Carbon
User Manual

Table of Contents

01 Safety Information:

WARNING !
Read the safety precautions in this section before installing, powering, operating or servicing this product.

The following sysmbols are used to identify important safety information on the product and in this manual:

WARNING!

Safety hazard. Risk of severe injury or death.

WARNING!

Refer to manual before installing, powering or servicing.

WARNING!

Hazardous voltage. Risk of lethal or severe electric shock.

WARNING!

Hot surface. Do not touch.

WARNING!

Fire hazard.

WARNING!

Emission hazardous to eyesight.

- This product is for professional use only. It is not for household use.
- This product presents risks of severe injury or death due to fire hazards, electric shock and falls.

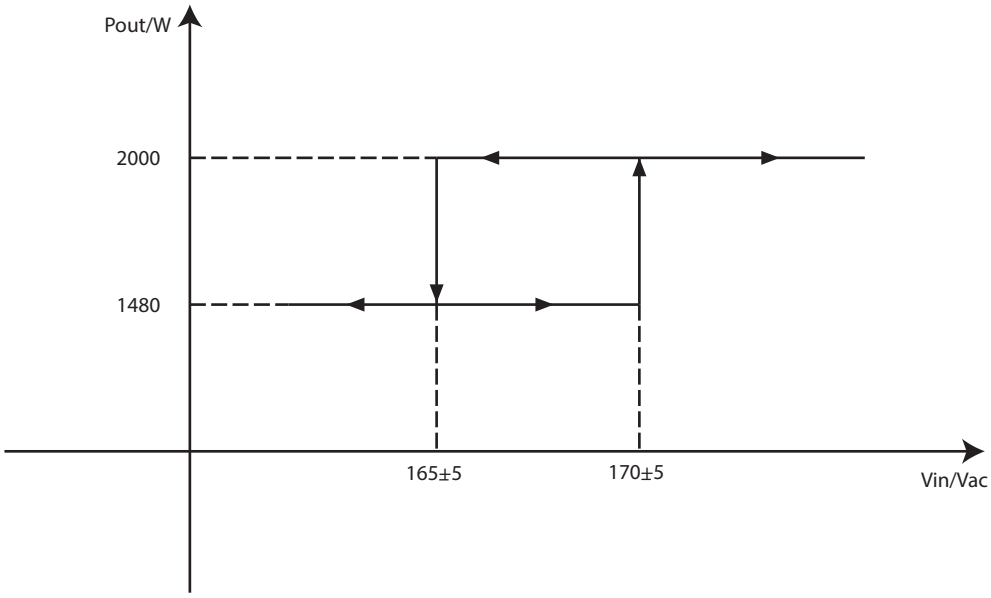
- Read this manual before installing, powering or servicing this product, follow the safety precautions listed below and observe all warnings in this manual and printed on the product.
- If you have questions about how to operate the tile safely, please contact your ROE supplier.

PROTECTION FROM ELECTRIC SHOCK

- Connect the product to AC mains power within the range 100-240V nominal at 50 or 60 Hz only.
- Disconnect the product from power when not in use.
- Always ground (earth) the product electrically.
- Before using the product, check that all power distribution equipment and cables are in perfect condition and rated for the current requirements of all connected devices.
- Do not use the product if the power cable or a power plug is in any way damaged, defective or showing signs of overheating.
- Do not attempt to open any cover.
- Refer any service operation not described in this manual to a qualified technician.

PROTECTION FROM FIRE

- Do not stick filters, masks or other materials directly onto LED modules.
- Do not modify the product in any way not described in this manual.
- Install only genuine ROE parts in or on the product unless an alternative is described in this manual.
- Do not operate the product full load if the ambient temperature of power units (Ta) exceeds 45°C (113° F) or less than -20°C(-4° F).



PROTECTION FROM INJURY

- Create an installation by installing tiles at the top and working downwards. Disassemble an installation by removing tiles at the bottom and working upwards.
- Check that all external covers and rigging hardware are securely fastened.
- Block access below the work area and work from a stable platform whenever installing, servicing or moving the product.

Important warnings

Maximum and minimum ambient temperature:

The maximum ambient temperature for the LED wall is 45 °C; the minimum temperature is (-20°C.)

High leakage current:

The combination of power boxes in an installation results in increased levels of Leakage current.
In order to avoid risk of electric shock due to high leakage current, proper grounding of the installation is required.

This equipment MUST be earthed:

In order to protect against risk of electric shock, the installation should be properly grounded. Defeating the purpose of the grounding type plug will expose you to the risk of electric shock.

Power system

Mains cords:

The power cords delivered with this system have special properties for safety. They are not user Serviceable. If the power cords are damaged, replace them only with new ones. Never try to repair a power cord.

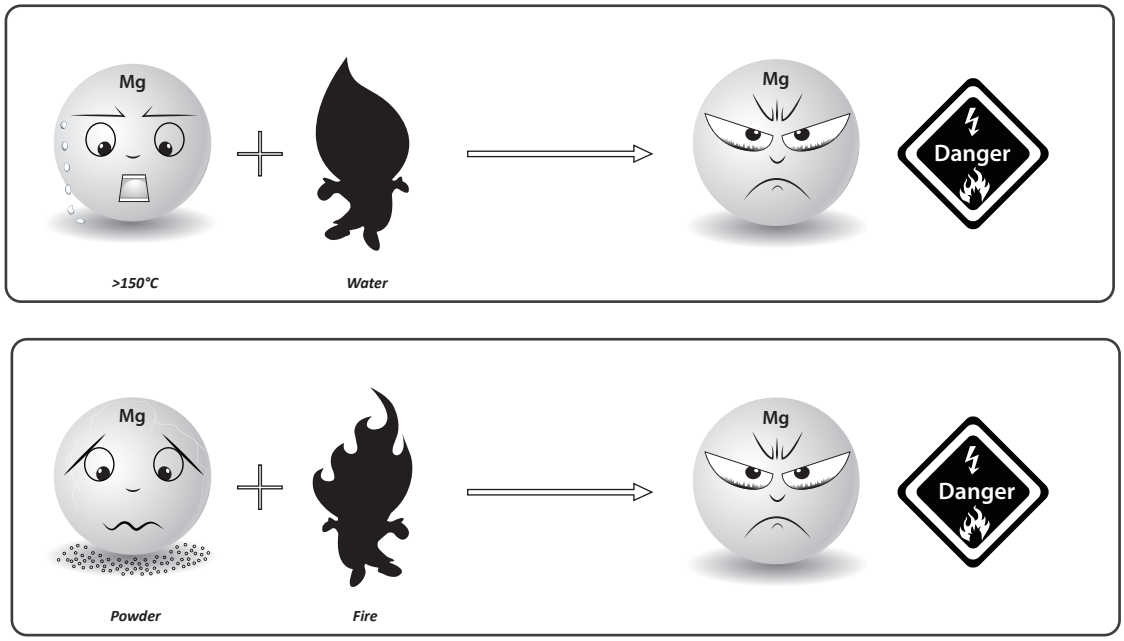
Data cables:

The data cables provided with this system have special properties for safety. They are not user serviceable. If the data cables are damaged, replace them only with new ones. Never try to repair a data cable. Per requirements of the National Electrical Code® in the USA, the length of a data cable must not exceed 100 m (332 feet). Avoid exposure of data cables to accidental contact with lightning or power conductors.

Carbon LED tiles cannot be hot swapped:

Always disconnect the power cord from the control box before connecting or disconnecting the cable string or one of Carbon tiles.

FRAME PROTECTION



Note: At normal temperature environment, Magnesium alloy is abosolutely stable and safe.
It's dangerous only in:
1. Temperature higher than 150°C with water;
2. Powder with fire.

02 Specification:

Carbon panels are our first line incorporating lightweight carbon fiber technology. More and more uses are being found for versatile, ultra-lightweight panels from the stage to the corporate event, and Carbon panels strike the perfect balance of stability and weight. All this whilst preserving the easy setup and maintenance of all ROE product to save on time and labor costs.

Carbon Specification:

Carbon	CB3	CB5	CB8
Pixel Pitch	3.75mm	5.77mm	8.33mm
Pixel / Tile	160×320	104×208	72×144
Pixel Density	71,111/sqm	30,044/sqm	14,400/sqm
LED Configuration	Black SMD 3-in-1	HB Black SMD 3-in-1 White SMD 3-in-1	White SMD 3-in-1
Viewing Angle(Hor/Vert)	140°/140°	140°/110°	140°/110°
Max. Brightness	1,500nits(NationStar 2121)	4,500nits(Multicolor 2727) 6,000nits(NationStar 1921)	5,000nits(NationStar 2727)
Transparency	Solid	Solid	Solid
Refresh Rate	1,920Hz	3,840Hz	2,880Hz
Gray Scale	16bit	16bit	16bit
Scan	1/16	1/4	1/6
Tile Dimension(W×H×D)	600mm×1,200mm×77mm 23.6"×47.2"×3.0"	600mm×1,200mm×77mm 23.6"×47.2"×3.0"	600mm×1,200mm×72mm 23.6"×47.2"×2.8"
Frame Material	Carbon Fiber + Magnesium Alloy	Carbon Fiber + Magnesium Alloy	Carbon Fiber + Magnesium Alloy
Curve(optional)	Concave Max. 15° Convex Max. 10°	Concave Max. 15° Convex Max. 10°	Concave Max. 15° Convex Max. 10°
Tile Weight/Tile	13.2kg	13.9kg	12.7kg
Max. Hanging*	12 tiles	12 tiles	12 tiles
Max. Stacking	4 tiles	4 tiles	4 tiles
IP Rating(Front/Rear)	IP43	IP65	IP65
Max Power/Tile	540W	650W 500W	320W
Lifetime	≥50,000h	≥50,000h	≥50,000h
Processor	Brompton	Brompton	Brompton
Operating Temp/Humidity	-20°C to 45°C, 10~90%RH	-20°C to 45°C, 10~90%RH	-20°C to 45°C, 10~90%RH
Storage Temp/Humidity	-40°C to 60°C, 10~90%RH	-40°C to 60°C, 10~90%RH	-40°C to 60°C, 10~90%RH
Certifications	CE ETL		

*Notes: The single hanging bar is able to support up to 12 tiles when the safety factor is 5.

Carbon-5 Dimensions:

