

# XL<sup>3</sup>

## Efficient Distribution upto 4000A



DISTRIBUTION ENCLOSURES | SAFE AND TYPE TESTED

 **legrand**<sup>®</sup>

# A complete solution for your distribution needs

be it residential, commercial, hospitality or industrial project





## Enclosure with safety and flexibility

Today's fast growing businesses demand solutions that meet very high standards of quality and safety. Responding to these requirements of the market, Legrand introduces the new XL<sup>3</sup> enclosure for the LV power distribution. With its extensive range, these enclosures meet your quality standards and provide real freedom and simplicity of installation.

The new XL<sup>3</sup> range offers enclosures upto 4000 A. Available in 3 different widths and depths; it allows you to create the configuration you want. Since they are fully modular enclosures, there is no restriction

in terms of the space they occupy in an installation. They can be joined side by side or back to back to suit your requirements.

The freedom of distribution, either "standard or optimized", not only makes the assembly easy, but also enables you to save time during installation and maintenance.

These enclosures perfectly house the whole range of ACBs, MCCBs, Capacitors, MCBs, Metering devices and Other Modular products like VSP, MPCB etc offered by Legrand.

# The XL<sup>3</sup> range

4

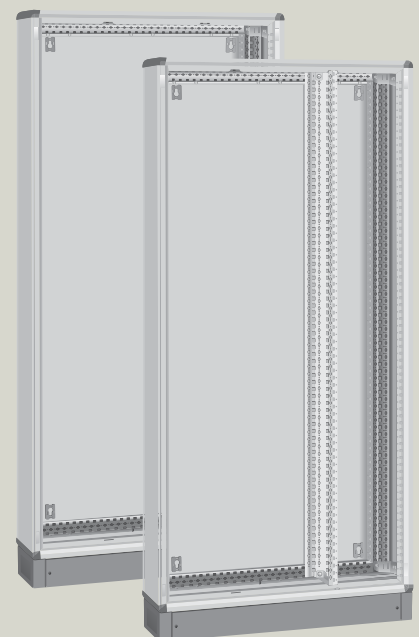
## FOR ENCLOSURES UP TO 400 A

- IP 30 to IP 55 protection, IK 08
- 24 module capacity per row
- Reduced depth for optimum space saving
- Easy and reliable equipment installation due to the functional uprights integrated at the back of the cabinet
- Optimum use of wiring space: the cable sleeves can take DPX moulded case circuit breakers
- Possibility of joining (between 2 enclosures or between the enclosures and the cable sleeves) for greater wiring capacity
- Perfect finish and protection index IP 40 to IP 55 with the metallic or glass doors



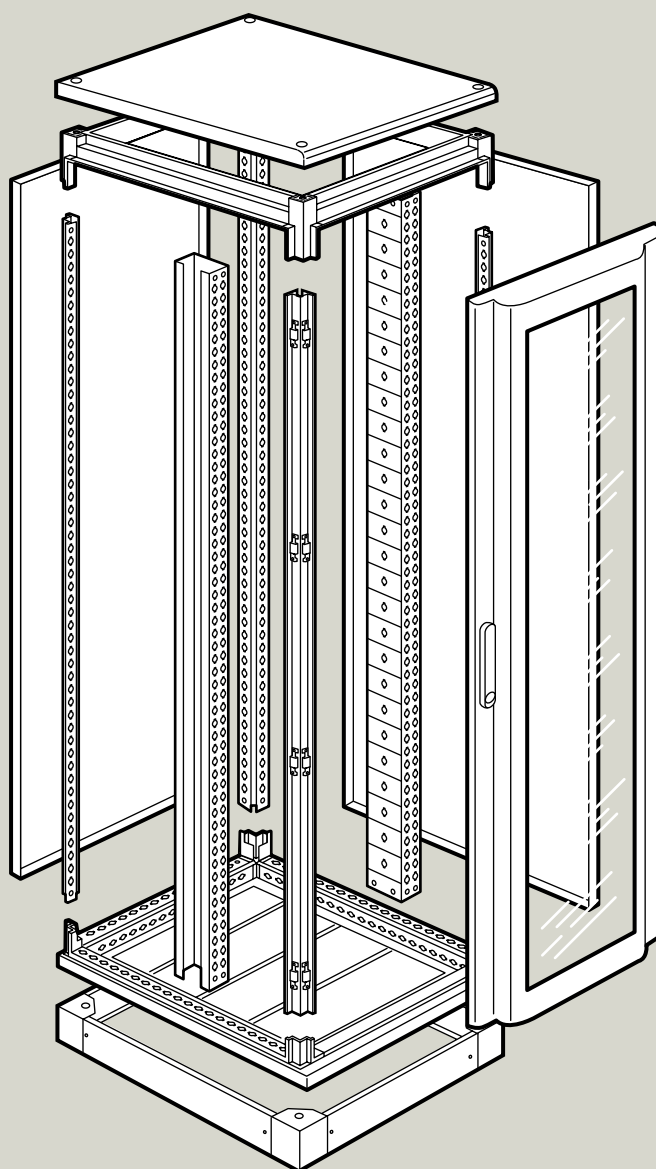
## FOR ENCLOSURES UP TO 800 A

- IP 30 to IP 55 protection, IK 08
- 24 or 36 module capacity per row
- Easy and reliable equipment installation due to the functional uprights integrated at the back of the enclosure
- Optimum use of wiring space: the cable sleeves can take DPX moulded case circuit breakers
- Enclosures with 36 module capacity per row can integrate an internal cable sleeve (by moving to 24 modules per row)
- Possibility of joining (between 2 enclosures or between the enclosures and the cable ducts) for greater wiring capacity
- Perfect finish and protection index IP 40 to IP 55 with the metallic or glass doors
- All versions can be fitted with set of busbars at the side or at the back of the enclosure



## FOR ENCLOSURES UP TO 4000 A

- IP 30 / IP 55 (with door and seal for joining)
- IK 08
- Fire resistance: 750°/30 s
- Short time withstand current  $I_{cw}$ : up to 110 kA (with 4000 A busbar)
- 3 widths
  - 475 mm
  - 725 mm
  - 975 mm
- Suitable for devices up to 4000 A
- 3 types of faceplate (¼ turn sealable, screw-mounting with or without hinge, with hinges and locks)
- Choice of distribution: standard or optimised
- Separation types: up to form 4b
- Colour: RAL 7035
- Conforms to standard IEC 61439-1

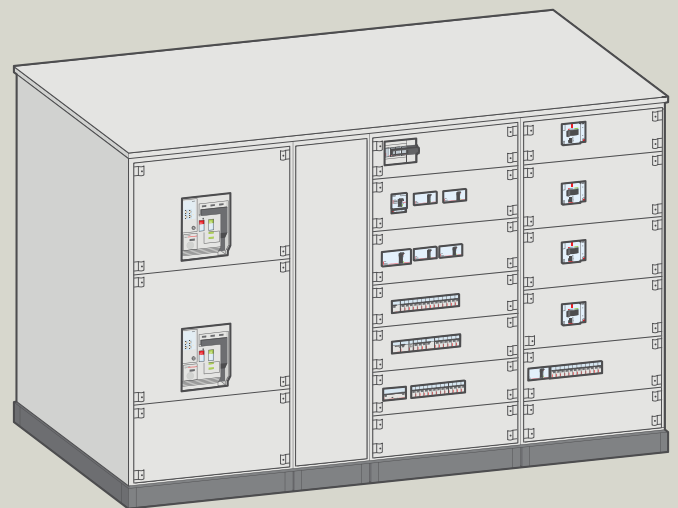


# Reliability and safety

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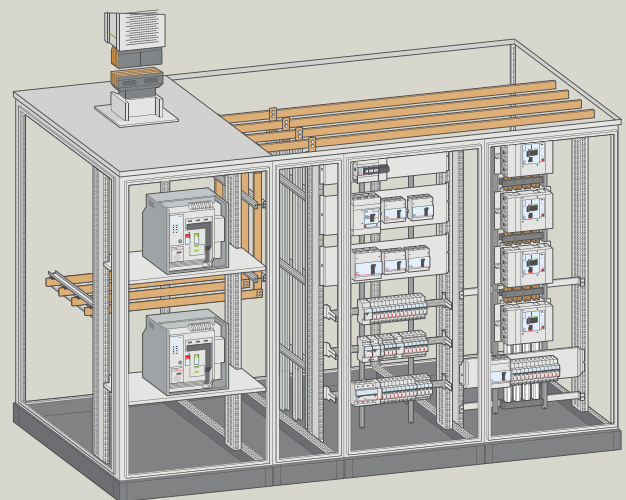
## Fully type tested system as per IEC 61439-1

XL<sup>3</sup> is tested as per IEC 61439-1 with Legrand breakers. It meets all the necessary quality standards and gives better reliability and safety.



