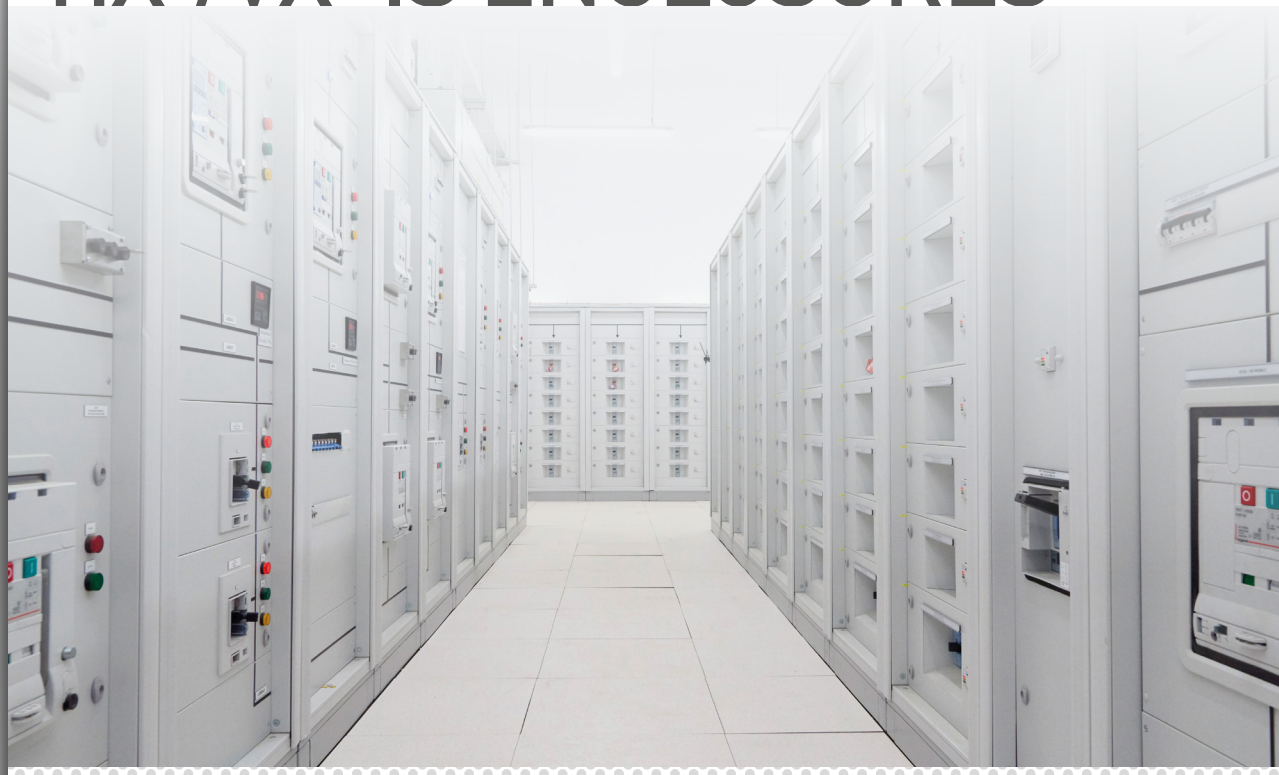
INSTALLATION GUIDE

MAINTENANCE, INSTALLATION AND COMMISSIONING OF HX³/VX³ IS ENCLOSURES



THE GLOBAL SPECIALIST IN ELECTRICAL AND DIGITAL BUILDING INFRASTRUCTURES

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Current regulations and EU directives emphasize the importance of the maintenance of electrical equipment and provide the corresponding provisions. In particular, they require manufacturers of electrical equipment to define the procedures to ensure proper installation and to define a maintenance schedule, providing the corresponding instructions to be followed by the user.

Concerning electrical panels, the requirements are provided by the directives in force 2006/95/EC and 2004/108/EC as well as by the reference standards applied to electrical panels, IEC EN 61439-1 in chapter 6.2.2. standard IEC EN 61439-1 «Low-voltage switchgear and controlgear assemblies» (LV switchgear) - Part 1: General rules and IEC EN 61439-2 standard IEC EN 61439-1 «Low-voltage switchgear and controlgear assemblies» (LV switchgear), - Part 2: Set of power switchgear.

This guide contains instructions for packing before handling, lifting and transport, as well as recommendations for preparing the installation and commissioning of Legrand low-voltage panel, in accordance with directives 2006/95/EC, 2004/108/EC, and the requirements of standards EN 61439-1 (chapter 6.2.2.) and IEC EN 61439-2.

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INTRODUCTION

Current standards and directives emphasize the importance of the maintenance of electrical equipment and provide the corresponding provisions. In particular, they require manufacturers of electrical equipment to define procedures to ensure proper implementation and a program of verification and maintenance, providing the corresponding instructions to be followed by the user.

Concerning electrical panels, the requirements are provided by the directives 2006/95/EC, 2004/108/EC as well as by the reference standards applied to electrical panels, IEC EN 61439-1 in chapter 6.2.2. (IEC EN 61439-1 «Low-voltage switchgear and controlgear assemblies» (LV switchgear) - Part 1: General rules), IEC EN 61439-2 (IEC EN 61439-1 «Low-voltage switchgear and controlgear assemblies» (LV switchgear) - Part 2: Power switchgear assemblies).

This guide contains instructions and recommendations for the protection of switchgear before transport/lifting, transport, delivery, storage, installation, preparation for commissioning and putting into service, in accordance with the indications of the Community Directives 2006/95/EC, 2004/108/EC, and the requirements of Standards EN 61439-1 (chapter 6.2.2.) and IEC EN 61439-2.

