

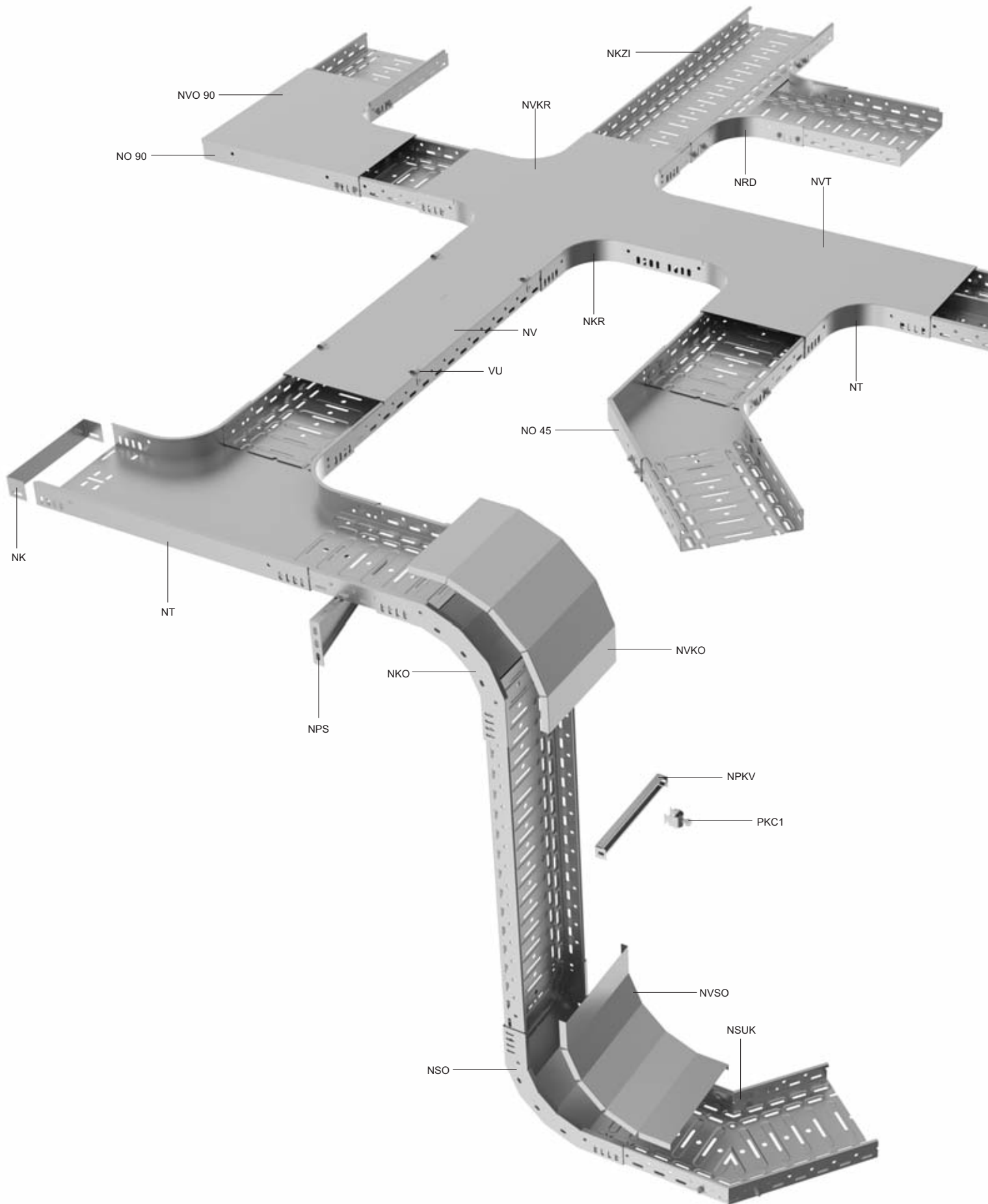


2

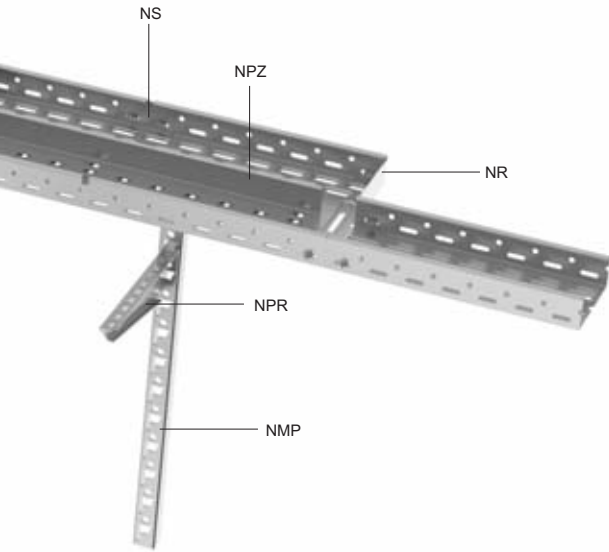
CABLE
TRAYS
MARS



OVERVIEW OF SYSTEM ELEMENTS



OVERVIEW OF SYSTEM ELEMENTS



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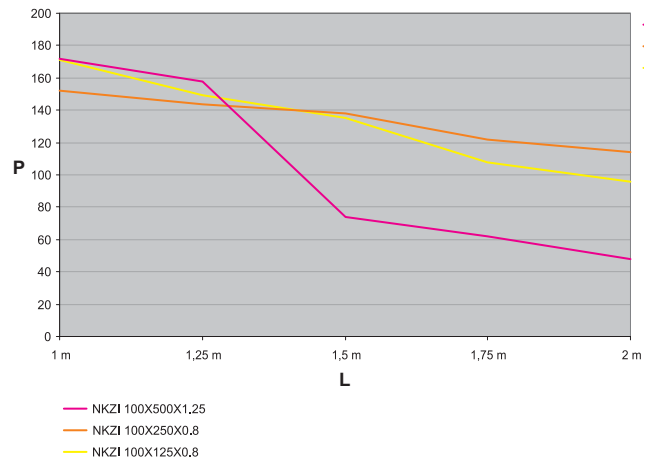
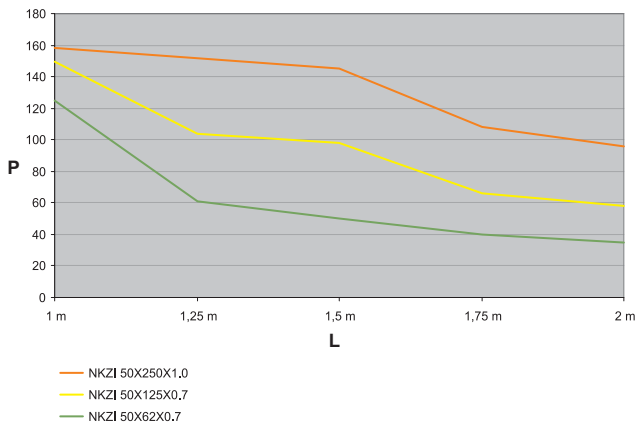
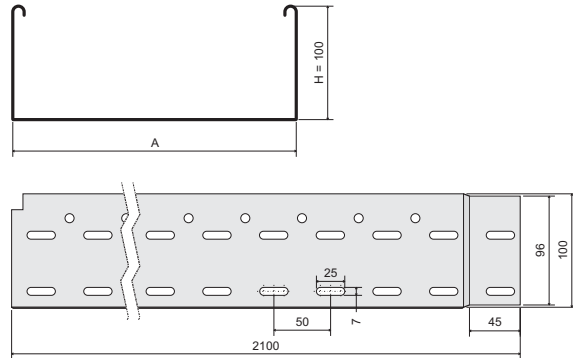
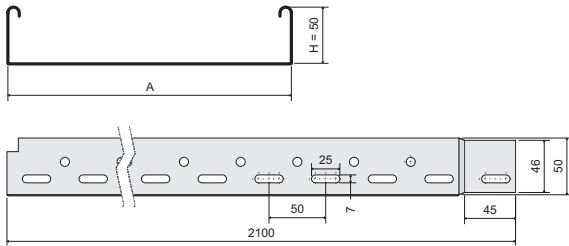


cable tray with integrated coupling

item number	A	H	t	⌈	⌋	S	F	EO	EC	P60	P100
NKZI 50X62X0.70	62	50	0,7	2	0,9	●	●	⊕	⊕	⊕	⊕
NKZI 50X125X0.70	125	50	0,7	2	1,3	●	●	⊕	⊕	⊕	⊕
NKZI 50X250X0.70	250	50	0,7	2	2,1	●	●	⊕	⊕	⊕	⊕
NKZI 100X125X0.80	125	100	0,8	4	1,9	●	●	⊕	⊕	⊕	⊕
NKZI 100X250X0.80	250	100	0,8	4	2,7	●	●	⊕	⊕	⊕	⊕
NKZI 100X500X1.25	500	100	1,25	4	6,3	●	⊕	⊕	⊕	⊕	⊕

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 (page 26) or the bolts NSM 6X10 (page 26).

It is possible to create on order the trays:
 - in the lengths of 3, 4, 5 and 6 meters.
 - without integrated coupling.

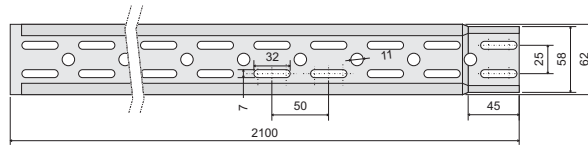


The graphs show the maximum allowed even loading of the trays in relation to the distances of the supports.
 L = distance of supports (m)
 P = allowed even loading (kg/m)

design of bottom punching of NKZI tray

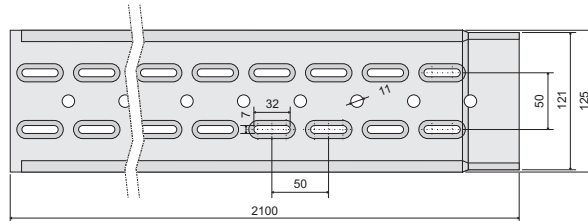
bottom width 62 mm

NKZI 50X62X...



