

## METAL ENCLOSURES AND CABINETS



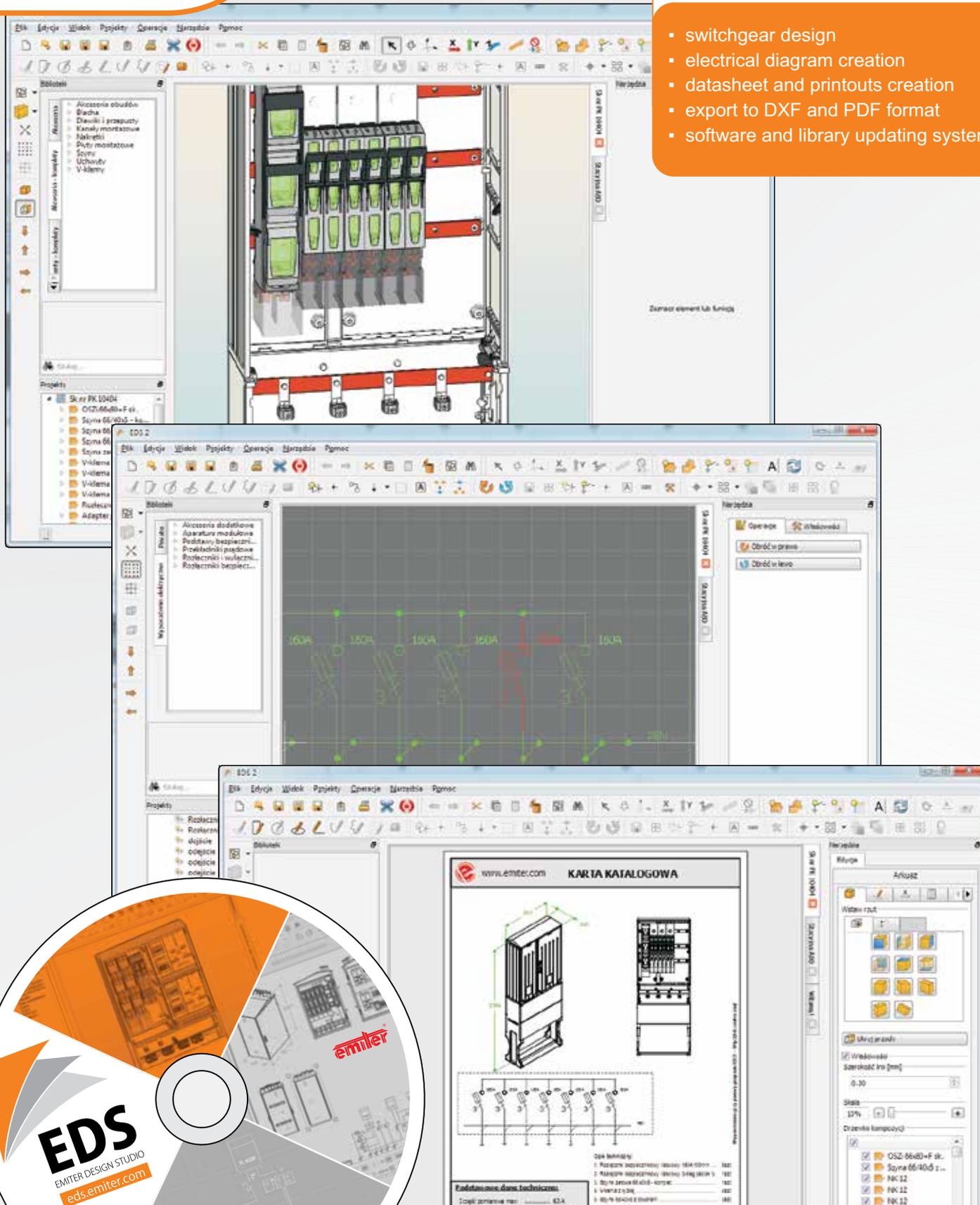


# EDS

EDS is an application designed by the Emitter company. It is intended to be used for designing electrical switchgears. The software is free and available on CD-R or downloadable from eds.emiter.com.

## Software capabilities:

- switchgear design
- electrical diagram creation
- datasheet and printouts creation
- export to DXF and PDF format
- software and library updating system



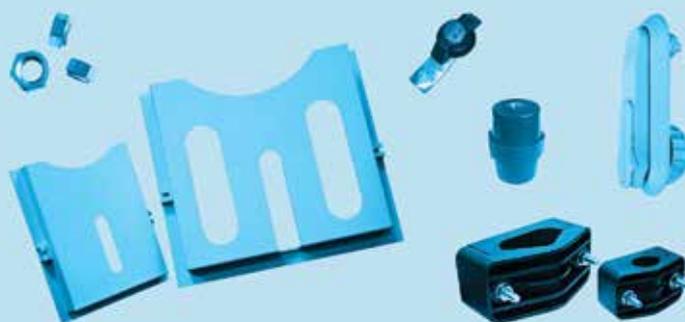

**EDS**  
EMITER DESIGN STUDIO  
eds.emiter.com

**Metal enclosures  
and cabinets**



**pages  
11-129**

**Universal equipment**



**pages  
131-155**

**Technical information**



**pages  
157-166**

## METAL ENCLOSURES

### • Main features of metal cabinets and their recommended applications

enclosure type	picture	indoor - I outdoor - O	material	IP degree	range of dimensions min / max	recommended application	mounting place	page number
DE DEK		O	A	IP31	250×250 / 400×500	<ul style="list-style-type: none"> <li>new cover of flush mounted switchgears</li> </ul>	<ul style="list-style-type: none"> <li>wall</li> </ul>	12-13
OMU OMK		I	S	IP31	200×300×150 / 1000×1200×300	<ul style="list-style-type: none"> <li>universal</li> <li>general purpose</li> </ul>	<ul style="list-style-type: none"> <li>wall</li> <li>flush mounted</li> </ul>	14-19
OMS		I	S	IP65 IP55	200×300×150 / 1000×1400×400	<ul style="list-style-type: none"> <li>universal</li> <li>general purpose</li> </ul>	<ul style="list-style-type: none"> <li>wall</li> <li>hardened surface</li> <li>buried</li> </ul>	20-27
		O	AZ, A, SS					
SU		O	AZ, A, SS	IP43	280×880×335 / 1200×2000×500	<ul style="list-style-type: none"> <li>universal</li> <li>general purpose</li> </ul>	<ul style="list-style-type: none"> <li>hardened surface</li> <li>buried</li> </ul>	28-33
DSU (DIN standard)		O	AZ, A, SS	IP43	460×890×320 / 1120×1200×340	<ul style="list-style-type: none"> <li>universal</li> <li>general purpose</li> <li>DIN - standard dimensions</li> </ul>	<ul style="list-style-type: none"> <li>hardened surface</li> <li>buried</li> </ul>	34-35
SUW		O	AZ	IP43	500×900×320 / 1150×1200×340	<ul style="list-style-type: none"> <li>universal</li> <li>general purpose</li> <li>reinforced</li> <li>harbours</li> <li>railways</li> <li>mines</li> </ul>	<ul style="list-style-type: none"> <li>hardened surface</li> <li>buried</li> </ul>	42-43
SR		I	S	IP30 IP55	400×1600×400 / 1200×2000×600	<ul style="list-style-type: none"> <li>universal</li> <li>control</li> <li>IT</li> <li>cable TV</li> <li>switchgears</li> <li>electricity distribution and measurement</li> </ul>	<ul style="list-style-type: none"> <li>floor</li> </ul>	44-68
SN		O	AZ	IP43	535×880×335 / 1000×880×335	<ul style="list-style-type: none"> <li>universal</li> <li>control</li> <li>IT</li> <li>cable TV</li> <li>switchgears</li> <li>electricity distribution and measurement</li> </ul>	<ul style="list-style-type: none"> <li>wall</li> </ul>	69-70
OWW		I	S	IP43	400×1600×400 / 1200×2000×600	<ul style="list-style-type: none"> <li>universal</li> <li>general purpose</li> <li>control</li> <li>switchgears</li> <li>electricity distribution and measurement</li> </ul>	<ul style="list-style-type: none"> <li>floor</li> </ul>	71-76
SSU		I	S	IP43	600×1600×400 / 1200×2000×500	<ul style="list-style-type: none"> <li>universal</li> </ul>	<ul style="list-style-type: none"> <li>floor</li> </ul>	77-79

enclosure type	picture	indoor - I outdoor - O	material	IP degree	range of dimensions min / max	recommended application	mounting place	page number
SSS		I O	S AZ, A, SS	IP55	400×1600×400 / 1200×2000×600	<ul style="list-style-type: none"> <li>universal</li> <li>general purpose</li> <li>control</li> <li>switchgears,</li> <li>electricity distribution and measurement</li> </ul>	<ul style="list-style-type: none"> <li>floor</li> </ul>	80-86
PSA PSB		I	S	IP55	600×970×450 / 1500×1350×800	<ul style="list-style-type: none"> <li>control</li> </ul>	<ul style="list-style-type: none"> <li>floor</li> </ul>	87-90
SK SKP SKPO		O	A	IP44	400×950×320 / 1250×1750×400	<ul style="list-style-type: none"> <li>switchgears</li> <li>electricity distribution and measurement</li> <li>lighting</li> </ul>	<ul style="list-style-type: none"> <li>hardened surface</li> <li>buried</li> </ul>	91-95
SWAP SWAPO		O	A	IP44	1300×850×500 / 1500×1150×500	<ul style="list-style-type: none"> <li>switchgears</li> <li>electricity distribution and measurement</li> <li>lighting</li> </ul>	<ul style="list-style-type: none"> <li>in wall mounted</li> </ul>	96-97
ORM		I	S	IP43	350×2000×300 / 1150×2000×300	<ul style="list-style-type: none"> <li>electricity distribution and measurement</li> <li>TV</li> <li>phone</li> </ul>	<ul style="list-style-type: none"> <li>floor</li> </ul>	98-101
ORMU ORMK		I	S	IP30	560×600×200 / 560×1050×200	<ul style="list-style-type: none"> <li>electric circuit protection using modular devices</li> </ul>	<ul style="list-style-type: none"> <li>wall</li> <li>flush mounted</li> </ul>	102-103
ORP		I	S	IP30	264×1594×250 / 660×1800×250	<ul style="list-style-type: none"> <li>electricity distribution and measurement</li> <li>circuit protection</li> </ul>	<ul style="list-style-type: none"> <li>floor</li> </ul>	104-107
ORW		I	S	IP30	600×1800×250 / 1200×2000×400	<ul style="list-style-type: none"> <li>electricity distribution and measurement</li> <li>circuit protection</li> </ul>	<ul style="list-style-type: none"> <li>floor</li> </ul>	108-111

*Designation:*

A - aluminium AlMg3

S - carbon steel DC01

AZ - aluzinc plated steel AZ 150

SS - stainless steel V2A, AISI 304

enclosure type	picture	indoor - I outdoor - O	material	IP degree	range of dimensions min / max	recommended application	mounting place	page number
ST/A		O	A	IP44	600×1280×600 / 1200×1333×600	<ul style="list-style-type: none"> <li>• switchgears</li> <li>• electricity distribution</li> <li>• measurement and protection</li> </ul>	• pole	112-119
RSO		O	AZ	IP44	1010×1020×760 / 1280×1500×860	<ul style="list-style-type: none"> <li>• switchgears</li> <li>• electricity distribution</li> <li>• measurement and protection</li> </ul>	• pole	120-122
NTw		O	AZ	IP20	depends on configuration	<ul style="list-style-type: none"> <li>• switchgears</li> <li>• electricity distribution</li> <li>• measurement and protection</li> </ul>	• transformer station	123-127
ORB		O	AZ	IP43	550×600×300 / 550×800×300	<ul style="list-style-type: none"> <li>• electricity distribution</li> <li>• measurement and protection</li> </ul>	• construction site	128-129

*Designation:*

A- aluminium AIMg3

AZ - aluzinc plated steel AZ 150

• Enclosure selection depending on environmental conditions

enclosure type	internal dry atmosphere	internal moist atmosphere	internal moist and aggressive atmosphere	external village shady environment	external industrial and urban shady environment	external village environment	external industrial and urban environment	external marine environment
carbon steel OMU, OMK, OMS, SR, OWW, SSU, SSS, PSA, PSB, ORM, ORMU, ORMK, ORP, ORW	+	-	-	-	-	-	-	-
aluzinc plated steel OMS, SU, DSU, SUW, SR, SN, SSS, RS, NTw, ORB	+	+	+	+	+	+	+	-
aluminium DE, DEK, OMS, SU, DSU, SSS, SK, SKP, SKPO, SWAP, SWAPO, ST/A	+	+	+	+	+	+	+	+
V2A OMS, SU, DSU, SSS	+	+	+	+	+	+	+	+
V4A OMS, SU, DSU, SSS	+	+	+	+	+	+	+	+

NTw - internal only

**METAL ENCLOSURES AND CABINETS**

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## Metal enclosures and cabinets



**Application**

- To be mounted into facade cavity after polystyrene foam insulation, instead of old doors of electric enclosure.

**Type of installation**

- Doors to be placed in the cavity of the new facade and fixed by four expansion bolts dia Ø8 to the wall.

**Design**

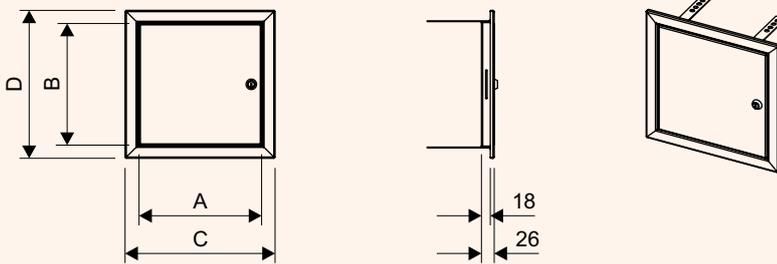
- The door and frame are made of aluminium sheet;
- Polyester structural powder painted, colour RAL 7035;
- The doors are closed by the cylinder lock Z2106 type in DE version and additionally by padlock in DEk version;
- It is possible to install the door on the right or left side of the frame.



**Technical data**

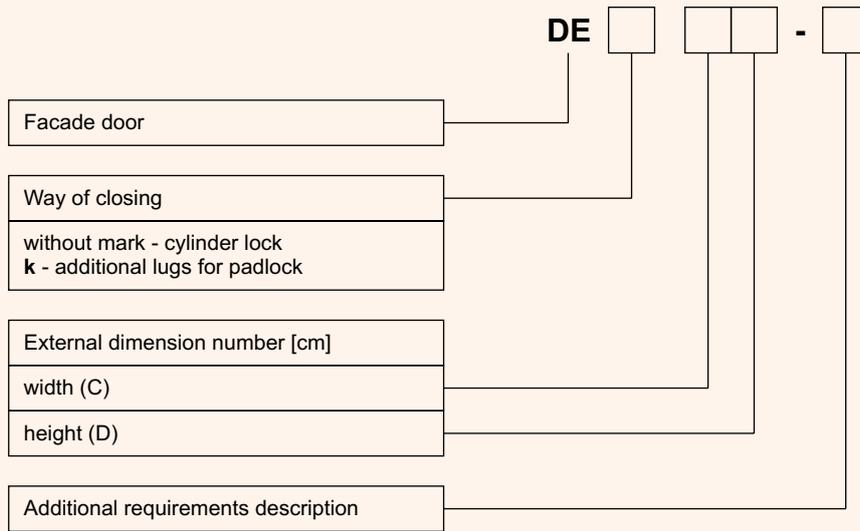
- Protection class: I;
- Ingress protection degree: IP31;
- Impact protection degree: IK10.

**Dimensions**



**Reference chart**

type	dimension A [mm]	dimension B [mm]	dimension C [mm]	dimension D [mm]	Mounting dimensions of facade cavity [mm]
DE 25 25 DEK 25 25	250	250	306	304	260×260
DE 30 30 DEk 30 30	300	300	356	354	310×310
DE 30 40 DEK 30 40	300	400	356	454	310×410
DE 40 40 DEk 40 40	400	400	456	454	410×410
DE 50 40 DEK 50 40	500	400	556	454	510×410
DE 45 52 DEK 45 52	450	520	506	574	460×530
DE 54 37 DEK 54 37	540	370	596	424	550×380
DE 39 49 DEK 39 49	390	490	446	444	400×500
DE 40 50 DEk 40 50	400	500	456	554	410×510
DE 34 49 DEK 34 39	340	390	396	444	350×400

**How to order**

- Ordering example:  
- Facade door DE 39 49.

**Scope of delivery**

- Facade door;
- Key for the lock (number 1333).

**Application**

- Indoor enclosures for switchgears, control devices for processes and machines.

**Type of installation**

- Indoor;
- Wall mounted.

**Operating conditions**

- Indoor;
- Dry environment.

**Design**

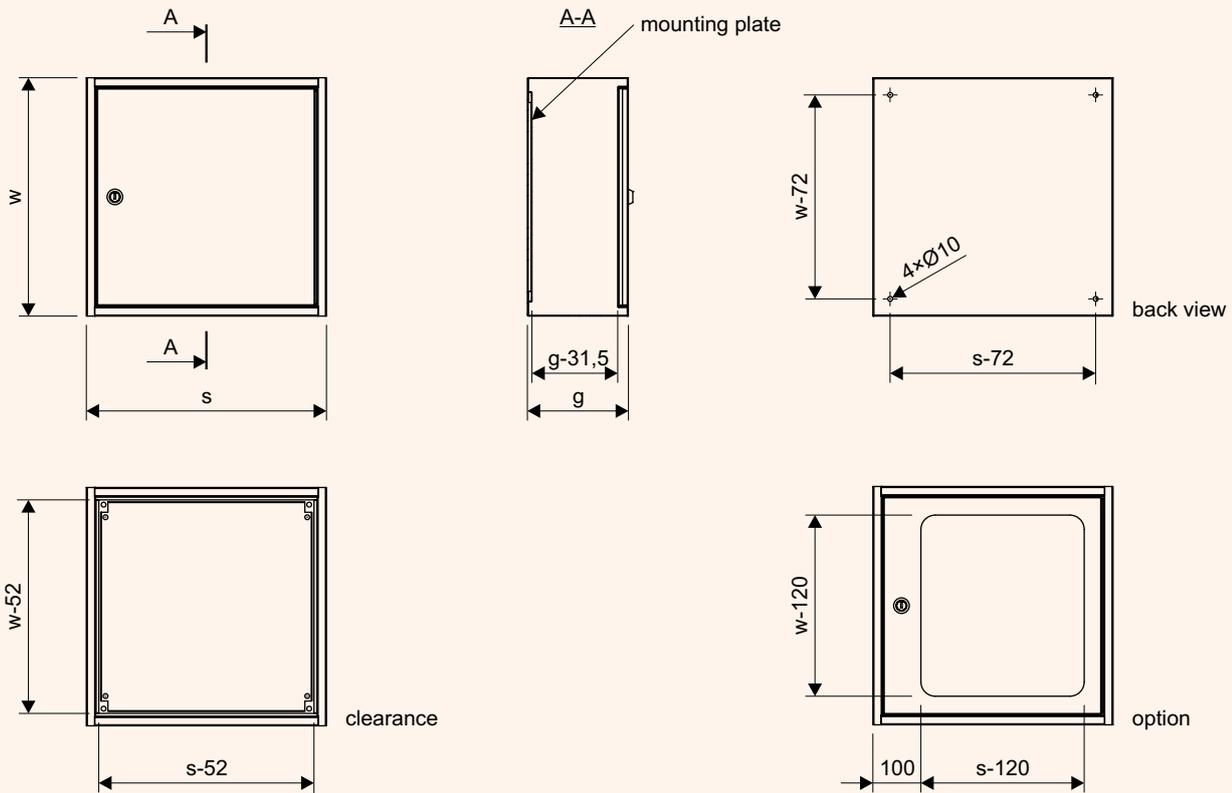
- Carbon steel, thickness 1 - 1,5 mm;
- Polyester structural powder painted, colour RAL 7035;
- Concealed door without gasket, right-left side hanging possible;
- Mounting holes on the back wall;
- Mounting plate made of aluzinc plated steel, thickness 1 - 2 mm;
- Earthing screws;
- Door closing: cylinder lock Z-2106;
- Door can be equipped with polycarbonate window (from dimension  $s \times w = 400 \times 400$  mm).

**Technical data**

- Protection class: I;
- Ingress protection degree: IP31;
- Impact protection:
  - IK10 - for standard door,
  - IK07 - for window door.



**Dimensions**



The producer reserves the right to introduce technical modifications

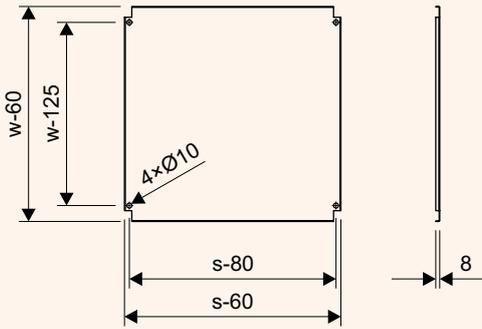
Reference chart

type	dimensions [mm]			dimensions of cable gland plate* [mm]	sheet thickness [mm]	number of locks	mounting plate dimensions [mm]
	s	w	g				
OMU 20 30 15	200	300	150	90×180	1	1	140×240
OMU 30 20 15	300	200	150	90×150	1	1	240×140
OMU 30 30 15	300	300	150	90×230	1	1	240×240
OMU 30 30 21	300	300	210	90×230	1	1	240×240
OMU 30 40 15	300	400	150	90×230	1	1	240×340
OMU 30 40 21	300	400	210	90×230	1	1	240×340
OMU 30 50 21	300	500	210	90×230	1	1	240×440
OMU 40 30 15	400	300	150	90×230	1	1	340×240
OMU 40 30 21	400	300	210	90×230	1	1	340×240
OMU 40 40 21	400	400	210	90×230	1	1	340×340
OMU 40 40 30	400	400	300	90×330	1	1	340×340
OMU 40 50 21	400	500	210	150×330	1,2	1	340×440
OMU 40 60 21	400	600	210	150×330	1,2	1	340×540
OMU 40 60 30	400	600	300	150×330	1,2	1	340×540
OMU 50 40 30	500	400	300	150×330	1,2	1	440×340
OMU 50 50 21	500	500	210	150×330	1,2	1	440×440
OMU 50 50 30	500	500	300	150×420	1,2	1	440×440
OMU 50 60 21	500	600	210	150×420	1,2	1	440×540
OMU 50 60 30	500	600	300	150×420	1,2	1	440×540
OMU 60 40 30	600	400	300	150×420	1,2	1	540×340
OMU 60 50 21	600	500	210	150×420	1,2	1	540×440
OMU 60 50 30	600	500	300	150×420	1,2	1	540×440
OMU 60 60 21	600	600	210	150×520	1,2	1	540×540
OMU 60 60 30	600	600	300	150×520	1,2	1	540×540
OMU 60 80 21	600	800	210	150×520	1,5	2	540×740
OMU 60 80 30	600	800	300	150×520	1,5	2	540×740
OMU 60 80 38	600	800	380	150×520	1,5	2	540×740
OMU 60 100 30	600	1000	300	150×520	1,5	2	540×940
OMU 60 120 30	600	1200	300	150×520	1,5	2	540×1140
OMU 80 60 21	800	600	210	150×520	1,5	1	740×540
OMU 80 60 28	800	600	280	150×520	1,5	1	740×540
OMU 80 80 21	800	800	210	150×520	1,5	2	740×740
OMU 80 80 28	800	800	280	150×520	1,5	2	740×740
OMU 80 100 21	800	1000	210	150×520	1,5	2	740×940
OMU 80 100 28	800	1000	280	150×520	1,5	2	740×940
OMU 80 120 28	800	1200	280	150×520	1,5	2	740×1140
OMU 90 100 23	900	1000	230	150×520	1,5	2	840×940
OMU 90 120 23	900	1200	230	150×520	1,5	2	840×1140
OMU 100 100 18	1000	1000	180	150×520	1,5	2	940×940
OMU 100 120 18	1000	1200	180	150×520	1,5	2	940×1140

\* cable gland plate is fixed to the housing by the screws (option)

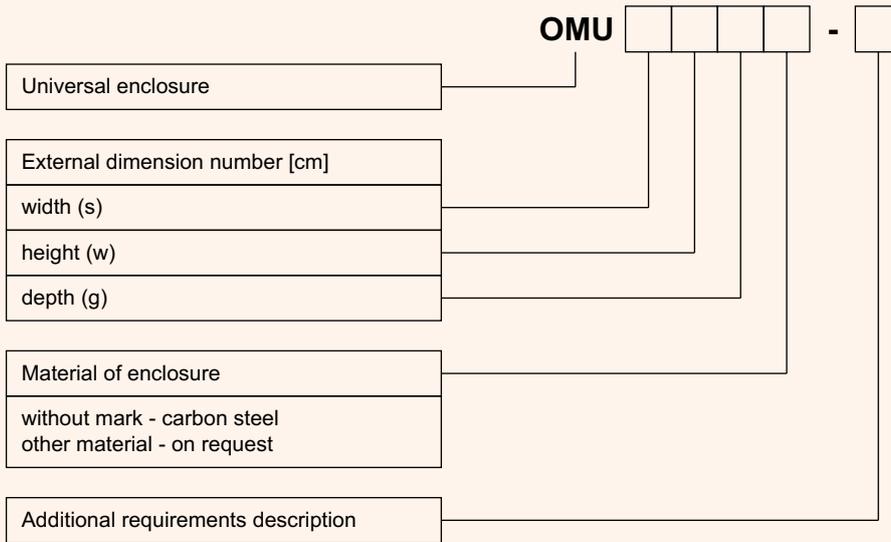
The producer reserves the right to introduce technical modifications

**Mounting plate for OMU enclosures**



- Material: aluzinc plated steel, thicknes 1-2 mm.

**How to order**



- Ordering example:  
- Universal enclosure with mounting plate OMU 30 40 50.

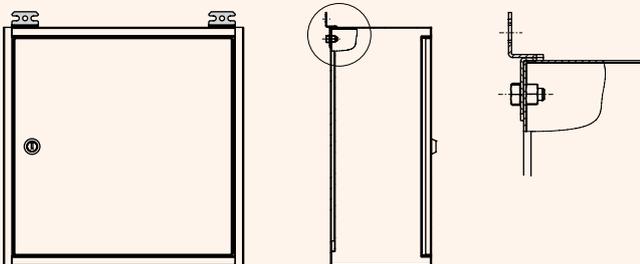
**ACCESSORIES FOR OMU ENCLOSURES**

**Wall holder**

**Application**

- Fixing OMU enclosure to the wall.

**Design**



- Wall holder kit consists of:  
- holder (MZ1719),  
- M8x10 screw,  
- nut (M1971).

**How to order**

- MZ2259 wall holder kit.



**Application**

- Enclosures for switchgears, control devices for processes and machines.

**Type of installation**

- Indoor;
- Flush mounted.

**Operating conditions**

- Indoor;
- Dry environment.

**Design**

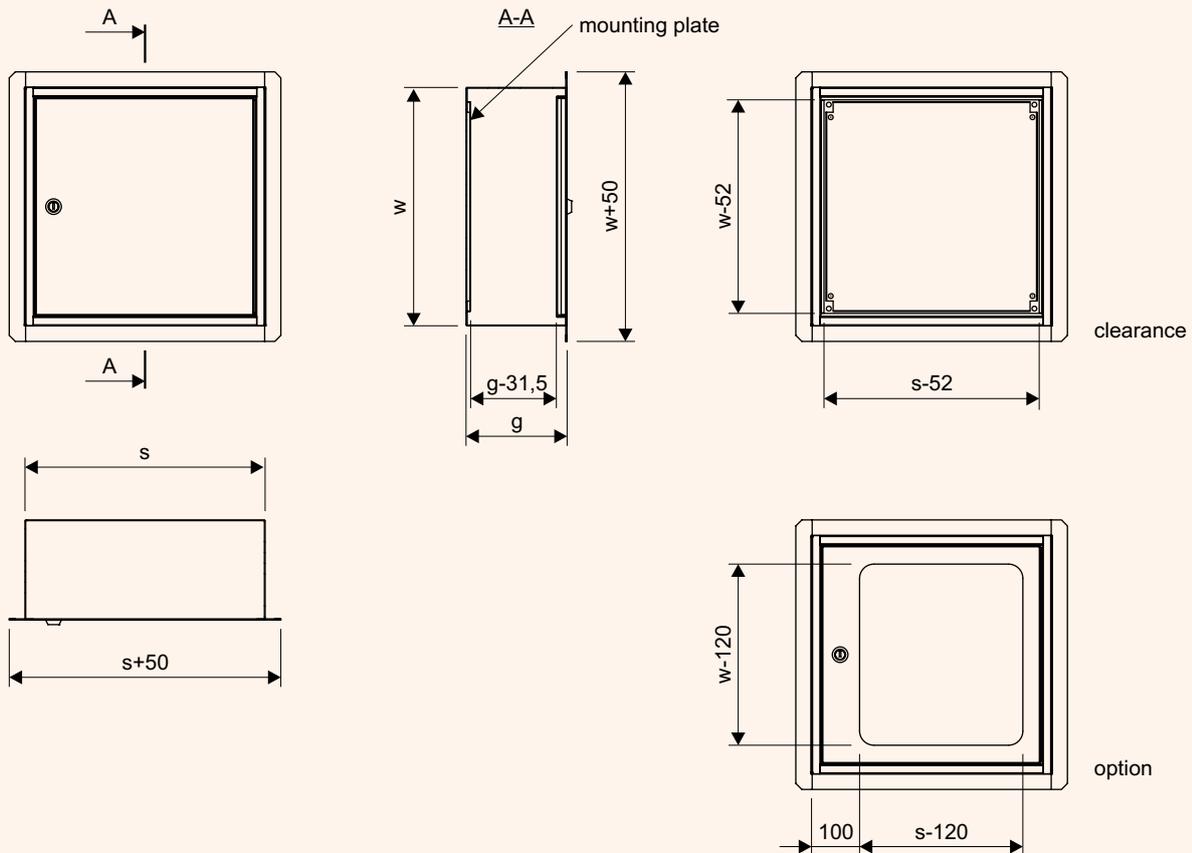
- Carbon steel 1 - 1,5 mm;
- Polyester structural powder painted, colour RAL 7035;
- Concealed door without gasket, right-left side hanging possible;
- Mounting plate made of aluzinc plated steel, thickness 1 - 2 mm;
- Earthing screws;
- Door closing: cylinder lock Z-2106;
- Door can be equipped with polycarbonate window (from dimension  $s \times w = 400 \times 400$  mm).



**Technical data**

- Protection class: I;
- Ingress protection degree: IP31;
- Impact protection:
  - IK10 - for standard door,
  - IK07 - for window door.

**Dimensions**

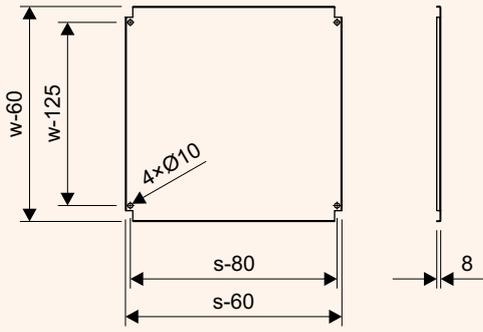


The producer reserves the right to introduce technical modifications

## Reference chart

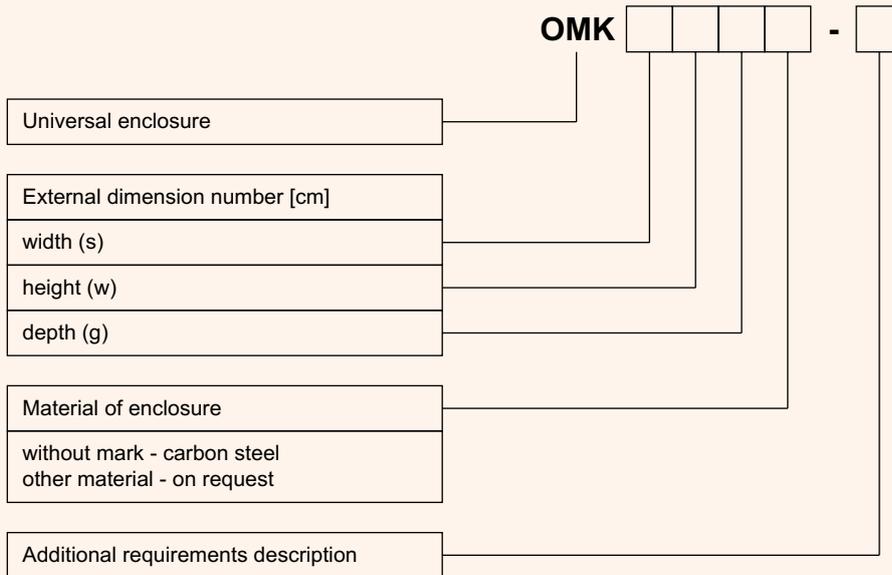
type	dimensions [mm]			sheet thickness [mm]	number of locks	mounting plate dimensions [mm]
	s	w	g			
OMK 20 30 15	200	300	150	1	1	140×240
OMK 30 20 15	300	200	150	1	1	240×140
OMK 30 30 15	300	300	150	1	1	240×240
OMK 30 30 21	300	300	210	1	1	240×240
OMK 30 40 15	300	400	150	1	1	240×340
OMK 30 40 21	300	400	210	1	1	240×340
OMK 30 50 21	300	500	210	1	1	240×440
OMK 40 30 15	400	300	150	1	1	340×240
OMK 40 30 21	400	300	210	1	1	340×240
OMK 40 40 21	400	400	210	1	1	340×340
OMK 40 40 30	400	400	300	1	1	340×340
OMK 40 50 21	400	500	210	1,2	1	340×440
OMK 40 60 21	400	600	210	1,2	1	340×540
OMK 40 60 30	400	600	300	1,2	1	340×540
OMK 50 40 30	500	400	300	1,2	1	440×340
OMK 50 50 21	500	500	210	1,2	1	440×440
OMK 50 50 30	500	500	300	1,2	1	440×440
OMK 50 60 21	500	600	210	1,2	1	440×540
OMK 50 60 30	500	600	300	1,2	1	440×540
OMK 60 40 30	600	400	300	1,2	1	540×340
OMK 60 50 21	600	500	210	1,2	1	540×440
OMK 60 50 30	600	500	300	1,2	1	540×440
OMK 60 60 21	600	600	210	1,2	1	540×540
OMK 60 60 30	600	600	300	1,2	1	540×540
OMK 60 80 21	600	800	210	1,5	2	540×740
OMK 60 80 30	600	800	300	1,5	2	540×740
OMK 60 80 38	600	800	380	1,5	2	540×740
OMK 60 100 30	600	1000	300	1,5	2	540×940
OMK 60 120 30	600	1200	300	1,5	2	540×1140
OMK 80 60 21	800	600	210	1,5	2	740×540
OMK 80 60 28	800	600	280	1,5	1	740×540
OMK 80 80 21	800	800	210	1,5	2	740×740
OMK 80 80 28	800	800	280	1,5	2	740×740
OMK 80 100 21	800	1000	210	1,5	2	740×940
OMK 80 100 28	800	1000	280	1,5	2	740×940
OMK 80 120 28	800	1200	280	1,5	2	740×1140
OMK 90 100 23	900	1000	230	1,5	2	840×940
OMK 90 120 23	900	1200	230	1,5	2	840×1140
OMK 100 100 18	1000	1000	180	1,5	2	940×940
OMK 100 120 18	1000	1200	180	1,5	2	940×1140

**Mounting plate for OMK enclosures**



- Material: aluzinc plated steel, thicknes 1 - 2 mm.

**How to order**



- Ordering example:  
- Universal flush enclosure OMK 20 30 15.

**Scope of delivery**

- OMU enclosure with mounting plate;
- Key for the lock (number 1333).

The producer reserves the right to introduce technical modifications

**Application**

- Enclosures for switchgear, control devices for processes and machines.

**Type of installation**

- Indoor, wall-mounted - carbon steel;
- Outdoor, wall mounted, socle, foundation mounted (other materials).

**Operating conditions**

- For enclosures made of carbon steel:
- Indoor;
  - Dry environment.
- For enclosures made of other materials:
- Outdoor;
  - Wet and more aggressive environment.

**Design**

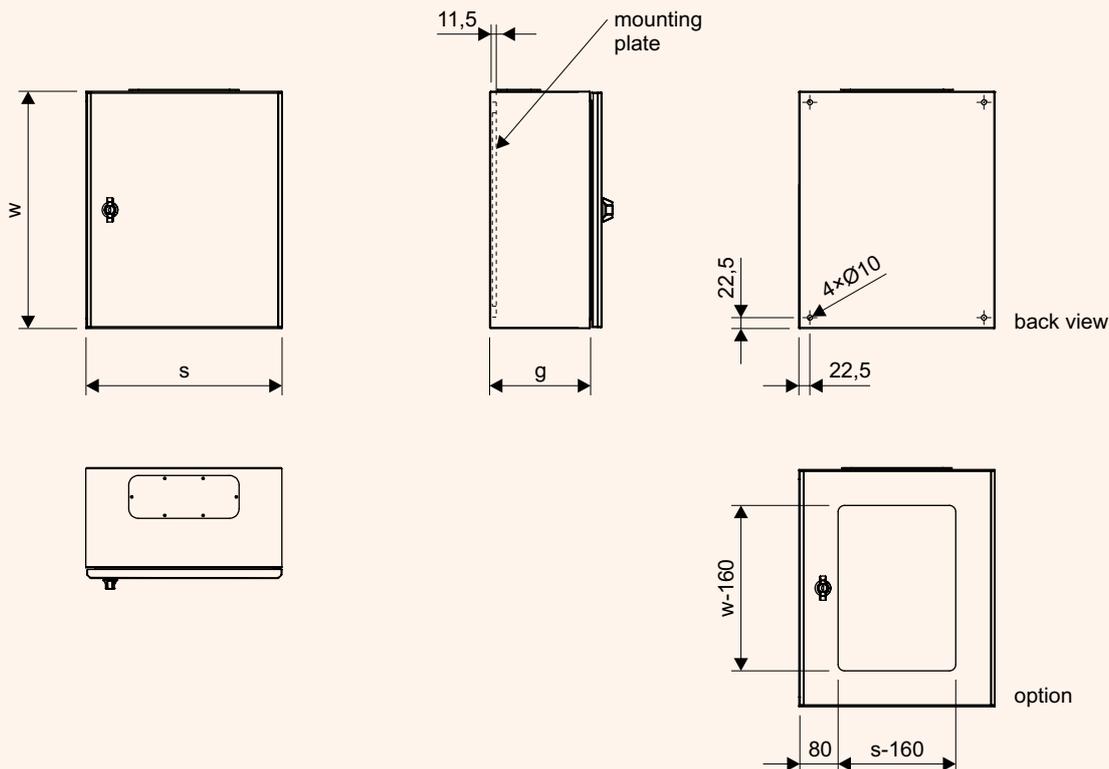
- Carbon steel (1-1,5 mm), painted; aluzinc plated carbon steel (1,5 mm), painted; stainless steel (1,5 mm), grinded; stainless steel (1,5 mm), painted; aluminium (2 mm), painted;
- Polyester structural powder painted, colour RAL 7035;
- Protruded door sealed by polyurethane gasket, locking by one or two wing type PM locks for patented key or RS 900 lock with cam and round rods for 3 point locking system. In stainless steel version stainless steel type M22 SN locks for T9 key is used;
- Mounting holes on the back wall with plastic plugs;
- Mounting plate P1 made of aluzinc plated steel, thickness 1-2 mm;
- Cable gland plate smooth with polyurethane gasket;
- Earthing screws;
- Door can be equipped with polycarbonate window (from dimension  $s \times w = 400 \times 400$  mm).



**Technical data**

- Protection class: I;
- Ingress protection degree:
  - IP66 for enclosures with one door and without cable gland plate,
  - IP65 for enclosures with one door and with cable gland plate,
  - IP55 for enclosures with two doors and with cable gland plate;
- Impact protection:
  - IK10 for standard door,
  - IK07 for door with window.

**Dimensions**



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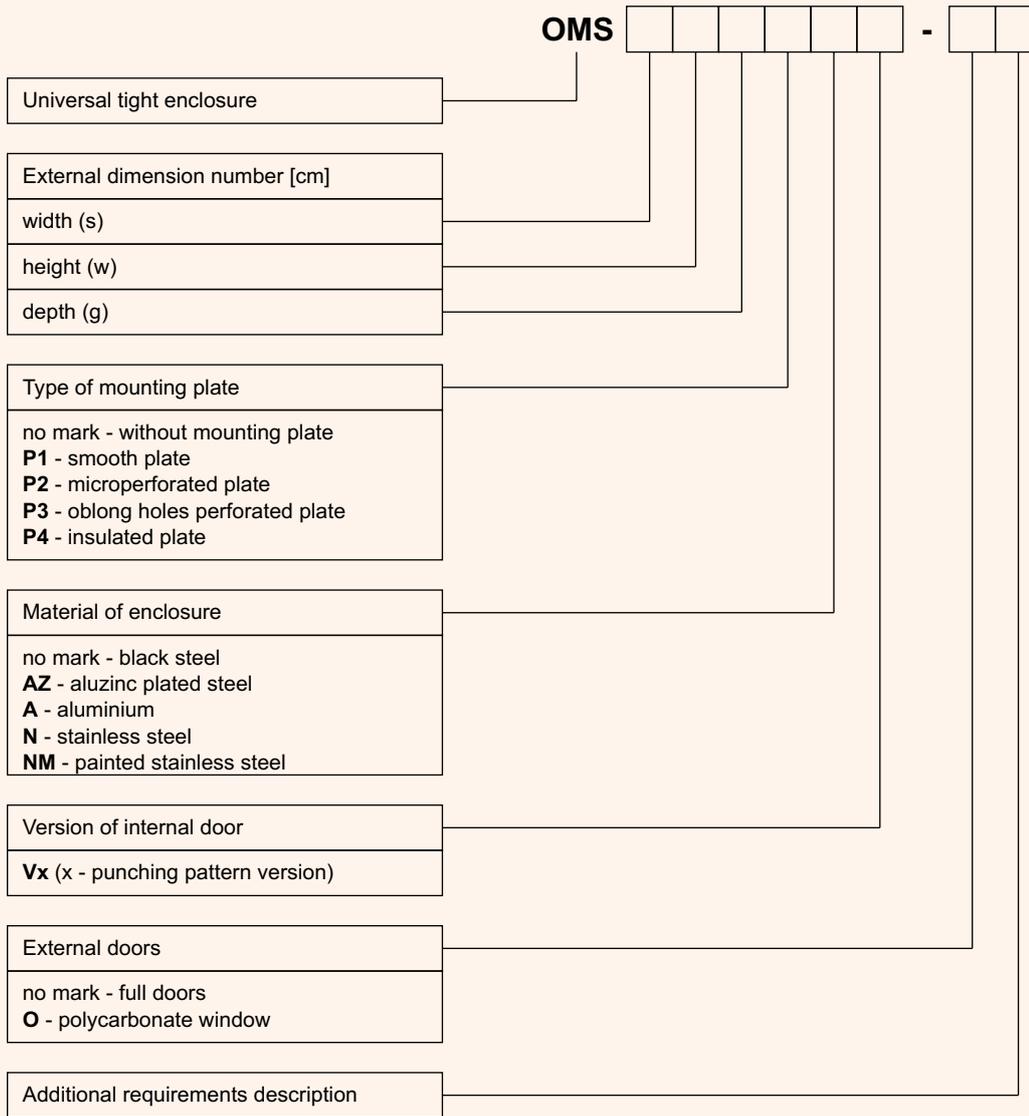
Reference chart

type	dimensions [mm]			dimensions of cable gland plates* [mm]	carbon steel sheet thickness [mm]	number of locks	mounting plate dimensions [mm]
	s	w	g				
OMS 25 25 15	250	250	150	90×180	1	1	190×190
OMS 20 30 15	200	300	150	90×180	1	1	140×240
OMS 30 20 15	300	200	150	90×150	1	1	240×140
OMS 30 30 15	300	300	150	90×230	1	1	240×240
OMS 30 30 21	300	300	210	90×230	1	1	240×240
OMS 30 40 15	300	400	150	90×230	1	1	240×340
OMS 30 40 21	300	400	210	90×230	1	1	240×340
OMS 40 50 21	400	500	210	90×230	1	1	340×440
OMS 40 30 15	400	300	150	90×230	1	1	340×240
OMS 40 40 21	400	400	210	90×330	1	1	340×340
OMS 40 40 30	400	400	300	90×230	1	1	340×340
OMS 30 50 21	300	500	210	150×330	1,2	1	240×440
OMS 40 60 21	400	600	210	150×330	1,2	1	340×540
OMS 40 60 30	400	600	300	150×330	1,2	1	340×540
OMS 50 40 30	500	400	300	150×330	1,2	1	440×340
OMS 50 50 21	500	500	210	150×420	1,2	1	440×340
OMS 50 50 30	500	500	300	150×420	1,2	1	440×440
OMS 50 60 21	500	600	210	150×420	1,2	1	440×440
OMS 50 60 30	500	600	300	150×420	1,2	1	440×540
OMS 60 40 21	600	400	210	150×420	1,2	1	440×540
OMS 60 40 30	600	400	300	150×420	1,2	1	540×340
OMS 60 50 21	600	500	210	150×520	1,2	1	540×340
OMS 60 50 30	600	500	300	150×520	1,2	1	540×440
OMS 60 60 21	600	600	210	150×520	1,2	1	540×440
OMS 60 60 30	600	600	300	150×520	1,2	1	540×540
OMS 60 80 21	600	800	210	150×520	1,5	2	540×540
OMS 60 80 30	600	800	300	150×520	1,5	2	540×740
OMS 60 80 40	600	800	400	150×520	1,5	2	540×740
OMS 60 100 30	600	1000	300	150×520	1,5	3p	540×740
OMS 60 120 30	600	1200	300	150×520	1,5	3p	540×940
OMS 80 60 21	800	600	210	150×520	1,5	1	540×1140
OMS 80 60 30	800	600	300	150×520	1,5	1	740×540
OMS 80 80 21	800	800	210	150×520	1,5	2	740×540
OMS 80 80 30	800	800	300	150×520	1,5	2	740×740
OMS 80 100 21	800	1000	210	150×520	1,5	3p	740×940
OMS 80 120 30	800	1200	300	150×520	1,5	3p	740×1140
OMS 80 100 40	800	1000	400	150×520	1,5	3p	740×940
OMS 80 120 30	800	1200	300	150×520	1,5	3p	740×1140
OMS 100 120 25	1000	1200	250	150×520	1,5	3p	940×1140
OMS 100 140 25	1000	1400	250	150×520	1,5	3p	940×1340

\* cable gland plate is fixed to the housing by the screws

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**How to order**



- Ordering example:
  - Universal tight enclosure, aluminium without mounting plate OMS 30 40 50A.

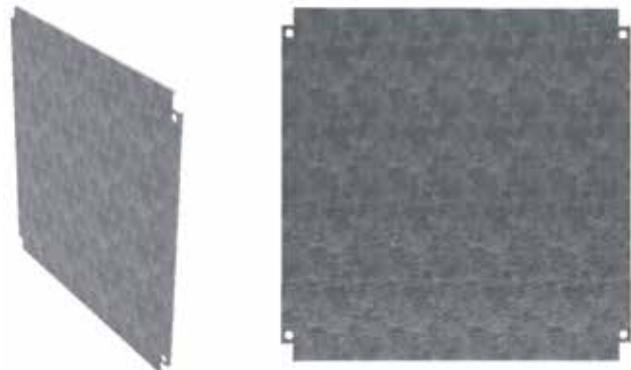
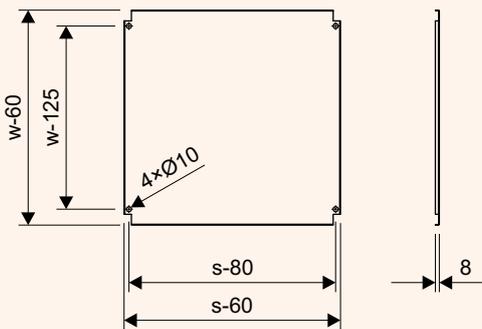
**Scope of delivery**

- OMS enclosure with standard equipment (P1 mounting plate, cable gland plate);
- Key for the lock (number 1333).

**STANDARD EQUIPMENT FOR OMS ENCLOSURES**

**P1 - mounting plate**

P1 - mounting plate, made of aluzinc plated sheet.



**Cable gland plate**

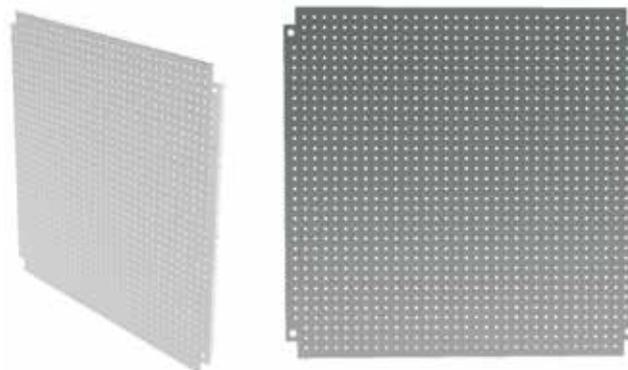
- OMS is equipped with full cable gland plate.



**OMS ENCLOSURES ACCESSORIES**

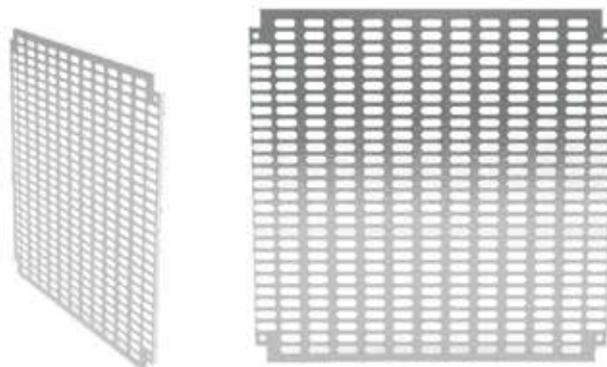
**P2 - mounting plate**

- Perforation with holes Ø4 mm, spaced 12,5 mm in both directions;
- Made of aluzinc plated steel.



**P3 - mounting plate**

- Perforation with oblong holes 25 × 10 mm;
- Spacing of holes: 35 mm in horizontal direction, 15 mm in vertical direction;
- Made of aluzinc plated steel.



**P4 - mounting plate**

- Insulation plate made of PVC or GRP, gray colour;
- Thickness - 6 mm.



**Cable gland plate**

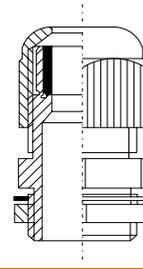
- Punching holes pattern according to individual needs.



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**Cable glands**

- The order must specify:
  - throttling range (cable diameter),
  - IP degree,
  - temperature range,
  - type of material.



**Rubber, membrane gland plate (mounted on cable gland plate)**

**Type of membrane gland plate**

type	IP	cable diameter range [mm]	temperature range	colour	picture
MC 3	65	2× Ø 24-54 1× Ø 30-60 4× Ø 8-16	-40 to 100°C	RAL 7035	
MC 25	65	1× Ø 20-26 12× Ø 10-14 4× Ø 5-7 4× Ø 14-20 4× Ø 8-12	-40 to 100°C	RAL 7035	
MC 35	65	1× Ø 17-32 16× Ø 10-14 2× Ø 6-10 2× Ø 12-18 14× Ø 8-12	-40 to 100°C	RAL 7035	
MC 10-30	65	8× Ø 10-30 2× Ø 7-12	-40 to 100°C	RAL 7035	

**How to order**

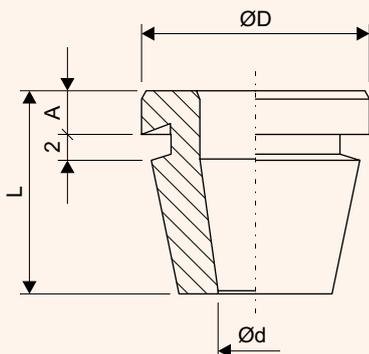
- Cable gland plate - MC 3 type.

**Rubber glands - BDE**

**General information**

- Rubber glands BDE are made of SBR+NR rubber;
- Intended for sealing the cable passage through the wall of enclosure of electrical devices;
- Available in black colour (RAL 9004);
- IP degree - min. IP30;
- Temperature range: -40 to 85 °C.

**Dimensions**



**Reference chart**

type	dimensions [mm]				hole diameter in lamina [mm]	cable diameter [mm]
	A	D	d	L		
BDE 11	4	24	7	30	16,5	6 - 8
BDE 13	6	31	8	23	21	9 - 12
BDE 16	6	34	10,5	23	23	11 - 15
BDE 21	6	42	13,5	25	29	14 - 18
BDE 29	7	50	17	30	38	18 - 25
BDE 36	8	62	22	34	48	24 - 34
BDE 42	8	63	31	39	55	31 - 44
BDE 48	8	72	41	45	65	40 - 54
BDE 54	8	85	51	50	78	52 - 66
BDE 67	8	97	63	63	90	65 - 78

**How to order**

- BDE 29 type rubber gland.

**Internal door****General information**

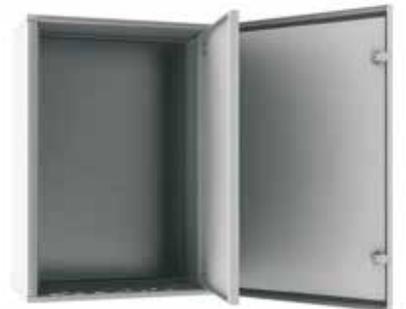
- Internal doors are fixed to the right side of the case and are locked by wing lock;
- Possibility of punching holes for devices according to agreed pattern.

**How to order**

- After the enclosure code symbols, denoting the dimensions or type of material, type the letter „V<sub>x</sub>“, eg OMS 40 60 30 V<sub>x</sub>.

- letter V means smooth internal doors

- letters V<sub>x</sub> mean doors punched with x type agreed pattern

**Free-standing socles - CW type****Application**

- CW socle for OMS type enclosures is designed to be fixed to smooth, hardened surfaces.

**Type of installation**

- OMS enclosures are fastened to the socle by round head square neck bolts.

**Design**

- Socle is made of the same material as the enclosure and is plated steel sheet, painted with powder polyester paint, colour RAL 7035 (or grinded for stainless steel). Socle elements are formed from sheet and fastened together by riveting. Front part is equipped with revision door locked by wing lock (PM\* type).

**Technical data**

- Ingress protection - IP44;
- Impact protection - IK10.



\* Key for the lock (number 1333).

**Socle types**

enclosure type	socle type	dimensions [mm]		
		width	depth	height
OMS 40 ... 15	CW 40 15	400	150	500
OMS 40 ... 21	CW 40 21	400	210	500
OMS 40 ... 30	CW 40 30	400	300	500
OMS 50 ... 21	CW 50 21	500	210	500
OMS 50 ... 30	CW 50 30	500	300	500
OMS 60 ... 21	CW 60 21	600	210	500
OMS 60 ... 30	CW 60 30	600	300	500
OMS 60 ... 40	CW 60 40	600	400	500
OMS 80 ... 21	CW 80 21	800	210	500
OMS 80 ... 28	CW 80 28	800	280	500
OMS 80 ... 30	CW 80 30	800	300	500
OMS 80 ... 40	CW 80 40	800	400	500
OMS 100 ... 25	CW 100 25	1000	250	500

**How to order**

- Free-standing socle - CW 40 30 material symbol.

**Buried socle - CZ type****Application**

- CZ socle for OMS enclosure is designed to be put into the ground.

**Type of installation**

- OMS enclosures are fastened to the socle by round head square neck bolts.

**Design**

- Buried socle is made of the same material as the enclosure and is painted with powder polyester paint, colour RAL 7035 (or grinded for stainless steel). Socle elements are formed from steel sheet and fastened together by riveting. Front part is equipped with revision door locked by wing knob lock (PM\* type).

**Technical data**

- Ingress protection - IP44;
- Impact - IK10.

**Buried socle types**

enclosure type	buried socle type	dimensions [mm]		
		width	depth	height
OMS 40 ... 15	CZ 40 15	400	150	750
OMS 40 ... 21	CZ 40 21	400	210	750
OMS 40 ... 30	CZ 40 30	400	300	750
OMS 50 ... 21	CZ 50 21	500	210	750
OMS 50 ... 30	CZ 50 30	500	300	750
OMS 60 ... 21	CZ 60 21	600	210	750
OMS 60 ... 30	CZ 60 30	600	300	750
OMS 60 ... 40	CZ 60 40	600	400	750
OMS 80 ... 21	CZ 80 21	800	210	1000
OMS 80 ... 28	CZ 80 28	800	280	1000
OMS 80 ... 30	CZ 80 30	800	300	1000
OMS 80 ... 40	CZ 80 40	800	400	1000
OMS 100 ... 25	CZ 100 25	1000	250	1000

**How to order**

- Buried socle - CZ 50 30 material symbol.

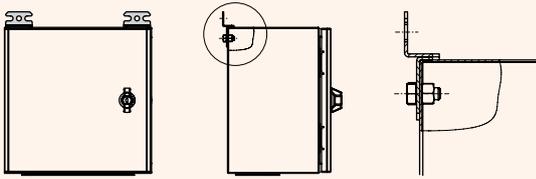
\* Key for the lock (number 1333).

**Wall mounting bracket**

**Application**

- For fastening enclosures to the wall.

**Design**



- Wall mounting kit consists of:
  - bracket (MZ2259),
  - M8×10 screw,
  - nut (M1971).

**How to order**

- Wall mounting bracket kit MZ2259.



**Single slope roof for OMS enclosures - DMS type**

**Application**

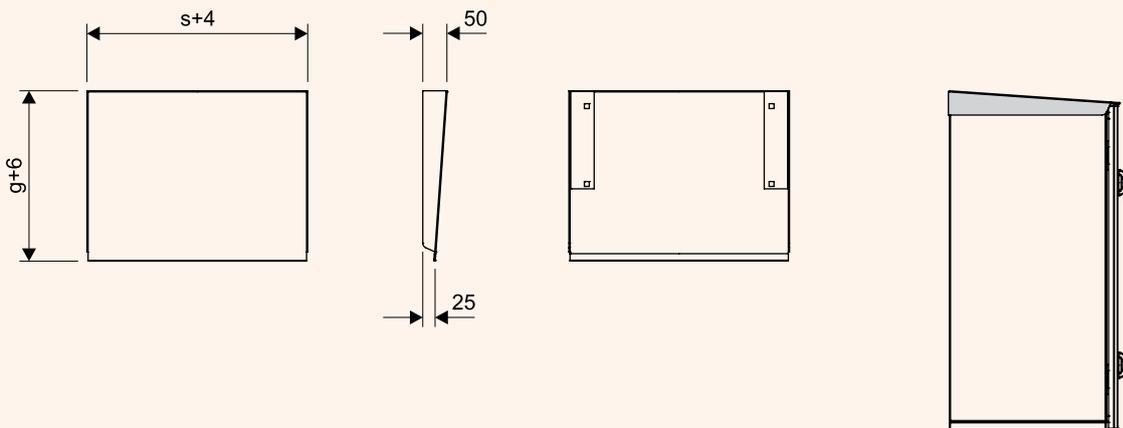
- For tight enclosures OMS type, destined for outdoor application. Mounted on the original flat roof of enclosure and fixed by nuts.

**Design**

- Made of the same material as enclosure.



**Dimensions**



**Reference chart**

enclosure type	roof type	dimensions [mm]		
		width	depth	height
OMS 20 ... 15	DMS 20 15	220	190	80/40
OMS 25 ... 15	DMS 25 15	270	190	
OMS 30 ... 15	DMS 30 15	320	190	
OMS 30 ... 21	DMS 30 21	320	250	
OMS 40 ... 15	DMS 40 15	420	190	
OMS 40 ... 21	DMS 40 21	420	250	
OMS 40 ... 30	DMS 40 30	420	340	
OMS 50 ... 21	DMS 50 21	520	250	
OMS 50 ... 30	DMS 50 30	520	340	
OMS 60 ... 21	DMS 60 21	620	250	
OMS 60 ... 30	DMS 60 30	620	340	
OMS 60 ... 40	DMS 60 40	620	440	
OMS 80 ... 21	DMS 80 21	820	250	
OMS 80 ... 28	DMS 80 28	820	320	
OMS 80 ... 30	DMS 80 30	820	340	
OMS 80 ... 40	DMS 80 40	820	440	
OMS 100 ... 25	DMS 100 25	1020	290	

NOTE: Roof is factory mounted on the OMS enclosures on request.

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**Application**

- Universal cabinets designed to be mounted outdoor on concrete or metal foundations, free-standing or buried metal socles;
- It enables assembling of control devices, IT equipment, low voltage switchgears and other in industry automatic control devices, energy distribution etc.

**Type of installation**

- Cabinets are fastened to the metal foundation buried and embedded in concrete (metal FN type), buried in the ground (metal FZ and concrete FB), or metal socle (CW) mounted to the hardened surface.

**Operating conditions**

- Outdoor, industrial environment;
- Cabinets made of aluminium or stainless steel can be mounted at the seaside.

**Design**

- Materials:
  - aluzinc plated steel sheet, thickness 1,5 mm,
  - aluminium sheet, thickness 2 mm,
  - stainless steel, thickness 1,5 mm.
- Sheets are formed by punching and press braking;
- Polyester structural powder painted, colour RAL 7035;
- Stainless steel cabinets are grinded (satin) or painted;
- Painted elements are assembled by riveting and screwing. Welding is not applied;
- Cabinets have nested doors hanged on concealed hinges (opening angle 130°) and lock M22 D3 or swing handle RS 900 lock with cam, round rods - 3 point closure;
- Additional closing by padlock is possible (RS 900 lock);
- Opened bottom;
- Cabinets are equipped with aluzinc plated P1 type mounting plate;
- FZ, FN foundation types and CW, CZ socle types are made with the same type of material as cabinet, thickness 2 mm. Foundations are not painted, while socles are painted with the same colour as cabinet;
- Optional equipment: P2, P3 mounting plate perforated types.

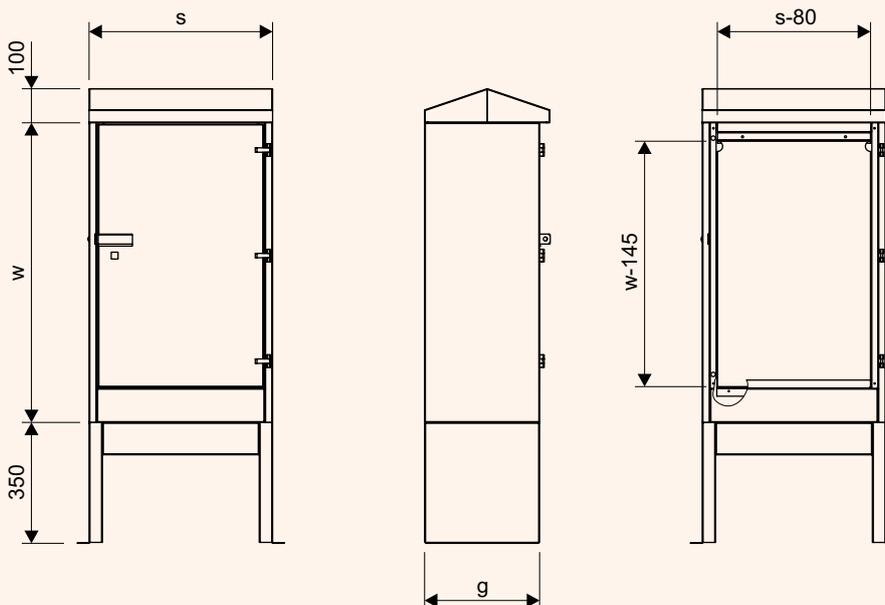


**Technical data**

- Protection class: I;
- Ingress protection degree: IP43;
- Impact protection: IK10.

