



KOPOS

23
24

FIRE RESISTANT SYSTEMS



SYSTEMS WITH MAINTAINED FUNCTIONALITY IN FIRE

You stand for our success

New technologies guarantee the improvement and innovation of our products.
For you.

KOPOS KOLÍN a.s. is a leading manufacturer of wiring material with over 90 years of tradition. We currently produce over 5 000 products. The plastic category includes wiring boxes, trunkings, parapet trunkings, pipes, double wall protector conduits it is registered business mark KOPOFLEX® and KOPODUR® system, divided cable duct KOPOHALF®. We also include cable management systems such as cable trays, MARS cable trays, JUPITER®, wire trays or a stainless steel program. With the increasing demands on object safety, we have expanded and introduced systems to maintain functionality in the fire. Choose from a variety of carefully tested systems. The company considers it natural to produce products from halogen-free materials. By replacing lead in plastic mixtures and other environmental activities, we don't want to stand out in the environmental protection.

The products comply with the requirements of the European standards and are tested in the electrotechnical institutes. The company also owns the production technology used for the production of NEUTROSTOP shieldings. Their use is especially important where it is necessary to protect the environment from neutron radiation. We sell our products around the world through 10 daughter company. KOPOS KOLÍN a.s. is a holder of certificates according to ISO 9001 and ISO 14001, Czech Quality and Safety Certificate.

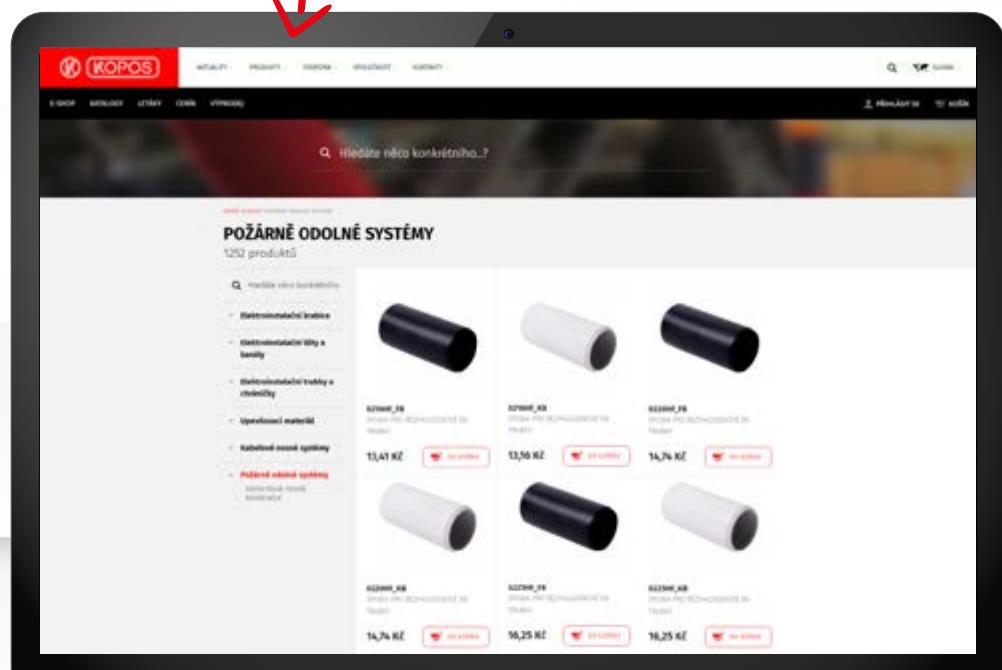


CONTENT

SYSTEMS WITH MAINTAINED FUNCTIONALITY IN FIRE

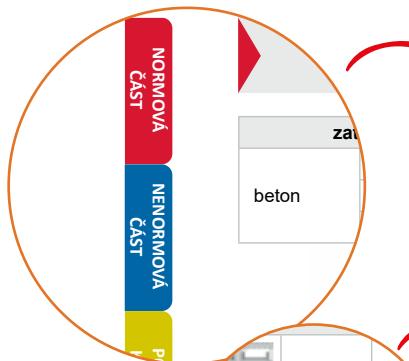
You can find all our products in the e-shop

Products linked to pages in the catalog!



www.kopos.com

WHAT'S NEW IN OUR ONLINE CATALOG?



Bookmarks for faster navigation!

A screenshot of a table titled 'strana'. It has columns for 'kód' (code), 'název' (name), and 'EAN'. The data includes:

kód	název	EAN
2	1,10	8595057695764
2	1,88	8595568903273
2	1,60	8595057695740
2	2,49	8595568903280
2,92		8595057695757
75		8595057695757

From the table in sets directly to product!



Don't you know? We will answer!

A screenshot of a table with three columns: 'kód', 'název', and 'EAN'. The 'EAN' column contains hyperlinks: [8595057695764](#), [8595568903273](#), [8595057695740](#), [8595568903280](#), [8595057695757](#), and [8595057695757](#).

kód	název	EAN
2	1,10	8595057695764
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2	1,60	8595057695740
2	2,49	8595568903280
2,92		8595057695757
75		8595057695757

EANs are hyperlinks to e-shop!

A screenshot of a table titled 'seznam výrobků' (Product List). It has columns for 'typové číslo' (Type number), 'str.' (Str.), and 'typ' (Type). The data includes:

typové číslo	str.	typ
6716ED_PO	136	DS
6716ED_POGMT	136	DP
6718_PO	136	
6718_POBD	136	
		POGMT

From the register to product page with just one click!



VIDEO

Assembly instructions of products!

Basic terms and definitions

Requirements for building structures

Cable support systems must be installed on building structures whose fire resistance is at least equal to the fire resistance of the cable support system itself and whose design is adapted to the installation of cable support routes.

The manufacturer accepts no liability if the cable support system is installed on a building structure that does not meet the requirements for fire resistance. .

Cable route

In the sense of ČSN 73 0895 cable routes are: cables and conductors for emergency circuits, high-current cables, insulated power conductors, lines for communication and communication equipment including busbars, terminal blocks, couplings, dividers, junction and installation boxes, supporting devices, holders, cable gratings, clamps, hangers, brackets, hinges, gratings, cable ladders, hooks, etc.

Cable support system

General name for supporting constructions used to store all equipment, including cables, which are related to the purpose or operation of cable routes in buildings, cable ducts, premises, shafts and bridges; the equipment material of cable ducts, shaft spaces and bridges must be made of products of reaction to fire class A1, A2 or B.

Installation cable duct

Cable duct exposed to fire from two to four sides with a defined time of fire resistance and maintaining the functionality of the cable route.

Cable route functionality

For metallic cables, it is met if no short circuit or interruption of the electric current flow occurs in the cable route during the test according to this standard. For data and optical cables, the transmission parameters must not deteriorate below the specified limit in addition.

Functional class Px-R or Phx-R

Time in minutes for which the cable route or switchboard retains its functionality in the event of a fire. The functionality class is called Px-R or Phx-R, where „x“ represents the operating time in minutes. It is proved by a test according to e.g. ČSN 73 0895, STN 92 0205, DIN 4102-12.

Standardized supporting construction

Cable support and fastening construction described as standardized in individual standards.

Non-standardized supporting construction

Cable support and fastening construction, which differs in one or more parameters from the standardized construction, eg:

- a) the type of material; or
- b) geometric dimensions (thickness of material, width of supporting construction, side height of the cable route, cross-section of supporting elements, the distance of attachment to the building structure, etc.) or
- c) the permissible mechanical load; or
- d) other parameters

Accredited fire laboratory

Testing laboratory accredited for the type of fire tests that are the subject of this standard.

Temperature scenarios

The test results obtained when testing cable routes at a higher temperature also apply to cable routes stressed by a lower temperature (e.g. if a cable route is included in functionality class P, the classification also applies to functionality class PH). So you can use our manufactured systems for resistance PH 120, PH 90, PH 60 and PH 30 while maintaining other conditions.

Surface finish

The systems can be supplied in various surface treatments (painting, hot-dip galvanizing), while this surface treatment does not affect the specified time of maintaining functionality in case of fire.

Protected escape route

Permanently free communication space leading to the exit to the open space, protected against the effects of fire.

Fire safety equipment and measures

Technical and organizational measures to reduce the theoretical intensity of a possible fire and to reduce the economic risk in the assessed building or its part (eg fire alarms, automatic stable fire extinguishing equipment, fire ventilation, constant supervision of fire protection units).

Fire safety of buildings

The ability of buildings to prevent the loss of life, health and property in the event of a fire: its layout, construction and material solutions, fire safety equipment and measures.

The fire risk of a building or its part is determined by the nature of the building, its functions, technical and technological equipment, construction, layout or urban design, fire safety measures, etc. and is expressed by the calculated fire load.

Maintaining the functional resistance of electrical cable systems in fire conditions: in the event of a fire, the thermal effect of the fire will not cause a short circuit or an open circuit in the cable system for a predetermined period of time.

Laws, decrees, standards

The requirements for the properties of cable support systems with integrated preservation of functionality in the event of fire result from the laws, decrees and standards. The issue of building safety in connection to the threat to persons in the event of a fire in our country is addressed by the General Building Act together with the Fire Protection Act. Government decrees and regulations then specify and generally regulate the technical requirements for construction, fire protection and prevention. Technical standards in relation to the fire safety of persons specify the general technical implementation procedures for guaranteed fire safety and durability. In addition to the technical design of buildings, they also deal with fire safety equipment and electricity supply.

Test of functional resistance of the system in the event of a fire

Test of the support system together with the installed cables.

This catalog would like to describe in detail the assembly of individual routes, the use of accessories, assembly elements, the application of power, data and optical fire-resistant cables.



Basic terms and definitions

Criterion Px-R, PHx-R

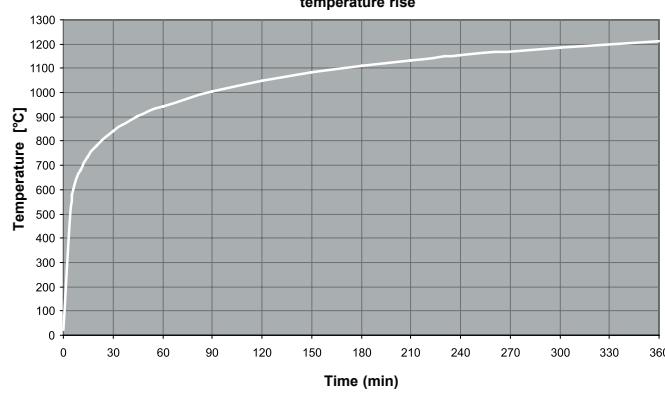
The maintenance of functional resistance is based on meeting the criterion of functional resistance.

Functional resistance classes

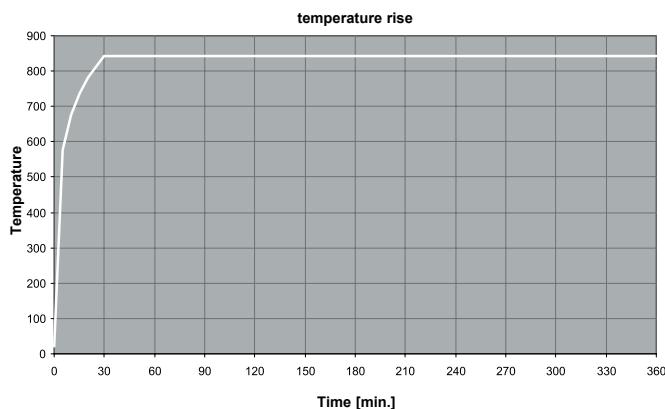
Cable routes and switchboards are classified into the functional resistance class listed in Table 1 according to the shortest time for which the Px-R functional resistance criterion is met using the temperature standard curve (temperature-time) according to ČSN EN 1363-1. It is also possible to use the criterion with the symbol PHx-R for the constant temperature of 842 °C. In this case, the temperature rises from the start of the test to 842 °C according to the standard temperature curve (temperature-time) and then remains the same, while the time counts from the start of the test.

Class	Class	Functional resistance in minutes
P15-R	PH15-R	≥ 15
P30-R	PH30-R	≥ 30
P45-R	PH45-R	≥ 45
P60-R	PH60-R	≥ 60
P90-R	PH90-R	≥ 90
P120-R	PH120-R	≥ 120

Standard temperature-time curve according to ČSN EN 1363 and according to DIN 4102 art. 12
temperature rise



Constant temperature curve with rise according to ČSN 73 0895.



Classification classes of individual standards

	ČSN 730895		DIN 4102-12	STN 920205
Temperature course of the test	Standard temperature-time curve [°C]	Constant temperature [°C]	Standard temperature-time curve [°C]	
Designation of fire functionality classes	P15-R	PH15-R	-	PS15
	P30-R	PH30-R	E30	PS30
	P45-R	PH45-R	-	PS45
	P60-R	PH60-R	E60	PS60
	P90-R	PH90-R	E90	PS90
	P120-R	PH120-R	E90	PS120

time [min]	0	5	10	15	20	30	45	60	90	120	150	180	210	240	300	360
ČSN EN 1363*	20	576	678	738	781	842	902	945	1006	1049	1082	1110	1133	1153	1186	1214
DIN 4102-12**	0	556	658	718	761	822	892	925	986	1029	1062	1090	1113	1133	1166	1194

* total temperature T in °C including ambient temperature +20 °C

** temperature rise v - vo in °C

Standard temperature-time curve:

temperatures as a function of time must be observed throughout the test according to the so-called „standard time curve“. It is an internationally used temperature profile according to ČSN EN 1363 / formula $T = 345 \log(8t + 1) + 20$, where T = average furnace temperature in °C and t = time in minutes / also according to DIN 4102-2 / formula $v - vo = 345 \log(8t + 1)$, where v = fire temperature in °C, vo = temperature of the test sample at the beginning of the test in °C, t = time in minutes. The temperature curve is based on the overall course of fire temperatures. Start of fire = phase of fire formation. In a very short time, the fire will fully develop = flash-over. The moment of flash-over and the fully developed fire is shown by the standard temperature-time curve.

Constant temperature action: The constant temperature action follows the stress according to the standard temperature/time curve when the temperature reaches 842 °C.

Maintaining functional resistance

The risk of fire can never be ruled out even with the help of various regulations and measures. Electrical wiring is exposed to heavy loads in the event of a fire. Especially in gathering areas, the supply of electricity for selected electrical equipment in protected escape and emergency routes must be maintained as long as possible. By means of cable support systems functioning in the event of fire, the supply of electricity is maintained for a specified period of time. The fire-resistant cable support system, manufactured by KOPOS KOLÍN a.s., meets the requirements of the relevant standards and regulations.

Before designing cable support systems (up to 1 kV) with functional fire resistance following is required on the basis of the fire report:

- know the level of fire safety of the fire section, which is determined on the basis of the calculation of fire risk, the construction system of the building and the height of the building or floor
- characterize the fire resistance of support constructions within the fire section, which do not ensure the stability of the building and which do not support or form fire dividing structures
- know the type of protected escape route
- design and secure methods of electricity supply from two independent sources used for fire protection of buildings (e.g. fire elevator, evacuation elevator, fire water booster pump, emergency lighting) so that in case of interruption of supply from one source, supplies are fully secured for the expected time of operation of the device from the second source
- eliminate the effects of surrounding installations on the cable support system
- v select a suitable construction of the support system according to the level of required fire resistance
- select wires and cables ensuring the function and control of the equipment used for fire protection of buildings and determine their management or storage; electrical equipment that does not serve the fire safety of the building shall be fire-assessed if:
 - a) the wires and cables are routed freely without additional protection
 - b) the insulation weight of wires and cables or flammable parts of electrical wiring exceeds 0.2 kg per m³
- develop a „Protocol on the determination of external influences“ according to ČSN 33 2000-1 ed. 2 „Low-voltage electrical installations - Part 1: Basic aspects, determination of basic characteristics, definitions“, also with its „Opr.1“ and change „Z1“. The members of the commission are electrical designer, fire technician, safety technician and investor. Furthermore, depending on the focus of the building, there are technologists and specialists with demands on electricity, such as air conditioning, heating, etc. Members of the commission must also be specialists in the field for which the building is being built.

Fire resistance testing of cable support system constructions for integrated maintenance of functionality

The fire resistance test is intended to check the operation of the cable support system in case of fire and to prove that vital functions in the building (fire lift, evacuation lift, fire water booster pump, emergency lighting, fire alarms, emergency exits) are maintained for a specified time.

A uniform European standard for fire resistance and its testing does not yet exist. The German DIN 4102-12: „Preservation of the functionality of cable support systems“ is considered to be the reference standard.

In the Czech Republic, fire resistance testing of cable support system constructions is specified by the harmonized standard ČSN EN 1363. The new standard ČSN 73 0895 sets out the methods and conditions for testing the resistance of cable routes in fire conditions.

Certified constructions identical in design to the parameters of the standard are called „standardized“.

KOPOS KOLÍN a.s. manufactures fire-resistant systems according to the above-mentioned standards. These are JUPITER KZ cable trays with a sheet thickness of 1.5 mm, cable ladders with ladder cross-pieces at a distance of 150 mm and separate cable clamps.

Certified constructions different in design or dimensions from the above standard are referred to as „non-standardized“.

KOPOS KOLÍN a.s. strives to meet customers in terms of price and therefore offers fire-resistant systems at more affordable price. The cost of acquiring a fire-resistant route can be reduced by using sheet metal of a thinner thickness than specified in the standard, with a lower number of supports, etc. The standard allows testing of these routes, which are then referred to as „non-standardized“.

Non-standardized routes include routes formed by cable trays MARS and JUPITER with an integrated coupling and with a sheet thickness of 0.7; 0.75; 0.8; 1.0; 1.25 mm, cable ladder routes with a distance of cross-pieces of 300 mm, further metal support rails, systems with cable clamps, routes formed by steel pipes and other routes that differ in their parameters from standardized routes..

Cables for systems with maintained functionality in fire

Power and data safety cables with functional fire resistance must also pass fire resistance tests in accordance with valid regulations.

Fire resistance according to ČSN EN 1363-1: 2013

According to this standard, we have tested the KPZ-1_PO fire protection box in a non-supporting aerated concrete and plasterboard wall. The test results with a rigid standard support structure can also be applied to concrete or masonry dividers with a thickness and bulk density equal to or greater than the rigid standard support structure used in the test (mineral wool 100 kg/m³, YTONG block - bulk density 650 kg/m³).

KOPOS KOLÍN a.s. as a manufacturer recommends to follow the installation instructions in this catalog during the installation. In case of non-compliance, the manufacturer does not accept liability for any damage in case of fire.

Sample of completed marking of fire routes

Fire resistant system		KOPOS KOLÍN a.s.
Installation performed:	Classification class:	
Cable trays system:	Number of classification report:	
	Year of installation:	

The OPT marking is used for routes that maintain functionality in the event of a fire (cable trays, cable ladders, boxes, etc.), always every 50 m at least.



STANDARDIZED SUPPORTING CONSTRUCTIONS ASSEMBLIES

 VIDEO



Standardized supporting constructions

STANDARDIZED CONSTRUCTIONS

KOPOS KOLÍN a.s. manufactures fire-resistant systems in accordance with relevant standards and regulations. These are JUPITER KZ cable trays with a sheet thickness of 1.5 mm and KL cable ladders with cross-pieces at a distance of 150 mm. Furthermore, separate cable clamps and clamps of the PKC1 type.

standardized routes:

- cable trays
- cable ladders
- separate cable clamps

cable trays:

- maximum permissible width 300 mm (percentage of perforations 15 +/- 5%)
- side height 60 mm
- sheet thickness 1.5 mm
- cable weight max. 10 kg/m
- distance of supports max. 1 200 mm

cable ladders:

- maximum permissible width 400 mm
- side height 60 mm
- sheet thickness 1.5 mm
- cable weight max. 20 kg/m
- distance of cross-piece 150 mm
- distance of supports max. 1 200 mm

separate cable clamps

- width of separate cable clamp 15 +/- 5 mm
- distance of individual clamps max. 300 mm

cable clamps (PKC1) for profile rail

- fastening of the profile rail by max. 250 mm
- distance between profile rails max. 300 mm

Advantages of standardized supporting systems

It is possible to use cables with proven functionality in the event of a fire from any manufacturer.

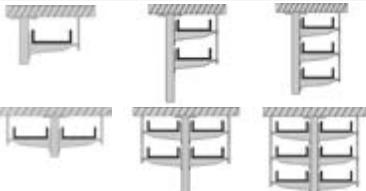
- this feature is advantage in the implementation of the system and also in the expansion during operation. It does not restrict investors and implementation companies by taking cables from a specific manufacturer.
- more robust system and thus more secure results in proving the functionality of the cable route

Disadvantages

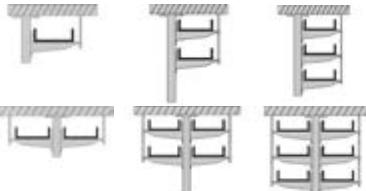
- higher purchase price
- higher installation time
- impossibility to use systems with a side height of 50 and 100 mm
- lower load of cable tray or ladder (max. 10 kg/m or 20kg/m)

Standardized supporting constructions

STANDARDIZED SUPPORTING CONSTRUCTIONS - CABLE TRAY

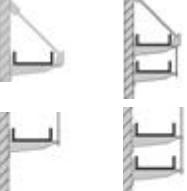
ceiling assembly using ceiling profiles and threaded rods	page
	10

STANDARDIZED SUPPORTING CONSTRUCTIONS - CABLE LADDER

ceiling assembly using ceiling profiles and threaded rods	page
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ceiling assembly using threaded rods	page
	11

ceiling assembly using threaded rods	page
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assembly on the wall	page
	12

assembly on the wall	page
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vertical installation	page
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STANDARDIZED SUPPORTING CONSTRUCTIONS - CABLE CLAMP

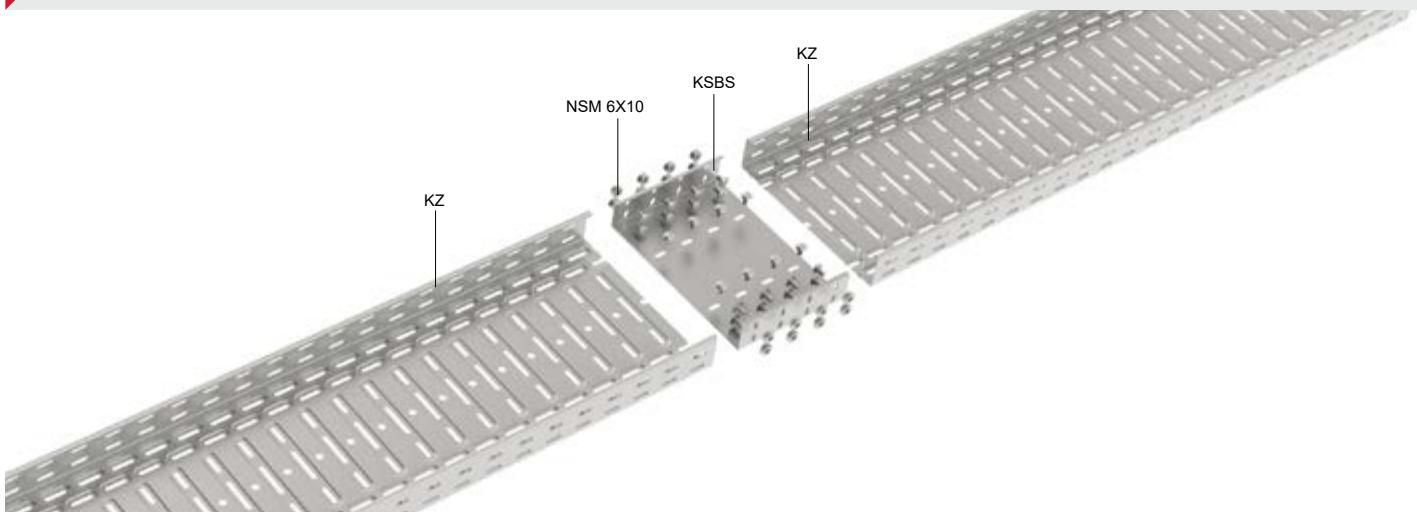
separated cable clamps	page
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cable clamps OMEGA, cable clamps DOBRMAN	page
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support profiles with PKC1 clamps	page
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wiring box KSK	page
	92 - 96

fire resistant instrument box	page
	91

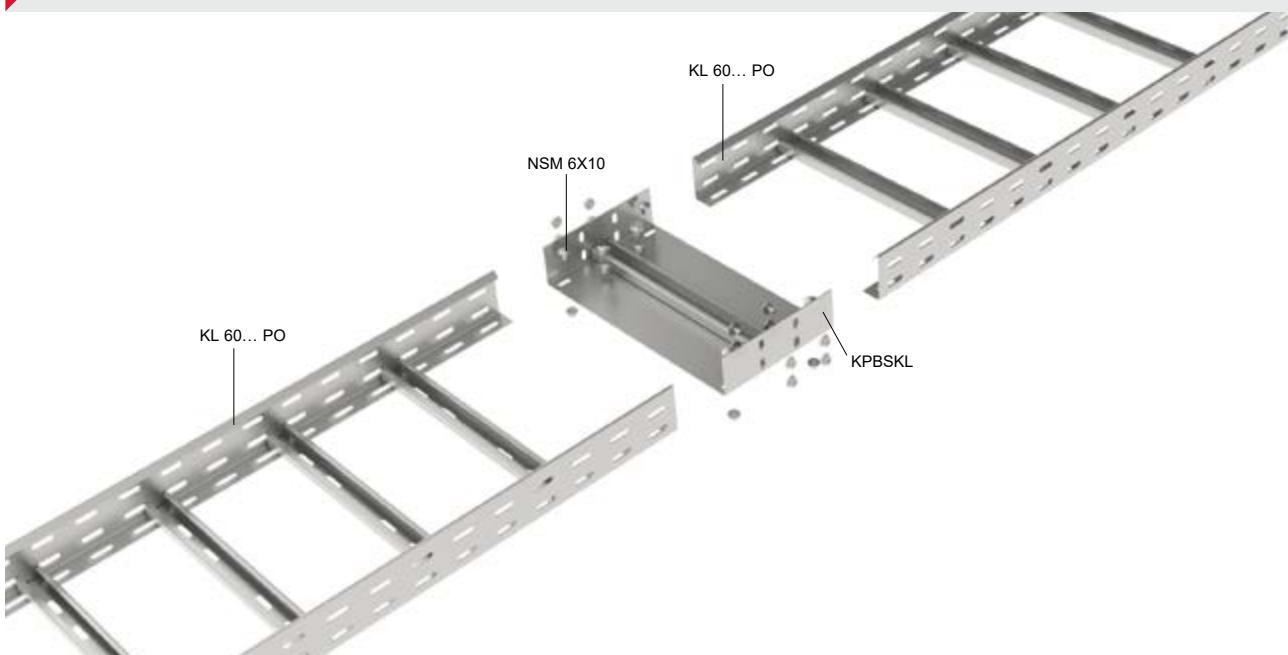
Connection of standardized fire-resistant tray KZ – JUPITER



The KZ cable tray is connected using a KSBS coupling and NSM 6X10 bolts (pg. 143).
The number of bolts depends on the type of KSBS coupling (see page 102).

coupling type	cable tray width	number of bolts per coupling
KSBS	50 - 150 mm	16 pcs NSM 6X10
KSBS	200 - 300 mm	24 pcs NSM 6X10

Connection of standardized fire-resistant ladder KL

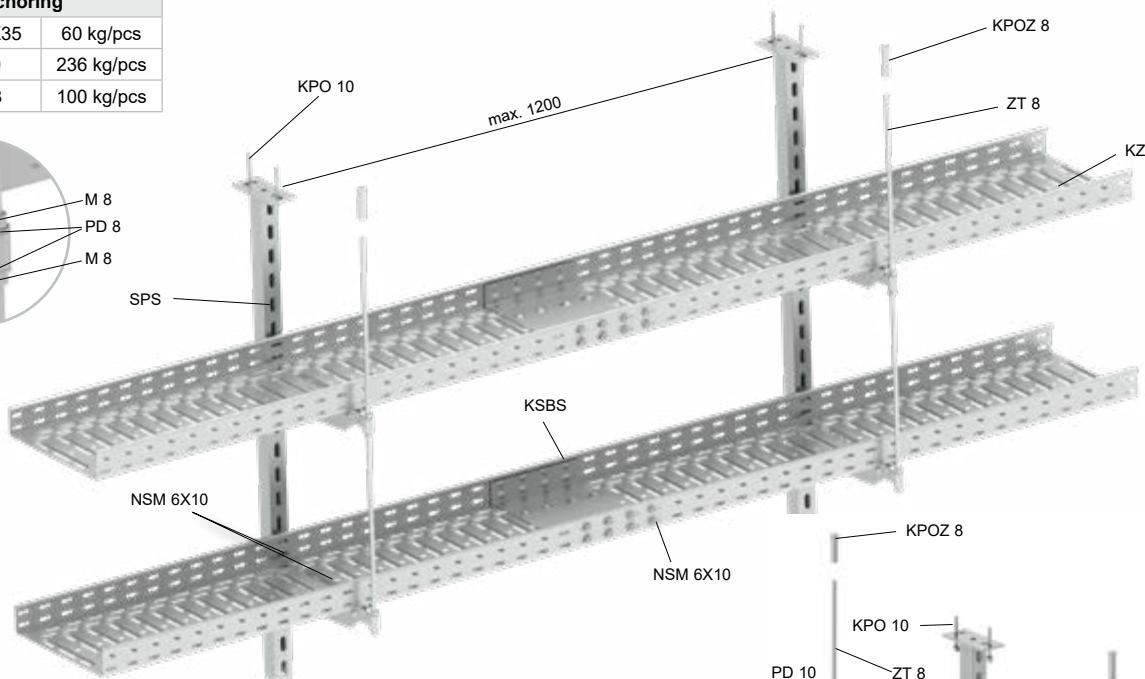
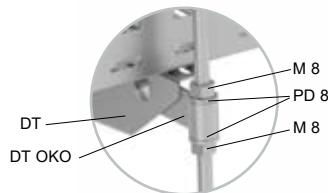


The cable ladder is connected using a KPBSKL coupling (pg. 123) and 12 pcs of NSM 6X10 bolts (pg. 143).

coupling type	cable ladder width	number of bolts per coupling
KPBSKL	150 - 400 mm	12 pcs NSM 6X10


**Cable trays JUPITER - KZ
ceiling assembly using a ceiling profile SPS**

load for anchoring		
concrete	KBS 6X35	60 kg/pcs
	KPO 10	236 kg/pcs
	KPOZ 8	100 kg/pcs


Standardized supporting construction - load 10 kg/m

The basis of the supporting construction is SPS ceiling profile anchored to the base material using KPO 10 anchors. The set also includes DT heavy holder together with a DT OKO fastened with two S 10X40 bolts, two M 10 nuts and two PD 10 washers to SPS ceiling profile. The DT heavy holder is also fixed with a threaded rod ZT 8. The KZ tray is fastened to the DT holder with NSM 6X10 bolts. The advantage of this set is the possibility of mounting DT brackets on both sides on the SPS ceiling profile.

Marking of fire routes by OPT label is always done after at least 50 m of the route.

Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	10 kg/m
cable tray side height	60 mm
cable tray width	50 - 300 mm
cable tray sheet thickness	1,5 mm

Cable manufacturer approved:

It is possible to use cables of any manufacturer with proven functionality in the event of a fire with the standardized supporting cable constructions.

	List of products for one mounting point					page
	ZT 8	1	1	2	2	
KPO 10	2	2	2	2	2	141
KPOZ 8	1	1	2	2	2	141
SPS	1	1	1	1	1	131
DT	1	2	2	2	4	131
DT OKO	1	2	2	2	4	131
S 10X40	2	4	-	-	140	
S 10X70	-	-	2	4	140	
M 8	2	4	4	8	140	
M 10	2	4	2	4	140	
PD 8	2	4	4	8	140	
PD 10	2	4	2	4	140	
NSM 6X10	2	4	4	8	143	

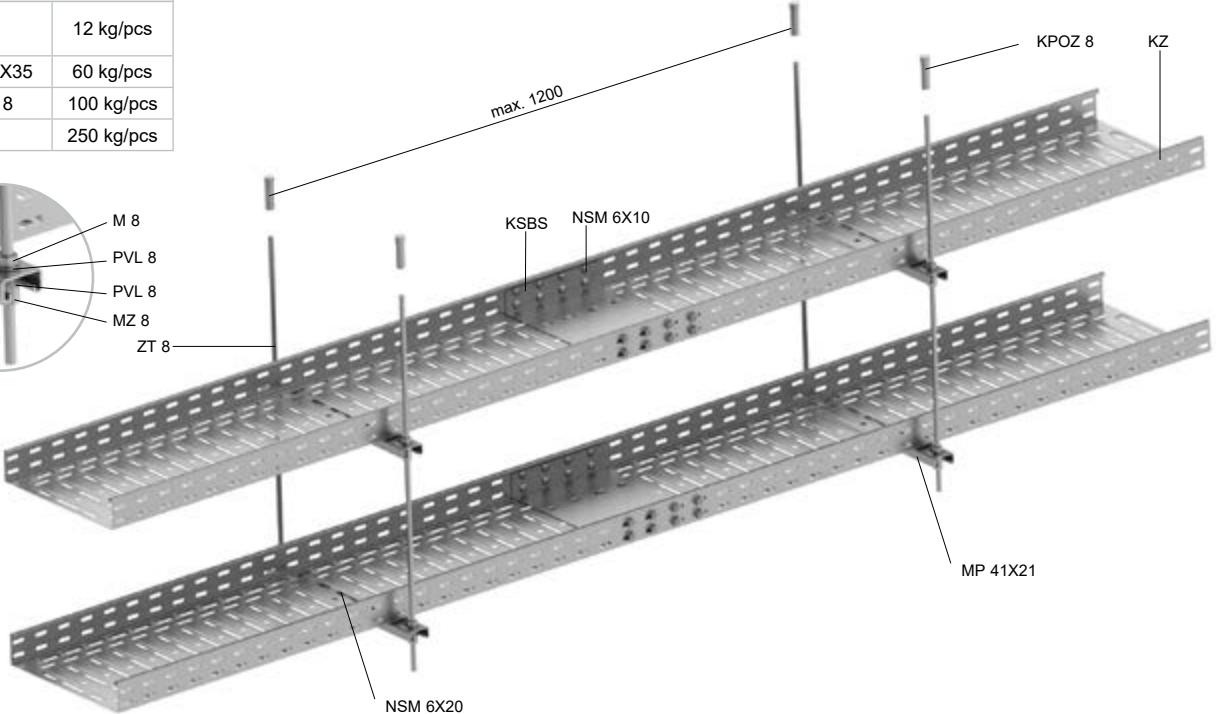
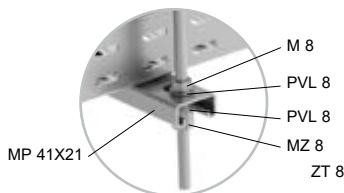
protocol number	standpoint number	classification [min] - power cables	classification [min] - data cables
FR-130-15-AUNS	PK9-03-17-913-C-2	E90, P90-R, PS90	E90, P90-R, PS90

Certification according to: ČSN 73 0895, DIN 4102-12, STN 920205

the above values of fire resistance also apply to the corresponding classifications PH90-R, PH60-R, PH45-R, PH30-R and PH15-R

**Cable trays JUPITER - KZ
ceiling assembly using threaded rods and mounting profiles MP 41X21**

load for anchoring		
trapezoidal ceiling	DSOS	12 kg/pcs
concrete	KBS 6X35	60 kg/pcs
	KPOZ 8	100 kg/pcs
I profile	US	250 kg/pcs


Standardized supporting construction - load 10 kg/m

The basis of the supporting construction is the mounting profile MP 41X21 mounted on threaded rods ZT 8. The threaded rods are attached to the base material using KPOZ anchors. The mounting profile is anchored on the threaded rods at the top by M8 nuts and PVL 8 washers, and at the bottom by the MZ 8 nut and PVL 8 washers. The tray is fastened to the mounting profile using NSM 6X20 bolts and PVL 6 washer.

Marking of fire routes by OPT label is always done after at least 50 m of the route.

Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	10 kg/m
cable tray side height	60 mm
cable tray width	50 - 300 mm
cable tray sheet thickness	1,5 mm

Cable manufacturer approved:

It is possible to use cables of any manufacturer with proven functionality in the event of a fire with the standardized supporting cable constructions.

	List of products for one mounting point			page
				
ZT 8	2	2	2	139
KPOZ 8	2	2	2	141
MP 41X21	1	2	3	134
M 8	2	4	6	140
MZ 8	2	4	6	140
PVL 8	4	8	12	140
NSM 6X20	2	4	6	143
PVL 6	2	4	6	140

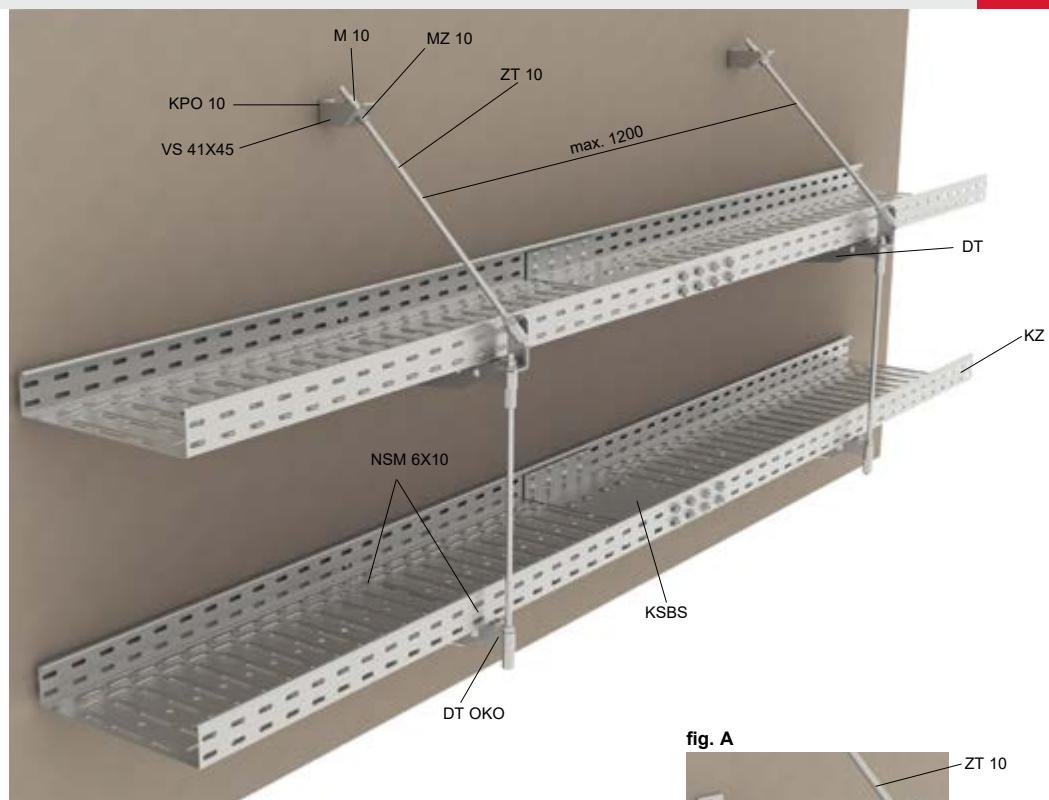
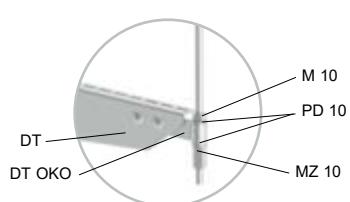
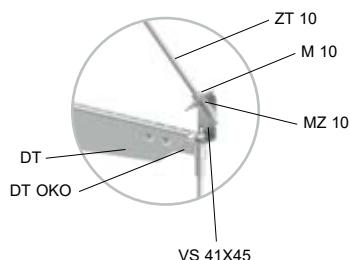
protocol number	standpoint number	classification [min] - power cables	classification [min] - data cables
FR-220-10-AUNS	PK9-03-17-913-C-2	E90, P90-R, PS90	E90, P90-R, PS90

Certification according to: ČSN 730895, DIN 4102-12, STN 920205

the above values of fire resistance also apply to the corresponding classifications PH90-R, PH60-R, PH45-R, PH30-R and PH15-R


**Cable trays JUPITER - KZ
assembly on the wall**

load for anchoring		
concrete	KPO 10	236 kg/pcs

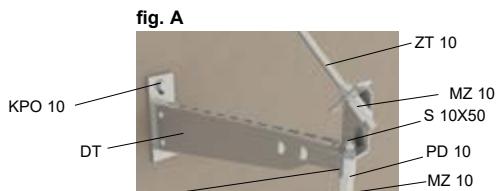

Standardized supporting construction - load 10 kg/m

The basis of the supporting construction is the DT holder with the DT OKO safety eye. The DT holder is anchored to the base material using KPO 10 anchors. The threaded rod ZT 10, which is secured at the top by a nut M 10 and at the bottom by a nut MZ 10 and washers PD 10, goes through DT OKO. The upper tray must be fixed to the wall by threaded rod and two pieces of VS 41X45 at an angle of 45°. The KZ tray is fastened to the DT holder using NSM 6X10 bolts.

In the case of one story route, the mounting part VS 41X45 is fastened to the bracket at the end of the holder DT + DT OKO by bolts S 10X50, nut MZ 10 and washers PD 10 (see Fig. A).

The ends of the securing threaded rods can be anchored to the ceiling instead of the wall. When anchoring ZT to the ceiling, it is possible to use DT and secure the free ends with ZT 10 and ZVB 1.5 parts mounted at a maximum distance of 100 mm from the free end of DT (see Fig. B).

Marking of fire routes by OPT label is always done after at least 50 m of the route.



Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	10 kg/m
cable tray side height	60 mm
cable tray width	50 - 300 mm
cable tray sheet thickness	1,5 mm

					page
ZT 10	1	2	1	2	139
KPO 10	3	5	2	4	141
KPOZ 10	-	-	1	1	141
DT	1	2	1	2	131
DT OKO	1	2	1	2	131
VS 41X45	2	2	-	-	135
ZVB 1.5	-	-	1	2	135
S 10X50	1	-	-	-	140
M 10	3	4	1	2	140
PD 10	2	4	2	4	140
MZ 10	3	4	-	-	140
NSM 6X10	2	4	2	4	143

Cable manufacturer approved:

It is possible to use cables of any manufacturer with proven functionality in the event of a fire with the standardized supporting cable constructions.

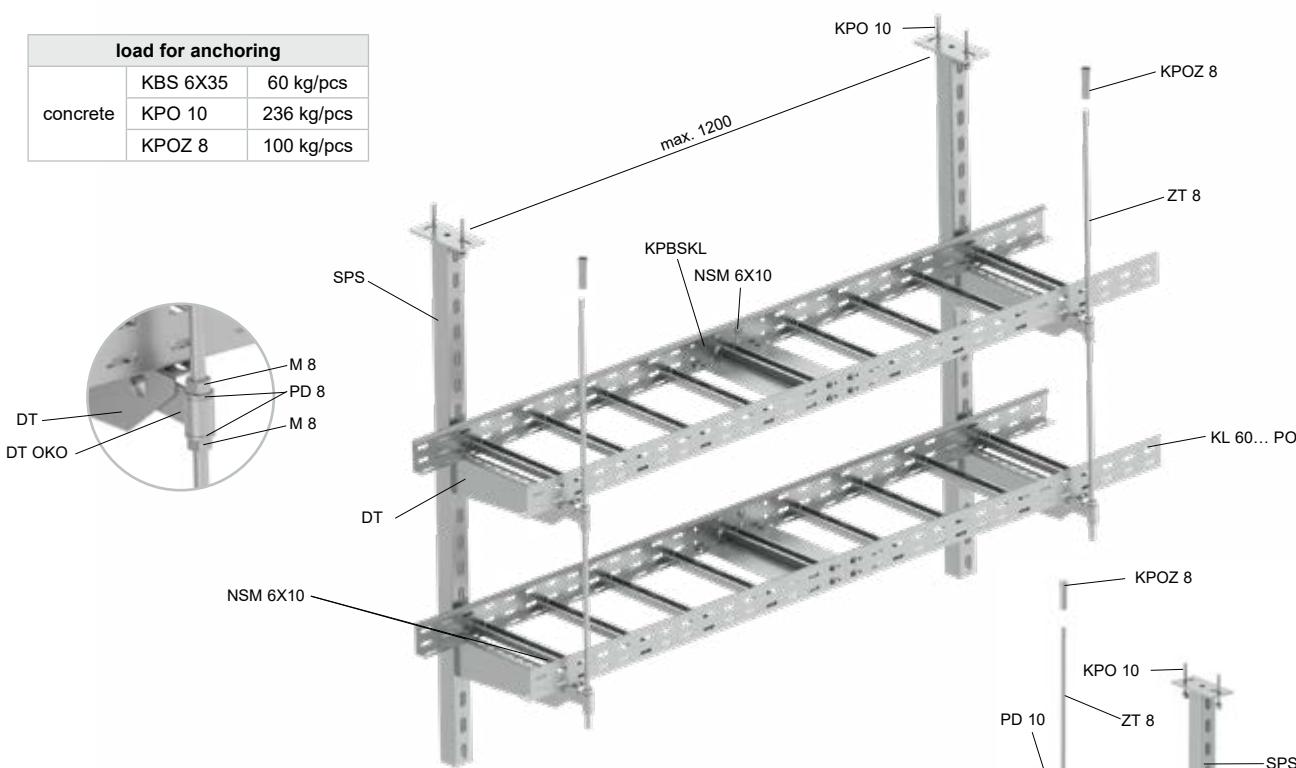
protocol number	standpoint number	classification [min] - power cables	classification [min] - data cables
FR-130-15-AUNS	PK9-03-17-913-C-2	E90, P90-R, PS90	E90, P90-R, PS90

Certification according to: ČSN 730895, DIN 4102-12, STN 920205

the above values of fire resistance also apply to the corresponding classifications PH90-R, PH60-R, PH45-R, PH30-R and PH15-R

**Cable ladders - KL 60... PO
ceiling assembly using a ceiling profile SPS**

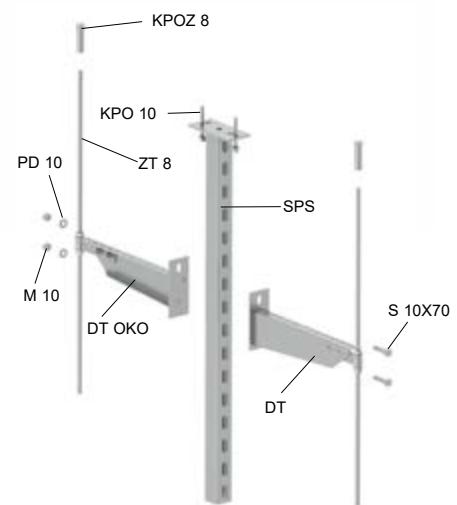
load for anchoring		
concrete	KBS 6X35	60 kg/pcs
	KPO 10	236 kg/pcs
	KPOZ 8	100 kg/pcs


Standardized supporting construction - load 20 kg/m

The basis of the supporting construction is SPS ceiling profile anchored to the base material using KPO 10 anchors. The assembly includes DT heavy holder together with DT OKO securing eye fastened with two S 10X40 bolts, two M 10 nuts and two PD 10 washers to SPS ceiling profile. The DT heavy holder is simultaneously fixed with ZT 8 threaded rod.

The cable ladder is fastened to the DT holder with NSM 6X10 bolts. The advantage of this set is the possibility of mounting DT holders on both sides on the SPS ceiling profile.

Marking of fire routes by OPT label is always done after at least 50 m of the route.



Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	20 kg/m
cable ladder side height	60 mm
cable ladder width	150 - 400 mm
cable ladder sheet thickness	1,5 mm

List of products for one mounting point					
					page
ZT 8	1	1	2	2	139
KPO 10	2	2	2	2	141
KPOZ 8	1	1	2	2	141
SPS	1	1	1	1	131
DT	1	2	2	4	131
DT OKO	1	2	2	4	131
S 10X40	2	4	-	-	140
S 10X70	-	-	2	4	140
M 8	2	4	4	8	140
M 10	2	4	2	4	140
PD 8	2	4	4	8	140
PD 10	2	4	2	4	140
NSM 6X10	2	4	4	8	143

Cable manufacturer approved:

It is possible to use cables of any manufacturer with proven functionality in the event of a fire with the standardized supporting cable constructions.

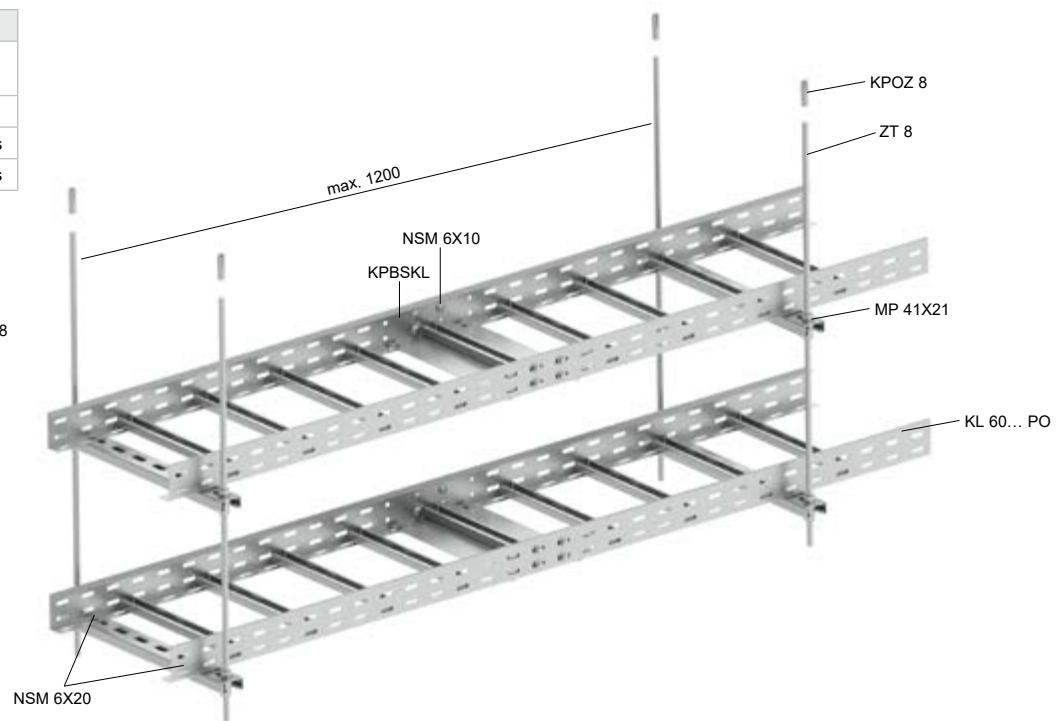
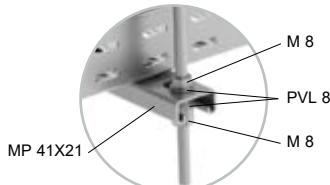
protocol number	standpoint number	classification [min] - power cables	classification [min] - data cables
FR-238-14-AUNS; FR-130-15-AUNS	PK9-03-17-913-C-2	E90, P90-R, PS90	E90, P90-R, PS90

Certification according to: ČSN 730895, DIN 4102-12, STN 920205

the above values of fire resistance also apply to the corresponding classifications PH90-R, PH60-R, PH45-R, PH30-R and PH15-R

**Cable ladders - KL 60... PO
ceiling assembly using threaded rods and mounting profiles MP 41X21**

load for anchoring		
trapezoidal ceiling	DSOS	12 kg/pcs
concrete	KBS 6X35	60 kg/pcs
	KPOZ 8	100 kg/pcs
I profile	US	250 kg/pcs


Standardized supporting construction - load 20 kg/m

The basis of the supporting construction is the MP 41X21 mounting profile mounted on ZT 8 threaded rods. The threaded rods are attached to the base material using KPOZ anchors. The mounting profile is anchored on the threaded rods by M 8 nuts and PVL 8 washers. The cable ladder is fastened to the mounting profile using NSM 6X20 bolts and PVL 6 washer.

Marking of fire routes by OPT label is always done after at least 50 m of the route.

Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	20 kg/m
cable ladder side height	60 mm
cable ladder width	150 - 400 mm
cable ladder sheet thickness	1,5 mm

List of products for one mounting point				
				page
ZT 8	2	2	2	139
KPOZ 8	2	2	2	141
MP 41X21	1	2	3	134
M 8	4	8	12	140
PVL 8	4	8	12	140
NSM 6X20	2	4	6	143
PVL 6	2	4	6	140

Cable manufacturer approved:

It is possible to use cables of any manufacturer with proven functionality in the event of a fire with the standardized supporting cable constructions.

protocol number	standpoint number	classification [min] - power cables	classification [min] - data cables
FR-130-15-AUNS	PK9-03-17-913-C-2	E90, P90-R, PS90	E90, P90-R, PS90

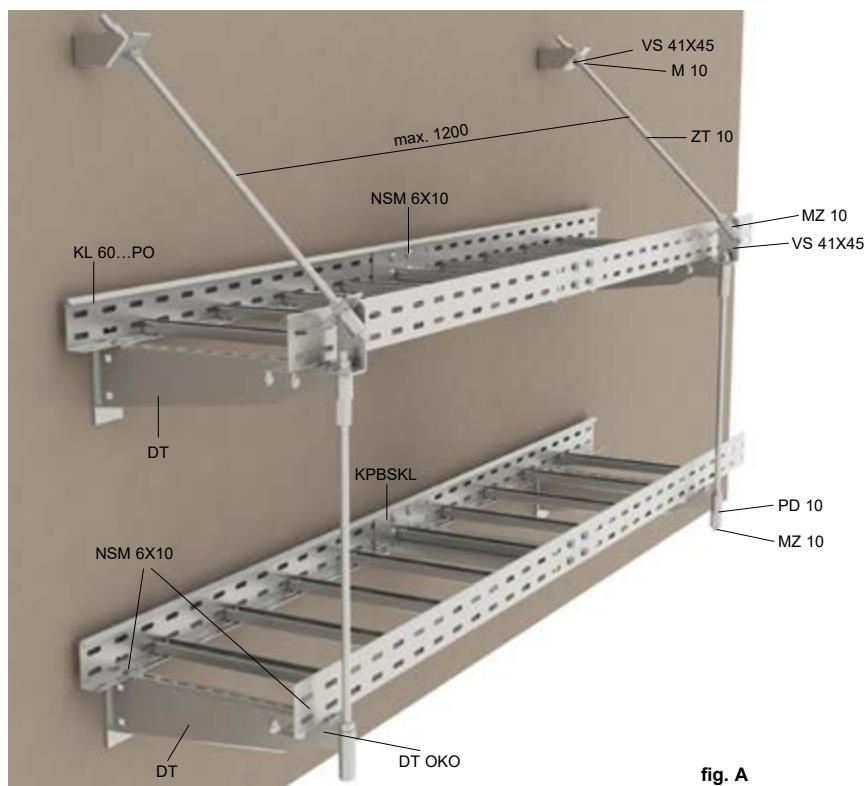
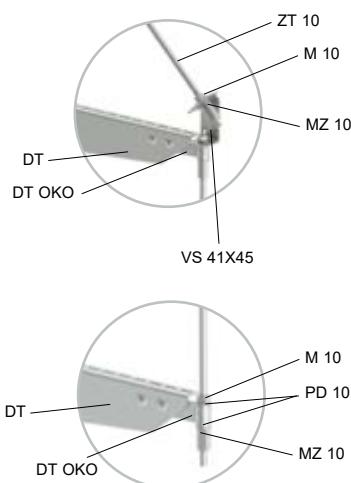
Certification according to: ČSN 730895, DIN 4102-12, STN 920205

the above values of fire resistance also apply to the corresponding classifications PH90-R, PH60-R, PH45-R, PH30-R and PH15-R



Cable ladders - KL 60... PO assembly on the wall

load for anchoring		
concrete	KPO 10	236 kg/pcs



Standardized supporting construction - load 20 kg/m

The basis of the supporting construction is the DT holder with the DT OKO safety eye. The DT holder is anchored to the base material using KPO 10 anchors. The threaded rod ZT 10, which is secured at the top by a nut M 10 and at the bottom by a nut MZ 10 and washers PD 10, goes through DT OKO. The upper tray must be fixed to the wall by threaded rod and two pieces of VS 41X45 at an angle of 45°. The cable ladder is fastened to the DT holder using NSM 6X10 bolts.

In the case of one story route, the mounting part VS 41X45 is fastened to the bracket at the end of the holder DT + DT OKO by bolts S 10X50, nut MZ 10 and washers PD 10 (see Fig. A).

The ends of the securing threaded rods can be anchored to the ceiling instead of the wall. When anchoring ZT to the ceiling, it is possible to use DT and secure the free ends with ZT 10 and ZVB 1.5 parts mounted at a maximum distance of 100 mm from the free end of DT (see Fig. B).

Marking of fire routes by OPT label is always done after at least 50 m of the route.

Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	20 kg/m
cable ladder side height	60 mm
cable ladder width	150 - 400 mm
cable ladder sheet thickness	1,5 mm

List of products for one mounting point					
					page
ZT 10	1	2	1	2	139
KPO 10	3	5	2	4	141
KPOZ 10	-	-	1	1	141
DT	1	2	1	2	131
DT OKO	1	2	1	2	131
VS 41X45	2	2	-	-	135
ZVB 1.5	-	-	1	2	135
S 10X50	1	-	-	-	140
M 10	3	4	1	2	140
PD 10	2	4	2	4	140
MZ 10	3	4	-	-	140
NSM 6X10	2	4	2	4	143

Cable manufacturer approved:

It is possible to use cables of any manufacturer with proven functionality in the event of a fire with the standardized supporting cable constructions.

protocol number	standpoint number	classification [min] - power cables	classification [min] - data cables
FR-156-12-AUNS	PK9-03-17-913-C-2	E90, P90-R, PS90	E90, P90-R, PS90

Certification according to: ČSN 730895, DIN 4102-12, STN 920205

the above values of fire resistance also apply to the corresponding classifications PH90-R, PH60-R, PH45-R, PH30-R and PH15-R

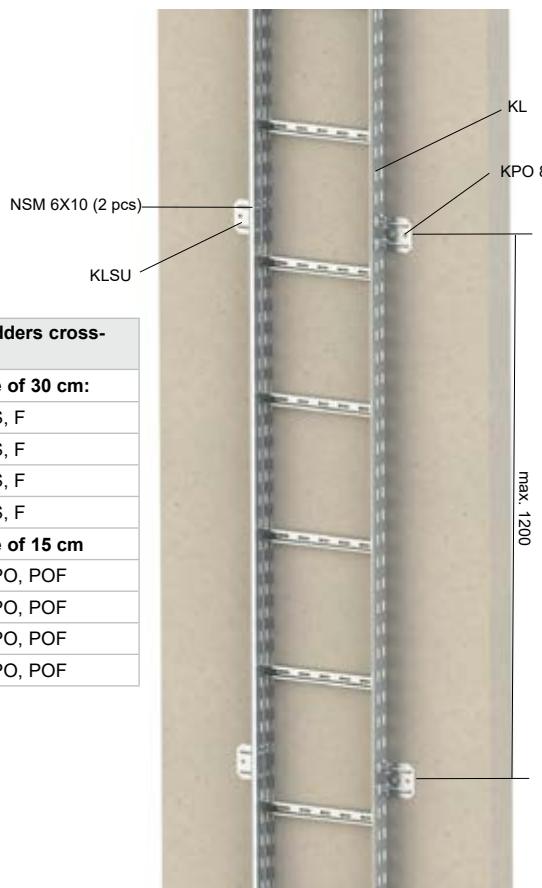


Cable ladders - KL 60... cable ladder assembly - vertical installation



load for anchoring

concrete	KPO 8	187 kg/pcs
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Standardized supporting construction - load 20 kg/m

The cable ladder is attached to the base material using KLSU clamps attached to the side of the ladder in a maximum span of 1200 mm using NSM 6X10 bolts. The installation on the base material is done by using KPO 8 anchors.

The cable located in the cable ladder must be mechanically fixed with PKC1 clamps every 300 mm at least. If the length of the vertical cable route is greater than 3500 mm, it is necessary to create a relieving elbow or use the KPS cable clamps cover (page 127).

A maximum of 3 cables with functionality in the event of a fire can be inserted into the PKC1 clamps for the vertical route.

Marking of fire routes by OPT label is always done after at least 50 m of the route.

Permissible technical parameters of the route

spacing of mounting points	max. 1200 mm
maximum load	20 kg/m
distance between individual routes	100 mm (the minimum distance for placing KPS cover)
cable ladder side height	60 mm
cable ladder width	150 - 400 mm

List of products for one mounting point

		page
KLSU	2	135
KPO 8	2	141
NSM 6X10	4	143
PKC1	according to the cables amount	138

Cable manufacturer approved:

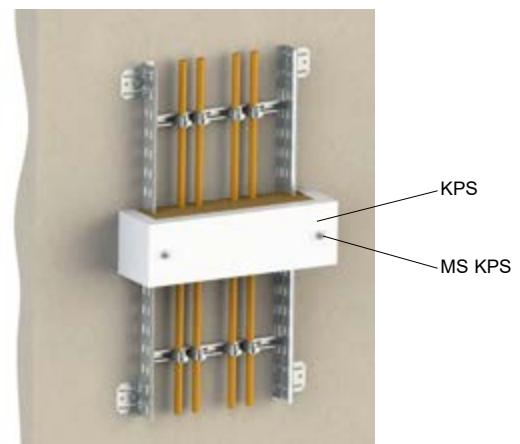
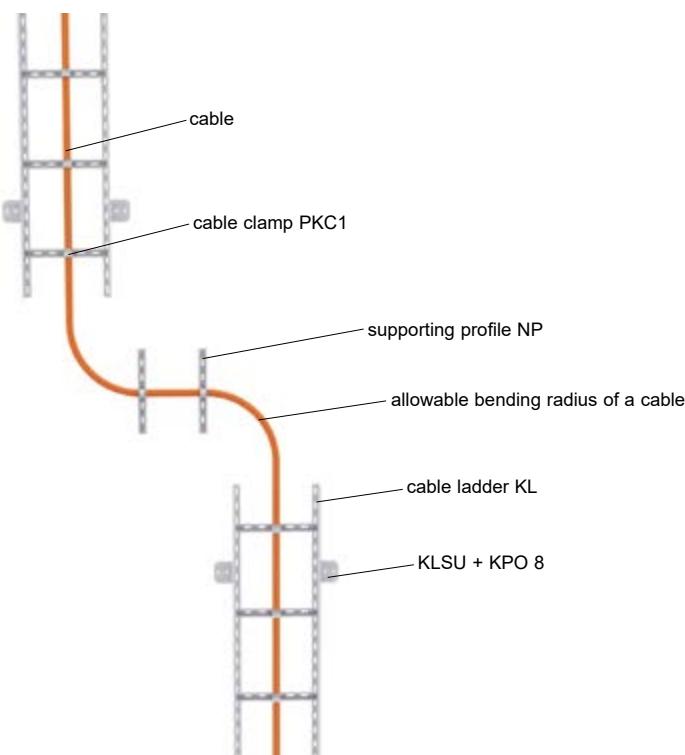
It is possible to use cables of any manufacturer with proven functionality in the event of a fire with the standardized supporting cable constructions.

According to the standards, the vertical route created by the cable ladders KL 60X... S (F) is understood as a clamp for individual cables. The cable ladders are connected using S 60X200 coupling. Fixing of the cables with individual clamps in span of 300 mm is understood as a standardized supporting construction. Because the vertical route may be part of a non-standardized supporting construction, it is always necessary to use cables from manufacturers who have been certified for installation on the non-standardized part of the cable route. The route must be anchored before going to the vertical part.

KPS - replacement for relieving elbow

Instead of the relieving elbow, it is possible to use the KPS cable clamps cover (pg. 127). If the KPS cover is used, the classification of the fire resistance is reduced to 60 minutes.

Relieving elbow



Certification according to: ČSN 73 0895, DIN 4102-12, STN 920205

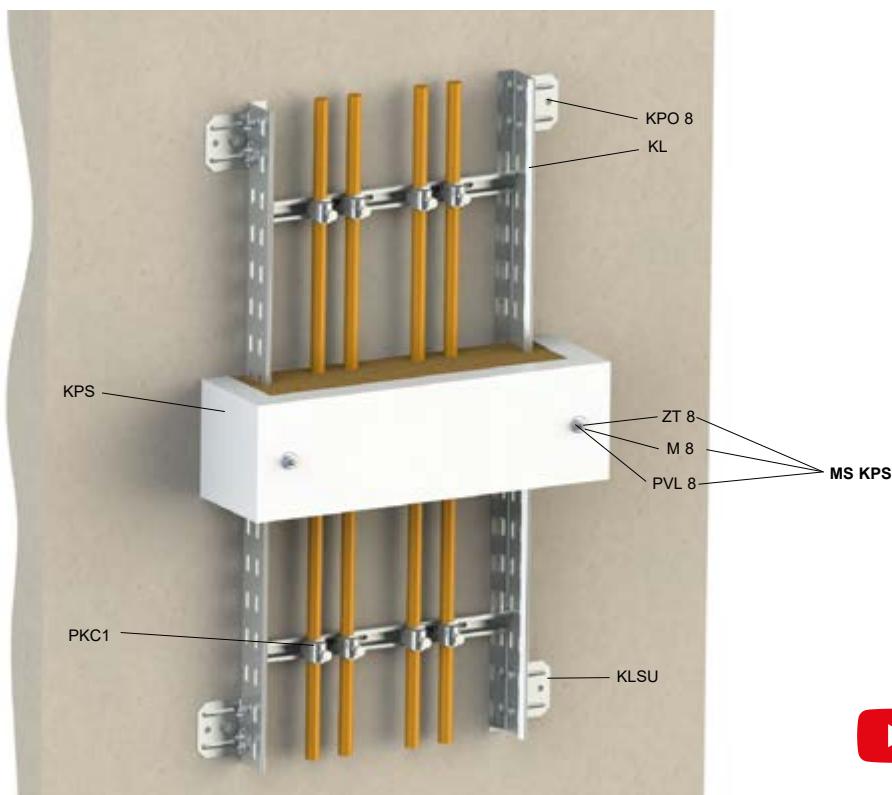
the above values of fire resistance also apply to the corresponding classifications PH90-R, PH60-R, PH45-R, PH30-R and PH15-R



vertical route



KPS cable clamps cover
up to a cable ladder width of up to 400 mm



Standardized supporting construction

The KPS cable clamps cover is attached to the base material using ZT 8 threaded rods, PVL 8 washers, M8 nuts and KPOZ 8 anchors (MS KPS assembly set). KPS is thermal protection for the clamps (PKC1, OMEGA, DOBRMAN, 67xx_PO), in which the cable is fixed and thus clamps maintains its mechanical function even in fire conditions. In order for the cover to function safely, it must be installed on vertical routes consisting of cable ladders, OMEGA, DOBRMAN or 67xx_PO clamps every max. of 3,5 m. The cover is placed symmetrically with the axis of the cable route cross-piece. The cover does not function as a fire seal.

Marking of fire routes by OPT label is always done after at least 50 m of the route.

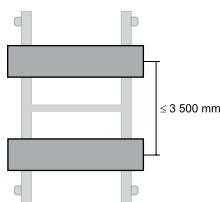
The KPS cover can be used as a replacement for the relieving elbow.

It can also be used for separate cable clamps type 67xxPO, OMEGA, DOBRMAN and for PKC1 clamps installed in NP support profiles.

Assembly description

Secure the cables to each cross-piece with clamps. Drill the holes in the wall according to the spacing of the holes in the PKC1 clamps cover and insert the anchors into them. Mount threaded rods to the anchors. Attach the clamps cover and lightly tighten over the washers. Insert one layer of insulating cotton wool after another. Always carefully seal the area around the cables with pieces of cotton wool. Now tighten the nuts fixing the cover firmly and carefully coat the area around the cables and the edges of the insulation wool with the supplied cement.

List of products for one mounting point		
		page
KPS	1	127
MS KPS	1	127
PKC1	according to the cables amount	138



MS KPS - assembly set - ordered separately

protocol number	standpoint number	classification [min] - power cables	classification [min] - data cables
FR-238-14-AUNS	PK9-03-17-913-C-2	E60, P60-R, PS60	E60, P60-R, PS60



Certification according to: ČSN 73 0895, DIN 4102-12, STN 920205

the above values of fire resistance also apply to the corresponding classifications PH90-R, PH60-R, PH45-R, PH30-R and PH15-R



vertical route

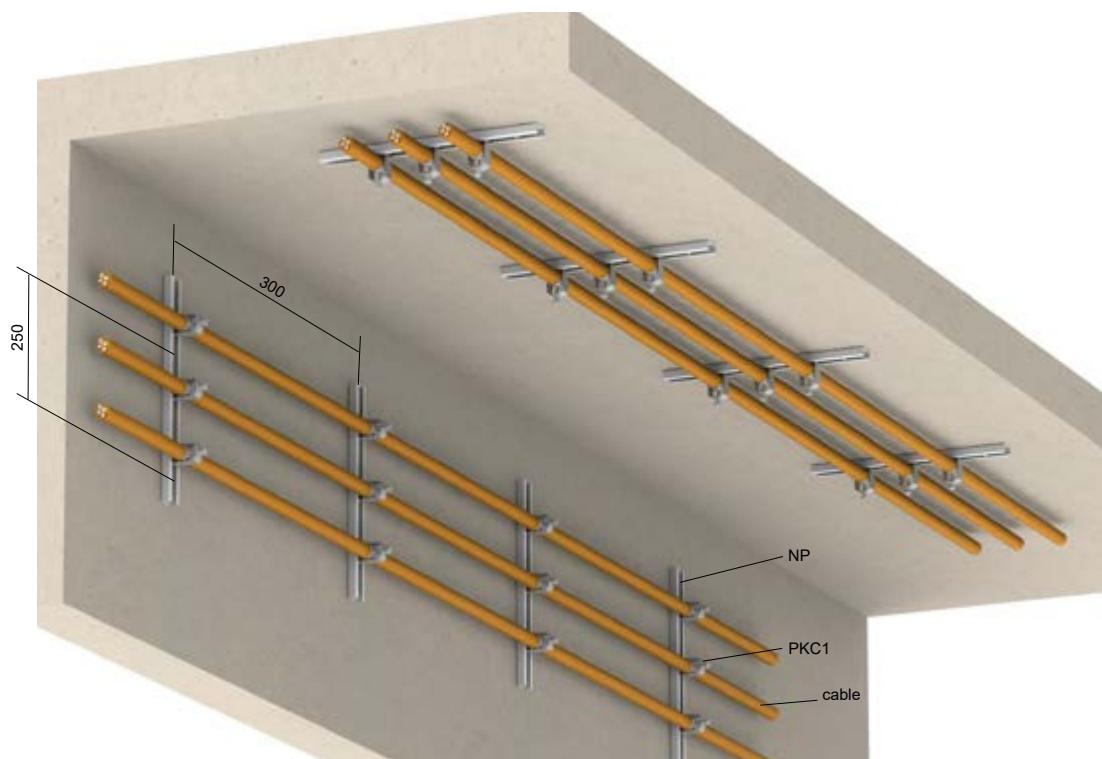


Cable clamps (PKC1) with profile rail placement on the ceiling and wall

kg
by inserted
cables



load for anchoring		
concrete	KPO 6	100 kg/pcs
concrete	SB 6.3X35	362 kg/pcs
aerated concrete	KHP + SB 6.3X45	4 kg/pcs



Standardized supporting construction

The basis of the supporting construction are NP mounting profiles. The anchoring spacing of the profiles is max. of 250 mm. Anchoring is done using KPO 6 anchors or concrete screws SB 6.3X35. The cables are fixed to the individual profiles using PKC1 clamps. A maximum of 3 cables with proven functionality in the event of a fire can be placed in a single PKC1 clamp.

Due to the test performed on the horizontal installation, it is possible in compliance with ČSN 73 0895 to use this route for vertical (ascending) routes. When using a vertical route longer than 3500 mm, it is necessary to create a relieving elbow or use the KPS cable clamps cover. For more extensive installation, you can use the NP 30X15X1.20 profile while maintaining all the conditions above. NP 30X15X1.20 can be cut to any length.

Marking of fire routes by OPT label is always done after at least 50 m of the route.

Permissible technical parameters of the route	
spacing of mounting points	max. 250 mm
maximum load	load of inserted cables (max. 3 cables in a single clamp)

List of products for one mounting point		
		page
NP (NP 30X15X1.20)	1	134
KPO 6	2	141
PKC1	according to the cables amount	139

Cable manufacturer approved:

It is possible to use cables of any manufacturer with proven functionality in the event of a fire with the standardized supporting cable constructions.

protocol number	standpoint number	classification [min] - power cables	classification [min] - data cables
FR-104-14-AUNS	PK9-03-17-913-C-2	E90, P90-R, PS90	E90, P90-R, PS90

Certification according to: ČSN 730895, DIN 4102-12, STN 920205

the above values of fire resistance also apply to the corresponding classifications PH90-R, PH60-R, PH45-R, PH30-R and PH15-R

vertical route

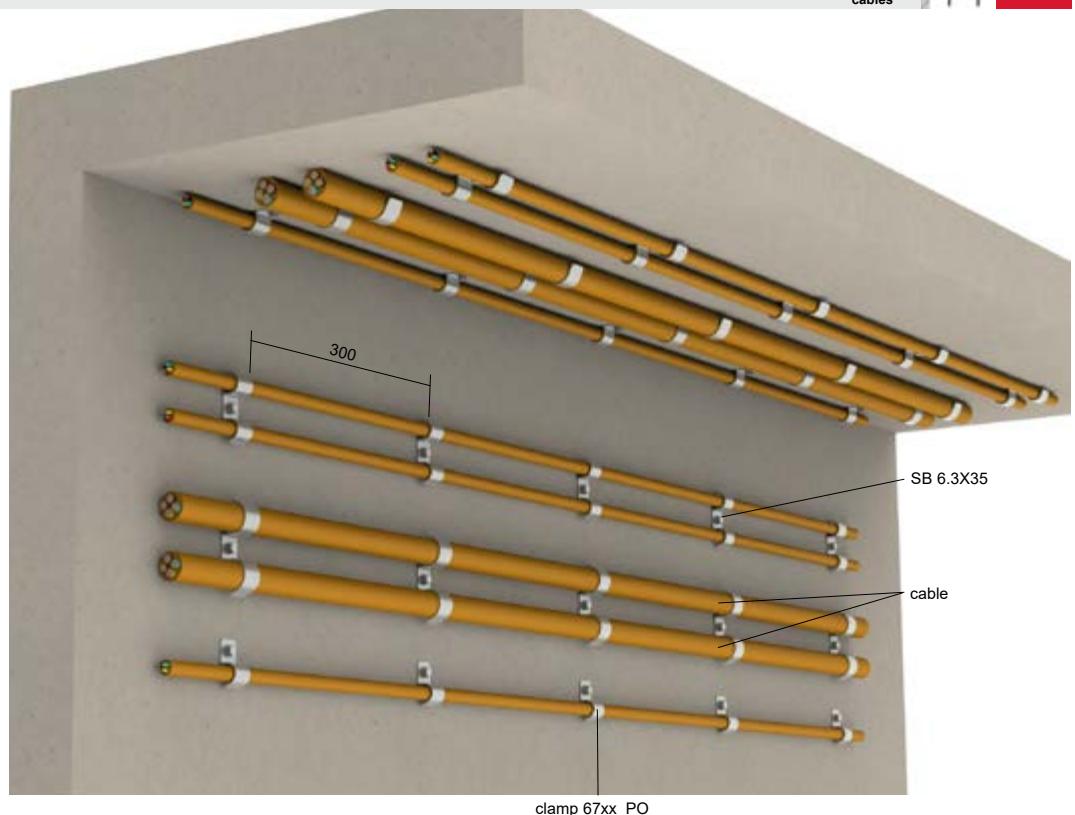
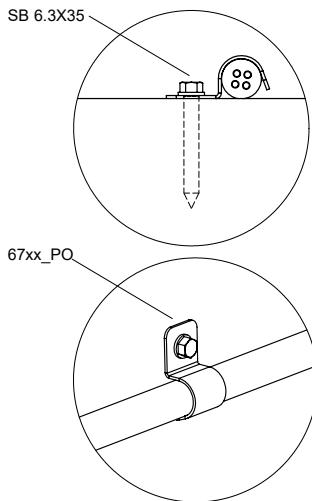
67xx_PO Separate cable clamps

assembly of cable clamps - placement on the ceiling and wall



kg
by inserted
cables


load for anchoring		
concrete	SB 6.3X35	362 kg/pcs
	KPO 6	100 kg/pcs
aerated concrete	KHP + SB 6.3X45	4 kg/pcs
plech	STP 4.2X13	2 kg/pcs
nailing	KHB, KHO	by inserted cable

**Standardized supporting construction**

The basis of supporting construction are clamps of the 6706-6725 series fastened to the base material using fire-resistant concrete screws SB 6.3X35 or SB 6.3X45. The screws are screwed into pre-drilled holes in concrete or solid masonry with a diameter of 5 mm. The size of the clamps must be chosen with regard to the diameter of the installed cable.

Only one cable of the corresponding diameter can be installed in one single clamp, two cables of the corresponding diameter in a double clamp. Two 6706-6725 clamps can be installed under one screw to create a route for two cables of different diameters. The clamps can also be used for vertical routes. When using an vertical route longer than 3500 mm, it is necessary to create a relieving elbow or use a KPS cable clamps cover.

The STP 4.2X13 screw is used for anchoring to the trapezoidal metal sheet. A KHP dowel with the SB 6.3X45 concrete screw or a KVP screw is used for anchoring in aerated concrete. Holeless clamps (POBD) can be nailed with suitable nails.

Marking of fire routes by OPT label is always done after at least 50 m of the route.

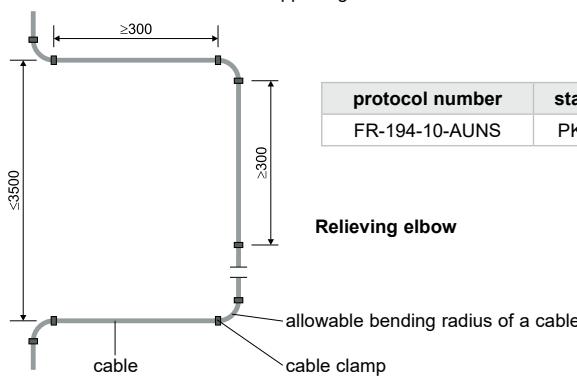
Explanation of configurations

- PO, POGMT - one-sided clamps with a hole of Ø 6 mm
- POBD - one-sided clamps without hole (for nailing)
- 6716ED_PO, POGMT - double clamps with a hole of Ø 6 mm

Permissible technical parameters of the route	
spacing of mounting points	max. 300 mm
maximum load	only one cable in a single clamp

Cable manufacturer approved:

It is possible to use cables of any manufacturer with proven functionality in the event of a fire with the standardized supporting cable constructions.



