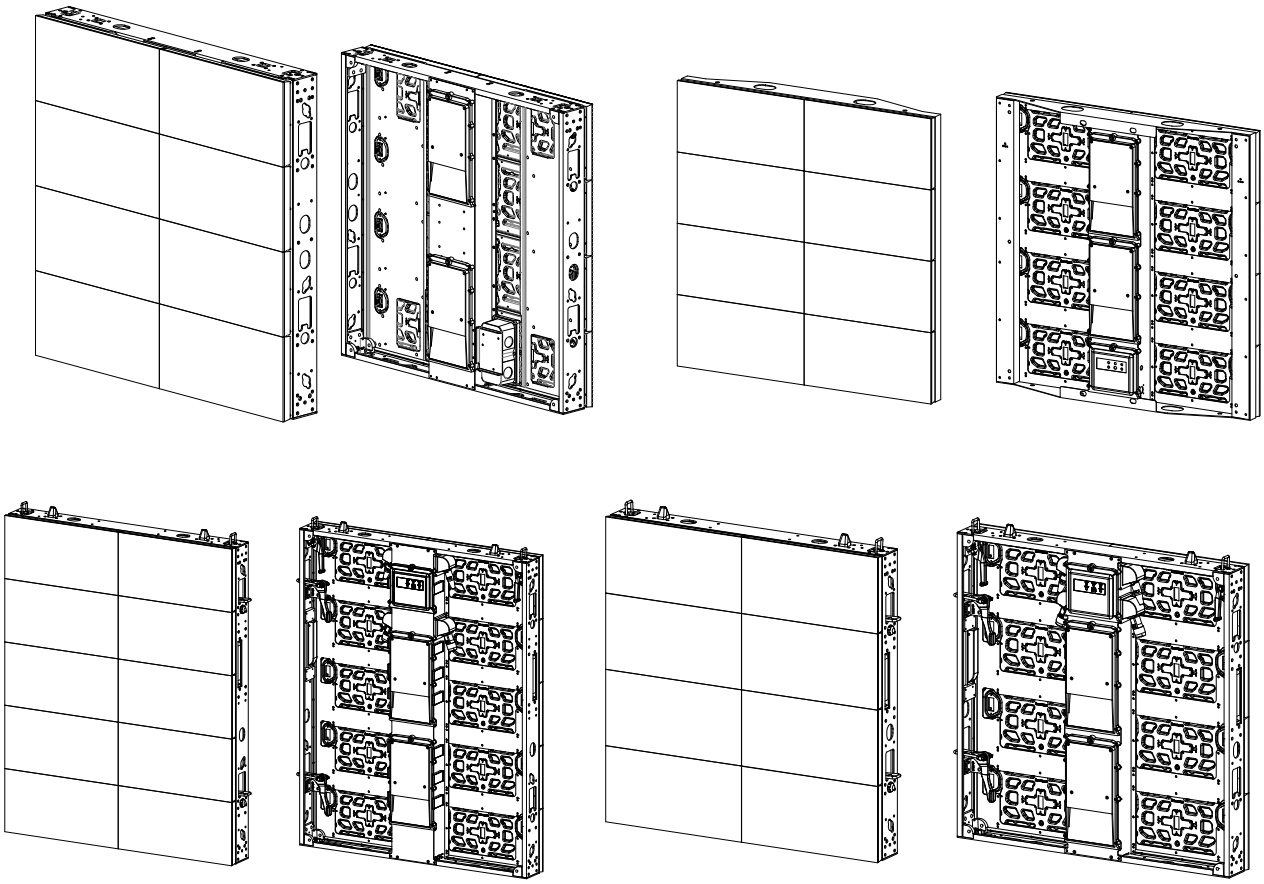
IMPOSA

IMPOSA E III Series User’s Manual



Content

1. Safety

Before installing an IMPOSA E III display, one is required to read this chapter carefully to obtain important information as to how to prevent personal injury and to protect the display from damage during installation.

Overview

- Guidelines
- Safety instructions

1.1 Guidelines

- Before installing the display, make sure you have read the User's Manual with full understanding.
- Installation must be performed by authorized and qualified technical personnel only.
- The installation site must be solid and without any chance of sinking, tumbling or falling. It must be at the same time free of over-heat, radiation, pollution, corrosion or gas release.
- Only use components provided by the Manufacturer or those approved or specified by the Manufacturer during installation of IMPOSA E III series displays.
- Do not modify and/or replicate any component or accessory without permit from the Manufacturer.
- Always follow all installation instructions. Please contact the Manufacture if any problem arises.

Special attention should be paid to all "**CAUTION**" and "**TIPS**" mentioned in this User's Manual which respectively intends:

CAUTION: to draw operators' attention to an important instruction or to remind them of what might happen.

TIPS: to give advice on how to perform an operation better.

1.2 Safety instructions

Product care

- All parts must be fully protected and packed in good order during transportation, storage, etc. No external pressure shall be applied on them.
- No part of the product can come into contact with rain before or during installation. Keep them in dry and clean places.
- All parts must be prevented from being trampled, stroke or dropped. Follow all instructions while carrying or moving the parts. Otherwise the product can be subject to terminal damage.

Installation

- Before installation, ensure that the supporting structure or frame has sufficient strength to hold the display firm and safe.

- For hoist installation, the operator must follow all instructions given in this User's Manual, including where the hoist brackets should be located, that the crane used must come with sufficient capability to hoist the product, and that the operating ground must have the strength to sustain the crane, etc.

- Most components of the product are heavy. Therefore high attention should be paid to personnel safety during installation.

- All connection bolts must be fastened firmly and securely.

Power

- An IMPOSA E III display is to be powered by a 3-phase power with 5 lines. That is, it must come with an independent neutral line and an independent ground line.

- Provide the power and power supply circuits in accordance with the power consumption of the display. All circuits must come with protection tubes and confirm with the local electrical safety standards.

- The LDU and PSU must be installed near the display. Cables from the LDU and PSU to the display cannot be stretched or impaired. Power distribution from the PSU to the display cannot exceed what is required by this User's Manual.

- The input voltage of an IMPOSAE III display can be set at 120VAC or 220VAC. But ensure to set it right before power connection.

- Do not attempt to fix an impaired cable. Replace it with a new one.

- A big current is produced the moment a display is powered on. Therefore an air breaker that can sustain big currents should be used as the master power switch.

Grounding

- IMPOSA E III displays must be grounded with an INDEPENDENT ground wire.

- Displays to be installed independently from any architectural structure must be equipped with an independent ground wire and, if necessary, a lightning rod. The down lead of the lightning rod should be insulated with the frame of the display. Set the earth electrode of the lightning rod and that of the ground wire away from each other.

Usage

- LEDs on the display cannot be pressured at any time. Otherwise they can be damaged for good.

- Follow the steps mentioned in this User's Manual while cleaning the front side of the display. Only soft clothing or brush, neutral detergent and water are to be applied to the display.

- Power must be cut off before dismantling any part for maintenance.

2. IMPOSA E III series tiles

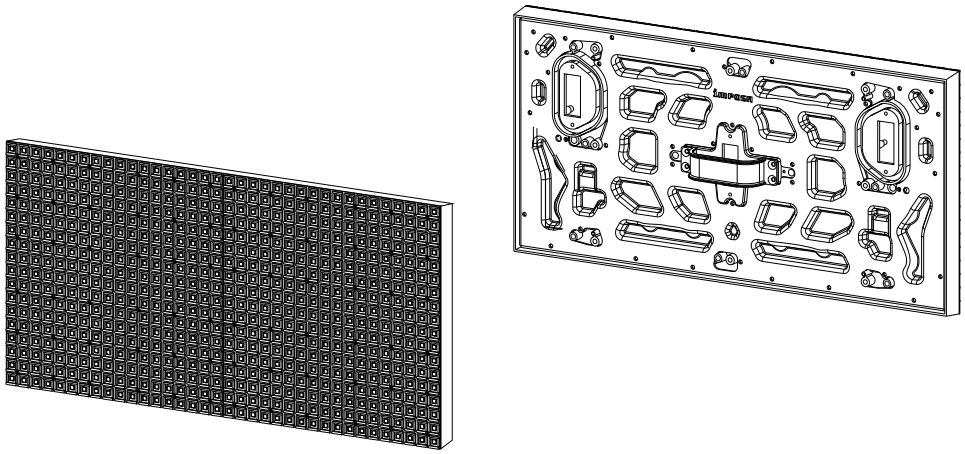
This chapter focuses on the main component of an IMPOSA E III display---IMPOSA E III tiles.

Overview

- IMPOSA E III tile
- IMPOSA E III display

2.1 IMPOSA E III tile

Tile overview



Specifications of IMPOSA E III

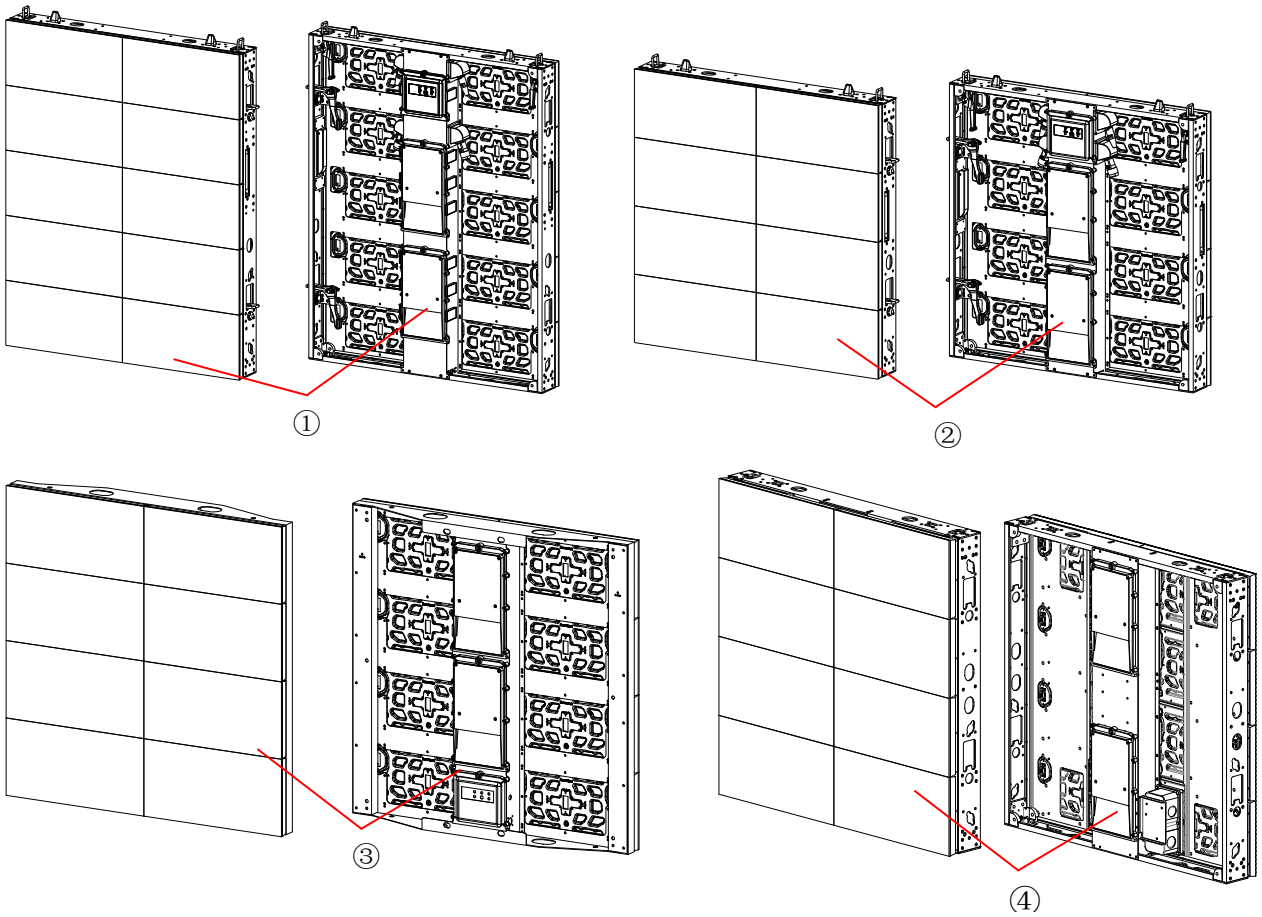
Model	VFO 6.4	VFO 8	VFO 10.6	VFO 12.8	VFO 16
Pixel Pitch	6.4mm	8 mm	10.6mm	12.8mm	16mm
Pixel Configuration	3 in 1 SMD				
Application	Outdoor				
Model Information					
Resolution of Module(HXW)	30X60	24X48	18X36	15X30	12X24
Size of Module(mm)(H1XW1)	192X384				
Cabinet Information					
Resolution of Cabinet(pixel) (H X W)	120X120	96X96	72X72	60X60	48X48
Size of Cabinet(mm)(HXWXD)	768X768X120				
Weight of Cabinet(KG)					
Display Information					
Power Consumption of Cabinet Max(W)	500				
Brightness(cd/㎡)	6000				
Viewing Angle	140°/ 120°				
IP Rate	Front: IP65 Back:IP54				
Grey Level	16 Bit				
Frame Frequency(Hz)	>60				
Refresh Frequency(Hz)	>1000				
Brightness Control	100				
Nominal LED Working Life	Up to 100,000Hours				

Non-standard cabinet （HXW）：384X384 960X768

Note: Front-maintenanced cabinets must be made up of 384x384mm sub-cabinets.
Back-maintenanced cabinets must be made up of 192x384mm sub-cabinets

2.2 Specifications of IMPOSA E III cabinet

According to various applications, such as front access, rear access, rental structure and so on, 4 different IMPOSA E II cabinets are developed.



Specifications of IMPOSA E III cabinet

	Dimension（mm）	Application	Remark
1	960(h)X768(w)	Rental installation	
2	768(h)X768(w)	Rental installation	
3	768(h)X768(w)	Fixed installation and rear access	
4	768(h)X768(w)	Fixed installation and front access	

3 Installation requirements

This chapter covers requirements for installation, power supply and the control system of an IMPOSA E III display.

Overview

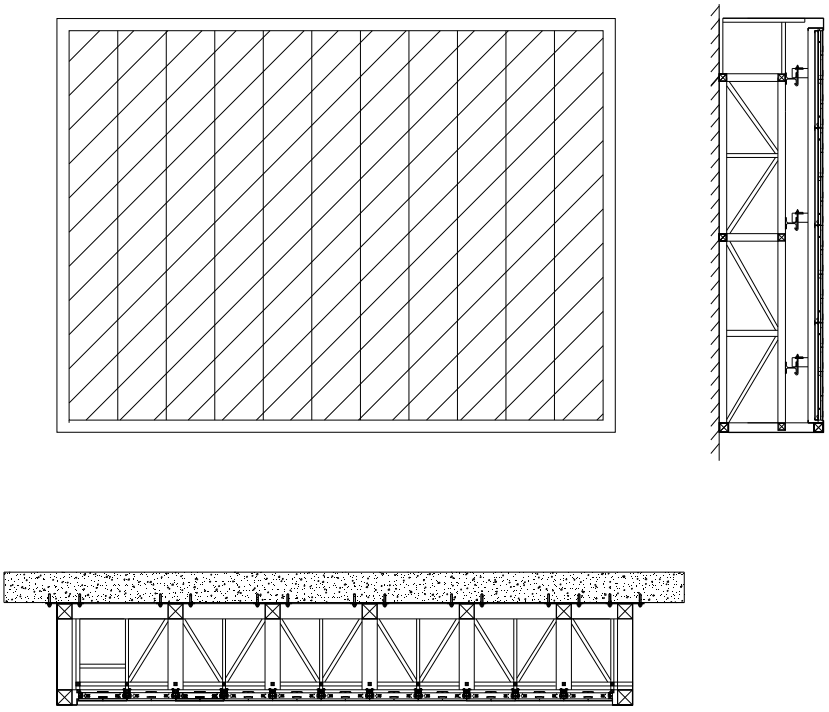
- Mechanical requirements
- Electrical requirements
- System requirements

3.1 Mechanical requirements

An IMPOSA E III display comes with its own structural frame which makes installation simple and easy. Besides, it requires a strong and reliable supporting frame at the back to hold the display firm. Wherever this supporting frame is to be installed, on the ground, onto the pole or on a wall, attention should be paid to the following few points:

1. The display should be installed in a place that allows a clear and complete view of the display.
2. The supporting frame has to be strong enough to prevent the display from tumbling.
3. The installation site must have the strength to withstand the total weight of the display plus its structural frames.
4. The IMPOSA E III display is meant for indoor use only. The ambient temperature, dust and ventilation, esp. that at the back of the display must be considered when one is choosing the installation site.

A typical way of mounting an IMPOSA E III display onto a wall:



3.2 Electrical requirements

Power requirements

- An IMPOSA E III display works on AC 200-240V, 50~60Hz. Each column of the display has an independent power supply circuit and can thus be powered by electricity from different phases.
- When the max. Power consumption of an IMPOSA E III display is less than 3KW, the display can be powered by single-phase power supply circuits which include a live, neutral and ground wire. Each circuit is controlled by an independent air-break switch.
- But if the maximum consumption of the display is over 3KW, it should be powered by 3-phase power supply circuits c/w a live, neutral and ground wire. The 3-phase power distributes power to tiles of each column on an average level. A PSU (power supply unit) is used to control the power.
- The IMPOSA E III block can also be powered by AC100-125V, 50~60Hz power supplies. But this needs to be specified in the production order so that it can be pre-set before going out of factory.

Grounding

IMPOSA E III display shall be grounded at the installation site. If the existing power supply circuit cannot provide a good ground wire or does not even have one, it's a must to set or reset a reliable ground wire for the display. Good grounding will enable the display to work properly and can prevent it from being disturbed by surge.

3.3 System requirements for the Control software

Operation System Requirements

Take Windows as for example.

PC System requirements：

- CPU Pentium IV or equivalent, 1GHz
- 512Mb DDR RAM
- Free hard disk space 300MB
- Resolution 1024x768
- Windows XP Professional or Win7

Recommended PC System requirements：

- CPU Pentium IV, 2.4 GHz or above
- 2G DDR RAM
- Free hard disk space 100G
- Resolution 1920x1080
- Win7

4. Components of an IMPOSA E III display

This chapter continues to introduce other components that make up of an IMPOSA E III display.

Overview

- Power Supply Unit (PSU)
- Logic Distribution Unit (LDU)
- Video Processor Unit (VPU)
- Cables
- Control software
- Others

4.1 Power Supply Unit (PSU)

PSU, short for Power Supply Unit, is the power control center for an IMPOSA E III display. Each output channel of the PSU controls one column of tiles of a display. The PSU is also inbuilt with a surge protector to prevent the display from being disturbed by lighting.

But if the power consumption of a display is not high, an air-break switch can be used in place of a PSU.

①

②

Parts and Part Numbers

	Parts	Part Numbers	Remark
1	PSU		
2	Air breaker		

4.2 Logic Distribution Unit (LDU2800)

LDU2800 is the central controller for the IMPOSA E III display. It mainly includes the control board QS5832.

① ②

Parts and Part Numbers

	Parts
1	State indicator
2	Operation buttons
3	Power input
4	Power switch
5	Signal input and output
6	DVI signal output
7	DVI signal input
8	USB interface
9	Ethernet interface

4.3 Cables

Signal cable between LDU and tile

Power cable between PSU and tile

Signal cable between cabinets

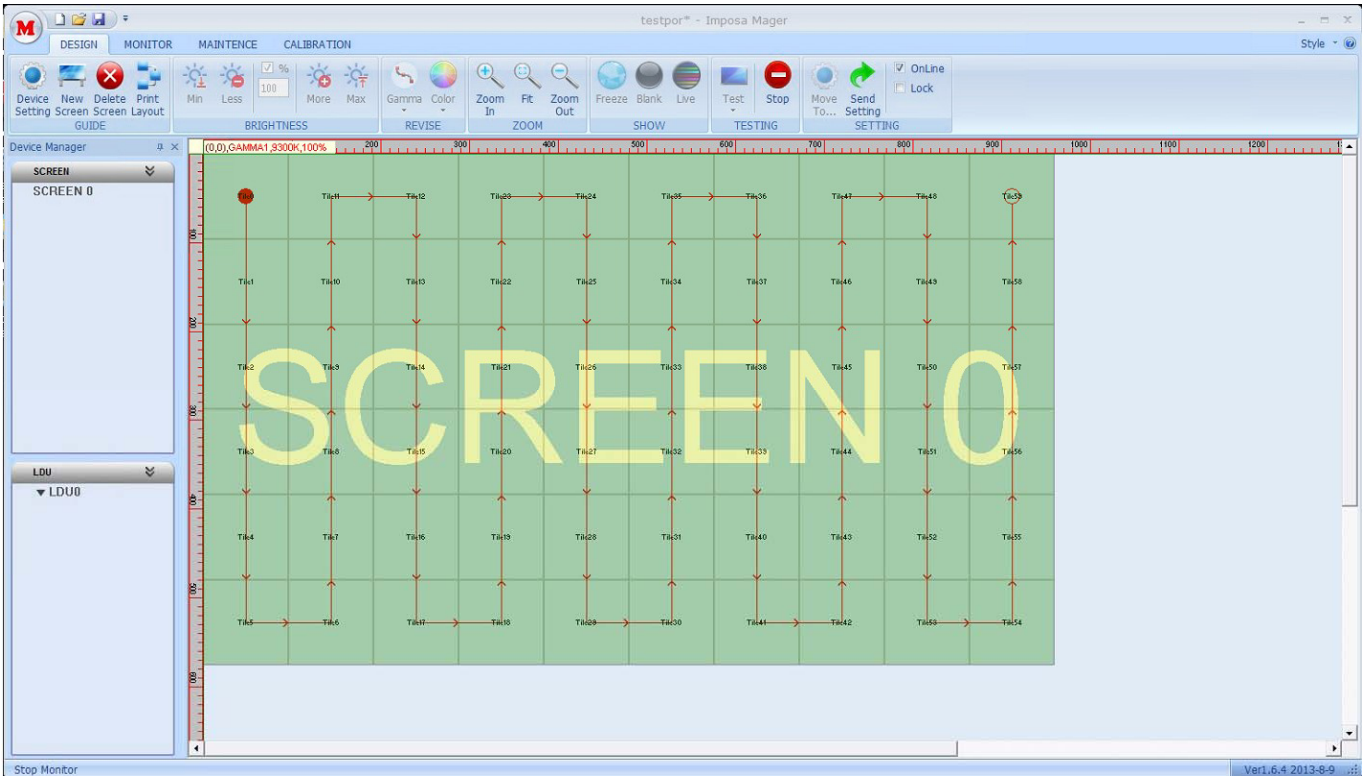
Network cable

DVI cable

USB cable

4.6 Control software

Mager, the control software designed to work with LDU2800/LDU8000, is for configuring IMPOSA E III cabinets into a whole properly-working screen.