**Dimensions**

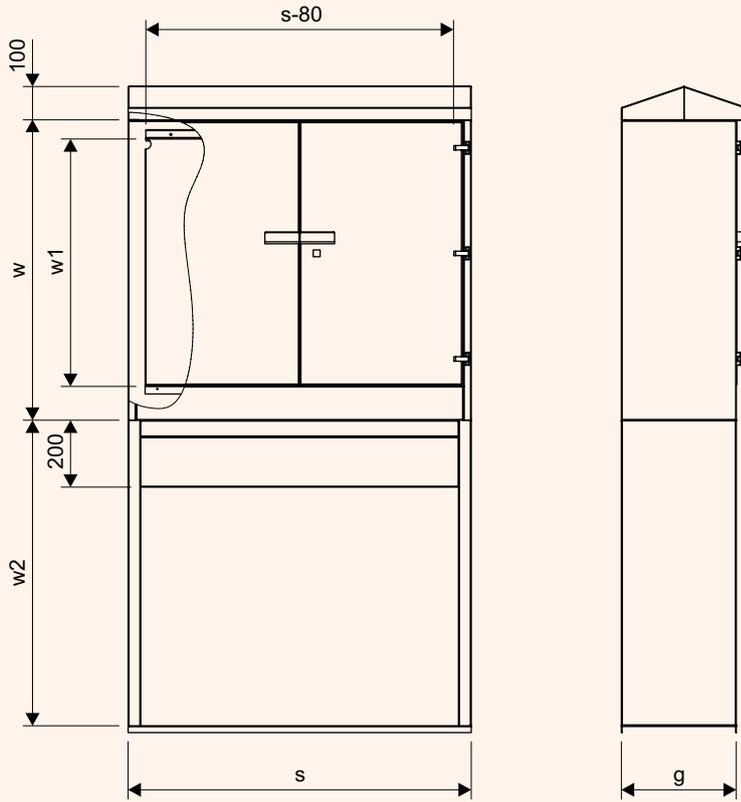
- Free-standing cabinets (SU) with low metal foundation buried and embedded in concrete (FN\*)



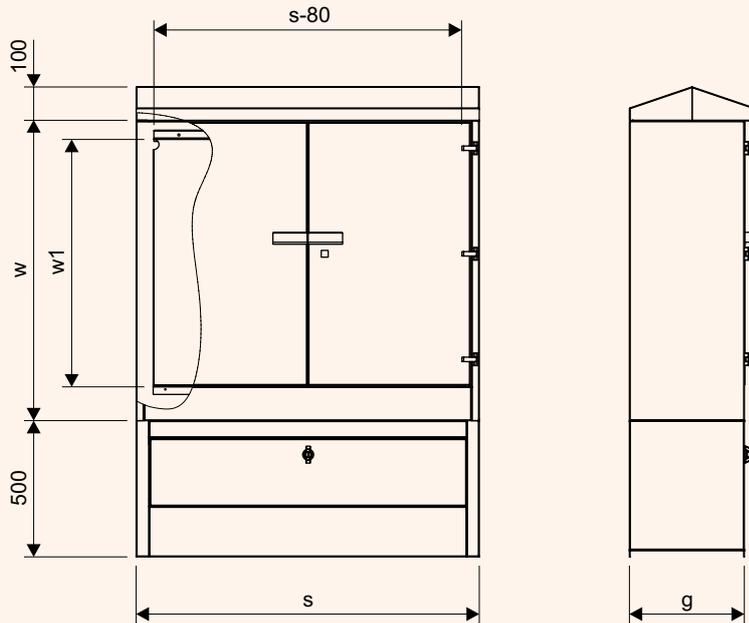
\* for detailed information concerning foundations - see page 36

The producer reserves the right to introduce technical modifications

- Free-standing cabinets (SU) with foundation buried in the ground (FZ\*)



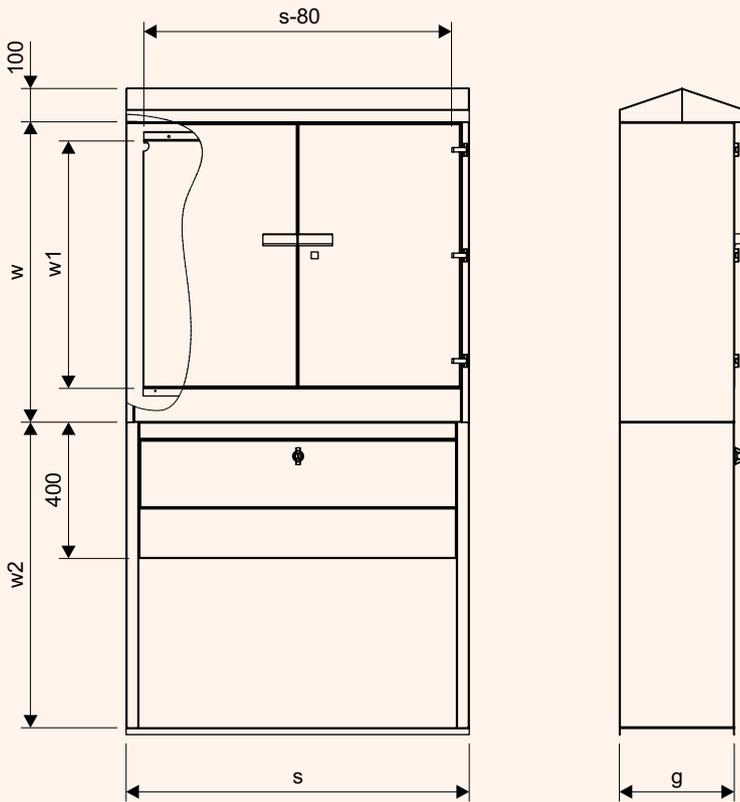
- Free-standing cabinets (SU) with socle mounted to the hardened surface (CW\*)



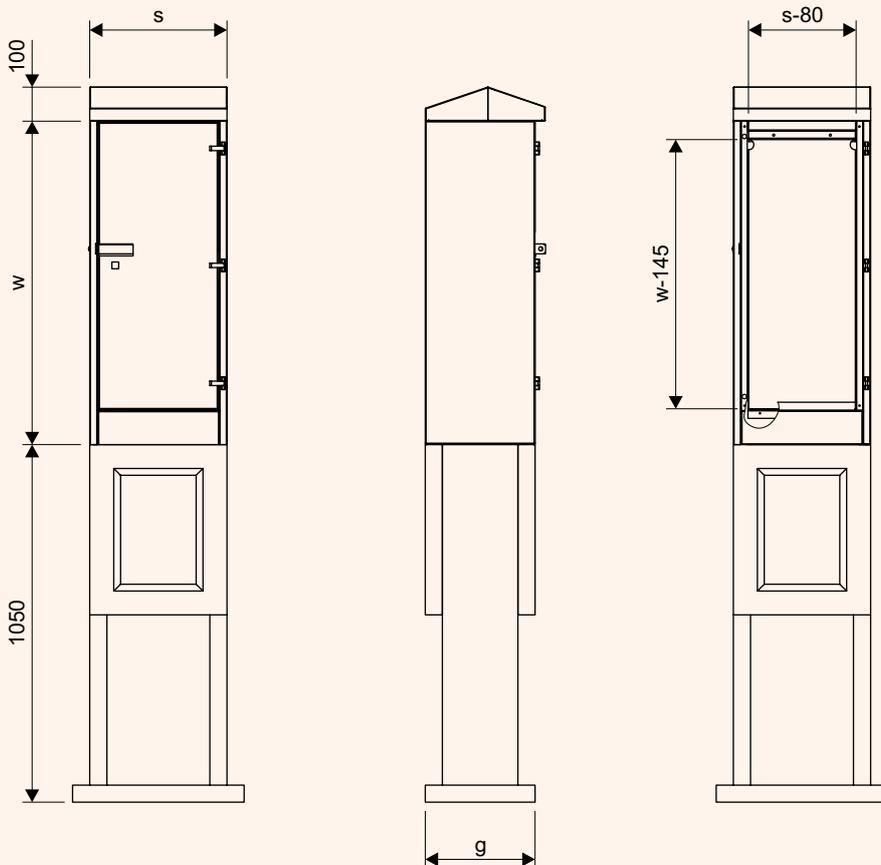
The producer reserves the right to introduce technical modifications

\* for detailed information concerning foundations and socles - see pages 36-38

- Free-standing cabinets (SU) with socle buried in the ground (CZ\*)



- Free-standing cabinets (SU) with concrete foundation (FB\*)



\* for detailed information concerning foundations and socles - see pages 39-41

The producer reserves the right to introduce technical modifications

## Reference chart

cabinet type	dimensions [mm]			type of roof	number of door wings	type of lock**	foundation / socle type				
	s	w	g				low foundation FN*	buried foundation FZ*	surface mounted socle CW*	buried socle CZ*	concrete foundation FB*
SU 28 88 33	280	880	335	apex	1	M22	+	+	+	+	-
SUJ 28 88 33	280	880	335	slope	1	M22	+	+	+	+	-
SU 53 88 33	530	880	335	apex	1	M22	+	+	+	+	-
SUJ 53 88 33	530	880	335	slope	1	M22	+	+	+	+	-
SU 80 88 33	800	880	335	apex	1	M22	+	+	+	+	-
SUJ 80 88 33	800	880	335	slope	1	M22	+	+	+	+	-
SU 100 88 33	1000	880	335	apex	2	M22	+	+	+	+	-
SUJ 100 88 33	1000	880	335	slope	2	M22	+	+	+	+	-
SU 100 88 43	1000	880	435	apex	2	M22	+	+	+	+	-
SUJ 100 88 43	1000	880	435	slope	2	M22	+	+	+	+	-
SU 40 95 32	400	950	320	apex	1	RS 900	-	+	+	+	+
SU 60 95 32	600	950	320	apex	1	RS 900	-	+	+	+	+
SU 80 95 32	800	950	320	apex	1	RS 900	-	+	+	+	+
SU 90 95 32	900	950	320	apex	2	RS 900	-	+	+	+	+
SU 95 95 32	950	950	320	apex	2	RS 900	-	+	+	+	-
SU 100 95 32	1000	950	320	apex	2	RS 900	-	+	+	+	+
SU 105 95 32	1050	950	320	apex	2	RS 900	-	+	+	+	+
SU 40 115 40	400	1150	400	apex	1	RS 900	-	+	+	+	+
SU 60 115 40	600	1150	400	apex	1	RS 900	-	+	+	+	+
SU 70 115 40	700	1150	400	apex	1	RS 900	-	+	+	+	-
SU 80 115 40	800	1150	400	apex	1	RS 900	-	+	+	+	+
SU 85 115 40	850	1150	400	apex	1	RS 900	-	+	+	+	+
SU 90 115 40	900	1150	400	apex	2	RS 900	-	+	+	+	-
SU 95 115 40	950	1150	400	apex	2	RS 900	-	+	+	+	-
SU 100 115 40	1000	1150	400	apex	2	RS 900	-	+	+	+	+
SU 105 115 40	1050	1150	400	apex	2	RS 900	-	+	+	+	+
SU 120 115 40	1200	1150	400	apex	2	RS 900	-	+	+	+	-
SU 80 120 50	800	1200	500	apex	1	RS 900	-	+	+	+	-
SU 110 120 50	1100	1200	500	apex	2	RS 900	-	+	+	+	-
SU 100 140 60	1000	1400	600	apex	2	RS 900	-	+	+	+	-
SU 100 200 50	1000	2000	500	apex	2	RS 900	-	+	+	+	-
SU 120 200 50	1200	2000	500	apex	2	RS 900	-	+	+	+	-

\* for detailed information concerning foundations and socles - see pages 36-41

\*\* for detailed information concerning types of locks and types of keys - see page 134

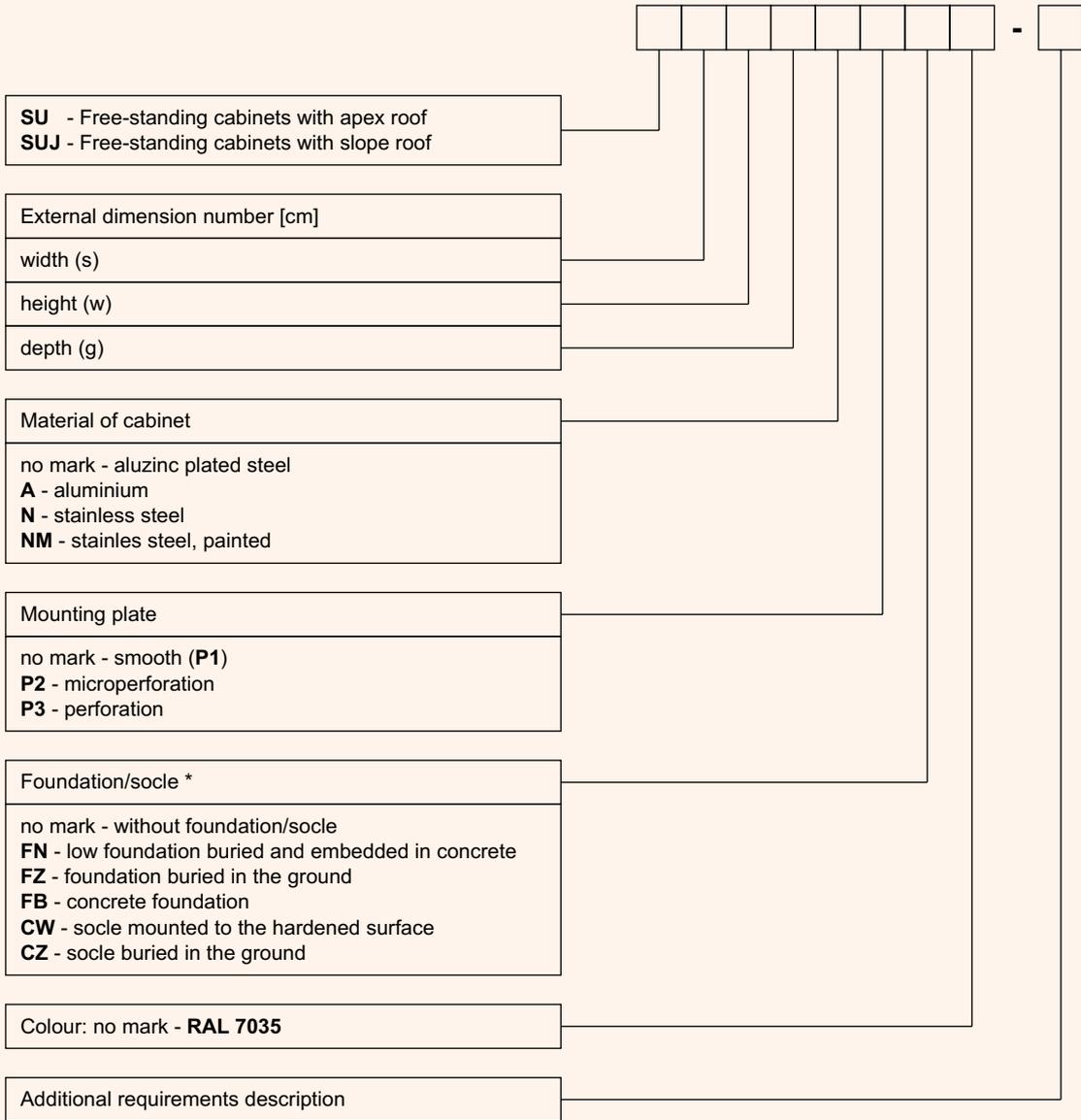
The producer reserves the right to introduce technical modifications

## Reference chart

cabinet type	foundation / socle type				
	low foundation	buried foundation	surface mounted socle	buried socle	concrete foundation
	FN*	FZ*	CW*	CZ*	FB*
SU 28 88 33	FN 28 33	FZ 28 33 90	CW 28 33	CZ 28 33 90	-
SUJ 28 88 33	FN 28 33	FZ 28 33 90	CW 28 33	CZ 28 33 90	-
SU 53 88 33	FN 53 33	FZ 53 33 90	CW 53 33	CZ 53 33 90	-
SUJ 53 88 33	FN 53 33	FZ 53 33 90	CW 53 33	CZ 53 33 90	-
SU 80 88 33	FN 80 33	FZ 80 33 90	CW 80 33	CZ 80 33 90	-
SUJ 80 88 33	FN 80 33	FZ 80 33 90	CW 80 33	CZ 80 33 90	-
SU 100 88 33	FN 100 33	FZ 100 33 90	CW 100 33	CZ 100 33 90	-
SUJ 100 88 33	FN 100 33	FZ 100 33 90	CW 100 33	CZ 100 33 90	-
SU 100 88 43	FN 100 43	FZ 100 43 90	CW 100 43	CZ 100 43 90	-
SUJ 100 88 43	FN 100 43	FZ 100 43 90	CW 100 43	CZ 100 43 90	-
SU 40 95 32	-	FZ 40 32 90	CW 40 32	CZ 40 32 90	FB 40 32
SU 60 95 32	-	FZ 60 32 90	CW 60 32	CZ 60 32 90	FB 60 32
SU 80 95 32	-	FZ 80 32 90	CW 80 32	CZ 80 32 90	FB 80 32
SU 90 95 32	-	FZ 90 32 90	CW 90 32	CZ 90 32 90	FB 80 32
SU 95 95 32	-	FZ 95 32 90	CW 95 32	CZ 95 32 90	-
SU 100 95 32	-	FZ 100 32 90	CW 100 32	CZ 100 32 90	FB 105 32A
SU 105 95 32	-	FZ 105 32 90	CW 105 32	CZ 105 32 90	FB 105 32
SU 40 115 40	-	FZ 40 40 90	CW 40 40	CZ 40 40 90	FB 40 40
SU 60 115 40	-	FZ 60 40 90	CW 60 40	CZ 60 40 90	FB 60 40
SU 70 115 40	-	FZ 70 40 90	CW 70 40	CZ 70 40 90	-
SU 80 115 40	-	FZ 80 40 90	CW 80 40	CZ 80 40 90	FB 80 40
SU 85 115 40	-	FZ 85 40 90	CW 85 40	CZ 85 40 90	FB 85 40
SU 90 115 40	-	FZ 90 40 90	CW 90 40	CZ 90 40 90	-
SU 95 115 40	-	FZ 95 40 90	CW 95 40	CZ 95 40 90	-
SU 100 115 40	-	FZ 100 40 90	CW 100 40	CZ 100 40 90	FB 105 40A
SU 105 115 40	-	FZ 105 40 90	CW 105 40	CZ 105 40 90	FB 105 40
SU 120 115 40	-	FZ 120 40 90	CW 120 40	CZ 120 40 90	-
SU 80 120 50	-	FZ 80 50 90	CW 80 50	CZ 80 50 90	-
SU 110 120 50	-	FZ 110 50 90	CW 110 50	CZ 110 50 90	-
SU 100 140 60	-	FZ 100 60 120	CW 100 60	CZ 100 60 120	-
SU 100 200 50	-	FZ 100 50 120	CW 100 50	CZ 100 50 120	-
SU 120 200 50	-	FZ 120 50 120	CW 120 50	CZ 120 50 120	-

\* for detailed information concerning foundations and socles - see pages 36-41

**How to order**



The producer reserves the right to introduce technical modifications

- Ordering example:
  - Free-standing cabinets made of aluzinc plated steel, with P1 mounting plate, on low foundation SU 53 88 33 FN.

**Scope of delivery**

- SU cabinet with foundation/socle;
- set of bolts for foundation/socle mounting;
- two bits key (D3) or lock insert for RS 900 lock with key code 1333.

\* for detailed information concerning foundations and socles - see pages 36-41

**Application**

- Universal cabinets with dimensions according to DIN standard are designed to mount outdoor, enable assembling of control devices, IT equipment, low voltage switchgears and other industry automatic control devices or energy distribution.

**Type of installation**

- Cabinets are fastened to the metal or concrete foundation buried in the ground, or on socles buried or mounted to the hardened surface.

**Operating conditions**

- Outdoor mounted in industrial environment;
- Cabinets made of aluminium or stainless steel can be mounted at the seaside.

**Design**

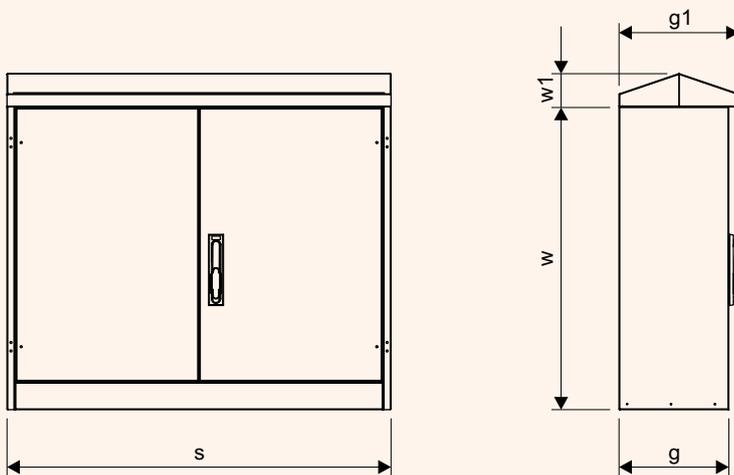
- Materials:
  - aluzinc plated steel sheet, thickness 1,5 mm,
  - aluminium sheet, thickness 2 mm,
  - stainless steel, thickness 1,5 mm;
- Sheets are formed by punching and press braking;
- Polyester structural powder painted, colour RAL 7035;
- Stainless steel cabinets are grinded (satin) or painted;
- Cabinet elements are assembled by riveting and screwing, welding is not applied;
- Cabinets have nested doors hanged on concealed hinges (opening angle - 130°) and lock RS 900 or ED 125, with cam, round rods - 3 point closure;
- Cabinets are equipped with aluzinc plated P1 type mounting plate;
- Opened bottom;
- Foundations FZ and socles CW, CZ types are made with the same type of material as cabinet, thickness 2 mm. Foundations are not painted, while socles are painted on the same colour as cabinet.



**Technical data**

- Protection class: I;
- Ingress protection degree: IP43;
- Impact protection: IK10.

**Dimensions**



**Reference chart**

cabinet type	dimensions [mm]					no. of doors	mounting plate dimensions a×b [mm]
	s	w	g	w1	g1		
DSU 00	460	890	320	95	350	1	375×710
DSU 00 - 120		1200	340	100	370	1	375×1020
DSU 0	595	890	320	95	350	1	510×710
DSU 0 - 120		1200	340	100	370	1	510×1020
DSU 1	790	890	320	95	350	2	705×710
DSU 1 - 120		1200	340	100	370	2	705×1020
DSU 2	1120	890	320	95	350	2	1035×710
DSU 2 - 120		1200	340	100	370	2	1034×1020

The producer reserves the right to introduce technical modifications

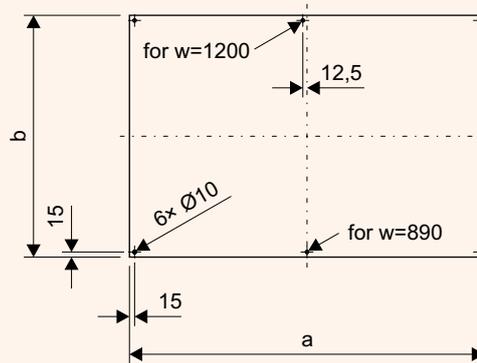
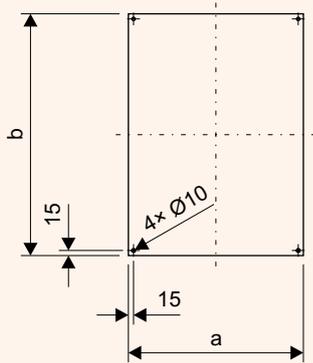
**Reference chart - Foundations and socles**

cabinet type	foundation / socle type			
	buried foundation <b>FZ*</b>	free-standing socle <b>CW*</b>	buried socle <b>CZ*</b>	concrete foundation <b>FB*</b>
DSU 00	FZ 46 32 90	CW 46 32	CZ 46 32 90	-
DSU 00 - 120				
DSU 0	FZ 59 32 90	CW 59 32	CZ 59 32 90	FB 60 32
DSU 0 - 120				
DSU 1	FZ 79 32 90	CW 79 32	CZ 79 32 90	FB 80 32
DSU 1 - 120				
DSU 2	FZ 112 32 90	CW 112 32	CZ 112 32 90	-
DSU 2 - 120				

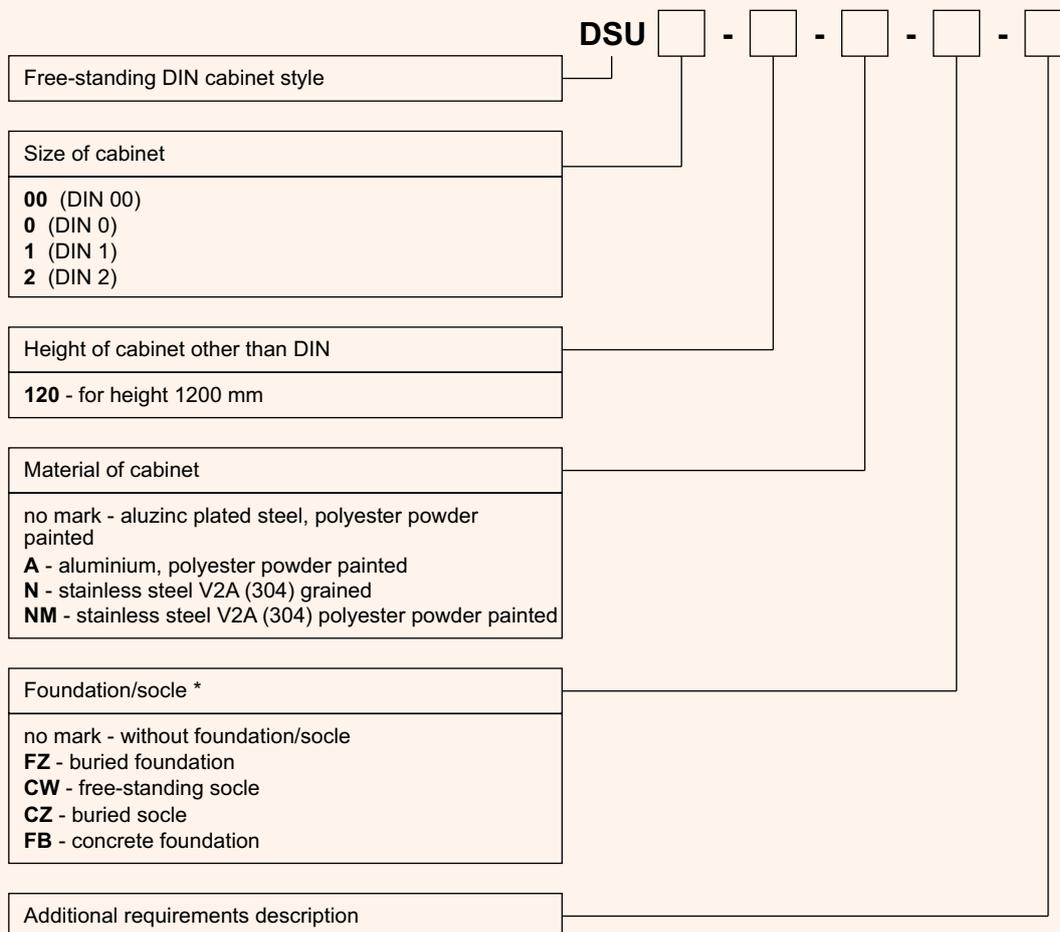
**Mounting plates**

• Mounting plate for DSU 00 ..., DSU 0 ...

• Mounting plate for DSU 1 ..., DSU 2 ...



**How to order**



• Ordering example: Free-standing DIN cabinet style on buried foundation DSU 0 - 120 - FZ.

**Scope of delivery**

• DSU cabinet with mounting plate.

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Metal enclosures & cabinets

\* for detailed information concerning foundations and socles - see pages 36-41



**Steel low foundation FN type**

**Application**

- Foundation buried and embedded in concrete and for mounting SU, SUJ, DSU cabinets.

**Type of installation**

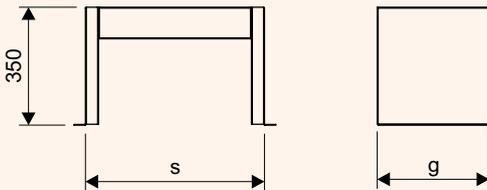
- Cabinet is fixed to the foundation using M8 bolts.

**Design**

- Foundation is made of metal sheet:
  - aluzinc plated, thickness 2 mm,
  - aluminium, thickness 2 mm,
  - stainless steel, thickness 1,5 mm;
- Elements of foundation are fixed together by riveting;
- Foundations made of aluminium are painted on cabinet colour.



**Dimensions**



**Reference chart**

foundation type	dimensions [mm]		material
	s	g	
FN 28 33	280	335	no mark - aluzinc plated steel, unpainted; <b>A</b> - aluminium, painted; <b>N</b> - stainless steel sheet; <b>NM</b> - stainless steel sheet, painted;
FN 53 33	535	335	
FN 80 33	800	335	
FN 100 33	1000	335	
FN 100 43	1000	435	

- Ordering example:
  - Low steel foundation FN 80 33.

**Buried foundations FZ type**

**Application**

- Foundation buried in the ground for mounting SU, SUJ, DSU cabinets.

**Type of installation**

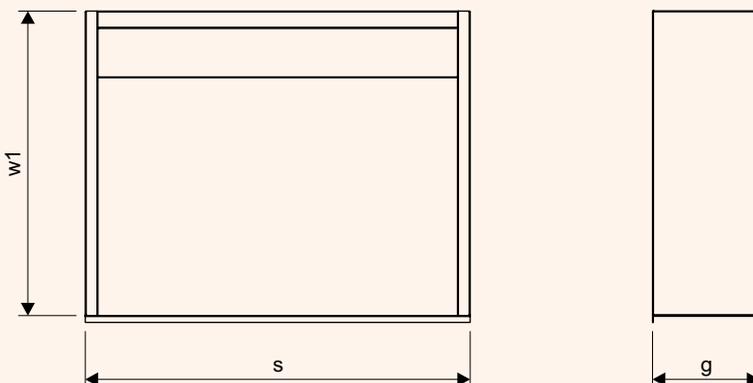
- Cabinet is fixed to the foundation using M8 bolts.

**Design**

- Foundation is made of metal sheet:
  - aluzinc plated, thickness 2 mm,
  - aluminium, thickness 2 mm,
  - stainless steel, thickness 1,5 mm;
- Elements of foundations are fixed together by riveting;
- Foundations made of aluminium are painted in cabinet colour.



**Dimensions**



The producer reserves the right to introduce technical modifications

**Reference chart**

foundation type	dimensions [mm]			material
	s	g	w1	
FZ 28 33 90	280	335	900	no mark - aluzinc plated steel; <b>A</b> - aluminium, painted; <b>N</b> - stainless steel.  <i>NOTE: If foundation symbol was added to cabinet marking, foundation material is the same as the cabinet.</i>
FZ 53 33 90	535	335	900	
FZ 80 33 90	800	335	900	
FZ 100 33 90	1000	335	900	
FZ 100 43 90	1000	435	900	
FZ 40 32 90	400	320	900	
FZ 46 32 90	460	320	900	
FZ 46 34 90	460	340	900	
FZ 59 32 90	595	320	900	
FZ 59 34 90	595	340	900	
FZ 60 32 90	600	320	900	
FZ 79 32 90	790	320	900	
FZ 79 34 90	790	340	900	
FZ 80 32 90	800	320	900	
FZ 90 32 90	900	320	900	
FZ 95 32 90	950	320	900	
FZ 100 32 90	1000	320	900	
FZ 105 32 90	1050	320	900	
FZ 112 32 90	1120	320	900	
FZ 112 34 90	1120	340	900	
FZ 40 40 90	400	400	900	
FZ 60 40 90	600	400	900	
FZ 70 40 90	700	400	900	
FZ 80 40 90	800	400	900	
FZ 85 40 90	850	400	900	
FZ 90 40 90	900	400	900	
FZ 95 40 90	950	400	900	
FZ 100 40 90	1000	400	900	
FZ 105 40 90	1050	400	900	
FZ 120 40 90	1200	400	900	
FZ 80 50 90	800	500	900	
FZ 110 50 90	1100	500	900	
FZ 100 60 120	1000	600	1200	
FZ 100 50 120	1000	500	1200	
FZ 120 50 120	1200	500	1200	

The producer reserves the right to introduce technical modifications

- Ordering example:
  - Buried foundation FZ 80 50 90 type.

**Free-standing socles CW type**

**Application**

- Metal socles are designed for mounting to the hardened surface and for mounting SU, SUJ, DSU cabinets.

**Type of installation**

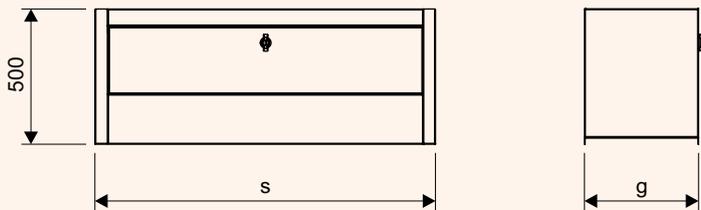
- Cabinet is fixed to the socle using M8 bolts.

**Design**

- Socle is made of metal sheet:
  - aluzinc plated steel, thickness 2 mm,
  - aluminium, thickness 2 mm,
  - stainless steel, thickness 1,5 mm;
- Elements of the socle formed from the sheet are fixed together by riveting;
- Front part of the socle has revision door closed by wing PM lock;
- Socles made of steel and aluminium sheet are painted with polyester powder paint, colour RAL 7035;
- Stainless steel socle is painted on request.



**Dimensions**



**Technical data**

- Protection class: I;
- Ingress protection degree: IP30;
- Impact protection: IK10.

**Reference chart**

socle type	dimensions [mm]		material
	s	g	
CW 28 33	280	335	no mark - aluzinc plated steel, painted; <b>A</b> - aluminium, painted; <b>N</b> - stainless steel; <b>NM</b> - stainless steel, painted.  <i>NOTE: If socle symbol was added to cabinet marking, socle material is the same as the cabinet.</i>
CW 53 33	535	335	
CW 80 33	800	335	
CW 100 33	1000	335	
CW 100 43	1000	435	
CW 40 32	400	320	
CW 46 32	460	320	
CW 46 34	460	340	
CW 59 32	595	320	
CW 59 34	595	340	
CW 60 32	600	320	
CW 79 32	790	320	
CW 79 34	790	340	
CW 80 32	800	320	
CW 90 32	900	320	
CW 95 32	950	320	
CW 100 32	1000	320	
CW 105 32	1050	320	
CW 112 32	1120	320	
CW 112 34	1120	340	
CW 40 40	400	400	
CW 60 40	600	400	
CW 70 40	700	400	
CW 80 40	800	400	
CW 85 40	850	400	
CW 90 40	900	400	
CW 95 40	950	400	
CW 100 40	1000	400	
CW 105 40	1050	400	
CW 120 40	1200	400	
CW 80 50	800	500	
CW 110 50	1100	500	
CW 100 60	1000	600	
CW 100 50	1000	500	
CW 120 50	1200	500	

- Ordering example:
  - Free-standing socle CW 100 50 type.

**Buried socle CZ type****Application**

- Metal buried socles for SU, SUJ, DSU cabinets are designed to bury in the ground.

**Type of installation**

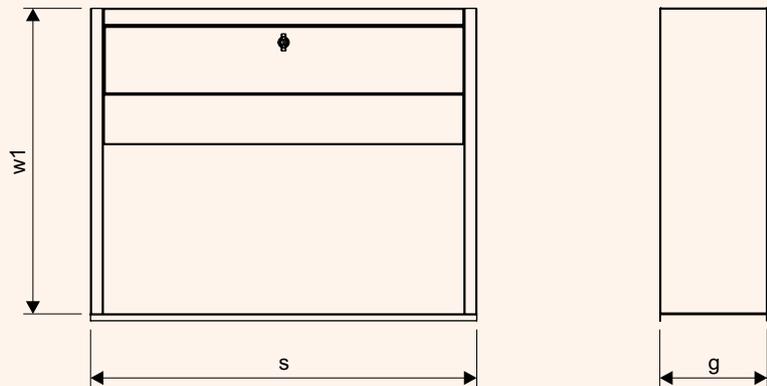
- Cabinet is fixed to the socle using M8 bolts.

**Design**

- Socle is made of metal sheet:
  - aluzinc plated steel, thickness 2 mm,
  - aluminium, thickness 2 mm,
  - stainless steel, thickness 1,5 mm;
- Elements of the socle formed from the sheet are fixed together by riveting;
- Front part of the socle has revision door closed by rotary wing PM lock;
- Socles made of steel and aluminium sheet are painted with polyester powder paint, colour RAL 7035;
- Stainless steel socle is painted on request.

**Technical data**

- Protection class: I;
- Ingress protection degree: IP30;
- Impact protection: IK10.

**Dimensions**

The producer reserves the right to introduce technical modifications

**Reference chart**

socle type	dimensions [mm]			material
	s	g	w1	
CZ 28 33 90	280	335	900	no mark - aluzinc plated steel, painted; <b>A</b> - aluminium, painted; <b>N</b> - stainless steel; <b>NM</b> - stainless steel, painted;  <i>NOTE: If socle symbol was added to cabinet marking, socle material is the same as the cabinet.</i>
CZ 53 33 90	535	335	900	
CZ 80 33 90	800	335	900	
CZ 100 33 90	1000	335	900	
CZ 100 43 90	1000	435	900	
CZ 40 32 90	400	320	900	
CZ 46 32 90	460	320	900	
CZ 46 34 90	460	340	900	
CZ 59 32 90	595	320	900	
CZ 59 34 90	595	340	900	
CZ 60 32 90	600	320	900	
CZ 79 32 90	790	320	900	
CZ 79 34 90	790	340	900	
CZ 80 32 90	800	320	900	
CZ 90 32 90	900	320	900	
CZ 95 32 90	950	320	900	
CZ 100 32 90	1000	320	900	
CZ 105 32 90	1050	320	900	
CZ 112 32 90	1120	320	900	
CZ 112 34 90	1120	340	900	
CZ 40 40 90	400	400	900	
CZ 60 40 90	600	400	900	
CZ 70 40 90	700	400	900	
CZ 80 40 90	800	400	900	
CZ 85 40 90	850	400	900	
CZ 90 40 90	900	400	900	
CZ 95 40 90	950	400	900	
CZ 100 40 90	1000	400	900	
CZ 105 40 90	1050	400	900	
CZ 120 50 90	1200	400	900	
CZ 80 50 90	800	500	900	
CZ 110 50 90	1100	500	900	
CZ 100 60 120	1000	600	1200	
CZ 100 50 120	1000	500	1200	
CZ 120 50 120	1200	500	1200	

- Ordering example:  
- Buried socle CZ 70 40 100.

**Concrete foundation FB type**

**Application**

- Concrete buried foundation for SU, SUJ, DSU, SK, SKP, SKPO cabinets.

**Type of installation**

- Cabinet is fixed to the foundation using M8 bolts protruding from foundation.

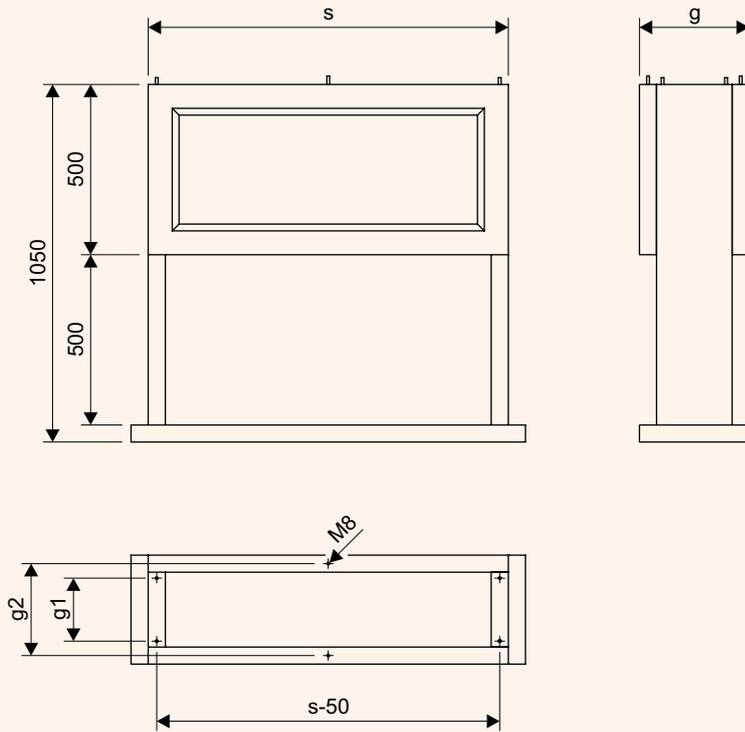
**Design**

- Foundation consists of 5 parts fixed together using M8 bolts. Parts are made of vibropressed concrete B-17,5 class.



The producer reserves the right to introduce technical modifications

**Dimensions**



**Reference chart**

foundation type	dimensions [mm]			
	s	g	g1	g2
FB 40 32	400	320	173	-
FB 60 32	600	320	173	-
FB 80 32	800	320	173	-
FB 105 32A*	1050	320	173	-
FB 105 32	1050	320	173	-
FB 40 40	400	400	265	350
FB 60 40	600	400	265	350
FB 80 40	800	400	265	350
FB 85 40	850	400	265	350
FB 105 40A*	1050	400	265	350
FB 105 40	1050	400	265	350
FB 125 40A**	1250	400	265	350
FB 125 40	1250	400	265	350

\* foundation with adapter, adjusted for 1000 mm width cabinets;

\*\* foundation with adapter, adjusted for 1200 mm width cabinets.

• Ordering example:

- Concrete foundation FB 80 32.

The producer reserves the right to introduce technical modifications

**Application**

- Cabinets are made of zinc plated steel with thickness 3 to 2 mm and are designed for places subject to acts of vandalism and burglary;
- Cabinets are designed for mounting on metal foundations or socles;
- They enable assembling of control devices, IT equipment, low voltage switchgear and other industrial automatic control devices or energy distribution.

**Type of installation**

- Cabinets are mounted on metal foundations and socles buried in the ground.

**Operating conditions**

- Outdoor mounted in industrial environment;
- Places potentially subject to burglary.

**Design**

- Zinc plated steel sheets are formed by punching and bending;
- Polyester structural powder painted, colour RAL 7035;
- Cabinet elements are assembled by riveting and screwing;
- It is possible to close by padlock;
- Cabinets are equipped with aluzinc plated smooth P1 type mounting plate;
- Opened bottom;
- FZ type foundations and CZ type socles are made of zinc plated steel with 3 mm thick;
- On request foundations can be painted in cabinet colour.

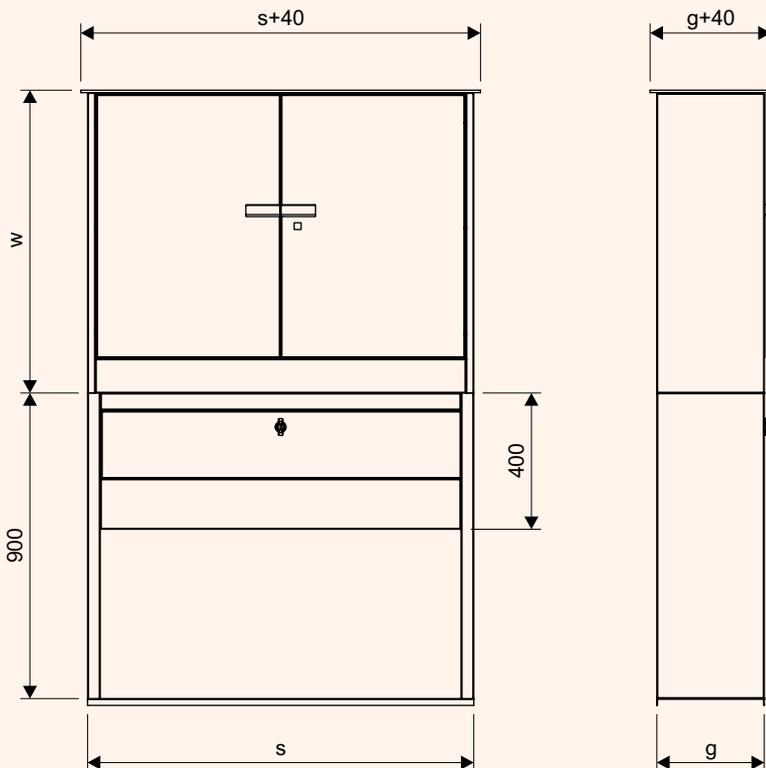


**Technical data**

- Protection class: I;
- Ingress protection degree: IP43;
- Impact protection: IK10.

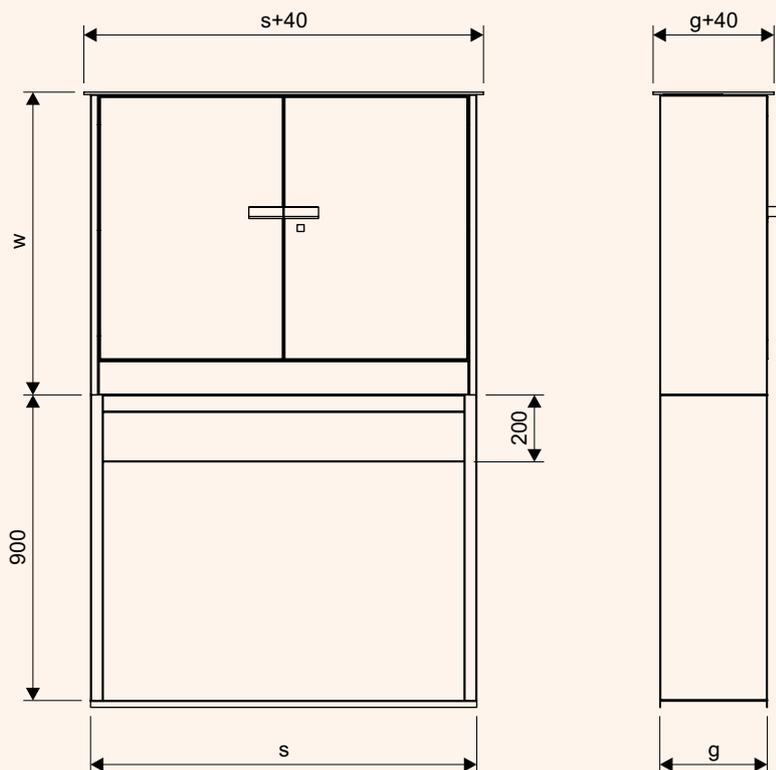
**Dimensions**

- SUW cabinets on buried socle CZ



The producer reserves the right to introduce technical modifications

- SUW cabinets on buried foundation FZ

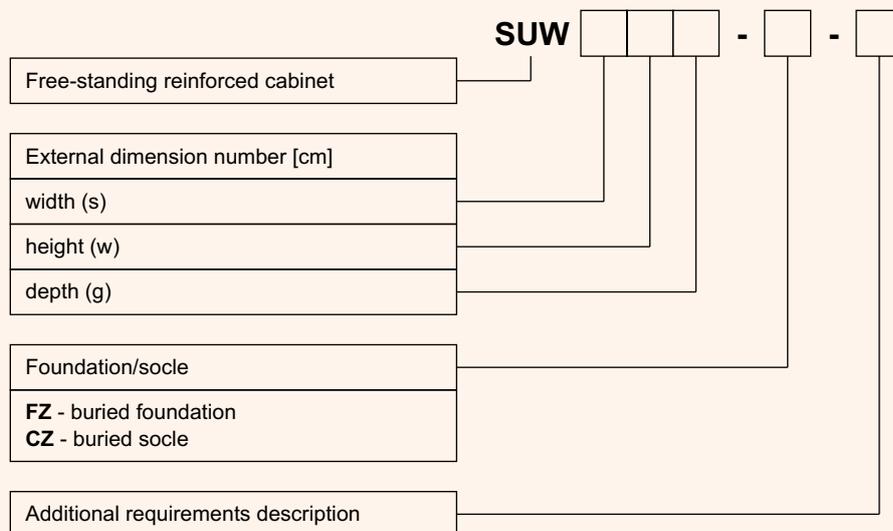


The producer reserves the right to introduce technical modifications

**Reference chart**

cabinet type	dimensions [mm]			no. of doors	buried foundation FZ	buried socle CZ
	s	w	g			
SUW 50 90 32	500	900	320	1	FZ 50 32 90	CZ 50 32 90
SUW 50 120 34	500	1200	340	1	FZ 50 34 90	CZ 50 34 90
SUW 60 90 32	600	900	320	1	FZ 60 32 90	CZ 60 32 90
SUW 60 120 34	600	1200	340	1	FZ 60 34 90	CZ 60 34 90
SUW 80 90 32	800	900	320	1	FZ 80 32 90	CZ 80 32 90
SUW 80 120 34	800	1200	340	1	FZ 80 34 90	CZ 80 34 90
SUW 115 90 32	1150	900	320	2	FZ 115 32 90	CZ 115 32 90
SUW 115 120 34	1150	1200	340	2	FZ 115 34 90	CZ 115 34 90

**How to order**



- Ordering example:
  - Free-standing reinforced cabinet with buried socle SUW 80 90 32 CZ.

**Scope of delivery**

- SUW cabinet with mounting plate.

**Application**

- Depending on the mounted equipment, frame cabinets can be used for low voltage switch-gear, control cabinets for management of the production processes, and as IT net cabinets for telecommunications. Cabinets can be joined together in sets. In case of switchgears, one can serve as supply panel, the next as outlet panel and next as measuring panel etc.

**Type of installation**

- Cabinets are placed on the floor and possibly joined together in sets.

**Operating conditions**

- Indoor mounted;
- Low aggressive environment;

**Design**

- Carbon steel thickness 1,5 - 2 mm, punched, press-broke, welded. It is possible to make cabinets of other materials;
- Polyester structural powder painted, colour RAL 7035;
- Doors suspended on hinges with 4 point closure, swing handle lock and locking bars with hitches. Foam seal.

**Scope of delivery**

- Rack with door and back wall;
- Side walls - lack;
- Cable gland plate, upper, lower - lack;
- Mounting plate - lack;
- Socle - lack;
- Transport rings - lack;
- Lock insert - lack.

**Accessories**

- Side walls: inner IP30, outer IP55;
- Cable gland plate: upper, lower smooth; adjustable with foam;
- Mounting plate: smooth, perforated;
- Socles: 100 mm, 200 mm;
- Modular construction;
- Vertical perforated beams;
- Rotary frame 19";
- The rest of parts and units - see pages 47 - 68.

**Technical data**

- Protection class: I;
- Ingress protection degree: IP30 or IP55;
- Impact protection:
  - IK10: for smooth, full door,
  - IK08: for window door.



Frame cabinet with smooth door and back cover (SR)

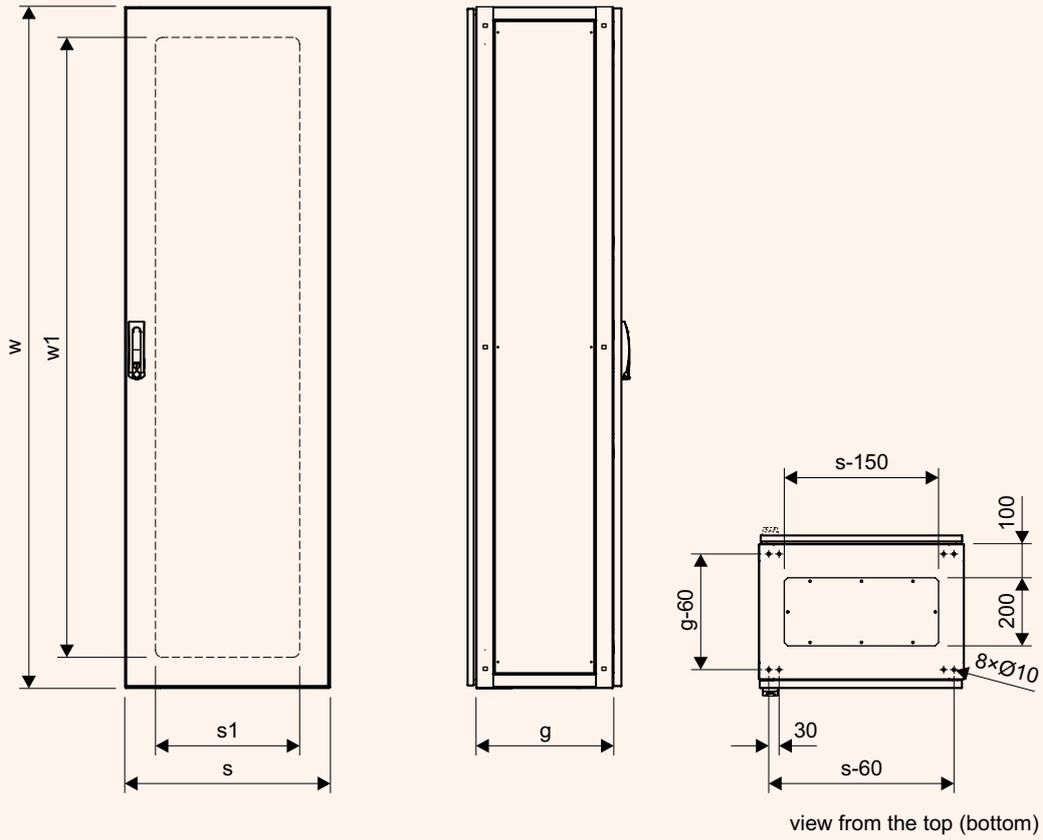


Frame cabinet with window door and back cover (SRO)

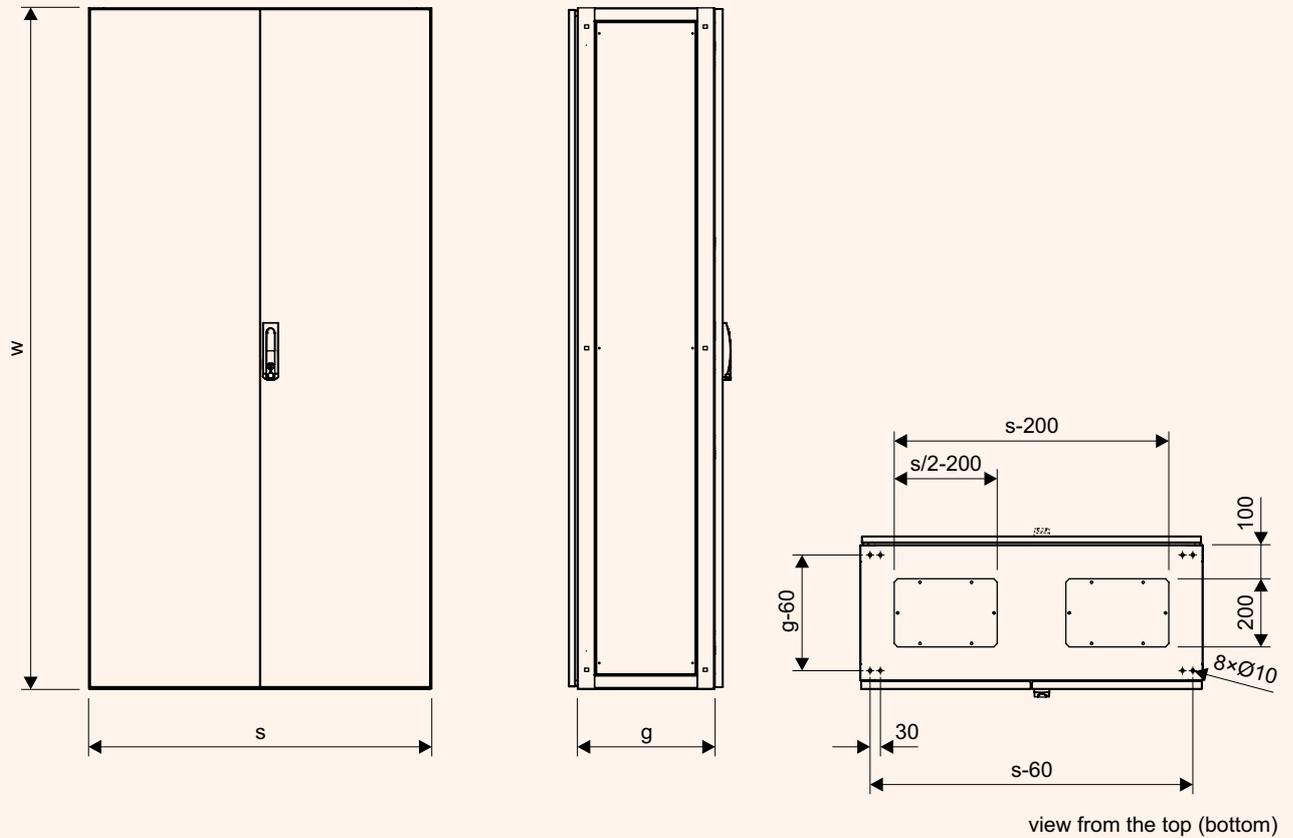
The producer reserves the right to introduce technical modifications

## Dimensions

- One door cabinet



- Two doors cabinet

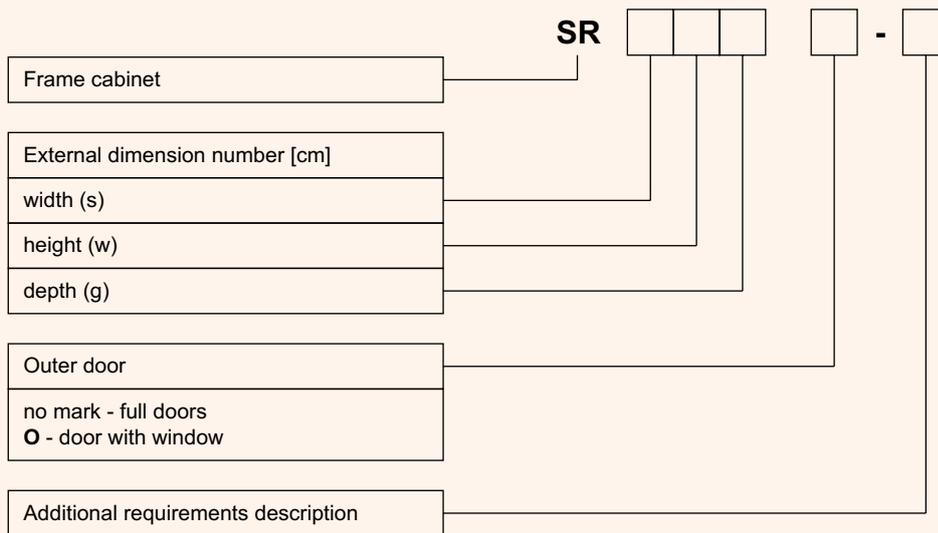


The producer reserves the right to introduce technical modifications

## Reference chart

cabinet type	dimensions [mm]			no. of doors	window dimensions s1×w1 [mm]	mounting plate dimensions [mm]
	s	w	g			
SR 40 160 40	400	1600	400	1	220×1420	300×1500
SR 40 160 50	400	1600	500	1	220×1420	300×1500
SR 40 160 60	400	1600	600	1	220×1420	300×1500
SR 40 180 40	400	1800	400	1	220×1620	300×1700
SR 40 180 50	400	1800	500	1	220×1620	300×1700
SR 40 180 60	400	1800	600	1	220×1620	300×1700
SR 40 200 40	400	2000	400	1	220×1820	300×1900
SR 40 200 50	400	2000	500	1	220×1820	300×1900
SR 40 200 60	400	2000	600	1	220×1820	300×1900
SR 60 160 40	600	1600	400	1	420×1420	500×1500
SR 60 160 50	600	1600	500	1	420×1420	500×1500
SR 60 160 60	600	1600	600	1	420×1420	500×1500
SR 60 180 40	600	1800	400	1	420×1620	500×1700
SR 60 180 50	600	1800	500	1	420×1620	500×1700
SR 60 180 60	600	1800	600	1	420×1620	500×1700
SR 60 200 40	600	2000	400	1	420×1820	500×1900
SR 60 200 50	600	2000	500	1	420×1820	500×1900
SR 60 200 60	600	2000	600	1	420×1820	500×1900
SR 80 160 40	800	1600	400	1	620×1420	700×1500
SR 80 160 50	800	1600	500	1	620×1420	700×1500
SR 80 160 60	800	1600	600	1	620×1420	700×1500
SR 80 180 40	800	1800	400	1	620×1620	700×1700
SR 80 180 50	800	1800	500	1	620×1620	700×1700
SR 80 180 60	800	1800	600	1	620×1620	700×1700
SR 80 200 40	800	2000	400	1	620×1820	700×1900
SR 80 200 50	800	2000	500	1	620×1820	700×1900
SR 80 200 60	800	2000	600	1	620×1820	700×1900
SR 100 180 40	1000	1800	400	2	2×281×1620	900×1700
SR 100 180 50	1000	1800	500	2	2×281×1620	900×1700
SR 100 180 60	1000	1800	600	2	2×281×1620	900×1700
SR 100 200 40	1000	2000	400	2	2×281×1820	900×1900
SR 100 200 50	1000	2000	500	2	2×281×1820	900×1900
SR 100 200 60	1000	2000	600	2	2×281×1820	900×1900
SR 120 180 40	1200	1800	400	2	2×381×1620	1100×1700
SR 120 180 50	1200	1800	500	2	2×381×1620	1100×1700
SR 120 180 60	1200	1800	600	2	2×381×1620	1100×1700
SR 120 200 40	1200	2000	400	2	2×381×1820	1100×1900
SR 120 200 50	1200	2000	500	2	2×381×1820	1100×1900
SR 120 200 60	1200	2000	600	2	2×381×1820	1100×1900

## How to order



- Ordering of accessories: specify type of accessories and number of pieces:
- Ordering example:
  - Frame cabinet SR 100 200 40.

## ACCESSORIES FOR SR CABINETS

## Side wall - BRW, BRZ

## Application

- For closing the sides of the frame or row of frames.

## Variety

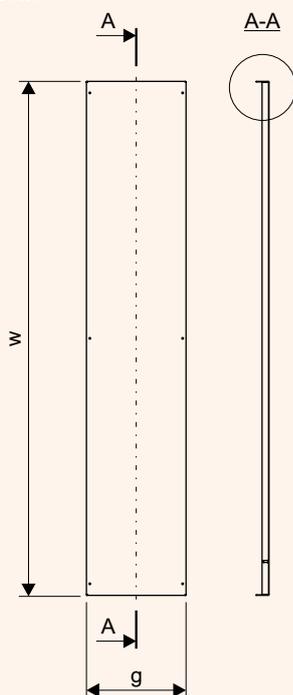
- **BRW** - inner type, fixed by bolts to the frame. It is mounted to the pocket of the frame, does not increase width of the frame. When frames are connected in series it serves as partition wall. Ensures IP30.
- **BRZ** - outer type, fixed by bolts to the frame. It is mounted outside of the frame and increases width of the frame by 25 mm per side. Equipped with sealing ensures IP55.

## Design

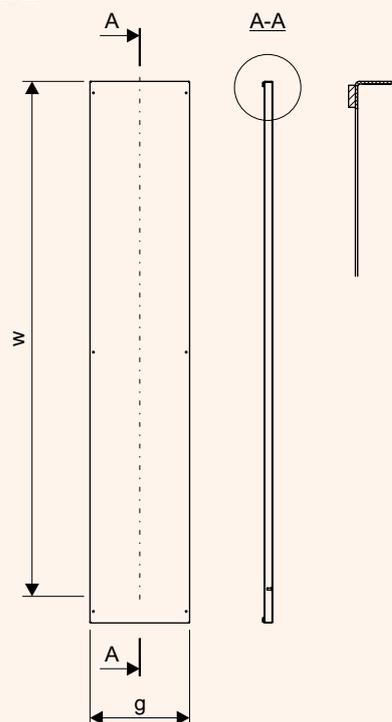
- Made of steel, thickness 1,5 mm;
- Painted with powder paints, colour RAL 7035.

## Dimensions

- BRW



- BRZ



## Reference chart

cabinet type	inner side wall <b>BRW</b>		outer side wall <b>BRZ</b>	
	type	dimensions [mm] w×g	type	dimensions [mm] w×g
SR ... 160 40	BRW 160 40	1518×292	BRZ 160 40	1590×390
SR ... 160 50	BRW 160 50	1518×392	BRZ 160 50	1590×490
SR ... 160 60	BRW 160 60	1518×492	BRZ 160 60	1590×590
SR ... 180 40	BRW 180 40	1718×292	BRZ 180 40	1790×390
SR ... 180 50	BRW 180 50	1718×392	BRZ 180 50	1790×490
SR ... 180 60	BRW 180 60	1718×492	BRZ 180 60	1790×590
SR ... 200 40	BRW 200 40	1918×292	BRZ 200 40	1990×390
SR ... 200 50	BRW 200 50	1918×392	BRZ 200 50	1990×490
SR ... 200 60	BRW 200 60	1918×492	BRZ 200 60	1990×590

Side walls are delivered with bolt kit.

## How to order

- Inner side wall BRW 160 80 (for SR XX 180 80);
- Outer side wall BRZ 180 60 (for SR XX 180 60).

## Cable gland plate (upper, lower) - K, KG

## Application

- SR cabinets have upper and lower openings, which to provide required IP degree must be covered using cable gland plates.

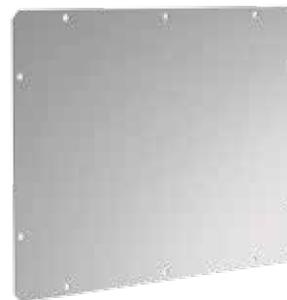
## Variety

- **K**: smooth cable gland plate;
- **KG**: adjustable cable gland plate with foam sealing.

## Design

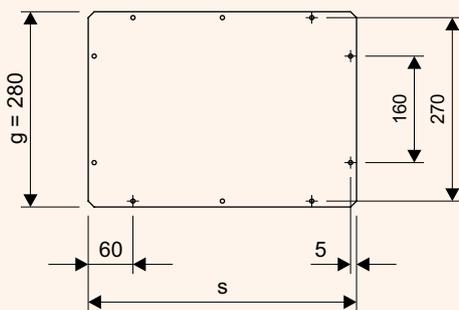
- It is made of aluzinc plated steel, thickness 1,5 mm, with sealing. Movable C-profiles are equipped with foams;
- Ingress protection:
  - K: IP55,
  - KG: IP20.

