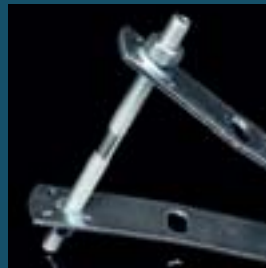




CABLE MANAGEMENT SYSTEMS





Dear costumers,

You have just received our new catalogue with KOPOS KOLIN a.s. offer of metal cable support system products. Those types of products were firstly introduced on the market in year 2007. It is our pleasure, that our exertion was reward by a Czech quality certificate for cable trays range JUPITER and MARS. This reward means to us a lot more than just a piece of paper to be put in the frame on the wall or put into drawer. This reward obligates us to keep a high quality standard, improve the quality and bring to costumers sureness of top quality and uses of products.

KOPOS KOLIN a.s. is also significant producer of electric installation materials made of plastic, as are boxes, trunkings, perimeter trunkings, pipes, cable duct protectors and many others electric installations systems. Costumers, who decide to choose KOPOS products have got guarantee to be never disappointed, because of our own designing, technical, construction office and qualified employees in production and business department.

I believe that you will be always pleased with products of company KOPOS KOLIN.

Ing. Josef Vavrouch
General Director





CABLE TRAYS JUPITER 1



CABLE TRAYS MARS 2



CABLE TRAYS MARS – STAINLESS 3



WIRE CABLE TRAYS 4



CABLE LADDERS 5



FLOOR INSTALLATIONS 6



TECHNICAL INFORMATION 7

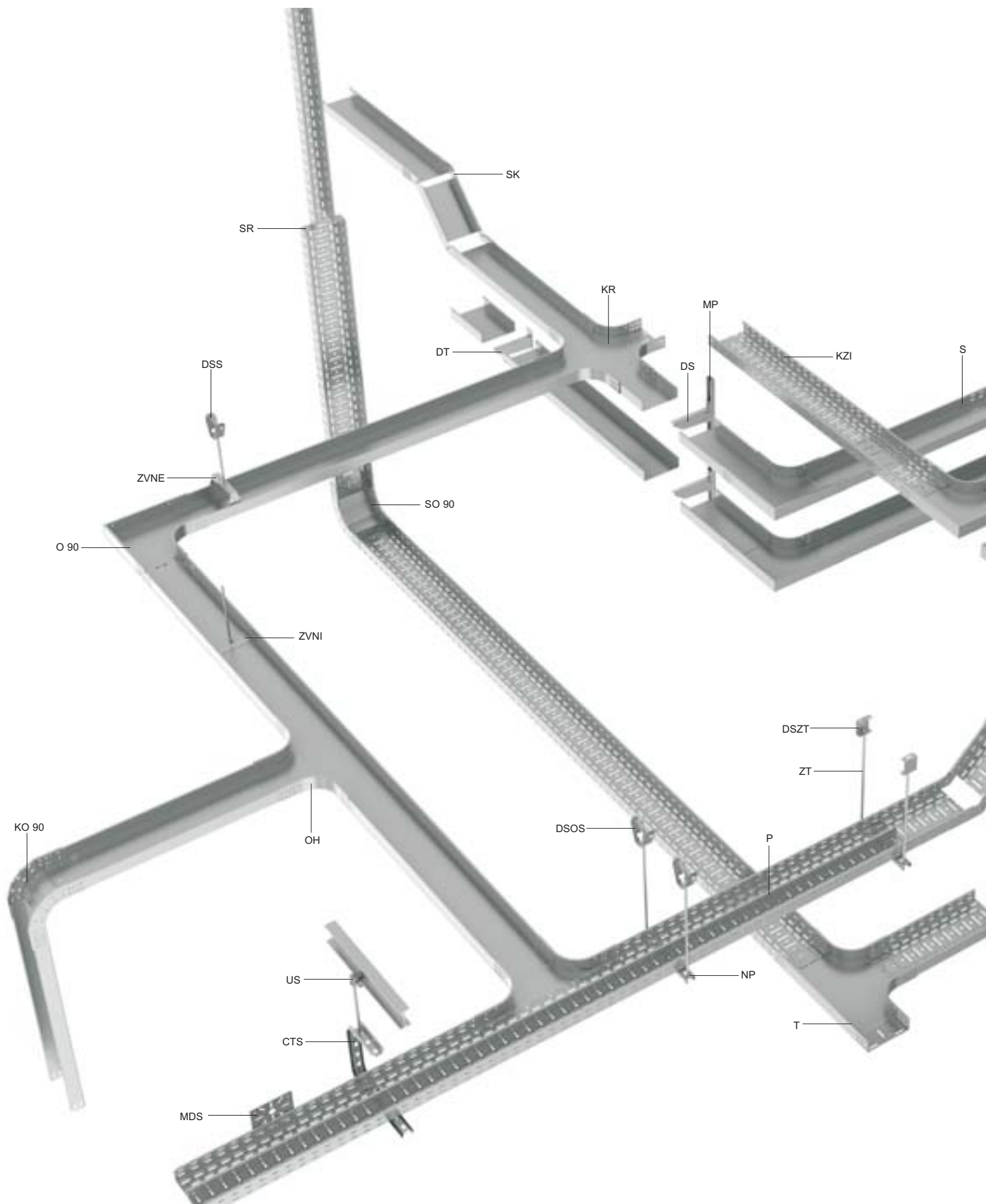




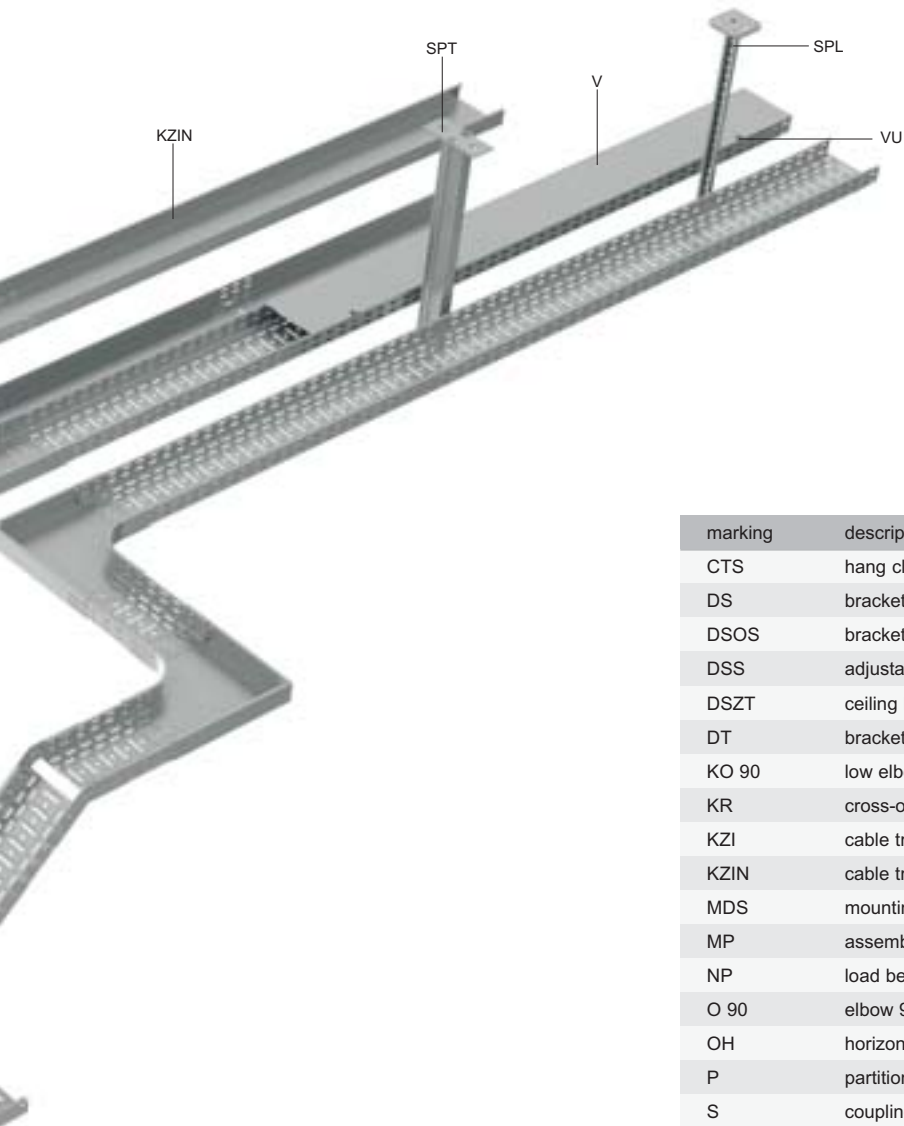
CABLE TRAYS JUPITER



OVERVIEW OF SYSTEM ELEMENTS



OVERVIEW OF SYSTEM ELEMENTS



marking	description	pg.
CTS	hang clamp	29
DS	bracket – medium	32
DSOS	bracket for trapeze ceilings	27
DSS	adjustable ceiling bracket	27
DSZT	ceiling bracket	26
DT	bracket – heavy	32
KO 90	low elbow 90°	16
KR	cross-over	14
KZI	cable tray with integrated coupling	4,5,7,8
KZIN	cable tray 60 with integrated coupling non-perforated	6
MDS	mounting plate	23
MP	assembly profile	28
NP	load bearing profile	28
O 90	elbow 90°	11
OH	horizontal branch	12
P	partition	21
S	coupling	22
SK	hinged joint	18
SO 90	rising elbow 90°	15
SPL	ceiling profile – light	33
SPT	ceiling profile – heavy	34
SR	reduction coupling	19
T	T-piece	13
US	fixation clamp	26
V	cable tray cover	10
VU	cover fixture	10
ZT	threaded rod	24
ZVNE	outer hanger	25
ZVNI	inner hanger	25



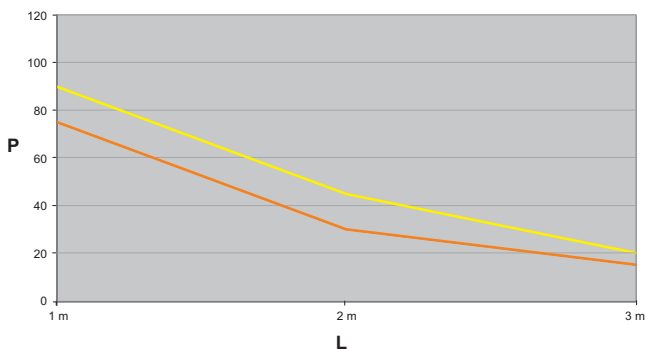
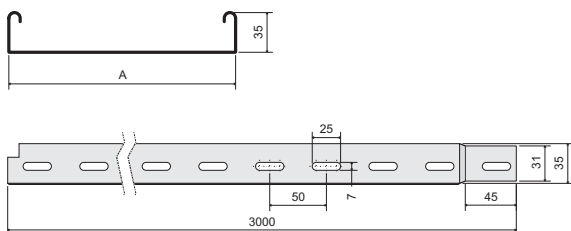
35 - cable tray with integrated coupling

item number	A	‡	‡	⊙	S	F	EC
KZI 35X50X0.75	50	0,75	0,75	18/1488	●	⊕	⊕
KZI 35X75X0.75	75	0,75	0,79	24/1302	●	⊕	⊕
KZI 35X100X0.75	100	0,75	1,05	30/1080	●	⊕	⊕
KZI 35X150X0.75	150	0,75	1,29	24/696	●	⊕	⊕
KZI 35X200X0.75	200	0,75	1,67	18/540	●	⊕	⊕
KZI 35X300X0.75	300	0,75	2,00	18/540	●	⊕	⊕
KZI 35X300X1.00*	300	1,0	2,83	12/312	●	⊕	⊕
KZI 35X400X1.00	400	1,0	3,24	12/360	⊕	⊕	⊕
KZI 35X500X1.00	500	1,0	3,60	6/180	⊕	⊕	⊕
KZI 35X600X1.00	600	1,0	4,33	6/180	⊕	⊕	⊕

The standard length of the cable tray is 3 m.
 For securing the connection of the trays with the integrated coupling there are used the clamps made from spring steel KSV (pg. 38) or the bolts NSM 6X10 (pg. 38), 2 pcs. Example of assembly is on pg. 38.

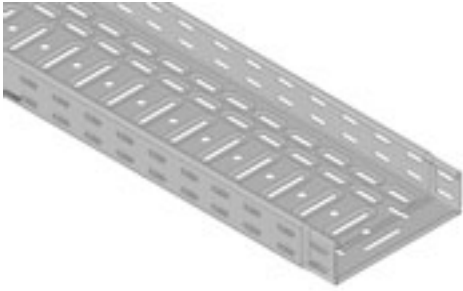
Various cable tray designs can be made to order - contact your sales representative for more information.
 * until the sell-out of stocks

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm.
 For more information, see p. 7-2.



The graph shows the maximum allowed even loading of the tray in relation to the distances of the supports.

L = distance of supports (m)
 P = allowed even loading (weight kg/m)



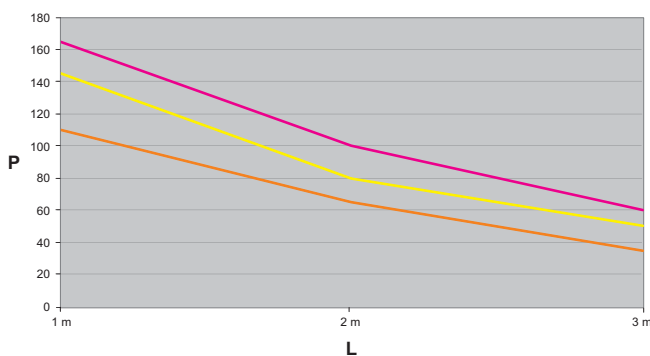
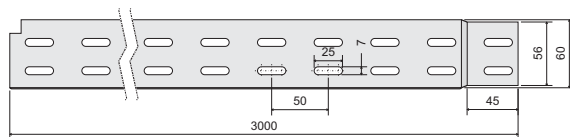
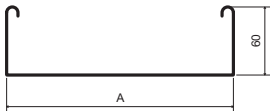
60 - cable tray with integrated coupling

item number	A	↑	‡	⊙	S	F	PO	POF	EO	EC
KZI 60X50X0.75	50	0,75	0,99	18/1026	●	⊙	-	-	⊙	⊙
KZI 60X75X0.75	75	0,75	1,18	24/912	●	⊙	-	-	⊙	⊙
KZI 60X100X0.75	100	0,75	1,37	18/864	●	●	-	-	⊙	⊙
KZI 60X150X0.75	150	0,75	1,70	18/540	●	⊙	-	-	⊙	⊙
KZI 60X200X0.75	200	0,75	1,86	12/432	●	●	-	-	⊙	⊙
KZI 60X300X0.75	300	0,75	2,47	12/324	●	●	-	-	⊙	⊙
KZI 60X50X1.00	50	1,0	1,24	18/864	●	⊙	-	-	⊙	⊙
KZI 60X75X1.00	75	1,0	1,27	24/912	●	⊙	-	-	⊙	⊙
KZI 60X100X1.00	100	1,0	1,70	18/648	●	⊙	-	-	⊙	⊙
KZI 60X150X1.00	150	1,0	2,07	18/540	●	⊙	-	-	⊙	⊙
KZI 60X200X1.00	200	1,0	2,27	18/432	●	⊙	-	-	⊙	⊙
KZI 60X300X1.00	300	1,0	3,07	18/324	●	⊙	-	-	⊙	⊙
KZI 60X400X1.00	400	1,0	3,75	6/216	●	⊙	-	-	⊙	⊙
KZI 60X500X1.00	500	1,0	4,54	6/108	●	⊙	-	-	⊙	⊙
KZI 60X600X1.00	600	1,0	5,40	6/108	●	⊙	-	-	⊙	⊙
KZI 60X50X1.25	50	1,25	1,62	12/648	-	-	●	⊙	⊙	⊙
KZI 60X75X1.25	75	1,25	1,80	12/570	-	-	●	⊙	⊙	⊙
KZI 60X100X1.25	100	1,25	2,10	18/480	-	-	●	⊙	⊙	⊙
KZI 60X150X1.25	150	1,25	2,49	18/432	-	-	●	⊙	⊙	⊙
KZI 60X200X1.25	200	1,25	2,84	12/240	-	-	●	⊙	⊙	⊙
KZI 60X300X1.25	300	1,25	3,96	6/168	-	-	●	⊙	⊙	⊙
KZI 60X400X1.25	400	1,25	4,60	6/216	●	⊙	-	-	⊙	⊙
KZI 60X500X1.25	500	1,25	5,52	6/108	⊙	⊙	-	-	⊙	⊙
KZI 60X600X1.25	600	1,25	6,50	6/108	⊙	⊙	-	-	⊙	⊙

The standard length of the cable tray is 3 m.
 For securing the connection of the trays with the integrated coupling there are used the clamps made from spring steel KSV (pg. 38) or the bolts NSM 6X10 (pg. 38), 4 pcs. Example of assembly is on pg. 38.
 Trays made from sheet metal 1.25 mm thick can be used for systems with maintained functionality during fire - see catalogue Systems with Maintained Functionality During Fire.

Various cable tray designs can be made to order - contact your sales representative for more information.

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm.
 For more information, see p. 7-2.



The graph shows the maximum allowed even loading of the tray in relation to the distances of the supports.

L = distance of supports (m)
 P = allowed even loading (weight kg/m)



60 - cable tray with integrated coupling - non-perforated

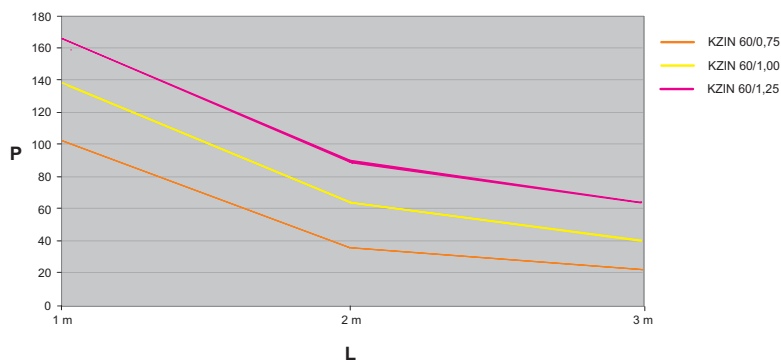
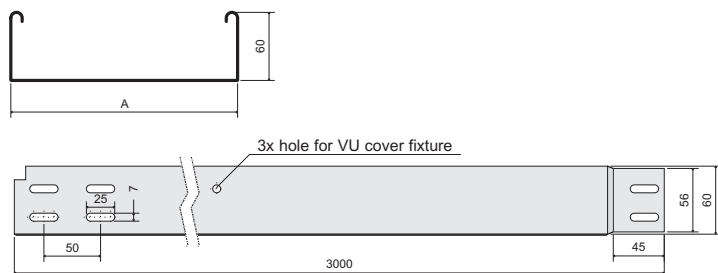
item number	A	t	h	U	S	F	EO	EC
KZIN 60X50X0.75	50	0,75	1,09	18/918	●	⊕	⊕	⊕
KZIN 60X75X0.75	75	0,75	1,32	24/714	⊕	⊕	⊕	⊕
KZIN 60X100X0.75	100	0,75	1,40	18/510	●	⊕	⊕	⊕
KZIN 60X150X0.75	150	0,75	1,78	18/306	⊕	⊕	⊕	⊕
KZIN 60X200X0.75	200	0,75	2,02	12/252	●	⊕	⊕	⊕
KZIN 60X300X0.75	300	0,75	2,62	12/174	●	⊕	⊕	⊕
KZIN 60X400X1.00	400	1,0	4,19	6/120	●	⊕	⊕	⊕
KZIN 60X500X1.25	500	1,25	6,30	6/108	⊕	⊕	⊕	⊕
KZIN 60X600X1.25	600	1,25	7,30	6/102	⊕	⊕	⊕	⊕

The standard length of the cable tray is 3 m.

For securing the connection of the trays with the integrated coupling there are used the clamps made from spring steel KSV (pg. 38) or the bolts NSM 6X10 (pg. 38), 4 pcs. Example of assembly is on pg. 38.

Various cable tray designs can be made to order - contact your sales representative for more information.

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm. For more information, see p. 7-2.



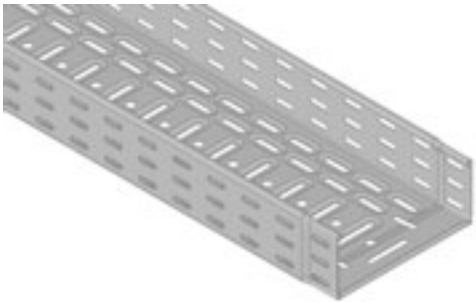
The graph shows the maximum allowed even loading of the tray in relation to the distances of the supports.

L = distance of supports (m)
P = allowed even loading (weight kg/m)



85 - cable tray with integrated coupling

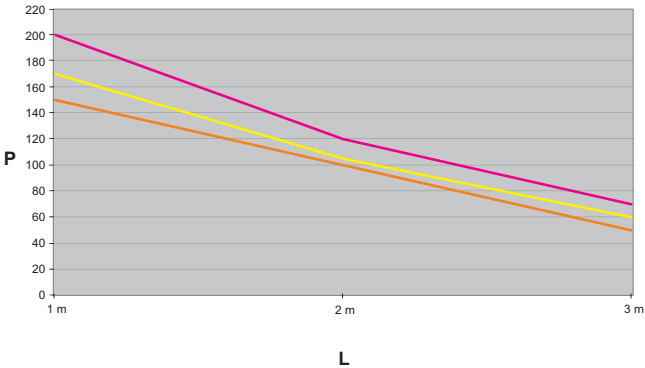
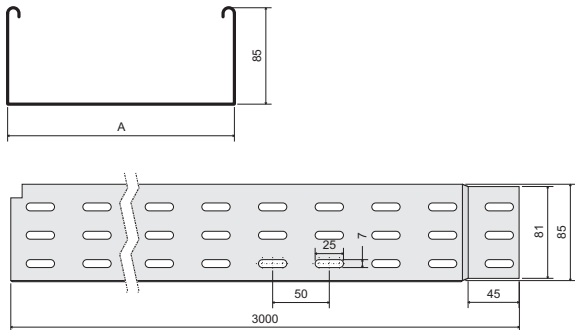
item number	A	†	‡	Ⓢ	S	F	EC
KZI 85X100X0.75	100	0,75	1,56	12/624	Ⓢ	Ⓢ	Ⓢ
KZI 85X150X0.75	150	0,75	1,58	18/390	Ⓢ	Ⓢ	Ⓢ
KZI 85X100X1.00*	100	1,0	1,98	12/546	●	Ⓢ	Ⓢ
KZI 85X150X1.00*	150	1,0	2,21	12/390	Ⓢ	Ⓢ	Ⓢ
KZI 85X200X1.00	200	1,0	2,58	12/312	Ⓢ	Ⓢ	Ⓢ
KZI 85X300X1.00	300	1,0	3,10	12/234	Ⓢ	Ⓢ	Ⓢ
KZI 85X400X1.00	400	1,0	4,15	12/156	Ⓢ	Ⓢ	Ⓢ
KZI 85X500X1.25	500	1,25	5,70	6/78	Ⓢ	Ⓢ	Ⓢ
KZI 85X600X1.25	600	1,25	7,73	6/78	Ⓢ	Ⓢ	Ⓢ



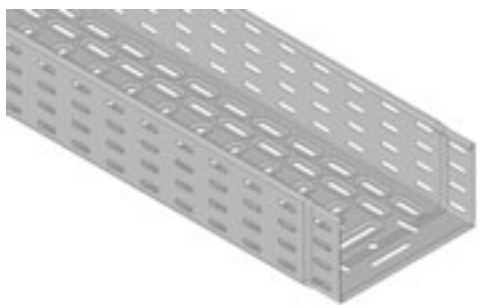
The standard length of the cable tray is 3 m.
 For securing the connection of the trays with the integrated coupling there are used the clamps made from spring steel KSV (pg. 38) or the bolts NSM 6X10 (pg. 38), 6 pcs. Example of assembly is on pg. 38.

Various cable tray designs can be made to order - contact your sales representative for more information.
 * until the sell-out of stocks

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm.
 For more information, see p. 7-2.



The graph shows the maximum allowed even loading of the tray in relation to the distances of the supports.
 L = distance of supports (m)
 P = allowed even loading (weight kg/m)



110 - cable tray with integrated coupling

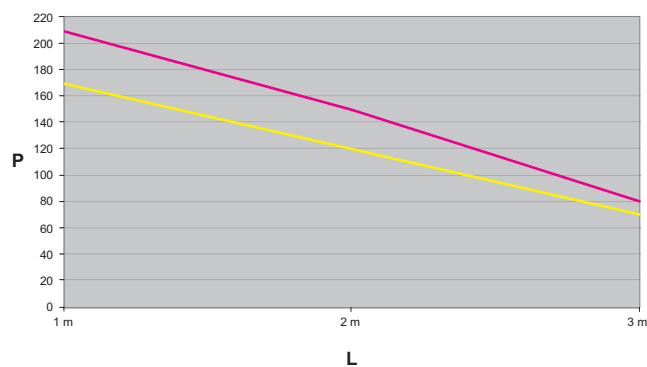
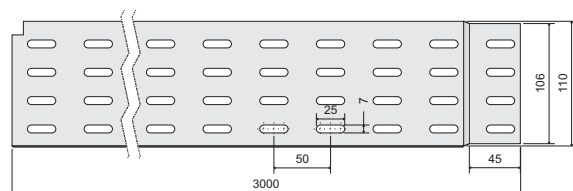
item number	A	t	z	U	S	F	EC
KZI 110X150X1.00	150	1,0	2,61	12/360	⊕	⊕	⊕
KZI 110X200X1.00	200	1,0	2,98	12/240	●	⊕	⊕
KZI 110X300X1.00	300	1,0	3,64	12/180	●	⊕	⊕
KZI 110X150X1.25	150	1,25	3,51	12/300	●	⊕	⊕
KZI 110X200X1.25	200	1,25	3,72	12/240	●	⊕	⊕
KZI 110X300X1.25	300	1,25	4,63	12/180	●	⊕	⊕
KZI 110X400X1.25	400	1,25	5,10	6/120	●	⊕	⊕
KZI 110X500X1.25	500	1,25	6,30	6/60	●	⊕	⊕
KZI 110X600X1.25	600	1,25	6,85	6/72	⊕	⊕	⊕

The standard length of the cable tray is 3 m.

For securing the connection of the trays with the integrated coupling there are used the clamps made from spring steel KSV (pg. 38) or the bolts NSM 6X10 (pg. 38), 8 pcs. Example of assembly is on pg. 38.

Various cable tray designs can be made to order - contact your sales representative for more information.
* until the sell-out of stocks

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 μm .
For more information, see p. 7-2.



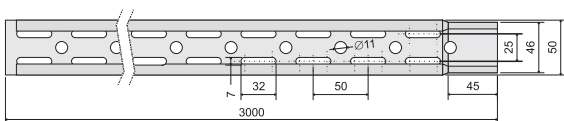
The graph shows the maximum allowed even loading of the tray in relation to the distances of the supports.

L = distance of supports (m)

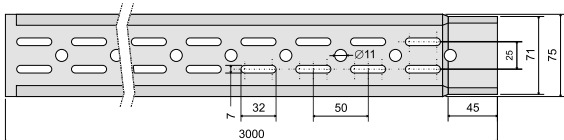
P = allowed even loading (weight kg/m)

perforation scheme on the bottom trays KZI

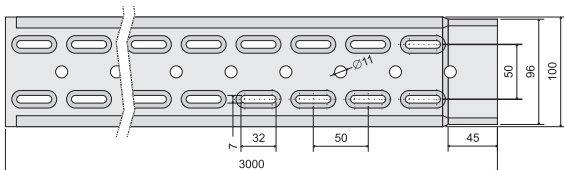
50 mm



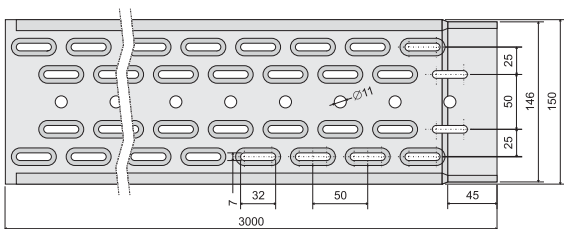
75 mm



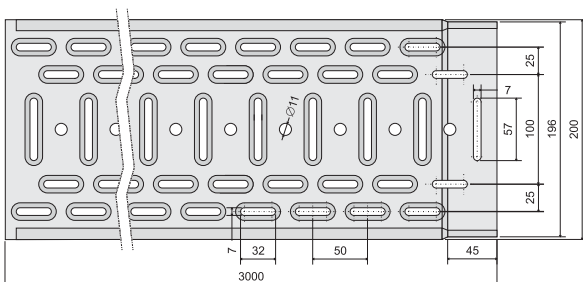
100 mm



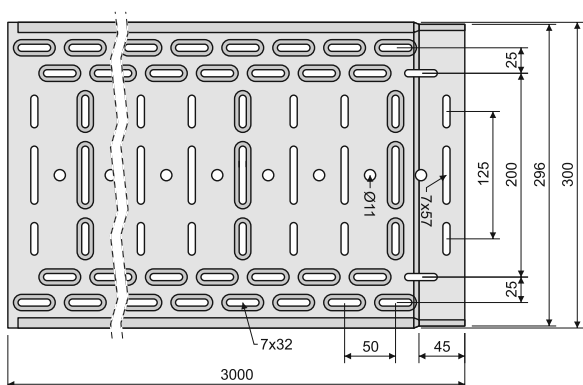
150 mm



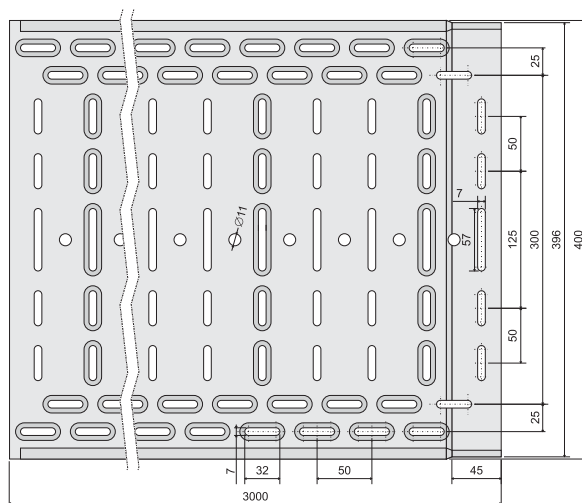
200 mm



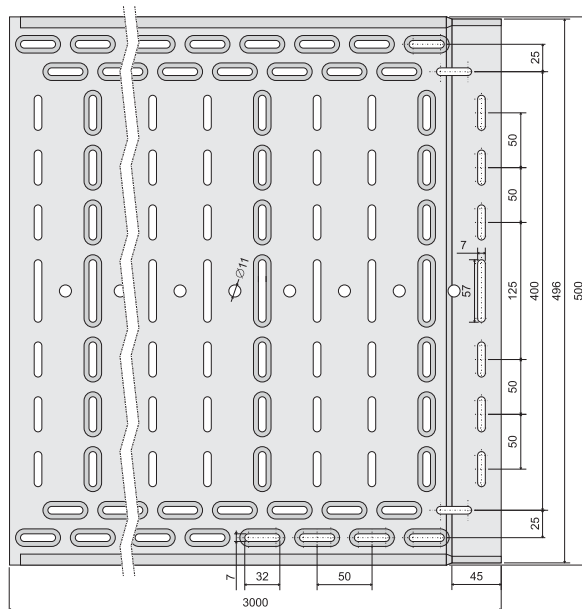
300 mm



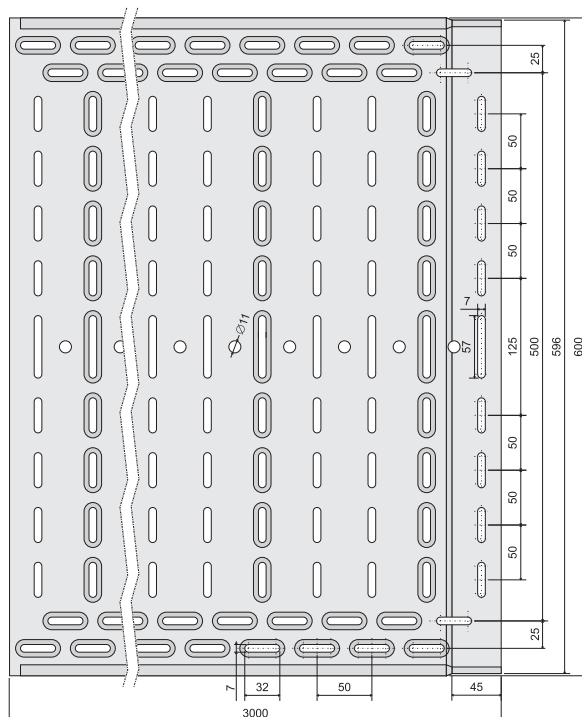
400 mm

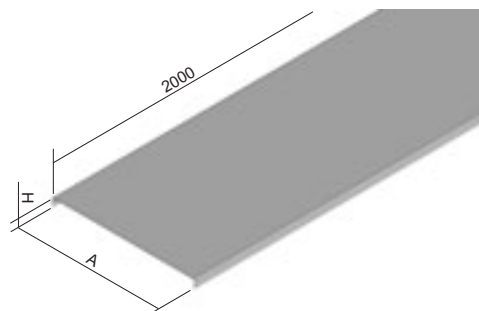
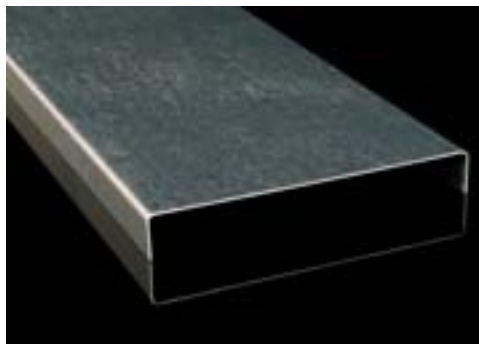


500 mm



600 mm





cable tray cover

item number	A	H	‡	‡	S	F	EO	EC
V 50	50	11	0,6	0,31	●	⊕	⊕	⊕
V 75	75	11	0,6	0,43	●	⊕	⊕	⊕
V 100	100	11	0,6	0,53	●	●	⊕	⊕
V 150	150	11	0,6	0,75	●	⊕	⊕	⊕
V 200	200	11	0,6	0,98	●	●	⊕	⊕
V 300	300	11	0,8	2,07	●	●	⊕	⊕
V 400	400	14	1,0	3,43	●	⊕	⊕	⊕
V 500	500	14	1,0	4,22	●	⊕	⊕	⊕
V 600	600	14	1,2	6,27	●	⊕	⊕	⊕

The standard length of the cable tray cover is 2 m.

Stated sheet metal thickness is delivered as standard. Cover with thicker sheet metal can be delivered without prior notice.

Lids with a hot dip galvanized coating are made from sheet metal 0.8 – 1.2 mm thick.

The fixing of the cover to the tray is done using the cover fixture VU (2 pcs per meter).

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm.

For more information, see p. 7-2.



cover fixture

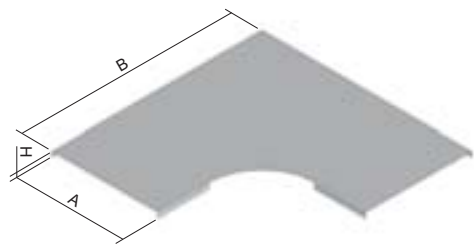
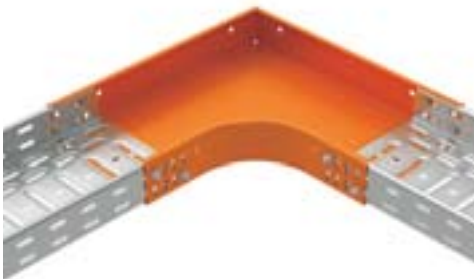
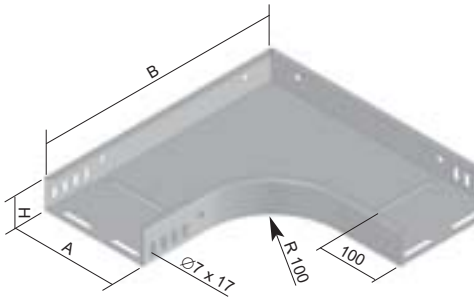
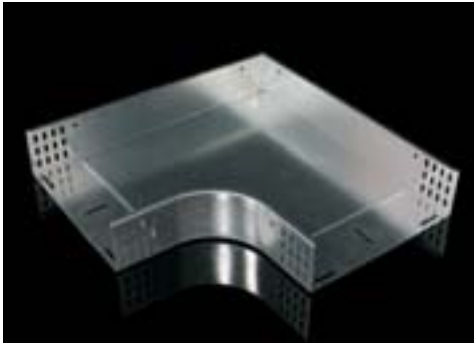
item number	‡	GMT
VU	0,01	●

Is used for a bolt free attachment of the cover to the tray and to the accessories.

The cover fixture is placed to the cover and the side-wall in the place of the opening and it is slightly pressed so that the fixture lock slides into the opening. Used for perforated and non-perforated trays, non-perforated trays have holes specially for fixtures.

More at www.kopos.com – technical support – video guides.





elbow 90°

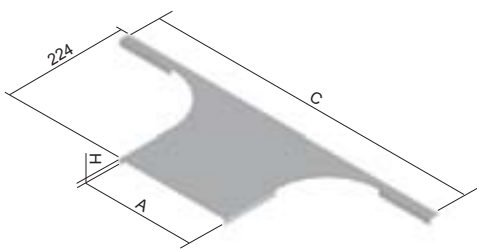
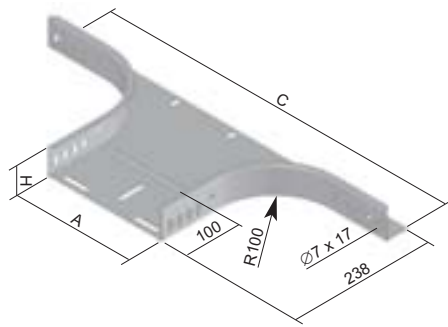
item number	A	H	B	↑	‡	‡‡	S	F	EO	EC
O 90X35X50	50	35	250	0,8	0,49	8	●	⊕	⊕	⊕
O 90X35X75	75	35	275	0,8	0,59	8	●	⊕	⊕	⊕
O 90X35X100	100	35	300	0,8	0,69	8	●	⊕	⊕	⊕
O 90X35X150	150	35	350	0,8	0,93	8	●	⊕	⊕	⊕
O 90X35X200	200	35	400	1,0	1,45	8	●	⊕	⊕	⊕
O 90X35X300	300	35	500	1,0	2,25	8	●	⊕	⊕	⊕
O 90X35X400	400	35	600	1,0	2,79	8	⊕	⊕	⊕	⊕
O 90X35X500	500	35	700	1,0	3,74	8	⊕	⊕	⊕	⊕
O 90X35X600	600	35	800	1,2	5,75	8	⊕	⊕	⊕	⊕
O 90X60X50	50	60	250	0,8	0,63	8	●	⊕	⊕	⊕
O 90X60X75	75	60	275	0,8	0,74	8	●	⊕	⊕	⊕
O 90X60X100	100	60	300	0,8	0,86	8	●	●	⊕	⊕
O 90X60X150	150	60	350	0,8	1,11	8	●	⊕	⊕	⊕
O 90X60X200	200	60	400	1,0	1,67	8	●	●	⊕	⊕
O 90X60X300	300	60	500	1,0	2,51	8	●	●	⊕	⊕
O 90X60X400	400	60	600	1,0	3,06	8	●	⊕	⊕	⊕
O 90X60X500	500	60	700	1,0	4,04	8	●	⊕	⊕	⊕
O 90X60X600	600	60	800	1,2	6,14	8	●	⊕	⊕	⊕
O 90X85X100	100	85	303	0,8	1,03	16	⊕	⊕	⊕	⊕
O 90X85X150	150	85	350	0,8	1,30	16	⊕	⊕	⊕	⊕
O 90X85X200	200	85	400	1,0	1,91	16	⊕	⊕	⊕	⊕
O 90X85X300	300	85	500	1,0	2,79	16	⊕	⊕	⊕	⊕
O 90X85X400	400	85	600	1,0	3,35	16	⊕	⊕	⊕	⊕
O 90X85X500	500	85	700	1,0	4,36	16	⊕	⊕	⊕	⊕
O 90X85X600	600	85	800	1,2	6,54	16	⊕	⊕	⊕	⊕
O 90X110X150	150	110	353	0,8	1,88	16	⊕	⊕	⊕	⊕
O 90X110X200	200	110	403	1,0	2,13	16	●	⊕	⊕	⊕
O 90X110X300	300	110	503	1,0	3,05	16	●	⊕	⊕	⊕
O 90X110X400	400	110	603	1,0	4,23	16	●	⊕	⊕	⊕
O 90X110X500	500	110	703	1,0	4,66	16	●	⊕	⊕	⊕
O 90X110X600	600	110	803	1,2	8,40	16	⊕	⊕	⊕	⊕

elbow cover 90°

VO 90X50	50	12	254	0,6	0,15	●	⊕	⊕	⊕
VO 90X75	75	12	279	0,6	0,21	●	⊕	⊕	⊕
VO 90X100	100	12	304	0,6	0,28	●	⊕	⊕	⊕
VO 90X150	150	12	354	0,6	0,43	●	⊕	⊕	⊕
VO 90X200	200	12	404	0,8	0,87	●	⊕	⊕	⊕
VO 90X300	300	12	504	1,0	1,83	●	⊕	⊕	⊕
VO 90X400	400	15	604	1,0	2,40	●	⊕	⊕	⊕
VO 90X500	500	15	704	1,0	3,32	●	⊕	⊕	⊕
VO 90X600	600	15	804	1,0	4,36	●	⊕	⊕	⊕

To fix the connection use the bolt NSM 6X10 (pg. 38).
 To fix the cover use 6 pcs of cover fixtures VU (pg. 10).
 From the width of 400 mm the outer right angle of the side walls is replaced by skewed cut.

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm.
 For more information, see p. 7-2.



horizontal branch

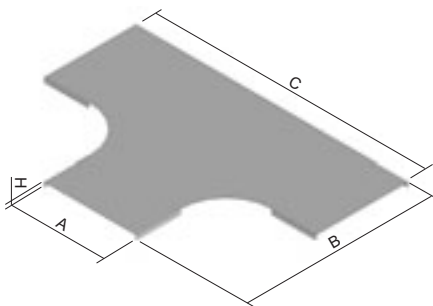
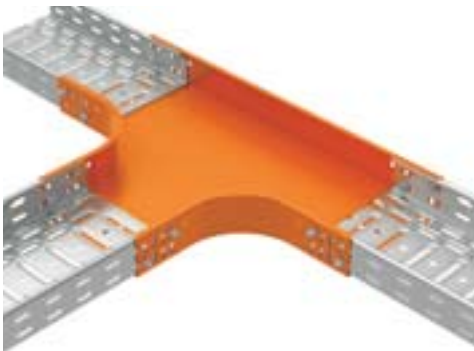
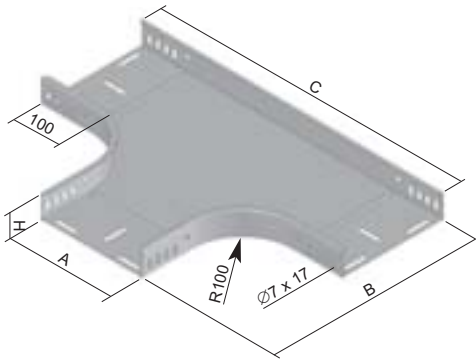
item number	A	H	C	↑	‡	↓†	S	F	EO	EC
OH 35X50	50	35	453	0,8	0,57	8	●	⊕	⊕	⊕
OH 35X75	75	35	478	0,8	0,60	8	●	⊕	⊕	⊕
OH 35X100	100	35	503	0,8	0,64	8	●	⊕	⊕	⊕
OH 35X150	150	35	553	0,8	0,72	8	●	⊕	⊕	⊕
OH 35X200	200	35	603	1,0	0,90	8	●	⊕	⊕	⊕
OH 35X300	300	35	703	1,0	1,09	8	●	⊕	⊕	⊕
OH 35X400	400	35	803	1,0	1,28	8	⊕	⊕	⊕	⊕
OH 35X500	500	35	903	1,0	1,46	8	⊕	⊕	⊕	⊕
OH 35X600	600	35	1003	1,2	1,91	8	⊕	⊕	⊕	⊕
OH 60X50	50	60	450	0,8	0,71	8	●	⊕	⊕	⊕
OH 60X75	75	60	475	0,8	0,74	8	●	⊕	⊕	⊕
OH 60X100	100	60	500	0,8	0,78	8	●	⊕	⊕	⊕
OH 60X150	150	60	550	0,8	0,86	8	●	⊕	⊕	⊕
OH 60X200	200	60	600	1,0	1,04	8	●	⊕	⊕	⊕
OH 60X300	300	60	700	1,0	1,23	8	●	⊕	⊕	⊕
OH 60X400	400	60	800	1,0	1,42	8	●	⊕	⊕	⊕
OH 60X500	500	60	900	1,0	1,60	8	●	⊕	⊕	⊕
OH 60X600	600	60	1000	1,2	2,05	8	●	⊕	⊕	⊕
OH 85X100	100	85	500	0,8	0,95	16	⊕	⊕	⊕	⊕
OH 85X150	150	85	550	0,8	1,02	16	⊕	⊕	⊕	⊕
OH 85X200	200	85	600	1,0	1,20	16	⊕	⊕	⊕	⊕
OH 85X300	300	85	700	1,0	1,39	16	⊕	⊕	⊕	⊕
OH 85X400	400	85	800	1,0	1,58	16	⊕	⊕	⊕	⊕
OH 85X500	500	85	900	1,0	1,77	16	⊕	⊕	⊕	⊕
OH 85X600	600	85	1000	1,2	2,21	16	⊕	⊕	⊕	⊕
OH 110X150	150	110	550	0,8	1,16	16	⊕	⊕	⊕	⊕
OH 110X200	200	110	600	1,0	1,34	16	●	⊕	⊕	⊕
OH 110X300	300	110	700	1,0	1,53	16	●	⊕	⊕	⊕
OH 110X400	400	110	800	1,0	1,72	16	●	⊕	⊕	⊕
OH 110X500	500	110	900	1,0	1,90	16	●	⊕	⊕	⊕
OH 110X600	600	110	1000	1,2	2,35	16	⊕	⊕	⊕	⊕

horizontal branch cover

VOH 50	50	12	453	0,6	0,13	●	⊕	⊕	⊕
VOH 75	75	12	478	0,6	0,16	●	⊕	⊕	⊕
VOH 100	100	12	503	0,6	0,18	●	⊕	⊕	⊕
VOH 150	150	12	553	0,6	0,23	●	⊕	⊕	⊕
VOH 200	200	12	603	0,8	0,41	●	⊕	⊕	⊕
VOH 300	300	12	703	1,0	0,69	●	⊕	⊕	⊕
VOH 400	400	15	803	1,0	0,88	●	⊕	⊕	⊕
VOH 500	500	15	903	1,0	1,06	●	⊕	⊕	⊕
VOH 600	600	15	1003	1,0	1,23	●	⊕	⊕	⊕

To fix the connection use the bolt NSM 6X10 (pg. 38).
Horizontal branch is used for additional branching from the line.
To fix the cover use 4 pcs of cover fixtures VU (pg. 10).

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm.
For more information, see p. 7-2.



T-piece

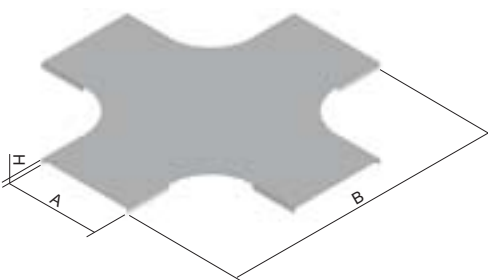
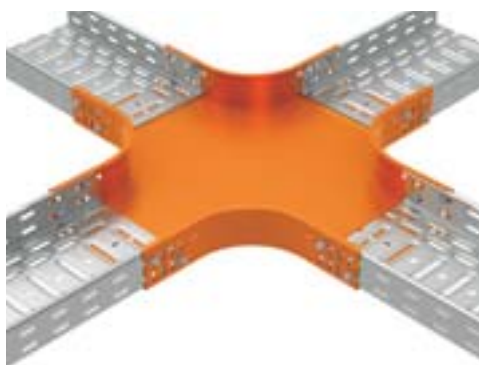
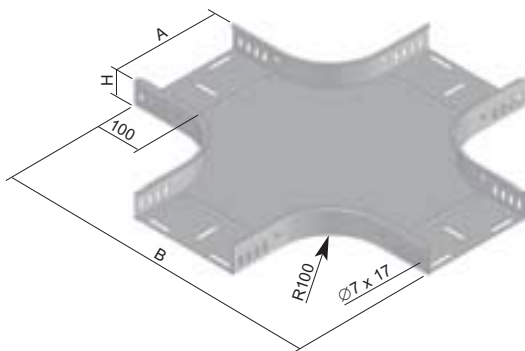
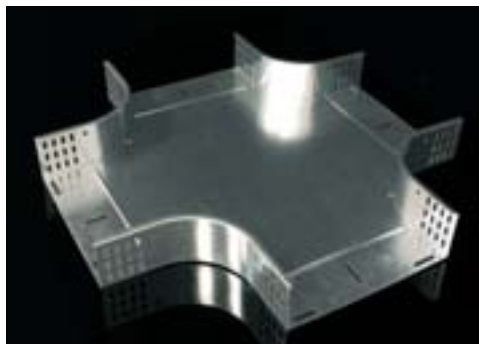
item number	A	H	B	C	‡	‡	‡	S	F	EO	EC
T 35X50	50	35	253	453	0,8	0,74	12	●	⊕	⊕	⊕
T 35X75	75	35	278	478	0,8	0,86	12	●	⊕	⊕	⊕
T 35X100	100	35	303	503	0,8	0,99	12	●	⊕	⊕	⊕
T 35X150	150	35	353	553	0,8	1,27	12	●	⊕	⊕	⊕
T 35X200	200	35	403	603	1,0	1,89	12	●	⊕	⊕	⊕
T 35X300	300	35	503	703	1,0	2,81	12	●	⊕	⊕	⊕
T 35X400	400	35	603	803	1,0	3,09	12	⊕	⊕	⊕	⊕
T 35X500	500	35	703	903	1,0	4,12	12	⊕	⊕	⊕	⊕
T 35X600	600	35	803	1003	1,2	4,80	12	⊕	⊕	⊕	⊕
T 60X50	50	60	250	450	0,8	0,94	12	●	⊕	⊕	⊕
T 60X75	75	60	275	475	0,8	1,07	12	●	⊕	⊕	⊕
T 60X100	100	60	300	500	0,8	1,20	12	●	●	⊕	⊕
T 60X150	150	60	350	550	0,8	1,50	12	●	⊕	⊕	⊕
T 60X200	200	60	400	600	1,0	2,15	12	●	●	⊕	⊕
T 60X300	300	60	500	700	1,0	3,09	12	●	●	⊕	⊕
T 60X400	400	60	600	800	1,0	4,19	12	●	⊕	⊕	⊕
T 60X500	500	60	700	900	1,0	6,80	12	●	⊕	⊕	⊕
T 60X600	600	60	800	1000	1,2	8,10	12	●	⊕	⊕	⊕
T 85X100	100	85	300	500	0,8	1,45	24	⊕	⊕	⊕	⊕
T 85X150	150	85	350	550	0,8	2,05	24	⊕	⊕	⊕	⊕
T 85X200	200	85	400	600	1,0	2,43	24	⊕	⊕	⊕	⊕
T 85X300	300	85	500	700	1,0	3,39	24	⊕	⊕	⊕	⊕
T 85X400	400	85	600	800	1,0	4,51	24	⊕	⊕	⊕	⊕
T 85X500	500	85	700	900	1,0	7,00	24	⊕	⊕	⊕	⊕
T 85X600	600	85	800	1000	1,2	8,90	24	⊕	⊕	⊕	⊕
T 110X150	150	110	350	550	0,8	2,36	24	⊕	⊕	⊕	⊕
T 110X200	200	110	400	600	1,0	2,79	24	●	⊕	⊕	⊕
T 110X300	300	110	500	700	1,0	3,65	24	●	⊕	⊕	⊕
T 110X400	400	110	600	800	1,0	4,95	24	●	⊕	⊕	⊕
T 110X500	500	110	700	900	1,0	6,09	24	●	⊕	⊕	⊕
T 110X600	600	110	800	1000	1,2	8,60	24	⊕	⊕	⊕	⊕

T-piece cover

VT 50	50	12	254	453	0,6	0,22	●	⊕	⊕	⊕
VT 75	75	12	278	478	0,6	0,30	●	⊕	⊕	⊕
VT 100	100	12	303	503	0,6	0,39	●	⊕	⊕	⊕
VT 150	150	12	353	553	0,6	0,57	●	⊕	⊕	⊕
VT 200	200	12	403	603	0,8	1,14	●	⊕	⊕	⊕
VT 300	300	12	503	703	1,0	2,32	●	⊕	⊕	⊕
VT 400	400	15	603	803	1,0	3,40	●	⊕	⊕	⊕
VT 500	500	15	703	903	1,0	4,62	●	⊕	⊕	⊕
VT 600	600	15	803	1003	1,0	6,00	●	⊕	⊕	⊕

To fix the connection use the bolt NSM 6X10 (pg. 38).
 Use horizontal branch (pg. 12) or reduction piece SU (pg. 18) to make unequal T-piece.
 To fix the cover use 6 pcs of cover fixtures VU (pg. 10).

