	5430407	7215 25 6		228	BSKM-S4010	/ St / G	5917694	3498 09 4		223
BSK-E091026	320150	5430414	7215 25 8		228						
BSK-E120506	180130	5430421	7215 27 0		230						
BSK-E120511	230130	5430438	7215 27 2		230	BSKM-VD 0711	/ St / FS	5917243	7216 31 0	/pc.	220
BSK-E120521	330130	5430445	7215 27 4		230	BSKM-VD 1025	/ St / FS	5917441	7216 41 0		223
BSK-E121016	280185	5430476	7215 27 6		230	BSKM-VE 0711	/ St / FS	5925613	7216 31 2		220
BSK-E121026	380185	5430483	7215 27 8		230	BSKM-VE 1025	/ St / FS	5925620	7216 41 2		223
						BSKM-VK 0711	/ St / FS	5917342	7216 36 0		222
						BSKM-VK 1025	/ St / FS	5917632	7216 46 0		225
BSKH 090506	5060	5077800	7215 17 3	/m	234	BSKM-WA 0711	/ St / FS	5917403	7216 38 0		222
BSKH 090511	50110	5077817	7215 17 7		234	BSKM-WA 1025	/ St / FS	5917670	7216 48 0		225
BSKH 090521	50210	5077824	7215 18 1		234						
BSKH 091016	105160	5077855	7215 18 5		234						
BSKH 091026	105260	5077862	7215 18 9		234	BSKP 0406	4060	5918868	7214 70 0	/m	240
BSKH-E090506	120110	5430490	7215 59 0	/pc.	234	BSKP-D0320	20 x 5 1000	5918875	7214 71 0	/pc.	240
BSKH-E090511	170110	5430506	7215 59 2		234	BSKP-E0406	10080	5953937	7214 70 5		240
BSKH-E090521	270110	5430537	7215 59 4		234						
BSKH-E091016	220165	5430544	7215 59 6		235						
BSKH-E091026	320165	5430551	7215 59 8		235	BSKP-S5016	/ St / GTP	5918905	3498 09 6	/100 pc.	232
BSKH-FB090506	5060	5084242	7215 60 2		234	BSKP-S5016	/ St / GTP	5918905	3498 09 6		241
BSKH-FB090511	50110	5084273	7215 60 6		234	BSKP-S5020	/ St / GTP	5918912	3498 09 8		240
BSKH-FB090521	50210	5084280	7215 61 0		234	BSKP-S5020	/ St / GTP	5918912	3498 09 8		232
BSKH-FB091016	105160	5084297	7215 61 4		235						
BSKH-FB091026	105260	5084303	7215 61 8		235						
BSKH-FT090506	5060	5084334	7215 63 1		234	BSKP-V 0406	/ St / FS	5918882	7214 71 5	/pc.	240

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Type	Dimensions/Colour/Div.	GTIN	Art. no.	Price	Page	Type	Dimensions/Colour/Div.	GTIN	Art. no.	Price	Page
BSK-S0955	4.0 x 55/ St / G	6887651	7215 40 0	/100 pc.	229	DRL 100 DD	1000,75/ ST / DD	6038770	6052 70 3	/m	251
BSK-S0955	4.0 x 55/ St / G	6887651	7215 40 0		240						
BSK-S1280	4.5 x 80/ St / G	6887774	7215 41 2		230	DRL 100 FS	1000,75/ St / FS	6057979	6052 09 6		251
BSK-W0511	4637,5/ St / FS	6896110	7215 31 2		231						
BSK-W0521	4662,5/ St / FS	6896172	7215 31 8		231	DRL 100 VA4301	100 1/ V2A	6058877	6052 87 8		265
BSK-W1016	10150/ St / FS	6896233	7215 32 4		231	DRL 100 VA4571	100/ V4A	5675679	6052 98 0		265
BSK-W1026	10175/ St / FS	6896295	7215 33 0		231	DRL 200 DD	200 1/ ST / DD	6038893	6052 70 9		251
						DRL 200 FS	200 1/ St / FS	6058150	6052 20 7		251
BW 80 55 FT	/ St / FT	6014538	6019 52 8	/pc.	286	DRL 200 VA4301	200 1/ V2A	6058938	6052 89 4		265
						DRL 200 VA4571	200/ V4A	5866169	6052 98 1		265
						DRL 300 DD	300 1/ ST / DD	6038954	6052 71 2		251
CPS 4L 2M FT	40 x 22,5/ ST / FT	5050230	1121 97 9	/100 m	292	DRL 300 FS	300 1/ St / FS	6058273	6052 30 4		251
						DRL 300 VA4301	300 1/ V2A	6058990	6052 90 8		265
						DRL 300 VA4571	300/ V4A	6955817	6052 98 3		265
						DRL 400 DD	400 1/ ST / DD	6039012	6052 71 5		251
DFAAM 100 DD	100 1,25/ St / DD	5930655	7138 68 0	/pc.	251						
DFAAM 100 FS	100 1,25/ St / FS	5930587	7138 64 0		251						
DFAAM 100 V2A	100 1,25/ V2A	5930723	7138 72 0		266	DRL 400 FS	400 1/ St / FS	6058396	6052 40 1		251
DFAAM 100 V4A	100 1,25/ V4A	5930815	7138 74 0		266						
DFAAM 200 DD	200 1,25/ St / DD	5930679	7138 68 4		251						
DFAAM 200 FS	200 1,25/ St / FS	5930600	7138 64 4		251	DRLU 100 DD	1000,75/ ST / DD	6657551	6052 64 3		251
DFAAM 200 V2A	200 1,25/ V2A	5930761	7138 72 4		266						
DFAAM 200 V4A	200 1,25/ V4A	5930839	7138 74 4		266	DRLU 100 FS	1000,75/ St / FS	6029716	6052 10 3		251
DFAAM 300 DD	300 1,25/ St / DD	5930686	7138 68 6		251						
DFAAM 300 FS	300 1,25/ St / FS	5930617	7138 64 6		251	DRLU 100 VA4301	100 1/ V2A	6031931	6052 82 4		265
DFAAM 300 V2A	300 1,25/ V2A	5930778	7138 72 6		266	DRLU 100 VA4571	100 1/ V4A	5021124	6052 99 1		265
DFAAM 300 V4A	300 1,25/ V4A	5930846	7138 74 6		266	DRLU 200 DD	200 1/ ST / DD	6657674	6052 65 0		251
DFAAM 400 DD	400 1,25/ St / DD	5930693	7138 68 8		251						
DFAAM 400 FS	400 1,25/ St / FS	5930624	7138 64 8		251	DRLU 200 FS	200 1/ St / FS	6030071	6052 21 0		253
						DRLU 200 FS	200 1/ St / FS	6030071	6052 21 0		251
DFBM 45 100 V2A	100 1,25/ V2A	5928942	7138 43 0		265						
DFBM 45 100 V4A	100 1,25/ V4A	5929017	7138 45 0		265	DRLU 200 VA4301	200 1/ V2A	6032051	6052 83 1		265
DFBM 45 200 V2A	200 1,25/ V2A	5928966	7138 43 4		265	DRLU 200 VA4571	200 1/ V4A	5021155	6052 99 3		265
DFBM 45 200 V4A	200 1,25/ V4A	5929031	7138 45 4		265	DRLU 300 DD	300 1/ ST / DD	6336678	6052 65 6		251
DFBM 45 300 V2A	300 1,25/ V2A	5928973	7138 43 6		265						
DFBM 45 300 V4A	300 1,25/ V4A	5929048	7138 45 6		265	DRLU 300 FS	300 1/ St / FS	6031399	6052 30 7		253
DFBM 90 100 DD	100 1,25/ St / DD	5929192	7138 54 0		251	DRLU 300 FS	300 1/ St / FS	6031399	6052 30 7		251
DFBM 90 100 FS	100 1,25/ St / FS	5929093	7138 50 0		251						
DFBM 90 100 V2A	100 1,25/ V2A	5929260	7138 57 0		265	DRLU 300 VA4301	300 1/ V2A	6032174	6052 83 4		267
DFBM 90 100 V4A	100 1,25/ V4A	5929338	7138 59 0		265	DRLU 300 VA4301	300 1/ V2A	6032174	6052 83 4		265
DFBM 90 200 DD	200 1,25/ St / DD	5929215	7138 54 4		251	DRLU 300 VA4571	300 1/ V4A	5021162	6052 99 4		265
DFBM 90 200 FS	200 1,25/ St / FS	5929116	7138 50 4		251	DRLU 300 VA4571	300 1/ V4A	5021162	6052 99 4		267
DFBM 90 200 V2A	200 1,25/ V2A	5929284	7138 57 4		265	DRLU 400 DD	400 1/ ST / DD	6336739	6052 66 2		251
DFBM 90 200 V4A	200 1,25/ V4A	5929352	7138 59 4		265						
DFBM 90 300 DD	300 1,25/ St / DD	5929222	7138 54 6		251	DRLU 400 FS	400 1/ St / FS	6031511	6052 40 5		253
DFBM 90 300 FS	300 1,25/ St / FS	5929123	7138 50 6		251	DRLU 400 FS	400 1/ St / FS	6031511	6052 40 5		251
DFBM 90 300 V2A	300 1,25/ V2A	5929291	7138 57 6		265						
DFBM 90 300 V4A	300 1,25/ V4A	5929369	7138 59 6		265						
DFBM 90 400 DD	400 1,25/ St / DD	5929239	7138 54 8		251						
DFBM 90 400 FS	400 1,25/ St / FS	5929130	7138 50 8		251	DSK 25 FT	/ St / FT	6229277	6416 44 6	/pc.	237
						DSK 45 FT	/ St / FT	6202812	6416 50 0		215
						DSK 45 FT	/ St / FT	6202812	6416 50 0		259
						DSK 45 FT	/ St / FT	6202812	6416 50 0		279
DIN 934 M10 G	M10 10/ ST / G	5298212	3400 10 7	/100 pc.	227	DSK 47 FT	/ St / FT	6894253	6416 50 4		259
DIN 934 M10 G	M10 10/ ST / G	5298212	3400 10 7		238	DSK 47 FT	/ St / FT	6894253	6416 50 4		279
DIN 934 M10 G	M10 10/ ST / G	5298212	3400 10 7		241	DSK 61 FT	/ St / FT	6202874	6416 51 9		260
DIN 934 M10 G	M10 10/ ST / G	5298212	3400 10 7		263						
DIN 934 M10 G	M10 10/ ST / G	5298212	3400 10 7		282						
DIN 934 M12 G	M12 12/ ST / G	5298274	3400 12 3		217	DSX-E	5850144	7202 30 2			178
DIN 934 M12 G	M12 12/ ST / G	5298274	3400 12 3		263	DSX-E	5850144	7202 30 2			206
DIN 934 M12 G	M12 12/ ST / G	5298274	3400 12 3		282	DSX-K	5850137	7202 30 0			178
DIN 934 M6 G	M6 6/ ST / G	5298090	3400 06 9		179	DSX-K	5850137	7202 30 0			202
DIN 934 M6 G	M6 6/ ST / G	5298090	3400 06 9		185	DSX-K	5850137	7202 30 0			206
DIN 934 M6 G	M6 6/ ST / G	5298090	3400 06 9		203						
DIN 934 M8 G	M8 8/ ST / G	5298151	3400 08 5		282						
DIN 934 M8 G	M8 8/ ST / G	5298151	3400 08 5		179						
DIN 934 M8 G	M8 8/ ST / G	5298151	3400 08 5		185	FAZ II 10 10 GS	M1095/ ST / G	5888499	3498 54 9	/100 pc.	312
DIN 934 M8 G	M8 8/ ST / G	5298151	3400 08 5		203	FAZ II 10 10CV5A	M1095/ V5A	5802730	3498 55 4		313
						FAZ II 10 30	M10 115/ ST / G	5888550	3498 58 1		312
DIN440 11 F	34-34 11/ St / F	6480074	6408 72 9		262	FAZ II 10/10GS V	M 1095/ V4A	5692713	3498 82 4		313
DIN440 11 F	34-34 11/ St / F	6480074	6408 72 9		282	FAZ II 10/50 V4A	M10 135/ V4A	5688808	3498 83 5		313
DIN440 14 F	44-44 13,5/ St / F	6480135	6408 73 7		217	FAZ II 12 10	M12 110/ ST / G	5888611	3498 65 4		312
DIN440 14 F	44-44 13,5/ St / F	6480135	6408 73 7		262	FAZ II 12/10 VA	M12 110/ V4A	5692652	3498 85 9		313
DIN440 7 F	22-22 6,6/ St / F	6479955	6408 70 2		217	FAZ II 8 10 GS	M875/ ST / G	5888437	3498 50 6		203
DIN440 7 F	22-22 6,6/ St / F	6479955	6408 70 2		282	FAZ II 8 30 GS	M897/ St / G	5504252	3498 48 4		312
DIN440 7 F	22-22 6,6/ St / F	6479955	6408 70 2		294	FAZ II 810VA4401	M875/ V4A	5706076	3498 50 9		313
						FAZ II 830VA4401	M895/ V4A	5706069	3498 48 7		313
DKU 60 VA4310	/ V2A	6441372	6065 60 0		251						
DKU 60 VA4310	/ V2A	6441372	6065 60 0		254						
DKU 60 VA4310	/ V2A	6441372	6065 60 0		265	FBA-B120	250 x 120 x 80	5428213	7202 50 8	/pc.	196
DKU 60 VA4310	/ V2A	6441372	6065 60 0		267	FBA-B200	200 x 120 x 60	5428206	7202 50 6		196
						FBA-BV200	200 x 120 x 25	5428220	7202 51 6		196