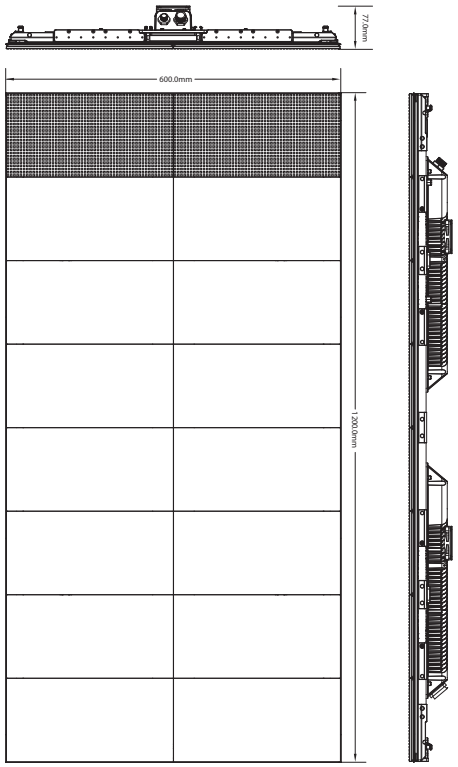
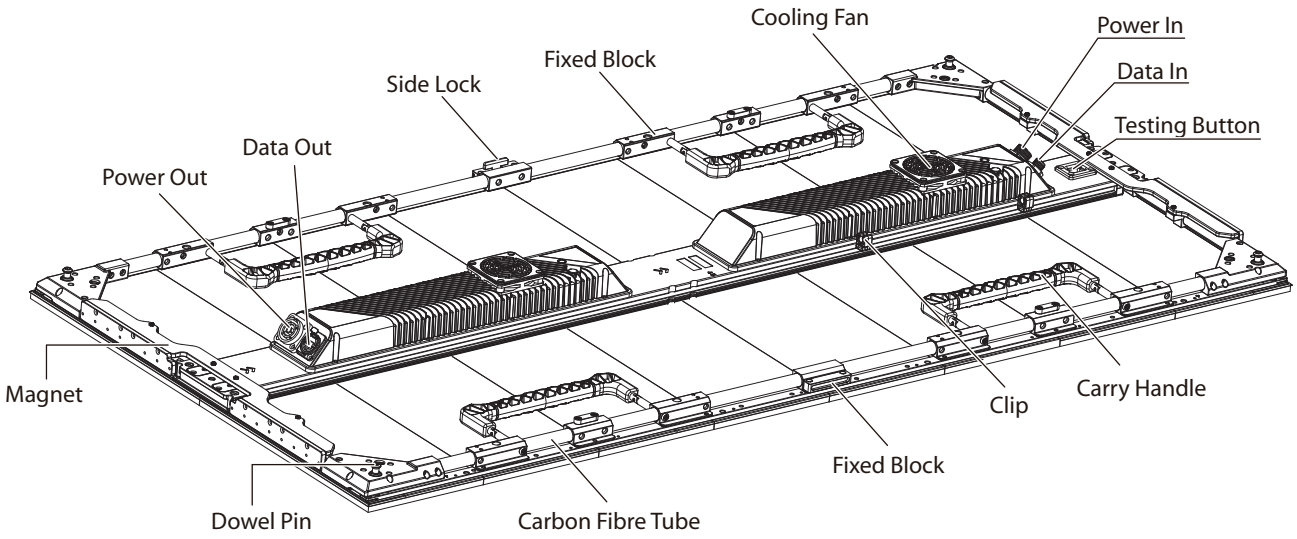
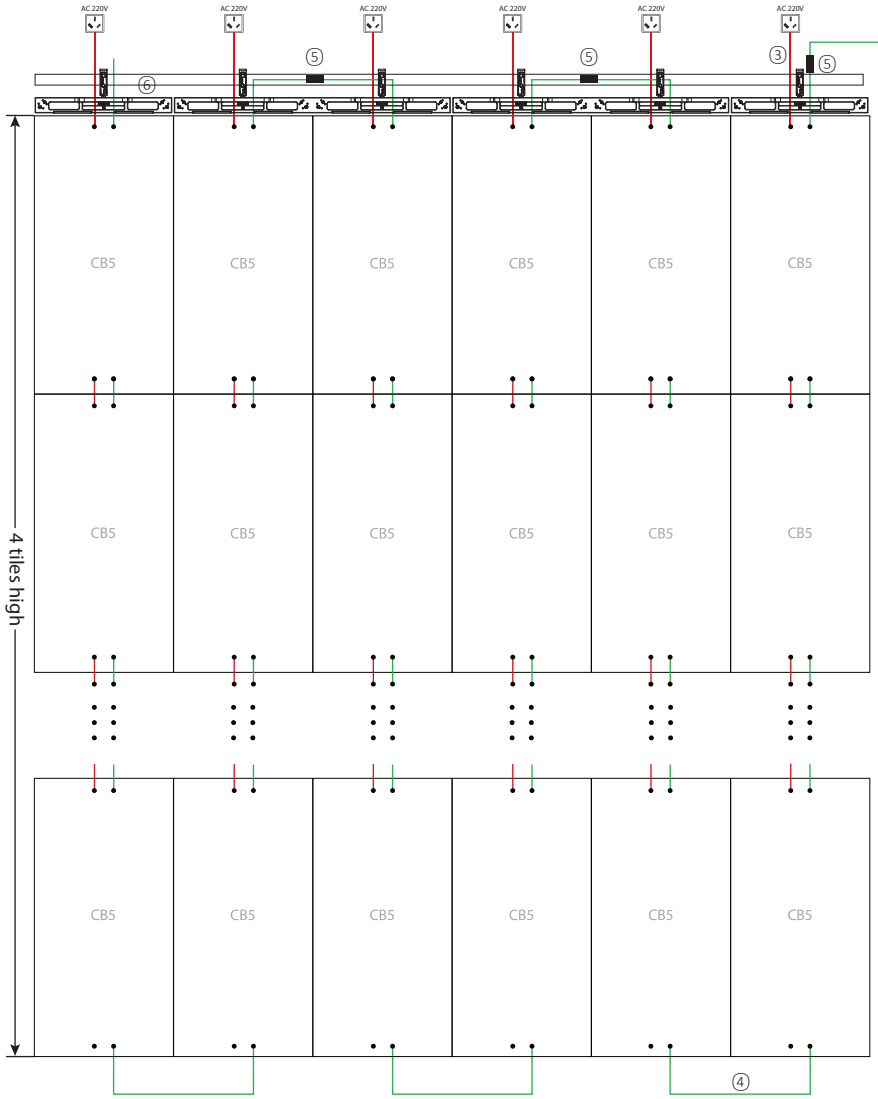


Diagram:



03 Connection

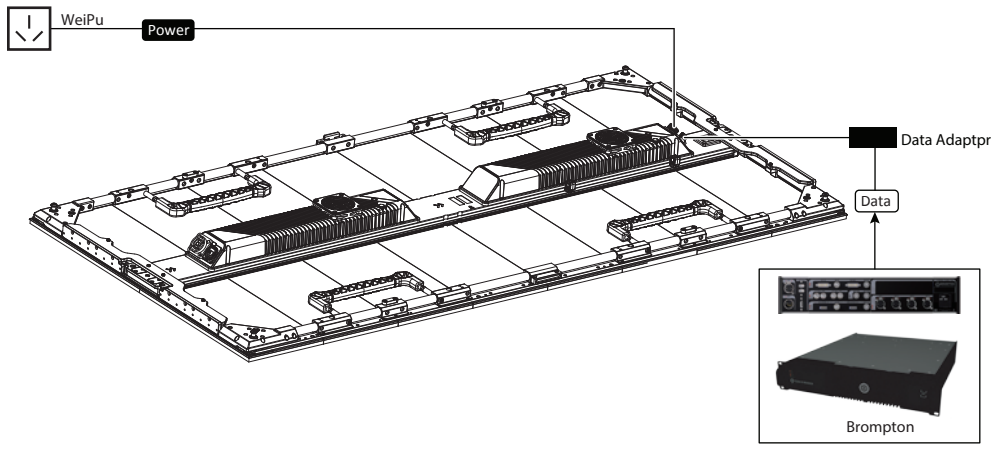
Hanging System



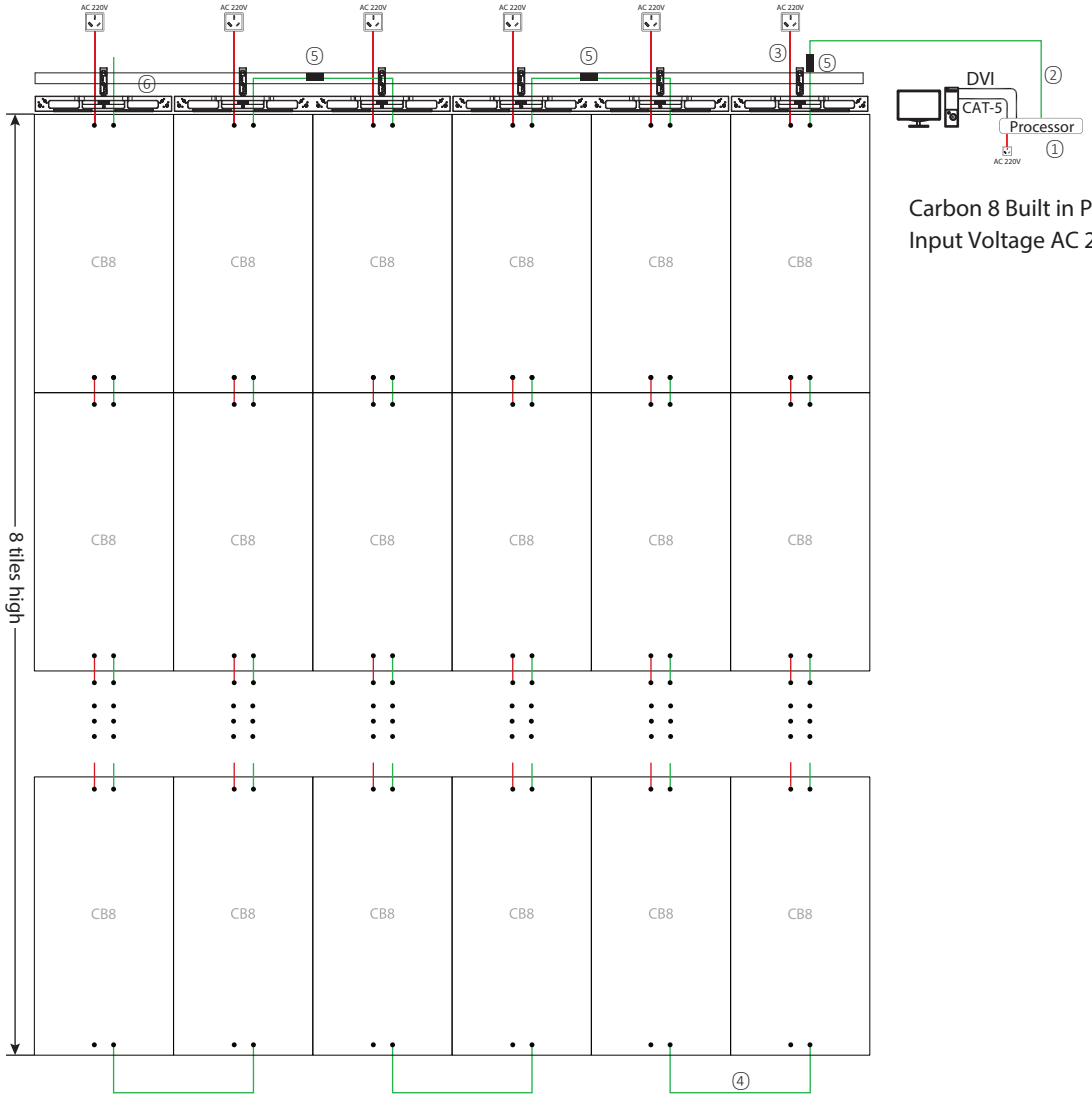
Carbon 5 Built in Power Supply
Input Voltage AC 220V

Notes: 1. Neither Hanging Bar nor Vertical Connector can load more than 20 tiles of Carbon 5.
2. When the Input Voltage is 220V, one Power Cable can load 4 tiles of Carbon 5; and the Input Voltage is 110V, one Power Cable can load 2 tiles of Carbon 5.

Power and Data connections of Carbon tiles



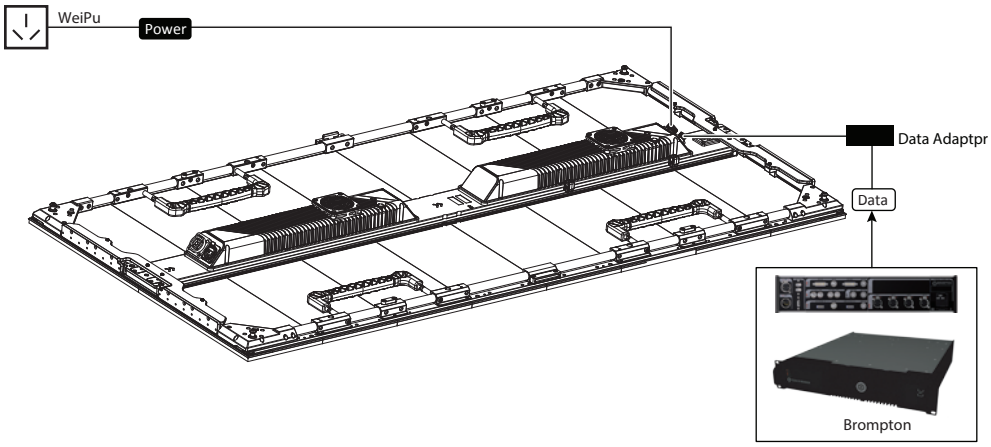
Hanging System



Carbon 8 Built in Power Supply
Input Voltage AC 220V

Notes: 1. Neither Hanging Bar nor Vertical Connector can load more than 20 tiles of Carbon 8.
2. When the Input Voltage is 220V, one Power Cable can load 8 tiles of Carbon 8; and the Input Voltage is 110V, one Power Cable can load 4 tiles of Carbon 8.

