

Topaz Series User Manual



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Warranty Policy

The standard warranty period for the Products is 2 years after shipment from ROE Visual for rental applications and 3 years for fixed install applications. The contract will specify the application. This warranty includes all accessories, spare parts, and components shipped at the time of the original purchase.

Any spare parts sent later are only warranted for 90 days and will in no means extend the original warranty period of the Products.

Any replacements or repairs provided by ROE Visual will not extend the original warranty period of the Products.

If the sales contract provides an extended warranty coverage, the sales contract will supersede the standard period for original purchase. Any other stipulations for the warranty period in this document stay valid.

Extended warranty will be charged at 5% per year, with a maximum total warranty period of 3 years for rental and 5 years for fixed installation applications. If a longer warranty period is required, the details coverage will be agreed on with the Customer and detailed in the sales contract.

The warranty provided by ROE Visual does not include, or is limited by, the following:

1. Products not purchased from ROE Visual.
2. Labor or travel costs for installation, set-up, repair, adjusting, removal, re-installation and other costs incurred by the Customer.
3. Rental cost incurred by the Customer.
4. Any product on which the serial number has been defaced, modified or removed.
5. Product that has been resold, transferred, lost, stolen or discarded.
6. Any software, including but not limited to the operating system.
7. Damage, deterioration or malfunction from:
 - a. Accident, abuse, misuse, neglect, improper ventilation and cooling, fire, water, disaster, lightning, or other acts of nature, smoke exposure (cigarette, fireworks, or other), unauthorized modification, or failure to follow instructions supplied with the product.
 - b. Repair or attempted repair by anyone other than ROE Visual, a ROE certified repair center, or a ROE certified engineer.
 - c. Any damage to the product due to shipment.

- d. Any damage during the installation, removal, disassembly, or reassembly of the product by Customer or others.
- e. Causes external to the product, such as electric power fluctuations or failure, exposure to aggressive environments such as seaside, swimming pool, fireworks, etc.
- f. Use of parts not meeting ROE Visual's specifications.
- g. Normal wear and tear.
- h. Customer caused defects, including but not limited to damaged LED's resulting from physical interaction with the display.
- i. Any non-uniformity caused by long-term 24-7 operation of the video wall with heavily contrasting static content.
- j. Failure to follow procedures as outlined in the product's User Guide.
- k. Operating the display outside the suggested normal usage conditions stated in the User Guide.
- l. Software or accessory malfunction.
- m. Any other cause not related to a defect in materials or workmanship.

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Contents

Copyright ©	2
Warranty Policy	2
Contact Information.....	3
1 Safety	5
1.1 Safety Guidelines.....	5
1.2 Safety Instructions	7
1.3 Consignes de sécurité	8
1.4 Consignes de sécurité	10
2 General Introduction	11
2.1 Features	11
2.2 Specifications.....	12
3 Components	14
3.1 Overview.....	14
3.2 Accessory Information	21
3.3 Cables	29
4 Installation.....	30
4.1 Precautions for Installation	30
4.2 TP Series Mix and Match.....	31
4.3 Hanging System.....	33
4.4 Stacking System	37
4.5 Use TP-B to build right angles	44
4.6 Use TP-B to build Cube	45
4.7 Ballast Calculation.....	46
4.8 Installation	47
5 Cabling.....	48
5.1 Power Cabling	48
5.2 Data Cabling.....	49
5.3 Others.....	49
6 Control System.....	50
7 Service Manual.....	51
7.1 Cleaning Tiles.....	51
7.2 Module Replacement	51

1 Safety

1.1 Safety Guidelines

Personal Protection



CAUTION: Risk of electric shock.



CAUTION: Be aware of flammable materials.



WARNING: Ensure you understand and follow all safety guidelines, instructions, warnings, and cautions mentioned in this manual.



WARNING: Read this manual before the installation and keep this manual.



WARNING: Be careful of hazardous emission.



WARNING: Mind your fingers when working with heavy loads.



WARNING: Pay attention to the hot surface.