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm.
 For more information, see p. 7-2.



cross-over

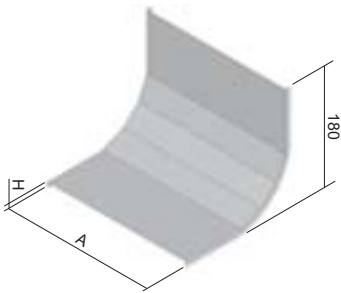
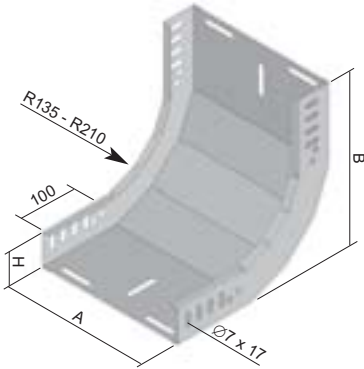
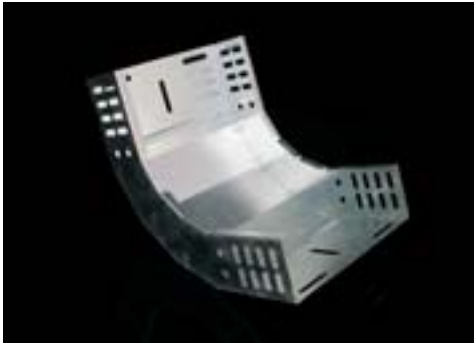
item number	A	H	B	↑	‡	↓‡	S	F	EO	EC
KR 35X50	50	35	453	0,8	1,07	16	●	⊕	⊕	⊕
KR 35X75	75	35	478	0,8	1,22	16	●	⊕	⊕	⊕
KR 35X100	100	35	503	0,8	1,37	16	●	⊕	⊕	⊕
KR 35X150	150	35	553	0,8	1,70	16	●	⊕	⊕	⊕
KR 35X200	200	35	603	1,0	2,39	16	●	⊕	⊕	⊕
KR 35X300	300	35	703	1,0	3,44	16	●	⊕	⊕	⊕
KR 35X400	400	35	803	1,0	4,65	16	⊕	⊕	⊕	⊕
KR 35X500	500	35	903	1,0	5,99	16	⊕	⊕	⊕	⊕
KR 35X600	600	35	1003	1,2	8,87	16	⊕	⊕	⊕	⊕
KR 60X50	50	60	450	0,8	1,35	16	●	⊕	⊕	⊕
KR 60X75	75	60	475	0,8	1,50	16	●	⊕	⊕	⊕
KR 60X100	100	60	500	0,8	1,65	16	●	⊕	⊕	⊕
KR 60X150	150	60	550	0,8	1,98	16	●	⊕	⊕	⊕
KR 60X200	200	60	600	1,0	2,67	16	●	⊕	⊕	⊕
KR 60X300	300	60	700	1,0	3,72	16	●	⊕	⊕	⊕
KR 60X400	400	60	800	1,0	4,93	16	●	⊕	⊕	⊕
KR 60X500	500	60	900	1,0	6,27	16	●	⊕	⊕	⊕
KR 60X600	600	60	1000	1,2	9,15	16	●	⊕	⊕	⊕
KR 85X100	100	85	500	0,8	1,99	32	⊕	⊕	⊕	⊕
KR 85X150	150	85	550	0,8	2,31	32	⊕	⊕	⊕	⊕
KR 85X200	200	85	600	1,0	3,01	32	⊕	⊕	⊕	⊕
KR 85X300	300	85	700	1,0	4,05	32	⊕	⊕	⊕	⊕
KR 85X400	400	85	800	1,0	5,26	32	⊕	⊕	⊕	⊕
KR 85X500	500	85	900	1,0	6,60	32	⊕	⊕	⊕	⊕
KR 85X600	600	85	1000	1,2	9,48	32	⊕	⊕	⊕	⊕
KR 110X150	150	110	550	0,8	2,58	32	⊕	⊕	⊕	⊕
KR 110X200	200	110	600	1,0	3,27	32	●	⊕	⊕	⊕
KR 110X300	300	110	700	1,0	4,32	32	●	⊕	⊕	⊕
KR 110X400	400	110	800	1,0	5,26	32	●	⊕	⊕	⊕
KR 110X500	500	110	900	1,0	6,87	32	●	⊕	⊕	⊕
KR 110X600	600	110	1000	1,2	9,75	32	⊕	⊕	⊕	⊕

cross-over cover

VKR 50	50	12	450	0,6	0,28	●	⊕	⊕	⊕
VKR 75	75	12	475	0,6	0,38	●	⊕	⊕	⊕
VKR 100	100	12	500	0,6	0,49	●	⊕	⊕	⊕
VKR 150	150	12	550	0,6	0,72	●	⊕	⊕	⊕
VKR 200	200	12	600	0,8	1,41	●	⊕	⊕	⊕
VKR 300	300	12	700	1,0	2,81	●	⊕	⊕	⊕
VKR 400	400	15	800	1,0	4,04	●	⊕	⊕	⊕
VKR 500	500	15	900	1,0	5,40	●	⊕	⊕	⊕
VKR 600	600	15	1000	1,0	6,30	●	⊕	⊕	⊕

To fix the connection use the bolt NSM 6X10 (pg. 38).
Use horizontal branch (pg. 12) or reduction piece SU (pg. 18) to make unequal cross.
To fix the cover use 8 pcs of cover fixture VU (pg. 10).

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm.
For more information, see p. 7-2.



rising elbow 90°

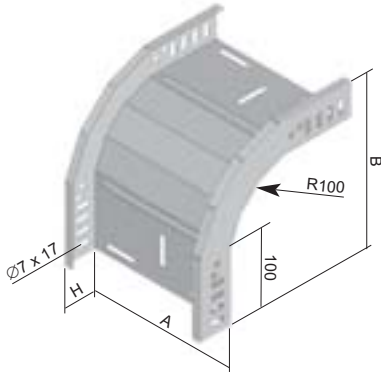
item number	A	H	B	‡	‡	‡	S	F	EO	EC
SO 90X35X50	50	35	220	0,8	0,37	8	●	⊕	⊕	⊕
SO 90X35X75	75	35	220	0,8	0,43	8	●	⊕	⊕	⊕
SO 90X35X100	100	35	220	0,8	0,49	8	●	⊕	⊕	⊕
SO 90X35X150	150	35	220	0,8	0,59	8	●	⊕	⊕	⊕
SO 90X35X200	200	35	220	1,0	0,85	8	●	⊕	⊕	⊕
SO 90X35X300	300	35	220	1,0	1,10	8	●	⊕	⊕	⊕
SO 90X35X400	400	35	220	1,0	1,39	8	⊕	⊕	⊕	⊕
SO 90X35X500	500	35	220	1,0	1,67	8	⊕	⊕	⊕	⊕
SO 90X35X600	600	35	220	1,2	2,30	8	⊕	⊕	⊕	⊕
SO 90X60X50	50	60	245	0,8	0,50	8	●	⊕	⊕	⊕
SO 90X60X75	75	60	245	0,8	0,57	8	●	⊕	⊕	⊕
SO 90X60X100	100	60	245	0,8	0,64	8	●	⊕	⊕	⊕
SO 90X60X150	150	60	245	0,8	0,77	8	●	⊕	⊕	⊕
SO 90X60X200	200	60	245	1,0	1,03	8	●	⊕	⊕	⊕
SO 90X60X300	300	60	245	1,0	1,37	8	●	⊕	⊕	⊕
SO 90X60X400	400	60	245	1,0	1,70	8	●	⊕	⊕	⊕
SO 90X60X500	500	60	245	1,0	2,03	8	●	⊕	⊕	⊕
SO 90X60X600	600	60	245	1,2	2,65	8	●	⊕	⊕	⊕
SO 90X85X100	100	85	270	0,8	0,80	16	⊕	⊕	⊕	⊕
SO 90X85X150	150	85	270	0,8	0,92	16	⊕	⊕	⊕	⊕
SO 90X85X200	200	85	270	1,0	1,23	16	⊕	⊕	⊕	⊕
SO 90X85X300	300	85	270	1,0	1,59	16	⊕	⊕	⊕	⊕
SO 90X85X400	400	85	270	1,0	1,90	16	⊕	⊕	⊕	⊕
SO 90X85X500	500	85	270	1,0	2,24	16	⊕	⊕	⊕	⊕
SO 90X85X600	600	85	270	1,2	3,01	16	⊕	⊕	⊕	⊕
SO 90X110X150	150	110	295	0,8	1,13	16	⊕	⊕	⊕	⊕
SO 90X110X200	200	110	295	1,0	1,41	16	●	⊕	⊕	⊕
SO 90X110X300	300	110	295	1,0	1,84	16	●	⊕	⊕	⊕
SO 90X110X400	400	110	295	1,0	2,18	16	●	⊕	⊕	⊕
SO 90X110X500	500	110	295	1,0	2,63	16	●	⊕	⊕	⊕
SO 90X110X600	600	110	295	1,2	3,39	16	⊕	⊕	⊕	⊕

rising elbow 90° cover

VSO 90X50	50	12	0,6	0,13	●	⊕	⊕	⊕
VSO 90X75	75	12	0,6	0,14	●	⊕	⊕	⊕
VSO 90X100	100	12	0,6	0,17	●	⊕	⊕	⊕
VSO 90X150	150	12	0,6	0,24	●	⊕	⊕	⊕
VSO 90X200	200	12	0,8	0,45	●	⊕	⊕	⊕
VSO 90X300	300	12	1,0	0,82	●	⊕	⊕	⊕
VSO 90X400	400	15	1,0	1,09	●	⊕	⊕	⊕
VSO 90X500	500	15	1,0	1,34	●	⊕	⊕	⊕
VSO 90X600	600	15	1,0	1,59	●	⊕	⊕	⊕

To fix the connection use the bolt NSM 6X10 (pg. 38).
To fix the cover use 4 pcs of cover fixtures VU (pg. 10).

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm.
For more information, see p. 7-2.

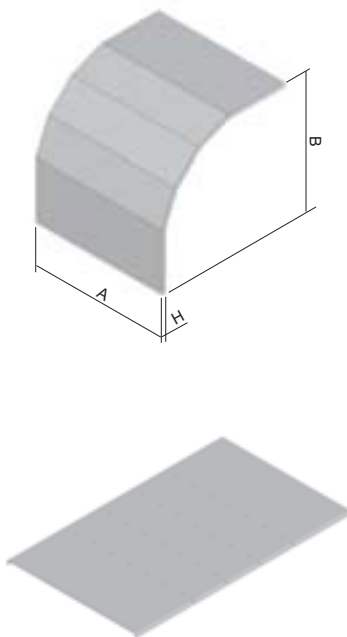
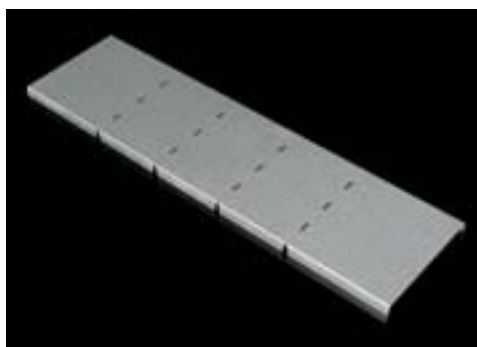


low elbow 90°

item number	A	H	B	↑	‡	↓‡	S	F	EO	EC
KO 90X35X50	50	35	220	0,8	0,35	8	●	⊕	⊕	⊕
KO 90X35X75	75	35	220	0,8	0,40	8	●	⊕	⊕	⊕
KO 90X35X100	100	35	220	0,8	0,45	8	●	⊕	⊕	⊕
KO 90X35X150	150	35	220	0,8	0,55	8	●	⊕	⊕	⊕
KO 90X35X200	200	35	220	1,0	0,75	8	●	⊕	⊕	⊕
KO 90X35X300	300	35	220	1,0	1,01	8	●	⊕	⊕	⊕
KO 90X35X400	400	35	220	1,0	1,26	8	⊕	⊕	⊕	⊕
KO 90X35X500	500	35	220	1,0	1,51	8	⊕	⊕	⊕	⊕
KO 90X35X600	600	35	220	1,2	2,07	8	⊕	⊕	⊕	⊕
KO 90X60X50	50	60	245	0,8	0,47	8	●	⊕	⊕	⊕
KO 90X60X75	75	60	245	0,8	0,52	8	●	⊕	⊕	⊕
KO 90X60X100	100	60	245	0,8	0,57	8	●	⊕	⊕	⊕
KO 90X60X150	150	60	245	0,8	0,67	8	●	⊕	⊕	⊕
KO 90X60X200	200	60	245	1,0	0,87	8	●	⊕	⊕	⊕
KO 90X60X300	300	60	245	1,0	1,13	8	●	⊕	⊕	⊕
KO 90X60X400	400	60	245	1,0	1,38	8	●	⊕	⊕	⊕
KO 90X60X500	500	60	245	1,0	1,63	8	●	⊕	⊕	⊕
KO 90X60X600	600	60	245	1,2	2,19	8	●	⊕	⊕	⊕
KO 90X85X100	100	85	270	0,8	0,71	16	⊕	⊕	⊕	⊕
KO 90X85X150	150	85	270	0,8	0,81	16	⊕	⊕	⊕	⊕
KO 90X85X200	200	85	270	1,0	1,01	16	⊕	⊕	⊕	⊕
KO 90X85X300	300	85	270	1,0	1,26	16	⊕	⊕	⊕	⊕
KO 90X85X400	400	85	270	1,0	1,52	16	⊕	⊕	⊕	⊕
KO 90X85X500	500	85	270	1,0	1,77	16	⊕	⊕	⊕	⊕
KO 90X85X600	600	85	270	1,2	2,33	16	⊕	⊕	⊕	⊕
KO 90X110X150	150	110	295	0,8	0,95	16	⊕	⊕	⊕	⊕
KO 90X110X200	200	110	295	1,0	1,15	16	●	⊕	⊕	⊕
KO 90X110X300	300	110	295	1,0	1,41	16	●	⊕	⊕	⊕
KO 90X110X400	400	110	295	1,0	1,67	16	●	⊕	⊕	⊕
KO 90X110X500	500	110	295	1,0	1,91	16	●	⊕	⊕	⊕
KO 90X110X600	600	110	295	1,2	2,48	16	⊕	⊕	⊕	⊕

To fix the connection use the bolt NSM 6X10 (pg. 38).

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm.
For more information, see p. 7-2.

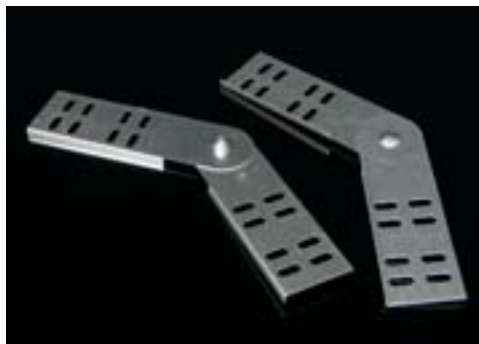


low elbow 90° cover

item number	A	H	B	‡	‡	S	F	EO	EC
VKO 90X35X50	50	12	220	0,6	0,12	●	⊕	⊕	⊕
VKO 90X35X75	75	12	220	0,6	0,19	●	⊕	⊕	⊕
VKO 90X35X100	100	12	220	0,6	0,27	●	⊕	⊕	⊕
VKO 90X35X150	150	12	220	0,6	0,44	●	⊕	⊕	⊕
VKO 90X35X200	200	12	220	0,8	0,51	●	⊕	⊕	⊕
VKO 90X35X300	300	12	220	1,0	0,91	●	⊕	⊕	⊕
VKO 90X35X400	400	15	220	1,0	0,97	⊕	⊕	⊕	⊕
VKO 90X35X500	500	15	220	1,0	1,41	⊕	⊕	⊕	⊕
VKO 90X35X600	600	15	220	1,0	1,69	⊕	⊕	⊕	⊕
VKO 90X60X50	50	12	245	0,6	0,14	●	⊕	⊕	⊕
VKO 90X60X75	75	12	245	0,6	0,18	●	⊕	⊕	⊕
VKO 90X60X100	100	12	245	0,6	0,23	●	⊕	⊕	⊕
VKO 90X60X150	150	12	245	0,6	0,32	●	⊕	⊕	⊕
VKO 90X60X200	200	12	245	0,8	0,60	●	⊕	⊕	⊕
VKO 90X60X300	300	12	245	1,0	0,87	●	⊕	⊕	⊕
VKO 90X60X400	400	15	245	1,0	1,45	●	⊕	⊕	⊕
VKO 90X60X500	500	15	245	1,0	1,78	●	⊕	⊕	⊕
VKO 90X60X600	600	15	245	1,0	2,17	●	⊕	⊕	⊕
VKO 90X85X100	100	12	270	0,6	0,31	⊕	⊕	⊕	⊕
VKO 90X85X150	150	12	270	0,6	0,39	⊕	⊕	⊕	⊕
VKO 90X85X200	200	12	270	0,8	0,66	⊕	⊕	⊕	⊕
VKO 90X85X300	300	12	270	1,0	1,19	⊕	⊕	⊕	⊕
VKO 90X85X400	400	15	270	1,0	1,58	⊕	⊕	⊕	⊕
VKO 90X85X500	500	15	270	1,0	1,95	⊕	⊕	⊕	⊕
VKO 90X85X600	600	15	270	1,0	2,32	⊕	⊕	⊕	⊕
VKO 90X110X150	150	12	295	0,6	0,38	⊕	⊕	⊕	⊕
VKO 90X110X200	200	12	295	0,8	0,72	●	⊕	⊕	⊕
VKO 90X110X300	300	12	295	1,0	1,25	●	⊕	⊕	⊕
VKO 90X110X400	400	15	295	1,0	1,29	●	⊕	⊕	⊕
VKO 90X110X500	500	15	295	1,0	1,82	●	⊕	⊕	⊕
VKO 90X110X600	600	15	295	1,0	2,10	⊕	⊕	⊕	⊕

To fix the cover use 4 pcs of cover fixutres VU (pg. 10).

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm. For more information, see p. 7-2.

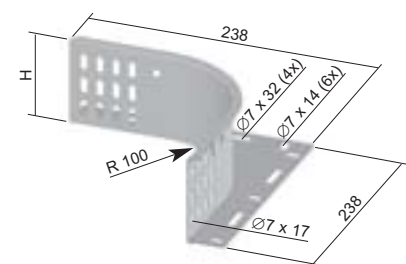
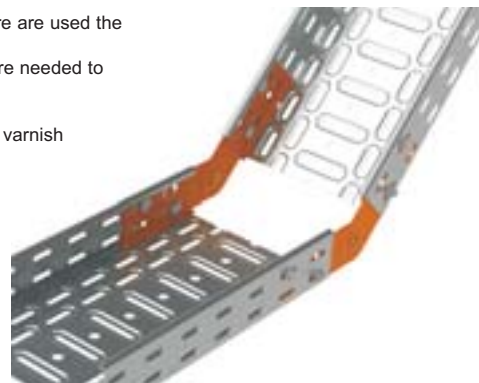


hinged joint

item number	H	t	±	±f	S	GMT	EC
SK 35	28	0,8	0,03	4	●	⊕	⊕
SK 60	53	0,8	0,06	4	●	⊕	⊕
SK 85	78	1,2	0,14	8	⊕	⊕	⊕
SK 110	103	1,2	0,20	8	●	⊕	⊕

For the connection of the hinged joint to the tray there are used the bolts NSM 6X10 (pg. 38).
The joint is delivered in 1 piece per packing, 2 pcs are needed to make a bend of the line.

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm.
For more information, see p. 7-2.



reduction piece

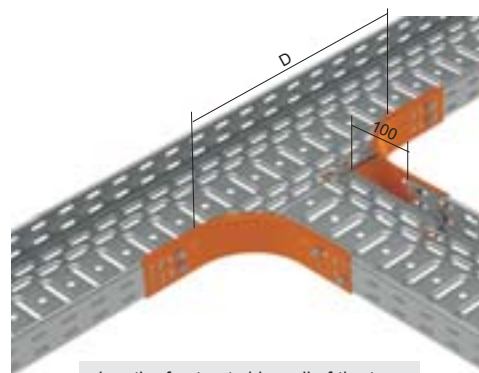
item number	H	t	±	±f	S	F	EC
SU 35	35	1,0	0,30	4	●	⊕	⊕
SU 60	60	1,0	0,37	4	●	⊕	⊕
SU 85	85	1,0	0,45	8	⊕	⊕	⊕
SU 110	110	1,0	0,51	8	●	⊕	⊕

It is used for making an additional branching use an unequal T-piece or cross.
Advantage of this using is availability to choose bending tray with any width.

The reduction piece is delivered in singles, must be used 2 pieces for installation.
The connection is performed using the bolts NSM 6X10 (pg. 38).

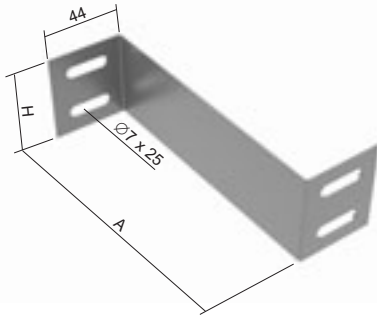
The cover of a horizontal VOH branch (pg. 12) can be used to cover routes with a reduction piece.

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm.
For more information, see p. 7-2.



length of cut out side wall of the tray

branch to a channel	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

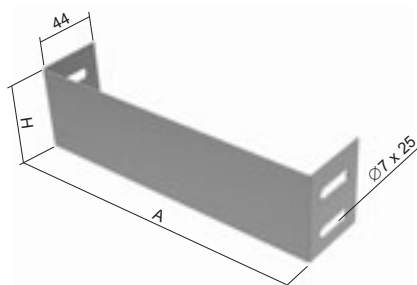


reduction

item number	H	A	↑	‡	⌈	S	F	EC
SR 35X25	25	25	1,0	0,02	2	●	⌚	⌚
SR 35X50	25	50	1,0	0,02	2	●	⌚	⌚
SR 35X75	25	75	1,0	0,03	2	●	⌚	⌚
SR 35X100	25	100	1,0	0,03	2	●	⌚	⌚
SR 35X125	25	125	1,0	0,04	2	●	⌚	⌚
SR 35X150	25	150	1,0	0,04	2	●	⌚	⌚
SR 35X200	25	200	1,0	0,05	2	●	⌚	⌚
SR 35X250	25	250	1,0	0,06	2	●	⌚	⌚
SR 35X300	25	300	1,0	0,07	2	●	⌚	⌚
SR 35X350	25	350	1,0	0,08	2	●	⌚	⌚
SR 35X400	25	400	1,0	0,09	2	●	⌚	⌚
SR 60X25	50	25	1,0	0,04	4	●	⌚	⌚
SR 60X50	50	50	1,0	0,05	4	●	⌚	⌚
SR 60X75	50	75	1,0	0,06	4	●	⌚	⌚
SR 60X100	50	100	1,0	0,07	4	●	⌚	⌚
SR 60X125	50	125	1,0	0,08	4	●	⌚	⌚
SR 60X150	50	150	1,0	0,09	4	●	⌚	⌚
SR 60X200	50	200	1,0	0,11	4	●	⌚	⌚
SR 60X250	50	250	1,0	0,13	4	●	⌚	⌚
SR 60X300	50	300	1,0	0,15	4	●	⌚	⌚
SR 60X350	50	350	1,0	0,17	4	●	⌚	⌚
SR 60X400	50	400	1,0	0,19	4	●	⌚	⌚
SR 85X25	75	25	1,0	0,06	6	⌚	⌚	⌚
SR 85X50	75	50	1,0	0,07	6	⌚	⌚	⌚
SR 85X75	75	75	1,0	0,09	6	⌚	⌚	⌚
SR 85X100	75	100	1,0	0,10	6	⌚	⌚	⌚
SR 85X125	75	125	1,0	0,12	6	⌚	⌚	⌚
SR 85X150	75	150	1,0	0,13	6	⌚	⌚	⌚
SR 85X200	75	200	1,0	0,16	6	⌚	⌚	⌚
SR 85X250	75	250	1,0	0,19	6	⌚	⌚	⌚
SR 85X300	75	300	1,0	0,22	6	⌚	⌚	⌚
SR 85X350	75	350	1,0	0,25	6	⌚	⌚	⌚
SR 85X400	75	400	1,0	0,28	6	⌚	⌚	⌚
SR 110X25	100	25	1,0	0,08	8	●	⌚	⌚
SR 110X50	100	50	1,0	0,10	8	●	⌚	⌚
SR 110X75	100	75	1,0	0,12	8	●	⌚	⌚
SR 110X100	100	100	1,0	0,14	8	●	⌚	⌚
SR 110X125	100	125	1,0	0,16	8	●	⌚	⌚
SR 110X150	100	150	1,0	0,18	8	●	⌚	⌚
SR 110X200	100	200	1,0	0,22	8	●	⌚	⌚
SR 110X250	100	250	1,0	0,26	8	●	⌚	⌚
SR 110X300	100	300	1,0	0,30	8	●	⌚	⌚
SR 110X350	100	350	1,0	0,34	8	●	⌚	⌚
SR 110X400	100	400	1,0	0,38	8	●	⌚	⌚

The fastening of the joint is performed with the bolts NSM 6X10 (pg. 38).

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm. For more information, see p. 7-2.



end-piece

item number	H	A	‡	‡	‡	S	F	EC
K 35X50	30	50	1,0	0,03	2	●	⊕	⊕
K 35X75	30	75	1,0	0,03	2	●	⊕	⊕
K 35X100	30	100	1,0	0,04	2	●	⊕	⊕
K 35X150	30	150	1,0	0,05	2	●	⊕	⊕
K 35X200	30	200	1,0	0,06	2	●	⊕	⊕
K 35X300	30	300	1,0	0,09	2	●	⊕	⊕
K 35X400	30	400	1,0	0,11	2	⊕	⊕	⊕
K 35X500	30	500	1,0	0,14	2	⊕	⊕	⊕
K 35X600	30	600	1,0	0,16	2	⊕	⊕	⊕
K 60X50	55	50	1,0	0,05	4	●	⊕	⊕
K 60X75	55	75	1,0	0,06	4	●	⊕	⊕
K 60X100	55	100	1,0	0,07	4	●	⊕	⊕
K 60X150	55	150	1,0	0,10	4	●	⊕	⊕
K 60X200	55	200	1,0	0,12	4	●	⊕	⊕
K 60X300	55	300	1,0	0,16	4	●	⊕	⊕
K 60X400	55	400	1,0	0,21	4	●	⊕	⊕
K 60X500	55	500	1,0	0,25	4	●	⊕	⊕
K 60X600	55	600	1,0	0,29	4	●	⊕	⊕
K 85X100	80	100	1,0	0,11	4	⊕	⊕	⊕
K 85X150	80	150	1,0	0,14	4	⊕	⊕	⊕
K 85X200	80	200	1,0	0,17	4	⊕	⊕	⊕
K 85X300	80	300	1,0	0,24	4	⊕	⊕	⊕
K 85X400	80	400	1,0	0,30	4	⊕	⊕	⊕
K 85X500	80	500	1,0	0,36	4	⊕	⊕	⊕
K 85X600	80	600	1,0	0,43	4	⊕	⊕	⊕
K 110X150	105	150	1,0	0,18	4	⊕	⊕	⊕
K 110X200	105	200	1,0	0,23	4	●	⊕	⊕
K 110X300	105	300	1,0	0,31	4	●	⊕	⊕
K 110X400	105	400	1,0	0,39	4	●	⊕	⊕
K 110X500	105	500	1,0	0,48	4	●	⊕	⊕
K 110X600	105	600	1,0	0,56	4	⊕	⊕	⊕

The fastening of the joint is performed with the bolts NSM 6X10 (pg. 38).

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm.
For more information, see p. 7-2.

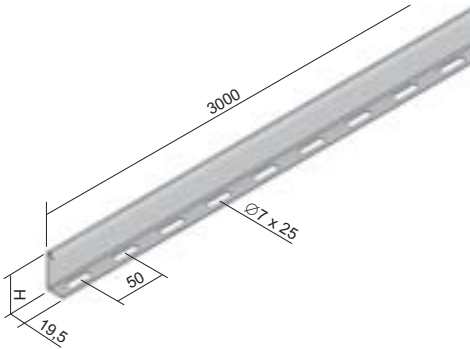


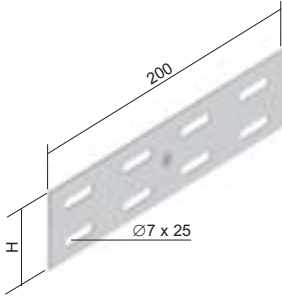
partition

item number	H	‡	‡	S	F	EC
P 35	29	0,8	0,34	●	⊕	⊕
P 60	54	0,8	0,50	●	⊕	⊕
P 85	79	0,8	0,66	⊕	⊕	⊕
P 110	104	0,8	0,81	●	⊕	⊕

The standard length of the partition is 3 m.
 The connection is performed using the bolts NSM 6X10 (pg. 38), 2 pcs per 1 meter.
 The partition is used to separate cables in cable trays. In term of electrical compatibility, it is also used for dividing several types of lines. It is recommended to use covers for this type of installation and make the covered and shielded room.

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm.
 For more information, see p. 7-2.



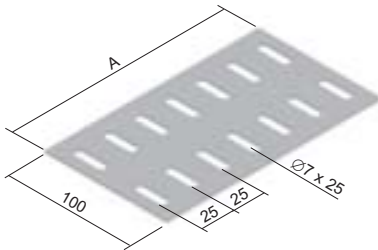


coupling

item number	H	t	g	l	S	GMT	EC
S 35X200	25	1,2	0,04	4	●	⊕	⊕
S 60X200	50	1,2	0,09	8	●	●	⊕
S 85X200	75	1,2	0,13	12	⊕	⊕	⊕
S 110X200	100	1,2	0,18	16	●	⊕	⊕

Used to connect trays with no built-in connector or if the connector has been removed. Connectors can be bent to create an angled branch. Attached using NSM 6X10 screws (pg. 38) that meet the requirement for conductive bonding.

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm. For more information, see p. 7-2.



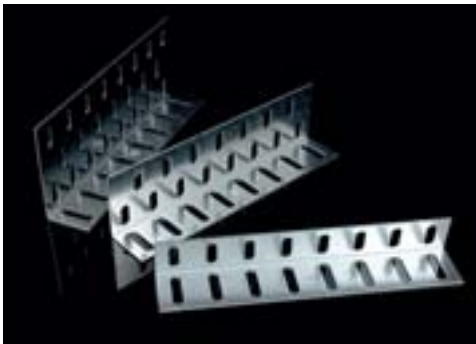
reinforcement plate

item number	A	t	g	l	S	GMT	EC
DV 75	68	1,5	0,07	4	●	⊕	⊕
DV 100	75	1,5	0,08	4	●	⊕	⊕
DV 150	125	1,5	0,13	4	●	⊕	⊕
DV 200	175	1,5	0,18	4	●	⊕	⊕
DV 300	275	1,5	0,29	8	●	⊕	⊕
DV 400	375	1,5	0,39	8	●	⊕	⊕
DV 500	475	1,5	0,49	8	⊕	⊕	⊕
DV 600	575	1,5	0,60	8	⊕	⊕	⊕

Is used for reinforcing the tray connections without integrated coupling. It is fastened by the bolts NSM 6X10 (pg. 39) to the tray bottom.

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm. For more information, see p. 7-2.



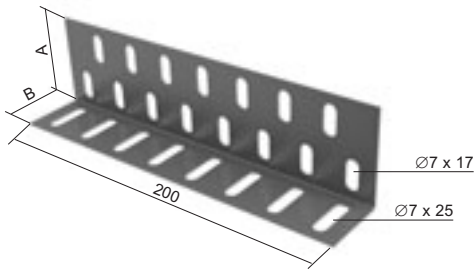


supporting corner

item number	A	B	↑	‡	⌈	S	F	EC
UP 35X42	36	28	1,2	0,10	4	●	⌚	⌚
UP 60X85	36	53	1,2	0,16	4	●	⌚	⌚
UP 110	36	78	1,2	0,23	4	⌚	⌚	⌚

Designated for the increase of the stability of the cable tray.
It is fastened by the bolt NSM 6X10 (pg. 38).

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm.
For more information, see p. 7-2.

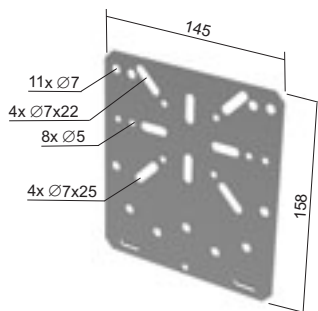


mounting plate

item number	↑	‡	S	GMT	EC
MDS	1,0	0,20	●	⌚	⌚

For mounting distribution boxes to the cable trays up to a sidewall height of 60 mm.
It is pushed onto the side of cable trays and it is fixed by screws NSM 6X10 (pg. 38).
Recommended for boxes KSK 80, KSK 100, KSK 125, KSK 175; 8101; 8102; 8106; 8107; 8110; 8111; 8112; 8130; 8135; 003.CS.K; 005.CS.K (s. catalogue of Wiring materials).

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm.
For more information, see p. 7-2.





threaded rod

item number	Ø	↓*	‡	ZNCR	ZNC3
ZT 6	M 6	2250	0,17	●	-
ZT 8	M 8	4060	0,31	●	⊕
ZT 10	M 10	6490	0,46	●	⊕
ZT 12	M 12	9440	0,70	⊕	-

The length of the threaded rod in the ZNCR configuration is 2 m; in the ZNC3 configuration it is 3 m.
* tolerable bearing resistance - calm load



connection nut

item number	Ø	‡	ZNCR
MZ 6	M 6	0,01	●
MZ 8	M 8	0,02	●
MZ 10	M 10	0,04	●
MZ 12	M 12	0,06	⊕

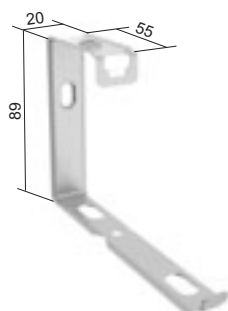
Used for the connection of two threaded rods.



grouped cable holder

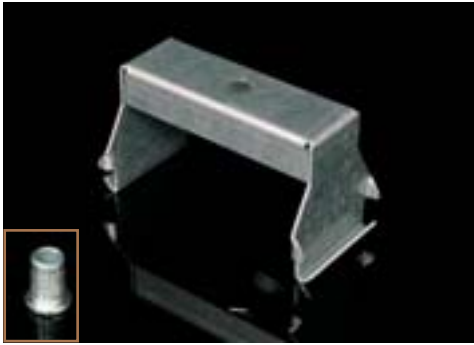
item number	‡	S
SD 2	0,03	●

Used to create cable routes for multiple cables.
Grouped holders can also be used to create a standardised route with maintained functionality during fire.
For details, see the catalogue Systems with Maintained Functionality During Fire.



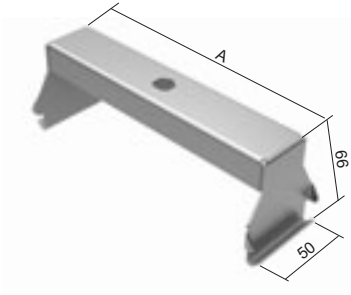
	maximum number of cables inserted						
	2x2x0,5 mm ²	3x1,5 mm ²	3x2,5 mm ²	5x4 mm ²	5x6 mm ²	4 x10 mm ²	4x16 mm ²
cable diameter in mm	5	9	10	14	15	16	19
amount of cables	75	29	21	13	10	7	5

Cable diameters are approximate and may vary depending on the cable manufacturer.
If holders are installed in systems with maintained functionality during fire, the maximum number of cables inserted depends on their weight per metre of length.

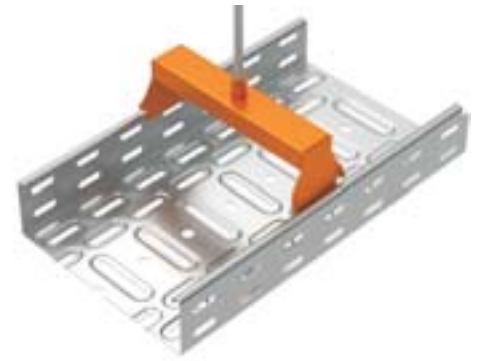


outer hanger

item number	A	‡	S	F	ZNCR
ZVNE 50	30	0,10	●	⊕	-
ZVNE 75	55	0,13	●	⊕	-
ZVNE 100	80	0,14	●	⊕	-
ZVNE 150	130	0,19	●	⊕	-
ZVNE 200	180	0,22	●	⊕	-
ZVNE 300	280	0,31	●	⊕	-
ZVNE 400	380	0,39	●	⊕	-
MN 8	-	0,01	-	-	●
MN 10	-	0,01	-	-	●

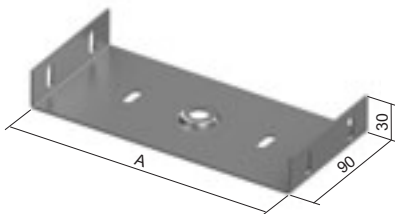


The maximum load is 90 kg.
 It is mounted using the threaded rod ZT 8 or ZT 10.
The nuts MN are not part of the hanger.
 The dimension of the nut is chosen by the diameter of the threaded rod.
 The hanger is suitable for hanging cables with cross piece.



inner hanger

item number	A	‡	S	F	ZNCR
ZVNI 75	71	0,16	●	⊕	-
ZVNI 100	96	0,20	●	⊕	-
ZVNI 150	146	0,27	●	⊕	-
ZVNI 200	196	0,34	●	⊕	-
ZVNI 300	296	0,47	●	⊕	-
ZVNI 400	396	0,61	⊕	⊕	-
MN 8	-	0,01	-	-	●
MN 10	-	0,01	-	-	●



The maximum load is 90 kg.
 It is mounted using the threaded rod ZT 8 or ZT 10.
The nuts MN are not part of the hanger.
 The inner hinge is inserted into the tray before connecting it to another tray.
 The dimension of the nut is chosen by the diameter of the threaded rod.

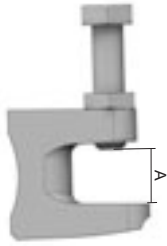




fixation clamp

item number	‡	used with	A	ZNCR
US 1	0,14	ZT 8	0 - 20	●
US 2	0,15	ZT 10	0 - 20	●
US 3	0,21	ZT 12	0 - 26	⊕

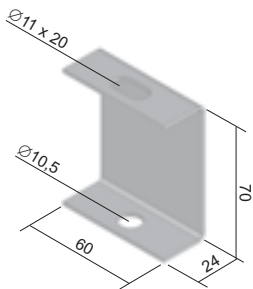
The fixation clamp is used for fixation of the threaded rod on I profile, a packing includes a fixation screw and a lock nut.



ceiling bracket

item number	‡	S	F
DSZT	0,10	●	⊕

Used together with a threaded rod ZT 8 or ZT 10.

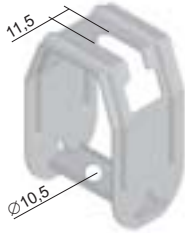




adjustable ceiling bracket

item number	‡	S
DSS	0,14	●

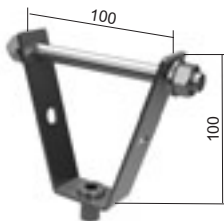
Used together with a threaded rod ZT 8 or ZT 10.
Ideal for a slight roof construction slant.



bracket for trapeze ceilings

item number	‡	ZNCR
DSOS 8	0,17	●
DSOS 10	0,17	●

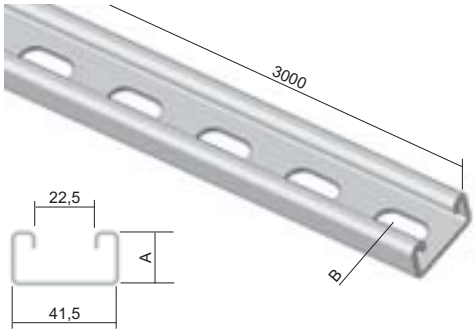
The DSOS holder is designed for fitting a threaded rod and attaching it to trapezoidal sheet metal. The DSOS comes with M8 or M10 adjusting nuts. The choice of DSOS 8 or DSOS 10 depends on which threaded rod is used, the ZT 8 or the ZT 10. For attachment to a trapezoidal ceiling the hinge is fitted with a transverse M8 x 120 mm pin. The pin has a washer and nut on both sides.



thickness metal sheet of trapeze ceiling (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 loading values mentioned in the table are valid only for constant load.

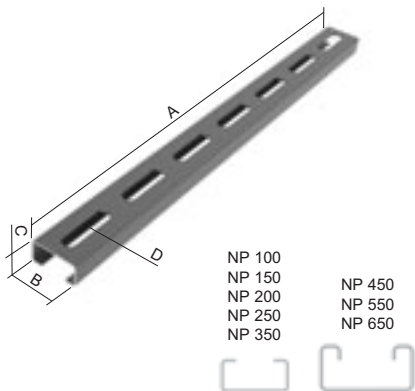
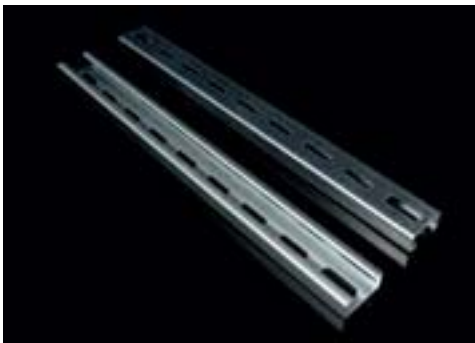




assembly profile

item number	A	B	↑	‡	S	F
MP 41X21	21	10 x 25	2,5	1,85	●	●
MP 41X21X1.50	21	10 x 25	1,5	1,13	●	-
MP 41X21X1.50X2000	21	13 x 30	1,5	1,13	●	-
MP 41X41	41	10 x 25	2,5	2,70	●	●

The standard length of the assembly profile is 3 m. Suitable for creating of beam for cable traces to be carried on thread bars or for creating of supporting structure by help of assembling accessory, see page 36.



NP 100
NP 150
NP 200
NP 250
NP 350

NP 450
NP 550
NP 650

load bearing profile

item number	A	B	C	D (inner)	D (outer)	↑	↓	‡	for KZI	S	F
NP 100	100	30	15	Ø7 x 32	Ø9 x 35	1,2	100	0,06	KZI ..X50	●	⊕
NP 150	150	30	15	Ø7 x 32	Ø9 x 35	1,2	100	0,08	KZI ..X75, X100	●	⊕
NP 200	200	30	15	Ø7 x 32	Ø9 x 35	1,2	100	0,11	KZI ..X150	●	⊕
NP 250	250	30	15	Ø7 x 32	Ø9 x 35	1,2	100	0,14	KZI ..X200	●	⊕
NP 350	350	30	15	Ø7 x 32	Ø9 x 35	1,2	100	0,20	KZI ..X300	●	⊕
NP 450	450	41,5	21	Ø7 x 32	Ø11 x 35	1,5	150	0,50	KZI ..X400	●	⊕
NP 550	550	41,5	21	Ø7 x 32	Ø11 x 35	1,5	150	0,62	KZI ..X500	●	⊕
NP 650	650	41,5	21	Ø7 x 32	Ø11 x 35	1,5	150	0,73	KZI ..X600	●	⊕

The load bearing profile NP 100 to NP 350 is fixed by using two threaded rods ZT 8 + nut M 8 + washer PD 8. The load bearing profile NP 450 to NP 650 is fixed by using two threaded rods ZT 10 + nut M 10 + washer PD 10.

The size of the load bearing profile is determined according to the width of the cable tray + 50 mm, for example for a cable tray that is 100 mm wide, order NP 150.





hang clamp

item number	A	⊥	⊥ with a threaded rod	‡	S
CTS 100	161	95	200	0,55	●
CTS 200	261	70	170	0,70	●
CTS 300	361	50	110	0,85	●

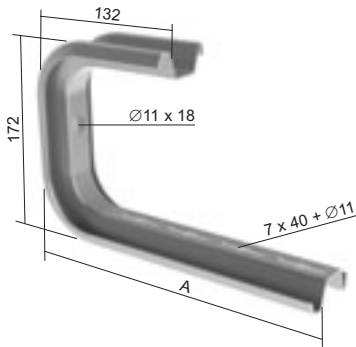
Designated for direct mounting to the ceiling or with a threaded rod ZT 8 or ZT 10.

The cable tray is fixed by using the bolts NSM 6X10.

To eliminate deformation during assembly the STS reinforcement is designated.

The installation is done by the anchors KPO 10X95 or KKZ 10, screws S 10X40 and washers PD 10.

CTS 400 also available while stocks last.



bracket

item number	A	⊥	‡	S
LTS 100	163	150	0,27	●
LTS 150	213	120	0,30	●
LTS 200	263	110	0,39	●
LTS 300	363	75	0,53	●
LTS 400	463	50	0,65	●
LTS 500	563	-	0,77	⊕
LTS 600	663	-	0,90	⊕

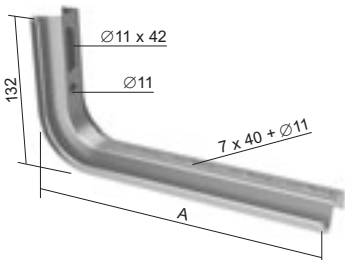
The cable tray is fixed by using the bolts NSM 6X10.

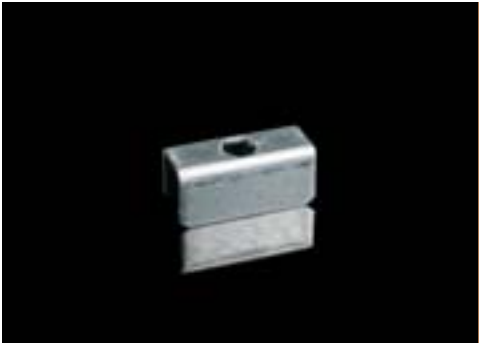
LTS 100 - LTS 400 holders are used on the wall or on the ceiling profile.

LTS 500 - LTS 600 holders are used as ceiling profiles.

To eliminate deformation during assembly the STS reinforcement is designated.

The installation is done by the anchors KPO 10X95 or KKZ 10, screws S 10X40 and washers PD 10.

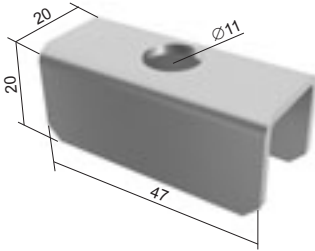




reinforcement piece for LTS and CTS profile

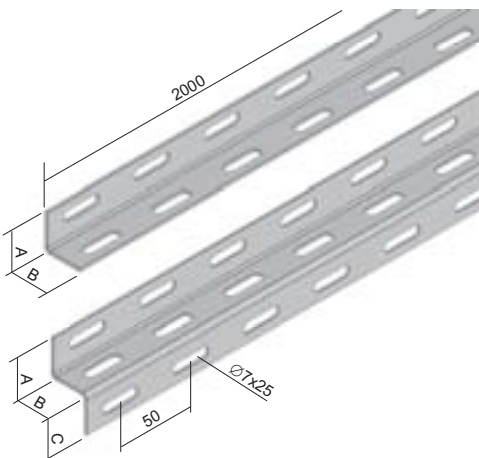
item number	‡	S
STS	0,06	●

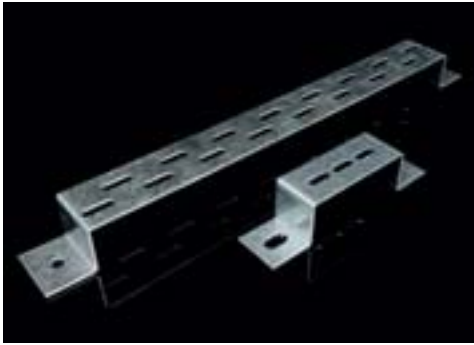
For assembly on to a wall 1 piece, for double assembly 2 pieces back to back.



L-profil and Z-profil

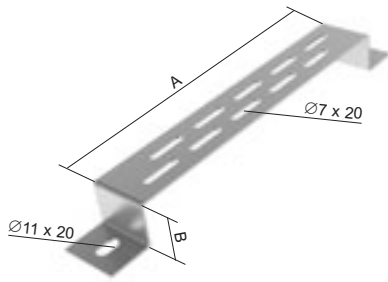
item number	A	B	C	‡	‡	S	F
L 25X1.25	25	25	-	1,25	0,83	⊕	⊕
L 25X50X1.25	25	50	-	1,25	1,29	⊕	⊕
L 50X50X1.25	50	50	-	1,25	1,70	⊕	⊕
L 50X50X1.50	50	50	-	1,50	2,05	⊕	⊕
Z 25X1.50	25	25	25	1,50	1,48	⊕	⊕
Z 50X1.50	50	50	50	1,50	3,01	⊕	⊕



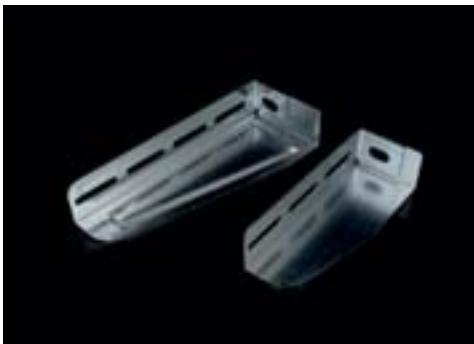


floor bracket

item number	A	B	‡	S	F
VMB 100	100	40	0,19	●	⊕
VMB 150	150	40	0,22	●	⊕
VMB 200	200	40	0,26	●	⊕
VMB 300	300	40	0,33	●	⊕
VMB 400	400	40	0,39	●	⊕
VMB 500	500	40	0,46	●	⊕
VMB 600	600	40	0,53	●	⊕

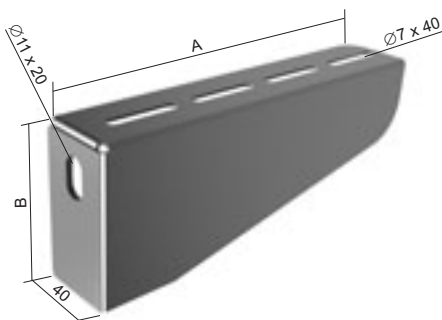


It is used to attach a cable tray to the floor or wall.
Attachment to the wall is carried using the Ø 10 mm wall clamps.
Cable tray is installed to VMB using the bolts NSM 6X10 (pg. 38).

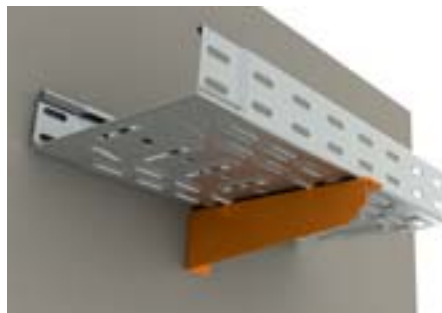


bracket - light

item number	A	B	⊥	‡	S	F
DLN 100	110	54	60	0,20	●	-
DLN 150	160	64	60	0,25	●	-
DLN 200	210	64	60	0,30	●	-
DLN 300	310	75	60	0,43	●	-
DSN 100	110	60	120	0,2	●	●
DSN 200	210	80	120	0,3	●	●
DSN 300	320	82	120	0,6	●	●
DSN 400	420	82	120	0,8	●	●
DSN 500	510	115	120	1,0	●	-
DSN 600	610	115	120	1,4	●	-



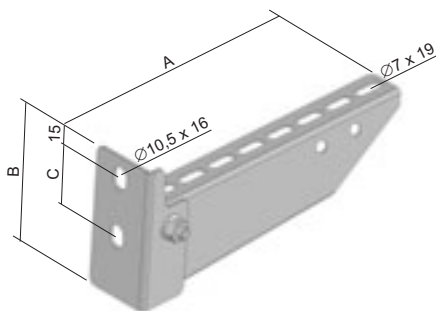
The holder is intended for fixing on the wall or on the SPL ceiling profile.
For mounting on the ceiling profile SPL, the sliding nuts PM 41 M 10 (pg. 40) will be used together with two bolts S 10X20.
Cable tray will be attached to the DL holder using the bolts NSM 6X10 (pg. 38).
At holders DSN is part of reinforcing emboossment.





bracket – medium

item number	A	B	C	↓	‡	S
DS 100	118	94	60	180	0,24	●
DS 150	168	94	60	160	0,33	●
DS 200	218	104	60	150	0,38	●
DS 300	318	120	60	200	0,63	●
DS 400	418	120	60	180	0,76	●
DS 500	518	140	90	160	1,00	●
DS 600	618	140	90	150	1,23	●



The holder is designed to be mounted on a wall or SPL or SPS ceiling profile.

Fix to the wall using 2 Ø 8 mm anchors.

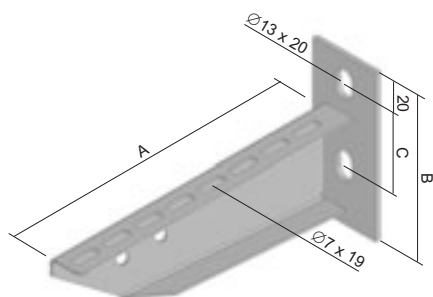
For assembly to the ceiling profile SPL and SPS there are used the sliding nuts PM 41 M 10 (pg. 40) together with the bolts S 10X20 (2 pcs).

Cable tray attaching to the bracket DS is carried out by bolts NSM 6X10 (pg. 38)



bracket – heavy

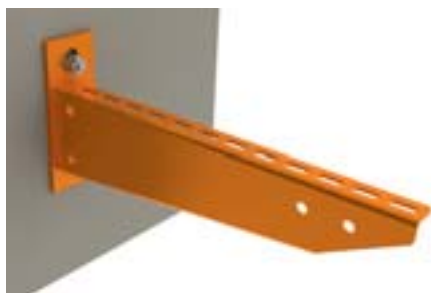
item number	A	B	C	↓	‡	F
DT 100	120	120	60	190	0,30	●
DT 150	170	120	60	230	0,36	●
DT 200	220	120	60	300	0,43	●
DT 250	270	120	60	350	0,53	●
DT 300	320	135	60	350	0,73	●
DT 400	420	135	60	350	0,88	●
DT 500	520	155	90	350	1,30	●
DT 600	620	155	90	350	1,60	●
DT 800	820	155	90	280	1,90	⊕
DT 1000	1020	155	90	200	2,40	⊕



The holder is designed to be mounted on a wall or SPL or SPS ceiling profile.

For assembly to the ceiling profile SPL and SPS there are used the sliding nuts PM 41 M 10 (pg. 40) together with the bolts S 10X20 (2 pcs).

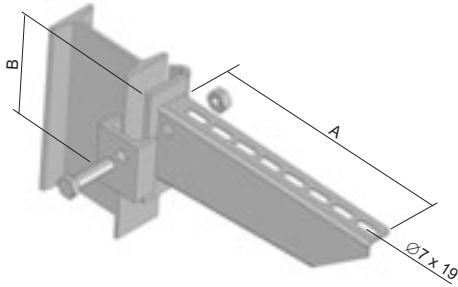
Cable tray attaching to the bracket DT is carried out by bolts NSM 6X10 (pg. 38)





clamp bracket - heavy

item number	A	B	⊥	‡	F
DRT 100	120	90	300	0,30	●
DRT 150	170	90	310	0,37	●
DRT 200	220	90	330	0,50	●
DRT 300	320	100	360	0,69	●
DRT 400	420	117	370	0,85	●
DRT 500	520	117	380	1,35	●
DRT 600	620	117	410	1,55	Ⓢ

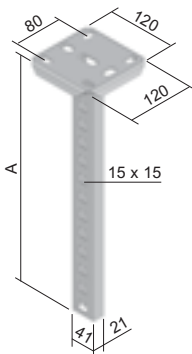


Set up for installation on the ceiling profile SPT and on Iprofile 80 mm.
Tripping steel square, nut and crew S 8X20 are included.
Cable tray attaching to the bracket is carried out by bolts NSM 6X10 (pg. 38)



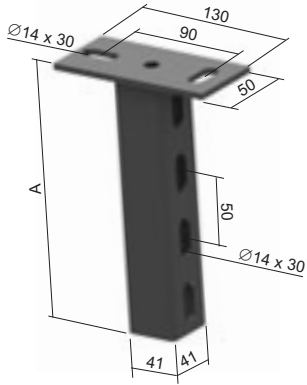
ceiling profile – light

item number	A	‡	F	XX
SPL 200	214	0,74	●	-
SPL 300	304	0,85	●	-
SPL 400	424	1,01	●	-
SPL 500	514	1,13	●	-
SPL 600	604	1,23	●	-
SPL 800	814	1,45	●	-
SPL 1000	1024	1,75	●	-
SPL 1200	1204	1,95	●	-
OKSPL	-	0,01	-	●



Designated for one sided fastening of the brackets DLN, DSN and DT with the use of sliding nut PM 41 M 10 and the bolt with a hexagonal head S 10X20.
OKSPL - end seal from PE.