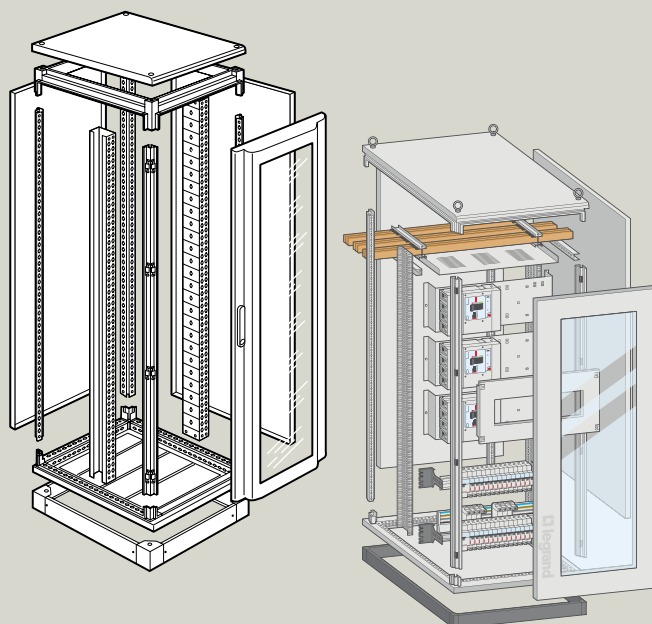
## Short time current withstand capacity – 110 kA

The short time withstand capacity is 110 kA for 1 sec making the enclosure the most technical solution for all type of requirements and applications.



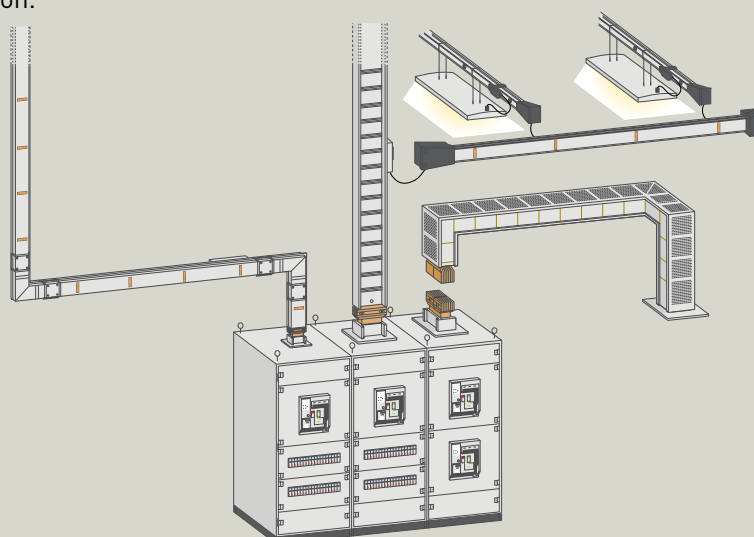
## Completely bolted system for ease of assembly

The entire system is assembled with the help of bolts thus making its assembly fast. With this bolted system, various combinations can be possible and it also saves time during assembly, installation, maintenance and extension operations.



## Design compatible with Zucchini busbar trunking system

Zucchini can be directly mounted on the top of the panel making entire solution an integrated solution.



# Flexibility & Adaptability

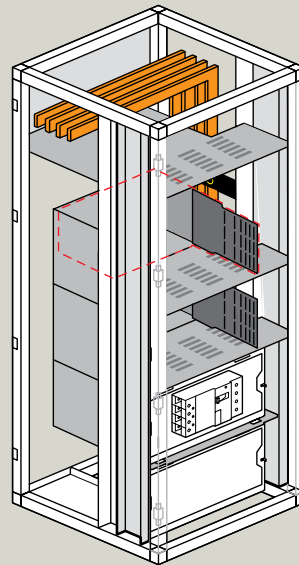
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## Modular design for numerous configurations as per requirements

Due to the modularity of the structure, it is possible to join enclosures side by side or back to back. Numerous configurations can therefore be created to meet the specific requirements of services areas. So, it is easy to make the configuration you want.

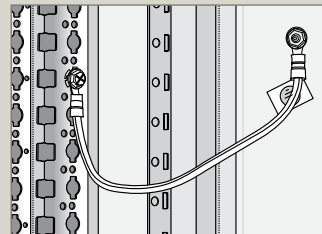
### Design suitable for form 4b

The design is suitable for achieving form 4b thus making it a universal solution for all needs.

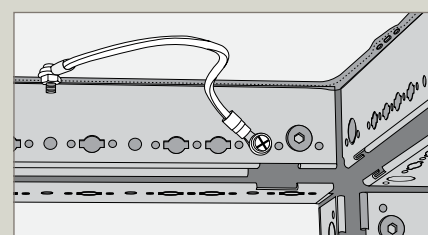
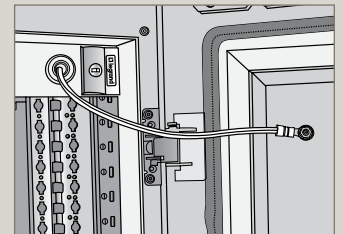


## Permanent earthing for internal components as well as external faceplates

All metallic parts are permanently earthed making it safe for use during the operation. The uprights, doors, faceplates, side, back & top covers are earthed with earth link to the nearest earthing point. The earthing is not disconnected at any point of time during operation as well as during maintenance. It keeps the entire system equipotential.



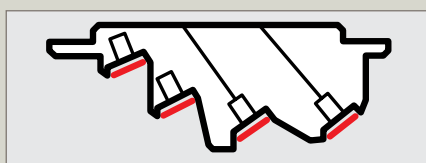
Internal earthing



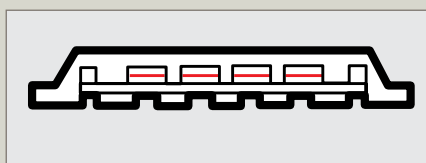
External earthing

## Busbar supports of 5 types

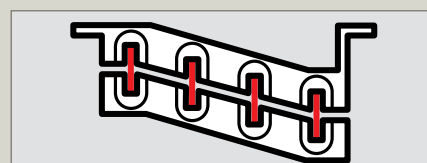
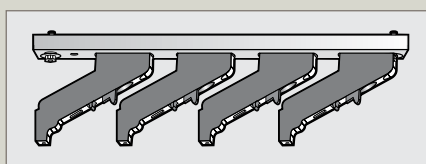
- a.  $\leq 400$  A
- b.  $\leq 800$  A
- c.  $\leq 1000$  A
- d.  $\leq 1600$  A
- e.  $\leq 4000$  A



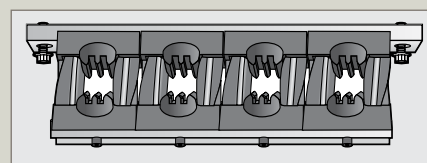
a



b



c



d



e

## Busbar solution in Copper

System is available with Copper busbars.



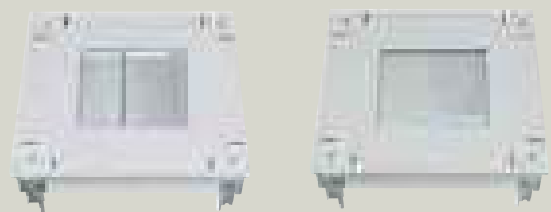
# Ease of Installation

## Adjustable cable gland plates

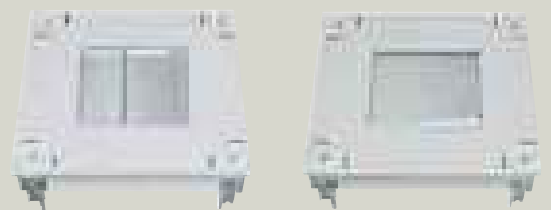
The wiring sleeves are provided at the bottom for all the cubicles with sliding plates. Sliding plates enable the size of the aperture to be adapted as per the size of the cable to be fed through.



