

Z1 AND Z1A SUBSTATION CABINETS



DESCRIPTION OF CABINET:

Z1 and Z1A substation cabinets are intended for use in high-voltage substations (110 kV, 220 kV and 400 kV). Z1 and Z1A cabinets house auxiliary wiring for field CTs and CVTs of HV switching stations, output wiring of isolating switches and circuit breakers, as well as controlling and safety devices. Thanks to their structural features, the cabinets can also be used to enclose adjustment and controlling devices located outside substation premises. Cabinet panels are made of aluminium sheet metal, which is protected against corrosion by non-chromate passivation and then painted grey (RAL 7035) with polyester powder (the colour can be changed on customer's demand). Steel mounting elements inside cabinets are zinc-plated.

CONFIGURATION:

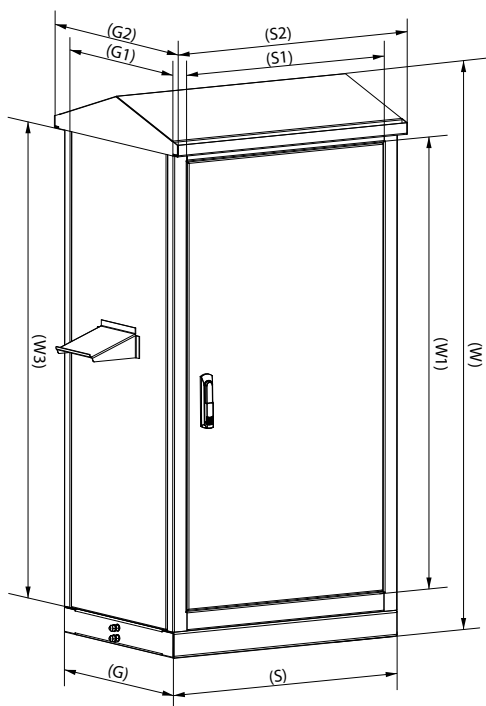
1. Dwie płyty montażowe boczne (lewa i prawa)
2. Płyty montżowe przednie
3. Płyta montażowa tylna
4. Szyna uziemiająca stalowa (cynkowana)
5. Daszek pod gniazda nadzoru technicznego
6. Stelaż do montażu płyt i dodatkowych listw zaciskowych
7. Ograniczniki drzwi i kieszeń na dokumentację
8. Dwa uchwyty do mocowania żarówki
9. Dwa uchwyty do mocowania wyłączników krańcowych
10. Uchwyty kablowe (20 szt.)
11. Poprzeczki montażowe (5szt.)

TECHNICAL DATA:

