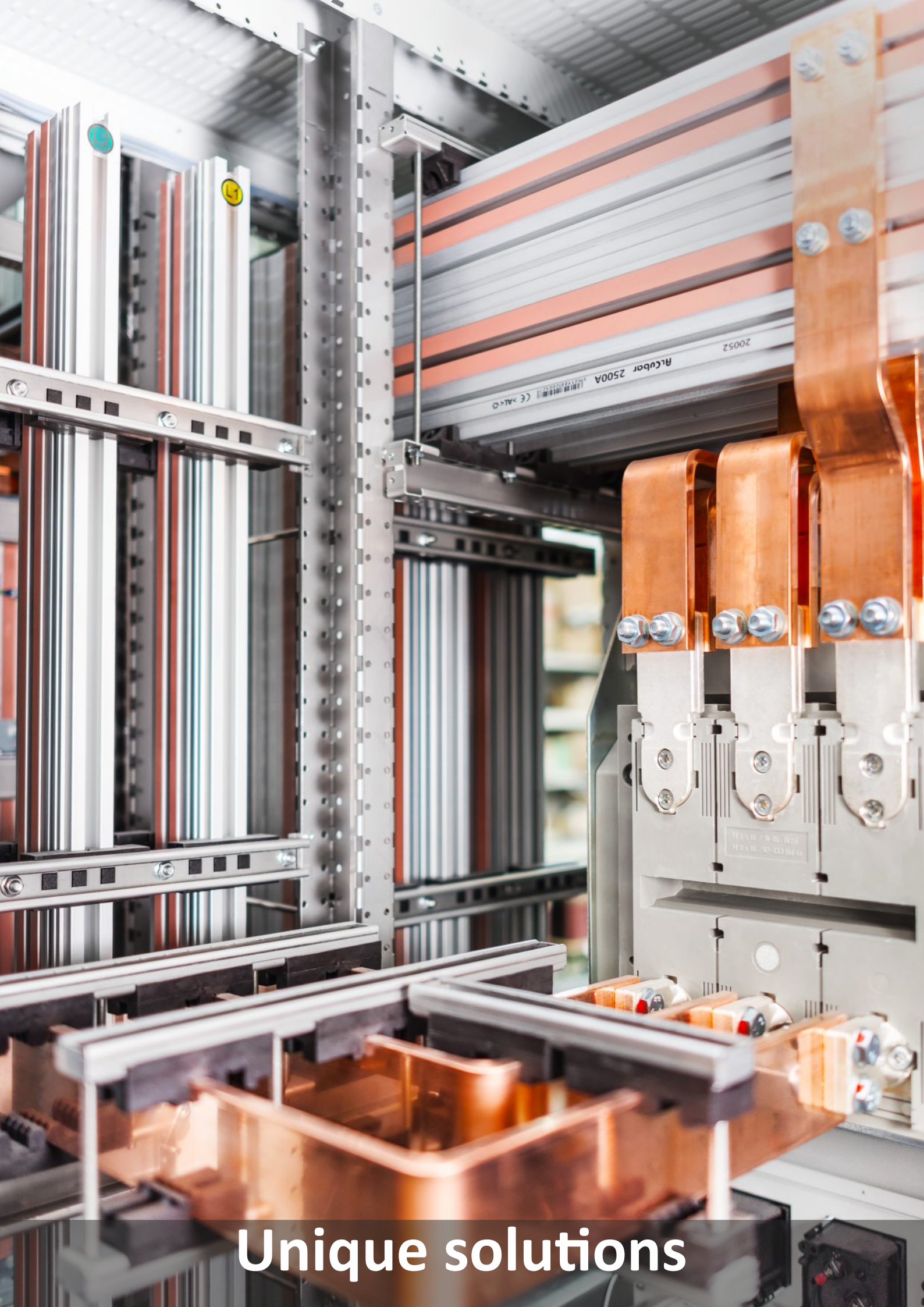


We've Got The Power!
Zenex
— SP. Z O.O. —

Zenergy System
up to 6300A



...considered in smallest details

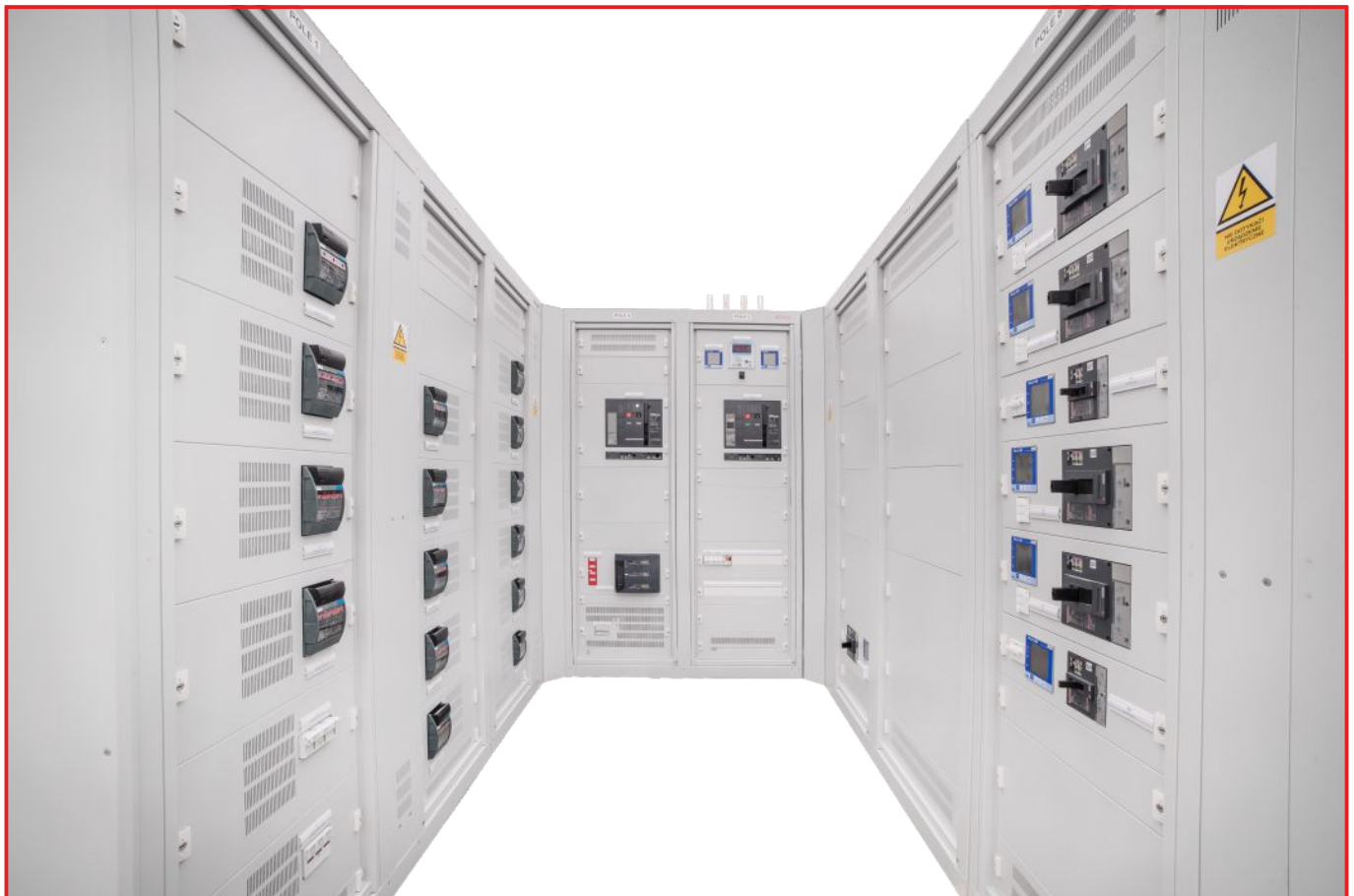


Unique solutions

Technical Performance

General characteristic

Rated current (In)	4400A at IP-55 and 6300A at IP-30	
Rated operational voltage (Ue)	up to 1000V AC / 700V DC	
Rated insulation voltage (Ui)	up to 1500V AC / 1800V DC	
Rated withstand voltage at network frequency 50 Hz	3800V	
Rated impulse withstand voltage	12000V	
Nominal frequency	50Hz	
Rated short-time / peak withstand current	(Icw) (1s)	(Ipk)
-main copper busbars up to 3x100x10	100kA	220kA
-main aluminum busbars up to 3x2500A AlCubar	100kA	220kA
-copper distribution busbars up to 2x100x10	85kA	187kA
-copper distribution busbars up to 60x10	65kA	143kA
-collecting busbars N, PE	60kA	132kA
Working conditions - ambient air temperature	-55°C dry to +40°C humid	
Degree of protection	IP30 – back plate and top plate ventilated, doors without gasket IP55 – plain back plate and top plate, doors with gaskets	
Resistance to mechanical impacts	IK10 / IK08 with transparent doors	
Insulation class	Class I	
Design	Indoor / outdoor installations	



Technical Performance

Framework dimensions, and functionality

More than twenty frame widths:

- Cable compartment
W = 300; 600;
- Cable compartment or device compartment
W = 400; 450;
- Device compartment or cable compartment
W = 650; 850; 1000; 1200;
- Device compartment with busbar compartment
W = 650+150; 650+200; 650+300; 650+400;
- Automation equipment plain plate compartment
W = 800; 1200;
- Double frames
W = 650+650; 650+850; 850+850; 850+400;
- Tripple frames
W = 150+650+300; 150+650+400;



<p>Symmetric</p> <p>Frame</p>	<p>Double</p> <p>Frame</p>	<p>Multi</p> <p>2200</p> <p>1200</p> <p>Height</p>
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Technical Performance

Framework dimensions, and functionality

Six standard heights:

- H = 1200; 1400; 1600; 1800; 2000; 2200mm

Four available depth

- D = 300; 400; 600; 800mm

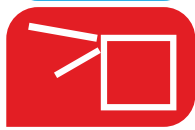
- All sides symmetric frame, allow to turn frame anyhow, also doors are sides universal
- Unique double, and even tripple frames make this system really cheap solution
- The number of height and depth is unparalleled by other manufacturers
- It's system that can completely integrate power distribution with automation systems
- Corner frame, and double doors increase user safety, and extend functionality

Automation



Ready

Double



Doors

Corner



Frame

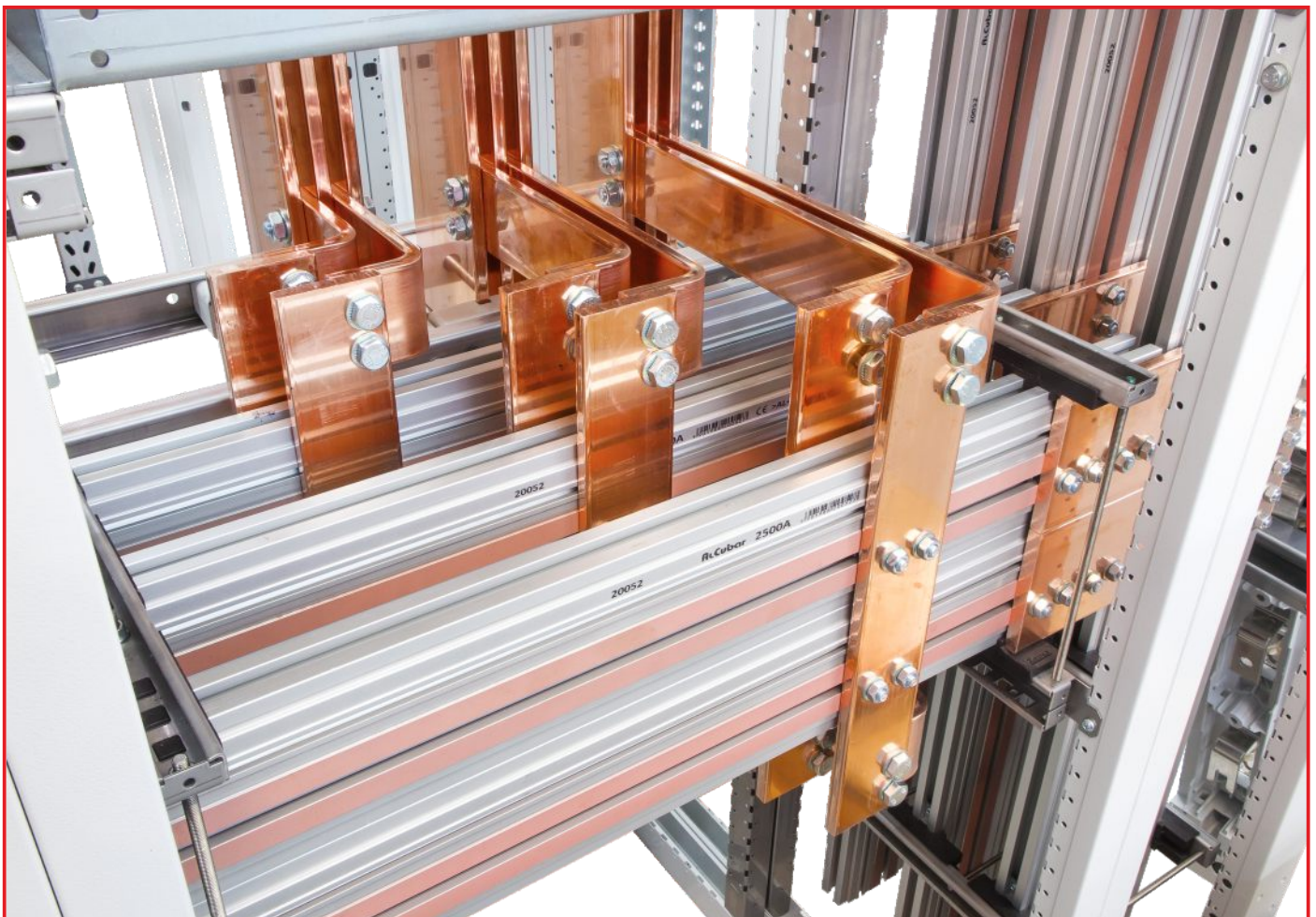
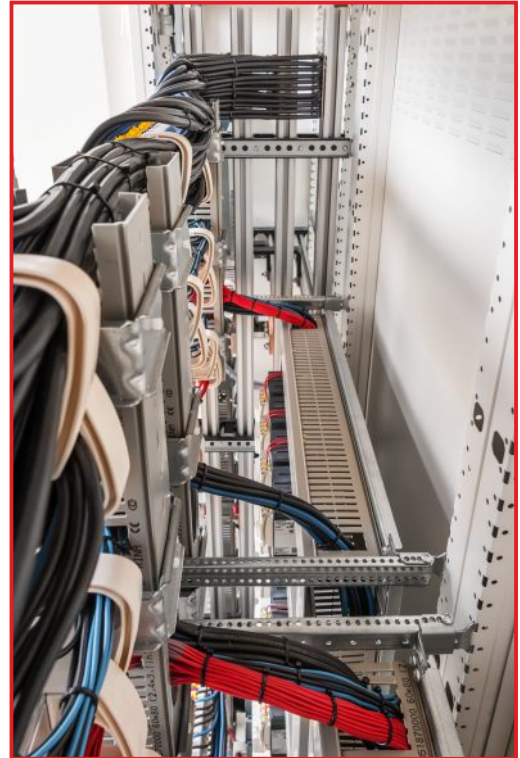


Technical Performance

Advantages of Zenergy system

- The system ensure total compatibility for all known electrical equipment producers, like ABB; EATON, Hyundai, Legrand; Schneider Electric, and others on request. This is a key advantage in ensuring a high level of installation dependability. Design has been validated by type tests as per standards EN 61439-1; EN 61439-2; EN 61439-5;
- Every construction element is zinc coated, so it's the most resistant framework in aggressive enviroment.
- From current 1600A all internal supports are made of austenitic stainless steel, resulting with low active power losses, and low noise level.


