

BROCHURE

System pro E power Top Busbar System



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System pro E power is the innovative ABB's main distribution switchboard solution with rated current up to 6300A and shortcircuit current up to 120kA. Designed to easily fulfill all electrical installation requirements in terms of protection degree, segregation form and electrical characteristics, according to the latest international standards and in perfect synergy with all ABB's low voltage equipment.

Contents

002	Your key resource
004	Reliable in extreme condition
006	Space saving
007	Main distribution system
008	A patented technology
009	Certifications, type-approvals and laboratory tests
010	Composition of the series
012	Segregations in accordance with Standard IEC 61439-1-2

Your key resource

System pro E power, ABB's pioneering solution for main distribution switchboards with rated current up to 6300A and shortcircuit current up to



120kA, meets all plant requirements depending on the type of installation, required degree of protection and electrical and mechanical specifications.

BROCHURE

Thanks to this switchboard, ABB can provide complete solutions for main electric power distribution in infrastructures and industries, in accordance with the regulatory framework.

Typical fields of application are airports, subways, hospitals, industrial and residential estates, tunnels, railways, theaters and so on.

A major plus of System pro E power is the full synergy with all other ABB apparatus (i.e. modular circuit-breakers, Tmax T and XT moulded-case circuit-breakers, Emax 2 air circuit- breakers...)

Great attention has been made to the wiring requirements, with adequately sized structures and pre-engineered sites for mounting the horizontal and vertical plastic ducts.

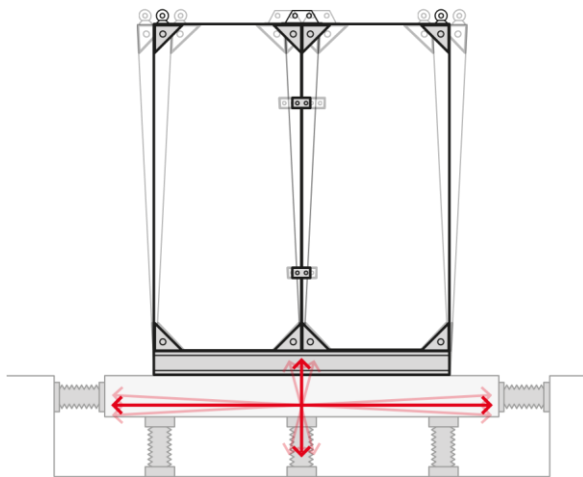


in extreme condition

tests performed on the product, the enclosures can stand a rated short-circuit current (I_{cw}) up to 120kA and a Maximum rated current up to 6300A.

Anti-seismic certification

Anti-seismic is an important thematic which is properly implemented in ABB by testing product solutions that meet the growing



reinforcement elements up to 0.69g and with reinforcement kit up to 0.75g.

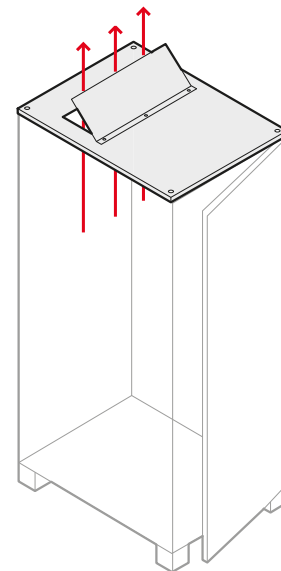
In order to meet the anti-seismic requirements, ABB offers a seismic qualification, in accordance with CEI EN 62271-207, which determine the total withstand capability of the switchgear assemblies in case of seismic stresses, combining results obtained by test, algebraically results and other service loads.

security demands and requirements from different markets.

Arc fault resistance

The safety is also guaranteed by the blind tops arc fault resistant (composed by two flaps that, in case of internal arc fault, allow its outburst upward, protecting an operator that could be present in front of the switchboard).

For System pro E power, ABB guarantees a seismic resistance in standard version without additional





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Space saving

A wide variety of dimensions are available to meet all customer requests: 2 heights, 5 depths and 6 widths.