# Type listing

Structure of the GTIN: Country code **40** Manufacturer code **1219** Individual GTIN **5647589**

Type	Dimensions/Colour/Div.	GTIN	Art. no.	Price	Page	Type	Dimensions/Colour/Div.	GTIN	Art. no.	Price	Page
FBA-D100	100	6142811	7202 62 4	/pc.	197	FSB-SB	15/ St	5693437	7203 13 0	/pc.	247
FBA-D150	150	6142934	7202 62 8		197					/100 pc.	
FBA-DR100	100	5428336	7202 61 3		197	FSB-SC	1634/ V2A	5726425	7203 13 4		247
FBA-DR150	150	5428343	7202 61 7		197	FSB-SV	2624/ St	5693444	7203 13 2		247
FBA-F	200 x 200 x 100	6144013	7202 66 0		196					/pc.	
FBA-S107	107 117	6142330	7202 55 9		196	FSB-WB	110020000	5706434	7203 16 0		246
FBA-S122	122 132	6142392	7202 56 3		196						
FBA-S134	134 144	6142453	7202 56 7		196						
FBA-S165	165 175	6142514	7202 57 1		196					/100 pc.	
FBA-S200	200 210	6142576	7202 57 5		196	FZEA II 10X40 G	M8 10/ ST / G	5454038	3492 03 6		312
FBA-S250	250 260	6142637	7202 57 9		196	FZEA II 10X40 VA	M8 10/ V4A	5025177	3492 14 5		313
FBA-S65	65 75	6142217	7202 55 1		196	FZEA II 12X40 G	M10 12/ ST / G	5454090	3492 06 0		312
FBA-S78	78 87	6142279	7202 55 5		196	FZEA II 12X40 VA	M10 12/ V4A	5025184	3492 15 0		313
FBA-SP		5428190	7202 32 2		197	FZEA II 14X40 G	M12 14/ ST / G	5454151	3492 09 5		312
FBA-SR	140	6142699	7202 58 6		196	FZEA II 14X40V4A	M12 14/ V4A	5909835	3492 09 7		313
FBA-WI	150 5000	5428275	7202 51 0		188	FZEA II 12x40CV5A	M10 12/ V5A	5802679	3492 17 2		313
FBA-WI	150 5000	5428275	7202 51 0		197						
FBS-EA		5817567	7203 81 5		188	FZED 10X40 G	/ ST / G	5454212	3492 62 1	/pc.	312
FBS-K		5817543	7203 80 9		188	FZED 12X40 G	/ ST / G	5454274	3492 66 4		312
FBS-M		5817505	7203 80 3		188	FZED 14X40 G	/ ST / G	5454335	3492 69 9		312
FBS-PA		5817550	7203 81 2		188						
FBS-PH		5817536	7203 80 6		188	FZUB 10X40	10/ ST	5454397	3492 33 8		312
FBS-S		5817499	7203 80 0		188	FZUB 12X40	12/ ST	5454458	3492 36 2		312
						FZUB 14X40	14/ ST	5454519	3492 39 7		312
FHY M10	M10 16/ St / G	5599111	3498 76 4	/100 pc.	312					/m	
FHY M8	M8 12-12 / St / G	5598930	3498 76 0		312	G-GRM 125 75 G	75 125/ St / G	5686453	6005 54 1		214
						G-GRM 150 100 G	100 155/ St / G	5686460	6005 54 4		214
FIS A M6X70	706/ St / G	5437376	3488 29 2		314	G-GRM 50 50 G	5555/ St / G	5686439	6005 53 5		214
FIS A M8X90	908/ St / G	5437383	3488 29 8		314	G-GRM 75 50 G	5373/ St / G	5686446	6005 53 8		214
FIS DMS	Red	5318910	3488 52 7	/pc.	314					/pc.	
FIS H 12X50 K	1250/ PP	5437437	3488 45 2	/100 pc.	314	G-GRM-SH 4401	/ V4A	5938699	6005 65 0		214
FIS H 12X85 K	1285/ PP	5437444	3488 46 4		314						
FIS H 16X85 K	1675/ PP	5714255	3488 46 2		314	GKS 34 G	/ ST / G	7261436	6016 85 5		213
						GKS 34 G	/ ST / G	7261436	6016 85 5		253
FIS PBB	15/ St	5437499	3488 52 5	/pc.	314	GKS 34 VA4301	/ V2A	6013456	6016 83 9		267
				/100 pc.		GKS 34 VA4401 SP	/ V4A	6120437	6016 85 9		267
FIS PBZ	15/ PP	5437468	3488 51 5		314						
FIS V 360 S		5319276	3488 40 3	/pc.	314	GKT 38 VA4301	/ V2A	6013579	6017 04 5		269
						GKT 38 VA4401 SP	/ V4A	6120499	6017 09 2		269
FNA II 6X30 M6/5	M6/ ST / G	5461890	3498 42 5	/100 pc.	203					/100 pc.	
FNA II 6X30 M6/5	M6/ ST / G	5461890	3498 42 5		312	GMH18 M6 G	6-6 / ST / G	5054559	1146 50 5		294
FNA II 6x30 M6/5	M6/ V5A	5784715	3498 42 6		313						
FNA II 6X30/5	6/ St / G	5693192	3498 46 8		304						
FNA II 6X30/5	6/ St / G	5693192	3498 46 8		312	GR KS 3.9 OR	3,9Pastel orange/ PE	5872887	6003 75 0		213
FNA II 6x30/5	6/ V5A	5784722	3498 46 9		313	GR KS 3.9 OR	3,9Pastel orange/ PE	5872887	6003 75 0		214
						GR KS 4.8 OR	4,8Pastel orange/ PE	5872894	6003 75 4		253
						GR KS 4.8 OR	4,8Pastel orange/ PE	5872894	6003 75 4		267
						GR KS 4.8 OR	4,8Pastel orange/ PE	5872894	6003 75 4		213
FRS 10X25 F	M1025/ St / F	6201792	6407 52 8		262						
FRS 10X25 F	M1025/ St / F	6201792	6407 52 8		281						
FRS 10X25 F 8.8	M1025/ St / F	6201914	6407 56 0		287					/m	
						GRM 55 100 G	100 3,9/ St / G	6858552	6001 44 2		213
FRS 10X25 F TPS	M1025/ St / F	6201853	6407 53 6		281	GRM 55 200 4.8 G	200 4,8/ St / G	5045274	6001 44 7		253
						GRM 55 200 G	200 3,9/ St / G	6858613	6001 44 6		213
FRS 12X25 F	M1225/ St / F	6200054	6406 25 4		281	GRM 55 300 G	300 4,8/ St / G	6858675	6001 44 8		253
FRS 12X25 F	M1225/ St / F	6200054	6406 25 4		287	GRM 55 300 G	300 4,8/ St / G	6858675	6001 44 8		213
FRS 6X12 VA4301	M6 12/ V2A	6200238	6406 52 1		270	GRM 55 300VA4301	300 4,8/ V2A	6101771	6001 07 8		267
FRS 6X16 VA4301	M6 15/ V2A	6200290	6406 55 6		270	GRM 55 300VA4401	300 4,8/ V4A	5166078	6001 09 3		267
FRS 8X16 F 8.8	M8 16/ St / F	6201259	6406 96 3		287	GRM 55 400 G	400 4,8/ St / G	6858736	6001 45 0		253
FRS 8X35 F	M8 35/ St / F	6201433	6407 04 8		287	GRM 55 400 G	400 4,8/ St / G	6858736	6001 45 0		213
FRSB 6X12 F	M6 12/ St / F	6199815	6406 12 2		217	GSV 34 G	/ St / G	6520510	6016 59 6	/pc.	213
FRSB 6X12 F	M6 12/ St / F	6199815	6406 12 2		262	GSV 34 G	/ St / G	6520510	6016 59 6		253
FRSB 6X12 F	M6 12/ St / F	6199815	6406 12 2		281	GSV 34 VA4301	/ V2A	6013210	6016 64 2		267
						GSV 34 VA4401	/ V4A	6120079	6016 64 8		267
FRSB 6X12 VA4401	M6 12/ V4A	6078370	6406 14 2		270						
FRSB 6X15 F	M6 16/ St / F	6199877	6406 15 7		217						
FRSB 6X15 F	M6 16/ St / F	6199877	6406 15 7		262						
FRSB 6X15 F	M6 16/ St / F	6199877	6406 15 7		281	HMS-KS5X50	5 x 504/ ST / G	5964100	3498 20 4	/100 pc.	315
FRSB 6X16 VA4401	M6 16/ V4A	6078431	6406 19 3		270						
FRSB 6X20 F	M6 20/ St / F	6199990	6406 20 3		217						
FRSB 6X20 F	M6 20/ St / F	6199990	6406 20 3		262						
FRSB 6X20 F	M6 20/ St / F	6199990	6406 20 3		281	K 12 1818 FS	/ ST / FS	6208876	6437 10 9	/pc.	214
						KAB GR FS	/ St / FS	5677932	6220 13 9		254
FSB-BS	1100 10000	5448235	7202 26 5	/pc.	246	KAB GR VA 1.4301	/ V2A	5807155	6220 14 5		268
FSB-K32	550 380	5921851	7203 15 0		246						
FSB-K82	550 880	5921868	7203 15 4		246	KBK-1	120 10	6460991	7202 70 9		192