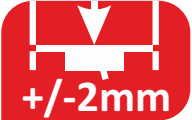
Low	Zinc	Austenitic
	Zn	
Noise	Coated	Support

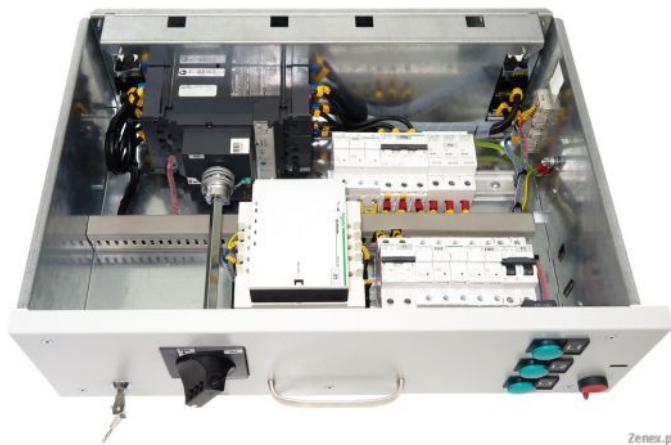


Technical Performance

Advantages of Zenergy system

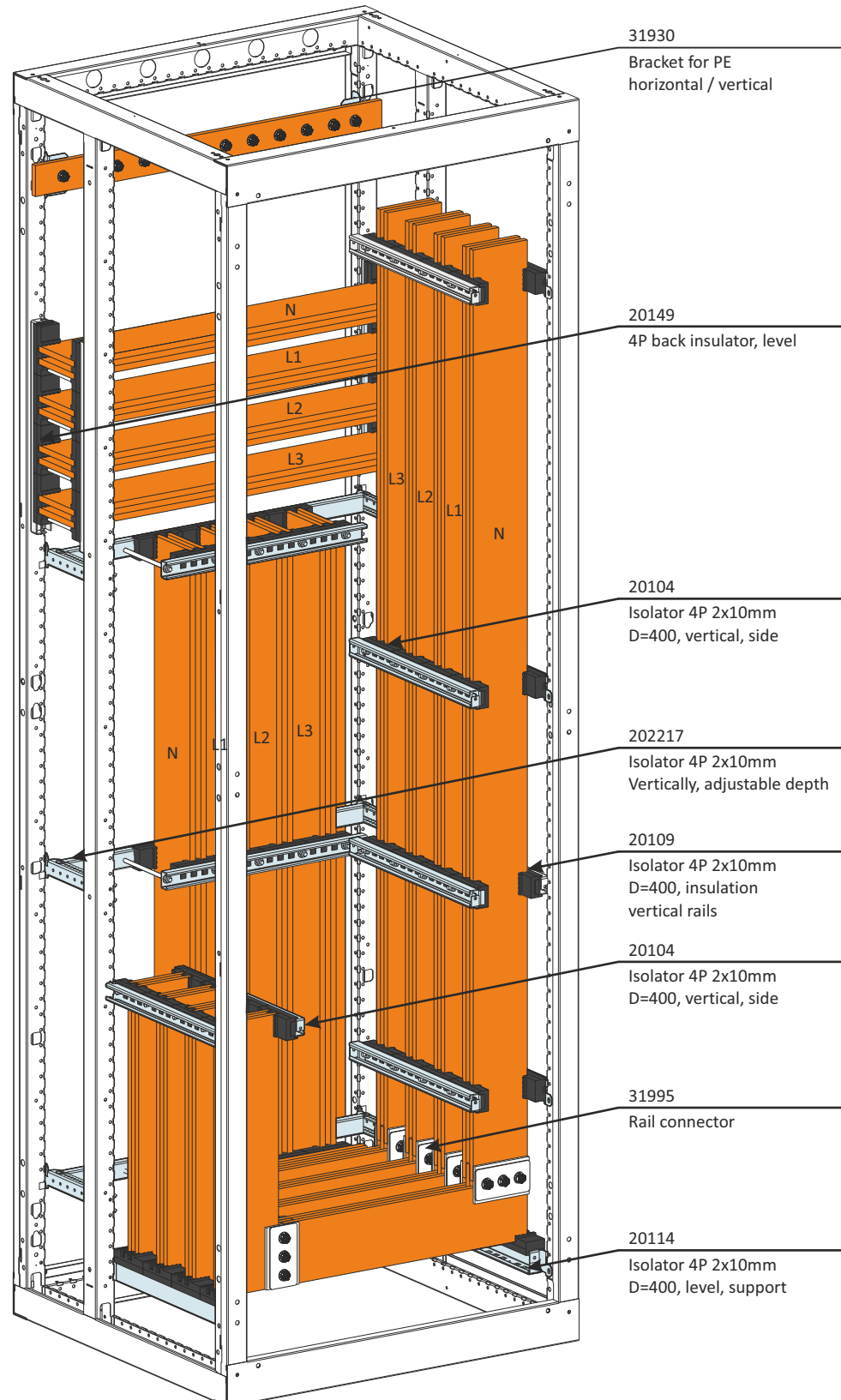
- Modular design of Zenergy switchboards can be modified easily to integrate new functions as needed.
- Maintenance operations or panel modification are fast, thanks to modular design, second internal doors, additional internal separations, shielded transfer terminals.
- The result is: Total safety for qualified personnel.
- Zenergy system combine all possible busbars layouts that other producers offers, together with dedicated mounting plates, or unique universal flexible plates makes it very adaptive solution.

Multi	Flexible	Draw
		MCC
Busbars	Montage	Out



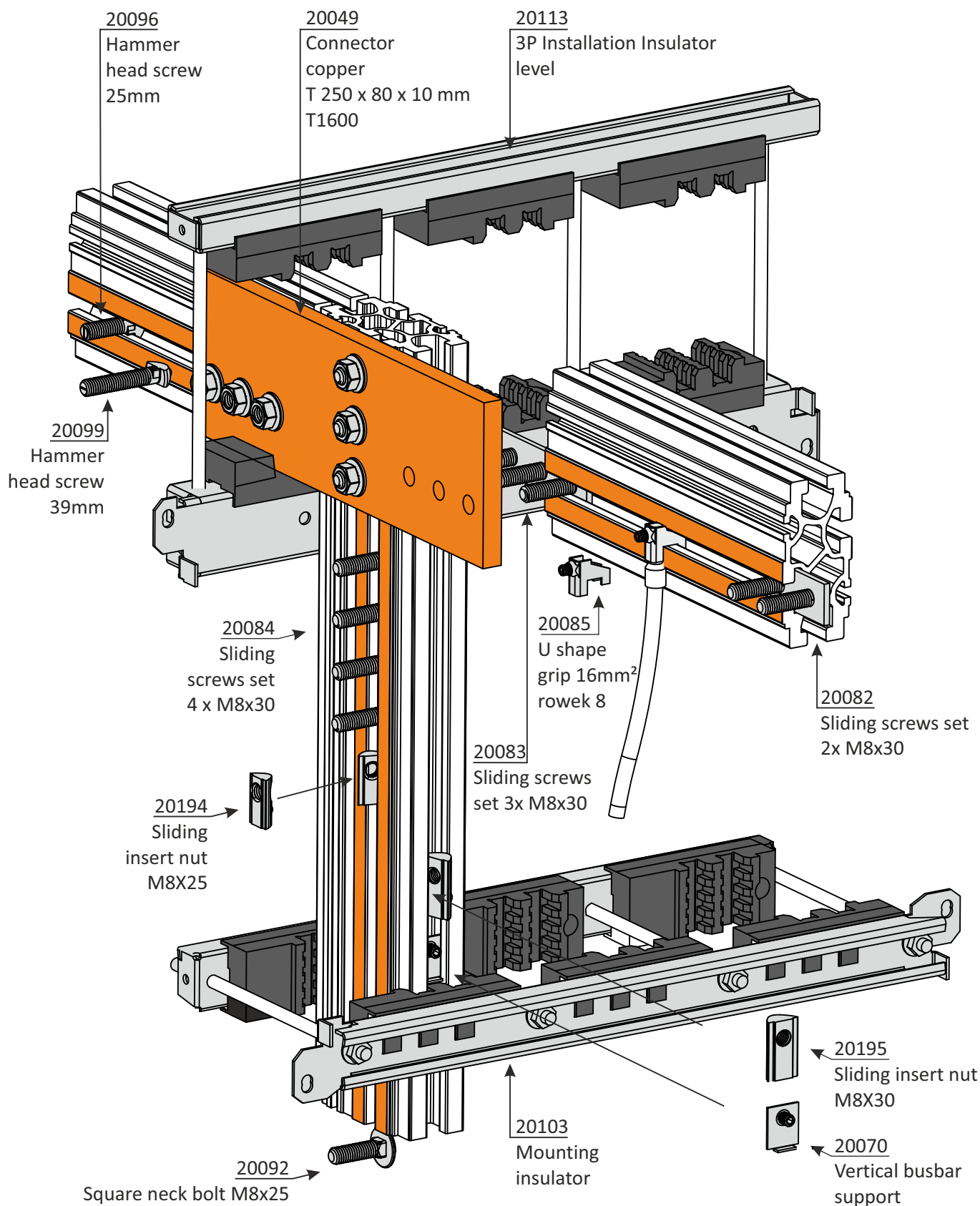
Brackets, insulators, 4P rail bridges

- Traditional horizontal and vertical busbars in the W650 mm range



Example Drawing

Alcubar H50, H80, H100 system presentation

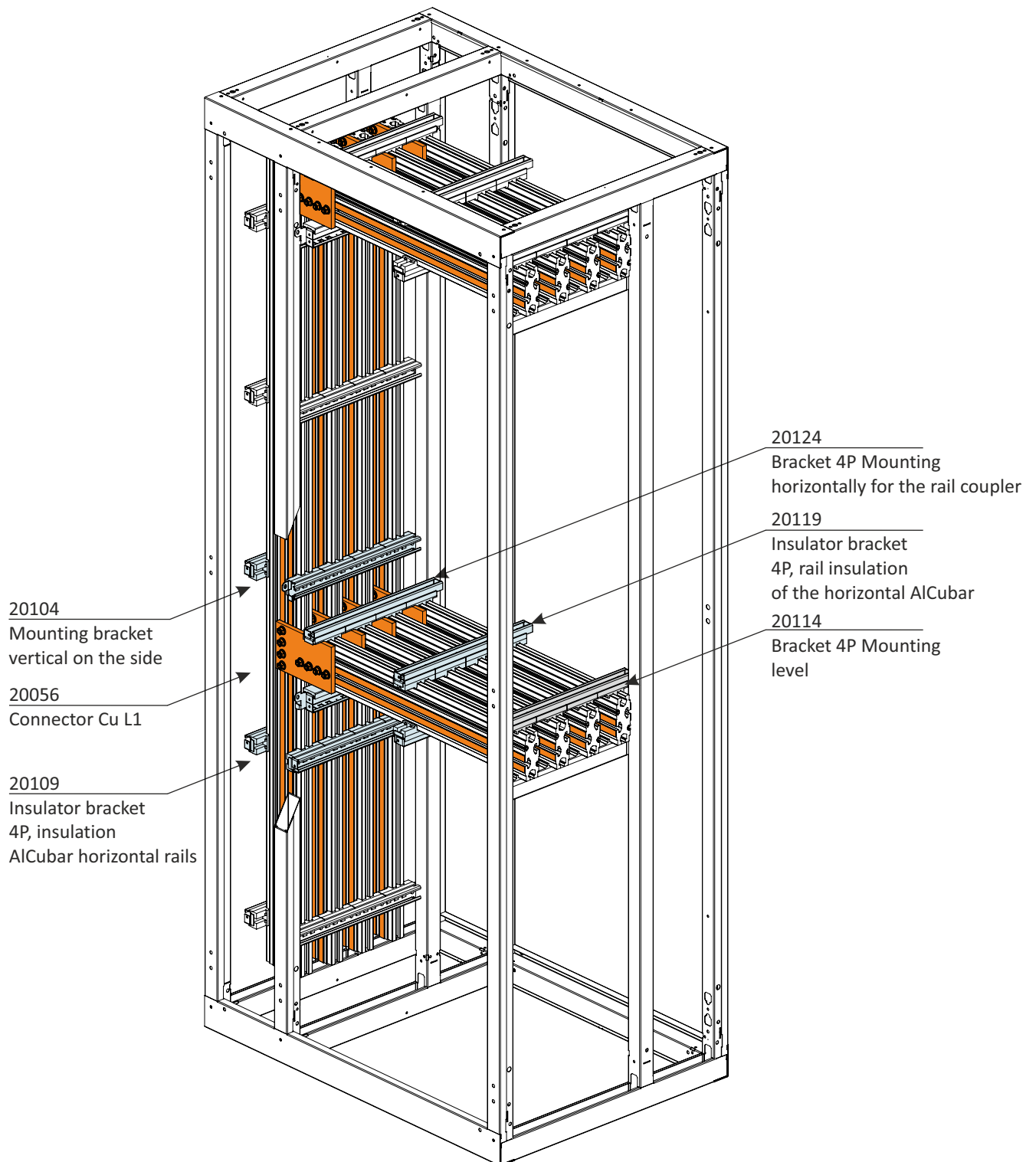


Example Drawing

Alcubar H50, H80, H100 system presentation

Main energy distribution:

- Horizontal rails in fields W650 / W650+150mm
- Vertical rails in the rail compartment 150/200mm



About the Product

AlCubar profiled rail busbars - change ideas

From the days when the low-voltage switchgear used simple, painted aluminum flat busbars nothing has changed, except that today the flat copper busbar dominates. People have seen many disadvantages in aluminum: too soft electrical conductor, cannot withstand high short-circuit currents, kneading of aluminum joints, that cause subsequent overheating. Oxidation, cracking, and low conductivity of electricity in relation to copper. Is that true?