TIPS: Please refer to Mager's user's manual for its detailed operation and functions.

5. Installation

This chapter describes the various installation methods of an IMPOSA E III display.
Overview

- Installation of front-access cabinets
- Installation of rear-access cabinets
- Installation of rental cabinets

5.1 Installation of front-access cabinet

Because the mounting holes of front-access cabinets are located in the bottom of tile, tiles must be removed before installing cabinets. Therefore, before installing the whole display, it's necessary to learn how to mount and dismount a tile.

Needed Tools

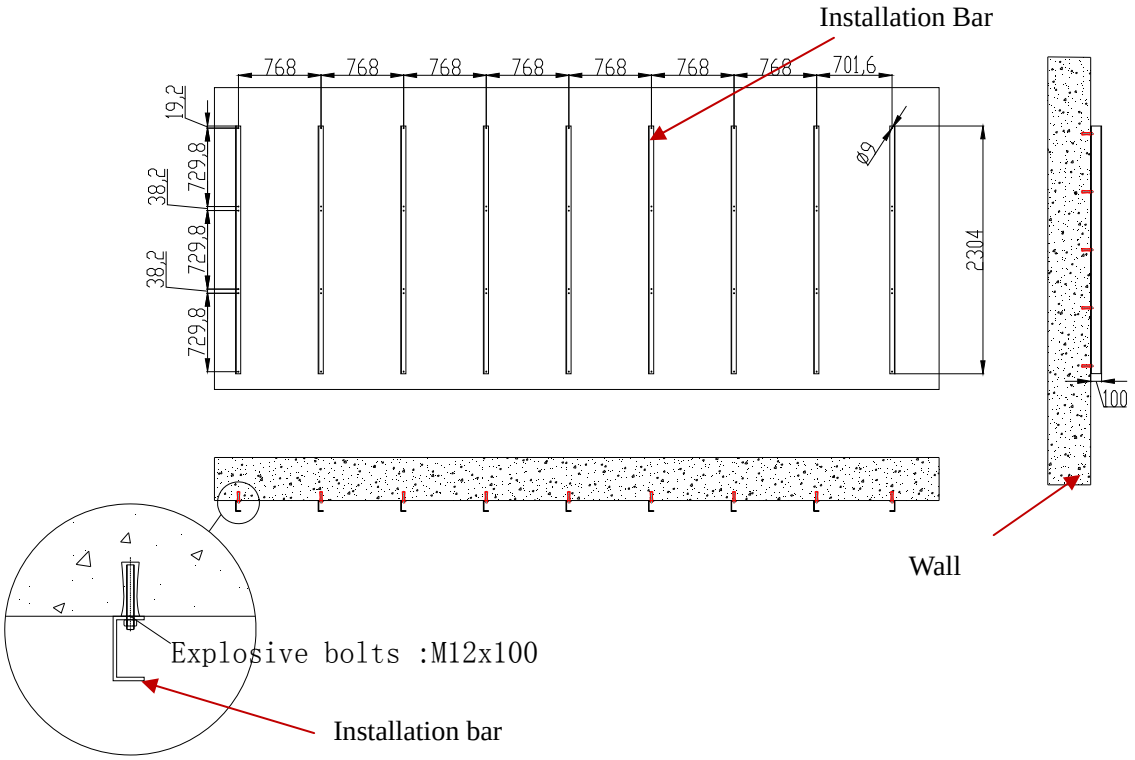
- Hex key

Needed Components

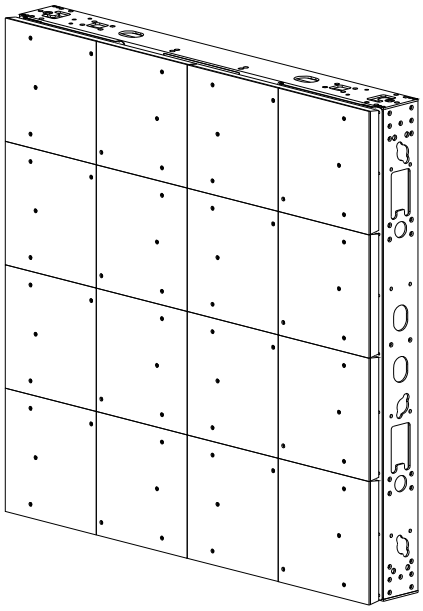
- M12×100 explosive bolt

Installation Steps:

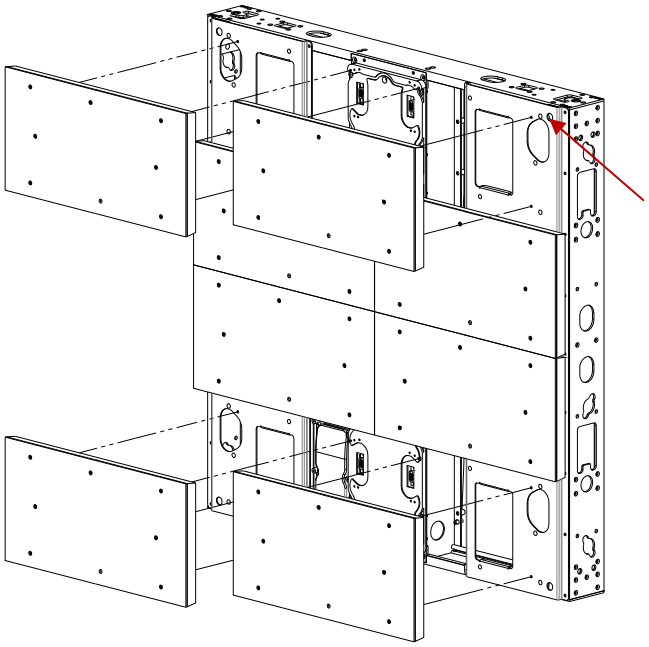
5.1.1. Install the M12×100 explosive bolts on the corresponding positions to fix the installation bar.



5.1.2. Take out the display from the packing boxes, during which please pay attention not to impact or rub the surface of the LED cabinets.



5.1.3. To connect cabinets with the installation bars, please take down the four tiles in the corners. Procedure of mantling and dismantling tiles is introduced in the chapter of replace tiles.

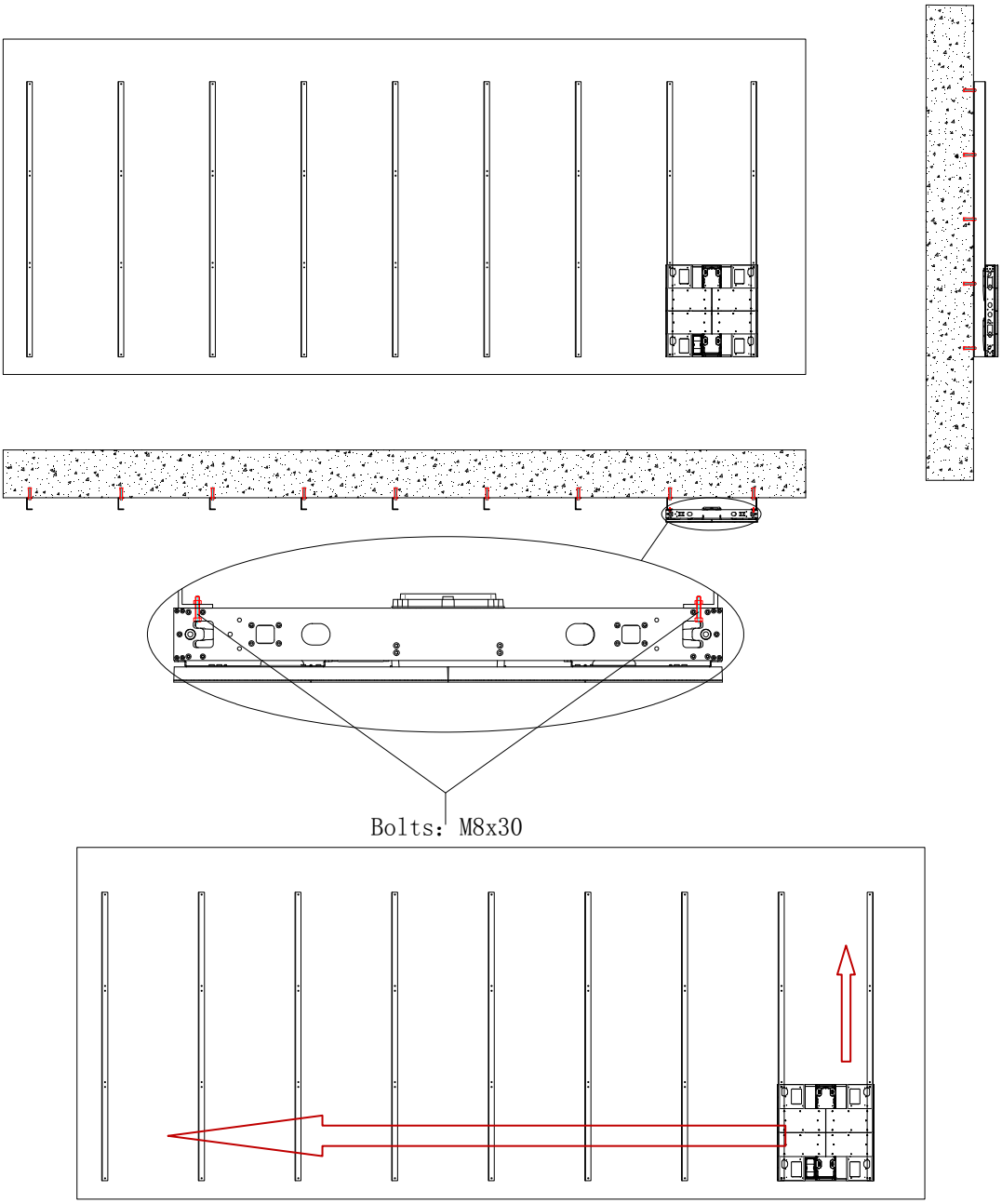


TIPS:
The purpose of removing tiles is to expose the four installation holes on the corners, which are used to fix the cabinet on frame.

Note:

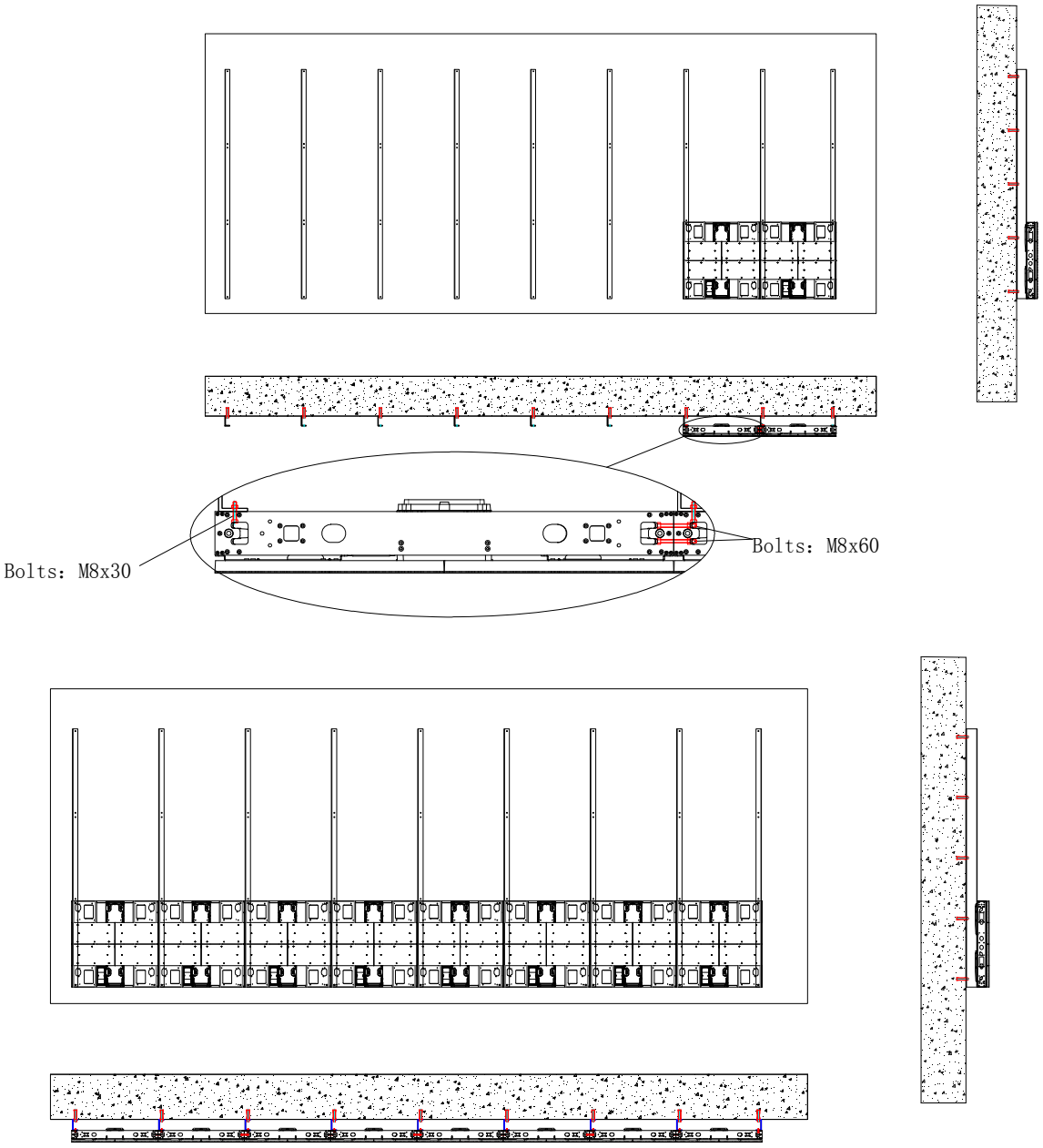
- Please place the dismantled tiles in sequence and well mark them so that the tiles can be put back to the original positions.
- Before delivery, based on LED's specific characteristics, each cabinet is equipped with certain tiles, so that a most satisfactory displaying effect is ensured. If the tiles are mixed up and aren't installed in the original position, the display effect might be influenced.

5.1.4. Move the cabinets to the installation bars. Align the installation hole on the back of the cabinet with the bolts in the installation bar and fix the cabinet on the bottom right side of the frame by M8×30 bolts. (The front view of the first installed cabinet)

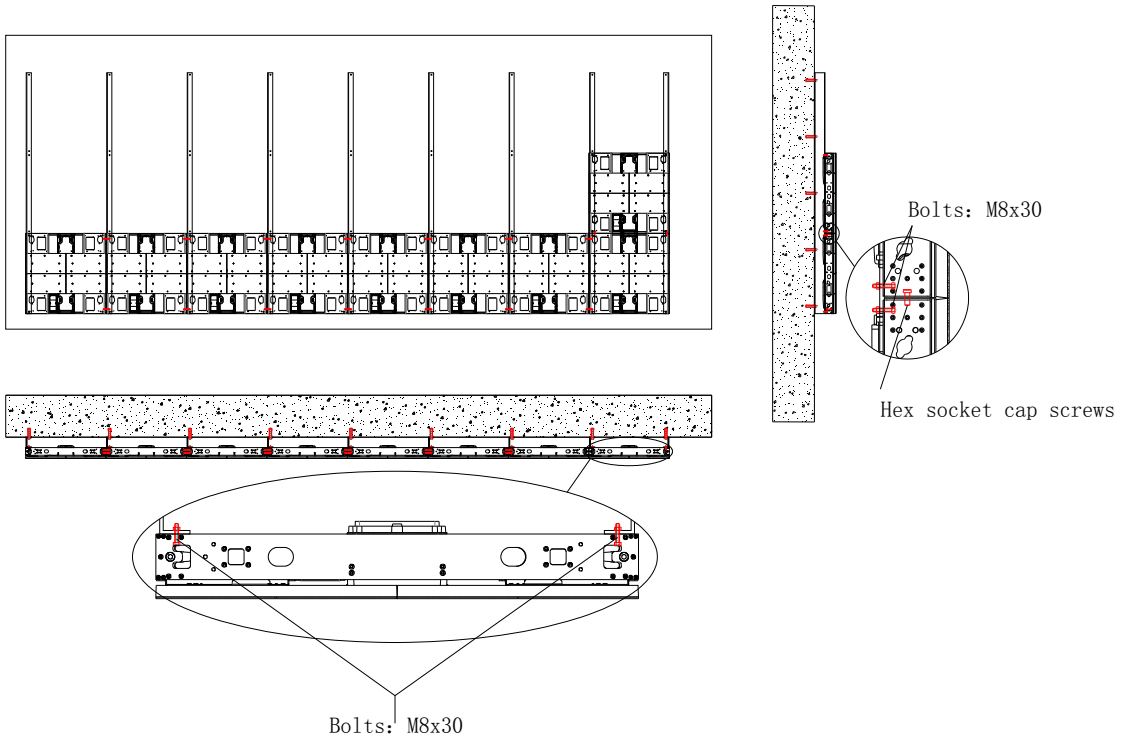


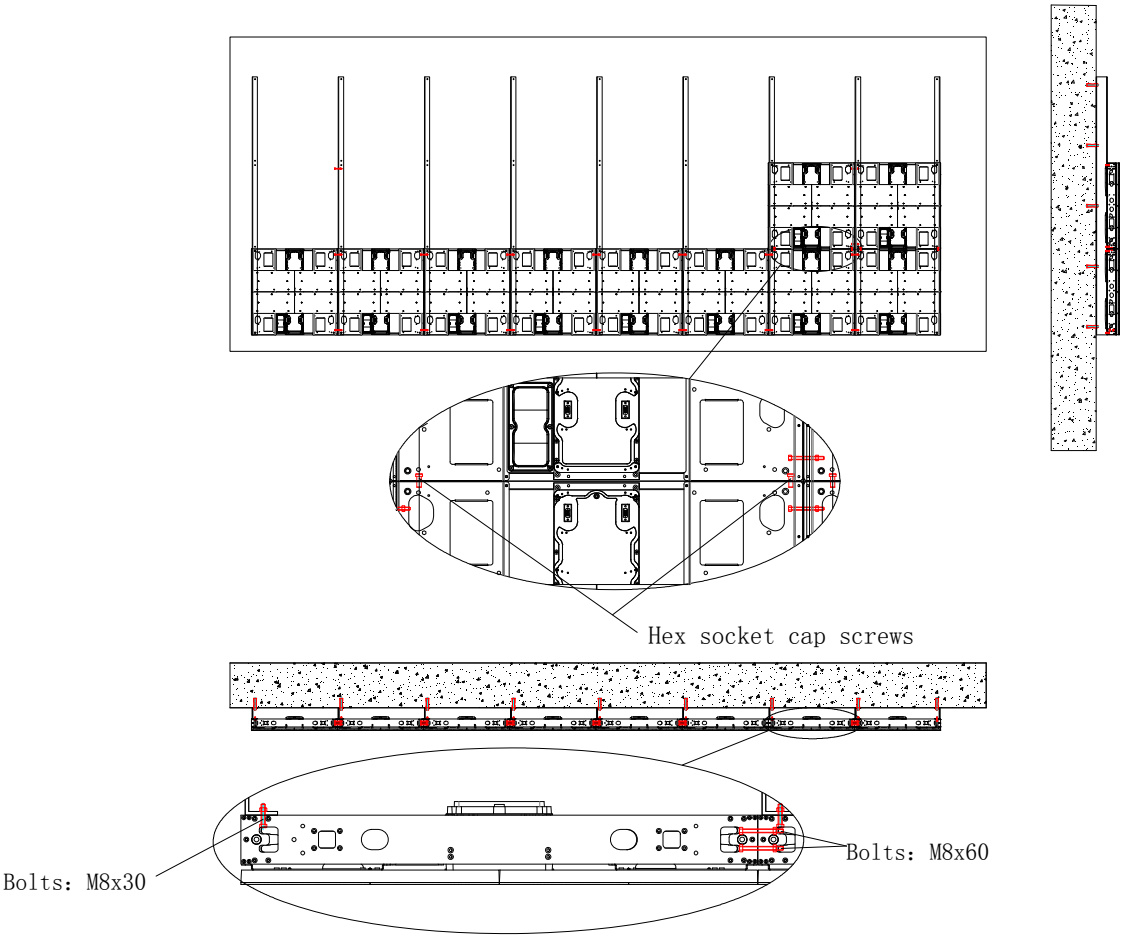
Note: Viewed from front, cabinets are installed from right to left and from bottom to up.