Power and Data connections of Carbon tiles



04 Accessories

①

Name : Brompton
SAP No. : 311003-00010
Dimension : W508×H432×D89mm
Weight : 12.0kg

②

Name : Data Cable
SAP No. : 208004S0242
Dimension : 30m
Weight : 1.4kg

③

Name : Power Cable
SAP No. : 208001S0754/0611
Dimension : 10/30m
Weight : 1.8kg/4.6kg
Max Capacity : 16A

④

Name : Data Cable
SAP No. : 208002S0262
Dimension : 0.93m
Weight : 0.2kg

⑤

Name : Data Adaptor
SAP No. : 203000S0015
Dimension : W56×H32×D26mm
Weight : 0.1kg

■

Name : Hanging Connection Plate
SAP No. : 206002S0638
Dimension : W110×H38×D25mm
Weight : 232g
Material : ADC12/SUS304

■

Name : Hanging Connection Plate
SAP No. : 206002S0384
Dimension : W142×H82×D25mm
Weight : 232g
Material : ADC12/SUS304

■

Name : Connection Plate
SAP No. : 304012001080
Dimension : W142×H45×D25mm
Weight : 125g
Material : SUS304

■

Name : Connection Plate
SAP No. : 30401201079
Dimension : W142×H90×D25mm
Weight : 240g
Material : SUS304

■

Name : Hanging Curve Connection Plate
SAP No. : 206002S0468
Dimension : W142×H118×D85mm
Weight : 390g
Material : ADC12/SUS304

■

Name : Curve Connection Plate
SAP No. : 30401201044
Dimension : W152×H72×D85mm
Weight : 288g
Material : SUS304

⑥

Name : Curve Connection Plate
SAP No. : 30401201043
Dimension : W142×H109×D85mm
Weight : 376g
Material : SUS304

⑥

Name : Hanging Bar
SAP No. : 207002S0096
Dimension : W589×H188×D157mm
Weight : 3kg

⑥

Name : Hanging Bar
SAP No. : 207002S0097
Dimension : W1189×H188×D157mm
Weight : 6.1kg

■

Name : Flightcase
SAP No. : 30900300330
Dimension : W1300×H840×D800mm
Weight : 80kg
Max.Capacity : 7 tiles of CB

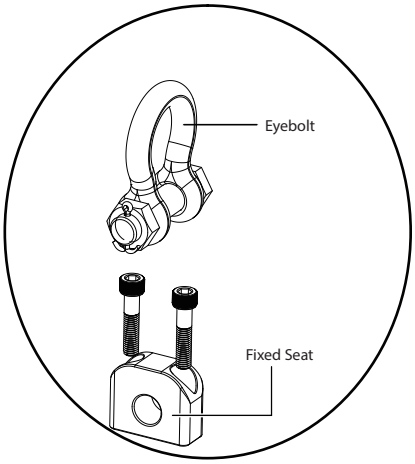
■

Name : Dolly
SAP No. : 206002C0277
Dimension : W1310×H1605×D790mm
Weight : 102kg
Max.Capacity : 12 tiles of CB

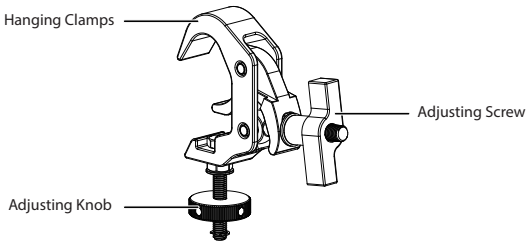
05 Installation:

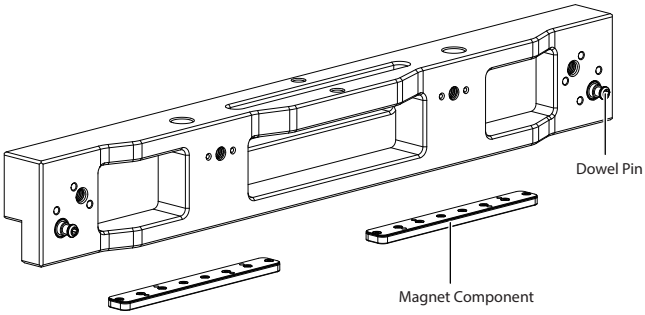
Hanging System

Hanging Bar Diagram:

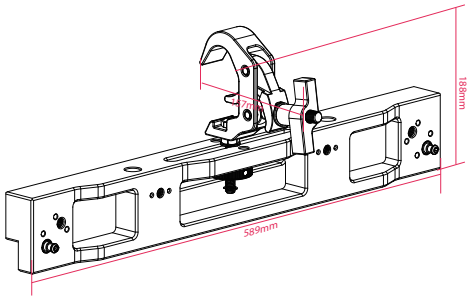


Optional

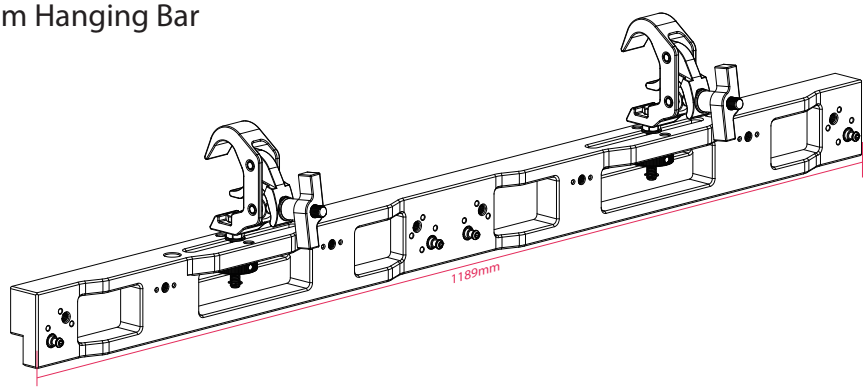




0.6m Hanging Bar Dimensions:



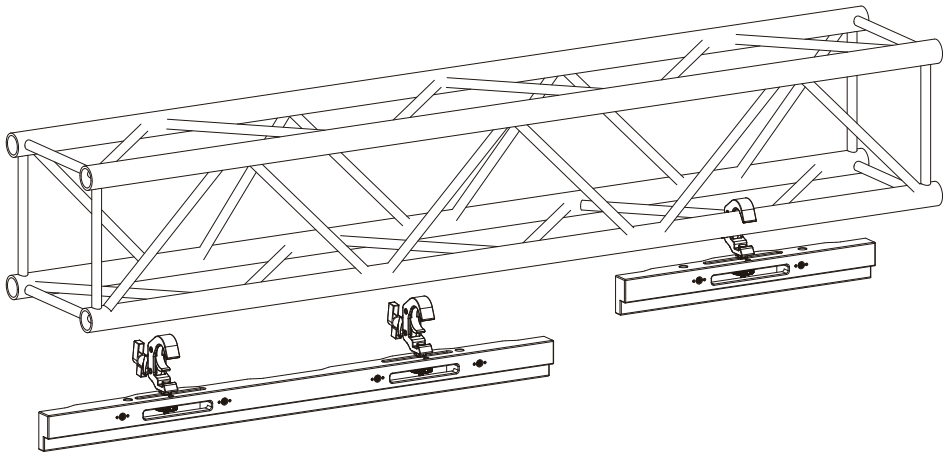
1.2m Hanging Bar



Flat Installation

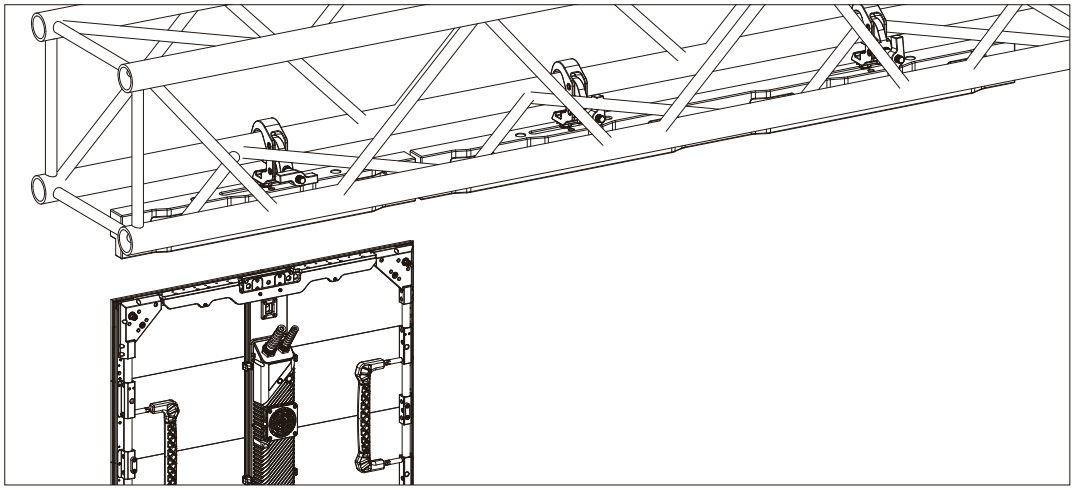
1. Fix the Hanging Bar on the Truss

Just turn the Adjusting Screw, to make the Clamps close, the Hanging Bar will be fixed on the Truss safely.



2. Connect Carbon tiles with the Hanging Bar

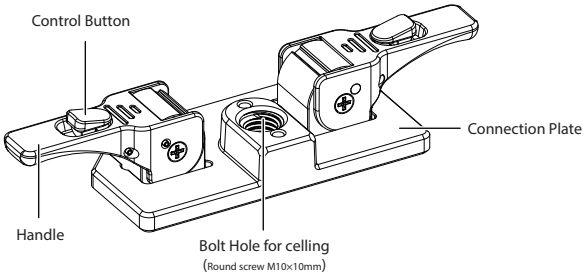
Tiles will be attached to the Hanging Bar by Magnets automatically.

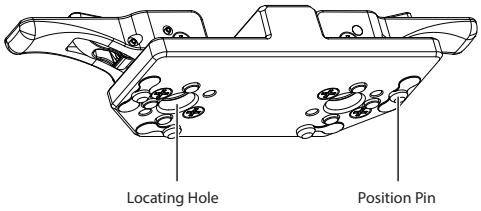


Notes: (For Safety) Please do this by two persons.

3. Fix Carbon tiles on Hanging Bar by Connection Plate

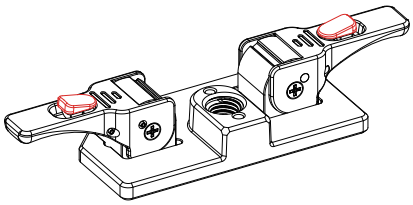
connection plate diagram:





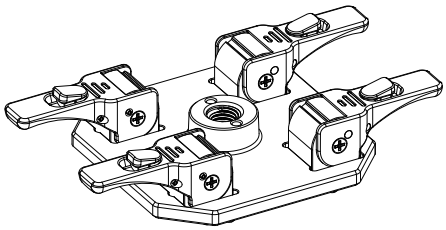
Two kinds of Connection plate.

two handles:



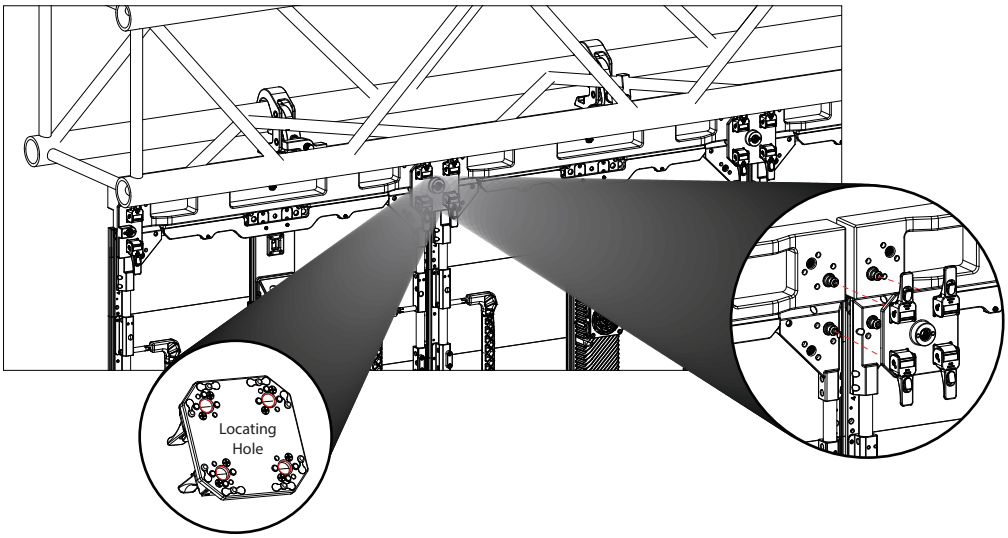
❶

four handles:

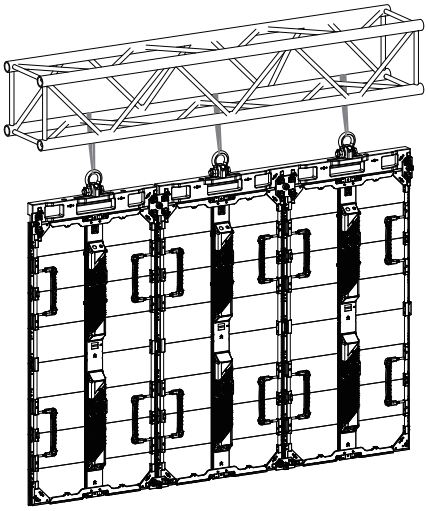


❷

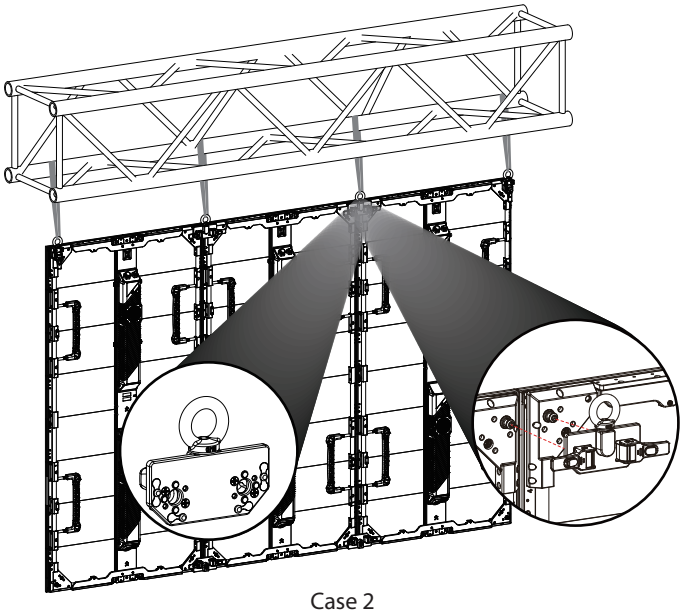
Press the red button to loosen the handle, align the locating hole and dowel pin, push handle back for locking.