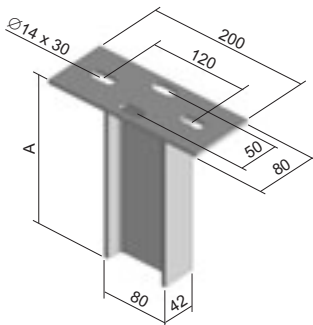




ceiling profile - medium

item number	A	‡	F	XX
SPS 200	207	1,03	●	-
SPS 300	307	1,33	●	-
SPS 400	407	1,60	●	-
SPS 500	507	1,90	●	-
SPS 600	607	2,15	●	-
SPS 800	757	2,70	●	-
SPS 1000	1007	3,25	●	-
SPS 1200	1207	3,80	⊕	-
OKSPS	-	0,01	-	●

Designated for one sided fastening of the bracket with the use of sliding nut PM 41 M 10 and the bolt with a hexagonal head S 10X20.
OKSPS - end seal from PE.

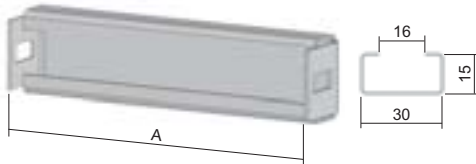


ceiling profile - heavy

item number	A	‡	F	XX
SPT 200	208	1,80	●	-
SPT 400	408	3,05	●	-
SPT 500	508	3,60	●	-
SPT 600	608	4,20	●	-
SPT 800	808	5,50	●	-
SPT 1000	1008	6,70	●	-
SPT 1200	1208	8,00	●	-
SPT 1500	1508	9,90	●	-
SPT 1800	1808	12,00	●	-
SPT 2000	2008	13,30	●	-
OKSPT	-	0,02	-	●

Designated for one sided and double sided fastening of the clamp brackets DRT.
Used as a bracket for the ceiling or the floor.
OKSPT - end seal from PVC.

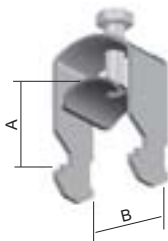




supporting profile for cable clamps

item number	A	‡	S	F
NPKV 50	47,5	0,04	●	⌚
NPKV 75	72,5	0,05	●	⌚
NPKV 100	97,5	0,07	●	⌚
NPKV 150	147,5	0,10	●	⌚
NPKV 200	197,5	0,13	●	⌚
NPKV 300	297,5	0,19	●	⌚
NPKV 400	397,5	0,25	●	⌚
NPKV 500	497,5	0,32	●	⌚
NPKV 600	597,5	0,38	●	⌚

The supporting profiles is designated for the cable trays. It is installed on the bottom of the cable tray and it is fixed by using two bolts NSM 6X10 (pg. 38) to the tray sidewalls. It is used for mounting of cable clamps and thereby for the anchoring of the cables inside the tray. It finds its use primarily in vertical routes, for the lightening of the cable tension. When using a cover it is necessary to take into account the height of the clamps.



cable clamp for 1 cable

item number	A min	B	‡	F	KZI 60	KZI 85	KZI 110
PKC1 1198	6	12	0,03	●	yes	yes	yes
PKC1 1199	7	16	0,03	●	yes	yes	yes
PKC1 1200	10	19	0,04	●	no	yes	yes
PKC1 1201	14	23	0,04	●	no	yes	yes
PKC1 1202	20	26	0,04	●	no	yes	yes
PKC1 1203	24	30	0,06	●	no	yes	yes
PKC1 1204	25	34	0,07	●	no	yes	yes
PKC1 1205	29	38	0,08	●	no	yes	yes
PKC1 1206	32	43	0,09	●	no	no	yes
PKC1 1207	42	46	0,10	●	no	no	yes
PKC1 1208	44	50	0,10	●	no	no	yes
PKC1 1209	50	54	0,11	●	no	no	yes
PKC1 1210	51	58	0,14	●	no	no	no
PKC1 1211	55	63	0,16	●	no	no	no
PKC1 1212	59	69	0,16	●	no	no	no

The possibility of trace covering by cover upon use of maximum cable diameter into the cable clamp.

A min and B indicate the minimum and maximum diameter of the cable being fastened. For basic orientation in choosing cable clamp, use mentioned propositions. The basic surface treatment with which clamps are delivered makes it possible to use them even in harsh weather environments.

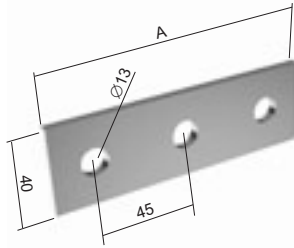




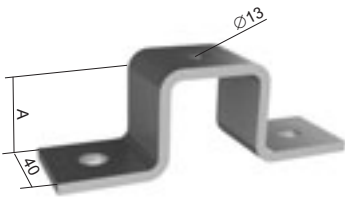
assembly accessories

item number	A	t	±	F
VS 41X01	85	5	0,13	●
VS 41X02	130	5	0,19	●
VS 41X03	175	5	0,26	●
VS 41X04	220	5	0,32	●
VS 41X05	55	5	0,13	●
VS 41X06	99	5	0,19	●
VS 41X07	55	5	0,20	●
VS 41X08*	90	5	0,26	●
VS 41X09	41	5	0,19	●
VS 41X10	21	5	0,16	●
VS 41X12	21	5	0,26	●
VS 41X13	41	5	0,32	●
VS 41X14	82	5	0,46	●
VS 41X16	82	5	0,27	●
VS 41X17	85	5	0,24	●
VS 41X18	93	5	0,21	●
VS 41X20	100	5	0,35	●
VS 41X25	85	5	0,25	●
VS 41X26	142	5	0,36	●
VS 41X27	142	5	0,29	●
VS 41X31	135	5	0,34	●
VS 41X36	90	5	0,21	●
VS 41X37	41	5	0,47	●
VS 41X38	124	5	0,64	●
VS 41X41	80	6	0,37	● to attach MP 41X21 and MP 41X41 profile
VS 41X43	82	8	0,20	●

VS 41X01
VS 41X02
VS 41X03
VS 41X04
VS 41X17
VS 41X18
VS 41X25
VS 41X26
VS 41X27
VS 41X31
VS 41X36
VS 41X37
VS 41X43



VS 41X09
VS 41X10
VS 41X12
VS 41X13
VS 41X14
VS 41X16



VS 41X05
VS 41X06
VS 41X07
VS 41X20



VS 41X38



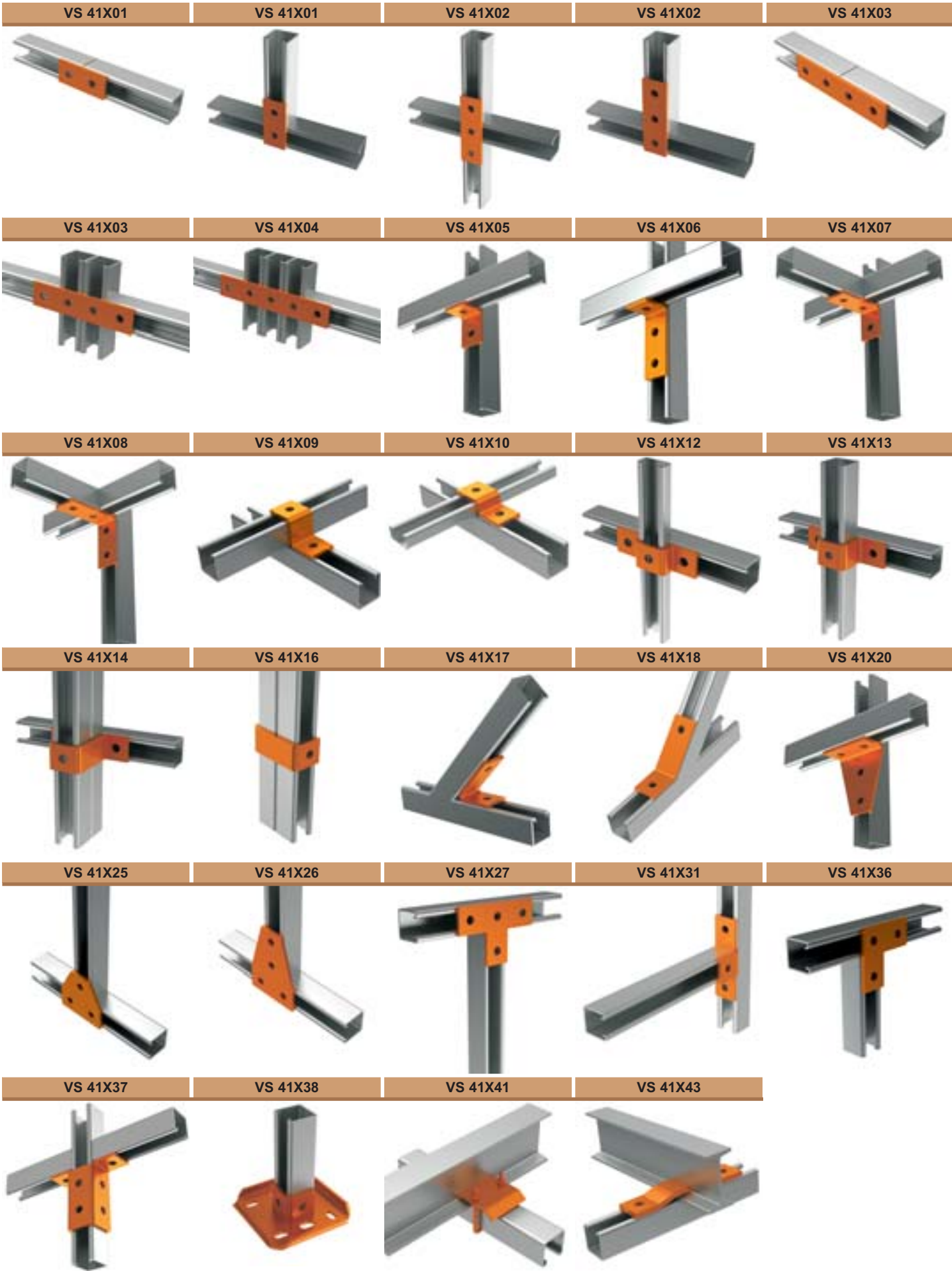
VS 41X41



Designed for use with assembly profiles MP 41X21 and MP 41X41.

Fastening is performed using the bolts S 12X20 or S 12X30 and sliding nuts PM 41 M 12.

* until the sell-out of stocks





clamp

item number

GMT

KSV

●

Is used for securing the connection of cable trays or the attaching of the mounting plate MDS.



carriage bolt and lock nut

item number

‡

⌚

ZNCR

GMT

NSM 6X10

0,009

100

●

-

NSM 6X10-GMT

0,009

100

-

●

It is instrumental to assure the conductive connection of cable trays and accessories up to 25 A.





bolt + nut + lock washers

item number	‡	⌚	ZNCR
NSMP 6X10	0,009	100	●

It is instrumental to assure the conductive connection – convenient for varnished trays.



bolt with hexagonal head

item number	‡	ZNCR
S 6X20	0,01	●
S 6X30	0,01	⌚
S 8X20	0,01	●
S 8X30	0,02	●
S 8X40	0,02	●
S 8X50	0,02	●
S 8X70	0,03	⌚
S 10X20	0,02	●
S 10X30	0,03	●
S 10X40	0,03	●
S 10X50	0,04	●
S 10X70	0,05	●
S 12X20	0,03	⌚
S 12X30	0,04	⌚
S 12X40	0,05	⌚
S 12X50	0,06	⌚



hexagon nut

item number	‡	ZNCR
M 6	0,001	●
M 8	0,001	●
M 10	0,001	●
M 12	0,002	●



washer

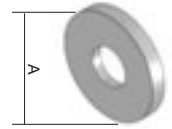
item number	A	‡	ZNCR
PD 6	12	0,001	●
PD 8	16	0,001	●
PD 10	20	0,001	●
PD 12	24	0,001	●





large washer

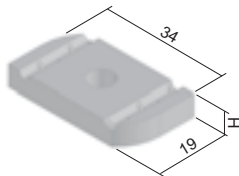
item number	A	‡	ZNCR
PVL 6	18	0,001	●
PVL 8	24	0,001	●
PVL 10	30	0,001	●
PVL 12	38	0,002	⊕



sliding nut

item number	‡	H	ZNCR
PM 41 M 6	0,03	6	⊕
PM 41 M 8	0,03	7	●
PM 41 M 10	0,03	8	●
PM 41 M 12	0,03	10	⊕

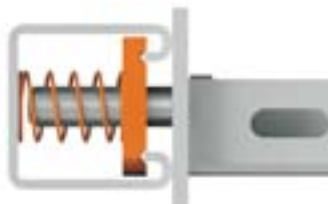
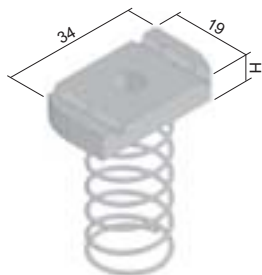
Used for the attaching of the brackets to the profiles MP 41X41 or profiles each other by the VS system (pg. 36)



sliding nut with spring

item number	‡	H	ZNCR
PMP 41 M 6	0,04	6	⊕
PMP 41 M 8	0,04	7	●
PMP 41 M 10	0,04	8	●
PMP 41 M 12	0,04	10	⊕

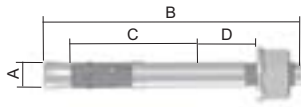
Used for the attaching of the brackets to the profiles MP 41X41 or profiles each other by the VS system (pg. 36)
The spring simplifies the fixation of the nut during assembly.
The bracket is attached by using 20 mm bolts.





anchor

item number	A	B	C	D	E	thread	‡	PO
KPO 6X50	6	52	30	5	45	M6	0,01	●
KPO 6X70	6	67	40	10	55	M6	0,02	●
KPO 8X77	8	75	44	10	65	M8	0,03	●
KPO 8X97	8	95	44	30	65	M8	0,04	●
KPO 10X95	10	95	48	20	70	M10	0,06	●
KPO 10X115	10	120	48	45	70	M10	0,07	●
KPO 12X120	12	115	65	20	90	M12	0,11	●



A - drill bit diameter
 B - total length of anchor
 C - anchor depth
 D - maximum thickness of the material being attached
 E - minimum depth of the drilled hole
 Anchors serve for the attaching of construction elements to the base material (non-cracked concrete).



steel stop anchor

item number	A	B	C	thread	‡	ZNCR
KKZ 6	8	25	27	M6	0,01	●
KKZ 8	10	30	32	M8	0,01	●
KKZ 10	12	40	42	M10	0,02	●
KKZ 12	15	50	52	M12	0,05	⌚



A - drill bit diameter
 B - total length of anchor
 C - minimum depth of the drilled hole
 The knock in anchors KKZ serve for the direct attachment of the threaded rods.
 There is a strut pin inside the anchor, which must be driven into the correct position before the assembly of a threaded rod.
 This item is suitable for fixing into concrete or natural stone.
 KKZ 8, KKZ 10 and KKZ 12 anchors are provided with a collar.



brass stop anchor

item number	A	B	C	thread	‡	XX
KKZM 8	10	30	35	M8	0,01	●
KKZM 10	12	35	40	M10	0,01	●



A - drill bit diameter
 B - total length of anchor
 C - minimum depth of the drilled hole
 The knock in anchors KKZM serve for the direct attachment of the threaded rods.
 The brass anchors have an inner conical thread, which expands during the assembly of a threaded rod or bolt.
 The threaded rod (bolt) must be driven into the full length of the anchor.
 This item is suitable for fixing into concrete, natural stone, wood, chipboard and solid brick.



zinc paint / spray

item number	‡	
WEICON 375 (color)	0,50	●
WEICON 750 (color)	1,10	●
GZS (spray)	0,45	●

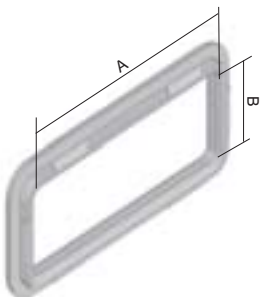
Anticorrosive protection to be intended for service of defective and damaged places on galvanized surface. Lay on the color by paintbrush, stipple technology.



cable tray bushing

item number	A	B	‡	
OKKZ 15X75*	70	9	0,0046	for trays KZI with sidewall height 35 mm ●
OKKZ 32X75*	70	27	0,0062	for trays KZI with sidewall height of 60 mm ●
OKKZ 57X57*	53	53	0,0066	for bottom of the cable tray, for trays KZI with a width from 200 mm ●

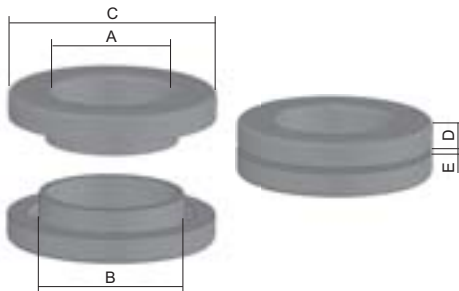
Bushings serve for safe leading of cables from the cable tray.
Specified for cable trays with openings on the side wall, which are produced on order.
* until the sell-out of stocks





bushing

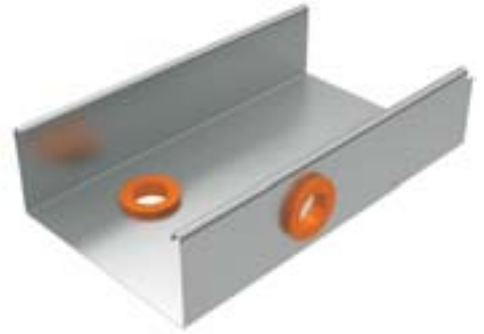
item number	A	B	C	D	E	‡	
NKP 9	10	15	24	5	0,5 - 5	0,002	●
NKP 11	12	18,5	26	6	0,5 - 5	0,004	●
NKP 13	16	20	31	6	0,5 - 5	0,006	●
NKP 16	17	22	33	6	0,5 - 5	0,006	●
NKP 21	24	28	40	7	0,5 - 5	0,010	●
NKP 29	31	37	53	7	0,5 - 5	0,018	●



Bushings serve for the safe passing of the cables through the sheet metal.

One part of the bushing is inserted from one side into the created opening in the bottom or the sidewall of the tray, the second part is inserted from the second side and gentle pressure is used to press both the parts together and this connects them firmly.

B - drilled hole diameter



edge protector

item number	‡	
NCH	0,06	●

The edge protector made from plastic with a steel insert is used to protect the edges of cable trays.

Package = 10 m, sold in entire packs.

The protector there is possible to install to the metal sheets of max. 2 mm thickness.



technical information

Standard

Cable trays Jupiter are certified by EZÚ (Electrotechnical Testing Institute) according to standard number ČSN EN 61537:02 Laying cables – cable tray systems and cable ladder systems.

Products comply with the EU requirements.

Surface finish:

Basic design made from zinc-coated sheet metal with Sendzimir surface treatment.

Hot Dip Galvanized – this surface finish provides greater anti-corrosion protection, secured by a thicker layer of surface zinc. Hot dip galvanizing measuring protocol available on request.

Varnishing – for esthetic reasons or for greater resistance to corrosion, it is possible to apply epoxy or polyester powder varnish

electrical conductivity and grounding

The JUPITER system of cable trays is constructed so that first-rate bonding is ensured when individual trays are connected. This is achieved by fixed connection using special bolts NSM 6X10. The claim is based on the test report concerning cable routes and cable ladders classed under the ČSN EN 61357 standard pursuant to Article 6.3.2 as cable routes with the characteristics of electrical continuity to ensure protective bonding and ground connection. Under Article 11.1.2 25A + - 1A alternating current at a frequency of 50 Hz to 60 Hz is fed along the length of the test samples. The test performed under this article was compliant. Impedance on the circuit board is less than 50 mΩ. The cable trays and cable ladders were also found to be compliant during this test.

When using the KSV clamp it is necessary to connect individual parts (trays, accessories) by an additional protective wire with the corresponding cross section.

The protection against electric shock

For safety reasons, the system of trays bonded in this way shall be on both ends connected to a ground clamp. Such grounding is made according to the requirement no. 543.1.2 ČSN332000-5-54 ed. 2 and table 54 F (Appendix 7) stipulating the minimum cross-section of the appropriate protective conductor with regard to the cross-sections of phase conductors of the installation. The minimum cross-section of a cable tray is calculated without a cover.

inner usable cross-section of the chanel

Type number	cm ²	utilization 50% (cross- section cm ²)	CYKY	CYKY	CYKY	CYKY	CYKY	CYKY	CYKY	CYKY	CYKY	CYKY	CYKY	CYKY	CYKY	CYKY	CYKY	CYKY
			3x1,5	5x1,5	3x2,5	5x2,5	3x4	5x4	5x6	5x10	5x16	5x25	4x35	4x50	3x70+50	3x95+70	3x120+95	3x240+120
			Ø 8,6	Ø 10,1	Ø 9,5	Ø 11,2	Ø 11,2	Ø 13,8	Ø 15,1	Ø 18	Ø 20,4	Ø 26,1	Ø 24,8	Ø 31,3	Ø 33,6	Ø 39,3	Ø 43	Ø 56,4
KZI 35X50	17,5	8,8	12	9	10	7	7	5	4	3	2	1	1	1	0	0	0	0
KZI 35X75	26,3	13,1	18	13	15	10	10	7	6	4	3	2	2	1	0	0	0	0
KZI 35X100	35	17,5	24	17	19	14	14	9	8	5	4	3	3	2	0	0	0	0
KZI 35X150	52,5	26,3	19	26	29	21	21	14	12	8	6	4	4	3	0	0	0	0
KZI 35X200	70	35,0	47	34	39	28	28	18	15	11	8	5	6	4	0	0	0	0
KZI 35X300	105	52,5	71	51	58	42	42	28	23	16	13	8	9	5	0	0	0	0
KZI 35X400	140	70,0	95	69	78	56	56	37	31	22	17	10	11	7	0	0	0	0
KZI 35X500	175	87,5	118	86	97	70	70	46	38	27	21	13	14	9	0	0	0	0
KZI 35X600	210	105,0	142	103	116	84	84	55	46	32	25	15	17	11	0	0	0	0
KZI 60X50	30	15,0	20	15	17	12	12	8	7	5	4	2	2	2	1	1	0	0
KZI 60X75	45	22,5	30	22	25	18	18	12	10	7	5	3	4	2	2	1	1	1
KZI 60X100	60	30,0	41	29	33	24	24	16	13	9	7	4	5	3	3	2	2	1
KZI 60X150	90	45,0	61	44	50	36	36	24	20	14	11	7	7	5	4	3	2	1
KZI 60X200	120	60,0	81	59	66	48	48	32	26	19	14	9	10	6	5	4	3	2
KZI 60X300	180	90,0	122	88	100	72	72	47	39	28	22	13	15	9	8	6	5	3
KZI 60X400	240	120,0	162	118	133	96	96	63	53	37	29	18	20	12	11	8	6	4
KZI 60X500	300	150,0	203	147	166	120	120	79	66	46	36	22	24	15	13	10	8	5
KZI 60X600	360	180,0	243	176	199	143	143	95	79	56	43	26	29	18	16	12	10	6
KZI 85X100	85	42,5	57	42	47	34	34	22	19	13	10	6	7	4	4	3	2	1
KZI 85X150	127,5	63,8	86	62	71	51	51	33	28	20	15	9	10	7	6	4	3	2
KZI 85X200	170	85,0	115	83	94	68	68	45	37	26	20	12	14	9	8	6	5	3
KZI 85X300	255	127,5	172	125	141	102	102	67	56	39	31	19	21	13	11	8	7	4
KZI 85X400	340	170,0	230	167	188	136	136	89	75	52	41	25	28	17	15	11	9	5
KZI 85X500	425	212,5	287	208	235	169	169	112	93	66	51	31	35	22	19	14	11	7
KZI 85X600	510	255,0	345	250	283	203	203	134	112	79	61	37	41	26	23	17	14	8
KZI 110X150	165	82,5	112	81	91	66	66	43	36	25	20	12	13	8	7	5	4	3
KZI 110X200	220	110,0	149	108	122	88	88	58	48	34	26	16	18	11	10	7	6	3
KZI 110X300	330	165,0	223	162	183	132	132	87	72	51	40	24	27	17	15	11	9	5
KZI 110X400	440	220,0	297	216	244	175	175	116	96	68	53	32	36	22	19	14	12	7
KZI 110X500	550	275,0	372	270	305	219	219	144	121	85	66	40	45	28	24	18	15	9
KZI 110X600	660	330,0	446	323	366	263	263	173	145	102	79	48	54	34	29	21	18	10

The values state the number of cables with the tray at 50% full. Orientation diameters of the cables CYKY.

The values are mathematically calculated. The limit values (small tray x big cable or contrariwise) it is necessary to consider combination of the tray and diameter of the cable and used them with reference to technical conditions.



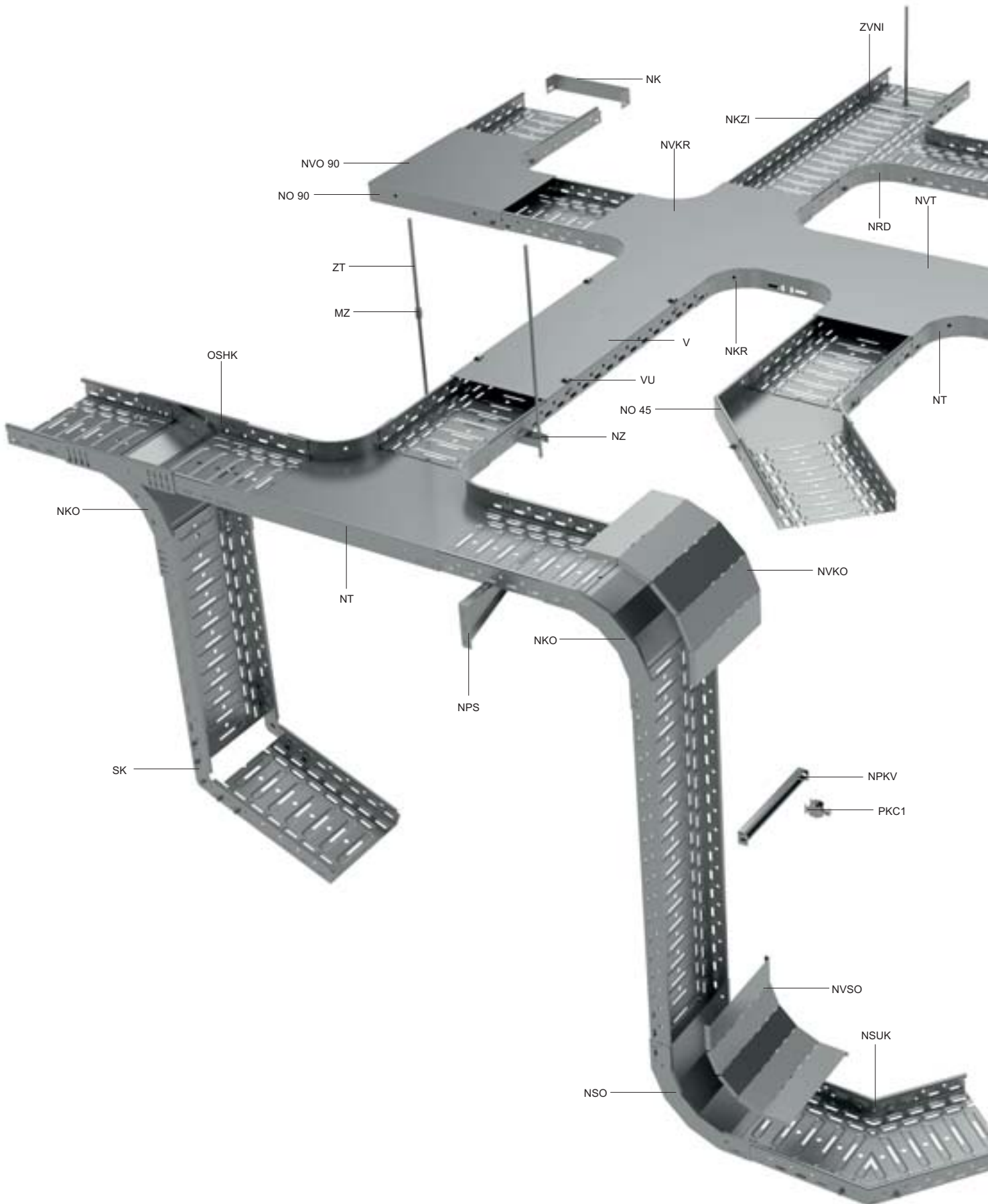


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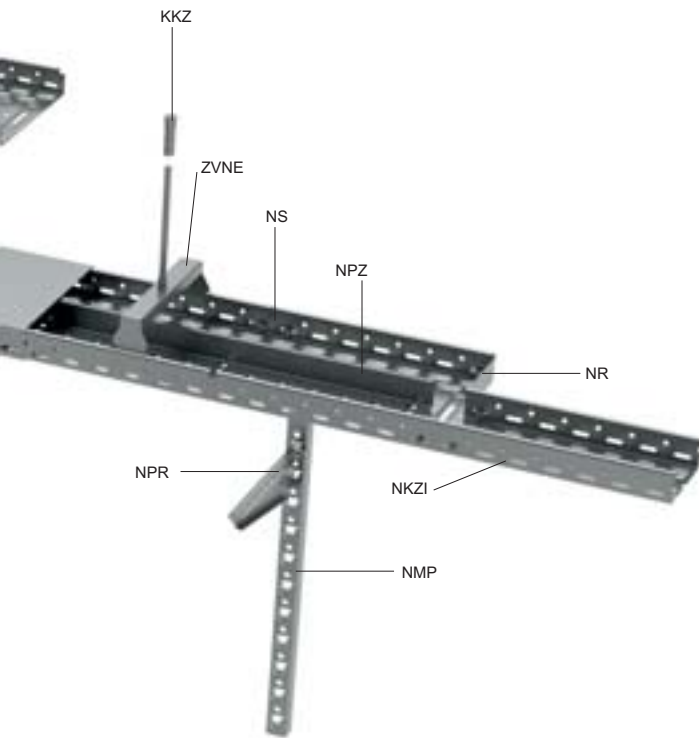
CABLE
TRAYS
MARS



OVERVIEW OF SYSTEM ELEMENTS



OVERVIEW OF SYSTEM ELEMENTS



marking	description	pg.
KKZ	anchor	29
MZ	connection nut	24
NK	end-piece	18
NKO	low elbow 90°	12
NKR	cross-over	11
NKZI	cable tray with integrated coupling	4
NMP	assembly profile	22
NO 45	elbow 45°	9
NO 90	elbow 90°	8
NPKV	supporting profile for cable clamps	26
NPR	clamp support	21
NPS	wall bracket	21
NPZ	partition	17
NR	reduction	17
NRD	reduction piece	15
NS	coupling	19
NSO	rising elbow 90°	13
NSUK	angle coupling	16
NT	T-piece	10
NVKO	low elbow 90° cover	12
NVKR	cross-over cover	11
NVO 90	elbow cover 90°	8
NVSO	rising elbow 90° cover	13
NVT	T-piece cover	10
NZ	suspension piece	24
PKC1	cable clamp	26
V	cable tray cover	7
VU	cover fixture	7
ZT	threaded rod	24
ZVNE	outer hanger	25
ZVNI	inner hanger	25



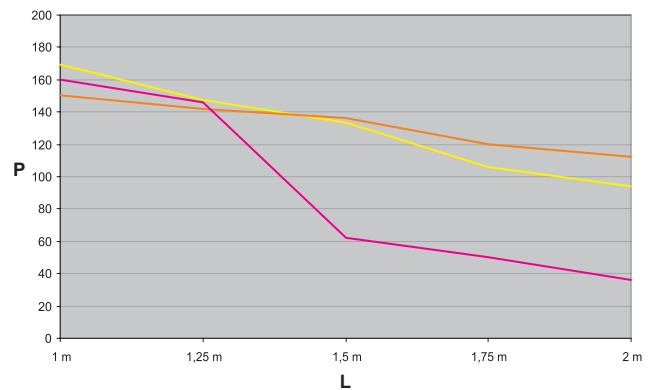
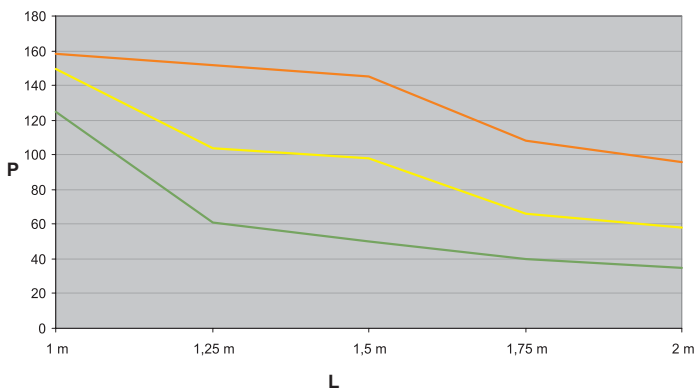
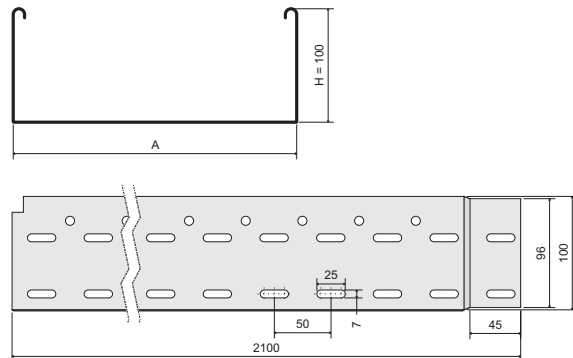
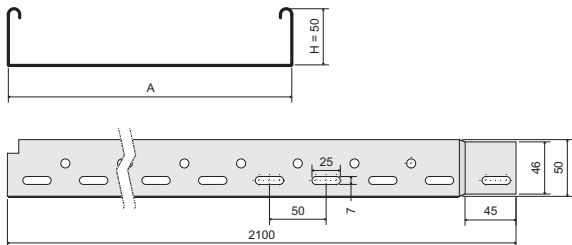
cable tray with integrated coupling

item number	A	H	‡	‡†	‡‡	S	F	EO	EC
NKZI 50X62X0.70	62	50	0,7	2	0,89	●	●	⊕	⊕
NKZI 50X62X1.25	62	50	1,25	2	1,66	●	⊕	⊕	⊕
NKZI 50X125X0.70	125	50	0,7	2	1,30	●	●	⊕	⊕
NKZI 50X125X1.25	125	50	1,25	2	2,31	●	⊕	⊕	⊕
NKZI 50X250X0.70	250	50	0,7	2	2,05	●	-	⊕	⊕
NKZI 50X250X1.00	250	50	1,00	2	2,50	●	●	⊕	⊕
NKZI 50X250X1.25	250	50	1,25	4	3,31	●	⊕	⊕	⊕
NKZI 100X125X0.70	125	100	0,7	4	1,80	●	-	⊕	⊕
NKZI 100X125X0.80	125	100	0,8	4	2,30	-	●	-	-
NKZI 100X125X1.25	125	100	1,25	4	3,25	●	⊕	⊕	⊕
NKZI 100X250X0.70	250	100	0,7	4	2,49	●	-	⊕	⊕
NKZI 100X250X0.80	250	100	0,8	4	3,44	-	●	-	-
NKZI 100X250X1.25	250	100	1,25	6	4,24	●	⊕	⊕	⊕
NKZI 100X500X1.00	500	100	1,0	4	5,43	●	-	⊕	⊕
NKZI 100X500X1.25	500	100	1,25	6	6,34	●	⊕	⊕	⊕

The standard length of the cable tray is 2,1 m.
 For the securing of the connections of the trays with integrated coupling there are used the clamps made from spring steel KSV (pg. 27) or the bolts NSM 6X10 (pg. 27).
 The cable trays comply with the conditions for systems with maintained functionality during fire - for more details, see the catalogue Systems with Maintained Functionality During Fire.

Various cable tray designs can be made to order - contact your sales representative for more information.

The above items (except metal sheet thickness 0,8 and 1,25 mm) may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm.
 For more information, see p. 7-2.



— NKZI 50X250X1.00
 — NKZI 50X125X0.70
 — NKZI 50X62X0.70

— NKZI 100X500X1.00
 — NKZI 100X250X0.70
 — NKZI 100X125X0.70

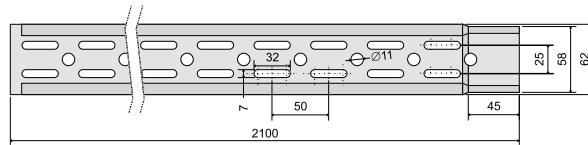
The graphs show the maximum allowed even loading of the trays in relation to the distances of the supports.

L = distance of supports (m)
 P = allowed even loading (weight kg/m)

design bottom punching of NKZI tray

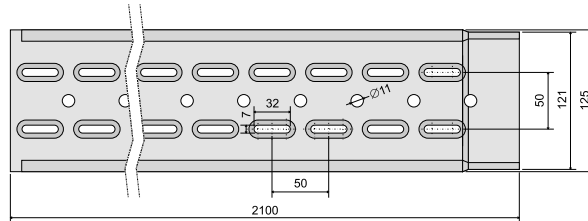
bottom width 62 mm

NKZI 50X62X...



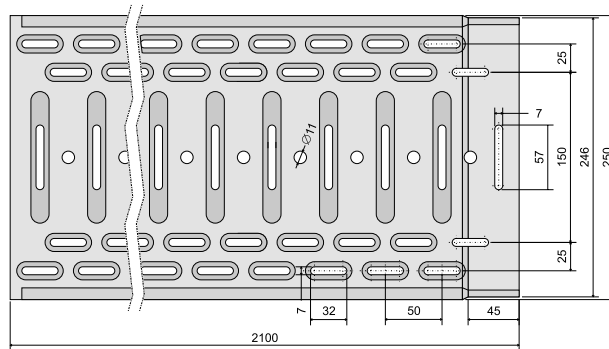
bottom width 125 mm

NKZI 50X125X...
NKZI 100X125X...



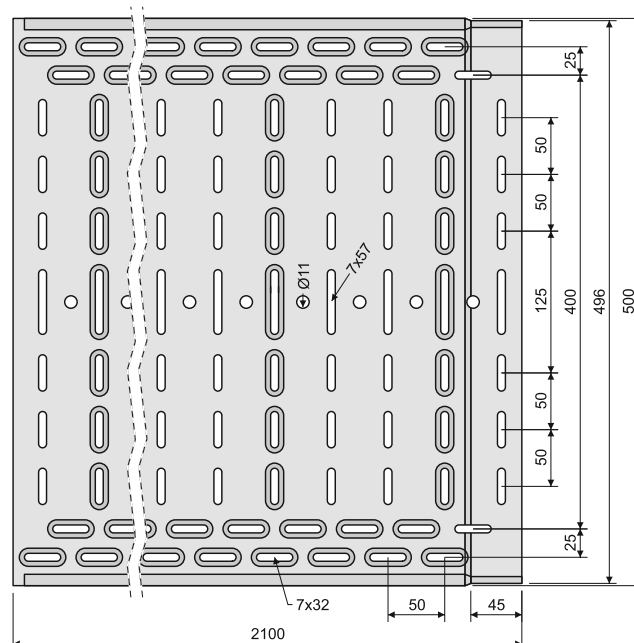
bottom width 250 mm

NKZI 50X250X...
NKZI 100X250X...



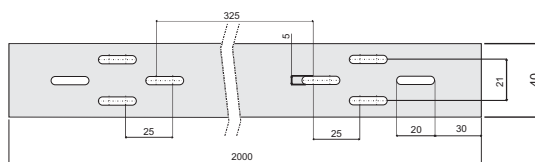
bottom width 500 mm

NKZI 100X500X...



bottom width 40 mm

NKZ 20X40

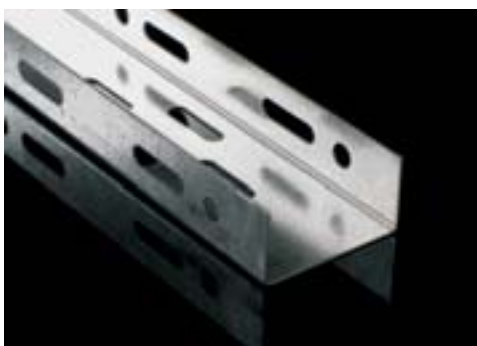
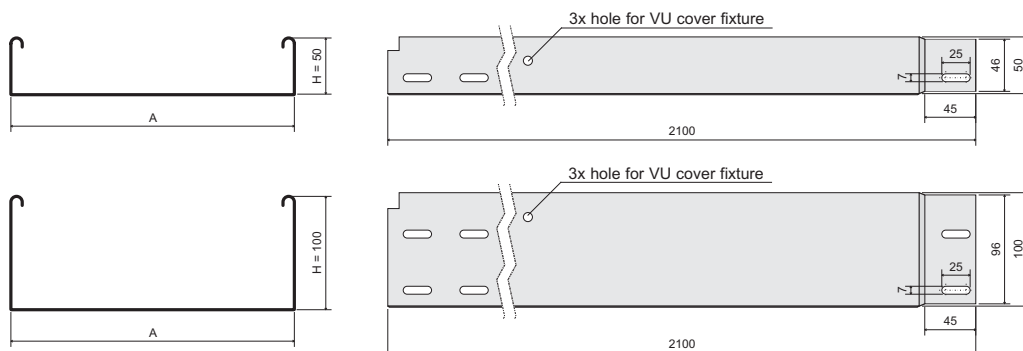




cable trays with integrated coupling non-perforated

item number	A	H	↑	↓	‡	S	F	EO	EC
NKZIN 50X62X0.70	62	50	0,7	2	0,98	●	⊕	⊕	⊕
NKZIN 50X62X1.25	62	50	1,25	2	1,82	●	⊕	⊕	⊕
NKZIN 50X125X0.70	125	50	0,7	2	1,48	●	⊕	⊕	⊕
NKZIN 50X125X1.25	125	50	1,25	2	2,45	●	-	⊕	⊕
NKZIN 50X250X0.70	250	50	0,7	2	2,28	●	-	⊕	⊕
NKZIN 50X250X1.00	250	50	1,0	2	3,00	●	⊕	⊕	⊕
NKZIN 50X250X1.25	250	50	1,25	4	3,65	●	⊕	⊕	⊕
NKZIN 100X125X0.70	125	100	0,7	4	1,98	●	-	⊕	⊕
NKZIN 100X125X0.80	125	100	0,8	4	2,50	-	⊕	-	-
NKZIN 100X125X1.25	125	100	1,25	4	3,46	●	-	⊕	⊕
NKZIN 100X250X0.70	250	100	0,7	4	2,70	●	-	⊕	⊕
NKZIN 100X250X0.80	250	100	0,8	4	3,44	-	⊕	-	-
NKZIN 100X250X1.25	250	100	1,25	4	4,62	●	⊕	⊕	⊕
NKZIN 100X500X1.00	500	100	1,0	4	5,89	●	-	⊕	⊕
NKZIN 100X500X1.25	500	100	1,25	4	8,04	-	⊕	⊕	⊕

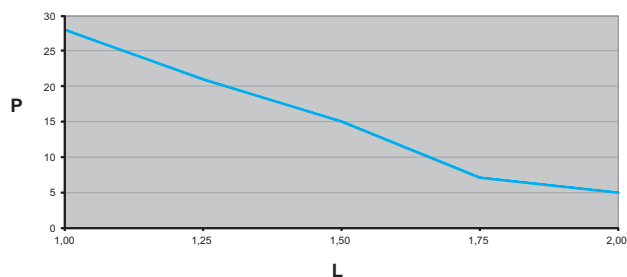
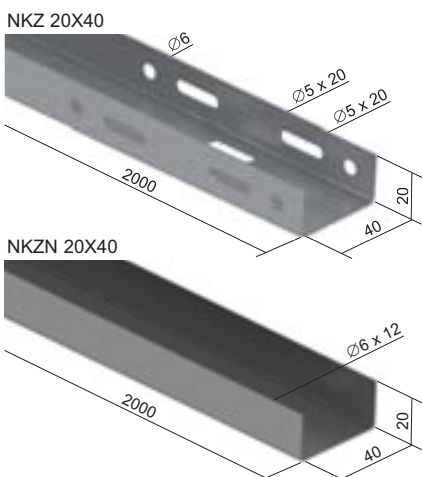
The standard length of the cable tray is 2,1 m.
 For the securing of the connections of the trays with integrated coupling there are used the clamps made from spring steel KSV (pg. 27) or the bolts NSM 6X10 (pg. 27).
 The cable trays comply with the conditions for systems with maintained functionality during fire - for more details, see the catalogue Systems with Maintained Functionality During Fire.
 Various cable tray designs can be made to order - contact your sales representative for more information.
 The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm.
 For more information, see p. 7-2.



cable tray perforated / cable tray non-perforated

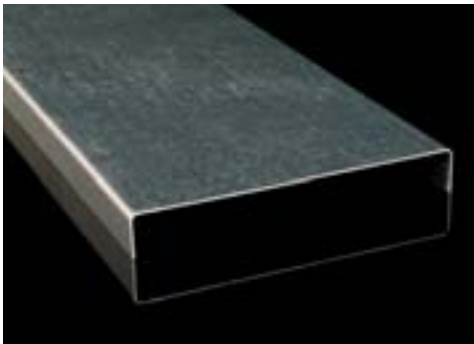
item number	↑	‡	↓	S	F	EO	EC
NKZ 20X40	0,7	0,43	2	●	⊕	⊕	⊕
NKZN 20X40	0,7	0,43	2	●	⊕	⊕	⊕

The standard length of the cable tray is 2 m.
 The joining of the trays is performed using the coupling NS 40 (pg. 19) and two NSMP 5X10 (pg. 27).
 The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm.
 For more information, see p. 7-2.



The graph show the maximum allowed even loading of the trays in relation to the distances of the supports.

L = distance of supports (m)
 P = allowed even loading (weight kg/m)

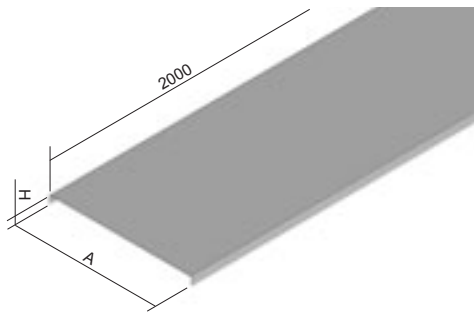


cover fixture

item number	A	H	‡	‡	S	F	EO	EC
V 40	40	10	0,55	0,26	●	⌚	⌚	⌚
V 62	62	11	0,55	0,36	●	●	⌚	⌚
V 125	125	11	0,55	0,64	●	●	⌚	⌚
V 250	250	11	0,55	1,20	●	●	⌚	⌚
V 500	500	14	1,00	4,22	●	⌚	⌚	⌚

The standard length of the cable tray cover is 2 m.
 We recommend cable tray cover Hot-Dip Galvanized from 0,8 to 1,0 mm thick steel plate.
 Stated sheet metal thickness is delivered as standard. Cover with thicker sheet metal can be delivered without prior notice.
 Attachment of the cover to the cable tray is done using the VU cover fixture (2 pieces per a meter), except for V 40. The V 40 cover may be alternatively fixed using a clamping belt.

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm.
 For more information, see p. 7-2.



cover fixture

item number	‡	GMT
VU	0,01	●

Is used for a bolt free attachment of the cover to the tray and to the accessories.
 The cover fixture is placed to the cover and the sidewall in the place of the opening and it is slightly pressed so that the fixture lock slides into the opening.
 Used for perforated and non-perforated trays;
 non-perforated trays have holes specially designed for these anchors.
 More at www.kopos.com – technical support – video guides.

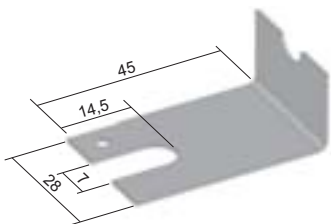


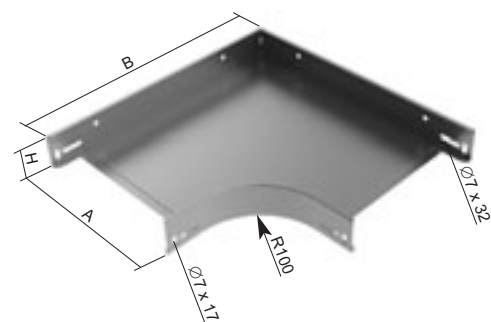
cover fixture

item number	‡	S	F	EC
NUV	0,01	●	⌚	⌚

Serves for the attaching of the cover to the tray using a bolt.
 With NKZIN non-perforated trays the lid must be attached at the point where the tray connects to the accessories.
 In this case these screws are used.
 With perforated trays the screws for attaching the anchors along the cable tray can be used. For this type of installation, the NSM 6X10 screws (pg. 27) must be ordered separately.

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm.
 For more information, see p. 7-2.



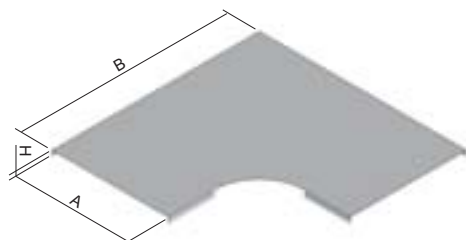


elbow 90°

item number	A	H	B	↓	↓†	‡	S	F	EO	EC
NO 90X50X62	62	50	222	0,7	4	0,40	●	●	⊕	⊕
NO 90X50X125	125	50	285	0,7	4	0,60	●	●	⊕	⊕
NO 90X50X250	250	50	410	0,7	4	1,10	●	●	⊕	⊕
NO 90X100X125	125	100	285	0,7	8	0,80	●	●	⊕	⊕
NO 90X100X250	250	100	410	0,7	8	1,40	●	●	⊕	⊕
NO 90X100X500	500	100	660	0,7	8	2,60	●	⊕	⊕	⊕

The connection is performed by direct sliding of the cable tray into the shaped piece and subsequent securing with bolts NSM 6X10(pg. 27).
For the elbows NO 90X100X500 the outer right angle of the side walls is replaced by skewed cut.

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm.
For more information, see p. 7-2.



elbow cover 90°

item number	A	H	B	↓	‡	S	F	EO	EC
NVO 90X62	62	12	222	0,55	0,10	●	⊕	⊕	⊕
NVO 90X125	125	12	285	0,55	0,30	●	⊕	⊕	⊕
NVO 90X250	250	12	410	0,55	0,70	●	⊕	⊕	⊕
NVO 90X500	500	15	660	0,7	2,00	●	⊕	⊕	⊕

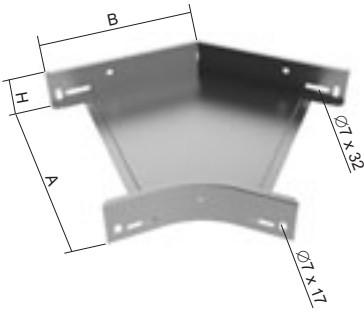
The cover of the NVO 90X62 and NVO 90X125 is attached using the 3 VU cover fixtures (pg. 7); the covers of the NVO 90X250 and NVO 90X500 are attached using 5 VU cover fixtures (pg. 7).
For the elbow cover NVO 90X500 the outer right angle is replaced by skewed cut.

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm.
For more information, see p. 7-2.



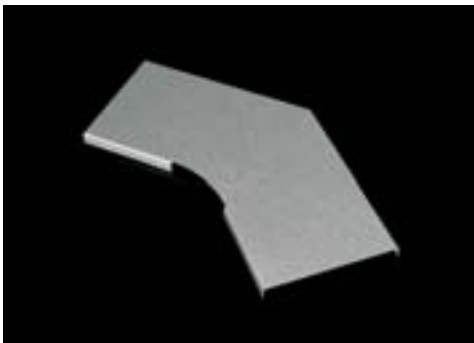
elbow 45°

item number	A	H	B	↑	↓	‡	S	F	EO	EC
NO 45X50X62	62	50	125	0,7	4	0,20	●	⊕	⊕	⊕
NO 45X50X125	125	50	151	0,7	4	0,30	●	⊕	⊕	⊕
NO 45X50X250	250	50	203	0,7	4	0,50	●	⊕	⊕	⊕
NO 45X100X125	125	100	151	0,7	8	0,40	●	⊕	⊕	⊕
NO 45X100X250	250	100	203	0,7	8	0,70	●	⊕	⊕	⊕
NO 45X100X500	500	100	307	0,7	8	1,40	●	⊕	⊕	⊕



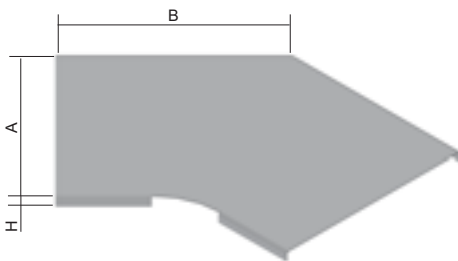
The connection is performed by direct sliding of the cable tray into the shaped piece and subsequent securing with bolts NSM 6X10 (pg. 27).

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm. For more information, see p. 7-2.



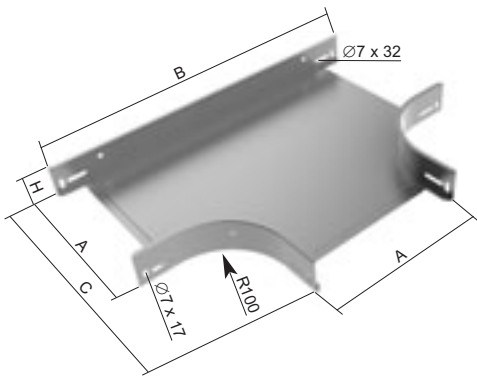
elbow cover 45°

item number	A	H	B	↑	‡	S	F	EO	EC
NVO 45X62	62	12	125	0,55	0,10	●	⊕	⊕	⊕
NVO 45X125	125	12	151	0,55	0,20	●	⊕	⊕	⊕
NVO 45X250	250	12	203	0,55	0,40	●	⊕	⊕	⊕
NVO 45X500	500	15	307	0,7	1,20	●	⊕	⊕	⊕



To fix the cover use 3 pcs of cover fixtures VU (pg. 7).

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm. For more information, see p. 7-2.