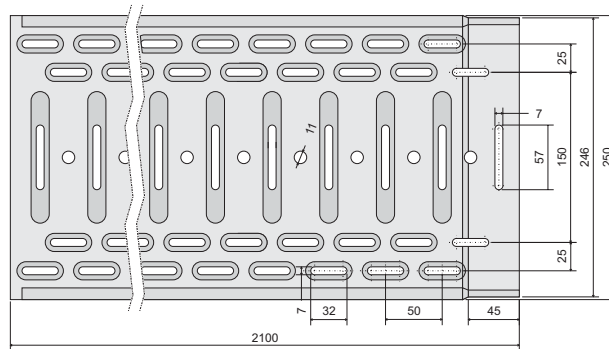
bottom width 125 mm

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



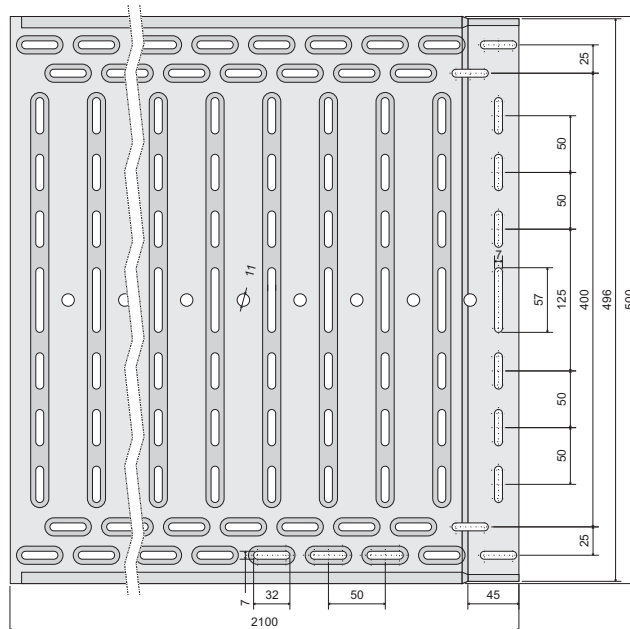
bottom width 250 mm

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



bottom width 500 mm

NKZI 100X500X...



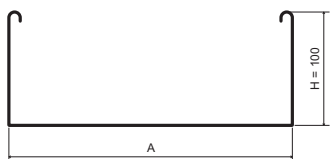
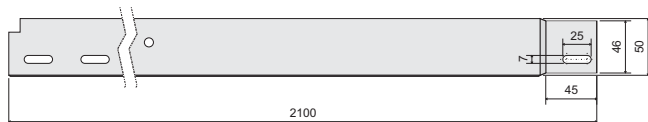
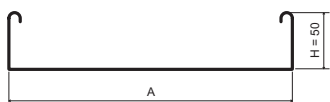
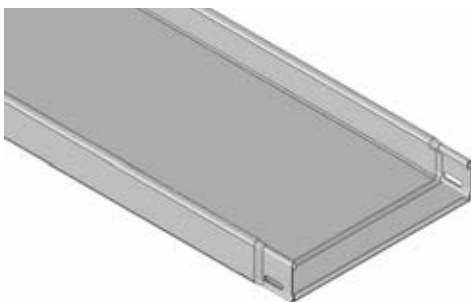


cable tray with integrated coupling non-perforated

item number	A	H	↓	↓	↓	S	F	EO	EC	P60	P100
NKZIN 50X62X0.70	62	50	0,7	2	0,97	●	⊕	⊕	⊕	⊕	⊕
NKZIN 50X125X0.70	125	50	0,7	2	1,48	●	⊕	⊕	⊕	⊕	⊕
NKZIN 50X250X1.00	250	50	1,0	2	3,00	●	⊕	⊕	⊕	⊕	⊕
NKZIN 100X125X0.80	125	100	0,8	4	2,05	●	⊕	⊕	⊕	⊕	⊕
NKZIN 100X250X0.80	250	100	0,8	4	2,50	●	⊕	⊕	⊕	⊕	⊕
NKZIN 100X500X1.25	500	100	1,25	4	7,10	●	⊕	⊕	⊕	⊕	⊕

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 (page 26) or the bolts NSM 6X10 (page 26).

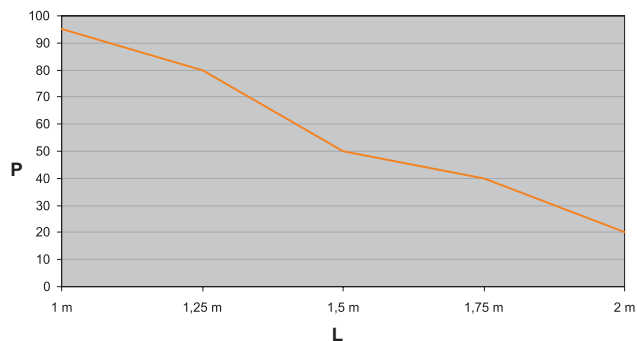
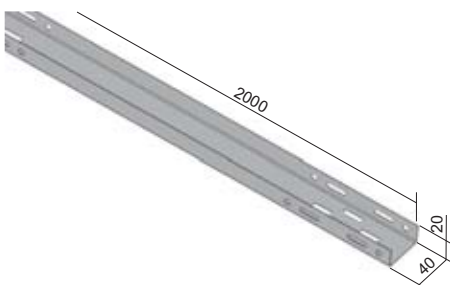
It is possible to create on order the trays:
 - in the lengths of 3, 4, 5 and 6 meters.
 - without integrated coupling.



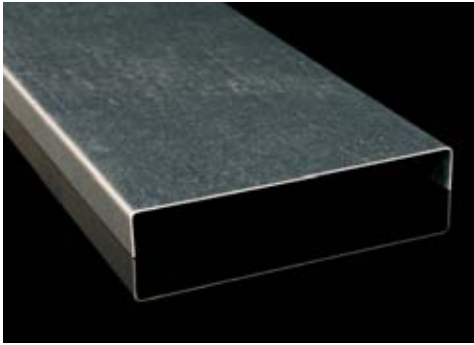
perforated cable tray

item number	↓	↓	↓	S	F	EO	EC	P60	P100
NKZ 20X40	0,7	0,4	2	●	⊕	⊕	⊕	⊕	⊕

The standard length of the cable tray is 2 m.
 The joining of the trays is performed using the coupling NS 40 (page 17) and two NSMP 5X10 (page 26).



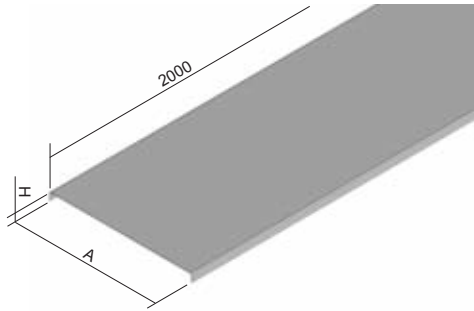
The graph show the maximum allowed even loading of the trays in relation to the distances of the supports.
 L = distance of supports (m)
 P = allowed even loading (kg/m)



cable tray cover

item number	A	H	‡	‡	S	F	EO	EC	P60	P100
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	●	⊕	⊕	⊕	⊕	⊕

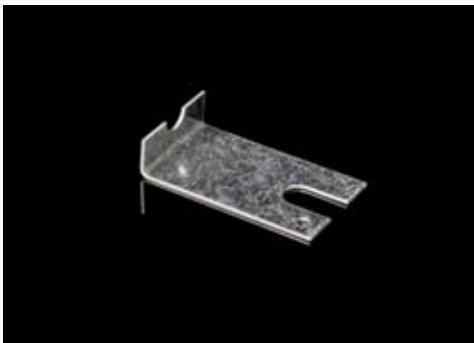
The standard length of the cable tray cover is 2 m.
 We recommend cable tray cover Hot-Dip Galvanized in 1,0 mm thick steel plate.
 The fixing of the cover to the tray is done using the cover fixture VU (2 pcs per meter).



cover fixture

item number	‡	GMT
VU	0,005	●

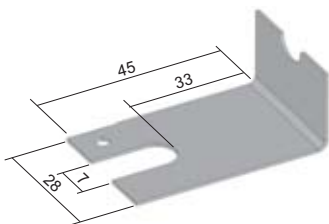
Is used for a bolt free attachment of the cover to the tray and to the accessories.
 The cover fixture is placed to the cover and the sidewall in the place of the opening and it is slightly pressed so that the fixture lock slides into the opening.

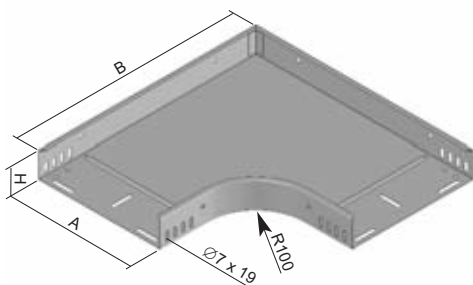


cover fixture

item number	‡	S	F	EO	P60	P100
NUV	0,01	●	⊕	⊕	⊕	⊕

Serves for the attaching of the cover to the tray using a bolt.