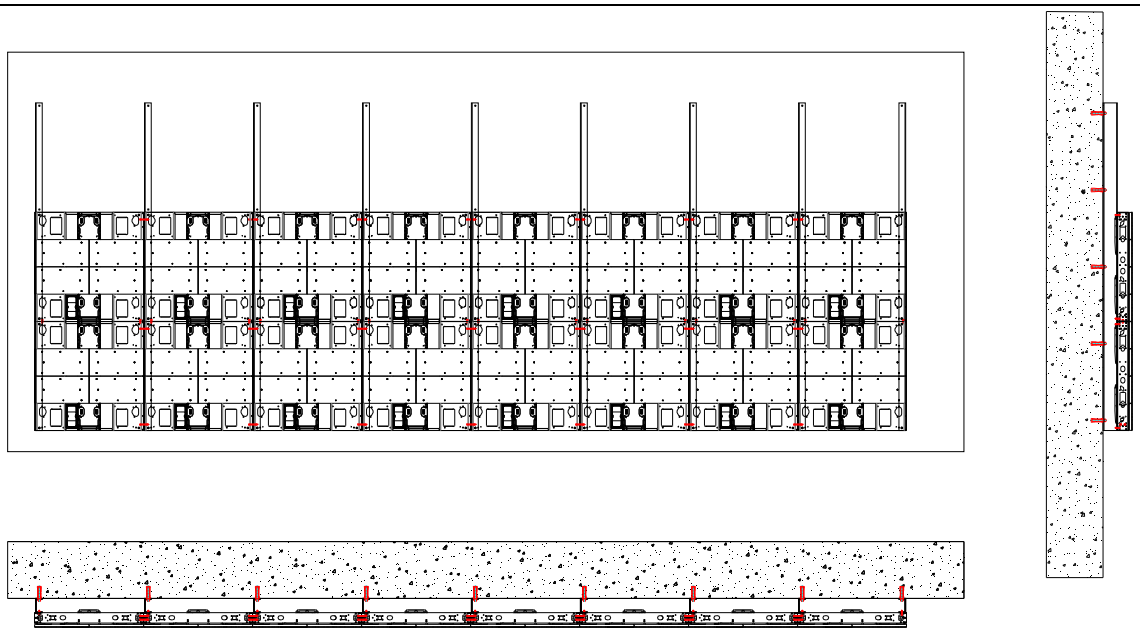
5.1.5. After the first cabinet is installed, start installing the second one. Align the left connecting hole of the second cabinet with the right connecting hole of the first cabinet, connect the cabinets by M8×60 bolts to ensure the compactness of them. After confirm that two cabinets are on the same horizontal plane, install the next cabinet as the same steps, till finish install the top row.



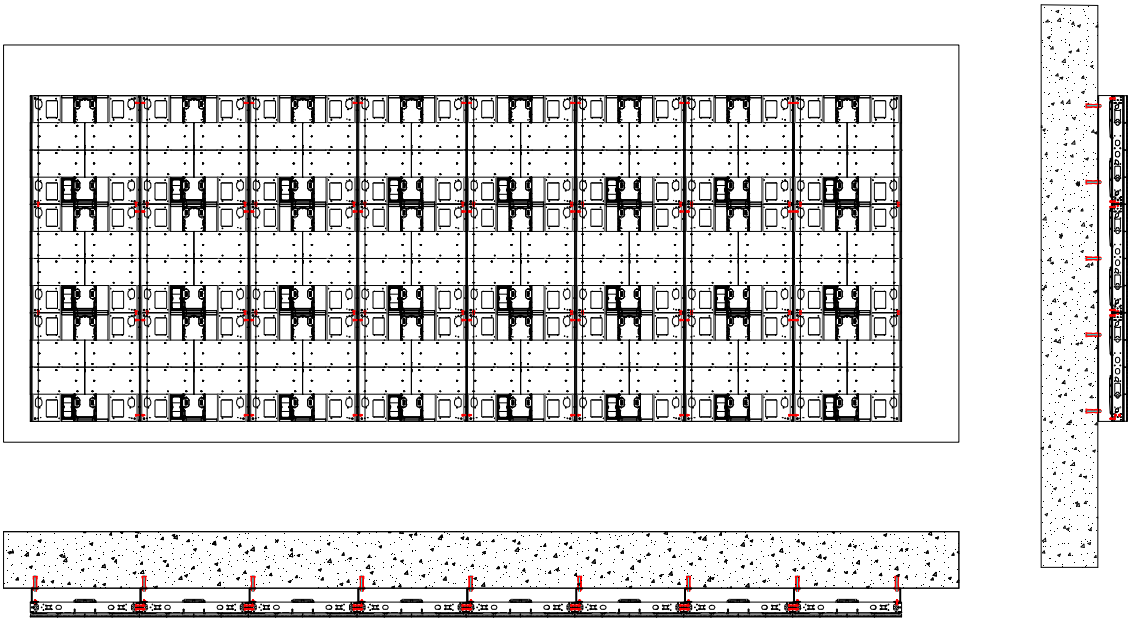
5.1.6. After the cabinets on the bottom are well installed, start installing cabinets on the second row. Align the cabinet bottom bracket hole with the cabinet top bracket hole of the first row, connect them with the M8 hex bolt and fix the second row cabinet on the supporting structure as the above steps of the first row.



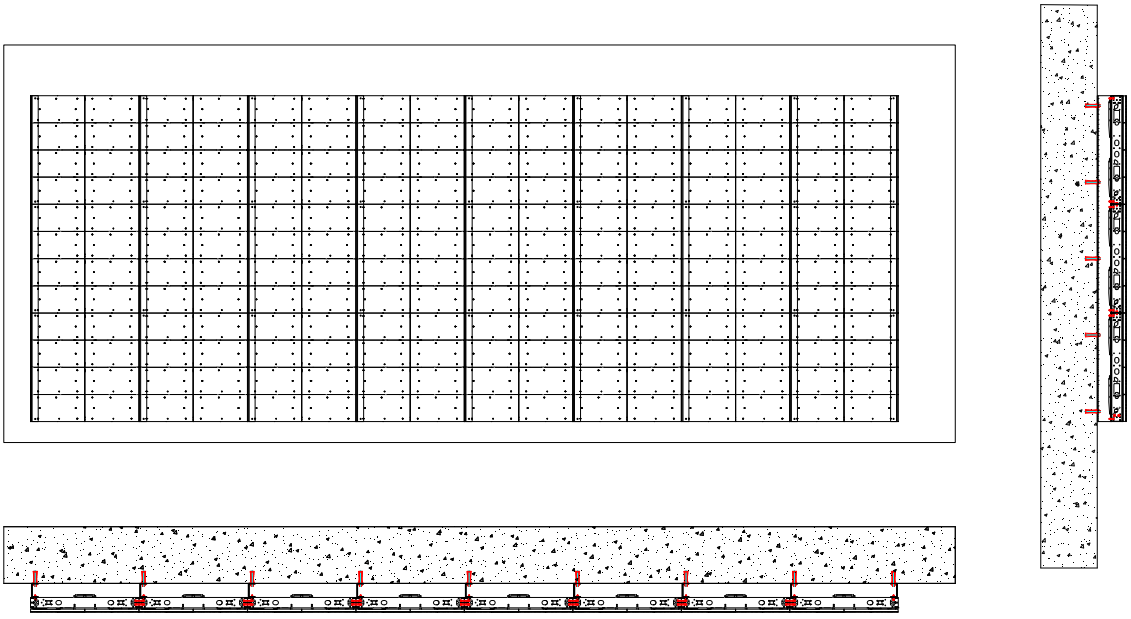




5.1.7. Install the other cabinets as the steps of the second row.

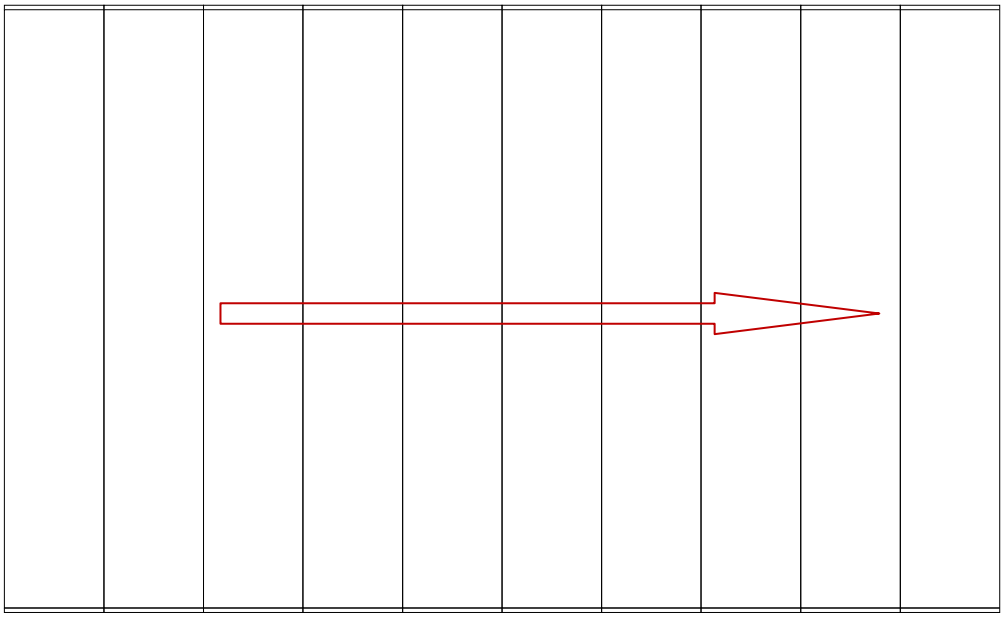


5.1.8. Put the LED module back to the cabinet after finishing installation.



CAUTION: For a front-serviced display whose back is unapproachable, cables must be connected before the tiles are mounted.

5.2 Installation of rear-access cabinet



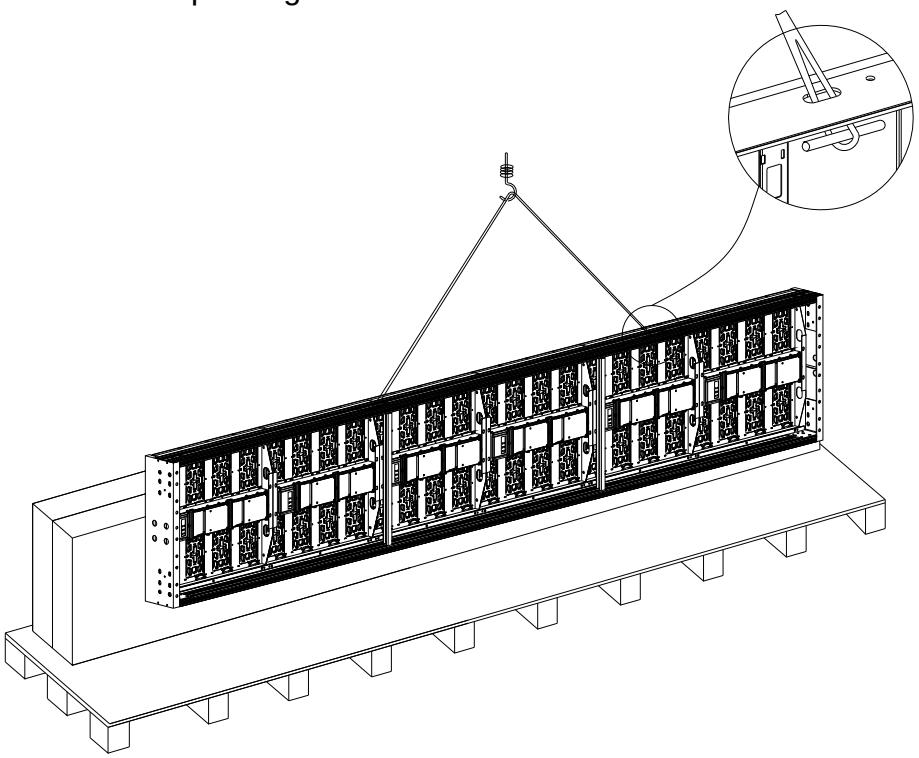
Viewed from the front, the display is installed from left to right.

Needed tools:

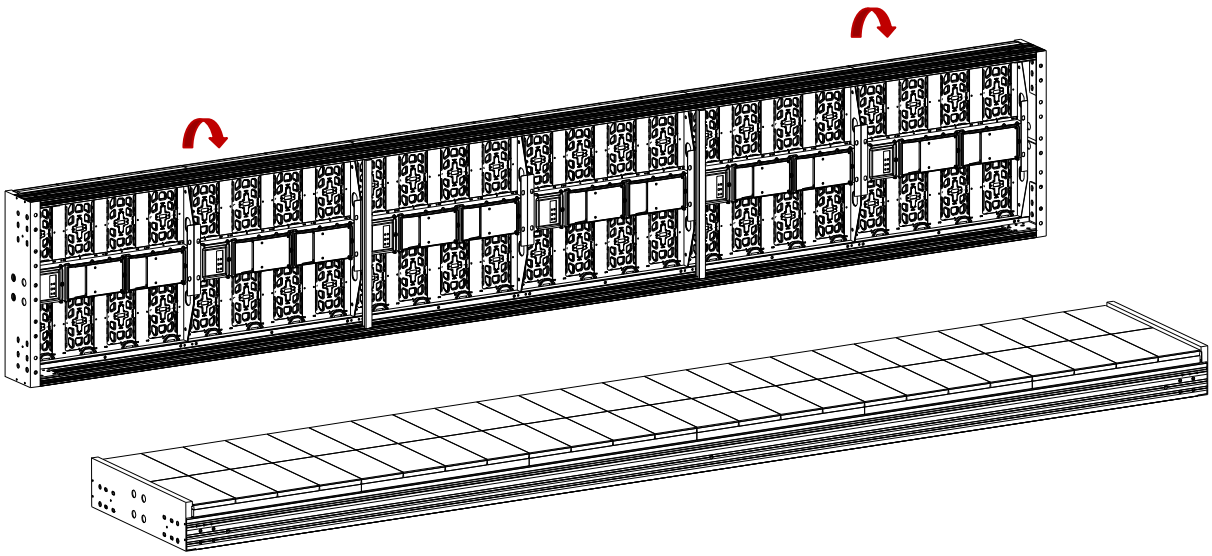
- Crane
- Open end wrench
- Socket wrench

Installation steps:

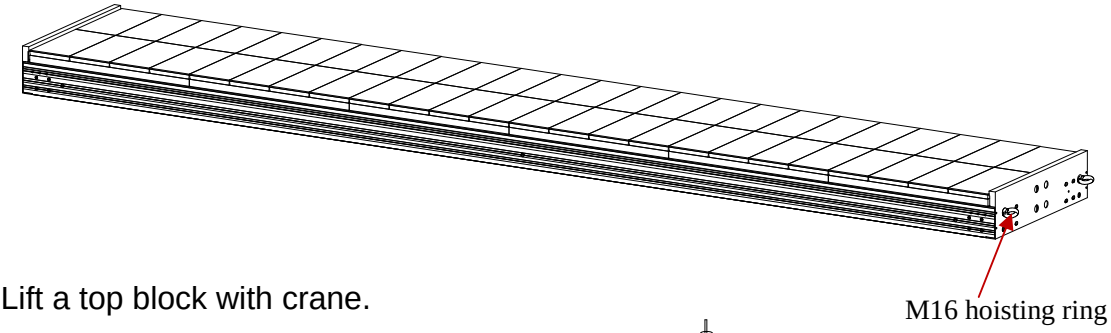
1. Take out blocks from the packing box.



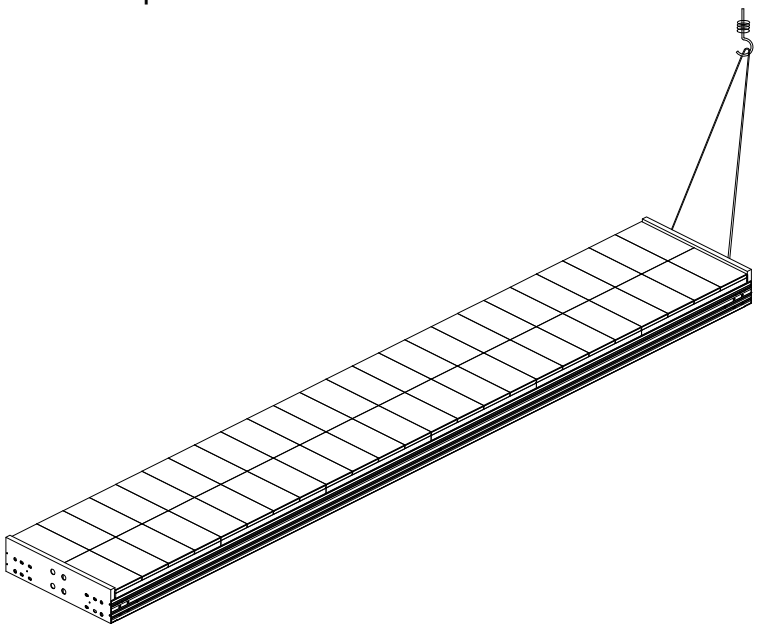
2. Turn it over (make the surface of LEDs upward).

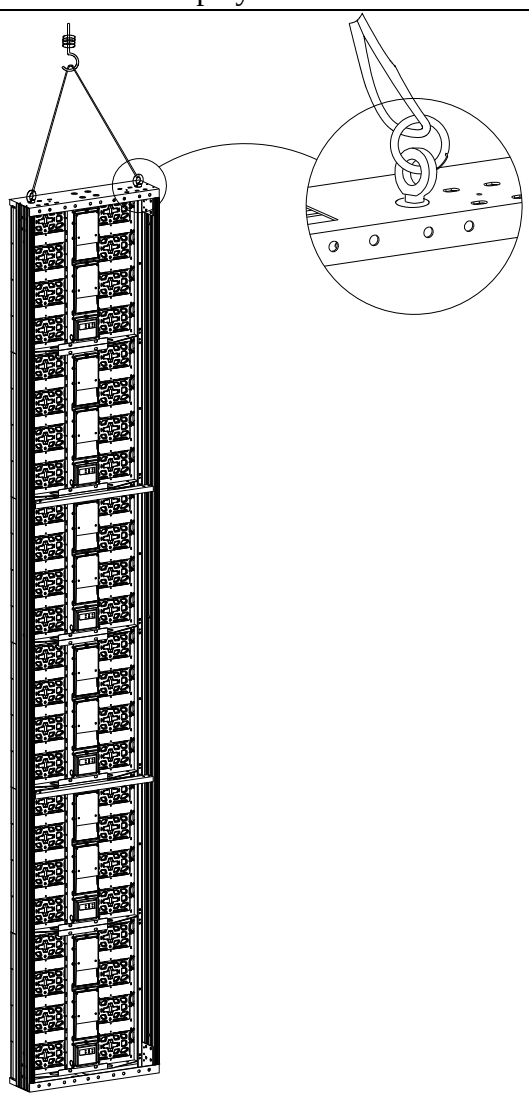


3. Install the hoisting rings

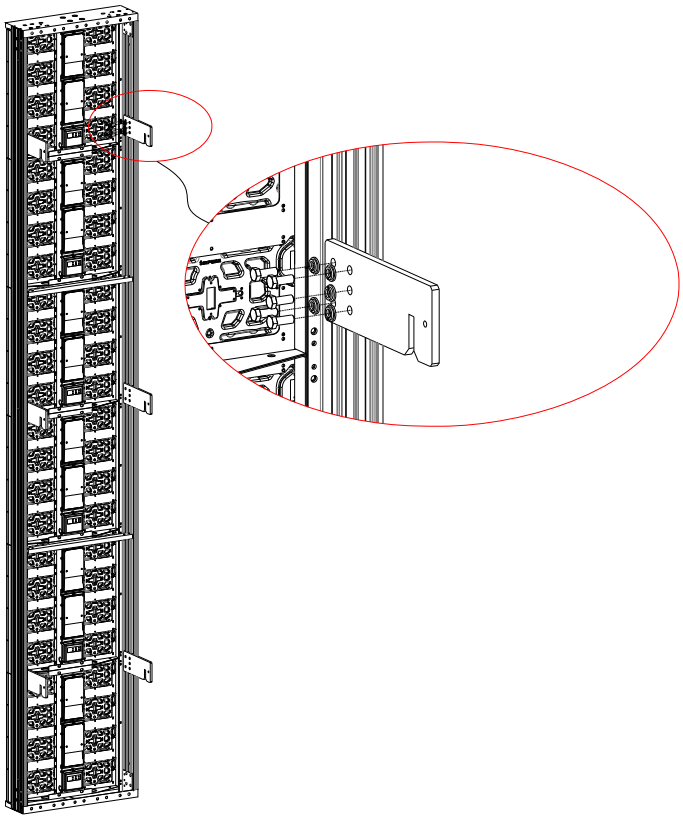


4. Lift a top block with crane.





5. To mount hooks onto a block.

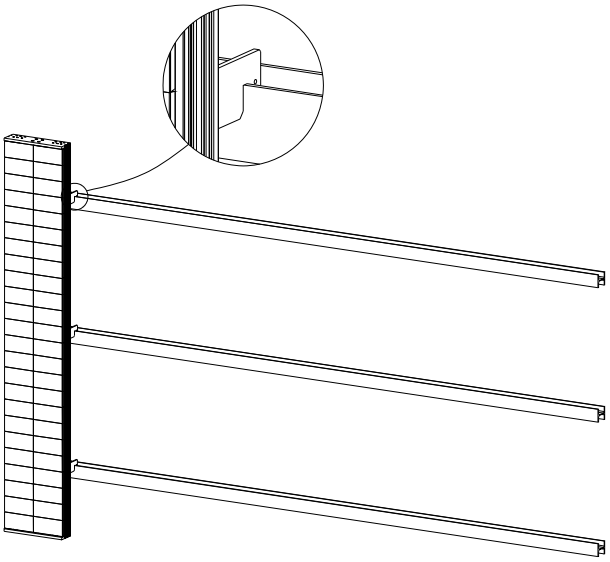


6. **Mounting the Blocks**

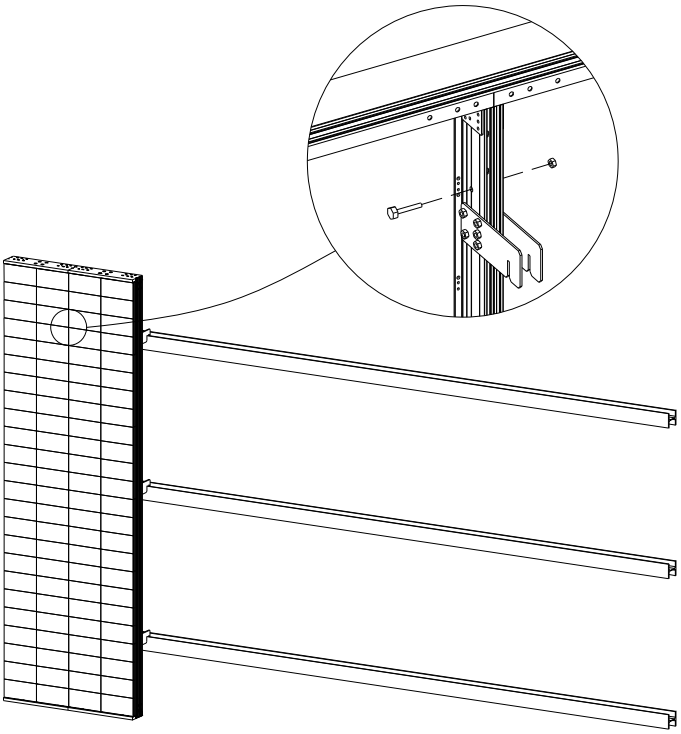
Before mounting blocks, one must make sure:

1. The Blocks are ready to be installed and LEDs on them are intact.
2. The supporting structure is in place, esp. the beams.
3. The crane has the strength to hoist the Blocks and all operations at the installation site will be harmless.