Legrand assumes no responsibility for failure to comply with recommendations and instructions for any of the following events:

- **Careless handling**
- **Failure to follow safety rules**
- **Insufficient or improper maintenance**
- **Failure to follow the recommendations given in this guide**
- **Improper repairs or modifications by untrained or unqualified personnel**
- **Transport damage of any kind**
- **Inappropriate use**
- **Damage to property or persons**

PACKAGING & PROTECTION BEFORE TRANSPORT

DELIVERY

Legrand advises you to protect the enclosures, and the equipment that makes them up, with adequate packaging before delivery, against possible damage during transport, dust and humidity during storage.

We recommend the use of cardboard and plastic film (if possible, use recyclable packaging). It is also possible to add wooden structures to ensure better stability.

For sea freight we advise you to refer to the SEI4C standard, and for air delivery we advise you to apply the IATA standard.

We advise you to deliver the enclosures with the bases. If the bases are not provided, the delivery must be made with pallets adapted to support the weight of the columns. The enclosures must be fixed to the pallets.

In order to reduce the weight for each column, we recommend to deliver the circuit breakers in plugged-in and draw-out version, with the movable part of the IS 223/233/333 bases separated. The original packaging of the product can be reused. All products must be marked and identified to enable correct installation on site. In general, equipment > 30 Kg must be delivered separately and in its original packaging. Similarly, precision or high-value instruments for measurement and indication must be delivered separately. Fragile materials (e.g. fluorescent tubes) must also be well protected and delivered separately.

For a correct traceability and installation on arrival on the site, it is important to inform beforehand all the necessary information, at least:

- The manufacturer of the assembly
- The date of manufacture
- The name of the panel/enclosure with the number of the cells if there are several (also indicate the right or left side of the first cell)
- The identification of the departures
- The weight of each transportable part
- A warning on the heaviest side of each transportable part to avoid tipping during handling
- Indications regarding the weight, center of gravity, top and bottom, no impact and no tipping of the enclosures must be clearly indicated on the packaging to the carrier.

LIFTING/HANDLING OF ENCLOSURES/PANELS: RINGS, ANGLE CROSSBARS, ETC.

In addition to being provided with internal reinforcing elements (not removable), particularly heavy panels can also be provided with reinforcements (made by the customer), mounted under the base, as shown in Fig. 1. We recommend that these reinforcing elements are not removed until the final installation on site.

Smaller enclosures are delivered on wooden pallets so that they can be lifted with forklifts. The enclosures must be strapped to the forklift trucks if they are to be moved over uneven, chaotic ground, with holes or on external roads. For handling operations, the panel must therefore be lifted by means of a forklift truck, of suitable characteristics, from the lower part of the pallet.

Fig. 1 - Reinforcements on XL³ 4000 enclosures

LIFTING A COLUMN WITHOUT A PALLET

When a column is not placed on a pallet or in the absence of particular requirements, the lifting must be carried out by means of a fork-lift truck or a pallet truck by the lower part, after having removed the base covering (see photo below) which must then be put back in place once the positioning is completed.

For the lifting of larger enclosures (XL³ 4000/6300), we recommend the use of Legrand lifting rings Cat.No 0 205 82.

The installer/panel builder takes full responsibility for the use of any other means of handling (brackets, steel profiles, crossbars, etc.).

LIFTING WITH RINGS (CAT.NO 0 205 82)

These lifting rings are generally used for lifting cells with a width of less than 2 m. It is recommended to ensure that the angle formed by the cables is always less than 45° at the edge of the eye and 15° in lateral traction (risk of breaking the ring if the angle is exceeded), and that the cables and lifting equipment have sufficient reach.

During the lifting phase, it is necessary to check the maximum load allowed for the ropes used (Fig. 3A) as well as the angle formed by them in order not to exceed the maximum allowed load.

LIFTING OF PANELS WITH ANGLE CROSSBARS

If the enclosure consists of several cells with a length of more than 2 m, handling operations can be carried out with the help of angle crossbars (Fig. 3B).

This method is particularly applicable to XL³ 4000 enclosures. It is recommended to ensure that the cables and lifting equipment are suitable and that the angle formed by the cables is less than 45°.

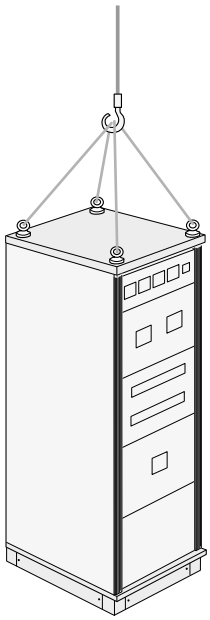


Fig. 3A - Lifting the panels with cables

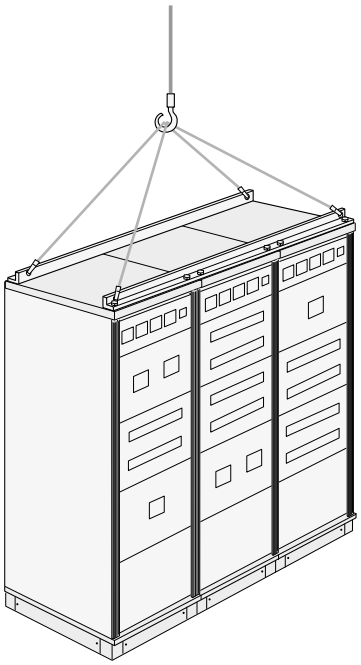


Fig. 3B - Lifting the panels with cables and angle crossbars. (this assembly is to be done by the panel builder under his responsibility)

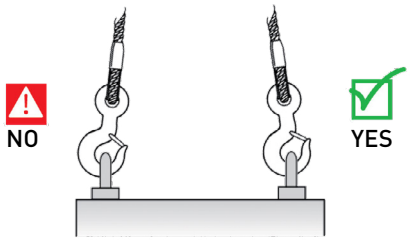
LIFTING/HANDLING OF ENCLOSURES/PANELS: RINGS, ANGLE CROSSBARS, ETC.