Cable gland plates are equipped with bolt kit.

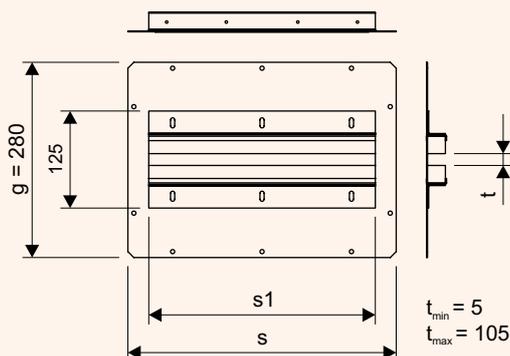


## Dimensions

- Smooth cable gland plate - K



- Adjustable cable gland plate with foam sealing - KG



## Reference chart

cabinet type	K cable gland plate		KG cable gland plate		
	type	dimensions s×g [mm]	type	dimensions s×g [mm]	useful width s1 [mm]
SR 40 ... 40	K 40	250×280	KG 40	250×280	180
SR 40 ... 50	K 40	250×280	KG 40	250×280	180
SR 40 ... 60	K 40	250×280	KG 40	250×280	180
SR 60 ... 40	K 60	450×280	KG 60	450×280	380
SR 60 ... 50	K 60	450×280	KG 60	450×280	380
SR 60 ... 60	K 60	450×280	KG 60	450×280	380
SR 80 ... 40	K 80	650×280	KG 80	650×280	580
SR 80 ... 50	K 80	650×280	KG 80	650×280	580
SR 80 ... 60	K 80	650×280	KG 80	650×280	580
SR 100 ... 40	K 100	2× 350×280	KG 100	2× 350×280	2× 280
SR 100 ... 50	K 100	2× 350×280	KG 100	2× 350×280	2× 280
SR 100 ... 60	K 100	2× 350×280	KG 100	2× 350×280	2× 280
SR 120 ... 40	K 120	2× 450×280	KG 120	2× 450×280	3× 380
SR 120 ... 50	K 120	2× 450×280	KG 120	2× 450×280	3× 380
SR 120 ... 60	K 120	2× 450×280	KG 120	2× 450×280	3× 380

## How to order

- Smooth cable gland plate - K 80;
- Adjustable cable gland plate with foam sealing - KG 100.

## Mounting plates - PR1, PR2

## Application

- For mounting electrical and electronic apparatus.

## Variety

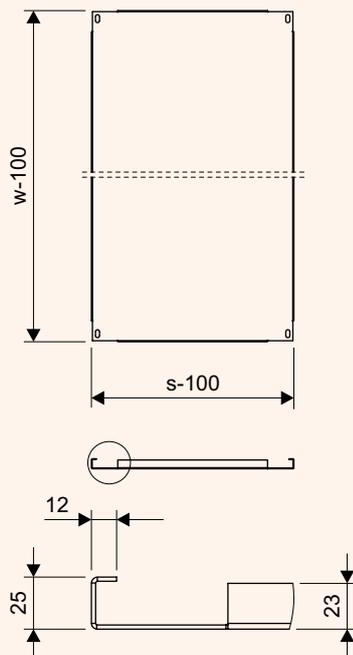
- PR1: smooth mounting plate;
- PR2: mounting plate, holes  $\varnothing 5,2$  (under thread M6) spacing 25x25 mm.

## Design

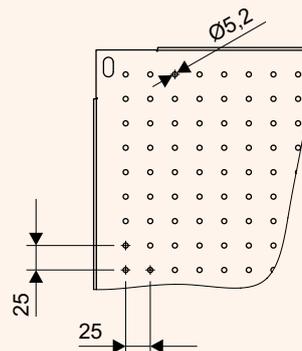
- PR1, PR2 are made of aluzinc plated steel, thickness 2,0 mm. Mounting plates are mounted into cabinets using brackets.

## Dimensions

- PR1



- PR2



## Reference chart

cabinet type	PR1 mounting plate		PR2 mounting plate	
	type	dimensions s×w [mm]	type	dimensions s×w [mm]
SR 40 160 ...	PR1 40 160	300×1500	PR2 40 160	300×1500
SR 40 180 ...	PR1 40 180	300×1700	PR2 40 180	300×1700
SR 40 200 ...	PR1 40 200	300×1900	PR2 40 200	300×1900
SR 60 160 ...	PR1 60 160	500×1500	PR2 60 160	500×1500
SR 60 180 ...	PR1 60 180	500×1700	PR2 60 180	500×1700
SR 60 200 ...	PR1 60 200	500×1900	PR2 60 200	500×1900
SR 80 160 ...	PR1 80 160	700×1500	PR2 80 160	700×1500
SR 80 180 ...	PR1 80 180	700×1700	PR2 80 180	700×1700
SR 80 200 ...	PR1 80 200	700×1900	PR2 80 200	700×1900
SR 100 180 ...	PR1 100 180	900×1700	PR2 100 180	900×1700
SR 100 200 ...	PR1 100 200	900×1900	PR2 100 200	900×1900
SR 120 180 ...	PR1 120 180	1100×1700	PR2 120 180	1100×1700
SR 120 200 ...	PR1 120 200	1100×1900	PR2 120 200	1100×1900

Mounting plates are delivered with bolts kit.

## How to order

- Smooth mounting plate PR1 100 200 (for cabinet SR 100 200 ZZ);
- Perforated mounting plate PR2 80 180 (for cabinet SR 80 180 ZZ).

## Socles - CR1, CR2

## Application

- Designed to rise cabinet over the floor.

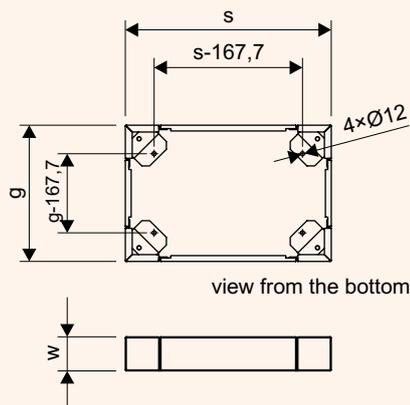
## Variety

- CR1: screwed socle with height w = 100 mm;
- CR2: screwed socle with height w = 200 mm.

## Design

- CR consists of corners and covers. Weight of cabinet rests on corners. Screwed off covers enable access to the place under cabinet, and Z-profiles of the corners enable solid fixing cabinet to the floor.
- CR are made of aluzinc plated steel:
  - corners, thickness 2 mm,
  - covers, thickness 1,5 mm;
- Painted with powder paint, colour RAL 7035.

## Dimensions



## Reference chart

cabinet type	CR1 socle (w=100 mm)		CR2 socle (w=200 mm)	
	type	dimensions s×g [mm]	type	dimensions s×g [mm]
SR 40 ... 40	CR1 40 40	400×400	CR2 40 40	400×400
SR 40 ... 50	CR1 40 50	400×500	CR2 40 50	400×500
SR 40 ... 60	CR1 40 60	400×600	CR2 40 60	400×600
SR 60 ... 40	CR1 60 40	600×400	CR2 60 40	600×400
SR 60 ... 50	CR1 60 50	600×500	CR2 60 50	600×500
SR 60 ... 60	CR1 60 60	600×600	CR2 60 60	600×600
SR 80 ... 40	CR1 80 40	800×400	CR2 80 40	800×400
SR 80 ... 50	CR1 80 50	800×500	CR2 80 50	800×500
SR 80 ... 60	CR1 80 60	800×600	CR2 80 60	800×600
SR 100 ... 40	CR1 100 40	1000×400	CR2 100 40	1000×400
SR 100 ... 50	CR1 100 50	1000×500	CR2 100 50	1000×500
SR 100 ... 60	CR1 100 40	1000×600	CR2 100 40	1000×600
SR 120 ... 40	CR1 120 40	1200×400	CR2 120 40	1200×400
SR 120 ... 50	CR1 120 50	1200×500	CR2 120 50	1200×500
SR 120 ... 60	CR1 120 60	1200×600	CR2 120 60	1200×600

*Socles are delivered with bolts kit.*

## How to order

- Socle 100 mm CR1 100 40 (for SR 100 YYY 40);
- Socle 200 mm CR2 100 50 (for SR 100 YYY 50).

**Swing frame 19" - RUR19****Application**

- It serves to mount 19" devices in the SR cabinets with 800 mm width.

**Variety**

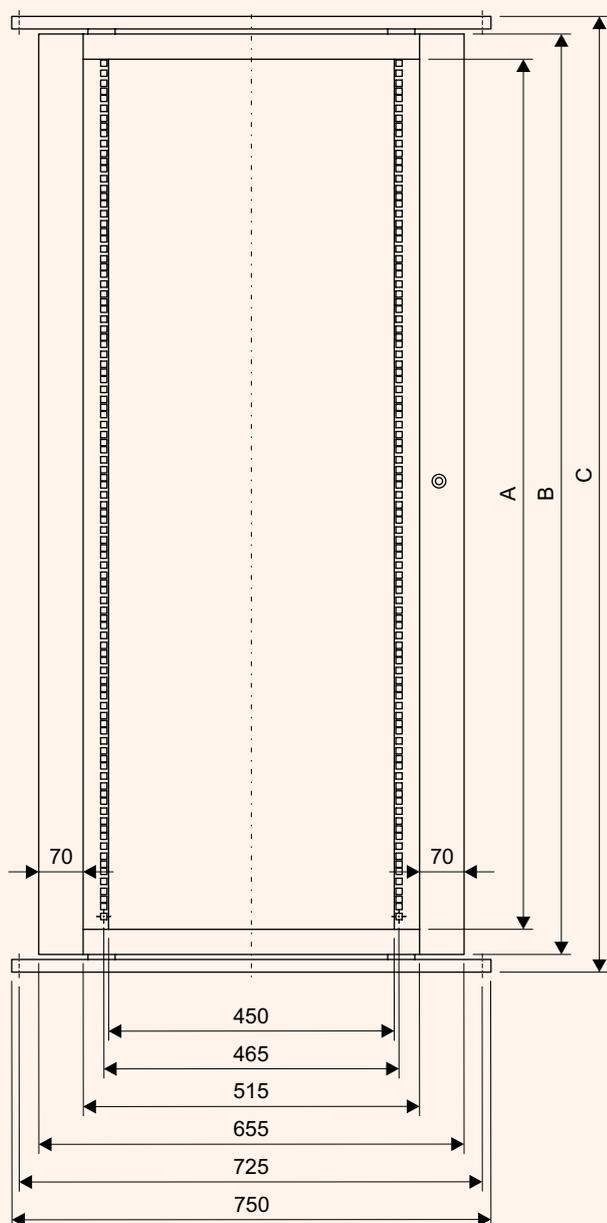
- RUR19 S: swing frame 19", symmetrical;
- RUR19 N: swing frame 19", asymmetrical.

**Design**

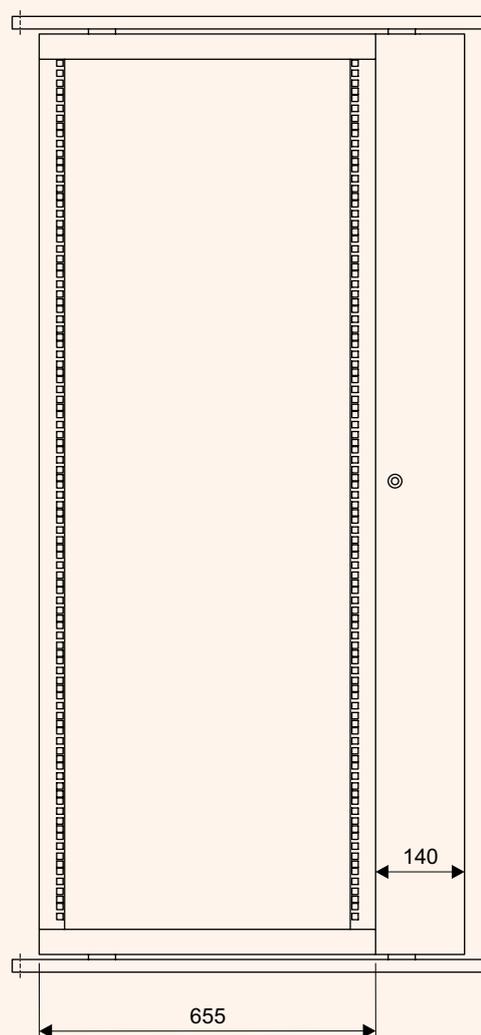
- Frame is made of steel profiles with thickness 2 mm, welded. Equipped with hinges with possibility to change opening - left, right - direction. M22 type lock closure with round bars.
- Maximum load - 160 kg;
- Maximum depth of the devices:
  - symmetrical - 360 mm,
  - asymmetrical - 440 mm;
- Painted with powder paint, colour RAL 7035.

**Dimensions**

- RUR19 S



- RUR19 N



## Reference chart

cabinet type	swing frame type RUR19	dimensions [mm]			number of modules
		A	B	C	
SR 80 160 ...	RUR19 S 160 RUR19 N 160	1286	1366	1426	27U
SR 80 180 ...	RUR19 S 180 RUR19 N 180	1486	1566	1626	31U
SR 80 200 ...	RUR19 S 200 RUR19 N 200	1686	1766	1826	36U

## How to order

- Swing frame 19" symmetrical: RUR19 S200 (for SR 80 200 ZZ).

## Universal mounting plates - PUR1

## Application

- In SR cabinets, when devices are mounted on various height and depth.

## Variety

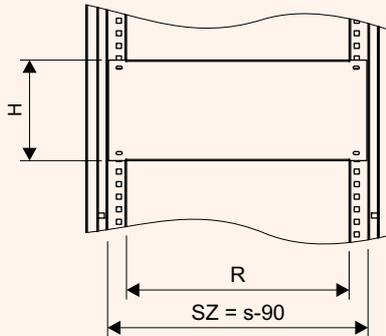
- PUR1: one type, various dimensions.

## Design

- It is fractional mounting plate mounted on vertical angle profiles.



## Dimensions



s - width of the SR

## Reference chart

cabinet type	universal mounting plate type PUR1	dimensions [mm]		
		width SZ	useful width R	height H
SR 40 ... ..	PUR1 40 10	310	240	100
	PUR1 40 20	310	240	200
	PUR1 40 30	310	240	300
SR 60 ... ..	PUR1 60 10	510	440	100
	PUR1 60 20	510	440	200
	PUR1 60 30	510	440	300
SR 80 ... ..	PUR1 80 10	710	640	100
	PUR1 80 20	710	640	200
	PUR1 80 30	710	640	300
SR 100 ... ..	PUR1 100 10	910	840	100
	PUR1 100 20	910	840	200
	PUR1 100 30	910	840	300
SR 120 180 ...	PUR1 120 10	1110	1040	100
	PUR1 120 20	1110	1040	200
	PUR1 120 30	1110	1040	300

## How to order

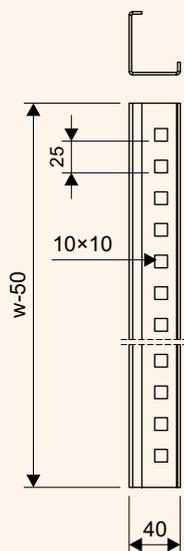
- Universal mounting plate PUR1 100 30 (for 100 YYY ZZ).

**Vertical angle bar (left, right) metric - KPR****Application**

- For mounting of mounting plates, brackets on various heights and depths.

**Design**

- Angle bar has the perforation with square 10 × 10 mm holes with raster 25 mm. Elements are mounted using cage nuts M6 and screws with washers. It is made of aluzinc plated steel, thickness 2 mm.

**Dimensions**

*w - height of SR*

**Reference chart**

cabinet type	angle bar type KPR	angle bar length (w-50) [mm]
SR ... 160 ...	KPR 160	1550
SR ... 180 ...	KPR 180	1750
SR ... 200 ...	KPR 200	1950

*It is delivered the pair of angle bars with mounting kit.*

**How to order**

- The pair of vertical angle bars, metric KPR 180 (for SR cabinets with height 1800 mm).

**Bracket of vertical profile 19" (PR19) - WPR****Application**

- For mounting of vertical profile 19" in SR cabinet, width 800 mm.

**Design**

- It is made of aluzinc plated steel, thickness 2 mm.

**How to order**

- Bracket of vertical profile 19" - WPR (4 pieces)\*

\* *It is delivered with mounting kit.*

**Vertical profile 19" - PR19****Application**

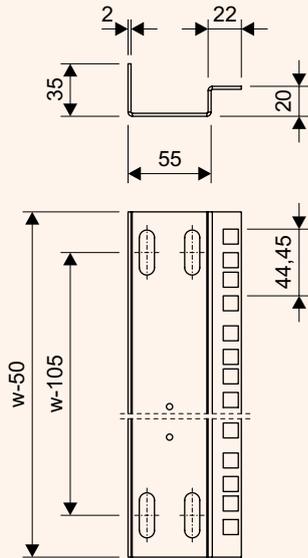
- For mounting 19" devices on various heights and depths.

**Design**

- Perforated profile with holes 10×10 mm, spacing U pattern.
- Devices are mounted using cage nuts M6 and screws with washers.
- It is made of aluzinc plated steel, thickness 2 mm.



## Dimensions



w - height of the SR cabinet

## Reference chart

cabinet type	type of vertical profile 19" PR19	dimensions [mm]	
		length (w-50)	spacing of mounting holes (w-105)
SR ... 160 ...	PR19 160	1550	1495
SR ... 180 ...	PR19 180	1750	1695
SR ... 200 ...	PR19 200	1950	1895

It is delivered the pair of the profiles with mounting kit.

## How to order

- Vertical profile 19" - PR19 180.

## Vertical C-profile for modular buildings - CPAM

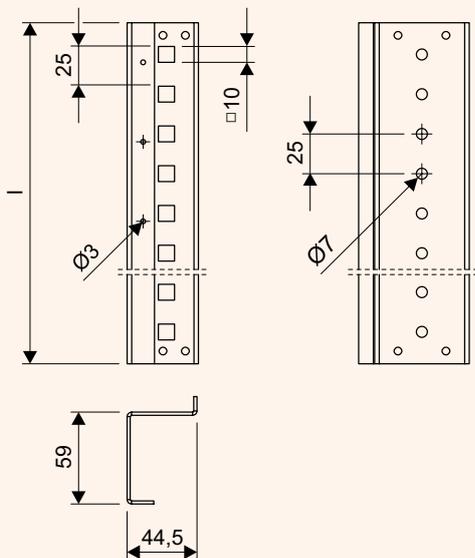
### Application

- For mounting DIN rail and masking panel MMB, MMP on various depths;
- For building modular unit TMR.

### Design

- C-profile has perforation with holes 10×10 mm for cage nuts for DIN rail fixing using screw M6. Holes Ø7 mm serve for fixing C-profile to SR frame;
- It is made of aluzinc plated steel, thickness 2 mm.

## Dimensions



## Reference chart

cabinet type	C-profile type CPAM	length of C-profile (l) [mm]
SR ... 160 ...	CPAM 160	1550
SR ... 180 ...	CPAM 180	1750
SR ... 200 ...	CPAM 200	1950

*It is delivered pair of C-profiles with mounting kit.*

## How to order

- Pair of vertical C-profiles, metric CPAM 180 (for SR cabinet height 1800 mm).

## Modular unit - ZM

## Application

- For mounting modular devices in SR cabinets.

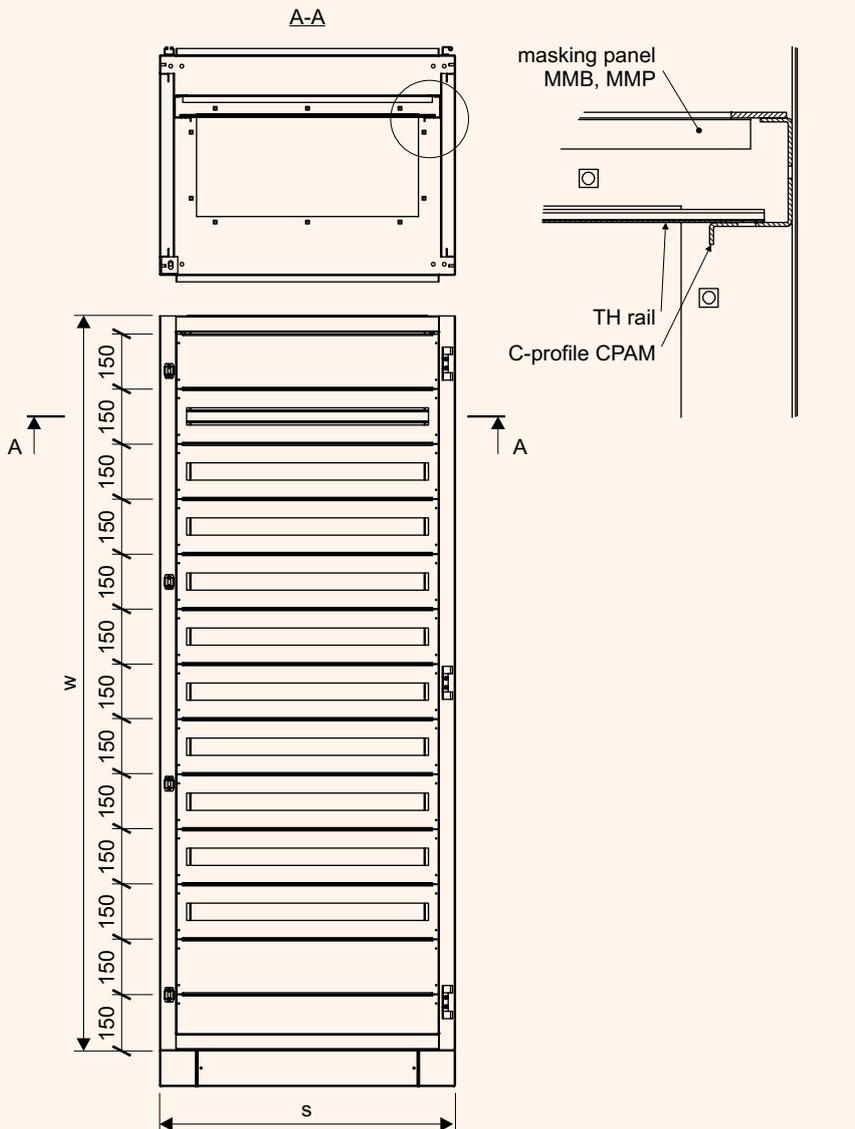
## Variety

- Possible mounting of various masking panels - smooth, with holes.

## Design

- Unit consists of the frame created with two vertical C-profiles CPAM, connected on the top and bottom with the C-profiles;
- Unit is fixed to the SR cabinet on the top and on the bottom:
  - fixing on the bottom: unit after devices mounting and wiring, is inserted to the gutter fixed transversely to the SR frame;
  - fixing on the top: unit is fixed vertically using swinging clamp of top crossbar;
- Top and bottom crossbars are integral elements of the modular unit ZM.

## Dimensions



The producer reserves the right to introduce technical modifications

## Reference chart

cabinet type	modular unit ZM type	no. of modules in masking panel	no. of masking panel in modular unit	sum of modules in modular unit	external dimension s×w [mm]
SR 40 160 ...	ZM 40 160	15	10	150	322×1500
SR 40 180 ...	ZM 40 180	15	11	165	322×1650
SR 40 200 ...	ZM 40 200	15	13	195	322×1950
SR 60 160 ...	ZM 60 160	26	10	260	522×1500
SR 60 180 ...	ZM 60 180	26	11	286	522×1650
SR 60 200 ...	ZM 60 200	26	13	338	522×1950
SR 80 160 ...	ZM 80 160	38	10	380	722×1500
SR 80 180 ...	ZM 80 180	38	11	418	722×1650
SR 80 200 ...	ZM 80 200	38	13	494	722×1950
SR 100 180 ...	ZM 100 180	49	11	539	922×1650
SR 100 200 ...	ZM 100 200	49	13	637	922×1950
SR 120 180 ...	ZM 120 180	61	11	671	1122×1650
SR 120 200 ...	ZM 120 200	61	13	793	1122×1950

Modular unit is delivered as mounted.

## How to order

- Modular unit ZM 80 200 (for cabinet SR 80 200 ZZ).

## Modular unit - TMR

## Application

- For mounting of modular devices in SR cabinets.

## Variety

- TMR: one construction type, the number of masking panels depends on the size of the cabinet.

## Design

- Unit consists of two vertical C-profiles CPAM, masking panels, DIN rails. Unit is understood as set of parts for TMR building, not as one separate element. It is mounted to the side brackets of the SR frame.



## Reference chart

cabinet type	modular unit TMR type	no. of modules in masking panel	no. of masking panels in the modular unit	sum of the modules in the modular unit	external dimension s×w [mm]
SR 40 160 ...	TMR 40 160	15	10	150	320×1500
SR 40 180 ...	TMR 40 180	15	11	165	320×1650
SR 40 200 ...	TMR 40 200	15	13	195	320×1950
SR 60 160 ...	TMR 60 160	26	10	260	520×1500
SR 60 180 ...	TMR 60 180	26	11	286	520×1650
SR 60 200 ...	TMR 60 200	26	13	338	520×1950
SR 80 160 ...	TMR 80 160	38	10	380	720×1500
SR 80 180 ...	TMR 80 180	38	11	418	720×1650
SR 80 200 ...	TMR 80 200	38	13	494	720×1950
SR 100 180 ...	TMR 100 180	49	11	539	920×1650
SR 100 200 ...	TMR 100 200	49	13	637	920×1950
SR 120 180 ...	TMR 120 180	61	11	671	1120×1650
SR 120 200 ...	TMR 120 200	61	13	793	1120×1950

One construction type, the number of masking panels depends on the size of the cabinet.

## How to order

- Modular unit TMR 80 200 (for cabinet SR 80 200 ZZ).

**Internal door - DW****Application**

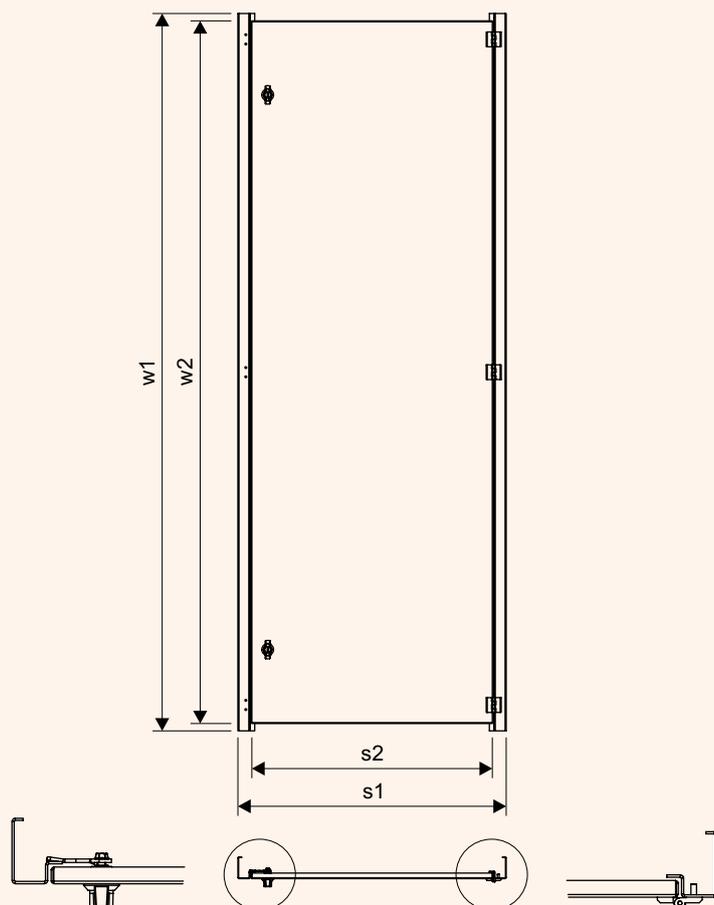
- For mounting board devices like: amperometer, voltmeter, net analyzer, control lamps, etc.

**Variety**

- Smooth internal door - for perforation by customer;
- With holes - punching made according to customer pattern.

**Design**

- Made of aluzinc plated steel, thickness 1,5 mm;
- Polyester structural powder paint, colour RAL 7035;
- Hanged on the hinges, right side of the profile fixed to the frame.

**Dimensions**

The producer reserves the right to introduce technical modifications

**Reference chart**

cabinet type	internal door type DW	dimensions [mm]			
		s1	w1	s2	w2
SR 60 160 ...	DW 60 160	522	1540	450	1500
SR 60 180 ...	DW 60 180	522	1740	450	1700
SR 60 200 ...	DW 60 200	522	1940	450	1900
SR 80 160 ...	DW 80 160	722	1540	650	1500
SR 80 180 ...	DW 80 180	722	1740	650	1700
SR 80 200 ...	DW 80 200	722	1940	650	1900
SR 100 160 ...	DW 100 160	922	1540	850	1500
SR 100 180 ...	DW 100 180	922	1740	850	1700
SR 100 200 ...	DW 100 200	922	1940	850	1900
SR 120 160 ...	DW 120 160	1122	1540	1050	1500
SR 120 180 ...	DW 120 180	1122	1740	1050	1700
SR 120 200 ...	DW 120 200	1122	1940	1050	1900

*It is delivered as completely mounted in the SR cabinet or in parts.*

**How to order**

- Inner door DW 100 200 mounted or in parts (for cabinet SR 100 200 ZZ).

## Masking panels of modular devices - MMB, MMP

### Application

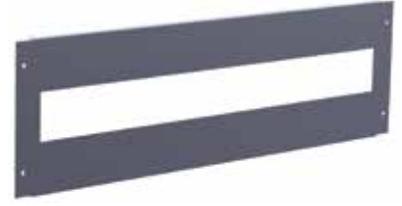
- For covering modular devices fixed to the DIN rail in SR, OWW cabinets.

### Type of installation

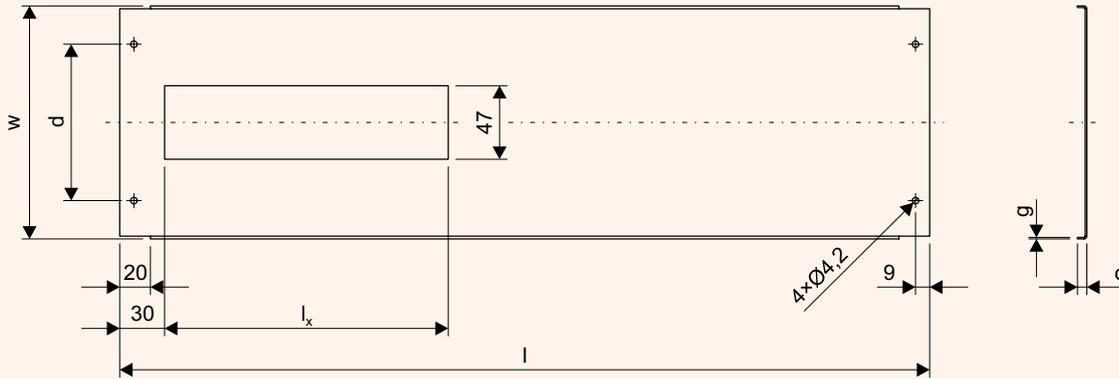
- Masking panels are mounted to the side profiles using self-tapping screws.

### Design

- Masking panels MMB are made of aluzinc plated steel;
- Masking panels MMP are made of PVC sheet;
- Holes under devices are made for maximum width.



### Dimensions

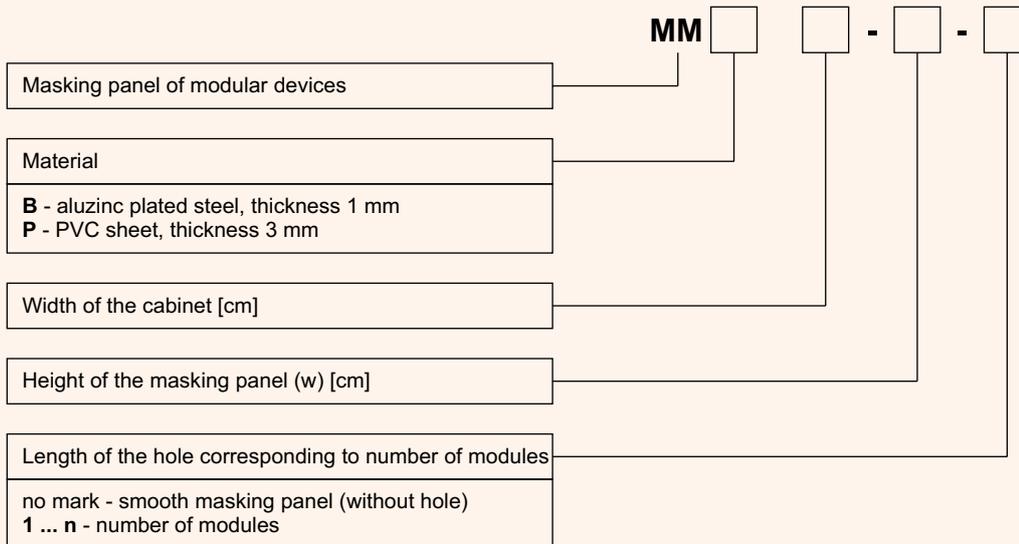


### Reference chart

type	dimensions [mm]						maximal no. of modules	
	cabinet width	l	w	d	g	c		
MMB 40	400	314	150	100	1	8	14	
MMP 40					3	15		
MMB 40			200	150	1	8		
MMP 40					3	15		
MMB 40	600	514	250	200	1	8	25	
MMP 40					3	15		
MMB 60			150	400	1	8		
MMP 60					3	15		
MMB 60	200	500	1	8	25			
MMP 60			3	15				
MMB 60	800	714	250	600		1	8	36
MMP 60						3	15	
MMB 80			150	100	1	8		
MMP 60					3	15		
MMB 60	200	150	1	8	36			
MMP 60			3	15				
MMB 60	1000	914	250	200		1	8	47
MMP 60						3	15	
MMB 100			150	100	1	8		
MMP 100					3	15		
MMB 100	200	150	1	8	47			
MMP 100			3	15				
MMB 100	1200	1114	250	200		1	8	58
MMP 100						3	15	
MMB 120			150	100	1	8		
MMP 120					3	15		
MMB 120	200	150	1	8	58			
MMP 120			3	15				
MMB 120	250	250	1	8				
MMP 120			3	15				

$l_x = 18n$ ;  $x = 18$ ,  $n$  - number of modules

## How to order



- Ordering example:
  - Masking panel MMP 60-15 - 8

## Masking panel of box fuse disconnecter and smooth - MRB, MRP

## Application

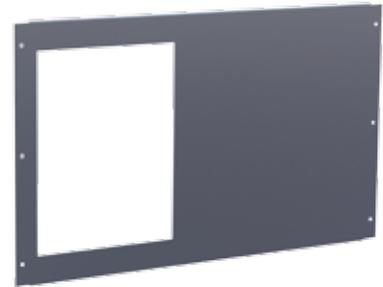
- For covering box fuse disconnecters and inside space of switchgears based on SR, OWW cabinets.

## Type of installation

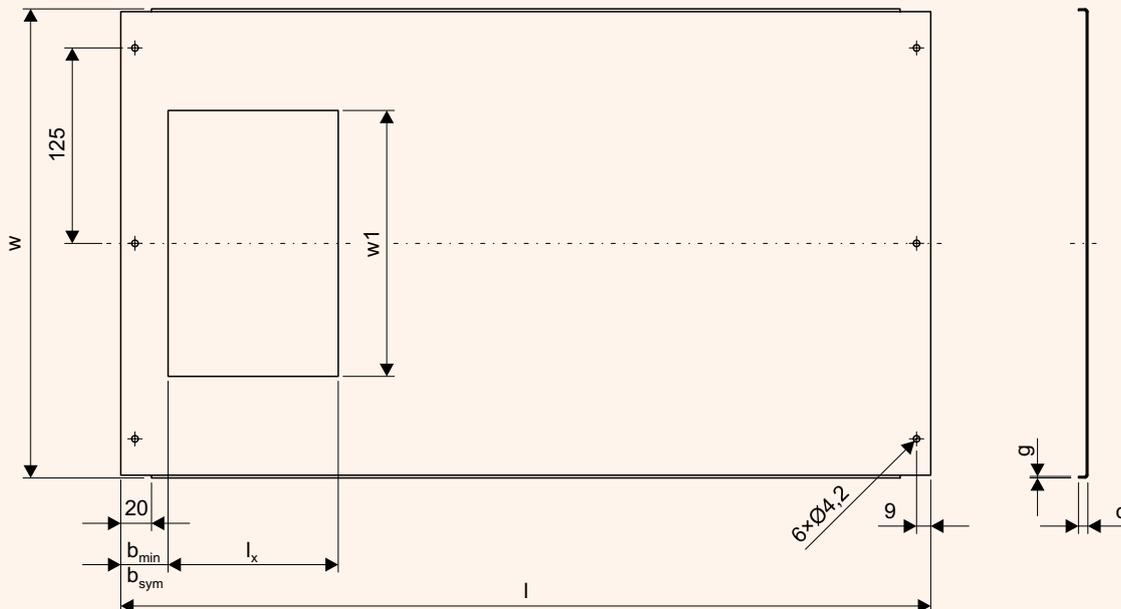
Masking panels are fixed to the side profiles using self-tapping screws.

## Design

- Masking panels MRB are made of aluzinc plated steel;
- Masking panels MRP are made of PVC sheet;
- Holes under fuse disconnecters are made on request.



## Dimensions



- Dimensions of the holes under box fuse disconnecter:

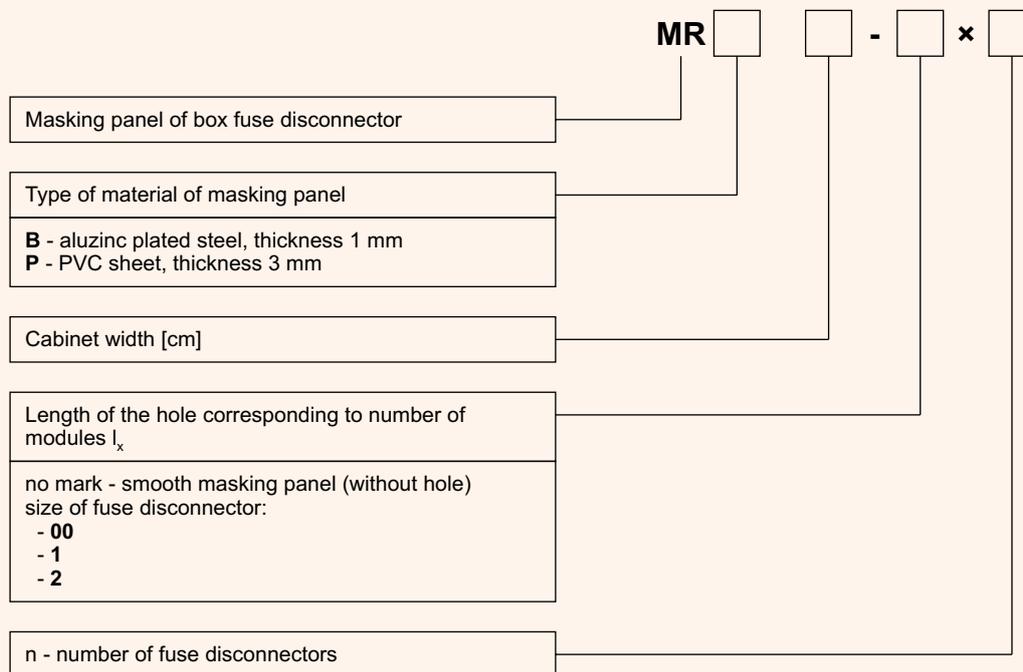
size of fuse disconnecter	hole dimensions	
	x	w1
00	108	180
1	180	235
2	210	260

$l_x = xn$ ; n - number of disconnectors

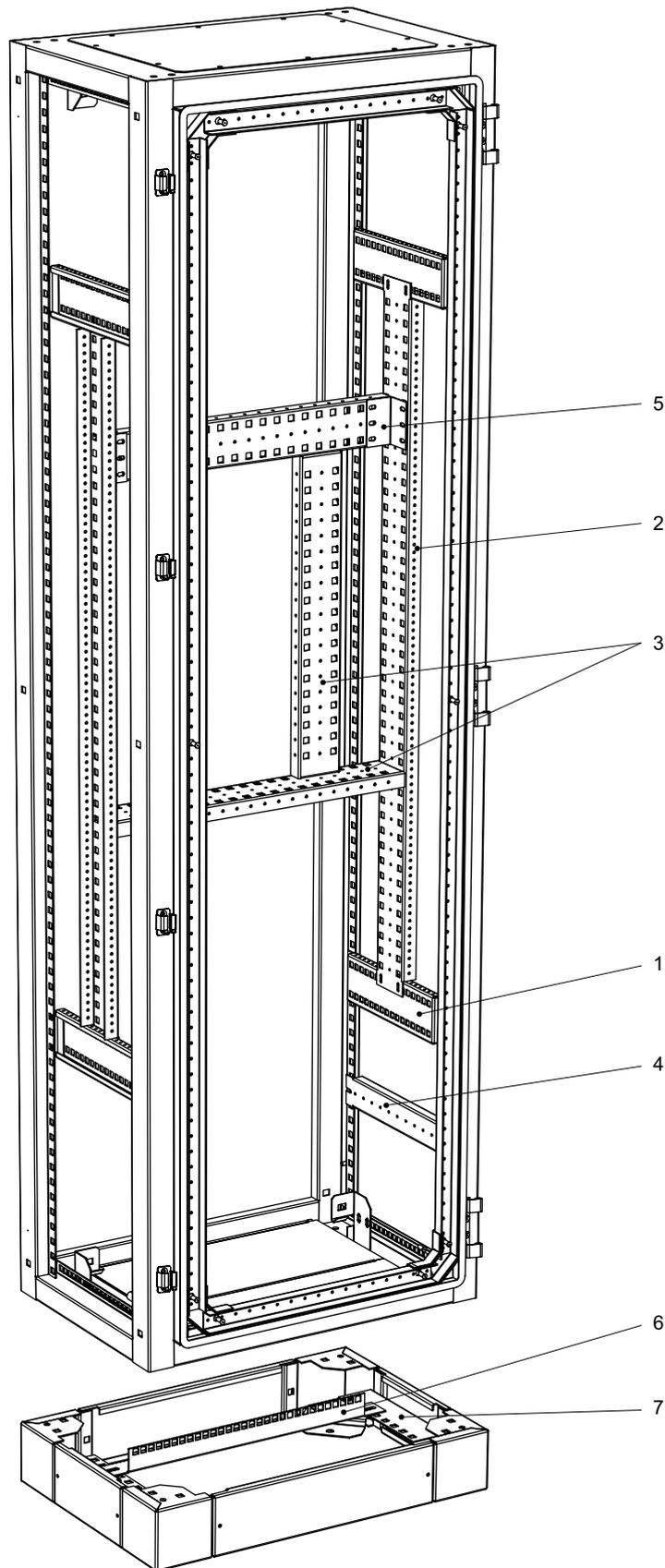
## Reference chart

type	cabinet width	dimension [mm]						maximal number of fuse disconnectors RBK (n)					
		l	b <sub>min</sub>	b <sub>sym</sub>	g	c	w			00	1	2	
							for disconnector RBK						
			00	1	2				00	1	2		
MRB 40	400	314	30	49,5	1	8	300	400	400	2	1	1	
MRP 40					3	15							
MRB 60	600	514	30	41,5	1	8	300	400	400	4	2	2	
MRP 60					3	15							
MRB 80	800	714	30	33,5	1	8	300	400	400	6	3	3	
MRP 80					3	15							
MRB 100	1000	914	25	25,5	1	8	300	400	400	8	4	4	
MRP 100					3	15							
MRB 120	1200	1114	15	15,5	1	8	300	400	400	10	6	5	
MRP 120					3	15							

## How to order



- Ordering example:  
- Masking panel MRP 80 - 00×4



- 1 - Side cross-bar (WBPR)
- 2 - Vertical side-bar (WBPiR)
- 3 - Internal bar (WWR)
- 4 - Cable cross-bar (WPKR)
- 5 - Angle plate (KR)
- 6 - Cable holder (TKR)
- 7 - Bracket of cable holder (KTKR)

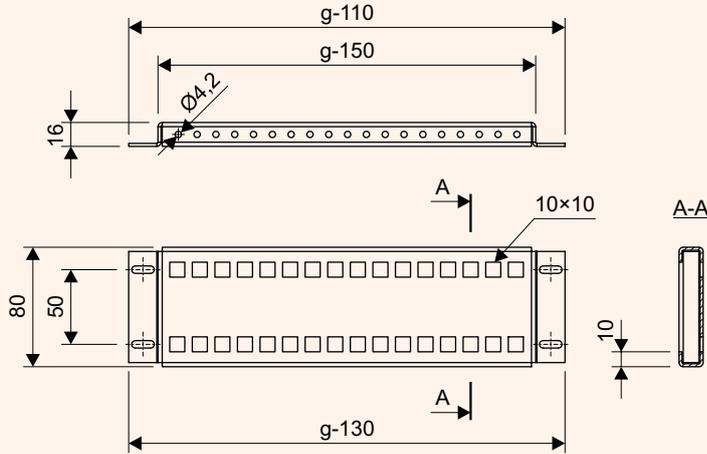
The producer reserves the right to introduce technical modifications

**Side cross-bar - WBPR****Application**

- It is mounted to vertical profiles of the frame.

**Design**

- It provides common plane with horizontal beams of the frame. It gives possibility to mount short vertical angle profiles KPR and universal mounting plates PUR1;
- It is made of aluzinc plated steel, thickness 2 mm.

**Dimensions****Reference chart**

cabinet type	side cross-bar WBPR type	dimensions [mm]		
		length (g-110)	internal dimension (g-150)	spacing of mounting holes (g-130)
SR ... .. 40	WBPR 40	290	250	270
SR ... .. 50	WBPR 50	390	350	370
SR ... .. 60	WBPR 60	490	450	470

*It is delivered 1 piece with mounting elements.*

**How to order**

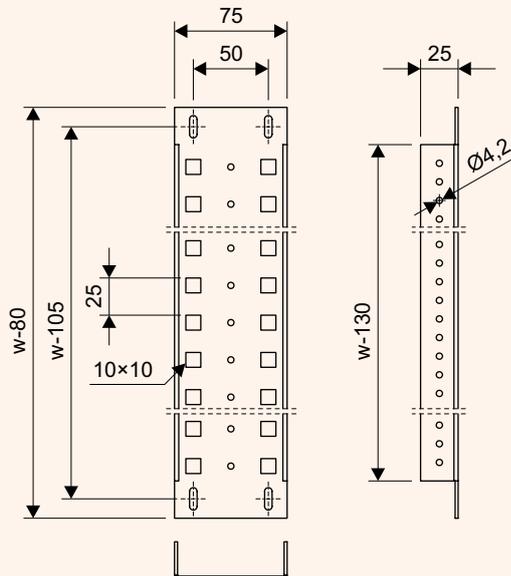
- Side cross-bar WBPR 50 (for cabinet SR XX YY 50).

**Vertical side-bar - WPiR****Application**

- Mounted to the horizontal beams of the frame on full height or to two side cross-bars WBPR.

**Design**

- It is made of aluzinc plated steel, thickness 2 mm.

**Dimensions**

## Reference chart

cabinet type	vertical side-bar WBPIR type	dimensions [mm]		
		length (w-80)	internal dimension (w-130)	spacing of mounting holes (w-105)
SR ... 160 ...	WBPIR 160	1520	1470	1495
SR ... 180 ...	WBPIR 180	1720	1670	1695
SR ... 200 ...	WBPIR 200	1920	1870	1895

*It is delivered 1 piece with fixing elements.*

## How to order

- Vertical side-bar WBPIR 180 (for cabinet SR XX 180 ZZ).

## Internal bar - WWR

## Application

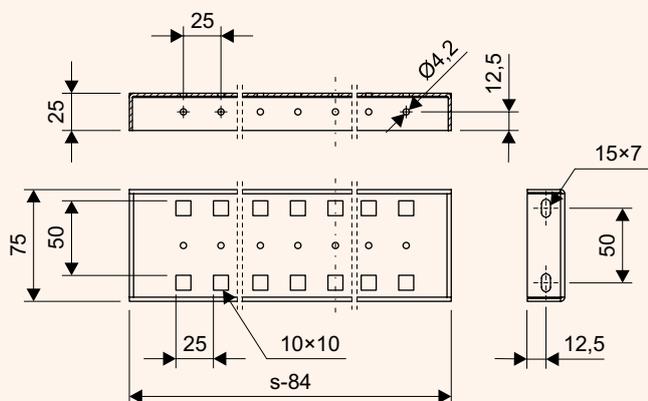
- It is mounted to vertical side bars WBPIR. It is fitted to the width of the cabinet.

## Design

- It is made of aluzinc plated steel, thickness 2 mm.



## Dimensions



## Reference chart

cabinet type	internal bar WWR type	length (s-84) [mm]
SR 40 ... ..	WWR 40	316
SR 60 ... ..	WWR 60	516
SR 80 ... ..	WWR 80	716
SR 100 ... ..	WWR 100	916
SR 120 ... ..	WWR 120	1116

## How to order

- Internal bar WWR 80 (for cabinet SR 80 YYY ZZZ).

## Cable cross-bar - WPKR

## Application

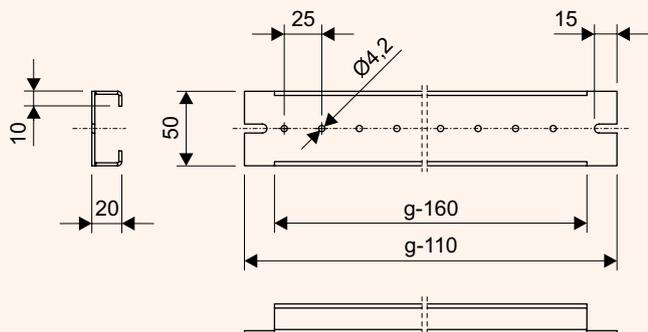
- For fixing cable bundles. Mounted to the vertical profiles of the SR frame or to the door reinforcement.

## Design

- It is made of aluzinc plated steel, thickness 2 mm.



## Dimensions



## Reference chart

cabinet type	cable cross-bar WPKR type	dimensions [mm]	
		length (g-110)	internal dimension (g-150)
SR ... .. 40	WPKR 40	290	240
SR ... .. 50	WPKR 50	390	340
SR ... .. 60	WPKR 60	490	440

*It is delivered 1 piece with fixing elements.*

## How to order

- Cable cross-bar WPKR 50 (for cabinet SR XX YYY 50).

## Angle plate - KR

## Application

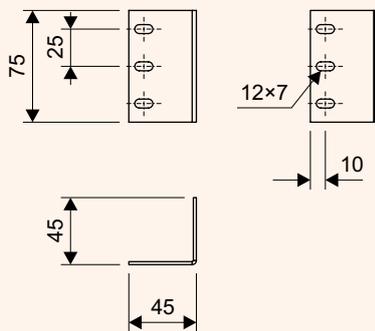
- For fixing internal bars.

## Design

- It is made of aluzinc plated steel, thickness 2 mm.



## Dimensions



*It is delivered 1 piece with fixing elements.*

## How to order

- Angle plate KR (for SR cabinet).

## Connector of mounting plates - LPR

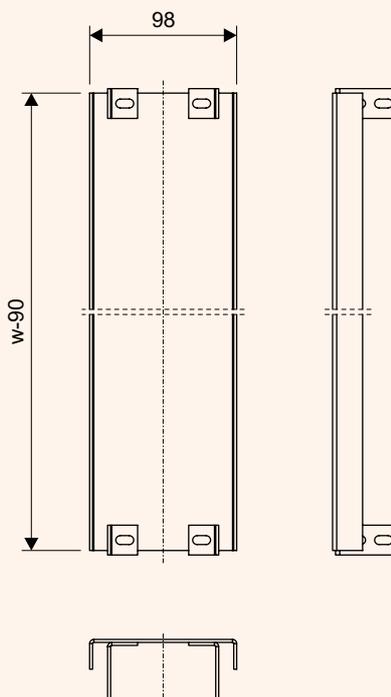
## Application

- It is applied in order to reach uniform plane of two mounting plates in cabinets connected in series.

## Design

- It is made of aluzinc plated steel, thickness 2 mm.

## Dimensions



## Reference chart

cabinet type	connector of mounting plate LPR type	length (w-90) [mm]
SR ... 160 ...	LPR 160	1510
SR ... 180 ...	LPR 180	1710
SR ... 200 ...	LPR 200	1910

*It is delivered 1 piece with fixing elements.*

## How to order

- Connector of mounting plates - LPR 180 (for cabinet SR XX 180 ZZ).

## Cable holder - TKR

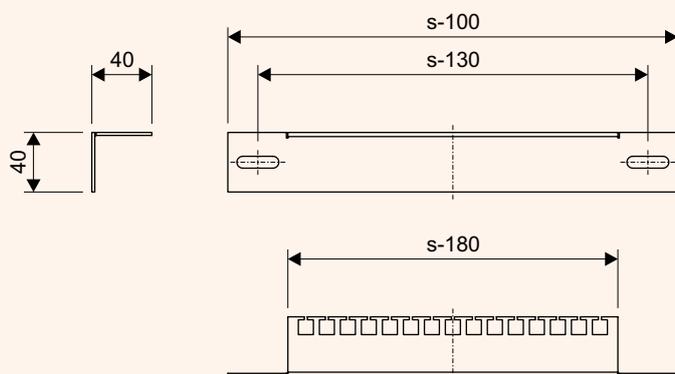
## Application

- For fixing incoming and outgoing cables to the cabinet from the bottom. It is mounted to the perforated profiles of the cabinet or socle with height 200 mm using bracket of cable holder.

## Design

- It is made of aluzinc plated steel, thickness 2 mm.

## Dimensions



## Reference chart

cabinet type	cable holder TKR type	dimensions [mm]	
		length (s-100)	mounting holes spacing (s-130)
SR 40 ... ..	TKR 40	300	270
SR 60 ... ..	TKR 60	500	470
SR 80 ... ..	TKR 80	700	670
SR 100 ... ..	TKR 100	900	870
SR 120 ... ..	TKR 120	1100	1070

*It is delivered 1 piece with mounting elements.*

## How to order

- Cable holder TKR 80 (for cabinet SR 80 YYY ZZ).

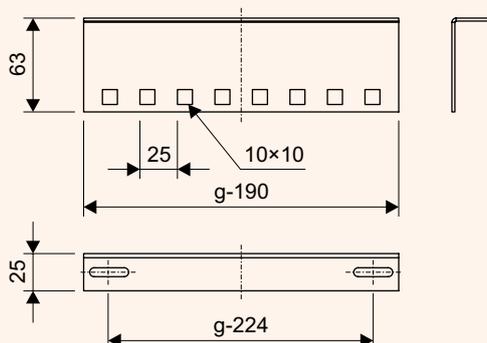
## Bracket of cable holder - KTKR

## Application

- It provides to fix cable holder in the socle with height 200 mm. It is mounted to the side cover of the socle.

## Design

- It is made of aluzinc plated steel, thickness 2 mm.



## Reference chart

cabinet type	bracket of cable holder KTKR type	dimensions [mm]	
		length (g-190)	mounting holes spacing (g-224)
SR ... .. 40	KTKR 40	290	240
SR ... .. 50	KTKR 50	390	340
SR ... .. 60	KTKR 60	490	440

There are delivered two pieces with mounting elements.

## How to order

- Bracket of cable holder KTKR 50 (for cabinet SR XX YYY 50).

## Corner cabinet - NSR

### Application

- It is crossing cabinet, serves for angle connection of the series cabinets without mounting inside devices.

### Type of installation

- Corner cabinet is bolted with other cabinets after set on the floor.

### Operating conditions

- Indoor mounted;
- Low aggressive environment;
- Humidity: up to 70%;
- Temperature range: -30 to 60 °C.

### Design

- Carbon steel, thickness 1,5 - 2 mm, punched, press-broke, welded;
- Polyester structural powder painted, colour RAL 7035;
- Corner cabinet can be mounted on the left or on the right corner of cabinets series.

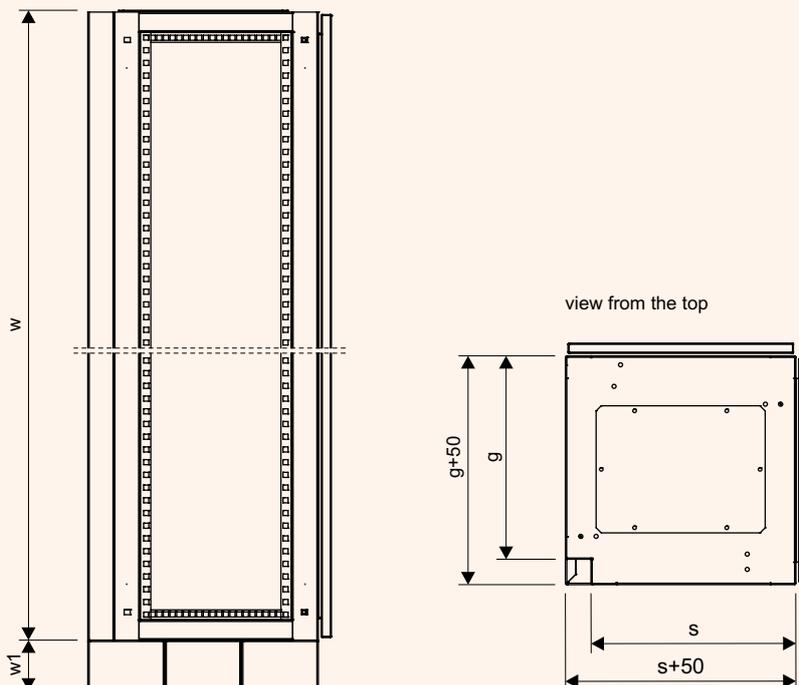
### Scope of delivery

- Rack;
- Cable gland plate, upper - K;
- Back walls;
- Socle.

### Technical data

- Protection class: I;
- Ingress protection degree: IP55;
- Impact protection: IK10.

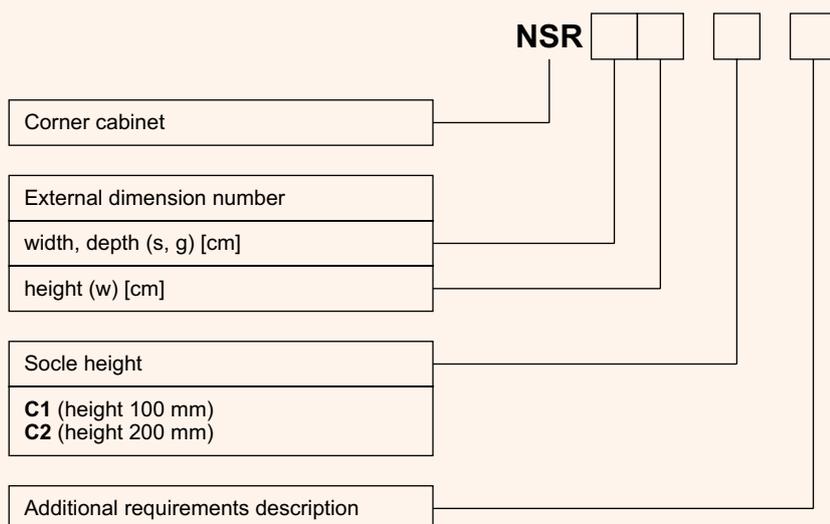
### Dimensions



## Reference chart

adjacent cabinet type	corner cabinet NSR type	dimensions [mm]			
		width (s)	height (w)	depth (g)	height of the socle (h)
SR ... 160 40	NSR 45 160 C1	450	1600	450	100
	NSR 45 160 C2				200
SR ... 160 50	NSR 55 160 C1	550	1600	550	100
	NSR 55 160 C2				200
SR ... 160 60	NSR 65 160 C1	650	1600	650	100
	NSR 65 160 C2				200
SR ... 180 40	NSR 45 180 C1	450	1800	450	100
	NSR 45 180 C2				200
SR ... 180 50	NSR 55 180 C1	550	1800	550	100
	NSR 55 180 C2				200
SR ... 180 60	NSR 65 180 C1	650	1800	650	100
	NSR 65 180 C2				200
SR ... 200 40	NSR 45 200 C1	450	2000	450	100
	NSR 45 200 C2				200
SR ... 200 50	NSR 55 200 C1	550	2000	550	100
	NSR 55 200 C2				200
SR ... 200 60	NSR 65 200 C1	650	2000	650	100
	NSR 65 200 C2				200

## How to order



- Ordering example:  
- Corner cabinet NSR 55180 C2.

**Application**

- Universal cabinet for facade mounting. Suitable for control devices, IT equipment, low voltage switchgears and other industrial devices such as automatic controls, energy distributions, etc.

**Type of installation**

- SN are fastened outdoors to the facade of the building using anchor bolts.

**Operating conditions**

- Outdoor mounted in industrial environment.



**Design**

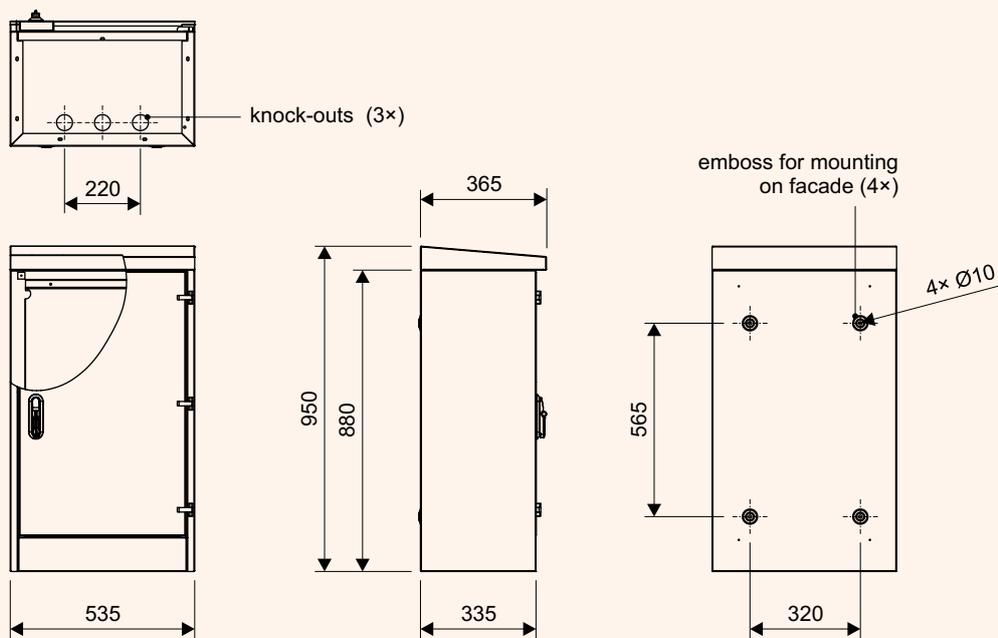
- Aluzinc plated steel, thickness 1,5 mm formed by punching and bending;
- Polyester structural powder painted, colour RAL 6005;
- Painted elements are assembled by riveting and screwing;
- Doors are equipped with swing handle RS 900 lock, 3-point closure. It is possible to closure by padlock;
- It is equipped with smooth mounting plate;
- Bottom of the cabinet is covered and has knock-outs for cable entry/exit.

**Technical data**

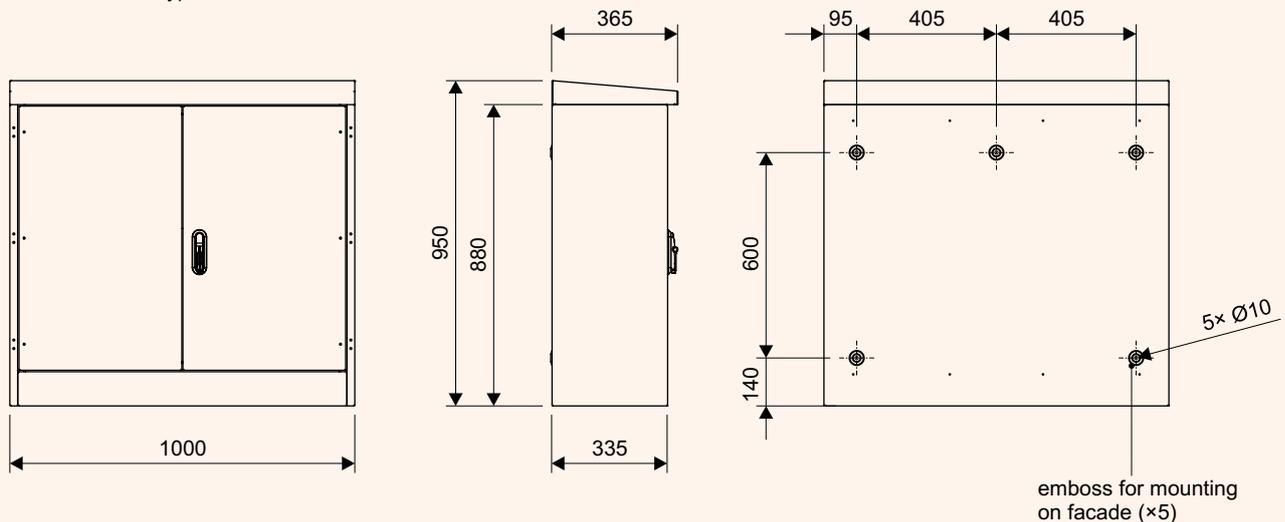
- Protection class: I;
- Ingress protection degree: IP43;
- Impact protection: IK10.