Furthermore, amperage from 2500A to 6300A can be reached in the minimum widths listed below:

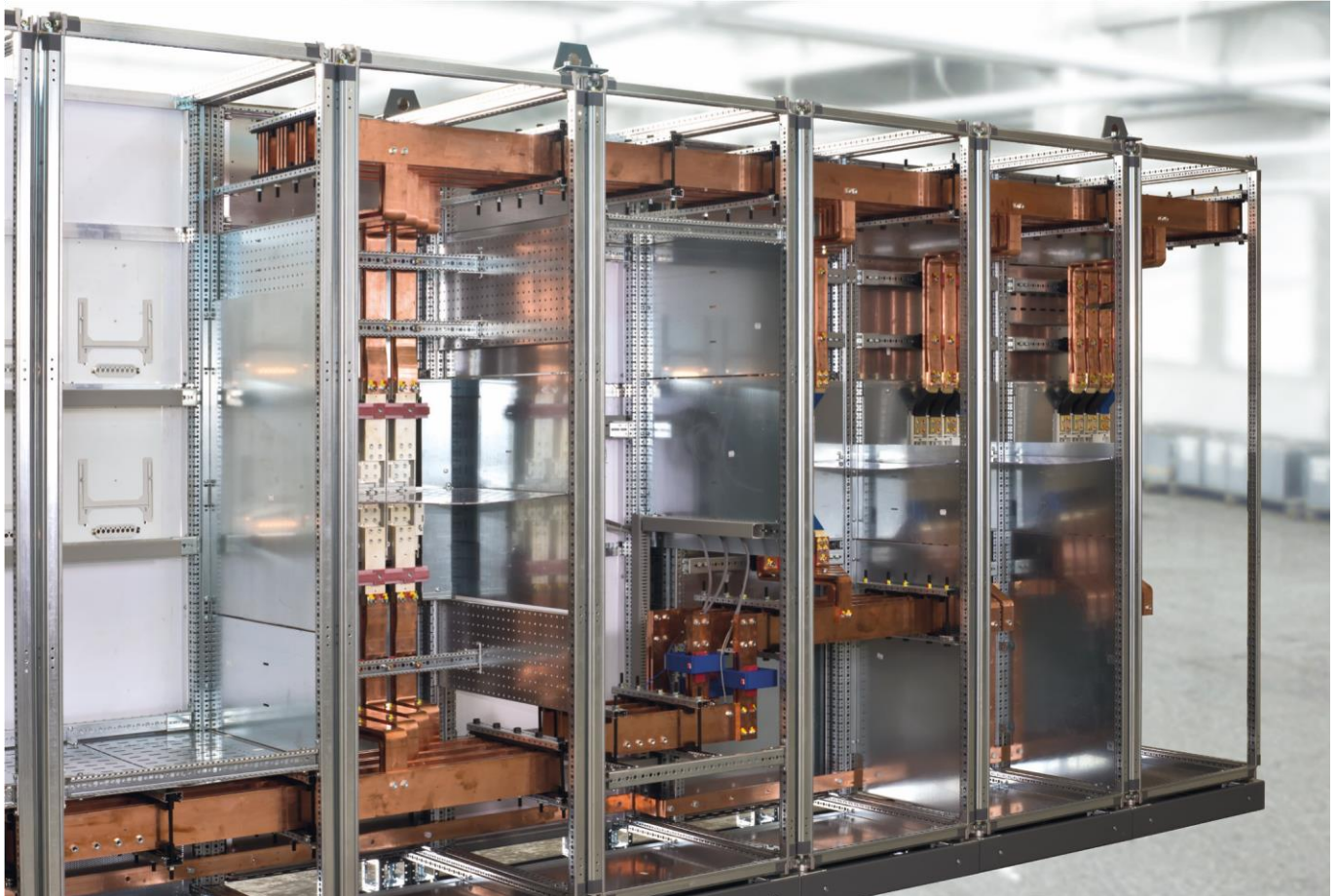
- Up to 2500A (3P) installable in W=400mm
 - Up to 4000A (3P) installable in W=600mm
 - Up to 4000A (4P) installable in W=800mm
 - Up to 6300A (4P) installable in W=1000/1250mm
- For example, further space (up to 38%) can be saved by mounting two air circuit breakers in one column. In 2500A, width 400mm (E2.2 F/W 3P), thanks to the dedicated components.