**Sliding plates enable the size of the aperture to be adapted to the quantity of cables to be fed through**



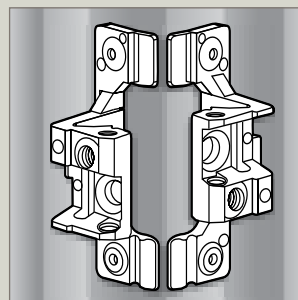
**For bases whose width and depth are identical, the direction of the runners on the cable gland plate can be reversed**



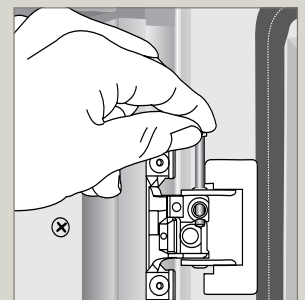
**For enclosures whose width and depth are identical, the direction in which the compartment opens can be altered**

## Universal linking pieces to offer better flexibility

Linking pieces are used for mounting external doors for IP55, joining cubes and for mounting the side & back covers, thus making it universal.



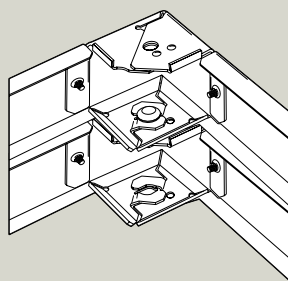
**The linking pieces are also used for fixing panels and joining enclosures**



**Fitting the pin**

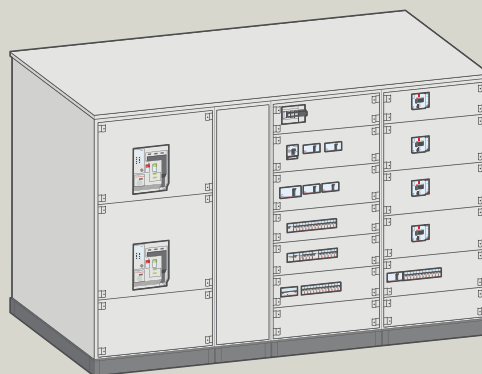
## Adjustable plinth height for better spreading of cables

The plinth has got the height of 100 mm made of 4 corners and side plates. The side plates can be removed to make a path for cable entry. Plinths can be placed on top of each other for better spreading of the cables.



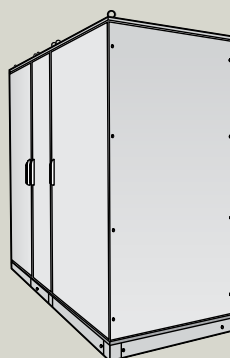
## IP43 & IP55 degree of protection with IK08

Client can select the degree of protection as per the site needs thus not compromising on the safety parameters and the performance of the system.



## IP55 solution with Metal as well as Glass door

Both metal and glass door options are available in IP55 offering wide variety of solution.



The rear panel and side panels can be replaced with doors

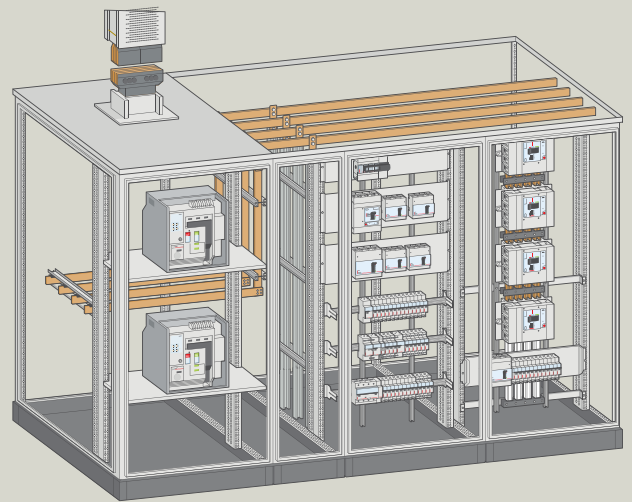
IP 55 protection is obtained by using a door

# Freedom of configuration and distribution

## Available in 3 sizes

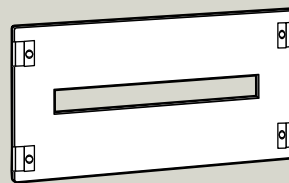
This allows you to create the configuration you want, according to your requirement and also enables you to accommodate it in the available space.

- a. Height – 1800 mm, 2000 mm & 2200 mm
- b. Depth – 475 mm, 725 mm & 975 mm
- c. Width - 475 mm, 725 mm & 975 mm

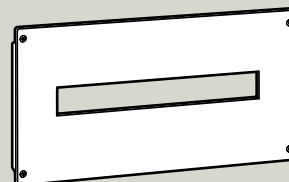


## Faceplates of 3 types

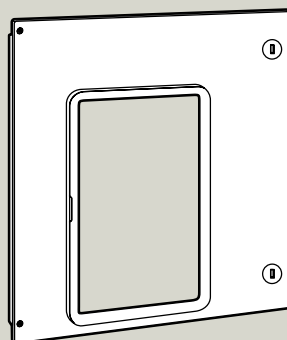
- a. ¼ turn sealable – Used for fixed type modular equipments
- b. Screw mounting w/o hinges – Used for non-openable equipments
- c. Screw mounting with hinges – Used for drawout type and openable equipments



These are specifically for fixed 24-module wide devices.



These are specifically for fixed 24-module and 36-module wide devices. They can be mounted on hinges (on the left or the right) for ease of working.



These are specifically for plug-in and draw-out devices in the DPX range, and all devices in the DMX<sup>3</sup> range.




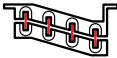
## Various distribution options with standard busbars

XL<sup>3</sup> 4000 enclosures offer you great freedom of choice for distribution. Numerous compositions of standard busbars enable all possible configurations up to 4000 A, in both enclosures and wiring sleeves

Standard distribution		Depth of enclosure (mm)
Standard busbars		
Horizontal main top or bottom		475
		725
		925
Horizontal transfer		725
		925
Lateral vertical in internal or external wiring sleeve		475
		725
		925
Lateral vertical in enclosure		725
		925
Vertical at the back of the enclosure		475
		725
		925
Horizontal at the back of the enclosure		475
		725
		925

## flat copper bars selection

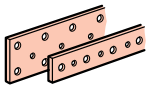
### standard distribution

		≤ 400 A				≤ 800 A		≤ 1000 A	
Flat busbars supports									
Flat copper bars		Busbar current		Busbar current		Busbar current		Busbar current	
Busbar cross section (mm) (W x T)	Number of bars per pole / phase	I (A)		I (A)		I (A)		I (A)	
		IP30	IP43 / IP55	IP30	IP43 / IP55	IP30	IP43 / IP55	IP30	IP43 / IP55
18 x 4	1	245	200	245	200	245	200	-	-
25 x 4	1	280	250	-	-	-	-	-	-
25 x 5	1	330	270	330	270	330	270	-	-
32 x 5	1	450	400	450	400	450	400	-	-
50 x 5	1	-	-	-	-	700	630	700	630
	2	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-
63 x 5	1	-	-	-	-	800	700	800	700
	2	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-
75 x 5	1	-	-	-	-	-	-	950	850
	2	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-
80 x 5	1	-	-	-	-	-	-	1050	900
	2	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-
100 x 5	1	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-
125 x 5	1	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-
80 x 10	1	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-
100 x 10	1	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-
120 x 10	1	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-

Example : For current rating of 800 A, IP 43, panel  
 Flat copper bear --> 75x5  
 No of busbars / phase --> 1  
 Busbar support --> 1600 A edgewise  
 Busbar current capacity --> 850 A

Note: Above calculations are for copper busbars only with standard operating conditions like temperature, humidity etc.  
 Busbar current to be derated as per the temperature and grade of the copper