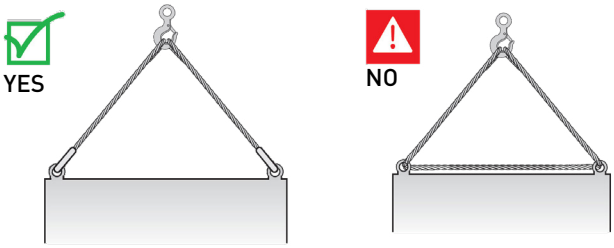
The operator carrying out the lifting operation must take into account all the necessary measures in order to carry out this operation in complete safety, and know all the following technical parameters:

- Maximum Operating Load of the sling: maximum load that the sling can support in current use,

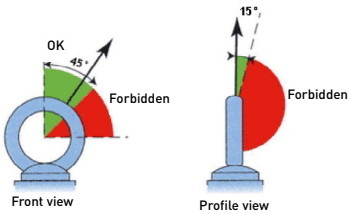
- Slinging mode factor: factor applied to the maximum operating load of a single-strand sling to take into account the geometry of the slinging (number and angles of the strands) and the consequence of the folding of certain components.

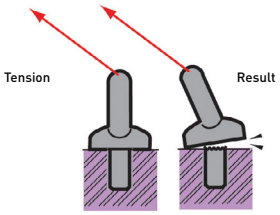
When using the lifting rings Cat.No 0 205 82, the hook must be inserted into the ring with the hook nose facing outwards:





During the lifting operation, the angle formed by the sling and the ring must be respected:





In the case of slinging on several rings, the following regulations must be observed:
- Use flange rings,
- The rings must be screwed all the way to the base,
- The contact between the ring base and the part to be lifted must be over the entire surface of the base,
- The ring must never be subjected to bending. The force must therefore be in the plane of the ring. The difficulty of matching the orientation of the ring after tightening and the direction of the tensile force can be solved by using a swivel and articulated ring,
- Each strand of the sling should not deviate more than 45° from the vertical. Depending on the rings used, a reduction of the ring's Maximum Operating Load must be applied according to the angle. To exceed the 45° value, a special study is necessary,
- If the load is to be attached to the side walls by means of rings, swivel and articulated rings must be used. A space between the ring and the load wall must be provided for the hook to be positioned correctly. Any contact of the sling with the load will result in a loss of Maximum Operating Load.
- If a tilting operation of the load is necessary, swivel and articulated rings with ball bearings must be used in order to avoid shocks.

ACCEPTANCE BY THE CARRIER

As seen on page 5, we recommend to mark the weight of each transportable part and this indication must be clearly visible.

The cells must be stored vertically in the truck, boat or other means of transport. They should then be securely fastened to the structure of the means of transport with suitable straps so that they cannot move during the entire period of transport.

It is imperative to indicate the weight, the center of gravity, the top, the bottom, of each transportable part and to warn on the heaviest side in order to avoid any tilting during handling.

The absence of shock and the prohibition of tipping of the enclosures must also be clearly indicated on the packaging for the carrier.

DELIVERY ON SITE & STORAGE

Check when you receive the panel:

- all the material,
- any damage due to transport.

In the event of a problem, determine the extent, cause and origin, then immediately record on the delivery note the damage observed and visible, the reservations, and report these to the forwarder concerned within a maximum of 5 working days in a formal manner (acknowledgement of receipt).

Once the panel is positioned near the installation site, proceed as follows:

- remove the packaging from the panel,
- remove the wooden structure that «wraps» and supports the panel (Fig. 2),
- place the panel on the installation site and remove the wooden pallets.

Fig. 2 - Panel shipped vertically on a pallet

Legrand panels are normally delivered in transport units not exceeding 3 m in length, in standard packaging adapted to the transport and storage requirements.

Each control or verification of the material supplied must be carried out within 5 days of delivery. In case of irregularity, ask for the intervention of a technical and commercial manager.

The main operations to be carried out at the reception of the panels are the following:

- locate the identification numbers of the enclosures
- control the layout of the equipment according to the project,
- check the attached documentation.

Any irregularity must be reported to the panel builder with reference to the identification number on the panel plate.

The panels are supplied in packaging suitable for normal conditions of transport and storage in a covered area for a short period of time (60 days), unless the customer has expressed particular requirements for packaging and transport.

In the event that installation is to take place over a longer period, it is recommended that the panels be stored in a well-ventilated area free from excessive temperature variations and covered with a waterproof tarpaulin. In this case, it is also recommended to place bags of hygroscopic substances inside the panels to absorb any humidity that may be present and to check the bags at regular intervals to ensure that they are effective.

INSTALLATION & IMPLEMENTATION (by the installer)

RECOMMENDED PANEL/WALL DISTANCES

For practical reasons, it is important that the panel be installed in such a way that routine and exceptional maintenance work can be carried out easily. To this end, it is recommended that a clearance be maintained between the accessible sides of the panel and the walls.

If the sides are closed by panels without hinges, sufficient space must be provided for the maintenance technician to remove the panels without difficulty and carry out the necessary operations inside the panel.

On the other hand, when the sides of the panel are closed by doors, it is recommended to respect at least the clearances indicated below (Fig. 4).