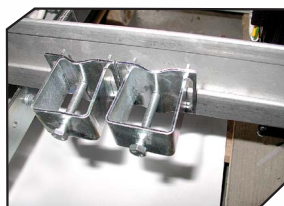
Construction: aluminium, welded

Material: aluminium sheets #2MM

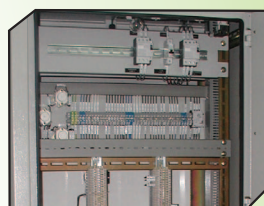
Surface finishing: powder-painted



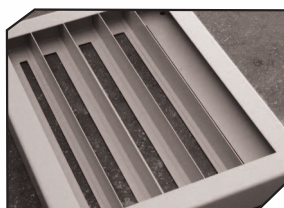
Construction details



Cable holders



Frame for mounting additional plates and clamp strips



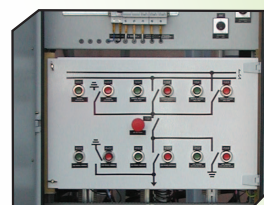
Fire-screen bulkhead



Possibility of complex equip of cabinet



Pocket for documents



Raised mounting plate

Table of pre-configured of Z1 and Z1A

Dimensions					Page of catalogue
Model of cabinet	Z1		Z1A		60
Width (W) mm	820		820		
Height (H) mm	2106		1706		
Depth (D) mm	620		620		
Operational width (W1) mm	652		652		
Operational height (H1) mm	1740		1340		
Mounting depth (D1) mm	550		550		
Width with roof (W2) mm	840		840		
Depth with roof (D2) mm	700		700		
Max height build by mounting plates	1650		1250		
Cabinet with single wall	UZ718216	-	UZ718166	-	
Cabinet with single wall + partial electric installation	-	UZ728216	-	UZ728166	
Cabinet with double wall	UZ738216	-	UZ738166	-	
Cabinet with double wall + partial electric installation	-	UZ748216	-	UZ748166	
Internal equipment					
Frame for plate mounting and additional clamp strips					66
Adjustable mounting plate of height 400 mm	AZ160640	AZ160640	AZ160640	AZ160640	
Two side mounting plates (left and right)					66
Additional side mounting plate	AZ161165	AZ161165	AZ161165	AZ161165	
Mounting plate of height 120 mm	AZ163712	AZ163712	AZ163712	AZ163712	67
Mounting plate of height 150 mm	(2 szt.) AZ163715	(2 szt.) AZ163715	(2 szt.) AZ163715	(2 szt.) AZ163715	
Mounting plate of height 200 mm	AZ163720	AZ163720	AZ163720	AZ163720	
Mounting plate of height 230 mm	AZ163723	AZ163723	AZ163723	AZ163723	
Mounting plate of height 250 mm	(1 szt.) AZ163725	(1 szt.) AZ163725	(1 szt.) AZ163725	(1 szt.) AZ163725	67
Mounting plate of height 300 mm	AZ163730	AZ163730	AZ163730	AZ163730	
Mounting plate of height 400 mm	AZ163740	AZ163740	AZ163740	AZ163740	
Mounting plate of height 450 mm	AZ163745	AZ163745	AZ163745	AZ163745	
Mounting plate of height 600 mm	AZ163760	AZ163760	AZ163760	AZ163760	66
Mounting plate of height 1650 mm	AZ163700	AZ163700	-	-	
Horizontal cross-bar	(5 szt.) AZ170705	(5 szt.) AZ170705	(5 szt.) AZ170705	(5 szt.) AZ170705	68
Cable holders rail	(2 szt.) AZ175000	(2 szt.) AZ175000	(2 szt.) AZ175000	(2 szt.) AZ175000	
Cable holder	(20 szt.) AZ176000	(20 szt.) AZ176000	(20 szt.) AZ176000	(20 szt.) AZ176000	
Box for sealing with lead	AZ172714	AZ172714	AZ172714	AZ172714	
Electric equipment					
Lighting circuit with 40W lamp and marginal switch	AZ180000	(2 szt.)	AZ180000	(2 szt.)	69
Heater 250W with thermostat	KG101250	(2 szt.)	KG101250	(2 szt.)	168
Security apparatus	AZ181000		AZ181000		69
Roof for technical supervision socket					
Technical supervision socket enclosure			AZ173000		
Steel earthing rail					
Copper earthing rail	AZ174000	AZ174000	AZ174000	AZ174000	
Foundation of cabinet					
Fire-screen bulkhead	UZ140100	UZ140100	UZ140100	UZ140100	66
Bituminous mass for fire-screen bulkhead (1 set)	AA100000	AA100000	AA100000	AA100000	70
Concrete foundation	UZ150100	UZ150100	UZ150100	UZ150100	
Cable channel for concrete foundation	UZ151000	UZ151000	UZ151000	UZ151000	70



Additional information:
- standard equipment

Z2 AND Z2A SUBSTATION CABINETS



DESCRIPTION OF CABINET:

Z2 and Z2A substation cabinets are intended for use in high-voltage substations (110 kV, 220 kV and 400 kV). Z2 and Z2A cabinets house auxiliary wiring for field CTs and CVTs of HV switching stations, output wiring of isolating switches and circuit breakers, as well as controlling and safety devices. Thanks to their structural features, the cabinets can also be used to enclose adjustment and controlling devices located outside substation premises. Cabinet panels are made of aluminium sheet metal, which is protected against corrosion by non-chromate passivation and then painted grey (RAL 7035) with polyester powder (the colour can be changed on customer's demand). Steel mounting elements inside cabinets are zinc-plated.