**Dimensions**

- Cabinet SN 500 type



- Cabinet SN 1000 type



The producer reserves the right to introduce technical modifications

**Reference chart**

cabinet type	dimensions [mm]			no. of doors	knockouts in the bottom	knockouts spacing
	width	height	depth			
SN 500	535	880	335	1	3×Ø47	110
SN 1000	1000	880	335	2	7×Ø47	110

**How to order**

- Facade cabinet SN 500.

**Scope of delivery**

- Facade cabinet;
- Lock insert for lock RS 900 with key code 1333.

**Application**

- Free-standing indoor cabinets, depending on mounted equipment, can be used for low voltage switchgears building, control cabinets for supervision of the production processes, as net cabinets in telecommunication. Cabinets can be joined together in sets. In case of switchgear, one can serve as supply panel, the next as outlet panel, the next as measuring panel, etc.

**Type of installation**

- Cabinets are placed on the floor and can be joined together in sets.

**Operating conditions**

- Indoor;
- Less extreme environment.



**Design**

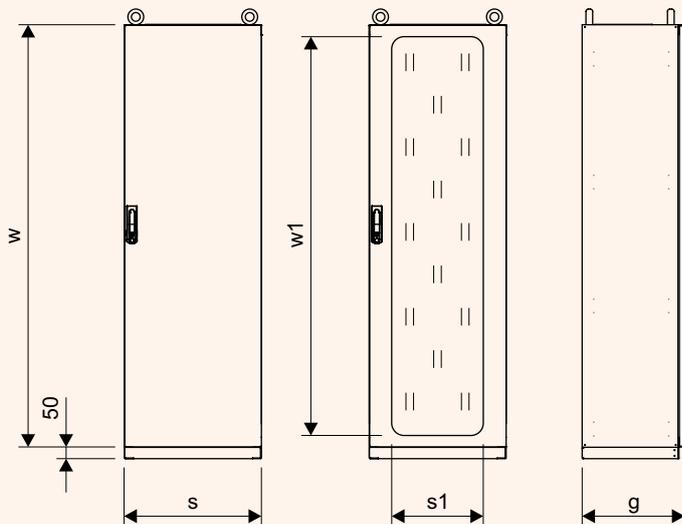
- Carbon steel, thickness 1,5 mm, punched, bended, riveted, welded. It is possible to use other materials;
- Polyester structural powder painted, colour RAL 7035;
- Doors suspended on concealed hinges, 3-points closure, swing handle lock RS 900;
- It is equipped with smooth mounting plate, made of aluzinc plated steel, thickness 2 mm. It is set-up on depth;
- As option instead of mounting plate can be ordered module unit ZM or accessories for 19" devices (for width 600 mm);
- Opened bottom for cable entrance/exit;
- Cabinet is mounted to the socle using bolts. It is possible to connect cabinets in series on one socle.

**Technical data**

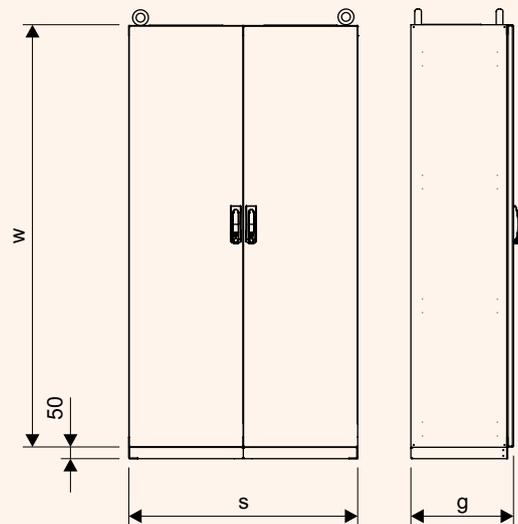
- Protection class: I;
- Ingress protection degree: IP43;
- Impact protection:
  - IK10 - for smooth, full door,
  - IK08 - for window door.

**Dimension**

- OWW cabinet, one door



- OWW cabinet, two doors



The producer reserves the right to introduce technical modifications

Reference chart

• OWW ... ..

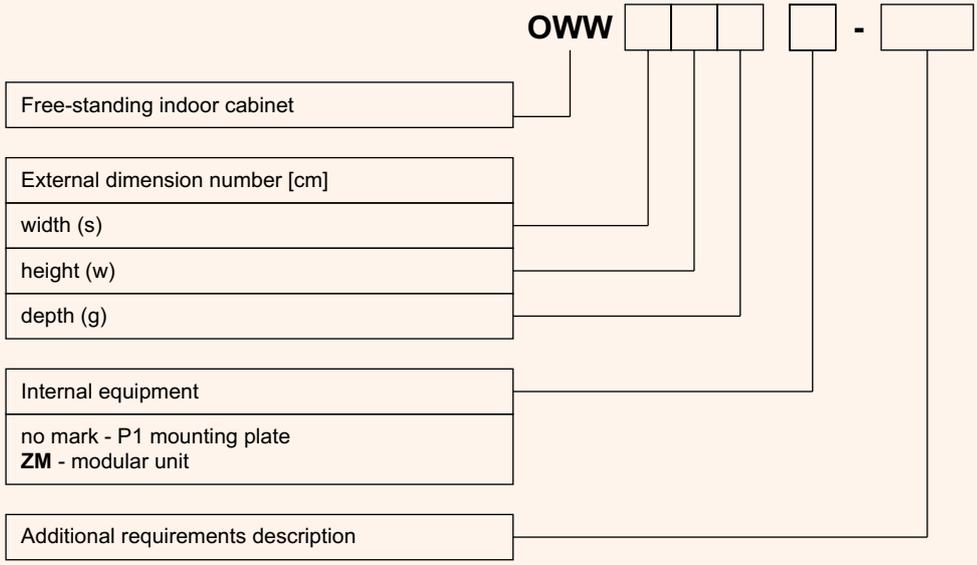
cabinet type	dimensions [mm]			no. of doors	window dimensions s1×w1 [mm]	mounting plate dimensions [mm]
	width (s)	height (w)	depth (g)			
OWW 40 160 40	400	1600	400	1	220×1420	300×1500
OWW 40 160 50	400	1600	500	1	220×1420	300×1500
OWW 40 160 60	400	1600	600	1	220×1420	300×1500
OWW 40 180 40	400	1800	400	1	220×1620	300×1700
OWW 40 180 50	400	1800	500	1	220×1620	300×1700
OWW 40 180 60	400	1800	600	1	220×1620	300×1700
OWW 40 200 40	400	2000	400	1	220×1820	300×1900
OWW 40 200 50	400	2000	500	1	220×1820	300×1900
OWW 40 200 60	400	2000	600	1	220×1820	300×1900
OWW 60 160 40	600	1600	400	1	420×1420	500×1500
OWW 60 160 50	600	1600	500	1	420×1420	500×1500
OWW 60 160 60	600	1600	600	1	420×1420	500×1500
OWW 60 180 40	600	1800	400	1	420×1620	500×1700
OWW 60 180 50	600	1800	500	1	420×1620	500×1700
OWW 60 180 60	600	1800	600	1	420×1620	500×1700
OWW 60 200 40	600	2000	400	1	420×1820	500×1900
OWW 60 200 50	600	2000	500	1	420×1820	500×1900
OWW 60 200 60	600	2000	600	1	420×1820	500×1900
OWW 80 160 40	800	1600	400	1	620×1420	700×1500
OWW 80 160 50	800	1600	500	1	620×1420	700×1500
OWW 80 160 60	800	1600	600	1	620×1420	700×1500
OWW 80 180 40	800	1800	400	1	620×1620	700×1700
OWW 80 180 50	800	1800	500	1	620×1620	700×1700
OWW 80 180 60	800	1800	600	1	620×1620	700×1700
OWW 80 200 40	800	2000	400	1	620×1820	700×1900
OWW 80 200 50	800	2000	500	1	620×1820	700×1900
OWW 80 200 60	800	2000	600	1	620×1820	700×1900
OWW 100 180 40	1000	1800	400	2	2×281×1420	900×1700
OWW 100 180 50	1000	1800	500	2	2×281×1420	900×1700
OWW 100 180 60	1000	1800	600	2	2×281×1420	900×1700
OWW 100 200 40	1000	2000	400	2	2×281×1820	900×1900
OWW 100 200 50	1000	2000	500	2	2×281×1820	900×1900
OWW 100 200 60	1000	2000	600	2	2×281×1820	900×1900
OWW 120 180 40	1200	1800	400	2	2×381×1620	1100×1700
OWW 120 180 50	1200	1800	500	2	2×381×1620	1100×1700
OWW 120 180 60	1200	1800	600	2	2×381×1620	1100×1700
OWW 120 200 40	1200	2000	400	2	2×381×1820	1100×1900
OWW 120 200 50	1200	2000	500	2	2×381×1820	1100×1900
OWW 120 200 60	1200	2000	600	2	2×381×1820	1100×1900

• OWW ... .. ZM

cabinet type	dimensions [mm]			no. of doors	window dimensions s1×w1 [mm]	modular unit ZM		
	width (s)	height (w)	depth (g)			no. of modules in masking panel	no. of masking panels in the modular unit	sum of modules in the modular unit
OWW 40 160 40	400	1600	400	1	220×1420	15	10	150
OWW 40 160 50	400	1600	500	1	220×1420	15	10	150
OWW 40 160 60	400	1600	600	1	220×1420	15	10	150
OWW 40 180 40	400	1800	400	1	220×1620	15	11	165
OWW 40 180 50	400	1800	500	1	220×1620	15	11	165
OWW 40 180 60	400	1800	600	1	220×1620	15	11	165
OWW 40 200 40	400	2000	400	1	220×1820	15	13	195
OWW 40 200 50	400	2000	500	1	220×1820	15	13	195
OWW 40 200 60	400	2000	600	1	220×1820	15	13	195
OWW 60 160 40	600	1600	400	1	420×1420	26	10	260
OWW 60 160 50	600	1600	500	1	420×1420	26	10	260
OWW 60 160 60	600	1600	600	1	420×1420	26	10	260
OWW 60 180 40	600	1800	400	1	420×1620	26	11	286
OWW 60 180 50	600	1800	500	1	420×1620	26	11	286
OWW 60 180 60	600	1800	600	1	420×1620	26	11	286
OWW 60 200 40	600	2000	400	1	420×1820	26	13	338
OWW 60 200 50	600	2000	500	1	420×1820	26	13	338
OWW 60 200 60	600	2000	600	1	420×1820	26	13	338
OWW 80 160 40	800	1600	400	1	620×1420	38	10	380
OWW 80 160 50	800	1600	500	1	620×1420	38	10	380
OWW 80 160 60	800	1600	600	1	620×1420	38	10	380
OWW 80 180 40	800	1800	400	1	620×1620	38	11	418
OWW 80 180 50	800	1800	500	1	620×1620	38	11	418
OWW 80 180 60	800	1800	600	1	620×1620	38	11	418
OWW 80 200 40	800	2000	400	1	620×1820	38	13	494
OWW 80 200 50	800	2000	500	1	620×1820	38	13	494
OWW 80 200 60	800	2000	600	1	620×1820	38	13	494
OWW 100 180 40	1000	1800	400	2	2×281×1420	49	11	539
OWW 100 180 50	1000	1800	500	2	2×281×1420	49	11	539
OWW 100 180 60	1000	1800	600	2	2×281×1420	49	11	539
OWW 100 200 40	1000	2000	400	2	2×281×1820	49	13	637
OWW 100 200 50	1000	2000	500	2	2×281×1820	49	13	637
OWW 100 200 60	1000	2000	600	2	2×281×1820	49	13	637
OWW 120 180 40	1200	1800	400	2	2×381×1620	61	11	671
OWW 120 180 50	1200	1800	500	2	2×381×1620	61	11	671
OWW 120 180 60	1200	1800	600	2	2×381×1620	61	11	671
OWW 120 200 40	1200	2000	400	2	2×381×1820	61	13	793
OWW 120 200 50	1200	2000	500	2	2×381×1820	61	13	793
OWW 120 200 60	1200	2000	600	2	2×381×1820	61	13	793

The producer reserves the right to introduce technical modifications

**How to order**



**ACCESSORIES FOR OWW CABINETS**

**Horizontal cross-bar - WPB**

**Application**

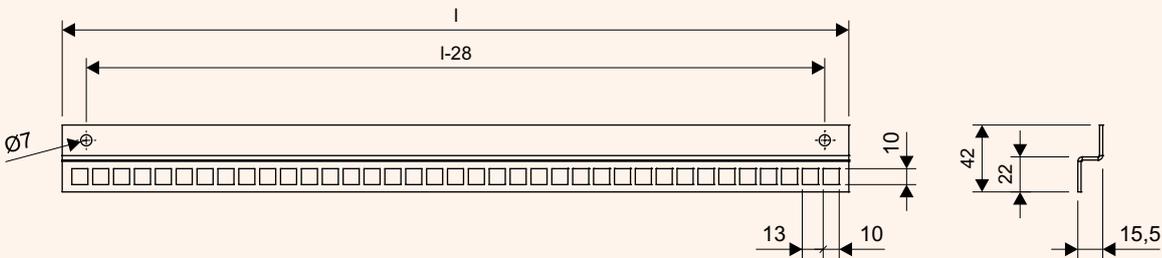
- Mounted horizontally to the side walls. It serves to support:
  - insulator bracket (WI);
  - vertical C-profiles of modular equipment (CPAM).

**Design**

- It is made of aluzinc plated steel, thickness 2 mm;
- Perforation with holes 10×10 mm for cage nuts;
- Holes for mounting to the cabinet.



**Dimensions**



**Reference chart**

cabinet type	horizontal cross-bar WPB type	length (l) [mm]
OWW ... .. 40	WPB 40	300
OWW ... .. 50	WPB 50	400
OWW ... .. 60	WPB 60	500

*It is factory mounted in cabinets OWW on request.*

**How to order**

- OWW ... .. cabinet with horizontal cross-bar WPB 50.

The producer reserves the right to introduce technical modifications

**Insulators bracket - WI**

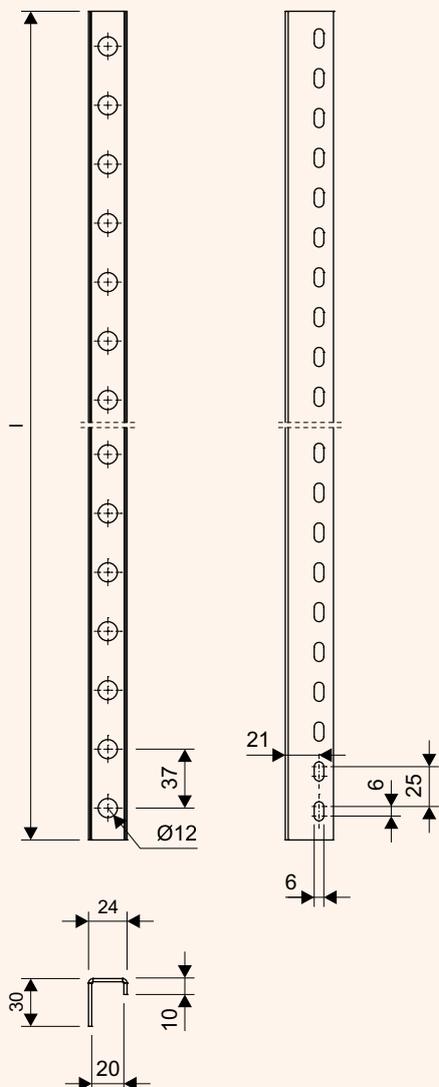
**Application**

- Mounted vertically to the cross-bars WPB;
- Suitable for mounting insulators to current busbars.

**Design**

- It is made of aluzinc plated steel, thickness 2 mm;
- Perforation with holes Ø12 mm for insulators;
- Perforation with oblong holes 6×12 mm for mounting to horizontal cross-bars.

**Dimensions**



The producer reserves the right to introduce technical modifications



Metal enclosures & cabinets

**Reference chart**

cabinet type	insulators bracket WI type	length (l) [mm]
OWW ... 160 ...	WPB 40	1560
OWW ... 180 ...	WPB 50	1760
OWW ... 200 ...	WPB 60	1960

*Brackets come in pairs.*

**How to order**

- Insulators bracket WI 200.

**Side bracket of cable holder - WUK**

**Application**

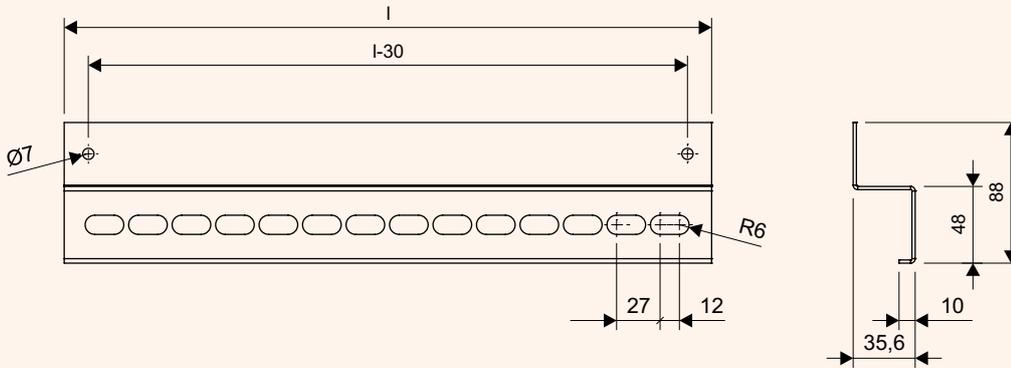
- Mounted horizontally to the side walls of the cabinet;
- It serves to mount cable holder UK type.

**Design**

- It is made of aluzinc plated steel, thickness 2 mm;
- Perforated with oblong holes 12×24 mm, for mounting UK cable holder.



**Dimensions**



**Reference chart**

cabinet type	side bracket of cable holder WUK type	length (l) [mm]
OWW ... .. 40	WPB 40	300
OWW ... .. 50	WPB 50	400
OWW ... .. 60	WPB 60	500

*It is factory mounted in the OWW cabinets on request.*

**Application**

- Universal control cabinets, depending on mounted equipment, can be used for low voltage switchgears building, control cabinets for supervision of the production processes, as net cabinets for telecommunication. Cabinets can be joined together in sets.

**Type of installation**

- Cabinets are placed on the floor.

**Operating conditions**

- Indoor;
- Less extreme environment.

**Design**

- Carbon steel, thickness 1,5 mm, punched, bended, riveted, welded;
- Polyester structural powder painted, colour RAL 7035;
- Socle is made of carbon steel, thickness 2 mm, bolted to the cabinet;
- Nested doors, suspended on concealed hinges, opening angle 130°;
- 3-point closing system of the doors, RS 900 lock with swing handle cam and round bars;
- Smooth mounting plate made of aluzinc plated steel, thickness 2 mm;
- Opened bottom for cable entrance/exit;
- Options: lifting rings, adjustable feet, ventilation louvers, cable gland plate, etc.

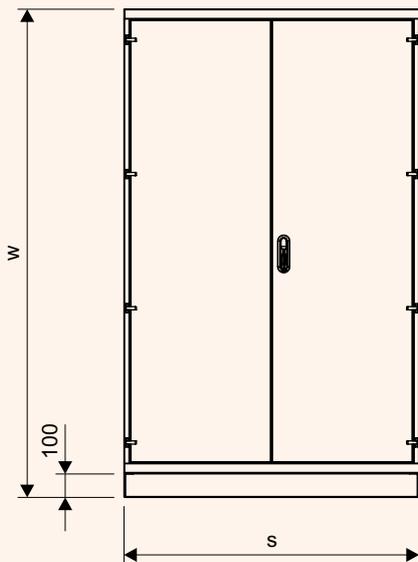


**Technical data**

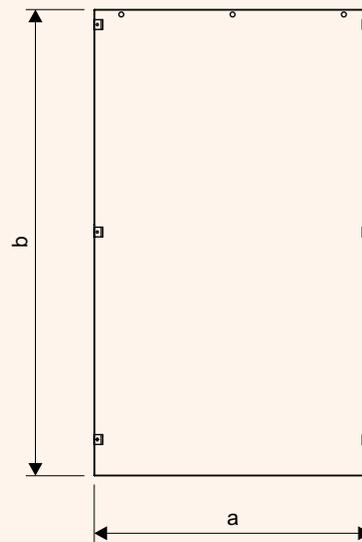
- Protection class: I;
- Ingress protection degree: IP43;
- Impact protection: IK10 (full, smooth doors).

**Dimensions**

- SSU cabinet



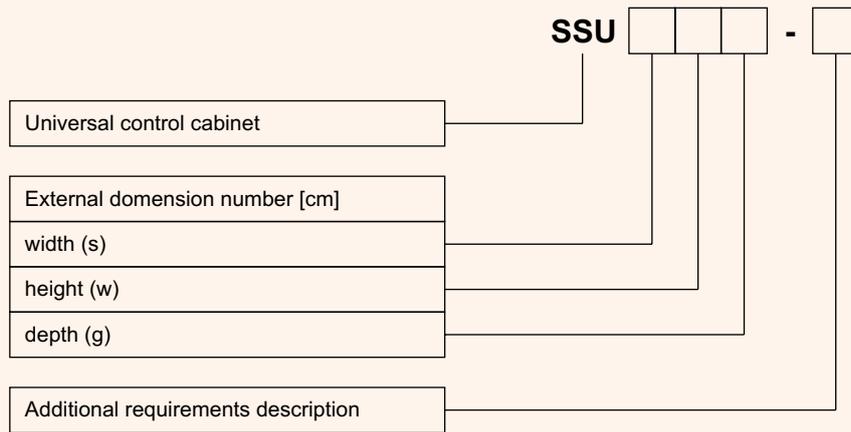
- Mounting plate



The producer reserves the right to introduce technical modifications

## Reference chart

cabinet type	dimensions [mm]			no. of doors	mounting plate dimensions [mm]
	width (s)	height (w)	depth (g)		
SSU 60 100 40	600	1000	400	1	525×910
SSU 60 100 50	600	1000	500	1	525×910
SSU 60 120 40	600	1200	400	1	525×1110
SSU 60 120 50	600	1200	500	1	525×1110
SSU 60 140 40	600	1400	400	1	525×1310
SSU 60 140 50	600	1400	500	1	525×1310
SSU 60 160 40	600	1600	400	1	525×1510
SSU 60 160 50	600	1600	500	1	525×1510
SSU 60 180 40	600	1800	400	1	525×1710
SSU 60 180 50	600	1800	500	1	525×1710
SSU 60 200 40	600	2000	400	1	525×1910
SSU 60 200 50	600	2000	500	1	525×1910
SSU 80 100 40	800	1000	400	1	725×910
SSU 80 100 50	800	1000	500	1	725×910
SSU 80 120 40	800	1200	400	1	725×1110
SSU 80 120 50	800	1200	500	1	725×1110
SSU 80 140 40	800	1400	400	1	725×1310
SSU 80 140 50	800	1400	500	1	725×1310
SSU 80 160 40	800	1600	400	1	725×1510
SSU 80 160 50	800	1600	500	1	725×1510
SSU 80 180 40	800	1800	400	1	725×1710
SSU 80 180 50	800	1800	500	1	725×1710
SSU 80 200 40	800	2000	400	1	725×1910
SSU 80 200 50	800	2000	500	1	725×1910
SSU 100 100 40	1000	1000	400	2	925×910
SSU 100 100 50	1000	1000	500	2	925×910
SSU 100 120 40	1000	1200	400	2	925×1110
SSU 100 120 50	1000	1200	500	2	925×1110
SSU 100 140 40	1000	1400	400	2	925×1310
SSU 100 140 50	1000	1400	500	2	925×1310
SSU 100 160 40	1000	1600	400	2	925×1510
SSU 100 160 50	1000	1600	500	2	925×1510
SSU 100 180 40	1000	1800	400	2	925×1710
SSU 100 180 50	1000	1800	500	2	925×1710
SSU 100 200 40	1000	2000	400	2	925×1910
SSU 100 200 50	1000	2000	500	2	925×1910
SSU 120 100 40	1200	1000	400	2	1125×910
SSU 120 100 50	1200	1000	500	2	1125×910
SSU 120 120 40	1200	1200	400	2	1125×1110
SSU 120 120 50	1200	1200	500	2	1125×1110
SSU 120 140 40	1200	1400	400	2	1125×1310
SSU 120 140 50	1200	1400	500	2	1125×1310
SSU 120 160 40	1200	1600	400	2	1125×1510
SSU 120 160 50	1200	1600	500	2	1125×1510
SSU 120 180 40	1200	1800	400	2	1125×1710
SSU 120 180 50	1200	1800	500	2	1125×1710
SSU 120 200 40	1200	2000	400	2	1125×1910
SSU 120 200 50	1200	2000	500	2	1125×1910

**How to order**

- Ordering example:  
- Universal control cabinet SSU 120 200 50.

**Scope of delivery**

- SSU cabinet;
- Lock insert for lock RS 900 with key (code 1333).

**Application**

- Tight control cabinets, depending on mounted equipment, can be used for low voltage switchgears building, control cabinets for supervision of production processes, as net cabinets for telecommunication. Cabinets can be joined together in sets. In case of switchgear one can serve as supply panel, the next as outlet panel, the next as measuring panel, etc.

**Type of installation**

- Cabinets are placed on the floor and can be joined together in sets.

**Operating conditions**

- Indoor mounted;
- Reasonably extreme and dusty environment.

**Design**

- Carbon steel 1,5 mm punched, bended, riveted, welded;
- It is possible to use aluzinc plated steel, aluminium, stainless steel and apply slope roof;
- Polyester structural powder painted, colour RAL 7035;
- Doors suspended on concealed hinges, 3-piont closure, swing handle lock RS 900. Doors have the gasket;
- Bottom is closed by smooth cable gland plate;
- It is equipped with smooth mounting plate made of aluzinc plated steel, thickness 2 mm. It is set up on depth;
- Optional: Instead of the mounting plate a ZM modular unit or accessories for 19" devices (for width 600 mm) can be ordered;
- Cabinet is mounted on the socle using bolts. It is possible to connect cabinets in series on one socle.

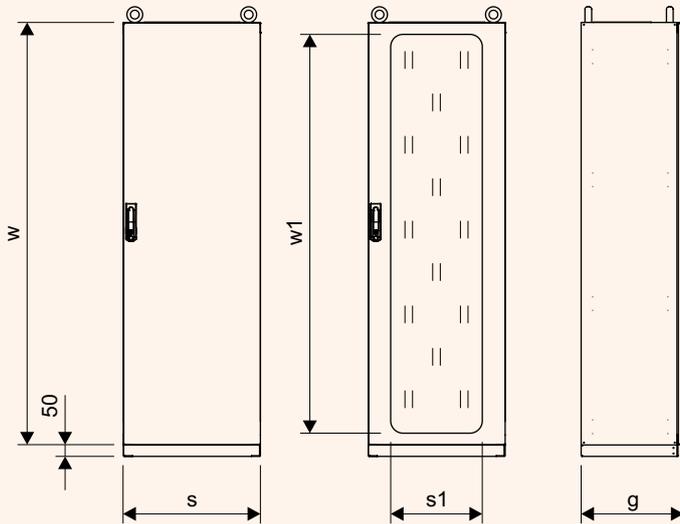


**Technical data**

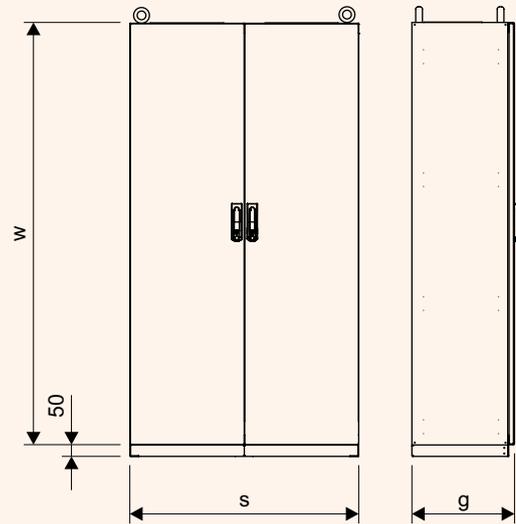
- Protection class: I;
- Ingress protection degree: IP55;
- Impact protection:
  - IK10 - for smooth, full door,
  - IK08 - for window door.

**Dimensions**

- Cabinet SSS - one door



- Cabinet SSS - two doors



The producer reserves the right to introduce technical modifications

## Reference chart

• SSS ... ..

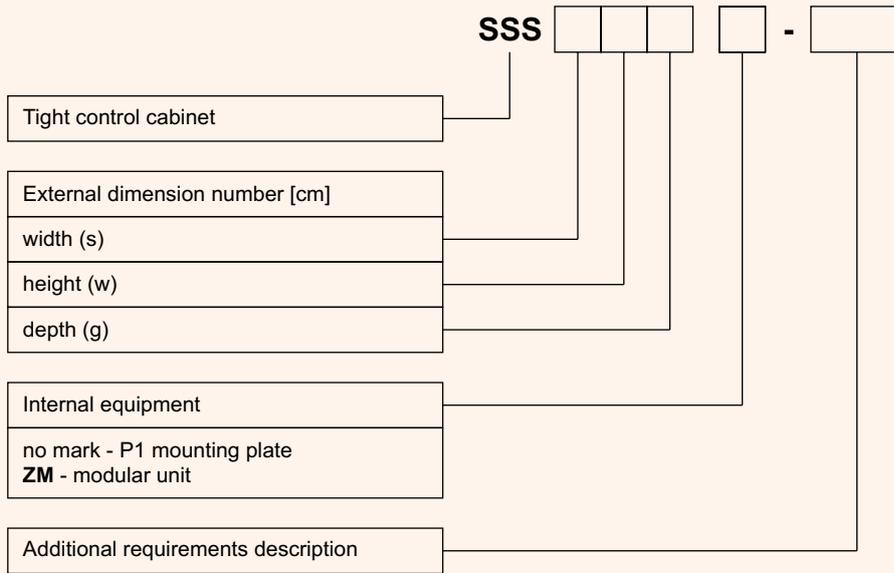
cabinet type	dimensions [mm]			no. of doors	window dimensions s1×w1 [mm]	mounting plate dimensions [mm]
	width (s)	height (w)	depth (g)			
SSS 40 160 40	400	1600	400	1	220×1420	300×1500
SSS 40 160 50	400	1600	500	1	220×1420	300×1500
SSS 40 160 60	400	1600	600	1	220×1420	300×1500
SSS 40 180 40	400	1800	400	1	220×1620	300×1700
SSS 40 180 50	400	1800	500	1	220×1620	300×1700
SSS 40 180 60	400	1800	600	1	220×1620	300×1700
SSS 40 200 40	400	2000	400	1	220×1820	300×1900
SSS 40 200 50	400	2000	500	1	220×1820	300×1900
SSS 40 200 60	400	2000	600	1	220×1820	300×1900
SSS 60 160 40	600	1600	400	1	420×1420	500×1500
SSS 60 160 50	600	1600	500	1	420×1420	500×1500
SSS 60 160 60	600	1600	600	1	420×1420	500×1500
SSS 60 180 40	600	1800	400	1	420×1620	500×1700
SSS 60 180 50	600	1800	500	1	420×1620	500×1700
SSS 60 180 60	600	1800	600	1	420×1620	500×1700
SSS 60 200 40	600	2000	400	1	420×1820	500×1900
SSS 60 200 50	600	2000	500	1	420×1820	500×1900
SSS 60 200 60	600	2000	600	1	420×1820	500×1900
SSS 80 160 40	800	1600	400	1	620×1420	700×1500
SSS 80 160 50	800	1600	500	1	620×1420	700×1500
SSS 80 160 60	800	1600	600	1	620×1420	700×1500
SSS 80 180 40	800	1800	400	1	620×1620	700×1700
SSS 80 180 50	800	1800	500	1	620×1620	700×1700
SSS 80 180 60	800	1800	600	1	620×1620	700×1700
SSS 80 200 40	800	2000	400	1	620×1820	700×1900
SSS 80 200 50	800	2000	500	1	620×1820	700×1900
SSS 80 200 60	800	2000	600	1	620×1820	700×1900
SSS 100 180 40	1000	1800	400	2	2×281×1420	900×1700
SSS 100 180 50	1000	1800	500	2	2×281×1420	900×1700
SSS 100 180 60	1000	1800	600	2	2×281×1420	900×1700
SSS 100 200 40	1000	2000	400	2	2×281×1820	900×1900
SSS 100 200 50	1000	2000	500	2	2×281×1820	900×1900
SSS 100 200 60	1000	2000	600	2	2×281×1820	900×1900
SSS 120 180 40	1200	1800	400	2	2×381×1620	1100×1700
SSS 120 180 50	1200	1800	500	2	2×381×1620	1100×1700
SSS 120 180 60	1200	1800	600	2	2×381×1620	1100×1700
SSS 120 200 40	1200	2000	400	2	2×381×1820	1100×1900
SSS 120 200 50	1200	2000	500	2	2×381×1820	1100×1900
SSS 120 200 60	1200	2000	600	2	2×381×1820	1100×1900

The producer reserves the right to introduce technical modifications

## • SSS ... .. ZM

cabinet type	dimensions [mm]			no. of doors	window dimensions s1×w1 [mm]	modular unit <b>ZM</b>		
	width (s)	height (w)	depth (g)			no. of modules in masking panel	no. of masking panels in the modular unit	sum of modules in the modular unit
SSS 40 160 40	400	1600	400	1	220×1420	15	10	150
SSS 40 160 50	400	1600	500	1	220×1420	15	10	150
SSS 40 160 60	400	1600	600	1	220×1420	15	10	150
SSS 40 180 40	400	1800	400	1	220×1620	15	11	165
SSS 40 180 50	400	1800	500	1	220×1620	15	11	165
SSS 40 180 60	400	1800	600	1	220×1620	15	11	165
SSS 40 200 40	400	2000	400	1	220×1820	15	13	195
SSS 40 200 50	400	2000	500	1	220×1820	15	13	195
SSS 40 200 60	400	2000	600	1	220×1820	15	13	195
SSS 60 160 40	600	1600	400	1	420×1420	26	10	260
SSS 60 160 50	600	1600	500	1	420×1420	26	10	260
SSS 60 160 60	600	1600	600	1	420×1420	26	10	260
SSS 60 180 40	600	1800	400	1	420×1620	26	11	286
SSS 60 180 50	600	1800	500	1	420×1620	26	11	286
SSS 60 180 60	600	1800	600	1	420×1620	26	11	286
SSS 60 200 40	600	2000	400	1	420×1820	26	13	338
SSS 60 200 50	600	2000	500	1	420×1820	26	13	338
SSS 60 200 60	600	2000	600	1	420×1820	26	13	338
SSS 80 160 40	800	1600	400	1	620×1420	38	10	380
SSS 80 160 50	800	1600	500	1	620×1420	38	10	380
SSS 80 160 60	800	1600	600	1	620×1420	38	10	380
SSS 80 180 40	800	1800	400	1	620×1620	38	11	418
SSS 80 180 50	800	1800	500	1	620×1620	38	11	418
SSS 80 180 60	800	1800	600	1	620×1620	38	11	418
SSS 80 200 40	800	2000	400	1	620×1820	38	13	494
SSS 80 200 50	800	2000	500	1	620×1820	38	13	494
SSS 80 200 60	800	2000	600	1	620×1820	38	13	494
SSS 100 180 40	1000	1800	400	2	2×281×1420	49	11	539
SSS 100 180 50	1000	1800	500	2	2×281×1420	49	11	539
SSS 100 180 60	1000	1800	600	2	2×281×1420	49	11	539
SSS 100 200 40	1000	2000	400	2	2×281×1820	49	13	637
SSS 100 200 50	1000	2000	500	2	2×281×1820	49	13	637
SSS 100 200 60	1000	2000	600	2	2×281×1820	49	13	637
SSS 120 180 40	1200	1800	400	2	2×381×1620	61	11	671
SSS 120 180 50	1200	1800	500	2	2×381×1620	61	11	671
SSS 120 180 60	1200	1800	600	2	2×381×1620	61	11	671
SSS 120 200 40	1200	2000	400	2	2×381×1820	61	13	793
SSS 120 200 50	1200	2000	500	2	2×381×1820	61	13	793
SSS 120 200 60	1200	2000	600	2	2×381×1820	61	13	793

**How to order**



- Ordering example:
  - Tight control cabinet SSS 60 180 40.

**Scope of delivery**

- SSS cabinet;
- Lock insert for lock RS 900 with key (code 1333).

**ACCESSORIES FOR SSS CABINETS**

**Horizontal cross-bar - WPB**

**Application**

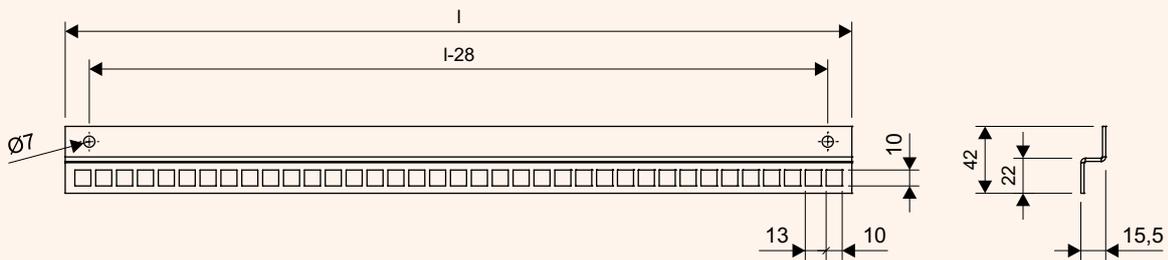
- Mounted horizontally to the side walls. It serves to support:
  - insulator bracket (WI);
  - vertical C-profiles of modular equipment (CPAM).



**Design**

- It is made of aluzinc plated steel, thickness 2 mm;
- Perforation with holes 10×10 mm for cage nuts;
- Holes for mounting to the cabinet.

**Dimensions**



**Reference chart**

cabinet type	horizontal cross-bar WPB type	length (l) [mm]
OWW ... .. 40	WPB 40	300
OWW ... .. 50	WPB 50	400
OWW ... .. 60	WPB 60	500

*It is factory mounted in cabinets OWW on request.*

**How to order**

- OWW ... .. cabinet with horizontal cross-bar WPB 50.

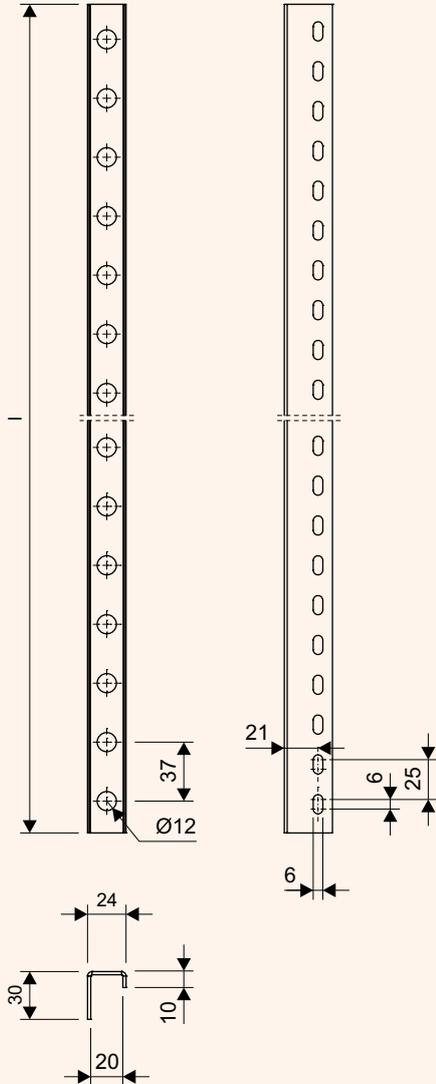
The producer reserves the right to introduce technical modifications

**Insulators bracket - WI****Application**

- Mounted vertically to the cross-bars WPB;
- It serves to mount insulator for current busbars.

**Design**

- It is made of aluzinc plated steel, thickness 2 mm;
- Perforation with holes  $\varnothing 12$  mm for insulators;
- Perforation with oblong holes  $6 \times 12$  mm for mounting to horizontal cross-bars.

**Dimensions**

The producer reserves the right to introduce technical modifications

**Reference chart**

cabinet type	insulators bracket WI type	length (l) [mm]
OWW ... 160 ...	WPB 40	1560
OWW ... 180 ...	WPB 50	1760
OWW ... 200 ...	WPB 60	1960

Brackets comes in pairs with mounting elements.

**How to order**

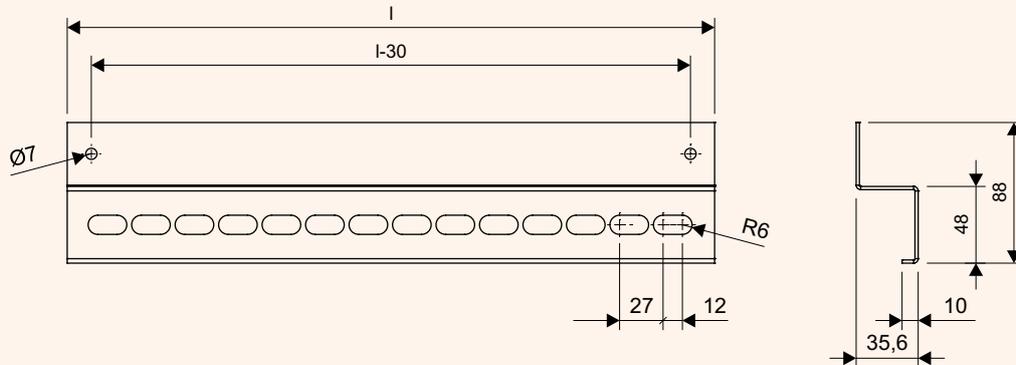
- Insulators bracket WI 200.

**Side bracket for cable holder - WUK****Application**

- Mounted horizontally to the side walls of the cabinet;
- It serves to mount cable holder UK type.

**Design**

- It is made of aluzinc plated steel, thickness 2 mm;
- Perforated with oblong holes 12×24 mm, for mounting UK cable holder.

**Dimensions****Reference chart**

cabinet type	side bracket of cable holder WUK type	length (l) [mm]
OWW ... .. 40	WPB 40	300
OWW ... .. 50	WPB 50	400
OWW ... .. 60	WPB 60	500

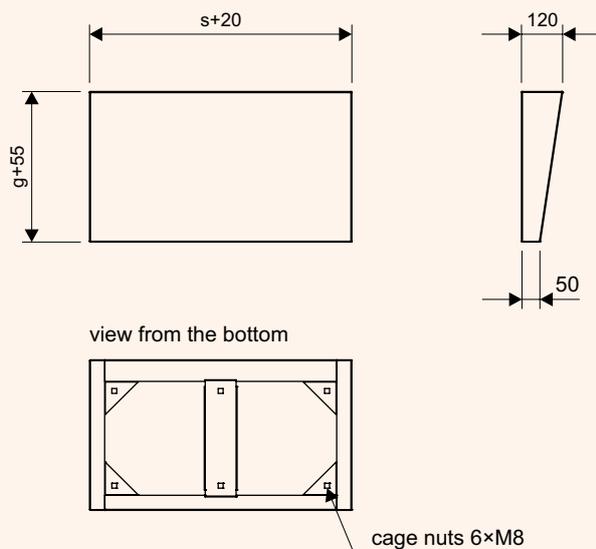
*It is factory mounted in the OWW cabinets on request.*

**Slope roof - DS****Application**

- For SSS cabinets destined for outdoor mounting. It is fixed on original flat roof of the cabinet using bolts.

**Design**

- Made of aluzinc plated steel, thickness 1,5 mm;
- Painting: like the cabinet.

**Dimensions**

## Reference chart

cabinet type	roof DS type	dimensions [mm]		
		width (s+20)	depth (g+65)	height (w)
SSS 40 ... 40	DS 40 40	420	465	120/50
SSS 40 ... 50	DS 40 50	420	565	
SSS 40 ... 60	DS 40 60	420	665	
SSS 60 ... 40	DS 60 40	620	465	
SSS 60 ... 50	DS 60 50	620	565	
SSS 60 ... 60	DS 60 60	620	665	
SSS 80 ... 40	DS 80 40	820	465	
SSS 80 ... 50	DS 80 50	820	565	
SSS 80 ... 60	DS 80 60	820	665	
SSS 100 ... 40	DS 100 40	1020	465	
SSS 100 ... 50	DS 100 50	1020	565	
SSS 100 ... 60	DS 100 60	1020	665	
SSS 120 ... 40	DS 120 40	1220	465	
SSS 120 ... 50	DS 120 50	1220	565	
SSS 120 ... 60	DS 120 60	1220	665	

*s - width of SSS cabinet  
g - depth of SSS cabinet*

*Roof is factory mounted in the SSS cabinet on request.*

**Application**

- They are designed for mounting control apparatus, monitoring systems, measurement and visualisation devices of production processing;
- They are recommended for operation stations, automated processing lines or machinery rooms.

**Type of installation**

- It is placed on the floor and fixed using dowel bolts.

**Operating conditions**

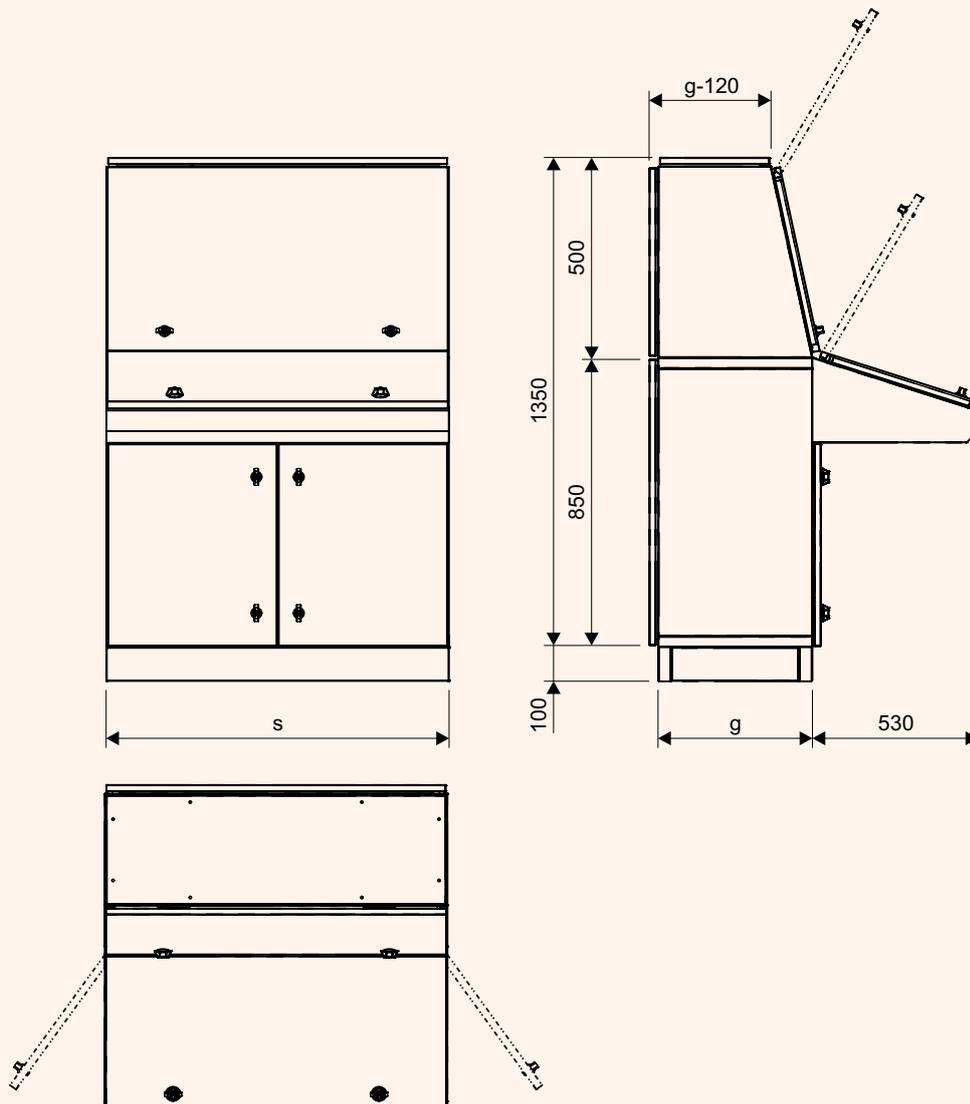
- Indoor mounted;
- Medium aggressive and dusty environment.

**Design**

- Carbon steel 1,5 mm punched, bended, welded;
- Polyester structural powder painted, colour RAL 7035;
- Facade panels and doors suspended on concealed hinges, enable to maintenance mounted apparatus. Equipped with locks for D3 key and polyurethane seals;
- Back covers with seals, fixed using screws;
- Mounting plates made of 2 mm thick aluzinc plated steel, depth is set up (in vertical parts);
- Two cross perforated profiles (in horizontal parts);
- Socle 100 mm;
- It is possible on request to make perforation under apparatus of facade panel;

**Technical data**

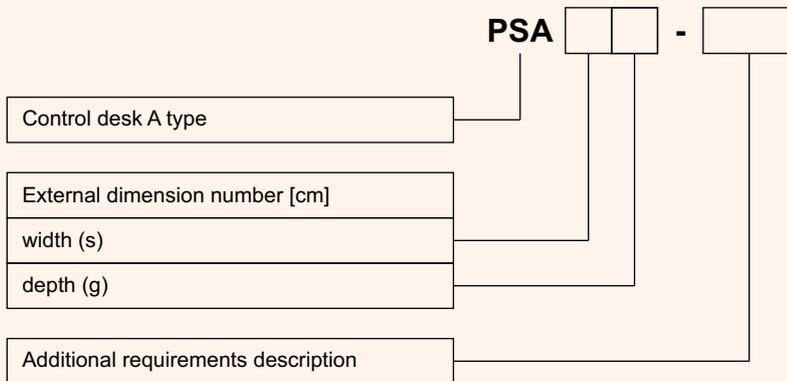
- Protection class: I;
- Ingress protection degree: IP55;
- Impact protection: IK10.

**Dimensions**

## Reference chart

desk type	dimensions [mm]		doors
	width (s)	depth (g)	
PSA 60 45	600	450	1-wing
PSA 60 60	600	600	1-wing
PSA 60 80	600	800	1-wing
PSA 80 45	800	450	1-wing
PSA 80 60	800	600	1-wing
PSA 80 80	800	800	1-wing
PSA 100 45	1000	450	2-wings
PSA 100 60	1000	600	2-wings
PSA 100 80	1000	800	2-wings
PSA 120 45	1200	450	2-wings
PSA 120 60	1200	600	2-wings
PSA 120 80	1200	800	2-wings
PSA 150 45	1500	450	2-wings
PSA 150 60	1500	600	2-wings
PSA 150 80	1500	800	2-wings

## How to order



- Ordering example:
  - Control desk PSA 100 45.

## Scope of delivery

- Control desk;
- Double bit key.

**Application**

- They are designed for mounting control apparatus, monitoring systems, measurement and visualisation devices of production processing;
- They are recommended for operation stations, automated processing lines or machinery rooms.

**Type of installation**

- It is placed on the floor and fixed using dowel bolts.

**Operating conditions**

- Indoor mounted;
- Medium aggressive and dusty environment.



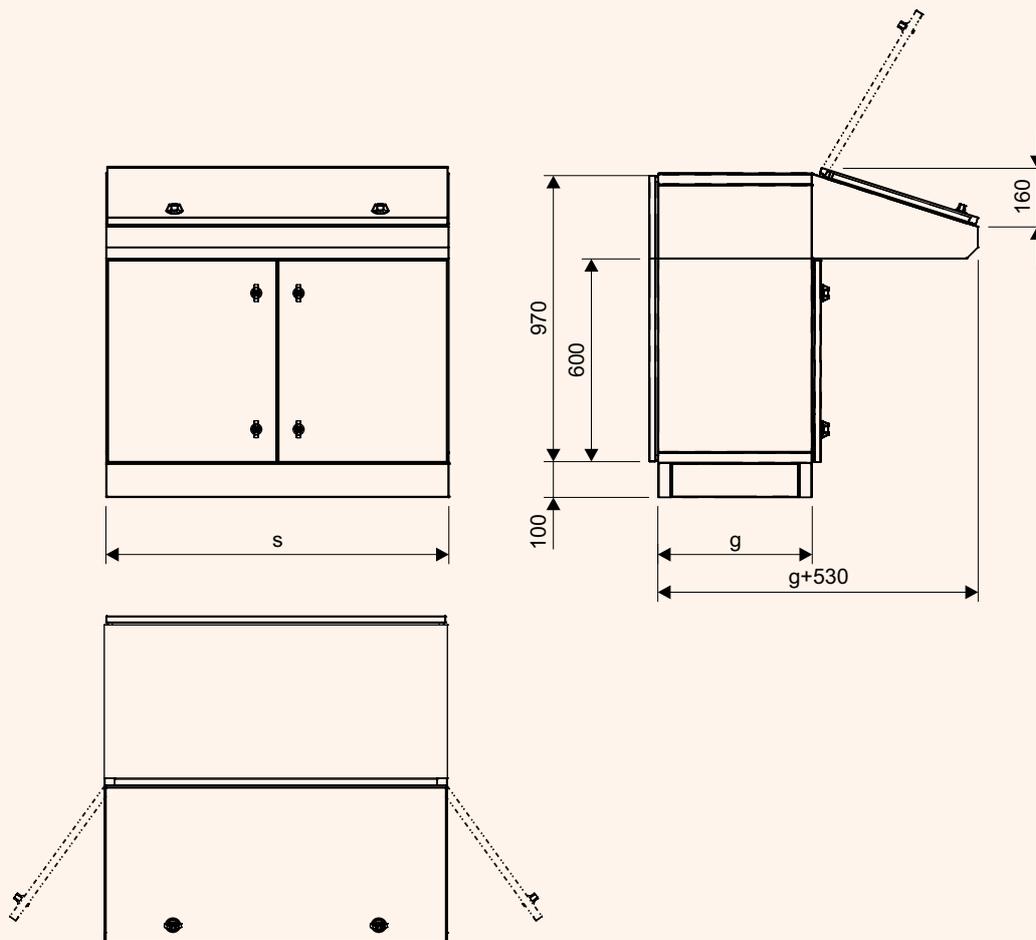
**Design**

- Carbon steel 1,5 mm punched, bended, welded;
- Polyester structural powder painted, colour RAL 7035;
- Facade panels and doors suspended on concealed hinges, enable to maintenance mounted apparatus. Equipped with locks for D3 key and polyurethane seals;
- Back covers with seals, fixed using screws;
- Mounting plates made of 2 mm thick aluzinc plated steel, depth is set-up (in vertical parts);
- Two cross perforated profiles (in horizontal parts);
- Socle 100 mm;
- It is possible on request to make perforation under apparatus of facade panels.

**Technical data**

- Protection class: I;
- Ingress protection degree: IP55;
- Impact protection: IK10.

**Dimensions**

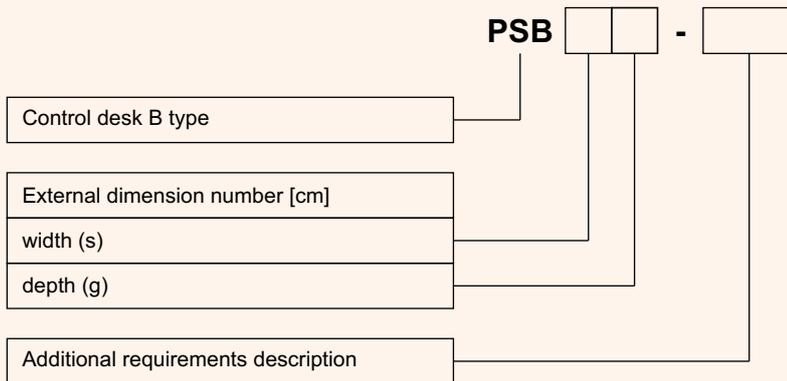


The producer reserves the right to introduce technical modifications

## Reference chart

desk type	dimensions [mm]		doors
	width (s)	depth (g)	
PSA 60 45	600	450	1-wing
PSA 60 60	600	600	1-wing
PSA 80 45	800	450	1-wing
PSA 80 60	800	600	1-wing
PSA 100 45	1000	450	2-wings
PSA 100 60	1000	600	2-wings
PSA 120 45	1200	450	2-wings
PSA 120 60	1200	600	2-wings
PSA 150 45	1500	450	2-wings
PSA 150 60	1500	600	2-wings

## How to order



- Ordering example:
  - Control desk PSB 150 60.

## Scope of delivery

- Control desk;
- Double bit key.

**Application**

- Aluminium cabinets for mounting on concrete or aluzinc plated steel foundations. They are designed for building switchgears, switchgears with energy measurement and lighting control compartment.

**Type of installation**

- They are installed on concrete or aluzinc plated steel foundation buried in the ground.

**Operating conditions**

- Industrial and seaside environment.

**Design**

- Aluminium sheet, thickness 2 mm shaped by punching and bending;
- Polyester structural powder painted, colour RAL 7035;
- Nested door suspended on concealed hinges, RS 900 lock, 3-point closure equipped with swing handle;
- Inner equipment:
  - disconnecter compartment: c-profiles for mounting of the current busbars,
  - measuring and area lighting compartment: mounting plates;
- Opened bottom for cable entrance/exit.

**Technical data**

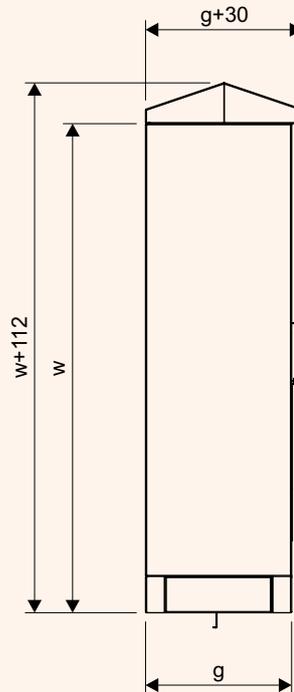
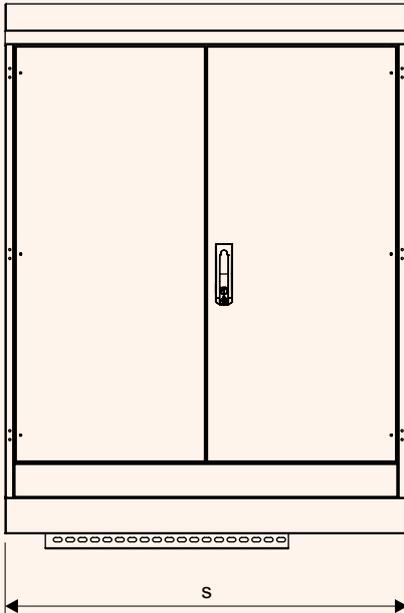
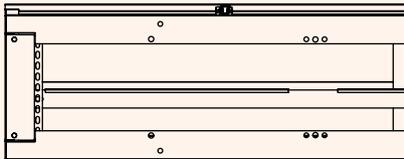
- Protection class: I;
- Ingress protection degree: IP44;
- Impact protection: IK10.



Metal enclosures & cabinets

**Switchgears cabinets - SK**

**Dimensions**

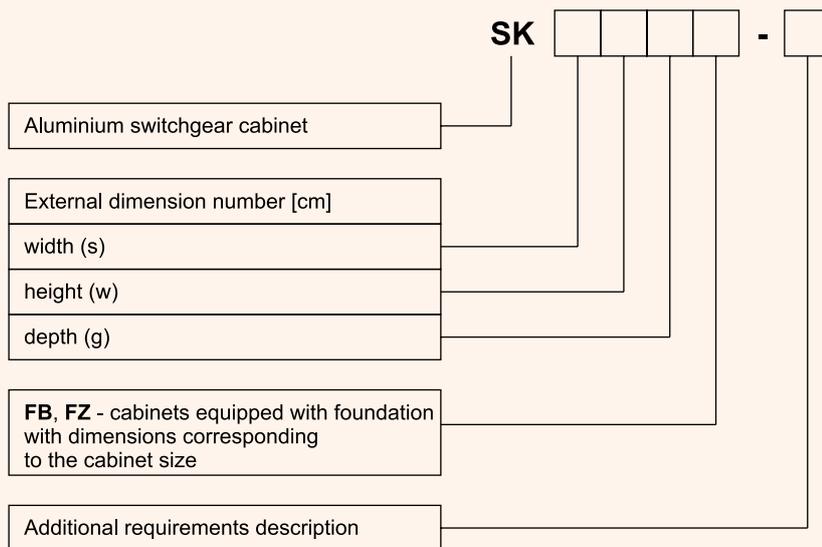


The producer reserves the right to introduce technical modifications

## Reference chart

cabinet type	dimensions [mm]			concrete foundation		steel foundation*
	s	w	g	foundation type*	adapter	
SK 40 95 32	400	950	320	FB 40 32	-	FZ 40 32 90
SK 60 95 32	600	950	320	FB 60 32	-	FZ 60 32 90
SK 80 95 32	800	950	320	FB 80 32	-	FZ 80 32 90
SK 90 95 32	900	950	320	FB 85 32	-	FZ 90 32 90
SK 105 95 32	1050	950	320	FB 105 32	-	FZ 105 32 90
SK 40 115 40	400	1150	400	FB 40 40	-	FZ 40 40 90
SK 60 115 40	600	1150	400	FB 60 40	-	FZ 60 40 90
SK 70 115 40	700	1150	400	-	-	FZ 70 40 90
SK 80 125 40	800	1250	400	FB 80 40	-	FZ 80 40 90
SK 85 125 40	850	1250	400	FB 85 40	-	FZ 85 40 90
SK 90 125 40	900	1250	400	FB 85 40	-	FZ 90 40 90
SK 100 125 40	1000	1250	400	FB 105 40A	+	FZ 100 40 90
SK 105 125 40	1050	1250	400	FB 105 40	-	FZ 105 40 90
SK 120 125 40	1200	1250	400	FB 125 40A	+	FZ 120 40 90
SK 80 125 50	800	1250	500	-	-	FZ 80 50 90
SK 110 125 50	1100	1250	500	-	-	FZ 110 50 90
SK 100 140 60	1000	1400	600	-	-	FZ 100 60 90
SK 100 200 50	1000	2000	500	-	-	FZ 100 50 120
SK 120 200 50	1200	2000	500	-	-	FZ 120 50 120
SK 125 125 40	1250	1250	400	FB 125 40	-	FZ 125 40 90

## How to order



- Ordering example:  
- Aluminium cabinet of switchgear SK 80 125 40 FZ.

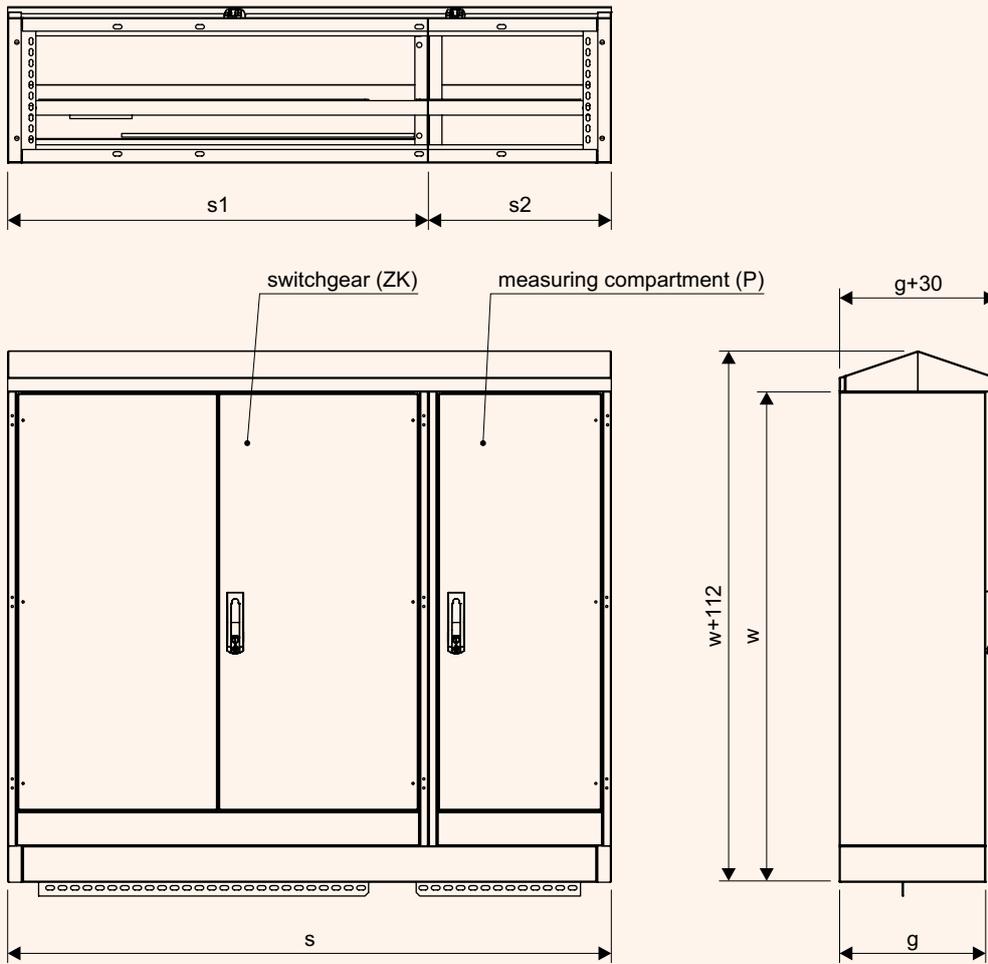
## Scope of delivery

- Cabinets SK;
- Lock insert for lock RS 900 with key (code 1333);
- Set of bolts for foundation mounting.