It is said that the conductivity of aluminum is only 66% of the conductivity of copper - yes, if we take into consideration the conductivity of the cross-sectional area. However, aluminum is much lightest: 2.7kg/dm³, while the copper weighs 8,9kg/dm³. Increasing cross-section *1,508 we get the same conductivity of aluminum. Now the needed volume of the conductors, with the same nominal currents we need 4kg/dm³ of aluminum, and 8,9kg/dm³ of copper. So aluminum is twice lighter!

Comparing the prices of raw materials, where copper is more than twice as expensive, it follows that aluminum is not by half, but four times cheaper!!! So why there is domination of copper in the LV switchgears?

Many manufacturers from decades develops their own electrical conductors, for example cuponal that are still rectangular flat bars, with plenty of copper around the aluminum core of conductor, unfortunately this solution is not much lighter and much cheaper – mostly up to 20% cheaper. In addition, for example, for rated current 2500A to use cuponal conductor we have to use 2x100x10 rail instead of copper bars 2x80x10. The increase of this dimension means that we will not be able to connect most of such cuponal rails to the breakers designed for copper bars 80x10.

There were also developed various types of profile rails, copper, or aluminum. For the first type the only advantage could be ease of connection, because most often it is C-shape rail, where special screws gives the possibility of connecting the output circuit anywhere. However, the price of copper profiled rails is very high and manufacturers of switchgears prefers to make holes punching even at

the entire length of the usual flat copper. The second type is the profiled aluminum rail, which gives the same flexibility to connect, however, creates problems with connecting to copper flat busbars - you have to use cuponal washers. In addition, there is a question, what with the aforementioned disadvantages of aluminum?

Aluminum oxidizes - yes! But best is to use anodized profile which simultaneously has a larger hardness, corrosion resistance, higher thermal emissivity than copper, anodized coating further improves the electrical insulation and aesthetics. Aluminum is soft or crack - not necessarily! Today's aluminum-magnesium-silicon alloys are giving twice the stiffness of copper, thereby their short-circuit withstand is higher, and there is no kneading of aluminum at joints. Because pure aluminum profile has its disadvantages, and the anodized surface is an insulator, the best option is to cover the rail at the contact with a thin layer of copper.

Different technologies of surfacing by copper have been known for decades. In the market from many years there are profiled aluminum busbars, coated partly with copper, so why the copper busbar still dominates?

Zenex as a manufacturer of Zenergy switchgear system, aiming to continuously improve the quality and price competitiveness has developed a system AlCubar profiled rails, which we believe has ruled out all the disadvantages of earlier solutions, and used up the advantages of aluminum. Cuponal solution is not perfect – same as copper bar bending possibility is advantage, but causing trouble with the size and a small profit in price.

Conclusion is that connecting apparatus like ACB or MCCB still need to be made by flat copper busbar,

which is easy forming and has the smallest dimensions. There is no possibility to develop a copper profiles that would be convenient in connection but not extremely expensive, as well as cannot use pure aluminum posing problems with connection.

That is why we focused on rigid anodized aluminum profiles, coated with copper. Dedicated exclusively on the straight sections of switchgear system internal busduct. The important thing was to develop a profile shape, that would be easily connectable between it, giving the possibility to mount in standard insulators, and connect without any complicated fasteners intermediary with flat copper bars.

The biggest drawback of existing profiles so far is illusory profit - producers set market price around 30% cheaper than the price of a standard flat copper busbar.

Unfortunately, these profiles are available in certain lengths, mostly two-meter, which when installed in the switchgear have a useless waste that absorbs theoretical profit. The only remaining ease of installation is that the profiles contain a groove providing the possibility to insert the screw in any place. However, the already known solutions are usually with only one T-shaped groove.



Straight 50x10 copper connector for H50 AlCubar profile

About the Product

AlCubar profiled rail busbars - change ideas

For example, for a profile of rated current of 2500A it is very difficult to connect in one place two copper bars 80x10. Also there is the need to use special shaped copper connectors to connect neighboring fields. Such solution in fact is having so much drawbacks, that appears much more expensive than standard copper busbars solution.

Therefore, during development of a profiled rail AlCubar 2500A we focused on how to develop an electrical conductor that unfortunately must have a larger cross-section and have availability to connect directly two copper busbars in one place, and maintain proper clearances between the individual phases.

The solution is two-sided, and even as additional option can be connected by four flat copper busbars, which had none of previous profiled busbars manufacturer. In our solution two-sides groove connection does not require a thicker electrical conductor, which in most cases you cannot afford due to the width of small phase distances in switchgear panel. It has appear that the most important was shape of the profile. Minimal size has been achieved by making it symmetric by the midpoint of the profile, with offset between the grooves in case of largest cross-section. It appeared that additional 8mm thickness, which takes AlCubar comparing to two flat copper 80x10 with 10mm spacing, for the current interval 2500 is only advantage! Because of it thickness short-circuit withstand is much higher in comparison with flat copper busbars. Advanced profile shape also significantly increase the heat dissipation surface area so the temperature increases are less than their copper counterparts.

The breakthrough fact which brings a significant gain for the customer is that we deliver profiles in any length specified by the customer without cutting costs, so that the client does not have any waste. Additionally we developed specific insulators dedicated to Zenergy switchgear that the customer can connect simple copper connector between the fields of the switchgear, just as it is done in the case of copper busbars. Taking into consideration the costs of the entire system, including insulators,

AlCubar Profile	Section [mm ²]	Section comp. to Cu	Circuit [mm]	Circuit comp. to Cu	Weight comp. to Cu	Equivalent of Cu bar
H27	360	x1.20	210	x2.62	36%	30x10
H50	670	x1.34	400	x3.33	41%	50x10
H80	1160	x1.45	460	x2.50	44%	80x10
H100	2500	x1.56	510	x1.42	47%	2x80x10

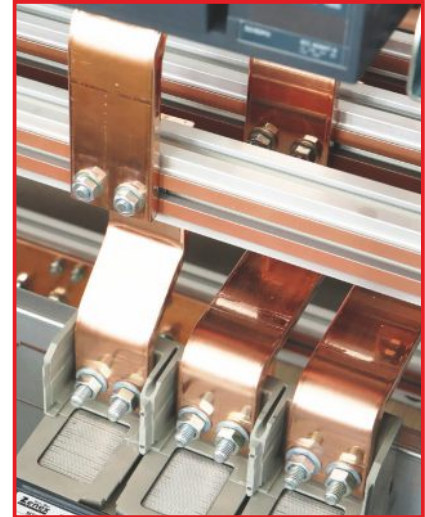


Bilateral connection of 2x80x10 mm busbars

special screws to connect the profiles, and copper connectors, for 2500A switchgear rated current with AlCubar is:

- more than 50% lighter
- 40% cheaper material

Moreover, the system AlCubar significantly reduces installation time by eliminating laborious copper cutting and punching. Another advantage is the possibility of making additional connection of output circuit anywhere, anytime even at short maintenance breaks. In the case of copper bridges it is often very difficult, or it require removal of the busbars



Two sides connection to AlCubar by copper rails 80x10

from switchgear for modification. The AlCubar system provides several fastening elements in the form of a hammer screws, T-slot nuts that can provide connection of the output circuits anywhere along the rail AlCubar without removing adjacent existing connections. Also there are used sets from single till quadruple screws for fast and reliable (reinforced) connection between AlCubar profiles, or for output circuits.

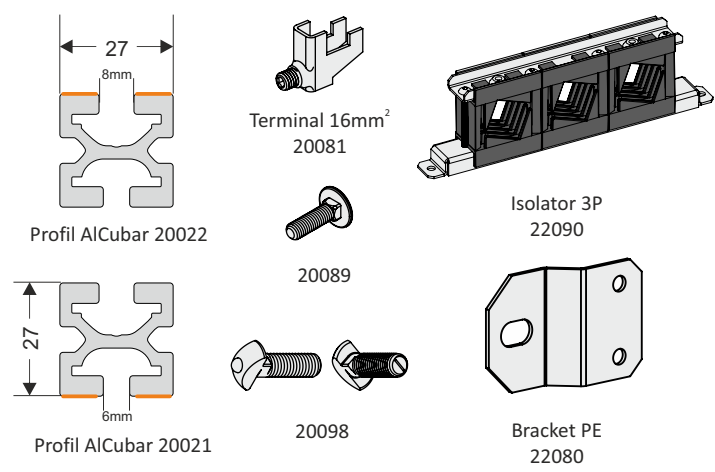
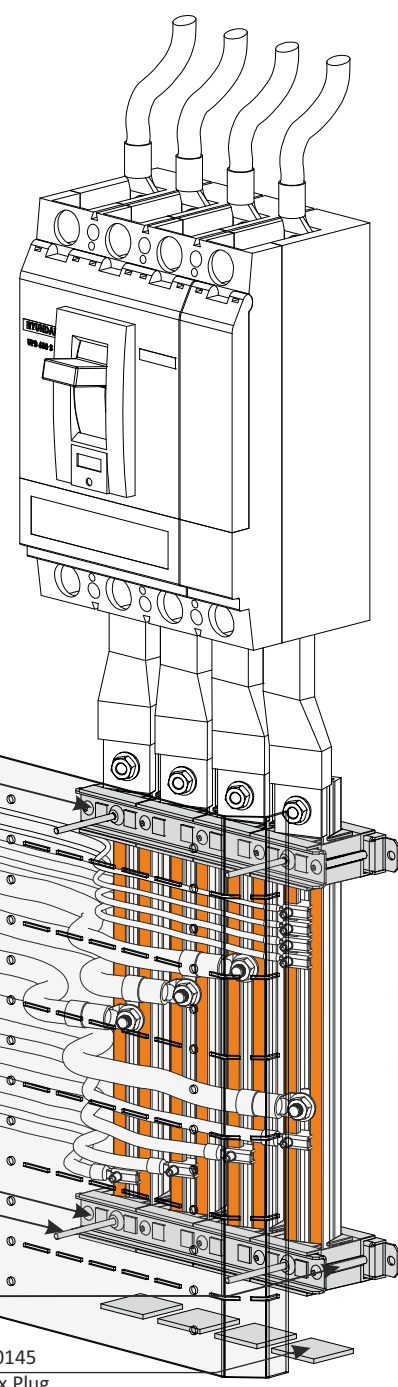


Energy	Even	Multi	Bi-metal	2 sided
Max Δt +55K	-40%	+/- 1mm	Al/Cu	
Safe	Cheaper	Lenght	Busbar	Grooves

Wall and standing constructions up to 800A

Selection of the AlCubar H27 rail system

Type	Referencje
AlCubar - anodized profile Al-Cu H27, 360mm ² , h=27mm, 1 Cu groove, 6mm	20021
AlCubar - anodized profile Al-Cu H27, 360mm ² , h=27mm, 1 Cu groove, 8mm	20022
Terminal U16/6, 16mm ² , for 6mm groove, set of 100pcs, can be mounted anywhere	20080
Terminal U16/8, 16mm ² , for 8mm groove, set of 100pcs, can be mounted anywhere	20081
Hammer screw M6x16, cl. 8.8 + washers, nuts, cpl. 100pcs, inserted from the end of the profile	20086
Hammer screw M6x20, cl. 8.8 + washers, nuts, cpl. 100pcs, inserted from the end of the profile	20087
Hammer screw M8x20, cl. 8.8 + washers, nuts, cpl. 100pcs, inserted from the end of the profile	20088
Hammer screw M8x25, cl. 8.8 + washers, nuts, cpl. 100pcs, inserted from the end of the profile	20089
Sliding screw, hammer screw with ball M8x25 for groove 8mm + washers, nuts, cpl. 20pcs	20098
Sliding screw, hammer screw with ball M8x39 for groove 8mm + washers, nuts, cpl. 20pcs	20099
Bridge cover, polycarbonate 40x240x2000mm	20129
PE bracket	22080
Nut with washer M5 x 0,8 - set of 100 pcs.	31901
M5x50 countersunk metal bolt, galvanized - set of 100 pcs.	31906
M5x70 countersunk metal bolt, galvanized - set of 100 pcs.	31907
Mushroom screw M5X50 for AlCubara 630A - 100pcs.	31923



Isolator

Type	W=300 7 Mod	W=400 12 Mod	W=600 24 Mod	W=800 35 Mod	W=1000 46 Mod
H27, 1P, rail N	-	22098	22098	22098	22098
H27, 3P	-	22090	22091	22092	22093
H27, 4P	-	22094	22095	22096	22097