CONFIGURATION:

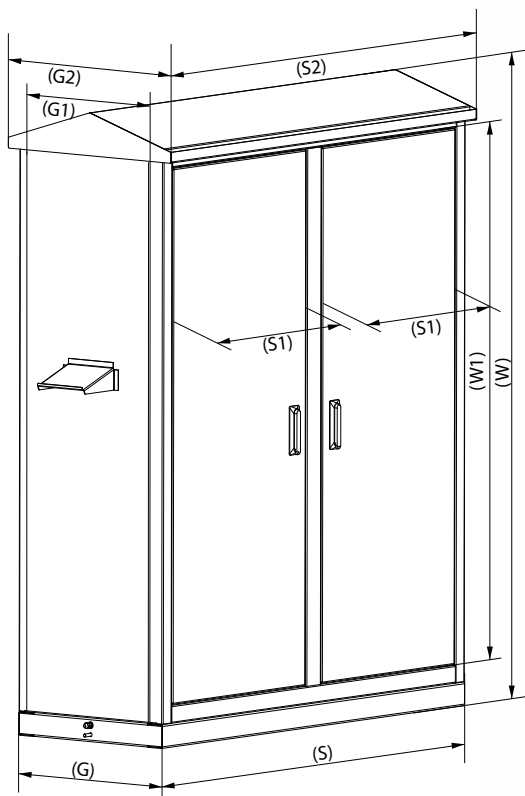
1. Two side mounting plates (left and right)
2. Front mounting plates
3. Rear mounting plate
4. Earthing rail (zincd)
5. Roof for technical supervision socket
6. Frame for mounting plates assembly and additional clamp strips
7. Door limiter and pocket for documents
8. Two handles for bulb mounting.
9. Two handles for marginal switches mounting
10. Cable holders (20 pcs.)
11. Mounting cross-bars (5pcs.)

TECHNICAL DATA:

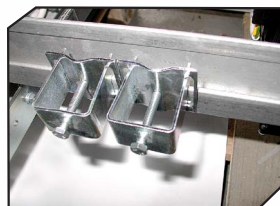
Construction: aluminium, welded

Material: aluminium sheets #2MM

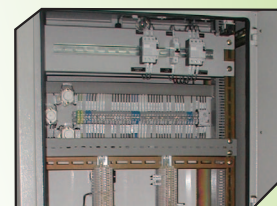
Surface finishing: powder-painted



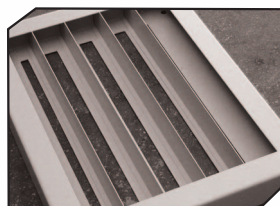
Construction details



Cable holders



Frame for mounting additional plates and clamp strips



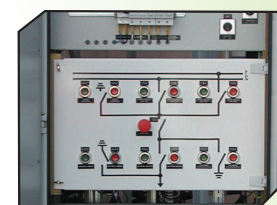
Fire-screen bulkhead



Possibility of complex equip of cabinet



Pocket for documents



Raised mounting plate

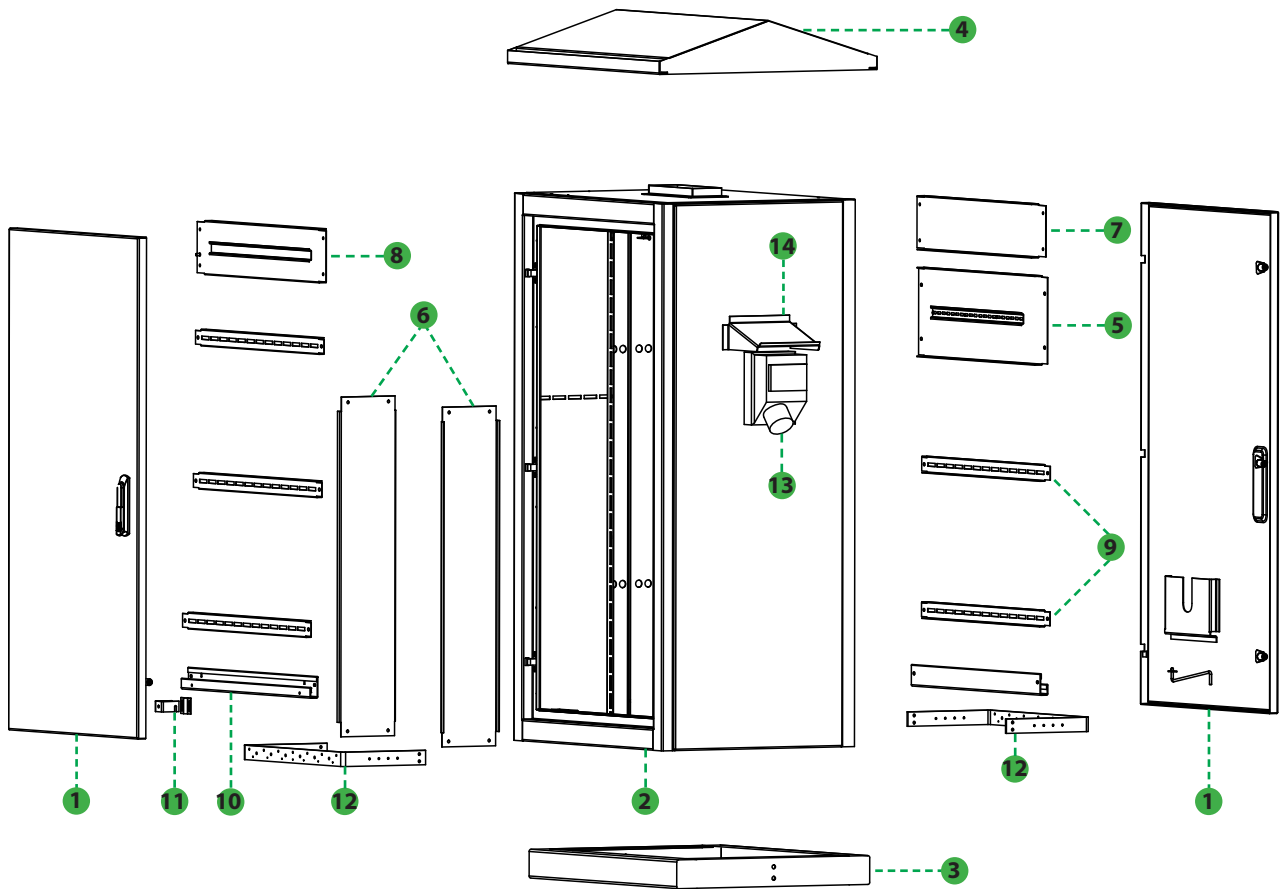
Table of pre-configured of Z2 and Z2A

Dimensions					Page of catalogue
Model of cabinet	Z2		Z2A		62
Width (W) mm	1620		1054		
Height (H) mm	2106		1114		
Depth (D) mm	620		580		
Operational width (W1) mm	2x695		2x429		
Operational height (H1) mm	1740		900		
Mounting depth (D1) mm	550		510		
Width with roof (W2) mm	1640		1064		
Depth with roof (D2) mm	700		590		
Max height build by mounting plates	1650		750		
Cabinet with single wall	UZ753216	-	UZ790116	-	
Cabinet with single wall + partial electric installation	-	UZ763216	-	UZ800116	
Cabinet with double wall	UZ773216	-	UZ810116	-	
Cabinet with double wall + partial electric installation	-	UZ783216	-	UZ820116	
Internal equipment					
Frame for plate mounting and additional clamp strips					
Adjustable mounting plate of height 400 mm	AZ160640	AZ160640	-	-	66
Two side mounting plates (left and right)					66
Additional side mounting plate	AZ161165	AZ161165	AZ261165	AZ261165	
Mounting plate of height 120 mm	AZ163712	AZ163712	AZ263712	AZ263712	
Mounting plate of height 150 mm	(2 szt.) AZ163715	(2 szt.) AZ163715	(2 szt.) AZ263715	(2 szt.) AZ263715	
Mounting plate of height 200 mm	AZ163720	AZ163720	AZ263720	AZ263720	
Mounting plate of height 230 mm	AZ163723	AZ163723	AZ263723	AZ263723	
Mounting plate of height 250 mm	(1 szt.) AZ163725	(1 szt.) AZ163725	AZ263725	AZ263725	
Mounting plate of height 300 mm	AZ163730	AZ163730	(2 szt.) AZ263730	(2 szt.) AZ263730	67
Mounting plate of height 400 mm	AZ163740	AZ163740	AZ263740	AZ263740	
Mounting plate of height 450 mm	AZ163745	AZ163745	AZ263745	AZ263745	
Mounting plate of height 600 mm	AZ163760	AZ163760	AZ263760	AZ263760	
Mounting plate of height 1650 mm	AZ163700	AZ163700	-	-	
Horizontal cross-bar	(5 szt.) AZ170705	(5 szt.) AZ170705	(5 szt.) AZ270705	(5 szt.) AZ270705	
Cable holders rail	(2 szt.) AZ175000	(2 szt.) AZ175000	-	-	
Cable holder	(20 szt.) AZ176000	(20 szt.) AZ176000	-	-	68
Box for sealing with lead	AZ172714	AZ172714	-	-	
Electric equipment					
Lighting circuit with 40W lamp and marginal switch	AZ180000	(2 szt.)	AZ180000	(2 szt.)	69
Heater 250W with thermostat	KG101250	(2 szt.)	KG101250	(2 szt.)	168
Security apparatus	AZ181000		AZ181000		
Roof for technical supervision socket					
Technical supervision socket enclosure	AZ173000		AZ173000		69
Steel earthing rail					69
Copper earthing rail	AZ174000	AZ174000	AZ274000	AZ274000	69
Foundation of cabinet					
Fire-screen bulkhead	UZ140200	UZ140200	UZ140300	UZ140300	66
Bituminous mass for fire-screen bulkhead (1 set)	AA100000	AA100000	AA100000	AA100000	
Concrete foundation	UZ150200	UZ150200	UZ150300	UZ150300	70
Cable channel for concrete foundation	UZ251000	UZ251000	UZ251000	UZ251000	70