Accuracy of dimensions = ± 2mm

Flat busbars supports		≤ 1600 A				≤ 4000 A			
		Busbar mounting: edgewise		Busbar mounting: flat		Busbar mounting: edgewise		Busbar mounting: flat	
Flat copper bars	 Busbar cross section (mm) (W x T) Number of bars per pole / phase	I (A)		I (A)		I (A)		I (A)	
		IP30	IP43 / IP55	IP30	IP43 / IP55	IP30	IP43 / IP55	IP30	IP43 / IP55
18 x 4	1	-	-	-	-	-	-	-	-
25 x 4	1	-	-	-	-	-	-	-	-
25 x 5	1	-	-	-	-	-	-	-	-
32 x 5	1	-	-	-	-	-	-	-	-
50 x 5	1	700	630	430	350	700	630	500	420
	2	1150	1000	650	510	1180	1020	750	630
	3	-	-	-	-	1600	1380	1000	900
	4	-	-	-	-	2020	1720	1120	1000
63 x 5	1	800	700	500	400	800	700	600	500
	2	1350	1150	770	590	1380	1180	750	630
	3	-	-	-	-	1900	1600	1100	1000
	4	-	-	-	-	2350	1950	1350	1200
75 x 5	1	950	850	600	475	950	850	700	600
	2	1500	1300	890	700	1600	1400	1000	850
	3	-	-	-	-	2200	1900	1250	1100
	4	-	-	-	-	2700	2300	1600	1400
80 x 5	1	1000	900	630	500	1000	900	750	630
	2	1650	1450	940	740	1700	1480	1050	900
	3	-	-	-	-	2350	2000	1300	1150
	4	-	-	-	-	2850	2400	1650	1450
100 x 5	1	1250	1050	750	580	1250	1050	850	700
	2	1900	1600	1120	900	2050	1800	1200	1050
	3	-	-	-	-	2900	2450	1600	1400
	4	-	-	-	-	3500	2900	1900	1650
125 x 5	1	-	-	-	-	1450	1270	1000	800
	2	-	-	-	-	2500	2150	1450	1250
	3	-	-	-	-	3450	2900	1800	1600
	4	-	-	-	-	4150	3450	2150	1950
80 x 10	1	-	-	-	-	1460	1270	1150	950
	2	-	-	-	-	2500	2150	1700	1500
	3	-	-	-	-	3450	2900	2500	2000
100 x 10	1	-	-	-	-	1750	1500	1350	1150
	2	-	-	-	-	3050	2550	2000	1650
	3	-	-	-	-	4150	3500	2900	2400
120 x 10	1	-	-	-	-	2000	1750	1650	1450
	2	-	-	-	-	3600	2950	2500	2000
	3	-	-	-	-	4800	4000	3500	3000

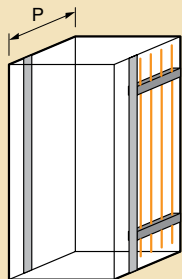
# Busbar support

## fitting the distribution systems

### Standard distribution

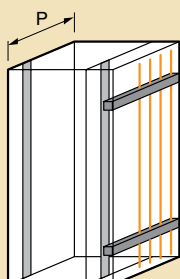
$I_n < 800$  A: Support

4 possibilities for assembly



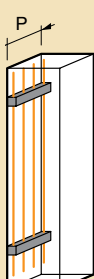
$P = 975 / 725$  mm

Lateral in enclosure



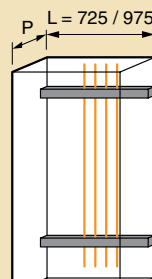
$P = 975 / 725 / 475$  mm

Lateral in internal wiring sleeve



$P = 975 / 725 / 475$  mm

Lateral in external wiring sleeve



$P = 975 / 725 / 475$  mm

At the back of the enclosure

### Selection of bars

Bars Cross-section (mm)	I (A)	
	IP < 30	IP > 30
25 x 5	330	270
32 x 5	450	400
50 x 5	700	630
63 x 5	800	700

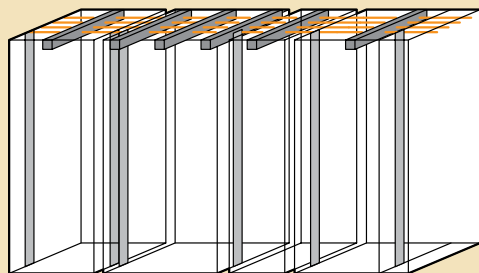
### Maximum distance (in mm) between the supports according to the peak current (I<sub>pk</sub>)

Bars	25 x 5	32 x 5	50 x 5	63 x 5
I <sub>pk</sub> (kÅ)	10	800	900	
	15	600	600	800
	20	450	500	600
	25	350	400	500
	30	300	350	400
	35	250	300	350
	40	200	250	275
	45	200	200	225
	50	150	150	200
	60	125	125	150
	70	100	100	150
	80			

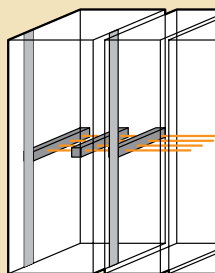
### Standard distribution

$I_n < 1600$  A: support

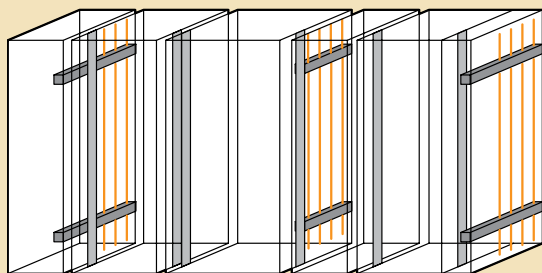
4 possibilities for assembly



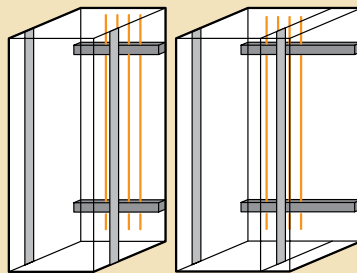
Top or bottom horizontal main busbar<sup>(1)</sup>



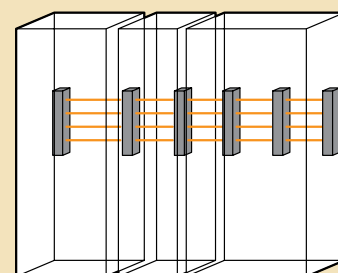
Transfer busbar



Side-mounted vertical busbars



Vertical busbar at the back



Main busbar at the back

Note: Above calculations are for copper busbars only

Accuracy of dimensions =  $\pm 2$  mm

# Busbar support

fitting the distribution systems (continued)

## ■ Selection of bars

Bars	I (A)							
	1 bar per pole				2 bars per pole			
	edgewise		flat		edgewise		flat	
Cross-section (mm)	IP ≤ 30	IP > 30	IP ≤ 30	IP > 30	IP ≤ 30	IP > 30	IP ≤ 30	IP > 30
50 x 5	700	630	430	350	1150	1000	650	510
63 x 5	800	700	500	400	1350	1150	770	590
75 x 5	950	850	600	475	1500	1300	890	700
80 x 5	1000	900	630	500	1650	1450	940	740
100 x 5	1200	1050	750	580	1900	1600	1120	900

## ■ Maximum distance (in mm) between the supports according to the peak current (I<sub>pk</sub>)

I <sub>pk</sub> (kA)	1 bar per pole					2 bars per pole				
	50 x 5	63 x 5	75 x 5	80 x 5	100 x 5	50 x 5	63 x 5	75 x 5	80 x 5	100 x 5
10	1000	1200	1200	1200	1200					
15	800	900	1000	1000	1200					
20	650	700	750	750	900					
25	500	600	600	600	700					
30	400	500	550	550	600	700	800			
35	350	450	450	450	550					
40	300	350	400	400	450	550	600	650	650	700
45	300	300	350	350	400					
50	250	250	300	300	350	450	500	500	500	550
60	200	250	250	250	300	350	400	400	400	450
70	150	200	250	250	250	250	350	350	350	400
80	100	150	200	200	200	250	300	300	300	300
90	100	150	200	200	200	200	250	300	300	300
100	100	150	150	150	150	200	200	250	250	250
110	100	100	150	150	150	150	200	200	200	200
120	100	100	100	100	100	150	150	200	200	200

Note: Above calculations are for copper busbars only

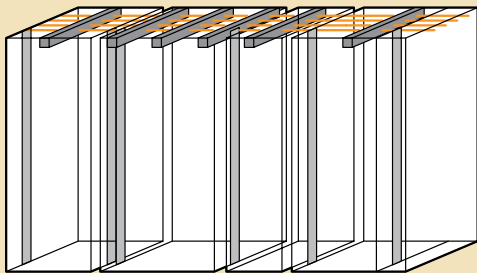
Accuracy of dimensions = ± 2mm

# Busbar support

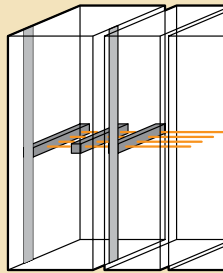
## fitting the distribution systems (continued)

$I_n < 4000 \text{ A}$

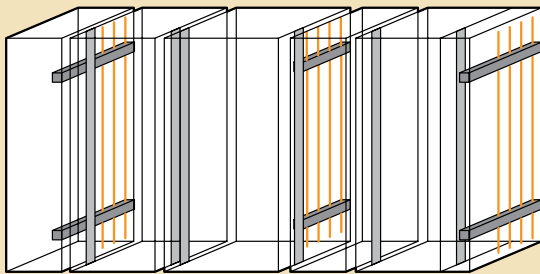
4 possibilities for assembly



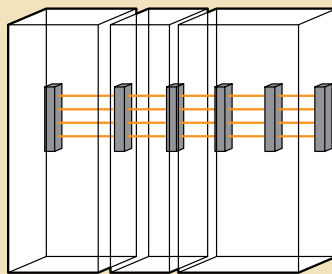
Top or bottom horizontal main busbar<sup>(1)</sup>