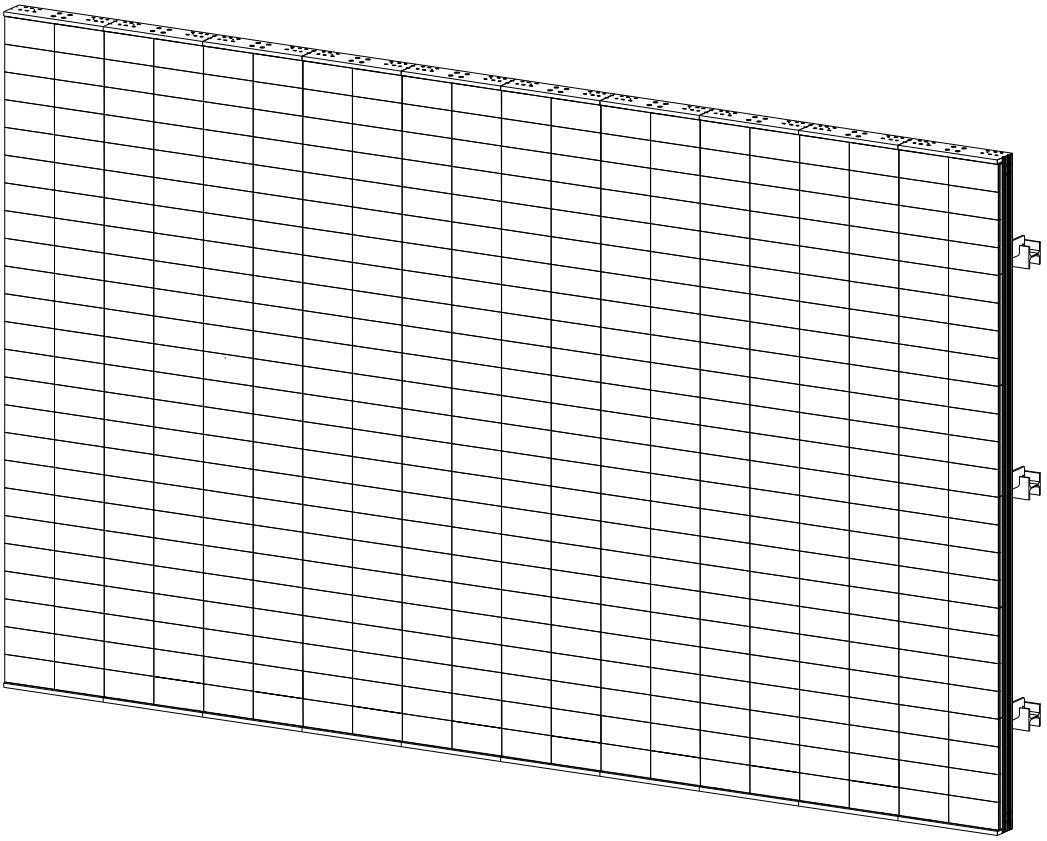
Installation shall start from the middle. Make out the position for the middle block of a display and install this first block onto the supporting structure. Make sure all hooks on the block connect well with the beams.



Then install the second middle block. After mounting it in position, use M12X80 bolts and nuts to connect the 2 installed blocks together. While connecting, make sure the 2 blocks are leveled so that pixels will be in the same level, too.



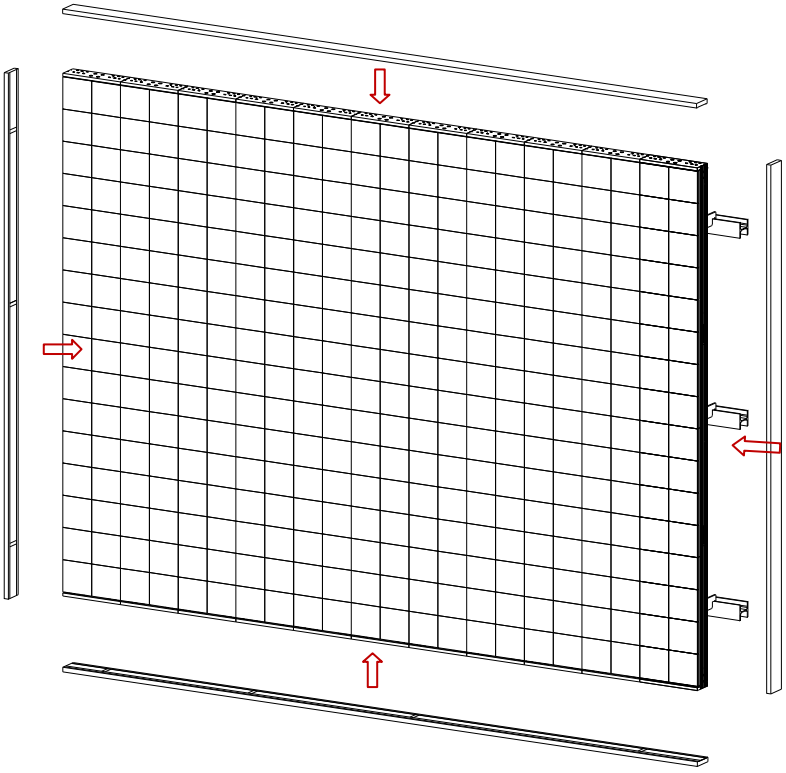
7. Install other blocks at both sides in order.



8. Fixing other structural components

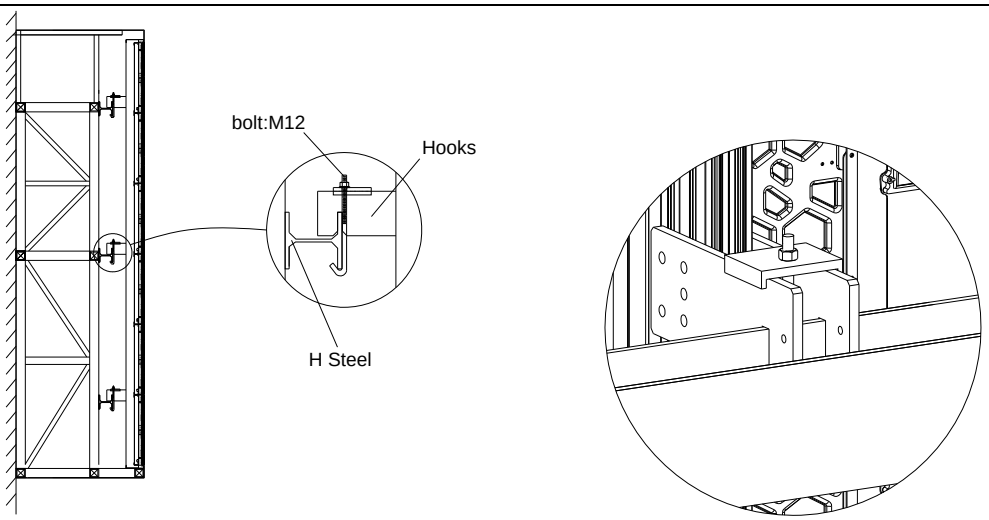
After the blocks are installed, structural components shall be added to the display.

Mounting the top Beam、the bottom beam and the side covers



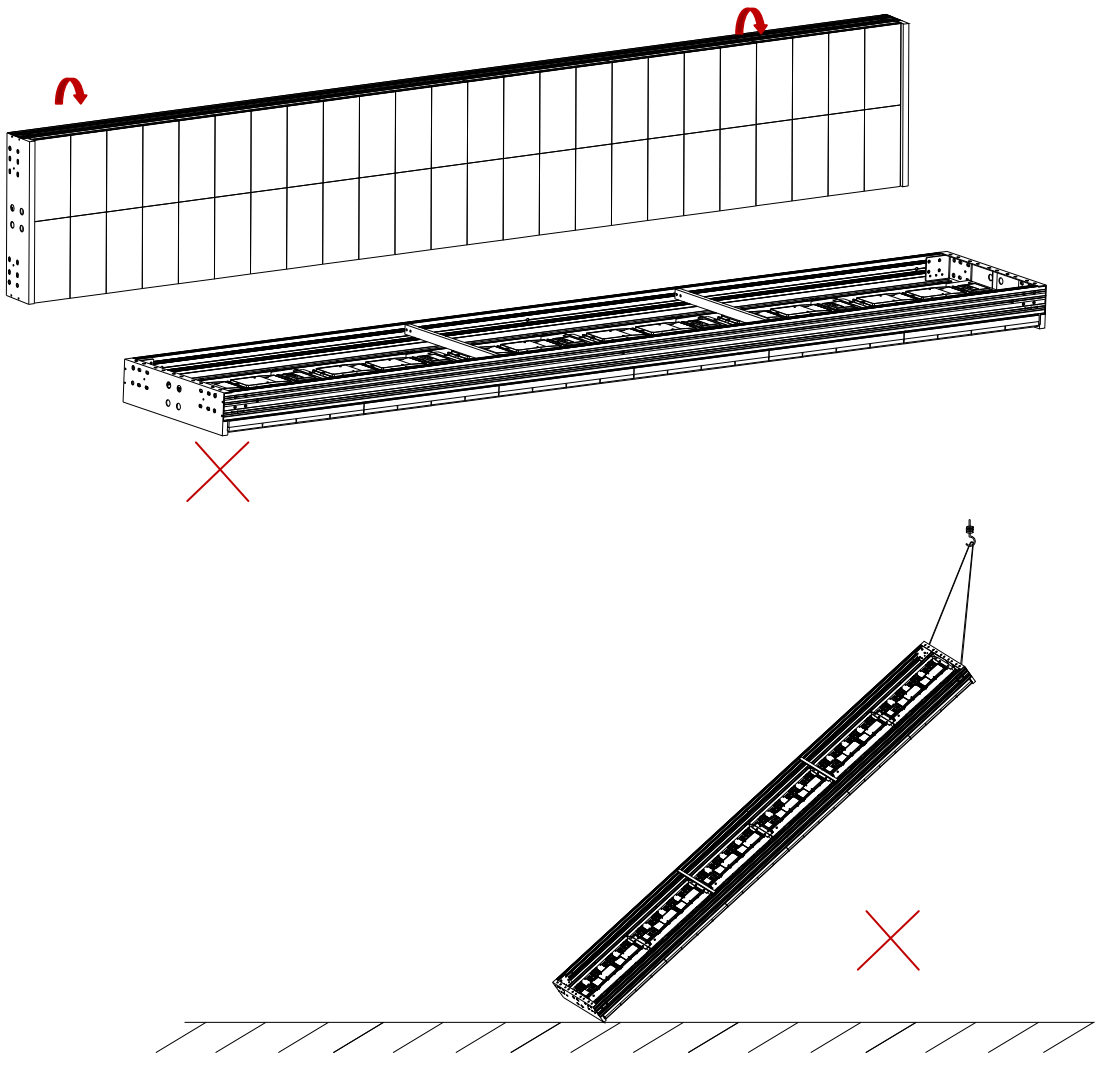
Mounting the Hooks protection chuck plate

A protection chuck plate is used to lock the hook, so that the block connected to the hook won't drop off the beams by any chance and cause damage. It's required that one hook at the top and one at the bottom of a Block must be mounted with a protection chuck plate.



Caution:

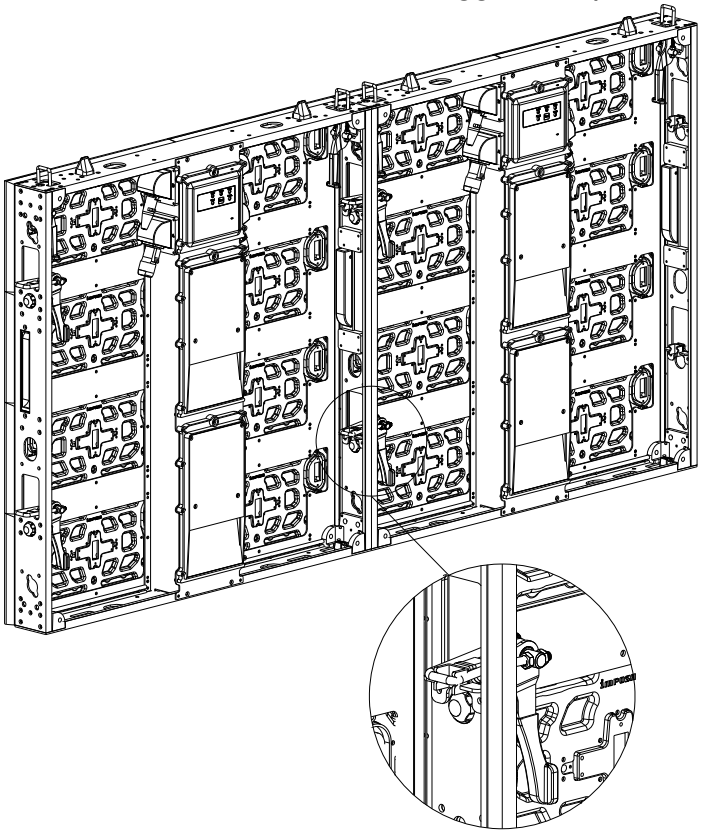
1. The LED blocks are heavy. Please pay attention to personal safety in the process of installation.
2. Please prevent the LED panel from crash, extruding, abrasion and so on. Otherwise, LED lamps may be damaged and fail to display.
3. Lift the blocks with the surface of LEDs downward is strictly forbidden, as the figure below shows.



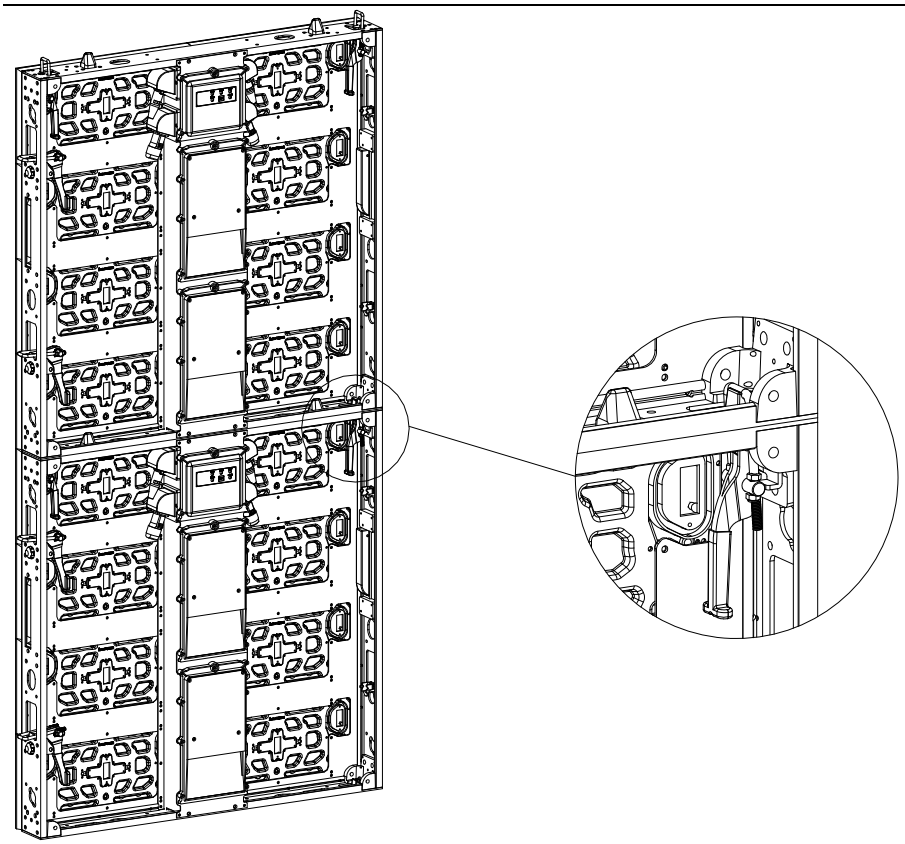
5.3 Installation of rental cabinet

5.3.1 Connection of rental cabinets

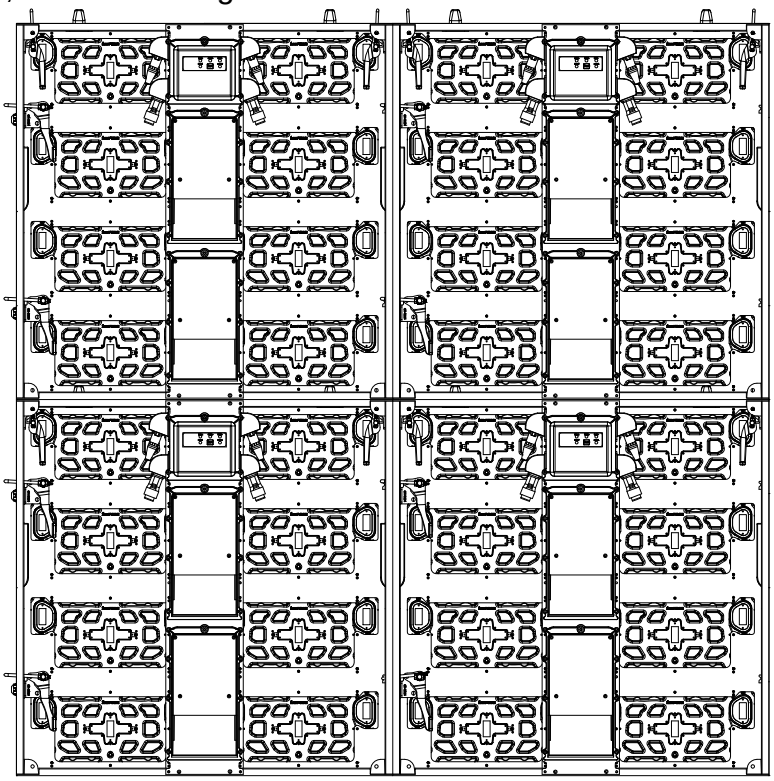
- When connecting two cabinets horizontally, please align the side positioning cones and then fasten them with toggle clamps, as shown in figure below.



- When connecting two cabinets vertically, the top cabinet must be directed at the top positioning cones of the cabinet below. Fix the cabinets with toggle clamps, as shown in figure below.



- The way to connect cabinets both horizontally and vertically is the combination of the two methods above, as shown in figure below.



5.3.2 Installation of rental cabinet---hoisting installation

Hoisting installation means IMPOSA E III rental cabinets should be hoisted in order to install them. Take cabinets of 2 rows and 4 columns as an example for introduction.