3. Use Connection Plate with eyebolt for hanging also.

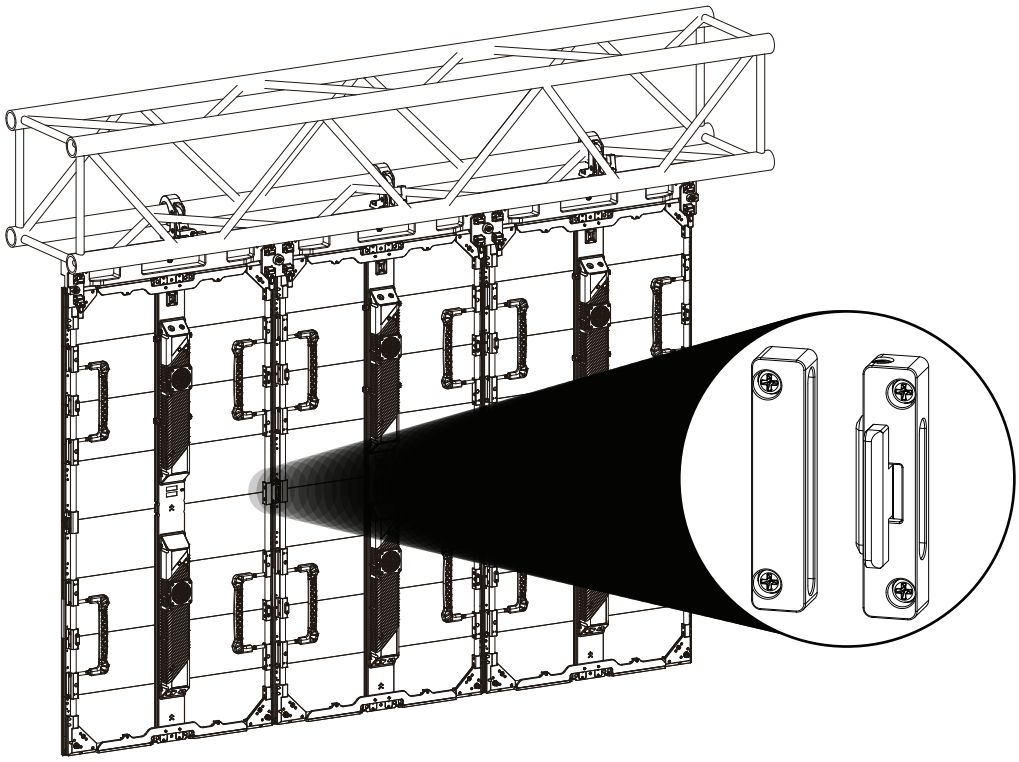


Case 1



Case 2

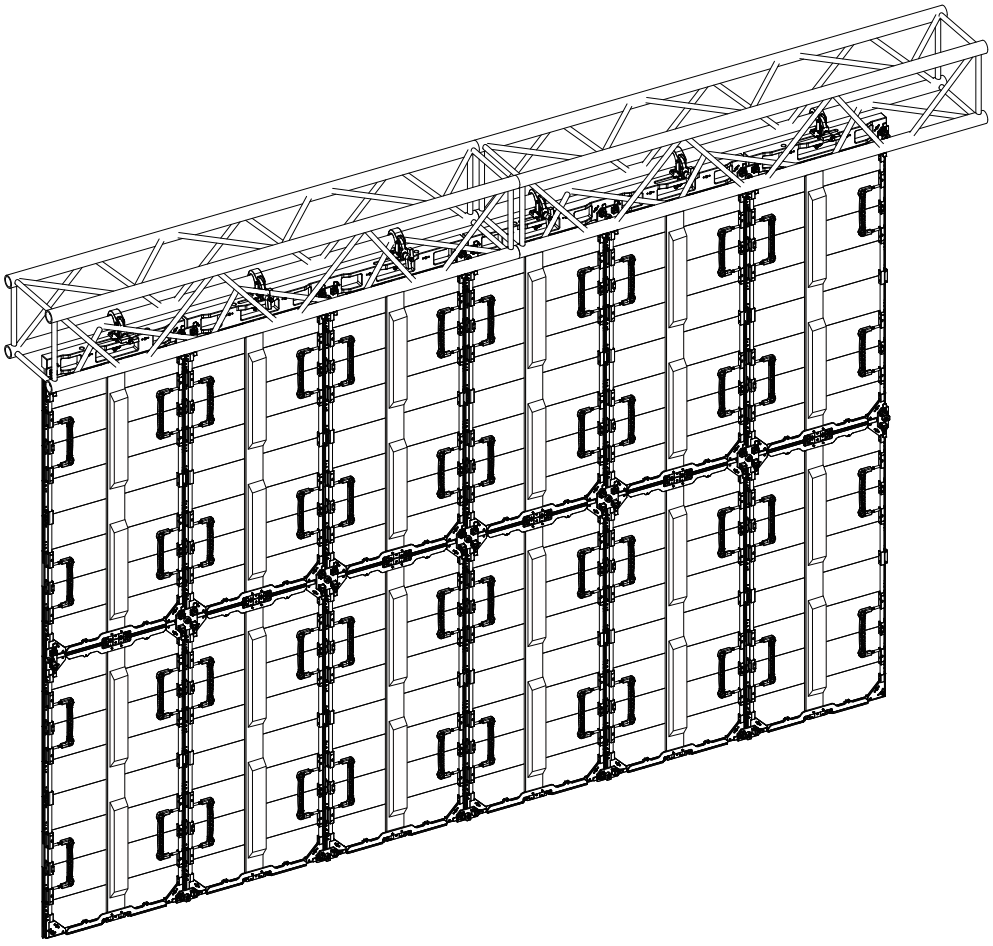
4. Interconnect Side Lock



5. Flat Installation Components

Major components of flat installation assembly are:

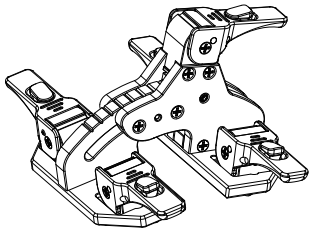
0.6m Hanging Bar × 2　　1.2m Hanging Bar × 2　　Connection Plate × 19　　CB tiles × 12



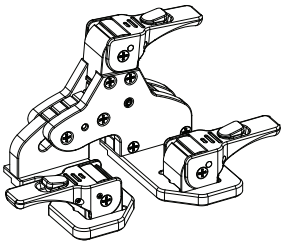
Curve Installation

The connecting angle of curve connection plates can be adjustable with any size (Max.concave 15°, Max.convex 10°).

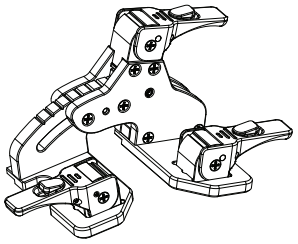
1 concave 15°
(four handles)



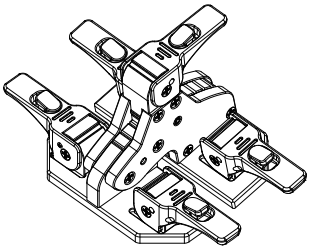
3 flat
(two handles)



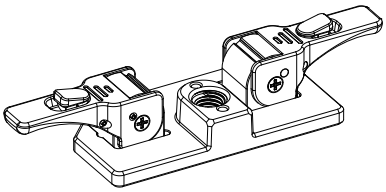
5 concave 15°
(two handles)



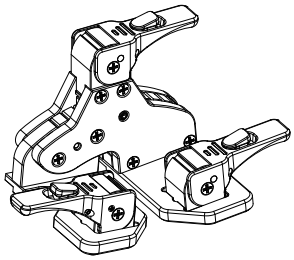
2 convex 10°
(four handles)



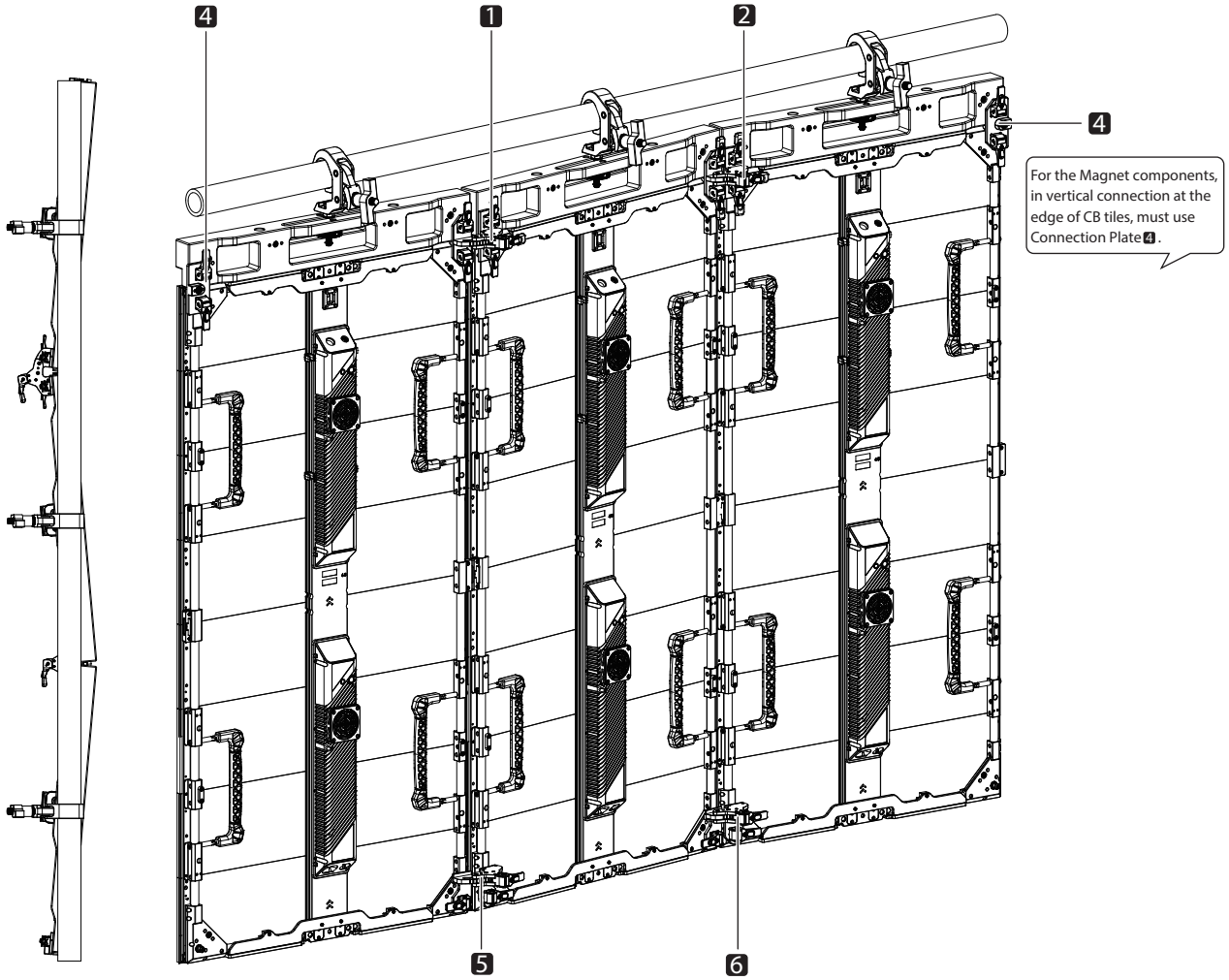
4 flat
(two handles)



6 convex 10°
(two handles)