Transfer busbar<sup>(2)</sup>



Side-mounted vertical busbars



Main busbar at the back

### ■ Selection of 5 mm thick bars

Bars	I (A)							
	1 bar per pole				2 bars per pole			
	edgewise		flat		edgewise		flat	
Cross-section (mm)	IP ≤ 30	IP > 30	IP ≤ 30	IP > 30	IP ≤ 30	IP > 30	IP ≤ 30	IP > 30
50 x 5	700	630	500	420	1180	1020	750	630
63 x 5	800	700	600	500	1380	1180	750	630
75 x 5	950	850	700	600	1600	1400	1000	850
80 x 5	1000	900	750	630	1700	1480	1050	900
100 x 5	1200	1050	850	700	2050	1800	1200	1050
125 x 5	1450	1270	1150	950	2500	2150	1450	1250

Note: Above calculations are for copper busbars only

Accuracy of dimensions = ± 2mm

# Busbar support

fitting the distribution systems (continued)

## ■ Maximum distance (in mm) between the supports according to the peak current (I<sub>pk</sub>)

I <sub>pk</sub> (kA)	1 bar per pole					2 bars per pole				
	50 x 5	63 x 5	75 x 5 80 x 5	100 x 5	125 x 5	50 x 5	63 x 5	75 x 5 80 x 5	100 x 5	125 x 5
10	1550	1700	1700	1700	1700	1700	1700	1700	1700	1700
15	1050	1200	1350	1550	1700	1550	1700	1700	1700	1700
20	800	900	1000	1150	1350	1200	1350	1500	1700	1550
25	650	750	800	950	1100	950	1100	1200	1400	1100
30	550	600	700	800	900	800	900	1000	1150	1350
35	450	550	600	650	800	700	800	900	1000	1150
40	400	450	550	600	700	600	700	800	900	1000
45	350	400	450	550	600	550	600	700	800	900
50	350	350	450	500	550	500	550	650	700	800
60	300	300	350	400	450	400	450	550	600	700
70	250	250	300	350	400	350	400	450	500	650
80		250	250	300	350	300	350	400	450	550
90			250	250	300	300	300	350	400	500
100				250	300	250	300	300	350	500
110				250	250	250	250	300	350	450
120					250		250	250	300	450
130					250			250	300	400
140								250	250	400
150									250	350
160									250	350
170										350
180										300
190										
200										
210										
220										

Note: Above calculations are for copper busbars only

## Busbar support

fitting the distribution systems (continued)

### ■ Selection of 5 mm thick bars

Bars	I (A)							
	3 bar per pole				4 bars per pole			
	edgewise		flat		edgewise		flat	
Cross-section (mm)	IP ≤ 30	IP > 30	IP ≤ 30	IP > 30	IP ≤ 30	IP > 30	IP ≤ 30	IP > 30
50 x 5	1600	1380	1000	900	2020	1720	1120	1000
63 x 5	1900	1600	1100	1000	2350	1950	1350	1200
75 x 5	2200	1900	1250	1100	2700	2300	1600	1400
80 x 5	2350	2000	1300	1150	2850	2400	1650	1450
100 x 5	2900	2450	1600	1400	3500	2900	1900	1650
125 x 5	3450	2900	1800	1600	4150	3450	2150	1950

### ■ Maximum distance (in mm) between the supports according to the peak current (I<sub>pk</sub>)

I <sub>pk</sub> (kA)	3 bar per pole					4 bars per pole				
	50 x 5	63 x 5	75 x 5 80 x 5	100 x 5	125 x 5	50 x 5	63 x 5	75 x 5 80 x 5	100 x 5	125 x 5
10	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
15	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
20	1550	1700	1700	1700	1700	1700	1700	1700	1700	1700
25	1250	1450	1600	1700	1700	1550	1700	1700	1700	1700
30	1050	1200	1350	1550	1700	1300	1500	1700	1700	1700
35	900	1050	1150	1300	1500	1150	1250	1450	1650	1700
40	800	900	1050	1150	1300	1000	1100	1300	1450	1650
45	700	800	900	1050	1200	900	1000	1150	1300	1450
50	650	750	850	950	1050	800	900	1050	1150	1350
60	550	600	700	800	900	650	750	850	1000	1100
70	450	550	600	700	750	600	650	750	850	950
80	400	450	550	600	700	500	600	650	750	850
90	350	400	500	550	600	450	500	600	650	750
100	350	400	450	500	550	400	450	550	600	700
110	300	350	400	450	500	350	450	500	550	600
120	300	300	350	400	450	350	400	450	550	550
130	250	300	350	350	400	300	350	400	500	550
140	250	250	300	350	400	300	350	400	450	500
150	250	250	300	350	350	300	300	350	400	450
160		250	250	300	350	250	300	350	400	350
170		250	250	300	350	250	300	300	350	300
180			250	300	300	250	250	300	350	300
190			250	250	300	250	250	300	300	250
200				250	300		250	250	300	250
210				250	250		250	250	250	200
220				250	250			250	250	200

Note: Above calculations are for copper busbars only

## Busbar support

fitting the distribution systems (continued)

### ■ Selection of 10 mm thick bars

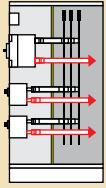
Bars	I (A)											
	1 bar per pole				2 bars per pole				3 bars per pole			
	edgewise		flat		edgewise		flat		edgewise		flat	
Cross-section (mm)	IP ≤ 30	IP > 30	IP ≤ 30	IP > 30	IP ≤ 30	IP > 30	IP ≤ 30	IP > 30	IP ≤ 30	IP > 30	IP ≤ 30	IP > 30
80 x 10	1460	1270	1150	950	2500	2150	1700	1500	3450	2900	2500	2000
100 x 10	1750	1500	1350	1150	3050	2550	2000	1650	4150	3500	2900	2400
120 x 10	2000	1750	1650	1450	3600	2920	2500	2000	4800	4000	3500	3000

### ■ Maximum distance (in mm) between the supports according to the peak current (I<sub>pk</sub>)

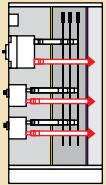
I <sub>pk</sub> (kA)	1 bar per pole			2 bars per pole			3 bars per pole		
	80 x 10	100 x 10	120 x 10	80 x 10	100 x 10	120 x 10	80 x 10	100 x 10	120 x 10
20	1700	1700	1700	1700	1700	1700	1700	1700	1700
25	1600	1700	1700	1700	1700	1700	1700	1700	1700
30	1350	1550	1700	1700	1700	1700	1700	1700	1700
35	1150	1300	1450	1700	1700	1700	1700	1700	1700
40	1050	1150	1300	1500	1700	1700	1700	1700	1700
45	900	1050	1150	1350	1550	1700	1700	1700	1700
50	850	950	1050	1200	1400	1550	1600	1700	1700
60	700	800	850	1000	1150	1300	1350	1550	1700
70	600	700	750	900	1000	1100	1150	1300	1500
80	550	600	650	750	900	1000	1000	1150	1300
90	500	550	600	700	800	900	900	1050	1100
100	450	500	550	600	700	800	850	900	950
110	400	450	500	550	650	750	750	800	800
120	350	400	450	550	600	650	700	750	750
130	350	350	400	500	550	600	650	700	700
140	300	350	400	450	500	600	600	650	650
150	300	350	350	450	500	550	550	650	600
160	250	300	350	400	450	500	550	600	500
170	250	300	300	350	450	500	500	500	500
180	250	300	300	350	400	450	500	450	450
190	250	250	300	350	400	450	450	400	400
200	200	250	300	300	350	400	450	400	400
210	200	250	250	300	350	350	400	350	350
220		250	250	300	350	300	350	300	300
230		200	250	300	300	300	300	300	300
240			200	250	300	250	300	250	250
250			200	250	300	250	250	250	250

Note: Above calculations are for copper busbars only

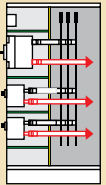
■ Definitions (standard IEC 61439-2)



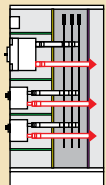
**Form 2a**  
Separation of the busbars from the functional units  
The terminals for external conductors do not need to be separated from the busbars



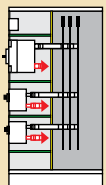
**Form 2b**  
Separation of the busbars from the functional units  
The terminals for external conductors are separated from the busbars



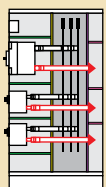
**Form 3a**  
Separation of the busbars from the functional units, separation of the terminals for external conductors from the functional units and separation of all the functional units from one another  
The terminals for external conductors do not need to be separated from the busbars