Needed tools:

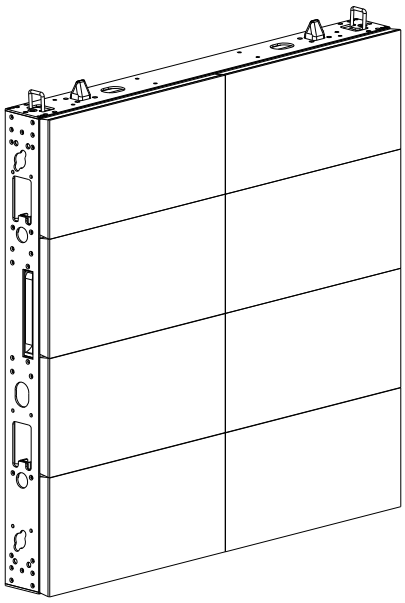
- Hoisting device
- Hoisting beam

Needed components:

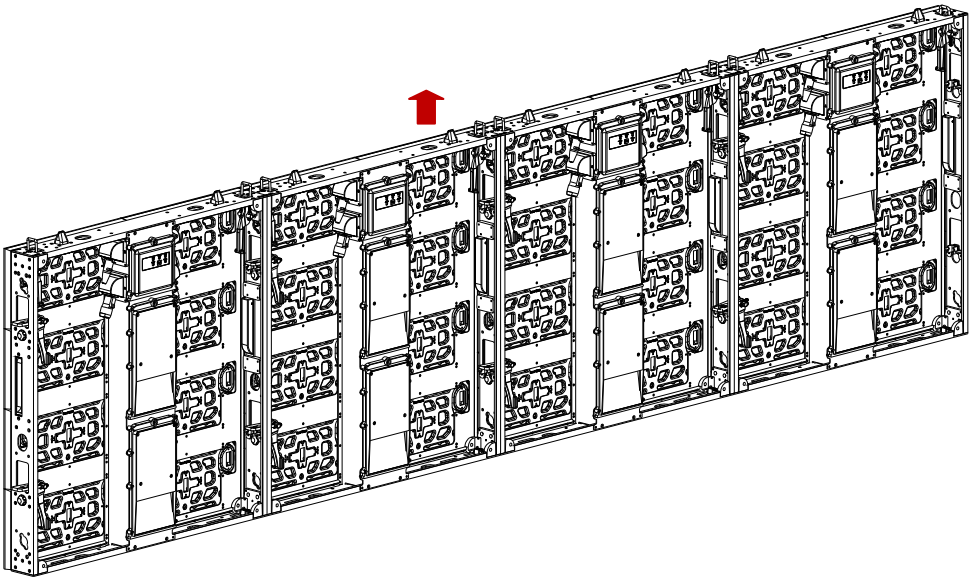
- Cabinets

Installation Steps:

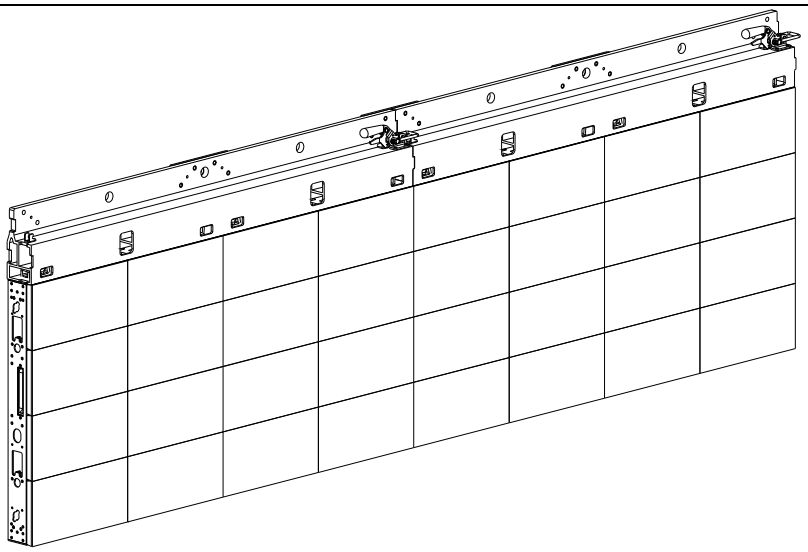
1. Take out the display from the packing boxes, during which please pay attention not to impact or rub the LED surface of cabinets.



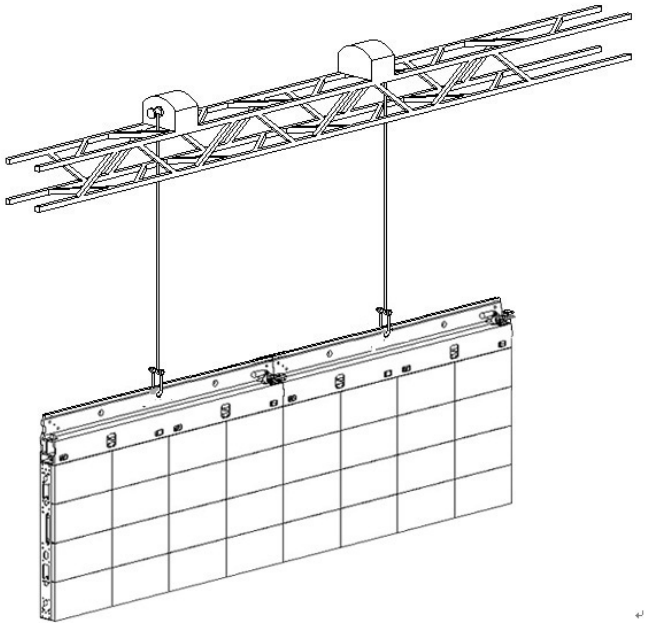
2. Connect cabinets according to introduction above.



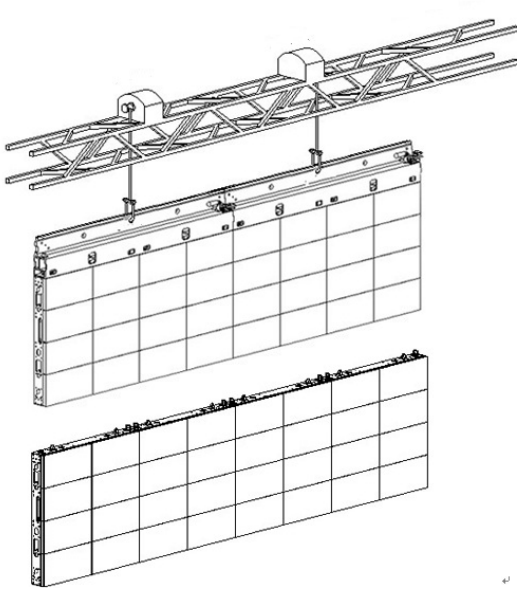
3. When the installation of first-row cabinets is finished, place the hoisting beam.



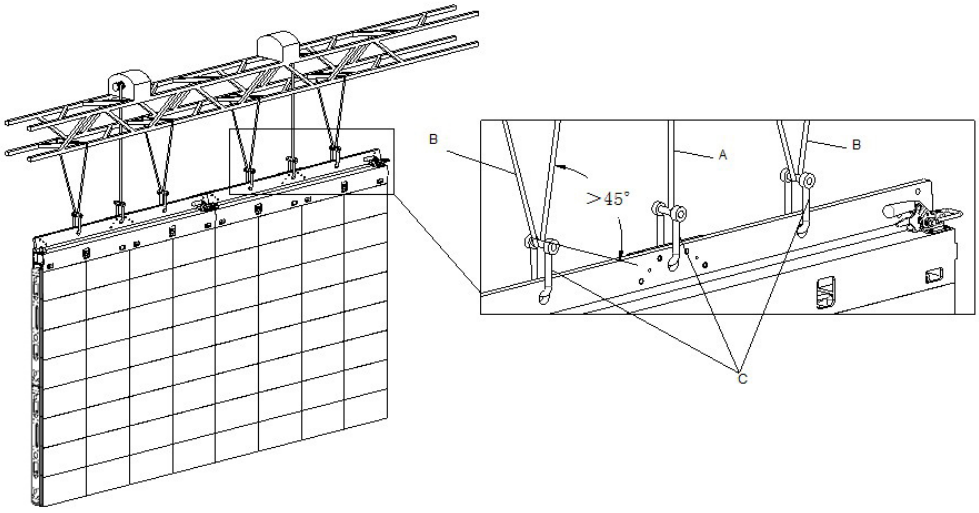
4. Use the hoisting device to lift the connected cabinets.



5. Finish the installation of the rest cabinets by this same method.



6. Lift the display to the target height. Taking safety into consideration, the hoisting beam must be equipped with steel chain so that accidental slip can be avoided.



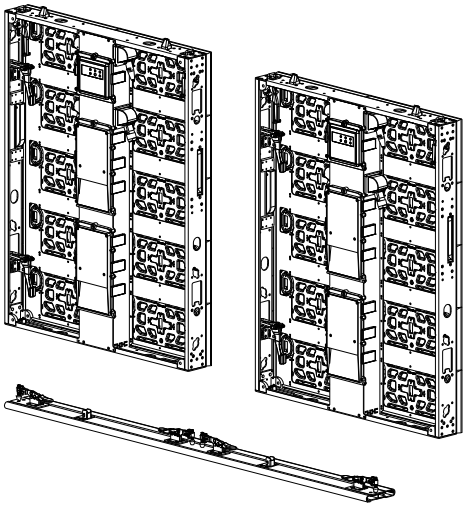
A: Hoisting chain
B: Steel chain
C: U-shape buckle

Note:
1、The angle between steel chain and hoisting beam should be at least 45°.
2、Each hoisting beam must be equipped with steel chain and stress points must be evenly distributed.

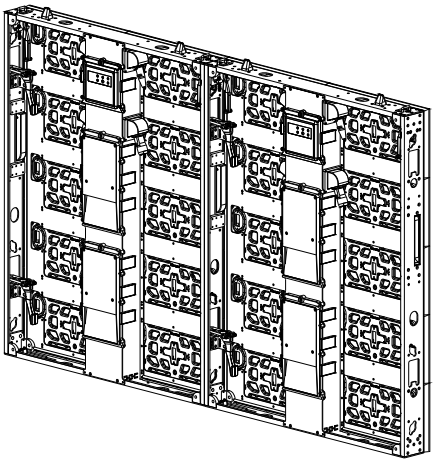
5.3.3. Installation of the Perimeter Display

1. Steps of Installing the Perimeter Display's Cushion and Base Stand

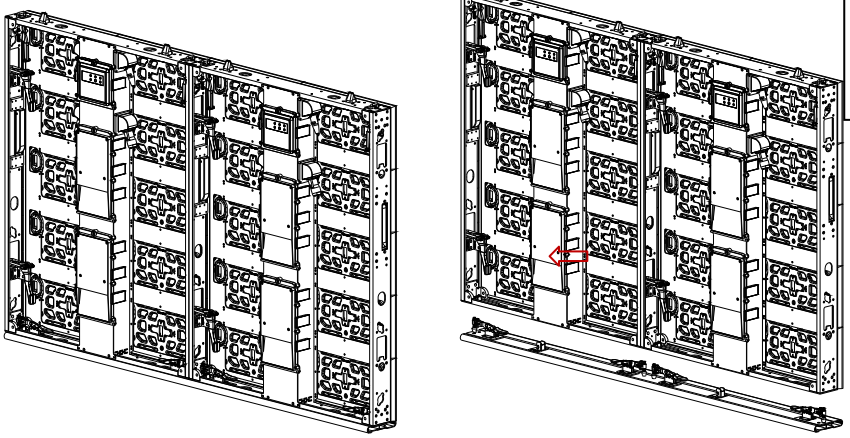
1.1. Base Stand Assembly



Take out the cabinets and the base stand assembly



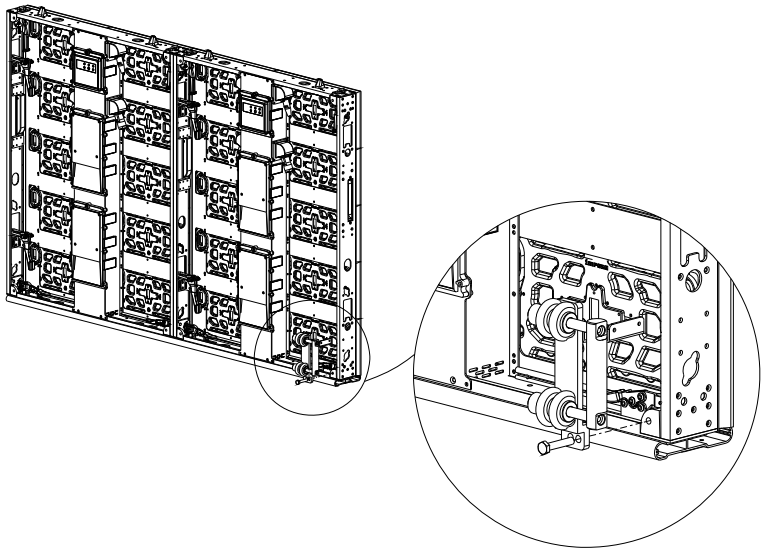
Connect two cabinets together by the locating pins at side and the toggle clamps



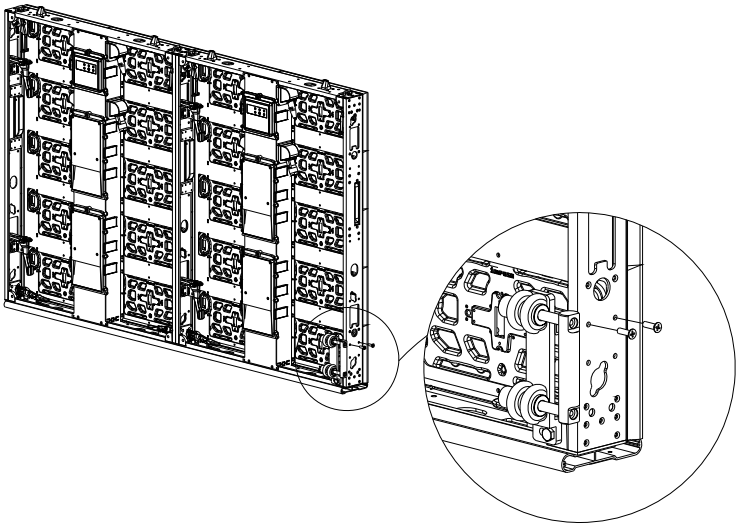
Lock the cabinet by the toggle clamps on the base stand assembly directly

1.2. Install the Hinge Handle Assembly

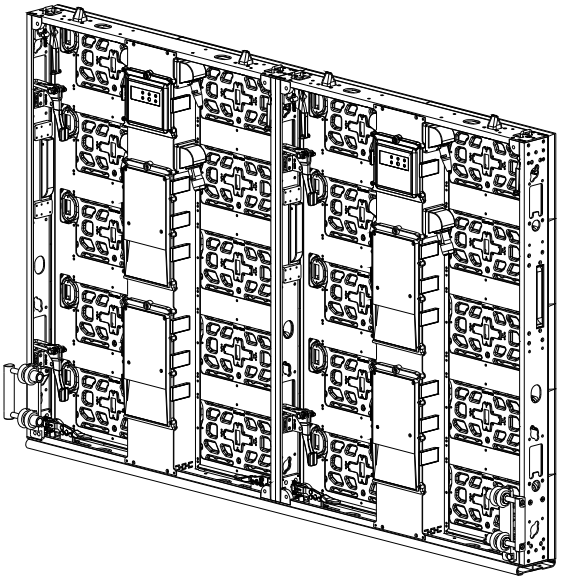
Fix the hinge handle on the bracket by bolt



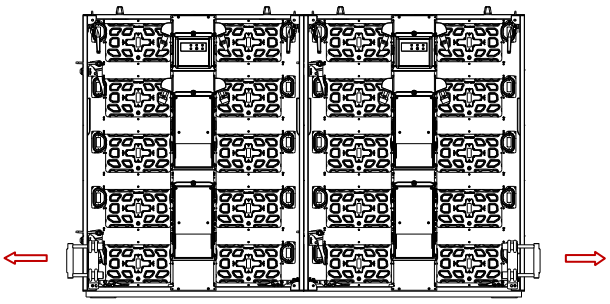
Then tighten it on the section aluminum at side by screw



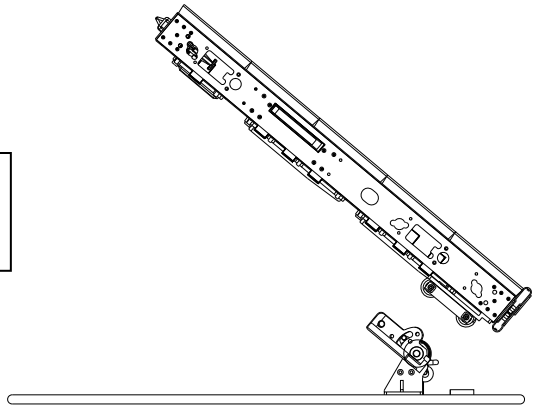
Install the other hinge handle as the above steps



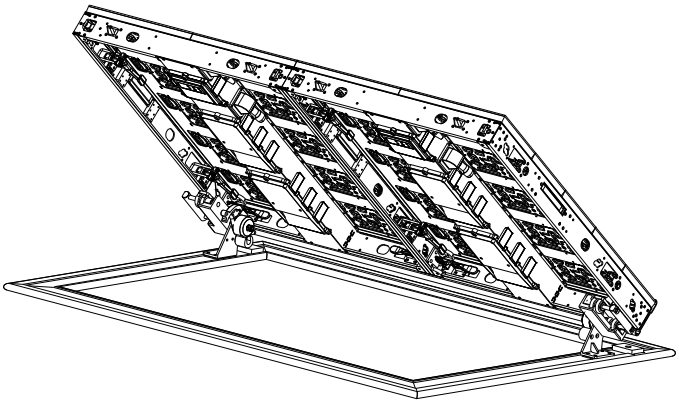
Pull out the handle



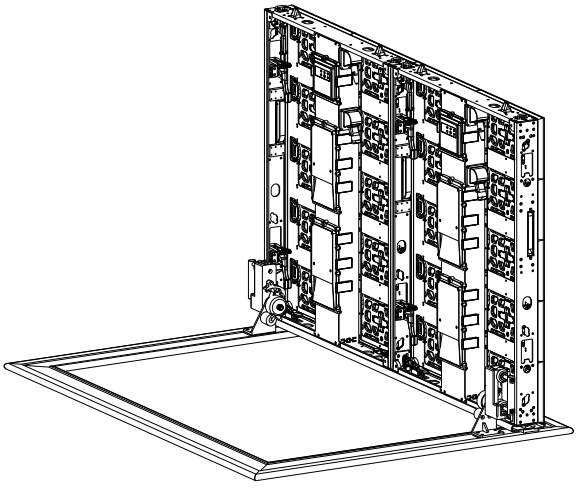
Align it with the guide groove of the base stand's reversal bracket



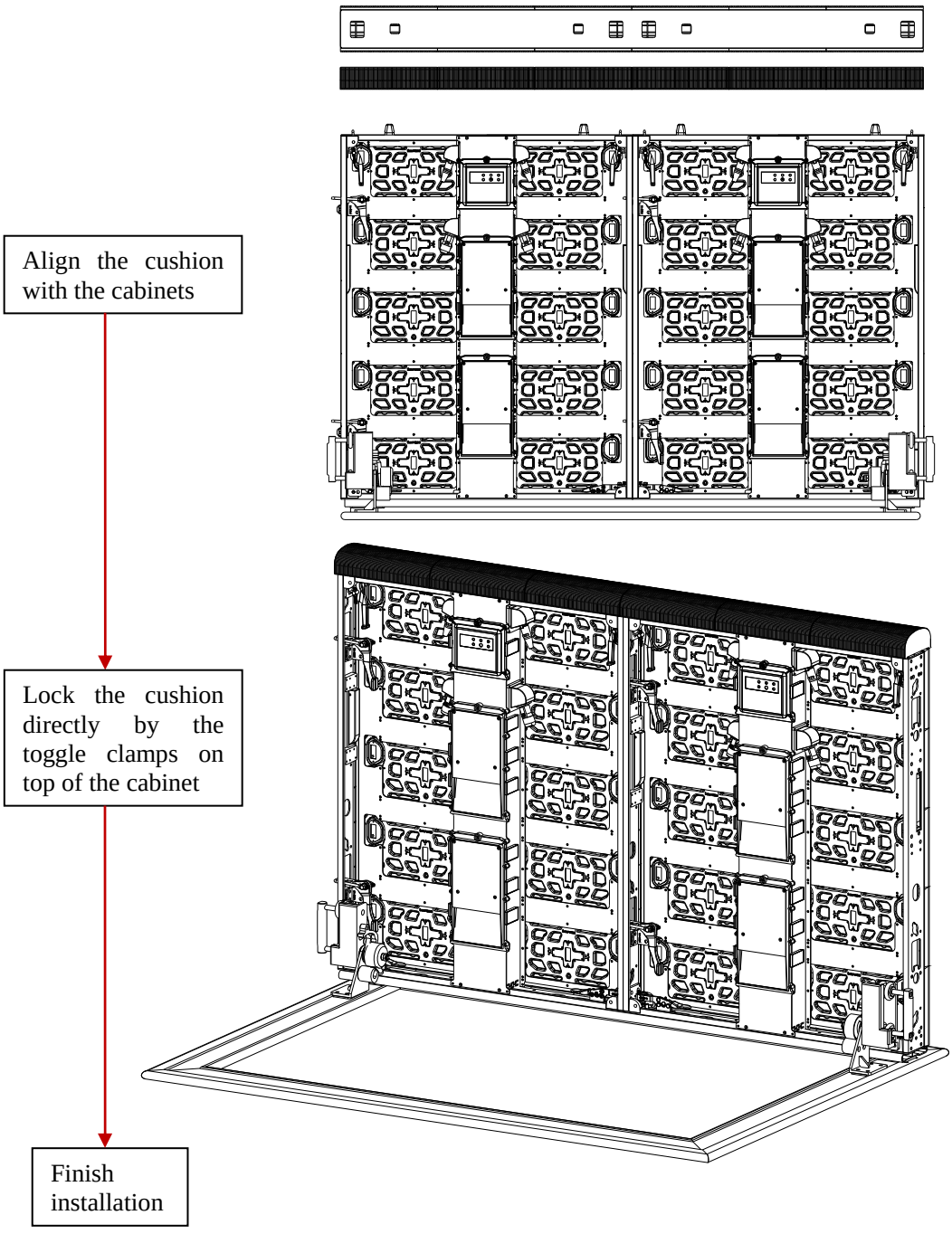
Insert the spring cotter of the handle in spindle hole of the reversal bracket



Lift up the cabinet and make it attract with the magnet of the base stand



1.3. Install the Cushion



6. Cabling of an IMPOSA E III display

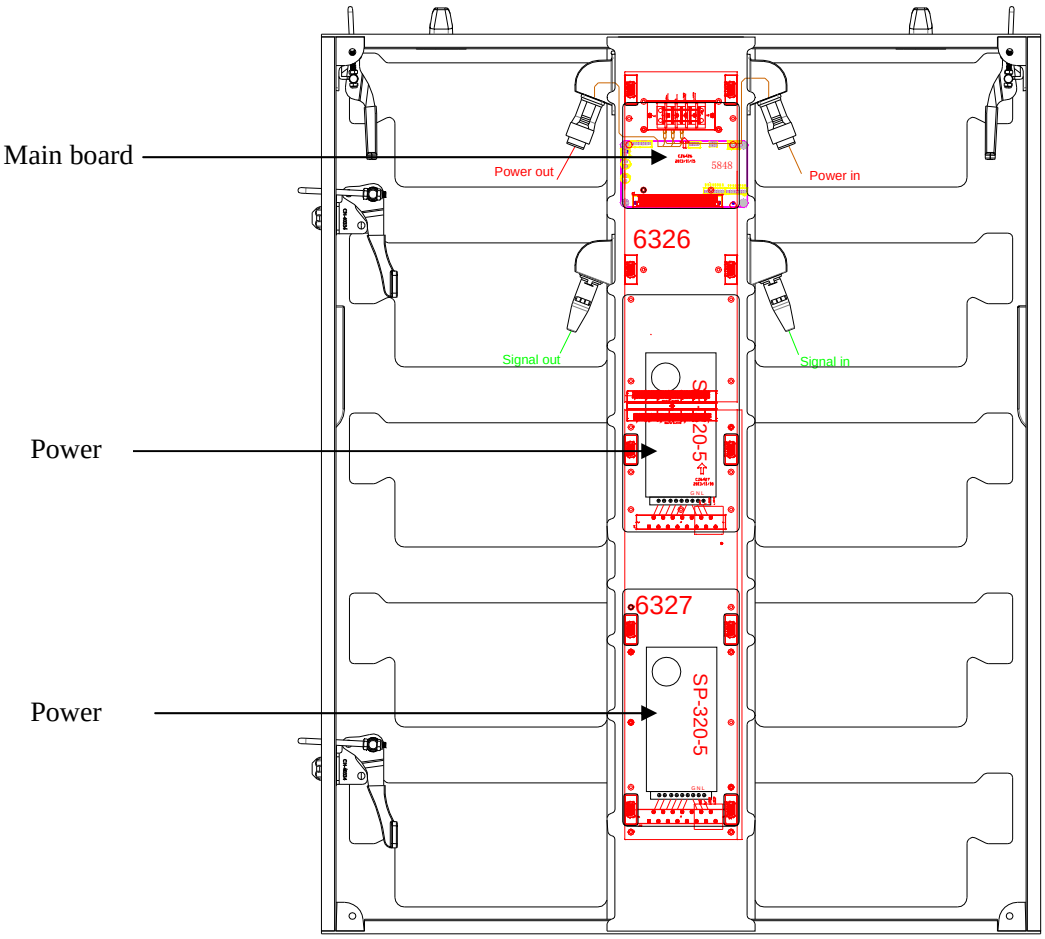
This chapter covers the system cabling of an IMPOSA E II display. Cabling methods are various based on different types of cabinets, which are divided into cabling of front-access cabinets and cabling of rear-access cabinets.