Installation Personnel

The installation must be performed by authorized and qualified technical personnel only.

Product Care

Do not place LED tiles in a dusty environment and clean the surface regularly.

All components should be kept dry, clean, lubricated (only of recommended), coated properly, and otherwise maintained in a manner consistent with the part design. ROE products must be used in a manner consistent with their design and inspected on a routine basis for security, wear, deformation, corrosion and any other circumstances that may affect the loading capacity.

It's recommended that users conduct regular safety and visual inspections on all products, checking whether the cables and LEDs are damaged or not. The damaged parts should be repaired or replaced in time.

Waterproof & Dehumidification

The maximum relative humidity of the work should be less than 90%.

When an LED screen is not in use, the LEDs will start absorbing moisture from the air, no matter if it is an indoor or outdoor screen. The longer the time and the higher the humidity of the air, the more moisture will be absorbed by the LED. When the LED contains moisture, there is a risk to damage the LED when the LED heats up too aggressively.

Therefore, ROE recommends that if you have not used a screen for a prolonged time and/or the screen was stored in a very humid environment, you slowly heat up the screen.

In our manuals we have a 12 steps recommendation for heating up the screen (and thus drying out the LED's):

Step	Gray Scale	Brightness	Power-on hours
1	10	5%	2 hours
2	20	8%	2 hours
3	30	10%	2 hours
4	40	15%	2 hours
5	50	20%	2 hours
6	70	25%	2 hours
7	90	35%	2 hours
8	120	45%	2 hours
9	150	60%	2 hours
10	180	70%	2 hours
11	200	80%	2 hours
12	255	100%	2 hours

1.2 Safety Instructions

- (1) The product is only for professional use.
- (2) Please read the User Manual carefully and understand all safety information mentioned before installing, powering, operating or servicing the product.
- (3) Please follow all instructions of the User Manual during installing, powering, operating or servicing the product.
- (4) The installation should be performed after you are thoroughly familiar with all safety guidelines, instructions, warnings and cautions. Otherwise, it may increase risks of hazards and injury to the user.
- (5) Please install and / or keep this product away from flammable materials, heat sources, water, high-power electrical devices and dangerous chemicals.
- (6) Please use and / or store this product in proper temperature and humidity.
- (7) Please earth this product against the risk of electric shock.
- (8) Please make sure power and data cables are in a sound condition.
- (9) Please do not use the product near the sea and / or other places with corrosive environment.
- (10) The installation must be performed by authorized and qualified technical personnel only.
- (11) Modules only can be removed after the tiles cool down

1.3 Consignes de sécurité

Protection personnelle



ATTENTION: Risque d'électrocution.



ATTENTION: Faites attention aux matériaux inflammables.



AVERTISSEMENT: assurez-vous de comprendre et de respecter toutes les consignes de sécurité, instructions, avertissements et précautions mentionnés dans ce manuel.



AVERTISSEMENT: Lisez ce manuel avant l'installation et conservez-le.



AVERTISSEMENT: Faites attention aux émissions dangereuses.



AVERTISSEMENT: Faites attention à vos doigts lorsque vous travaillez avec de lourdes charges.



AVERTISSEMENT: Faites attention à la surface chaude.

Personnel d'installation

L'installation doit être effectuée uniquement par un personnel technique autorisé et qualifié.

Produit

Ne placez pas les dalles LED dans un environnement poussiéreux et nettoyez la surface régulièrement.

Tous les composants doivent être maintenus au sec, propres, lubrifiés (uniquement de ceux recommandés), revêtus correctement et entretenus d'une manière compatible avec la conception de la pièce. Les produits ROE doivent être utilisés conformément à leur conception et inspectés régulièrement pour vérifier leur sécurité, leur usure, leur déformation, leur corrosion et toute autre circonstance pouvant affecter leur capacité de chargement.

Il est recommandé aux utilisateurs d'effectuer des inspections visuelles et de sécurité régulières sur tous les produits, en vérifiant si les câbles et les voyants sont endommagés ou non. Les pièces endommagées doivent être réparées ou remplacées à temps.