**Form 3b**  
Separation of the busbars from the functional units and separation of all the functional units from one another  
Separation of the terminals for external conductors from the functional units but not from each other  
The terminals for external conductors do not need to be separated from the busbars



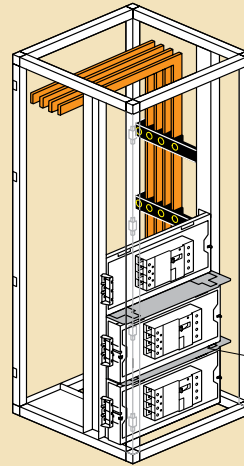
**Form 4a**  
Separation of the busbars and the functional units and separation of all the functional units from one another, including the terminals for external conductors which are an integral part of the functional unit  
The terminals for external conductors are in the same compartment as the functional unit  
The terminals for external conductors are separated from the busbars



**Form 4b**  
Separation of the busbars and the functional units and separation of all the functional units from one another, including the terminals for external conductors  
The terminals for external conductors are not in the same compartment as the functional unit, but in individual, separate compartments

■ Rear terminals construction

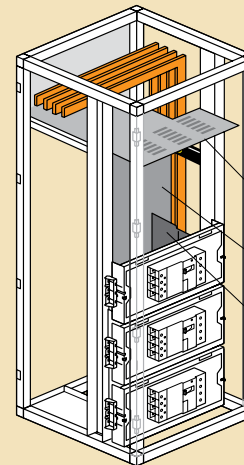
**Form 2a**



Form 2a is simply obtained by using adjustable horizontal plates  
DPX must have rear terminals  
The busbar must be installed behind the functional uprights  
If the addition of further equipment in the enclosure is required, use solid plates  
When there is a gap between 2 plates, horizontal divider must be used to prevent any contact with the rear busbar

Horizontal partitioning to fill the space between the plates

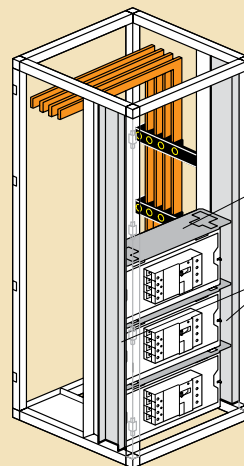
**Form 2b**



Separation of the busbars from the functional units  
The terminals for external conductors are separated from the busbars  
The vertical busbar is placed behind the functional uprights  
The devices must be horizontal and with rear terminal connection

Horizontal busbar partitioning  
Horizontal rear busbars partitioning  
Divider for rear terminals

**Form 3a**

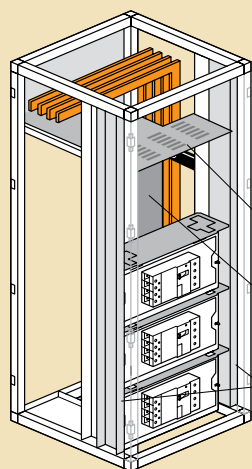


Form 3a is obtained from form 2a by adding horizontal dividers and front panel total dividers

Horizontal partitioning  
Front panel side partitioning

## ■ Rear terminals construction (continued)

### Form 3b

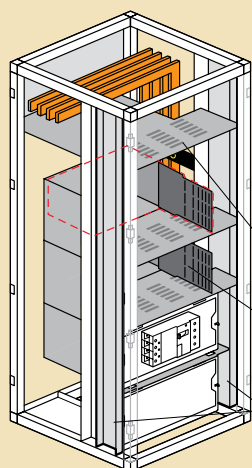


For form 3b partitioning, it is advisable to start with form 2b and add:

- Horizontal dividers between the functional units
- Side partitions either side of the functional units

- Horizontal busbar partitioning
- Vertical rear busbars partitioning
- Front panel side partitioning

### Form 4b



Connection on the rear terminals is obtained by using:

- Closing partitions for busbars (vertical and horizontal)
- Closing partitions for devices (horizontal and with rear terminals)
- Closing partitions for output terminals
- Closing partitions between cells that are joined together

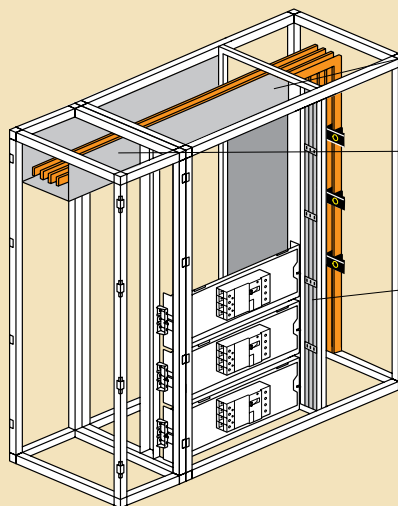
- Horizontal busbar partitioning
- DPX compartment kit
- Front panel side partitioning

## ■ Front terminals construction

### Form 2b

The vertical busbar is positioned in a cable sleeve then separated from the functional units using a vertical separation kit between the enclosure and the cable sleeve (the cables and flexible bars can be fed through the front part)

Use an L-shaped or U-shaped separation kit for the horizontal busbars. These kits consist of a rear part (height 200 or 300 mm) and a horizontal divider across the whole of the usable depth.



- Separation kit for horizontal busbars in enclosure
- U-shaped separation kit for horizontal busbars in external cable sleeves
- Vertical separation kit between enclosure or internal/external cable sleeves

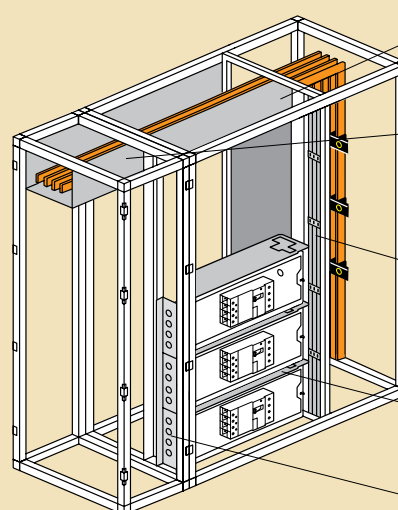
### Forms 3b, 4a

For form 3b partitioning, it is advisable to start with form 2b and add:

- 1 - Horizontal dividers between the functional units
- 2 - Side partitions on either side of the functional units

In 4a form, the outgoing connections must be made within the functional units.

Note: When connecting via front terminals, the incoming terminals must be fitted with terminal shield MCBs.



- Separation kit for horizontal busbars in enclosure
- U-shaped separation kit for horizontal busbars in external cable sleeves
- Vertical separation kit between enclosure or internal/external cable sleeves
- Horizontal partitioning
- Side partitions with end pieces

# Power & Protection components of XL<sup>3</sup>

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## DMX<sup>3</sup> ACB up to 4000 A

- Fixed and draw out version
- 3 breaking capacities: 50, 65, 100 kA
- Front connection of auxiliaries on dedicated terminal block



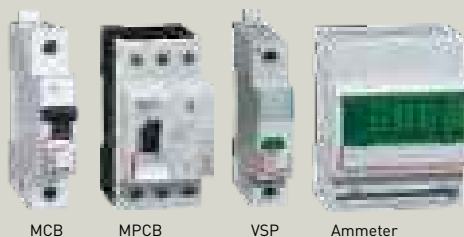
## DPX<sup>3</sup>/DPX MCCB up to 1600 A

- Adjustable thermal magnetic & electronic release
- Breaking capacities: 16 kA to 100 kA
- Common auxiliaries for the entire range



## Lexic MCBs, VSP, MPCB and metering devices

- Integrated label holder
- Energy efficient
- Large cable terminals
- IP 20 protection