Overview

- Cabling of rental cabinets
- System cabling

6.2.1 Internal cabinet cabling

The internal cabling of 1280X960 rental cabinet is shown in figure below.

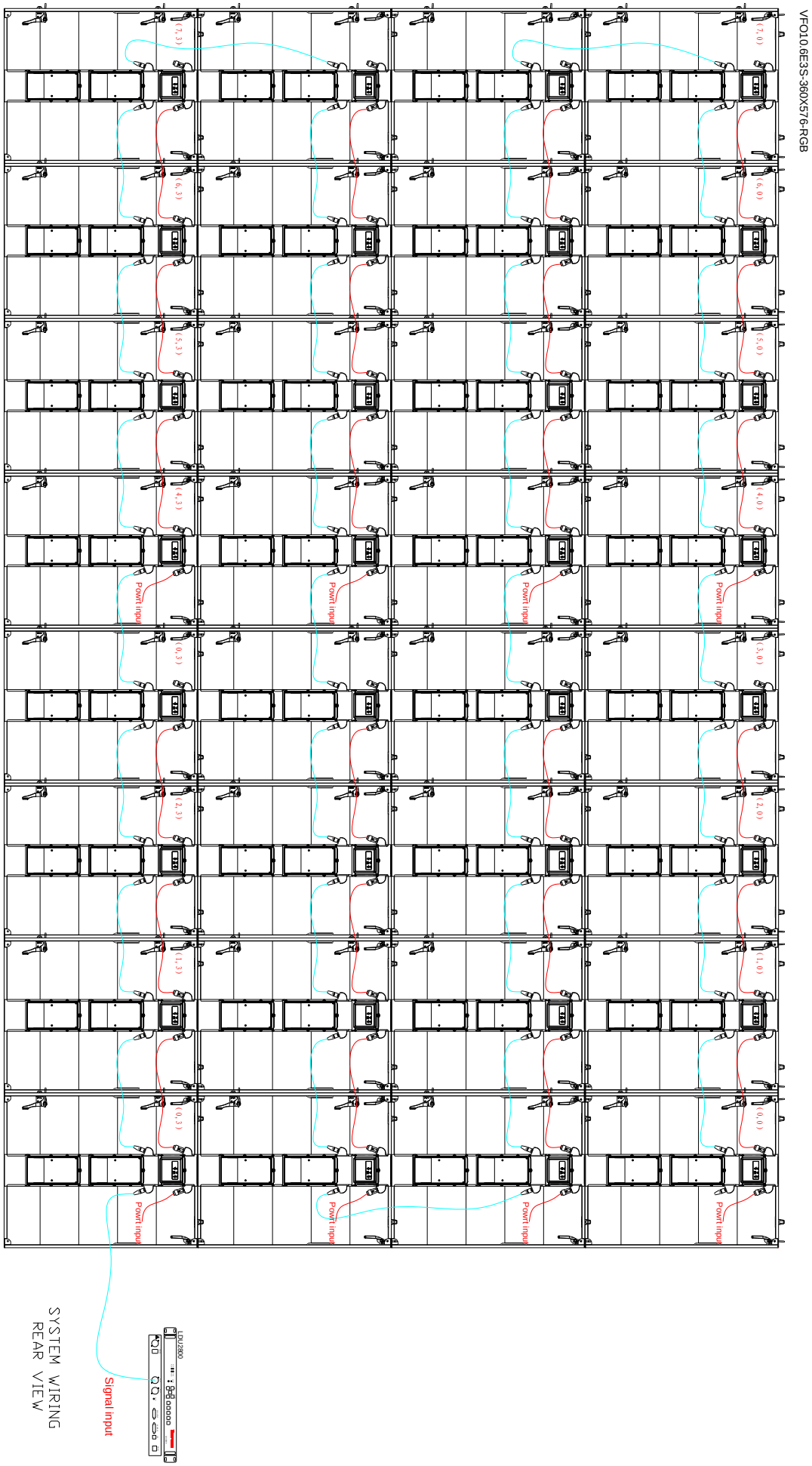


6.2.2 Power and signal cabling between cabinets

Cabinets with front and rear access enjoy the same signal cabling, which can be both vertical and horizontal. The only difference is that the signal cables of front-access cabinet are inside the cabinet, while the signal cables of rear-access cabinets are at the back of cabinets.

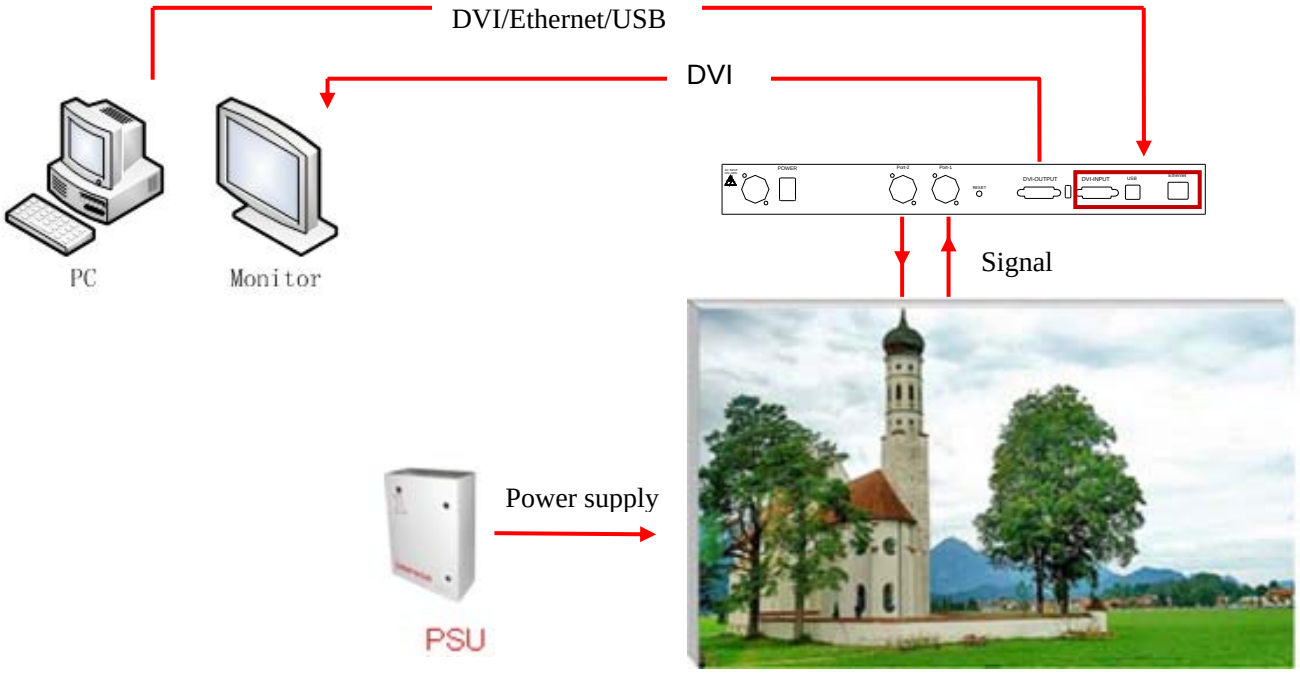
The power cabling difference between front-access and rear-access cabinets is that, power is input from the top of cabinet for front-access cabinet while from the bottom of cabinet for rear-access cabinet. When doing the cabling, please also pay attention that the total t power consumption of cabinets connected can’t exceed the power consumption of the connecting cable.

Taking the display with 1280X960 resolutions as an example, the power and signal cabling is shown in figure below.


VFO10.6E3S-360X576-RGB
Powrt input
Signal input
SYSTEM WIRING
REAR VIEW

6.3 System cabling

Example of an on-line IMPOSA E III display



7. Maintenance

Maintenance methods are various based on different cabinet types, which are divided into maintenance for front-access cabinet and maintenance for rear-access cabinet.

Overview

- Maintenance for front-access cabinet
- Maintenance for rear-access cabinet

7.1 Maintenance for front-access cabinet

7.1.1 Replace tile

For replacing tiles, please refer to introduction in Chapter Five.

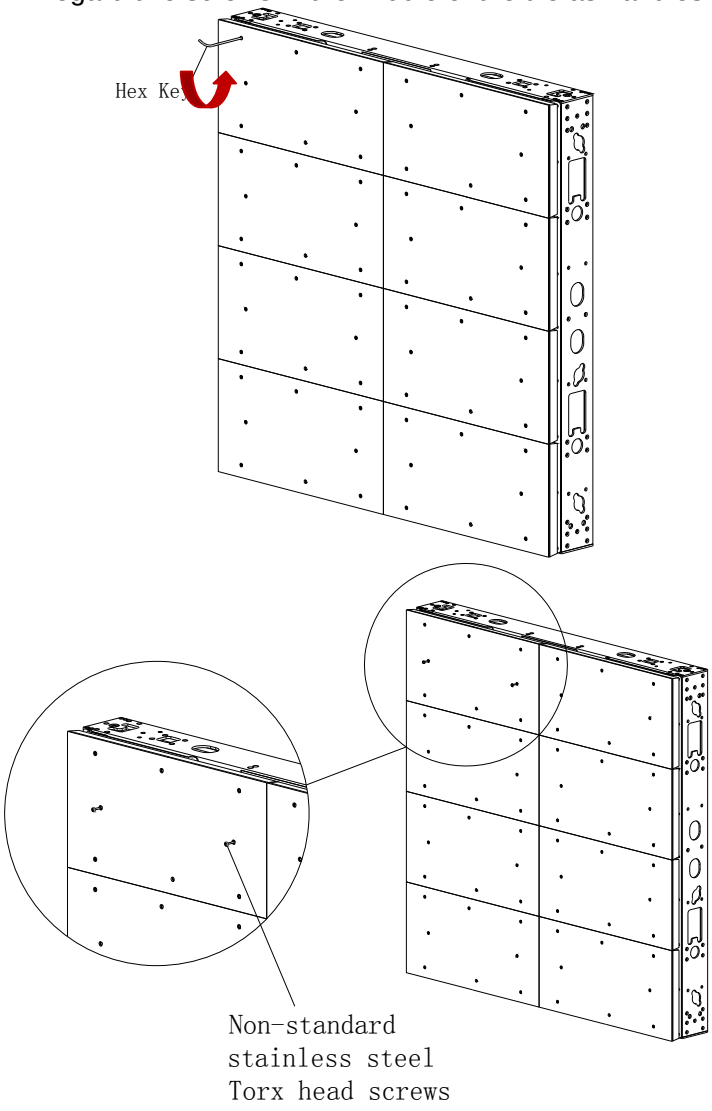
Tools Needed

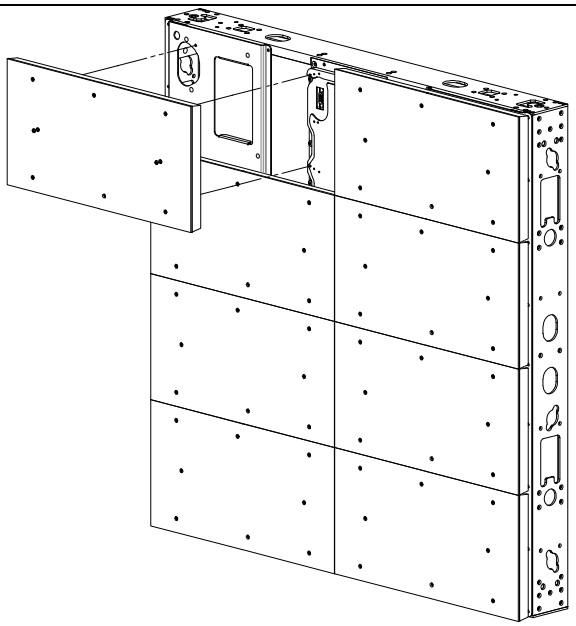
- Hex Key

Parts Needed

- E III module

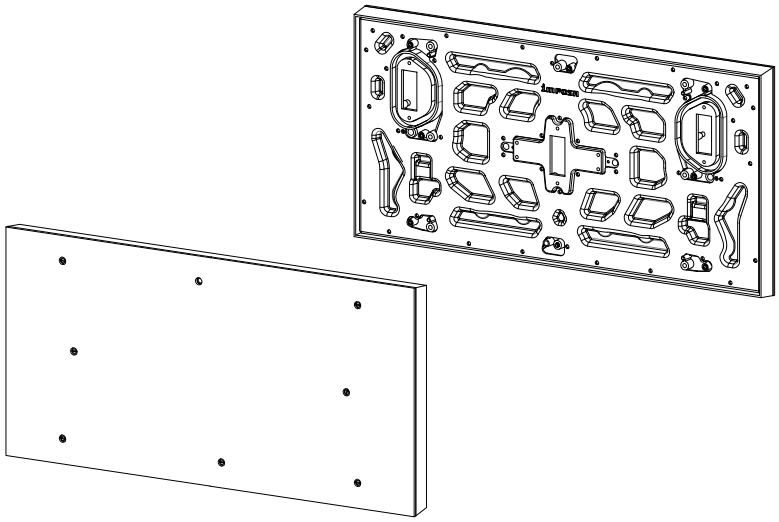
1 Use the hex key to unscrew 8pcs non-standard stainless steel torx head screws counterclockwise, regard two screws in the middle of the tile as handles and take out the tile.



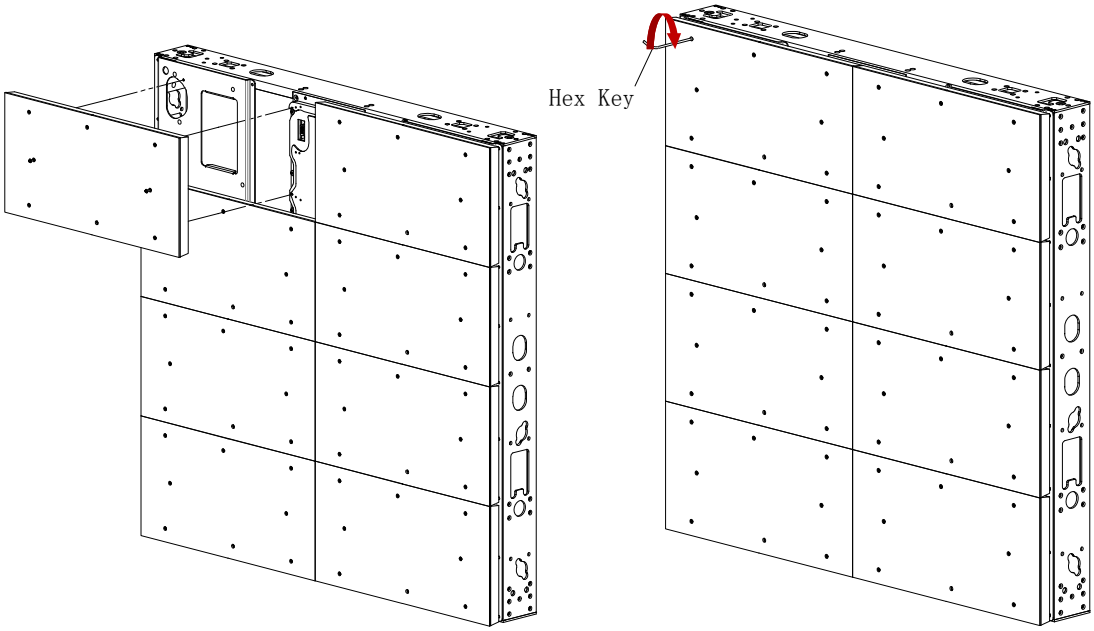


2. Install the new tile

There are 8pcs non-standard stainless steel torx head screws on each tile and please make sure that they are on the tile before the installation.



Move the module to the relevant position, align the locating cone of the module with the locating cone of the cabinet, push it in and make it close to the cabinet, Use the hex key fix it with 8pcs non-standard stainless steel torx head screws on the module.



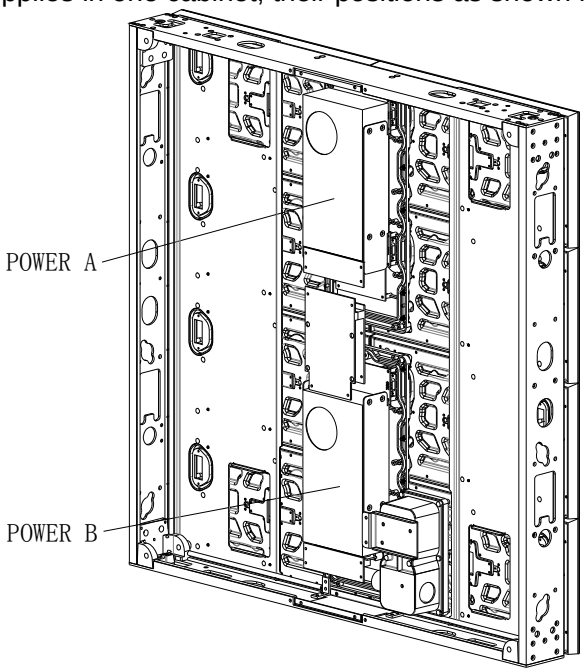
CAUTION: For a front-serviced display whose back is unapproachable, cables must be connected before the tiles are mounted.