List of products for one mounting point			
			page
67xx_PO, POGMT, POBD	1	-	136
6716ED_PO, POGMT	-	1	136
SB 6.3X35 (concrete, full masonry)	1	1	142
STP 4.2X13 (metal sheet)	1	1	143
KHP 8X38 + SB 6.3X45 (aerated concrete)	1	1	142

Certification according to: ČSN 73 0895, DIN 4102-12, STN 920205

the above values of fire resistance also apply to the corresponding classifications PH90-R, PH60-R, PH45-R, PH30-R and PH15-R



installation of two clamps
under single screw



nailing
option (pg. [150](#))

 vertical route

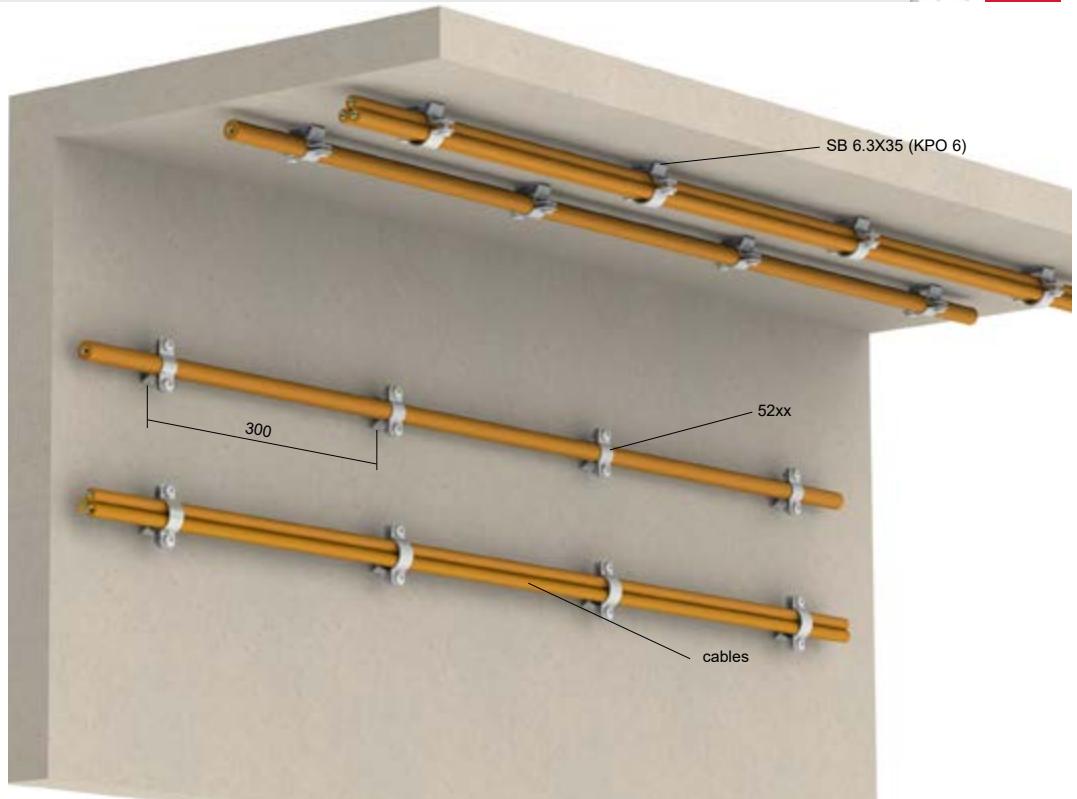
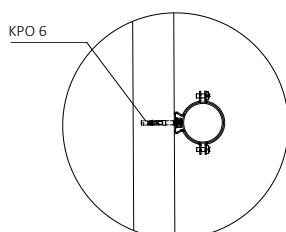
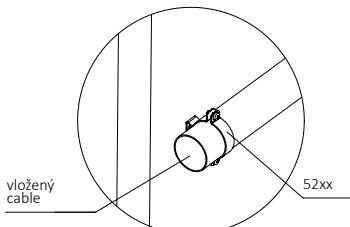


OMEGA 52xx cable clamps
OMEGA clamps assembly - placement on the ceiling and wall

kg
by inserted
cables



load for anchoring		
concrete	SB 6.3X35	362 kg/pcs
	KPO 6	100 kg/pcs
aerated concrete	KHP + SB 6.3X45	4 kg/pcs



Standardized supporting construction

The basis of the supporting construction are OMEGA 52xx clamps, which are anchored at a distance of 300 mm between each other in the base material using SB 6.3X35 screws. Concrete screws are screwed into pre-drilled holes in concrete or solid masonry. It is also possible to use the KPO 6 anchor for fixing the clamps. OMEGA clamps can also be anchored on threaded rods. This placement is an advantage in the case of insulating the supporting walls with thermal insulation. Anchoring of threaded rods is performed through thermal insulation directly on the building structure with proven functionality in the event of a fire. Due to the test performed on the horizontal installation, it is possible in compliance with ČSN 73 0895 to use this route for vertical (ascending) routes. When using a vertical route longer than 3500 mm, it is necessary to create a relieving elbow or use the KPS cable clamps cover.

A KHP dowel with the SB 6.3X45 concrete screw is used for anchoring in aerated concrete.

Marking of fire routes by OPT label is always done after at least 50 m of the route.

Permissible technical parameters of the route	
spacing of mounting points	max. 300 mm
maximum load	load of inserted cables (max. 3 cables in a single clamp)

List of products for one mounting point		
		page
52xx	1	137
SB 6.3X35 (KPO 6)	1	142

Cable manufacturer approved:

It is possible to use cables of any manufacturer with proven functionality in the event of a fire with the standardized supporting cable constructions.

protocol number	standpoint number	classification [min] - power cables	classification [min] - data cables
FR-238-14-AUNS	PK9-03-17-913-C-2	E90, P90-R, PS90	E90, P90-R, PS90

Certification according to: ČSN 730895, DIN 4102-12, STN 920205

the above values of fire resistance also apply to the corresponding classifications PH90-R, PH60-R, PH45-R, PH30-R and PH15-R



vertical route

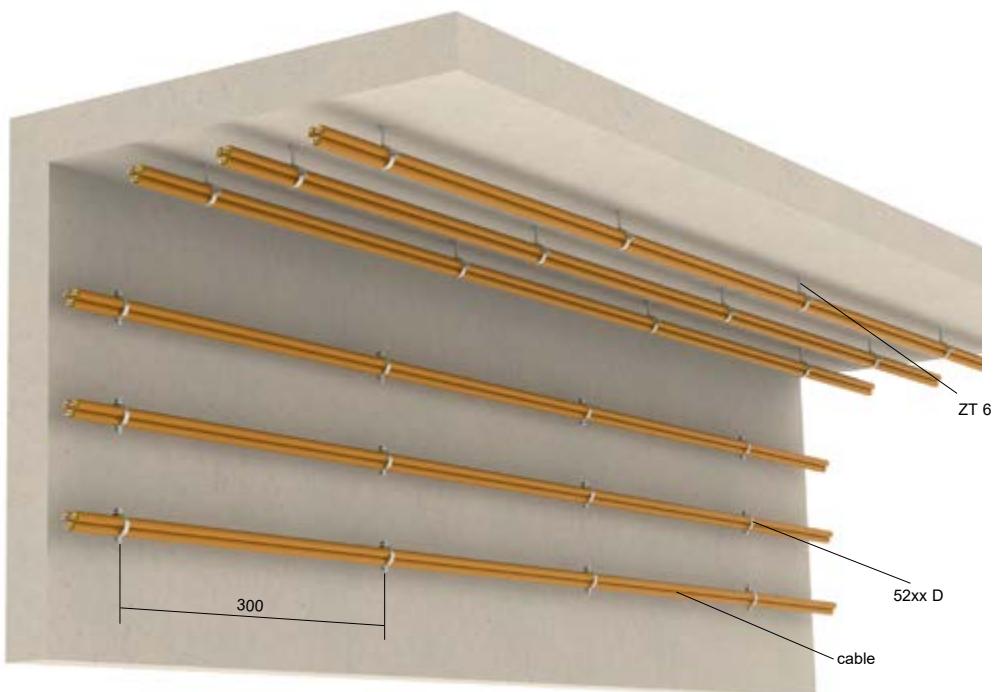
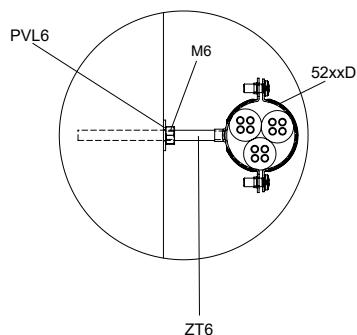


DOBRMAN 52xx D cable clamps
DOBRMAN clamps assembly - placement on the ceiling and wall

kg
 by inserted
 cables



load for anchoring		
	KPO 6	100 kg/pcs
	KPOZ 6 + ZT 6	80 kg/pcs
aerated concrete	KHP + SVD	5 kg/pcs



Standardized supporting construction

The basis of the supporting construction are clamps of the DOBRMAN 52xx D type, which are fixed onto the ZT 6 threaded rod or KPO 6 anchors at a distance of max. 300 mm between each other. KPO 6 is hammered into pre-drilled holes in concrete or solid masonry. The cable is then inserted into the installed clamps. Due to the test performed on the horizontal installation, it is possible in compliance with ČSN 73 0895 to use this route for vertical (ascending) routes. DOBRMAN clamps can also be fixed to threaded rods. This placement is an advantage in the case of insulating the supporting walls with thermal insulation. Anchoring of threaded rods is performed through thermal insulation directly on building structures with proven functionality in the event of a fire. When using a vertical route longer than 3500 mm, it is necessary to create a relieving elbow or use a KPS cable clamps cover. A KHP dowel with a SVD screw is used for anchoring in aerated concrete.

Marking of fire routes by OPT label is always done after at least 50 m of the route.

Permissible technical parameters of the route	
spacing of mounting points	max. 300 mm
maximum load	load of inserted cables (max. 3 cables in a single clamp)

List of products for one mounting point		
		page
52xx D	1	137
KPO 6	1	141
KPOZ 6 + ZT 6	1	141 + 139
PVL 6	1	140
SVD 30 (SVD 40)	1	143
M 6	1	140

Cable manufacturer approved:

It is possible to use cables of any manufacturer with proven functionality in the event of a fire with the standardized supporting cable constructions.

protocol number	standpoint number	classification [min] - power cables	classification [min] - data cables
FR-270-16-AUNS	PK9-03-17-913-C-2	E90, P90-R, PS90	E90, P90-R, PS90

Certification according to: ČSN 73 0895, DIN 4102-12, STN 920205

the above values of fire resistance also apply to the corresponding classifications PH90-R, PH60-R, PH45-R, PH30-R and PH15-R



vertical route

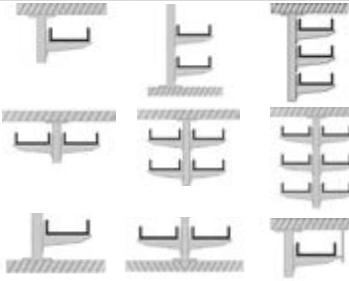
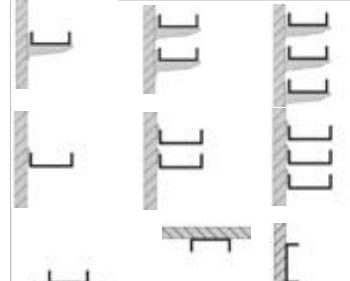
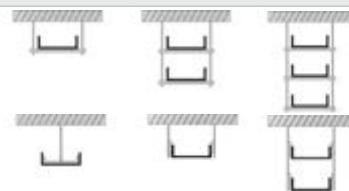


NON-STANDARDIZED SUPPORTING CONSTRUCTIONS ASSEMBLIES

 **VIDEO**



NON-STANDARDIZED SUPPORTING CONSTRUCTIONS - CABLE TRAY, LADDER, WIRE TRAY, ETC.

fire resistant box using ceiling profiles	page	assembly on wall, ceiling and floor	page
	33, 35, 36, 46, 49, 54, 61		27-29, 39, 40, 50, 34, 48, 55, 58, 59, 67, 68, 72
ceiling assembly using threaded rods	page		
	30 - 32, 41 - 45, 47, 51 - 53, 70, 74, 75, 60, 64, 69		
vertical cable ladder, wire tray	page		
	62, 63, 71		

NON-STANDARDIZED SUPPORTING CONSTRUCTIONS - WIRING FIRE BOXES

wiring box KSK	page	fire resistant box	page
	92 - 96		91

NON-STANDARDIZED SUPPORTING CONSTRUCTIONS

page	steel pipes, halogen-free rigid pipes	 	81 - 83	OMEGA and DOBRMAN cable clamps	 	78, 79
86 - 87	 					80
77	 			 		84, 85
						88

NON-STANDARDIZED SUPPORTING CONSTRUCTIONS

NON-STANDARDIZED CONSTRUCTIONS

KOPOS KOLÍN a.s. offers more cost-effective fire-resistant systems in an effort to meet customers in terms of price. The cost of a fire-resistant route can be reduced by using a sheet thinner than the standardized and by a more sophisticated cable tray shape solution and anchoring system. The standard allows testing of these routes, which are then referred to as non-standardized.

Non-standardized routes include, for example, routes formed by cable trays MARS and JUPITER with an integrated coupling and with a sheet thickness of 0.7; 1.0; 1.25 mm, cable ladder routes with a distance of 300 mm between cross-pieces, greater distance of supporting metal rails, routes formed by steel and plastic pipes, clamps, parapet channels, etc.

non-standardized routes:

- trays with integrated coupling and with a sheet thickness of 0.7; 0.75; 0.8; 1.0 and 1.25 mm
- cable trays with a side height of 50, 60 and 100 mm
- cable ladders with a side height of 60 and 110 mm
- cable ladders with cross-pieces span of 300 mm
- wire trays
- support rails
- steel and plastic pipes
- halogen-free rigid pipes
- OMEGA and DOBRMAN cable clamps
- SD 2 grouped cable holder
- separate cable clamps
- wiring box KSK
- parapet channels and trunkings

The system includes those systems that have been tested as a whole.

In the systems it is necessary to use only cables with proven functionality in the event of a fire from the manufacturer with whom the specific route was tested, e.g. PRAKAB PRAŽSKÁ KABELOVNA, s. r. o., NKT, s. r. o., Reichle & De-Massari Czech, a. s. apod.

Advantages:

- lower price
- time saving during assembly
- greater possibilities in mounting systems
- possibility of higher load
- greater distances between supports

Disadvantages:

- the necessity to use only those types of cables with which the assembly has been tested

Sample of completed marking of fire routes

Fire resistant system		KOPOS KOLÍN a.s.
Installation performed:	Classification class:	
Cable trays system:	Number of classification report:	
	Year of installation:	

Marking of fire routes by OPT label is always done after at least 50 m of the route.

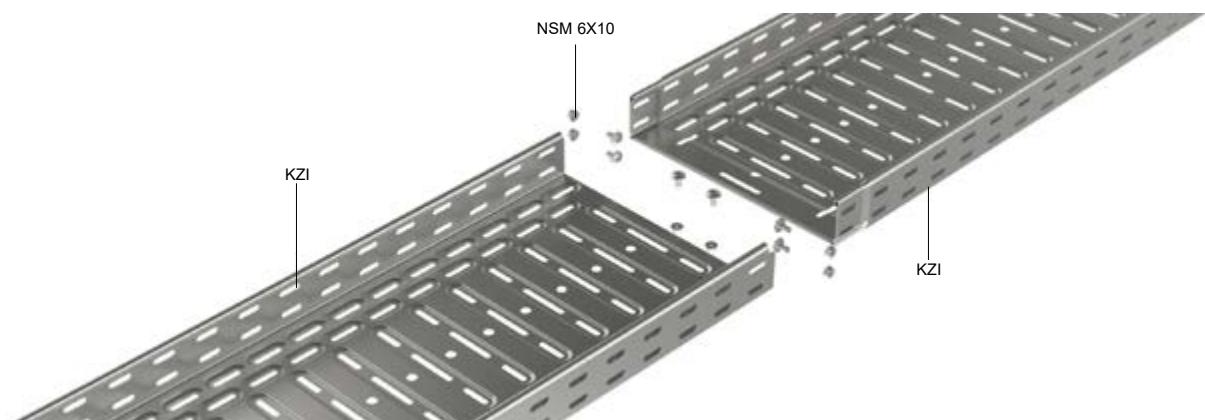


NON-STANDARDIZED SUPPORTING CONSTRUCTIONS

JUPITER ASSEMBLIES



Connection of fire-resistant tray KZI - JUPITER



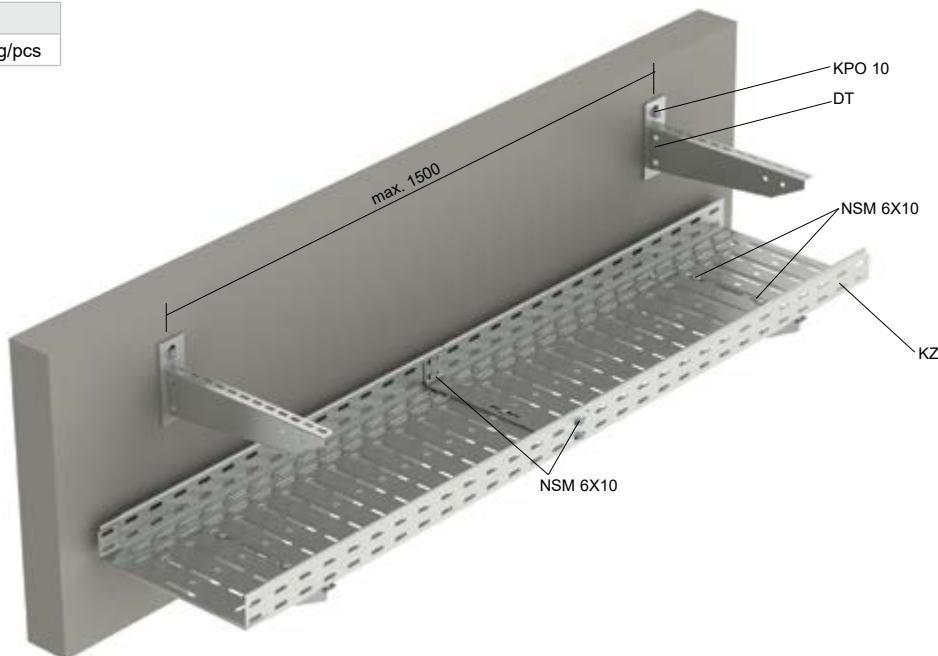
The KZI cable tray with the maintaining functionality in the event of a fire is made of metal sheet with a thickness of 0.7; 1.0 or 1.25 mm. The connection of the KZI cable tray is made by an integrated coupling, which is a part of the tray, and by NSM 6X10 bolts.

KZI tray width	NSM 6X10 number of bolts	number of bolts in the bottom of the tray for fastening to support
50		
75		
100	4	1
150		
200		
300		
400	6	2
500		
600		



**Cable trays JUPITER - KZI - sheet thickness 1,25 mm
assembly of cable trays on the wall with holders DT**

load for anchoring		
concrete	KPO 10	236 kg/pcs



Non-standardized supporting constructions - load 10 kg/m

The basis of the supporting construction are DT holders attached to the base material using KPO 10 anchors. The cable trays are equipped with an integrated coupling and, when inserted into each other, they are connected by the NSM 6X10 bolts. The tray must be also attached to the DT holder using NSM 6X10 bolts.

Marking of fire routes by OPT label is always done after at least 50 m of the route.

Classification of fire resistance according to:

DIN 4102-12
ČSN 73 0895
STN 92 0205

Permissible technical parameters of the route	
spacing of mounting points	max. 1500 mm
maximum load	10 kg/m
cable tray side height	60 mm
cable tray width	50 - 300 mm
cable tray sheet thickness	1,25 mm

List of products for one mounting point				
				page
DT	1	2	3	131
KPO 10	2	4	6	141
NSM 6X10	2	4	6	143

cable manufacturer	No.	power cables	classification [min]	data cables	classification [min]
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1	PRAFlaDur	E90, P90-R, PS90	PRAFlaGuard F	E90, P90-R, PS90
	2	PRAFlaDur 90	E60, P60-R, PS60		
Kabelovna Kabex, a. s.	-	CPDex 1-CHKE-V	E90, P90-R, PS90	JCXFE-V	E30, P30-R, PS30

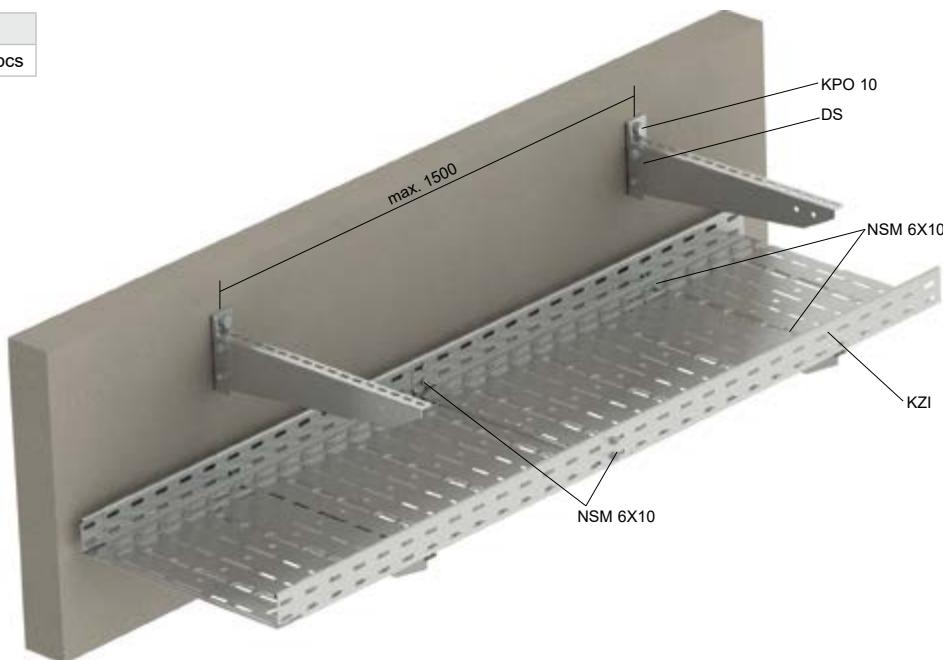
cable manufacturer	No.	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1	FR-172-10-AUNS	PK9-03-17-913-C-2
	2	FR-220-11-AUNS	JR-052-17-NURS
Kabelovna Kabex, a. s.	-	FR-139-09-AUNS	PK9-03-17-913-C-2



**Cable trays JUPITER - KZI - sheet thickness 1,0 mm
assembly of cable trays on the wall with holders DS**

**T kg
10**

load for anchoring		
concrete	KPO 10	236 kg/pcs



Non-standardized supporting constructions - load 10 kg/m

The basis of the supporting construction are DS holders attached to the base material using KPO 10 anchors. The cable trays are equipped with an integrated coupling and, when inserted into each other, connected by the NSM 6X10 bolts. The tray must be also attached to the DT holder using the NSM 6X10 bolts.

Marking of fire routes by OPT label is always done after at least 50 m of the route

Classification of fire resistance according to:

DIN 4102-12
ČSN 73 0895
STN 92 0205

Permissible technical parameters of the route	
spacing of mounting points	max. 1500 mm
maximum load	10 kg/m
cable tray side height	60 mm
cable tray width	50 - 400 mm
cable tray sheet thickness	1,0 mm

List of products for one mounting point				
				page
DS	1	2	3	132
KPO 10	2	4	6	141
NSM 6X10	2	4	6	143

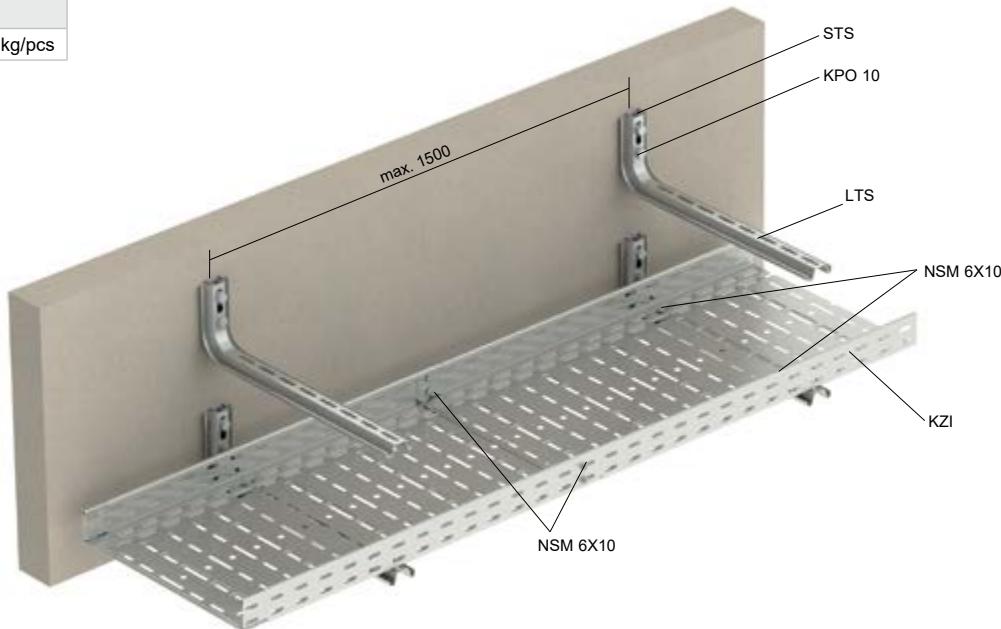
cable manufacturer	power cables	classification [min]	data cables	classification [min]
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	PRAFlaDur 90	E90, P90-R, PS90	PRAFlaGuard F	E30, P30-R, PS30
Reichle & De-Massari Czech, a. s.	1-CXKH-V	E90, P90-R, PS90	JXFE-V	E90, P90-R, PS90

cable manufacturer	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	FR-228-15-AUNS	PK9-03-17-913-C-2
Reichle & De-Massari Czech, a. s.	PR-18-2.005	PK9-03-18-901-C-0



**Cable trays JUPITER - KZI - sheet thickness 1,0 mm
assembly of cable trays on the wall with holders LTS**

load for anchoring		
concrete	KPO 10	236 kg/pcs



Non-standardized supporting constructions - load 10 kg/m

The basis of the supporting construction are LTS holders with STS reinforcement attached to the base material using KPO 10 anchors. The cable trays are equipped with an integrated coupling and, when inserted into each other, connected by the NSM 6X10 bolts. The tray must be also attached to the DT holder using the NSM 6X10 bolts.

Marking of fire routes by OPT label is always done after at least 50 m of the route.

Classification of fire resistance according to:

DIN 4102-12
ČSN 73 0895
STN 920205

Permissible technical parameters of the route	
spacing of mounting points	max. 1500 mm
maximum load	10 kg/m
cable tray side height	60 mm
cable tray width	50 - 400 mm
cable tray sheet thickness	1,0 mm

List of products for one mounting point				
	LTS	STS	page	
LTS	1	2	3	132
STS	1	2	3	132
KPO 10	2	4	6	141
NSM 6X10	2	4	6	143

cable manufacturer	power cables	classification [min]	data cables	classification [min]
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	PRAFlaDur 90	E60, P60-R, PS60	PRAFlaGuard F	E90, P90-R, PS90

cable manufacturer	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	FR 228-15-AUNS	PK9-03-17-913-C-2

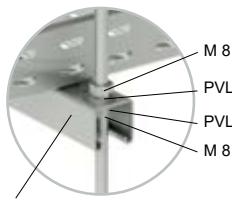


**JUPITER - KZI Cable trays - sheet thickness 1.25 mm
ceiling assembly using threaded rods and mounting profiles MP 41X41 or MP 41X21**

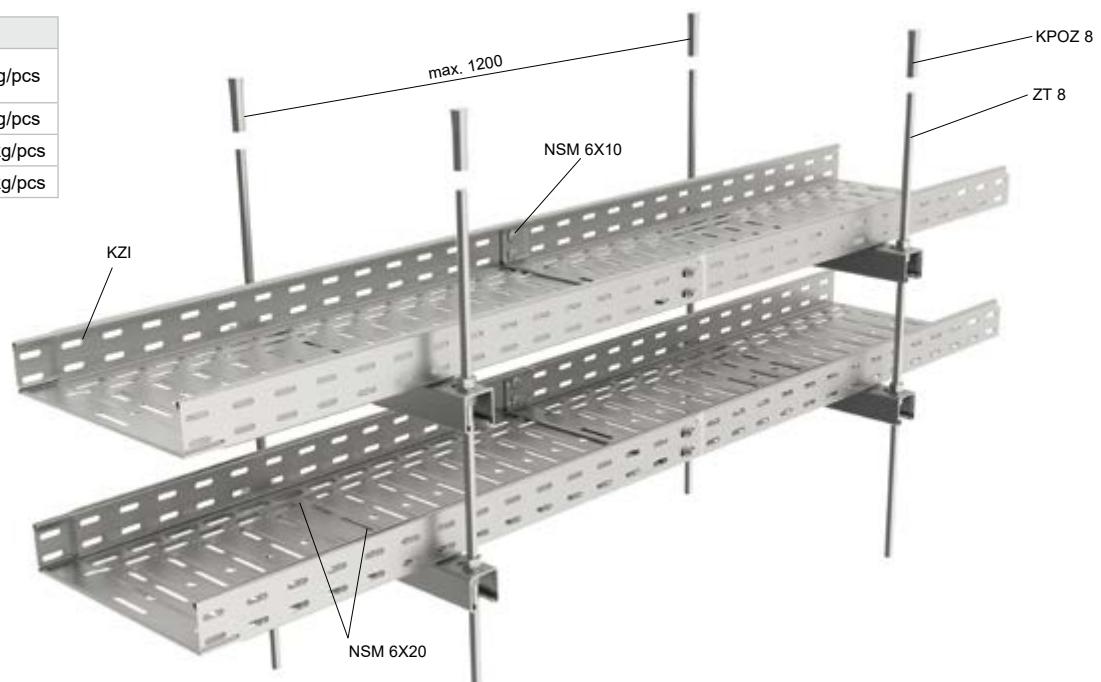
10; 20



load for anchoring		
trapezoidal ceiling	DSOS	12 kg/pcs
concrete	KBS 6X35	60 kg/pcs
	KPOZ 8	100 kg/pcs
I profile	US	250 kg/pcs



MP 41X41 nebo
MP 41X21



Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	10 kg/m or 20 kg/m
cable tray side height	60 mm
cable tray width	50 - 600 mm
cable tray sheet thickness	1,25 mm

Non-standardized supporting construction for loads of 10 kg/m or 20 kg/m

The basis of the supporting construction is the KZI cable tray, which is suspended from the ceiling by means of MP 41X21 profiles (MP 41X21), ZT 8 threaded rods and KPOZ 8 anchors. The mounting profile is fastened to the threaded rods using M 8 nuts and PVL 8 washers. KZI cable trays are attached to the mounting profiles using NSM 6X20 bolts and PVL 6 washers. It is possible to place two cable trays next to each other up to a total width of 600 mm. KSK boxes with fire resistance can be installed on KZI cable trays using the MDS mounting plate.

Marking of fire routes by OPT label is always done after at least 50 m of the route.

Classification of fire resistance according to:

DIN 4102-12
ČSN 73 0895
STN 920205

List of products for one mounting point				
	ZT 8	NSM 6X20	NSM 6X20	page
ZT 8	2	2	2	139
KPOZ 8	2	2	2	141
MP 41X41 (MP 41X21)	1	2	3	134
M 8	4	8	12	140
PVL 8	4	8	12	140
NSM 6X20	2	4	6	143
PVL 6	2	4	6	140

cable manufacturer	No.	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1	FR-270-16-AUNS	JR-004-17-NURS
	2	FR 104-14-AUNS	PK9-03-17-913-C-2
Reichle & De-Massari Czech, a. s.	-	FR-104-14-AUNS	PK9-03-17-913-C-2
Kabelovna Kabex, a. s.	-	FR-088-12-AUNS	JR-073-17-NURS
Klaus Faber AG	-	FR-270-16-AUNS	JR-004-17-NURS
NKT, s. r. o.	-	PRA9-03-17-90Z-C-0	

cable manufacturer	No.	power cables	classification [min]	data cables	classification [min]	note	load
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	2	PRAFlaDur 90	E90, P90-R, PS90	PRAFlaGuard F	E60, P60-R, PS60	width of the trays up to 300 mm	20 kg/m
	1	PRAFlaDur	E90, P90-R, PS90		E90, P90-R, PS90	-	20 kg/m
Reichle & De-Massari Czech, a. s.	-	1-CXKH-V	E60, P60-R, PS60	JXFE-V	E60, P60-R, PS60	width of the trays up to 500 mm	20 kg/m
KABELWERK EUPEN AG	-	NHXH	E90, P90-R, PS90	JE-H(St)H	E90, P90-R, PS90	width of the trays up to 300 mm	10 kg/m
Kabelovna Kabex, a. s.	-	1-CSKE-V	E30, P30-R, PS30	-	-	width of the trays up to 300 mm	10 kg/m
Klaus Faber AG	-	(N)HXH-J	E60, P60-R, PS60	JE-H(St)H	E60, P60-R, PS60	-	20 kg/m
NKT, s. r. o.	-	NOPOVIC 90	E90, P90-R, PS90	-	-	-	20 kg/m

the above values of fire resistance also apply to the corresponding classifications PH90-R, PH60-R, PH45-R, PH30-R and PH15-R

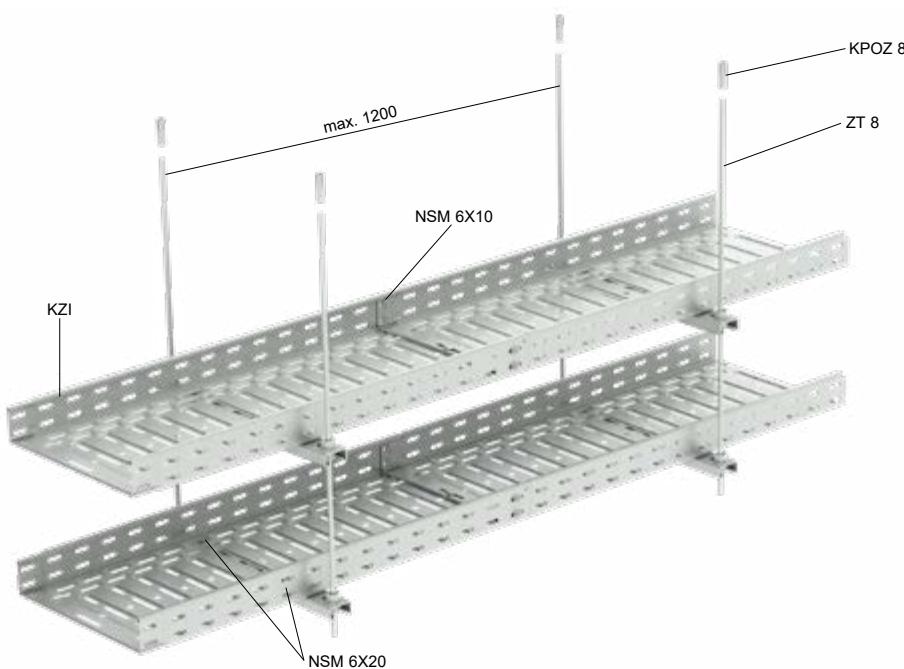
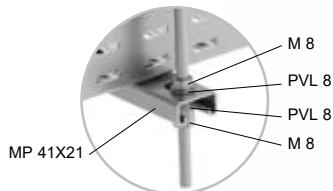


**Cable trays JUPITER - KZI - sheet thickness 1,0 mm
ceiling assembly using threaded rods and mounting profiles MP 41X21**

10; 20



load for anchoring		
trapezoidal ceiling	DSOS	12 kg/pcs
concrete	KBS 6X35	60 kg/pcs
	KPOZ 8	100 kg/pcs
I profile	US	250 kg/pcs



Non-standardized supporting construction for loads of 10 kg/m or 20 kg/m

The basis of the supporting construction is the KZI cable tray, which is suspended from the ceiling using MP 41X21 profiles, ZT 8 threaded rods and KPOZ 8 anchors. The mounting profile is fastened to the threaded rods using M 8 nuts and PVL 8 washers. KZI cable trays are attached to the mounting profiles using NSM 6X20 bolts and PVL 6 washers. It is possible to place two cable trays next to each other up to a total width of 600 mm. KSK boxes with fire resistance can be installed on KZI cable trays using the MDS mounting plate.

Marking of fire routes by OPT label is always done after at least 50 m of the route.

Classification of fire resistance according to:

ČSN 73 0895
STN 92 0205
DIN 4102-12

Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	10 kg/m or 20 kg/m
cable tray side height	60 mm
cable tray width	50 - 600 mm
cable tray sheet thickness	1,0 mm

cable manufacturer	No.	power cables	classification [min]	data cables	classification [min]	note	load
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1	PRAFlaDur 90	E60, P60-R, PS60	PRAFlaGuard F	E90, P90-R, PS90	-	10 kg/m
	2	PRAFlaDur	E90, P90-R, PS90			-	20 kg/m
Klaus Faber AG	-	(N)HXB-J	E60, P60-R, PS60	JE-H(St)H	E90, P90-R, PS90	-	20 kg/m
ELKOND HHK, a. s.	-	1-CXKH-V	E90, P90-R, PS90	SHXKFH-V	E90, P90-R, PS90	width of the trays up to 300 mm PRA9-03-17-90Z-C-0	10 kg/m
Reichle & De-Massari Czech, a. s.	-	1-CXKH-V	E60, P60-R, PS60	JXFE-V	E90, P90-R, PS90	width of the trays up to 300 mm PRA9-03-17-90Z-C-0	10 kg/m
Zakłady Kablowe BITNER Sp. z o.o.	-	Bitflame 1000	E90, P90-R, PS90	HTKSH	E30, P30-R, PS30	-	20 kg/m
KABELOVNA KABEX, a. s.		CPDex 1-CHKE-V	E90, P90-R, PS90	CPDex JCXFE-V	E60, P60-R, PS60	-	20 kg/m
NKT, s. r. o.	-	NOPOVIC 90	E90, P90-R, PS90	-	-	-	20 kg/m

cable manufacturer	No.	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1	FR-228-15-AUNS	PK9-03-17-913-C-2
	2	FR-270-16-AUNS	JR-004-17-NURS
Klaus Faber AG	-	FR-270-16-AUNS	JR-004-17-NURS
NKT, s. r. o.	-	FR-166-17-AUNS	JR-099-17-NURS
Zakłady Kablowe BITNER Sp. z o.o.	-	FR-205-19-AUNS	JR-185-19-NURS
KABELOVNA KABEX, a. s.	-	FR-205-19-AUNS	JR-185-19-NURS

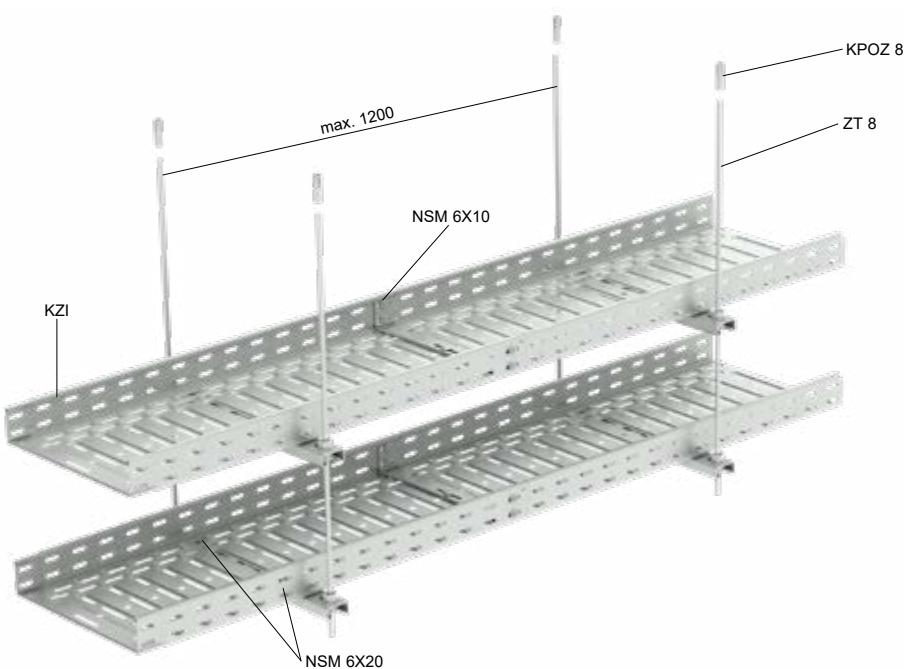
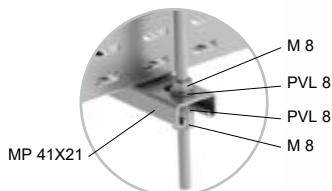
the above values of fire resistance also apply to the corresponding classifications PH90-R, PH60-R, PH45-R, PH30-R and PH15-R



**Cable trays JUPITER - KZI - sheet thickness 0,75 mm
ceiling assembly using threaded rods and mounting profiles MP 41X21**



load for anchoring		
trapezoidal ceiling	DSOS	12 kg/pcs
concrete	KBS 6X35	60 kg/pcs
	KPOZ 8	100 kg/pcs
I profile	US	250 kg/pcs



Non-standardized supporting construction - loads 10 kg/m

The basis of the supporting construction is the KZI cable tray, which is suspended from the ceiling using MP 41X21 profiles, ZT 8 threaded rods and KPOZ 8 anchors. The mounting profile is fastened to the threaded rods using M 8 nuts and PVL 8 washers. KZI cable trays are attached to the mounting profiles using NSM 6X20 bolts and PVL 6 washers. It is possible to place two cable trays next to each other up to a total width of 600 mm. KSK boxes with fire resistance can be installed on KZI cable trays using the MDS mounting plate.

Marking of fire routes by OPT label is always done after at least 50 m of the route.

Classification of fire resistance according to:

DIN 4102-12
ČSN 73 0895
STN 920205

Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	10 kg/m
cable tray side height	60 mm
cable tray width	50 - 300 mm
cable tray sheet thickness	0,75 mm

List of products for one mounting point				
				page
ZT 8	2	2	2	139
KPOZ 8	2	2	2	141
MP 41X21	1	2	3	134
M 8	4	8	12	140
PVL 8	4	8	12	140
NSM 6X20	2	4	6	143
PVL 6	2	4	6	140

cable manufacturer	power cables	classification [min]	data cables	classification [min]
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	PRAFlaDur	E60, P60-R, PS60	PRAFlaGuard F	E90, P90-R, PS90
ELKOND HHK, a. s.	1-CXKH-V	E90, P90-R, PS90	SHXKFH-V	E90, P90-R, PS90
Reichle & De-Massari Czech, a. s.	1-CXKH-V	E60, P60-R, PS60	JXFE-V	E90, P90-R, PS90
NKT, s. r. o.	NOPOVIC 90	E30, P45-R, PS45	-	-
KABELOVNA KABEX, a. s.	CPDex 1-CHKE-V	E90, P90-R, PS90	CPDex JCXFE-V	E30, P45-R, PS45

cable manufacturer	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	FR-270-16-AUNS	JR-004-17-NURS
ELKOND HHK, a. s.		
Reichle & De-Massari Czech, a. s.	PR-18-2.005	PK9-03-18-901-C-0
NKT, s. r. o.	FR-166-17-AUNS	JR-099-17-NURS
KABELOVNA KABEX, a. s.	FR-205-19-AUNS	JR-185-19-NURS
KABELOVNA KABEX, a. s.*	FR-153-20-AUNS	JR-150-20-NURS

Optical cables:

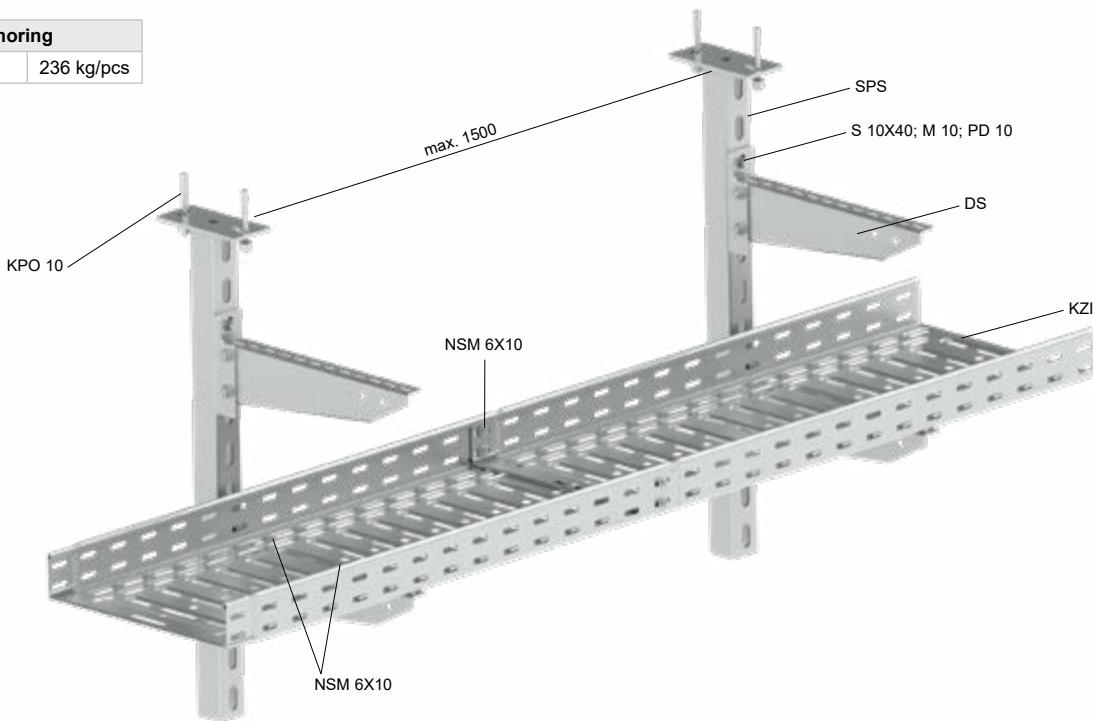
cable manufacturer	type cable	classification [min]	note
KABELOVNA KABEX, a. s.	*CPDeX® Optex® J/A-WQ(ZN)HH 12E9/125-V /h/P90-R/	P30-R	width of the trays up to 100 mm

the above values of fire resistance also apply to the corresponding classifications PH90-R, PH60-R, PH45-R, PH30-R and PH15-R



**Cable trays JUPITER - KZI - sheet thickness 0.75 mm
assembly of cable trays - assembly for the ceiling using SPS**

load for anchoring		
concrete	KPO 10	236 kg/pcs



Non-standardized supporting construction - loads 10 kg/m

The basis of the supporting construction is the SPS ceiling profile anchored to the base material using two KPO 10 anchors. The DS holder is fixed to the ceiling profile on one side with S 10X40 bolt, M 10 nut and PD 10 washer. The KZI cable trays are attached to the DS holders with NSM 6X10 bolts.

Marking of fire routes by OPT label is always done after at least 50 m of the route.

Classification of fire resistance according to:

DIN 4102-12
ČSN 73 0895
STN 92 0205

Permissible technical parameters of the route	
spacing of mounting points	max. 1500 mm
maximum load	10 kg/m
cable tray side height	60 mm
cable tray width	50 - 300 mm
cable tray sheet thickness	0,75 mm

	List of products for one mounting point						page
KPO 10	2	2	2	2	2	2	141
SPS	1	1	1	1	1	1	131
DS	1	2	2	4	6	6	132
S 10X40	2	4	-	-	-	-	140
S 10X70	-	-	2	4	6	6	140
M 10	2	4	2	4	6	6	140
PD 10	2	4	2	4	6	6	140
NSM 6X10	2	4	4	8	12	12	143

cable manufacturer	No.	power cables	classification [min]	data cables	classification [min]
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1	PRAFlaDur 90	E90, P90-R, PS90	PRAFlaGuard F	E60, P60-R, PS60
	2	PRAFlaDur	E60, P60-R, PS60		
NKT, s. r. o.	-	NOPOVIC 90	E90, P90-R, PS90	-	-
Reichle & De-Massari Czech, a. s.	-	1-CXKH-V	E30, P30-R, PS30	JXFE-V	E90, P90-R, PS90

cable manufacturer	No.	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1	FR-228-15-AUNS	PK9-03-17-913-C-2
	2	FR-217-18-AUNS	JR-155-18-NURS
NKT, s. r. o.	-	FR-217-18-AUNS	JR-155-18-NURS
Reichle & De-Massari Czech, a. s.	-		

the above values of fire resistance also apply to the corresponding classifications PH90-R, PH60-R, PH45-R, PH30-R and PH15-R

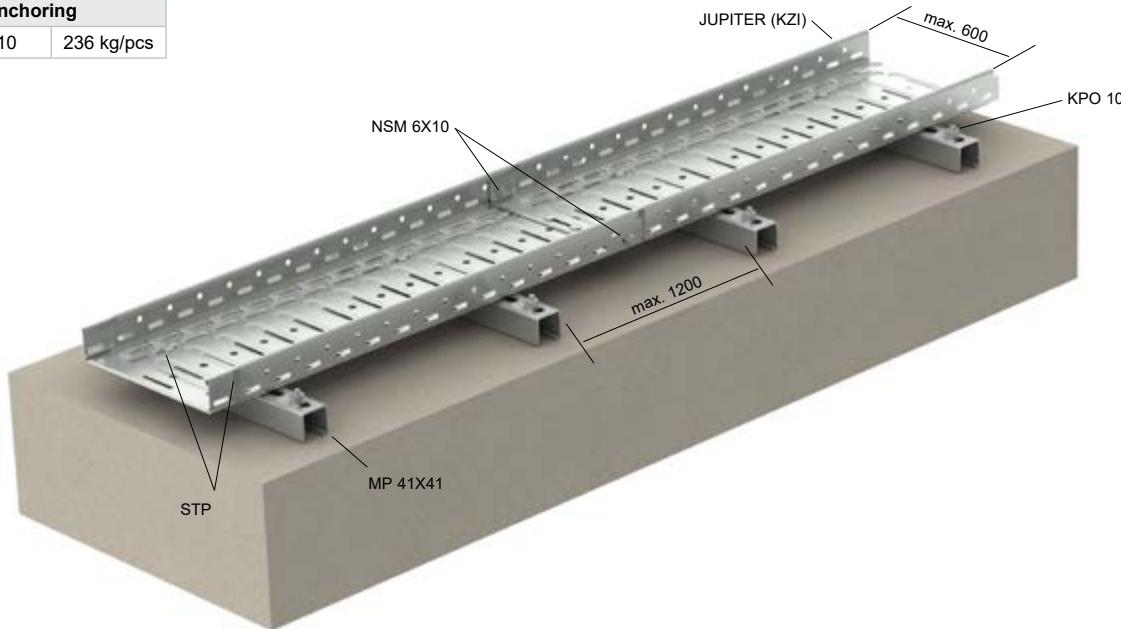


**Cable routes - floor installation, installation in raised floors, roof installation
assembly of JUPITER cable trays**

kg
10; 20



load for anchoring		
concrete	KPO 10	236 kg/pcs



Non-standardized supporting construction for loads of 10 kg/m or 20 kg/m

The mounting points are formed by MP 41X41 support profiles. The JUPITER cable tray is attached to these profiles using STP screws. The mounting profile is anchored to the base material with KPO 10 anchors. The individual trays are connected by an integrated coupling and NSM 6X10 bolts.

For roof mounting, the routes are anchored to bases with reaction to fire class A1/A2. It must never be anchored directly to the roof sheathing.

Marking of fire routes by OPT label is always done after at least 50 m of the route.

Classification of fire resistance according to:
ČSN 73 0895

Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	10 kg/m - 20 kg/m
cable tray side height	60 mm
cable tray width	50 - 600 mm

List of products for one mounting point		
		page
KPO 10	2	141
MP 41X41	1	134
STP	2	143

Due to the fact that it is possible to place JUPITER cable trays on this route, the classification of the route depends on the specific type of cable tray tested with the ceiling profiles. The classification can be found in the specification of a specific route.

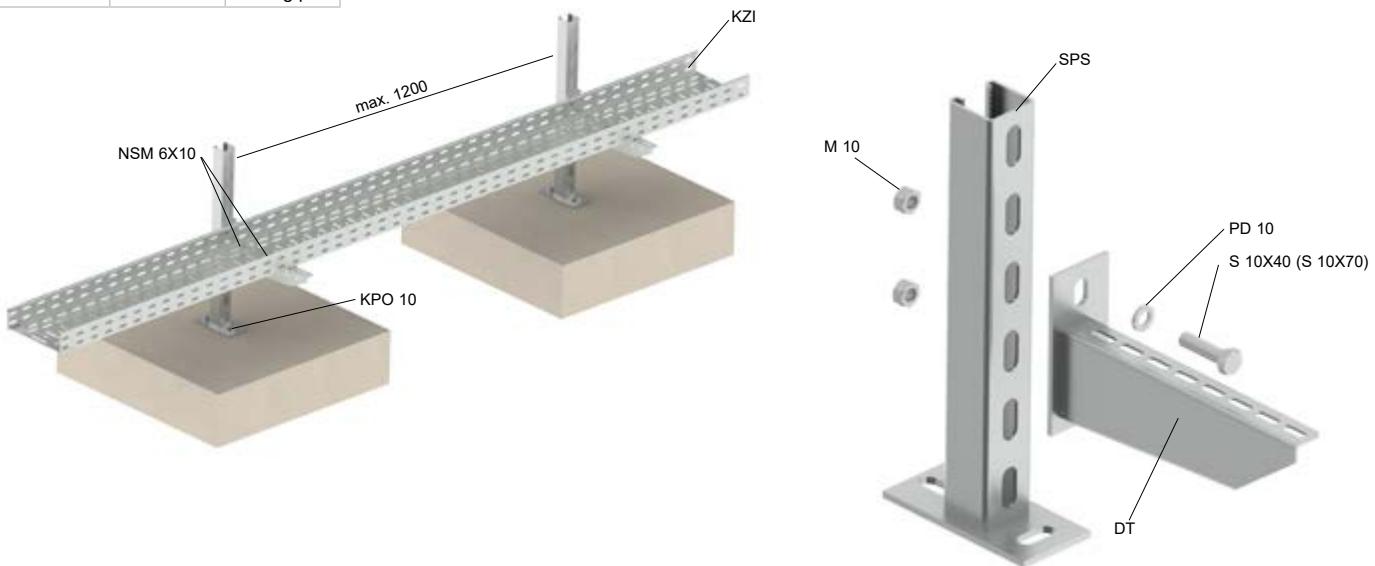
expert assessment PAVUS, a. s.	513166/Z220130412
	PRA-03-17-902-C-0
	Methodical instruction no. 02/2020



**Cable routes on the roofs of buildings
assembly of JUPITER cable trays**

kg
10; 20

load for anchoring		
concrete	KPO 10	236 kg/pcs



Non-standardized supporting construction for loads of 10 kg/m or 20 kg/m

The mounting points are formed by SPS ceiling profile anchored with KPO 10 anchors. DT or DS holders are installed on the ceiling profiles. The individual trays are connected with NSM 6X10 bolts. JUPITER trays are anchored to the support with NSM 6X10 bolts. Anchoring is done in bases with reaction to fire class A1/A2. It must never be anchored directly to the roof sheathing. Such assembly can only be formed by perforated trays to ensure the outflow of trapped water.

Marking of fire routes by OPT label is always done after at least 50 m of the route.

Classification of fire resistance according to:
ČSN 73 0895

Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	10 kg/m - 20 kg/m
cable tray side height	60 mm
cable tray width	50 - 600 mm

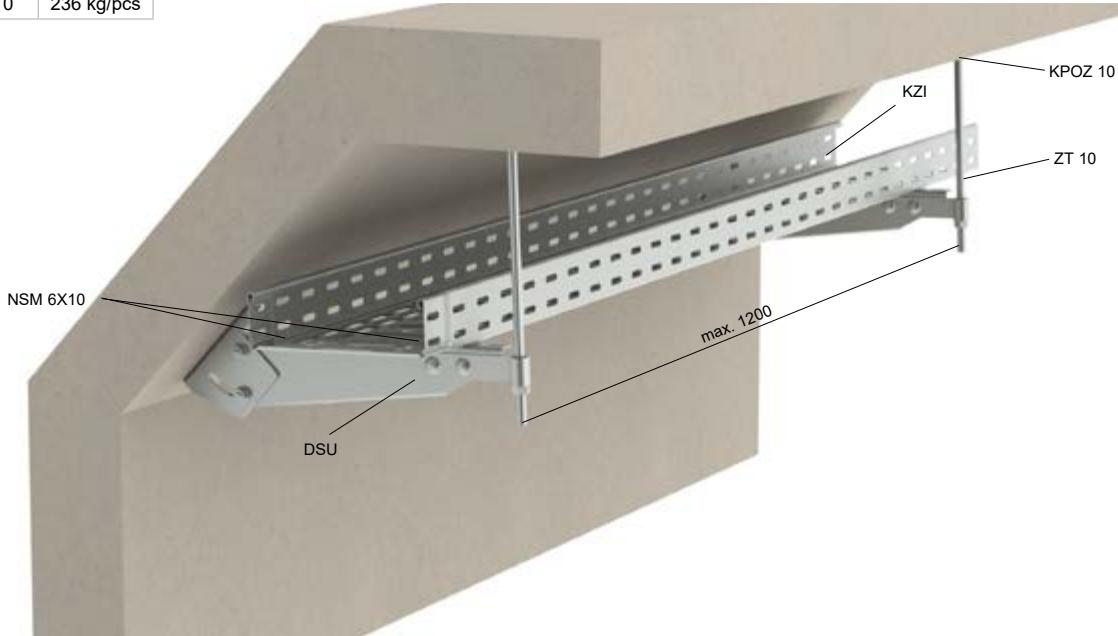
List of products for one mounting point			
			page
KPO 10	2	2	141
SPS	1	1	131
DT (DS)	1	2	131
S 10X40	2	-	140
S 10X70	-	2	140
PD 10	2	2	140
M 10	2	2	140
NSM 6X10	2	4	143

Due to the fact that it is possible to place JUPITER cable trays on this route, the classification of the route depends on the specific type of cable tray tested with the ceiling profiles. The classification can be found in the specification of a specific route.

expert assessment PAVUS, a. s.	513166/Z220130412
	PRA-03-17-902-C-0
	Methodical instruction no. 02/2020


**JUPITER KZI cable trays - sheet thickness 1.25 mm
assembly of cable trays on tilting brackets DSU**


load for anchoring		
concrete	KPO 10	236 kg/pcs


Non-standardized supporting construction - loads 10 kg/m

The set is used to place routes formed by cable trays on sloping walls. The assembly is performed using DSU brackets, the angle of which can be set in the range of 0-45 °. The free end of the profile is secured to the ceiling or wall with ZT 10 threaded rod. The route consists of JUPITER cable trays with a maximum width of 300 mm. Anchoring of threaded rods to the ceiling is performed using KPOZ 10 anchors. KZI cable trays are attached to DSU holders using NSM 6X10 bolts.

Marking of fire routes by OPT label is always done after at least 50 m of the route.

Classification of fire resistance according to:

DIN 4102-12
ČSN 73 0895
STN 92 0205

Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	10 kg/m
cable tray side height	60 mm
cable tray width	50 - 300 mm
cable tray sheet thickness	1,25 mm

List of products for one mounting point		
		page
ZT 10	1	139
KPOZ 10	1	141
KPO 10	2	141
DSU	1	133
M 10	1	140
NSM 6X10	2	143

cable manufacturer	power cables	classification [min]	datové	classification [min]
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	PRAFlaDur	E30, P30-R, PS30	PRAFlaGuard F	E30, P30-R, PS30

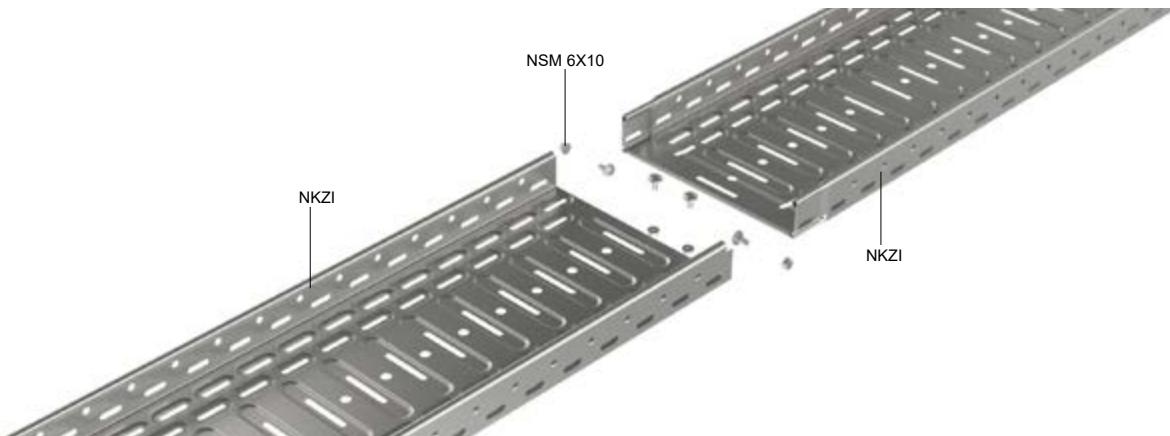
cable manufacturer	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	FR-104-14-AUNS	PK9-03-17-913-C-2



NON-STANDARDIZED SUPPORTING CONSTRUCTIONS

MARS ASSEMBLIES




Connection of fire resistant trays NKZI, NKZIN - MARS


NKZI cable trays with maintaining functionality in the event of a fire are made of metal sheet with a thickness of 0.7 to 1.25 mm. The NKZI cable tray is connected using an integrated coupling, which is part of the tray, and using NSM 6X10 bolts. For non-perforated trays, it is necessary to drill holes for NSM 6X10 bolts in the bottom of the tray.

NKZI, NKZIN 50 tray width	NSM 6X10 number of bolts for connection tray
62	2
125	2, 4*
250	2

NKZI, NKZIN 100 tray width	NSM 6X10 number of bolts for connection tray
125	4
250	6
500	6

The number of bolts applies only to the NKZI 50X125 cable tray suspended from the ceiling using the ZVNI inner hanger, for this type of suspension it is necessary to reinforce the connection of the trays at the bottom using two NSM 6X10 bolts.

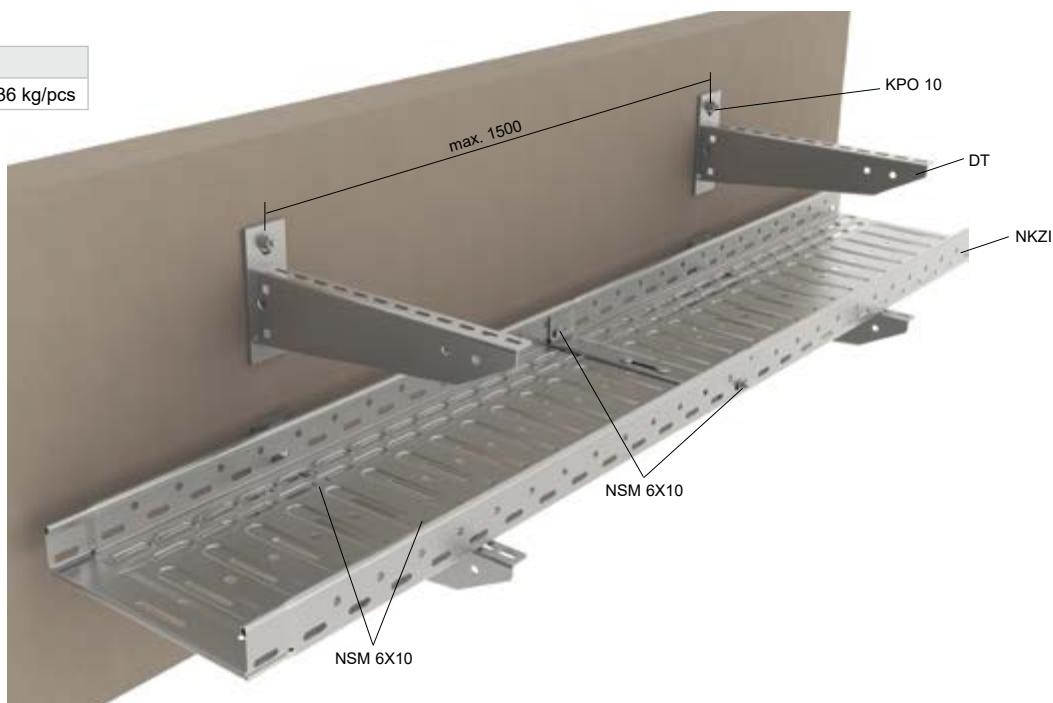
NKZI, NKZIN 50 tray width	NSM 6X10 number of bolts in the bottom of the tray for connection to the support
62	1
125	2
250	2

NKZI, NKZIN 100 tray width	NSM 6X10 number of bolts in the bottom of the tray for connection to the support
125	2
250	2
500	2 - 3


**MARS - NKZI cable trays - side height 50 and 100
assembly of cable trays on the wall with DT holders**

10 kg

load for anchoring		
concrete	KPO 10	236 kg/pcs


Permissible technical parameters of the route

spacing of mounting points	max. 1500 mm
maximum load	10 kg/m
cable tray side height	50 and 100 mm
cable tray width	62 - 250 mm
cable tray sheet thickness	1,25 mm

Non-standardized supporting construction for loads 10 kg/m

The basis of the supporting construction are DT holders attached to the base material using KPO 10 anchors. The cable trays are equipped with an integrated coupling and, when inserted into each other, they are connected using NSM 6X10 bolts. The tray must be attached to the DT holder using NSM 6X10 bolts.

Marking of fire routes is always done after at least 50 m of the route.

Classification of fire resistance according to:

DIN 4102-12
ČSN 73 0895
STN 920205

List of products for one mounting point

				page
DT	1	2	3	131
KPO 10	2	4	6	141
NSM 6X10	2	4	6	143

cable manufacturer	No.	protocol number	standpoint number
PRAKAB PRAŽSKÁ	1,3	FR-172-10-AUNS	PK9-03-17-913-C-2
KABELOVNA, s. r. o.	2,4	FR-220-11-AUNS	JR-052-17-NURS
Kabelovna Kabex, a. s.	-	FR-139-09-AUNS	PK9-03-17-913-C-2

side height 50 mm

cable manufacturer	No.	power cables	classification [min]	data cables	classification [min]
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1	PRAFlaDur	E60, P60-R, PS60	PRAFlaGuard F	E90, P90-R, PS90
	2	PRAFlaDur 90	E90, P90-R, PS90		

side height 100 mm

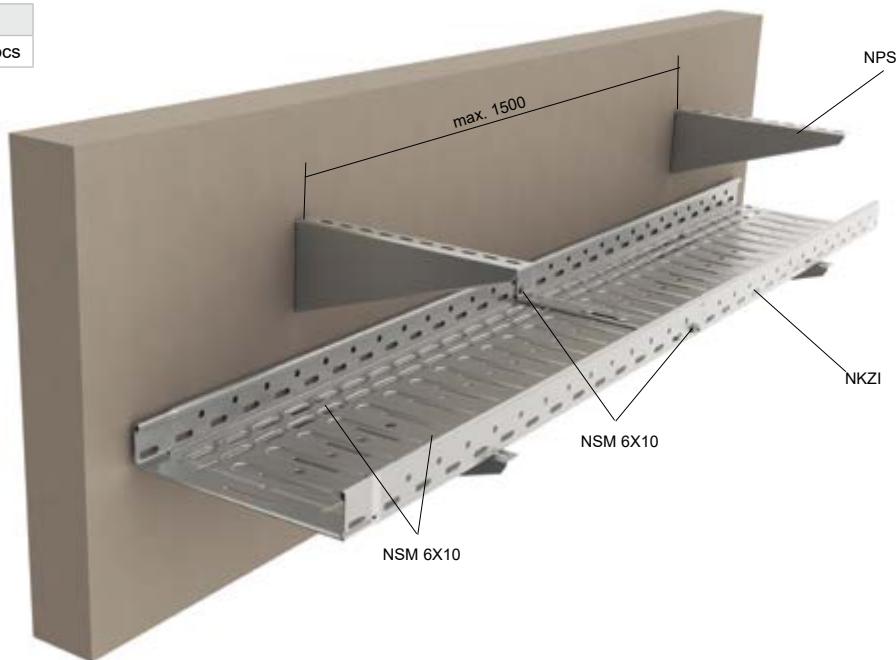
cable manufacturer	No.	power cables	classification [min]	data cables	classification [min]
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	3	PRAFlaDur	E90, P90-R, PS90	PRAFlaGuard F	E90, P90-R, PS90
	4	PRAFlaDur 90	E60, P60-R, PS60		
Kabelovna Kabex, a. s.	-	CPDex 1-CHKE-V	E90, P90-R, PS90	JCXFE-V	E60, P60-R, PS60

T
kg
10



**Cable trays MARS - NKZI - side height 50; 100
assembly of cable trays on the wall**

load for anchoring		
concrete	KPO 10	236 kg/pcs



Permissible technical parameters of the route

spacing of mounting points	max. 1500 mm
maximum load	10 kg/m
cable tray side height	50 and 100 mm
cable tray width	62 - 250 mm
cable tray sheet thickness	1,25 mm

Non-standardized supporting construction - loads 10 kg/m

The basis of the supporting construction are NPS holders attached to the base material using KPO 8 anchors. The cable trays are equipped with an integrated connector and, when inserted into each other, they are connected using NSM 6X10 bolts. The tray must be attached to the NPS holders using NSM 6X10 bolts.

Marking of fire routes is always done after at least 50 m of the route.

Classification of fire resistance according to:

DIN 4102-12
ČSN 73 0895
STN 920205

List of products for one mounting point

				page
for NPS 62				
NPS	1	2	3	133
KPO 8	1	2	3	141
NSM 6X10	1	2	3	143
for NPS 125, NPS 250				
NPS	1	2	3	133
KPO 8	2	4	6	141
NSM 6X10	2	4	6	143

cable manufacturer	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	FR-220-11-AUNS	JR-052-17-NURS
Reichle & De-Massari Czech, a. s.	FR-104-18-AUNS	JR-105-18-NURS
Kabelovna Kabex, a. s.	FR-088-12-AUNS	JR-073-17-NURS

side height 50 mm

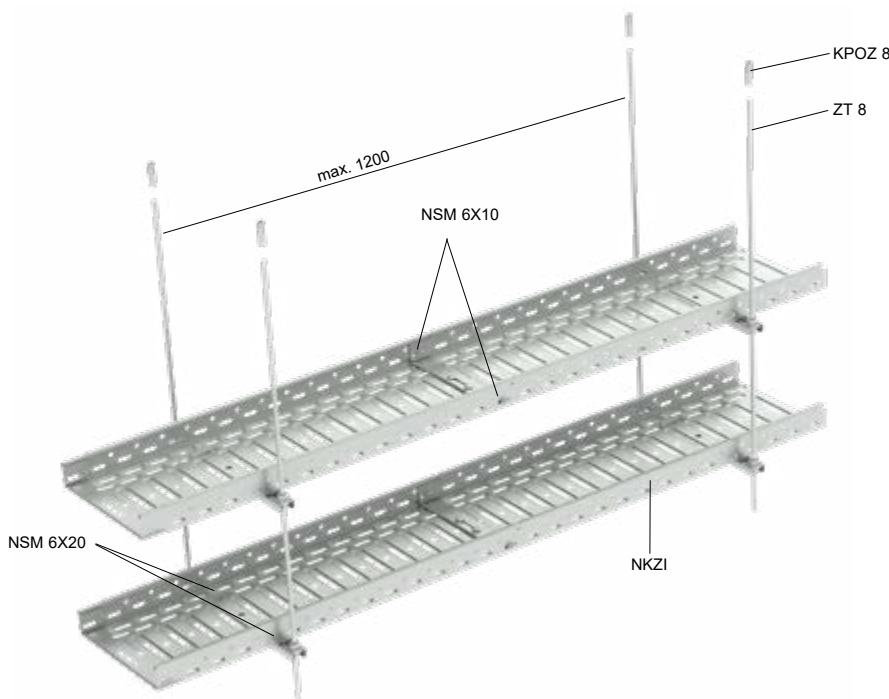
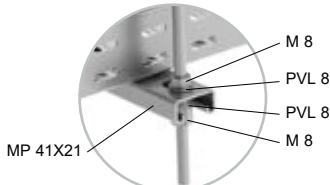
cable manufacturer	power cables	classification [min]	data cables	classification [min]
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	PRAFlaDur 90	E30, P30-R, PS30	PRAFlaGuard F	E60, P60-R, PS60
Reichle & De-Massari Czech, a. s.	1-CXKH-V	E30, P30-R, PS30	JXFE-V	E90, P90-R, PS90
Kabelovna Kabex, a. s.	1-CSKE-V	E60, P60-R, PS60	JCSFE-V	E30, P30-R, PS30

side height 100 mm

cable manufacturer	power cables	classification [min]	data cables	classification [min]
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	PRAFlaDur 90	E30, P30-R, PS30	PRAFlaGuard F	E90, P90-R, PS90
Kabelovna Kabex, a. s.	1-CSKE-V	E60, P60-R, PS60	-	-

**MARS - NKZI cable trays - side height 50; 100 - sheet thickness 1.25 mm
ceiling assembly using threaded rods and mounting profiles MP 41X21**
 10; 20


load for anchoring		
trapezoidal ceiling	DSOS	12 kg/pcs
concrete	KBS 6X35	60 kg/pcs
	KPOZ 8	100 kg/pcs
I profile	US	250 kg/pcs



Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	10 kg/m or 20 kg/m
cable tray side height	50 and 100 mm
cable tray width	62 - 250 mm
cable tray sheet thickness	1,25 mm

Non-standardized supporting construction for loads of 10 kg/m or 20 kg/m

The basis of the supporting construction is the NKZI cable tray, which is suspended from the ceiling using MP 41X21 profiles, ZT 8 threaded rods and KPOZ 8 anchors. The mounting profile is fastened to the threaded rods using M 8 nuts and PVL 8 washers. NKZI cable trays are attached to the mounting profiles using NSM 6X20 bolts and PVL 6 washers. It is possible to place two cable trays next to each other up to a total width of 500 mm.

Marking of fire routes by OPT label is always done after at least 50 m of the route.

Classification of fire resistance according to:

DIN 4102-12
ČSN 73 0895
STN 920205

In the case of using cables from NKT, s. r. o., it is possible to use tray with sheet thickness of 1.0 mm.

List of products for one mounting point				
				page
ZT 8	2	2	2	139
KPOZ 8	2	2	2	141
MP 41X21	1	2	3	134
M 8	4	8	12	140
PVL 8	4	8	12	140
NSM 6X20	2	4	6	143
PVL 6	2	4	6	140

cable manufacturer	No.	protocol number	standpoint number
PRAKAB PRAŽSKÁ	1,3	FR-220-11-AUNS	JR-052-17-NURS
KABELOVNA, s. r. o.	2,4	FR 104-14-AUNS	PK9-03-17-913-C-2
Reichle & De-Massari Czech, a. s.	-	FR-104-14-AUNS	PK9-03-17-913-C-2
Prysmian Group	-	FR-156-12-AUNS	JR-073-17-NURS
NKT, s. r. o.	1,2	FR-217-18-AUNS	JR-155-18-NURS
	3	PR9A-03-17-90Z-C-0	

side height 50 mm

cable manufacturer	No.	power cables	classification [min]	data cables	classification [min]	load
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1	PRAFlaDur 90	E30, P30-R, PS30	PRAFlaGuard F	E90, P90-R, PS90	20 kg/m
	2	PRAFlaDur	E90, P90-R, PS90	PRAFlaGuard F	E90, P90-R, PS90	10 kg/m
Reichle & De-Massari Czech, a. s.	-	1-CXKH-V	E90, P90-R, PS90	JXFE-V	E90, P90-R, PS90	10 kg/m
NKT, s. r. o.	3	NOPOVIC 90	E60, P60-R, PS60	-	-	10 kg/m
Prysmian Group	-	(N) HXHX*	E60, P60-R, PS60	JE- H(St)H	E90, P90-R, PS90	10 kg/m

side height 100 mm

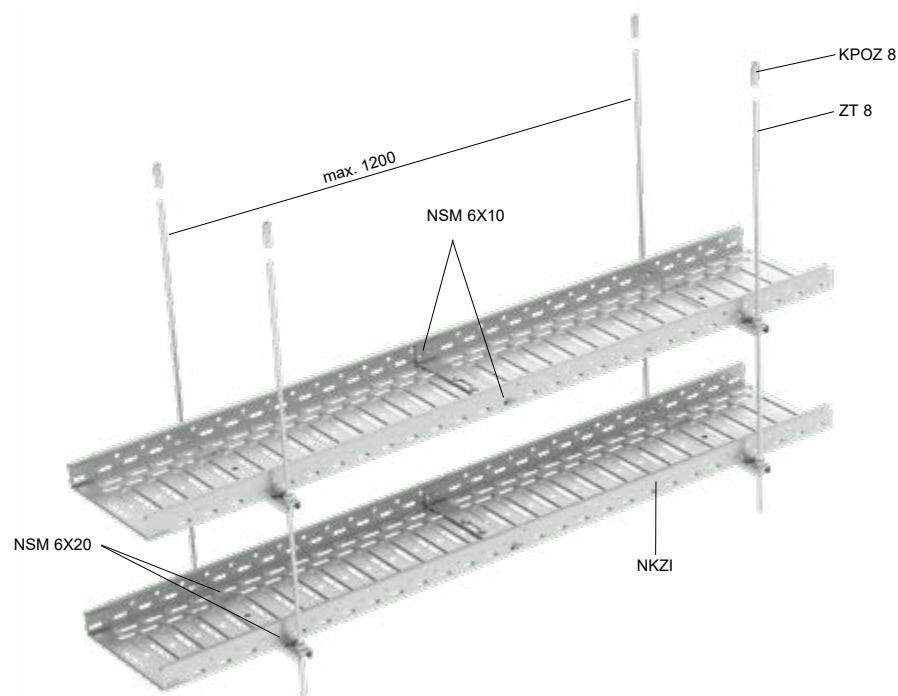
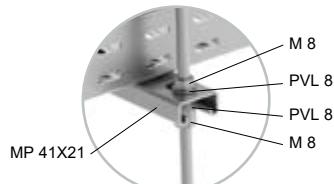
cable manufacturer	No.	power cables	classification [min]	data cables	classification [min]	load
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	3	PRAFlaDur 90*	E30, P30-R, PS30	PRAFlaGuard F*	E30, P30-R, PS30	20 kg/m
	4	PRAFlaDur 90*	E90, P90-R, PS90	PRAFlaGuard F*	E90, P90-R, PS90	10 kg/m
Prysmian Group**	-	(N) HXHX*	E90, P90-R, PS90	JE- H(St)H	E90, P90-R, PS90	10 kg/m
NKT, s. r. o.*	1	NOPOVIC 60	E60, P60-R, PS60	-	-	-
	2	NOPOVIC 90	E90, P90-R, PS90	-	-	-

* for PRAFlaDur 90 and PRAFlaGuard F cables tested according to ČSN 73 0895 for 120 minutes (P120-R) with a load of 10 kg/m and a side height of 100 mm.

** for Prysmian Group cables tested according to ČSN 73 0895 for 120 minutes (P120-R) with a load of 10 kg/m and a side height of 50 and 100 mm.

**Cable trays MARS - NKZI - side height 50 - sheet thickness 0,7 mm
ceiling assembly using threaded rods and mounting profiles MP 41X21**

load for anchoring		
trapezoidal ceiling	DSOS	12 kg/pcs
concrete	KBS 6X35	60 kg/pcs
	KPOZ 8	100 kg/pcs
I profile	US	250 kg/pcs


Non-standardized supporting construction - loads 10 kg/m

The basis of the supporting construction is the NKZI cable tray, which is suspended from the ceiling using MP 41X21 profiles, ZT 8 threaded rods and KPOZ 8 anchors. The mounting profile is fastened to the threaded rods using M 8 nuts and PVL 8 washers. NKZI cable trays are attached to the mounting profiles using NSM 6X20 bolts and PVL 6 washers. It is possible to place two cable trays next to each other up to a total width of 500 mm.

Marking of fire routes is always done after at least 50 m of the route.