Étanche et déshumidification

L'humidité relative maximale du travail doit être inférieure à 90%.

Lorsqu'un écran LED n'est pas utilisé, les LED commenceront à absorber l'humidité de l'air, qu'il s'agisse d'un écran intérieur ou extérieur. Plus le temps est long et plus l'humidité de l'air est élevée, plus l'humidité sera absorbée par la LED. Lorsque la LED contient de l'humidité, il y a un risque d'endommager la LED lorsque la LED chauffe trop agressivement.

Par conséquent, ROE recommande que si vous n'avez pas utilisé un écran pendant une période prolongée et / ou que l'écran a été stocké dans un environnement très humide, vous chauffez lentement l'écran.

Dans nos manuels, nous avons une recommandation en 12 étapes pour chauffer l'écran (et ainsi sécher les LED):

Marcher	Échelle de gris	Luminosité	Heures de mise sous tension
1	10	5%	2 heures
2	20	8%	2 heures
3	30	10%	2 heures
4	40	15%	2 heures
5	50	20%	2 heures
6	70	25%	2 heures
7	90	35%	2 heures
8	120	45%	2 heures
9	150	60%	2 heures
10	180	70%	2 heures
11	200	80%	2 heures
12	255	100%	2 heures

1.4 Consignes de sécurité

- (1) Le produit est uniquement destiné à un usage professionnel.
- (2) Veuillez lire attentivement le manuel d'utilisation et comprendre toutes les informations de sécurité mentionnées avant d'installer, de mettre en marche, d'utiliser ou de réparer le produit.
- (3) Veuillez suivre toutes les instructions du manuel d'utilisation lors de l'installation, de l'alimentation, de l'utilisation ou de la maintenance du produit.
- (4) L'installation doit être effectuée après que vous vous êtes familiarisé avec toutes les consignes de sécurité, les instructions, les avertissements et les précautions. Sinon, cela pourrait augmenter les risques de dangers et de blessures pour l'utilisateur.
- (5) Veuillez installer et / ou garder ce produit à l'écart de matières inflammables, de sources de chaleur, d'eau, d'appareils électriques à haute puissance et de produits chimiques dangereux.
- (6) Veuillez utiliser et / ou stocker ce produit à une température et à une humidité appropriées.
- (7) Veuillez mettre ce produit à la terre contre le risque de choc électrique.
- (8) Assurez-vous que les câbles d'alimentation et de données sont en bon état.
- (9) Veuillez ne pas utiliser le produit près de la mer et / ou d'autres lieux exposés à un environnement corrosif.
- (10) L'installation doit être effectuée par du personnel technique autorisé et qualifié.

2 General Introduction

2.1 Features

The lightweight Topaz small-pitch LED tile incorporates the magnesium alloy frame design for an easy-to-assembly solution. It's available in both flat and curved configurations.

2.1.1 Ultra-lightweight

The Topaz is 500 x 500 mm, but its weight is less than 8.5 kg per tile. The lightweight magnesium alloy frame ensures the extreme durability.

2.1.2 Superb Visual

The sleek design with black LEDs highlights its high contrast and brightness for a vivid visual effect.

2.1.3 Curving Options

Concave and convex curving options enable you to realize the unique and creative stage design.

2.1.4 Magnet-assisted Assembly

Magnets are integrated into the tile frame, enabling the easy setup in both hanging and stacking systems.

2.1.5 Easy Maintenance

With both front and rear module service, the Topaz panels are easy to maintain. The integrated PSU and Hub unit make repair and replacement of spare parts easy and cost-effective.