7.1.2 Power Supply Replacement

Tools Needed
- Hex key
- Cross Screw-driver

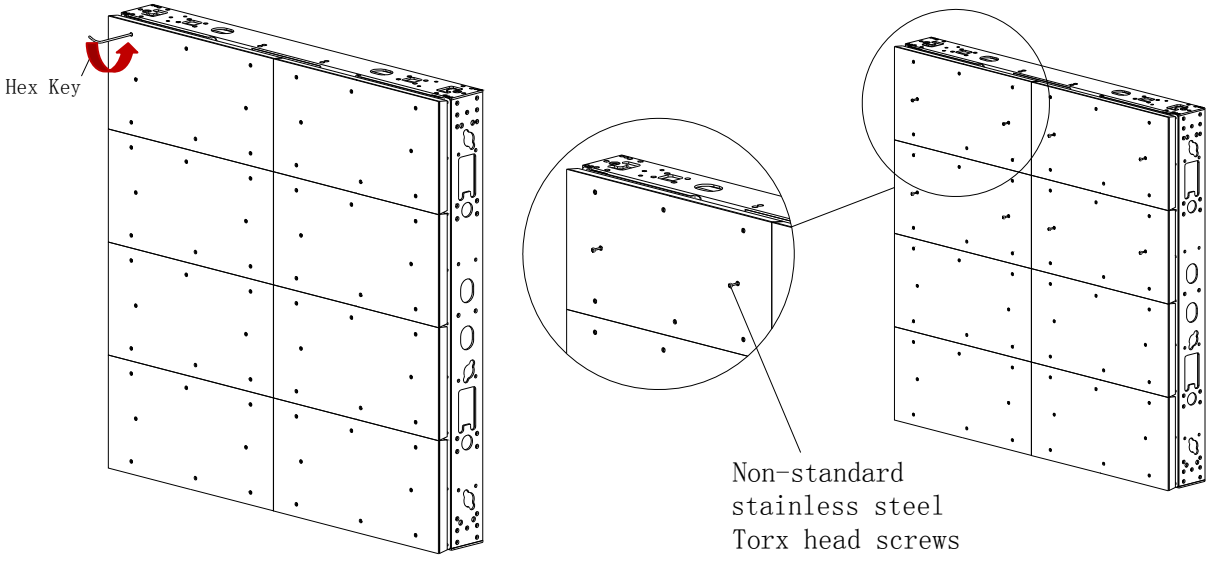
Part Needed
- M2X20 Screws
- Power Supply

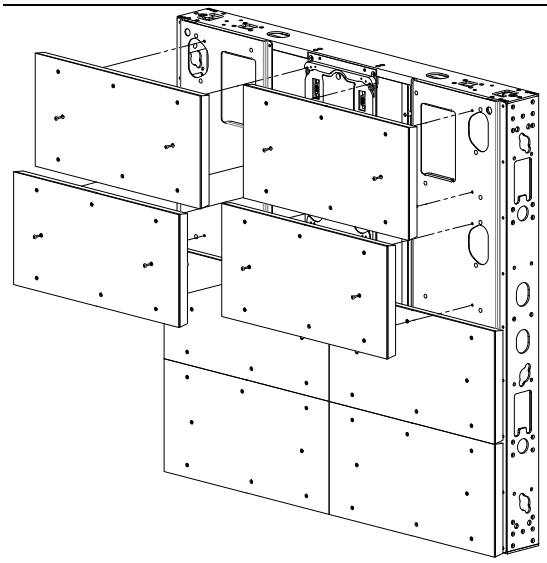
There are 2pcs power supplies in one cabinet, their positions as shown in the below figure:



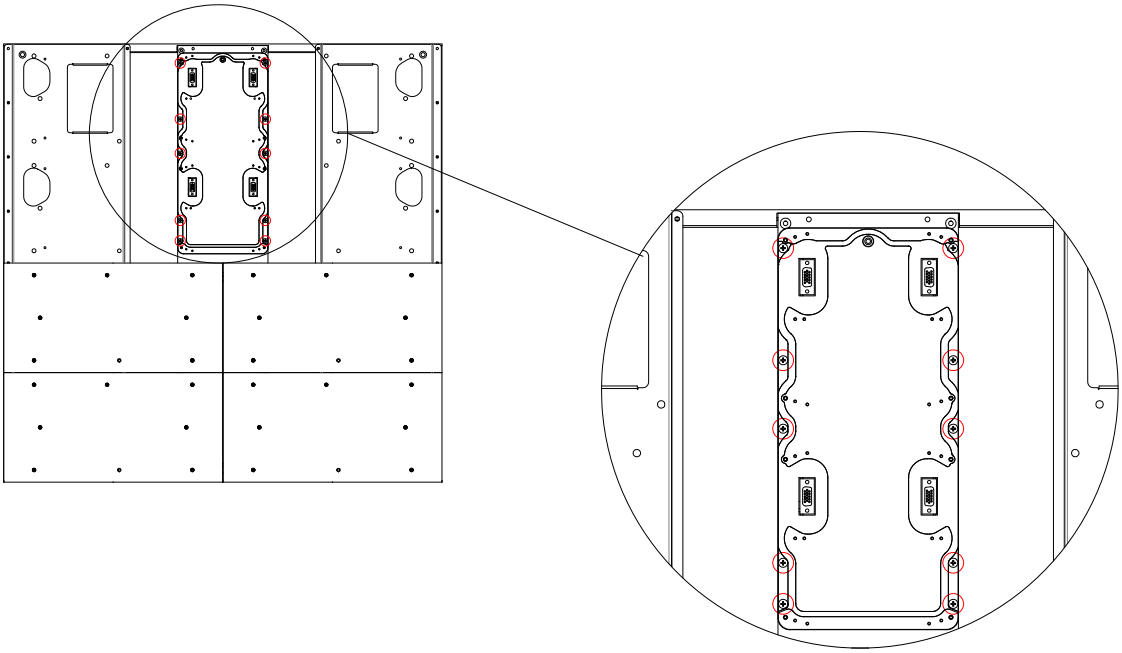
Their replacement steps are the same, take power supply A as example, steps are as follows:

1. Disassemble 4pcs tiles in front of power supply A as the above steps. Unscrew 8pcs non-standard stainless steel torx head screws counterclockwise, regard two screws in the middle of the tile as handles and take out the tile.

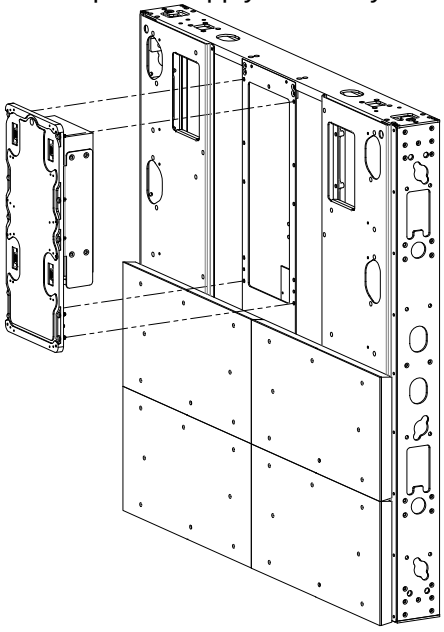




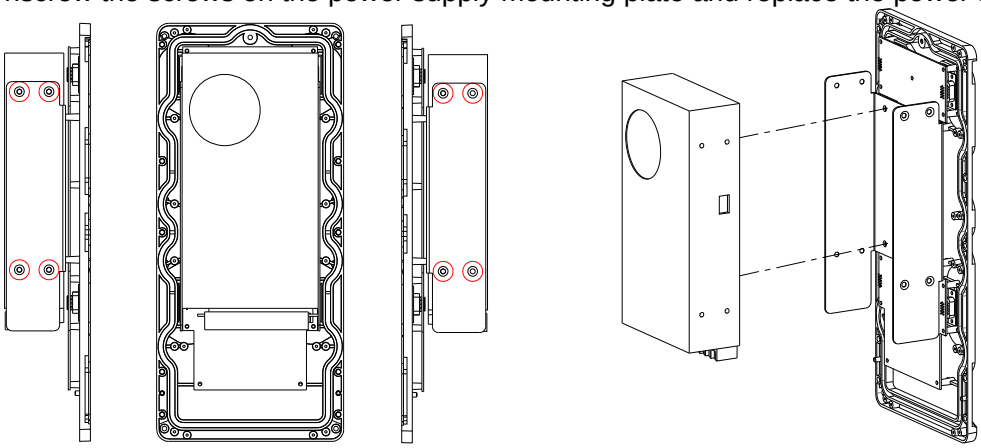
1. Unscrew the screws on the power supply box front cover.



2. Take out the power supply assembly from the cabinet.



3. Unscrew the screws on the power supply mounting plate and replace the power supply.



4. Install the new power supply on the contrary.

7.1.3. Main Board Replacement

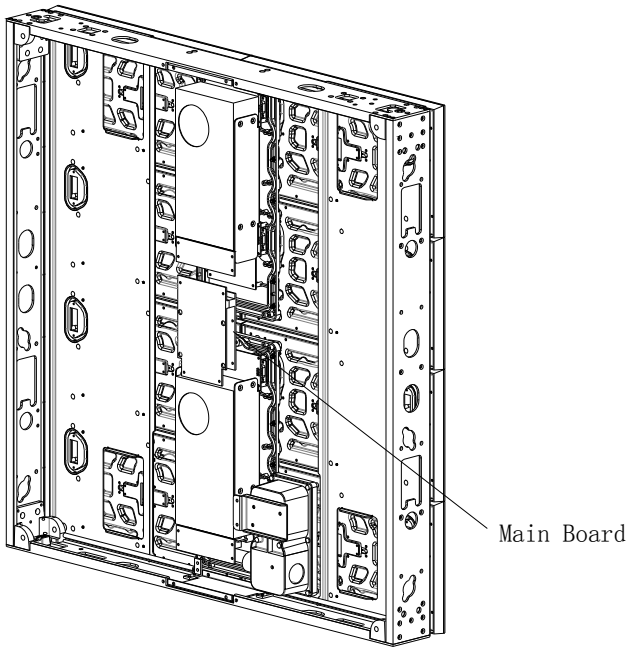
Tools Needed

- Hex Key
- Cross Screwdriver

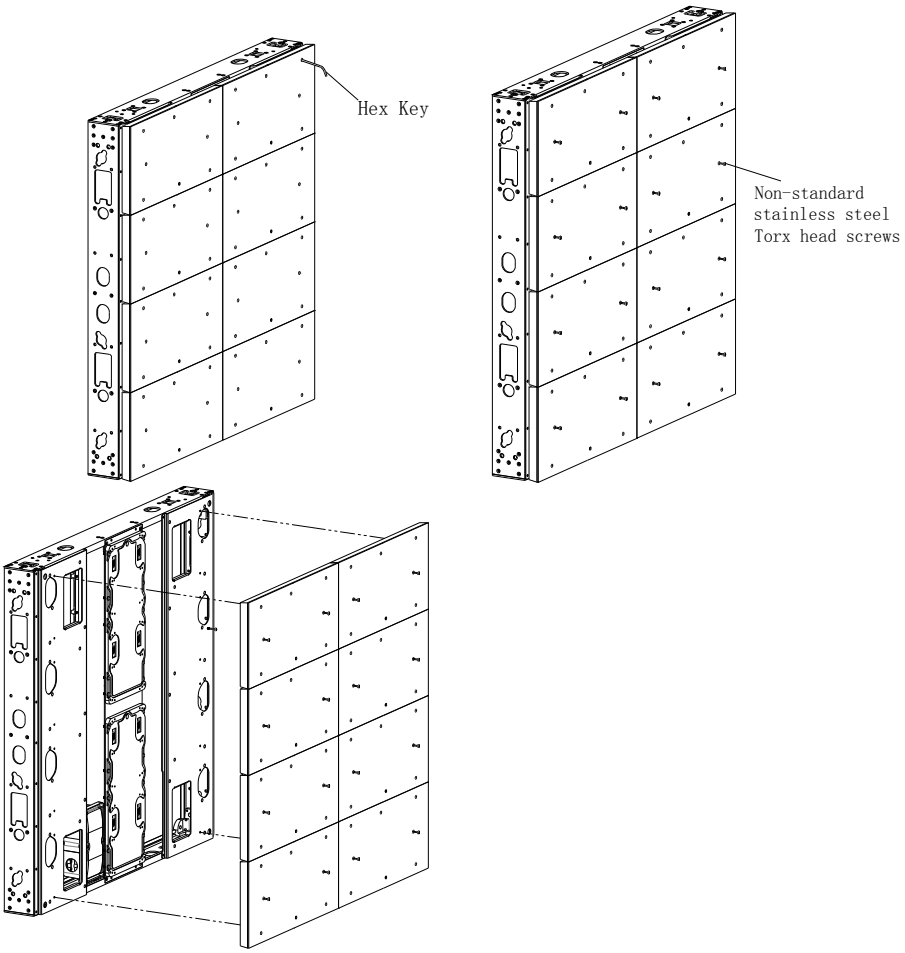
Parts Needed

- M2X20 Screws
- Main Board

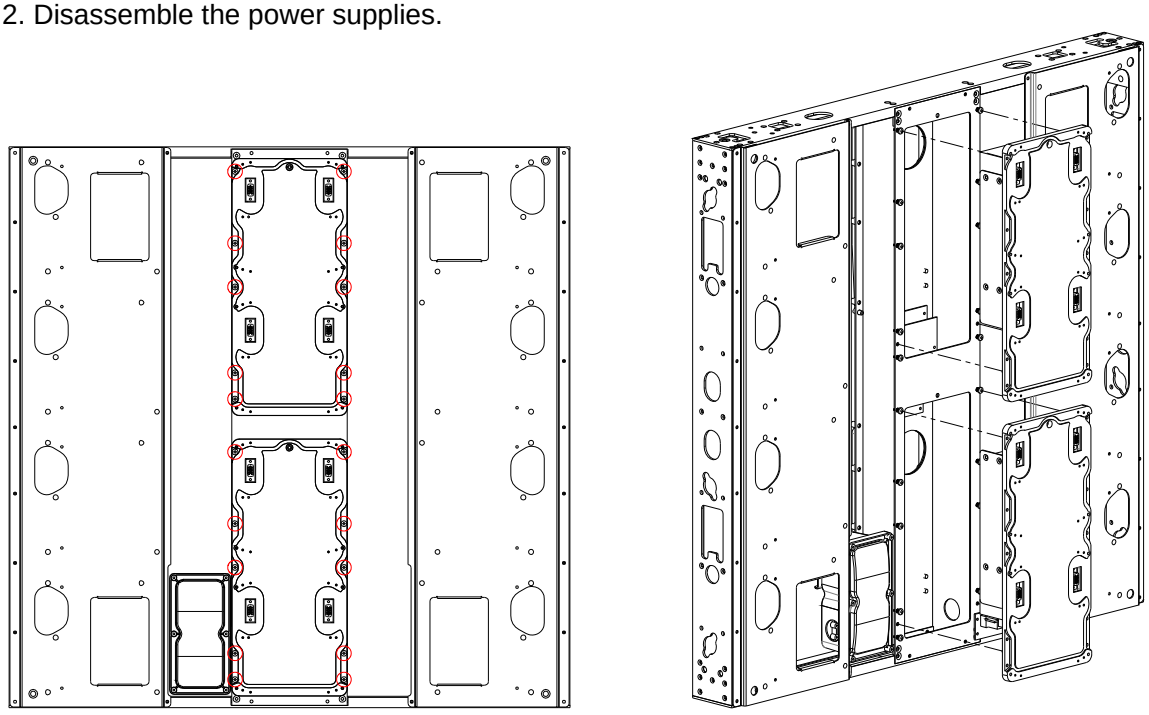
The position of the main board:



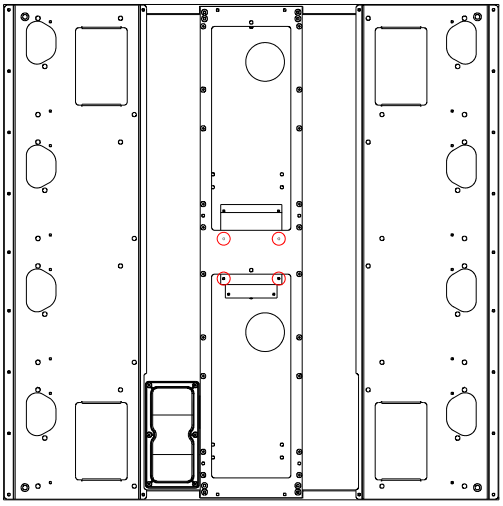
1. Disassemble the modules on the cabinet.

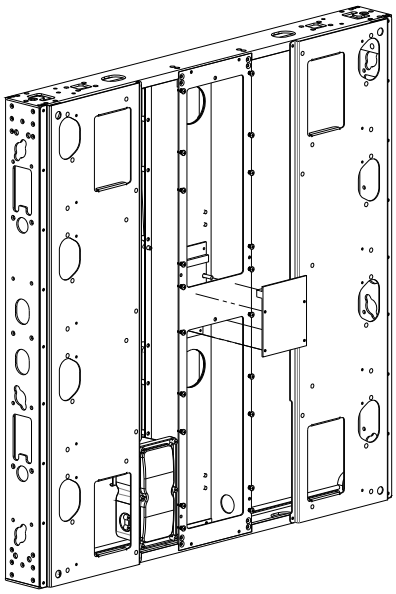


2. Disassemble the power supplies.



3. Unscrew 4pcs screws on the main board and take it out.





7.2. Maintenance of rear-access cabinets

7.2.1 Replace tile

Necessary tools

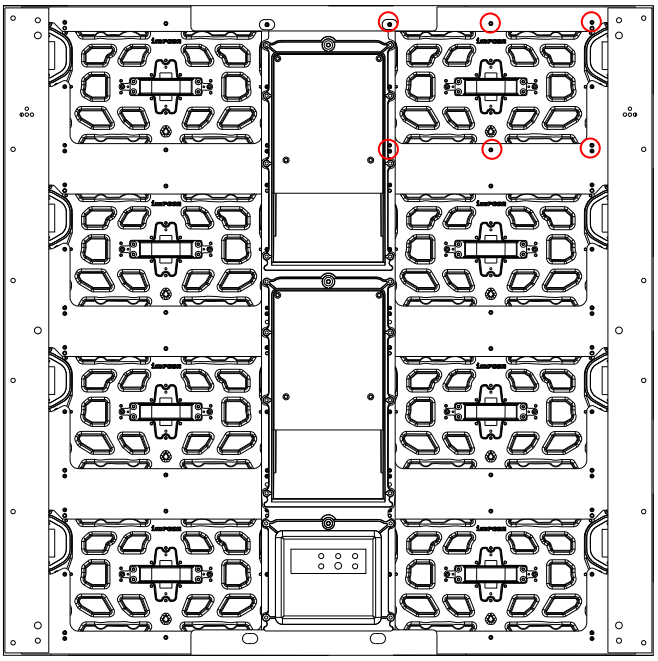
- Philips screw driver

Parts Needed

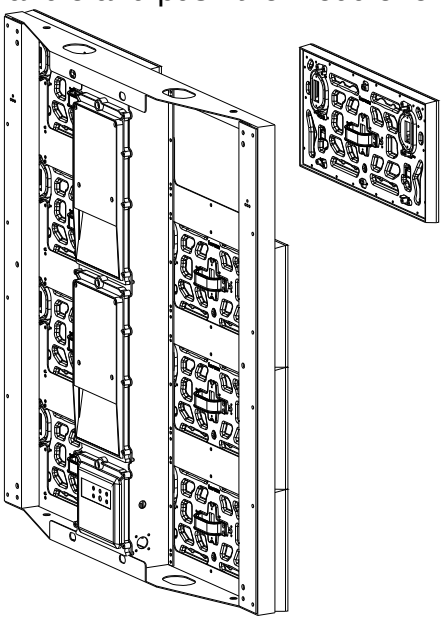
- E III module

Process to remove a tile：

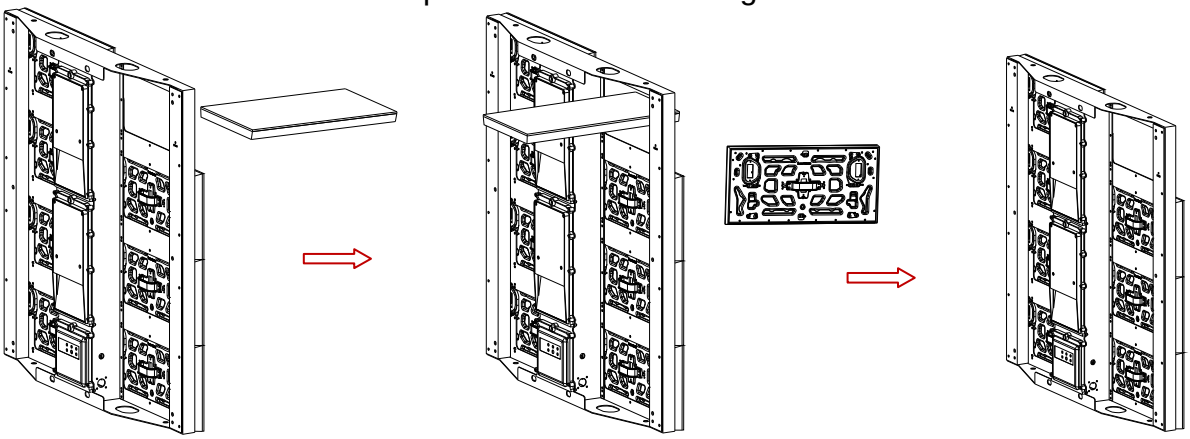
1. Remove six screws on the rear side of the module



2. Hold the handle and push the module forward gently.



3. Rotate the module as the position in the below figure and take out the module backward.



The process of installing a tile：

1. Aligning at the D-shaped interface, then fit the module on.
2. Fasten the six screws of the module.

7.2.2 Replacing a power supply of the display unit

Necessary tools

- Philips screw driver

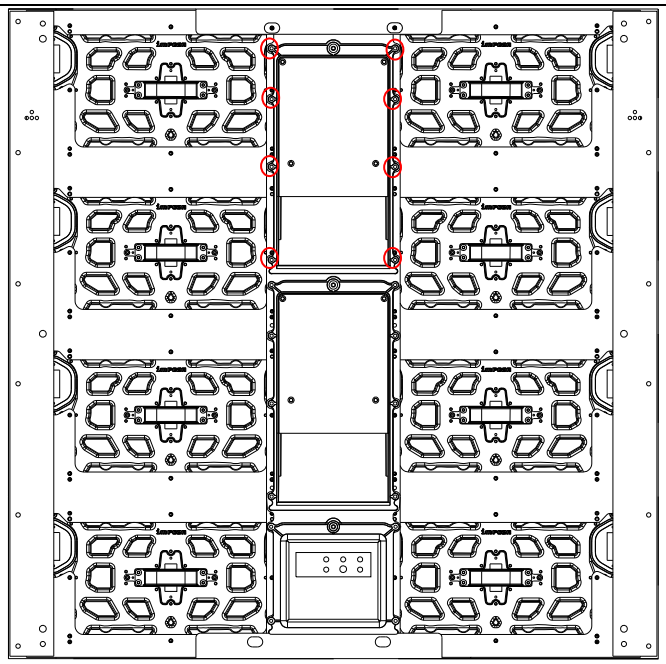
Part Needed

- Power Supply

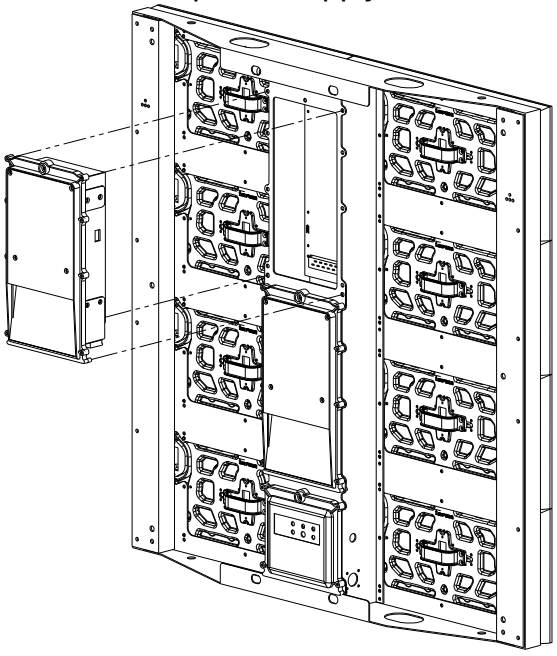
CAUTION： The replacement work must be done AFTER all power supplies to the LED display have been completely disconnected.