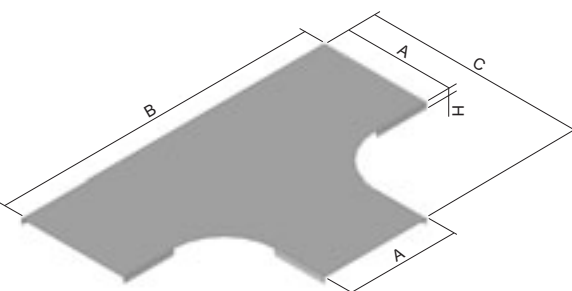
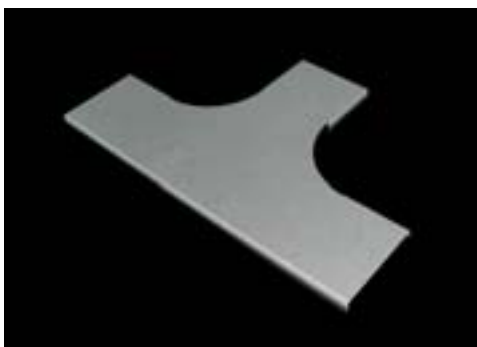


T-piece

item number	A	H	B	C	‡	‡	‡	S	F	EO	EC
NT 50X62	62	50	379	222	0,7	0,50	6	●	⊕	⊕	⊕
NT 50X125	125	50	442	285	0,7	0,70	6	●	⊕	⊕	⊕
NT 50X250	250	50	567	410	0,7	1,20	6	●	⊕	⊕	⊕
NT 100X125	125	100	442	285	0,7	1,00	12	●	⊕	⊕	⊕
NT 100X250	250	100	567	410	0,7	1,50	12	●	⊕	⊕	⊕
NT 100X500	500	100	817	660	0,7	3,20	12	●	⊕	⊕	⊕

The connection is performed by direct sliding of the cable tray into the shaped piece and subsequent securing with bolts NSM 6X10 (pg. 27). To create diversion of different width is possible to use reduction piece NRD (pg. 15).

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm. For more information, see p. 7-2.

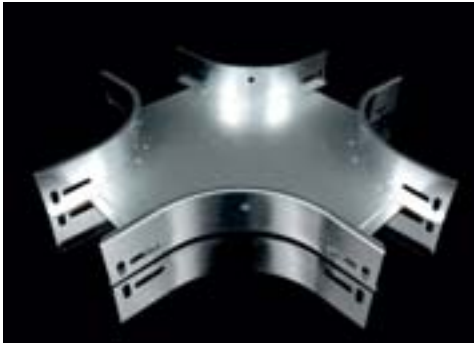


T-piece cover

item number	A	H	B	C	‡	‡	S	F	EO	EC
NVT 62	62	12	379	222	0,55	0,20	●	⊕	⊕	⊕
NVT 125	125	12	442	285	0,55	0,40	●	⊕	⊕	⊕
NVT 250	250	12	567	410	0,55	0,80	●	⊕	⊕	⊕
NVT 500	500	15	817	660	0,7	2,80	●	⊕	⊕	⊕

To fix the cover use 4 pcs of cover fixtures VU (pg. 7).

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm. For more information, see p. 7-2.

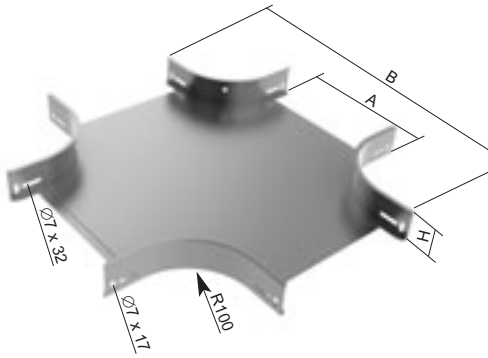


CROSS-OVER

item number	A	H	B	‡	‡	‡	S	F	EO	EC
NKR 50X62	62	50	379	0,7	0,60	8	●	⊕	⊕	⊕
NKR 50X125	125	50	442	0,7	0,80	8	●	⊕	⊕	⊕
NKR 50X250	250	50	567	0,7	1,40	8	●	⊕	⊕	⊕
NKR 100X125	125	100	442	0,7	1,10	16	●	⊕	⊕	⊕
NKR 100X250	250	100	567	0,7	1,70	16	●	⊕	⊕	⊕
NKR 100X500	500	100	817	0,7	3,40	16	●	⊕	⊕	⊕

The connection is performed by direct sliding of the cable tray into the shaped piece and subsequent securing with bolts NSM 6X10 (pg. 27). To create diversion of different width is possible to use reduction piece NRD (pg. 15).

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm. For more information, see p. 7-2.

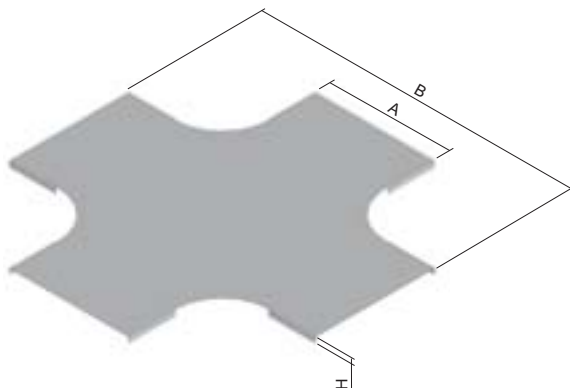


CROSS-OVER COVER

item number	A	H	B	‡	‡	S	F	EO	EC
NVCR 62	62	12	379	0,55	0,20	●	⊕	⊕	⊕
NVCR 125	125	12	442	0,55	0,50	●	⊕	⊕	⊕
NVCR 250	250	12	567	0,55	1,00	●	⊕	⊕	⊕
NVCR 500	500	15	817	0,7	3,20	●	⊕	⊕	⊕

To fix the cover use 4 pcs of cover fixtures VU (pg. 7).

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm. For more information, see p. 7-2.



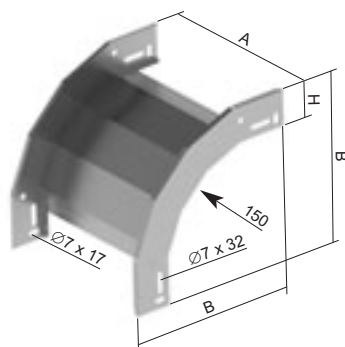


low elbow 90°

item number	A	H	B	↑	‡	↓↑	S	F	EO	EC
NKO 90X50X62	62	50	241	0,7	0,30	4	●	⊕	⊕	⊕
NKO 90X50X125	125	50	241	0,7	0,40	4	●	⊕	⊕	⊕
NKO 90X50X250	250	50	241	0,7	0,60	4	●	⊕	⊕	⊕
NKO 90X100X125	125	100	291	0,7	0,70	8	●	⊕	⊕	⊕
NKO 90X100X250	250	100	291	0,7	0,80	8	●	⊕	⊕	⊕
NKO 90X100X500	500	100	291	0,7	1,10	8	●	⊕	⊕	⊕

The connection is performed by direct sliding of the cable tray into the shaped piece and subsequent securing with bolts NSM 6X10 (pg. 27).

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm.
For more information, see p. 7-2.



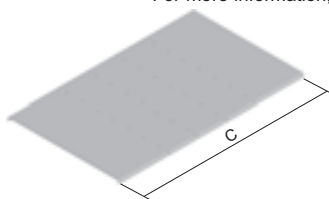
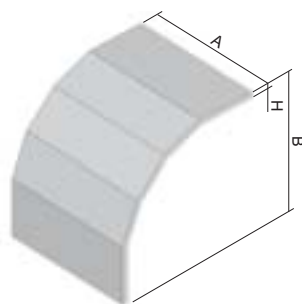
low elbow 90° cover

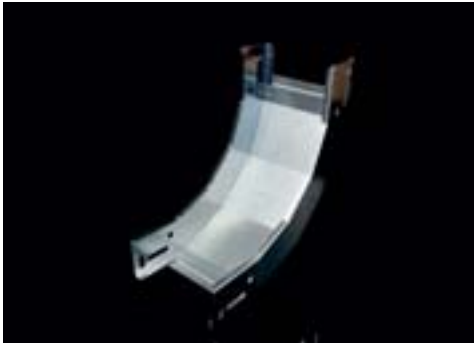
item number	A	H	B	C	↑	‡	S	F	EO	EC
NVKO 90X50X62	62	12	241	400	0,55	0,20	●	⊕	⊕	⊕
NVKO 90X50X125	125	12	241	400	0,55	0,30	●	⊕	⊕	⊕
NVKO 90X50X250	250	12	241	400	0,55	0,50	●	⊕	⊕	⊕
NVKO 90X100X125	125	12	291	479	0,55	0,30	●	⊕	⊕	⊕
NVKO 90X100X250	250	12	291	479	0,55	0,60	●	⊕	⊕	⊕
NVKO 90X100X500	500	15	291	479	0,7	1,40	●	⊕	⊕	⊕

To fix the cover use 4 pcs of cover fixtures VU (pg. 7).

The covers are delivered straight. They are made from one piece of sheet metal with pre-cut side walls for later bending during assembly.

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm.
For more information, see p. 7-2.



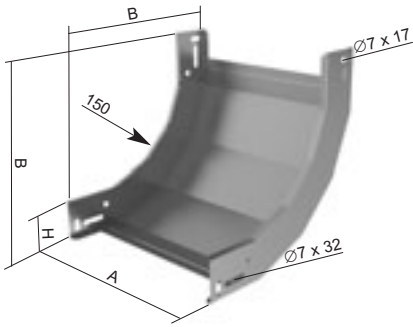


rising elbow 90°

item number	A	H	B	↓	‡	⌈	S	F	EO	EC
NSO 90X50X62	62	50	241	0,7	0,40	4	●	⊕	⊕	⊕
NSO 90X50X125	125	50	241	0,7	0,50	4	●	⊕	⊕	⊕
NSO 90X50X250	250	50	241	0,7	0,70	4	●	⊕	⊕	⊕
NSO 90X100X125	125	100	291	0,7	0,80	8	●	⊕	⊕	⊕
NSO 90X100X250	250	100	291	0,7	1,00	8	●	⊕	⊕	⊕
NSO 90X100X500	500	100	291	0,7	1,60	8	●	⊕	⊕	⊕

The connection is performed by direct sliding of the cable tray into the shaped piece and subsequent securing with bolts NSM 6X10 (pg. 27).

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm. For more information, see p. 7-2.



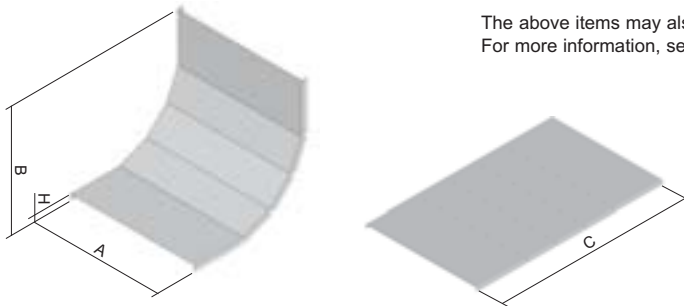
rising elbow 90° cover

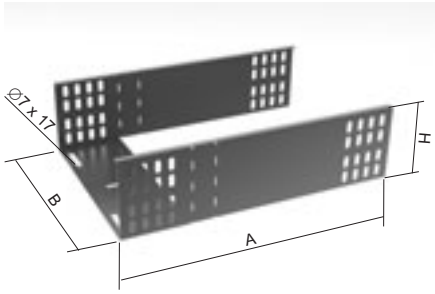
item number	A	H	B	C	↓	‡	S	F	EO	EC
NVSO 90X62	62	12	203	316	0,55	0,10	●	⊕	⊕	⊕
NVSO 90X125	125	12	203	316	0,55	0,20	●	⊕	⊕	⊕
NVSO 90X250	250	12	203	316	0,55	0,40	●	⊕	⊕	⊕
NVSO 90X500	500	15	203	316	0,7	0,90	●	⊕	⊕	⊕

To fix the cover use 4 pcs of cover fixtures VU (pg. 7).

The covers are delivered straight. They are made from one piece of sheet metal with pre-cut side walls for later bending during assembly.

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm. For more information, see p. 7-2.





vertical branch - horizontal

item number	A	H	B	†	‡	S	F
OSHK 50X62	300	50	62	0,8	0,23	●	⊕
OSHK 50X125	300	50	125	0,8	0,28	●	⊕
OSHK 50X250	300	50	250	1,0	0,43	●	⊕
OSHK 100X125	372	100	125	0,8	0,54	●	⊕
OSHK 100X250	372	100	250	1,0	0,76	●	⊕
OSHK 100X500	372	100	500	1,2	1,10	●	⊕

This part enables a vertical route to be switched to horizontal.
Particularly suitable for the main cable route, e.g. to machines or other equipment.
Used together with a downward arc.
Protected by industrial model.



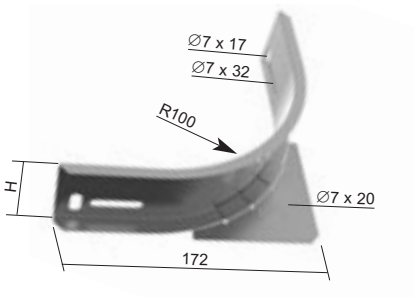


reduction piece

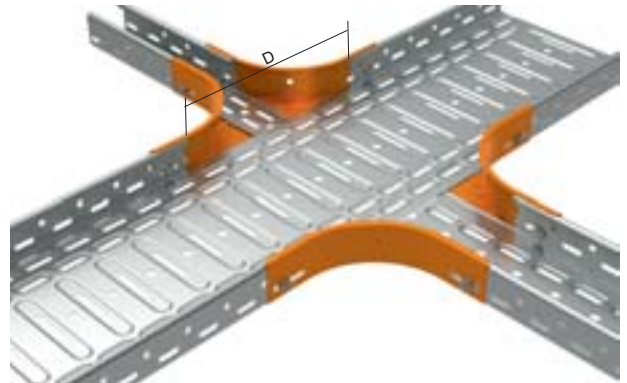
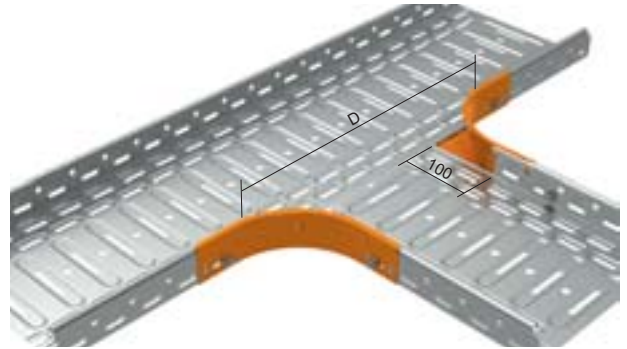
item number	H	↑	‡	⌈	S	F	EC
NRD 50	50	0,7	0,1	2	●	⌚	⌚
NRD 100	100	0,7	0,2	4	●	⌚	⌚

The joining is performed using the bolts NSM 6X10 (pg. 27).
It serves for creating of additional deviation or unequal T-piece or cross.
Always to be used in a pair.

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm.
For more information, see p. 7-2.



length of cut out side wall of the tray	
branch to a channel	D
NKZI 50X62	262
NKZI 50X125	325
NKZI 100X125	325
NKZI 50X250	450
NKZI 100X250	450
NKZI 100X500	700

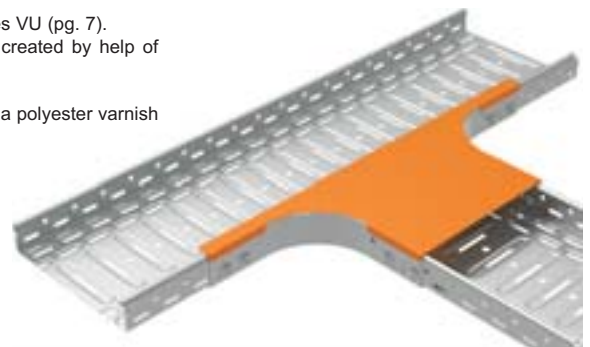
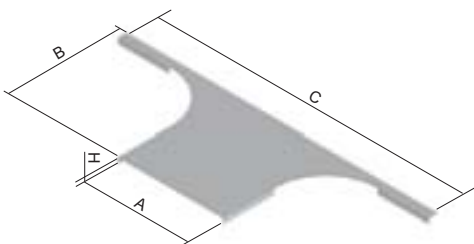


branch cover

item number	A	H	B	C	↑	S	F	EO	EC
VOH 62	62	12	182	379	0,55	●	⌚	⌚	⌚
VOH 125	125	12	182	442	0,55	●	⌚	⌚	⌚
VOH 250	250	12	182	567	0,7	●	⌚	⌚	⌚
VOH 500	500	15	224	903	1,0	●	⌚	⌚	⌚

To fix the cover use 2 pcs of cover fixtures VU (pg. 7).
The lid serves to cover the trace to be created by help of reducing parts.

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm.
For more information, see p. 7-2.



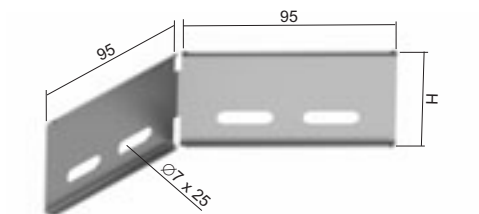


hinged joint

item number	H	t	g	z	S	GMT	EC
SK 50	43	0,8	0,04	4	●	⊕	⊕
SK 100	93	1,2	0,19	8	●	⊕	⊕

For the connection of the hinged joint to the tray there are used the bolts NSM 6X10 (pg. 27). The joint is delivered in 1 piece per packing. For creating of trace flexure there are necessary 2 pcs.

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm. For more information, see p. 7-2.



angle coupling

item number	H	t	g	S	GMT	EC
NSUK 50	47	1,0	0,06	●	⊕	⊕
NSUK 100	97	1,0	0,12	●	⊕	⊕

The joining is performed using the bolts NSM 6X10 (pg. 27). Angle couplings are mostly used at places where the route is slightly bended, for large bending radiuses or for the circumvention of columns and pillars.

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm. For more information, see p. 7-2.



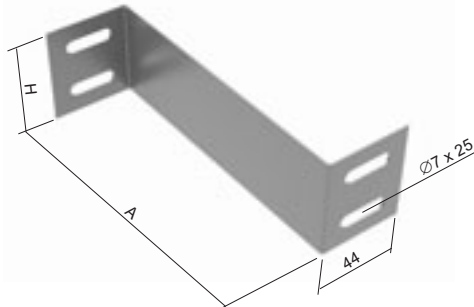


reduction

item number	A	H	↑	‡	↓	S	F	EC
NR 50X62	63	40	0,8	0,03	2	●	⌚	⌚
NR 50X125	126	40	0,8	0,05	2	●	⌚	⌚
NR 100X125	126	90	0,8	0,11	4	●	⌚	⌚
NR 100X250	251	90	0,8	0,18	4	●	⌚	⌚

The joining is performed using the bolts NSM 6X10 (pg. 27).
The reduction is used for the transition between various tray widths with identical height of side walls.

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm.
For more information, see p. 7-2.

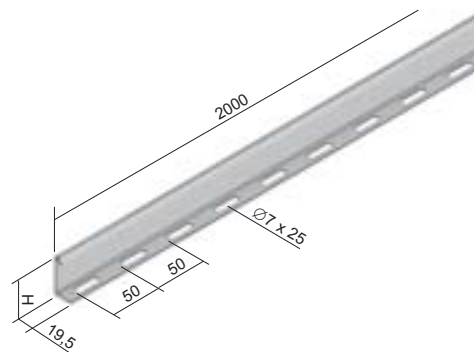


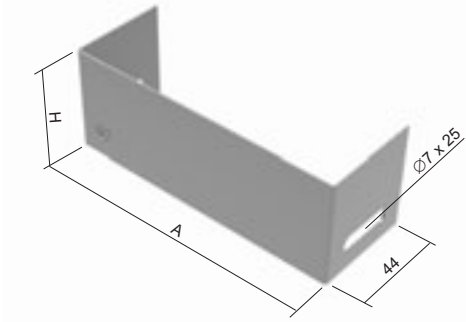
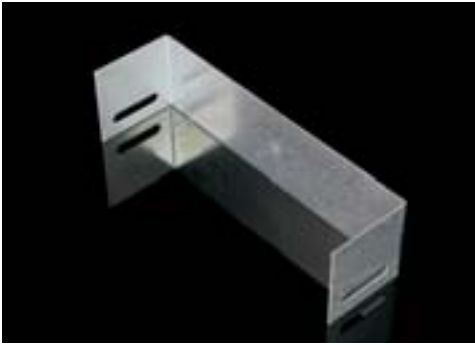
partition

item number	H	↑	‡	S	F	EC
NPZ 50	44	0,8	0,47	●	⌚	⌚
NPZ 100	94	0,8	0,75	●	⌚	⌚

The standard length of the partition is 2 m.
The fixing of the partition is carried out by bolts NSMP 6X10 (pg. 27).
The partition serves to spatial separation of cables and ducting of different networks and functions.
As well as it serves to separation of particular kinds of ducting from the viewpoint of electric compatibility.
For this purpose there is recommended to use the lid and by this to create the closed shielded space.

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm.
For more information, see p. 7-2.





end-piece

item number	A	H	↑	‡	↓↑	S	F	EC
NK 50X62	62	45	0,8	0,04	2	●	⊕	⊕
NK 50X125	125	45	0,8	0,06	2	●	⊕	⊕
NK 50X250	250	45	0,8	0,09	2	●	⊕	⊕
NK 100X125	125	95	0,8	0,12	4	●	⊕	⊕
NK 100X250	250	95	0,8	0,20	4	●	⊕	⊕
NK 100X500	500	95	0,8	0,44	4	●	⊕	⊕

The joining is performed using the bolts NSM 6X10 (pg. 27).

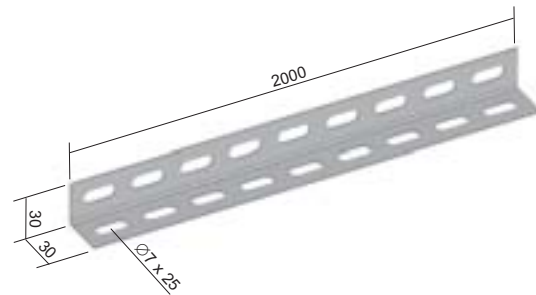
The end-piece serves for the ending off a route.

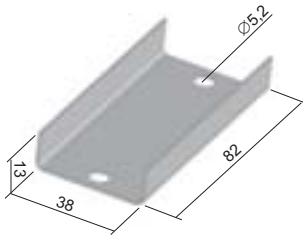
The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm. For more information, see p. 7-2.



supporting corner

item number	↑	‡	S	F	EC
NU 30X30	1,0	0,72	●	⊕	⊕



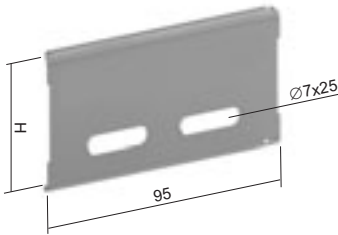


coupling

item number	↑	‡	↓	⌄	S	GMT	EC
NS 40	1,0	0,04	2		●	⌚	⌚

The connection is made by bolt NSMP 5X10 (pg. 27). Lock washers shall always be used under the bolt head and under nut M5 to meet the requirement of conductive connecting according to ČSN 33 2000-4-41.

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm. For more information, see p. 7-2.



coupling

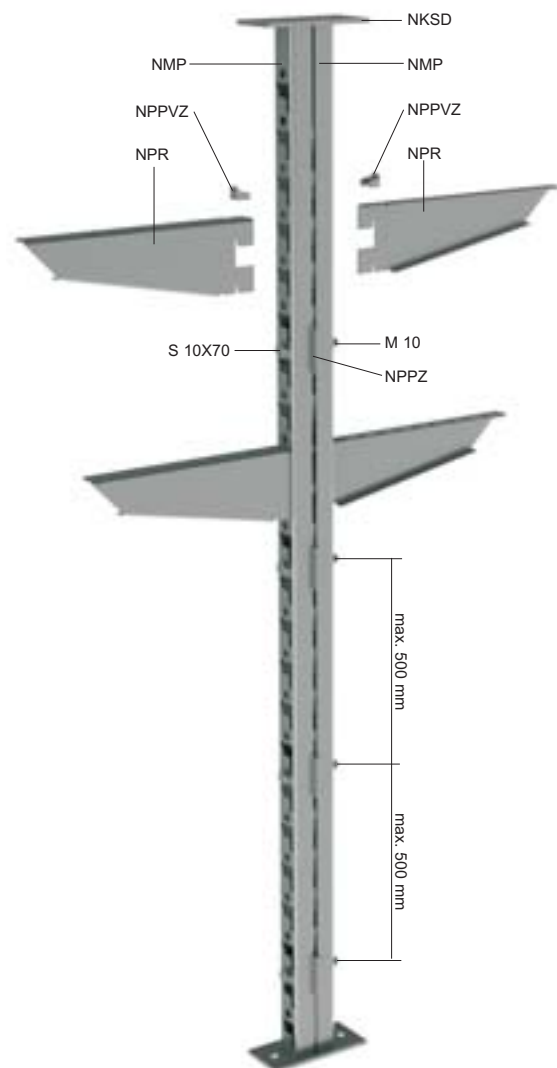
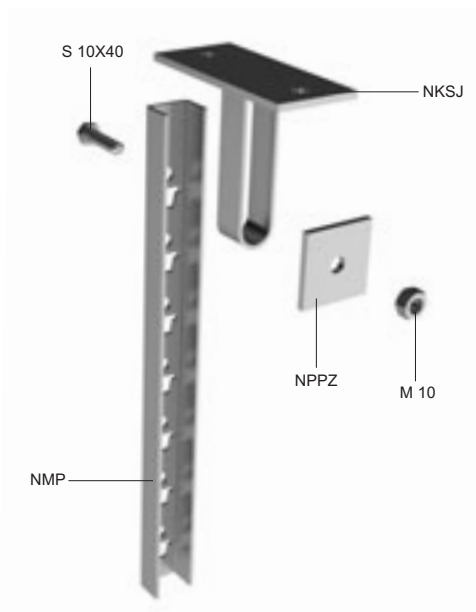
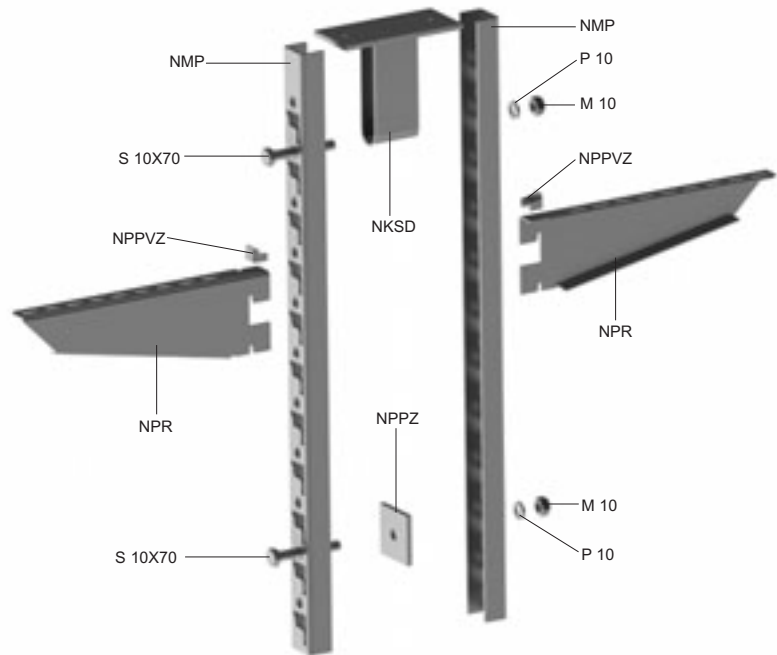
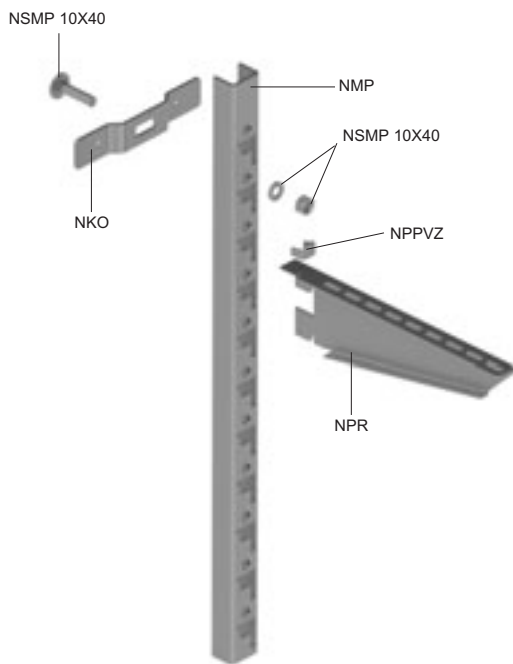
item number	H	↑	‡	↓	⌄	S	GMT	EC
NS 50	47	1,0	0,03	2		●	●	⌚
NS 100	97	1,0	0,06	4		●	●	⌚

The joining is performed using the bolts NSM 6X10 (str. 27). For discharge of conductive connections according to the standard of ČSN 33 2000-4-41 there is intended the screw NSMP 6X10 and there is necessary to use the fan pad under the screw head and under the M6 nut.

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm. For more information, see p. 7-2.



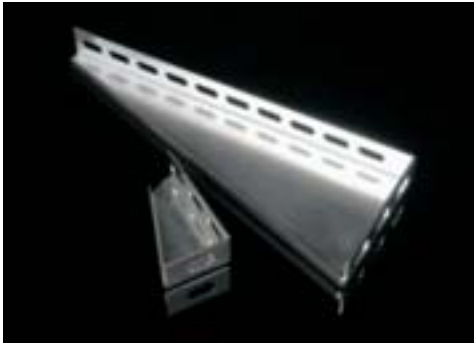
examples of assemblies - assembly profiles, supports, brackets



marking	description	pg.
NKO	bracket	23
NKSD	double vertical bracket	23
NKSJ	single vertical bracket	23
NMP	assembly profile	22
NPPVZ	safety lock	22
NPPZ	washer	22
NPR	clamp support	21
NSMP 10X40	bolt + nut + washer	28
S 10X40	bolt	28
S 10X70	bolt	28
M 10	nut	28
PD 10	washer	28

The distance of suspended assembly profiles depends on the ceiling material, the load carrying capacity of fasteners and the weight of cables installed.

The brackets are attached to the ceiling and the floor in the same way.

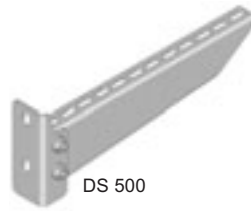
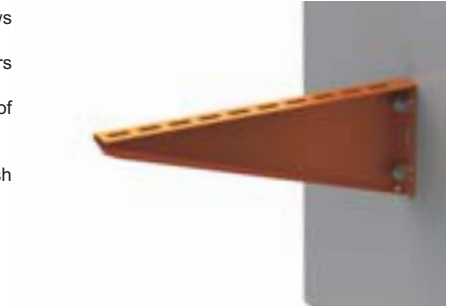
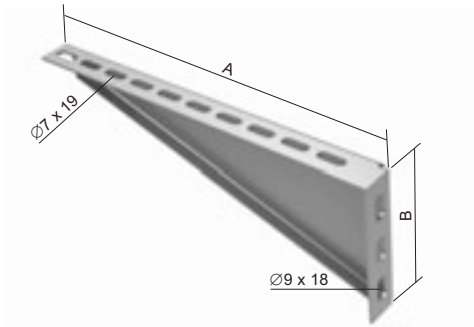


wall bracket

item number	A	B	↑	↓	‡	ZNCR	S	F	EC
NPS 62	82	42	1,5	120	0,08	●	-	●	⌚
NPS 125	145	70	2,0	180	0,17	●	-	●	⌚
NPS 250	270	100	2,0	200	0,38	●	-	●	⌚
DS 500	518	140	2,0	160	1,00	-	●	-	⌚

The tray is fixed to the support using 2 NSM 6X10 screws (pg. 27) - just 1 screw for the NPS 62.
 The support is fixed to the wall using 2 Ø 8 mm anchors (just 1 anchor for the NPS 62).
 The support DS 500 is designated for tray with a width of 500 mm.

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm.
 For more information, see p. 7-2.

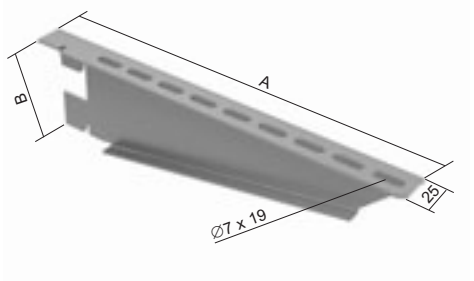


clamp support

item number	A	B	↑	‡	S	F	EC
NPR 125	148	78	2,0	0,17	●	⌚	⌚
NPR 250	273	78	2,0	0,35	●	⌚	⌚
NPR 500	523	78	2,0	0,69	●	⌚	⌚

The tray is fixed to the support using 2 NSM 6X10 screws (pg. 27).
 When installed in an assembly profile, the support has to be secured by a safety lock NPPVZ (pg. 22).
 Example of assembling - see page 20.

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm.
 For more information, see p. 7-2.



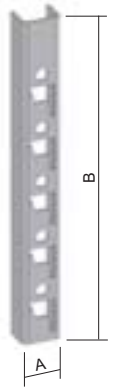


assembly profile

item number	A	B	‡	‡‡	F	EC
NMP 300	35	300	0,45	2	●	⊕
NMP 600	35	600	0,94	2	●	⊕
NMP 800	35	800	1,24	3	●	⊕
NMP 1200	35	1200	1,84	3	●	⊕
NMP 2000	35	2000	3,08	4	●	⊕

For the attachment of the assembly profile there is used the bracket NKO (pg. 23).
Example of assembling - see page 20.

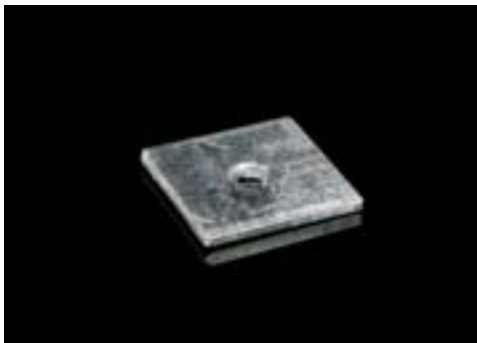
The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm.
For more information, see p. 7-2.



safety lock

item number	‡	S
NPPVZ	0,008	●

The safety lock is used to secure clamp supports type NPR (pg. 21) in the assembly profile.
Example of assembling - see page 20.

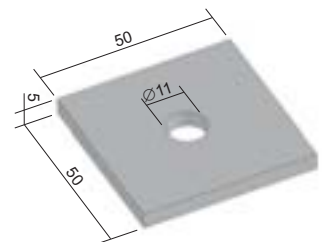


washer

item number	‡	F	EC
NPPZ	0,09	●	⊕

The fixation is made by the screw S 10X40 for single-sided assembling or S 10X70 for both-sided assembling (pg. 28).
Example of assembling - see page 20.

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm.
For more information, see p. 7-2.



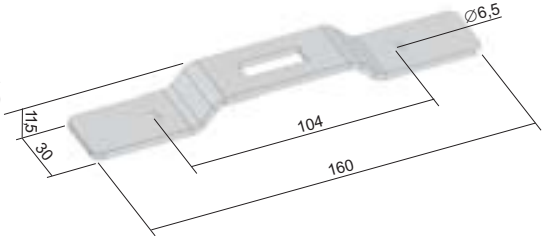


bracket

item number	‡	‡	F
NKO	3,0	0,11	●

For the attachment of the assembly profile to the bracket there is used the NSMP 10X40 (pg. 28). Brackets may be attached to a wall by using Ø 6 mm anchors, or with a nailer. Example of assembling - see page 20.

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm. For more information, see p. 7-2.

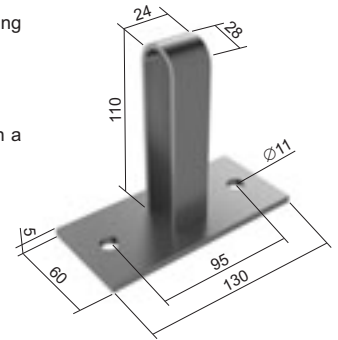


single vertical bracket

item number	‡	F	EC
NKSJ	0,58	●	🕒

The bracket is designed to anchor the mounting profile on the ceiling or floor. The fixing is carried out by the bolt S 10X40 (pg. 28). Example of assembling - see page 20.

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm. For more information, see p. 7-2.

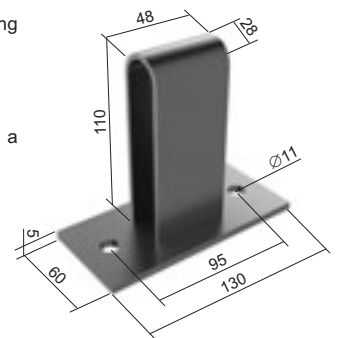


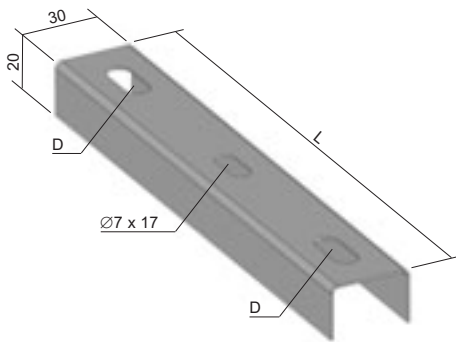
double vertical bracket

item number	‡	F	EC
NKSD	0,46	●	🕒

The bracket is designed to anchor the mounting profile on the ceiling or floor. The fixing is carried out by the bolt S 10X70 (pg. 28). Example of assembling - see page 20.

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm. For more information, see p. 7-2.



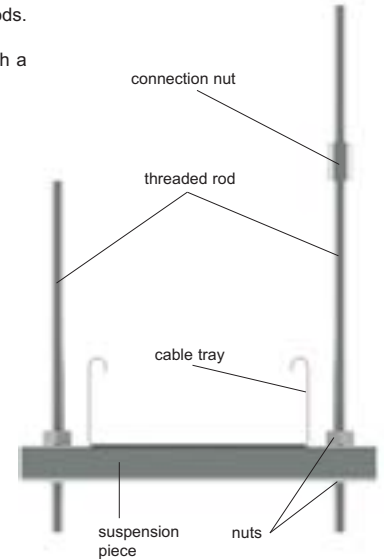


suspension piece

item number	L	D	‡	‡	S	F	EC
NZ 62	107	Ø9 x 18	1,0	0,06	●	⊕	⊕
NZ 125	170	Ø9 x 18	1,0	0,10	●	⊕	⊕
NZ 250	295	Ø9 x 18	1,0	0,16	●	⊕	⊕
NZ 500	545	Ø11 x 20	1,0	0,29	●	⊕	⊕

It is used to suspend a cable tray in combination with threaded rods.

The above items may also be ordered in a polyester varnish with a layer thickness of 60 or 100 µm.
For more information, see p. 7-2.



threaded rod

item number	Ø	‡*	‡	ZNCR	ZNC3
ZT 6	M 6	2250	0,17	●	-
ZT 8	M 8	4060	0,31	●	⊕
ZT 10	M 10	6490	0,46	●	⊕

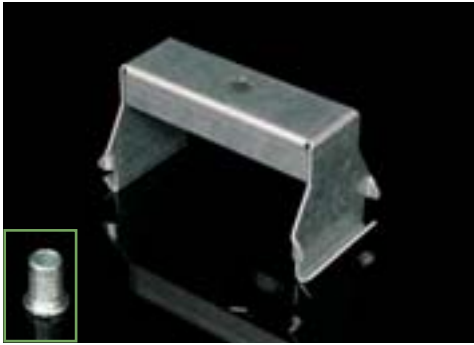
The length of the threaded rod in the ZNCR configuration is 2 m; in the ZNC3 configuration it is 3 m.
* tolerable bearing resistance - calm load



connection nut

item number	Ø	‡	ZNCR
MZ 6	M 6	0,01	●
MZ 8	M 8	0,02	●
MZ 10	M 10	0,04	●

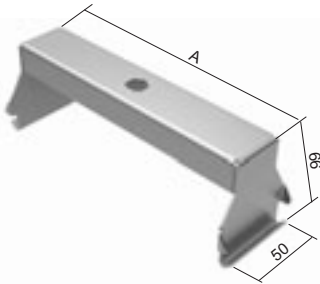
Used for the connection of two threaded rods.



outer hanger

item number	A	‡	S	F	ZNCR
ZVNE 62	42	0,10	●	⊕	-
ZVNE 125	105	0,16	●	⊕	-
ZVNE 250	230	0,25	●	⊕	-
MN 8	-	0,01	-	-	●
MN 10	-	0,01	-	-	●

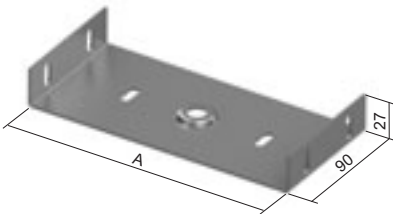
The maximum load is 90 kg.
It is mounted using the threaded rod ZT 8 or ZT 10.
The MN nut is not part of the hangings.
The dimension of the nut is selected according to the diameter of threading bar.
The hanging is suitable for hang-up the trays with partition.



inner hanger

item number	A	‡	‡‡	S	F	ZNCR
ZVNI 62	58	0,14	4	●	⊕	-
ZVNI 125	121	0,20	4	●	⊕	-
ZVNI 250	246	0,41	4 (6)	●	⊕	-
MN 8	-	0,01	-	-	-	●
MN 10	-	0,01	-	-	-	●

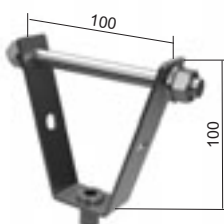
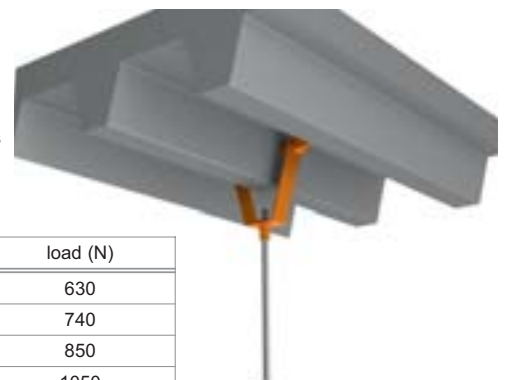
The maximum load is 90 kg.
It is mounted using the threaded rod ZT 8 or ZT 10.
The MN nut is not part of the hangings.
The dimension of the nut is selected according to the diameter of threading bar.



bracket for trapeze ceilings

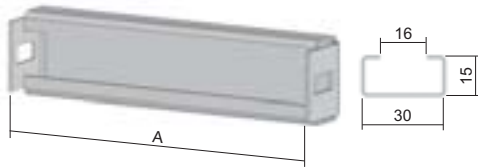
item number	‡	ZNCR
DSOS 8	0,17	●
DSOS 10	0,17	●

The DSOS holder is designed for fitting a threaded rod and attaching it to trapezoidal sheet metal.
The DSOS comes with M 8 or M 10 adjusting nuts.
The choice of DSOS 8 or DSOS 10 depends on which threaded rod is used, the ZT 8 or the ZT 10.
For attachment to a trapezoidal ceiling the hinge is fitted with a transverse M8 x 120 mm pin. The pin has a washer and nut on both sides.



thickness metal sheet of trapeze ceiling (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

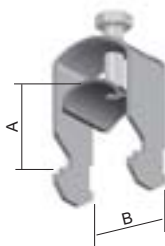
The loading values mentioned in the table are valid only for constant load.



supporting profile for cable clamps

item number	A	B	C	D	‡	S	F
NPKV 125	122,5	30	15	23	0,081	●	⊕
NPKV 250	247,5	30	15	23	0,159	●	⊕
NPKV 500	497,5	30	15	23	0,313	●	⊕

The supporting profiles is designated for the cable trays. It is installed on the bottom of the cable tray and it is fixed by using two bolts NSM 6X10 (pg. 27) to the tray sidewalls. It is used for mounting of cable clamps and there by for the anchoring of the cables inside the tray. It finds its use primarily in vertical routes, for the lightening of the cable tension. When using a cover it is necessary to take into account the height of the clamps.



cable clamp na 1 kabel

item number	A min	B	‡	F	NKZI 50	NKZI 100
PKC1 1198	6	12	0,03	●	no	yes
PKC1 1199	7	16	0,03	●	no	yes
PKC1 1200	10	19	0,04	●	no	yes
PKC1 1201	14	23	0,04	●	no	yes
PKC1 1202	20	26	0,04	●	no	yes
PKC1 1203	24	30	0,06	●	no	yes
PKC1 1204	25	34	0,07	●	no	yes
PKC1 1205	29	38	0,08	●	no	yes
PKC1 1206	32	43	0,09	●	no	yes
PKC1 1207	42	46	0,10	●	no	no
PKC1 1208	44	50	0,10	●	no	no
PKC1 1209	50	54	0,11	●	no	no
PKC1 1210	52	58	0,14	●	no	no
PKC1 1211	55	63	0,16	●	no	no
PKC1 1212	59	69	0,16	●	no	no

The possibility of trace covering by cover upon use of maximum cable diameter into the cable clamp.

YES



NO



A min and B indicate the minimum and maximum diameter of the cable being fastened.

For basic orientation in choosing cable clamp, use mentioned propositions.

The basic surface treatment with which clamps are delivered makes it possible to use them even in harsh weather environments.





clamp

item number	GMT
KSV	●

Serves for securing the connection of cable trays.
The GMT surface finish also means it can be used with cable trays with a hot dip galvanized finish.



carriage bolt + lock nut

item number	‡	⌚	ZNCR	GMT
NSM 6X10	0,009	100	●	-
NSM 6X10-GMT	0,009	100	-	●

Designed to assure conductive bonding of cable trays and accessories up to 25 A.
The GMT surface finish is used for cable trays with a hot dip galvanized finish. May also be used for galvanized trays (conf. S).



bolt + nut + lock washers

item number	‡	⌚	ZNCR	GMT
NSMP 5X10	0,006	100	●	-
NSMP 6X10	0,005	100	●	-

Serves to secure the conductive interconnection - suitable for coated trays.



carriage bolt + nut + plain washer

item number	↻	ZNCR
NSMP 10X40	50	●

Used to attach the NMP mounting profile to the NKO bracket (see p. 20).



bolt with hexagonal head

item number	ZNCR
S 10X40	●
S 10X70	●

S 10X40 - serves to fixation of assembling profile NMP for single console NKSJ. The assembling is executed by help of NPPZ pad and M 10 nut (see Page 19).

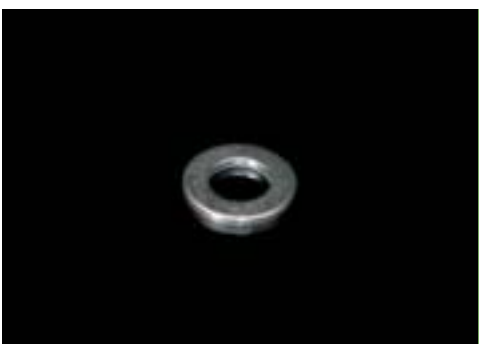
S 10X70 - serves to fixation of assembling profile NMP for double console NKSD. The assembling is executed by help of PD 10 pad and M 10 nut. Further it serves to fixation of 2 assembling profiles NMP to one another. The assembling is executed by help of NPPZ pad, PD 10 pad and M 10 nut (see pg. 20).



hexagon nut

item number	ZNCR
M 6	●
M 8	●
M 10	●

Universal nut with metric thread.



washer

item number	D	ZNCR
PD 6	12	●
PD 8	17	●
PD 10	20	●

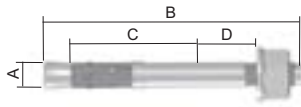
Universal washer for screws or threaded rods of corresponding diameter.





anchor

item number	A	B	C	D	E	thread	‡	PO
KPO 6X50	6	52	30	5	45	M6	0,01	●
KPO 6X70	6	67	40	10	55	M6	0,02	●
KPO 8X77	8	75	44	10	65	M8	0,03	●
KPO 8X97	8	95	44	30	65	M8	0,04	●
KPO 10X95	10	95	48	20	70	M10	0,06	●
KPO 10X115	10	120	48	45	70	M10	0,07	●
KPO 12X120	12	115	65	20	90	M12	0,11	●



A - drill bit diameter
 B - total length of anchor
 C - anchor depth
 D - maximum thickness of the material being attached
 E - minimum depth of the drilled hole
 Anchors serve for the attaching of construction elements to the base material (non-cracked concrete).



steel stop anchor

item number	A	B	C	thread	‡	ZNCR
KKZ 6	8	25	27	M6	0,01	●
KKZ 8	10	30	32	M8	0,01	●
KKZ 10	12	40	42	M10	0,02	●
KKZ 12	15	50	52	M12	0,05	⌚



A - drill bit diameter
 B - total length of anchor
 C - minimum depth of the drilled hole
 The knock in anchors KKZ serve for the direct attachment of the threaded rods.
 There is a strut pin inside the anchor, which must be driven into the correct position before the assembly of a threaded rod.
 This item is suitable for fixing into concrete or natural stone.
 KKZ 8, KKZ 10 and KKZ 12 anchors are provided with a collar.

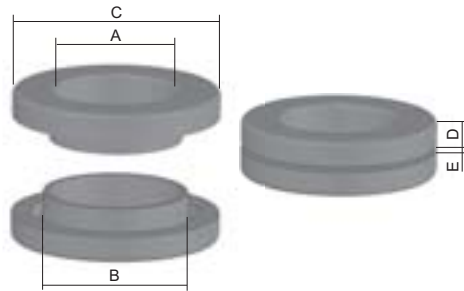


brass stop anchor

item number	A	B	C	thread	‡	XX
KKZM 8	10	30	35	M8	0,01	●
KKZM 10	12	35	40	M10	0,01	●



A - drill bit diameter
 B - total length of anchor
 C - minimum depth of the drilled hole
 The knock in anchors KKZM serve for the direct attachment of the threaded rods.
 The brass anchors have an inner conical thread, which expands during the assembly of a threaded rod or bolt.
 The threaded rod (bolt) must be driven into the full length of the anchor.
 This item is suitable for fixing into concrete, natural stone, wood, chipboard and solid brick.

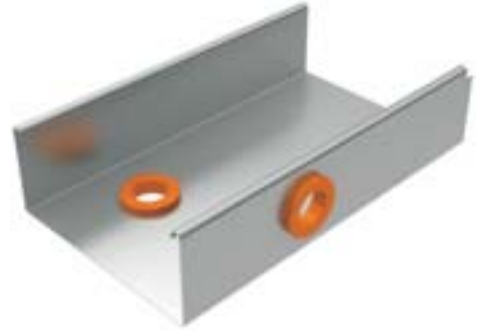


busching

item number	A	B	C	D	E	‡	
NKP 9	10	15	24	5	0,5 - 5	0,002	●
NKP 11	12	18,5	26	5	0,5 - 5	0,004	●
NKP 13	16	20	31	6	0,5 - 5	0,006	●
NKP 16	17	22	33	6	0,5 - 5	0,006	●
NKP 21	24	28	40	7	0,5 - 5	0,010	●
NKP 29	31	37	53	7	0,5 - 5	0,018	●

Bushings serve for the safe passing of the cables through the sheet metal.

One part of the bushing is inserted from one side into the created opening in the bottom or the sidewall of the tray, the second part is inserted from the second side and gentle pressure is used to press both the parts together and this connects them firmly.
B - diameter of drilled hole



edge protector

item number	‡	
NCH	0,06	●

The edge protector made from plastic with a steel insert is used to protect the edges of cable trays.
Package = 10 m, sold in entire packs.
The product is available only in multiples of ten.
The protector there is possible to install to the metal sheets of max. 2 mm thickness.



zinc paint / spray

item number	‡	
WEICON 375 (color)	0,50	●
WEICON 750 (color)	1,10	●
GZS (spray)	0,45	●

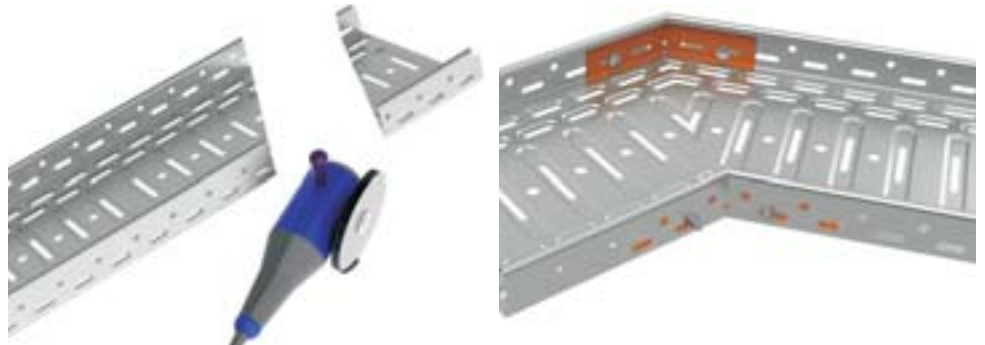
Anticorrosive protection intended for service of defective and damaged places on galvanized surface.
Lay on the color by paintbrush, stipple technology.

construction - flexion or evansion of the trace

For horizontal flexion we use the elbows O 90 (O 45), which ensure the horizontal flexion 90 (45). Such created flexion provides all advantages which offers the accessories to be offered to the system of cable trays. It mainly concerns of the rigidity of the connection, exactly defined angle or protection of installed cables by the skimming at the edge of the accessories.



For creating of horizontal flexion of the trace there is possible to use NSUK connection. This connection enables to create the horizontal flexion of the trace according to customer requirements, by cutting the connecting conduits under the required angle. The connection is subsequently inflected and it is screwed to the trays by help of screws.



For creating of vertical evasion of the trace there are intended the rising elbows and declining elbows. Those parts serve to the creating of the change of trace for 90° in vertical direction.



For creating of another angle at vertical direction serves the hinged connection. This connection enables to change the trace direction for the angle from 1° till 75°. Its use is useful for creating of smaller angles, whereas by the advantage of hinged connection there is the possibility of setting of random angle at given range.



By recommended option there is the adjustment of the trays to eliminate as much as possible the empty space at trays bottoms. It concerns especially for use of reducing part. This accessories enables to create the sufficient deviation from the trace, whereas there is possible the deviation to optional tray width. By the first step there is the removing of the tray side from which we deviate. Further, by help of screw, there are installed 2 pcs of reduction parts at the distance corresponding to the width of deviation tray. For the elimination of empty space at the bottom of the tray there is possible to cut the sides of the devious tray.



technical information

Standard

Cable trays MARS have been tested by EZÚ (Electrotechnical Testing Institute) according to standard number ČSN EN 61537:02 - Laying cables – cable tray systems and cable ladder systems.

Surface finish:

Basic design of trays - Sendzimir zinc-coating according to ČSN EN 10327 and ČSN EN 10143.

Hot Dip Galvanized - this surface finish provides greater anti-corrosion protection, secured by a thicker layer of surface zinc.

Varnishing – for esthetic reasons or for greater resistance to corrosion, it is possible to apply epoxy or polyester powder varnish.