Classification of fire resistance according to:

ČSN 73 0895
DIN 4102-12
STN 920205

Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	10 kg/m
cable tray side height	50 mm
cable tray width	62 - 250 mm
cable tray sheet thickness	0,7 mm

List of products for one mounting point				
	ZT 8	KPOZ 8	MP 41X21 (MP 41X41)	PVL 6
ZT 8	2	2	2	139
KPOZ 8	2	2	2	141
MP 41X21 (MP 41X41)	1	2	3	134
M 8	4	8	12	140
PVL 8	4	8	12	140
NSM 6X20	2	4	6	143
PVL 6	2	4	6	140

cable manufacturer	No.	power cables	classification [min]	data cables	classification [min]
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1	PRAFlaDur 90	E30, P45-R, PS45	PRAFlaGuard F	E90, P90-R, PS90
	2	PRAFlaDur	E90, P90-R, PS90	PRAFlaGuard F	E90, P90-R, PS90
Reichle & De-Massari Czech, a. s.	-	1-CXKH-V	E90, P90-R, PS90	JXFE-V	E90, P90-R, PS90
NKT, s. r. o.	-	NOPOVIC 90	E60, P60-R, PS60	-	-
BITNER Sp.z o.o.**	-	(N)HXH-V	E30, P30-R, PS30	-	-
KABELOVNA KABEX, a. s.	-	CPDex 1-CHKE-V	E90, P90-R, PS90	CPDex JCXFE-V	E30, P30-R, PS30

cable manufacturer	No.	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1	FR-228-15-AUNS	PK9-03-17-913-C-2
	2	PR-18-2.005	PK9-03-18-901-C-0
Reichle & De-Massari Czech, a. s.	-	FR 104-14-AUNS	PK9-03-17-913-C-2
NKT, s. r. o.	-	FR-166-17-AUNS	JR-099-17-NURS
BITNER Sp. o. o.	-	PR-18-2.005	PK9-03-18-901-C-0
KABELOVNA KABEX, a. s.	-	FR-205-19-AUNS	JR-185-19-NURS
KABELOVNA KABEX, a. s.*	-	FR-153-20-AUNS	JR-150-20-NURS

** up to a cable cross section of 16 mm²

Optical cables:

cable manufacturer	type cable	classification [min]	note
KABELOVNA KABEX, a. s.	*CPDeX® Optex® J/A-WQ(ZN)HH 12E9/125-V /h/P90-R/	P30-R	width of the trays up to 62 mm

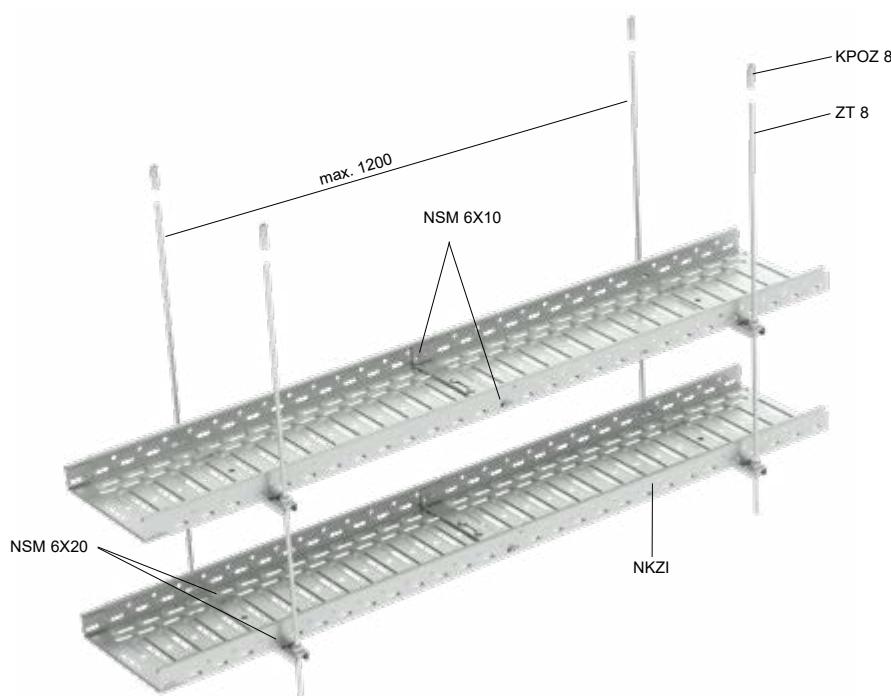
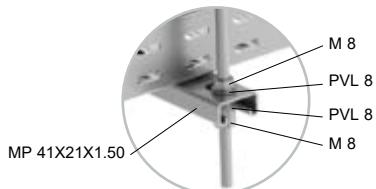
the above values of fire resistance also apply to the corresponding classifications PH90-R, PH60-R, PH45-R, PH30-R and PH15-R

kg
10



Cable trays MARS - NKZI - side height 50; 100 - sheet thickness 1,25 mm
ceiling assembly using threaded rods and mounting profiles MP 41X21X1.50

load for anchoring		
trapezoidal ceiling	DSOS	12 kg/pcs
concrete	KBS 6X35	60 kg/pcs
	KPOZ 8	100 kg/pcs
I profile	US	250 kg/pcs



Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	10 kg/m
cable tray side height	50 and 100 mm
cable tray width	62 - 250 mm
cable tray sheet thickness	1,25 mm

Non-standardized supporting construction - loads 10 kg/m

The basis of the supporting construction is the NKZI cable tray, which is suspended from the ceiling using MP 41X21X1.50 profiles, ZT 8 threaded rods and KPOZ 8 anchors. The mounting profile is fastened to the threaded rods using M 8 nuts and PVL 8 washers. NKZI cable trays are attached to the mounting profiles using NSM 6X20 bolts and PVL 6 washers. It is possible to place two cable trays next to each other up to a total width of 500 mm.

Marking of fire routes is always done after at least 50 m of the route.

Classification of fire resistance according to:

DIN 4102-12
ČSN 730895
STN 920205

List of products for one mounting point				
				page
ZT 8	2	2	2	139
KPOZ 8	2	2	2	141
MP 41X21X1.50	1	2	3	134
M 8	4	8	12	140
PVL 8	4	8	12	140
NSM 6X20	2	4	6	143
PVL 6	2	4	6	140

cable manufacturer	No.	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	-	FR-228-15-AUNS	PK9-03-17-913-C-2
Kabelovna Kabex, a. s.	-	FR-088-12-AUNS	JR-073-17-NURS
NKT, s. r. o.	1	FR-217-18-AUNS	JR-155-18-NURS
	2	FR-217-18-AUNS	JR-155-18-NURS

side height 50 mm

cable manufacturer	power cables	classification [min]	data cables	classification [min]
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	PRAFlaDur 90	E30, P30-R, PS30	PRAFlaGuard F	E30, P30-R, PS30
Kabelovna Kabex, a. s.	1-CSKE-V	E60, P60-R, PS60	-	-

side height 100 mm

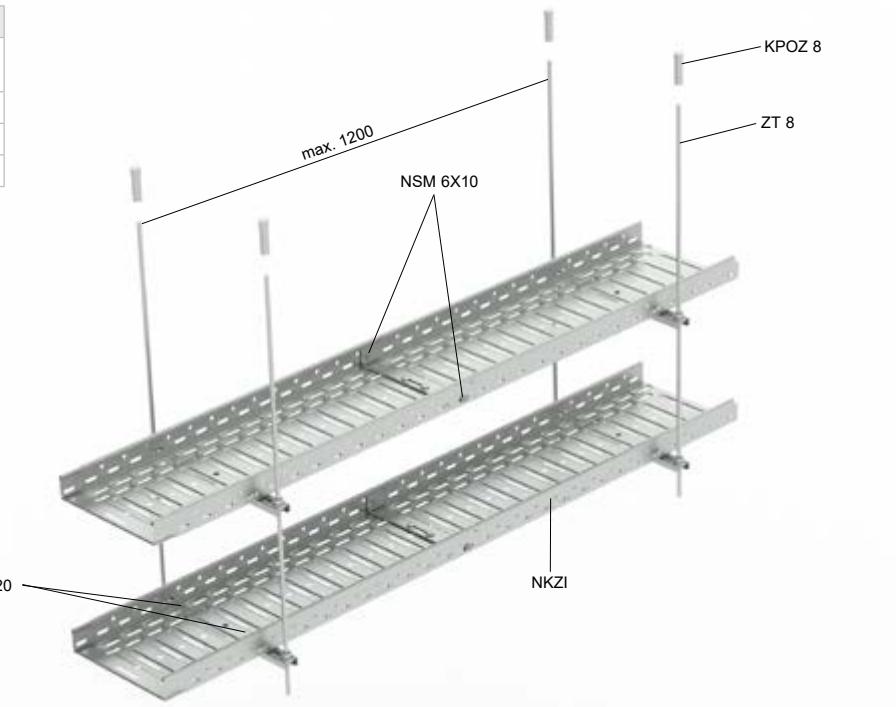
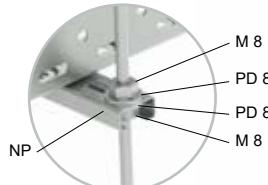
cable manufacturer	No.	power cables	classification [min]
Kabelovna Kabex, a. s.	-	1-CSKE-V	E30, P30-R, PS30
NKT, s. r. o. *	1	NOPOVIC 60	E60, P60-R, PS60
	2	NOPOVIC 90	E90, P90-R, PS90

*In the case of using cables from NKT, s. r. o., it is possible to use tray with sheet thickness of 1.0 mm.


**MARS - NKZI Cable trays - side height 50 - sheet thickness 0.7 mm
ceiling assembly using threaded rods and supporting profiles NP**

kg
10

load for anchoring		
trapezoidal ceiling	DSOS	12 kg/pcs
concrete	KBS 6X35	60 kg/pcs
	KPOZ 8	100 kg/pcs
I profile	US	250 kg/pcs


Non-standardized supporting construction - loads 10 kg/m

The basis of the supporting construction is the NKZI cable tray, which is suspended from the ceiling by means of NP profiles, ZT 8 threaded rods and KPOZ 8 anchors. The mounting profile is fastened to the threaded rods by M 8 nuts and PD 8 washers. NKZI cable trays are attached to the mounting profiles using NSM 6X20 bolts. It is possible to place two cable trays next to each other up to a total width of 500 mm on the profiles.

Marking of fire routes is always done after at least 50 m of the route.

Classification of fire resistance according to:

DIN 4102-12
ČSN 73 0895
STN 920205

Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	10 kg/m
cable tray side height	50 mm
cable tray width	62 - 250 mm
cable tray sheet thickness	0,7 mm

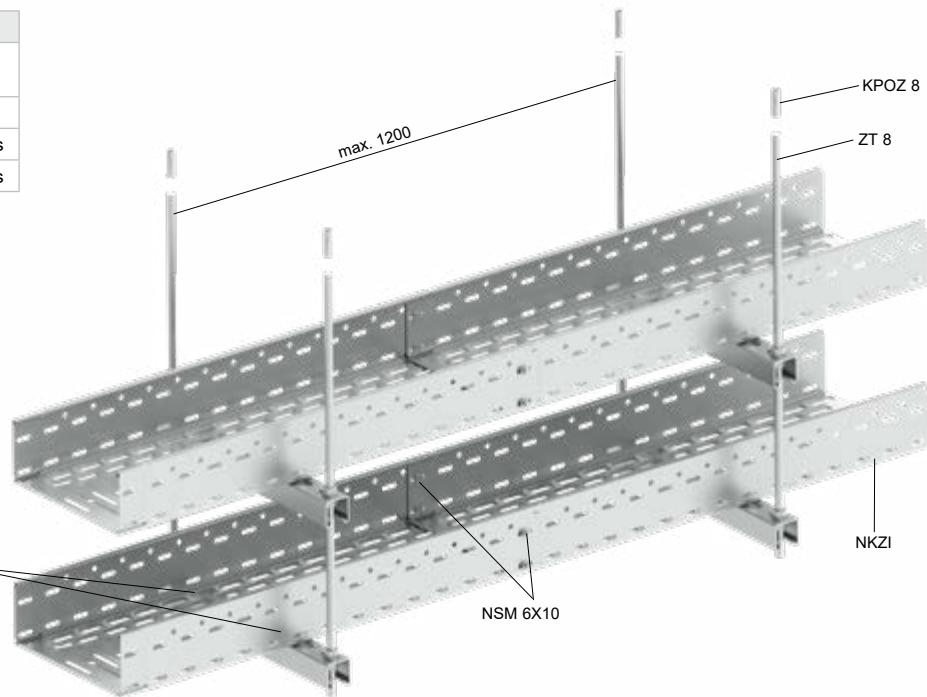
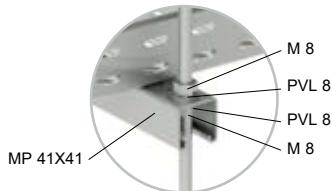
	List of products for one mounting point				page
ZT 8	2	2	2	2	139
KPOZ 8	2	2	2	2	141
NP	1	2	3	3	134
M 8	4	8	12	12	140
PD 8	4	8	12	12	140
NSM 6X20	2	4	6	6	143

cable manufacturer	power cables	classification [min]	data cables	classification [min]
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	PRAFlaDur 90	E30, P30-R, PS30	PRAFlaGuard F	E90, P90-R, PS90
Reichle & De-Massari Czech, a. s.	1-CXKH-V	E90, P90-R, PS90	JXFE-V	E90, P90-R, PS90
NKT, s. r. o.	NOPOVIC 90	E90, P90-R, PS90	-	-

cable manufacturer	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	FR-220-11-AUNS	JR-052-17-NURS
NKT, s. r. o.	FR-217-18-AUNS	JR-155-18-NURS
Reichle & De-Massari Czech, a. s.	FR-104-14-AUNS	PK9-03-17-913-C-2


**Cable trays MARS - NKZI - side height 100 - sheet thickness 1,0 - 1,25 mm
ceiling assembly using threaded rods and mounting profiles MP 41X41**

load for anchoring		
trapezoidal ceiling	DSOS	12 kg/pcs
concrete	KBS 6X35	60 kg/pcs
	KPOZ 8	100 kg/pcs
I profile	US	250 kg/pcs


Non-standardized supporting construction - loads 10 kg/m

The basis of the supporting construction is the NKZI cable tray, which is suspended from the ceiling by means of NP profiles, ZT 8 threaded rods and KPOZ 8 anchors. The mounting profile is fastened to the threaded rods by M 8 nuts and PD 8 washers. NKZI cable trays are attached to the mounting profiles using NSM 6X20 bolts. It is possible to place two cable trays next to each other up to a total width of 500 mm on the profiles.

Marking of fire routes is always done after at least 50 m of the route.

Classification of fire resistance according to:

DIN 4102-12
ČSN 73 0895
STN 92 0205

Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	10 kg/m
cable tray side height	100 mm
cable tray width	125 - 500 mm
cable tray sheet thickness	1,00; 1,25 mm

	List of products for one mounting point			page
ZT 8	2	2	2	139
KPOZ 8	2	2	2	141
MP 41X41	1	2	3	134
M 8	4	8	12	140
PVL 8	4	8	12	140
NSM 6X20	2	4	6	143
PVL 6	2	4	6	140

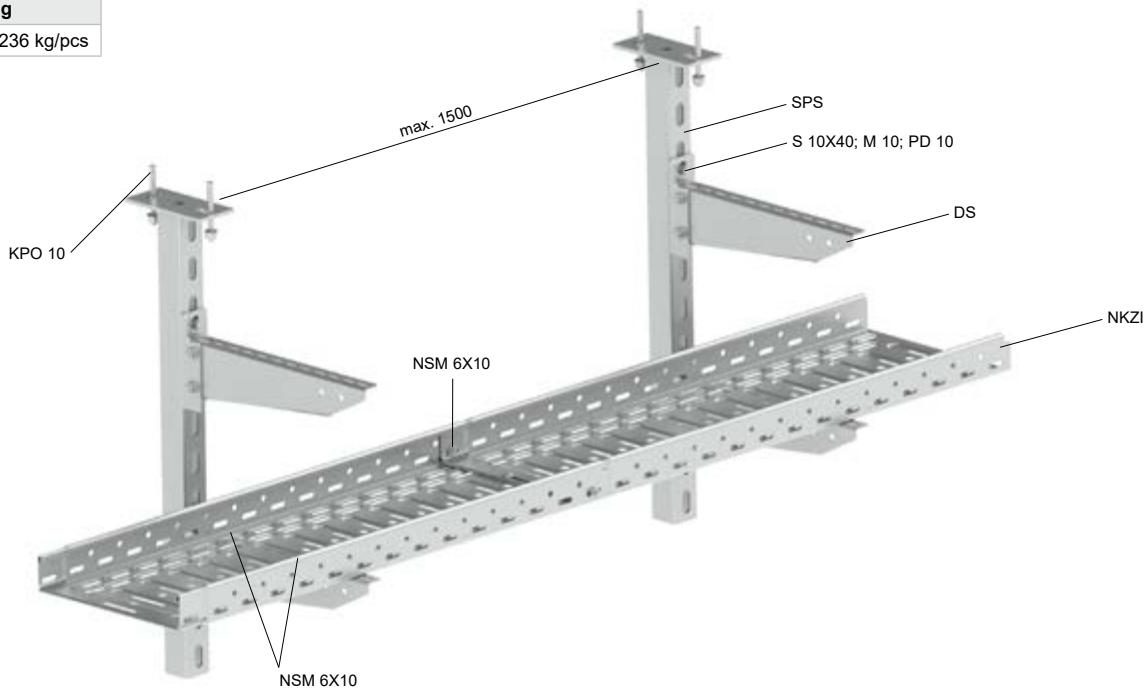
cable manufacturer	No.	power cables	classification [min]	data cables	classification [min]	note
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1	PRAFlaDur 90	E30, P30-R, PS30	PRAFlaGuard F	E60, P60-R, PS60	sheet thickness 1,25 mm
	2	Prafladur	E30, P30-R, PS30		E60, P60-R, PS60	sheet thickness 1,0 mm
Reichle & De-Massari Czech a. s.	-	1-CXKH-V	E30, P30-R, PS30	JXFE-V	E90, P90-R, PS90	sheet thickness 1,0 mm
KABELOVNA KABEX, a. s.	-	CPDex 1-CHKE-V	E90, P90-R, PS90	CPDex JCXFE-V	P15-R, PS15	sheet thickness 1,25 mm
NKT s.r.o	-	NOPOVIC 1-CXKH-V	E90, P90-R, PS90	—	—	sheet thickness 1,0 mm

cable manufacturer	No.	protocol number	standpoint number
NKT s.r.o	-	FR-246-21-AUNS	JR-104-21-NURS
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1	FR-228-15-AUNS	PK9-03-17-913-C-2
	2	FR-246-21-AUNS	JR-104-21-NURS
Reichle & De-Massari Czech, a. s.	-	FR-104-18-AUNS	JR-105-18-NURS
KABELOVNA KABEX, a. s.	-	FR-205-19-AUNS	JR-185-19-NURS

the above values of fire resistance also apply to the corresponding classifications PH90-R, PH60-R, PH45-R, PH30-R and PH15-R


**MARS - NKZI cable trays - side height 50
assembly of cable trays - assembly for the ceiling using SPS**

load for anchoring		
concrete	KPO 10	236 kg/pcs


Non-standardized supporting construction - load 10 kg/m

The basis of the supporting construction is the SPS ceiling profile anchored to the base material using two KPO 10 anchors. The DS holder is fastened to the ceiling profile on one side using bolt S 10X40, nut M 10 and washer PD 10. The NKZI cable trays are attached to the DS holders using NSM 6X10 bolts.

Marking of fire routes is always done after at least 50 m of the route.

Classification of fire resistance according to:

DIN 4102-12
ČSN 730895
STN 920205

Permissible technical parameters of the route	
spacing of mounting points	max. 1500 mm
maximum load	10 kg
distance between individual routes	200 mm
cable tray side height	50 mm
cable tray width	62 - 250 mm
cable tray sheet thickness	0,7 mm

List of products for one mounting point						
						page
KPO 10	2	2	2	2	2	141
SPS	1	1	1	1	1	131
DS	1	2	2	4	6	132
S 10X40	2	4	-	-	-	140
S 10X70	-	-	2	4	6	140
M 10	2	4	2	4	6	140
PD 10	2	4	2	4	6	140
NSM 6X10	2	4	4	8	12	143

cable manufacturer	No.	power cables	classification [min]	data cables	classification [min]
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1	PRAFlaDur 90	E60, P60-R, PS60	PRAFlaGuard F	E90, P90-R, PS90
	2	PRAFlaDur	E30, P30-R, PS30		
NKT, s. r. o.	-	NOPOVIC 90	E90, P90-R, PS90	-	-
Reichle & De-Massari Czech, a. s.	-	1-CXKH-V	E30, P30-R, PS30	JXFE-V	E30, P45-R, PS30

cable manufacturer	No.	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1	FR-228-15-AUNS	PK9-03-17-913-C-2
	2	FR-217-18-AUNS	JR-155-18-NURS
NKT, s. r. o.	-	FR-217-18-AUNS	JR-155-18-NURS
Reichle & De-Massari Czech, a. s.	-		

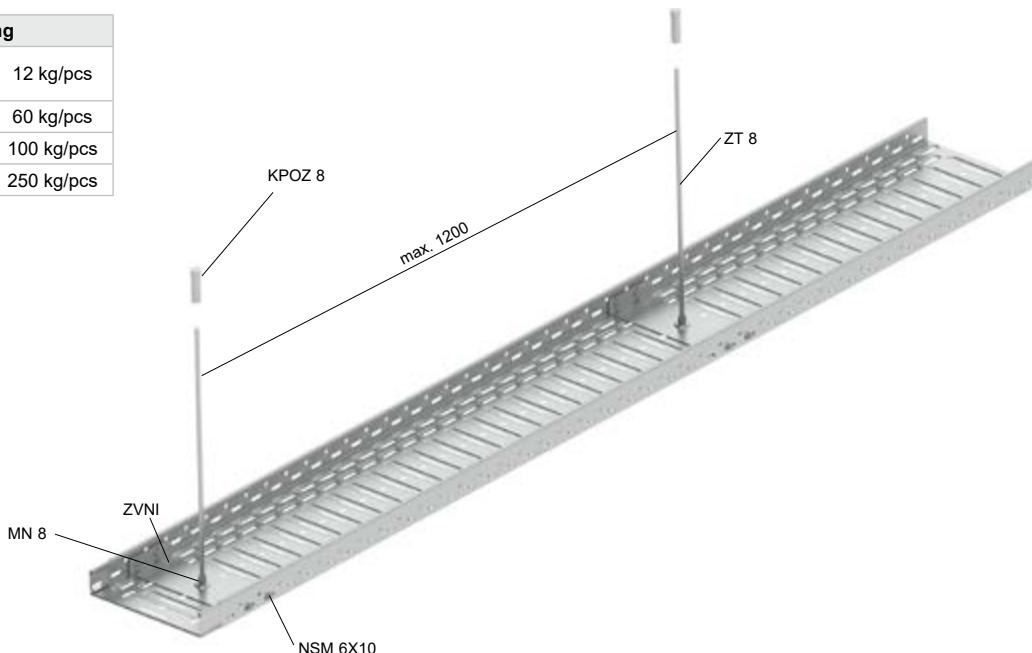
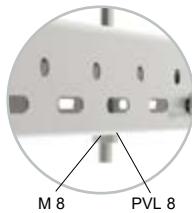
the above values of fire resistance also apply to the corresponding classifications PH90-R, PH60-R, PH45-R, PH30-R and PH15-R

**MARS - NKZI cable trays - side height 50
ceiling assembly using the ZVNI inner hanger - one threaded rod**

T kg
10



load for anchoring		
trapezoidal ceiling	DSOS	12 kg/pcs
concrete	KBS 6X35	60 kg/pcs
	KPOZ 8	100 kg/pcs
I profile	US	250 kg/pcs


Non-standardized supporting construction - load 10 kg/m

The basis of the supporting construction is the NKZI cable tray, which is suspended from the ceiling by means of the ZVNI inner hanger, MN 8 nuts, ZT 8 threaded rods and KPOZ 8 anchors. In the lower part, the connection is secured with PVL 8 washer and M 8 nut. The assembly allows the installation of only one story of the cable tray.

Marking of fire routes is always done after at least 50 m of the route.

Classification of fire resistance according to:

DIN 4102-12
ČSN 73 0895
STN 92 0205

Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	10 kg/m
maximum no. storeis	1
cable tray side height	50 mm
cable tray width	62 - 250 mm
cable tray sheet thickness	1,25 mm

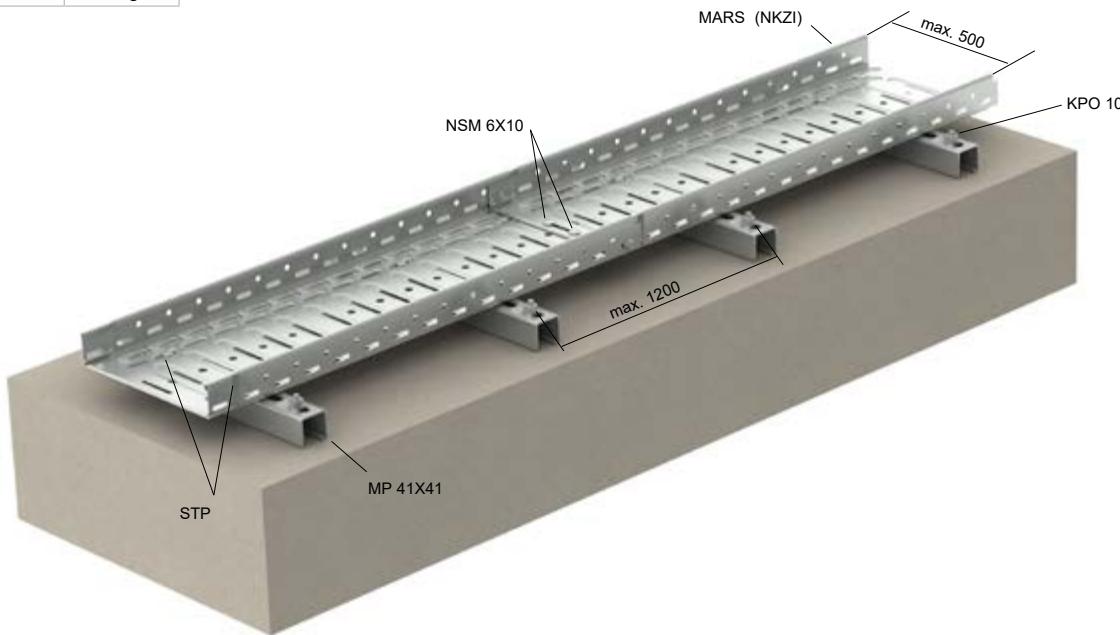
List of products for one mounting point		
		page
ZT 8	1	139
KPOZ 8	1	141
ZVNI	1	133
MN 8	1	133
M 8	1	140
PVL 8	1	140
NSM 6X10	4	143

cable manufacturer	power cables	classification [min]	data cables	classification [min]
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	PRAFlaDur 90	E60, P60-R, PS60	PRAFlaGuard F	E60, P60-R, PS60

cable manufacturer	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	FR-228-15-AUNS	PK9-03-17-913-C-2

**Cable routes - floor installation, installation in raised floors, roof installation
assembly of MARS cable trays**

load for anchoring		
concrete	KPO 10	236 kg/m


Non-standardized supporting construction for loads of 10 kg/m to 20 kg/m

The mounting points are formed by MP 41X41 support profiles. The MARS cable tray is attached to these profiles using STP screws. The mounting profile is anchored to the base material with KPO 10 anchors. The individual trays are connected by an integrated coupling and NSM 6X10 bolts.

For roof mounting, the routes are anchored to bases with reaction to fire class A1 / A2. It must never be anchored directly to the roof sheathing.

Marking of fire routes is always done after at least 50 m of the route.

Classification of fire resistance according to:

ČSN 73 0895

Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	10 kg/m - 20 kg/m
cable tray side height	50 mm, 100 mm
cable tray width	62 - 500 mm

List of products for one mounting point		
		page
		
KPO 10	2	139
MP 41X41	1	134
STP	2	143

Due to the fact that it is possible to place MARS type cable trays on this route, the classification of the route depends on the specific type of cable tray tested on ceiling profiles. The classification can be found in the specification of a specific route.

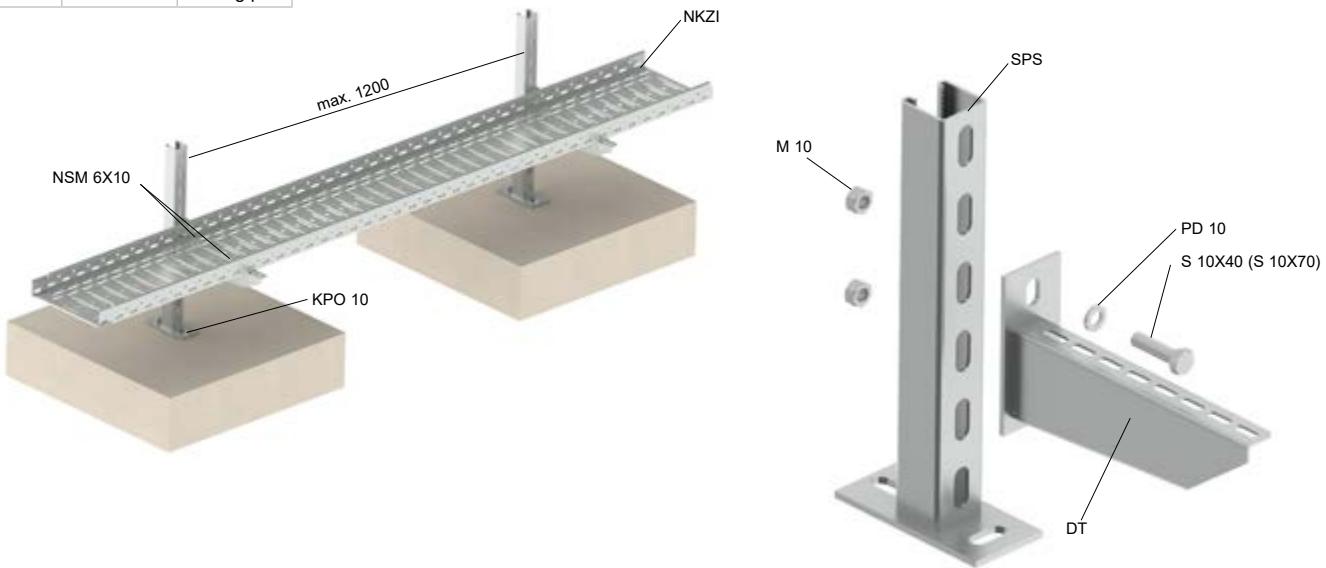
expert assessment PAVUS, a. s.	513166/Z220130412
	PRA-03-17-902-C-0
	Methodical instruction no 02/2020

kg
10; 20



Cable routes on the roofs of buildings assembly of MARS cable trays

load for anchoring		
concrete	KPO 10	236 kg/pcs



Non-standardized supporting construction for loads of 10 kg/m to 20 kg/m

The mounting points are formed by SPS ceiling profiles anchored with KPO 10 anchors. DT or DS holders are installed on the ceiling profiles. The individual trays are connected with NSM 6X10 bolts. MARS trays are anchored to the support with NSM 6X10 bolts.

Anchoring is done in bases with reaction to fire class A1 / A2. It must never be anchored directly to the roof sheathing. Such assembly can only be formed by perforated trays to ensure the outflow of trapped water.

Marking of fire routes is always done after at least 50 m of the route.

Classification of fire resistance according to:
ČSN 73 0895

Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	10 kg/m - 20 kg/m
cable tray side height	50 mm, 100 mm
cable tray width	62 - 500 mm

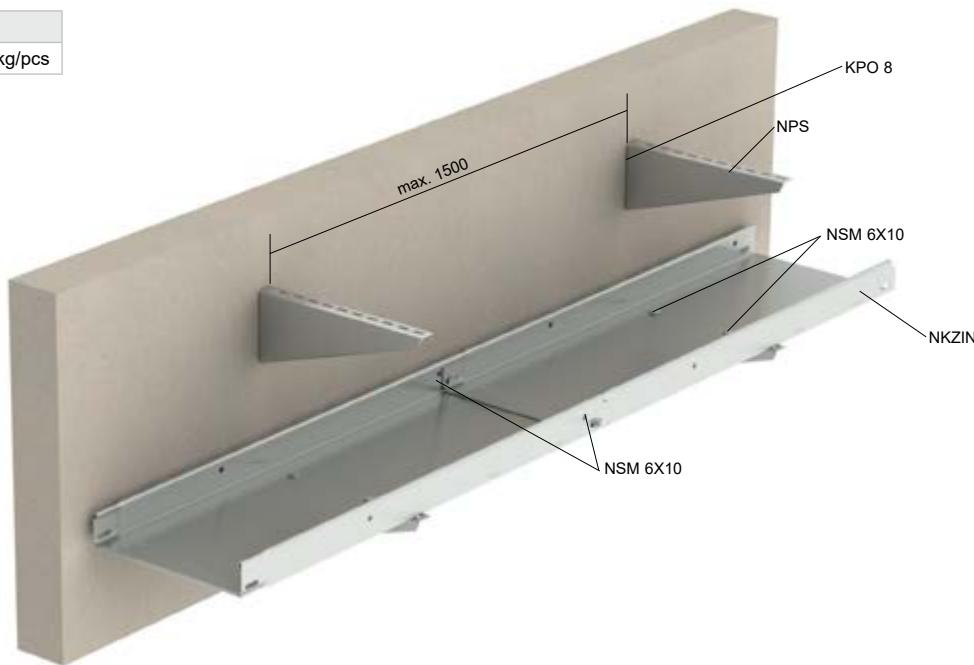
List of products for one mounting point			
			page
KPO 10	2	2	141
SPS	1	1	131
DT (DS)	1	2	131 (132)
S 10X40	2	-	140
S 10X70	-	2	140
PD 10	2	2	140
M 10	2	2	140
NSM 6X10	2	4	143

Due to the fact that it is possible to place MARS type cable trays on this route, the classification of the route depends on the specific type of cable tray tested on ceiling profiles. The classification can be found in the specification of a specific route.

expert assessment PAVUS, a. s.	513166/Z220130412
	PRA-03-17-902-C-0
	Methodical instruction no 02/2020


**MARS - NKZIN cable trays - side height 50
assembly of cable trays on the wall**


load for anchoring		
concrete	KPO 8	187 kg/pcs


Non-standardized supporting construction - load 10 kg/m

The basis of the supporting construction are NPS brackets attached to the base material using KPO 8 anchors. The cable trays are equipped with an integrated connector and, when inserted into each other, they are connected by the NSM 6X10 bolts. The trays must be attached to the NPS holder using NSM 6X10 bolts.

Marking of fire routes is always done after at least 50 m of the route.

Classification of fire resistance according to:

DIN 4102-12
ČSN 73 0895
STN 92 0205

Permissible technical parameters of the route	
spacing of mounting points	max. 1500 mm
maximum load	10 kg/m
cable tray side height	50 mm
cable tray width	62 - 250 mm
cable tray sheet thickness	1,25 mm

List of products for one mounting point				
				page
for NPS 62				
NPS	1	2	3	133
KPO 8	1	2	3	141
NSM 6X10	1	2	3	143
for NPS 125, NPS 250				
NPS	1	2	3	133
KPO 8	2	4	6	141
NSM 6X10	2	4	6	143

cable manufacturer	power cables	classification [min]	data cables	classification [min]
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	PRAFlaDur 90	E90, P90-R, PS90	PRAFlaGuard F	E60, P60-R, PS60
Kabelovna Kabex, a. s.	1-CSKE-V	E30, P30-R, PS30	JSCFE-V	P15-R, PS15

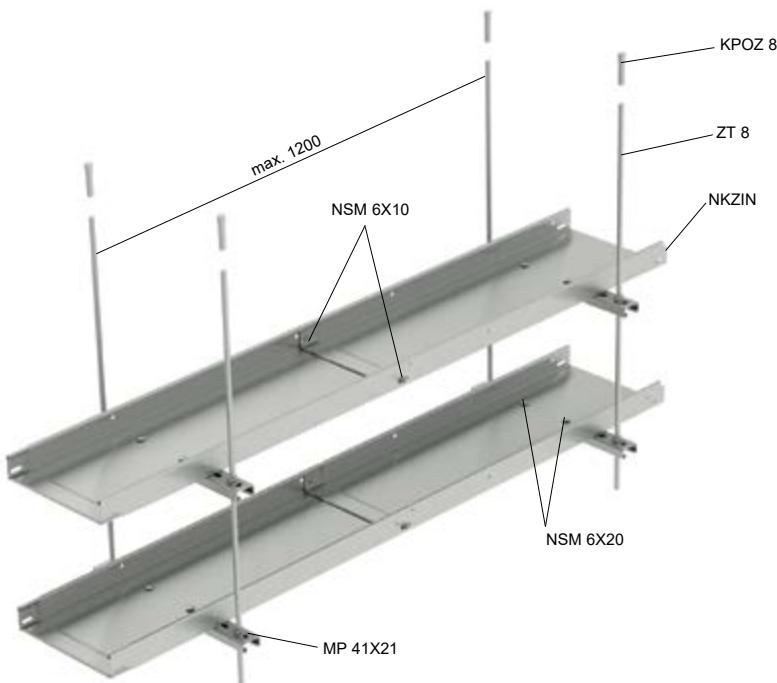
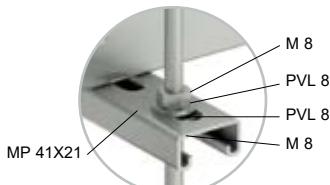
cable manufacturer	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	FR-228-15-AUNS	PK9-03-17-913-C-2
Kabelovna Kabex, a. s.	FR-088-12-AUNS	JR-073-17-NURS

**Cable trays MARS - NKZIN - side height 50 - sheet thickness 1,25 mm
ceiling assembly using threaded rods and mounting profiles MP 41X21**

kg
10; 20



load for anchoring		
trapezoidal ceiling	DSOS	12 kg/pcs
concrete	KBS 6X35	60 kg/pcs
	KPOZ 8	100 kg/pcs
I profile	US	250 kg/pcs



Non-standardized supporting construction for loads of 10 kg/m to 20 kg/m

The basis of the supporting construction is the NKZIN cable tray, which is suspended from the ceiling using MP 41X21 profiles, ZT 8 threaded rods and KPOZ 8 anchors. The mounting profile is fastened to the threaded rods using M 8 nuts and PD 8 washers. NKZIN cable trays are attached to the mounting profiles using NSM 6X20 bolts. It is possible to place two cable trays next to each other up to a total width of 500 mm on the profiles.

Marking of fire routes is always done after at least 50 m of the route.

Classification of fire resistance according to:

DIN 4102-12
ČSN 73 0895
STN 920205

Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	10 kg/m or 20 kg/m
cable tray side height	50 mm
cable tray width	62 - 250 mm
cable tray sheet thickness	1,25 mm

	List of products for one mounting point			page
ZT 8	2	2	2	139
KPOZ 8	2	2	2	141
MP 41X21	1	2	3	134
M 8	4	8	12	140
PVL 8	4	8	12	140
NSM 6X20	2	4	6	143
PVL 6	2	4	6	140

cable manufacturer	No.	power cables	classification [min]	data cables	classification [min]	load
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1	PRAFlaDur 90	E60, P60-R, PS60	PRAFlaGuard F	E90, P90-R, PS90	10 kg/m
	2	PRAFlaDur	E90, P90-R, PS90			
	3	PRAFlaDur 90	E60, P60-R, PS60	PRAFlaGuard F	E60, P60-R, PS60	20 kg/m
Reichle & De-Massari Czech, a. s.	-	1-CXKH-V	E60, P60-R, PS60	JXFE-V	E90, P90-R, PS90	10 kg/m
Prysmian Group		(N) HXHX	E90, P90-R, PS90	JE- H(St)H	E90, P90-R, PS90	10 kg/m
Kabelovna Kabex, a. s.		1-CSKE-V	E30, P30-R, PS30	-	-	10 kg/m

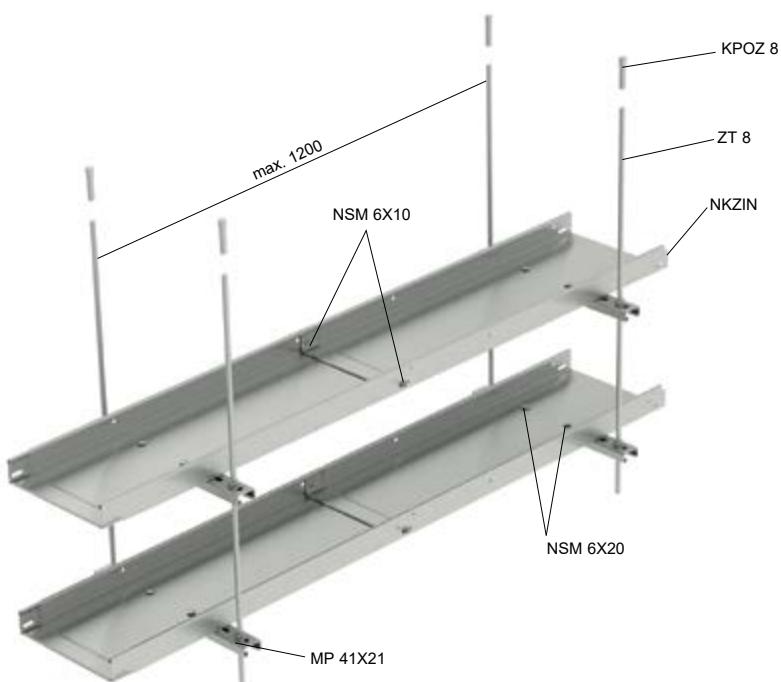
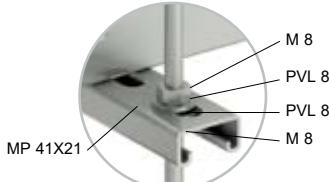
cable manufacturer	No.	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1	FR-228-15-AUNS	PK9-03-17-913-C-2
	2	PKO-16-082; PKO-16-083; PKO-16-084; PV-18-2.005	
Reichle & De-Massari Czech, a. s.	-	FR-104-14-AUNS	PK9-03-17-913-C-2
Prysmian Group	-	FR-156-12-AUNS	JR-073-17-NURS
Kabelovna Kabex, a. s.	-	FR-088-12-AUNS	JR-073-17-NURS



**Cable trays MARS - NKZIN - side height 50 - sheet thickness 0,7 mm
ceiling assembly using threaded rods and mounting profiles MP 41X21**



load for anchoring		
trapezoidal ceiling	DSOS	12 kg/pcs
concrete	KBS 6X35	60 kg/pcs
	KPOZ 8	100 kg/pcs
I profile	US	250 kg/pcs



Non-standardized supporting construction - load 10 kg/m

The basis of the supporting construction is the NKZIN cable tray, which is suspended from the ceiling using MP 41X21 profiles, ZT 8 threaded rods and KPOZ 8 anchors. The mounting profile is fastened to the threaded rods using M 8 nuts and PD 8 washers. NKZIN cable trays are attached to the mounting profiles using NSM 6X20 bolts. It is possible to place two cable trays next to each other up to a total width of 500 mm on the profiles.

Marking of fire routes is always done after at least 50 m of the route.

Classification of fire resistance according to:

DIN 4102-12
ČSN 73 0895
STN 92 0205

Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	10 kg/m
cable tray side height	50 mm
cable tray width	62 - 250 mm
cable tray sheet thickness	0,7 mm

List of products for one mounting point					
	ZT 8	KPOZ 8	MP 41X21	PVL 8	page
ZT 8	2	2	2	139	
KPOZ 8	2	2	2	141	
MP 41X21	1	2	3	134	
M 8	4	8	12	140	
PVL 8	4	8	12	140	
NSM 6X20	2	4	6	143	
PVL 6	2	4	6	140	

cable manufacturer	No.	power cables	classification [min]	data cables	classification [min]
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1	PRAFlaDur 90	E60, P60-R, PS60	PRAFlaGuard F	E90, P90-R, PS90
	2	PRAFlaDur	E90, P90-R, PS90		
Reichle & De-Massari Czech, a. s.	-	1-CXKH-V	E60, P60-R, PS60	JXFE-V	E60, P60-R, PS60
NKT, s. r. o.	-	NOPOVIC 90	E90, P90-R, PS90	-	-
Kabelovna KABEX, a. s.	-	CPDeX 1-CHKE-V	E90, P90-R, PS90	CPDeX JCXFE-V	E30, P30-R, PS30
Tele-Fonika Kable S.A.	-	Flame-X 950 (N)HXB	E60, P60-R, PS60	HTKSH	E90, P90-R, PS90

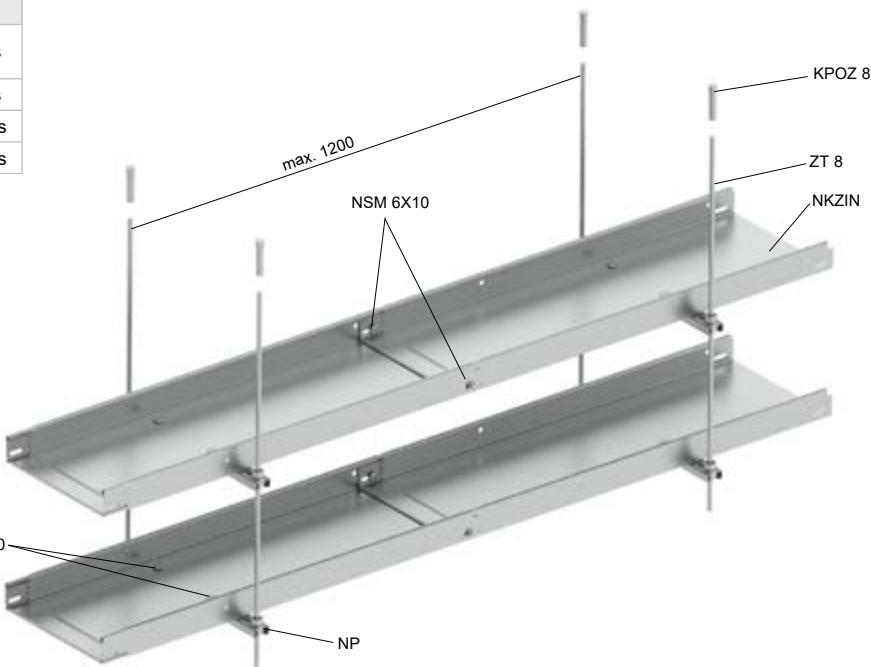
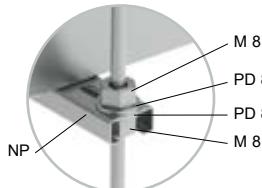
cable manufacturer	No.	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1	FR-228-15-AUNS	PK9-03-17-913-C-2
	2	PKO-16-082, PV-18-2.005	
NKT, s. r. o.	-	FR-217-18-AUNS	JR-155-18-NURS
Reichle & De-Massari Czech, a. s.	-	FR-104-14-AUNS	PK9-03-17-913-C-2
Kabelovna KABEX, a. s.	-	FR-153-20-AUNS	JR-149-20-NURS
Tele-Fonika Kable S.A.	-	FR-153-20-AUNS	JR-149-20-NURS



**Cable trays MARS - NKZIN - side height 50 - sheet thickness 0,7 mm
sestava na strop při použití závitových tyčí a nosných profilů NP**

**T kg
10**

load for anchoring		
trapezoidal ceiling	DSOS	12 kg/pcs
concrete	KBS 6X35	60 kg/pcs
	KPOZ 8	100 kg/pcs
I profile	US	250 kg/pcs



Non-standardized supporting construction for loads of 10 kg/m

The threaded rods ZT 8 are suspended from the ceiling by means of KPOZ 8 anchors. The NP support profiles are anchored on rods using M 8 nuts and PD 8 washers. The maximum mounting points spacing is 1200 mm. NKZIN cable trays are attached to the supporting profiles using NSM 6X20 bolts and PVL 6 washers. It is possible to place two cable trays next to each other up to a total width of 500 mm.

Marking of fire routes is always done after at least 50 m of the route.

Classification of fire resistance according to:

DIN 4102-12
ČSN 73 0895
STN 920205

Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	10 kg/m
cable tray side height	50 mm
cable tray width	62 - 250 mm
cable tray sheet thickness	0,7 mm

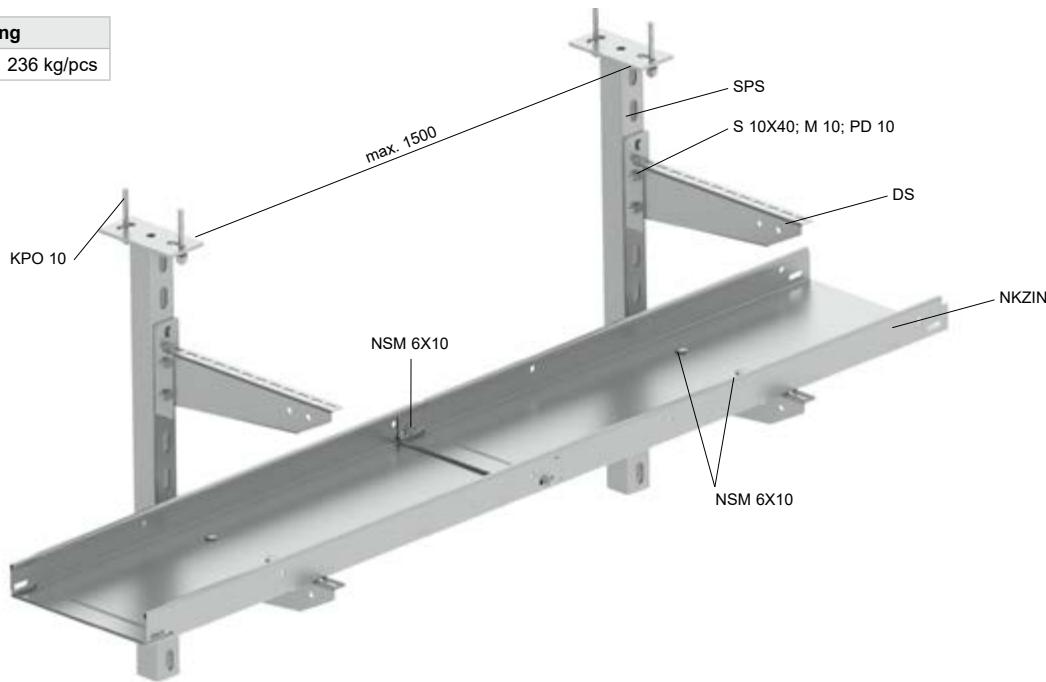
	List of products for one mounting point			page
	ZT 8	KPOZ 8	NP	
ZT 8	2	2	2	139
KPOZ 8	2	2	2	141
NP	1	2	3	134
M 8	4	8	12	140
PD 8	4	8	12	140
NSM 6X20	2	4	6	143

cable manufacturer	power cables	classification [min]	data cables	classification [min]
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	PRAFlaDur 90	E60, P60-R, PS60	PRAFlaGuard F	E60, P60-R, PS60

cable manufacturer	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	FR-220-11-AUNS	JR-052-17-NURS


**MARS - NKZIN cable trays - side height 50
assembly of cable trays - ceiling assembly using SPS**

load for anchoring		
concrete	KPO 10	236 kg/pcs


Non-standardized supporting construction - load 10 kg/m

The basis of the supporting construction is the SPS ceiling profile anchored to the base material using two KPO 10 anchors. The DS holder is fastened to the ceiling profile on one side using S 10X40 bolt, M 10 nut and PD 10 washer. The NKZIN cable trays are attached to the DS holders using NSM 6X10 bolts.

Marking of fire routes is always done after at least 50 m of the route.

Classification of fire resistance according to:

DIN 4102-12
ČSN 73 0895
STN 92 0205

Permissible technical parameters of the route	
spacing of mounting points	max. 1500 mm
maximum load	10 kg
distance between individual routes	200 mm
cable tray side height	50 mm
cable tray width	62 - 250 mm
cable tray sheet thickness	0,7 mm

	List of products for one mounting point						page
KPO 10	2	2	2	2	2	2	141
SPS	1	1	1	1	1	1	131
DS	1	2	2	4	4	6	132
S 10X40	2	4	-	-	-	-	140
S 10X70	-	-	2	4	6	6	140
M 10	2	4	2	4	6	6	140
PD 10	2	4	2	4	6	6	140
NSM 6X10	2	4	4	8	12	12	143

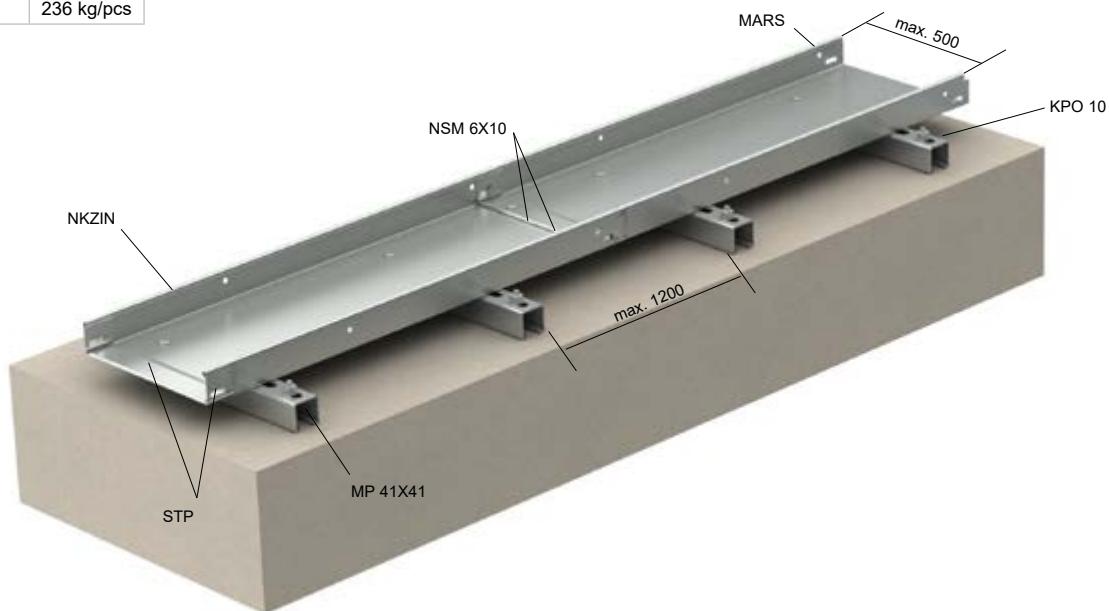
cable manufacturer	No.	power cables	classification [min]	data cables	classification [min]
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1	PRAFlaDur 90	E60, P60-R, PS60	PRAFlaGuard F	E60, P60-R, PS60
	2	PRAFlaDur	E30, P30-R, PS30		
NKT, s. r. o.	-	NOPOVIC 90	E90, P90-R, PS90	-	-
Reichle & De-Massari Czech, a. s.	-	1-CXKH-V	E30, P30-R, PS30	JXFE-V	E60, P60-R, PS60

cable manufacturer	No.	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1	FR-228-15-AUNS	PK9-03-17-913-C-2
	2	FR-217-18-AUNS	JR-155-18-NURS
NKT, s. r. o.	-	FR-217-18-AUNS	JR-155-18-NURS
Reichle & De-Massari Czech, a. s.	-	FR-217-18-AUNS	JR-155-18-NURS

**Cable routes - floor mounting, installation in raised floors
assembly of MARS cable trays**

kg
10; 20 

load for anchoring		
concrete	KPO 10	236 kg/pcs



Non-standardized supporting constructions - load 10 kg/m - 20 kg/m

The mounting points are formed by MP 41X41 support profiles. The MARS cable tray is attached to these profiles using STP screws. The mounting profile is anchored to the base material with KPO 10 anchors. The individual trays have an integrated coupling and are connected with NSM 6X10 bolts.

The non-perforated tray must not be used for roof assembly.

Marking of fire routes is always done after at least 50 m of the route.

Classification of fire resistance according to:
ČSN 73 0895

Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	10 kg/m - 20 kg/m
cable tray side height	50 mm, 100 mm
cable tray width	62 - 500 mm

List of products for one mounting point		
		page
KPO 10	2	141
MP 41X41	1	134
STP	2	143

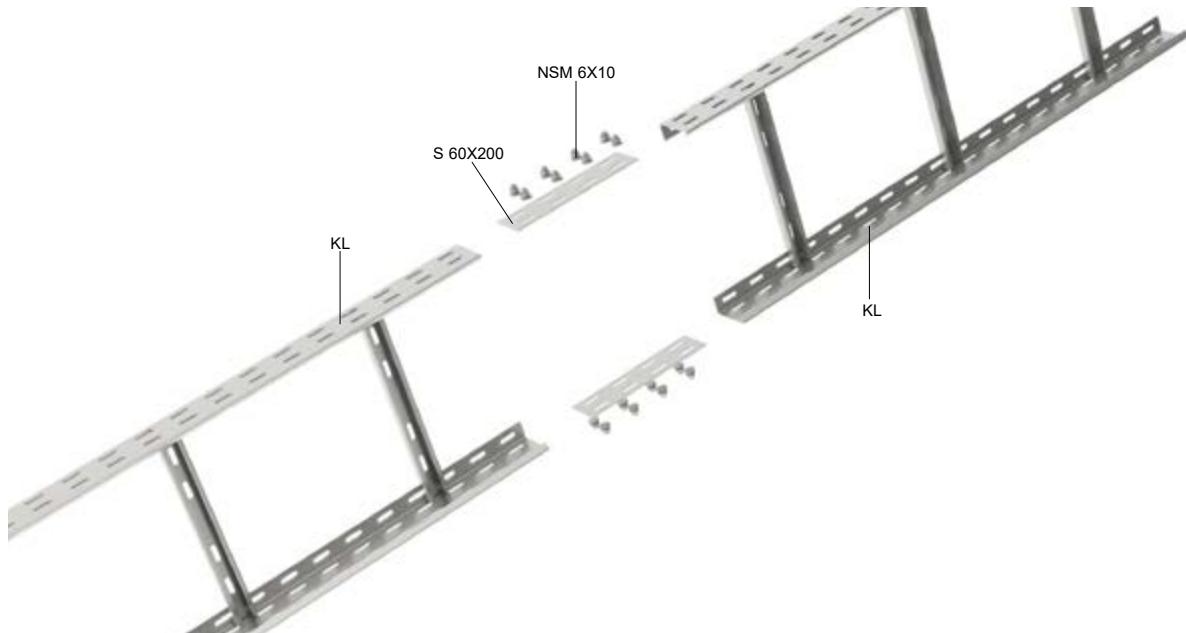
Due to the fact that it is possible to place MARS type cable trays on this route, the classification of the route depends on the specific type of cable tray tested on ceiling profiles. The classification can be found in the specification of a specific route.

expert assessment PAVUS, a. s.	513166/Z220130412 PRA-03-17-902-C-0 Methodical instruction no. 02/2020
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**NON-STANDARDIZED
SUPPORTING CONSTRUCTIONS**

CABLE LADDER



Connection of fire-resistant ladder KL

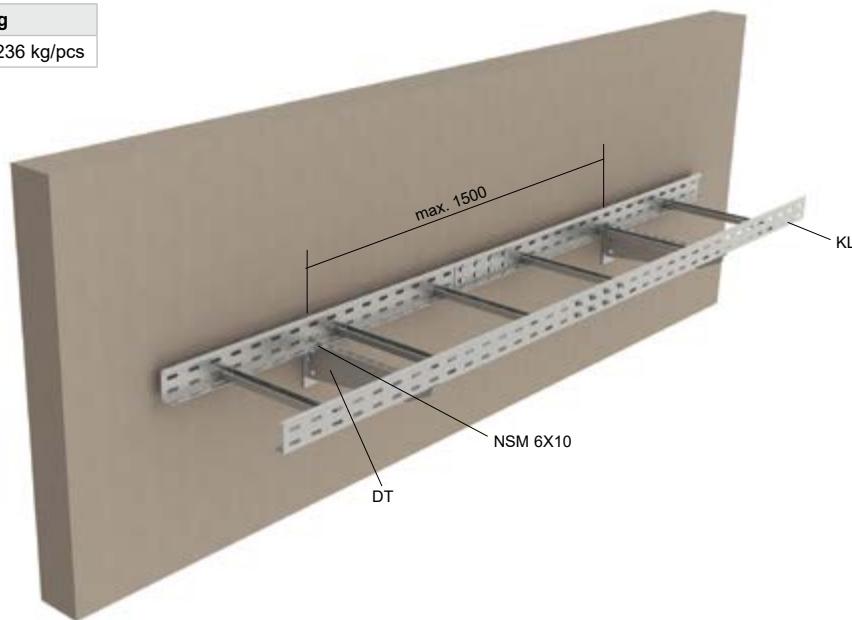
The connection of the KL cable ladder is made using the S 60X200 coupling and the NSM 6X10 bolts.

Coupling type	number of bolts per 2 pcs of couplings
S 60X200	8 - 16 pcs NSM 6X10
S 110X200	8 - 16 pcs NSM 6X10



load for anchoring

concrete KPO 10 236 kg/pcs



Non-standardized supporting construction - load 20 kg/m

The basis of the supporting construction are DT holders attached to the base material using two KPO 10 anchors. The cable tray is connected to each other using two S 60X200 couplings and NSM 6X10 bolts. The ladder is attached to the DT holders using NSM 6X10 bolts.

Marking of fire routes is always done after at least 50 m of the route.

Classification of fire resistance according to:

DIN 4102-12
ČSN 73 0895
STN 92 0205

Permissible technical parameters of the route	
spacing of mounting points	max. 1500 mm
maximum load	20 kg/m
cable ladder side height	60 mm
cable ladder width	150 - 400 mm

List of products for one mounting point				
				page
DT	1	2	3	131
KPO 10	2	4	6	141
NSM 6X10	2	4	6	143

cable manufacturer	power cables	classification [min]	data cables	classification [min]
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	PRAFlaDur 90	E90, P90-R, PS90	PRAFlaGuard F	E30, P30-R, PS30
	PRAFlaDur	E30, P45-R, PS45		
Kabelovna Kabex, a. s.	1-CSKE-V	E60, P60-R, PS60	JCSFE-V	P15-R, PS15
Reichle & De-Massari Czech, a. s.	1-CXKH-V	E30, P30-R, PS30	JXFE-V	E60, P60-R, PS60

cable manufacturer	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	FR-220-11-AUNS	JR-052-17-NURS
Kabelovna Kabex, a. s.	FR-088-12-AUNS	JR-073-17-NURS
Reichle & De-Massari Czech, a. s.	FR-104-18-AUNS	JR-105-18-NURS

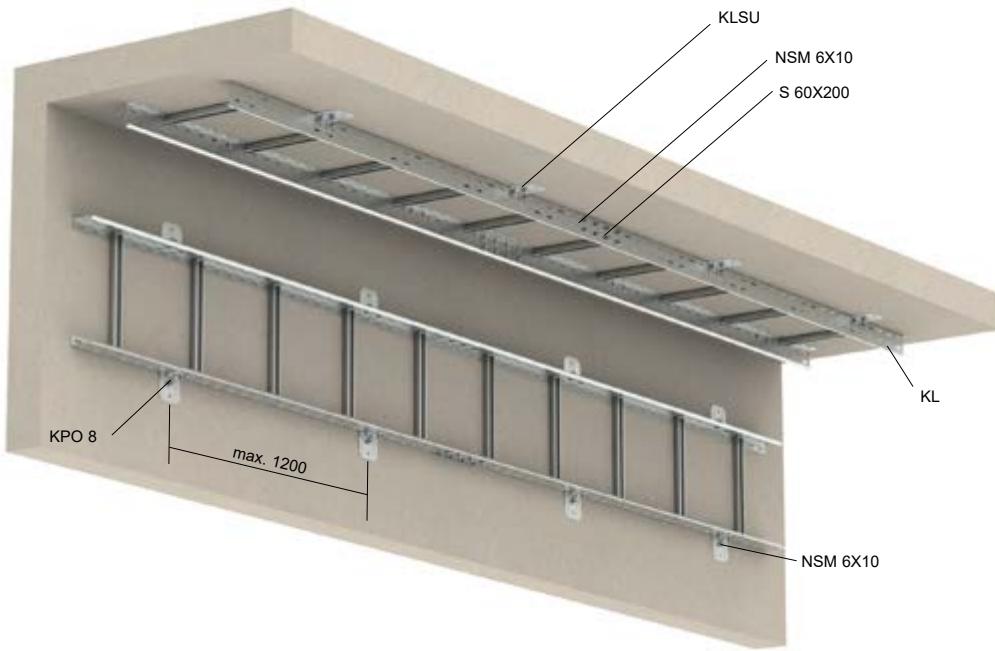
the above values of fire resistance also apply to the corresponding classifications PH90-R, PH60-R, PH45-R, PH30-R and PH15-R

KL Cable ladder

set of cable ladders for wall and ceiling



load for anchoring		
concrete	KPO 8	187 kg/pcs



Non-standardized supporting constructions - load 20 kg/m

The cable ladder is attached to the base material using KLSU clamps located to the side of the bridge using NSM 6X10 bolts. The installation on the base material is done using KPO 8 anchors. With this method of anchoring, the cable ladder can also be installed on the ceiling. We attach the cable with a PKC1 clamp to each cross-piece of the cable ladder (max. 3 pieces of cable in 1 clamp). The cable ladder can be anchored over the cross-piece with suitable anchors, e.g. KPO 8. The route can also be used as vertical.

Marking of fire routes is always done after at least 50 m of the route.

Classification of fire resistance according to:

DIN 4102-12
ČSN 73 0895
STN 92 0205

Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	20 kg/m
cable ladder side height	60 mm
cable ladder width	150 - 600 mm

List of products for one mounting point			
			page
KLSU	2	2	135
KPO 8	2	2	141
NSM 6X10	4	4	143
PKC1	according to the cables amount	according to the cables amount	138

cable manufacturer	No.	power cables	classification [min]	data cables	classification [min]	note
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1	Prafladur	E60, P60-R, PS60	PRAFlaGuard F	E60, P60-R, PS60	—
	2	PRAFlaDur 90	E90, P90-R, PS90		E30, P30-R, PS30	width of the ladders up to 400 mm
NKT s.r.o	-	NOPOVIC	E90, P90-R, PS90	—	—	—
Kabelovna Kabex, a. s.	-	1-CSKE-V	E60, P60-R, PS60	—	—	—

cable manufacturer	No.	protocol number	standpoint number
NKT s.r.o	-	FR-246-21-AUNS	JR-104-21-NURS
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1	FR-220-11-AUNS	JR-052-17-NURS
	2		
Kabelovna Kabex, a. s.	-	FR-88-12-AUNS	JR-073-17-NURS

the above values of fire resistance also apply to the corresponding classifications PH90-R, PH60-R, PH45-R, PH30-R and PH15-R



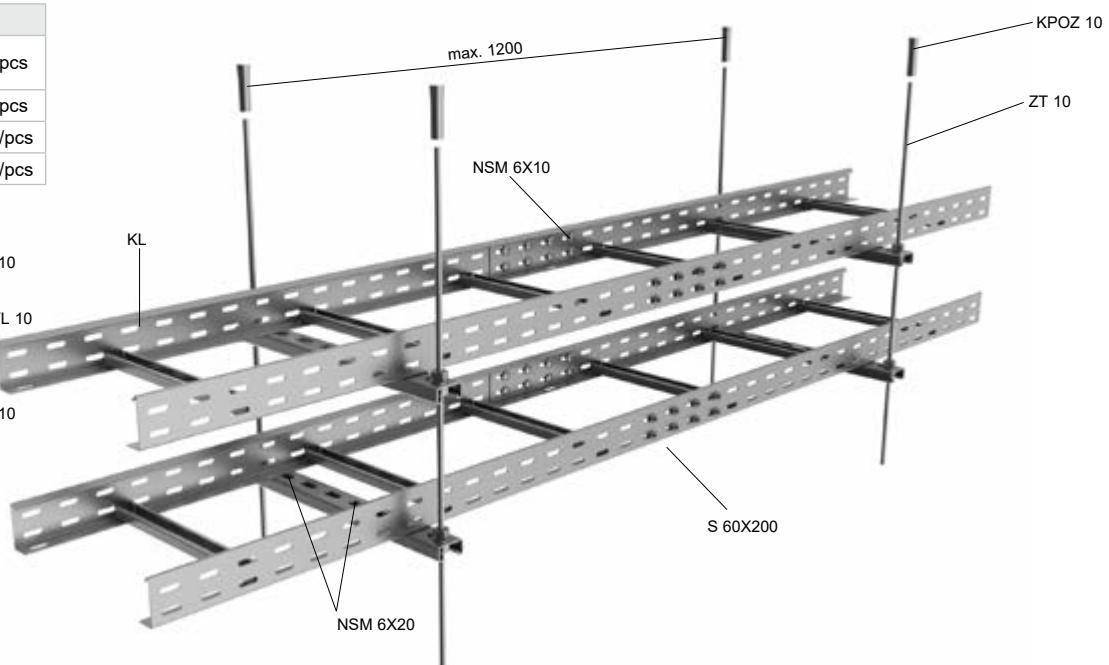
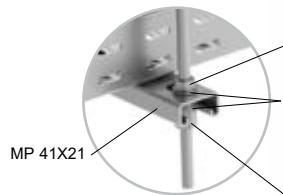
vertical route



**KL cable ladder with a side height of 60 mm
ceiling assembly using threaded rods and mounting profiles MP 41X21 (MP 41X41)**

kg
20

load for anchoring		
trapezoidal ceiling	DSOS	12 kg/pcs
concrete	KBS 6X35	60 kg/pcs
	KPOZ 8	100 kg/pcs
I profile	US	250 kg/pcs



Non-standardized supporting constructions - load 20 kg/m

The basis of the supporting construction is the KL cable ladder, which is suspended from the ceiling using MP 41X21 (MP 41X41) profiles, ZT 10 threaded rods and KPOZ 10 anchors. The mounting profile is fastened to threaded rods using M 10 nuts and PVL 10 washers.

KL cable ladders are attached to the mounting profiles using NSM 6X20 bolts and PLV 6 washers. It is possible to place two cable ladder side by side up to a total width of 600 mm on the profiles.

Marking of fire routes is always done after at least 50 m of the route.

Fire resistance classification according to:
DIN 4102-12, ČSN 73 0895, STN 92 0205

Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	20 kg/m
cable ladder side height	60 mm
cable ladder width	150 - 600 mm

List of products for one mounting point				
				page
ZT 10	2	2	2	139
KPOZ 10	2	2	2	141
MP 41X21 (MP 41X41)	1	2	3	134
M 10	4	8	12	140
PVL 10	4	8	12	140
NSM 6X20	2	4	6	143
PVL 6	2	4	6	140

cable manufacturer	No.	power cables	classification [min]	data cables	classification [min]	note
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1.	PRAFlaDur 90	E90, P90-R, PS90	PRAFlaGuard F	E90, P90-R, PS90	width of the ladders up to 400 mm
	2.	PRAFlaDur	E60, P60-R, PS60	PRAFlaGuard F	E30, P30-R, PS30	-
Prysmian group	-	(N) HXHX-J	E30, P30-R, PS30	JE-H(St)H	E90, P90-R, PS90	width of the ladders up to 500 mm
Reichle & De-Massari Czech, a. s.	-	1-CXKH-V	E60, P60-R, PS60	JXFE-V	E90, P90-R, PS90	width of the ladders up to 500 mm
NKT, s. r. o.	-	NOPOVIC 1-CXKH	E60, P60-R, PS60	-	-	-
Zakłady Kablowe BITNER Sp. z o.o.	-	Bitflame 1000	E90, P90-R, PS90	HTKSH	E90, P90-R, PS90	-
KABELOVNA KABEX, a. s.	-	CPDex 1-CHKE-V	E90, P90-R, PS90	CPDex JCXFE-V	P15-R, PS15	-

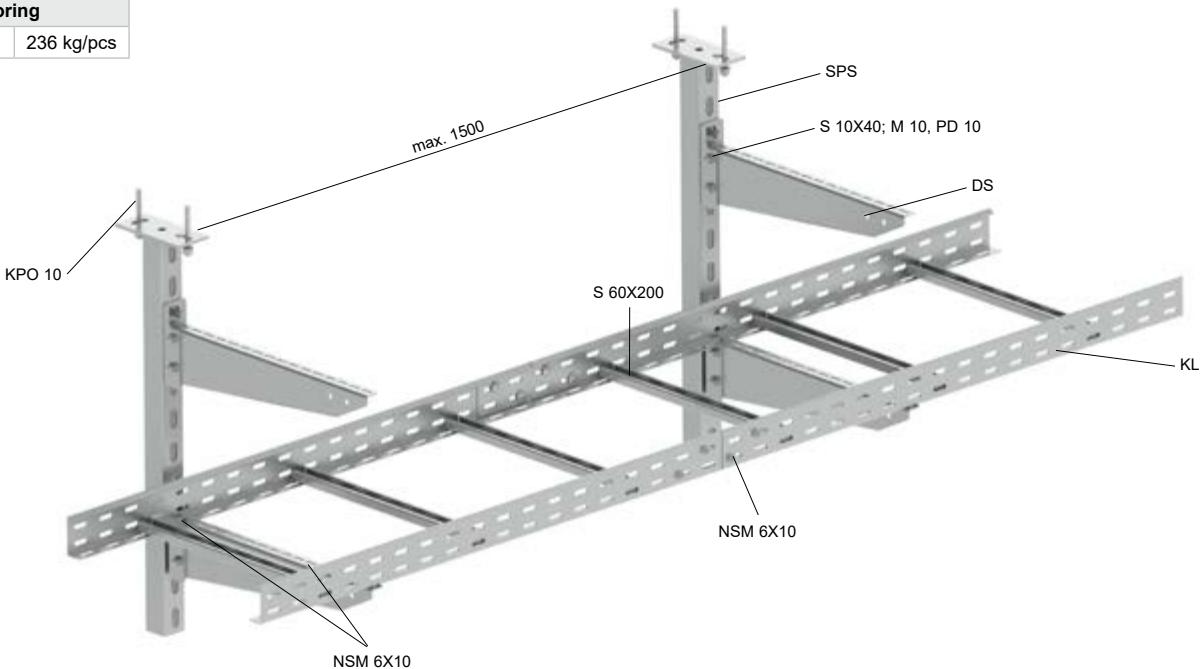
cable manufacturer	No.	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1.	FR-220-11-AUNS	JR-052-17-AUPS
Prysmian group	2.	FR-166-17-AUNS	JR-099-17-NURS
Reichle & De-Massari Czech, a. s.	-	FR-104-14-AUNS	PK9-03-17-913-C-2
NKT, s. r. o.	-	FR-166-17-AUNS	JR-099-17-NURS
KABELOVNA KABEX, a. s.	-	FR-205-19-AUNS	JR-185-19-NURS
BITNER Sp.z o.o	-	FR-205-19-AUNS	FR-205-19-AUNS

the above values of fire resistance also apply to the corresponding classifications PH90-R, PH60-R, PH45-R, PH30-R and PH15-R



Cable ladders KL
cestava kabelových lávek - na strop s použitím SPS

load for anchoring		
concrete	KPO 10	236 kg/pcs



Non-standardized supporting constructions - load 10 kg/m

The basis of the supporting structure is the SPS ceiling profile anchored to the base material using two KPO 10 anchors. The DS holder is fastened to the ceiling profile on one side with S 10X40 bolt, M 10 nut and PD 10 washer. The KL cable ladders are attached to the DS holders with NSM 6X10 bolts.

Marking of fire routes is always done after at least 50 m of the route.

Classification of fire resistance according to:

DIN 4102-12
ČSN 73 0895
STN 92 0205

Permissible technical parameters of the route	
spacing of mounting points	max. 1500 mm
maximum load	10 kg
distance between individual routes	200 mm
cable ladder side height	60 mm
cable ladder width	150 - 400 mm

	List of products for one mounting point					page
KPO 10	2	2	2	2	2	141
SPS	1	1	1	1	1	131
DS	1	2	2	4	6	132
S 10X40	2	4	-	-	-	140
S 10X70	-	-	2	4	6	140
M 10	2	4	2	4	6	140
PD 10	2	4	2	4	6	140
NSM 6X10	2	4	4	8	12	143

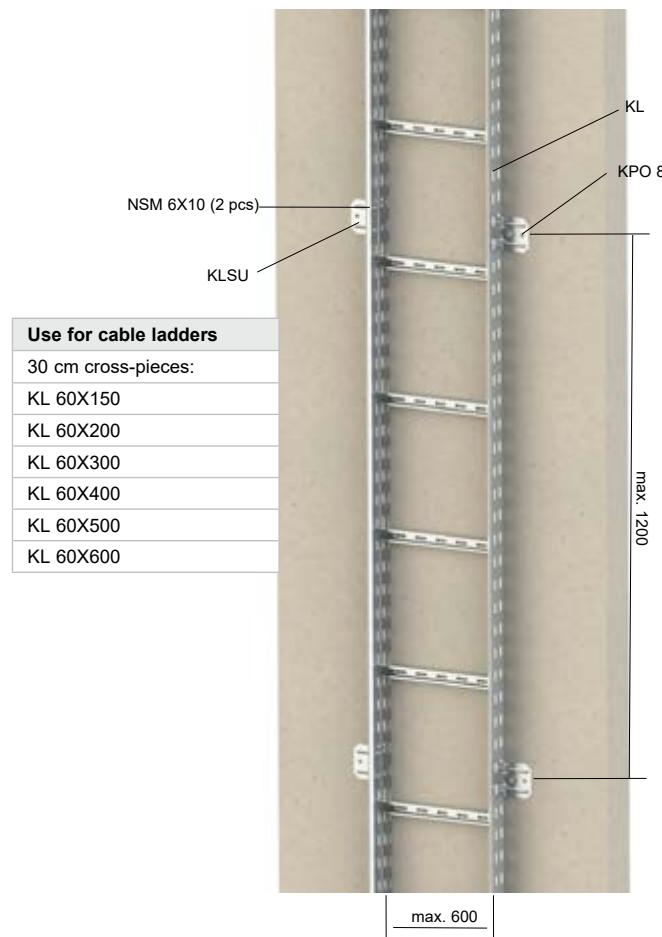
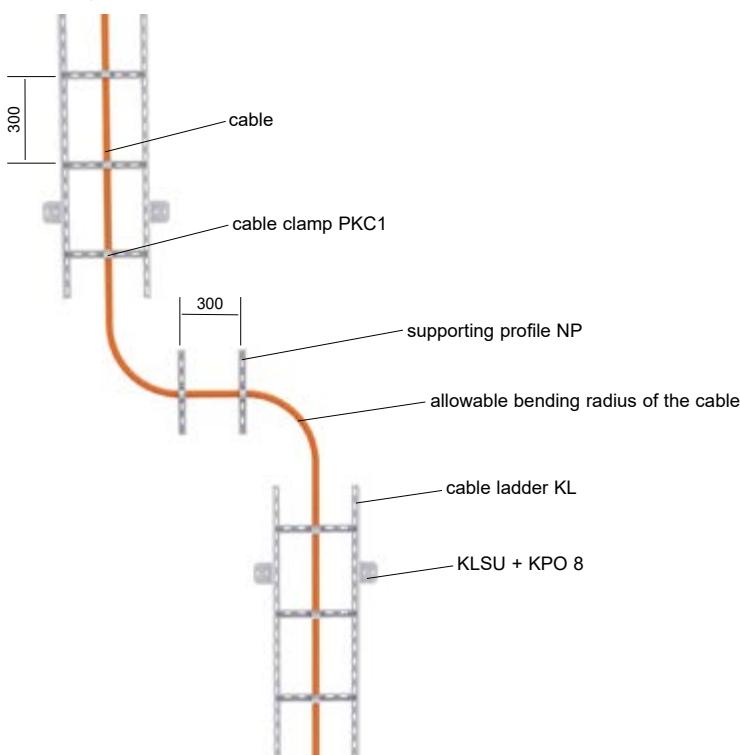
cable manufacturer	No.	power cables	classification [min]	data cables	classification [min]
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1	PRAFlaDur 90	E30, P30-R, PS30	PRAFlaGuard F	E30, P30-R, PS30
	2	PRAFlaDur	E30, P30-R, PS30		
Reichle & De-Massari Czech, a. s.	-	1-CXKH-V	E60, P60-R, PS60	JXFE-V	E90, P90-R, PS90
	1	NOPOVIC 60	E60, P60-R, PS60		
NKT, s. r. o.	2	NOPOVIC 90	E90, P90-R, PS90	-	-
	-	PR-18-2.005	PK9-03-18-901-C-0		

cable manufacturer	No.	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1	FR-228-15-AUNS	PK9-03-17-913-C-2
	2	FR-217-18-AUNS	JR-155-18-NURS
NKT, s. r. o.	1	FR-217-18-AUNS	JR-155-18-NURS
	2		
Reichle & De-Massari Czech, a. s.	-	PR-18-2.005	PK9-03-18-901-C-0
	-		

Cable ladders - KL 60... assembly of cable ladders - vertical route



load for anchoring		
concrete	KPO 8	187 kg/pcs


Relieving elbow


Certification according to: ČSN 730895, DIN 4102-12, STN 920205

Non-standardized supporting constructions - load 20 kg/m

The cable ladder is attached to the base material using KLSU brackets attached to the side of the ladder in a maximum span of 1200 mm using NSM 6X10 bolts. The installation on the base material is performed using KPO 8 anchors.

The cable placed in the cable ladder must be mechanically fastened with PKC1 clamps at least every 300 mm. If the length of the vertical cable route is longer than 3500 mm, it is necessary to create a relieving elbow or use a KPS cable clamps cover (page 127).

A maximum of 3 cables with functionality in the event of a fire can be inserted into the PKC1 clamp in the vertical route.

Marking of fire routes by OPT label is always done after at least 50 m of the route.

Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	20 kg/m
distance between individual routes	100 mm (minimum distance for KPS cover placement)
cable ladder side height	60 mm
cable ladder width	150 - 600 mm

List of products for one mounting point

		page
KLSU	2	135
KPO 8	2	141
NSM 6X10	4	143
PKC1	according to the cables amount	138

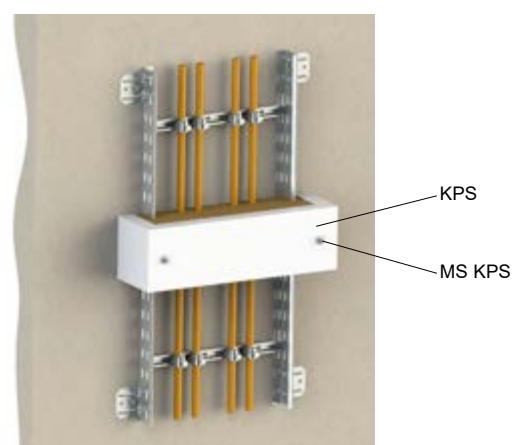
Cable manufacturer approved:

Due to the fact that KL cable ladders can be placed on this route, the classification of the route depends on the specific type of cable ladder tested on the ceiling. The classification can be found in the specification of a specific route.

Because the vertical route may be part of a non-standardized supporting construction, it is always necessary to use cables from manufacturers who have been certified for installation with the non-standardized part of the cable route. The route must be anchored before going to the vertical part.