Main distribution system

currents

The capacity of the busbars is as follows:



System pro E power distribution system has been designed for improved flexibility and simple busbar connections. Linear and scaled solutions are available and allow the busbars to be installed in any position: horizontally, under the top, on the bottom and at each height; vertically, along the side or at the rear and in the cable compartment. The structural components include:

- insulating support and tie rods
- crosspieces and brackets

The main advantages are:

- same construction philosophy for 250A to 6300A applications
- same multifunction insulating supports able to house flat busbars 5 and 10mm thick and shaped busbars (“click in” installation method for the linear version)
- the center distance between phases can be increased for the linear version by simply sliding the insulation support fastenings along the crosspieces
- same fixing crosspieces for both linear and scaled solutions
- stainless steel crosspieces for applications with $I_n \geq 4000A$ to limit the effect of stray

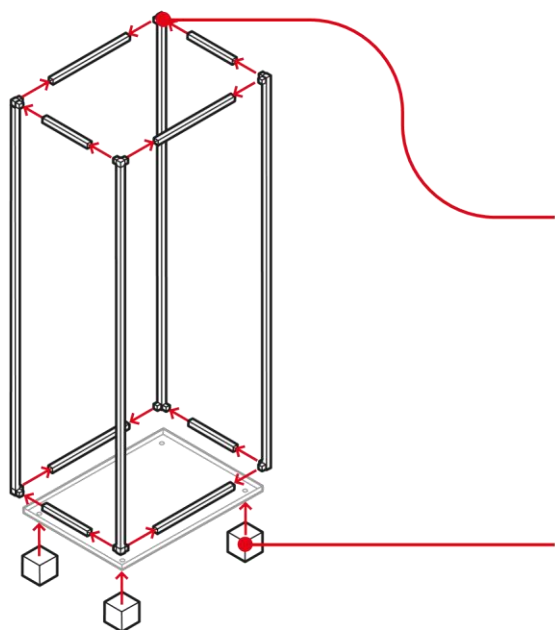
- flat copper busbars up to 6300A
- shaped profile busbars up to 2500A

Air and moulded-case circuit-breakers can be connected to the busbars by means of prefabricated rigid or flexible connections.

Number of busbars installable per insulator

	Linear System		Scaled System
Flat	1,2,3	or	
	50mm	block 2000A 1,2,3	
	or	2000A	
busbars 3200A 4	4 bars	75mm	block
	per phase	per phase	
	100mm	block 6300A	
Shaped 1	per	50mm	block 1600A 1
	1600A busbars	phase 75mm	block 2000A phase
		75mm	block 2500A