Additional information:
- standard equipment

Elements of construction of Z series of cabinets



Z series of cabinets characteristics

1. Front and rear full aluminium doors with opening angle limiter
2. Carrier frame of cabinet with sides and internal construction
3. Integrated plinth, height 100 mm
4. Roof against rain with water outflow channels
5. Adjustable mounting plate, height 250 mm
6. Side mounting plates
7. Front mounting plate, height 150 mm
8. Rear mounting plate, height 150 mm
9. Mounting horizontal cross-bars (5 pcs. in a standard)
10. Cable holders rail (2 pcs. in a standard)
11. Cable holder (20 pcs. in a standard)
12. Grounding, steel rail (2 pcs. in a standard)
13. Technical supervision sockets enclosure
14. Roof for technical supervision socket

Cabinets with single and double wall

Single wall

Construction is exactly the same as in the case of cabinet with a double wall from except an internal mantle and thermal-insulation material. This solution does not provide optimal conditions for an apparatus mounted inside the cabinet and also increases operating costs for cabinet heating.

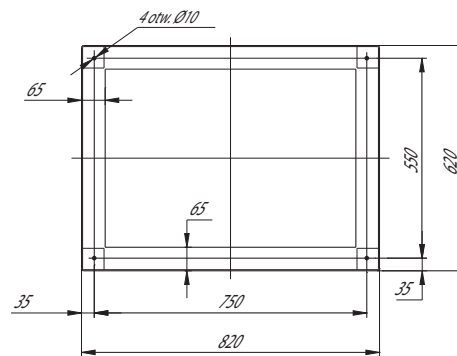
Double wall

A basic problem in outdoor cabinets is providing the proper thermal terms to the apparatus which works inside the cabinet. To avoid the condensation of water vapour inside a cabinet, walls were developed in mantle technology. Inside the wall thermal-insulation material is placed. It gives sufficient energy savings. Additionally the inside of enclosure is gravitationally ventilated by openings in the ceiling.