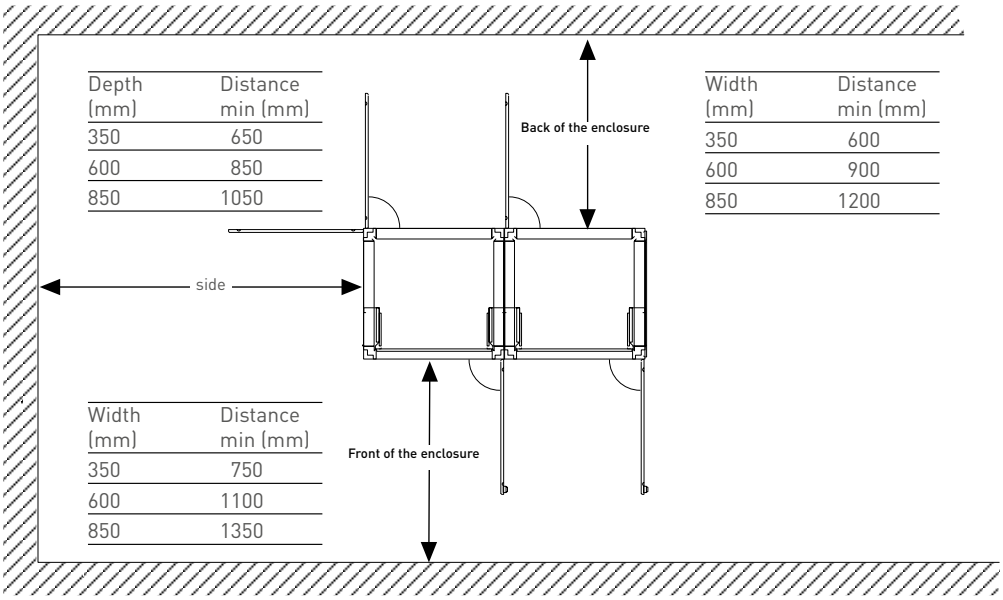


Fig. 4 - Recommended minimum clearances between panel and walls

If installed against a wall, in addition to reducing access to the panel for maintenance, derating coefficients may be applied.

When installing a panel, it is recommended to choose a position where the risk of accidental impact with machines or maintenance equipment is reduced. If it is not possible to guarantee such conditions, it is recommended that additional mechanical protection barriers be installed on the panel. However, the installation of these barriers must not hinder routine and exceptional maintenance operations in any way.

Once the panel has been positioned, following the indications in the previous chapter, it is necessary to make the entry and outlet connections for the panel power supply. For these connections it is necessary to follow the indications in the electrical diagram of the panel and the general diagram of the installation to be carried out.

It is imperative to indicate the electrical risks when opening the panels (e.g.: electrical hazard warning sticker).

In the case of floor-mounted electrical enclosures, if the entry or outlet conductors pass through the lower part of the panel, it is necessary to use the guillotine openings provided for this purpose on the lower part of the panel (Fig. 5).

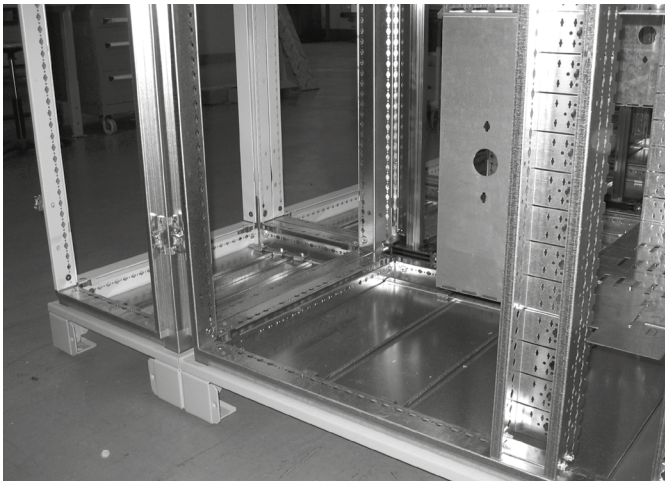


Fig. 5 - Cable entry opening

In the case of wall or floor-mounted panels with cable entries or outlets on the upper part of the panel, it is necessary to drill holes in the roofs (upper part) of the panel in order to make the power connections. For this purpose, and to maintain the degree of protection of the enclosure, it is necessary to proceed as follows:

- make holes for the passage of cables,
- clean and file the surfaces to prevent damage to the cable insulation,
- install cable ties that guarantee the required degree of protection or, after installing the cables, restore the required degree of protection using thermosetting foams.

In the case of connections made with bars, it is necessary to use prefabricated fittings to guarantee the required degree of protection.

All these operations must be carried out in such a way as to prevent particles of conductive material (e.g. sheet metal shavings) or dust from being deposited inside the panel. If this is not the case, make sure that all traces of conductive particles are removed (e.g.: vacuum method, no blowing).

JOINING OF XL³ 4000 ENCLOSURES

XL³ 4000 enclosures must be joined together as shown in Fig. 8 using the joining screws Cat.No 0 205 86 (see bubble in Fig. 8).
In order to increase the rigidity of the assembly, we advise you to use the plates Cat.No 0 205 88/89. The installation of these plates will be made where the space allows the installation.
Finally, we advise you to align each cell properly and they must be leveled (see next page).
Doors and faceplates must not be deformed or offset.
If the IP55 degree of protection is required, the sealing kit Cat.No 0 205 85 must be installed.