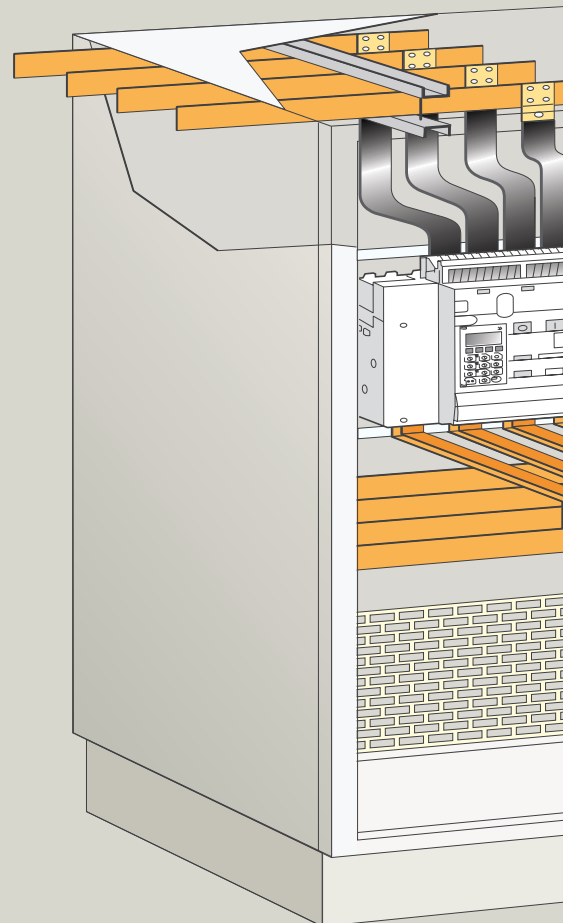


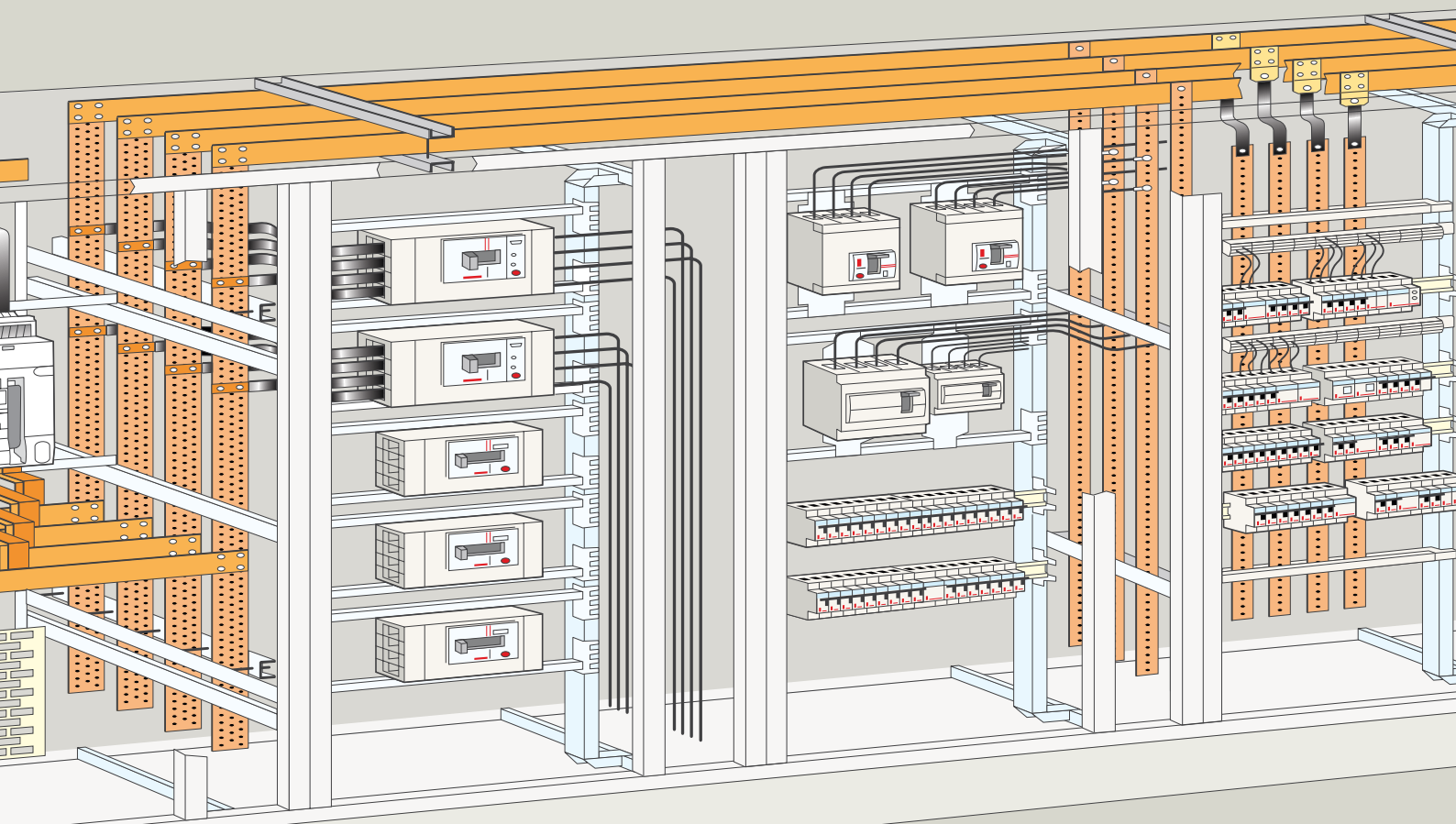
MCB

MPCB

VSP

Ammeter





Takes DMX<sup>3</sup> ACBs, DPX<sup>3</sup>/DPX MCCBs,  
Lexic MCBs, Other Modular  
products upto 4000A



The type tests defined by standard IEC/EN 61439-1 are carried out officially by neutral organisations on representative assemblies of the usual wiring and device configurations.

These assemblies are called "Standard assemblies".

They involve the following tests

1. Temperature rise limits
2. Dielectric properties
3. Short-circuit resistance
4. Effectiveness of the protective circuit
5. Clearances and creepage distances
6. Mechanical operation
7. Degree of protection (IP)
8. Strength of materials and parts

The enclosures fitted with Legrand circuit breakers are manufactured and tested in accordance with the standard.

# The safety guaranteed by the certification of fitted XL<sup>3</sup> enclosures

## The 8 type tests in detail

### 1 Temperature rise limits

#### Temperature rise test on assemblies

This test checks that assemblies operate correctly under maximum operating conditions (current, number of devices, volume of enclosure).

It allows to define the heat balance elements for an average temperature rise in the air in assemblies of less than 30°C and a temperature rise in the terminals less than 70°C.

#### Temperature rise test on busbars

The various currents given for all the bar and distribution systems have been checked under the most severe conditions, according to the degree of ventilation of the enclosure (IP < 30 and IP > 30), so that the temperature rise of the bars does not exceed 65°C.

### 2 Dielectric properties

The dielectric tests check the insulation performance levels for the maximum operating voltage. They are carried out at the industrial frequency of 50 Hz and in the form of voltage waves simulating a lightning strike.

### 3 Short-circuit resistance

The tests carried out guarantee, in relation to thermal and electro dynamic stresses, the resistance of the busbars and their supports, the breaking devices and protection devices (DMX<sup>3</sup>/DPX/Lexic), and the enclosures.

### 4 Effectiveness of the protective circuit

The continuity of the protective circuit is a decisive factor for safety. It is checked:

- On the one hand in accordance with standard IEC/EN 61439-1 at a test current of 25 A between the terminal connecting the protective conductors and all the exposed conductive parts and
- Also in accordance with an additional Legrand test, at a high fault current capable of occurring in the event that a conductor becomes accidentally detached.

The protective circuits (conductors, terminals or collector bars) are sized and tested to withstand the maximum short-circuit thermal stress that could occur according to the current at the supply end of the assembly.

### 5 Clearances and creepage distances

The measurement procedures for the clearances and creepage distances are accurately covered in appendix F issued from standard IEC/EN 61439-1. The clearances and distances are measured between live parts with different polarities, and also between live parts and the exposed conductive parts.

When Legrand devices and equipment are installed in accordance with the specified conditions, the clearances and distances are observed for the insulation voltages of these devices.

Experience has shown that the greatest risk is in the wiring. Connections, bundles of conductors and busbars must be meticulously checked. Unsuitable connectors, bolted connections, joints and metal supports can reduce the initially planned insulation values.

### 6 Mechanical operation check

In accordance with the provisions of the standard, tests are carried out on parts and devices that are not subject to any specific requirements.

Correct mechanical operation and/or faceplate is checked by 50 operating cycles on draw-out racks and faceplate fixings.

### 7 Check of the degree of protection (IP)

The IP defines the ability to protect people and to prevent entry of solid objects (first number) and liquids (second number).

The additional letter indicates the protection against access to hazardous parts. Legrand offers a solution that is perfectly suited to all environments.

### 8 Strength of materials and parts

Assemblies shall be constructed of materials capable of withstanding the mechanical, electrical, thermal and environmental stresses that are likely to be encountered in specified service conditions. So test are made to check the protection against corrosion, the thermal stability, the mechanical strength, the lifting provision, the resistance to ultraviolet and the insulation of materials to heat and fire.