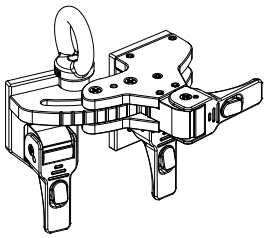


Hanging bar and Connection Plate indicate

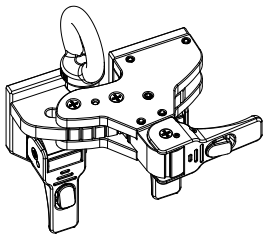


Hanging Connection Plate

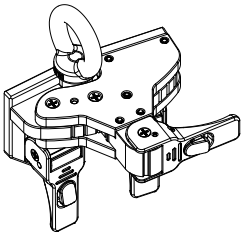
7 concave 15°

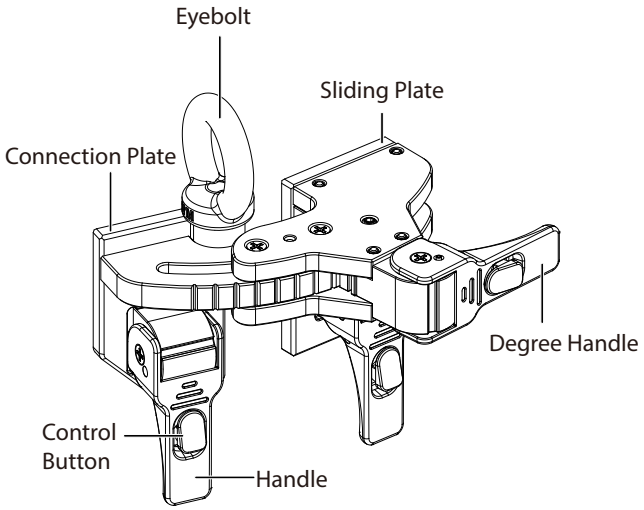


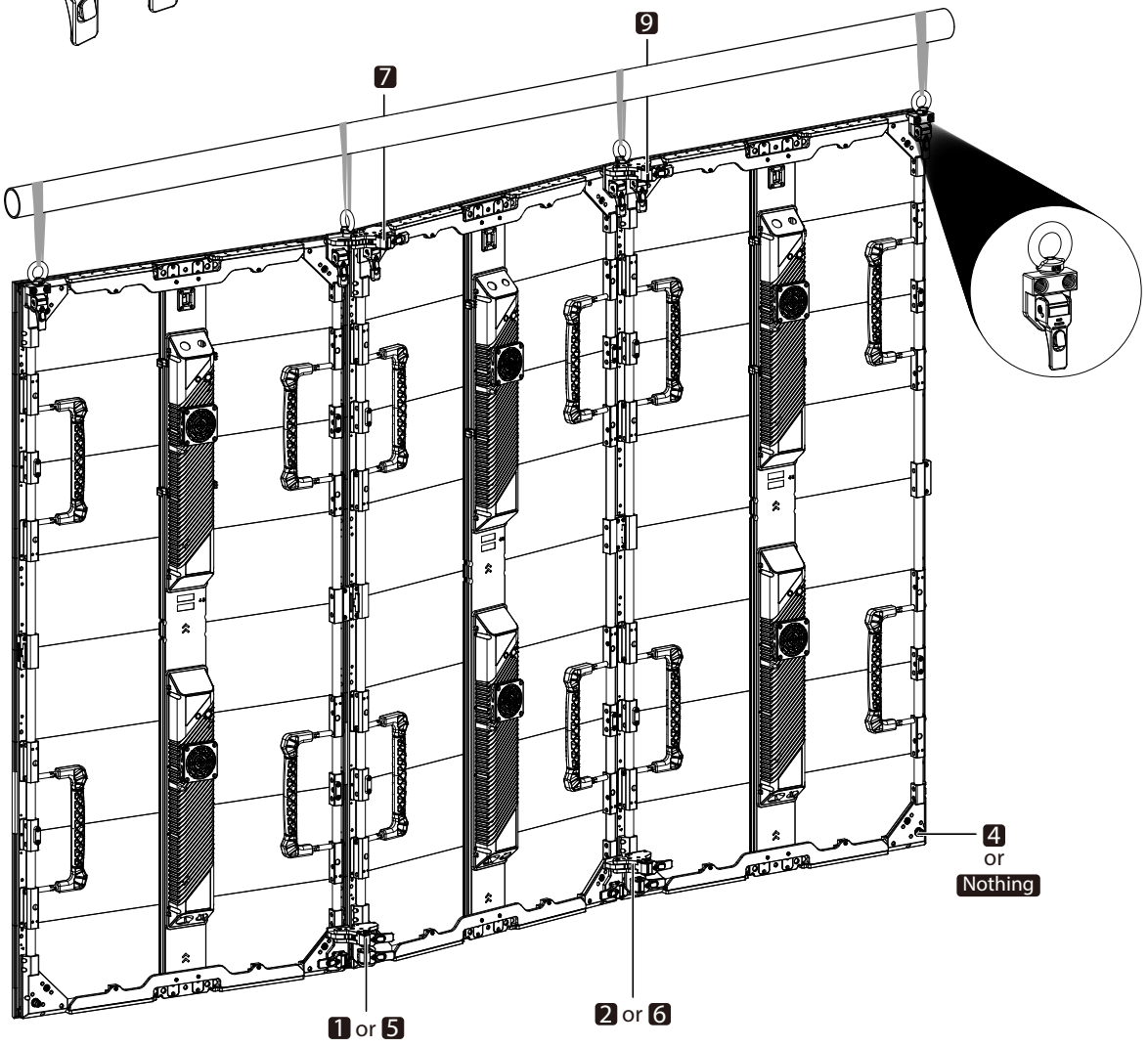
8 flat



9 convex 10°





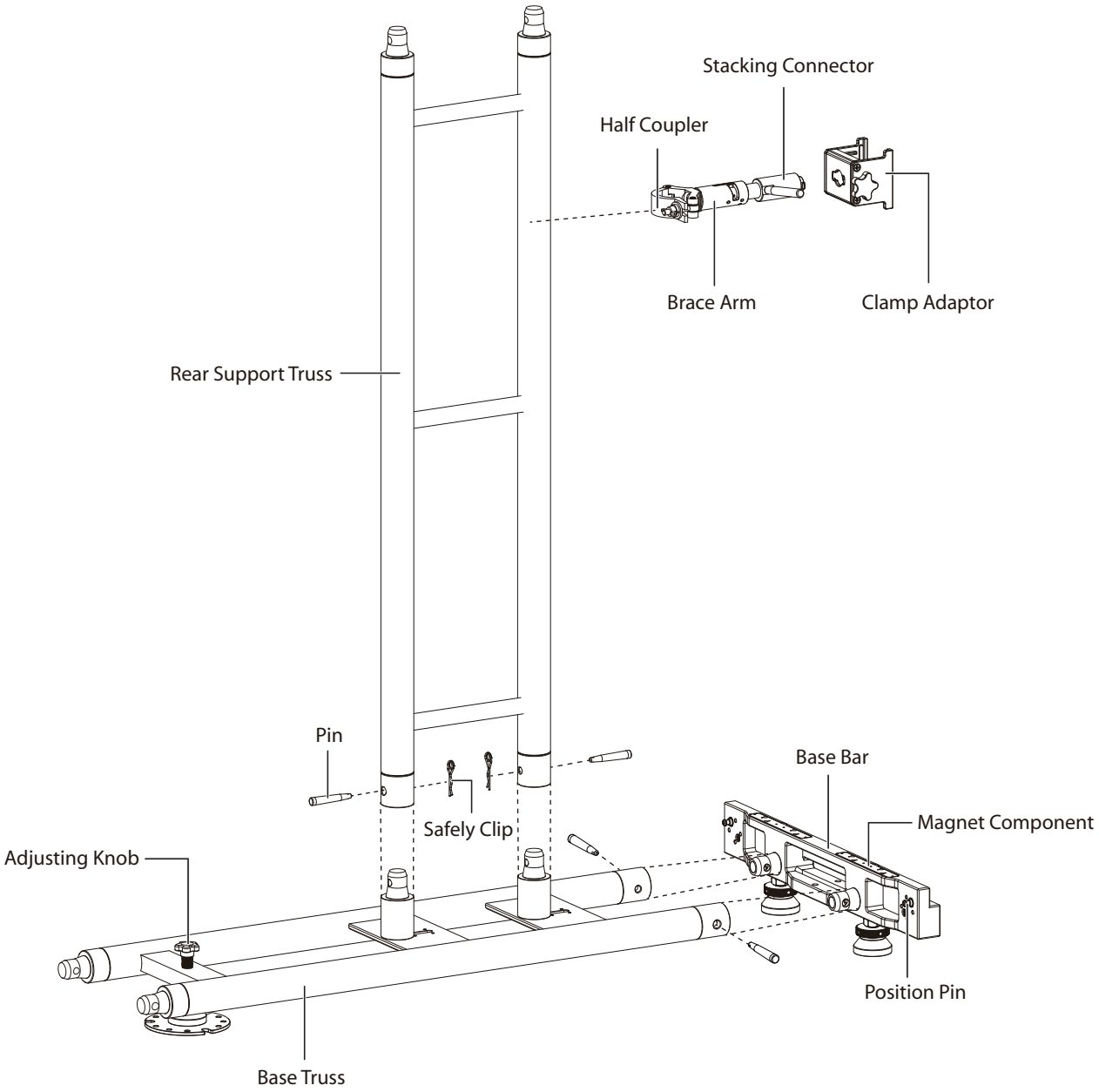


Stacking System

Stacking System Support Components

Major components of the Stacking System support assembly are:

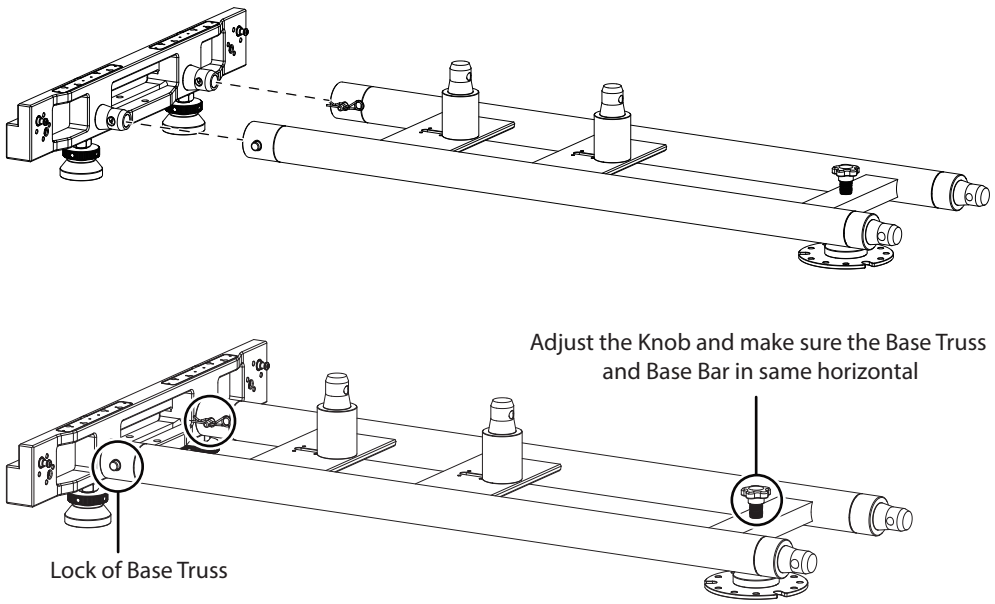
1. Base Bar
2. Base Truss
3. Rear Support Truss
4. Rear Bridge(Half Coupler, Brace Arm, Stacking Connector, Clamp Adaptor)



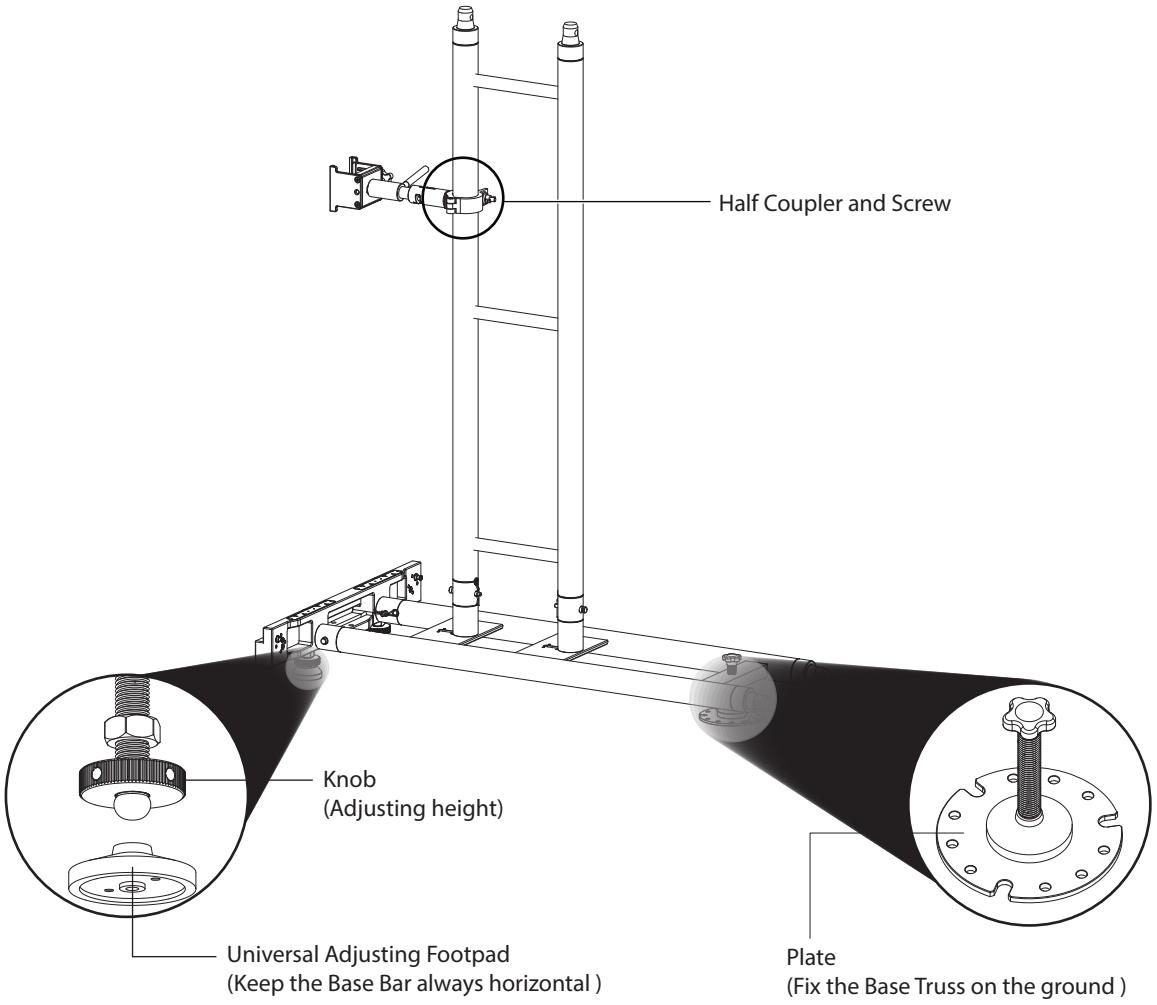
Stacking system assembly exploded diagram.