Permissible current (A) for a given conductor temperature increment

Profil AlCubar	Degree protections	Δt 20 K	Δt 25 K	Δt 30 K	Δt 35 K	Δt 40 K	Δt 45 K	Δt 50 K	Δt 55 K	Δt 60 K	Δt 65 K	Δt 70 K
H27	IP≥43	370	440	500	550	590	630	665	700	735	765	800
H27	IP≤31	455	510	560	610	655	700	740	785	840	870	900

Energy

Even

Multi

Bi-metal

2 sided

Max Δt +55K

-40%

+/- 1mm

Al/Cu

Safe

Cheaper

Lenght

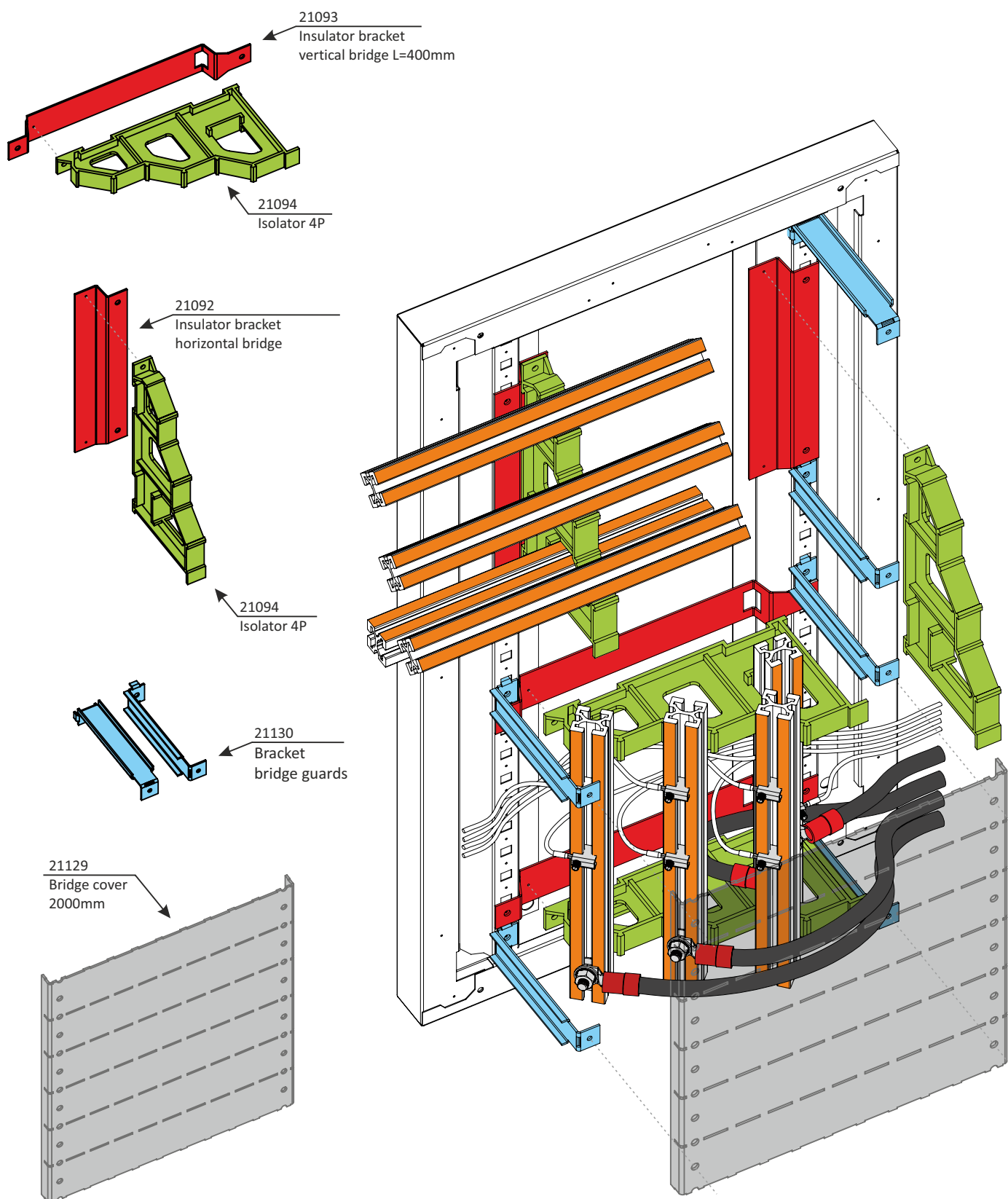
Busbar

Grooves

Wall and standing constructions up to 800A

Brackets for AlCubar H27 profiles

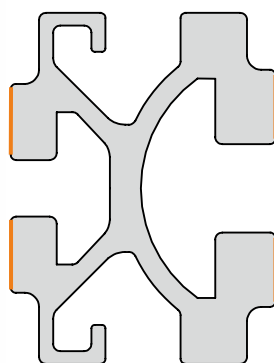
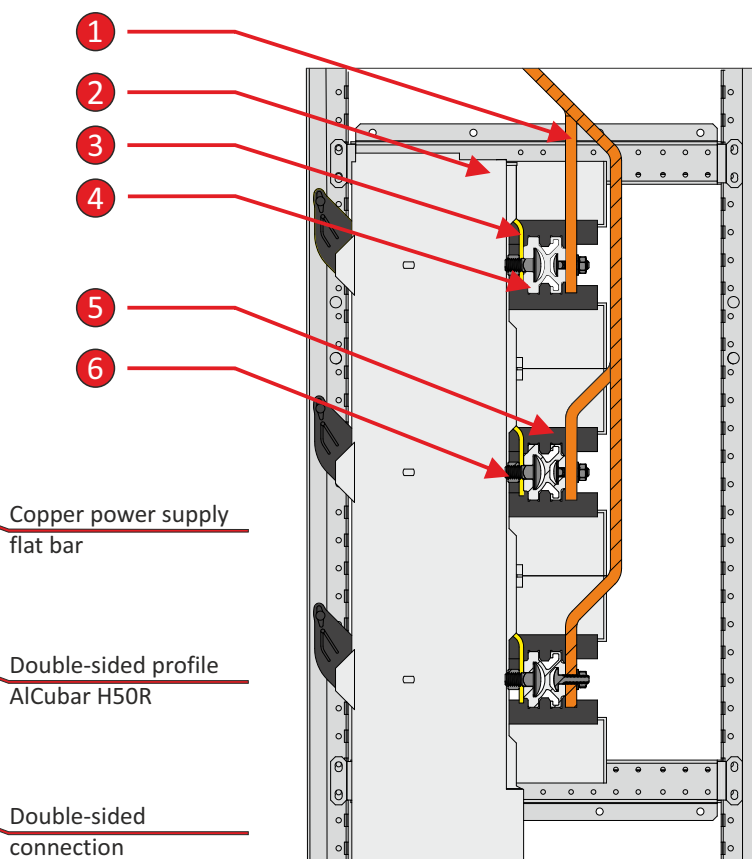
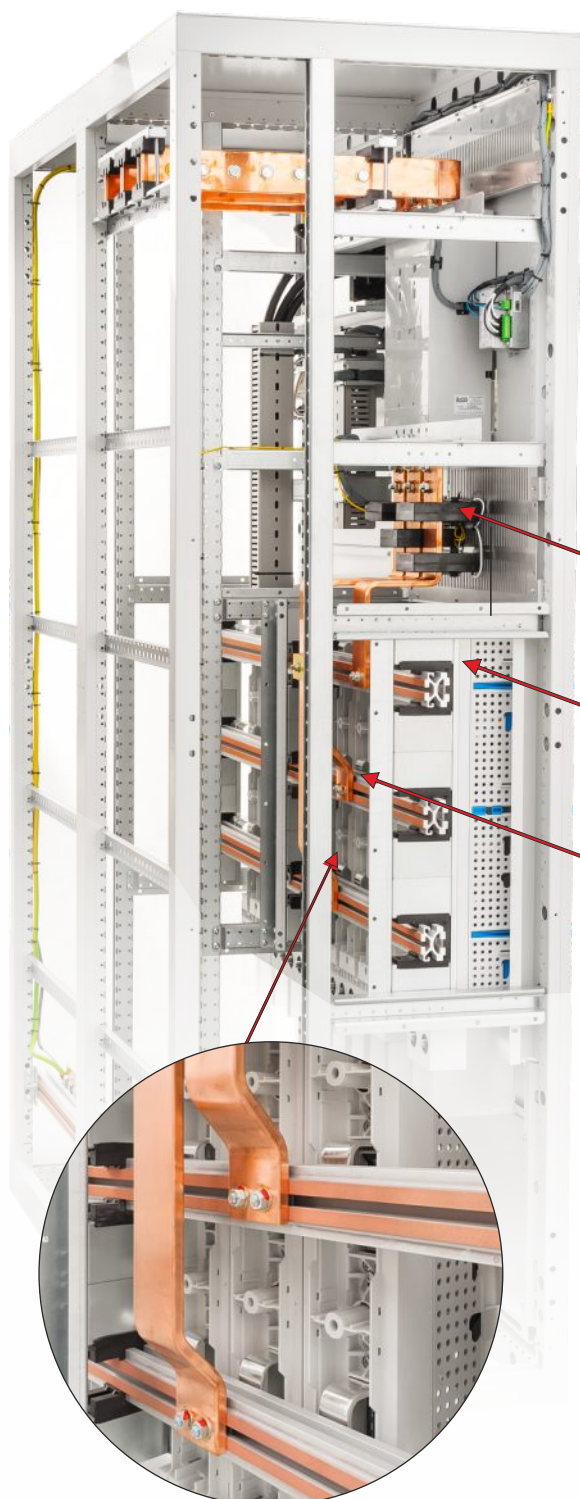
Accessories



AlCubar H50R / H100R profile

The advantages of double - sided Alcubar H50R / H100R profile application

- Dedicated for standard switch disconnectors and typical connection screws
- Screws in profile don't interfere with each other and can be located in any position
- Double - sided profile allows to connect power supply busbars from one side and switch disconnectors from another. Such solution eliminate screws collision occurring in case on solid busbars installation.



- 1 Copper power supply flat bars
- 2 Fuse switch disconnector
- 3 Fuse switch disconnectors connection
- 4 Double-sided connection AlCubar H50R
- 5 Insulator 3P ref.: 36110
- 6 Square neck bolt 12x35mm

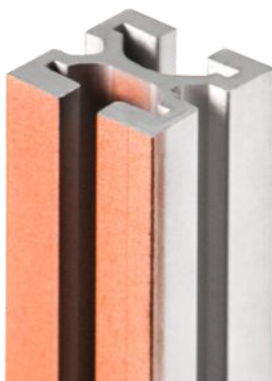
... flexible mounting

AlCubar busbars



H27

H50/H50R

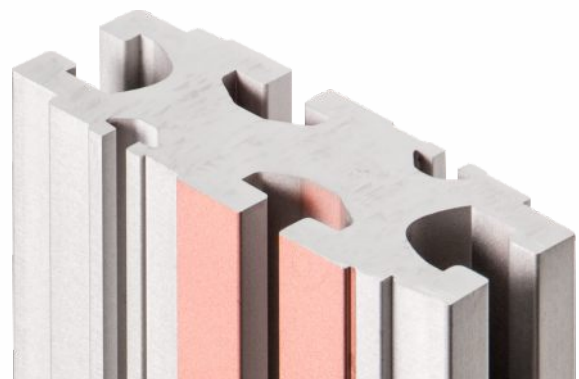
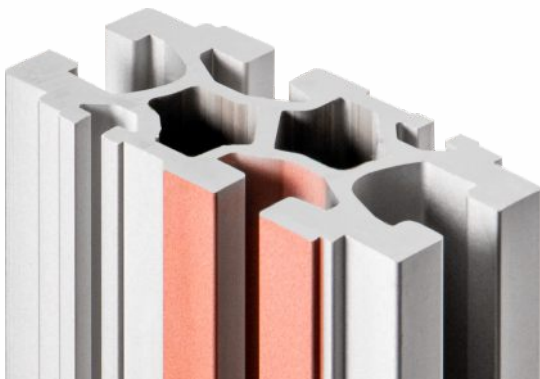