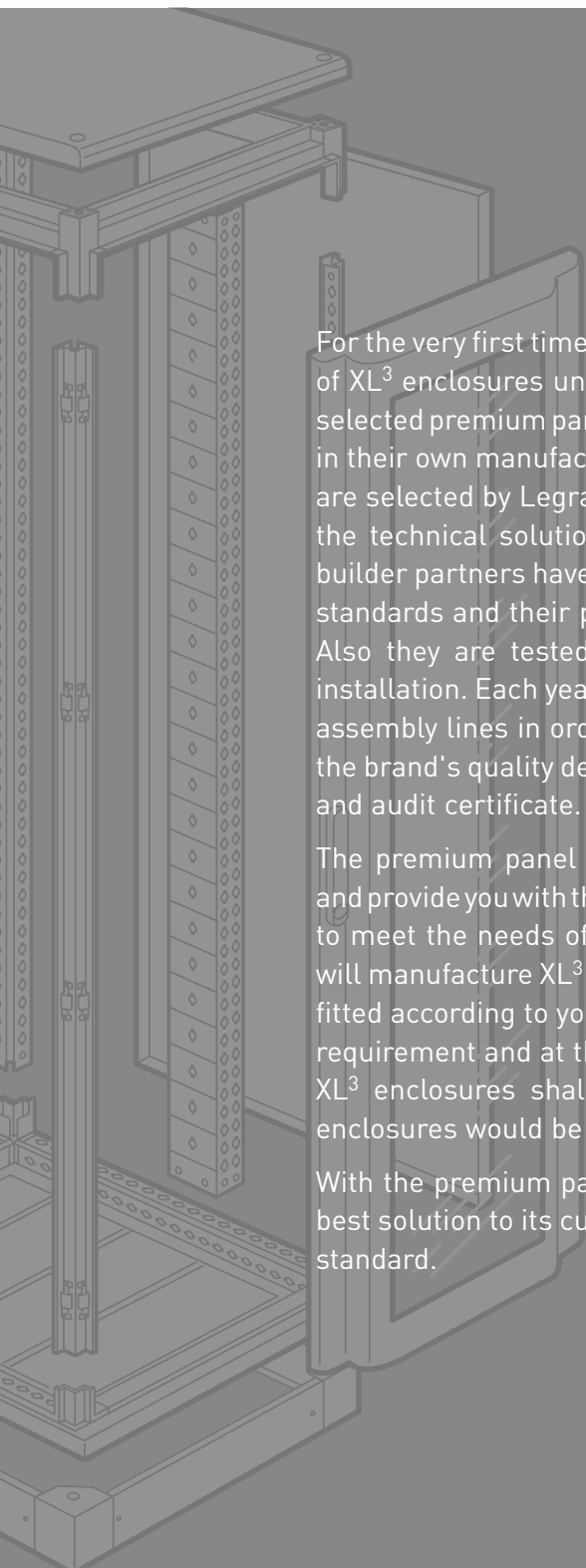
# Quality Confirmation

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## CERTIFICATES



# The premium panel builder partnership project



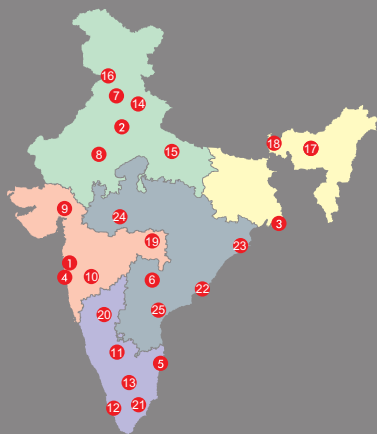
For the very first time, Legrand brings the concept of manufacturing of XL<sup>3</sup> enclosures under Legrand License. Under this concept the selected premium panel builder partners shall manufacture XL<sup>3</sup> enclosures in their own manufacturing facilities. The premium panel builder partners are selected by Legrand on the basis of their reputation and the quality of the technical solutions they offer to the market. These premium panel builder partners have been audited to check whether the structure, quality standards and their professional approach is in line with that of Legrand. Also they are tested and verified for the reliability & perfection of an installation. Each year, the Legrand experts will carry out the audit of their assembly lines in order to ensure that their know-how continues to meet the brand's quality demands. The partners are awarded License certificate and audit certificate.

The premium panel builder partners guarantee high quality enclosures and provide you with their expertise to make the most suitable configurations to meet the needs of all your sites. The premium panel builder partners will manufacture XL<sup>3</sup> enclosures that are ready to be installed and are pre-fitted according to your requirement in order to best meet the time saving requirement and at the same time comply with the quality standards. The XL<sup>3</sup> enclosures shall be delivered with Legrand components. The XL<sup>3</sup> enclosures would be sold under the "License Legrand" brand.

With the premium panel builder partnership program Legrand offers the best solution to its customers that also meets the requirements of the IEC standard.







### Head office

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Tel : (022) 3041 6200  
Fax : (022) 3041 6201  
Website : www.legrand.co.in

### Regional sales offices

- A-25, Mohan Co-operative Industrial Estate, Mathura Road, **NEW DELHI** - 110 044.  
Tel : (011) 2699 0028 / 29 / 30, 3990 2200  
Fax : (011) 2699 0047
- Bhakta Towers, 2nd & 3rd Floor, Plot No. KB 22, Salt Lake, Sector - 3 **KOLKATA** - 700 091.  
Tel : (033) 4021 3535 / 36  
Fax : (033) 4021 3537
- 34, Kalpataru Square, 3rd Floor, Off Andheri - Kurla Road, Andheri (East), **MUMBAI** - 400 059.  
Tel : (022) 3385 6200  
Fax : (022) 3385 6201
- Gee Gee Universal, 8th Floor, Door No. 2, 18/1 & 18/2 McNichols Road, Chetput **CHENNAI** - 600 031.  
Tel : (044) 3024 7200, 2836 4165 / 67 / 68  
Fax : (044) 2836 4169
- 205-208, 2nd Floor, Block - II, White House, Kundan Bagh, Begumpet, **HYDERABAD** - 500 016.  
Tel : (040) 2341 4398 / 67  
Fax : (040) 6636 6974

### Branch offices

- SCO 1-2-3  
Second floor, Sector 17B,  
**CHANDIGARH** - 160 017.  
Tel : (0172) 305 8631/ 32/33/34/35  
Fax : (0172) 501 9008
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Jai Singh Highway,  
Banipark,  
**JAIPUR** - 302 016.  
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- 504, Sakar IV,  
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Ellis Bridge,  
Ahmedabad - 380 006.  
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Fax : (079) 2658 6563
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Near Ashwamegh Marriage Hall,  
Behind HP Petrol Pump,  
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Erandwane,  
**PUNE** - 411 004.  
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Fax : (020) 6729 5604
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2/1, Union Street,  
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Fax : (080) 2286 1078
- No. 36/2178,  
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Kaloor - Kadavanthra Road,  
Kaloor,  
**KOCHI** - 682 017.  
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Fax : (0484) 233 3921
- B-15,  
Thirumalai Towers,  
IV-D, Fourth Floor,  
723, Avanashi Road,  
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Ground Floor, Saran Chamber 1,  
5, Park Road, Hazratganj  
**LUCKNOW** - 226 001.  
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Fax : (0522) 223 9124
- Cabin No. 9, Second Floor  
Madhok Trade Centre,  
Madhok Complex, Ferozpur Road  
**LUDHIANA** - 141 001.  
Tel/Fax No.: (0161) 277 0301 / 304
- House No. 97, Ground Floor,  
Rajgarh Main Road,  
Opp. City Heart Nursing Home  
**GUWAHATI** - 781 007.  
Tel : (0361) 245 8498
- 94, Udhm Singh Sarani,  
Ground Floor, Ashrampara,  
**SILIGURI** - 734001  
Tel : 94341 91635 / 98009 77780
- Plot No.95, II Floor, Shreyash Heights,  
Ramdas Peth, VIP Road,  
**NAGPUR** - 440 010.  
Tel : (0712) 224 1790  
Fax : (0712) 222 0113
- Prime Plaza, 2nd Floor,  
1st Main, Girls High School Road,  
Near PNB, Deshpande Nagar  
**HUBLI** - 580029  
Mobile Nos: 98807 64338 / 98807 64339
- Aparna Towers, 1st Flr. 2/3,  
Bypass Road  
**MADURAI** - 625 010.  
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- 404, Eshwar Plaza,  
Dwaraka Nagar, Main Road  
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Telefax : (0891) 663 9363
- Plot No. 359, Saheed Nagar, 2nd floor,  
**BHUBANESWAR** - 751 007.  
Tel : (0674) 254 0623
- 204-205, Megapolis Square,  
579, M G Road,  
**INDORE** - 452 001.  
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Fax : (0731) 393 1653
- MF-2, Datta's Lords House,  
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