Stacking Installation

1. Base Bar connection with Base Truss
   Connect the Base Bar and Base Truss by Pin and Safely Clip.

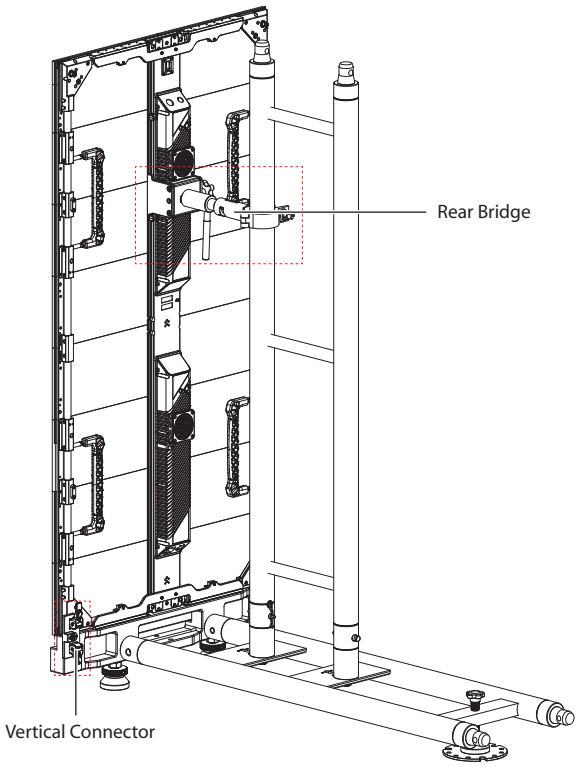


2. Rear Support Truss and Rear Bridge installation



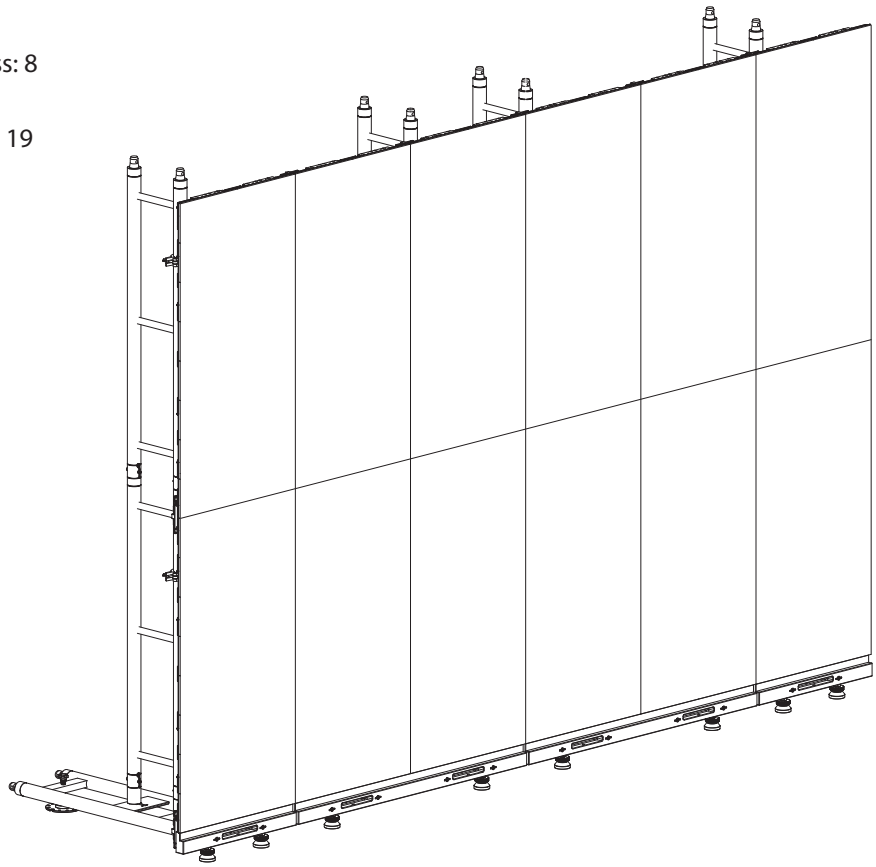
3. Tiles Installation

Connect the tiles and Base Bar by Vertical Connector, and Rear Support Truss by Rear bridge.



4. Stacking Installation

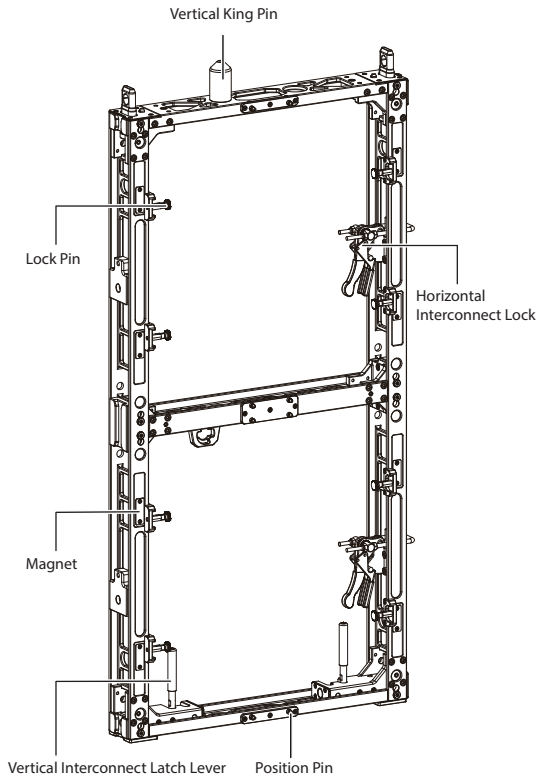
Tile(2×6)Accessories Count:
Base Bar: 2×0.6m, 1×1.2m
Base Truss: 4
Rear Support Truss: 8
Rear Bridge: 8
Connection Plate: 19



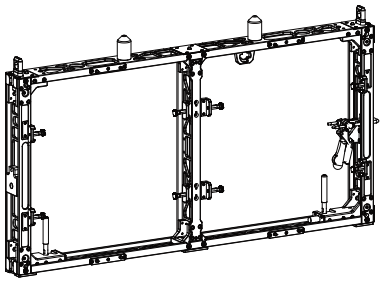
Mounting System

Diagram: Touring Frame - T4

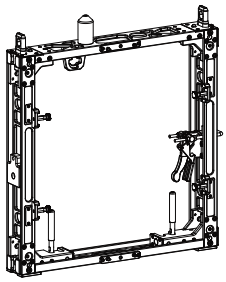
■T4V



■T4H



■T4M



■T4S

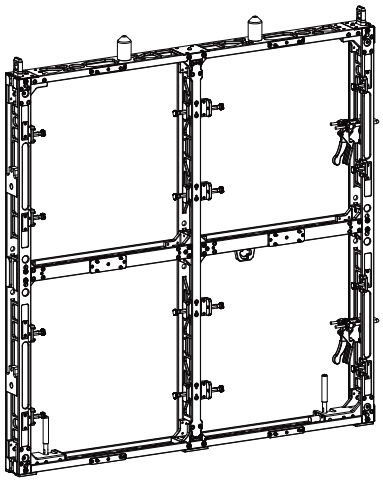
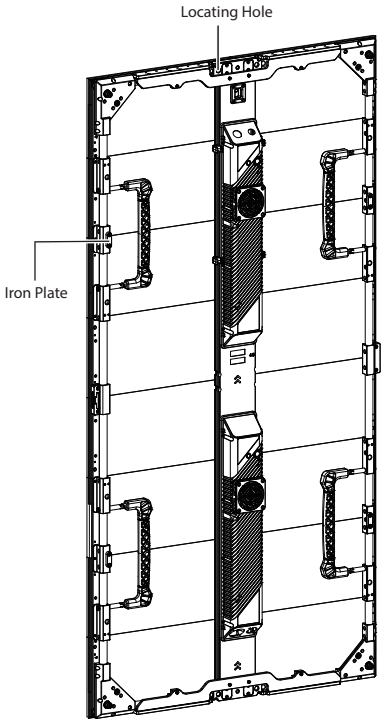
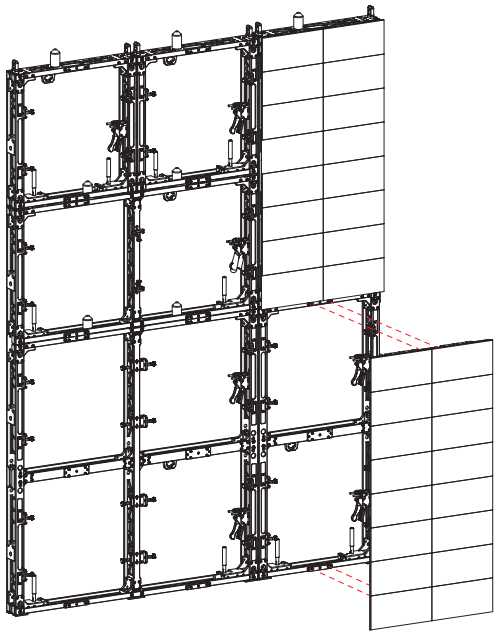


Diagram: CB tiles



Connect CB tiles with T4 Touring Frame

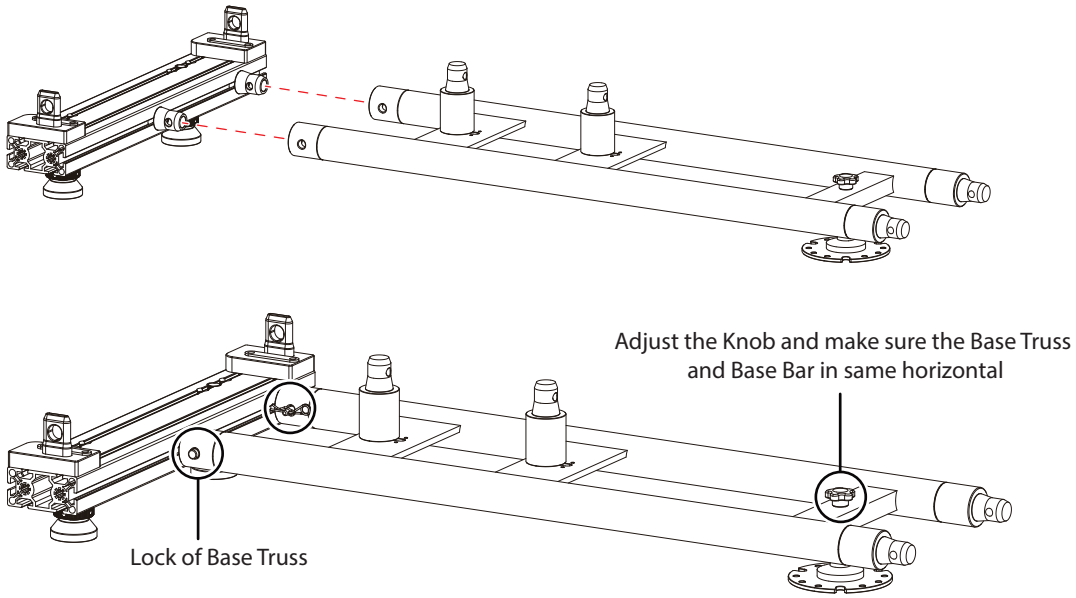
① Keep the lock pin of T4 Open.
② Alignment the position pin of T4 and locating hole of CB, it will be attached to T4 by Magnets automatically.
③ Then loosen the lock pin for locking.