...change ideas



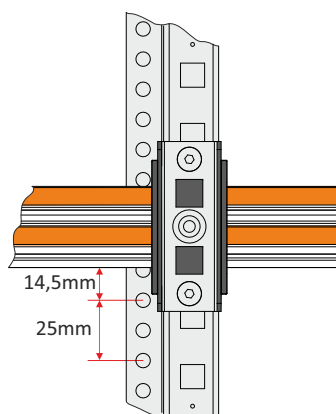
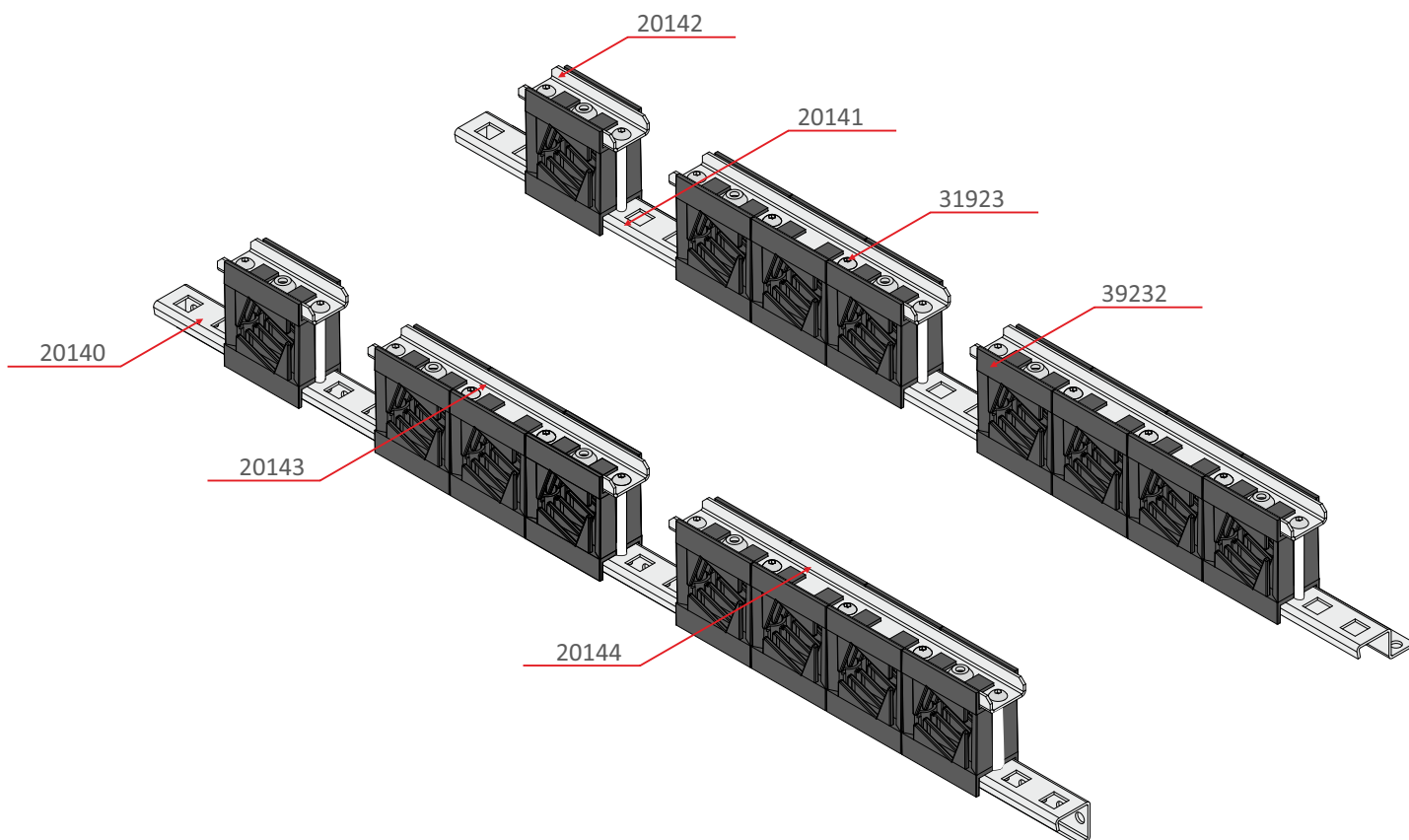
H80

H100/H100R



Selection rail system

AlCubar H27 Universal insulation supports

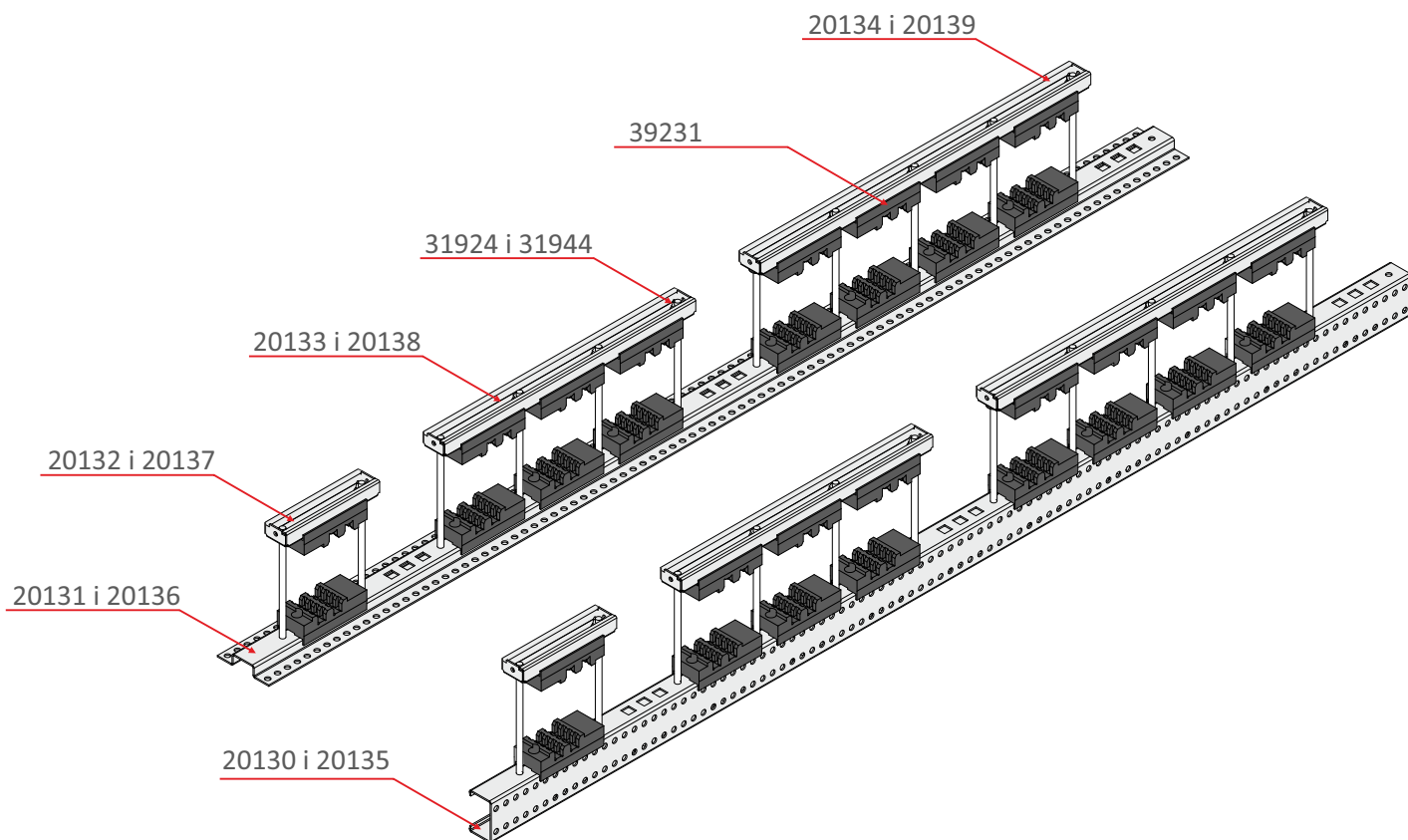


Accessories

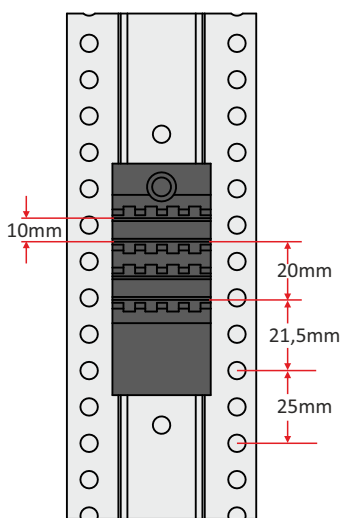
Type	Catalog number
Universal Horizontal busbar insulator support, Zinc H27, 2meter, Spacing 50mm	20140
Universal Vertical busbar insulator support, Zinc H27, 2meter, Spacing 50mm	20141
Universal upper element of insulator support, Zinc H27, 1P	20142
Universal upper element of insulator support, Zinc H27, 3P, Spacing 50mm	20143
Universal upper element of insulator support, Zinc H27, 4P, Spacing 50mm	20144
Zenergy - Screw M5x50 hexagonal fillister head ISO 7380 Zinc - 100 pieces	31923
Zenergy - Polyamide support insulator V0 class AlCubar H27, 27x27mm - 1set of 2	39232

Selection rail system

Universal Brackets Insulation H50, H80, H100



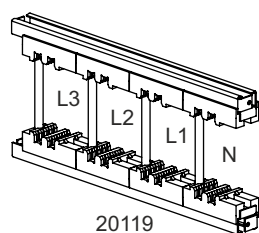
Accessories



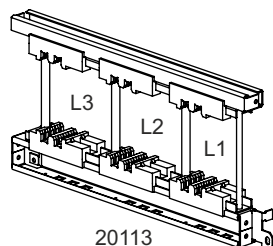
Type	Catalog Number
Universal Horizontal busbar insulator support, INOX, AlCubar H80, 2meter, Spacing 100mm	20130
Universal Vertical busbar insulator support, INOX, AlCubar H80, 2meter, Spacing 100mm	20131
Universal upper element of insulator support, INOX, AlCubar H80, 1P	20132
Universal upper element of insulator support, INOX, AlCubar H80, 3P, Spacing 100mm	20133
Universal upper element of insulator support, INOX, AlCubar H80, 4P, Spacing 100mm	20134
Universal Horizontal busbar insulator support, Zinc, AlCubar H50, 2meter, Spacing 100mm	20135
Universal Vertical busbar insulator support, Zinc, AlCubar H50, 2meter, Spacing 100mm	20136
Universal upper element of insulator support, Zinc, AlCubar H50, 1P	20137
Universal upper element of insulator support, Zinc, AlCubar H50, 3P, Spacing 100mm	20138
Universal upper element of insulator support, Zinc, AlCubar H50, 4P, Spacing 100mm	20139
Polyamide support insulator V0 class AlCubar 1R	39230
Polyamide support insulator V0 class AlCubar 2R	39231
Hex Head Screw M6x80 DIN933 Zinc - 100 pieces	31924
Hex Head Screw M6x110 DIN933 A2 INOX AISI316 - 100 pieces	31944

Equipment selection

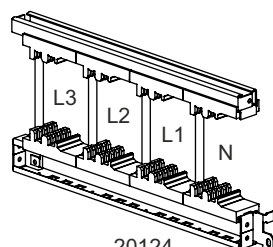
AlCubar system part number



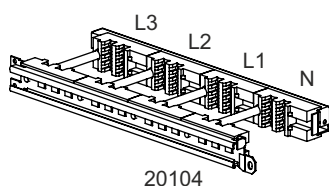
20119



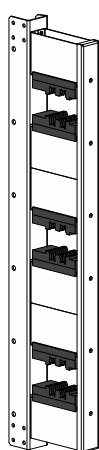
20113



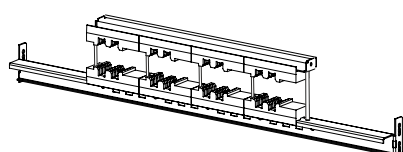
20124



20104



36110



20217

Horizontal insulators quantity selection according to I_{cw}

HORIZONTAL layout in pane	Part Number	Nominal Current	Number of insulators in panel I _{cw} (kA rms / 1s)			
			<42kA	<65kA	<85kA	<105kA
W=650	20031	up to 1000A	2			
or	20042	up to 1600A	2	3	4	
W=650+150/200	20052	up to 2500A	2	3	4	5

Notice: Described nominal current of the AlCubar profiled busbars is rated for switchgear panel with protection degree IP<=31, and for average ambient temperature 35°C

Detailed Δt values can be found in page: 8

For frame width W=800mm it is needed to add one additional insulator.

Vertical insulators quantity selection according to I_{cw}

VERTICAL layout in panel	Part Number	Nominal Current	Number of insulators in panel I _{cw} (kA rms / 1s)			
			<42kA	<65kA	<85kA	<105kA
W=150	20031	up to 1000A	4	3+2	4+3	
W=150	20042	up to 1600A	4	3+2	4+3	4+3
W=200	20052	up to 2500A	4	3+2	4+3	4+3

Notice: All vertical AlCubar busbars can be installed in W=150mm frame, except size 2500A for it is needed to install it in frame width W=200mm.

AlCubar busbars support insulators selection

Part Number	Poles Number	Section Depth	Function	Busbars Layout
20103	3P	D=400	mounting	horizontal
20104	4P	D=400	mounting	horizontal
20100	1P	D=200	mounting	horizontal
20118	3P	D=400	busbar grip	H/V
20119	4P	D=400	busbar grip	H/V
20110	1P	D=200	connection mounting	vertical
20111	1P	D=400	mounting	vertical
20120	1P	D=200	connection mounting	vertical
20113	3P	D=400	mounting	vertical
20123	3P	D=400	connection mounting	vertical
20114	4P	D=400	mounting	vertical
20124	4P	D=400	connection mounting	vertical
20207	3P	W=650	ACB / MCCB outgoing	vertical terminal
20217	4P	W=650	ACB / MCCB outgoing	vertical terminal

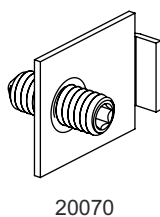
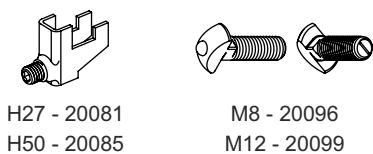
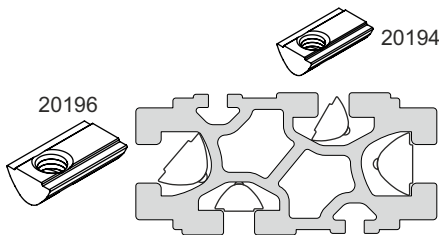
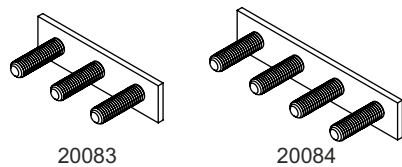
It is needed to install two mounting insulators for horizontal busbars in frames W=650, or W=650+150/200, and one insulator for frames W=300, or W=400. If high nominal short circuit withstand appear, it is needed to install additional busbar grip according to above tables.