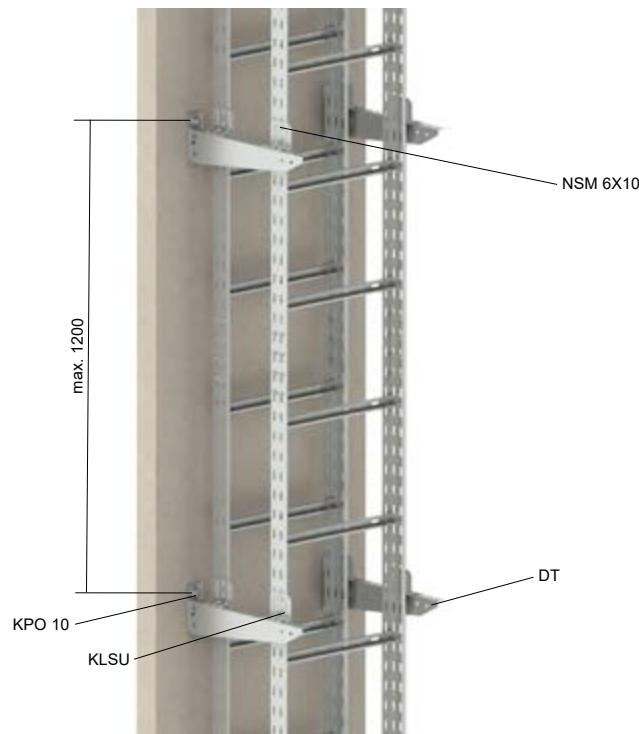
KPS - replacement for relieving elbow

Instead of the relieving elbow, it is possible to use the KPS cable clamps cover (pg. 127). When using the KPS cable clamps cover, the fire resistance classification is reduced to 60 minutes.





load for anchoring		
concrete	KPO 10	236 kg/pcs



Non-standardized supporting constructions - load 20 kg/m

Cable ladders are attached by KLSU bracket to DT holders placed on the wall using KPO 10 anchors. The maximum mounting point spacing is 1200 mm. The mutual distance of cable trays placed on DT holders is 200 mm. It is advantageous to use the assembly where it is necessary to install a large number of cables.

According to the standards, the vertical route created by the cable ladders KL 60X... S (F) is understood as a clamp for individual cables. The cable trays are connected using S 60X200 coupling. Fixing cables with individual clamps with spacing of 300 mm is understood as a standardized supporting construction. Because the vertical route may be part of a non-standardized supporting construction, it is always necessary to use cables from manufacturers who have been certified for installation with the non-standardized part of the cable route.

The route must be anchored before going to the vertical part.

For the vertical route, a relieving elbow or tensile relief using KPS must be created every 3500 mm. In the case of the assembly of two cable trays, two KPS can be used on top of each other or against each other.

Marking of fire routes is always done after at least 50 m of the route.

Classification of fire resistance according to:

DIN 4102-12
ČSN 73 0895
STN 920205

Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	20 kg (for each cable ladder)
distance between individual routes	200 mm
cable ladder side height	60 mm
cable ladder width	150 - 600 mm

List of products for one mounting point		page
DT	2	131
KLSU	4	135
KPO 10	4	141
NSM 6X10	8	143

cable manufacturer	power cables	classification [min]	data cables	classification [min]
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	PRAFlaDur 90	P90-R	PRAFlaGuard F	P90-R
Prysmian group	(N) HXH	P90-R	JE-H(St)H	P90-R
Kabelovna Kabex, a. s.	CPDex 1-CHKE-V	P90-R	-	-

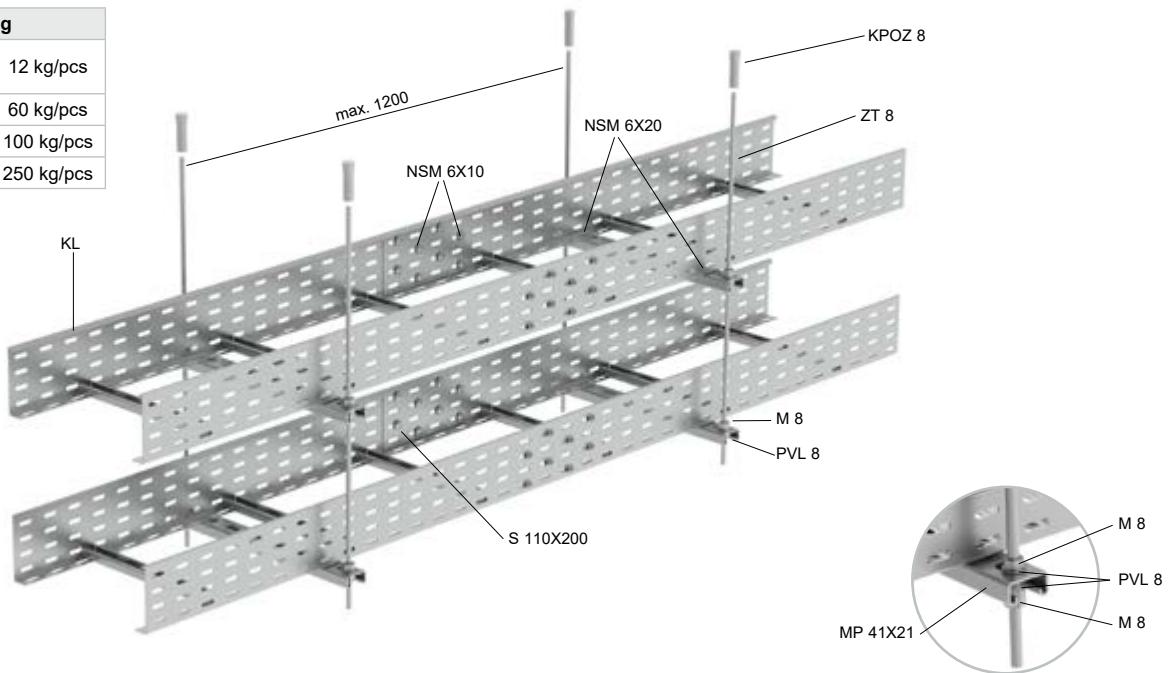
expert assessment PAVUS, a. s.	513166/Z220130412
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**KL cable ladders with a side height of 110 mm
ceiling assembly using threaded rods and mounting profiles MP 41X21**

kg
30

load for anchoring		
trapezoidal ceiling	DSOS	12 kg/pcs
concrete	KBS 6X35	60 kg/pcs
	KPOZ 8	100 kg/pcs
I profile	US	250 kg/pcs



Non-standardized supporting constructions - load 30 kg/m

The basis of the supporting construction is the KL cable ladders, which is suspended from the ceiling by means of MP 41X21 profiles, ZT 8 threaded rods and KPOZ 8 anchors. The mounting profile is fastened to the threaded rods by means of M 8 nuts and PVL 8 washers. KL cable ladders are attached to the mounting profiles using NSM 6X20 bolts and PLV 6 washers. It is possible to place two cable ladders side by side up to a total width of 600 mm on the profiles.

Marking of fire routes is always done after at least 50 m of the route.

Classification of fire resistance according to:
 DIN 4102-12
 ČSN 73 0895
 STN 920205

Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	30 kg/m
cable ladder side height	110 mm
cable ladder width	150 - 600 mm

List of products for one mounting point				
				page
ZT 8	2	2	2	139
KPOZ 8	2	2	2	141
MP 41X21	1	2	3	134
M 8	4	8	12	140
PVL 8	4	8	12	140
NSM 6X20	2	4	6	143
PVL 6	2	4	6	140

cable manufacturer	No.	power cables	classification [min]	data cables	classification [min]
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	-	PRAFlaDur	E60, P60-R, PS60	PRAFlaGuard F	E30, P30-R, PS30
KABELOVNA KABEX, a. s.	-	CPDex 1-CHKE-V	E90, P90-R, PS90	CPDex JCXFE-V	E90, P90-R, PS90

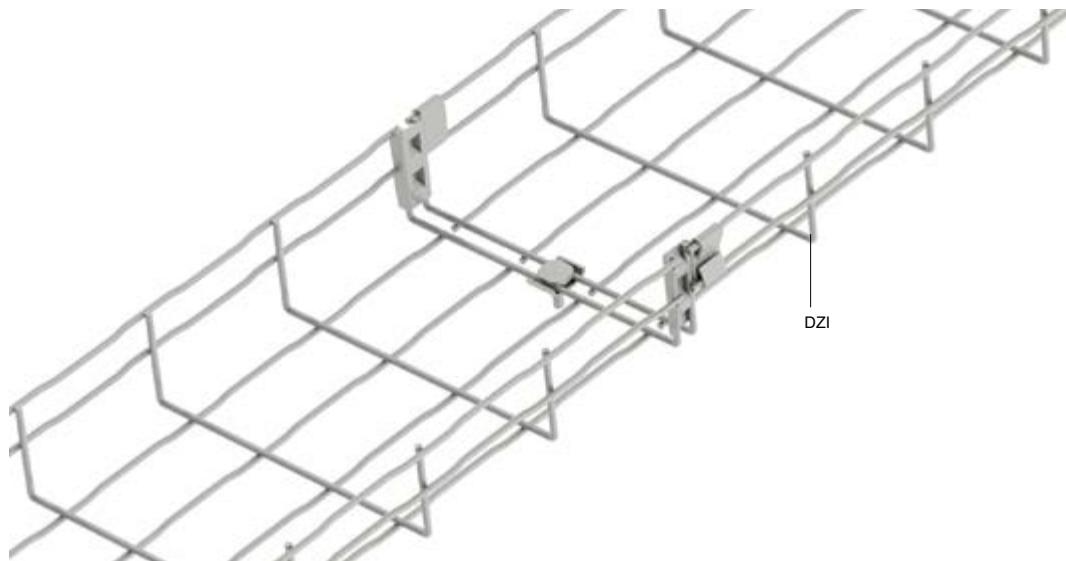
cable manufacturer	No.	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	-	FR-153-20-AUNS	JR-149-20-NURS
KABELOVNA KABEX, a. s.	-	FR-153-20-AUNS	JR-149-20-NURS



NON-STANDARDIZED SUPPORTING CONSTRUCTIONS

WIRE TRAY



Connection of fire-resistant wire tray with integrated coupling

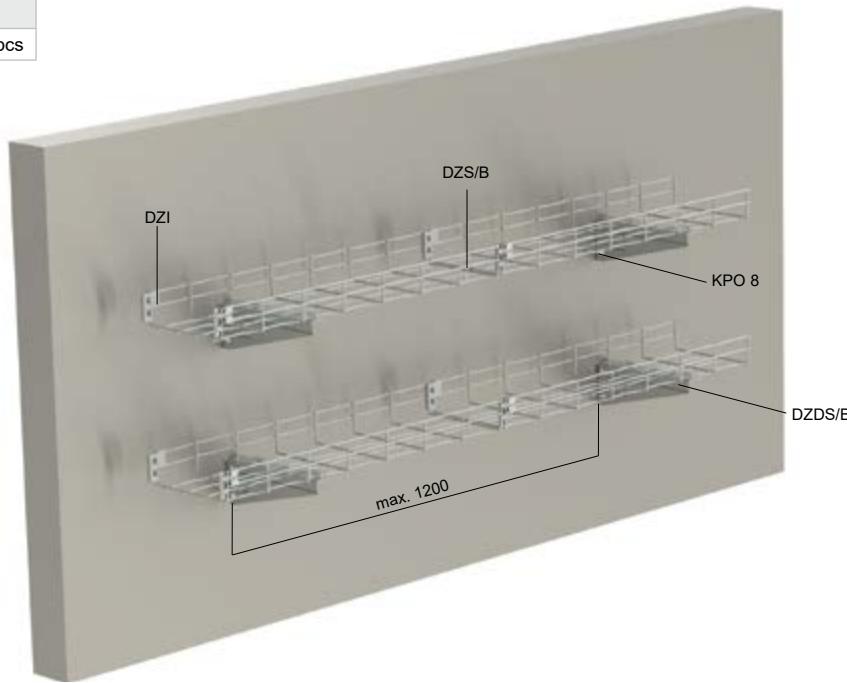
The DZI wire tray connection is made using the integrated coupling and the DZS/B bolts.

tray width	DZS/B
60	1
100	
150	
200	
300	2
400	
500	3
600	



**Wire trays with integrated DZI coupling - side height 60
assembly of wire trays on the wall**

load for anchoring		
concrete	KPO 8	100 kg/pcs



Non-standardized supporting constructions - load 10 kg/m

The basis of the supporting structure is a DZDS/B holder fixed to the wall by means of two KPO 8 anchors. The ends of the protrusions must be bent down towards the holders after installation of the tray. For fire resistance, the connection by integrated couplings is fastened with DZS/B bolts (according to the width of the tray).

Marking of fire routes is always done after at least 50 m of the route.

Classification of fire resistance according to:

DIN 4102-12
ČSN 73 0895
STN 920205

Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	10 kg/m
cable tray side height	60 mm
cable tray width	100 - 300 mm

List of products for one mounting point				
				page
DZDS.../B	1	2	3	130
KPO 8	1	2	3	141

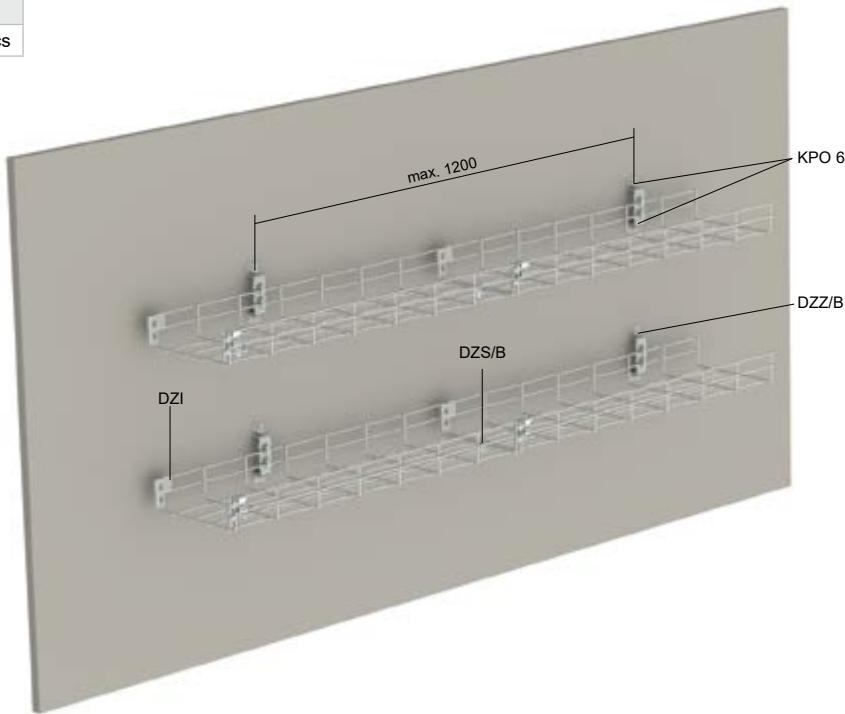
cable manufacturer	power cables	classification [min]	data cables	classification [min]
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	PRAFlaDur	E30, P30-R, PS 30	PRAFlaGuard F	E90, P90-R, PS90
NKT, s. r. o.	NOPOVIC 90	E90, P90-R, PS90	-	-

cable manufacturer	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	FR 166-17-AUNS	JR-099-17-NURS
NKT, s. r. o.	FR 166-17-AUNS	JR-099-17-NURS



**Wire trays with integrated DZI coupling - side height 60
assembly on the wall using DZZ/B**

load for anchoring		
concrete	KPO 6	100 kg/pcs



Non-standardized supporting constructions - load 6 kg/m

The basis of the supporting structure is the DZZ/B hanger attached to the wall using a KPO 6 anchor. For fire resistance, the connection by integrated couplings is fastened with DZS/B bolts (according to the width of the tray).

Marking of fire routes by OPT label is always done after at least 50 m of the route.

Classification of fire resistance according to:

DIN 4102-12
ČSN 73 0895
STN 920205

Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	6 kg/m
cable tray side height	60 mm
cable tray width	60 - 200 mm

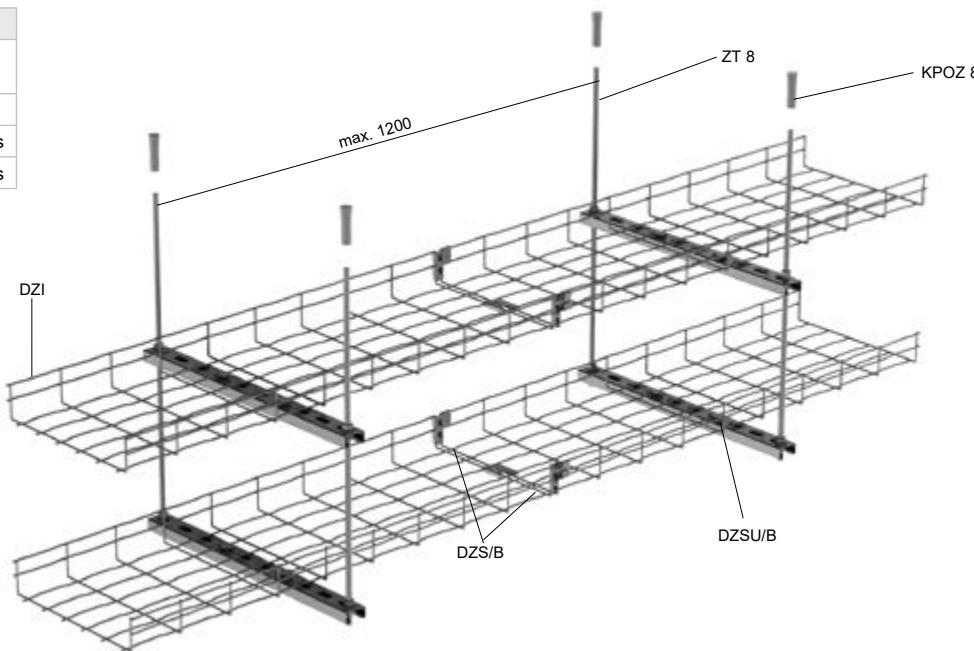
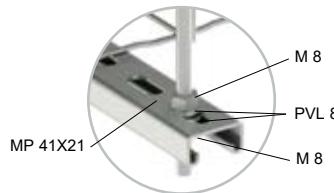
List of products for one mounting point				
				page
DZZ/B	1	2	3	129
KPO 6	2	4	6	141

cable manufacturer	power cables	classification [min]	data cables	classification [min]	note
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	PRAFlaDur 90	E90, P90-R, PS90	PRAFlaGuard F	E30, P30-R, PS30	cable cross section up to 16 mm ²
	PRAFlaDur	P15-R, PS15	-	-	cable cross section up to 16 mm ²
Reichle & De-Massari Czech, a. s.	1-CXKH-V	E60, P60-R, PS60	JXFE-V	E90, P90-R, PS90	cable cross section up to 16 mm ²
NKT, s. r. o.	NOPOVIC 90	E90, P90-R, PS90	-	-	cable cross section up to 10 mm ²

cable manufacturer	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	FR 166-17-AUNS	JR-099-17-NURS
Reichle & De-Massari Czech, a. s.	PR-18-2.005	PK9-03-18-901-C-0
NKT, s. r. o.	FR 166-17-AUNS	JR-099-17-NURS

**Wire trays with integrated DZI coupling - side height 60
ceiling assembly using threaded rods and mounting profiles MP 41X21**

load for anchoring		
trapezoidal ceiling	DSOS	12 kg/pcs
concrete	KBS 6X35	60 kg/pcs
	KPOZ 8	100 kg/pcs
I profile	US	250 kg/pcs


Non-standardized supporting constructions - load 10 kg/m

The basis of the supporting structure is the DZI wire tray, which is suspended from the ceiling by means of MP 41X21 profiles, ZT 8 threaded rods and KPOZ 8 anchors. fastened with DZSU/B bolts. For fire resistance, the connection by integrated couplings is fastened with DZS/B bolts (according to the width of the tray).

Marking of fire routes is always done after at least 50 m of the route.

Fire resistance classification according to:
DIN 4102-12, ČSN 730895, STN 920205

Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	10 kg/m
cable tray side height	60 mm
cable tray width	60 - 400 mm (600 mm)

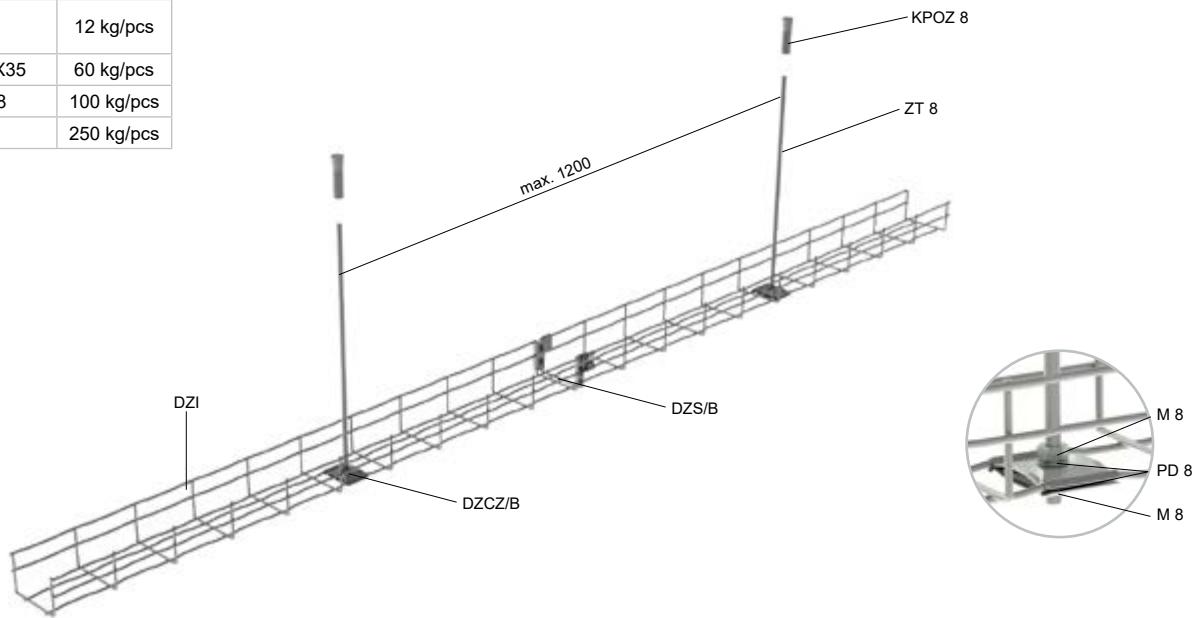
	List of products for one mounting point			page
ZT 8	2	2	2	139
KPOZ 8	2	2	2	141
MP 41X21	1	2	3	134
M 8	4	8	12	140
PVL 8	4	8	12	140
DZSU/B	2	4	6	129
PVL 6	2	4	6	140

cable manufacturer	power cables	classification [min]	data cables	classification [min]	note
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	PRAFlaDur 90	E60, P60-R, PS60	PRAFlaGuard F	E30, P30-R, PS30	-
	PRAFlaDur	E90, P90-R, PS90		E90, P90-R, PS90	width of the trays up to 600 mm
Klaus Faber AG	-	-	JE-H(St)H	E90, P90-R, PS90	-
Reichle & De-Massari Czech, a. s.	1-CXKH-V	E60, P60-R, PS60	JXFE-V	E90, P90-R, PS90	-
NKT, s. r. o.	NOPOVIC 90	E90, P90-R, PS90	-	-	-
ELKOND HHK, a. s.	1-CXKH-V	E90, P90-R, PS90	SHXKFH	E60, P60-R, PS60	cable cross section up to 10 mm ²
	NHXH-J	E30, P30-R, PS30	JE-H(St)H	E60, P60-R, PS60	
Zakłady Kablowe BITNER Sp. z o.o.	Bitflame 1000	E90, P90-R, PS90	HTKSH	E90, P90-R, PS90	cable tray width up to 600 mm
KABELOVNA KABEX, a. s.	CPDex 1-CHKE-V	E90, P90-R, PS90	CPDex JCXFE-V	E30, P30-R, PS30	

cable manufacturer	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	FR-270-16-AUNS	JR-004-17-NURS
	FR-205-19-AUNS	JR-185-19-NURS
Klaus Faber AG	FR-270-16-AUNS	JR-004-17-NURS
Reichle & De-Massari Czech, a. s.	PR-18-2.005	PK9-03-18-901-C-0
NKT, s. r. o.	FR-166-17-AUNS	JR-099-17-NURS
ELKOND HHK, a. s.	FR-270-16-AUNS	JR-004-17-NURS
Zakłady Kablowe BITNER Sp. z o.o.	FR-205-19-AUNS	JR-185-19-NURS
KABELOVNA KABEX, a. s.		


**Wire trays with integrated DZI coupling - side height 60
ceiling assembly using the central hanger DZCZ/B**


load for anchoring		
trapezoidal ceiling	DSOS	12 kg/pcs
concrete	KBS 6X35	60 kg/pcs
	KPOZ 8	100 kg/pcs
I profile	US	250 kg/pcs


Non-standardized supporting constructions - load 6 kg/m

The ZT 8 threaded rod is suspended from the ceiling using KPOZ 8 fire-resistant anchors. The supporting element of this assembly is a pair of DZCZ/B central hinges, which are fixed to the threaded rods by two M 8 nuts and PD 8 washers. The hangers must always be placed in the middle of the wire trays in the longitudinal axis. For fire resistance, the connection by integrated couplings is fastened with DZS/B bolts (according to the width of the tray).

Marking of fire routes by OPT label is always done after at least 50 m of the route.

Classification of fire resistance according to:

DIN 4102-12
ČSN 73 0895
STN 92 0205

Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	6 kg/m
cable tray side height	60 mm
cable tray width	100 - 200 mm

List of products for one mounting point			
			page
ZT 8	1	1	139
KPOZ 8	1	1	141
DZCZ/B	2	4	130
PD 8	2	4	140
M 8	2	4	140

cable manufacturer	power cables	classification [min]	data cables	classification [min]	note
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	-	-	PRAFlaGuard F	E90, P90-R, PS90	cable cross section up to 16 mm ²
Reichle & De-Massari Czech, a. s.	1-CXKH-V	E90, P90-R, PS90	JXFE-V	E90, P90-R, PS90	cable cross section up to 16 mm ²
NKT, s. r. o.	NOPOVIC 90	E90, P90-R, PS90	-	-	cable cross section up to 10 mm ²
ELKOND HHK, a. s.	1-CXKH-V	E30, P30-R, PS30	SHXKFH	E60, P60-R, PS60	cable cross section up to 10 mm ²

cable manufacturer	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	FR 166-17-AUNS	JR-099-17-NURS
Reichle & De-Massari Czech, a. s.	PR-18-2.005	PK9-03-18-901-C-0
NKT, s. r. o.	FR 166-17-AUNS	JR-099-17-NURS
ELKOND HHK, a. s.	FR-270-16-AUNS	JR-004-17-NURS

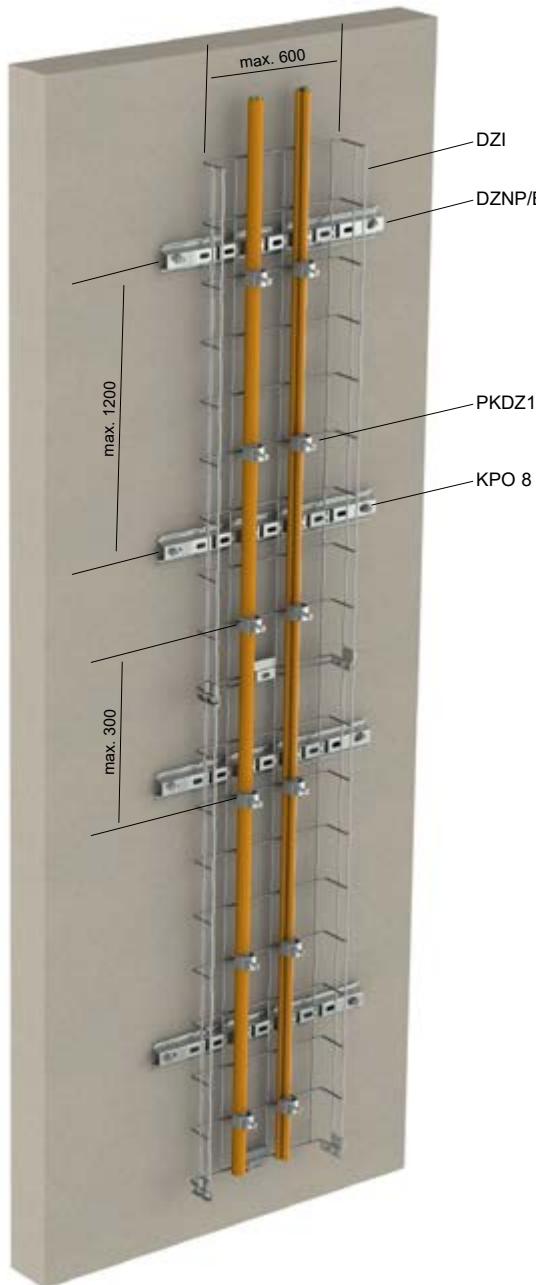


WIRE TRAY - vertical route

Wire trays - DZI 60 assembly of wire trays - vertical route



load for anchoring		
concrete	KPO 8	100 kg/pcs



Non-standardized supporting constructions - load 20 kg/m

The wire tray is anchored to the base material using the DZNP/B profile in the maximum span of 1200 mm. DZNP/B is anchored using KPO 8 anchors.

The cable placed in the wire tray must be mechanically fixed with PKDZ1 clamps at least every 300 mm. If the length of the vertical cable route is longer than 3500 mm, it is necessary to create a relieving elbow or use a KPS cable clamps cover.

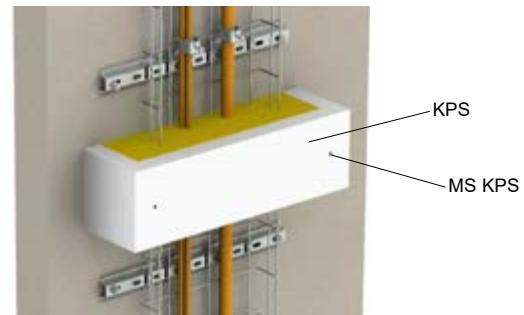
A maximum of 3 cables with functionality in the event of a fire can be inserted into the PKDZ1 clamp in the vertical route.

Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	20 kg/m
distance between individual routes	100 mm (minimum distance for KPS cover placement)
cable tray side height	60 mm
cable tray width	50 - 600 mm

List of products for one mounting point		
		page
DZNP/B	1	129
KPO 8	2	141
PKDZ1	dle množství kabelů	138

KPS - replacement for relieving elbow

The KPS cable clamps cover (pg. [127](#)) can be used instead of the relieving elbow. When using the KPS cable clamps cover, the fire resistance classification is reduced to 60 minutes.



cable manufacturer	power cables	classification [min]	data cables	classification [min]
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	Prafladur	E30, P45-R, PS 45	PRAFlaGuard F	E30, P30-R, PS30
NKT s.r.o	NOPOVIC	E90, P90-R, PS90	—	—

cable manufacturer	protocol number	standpoint number
NKT s.r.o		
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	FR-246-21-AUNS	JR-104-21-NURS

Certification according to: ČSN 730895, STN 920205

the above values of fire resistance also apply to the corresponding classifications PH90-R, PH60-R, PH45-R, PH30-R and PH15-R

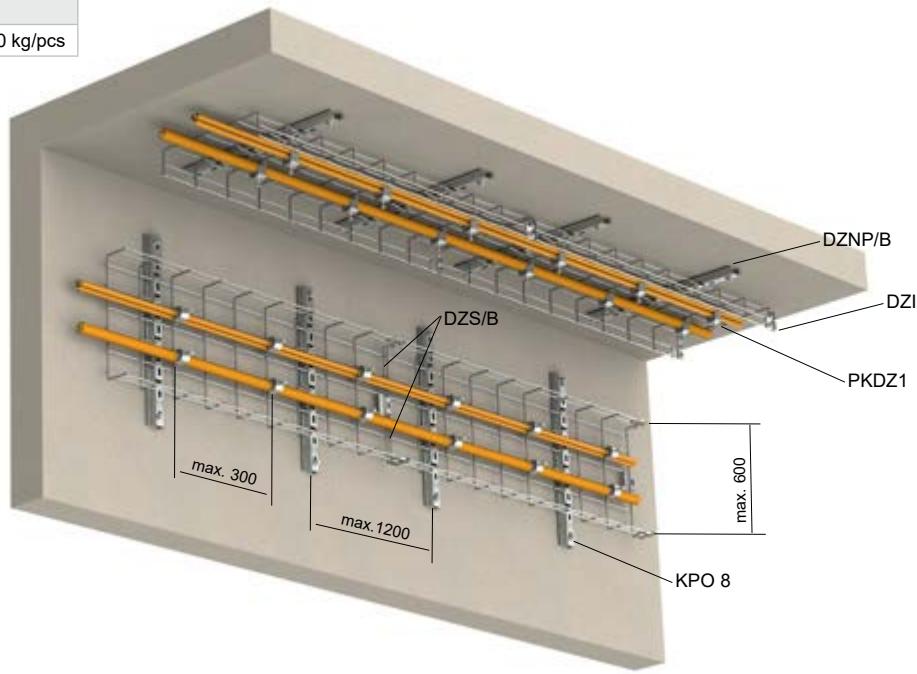


vertical route



Wire trays with integrated DZI coupling - side height 60
ceiling and wall assembly using DZNP/B supporting profile

load for anchoring		
concrete	KPO 8	100 kg/pcs



Non-standardized supporting constructions - load 20 kg/m

The DZNP/B supporting profile is anchored to the wall or ceiling using KPO 8 anchors. The DZI wire tray is attached to the profile. The cables in the tray are fixed with PKDZ1 clamps, max. 300 mm apart. The maximum distance of DZNP/B anchor points is 1200 mm. For fire resistance, the connection by integrated couplings is fastened with DZS/B bolts (according to the width of the tray).

Classification of fire resistance according to:

DIN 4102-12
ČSN 73 0895
STN 920205

Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	20 kg/m
cable tray side height	60 mm
cable tray width	50 - 600 mm

List of products for one mounting point			
			page
DZNP	1	1	129
PKDZ1	according to the amount of the cables		141
KPO 8	2	2	138

cable manufacturer	power cables	classification [min]	data cables	classification [min]
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	Prafladur	E30, P45-R, PS 45	PRAFlaGuard F	E30, P30-R, PS30
NKT s.r.o	NOPOVIC 1-CXKH-V	E90, P90-R, PS90	—	—

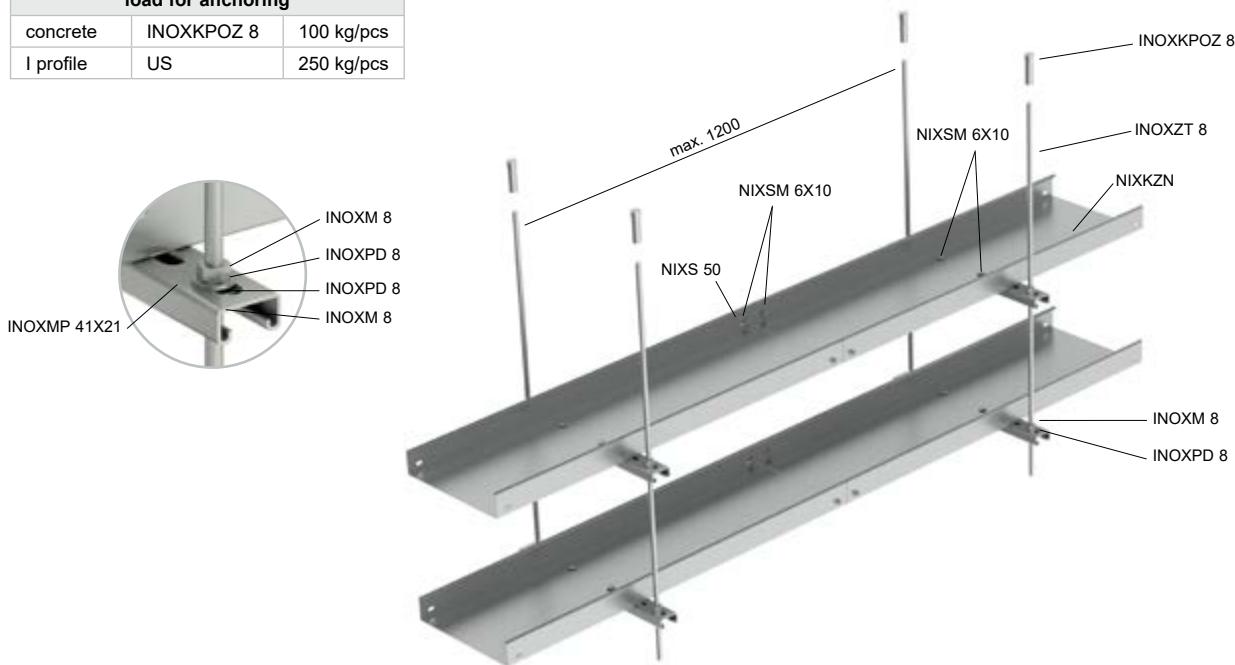
cable manufacturer	protocol number	standpoint number
NKT s.r.o	FR-246-21-AUNS	JR-104-21-NURS
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.		

The background consists of a complex, abstract geometric pattern made of numerous triangles of varying sizes and shades of gray. A single, solid blue triangle is positioned in the upper-left quadrant of the frame. Inside this blue triangle, the words "STAINLESS STEEL" are written in a bold, black, sans-serif font, and "ASSEMBLIES" is written directly below it in a smaller, gray, sans-serif font.

STAINLESS STEEL
ASSEMBLIES

**Cable trays MARS - NIXKZN - side height 50 - sheet thickness 0,8 mm
ceiling assembly using threaded rods and mounting profiles INOXMP 41X21**

load for anchoring		
concrete	INOXKPOZ 8	100 kg/pcs
I profile	US	250 kg/pcs


Non-standardized supporting constructions - load 10 kg/m

The INOXZT 8 threaded rod is suspended from the ceiling using INOXKPOZ 8 fire-resistant anchors. The INOXMP 41X21 mounting profiles are attached to the threaded rods using INOXPD 8 washers and INOXM 8 nuts. The maximum mounting point spacing is 1200 mm. NIXKZN cable trays are firmly attached to the INOXMP 41X21 mounting profiles using NIXSM 6X10 bolts and INOXPVL 6 washers. It is possible to place two cable trays next to each other up to a total width of 500 mm.

Marking of fire routes is always done after at least 50 m of the route.

Classification of fire resistance according to:

DIN 4102-12
ČSN 730895
STN 920205

Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	10 kg/m
cable tray side height	50 mm
cable tray width	62 - 250 mm
cable tray sheet thickness	0,8 mm

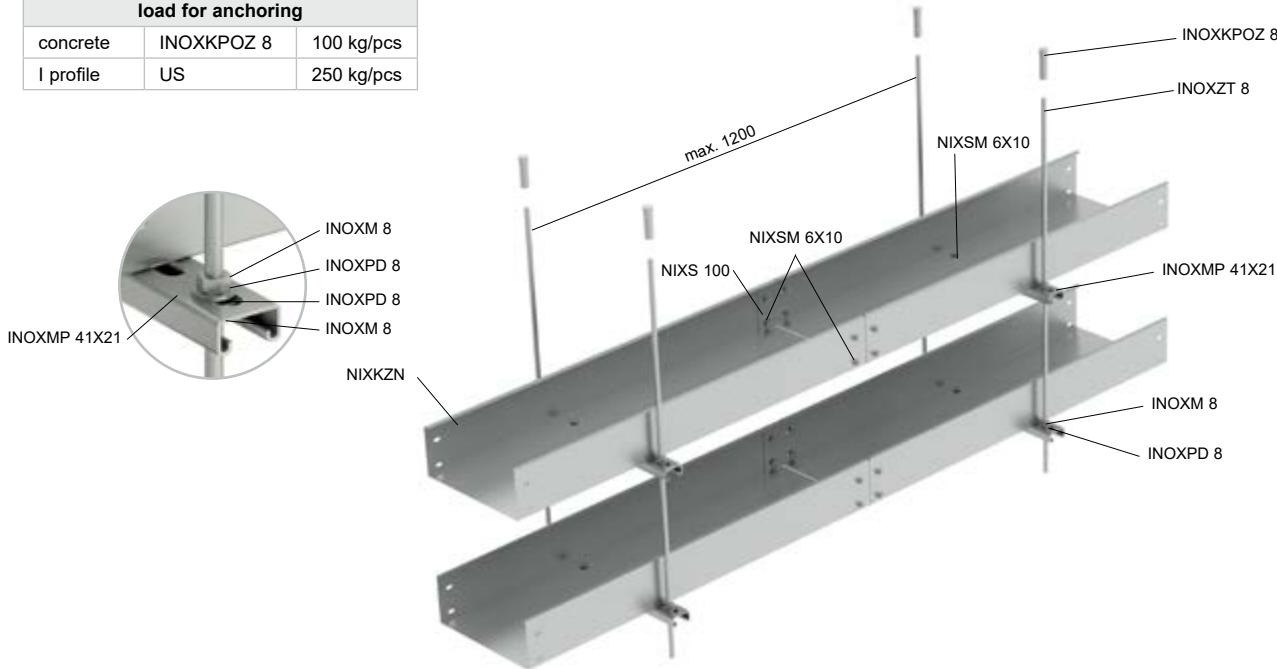
	List of products for one mounting point			
				page
INOXZT 8	2	2	2	159
INOXKPOZ 8	2	2	2	158
INOXMP 41X21	1	2	3	157
INOXM 8	4	8	12	158
INOXPD 8	4	8	12	158
NIXSM 6X10	2	4	6	159
INOXPVL 6	2	4	6	158

cable manufacturer	No.	power cables	classification [min]	data cables	classification [min]
Kabelovna KABEX, a. s.	-	CPDeX 1-CHKE-V	E90, P90-R, PS90	CPDeX JCXFE-V	E90, P90-R, PS90
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	-	Praflagdur	E90, P90-R, PS90	Praflaguard	E90, P90-R, PS90
NKT s.r.o	-	NOPOVIC 1-CXKH-V	E60, P60-R, PS60	-	-

cable manufacturer	No.	protocol number	standpoint number
Kabelovna KABEX, a. s.	-		
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	-	FR-153-20-AUNS	JR-149-20-NURS
NKT s.r.o	-	FR-246-21-AUNS	JR-104-21-NURS

**Cable trays MARS - NIXKZN - side height 100 - sheet thickness 1,0 mm
ceiling assembly using threaded rods and mounting profiles INOXMP 41X21**

load for anchoring		
concrete	INOXKPOZ 8	100 kg/pcs
I profile	US	250 kg/pcs


Non-standardized supporting constructions - load 20 kg/m

The INOXZT 8 threaded rod is suspended from the ceiling using INOXKPOZ 8 fire-resistant anchors. The INOXMP 41X21 mounting profiles are attached to the threaded rods using INOXPD 8 washers and INOXM 8 nuts. The maximum mounting point spacing is 1200 mm. NIXKZN cable trays are firmly attached to the INOXMP 41X21 mounting profiles using NIXSM 6X10 bolts and INOXPVL 6 washers. It is possible to place two cable trays next to each other up to a total width of 500 mm.

Marking of fire routes is always done after at least 50 m of the route.

Classification of fire resistance according to:

DIN 4102-12
ČSN 73 0895
STN 92 0205

Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	20 kg/m
cable tray side height	100 mm
cable tray width	125 - 500 mm
cable tray sheet thickness	1,0 mm

List of products for one mounting point				
				page
INOXZT 8	2	2	2	159
INOXKPOZ 8	2	2	2	158
INOXMP 41X21	1	2	3	157
INOXM 8	4	8	12	158
INOXPD 8	4	8	12	158
INOXSM 6X10	2	4	6	159
INOXPVL 6	2	4	6	158

cable manufacturer	No.	power cables	classification [min]	data cables	classification [min]
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	-	Prafladur	E60, P60-R, PS60	PRAFlaGuard F	E60, P60-R, PS60
Kabelovna Kabex, a. s.	-	CPDeX 1-CHKE-V	E30, P30-R, PS30	CPDeX JCXFE-V	E30, P30-R, PS30
Tele-Fonika Kable S.A.	-	Flame-X 950 (N)HXH	E60, P60-R, PS60	HTKSH	E90, P90-R, PS90
NKT s.r.o	-	NOPOVIC 1-CXKH-V	E90, P90-R, PS90	-	-

cable manufacturer	No.	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	-	FR-246-21-AUNS	JR-104-21-NURS
NKT s.r.o	-		
Kabelovna Kabex, a. s.	-	FR-153-20-AUNS	JR-150-20-NURS
Tele-Fonika Kable S.A.	-		

NON-STANDARDIZED SUPPORTING CONSTRUCTIONS

CABLE CLAMP

METAL PIPE

PLASTIC PIPE

SUPPORT RAIL

PARAPET CHANNEL

AND OTHERS

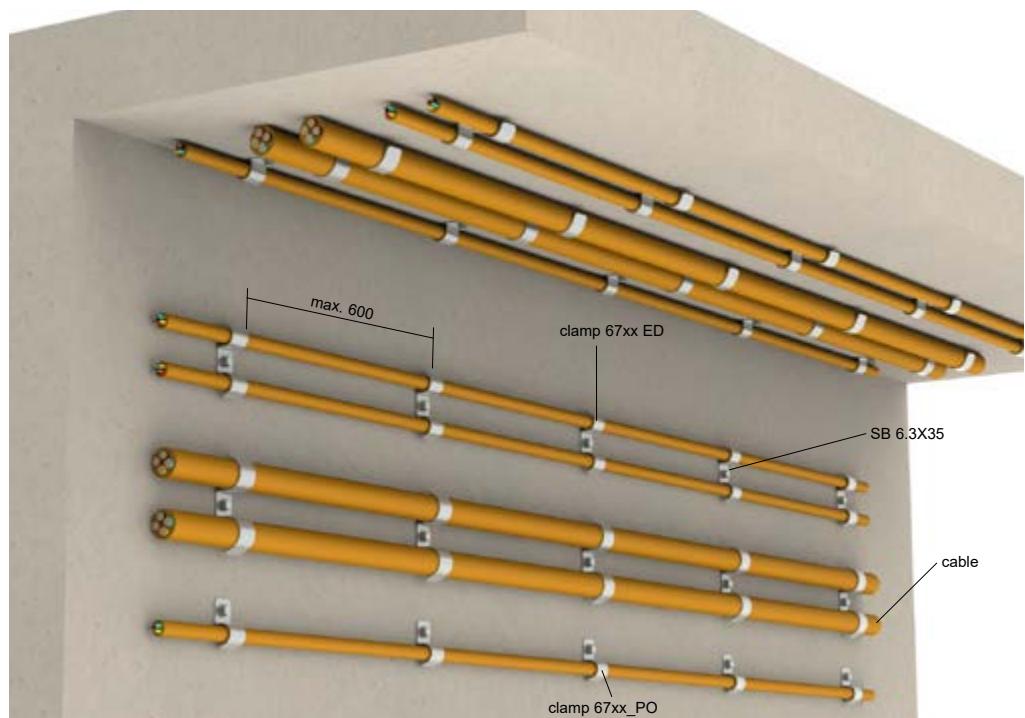
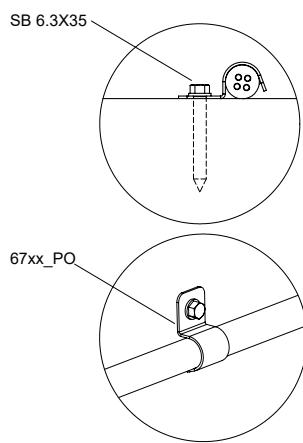




Separate cable clamps 67xx_PO placement on the ceiling and wall



load for anchoring		
concrete	SB 6.3X35	362 kg/pcs
	KPO 6	100 kg/pcs
aerated concrete	KHP + SB 6.3X45	4 kg/pcs
	KHP + KVP	
plech	STP 4.2X13	2 kg/pcs
nailing	KHB, KHO	by inserted cable



Non-standardized supporting construction

The basis of the supporting construction are clamps of the 6706 - 6725 series fastened to the base material using fire-resistant concrete screws SB 6.3X35 or SB 6.3X45. The screws are screwed into pre-drilled holes with a diameter of 5 mm in concrete or solid masonry. The size of the clamps must be chosen with regard to the diameter of the installed cable.

Only one cable of the corresponding diameter can be installed in one single clamp, and two cables of the corresponding diameter in a double clamp. Two 6706 - 6725 clamps can be installed under one screw, creating a route for two cables of different diameters. The clamps can also be used for vertical routes. When using a vertical route longer than 3500 mm, it is necessary to create a relieving elbow or use a KPS cable clamps cover.

Clamps without holes can be shot using a suitable nailgun.

Marking of fire routes is always done after at least 50 m of the route.

Fire resistance classification according to:
DIN 4102-12, ČSN 73 0895, STN 920205

Permissible technical parameters of the route	
spacing of mounting points	max. 600 mm
maximum load	load of inserted cables

List of products for one mounting point				
				page
67xx_PO, POGMT, POBD	1	1	-	136
6716ED_PO, POGMT	-	-	1	136
SB 6.3X35	1	-	1	142
STP 4.2X13 (metal sheet)	1	-	1	143
KHP 8X38 + SB 6.3X45 (aerated concrete)	1	-	1	142
KHP + KVP (aerated concrete)	1	-	1	142
KHB (concrete - nailing)	-	1	-	151
KHO (steel - nailing)	-	1	-	151

cable manufacturer	No.	power cables	classification [min]	data cables	classification [min]
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1	PRAFlaDur 90	E90, P90-R, PS90	PRAFlaGuard F	E90, P90-R, PS90
	2	PRAFlaDur	E90, P90-R, PS90		
Reichle & De-Massari Czech, a. s.	-	1-CXKH-V	E90, P90-R, PS90	JXFE-V	E90, P90-R, PS90
Klaus Faber AG	-	(N)HXH	E60, P60-R, PS60	JE-H(St)H	E90, P90-R, PS90
ELKOND HHK, a. s.	-	1-CXKH-V	E90, P90-R, PS90	SHXKFH-V	E90, P90-R, PS90
Zakłady Kablowe BITNER Sp. z o.o.	-	Bitflame 1000	E90, P90-R, PS90	HTKSH	E60, P60-R, PS60
KABELOVNA KABEX, a. s.	-	CPDex 1-CHKE-V	E90, P90-R, PS90	CPDex JCXFE-V	E30, P30-R, PS30
NKT s.r.o	-	NOPOVIC 1-CXKH-V	E60, P60-R, PS60	-	-

cable manufacturer	No.	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1	FR-228-15-AUNS	PK9-03-17-913-C-2
	2	FR-217-18-AUNS	JR-155-18-NURS
Reichle & De-Massari Czech, a. s.	-	FR-104-18-AUNS	JR-105-18-NURS
Klaus Faber AG	-	FR-270-16-AUNS	JR-004-17-NURS
ELKOND HHK, a. s.	-	FR-205-19-AUNS	JR-185-19-NURS
Zakłady Kablowe BITNER Sp. z o.o.	-	FR-246-21-AUNS	JR-104-21-NURS
KABELOVNA KABEX, a. s.	-		
NKT s.r.o	-		



installation of two clamps
under one screw

possibility of
nailing (pg. [150](#))

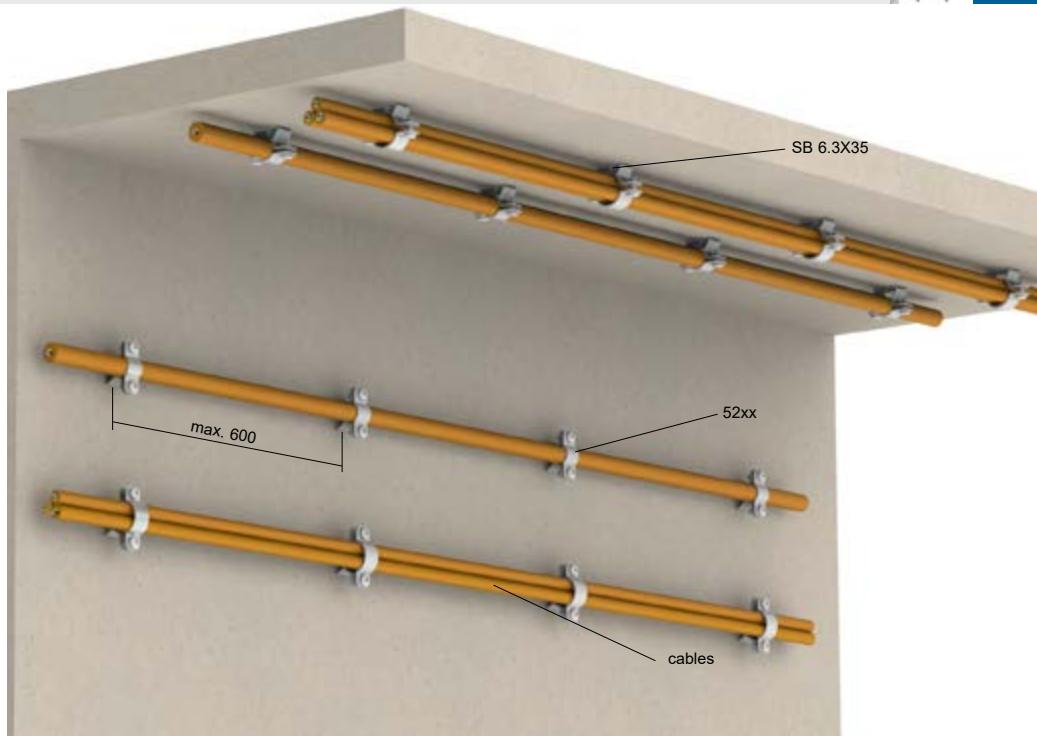
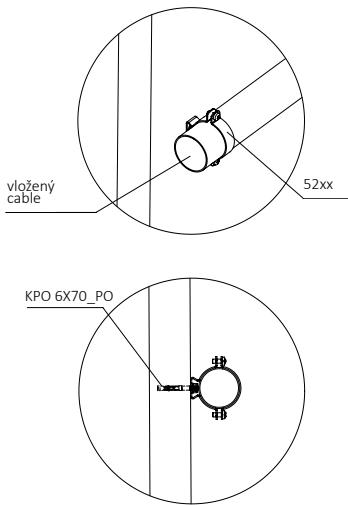


OMEGA 52xx cable clamps
assembly of OMEGA clamps - placement on the ceiling and wall

kg
by inserted cables



load for anchoring		
concrete	SB 6.3X35	362 kg/pcs
	KPO 6	100 kg/pcs
aerated concrete	KHP + SB 6.3X45	4 kg/pcs



Non-standardized supporting construction

The basis of the construction are OMEGA 52xx series clamps, which are placed at a span of 600 mm using SB 6.3X35 screws. These screws are screwed into pre-drilled holes with a diameter of 5 mm in concrete or solid masonry. It is also possible to use the KPO 6 anchor to fix the clamps. The cable is then inserted into the installed clamps. The base material must meet the conditions for maintaining the functionality of the structure in the event of a fire. OMEGA clamps can also be attached to threaded rods. This placement is an advantage in the case of insulating the supporting walls with thermal insulation. Anchoring of threaded rods is performed through thermal insulation directly to the building structure with proven functionality in the event of a fire. The route can also be used as vertical. A KHP dowel with SB 6.3X45 concrete screw is used for anchoring in aerated concrete.

Marking of fire routes is always done after at least 50 m of the route.

Classification of fire resistance according to: DIN 4102-12, ČSN 73 0895, STN 92 0205

Permissible technical parameters of the route	
spacing of mounting points	max. 600 mm
maximum load	load of inserted cables (max. 3 cable in one clamp)

List of products for one mounting point		
		page
52xx	1	137
SB 6.3X35 (KPO 6)	1	142
KHP + SB 6.3X45	1	142

cable manufacturer	No.	power cables	classification [min]	data cables	classification [min]
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1	PRAFlaDur 90	E90, P90-R, PS90	PRAFlaGuard F	E90, P90-R, PS90
	2	PRAFlaDur	E90, P90-R, PS90		
Reichle & De-Massari Czech, a. s.	-	1-CXKH-V	E90, P90-R, PS90	JXFE-V	E90, P90-R, PS90
Klaus Faber AG	-	(N)HXH	E30, P30-R, PS30	JE-H(St)H	E90, P90-R, PS90
KABELOVNA KABEX, a. s.	-	CPDex 1-CHKE-V	E90, P90-R, PS90	CPDex JCXFE-V	E60, P60-R, PS60

cable manufacturer	No.	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1	FR-228-15-AUNS	PK9-03-17-913-C-2
	2	FR-217-18-AUNS	JR-155-18-NURS
Reichle & De-Massari Czech, a. s.	-	FR-104-18-AUNS	JR-105-18-NURS
Klaus Faber AG	-	FR-270-16-AUNS	JR-004-17-NURS
KABELOVNA KABEX, a. s.	-	FR-205-19-AUNS	JR-185-19-NURS

the above values of fire resistance also apply to the corresponding classifications PH90-R, PH60-R, PH45-R, PH30-R and PH15-R



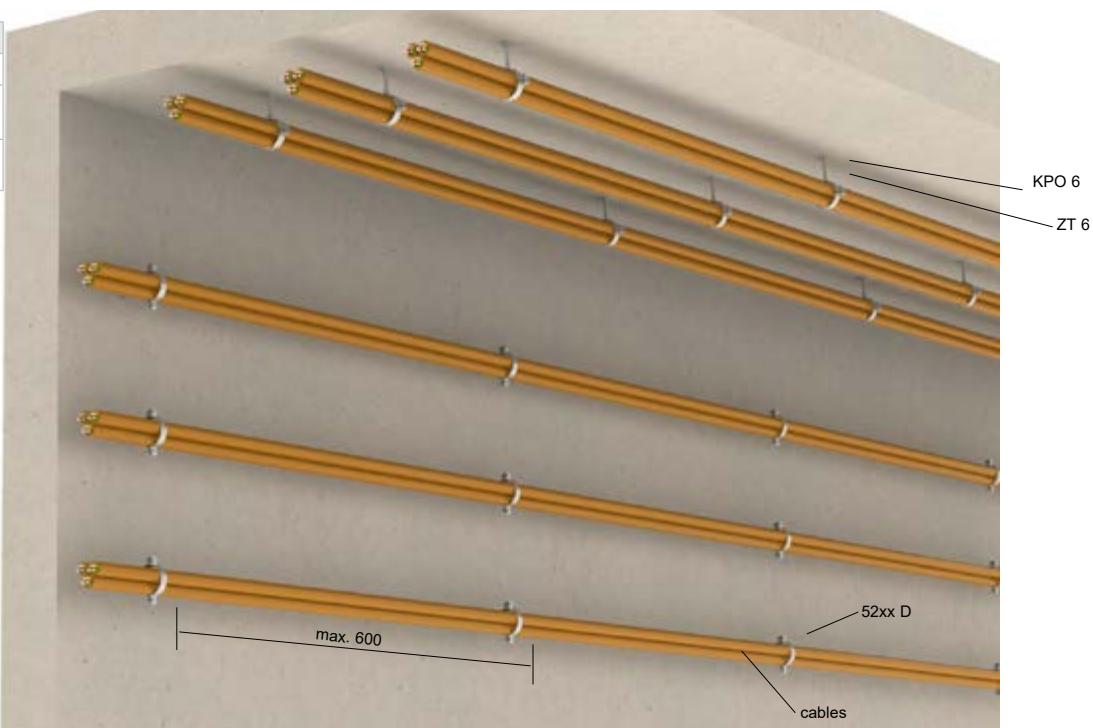
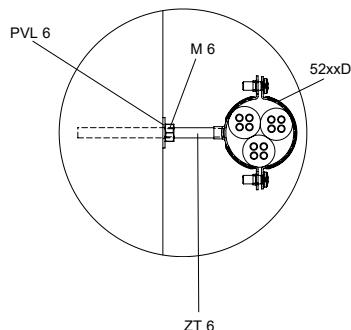
vertical route



DOBRMAN 52xx D cable clamps
assembly of DOBRMAN clamps - placement on the ceiling and wall



load for anchoring		
concrete	KPO 6	100 kg/pcs
	KPOZ 6 + ZT 6	80 kg/pcs
aerated concrete	KHP + SVD	5 kg/pcs



Non-standardized supporting construction

The basis of the construction are DOBRMAN type clamps series 52xx D, which are screwed to ZT 6 or KPO 6 at a distance of max. 600 mm. KPO 6 anchors are hammered into pre-drilled holes with a diameter of 5 mm in concrete or solid masonry. The cable is then inserted into the installed clamps. The base material must meet the conditions for maintaining the functionality of the structure in the event of a fire. DOBRMAN clamps can also be attached to threaded rods. This placement is an advantage in the case of insulating the supporting walls with thermal insulation. Anchoring of threaded rods is performed through thermal insulation directly to the building structure with proven functionality in the event of a fire. The route can also be used as vertical. A KHP dowel with a SVD screw is used for anchoring in aerated concrete.

Marking of fire routes is always done after at least 50 m of the route.

Fire resistance classification according to:

DIN 4102-12
 ČSN 73 0895
 STN 920205

Permissible technical parameters of the route	
spacing of mounting points	max. 600 mm
maximum load	load of inserted cables (max. 3 cable in one clamp)

List of products for one mounting point		
		page
52xx D	1	137
KPO 6	1	141
KPOZ 6 + ZT 6	1	139

cable manufacturer	No.	power cables	classification [min]	data cables	classification [min]
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1	PRAFlaDur 90	E90, P90-R, PS90	PRAFlaGuard F	E90, P90-R, PS90
	2	PRAFlaDur	E90, P90-R, PS90		
Klaus Faber AG	-	NH(X)H-J	E90, P90-R, PS90	JE-H(St)H	E90, P90-R, PS90
ELKOND HHK, a. s.	-	1-CXKH-V	E90, P90-R, PS90	SHXKFH-V	E90, P90-R, PS90

cable manufacturer	No.	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1	FR-228-15-AUNS	PK9-03-17-913-C-2
	2	FR-217-18-AUNS	JR-155-18-NURS
Klaus Faber AG	-	FR-270-16-AUNS	JR-004-17-NURS
ELKOND HHK, a. s.	-		

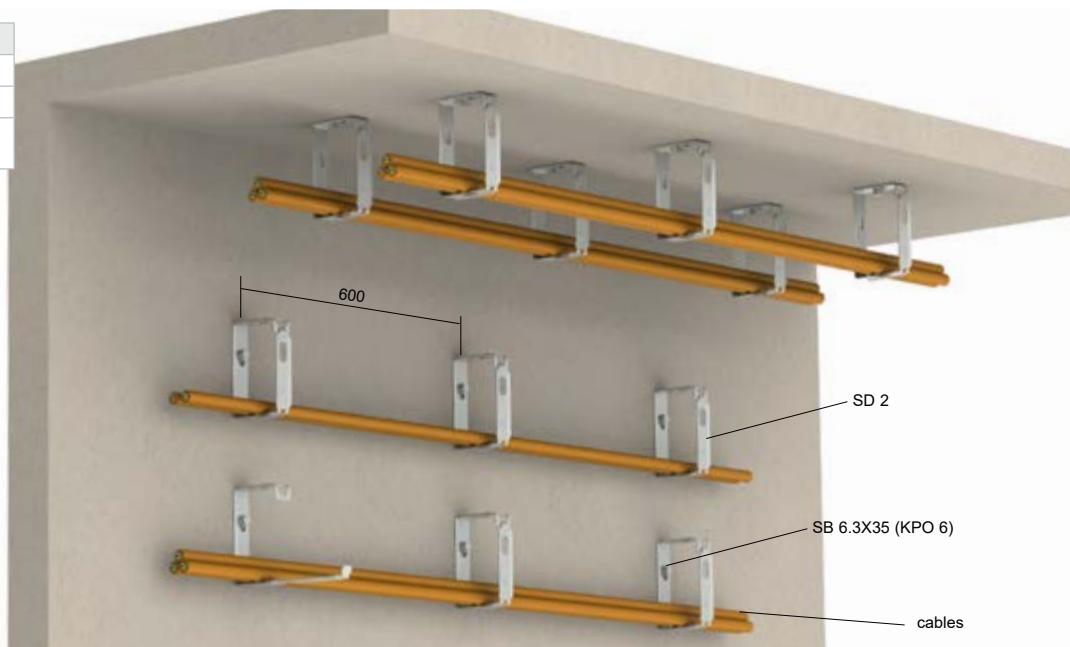
the above values of fire resistance also apply to the corresponding classifications PH90-R, PH60-R, PH45-R, PH30-R and PH15-R



vertical route


**SD 2 grouped cable holder
assembly of grouped holder on wall or ceiling**
2,5 - 6


load for anchoring		
concrete	SB 6.3X35	362 kg/pcs
	KPO 6	100 kg/pcs
aerated concrete	KHP + SB 6.3X45	4 kg/pcs


Non-standardized supporting constructions - load of 6 kg/m

The construction is based on SD 2 grouped holders anchored to the base material using SB 6.3X35 concrete screws or KPO individual grouped holders is 300 mm, max. 600 mm. Cables can be installed in the clamps up to the maximum permitted load. The route formed by the SD 2 holders cannot be used as vertical.

A KHP dowel with SB 6.3X45 concrete screw is used for anchoring in aerated concrete.

Marking of fire routes is always done after at least 50 m of the route.

List of products for one mounting point

		page
SD 2	1	137
SB 6.3X35	1	142

Spacing of 30 cm:

cable manufacturer	power cables	classification [min]	data cables	classification [min]	load
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	Prafladur 90	E90, P90-R, PS90	PRAFlaGuard F	E90, P90-R, PS90	5 kg/m
KABELOVNA KABEX, a. s.	1-CSKE-V	P15-R	JCSFE-V	P15-R	
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o. **	Prafladur	E30, P30-R, PS30	-	-	6 kg/m
Klaus Faber AG	(N)HXH-J	P15-R	-	-	6 kg/m

Spacing of 60 cm:

cable manufacturer	power cables	classification [min]	data cables	classification [min]	load
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	PRAFlaDur	E30, P30-R, PS30	PRAFlaGuard F	E60, P60-R, PS60	6 kg/m
Reichle & De-Massari Czech, a. s.	1-CXKH-V	E30, P30-R, PS30	JXFE-V	E60, P60-R, PS60	6 kg/m
NKT, s. r. o.	NOPOVIC 90	E30, P45-R, PS30	-	-	5 kg/m
Zakłady Kablowe BITNER Sp. z o.o.	Bitflame 1000	E30, P30-R, PS30	-	-	4,5 kg/m
KABELOVNA KABEX, a. s.	CPDex 1-CHKE-V	E90, P90-R, PS90	-	-	4,5 kg/m**
Technokabel**	NHXH-J	E30, P30-R, PS30	-	-	5 kg/m
Tele-Fonika Kable S.A.	Flame-X 950 (N)HXH	E30, P30-R, PS30	HTKSH	E30, P45-R, PS45	5 kg/m
NKT s.r.o	NOPOVIC 1-CXKH-V	E60, P60-R, PS60	-	-	5 kg/m

cable manufacturer	protocol number	standpoint number
Reichle & De-Massari Czech, a. s.	FR-104-18-AUNS	JR-105-18-NURS
	FR-217-18-AUNS	JR-155-18-NURS
NKT, s. r. o.	FR-246-21-AUNS	JR-104-21-NURS
Zakłady Kablowe BITNER Sp. z o.o.	FR-205-19-AUNS	JR-185-19-NURS
Technokabel	FR-153-20-AUNS	JR-149-20-NURS
Tele-Fonika Kable S.A.		
KABELOVNA KABEX, a. s.		
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.		
Klaus Faber AG	PK-03-17-913-C-2	

**cable cross section up to 16 mm²
Classification of fire resistance according to:

DIN 4102-12
ČSN 73 0895
STN 920205

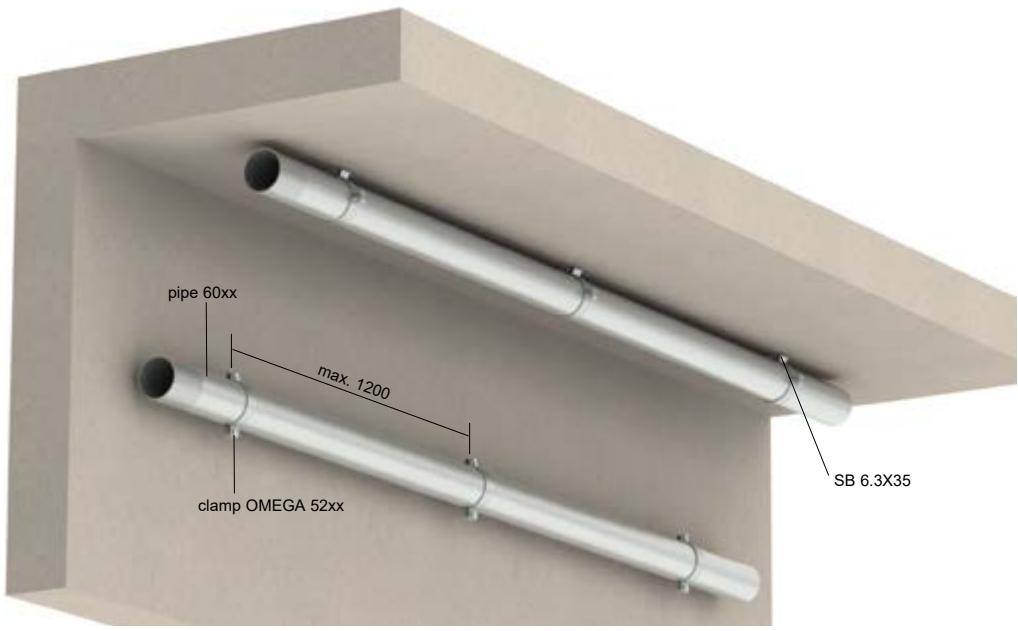
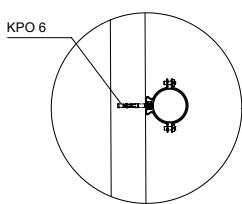
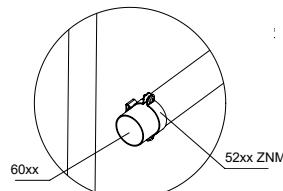


Steel pipes 60xx
assembly of steel pipes - horizontal placement on the ceiling and wall

kg
by inserted cables



load for anchoring		
concrete	SB 6.3X35	362 kg/pcs
	KPO 6	100 kg/pcs
aerated concrete	KHP + SB 6.3X35	4 kg/pcs
	KHP + KVP	4 kg/pcs



Non-standardized supporting construction

The basis of the supporting construction are steel pipes of the 60xx series fixed to the base material using OMEGA type clamps. OMEGA 52xx clamps must be fastened using the SB 6.3X35 concrete screws. These screws are screwed into pre-drilled holes with a diameter of 5 mm in concrete or solid masonry. It is also possible to use the KPO 6 anchor to fasten the clamps. A fire-resistant steel pipe is then attached to the installed clamps, into which a cable of the corresponding diameter can be inserted. The maximum spacing of the installed clamps is 1200 mm. A maximum of 1 cable can be inserted into the pipe.

To connect ČSN pipes, it is necessary to order couplings that will replace the aluminum couplings supplied with the pipes. Couplings must also be replaced within pipe accessories (e.g. elbows, etc.)

Pipe assemblies cannot be used to create vertical routes.

Marking of fire routes is always done after at least 50 m of the route.

Fire resistance classification according to:

DIN 4102-12
 ČSN 73 0895
 STN 92 0205

Permissible technical parameters of the route	
spacing of mounting points	max. 1200 mm
maximum load	only one cable

List of products for one mounting point			
		page	
52xx		1	137
SB 6.3X35 (KPO 6)		1	142
KHP + SB 6.3X45		1	142
KHP + KVP		1	142

cable manufacturer	power cables	classification [min]	data cables	classification [min]
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	PRAFlaDur	E60, P60-R, PS60	PRAFlaGuard F	E60, P60-R, PS60
Kabelovna Kabex, a. s.	CPDex 1-CHKE-V	E60, P60-R, PS60	JCXFE-V	E60, P60-R, PS60

cable manufacturer	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	FR-172-10-AUNS	PK9-03-17-913-C-2
Kabelovna Kabex, a. s.	FR-139-09-AUNS	PK9-03-17-913-C-2
	FR-153-20-AUNS	JR-149-20-NURS

Optical cables:

cable manufacturer	type cable	classification [min]	note
Kabelovna Kabex, a. s.	CPDex® Optex® J/A-WQ(ZN)HH 12E9/125-V /h/P90-R/	P30-R	pro trubku 6040

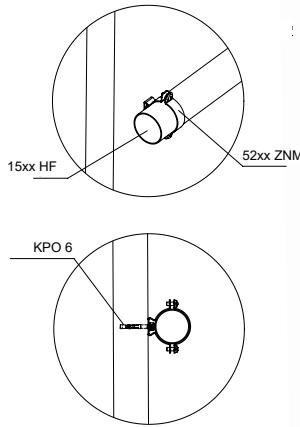


**Halogen-free rigid pipes 15xx HF
assembly of pipes and OMEGA clamps - horizontal placement on the ceiling and wall**

kg
by inserted cables



load for anchoring		
concrete	SB 6.3X35	362 kg/pcs
	KPO 6	100 kg/pcs
aerated concrete	KHP + SB 6.3X35	4 kg/pcs
	KHP + KVP	4 kg/pcs



Non-standardized supporting construction

The basis of the supporting construction are halogen-free rigid pipes of the 15xxHF series (40xxHF, 80xxHF) fixed to the base material using OMEGA type clamps. OMEGA 52xx clamps must be fastened using the SB 6.3X35 concrete screws. These screws are screwed into pre-drilled holes with a diameter of 5 mm in concrete or solid masonry. It is also possible to use the KPO 6 anchor to fix the clamps. A halogen-free rigid pipe is then attached to the installed clamps, into which a cable of the corresponding diameter can be inserted. The maximum spacing of the installed clamps is 600 mm.

Pipes assemblies cannot be used to create vertical routes.

Marking of fire routes is always done after at least 50 m of the route.

Fire resistance classification according to:

DIN 4102-12
ČSN 73 0895
STN 920205

Permissible technical parameters of the route	
spacing of mounting points	max. 600 mm
maximum load	only one cable in pipe

List of products for one mounting point		
		page
52xx	1	137
SB 6.3X35 (KPO 6)	1	142
KHP + SB 6.3X45	1	142
KHP + KVP	1	142

cable manufacturer	power cables	classification [min]	data cables	classification [min]	note
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	PRAFlaDur	E90, P90-R, PS90	PRAFlaGuard F	E90, P90-R, PS90	max. 3 pcs of cable in pipe with cable cross section up to 16 mm ²
Reichle & De-Massari Czech, a. s.	1-CXKH-V	E60, P60-R, PS60	JXFE-V	E90, P90-R, PS90	max. 1 pc of cable in pipe
KABELOVNA KABEX, a. s.	CPDex 1-CHKE-V	E90, P90-R, PS90	CPDex JCXFE-V	E30, P45-R, PS45	max. 1 pc of cable in pipe
NKT s.r.o	NOPOVIC 1-CXKH-V	E90, P90-R, PS90	-	-	max. 1 pc of cable in pipe

cable manufacturer	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	FR-104-14-AUNS	PK9-03-17-913-C-2
	FR-205-19-AUNS	JR-185-19-NURS
Reichle & De-Massari Czech, a. s.	FR-104-18-AUNS	JR-105-18-NURS
KABELOVNA KABEX, a. s.	FR-205-19-AUNS	JR-185-19-NURS
NKT s.r.o	FR-246-21-AUNS	JR-104-21-NURS

the above values of fire resistance also apply to the corresponding classifications PH90-R, PH60-R, PH45-R, PH30-R and PH15-R

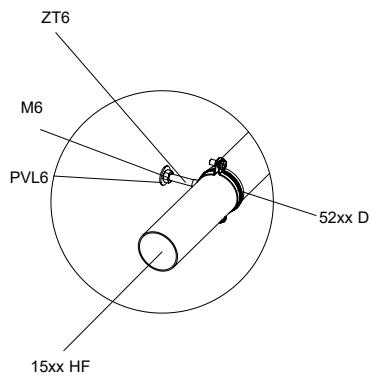


**Halogen-free rigid pipes 15xx HF
assembly of pipes and DOBRMAN clamps - horizontal placement on the ceiling and wall**

kg
by inserted cables



load for anchoring		
concrete	KPO 6	100 kg/pcs
	KPOZ 6 + ZT 6	80 kg/pcs
aerated concrete	KHP + SVD	5 kg/pcs



Non-standardized supporting construction

The basis of the supporting construction are halogen-free rigid pipes 15xxHF (40xxHF, 80xxHF) and DOBRMAN 52xx D clamps. DOBRMAN clamps are screwed onto ZT6 or KPO 6 at a distance of max. 600 mm from each other.

KPO 6 is hammered into pre-drilled holes with a diameter of 5 mm in concrete or solid masonry. The cable is then inserted into the installed pipes. The base material must meet the conditions for maintaining the functionality of the structure in the event of a fire.

DOBRMAN clamps can also be attached to threaded rods. This placement is an advantage in the case of insulating the supporting walls with thermal insulation. Anchoring of threaded rods is performed through thermal insulation directly to the building structure with proven functionality in the event of a fire. A KHP dowel with SVD screw is used for anchoring in aerated concrete. Marking of fire routes is always done after at least 50 m of the route.

Pipes assemblies cannot be used to create vertical routes.

Fire resistance classification according to:

DIN 4102-12
ČSN 73 0895
STN 92 0205

Permissible technical parameters of the route	
spacing of mounting points	max. 600 mm
maximum load	load of inserted cables (max. 3 cable in one clamp)

List of products for one mounting point		
		page
52xx D	1	137
KPOZ 6 + ZT 6	1	139

cable manufacturer	No.	power cables	classification [min]	data cables	classification [min]
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	-	PRAFlaDur	E60, P60-R, PS60	PRAFlaGuard F	P15-R, PS15
KABELOVNA KABEX, a. s.	-	CPDex 1-CHKE-V	E90, P90-R, PS90	CPDex JCXFE-V	E30, P45-R, PS45

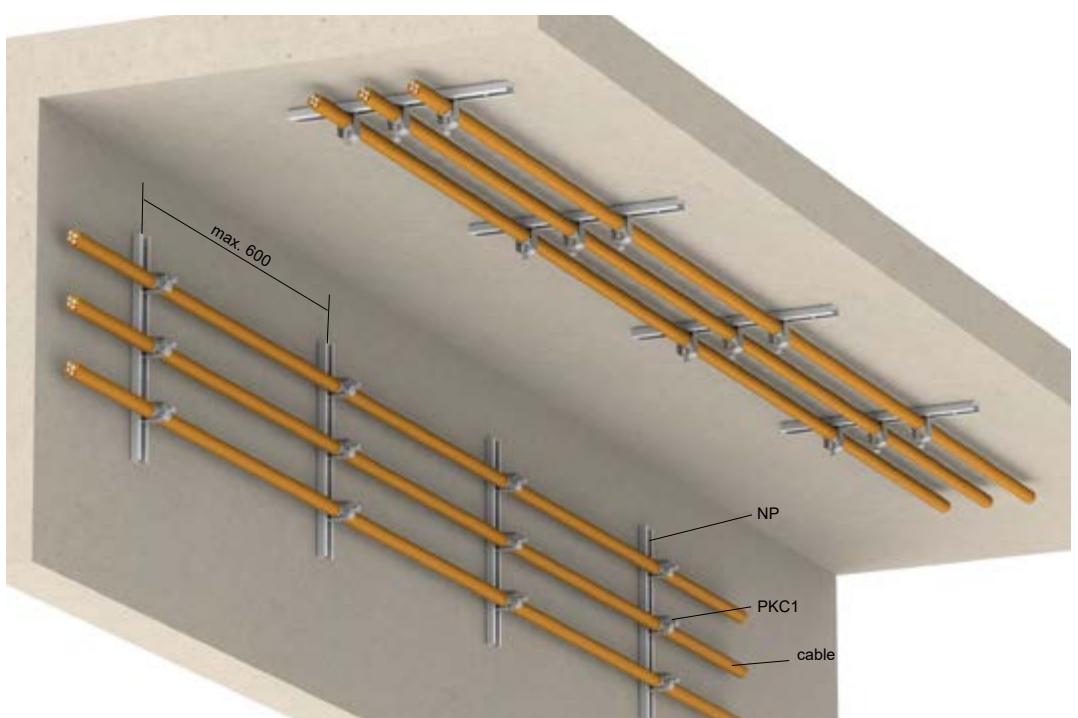
cable manufacturer	No.	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	-	FR-205-19-AUNS	JR-185-19-NURS
KABELOVNA KABEX, a. s.	-	FR-205-19-AUNS	JR-185-19-NURS



Cable clamps (PKC1) on profile rail placement on the ceiling and wall



load for anchoring		
concrete	KPO 6	100 kg/pcs
aerated concrete	KHP + SB 6.3X45	4 kg/pcs



Non-standardized supporting construction

The basis of the construction are supporting profiles of the NP type, anchored to the wall or ceiling with a maximum maximum spacing of 600 mm. The anchoring spacing of the profiles is max. 250 mm using KPO 6 anchors. The cables are attached using PKC1 type clamps to the individual profiles. A maximum of 3 cables with proven functionality in the event of a fire can be placed in the PKC1 clamps. The route can also be used vertical.