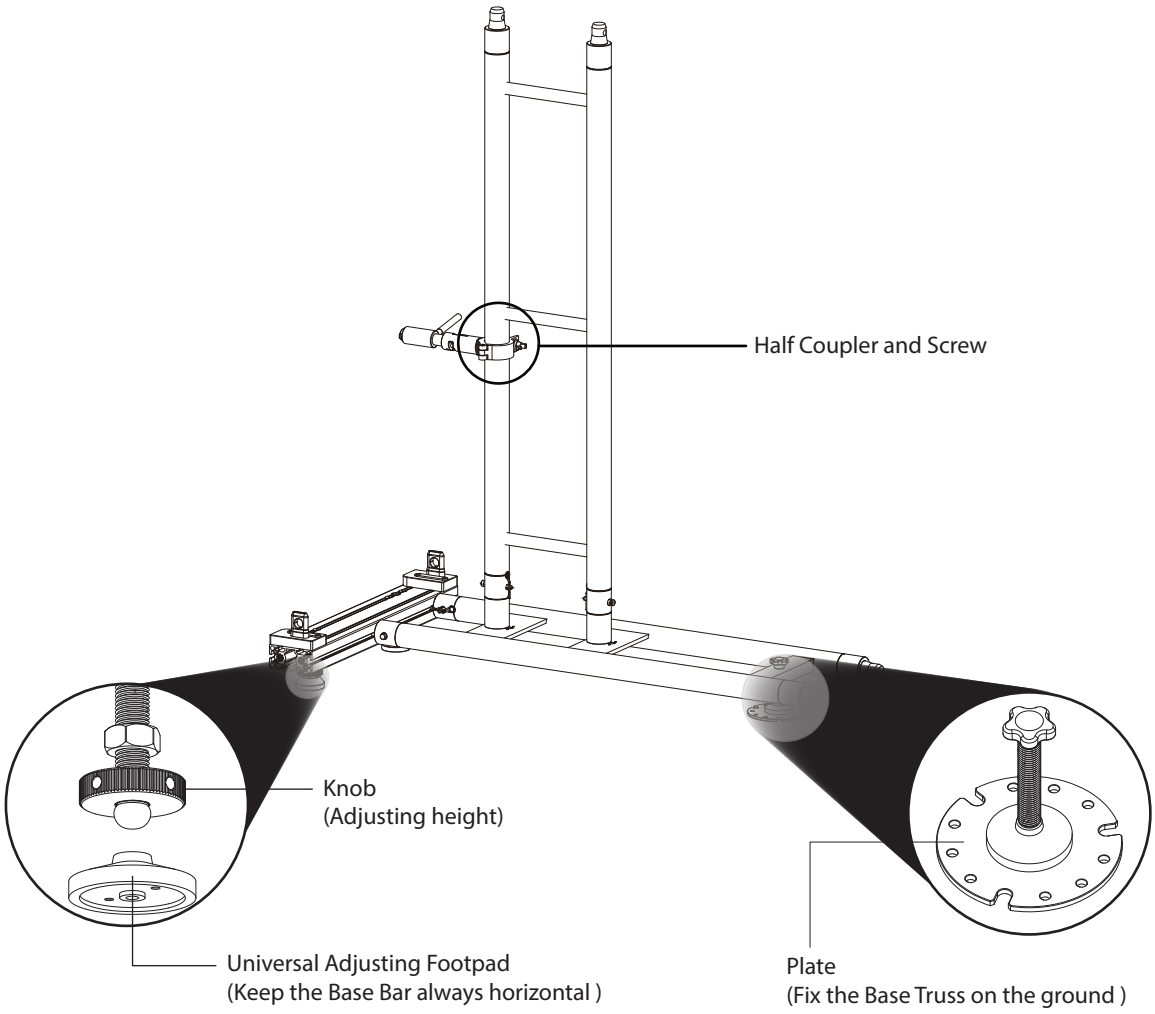
T4 Frame and Stacking System

1. Base Bar connection with Base Truss

Connect the Base Bar and Base Truss by Pin and Safely Clip.



2. Rear Support Truss and Rear Bridge installation



3. T4 Frame Installation

Connect the T4 Frame and Base Bar by Vertical Connector, and Rear Support Truss by Rear bridge.

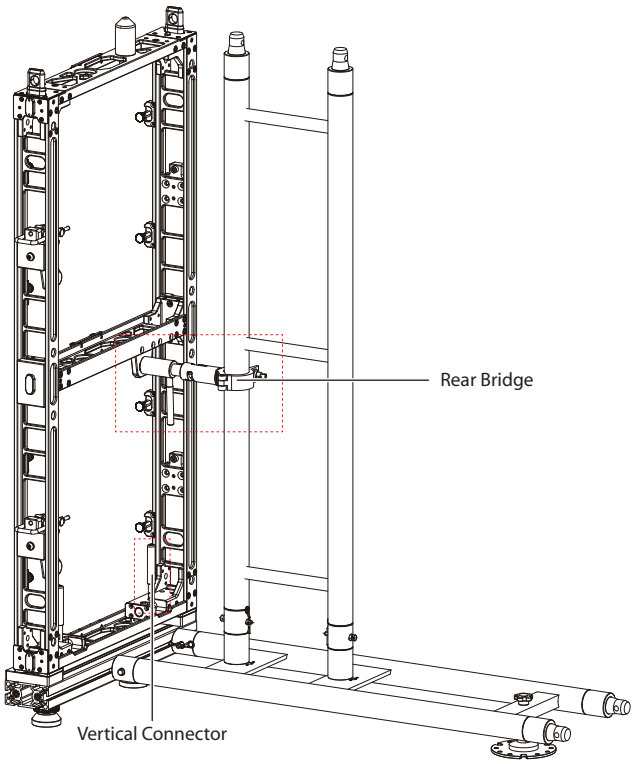
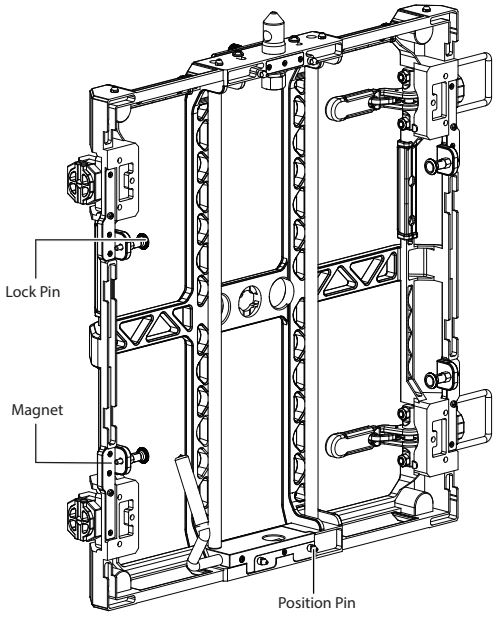
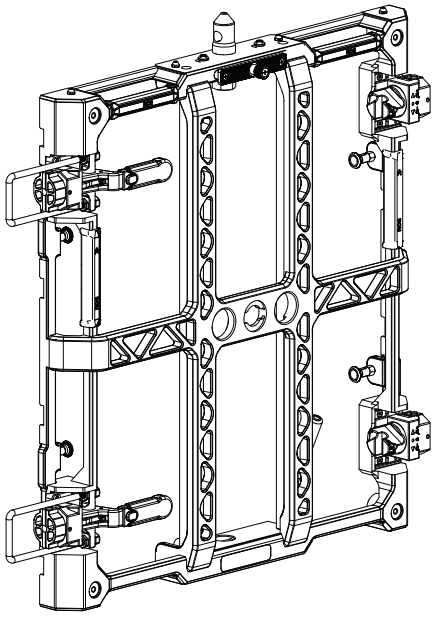


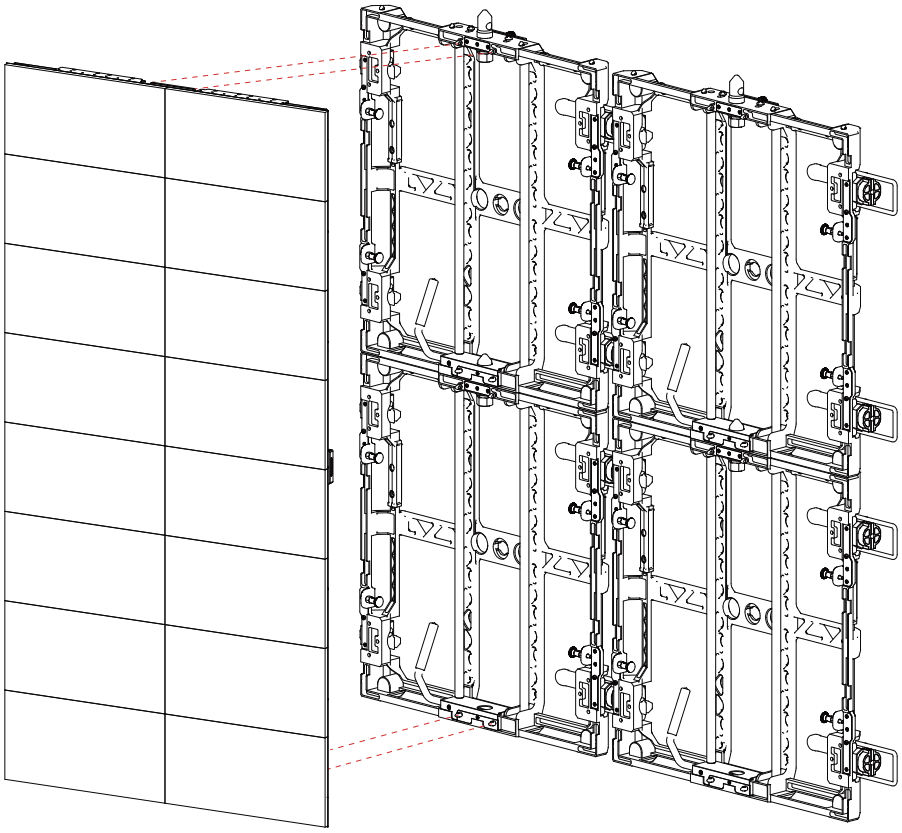
Diagram: Touring Frame - T2





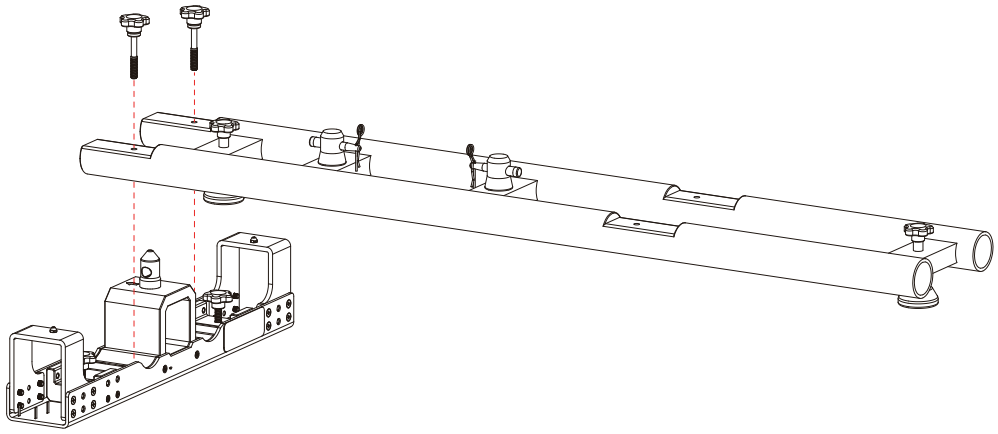
Connect CB tiles with T2 Touring Frame

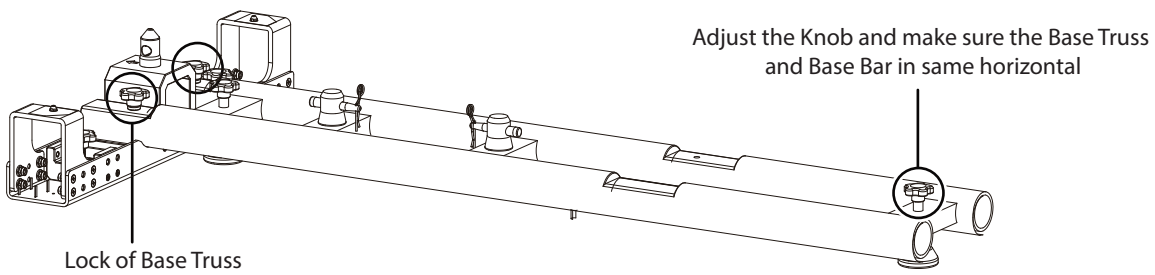
① Keep the lock pin of T2 Open.
② Alignment the position pin of T2 and locating hole of CB, it will be attached to T2 by Magnets automatically.
③ Then loosen the lock pin for locking.