Insulators for AlCubar H50R/H100R busbars, dedicated for fuse switch disconnectors 250-630A

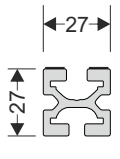
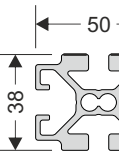
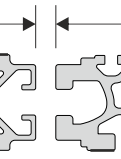
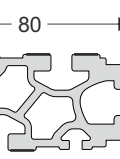
Insulator	Part Number
Mounting for AlCubar H50R, spacing 185mm	36110
Mounting for AlCubar H50R, spacing 185mm, for conector	36111
Mounting for AlCubar H100R, spacing 185mm	36115
Mounting for AlCubar H100R, spacing 185mm, for conector	36116

Equipment selection

AlCubar system part numbers



Profiled AlCubar busbars dimensions and reference numbers:


				
H27	H50	H80	H100	Cooper coating:
P/N: 20021	P/N: 20031	P/N: 20041	P/N: 20051	Single groove
	P/N: 20032	P/N: 20042	P/N: 20052	Double groove

			
-	H50R	-	H100R
-	P/N: 20030	-	P/N: 20050
			Cooper coating:
			Double groove

AlCubar busbars are delivered in any length according to customer specifications (precision up to 1mm)

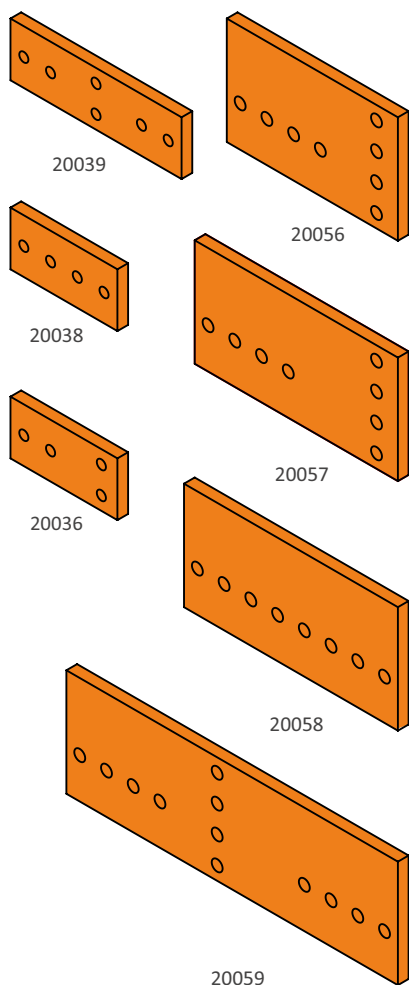
Sliding bolts and nuts for AlCubar busbars

Part Number	Application	Connection Qty. / Size	Connection type for AlCubar application
20082	AlCubar connection	10x 2xM8x27	Sliding bolts entered from end of busbar
20083		10x 3xM8x27	Sliding bolts entered from end of busbar
20084		10x 4xM8x27	Sliding bolts entered from end of busbar
20080		100x U16/6mm	U shape 16mmx2 6mm groove H27 AlCubar
20081	Output Circuits Connections	100x U16/8mm	U shape 16mmx2 8mm groove H27 AlCubar
20085		100x U16/8mm	U shape 16mmx2 8mm groove H50 AlCubar
20096		20x M8x25	Hammer head bolt for H27 busbar
20097		20x M8x39	Hammer head bolt for H27 busbar
20098	Output Circuits or AlCubar connections	20x M12x30	Hammer head bolt for H27 busbar 12mm
20099		20x M12x35	Hammer head bolt for H27 busbar 12mm
20086		100x M6x16	Square neck bolt entered from end of busbar
20090		100x M6x20	Square neck bolt entered from end of busbar
20091	Output Circuits or AlCubar connections	100x M8x20	Square neck bolt entered from end of busbar
20092		100x M8x25	Square neck bolt entered from end of busbar
20093		10x M8x35	Square neck bolt entered from end of busbar
20094		10x M12x30	Square neck bolt entered from end of busbar
20191	Output Circuits or AlCubar connections	10x M5x16	Sliding nut for 5mm groove
20192		10x M5x16	Sliding nut for 8mm groove
20193		10x M6x16	Sliding nut for 8mm groove
20194		10x M8x25	Sliding nut for 8mm groove
20195	Output Circuits or AlCubar connections	10x M8x30	Sliding nut for 10mm groove
20196		10x M10x30	Sliding nut for 10mm groove
20060	Vertical	1P	Support busbar H27
20070	Vertical	1P	Support busbar H50

Energy	Even	Multi	Bi-metal	2 sided
Max Δt +55K	-40%	+/- 1mm	Al/Cu	
Safe	Cheaper	Length	Busbar	Grooves

Equipment selection

AlCubar system part numbers

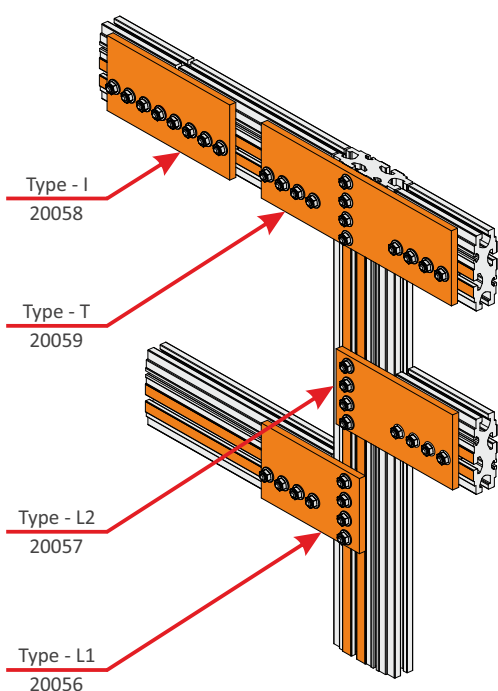


AlCubar busbars copper connectors

Part Number	Nominal Current	Connector Type	Size	AlCubar busbar Part Number
20026	630A	L1	60x30x10	20021
20028	630A	I	60x30x10	20021
20029	630A	T	90x30x10	20021
20036	1000A	L1	100x50x10	20031
20038	1000A	I	100x50x10	20031
20039	1000A	T	160x50x10	20031
20046	1600A	L1	130x80x10	20042
20047	1600A	L2	155x80x10	20042
20048	1600A	I	165x80x10	20042
20049	1600A	T	250x80x10	20042
20056	2500A	L1	160x100x10	20052
20057	2500A	L2	190x100x10	20052
20058	2500A	I	200x100x10	20052
20059	2500A	T	310x100x10	20052

AlCubar busbars washers

Part Number	Size	Washers type / Application
20071	M6/14	French lock washer / Ensuring contact
20072	M6/14	NFE-25511 French lock washer / Ensuring contact
20073	M8/18	NFE-25511 French lock washer / Ensuring contact
20074	M10/22	NFE-25511 French lock washer / Ensuring contact
20075	M12/27	NFE-25511 French lock washer / Ensuring contact
20076	M16/32	NFE-25511 French lock washer / Ensuring contact
20077	M8/24	Flat washer / Ensuring contact of Flexible busbar
20078	M8/28	Flat washer / Ensuring contact of Flexible busbar
20079	Cu M8/16	Copper flat washer / Ensuring contact for cable terminals

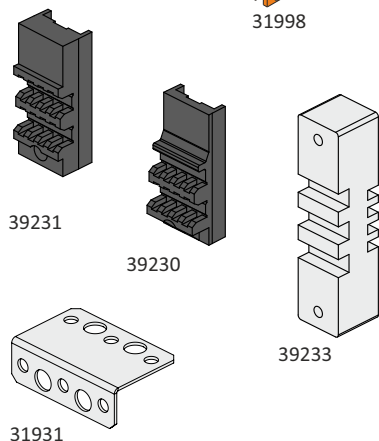
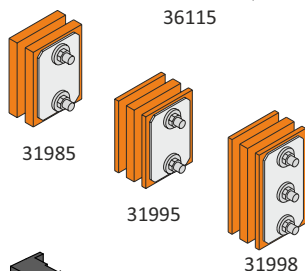
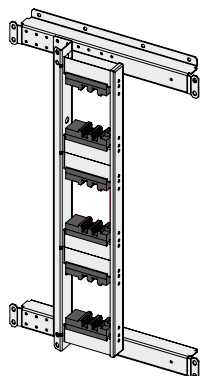
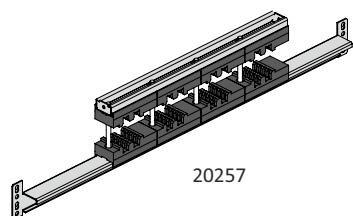
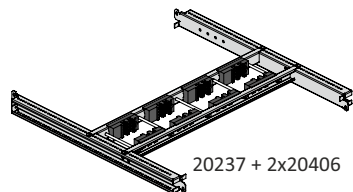
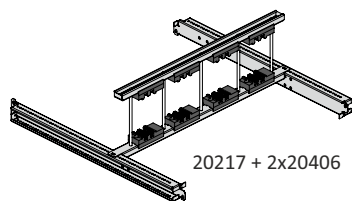


AlCubar Profile	Protection Degree	Δt 20°K	Δt 25°K	Δt 30°K	Δt 35°K	Δt 40°K	Δt 45°K	Δt 50°K	Δt 55°K	Δt 60°K	Δt 65°K	Δt 70°K
H27	IP≤31	455	510	560	610	655	700	740	785	840	870	900
	IP≥43	370	440	500	550	590	630	665	700	735	765	800
H50/50R	IP≤31	730	800	870	950	1020	1080	1150	1200	1280	1350	1400
	IP≥43	630	700	760	830	900	950	1000	1050	1100	1150	1200
H80	IP≤31	1030	1145	1260	1365	1470	1575	1680	1785	1870	1950	2020
	IP≥43	950	1060	1150	1235	1325	1410	1500	1580	1635	1690	1740
2xH80	IP≤31	1650	1840	2040	2230	2420	2600	2790	2950	3120	3240	3360
	IP≥31	1300	1500	1680	1830	1980	2120	2270	2400	2520	2640	2750
H100	IP≤31	1550	1700	1850	2000	2130	2250	2400	2500	2650	2800	2900
	IP≥43	1350	1500	1650	1800	1900	2000	2100	2200	2300	2400	2500
H100R	IP≤31	1130	1290	1450	1620	1780	1910	2050	2210	2350	2460	2580
	IP≥43	984	1138	1293	1458	1588	1698	1794	1945	2040	2109	2224
2xH100	IP≤31	2700	2900	3100	3300	3500	3750	4000	4200			
	IP≥43	2300	2450	2600	2750	2900	3050	3200	3400	3600	3800	4000

Allowed constant current (A) for each level of temperature rise

Isolators, Zenergy System references

Insulator and busbar supports



	Width (mm)								
	400	450	600	650	800	850	1000	1200	1300
Adjustable depth / rails horizontally									
3P	20204	20205	20206	20207	20208	20209	20200	20201	20202
4P	20214	20215	20216	20217	20218	20219	20210	20211	20212
Vertically adjustable depth / rails									
3P	20224	20225	20226	20227	20228	20229	20220	20221	20222
4P	20234	20235	20236	20237	20238	20239	20230	20231	20232
Back support, height-adjustable									
3P	20224	20245	20246	20247	20248	20249	20240	20241	20242
4P	20254	20255	20256	20257	20258	20259	20250	20251	20252

AlCubar H50R/H100R rail insulators for strip disconnectors 250-630A - references

Isolator	References
Mounting for AlCubar H50R rail, spacing 185mm	36110
Mounting for AlCubar H50R rail, 185mm spacing, for connector	36111
Mounting for AlCubar H100R rail, spacing 185mm	36115
Mounting for AlCubar H100R rail, spacing 185mm, for connector	36116

Copper rail connectors

1x10 connector dimensions	Reference	1x10 connector dimensions	Reference
1x10x50	31984	2x10x50	31994
1x10x60	31985	2x10x60	31995
1x10x80	31986	2x10x80	31996
1x10x100	31987	2x10x100	31997
1x10x120	31988	2x10x120	31998

Insulator brackets, mounting plates

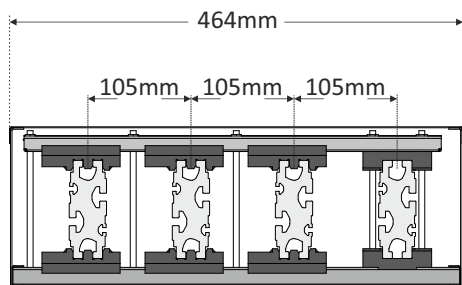
Complementary elements	Reference
Insulator bracket 3P, D600, reinforced	20303
Insulator bracket 4P, D600, reinforced	20304
Insulator bracket D200	20402
Insulator bracket D400, reinforced, rear	20404
Insulator bracket D400, reinforced, Form 4b	20405
Insulator bracket D600, reinforced	20406
Insulator bracket D800, reinforced	20408

Accessories

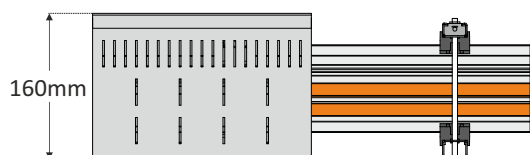
Complementary elements	Referencje
PE bracket	31931
Polamide Support Insulator Classes V0, 1R, AlCubar / Cu	39230
Polamide Support Insulation class V0, 2R AlCubar /Cu	39231
Polamide Support Insulator class V0, 3x10mm, 124x35x40mm	39233
Electrical Installation T-shirt for pins	31902

Technical specification of Zenergy bus ducts

Selection of Cu / AlCubar bus ducts supports

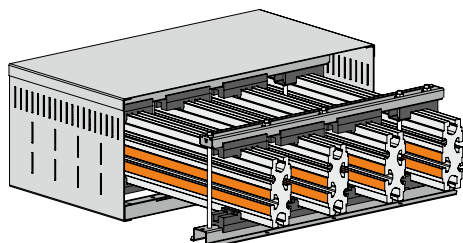


Size		Dimensions (mm)		Bracket spacing (mm) for short-circuit current I _{cw} (kA rms / 1s)			
Cu rails	AlCubar	Cu rails	AlCubar	≤42kA	≤65kA	≤85kA	≤105kA
1x 50x10	1x H50	388 x 110	464 x 110	400	300	250	---
1x 60x10	-	388 x 120	-	400	300	250	---
1x 80x10	1x H80	388 x 140	464 x 140	400	300	250	---
2x 60x10	-	464 x 120	-	400	300	250	200
2x 80x10	1x H100	464 x 140	464 x 160	400	300	250	200
2x 100x10	2x H80	464 x 160	464 x 220	400	300	250	200
2x 120x10	2x H100	464 x 180	464 x 260	400	300	250	200