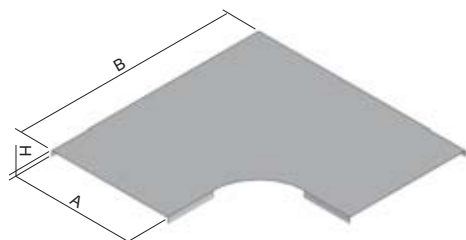
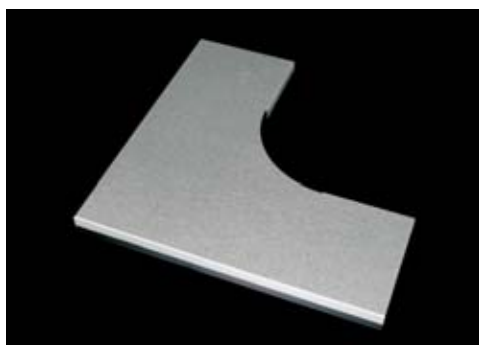




elbow 90°

item number	A	H	B	↑	↓	‡	S	F	EO	EC	P60	P100
NO 90X50X62	62	50	265	0,8	4	0,59	●	●	⊕	⊕	⊕	⊕
NO 90X50X125	125	50	328	0,8	4	0,87	●	●	⊕	⊕	⊕	⊕
NO 90X50X250	250	50	453	1,0	4	1,93	●	●	⊕	⊕	⊕	⊕
NO 90X100X125	125	100	328	0,8	8	1,21	●	●	⊕	⊕	⊕	⊕
NO 90X100X250	250	100	453	1,0	8	2,42	●	●	⊕	⊕	⊕	⊕
NO 90X100X500	500	100	703	1,0	8	4,48	●	⊕	⊕	⊕	⊕	⊕

The connection is performed by direct sliding of the cable tray into the shaped piece and subsequent securing with bolts NSM 6X10 (page 26).
For the elbows NO 90X100X500 the outer right angle of the side walls is replaced by skewed cut.



elbow cover 90°

item number	A	H	B	↑	‡	S	F	EO	EC	P60	P100
NVO 90X62	62	12	267	0,6	0,18	●	⊕	⊕	⊕	⊕	⊕
NVO 90X125	125	12	330	0,6	0,35	●	⊕	⊕	⊕	⊕	⊕
NVO 90X250	250	12	455	0,8	1,15	●	⊕	⊕	⊕	⊕	⊕
NVO 90X500	500	15	705	1,0	3,32	●	⊕	⊕	⊕	⊕	⊕

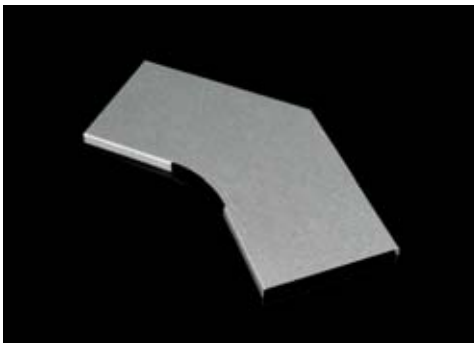
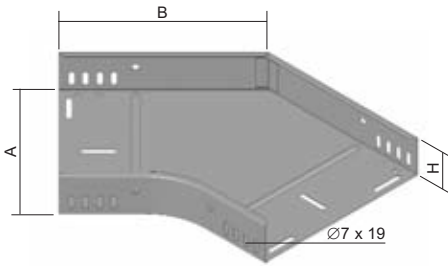
To fix the cover use 6 pcs of cover fixtures VU (page 7).
For the elbow cover NVO 90X500 the outer right angle is replaced by skewed cut.



elbow 45°

item number	A	H	B	↑	↓	‡	S	F	EO	EC	P60	P100
NO 45X50X62	62	50	168	0,8	4	0,40	●	⊕	⊕	⊕	⊕	⊕
NO 45X50X125	125	50	194	0,8	4	0,56	●	⊕	⊕	⊕	⊕	⊕
NO 45X50X250	250	50	245	1,0	4	1,13	●	⊕	⊕	⊕	⊕	⊕
NO 45X100X125	125	100	194	0,8	8	0,78	●	⊕	⊕	⊕	⊕	⊕
NO 45X100X250	250	100	245	1,0	8	1,42	●	⊕	⊕	⊕	⊕	⊕
NO 45X100X500	500	100	350	1,0	8	2,79	●	⊕	⊕	⊕	⊕	⊕

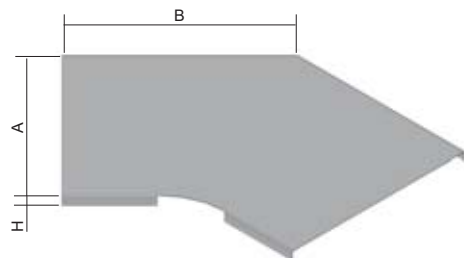
The connection is performed by direct sliding of the cable tray into the shaped piece and subsequent securing with bolts NSM 6X10 (page 26).

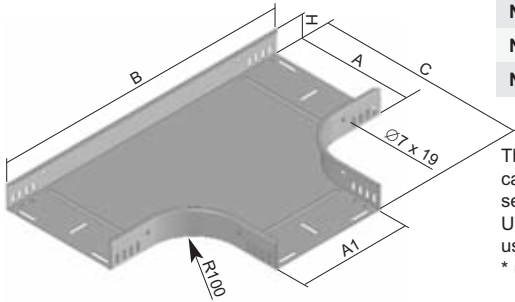
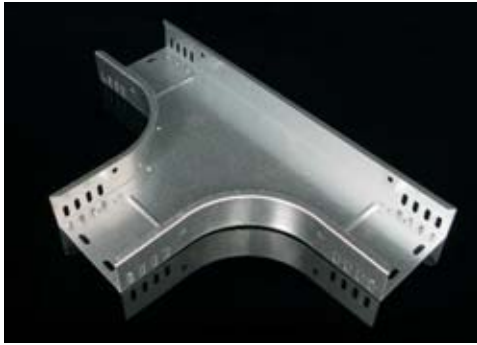


elbow cover 45°

item number	A	H	B	↑	‡	S	F	EO	EC	P60	P100
NVO 45X62	62	12	168	0,6	0,12	●	⊕	⊕	⊕	⊕	⊕
NVO 45X125	125	12	194	0,6	0,22	●	⊕	⊕	⊕	⊕	⊕
NVO 45X250	250	12	245	0,8	0,68	●	⊕	⊕	⊕	⊕	⊕
NVO 45X500	500	15	350	1,0	2,08	●	⊕	⊕	⊕	⊕	⊕

To fix the cover use 4 pcs of cover fixturs VU (page 7).



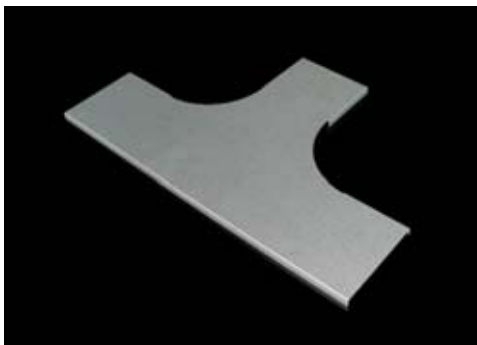


T-piece

item number	A	A1	H	B	C	t	t ₁	t ₂	S	F	EO	EC	P60	P100
NT 50X62	62	62	50	465	265	0,8	0,85	6	●	⊕	⊕	⊕	⊕	⊕
NT 50X125	125	125	50	528	328	0,8	1,19	6	●	⊕	⊕	⊕	⊕	⊕
NT 50X250	250	250	50	653	453	1,0	2,41	6	●	⊕	⊕	⊕	⊕	⊕
NT 50X125/62	125	62	50	465	328	0,8	1,04	6	●*	-	-	-	-	-
NT 50X250/125	250	125	50	528	453	1,0	1,90	6	●*	-	-	-	-	-
NT 100X125	125	125	100	528	328	0,8	1,62	12	●	⊕	⊕	⊕	⊕	⊕
NT 100X250	250	250	100	653	453	1,0	2,93	12	●	⊕	⊕	⊕	⊕	⊕
NT 100X500	500	500	100	903	703	1,0	5,85	12	●	⊕	⊕	⊕	⊕	⊕
NT 100X250/125	250	125	100	528	453	1,0	2,38	12	●*	-	-	-	-	-
NT 100X500/250	500	250	100	653	703	1,0	4,23	12	●*	-	-	-	-	-

The connection is performed by direct sliding of the cable tray into the shaped piece and subsequent securing with bolts NSM 6X10 (page 26). Unequal T-piece there is possible to replace by use of reducing parts.

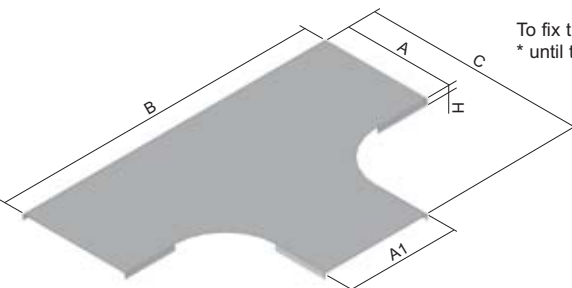
* until the sell-out of stocks.

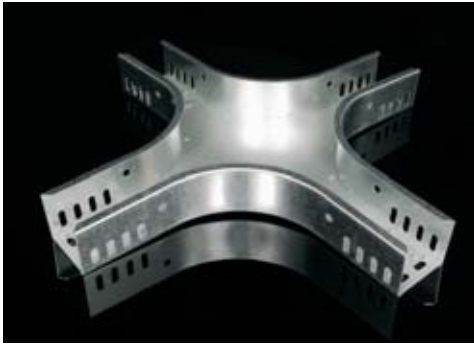


T-piece cover

item number	A	A1	H	B	C	t	t ₁	S	F	EO	EC	P60	P100
NVT 62	62	62	12	465	266	0,6	0,25	●	⊕	⊕	⊕	⊕	⊕
NVT 125	125	125	12	528	329	0,6	0,48	●	⊕	⊕	⊕	⊕	⊕
NVT 250	250	250	12	653	454	0,8	1,49	●	⊕	⊕	⊕	⊕	⊕
NVT 500	500	500	15	903	705	1,0	4,62	●	⊕	⊕	⊕	⊕	⊕
NVT 125/62	125	62	12	465	329	0,6	0,38	●*	-	-	-	-	-
NVT 250/125	250	125	12	528	454	1,0	1,11	●*	-	-	-	-	-
NVT 500/250	500	250	15	653	705	1,0	3,19	●*	-	-	-	-	-

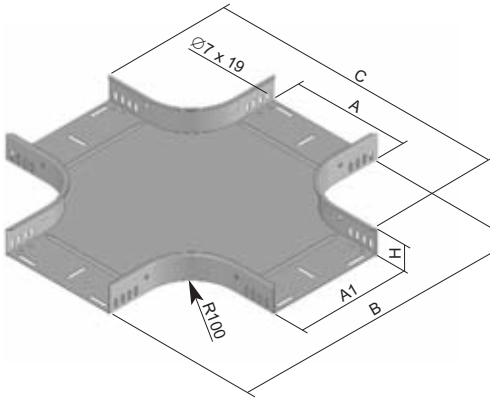
To fix the cover use 6 pcs of cover fixtures VU (page 7).
* until the sell-out of stocks