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Type	Dimensions/Colour/Div.	GTIN	Art. no.	Price	Page	Type	Dimensions/Colour/Div.	GTIN	Art. no.	Price	Page
KBK-2	17023	6460878	7202 72 5	/pc.	192	KTSMV 620 VA4301	60200/ V2A	5889595	6068 96 2	/pc.	264
KBK-3	17040	6460755	7202 74 1		192	KTSMV 620 VA4571	60200/ V4A	5889663	6068 98 4		264
						KTSMV 630 DD	60300/ St / DD	5890522	6068 94 2		250
				/100 pc.		KTSMV 630 FS	60300/ St / FS	5889533	6068 92 0		211
KS GR VA4310	/ V2A	5694625	6062 28 2		217	KTSMV 630 FS	60300/ St / FS	5889533	6068 92 0		250
KS GR VA4310	/ V2A	5694625	6062 28 2		261						
KS GR VA4310	/ V2A	5694625	6062 28 2		269	KTSMV 630 VA4301	60300/ V2A	5889601	6068 96 4		264
						KTSMV 630 VA4571	60300/ V4A	5889670	6068 98 6		264
KS KL VA4310	/ V2A	5694656	6062 28 4		262	KTSMV 640 DD	60400/ St / DD	5890560	6068 94 4		250
KS KL VA4310	/ V2A	5694656	6062 28 4		281						
KS KR VA4310	/ V2A	5694618	6062 28 0		216	KTSMV 640 FS	60400/ St / FS	5889540	6068 92 2		211
KS KR VA4310	/ V2A	5694618	6062 28 0		261	KTSMV 640 FS	60400/ St / FS	5889540	6068 92 2		250
KS KR VA4310	/ V2A	5694618	6062 28 0		269						
KS KR VA4310	/ V2A	5694618	6062 28 0		281						
				/pc.		KU 3 FT	/ St / FT	6340217	6348 87 4		257
						KU 3 FT	/ St / FT	6340217	6348 87 4		278
KS-BSKP DE		5918899	7214 72 5		242	KU 5 V FT	/ St / FT	6901456	6348 92 0		258
						KU 5 V FT	/ St / FT	6901456	6348 92 0		279
KS-E DE	/ PVC	5847830	7205 42 3		233						
KS-E DE	/ PVC	5847830	7205 42 3		239	KU 7 FT	/ St / FT	6191413	6349 10 2		259
KS-E DE	/ PVC	5847830	7205 42 3		252	KU 7 VQP FT	/ St / FT	6191475	6349 15 3		259
KS-E DE	/ PVC	5847830	7205 42 3		254						
KS-E DE	/ PVC	5847830	7205 42 3		256	KUS 5 FT	/ St / FT	6168910	6348 90 4		258
KS-E DE	/ PVC	5847830	7205 42 3		266	KUS 5 FT	/ St / FT	6168910	6348 90 4		279
KS-E DE	/ PVC	5847830	7205 42 3		268						
KS-E DE	/ PVC	5847830	7205 42 3		275	LAB 20 FT	20045/ St / FT	6163397	6220 43 6		255
KS-E DE	/ PVC	5847830	7205 42 3		277	LAB 20 FT	20045/ St / FT	6163397	6220 43 6		276
KS-E DE	/ PVC	5847830	7205 42 3		288	LAB 30 FT	30045/ St / FT	6163458	6220 44 4		255
KS-E DE	/ PVC	5847830	7205 42 3		294	LAB 30 FT	30045/ St / FT	6163458	6220 44 4		276
KS-E DE	/ PVC	5847830	7205 42 3		296	LAB 40 FT	40045/ St / FT	6163519	6220 45 2		255
KS-E DE	/ PVC	5847830	7205 42 3		300	LAB 40 FT	40045/ St / FT	6163519	6220 45 2		276
KS-E DE	/ PVC	5847830	7205 42 3		302	LAB 50 FT	50045/ St / FT	6163571	6220 46 0		255
KS-E DE	/ PVC	5847830	7205 42 3		305						
KS-E DE	/ PVC	5847830	7205 42 3		309	LALB 20 FT	20045/ St / FT	6166152	6221 85 8		256
						LALB 30 FT	30045/ St / FT	6166213	6221 86 6		256
KS-FSB DE	/ PVC	5811671	7203 14 0		247	LALB 40 FT	40045/ St / FT	6166275	6221 87 4		256
						LALB 50 FT	50045/ St / FT	6166336	6221 88 2		256
KSHP1	500150	5847854	7202 28 3		180						
KSHP1	500150	5847854	7202 28 3		185	LBI 90 620 VS FS	200/ St / FS	6143719	6211 22 4		255
KSHP1	500150	5847854	7202 28 3		189	LBI 90 620 VS FS	200/ St / FS	6143719	6211 22 4		276
KSHP1	500150	5847854	7202 28 3		192	LBI 90 630 VS FS	300/ St / FS	6143771	6211 23 2		255
KSHP1	500150	5847854	7202 28 3		197	LBI 90 630 VS FS	300/ St / FS	6143771	6211 23 2		276
KSHP2	500250	5847861	7202 90 4		180	LBI 90 640 VS FS	400/ St / FS	6143832	6211 24 0		255
KSHP2	500250	5847861	7202 90 4		185	LBI 90 640 VS FS	400/ St / FS	6143832	6211 24 0		276
KSHP2	500250	5847861	7202 90 4		189	LBI 90 650 VS FS	500/ St / FS	6143894	6211 25 9		255
KSHP2	500250	5847861	7202 90 4		192						
KSHP2	500250	5847861	7202 90 4		197					/m	
KSHP3	1000250	5847878	7202 91 2		180	LG 620 VS 6000FS	200/ St / FS	5064251	6208 62 7		286
KSHP3	1000250	5847878	7202 91 2		185	LG 620 VSF6000FS	2006000/ St / FS	5299639	6207 50 1		276
KSHP3	1000250	5847878	7202 91 2		189	LG 630 VS 6000FS	300/ St / FS	5064268	6208 63 0		286
KSHP3	1000250	5847878	7202 91 2		192	LG 630 VSF6000FS	3006000/ St / FS	5299646	6207 50 5		276
KSHP3	1000250	5847878	7202 91 2		197	LG 640 VS 6000FS	400/ St / FS	5064299	6208 63 3		286
						LG 640 VSF6000FS	4006000/ St / FS	5299684	6207 50 9		276
KS-LAR DE	/ PVC	5809647	7205 42 0		206						
										/pc.	
KSR20030	Grey34/ PE	6018710	6249 84 4		303	LKM A60100FS	180/ St / FS	6312979	6248 06 3		304
						LKM E60100FS	10063/ St / FS	6575596	6248 30 6		304
KSR60100	Grey104/ PE	5020325	6249 85 2		304	LKM F60100FS	220/ St / FS	6312559	6248 00 4		304
						LKM I60100FS	180/ St / FS	6313396	6248 14 4		303
						LKM KF 60100	/ St / FS	5685081	6249 88 1		303
KS-S DE		5448259	7205 42 5		180	LKM SV30	53,829,5/ St / G	6118991	6247 43 4		303
KS-S DE		5448259	7205 42 5		185	LKM SV60	7550/ V2A	6315314	6247 46 6		303
KS-S DE		5448259	7205 42 5		189	LKM T60100FS	340220/ St / FS	6317837	6248 20 9		304
KS-S DE		5448259	7205 42 5		192						
KS-S DE		5448259	7205 42 5		198					/m	
KS-S DE		5448259	7205 42 5		203	LKM20030FS	2000/ St / FS	6118878	6246 97 4		303
KS-S DE		5448259	7205 42 5		206						
						LKM60100FS	2000/ St / FS	6312139	6247 11 3		303
KS-ZSE DE	/ PVC	5809654	7215 75 0		289					/pc.	
KS-ZSE DE	/ PVC	5809654	7215 75 0		297						
						LKS 40 FS	/ St / FS	6164530	6221 07 6		255
KTSMV 610 DD	60 100/ St / DD	5890492	6068 93 6		250	LKS 40 FS	/ St / FS	6164530	6221 07 6		276
KTSMV 610 FS	60 100/ St / FS	5889502	6068 91 4		211	LLV 60 FS	60/ St / FS	6139514	6208 80 0		286
KTSMV 610 FS	60 100/ St / FS	5889502	6068 91 4		250						
						LT 620 VS FS	200/ St / FS	6150915	6213 72 3		255
KTSMV 610 VA4301	60 100/ V2A	5889571	6068 95 8		264	LT 620 VS FS	200/ St / FS	6150915	6213 72 3		276
KTSMV 610 VA4571	60 100/ V4A	5889649	6068 98 0		264	LT 630 VS FS	300/ St / FS	6150977	6213 73 1		255
KTSMV 620 DD	60200/ St / DD	5890515	6068 94 0		250	LT 630 VS FS	300/ St / FS	6150977	6213 73 1		276
						LT 640 VS FS	400/ St / FS	6151035	6213 75 8		255
KTSMV 620 FS	60200/ St / FS	5889526	6068 91 8		211	LT 640 VS FS	400/ St / FS	6151035	6213 75 8		276
KTSMV 620 FS	60200/ St / FS	5889526	6068 91 8		250	LT 650 VS FS	500/ St / FS	6151097	6213 76 6		255

# Type listing

Structure of the GTIN: Country code **40** Manufacturer code **1219** Individual GTIN **5647589**