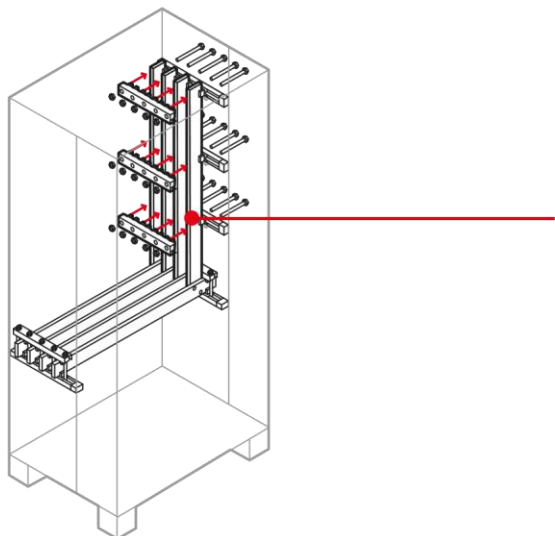
A patented technology



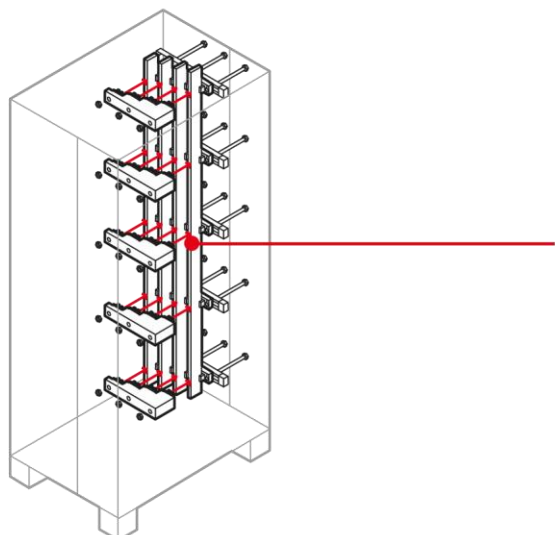
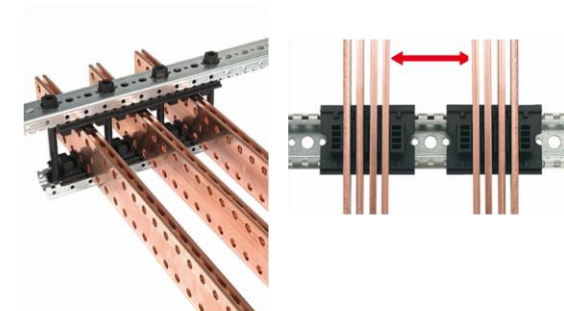
Patented joining system with 3 axial screws that makes the switchboard incredibly sturdy.



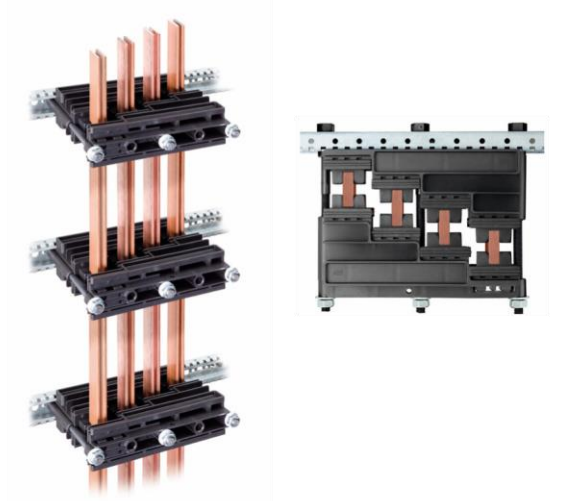
The plinth angle piece features a patented “folding” system that guarantees high-level mechanical strength and can be fastened from the inside and outside of the structure.



Patented Linear busbar insulated supports.



Patented scaled busbar insulated supports.



Certifications, type-approvals and laboratory tests

System pro E Power guarantees quality and safety in accordance with international standards IEC 61439-1 and 2.

Fully assessed and certified, the new System pro E Power switchboards have been subjected to all the type tests required by new standards IEC 61439-1-2 and IEC 60439-1-2. Certification was achieved after stringent tests that involved the entire configuration (structure, circuit-breakers, protection class test, verification of thermal stability of enclosures and busbar system), thus systems conforming to the new international standards can be created (Glow Wire test) by following ABB's instructions. System pro E power switchboard was subjected to electrical resistance to corrosion test and mechanical tests at the ABB SACE Division's lifting and handling.

test laboratory, accredited in Italy by ACCREDIA and by important international certification bod-

ies like ACAE/LOVAG, ANCE, ASTA, ETL SEMKO, UL, CSA and Shipping Registers.

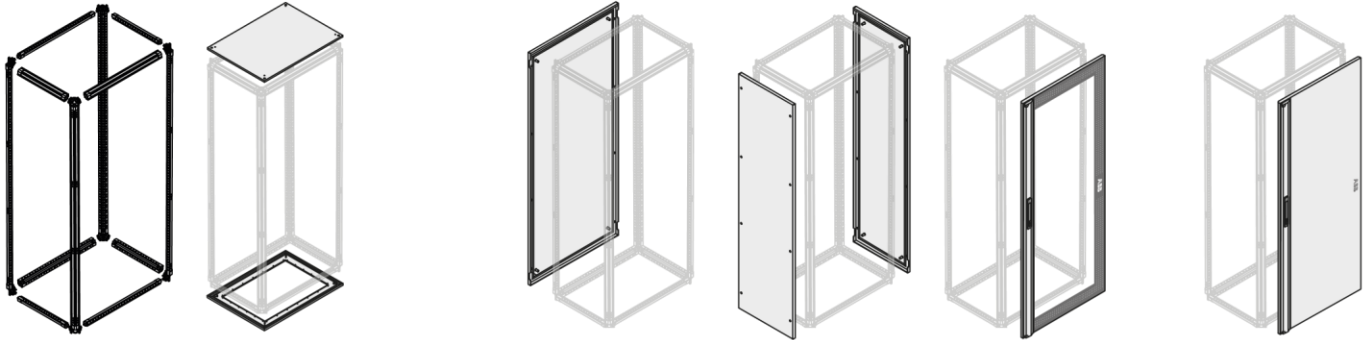
Specifically:

- Temperature rise test according to ABB's instructions. Individual verifications and testing the wired switchboard are left to the assembler.
- Short-circuit withstand test left to the assembler.
- Dielectric properties test
- Mechanical impact test
- Resistance to corrosion test and mechanical tests at
- Protection class test
- Verification of resistance of insulating materials
- Verification of thermal stability of enclosures and busbar system), thus
- Mechanical operation test achieved after stringent tests that involved the
- Clearances and creepage test
- Short-circuit strength of the protection circuit E Power

The test results guarantee tip-top performance, so the final switchboard constructor need not to conduct further type-tests or assessments if the components have been selected and assembled

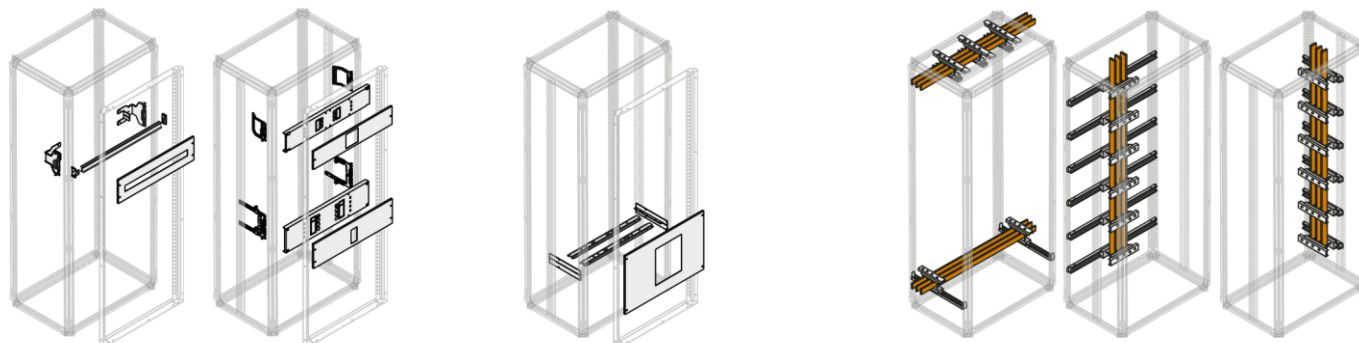


Composition of the series



STRUCTURE			EXTERNAL COVERS											
Functional dimensions			Top/Bottom			Rear panel		Side panels		Door				
			Blind	Open ⁽¹⁾	Internal bottom	Blind	Vented	Blind	Vented	Glass	Blind			
H (mm)	W (mm)	D (mm)	IP30 to IP65	IP65	IP40	IP40 to IP65	IP30/31	IP40 to IP65	IP30/31	IP30 to IP41	IP65	IP30 to IP41	IP65	
1800 2000	300	200	✓	✓	✓	✓	✓	✓				✓	✓	
		300	✓	✓	✓	✓	✓	✓	✓			✓	✓	
		500	✓	✓	✓	✓	✓	✓	✓				✓	✓
		700	✓	✓	✓	✓	✓	✓	✓				✓	✓
		900	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓
	400	200	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
		300	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
		500	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
		700	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
		900	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	600	200	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
		300	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
500		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
700		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
900		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
800	200	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	
	300	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	500	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	700	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	900	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
1000	200	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	
	300	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	500	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	700	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	900	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
1250	200					✓	✓	✓	✓	✓	✓	✓	✓	

⁽¹⁾ Use the dedicated incoming cable flanges to obtain protection class IP65.