Permissible current (A) for a given conductor temperature rise

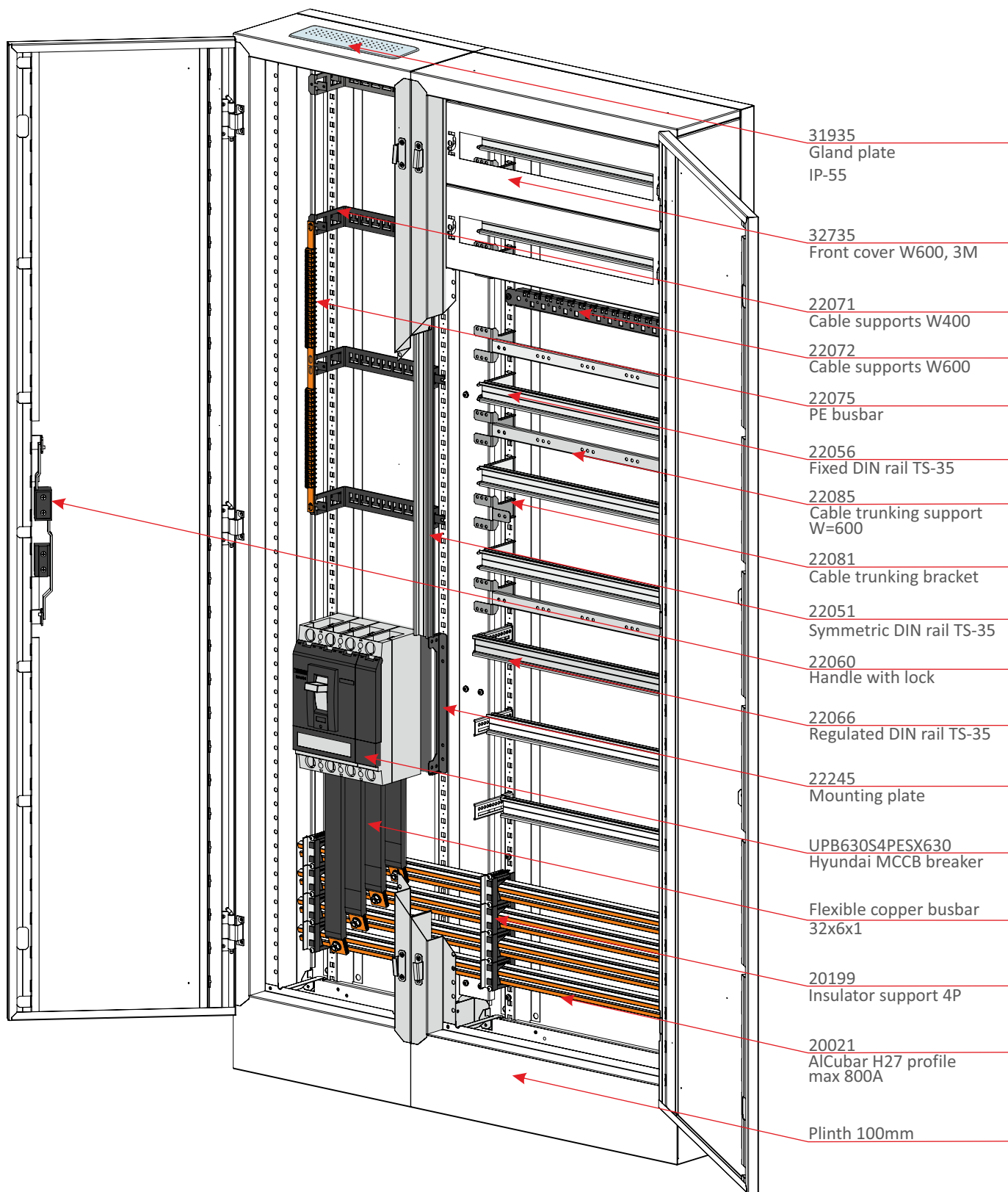
AlCubar Profile	Degree of protection	Δt 20°K	Δt 25°K	Δt 30°K	Δt 35°K	Δt 40°K	Δt 45°K	Δt 50°K	Δt 55°K	Δt 60°K	Δt 65°K	Δt 70°K
H27	IP≤31	455	510	560	610	655	700	740	785	840	870	900
	IP≥43	370	440	500	550	590	630	665	700	735	765	800
H50/50R	IP≤31	730	800	870	950	1020	1080	1150	1200	1280	1350	1400
	IP≥43	630	700	760	830	900	950	1000	1050	1100	1150	1200
H80	IP≤31	1030	1145	1260	1365	1470	1575	1680	1785	1870	1950	2020
	IP≥43	950	1060	1150	1235	1325	1410	1500	1580	1635	1690	1740
2xH80	IP≤31	1650	1840	2040	2230	2420	2600	2790	2950	3120	3240	3360
	IP≥31	1300	1500	1680	1830	1980	2120	2270	2400	2520	2640	2750
H100	IP≤31	1550	1700	1850	2000	2130	2250	2400	2500	2650	2800	2900
	IP≥43	1350	1500	1650	1800	1900	2000	2100	2200	2300	2400	2500
H100R	IP≤31	1130	1290	1450	1620	1780	1910	2050	2210	2350	2460	2580
	IP≥43	984	1138	1293	1458	1588	1698	1794	1945	2040	2109	2224
2xH100	IP≤31	2700	2900	3100	3300	3500	3750	4000	4200			
	IP≥43	2300	2450	2600	2750	2900	3050	3200	3400	3600	3800	4000



Selection of Cu/AlCubar solid rails in Zenergy system

Size Cu rails	Permitted current ratings (A)									
	25°C		30°C		35°C		40°C		45°C	
	IP≤31	IP≥40	IP≤31	IP≥40	IP≤31	IP≥40	IP≤31	IP≥40	IP≤31	IP≥40
1x 50x10	1330	1220	1260	1160	1200	1080	1130	1010	1060	940
1x 60x10	1550	1400	1470	1320	1400	1250	1320	1160	1240	1070
1x 80x10	1990	1800	1890	1700	1800	1600	1700	1500	1600	1390
2x 60x10	2550	2270	2420	2140	2300	2000	2170	1870	2030	1720
2x 80x10	3110	2820	2970	2660	2820	2500	2660	2330	2500	2160
2x 100x10	3650	3280	3490	3100	3300	2900	3130	2720	2950	2510
2x120x10	5100	4540	4840	4280	4600	4000	4340	3740	4060	3440

Presentation



Zenergy OM surface mounted switchboard up to 800A

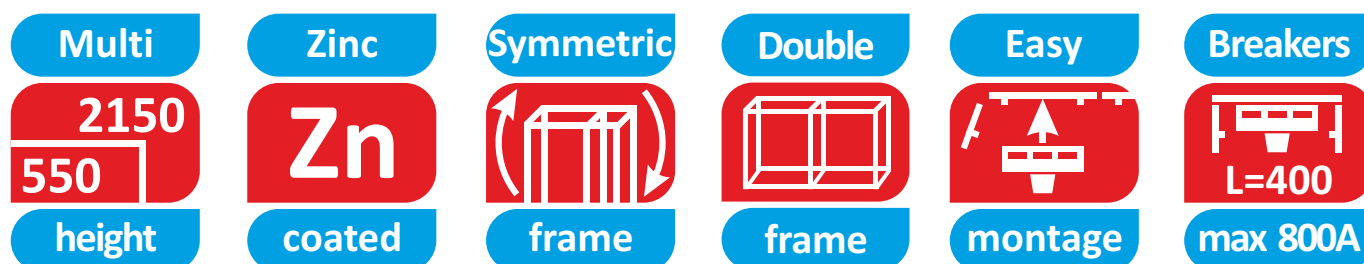
Zenergy OM 800A switchboard is a system of metal enclosures with class I insulation. For power distribution installations, metering and control automation, designed for currents up to 800A. Enclosures are mainly used in residential, public buildings and industrial facilities.

Zenergy OM system bring many new possibilities, such as removable side panels. This allows configuration changes in switchboard without punching side panels and additional cable glands. Such extension can be also made during switchboard operation. The offer includes switchboards with protection degrees starting from IP30 up to IP55. Installation of electrical equipment and wires is possible directly on the rear panel of switchboard, so till the end of cabling, or maintenance service, installation of upper, or side panels and doors is not necessary. All electrical equipment in the switchboard is installed on DIN rails and dedicated mounting plates, so that the extension of the switchboard is very easy and comfortable, moreover front covers are mounted directly on the side panels of the enclosure.

Besides of DIN rails and universal mounting plates, the offer include special mounting kits, dedicated for circuit breakers and switch disconnectors produced by Hyundai and other manufacturers depending of customer needs. The kit include plate with mounting holes and front cover with hole cut out for device.

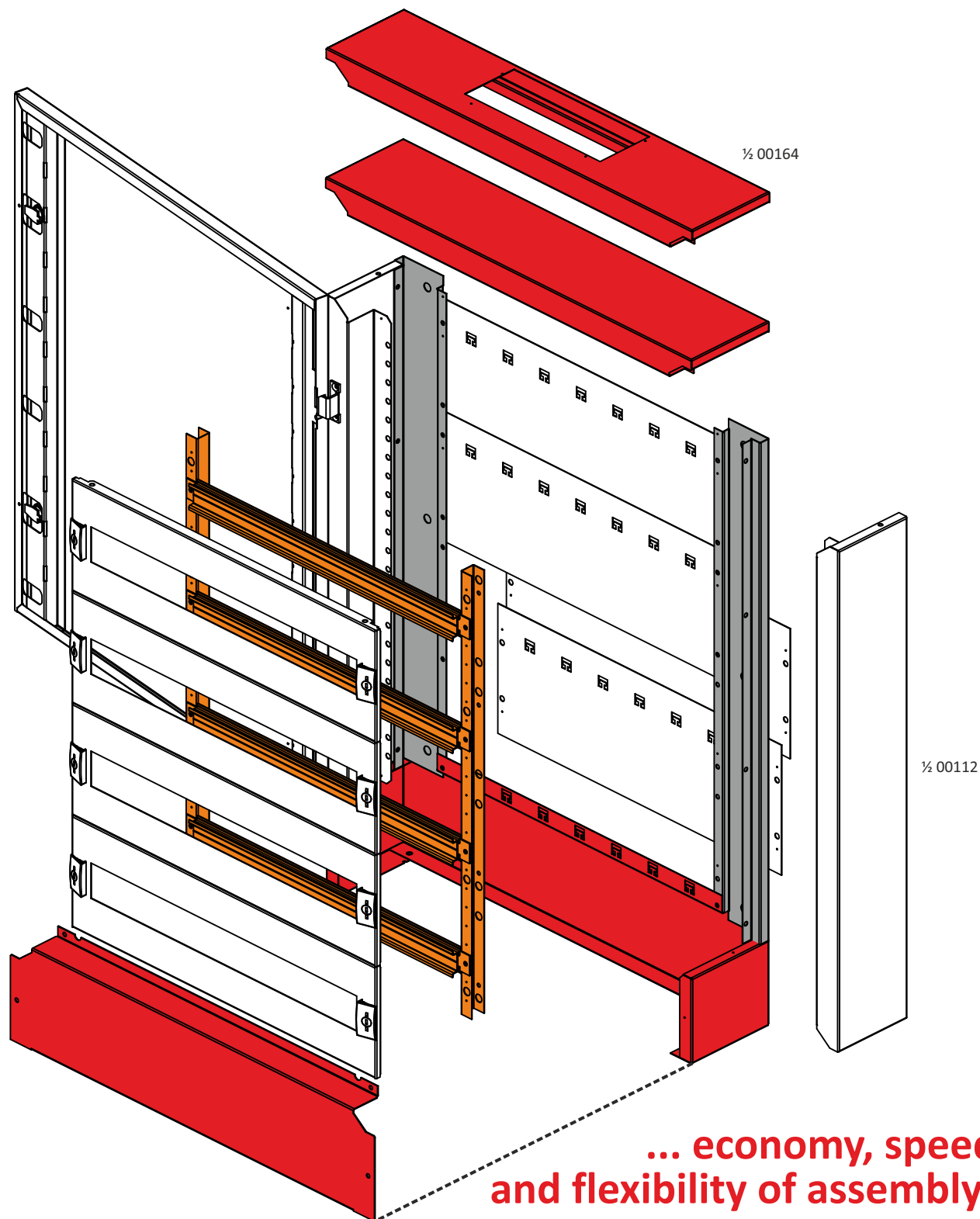
Advantages of the switchboard

- 13 different heights: H = 550 to 2150mm for P=230mm and 1800 to 2150mm for P=300mm
- 6 different widths: D = 300, 400, 600, 800, 1000, 1200mm.
- The maximum number of DIN 18mm rail modules: 624.
- Combination of sets through expansion modules or middle upright, reduce the cost of the entire switchboard
- Depth of the cabinet 230mm with door (300mm on some models)
- Degrees of protections IP-30, 40, 41, 43, 44, 55.
- Fully integrated system for compact breakers using mounting plates.
- Zinc coated enclosure, powder paint coated RAL 7035, other colors available on request.
- Reversible door (opening to the left or right),
to be equipped with handle with key, or two independent rotary locks
- Possibility of extension without punching holes in side panels.
- Maximum breaker in housing body W=400 up to 800A, 3P.
- Removable plinth with IP-55 cable sealing plate
- Different top covers with covered holes for optional gland plates