Type	Dimensions/Colour/Div.	GTIN	Art. no.	Price	Page	Type	Dimensions/Colour/Div.	GTIN	Art. no.	Price	Page
MBS 015	7 150/ v2A	5693345	7203 10 0	/100 pc.	246	RAAM 630 FT	300/ St / FT	5878759	6041 25 7	/pc.	250
MBS 030	7 300/ v2A	5693352	7203 10 2		246	RAAM 630 VA4301	300/ v2A	5878827	6041 27 7		264
MBS 045	7 450/ v2A	5693369	7203 10 4		246	RAAM 630 VA4571	300/ v4A	5878926	6041 29 6		264
MBS 061	7 610/ v2A	5693376	7203 10 6		246						
MBS 075	12 750/ v2A	5693383	7203 10 8		246	RAAM 640 FS	400/ St / FS	5878636	6041 23 8		211
MBS 100	12 1000/ v2A	5693390	7203 11 0		246	RAAM 640 FS	400/ St / FS	5878636	6041 23 8		250
MBS 120	12 1200/ v2A	5693406	7203 11 2		246						
MBS 150	12 1500/ v2A	5693413	7203 11 4		246	RAAM 640 FT	400/ St / FT	5878766	6041 25 9		250
MBS-Z	/ St	5693420	7203 12 0	/pc.	246	RAAM 650 FS	500/ St / FS	5878643	6041 24 0		211
						RAAM 660 FS	600/ St / FS	5878681	6041 24 2		211
MIW-S		5918929	7202 30 6		179						
MIW-S		5918929	7202 30 6		185	RBM 45 610VA4301	100/ v2A	5881674	6041 08 0		264
MIW-S		5918929	7202 30 6		202	RBM 45 610VA4571	100/ v4A	5881742	6041 10 0		264
MIW-S		5918929	7202 30 6		206	RBM 45 620VA4301	200/ v2A	5881698	6041 08 4		264
						RBM 45 620VA4571	200/ v4A	5881766	6041 10 4		264
						RBM 45 630VA4301	300/ v2A	5881704	6041 08 6		264
						RBM 45 630VA4571	300/ v4A	5881773	6041 10 6		264
MMS10X100	10 x 1008/ St / G	5964049	3498 15 8	/100 pc.	315						
MMS10X80	10 x 808/ St / G	5963981	3498 12 3		315	RBM 90 610 FS	100/ St / FS	5881810	6041 13 0		211
						RBM 90 610 FS	100/ St / FS	5881810	6041 13 0		250
MMS6X50	6 x 505/ St / GC	5963929	3498 10 7		179	RBM 90 610 FS	100/ St / FS	5881810	6041 13 0		274
MMS6X50	6 x 505/ St / GC	5963929	3498 10 7		203						
MMS6X50	6 x 505/ St / GC	5963929	3498 10 7		304	RBM 90 610 FT	100/ St / FT	5881889	6041 15 0		250
MMS6X50	6 x 505/ St / GC	5963929	3498 10 7		315	RBM 90 610VA4301	100/ v2A	5881957	6041 18 0		264
						RBM 90 610VA4571	100/ v4A	5878407	6041 20 0		264
MMS7.5X80	7.5 x 806/ St / G	5519973	3498 27 1		232						
MMS7.5X80	7.5 x 806/ St / G	5519973	3498 27 1		241	RBM 90 620 FS	200/ St / FS	5881834	6041 13 4		211
MMS7.5X80	7.5 x 806/ St / G	5519973	3498 27 1		315	RBM 90 620 FS	200/ St / FS	5881834	6041 13 4		250
						RBM 90 620 FS	200/ St / FS	5881834	6041 13 4		274
MMS-MS7,5x50	7.5 x 50 17/ St / G	5693178	3498 26 0		179						
MMS-MS7,5x50	7.5 x 50 17/ St / G	5693178	3498 26 0		203	RBM 90 620 FT	200/ St / FT	5881902	6041 15 4		250
MMS-MS7,5x50	7.5 x 50 17/ St / G	5693178	3498 26 0		227	RBM 90 620VA4301	200/ v2A	5878322	6041 18 4		264
MMS-MS7,5x50	7.5 x 50 17/ St / G	5693178	3498 26 0		315	RBM 90 620VA4571	200/ v4A	5878452	6041 20 4		264
MMS-ST6X60	M6 6 x 60/ St / G	5964162	3498 26 3		315						
						RBM 90 630 FS	300/ St / FS	5881841	6041 13 6		211
MS 21 L 200 FT	41x21/ St / FT	5697626	1122 93 3		216	RBM 90 630 FS	300/ St / FS	5881841	6041 13 6		250
MS 21 L 200 FT	41x21/ St / FT	5697626	1122 93 3		227	RBM 90 630 FS	300/ St / FS	5881841	6041 13 6		274
MS 21 L 300 FT	41x21/ St / FT	5697664	1122 93 4		216						
MS 21 L 400 FT	41x21/ St / FT	5697671	1122 93 5		227	RBM 90 630 FT	300/ St / FT	5881919	6041 15 6		250
MS 21 SK OR SP	Pastel orange/ PE	5686217	1122 90 2		216	RBM 90 630VA4301	300/ v2A	5878339	6041 18 6		264
MS 21 SK OR SP	Pastel orange/ PE	5686217	1122 90 2		227	RBM 90 630VA4571	300/ v4A	5878469	6041 20 6		264
MS 41 L 200 FT	41x41/ St / FT	5484516	1122 50 9		216	RBM 90 640 FS	400/ St / FS	5881858	6041 13 8		211
MS 41 L 300 FT	41x41/ St / FT	5485896	1122 51 7		216	RBM 90 640 FS	400/ St / FS	5881858	6041 13 8		250
MS 41 L 400 FT	41x41/ St / FT	5486251	1122 52 5		216						
MS 41 L 500 FT	41x41/ St / FT	5486794	1122 53 3		216	RBM 90 640 FT	400/ St / FT	5881926	6041 15 8		250
MS 41 SK OR SP	Pastel orange/ PE	5686200	1122 90 0		216						
						RBM 90 650 FS	500/ St / FS	5881865	6041 14 0		211
						RBM 90 660 FS	600/ St / FS	5881872	6041 14 2		211
MSX-E1		5850083	7206 05 8	/pc.	178					/m	
MSX-S1		5850076	7206 10 4		178	RKSM 610 FS	1000,75/ St / FS	5390879	6047 61 1		211
						RKSM 610 FS	1000,75/ St / FS	5390879	6047 61 1		250
MWA 12 11S FS	11053/ St / FS	6636853	6424 71 6		279	RKSM 610 FT	1000,75/ St / FT	5903895	6047 61 2		250
MWA 12 21S FS	21065/ St / FS	6636976	6424 73 2		279	RKSM 610 VA4301	1000,75/ v2A	5706083	6047 61 3		264
MWA 12 31S FS	31075/ St / FS	6637034	6424 74 0		279	RKSM 610 VA4571	1000,75/ v4A	5706113	6047 61 4		264
MWA 12 41S FS	41083/ St / FS	6637096	6424 75 9		279						
						RKSM 620 FS	2000,75/ St / FS	5391203	6047 63 8		211
						RKSM 620 FS	2000,75/ St / FS	5391203	6047 63 8		250
NIK-G	25 x 30 x 240	6264131	7206 20 8		180	RKSM 620 FT	2000,75/ St / FT	5903932	6047 63 9		250
PSX-P	1000600	5850120	7202 29 5		184	RKSM 620 VA4301	2000,75/ v2A	5706144	6047 64 0		264
						RKSM 620 VA4571	2000,75/ v4A	5706175	6047 64 1		264
RAAM 610 FS	100/ St / FS	5878568	6041 23 0		211	RKSM 630 FS	3000,75/ St / FS	5391210	6047 65 4		211
RAAM 610 FS	100/ St / FS	5878568	6041 23 0		250	RKSM 630 FS	3000,75/ St / FS	5391210	6047 65 4		250
RAAM 610 FS	100/ St / FS	5878568	6041 23 0		274						
						RKSM 630 FT	3000,75/ St / FT	5903949	6047 65 5		250
RAAM 610 FT	100/ St / FT	5878698	6041 25 0		250	RKSM 630 VA4301	3000,75/ v2A	5706182	6047 65 6		264
RAAM 610 VA4301	100/ v2A	5878797	6041 27 0		264	RKSM 630 VA4571	3000,75/ v4A	5706199	6047 65 7		264
RAAM 610 VA4571	100/ v4A	5878865	6041 29 0		264						
						RKSM 640 FS	4000,9/ St / FS	5391227	6047 68 9		211
RAAM 620 FS	200/ St / FS	5878582	6041 23 4		211	RKSM 640 FS	4000,9/ St / FS	5391227	6047 68 9		250
RAAM 620 FS	200/ St / FS	5878582	6041 23 4		250						
RAAM 620 FS	200/ St / FS	5878582	6041 23 4		274	RKSM 640 FT	4000,9/ St / FT	5903956	6047 69 0		250
RAAM 620 FT	200/ St / FT	5878742	6041 25 4		250						
RAAM 620 VA4301	200/ v2A	5878810	6041 27 5		264						
RAAM 620 VA4571	200/ v4A	5878889	6041 29 4		264	RKV3V		5149088	6288 70 0	/pc.	226
RAAM 630 FS	300/ St / FS	5878629	6041 23 6		211						
RAAM 630 FS	300/ St / FS	5878629	6041 23 6		250	RWVL 60 FS	200 x 56/ St / FS	6065530	6067 11 5		212
RAAM 630 FS	300/ St / FS	5878629	6041 23 6		274	RWVL 60 FS	200 x 56/ St / FS	6065530	6067 11 5		274