2.2 Specifications

Items	Topaz 1.5	Topaz 1.9	Topaz 1.9 4 in 1	Topaz 2.2	Topaz 2.6
Pixel Pitch	1.56mm	1.95mm		2.23mm	2.604mm
Max Brightness Calibrated	1500nits				
Panel Dimension	500 x 500 x 73mm 19.7" x 19.7" x 2.87"				
Panel Resolution (H x V)	320*320	256*256		224*224	192 *192
Weight Per Panel	8.16kg; 17.99lbs	8.3kg;18.30lbs		8.4kg;18.52lbs	8.0kg; 17.64lbs
Power Consumption Max/Average	180W (common anode) /90W	160W (common anode) /80W		150W/75W	140W (common anode) /70W
BTU Max/AVG	615/280	545/250		510/235	480/220
Transparency	Solid				
Serviceability	Front/Rear				
Processing Platform	MVR / Brompton / Evision				
Curving (Concave & Convex)	Concave5°~Convex 5°				
Max. Hanging (panels)	20				
Max. Stacking (panels)	12				
LED Configuration	4 in 1 common anode	SMD 1212Black	4 in 1 common anode	SMD 1212Black	SMD 1515 Black
Viewing Angle Vertical	140°				
Viewing Angle Horizontal	140°				
Scan Ratio	1/16				
Refresh Rate	7680Hz				
Gray Scale	15bit				
Frame Material	Magnesium Alloy				
Operating Temp / Humidity	-20°~ 45°C, 10~90% RH/-4°~113°F, 10~90% RH				
Storage Temp / Humidity	-40°~ 60°C, 10~90% RH/-40°~140°F, 10~90% RH				
IP Rating	Indoor				
Certifications	CE, CB, UKCA, ETL, FCC, WEEE				
Pixel Density px / m ²	409,600	262,144		200,704	147,456
3D Ready	Yes				
Lifetime	≥50,000hours				

Items	Topaz-C 1.9 4 in 1	Topaz-C 2.6	Topaz-B 2.6(Cube)
Pixel Pitch	1.95mm	2.604mm	
Max Brightness Calibrated	1500nits		
Panel Dimension	500 x 500 x 108mm 19.7" x 19.7" x 4.25"		500 x 500 x 72.19mm 19.7" x 19.7" x 2.84"
Panel Resolution (H x V)	256*256	192*192	
Weight Per Panel	8.5kg; 18.74lbs	8.3kg;18.30lbs	9.08kg;20.02lbs (estimated)
Power Consumption Max/Average	160W(common anode)/80W	140W(common anode)/70W	
BTU Max/AVG	545/250	480/220	
Transparency	Solid		
Serviceability	Rear		Front/Rear
Processing Platform	MVR / Brompton /Evision		
Curving (Concave & Convex)	Concave20°~Convex 20°	Concave30°~Convex 30°	Concave5°~Convex 5°;90°
Max. Hanging (panels)	20		16
Max. Stacking (panels)	12		
LED Configuration	4 in 1 common anode	SMD1515Black	
Viewing Angle Vertical	140°		
Viewing Angle Horizontal	140°		
Scan Ratio	1/16	1/16	
Refresh Rate	7680Hz		
Gray Scale	15bit		
Frame Material	Magnesium Alloy		
Operating Temp / Humidity	-20°~ 45°C, 10~90% RH -4°~113°F, 10~90% RH		
Storage Temp / Humidity	-40°~ 60°C, 10~90% RH / -40°~140°F, 10~90% RH		
IP Rating	indoor		
Certifications	CE, CB, ETL, FCC, UKCA, WEEE		
Pixel Density px / m ²	262,144	147,456	
3D Ready	Yes		
Lifetime	≥50,000hrs		

3 Components

3.1 Overview

3.1.1 Topaz-

A Topaz tile consists of modules, tile frame and power box.