■ **IP30**

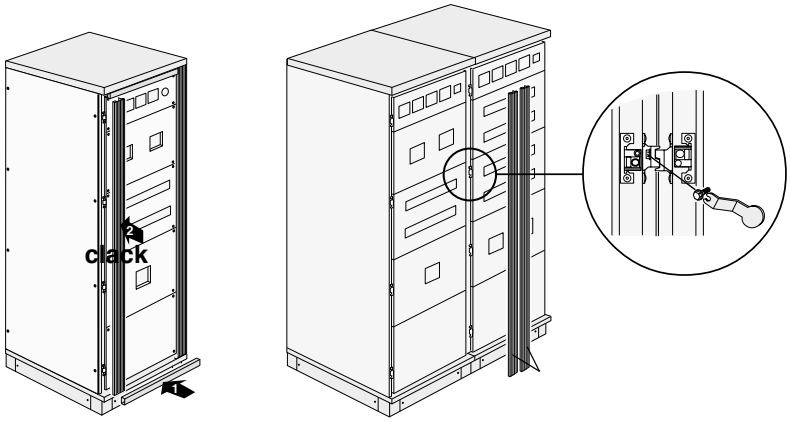
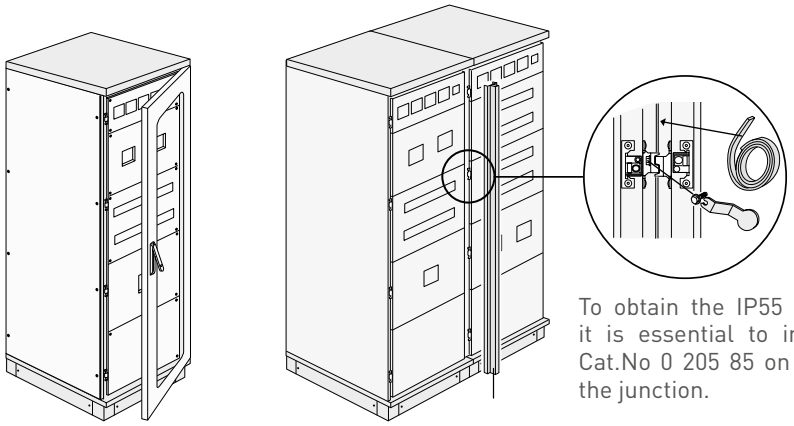


Fig. 8

■ **IP55**



To obtain the IP55 degree of protection, it is essential to insert the sealing kit Cat.No 0 205 85 on the whole surface of the junction.

Fig. 9

FIXING THE ENCLOSURE TO THE FLOOR

For panels/enclosures to be fixed to the floor, the latter must be leveled and free of asperities (its inclination must be at most 1‰, both lengthwise and widthwise of the panel). Also check that the floor does not have any bumps that could create an imbalance of the panel or enclosure. This check should be made over the entire surface of the panel or enclosure. If the irregularities are too important, it is essential to level the floor.

The panel must be fixed to the floor with expansion plugs: holes must be drilled in the floor with a 15 mm diameter drill bit and M8 plugs must be inserted (Fig. 6). For wide panels, the operations can be facilitated by fixing them with bolts that slide into the metal C-profiles installed when the floor is made (Fig. 7).

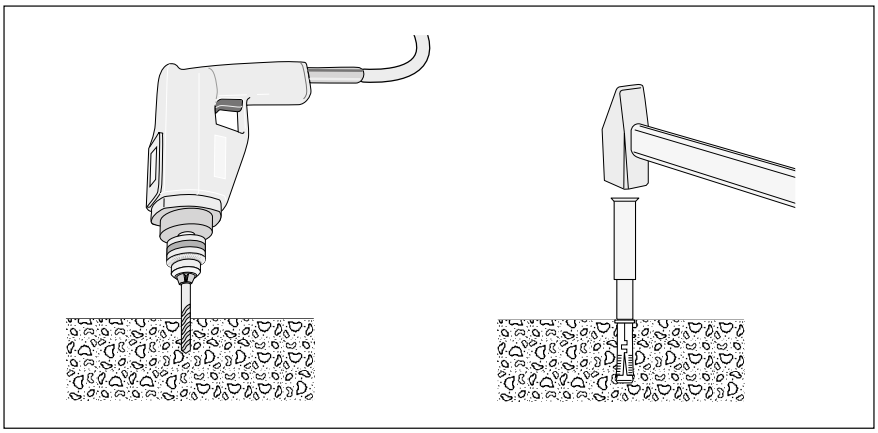


Fig. 6 - Expansion dowels

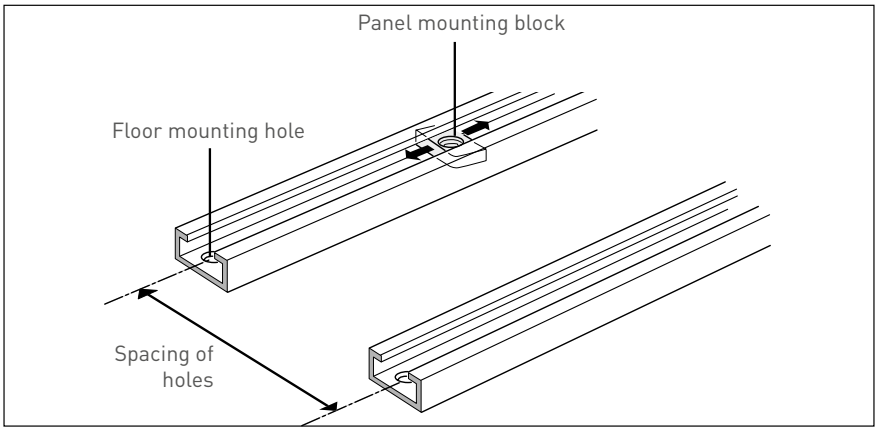
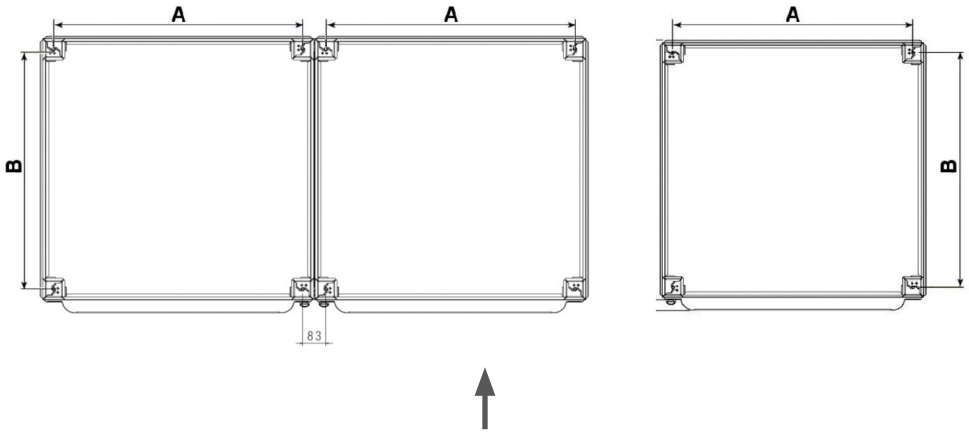