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S16 W G	M163000/ St / G	5924647	2046 84 0	/100 m	301	SLM50C40F 40 FT	400/ St / FT	6959723	6010 00 8	/m	286
S16W FT	M163000/ St / FT	5782148	2046 59 3		301	SLM50C40F 50 FT	500/ St / FT	6959785	6010 01 6		286
S16W SW	M163000/ St / L	5782032	2046 56 5		301	SLM50C40F 60 FT	600/ St / FT	6959846	6010 02 4		286
S20 W G	M203000/ St / G	5924654	2046 84 1		301	SLS80C40F 40 FT	400/ St / FT	6959907	6010 10 5		286
S20W FT	M203000/ St / FT	5782155	2046 59 4		301	SLS80C40F 50 FT	500/ St / FT	6959969	6010 11 3		286
S20W SW	M203000/ St / L	5782049	2046 56 6		301	SLS80C40F 60 FT	600/ St / FT	6960026	6010 12 1		286
S25 W G	M253000/ St / G	5924661	2046 84 2		301	SSLB 100 DD	85/ ST / DD	6095247	7070 30 6	/pc.	252
S25W FT	M253000/ St / FT	5782162	2046 59 5		301	SSLB 100 FS	85/ St / FS	6079971	7070 20 5		252
S25W SW	M253000/ St / L	5782070	2046 56 7		301	SSLB 100 FS	85/ St / FS	6079971	7070 20 5		274
S32 W G	M323000/ St / G	5924678	2046 84 3		301	SSLB 200 DD	185/ ST / DD	6095360	7070 31 4		252
S32W FT	M323000/ St / FT	5782209	2046 59 6		301	SSLB 200 FS	185/ St / FS	6094882	7070 21 3		212
S32W SW	M323000/ St / L	5782087	2046 56 8		301	SSLB 200 FS	185/ St / FS	6094882	7070 21 3		252
S40 W G	M403000/ St / G	5924685	2046 84 4		301	SSLB 200 FS	185/ St / FS	6094882	7070 21 3		274
S40W FT	M403000/ St / FT	5782216	2046 59 7		301	SSLB 300 DD	285/ ST / DD	6095421	7070 31 8		252
S40W SW	M403000/ St / L	5782094	2046 56 9		301	SSLB 300 FS	285/ St / FS	6094943	7070 21 7		212
S50 W G	M503000/ St / G	5924692	2046 84 5		301	SSLB 300 FS	285/ St / FS	6094943	7070 21 7		252
S50W FT	M503000/ St / FT	5782223	2046 59 8		301	SSLB 300 FS	285/ St / FS	6094943	7070 21 7		274
S50W SW	M503000/ St / L	5782100	2046 57 0		301	SSLB 400 DD	385/ ST / DD	6095483	7070 32 2		252
S63 W G	M633000/ St / G	5924708	2046 84 6		301	SSLB 400 FS	385/ St / FS	6095001	7070 22 1		212
S63W FT	M633000/ St / FT	5782261	2046 59 9		301	SSLB 400 FS	385/ St / FS	6095001	7070 22 1		252
S63W SW	M633000/ St / L	5782131	2046 57 1		301	SSLB 500 FS	485/ St / FS	6095063	7070 22 5		212
						SSLB 600 FS	585/ St / FS	6095186	7070 23 3		212
SAB20 FS	180/ St / FS	6555857	6222 94 3	/pc.	256	SV16 W G	M1650/ St / G	5924784	2046 85 4	/100 pc.	301
SAB20 FS	180/ St / FS	6555857	6222 94 3		277	SV16W FT	M1650/ St / FT	5782384	2046 62 0		302
						SV16W SW	M1650/ St / L	5781776	2046 58 2		301
SAB30 FS	280/ St / FS	6555918	6222 95 1		256	SV20 W G	M2060/ St / G	5924791	2046 85 5		301
SAB30 FS	280/ St / FS	6555918	6222 95 1		277	SV20W FT	M2060/ St / FT	5782391	2046 62 1		302
						SV20W SW	M2060/ St / L	5781783	2046 58 3		301
SAB40 FS	380/ St / FS	6555970	6222 97 8		256	SV25 W G	M2560/ St / G	5924807	2046 85 6		301
SAB40 FS	380/ St / FS	6555970	6222 97 8		277	SV25W FT	M2560/ St / FT	5782407	2046 62 2		302
						SV25W SW	M2560/ St / L	5781790	2046 58 4		301
SDG-1	600500/ St / FT	5847885	7202 96 3		192	SV32 W G	M3270/ St / G	5924814	2046 85 7		301
SDG-1	600500/ St / FT	5847885	7202 96 3		197	SV32W FT	M3270/ St / FT	5782445	2046 62 3		302
SDG-2	1000600/ St / FT	5847892	7202 97 1		192	SV32W SW	M3270/ St / L	5781806	2046 58 5		301
SDG-2	1000600/ St / FT	5847892	7202 97 1		197						
SHT	50/ PE	5847915	7202 52 1		189	SV40 W G	M4080/ St / G	5924821	2046 85 8		301
						SV40W FT	M4080/ St / FT	5782452	2046 62 4		302
						SV40W SW	M4080/ St / L	5781844	2046 58 6		301
SKH 60 OR	Pastel orange/ PE	5668008	6222 53 7	/pair	255	SV50 W G	M50100/ St / G	5924838	2046 85 9		301
SKH 60 OR	Pastel orange/ PE	5668008	6222 53 7		276	SV50W FT	M50100/ St / FT	5782469	2046 62 5		302
						SV50W SW	M50100/ St / L	5781851	2046 58 7		301
SKS 10X40 F	M10 x 4040/ St / F	5257356	3160 75 0	/100 pc.	281	SV63 W G	M63100/ St / G	5924845	2046 86 0		301
SKS 10X60 F	M10 x 6060/ St / F	6202157	6408 51 6		281	SV63W FT	M63100/ St / FT	5782490	2046 62 6		302
SKS 10X80 F	M10 x 8080/ St / F	6437474	6418 25 0		237	SV63W SW	M63100/ St / L	5781868	2046 58 8		301
SKS 10X80 F	M10 x 8080/ St / F	6437474	6418 25 0		262						
SKS 10X80 F	M10 x 8080/ St / F	6437474	6418 25 0		281	T 100 E 4-5	/ PP	5930143	7205 51 0	/pc.	308
SKS 10X90 F	M10 x 9090/ St / F	6518470	6418 25 2		262						
SKS 10X90 F	M10 x 9090/ St / F	6518470	6418 25 2		217	T 160 E 10-5	/ PP	5930167	7205 52 4		308
SKS 12X100 F	M12 x 100100/ St / F	6204496	6418 29 5		262	T 160 E 16-5	/ PP	5930174	7205 52 8		308
SKS 12X110 F	M12 x 110110/ St / F	6204557	6418 31 7		262	T 160 E 4-8D	/ PP	5930150	7205 52 0		309
SKS 12X80 F	M12 x 8080/ St / F	6204434	6418 28 7		262						
SKS 610 FS	3000100/ St / FS	6060191	6056 10 5	/m	274	TCX-032	26 5856559	7202 20 0			178
SKS 620 FS	3000200/ St / FS	6060252	6056 20 2		211	TCX-032	26 5856559	7202 20 0			184
SKS 620 FS	3000200/ St / FS	6060252	6056 20 2		274	TCX-040	26 5856566	7202 20 1			202
SKS 630 FS	3000300/ St / FS	6060313	6056 29 6		211	TCX-040	26 5856566	7202 20 1			178
SKS 630 FS	3000300/ St / FS	6060313	6056 29 6		274	TCX-050	26 5856597	7202 20 3			184
SKS 640 FS	3000400/ St / FS	6060375	6056 40 7		211	TCX-050	26 5856597	7202 20 3			202
SKS 650 FS	3000500/ St / FS	6060436	6056 50 4		211	TCX-050	26 5856597	7202 20 3			178
SKS 660 FS	3000600/ St / FS	6060498	6056 60 1		211	TCX-063	26 5856603	7202 20 4			184
						TCX-063	26 5856603	7202 20 4			202
SL 620 VSF F	2006000/ St / FS	6705559	6207 92 8		255	TCX-063	26 5856603	7202 20 4			178
SL 630 VSF F	3006000/ St / FS	6705610	6207 93 2		255	TCX-075	26 5856610	7202 20 5			184
SL 640 VSF F	4006000/ St / FS	6705672	6207 93 6		255	TCX-075	26 5856610	7202 20 5			202
SL 650 VSF F	5006000/ St / FS	6705733	6207 94 0		255	TCX-075	26 5856610	7202 20 5			178

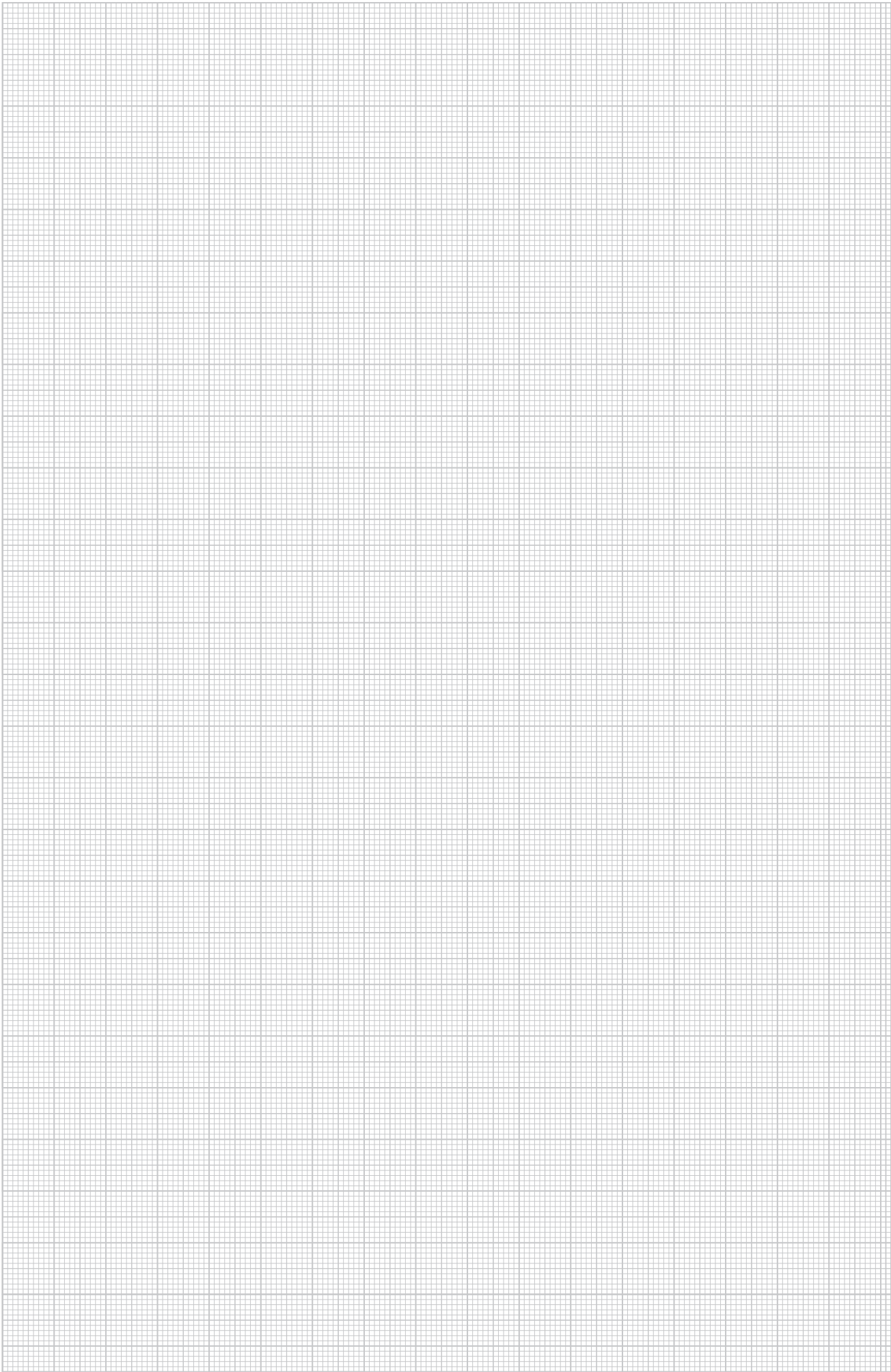
# Type listing

Structure of the GTIN: Country code **40** Manufacturer code **1219** Individual GTIN **5647589**