\* detail information - see page 37 and 40

Switchgear cabinets with measuring compartment - SKP

Dimensions



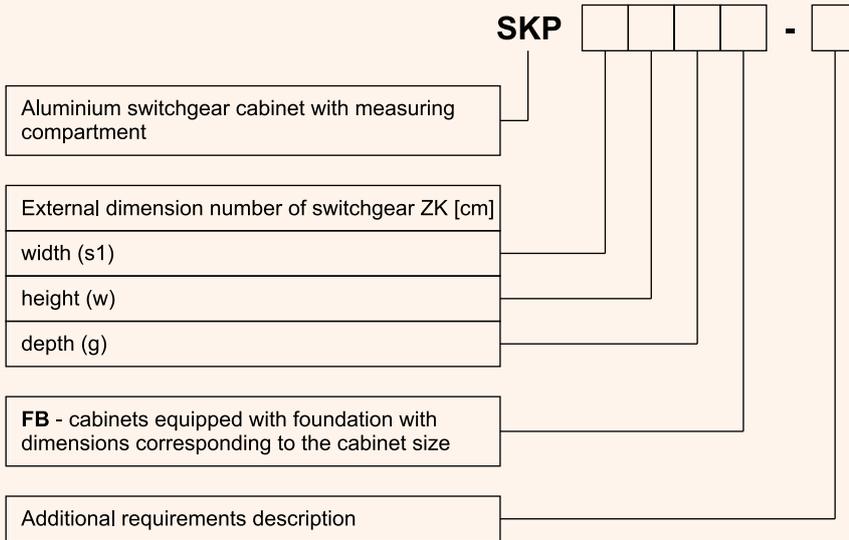
The producer reserves the right to introduce technical modifications

Reference chart

cabinet type	dimensions [mm]					foundation type*
	s1	s2	s	w	g	
SKP 40 125 40	400	450	850	1250	400	FB 85 40
SKP 60 125 40	600	450	1050	1250	400	FB 105 40
SKP 70 125 40	700	450	1150	1250	400	FB 105 40
SKP 80 125 40	800	450	1250	1250	400	FB 125 40
SKP 85 125 40	850	450	1300	1250	400	FB 125 40
SKP 90 125 40	900	450	1350	1250	400	FB 125 40
SKP 95 125 40	950	450	1400	1250	400	FB 80 40 + FB 60 40
SKP 100 125 40	1000	450	1450	1250	400	FB 85 40 + FB 60 40
SKP 105 125 40	1050	450	1500	1250	400	FB 85 40 + FB 60 40
SKP 110 125 40	1100	450	1550	1250	400	FB 85 40 + FB 60 40
SKP 120 125 40	1200	450	1650	1250	400	FB 85 40 + FB 80 40

\* detail information - see page 40

**How to order**



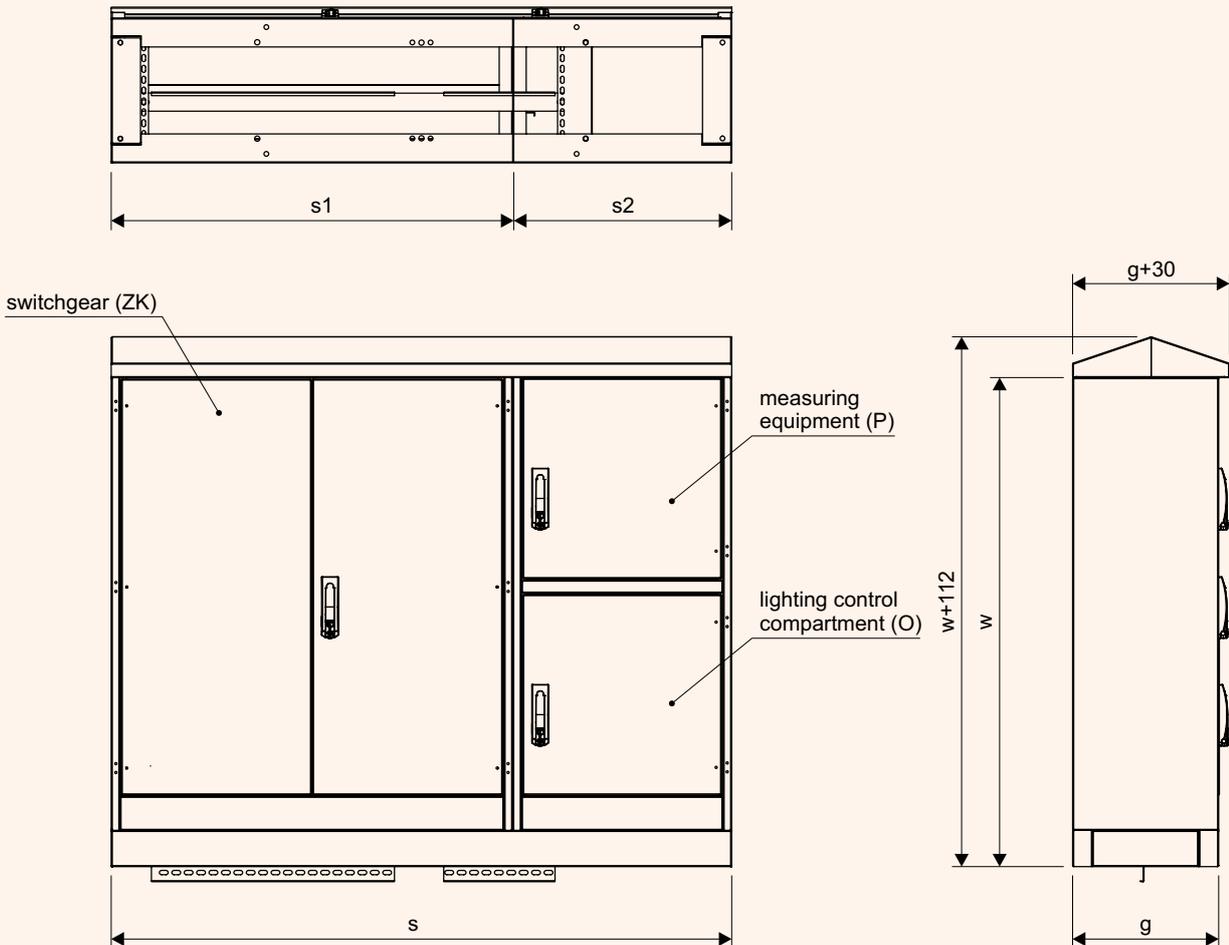
- Ordering example:
  - Aluminium cabinet of switchgear SKP 40 125 40 FB.

**Scope of delivery**

- Cabinet SKP;
- Lock insert for lock RS 900 with key (code 1333);
- Set of bolts for foundation mounting.

**Switchgear cabinets with measuring and lighting control compartments - SKPO**

**Dimensions**

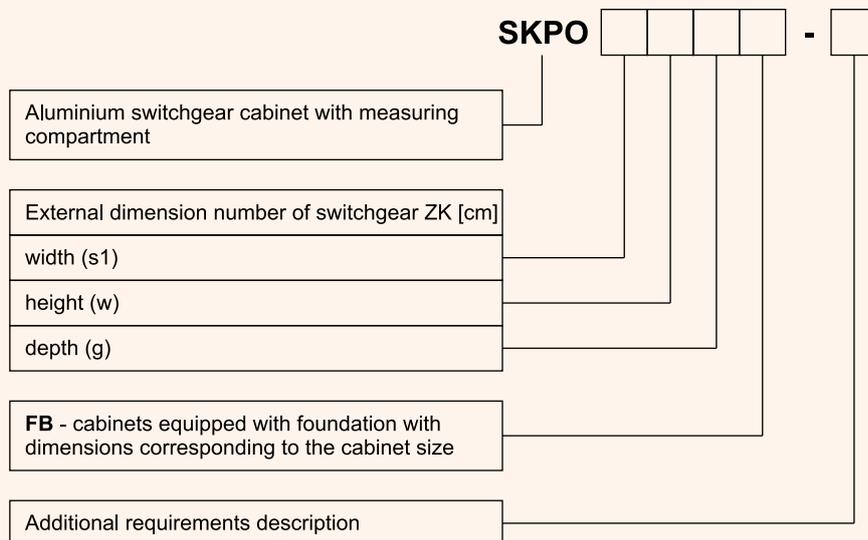


The producer reserves the right to introduce technical modifications

## Reference chart

cabinet type	dimensions [mm]					foundation type*
	s1	s2	s	w	g	
SKPO 40 125 40	400	550	950	1250	400	FB 85 40
SKPO 60 125 40	600	550	1150	1250	400	FB 105 40
SKPO 70 125 40	700	550	1250	1250	400	FB 125 40
SKPO 80 125 40	800	550	1350	1250	400	FB 125 40
SKPO 85 125 40	850	550	1400	1250	400	FB 80 40 + FB 60 40
SKPO 90 125 40	900	550	1450	1250	400	FB 80 40 + FB 60 40
SKPO 95 125 40	950	550	1500	1250	400	FB 85 40 + FB 60 40
SKPO 100 125 40	1000	550	1550	1250	400	FB 80 40 + FB 80 40
SKPO 105 125 40	1050	550	1600	1250	400	FB 80 40 + FB 80 40
SKPO 110 125 40	1100	550	1650	1250	400	FB 80 40 + FB 80 40
SKPO 120 125 40	1200	550	1750	1250	400	FB 85 40 + FB 85 40

## How to order



- Ordering example:  
- Aluminium cabinet of switchgear SKPO 95 125 40 FB

## Scope of delivery

- Cabinet SKPO;
- Lock insert for lock RS 900 with key (code 1333);
- Set of bolts for foundation mounting.

\* detail information - see page 40

**Application**

- Aluminium cabinets for flush mounting in the wall of tower transformer station. Outdoor access. Indoor access protected by perforated removable cover.

**Type of installation**

- In the nest of the tower transformer station wall.

**Operating conditions**

- Industrial and seaside environment.



**Design**

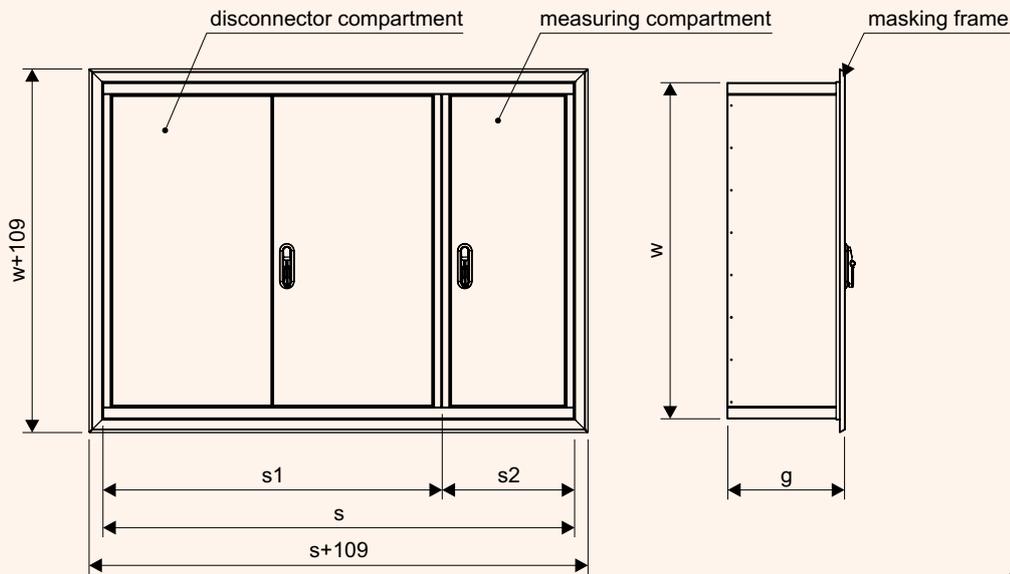
- Aluminium sheet, thickness 2 mm, shaped by punching and bending;
- Polyester structural powder painted, colour RAL 7035;
- Nested door suspended on concealed hinges, RS 900 locks with swing handle, 1- and 3-point closure;
- Cabinet compartments:
  - disconnecter compartment: equipped with bracket for mounting busbar supports,
  - measuring and lighting compartments equipped with mounting plates.

**Technical data**

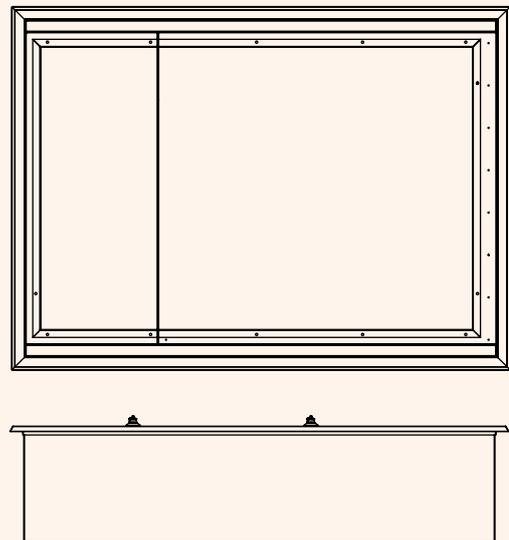
- Protection class: I;
- Ingress protection degree: IP44;
- Impact protection: IK10.

**Dimensions**

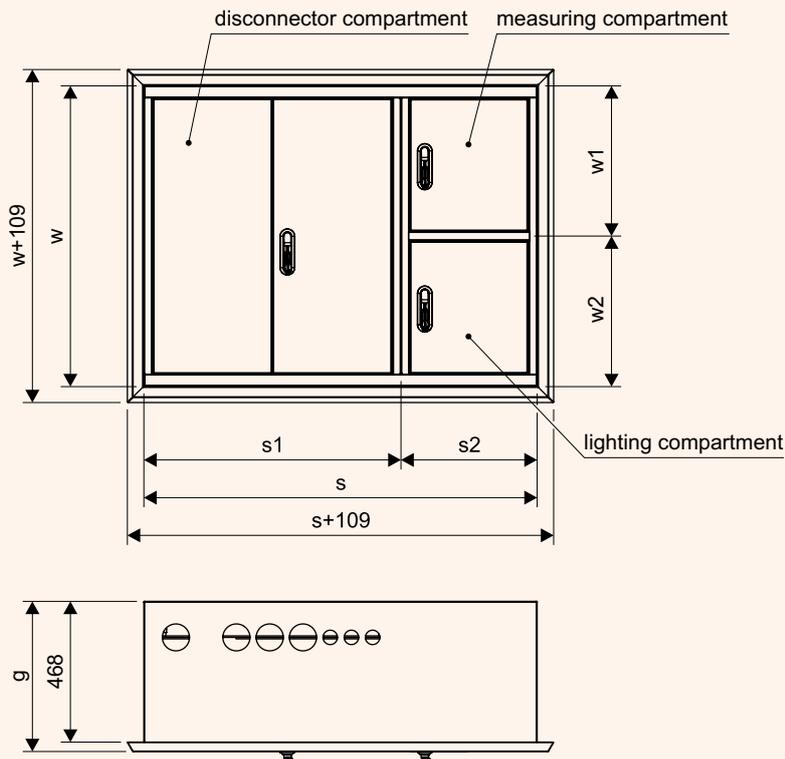
- SWAP cabinet



SWA... cabinet - rear view



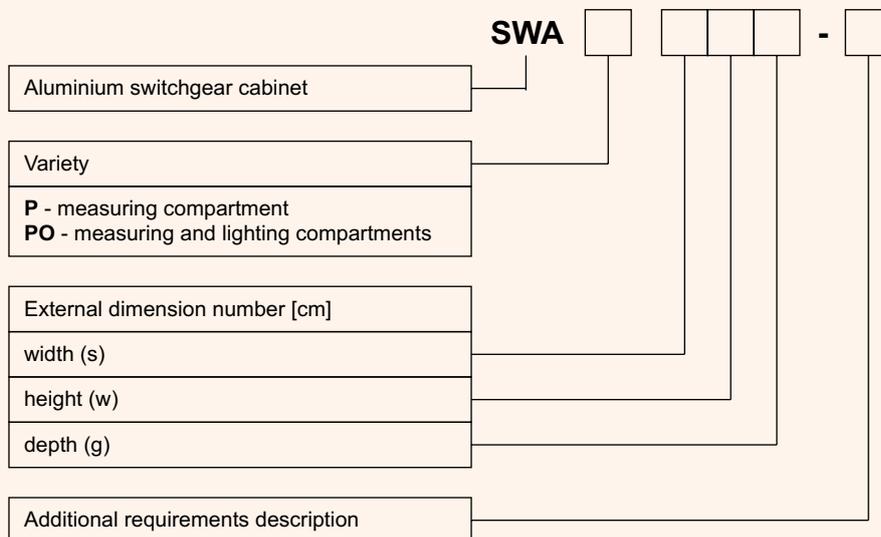
• SWAPO cabinet



Reference chart

cabinet type	dimensions [mm]			compartment dimensions [mm]		
	width (s)	height (w)	depth (g)	disconnectors	measuring (s2×w(w1))	lighting (s2×w2)
SWAP 130 85 50	1300	850	500	850×850	450×850	-
SWAPO 130 125 50	1300	1250	500	850×850	450×425	450×425
SWAP 130 100 50	1300	1000	500	850×1000	450×1000	-
SWAPO 130 115 50	1300	1150	500	850×1000	450×500	450×425
SWAP 140 85 50	1400	850	500	900×850	500×850	-
SWAPO 140 125 50	1400	1250	500	900×850	500×425	500×425
SWAP 140 100 50	1400	1000	500	900×1000	500×1000	-
SWAPO 140 115 50	1400	1150	500	900×1000	500×500	500×500
SWAP 150 115 50	1500	1150	500	1100×1150	500×1150	-
SWAPO 150 115 50	1500	1150	500	1100×1150	500×575	500×575

How to order



• Ordering example:

- Aluminium tower switchgear cabinet with measuring and lighting compartments SWAPO 130 100 50.

The producer reserves the right to introduce technical modifications

**Application**

- Enclosures for modular switchgears are designed for building of the switchgear for distribution and measuring of electric energy in the block of flats. They are equipped with mounting plate (administration compartments) or bracket for energy meters or modular systems for protection devices. They can be for joined in series.

**Type of installation**

They are mounted on the floor and possibly joined in series. On the top they are fixed to the wall.

**Operating conditions**

- Low aggressive indoor environment.

**Design**

- Carbon steel, thickness 1,5 mm shaped by punching and bending. Cabinet parts are joined by riveting and welding;
- Polyester structural powder painted, colour RAL 7035;
- Doors suspended on concealed hinges. 1- or 3-point closure swing handle. RS 900 lock or wing PM lock, cams and bars. Optionally doors can be equipped with sight-glasses.



**Scope of delivery**

- Cabinets with smooth doors, without back plate;
- Depending on the type cabinets can have:
  - Mounting plate;
  - Counter plate;
  - DIN rail + masking panels;
  - Socle 60 mm.

**Accessories**

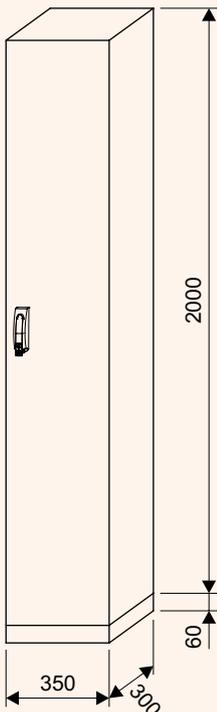
- Back plate;
- Sight-glasses;
- Lock insert.

**Technical data**

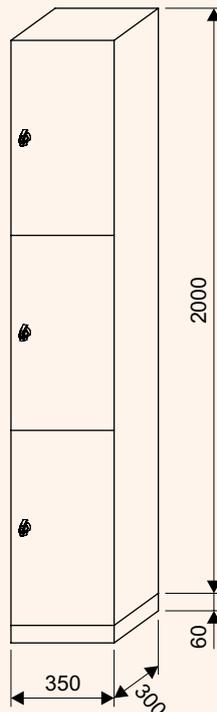
- Protection class: I;
- Ingress protection degree: IP43;
- Impact protection:
  - IK10: for smooth doors,
  - IK05: for doors with sight glass.

**Dimensions**

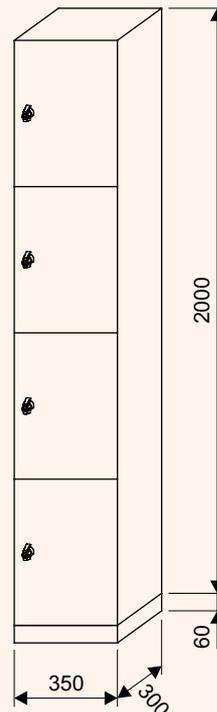
- ORMa 35 200 30 1D



- ORMa 35 200 30 3D

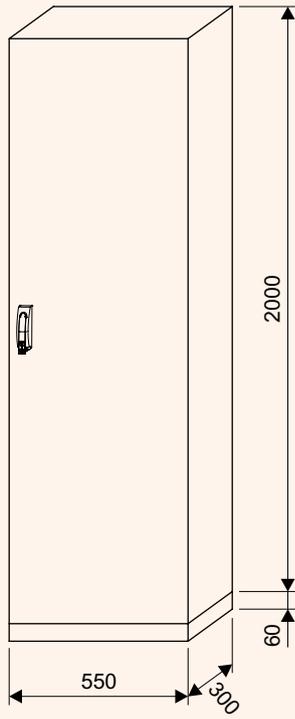


- ORMa 35 200 30 4D

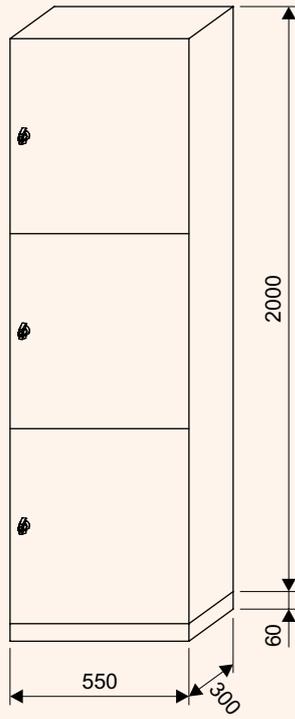


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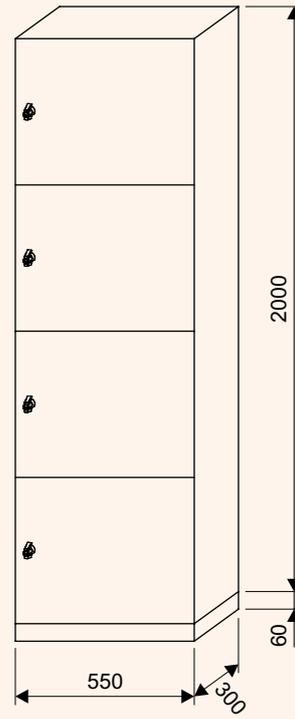
• ORMa 50 200 30 1D



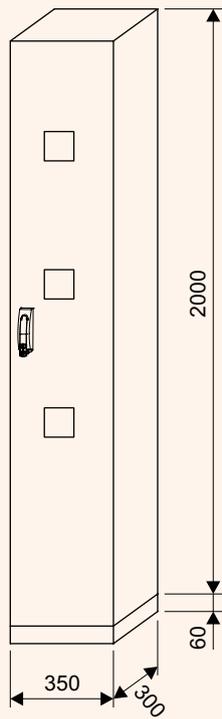
• ORMa 50 200 30 3D



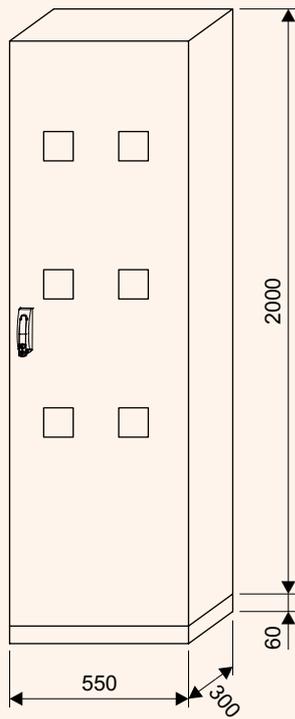
• ORMa 50 200 30 4D



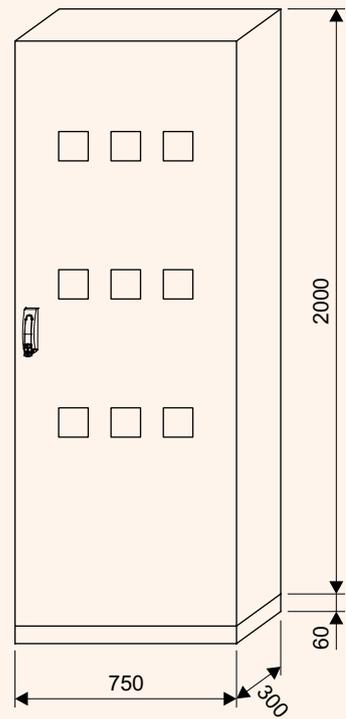
• ORM3I 35 200 30



• ORM6I 55 200 30

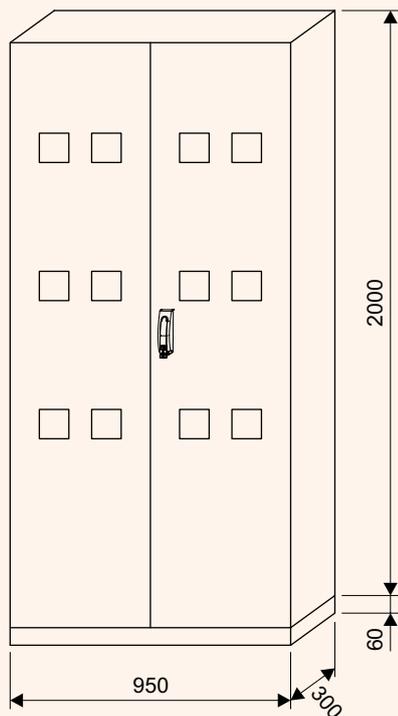


• ORM9I 75 200 30

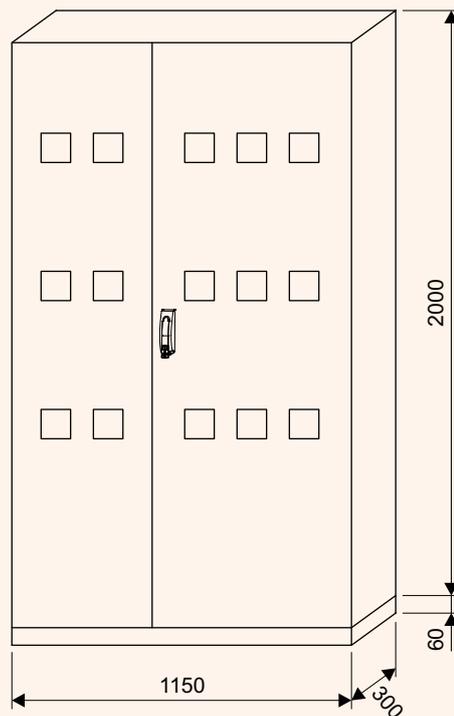


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## • ORM12I 95 200 30



## • ORM15I 115 200 30



## Reference chart

cabinet type	dimensions [mm]			no. of doors	destination	equipment				
	width (s)	height (w)	depth (g)			P1	TM	T3f	W	PI
ORMa 35 200 30 1D P1 TM	350	2000	300	1	administration	x	x	option	option	option
ORMa 55 200 30 1D P1 TM	550	2000	300	1	administration	x	x	option	option	option
ORMa 35 200 30 3D P1	350	2000	300	3	administration	x	-	-	-	option
ORMa 55 200 30 3D P1	550	2000	300	3	administration	x	-	-	-	option
ORMa 35 200 30 4D P1	350	2000	300	4	administration	x	-	-	-	option
ORMa 55 200 30 4D P1	550	2000	300	4	administration	x	-	-	-	option
ORM3I 35 200 30 T3f TM	350	2000	300	1	counters	-	x	x	option	option
ORM6I 55 200 30 T3f TM	550	2000	300	1	counters	-	x	x	option	option
ORM9I 75 200 30 T3f TM	750	2000	300	1	counters	-	x	x	option	option
ORM12I 95 200 30 T3f TM	950	2000	300	2-wings	counters	-	x	x	option	option
ORM15I 115 200 30 T3f TM	1150	2000	300	2-wings	counters	-	x	x	option	option

P1 - smooth mounting plate

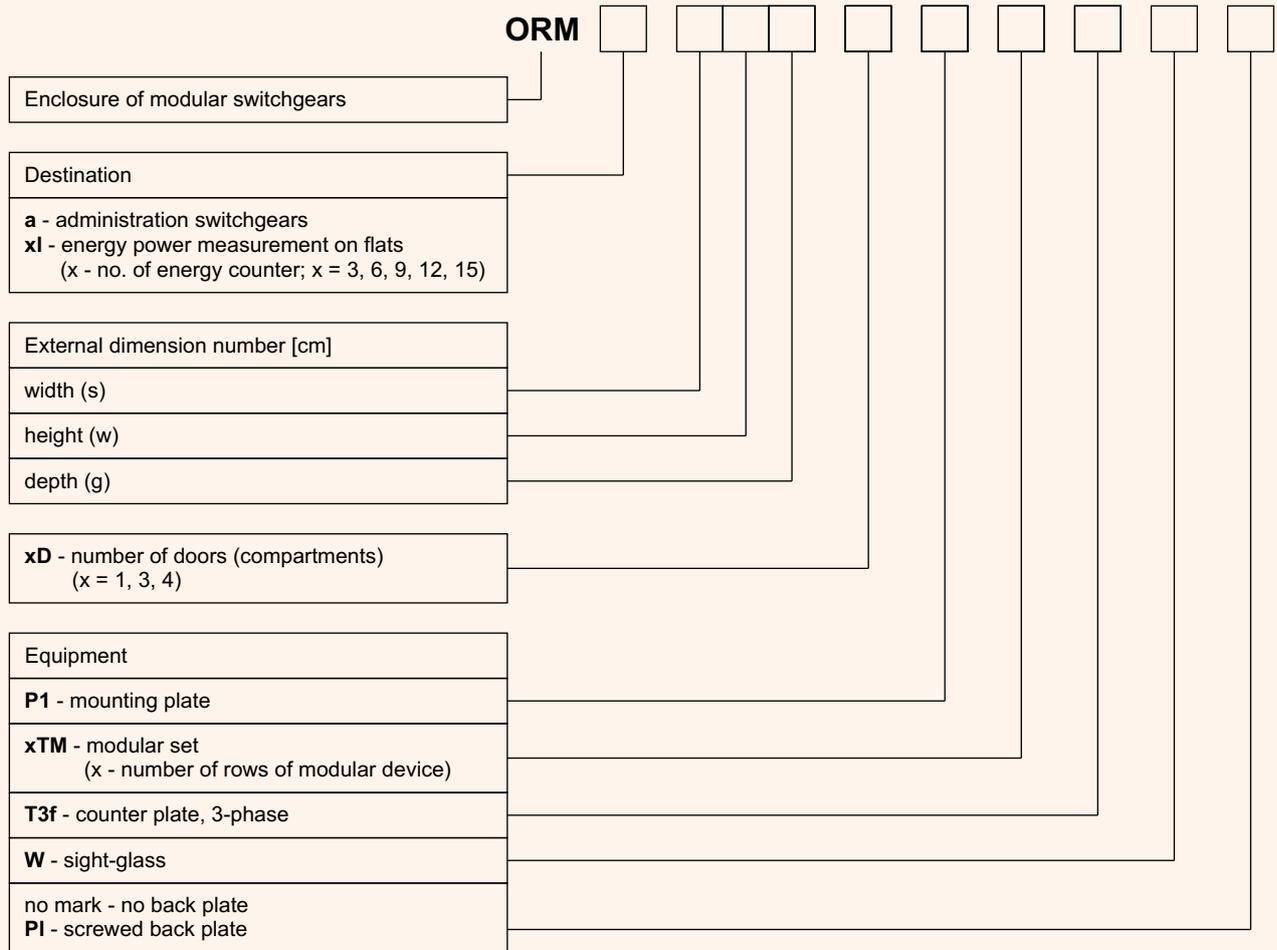
TM - modular kit - DIN rail + masking panels made of steel sheet

T3f - three phase counter plate

W - sight-glass

PI - back plate

How to order



- Ordering example:
  - ORMa 35 200 30 1D P1 3TM T3f W,
  - ORM12I 95 200 30T 3f 4TM W.

The producer reserves the right to introduce technical modifications

**Application**

- Enclosures of modular switchgears are designed for building of switchgears using modular devices mounted on DIN - rail.

**Type of installation**

- ORMU enclosure is mounted to the wall directly or using wall holders;
- ORMK enclosure is flush mounted (nest mounted).

**Operating conditions**

- Low aggressive indoor environment;
- Indoor location.

**Design**

- Carbon steel, thickness 1,5 mm, formed by punching and bending, joined by riveting and welding;
- Polyester structural powder painted, colour RAL 7035;
- Nested doors suspended on concealed hinges, one or two locks, closed by patented key;
- As option doors equipped with polycarbonate window;
- Cabinets are equipped with modular unit;
- ORMU cabinets are equipped with smooth cable gland plate.

**Scope of delivery**

- Cabinet with door hung on left or right edge;
- Modular unit;
- Smooth cable gland plate.

**Accessories**

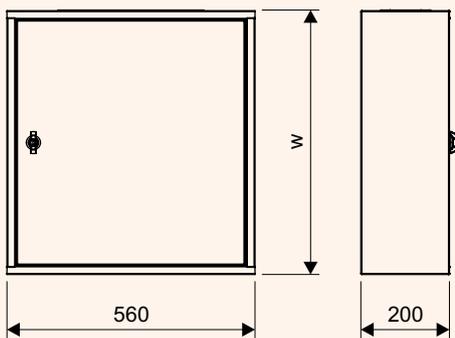
- Door with polycarbonate window;
- Membrane glands plate.

**Technical data**

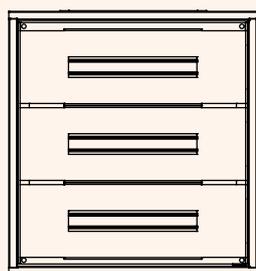
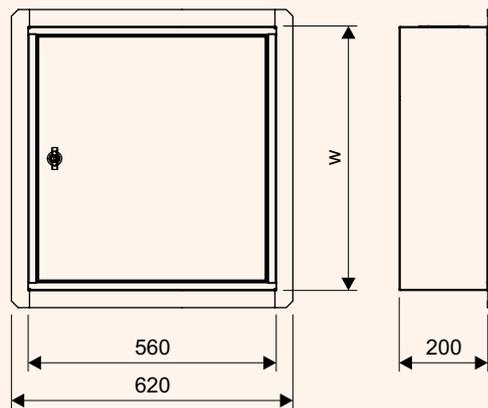
- Protection class: I;
- Ingress protection degree: IP30;
- Impact protection:
  - IK10: for standard door,
  - IK05: for window door.

**Dimensions**

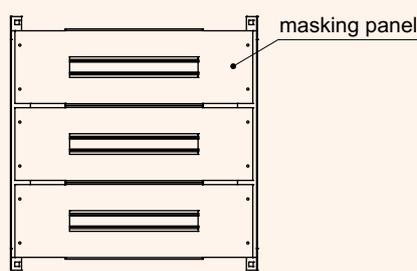
• ORMU



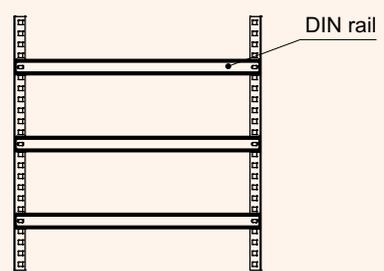
• ORMK



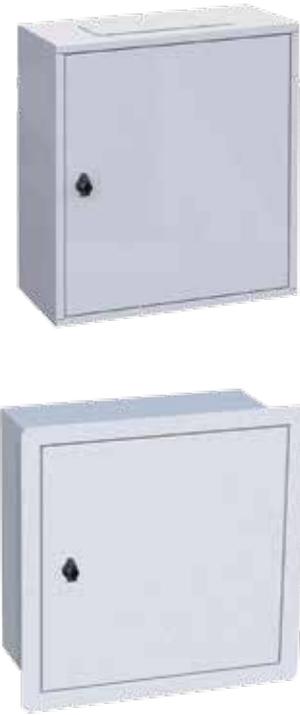
front view (door opened)



set of modular unit



modular unit without masking panels

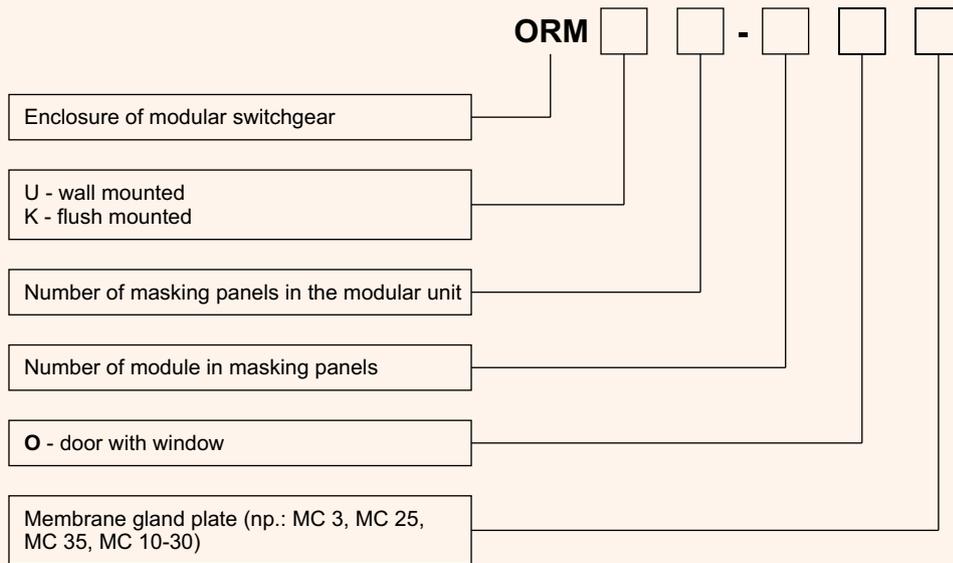


The producer reserves the right to introduce technical modifications

**Reference chart**

cabinet type	dimensions [mm]			no. of modules in masking panel	no. of masking panels in the modular unit	sum of modules in modular unit
	width (s)	height (w)	depth (g)			
ORMU 3 - 72	560	600	200	24	3	72
ORMK 3 - 72	560	600	200	24	3	72
ORMU 4 - 96	560	750	200	24	4	96
ORMK 4 - 96	560	750	200	24	4	96
ORMU 5 - 120	560	900	200	24	5	120
ORMK 5 - 120	560	900	200	24	5	120
ORMU 6 - 144	560	1050	200	24	6	144
ORMU 6 - 144	560	1050	200	24	6	144

**How to order**



- Ordering example:  
- Universal enclosure of modular switchgear: ORMU 4 - 96.

The producer reserves the right to introduce technical modifications

**Application**

- Indoor enclosure of floor switchgears for energy distribution to individual units in a block of flats.

**Type of installation**

- Free-standing by the wall on the socle.

**Operating conditions**

- Indoor;
- Dry environment.

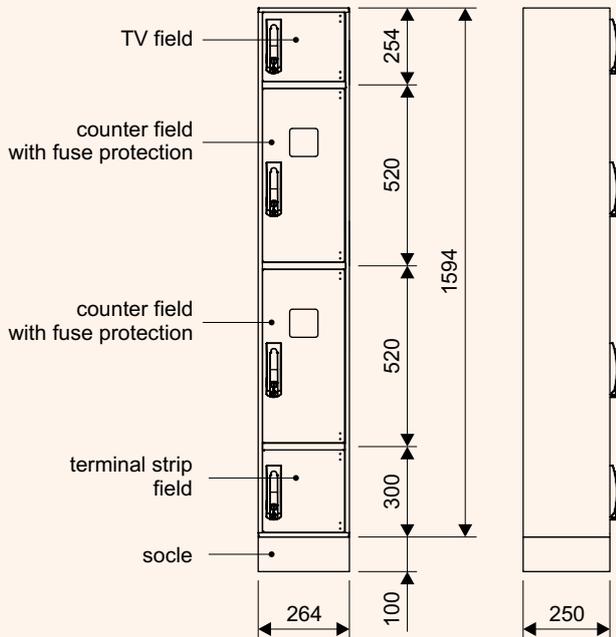
**Design**

- Carbon steel, thickness 1,2 mm;
- Polyester structural powder painted, colour RAL 7035;
- Doors are locked by Z-2106 locks or swing handle RS 900 lock, they can be equipped with sight-glasses in energy meter compartments;
- Field for terminal strip;
- Two or four counter fields enable energy meter mounting with fuse protection;
- Telecommunication fields;
- Fields equipped with mounting plates.

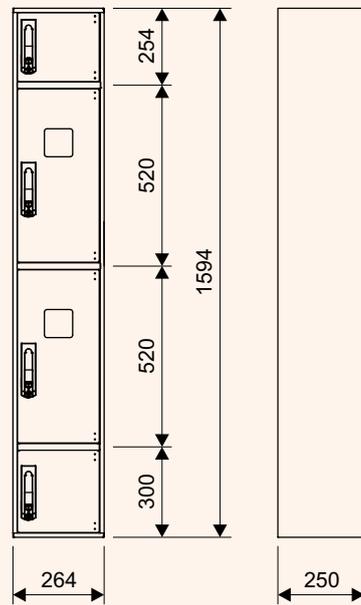


**Dimension**

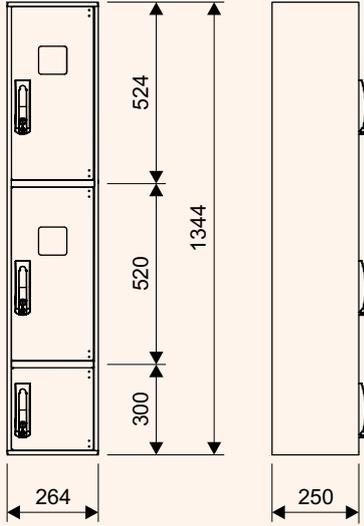
- Enclosure **ORP - 2.3fZ - TWC**



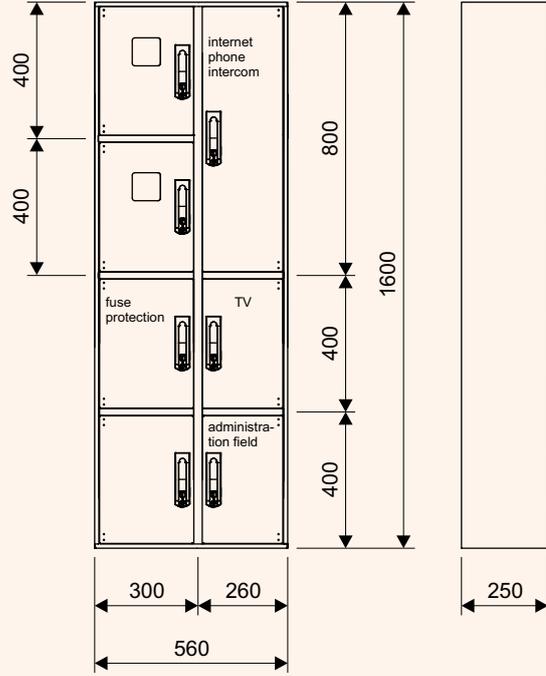
- Enclosure **ORP - 2.3fZ - TW**



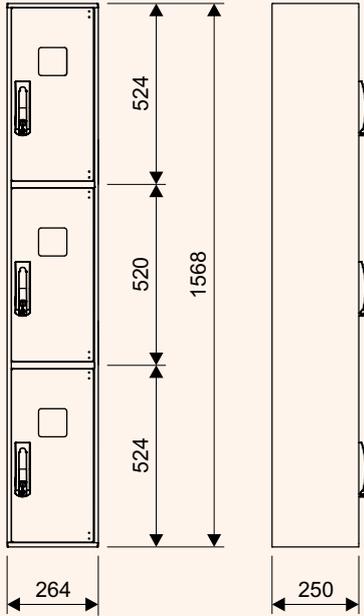
• Enclosure **ORP - 2.3fZ - W**



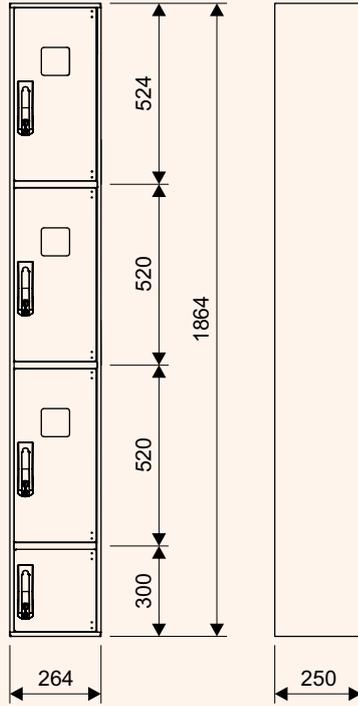
• Enclosure **ORP - 2.3fZ - ZITAW**



• Enclosure **ORP - 3.3f - W**

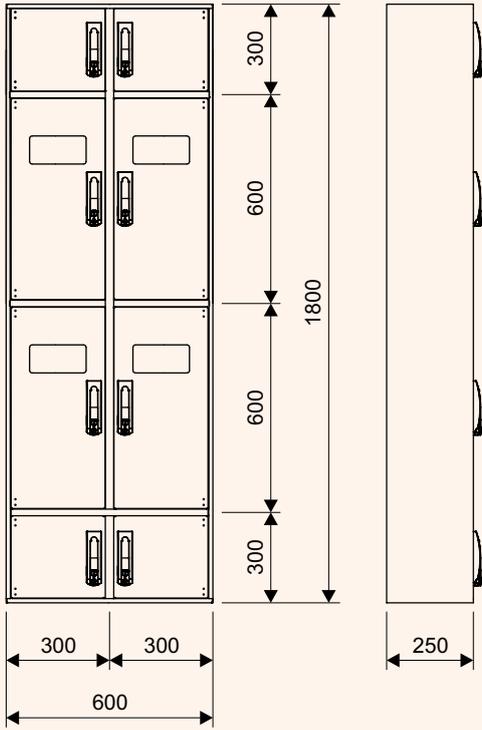


• Enclosure **ORP - 3.3f - Z**

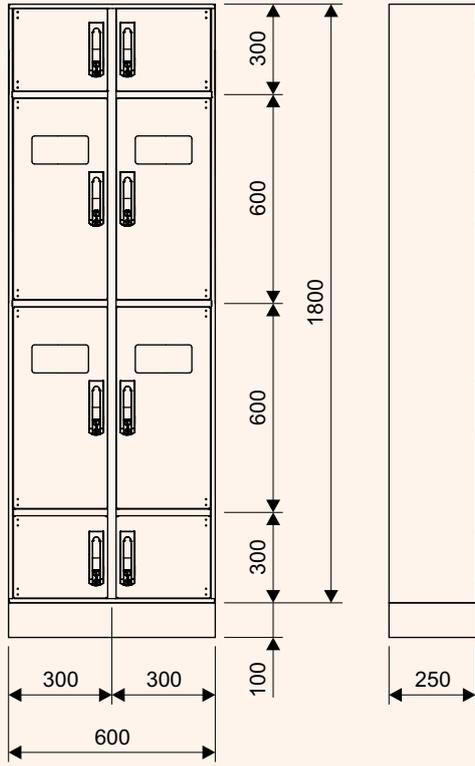


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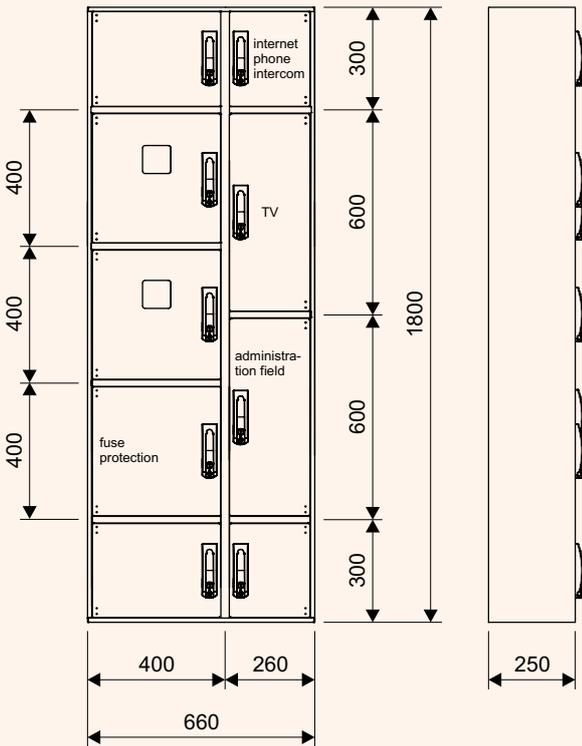
• Enclosure ORP - 4.3fZ - ITAW



• Enclosure ORP - 4.3fZ - ITAWC



• Enclosure ORP - 4.3fZ - ZITAW



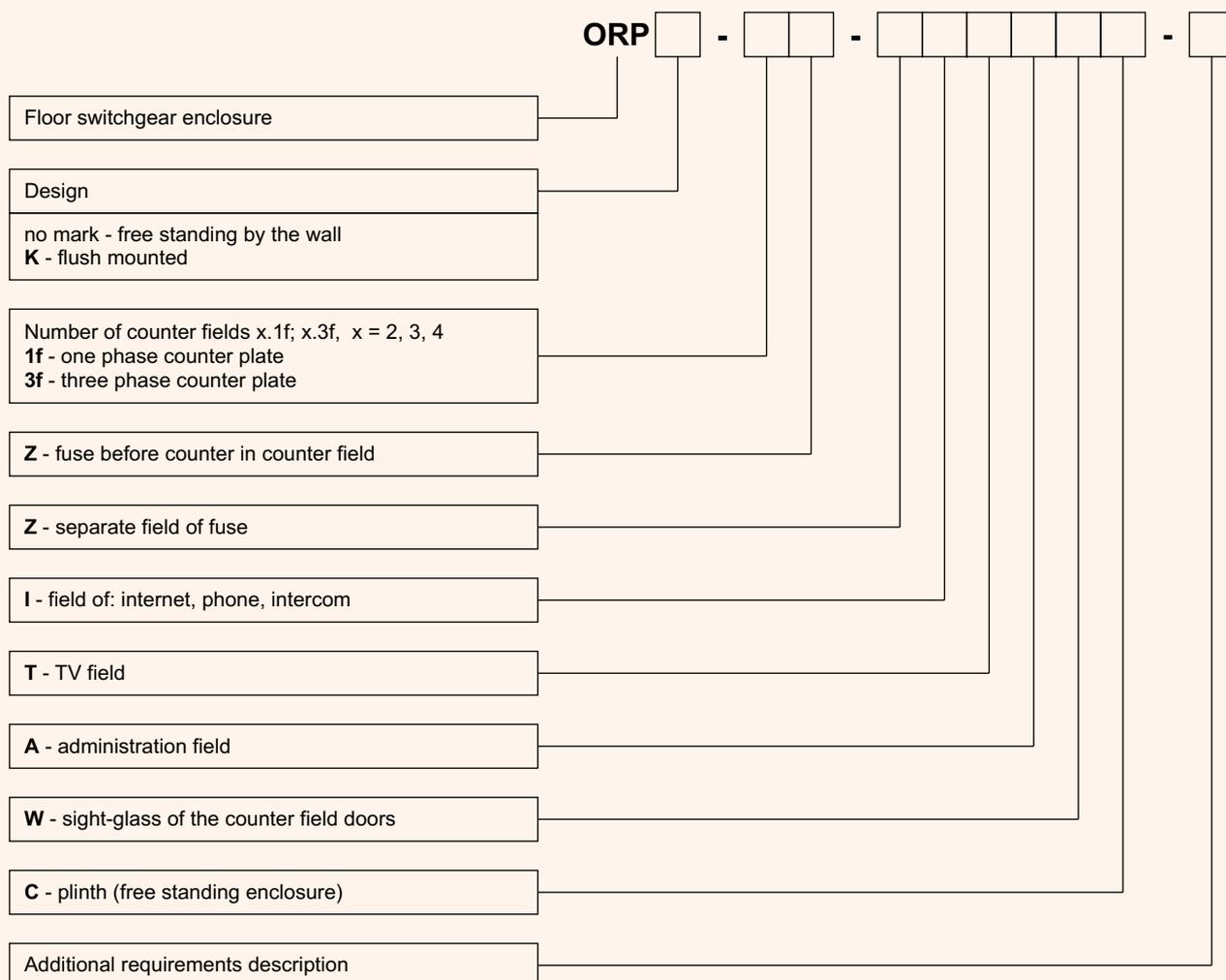
The producer reserves the right to introduce technical modifications

Reference chart

enclosure type	options							dimensions [mm]		
	terminal strip field	separate field of counter fuses	internet field	TV field	administration field	sight-glass of counter fields	plinth 100 mm	width (s)	height (w)	depth (g)
ORP - 2.3fZ - TW ORPK - 2.3fZ - TW	+	-	-	T	-	W	C	264	1594	250
ORP - 2.3fZ - W ORPK - 2.3fZ - W	+	-	-	-	-	W	C	264	1344	250
ORP - 2.3f - ZITAW ORPK - 2.3f - ZITAW	+	Z	I	T	A	W	C	560	1600	250
ORP - 3.3fZ - W ORPK - 3.3fZ - W	+	-	-	-	-	W	C	264	1568	250
ORP - 3.3f - Z ORPK - 3.3f - Z	+	-	-	-	-	W	C	264	1864	250
ORP - 4.3fZ - ITAW ORPK - 4.3fZ - ITAW	+	-	I	T	A	W	C	520	1640	250
ORP - 4.3f - ZITAW ORPK - 4.3f - ZITAW	+	Z	I	T	A	W	C	660	1800	250

How to order

The producer reserves the right to introduce technical modifications



- Ordering example:
  - Floor switchgear enclosure: ORP - 3.3f - Z.

**Application**

- Enclosures for free-standing switchgears are designed for switchgears building served for energy distribution in block of flats. They are prepared to mount electric power counter and modular fuses, etc. Switchgears can be joined in series.

**Type of installation**

- Completed switchgears are placed on the floor and possibly joined in series.

**Operating conditions**

- Indoor mounted in low aggressive environment.

**Design**

- Carbon steel, thickness 1,5 mm, formed by punching and bending, joined by riveting and welding;
- Polyester structural powder painted, colour RAL 7035;
- Doors suspended on concealed hinges, 3-point closure, swing handle RS 900 lock. As option doors can be equipped with sight-glass.

**Scope of delivery**

- Enclosure with smooth doors, without back plate;
- C-profiles, brackets, counter plates;
- C-profiles, DIN-rail, masking panels;
- Plinth 100 mm.

**Accessories**

- Back plate;
- Doors equipped with sight-glasses;
- Lock insert with key (code 1333).

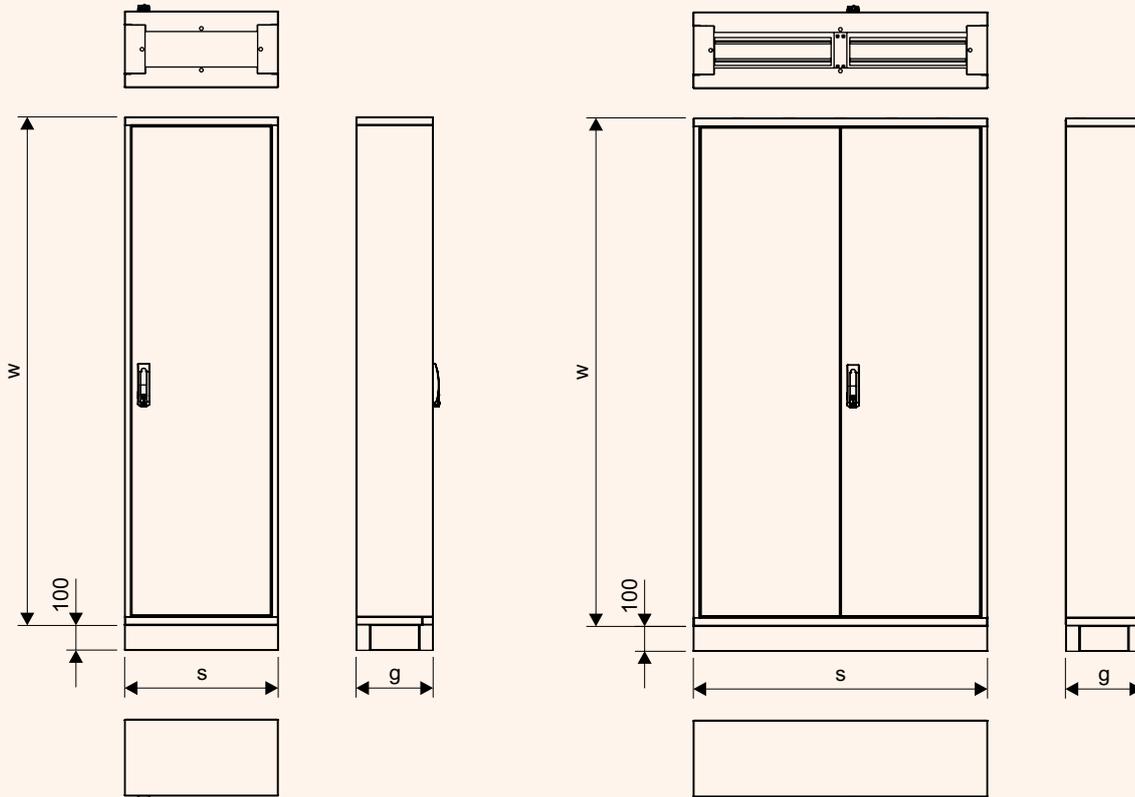
**Technical data**

- Protection class: I;
- Ingress protection degree: IP30;
- Impact protection:
  - IK10: for standard door,
  - IK05: for doors with sight-glass.

**Dimensions**

- 1-door enclosure

- 2-door enclosure

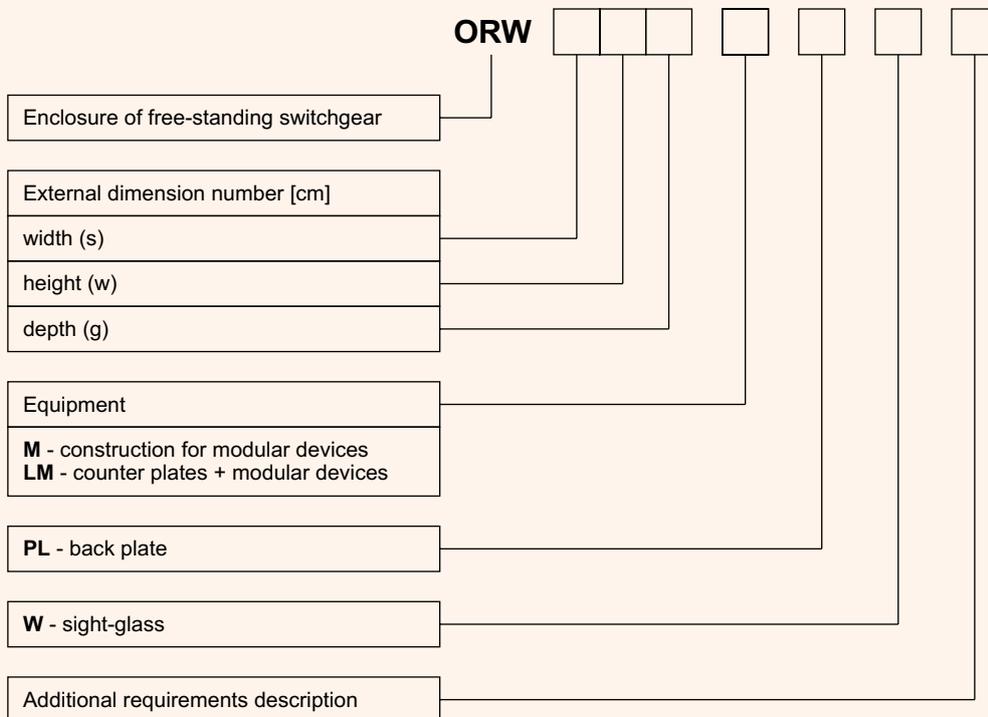


The producer reserves the right to introduce technical modifications

Reference chart

enclosure type	dimensions [mm]			no. of doors
	width (s)	height (w)	depth (g)	
ORW 60 180 25	600	1800	250	1
ORW 60 180 30	600	1800	300	1
ORW 60 180 40	600	1800	400	1
ORW 60 200 25	600	2000	250	1
ORW 60 200 30	600	2000	300	1
ORW 60 200 40	600	2000	400	1
ORW 80 180 25	800	1800	250	1
ORW 80 180 30	800	1800	300	1
ORW 80 180 40	800	1800	400	1
ORW 80 200 25	800	2000	250	1
ORW 80 200 30	800	2000	300	1
ORW 80 200 40	800	2000	400	1
ORW 100 180 25	1000	1800	250	2
ORW 100 180 30	1000	1800	300	2
ORW 100 180 40	1000	1800	400	2
ORW 100 200 25	1000	2000	250	2
ORW 100 200 30	1000	2000	300	2
ORW 100 200 40	1000	2000	400	2
ORW 120 180 25	1200	1800	250	2
ORW 120 180 30	1200	1800	300	2
ORW 120 180 40	1200	1800	400	2
ORW 120 200 25	1200	2000	250	2
ORW 120 200 30	1200	2000	300	2
ORW 120 200 40	1200	2000	400	2

How to order



- Ordering example:
  - Enclosure for free-standing switchgear: ORW 100 200 LM PL W

The producer reserves the right to introduce technical modifications

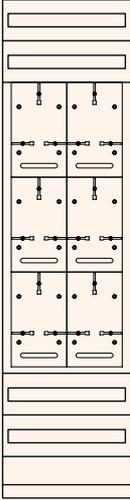
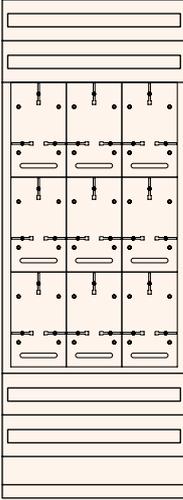
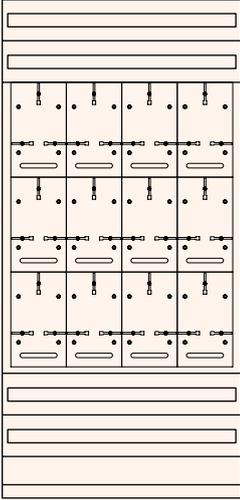
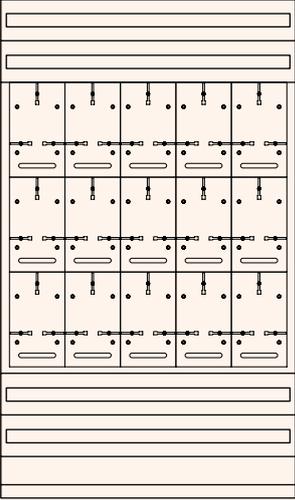
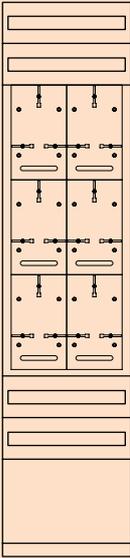
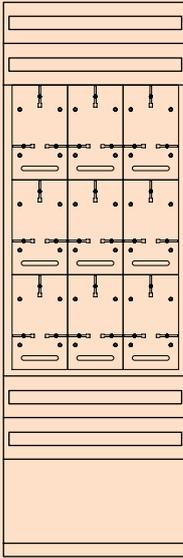
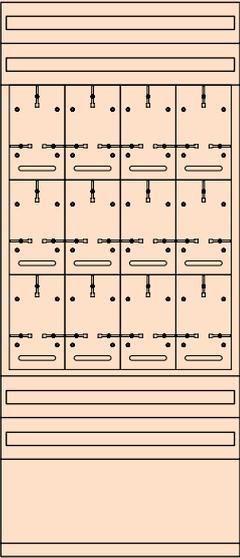
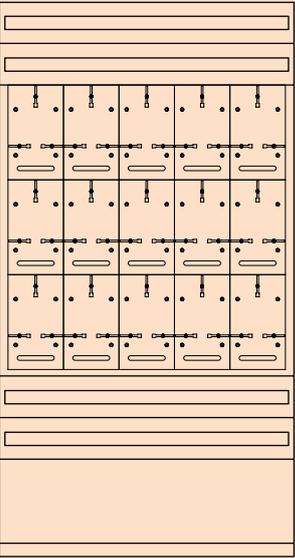
**CONFIGURATION OF BASE EQUIPMENT****Counter plates + masking panels - LM****Application**

- Equipment for mounting electric energy counter and before and after counter fuse protection.