Fig. 7 - C-profiles

XL³ 4000 ENCLOSURES FLOOR MOUNTING

	DIMENSIONS (mm)		A (mm)	B (mm)
	WIDTH	DEPTH		
XL³ 4000	475	475	392	392
	475	725	392	642
	475	975	392	892
	725	475	642	392
	725	725	642	642
	725	975	642	892
	975	475	892	392
	975	725	892	642
	975	975	892	892
XL³ 6300	1425	475	1342	392
	1425	725	1342	642
	1425	975	1342	892

To obtain the actual dimensions of the base cladding, add 80 mm to dimensions A and B.
Dimension B is also the drilling center distance for C-profiles (see previous page).



Position of the mounting holes for the XL³ 4000 enclosure bases

CONNECTION, WIRING, ADD-ONS AND VARIOUS CONFIGURATIONS (different operators, under the installer's responsability)

- When you need to separate the main busbar, we advise you to make oblong holes to simplify the connection on site. If the columns are installed on a flat surface, the holes will be right in front each other.
- Check that the PE or PEN protective conductor is connected to the dedicated terminal or bar. We recommend to make the connection on the unpainted parts to obtain a better conductivity. If the connection is to be made on a painted area, the connection must be made with notched washers.
- The cables must be installed with respect to the bending radii. When connecting to IS 233/333 bases, it is important to keep mechanical stress on the rear sockets to a minimum. In general, it is imperative to attach the cables firmly to the enclosure structure or to an immovable support.

CONNECTION OF TWIN PANELS AND ENCLOSURES

After joining the columns of enclosures, it is necessary to re-establish the possible electrical connections between the adjacent columns, taking care to respect the electrical diagram of the panel:

- joining of the main phase and neutral bars: the junction must be made using the elements supplied by the panel builder,
- joining of the grounding bar: the junction must be made using the elements supplied by the panel builder,
- connection of auxiliaries between adjacent columns (terminal blocks or plug connectors).

PRE-COMMISSIONING OPERATIONS (under the installer's responsability)

PRE-COMMISSIONING OPERATIONS

After carrying out the operations described in the previous chapters and before switching on the panel, a series of verifications must be carried out to eliminate any dangerous situations possibly caused by transport (loosening of the clamps, possible presence of foreign bodies or conductive dust).

To do this, remove the front and side panels of the panel. During these operations, take care to ensure that there are equipotential connections between the panels and the structure.

In general, take into account the following indications:

- Legrand faceplates are equipped with an automatic grounding system, using copper caps welded to the faceplates which, when the faceplates are tightened, guarantee equipotentiality with the frame by pressure,
- in some particular cases (for example in the case of panels constituting the supporting structure of electrical equipment), it is possible that another connection is present via a yellow-green cable: if the panel is fixed (without hinges), it is necessary to disconnect this cable before completely removing the panel.

The following control operations must be carried out on the electrical panel before switching it on:

- general visual control:
  - ensure that there are no foreign objects,
  - ensure that there is no damage caused by transport,
- general cleaning, to be carried out carefully at the level of the insulating parts with clean and dry cloths,
- check that all connections are tight,
- checking the tightness and continuity of the protection circuit,
- carry out some control operations on each device (except on devices equipped with a undervoltage release:
  - DX³: opening / closing cycle,
  - DPX³: opening / closing cycle, closing cycle / test (red button) / reset,
  - DMX³: loading cycle springs / closing / opening,
  - DPX³ & DMX³ plugged-in / drawn-out: in addition to the checks indicated above, carry out a few extraction / reintroduction cycles and make sure that the extraction of the device causes it to be released if it is in the closed position (except for DPX³ 160/250: mechanical locking),
  - Transfer switches: check the operation of mechanical interlocking devices according to the truth tables,
- check the connection of the auxiliary and measuring circuits,
- check the insulation resistance value between the three phases and between these phases and ground using a megohmmeter: according to the IEC 61439-2 standard, the measurement must be carried out at a voltage of not less than 500 V, the insulation resistance must be greater than 1000 ohm for each volt of voltage to ground (e.g. TT or TN systems at a nominal voltage of 400/230 V, the insulation resistance must be greater than 1000 x 230 = 230 000 ohm = 0.230 Mohm).

At the end of the control operations, put the devices in the «Open» position, including those in the tripped position. If the dielectric test selector is present on the device, position it in «Test» mode.

PRE-COMMISSIONING OPERATIONS
(under the installer's responsability)

Replace the side panels, faceplates, etc., to make the panel ready for use.

When carrying out this operation, take into account the following indications:

- if the panels are provided with an equipotentiality cable with the structure (grounding), restore this connection using the original screw,
- if there is no equipotential bonding cable and no control or signalling units on the panel (or if there are, but with a supply voltage of less than 50 V), the earthing function is ensured by simply reassembling the panel.