A KHP dowel with a SB 6.3X45 concrete screw is used for anchoring in aerated concrete.

Marking of fire routes is always done after at least 50 m of the route.

Fire resistance classification according to:

DIN 4102-12
ČSN 73 0895
STN 920205

Permissible technical parameters of the route	
spacing of mounting points	max. 600 mm
maximum load	load of inserted cables

List of products for one mounting point		
		page
NP	1	134
PKC1	according to the diameter of the cables	138
KPO 6	2	141

cable manufacturer	No.	power cables	classification [min]	data cables	classification [min]
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1.	PRAFlaDur 90	E90, P90-R, PS90	PRAFlaGuard F	E30, P30-R, PS30
	2.	PRAFlaDur	E90, P90-R, PS90		
Reichle & De-Massari Czech, a. s.	-	1-CXKH-V	E90, P90-R, PS90	JXFE-V	E90, P90-R, PS90

cable manufacturer	No.	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1.	FR-228-15-AUNS	PK9-03-17-913-C-2
	2.	FR-104-18-AUNS	JR-105-18-NURS
Reichle & De-Massari Czech, a. s.	-	FR-104-18-AUNS	JR-105-18-NURS

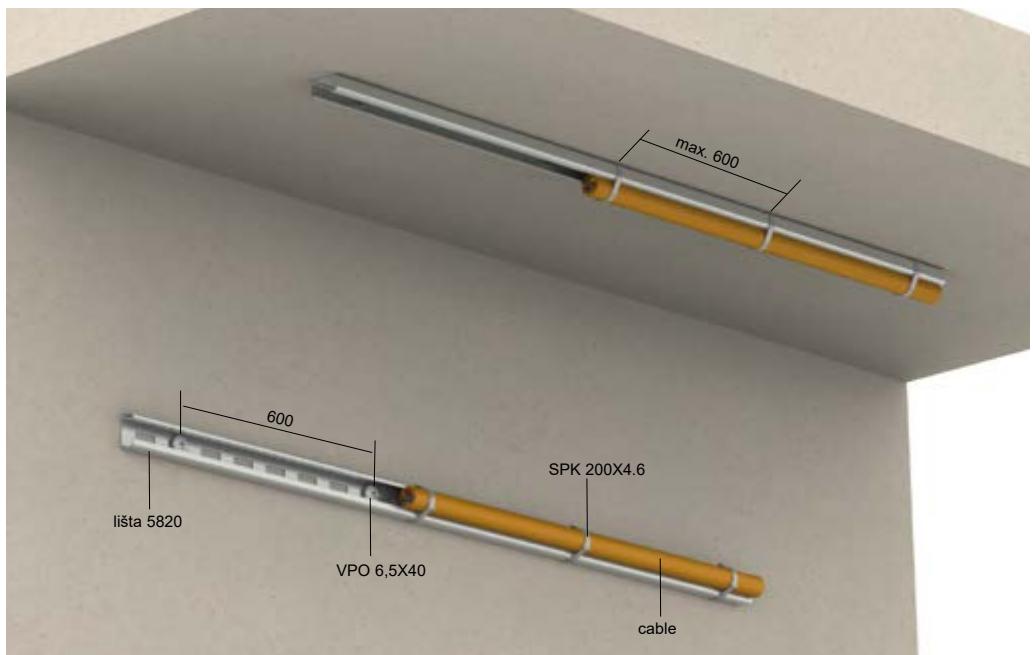


**Metal support rail
wall and ceiling assembly with support rail**



load for anchoring

concrete VPO 6.5X40 60 kg/pcs



Permissible technical parameters of the route

spacing of mounting points	max. 600 mm
maximum load	only one cable per rail
maximum cable cross section	16 mm ²

Non-standardized supporting construction

The basis of the supporting construction are type 5820 support rails attached to the base material using VPO 6.5X40 fire-resistant screws. The cable is attached to the rail using metal tightening belts SPK 200X4.6 at a maximum spacing of 600 mm.

The tightening belt is attached under the rail and pulled to close to the cable. The excess end of the tightening belt must be removed.

The route can be used on the wall, ceiling and also as a vertical route, the maximum length of the vertical route is 3500 mm. When using a longer route, it is necessary to create a relieving elbow.

Only one cable can be used for installation on one fire-resistant support rail.
The maximum spacing of the anchors is 600 mm.

Marking of fire routes is always done after at least 50 m of the route.

Fire resistance classification according to:

DIN 4102-12

ČSN 73 0895

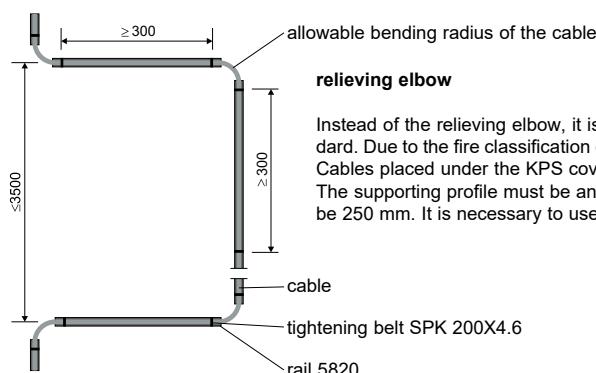
STN 920205

List of products for one mounting point

			page
SPK 200X4.6	1	159	
VPO 6.5X40	1	143	

cable manufacturer	No.	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1	FR-172-10-AUNS	PK9-03-17-913-C-2
	2	FR-220-11-AUNS	JR-052-17-NURS

cable manufacturer	No.	power cables	classification [min]	data cables	classification [min]	note
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	1	PRAFlaDur	E90, P90-R, PS90	PRAFlaGuard F	E60, P60-R, PS60	-
	2	PRAFlaDur 90	E90, P90-R, PS90		E60, P60-R, PS60	cable cross section up to 1.5 mm ²



relieving elbow

Instead of the relieving elbow, it is possible to use the KPS cable clamps cover (pg. 127), this solution is equivalent in terms of standard. Due to the fire classification of the KPS cover, the classification of the route formed by the cable clamps is reduced to 60 minutes. Cables placed under the KPS cover must be firmly fixed using PKC1 clamps (pg. 138) anchored on NP profiles (pg. 134). The supporting profile must be anchored with two KPO 8 anchors at its edges. The maximum distance of the anchors must be 250 mm. It is necessary to use three KPO 8 anchors to fasten the NP 350 profile..



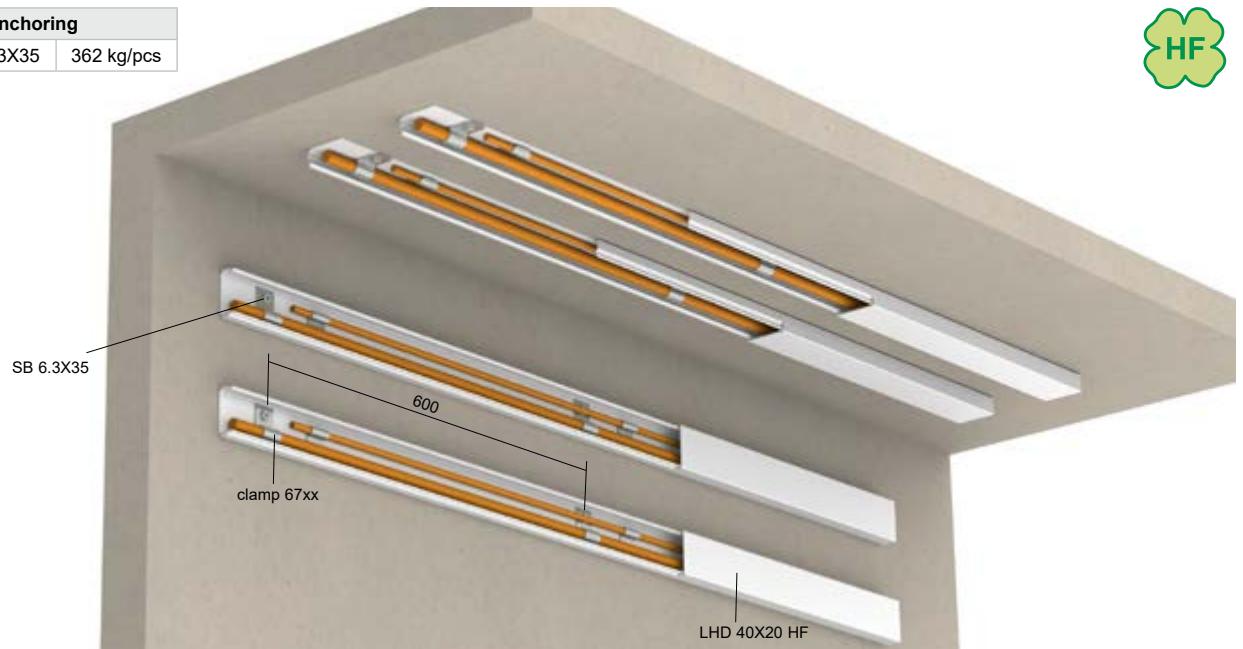
**Halogen-free trunkings LHD 40X20HF
assembly of trunkings - placement on the wall and ceiling**

kg
by inserted cables



load for anchoring

concrete	SB 6.3X35	362 kg/pcs
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Non-standardized supporting construction

The basis of the supporting construction is a halogen-free LHD 40X20HF trunking together with 67xx_PO clamps (max. Clamp size - 6710_PO). The trunking is attached to the wall or ceiling through 67xx_PO clamps using the SB 6.3X35 screw. The trunking can be used to create a route with requirements for maintaining functionality in the event of a fire in areas where are higher aesthetic requirements.

Marking of fire routes is always done after at least 50 m of the route.

Fire resistance classification according to:

DIN 4102-12
ČSN 73 0895
STN 92 0205

Permissible technical parameters of the route	
spacing of mounting points	max. 600 mm
maximum load	max. 2 cables in one rail max. cable cross section 6 mm ²

List of products for one mounting point		
		page
67xx_PO, POGMT	1	136
SB 6.3X35	1	142

cable manufacturer	power cables	classification [min]	data cables	classification [min]	note
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	PRAFlaDur	E60, P60-R, PS60	PRAFlaGuard F	E60, P60-R, PS60	cable cross section up to 6 mm ²
Reichle & De-Massari Czech, a. s.	1-CXKH-V	E30, P30-R, PS30	JXFE-V	E90, P90-R, PS90	for power cable 4x1.5

cable manufacturer	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	FR-104-18-AUNS	JR-105-18-NURS
Reichle & De-Massari Czech, a. s.	FR-104-18-AUNS	JR-105-18-NURS



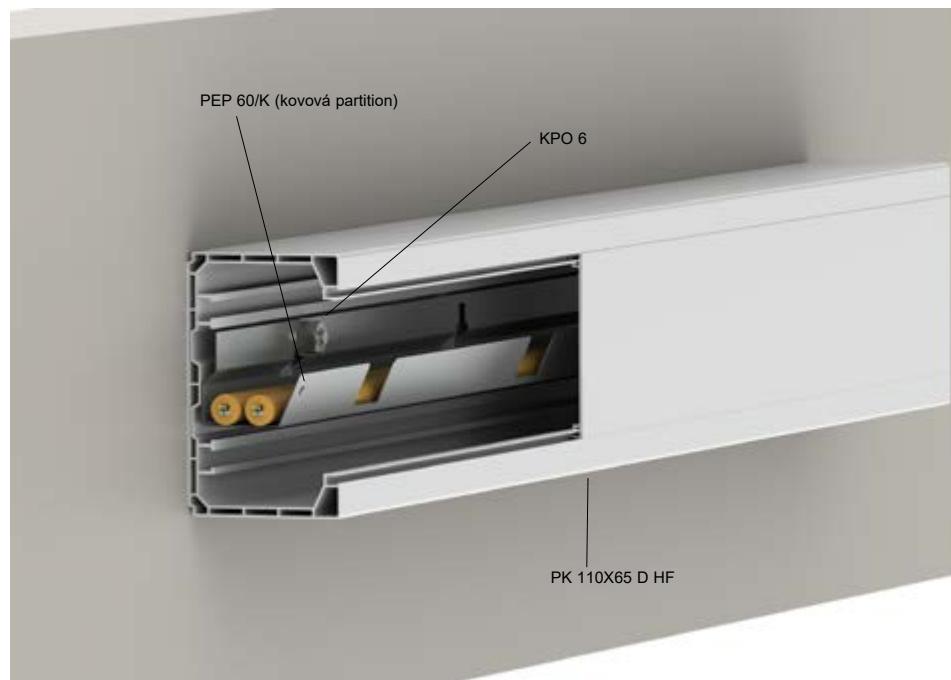
Halogen-free parapet channels PK 110X65 D HF
assembly of parapet channels - placement on the wall

kg
 by inserted
 cables



load for anchoring

concrete | KPO 6 | 100 kg/pcs



Non-standardized supporting construction

The basis of the supporting construction are halogen-free parapet channels PK 110X65 D HF equipped with a metal partition PEP 60/K. The partition is attached to the wall through the parapet channel using KPO 6 anchors with a spacing of 400 mm (every other marked hole in the metal partition is used). The parapet channel can be used to create a route with requirements for maintaining functionality in the event of a fire in areas where emphasis is placed on higher aesthetic requirements. The condition for maintaining the functionality of the route is placing the corresponding cables in the metal partition, not elsewhere in the trunking area. It is possible to place cables in the lower part of the trunking without maintaining functionality in the event of a fire.

The route cannot be used as vertical.

Marking of fire routes is always done after at least 50 m of the route.

Fire resistance classification according to:

DIN 4102-12
 ČSN 73 0895
 STN 920205

Permissible technical parameters of the route	
spacing of mounting points	max. 400 mm
maximum load	max. 2 cable cross section 10 mm ²

List of products for one mounting point		
		page
PEP 60/K	1	144
KPO 6	1	141

cable manufacturer	power cables	classification [min]	data cables	classification [min]	note
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	PRAFlaDur	E30, P30-R, PS30	PRAFlaGuard F	E30, P30-R, PS30	-
Reichle & De-Massari Czech, a. s.	1-CXKH-V	E30, P30-R, PS30	-	-	cable cross section up to 10 mm ²
NKT s.r.o	NOPOVIC 1-CXKH-V	E90, P90-R, PS90	-	-	-

cable manufacturer	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	FR-104-14-AUNS	PK9-03-17-913-C-2
Reichle & De-Massari Czech, a. s.	FR-104-18-AUNS	JR-105-18-NURS
NKT s.r.o	FR-246-21-AUNS	JR-104-21-NURS

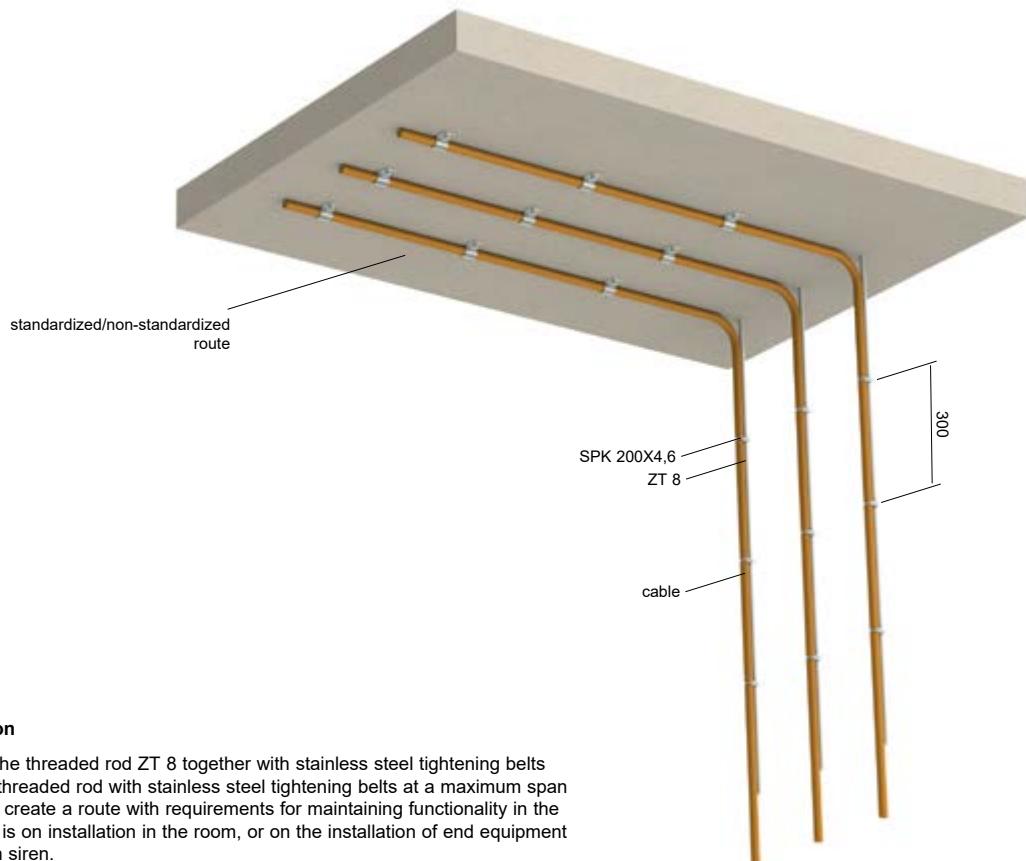


**Cable fastening using threaded rods in the room (e.g. to lighting)
assembly of fire clamps series 67xx_PO - placement from the ceiling**

kg
by inserted
cables



load for anchoring		
concrete	KPO 8	100 kg/pcs



Non-standardized supporting construction

The basis of the supporting construction is the threaded rod ZT 8 together with stainless steel tightening belts SPK 200X4.6. The cable is attached to the threaded rod with stainless steel tightening belts at a maximum span of 300 mm. This attachment can be used to create a route with requirements for maintaining functionality in the event of a fire in areas where the emphasis is on installation in the room, or on the installation of end equipment such as lighting, fire detectors or evacuation siren.

Marking of fire routes is always done after at least 50 m of the route.

Fire resistance classification according to:

DIN 4102-12
ČSN 73 0895
STN 920205

Permissible technical parameters of the route	
spacing of mounting points	max. 300 mm
max. lenght of threaded rod	max. 2000 mm
maximum load	2 pieces of cable per single threaded rod

List of products for one mounting point		
		page
ZT8	1	139
SPK 200X4,6	1	159
KPOZ 8	1	141

cable manufacturer	power cables	classification [min]	data cables	classification [min]
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	PRAFlaDur	E60, P60-R, PS60	PRAFlaGuard F	E30, P30-R, PS30
NKT s.r.o	NOPOVIC 1-CXKH-V	E90, P90-R, PS90	-	-

cable manufacturer	protocol number	standpoint number
PRAKAB PRAŽSKÁ KABELOVNA, s. r. o.	FR-246-21-AUNS	JR-104-21-NURS
NKT s.r.o		



FIRE BOXES

 **VIDEO**

FIRE PROTECTION WIRING BOX

KPZ-1



installation
instructions



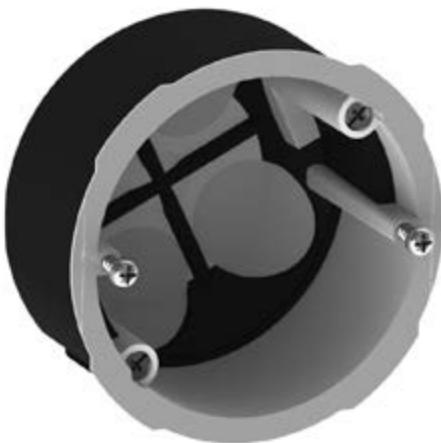
www.kopos.cz



Fire resistant wiring instrument box



HF



KPZ-1_PO



Demonstration of the behavior of fire instrument box

VIDEO

Fire resistant instrument box in a non-support wall

The KPZ-1_PO fire resistant box is intended for fire dividers formed by fireproof plasterboard or for aerated concrete structures. The box is designed for electrical distribution with a voltage up to 400 V. Its advantage is that the inlet openings are made of softened material, which ensures airtight passage between the box and the cable or pipe installed in it. Foaming material is applied to the outer and inner side of the box, which, in the event of a fire, closes the mounting hole - thus ensuring the integrity and insulation of the fire dividers even at the location of the devices. Its use prevents the spread of fire between individual fire sections in the event of a fire.

The diameter of the drill for installation is 73 mm. The mounting screws are equipped with a three-way thread and metal flap for quick installation. The use of this box is mainly in buildings with an increased need for protection of people and property in the event of a fire.

This box is not intended for the German market.

Permissible technical parameters of the route

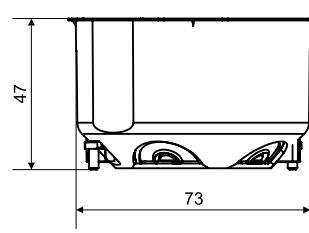
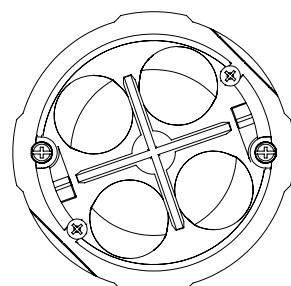
max. number of assembled boxes	horizontally - max. of 3 pcs of boxes next to each other, vertically - max. of 2 pcs below each other
max. protection	IP 30

Fire resistance classification:

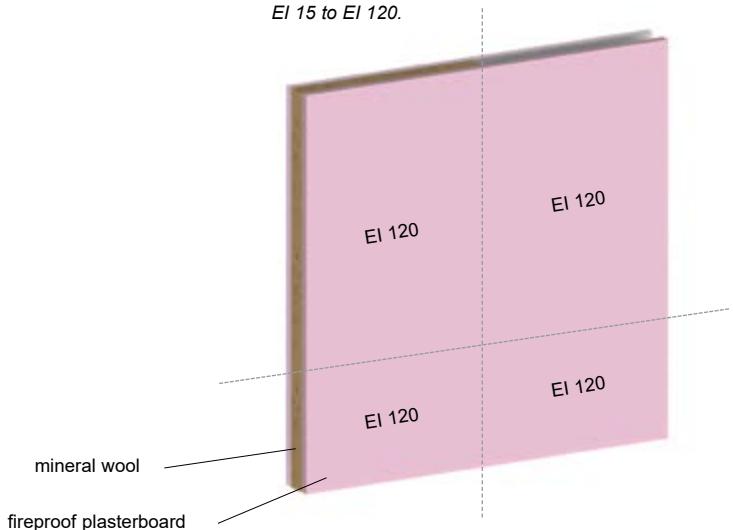
protocol number	classification [min.]
PKO-19-031	EI 120

E - integrity
I - insulation

Fire resistance classification according to ČSN EN 1363-1: 2013,
ČSN 73 0810



Example of EI classification in overpressure and under-pressure.
EI 15 to EI 120.



Wiring fire boxes for power cables



HF



KSK 100_PO, KSK 125_PO10, KSK 175_PO16

**Standardized supporting constructions**

The wiring box is attached to the base material using fire-resistant anchors or concrete screws, which are part of the package. Spacers supported by washers are screwed onto the installed anchors. A support rail with ceramic terminals is then mounted on the posts. The support rail is fastened to the support posts using nuts. The wiring box can be attached to the JUPITER cable tray using the MDS mounting plate.

For easy routing of cables, the box is equipped with softened inputs providing IP 66 protection. The entire box is made of halogen-free material.

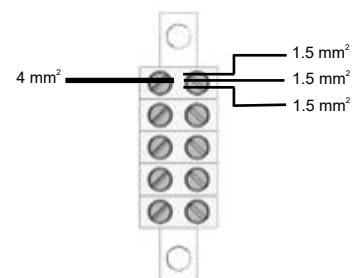
The boxes can be part of both standardized and non-standardized routes. Information on the types of cables that can be used (or without restrictions) can be found in the individual system assemblies that remain functional in the event of a fire.

Separate ceramic terminals serve only as a spare part for KSK boxes with functionality in the event of a fire. Single and double terminals can be interchanged, provided that the other parameters of the KSK boxes do not change. **Separate ceramic terminals do not form a fire resistant route.**

Marking of fire routes by OPT label is always done after at least 50 m of the route.

box type	conductor core cross section	placement of wires into the terminal from one side					
		1.5 mm ²	2,5 mm ²	4 mm ²	6 mm ²	10 mm ²	16 mm ²
KSK 100_PO	1.5 - 6 mm ²	3	1-2*	1	1	-	-
KSK 125_PO10	1.5 - 10 mm ²	4	3	1-2*	1	1	-
KSK 175_PO16	1.5 - 16 mm ²	7	4	3	1-2*	1	1

*the number of wires may vary depending on the cable manufacturer

**Fire resistance classification**

item number	protocol number	standpoint number	classification [min.] - power cables
KSK 100_PO			
KSK 125_PO10	FR-166-17-AUNS	JR-141-17-NURS	P90-R, E90, PS90
KSK 175_PO16			

expert assessment PAVUS, a. s.	Addition no. 1 Z220170064
extended application	PRA9-03-17-902-C-0
certification for the German market	P-1041 DMT DO

Certification according to: ČSN 730895, DIN 4102-12, STN 920205

the above values of fire resistance also apply to the corresponding classifications PH90-R, PH60-R, PH45-R, PH30-R and PH15-R



Wiring fire boxes for single-phase purposes - power cables



HF



KSK 100_PO4J, KSK 100_PO6J, KSK 100_PO10J



Standardized supporting constructions

The wiring box is attached to the base material using fire-resistant anchors or concrete screws, which are part of the package. Spacers supported by washers are screwed onto the installed anchors. A support rail with ceramic terminals is then mounted on the posts. The support rail is fastened to the support posts using nuts. Finally, the clamps are attached to the support rail with the inserted screws. The wiring box can be attached to the JUPITER cable tray using the MDS mounting plate. For easy routing of cables, the box is equipped with softened inputs providing IP 66 protection. The entire box is made of halogen-free material.

The boxes can be part of both standardized and non-standardized routes. Information on the types of cables that can be used (or without restrictions) can be found in the individual system assemblies that remain functional in the event of a fire.

Separate ceramic terminals serve only as a spare part for KSK boxes with functionality in the event of a fire. Single and double terminals can be interchanged, provided that the other parameters of the KSK boxes do not change. **Separate ceramic terminals do not form a fire resistant route.**

Marking of fire routes by OPT label is always done after at least 50 m of the route.

box type	conductor core cross section	placement of wires into the terminal from one side					
		1.5 mm ²	2,5 mm ²	4 mm ²	6 mm ²	10 mm ²	16 mm ²
KSK 100_PO4J	1.5 - 4 mm ²	2	1	1	-	-	-
KSK 100_PO6J	1.5 - 6 mm ²	3	2	1	1	-	-
KSK 100_PO10J	1.5 - 10 mm ²	4	3	1-2*	1	1	1

*the number of wires may vary depending on the cable manufacturer

Fire resistance classification

item number	protocol number	standpoint number	classification [min.] - power cables
KSK 100_PO4J	FR-153-20-AUNS	JR-149-20-NURS	P90-R, E90, PS90
KSK 100_PO6J		PK9-03-17-913-C-3	
KSK 100_PO10J		PK9-03-17-913-C-3	

expert assessment PAVUS, a. s.	Addition no. 1 Z220170064
extended application	PRA9-03-17-902-C-0

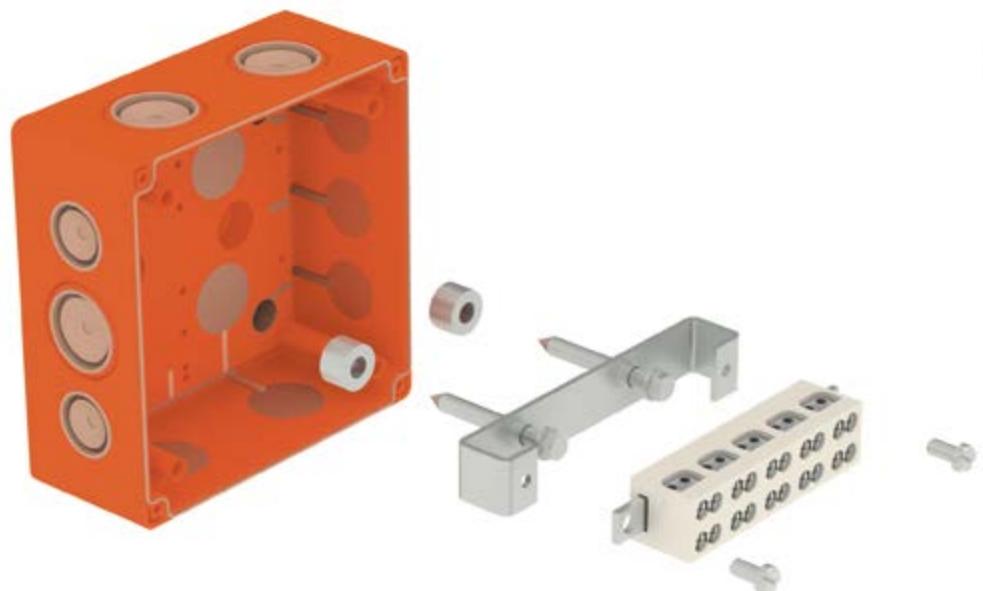
Certification according to: ČSN 730895, DIN 4102-12, STN 920205

the above values of fire resistance also apply to the corresponding classifications PH90-R, PH60-R, PH45-R, PH30-R and PH15-R

Wiring fire box with double terminal for power cables



HF


▶ VIDEO

KSK 125_2PO6, KSK 175_2PO10

Standardized supporting constructions

The wiring box is attached to the base material using the concrete screws that are included in the package. Depending on the type of cable, the corresponding inlets are created in the box and the cables are connected. The last step of the assembly is the installation of the cover lid, which is fixed with 4 screws in the corners. The wiring box can be attached to the JUPITER cable tray using the MDS mounting plate.

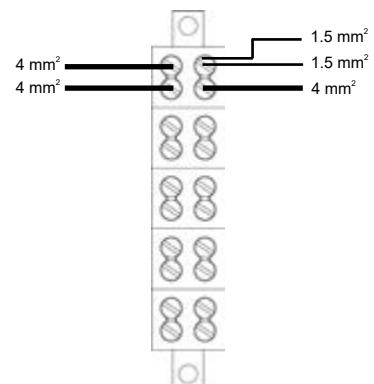
The advantage of the terminal, which is an integral part of the box, is the fact that it is possible to use 4 wires fastened with screws to connect the wires to one potential. For easy routing of cables, the box is equipped with softened inputs providing IP 66 protection. The entire box is made of halogen-free material.

The boxes can be part of both standardized and non-standardized routes. Information on the types of cables that can be used (or without restrictions) can be found in the individual system assemblies that remain functional in the event of a fire.

Separate ceramic terminals serve only as a spare part for KSK boxes with functionality in the event of a fire. Single and double terminals can be interchanged, provided that the other parameters of the KSK boxes do not change. **Separate ceramic terminals do not form a fire resistant route.**

Marking of fire routes by OPT label is always done after at least 50 m of the route.

box type	conductor core cross section	placement of wires into the terminal from one side				
		1.5 mm ²	2,5 mm ²	4 mm ²	6 mm ²	10 mm ²
KSK 125_2PO6	1.5 - 6 mm ²	3+3	2+2*	2	2	-
KSK 175_2PO10	1.5 - 10 mm ²	4+4	3+3*	2+2	2	2



*the number of wires may vary depending on the cable manufacturer

Fire resistance classification

item number	protocol number	standpoint number	classification [min.] - power cables
KSK 125_2PO6	FR-166-17-AUNS	JR-141-17-NURS	P90-R, E90, PS90
KSK 175_2PO10			

expert assessment PAVUS, a. s.	Addition no. 1 Z220170064
extended application	PRA9-03-17-902-C-0

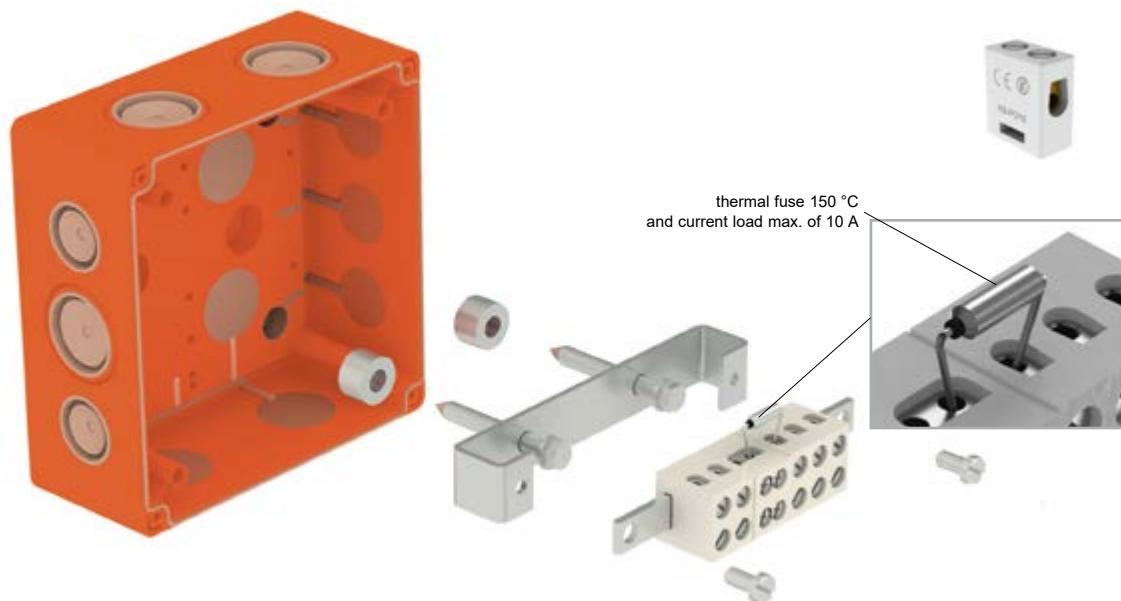
Certification according to: ČSN 730895, DIN 4102-12, STN 920205

the above values of fire resistance also apply to the corresponding classifications PH90-R, PH60-R, PH45-R, PH30-R and PH15-R

Wiring fire box with thermal fuse for power cables



HF


▶ VIDEO

KSK 125_PO6P, KSK 175_PO10P

Standardized supporting constructions

The wiring box is attached to the base material using the concrete screws that are included in the package. Depending on the type of cable, the corresponding inlets are created in the box and the cables are connected. The last step of the assembly is the installation of the cover lid, which is fixed with 4 screws in the corners. The wiring box can be attached to the JUPITER cable tray using the MDS mounting plate.

According to the diagram, a thermal fuse is inserted in the ending line of the circuit. In the event of a fire, where there is a risk of a short circuit from the terminal equipment, which does not have the ability to maintain functionality in the event of a fire, the thermal fuse disconnects this ending secondary line from the mains, thus ensuring its functionality. The thermal value of the non-reversible fuse is 150 °C, the maximum current load is 10 A. The fuse supplied by KOPOS KOLÍN a.s. can be used in all boxes with functional integrity while maintaining all other parameters (components).

For easy routing of cables, the box is equipped with softened inputs providing IP 66 protection. The entire box is made of halogen-free material.

The boxes can be part of both standardized and non-standardized routes. Information on the types of cables that can be used (or without restrictions) can be found in the individual system assemblies that remain functional in the event of a fire.

Separate ceramic terminals serve only as a spare part for KSK boxes with functionality in the event of a fire. Single and double terminals can be interchanged, provided that the other parameters of the KSK boxes do not change. **Separate ceramic terminals do not form a fire resistant route.**

Marking of fire routes by OPT label is always done after at least 50 m of the route.

box type	conductor core cross section	placement of wires into the terminal from one side				
		1.5 mm ²	2,5 mm ²	4 mm ²	6 mm ²	10 mm ²
KSK 125_PO6P	1.5 - 6 mm ²	3	1-2*	1	1	-
KSK 175_PO10P	1.5 - 10 mm ²	4	3	1-2*	1	1

*the number of wires may vary depending on the cable manufacturer

Fire resistance classification

item number	expert assessment PAVUS, a. s.	protocol number	standpoint numb	classification [min.] - power cables
KSK 125_PO6P	Addition no. 1 Z220170064	PRA9-03-17-902-C-0	PK9-03-17-913-C-Z	P90-R, E90, PS90
KSK 175_PO10P				

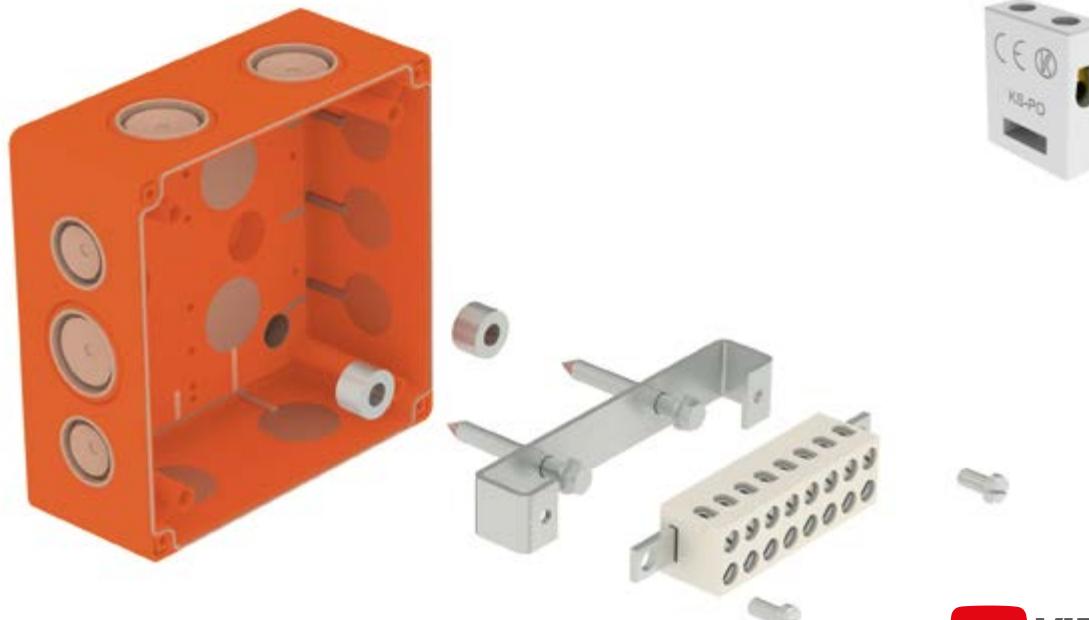
Certification according to: ČSN 730895, DIN 4102-12, STN 920205

the above values of fire resistance also apply to the corresponding classifications PH90-R, PH60-R, PH45-R, PH30-R and PH15-R

Wiring fire boxes for communication cables



HF


▶ **VIDEO**
KSK 125_DPO, KSK 175_DPO**Standardized supporting constructions**

The wiring box is attached to the base material using the concrete screws that are included in the package. The KSK 125_DPO box includes 8 terminals, the KSK 175_DPO box has 14 terminals. For easy routing of cables, the box is equipped with softened inputs providing IP 66 protection. The entire box is made of halogen-free material. The last step of the assembly is the installation of the cover lid, which is fixed with screws. The wiring box can be attached to the JUPITER cable tray using the MDS mounting plate.

The boxes can be part of both standardized and non-standardized routes. Information on the types of cables that can be used (or without restrictions) can be found in the individual system assemblies that remain functional in the event of a fire.

Separate ceramic terminals serve only as a spare part for KSK boxes with functionality in the event of a fire. Single and double terminals can be interchanged, provided that the other parameters of the KSK boxes do not change. **Separate ceramic terminals do not form a fire resistant route.**

Marking of fire routes by OPT label is always done after at least 50 m of the route.

box type	conductor core cross section
KSK 125_DPO	0.5 - 4 mm ²
KSK 175_DPO	0.5 - 4 mm ²

Fire resistance classification

item number	protocol number	standpoint number	classification [min.] - power cables
KSK 125_DPO	FR-166-17-AUNS	JR-141-17-NURS	P90-R, E90, PS90
KSK 175_DPO			

expert assessment PAVUS, a. s.	Addition no. 1 Z220170064
extended application	PRA9-03-17-902-C-0
certification for the German market	P-1041 DMT DO



A large, light gray polygonal pattern covers the entire background. A single, solid green triangle is positioned in the upper-left quadrant. The word "PRODUCTS" is centered within this green triangle in a bold, black, sans-serif font.

PRODUCTS

PRODUCTS

fire boxes

KSK fire-resistant wiring box for power cables (5 terminals)



MAT halogen-free -25 - +60 °C A1 - F 30 sec. Pb Free IP66

	item number	dimension		‡	EAN
●	KSK 100_PO	101 x 101 x 63,5	orange RAL 2004	0,2	8595568919144
●	KSK 125_PO10	126 x 126 x 76	orange RAL 2004	0,3	8595568922069
●	KSK 175_PO16	176 x 126 x 90	orange RAL 2004	0,4	8595568924339



- The box is equipped with 5 ceramic terminals to maintain functionality in the event of a fire. The boxes are attached to the concrete using the enclosed anchors (included in the package).
- The boxes are intended for use only with power cables with proven functionality in the event of a fire
- Fire-resistant boxes are made of halogen-free material and are equipped with inlets made of softened material, which allows easy insertion of cables into the box.

KSK 100_PO: the lid is secured with the enclosed stainless steel screws
 the terminals are designed for 5 conductors with a cable cross-section of 1.5 - 6 mm²
 fire resistance classification: P90-R ČSN 730895
 E 90 DIN 4102-12
 PS 90 STN 920205

KSK 125_PO10: the lid is secured with the enclosed stainless steel screws
 the terminals are designed for 5 conductors with a cable cross-section of 1.5 - 10 mm²
 fire resistance classification: P90-R ČSN 730895
 E 90 DIN 4102-12
 PS 90 STN 920205

KSK 175_PO16: the lid is secured with the enclosed stainless steel screws
 the terminals are designed for 5 conductors with a cable cross-section of 1.5 - 16 mm²
 fire resistance classification: P90-R ČSN 730895
 E 90 DIN 4102-12
 PS 90 STN 920205

KSK fire-resistant wiring box for power cables (3 terminals)



MAT halogen-free -25 - +60 °C A1 - F 30 sec. Pb Free IP66

	item number	dimension		‡	EAN
●	KSK 100_PO4J	101 x 101 x 63,5	orange RAL 2004	0,2	8595568934673
●	KSK 100_PO6J	101 x 101 x 63,5	orange RAL 2004	0,2	8595568934680
●	KSK 100_PO10J	101 x 101 x 63,5	orange RAL 2004	0,2	8595568927620



- The box is equipped with a ceramic terminal - 3 poles, while maintaining functionality in the event of a fire. The boxes are attached to the concrete using the enclosed anchors (included in the package).
- The boxes are intended for use only with power cables with proven functionality in the event of a fire.
- Fire-resistant boxes are made of halogen-free material and are equipped with inlets made of softened material, which allows easy insertion of cables into the box.

KSK 100_PO4J: the lid is secured with the enclosed stainless steel screws
 the terminals are designed for 3 conductors with a cable cross-section of 1.5 - 4 mm²
 fire resistance classification: P90-R ČSN 730895
 E 90 DIN 4102-12
 PS 90 STN 920205

KSK 100_PO6J: the lid is secured with the enclosed stainless steel screws
 the terminals are designed for 3 conductors with a cable cross-section of 1.5 - 6 mm²
 fire resistance classification: P90-R ČSN 730895
 E 90 DIN 4102-12
 PS 90 STN 920205

KSK 100_PO10J: the lid is secured with the enclosed stainless steel screws
 the terminals are designed for 3 conductors with a cable cross-section of 1.5 - 10 mm²
 fire resistance classification: P90-R ČSN 730895
 E 90 DIN 4102-12
 PS 90 STN 920205

fire-resistant wiring box KSK with thermal fuse for power cables



MAT halogen-free -25 - +60 °C A1 - F 30 sec. Pb Free IP66

	item number	dimension	⊕	‡	EAN
●	KSK 125_PO6P	126 x 126 x 76	orange RAL 2004	0,3	8595568924322
●	KSK 175_PO10P	176 x 126 x 90	orange RAL 2004	0,4	8595568924360



- The boxes are equipped with terminals for easy connection of appliances on the secondary route. These appliances do not provide functionality in fire conditions and it is necessary to disconnect them at a time when their degradation could cause failure and thus shut down the entire main route. A thermal fuse is connected in the box to ensure that the secondary route is disconnected.
- The boxes are intended for use only with power cables with proven functionality in the event of a fire.
- Fire-resistant boxes are made of halogen-free material and are equipped with inlets made of softened material, which allows easy insertion of cables into the box.

KSK 125_PO6P: the lid is secured with the enclosed stainless steel screws
the terminals are designed for 5 conductors with a cable cross-section of 1.5 - 6 mm²
fire resistance classification: P90-R ČSN 73 0895
E 90 DIN 4102-12
PS 90 STN 920205

KSK 175_PO10P: the lid is secured with the enclosed stainless steel screws
the terminals are designed for 5 conductors with a cable cross-section of 1.5 - 10 mm²
fire resistance classification: P90-R ČSN 73 0895
E 90 DIN 4102-12
PS 90 STN 920205

fire-resistant KSK wiring box with double terminals for power cables



MAT halogen-free -25 - +60 °C A1 - F 30 sec. Pb Free IP66

	item number	dimension	⊕	‡	EAN
●	KSK 125_2PO6	126 x 126 x 76	orange RAL 2004	0,2	8595568924315
●	KSK 175_2PO10	176 x 126 x 90	orange RAL 2004	0,5	8595568924353



- The boxes are equipped with 5 pieces of ceramic terminals. The terminals allow the installation of multiple wires at a single potential.
- The boxes are attached to the concrete using the enclosed anchors (included in the package).
- The boxes are intended for use only with power cables with proven functionality in the event of a fire.
- Fire-resistant boxes are made of halogen-free material and are equipped with inlets made of softened material, which allows easy insertion of cables into the box.

KSK 125_2PO6: the lid is secured with the enclosed stainless steel screws
the terminals are designed for 5 conductors with a cable cross-section of 1.5 - 6 mm²
fire resistance classification: P90-R ČSN 73 0895
E 90 DIN 4102-12
PS 90 STN 920205

KSK 175_2PO10: the lid is secured with the enclosed stainless steel screws
the terminals are designed for 5 conductors with a cable cross-section of 1.5 - 10 mm²
fire resistance classification: P90-R ČSN 73 0895
E 90 DIN 4102-12
PS 90 STN 920205

fire-resistant KSK wiring box for data (communication) cables



MAT halogen-free I -25 - +60 °C A1 - F 30 sec. Pb Free self-extinguishing

	item number	dimension	⊕	‡	EAN
●	KSK 125_DPO	126 x 126 x 76	orange RAL 2004	0,3	8595568924308
●	KSK 175_DPO	176 x 126 x 90	orange RAL 2004	0,4	8595568924360



- The boxes are equipped with ceramic terminals while maintaining functionality in the event of a fire. The boxes are fixed to the concrete with the enclosed screws (included in the package).
- The boxes are intended for use only with data cables with proven functionality in the event of a fire.
- Fire-resistant boxes are made of halogen-free material and are equipped with inlets made of softened material, which allows easy insertion of cables into the box.

KSK 125_DPO: the lid is secured with the enclosed stainless steel screws
 the terminals are designed for 8 conductors with a cable cross-section of 0.5 - 4 mm²
 fire resistance classification: P90-R ČSN 73 0895
 E 90 DIN 4102-12
 PS 90 STN 92 0205

KSK 175_DPO: the lid is secured with the enclosed stainless steel screws
 the terminals are designed for 14 conductors with a cable cross-section of 0.5 - 4 mm²
 fire resistance classification: P90-R ČSN 73 0895
 E 90 DIN 4102-12
 PS 90 STN 92 0205

fireproof instrument box for hollow walls and aerated concrete



MAT halogen-free I -5 +60 °C 850 °C A1 - F 30 sec. Pb Free self-extinguishing
IP30

	item number	popis	⊕	classification	EAN
●	KPZ-1_PO	fire instrument box	black+gray	IP 30	EI 120 8595568932358

- Fire integrity and insulation up to 120 minutes (EI 15 - EI 120)
- Inlets made of flexible material.
- The fire protection material is located inside and outside the box.
- The diameter of the drill for installation is 73 mm.
- Mounting screws are equipped with a three-way thread and metal feet for quick installation.
- The box is intended primarily for buildings with an increased need for protection of people and property.
- This box is not intended for the German market.

ceramic terminal - spare part



	item number	height [mm]	width [mm]	length [mm]	for cable cross section	EAN
●	Pcs_PO	25	8,5	20	up to 6 mm ²	8595568932112
●	Pcs_PO10	23,8	12,6	23,8	up to 10 mm ²	8595568932518
●	Pcs_PO16	27,5	15	27,5	up to 16 mm ²	8595568932525
●	Pcs_PO4J	16	18	33	up to 4 mm ²	8595568934697
●	Pcs_PO6J	18	19	36	up to 6 mm ²	8595568934703
●	Pcs_PO10J	20	21	36	up to 10 mm ²	8595568932532
●	Pcs_2PO6	25	16	20	2 cables up to 6 mm ²	8595568932129
●	Pcs_2PO10	25	24	20	2 cables up to 10 mm ²	8595568932136

- ▶ Separate ceramic terminals serve only as a spare part for KSK boxes with functionality in the event of a fire. Single and double terminals can be interchanged, provided that the other parameters of the KSK boxes do not change.
- ▶ **Separate ceramic terminals do not form a fire resistant route.**

thermal fuse



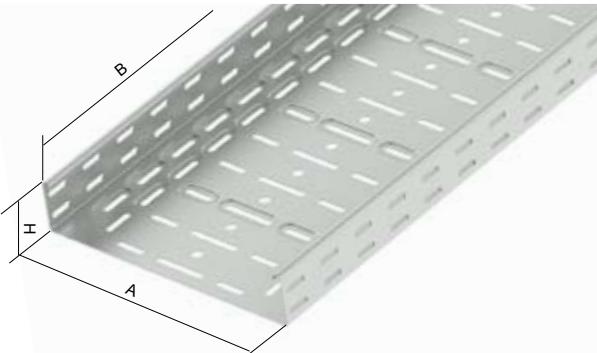
	item number	‡	⌚	load		EAN
				thermal	current	
●	TP_PO	0,01	10	150 °C	10 A	8595568932105

- ▶ KSK boxes can be fitted with several fuses, provided that the other parameters of the tested boxes do not change, both for standardized supporting constructions and for non-standardized supporting constructions.
- ▶ For non-standardized supporting constructions, it depends on the functional cables used and the classification of the originally tested routes.

PRODUCTS

cable trays JUPITER

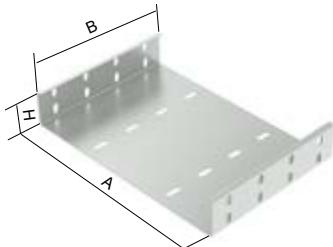
cable tray



► KSBS couplings and NSM 6X10 bolts are intended for connecting trays.

	item number	A	H	B	‡	‡	EAN
●	KZ 60X50X1.50_PO	50	60	3000	1,5	1,93	8595057692046
●	KZ 60X75X1.50_PO	75	60	3000	1,5	2,17	8595057635838
●	KZ 60X100X1.50_PO	100	60	3000	1,5	2,77	8595057635852
●	KZ 60X150X1.50_PO	150	60	3000	1,5	3,20	8595057635883
●	KZ 60X200X1.50_PO	200	60	3000	1,5	3,70	8595057635913
●	KZ 60X300X1.50_PO	300	60	3000	1,5	4,55	8595057635951
⊕	KZ 60X50X1.50_POF	50	60	3000	1,5	1,93	8595057697751
⊕	KZ 60X75X1.50_POF	75	60	3000	1,5	2,17	8595057660694
⊕	KZ 60X100X1.50_POF	100	60	3000	1,5	2,77	8595057650794
⊕	KZ 60X150X1.50_POF	150	60	3000	1,5	3,20	8595057657960
⊕	KZ 60X200X1.50_POF	200	60	3000	1,5	3,70	8595057650800
⊕	KZ 60X300X1.50_POF	300	60	3000	1,5	4,55	8595057657953

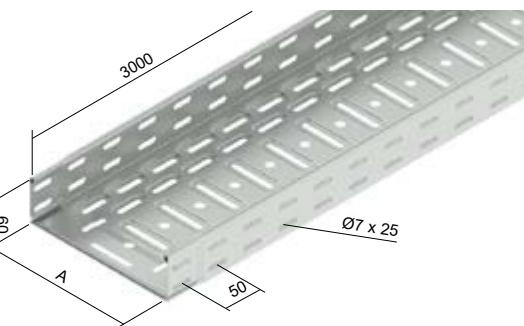
coupling for cable trays



► The coupling is designed for connecting KZ cable trays without an integrated coupling using NSM 6X10 bolts.

	item number	A	H	B	‡f	‡	‡	EAN
●	KSBS 50_PO	50	60	200	16	1,5	0,33	8595057692022
●	KSBS 75_PO	75	60	200	16	1,5	0,40	8595057649804
●	KSBS 100_PO	100	60	200	16	1,5	0,45	8595057649811
●	KSBS 150_PO	150	60	200	16	1,5	0,56	8595057649828
●	KSBS 200_PO	200	60	200	24	1,5	0,69	8595057649835
●	KSBS 300_PO	300	60	200	24	1,5	0,92	8595057649842
⊕	KSBS 50_POF	50	60	200	16	1,5	0,33	8595057697768
⊕	KSBS 75_POF	75	60	200	16	1,5	0,40	8595057665750
⊕	KSBS 100_POF	100	60	200	16	1,5	0,45	8595057665767
⊕	KSBS 150_POF	150	60	200	16	1,5	0,56	8595057665774
⊕	KSBS 200_POF	200	60	200	24	1,5	0,69	8595057665781
⊕	KSBS 300_POF	300	60	200	24	1,5	0,92	8595057665774

cable tray with integrated coupling

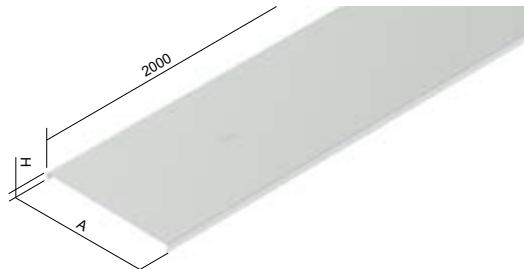


- NSM 6X10 bolts are used to secure the connection of the trays with the integrated coupling.
- The MDS mounting plate is used to mount the KSK boxes on the KZI cable tray.
- Various cable tray designs are available on request - contact sales representatives for more information.
- These items can also be ordered in a painted version.

	item number	A	\ddagger	$\ddot{\ddagger}$	$\ddot{\ddot{\ddagger}}$	EAN
●	KZI 60X50X0.75_S	50	0,75	0,99	4	8595057692312
●	KZI 60X75X0.75_S	75	0,75	1,18	4	8595057627550
●	KZI 60X100X0.75_S	100	0,75	1,37	4	8595057627567
●	KZI 60X150X0.75_S	150	0,75	1,70	4	8595057627574
●	KZI 60X200X0.75_S	200	0,75	1,86	6	8595057627581
●	KZI 60X300X0.75_S	300	0,75	2,47	6	8595057630857
●	KZI 60X50X1.00_S	50	1,0	1,24	4	8595057692916
●	KZI 60X75X1.00_S	75	1,0	1,27	4	8595057629585
●	KZI 60X100X1.00_S	100	1,0	1,70	4	8595057636118
●	KZI 60X150X1.00_S	150	1,0	2,07	4	8595057635678
●	KZI 60X200X1.00_S	200	1,0	2,27	6	8595057627598
●	KZI 60X300X1.00_S	300	1,0	3,07	6	8595057627604
●	KZI 60X400X1.00_S	400	1,0	3,75	6	8595057627611
●	KZI 60X500X1.00_S	500	1,0	4,54	6	8595057644021
●	KZI 60X600X1.00_S	600	1,0	5,40	6	8595057635722
●	KZI 60X50X1.25_PO	50	1,25	1,62	4	8595057696082
●	KZI 60X75X1.25_PO	75	1,25	1,80	4	8595057635661
●	KZI 60X100X1.25_PO	100	1,25	2,10	4	8595057633551
●	KZI 60X150X1.25_PO	150	1,25	2,49	4	8595057633568
●	KZI 60X200X1.25_PO	200	1,25	2,84	6	8595057635685
●	KZI 60X300X1.25_PO	300	1,25	3,96	6	8595057634930
●	KZI 60X400X1.25_PO	400	1,25	4,60	6	8595057635715
●	KZI 60X500X1.25_PO	500	1,25	5,52	6	8595057627628
●	KZI 60X600X1.25_PO	600	1,25	6,50	6	8595057627635

	item number	A	\ddagger	$\ddot{\ddagger}$	$\ddot{\ddot{\ddagger}}$	EAN
●	KZI 60X50X0.75_F	50	0,75	1,23	4	8595057696709
●	KZI 60X75X0.75_F	75	0,75	1,44	4	8595057696747
●	KZI 60X100X0.75_F	100	0,75	1,55	4	8595057696556
●	KZI 60X150X0.75_F	150	0,75	2,02	4	8595057696570
●	KZI 60X200X0.75_F	200	0,75	2,28	6	8595057696600
●	KZI 60X300X0.75_F	300	0,75	3,02	6	8595057696631
●	KZI 60X50X1.00_F	50	1,0	1,44	4	8595057696716
●	KZI 60X75X1.00_F	75	1,0	1,48	4	8595057696754
●	KZI 60X100X1.00_F	100	1,0	1,98	4	8595057696327
●	KZI 60X150X1.00_F	150	1,0	2,41	4	8595057696587
●	KZI 60X200X1.00_F	200	1,0	2,64	6	8595057696617
●	KZI 60X300X1.00_F	300	1,0	3,57	6	8595057696648
●	KZI 60X400X1.00_F	400	1,0	4,37	6	8595057696662
●	KZI 60X500X1.00_F	500	1,0	5,30	6	8595057696686
●	KZI 60X600X1.00_F	600	1,0	6,30	6	8595057696723
●	KZI 60X50X1.25_POF	50	1,25	1,85	4	8595057696099
●	KZI 60X75X1.25_POF	75	1,25	1,80	4	8595057696761
●	KZI 60X100X1.25_POF	100	1,25	2,30	4	8595057696563
●	KZI 60X150X1.25_POF	150	1,25	2,80	4	8595057696594
●	KZI 60X200X1.25_POF	200	1,25	3,22	6	8595057696624
●	KZI 60X300X1.25_POF	300	1,25	4,39	6	8595057696655
●	KZI 60X400X1.25_POF	400	1,25	5,20	6	8595057696679
●	KZI 60X500X1.25_POF	500	1,25	6,29	6	8595057696693
●	KZI 60X600X1.25_POF	600	1,25	7,37	6	8595057696730

cable tray cover



- The standard length of the cable tray cover is 2 m.
- The specified sheet thickness is supplied as standard. Without notice from the manufacturer, it is possible to deliver the cover from a thicker plate.
- The cover is attached to the tray using the VU cover fixture (2 pieces per meter).
- These items can also be ordered in a painted version.

	item number	A	H	\ddagger	$\ddot{\ddagger}$	EAN
●	V 50_S	50	11	0,55	0,31	8595057629776
●	V 75_S	75	11	0,55	0,43	8595057629578
●	V 100_S	100	11	0,55	0,53	8595057629783
●	V 150_S	150	11	0,55	0,75	8595057629790
●	V 200_S	200	11	0,55	0,98	8595057629424
●	V 300_S	300	11	0,8	2,07	8595057629516
●	V 400_S	400	14	1,0	3,43	8595057629394
●	V 500_S	500	14	1,0	4,22	8595057633162
●	V 600_S	600	14	1,2	6,27	8595057636576

	item number	A	H	\ddagger	$\ddot{\ddagger}$	EAN
●	V 50_F	50	11	0,8	0,54	8595057656109
●	V 75_F	75	11	0,8	0,72	8595057658141
●	V 100_F	100	11	0,8	0,91	8595057656215
●	V 150_F	150	11	0,8	1,30	8595057657991
●	V 200_F	200	11	0,8	1,68	8595057656222
●	V 300_F	300	11	1,0	2,73	8595057656239
●	V 400_F	400	14	1,0	3,63	8595057656246
●	V 500_F	500	14	1,0	4,80	8595057657977
●	V 600_F	600	14	1,2	6,70	8595057659278



cover fixture

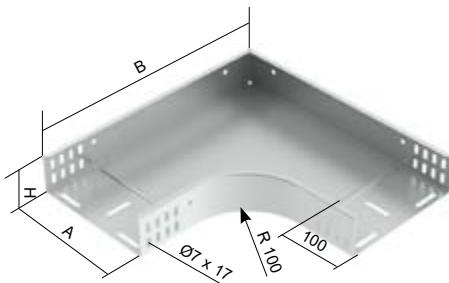


- It is used for screwless attachment of the cover to the tray and accessories..
- The cover fixture is attached to the cover and the side of a tray at the location of the hole and is lightly pressed against it so that the fixture lock fits into the hole.
- Use for perforated and non-perforated trays, holes are created in non-perforated trays especially for fixtures..
- Can also be used for MARS cable trays.

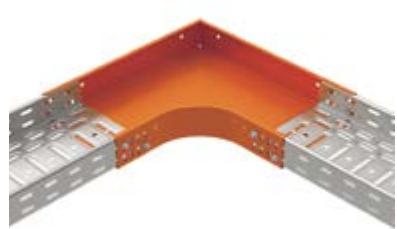
	item number	‡	EAN
●	VU_GMT	0,01	8595057629448



bend 90°



- The connection is fastened with NSM 6X10 bolt.
- From a width of 400 mm, the outer right angle of the side is replaced by a bevel.
- These items can also be ordered in a lacquered version.
- Accessories can also be used for cable trays.
- The following applies to accessories for standardized supporting constructions:
 - side height 60 mm
 - max. width at the cable tray is 300 mm
 - max. cable tray width is 400 mm

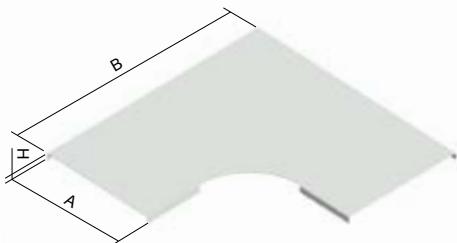


	item number	A	H	B	‡	‡‡	EAN
●	O 90X60X50_S	50	60	253	0,8	0,60	8 8595057627864
●	O 90X60X75_S	75	60	278	0,8	0,71	8 8595057627871
●	O 90X60X100_S	100	60	303	0,8	0,82	8 8595057627888
●	O 90X60X150_S	150	60	353	0,8	1,07	8 8595057627895
●	O 90X60X200_S	200	60	403	1,0	1,64	10 8595057627918
●	O 90X60X300_S	300	60	503	1,0	2,48	10 8595057627925
●	O 90X60X400_S	400	60	603	1,0	3,03	12 8595057627932
●	O 90X60X500_S	500	60	703	1,0	4,01	12 8595057627949
●	O 90X60X600_S	600	60	803	1,2	6,14	12 8595057627956
⊕	O 90X110X150_S	150	110	353	0,8	1,40	16 8595057633667
●	O 90X110X200_S	200	110	403	1,0	2,06	18 8595057636705
●	O 90X110X300_S	300	110	503	1,0	2,98	18 8595057633186
●	O 90X110X400_S	400	110	603	1,0	3,55	20 8595057636729
●	O 90X110X500_S	500	110	703	1,0	4,59	20 8595057633179
⊕	O 90X110X600_S	600	110	803	1,2	6,86	20 8595057636736

	item number	A	H	B	‡	‡‡	EAN
⊕	O 90X60X50_F	50	60	253	0,8	0,70	8 8595057658806
⊕	O 90X60X75_F	75	60	278	0,8	0,82	8 8595057658813
⊕	O 90X60X100_F	100	60	303	0,8	0,95	8 8595057650831
⊕	O 90X60X150_F	150	60	353	0,8	1,24	8 8595057658820
⊕	O 90X60X200_F	200	60	403	1,0	1,90	10 8595057650848
⊕	O 90X60X300_F	300	60	503	1,0	2,87	10 8595057658844
⊕	O 90X60X400_F	400	60	603	1,0	3,52	12 8595057658851
⊕	O 90X60X500_F	500	60	703	1,0	4,65	12 8595057658868
⊕	O 90X60X600_F	600	60	803	1,2	7,09	12 8595057658875
⊕	O 90X110X150_F	150	110	353	0,8	1,64	16 8595057658622
⊕	O 90X110X200_F	200	110	403	1,0	2,41	18 8595057658639
⊕	O 90X110X300_F	300	110	503	1,0	3,48	18 8595057658653
⊕	O 90X110X400_F	400	110	603	1,0	4,13	20 8595057658660
⊕	O 90X110X500_F	500	110	703	1,0	5,34	20 8595057658677
⊕	O 90X110X600_F	600	110	803	1,2	7,98	20 8595057658684



90 ° bend cover



- Six VU cover fixtures are used to fasten the cover.
- These items can also be ordered in a painted version.
- Accessories can also be used for cable ladders.
- The following applies to accessories for standardized supporting constructions:
 - side height 60 mm
 - max. cable tray width is 300 mm
 - max. cable ladder width is 400 mm

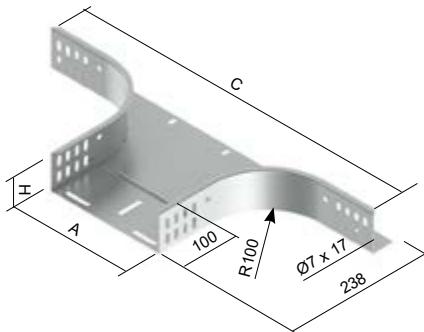


	item number	A	H	B	‡	‡‡	EAN
●	VO 90X50_S	50	12	254	0,6	0,15	8595057630277
●	VO 90X75_S	75	12	279	0,6	0,21	8595057629622
●	VO 90X100_S	100	12	304	0,6	0,28	8595057629813
●	VO 90X150_S	150	12	354	0,6	0,43	8595057630246
●	VO 90X200_S	200	12	404	0,8	0,87	8595057629820
●	VO 90X300_S	300	12	504	1,0	1,83	8595057629561
●	VO 90X400_S	400	15	604	1,0	2,40	8595057630260
●	VO 90X500_S	500	15	704	1,0	3,32	8595057633193
●	VO 90X600_S	600	15	804	1,0	4,36	8595057637009

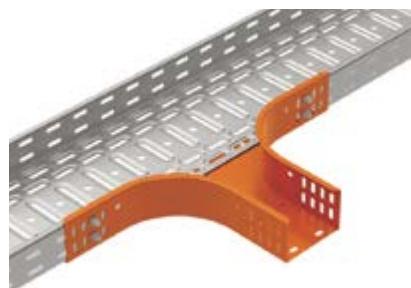
	item number	A	H	B	‡	‡‡	EAN
⊕	VO 90X50_F	50	12	254	0,8	0,26	8595057659384
⊕	VO 90X75_F	75	12	279	0,8	0,36	8595057659391
⊕	VO 90X100_F	100	12	304	0,8	0,47	8595057650855
⊕	VO 90X150_F	150	12	354	0,8	0,72	8595057659407
⊕	VO 90X200_F	200	12	404	0,8	1,01	8595057650862
⊕	VO 90X300_F	300	12	504	1,0	2,12	8595057659421
⊕	VO 90X400_F	400	15	604	1,0	2,79	8595057659438
⊕	VO 90X500_F	500	15	704	1,0	3,85	8595057659445
⊕	VO 90X600_F	600	15	804	1,0	5,06	8595057659452



horizontal branch

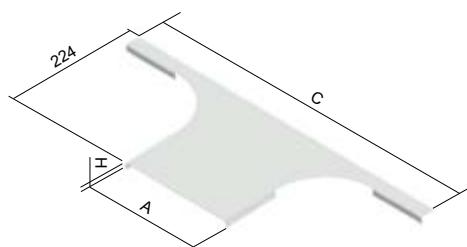


- The connection is fastened with the NSM 6X10 bolts.
- The branch is intended for an additional turn from the route.
- These items can also be ordered in a painted version.
- Accessories can also be used for cable ladders.
- The following applies to accessories for standardized supporting constructions:
 - side height 60 mm
 - max. cable tray width is 300 mm
 - max. cable ladder width is 400 mm

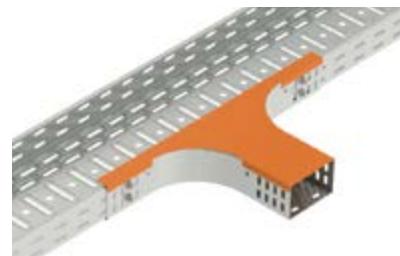


	item number	A	H	C	\ddot{t}	\ddagger	$\ddot{\tau}$	EAN		item number	A	H	C	\ddot{t}	\ddagger	$\ddot{\tau}$	EAN
●	OH 60X50_S	50	60	453	0,8	0,71	8	8595057628298	●	OH 60X50_F	50	60	453	0,8	0,74	8	8595057658400
●	OH 60X75_S	75	60	478	0,8	0,74	8	8595057628304	●	OH 60X75_F	75	60	478	0,8	0,79	8	8595057658417
●	OH 60X100_S	100	60	503	0,8	0,78	8	8595057628311	●	OH 60X100_F	100	60	503	0,8	0,83	8	8595057658424
●	OH 60X150_S	150	60	553	0,8	0,86	8	8595057628328	●	OH 60X150_F	150	60	553	0,8	0,92	8	8595057658431
●	OH 60X200_S	200	60	603	1,0	1,04	9	8595057628335	●	OH 60X200_F	200	60	603	1,0	1,13	9	8595057658448
●	OH 60X300_S	300	60	703	1,0	1,23	9	8595057628342	●	OH 60X300_F	300	60	703	1,0	1,35	9	8595057658462
●	OH 60X400_S	400	60	803	1,0	1,42	10	8595057628359	●	OH 60X400_F	400	60	803	1,0	1,57	10	8595057658479
●	OH 60X500_S	500	60	903	1,0	1,60	10	8595057628366	●	OH 60X500_F	500	60	903	1,0	1,78	10	8595057658486
●	OH 60X600_S	600	60	1003	1,2	2,05	10	8595057628373	●	OH 60X600_F	600	60	1003	1,2	2,37	10	8595057658493
●	OH 110X150_S	150	110	553	0,8	1,16	16	8595057633698	●	OH 110X150_F	150	110	553	0,8	1,22	16	8595057658233
●	OH 110X200_S	200	110	603	1,0	1,34	17	8595057637306	●	OH 110X200_F	200	110	603	1,0	1,43	17	8595057658240
●	OH 110X300_S	300	110	703	1,0	1,53	17	8595057633292	●	OH 110X300_F	300	110	703	1,0	1,65	17	8595057658257
●	OH 110X400_S	400	110	803	1,0	1,72	18	8595057637320	●	OH 110X400_F	400	110	803	1,0	1,87	18	8595057658271
●	OH 110X500_S	500	110	903	1,0	1,90	18	8595057633285	●	OH 110X500_F	500	110	903	1,0	2,08	18	8595057658288
●	OH 110X600_S	600	110	1003	1,2	2,35	18	8595057637337	●	OH 110X600_F	600	110	1003	1,2	2,60	18	8595057658295

horizontal branch cover



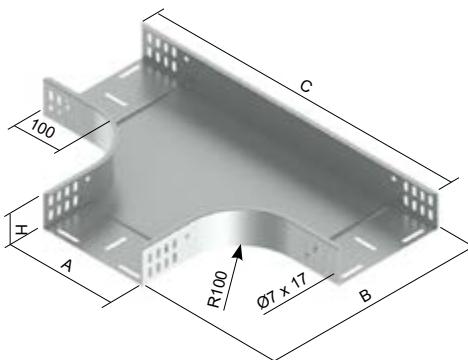
- Four VU cover fixtures are used to fasten the cover.
- These items can also be ordered in a painted version.
- Accessories can also be used for cable ladders.
- The following applies to accessories for standardized supporting constructions:
 - side height 60 mm
 - max. cable tray width is 300 mm
 - max. cable ladder width is 400 mm



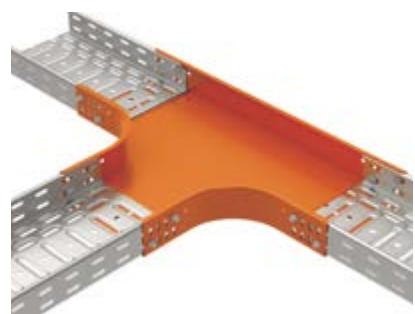
	item number	A	H	C	\ddot{t}	\ddagger	EAN		item number	A	H	C	\ddot{t}	\ddagger	EAN
●	VOH 50_S	50	12	453	0,6	0,13	8595057637948	●	VOH 50_F	50	12	453	0,8	0,22	8595057659285
●	VOH 75_S	75	12	478	0,6	0,16	8595057632813	●	VOH 75_F	75	12	478	0,8	0,27	8595057659292
●	VOH 100_S	100	12	503	0,6	0,18	8595057629875	●	VOH 100_F	100	12	503	0,8	0,31	8595057659308
●	VOH 150_S	150	12	553	0,6	0,23	8595057629882	●	VOH 150_F	150	12	553	0,8	0,35	8595057659315
●	VOH 200_S	200	12	603	0,8	0,41	8595057629899	●	VOH 200_F	200	12	603	0,8	0,47	8595057659322
●	VOH 300_S	300	12	703	1,0	0,69	8595057629905	●	VOH 300_F	300	12	703	1,0	0,80	8595057659346
●	VOH 400_S	400	15	803	1,0	0,88	8595057629509	●	VOH 400_F	400	15	803	1,0	1,01	8595057659353
●	VOH 500_S	500	15	903	1,0	1,06	8595057633308	●	VOH 500_F	500	15	903	1,0	1,23	8595057659360
●	VOH 600_S	600	15	1003	1,0	1,23	8595057637957	●	VOH 600_F	600	15	1003	1,0	1,44	8595057659377



T-piece

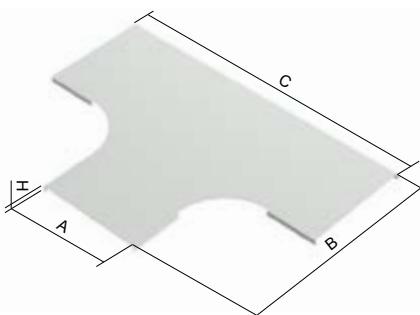


- The connection is fastened with the NSM 6X10 bolt.
- Use a horizontal branch or reduction piece SU to create an unequal T-piece.
- These items can also be ordered in a painted version
- Accessories can also be used for cable ladders
- The following applies to accessories for standardized supporting constructions:
 - side height 60 mm
 - max. cable tray width is 300 mm
 - max. cable ladder width is 400 mm

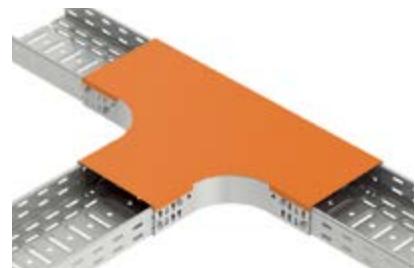


	item number	A	H	B	C	\ddot{t}	\ddagger	$\ddot{\tau}$	EAN		item number	A	H	B	C	\ddot{t}	\ddagger	$\ddot{\tau}$	EAN
●	T 60X50_S	50	60	253	453	0,8	0,88	12	8595057637443	●	T 60X50_F	50	60	253	453	0,8	1,02	12	8595057663602
●	T 60X75_S	75	60	278	478	0,8	1,07	12	8595057633339	●	T 60X75_F	75	60	278	478	0,8	1,17	12	8595057663619
●	T 60X100_S	100	60	303	503	0,8	1,14	12	8595057630338	●	T 60X100_F	100	60	303	503	0,8	1,33	12	8595057650879
●	T 60X150_S	150	60	353	553	0,8	1,43	12	8595057633575	●	T 60X150_F	150	60	353	553	0,8	1,66	12	8595057663626
●	T 60X200_S	200	60	403	603	1,0	2,08	15	8595057631717	●	T 60X200_F	200	60	403	603	1,0	2,42	15	8595057650909
●	T 60X300_S	300	60	503	703	1,0	3,02	15	8595057637467	●	T 60X300_F	300	60	503	703	1,0	3,51	15	8595057663640
●	T 60X400_S	400	60	603	803	1,0	4,13	18	8595057631700	●	T 60X400_F	400	60	603	803	1,0	4,79	18	8595057663657
●	T 60X500_S	500	60	703	903	1,0	5,34	18	8595057637474	●	T 60X500_F	500	60	703	903	1,0	6,24	18	8595057663664
●	T 60X600_S	600	60	803	1003	1,2	8,07	18	8595057637481	●	T 60X600_F	600	60	803	1003	1,2	9,36	18	8595057663671
●	T 110X150_S	150	110	353	553	0,8	1,86	24	8595057635289	●	T 110X150_F	150	110	353	553	0,8	2,15	24	8595057663459
●	T 110X200_S	200	110	403	603	1,0	2,57	27	8595057637535	●	T 110X200_F	200	110	403	603	1,0	2,98	27	8595057663466
●	T 110X300_S	300	110	503	703	1,0	3,55	27	8595057637559	●	T 110X300_F	300	110	503	703	1,0	4,12	27	8595057663473
●	T 110X400_S	400	110	603	803	1,0	4,60	30	8595057637566	●	T 110X400_F	400	110	603	803	1,0	5,34	30	8595057663480
●	T 110X500_S	500	110	703	903	1,0	5,98	30	8595057633704	●	T 110X500_F	500	110	703	903	1,0	6,94	30	8595057663497
●	T 110X600_S	600	110	803	1003	1,2	8,71	30	8595057637573	●	T 110X600_F	600	110	803	1003	1,2	10,11	30	8595057663503

T-piece cover



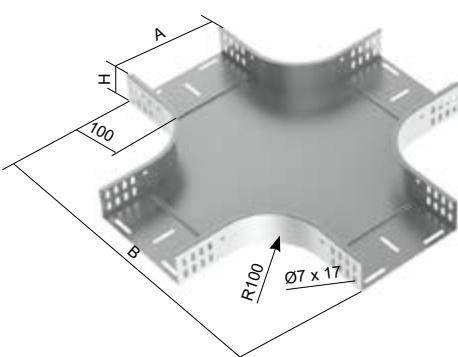
- Six VU cover fixtures are used to fasten the cover..
- These items can also be ordered in a painted version
- Accessories can also be used for cable ladders
- The following applies to accessories for standardized supporting constructions:
 - side height 60 mm
 - max. cable tray width is 300 mm
 - max. cable ladder width is 400 mm