**Design**

- Counter plates are mounted on horizontal brackets. Number of counter plates in enclosure with certain dimensions are shown in the table below.

**Reference chart**

		width [mm]			
		600	800	1000	1200
height [mm]	1800				
	2000				

**Back plate - PL****Application**

- It serves to cover back part of ORW enclosures.

**Design**

- Carbon steel, thickness 1,2 mm;
- Polyester structural powder painted, colour RAL 7035;
- Mounting to the enclosure using self-tapping screws.



**Reference chart**

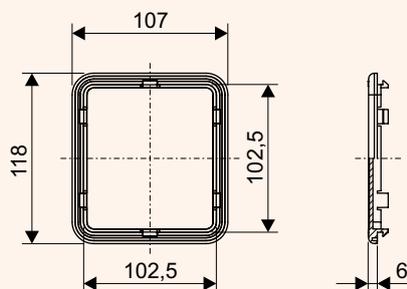
enclosure type	back plate type	dimensions [mm] width × height
ORW 60 180 ...	PL 60 180	600×1800
ORW 60 200 ...	PL 60 200	600×2000
ORW 80 180 ...	PL 80 180	800×1800
ORW 80 200 ...	PL 80 200	800×2000
ORW 100 180 ...	PL 100 180	1000×1800
ORW 100 200 ...	PL 100 200	1000×2000
ORW 120 180 ...	PL 120 100	1200×1800
ORW 120 200 ...	PL 120 200	1200×2000

**Sight-glass - WE****Application**

- Mounted in the doors of counter fields.

**Design**

- Injected PC;
- Mounting: to the door sheet using snap lock.

**Dimensions****Reference chart**

type	art. no.
WE 107	907 1011

**Application**

- Pole transformer station switchgear.

**Type of installation**

- Enclosure is designed for mounting to a pole using two clamping rings with diameter 350 and 370 mm, or on the platform fixed to the pole.

**Operating conditions**

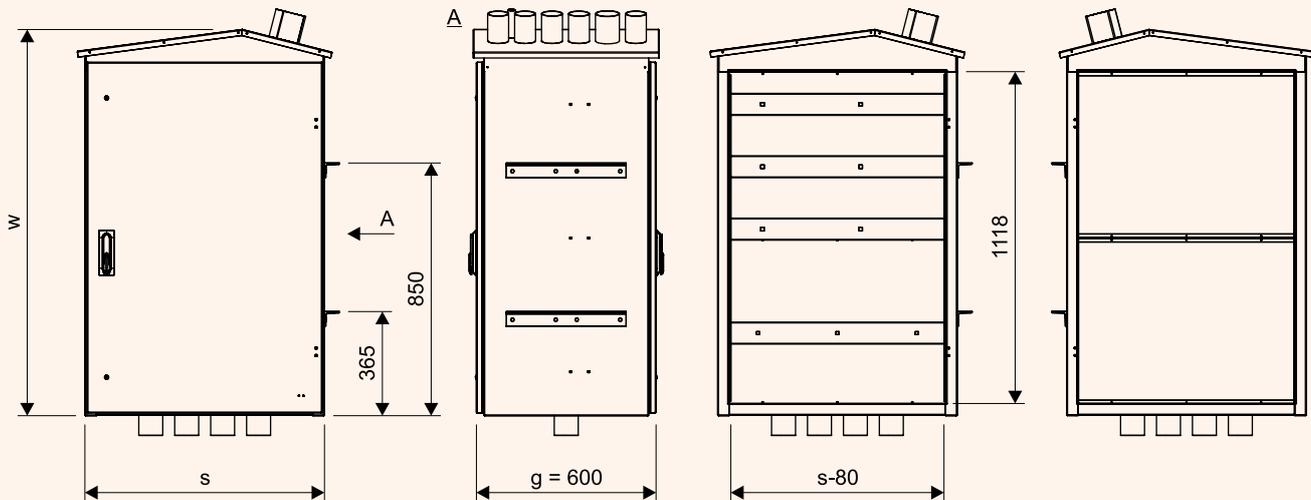
- Industrial environment.

**Design**

- Aluminium sheet, thickness 2 mm, formed by punching and bending;
- Parts are joined by riveting and welding;
- Polyester structural powder painted, colour RAL 7035;
- The roof is equipped with inlet/outlet pipes which enable to enter of feeding cables and exit of outflow cables to the top, to overhead line and street lighting;
- The bottom of enclosure can be equipped with flat cover or cover with pipes which enable exit of outflow cables to the earth;
- The enclosure can be equipped with cable channel, covered outflow cables going to the earth;
- Doors have 3-point closure system. It is possible to apply padlock;
- Enclosure has inner frame to which are mounted busbar brackets, mounting plate of measuring field and other equipment.
- Mounting plate of measuring field is suspended on the hinges;
- The door from measuring field side has folding shelf for laptop.


**Technical data**

- Protection class: I;
- Ingress protection degree: IP44;
- Impact protection: IK10.

**Dimensions**

**Technical data of switchgear in ST/A enclosures**

rated operational voltage - $U_n$	230 V / 400 V
rated insulation voltage - $U_i$	500 V
rated frequency	50 Hz
rated impulse withstand voltage	8 kV (1,2 / 50 $\mu$ s)
rated current - $I_n$	1250 A
rated current of load circuits	up to 630 A
rated short - time withstand current - $I_{cw}$	20 kA: 1 s - main busbar / 12 kA: 1 s - busbar N, PE
rated peak withstand current - $I_{pk}$	40 kA - main busbar / 25 kA - busbar N, PE
cross section of outflow cables	50 - 240 mm <sup>2</sup>
ingress protection degree	IP44
impact protection	IK10
protection class	I
way of installation	on the pole

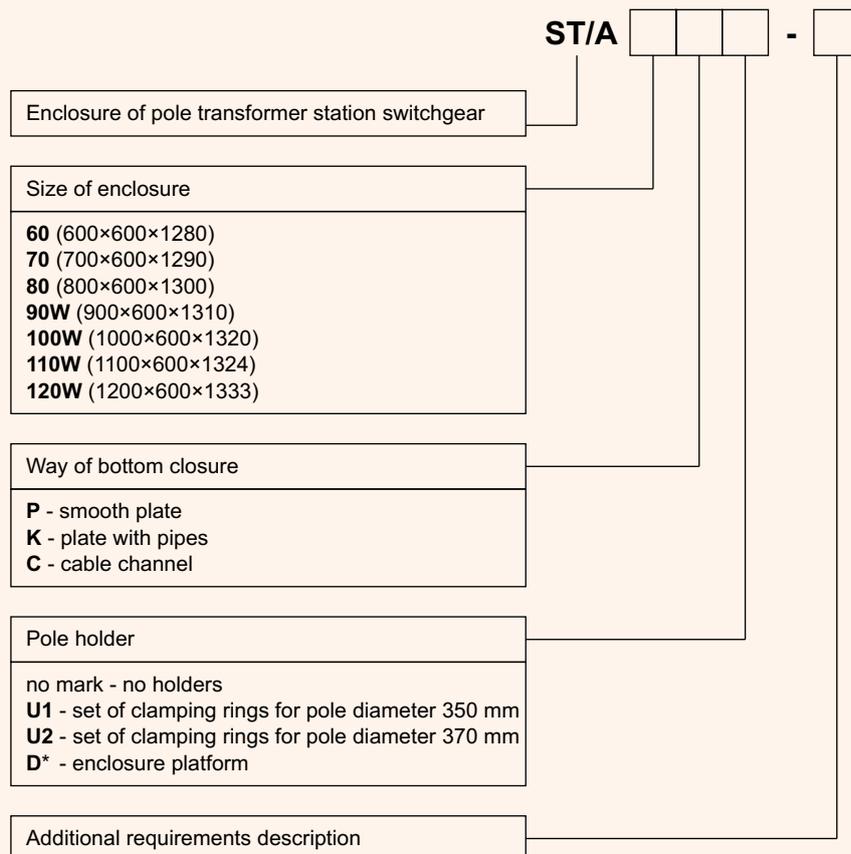
## Reference chart

enclosure type	dimensions [mm]			number of pipes on the roof			art. no.
	width (s)	height (w)	depth (g)	Ø25	Ø70	Ø80	
ST/A60	600	1280	600	1	4	2	MZ1237
ST/A70	700	1290	600	1	5	2	MZ1251
ST/A80	800	1300	600	1	6	2	MZ276
ST/A90W	900	1310	600	1	7	2	MZ3024
ST/A100W	1000	1320	600	1	7	2	MZ3076
ST/A110W	1100	1324	600	1	8	2	MZ3488
ST/A120W	1200	1333	600	1	9	2	MZ3489

W - reinforced enclosure

## How to order

The producer reserves the right to introduce technical modifications



\* When platform is used enclosure has no angles serving for fixing enclosure to the pole

## Ordering example:

- Enclosure of pole transformer station switchgear: ST/A60PU1.

## ACCESSORIES

## Busbar bracket

## Dimensions



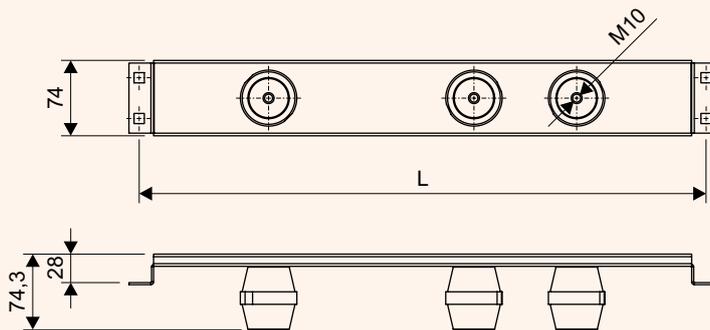
## Reference chart

name	dimensions [mm]		art. no.
	width of the ST/A enclosure (s)	spacing of mounting holes (L)	
busbar bracket	600	552	M1252
	700	652	M1253
	800	752	M420
	900	852	M1254
	1000	952	M1255
	1100	1052	M3985
	1200	1152	M3986

Number of pieces for enclosure: 4

## Busbar bracket with insulators h = 50

## Dimensions



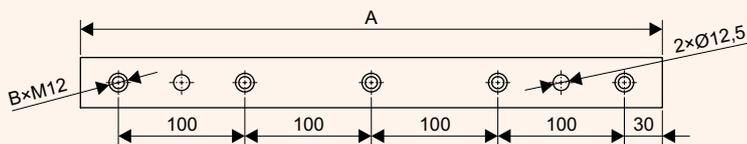
## Reference chart

name	dimensions [mm]		art. no.
	width of the ST/A enclosure (s)	spacing of mounting holes (L)	
busbar bracket with insulators h = 50	600	552	M1256
	700	652	M1257
	800	752	M606
	900	852	M1258
	1000	952	M1259
	1100	1052	M3987
	1200	1152	M3988

Number of pieces for enclosure: 4

## Phase busbars (L1, L2, L3)

## Dimensions



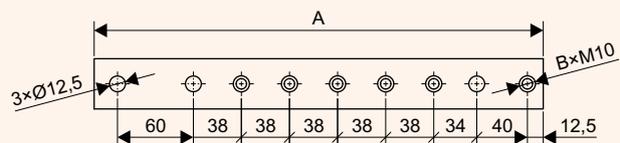
## Reference chart

name	dimensions [mm]			art. no.
	width of the ST/A enclosure (s)	length of the busbar (A)	number of push in nuts (B)	
phase busbar (L1, L2, L3)	600	460	5	M3565
	700	560	6	M3566
	800	660	7	M3567
	900	760	8	M3568
	1000	860	9	M3569
	1100	960	10	M3989
	1200	1060	11	M3990

- cross-section: 40×5 mm
- material: Cu

## Neutral busbar (N)

## Dimensions



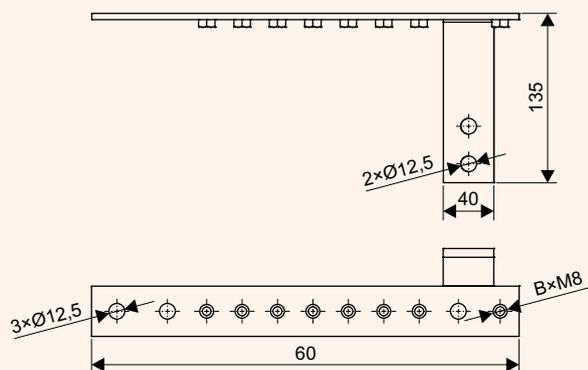
## Reference chart

name	dimensions [mm]		no. of push in nuts (B)	art. no.
	width of the ST/A enclosure (s)	length of the busbar (A)		
neutral busbar (N)	600	355	6	M3570
	700	405	7	M3571
	800	455	8	M3572
	900	505	9	M3573
	1000	555	10	M3574
	1100	605	11	M3991
	1200	655	12	M3992

- cross-section: 40×5 mm
- material: Cu

## Protection busbars (PE)

## Dimensions



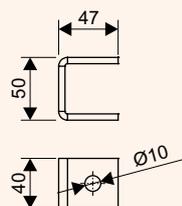
## Reference chart

name	dimensions [mm]		no. of push in nuts (B)	art. no.
	width of the enclosure ST/A(s)	length of the busbar (A)		
protection busbars (PE)	600	238	6	M3575
	700	288	7	M3576
	800	338	8	M3577
	900	388	9	M3578
	1000	438	10	M3579
	1100	488	11	M3993
	1200	538	12	M3994

- cross-section: 40×5 mm
- material: Cu

## Universal bridge

## Dimensions



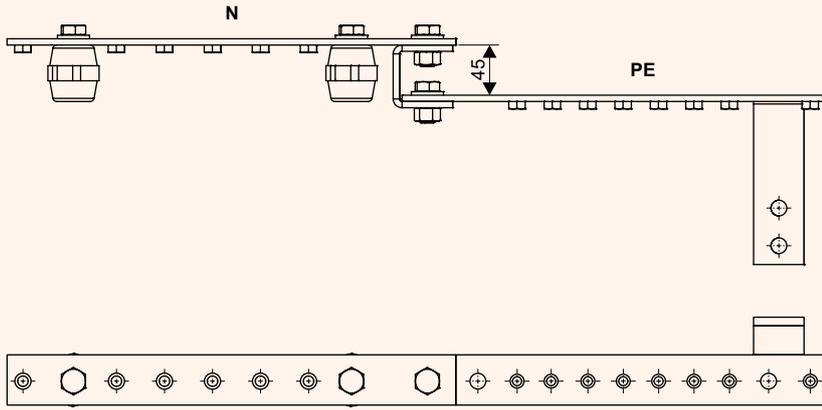
## Type

name	art. no.
universal bridge	M3580

- cross-section: 40×5 mm
- material: Cu

## Busbar unit (N+PE)

## Dimensions

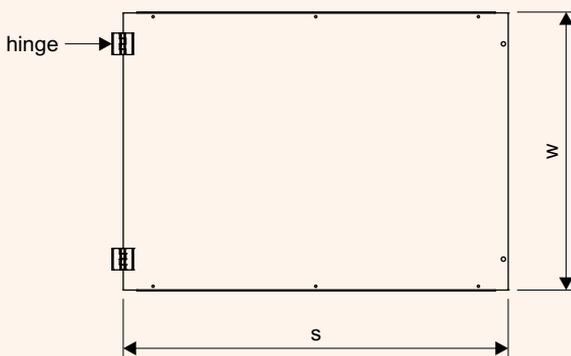


## Reference chart

name	width of the ST/A enclosure (s) [mm]	art. no.	
busbar unit (N+PE)	600	MZ3580	<ul style="list-style-type: none"> <li>• cross section: 40×5 mm</li> <li>• material: Cu</li> </ul>
	700	MZ3581	
	800	MZ3582	
	900	MZ3583	
	1000	MZ3584	
	1100	MZ3995	
	1200	MZ3996	

## Tilting mounting plate (upper)

## Dimensions



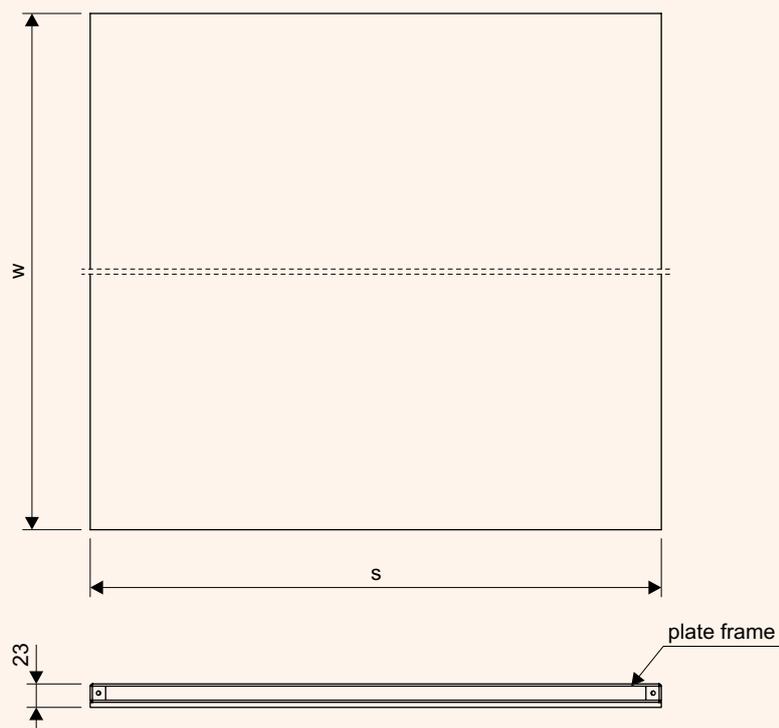
## Reference chart

name	dimensions [mm]		art. no.
	width of the ST/A enclosure (s)	dimensions of mounting plate (s×w)	
tilting mounting plate	600	510×515	MZ2775
	700	610×515	MZ2776
	800	710×515	MZ2777
	900	810×515	MZ2778
	1000	910×515	MZ2779
	1100	910×515	MZ2779
	1200	910×515	MZ2779

The producer reserves the right to introduce technical modifications

## Stable mounting plate (lower)

## Dimensions



## Reference chart

name	dimensions [mm]		art. no.
	width of the ST/A enclosure (s)	dimensions of mounting plate (s×w)	
mounting plate with frame	600	560×515	M1260
	700	660×515	M1261
	800	760×515	M516
	900	860×515	M1262
	1000	960×515	M1263
	1100	960×515	M1263
	1200	960×515	M1263

Number of pieces for enclosure: 2

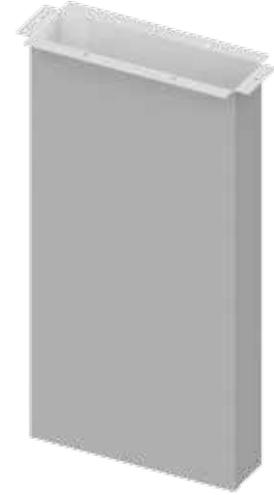
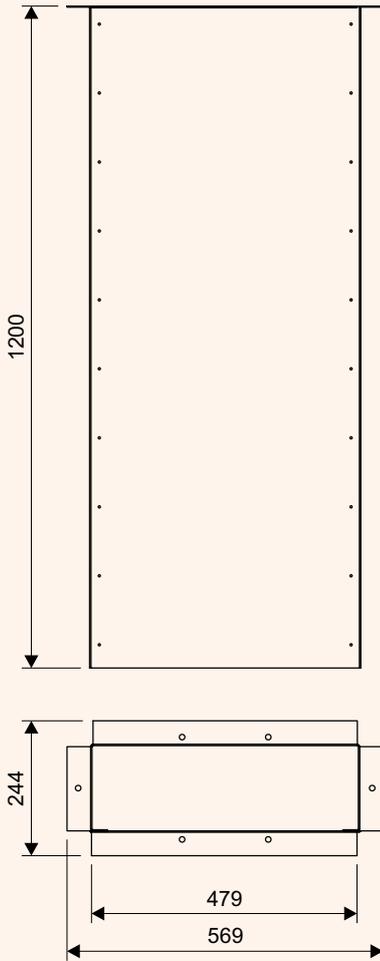
## Lower covers

## Reference chart

type	description	view	art. no.
P	lower cover without pipes		M596
K1	lower cover with one pipe		MZ2196
K4	lower cover with four pipes		MZ278
K6	lower cover with six pipes		MZ937

## Cable channel - C

## Dimensions

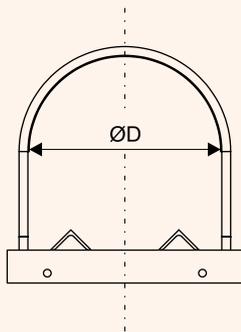


## Reference chart

type	art. no.
C	MZ572

## Pole clamping rings - U1, U2

## Dimensions



## Reference chart

type	$\varnothing D$
U1	350
U2	370

Number of pieces for enclosure: 2

The producer reserves the right to introduce technical modifications

## ST/A enclosure platform - type PD-ST

### Application

- Designed for carrying of ST/A enclosure in case of mounting heavy disconnectors which can cause overloading and deforming of the enclosure. It is used as alternative for direct mounting on the pole.

### Type of installation

- Platform is mounted using two clamping rings to the pole and enclosure is set up and fixed to the platform.

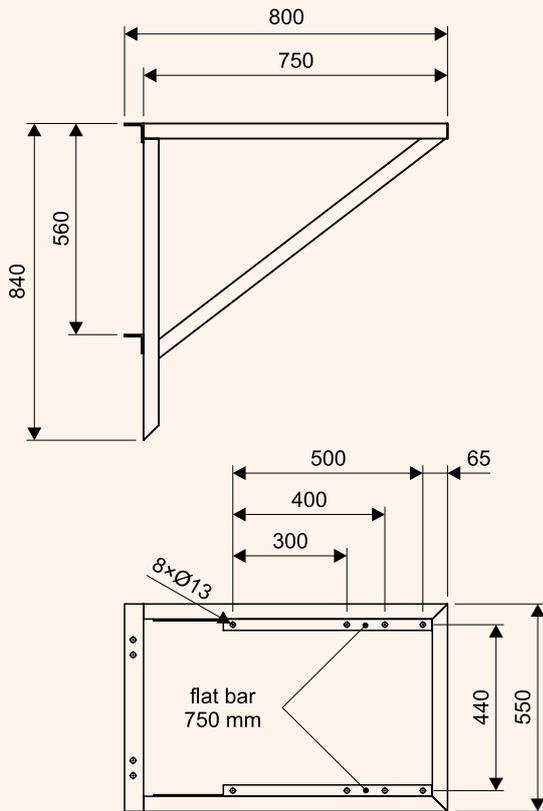
### Design

- Platform is welded from steel angles with dimension 40×40×4 mm and hot-dip zinc plated;
- Side angles with dimension 50×50×5 mm have holes for mounting on pole clamping rings;
- Upper frame of platform has holes for mounting enclosure (holes in enclosure must be drilled).

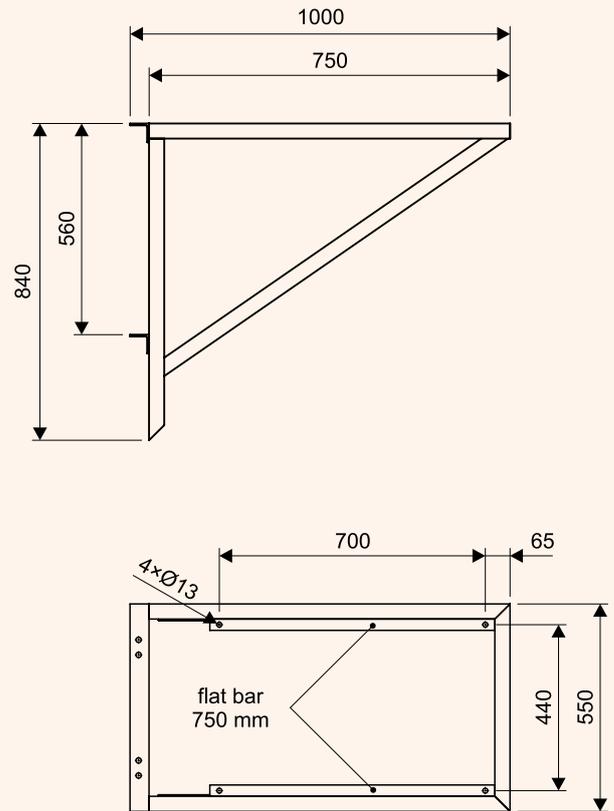


### Dimensions

#### • PD-ST8



#### • PD-ST10



The producer reserves the right to introduce technical modifications

### Reference chart

type	destined for enclosure
PD-ST8	ST/A60 ST/A70 ST/A80 ST/A90
PD-ST10	ST/A100 ST/A110 ST/A120

### How to order

- ST/A enclosure platform: PD-ST8.

### Scope of delivery

- Platform is delivered with set of bolts and screws. (The bolts for mounting platform to the pole are completed in the pole clamping rings).

**Application**

- Switchgears for pole transformer station.

**Type of installation**

- Enclosure is designed to be mounted on the platform.

**Operating conditions**

- Outdoor mounted in industrial environment.

**Design**

- Aluzinc plated steel, thickness 1,5 mm, formed by punching and bending;
- Sheet elements are joined using screws and rivets;
- In the roof are pipes with  $\varnothing 95$  mm and  $\varnothing 75$  mm. They are closed with removable covers. Pipes enable to enter and exit cables for feeding and outflow of circuits and street lighting;
- On the bottom there are holes  $\varnothing 97$  mm (closed by covers) for exit down of outflow cables;
- Enclosure is equipped two two-wings doors, with 3-point closure, locks with D type key;
- Enclosure is equipped with inner mounting C-profiles.

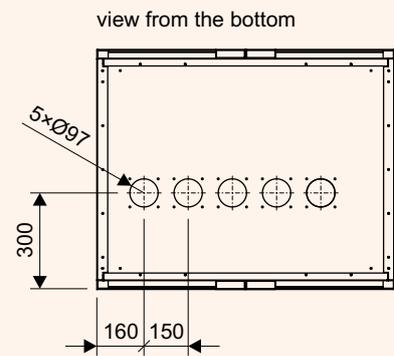
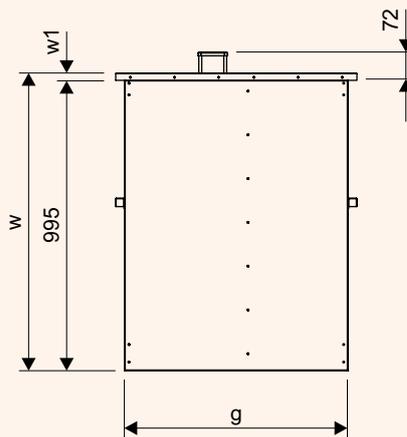
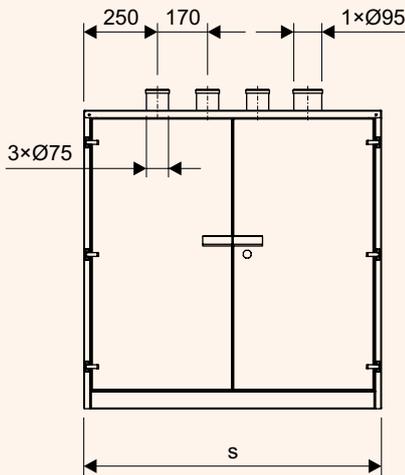


**Technical data**

- Protection class: I;
- Ingress protection degree: IP43;
- Impact protection: IK10.

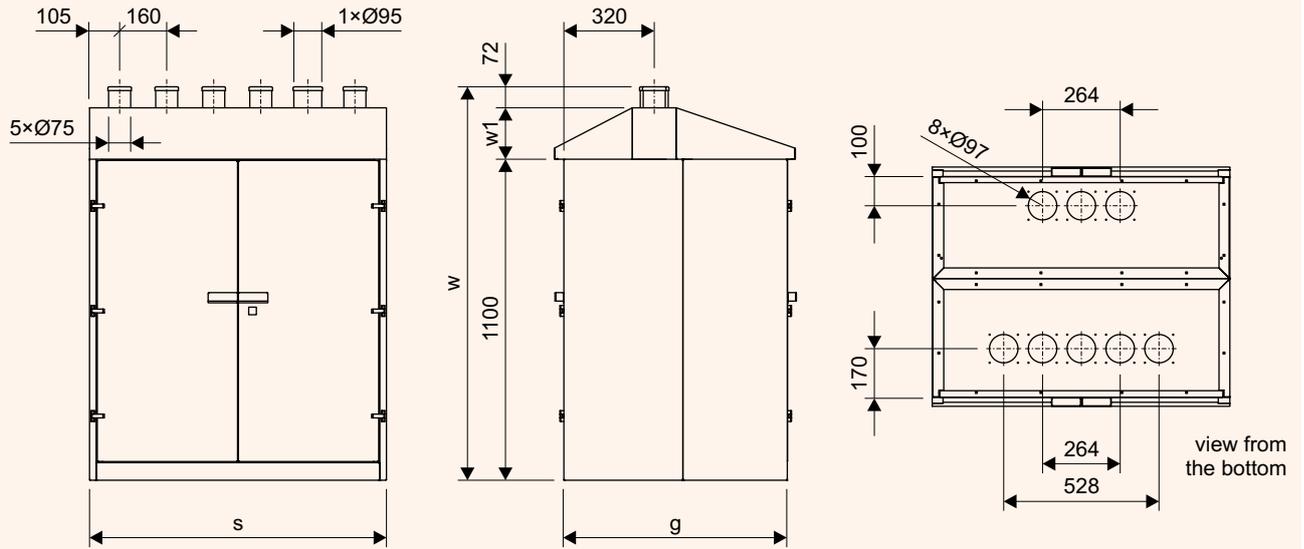
**Dimensions**

- Enclosure with flat roof (RSO 101 102 76)

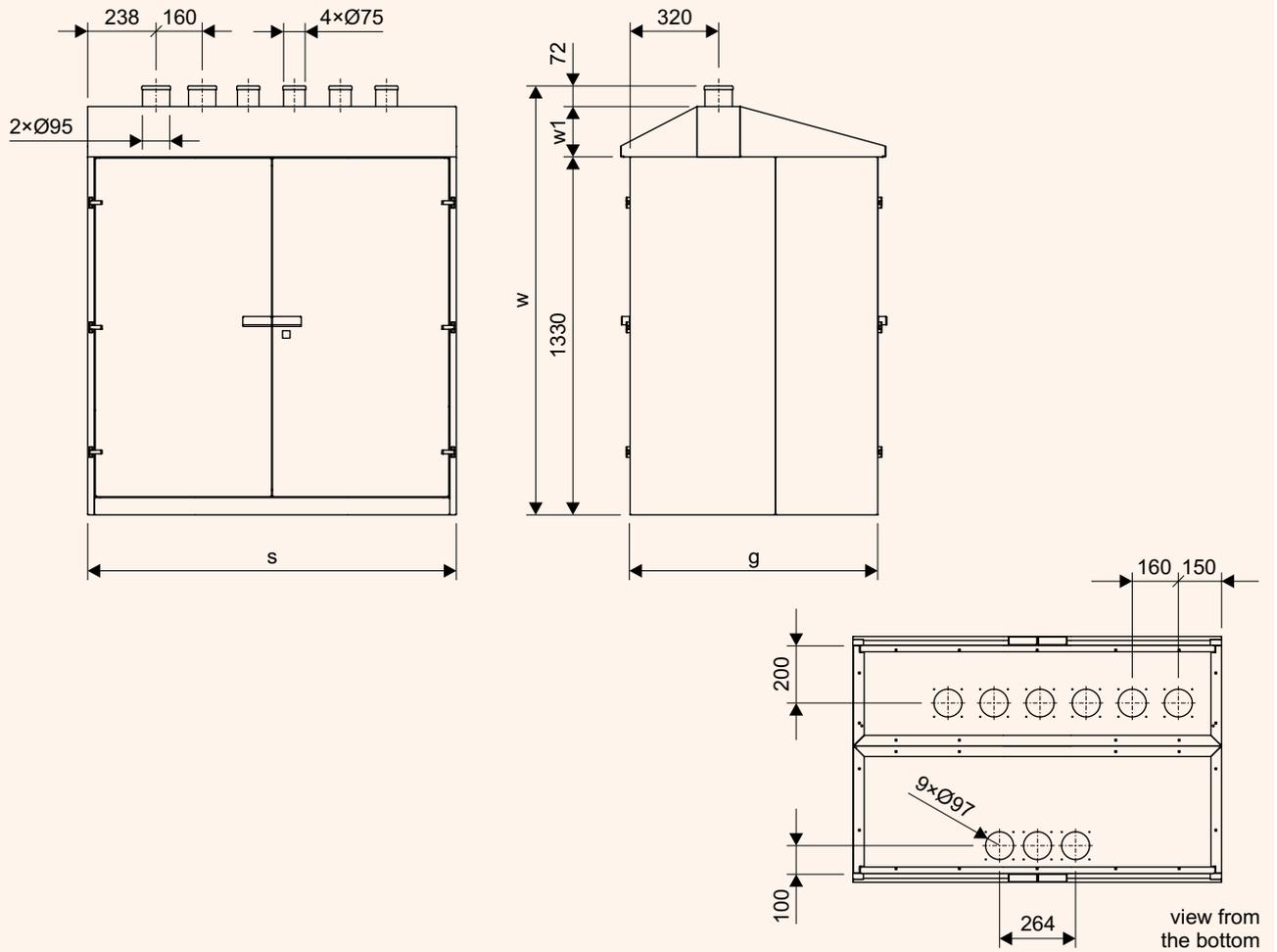


The producer reserves the right to introduce technical modifications

- Enclosure with apex roof (RSO 101 126 76, RSO 101 118 76)



- Enclosure with apex roof (RSO 128 150 86)



The producer reserves the right to introduce technical modifications

**Reference chart**

enclosure type	dimensions [mm]				roof type
	width (s)	height (w)	(w1)	depth (g)	
RSO 101 102 76	1010	1020	25	760	flat
RSO 101 126 76	1010	1260	160	760	apex
RSO 101 11876	1010	1180	80	760	apex
RSO 128 150 86	1280	1500	168	860	apex

**How to order**

- Enclosure of pole transformer station switchgear: RSO 101 118 76.

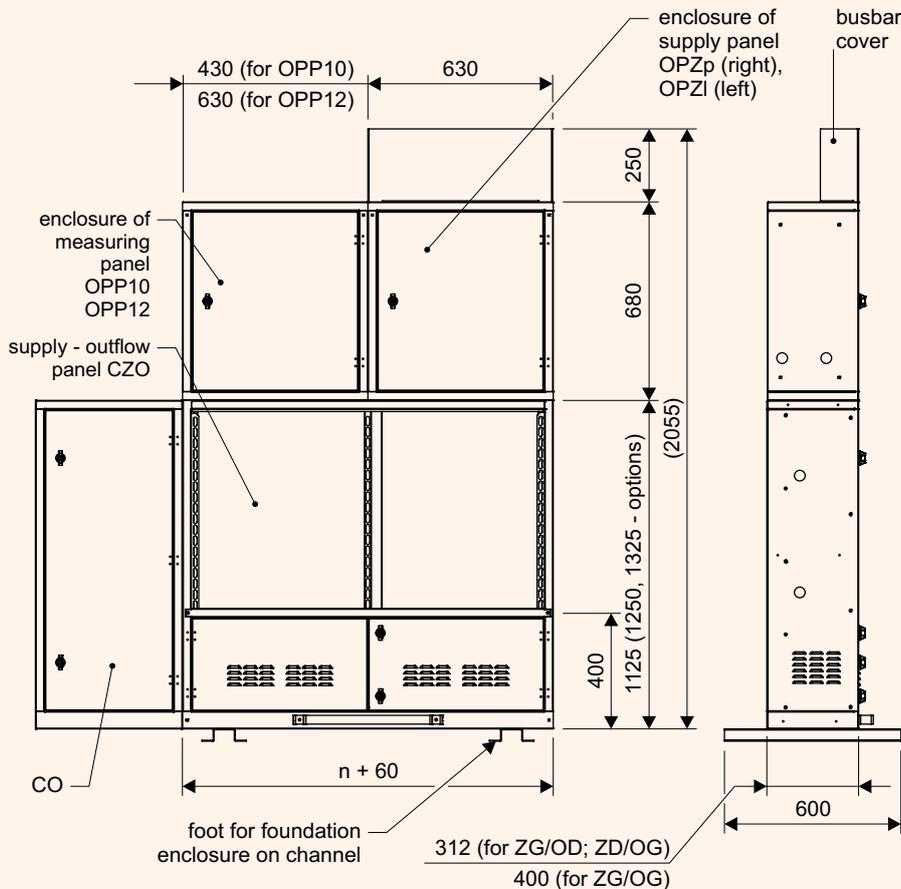
**ACCESSORIES****Lower cover with one pipe****Reference chart**

type	art. no.
cover Ø75 opened	NMZ 1462
cover Ø95 opened	NMZ 1463
cover Ø75 blind	NMZ 1464
cover Ø95 blind	NMZ 1465



**Design**

- Enclosure is made of aluzinc plated steel;
- Sheet elements are joined using screws and rivets.

**Design****Technical data of switchgear in NTw enclosures**

rated operational voltage - $U_n$	230 V / 400 V
rated insulation voltage - $U_i$	690 V
rated frequency	50 Hz
rated impulse withstand voltage	8 kV (1,2 / 50 $\mu$ s)
rated current - $I_n$	1600 A
rated short - time withstand current - $I_{cw}$	25 kA: 1 s - main busbar / 15 kA: 1 s - busbar N, PE
rated peak withstand current - $I_{pk}$	63 kA - main busbar / 37,5 kA - busbar N, PE
cross section of outflow cables	50 - 240 mm <sup>2</sup>
ingress protection degree	IP20 / IP4X
impact protection	IK10
protection class	I
way of installation	directly on cable channel or on foots

**Description of the particular segments of the NTw enclosure****• Supply - outflow panel - CZO**

Equipment:

- two or three vertical perforated profiles for insulators mounting for horizontal busbars,
- on the bottom doors are closed by locks. It covers the place of cable connection to disconnectors and PE + N busbars,
- doors are supported on the top by removable cross-bar.

Dimensions:

- width:  $n + 60$  mm; ( $n$  - number of disconnector, width 100 mm  $n = 5, \dots, 16$ ),
- height: 1250 mm,
- depth: 310 mm or 400 mm.

**• Enclosure of supply panel - OPZ**

- right side of CZO mounted - OPZp,
- left side of CZO mounted - OPZl.

## Equipment:

- on back wall universal bracket for main switch joined to side angles,
- door with lock, punched for switch lever, etc.,
- on the top perforated flat bar for busbar insulators mounting,
- on the top wall hole for busbars entry screened by cover made of transparent PC.

## Dimensions:

- width: 630 mm,
- height: 680 mm,
- depth: 310 mm or 400 mm.

- **Enclosure of measuring panel - OPP10, OPP12, OPP 80 68 (with swinging mounting plate 500×700 mm)**

- right side mounted OPP10p, OPP12p,
- left side mounted OPP10l, OPP12l.

## Equipment:

- perforated side C-profiles and Z-profiles for mounting plate fixing,
- door with lock.

## Dimension OPP10:

- width: 430 mm,
- height: 680 mm,
- depth: 310mm or 400 mm.

Prepared for one counter mounting.

## Dimension OPP12:

- width: 630 mm,
- height: 680 mm,
- depth: 310 or 400 mm.

Prepared for two counters mounting.

- **Enclosure of street lighting panel - CO**

- right side mounted COp,
- left side mounted COl.

## Equipment:

- two perforated vertical angles,
- door with lock.

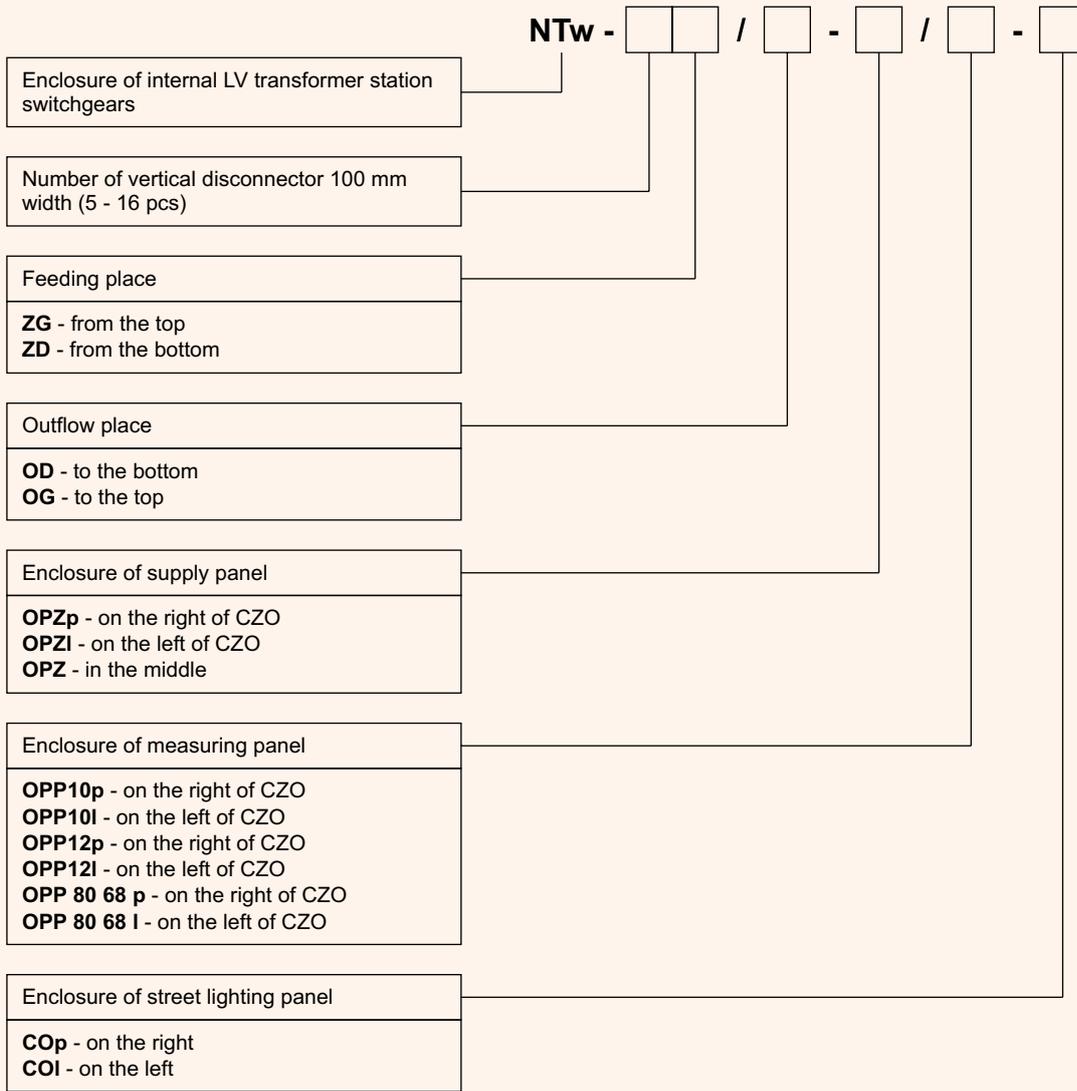
## Dimensions:

- width: 500 mm,
- height: 1125 mm,
- depth: 310 or 400 mm.

### Reference chart

designation	supply	outflow	mea- surement	foot number (of channel)	options				
					CZO	OPZp OPZI	OPP10p OPP10l	OPPIZp OPPIZI	COp COl
NTw - xZG / OD - OPZx / OPPxx	from the top	to the bottom	OPP		x	x	x	x	x
NTw - xZG / OG - OPZx	from the top	to the top	CZO at the front	to 1060 mm width - 2 pcs., over 1060 mm - 3 pcs.	x	x	-	-	x
NTw - xZD / OD - OPPxx	from the top	to the bottom	OPP		x	x	x	x	x

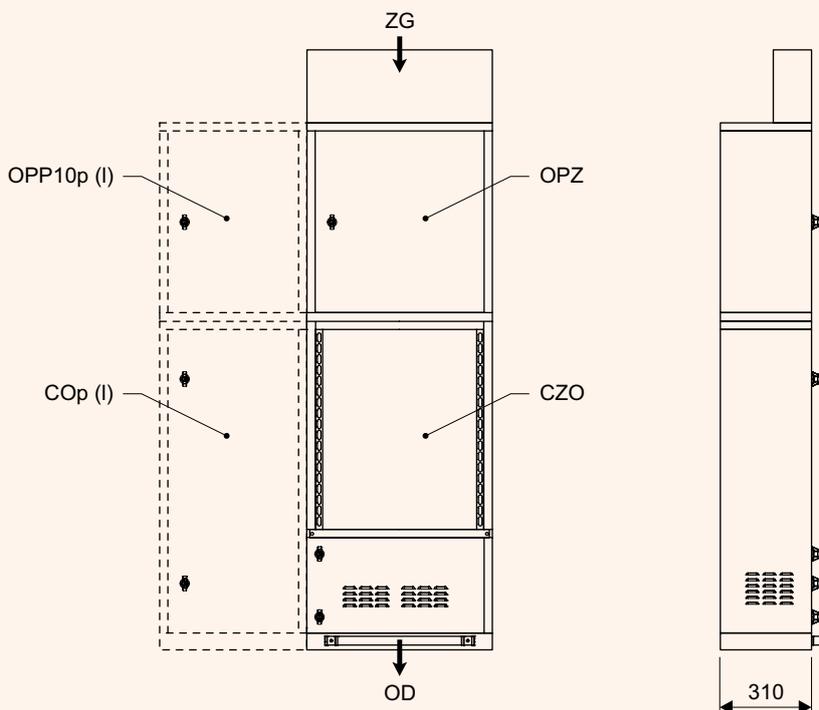
**How to order**



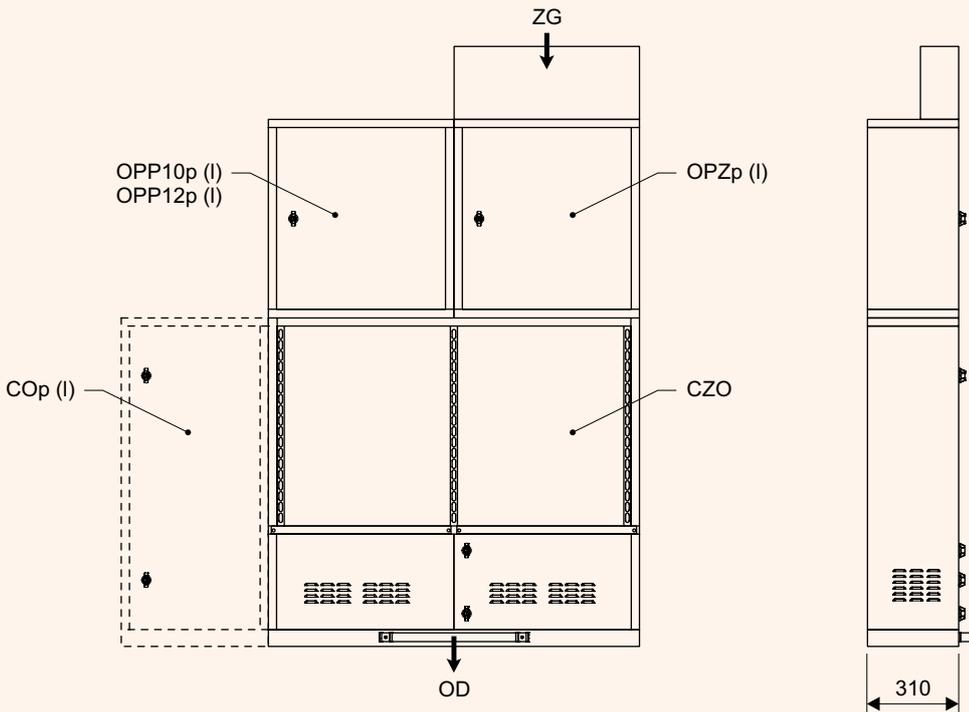
The producer reserves the right to introduce technical modifications

**Example of configurations**

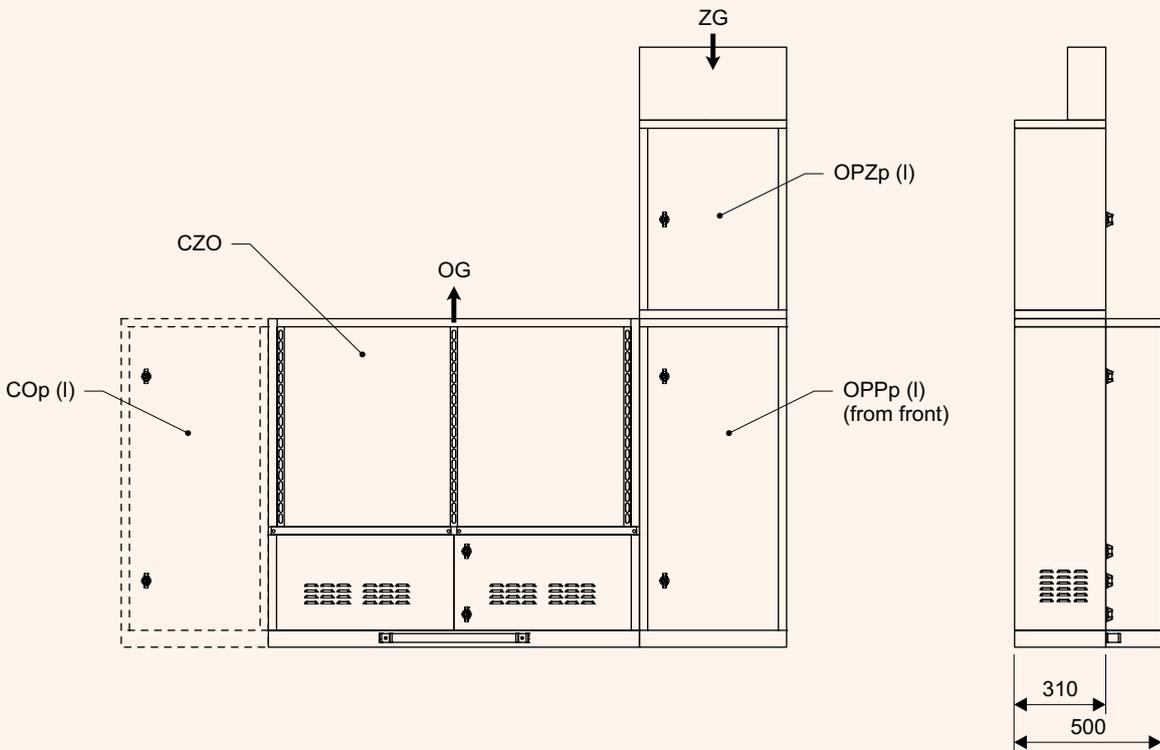
basic version	options
NTw - 5 ZG / OD - OPZ	OPP10p(l) on the right (left) side COp(l) on the right (left) side



basic version	options
NTw - (6÷16) ZG / OD - OPZp(l)	OPP10/12p(l) on the right (left) side COp(l) on the right (left) side

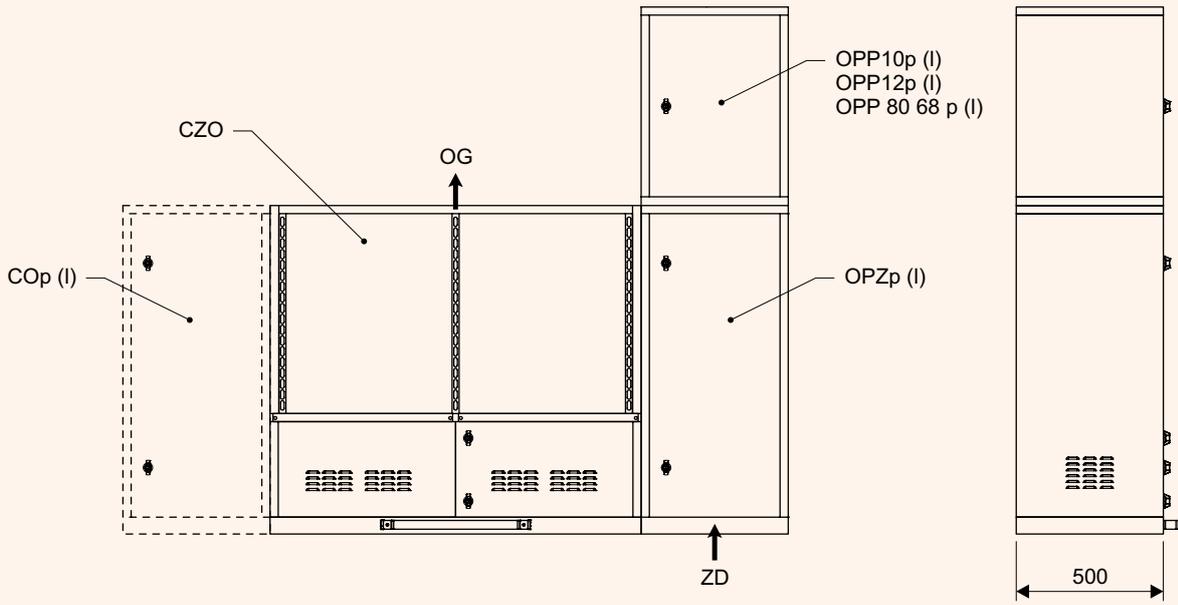


basic version	options
NTw - (6÷16) ZG / OG - OPZp(l)	COp(l) on the right (left) side



The producer reserves the right to introduce technical modifications

basic version	options
NTw - (6+16) ZD / OG - OPZp(l)	OPPIO/12p(l) on the right (left) side COp(l) on the right (left) side



The producer reserves the right to introduce technical modifications

**Application**

- The enclosure is suitable for housing construction site switchgears, as well as the supply of temporary electric installations for entertainment, tourist, trade events and industry.

**Type of installation**

- Enclosure is standing on the ground of construction site.

**Operating conditions**

- Atmospheric conditions in industrial environment.

**Design**

- Aluzinc plated steel, thickness 1,5 mm formed by punching and bending;
- Polyester structural powder painted, colour RAL 7035;
- Painted elements are joined using screws and rivets;
- Nested doors are suspended on concealed hinges, swing handle RS 900 lock, cam and round bars.

**Design of the stand**

- Aluzinc plated steel, thickness 2 mm, formed by punching and bending;
- Polyester structural powder painted, colour Ral 7035;
- Elements are joined using screws and rivets.

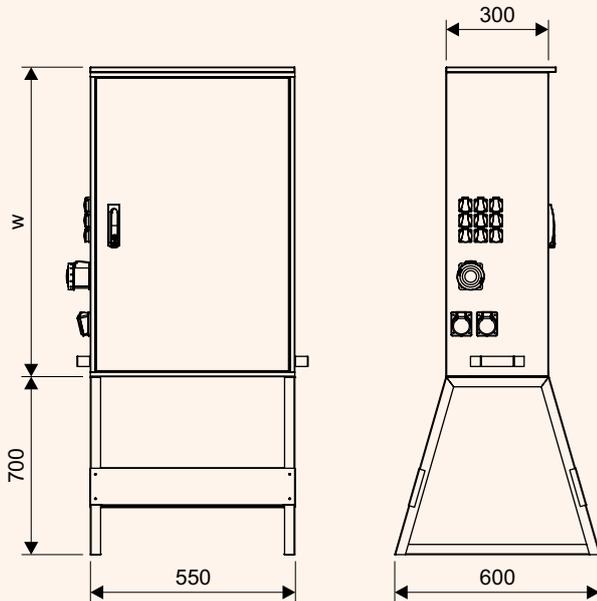
**Enclosure equipment**

- Mounting plate;
- Stand with handles serves to transfer switchgear from place to place.

**Technical data**

- Protection class: I;
- Ingress protection degree: IP43;
- Impact protection: IK10.

**Dimensions**

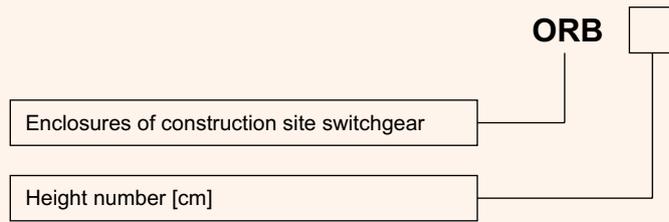


**Reference chart**

type	dimensions [mm]		
	width (s)	height (w)	depth (g)
ORB 55 60 30	550	600	300
ORB 55 80 30	550	800	300



The producer reserves the right to introduce technical modifications

**How to order**

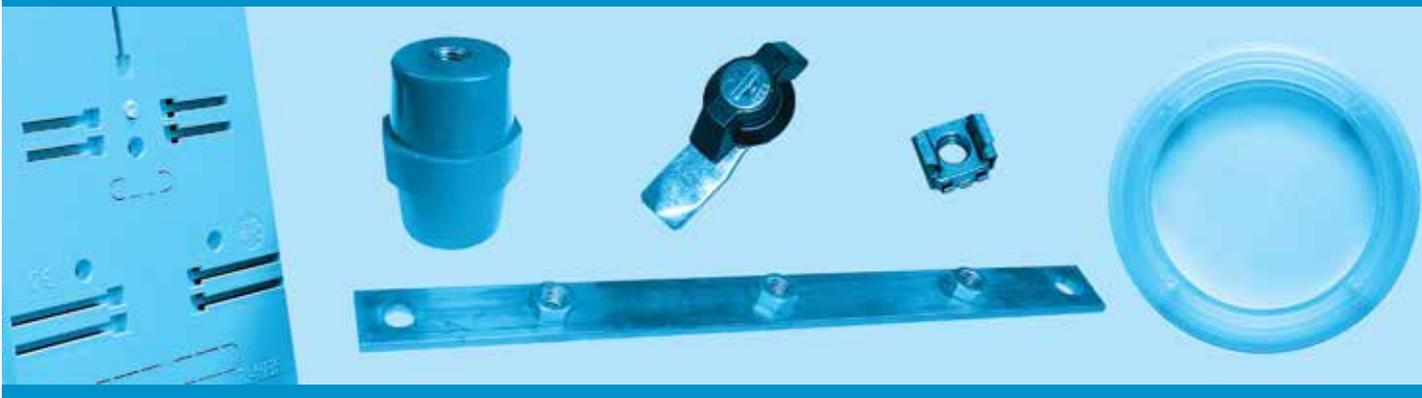
- Ordering example:
  - Enclosure of construction site switchgear type: ORB 600.

**Scope of delivery**

- ORB enclosure with mounting plate;
- Lock insert with key code 1333.