The use of cable trays temperature range is from -50 till 150°C.

inner usable cross-section of the channel

Type number	cm ²	utilization 50% (cross- section cm ²)	CYKY	CYKY	CYKY	CYKY	CYKY	CYKY	CYKY	CYKY	CYKY	CYKY	CYKY	CYKY	CYKY	CYKY	CYKY	CYKY
			3x1,5	5x1,5	3x2,5	5x2,5	3x4	5x4	5x6	5x10	5x16	5x25	4x35	4x50	3x70 +50	3x95 +70	3x120 +95	3x240 +120
			Ø 8,6	Ø 10,1	Ø 9,5	Ø 11,2	Ø 11,2	Ø 13,8	Ø 15,1	Ø 18	Ø 20,4	Ø 26,1	Ø 24,8	Ø 31,3	Ø 33,6	Ø 39,3	Ø 43	Ø 56,4
NKZ 20X40	8	4	5	4	4	3	3	2	2	0	0	0	0	0	0	0	0	0
NKZI 50X62X0.70	31	15,5	21	15	17	12	12	8	7	5	4	2	3	2	1	1	1	0
NKZI 50X125X0.70	62,5	31,25	42	31	35	25	25	16	14	10	8	5	5	3	3	2	2	0
NKZI 100X125X0.70	125	62,5	85	61	69	50	50	33	27	19	15	9	10	6	6	4	3	2
NKZI 50X250X0.70	125	62,5	85	61	69	50	50	33	27	19	15	9	10	6	6	4	3	0
NKZI 100X250X0.70	250	125	169	123	139	100	100	66	55	39	30	18	20	13	11	8	7	4
NKZI 100X500X1.00	500	250	338	245	277	199	199	131	110	77	60	37	41	26	22	16	14	8

The values state the number of cables with the tray at 50% full. Orientation cable diameters result from CYKY.

The values are to be gained by mathematical calculation. At limiting values (small tray x big cable, or conversely) there is necessary to consider the combination of tray type and cables diameter and to choose them with view to their technical conditions / parameters.

load carrying capacity of cable trays

cables CYKY			350 N/m *		580 N/m *		960 N/m *		960 N/m *		1140 N/m *		480 N/m *	
			50X62		50X125		100X125		50X250		100X250		100X500	
CYKY	Ø	N/m	pcs	N/m	pcs	N/m	pcs	N/m	pcs	N/m	pcs	N/m	pcs	N/m
4 x 2,5	14,5	2,8	6	16,8	12	33,6	25	70	25	70	50	140	100	280
4 x 4	17	3,6	4	14,4	8	28,8	16	57,6	16	57,6	32	115	64	230
4 x 10	20	6,9	4	27,6	8	55,2	16	111	16	111	32	221	64	442
4 x 16	23,5	10,2	3	30,6	5	51	10	102	10	102	20	204	40	408
4 x 25	30,5	16	2	32	4	64	8	128	8	128	16	256	32	512
3 x 50 + 35	32,5	26	1	26	2	52	4	104	5	130	8	208	16	416
3 x 95 + 50	40	39,7	1	39,7	2	79,4	4	159	5	199	8	318	16	635
3 x 120 + 50	43	46,8	-	-	2	93,6	3	141	4	187	6	281	11	515
3 x 185 + 95	54,5	72,4	-	-	-	-	2	145	-	-	4	290	8	579
3 x 240 + 120	59	91,5	-	-	-	-	-	-	-	-	2	183	6	549

*Maximum load carrying capacity of cable trays. Distance of supports = 2 m (with the deflection up to 10 mm).

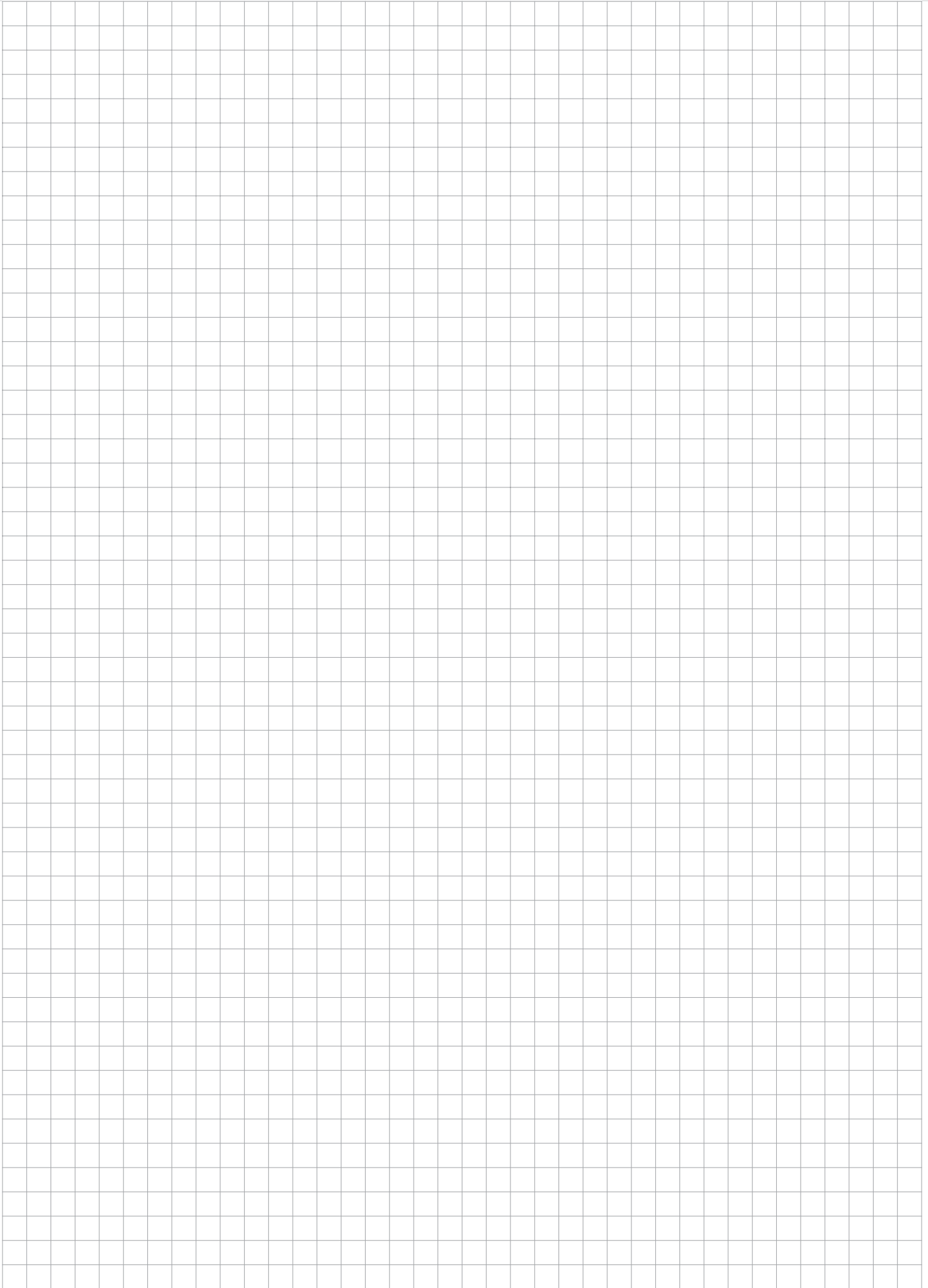
electrical conductivity and grounding

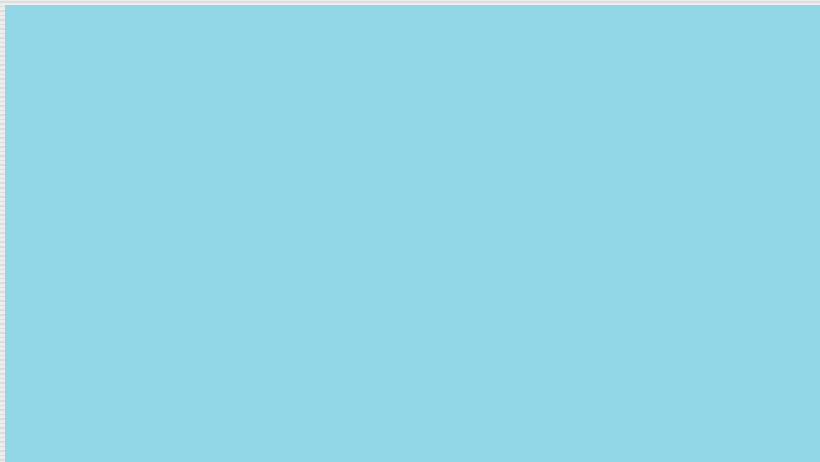
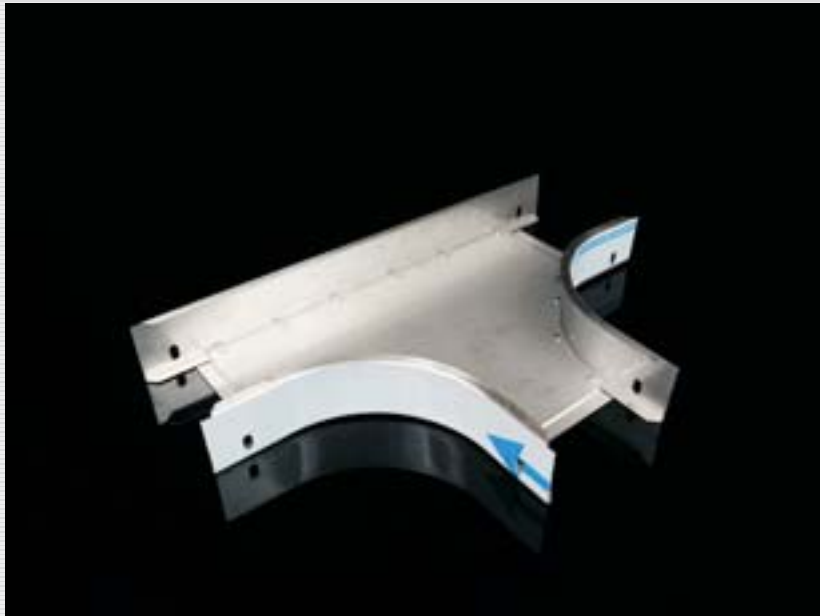
The system of cable trays "MARS" is constructed so that first-rate bonding is ensured when individual trays are connected. The claim is based on the test report concerning cable routes and cable ladders classed under the ČSN EN 61357 standard pursuant to Article 6.3.2 as cable routes with the characteristics of electrical continuity to ensure protective bonding and ground connection. Under Article 11.1.2 25A + - 1A alternating current at a frequency of 50 Hz to 60 Hz is fed along the length of the test samples. The test performed under this article was compliant. Impedance on the circuit board is less than 50 mΩ. The cable trays and cable ladders were also found to be compliant during this test. When using the KSV clamp it is necessary to connect individual parts (trays, accessories) by an additional protective wire with the corresponding cross section. In order to increase the contact pressure, lock washers are normally used under the nut of a bolted joint, and both under the nut and the bolt head in the E/P variant, depending on the specific conditions and parameters ascertained during the check of conductive connecting of the cable tray system.

The protection against electric shock

For safety reasons, the system of trays bonded in this way shall be on both ends connected to a ground clamp. Such grounding is made according to the requirement no. 543.1.2 ČSN332000-5-54 and Table 54 F (Appendix 7) stipulating the minimum cross-section of the appropriate protective conductor with regard to the cross-sections of phase conductors of the installation.

The minimum cross-section of a cable tray is calculated without a cover.



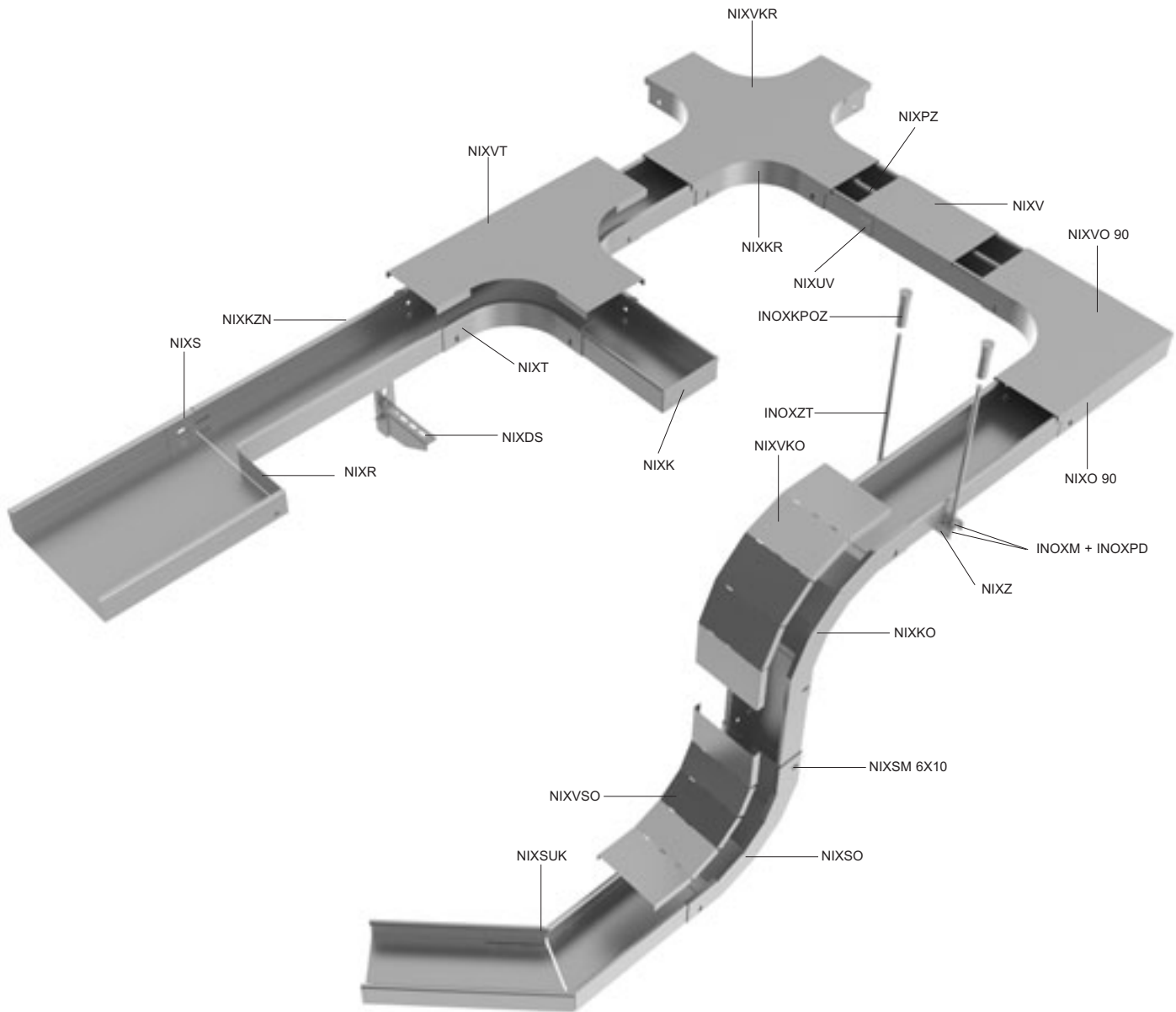




**CABLE TRAYS
MARS
STAINLESS**



OVERVIEW OF SYSTEM ELEMENTS



marking	description	pg.
INOXKPOZ	anchor	14
INOXM	nut	14
INOXPD	washer	14
INOXZT	threaded rod	13
NIXDS	wall bracket	12
NIXK	end-piece	11
NIXKO	low elbow 90°	6
NIXKR	cross-over	9
NIXKZN	cable tray	3
NIXO 90	elbow 90°	5
NIXPZ	partition	11
NIXR	reduction	10

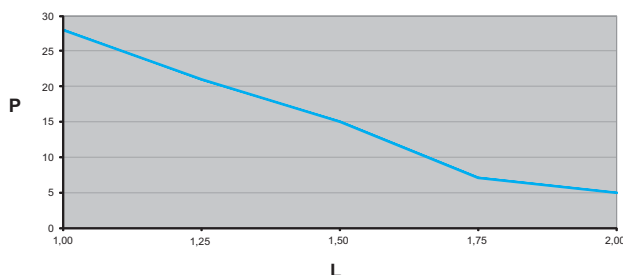
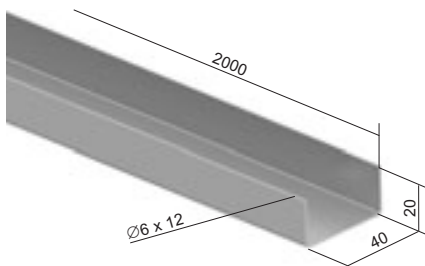
marking	description	pg.
NIXS	coupling	12
NIXSM 6X10	screw and nut for connection trays and accessories	14
NIXSO	rising elbow 90°	7
NIXSUK	angle coupling	10
NIXT	T-piece	8
NIXUV	cover fixture	4
NIXV	cable tray cover	4
NIXVZO	low elbow 90° cover	6
NIXVCR	cross-over cover	9
NIXVO 90	elbow cover 90°	5
NIXVSO	rising elbow 90° cover	7
NIXZ	suspension piece	13



non-perforated cable tray

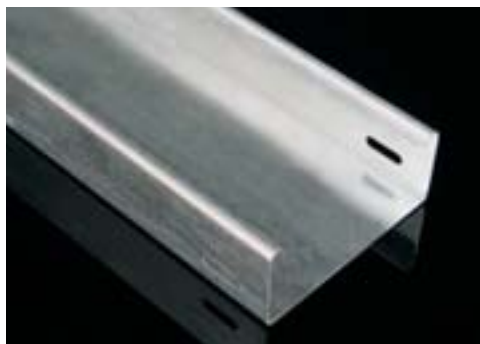
item number	↑	‡	⌄	IX
NIXKZN 20X40	0,8	0,40	2	●

The standard length of the cable tray is 2 m.
The joining of the trays is performed by using of the coupling NIXS 40 (pg. 12) and by two bolts NIXSMP 5X10.



The graph shows the maximum allowed even loading of the tray in relation to the distances of the supports.

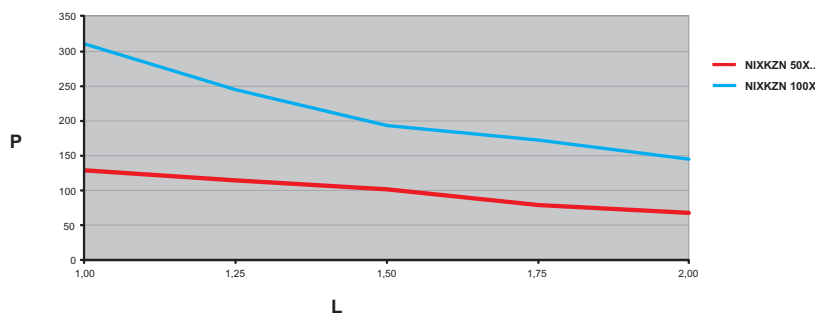
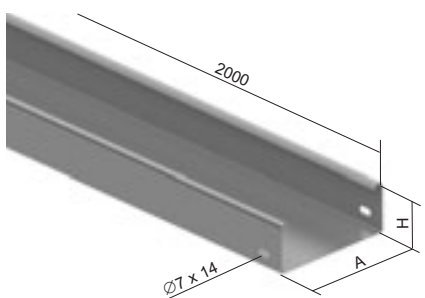
L = distance of supports (m)
P = allowed even loading (weight kg/m)



non-perforated cable tray

item number	A	H	↑	‡	⌄	IX
NIXKZN 50X62	62	50	0,8	1,13	4	●
NIXKZN 50X125	125	50	0,8	1,53	4	●
NIXKZN 50X250	250	50	0,8	2,33	4	●
NIXKZN 100X125	125	100	0,8	2,17	8	●
NIXKZN 100X250	250	100	0,8	2,97	8	●
NIXKZN 100X500	500	100	1,0	5,72	8	⌚

The standard length of the cable tray is 2 m.
The joining of the trays is performed by using of the couplings NIXS 50 / NIXS 100 (pg. 12) and by the bolts NIXSM 6X10 (pg. 14).
Tray is connected directly to accessories (with no connectors – the tray is inserted into the accessory), using NIXSM 6X10 screws (pg. 14).



The graph shows the maximum allowed even loading of the tray in relation to the distances of the supports.

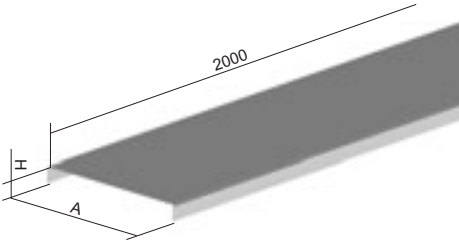
L = distance of supports (m)
P = allowed even loading (weight kg/m)



cable tray cover

item number	A	H	t	‡	IX
NIXV 40	40	10	0,6	0,29	●
NIXV 62	62	14	0,6	0,43	●
NIXV 125	125	14	0,6	0,73	●
NIXV 250	250	14	0,6	1,33	●
NIXV 500	500	14	0,8	3,37	⊕

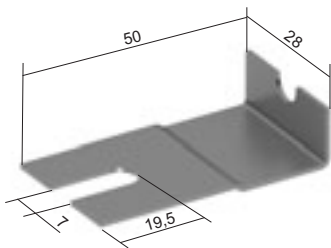
The standard length of the cable tray cover is 2 m.
 The fixing of the cover to the tray is done by using of the cover fixture NIXUV (pg. 4).
 The NIXV 40 lid is fixed in place by bending the edges. To fix the lid more firmly to the NIXKZN 20X40 tray we recommend using an SPK 200X4.5 stainless steel tightening strap (pg. 15).



cover fixture

item number	‡	IX
NIXUV	0,01	●

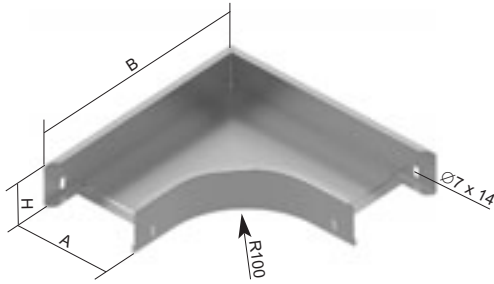
Used to fasten lids to trays or fittings with a NIXSM 6X10 screw.
 The number of anchors on the lid is the same as the number of cable tray interconnections and connections of cable trays with accessories.



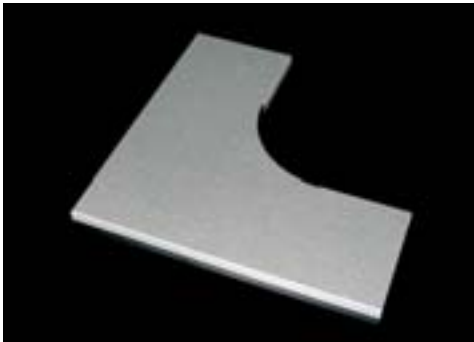


elbow 90°

item number	A	H	B	↑	‡	±	IX
NIXO 90X50X62	62	50	225	0,8	0,45	4	●
NIXO 90X50X125	125	50	288	0,8	0,68	4	●
NIXO 90X50X250	250	50	413	0,8	1,30	4	●
NIXO 90X100X125	125	100	288	0,8	0,10	8	●
NIXO 90X100X250	250	100	413	0,8	1,63	8	●
NIXO 90X100X500	500	100	663	0,8	3,07	8	⊕



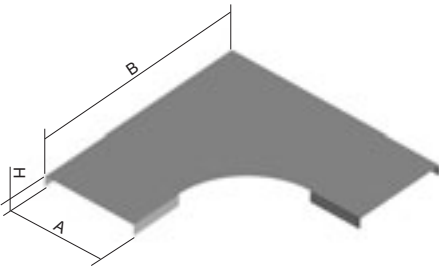
The arc is used to create a 90° branch in a horizontal direction.
 The connection is performed by direct sliding of the cable tray into the shaped piece and subsequent securing with bolts NIXSM 6X10 (pg. 14).
 On the NIXO 90X100X500 arc the outer right angle of the sides is replaced by a chamfer.

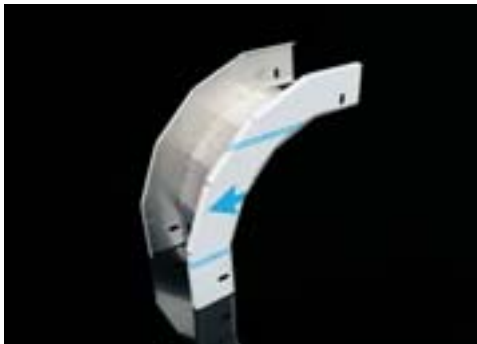


elbow cover 90°

item number	A	H	B	↑	‡	IX
NIXVO 90X62	62	14,8	238	0,6	0,18	●
NIXVO 90X125	125	14,8	300	0,6	0,35	●
NIXVO 90X250	250	14,8	426	0,6	0,80	●
NIXVO 90X500	500	14,8	676	0,6	2,16	⊕

To fix the cover use cover fixtures NIXUV (pg. 4).

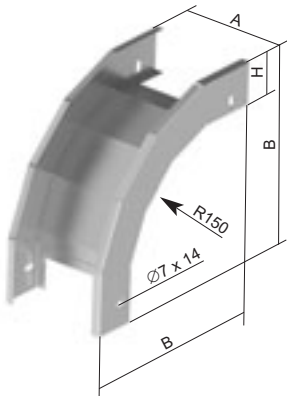




low elbow 90°

item number	A	H	B	↑	‡	∑↑	IX
NIXKO 90X50X62	62	50	240	0,8	0,40	4	●
NIXKO 90X50X125	125	50	240	0,8	0,50	4	●
NIXKO 90X50X250	250	50	240	0,8	0,70	4	●
NIXKO 90X100X125	125	100	290	0,8	0,78	8	●
NIXKO 90X100X250	250	100	290	0,8	0,98	8	●
NIXKO 90X100X500	500	100	290	0,8	1,37	8	⊕

The connection is performed by direct sliding of the cable tray into the shaped piece and subsequent securing with bolts NIXSM 6X10 (pg. 14).

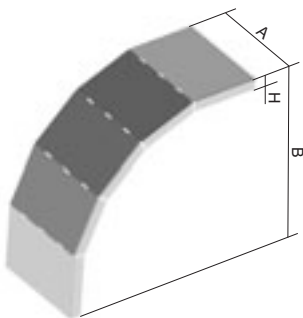


low elbow 90° cover

item number	A	H	B	↑	‡	IX
NIXVKO 90X50X62	62	15	276	0,6	0,19	●
NIXVKO 90X50X125	125	15	276	0,6	0,31	●
NIXVKO 90X50X250	250	15	276	0,6	0,56	●
NIXVKO 90X100X125	125	15	326	0,6	0,37	●
NIXVKO 90X100X250	250	15	326	0,6	0,67	●
NIXVKO 90X100X500	500	15	326	0,6	1,27	⊕

To fix the cover use cover fixtures NIXUV (pg. 4).

The covers are delivered straight. They are made from one piece of sheet metal with pre-cut side walls for later bending during assembly.

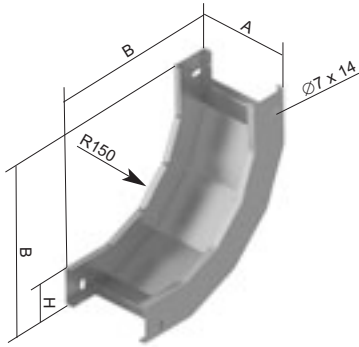
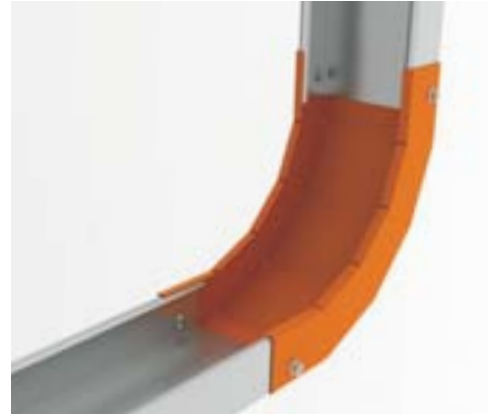




rising elbow 90°

item number	A	H	B	↑	‡	∫↑	IX
NIXSO 90X50X62	62	50	240	0,8	0,44	4	●
NIXSO 90X50X125	125	50	240	0,8	0,57	4	●
NIXSO 90X50X250	250	50	240	0,8	0,82	4	●
NIXSO 90X100X125	125	100	290	0,8	0,92	8	●
NIXSO 90X100X250	250	100	290	0,8	1,24	8	●
NIXSO 90X100X500	500	100	290	0,8	1,88	8	⌚

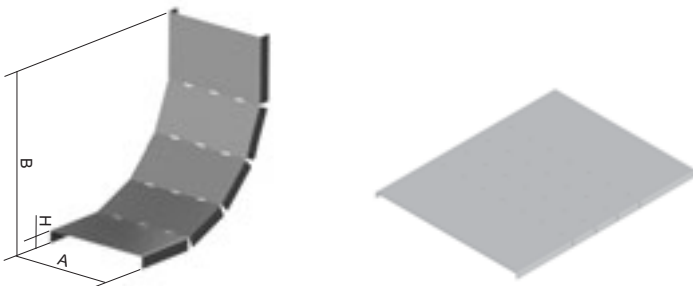
The connection is performed by direct sliding of the cable tray into the shaped piece and subsequent securing with bolts NIXSM 6X10 (pg. 14).

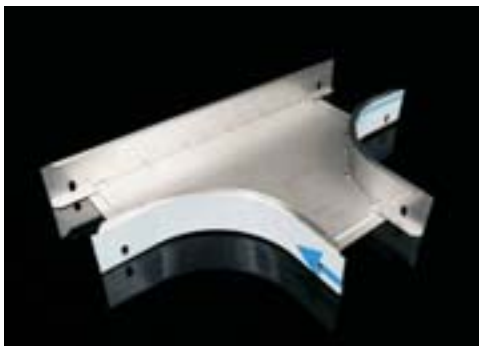


rising elbow 90° cover

item number	A	H	B	↑	‡	IX
NIXVSO 90X62	62	15	221	0,6	0,15	●
NIXVSO 90X125	125	15	221	0,6	0,25	●
NIXVSO 90X250	250	15	221	0,6	0,45	●
NIXVSO 90X500	500	15	221	0,6	0,86	⌚

To fix the cover use cover fixtures NIXUV (pg. 4). The covers are delivered straight. They are made from one piece of sheet metal with pre-cut side walls for later bending during assembly.

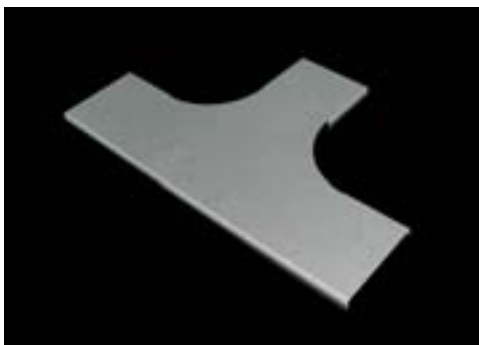
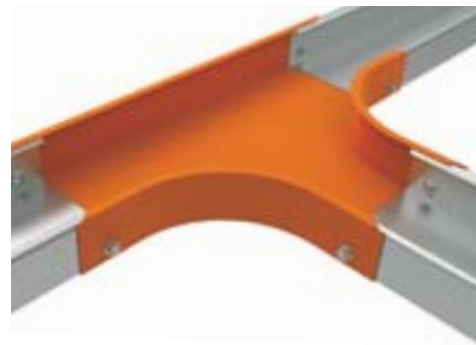
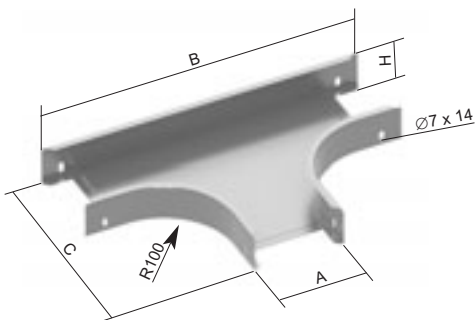




T-piece

item number	A	H	B	C	†	‡	‡f	IX
NIXT 50X62	62	50	385	225	0,8	0,61	6	●
NIXT 50X125	125	50	448	288	0,8	0,87	6	●
NIXT 50X250	250	50	573	413	0,8	1,52	6	●
NIXT 100X125	125	100	448	288	0,8	1,19	12	●
NIXT 100X250	250	100	573	413	0,8	1,88	12	●
NIXT 100X500	500	100	823	663	0,8	3,87	12	⊕

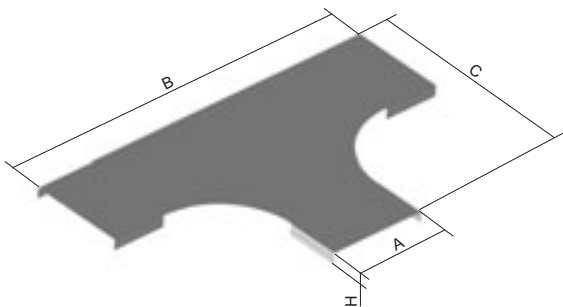
The connection is performed by direct sliding of the cable tray into the shaped piece and subsequent securing with bolts NIXSM 6X10 (pg. 14).

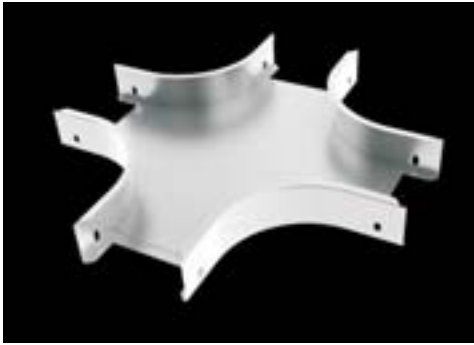


T-piece cover

item number	A	H	B	C	†	‡	IX
NIXVT 62	62	15	409	238	0,6	0,25	●
NIXVT 125	125	15	472	300	0,6	0,47	●
NIXVT 250	250	15	597	426	0,6	1,01	●
NIXVT 500	500	15	848	676	0,6	2,56	⊕

To fix the cover use cover fixtures NIXUV (pg. 4).

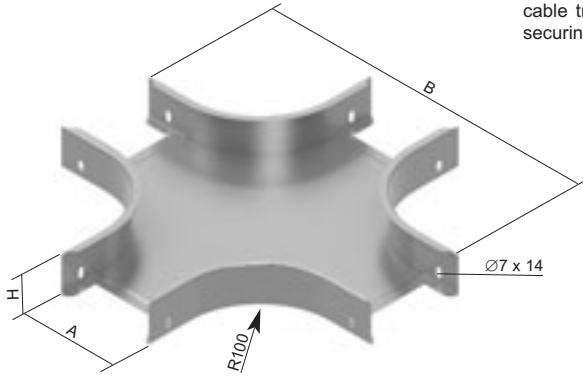
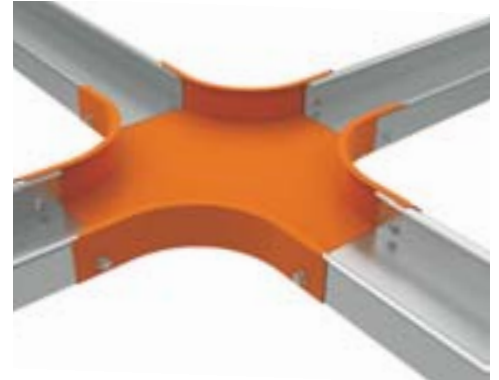




CROSS-OVER

item number	A	H	B	‡	‡	‡	IX
NIXKR 50X62	62	50	385	0,8	0,77	8	⊕
NIXKR 50X125	125	50	448	0,8	1,04	8	⊕
NIXKR 50X250	250	50	573	0,8	1,74	8	⊕
NIXKR 100X125	125	100	448	0,8	1,39	16	⊕
NIXKR 100X250	250	100	573	0,8	2,10	16	⊕
NIXKR 100X500	500	100	823	0,8	4,09	16	⊕

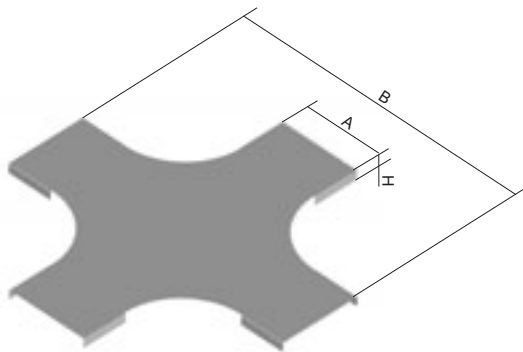
The connection is performed by direct sliding of the cable tray into the shaped piece and subsequent securing with bolts NIXSM 6X10 (pg. 14).



CROSS-OVER COVER

item number	A	H	B	‡	‡	IX
NIXVKR 62	62	15	409	0,6	0,31	⊕
NIXVKR 125	125	15	472	0,6	0,58	⊕
NIXVKR 250	250	15	597	0,6	1,22	⊕
NIXVKR 500	500	15	848	0,6	2,95	⊕

To fix the cover use cover fixtures NIXUV (pg. 4).

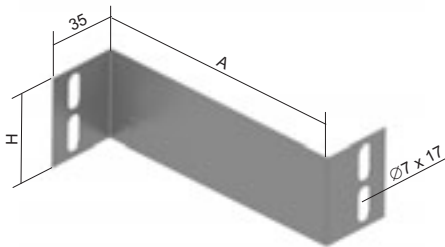




reduction

item number	A	H	t	±	±f	IX
NIXR 50X62	65	43	0,6	0,02	2	●
NIXR 50X125	127	43	0,6	0,04	2	●
NIXR 100X125	127	93	0,6	0,08	4	●
NIXR 100X250	250	93	0,6	0,18	4	⊕

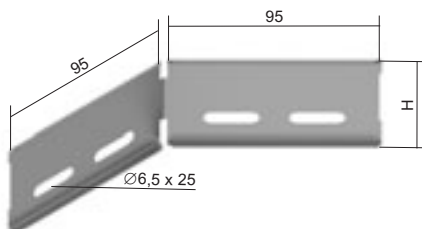
The joining is performed by using the bolts NIXSM 6X10 (pg. 14). The reduction is used for the transition between various tray widths with identical height of side walls.



angle coupling

item number	H	t	±	IX
NIXSUK 50	46	0,8	0,05	●
NIXSUK 100	96	0,8	0,12	●

The joining is performed by using the bolts NIXSM 6X10 (pg. 14). Angle couplings are mostly used at places where the route is slightly bended, for large bending radiuses or for the circumvention of columns and pillars. The advantage of the angle connector is that it enables angled routes to be easily created at virtually any angle.

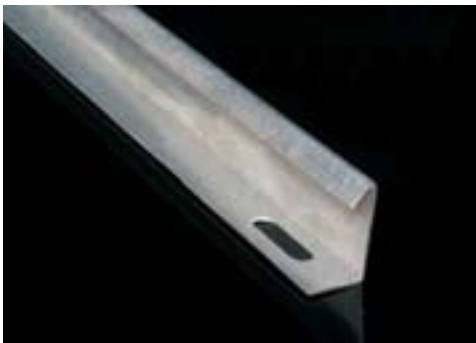
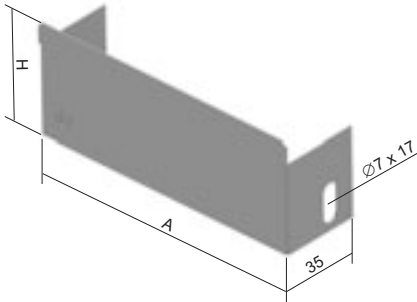




end-piece

item number	A	H	↑	‡	⌚	IX
NIXK 50X62	60	50	0,6	0,03	2	●
NIXK 50X125	123	50	0,6	0,04	2	●
NIXK 50X250	248	50	0,6	0,07	4	●
NIXK 100X125	125	100	0,6	0,08	2	●
NIXK 100X250	250	100	0,6	0,14	4	●
NIXK 100X500	500	100	0,6	0,34	4	⊕

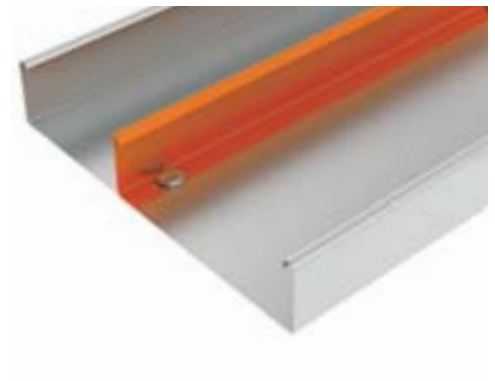
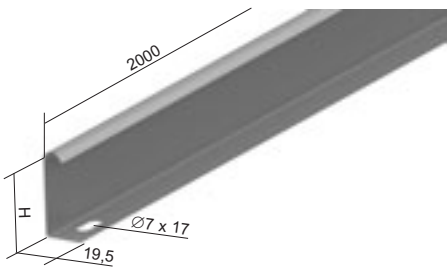
The joining is performed by using the bolts NIXSM 6X10 (pg. 14).
The end-piece serves for the ending off a route.

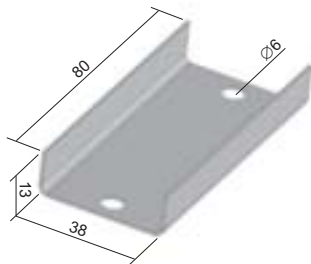


partition

item number	H	↑	‡	IX
NIXPZ 50	44	0,6	0,35	●
NIXPZ 100	94	0,6	0,60	●

The standard length of the partition is 2 m.
The fixing of the partition is carried out by bolts NIXSM 6X10 (pg. 14).

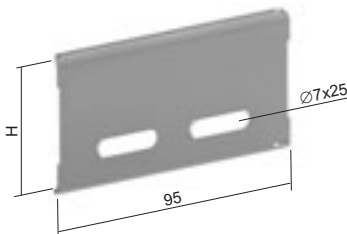
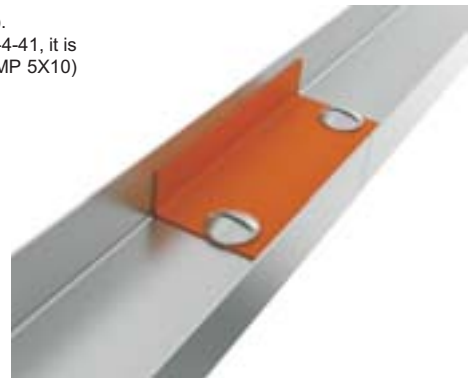




coupling

item number	t	g	l	IX
NIXS 40	0,8	0,03	2	●

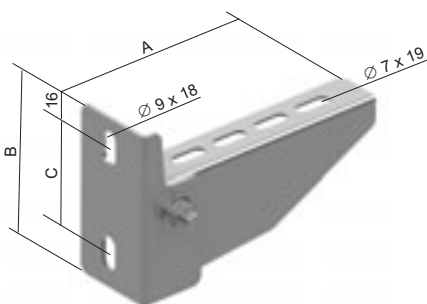
The connection is made by bolt NIXSMP 5X10 (pg. 14). To ensure a conductive bond pursuant to ČSN 33 2000-4-41, it is essential to always use fan washers (part of the NIXSMP 5X10) under the screw head and under the M5 nut.



coupling

item number	H	t	g	l	IX
NIXS 50	47	0,8	0,03	2	●
NIXS 100	97	0,8	0,06	4	●

The joining is performed by using the bolts NIXSM 6X10 (pg. 14).



wall bracket

item number	A	B	C	t	g	IX
NIXDS 62	88	72	38	180	0,13	●
NIXDS 125	142	90	56	160	0,22	●
NIXDS 250	267	104	70	150	0,38	●
NIXDS 500	518	130	90	170	1,02	⊕

Cable tray attaching to the wall support is carried out by bolts NIXSM 6X10 (pg. 14). The support is fixed to the wall using 2 pcs INOXKPO 8X75 anchors (pg. 14).

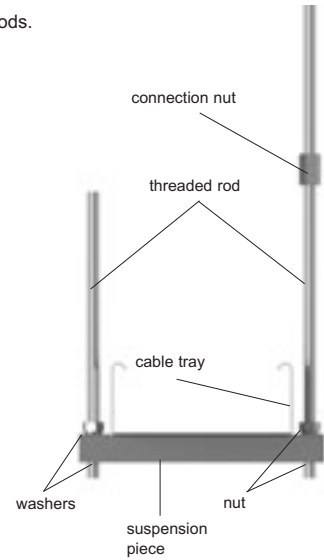
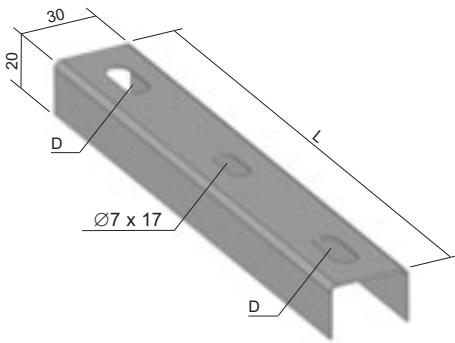




suspension piece

item number	L	D	t	±	IX
NIXZ 62	107	Ø9 x 18	1,0	0,05	●
NIXZ 125	170	Ø9 x 18	1,0	0,09	●
NIXZ 250	295	Ø9 x 18	1,0	0,15	●
NIXZ 500	545	Ø11 x 20	1,0	0,28	⊕

It is used to suspend a cable tray in combination with threaded rods.



threaded rod

item number	Ø	length	IX
INOXZT 8	8	2000	●

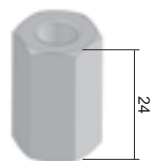
The standard length of the threaded rod is 2 m.



connection nut

item number	Ø	t	IX
NIXPM	M8	0,02	⊕

Used for the connection of two threaded rods INOXZT 8.





bolt + nut + lock washers

item number		IX
NIXSMP 5X10	100	●

Lock washers serves to the securing of inductive interconnection.



bolt with around head and lock nut

item number		IX
NIXSM 6X10	100	●

Lock washers serves to the securing of inductive interconnection.



hexagon nut, washer

item number	D	IX
INOXM 8	-	●
INOXPD 8	17	●



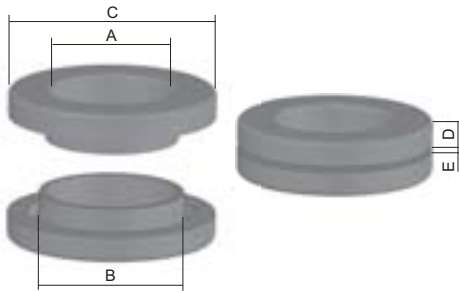
anchor

item number		IX
INOXKPO 8X75	to attach NIXDS supports to the wall	●
INOXKPOZ 8	hammer roller anchor for fastening a threaded rod	●

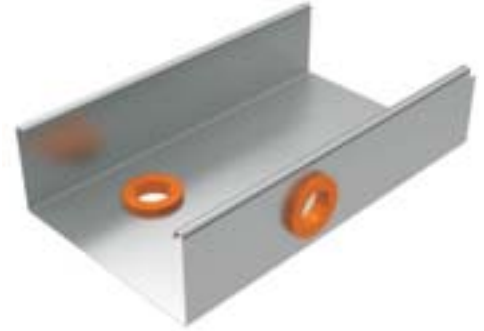


bushing

item number	A	B	C	D	E	‡	
NKP 9	10	15	24	5	0,5 - 5	0,002	●
NKP 11	12	18,5	26	5	0,5 - 5	0,004	●
NKP 13	16	20	31	6	0,5 - 5	0,006	●
NKP 16	17	22	33	6	0,5 - 5	0,006	●
NKP 21	24	28	40	7	0,5 - 5	0,010	●
NKP 29	31	37	53	7	0,5 - 5	0,018	●



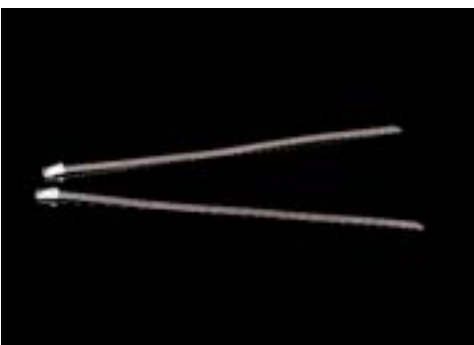
Bushings serve for the safe passing of the cables through the sheet metal. One part of the bushing is inserted from one side into the created opening in the bottom or the sidewall of the tray, the second part is inserted from the second side and gentle pressure is used to press both the parts together and this connects them firmly. B - drilled hole diameter



edge protector

item number	‡	⌚	
NCH	0,06	10	●

The edge protector made from plastic with a steel insert is used to protect the edges of cable trays. Package = 10 m, sold in entire packs. The product is available only in multiples of ten. The protector there is possible to install to the metal sheets of max. 2 mm thickness.



tightening belt

item number	‡	⌚	IX
SPK 200X4.6	0,002	100	●

The tightening strap used to fixed the NIXV 40 (pg. 4) lid to the NIXKZN 20X40 tray (pg. 3). The connection is not detachable.

material

Stainless products are made of austenitic chromium-nickel steel that complies with ČSN 17 240; AISI 304; DIN X5CrNi18-10; W.-Nr. 1. 4301.

Parts covered with a protective film on the outside.

Products made from steel of a quality compliant with AISI 316 may also be supplied to order.

Delivery dates and quotations are provided according to specifications from the KOPOS KOLÍN a.s. sales representative.

packaging and deliveries

Cable trays and barrier strips are supplied in multiples of 2 m lengths.

Products supplied in pieces can be ordered in multiples of 1. The exceptions are NIXSMP 5X10 and NIXSM 6X10 screws, which come in packs of 100.

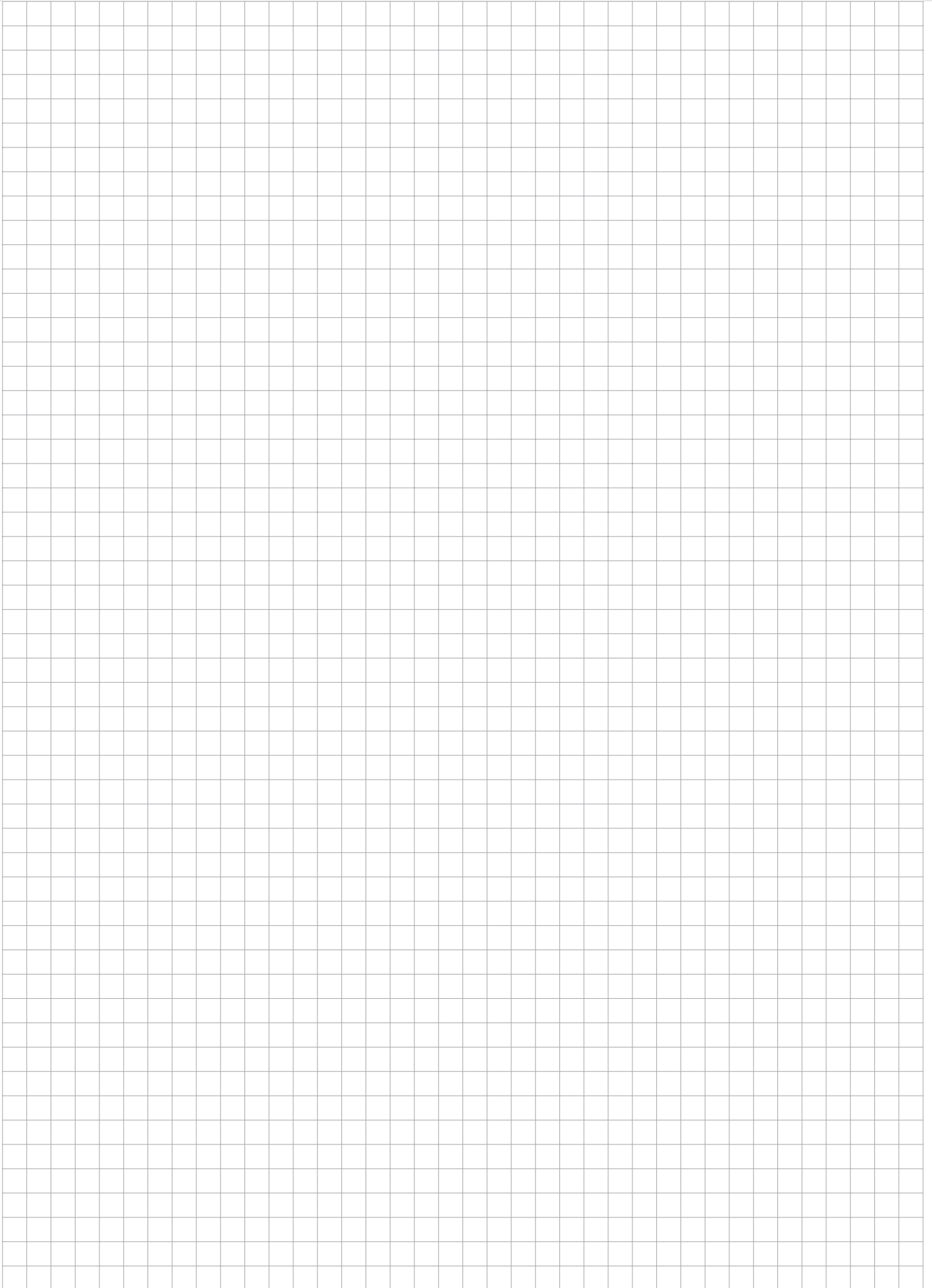
Edge protectors are supplied in 10 m coils.

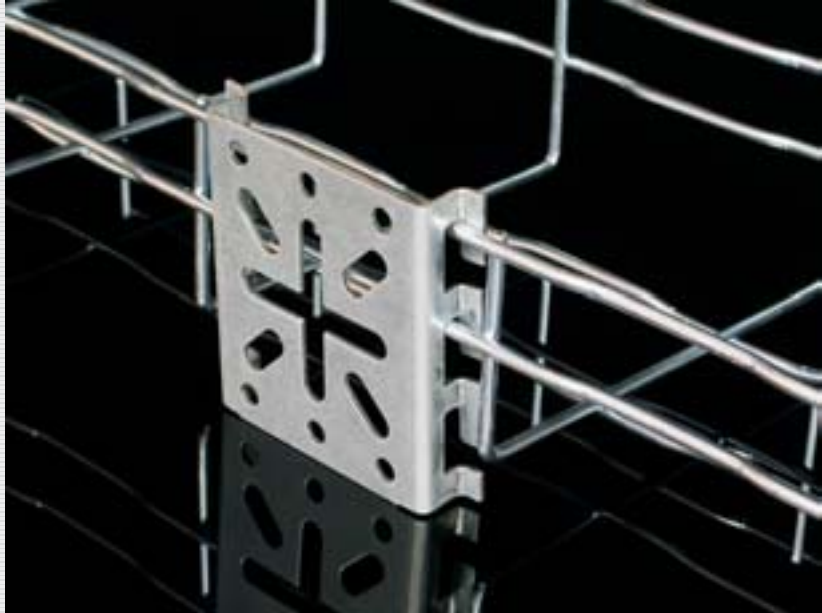
connection of cable trays

Cable trays are connected using an NIXS. connector and NIXSM 6X10 screws. The connection assures electrical equipotential bonding.

Cable trays and fittings are connected for horizontal or vertical changes in the route by inserting the cable tray into the fitting and fastening it using NIXSM 6X10 screws.

The special shape of the end assures that the connection is at the same level, creating a uniform surface for inserting cables to prevent them from damage.