Wall-mounted enclosure *ON up to 250A*

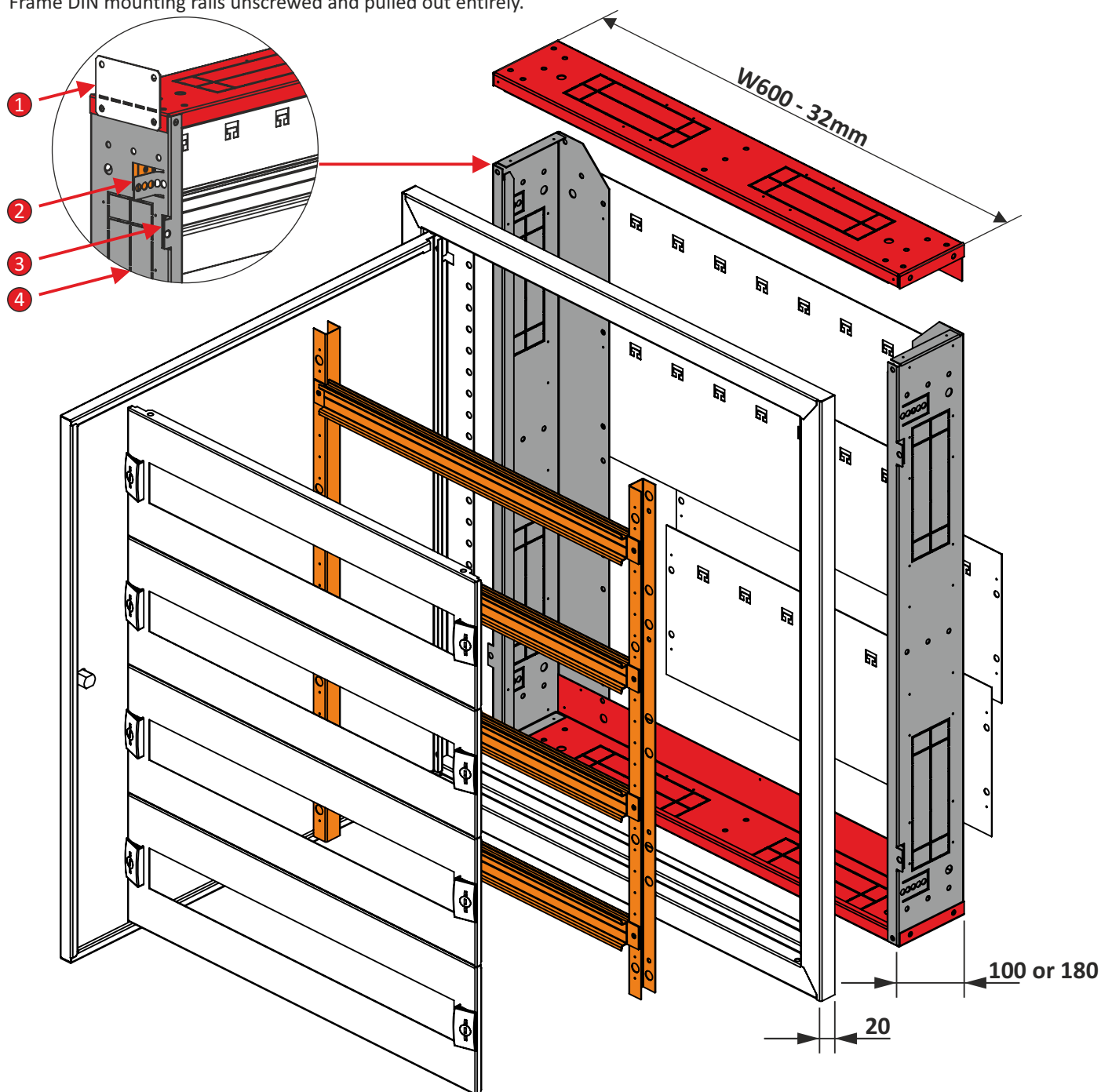
- Housing with special assembly possibilities, consisting of only eight different elements.
- Size range from 2x24 Modules, up to 10 x 24 Modules of installation equipment.
- Housing depth from 127 mm to 205 mm, the possibility of joining the sides into sets.
- Degree of protection IP30 without door, IP-40 with door, width 600mm or 800mm with frame, height 400mm to 1600mm with frame.
- Modular cover plates on the back, with the possibility of attaching cables, can also be mounted without the cover plates.
- 20 millimeters of space behind the DIN rail, increased to 30 mm, if no back plate is used.
- Frame DIN mounting rails unscrewed and pulled out entirely.



**... economy, speed
and flexibility of assembly!**

Folding Flush mounted PT housing up to 250A

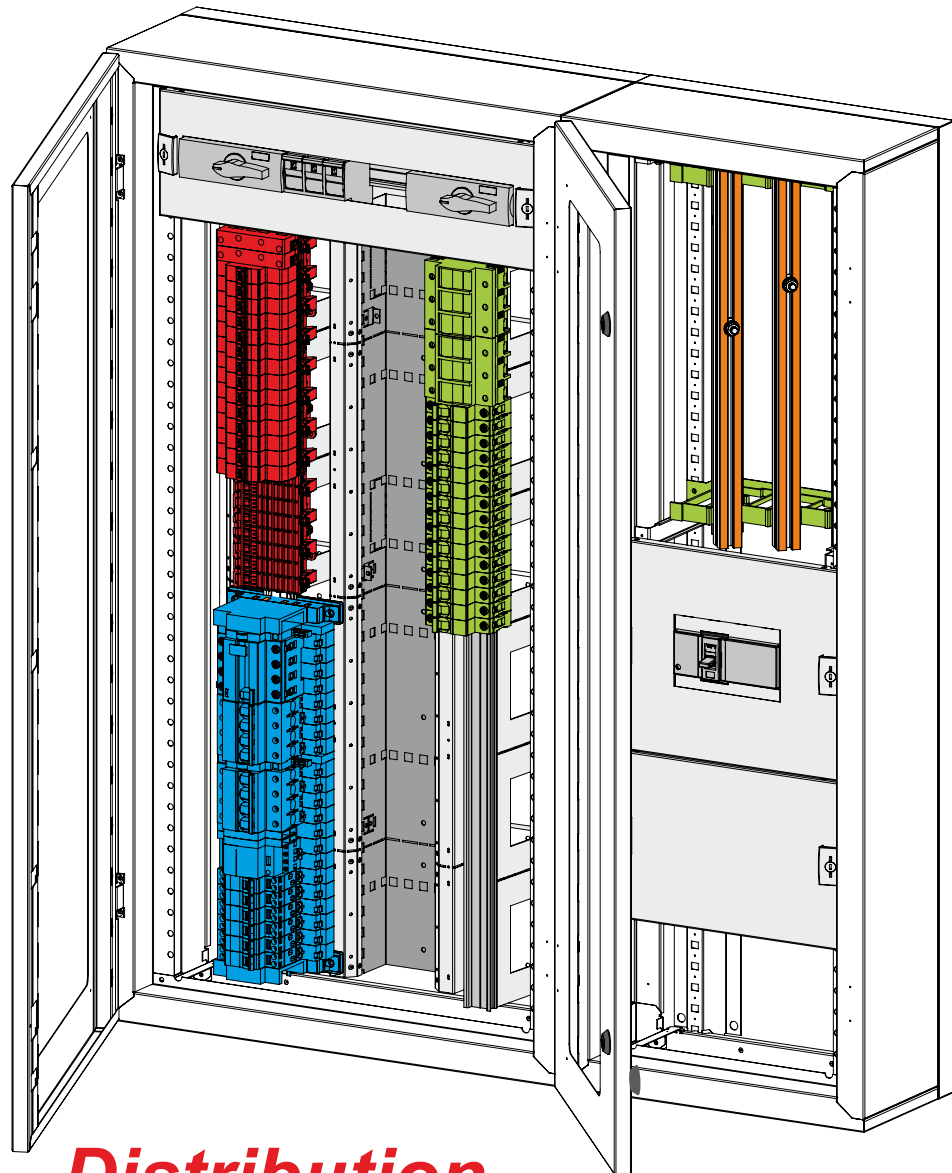
- Housing with special assembly possibilities, consisting of only seven different elements.
- Size range from 2x24 Modules, up to 10 x 24 Modules of installation equipment.
- The depth of the casing in the wall space of 100mm and 180mm, protruding depth of the door frame from the wall of 20mm
- Possibility of joining with sets of sides.
- Degree of protection IP30 without door, IP-40 with door, width 600mm or 800mm with frame, height 400mm to 1600mm with frame.
- Modular cover plates on the back, with the possibility of attaching cables, can also be mounted without the cover plates.
- 17 millimeters of space behind the DIN rail
- Frame DIN mounting rails unscrewed and pulled out entirely.



- 1 Vertical / horizontal connector
- 2 Folding clamp to the plasterboard
- 3 Depth stop
- 4 Cable gland

Advantages

- Possibility to connect cables from top and bottom.
- Saving time thanks to direct connections with most devices.
- Less assembling points means less time and less risk of error.
- Safe modular enclosure for standard distribution and plug-in systems:
Hager Tertio, Legrand HX3, ABB Smisline TP.
- Spacious cable compartment with various options of mounting of cables.
- Protection against direct touch IP-2X without front plates, and IP-3XC with front plates.



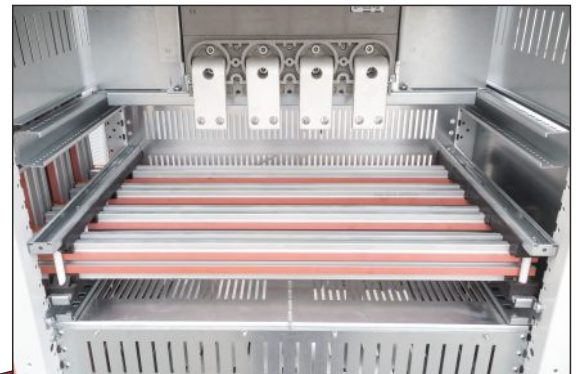
Zenergy
System OM-VSD

Distribution
Secondaire
Verticale

... avantgarde solution

Internal separation **Zenergy**

Internal separation form 4b



Cover for connection transfer 3-5M

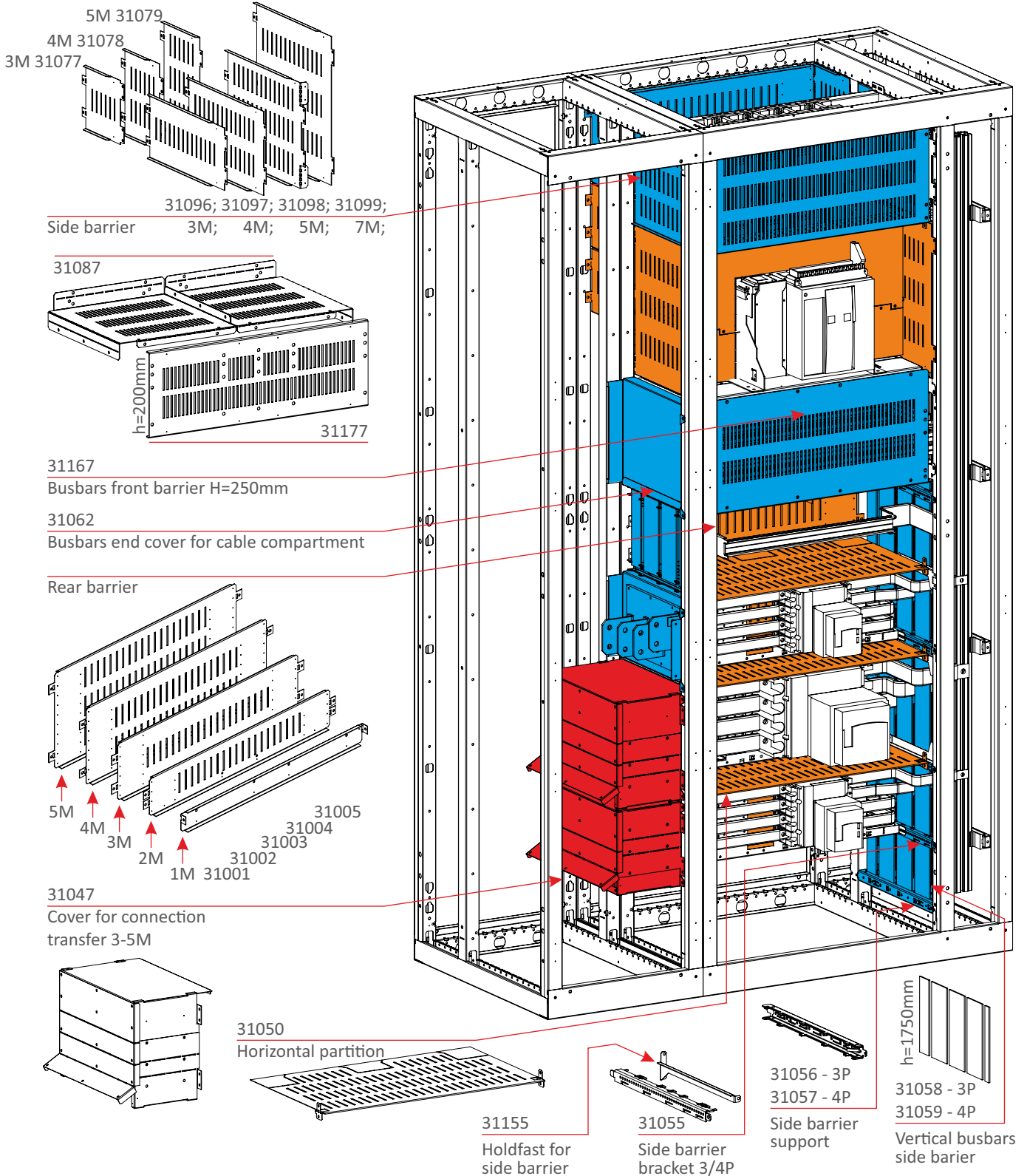


Safety separation forms in Zenergy System

Presentation

Several forms of separation can be implemented in the Zenergy system:

- Forma 2b - after applying main busbars barriers
- Forma 3b - after applying additional separations between functional units
- Forma 4b - after applying additional terminals covers, or transfer covers in the cable compartment



Zenergy



V210226



Due to evolution of standards and equipment, the characteristics indicated in texts and images of this document do not constitute a commitment on our part without confirmation

We've Got The Power!
Zenex
—SP. Z O.O.—

AlCubar

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