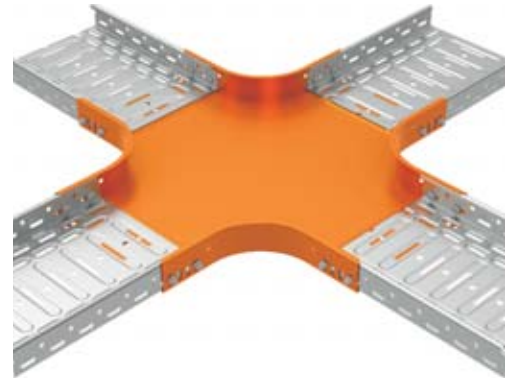


CROSS-OVER

item number	A	A1	H	B	C	‡	‡	‡	S	F	EO	EC	P60	P100
NKR 50X62	62	62	50	465	465	0,8	1,18	8	●	⌚	⌚	⌚	⌚	⌚
NKR 50X125	125	125	50	528	528	0,8	1,59	8	●	⌚	⌚	⌚	⌚	⌚
NKR 50X250	250	250	50	653	653	1,0	2,95	8	●	⌚	⌚	⌚	⌚	⌚
NKR 50X125/62	125	62	50	528	465	0,8	1,38	8	●*	-	-	-	-	-
NKR 50X250/125	250	125	50	653	528	1,0	2,31	8	●*	-	-	-	-	-
NKR 100X125	125	125	100	528	528	0,8	2,13	16	●	⌚	⌚	⌚	⌚	⌚
NKR 100X250	250	250	100	653	653	1,0	3,49	16	●	⌚	⌚	⌚	⌚	⌚
NKR 100X500	500	500	100	903	903	1,0	6,58	16	●	⌚	⌚	⌚	⌚	⌚
NKR 100X250/125	250	125	100	653	528	1,0	2,85	16	●*	-	-	-	-	-
NKR 100X500/250	500	250	100	903	653	1,0	4,79	16	●*	-	-	-	-	-

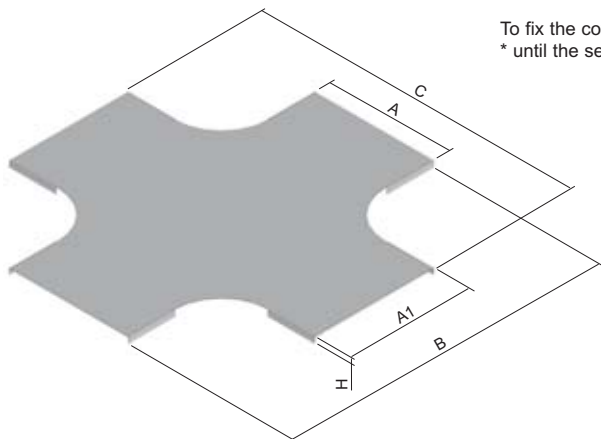


The connection is performed by direct sliding of the cable tray into the shaped piece and subsequent securing with bolts NSM 6X10 (page 26). Unequal cross there is possible to replace by use of reductive parts.
* until the sell-out of stocks.



CROSS-OVER COVER

item number	A	A1	H	B	C	‡	‡	S	F	EO	EC	P60	P100
NVKR 62	62	62	12	465	465	0,6	0,32	●	⌚	⌚	⌚	⌚	⌚
NVKR 125	125	125	12	528	528	0,6	0,60	●	⌚	⌚	⌚	⌚	⌚
NVKR 250	250	250	12	653	653	0,8	1,82	●	⌚	⌚	⌚	⌚	⌚
NVKR 500	500	500	15	903	903	1,0	5,40	●	⌚	⌚	⌚	⌚	⌚
NVKR 125/62	125	62	12	528	465	0,6	0,45	●*	-	-	-	-	-
NVKR 250/125	250	125	12	653	528	0,8	1,29	●*	-	-	-	-	-
NVKR 500/250	500	250	15	903	653	1,0	3,60	●*	-	-	-	-	-



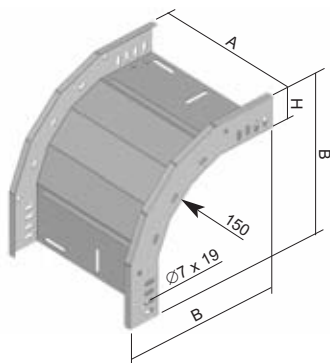
To fix the cover use 8 pcs of cover fixtures VU (page 7).
* until the sell-out of stocks.



low elbow 90°

item number	A	H	B	↑	‡	↓↑	S	F	EO	EC	P60	P100
NKO 90X50X62	62	50	275	0,8	0,53	4	●	⊕	⊕	⊕	⊕	⊕
NKO 90X50X125	125	50	275	0,8	0,68	4	●	⊕	⊕	⊕	⊕	⊕
NKO 90X50X250	250	50	275	1,0	1,12	4	●	⊕	⊕	⊕	⊕	⊕
NKO 90X100X125	125	100	325	0,8	1,00	8	●	⊕	⊕	⊕	⊕	⊕
NKO 90X100X250	250	100	325	1,0	1,44	8	●	⊕	⊕	⊕	⊕	⊕
NKO 90X100X500	500	100	325	1,0	2,19	8	●	⊕	⊕	⊕	⊕	⊕

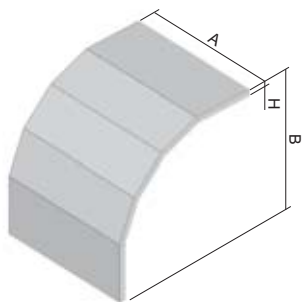
The connection is performed by direct sliding of the cable tray into the shaped piece and subsequent securing with bolts NSM 6X10 (page 26).



low elbow 90° cover

item number	A	H	B	↑	‡	S	F	EO	EC	P60	P100
NVKO 90X50X62	62	12	276	0,6	0,18	●	⊕	⊕	⊕	⊕	⊕
NVKO 90X50X125	125	12	276	0,6	0,31	●	⊕	⊕	⊕	⊕	⊕
NVKO 90X50X250	250	12	276	0,8	0,82	●	⊕	⊕	⊕	⊕	⊕
NVKO 90X100X125	125	12	326	0,6	0,36	●	⊕	⊕	⊕	⊕	⊕
NVKO 90X100X250	250	12	326	0,8	0,96	●	⊕	⊕	⊕	⊕	⊕
NVKO 90X100X500	500	15	326	1,0	2,32	●	⊕	⊕	⊕	⊕	⊕

To fix the cover use 6 pcs of cover fixtures VU (page 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.

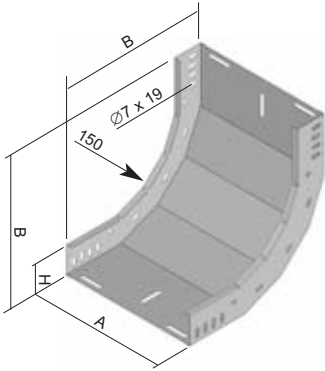




rising elbow 90°

item number	A	H	B	↑	‡	⌈	S	F	EO	EC	P60	P100
NSO 90X50X62	62	50	275	0,8	0,56	4	●	⊕	⊕	⊕	⊕	⊕
NSO 90X50X125	125	50	275	0,8	0,74	4	●	⊕	⊕	⊕	⊕	⊕
NSO 90X50X250	250	50	275	1,0	1,28	4	●	⊕	⊕	⊕	⊕	⊕
NSO 90X100X125	125	100	325	0,8	1,13	8	●	⊕	⊕	⊕	⊕	⊕
NSO 90X100X250	250	100	325	1,0	1,76	8	●	⊕	⊕	⊕	⊕	⊕
NSO 90X100X500	500	100	325	1,0	2,84	8	●	⊕	⊕	⊕	⊕	⊕

The connection is performed by direct sliding of the cable tray into the shaped piece and subsequent securing with bolts NSM 6X10 (page 26).

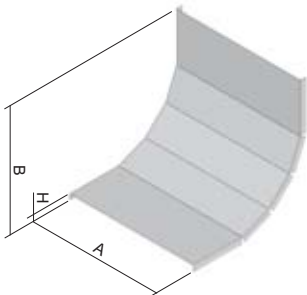


rising elbow 90° cover

item number	A	H	B	↑	‡	S	F	EO	EC	P60	P100
NVSO 90X62	62	12	221	0,6	0,15	●	⊕	⊕	⊕	⊕	⊕
NVSO 90X125	125	12	221	0,6	0,25	●	⊕	⊕	⊕	⊕	⊕
NVSO 90X250	250	12	221	0,8	0,67	●	⊕	⊕	⊕	⊕	⊕
NVSO 90X500	500	15	221	1,0	1,60	●	⊕	⊕	⊕	⊕	⊕

To fix the cover use 6 pcs of cover fixtures VU (page 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.