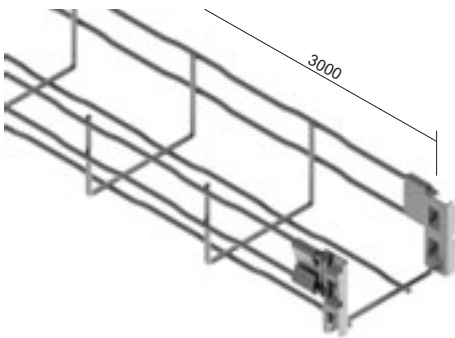




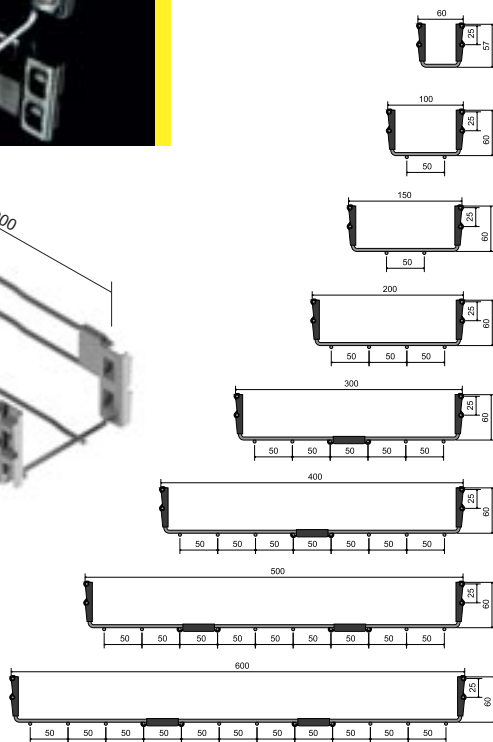
4

WIRE CABLE TRAYS





wire cable tray with integrated coupling



item number	∅	⊠	‡	coupling piece in the bottom	BZNCR
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60 - wire cable tray with integrated coupling

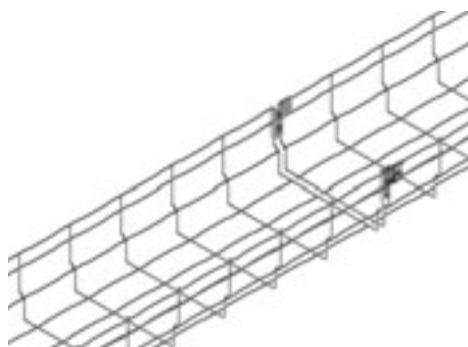
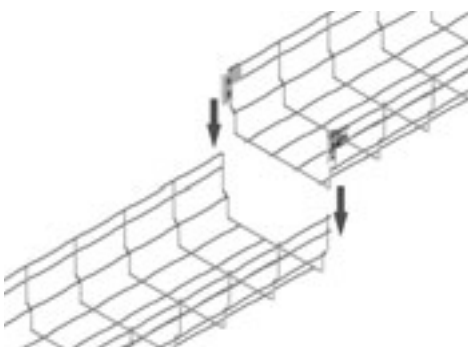
DZI 60X60	3,9	23	0,54	0	●
DZI 60X100	3,9	47	0,79	0	●
DZI 60X150	3,9	75	0,84	0	●
DZI 60X200	3,9	102	1,09	0	●
DZI 60X300	4,3	157	1,60	1	●
DZI 60X400	4,3	212	1,94	1	●
DZI 60X500	4,6	267	2,72	2	●
DZI 60X600	4,6	322	3,13	2	●

110 - wire cable tray with integrated coupling

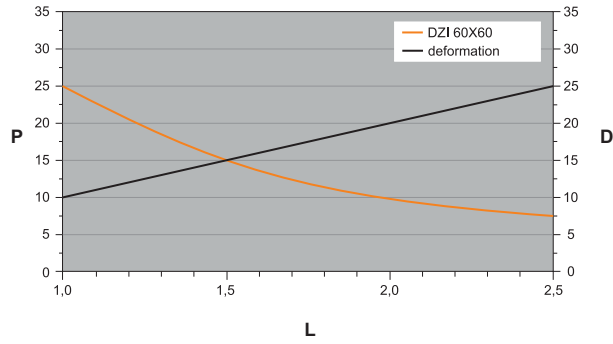


DZI 110X200	4,3	193	1,59	0	●
DZI 110X300	4,3	297	1,93	1	●
DZI 110X400	4,6	401	2,71	1	●

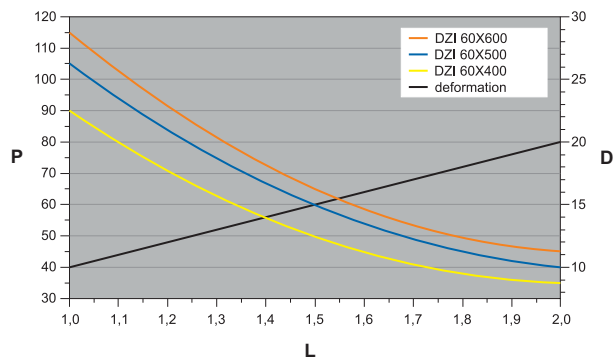
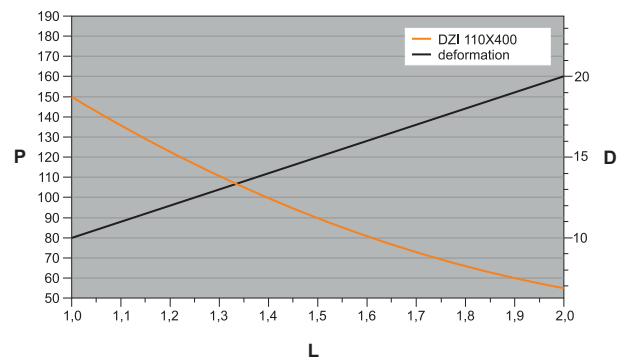
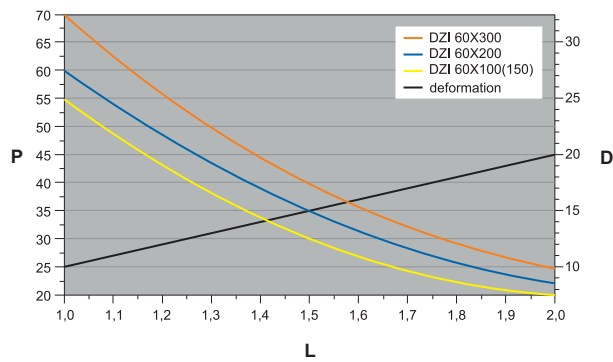
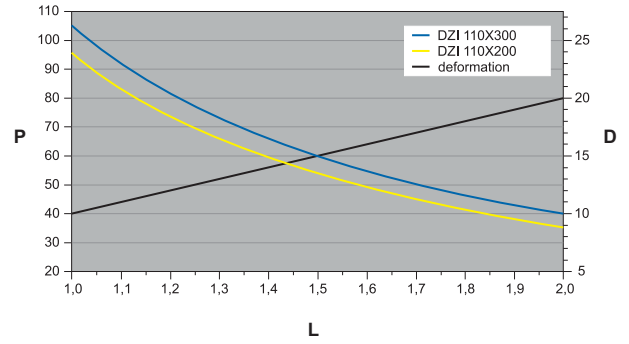
There are couplings at one end of the wire cable tray - to the width of 200mm the couplings are situated on the sideways; from the width 300mm there are couplings on the sideways and also at the bottom of the tray. The way of the tray connection can be seen in the pictures below. In this way the conductive connection is fulfilled. To enable the proper ventilation it is recommended to install the trays at a distance at least 250 mm from each other and 20 mm from the wall.



60 - wire cable tray with integrated coupling

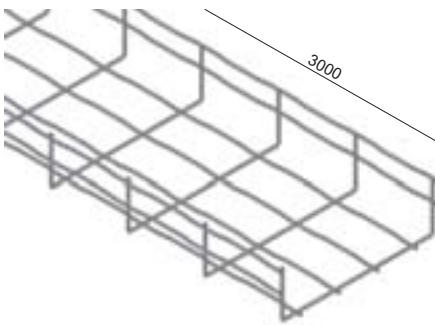


110 - wire cable tray with integrated coupling

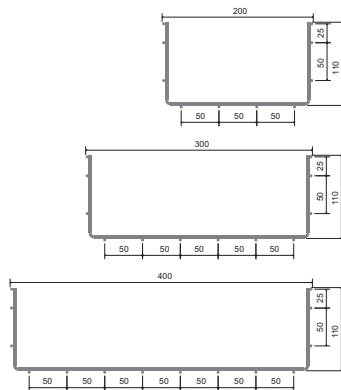
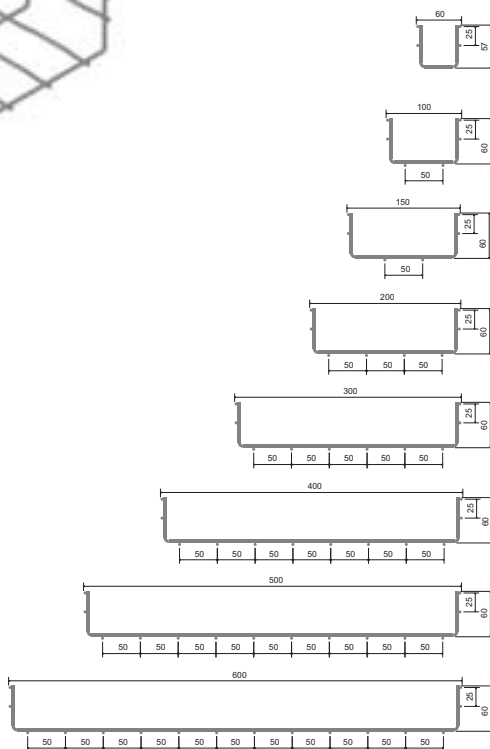
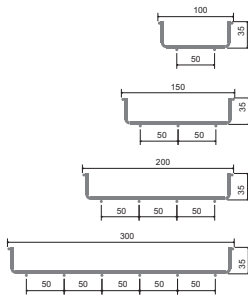


The graphs show the maximum allowed even loading of the trays in relation to the distances of the supports.

- L = distance of supports (m)
- P = allowed even loading (weight kg/m)
- D = deformation (mm)



wire cable tray



item number	∅	⊠	‡	BZNCR	BF	BIX
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35 - wire cable tray

DZ 35X100	3,9	27	0,55	●	⊕	-
DZ 35X150	3,9	42	0,67	●	⊕	-
DZ 35X200	3,9	58	0,81	●	⊕	-
DZ 35X300	4,3	89	1,27	●	⊕	-

60 - wire cable tray

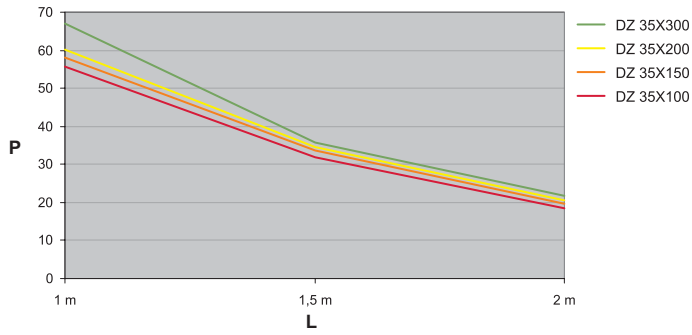
DZ 60X60	3,9	23	0,55	-	⊕	-
INOXDZ 60X60	3,9	23	0,66	-	-	⊕
DZ 60X100	3,9	47	0,77	-	⊕	-
INOXDZ 60X100	3,9	47	0,96	-	-	⊕
DZ 60X150	3,9	75	0,82	-	⊕	-
INOXDZ 60X150	3,9	75	1,02	-	-	⊕
DZ 60X200	3,9	102	1,06	-	⊕	-
INOXDZ 60X200	3,9	102	1,32	-	-	⊕
DZ 60X300	4,3	157	1,57	-	⊕	-
INOXDZ 60X300	4,3	157	1,69	-	-	⊕
DZ 60X400	4,3	212	1,90	-	⊕	-
DZ 60X500	4,6	267	2,46	-	⊕	-
DZ 60X600	4,6	322	2,83	-	⊕	-

110 - wire cable tray

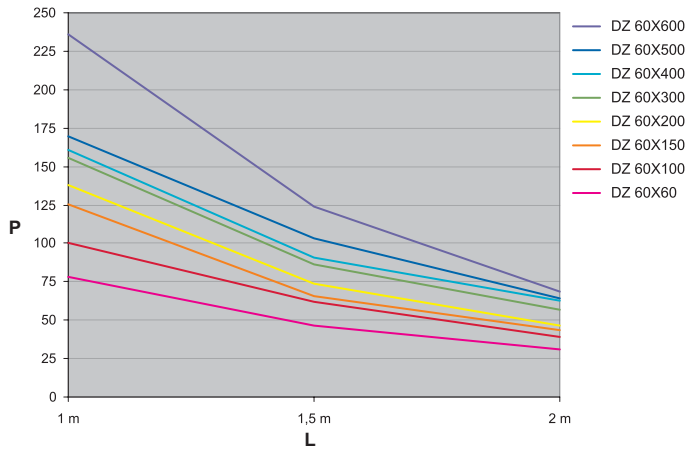
DZ 110X200	4,3	193	1,57	-	⊕	-
DZ 110X300	4,3	297	1,90	-	⊕	-
DZ 110X400	4,6	401	2,46	-	⊕	-

The standard length of the wire cable tray is 3 m.
 Screen: 50 x 100 mm (not valid for DZ 60X60, INOXDZ 60X60).
 Wire cable trays are joined using the coupling DZS/B (pg. 6). Trays with side height of 60 and 110 mm can be connected using the quick coupling DZRS/B (pg. 6) or using the connection reinforcement plate DZSP/B (pg. 7).
Wire cable trays in the corrosion-proof version are made of stainless steel in accordance with AISI 304.

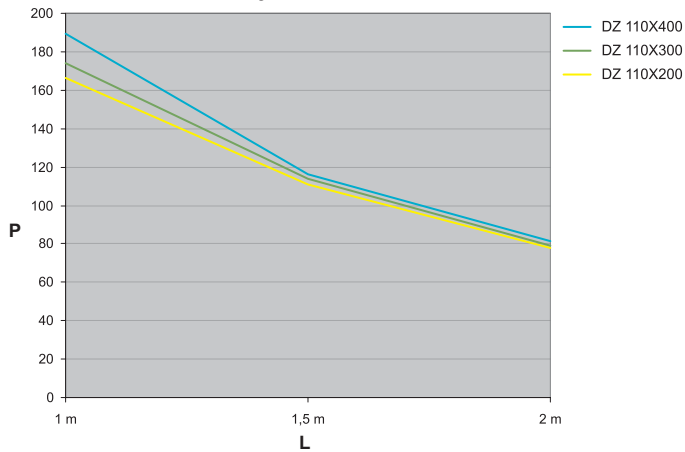
35 - wire cable tray



60 - wire cable tray



110 - wire cable tray



The graphs show the maximum allowed even loading of the trays in relation to the distances of the supports.

L = distance of supports (m)

P = allowed even loading (weight kg/m)



fastening bolt

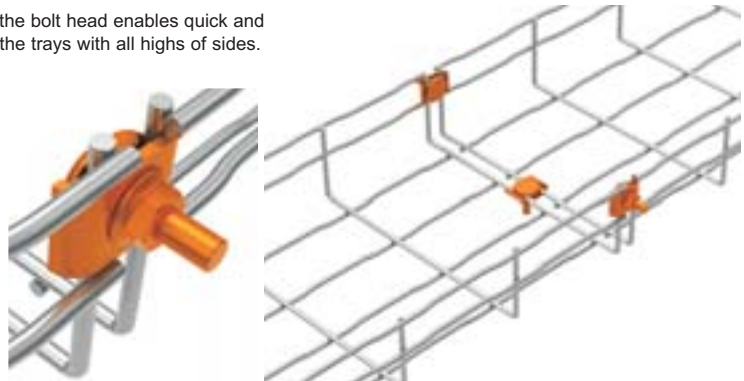
item number	‡	ZNCR	BX
DZSU/B	0,02	●	-
INOXDZSU/B	0,02	-	⊕



coupling

item number	‡	ZNCR	F	BX
DZS/B	0,03	●	⊕	-
INOXDZS/B	0,03	-	-	⊕

The special design of the bolt head enables quick and reliable connection of the trays with all highs of sides.



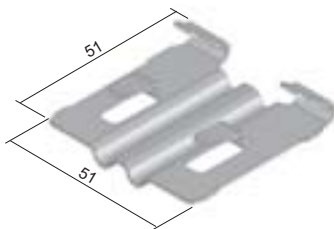
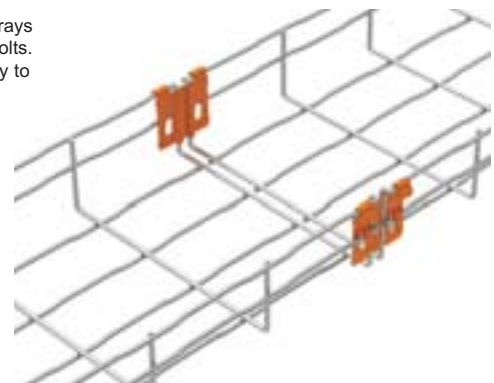
tray type	amount of couplings DZS/B	
DZ 35	100; 150; 200	2
	300	3
DZ 60	60; 100; 150; 200	2
	300; 400	3
	500; 600	4
DZ 110	200	2
	300; 400	3

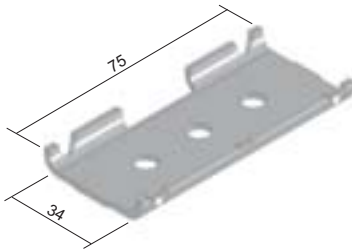


quick coupling

item number	‡	ZNCR	F
DZRS/B	0,03	●	⊕

The quick coupling enables the connecting of the trays with a side height of 60 and 110 mm without using bolts. For the formation of fix connection there is necessary to decline the fixative studs by the anchor.

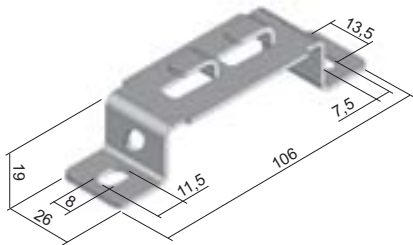
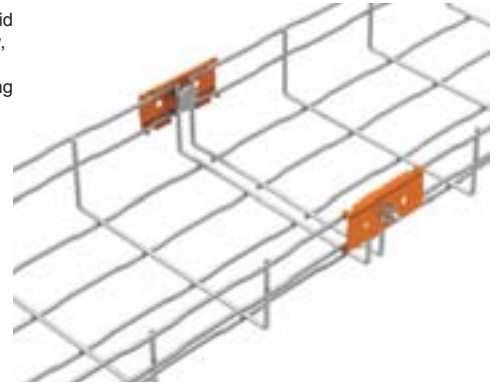




connection reinforcement plate

item number	‡	ZNCR	F	BX
DZSP/B	0,06	●	⌚	-
INOXDZSP/B	0,06	-	-	⌚

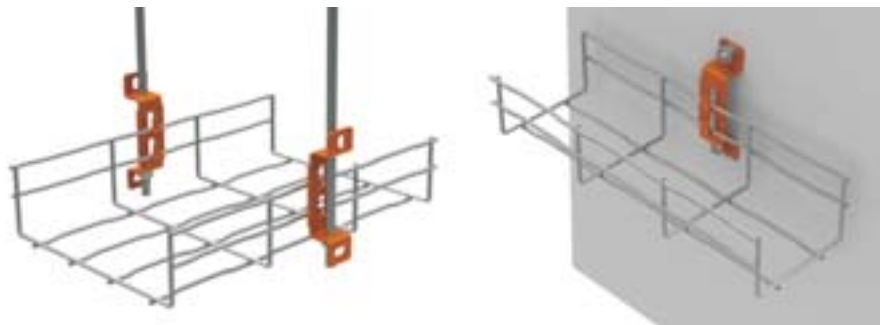
The connection reinforcement plate for a more solid connection of trays. Attached using a DZSU/B screw, which is included.
The reinforcement plate is designed for the connecting of wire trays with a side height of 60 and 110 mm.



hanger

item number	‡	ZNCR	F	BX
DZZ/B	0,05	●	⌚	-
INOXDZZ/B	0,05	-	-	⌚

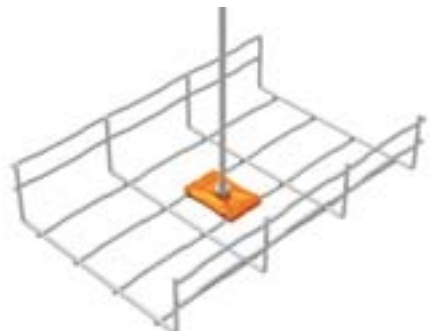
The hanger can be used for the fastening of the wire tray to a wall or for hanging from the ceiling together with a threaded rod \varnothing 8 mm.
The hanging by means of 2 threaded bars from the ceiling is intended for the trays of the side height of 60 and 110 mm and of the width of max. 200 mm (it is possible to use the suspension also for trays DZ 60X300 – maximum load capacity of the tray is 10kg/m).
The fixation to the wall there is possible just for trays of DZ 60X60 and DZ 60X100.
The hinge is attached using KPO 6 anchors (2 pcs).

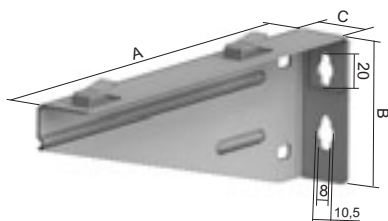


central hanger

item number	‡	ZNCR	F	BX
DZCZ/B	0,03	●	⌚	-
INOXDZCZ/B	0,03	-	-	⌚

The central hanger is designated for the hanging of the wire tray from the ceiling. For the hanging it is necessary to use two central hanger pieces and the threaded rod \varnothing 8 mm.
The hanger is not intended for hanging of the trays of DZ 60X60 and DZ 35X150.
For creating a single hanger attachment by using an inner hanger, 2 pcs of middle hangers must be ordered.
There is recommended for cable trays width max. 300 mm.

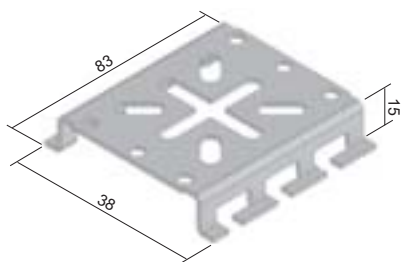
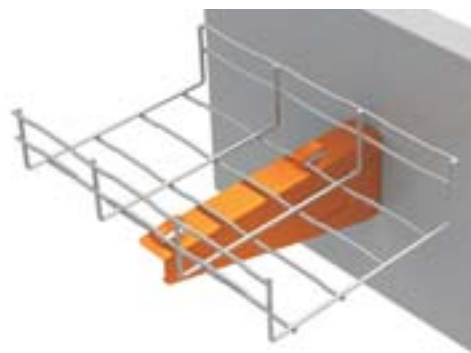




wall bracket

item number	A	B	C	‡	S	F	BX
DZDS 100/B	150	85	36	0,25	●	⊕	-
INOXDZDS 100/B	150	85	35	0,24	-	-	⊕
DZDS 150/B	200	85	36	0,26	●	⊕	-
INOXDZDS 150/B	200	85	35	0,30	-	-	⊕
DZDS 200/B	250	85	36	0,38	●	⊕	-
INOXDZDS 200/B	250	85	35	0,38	-	-	⊕
DZDS 300/B	350	85	36	0,66	●	⊕	-
INOXDZDS 300/B	350	85	35	0,49	-	-	⊕
DZDS 400/B	450	85	36	0,80	●	⊕	-
DZDS 500/B	550	122	36	1,01	⊕	⊕	-
DZDS 600/B	650	122	36	1,11	⊕	⊕	-

Quick and reliable fixation of the wire tray to the bracket is secured by bending in the fastening tabs. It is necessary to use a hanger DZZ/B, while the wire cable tray DZ 60X60 is installed on the wall. Supports INOXDZDS are without fastening outputs. It is possible to buy also mounting screws INOXDZSU/B for this support.



mounting place

item number	‡	ZNCR	F	BX
DZMD/B	0,08	●	⊕	-
INOXDZMD/B	0,08	-	-	⊕

Mounting plate serves to the assembling of electroinstallation boxes. It is fixed to the side plate of wire cable tray of side plate height of 60 and 110 mm. Mounting plate there is possible to fix to the outer side of the bottom of all trays, except the trays of DZ 60X60 and INOXDZ 60X60.





threaded rod

item number	Ø	tolerable bearing resistance*	ZNCR	IX
ZT 8	M 8	4060	●	-
INOXZT 8	M 8	4060	-	⊕

The standard length of the threaded rod is 2 m.
* calm load (N)



hexagon nut

item number	ZNCR	IX
M 8	●	-
INOXM 8	-	⊕



bolt cutter

item number	‡	
DZDN	0,75	●

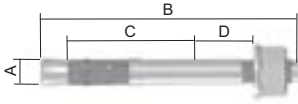
The cutter has jaws with an offset cut.
It is suitable to cut the wires on the trays as close as possible to the crossing.



zinc paint/spray

item number	‡	
WEICON 375 (paint)	0,50	●
WEICON 750 (paint)	1,10	●
GZS (spray)	0,45	●

Anticorrosive protection to be intended for service of defective and damaged places on galvanized surface.
Lay on the color by paintbrush, stipple technology.



anchor

item number	A	B	C	D	E	thread	‡	PO
KPO 6X50	6	52	30	5	45	M6	0,01	●
KPO 6X70	6	67	40	10	55	M6	0,02	●
KPO 8X77	8	75	44	10	65	M8	0,03	●
KPO 8X97	8	95	44	30	65	M8	0,04	●
KPO 10X95	10	95	48	20	70	M10	0,06	●
KPO 10X115	10	120	48	45	70	M10	0,07	●

A - drill bit diameter
 B - total length of anchor
 C - anchor depth
 D - maximum thickness of the material being attached
 E - minimum depth of the drilled hole
 Anchors serve for the attaching of construction elements to the base material (non-cracked concrete).



steel stop anchor

item number	A	B	C	thread	‡	ZNCR
KKZ 8	10	30	32	M8	0,01	●

A - drill bit diameter
 B - total length of anchor
 C - minimum depth of the drilled hole
 The knock in anchors KKZ serve for the direct attachment of the threaded rods.
 There is a strut pin inside the anchor, which must be driven into the correct position before the assembly of a threaded rod.
 This item is suitable for fixing into concrete or natural stone.
 KKZ 8, KKZ 10 and KKZ 12 anchors are provided with a collar.



brass stop anchor

item number	A	B	C	thread	‡	XX
KKZM 8	10	30	35	M8	0,01	●

A - drill bit diameter
 B - total length of anchor
 C - minimum depth of the drilled hole
 The knock in anchors KKZM serve for the direct attachment of the threaded rods.
 The brass anchors have an inner conical thread, which expands during the assembly of a threaded rod or bolt.
 The threaded rod (bolt) must be driven into the full length of the anchor.
 This item is suitable for fixing into concrete, natural stone, wood, chipboard and solid brick.

construction



CUTTING THE WIRE

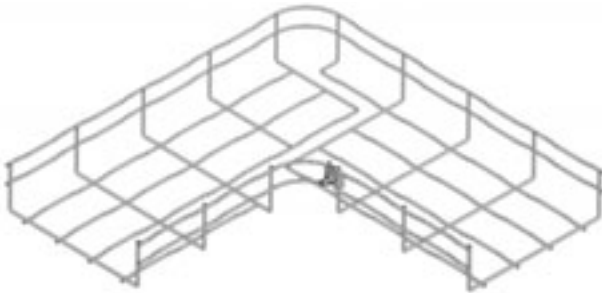
The shape of a route made from wire trays can be changed to suit your requirements. We recommend using professional cutting pliers to cut the wire mesh on trays. It is recommended that wire be cut as closely as possible to where the wires cross, to prevent damage to the cables.



placing of the cutting jaws

BEND

To make the bend, areas must be cut out from the bottom and the side of the wire tray. The connecting wire must not be cut from the outer side. The sides of the wire tray are then bent into a 90° bend. The inner sides are connected using the coupling DZS/B, the second coupling is used to connect the tray bottoms.



tray width	amount of couplings DZS/B	cutting out of areas	assembly
100	2		
150	2		
200	2		
300	2		
400	2		
500	2		
600	2		

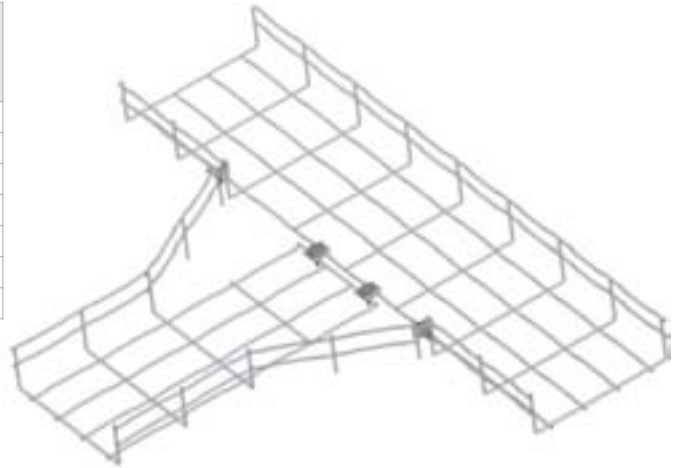
construction

T-PIECE

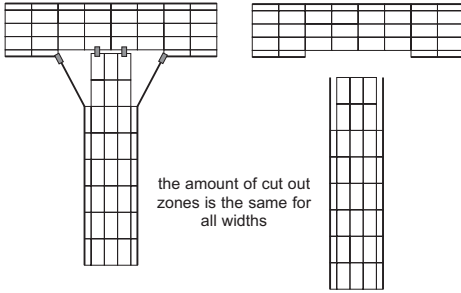
The T-piece is made out of two pieces of wire trays. Two zones of the "turning" tray are cut off from the bottom, this applies for all tray widths. The sides are cut off from the "continual" tray, the amount of zones depends on the width of the "turning" tray and it is stated in the table. The bottoms and the sides of the trays are connected using the coupling DZS/B.

It is also possible to make the T-piece from various tray widths.

tray width	amount of couplings DZS/B	amount of zones (sides) for removal
100	4	2
150	4	3
200	4	4
300	4	5
400	4	6
500	4	7
600	4	8



amount of cut out zones is stated in the table



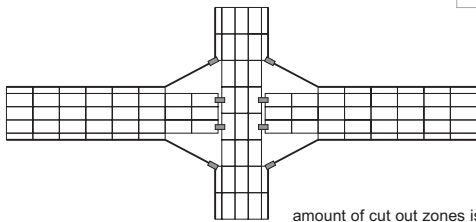
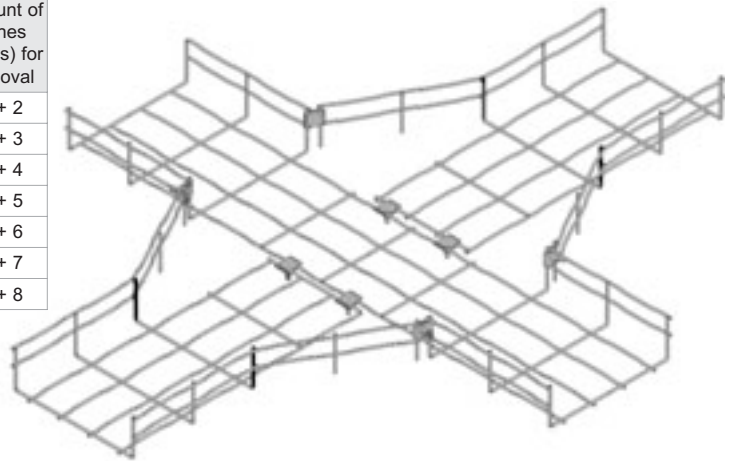
the amount of cut out zones is the same for all widths

CROSS-OVER

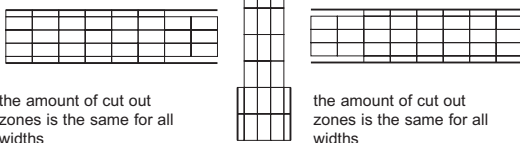
The creating of a crossover is basically the creating of two T-pieces. Two zones of the two "turning" trays side are cut off from the bottom, this applies for all tray widths. The sides are cut off from the "continual" tray on both sides, the amount of zones depends on the width of the tray being connected and it is stated in the table. The bottoms and the sides of the trays are connected using the coupling DZS/B.

It is also possible to make the Cross over from various tray widths.

tray width	amount of couplings DZS/B	amount of zones (sides) for removal
100	8	2 + 2
150	8	3 + 3
200	8	4 + 4
300	8	5 + 5
400	8	6 + 6
500	8	7 + 7
600	8	8 + 8



amount of cut out zones is stated in the table



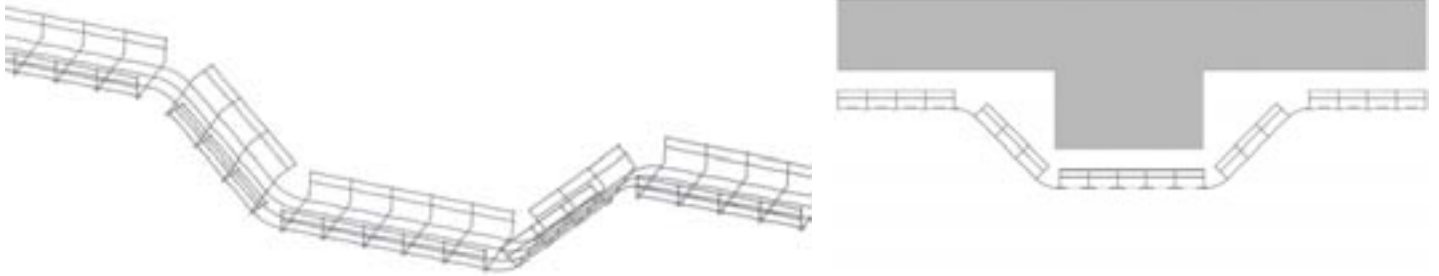
the amount of cut out zones is the same for all widths

the amount of cut out zones is the same for all widths

construction

VARYING LEVELS

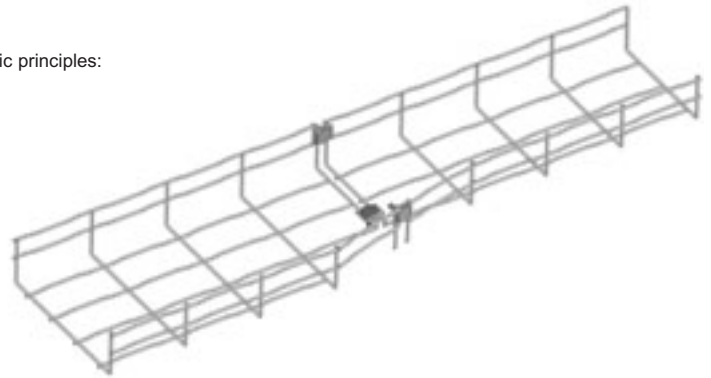
Any change in the horizontal level can be achieved by cutting off the corresponding zone and bending the wire tray in this area until the required shape is achieved.



REDUCTIONS

Wire cable trays can be narrowed, so they can be connected to a narrower piece. In order to reach the required result, all of the combinations are based on several basic principles:

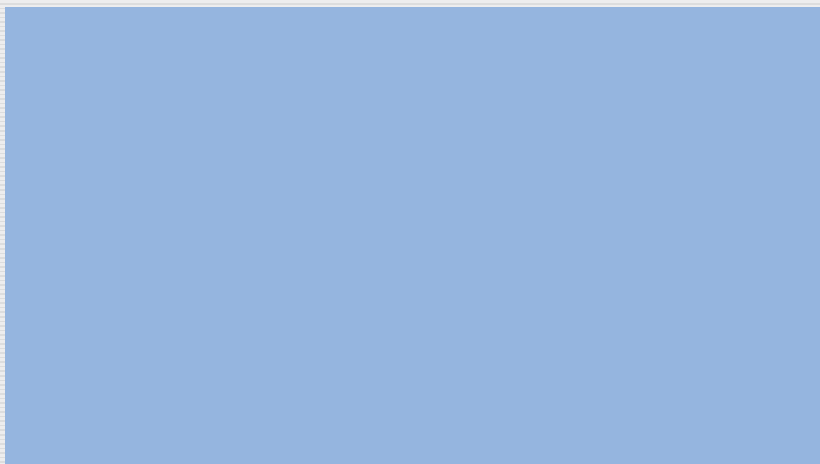
- cut out the necessary zones from the bottom and the sides
- bend the side to the required width
- connect the ends using 3 pcs of DZS/B



inner usable cross - section of the channel

Type number	cm ²	utilization 50% (cross-section cm ²)	CYKY	CYKY	CYKY	CYKY	CYKY	CYKY	CYKY	CYKY	CYKY	CYKY	CYKY	CYKY	CYKY	CYKY	CYKY	CYKY
			3x1,5	5x1,5	3x2,5	5x2,5	3x4	5x4	5x6	5x10	5x16	5x25	4x35	4x50	3x70+50	3x95+70	3x120+95	3x240+120
			Ø 8,6	Ø 10,1	Ø 9,5	Ø 11,2	Ø 11,2	Ø 13,8	Ø 15,1	Ø 18	Ø 20,4	Ø 26,1	Ø 24,8	Ø 31,3	Ø 33,6	Ø 39,3	Ø 43	Ø 56,4
DZ 35X100	35	17,5	24	17	19	14	14	9	8	5	4	3	3	2	2	0	0	0
DZ 35X150	52,5	26,3	35	26	29	21	21	14	12	8	6	4	4	3	2	0	0	0
DZ 35X200	70	35,0	47	34	39	28	28	18	15	11	8	5	6	4	3	0	0	0
DZ 35X300	105	52,5	71	51	58	42	42	28	23	16	13	8	9	5	4	0	0	0
DZ 60X60	45	22,5	24	18	20	14	14	9	8	6	4	3	3	2	2	1	1	0
DZ 60X100	60	30,0	41	29	33	24	24	16	13	9	7	4	5	3	3	1	1	1
DZ 60X150	90	45,0	61	44	50	36	36	24	20	14	11	7	7	5	4	2	2	2
DZ 60X200	120	60,0	81	59	66	48	48	32	26	19	14	9	10	6	5	4	3	2
DZ 60X300	180	90,0	122	88	100	72	72	47	39	28	22	13	15	9	8	6	5	3
DZ 60X400	240	120,0	162	118	133	96	96	63	53	37	29	18	20	12	11	8	6	4
DZ 60X500	300	150,0	203	147	166	120	120	79	66	46	36	22	24	15	13	10	8	5
DZ 60X600	360	180,0	243	176	199	143	143	95	79	56	43	26	29	18	16	12	10	6
DZ 110X200	220	110,0	149	108	122	88	88	58	48	34	26	16	18	11	10	7	6	3
DZ 110X300	330	165,0	223	162	183	132	132	87	72	51	40	24	27	17	15	11	9	5
DZ 110X400	440	220,0	297	216	244	175	175	116	96	68	53	32	36	22	19	14	12	7

The values state the number of cables with the tray at 50% full. Orientation diameters of the cables CYKY. The values are mathematically calculated. The limit values (small tray x big cable or contrariwise) it is necessary to consider combination of the tray and diameter of the cable and used them with reference to technical conditions.



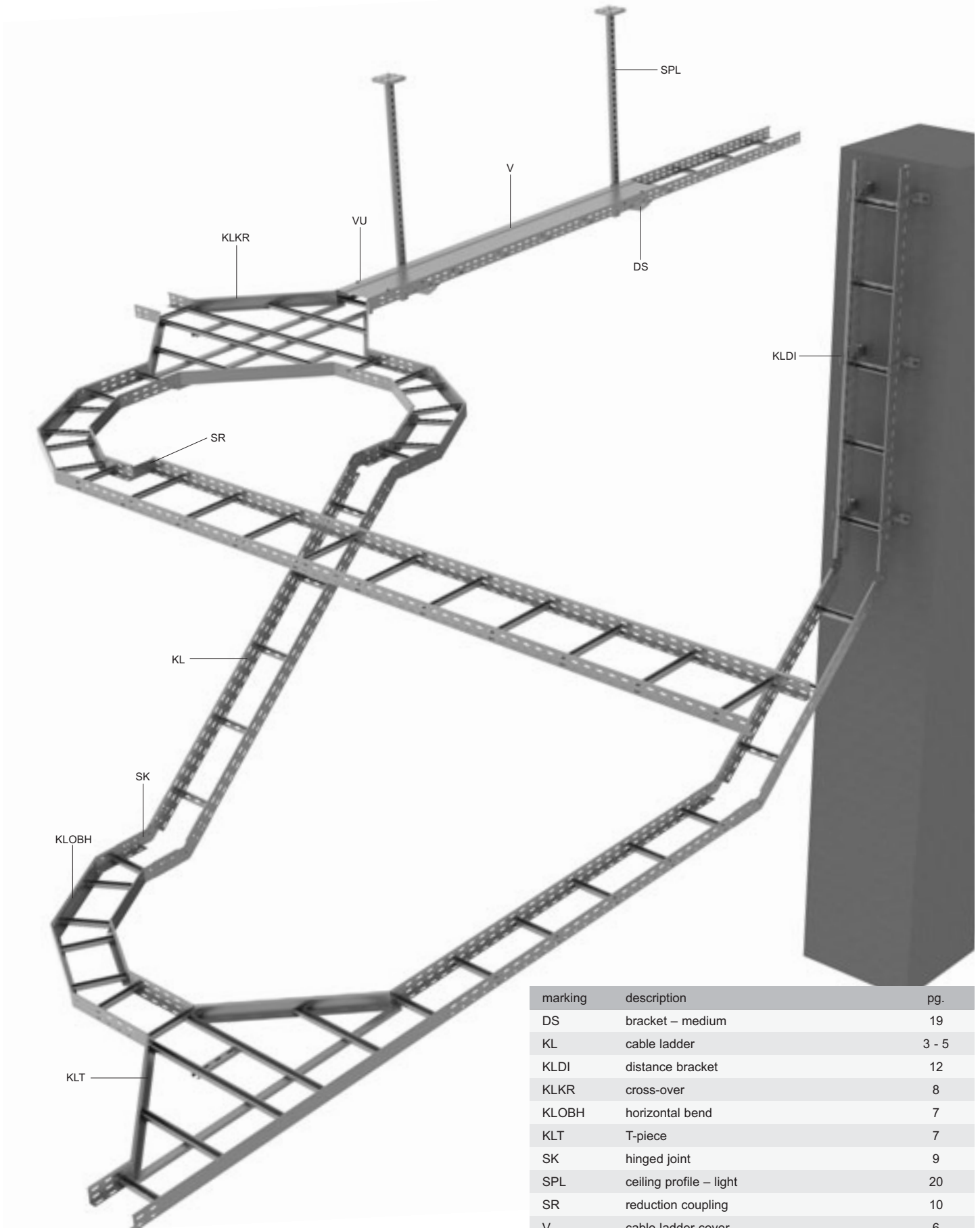


5

CABLE LADDERS



OVERVIEW OF SYSTEM ELEMENTS



marking	description	pg.
DS	bracket – medium	19
KL	cable ladder	3 - 5
KLDI	distance bracket	12
KLKR	cross-over	8
KLOBH	horizontal bend	7
KLT	T-piece	7
SK	hinged joint	9
SPL	ceiling profile – light	20
SR	reduction coupling	10
V	cable ladder cover	6
VU	cover fixture	6



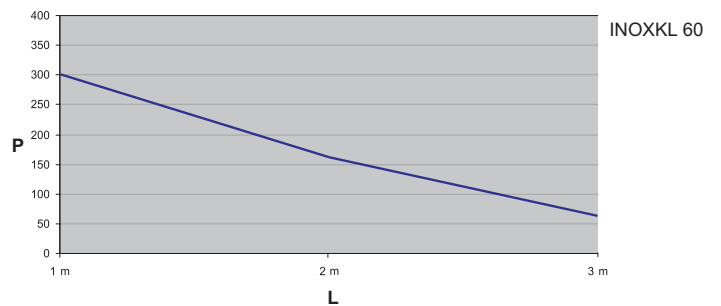
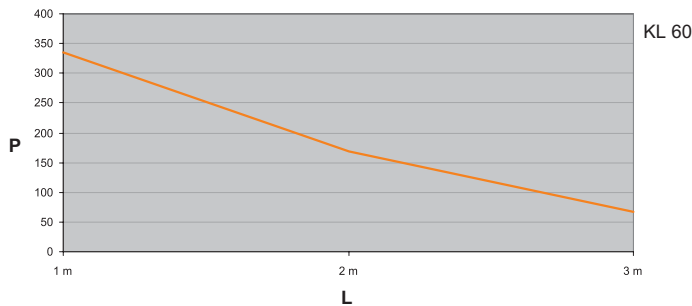
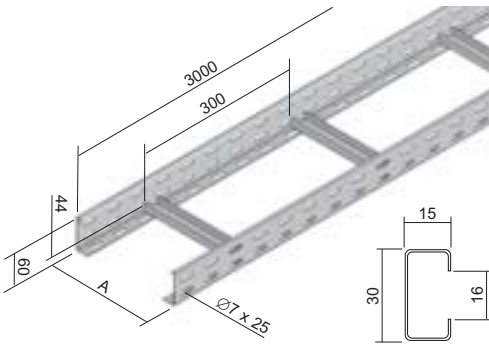
60 - cable ladder

item number	A	↑	‡	⊕	S	F	item number	IX
KL 60X150	150	1,5	2,21	312	●	⊕		
KL 60X200	200	1,5	2,30	240	●	●	INOXKL 60X200	⊕
KL 60X300	300	1,5	2,47	156	●	●	INOXKL 60X300	⊕
KL 60X400	400	1,5	2,64	108	●	●	INOXKL 60X400	⊕
KL 60X500	500	1,5	2,97	96	●	⊕		
KL 60X600	600	1,5	3,20	78	●	⊕		

The standard length of the cable ladder is 3 m.
The joining of the ladders is performed by using the couplings S 60X200 (pg. 11) and min. 4 pcs of bolts NSM 6X10 (pg. 23).

The side walls are L-profiles with return flange. The perforated C-profile rungs are placed in the side walls by extrusion with a spacing of 300 mm, with open side of the profile facing up.
It is possible to create on order the ladders with rung spacing of 150 and 450 mm.

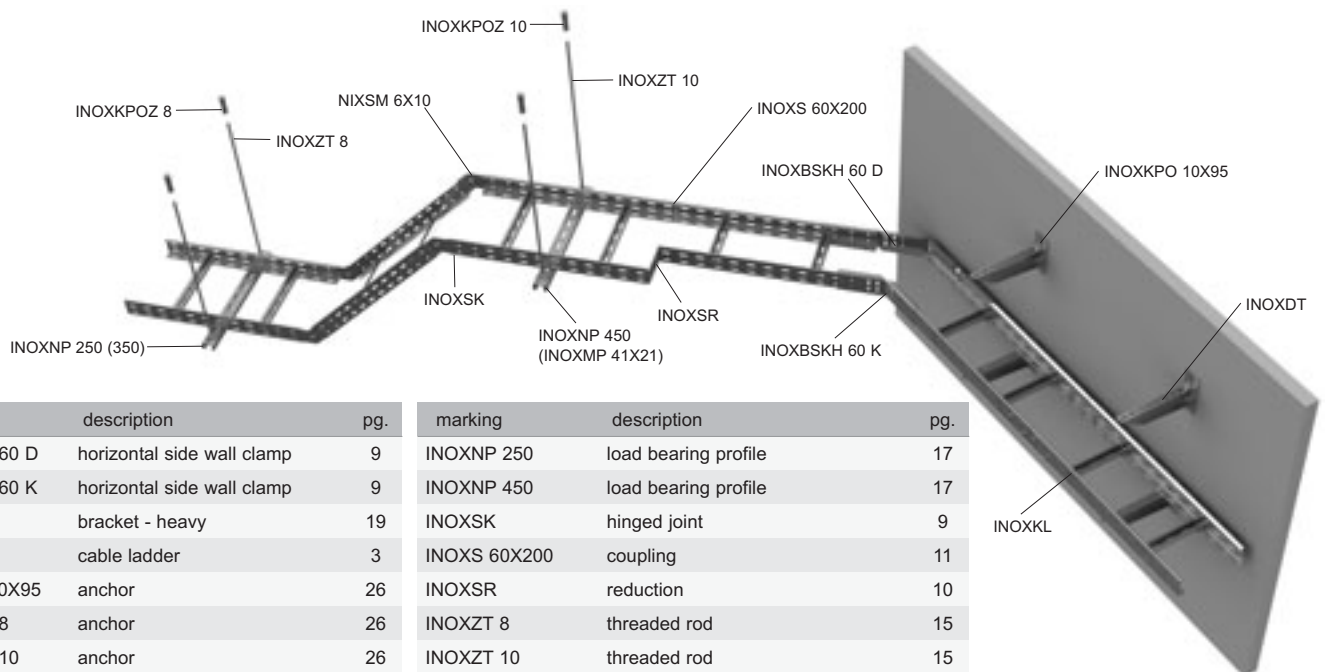
Stainless steel ladders are made of metal sheet with thickness 1,2 mm.
Because of specific production, the packing is not standardize.



The graph shows the maximum allowed even loading of the ladder in relation to the distances of the supports.

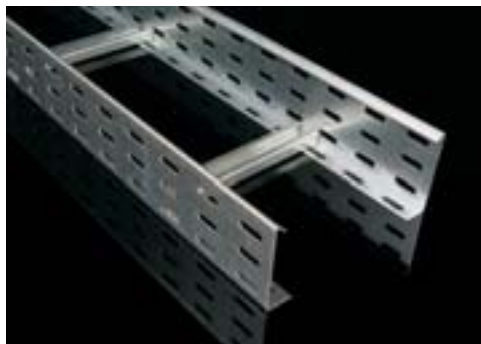
L = distance of supports (m)
P = allowed even loading (weight kg/m)

OVERVIEW OF STAINLESS SYSTEM COMPONENTS



marking	description	pg.	marking	description	pg.
INOXBSKH 60 D	horizontal side wall clamp	9	INOXNP 250	load bearing profile	17
INOXBSKH 60 K	horizontal side wall clamp	9	INOXNP 450	load bearing profile	17
INOXDT	bracket - heavy	19	INOXSK	hinged joint	9
INOXKL	cable ladder	3	INOXS 60X200	coupling	11
INOXKPO 10X95	anchor	26	INOXSR	reduction	10
INOXKPOZ 8	anchor	26	INOXZT 8	threaded rod	15
INOXKPOZ 10	anchor	26	INOXZT 10	threaded rod	15
			NIXSM 6X10	bolt with around head and lock nut	23

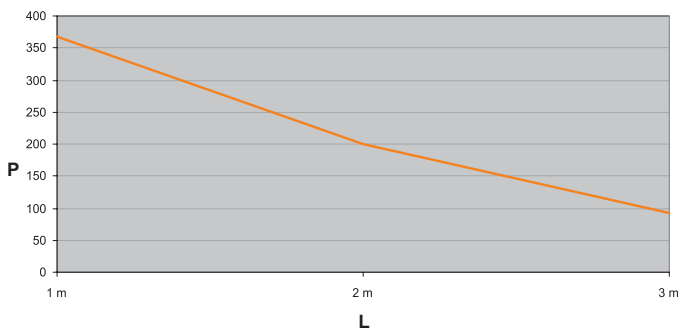
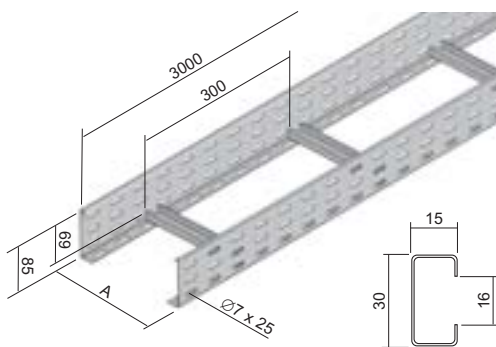
The complete range of stainless steel cable ladders is available to order.



85 - cable ladder

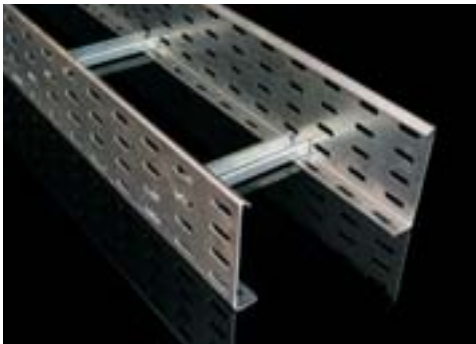
item number	A	‡	‡	⊙	S	F
KL 85X150	150	1,5	2,67	240	⊕	⊕
KL 85X200	200	1,5	2,77	180	⊕	⊕
KL 85X300	300	1,5	2,97	120	⊕	⊕
KL 85X400	400	1,5	3,17	78	⊕	⊕
KL 85X500	500	1,5	3,37	72	⊕	⊕
KL 85X600	600	1,5	3,60	60	⊕	⊕

The standard length of the cable ladder is 3 m.
 The joining of the ladders is performed by using the couplings S 85X200 (pg. 11) and min. 6 pcs of bolts NSM 6X10 (pg. 23).
 The side walls are L-profiles with return flange. The perforated C-profile rungs are placed in the side walls by extrusion with a spacing of 300 mm, with open side of the profile facing up.
 It is possible to create on order the ladders with rung spacing of 150 and 450 mm.



The graph shows the maximum allowed even loading of the ladder in relation to the distances of the supports.

L = distance of supports (m)
 P = allowed even loading (weight kg/m)



110 - cable ladder

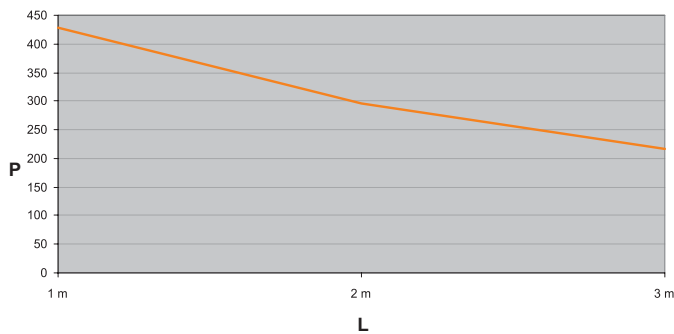
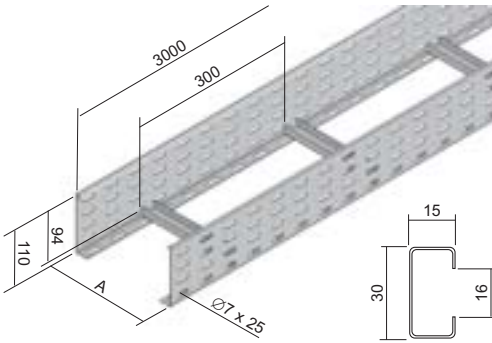
item number	A	↑	‡	↻	S	F
KL 110X150	150	1,5	4,07	168	●	⌚
KL 110X200	200	1,5	4,17	120	●	⌚
KL 110X300	300	1,5	4,37	84	●	⌚
KL 110X400	400	1,5	4,57	54	●	⌚
KL 110X500	500	1,5	4,77	48	●	⌚
KL 110X600	600	1,5	5,00	42	⌚	⌚

The standard length of the cable ladder is 3 m.

The joining of the ladders is performed by using the couplings S 110X200 (pg. 11) and min. 8 pcs of bolts NSM 6X10 (pg. 23).