Process to remove a power supply：

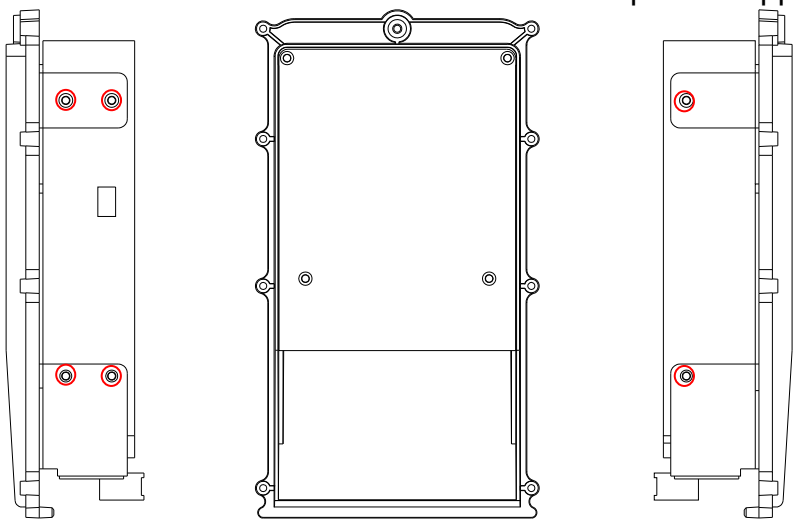
1. Remove the eight screws on the back of the power supply unit.



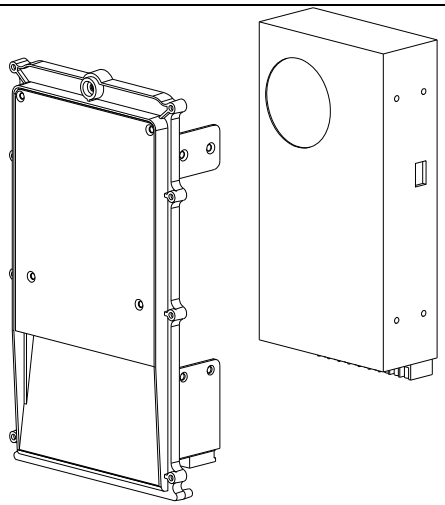
2. Move out the power supply unit



3. Remove the screws on the both sides of the power supply unit



4. Open the cover of PSU, and take out the power supply.



Process to install a power supply：

Install the power supply in a reverse order of removing it, with special attention to be paid to the proper connection of the cables to the power supply.

7.2.3. Replacing a display unit control board

Necessary tools

- Philips screw driver

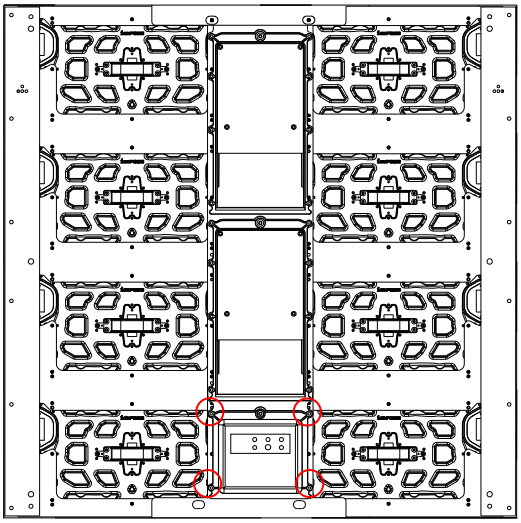
Parts Needed

- Main Board

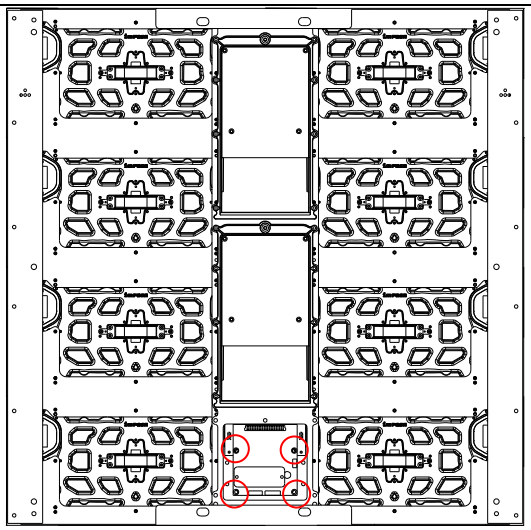
CAUITION：The replacement work must be done AFTER all power supplies to the LED display have been completely disconnected.

Process to remove a display unit control board：

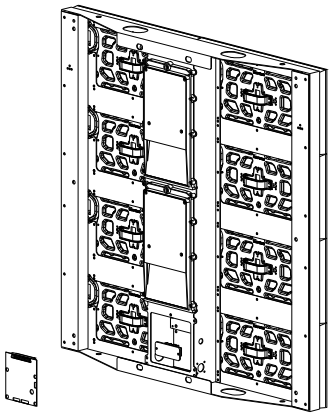
1. move the four screws on the control box



2. Open the control box cover, Remove the four screws on the main board



7. Take out the main board



The process to remove the display unit control board：

Remove the board in the reverse process order to the installation process. Screws on the power box door must be firmly and securely fastened.

8. Trouble shooting

This chapter introduces some possible trouble symptoms and their remedial treatment to the IMPOSA E III display.

TIPS: If a problem is seen on an LED display and its cause is hard to diagnose, please write down a description of the symptom as detailed as possible, take some pictures and report to the Manufacturer for help.

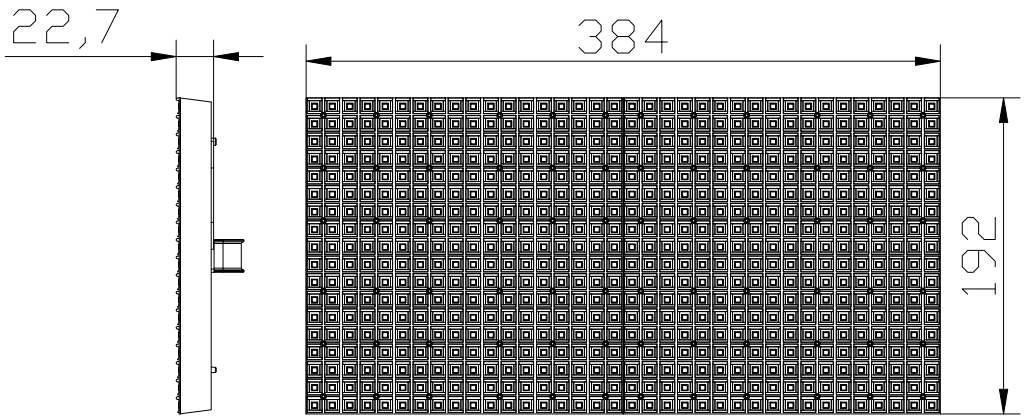
CAUTION: Before any operation on the PCB or any wire connection is carried out, all power supplies to the LED display must be completely disconnected. When doing wire connection, please make sure all wires have been connected properly and securely.

Symptom	Check items	Solutions
The whole screen is not displaying	There is no power into the screen	Power on
	DVI cable is not connected	Connect the DVI cable
	The signal cable between LDU2800 and IMPOSA E III cabinet is not connected	Connect the signal cable between them
	The control board indicator of IMPOSA E III cabinet flashes slowly	Check the connector of network cable or replace the network cable
	Computer screen protection system	Cancel the computer screen protection system and hibernation
	The displaying area is all black	Show display content
The whole screen keeps showing random contents	The LDU8000 program does not match	Upgrade the LDU8000 program
	The first IMPOSA E III cabinet control board failure	Replace the control board
	All the IMPOSA E III cabinet control board program is not correct	Upgrade the program
	The control board doesn't have brightness data	Close the pixel calibration mode
The cabinet is not	There is no power into the	Power on

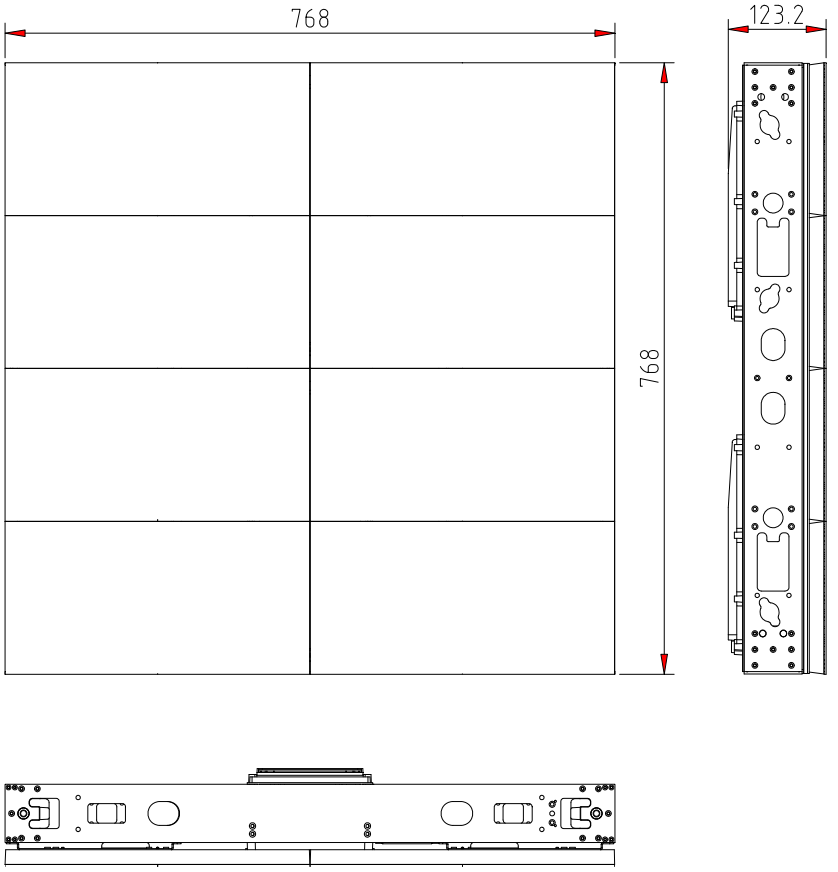
displaying	cabinet	
	The power cable is not connected well	Make sure the power cable is connected well
	The cabinet signal cable is not connected	Connect the cabinet signal cable
	The signal connector failure	Replace left power box
	No power output	Replace right power box
	the control card at the bottom of the control box failure	Replace
	Control box cable accessories failure	Replace
The cabinet keeps showing random contents	Control board program is not correct	Upgrade the program
	Control board failure	Replace the control board
The LED tile is not displaying or keeps showing random contents	Control board failure	Replace the control board
	LED tile failure	Replace
	The D-shape connector is not connected well	Make sure the D-shape connector is connected well
	The control board current gain is not correct	Re-write the current gain data or replace the control board with current gain data
One unit shows a different color	The control board does not have brightness data	Re-write the brightness data
	control board failure	Replace the control board
Some LEDs are dead	The LEDs are broken	Replace the LED tile

9. Dimension

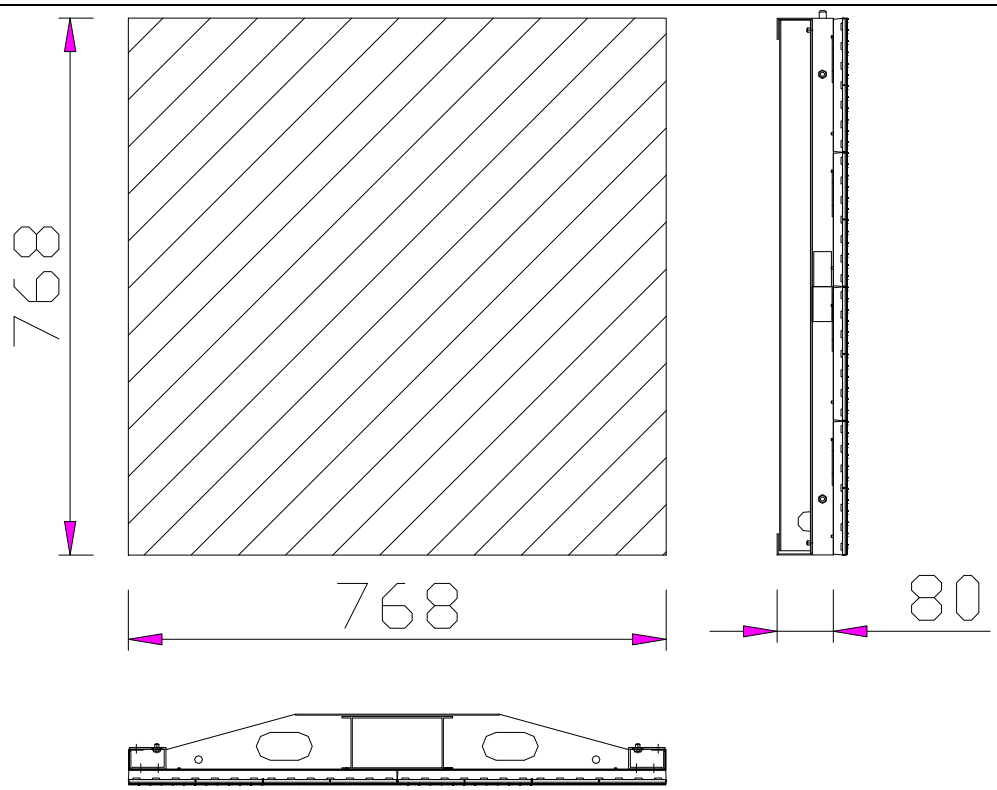
9.1 Tile dimension



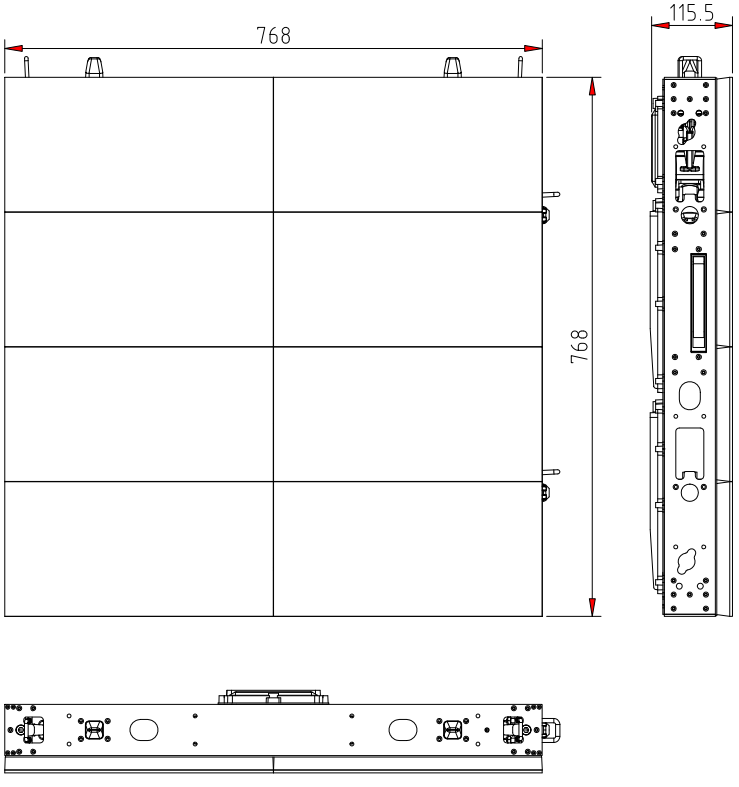
9.2 Cabinet dimension

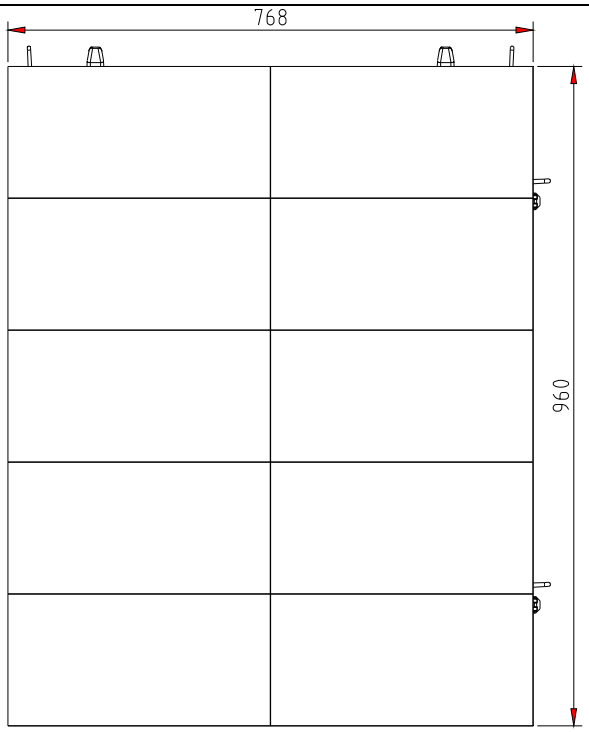


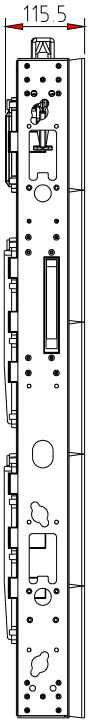
Installation of front-access cabinets

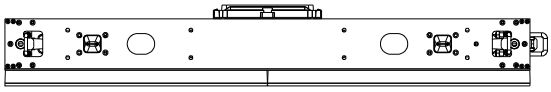


Installation of rear-access cabinets



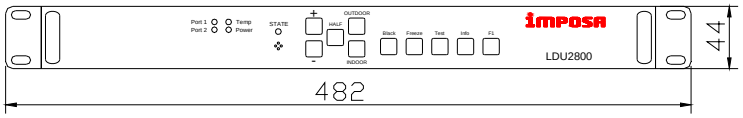


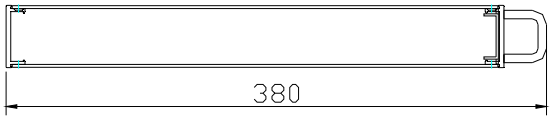


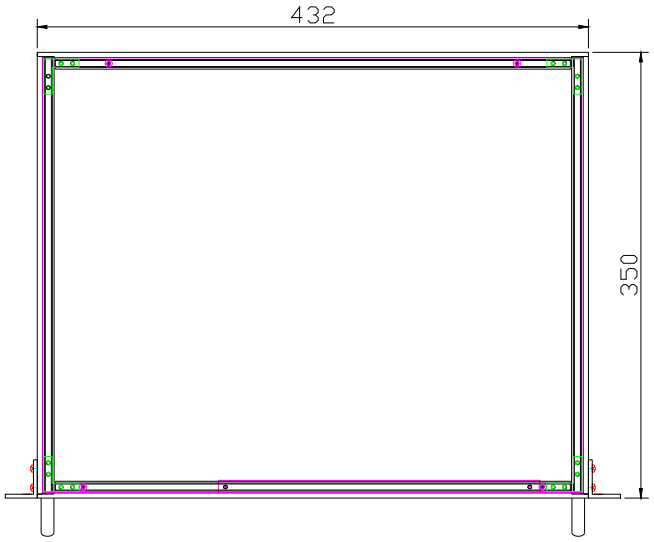


Installation of rental cabinets

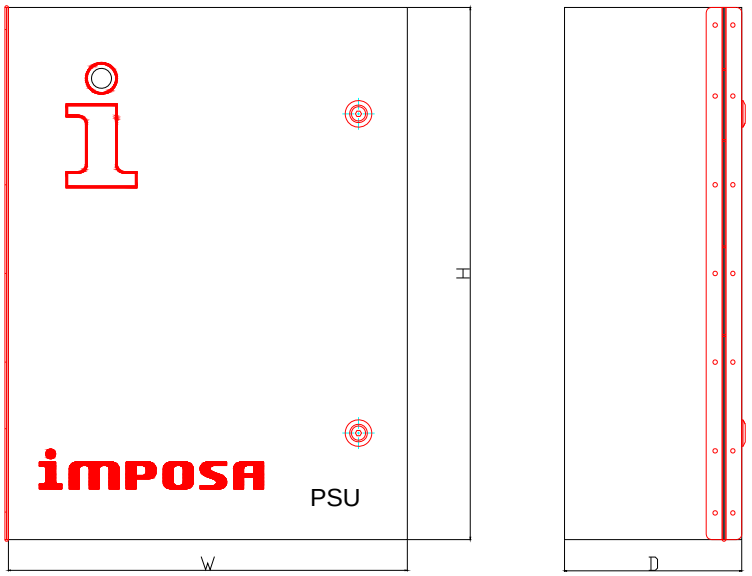
9.3 LDU2800 dimension







9.4 PSU dimension



PSU specifications

Model	Power consumption	Dimension(mm)
PSU10	10KW	450X350X120
PSU25	25KW	600X450X120
PSU40	40KW	600X450X120