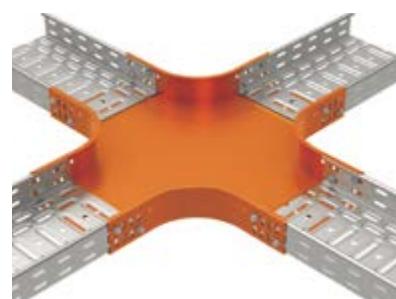
	item number	A	H	B	C	\ddot{t}	\ddagger	$\ddot{\tau}$	EAN		item number	A	H	B	C	\ddot{t}	\ddagger	$\ddot{\tau}$	EAN
●	VT 50_S	50	12	254	453	0,6	0,22	8595057637962	●	VT 50_F	50	12	254	453	0,8	0,36	8595057659742		
●	VT 75_S	75	12	279	478	0,6	0,30	8595057633353	●	VT 75_F	75	12	279	478	0,8	0,50	8595057659759		
●	VT 100_S	100	12	304	503	0,6	0,39	8595057630345	●	VT 100_F	100	12	304	503	0,8	0,65	8595057650886		
●	VT 150_S	150	12	354	553	0,6	0,57	8595057635326	●	VT 150_F	150	12	354	553	0,8	0,97	8595057659766		
●	VT 200_S	200	12	404	603	0,8	1,14	8595057633346	●	VT 200_F	200	12	404	603	0,8	1,33	8595057650893		
●	VT 300_S	300	12	504	703	1,0	2,32	8595057630369	●	VT 300_F	300	12	504	703	1,0	2,69	8595057659780		
●	VT 400_S	400	15	604	803	1,0	3,40	8595057636620	●	VT 400_F	400	15	604	803	1,0	3,95	8595057659797		
●	VT 500_S	500	15	704	903	1,0	4,62	8595057633711	●	VT 500_F	500	15	704	903	1,0	5,36	8595057659803		
●	VT 600_S	600	15	804	1003	1,0	6,00	8595057637986	●	VT 600_F	600	15	804	1003	1,0	6,96	8595057659810		



cross



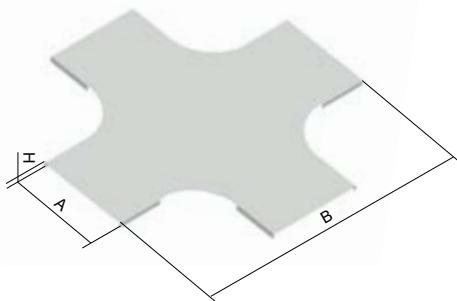
- The connection is fastened with the NSM 6X10 bolt.
- Six VU cover fixtures are used to fasten the cover..
- These items can also be ordered in a painted version
- Accessories can also be used for cable ladders
- The following applies to accessories for standardized supporting constructions:
 - side height 60 mm
 - max. cable tray width is 300 mm
 - max. cable ladder width is 400 mm



	item number	A	H	B	$\ddot{\tau}$	\ddagger	$\ddot{\tau}^F$	EAN
🕒	KR 60X50_S	50	60	453	0,8	1,22	16	8595057637696
🕒	KR 60X75_S	75	60	478	0,8	1,37	16	8595057637702
●	KR 60X100_S	100	60	503	0,8	1,53	16	8595057637719
●	KR 60X150_S	150	60	553	0,8	1,85	16	8595057637726
●	KR 60X200_S	200	60	603	1,0	2,55	20	8595057637733
●	KR 60X300_S	300	60	703	1,0	3,59	20	8595057637757
🕒	KR 60X400_S	400	60	803	1,0	4,80	24	8595057637764
🕒	KR 60X500_S	500	60	903	1,0	6,14	24	8595057637771
🕒	KR 60X600_S	600	60	1003	1,2	9,02	24	8595057637788
🕒	KR 110X150_S	150	110	553	0,8	2,37	32	8595057637870
🕒	KR 110X200_S	200	110	603	1,0	3,06	36	8595057637887
🕒	KR 110X300_S	300	110	703	1,0	4,12	36	8595057637900
🕒	KR 110X400_S	400	110	803	1,0	5,31	40	8595057637917
🕒	KR 110X500_S	500	110	903	1,0	6,66	40	8595057637924
🕒	KR 110X600_S	600	110	1003	1,2	9,54	40	8595057637931

	item number	A	H	B	$\ddot{\tau}$	\ddagger	$\ddot{\tau}^F$	EAN
🕒	KR 60X50_F	50	60	453	0,8	1,41	16	8595057661943
🕒	KR 60X75_F	75	60	478	0,8	1,59	16	8595057661950
🕒	KR 60X100_F	100	60	503	0,8	1,77	16	8595057650916
🕒	KR 60X150_F	150	60	553	0,8	2,15	16	8595057661967
🕒	KR 60X200_F	200	60	603	1,0	2,95	20	8595057650923
🕒	KR 60X300_F	300	60	703	1,0	4,17	20	8595057661981
🕒	KR 60X400_F	400	60	803	1,0	5,57	24	8595057661998
🕒	KR 60X500_F	500	60	903	1,0	7,13	24	8595057662001
🕒	KR 60X600_F	600	60	1003	1,2	10,47	24	8595057662018
🕒	KR 110X150_F	150	110	553	0,8	2,75	32	8595057662643
🕒	KR 110X200_F	200	110	603	1,0	3,55	36	8595057662650
🕒	KR 110X300_F	300	110	703	1,0	4,77	36	8595057662667
🕒	KR 110X400_F	400	110	803	1,0	6,61	40	8595057662674
🕒	KR 110X500_F	500	110	903	1,0	7,72	40	8595057662681
🕒	KR 110X600_F	600	110	1003	1,2	11,06	40	8595057662698

cross cover



- Eight VU cover fixtures are used to fasten the cover
- These items can also be ordered in a painted version
- Accessories can also be used for cable ladders
- The following applies to accessories for standardized supporting constructions:
 - side height 60 mm
 - max. cable tray width is 300 mm
 - max. cable ladder width is 400 mm

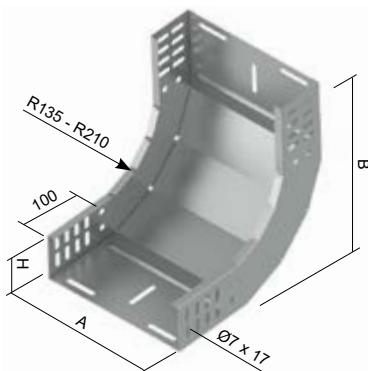


	item number	A	H	B	$\ddot{\tau}$	\ddagger	$\ddot{\tau}^F$	EAN
🕒	VKR 50_S	50	12	453	0,6	0,28	8595057637993	
🕒	VKR 75_S	75	12	478	0,6	0,38	8595057638006	
🕒	VKR 100_S	100	12	503	0,6	0,49	8595057638013	
🕒	VKR 150_S	150	12	553	0,6	0,72	8595057638020	
🕒	VKR 200_S	200	12	603	0,8	1,41	8595057638037	
🕒	VKR 300_S	300	12	703	1,0	2,81	8595057638051	
🕒	VKR 400_S	400	15	803	1,0	4,04	8595057638068	
🕒	VKR 500_S	500	15	903	1,0	5,40	8595057638075	
🕒	VKR 600_S	600	15	1003	1,0	6,30	8595057638082	

	item number	A	H	B	$\ddot{\tau}$	\ddagger	$\ddot{\tau}^F$	EAN
🕒	VKR 50_F	50	12	453	0,8	0,47	8595057659469	
🕒	VKR 75_F	75	12	478	0,8	0,64	8595057659476	
🕒	VKR 100_F	100	12	503	0,8	0,82	8595057650930	
🕒	VKR 150_F	150	12	553	0,8	1,21	8595057659483	
🕒	VKR 200_F	200	12	603	0,8	1,64	8595057650947	
🕒	VKR 300_F	300	12	703	1,0	3,27	8595057659506	
🕒	VKR 400_F	400	15	803	1,0	4,68	8595057659513	
🕒	VKR 500_F	500	15	903	1,0	6,27	8595057659520	
🕒	VKR 600_F	600	15	1003	1,0	7,30	8595057659537	



90° rising elbow



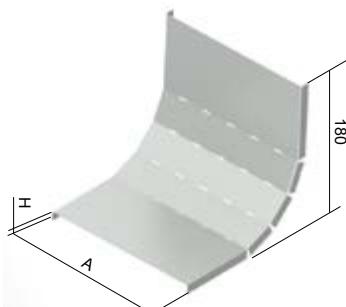
- The connection is made by sliding the cable tray directly into the elbow and then securing it with NSM 6X10 bolts.
- These items can also be ordered in a painted version
- Accessories can also be used for cable ladders
- The following applies to accessories for standardized supporting constructions:
 - side height 60 mm
 - max. cable tray width is 300 mm
 - max. cable ladder width is 400 mm



	item number	A	H	B	‡	‡	‡	EAN
●	SO 90X60X50_S	50	60	245	0,8	0,50	8	8595057628151
●	SO 90X60X75_S	75	60	245	0,8	0,57	8	8595057628168
●	SO 90X60X100_S	100	60	245	0,8	0,64	8	8595057628175
●	SO 90X60X150_S	150	60	245	0,8	0,77	8	8595057628182
●	SO 90X60X200_S	200	60	245	1,0	1,03	10	8595057628199
●	SO 90X60X300_S	300	60	245	1,0	1,37	10	8595057628205
●	SO 90X60X400_S	400	60	245	1,0	1,70	12	8595057628212
●	SO 90X60X500_S	500	60	245	1,0	2,03	12	8595057628229
●	SO 90X60X600_S	600	60	245	1,2	2,65	12	8595057628236
🕒	SO 90X110X150_S	150	110	295	0,8	1,13	16	8595057633827
●	SO 90X110X200_S	200	110	295	1,0	1,41	18	8595057636835
●	SO 90X110X300_S	300	110	295	1,0	1,84	18	8595057633216
●	SO 90X110X400_S	400	110	295	1,0	2,18	20	8595057636859
●	SO 90X110X500_S	500	110	295	1,0	2,63	20	8595057633209
🕒	SO 90X110X600_S	600	110	295	1,2	3,39	20	8595057636866

	item number	A	H	B	‡	‡	‡	EAN
🕒	SO 90X60X50_F	50	60	245	0,8	0,58	8	8595057662827
🕒	SO 90X60X75_F	75	60	245	0,8	0,66	8	8595057662834
🕒	SO 90X60X100_F	100	60	245	0,8	0,74	8	8595057650671
🕒	SO 90X60X150_F	150	60	245	0,8	0,98	8	8595057662841
🕒	SO 90X60X200_F	200	60	245	1,0	1,19	10	8595057650695
🕒	SO 90X60X300_F	300	60	245	1,0	1,58	10	8595057662865
🕒	SO 90X60X400_F	400	60	245	1,0	1,97	12	8595057662872
🕒	SO 90X60X500_F	500	60	245	1,0	2,35	12	8595057662889
🕒	SO 90X60X600_F	600	60	245	1,2	3,07	12	8595057662896
🕒	SO 90X110X150_F	150	110	295	0,8	1,31	16	8595057662568
🕒	SO 90X110X200_F	200	110	295	1,0	1,63	18	8595057662575
🕒	SO 90X110X300_F	300	110	295	1,0	2,13	18	8595057662582
🕒	SO 90X110X400_F	400	110	295	1,0	2,52	20	8595057662599
🕒	SO 90X110X500_F	500	110	295	1,0	3,01	20	8595057662605
🕒	SO 90X110X600_F	600	110	295	1,2	3,93	20	8595057662612

90° rising elbow cover



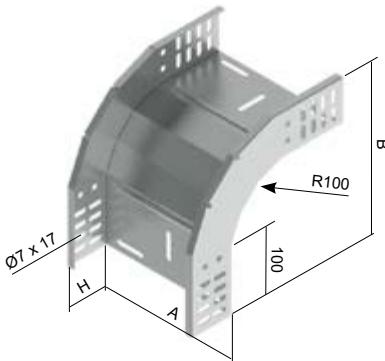
- Four VU cover fixtures are used to fasten the cover.
- All covers with surface finish S and covers with a width of 50 - 200 mm and surface finish F are delivered straight. They are constructed from a single piece of sheet metal with cut sides for shaping during assembly.
- Covers with surface finish F and width of 300 - 600 mm are delivered already bent in the shape of the rising elbow.
- These items can also be ordered in a painted version
- Accessories can also be used for cable ladders
- The following applies to accessories for standardized supporting constructions:
 - side height 60 mm
 - max. cable tray width is 300 mm
 - max. cable ladder width is 400 mm



	item number	A	H	‡	‡	EAN
●	VSO 90X50_S	50	12	0,6	0,13	8595057637016
●	VSO 90X75_S	75	12	0,6	0,14	8595057629615
●	VSO 90X100_S	100	12	0,6	0,17	8595057629851
●	VSO 90X150_S	150	12	0,6	0,24	8595057630048
●	VSO 90X200_S	200	12	0,8	0,45	8595057629868
●	VSO 90X300_S	300	12	1,0	0,82	8595057629554
●	VSO 90X400_S	400	15	1,0	1,09	8595057629462
●	VSO 90X500_S	500	15	1,0	1,34	8595057633230
●	VSO 90X600_S	600	15	1,0	1,59	8595057637023

	item number	A	H	‡	‡	EAN
🕒	VSO 90X50_F	50	12	0,8	0,22	8595057659667
🕒	VSO 90X75_F	75	12	0,8	0,24	8595057659674
🕒	VSO 90X100_F	100	12	0,8	0,29	8595057650688
🕒	VSO 90X150_F	150	12	0,8	0,41	8595057659681
🕒	VSO 90X200_F	200	12	0,8	0,53	8595057650701
🕒	VSO 90X300_F	300	12	1,0	0,95	8595057659704
🕒	VSO 90X400_F	400	15	1,0	1,26	8595057659711
🕒	VSO 90X500_F	500	15	1,0	1,55	8595057659728
🕒	VSO 90X600_F	600	15	1,0	1,85	8595057659735

90° low elbow



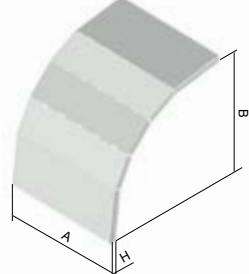
- The connection is made by sliding the cable tray directly into the elbow and then securing it with NSM 6X10 bolts.
- These items can also be ordered in a painted version.
- Accessories can also be used for cable ladders
- The following applies to accessories for standardized supporting constructions:
 - side height 60 mm
 - max. cable tray width is 300 mm
 - max. cable ladder width is 400 mm



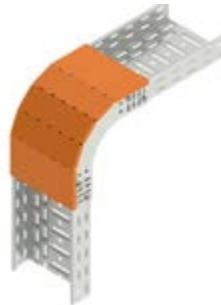
	item number	A	H	B	t	‡	ℓ	EAN
●	KO 90X60X50_S	50	60	245	0,8	0,47	8	8595057628014
●	KO 90X60X75_S	75	60	245	0,8	0,52	8	8595057628021
●	KO 90X60X100_S	100	60	245	0,8	0,57	8	8595057628038
●	KO 90X60X150_S	150	60	245	0,8	0,67	8	8595057628045
●	KO 90X60X200_S	200	60	245	1,0	0,87	10	8595057628052
●	KO 90X60X300_S	300	60	245	1,0	1,13	10	8595057628069
●	KO 90X60X400_S	400	60	245	1,0	1,38	12	8595057628076
●	KO 90X60X500_S	500	60	245	1,0	1,63	12	8595057628083
●	KO 90X60X600_S	600	60	245	1,2	2,19	12	8595057628090
🕒	KO 90X110X150_S	150	110	295	0,8	0,95	16	8595057633674
●	KO 90X110X200_S	200	110	295	1,0	1,15	18	85950576336958
●	KO 90X110X300_S	300	110	295	1,0	1,28	18	8595057633254
●	KO 90X110X400_S	400	110	295	1,0	1,41	20	85950576336972
●	KO 90X110X500_S	500	110	295	1,0	1,67	20	8595057633247
🕒	KO 90X110X600_S	600	110	295	1,2	1,91	20	85950576336989

	item number	A	H	B	t	‡	ℓ	EAN
🕒	KO 90X60X50_F	50	60	245	0,8	0,55	8	8595057663947
🕒	KO 90X60X75_F	75	60	245	0,8	0,61	8	8595057663954
🕒	KO 90X60X100_F	100	60	245	0,8	0,66	8	8595057650718
🕒	KO 90X60X150_F	150	60	245	0,8	0,78	8	8595057663961
🕒	KO 90X60X200_F	200	60	245	1,0	1,01	10	8595057650725
🕒	KO 90X60X300_F	300	60	245	1,0	1,31	10	8595057663985
🕒	KO 90X60X400_F	400	60	245	1,0	1,61	12	8595057663992
🕒	KO 90X60X500_F	500	60	245	1,0	1,89	12	8595057664005
🕒	KO 90X60X600_F	600	60	245	1,2	2,55	12	8595057664012
🕒	KO 90X110X150_F	150	110	295	0,8	1,01	16	8595057663794
🕒	KO 90X110X200_F	200	110	295	1,0	1,34	18	8595057663800
🕒	KO 90X110X300_F	300	110	295	1,0	1,49	18	8595057663817
🕒	KO 90X110X400_F	400	110	295	1,0	1,63	20	8595057663824
🕒	KO 90X110X500_F	500	110	295	1,0	1,93	20	8595057663831
🕒	KO 90X110X600_F	600	110	295	1,2	2,22	20	8595057663848

90° low elbow cover



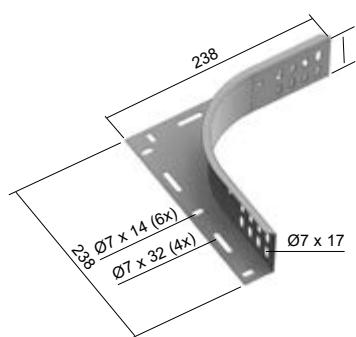
- Four VU cover fixtures are used to fasten the lid.
- All covers with surface finish S and covers with a width of 50 - 200 mm with surface finish F are delivered straight. They are constructed from a single piece of sheet metal with cut sides for shaping during assembly.
- Covers with a surface finish F of a width of 300 - 600 mm are delivered already bent in the shape of a rising elbow.
- These items can also be ordered in a painted version.
- The following applies to accessories for standardized supporting constructions:
 - side height 60 mm
 - max. cable tray width is 300 mm
 - max. cable ladder width is 400 mm



	item number	A	H	B	t	‡	EAN
●	VKO 90X60X50_S	50	12	245	0,6	0,14	8595057637221
●	VKO 90X60X75_S	75	12	245	0,6	0,18	8595057629608
●	VKO 90X60X100_S	100	12	245	0,6	0,23	8595057629837
●	VKO 90X60X150_S	150	12	245	0,6	0,32	8595057630888
●	VKO 90X60X200_S	200	12	245	0,8	0,60	8595057629844
●	VKO 90X60X300_S	300	12	245	1,0	0,87	8595057629547
●	VKO 90X60X400_S	400	15	245	1,0	1,45	8595057636613
●	VKO 90X60X500_S	500	15	245	1,0	1,78	8595057637047
●	VKO 90X60X600_S	600	15	245	1,0	2,17	8595057637054
🕒	VKO 90X110X150_S	150	12	295	0,6	0,38	8595057633681
●	VKO 90X110X200_S	200	12	295	0,8	0,72	8595057637085
●	VKO 90X110X300_S	300	12	295	1,0	1,30	8595057633278
●	VKO 90X110X400_S	400	15	295	1,0	1,72	8595057637108
●	VKO 90X110X500_S	500	15	295	1,0	2,12	8595057633261
🕒	VKO 90X110X600_S	600	15	295	1,0	2,52	8595057637115

	item number	A	H	B	t	‡	EAN
🕒	VKO 90X60X50_F	50	12	245	0,8	0,23	8595057659971
🕒	VKO 90X60X75_F	75	12	245	0,8	0,31	8595057659988
🕒	VKO 90X60X100_F	100	12	245	0,8	0,39	8595057650732
🕒	VKO 90X60X150_F	150	12	245	0,8	0,54	8595057659995
🕒	VKO 90X60X200_F	200	12	245	0,8	0,70	8595057650749
🕒	VKO 90X60X300_F	300	12	245	1,0	1,01	8595057660014
🕒	VKO 90X60X400_F	400	15	245	1,0	1,68	8595057660021
🕒	VKO 90X60X500_F	500	15	245	1,0	2,07	8595057660038
🕒	VKO 90X60X600_F	600	15	245	1,0	2,52	8595057660045
🕒	VKO 90X110X150_F	150	12	295	0,8	0,05	8595057659827
🕒	VKO 90X110X200_F	200	12	295	0,8	0,83	8595057659834
🕒	VKO 90X110X300_F	300	12	295	1,0	1,51	8595057659841
🕒	VKO 90X110X400_F	400	15	295	1,0	1,99	8595057659858
🕒	VKO 90X110X500_F	500	15	295	1,0	2,46	8595057659865
🕒	VKO 90X110X600_F	600	15	295	1,0	2,92	8595057659872

reduction piece



- The connection is made using NSM 6X10 bolts..
- Used to create an additional branch of an unequal T-piece or cross.
- The reducing part is delivered in 1 piece, but it is always used in pairs
- It is possible to use VOH horizontal branch cover to cover the route with the reduction piece.
- Accessories can also be used for cable ladders
- The following applies to accessories for standardized supporting constructions:
 - side height 60 mm

	item number	H	\ddot{t}	\ddag	\ddagger	EAN
●	SU 60_S	60	1,0	0,30	8	8595057628380
●	SU 110_S	110	1,0	0,44	8	8595057633391
●	SU 60_F	60	1,0	0,34	8	8595057658592
●	SU 110_F	110	1,0	0,51	8	8595057658615

turning onto the canal:	tray side trimming length D
KZI...X50	250
KZI...X100	300
KZI...X150	350
KZI...X200	400
KZI...X300	500
KZI...X400	600
KZI...X500	700
KZI...X600	800

hinged joint



- NSM 6X10 bolts are used to connect the hinged joint to the tray.
- The joint is supplied in 1 piece, 2 pieces are needed to create a route bend.
- These items can also be ordered in a painted version.
- The following applies to accessories for standardized supporting constructions:
 - side height 60 mm

	item number	H	\ddot{t}	\ddag	\ddagger	EAN
●	SK 60_S	53	0,8	0,10	4	8595057627772
●	SK 110_S	103	1,2	0,35	8	8595057633384
●	SK 60_GMT	53	1,0	0,13	4	8595568926029
●	SK 110_GMT	103	1,2	0,35	8	8595568926050



partition

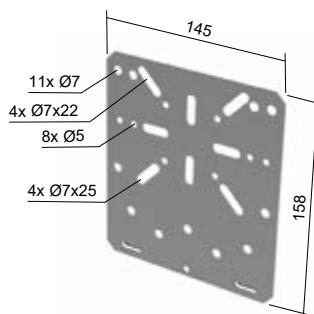


- The partition is fastened with NSM 6X10 bolts, 2 bolts per 1 meter.

	item number	H	\ddot{t}	\ddag	\ddagger	EAN
●	P 60_S	54	0,8	0,50	8595057627734	
●	P 60_F	54	1,0	0,72	8595057663435	



mounting plate

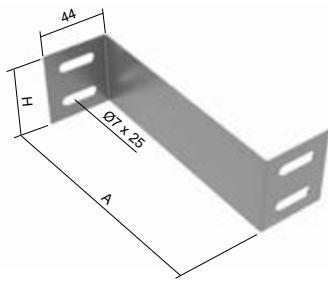


- For fixing junction boxes to JUPITER trays with a side height of 60 mm.
- It slides on the side of the cable tray and is fixed with NSM 6X10 bolts.
- Recommended for KSK 100, KSK 125 and KSK 175 boxes.
- The listed items can also be ordered in a painted version..

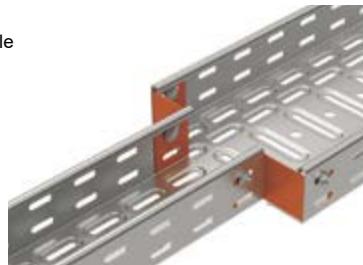
	item number	\ddot{t}	\ddag	\ddagger	EAN
●	MDS_S	1,0	0,165	8595057631762	
●	MDS_GMT	1,0	0,170	8595568927422	



reduction



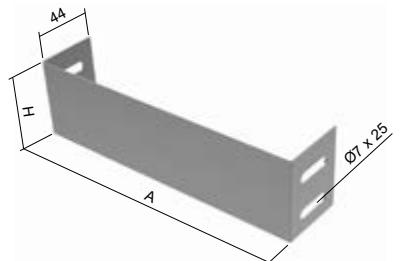
- The connection is fastened with NSM 6X10 bolts.
- The reduction is intended to change the width of the cable trays or ladders.
- These items can also be ordered in a painted version
- The following applies to accessories for standardized supporting constructions:
- side height 60 mm



	item number	H	A	t	‡	⋮	EAN
●	SR 60X25_S	50	25	1,0	0,038	4	8595057638426
●	SR 60X50_S	50	50	1,0	0,048	4	8595057633582
●	SR 60X75_S	50	75	1,0	0,058	4	8595057638433
●	SR 60X100_S	50	100	1,0	0,068	4	8595057631755
●	SR 60X125_S	50	125	1,0	0,078	4	8595057638440
●	SR 60X150_S	50	150	1,0	0,088	4	8595057638457
●	SR 60X200_S	50	200	1,0	0,108	4	8595057638464
●	SR 60X250_S	50	250	1,0	0,128	4	8595057638471
●	SR 60X300_S	50	300	1,0	0,148	4	8595057638488
●	SR 60X350_S	50	350	1,0	0,168	4	8595057638495
●	SR 60X400_S	50	400	1,0	0,188	4	8595057638501
●	SR 110X25_S	100	25	1,0	0,077	4	8595057638600
●	SR 110X50_S	100	50	1,0	0,097	4	8595057632820
●	SR 110X75_S	100	75	1,0	0,117	4	8595057638617
●	SR 110X100_S	100	100	1,0	0,137	4	8595057633360
●	SR 110X125_S	100	125	1,0	0,157	4	8595057638624
●	SR 110X150_S	100	150	1,0	0,177	4	8595057633766
●	SR 110X200_S	100	200	1,0	0,217	4	8595057633759
●	SR 110X250_S	100	250	1,0	0,257	4	8595057638631
●	SR 110X300_S	100	300	1,0	0,297	4	8595057638648
●	SR 110X350_S	100	350	1,0	0,337	4	8595057638655
●	SR 110X400_S	100	400	1,0	0,377	4	8595057638662

	item number	H	A	t	‡	⋮	EAN
●	SR 60X25_F	50	25	1,0	0,044	4	8595057665071
●	SR 60X50_F	50	50	1,0	0,056	4	8595057665088
●	SR 60X75_F	50	75	1,0	0,067	4	8595057665095
●	SR 60X100_F	50	100	1,0	0,079	4	8595057650664
●	SR 60X125_F	50	125	1,0	0,091	4	8595057665101
●	SR 60X150_F	50	150	1,0	0,102	4	8595057665118
●	SR 60X200_F	50	200	1,0	0,125	4	8595057665125
●	SR 60X250_F	50	250	1,0	0,149	4	8595057665132
●	SR 60X300_F	50	300	1,0	0,172	4	8595057665149
●	SR 60X350_F	50	350	1,0	0,195	4	8595057665156
●	SR 60X400_F	50	400	1,0	0,218	4	8595057665163
●	SR 110X25_F	100	25	1,0	0,089	4	8595057664869
●	SR 110X50_F	100	50	1,0	0,113	4	8595057664876
●	SR 110X75_F	100	75	1,0	0,138	4	8595057664883
●	SR 110X100_F	100	100	1,0	0,159	4	8595057664890
●	SR 110X125_S	100	125	1,0	0,182	4	8595057664906
●	SR 110X150_F	100	150	1,0	0,205	4	8595057664913
●	SR 110X200_F	100	200	1,0	0,252	4	8595057664920
●	SR 110X250_F	100	250	1,0	0,298	4	8595057664937
●	SR 110X300_F	100	300	1,0	0,345	4	8595057664944
●	SR 110X350_F	100	350	1,0	0,391	4	8595057664951
●	SR 110X400_F	100	400	1,0	0,440	4	8595057664968

end-piece



- Fastening with NSM 6X10 bolts.
- The end piece is used to close the open end of the route.
- These items can also be ordered in a painted version
- The following applies to accessories for standardized supporting constructions:
- side height 60 mm



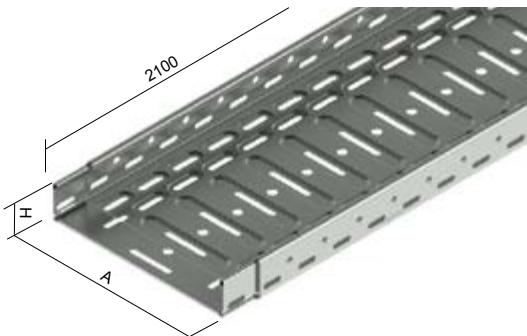
	item number	H	A	t	‡	⋮	EAN
●	K 60X50_S	55	50	1,0	0,052	4	8595057638235
●	K 60X75_S	55	75	1,0	0,063	4	8595057635470
●	K 60X100_S	55	100	1,0	0,074	4	8595057629974
●	K 60X150_S	55	150	1,0	0,096	4	8595057629981
●	K 60X200_S	55	200	1,0	0,118	4	8595057629998
●	K 60X300_S	55	300	1,0	0,162	4	8595057629639
●	K 60X400_S	55	400	1,0	0,206	4	8595057630017
●	K 60X500_S	55	500	1,0	0,250	4	8595057636453
●	K 60X600_S	55	600	1,0	0,294	4	8595057638242
●	K 110X150_S	105	150	1,0	0,183	4	8595057633742
●	K 110X200_S	105	200	1,0	0,225	4	8595057638273
●	K 110X300_S	105	300	1,0	0,309	4	8595057633735
●	K 110X400_S	105	400	1,0	0,393	4	8595057638297
●	K 110X500_S	105	500	1,0	0,477	4	8595057633728
●	K 110X600_S	105	600	1,0	0,560	4	8595057638303

	item number	H	A	t	‡	⋮	EAN
●	K 60X50_F	55	50	1,0	0,060	4	8595057660250
●	K 60X75_F	55	75	1,0	0,076	4	8595057660267
●	K 60X100_F	55	100	1,0	0,086	4	8595057660274
●	K 60X150_F	55	150	1,0	0,110	4	8595057660281
●	K 60X200_F	55	200	1,0	0,137	4	8595057660298
●	K 60X300_F	55	300	1,0	0,188	4	8595057660311
●	K 60X400_F	55	400	1,0	0,239	4	8595057660328
●	K 60X500_F	55	500	1,0	0,250	4	8595057660335
●	K 60X600_F	55	600	1,0	0,341	4	8595057660342
●	K 110X150_F	105	150	1,0	0,212	4	8595057660434
●	K 110X200_F	105	200	1,0	0,261	4	8595057660441
●	K 110X300_F	105	300	1,0	0,358	4	8595057660465
●	K 110X400_F	105	400	1,0	0,456	4	8595057660472
●	K 110X500_F	105	500	1,0	0,550	4	8595057660489
●	K 110X600_F	105	600	1,0	0,651	4	8595057660496

PRODUCTS

cable trays MARS

cable tray with integrated coupling

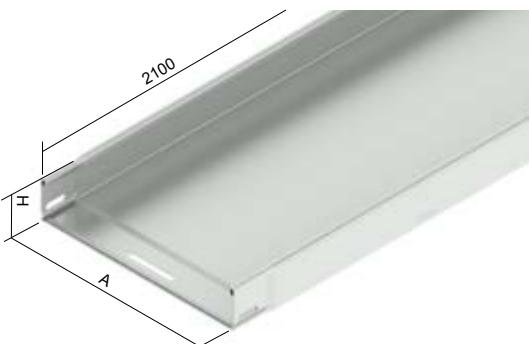


- NSM 6X10 or NSM 6X10 GMT bolts are used to fix the connection of the trays with the integrated coupling.
- The standard length of the trays is 2.1 m.
- The listed items can also be ordered in a painted version..

	item number	A	H	\ddot{t}	$\ddot{\tau}$	$\ddot{\tau}$	EAN
●	NKZI 50X62X0.70_S	62	50	0,7	2	0,89	8595057691902
●	NKZI 50X62X1.25_S	62	50	1,25	2	1,66	8595057697447
●	NKZI 50X125X0.70_S	125	50	0,7	2	1,30	8595057691919
●	NKZI 50X125X1.25_S	125	50	1,25	2	2,31	8595057697454
●	NKZI 50X250X0.70_S	250	50	0,7	3	1,86	8595568903396
●	NKZI 50X250X1.00_S	250	50	1,00	3	2,75	8595057692008
●	NKZI 50X250X1.25_S	250	50	1,25	4	3,31	8595057694538
●	NKZI 100X125X0.70_S	125	100	0,7	4	1,80	8595568924414
●	NKZI 100X125X1.25_S	125	100	1,25	4	3,25	8595057697515
●	NKZI 100X250X0.70_S	250	100	0,7	5	2,49	8595568924476
●	NKZI 100X250X1.25_S	250	100	1,25	6	4,24	8595057694552
●	NKZI 100X500X1.00_S	500	100	1,0	6	5,43	8595568924537
●	NKZI 100X500X1.25_S	500	100	1,25	6	6,34	8595057691940

	item number	A	H	\ddot{t}	$\ddot{\tau}$	$\ddot{\tau}$	EAN
●	NKZI 50X62X0.70_F	62	50	0,8	2	1,10	8595057695764
●	NKZI 50X62X1.25_F	62	50	1,25	2	1,88	8595568903273
●	NKZI 50X125X0.70_F	125	50	0,8	2	1,60	8595057695740
●	NKZI 50X125X1.25_F	125	50	1,25	2	2,49	8595568903280
●	NKZI 50X250X1.00_F	250	50	1,00	3	2,92	8595057695757
●	NKZI 50X250X1.25_F	250	50	1,25	4	3,75	8595057695856
●	NKZI 100X125X0.80_F	125	100	0,8	4	2,30	8595057695719
●	NKZI 100X125X1.25_F	125	100	1,25	4	3,60	8595568918741
●	NKZI 100X250X0.80_F	250	100	0,8	5	3,44	8595057695726
●	NKZI 100X250X1.25_F	250	100	1,25	6	4,80	8595057695849
●	NKZI 100X500X1.25_F	500	100	1,25	6	7,18	8595057695733

cable tray with integrated coupling - non-perforated

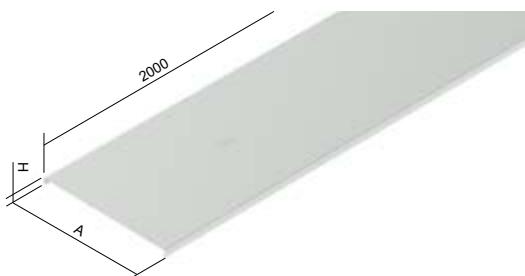


- NSM 6X10 or NSM 6X10 GMT bolts are used to fix the connection of the trays with the integrated coupling.
- The standard length of the trays is 2.1 m.
- The listed items can also be ordered in a painted version..

	item number	A	H	\ddot{t}	$\ddot{\tau}$	$\ddot{\tau}$	EAN
●	NKZIN 50X62X0.70_S	62	50	0,7	2	0,98	8595057691957
●	NKZIN 50X62X1.25_S	62	50	1,25	2	1,82	8595057698789
●	NKZIN 50X125X0.70_S	125	50	0,7	2	1,48	8595057691964
●	NKZIN 50X125X1.25_S	125	50	1,25	2	2,45	8595057698796
●	NKZIN 50X250X0.70_S	250	50	0,7	2	2,28	8595568903402
●	NKZIN 50X250X1.00_S	250	50	1,0	3	3,00	8595057692015
●	NKZIN 50X250X1.25_S	250	50	1,25	4	3,65	8595057694545
●	NKZIN 100X125X0.70_S	125	100	0,7	4	1,98	8595568924445
●	NKZIN 100X125X1.25_S	125	100	1,25	4	3,46	8595057698802
●	NKZIN 100X250X0.70_S	250	100	0,7	5	2,70	8595568924506
●	NKZIN 100X250X1.25_S	250	100	1,25	6	4,62	8595057694569
●	NKZIN 100X500X1.00_S	500	100	1,0	6	5,89	8595568924568

	item number	A	H	\ddot{t}	$\ddot{\tau}$	$\ddot{\tau}$	EAN
●	NKZIN 50X62X0.70_F	62	50	0,8	2	1,36	8595057695825
●	NKZIN 50X62X1.25_F	62	50	1,25	2	2,06	8595568914156
●	NKZIN 50X125X0.70_F	125	50	0,8	2	1,84	8595057693685
●	NKZIN 50X250X1.00_F	250	50	1,0	3	3,50	8595057695801
●	NKZIN 50X250X1.25_F	250	50	1,25	4	4,13	8595057695818
●	NKZIN 100X125X0.80_F	125	100	0,8	4	2,49	8595057695771
●	NKZIN 100X250X0.80_F	250	100	0,8	5	3,44	8595057693678
●	NKZIN 100X250X1.25_F	250	100	1,25	6	5,23	8595057695788
●	NKZIN 100X500X1.25_F	500	100	1,25	6	8,04	8595057695795

cable tray cover

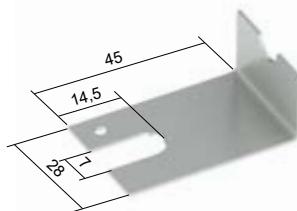


- The standard length of the cable tray cover is 2 m.
- The specified sheet thickness is supplied as standard. It is possible to deliver the cover from a thicker plate without notice from the manufacturer,
- The cover is attached to the tray using the VU or NUV cover fixtures.
- The listed items can also be ordered in a painted version..

	item number	A	H	t	‡	EAN
●	V 62_S	62	11	0,55	0,36	8595057654778
●	V 125_S	125	11	0,55	0,64	8595057654730
●	V 250_S	250	11	0,55	1,20	8595057636569
●	V 500_S	500	14	1,00	4,22	8595057633162

	item number	A	H	t	‡	EAN
⊕	V 62_F	62	11	0,8	0,62	8595057669741
⊕	V 125_F	125	11	0,8	1,10	8595057669727
⊕	V 250_F	250	11	0,8	2,05	8595057659261
⊕	V 500_F	500	14	1,00	4,80	8595057657977

cover fixture

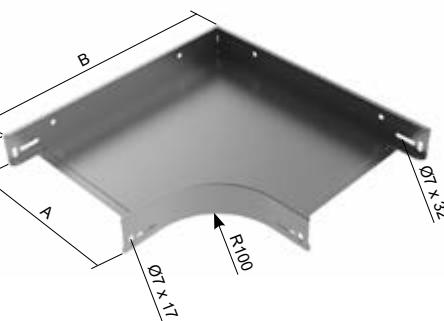


- For non-perforated NKZIN trays, it is only necessary to fix the cover at the connection point between the tray and the accessories.
- For perforated trays, it is possible to use bolts to fasten the fixtures along the cable tray.
- NSM 6X10 bolts must be ordered separately for this mounting method.
- The listed items can also be ordered in a painted version.
- can also be used for JUPITER cable trays



	item number	‡	EAN
●	NUV_S	0,01	8595057654464
⊕	NUV_GMT	0,01	8595057693531

bend 90°



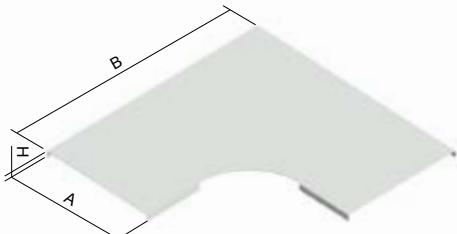
- The connection is made by sliding the cable tray directly into the elbow and then fixing it with NSM 6x10 bolts.
- For the NO 90X100X500 elbow, the outer right angle of the sides is replaced by a chamfer.
- The listed items can also be ordered in a painted version.



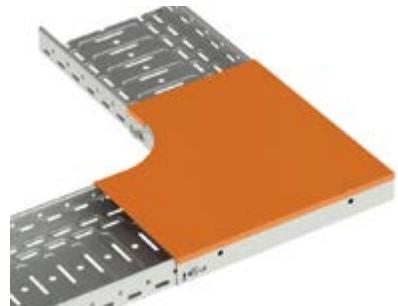
	item number	A	H	B	\ddot{t}	$\ddot{\ell}$	$\ddot{\ell}$	EAN
●	NO 90X50X62_S	62	50	222	0,7	4	0,40	8595057653900
●	NO 90X50X125_S	125	50	285	0,7	4	0,60	8595057653870
●	NO 90X50X250_S	250	50	410	0,7	4	1,10	8595057653894
●	NO 90X100X125_S	125	100	285	0,7	8	0,80	8595057619012
●	NO 90X100X250_S	250	100	410	0,7	8	1,40	8595057653887
●	NO 90X100X500_S	500	100	660	0,7	8	2,60	8595057678057

	item number	A	H	B	\ddot{t}	$\ddot{\ell}$	$\ddot{\ell}$	EAN
⊕	NO 90X50X62_F	62	50	222	0,7	4	0,45	8595057669550
⊕	NO 90X50X125_F	125	50	285	0,7	4	0,67	8595057669536
⊕	NO 90X50X250_F	250	50	410	0,7	4	1,44	8595057669543
⊕	NO 90X100X125_F	125	100	285	0,7	8	0,94	8595057669512
⊕	NO 90X100X250_F	250	100	410	0,7	8	1,84	8595057669529
⊕	NO 90X100X500_F	500	100	660	0,7	8	3,47	8595057678064

90 ° bend cover



- Three VU cover fixtures are used to fix the NVO 90X62 and NVO 90X125 covers,
- Five VU cover fixtures are used to fix the NVO 90X250 and NVO 90X500 covers.
- For the NVO 90X500 elbow cover, the outer right angle is replaced by a chamfer.
- The listed items can also be ordered in a painted version.

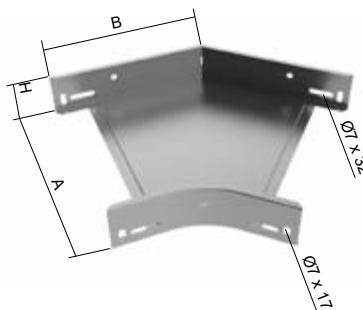


	item number	A	H	B	\ddot{t}	$\ddot{\ell}$	EAN
●	NVO 90X62_S	62	12	222	0,55	0,10	8595057669864
●	NVO 90X125_S	125	12	285	0,55	0,30	8595057654570
●	NVO 90X250_S	250	12	410	0,55	0,70	8595057654594
●	NVO 90X500_S	500	15	660	0,7	2,00	8595057682504

	item number	A	H	B	\ddot{t}	$\ddot{\ell}$	EAN
⊕	NVO 90X62_F	62	12	222	0,6	0,18	8595057669864
⊕	NVO 90X125_F	125	12	285	0,8	0,49	8595057669840
⊕	NVO 90X250_F	250	12	410	0,8	1,15	8595057669857
⊕	NVO 90X500_F	500	15	660	0,8	2,18	8595057682511



► bend 45°



- The connection is made by sliding the cable tray directly into the elbow and then fixing it with NSM 6X10 bolts.
- The listed items can also be ordered in a painted version.

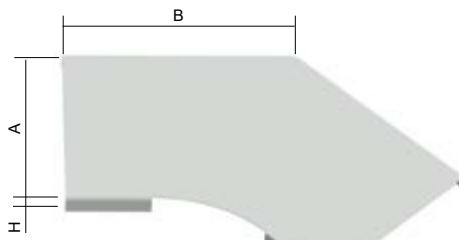


	item number	A	H	B	t	f	‡	EAN
●	NO 45X50X62_S	62	50	125	0,7	4	0,20	8595057678019
●	NO 45X50X125_S	125	50	151	0,7	4	0,30	8595057677951
●	NO 45X50X250_S	250	50	203	0,7	4	0,50	8595057677975
●	NO 45X100X125_S	125	100	151	0,7	8	0,40	8595057677890
●	NO 45X100X250_S	250	100	203	0,7	8	0,70	8595057653818
●	NO 45X100X500_S	500	100	307	0,7	8	1,40	8595057677913

	item number	A	H	B	t	f	‡	EAN
⊕	NO 45X50X62_F	62	50	125	0,7	4	0,23	8595057678026
⊕	NO 45X50X125_F	125	50	151	0,7	4	0,33	8595057677968
⊕	NO 45X50X250_F	250	50	203	0,7	4	0,69	8595057677982
⊕	NO 45X100X125_F	125	100	151	0,7	8	0,48	8595057677906
⊕	NO 45X100X250_F	250	100	203	0,7	8	0,89	8595057669499
⊕	NO 45X100X500_F	500	100	307	0,7	8	1,88	8595057677920



► 45° elbow cover



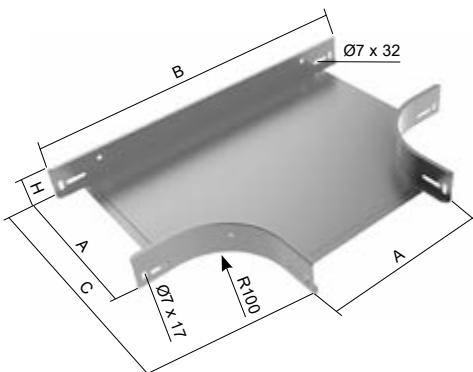
- Three pieces of VU cover fixtures are used to fix the cover.
- The listed items can also be ordered in a painted version.



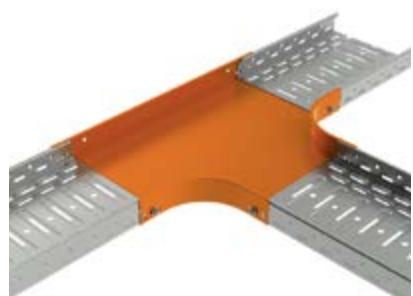
	item number	A	H	B	t	‡	EAN
●	NVO 45X62_S	62	12	125	0,55	0,10	8595057682429
●	NVO 45X125_S	125	12	151	0,55	0,20	8595057654501
●	NVO 45X250_S	250	12	203	0,55	0,40	8595057654518
●	NVO 45X500_S	500	15	307	0,7	1,20	8595057682405

	item number	A	H	B	t	‡	EAN
⊕	NVO 45X62_F	62	12	125	0,6	0,11	8595057682436
⊕	NVO 45X125_F	125	12	151	0,8	0,27	8595057669819
⊕	NVO 45X250_F	250	12	203	0,8	0,62	8595057669826
⊕	NVO 45X500_F	500	15	307	0,8	1,62	8595057682412

T-piece



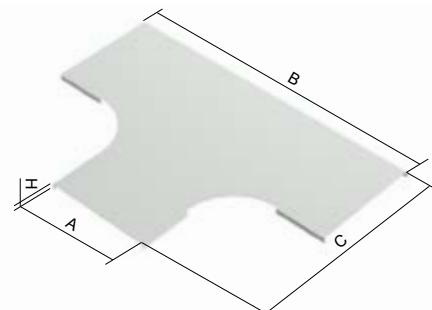
- The connection is made by sliding the cable tray directly into the T-piece and then fixing it with NSM 6x10 bolts.
- It is possible to use NRD reduction piece to create branches of different widths
- The listed items can also be ordered in a painted version.



	item number	A	H	B	C	t	‡	↪	EAN
●	NT 50X62_S	62	50	379	222	0,7	0,50	6	8595057654457
●	NT 50X125_S	125	50	442	285	0,7	0,70	6	8595057654396
●	NT 50X250_S	250	50	567	410	0,7	1,20	6	8595057654419
●	NT 100X125_S	125	100	442	285	0,7	1,00	12	8595057654389
●	NT 100X250_S	250	100	567	410	0,7	1,50	12	8595057654402
●	NT 100X500_S	500	100	817	660	0,7	3,20	12	8595057680128

	item number	A	H	B	C	t	‡	↪	EAN
●	NT 50X62_F	62	50	379	222	0,7	0,59	6	8595057669710
●	NT 50X125_F	125	50	442	285	0,7	0,84	6	8595057669673
●	NT 50X250_F	250	50	567	410	0,7	1,69	6	8595057669697
●	NT 100X125_F	125	100	442	285	0,7	1,10	12	8595057669642
●	NT 100X250_F	250	100	567	410	0,7	2,10	12	8595057669659
⊕	NT 100X500_F	500	100	817	660	0,7	4,26	12	8595057680135

T-piece cover



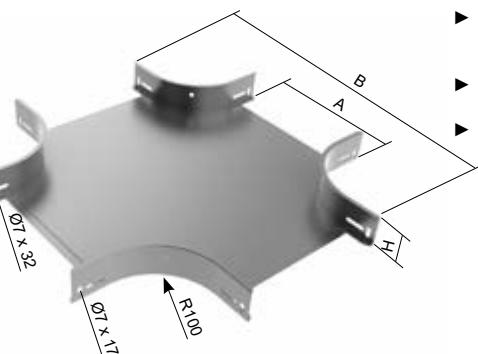
- Four VU cover fixtures are used to fix the cover.
- These items can also be ordered in a painted version.



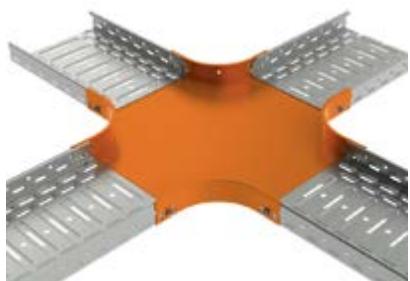
	item number	A	H	B	C	t	‡	EAN
●	NVT 62_S	62	12	379	222	0,55	0,20	8595057654846
●	NVT 125_S	125	12	442	285	0,55	0,40	8595057654808
●	NVT 250_S	250	12	567	410	0,55	0,80	8595057654822
●	NVT 500_S	500	15	817	660	0,7	2,80	8595057683181

	item number	A	H	B	C	t	‡	EAN
⊕	NVT 62_F	62	12	379	222	0,6	0,26	8595057669925
⊕	NVT 125_F	125	12	442	285	0,8	0,65	8595057669895
⊕	NVT 250_F	250	12	567	410	0,8	1,45	8595057669918
⊕	NVT 500_F	500	15	817	660	0,8	3,84	8595057683198

cross



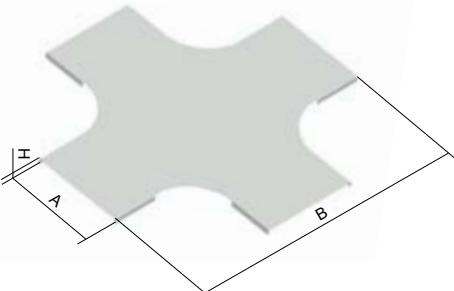
- The connection is made by sliding the cable tray directly into the cross-piece and then fixing it with NSM 6X10 bolts.
- It is possible to use NRD reduction piece to create branches of different widths
- These items can also be ordered in a painted version.



	item number	A	H	B	\ddot{t}	$\ddot{\tau}$	\ddot{I}_{f}	EAN
●	NKR 50X62_S	62	50	379	0,7	0,60	8	8595057676411
●	NKR 50X125_S	125	50	442	0,7	0,80	8	8595057676312
●	NKR 50X250_S	250	50	567	0,7	1,40	8	8595057676350
●	NKR 100X125_S	125	100	442	0,7	1,10	16	8595057676213
●	NKR 100X250_S	250	100	567	0,7	1,70	16	8595057653849
●	NKR 100X500_S	500	100	817	0,7	3,40	16	8595057676251

	item number	A	H	B	\ddot{t}	$\ddot{\tau}$	\ddot{I}_{f}	EAN
⊕	NKR 50X62_F	62	50	379	0,7	0,73	8	8595057676428
⊕	NKR 50X125_F	125	50	442	0,7	1,00	8	8595057676329
⊕	NKR 50X250_F	250	50	567	0,7	1,86	8	8595057676367
⊕	NKR 100X125_F	125	100	442	0,7	1,35	16	8595057676220
⊕	NKR 100X250_F	250	100	567	0,7	2,21	16	8595057669437
⊕	NKR 100X500_F	500	100	817	0,7	4,48	16	8595057676268

cross cover



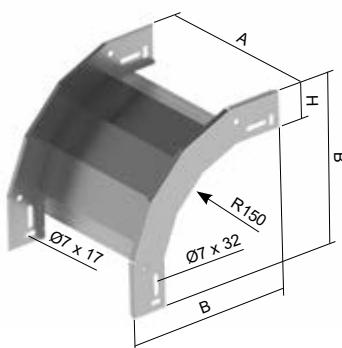
- Four VU cover fixtures are used to fix the cover.
- These items can also be ordered in a painted version.



	item number	A	H	B	\ddot{t}	$\ddot{\tau}$	EAN
●	NVKR 62_S	62	12	379	0,55	0,20	8595057681606
●	NVKR 125_S	125	12	442	0,55	0,50	8595057655652
●	NVKR 250_S	250	12	567	0,55	1,00	8595057681507
●	NVKR 500_S	500	15	817	0,7	3,20	8595057681569

	item number	A	H	B	\ddot{t}	$\ddot{\tau}$	EAN
⊕	NVKR 62_F	62	12	379	0,6	0,33	8595057681613
⊕	NVKR 125_F	125	12	442	0,8	0,61	8595057669802
⊕	NVKR 250_F	250	12	567	0,8	1,75	8595057681514
⊕	NVKR 500_F	500	15	817	0,8	4,40	8595057681576

90° low elbow



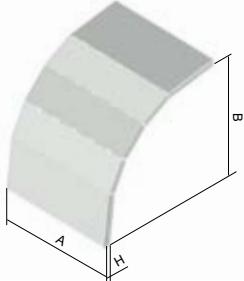
- The connection is made by sliding the cable tray directly into the low elbow and then fastening it with NSM 6X10 bolts.
- These items can also be ordered in a painted version.



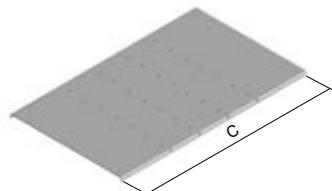
	item number	A	H	B	\ddot{t}	\ddagger	\ddag	EAN
●	NKO 90X50X62_S	62	50	241	0,7	0,30	4	8595057653986
●	NKO 90X50X125_S	125	50	241	0,7	0,40	4	8595057653948
●	NKO 90X50X250_S	250	50	241	0,7	0,60	4	8595057653962
●	NKO 90X100X125_S	125	100	291	0,7	0,70	8	8595057653931
●	NKO 90X100X250_S	250	100	291	0,7	0,80	8	8595057653955
●	NKO 90X100X500_S	500	100	291	0,7	1,10	8	8595057675858

	item number	A	H	B	\ddot{t}	\ddagger	\ddag	EAN
⊕	NKO 90X50X62_F	62	50	241	0,7	0,40	4	8595057669420
⊕	NKO 90X50X125_F	125	50	241	0,7	0,50	4	8595057669406
⊕	NKO 90X50X250_F	250	50	241	0,7	0,75	4	8595057669413
⊕	NKO 90X100X125_F	125	100	291	0,7	0,78	8	8595057669383
⊕	NKO 90X100X250_F	250	100	291	0,7	1,03	8	8595057669390
⊕	NKO 90X100X500_F	500	100	291	0,7	1,49	8	8595057675865

90° low elbow cover



- Four VU cover fixtures are used to fix the cover.
- Covers are delivered straight. They are constructed of one piece of sheet metal with cut sides for bending during assembly.
- These items can also be ordered in a painted version.

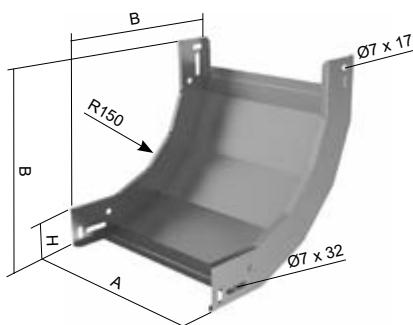


	item number	A	H	B	C	\ddot{t}	\ddagger	EAN
●	NVKO 90X50X62_S	62	12	241	400	0,55	0,20	8595057654662
●	NVKO 90X50X125_S	125	12	241	400	0,55	0,30	8595057654624
●	NVKO 90X50X250_S	250	12	241	400	0,55	0,50	8595057654648
●	NVKO 90X100X125_S	125	12	291	479	0,55	0,30	8595057654617
●	NVKO 90X100X250_S	250	12	291	479	0,55	0,60	8595057654631
●	NVKO 90X100X500_S	500	15	291	479	0,7	1,40	8595057681101

	item number	A	H	B	C	\ddot{t}	\ddagger	EAN
⊕	NVKO 90X50X62_F	62	12	241	400	0,6	0,20	8595057669796
⊕	NVKO 90X50X125_F	125	12	241	400	0,8	0,45	8595057669772
⊕	NVKO 90X50X250_F	250	12	241	400	0,8	0,81	8595057669789
⊕	NVKO 90X100X125_F	125	12	291	479	0,8	0,53	8595057669758
⊕	NVKO 90X100X250_F	250	12	291	479	0,8	0,97	8595057669765
⊕	NVKO 90X100X500_F	500	15	291	479	0,8	1,91	8595057681118



90° rising elbow



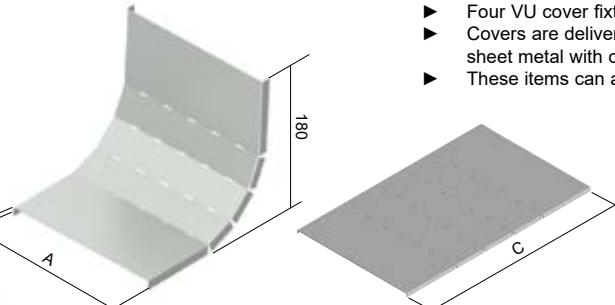
- The connection is made by sliding the cable tray directly into the rising elbow and then fastening it with NSM 6X10 bolts.
- These items can also be ordered in a painted version.



	item number	A	H	B	\ddot{t}	\ddagger	$\ddot{\ddagger}$	EAN
●	NSO 90X50X62_S	62	50	241	0,7	0,40	4	8595057679160
●	NSO 90X50X125_S	125	50	241	0,7	0,50	4	8595057654037
●	NSO 90X50X250_S	250	50	241	0,7	0,70	4	8595057654013
●	NSO 90X100X125_S	125	100	291	0,7	0,80	8	8595057653993
●	NSO 90X100X250_S	250	100	291	0,7	1,00	8	8595057654006
●	NSO 90X100X500_S	500	100	291	0,7	1,60	8	8595057679108

	item number	A	H	B	\ddot{t}	\ddagger	$\ddot{\ddagger}$	EAN
⊕	NSO 90X50X62_F	62	50	241	0,7	0,44	4	8595057679177
⊕	NSO 90X50X125_F	125	50	241	0,7	0,57	4	8595057669628
⊕	NSO 90X50X250_F	250	50	241	0,7	0,91	4	8595057669635
⊕	NSO 90X100X125_F	125	100	291	0,7	0,93	8	8595057669604
⊕	NSO 90X100X250_F	250	100	291	0,7	1,35	8	8595057669611
⊕	NSO 90X100X500_F	500	100	291	0,7	2,10	8	8595057679115

90° rising elbow cover



- Four VU cover fixtures are used to fix the cover.
- Covers are delivered straight. They are constructed of one piece of sheet metal with cut sides for bending during assembly.
- These items can also be ordered in a painted version..

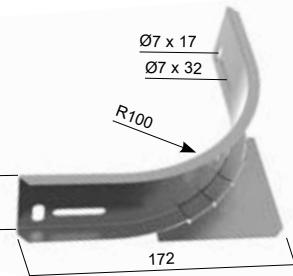


	item number	A	H	B	C	\ddot{t}	\ddagger	EAN
●	NVSO 90X62_S	62	12	203	316	0,55	0,10	8595057692602
●	NVSO 90X125_S	125	12	203	316	0,55	0,20	8595057692619
●	NVSO 90X250_S	250	12	203	316	0,55	0,40	8595057692626
●	NVSO 90X500_S	500	15	203	316	0,7	0,90	8595057692633

	item number	A	H	B	C	\ddot{t}	\ddagger	EAN
⊕	NVSO 90X62_F	62	12	203	316	0,6	0,15	8595057695962
⊕	NVSO 90X125_F	125	12	203	316	0,8	0,35	8595057695979
⊕	NVSO 90X250_F	250	12	203	316	0,8	0,51	8595057695986
⊕	NVSO 90X500_F	500	15	203	316	0,8	1,26	8595057695993



reduction piece

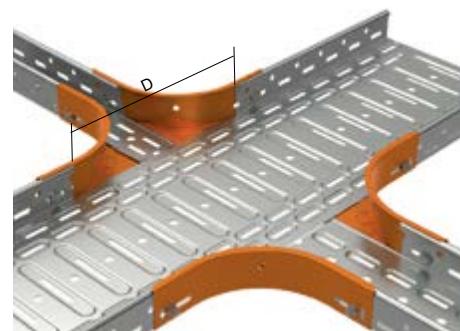
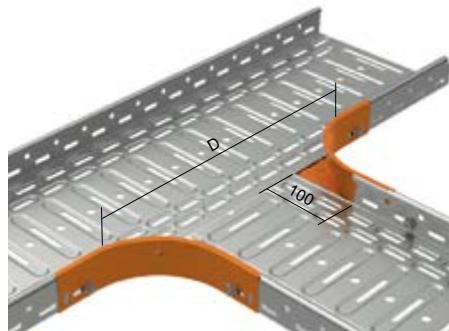


- The connection is made using NSM 6X10 bolts.
- Used to additionally create a branch instead of T-piece or cross. Always use in pairs.
- These items can also be ordered in a painted version.

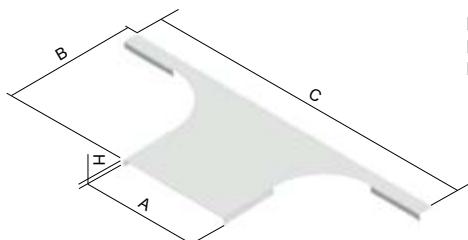
trough side trimming length	
turning onto the canal	D
NKZI 50X62	262
NKZI 50X125	325
NKZI 100X125	325
NKZI 50X250	450
NKZI 100X250	450
NKZI 100X500	700

	item number	H	t	‡	‡f	EAN
●	NRD 50_S	50	0,7	0,12	2	8595057667037
●	NRD 100_S	100	0,7	0,47	4	8595057667044

	item number	H	t	‡	‡f	EAN
⌚	NRD 50_F	50	0,7	0,16	2	8595057678897
⌚	NRD 100_F	100	0,7	0,55	4	8595057678873



branch cover



- Two VU cover fixtures are used to fix the cover.
- Used to cover the route created by the reducing pieces.
- These items can also be ordered in a painted version.



	item number	A	H	B	C	t	‡	EAN
●	VOH 62_S	62	12	182	379	0,55	0,11	8595568905253
●	VOH 125_S	125	12	182	442	0,55	0,17	8595568905277
●	VOH 250_S	250	12	182	567	0,7	0,34	8595057630215
●	VOH 500_S	500	15	224	903	1,0	1,05	8595057633308

	item number	A	H	B	C	t	‡	EAN
⌚	VOH 62_F	62	12	182	379	0,8	0,25	8595568905260
⌚	VOH 125_F	125	12	182	442	0,8	0,35	8595568905284
⌚	VOH 250_F	250	12	182	567	0,8	0,56	8595057659339
⌚	VOH 500_F	500	15	224	903	1,0	1,23	8595057659360

► hinged joint



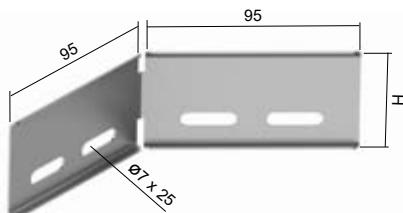
- NSM 6X10 bolts are used to fasten the hinged joint to the tray.
- The joint is supplied in 1 piece, 2 pieces are needed to create a route bend.
- The listed items can also be ordered in a painted version



	item number	H	t	‡	¶	EAN
●	SK 50_S	43	0,8	0,09	4	8595057698611
●	SK 100_S	93	1,2	0,32	8	8595057698635

	item number	H	t	‡	¶	EAN
⊕	SK 50_GMT	43	0,8	0,20	4	8595568926012
⊕	SK 100_GMT	93	1,2	0,33	8	8595568926043

► angle coupling

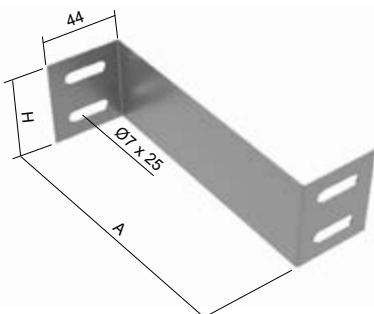


- The connection is made using NSM 6X10 bolts.
- Angle couplings are mainly used for connecting at slightly bent routes, creating large radius curves or bypassing columns and pillars.
- These items can also be ordered in a painted version.

	item number	H	t	‡	EAN
●	NSUK 50_S	47	1,0	0,07	8595057666948
●	NSUK 100_S	97	1,0	0,14	8595057666962
⊕	NSUK 50_GMT	47	1,0	0,08	8595568925978
⊕	NSUK 100_GMT	97	1,0	0,16	8595568925985



► reduction



- The connection is made using NSM 6X10 bolts.
- The reduction is used to switch between different trays widths with the same side height.
- These items can also be ordered in a painted version.

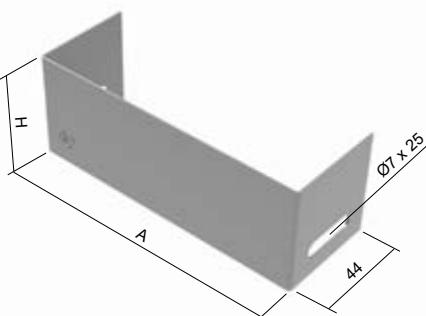


	item number	A	H	t	‡	¶	¶	EAN
●	NR 50X62_S	63	40	0,8	0,03	2	8595057678842	
●	NR 50X125_S	126	40	0,8	0,05	2	8595057678804	
●	NR 100X125_S	126	90	0,8	0,11	4	8595057678767	
●	NR 100X250_S	251	90	0,8	0,19	4	8595057678781	

	item number	A	H	t	‡	¶	¶	EAN
⊕	NR 50X62_F	63	40	0,8	0,04	2	8595057678859	
⊕	NR 50X125_F	126	40	0,8	0,05	2	8595057678811	
⊕	NR 100X125_F	126	90	0,8	0,14	4	8595057678774	
⊕	NR 100X250_F	251	90	0,8	0,23	4	8595057678798	



end-piece



- The connection is made using NSM 6X10 bolts.
- The end piece is used to close the open end of the route.
- These items can also be ordered in a painted version.



	item number	A	H	\ddot{t}	\ddagger	$\ddag t$	EAN
●	NK 50X62_S	62	45	0,8	0,04	2	8595057675537
●	NK 50X125_S	125	45	0,8	0,06	2	8595057675476
●	NK 50X250_S	250	45	0,8	0,09	2	8595057675490
●	NK 100X125_S	125	95	0,8	0,12	4	8595057675391
●	NK 100X250_S	250	95	0,8	0,20	4	8595057675414
●	NK 100X500_S	500	95	0,8	0,44	4	8595057675438

	item number	A	H	\ddot{t}	\ddagger	$\ddag t$	EAN
⊕	NK 50X62_F	62	45	1,0	0,05	2	8595057675544
⊕	NK 50X125_F	125	45	0,8	0,07	2	8595057675483
⊕	NK 50X250_F	250	45	0,8	0,11	2	8595057675506
⊕	NK 100X125_F	125	95	1,0	0,18	4	8595057675407
⊕	NK 100X250_F	250	95	1,0	0,29	4	8595057675421
⊕	NK 100X500_F	500	95	1,0	0,51	4	8595057675445

partition



- The partition is fastened with NSM 6X10 bolts
- The partition is used for spatial separation of cables and routing of various networks and functions. At the same time, it serves to separate individual types of lines in terms of electrical compatibility. For this purpose, it is recommended to use a cover and thus create an enclosed shielded space.
- The items can also be ordered in a painted version.



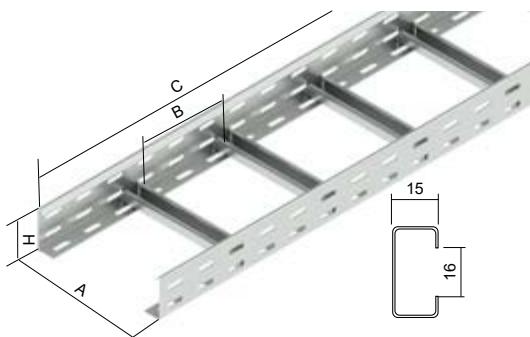
	item number	H	\ddot{t}	\ddagger	EAN
●	NPZ 50_S	44	0,8	0,47	8595057654198
●	NPZ 100_S	94	0,8	0,75	8595057654181

	item number	H	\ddot{t}	\ddagger	EAN
⊕	NPZ 50_F	44	1,0	0,64	8595057669574
⊕	NPZ 100_F	94	1,0	1,10	8595057669567

PRODUCTS

cable ladders

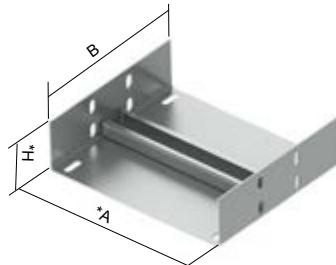
cable ladder 60



- The distance between the cable ladders cross-pieces for standardized constructions is 150 mm.
- KPB SKL couplings and NSM 6X10 bolts are intended for connection.
- JUPITER cable tray accessories can be used for ladders.
- We are able to provide fiber cement boards on request.

	item number	*A	*H	B	C	‡	‡	EAN
●	KL 60X150_PO	150	60	150	3000	1,5	2,21	8595057691414
●	KL 60X200_PO	200	60	150	3000	1,5	2,30	8595057691421
●	KL 60X300_PO	300	60	150	3000	1,5	2,47	8595057691438
●	KL 60X400_PO	400	60	150	3000	1,5	2,64	8595057691445
⊕	KL 60X150_POF	150	60	150	3000	1,5	2,21	8595568921833
⊕	KL 60X200_POF	200	60	150	3000	1,5	2,30	8595568921840
⊕	KL 60X300_POF	300	60	150	3000	1,5	2,47	8595568921857
⊕	KL 60X400_POF	400	60	150	3000	1,5	2,64	8595568921864

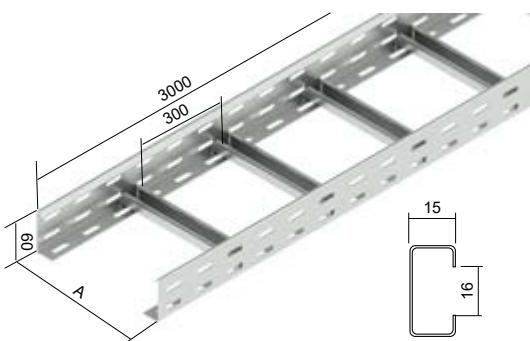
coupling for cable ladders



- The coupling is intended for connecting KL standardized constructions using NSM 6X10 bolts.

	item number	*A	*H	B	‡	‡	‡	EAN
●	KPB SKL 150_PO	150	60	160	12	1,5	0,54	8595057692688
●	KPB SKL 200_PO	200	60	160	12	1,5	0,68	8595057650091
●	KPB SKL 300_PO	300	60	160	12	1,5	0,94	8595057650107
●	KPB SKL 400_PO	400	60	160	12	1,5	1,19	8595057650114
⊕	KPB SKL 150_POF	150	60	160	12	1,5	0,54	8595568919496
⊕	KPB SKL 200_POF	200	60	160	12	1,5	0,68	8595057665811
⊕	KPB SKL 300_POF	300	60	160	12	1,5	0,94	8595057665828
⊕	KPB SKL 400_POF	400	60	160	12	1,5	1,19	8595057665835

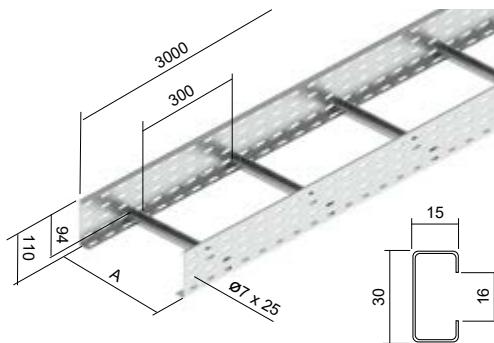
cable ladder 60



- The ladders are connected using S 60X200 couplings and 8 to 16 pieces of NSM 6X10 bolts.
- Perforated sides form L-profile with a bent edge. The C profile perforated cross-pieces are attached to the sides by extrusion with a spacing of 300 mm, with open side of the profile facing up
- The NPZ 50 partition can be used for the spatial separation of cables. The partition is fastened every 600 mm with NSM 6X20 bolts.
- Cable ladders accessories can be replaced by JUPITER cable trays accessories.
- We are able to provide fiber cement boards on request.
- The following applies to accessories for standardized constructions:
 - side height 60 mm
 - max. cable ladder width is 400 mm

	item number	A	\ddagger	\ddag	EAN		item number	A	\ddagger	\ddag	EAN
●	KL 60X150_S	150	1,5	2,21	8595057691681	⊕	KL 60X150_F	150	1,5	2,50	8595057691698
●	KL 60X200_S	200	1,5	2,30	8595057635487	⊕	KL 60X200_F	200	1,5	2,65	8595057658073
●	KL 60X300_S	300	1,5	2,47	8595057634947	⊕	KL 60X300_F	300	1,5	2,90	8595057656345
●	KL 60X400_S	400	1,5	2,64	8595057635494	⊕	KL 60X400_F	400	1,5	3,14	8595057658066
●	KL 60X500_S	500	1,5	3,20	8595057644359	⊕	KL 60X500_F	500	1,5	3,38	8595057658042
●	KL 60X600_S	600	1,5	3,24	8595057644366	⊕	KL 60X600_F	600	1,5	3,63	8595057661219

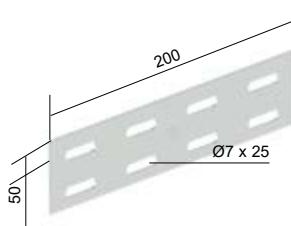
cable ladder 110



- The length of the cable ladder is 3 m.
- Perforated sides form L-profile with a bent edge.
- The C profile perforated cross-pieces are attached to the sides by extrusion with a spacing of 300 mm, with open side of the profile facing up.
- Cable ladders accessories can be replaced by JUPITER cable trays accessories.
- The NPZ 100 partition can be used for spatial separation of cables. The partition is fastened every 600 mm with NSM 6X20 bolts.

	item number	A	\ddagger	\ddag	EAN
●	KL 110X150_S	150	1,5 / 1,2	4,07	8595057692664
●	KL 110X200_S	200	1,5 / 1,2	4,17	8595057644373
●	KL 110X300_S	300	1,5 / 1,2	4,37	8595057644380
●	KL 110X400_S	400	1,5 / 1,2	4,57	8595057644397
●	KL 110X500_S	500	1,5 / 1,2	4,77	8595057644403
●	KL 110X600_S	600	1,5 / 1,2	5,00	8595057644410
⊕	KL 110X150_F	150	1,5 / 1,2	4,07	8595568902368
⊕	KL 110X200_F	200	1,5 / 1,2	4,17	8595057661028
⊕	KL 110X300_F	300	1,5 / 1,2	4,37	8595057661172
⊕	KL 110X400_F	400	1,5 / 1,2	4,57	8595057661189
⊕	KL 110X500_F	500	1,5 / 1,2	4,77	8595057661196
⊕	KL 110X600_F	600	1,5 / 1,2	5,00	8595057661202

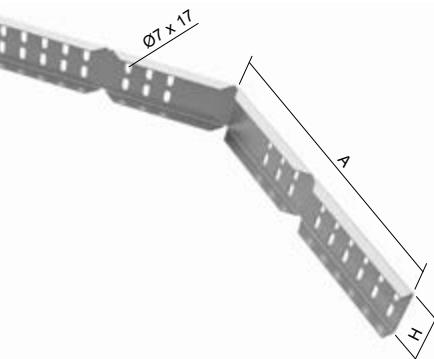
coupling



- Used to connect cable ladders or cable trays without an integrated coupling.
- Fastening is done with NSM 6X10 bolts, which meet the requirement for conductive connection.
- These items can also be ordered in a painted version.
- The following applies to accessories for standardized constructions:
 - side height 60 mm
 - max. cable ladder width is 400 mm

	item number	H	\ddagger	\ddag	EAN
●	S 60X200_S	50	1,5	4 - 8	8595057627796
●	S 110X200_S	100	1,5	4 - 8	8595057629752
●	S 60X200_GMT	50	1,5	4 - 8	8595568926081
●	S 110X200_GMT	100	1,5	4 - 8	8595568926104

horizontal side coupling



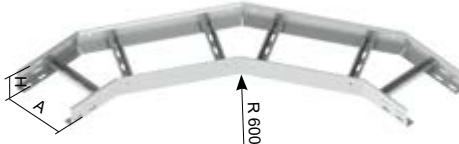
- It is used to create a branch of a cable ladder route or as a replacement for cable ladder fittings or to create route at different angles and different bending radius. Couplings are a more cost-effective and versatile way to create a horizontal bend.
- When bending the route, the side of the cable ladder is cut off approx. 15 mm above the bottom - in the axis of the lower row of perforations.
- The edge must be equipped with NCH edge protector.
- The connection is fixed with NSM 6X10 bolts.

	item number	H	A	t	‡	EAN
●	BSKH 60 K_S	64	140	2	0,36	8595568904133
●	BSKH 110 K_S	114	140	2	0,55	8595568904171
●	BSKH 60 D_S	64	315	2	0,83	8595568904195
●	BSKH 110 D_S	114	315	2	1,28	8595568904232

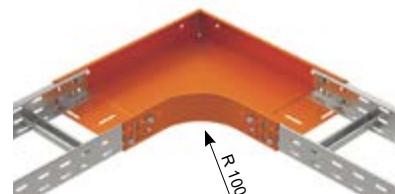
⊕	BSKH 60 K_F	64	140	2	0,41	8595568904140
⊕	BSKH 110 K_F	114	140	2	0,64	8595568904188
⊕	BSKH 60 D_F	64	315	2	0,96	8595568904201
⊕	BSKH 110 D_F	114	315	2	1,48	8595568904249



horizontal bend



- The connection of the bend to the ladder is made using S 60X200 or S 110X200 couplings and NSM 6X10 bolts.
- The bend can be replaced by a bend of the JUPITER cable tray system.
- The following applies to accessories for standardized constructions:
 - side height 60 mm
 - max. cable ladder width is 400 mm



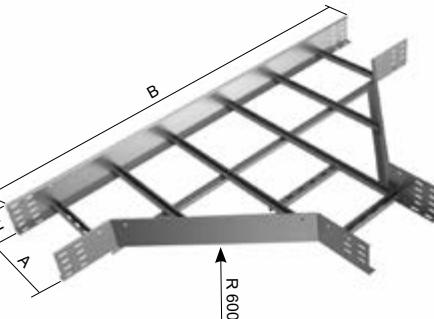
	item number	A	H	t	‡	EAN
⊕	KLOBH 60X150_S	150	60	1,5	16	8595568910011
⊕	KLOBH 60X200_S	200	60	1,5	16	8595057644489
⊕	KLOBH 60X300_S	300	60	1,5	16	8595057644496
⊕	KLOBH 60X400_S	400	60	1,5	16	8595057644502
⊕	KLOBH 60X500_S	500	60	1,5	16	8595057644519
⊕	KLOBH 60X600_S	600	60	1,5	16	8595057644526

	item number	A	H	t	‡	EAN
⊕	KLOBH 110X200_S	200	110	1,5	32	8595057644434
⊕	KLOBH 110X300_S	300	110	1,5	32	8595057644441
⊕	KLOBH 110X400_S	400	110	1,5	32	8595057644458
⊕	KLOBH 110X500_S	500	110	1,5	32	8595057644465
⊕	KLOBH 110X600_S	600	110	1,5	32	8595057644472

	item number	A	H	t	‡	EAN
⊕	KLOBH 60X200_F	150	60	1,5	16	8595568910028
⊕	KLOBH 60X200_F	200	60	1,5	16	8595057661271
⊕	KLOBH 60X300_F	300	60	1,5	16	8595057661288
⊕	KLOBH 60X400_F	400	60	1,5	16	8595057661295
⊕	KLOBH 60X500_F	500	60	1,5	16	8595057661301
⊕	KLOBH 60X600_F	600	60	1,5	16	8595057661318

	item number	A	H	t	‡	EAN
⊕	KLOBH 110X200_F	200	110	1,5	32	8595057661370
⊕	KLOBH 110X300_F	300	110	1,5	32	8595057661387
⊕	KLOBH 110X400_F	400	110	1,5	32	8595057661394
⊕	KLOBH 110X500_F	500	110	1,5	32	8595057661400
⊕	KLOBH 110X600_F	600	110	1,5	32	8595057661417

T-piece



- The T-piece is connected to the ladder using S 60X200 or S 110X200 couplings and NSM 6X10 bolts.
- The T-piece can be replaced by a T-piece of the JUPITER cable tray system.
- The following applies to accessories for standardized constructions:
 - side height 60 mm
 - max. cable ladder width is 400 mm

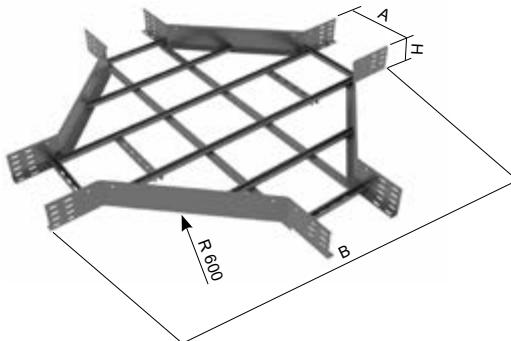
	item number	A	H	B	$\ddot{\tau}$	\ddot{t}	EAN
⊕	KLT 60X200_S	200	60	1400	1,5	24	8595057644632
⊕	KLT 60X300_S	300	60	1500	1,5	24	8595057642256
⊕	KLT 60X400_S	400	60	1600	1,5	24	8595057644649
⊕	KLT 60X500_S	500	60	1700	1,5	24	8595057644656
⊕	KLT 60X500_S	600	60	1700	1,5	24	8595057644663

	item number	A	H	B	$\ddot{\tau}$	\ddot{t}	EAN
⊕	KLT 60X200_F	200	60	1400	1,5	24	8595057661424
⊕	KLT 60X300_F	300	60	1500	1,5	24	8595057661431
⊕	KLT 60X400_F	400	60	1600	1,5	24	8595057661448
⊕	KLT 60X500_F	500	60	1700	1,5	24	8595057661455
⊕	KLT 60X600_F	500	60	1700	1,5	24	8595057661462

	item number	A	H	B	$\ddot{\tau}$	\ddot{t}	EAN
⊕	KLT 110X200_S	200	110	1400	1,5	48	8595057644588
⊕	KLT 110X300_S	300	110	1500	1,5	48	8595057644595
⊕	KLT 110X400_S	400	110	1600	1,5	48	8595057644601
⊕	KLT 110X500_S	500	110	1700	1,5	48	8595057644618
⊕	KLT 110X600_S	600	110	1800	1,5	48	8595057644625

	item number	A	H	B	$\ddot{\tau}$	\ddot{t}	EAN
⊕	KLT 110X200_F	200	110	1400	1,5	48	8595057661523
⊕	KLT 110X300_F	300	110	1500	1,5	48	8595057661530
⊕	KLT 110X400_F	400	110	1600	1,5	48	8595057661547
⊕	KLT 110X500_F	500	110	1700	1,5	48	8595057661554
⊕	KLT 110X600_F	600	110	1800	1,5	48	8595057661561

cross



- The cross is connected to the ladder using S 60X200 or S 110X200 couplings and NSM 6X10 bolts.
- The cross can be replaced by a cross of the JUPITER cable tray system.
- The following applies to accessories for standardized constructions:
 - side height 60 mm
 - max. cable ladder width is 400 mm

	item number	A	H	B	$\ddot{\tau}$	\ddot{t}	EAN
⊕	KLKR 60X200_S	200	60	1400	1,5	32	8595057644779
⊕	KLKR 60X300_S	300	60	1500	1,5	32	8595057644786
⊕	KLKR 60X400_S	400	60	1600	1,5	32	8595057644793
⊕	KLKR 60X500_S	500	60	1700	1,5	32	8595057644809
⊕	KLKR 60X600_S	600	60	1700	1,5	32	8595057644816