If the control and signalling units have a supply voltage higher than 50 V, it is necessary to make the equipotential bonding of the panel using the conductor Cat.No 0 373 85 (see article 8.4.3.2.2 B of standard NF EN 61439-1).

Then connect any auxiliary circuits to the power supply and check them:

- check the lighting of any electronic measuring instruments and check their calibration,
- check that any relays powered by the auxiliary circuit are switched on,
- check the operation of the relays with test buttons after closing the switch(es) controlled by these relays,
- set the relays supplied by the auxiliary circuit to the desired value,
- check any signals (auxiliary contacts of the switches),
- check the operation of the auxiliaries (contactor and relay operating cycles, check the operation of any electromechanical or electronic logic),
- check the operation of any opening coils or emergency stop circuits,
- perform operating cycles of the motor-driven controls for the equipped devices,
- check the operation of the auxiliary circuits of the plugged-in or drawn-out devices when they are in the disconnection or test position.

Finally, connect the power supply circuits (upstream/downstream). After replacing all the covers (following the instructions previously given for the auxiliary circuits), and in order to place the panel in operating condition, proceed as follows:

- set the adjustable devices to the value required by the project,
- close, one by one, the devices to energize the power circuit,
- check the indications provided by the voltmeters, the voltage presence indicators, the voltmetric part of the mains analyzers with the help of measuring devices,
- check the intervention of the residual current devices and the relays of the devices by means of the test button provided for this purpose.

In the event that, following a shutdown, a device opens immediately (downstream short circuit or any other reason), DO NOT CLOSE the device until you are certain that you have TOTALLY IDENTIFIED AND ELIMINATED the cause of the trip.

SPECIFIC CONTROLS OF THE OPERATION OF A DEVICE ON ITS IS BASE (FOR A DPX³ 160/250)

First, disconnect the circuits downstream of the relevant IS base.

Test purpose: to check the mechanical operation of the bases with their associated devices and to check the corresponding indications (position indicator for IS 333 bases).

Carry out the following operating tests twice:

■ **IS 223 & 233 bases**

TEST 1
- Check that the 4 1/4 turns are in the closed (locked) position
- Open the device (position 0)
- Close the device (position 1)
- Open the device (position 0)
- Open the 4 1/4 turns of the movable base
- Extract the movable base

TEST 2
- Check that the 4 1/4 turns are in the closed (locked) position
- Open the device (position 0)
- Close the device (position 1)
- Open the 4 1/4 turns of the movable base
- Try to pull out the movable base (without forcing it too much) until you get a resistance
- Push back the movable base to the maximum
- Close the 4 1/4 turns
- Open the device (position 0)
- Open the 4 1/4 turns
- Extract the movable base

■ **IS 333 bases**
- Check beforehand that the fixed base is correctly locked (1/4 turn)
- Engage the drawer as far as possible with the unit in the open position
- Close the device (position 1)
- Try to pull out the drawer (without forcing it too much) until you get a resistance
- Push the drawer back in as far as possible
- Open the device (position 0)
- Pull out the drawer

In case of failure, it will be necessary to:
- Check the mechanical lock located on the back or side of the DPX³.
- Check the metal lock located on the fixed part of the IS base
- Check that the mechanical locks are tight

PRE-COMMISSIONING OPERATIONS
(under the installer's responsability)

SPECIFIC CHECKS ON THE OPERATION OF A DEVICE ON ITS IS BASE (FOR A DPX³ 630)

First, disconnect the circuits downstream of the relevant IS base.

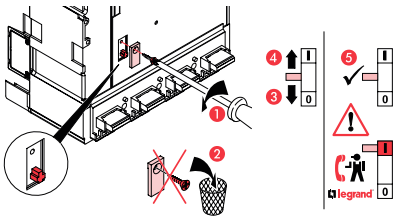
Test purpose: to check the mechanical operation of the bases with their associated devices and to check the corresponding indications (position indicator for IS 333 bases).

Perform the following functional tests twice:

■ **IS 223 & 233 bases**
- Check that the 4 1/4 turns are in the closed (locked) position
- Open the device (position 0)
- Close the device (position 1)
- Open the 4 1/4 turns
- Extract the base and check that the DPX/DPX³ 630 switches off
- Push back the movable base to the maximum
- Close the 4 1/4 turns
- Open the device (position 0)
- Close the device (position 1)

■ **IS 333 bases**
- First check that the fixed base is correctly locked (1/4 turn)
- Check that the drawer is fully engaged in the fixed base
- Check that the DPX/DPX³ 630 is in the closed position
- Open the device (position 0)
- Close the device (position 1)
- Pull out the drawer and check that the DPX/DPX³ 630 switches off
- Push the drawer back into its fixed base as far as possible
- Open the device (position 0)
- Close the device (position 1)

■ **In case of failure, it will be necessary to check:**
- the correct tightening of the plastic part on the fixed part of the IS base
- that the plastic part on the fixed part of the IS base is in good condition
- that the DPX/DPX³ 630 has been configured in the plugged-in/draw-out version: the plastic tab at the back of the product must be removed. After this removal, the product cannot be switched to position 0 or 1 unless the pushbutton is pressed. If this is not the case, customer service must be contacted.