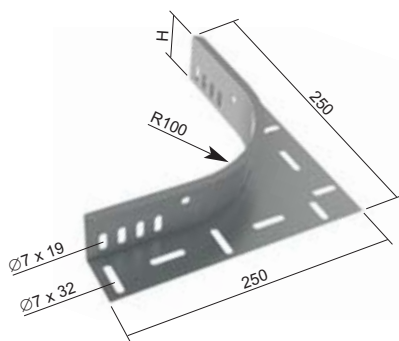




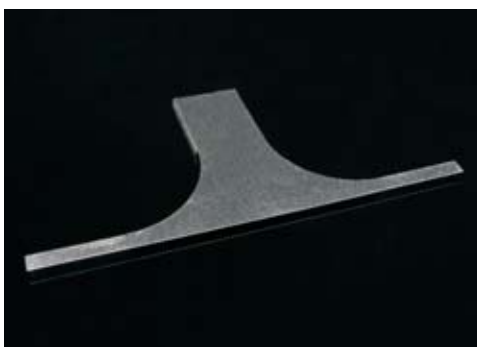
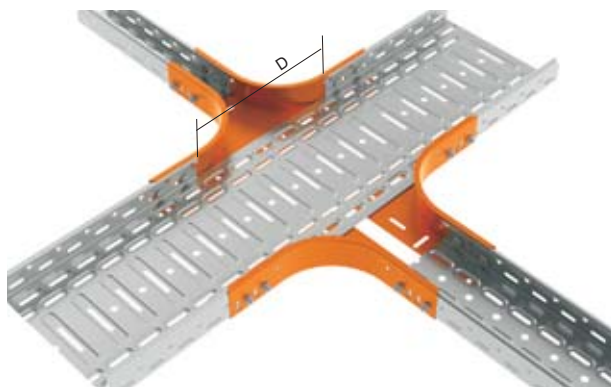
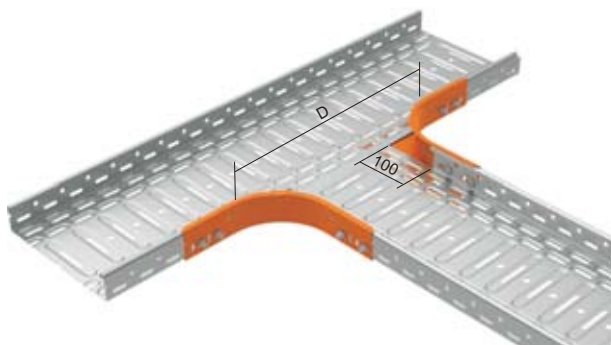
reduction piece

item number	H	↓	‡	‡‡	S	F	EC	P60	P100
NRD 50	50	0,8	0,34	4	●	⊕	⊕	⊕	⊕
NRD 100	100	0,8	0,47	8	●	⊕	⊕	⊕	⊕

The joining is performed using the bolts NSM 6X10 (page 26).
It serves for creating of additional deviation or unequal T-piece or cross.
Always to be used in a pair.



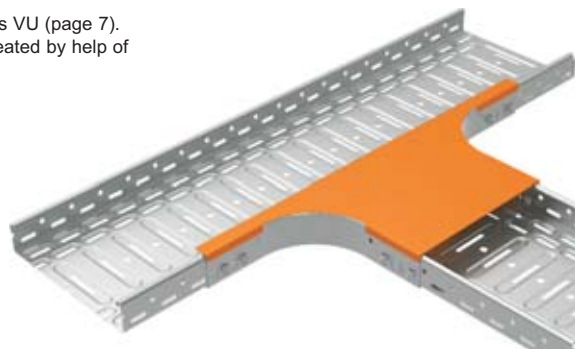
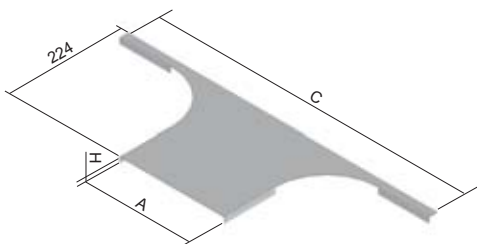
length of cut out side wall of the tray	
branch to a channel	D
NKZI 50X62	262
NKZI 50X125	325
NKZI 100X125	325
NKZI 50X250	450
NKZI 100X250	450
NKZI 100X500	700

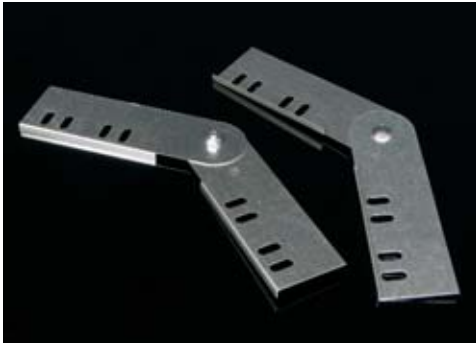


branch cover

item number	A	H	C	↓	S	F	EO	EC	P60	P100
VOH 62	62	12	465	0,8	⊕	⊕	⊕	⊕	⊕	⊕
VOH 125	125	12	528	0,8	⊕	⊕	⊕	⊕	⊕	⊕
VOH 250	250	12	653	0,8	●	⊕	⊕	⊕	⊕	⊕

To fix the cover use 4 pcs of cover fixtures VU (page 7).
The lid serves to cover the trase to be created by help of reducing parts.

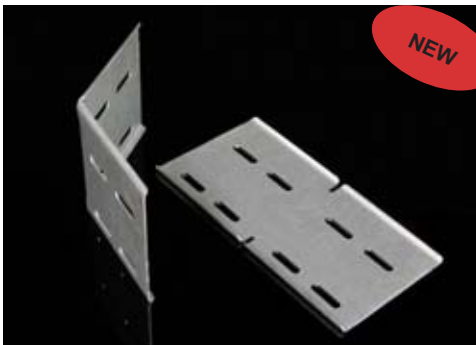




hinged joint

item number	H	t	z	z̄	S	F	EC	P60	P100
SK 50	43	0,8	0,04	4	●	⊕	⊕	⊕	⊕
SK 100	93	1,2	0,19	4	●	⊕	⊕	⊕	⊕

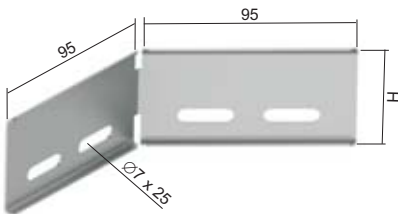
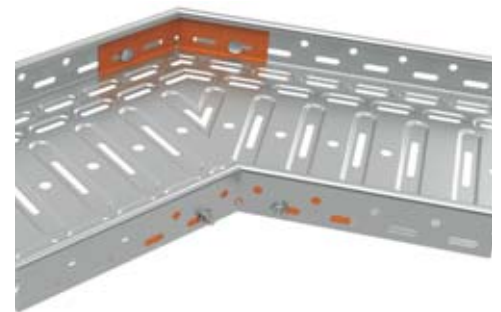
For the connection of the hinged joint to the tray there are used the bolts NSM 6X10 (page 26).
The joint is delivered in 1 piece per packing. For creating of trace flexure there are necessary 2 pcs.



angle coupling

item number	H	t	z	S	F	EC	P60	P100
NSUK 50	47	1,0	0,06	●	⊕	⊕	⊕	⊕
NSUK 100	97	1,0	0,12	●	⊕	⊕	⊕	⊕

The joining is performed using the bolts NSMP 6X10 (page 26).
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.



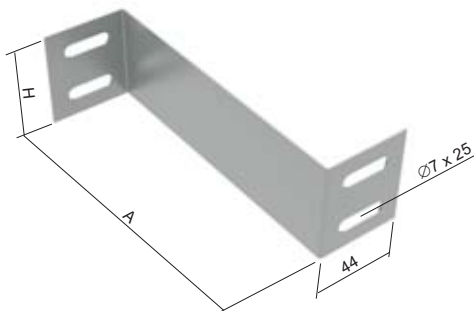


reduction

item number	A	H	‡	‡	‡	S	F	EC	P60	P100
NR 50X62	62	40	0,8	0,03	2	●	⊕	⊕	⊕	⊕
NR 50X125	125	40	0,8	0,05	2	●	⊕	⊕	⊕	⊕
NR 50X250	250	40	0,8	0,08	2	●	⊕	⊕	⊕	⊕
NR 100X125	125	90	0,8	0,11	4	●	⊕	⊕	⊕	⊕
NR 100X250	250	90	0,8	0,18	4	●	⊕	⊕	⊕	⊕

The joining is performed using the bolts NSMP 6X10 (page 26).

The reduction is used for the transition between various tray widths with identical height of side walls.



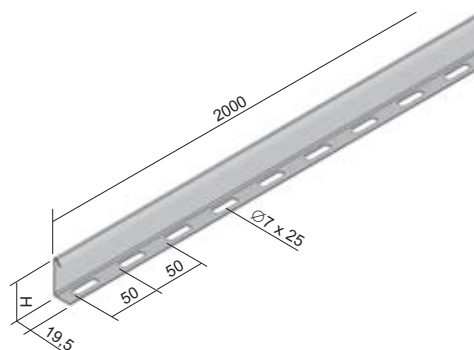
partition

item number	H	‡	‡	S	F	EC	P60	P100
NPZ 50	44	0,7	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 (page 26).

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.

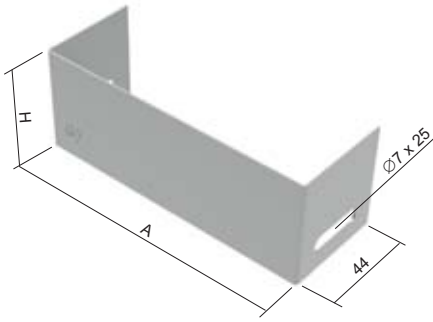




end-piece

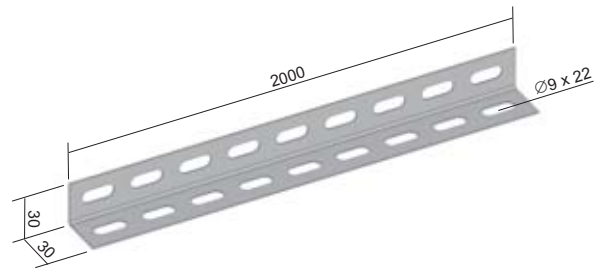
item number	A	H	↓	‡	⌈	S	F	EC	P60	P100
NK 50X62	62	45	0,8	0,04	2	●	⊕	⊕	⊕	⊕
NK 50X125	125	45	0,8	0,06	2	●	⊕	⊕	⊕	⊕
NK 50X250	250	45	0,8	0,09	2	●	⊕	⊕	⊕	⊕
NK 100X125	125	95	0,8	0,12	4	●	⊕	⊕	⊕	⊕
NK 100X250	250	95	0,8	0,20	4	●	⊕	⊕	⊕	⊕
NK 100X500	500	95	0,8	0,44	4	●	⊕	⊕	⊕	⊕

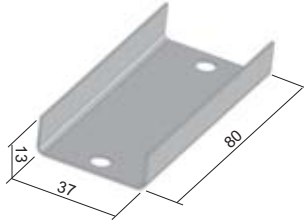
The joining is performed using the bolts NSM 6X10 (page 26).
The end-piece serves for the ending off a route.



supporting corner

item number	↓	‡	S	F	EC	P60	P100
NU 30X30	1,0	0,72	●	⊕	⊕	⊕	⊕

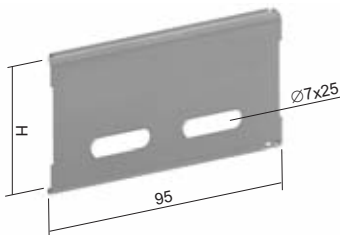




coupling

item number	↑	‡	↓	S	F	EC	P60	P100
NS 40	1,0	0,04	2	●	⌚	⌚	⌚	⌚

The connection is made by bolt NSMP 5X10 (page 26).
Lock washers shall always be used under the bolt head and under nut M5 to meet the requirement of conductive connecting according to ČSN 32 2000-4-41.