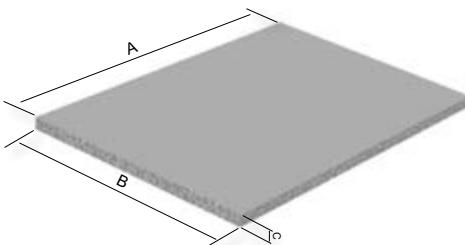
	item number	A	H	B	$\ddot{\tau}$	\ddot{t}	EAN
⊕	KLKR 110X200_S	200	110	1400	1,5	64	8595057644724
⊕	KLKR 110X300_S	300	110	1500	1,5	64	8595057644731
⊕	KLKR 110X400_S	400	110	1600	1,5	64	8595057644748
⊕	KLKR 110X500_S	500	110	1700	1,5	64	8595057644755
⊕	KLKR 110X600_S	600	110	1800	1,5	64	8595057644762

	item number	A	H	B	$\ddot{\tau}$	\ddot{t}	EAN
⊕	KLKR 60X200_F	200	60	1400	1,5	32	8595057661578
⊕	KLKR 60X300_F	300	60	1500	1,5	32	8595057661585
⊕	KLKR 60X400_F	400	60	1600	1,5	32	8595057661592
⊕	KLKR 60X500_F	500	60	1700	1,5	32	8595057661608
⊕	KLKR 60X600_F	600	60	1800	1,5	32	8595057661615

	item number	A	H	B	$\ddot{\tau}$	\ddot{t}	EAN
⊕	KLKR 110X200_F	200	110	1400	1,5	64	8595057661677
⊕	KLKR 110X300_F	300	110	1500	1,5	64	8595057661684
⊕	KLKR 110X400_F	400	110	1600	1,5	64	8595057661691
⊕	KLKR 110X500_F	500	110	1700	1,5	64	8595057661707
⊕	KLKR 110X600_F	600	110	1800	1,5	64	8595057661714



cement fiber board



- board for filling cable ladders. Permanent protection of electrical installations
- resistance to electric arc according to ČSN 332000-5-52 ed.2
- fire resistance - reaction to fire class A1
- frost resistance
- weather resistance
- high strength
- hygienic safety
- items to order

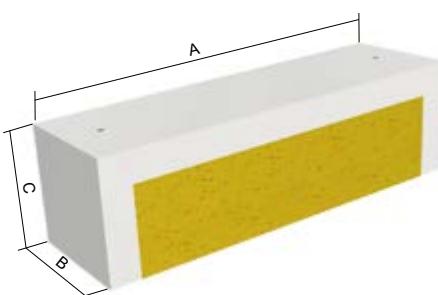
item number	tloušťka desky (mm) C	délka desky (mm) A	šířka desky (mm) B	EAN
DCEV 6X200_PO	6	1000 - 1250	150 - 600	8595568932624
DCEV 6X300_PO	6	1000 - 1250	150 - 600	8595568932631
DCEV 6X400_PO	6	1000 - 1250	150 - 600	8595568932648
DCEV 8X200_PO	8	1000 - 1250	150 - 600	8595568932655
DCEV 8X300_PO	8	1000 - 1250	150 - 600	8595568932662
DCEV 8X400_PO	8	1000 - 1250	150 - 600	8595568932679
DCEV 10X200_PO	10	1000 - 1250	150 - 600	8595568932686
DCEV 10X300_PO	10	1000 - 1250	150 - 600	8595568932693
DCEV 10X400_PO	10	1000 - 1250	150 - 600	8595568932709

cable clamps cover



- The KPS cover includes insulating wool and a cartridge with an insulating cement. Anchoring to the base material using the MS KPS mounting kit.
- One mounting kit must be ordered to install the cover.

	item number	A	B	C	‡	EAN
●	KPS 160X150_PO	280	160	160	1,3	8595568934536
●	KPS 160X200_PO	330	160	160	2,0	8595568926982
●	KPS 160X300_PO	430	160	160	2,6	8595568934543
●	KPS 160X400_PO	530	160	160	3,1	8595568912497



cable clamps cover mounting kit



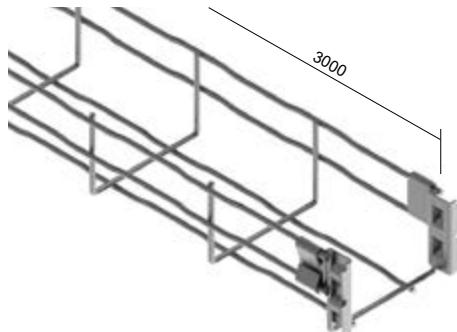
- It is always necessary to order the kit for the KPS clamps cover - 1 piece of kit for one piece of cover.
- The set contains fire-resistant anchors, threaded rods, washers, nuts and a knife for cutting thermal insulation wool.

	item number	‡	EAN
●	MS KPS_PO	1,0	8595568912527

PRODUCTS

wire cable trays

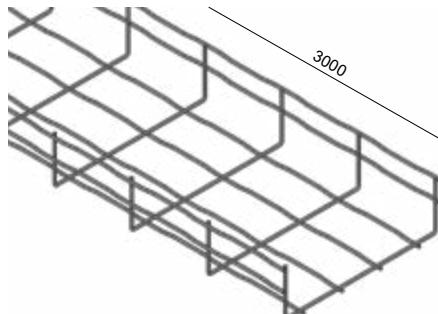
wire tray with integrated coupling



- Each wire tray is equipped with coupling at one end - up to a width of 200 mm there are connectors on the sides, from a width of 300 mm there are connectors on the sides and in the bottom of the tray.
- This connection meets the conductive connection. The DZI wire tray with fire resistance is secured with a DZS/B bolt.
- Due to cable ventilation, it is recommended to install trays at a distance of 250 mm from each other and 20 mm from the wall..

	item number	Ø	☒	‡	EAN
●	DZI 60X60_BZNCR	3,9	21	0,75	8595568927859
●	DZI 60X100_BZNCR	3,9	43	0,79	8595568927866
●	DZI 60X150_BZNCR	3,9	72	0,84	8595568927873
●	DZI 60X200_BZNCR	3,9	100	1,09	8595568927880
●	DZI 60X300_BZNCR	4,3	156	1,60	8595568927897
●	DZI 60X400_BZNCR	4,3	212	2,01	8595568927903
●	DZI 60X500_BZNCR	4,6	268	2,72	8595568927910
●	DZI 60X600_BZNCR	4,6	324	3,13	8595568927927
⌚	DZI 60X60_BEZN	3,9	21	0,75	8595568931252
⌚	DZI 60X100_BEZN	3,9	43	0,79	8595568931269
⌚	DZI 60X150_BEZN	3,9	72	0,84	8595568931276
⌚	DZI 60X200_BEZN	3,9	100	1,09	8595568931283
⌚	DZI 60X300_BEZN	4,3	156	1,58	8595568931290
⌚	DZI 60X400_BEZN	4,3	212	2,01	8595568931306
⌚	DZI 60X500_BEZN	4,6	268	2,72	8595568931313
⌚	DZI 60X600_BEZN	4,6	324	3,13	8595568931320

wire tray



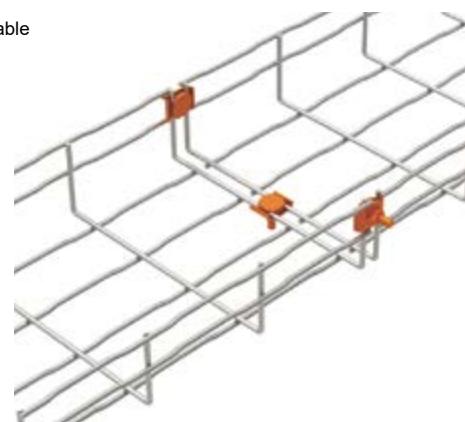
- The standard length of the wire tray is 3 m.
- Wire trays without integrated coupling are connected using a DZS/B coupling.

	item number	Ø	☒	‡	EAN
●	DZ 60X60_BF	3,9	23	0,55	8595568903167
●	DZ 60X100_BF	3,9	47	0,77	8595568903174
●	DZ 60X150_BF	3,9	75	0,82	8595568903181
●	DZ 60X200_BF	3,9	102	1,06	8595568903198
●	DZ 60X300_BF	4,3	157	1,57	8595568903204
●	DZ 60X400_BF	4,3	212	1,90	8595568903211
●	DZ 60X500_BF	4,6	267	2,46	8595568903228
⌚	DZ 60X600_BF	4,6	322	2,83	8595568903235

coupling

- The special design of the bolt head enables fast and reliable connection of the trays.

	item number	‡	EAN
●	DZS/B_ZNCR	0,03	8595057689831
⌚	DZS/B_F	0,03	8595568902597





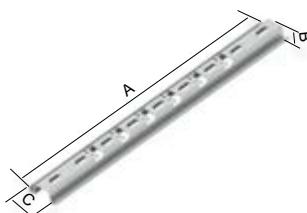
fastening bolt



- The special design of the bolt head enables fast and reliable attachment of the wire trays to a support.

	item number	‡	EAN
●	DZSU/B_ZNCR	0,02	8595057689855

supporting profile

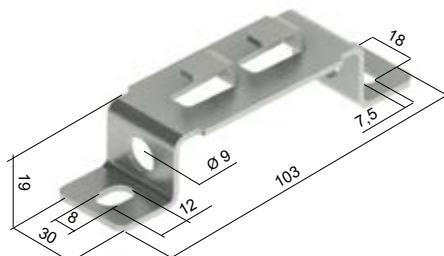


- The supporting profile is used to build a vertical route using wire trays..
- The profile can be placed on the wall, ceiling or used as a support installed on threaded rods..

	item number	A	B	C	‡	EAN
●	DZNP 100/B_S	250	20	52	0,24	1,5 8595568935748
●	DZNP 150/B_S	300	20	52	0,31	1,5 8595568935755
●	DZNP 200/B_S	350	20	52	0,37	2,0 8595568935762
●	DZNP 300/B_S	450	20	52	0,43	2,0 8595568935779
●	DZNP 400/B_S	550	20	52	0,55	2,0 8595568935786
●	DZNP 500/B_S	650	20	52	0,67	2,0 8595568935793
●	DZNP 600/B_S	750	20	52	0,79	2,0 8595568935809

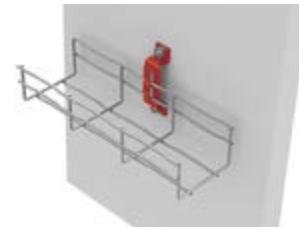
	item number	A	B	C	‡	EAN
⊕	DZNP 100/B_F	250	20	52	0,25	1,5 8595568935816
⊕	DZNP 150/B_F	300	20	52	0,32	1,5 8595568935823
⊕	DZNP 200/B_F	350	20	52	0,39	2,0 8595568935830
⊕	DZNP 300/B_F	450	20	52	0,45	2,0 8595568935847
⊕	DZNP 400/B_F	550	20	52	0,57	2,0 8595568935854
⊕	DZNP 500/B_F	650	20	52	0,69	2,0 8595568935861
⊕	DZNP 600/B_F	750	20	52	0,81	2,0 8595568935878

hanger



- The hanger can be used to attach the wire tray to the wall.
- Wall mounting is only possible for trays size from 60X60 up to 60X200.
- The hanger is fixed using KPO 6 anchors (2 pcs.).

	item number	‡	EAN
⊕	DZZ/B_F	0,05	8595568902627
●	DZZ/B_ZNCR	0,05	8595057689800



‡ weight kg/pcs

● standard

⊕ to order

⊕ standardized

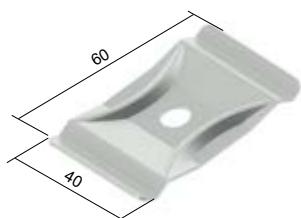
▲ non-standardized

F hot-dip galvanized

ZNCR bichromic galvanized



central hanger

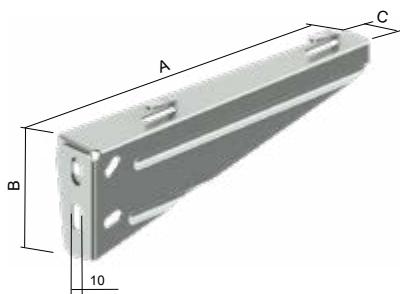


- The central hanger is intended for hanging the wire tray from the ceiling. It is necessary to use two pieces of central hanger, two M 8 nuts and a threaded rod of Ø 8 mm.
- The hanger is not intended for hanging DZI 60X60 trays.
- To create one mounting point using the central hinge, two central hinges must be ordered.

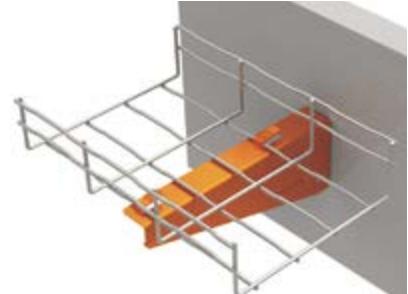
	item number	‡	EAN
●	DZCZ/B_ZNCR	0,03	8595057689794
⌚	DZCZ/B_F	0,03	8595568902634



wall support



- By bending the protrusions, we ensure fast and reliable fixation of the wire tray to the support.
- The DZZ/B hanger must be used to attach the DZI 60X60 tray to the wall.



	item number	A	B	C	‡	EAN
●	DZDS 100/B_S	150	85	36	0,25	8595057689909
●	DZDS 150/B_S	200	85	36	0,26	8595057690233
●	DZDS 200/B_S	250	85	36	0,38	8595057689916
●	DZDS 300/B_S	350	85	36	0,66	8595057690240
●	DZDS 400/B_S	450	85	36	0,80	8595057690257
⌚	DZDS 500/B_S	550	122	36	1,01	8595057690264
⌚	DZDS 600/B_S	650	122	36	1,11	8595057690271

	item number	A	B	C	‡	EAN
⌚	DZDS 100/B_F	150	85	36	0,25	8595568902658
⌚	DZDS 150/B_F	200	85	36	0,26	8595568902665
⌚	DZDS 200/B_F	250	85	36	0,38	8595568902672
⌚	DZDS 300/B_F	350	85	36	0,66	8595568902689
⌚	DZDS 400/B_F	450	85	36	0,80	8595568902696
⌚	DZDS 500/B_F	550	122	36	1,01	8595568902702
⌚	DZDS 600/B_F	650	122	36	1,11	8595568902719



bolt cutter



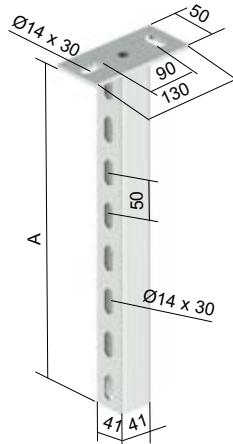
- The cutters have bevelled edges.
- It is advisable to cut the wires on the tray as close to their crossing as possible.

	item number	‡	EAN
●	DZDN_XX	0,75	8595057668591

PRODUCTS

support systems

ceiling profile - medium

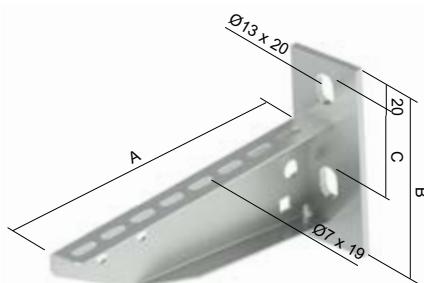


- Designed for fastening DS and DT brackets using S 10X40 hexagon head bolts, M 10 nuts and PD 10 washers
- For double-sided mounting, the brackets are fastened with S 10X70 bolts, M 10 nuts and PD 10 washers.
- Smooth and shiny appearance - special surface finish with higher corrosion resistance than hot dip galvanizing.
- OKSPS - end cap made of PE.

	item number	A	‡	EAN
●	SPS 200_F	207	1,03	8595057640139
●	SPS 300_F	307	1,33	8595057633452
●	SPS 400_F	407	1,60	8595057628618
●	SPS 500_F	507	1,90	8595057640146
●	SPS 600_F	607	2,15	8595057628625
●	SPS 800_F	757	2,70	8595057628632
●	SPS 1000_F	1007	3,25	8595057628649
⌚	SPS 1200_F	1207	3,80	8595057640153
●	OKSPS_DB	-	0,01	8595057633841

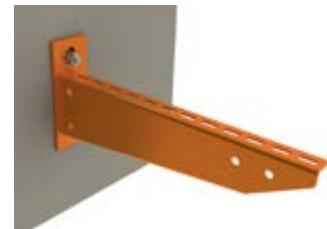


bracket - heavy

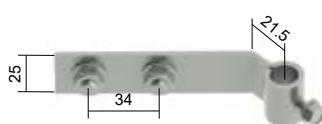


- The bracket is designed for mounting on a wall or ceiling profiles SPL or SPS.
- NSM 6X10 bolts are used to fasten the cable tray or cable ladder to the bracket.
- S 10X40 bolts together with M 10 nuts and PD 10 washers are used for mounting on SPL and SPS ceiling profiles. S 10X70 bolts are intended for double-sided mounting on SPS ceiling profiles.

	item number	A	B	C	‡	‡	EAN
●	DT 100_F	120	120	60	190	0,30	8595057631786
●	DT 150_F	170	120	60	230	0,36	8595057632592
●	DT 200_F	220	120	60	300	0,43	8595057631779
●	DT 250_F	270	120	60	300	0,53	8595057636996
●	DT 300_F	320	135	60	350	0,73	8595057628519
●	DT 400_F	420	135	60	350	0,88	8595057628526
●	DT 500_F	520	155	90	350	1,30	8595057628533
●	DT 600_F	620	155	90	350	1,60	8595057628540
⌚	DT 800_F	820	155	90	280	1,90	8595057639904
⌚	DT 1000_F	1020	155	90	200	2,40	8595057639911



safety holder

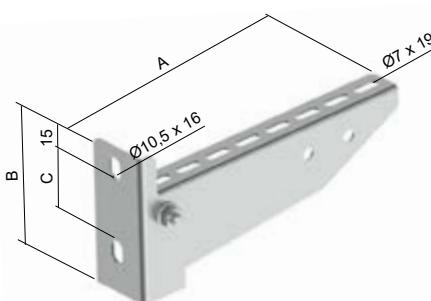


- DT OKO is used together with the DT bracket.
- Used to create standardized cable routes from cable trays or ladders.
- The DT bracket together with the DT OKO must be fastened to the wall or ceiling with ZT threaded rod.

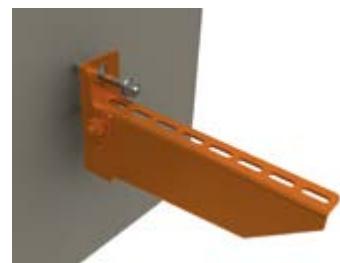
	item number	‡	EAN
●	DT OKO_POF	0,12	8595568930774



► bracket - medium

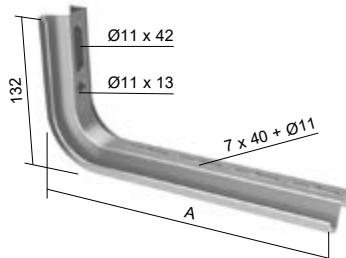


- The bracket is designed for mounting to the wall or to the ceiling profile SPL or SPS.
- Fastening to the wall is done with two anchors with Ø 8 mm.
- S 10X40 bolts together with M 10 nuts and PD 10 washers are used for mounting on SPL and SPS ceiling profiles. S10X70 bolts are intended for double-sided mounting on SPS ceiling profiles.
- NSM 10X10 bolts are used to fix the cable tray to the DS bracket.



	item number	A	B	C	\downarrow	\ddagger	EAN
●	DS 100_S	118	94	60	180	0,24	8595057632080
●	DS 150_S	168	94	60	160	0,33	8595057633834
●	DS 200_S	218	104	60	150	0,38	8595057632585
●	DS 300_S	318	120	60	160	0,63	8595057628434
●	DS 400_S	418	120	60	160	0,76	8595057628441
●	DS 500_S	518	140	90	160	1,00	8595057628458
●	DS 600_S	618	140	90	150	1,23	8595057636439

► bracket

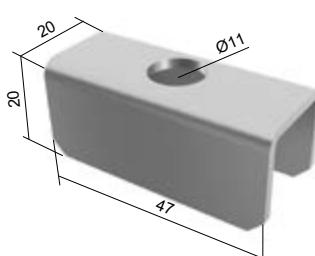


- The cable tray is fastened with NSM 6X10 bolts.
- Wall mounting bracket.
- The STS reinforcement is designed to prevent deformation during assembly.



	item number	A	\downarrow	\ddagger	EAN
●	LTS 100_S	163	150	0,34	8595057639690
●	LTS 150_S	213	120	0,40	8595057639706
●	LTS 200_S	263	110	0,46	8595057639713
●	LTS 300_S	363	75	0,59	8595057630840
●	LTS 400_S	463	50	0,75	8595057634091

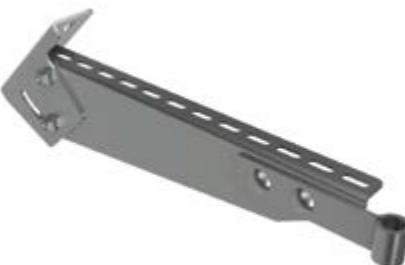
► reinforcement piece for LTS profile



- Reinforcement for wall mounting when using the LTS bracket..

	item number	\ddagger	EAN
●	STS_S	0,04	8595057639751

► bracket for sloping structures



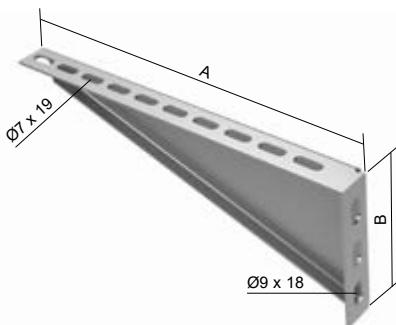
- The bracket allows cable trays to be mounted on sloping structures up to an angle of 45°.
- NSM 6X10 bolts are used to fasten the cable tray.
- The products are delivered exclusively to order.



	item number	for cable trays	EAN
🕒	DSU 100_PO	KZI 60X50X..., KZI 60X75X..., KZI 60X100X...	8595568925749
🕒	DSU 200_PO	KZI 60X150X..., KZI 60X200X...	8595568925756
🕒	DSU 300_PO	KZI 60X300X...	8595568925763

	item number	for cable trays	EAN
🕒	DSU 100_POF	KZI 60X50X..., KZI 60X75X..., KZI 60X100X...	8595568925770
🕒	DSU 200_POF	KZI 60X150X..., KZI 60X200X...	8595568925787
🕒	DSU 300_POF	KZI 60X300X...	8595568925794

► wall bracket

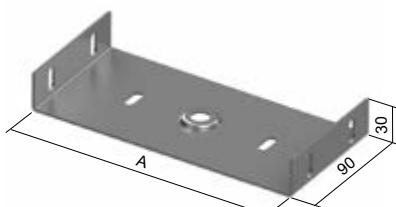


- The tray is attached to the support using 2 NSM 6X10 bolts (NPS 62 only 1 pc.).
- The supports are attached to the wall using two anchors of Ø 8 mm (NPS 62 only 1 anchor).
- The listed items can also be ordered in a painted version.

	item number	A	B	t	‡	‡	EAN
●	NPS 62_ZNCR	82	42	1,5	120	0,06	8595057654136
●	NPS 125_ZNCR	145	70	2,0	180	0,17	8595057654112
●	NPS 250_ZNCR	270	100	2,0	200	0,38	8595057678712

	item number	A	B	t	‡	‡	EAN
●	NPS 62_F	82	42	1,5	120	0,07	8595057696266
●	NPS 125_F	145	70	2,0	180	0,17	8595057696273
●	NPS 250_F	270	100	2,0	200	0,44	8595057696280

► inner hanger



- The hanger is mounted using ZT threaded rod and MN nut.
- The MN nut is not part of the hanger.
- The inner hanger is installed into the tray before the tray is connected to another tray.

	item number	A	‡	‡	EAN
●	ZVNI 62_S	58	0,14	4	8595568927439
●	ZVNI 125_S	121	0,20	4	8595568927453
●	ZVNI 250_S	246	0,41	4 (6)	8595568927477

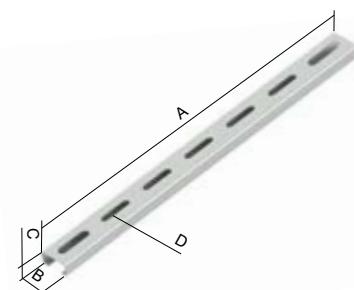


	item number	A	‡	‡	EAN
●	ZVNI 62_F	58	0,16	4	8595568927446
●	ZVNI 125_F	121	0,27	4	8595568927460
●	ZVNI 250_F	246	0,47	4 (6)	8595568927484
●	MN 8_ZNCR		0,01		8595568903594





supporting profile



- The supporting profile is intended for creating a cable tray support structure on threaded rods or for creating a route together with PKC1 clamps.

With PKC1 clamps:

- The supporting profile is anchored to the wall with a maximum spacing of 600 mm using KPO 6 anchors or SB 6.3X35 concrete screws. The spacing of the anchoring elements is max. 250 mm. The cables are attached to the support profile using PKC1 clamps (max. 3 cables in one clamp). The route can also be used as vertical.

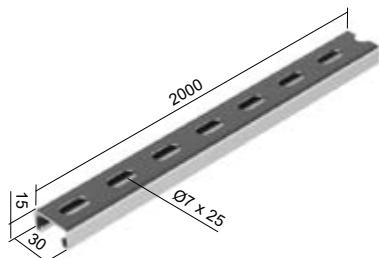
With cable tray:

- The supporting profile is fixed with two ZT 8 threaded rods + M 8 nuts + PD 8 washers. The cable tray is fastened to the support profile with NSM 6X10 bolts.



	item number	A	B	C	D (inner)	D (outer)	‡	‡	‡	EAN
●	NP 100_S	100	30	15	-	Ø9 x 35	1,2	100	0,06	8595057639768
●	NP 150_S	150	30	15	Ø7 x 32	Ø9 x 35	1,2	100	0,08	8595057639775
●	NP 200_S	200	30	15	Ø7 x 32	Ø9 x 35	1,2	100	0,11	8595057639782
●	NP 250_S	250	30	15	Ø7 x 32	Ø9 x 35	1,2	100	0,14	8595057639799
●	NP 350_S	350	30	15	Ø7 x 32	Ø9 x 35	1,2	100	0,20	8595057630864
⊕	NP 100_F	100	30	15	-	Ø9 x 35	1,2	100	0,07	8595057659544
⊕	NP 150_F	150	30	15	Ø7 x 32	Ø9 x 35	1,2	100	0,10	8595057659551
⊕	NP 200_F	200	30	15	Ø7 x 32	Ø9 x 35	1,2	100	0,13	8595057659568
⊕	NP 250_F	250	30	15	Ø7 x 32	Ø9 x 35	1,2	100	0,17	8595057659575
⊕	NP 350_F	350	30	15	Ø7 x 32	Ø9 x 35	1,2	100	0,23	8595057659599

supporting profile

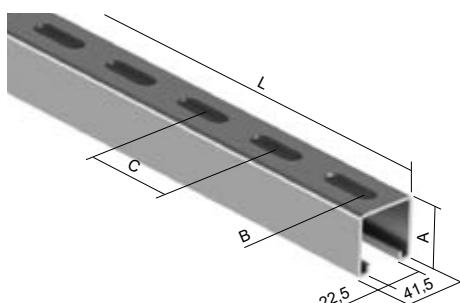


- It is intended for mounting PKC cable clamps and thus for anchoring cables to the wall or ceiling.
- Anchoring is performed every 250 mm.



	item number	‡	‡	‡	EAN
●	NP 30X15X1.20_S	1,2	-	1,50	8595568930316

mounting profile



- The standard length of the mounting profile is 3 m.
- Suitable for creating a beam for cable routes carried on threaded rods.
- The mounting profile MP 41X21_S and MP 41X21_F can be terminated with an OKSPL end cap.
- The mounting profile MP 41X21_S and MP 41X21_F can be terminated with an OKSPS end cap.

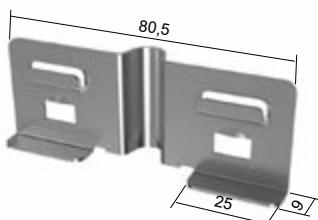
* dimensions are for information only, subject to change



	item number	A	B*	C*	L	‡	EAN
●	MP 41X21_S	21	13 x 30	50	3000	2,5	8595057699557
●	MP 41X41_S	41	13 x 30	50	3000	2,5	8595057699564
●	MP 41X21X1.50_S	21	13 x 30	50	3000	1,5	8595057628939
●	MP 41X21X1.50X2000_S	21	14 x 30	50	2000	1,5	8595568919571
●	MP 41X21_F	21	13 x 30	50	3000	2,5	8595057633469
●	MP 41X41_F	41	13 x 30	50	3000	2,5	8595057632103



outer side hanger

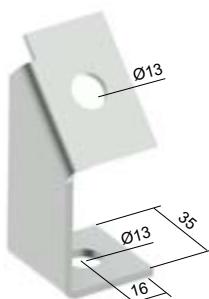


- Hanger assembly is very easy and is done without a tool by simply clicking it into the side of the cable route.
- Fixation is performed using ZT 8 threaded rod, PD 8 washer and M 8 nut
- To create one mounting point, two pieces of ZVB 1.5 must be ordered.

	item number	‡	‡	EAN
●	ZVB 1.5_S	60	0,02	8595568915085



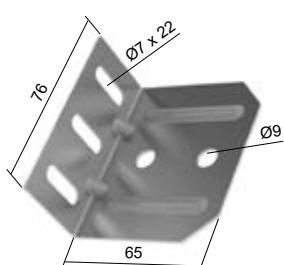
supporting part between anchor and threaded rod - 45°



- For fixing the threaded rod to the wall at angle of 45°.

	item number	‡	‡	EAN
●	VS 41X45_F	5	0,10	8595057667570

cable ladder wall bracket



- Mounting to the ladder is done using NSM 6X10 bolts.
- Wall mounting with single KPO 8 anchor.

	item number	‡	‡	EAN
●	KLSU_S	1,5	0,07	8595568908681
●	KLSU_F	1,5	0,09	8595568908698



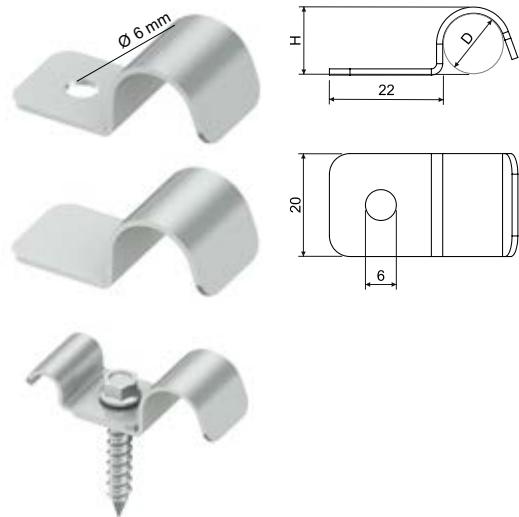
PRODUCTS

clamps

cable clamps



- The clamps are fastened to the concrete with SB 6.3X35 concrete screws. For aerated concrete with KHP + SB 6.3X45 dowels, for sheet metal with STP 4.2X13 screw.
- Clamps 6706 - 6725 can be placed two under one screw to create route for two cables.
- Clamps 67..._POBD can be shot using gas nail guns with a magnetic attachment.



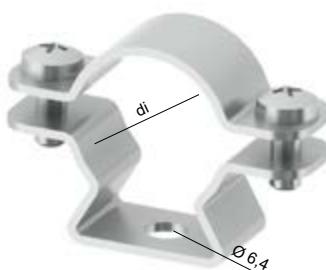
	item number	D	H (mm)	Ø cable	‡	EAN
one-sided clamps with hole						
●	6706_PO	6	7,2	4	0,01	8595568927804
●	6708_PO	8	9,2	6	0,01	8595568909930
●	6710_PO	10	11,2	8	0,01	8595568909947
●	6712_PO	12	13,2	10	0,01	8595568909954
●	6714_PO	14	15,2	12	0,01	8595568935052
●	6716E_PO	16	17,2	14	0,01	8595057698031
●	6718_PO	18	19,5	16	0,01	8595568935083
●	6720_PO	20	21,5	18	0,016	8595568932464
●	6722_PO	22	23,5	20	0,018	8595568935113
●	6725_PO	25	26,5	23	0,02	8595568935144
one-sided clamps without hole						
●	6706_POBD	6	7,2	4	0,01	8595568934987
●	6708_POBD	8	9,2	6	0,01	8595568934994
●	6710_POBD	10	11,2	8	0,01	8595568935007
●	6712_POBD	12	13,2	10	0,01	8595568935014
●	6714_POBD	14	15,2	12	0,01	8595568935076
●	6716E_POBD	16	17,2	14	0,01	8595568935021
●	6718_POBD	18	19,5	16	0,01	8595568935106
●	6720_POBD	20	21,5	18	0,016	8595568935038
●	6722_POBD	22	23,5	20	0,018	8595568935137
●	6725_POBD	25	26,5	23	0,02	8595568935168
two-sided clamps with hole						
●	6716ED_PO	16	17,2	14	0,02	8595057698079
●	6716ED_POGMT	16	17,2	14	0,02	8595568912510

	item number	D	H (mm)	Ø cable	‡	EAN
one-sided clamps without hole						
●	6706_POBD	6	7,2	4	0,01	8595568934987
●	6708_POBD	8	9,2	6	0,01	8595568934994
●	6710_POBD	10	11,2	8	0,01	8595568935007
●	6712_POBD	12	13,2	10	0,01	8595568935014
●	6714_POBD	14	15,2	12	0,01	8595568935076
●	6716E_POBD	16	17,2	14	0,01	8595568935021
●	6718_POBD	18	19,5	16	0,01	8595568935106
●	6720_POBD	20	21,5	18	0,016	8595568935038
●	6722_POBD	22	23,5	20	0,018	8595568935137
●	6725_POBD	25	26,5	23	0,02	8595568935168
two-sided clamps with hole						
●	6716ED_PO	16	17,2	14	0,02	8595057698079
●	6716ED_POGMT	16	17,2	14	0,02	8595568912510



possibility of
shooting
(pg. 150)

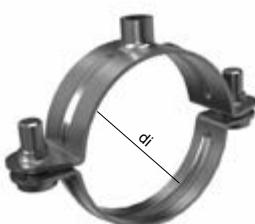
clamp OMEGA



- For easy installation, the clamp is provided with groove for insertion; during installation, it is not necessary to completely separate the upper part of the clamp.
- The recommended cable diameters correspond to the free placement of the cable in the clamp.
- KPO 6 anchors or SB 6.3X35 concrete screw are suitable for fastening to the base material.
- A KHP dowel with a SB 6.3X45 concrete screw is used for anchoring in aerated concrete.

	item number	Ø kabelu min. - max. (mm)	di	‡	EAN
●	5216E ZNM_S	14 - 17	15 - 18	0,012	8595057692084
●	5220 ZNM_S	18 - 21	19 - 23	0,015	8595057692091
●	5225 ZNM_S	22 - 25	24 - 28	0,018	8595057692107
●	5232 ZNM_S	25 - 39	30 - 40	0,022	8595057692114
●	5250 ZNM_S	38 - 50	39 - 52	0,028	8595057692138
●	5263 ZNM_S	51 - 60	53 - 63	0,032	8595057692145
●	5216E ZN_F	12 - 14	15 - 19	0,014	8595568915269
●	5220 ZN_F	14 - 18	19 - 24	0,015	8595568915276
●	5225 ZN_F	18 - 22	24 - 29	0,018	8595568915283
●	5232 ZN_F	22 - 30	29 - 38	0,022	8595568915290
●	5240 ZN_F	30 - 38	38 - 47	0,025	8595568915306
●	5250 ZN_F	38 - 50	47 - 55	0,028	8595568915313
●	5263 ZN_F	51 - 60	55 - 63	0,032	8595568915320

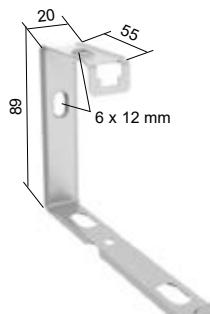
clamp DOBRMAN



- KPO 6 anchors or KPOZ 6 anchor in combination with ZT 6 threaded rod are suitable for fastening to the base material.
- The recommended cable diameters correspond to the free placement of the cable in the clamp.
- The clamp is equipped with a groove for insertion, it is not necessary to completely separate the upper part of the clamp during installation.
- A KHP dowel with SVD screw is used for anchoring in aerated concrete.

	item number	Ø kabelu min. - max. (mm)	di	thread	‡	EAN
●	5208 D_ZNCR	8 - 12	8	M6	0,01	8595568927491
●	5210 D_ZNCR	10 - 14	10	M6	0,10	8595568927507
●	5212 D_ZNCR	12 - 16	12	M6	0,14	8595568927514
●	5216 D_ZNCR	16 - 20	16	M6	0,26	8595568927521
●	5220 D_ZNCR	20 - 25	20	M6	0,40	8595568927538
●	5225 D_ZNCR	25 - 32	25	M6	0,63	8595568927545
●	5232 D_ZNCR	32 - 40	32	M6	1,02	8595568927552
●	5240 D_ZNCR	40 - 48	40	M6	1,60	8595568927569
●	5250 D_ZNCR	50 - 57	50	M6	2,50	8595568927576
●	5263 D_ZNCR	63 - 70	63	M6	3,96	8595568927583

grouped cable holder

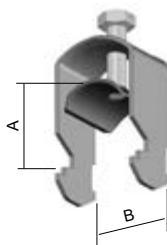


- Fastening is done with SB 6.3X35 screws or KPO 6 anchors.
- The holder is delivered in the open position, which simplifies the installation of cables. Once inserted, the holder is simply closed, completing the route installation.
- The design of the holders allows easy addition of more cables to the route up to the maximum permitted load.
- A KHP dowel with a SB 6.3X35 concrete screw is used for anchoring in aerated concrete.

	item number	‡	EAN
●	SD 2_S	0,03	8595568912435



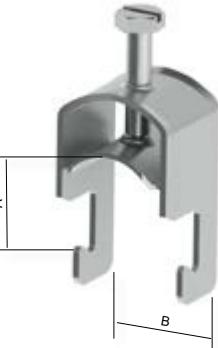
cable clamp for cable ladders



- The clamps are intended for fixing the cable to the cable ladders cross-pieces or NP supporting profiles.
- Data A min. + B indicates the minimum and maximum diameter of the cable to be fastened.
- The dimensions are used for basic orientation when choosing a cable clamp.
- The size of the clamp must be selected according to the cable cross section. Each cable differs depending on the production technology of each cable company.

	item number	A min	B	‡	EAN
●	PKC1 1198_F	6	12	0,03	8595057644878
●	PKC1 1199_F	7	16	0,03	8595057644885
●	PKC1 1200_F	10	19	0,04	8595057642232
●	PKC1 1201_F	14	23	0,04	8595057642249
●	PKC1 1202_F	20	26	0,04	8595057635586
●	PKC1 1203_F	24	30	0,06	8595057635517
●	PKC1 1204_F	25	34	0,07	8595057635401
●	PKC1 1205_F	29	38	0,08	8595057635524
●	PKC1 1206_F	32	43	0,09	8595057644892
●	PKC1 1207_F	42	46	0,10	8595057644908
●	PKC1 1208_F	44	50	0,10	8595057635531
●	PKC1 1209_F	50	54	0,11	8595057635593
●	PKC1 1210_F	51	58	0,14	8595057644915
●	PKC1 1211_F	55	63	0,16	8595057644922
●	PKC1 1212_F	59	69	0,16	8595057635609

cable clamp for wire trays



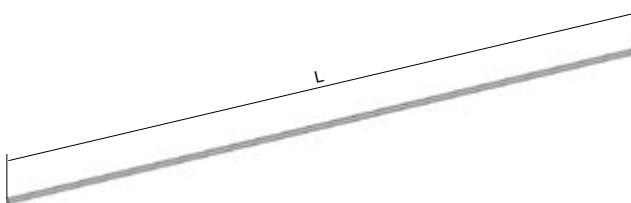
- PKDZ1 is used to attach cables to the wire tray in vertical route each 300 mm.

	item number	A	B	‡	EAN
⊕	PKDZ1 12_F	6	12	0,03	8595568935885
⊕	PKDZ1 14_F	10	14	0,03	8595568935892
⊕	PKDZ1 16_F	12	16	0,03	8595568935908
⊕	PKDZ1 18_F	14	18	0,04	8595568935915
⊕	PKDZ1 22_F	16	22	0,04	8595568935922
⊕	PKDZ1 26_F	22	26	0,04	8595568935939
⊕	PKDZ1 30_F	22	30	0,05	8595568935946
⊕	PKDZ1 34_F	28	34	0,06	8595568935953
⊕	PKDZ1 38_F	34	38	0,08	8595568935960
⊕	PKDZ1 42_F	34	42	0,09	8595568935977
⊕	PKDZ1 46_F	40	46	0,1	8595568935984
⊕	PKDZ1 50_F	46	50	0,11	8595568935991
⊕	PKDZ1 54_F	46	54	0,11	8595568936011
⊕	PKDZ1 58_F	52	58	0,12	8595568936004

PRODUCTS

connecting and anchoring material

threaded rod

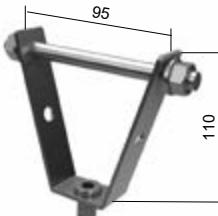


- It is used to hang the cable route under the ceiling. For standardized supporting constructions to secure the ends of the brackets to the wall or ceiling. The specification is listed for each cable route assembly.

	item number	L	Ø	‡	EAN
●	ZT 6_ZNCR	2000	M 6	0,17	8595057633490
●	ZT 8_ZNCR	2000	M 8	0,31	8595057631793
●	ZT 10_ZNCR	2000	M 10	0,46	8595057628922
●	ZT 12_ZNCR	2000	M 12	0,70	8595057639591
⊕	ZT 10_GMT	1000	M 10	0,46	8595568928016



trapezoidal ceiling bracket



- The DSOS bracket is intended for mounting a threaded rod and fixing it to trapezoidal sheets.
- The DSOS includes M8 or M10 control nut.
- DSOS 8 or DSOS 10 must be selected depending on the threaded rods ZT 8 or ZT 10 used.
- For fastening to the trapezoidal ceiling, the bracket is equipped with transverse pin M8 x 120 mm. The pin is equipped with washer and nut on both sides.

	item number	‡	↓	EAN
●	DSOS 8_ZNCR	0,17	1,3	8595568923783
●	DSOS 10_ZNCR	0,17	1,3	8595568923790



trapezoidal ceiling sheet thickness [mm]	load (N)
0,63-0,70	630
0,70-0,80	740
0,80-1,00	850
1,00-1,20	1050
1,20-1,50	1250
>1,50	1550

The stated values only for applications with static loads.

fixation clamp



- The fixation clamp is used to fix the threaded rod to the I-profile, it is supplied with fastening bolt and locking nut.
- Load of single US is max. 250 kg.
- The maintaining function time corresponds with the specific cable route, including the ceiling structure.

	item number	‡	use with	A	EAN
●	US 1_ZNCR	0,14	ZT 8	0 - 20	8595057632691
●	US 2_ZNCR	0,15	ZT 10	0 - 20	8595057629912
⊕	US 3_ZNCR	0,21	ZT 12	0 - 26	8595057639577





hexagon head bolt



	item number	‡	EAN
●	S 6X20_ZNCR	0,006	8595057630451
⌚	S 6X30_ZNCR	0,008	8595057640733
●	S 8X20_ZNCR	0,012	8595057638822
●	S 8X25_ZNCR	0,014	8595568934017
●	S 8X30_ZNCR	0,016	8595057640740
●	S 8X40_ZNCR	0,019	8595057640757
●	S 8X50_ZNCR	0,022	8595057640764
⌚	S 8X70_ZNCR	0,028	8595057640771
●	S 10X20_ZNCR	0,021	8595057628724
●	S 10X25_ZNCR	0,024	8595568934031
●	S 10X30_ZNCR	0,026	8595057628731
●	S 10X40_ZNCR	0,031	8595057640788
●	S 10X50_ZNCR	0,036	8595057698123
●	S 10X70_ZNCR	0,046	8595057698130

	item number	‡	EAN
⌚	S 12X20_ZNCR	0,031	8595057633124
⌚	S 12X25_ZNCR	0,034	8595568934055
⌚	S 12X30_ZNCR	0,038	8595057633131
⌚	S 12X40_ZNCR	0,045	8595057640795
⌚	S 12X50_ZNCR	0,052	8595057640801
⌚	S 8X20_GMT	0,012	8595568928696
⌚	S 8X30_GMT	0,020	8595568924024
⌚	S 10X20_GMT	0,021	8595568928702
⌚	S 10X30_GMT	0,026	8595568934048
⌚	S 10X40_GMT	0,031	8595568928719

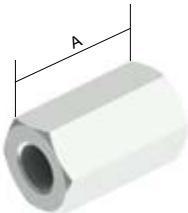
hexagon nut



	item number	EAN	
●	M 6_ZNCR	8595057633636	
●	M 8_ZNCR	8595057633643	
●	M 10_ZNCR	8595057630406	
●	M 12_ZNCR	8595057640818	

	item number	EAN	
⌚	M 8_GMT	8595568928528	
⌚	M 10_GMT	8595568928511	
⌚	M 12_GMT	8595568928535	

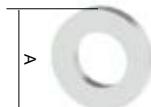
connecting nut



- Slouží ke spojení dvou závitových tyčí nebo jako matice u některých normových nosních systémů.

	item number	Ø	A	‡	EAN
●	MZ 6_ZNCR	M6	10	0,01	8595057633506
●	MZ 8_ZNCR	M8	16	0,02	8595057633513
●	MZ 10_ZNCR	M10	28	0,04	8595057629929
●	MZ 12_ZNCR	M12	40	0,06	8595057639584

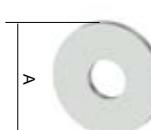
washer



	item number	A	EAN	
●	PD 6_ZNCR	12	8595057640832	
●	PD 8_ZNCR	16	8595057633438	
●	PD 10_ZNCR	20	8595057633445	
●	PD 12_ZNCR	24	8595057640849	

	item number	A	EAN	
⌚	PD 8_GMT	16	8595568927996	
⌚	PD 10_GMT	20	8595568928542	
⌚	PD 12_GMT	24	8595568928009	

large washer



	item number	A	EAN	
●	PVL 6_ZNCR	18	8595057629523	
●	PVL 8_ZNCR	24	8595057633421	
●	PVL 10_ZNCR	30	8595057633797	
⌚	PVL 12_ZNCR	38	8595057640856	

	item number	A	EAN	
⌚	PVL 8_GMT	24	8595568928726	
⌚	PVL 10_GMT	30	8595568928733	

† weight kg/pcs

● standard
⌚ to order

⌚ standardized
↑ non-standardized

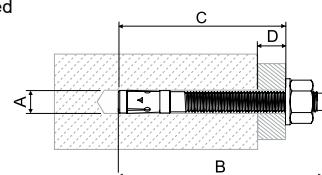
ZNCR bichromatic galvanized
GMT electroless plating



anchor



- The anchor is suitable for suspended, through and distance mounting. Approved for concrete C20/25 - C50/60 with drawn and pressed zone. Also suitable for natural stone with a solid structure, concrete C12/15 and C80/95.



	item number	approved class of seismicity	hole diameter A [mm]	anchors length B [mm]	min. hole depth for through mounting C [mm]	maximal useful length D [mm]	thread	wrench size	EAN
●	KPO 6X50_PO	-	6	65	60	10	M6x25	10	8595057691162
●	KPO 6X70_PO	-	6	65	60	10	M6x25	10	8595057691179
●	KPO 8X77_PO	C1	8	75	65	10	M8x38	13	8595057691100
●	KPO 8X97_PO	C1	8	95	85	30	M8x58	13	8595057691117
●	KPO 8X110_PO	C1/C2	8	115	105	50	M8x8	13	8595568931139
●	KPO 10X95_PO	C1/C2	10	95	85	10	M10x53	17	8595057691124
●	KPO 10X115_PO	C1/C2	10	115	105	30	M10x73	17	8595057691131
●	KPO 10X175_PO	C1/C2	10	185	175	100	M10x143	17	8595568931153
●	KPO 12X120_PO	C1/C2	12	110	100	10	M12x61	19	8595057691148

⌚	KPO 8X77_POGMT	-	8	80	65	10	M8	13	8595568927965
⌚	KPO 8X97_POGMT	-	8	100	90	35	M8	13	8595568929631
⌚	KPO 10X95_POGMT	-	10	95	84	15	M10	17	8595568927972
⌚	KPO 10X115_POGMT	-	10	115	104	35	M10	17	8595568929648
⌚	KPO 12X120_POGMT	-	12	120	105	25	M12	19	8595568929655

hammer anchor



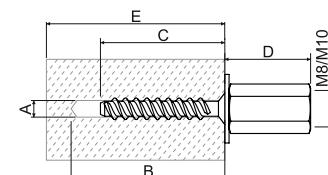
- The hammer anchors are used to fasten the threaded rods directly.
- The load-bearing capacity of the anchors depends on the quality of the base material (concrete, solid masonry)
- A - drill diameter
- B - total anchor length
- C - anchorage depth
- D - maximum thickness of the fastened material

	item number	A	B	C	D	thread	‡	EAN
●	KPOZ 6_PO	8	30	13	30	M6	0,01	8595568929938
●	KPOZ 8_PO	10	30	13	30	M8	0,02	8595568919304
●	KPOZ 10_PO	12	40	15	40	M10	0,03	8595057692855

concrete screw with internal thread



- Screw with combined internal thread M8 / M10 for quick and easy installation of bolts or threaded rods.
- Designed for installation in cracked concrete C20 / 25 up to C50 / 60 - drawn zone of concrete, prestressed hollow core slabs C30 / 37 up to C50 / 60, in natural stone with a solid structure.
- A - hole diameter
- B - minimum hole depth
- C - screw-in depth
- D - height of the fastening nut
- E - minimum thickness of the anchor base



	item number	A	B	C	D	E	wrench size	tightening torque	‡	EAN	concrete C20/25 up to C50/60		prestressed hollow core panels		
											guaranteed load		min. axial distance, from the edge	thickness of concrete under the cavity	maximum load (kN)
											tensile	shearing			
●	KBS 6X35 M8/M10_PO	6	45	35	26,5	80	13	≤10	0,03	8595568931122	0,6	2,4	35	≥25	0,4
														≥30	0,8
														≥35	1,2
															100

‡ weight kg/pcs

● standard

 standardized
 non-standardized

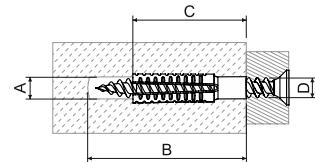
 PO bichromatic galvanized
 GMT electroless plating



metal dowel



- For suspended installation in concrete, aerated concrete, vertically perforated bricks, natural stone with a solid structure, solid blocks of aerated concrete, sand-lime bricks.
- The external toothed spreading into the building material when the screw is screwed in, thus ensuring high load capacity. The screw must be screwed in to the full length of the dowel. The length of the screw is calculated: the length of the dowel + the diameter of the screw + the thickness of the anchoring part + the thickness of the plaster or insulation.
- The ribbed internal shape of the dowel is suitable for KVP screws. When used in fire-resistant systems, the SB 6.3X35 screw is used together with the KHP 8X38 dowel or KVP screws.
- A - hole diameter
- B - minimum hole depth
- C - dowel length
- D - screw diameter



	item number	A	B	C	D	‡	EAN	recommended hole diameter for listed material			guaranteed load - tensile, shear, angled tensile applies to the specified screw diameter and material		
								concrete C20/25	aerated concrete PB4	vertically perforated bricks HLZ12	screw diameter	aerated concrete ≥PB2, PP2 (G2)	aerated concrete ≥PB4, PP4 (G4)
								mm	mm	mm	mm	kN	kN
●	KHP 6X32_PO	7-9	38	32	5-6	0,01	8595568931009	7	6	7	-	-	-
●	KHP 8X38_PO	10-12	46	38	6-8	0,01	8595568931016	10	10	10	8	0,2	0,3
●	KHP 8X60_PO	10-12	68	60	6-8	0,03	8595568931023	12	10	10	8	0,3	0,4
●	KHP 10X60_PO	12-14	68	60	8-10	0,03	8595568931030	14	12	12	10	0,4	0,6

KHP dowel screw



- The screw is suitable for combination with a KHP dowel - they meet the fire resistance for up to 90 minutes. This combination is ideal for anchoring 67XX_PO clamps in aerated concrete.
- As standard, the screw is designed for use in chipboard and other wood materials.
- The screw has a countersunk head and a cross groove PZ.

	item number	screw diameter [mm]	screw length [mm]	selling amount	EAN
●	KVP 5X35_PO	5	35	500	8595568934550
●	KVP 5X40_PO	5	40	500	8595568934567
●	KVP 5X45_PO	5	45	500	8595568934574
●	KVP 5X50_PO	5	50	200	8595568934581
●	KVP 6X40_PO	6	40	200	8595568934598
●	KVP 6X45_PO	6	45	200	8595568934604
●	KVP 6X50_PO	6	50	200	8595568934611

concrete screw



- Used to attach individual cable clamps, OMEGA type clamps and SD 2 grouped holder to the base material.
- The screw can be installed in concrete, natural stone and solid masonry.
- A hole of Ø 5 mm must be drilled to install the screw.
- The supplied surface finish can be used for the installation of clamps with PO and POGMT surface finish (type 6706-6720) and both types of surface finish of OMEGA clamps.

	item number	‡	EAN
●	SB 6.3X35_POGMT	0,006	8595057697904
●	SB 6.3X45_POGMT	0,007	8595568932402



threaded screw



- The screw with M6 external thread together with Doberman clamps forms a fire-resistant route.
- Designed for anchoring in concrete.
- Anchoring in aerated concrete is possible when used with the KHP dowel

	item number	‡	EAN
●	SVD 30_PO	0,005	8595568931207
●	SVD 40_PO	0,005	8595568931214



sheet metal screw



- Screw designed for connecting two metal parts up to a sheet thickness of 2.0 mm.
- By connecting the 67xx_PO clamps and the sheet metal using the mentioned screw, a fire-resistant connection is created (mounting on a trapezoidal ceiling).

	item number	‡	EAN
●	STP 4.2X13_PO	0,002	8595568931191



fire resistant screw



- Designed to attach the supporting rail to the base material. To mount the screw, it is necessary to drill a hole of Ø 6 mm with a depth of 65 mm.

	item number	‡	EAN
●	VPO 6.5X40_ZNCR	0,015	8595568926951



carriage bolt and lock nut



- Used to fasten the connection of cable trays and accessories or to attach them to a support.
- A solid connection ensures a conductive connection of the cable trays and accessories.

	item number	EAN
●	NSM 6X10_ZNCR	8595057667129
●	NSM 6X20_ZNCR	8595568934062
●	NSM 6X10_GMT	8595057692947
●	NSM 6X20_GMT	8595568934079





PRODUCTS

pipes, trunkings, parapet channels and others

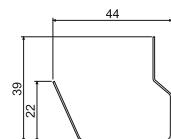
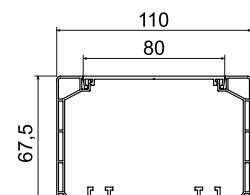
parapet channel PK 110X65 D HF, accessories



HF



- Designed for installation of power and communication circuits, security lines and other distributions.
- The individual lines can be electromagnetically shielded by inserting a shielding channel, which is fastened to the parapet channel using PSK 1 clamps.
- For classic devices that are installed in a closed instrument box KP 80 PK HF snapped into the body of the channel, or in an open instrument box KP PK HF installed in the bottom of the channel.
- It is not necessary to use instrument washers for the final installation of the device. The lid is cut to the required length and attached to the instrument.
- For the installation of devices with very rounded corners, KOPOS recommends using the KP PK HF instrument box and drilling a hole in the lid using VPT 64 drill.
- Quick installation of the lid is done by pushing on its center.
- The basis of the supporting construction is a halogen-free parapet channel PK 110X65 D HF equipped with a metal partition wall PEP 60/K. The partition is attached to the wall through the parapet channel using KPO 6 anchors. The parapet channel can be used to create route with requirements for maintaining functionality in the event of a fire in areas where are higher aesthetic requirements.



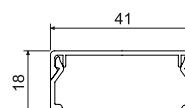
	item number	L (m)	Ø		EAN
●	PK 110X65 D HF_HD	2	6	parapet channel	8595568924636
●	8211HF_HB	-	10	end cover	8595568924643
●	8212HF_HB	-	10	connection cover	8595568924650
●	8213HF_HB	-	10	bending cover	8595568924667
●	8214HF_HB	-	10	branch cover	8595568924674
●	8215HF_HB	-	10	inner corner	8595568924681
●	8216HF_HB	-	10	outer corner	8595568924698
●	8217HF_HB	-	10	grommet	8595568927132
●	PEP 60/K_S	2	24	partition	8595057668775

wiring trunking LHD 40X20 HF



HF

- The basis of the supporting construction is halogen-free LHD 40X20 trunking together with 67xx clamps (max. clamp size - 6710_PO).
- The trunking is attached to the wall or ceiling through 67xx clamps using the SB 6.3X35 screw.
- The trunking can be used to create a route with requirements for maintaining functionality in the event of a fire in areas where are higher aesthetic requirements.

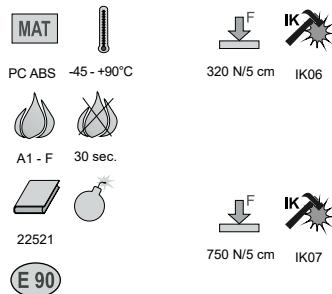
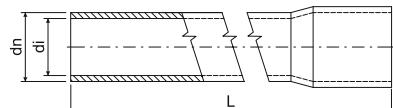


	item number	L (m)	Ø		EAN
●	LHD 40X20HF_HD	2	24	trunking	8595057656437
●	8631HF_HB	-	10	end cover	8595057655744
●	8632HF_HB	-	10	connection cover	8595057655805
●	8633HF_HB	-	10	bending cover	8595057655614
●	8634HF_HB	-	10	branch cover	8595057655768
●	8635HF_HB	-	10	inner corner	8595057655775
●	8636HF_HB	-	10	outer corner	8595057655782
●	8639HF_HB	-	10	grommet	8595057656642

halogen-free rigid pipes



- Halogen-free rigid pipe suitable for residential and industrial distribution.
- Up to a diameter of 25, the pipes have neck at one end. Diameters 32 - 63 are fitted with a coupling.
- From a fire point of view, halogen-free pipes are used in areas with an emphasis on the safety of people and property, eg: public buildings, hospitals, schools, theaters, airport halls, shopping centers, etc.
- Can be installed in areas with a risk of explosion of flammable gases and vapors in zone 2 and in areas with a risk of explosion of flammable dusts in zone 22.
- The pipes are also supplied for fire-resistant systems (see Systems with maintained functionality in the event of fire catalog).
- Black pipes are UV stable.

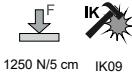


	item number	dn (mm)	di (mm)	L (m)	EAN
●	1516EHF_FA	16	13,1	3	8595057626423
●	1520HF_FA	20	17,1	3	8595057626430
●	1525HF_FA	25	21,6	3	8595057626966
●	1532HF_FA	32	28,4	3	8595057626973
●	1540HF_FA	40	36,0	3	8595057626447
●	1550HF_FA	50	45,6	3	8595057626454
●	1563HF_FA*	63	58,4	3	8595057631489

	item number	dn (mm)	di (mm)	L (m)	EAN
●	1516EHF_KA	16	13,1	3	8595057631854
●	1520HF_KA	20	17,1	3	8595057631861
●	1525HF_KA	25	21,6	3	8595057631878
●	1532HF_KA	32	28,4	3	8595057631885
●	1540HF_KA	40	36,0	3	8595057631892
●	1550HF_KA	50	45,6	3	8595057631908
●	1563HF_KA*	63	58,4	3	8595057631915

	item number	dn (mm)	di (mm)	L (m)	EAN
●	4016EHF_FA	16	12,7	3	8595057688254
●	4020HF_FA	20	16,7	3	8595057688261
●	4025HF_FA	25	21,0	3	8595057688278
●	4032HF_FA	32	28,0	3	8595057688285
●	4040HF_FA	40	35,4	3	8595057688292

	item number	dn (mm)	di (mm)	L (m)	EAN
●	4016EHF_KA	16	12,7	3	8595057690868
●	4020HF_KA	20	16,7	3	8595057690875
●	4025HF_KA	25	21,0	3	8595057690882
●	4032HF_KA	32	28,0	3	8595057690899
●	4040HF_KA	40	35,4	3	8595057690905

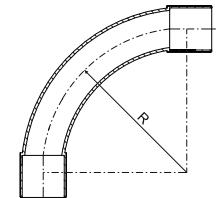


	item number	dn (mm)	di (mm)	L (m)	EAN
●	8016EHF_FA	16	11,7	3	8595057688322
●	8020HF_FA	20	15,7	3	8595057688339
●	8025HF_FA	25	20,2	3	8595057688346
●	8032HF_FA	32	27,0	3	8595057688353
●	8040HF_FA	40	34,8	3	8595057688360
●	8050HF_FA	50	44,2	3	8595057688377
●	8063HF_FA	63	56,8	3	8595057688384

elbows for halogen-free rigid pipes



- Injection-molded elbows, with double-sided necks, designed for 90° bending.
- Bending radius ensures a smooth transition and allows easy pulling of wires and cables.
- Can be installed in areas with a risk of explosion of flammable gases and vapors in zone 2 and in areas with a risk of explosion of flammable dusts in zone 22.
- Elbows are also supplied for fire-resistant systems (see Systems with maintained functionality in the event of a fire catalog).
- Black elbows are UV stable.



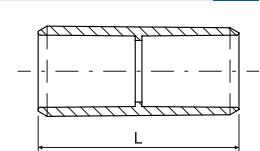
	item number	dn pipe (mm)	R (mm)	EAN
●	4116HF_FB	16	55	8595057626461
●	4120HF_FB	20	70	8595057626478
●	4125HF_FB	25	85	8595057626256
●	4132HF_FB	32	110	8595057626263
●	4140HF_FB	40	135	8595057626485
●	4150HF_FB	50	170	8595057626492

	item number	dn pipe (mm)	R (mm)	EAN
●	4116HF_KB	16	55	8595057629288
●	4120HF_KB	20	70	8595057629295
●	4125HF_KB	25	85	8595057629301
●	4132HF_KB	32	110	8595057629318
●	4140HF_KB	40	135	8595057651166
●	4150HF_KB	50	170	8595057699281

couplings for halogen-free rigid pipes

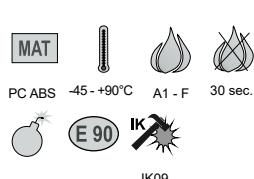


- The couplings are intended for connecting pipes. Pipe and elbow necking reduces consumption of coupling in pipe systems.
- Can be installed in areas with a risk of explosion of flammable gases and vapors in zone 2 and in areas with a risk of explosion of flammable dusts in zone 22.
- Couplings are also supplied for fire-resistant systems (see Systems with maintained functionality in the event of a fire catalog).
- Black couplings are UV stable.



	item number	dn pipe (mm)	L (mm)	EAN
●	0216HF_FB	16	45	8595057626508
●	0220HF_FB	20	50	8595057626515
●	0225HF_FB	25	60	8595057626270
●	0232HF_FB	32	70	8595057626287
●	0240HF_FB	40	80	8595057626522
●	0250HF_FB	50	88	8595057626539
●	0263HF_FB	63	105	8595057629356

	item number	dn pipe (mm)	L (mm)	EAN
●	0216HF_KB	16	45	8595057631922
●	0220HF_KB	20	50	8595057631939
●	0225HF_KB	25	60	8595057631946
●	0232HF_KB	32	70	8595057631953
●	0240HF_KB	40	80	8595057631960
●	0250HF_KB	50	88	8595057631977
●	0263HF_KB	63	105	8595057631984



standardized
non-standardized

FB color - black
KB color - light gray



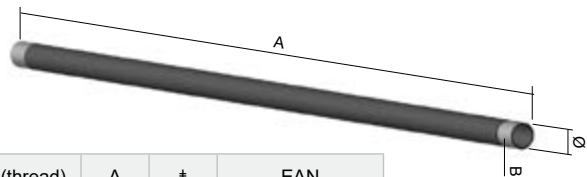
wiring pipes ČSN



MAT
steel -60 - +250°C 1250 N/5 cm
E 90
44561

F
IK10

- Aluminum couplings, which are part of the delivery of pipes according to ČSN, must be replaced by couplings of the series 313/3 - 342/3, according to the respective pipe diameter..

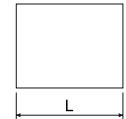


	item number	Ø external	Ø internal	B (thread)	A	‡	EAN
●	6013_ZNM_S	20,4	18,2	P13,5	3000	1,7	8595057627208
●	6016_ZNM_S	22,5	20,3	P16	3000	1,8	8595057626157
●	6021_ZNM_S	28,3	25,7	P21	3000	2,7	8595057626164
●	6029_ZNM_S	37	34,4	P29	3000	3,6	8595057626171
●	6036_ZNM_S	47	44	P36	3000	5,3	8595057626188
●	6042_ZNM_S	54	51	P42	3000	6,1	8595057626195
●	6013_ZN_F	20,4	18,2	P13,5	3000	1,7	8595057618718
●	6016_ZN_F	22,5	20,3	P16	3000	1,8	8595057618725
●	6021_ZN_F	28,3	25,7	P21	3000	2,7	8595057618732
●	6029_ZN_F	37	34,4	P29	3000	3,6	8595057618749
●	6036_ZN_F	47	44	P36	3000	5,3	8595057618756
●	6042_ZN_F	54	51	P42	3000	6,1	8595057618763
●	6013_EOZ	20,4	18,2	P13,5	3000	1,7	8595057618657
●	6016_EOZ	22,5	20,3	P16	3000	1,8	8595057618664
●	6021_EOZ	28,3	25,7	P21	3000	2,7	8595057618671
●	6029_EOZ	37	34,4	P29	3000	3,6	8595057618688
●	6036_EOZ	47	44	P36	3000	5,3	8595057618695
●	6042_EOZ	54	51	P42	3000	6,1	8595057618701



couplings for wiring pipes ČSN

- Steel couplings are used to connect pipes supplied in dimensions according to ČSN.



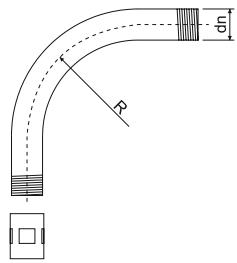
MAT
AI
IK10

	item number	thread	‡	EAN
●	313/3_PO	P13,5	0,04	8595057692695
●	316/3_PO	P16	0,05	8595057692701
●	321/3_PO	P21	0,06	8595057692718
●	329/3_PO	P29	0,07	8595057692725
●	336/3_PO	P36	0,08	8595057692732
●	342/3_PO	P42	0,09	8595057692749



wiring elbows ČSN

- To connect the elbows and pipes to each other, it is necessary to order steel couplings, which will replace the aluminum couplings supplied with the elbows and pipes.



MAT
steel -60 - +250°C 1250 N/5 cm
E 90
44561

F
IK10

	item number	Ø pipe	thread	R	‡	EAN
●	6113_ZNM_S	20,4	P13,5	80	0,17	8595057627277
●	6116_ZNM_S	22,5	P16	100	0,22	8595057627284
●	6121_ZNM_S	28,3	P21	120	0,37	8595057627291
●	6129_ZNM_S	37	P29	155	0,55	8595057627307
●	6136_ZNM_S	47	P36	185	1,00	8595057627314
●	6142_ZNM_S	54	P42	200	1,38	8595057627321
●	6113_ZN_F	20,4	P13,5	80	0,17	8595057618954
●	6116_ZN_F	22,5	P16	100	0,22	8595057618961
●	6121_ZN_F	28,3	P21	120	0,37	8595057618978
●	6129_ZN_F	37	P29	155	0,55	8595057618985
●	6136_ZN_F	47	P36	185	1,00	8595057618992
●	6142_ZN_F	54	P42	200	1,38	8595057619005
●	6113_EOZ	20,4	P13,5	80	0,17	8595057618893
●	6116_EOZ	22,5	P16	100	0,22	8595057618909
●	6121_EOZ	28,3	P21	120	0,37	8595057618916
●	6129_EOZ	37	P29	155	0,55	8595057618923
●	6136_EOZ	47	P36	185	1,00	8595057618930
●	6142_EOZ	54	P42	200	1,38	8595057618947

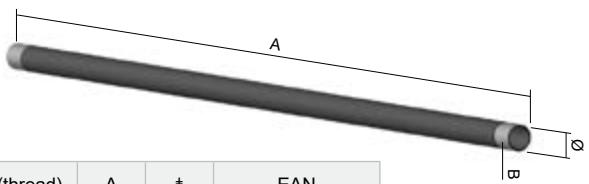
wiring pipes EN



MAT
steel -45 - +250°C 4000 N/5 cm

55561 E 90 IK10

- EN pipes are fitted with steel coupling on one side.



	item number	Ø external	Ø min. internal	B (thread)	A	‡	EAN
●	6020_ZNM_S	20	15,8	M20x1,5	3000	1,5	8595568919601
●	6025_ZNM_S	25	20,6	M25x1,5	3000	2,3	8595568920393
●	6032_ZNM_S	32	26,6	M32x1,5	3000	3,0	8595568922342
●	6040_ZNM_S	40	34,4	M40x1,5	3000	3,8	8595568923752
●	6016E_ZN_F	16	12,2	M16x1,5	3000	1,5	8595057631304
●	6020_ZN_F	20	15,8	M20x1,5	3000	2,3	8595057631311
●	6025_ZN_F	25	20,6	M25x1,5	3000	3,0	8595057631328
●	6032_ZN_F	32	26,6	M32x1,5	3000	3,8	8595057631335
●	6040_ZN_F	40	34,4	M40x1,5	3000	5,0	8595057631342
●	6050_ZN_F	50	43,8	M50x1,5	3000	6,0	8595057631359
●	6063_ZN_F	63	58,8	M63x1,5	3000	8,5	8595057631595
●	6016E_ECZ	16	12,2	M16x1,5	3000	1,5	8595057634152
●	6050_ECZ	50	43,8	M50x1,5	3000	6,0	8595057634206
●	6063_ECZ	63	58,8	M63x1,5	3000	8,5	8595057634213
●	6020_EOZ	20	15,8	M20x1,5	3000	2,3	8595568919595
●	6025_EOZ	25	20,6	M25x1,5	3000	3,0	8595568920379
●	6032_EOZ	32	26,6	M32x1,5	3000	3,8	8595568922366
●	6040_EOZ	40	34,4	M40x1,5	3000	5,0	8595568923769

couplings for wiring pipes EN



MAT
steel -45 - +250°C
E 90 IK10

- Couplings are designed for connecting steel pipes and elbows, for mechanical protection of wires or cables.



	item number	Ø pipe	thread	L	‡	EAN
●	316E/1_ZN_F	16	M16x1,5	30	0,04	8595057634572
●	320/1_ZN_F	20	M20x1,5	30	0,05	8595057634589
●	325/1_ZN_F	25	M25x1,5	36	0,06	8595057634596
●	332/1_ZN_F	32	M32x1,5	45	0,07	8595057634602
●	340/1_ZN_F	40	M40x1,5	48	0,08	8595057634619
●	350/1_ZN_F	50	M50x1,5	70	0,10	8595057634626
●	363/1_ZN_F	63	M63x1,5	105	0,12	8595057634633

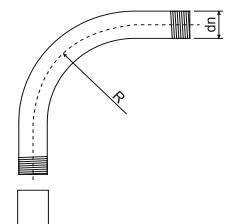
	item number	Ø pipe	thread	L	‡	EAN
●	316E/1_ECZ	16	M16x1,5	30	0,04	8595057634640
●	320/1_ECZ	20	M20x1,5	30	0,05	8595057634657
●	325/1_ECZ	25	M25x1,5	36	0,06	8595057634664
●	332/1_ECZ	32	M32x1,5	45	0,07	8595057634671
●	340/1_ECZ	40	M40x1,5	48	0,08	8595057634688
●	350/1_ECZ	50	M50x1,5	70	0,10	8595057634695
●	363/1_ECZ	63	M63x1,5	105	0,12	8595057634701

wiring elbows EN



MAT
steel -45 - +250°C
4000 N/5 cm 55561
E 90 IK10

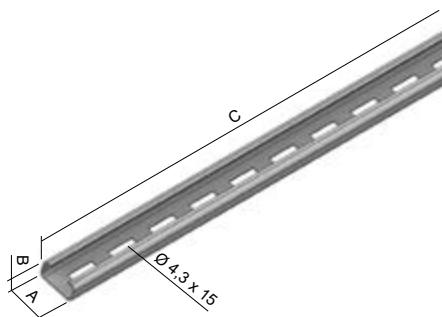
- The EN elbows are fitted with a steel coupling on one side.



	item number	Ø pipe	thread	R	‡	EAN
●	6116E_ZN_F	16	M16x1,5	55	0,21	8595057631366
●	6120_ZN_F	20	M20x1,5	70	0,27	8595057631373
●	6125_ZN_F	25	M25x1,5	115	0,35	8595057631380
●	6132_ZN_F	32	M32x1,5	125	0,49	8595057631397
●	6140_ZN_F	40	M40x1,5	140	0,55	8595057631403
●	6150_ZN_F	50	M50x1,5	170	0,69	8595057631410
●	6163_ZN_F	63	M63x1,5	210	0,78	8595057631670

	item number	Ø pipe	thread	R	‡	EAN
●	6116E_ECZ	16	M16x1,5	55	0,21	8595057634367
●	6120_ECZ	20	M20x1,5	70	0,27	8595057634374
●	6125_ECZ	25	M25x1,5	115	0,35	8595057634381
●	6132_ECZ	32	M32x1,5	125	0,49	8595057634398
●	6140_ECZ	40	M40x1,5	140	0,55	8595057634404
●	6150_ECZ	50	M50x1,5	170	0,69	8595057634411
●	6163_ECZ	63	M63x1,5	210	0,78	8595057634428

▶ supporting rail



- The rails are designed for routing cables fixed with SPK 200X4.6 stainless steel tightening belt.
- The rail is anchored to the base material using VPO 6.5X40 screws.

	item number	A	B	C	‡	note	EAN
●	5820/20_S	20	10	3000	0,23	galvanized steel Sendzimir, without holes	8595057605657
●	5820/21_S	20	10	3000	0,22	galvanized steel Sendzimir, with holes 4.3x15	8595057605664
●	5820/30_XX	20	10	3000	0,23	without surface finish, without holes	8595057605671
●	5820/31_XX	20	10	3000	0,22	without surface finish, with holes 4.3x15	8595057605688

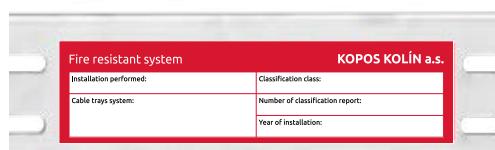
▶ edge protector



- The plastic edge protector with steel inside part is used to protect the edges of cable ladders.
- Packaging = 10 m, sold in whole packages.
- The protector can be installed on sheets with a thickness of max. 2 mm.

	item number	‡	EAN
●	NCH_XX	0,06	8595057669932

▶ marking of fire resistant routes



- Marking of fire-resistant routes is always done every at least 50 m of fire-resistant routes (standardized and non-standardized).
- CZ - Czech language, EN - English language, DE - German language

	item number	‡	EAN
●	OPT_CZ	0,001	8595568927811
●	OPT_EN	0,001	8595568932044
●	OPT_DE	0,001	8595568932396

▶ zinc paint / spray



- Corrosion protection designed to repair defective and damaged areas on the galvanized surface.
- The paint is applied with a brush using the blunt technique.
- The safety data sheet is available on the e-shop.

	item number	‡	EAN
●	WEICON 375_XX (paint)	0,50	8595057621183
●	WEICON 750_XX (paint)	1,10	8595057693609
●	GZS_XX (spray)	0,45	8595057633148



KOPOS



www.kopos.com



PRODUCTS nailing

▶ **VIDEO**

gas nailgun



- ▶ for firing 67xx_POBD series clamps
- ▶ battery capacity max. 3000 shots
- ▶ charging time - 90 minutes (quick charge function 25 min. = 500 shots)
- ▶ weight 3.8 Kg
- ▶ adjustable power up to 82J
- ▶ magazine for 20 nails
- ▶ a safety device against accidental firing is a matter of course
- ▶ dimensions: 385x114x309 mm
- ▶ gas firing (up to 750 shots per cartridge)
- ▶ operating temperature range -15 °C to 49 °C
- ▶ the service of the nailgun is provided by an external company (Recimagroup)

certification according to standards:
EN 12549, EN 792-13 + A1 :2008E

accessories according to:
2006/42/EC
2011/65/UE
1999/5/EC
CEM 2004/108/EC

certification according to:
battery: 2006/66/EC
charger:
2006/95/EC
CEM 2004/108/EC

	item number	EAN
●	K-PULSA 40 E_PO	8595568935571

magnetic attachment



- ▶ designed for firing the 67xx_POBD series clamps
- ▶ for K-Pulsa 40E_PO nailgun
- ▶ strong magnet for fastening clamps without holes

	item number	EAN
●	MVH P800_PO	8595568935588

gas cartridge



- ▶ capacity up to 750 shots
- ▶ for K-Pulsa 40E_PO series nailguns
- ▶ certification according to: 75/324 / EC
- ▶ the safety data sheet is available on the e-shop.

	item number	EAN
●	PLYN_PO	8595568935595

strip of nails - for concrete C20/25 to C30/37, solid masonry and plaster



- suitable for firing the 67xx_POBD series clamps
- use for standard concrete, solid masonry and plaster
- galvanized surface finish
- the PLYN_PO gas cartridge is included in the package of 500 nails

	item number	nail length [mm]	weight [kg]	sales package [pcs]	EAN
●	KHB C6-20_PO	20	0,71	500	8595568935601
●	KHB C6-25_PO	25	0,78	500	8595568935618
●	KHB C6-30_PO	30	0,88	500	8595568935625
●	KHB C6-35_PO	35	1,30	500	8595568935632
●	KHB C6-40_PO	40	1,16	500	8595568935649

strip of nails - for concrete C20/25 to C60/70, prestressed concrete and steel



- suitable for firing the 67xx_POBD series clamps
- use for high-strength concrete, prestressed concrete, steel
- galvanized surface finish
- the PLYN_PO gas cartridge is included in the package of 500 nails

	item number	nail length [mm]	weight [kg]	sales package [pcs]	EAN
●	KHO HC6-15_PO	15	0,66	500	8595568935656
●	KHO HC6-17_PO	17	0,71	500	8595568935663
●	KHO HC6-22_PO	22	0,84	500	8595568935670
●	KHO HC6-27_PO	27	1,00	500	8595568935687
●	KHO HC6-32_PO	32	1,15	500	8595568935694

strip of nails - no residue

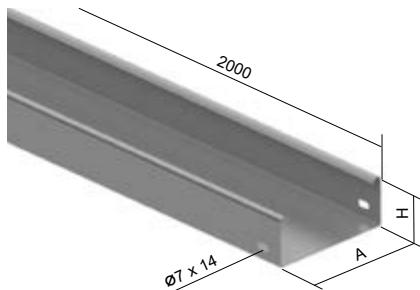


- suitable for firing the 67xx_POBD series clamps
- residual plastic does not remain under the head of the nails, when fired in steel and concrete
- galvanized surface finish
- the PLYN_PO gas cartridge is included in the package of 500 nails

	item number	nail length [mm]	weight [kg]	sales package [pcs]	EAN
◎	KHO HC6-15FH_PO	15	0,65	500	8595568935700
◎	KHO HC6-17FH_PO	17	0,71	500	8595568935717
◎	KHO HC6-22FH_PO	22	0,84	500	8595568935724
◎	KHO HC6-27FH_PO	27	0,99	500	8595568935731