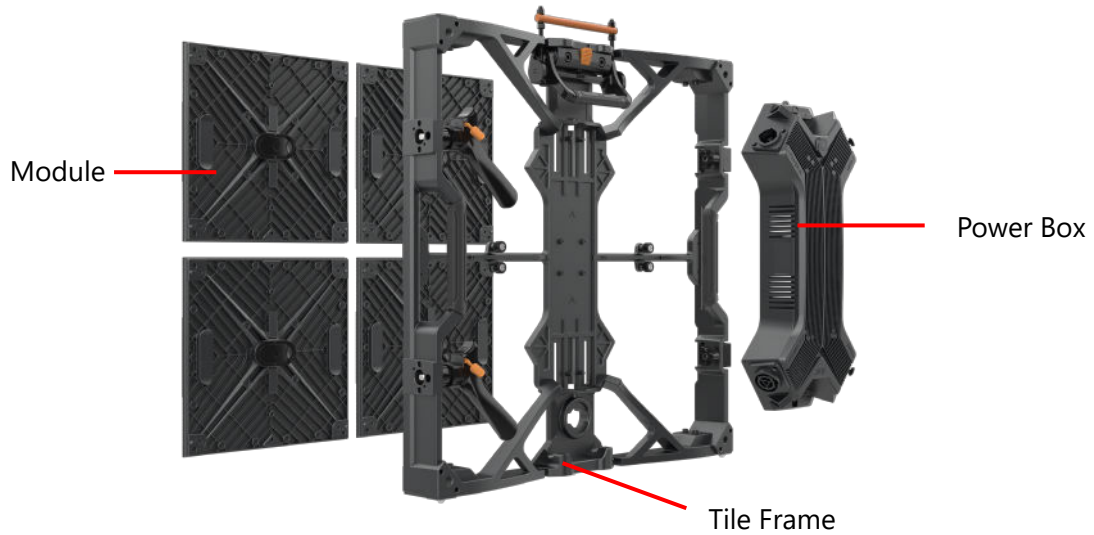


Figure 3-1. Topaz Components

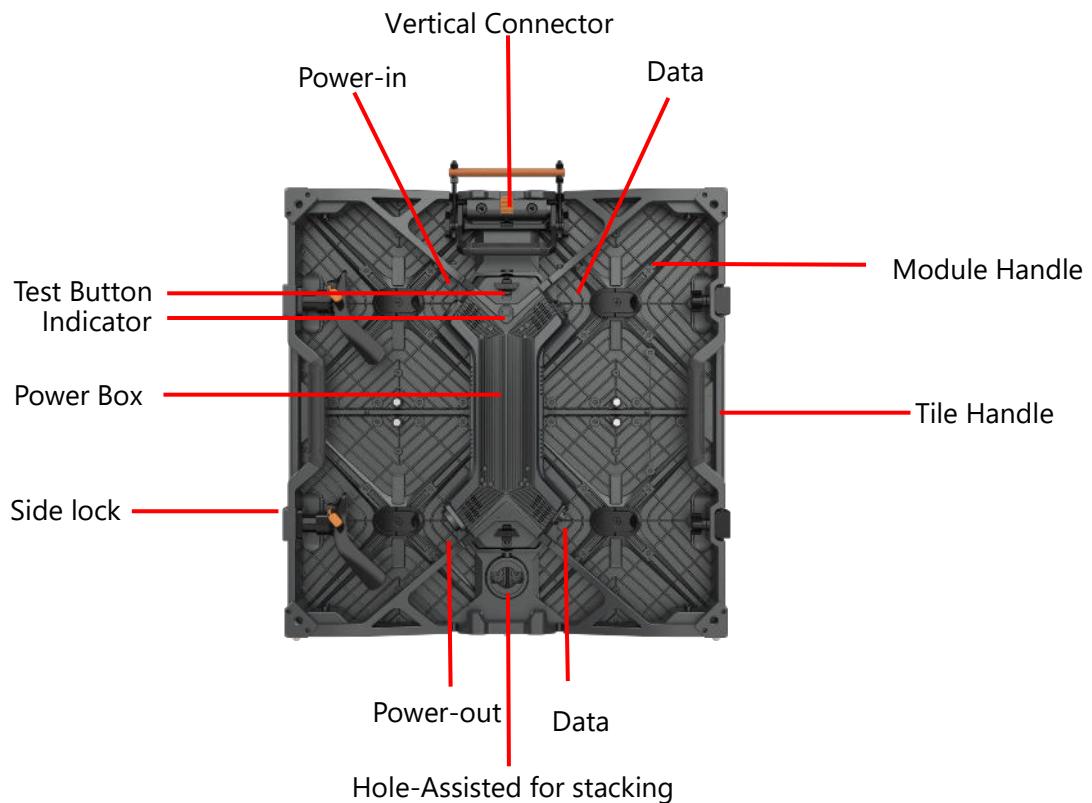


Figure 3-2. Topaz Parts Information

A Topaz tile consists of 4 pcs modules.