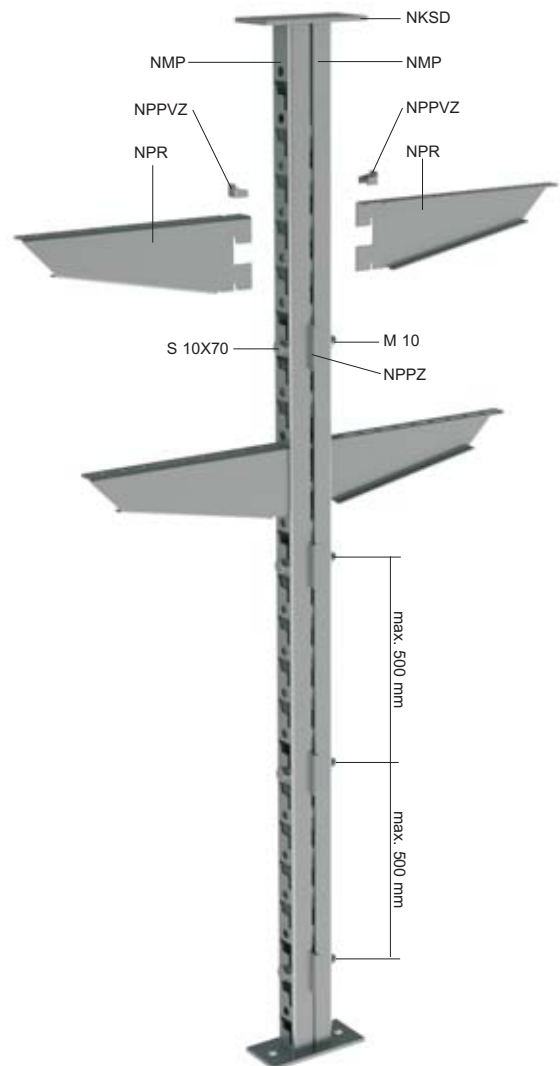
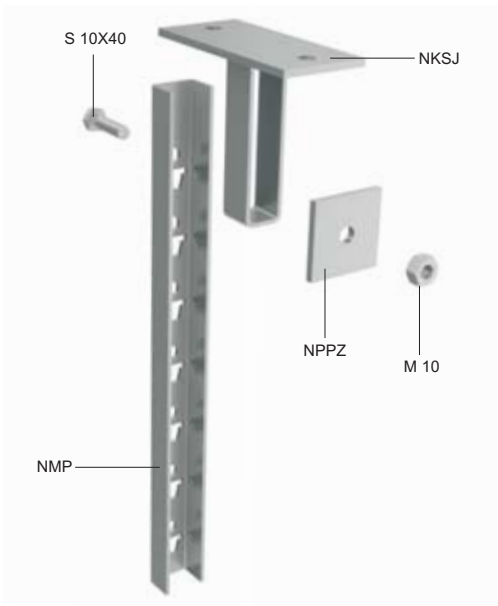
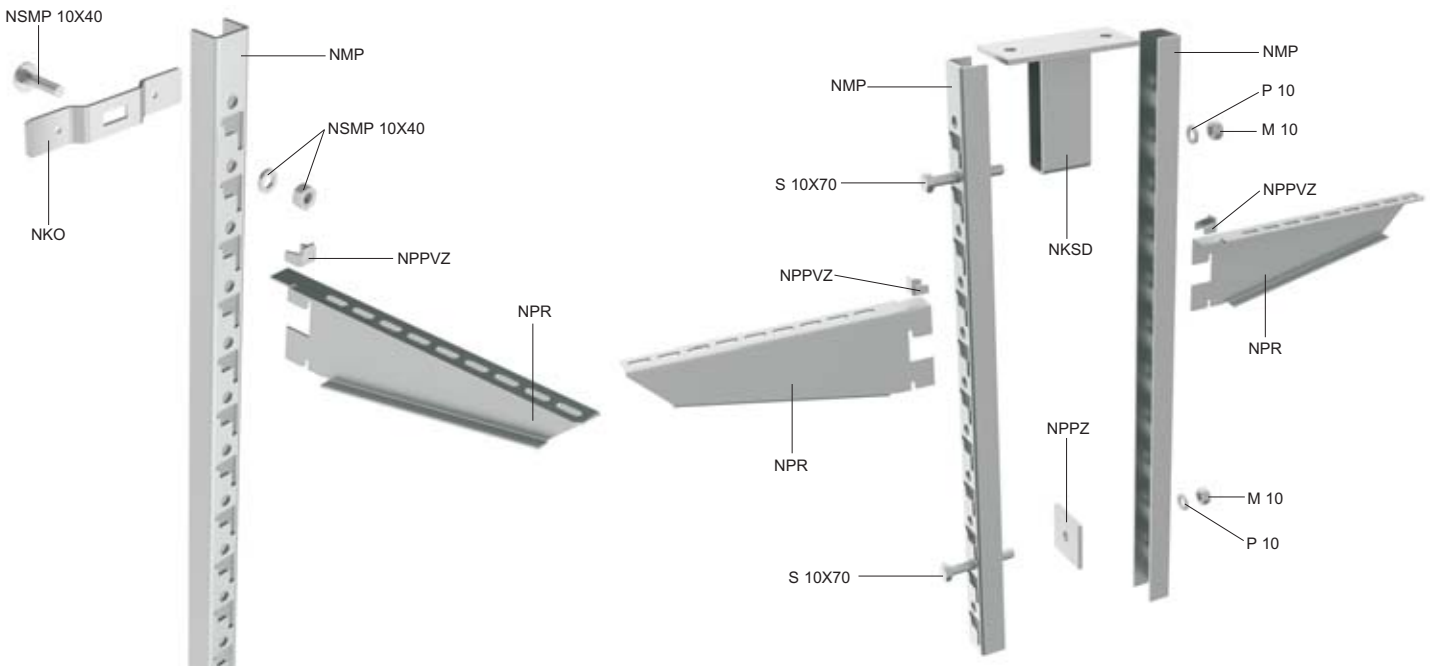
coupling

item number	H	↑	‡	↓	S	F	EC	P60	P100
NS 50	47	1,0	0,03	2	●	●	⌚	⌚	⌚
NS 100	97	1,0	0,06	4	●	●	⌚	⌚	⌚

The connection is made by bolt NSM 6X10 (page 26).
For discharge of conductive connections according to the standard of ČSN 32 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.



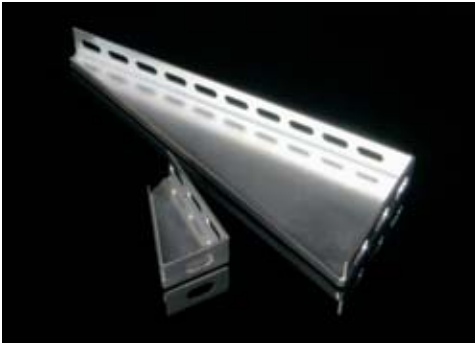
examples of assemblies - assembly profiles, supports, brackets



marking	description	page
NKO	bracket	22
NKSD	double vertical bracket	22
NKSJ	single vertical bracket	22
NMP	assembly profile	21
NPPVZ	safety lock	21
NPPZ	washer	21
NPR	clamp support	20
NSMP 10X40	bolt + nut + washers	27
S 10X40	bolt	27
S 10X70	bolt	27
M 10	nut	27
PD 10	washers	27

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

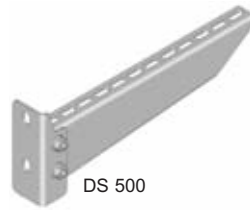
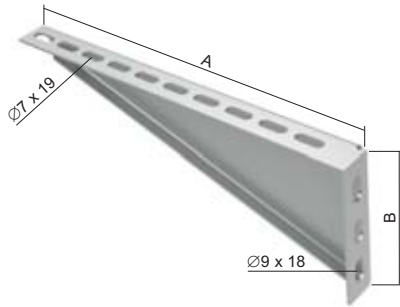
The brackets are attached to the ceiling and the floor in the same way.



wall bracket

item number	A	B	‡	‡	‡	ZNCR	S	F	EC	P60	P100
NPS 62	82	42	1,5	0,08	1	●	-	●	⊕	⊕	⊕
NPS 125	145	70	2	0,17	2	●	-	●	⊕	⊕	⊕
NPS 250	270	100	2	0,38	2	●	-	●	⊕	⊕	⊕
DS 500	518	140	2	1,00	2	-	●	-	⊕	-	-

Cable tray attaching to the wall support is carried out by bolts NSM 6X10 (page 26).
The support DS 500 is designated for tray with a width of 500 mm.