PRODUCTS STAINLESS

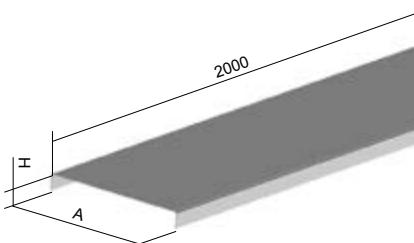
non-perforated cable tray



- The standard length of the cable tray is 2 m.
- The trays are connected using NIXS 50 / NIXS 100 couplings and NIXSM 6X10 bolts.
- The connection of the tray with the accessories is direct (without the use of couplings - the tray slides into the accessories), fastening is done with NIXSM 6X10 bolts.

	item number	A	H	‡	‡	¶	EAN
●	NIXKZN 50X62_IX	62	50	0,8	1,13	4	8595057669451
●	NIXKZN 50X125_IX	125	50	0,8	1,53	4	8595057669468
●	NIXKZN 50X250_IX	250	50	0,8	2,33	4	8595057669482
●	NIXKZN 100X125_IX	125	100	0,8	2,17	8	8595057669475
●	NIXKZN 100X250_IX	250	100	0,8	2,97	8	8595057677463
●	NIXKZN 100X500_IX	500	100	1,0	5,72	8	8595057677487

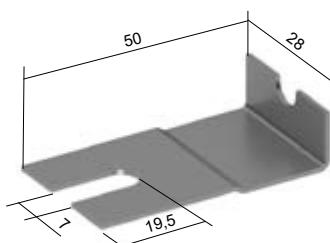
cable tray cover



- The standard length of the cable tray cover is 2 m.
- The cover is attached to the tray using the NIXUV cover fixture.

	item number	A	H	‡	‡	EAN
●	NIXV 62_IX	62	14	0,6	0,43	8595057673755
●	NIXV 125_IX	125	14	0,6	0,73	8595057673694
●	NIXV 250_IX	250	14	0,6	1,33	8595057673717
●	NIXV 500_IX	500	14	0,8	3,37	8595057673748

cover fixture

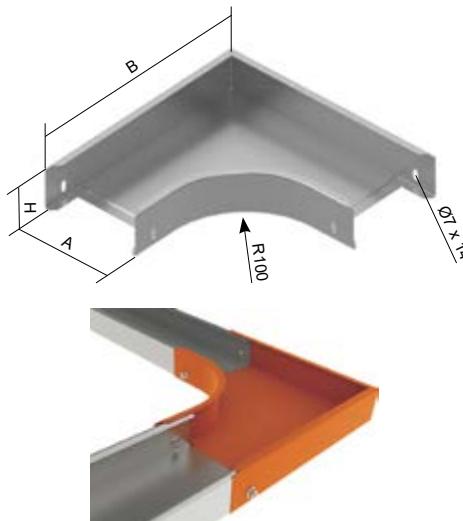


- Used to attach the covers to trays or accessories using NIXSM 6X10 bolts.
- The covers are fixed at each tray connection and each tray connection with accessories. Two fixtures are used for each connection - one on each side..

	item number	‡	EAN
●	NIXUV_IX	0,01	8595057673663



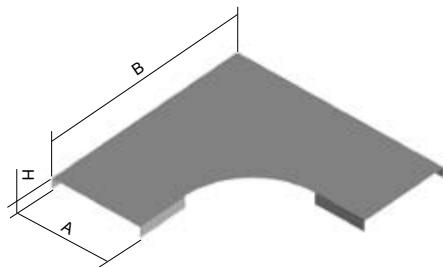
► bend 90°



- The elbow is used to create a 90° turn in the horizontal direction.
- The connection is made by sliding the cable tray directly into the accessories and then fixing it with NIXSM 6X10 bolts.
- For the NIXO 90X100X500 elbow, the outer right angle of the sides is replaced by a chamfer.

item number	A	H	B	\ddagger	$\ddot{\ddagger}$	$\sharp\ddagger$	EAN
● NIXO 90X50X62_IX	62	50	225	0,8	0,45	4	8595057671546
● NIXO 90X50X125_IX	125	50	288	0,8	0,68	4	8595057671515
● NIXO 90X50X250_IX	250	50	413	0,8	1,30	4	8595057671522
● NIXO 90X100X125_IX	125	100	288	0,8	0,10	8	8595057671478
● NIXO 90X100X250_IX	250	100	413	0,8	1,63	8	8595057671485
⊕ NIXO 90X100X500_IX	500	100	663	0,8	3,07	8	8595057671492

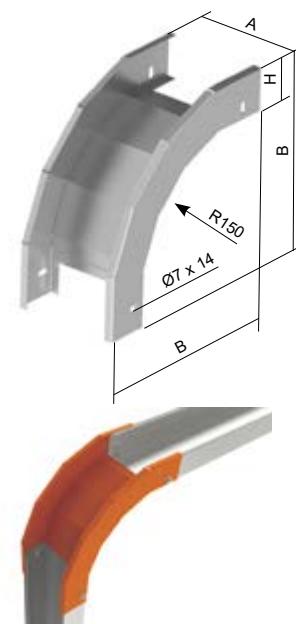
► 90 ° bend cover



- The cover is fastened using the NIXUV cover fixtures.

item number	A	H	B	\ddagger	$\ddot{\ddagger}$	EAN
● NIXVO 90X62_IX	62	15	238	0,6	0,18	8595057674608
● NIXVO 90X125_IX	125	15	301	0,6	0,35	8595057674554
● NIXVO 90X250_IX	250	15	426	0,6	0,80	8595057674578
⊕ NIXVO 90X500_IX	500	15	676	0,6	2,16	8595057674592

► 90° low elbow

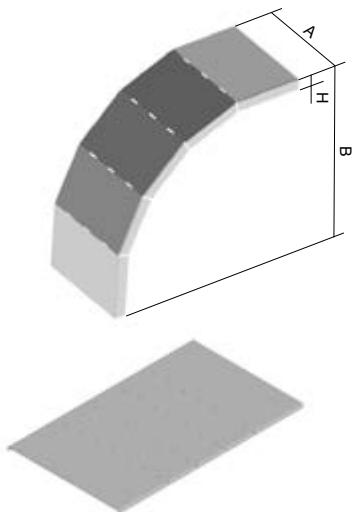


- The connection is made by sliding the cable tray directly into the accessories and then fixing it with NIXSM 6X10 bolts..

item number	A	H	B	\ddagger	$\ddot{\ddagger}$	$\sharp\ddagger$	EAN
● NIXKO 90X50X62_IX	62	50	240	0,8	0,40	4	8595057670266
● NIXKO 90X50X125_IX	125	50	240	0,8	0,50	4	8595057670235
● NIXKO 90X50X250_IX	250	50	240	0,8	0,70	4	8595057670242
● NIXKO 90X100X125_IX	125	100	290	0,8	0,78	8	8595057670198
● NIXKO 90X100X250_IX	250	100	290	0,8	0,98	8	8595057670204
⊕ NIXKO 90X100X500_IX	500	100	290	0,8	1,37	8	8595057670211



90° low elbow cover

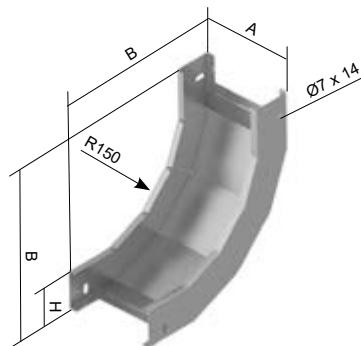


- The cover is fastened using the NIXUV cover fixture.
- Covers are delivered straight. They are constructed of one piece of sheet metal with cut sides for bending during assembly.

	item number	A	H	B	‡	‡	EAN
●	NIXVKO 90X50X62_IX	62	15	276	0,6	0,19	8595057673854
●	NIXVKO 90X50X125_IX	125	15	276	0,6	0,31	8595057673823
●	NIXVKO 90X50X250_IX	250	15	276	0,6	0,56	8595057673830
●	NIXVKO 90X100X125_IX	125	15	326	0,6	0,37	8595057673786
●	NIXVKO 90X100X250_IX	250	15	326	0,6	0,67	8595057673793
⊕	NIXVKO 90X100X500_IX	500	15	326	0,6	1,27	8595057673809



90° rising elbow

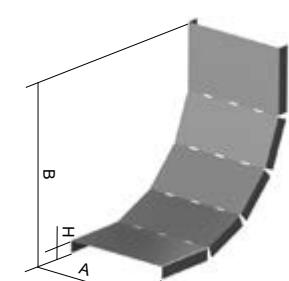


- The connection is made by sliding the cable tray directly into the accessories and then fixing it with NIXSM 6X10 bolts.

	item number	A	H	B	‡	‡	‡	EAN
●	NIXSO 90X50X62_IX	62	50	240	0,8	0,44	4	8595057672284
●	NIXSO 90X50X125_IX	125	50	240	0,8	0,57	4	8595057672253
●	NIXSO 90X50X250_IX	250	50	240	0,8	0,82	4	8595057672260
●	NIXSO 90X100X125_IX	125	100	290	0,8	0,92	8	8595057672215
●	NIXSO 90X100X250_IX	250	100	290	0,8	1,24	8	8595057672222
⊕	NIXSO 90X100X500_IX	500	100	290	0,8	1,88	8	8595057672239



90° rising elbow cover



- The cover is fastened using the NIXUV cover fixture
- Covers are delivered straight. They are constructed of one piece of sheet metal with cut sides for bending during assembly.

	item number	A	H	B	‡	‡	EAN
●	NIXVSO 90X62_IX	62	15	221	0,6	0,15	8595568904713
●	NIXVSO 90X125_IX	125	15	221	0,6	0,25	8595568904720
●	NIXVSO 90X250_IX	250	15	221	0,6	0,45	8595568904737
⊕	NIXVSO 90X500_IX	500	15	221	0,6	0,86	8595568904744



‡ metal sheet thickness (mm)

‡ weight kg/m

‡ number of bolts for connection

standardized

non-standardized

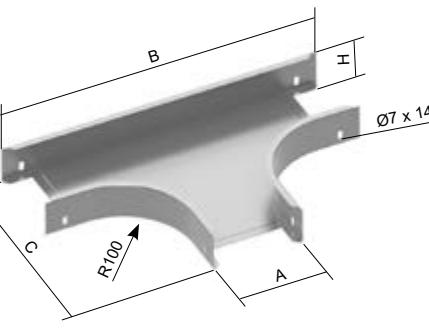
● standard

to order

IX stainless steel



T-piece

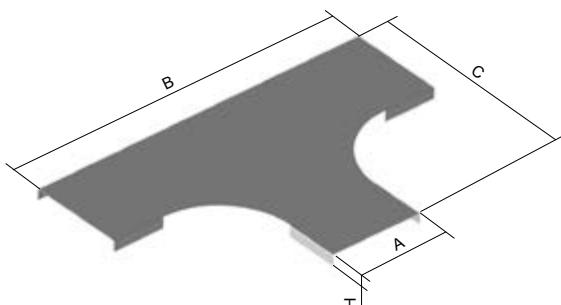


► The connection is made by sliding the cable tray directly into the accessories and then fixing it with NIXSM 6X10 bolts.

	item number	A	H	B	C	\ddagger	$\ddot{\ddagger}$	$\ddot{\ddot{\ddagger}}$	EAN
●	NIXT 50X62_IX	62	50	385	225	0,8	0,61	6	8595057672888
●	NIXT 50X125_IX	125	50	448	288	0,8	0,87	6	8595057672826
●	NIXT 50X250_IX	250	50	573	413	0,8	1,52	6	8595057672857
●	NIXT 100X125_IX	125	100	448	288	0,8	1,19	12	8595057672765
●	NIXT 100X250_IX	250	100	573	413	0,8	1,88	12	8595057672772
⌚	NIXT 100X500_IX	500	100	823	663	0,8	3,87	12	8595057672796



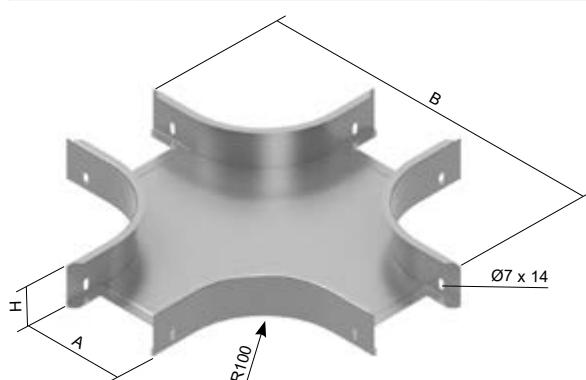
T-piece cover



► The cover is fastened using the NIXUV cover fixture.

	item number	A	H	B	C	\ddagger	$\ddot{\ddagger}$	$\ddot{\ddot{\ddagger}}$	EAN
●	NIXVT 62_IX	62	15	409	238	0,6	0,25	8595057675018	
●	NIXVT 125_IX	125	15	472	300	0,6	0,47	8595057674936	
●	NIXVT 250_IX	250	15	597	426	0,6	1,01	8595057674967	
⌚	NIXVT 500_IX	500	15	848	676	0,6	2,56	8595057674998	

cross



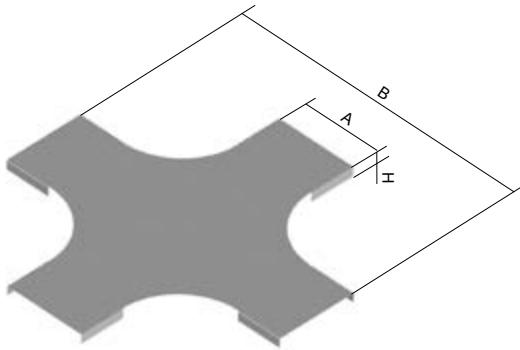
► The connection is made by sliding the cable tray directly into the accessories and then fixing it with NIXSM 6X10 bolts.

	item number	A	H	B	\ddagger	$\ddot{\ddagger}$	$\ddot{\ddot{\ddagger}}$	EAN
⌚	NIXKR 50X62_IX	62	50	385	0,8	0,77	8	8595057670532
⌚	NIXKR 50X125_IX	125	50	448	0,8	1,04	8	8595057670488
⌚	NIXKR 50X250_IX	250	50	573	0,8	1,74	8	8595057670501
⌚	NIXKR 100X125_IX	125	100	448	0,8	1,39	16	8595057670426
⌚	NIXKR 100X250_IX	250	100	573	0,8	2,10	16	8595057670433
⌚	NIXKR 100X500_IX	500	100	823	0,8	4,09	16	8595057670457





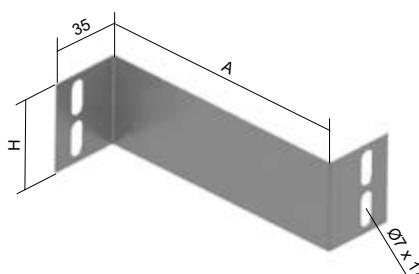
cross cover



► The cover is fastened using the NIXUV cover fixtures.

	item number	A	H	B	‡	‡	EAN
⊕	NIXVKR 62_IX	62	15	409	0,6	0,31	8595057674097
⊕	NIXVKR 125_IX	125	15	472	0,6	0,58	8595057674011
⊕	NIXVKR 250_IX	250	15	597	0,6	1,22	8595057674042
⊕	NIXVKR 500_IX	500	15	848	0,6	2,95	8595057674073

reduction

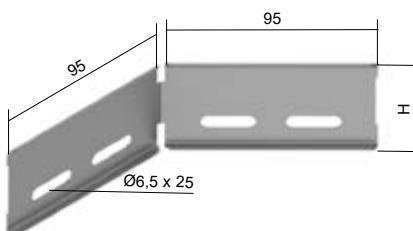


- The connection is made using NIXSM 6X10 bolts.
- The reduction is used to switch between different tray widths with the same side height.

	item number	A	H	‡	‡	‡	EAN
●	NIXR 50X62_IX	65	43	0,6	0,02	2	8595057672031
●	NIXR 50X125_IX	127	43	0,6	0,04	2	8595057672017
●	NIXR 100X125_IX	127	93	0,6	0,08	4	8595057671997
⊕	NIXR 100X250_IX	250	93	0,6	0,18	4	8595057672000



angle coupling



- The connection is made using NIXSM 6X10 bolts.
- Angle couplings are mainly used for connecting slightly bent routes or for creating large radius curves or bypassing columns and pillars.
- The advantage of the angle coupling is the ability to easily create a curved route at virtually any angle.



	item number	H	‡	‡	EAN
●	NIXSUK 50_IX	46	0,8	0,05	8595057672666
●	NIXSUK 100_IX	96	0,8	0,12	8595057672642

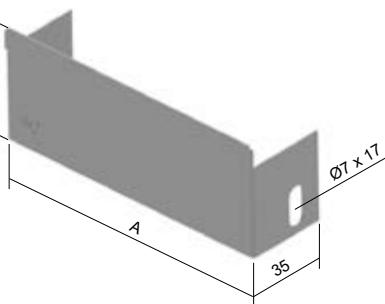
hinged joint



- NIXSM 6X10 bolts are used to connect the hinged joint to the tray.
- The joint is supplied in 1 piece, 2 pieces are needed to create a route bend.

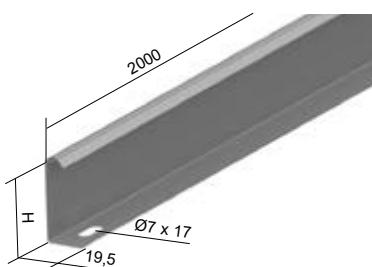
	item number	H	‡	‡	‡	EAN
●	INOXSK 50_IX	43	1,0	0,09	2	8595568930552
●	INOXSK 100_IX	93	1,0	0,21	4	8595568930569



 end-piece

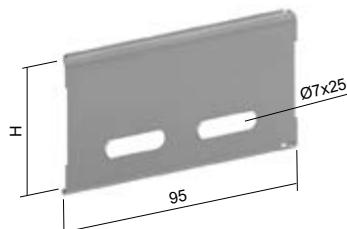
- The connection is made using NIXSM 6X10 bolts.
- The end piece is used to close the open end of the route.

	item number	A	H	\ddot{t}	$\ddot{\tau}$	$\underline{\tau}$	EAN
●	NIXK 50X62_IX	60	50	0,6	0,03	2	8595057670020
●	NIXK 50X125_IX	123	50	0,6	0,04	2	859505766994
●	NIXK 50X250_IX	248	50	0,6	0,07	4	8595057670006
●	NIXK 100X125_IX	125	100	0,6	0,08	2	8595057669956
●	NIXK 100X250_IX	250	100	0,6	0,14	4	8595057669963
⌚	NIXK 100X500_IX	500	100	0,6	0,34	4	8595057669970

 partition

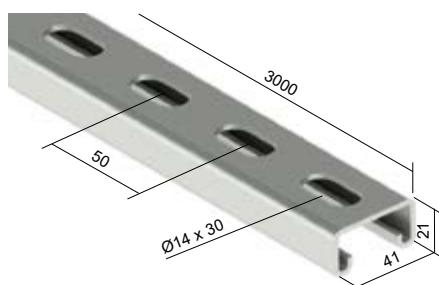
- The standard length of the partition is 2 m.
- The partition is fastened with NIXSM 6X10 bolts

	item number	H	\ddot{t}	$\ddot{\tau}$	EAN
●	NIXPZ 50_IX	44	0,6	0,35	8595057671973
●	NIXPZ 100_IX	94	0,6	0,60	8595057671959

 coupling

- The connection is made using NIXSM 6X10 bolts.

	item number	H	\ddot{t}	$\ddot{\tau}$	$\underline{\tau}$	EAN
●	NIXS 50_IX	47	0,8	0,03	2	8595057672109
●	NIXS 100_IX	97	0,8	0,06	4	8595057672062

 mounting profile

- Suitable for creating a support for cable routes carried on threaded rods.
- The mounting profile can be closed with the OKSPL end cap.

	item number	\ddot{t}	EAN
⌚	INOXMP 41X21_IX	2,5	8595057630598

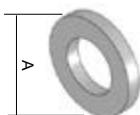


hexagon nut



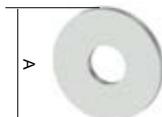
	item number	EAN
●	INOXM 8_IX	8595057630635
⌚	INOXM 10_IX	8595057642706

washer



	item number	A	EAN
●	INOXPD 8_IX	16	8595057630710
⌚	INOXPD 10_IX	20	8595057642720

large washer

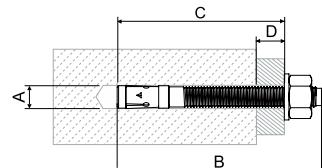


	item number	A	EAN
●	INOXPVL 6_IX	18	8595057642737
●	INOXPVL 8_IX	24	8595057642744
⌚	INOXPVL 10_IX	30	8595057642751
⌚	INOXPVL 12_IX	38	8595568930118

anchor



- Anchors are suitable for suspended, through and distance mounting.
- Types of base material: cracked concrete, non-cracked concrete, natural stone with a solid structure.



	item number	schválená tířida seismicity	průměr otvoru A [mm]	délka kotvy B [mm]	min. hloubka otvoru při první montáži C [mm]	maximální užitná délka D [mm]	thread	velikost klíče	EAN
●	INOXKPO 8X75_IX	C1	8	75	65	10	M8x38	13	8595568921987
●	INOXKPO 10X95_IX	C1/C2	10	105	95	20	M10x63	17	8595568905888

hammer anchor



- Hammer anchors are used to directly fasten threaded rods to the base material (concrete, brick).
- A - drill diameter
- B - total anchor length
- C - minimum depth of the drilled hole

	item number	A	B	C	thread	‡	EAN
●	INOXKPOZ 8_IX	10	30	33	M8x14	0,01	8595568905895
●	INOXKPOZ 10_IX	12	40	43	M10x17	0,01	8595568905901

‡ weight kg/m



standardized



non-standardized

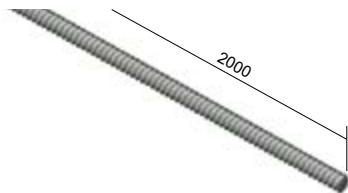
● standard

⌚ to order



IX stainless steel

threaded rod



► DIN 976.

	item number	Ø	EAN
●	INOXZT 8_IX	M8	8595057630604

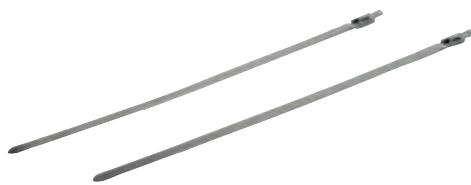
bolt with round head and lock nut



- Used to fasten the connection of cable trays and accessories or to attach them to a support.
- A solid connection ensures a conductive connection of the cable trays and accessories.

	item number	EAN
●	NIXSM 6X10_IX	8595057672185

tightening belt



- The belt is used to fasten the cable to the support rail.
- The connection is not detachable.

	item number	‡	EAN
●	SPK 200X4.6_IX	0,002	8595057698116

cited and related laws, decrees, standards as amended

Act 283/2021 Coll., On Spatial Planning and Building Regulations (Building Act), as amended
 Act No. 133/1985 Coll., On fire protection, as amended
 Act No. 22/1997 Coll., On technical requirements for products, as amended
 Act 90/2016 Coll., On conformity assessment of specified products when they are placed on the market, as amended
 Decree No. 268/2009 Coll., On technical requirements for constructions, as amended
 Decree No. 246/2001 Coll., On determining the conditions of fire safety and the performance of state fire supervision (Decree on fire prevention), as amended
 Decree No. 23/2008 Coll., On technical conditions for fire protection of buildings, as amended

Government Decree No. 118/2016 Coll., On conformity assessment of electrical equipment intended for use within certain voltage limits when supplying them to the market, as amended
 Government Regulation No. 163/2002 Coll., Laying down technical requirements for selected construction products, as amended
 EU Regulation No. 305/2011 laying down harmonized conditions for the marketing of construction products, as amended
 ČSN 73 0802 Fire safety of buildings - Non-production facilities, effective from 1 November 2020
 ČSN 73 0804 Fire safety of buildings - Production facilities, effective from 1 October 2020
 ČSN 73 0831 Fire safety of buildings - Assembly areas, effective from 1 November 2020
 ČSN 73 0810 Fire safety of buildings - Common provisions, effective from 1 November 2020
 ČSN 73 0833 Fire safety of buildings - Buildings for housing and accommodation, change Z1 and Z2
 ČSN 73 0835 Fire safety of buildings - Buildings of medical facilities, effective from 1 October 2020
 ČSN 73 0848 Fire safety of buildings - Cable distribution, change Z1 and Z2
 DIN 4102-12 Behavior of building materials and components in case of fire - Part 12: Maintenance of electrical cable systems
 ČSN EN 1363-1 Fire resistance tests - Part 1: General requirements
 ČSN EN 60332-1-1 Tests on electric and optical fiber cables under fire conditions - Part 1-1: Vertical flame spread test for single insulated conductors or cables - Test equipment, change A1
 ČSN EN IEC 60332-3-10 ed. 2 Tests on electric and optical fiber cables under fire conditions - Part 3-10: Test for vertical flame spread on vertically mounted wiring harnesses or cables - Equipment and is amended by A1
 ČSN EN 60754-1 Test of gases formed during combustion of materials from cables - Part 1: Determination of hydrogen halide content, change A1
 ČSN EN 60754-2 Test of gases formed during combustion of materials from cables - Part 2: Determination of acidity (pH measurement) and conductivity, change A1
 ČSN EN 61034-1 Measurement of smoke density during burning of cables under defined conditions - Part 1: Test equipment, modification A1 and A2
 ČSN IEC 60331-11 Tests on electric cables under fire conditions - Circuit integrity - Part 11: Equipment - Separate combustion at flame temperature of at least 750 °C
 ČSN EN 50200 ed. 3 Fire resistance test method for unprotected small diameter cables intended for use in emergency circuits
 ČSN 73 0895 Fire safety of buildings - Preservation of functionality of cable routes in fire conditions - Requirements, tests, classification Px-R, PHx-R and application of results tests

five levels of corrosion aggressiveness

level	corrosive environment	corrosive aggressiveness	average depletion of zinc layer due to corrosion ($\mu\text{m} / \text{year}$)	recommended surface finish	
C1	Interior: dry	very low	less than 0.1	ZnCr, BZNCR S	(bolts) (trays)
C2	Interior: occasional humidity Exterior: open area	low	0.1 - 0.7	ZnCr, BZNCR - limited GMT S	(bolts) (bolts) (trays)
C3	Interior: high humidity and slightly polluted air Exterior: industrial environment, location near sea shore	medium	0.7 - 2	GMT S - limited F, E, P, BEZN, BF	(bolts) (trays) (trays)
C4	Interior: swimming pools, chemical plants, etc. Exterior: industrial and seaside environments	high	2 - 4	F, E, P, BEZN, BF, IX, IX, GMT	(trays) (bolts)
C5	Exterior: industrial pollution with high humidity and high effect of sea environment	very high	4 - 8	F, E, P, BF, BEZN - limited IX GMT - limited IX	(trays) (trays) (bolts) (bolts)

Risk of corrosion depends on the intensity of the external effects according to the standards ČSN EN ISO 9223 and ČSN EN ISO 14713-1.

surface finish and corrosion protection

Corrosion resistance of cable trays treated with powder coating

A laboratory test has proven that galvanized cable trays painted with powder polyester that were tested in the salt spray for a period of 1 500 hours did not exhibit any signs of blisters or rusting through (the test ISO 6270 for galvanized steel treated with powder plastic prescribes the acting of water only for a period of 720 hours, meanwhile we tested the galvanized trays treated with powder polyester according to the more demanding test ISO 7253 for steel treated with powder plastic, which prescribes the acting of salt spray for a period of 1440 hours).

The resistance, tested by us, of the galvanized tray treated with polyester coating also suits the environments with very high corrosive aggressiveness.

The polyester coating remains undamaged after the acting of the corrosive effects of the environment, it has high adhesiveness and under it there remains the undamaged zinc coating of the steel core of the cable tray.

Galvanized steel coated with powder plastic does not have coating losses (galvanized steel always has depletion of the zinc coating, according to the environment - see table with 5 levels of corrosion aggressiveness).

Polyester powder coating ensures at least the same values of corrosion resistance as hot-dip galvanizing.

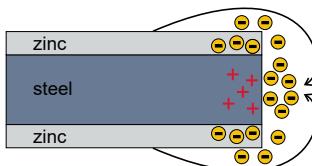
surface treatment and corrosion protection

Corrosion

Corrosion is an undesirable deterioration of a material due to chemical or physico-chemical environmental influences. These physico-chemical processes result in partial or complete destruction of the material.

White rust

White rust is a cosmetic defect of the coating, but does not reduce corrosion resistance. It visually damages the galvanized image, but the silver coating and luster of the freshly galvanized material matures and turns into a rich gray color within a few weeks. This is due to the reaction between zinc and air. Therefore, the occurrence of this phenomenon cannot be a reason for a justified complaint according to the ČSN EN ISO 1461 standard.



Cathodic protection

Cathodic protection is a protective mechanism of the zinc layer, which is based on the ability to transfer zinc ions to the damaged part of the steel sheet. Due to the action of rainwater, condensate and other electrolytes, a galvanic cell is formed between two different metals. A voltage difference is created here and the less noble metal (zinc) passes into solution as the anode, see the picture. This means that zinc, with regard to its normal potential, acts as a consumed anode and thus protects the base material. This principle applies up to a sheet thickness of 1.5 mm.

The steel can be protected against corrosion by the following surface treatments

ZNCR electrolytically galvanized products - zinc chromate - ČSN EN ISO 2081, DIN 50 961
Zinc coating layer 10 µm +/- 4 µm (wall supports, fasteners, bolts, washers, nuts...)

S **PO** **galvanizing Sendzimir** - ČSN EN 10 143, ČSN EN 10346

galvanized steel Sendzimir: cold-rolled steel strip passes after preparation in a continuous bath with liquid zinc. A zinc layer is formed, which guarantees increased corrosion protection. Depending on the type of product, the thickness of both sides of the zinc layer ranges from 235 to 275 g / m², which corresponds to 13 to 27 µm. Cable trays NKZI 50X62X0.70 and NKZIN 50X62X0.70 are manufactured with a zinc layer of 200 g / m², which corresponds to 10 - 20 µm.

F **BF** **POF** **hot-dip galvanizing** - ČSN EN ISO 1461

Finished sheet metal products without surface treatment are immersed in a zinc bath with a temperature of approximately 450 °C. After removal from the zinc bath, a layer of iron-zinc alloy covered with a layer of pure zinc is formed on the steel. The thickness of the zinc layer depends on the thickness of the material, according to the standard, the average zinc layer for steel <1.5 mm is 45 µm (min. 35 µm). For 1.5 to 3 mm thick steel, the average zinc layer is 55 µm (min. 45 µm). From a technological point of view, non-perforated parts are complemented by a technological hole.

IX **stainless steel AISI 304**

austenitic chrome-nickel stainless steel - has excellent resistance especially to atmospheric and soil corrosion - use in the food industry various designations: ČSN 17 240; AISI 304; DIN X5CrNi18-10; W.-Nr. 1.4301

GMT **POGMMT** **GEOMET - electroless plating**

The basis of the DELTA surface treatment are Delta Tone 9000 materials. These are inorganic coatings filled with zinc and aluminum microlamellae dispersed in a titanite binder. The method produces a cathodic protective coating with a layer thickness of 5-15 micrometers. At this layer thickness, it provides even better surface protection for metals than a thicker zinc layer formed by hot dip galvanizing. The method complies with the European Recycling Directive because it does not contain heavy metals or hexavalent chromium and is advantageous for small parts. KOPOS KOLÍN supplies bolts, nuts, couplings and other small connecting material in this surface treatment and performed a test in salt spray according to ČSN EN ISO 9227, which showed that the coating was not damaged during the action of salt spray for 300 hours. Long-term temperature stability is guaranteed up to 180 °C, while the surface treatment does not show hydrogen embrittlement. For the above reasons, we can completely recommend this method of surface treatment as an alternative to hot-dip galvanizing.

BEZN **electrolytically galvanized products - high resistance**

Improved electrolytically galvanized surface treatment with high resistance to aggressive environments, suitable for humid and outdoor environments. Durability of more than 1300 hours when tested in salt spray. Same color design as the traditional BZNCR finish, smooth and glossy surface with an even wall.

painting

application of powder plastic in an electrostatic field on a galvanized product. Increases corrosion resistance in aggressive environments (C2 - C5) + aesthetic reasons



EO **EPOXY** - for the indoor environment (does not resist UV radiation) - visible parts painted - 60 µm

EC **EPOXY** - for the indoor environment (does not resist UV radiation) - fully painted - 60 µm

P **POLYESTER** - for the external environment (resistant to UV radiation) - fully painted - 60 µm

White RAL 9010, matt.

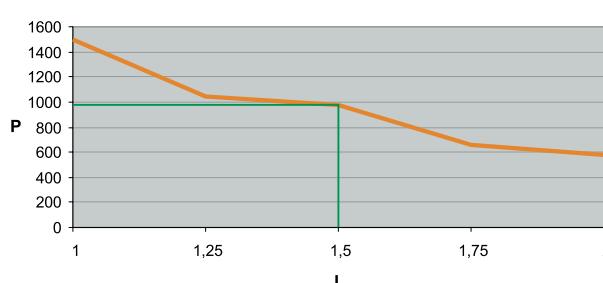
Other RAL colors can be supplied according to an individual agreement with the sales department.

The thickness of the zinc layer can be guaranteed to a specific minimum value. Products specified in this way are made to order and at contractual prices.

From a technological point of view, non-perforated parts are complemented by a technological hole.

mechanical resistance

Cable trays are designed, constructed and type tested according to ČSN EN 61537 ed. 2 Cable routing - Cable tray systems and cable tray systems so as to provide reliable mechanical protection for insulated conductors, cables, cords and any other electrical equipment contained therein, where required. Furthermore, these trays can withstand the stresses that are likely to occur at the classified minimum temperature for storage, transport, installation and application. Bolt connections and other mechanical connections withstand mechanical stress during installation and normal use.



Example of load graph display (NKZI 50X125)

When placing supports with a distance of 1.5 m, the maximum possible load of the tray NKZI 50X125 is 1000 N / m.

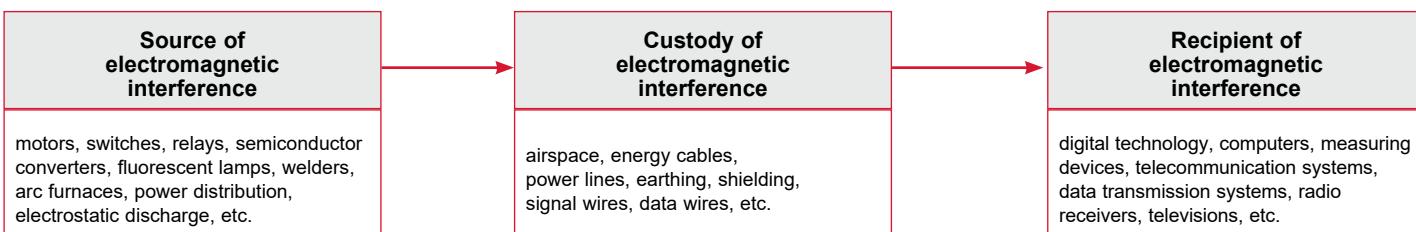
L = distance between supports (m)
P = permissible uniform load (N / m)

electromagnetic compatibility

Cable tray systems are often operated in an industrial environment characterized by a high level of external electromagnetic influences. For this reason, it is necessary to follow certain rules that will ensure the perfect functioning of the system.

Electromagnetic Compatibility (EMC) is the ability of a device or system to function properly even in an environment where sources of electromagnetic signals operate. At the same time, this device or system should not be a source of unacceptable electromagnetic interference.

Relationship between the source of interference and the disturbed device



In order to achieve a good level of electromagnetic compatibility, it is necessary to eliminate or reduce as much as possible of the influence of one of these elements.

A well-connected and earthed cable tray system is well-secured against external electromagnetic interference. The trays closed by the lid thus act as shielding channels. It is only necessary to observe certain rules inside the tray, where individual cables can act as a source and others as a receiver of electromagnetic interference.



To reduce or completely eliminate the effect of electromagnetic compatibility, the basic condition is the separation of power and data cables within one tray. This can be achieved in several ways:

1. separate the individual lines using a metal partition.
2. not to store data and power distribution in one tray together.
3. if different types of conductors are placed within one sheet metal tray, which could affect each other, it is necessary to keep a distance of at least 20 cm between them.

packaging and storage

The straight parts are firmly fixed on the pallets with elastic polypropylene tape, the other material is stored in boxes.

Scope of validity:

These conditions apply to the storage of metal products manufactured by KOPOS KOLÍN a.s. and comply with the standard ČSN EN IEC 60721-3-1 ed. 2 Classification of environmental conditions - Part 3-1: Classification of groups of environmental parameters and their levels of severity - Storage

In general

1. Products must be protected against harmful influences, such as mechanical damage, weather or chemical influences.
2. The longest-stored products (FIFO system) must be removed from storage.
3. Products stored must be properly and visibly marked in the store to prevent confusion.

Storage requirements

The products must be stored in a dry, dust-free environment to prevent damage.

Warehouse specifications:

- A place completely protected from the weather, ie in a closed place where the direct effects of the weather are completely excluded.
- The presence of water from sources other than rain must be completely ruled out: dripping water, gushing water, condensate.
- Complete elimination of chemical influences caused by salt aerosols.



alphabetical list of products

item number	pg.	item number	pg.	item number	pg.	item number	pg.	item number	pg.	item number	pg.
0216HF_FB	145	4120HF_KB	145	6036_EOZ	146	6716ED_PO	136	DSU 100_PO	133	DZNP 150/B_S	129
0216HF_KB	145	4125HF_FB	145	6040_ZN_F	147	6716ED_POGMT	136	DSU 100_POF	133	DZNP 200/B_F	129
0220HF_FB	145	4125HF_KB	145	6040_ZNM_S	147	6718_PO	136	DSU 200_PO	133	DZNP 200/B_S	129
0220HF_KB	145	4132HF_FB	145	6040_EOZ	147	6718_POBD	136	DSU 200_POF	133	DZNP 300/B_F	129
0225HF_FB	145	4132HF_KB	145	6042_ZN_F	146	6718_POGMT	136	DSU 300_PO	133	DZNP 300/B_S	129
0225HF_KB	145	4140HF_FB	145	6042_ZNM_S	146	6720_PO	136	DSU 300_POF	133	DZNP 400/B_F	129
0232HF_FB	145	4140HF_KB	145	6042_EOZ	146	6720_POBD	136	DT 100_F	131	DZNP 400/B_S	129
0232HF_KB	145	4150HF_FB	145	6050_ZN_F	147	6720_POGMT	136	DT 1000_F	131	DZNP 500/B_F	129
0240HF_FB	145	4150HF_KB	145	6050_ECZ	147	6722_PO	136	DT 150_F	131	DZNP 500/B_S	129
0240HF_KB	145	5208_D_ZNCR	137	6063_ZN_F	147	6722_POBD	136	DT 200_F	131	DZNP 600/B_F	129
0250HF_FB	145	5210_D_ZNCR	137	6063_ECZ	147	6722_POGMT	136	DT 250_F	131	DZNP 600/B_S	129
0250HF_KB	145	5212_D_ZNCR	137	6113_ZN_F	146	6725_PO	136	DT 300_F	131	DZS/B_F	128
0263HF_FB	145	5216_D_ZNCR	137	6113_ZNM_S	146	6725_POBD	136	DT 400_F	131	DZS/B_ZNCR	128
0263HF_KB	145	5216E_ZN_F	137	6113_EOZ	146	6725_POGMT	136	DT 500_F	131	DZSU_B_ZNCR	129
1516EHF_FA	145	5216E_ZNM_S	137	6116_ZN_F	146	8016EHF_FA	145	DT 600_F	131	DZZ/B_F	129
1516EHF_KA	145	5220_D_ZNCR	137	6116_ZNM_S	146	8020HF_FA	145	DT 800_F	131	DZZ/B_ZNCR	129
1520HF_FA	145	5220_ZN_F	137	6116_EOZ	146	8025HF_FA	145	DT OKO_POF	131	GZS_XX (sprej)	148
1520HF_KA	145	5220_ZNM_S	137	6116E_ZN_F	147	8032HF_FA	145	DZ 60X100_BF	128	INOXKPO 10X95_IX	158
1525HF_FA	145	5225_D_ZNCR	137	6116_ECZ	147	8040HF_FA	145	DZ 60X150_BF	128	INOXKPO 8X75_IX	158
1525HF_KA	145	5225_ZN_F	137	6120_ZN_F	147	8050HF_FA	145	DZ 60X200_BF	128	INOXKPOZ 10_IX	158
1532HF_FA	145	5225_ZNM_S	137	6120_ECZ	147	8063HF_FA	145	DZ 60X300_BF	128	INOXKPOZ 8_IX	158
1532HF_KA	145	5232_D_ZNCR	137	6121_ZN_F	146	8211HF_HB	144	DZ 60X400_BF	128	INOXM 10_IX	158
1540HF_FA	145	5232_ZN_F	137	6121_ZNM_S	146	8212HF_HB	144	DZ 60X500_BF	128	INOXM 8_IX	158
1540HF_KA	145	5232_ZNM_S	137	6121_EOZ	146	8213HF_HB	144	DZ 60X60_BF	128	INOXPV 41X21_IX	157
1550HF_FA	145	5240_D_ZNCR	137	6125_ZN_F	147	8214HF_HB	144	DZ 60X600_BF	128	INOXPD 10_IX	158
1550HF_KA	145	5240_ZN_F	137	6125_ECZ	147	8215HF_HB	144	DZCZ/B_F	130	INOXPD 8_IX	158
1563HF_FA*	145	5250_D_ZNCR	137	6129_ZN_F	146	8216HF_HB	144	DZCZ/B_ZNCR	130	INOXPV 6_IX	158
1563HF_KA*	145	5250_ZN_F	137	6129_ZNM_S	146	8217HF_HB	144	DZDN_XX	130	INOXPV 8_IX	158
313/3_PO	146	5250_ZNM_S	137	6129_EOZ	146	8631HF_HB	144	DZDS 100/B_F	130	INOXPV 10_IX	158
316/3_PO	146	5263_D_ZNCR	137	6132_ZN_F	147	8632HF_HB	144	DZDS 100/B_S	130	INOXPV 12_IX	158
316E/1_ZN_F	147	5263_ZN_F	137	6132_ECZ	147	8633HF_HB	144	DZDS 150/B_F	130	INOXSK 100_IX	156
316E/1_ECZ	147	5263_ZNM_S	137	6136_ZN_F	146	8634HF_HB	144	DZDS 150/B_S	130	INOXSK 50_IX	156
320/1_ZN_F	147	5820/20_S	148	6136_ZNM_S	146	8635HF_HB	144	DZDS 200/B_F	130	INOXZT 8_IX	159
320/1_ECZ	147	5820/21_S	148	6136_EOZ	146	8636HF_HB	144	DZDS 200/B_S	130	K 110X150_F	111
321/3_PO	146	5820/30_XX	148	6140_ZN_F	147	8639HF_HB	144	DZDS 300/B_F	130	K 110X150_S	111
325/1_ZN_F	147	5820/31_XX	148	6140_ECZ	147	BSKH 110_D_F	125	DZDS 300/B_S	130	K 110X200_F	111
325/1_ECZ	147	6013_ZN_F	146	6142_ZN_F	146	BSKH 110_D_S	125	DZDS 400/B_F	130	K 110X200_S	111
329/3_PO	146	6013_ZNM_S	146	6142_ZNM_S	146	BSKH 110_K_F	125	DZDS 400/B_S	130	K 110X300_F	111
332/1_ZN_F	147	6013_EOZ	146	6142_EOZ	146	BSKH 110_K_S	125	DZDS 500/B_F	130	K 110X300_S	111
332/1_ECZ	147	6016_ZN_F	146	6150_ZN_F	147	BSKH 60_D_F	125	DZDS 500/B_S	130	K 110X400_F	111
336/3_PO	146	6016_ZNM_S	146	6150_ECZ	147	BSKH 60_D_S	125	DZDS 600/B_F	130	K 110X400_S	111
340/1_ZN_F	147	6016_EOZ	146	6163_ZN_F	147	BSKH 60_K_F	125	DZDS 600/B_S	130	K 110X500_F	111
340/1_ECZ	147	6016E_ZN_F	147	6163_ECZ	147	BSKH 60_K_S	125	DZI 60X100_BEZN	128	K 110X500_S	111
342/3_PO	146	6016E_ECZ	147	6706_PO	136	DCEV 10X200_PO	127	DZI 60X100_BZNCR	128	K 110X600_F	111
350/1_ZN_F	147	6020_ZN_F	147	6706_POBD	136	DCEV 10X300_PO	127	DZI 60X150_BEZN	128	K 110X600_S	111
350/1_ECZ	147	6020_ZNM_S	147	6706_POGMT	136	DCEV 10X400_PO	127	DZI 60X150_BZNCR	128	K 60X100_F	111
363/1_ZN_F	147	6020_EOZ	147	6708_PO	136	DCEV 6X200_PO	127	DZI 60X200_BEZN	128	K 60X100_S	111
363/1_ECZ	147	6021_ZN_F	146	6708_POBD	136	DCEV 6X300_PO	127	DZI 60X200_BZNCR	128	K 60X150_F	111
4016EHF_FA	145	6021_ZNM_S	146	6708_POGMT	136	DCEV 6X400_PO	127	DZI 60X300_BEZN	128	K 60X150_S	111
4016EHF_KA	145	6021_EOZ	146	6710_PO	136	DCEV 8X200_PO	127	DZI 60X300_BZNCR	128	K 60X200_F	111
4020HF_FA	145	6025_ZN_F	147	6710_POBD	136	DCEV 8X300_PO	127	DZI 60X400_BEZN	128	K 60X200_S	111
4020HF_KA	145	6025_ZNM_S	147	6710_POGMT	136	DCEV 8X400_PO	127	DZI 60X400_BZNCR	128	K 60X300_F	111
4025HF_FA	145	6025_EOZ	147	6712_PO	136	DS 100_S	132	DZI 60X500_BEZN	128	K 60X300_S	111
4025HF_KA	145	6029_ZN_F	146	6712_POBD	136	DS 150_S	132	DZI 60X500_BZNCR	128	K 60X400_F	111
4032HF_FA	145	6029_ZNM_S	146	6712_POGMT	136	DS 200_S	132	DZI 60X60_BEZN	128	K 60X400_S	111
4032HF_KA	145	6029_EOZ	146	6714_PO	136	DS 300_S	132	DZI 60X60_BZNCR	128	K 60X50_F	111
4040HF_FA	145	6032_ZN_F	147	6714_POBD	136	DS 400_S	132	DZI 60X600_BEZN	128	K 60X50_S	111
4040HF_KA	145	6032_ZNM_S	147	6714_POGMT	136	DS 500_S	132	DZI 60X600_BZNCR	128	K 60X500_F	111
4116HF_FA	145	6032_EOZ	147	6716_EPO	136	DS 600_S	132	DZNP 100/B_F	129	K 60X500_S	111
4116HF_KB	145	6036_ZN_F	146	6716E_POBD	136	DSOS 10_ZNCR	139	DZNP 100/B_S	129	K 60X600_F	111
4120HF_FA	145	6036_ZNM_S	146	6716_E_POGMT	136	DSOS 8_ZNCR	139	DZNP 150/B_F	129	K 60X600_S	111



alphabetical list of products

item number	pg.	item number	pg.	item number	pg.	item number	pg.	item number	pg.	item number	pg.
K 60X75_F	111	KLKR 110X600_F	126	KO 90X110X600_F	109	KR 110X600_S	107	KZ 60X150X1.50_POF	102	LTS 300_S	132
K 60X75_S	111	KLKR 110X600_S	126	KO 90X110X600_S	109	KR 60X100_F	107	KZ 60X200X1.50_PO	102	LTS 400_S	132
KBS 6X35 M8/M10_PO	141	KLKR 60X200_F	126	KO 90X60X100_F	109	KR 60X100_S	107	KZ 60X200X1.50_POF	102	M 10_GMT	140
KHB C6-20_PO	151	KLKR 60X200_S	126	KO 90X60X100_S	109	KR 60X150_F	107	KZ 60X300X1.50_PO	102	M 10_ZNCR	140
KHB C6-25_PO	151	KLKR 60X300_F	126	KO 90X60X150_F	109	KR 60X150_S	107	KZ 60X300X1.50_POF	102	M 12_GMT	140
KHB C6-30_PO	151	KLKR 60X300_S	126	KO 90X60X150_S	109	KR 60X200_F	107	KZ 60X50X1.50_PO	102	M 12_ZNCR	140
KHB C6-35_PO	151	KLKR 60X400_F	126	KO 90X60X200_F	109	KR 60X200_S	107	KZ 60X50X1.50_POF	102	M 6_ZNCR	140
KHB C6-40_PO	151	KLKR 60X400_S	126	KO 90X60X200_S	109	KR 60X300_F	107	KZ 60X75X1.50_PO	102	M 8_GMT	140
KHO HC6-15_PO	151	KLKR 60X500_F	126	KO 90X60X300_F	109	KR 60X300_S	107	KZ 60X75X1.50_POF	102	M 8_ZNCR	140
KHO HC6-15FH_PO	151	KLKR 60X600_F	126	KO 90X60X400_F	109	KR 60X400_S	107	KZI 60X100X0.75_F	103	MDS_GMT	110
KHO HC6-17_PO	151	KLKR 60X600_S	126	KO 90X60X400_S	109	KR 60X50_F	107	KZI 60X100X0.75_S	103	MDS_S	110
KHO HC6-17FH_PO	151	KLKR 60X600_S	126	KO 90X60X400_S	109	KR 60X50_S	107	KZI 60X100X1.00_F	103	MN 8_ZNCR	133
KHO HC6-22_PO	151	KLOBH 110X200_F	125	KO 90X60X50_F	109	KR 60X50_S	107	KZI 60X100X1.00_S	103	MP 41X21_F	134
KHO HC6-22FH_PO	151	KLOBH 110X300_F	125	KO 90X60X50_S	109	KR 60X500_F	107	KZI 60X100X1.25_PO	103	MP 41X21_S	134
KHO HC6-27_PO	151	KLOBH 110X400_F	125	KO 90X60X500_F	109	KR 60X500_S	107	KZI 60X100X1.25_POF	103	MP 41X21X1.50_S	134
KHO HC6-27FH_PO	151	KLOBH 110X500_F	125	KO 90X60X500_S	109	KR 60X600_F	107	KZI 60X150X0.75_F	103	MP 41X21X1.50X2000_S	134
KHO HC6-32_PO	151	KLOBH 110X600_F	125	KO 90X60X600_F	109	KR 60X600_S	107	KZI 60X150X0.75_S	103	MP 41X41_F	134
KHP 10X60_PO	142	KLOBH 60X150_S	125	KO 90X60X600_S	109	KR 60X75_F	107	KZI 60X150X1.00_F	103	MP 41X41_S	134
KHP 6X32_PO	142	KLOBH 60X200_F	125	KO 90X60X75_F	109	KR 60X75_S	107	KZI 60X150X1.00_S	103	MS KPS_PO	134
KHP 8X38_PO	142	KLOBH 60X200_F	125	KO 90X60X75_S	109	Pcs_2PO10	101	KZI 60X150X1.25_PO	103	MVH P800_PO	150
KHP 8X60_PO	142	KLOBH 60X200_S	125	KPBSKL 150_PO	123	Pcs_2PO6	101	KZI 60X150X1.25_POF	103	MZ 10_ZNCR	140
KL 110X150_F	124	KLOBH 60X300_F	125	KPBSKL 150_POF	123	Pcs_PO	101	KZI 60X200X0.75_F	103	MZ 12_ZNCR	140
KL 110X150_S	124	KLOBH 60X300_S	125	KPBSKL 200_PO	123	Pcs_PO10	101	KZI 60X200X0.75_S	103	MZ 6_ZNCR	140
KL 110X200_F	124	KLOBH 60X400_F	125	KPBSKL 200_POF	123	Pcs_PO10J	101	KZI 60X200X1.00_F	103	MZ 8_ZNCR	140
KL 110X200_S	124	KLOBH 60X400_S	125	KPBSKL 300_PO	123	Pcs_PO16	101	KZI 60X200X1.00_S	103	NCH_XX	148
KL 110X300_F	124	KLOBH 60X500_F	125	KPBSKL 300_POF	123	Pcs_PO4J	101	KZI 60X200X1.25_PO	103	NIXK 100X125_IK	157
KL 110X300_S	124	KLOBH 60X500_S	125	KPBSKL 400_PO	123	Pcs_PO6J	101	KZI 60X200X1.25_POF	103	NIXK 100X250_IK	157
KL 110X400_F	124	KLOBH 60X600_F	125	KPBSKL 400_POF	123	KSBS 100_PO	102	KZI 60X300X0.75_F	103	NIXK 50X125_IK	157
KL 110X400_S	124	KLOBH 60X600_S	125	KPO 10X115_PO	141	KSBS 100_POF	102	KZI 60X300X0.75_S	103	NIXK 50X250_IK	157
KL 110X500_F	124	KLSU_F	135	KPO 10X115_POGMT	141	KSBS 150_PO	102	KZI 60X300X1.00_F	103	NIXK 50X62_IK	157
KL 110X500_S	124	KLSU_S	135	KPO 10X175_PO	141	KSBS 150_POF	102	KZI 60X300X1.00_S	103	NIXKO 90X100X125_IK	153
KL 110X600_F	124	KLT 110X200_F	126	KPO 10X95_PO	141	KSBS 200_PO	102	KZI 60X300X1.25_PO	103	NIXKO 90X100X250_IK	153
KL 110X600_S	124	KLT 110X200_S	126	KPO 10X95_POGMT	141	KSBS 200_POF	102	KZI 60X300X1.25_POF	103	NIXKO 90X100X250_IK	153
KL 60X150_F	124	KLT 110X300_F	126	KPO 12X120_PO	141	KSBS 300_PO	102	KZI 60X400X1.00_F	103	NIXKO 90X100X500_IK	153
KL 60X150_PO	123	KLT 110X300_S	126	KPO 12X120_POGMT	141	KSBS 300_POF	102	KZI 60X400X1.00_S	103	NIXKO 90X50X125_IK	153
KL 60X150_POF	123	KLT 110X400_F	126	KPO 6X70_PO	141	KSBS 50_PO	102	KZI 60X400X1.25_PO	103	NIXKO 90X50X250_IK	153
KL 60X150_S	124	KLT 110X400_S	126	KPO 8X110_PO	141	KSBS 50_POF	102	KZI 60X400X1.25_POF	103	NIXKO 90X50X62_IK	153
KL 60X200_F	124	KLT 110X500_F	126	KPO 8X77_PO	141	KSBS 75_PO	102	KZI 60X500X1.00_F	103	NIXKR 100X125_IK	155
KL 60X200_PO	123	KLT 110X500_S	126	KPO 8X77_POGMT	141	KSBS 75_POF	102	KZI 60X500X1.00_S	103	NIXKR 100X250_IK	155
KL 60X200_POF	123	KLT 110X600_F	126	KPO 8X97_PO	141	KSK 100_P010J	98	KZI 60X500X1.25_PO	103	NIXKR 100X500_IK	155
KL 60X200_S	124	KLT 110X600_S	126	KPO 8X97_POGMT	141	KSK 100_P04J	98	KZI 60X500X1.25_POF	103	NIXKR 50X125_IK	155
KL 60X300_F	124	KLT 60X200_F	126	KPO 10_P	141	KSK 100_P06J	98	KZI 60X50X0.75_F	103	NIXKR 50X250_IK	155
KL 60X300_PO	123	KLT 60X200_S	126	KPOZ 6_PO	141	KSK 100_PO	98	KZI 60X50X0.75_S	103	NIXKR 50X62_IK	155
KL 60X300_POF	123	KLT 60X300_F	126	KPOZ 8_PO	141	KSK 125_2PO6	99	KZI 60X50X1.00_F	103	NIXKZN 100X125_IK	152
KL 60X300_S	124	KLT 60X300_S	126	KPS 160X150_PO	127	KSK 125_DPO	100	KZI 60X50X1.00_S	103	NIXKZN 100X250_IK	152
KL 60X400_F	124	KLT 60X400_F	126	KPS 160X200_PO	127	KSK 125_PO10	98	KZI 60X50X1.25_PO	103	NIXKZN 100X500_IK	152
KL 60X400_PO	123	KLT 60X400_S	126	KPS 160X300_PO	127	KSK 125_PO6P	99	KZI 60X50X1.25_POF	103	NIXKZN 50X125_IK	152
KL 60X400_POF	123	KLT 60X500_F	126	KPS 160X400_PO	127	KSK 175_2PO10	99	KZI 60X600X1.00_F	103	NIXKZN 50X250_IK	152
KL 60X400_S	124	KLT 60X500_S	126	K-PULSA 40_E_PO	150	KSK 175_DPO	100	KZI 60X600X1.00_S	103	NIXKZN 50X62_IK	152
KL 60X500_F	124	KLT 60X500_S	126	KPZ-1_PO	100	KSK 175_PO10P	99	KZI 60X600X1.25_PO	103	NIXO 90X100X125_IK	153
KL 60X500_S	124	KLT 60X600_F	126	KR 110X150_F	107	KSK 175_PO16	98	KZI 60X600X1.25_POF	103	NIXO 90X100X250_IK	153
KL 60X600_F	124	KO 90X110X150_F	109	KR 110X150_S	107	KVP 5X35_PO	142	KZI 60X75X0.75_F	103	NIXO 90X100X500_IK	153
KL 60X600_S	124	KO 90X110X150_S	109	KR 110X200_F	107	KVP 5X40_PO	142	KZI 60X75X0.75_S	103	NIXO 90X50X125_IK	153
KLKR 110X200_F	126	KO 90X110X200_F	109	KR 110X200_S	107	KVP 5X45_PO	142	KZI 60X75X1.00_F	103	NIXO 90X50X250_IK	153
KLKR 110X200_S	126	KO 90X110X200_S	109	KR 110X300_F	107	KVP 5X50_PO	142	KZI 60X75X1.00_S	103	NIXO 90X50X62_IK	153
KLKR 110X300_F	126	KO 90X110X300_F	109	KR 110X300_S	107	KVP 6X40_PO	142	KZI 60X75X1.25_PO	103	NIXPZ 100_IK	157
KLKR 110X300_S	126	KO 90X110X300_S	109	KR 110X400_F	107	KVP 6X45_PO	142	KZI 60X75X1.25_POF	103	NIXPZ 50_IK	157
KLKR 110X400_F	126	KO 90X110X400_F	109	KR 110X400_S	107	KVP 6X50_PO	142	LHD 40X20HF_HD	144	NIXR 100X125_IK	156
KLKR 110X400_S	126	KO 90X110X400_S	109	KR 110X500_F	107	KZ 60X100X1.50_PO	102	LTS 100_S	132	NIXR 100X250_IK	156
KLKR 110X500_F	126	KO 90X110X500_F	109	KR 110X500_S	107	KZ 60X100X1.50_POF	102	LTS 150_S	132	NIXR 50X125_IK	156
KLKR 110X500_S	126	KO 90X110X500_S	109	KR 110X600_F	107	KZ 60X150X1.50_PO	102	LTS 200_S	132	NIXR 50X62_IK	156



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NIXS 50_IK	157	NKO 90X50X125_F	118	NKZIN 50X62X1.25_F	112	NRD 100_F	120	NVO 45X250_S	115	OH 110X400_F	105
NIXSM 6X10_IK	159	NKO 90X50X125_S	118	NKZIN 50X62X1.25_S	112	NRD 100_S	120	NVO 45X500_F	115	OH 110X400_S	105
NIXSO 90X100X125_IK	154	NKO 90X50X250_F	118	NO 45X100X125_F	115	NRD 50_F	120	NVO 45X500_S	115	OH 110X500_F	105
NIXSO 90X100X250_IK	154	NKO 90X50X250_S	118	NO 45X100X125_S	115	NRD 50_S	120	NVO 45X62_F	115	OH 110X500_S	105
NIXSO 90X100X500_IK	154	NKO 90X50X62_F	118	NO 45X100X250_F	115	NSM 6X10_GMT	143	NVO 45X62_S	115	OH 110X600_F	105
NIXSO 90X50X125_IK	154	NKO 90X50X62_S	118	NO 45X100X250_S	115	NSM 6X10_ZNCR	143	NVO 90X125_S	114	OH 110X600_S	105
NIXSO 90X50X250_IK	154	NKR 100X125_F	117	NO 45X100X500_F	115	NSM 6X20_GMT	143	NVO 90X250_S	114	OH 60X100_F	105
NIXSO 90X50X62_IK	154	NKR 100X125_S	117	NO 45X100X500_S	115	NSM 6X20_ZNCR	143	NVO 90X500_S	114	OH 60X100_S	105
NIXSUK 100_IK	156	NKR 100X250_F	117	NO 45X50X125_F	115	NSO 90X100X125_F	119	NVO 90X62_S	114	OH 60X150_F	105
NIXSUK 50_IK	156	NKR 100X250_S	117	NO 45X50X125_S	115	NSO 90X100X125_S	119	NVSO 90X125_F	119	OH 60X150_S	105
NIXT 100X125_IK	155	NKR 100X500_F	117	NO 45X50X250_F	115	NSO 90X100X250_F	119	NVSO 90X125_S	119	OH 60X200_F	105
NIXT 100X250_IK	155	NKR 100X500_S	117	NO 45X50X250_S	115	NSO 90X100X250_S	119	NVSO 90X250_F	119	OH 60X200_S	105
NIXT 100X500_IK	155	NKR 50X125_F	117	NO 45X50X62_F	115	NSO 90X100X500_F	119	NVSO 90X250_S	119	OH 60X300_F	105
NIXT 50X125_IK	155	NKR 50X125_S	117	NO 45X50X62_S	115	NSO 90X100X500_S	119	NVSO 90X500_F	119	OH 60X300_S	105
NIXT 50X250_IK	155	NKR 50X250_F	117	NO 90X100X125_F	114	NSO 90X50X125_F	119	NVSO 90X500_S	119	OH 60X400_F	105
NIXT 50X62_IK	155	NKR 50X250_S	117	NO 90X100X125_S	114	NSO 90X50X125_S	119	NVSO 90X62_F	119	OH 60X400_S	105
NIXUV_IK	152	NKR 50X62_F	117	NO 90X100X125_S	114	NSO 90X50X250_F	119	NVSO 90X62_S	119	OH 60X50_F	105
NIXV 125_IK	152	NKR 50X62_S	117	NO 90X100X250_F	114	NSO 90X50X250_S	119	NVT 125_F	116	OH 60X50_S	105
NIXV 250_IK	152	NKZI 100X125X0.70_S	112	NO 90X100X250_F	114	NSO 90X50X62_F	119	NVT 125_S	116	OH 60X500_F	105
NIXV 500_IK	152	NKZI 100X125X0.80_F	112	NO 90X100X250_S	114	NSO 90X50X62_S	119	NVT 250_F	116	OH 60X500_S	105
NIXV 62_IK	152	NKZI 100X125X1.25_F	112	NO 90X100X500_F	114	NSUK 100_GMT	121	NVT 250_S	116	OH 60X600_F	105
NIXVKO 90X100X125_IK	154	NKZI 100X125X1.25_S	112	NO 90X100X500_F	114	NSUK 100_S	121	NVT 500_F	116	OH 60X600_S	105
NIXVKO 90X100X250_IK	154	NKZI 100X250X0.70_S	112	NO 90X100X500_S	114	NSUK 50_GMT	121	NVT 500_S	116	OH 60X75_F	105
NIXVKO 90X100X500_IK	154	NKZI 100X250X0.80_F	112	NO 90X50X125_F	114	NSUK 50_S	121	NVT 62_F	116	OH 60X75_S	105
NIXVKO 90X50X125_IK	154	NKZI 100X250X1.25_F	112	NO 90X50X125_F	114	NT 100X125_F	116	NVT 62_S	116	OKSPS_DB	131
NIXVKO 90X50X250_IK	154	NKZI 100X250X1.25_S	112	NO 90X50X125_S	114	NT 100X125_S	116	O 90X110X150_F	104	OPT_CZ	148
NIXVKO 90X50X62_IK	154	NKZI 100X500X1.00_S	112	NO 90X50X250_F	114	NT 100X250_F	116	O 90X110X150_S	104	OPT_DE	148
NIXVKR 125_IK	156	NKZI 100X500X1.25_F	112	NO 90X50X250_F	114	NT 100X250_S	116	O 90X110X200_F	104	OPT_EN	148
NIXVKR 250_IK	156	NKZI 100X500X1.25_S	112	NO 90X50X250_S	114	NT 100X500_F	116	O 90X110X200_S	104	P 60_F	110
NIXVKR 500_IK	156	NKZI 50X125X0.70_F	112	NO 90X50X62_F	114	NT 100X500_S	116	O 90X110X300_F	104	P 60_S	110
NIXVKR 62_IK	156	NKZI 50X125X0.70_S	112	NO 90X50X62_F	114	NT 50X125_F	116	O 90X110X300_S	104	PD 10_GMT	140
NIXVO 90X125_IK	153	NKZI 50X125X1.25_F	112	NO 90X50X62_S	114	NT 50X125_S	116	O 90X110X400_F	104	PD 10_ZNCR	140
NIXVO 90X250_IK	153	NKZI 50X125X1.25_S	112	NP 100_F	134	NT 50X250_F	116	O 90X110X400_S	104	PD 12_GMT	140
NIXVO 90X500_IK	153	NKZI 50X250X0.70_S	112	NP 100_S	134	NT 50X250_S	116	O 90X110X500_F	104	PD 12_ZNCR	140
NIXVO 90X62_IK	153	NKZI 50X250X1.00_F	112	NP 150_F	134	NT 50X62_F	116	O 90X110X500_S	104	PD 6_ZNCR	140
NIXVSO 90X125_IK	154	NKZI 50X250X1.00_S	112	NP 150_S	134	NT 50X62_S	116	O 90X110X600_F	104	PD 8_GMT	140
NIXVSO 90X250_IK	154	NKZI 50X250X1.25_F	112	NP 200_F	134	NUV_GMT	113	O 90X110X600_S	104	PD 8_ZNCR	140
NIXVSO 90X500_IK	154	NKZI 50X250X1.25_S	112	NP 200_S	134	NUV_S	113	O 90X60X100_F	104	PEP 60/K_S	144
NIXVSO 90X62_IK	154	NKZI 50X62X0.70_F	112	NP 250_F	134	NVKO 90X100X125_F	118	O 90X60X100_S	104	PK 110X65 D HF_HD	144
NIXVT 125_IK	155	NKZI 50X62X0.70_S	112	NP 250_S	134	NVKO 90X100X125_S	118	O 90X60X150_F	104	PKC1 1198_F	138
NIXVT 250_IK	155	NKZI 50X62X1.25_F	112	NP 30X15X1.20_S	134	NVKO 90X100X250_F	118	O 90X60X150_S	104	PKC1 1199_F	138
NIXVT 500_IK	155	NKZI 50X62X1.25_S	112	NP 350_F	134	NVKO 90X100X250_S	118	O 90X60X200_F	104	PKC1 1207_F	138
NIXVT 62_IK	155	NKZIN 100X125X0.70_S	112	NP 350_S	134	NVKO 90X100X500_F	118	O 90X60X200_S	104	PKC1 1208_F	138
NK 100X125_F	122	NKZIN 100X125X0.80_F	112	NPS 125_F	133	NVKO 90X100X500_S	118	O 90X60X300_F	104	PKC1 1201_F	138
NK 100X125_S	122	NKZIN 100X125X1.25_S	112	NPS 125_ZNCR	133	NVKO 90X50X125_F	118	O 90X60X300_S	104	PKC1 1202_F	138
NK 100X250_F	122	NKZIN 100X250X0.70_S	112	NPS 250_F	133	NVKO 90X50X125_S	118	O 90X60X400_F	104	PKC1 1203_F	138
NK 100X250_S	122	NKZIN 100X250X0.80_F	112	NPS 250_ZNCR	133	NVKO 90X50X250_F	118	O 90X60X400_S	104	PKC1 1204_F	138
NK 100X500_F	122	NKZIN 100X250X1.25_F	112	NPS 62_F	133	NVKO 90X50X250_S	118	O 90X60X50_F	104	PKC1 1205_F	138
NK 100X500_S	122	NKZIN 100X250X1.25_S	112	NPS 62_ZNCR	133	NVKO 90X50X62_F	118	O 90X60X50_S	104	PKC1 1206_F	138
NK 50X125_F	122	NKZIN 100X500X1.00_S	112	NPZ 100_F	122	NVKO 90X50X62_S	118	O 90X60X500_F	104	PKC1 1207_F	138
NK 50X125_S	122	NKZIN 100X500X1.25_F	112	NPZ 100_S	122	NVKR 125_F	117	O 90X60X500_S	104	PKC1 1208_F	138
NK 50X250_F	122	NKZIN 100X500X1.25_S	112	NPZ 50_F	122	NVKR 125_S	117	O 90X60X600_F	104	PKC1 1209_F	138
NK 50X250_S	122	NKZIN 100X125X0.70_S	112	NPZ 50_S	122	NVKR 250_F	117	O 90X60X600_S	104	PKC1 1210_F	138
NK 50X62_F	122	NKZIN 100X125X1.25_S	112	NR 100X125_F	121	NVKR 250_S	117	O 90X60X75_F	104	PKC1 1211_F	138
NK 50X62_S	122	NKZIN 100X250X0.70_S	112	NR 100X125_S	121	NVKR 500_F	117	O 90X60X75_S	104	PKC1 1212_F	138
NKO 90X100X125_F	118	NKZIN 100X250X1.00_F	112	NR 100X250_F	121	NVKR 500_S	117	OH 110X150_F	105	PKDZ1 12_F	138
NKO 90X100X125_S	118	NKZIN 100X250X1.00_S	112	NR 100X250_S	121	NVKR 62_F	117	OH 110X150_S	105	PKDZ1 14_F	138
NKO 90X100X250_F	118	NKZIN 100X250X1.25_F	112	NR 50X125_F	121	NVKR 62_S	117	OH 110X200_F	105	PKDZ1 16_F	138
NKO 90X100X250_S	118	NKZIN 100X250X1.25_S	112	NR 50X125_S	121	NVO 45X125_F	115	OH 110X200_S	105	PKDZ1 18_F	138
NKO 90X100X500_F	118	NKZIN 50X62X0.70_F	112	NR 50X62_F	121	NVO 45X125_S	115	OH 110X300_F	105	PKDZ1 22_F	138
NKO 90X100X500_S	118	NKZIN 50X62X0.70_S	112	NR 50X62_S	121	NVO 45X125_S	115	OH 110X300_F	105	PKDZ1 26_F	138



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PKDZ1_38_F	138	SO 90X110X500_S	108	SR 60X25_S	111	V 200_F	103	VKR 50_S	107	VSO 90X400_F	108
PKDZ1_42_F	138	SO 90X110X600_F	108	SR 60X250_F	111	V 200_S	103	VKR 500_F	107	VSO 90X400_S	108
PKDZ1_46_F	138	SO 90X110X600_S	108	SR 60X250_S	111	V 250_F	113	VKR 500_S	107	VSO 90X50_F	108
PKDZ1_50_F	138	SO 90X60X100_F	108	SR 60X300_F	111	V 250_S	113	VKR 600_F	107	VSO 90X50_S	108
PKDZ1_54_F	138	SO 90X60X100_S	108	SR 60X300_S	111	V 300_F	103	VKR 600_S	107	VSO 90X500_F	108
PKDZ1_58_F	138	SO 90X60X150_F	108	SR 60X350_F	111	V 300_S	103	VKR 75_F	107	VSO 90X500_S	108
PLYN_PO	150	SO 90X60X150_S	108	SR 60X350_S	111	V 400_F	103	VO 90X100_F	104	VSO 90X600_F	108
PVL_10_GMT	140	SO 90X60X200_F	108	SR 60X400_F	111	V 400_S	103	VO 90X100_S	104	VSO 90X600_S	108
PVL_10_ZNCR	140	SO 90X60X200_S	108	SR 60X400_S	111	V 50_F	103	VO 90X150_F	104	VSO 90X75_F	108
PVL_12_ZNCR	140	SO 90X60X300_F	108	SR 60X50_F	111	V 50_S	103	VO 90X150_S	104	VSO 90X75_S	108
PVL_6_ZNCR	140	SO 90X60X300_S	108	SR 60X50_S	111	V 500_F	103	VT 100_F	106		
PVL_8_GMT	140	SO 90X60X400_F	108	SR 60X75_F	111	V 500_S	113	VO 90X200_F	104	VT 100_S	106
PVL_8_ZNCR	140	SO 90X60X400_S	108	SR 60X75_S	111	V 500_S	103	VO 90X200_S	104	VT 150_F	106
S 10X20_GMT	140	SO 90X60X50_F	108	STP 4.2X13_PO	143	V 500_S	113	VO 90X300_F	104	VT 150_S	106
S 10X20_ZNCR	140	SO 90X60X50_S	108	STS_S	132	V 600_F	103	VO 90X300_S	104	VT 200_F	106
S 10X25_ZNCR	140	SO 90X60X500_F	108	SU 110_F	110	V 600_S	103	VO 90X400_F	104	VT 200_S	106
S 10X30_GMT	140	SO 90X60X500_S	108	SU 110_S	110	V 62_F	113	VO 90X400_S	104	VT 300_F	106
S 10X30_ZNCR	140	SO 90X60X600_F	108	SU 60_F	110	V 62_S	113	VO 90X50_F	104	VT 300_S	106
S 10X40_GMT	140	SO 90X60X600_S	108	SU 60_S	110	V 75_F	103	VO 90X50_S	104	VT 400_F	106
S 10X40_ZNCR	140	SO 90X60X75_F	108	SVD 30_PO	143	V 75_S	103	VO 90X500_F	104	VT 400_S	106
S 10X50_ZNCR	140	SO 90X60X75_S	108	SVD 40_PO	143	VKO 90X110X150_F	109	VO 90X500_S	104	VT 50_F	106
S 10X70_ZNCR	140	SPK 200X4.6_IX	159	T 110X150_F	106	VKO 90X110X150_S	109	VO 90X600_F	104	VT 50_S	106
S 110X200_GMT	124	SPS 1000_F	131	T 110X150_S	106	VKO 90X110X200_F	109	VO 90X600_S	104	VT 500_F	106
S 110X200_S	124	SPS 1200_F	131	T 110X200_F	106	VKO 90X110X200_S	109	VO 90X75_F	104	VT 500_S	106
S 12X20_ZNCR	140	SPS 200_F	131	T 110X200_S	106	VKO 90X110X300_F	109	VO 90X75_S	104	VT 600_F	106
S 12X25_ZNCR	140	SPS 300_F	131	T 110X300_F	106	VKO 90X110X300_S	109	VOH 100_F	105	VT 600_S	106
S 12X30_ZNCR	140	SPS 400_F	131	T 110X300_S	106	VKO 90X110X400_F	109	VOH 100_S	105	VT 75_F	106
S 12X40_ZNCR	140	SPS 500_F	131	T 110X400_F	106	VKO 90X110X400_S	109	VOH 125_F	120	VT 75_S	106
S 12X50_ZNCR	140	SPS 600_F	131	T 110X400_S	106	VKO 90X110X500_F	109	VOH 125_S	120	VU_GMT	104
S 60X200_GMT	124	SPS 800_F	131	T 110X500_F	106	VKO 90X110X500_S	109	VOH 150_F	105	WEICON 375_XX (barva)	148
S 60X200_S	124	SR 110X100_F	111	T 110X500_S	106	VKO 90X110X600_F	109	VOH 150_S	105	WEICON 750_XX (barva)	148
S 6X20_ZNCR	140	SR 110X100_S	111	T 110X600_F	106	VKO 90X110X600_S	109	VOH 200_F	105	ZT 10_GMT	139
S 6X30_ZNCR	140	SR 110X125_S	111	T 110X600_S	106	VKO 90X60X100_F	109	VOH 200_S	105	ZT 10_ZNCR	139
S 8X20_GMT	140	SR 110X125_S	111	T 60X100_F	106	VKO 90X60X100_S	109	VOH 250_F	120	ZT 12_ZNCR	139
S 8X20_ZNCR	140	SR 110X150_F	111	T 60X100_S	106	VKO 90X60X150_F	109	VOH 250_S	120	ZT 6_ZNCR	139
S 8X25_ZNCR	140	SR 110X150_S	111	T 60X150_F	106	VKO 90X60X150_S	109	VOH 300_F	105	ZT 8_ZNCR	139
S 8X30_GMT	140	SR 110X200_F	111	T 60X150_S	106	VKO 90X60X200_F	109	VOH 300_S	105	ZVB 1.5_S	135
S 8X30_ZNCR	140	SR 110X200_S	111	T 60X200_F	106	VKO 90X60X200_S	109	VOH 400_F	105	ZVNI 125_F	133
S 8X40_ZNCR	140	SR 110X25_F	111	T 60X200_S	106	VKO 90X60X300_F	109	VOH 400_S	105	ZVNI 125_S	133
S 8X50_ZNCR	140	SR 110X25_S	111	T 60X300_F	106	VKO 90X60X300_S	109	VOH 50_F	105	ZVNI 250_F	133
S 8X70_ZNCR	140	SR 110X250_F	111	T 60X300_S	106	VKO 90X60X400_F	109	VOH 50_S	105	ZVNI 250_S	133
SB 6.3X35_POGMT	142	SR 110X250_S	111	T 60X400_F	106	VKO 90X60X400_S	109	VOH 500_F	105	ZVNI 62_F	133
SB 6.3X45_POGMT	142	SR 110X300_F	111	T 60X400_S	106	VKO 90X60X50_F	109	VOH 500_F	120	ZVNI 62_S	133
SD 2_S	137	SR 110X300_S	111	T 60X50_F	106	VKO 90X60X50_S	109	VOH 500_S	105	ZT 6_ZNCR	141
SK 100_GMT	121	SR 110X350_F	111	T 60X50_S	106	VKO 90X60X500_F	109	VOH 500_S	120	ZT 8_ZNCR	141
SK 100_S	121	SR 110X350_S	111	T 60X500_F	106	VKO 90X60X500_S	109	VOH 600_F	105	ZVB 1.5_S	116
SK 110_GMT	110	SR 110X400_F	111	T 60X500_S	106	VKO 90X60X600_F	109	VOH 600_S	105	ZVNI 125_F	135
SK 110_S	110	SR 110X400_S	111	T 60X600_F	106	VKO 90X60X600_S	109	VOH 62_F	120	ZVNI 125_S	135
SK 50_GMT	121	SR 110X50_F	111	T 60X600_S	106	VKO 90X60X75_F	109	VOH 62_S	120	ZVNI 250_F	135
SK 50_S	121	SR 110X50_S	111	T 60X75_F	106	VKO 90X60X75_S	109	VOH 75_F	105	ZVNI 250_S	135
SK 60_GMT	110	SR 110X75_F	111	T 60X75_S	106	VKR 100_F	107	VOH 75_S	105	ZVNI 62_F	135
SK 60_S	110	SR 110X75_S	111	TP_PO	101	VKR 100_S	107	VPO 6.5X40_ZNCR	143	ZVNI 62_S	135
SO 90X110X150_F	108	SR 60X100_F	111	US 1_ZNCR	139	VKR 150_F	107	VS 41X45_F	135		
SO 90X110X150_S	108	SR 60X100_S	111	US 2_ZNCR	139	VKR 150_S	107	VSO 90X100_F	108		
SO 90X110X200_F	108	SR 60X125_F	111	US 3_ZNCR	139	VKR 200_F	107	VSO 90X100_S	108		
SO 90X110X200_S	108	SR 60X125_S	111	V 100_F	103	VKR 200_S	107	VSO 90X150_F	108		
SO 90X110X300_F	108	SR 60X150_F	111	V 100_S	103	VKR 300_F	107	VSO 90X150_S	108		
SO 90X110X300_S	108	SR 60X150_S	111	V 125_F	113	VKR 300_S	107	VSO 90X200_F	108		
SO 90X110X400_F	108	SR 60X200_F	111	V 125_S	113	VKR 400_F	107	VSO 90X200_S	108		

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 **KOPOS KOLÍN a.s.**
ABOUT US



KOPOS KOLÍN a.s.

Havlíčkova 432
280 02 Kolín
Czech Republic

tel.: +420 321 730 111
e-mail: kopos@kopos.cz
www.kopos.com



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