Type	Dimensions/Colour/Div.	GTIN	Art. no.	Price	Page	Type	Dimensions/Colour/Div.	GTIN	Art. no.	Price	Page
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TCX-090	26,6	5856627	7202 20 6		184	US 3 K 70 FT	7002/ St / FT	6224777	6342 36 2		257
TCX-090	26,6	5856627	7202 20 6		202	US 3 K 70 FT	7002/ St / FT	6224777	6342 36 2		278
TCX-110	26,6	5856665	7202 20 7		178	US 3 K 80 FT	8002/ St / FT	6225019	6342 36 4		237
TCX-110	26,6	5856665	7202 20 7		184	US 3 K 80 FT	8002/ St / FT	6225019	6342 36 4		257
TCX-110	26,6	5856665	7202 20 7		202	US 3 K 80 FT	8002/ St / FT	6225019	6342 36 4		278
TCX-125	40	5856672	7202 20 8		178	US 3 K 90 FT	9002/ St / FT	6225071	6342 36 6		237
TCX-125	40	5856672	7202 20 8		184	US 3 K 90 FT	9002/ St / FT	6225071	6342 36 6		257
TCX-125	40	5856672	7202 20 8		202	US 3 K 90 FT	9002/ St / FT	6225071	6342 36 6		278
TCX-140	40	5856689	7202 20 9		179	US 3 KS OR	Pastel orange/ PE	5668039	6338 45 8		237
TCX-140	40	5856689	7202 20 9		184	US 3 KS OR	Pastel orange/ PE	5668039	6338 45 8		257
TCX-140	40	5856689	7202 20 9		202	US 3 KS OR	Pastel orange/ PE	5668039	6338 45 8		278
TCX-160	40	5856719	7202 21 0		179						
TCX-160	40	5856719	7202 21 0		184						
TCX-160	40	5856719	7202 21 0		202	US 5 100 FT	10002,5/ St / FT	6284177	6340 96 2		279
						US 5 100 FT	10002,5/ St / FT	6284177	6340 96 2		258
						US 5 150 FT	15002,5/ St / FT	6437597	6340 96 6		279
				/m		US 5 150 FT	15002,5/ St / FT	6437597	6340 96 6		258
TSG 45 FS	453000/ St / FS	5694489	6062 03 3		216	US 5 20 FT	2002,5/ St / FT	6959006	6340 88 1		258
TSG 45 FS	453000/ St / FS	5694489	6062 03 3		238	US 5 200 FT	20002,5/ St / FT	6437658	6340 97 0		279
TSG 45 FS	453000/ St / FS	5694489	6062 03 3		261	US 5 200 FT	20002,5/ St / FT	6437658	6340 97 0		258
TSG 45 FS	453000/ St / FS	5694489	6062 03 3		280	US 5 30 FT	3002,5/ St / FT	6959068	6340 90 3		279
TSG 45 VA4301	3000/ V2A	5694441	6062 02 5		269	US 5 30 FT	3002,5/ St / FT	6959068	6340 90 3		258
TSG 45 VA4571	3000/ V4A	5694472	6062 02 8		269	US 5 40 FT	4002,5/ St / FT	6959129	6340 91 1		279
						US 5 40 FT	4002,5/ St / FT	6959129	6340 91 1		258
TSG 60 FS	603000/ St / FS	5694540	6062 06 8		216	US 5 50 FT	5002,5/ St / FT	6959181	6340 93 8		279
TSG 60 FS	603000/ St / FS	5694540	6062 06 8		261	US 5 50 FT	5002,5/ St / FT	6959181	6340 93 8		258
TSG 60 FS	603000/ St / FS	5694540	6062 06 8		281	US 5 60 FT	6002,5/ St / FT	6601752	6340 94 6		279
						US 5 60 FT	6002,5/ St / FT	6601752	6340 94 6		258
TSG 60 VA4301	603000/ V2A	5694557	6062 08 4		269	US 5 70 FT	7002,5/ St / FT	6043927	6340 95 0		279
TSG 60 VA4571	603000/ V4A	5694564	6062 08 6		269	US 5 70 FT	7002,5/ St / FT	6043927	6340 95 0		258
TSG 85 FS	853000/ St / FS	5694571	6062 11 4		238	US 5 80 FT	8002,5/ St / FT	6044047	6340 95 4		279
						US 5 80 FT	8002,5/ St / FT	6044047	6340 95 4		258
						US 5 90 FT	9002,5/ St / FT	6044160	6340 95 8		279
TSGV VA4310	/ V2A	5694724	6067 97 0	/pc.	261	US 5 90 FT	9002,5/ St / FT	6044160	6340 95 8		258
TSGV VA4310	/ V2A	5694724	6067 97 0		269						
TSGV VA4310	/ V2A	5694724	6067 97 0		281	US 5 K 100 FT	10002,5/ St / FT	6536290	6341 61 6		215
						US 5 K 100 FT	10002,5/ St / FT	6536290	6341 61 6		257
US 3 100 FS	10002/ St / FS	6223572	6342 31 8		257	US 5 K 100 FT	10002,5/ St / FT	6536290	6341 61 6		278
US 3 100 FS	10002/ St / FS	6223572	6342 31 8		278	US 5 K 110 FT	11002,5/ St / FT	6536238	6341 62 4		215
US 3 150 FS	15002/ St / FS	6223633	6342 32 8		278	US 5 K 110 FT	11002,5/ St / FT	6536238	6341 62 4		257
US 3 20 FS	2002/ St / FS	6221776	6342 30 2		237	US 5 K 110 FT	11002,5/ St / FT	6536238	6341 62 4		278
US 3 20 FS	2002/ St / FS	6221776	6342 30 2		257	US 5 K 120 FT	12002,5/ St / FT	6536177	6341 63 2		215
US 3 20 FS	2002/ St / FS	6221776	6342 30 2		278	US 5 K 120 FT	12002,5/ St / FT	6536177	6341 63 2		257
US 3 200 FS	20002/ St / FS	6224296	6342 33 8		278	US 5 K 120 FT	12002,5/ St / FT	6536177	6341 63 2		278
US 3 30 FS	3002/ St / FS	6222018	6342 30 4		237	US 5 K 20 FT	2002,5/ St / FT	6536771	6341 52 7		215
US 3 30 FS	3002/ St / FS	6222018	6342 30 4		257	US 5 K 20 FT	2002,5/ St / FT	6536771	6341 52 7		257
US 3 30 FS	3002/ St / FS	6222018	6342 30 4		278	US 5 K 20 FT	2002,5/ St / FT	6536771	6341 52 7		278
US 3 40 FS	4002/ St / FS	6222070	6342 30 6		237	US 5 K 30 FT	3002,5/ St / FT	6536719	6341 53 5		215
US 3 40 FS	4002/ St / FS	6222070	6342 30 6		257	US 5 K 30 FT	3002,5/ St / FT	6536719	6341 53 5		257
US 3 40 FS	4002/ St / FS	6222070	6342 30 6		278	US 5 K 30 FT	3002,5/ St / FT	6536719	6341 53 5		278
US 3 50 FS	5002/ St / FS	6222315	6342 30 8		257	US 5 K 40 FT	4002,5/ St / FT	6536658	6341 54 3		215
US 3 50 FS	5002/ St / FS	6222315	6342 30 8		278	US 5 K 40 FT	4002,5/ St / FT	6536658	6341 54 3		257
US 3 60 FS	6002/ St / FS	6222377	6342 31 0		257	US 5 K 40 FT	4002,5/ St / FT	6536658	6341 54 3		278
US 3 60 FS	6002/ St / FS	6222377	6342 31 0		278	US 5 K 50 FT	5002,5/ St / FT	6536597	6341 55 1		215
US 3 70 FS	7002/ St / FS	6222438	6342 31 2		257	US 5 K 50 FT	5002,5/ St / FT	6536597	6341 55 1		257
US 3 70 FS	7002/ St / FS	6222438	6342 31 2		278	US 5 K 50 FT	5002,5/ St / FT	6536597	6341 55 1		278
US 3 80 FS	8002/ St / FS	6222490	6342 31 4		257	US 5 K 60 FT	6002,5/ St / FT	6536535	6341 57 8		215
US 3 80 FS	8002/ St / FS	6222490	6342 31 4		278	US 5 K 60 FT	6002,5/ St / FT	6536535	6341 57 8		257
US 3 90 FS	9002/ St / FS	6223510	6342 31 6		257	US 5 K 60 FT	6002,5/ St / FT	6536535	6341 57 8		278
US 3 90 FS	9002/ St / FS	6223510	6342 31 6		278	US 5 K 70 FT	7002,5/ St / FT	6536474	6341 58 6		215
						US 5 K 70 FT	7002,5/ St / FT	6536474	6341 58 6		257
US 3 K 100 FT	10002/ St / FT	6225132	6342 36 8		237	US 5 K 70 FT	7002,5/ St / FT	6536474	6341 58 6		278
US 3 K 100 FT	10002/ St / FT	6225132	6342 36 8		257	US 5 K 80 FT	8002,5/ St / FT	6536412	6341 59 4		215
US 3 K 100 FT	10002/ St / FT	6225132	6342 36 8		278	US 5 K 80 FT	8002,5/ St / FT	6536412	6341 59 4		257
US 3 K 110 FT	11002/ St / FT	6225378	6342 37 0		237	US 5 K 80 FT	8002,5/ St / FT	6536412	6341 59 4		278
US 3 K 110 FT	11002/ St / FT	6225378	6342 37 0		257	US 5 K 90 FT	9002,5/ St / FT	6536351	6341 60 8		215
US 3 K 110 FT	11002/ St / FT	6225378	6342 37 0		278	US 5 K 90 FT	9002,5/ St / FT	6536351	6341 60 8		257
US 3 K 120 FT	12002/ St / FT	6225439	6342 37 2		237	US 5 K 90 FT	9002,5/ St / FT	6536351	6341 60 8		278
US 3 K 120 FT	12002/ St / FT	6225439	6342 37 2		257	US 5 KS OR	Pastel orange/ PE	5668046	6338 46 2		215
US 3 K 120 FT	12002/ St / FT	6225439	6342 37 2		278	US 5 KS OR	Pastel orange/ PE	5668046	6338 46 2		258
US 3 K 20 FT	2002/ St / FT	6224470	6342 35 1		237	US 5 KS OR	Pastel orange/ PE	5668046	6338 46 2		279
US 3 K 20 FT	2002/ St / FT	6224470	6342 35 1		257						
US 3 K 20 FT	2002/ St / FT	6224470	6342 35 1		278						
US 3 K 30 FT	3002/ St / FT	6224531	6342 35 3		237	US 7 100 FT	10004/ St / FT	6188178	6340 18 0		259
US 3 K 30 FT	3002/ St / FT	6224531	6342 35 3		257	US 7 110 FT	11004/ St / FT	6188239	6340 19 9		259
US 3 K 30 FT	3002/ St / FT	6224531	6342 35 3		278	US 7 120 FT	12004/ St / FT	6188291	6340 20 2		259
US 3 K 40 FT	4002/ St / FT	6224593	6342 35 5		237	US 7 130 FT	13004/ St / FT	6188352	6340 21 0		259
US 3 K 40 FT	4002/ St / FT	6224593	6342 35 5		257	US 7 140 FT	14004/ St / FT	6188413	6340 22 9		259
US 3 K 40 FT	4002/ St / FT	6224593	6342 35 5		278	US 7 150 FT	15004/ St / FT	6188475	6340 23 7		259
US 3 K 50 FT	5002/ St / FT	6224654	6342 35 7		237	US 7 160 FT	16004/ St / FT	6188536	6340 24 5		259
US 3 K 50 FT	5002/ St / FT	6224654	6342 35 7		257	US 7 170 FT	17004/ St / FT	6188598	6340 25 3		259
US 3 K 50 FT	5002/ St / FT	6224654	6342 35 7		278	US 7 180 FT	18004/ St / FT	6188659	6340 26 1		259
US 3 K 60 FT	6002/ St / FT	6224715	6342 35 9		237	US 7 190 FT	19004/ St / FT	6188710	6340 28 8		259
US 3 K 60 FT	6002/ St / FT	6224715	6342 35 9		257	US 7 20 FT	2004/ St / FT	6187690	6340 01 6		259
US 3 K 60 FT	6002/ St / FT	6224715	6342 35 9		278	US 7 200 FT	20004/ St / FT	6188772	6340 29 6		259