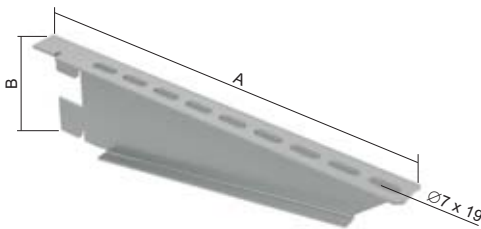
DS 500



clamp support

item number	A	B	‡	‡	S	F	EC	P60	P100
NPR 125	148	78,5	0,17	2	●	⊕	⊕	⊕	⊕
NPR 250	273	78,5	0,35	2	●	⊕	⊕	⊕	⊕
NPR 500	523	78,5	0,69	2	●	⊕	⊕	⊕	⊕

Cable tray attaching to the support is carried out by bolts NSM 6X10 (page 26).
When installed in an assembly profile, the support has to be secured by a safety lock NPPVZ (page 21).
Example of assembling - see page 19.

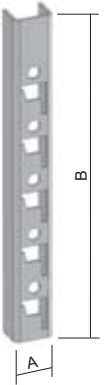




assembly profile

item number	A	B	‡	⌈	F	EC	P60	P100
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	●	⊕	⊕	⊕

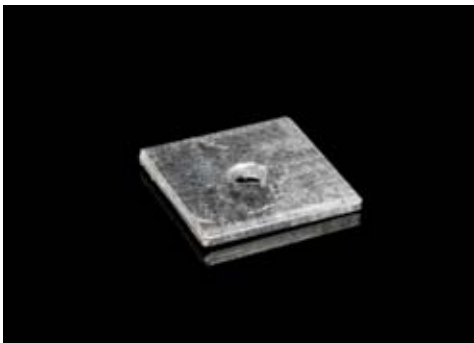
For the attachment of the assembly profile there is used the bracket NKO (page 22).
Example of assembling - see page 19.



safety lock

item number	‡	S
NPPVZ	0,008	●

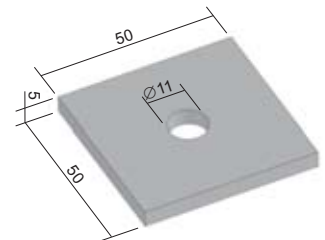
The safety lock is used to secure clamp supports type NPR (page 20) in the assembly profile.
Example of assembling - see page 19.

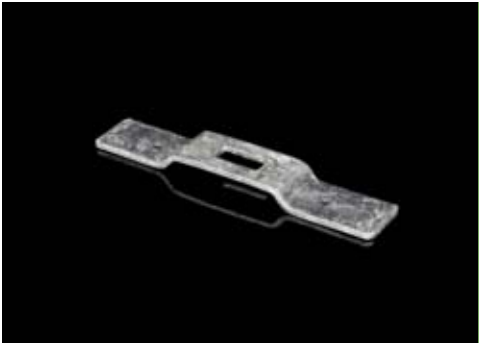


washer

item number	‡	⌈	F	EC	P60	P100
NPPZ	0,09	1	●	⊕	⊕	⊕

The fixation is made by the screw S 10X40 for single-sided assembling or S 10X70 for both-sided assembling (page 27).
Example of assembling - see page 19.

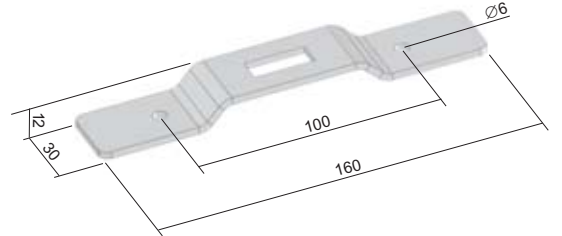




bracket

item number	↓	‡	⬇	F	EC	P60	P100
NKO	3,0	0,11	1	●	⌚	⌚	⌚

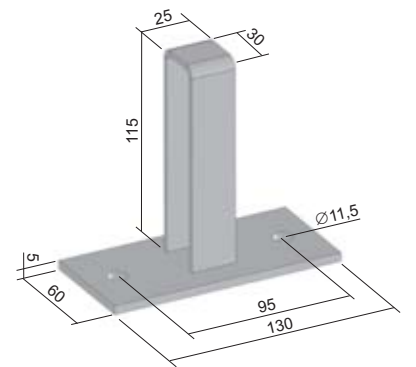
For the attachment of the assembly profile to the bracket there is used the NSMP 10X40 (page 27).
Example of assembling - see page 19.



single vertical bracket

item number	‡	⬇	F	EC	P60	P100
NKSJ	0,58	1	●	⌚	⌚	⌚

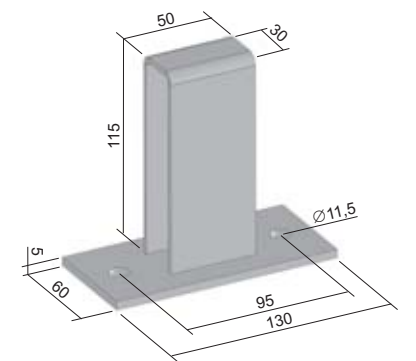
The bracket is designed to anchor the mounting profile on the ceiling or floor.
The fixing is carried out by the bolt S 10X40 (page 27).
Example of assembling - see page 19.



double vertical bracket

item number	‡	⬇	F	EC	P60	P100
NKSD	0,46	1	●	⌚	⌚	⌚

The bracket is designed to anchor the mounting profile on the ceiling or floor.
The fixing is carried out by the bolt S 10X70 (page 27).
Example of assembling - see page 19.

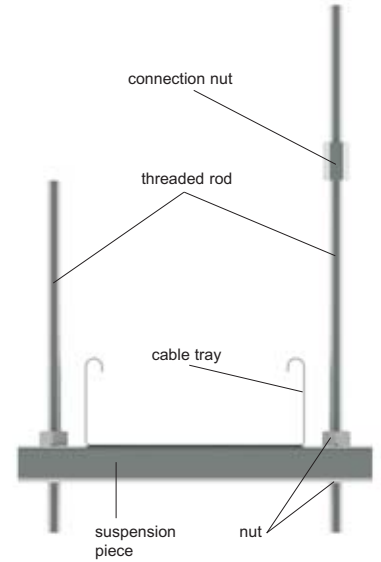
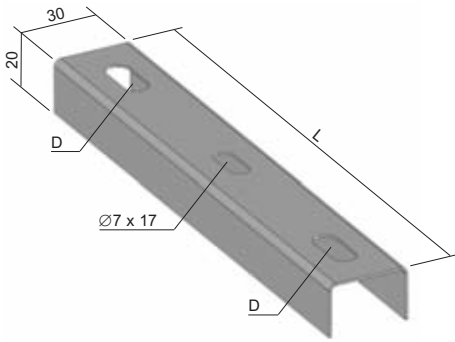




suspension piece

item number	L	D	↑	‡	S	EC	P60	P100
NZ 62	107	∅9 x 18	1,0	0,06	●	⊕	⊕	⊕
NZ 125	170	∅9 x 18	1,0	0,10	●	⊕	⊕	⊕
NZ 250	295	∅9 x 18	1,0	0,16	●	⊕	⊕	⊕
NZ 500	545	∅11 x 20	1,0	0,29	●	⊕	⊕	⊕

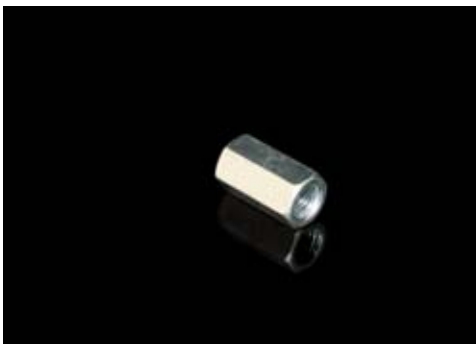
It is used to suspend a cable tray in combination with threaded rods.



threaded rod

item number	∅	±*	‡	ZNCR
ZT 6	M 6	2250	0,17	●
ZT 8	M 8	4060	0,31	●
ZT 10	M 10	6490	0,46	●

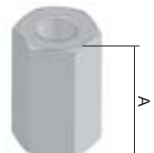
The standard length of the threaded rod is 2 m.
* tolerable bearing resistance - calm load



connection nut

item number	∅	A	‡	ZNCR
MZ 6	M 6	18	0,01	●
MZ 8	M 8	24	0,02	●
MZ 10	M 10	30	0,04	●

Used for the connection of two threaded rods.

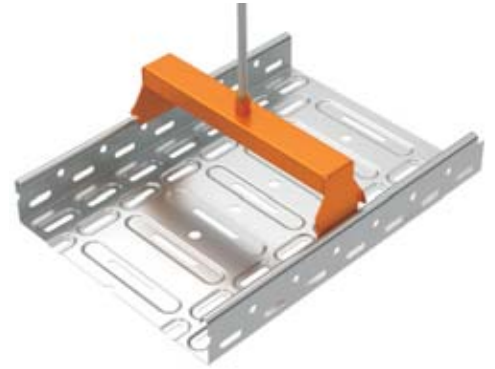
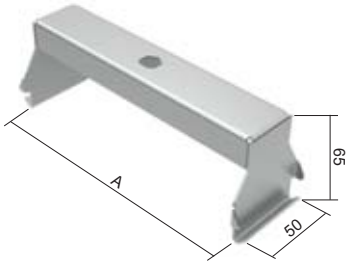




outer hanger

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	-	-	●
MNS 10*	-	0,01	-	-	●

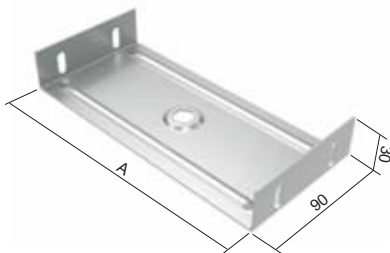
The maximum load is 90 kg.
 It is mounted using the threaded rod ZT 8 or ZT 10.
The MN Nut, MNS is not part of the hangings.
 The dimension of the Nut is selected according to the diameter of threading bar.
 MNS 10 - hexagonal nut - there is fixated in hanging against rotation.
 The hanging is suitable for hang-up the Trays with partition.
 * until the sell-out of stocks.



inner hanger

item number	A	‡	S	F	ZNCR
ZVNI 50X62	57	0,10	●	⊕	-
ZVNI 50X125	120	0,18	●	⊕	-
ZVNI 50X250	245	0,31	●	⊕	-
MN 8	-	0,01	-	-	●
MN 10	-	0,01	-	-	●
MNS 10*	-	0,01	-	-	●

The maximum load is 90 kg.
 It is mounted using the threaded rod ZT 8 or ZT 10.
The MN Nut, MNS is not part of the hangings.
 The dimension of the Nut is selected according to the diameter of threading bar.
 MNS 10 - hexagonal nut - there is fixated in hanging against rotation.
 * until the sell-out of stocks.