RECOMMENDED SCREWS & TIGHTENING TORQUES

RECOMMENDED SCREWS AND TIGHTENING TORQUES

Equipment: (see manuals and corresponding instructions sheets)

■ **Aluminum bar and connection kit**

BARS		HAMMER NUTS		
CAT.NOS	I (A)	CAT.NOS	THREADING	TIGHTENING TORQUE
4 044 30	250	**4 044 93**	M8	20 Nm
4 044 31	400	**4 044 93**	M8	20 Nm
4 044 32	630	**4 044 93**	M8	20 Nm
4 044 33	800	**4 044 94 / 95**	M8	20 Nm
4 044 33	800	**0 373 59**	M10	50 Nm
0 373 54	630	**4 044 94 / 95**	M8	20 Nm
0 373 54	630	**0 373 59**	M10	50 Nm
0 373 55	800	**4 044 94 / 95**	M8	20 Nm
0 373 55	800	**0 373 59**	M10	50 Nm
0 373 56	1000	**4 044 94 / 95**	M8	20 Nm
0 373 56	1000	**0 373 59**	M10	50 NM
0 373 57	1250	**4 044 94 / 95**	M8	20 Nm
0 373 57	1250	**0 373 59**	M10	50 Nm
0 373 58	1600	**4 044 94 / 95**	M8	20 Nm
0 373 58	1600	**0 373 59**	M10	50 Nm
4 046 04 (IS)	1250	**0 373 59**	M10	50 Nm
4 046 06 (IS)	2000	**0 373 59**	M10	50 Nm
4 046 09 (IS HD)	2000	**0 373 59**	M10	50 Nm

Suitable for hammer nuts supplied by Legrand

■ **Flat bars**

SCREW SPECIFICATIONS AND RECOMMENDED TIGHTENING TORQUES							
Bar thickness	I (A)		Bar width (mm)	Mini number of screws	Threading	Quality class	Tightening torque (Nm)
	1 bar	2 bars or more					
5 mm	⩽ 250	-	⩽ 25	1	M8	8.8	20
5 mm	⩽ 400	-	⩽ 32	1	M10	6.8	35
5 mm	⩽ 400	-	⩽ 32	2	M6	8.8	15
5 mm	⩽ 630	-	⩽ 50	1	M12	6.8	65
5 mm	⩽ 630	-	⩽ 50	2	M10	6.8	35
5 mm	⩽ 630	-	⩽ 50	2	M8	8.8	20
5 mm	800	1250	⩽ 80	4	M8	8.8	20
5 mm	800	1250	⩽ 80	4	M10	6.8	35
5 mm	1000	1650	⩽ 100	4	M10	8.8	50
5 mm	1000	1650	⩽ 100	2	M12	6.8	60
5 mm	1600	2000	⩽ 125	3	M12	6.8	60
10 mm	-	2500	⩽ 80	3	M12	8.8	85
10 mm	-	3200	⩽ 100	4	M12	8.8	85
10 mm	-	4000	⩽ 125	6	M12	8.8	85

Excessive torque will cause the bolts to exceed their yield strength and the copper to creep.

MAINTENANCE REGISTER

The IEC EN 61439 standard prescribes that each panel must be uniquely identified by an alphanumeric code which can be traced back to all the corresponding documentation (project document, certifications and maintenance).

It is recommended that the maintenance register should include the identification data of the panel and the contact details for obtaining any useful information during the entire life of the panel:

1- Identification data (ID number)

2- Delivery date of the panel

3- Date of commissioning

4- Installing company

5- Maintenance company

6- Phone number for any need

The instructions in this document refer to Legrand XL³ range panels/enclosures.
If another type of structure is used, the same general concepts of this document remain valid.

SPARE PARTS

CAT.NO	EQUIPMENT AND ACCESSORIES FOR ENCLOSURES	
0 200 98		Aerosol paint spray RAL 7035
0 202 40		Protection seal XL³ - for cut-out protection on plate
0 205 10		Kit for joining plinths XL³ 4000 (x4)
0 205 82		M12 Lifting rings (x4) XL³ 4000/6300
0 205 85		Sealing kit IP 55 for use when joining enclosures - length 20 m
0 205 86		Screws for structural joining
0 205 88		L-shaped reinforcement plates (x2)
0 205 89		Reinforcement plates (x2)
0 209 59		Hinges (x2) - XL³ 800/4000 - fit on screw mounting faceplate
9 802 89		1/4 turn handle : - Left position -> cam opening upwards - Right position -> cam opening downwards
9 802 90		1/4 turn handle : - Left position -> cam opening downwards - Right position -> cam opening upwards
9 802 92		XL³ faceplate mounting kit
9 803 09		Grease tube for optimized distribution
9 815 70		Base kit IS223 for DPX³ 160 3P
9 815 71		Base kit IS223 for DPX³ 160 4P
9 815 72		Base kit IS223 for DPX³ 250 3P
9 815 73		Base kit IS223 for DPX³ 250 4P
9 815 74		Base kit IS223 for DPX³ 160 3P without RCD

CAT.NO	EQUIPMENT AND ACCESSORIES FOR ENCLOSURES	
9 815 75		Base kit IS223 for DPX³ 160 3P without RCD
9 815 76		Base kit IS223 for DPX³ 160 4P with/without RCD
9 815 77		Base kit IS223 for DPX³ 160 4P with/without RCD
9 815 78		Base kit IS223 for DPX³ 250 3P without RCD
9 815 79		Base kit IS223 for DPX³ 250 3P without RCD
9 815 80		Base kit IS223 for DPX³ 250 4P with/without RCD
9 815 81		Base kit IS223 for DPX³ 250 4P with/without RCD
9 815 82		Base kit IS223 for DPX 630 3P
9 815 83		Base kit IS223 for DPX 630 4P
9 815 84		Base kit IS333 for DPX 630 3P with/without RCD
9 815 85		Base kit IS233 for DPX 630 3P with/without RCD
9 815 86		Base kit IS333 for DPX 630 4P with/without RCD
9 815 87		Base kit IS233 for DPX 630 4P with/without RCD
9 815 88		UNIV Plate kit IS223/233 H 300 mm
9 815 89		UNIV Plate kit IS333 H 300 mm

Notes

Notes

Notes

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