Dimensions and distance of the mounting openings in cabinet bottom plate

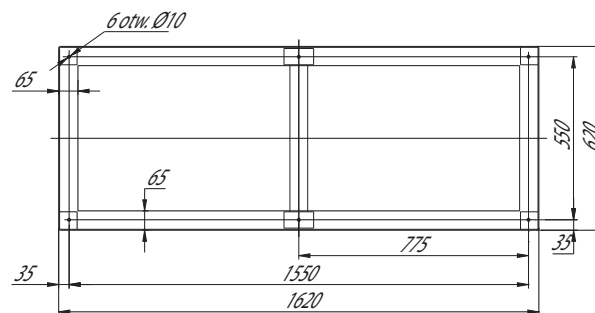
Z1 and Z1A bottom plate

Basis dimensions	820 x 620
Distance between openings	750 x 550
Amount of mounting openings	4
Opening diameter	Ø10



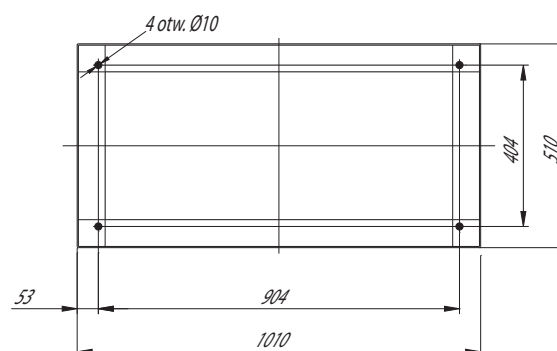
Z2 bottom plate

Basis dimensions	1620 x 620
Distance between openings	755 x 550
Amount of mounting openings	6
Opening diameter	Ø10



Z2A bottom plate

Basis dimensions	1010 x 510
Distance between openings	904 x 404
Amount of mounting openings	4
Opening diameter	Ø10



Optional equipment for Z1, Z1A, Z2, Z2A cabinets

Adjustable mounting plate

Adjustable mounting plate for assembly of electrical equipment. The possibility of adjusting allows easy access to mounted apparatus from each side of mounting plate.

Material:

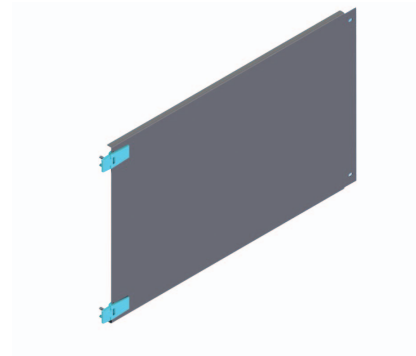
Steel sheets #1,5 mm

Range of delivery:

1 mounting plate, 2 hinges, complete assembly kit

Colour:

RAL 7035



Execution

For models of cabinet	Height(mm)	Width(mm)	Catalogue number
Z1, Z1A and Z2	400	600	AZ160640

Side mounting plate

Side mounting plate for assembly of electrical equipment inside side surface of cabinet.

Material:

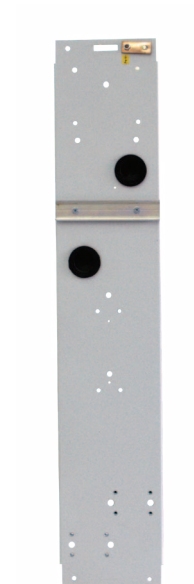
Steel sheets power-painted #1,5mm

Range of delivery:

Side plate with assembly kit

Colour:

RAL 7035



Execution

For models of cabinet	Height(mm)	Width(mm)	Catalogue number
Z1, Z1A and Z2	944	180	AZ161165
Z2A	810	180	AZ261165

Fire-screen bulkhead

Serves for separating the inside of cabinet from cable channel. After introduction of cables it is advised to fulfil the bulkhead with bituminiferous mass which prevents fire, harmful substances and rodents from getting inside the cabinet. Use of bulkhead provide the protection rating IP 55

Material:

Aluminium sheets powder-painted #3 mm

Range of delivery:

Fire-screen bulkhead with assembly kit

Colour:

RAL 7035



Execution

For models of cabinet	Catalogue number
Z1 and Z1A	UZ140100
Z2	UZ140200
Z2A	UZ140300

Mounting plate

Mounting plate for assembly of electrical and control equipment.

Material:

Zincked sheets #1,5 mm

Range of delivery:

Mounting plate with assembly kit

Colour:

RAL 7035



Execution

For models of cabinet	Height(mm)	Width(mm)	Catalogue number
Z1, Z1A and Z2	120	710	AZ163712
	150	710	AZ163715
	200	710	AZ163720
	230	710	AZ163723
	250	710	AZ163725
	300	710	AZ163730
	400	710	AZ163740
	450	710	AZ163745
	600	710	AZ163760
Z1 and Z2	1650	710	AZ163700
Z2A	120	930	AZ263712
	150	930	AZ263715
	200	930	AZ263720
	230	930	AZ263723
	250	930	AZ263725
	300	930	AZ263730
	400	930	AZ263740
	450	930	AZ263745
	600	930	AZ263760

Horizontal cross-bar

The horizontal cross-bar is used as mounting support allowing to equip cabinet in other elements of internal instalation.