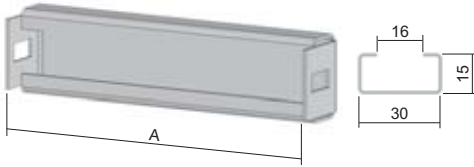


supporting profile for cable clamps

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 (page 26) 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	NKZI 50	NKZI 100
PKC1 1198	8	12	0,03	●	no	yes
PKC1 1199	12	16	0,03	●	no	yes
PKC1 1200	16	20	0,04	●	no	yes
PKC1 1201	20	24	0,04	●	no	yes
PKC1 1202	24	28	0,04	●	no	yes
PKC1 1203	28	32	0,06	●	no	yes
PKC1 1204	32	36	0,07	●	no	yes
PKC1 1205	36	40	0,08	●	no	yes
PKC1 1206	40	44	0,09	●	no	yes
PKC1 1207	44	48	0,10	●	no	no
PKC1 1208	48	52	0,10	●	no	no
PKC1 1209	52	56	0,11	●	no	no
PKC1 1210	56	60	0,14	●	no	no
PKC1 1211	60	64	0,16	●	no	no
PKC1 1212	64	70	0,16	●	no	no



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

YES



NO



The information states the minimum and maximum diameter of the cable being fastened.





clamp

item number	GMT
KSV	●

Serves for securing the connection of cable trays.



carriage bolt + lock nut

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



bolt + nut + lock washers

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

Serves to secure the conductive interconnection.



carriage bolt + nut + plain washer

item number		ZNCR
NSMP 10X40	50	●

Serves to fixation of assembling profile NMP by help of NKO console (see page 19).



bolt with hexagonal head

item number		ZNCR
S 10X40		●
S 10X70		●

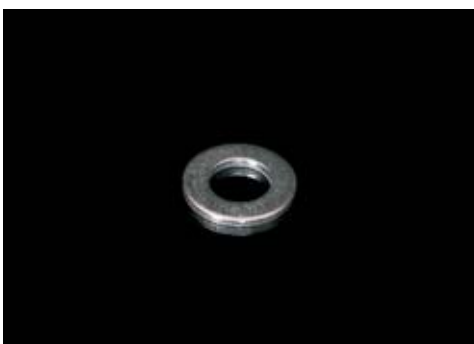
S 10X40 - serves to fixation of assembling profile NMP for single console NKSJ. The assembling is executed by help of NPPZ Pad and M 10 Nut (see Page 19).

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 Page 19).



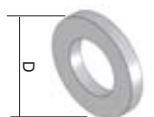
hexagon nut

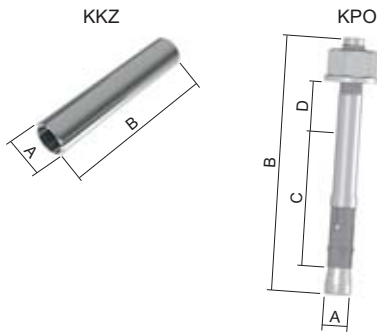
item number		ZNCR
M 6		●
M 8		●
M 10		●



washer

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





anchor

item number	A	B	C	D	E	thread	‡	PO	ZNCR
KPO 6X50	6	50	35	5	45	M6	0,01	●	-
KPO 6X70	6	70	35	10	70	M6	0,02	●	-
KPO 8X77	8	77	45	10	75	M8	0,03	●	-
KPO 8X97	8	97	45	30	95	M8	0,04	●	-
KPO 10X95	10	95	60	10	90	M10	0,06	●	-
KPO 10X115	10	115	60	30	110	M10	0,08	●	-
KPO 12X120	12	120	70	10	115	M12	0,10	●	-
KPO 12X150*	12	150	70	30	145	M12	0,13	●	-
KKZ 6	8	25	-	-	-	M6	0,01	-	●
KKZ 8	10	30	-	-	-	M8	0,01	-	●
KKZ 10	12	40	-	-	-	M10	0,02	-	●
KKZ 12	15	50	-	-	-	M12	0,05	-	⊕

C - anchor depth

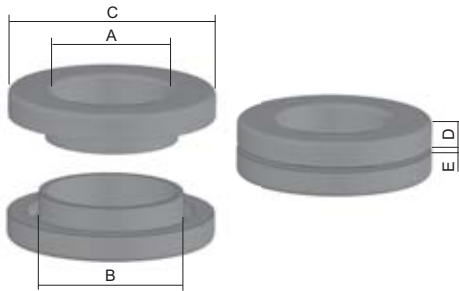
D - maximum thickness of the material being attached

E - minimum depth of the drilled hole

Anchors serve for the attaching of construction elements to the base material (concrete, stone).

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

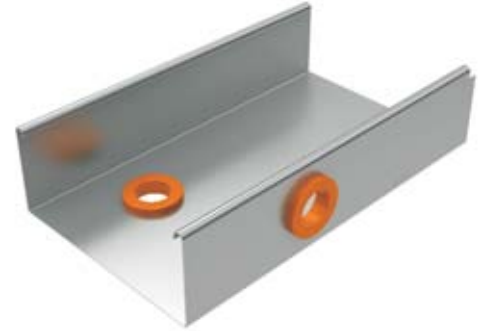
* until the sell-out of stocks.



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	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 side-wall 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.
Packing = 10 m.



zinc paint / spray

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

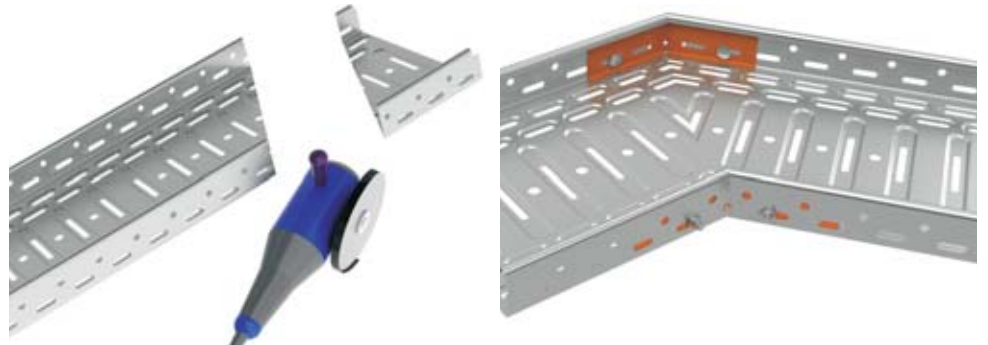
Anticorrosive protection intended for service of defective and damaged places on galvanized surface.
Lay on the color by paintbrush, stipple technology.

construction - flexion or evasion of the trace

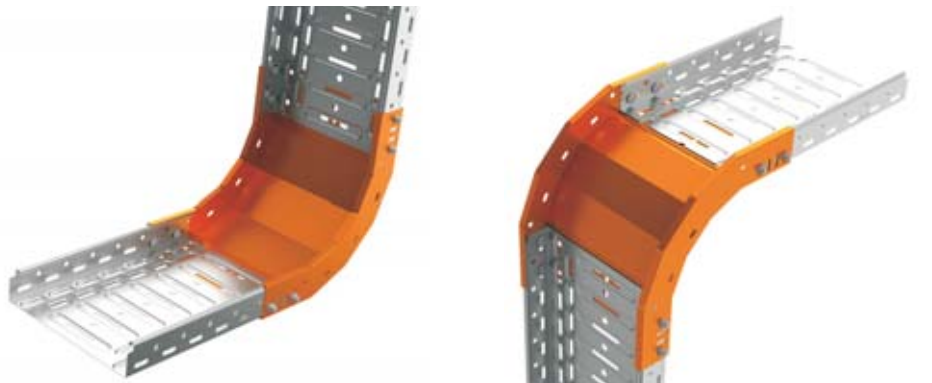
For horizontal flexion we use the elbows O 90 (O 45), which ensure the horizontal flexion 90 (45). Such created flexion provides all advantages which offers the accessories to be offered to the system of cable trays. It mainly concerns of the rigidity of the connection, exactly defined angle or protection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

Plastic powder spraying according to order (basic group – 19 color shades of RAL scale, see surface finish).

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	1	1	1	1	0	0	0	0	0
NKZI 50X62X0.7	31	15,5	21	15	17	12	12	8	7	5	4	2	3	2	1	1	1	0
NKZI 50X125X0.7	62,5	31,25	42	31	35	25	25	16	14	10	8	5	5	3	3	2	2	0
NKZI 100X125X1.0	125	62,5	85	61	69	50	50	33	27	19	15	9	10	6	6	4	3	0
NKZI 50X250X0.8	125	62,5	85	61	69	50	50	33	27	19	15	9	10	6	6	4	3	2
NKZI 100X250X0.8	250	125	169	123	139	100	100	66	55	39	30	18	20	13	11	8	7	4
NKZI 100X500X1.25	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. This is achieved by fixed connection using bolts and lock washers. When using the KSV clamp it is necessary to connect individual parts (trays, accessories) by an additional protective wire with the corresponding cross section (see the table). 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.

The calculations of individual variants of cable trays suggest their use for individual types of cables.

cable tray type	cable tray cross-section (mm ²)	equals approx. wire cross-section (mm ²)	max. cross-section of a phase conductor (mm ²)
NKZ 20X40	42	Cu 16	Cu 35
NKZI 50X62X0.7	78,4	Cu 35	Cu 70
NKZI 50X125X0.7	157,5	Cu 70	Cu 120
NKZI 100X125X1.0	227,5	Cu 90	Cu 185
NKZI 50X250X0.8	490	Cu 185	Cu 240
NKZI 100X250X0.8	630	Cu 240	Cu 240
NKZI 100X500X1.25	980	Cu 240	Cu 240