Dimensions: 500 x 500 x 73 mm

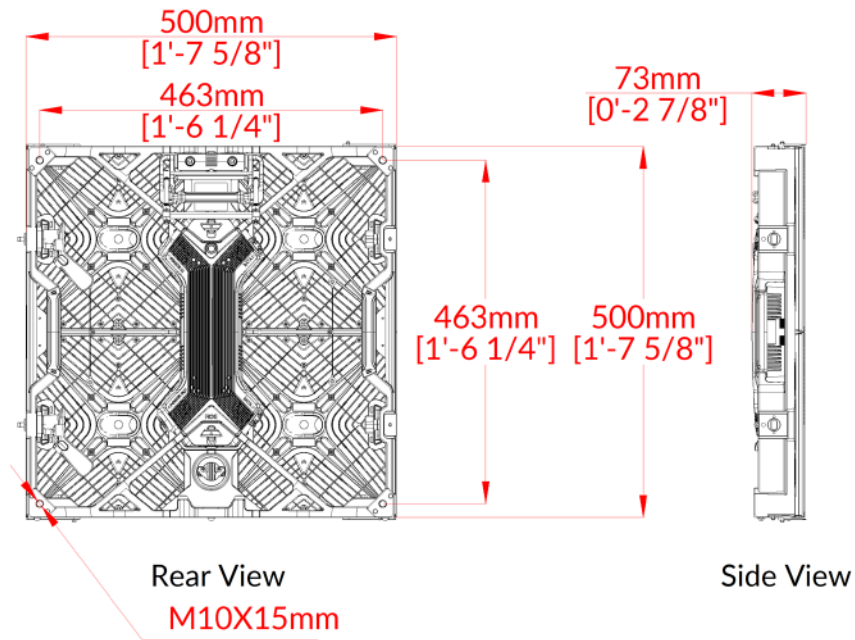


Figure 3-3. Topaz Module Dimensions

3.1.2 Topaz-Curved (TP-C)

A Topaz-Curved tile consists of modules, tile frame and power box.