Material:

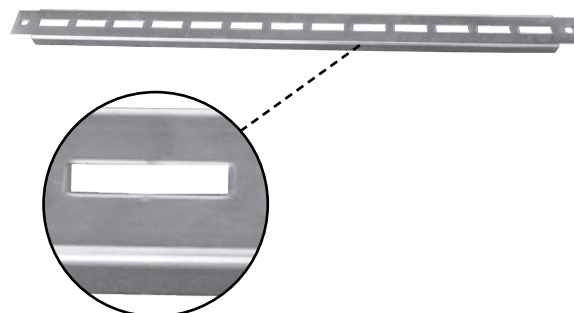
steel sheet zincked #2 mm

Range of delivery:

Horizontal cross-bar with assembly kit

Colour:

RAL 7035



Execution

For models of cabinet	Length (mm)	Width(mm)	Catalogue number
Z1, Z1A and Z2	710	50	AZ170705
Z2A	930	50	AZ270705

Additional rail for cable holders

Rail is used to fasten of cable holders like AZ176000.

Material:

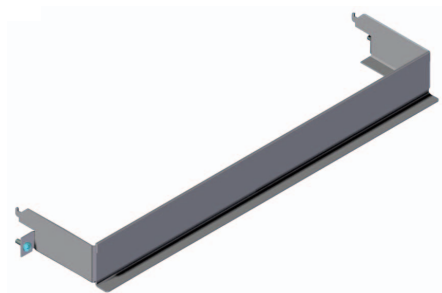
steel sheets zincked #2 mm

Range of delivery:

Rail for cable holders with assembly kit

Colour:

RAL 7035



Execution

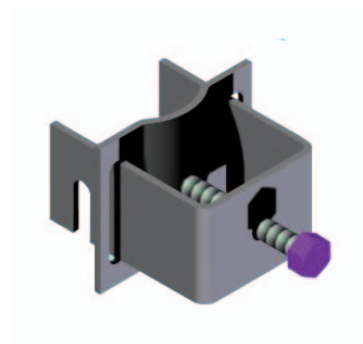
For models of cabinet	Maximal amount of cable holders per one rail	Catalogue number
Z1, Z1A and Z2	10 szt.	AZ175000

Cable holder

Box serves for securing the metering devices. It is for a sale along with assembly kit used for screwing into cabinet.

Material:

steel #2 mm



Execution

Package	Catalogue number
1 szt	AZ176000

Box for lead-sealing

Box serves for securing the metering devices. It is for a sale along with assembly kit used for screwing into cabinet.

Material:

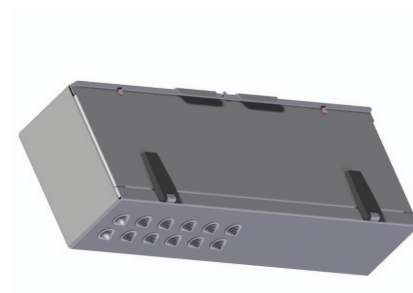
aluminium sheets #1,5 mm

Range of delivery:

Box for lead-sealing with assembly kit

Colour:

RAL 7035



Execution

For models of cabinet	Height(mm)	Width(mm)	Catalogue number
Z1, Z1A and Z2	710	200	AZ172714

Lighting circuit

Lighting circuit is fluorescent lamp and marginal switcher. Serves for switching on the lighting after doors are opened.

NOTE:

All the elements of lighting circuit are ordered with assembly



Execution

Package	Catalogue number
1 complete set	AZ180000

Enclosure with power supply sockets

Power supply sockets enclosure is equipped with 3-phase and 1-phase socket, furcating plate and TH35 strip for 7 modules (7x17,5 mm).