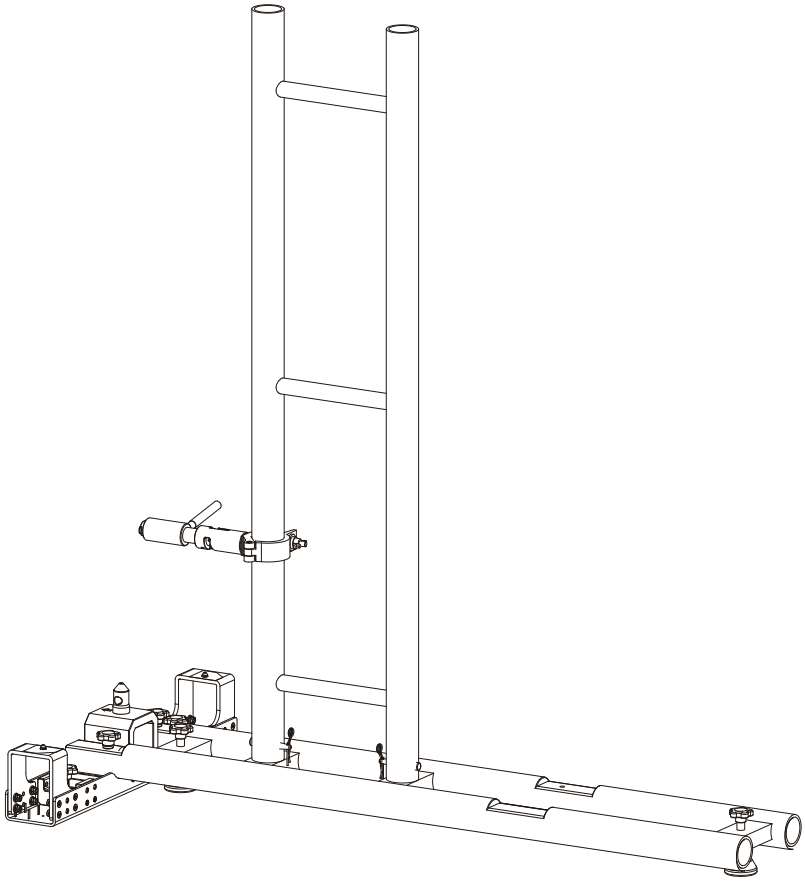
T2 Frame and Stacking System

1. Base Bar connection with Base Truss
   Connect the Base Bar and Base Truss by Pin and Safely Clip.



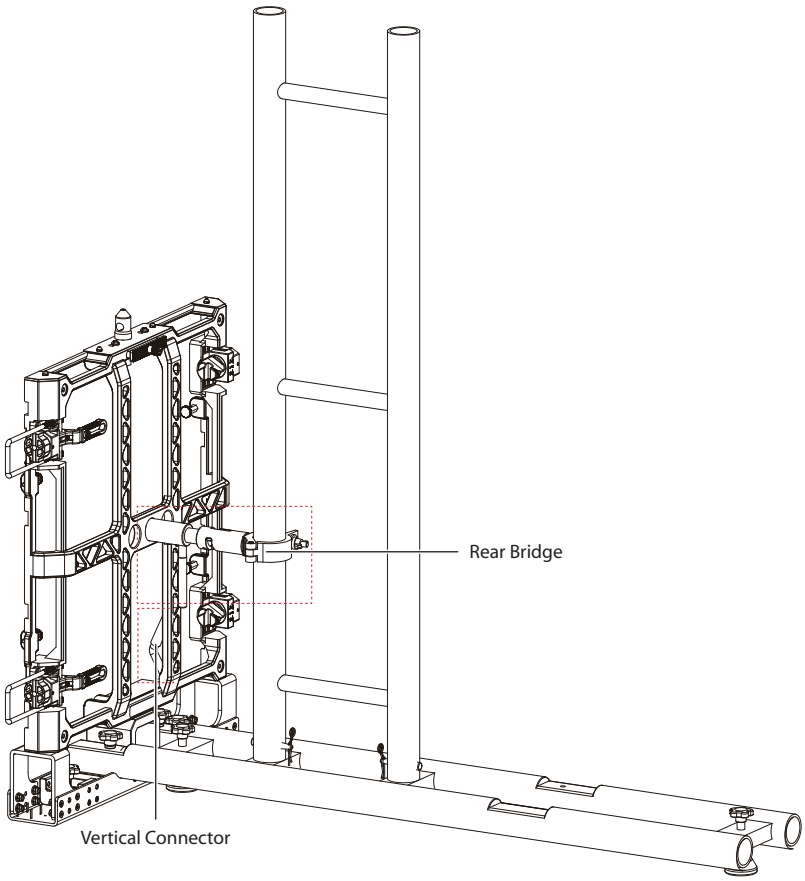


2. Rear Support Truss and Rear Bridge installation



3. T2 Frame Installation

Connect the T2 Frame and Base Bar by Vertical Connector, and Rear Support Truss by Rear bridge.



07 Control System:

SMART / REALTIME / SOPHISTICATED COLOUR MANAGEMENT / REMOTE

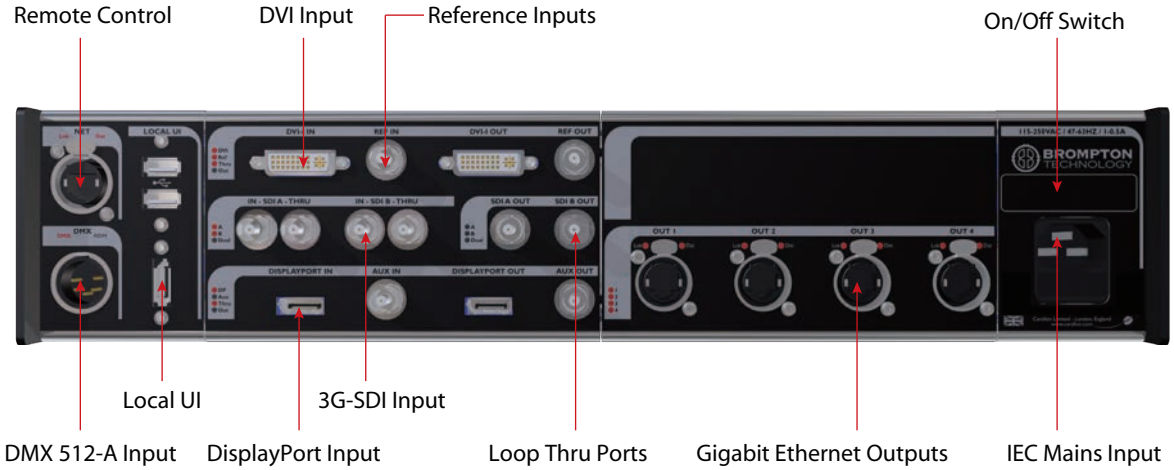
Specifications

Electrical	100 - 240V AC, 47Hz - 60Hz, 1- 0.5A Autoranging power supply.
Input ports	2 × SD/HD/3G-SDI, DVI-I, Bi-/Tri-level Reference Sync
Output ports	4 × Tessera Protocol (Neutrik Ethercon)
Max. capacity	2 Million Pixels (60Hz 24bit)
Internal processing quality	12bits per colour
Canvas size	1920 × 1080 pixels
Remote control	Support for control via eDMX (ArtNet) and DMX512 (on XLR 5-pin)
Dimensions	508mm × 89mm × 432mm 20" × 3.5" × 19"
Weight	9.0kg/20.0lbs
Certification	CE, ETL/cETL

All specifications are believed to be correct at time of writing.
Specifications are not guaranteed to be free from errors, and are subject to change at any time.

Brompton(311003-00010)

Rear Panel Connections



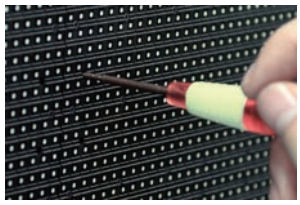
Software

Please read software manual firstly, (download link as below): Http://www.roevisual.com/how-to-make-led-display.

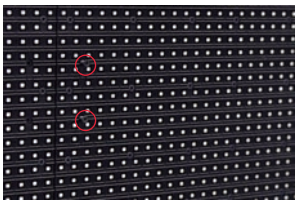
08 Service and Maintenance:

Maintenance:

1. Maintenance on overall installation, just replace the bad module.



Picture 1

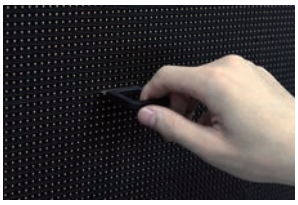


Picture 2

Picture 3

Picture 4

Picture 5



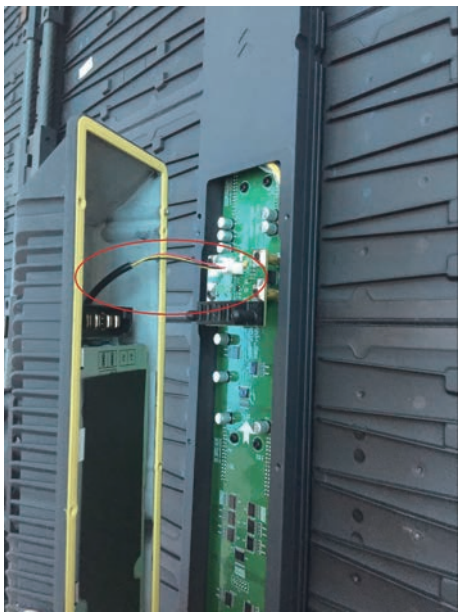
Picture 6

Picture 7

Picture 8

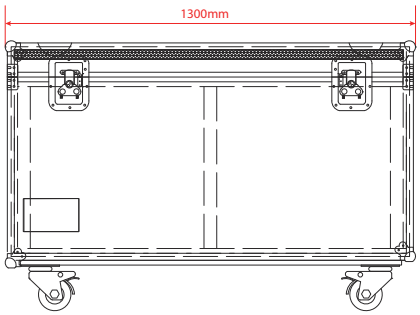
1. Loosen the screw(a total of six screws) on the front of the module. (twist force: 1.8kg·f-cm)
2. The loosened screws can be remained on the tile.
3. Insert the tool into the gap on the top of the module that you want to take out.
4. Make sure that the iron piece at the front of the tool is fully inserted in the gap.
5. You can check it at the back.
6. Pull the handle.
7. The module comes out, be caution that the module falls off.
8. Take the module out from the tile.

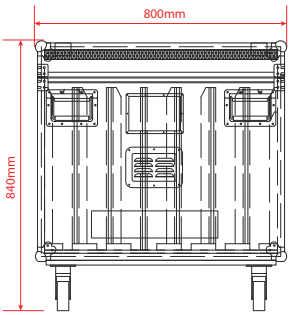
2. Notice the data cable and power cable connected to the HUB board in the spine when replacing the spin. Don't be forced to remove the spine in case of dragging out the cables and broken the connectors.

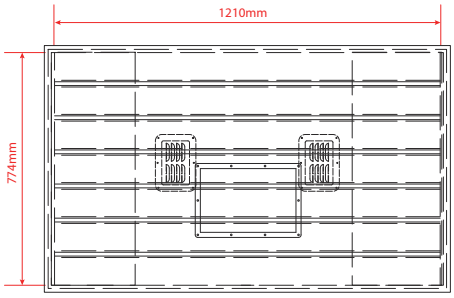


09 Package

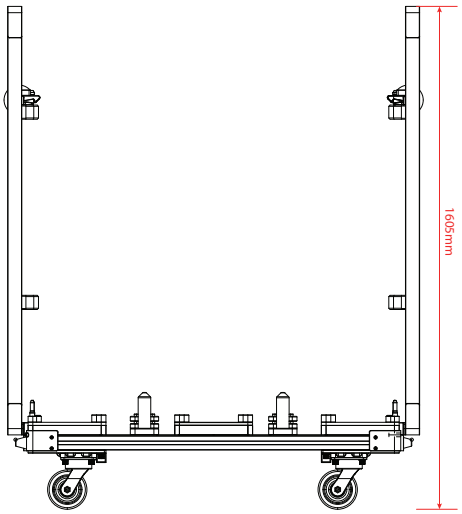
7 pcs LED tiles per Flightcase

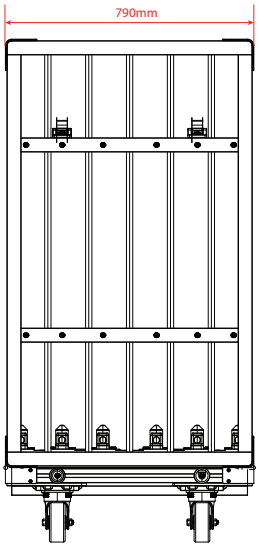


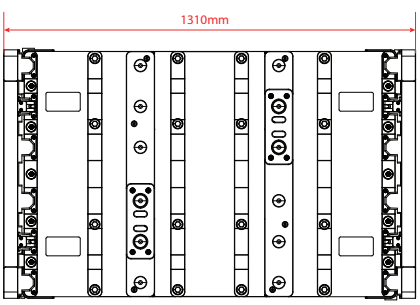




12 pcs LED tiles per Dolly







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