## Universal equipment



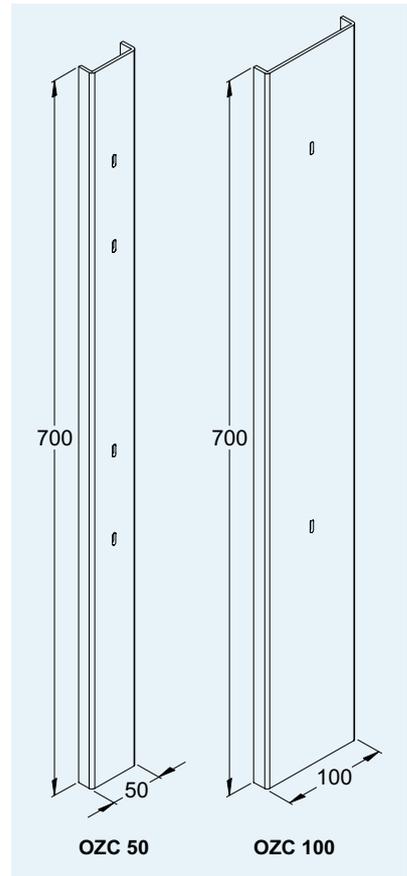
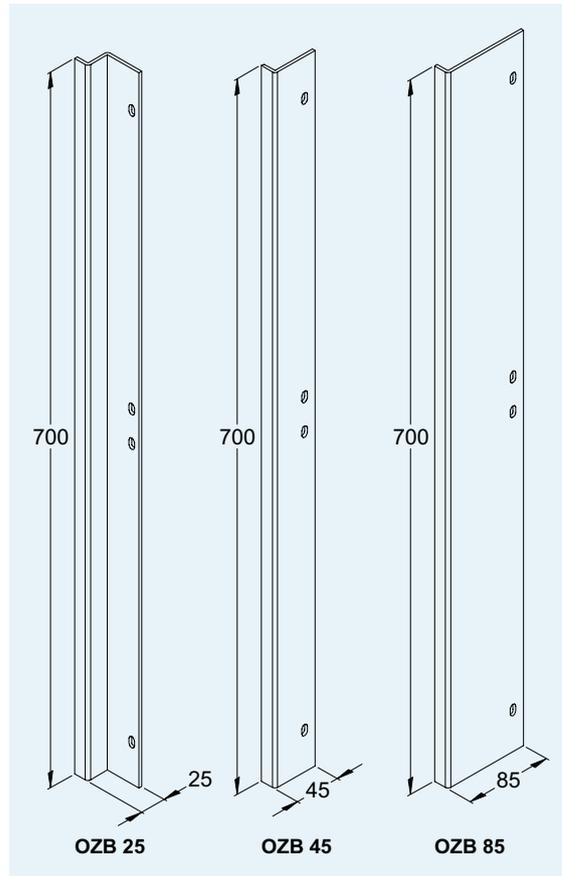
• Side panels

• Central panels



>TP (PC)<

- Material: transparent polycarbonate
- Thickness: 3 mm



type	art. no.
OZB 25	920 2570
OZB 45	920 4570
OZB 85	920 8570
OZC 50	920 5070
OZB 100	920 9070

Universal equipment

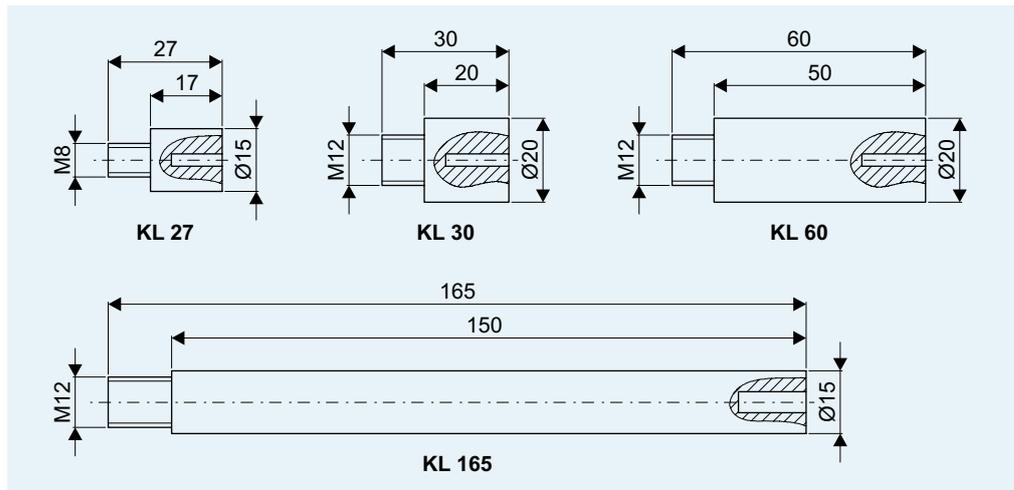
The producer reserves the right to introduce technical modifications

KL Distance pins



>TP (PP 6)<

- Material: polypropylene



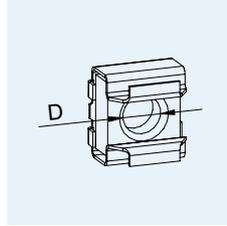
Each pin has a screw

type	art. no.
KL 27	923 2708
KL 30	923 3012
KL 60	923 6012
KL 165	M595

**NKK** Cage nuts



- Material:  
steel zinc plated

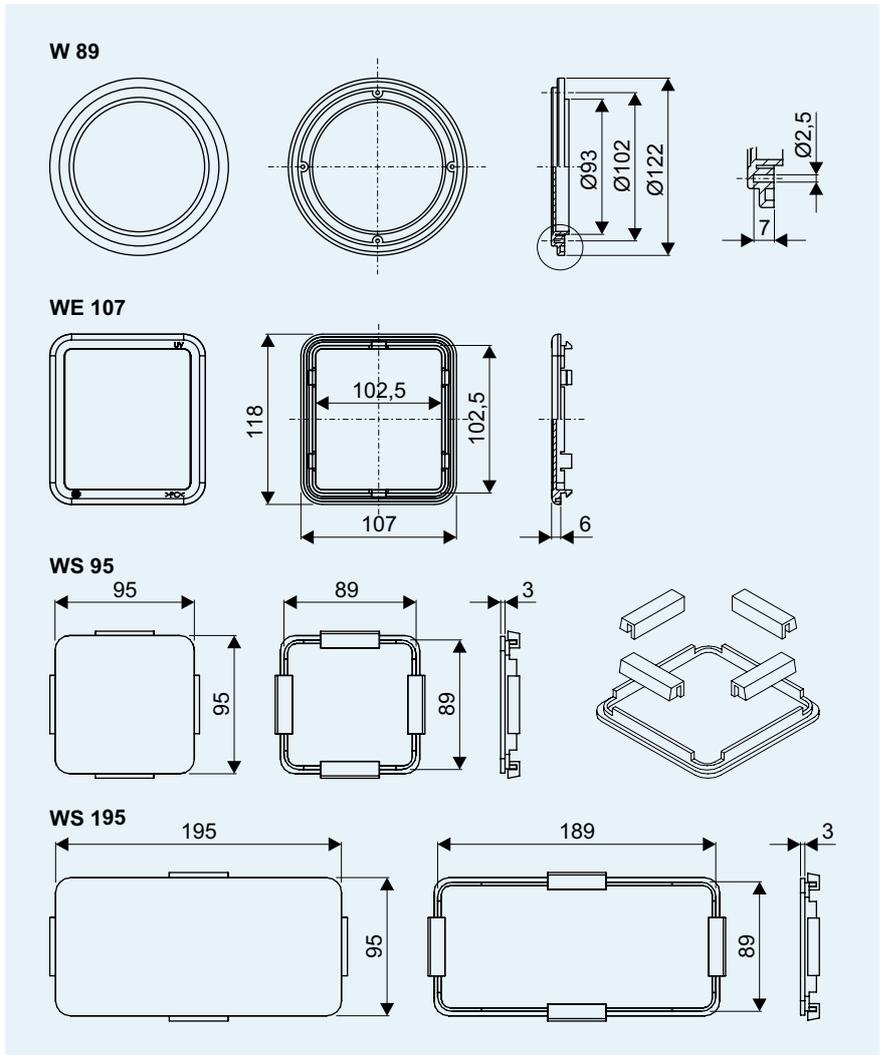


type	D	art. no.
NKK 6	M6	923 2708
NKK 8	M8	923 3012

**W • WE • WS** Sight glasses



The producer reserves the right to introduce technical modifications



>TP (PC)<

- Material:  
transparent polycarbonate

type	art. no.
W 89	907 0006
WE 107	907 1011
WS 95	907 0909
WS 195	907 1919

**LRS** Lacquer for the renovation of metal cabinets standard colour RAL 7035



type	V	art. no.
LRS 400	400	931 0001

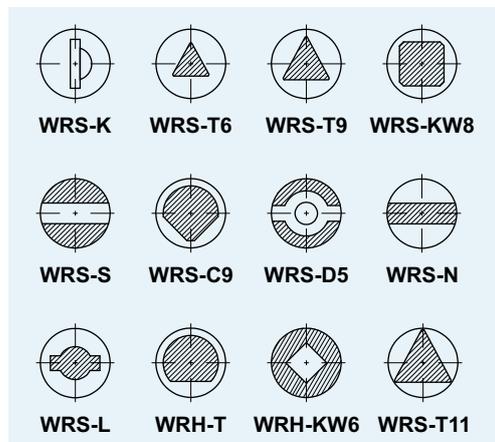
V - Volume (ml)





type	art. no.
RS 400	905 0001
RS 400U	905 0002
RS 420	905 0003
RS 420U	905 0004
RS 900	905 0008-RAL9005
ED 125	905 0006
RW 300	905 0005
CZ1-E1	905 0007
M22	905 0008
M22W	905 0009
PM	905 0010
Z-0233	905 0011
Z-2106	905 0012

WRS • WRH Lock inserts

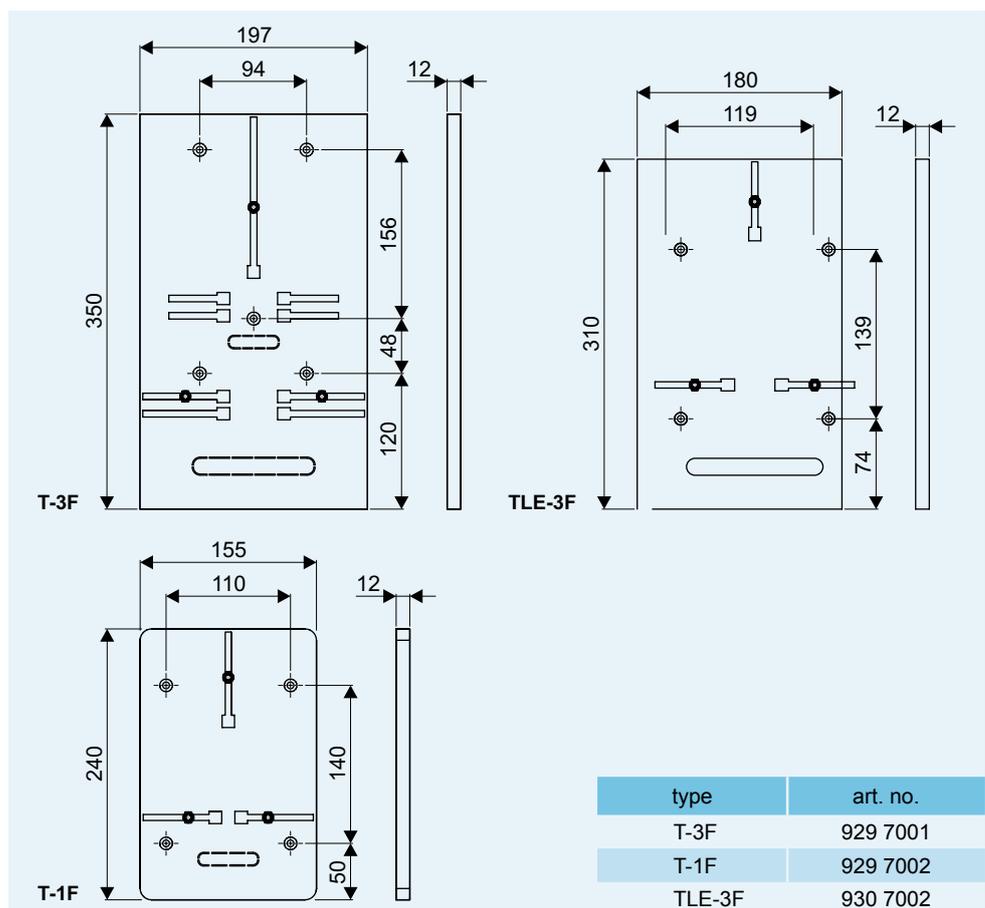


type	art. no.
WRS-K	918 0001
WRS-T6	918 0002
WRS-T9	918 0003
WRS-KW8	918 0004
WRS-S	918 0005
WRS-C9	918 0006
WRS-D5	918 0007
WRS-N	918 0008
WRS-L	918 0009
WRH-T	918 0010
WRH-KW6	918 0011
WRS-T11	918 0012

T • TLE Counter plates



- Material:  
ABS



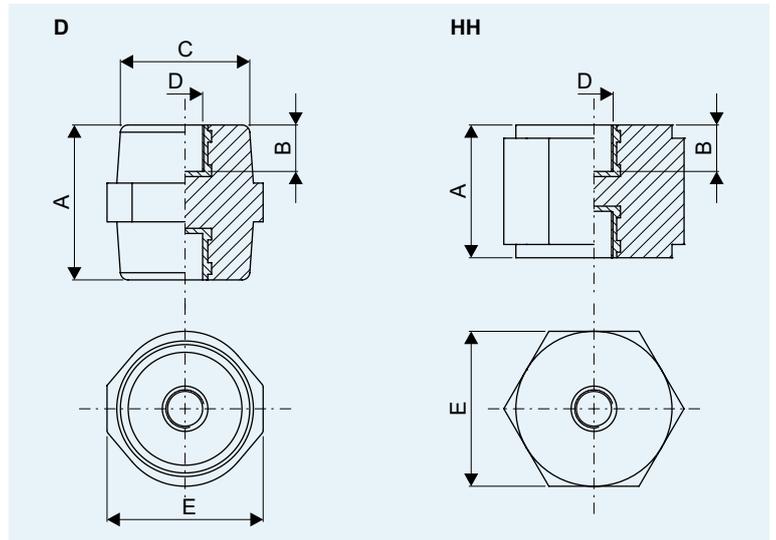
type	art. no.
T-3F	929 7001
T-1F	929 7002
TLE-3F	930 7002

The producer reserves the right to introduce technical modifications



>DP (UP+GF)<

- Material:  
glass-fibre reinforced polyester



type	$U_N$ (AC/DC)	A	B	C	D	E	art. no.
D625	400 / 500	25	7	16	M6	21	929 7003
D630	600 / 750	30	7	25	M6	31	929 7008
D830	600 / 750	30	9	26	M8	33	929 7004
D835	600 / 750	35	9	28	M8	32	929 7005
D1035	600 / 750	35	9	26	M10	32	929 7009
D840	1000 / 1200	40	12	31	M8	39	929 7006
D1040	1000 / 1200	40	12	31	M10	39	929 7010
D1045	1000 / 1200	45	12	32	M10	41	929 7011
D1050	1200 / 1500	50	17	36	M10	48	929 7012
D1250	1200 / 1500	50	17	36	M12	48	929 7013
D851E	1000 / 1200	51	17	27	M8	35	929 7007
D1260	1500 / 1800	60	17	38	M12	52	929 7014
D1065	1500 / 1800	65	22	41	M10	55	929 7015
D1265	1500 / 1800	65	22	41	M12	55	929 7016
35HH830	600 / 750	30	9	-	M8	35	929 7017

$U_n$  - rated voltage

The producer reserves the right to introduce technical modifications

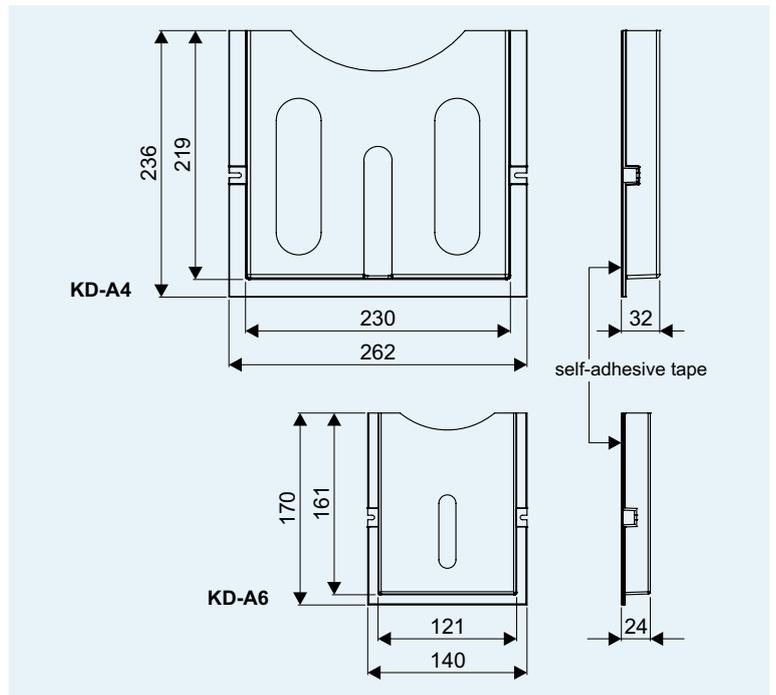
Universal equipment

KD Pocket for documents



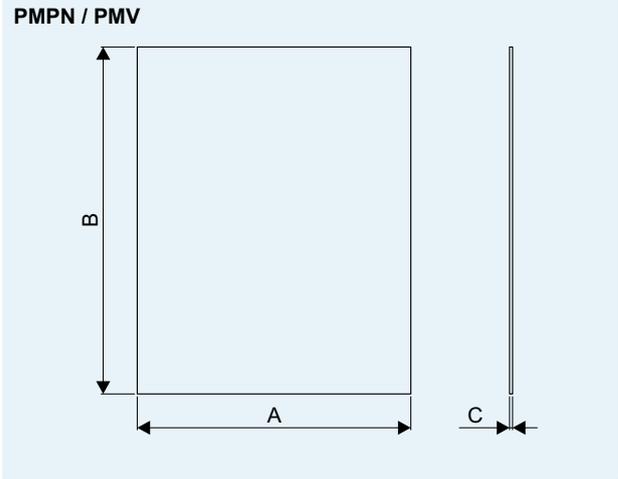
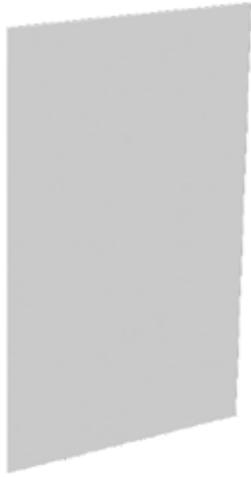
>TP (PA 6)<

- Material:  
polyamide



type	art. no.
KD-A6	919 1417
KD-A4	919 2624





• Mounting plates (PMPN) made of glass fibre reinforced polyester

>DP (UP+GF)<

type	A	B	C	art. no.
PMPN 23×36×4	230	360	4	904 2340
PMPN 23×56×4	230	560	4	904 2540
PMPN 23×76×4	230	760	4	904 2740
PMPN 36×36×4	360	360	4	904 3340
PMPN 36×46×4	360	460	4	904 3440
PMPN 36×56×4	360	560	4	904 3540
PMPN 36×76×4	360	760	4	904 3740
PMPN 49×36×4	490	360	4	904 4340
PMPN 49×56×4	490	560	4	904 4540
PMPN 49×76×4	490	760	4	904 4740
PMPN 62×36×4	620	360	4	904 6340
PMPN 62×56×4	620	560	4	904 6540
PMPN 62×76×5	620	760	5	904 6750
PMPN 76×46×4	760	460	4	904 7440
PMPN 76×56×4	760	560	4	904 7540
PMPN 76×75,5×5	760	755	5	904 7750
PMPN 102×36×5	1020	360	5	904 9350
PMPN 102×56×5	1020	560	5	904 9550
PMPN 102×75,5×5	1020	755	5	904 9750

The producer reserves the right to introduce technical modifications

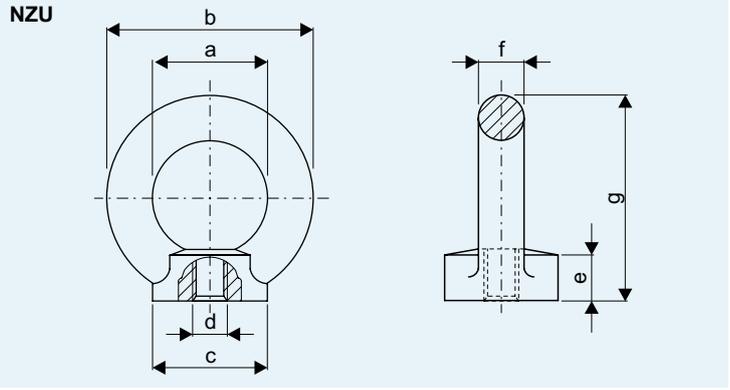
• Mounting plates (PMV) made of PVC

>TP (PVC)<

type	A	B	C	art. no.
PMV 23×36×3	230	360	3	M790
PMV 23×56×3	230	560	3	M791
PMV 23×76×3	230	760	3	M792
PMV 36×36×3	360	360	3	M794
PMV 36×46×3	360	460	3	M795
PMV 36×56×3	360	560	3	M796
PMV 36×76×3	360	760	3	M797
PMV 49×36×5	490	360	5	M798
PMV 49×56×5	490	560	5	M799
PMV 49×76×6	490	760	6	M800
PMV 62×36×5	620	360	5	M801
PMV 62×56×5	620	560	5	M802
PMV 62×76×6	620	760	6	M803
PMV 76×36×5	760	360	5	M804
PMV 76×46×5	760	460	5	M805
PMV 76×56×6	760	560	6	M806
PMV 76×75,5×6	760	755	6	M807
PMV 102×36×6	1020	360	6	M2855
PMV 102×56×6	1020	560	6	M2856
PMV 102×75,5×6	1020	755	6	M2857



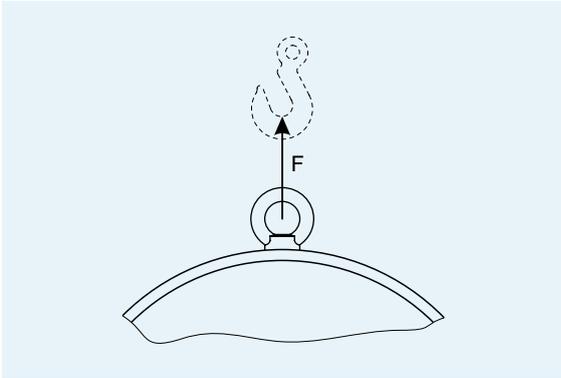
- Material:  
steel zinc plated



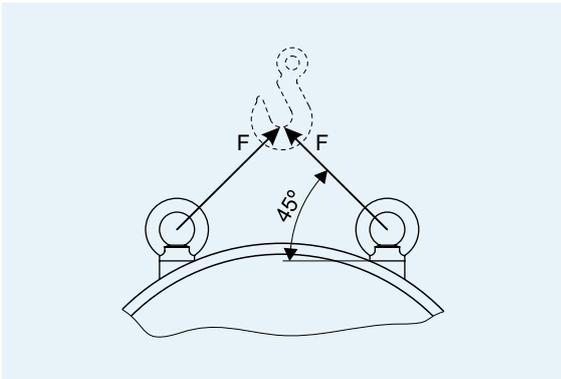
type	d	a	b	c	e	f	g
NZU-6	M6	20	36	20	8,5	8	36
NZU-8	M8	20	36	20	8,5	8	36
NZU-10	M10	25	45	25	10	10	45
NZU-12	M12	30	54	30	11	12	53
NZU-14	M14	30	54	30	11	12	53
NZU-16	M16	35	63	35	13	14	62

• Permissible load

The producer reserves the right to introduce technical modifications



d [mm]	permissible load (45°) [kg]
M6	60,0
M8	95,0
M10	170,0
M12	240,0
M14	350,0
M16	500,0



d [mm]	permissible load (90°) [kg]
M6	90,0
M8	140,0
M10	230,0
M12	340,0
M14	500,0
M16	700,0

• Application

enclosure type	application
OWW	NZU-10
SR	NZU-10
NTw	NZU-12

• How to order

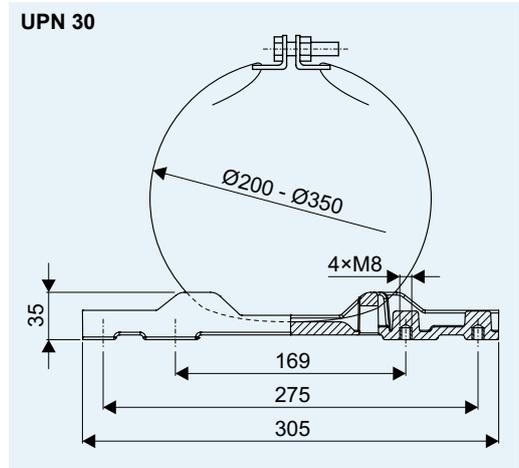
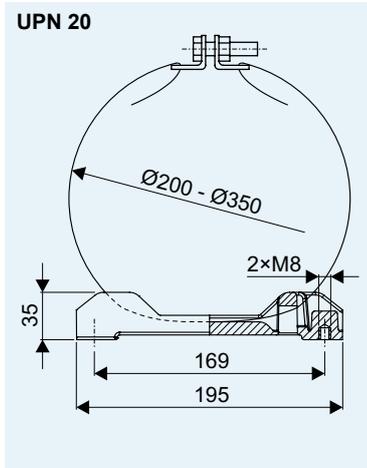
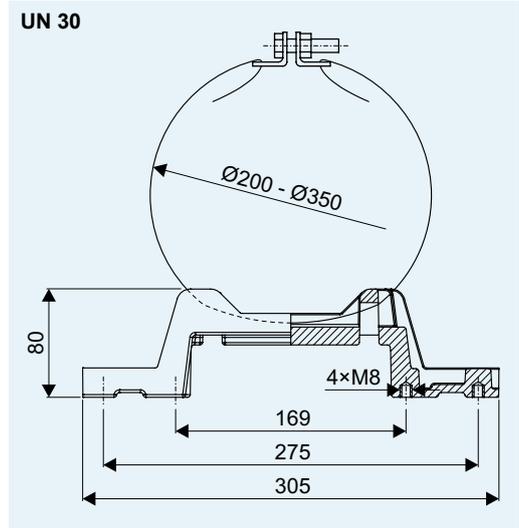
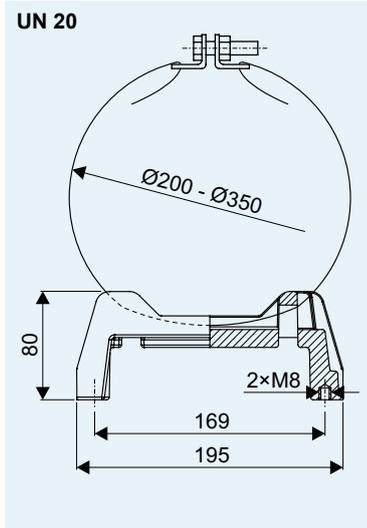
- Lifting ring NZU-12

• Grips (set)



>DP (UP+GF)<

- Material:  
grip: glass-fibre reinforced polyester,  
bend: stainless steel,  
angles + bolts: steel zinc plated.



type	art. no.
UN 20	912 0021
UN 30	912 0031
UPN 20	912 0020
UPN 30	912 0030

The producer reserves the right to introduce technical modifications

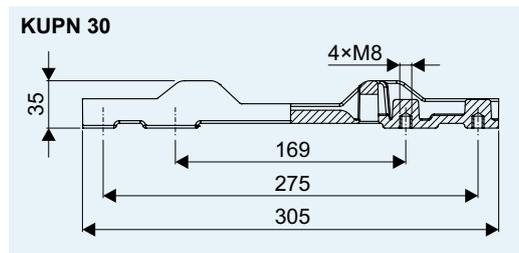
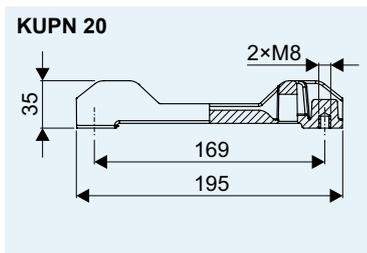
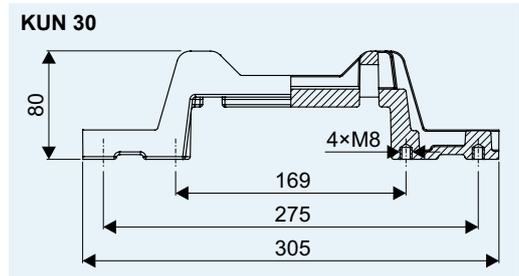
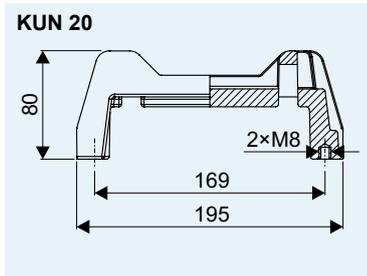
Universal equipment

• Grips (body)



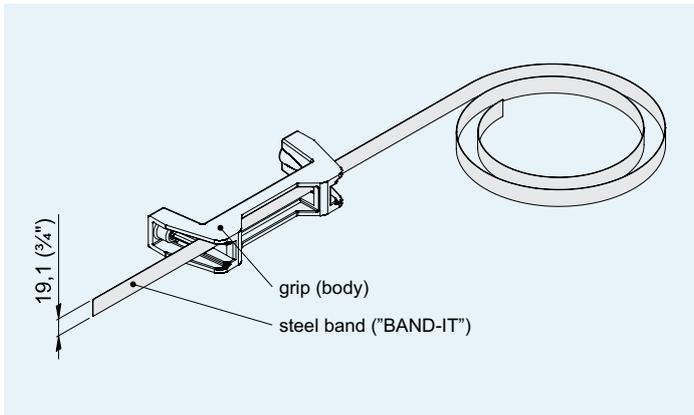
>DP (UP+GF)<

- Material:  
glass-fibre reinforced polyester



type	art. no.
UN 20	912 0021
UN 30	912 0031
UPN 20	912 0020
UPN 30	912 0030

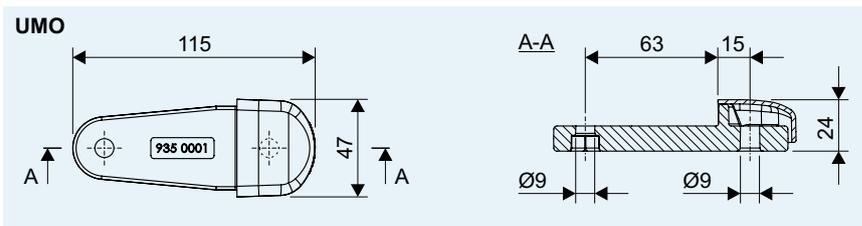
NOTE: In order to compose the grip, a band made of steel sheet (see page 139) must also be used.



**UMO** Enclosure holder



>TP (PA)<



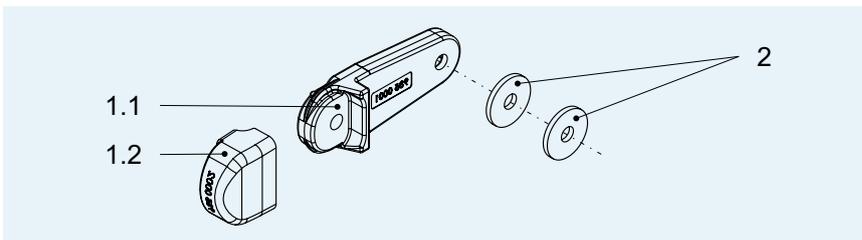
type	art. no.
UMO	935 0099

**Application**

Holders type UMO are designed for enclosure installation on wall or other flat surfaces (machine body, different objects elements).

**Design**

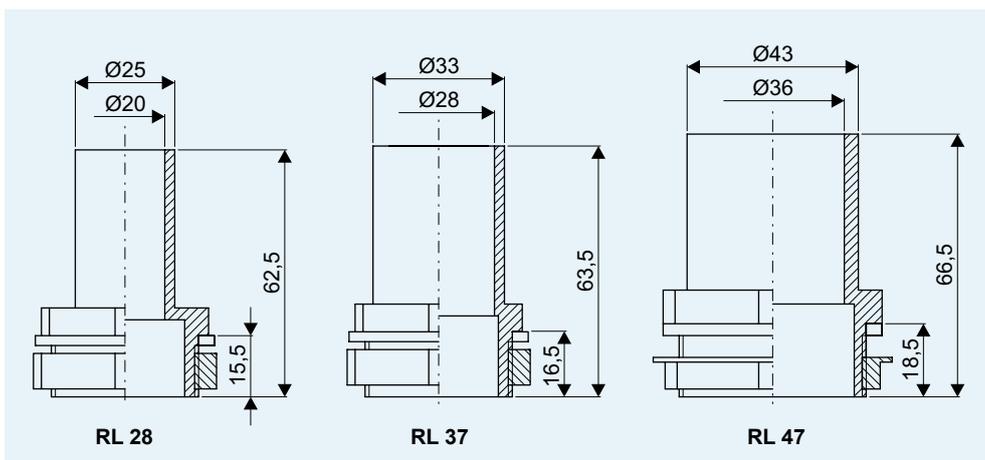
UMO - the set - consists of two components: the body (1.1) and hole plug (1.2), both of which are made of thermoplastic material (PA), additionally with two special washers M8x30 PVC (2).



**RL** Glands



>TP (PS)<



type	art. no.
RL 28	911 2800
RL 37	911 3700
RL 47	911 4700

- Material:  
polystyrene

The producer reserves the right to introduce technical modifications

Universal equipment



>DP (JP+GF)<

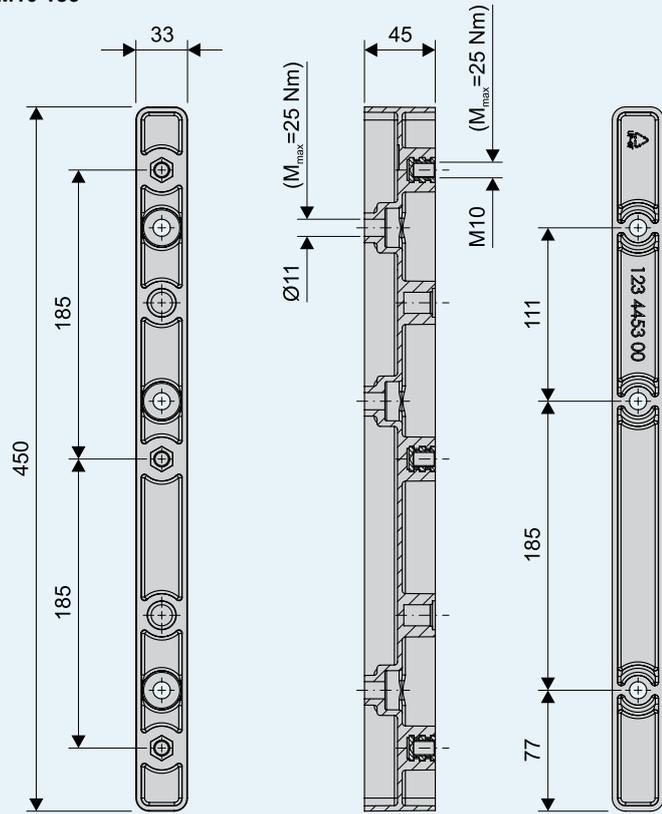
• Design

Busbar assembly can be mounted with a spacing of 60, 100, 185 mm. The body is made of insulation plastic (glass fiber reinforced polyester), where has embedded M10 screw threads (maximum torque: 25 Nm).

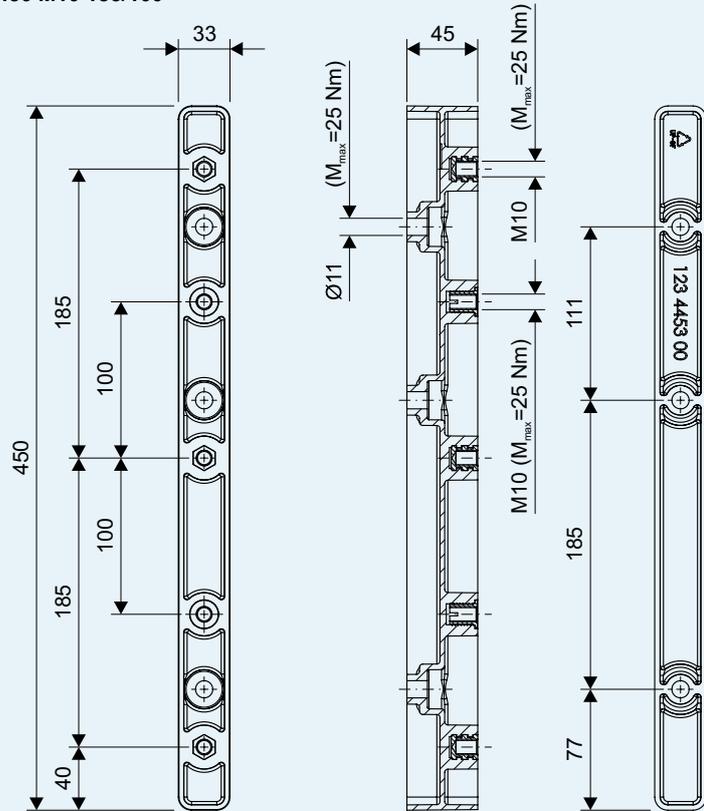
• Basic parameters

- flammability category: V0,
- tracking resistance: CTI 600,
- resistance to heat: 960°C.

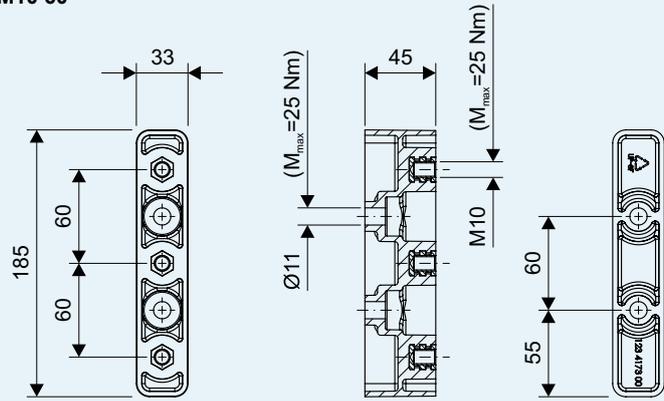
WT 45×450 M10 185



WT 45×450 M10 185/100



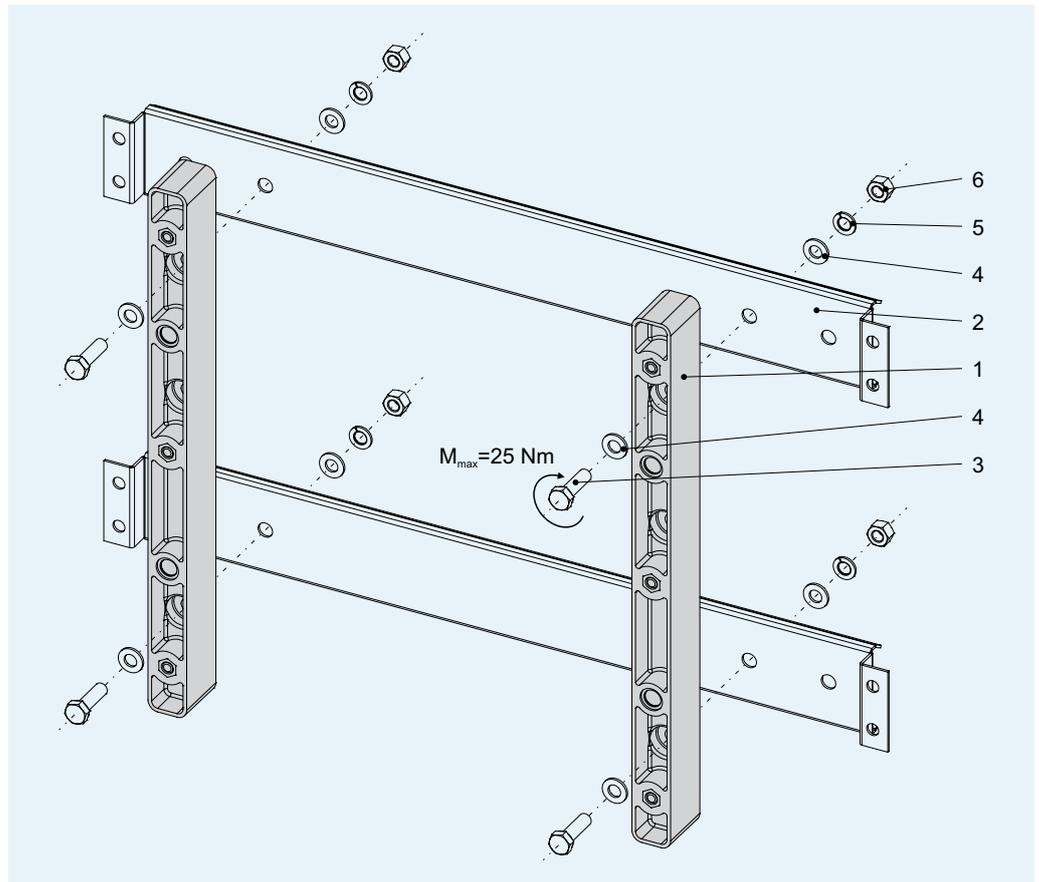
## WT 45×170 M10 60



type	art. no.
WT 45×450 M10 185	123 4453 00
WT 45×450 M10 185/100	123 4453 01
WT 45×170 M10 60	123 4173 00

## INSTALLATION AND USE

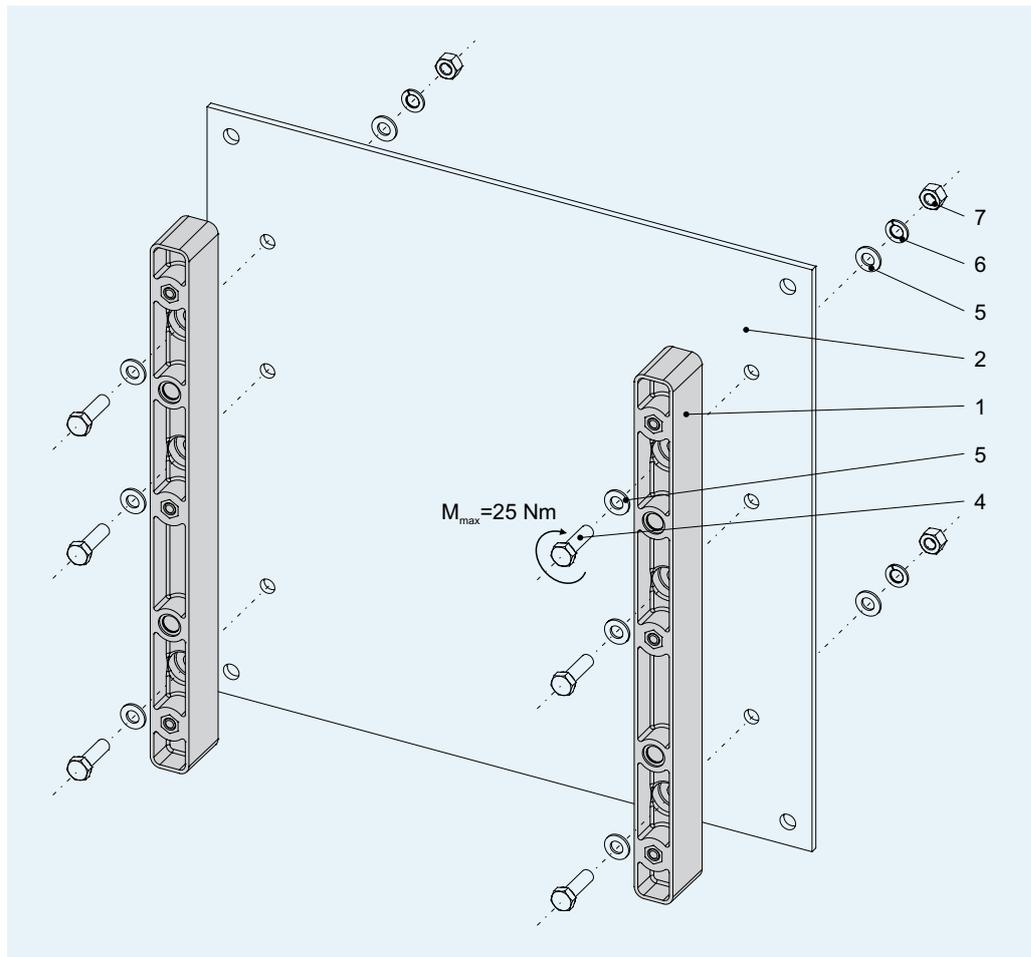
- Installation to steel busbar bracket



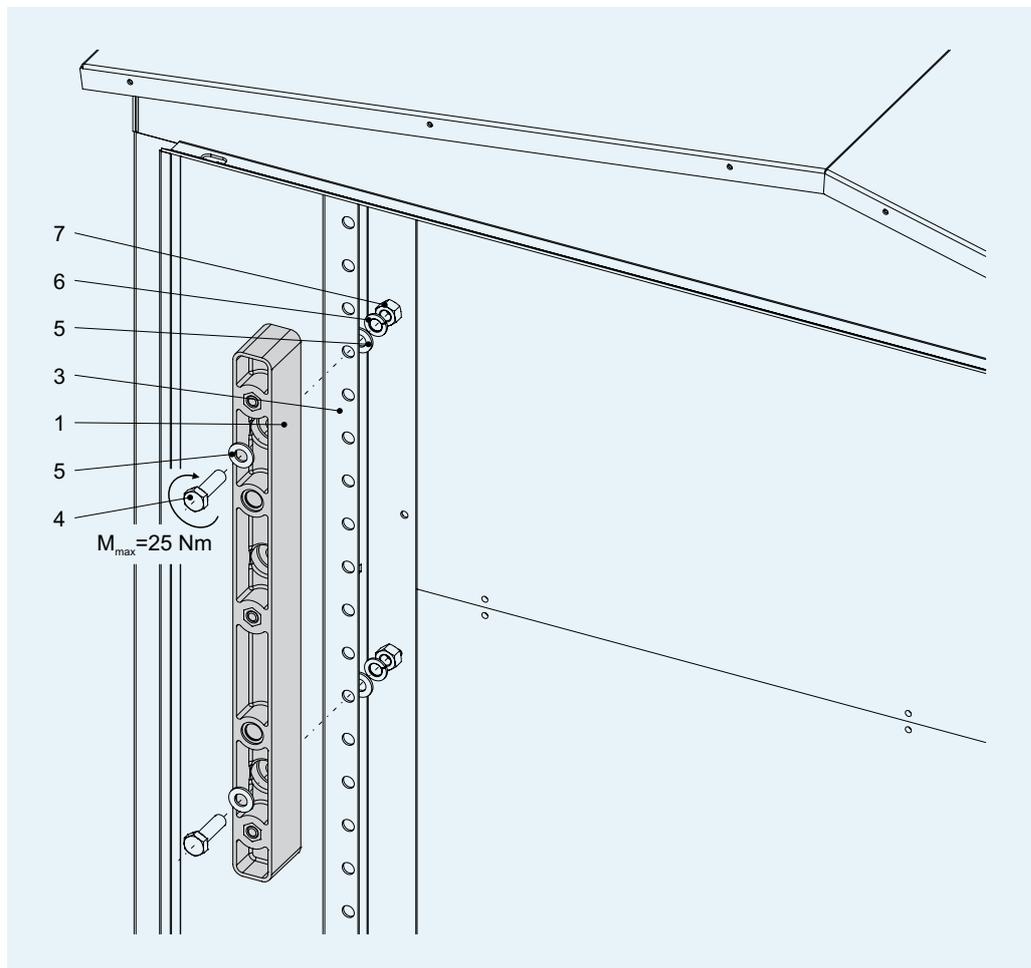
1. support WT
2. steel busbar bracket  
(an equipment item of enclosures ST/A type)
3. bolt M10×35 (8,8) – DIN 933, ISO 4017
4. washer M10 – DIN 125A, ISO 7089
5. spring washer – DIN 127
6. nut M10 – DIN 934, ISO 4034

The producer reserves the right to introduce technical modifications

- Installation to mounting plate



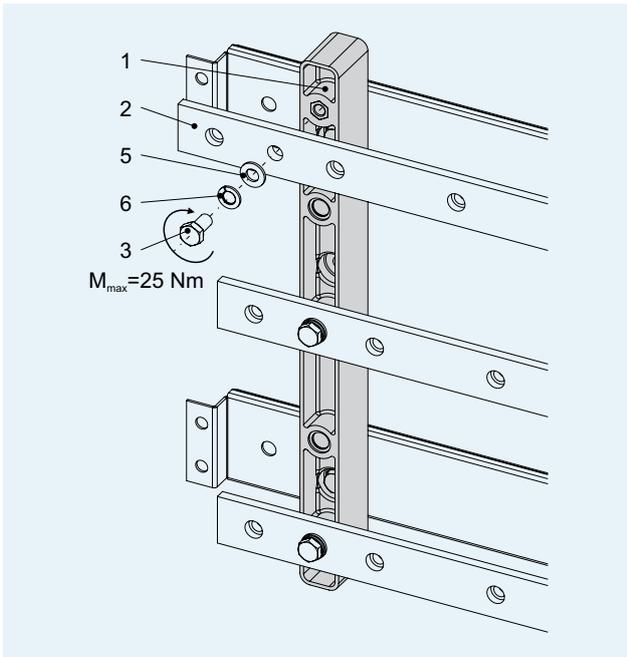
- Installation to element of cabinet construction



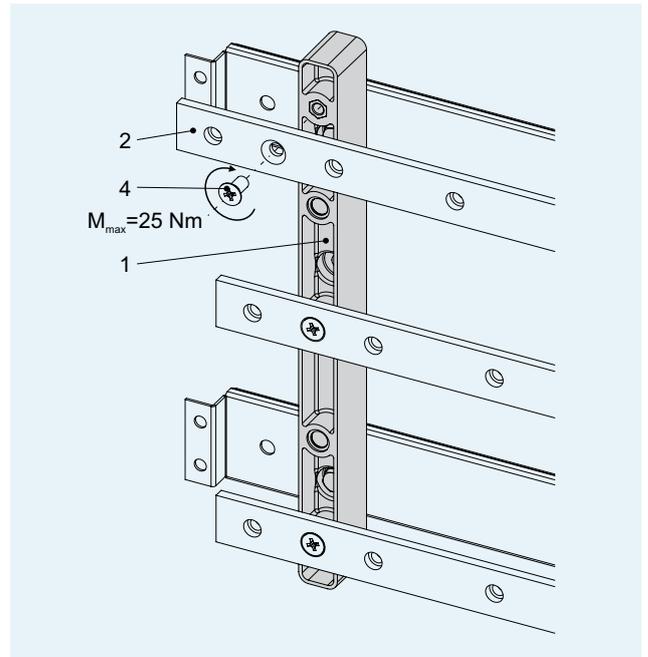
1. support WT
2. mounting plate
3. side C-profile (cabinet construction element)
4. bolt M10×35 (8,8) – DIN 933, ISO 4017
5. washer M10 – DIN 125A, ISO 7089
6. spring washer – DIN 127
7. nut M10 – DIN 934, ISO 4034

The producer reserves the right to introduce technical modifications

• Mounting busbar to the supports WT



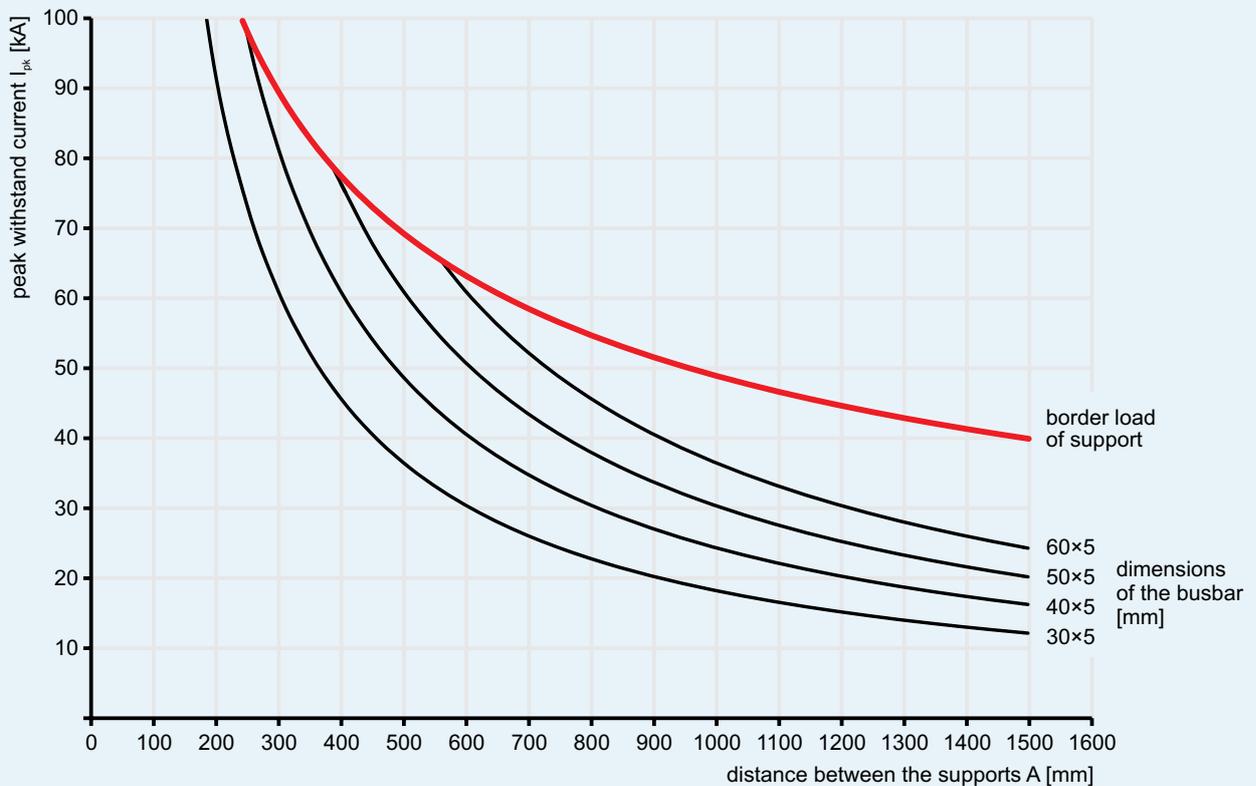
• Mounting busbar to the supports WT (countersunk head bolts)



1. support WT
2. busbar
3. bolt M10×20 (8,8) – DIN 933, ISO 4017
4. countersunk head bolt M10×16 (8,8) – DIN 965, ISO 7046
5. washer M10 – DIN 125A, ISO 7089
6. spring washer – DIN 127

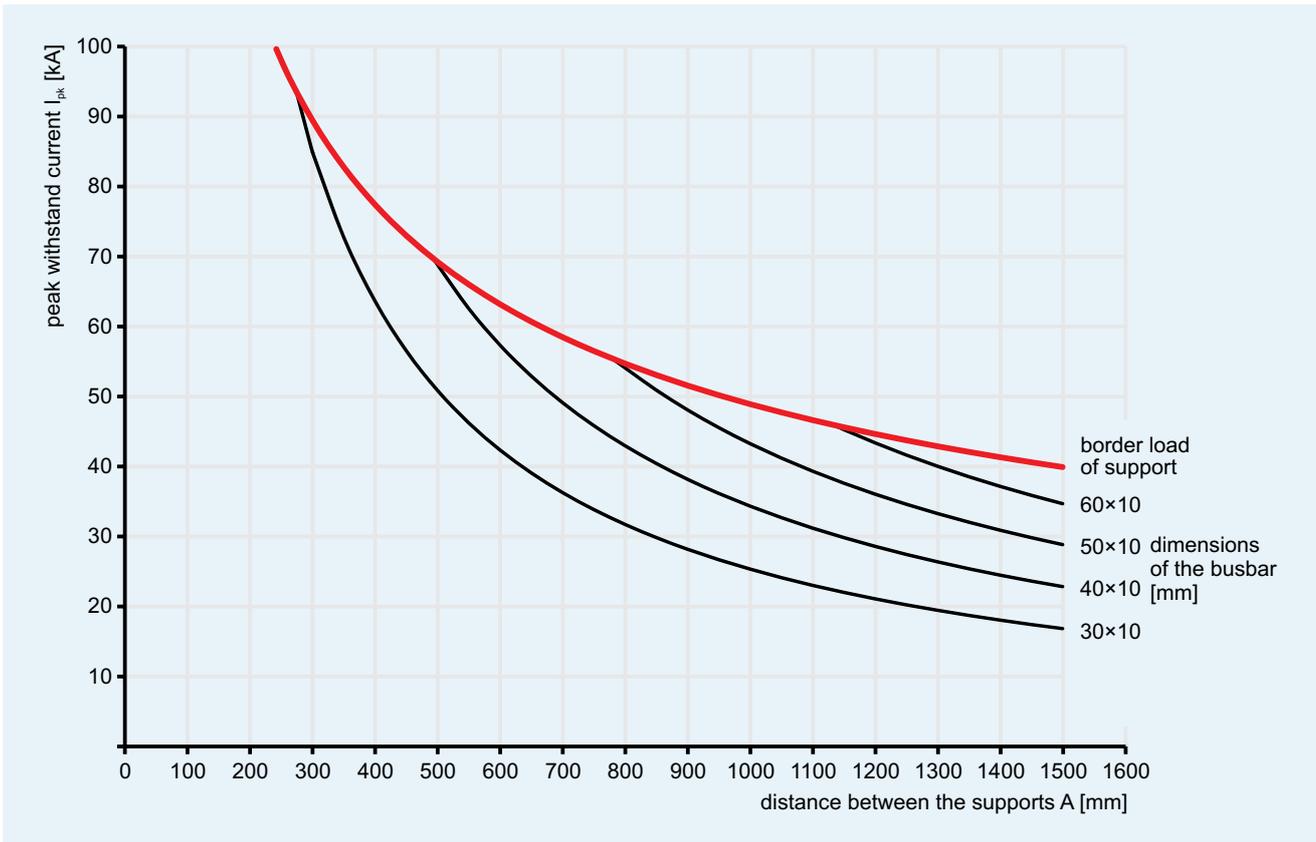
**TECHNICAL PARAMETERS**

- Short-circuit resistance for busbars thickness 5 mm depending on the distance between the supports (busbar spacing 100 mm).

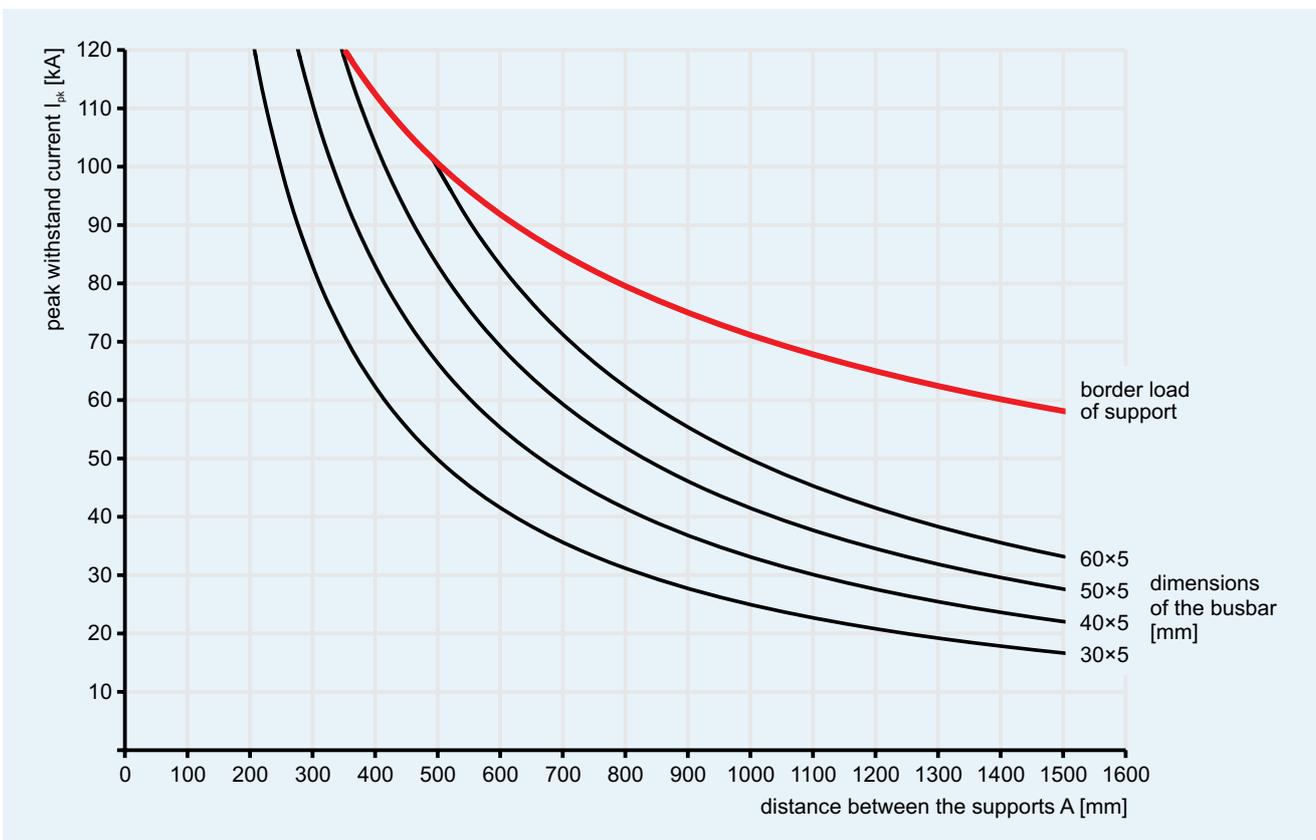


The producer reserves the right to introduce technical modifications

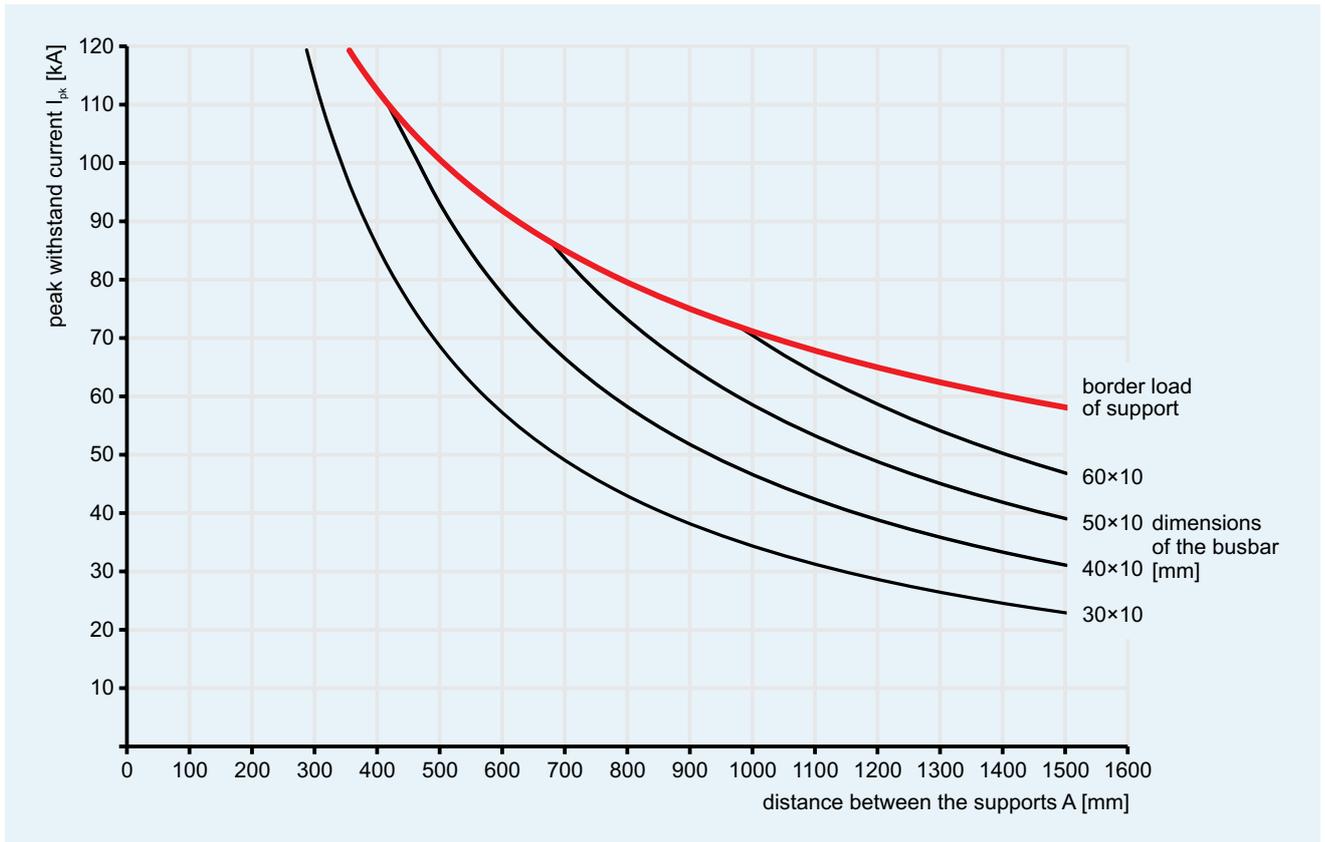
- Short-circuit resistance for busbars thickness 10 mm depending on the distance between the supports (busbar spacing 100 mm).



- Short-circuit resistance for busbars thickness 5 mm depending on the distance between the supports (busbar spacing 185 mm).



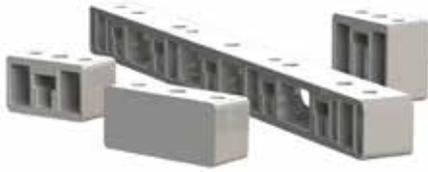
- Short-circuit resistance for busbars thickness 10 mm depending on the distance between the supports (busbar spacing 185 mm).



The producer reserves the right to introduce technical modifications

#### APPLICATION EXAMPLES





>DP (UP+GF)<

**Design**

WTBW busbar supports have a robust design and insulating properties so that they can be used in electrical switchboards as supporting elements for busbars. It allows for mounting busbar assembly with a spacing of 100 and 185 mm. The remaining supports are used for installing a single busbars. Each one of the supports has a socket designed for placing M12 square nuts and M12 bolts or M12 square nuts into it in order to enable the supports fastening to the construction. The body is made of insulation plastic (glass fiber reinforced polyester).

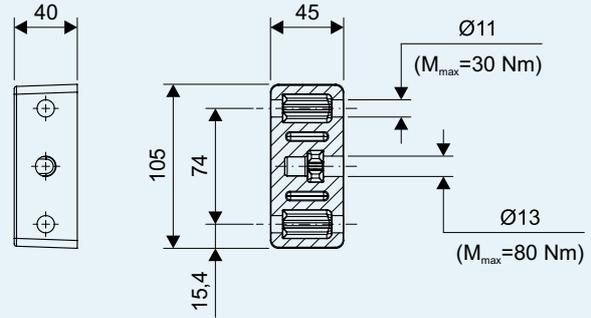
**Application**

The supports for low voltage power distribution switchgears of nominal currents up to 3200 A and short circuits currents up to 80 kA. Recommended for switchgears assembled in metal enclosures EMITER type: OWW, SSS, SR.

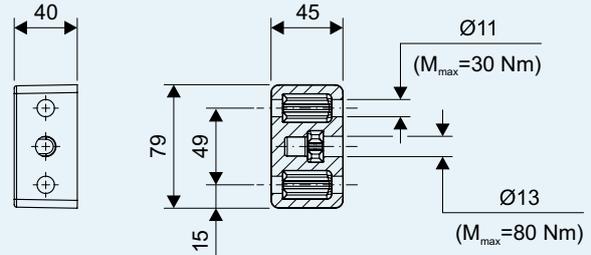
**Basic parameters**

- flammability category: V0,
- tracking resistance: CTI 600,
- resistance to heat: 960 °C.