Technical data:

Voltage 400 V

Protection rating IP 44

Material:

PA6 and PC material



Execution

For models of cabinet	Height(mm)	Width(mm)	Catalogue number
Z1, Z1A, Z2 and Z2A	141	201	AZ173000

Grounding copper rail

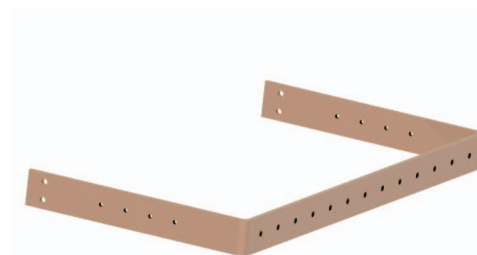
Rail serves for distribution of neutral channel and earthing channel.

Material:

copper by cut of 40 x 5mm²

Range of delivery:

Grounding copper rail with assembly kit



Execution

For models of cabinets	Catalogue number	
	Steel	Copper
Z1, Z1A and Z2	AZ184000	AZ174000
Z2A	AZ284000	AZ274000

Concrete foundation

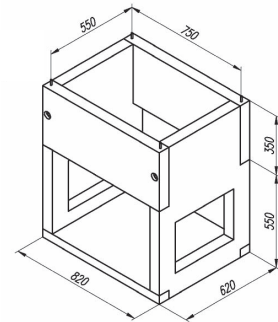
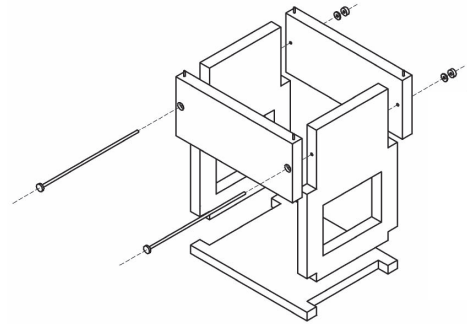
Foundation is built from five concrete elements, connected sideways by two screw-bolts. Such construction allows to put the cables out of four directions from cable channel. From the top of foundation there are 4 screw-bolts used to place the cabinet on ground (fire-screen bulkhead)

Material:

concrete

Range of delivery:

Foundation with assembly kit



Execution

For models of cabinet	Catalogue number
Z1 and Z1A	UZ150100
Z2	UZ150200
Z2A	UZ150300

Cable channel for concrete foundation

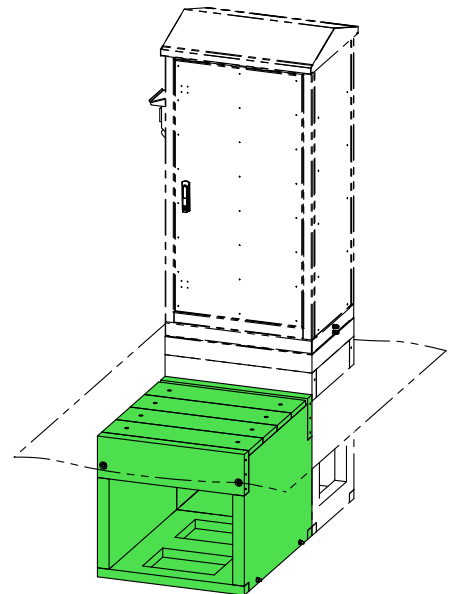
Cable channel that allows easy access and operating space for cabling, leaded out from earthen installation. Cable channel is used on buildings which do not have a traditional cable channel (installation conducted in earth).

Material:

concrete

Execution

For models of cabinets	Catalogue number
Z1, Z1A, Z2	UZ151000
Z2A	UZ251000



Module of sectionalizing power supply

A complete set used for building up a module of sectionalizing circular girths (bypass)

consists of:

- connecting strip 2 pcs
- sectionalizing switch of power supply 40A
- two side mounting plates AZ 163700 or AZ263700
- cable holders

Execution

For models of cabinet	Catalogue number
Z1, Z1A and Z2	UZ000010
Z2A	UZ200010



AWSC Rack

Resistor rack for automatically forcing the „component in circuit“ consists of:

- assembly strips
- rack
- resistor cross-bars
- linings (complete set)
- mounting plates (3pcs.)

Execution

For models of cabinet	Catalogue number
Z1 and Z1A	AZ173100