The side walls are L-profiles with return flange. The perforated C-profile rungs are placed in the side walls by extrusion with a spacing of 300 mm, with open side of the profile facing up.

It is possible to create on order the ladders with rung spacing of 150 and 450 mm.



The graph shows the maximum allowed even loading of the ladder in relation to the distances of the supports.

L = distance of supports (m)

P = allowed even loading (weight kg/m)



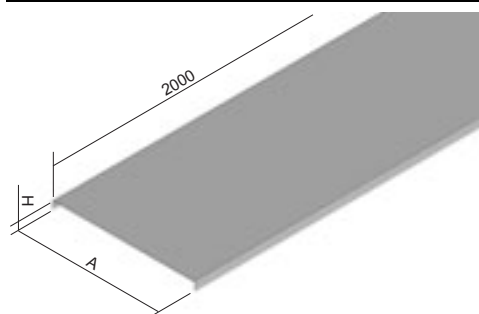
cable ladder cover

item number	A	H	‡	S	F	item number	IX
V 150	150	11	0,55	●	⊕		
V 200	200	11	0,55	●	●	INOXV 200	⊕
V 300	300	11	0,8	●	●	INOXV 300	⊕
V 400	400	14	1,0	●	⊕	INOXV 400	⊕
V 500	500	14	1,0	●	⊕		
V 600	600	14	1,2	●	⊕		

The standard length of the cable ladder cover is 2 m.

Stated sheet metal thickness is delivered as standard. Cover with thicker sheet metal can be delivered without prior notice.

The fixing of the cover to the tray is done using the cover fixture VU (2 pcs per meter).



cover fixture

item number	‡	GMT
VU	0,01	●

Is used for a bolt free attachment of the cover to the tray and to the accessories.

The cover fixture is placed to the cover and the sidewall in the place of the opening and it is slightly pressed so that the fixture lock slides into the opening.

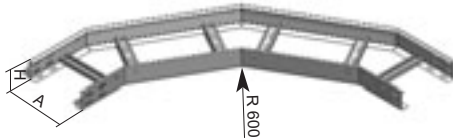


cover fixture

item number	‡	IX
NIXUV	0,01	⊕

Serves for fastening the covers to the trays by using the bolts.



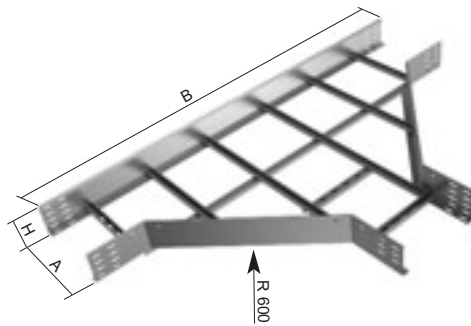


horizontal bend

item number	A	H	t	lf	S	F
KLOBH 60X200	200	60	1,5	16	●	⊕
KLOBH 60X300	300	60	1,5	16	●	⊕
KLOBH 60X400	400	60	1,5	16	●	⊕
KLOBH 60X500	500	60	1,5	16	●	⊕
KLOBH 60X600	600	60	1,5	16	●	⊕
KLOBH 85X200	200	85	1,5	24	⊕	⊕
KLOBH 85X300	300	85	1,5	24	⊕	⊕
KLOBH 85X400	400	85	1,5	24	⊕	⊕
KLOBH 85X500	500	85	1,5	24	⊕	⊕
KLOBH 85X600	600	85	1,5	24	⊕	⊕
KLOBH 110X200	200	110	1,5	32	⊕	⊕
KLOBH 110X300	300	110	1,5	32	⊕	⊕
KLOBH 110X400	400	110	1,5	32	⊕	⊕
KLOBH 110X500	500	110	1,5	32	⊕	⊕
KLOBH 110X600	600	110	1,5	32	⊕	⊕

The connection of the bend with the ladder is performed by using the couplings S ..X200 (pg. 11) and the bolts NSM 6X10 (pg. 23).

Horizontal bend can be replaced by bend for JUPITER cable trays, demonstration of installation see page 8.
To install bend for stainless steel ladders use horizontal bend coupling INOXBKSH 60 K, INOXBKSH 60 D (pg. 9).

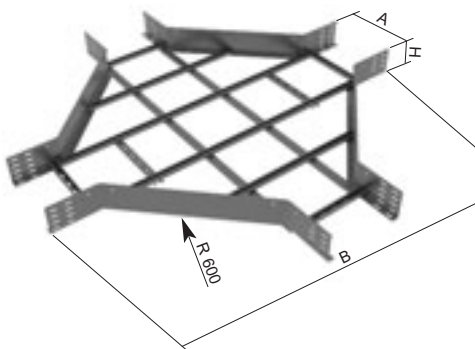


T-piece

item number	A	H	B	t	lf	S	F
KLT 60X200	200	60	1400	1,5	24	●	⊕
KLT 60X300	300	60	1500	1,5	24	●	⊕
KLT 60X400	400	60	1600	1,5	24	●	⊕
KLT 60X500	500	60	1700	1,5	24	●	⊕
KLT 60X600	600	60	1800	1,5	24	●	⊕
KLT 85X200	200	85	1400	1,5	36	⊕	⊕
KLT 85X300	300	85	1500	1,5	36	⊕	⊕
KLT 85X400	400	85	1600	1,5	36	⊕	⊕
KLT 85X500	500	85	1700	1,5	36	⊕	⊕
KLT 85X600	600	85	1800	1,5	36	⊕	⊕
KLT 110X200	200	110	1400	1,5	48	⊕	⊕
KLT 110X300	300	110	1500	1,5	48	⊕	⊕
KLT 110X400	400	110	1600	1,5	48	⊕	⊕
KLT 110X500	500	110	1700	1,5	48	⊕	⊕
KLT 110X600	600	110	1800	1,5	48	⊕	⊕

The connection of the T-piece with the ladder is performed by using the couplings S ..X200 (pg. 11) and the bolts NSM 6X10 (pg. 23).

T-piece can be replaced by T-piece for JUPITER cable trays, demonstration of installation see page 8.
To install T-piece for stainless steel ladders, use horizontal bend coupling INOXBKSH 60 K, INOXBKSH 60 D (pg. 9).



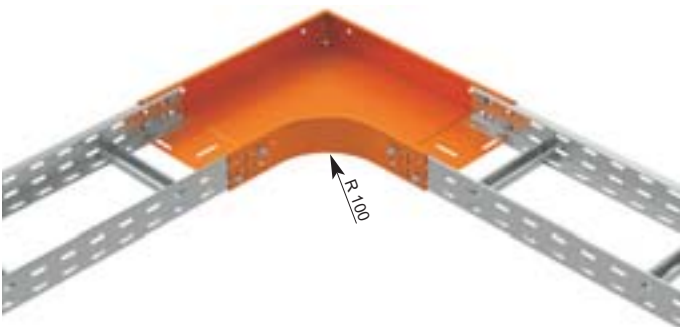
cross-over

item number	A	H	B	↑	↓	S	F
KLKR 60X200	200	60	1400	1,5	32	●	⊕
KLKR 60X300	300	60	1500	1,5	32	●	⊕
KLKR 60X400	400	60	1600	1,5	32	●	⊕
KLKR 60X500	500	60	1700	1,5	32	●	⊕
KLKR 60X600	600	60	1800	1,5	32	●	⊕
KLKR 85X200	200	85	1400	1,5	48	⊕	⊕
KLKR 85X300	300	85	1500	1,5	48	⊕	⊕
KLKR 85X400	400	85	1600	1,5	48	⊕	⊕
KLKR 85X500	500	85	1700	1,5	48	⊕	⊕
KLKR 85X600	600	85	1800	1,5	48	⊕	⊕
KLKR 110X200	200	110	1400	1,5	64	⊕	⊕
KLKR 110X300	300	110	1500	1,5	64	⊕	⊕
KLKR 110X400	400	110	1600	1,5	64	⊕	⊕
KLKR 110X500	500	110	1700	1,5	64	⊕	⊕
KLKR 110X600	600	110	1800	1,5	64	⊕	⊕

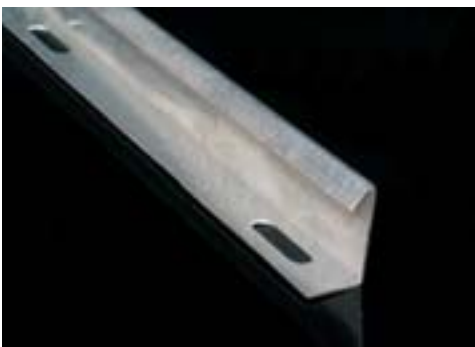
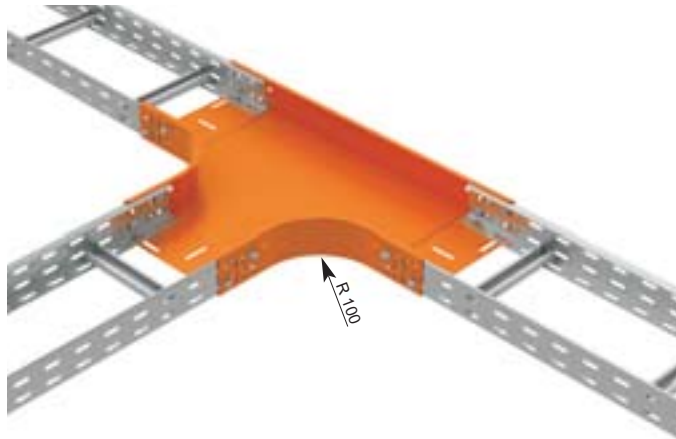
The connection of the cross-over with the ladder is performed by using the couplings S ..X200 (pg. 11) and the bolts NSM 6X10 (pg. 23).

Cross-over can be replaced by cross-over for JUPITER cable trays, demonstration of installation see page 8. To install cross-over for stainless steel ladders, use horizontal bend coupling INOXBSKH 60 K, INOXBSKH 60 D (pg. 9)

Demonstration of cable ladder bend installed together with cable tray bend (pg. 1-11).



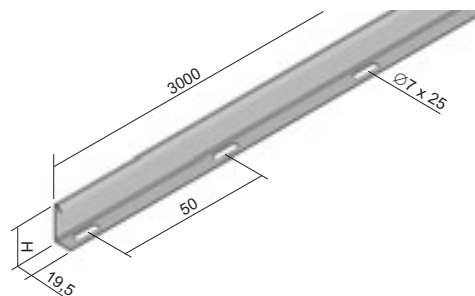
Demonstration of cable ladder bend installed together with cable tray T-piece (pg. 1-13).



partition

item number	H	↑	⊕	S	F
KLP 60	39	0,8	0,41	●	⊕
KLP 85	64	0,8	0,57	⊕	⊕
KLP 110	89	0,8	0,73	⊕	⊕

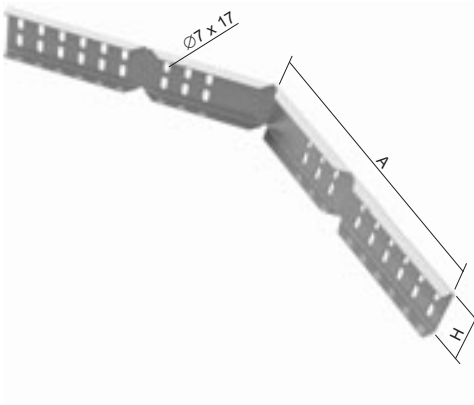
The standard length of the partition is 3 m.
 Fix using S 6X20 M screws (p. 23), 60 cm each.
 The cross piece spatially divides the cables and other electrical systems and functions.
 In term of electrical compatibility, it is also used for dividing several types of lines.
 It is recommended to use covers for this type of installation and make the covered and shielded room.



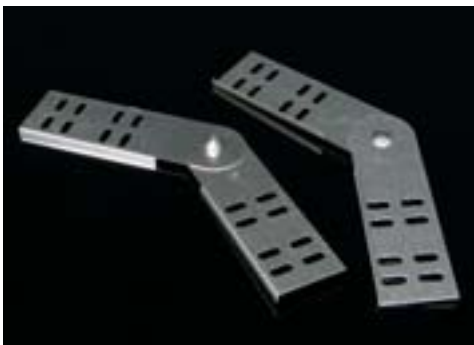
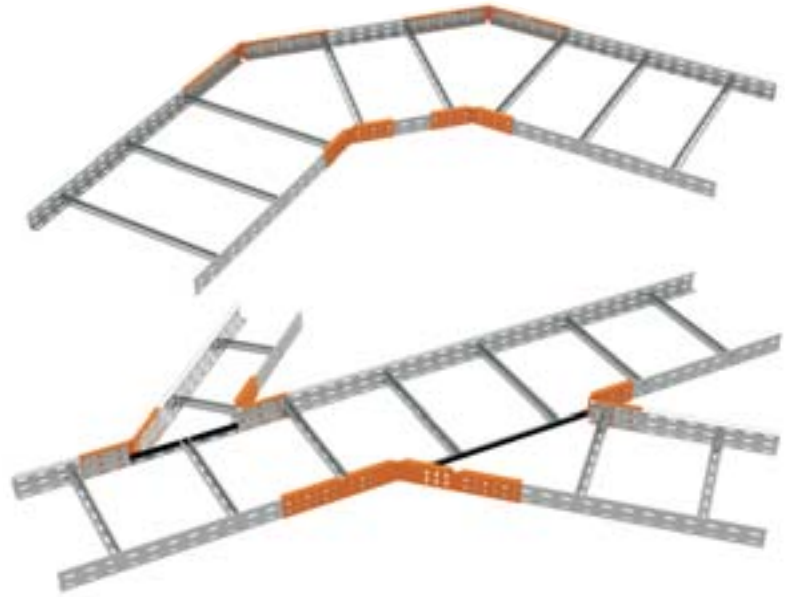


horizontal side wall clamp

item number	H	A	t	S	F	item number	IX
BSKH 60 K	64	140	2	●	⊕	INOXBSKH 60 K	⊕
BSKH 85 K	89	140	2	⊕	⊕		
BSKH 110 K	114	140	2	⊕	⊕		
BSKH 60 D	64	315	2	●	⊕	INOXBSKH 60 D	⊕
BSKH 85 D	89	315	2	⊕	⊕		
BSKH 110 D	114	315	2	⊕	⊕		



Used to create branches in cable ladder routes or as a substitute for cable ladder fittings or to create a change in a route at different angles and different bending radiuses. Connectors are a cost-effective and versatile way of creating branches in routes in a horizontal direction.
 Cut the side wall of the cable ladder to bend off c. 15 mm above the bottom – in the bottom perforation axis. It is necessary to use NCH (pg. 27).
 The fastening of the joint is performed with the bolts NSM 6X10 (pg. 23).

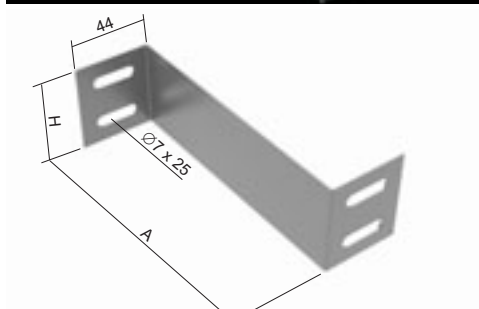


hinged joint

item number	H	t	lf	S	GMT	item number	IX
SK 60	53	0,8	8	●	⊕	INOXSK 60	⊕
SK 85	78	1,2	12	⊕	⊕		
SK 110	103	1,2	16	●	⊕		

For the connection of the hinged joint to the ladder there are used the bolts NSM 6X10 (pg. 23).
 The joint is delivered in 1 piece per packing.
 2 pieces are needed to create the bend in the route.

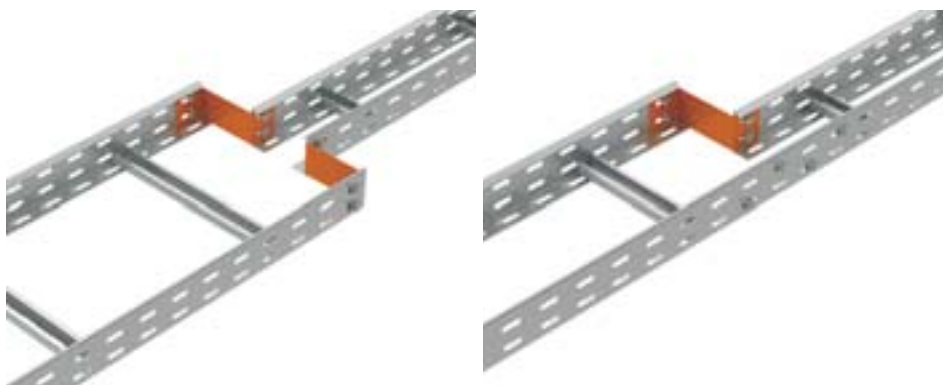




reduction

item number	H	A	↑	↓	S	F	item number	IX
SR 60X25	50	25	1,0	4	●	⊕		
SR 60X50	50	50	1,0	4	●	⊕		
SR 60X75	50	75	1,0	4	●	⊕		
SR 60X100	50	100	1,0	4	●	⊕	INOXSR 60X100	⊕
SR 60X125	50	125	1,0	4	●	⊕		
SR 60X150	50	150	1,0	4	●	⊕		
SR 60X200	50	200	1,0	4	●	⊕	INOXSR 60X200	⊕
SR 60X250	50	250	1,0	4	●	⊕		
SR 60X300	50	300	1,0	4	●	⊕		
SR 60X350	50	350	1,0	4	●	⊕		
SR 60X400	50	400	1,0	4	●	⊕		
SR 85X25	75	25	1,0	6	⊕	⊕		
SR 85X50	75	50	1,0	6	⊕	⊕		
SR 85X75	75	75	1,0	6	⊕	⊕		
SR 85X100	75	100	1,0	6	⊕	⊕		
SR 85X125	75	125	1,0	6	⊕	⊕		
SR 85X150	75	150	1,0	6	⊕	⊕		
SR 85X200	75	200	1,0	6	⊕	⊕		
SR 85X250	75	250	1,0	6	⊕	⊕		
SR 85X300	75	300	1,0	6	⊕	⊕		
SR 85X350	75	350	1,0	6	⊕	⊕		
SR 85X400	75	400	1,0	6	⊕	⊕		
SR 110X25	100	25	1,0	8	⊕	⊕		
SR 110X50	100	50	1,0	8	⊕	⊕		
SR 110X75	100	75	1,0	8	⊕	⊕		
SR 110X100	100	100	1,0	8	⊕	⊕		
SR 110X125	100	125	1,0	8	⊕	⊕		
SR 110X150	100	150	1,0	8	⊕	⊕		
SR 110X200	100	200	1,0	8	⊕	⊕		
SR 110X250	100	250	1,0	8	⊕	⊕		
SR 110X300	100	300	1,0	8	⊕	⊕		
SR 110X350	100	350	1,0	8	⊕	⊕		
SR 110X400	100	400	1,0	8	⊕	⊕		

The fastening of the joint is performed with the bolts NSM 6X10 (pg. 23).

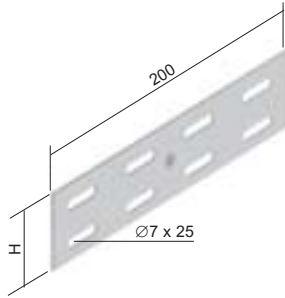
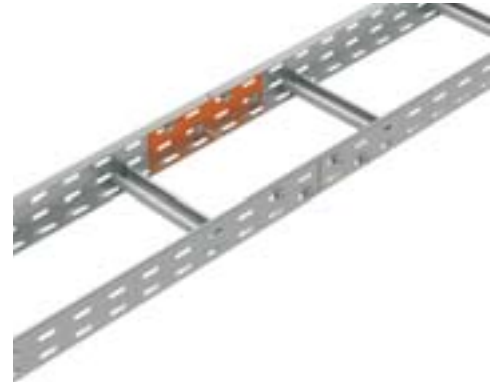




coupling

item number	H	t	⌘	S	GMT	item number	IX
S 60X200	50	1,2	4	●	●	INOXS 60X200	⊕
S 85X200	75	1,2	6	⊕	⊕		
S 110X200	100	1,2	8	●	⊕		

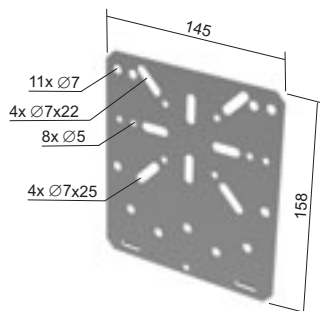
It is designated to connect cable ladders.
The fastening of the joint is performed with the bolts NSM 6X10 (pg. 23).

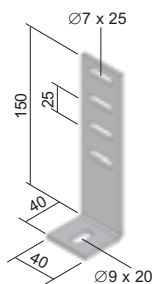


mounting plate

item number	t	S	GMT
MDS	1	●	⊕

For mounting distribution boxes to the cable ladders up to a sidewall height of 60 mm.
It is pushed onto the side of cable ladders and it is fixed by screws NSM 6X10 (pg. 23).
Recommended for boxes KSK 80, KSK 100, KSK 125, KSK 175; 8101; 8102; 8106; 8107; 8110; 8111; 8112; 8130; 8135; 003.CS.K; 005.CS.K (s. catalogue of Wiring materials).

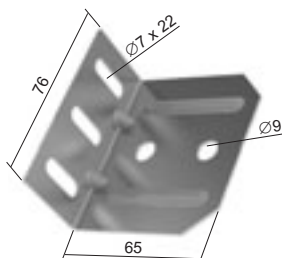




distance bracket

item number	↑	‡	F
KLDI 35X110	4	0,21	●

Used for the assembly to the sidewall of the cable ladder and for subsequent attaching to the wall.
The distance between the cable ladder and the wall is at least 50 mm. It is fixed by using the bolt S 6X20 M (pg. 23).



cable ladder wall bracket

item number	↑	‡	S	F
KLSU	1,5	0,07	●	●

Use screws NSM 6X10 (pg. 23) for installation to cable ladder.
The 8 mm anchor is used for mounting on the wall.
The wall fixture fully replaces the previously sold DRIPN.
The product also meets requirements for systems maintaining functionality in case of fire (see the catalogue for Fire resistant systems with maintained function in case of fire).

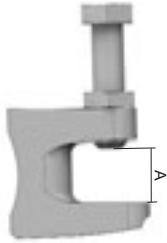




fixation clamp

item number	‡	used with	A	ZNCR
US 1	0,14	ZT 8	0 - 20	●
US 2	0,15	ZT 10	0 - 20	●
US 3	0,21	ZT 12	0 - 26	⌚

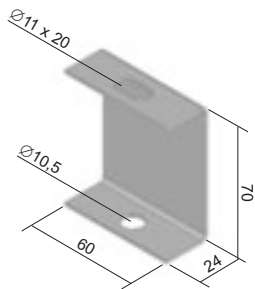
Fixation clamp is used for the I-profiles placed horizontally and also under a certain slant angle.
 Fixation clamp is delivered with a fastening bolt and a lock nut.



ceiling bracket

item number	‡	S	F
DSZT	0,10	●	⌚

Used together with a threaded rod ZT 8 or ZT 10.

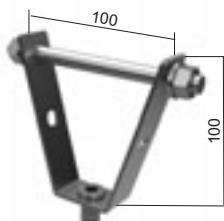




adjustable ceiling bracket

item number	‡	S
DSS	0,14	●

Used together with a threaded rod ZT 8 or ZT 10.
Ideal for a slight roof construction slant.
The load capacity of the bracket is 1.7 kN.



bracket for trapeze ceilings

item number	‡	ZNCR
DSOS 8	0,17	●
DSOS 10	0,17	●

The DSOS holder is designed for fitting a threaded rod and attaching it to trapezoidal sheet metal. The DSOS comes with M8 or M10 adjusting nuts. The choice of DSOS 8 or DSOS 10 depends on which threaded rod is used, the ZT 8 or the ZT 10. For attachment to a trapezoidal ceiling the hinge is fitted with a transverse M8 x 120 mm pin. The pin has a washer and nut on both sides.





threaded rod

item number	Ø	↓*	‡	ZNCR ZNC3		item number	IX
ZT 6	M 6	2250	0,17	●	-		
ZT 8	M 8	4060	0,31	●	⊕	INOXZT 8	⊕
ZT 10	M 10	6490	0,46	●	⊕	INOXZT 10	⊕
ZT 12	M 12	9440	0,70	⊕	-		

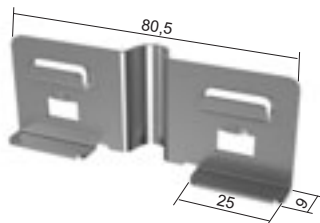
The length of the threaded rod in the ZNCR configuration is 2 m; in the ZNC3 configuration it is 3 m.
* tolerable bearing resistance - calm load



connection nut

item number	Ø	‡	ZNCR
MZ 6	M 6	0,01	●
MZ 8	M 8	0,02	●
MZ 10	M 10	0,04	●
MZ 12	M 12	0,06	⊕

Used for the connection of two threaded rods.

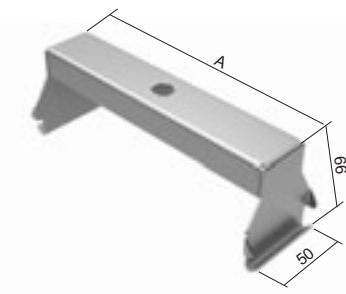
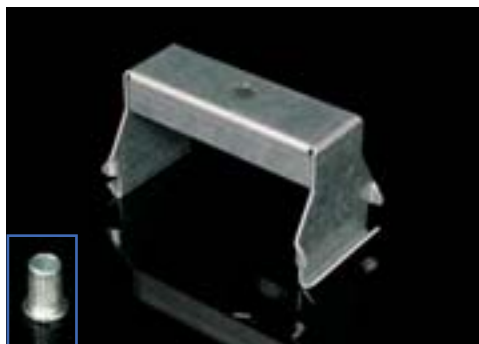


outer side hanger

item number	↓	‡	S
ZVB 1.5	60	0,02	●

The outer side hinge is designed for hanging a cable route running through cable ladders on a ZT 8 threaded rod. the hinge is fixed to the route by snapping the studs on the hinge into the ladder sidewall.

The threaded rod is fixed using a PD 8 washer and an M 8 nut. The hinge is designed for cable ladders or for cable trays made from 1.5 mm sheet metal. Hinges are supplied individually. 2 hinges are needed to create one suspension point. The product is protected by the utility model.



outer hanger

item number	A	‡	S	F	ZNCR
ZVNE 50	30	0,10	●	⊕	-
ZVNE 75	55	0,13	●	⊕	-
ZVNE 100	80	0,14	●	⊕	-
ZVNE 150	130	0,19	●	⊕	-
ZVNE 200	180	0,22	●	⊕	-
ZVNE 300	280	0,31	●	⊕	-
ZVNE 400	380	0,39	●	⊕	-
MN 8	-	0,01	-	-	●

The maximum load is 90 kg. It is mounted using the threaded rod ZT 8 or ZT 10.

The nuts MN are not part of the hanger.

The dimension of the nut is chosen by the diameter of the threaded rod.

The hanger is suitable for hanging cables with cross piece.

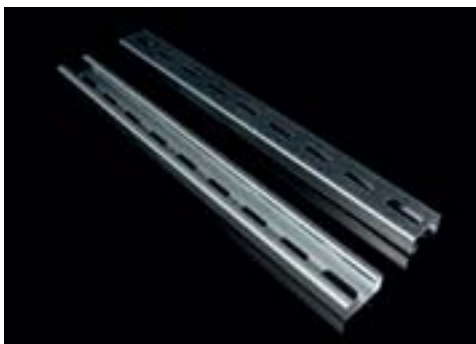
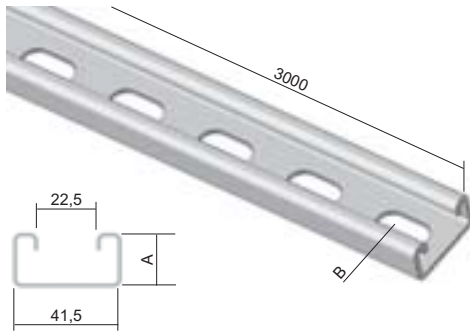
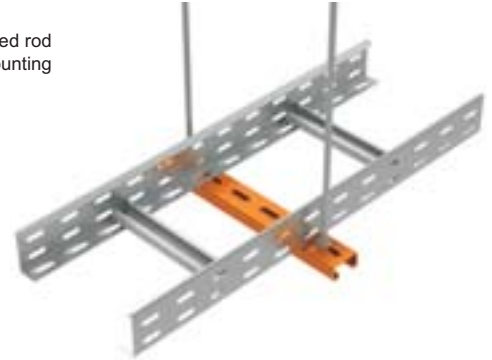




assembly profile

item number	A	B	↑	‡	S	F	item number	IX
MP 41X21	21	10 x 25	2,5	1,85	●	●	INOXMP 41X21	⌚
MP 41X21X1.50	21	10 x 25	1,5	1,13	●	-		
MP 41X41	41	10 x 25	2,5	2,70	●	●		

The standard length of the assembly profile is 3 m.
Suitable to install a beam for cable lines on the threaded rod or to install supporting structure with the aid of mounting accessories page 1-36.



load bearing profile

item number	A	B	C	D (inner)	D (outer)	↑	↓	‡	for KL	S	F	item number	IX
NP 200	200	30	15	Ø7 x 32	Ø9 x 35	1,2	100	0,11	KL ..X150	●	⌚		
NP 250	250	30	15	Ø7 x 32	Ø9 x 35	1,2	100	0,13	KL ..X200	●	⌚	INOXNP 250	⌚
NP 350	350	30	15	Ø7 x 32	Ø9 x 35	1,2	100	0,19	KL ..X300	●	⌚	INOXNP 350	⌚
NP 450	450	41,5	21	Ø7 x 32	Ø11 x 35	1,5	150	0,50	KL ..X400	●	⌚	INOXNP 450	⌚
NP 550	550	41,5	21	Ø7 x 32	Ø11 x 35	1,5	150	0,56	KL ..X500	●	⌚		
NP 650	650	41,5	21	Ø7 x 32	Ø11 x 35	1,5	150	0,70	KL ..X600	●	⌚		

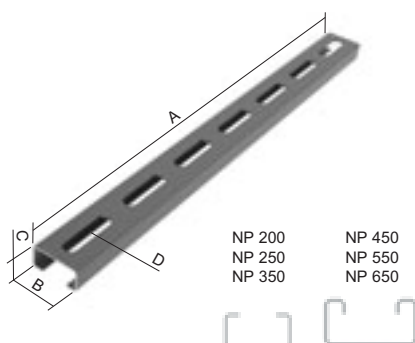
The load bearing profile NP 200 to NP 350 is fixed by using two threaded rods ZT 8 + nut M 8 + washer PD 8. The load bearing profile NP 450 to NP 650 is fixed by using two threaded rods ZT 10 + nut M 10 + washer PD 10.

The size of the load bearing profile is determined according to the width of the cable ladder +50 mm, for example for a cable ladder that is 150 mm wide, order NP 200.

Stainless steel profiles INOXNP 250 and 350 are fixed by two threading rods INOXZT 8 + INOXM 8 nuts and INOXPD 8 washers.

A profile INOXNP 450 is fixed by two threaded rods INOXZT 10 + INOXM 10 nuts and INOXPD 10 washers.

Stainless steel cable ladders are attached to the profile using NIXSM 6X10 screws (pg. 23).





hang clamp

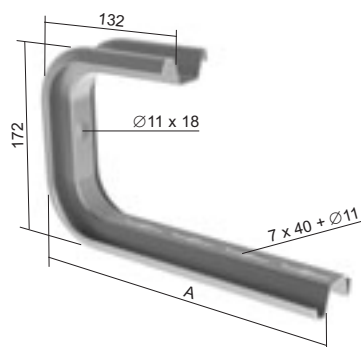
item number	A	↓	‡	S
CTS 200	261	70	0,70	●
CTS 300	361	50	0,85	●

Designated for direct mounting to the ceiling or with a threaded rod ZT 8 or ZT 10.

The cable ladder is fixed by using the bolts NSM 6X10.

To eliminate deformation during assembly the STS reinforcement is designated (pg. 1-30).

The installation is done by the anchors KPO 10X95 or KKZ 10, screws S 10X40 and washers PD 10.



bracket

item number	A	↓	‡	S
LTS 150	213	120	0,30	●
LTS 200	263	110	0,39	●
LTS 300	363	75	0,53	●
LTS 400	463	50	0,65	●
LTS 500	563	-	0,77	⊕
LTS 600	663	-	0,90	⊕

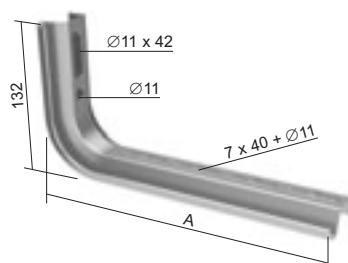
The cable ladder is fixed by using the bolts NSM 6X10.

LTS 100 - LTS 400 holders are used on the wall or on the ceiling profile.

LTS 500 - LTS 600 holders are used as ceiling profiles.

To eliminate deformation during assembly the STS reinforcement is designated (1-30).

The installation is done by the anchors KPO 10X95 or KKZ 10, screws S 10X40 and washers PD 10.





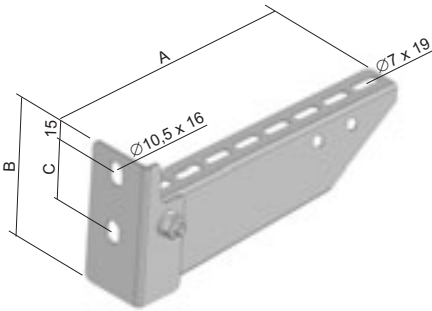
bracket – medium

item number	A	B	C	±	‡	S
DS 150	168	94	60	160	0,33	●
DS 200	218	104	60	150	0,38	●
DS 300	318	120	60	200	0,63	●
DS 400	418	120	60	180	0,76	●
DS 500	518	140	90	160	1,00	●
DS 600	618	140	90	150	1,23	●

It is designated for installation on the wall or ceiling profile SPL or SPS.

For assembly to the ceiling profile SPL and SPS there are used the sliding nuts PM 41 M 10 (PMP 41 M 10) together with the bolts S 10X20 (2 pcs).

The fixing of the cable ladder to the holder is performed by means of an NSM 6X10 bolt or an SUP fixing clamp (pg. 22).



bracket – heavy

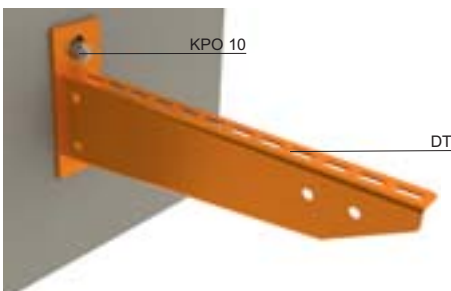
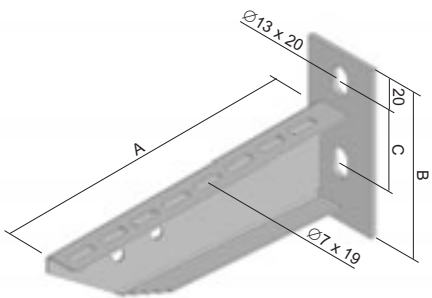
item number	A	B	C	±	‡	F	item number	IX
DT 150	170	120	60	230	0,36	●		
DT 200	220	120	60	300	0,43	●	INOXDT 200	⊕
DT 300	320	135	60	350	0,73	●	INOXDT 300	⊕
DT 400	420	135	60	350	0,88	●	INOXDT 400	⊕
DT 500	520	155	90	350	1,30	●		
DT 600	620	155	90	350	1,60	●		
DT 800	820	155	90	280	1,90	⊕		
DT 1000	1020	155	90	200	2,40	⊕		

It is designated for installation on the wall or ceiling profile SPL or SPS.

For assembly to the ceiling profile SPL and SPS there are used the sliding nuts PM 41 M 10 (PMP 41 M 10) together with the bolts S 10X20 (2 pcs).

The fixing of the cable ladder to the holder is performed by means of an NSM 6X10 bolt or an SUP fixing clamp (pg. 22).

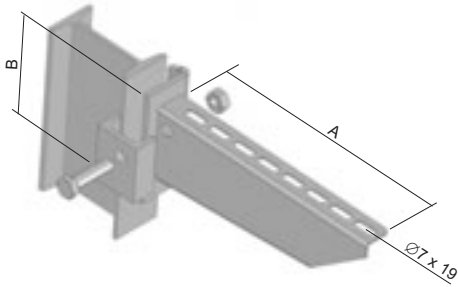
Stainless holders are designed to be mounted on the wall only; ladders are attached to the holder using NIXSM 6X10 screws (pg. 23).





clamp bracket - heavy

item number	A	B	±	‡	F
DRT 100	120	90	300	0,30	●
DRT 150	170	90	310	0,37	●
DRT 200	220	90	330	0,50	●
DRT 300	320	100	360	0,69	●
DRT 400	420	117	370	0,85	●
DRT 500	520	117	380	1,35	●
DRT 600	620	117	410	1,55	⊕

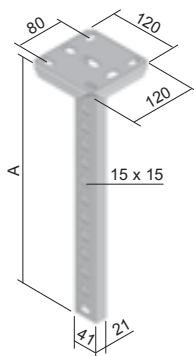


Only for assembly onto the ceiling profile SPT or I-profil 80 mm.
Clamp angle, nut and bolt S 8X20 are attached.
Cable ladders are attached to the holder with an SUP (pg. 22)
mounting clamp or NSM 6X10 screws (pg. 23).



ceiling profile - light

item number	A	‡	F	XX
SPL 200	214	0,74	●	-
SPL 300	304	0,85	●	-
SPL 400	424	1,01	●	-
SPL 500	514	1,13	●	-
SPL 600	604	1,23	●	-
SPL 800	814	1,45	●	-
SPL 1000	1024	1,75	●	-
SPL 1200	1204	1,95	●	-
OKSPL	-	0,01	-	●



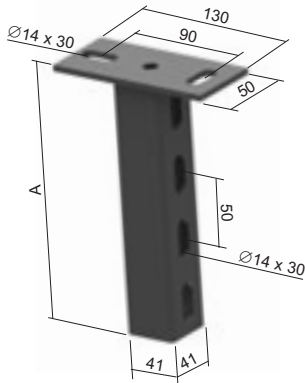
Designated for one sided fastening of the brackets DS and DT with the use of sliding nut PM 41 M 10 (PMP 41 M 10) and the bolt with a hexagonal head S 10X20.
OKSPL - end seal from PE.





ceiling profile – medium

item number	A	‡	F	XX
SPS 200	204	1,03	●	-
SPS 300	304	1,33	●	-
SPS 400	404	1,60	●	-
SPS 500	504	1,90	●	-
SPS 600	604	2,15	●	-
SPS 800	804	2,70	●	-
SPS 1000	1004	3,25	●	-
SPS 1200	1204	3,80	⊕	-
OKSPS	-	0,01	-	●



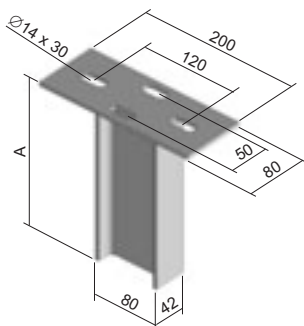
Designated for one sided fastening of the bracket DS and DT with the use of sliding nut PM 41 M 10 and the bolt with a hexagonal head S 10X20.

For double-sided mounting the brackets are fixed using S 10X70 screws, M 10 nuts and PD 10 washers.
OKSPS - end seal from PE.



ceiling profile – heavy

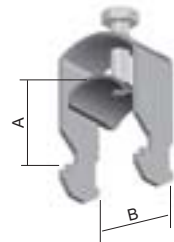
item number	A	‡	F	XX
SPT 200	208	1,80	⊕	-
SPT 400	408	3,05	⊕	-
SPT 500	508	3,60	⊕	-
SPT 600	608	4,20	⊕	-
SPT 800	808	5,50	⊕	-
SPT 1000	1008	6,70	⊕	-
SPT 1200	1208	8,00	⊕	-
SPT 1500	1508	9,90	⊕	-
SPT 1800	1808	12,00	⊕	-
SPT 2000	2008	13,30	⊕	-
OKSPT	-	0,02	-	●



Designated for one sided and double sided fastening of the clamp brackets DRT. Used as a bracket for the ceiling or the floor.

OKSPT - end seal from PVC.





cable clamp for 1 cable

item number	A min	B	‡	F	cover tray* height KL			number of clamps** width KL					
					60	85	110	150	200	300	400	500	600
PKC1 1198	6	12	0,03	●	yes	yes	yes	8	12	18	24	30	37
PKC1 1199	7	16	0,03	●	yes	yes	yes	7	9	14	19	24	29
PKC1 1200	10	19	0,04	●	no	yes	yes	5	7	11	15	19	23
PKC1 1201	14	23	0,04	●	no	yes	yes	5	6	10	14	17	21
PKC1 1202	20	26	0,04	●	no	yes	yes	4	5	8	11	14	17
PKC1 1203	24	30	0,06	●	no	yes	yes	3	5	7	10	12	15
PKC1 1204	25	34	0,07	●	no	yes	yes	3	4	6	9	11	14
PKC1 1205	29	38	0,08	●	no	yes	yes	3	4	6	8	10	13
PKC1 1206	32	43	0,09	●	no	no	yes	2	3	5	7	9	11
PKC1 1207	42	46	0,10	●	no	no	yes	2	3	5	7	8	10
PKC1 1208	44	50	0,10	●	no	no	yes	2	3	5	6	8	10
PKC1 1209	50	54	0,11	●	no	no	yes	2	3	4	6	7	9
PKC1 1210	52	58	0,14	●	no	no	no	2	2	4	5	7	8
PKC1 1211	55	63	0,16	●	no	no	no	1	2	4	5	6	8
PKC1 1212	59	69	0,16	●	no	no	no	1	2	3	5	6	7

A min and B indicate the minimum and maximum diameter of the cable being fastened.
 * The possibility of trace covering by cover upon use of maximum cable diameter into the cable clamp.
 ** The table shows the maximum of used cable clamps, which are put next to each other. The table doesn't count with the high of the cable ladders with regard to possibility of covering the line.
 Its meaning is to demonstrate the maximum of using cables, which is possible to install in exact ladder while using the cable clamps.
 On the base cable clamps width, can be specified the quantity of cable clamps with different combinations and propositions in one ladder.
 For basic orientation in choosing cable clamp, use mentioned propositions.
 Dimension B +2 mm is the outer width of the clamp.
 The basic surface treatment with which clamps are delivered makes it possible to use them even in harsh weather environments.
 For special order there is possible to deliver the clamp as from PKC1 1199 as well as in stainless steel fulfilment.



fixation clamp

item number	‡	S	F
SUP	0,02	●	●

For the attaching of the cable ladder to the bracket.
 Two piece per bracket.





carriage bolt and lock nut

item number	‡	↻	ZNCR	GMT
NSM 6X10	0,009	100	●	-
NSM 6X10-GMT	0,009	100	-	●



bolt with around head and lock nut

item number	‡	↻	ZNCR
S 6X20 M	0,01	250	●



bolt + nut + lock washers

item number	‡	↻	ZNCR
NSMP 6X10	0,006	100	●

Used for the securing of conductive connecting.



bolt with around head and lock nut

item number	‡	↻	IX
NIXSM 6X10	0,01	100	⌚



bolt with hexagonal head

item number	‡	ZNCR
S 6X20	0,01	●
S 6X30	0,01	⊕
S 8X20	0,01	●
S 8X30	0,02	●
S 8X40	0,02	●
S 8X50	0,02	●
S 8X70	0,03	⊕
S 10X20	0,02	●
S 10X30	0,03	●
S 10X40	0,03	●
S 10X50	0,04	●
S 10X70	0,05	●
S 12X20	0,03	⊕
S 12X30	0,04	⊕
S 12X40	0,05	⊕
S 12X50	0,06	⊕



hexagon nut

item number	‡	ZNCR	item number	IX
M 6	0,01	●		
M 8	0,01	●	INOXM 8	⊕
M 10	0,01	●	INOXM 10	⊕
M 12	0,02	●		

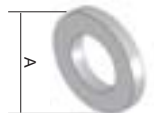
Universal nut with metric thread.



washer

item number	A	‡	ZNCR	item number	IX
PD 6	12	0,001	●		
PD 8	16	0,001	●	INOXP 8	⊕
PD 10	20	0,001	●	INOXP 10	⊕
PD 12	24	0,001	⊕		

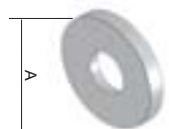
Washer for general use.



large washer

item number	A	‡	ZNCR
PVL 6	18	0,001	●
PVL 8	24	0,001	●
PVL 10	30	0,001	●
PVL 12	38	0,002	⊕

Large washer.

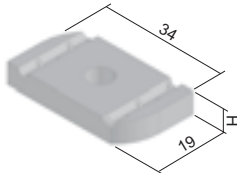




sliding nut

item number	‡	H	ZNCR
PM 41 M 6	0,03	6	⊕
PM 41 M 8	0,03	7	●
PM 41 M 10	0,03	8	●
PM 41 M 12	0,03	10	⊕

Used for the attaching of the brackets to the profiles MP 41X21, MP 41X41 or with profiles and with aid of VS system (pg. 1-36).

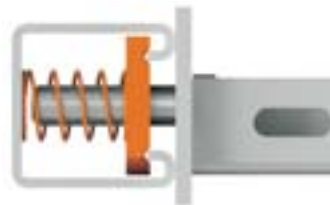
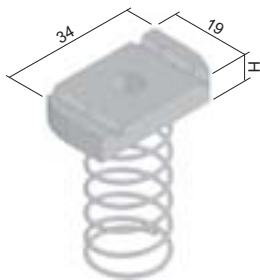


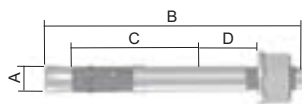
sliding nut with spring

item number	‡	H	ZNCR
PMP 41 M 6	0,04	6	⊕
PMP 41 M 8	0,04	7	●
PMP 41 M 10	0,04	8	●
PMP 41 M 12	0,04	10	⊕

Used for the attaching of the brackets to the profiles MP 41X21, MP 41X41 or with profiles and with aid of VS system (pg. 1-36).

The spring simplifies the fixation of the nut during assembly.





anchor

item number	A	B	C	D	E	thread	‡	PO	item number	IX
KPO 6X50	6	52	30	5	45	M6	0,01	●		
KPO 6X70	6	67	40	10	55	M6	0,02	●		
KPO 8X77	8	75	44	10	65	M8	0,03	●	INOXKPO 8X75	⊕
KPO 8X97	8	95	44	30	65	M8	0,04	●		
KPO 10X95	10	95	48	20	70	M10	0,06	●	INOXKPO 10X95	⊕
KPO 10X115	10	120	48	45	70	M10	0,07	●		
KPO 12X120	12	115	65	20	90	M12	0,11	●		

A - drill bit diameter

B - total length of anchor

C - anchor depth

D - maximum thickness of the material being attached

E - minimum depth of the drilled hole

Anchors serve for the attaching of construction elements to the base material (non-cracked concrete).



steel stop anchor

item number	A	B	C	thread	‡	ZNCR	IX
KKZ 6	8	25	27	M6	0,01	●	
KKZ 8	10	30	32	M8	0,01	●	INOXKPOZ 8 ⊕
KKZ 10	12	40	42	M10	0,02	●	INOXKPOZ 10 ⊕
KKZ 12	15	50	52	M12	0,05	⊕	

A - drill bit diameter

B - total length of anchor

C - minimum depth of the drilled hole

The knock in anchors KKZ serve for the direct attachment of the threaded rods.

There is a strut pin inside the anchor, which must be driven into the correct position before the assembly of a threaded rod.

This item is suitable for fixing into concrete or natural stone.

KKZ 8, KKZ 10 and KKZ 12 anchors are provided with a collar.



brass stop anchor

item number	A	B	C	thread	‡	XX
KKZM 8	10	30	35	M8	0,01	●
KKZM 10	12	35	40	M10	0,01	●

A - drill bit diameter

B - total length of anchor

C - minimum depth of the drilled hole

The knock in anchors KKZM serve for the direct attachment of the threaded rods.

The brass anchors have an inner conical thread, which expands during the assembly of a threaded rod or bolt.

The threaded rod (bolt) must be driven into the full length of the anchor.

This item is suitable for fixing into concrete, natural stone, wood, chipboard and solid brick.



edge protector

item number	‡
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NCH	0,06	●
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The edge protector made from plastic with a steel insert is used to protect the edges of cable trays.
 Package = 10 m, sold in entire packs.
 The protector there is possible to install to the metal sheets of max. 2 mm thickness.



zinc paint / spray

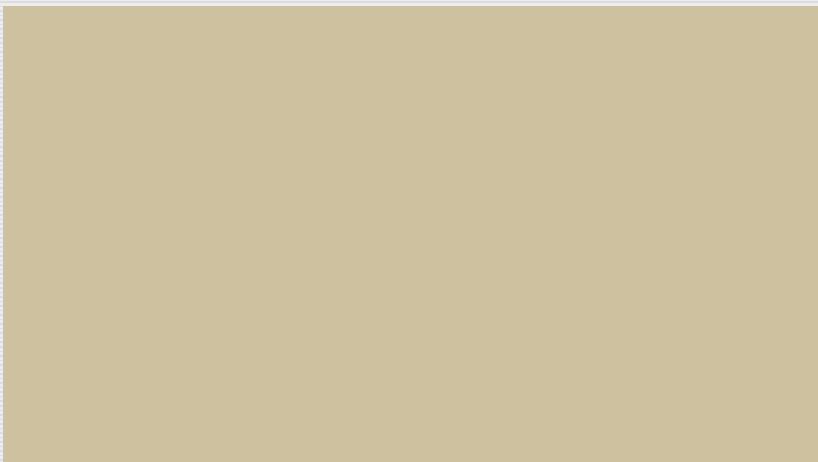
item number	‡
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WEICON 375 (color)	0,50	●
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WEICON 750 (color)	1,10	●
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GZS (spray)	0,45	●
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Anticorrosive protection to be intended for service of defective and damaged places on galvanized surface.
 Lay on the color by paintbrush, stipple technology.



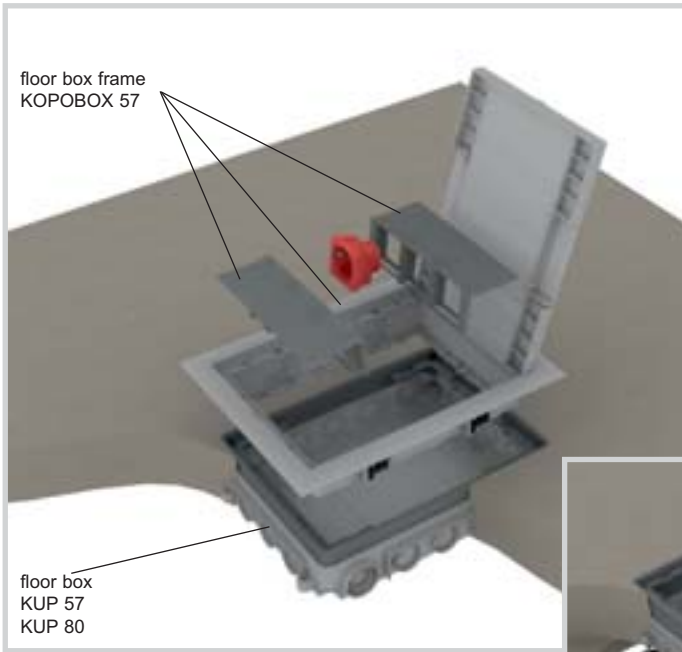


6

FLOOR INSTALLATIONS



KOPOBOX – installation of the system in a concrete floor



KOPOBOX 57 - system

The complete floor box system composed of KOPOBOX 57 and KUP 57 or KUP 80 is designated for the assembly of modular apparatuses 45 x 45 mm. The fastening feet (designated for mounting into double floor) are not used in the installation of the frame KOPOBOX 57 into the box KUP.

Instructions for assembly KOPOBOX 57:

The floor box KUP 57 is designated for a concrete layer height from 57 mm to 75 mm, the floor box KUP 80 is designated for a concrete layer height from 80 mm to 95 mm. It is necessary to attach to box to the floor material. The required height of the box can be adjusted using the bolts of the extension frame in the range from 57 mm to 75 mm (KUP 57) or from 80 mm to 95 mm (KUP 80).

If the concrete layer is higher than 75 mm (KUP 57) or 95 mm (KUP 80) then it is necessary to use the leveling set SN (4 pcs) anchored to the floor material. The leveling set enables to raise the height of the box up to 35 mm.

The universal boxes are adapted for the installation of electrical pipes. The openings can be made using a progressive drill. Individual entrances including the extension frame have to be sealed with a sealant to protect against concrete entering in.

During the course of the concrete pouring it is necessary to use the cover plate (included in the packing KUP) to prevent the box being filled with concrete mix. After the concrete mix hardens and the cover plate is removed, the floor box KUP is fitted with the frame of the floor box KOPOBOX 57. The apparatus cups are installed into the frame and the electrical installation of the modular apparatuses is performed.

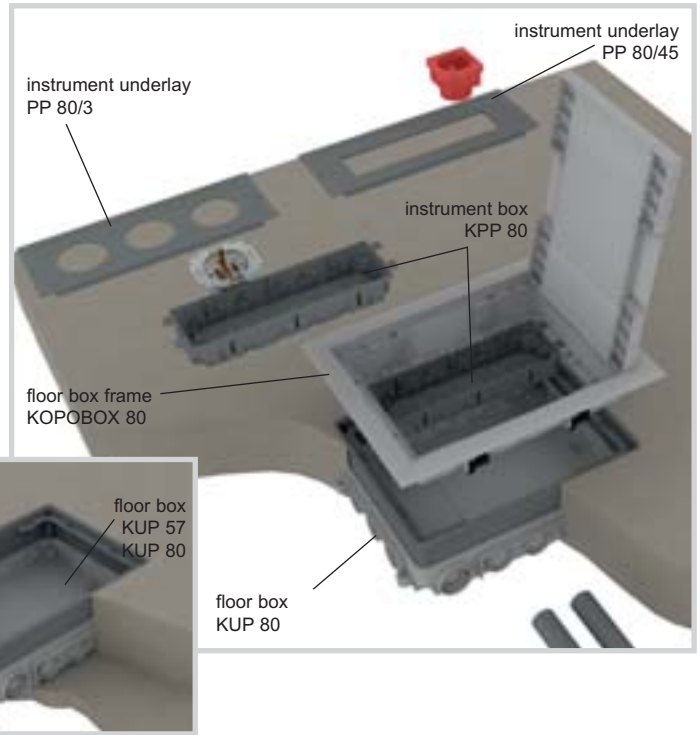
KOPOBOX 57 is mainly designated for the installation of cables with direct plugs. The use of cables with bent plugs or adapters is possible but limited. The use of adapters for powering of devices is limited due to their specific size.

The floor frame cover is designated for flooring with a max. height of 7 mm. With regards to the protection level (IP 30) the box is not designed for wet machine cleaning. Recommended flooring is carpets or floating floors.