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				/pc.					
US 7 30 FT	3004/ St / FT	6187751	6340 03 2		259				
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US 7 50 FT	5004/ St / FT	6187874	6340 07 5		259				
US 7 60 FT	6004/ St / FT	6187935	6340 09 1		259				
US 7 70 FT	7004/ St / FT	6187997	6340 11 3		259				
US 7 80 FT	8004/ St / FT	6188055	6340 14 8		259				
US 7 90 FT	9004/ St / FT	6188116	6340 16 4		259				
US 7 K 100 FT	10004/ St / FT	6187034	6339 18 2		258				
US 7 K 110 FT	11004/ St / FT	6187096	6339 19 0		258				
US 7 K 120 FT	12004/ St / FT	6187157	6339 20 4		258				
US 7 K 130 FT	13004/ St / FT	6187218	6339 21 2		258				
US 7 K 140 FT	14004/ St / FT	6187270	6339 22 0		258				
US 7 K 150 FT	15004/ St / FT	6187331	6339 23 9		258				
US 7 K 160 FT	16004/ St / FT	6187393	6339 24 7		258				
US 7 K 170 FT	17004/ St / FT	6187454	6339 25 5		258				
US 7 K 180 FT	18004/ St / FT	6187515	6339 26 3		258				
US 7 K 190 FT	19004/ St / FT	6187577	6339 27 1		258				
US 7 K 20 FT	2004/ St / FT	6186556	6339 01 8		258				
US 7 K 200 FT	20004/ St / FT	6187638	6339 29 8		258				
US 7 K 30 FT	3004/ St / FT	6186617	6339 03 4		258				
US 7 K 40 FT	4004/ St / FT	6186679	6339 05 0		258				
US 7 K 50 FT	5004/ St / FT	6186730	6339 07 7		258				
US 7 K 60 FT	6004/ St / FT	6186792	6339 09 3		258				
US 7 K 70 FT	7004/ St / FT	6186853	6339 11 5		258				
US 7 K 80 FT	8004/ St / FT	6186914	6339 13 1		258				
US 7 K 90 FT	9004/ St / FT	6186976	6339 16 6		258				
US 7 KS OR	Pastel orange/ PE	5668060	6338 49 7		259				
				/100 pc.					
V-TEC VM12 MS	M12 x 1,5/ CuZn / N	5808992	2086 01 8		226				
V-TEC VM16 MS	M16 x 1,5/ CuZn / N	5809234	2086 02 4		226				
V-TEC VM20 MS	M20 x 1,5/ CuZn / N	5809418	2086 03 0		226				
V-TEC VM20 MS	M20 x 1,5/ Pastel orange/ PA	5875291	7205 59 4		309				
V-TEC VM25 MS	M25 x 1,5/ CuZn / N	5809593	2086 03 6		226				
V-TEC VM25 MS	M25 x 1,5/ Pastel orange/ PA	5875307	7205 59 7		309				
V-TEC VM32 MS	M32 x 1,5/ CuZn / N	5809777	2086 04 2		226				
V-TEC VM32 MS	M32 x 1,5/ Pastel orange/ PA	5810827	7205 60 0		309				
V-TEC VM40 MS	M40 x 1,5/ CuZn / N	5809890	2086 04 8		226				
V-TEC VM40 MS	M40 x 1,5/ Pastel orange/ PA	5810834	7205 60 3		309				
V-TEC VM50 MS	M50 x 1,5/ CuZn / N	5810070	2086 05 4		226				
				/pc.					
VUS 5 FT	/ St / FT	6446896	6018 50 5		286				
ZSE90-13	250115	5447429	7215 70 1		289				
ZSE90-13	250115	5447429	7215 70 1		297				
ZSE90-14	350115	5447436	7215 70 5		289				
ZSE90-14	350115	5447436	7215 70 5		297				
ZSE90-15	450115	5447443	7215 70 8		289				
ZSE90-15	450115	5447443	7215 70 8		297				
ZSE90-23	250175	5447450	7215 71 2		289				
ZSE90-23	250175	5447450	7215 71 2		297				
ZSE90-24	350175	5447467	7215 71 5		289				
ZSE90-24	350175	5447467	7215 71 5		297				
ZSE90-25	450175	5447474	7215 71 8		289				
ZSE90-25	450175	5447474	7215 71 8		297				
ZSE90-26	550175	5447481	7215 72 5		289				
ZSE90-26	550175	5447481	7215 72 5		297				
ZSE90-27	650175	5447498	7215 72 9		289				
ZSE90-27	650175	5447498	7215 72 9		297				





**Terms and conditions of sale and delivery**  
of OBO BETTERMANN GmbH & Co. KG, OBO BETTERMANN Projekt und Systemtechnik GmbH  
and OBO Befestigungselemente GmbH, Menden.

1. All our supplies and services shall be governed exclusively by the following terms and conditions, including our additional terms and conditions for cable tray business transactions. Any terms and conditions of business and purchasing of the customer shall be valid only if we have acknowledged them in writing. Our quotations are without engagement; they are mere invitations to submit contract offers. Any and all transactions and agreements, including those entered into by our employees and agents shall only be binding upon our written confirmation or invoicing. The foregoing provision shall also apply to any modifications of the agreed formal requirements.

2. The documents and data pertaining to the quotation, such as illustrations, brochures, drawings, dimensions, loading capacity values and weight details are approximate only, unless they are expressly stipulated to be binding.

Samples are non-binding samples for inspection. Any purchase according to sample will be subject to customary deviations and deviations resulting from normal production processes. The properties of the sample shall be no guaranteed quality of the purchase object unless expressly stated otherwise in the confirmation of order. Samples must be returned to us at the latest within four weeks in perfect condition. If they are not returned within this period in proper condition, we shall be entitled to charge the purchase price for the sample in accordance with our current price list. All information on our products, in particular the illustrations, drawings, weight, dimension and performance data included in our quotations and printed matter shall be regarded as approximate average values and shall not represent any quality guarantee.

With regard to products made according to customer drawings, samples and other instructions of the customer, we will not provide any warranty nor assume any liability for the due and proper functioning of the product or for any other defects if and to the extent they are based upon the customer's specifications. The customer shall indemnify us from any third party claims, including claims for product liability as may be asserted against us for damages resulting from the products unless we have caused such damages by intent or gross negligence. The customer shall warrant that the manufacture and supply of products made in accordance with his instructions will not infringe any proprietary rights of third parties. Should any proprietary rights be asserted against us, we shall be entitled, without any legal review of the third party claims, to withdraw from the contract after hearing the customer, unless the third party withdraws the claims asserted against us under its proprietary rights within eight days by written declaration. The customer shall compensate us for any damage sustained as a result of the assertion of proprietary rights. In case of withdrawal, the work we have carried out so far shall be remunerated. Further rights under the statutory provisions shall not be affected thereby.

Any moulds, tools and design data produced by us for the execution of the order shall be our exclusive property. Unless expressly agreed otherwise, the customer shall not have any claims thereto, even if he has contributed to the costs of producing any such moulds, tools and design data.

3. The packing, shipping route and means of transportation shall be left to our discretion in the absence of any other agreements. They shall be charged at their cost price. We will take back undamaged cases, when being returned carriage paid, at 2/3 of the amount invoiced. The one-way or pool pallets used for transport shall be either exchanged upon taking delivery or returned. The smallest packing units stocked and listed may not be broken up for rationalisation reasons. In case of orders for different quantities, the nearest packing unit will be supplied.

We reserve the right to deviate from the agreed delivery quantity, in particular in the case of custom-made products, to a customary extent or in conformity with national or international standards. In case of a demand for adhering to a precise quantity, an express reference is necessary and subject to confirmation.

Master and call orders shall oblige the customer to accept the total quantity on which the master/call order is based. Where no particular call orders are specified in the contract, the total quantity of the master call order must be called within twelve months. If the customer fails to adhere to call deadlines, we shall be entitled to deliver and charge the total quantity in full after four weeks from written notice with reference to the consequences of any failure to call. Our rights arising from any default of the customer shall not be affected thereby.

4. Unless otherwise agreed, our prices are quoted ex works and do not include packing and insurance. The value added tax at the rate applicable on the date of dispatch will be added to our prices. The purchaser shall ensure the correctness of his VAT identification number, which he must notify to us immediately without being asked. He shall undertake to inform both us and the competent domestic tax authority without delay of any change in his name, address and VAT identification number.