KITS FOR APPARATUS

MAIN DISTRIBUTION SYSTEM

Modular circuit-breakers	Tmax Series moulded-case circuit-breakers							Emax 2 Series air circuit-breakers						Horizontal				Vertical	
	System pro M		XT1	XT2	XT3	T4 XT4	T5 XT5	T6 XT6	T7 XT7	E1.2	E2.2	E4.2	E6.2	E6.2	E6.2	E6.2	Top/bottom	All heights	Rear
		3/4P	3/4P	3/4P	3/4P	3/4P	3/4P	3/4P	3/4P	3/4P	3/4P	3P	3/4P neutral 50%	4P neutral 100%	4P neutral 50/100%	D (mm)	D (mm)	W (mm)	D (mm)
																	✓	✓	✓
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					✓	✓	✓									✓	✓	✓	✓
					✓	✓	✓									✓	✓	✓	✓

Segregations in accordance with Standard IEC 61439-1-2

The partition can also be a casing that is an integral part of an apparatus, e.g. a moulded-case circuit-breaker.

Internal segregation kits

The different segregation Forms, (Form 2a, 2b, 3a and 4b), that can be created in the new System pro E power main distribution switchboard are described in the following pages. The descriptions include the following information for each segregation Form:

- the basic conditions for its creation
- the various solutions
- the reference tables for the choice of codes

Generally speaking, the basic segregation Form of the circuit-breaker kits (Form 1) passes to Form 4b by adding different accessories in sequence, depending on the case in question.

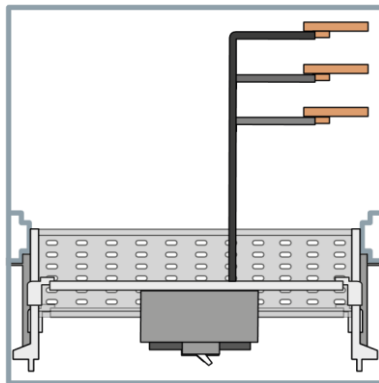
The main innovation introduced by the new System pro E power segregation system concerns the kits for circuit-breakers with front (with high terminals) and rear terminals for Form 2b.

Segregation form means the type of division inside the switchboard. Segregation by means of metal or insulating barriers or partitions may be required to:

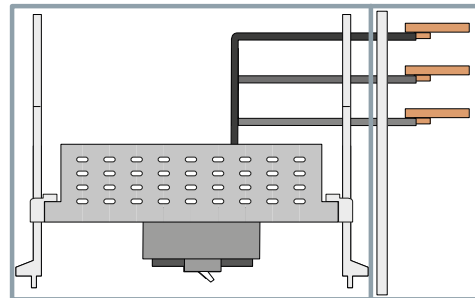
- Provide protection against direct contacts (at least IPXXB) when a de-energized part of a switchboard must be accessed while the rest of it remains energized.
- Reduce the possibility of internal arc ignition and propagation.
- Prevent solid bodies from passing between different parts of the switchboard (protection class at least IP2X).

Partition means the element that separates two compartments while the barrier protects the operator from direct contact and from the effects of the arc of a switching device in the usual direction of access.

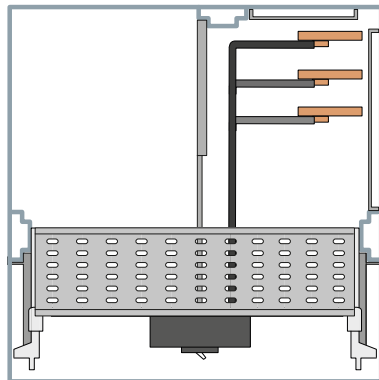
Segregation Form 2a - 3a



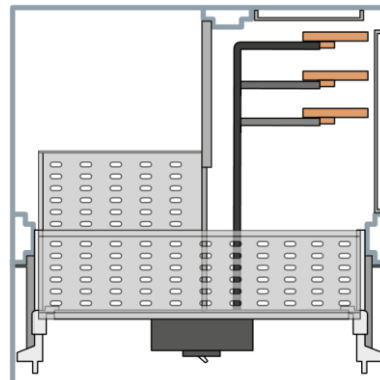
Segregation Form 2b - 4a



Segregation Form 3b



Segregation Form 4b





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ABB S.p.A
Electrification Business - Smart Power

Due to possible developments of standards as well as of materials,
the characteristics and dimensions specified in this document may
only be considered binding after confirmation by ABB SACE.

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(511) 700 9755
Avenida Alfredo Benavides 1944 piso 10 of. 1001, Miraflores
www.lailvald.net