It is possible to install QUADRO modular instruments in the system (see catalogue "Wiring material") or instruments with compatible construction, e.g. those made by ABB, PEHA, Legrand, OBO Bettermann...

The system are designed for distribution system with voltage 500 V.

The maximum load of floor boxes KOPOBOX is 1500 N.



KOPOBOX 80 - system

The complete floor box system composed of KOPOBOX 80 and KUP 80 is designated for the assembly of classic and also modular apparatuses. The selection of the type of installed apparatuses is given by the type of cover plate for apparatuses. The fastening feet (designated for mounting into double floor) are not used in the installation of the frame KOPOBOX 80 into the box KUP 80.

Instructions for assembly KOPOBOX 80:

The floor box KUP 80 is designated for a concrete layer height from 80 mm to 95 mm. It is necessary to attach to box to the floor material. The required height of the box can be adjusted using the bolts of the extension frame in the range from 80 mm to 95 mm.

If the concrete layer is higher than 95 mm then it is necessary to use the leveling set SN (4 pcs) anchored to the floor material. The leveling set enables to raise the height of the box up to 35 mm.

The KUP 80 is adapted for the installation of electrical pipes. The openings can be made using a progressive drill. Individual entrances including the extension frame have to be sealed with a sealant to protect against concrete entering in.

During the course of the concrete pouring it is necessary to use the cover plate (included in the packing KUP 80) to prevent the box being filled with concrete mix. After the concrete mix hardens and the cover plate is removed, the floor box KUP 80 is fitted with the frame of the floor box KOPOBOX 80. The apparatus boxes KPP 80 are subsequently inserted into the frame. Depending on the selection of the type of installed apparatuses, the box is mounted with the relevant type of cover plate for apparatuses PP 80.

Modular apparatuses:

- installation into KPP 80 + PP 80/45,
- installation directly onto PP 80/45, while using the partition plate PKUP.

Classic apparatuses:

- installation into KPP 80 + PP 80/3, for empty assembly opening use the caps ZPP.

KOPOBOX 80 is mainly designated for the installation of cables with bent plugs. The use of cables with direct plugs or adapters is possible but limited.

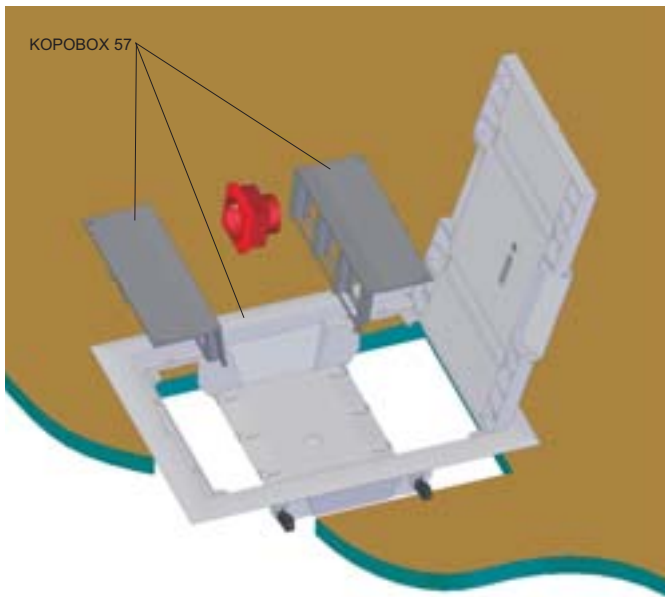
The floor frame cover is designated for flooring with a max. height of 7 mm. With regards to the protection level (IP 30) the box is not designed for wet machine cleaning. Recommended flooring is carpets or floating floors.

It is possible to install QUADRO modular instruments in the system (see catalogue "Wiring material") or instruments with compatible construction, e.g. those made by ABB, PEHA, Legrand, OBO Bettermann...

The system are designed for distribution system with voltage 500 V.

The maximum load of floor boxes KOPOBOX is 1500N.

KOPOBOX - system installation in double floor



KOPOBOX 57

KOPOBOX 57 is designed for mounting of modular apparatuses 45 x 45. Installation of the classic apparatuses into this frame is not possible. However it enables the installation into floors already from a depth of 56 mm. The cover plate for apparatus for modular apparatuses is already a part of the frame KOPOBOX 57 and it is not necessary to order it separately.

Before assembly it is suitable to remove the cover and the cover plates for the apparatuses from the frame. This will enable easier mounting of the frame into the floor.

The paper template in the frame package is used for the marking and subsequent cutting out of the opening in the floor.

The inner perforated template enables the cutting out of the flooring into the frame cover. The inserted frame is secured by turning the feet bolts, until the feet firmly grip the frame to the floor. After inserting plate for the apparatuses the electric installation of the modular apparatuses is performed.

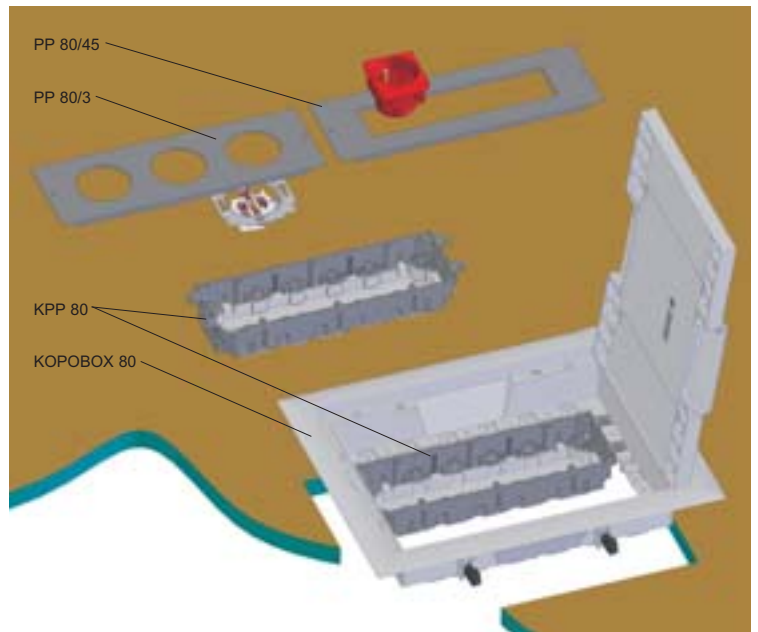
The cover is fitted with flooring with a max. height of 7 mm. With regards to the protection level (IP 30) the box is not designed for wet machine cleaning. Recommended flooring is carpets or floating floors.

KOPOBOX 57 is mainly designated for the installation of cables with direct plugs. The use of cables with bent plugs is possible but limited. The use of adapters for powering of devices is limited due to their specific size.

It is possible to install QUADRO modular instruments in the system (see catalogue "Wiring material") or instruments with compatible construction, e.g. those made by ABB, PEHA, Legrand, OBO Bettermann...

The system are designed for distribution system with voltage 500 V.

The maximum load of striping floor box is 1500 N.



KOPOBOX 80

KOPOBOX 80 enables installation of classic and also modular apparatuses (the selection is performed by suitable selection of the cover plate for apparatus), however it is possible to use the frame already from a floor depth of 78 mm. For the frame KOPOBOX 80 it is necessary to order the cover plates for apparatus according to the selected types of apparatuses.

Before assembly it is suitable to remove the cover from the frame. This will enable easier mounting of the frame into the floor, and also the performing of the subsequent electrical installation.

The paper template in the frame package is used for the marking and subsequent cutting out of the opening in the floor. The inner perforated template enables the cutting out of the flooring into the frame cover. The inserted frame is secured by turning the feet bolts, until the feet firmly grip the frame to the floor. The KPP 80 box with the relevant broken off cable passages is then inserted into the frame, the cables are secured against mechanical stressing using the straps (part of the package).

The KPP 80 box is then mounted with the cover plates for apparatus according to the selected types of apparatuses, and the connecting of the apparatuses is performed. The cover is fitted with flooring with a max. height of 7 mm. With regards to the protection level (IP 30) the box is not designed for wet machine cleaning. Recommended flooring is carpets or floating floors.

Modular apparatuses:

- installation into KPP 80 + PP 80/45,
- installation directly onto PP 80/45, while using the partition plate PKUP.

Classic apparatuses:

- installation into KPP 80 + PP 80/3, for empty assembly opening use the caps ZPP.

KOPOBOX 80 is mainly designated for the installation of cables with bent plugs. The use of cables with direct plugs or adapters is possible but limited.

It is possible to install QUADRO modular instruments in the system (see catalogue "Wiring material") or instruments with compatible construction, e.g. those made by ABB, PEHA, Legrand, OBO Bettermann...

The system are designed for distribution system with voltage 500 V.

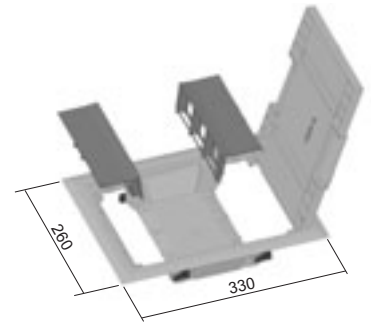
The maximum load of striping floor box is 1500 N.



floor box frame

item number	⚙️	👤	📖	⚖️
KOPOBOX 57	grey RAL 7012	PA	IP30	0,59

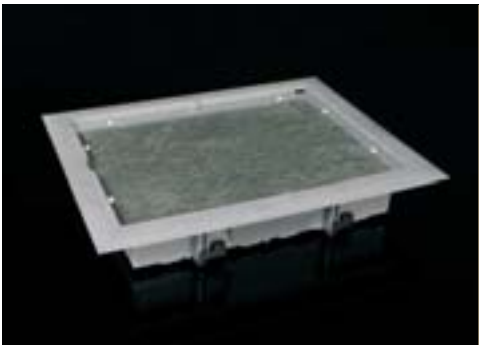
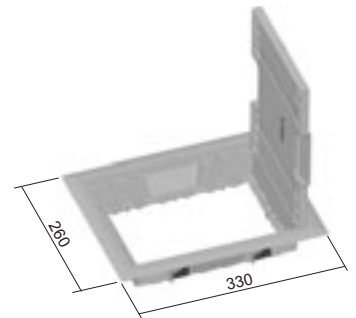
Designated for installation into the universal floor box KUP 57 or KUP 80.
 It is possible to assemble QUADRO modular instruments of 45 x 45 mm (max 6 pcs - see catalogue "Wiring material") or instruments with compatible construction, e.g. those made by ABB, PEHA, Legrand, OBO Bettermann...
 The sheet metal reinforcement of the cover ensures its high mechanical rigidity while maintaining the possibility of inserting the final floor covering.
 The cover has 2 tilt flaps enabling the leading out of cables from the box.
 The package includes bolts for attaching the frame to the floor box KUP.
 KOPOBOX is standardly delivered in dark gray color. With an order of above 500 pcs it is possible to deliver a different color according to the color card RAL (does not apply for the apparatus boxes).
 The maximum load of floor box frame is 1500 N.



floor box frame

item number	⚙️	👤	📖	⚖️
KOPOBOX 80	grey RAL 7012	PA	IP30	0,52

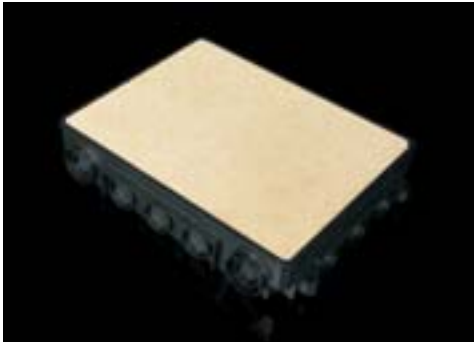
Designated for installation into the universal floor box KUP 80.
 The use of KPP 80 instrument boxes (max 2 pcs) together with PP 80/3 instrument plates allows the assembly of standard instruments (max 6 pcs); with PP 80/45 instrument plates allows the assembly of QUADRO modular instruments (see catalogue "Wiring material" – max 8 pcs) or instruments with compatible construction, e.g. those made by ABB, PEHA, Legrand, OBO Bettermann...
 The sheet metal reinforcement of the cover ensures its high mechanical rigidity while maintaining the possibility of inserting the final floor covering.
 The cover has 2 tilt flaps enabling the leading out of cables from the box. The package includes bolts for attaching the frame to the floor box KUP 80.
 KOPOBOX is standardly delivered in dark gray color. With an order of above 500 pcs it is possible to deliver a different color according to the color card RAL.
 The maximum load of floor box frame is 1500 N.



stripping floor box

item number	⚙️	👤	📖	⚖️
PP 80/K-5	grey RAL 7012	PA	IP30	1,6

To be used for installation in universal floor box KUP.
 It is designated as a blind cover for stripping the cables.
 The final floor covering is laid on the carrier plate after the boxes have been installed.
 The box is not designed for the installation of instruments; if instruments need to be installed, the box can be replaced for a KOPOBOX and the instruments can be installed in that.
 The maximum load of stripping floor box is 1500 N.



universal floor box

item number	⚙️	👤	‡	
KUP 57	black RAL 9011	PA	0,6	●
KUP 80	black RAL 9011	PA	0,7	●

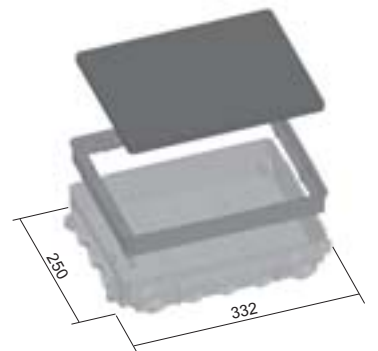
Serves for the assembly into the concrete floor. After the concrete mix hardens it is fitted with the floor box frame KOPOBOX 57 (KUP 57, KUP 80) or KOPOBOX 80 (KUP 80).

The package includes a cover board which prevents the box from being filled with concrete during concrete applying. The minimum height of the concrete layer for KUP 57 is 57 mm maximum height is 75 mm, for KUP 80 it is from 80 mm to 95 mm. The required height of the box can be adjusted by raising the insertion with screws.

For higher concrete layer than 75 mm or 95 mm it is necessary to use the leveling set SN (1 set).

The box is adapted for the installation of electrical pipes, it is fitted with pre-marked passages:

4x Ø25; 4x Ø40; 12x Ø32 a 4x 150x35 mm.

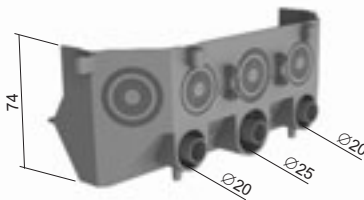


45 modulus cover

item number	⚙️	👤	‡	
KM 45	grey RAL 7012	PA	1,6	●

The cover is used to cover installed modular apparatus 45x45 in the floor box frame KOPOBOX 57 into double floors.

The packing includes halogen free pipes, it is possible to make installation to the other side of frame KOPOBOX 57.

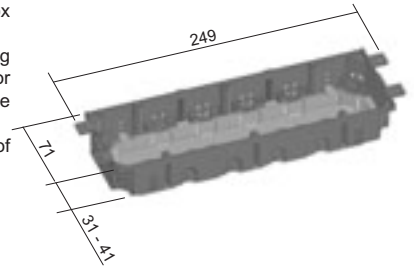




apparatus floor box

item number	⚙️	👤	⚖️	
KPP 80	grey RAL 7012	PA	0,12	●

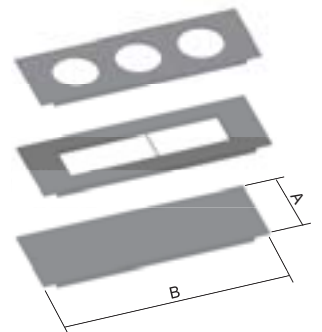
Universal apparatus box designated for assembly into the box KOPOBOX 80 (max. 2 pcs).
 The package includes 4 pcs of straps for mechanical anchoring of the cables, 8 pcs of bolts for fastening cables, bolts for attaching apparatuses and for attaching the box to the frame KOPOBOX.
 The depth of the box can be adjusted by changing position of the bottom.



cover plate for apparatus

item number	A	B	⚙️	👤	⚖️	
PP 80/0	89	250	grey RAL 7012	PA	0,07	●
PP 80/3	89	250	grey RAL 7012	PA	0,05	●
PP 80/45	89	250	grey RAL 7012	PA	0,05	●

Cover plate for apparatus is to be installed into the frame of the floor box KOPOBOX 80. Assembly is recommended together with the apparatus box KPP 80.
 PP 80/3 - serves for the assembly of up to 3 pcs of classic apparatuses
 PP 80/45 – serve for assembly of up to 4 QUADRO modular instruments (see catalogue "Wiring material") or instruments with compatible construction, e.g. those made by companies ABB, PEHA, Legrand, OBO Bettermann...
 Is recommended to remove the partition by installation of multiple instrument.
 PP 80/0 it is used for blanding unpopulated space in KOPOBOX 80 floor box frame.

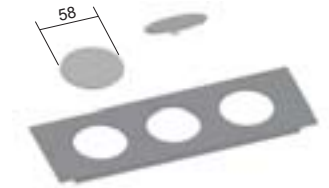




end cap

item number	⚙️	👤	⚖️
ZPP	grey RAL 7012	PA	0,005

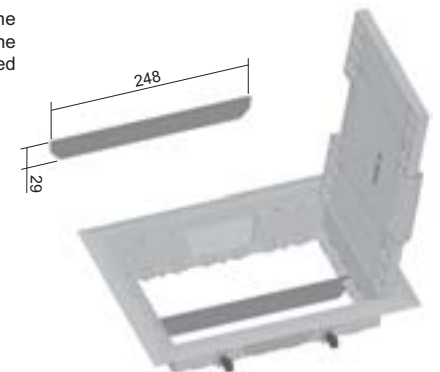
Designated for closing off non-mounted openings on the cover plate for apparatus PP 80/3.



partition

item number	⚙️	👤	⚖️
PKUP	grey RAL 7012	PA	0,015

The partition is designated for dividing the internal area of the box KOPOBOX 80 in the case, that there are not used the apparatus boxes KPP 80 and the installation is performed directly into cover plates for apparatus PP 80/45.

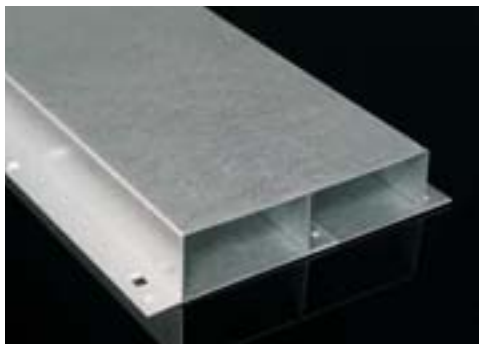


leveling set

item number	⚙️	👤	⚖️
SN	black RAL 9011	PE	0,015

Serves for the setting of the precise height of the universal boxes KUP 57 and KUP 80 during floor concreting. The attached nuts M6 are used as a block of the box against floating during installation. When ordering 1 leveling set you receive the set containing 4 pcs.





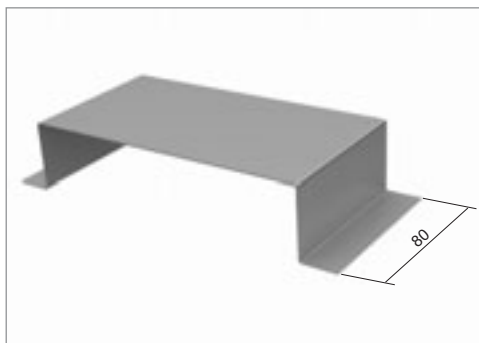
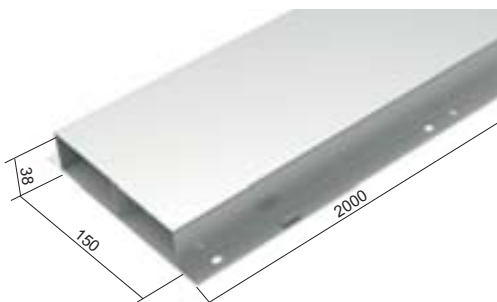
floor trunking

item number	↓	S
PUK 38X150 S1	0,7	●

The floor boxes is suitable to connect several boxes KUP 57, KUP 80.

inner usable cross-section of the channel								
Type number	mm ²	utilization 50% (crosssection mm ²)	data cables		CYKY 3x1,5	CYKY 5x1,5	CYKY 3x2,5	CYKY 5x2,5
			Ø 5,5	Ø 7	Ø 8,6	Ø 10,1	Ø 9,5	Ø 11,2
PUK 38X150 S1	5700	2850	94	58	39	28	32	23

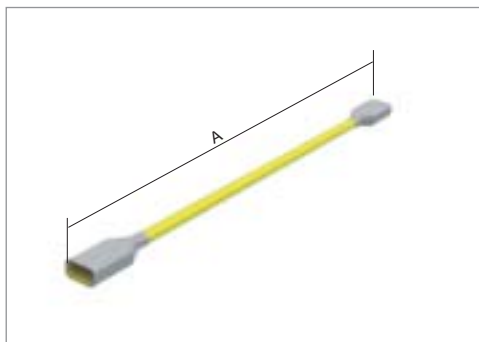
Find in the table quantity of cables for whole canals profile.
It is necessary to divide by 2 for each canals chamber.
The values state the number of cables with the tray at 50% full. Orientation diameters of the cables CYKY.
The values are mathematically calculated.
The limit values (small tray x big cable or contrariwise) it is necessary to consider combination of the tray and diameter of the cable and used them with reference to technical conditions.



coupling floor trunking

item number	↓	S
SPUK	0,7	●

For cover the connection of the floor canal and protect the canal from leaking the concrete inside of canal. It is fixed on the floor by screws or with stud nail.

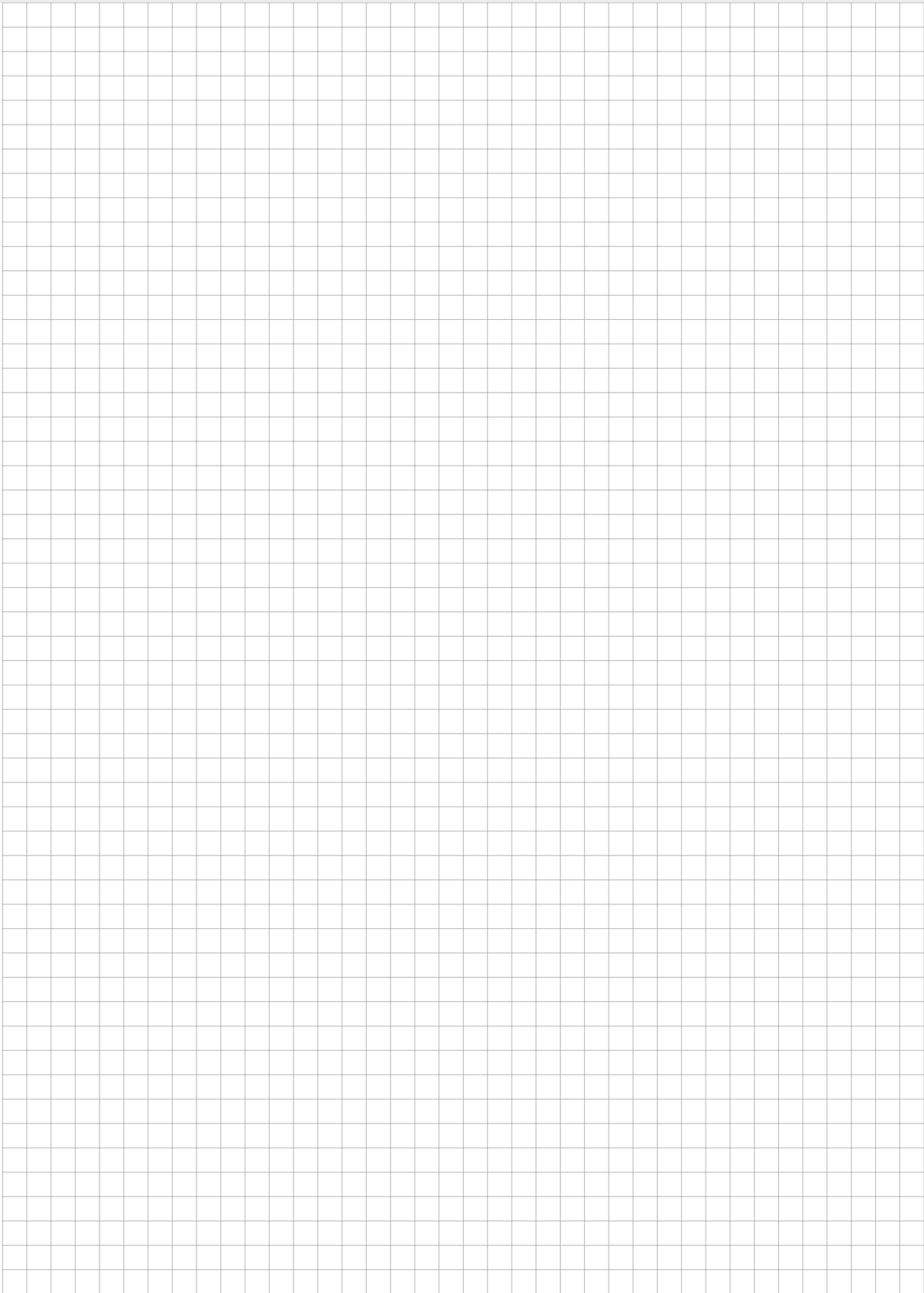


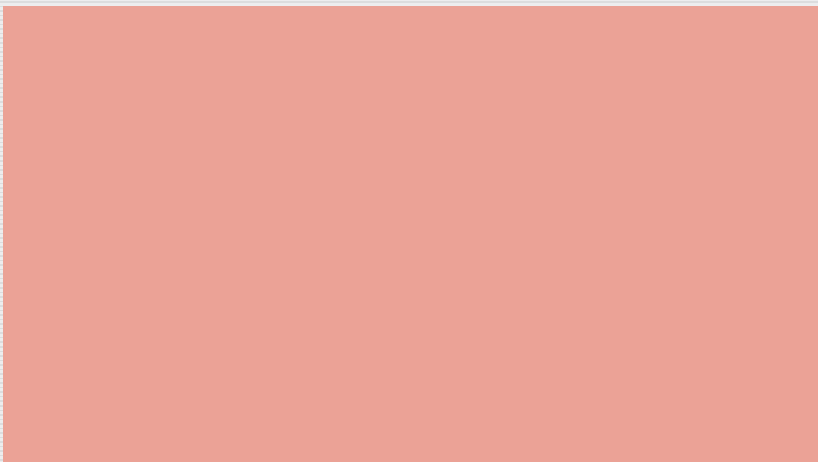
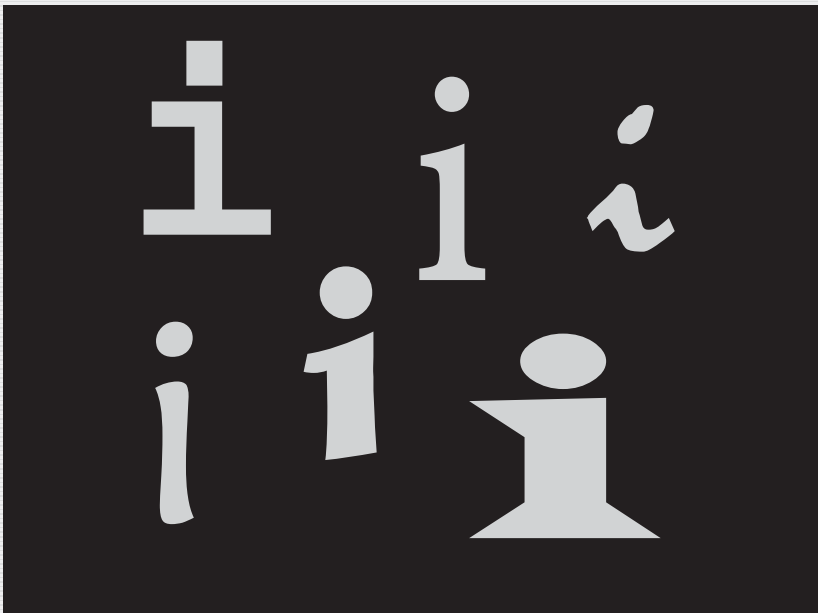
connecting string

item number	profile	A	
PLUK	1,5	250	●
PLUK 1	1,5	550	●

The connecting string covers the bonding of the floor canals.
The string PLUK 1 it is used in case of installation train line into box KUP.









TECHNICAL
INFORMATION

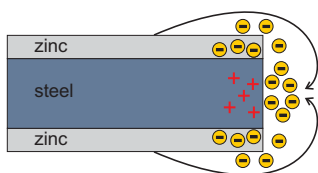
surface treatments and protection against corrosion

Corrosion

Corrosion is the undesired devaluation of material caused by chemical physically-chemical effects of the environment. These physically-chemical events result in partial or complete disturbance of the material.

White rust

White rust resembles a cosmetic effect of the coating but does not decrease the resistance against corrosion. It optically damages the zinc picture, but the silver coating and the shine of the freshly zinc coated material will cure and within several weeks it will transfer to a dim grey color. This is the result of the reaction between the zinc and air. That is why according to the standard ČSN EN ISO 1461 the occurrence of this phenomenon can not be the reason for a warranted claim.



Cathodic protection

Cathodic protection is a protective mechanism of the zinc layer, which relies on the capability of the transfer zinc ions onto the damaged part of the steel sheet metal. The acting of rainwater, condensation and other electrolytes causes the creation of a galvanic cell between two various metals. A voltage difference occurs here and a less noble metal (zinc) transitions as an anode into the solution, see the picture. That means that with regards to the normal potential the zinc acts as a consumed anode and therefore protects the basic material. This principle applies to the sheet metal thickness of 1.5 mm.

It is possible to protect the steel against corrosion by the following methods of surface treatments

ZNCR electrolytic galvanized products – **Bichromatic galvanized** – ČSN EN 12529, DIN 12 330 electrolytic galvanized according to DIN 50 961 with a layer of zinc 10 µm +/- 4 µm (supports for the wall, fastening material, bolts, washers, nuts ...)

BZNCR

S **Pre-Galvanized** – ČSN EN 10 143 galvanized steel Sendzimir: while cold the hot-rolled steelbelt goes after preparation through a continuous bath with liquid zinc. Through this, a layer zinc arises which guarantees the increased corrosion protection. Depending on the product type the thickness of both zinc layers varies from 235 - 275 g/m², which corresponds to 15 - 27 µm. The NKZI 50X62X0.70 and NKZIN 50X62X0.70 cable trays are made with a layer of zinc 200 g/m², which corresponds to 10 - 22 µm.

F **Hot Dip Galvanized** – ČSN EN ISO 1461 The finished pieces made from bare (black) sheet metal are plunged in a melt-bath with liquid zinc, after pre-treatment, at a temperature of 450°C. After removal from the zinc bath a zinc/iron alloy layer system is formed on the bare (black) sheet metal, which is covered with a pure zinc layer. The thickness of the zinc layer depends on the material thickness, according to norm the average zinc layer is 45 µm (min. 35 µm). The non-perforated parts are provided with a technological opening (for technological reasons).

IX **stainless AISI 304** austenitic chromium nickel steel - has excellent resistance especially against atmospheric and soil corrosion – used in the food industry with various marking: ČSN 17 240; AISI 304; DIN X5CrNi18-10; W.-Nr. 1.4301

BX **GEOMET - non electrolytic plating** The base of the DELTA surfacing includes Delta Tone 9000 materials. They are inorganic coats filled with zinc and aluminium micro-lamellas spread in a titanium binder. The method creates a cathodic protection coating the layer of which is 5-15 micrometer thick. This thickness of the layer provides better protection of metals than a thicker layer of zinc created by the zinc dipping method. The method conforms to the European Directive on recycling since it does not include any heavy metals and hexavalent chromium and it is also suitable for small parts. KOPOS KOLÍN supplies also bolts, nuts, couplings and other small connecting accessories with this surfacing and the company also carried out the salt fog test in accordance with ČSN EN ISO 9227 which proved that the coating was not damaged during the action of the salt fog for the period of 300 hours. The long-term temperature constancy is guaranteed up to 180 °C while the surfacing does not show any hydrogen fragility. Based on the above stated reasons we may fully recommend this method of surfacing as an alternative to the zinc dipping method.

BIX **painting** applying plastic powder in an electrostatic field onto the galvanized product. Increases resistance against corrosion in an aggressive environment (C2 - C5) + esthetic reasons

EO **EPOXY** - for indoor environment (does not resist UV radiation) - paint over the perimeter - 60 µm

EC **EPOXY** - for indoor environment does not resist UV radiation) - total paint - 60 µm

P60 **POLYESTER** - for outdoor environment (resists UV radiation) - total paint - 60 µm

P100 **POLYESTER** - for outdoor environment (resists UV radiation) - total paint - 100 µm

Color white RAL 9010, black RAL 9005
According to individual agreement with the sales department it is possible to deliver other coders in the RAL scale.



The thickness of the zinc coating can be guaranteed to a specific minimum. These specified products are available to order and at contractual prices. The non-perforated parts are provided with a technological opening (for technological reasons).

surface treatments and protection against corrosion

Corrosion resistance of cable trays treated with powder paint

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 treated with powder plastic does not have coating depletion (galvanized steel always has depletion of the zinc coating, according to the environment - see table 5 levels of corrosion aggressiveness).

The painting by powder polyester will secure at least the same corrosion resistance values as Hot-dip galvanization.

five levels of corrosion aggressiveness

level	corrosion environment	corrosion aggressiveness	average corrosion depletion of the zinc thickness (µm / year)	recommended Surface finish	
C1	Interior: dry	very low	less than 0,1	ZnCr S	(bolts) (trays)
C2	Interior: occasional humidity Exterior: free landscape	low	0,1 - 0,7	ZnCr - limited GMT S	(bolts) (bolts) (trays)
C3	Interior: high humidity and slightly polluted air Exterior: industrial environment, location close to sea shore	medium	0,7 - 2	GMT S - limited F, E, P	(bolts) (trays) (trays)
C4	Interior: swimming pools, chemical plants etc. Exterior: industrial locations and seaside environment	high	2 - 4	F, E, P IX	(trays) (bolts)
C5	Exterior: industrial pollution with high humidity and high effect of sea environment	very high	4 - 8	F, E, P - limited IX	(trays) (trays)

The risk of corrosion depends on the intensity of the acting of the external effects according to the standards ČSN EN ISO 14713-1.

mechanical resistance

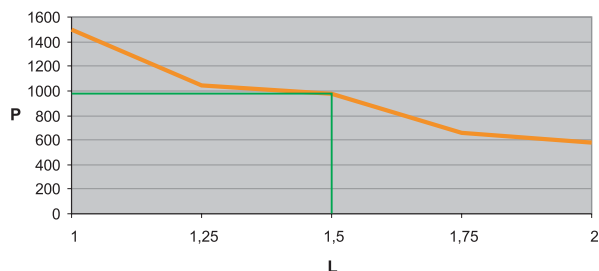
Cable trays are designed, constructed and type tested according to ČSN EN 61537 so they provide, where it is required, a reliable mechanical protection for insulated wires, cables, cords and possibly other electrical devices contained in them. Furthermore, these trays will withstand the stresses which will probably occur during the classified minimal temperature for storage, transport, installation and application. The screwed connections and other mechanical connections will withstand the mechanical stressing during installation and normal use.

Load carrying capacity - loading of the tray

The loading of cable trays must be adequate with regards to the expected weight of the cables.

The trays are not designed to be walked on. The loading of the trays is effected by the distance of the load bearing supports and also the width of the supports for the wall and the length of the hanger.

- the loading decreases with the increased span of the supports
- the shorter the wall support the lesser the tray bends

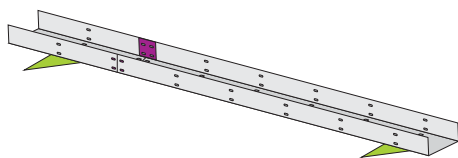


Example of a display of a loading graph (NKZI 50X125)

With the placing of the supports at a distance of 1.5 m the maximum possible loading of the tray NKZI 50X125 is 1000 N/m.

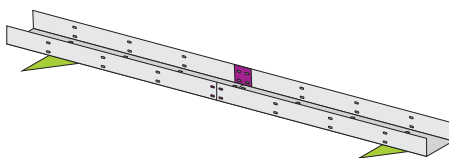
- L = distance of supports (m)
- P = allowed even loading (N/m)

Recommended connection of trays with regards to supports



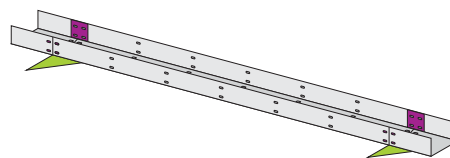
ideal connection

It is ideal to place the connections of the trays within 1/5 of the distance between the supports.



possible connection

It is possible to place the connection of the trays up to the middle of the distance between the supports.



unsuitable connection

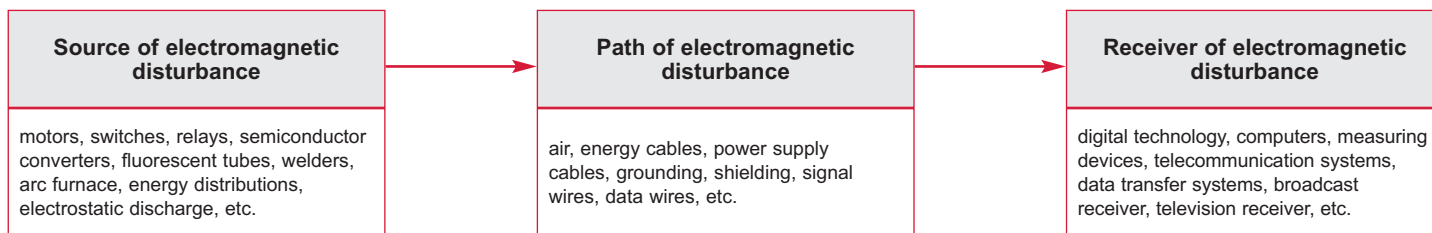
The connection of the trays above the supports is not recommended.

electromagnetic compatibility

The cable tray systems are frequently operated in an industrial environment which exhibits a high level of external electromagnetic effects. Due to this reason it is necessary to maintain certain rules which will secure a perfect function of the system.

Electromagnetic compatibility (from the English Electromagnetic Compatibility, abbreviation EMC) is the capability for a device or system to exhibit the proper function also in an environment where sources of electromagnetic signals or acting. At the same time this device or system should not be the source of non-permissible electromagnetic disturbance.

Relation between the source of the disturbance and the disturbed equipment.



In order to reach a good level of electromagnetic compatibility it is necessary to remove or to lessen as much as possible one of these elements.

A properly connected and grounded system of cable trays "MARS" is properly secured against external electromagnetic discharge. The trays which are closed with a cover then act as shielding channels. It is necessary to only maintain certain rules inside the tray, where individual cables can act as a source and others as receivers of electromagnetic disturbance.



For the limiting or complete removal of the effect of electromagnetic compatibility the basic condition is the separation of the power and data cables in the scope of a single tray. This can be achieved by several ways:

1. Separate individual lines using a metal partition NPZ 50 or NPZ 100
2. Do not place the data and power distributions together in one tray
3. If within the scope of a single sheet metal tray there occurs the placing of various types of lines, which could mutually effect each other, then it is necessary to maintain between them a minimum space of 20 cm

cables - recommendation for their installation



The metal cable trays are a universal carrier for all types of cables, from high-current to low-current.

- **for high-current cables** it is necessary to pay attention to the resistance of the cable and the subsequent development of heat, for these cables a wider tray with a lower sidewall is more suitable.

- **for data cables** it is necessary to prevent the effect of electromagnetic waves by shielding. For these cables the narrower trays with a higher sidewall are suitable. The design of certain types of data cables secures by itself a partial resistance against electromagnetic disturbance (for example the shielded double line STP, coaxial cables etc)

- **for optic cables**, which by their principle are resistant to electromagnetic disturbance, it is necessary to maintain the minimum bending ratio in order to maintain their correct function.

When laying cables into cable supporting trays "MARS" it is necessary to consider the method of placing and to consider the requirements of the standards ČSN 33 2000-4-43, ČSN 33 2000-4-473 during the installation. According to these standards, permanent wire and cable current-carrying capacity can be determined with respect to their installation, mutual position and the ambient temperature.

In order to prevent the mutual interference of the installed cables, it is recommended to observe the principles described in the chapter Electromagnetic Compatibility (separate data and power lines etc.).

It is also recommendable to band individual cables or cable bundles and to attach them to the cable tray proper. In particular, cables are attached inside the cable tray if the system of cable trays is not only horizontal but the route also rises or descends. Furthermore, the power cables for which high current loading and current surges are expected shall also be fixed.



packing and storage

Straight parts are fixed on pallets by elastic polypropylene band; other material is stored in crates.

Scope of applicability

These terms apply to the storage of metal products manufactured by KOPOS KOLÍN a.s. company and comply with the standard ČSN EN 60721-3-1 (Classification of environmental conditions, Part 3: classification of groups of environmental parameters and their severities, Section 1: Product storage).

General

1. The products shall be protected from harmful effects, such as mechanical damage, climatic or chemical influences.
2. Preferentially, the products stored for the longest time shall be taken first (FIFO system).
3. The products stored shall be duly and visibly marked in the warehouse so that they are not confused.

Storage requirements

Products shall be stored in dry, dustless environment to prevent damage.

Storehouse specification:

- A place fully protected from climatic influences, i.e. at a closed place where direct weather influence is completely eliminated.
- Water from sources other than rain shall be completely removed: dripping water, spouting water, condensates.
- Complete elimination of chemical influences arising from particles of salts.

related regulations

ČSN 332000-4-41	Protection against electric shock
ČSN 332000-5-54	Grounding and protective conductors
ČSN 332000-4-43	Overcurrent protection
ČSN 332000-4-473	Measures for the overcurrent protection
ČSN EN 10327	Metal sheets and bands of deep-drawing steel for cold forming, continuously hot metal coated
ČSN EN 10143	Steel sheets and bands continuously hot metal coated – limit deviations and shape tolerance
ČSN EN 61537:02	Laying cables – cable tray systems and cable ladder systems
ČSN EN 60721-3-1	Classification of environmental conditions - storage
ČSN EN ISO 14713	The corrosion protection of iron and steel constructions – zinc and aluminum coatings
ČSN EN ISO 1461	Hot-dip galvanized coatings on iron and steel products
ČSN EN 12 329	Metal corrosion protection – electrodeposited coatings of zinc with supplementary treatment on iron or steel
ČSN EN ISO 9227	Corrosion tests in artificial atmospheres – salt spray tests
ČSN 330 360	Electronic regulations. Protective conductor connecting points on electrical objects.

references

Nuclear power plant Dukovany

Nuclear power plant Temelín

Heating plant Strakonice

Power plant Mělník

Power plant Chvaletice

Power plant Opatovice

Power plant Tisová

Power plant Pruněřov 1

Power plant Tušimice

Incinerator Praha - Malešice

Heating plant Praha - Veleslavín

Ending of oil pipeline Ingolstadt - Nelahozeves

Kaučuk Kralupy

Spolana Neratovice

Chemopetrol Litvínov

Power plant Thalkha Egypt

Slovnaft Bratislava

Aluminium works Jajarm, Iran

Nuclear power plant Mochovce

Galena Opava

Třinecké Iron and Steel Works

Malt plant Kroměříž

shopping centre Baumax in Brno, Mladá Boleslav,
České Budějovice Liberec, Chomutov, Banská Bystrica and 3x in Prague

Energetic centre Kladno

OLMA Olomouc

Czech Post Plzeň

Administrative centre "Vinice" Prague

Administrative centre "Hadovka" Prague

Czech National Bank Prague

Státní tiskárna cenin Prague

MARYŠA Rohatec

MAKRO Hradec Králové

Congress Centre Prague

Slovak National Bank

Commercial Centre Prague

River City Prague

Europark Štěrboholy

Hypernova Nitra

Hypernova Praha - Butovice

Lidl Nitra

Ahold Nemilany

CTP PARK Modřice

Ice rink Liberec

OKC EDEN Praha

ČVUT Praha

Galerie Harfa Praha



Nuclear power plant Dukovany



Administrative centre "Vinice" Prague



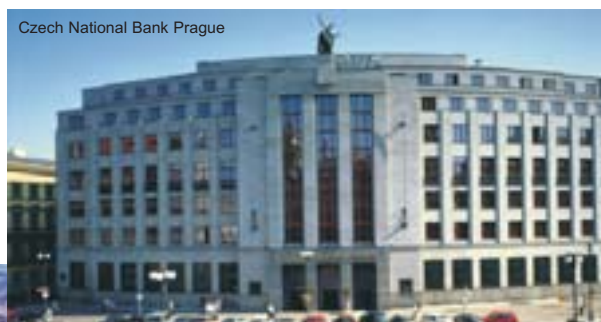
Administrative centre "Hadovka" Prague



River City Praha



Power plant Opatovice



Czech National Bank Prague



Třinecké Iron and Steel Works



Nuclear power plant Temelín

alphabetical list of products

type number	EAN	pg.	type number	EAN	pg.	type number	EAN	pg.
BSKH 110 D	F 8595568904164	5-9	DT 1000	F 8595057639911	5-19	DZI 60X400	BZNCR 8595568927903	4-2
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BSKH 110 K	F 8595568904188	5-9	DT 150	F 8595057632592	5-19	DZI 60X60	BZNCR 8595568927859	4-2
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BSKH 60 D	S 8595568904195	5-9	DT 250	F 8595057636996	1-32	DZMD/B	ZNCR 8595057689817	4-8
BSKH 60 K	F 8595568904140	5-9	DT 300	F 8595057628519	1-32	DZRS/B	F 8595568902603	4-6
BSKH 60 K	S 8595568904133	5-9	DT 300	F 8595057628519	5-19	DZRS/B	ZNCR 8595057689824	4-6
BSKH 85 D	F 8595568904225	5-9	DT 400	F 8595057628526	1-32	DZS/B	F 8595568902597	4-6
BSKH 85 D	S 8595568904218	5-9	DT 400	F 8595057628526	5-19	DZS/B	ZNCR 8595057689831	4-6
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CTS 100	S 8595057629592	1-29	DT 600	F 8595057628540	1-32	DZSU/B	ZNCR 8595057689855	4-6
CTS 200	S 8595057630222	1-29	DT 600	F 8595057628540	5-19	DZZ/B	F 8595568902627	4-7
CTS 200	S 8595057630222	5-18	DT 800	F 8595057639904	1-32	DZZ/B	ZNCR 8595057689800	4-7
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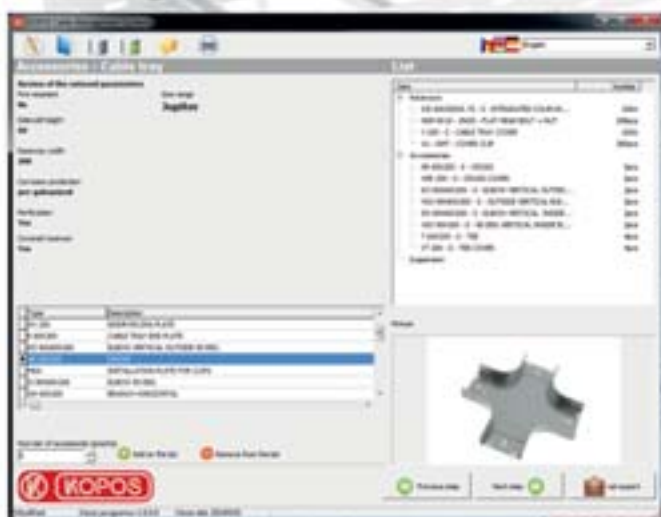
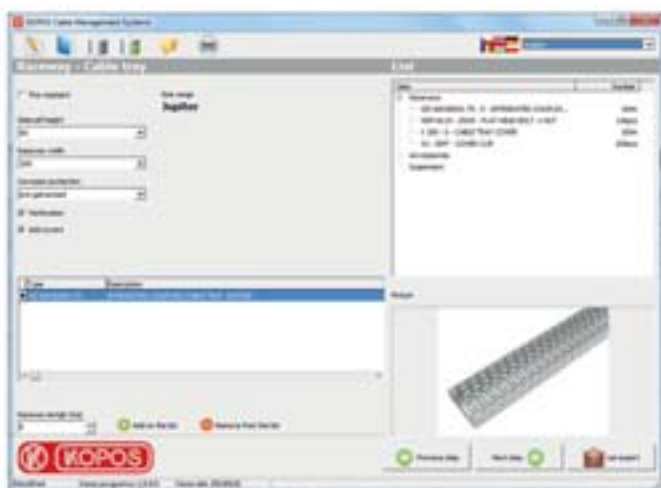
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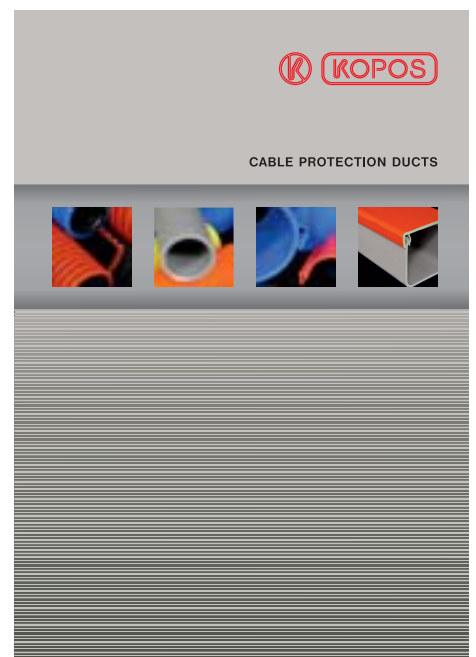
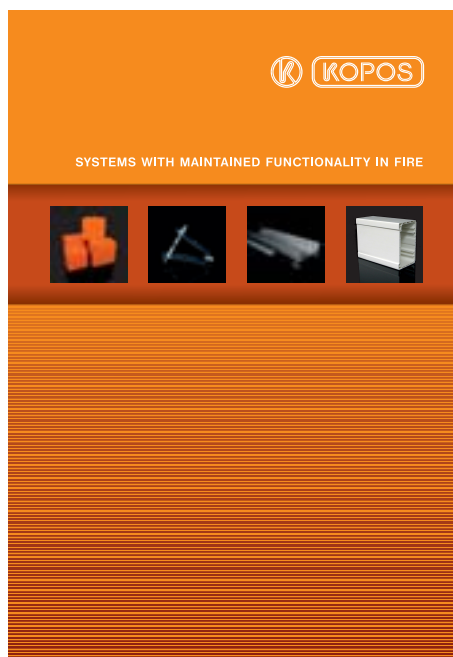
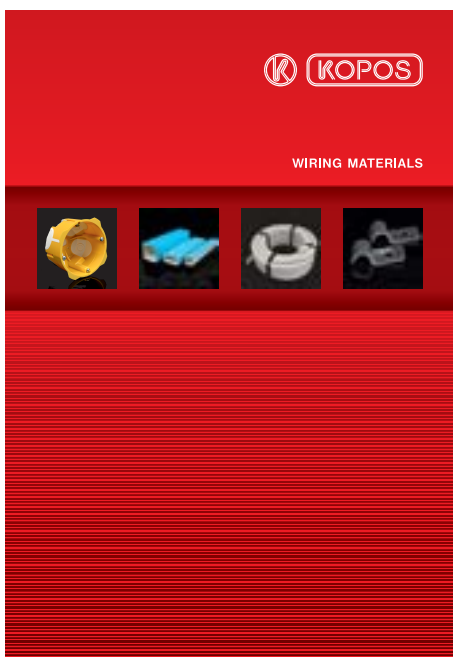
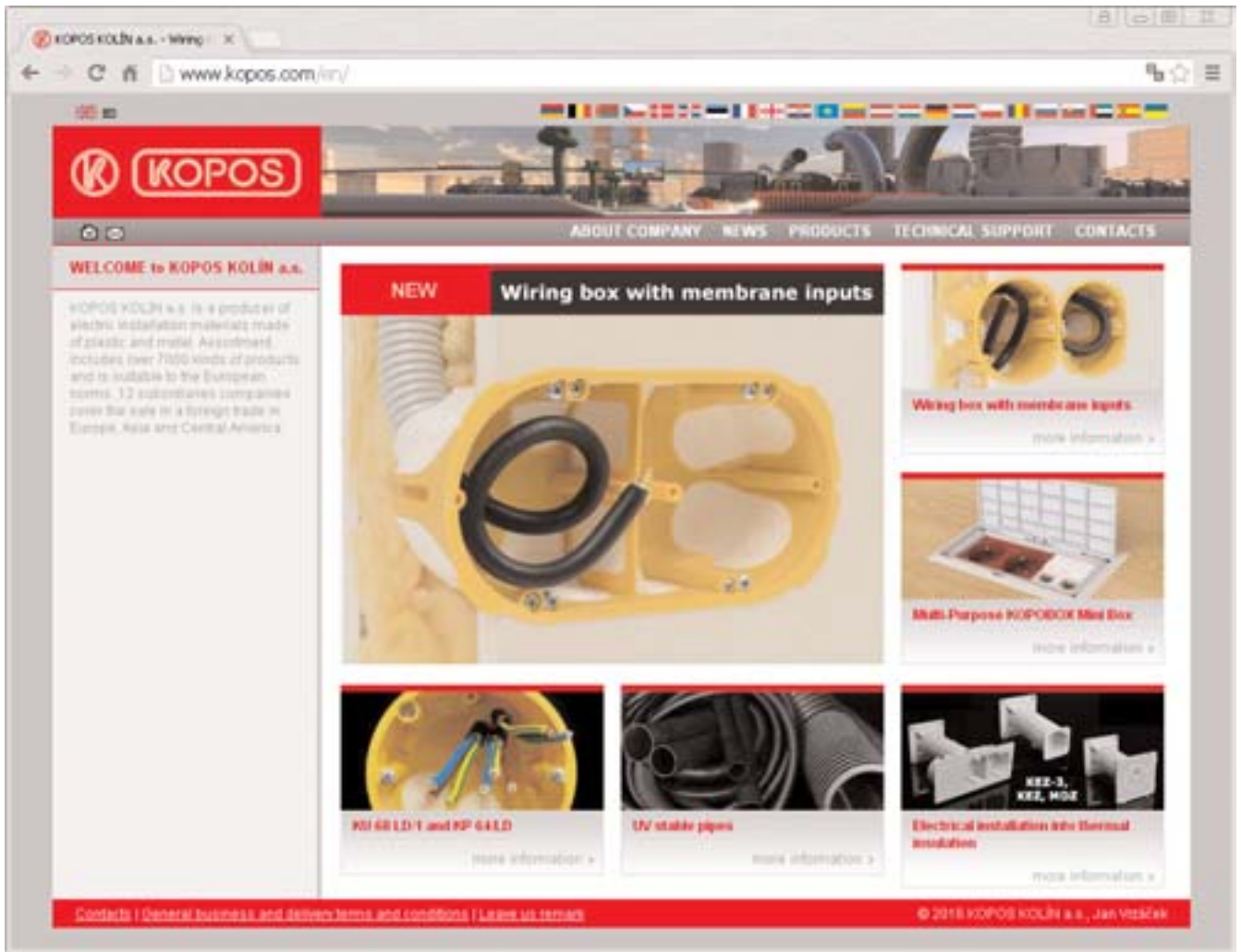
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