Delivery shall be franco domicile within Germany, i.e. carriage and packing prepaid, if the net order value is in excess of € 1,200. For small orders below € 100 (net excluding value added tax), we shall invoice a lower quantity surcharge of € 10 (net) per order. Upon transfer of our supplies and services to a carrier or forwarding agent, at the latest upon their leaving our warehouse or supply plant, the risk shall pass to the recipient, even in case of deliveries free place of destination.

5. Delivery periods and delivery deadlines shall be approximate only unless we have expressly stated in writing that they are binding. Delivery periods shall commence upon receipt of our confirmation of order, but not before clarification of all execution details, ex place of delivery. The customer shall only be entitled to withdraw from the contract after having granted a reasonable extension of time. We reserve the right to make partial deliveries. Claims for damages and reimbursement of expenses - for any reason whatsoever - shall be subject to the provisions set out in article 10.

In the event of any circumstances that are beyond our control within the scope of normal operating risks and obstruct or make impracticable any delivery, we shall be entitled to suspend delivery by the duration of such obstruction plus a reasonable start-up period or to withdraw from the contract for the part not yet fulfilled. The purchaser can demand a statement from us as to whether we wish to deliver within a reasonable period or withdraw. If we fail to make such a statement, the purchaser may withdraw. Our notice to the purchaser shall be deemed to be sufficient evidence that we have been prevented from delivering.

Delivery time is extended in case of such events as labour disputes, strikes and lockouts, orders from the authorities, difficulties with the procurement of materials, spoiled work or post-processing, shutdowns and staff shortage as well as shortage of means of transport, and general occurrence of unforeseen events beyond our scope of influence, by the length of duration of these events.

6. Payments shall be made upon receipt of invoice less a 3% cash discount for payment within 10 days or net after 30 days from date of invoice. Erection work and all paid labour work must be paid within 10 days without deduction of any cash discount. In case of non-cash payments, the date of the credit note will be deemed to be the date of receipt of payment. Payments received shall always be credited first against costs, then against interest and then against the earliest liability. Cheques and bills of exchange shall only be accepted as means of payment.

Any payment by bill of exchange shall be subject to a prior separate and written agreement, whereby all bill costs shall be borne by the customer and no discount can be granted. The customer shall have no right to refuse performance and no right of retention - for any legal reason whatsoever - unless we have acknowledged his claim beforehand in writing or his claim has the force of law.

The customer shall only be entitled to set off claims which have the force of law, are undisputed or acknowledged by us in writing.

7. We shall retain title to the goods supplied by us until all our claims arising from our business transactions with the customer have been satisfied - current account clause - and all bills of exchange or cheques submitted for payment by the customer have been honoured.

Any treatment or processing of goods subject to our retention of title (reserved goods) shall be carried out for us as the manufacturer in accordance with § 950 BGB (German Civil Code) without any obligation on our part. If our reserved goods are to be regarded as the main item or the main item is owned by the customer, full title to the new item shall pass to us when it is created. In other cases, we shall acquire a co-ownership interest in the new item in the proportion of the sales value of our reserved goods to the other goods used for the new item at the time of processing, intermingling, joining or mixing. The customer shall take custody of our ownership or co-ownership interest free of charge; it shall be treated as reserved goods.

Before transfer of title, our goods shall be neither pledged nor assigned as collateral without our prior consent. In addition, any third party rights or pledges shall be notified to us immediately and we shall be given all details and provided all documents necessary for intervention; otherwise the customer must bear our loss. In the latter case, our total claims against the customer shall also be immediately payable.

The customer shall be entitled to sell or to use our reserved goods in the ordinary course of business subject to the condition that the relevant claims are transferred in accordance with article 8 below. This right shall lapse upon the customer's failure to promptly meet his payment obligations towards us or in the event of any cheque or bill protests or his suspension of payments. In such cases, we shall be entitled to take back the goods provisionally at

the customer's expense and to sell them at our duly exercised discretion after a corresponding reminder has been sent to the customer. We will then pass the due amount to the customer's credit.

8. If our goods are sold before payment of our claim, the customer shall be obliged to retain our title against his purchaser until the goods have been paid for in full by the purchaser. The claim arising against the purchaser from such resale as well as any other ancillary rights or security interests of the customer resulting from the sale and any claims for compensation in case of damage to or destruction of our reserved property, including the relevant insurance sum shall hereby be assigned to us. We hereby accept this assignment. Where our co-ownership interest is sold, the relevant claims shall be assigned in the amount corresponding to the value of our interest.

The customer shall, at our request, inform us of his purchasers, notify them of the assignment made and provide us with any and all documents required to assert our rights.

As long as the customer meets his contractual obligations without delay, he shall be authorised to collect the claims assigned. He shall keep the amounts collected on our behalf separately and remit them to us immediately as soon and as far as our claims become due. The authorisation shall lapse in case of any cheque or bill protest of the customer or his definite suspension of payments. The customer shall bear the costs incurred for any action taken against third parties and shall advance them upon request.

If the security provided to us by the retention of title and the anticipatory assignment should exceed the claims to be secured by more than 20%, we shall, at the customer's request, release paid supplies of our choice. Upon payment of all our claims by the customer, assigned claims shall pass to the customer.

9. Any complaints for obvious defects regarding the quantity or quality of our supplies and services that are identifiable upon careful inspection shall without delay, but at the latest within the period of limitation of eight days from arrival of the goods at the address of the customer or the person appointed by him, be notified in writing to us, not to our representatives. Slight deviations in dimensions and designs within the scope of defined technical tolerances shall not give rise to any right of complaint. Any rejected goods may only be returned to us with our prior written authorisation.

In case of justified complaints within the prescribed period, we shall, at our option, take remedial action by way of subsequent performance, by rectifying the defect, supplying non-defective goods or providing a credit note for the lower value calculated.

We shall be entitled to refuse subsequent performance in accordance with the statutory provisions. If we refuse subsequent performance, if any subsequent performance remains unsuccessful or if the customer cannot be reasonably expected to accept any subsequent performance, the latter shall be entitled to withdraw from the contract in compliance with the provisions of the following sentences. The customer shall only be entitled to withdraw from the contract - where a withdrawal is not excluded by law - upon the unsuccessful expiry of a reasonable period for subsequent performance set by him, unless this period was not required under the statutory provisions (§§ 281 para. 2, 323 para. 2, 440, 441 para. 1 BGB (German Civil Code)).

In case of his withdrawal, the customer shall be liable for any deterioration, destruction or loss of use resulting from any negligence or intent on his part. Any claims for damages or reimbursement of expenses of the customer shall be subject to the provisions set out in article 10.

In the case of any fraudulent concealment of a defect or in the case of any provision of a quality guarantee for the goods sold at the time of the passing of risk within the meaning of § 444 BGB (German Civil Code) (seller's declaration that the object sold has a specific property at the time of the passing of risk and that the seller, regardless of any fault on his part, intends to be answerable for any and all consequences resulting from its absence), the customer's rights shall be exclusively governed by the statutory provisions.

We shall - in addition to the statutory grounds for refusal - also be entitled to refuse subsequent performance if and as long as the customer fails to send us, at our request, the rejected goods or a sample thereof; the customer shall have no right of withdrawal for any such refusal. We may further refuse any subsequent performance if the goods concerned have been altered or modified without our consent unless the customer can prove that the defect was not caused by such alteration or modification.

The limitation period for any claims arising from defects shall be one year; in the case of goods which have been used in accordance with their intended purpose for a building and have caused its defectiveness, the limitation period shall be two years. The provisions of §§ 478, 479 BGB (German Civil Code) on recourse in the chain of suppliers shall not be affected thereby.

10. In the case of a pre-contractual, contractual or non-contractual breach of duty, including unsatisfactory delivery, tortious conduct and producer's liability, we shall only be liable for compensatory damages and reimbursement of expenses - subject to further contractual or statutory liability requirements - in the case of intent, gross negligence or slightly negligent breach of a material contractual duty (contractual duty the infringement of which jeopardises the fulfilment of the object of the contract). However - except in the case of intent - our liability shall be limited to the typical contractual damage that was foreseeable at the time the contract was entered into.

The purchaser shall not be permitted to make a claim for expenses incurred in vain. Except for any breach of material duties, our liability for slight negligence shall be excluded, but in any case be limited to the amount of the purchase price.

Any claim asserted by the customer or a third party for payment of a contractual penalty shall be excluded.

With regard to damages caused by delay, we shall only be liable for slight negligence up to the amount of 5% of the purchase price agreed with us.

The exclusions and limitations of liability set forth above shall not apply in the event that a guarantee is given with respect to the quality of the object sold within the meaning of § 444 BGB (German Civil Code) if a defect is fraudulently concealed or in the event of injury to life, physical injury or injury to health, or strict liability under the German Product Liability Act.

Any and all claims for damages against us, for any legal reason whatsoever, shall become statute-barred at the latest after one year from delivery of the goods to the customer, in the case of tortious liability from the time of knowledge, or grossly negligent ignorance, of the circumstances giving rise to the claim and the person liable to pay damages. This provision shall not apply in the case of liability for intent and in the event that a guarantee is given for the quality of the object sold, in the case of fraudulent concealment of a defect or in the event of injury to life, physical injury or injury to health, or strict liability under the German Product Liability Act. Any shorter limitation periods shall take precedence.

11. We shall be entitled to process and store any customer data obtained with regard to or in connection with the business relationship in accordance with the German Federal Data Protection Act, irrespective of whether such data is provided by the purchaser himself or by any third parties.

12. Place of performance for delivery and payment is Menden/Sauerland. The court of competent jurisdiction for any and all disputes, including disputes with regard to bills of exchange and cheques, is the Local Court (Amtsgericht) of Menden or, at our option, the District Court (Landgericht) of Arnsberg, irrespective of the value of the object in dispute. We shall, however, also be entitled to take legal proceedings against the customer at the place of his registered office.

German law shall be exclusively applicable. The application of international purchase laws is hereby excluded.

Should, for any reason whatsoever, individual provisions of our terms and conditions of sale and delivery be invalid, the validity and binding nature of the other provisions shall not be affected thereby. The customer agrees, that the invalid provision shall be replaced by a valid provision that comes as close as possible to the economic meaning of the invalid provision.

13. The prices of products made of brass and copper are subject to certain fluctuations that are based on the relevant DEL listings. The prices of our brass articles are based on a DEL listing of € 150 for Ms 58, those of our copper products on a DEL value for electrolyte copper of € 200.

In case of any increase or reduction in these prices by more than € 15, a five per cent surcharge or deduction shall be made for each 15 points. The calculation of any such surcharges or deductions shall be based on the DEL listing of the date of our receipt of the order.

Valid from January 2010



#### **QR-Code**

With the QR Code you have direct access to our products on the Internet.

You can find further information on the QR Code at [www.obo-bettermann.com](http://www.obo-bettermann.com).

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