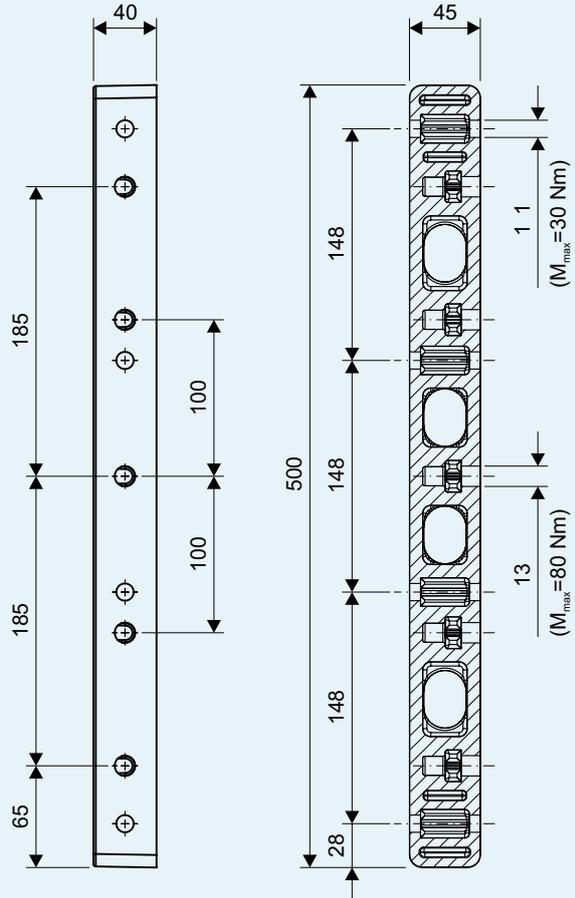
**WTBW 45x77 M12**



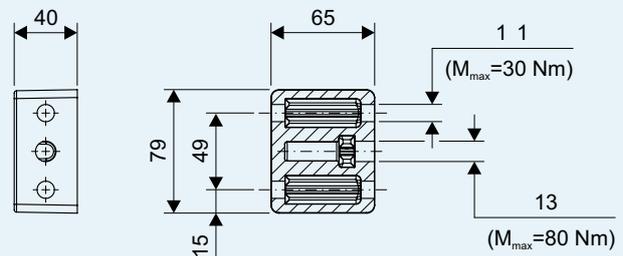
**WTBW 45x100 M12**



**WTBW 45x500 M12**



**WTBW 45x500 M12**

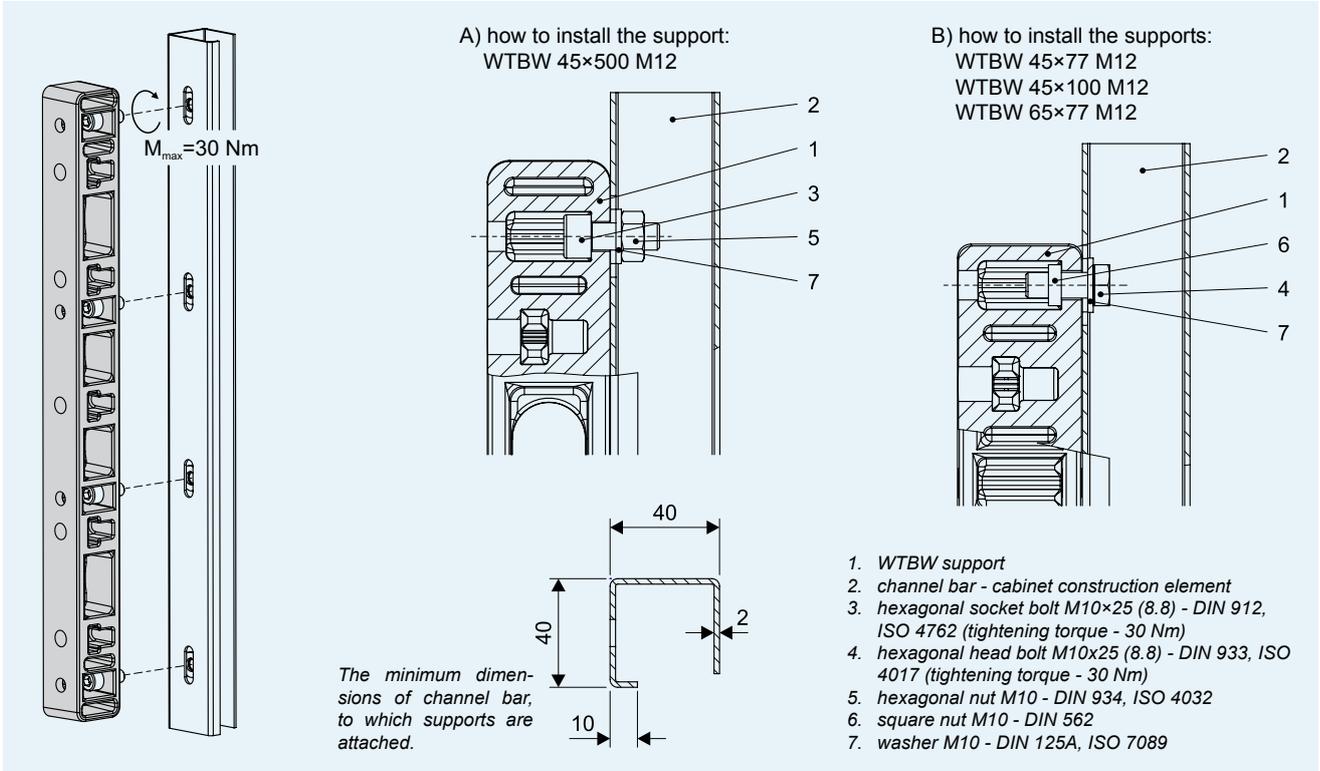


The producer reserves the right to introduce technical modifications

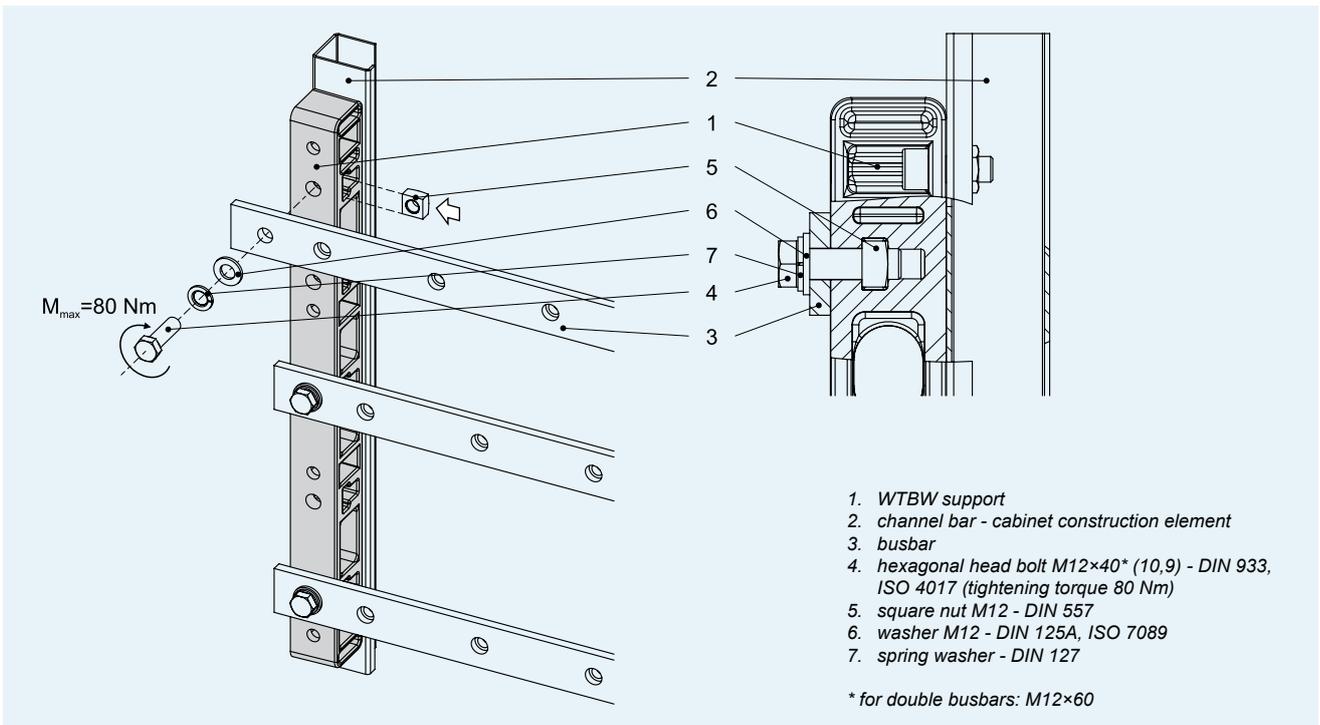
type	art. no.
WTBW 45×77 M12	123 4074 00
WTBW 45×100 M12	123 4104 00
WTBW 45×500 M12	123 4504 00
WTBW 65×77 M12	123 4504 00

**INSTALLATION AND USE**

- Installation to the elements of cabinet construction

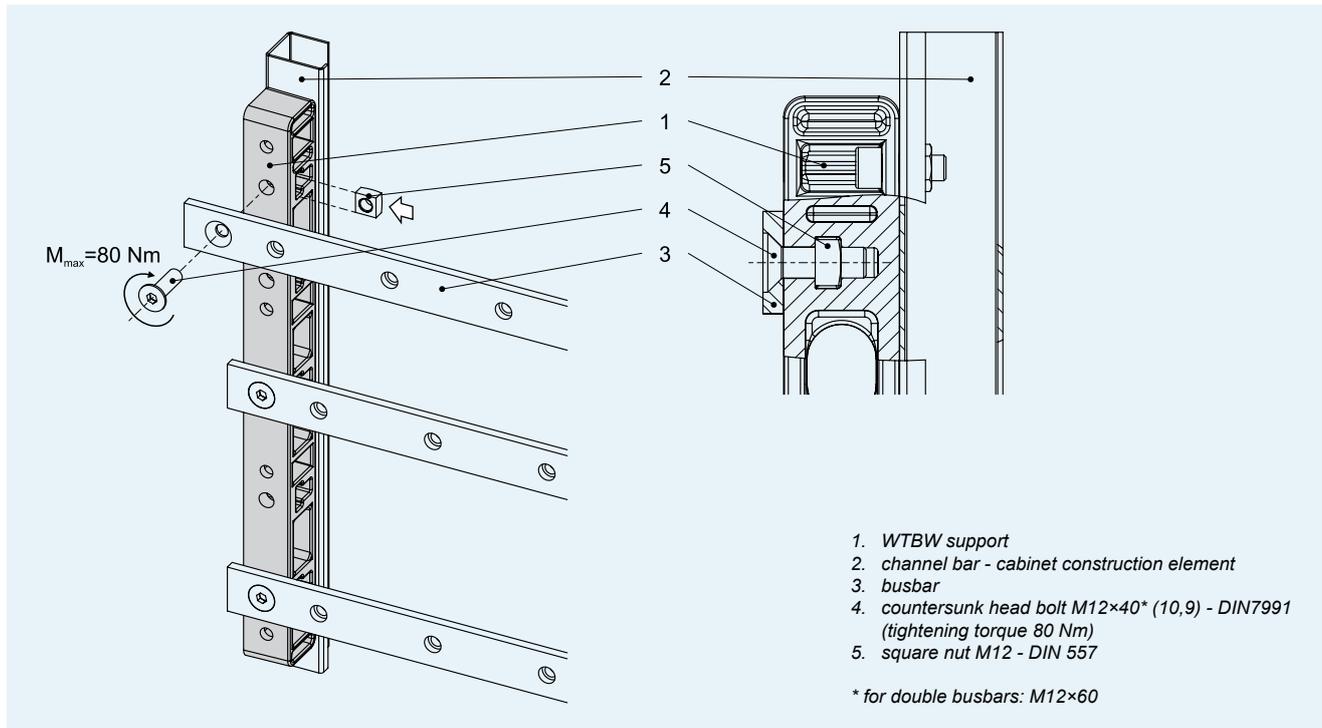


- Busbars installation to the WTBW supports



The producer reserves the right to introduce technical modifications

• Busbars installation to the WTBW supports (countersunk head bolts)



**TECHNICAL PARAMETERS**

• WTBW 45×500 M12

no. and dimensions of Cu busbars [mm]	rated current I <sub>r</sub> [A] - direct connection (1:1)	rated transformer power [kVA] - direct connection (1:1)	short-time withstand current I <sub>sw</sub> [kA]							
			25	30	40	50	60	65	70	80
			peak withstand current I <sub>pk</sub> [kA]							
			53	63	84	105	132	143	154	176
maximum support distance [mm]										
1×40×10	840	582	1000	897	505	323	224	191	165	126
2×40×10	1510	1046	1000	1000	1000	610	458	390	336	257
1×50×10	1000	693	1000	1000	782	590	347	296	259	195
2×50×10	1770	1226	1000	1000	1000	500	480	410	350	270
1×60×10	1155	800	1000	1000	1000	590	460	390	340	250
2×60×10	2015	1396	1000	1000	1000	600	470	400	350	260
1×80×10	1450	1005	1000	1000	1000	590	460	390	340	250
2×80×10	2470	1711	1000	1000	1000	600	470	400	340	250
1×100×10	1745	1209	1000	1000	1000	580	460	390	340	250
2×100×10	2900	2009	1000	1000	1000	590	460	390	340	250
1×120×10	2035	1410	1000	1000	1000	570	450	380	330	245
2×120×10	3350	2321	1000	1000	1000	570	450	380	330	245
1×160×10	2700	1871	1000	1000	1000	500	395	335	290	210
2×160×10	4350	3014	1000	1000	1000	500	400	340	290	215

• WTBW 45×100 M12, WTBW 45×77 M12

- maximum load of the support: 800 [kg]

• WTBW 65×77 M12

- maximum load of the support: 1000 [kg]

**ATTENTION!** The calculation, in addition to the resistance of supports on short-circuit currents, takes into account the strength of the busbar and interference of vibrations, but does not take into account the transverse force acting at the busbar while opening disconnectors.

The producer reserves the right to introduce technical modifications

APPLICATION EXAMPLES



The producer reserves the right to introduce technical modifications

Universal equipment

**WTBW 45x410 M12 Power busbar support (horizontal)**

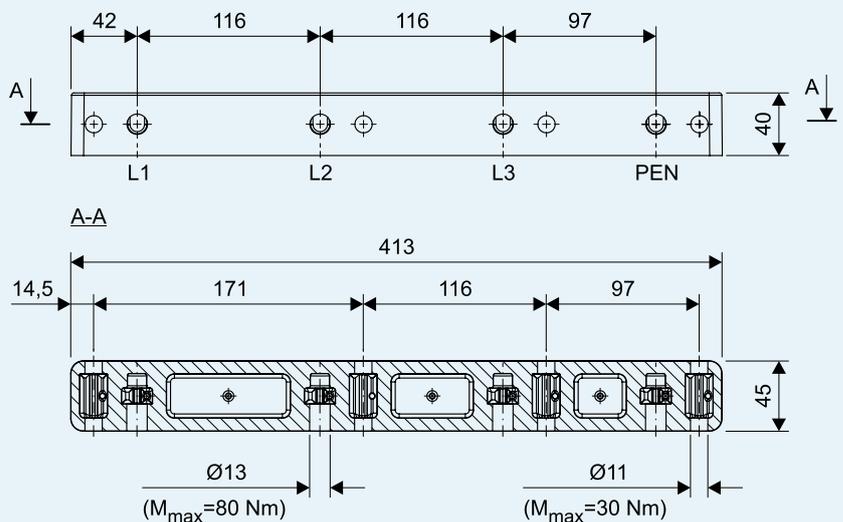


>DP (UP+GF)<

**Design**

WTBW 45x410 M12 power busbar support has robust design and insulating properties, that can be used in electrical switchgears to support power busbars. This allows power busbars to be mounted vertically, to supply main switch-disconnector and vertical outflow busbars from main switch-disconnector to horizontal busbars for vertical outflow fuse outgoing strips. It can be mounted to the cabinet in a horizontal position using M10 bolts and nuts. The support has 4 holes and sockets designed for placement of square M12 nuts to enable busbars mounting. The spacing of the holes provides support for the power feeding busbars and outflows busbars from main switch-disconnector for 4 various types of switch-disconnectors with 1250 [A] rated current produced by: Telergon, Sirco, Jean Mueller and EFEN. Different spacing of the phase busbars and PEN busbar of the switch-disconnectors and power busbar support are compensated by an offset of the fixing holes in the vertical busbar of the switchgear, with axes of the busbars.

WTBW 45x410 M12



• **Application**

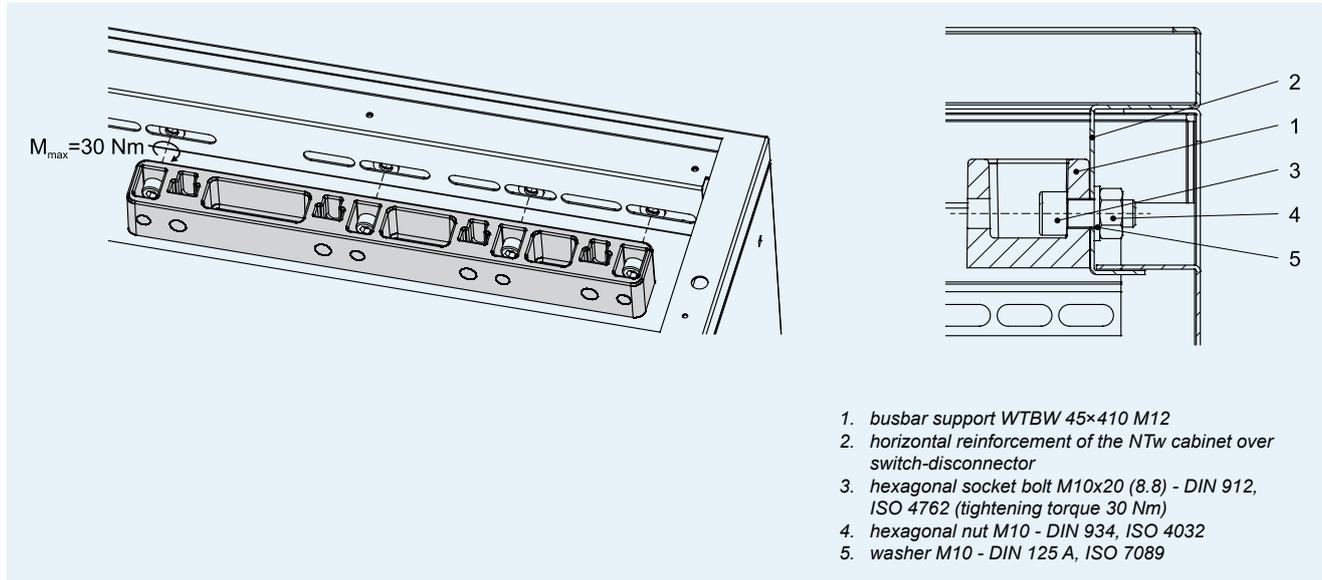
Support for low voltage power distribution switchgear of rated current up to 3200 [A] and short circuits current up to 80 [kA]. Recommended for switchgears assembled in metal enclosures Emiter type: NTw, OWW, SSS, SR.

• **Basic parameters**

- flammability category: V0,
- tracking resistance: CTI 600,
- resistance to heat: 960 °C.

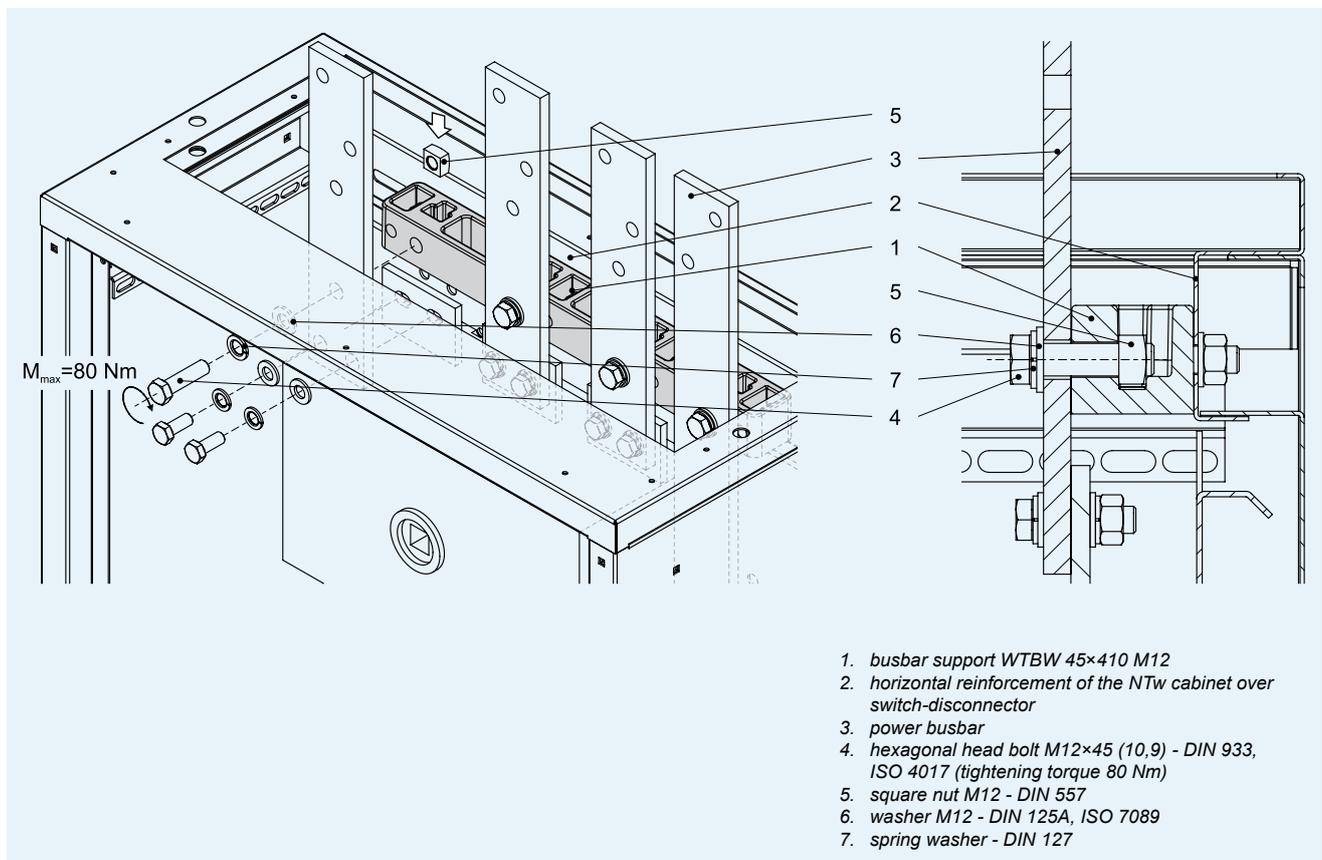
**INSTALLATION METHOD**

• **Installation within the cabinet**



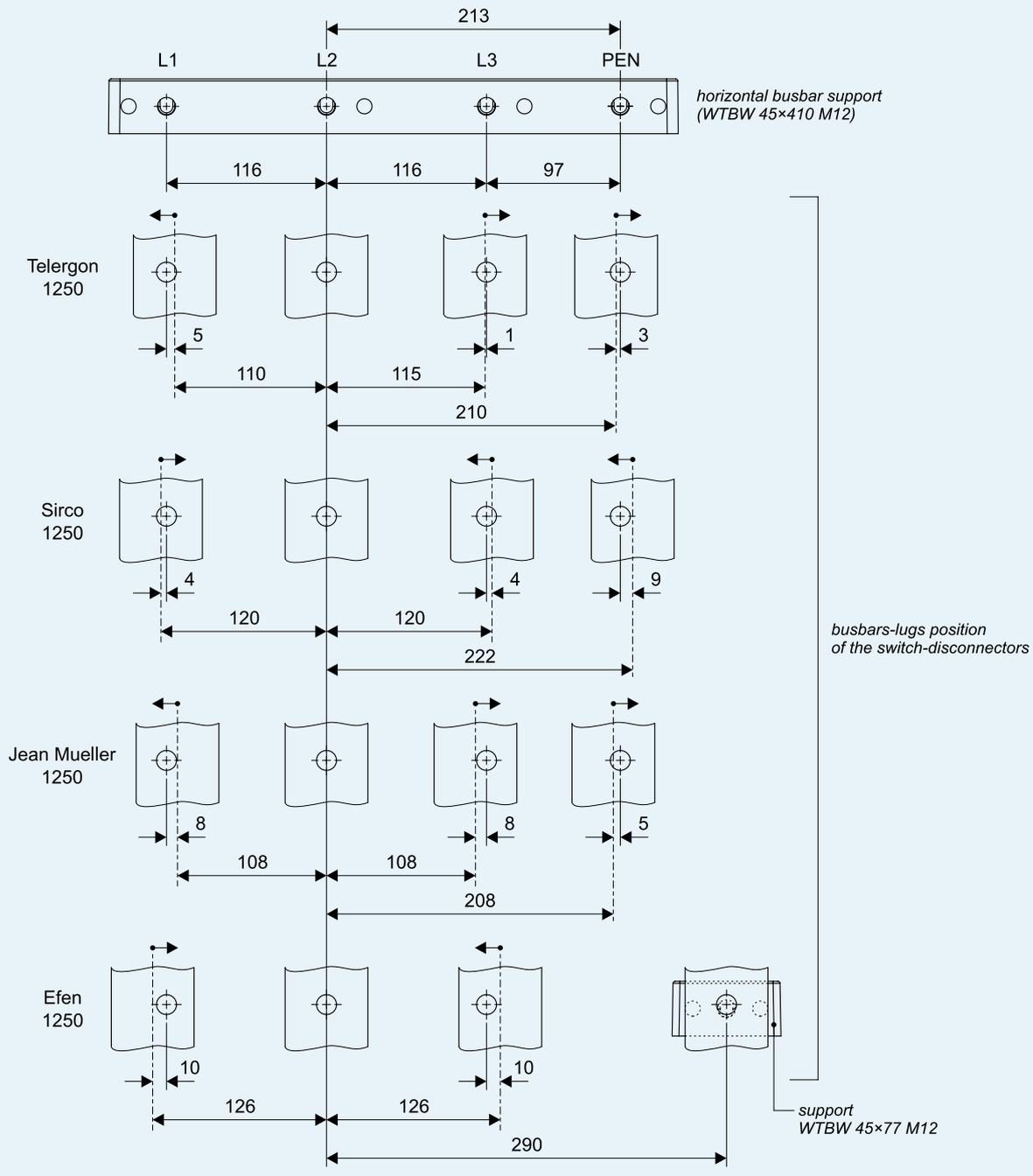
1. busbar support WTBW 45×410 M12
2. horizontal reinforcement of the NTw cabinet over switch-disconnector
3. hexagonal socket bolt M10x20 (8.8) - DIN 912, ISO 4762 (tightening torque 30 Nm)
4. hexagonal nut M10 - DIN 934, ISO 4032
5. washer M10 - DIN 125 A, ISO 7089

• **Busbar installation to the WTBW 45×410 M12 support**



1. busbar support WTBW 45×410 M12
2. horizontal reinforcement of the NTw cabinet over switch-disconnector
3. power busbar
4. hexagonal head bolt M12×45 (10,9) - DIN 933, ISO 4017 (tightening torque 80 Nm)
5. square nut M12 - DIN 557
6. washer M12 - DIN 125A, ISO 7089
7. spring washer - DIN 127

• Offset holes of the busbar depending on the switch-disconnector type



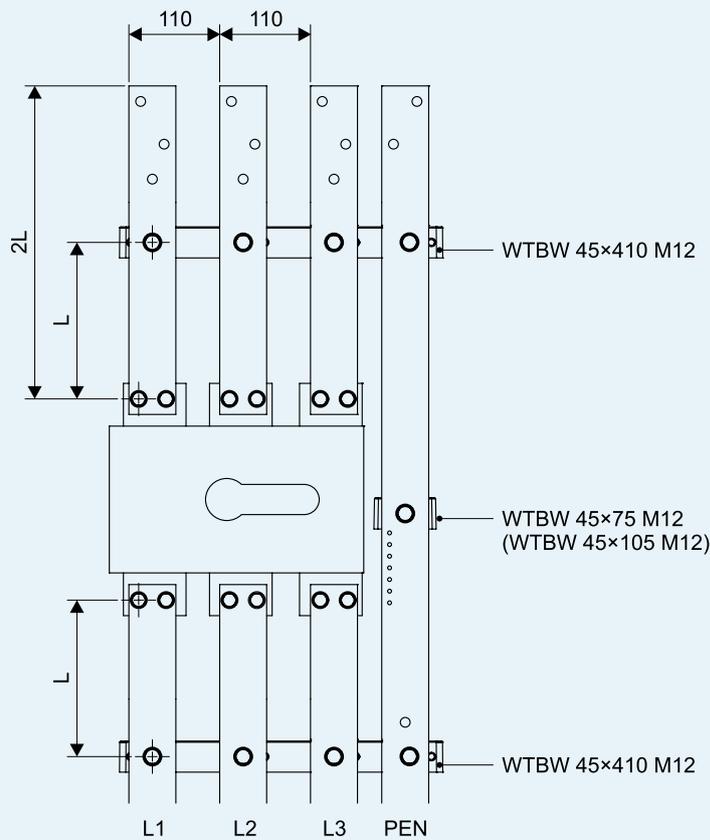
The producer reserves the right to introduce technical modifications

busbars-lugs position of the switch-disconnectors

support WTBW 45×77 M12

**TECHNICAL PARAMETERS**

no. and dimensions of Cu busbars [mm]	rated current I <sub>r</sub> [A]	transformer power [kVA]	short-time withstand current I <sub>sw</sub> [kA]							
			25	30	40	50	60	65	70	80
			peak withstand current I <sub>pk</sub> [kA]							
			53	63	84	105	132	143	154	176
maximum distance from the switch-disconnector - L [mm]										
1×50×10 (I)	1060	693	200	200	200	200	200	200	200	200
2×50×10 (II)	1770	1226	200	200	200	200	200	200	200	200
1×60×10 (I)	1155	800	200	200	200	200	200	200	200	200
2×60×10 (II)	2015	1396	200	200	200	200	200	200	200	200
1×80×10 (I)	1450	1005	200	200	200	200	200	200	200	200
2×80×10 (II)	2470	1711	200	200	200	200	200	200	200	200



Universal equipment

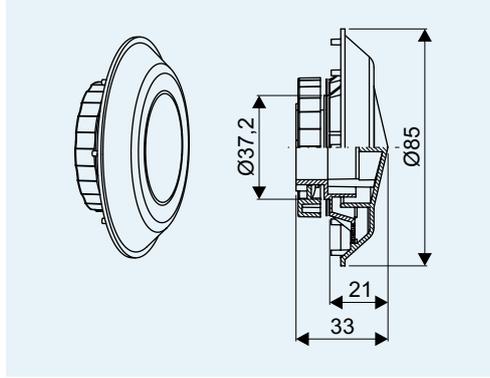
The producer reserves the right to introduce technical modifications

**APPLICATION EXAMPLE**



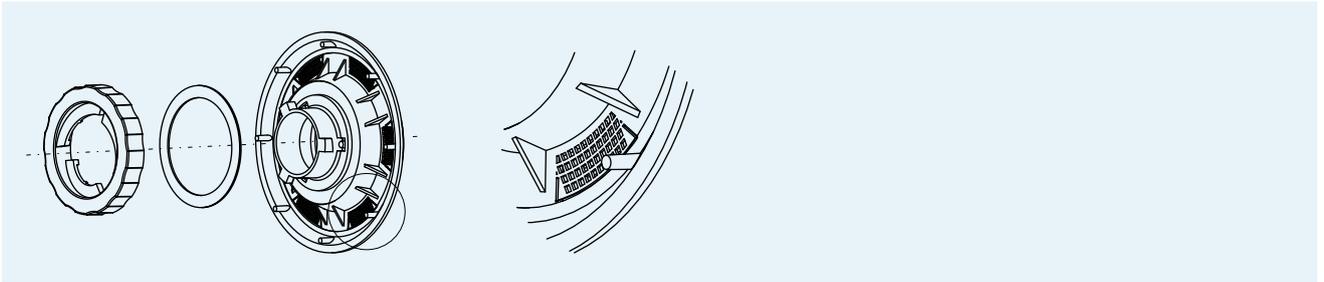


>TP (PA.6)< IP55

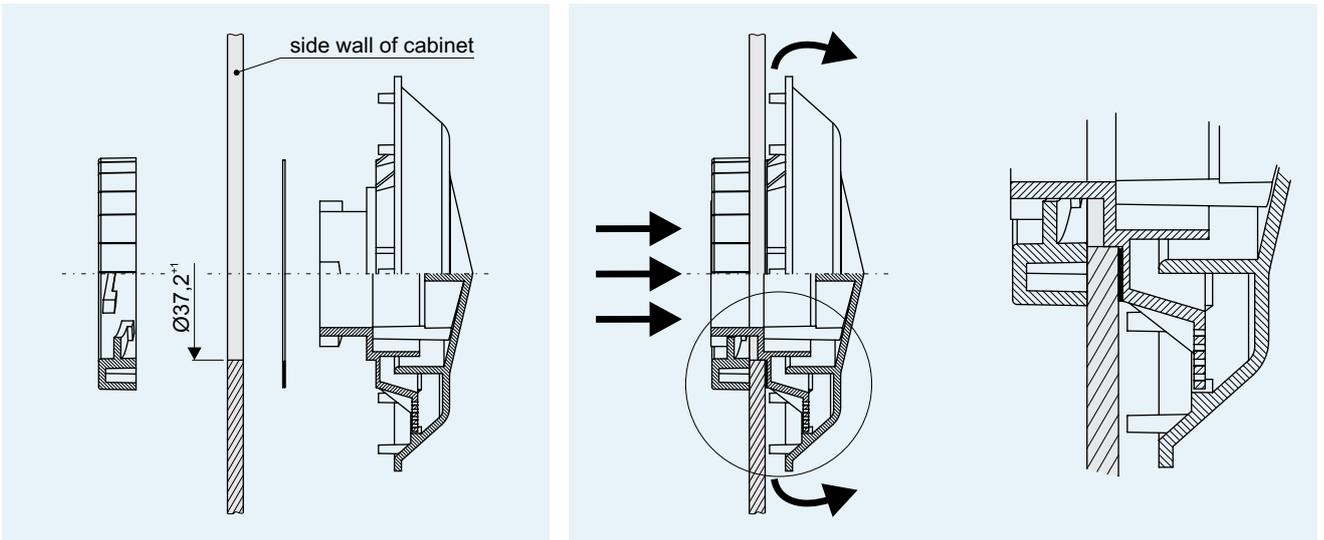


type	art. no.
SLU	930 9001

• Design



The producer reserves the right to introduce technical modifications

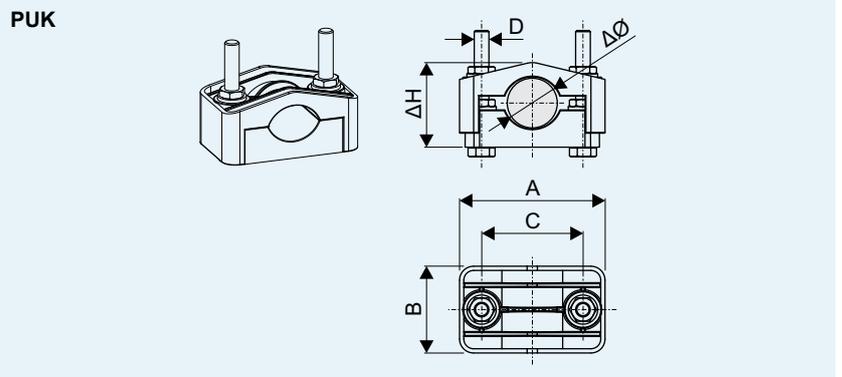


Universal equipment

PUK • PUK3 • KO4 Cable holders



>TP (PA.6)<

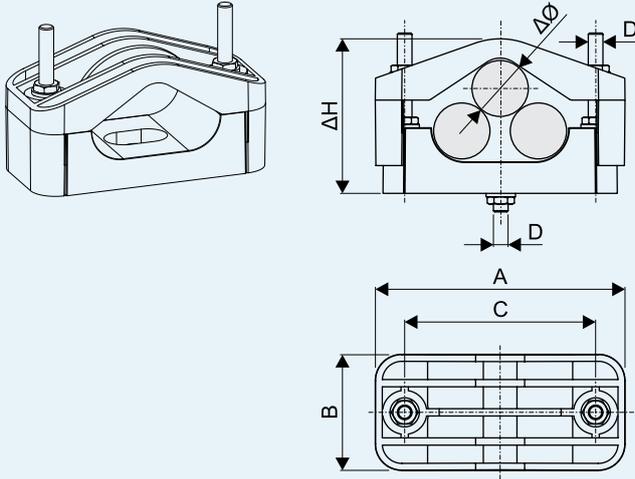


type	A	B	C	D	ΔH	ΔØ	S	art. no.
PUK 15	68	39	45	M8	30-40	16-27	4×50	921 1524
PUK 24	98	59	69	M10	48-62	27-40	4×120	921 2445
PUK 45	127	59	94	M10	67-94	48-75	4×240	921 4570
PUK 65	157	69	120	M10	95-116	65-90	4×300	921 6590

S - maximal cable section (mm<sup>2</sup>)  
NOTE: Sets do not contain nuts and bolts



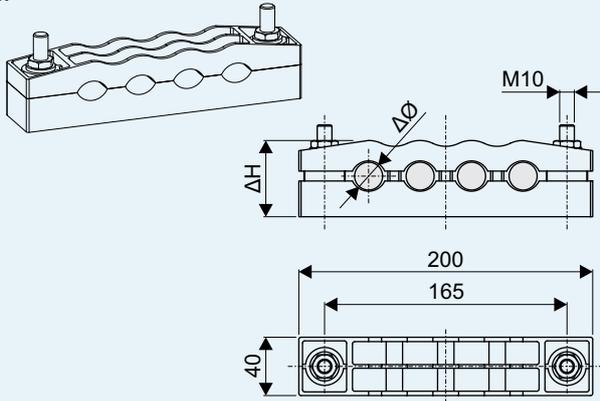
PUK3



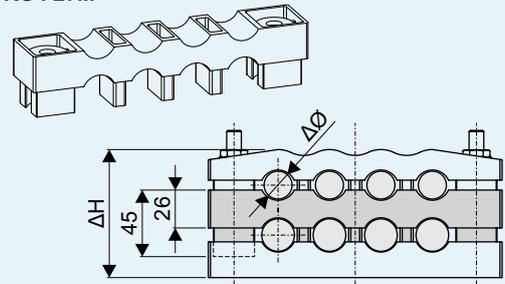
type	A	B	C	D	ΔH	ΔØ	S	art. no.
PUK3 24	150	81	110	M10	75-105	24-32	4×70	931 2436
PUK3 32	172	81	130	M10	86-125	32-47	4×120	931 3247

S - maximal cable section (mm<sup>2</sup>)  
 NOTE: Sets do not contain nuts and bolts

KO4 27



KO4 27M



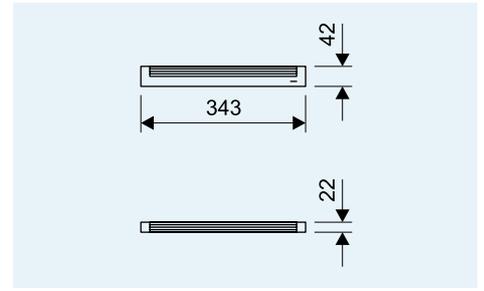
type	ΔH	ΔØ	S	art. no.
PUK3 24	75-105	24-32	4×70	931 2436
PUK3 32	86-125	32-47	4×120	931 3247

S - maximal cable section (mm<sup>2</sup>)  
 NOTE: Sets do not contain nuts and bolts

The producer reserves the right to introduce technical modifications

• Application example





• **Basic parameters**

- protection class: II,
- ingress protection degree: IP20,
- wattage: 8 W,
- voltage: 220/240 V,
- frequency: 50/60 Hz.

type  
NERA TL-8/2700K

The producer reserves the right to introduce technical modifications



## Technical information



## Properties and application of paint coatings performed in EMITER

Emiter has in-house powder painting facilities for coating elements made of carbon steel, aluzinc plated steel, aluminium and stainless steel. It operates in automatic cycle. Parts for painting are suspended on hooks underslung to a chain conveyor with travel speed control.

Painted parts successively move through the individual process steps:

- degreasing,
- applying of chemical layer (oxilan - multimetal type conversion/deposit process creates of: Mn, Zr, Ti, Si as pure metals and their compounds,
- drying after chemical operations,
- powder painting: automatic CNC + supplementary hand paint,
- baking in the oven.

Chemical preparation of the surface before painting serves to increase adhesion of the paint and improve corrosion resistance.

Depending on painted parts application, they can be painted by polyester or mix-polyester/epoxy paint. For details which require excellent corrosion resistance, a primer epoxy paint can be applied.

In the table below are given basic properties of painting systems (basic material + surface preparation + painting), used in Emitter.

type of material	material designation	painting process	paint thickness	paint durability*		
				application	corrosion category	expected life of the coating to the first maintenance
carbon steel, cold rolled	DC01	1- degreasing 2- degreasing	powder polyester-epoxy mix - 60 µm	inside the building	C2 - urban environment	10 years
hot dip galvanized steel	DX51D + Z275	3- rinsing 4- rinsing	powder polyester structural - 60 µm	outdoor in atmospheric environment	C5-I - industrial environment	10 years
hot dip aluzinc plated steel	DX51D + AZ150	5- oxilan 6- rinsing 7- drying	powder polyester structural - 60 µm	outdoor in atmospheric environment	C5-I - industrial environment	10 years
aluminium	AlMg3 PA11 EN AW-5754	8- painting 9- baking	powder polyester structural - 60 µm	outdoor in atmospheric environment	C5-M - seaside environment	10 years

\* approximate value

## Type of environments

Materials, design and technology of enclosures have to be appropriate to climate conditions at the installation site. Despite the diversity and complexity of the factors affecting on the climate at given location distinguish five categories of environments:

- Village environment: No corrosive factors except moisture;
- Urban environment: climate characterized by alternating wet and dry, the presence of soot, dust, hydrocarbons, nitrogen oxide, carbon monoxide, heavy metals and sulfur ferrioxide produced by motor vehicles. Insignificant corrosion can be observed in this environment;
- Urban environment, non-aggressive (in closed rooms);
- Industrial environment: aggressive conditions caused mainly by a content of sulfur compounds (H<sub>2</sub>S, SO<sub>2</sub>) and fluorides (F, Cl);
- Seaside environment: corrosion is caused by aggressive acting of chloride salts and high degree of humidity. These factors are present on the seaside (wharf, pier) and at sea (ships, platforms, etc.).

## Classification of atmospheric corrosive environments temperate climate acc. to PN-EN ISO 12500:2000 .

loss in mass per unit area [gm <sup>-2</sup> year <sup>-1</sup> ]				corrosion category	
carbon steel	zinc	copper	aluminium		
≤ 10	≤ 0,7	≤ 0,9	negligible	vary small	C1
> 10 to 200	> 0,7 to 5	> 0,9 to 5	≤ 0,6	small	C2
> 200 to 400	> 5 to 15	> 5 to 12	> 0,6 to 2	medium	C3
> 400 to 650	> 15 to 30	> 12 to 25	> 2 to 5	high	C4
> 6500 to 1500	> 30 to 60	> 25 to 50	> 5 to 10	very high	C5

## Types of treatments and coatings, depending on the operating conditions for the durability of the coating 10 years to first maintenance. Not used in Emiter

operating environmental conditions	corrosion category	zinc coatings on steel sheet	zinc plated steel sheet painted with different painting systems
atmospheric conditions on the high seas	C5-M	<ul style="list-style-type: none"> <li>Zn &gt; 100 µm or</li> <li>Z 600</li> </ul>	<ul style="list-style-type: none"> <li>1 × zinc layer (50 µm) + 1 × midcoat (primer 60 µm) + 2 × finish paint (150 µm)</li> </ul>
seaside atmospheric conditions	C5-M	<ul style="list-style-type: none"> <li>Zn &gt; 70 µm or</li> <li>Z 450 or</li> <li>fl Zn 1500</li> </ul>	<ul style="list-style-type: none"> <li>1 × zinc layer (50 µm) + 1 × midcoat (primer 60 µm) + 2 × finish coatings (150 µm)</li> </ul>
industrial environment	C5-I	<ul style="list-style-type: none"> <li>Zn 25 µm or</li> <li>Z 350 or</li> <li>fl Zn 1000</li> </ul>	<ul style="list-style-type: none"> <li>1 × zinc layer (30 µm) + 1 × midcoat (primer 30 µm) + 2 × finish paint (120 µm)</li> </ul>
mixed environment urban-village	C4	<ul style="list-style-type: none"> <li>Zn 15 or</li> <li>Z 275 or</li> <li>fl Zn 500</li> </ul>	<ul style="list-style-type: none"> <li>1 × zinc layer (30 µm) + 2 × finish paint (120 µm) or</li> </ul>
			<ul style="list-style-type: none"> <li>Z140 + 1 × primer paint (30 µm) + 2 × finish paint (120 µm)</li> </ul>
aggressive moist environment	C3	<ul style="list-style-type: none"> <li>Zn 12 or</li> <li>Z 200</li> </ul>	<ul style="list-style-type: none"> <li>Z140 + 1 × primer paint (30 µm) + 2 × finish paint (120 µm)</li> </ul>
moist environment	C2	<ul style="list-style-type: none"> <li>Zn 8 or</li> <li>Z 140 (10 µm)</li> </ul>	<ul style="list-style-type: none"> <li>Zn5 + 2 × finish paint (120 µm) or</li> </ul>
			<ul style="list-style-type: none"> <li>Z100 + 1 × primer paint (30 µm) + 1 × finish paint (50 µm)</li> </ul>
dry environment	C1	<ul style="list-style-type: none"> <li>Z 100</li> <li>Zn 5</li> </ul>	<ul style="list-style-type: none"> <li>Zn5 + 2 × finish paint (60 µm) or</li> </ul>
			<ul style="list-style-type: none"> <li>1 × primer paint (20 µm) + 1 × finish paint (50 µm)</li> </ul>

Zn xx - electrolytic zinc with a minimum thickness xx in µm (ISO 2081, ISO 4042)

Z xxx - hot deep zinc coating with layer weight xxx g/m<sup>2</sup> (both side) EN 10292, EN 10326, EN 10327

fl Zn xxx - sprinkle zinc, xxx - salt mist resistance ISO 10383

- Primer paint is applied directly on metal chemical prepared by phosphating or oxilan layer.
- Finish paint must be UV resistant, resistant against water, gas, dust, mechanical damages, chemicals, etc. Must be tight and continuous all the time during expected lifetime of the product.

## Salt mist test duration versus corrosion category type for the durability of the coating 10 years to first maintenance

operating conditions	corrosion category	paint coatings	non-paint coatings
environment on the high seas	C5-M	2000 h	2000 h
seaside environment	C5-M	1500 h	1500 h
industrial environment	C5-I	1500 h	1000 h
mixed urban-village environment	C4	1000 h	500 h
aggressive moist internal or village not contaminated environment	C3	500 h	168 h
moist environment	C2	250 h	500 h
dry environment (temporary moist)	C2	168 h	96 h
dry environment	C1	96 h	24 h

## Loss of zinc and aluzinc layer thickness depending on environment conditions

corrosion category aggressiveness	type of environment		loss of zinc layer	loss of aluzinc layer
	external	internal		
C1 very small	-	Heated buildings with pure atmosphere, e.g. offices, schools, shops, hotels, etc.	≤ 0,1 µm/year	≤ 0,02 µm/year
C2 small	Environment with small rate of contamination.	Non heated buildings, subject to condensation e.g. warehouses, sports halls.	> 0,1 do 0,7 µm/year	> 0,02 do 0,14 µm/year
C3 medium	Urban and industrial environments. Medium contaminated of sulphur oxide (IV); Seaside with small salinity.	Production halls with high humidity and certain air contamination e.g. food plants, breweries, dairies, laundries.	> 0,7 do 2,1 µm/year	> 0,14 do 0,42 µm/year
C4 high	Industrial environments and seaside with medium rate of salinity.	Chemical plants, swimming pools, repair yards.	> 2,1 do 4,2 µm/year	> 0,42 do 0,84 µm/year
C5-I very high (industrial)	Industrial environments with high moist and aggressive contamination.	Buildings and areas with almost continuous condensation and high contamination.	> 4,2 do 8,2 µm/year	> 0,84 do 1,64 µm/year
C5-M very high (marine)	Seaside and marine environment.	Buildings and areas with almost continuous condensation and high contamination.	> 4,2 do 8,2 µm/year	> 0,84 do 1,64 µm/year

## Thickness of the zinc and aluzinc layer

coating code	theoretical reference value for coating thickness per side [µm]	range of coating thickness per side [µm]
Z 275	20	15 - 27
Z 350	25	19 - 33
AZ 150	20	15 - 27
AZ 185	25	19 - 33

## Durability of the coating

corrosion category	metallic coatings without paint until appearance of red corrosion* [years]				coatings - polyester powder paint, thickness 100 µm on metallic surface until appearance of white corrosion* [years]		
	Z 275	Z 350	AZ 150	AZ 185	Z 275 Z 350	AZ 150 AZ 185	AlMg3
C4	3,5 - 12,8	4,5 - 15,7	17,5 - 64	22,5 - 78,5	10+	10+	15
C5-I	1,8 - 6,4	2,3 - 7,8	9 - 32	11,5 - 39	7	7	10
C5-M	1,8 - 6,4	2,3 - 7,8	9 - 32	11,5 - 39	7	7	10

\* approximate value

## Materials versus electrolytic corrosion avoidance

connecting elements (rivet, screw, bolt)	type of material				
	steel without coating	stainless steel	zinc plated steel	aluminium	copper
steel without coating	○	×	×	×	○
stainless steel	×	●	×	×	○
tin plated steel	●	×	○	○	○
zinc plated steel	●	×	●	○	×
aluminium	×	×	○	●	×
copper	○	○	×	×	●
brass without coating	○	○	×	×	●
tin plated brass	○	×	○	○	●
nickel plated brass	○	○	○	×	●

● recommended ○ possible × not recommended

## Tightening moments for bolts used in electrical connections

thread size	minimum tightening moment [Nm]	strength grade of bolts		
		8,8	10,9	12,9
		maximum tightening moment [Nm]		
M8	18	27	35	40
M10	35	47	66	77
M12	60	80	113	207
M14	95	129	177	282
M16	130	173	242	282

Note: Do not use bolts with grade lower than 6.8

## Current carrying capacity of copper busbars

- Continuous currents for Cu busbars for rectangular cross-section in internal systems at +35 °C air temperature and +65 °C bar temperature at vertical bar position, according to DIN 43670.

width × thickness [mm]	cross section [mm <sup>2</sup> ]	weight* [kg/m]	continuous current [A]							
			AC up to 60 Hz				DC/AC up to 16,66 Hz			
			coated (number of bars)		uncoated (number of bars)		coated (number of bars)		uncoated (number of bars)	
			I	II	I	II	I	II	I	II
12×2	23,5	0,209	123	202	108	182	123	202	108	182
15×2	29,5	0,262	148	240	128	212	148	240	128	212
15×3	44,5	0,396	187	316	162	282	187	316	162	282
20×2	39,5	0,351	189	302	162	264	189	302	162	266
20×3	59,5	0,529	237	394	204	348	237	394	204	348
20×5	99,1	0,882	319	560	274	500	320	562	274	502
20×10	199	1,77	497	924	427	852	499	932	428	832
25×3	74,5	0,663	287	470	245	412	287	470	245	414
25×5	124	1,11	384	662	327	586	384	664	327	590
30×3	89,5	0,796	337	544	285	476	337	546	286	478
30×5	149	1,33	447	760	379	672	448	766	380	676
30×10	299	2,66	676	1200	573	1060	683	1230	597	1080
40×3	119	1,06	435	692	366	600	436	696	367	604
40×5	199	1,77	573	952	482	836	576	966	484	878
40×10	399	3,55	850	1470	715	1290	865	1530	728	1350
50×5	249	2,22	697	1140	583	994	703	1770	588	1020
50×10	499	4,44	1020	1720	852	1510	1050	1830	857	1610
60×5	299	2,66	826	1330	688	1150	836	1370	696	1190
60×10	599	5,33	1180	1960	985	1720	1230	2130	1020	1870
80×5	399	3,55	1070	1680	885	1450	1090	1770	902	1530
80×10	799	7,11	1500	2410	1240	2110	1590	2730	1310	2380
100×5	499	4,44	1300	2010	1080	1730	1340	2160	1110	1810
100×10	999	8,99	1810	2850	1490	2480	1940	3310	1600	2890
120×10	1200	10,7	2110	3280	1740	2860	2300	3900	1890	3390
160×10	1600	14,2	2700	4130	2220	3590	3010	5060	2470	4400
200×10	2000	17,8	3290	4970	2690	4310	3720	6220	3040	5390

\* specific gravity of Cu - 8,9 g/cm<sup>3</sup>

The producer reserves the right to introduce technical modifications

Technical information

## Current carrying capacity of aluminium busbars

- Continuous currents for Al busbars for rectangular cross-section in internal systems at +35 °C air temperature and +65 °C bar temperature at vertical bar position, according to DIN 43670.

width × thickness [mm]	cross section [mm <sup>2</sup> ]	weight* [kg/m]	conditions current [A]							
			AC up to 60 Hz				DC/AC up to 16,66 Hz			
			coated		uncoated		coated		uncoated	
			number of bars		number of bars		number of bars		number of bars	
			I	II	I	II	I	II	I	II
12×2	23,5	0,0633	90	160	84	142	97	160	84	142
15×2	29,5	0,0795	118	190	100	166	118	190	100	166
15×3	44,5	0,120	148	252	126	222	148	252	126	222
20×2	39,5	0,107	150	240	127	206	150	240	127	206
20×3	59,5	0,161	188	312	159	272	188	312	159	272
20×5	99,1	0,268	254	446	214	392	254	446	214	392
20×10	199	0,538	293	730	331	646	293	733	331	646
25×3	74,5	0,201	228	372	190	322	228	372	191	322
25×5	124	0,335	305	526	255	460	305	528	255	460
30×3	89,5	0,242	267	432	222	372	368	432	222	372
30×5	149	0,403	356	606	295	526	356	608	296	528
30×10	299	0,808	536	956	445	832	538	964	447	839
40×3	119	0,323	346	550	285	470	346	552	285	470
40×5	199	0,538	456	763	376	658	457	766	376	662
40×10	399	1,08	677	1180	557	1030	682	1200	561	1040
50×5	249	0,673	556	916	455	786	558	924	456	749
50×10	499	1,35	815	1400	667	1210	824	1440	674	1250
60×5	299	0,808	655	1070	533	910	658	1080	536	924
60×10	599	1,62	951	1610	774	1390	966	1680	787	1450
80×5	399	1,08	851	1360	688	1150	858	1390	694	1180
80×10	799	2,16	1220	2000	983	1720	1250	2150	1010	1840
100×5	499	1,35	1050	1650	846	1390	1060	1710	858	1450
100×10	999	2,70	1480	2390	1190	2050	1540	2630	1240	2250
100×15	1500	4,04	1800	2910	1450	2500	1930	3380	1560	2900
120×10	1200	3,24	1730	2750	1390	2360	1830	3090	1460	2650
120×15	1800	4,86	2090	3320	1680	2850	2280	3950	1830	3390
160×10	1600	4,32	2220	3470	1780	2960	2380	4010	1900	3420
160×15	2400	6,47	2670	4140	2130	3540	2960	5090	2370	4360
200×10	2000	5,40	2710	4180	2160	3560	2960	4940	2350	4210
200×15	3000	8,09	3230	4950	2580	4230	3660	6250	2920	5350

\* specific gravity of Al - 2,7 g/cm<sup>3</sup>

## Current carrying capacity of wires and cables

cross section [mm <sup>2</sup> ]	maximum allowable current		rated current of fuses for circuit protection [A]
	continuous [A]	intermittent [A]	
0,75	9	9	6
1	11	11	6
1,5	14	14	10
2,5	20	20	15
4	25	25	20
6	31	31	25
10	43	60	35
16	75	105	60
25	100	140	80
35	125	175	100
50	160	225	125
70	200	280	160
95	240	335	200
120	280	400	225
150	325	460	260
185	380	530	300
240	450	630	350
300	525	730	430
400	640	900	500
500	760	-	600

## Minimum and maximum Cu cables cross sections, versus current

continuous current [A]	rated current [A]			
	AC up to 60 Hz		DC/AC up to 16,66 Hz	
	minimum	maximum	minimum	maximum
	cross section [mm <sup>2</sup> ]			
6	0,75	1,5	0,5	1,5
8	1	2,5	0,75	2,5
10	1	2,5	0,75	2,5
12	1	2,5	0,75	2,5
16	1,5	4	1	4
20	1,5	6	1	4
25	2,5	6	1,5	4
32	2,5	10	1,5	6
40	4	16	2,5	10
63	6	25	6	16
80	10	35	10	25
100	16	50	16	35
125	25	70	25	50
160	35	95	35	70
200	50	120	50	95
250	70	150	70	120
315	95	240	95	185

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Technical information

## Heating power of the heater in the enclosure

To avoid steam condensation on the enclosure walls, care should be taken that the temperature of the enclosure walls is not lower than dew point temperature.

- Rules to determine the approximate heating power

enclosure operating location	heater power in the enclosure volume [W/dm <sup>3</sup> ]
closed room, not heated	0,4
outdoor location	1

Switching on of the heater can be controlled by thermostat set up on the appropriate temperature:

season	condensation temperature [°C]	set up temperature of the thermostat [°C]
spring	+ 18	+ 23
summer	+ 28	+ 33
autumn	+ 18	+ 23
winter	+ 4	+ 9

## Dissipated power

- Dissipated power in the enclosure by devices and their cabling is proportional to the current of the main switch in the switchgear:

rated current of the main switch [A]	dissipated power [W/A]
≤ 400	1,25
> 400	1
> 1000	0,8

## Degree of protection, IP codes

- Characteristic numeral of IP code

first numeral	description
	protection against ingress of solid foreign objects and against access to hazardous parts
0	non-protected
1	50 mm diameter (hand)
2	12,5 mm diameter (finger)
3	2,5 mm diameter (tool)
4	1,0 mm diameter (wire)
5	dust-protected (wire)
6	dust-tight (wire)

second numeral	description
	protection against ingress of water
0	non-protected
1	vertical dripping
2	dripping (15° tilted)
3	spraing
4	splashing
5	jetting
6	powerful jetting
7	temporary immersion
8	continuous immersion
9K	jetting with 80-100 bar pressure, till 80°C temperature (DIN 40050)

- Additional letter (A, B, C, D)

letters on the end of IP code	description
	protection of the person against access to hazardous parts
-	non-protected
A	back of hand
B	finger
C	tool dia 2,5 mm
D	wire dia 1 mm, length 100 mm

- Supplementary letter (H, S, W)

letters on the end of IP code	description
	protection of the person against access to hazardous parts
H	high voltage apparatus
S	motion during water test
W	weather conditions

- Example of IP code:

Protection of the person against access to hazardous parts with wire and device dust-protected (5);

Protection against splashing - acceptable limited ingress of water (4).

## Impact protection, IK codes

**IK code** characterizes ability of the equipment to resist mechanical impact on all sides (EN 50102).

IK code	impact energy [J]	hammer mass [kg]	height of hammer elevation [cm]
00	0	-	-
01	0,15	0,2	7,5
02	0,20	0,2	10
03	0,35	0,2	17,5
04	0,50	0,2	25
05	0,70	0,2	35
06	1	0,5	20
07	2	0,5	40
08	5	1,7	29,5
09	10	5	20
10	20	5	40

- Example of IK code
  - IK01 withstand energy of impact - 0,15 J

## Metal enclosures with protection class IIB

IIB protection class can be obtained through:

- appropriate design solution,
- additional insulation of the circuits and devices.

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feature	protection class IIB obtained by enclosure design	protection class IIB obtained by additional insulation of installation
	IIB - K	IIB - I
protection idea	<ul style="list-style-type: none"> <li>• metal enclosure</li> <li>• internal side of enclosure completely covered by insulation layer</li> <li>• painted element must be covered with partitions</li> <li>• insulation distance must be maintained between metal conductive and non-conductive parts and PE connectors</li> <li>• protection against contact with enclosure or other metal parts torn or burnt wires</li> </ul>	<ul style="list-style-type: none"> <li>• standard enclosure, non-covered by insulation layer, without earth terminal</li> <li>• circuits protected by differential current relays</li> <li>• additional insulation of apparatus by insulation partitions, or</li> <li>• mounting of II class protection degree apparatus + additional insulation of wires and cables</li> <li>• if the wires and cables are not made in protection class II, should be lead in insulation sheath or comb channel</li> <li>• application of additional sheaths of cable terminals</li> </ul>
PE protective conductors	<ul style="list-style-type: none"> <li>• insulated from metal conductive and non-conductive parts, and enclosure</li> <li>• devices can be connected to PE terminals (equipotential connection) but not connected to the main PE terminals of installation</li> </ul>	
earth terminal mark of external mass		
insulation of PE terminals	required, as conductive parts	
responsibility for II class protection maintenance	1- enclosure manufacturer 2- switchgear assembler	1- switchgear assembler
necessity of enclosure certification as II class protected	yes	no

Technical information

## RAL scale colour table

1000	1001	1002	1003	1004	1005	1006	1007
1011	1012	1013	1014	1015	1016	1017	1018
1019	1020	1021	1023	1024	1027	1028	1032
1033	1034	2000	2001	2002	2003	2004	2008
2009	2010	2011	2012	3000	3001	3002	3003
3004	3005	3007	3009	3011	3012	3013	3014
3015	3016	3017	3018	3020	3022	3027	3031
4001	4002	4003	4004	4005	4006	4007	4008
4009	5000	5001	5002	5003	5004	5005	5007
5008	5009	5010	5011	5012	5013	5014	5015
5017	5018	5019	5020	5021	5022	5023	5024
6000	6001	6002	6003	6004	6005	6006	6007
6008	6009	6010	6011	6012	6013	6014	6015
6016	6017	6018	6019	6020	6021	6022	6024
6025	6026	6027	6028	6029	6032	6033	6034
7000	7001	7002	7003	7004	7005	7006	7008
7009	7010	7011	7012	7013	7015	7016	7021
7022	7023	7024	7026	7030	7031	7032	7033
7034	7035	7036	7037	7038	7039	7040	7042
7043	7044	7045	8000	8001	8002	8003	8004
8007	8008	8011	8012	8014	8015	8016	8017
8019	8022	8023	8024	8025	8028	9001	9002
9003	9004	9005	9010	9011	9016	9017	9018

Technical information

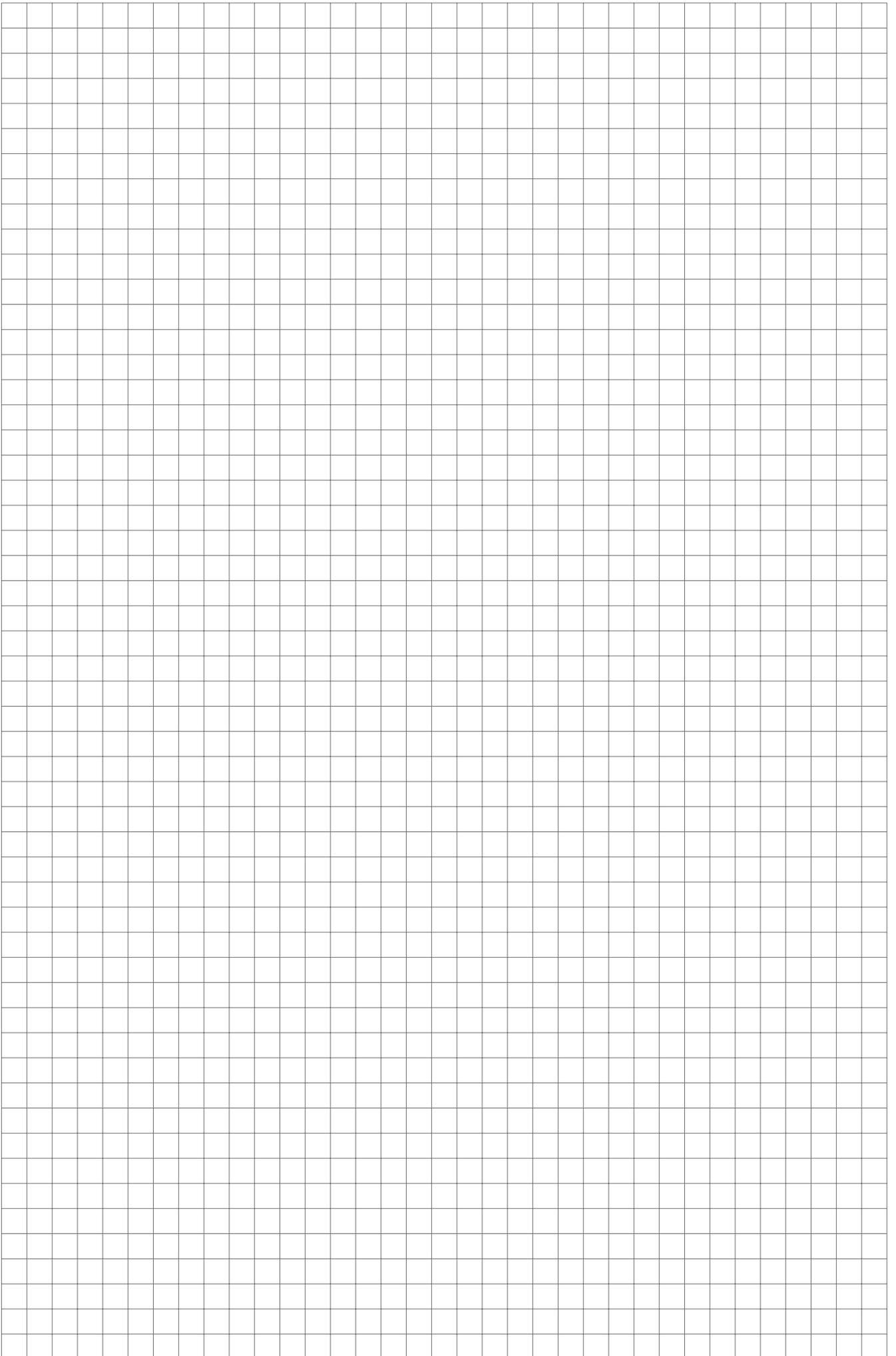
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Note: This table shows the colours in RAL scale in an approximate way. Accurate colour reproduction is possible only using RAL scale colour sample.

### • Standard colours used in Emitter

RAL 7035	polyester structural, gloss (60°) 50-70; polyester smooth, gloss (60°) 50-70
RAL 6005	polyester smooth, gloss (60°) 71-85
RAL 9003	polyester-epoxy smooth, gloss (60°) 50-70

It means lack of surcharge for these colours and paint types. For the other colours ask Emitter each time.





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