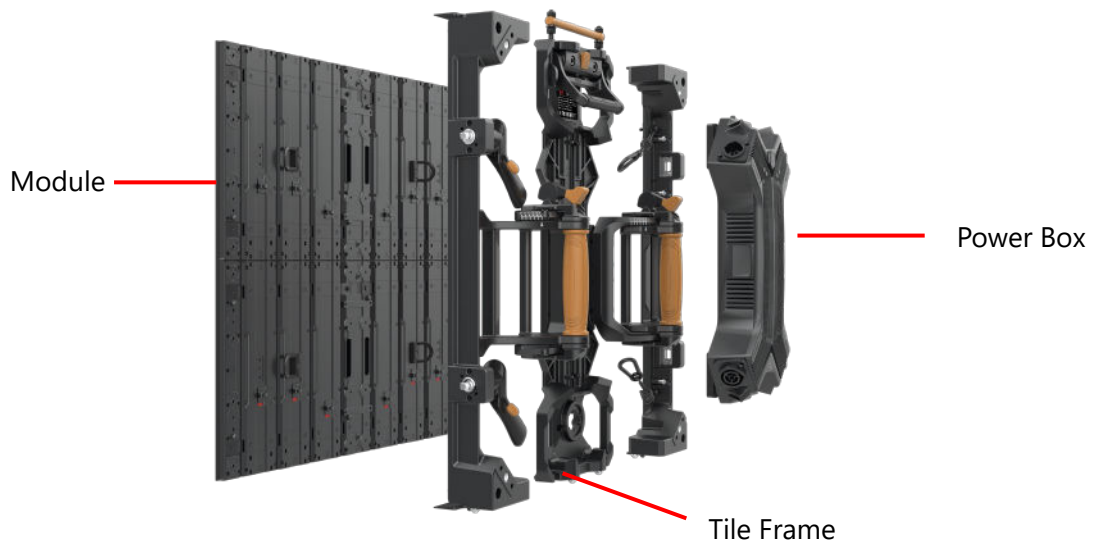


Figure 3-4. Topaz-Curved Components

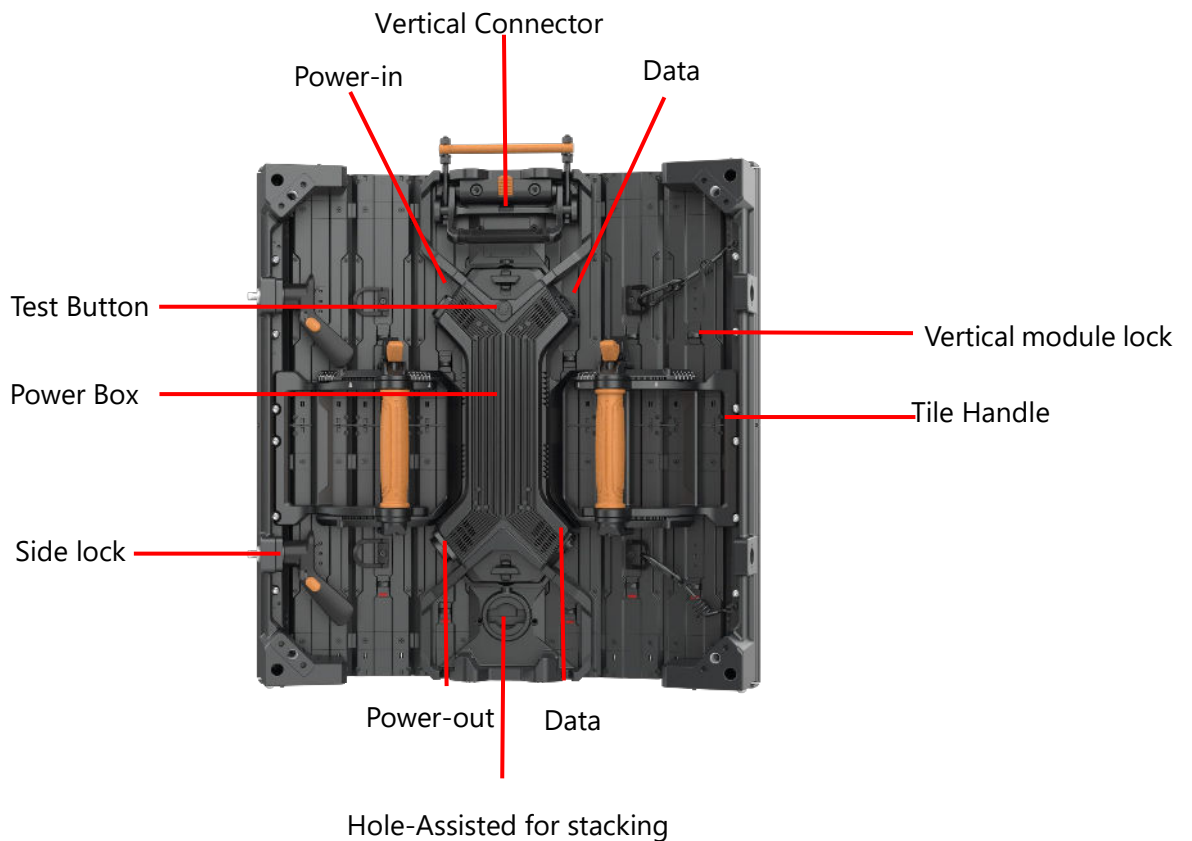


Figure 3-5. Topaz-Curved Parts Information

A Topaz-Curved tile consists of 2 pcs modules.

Dimensions: 500 x 500 x 108 mm

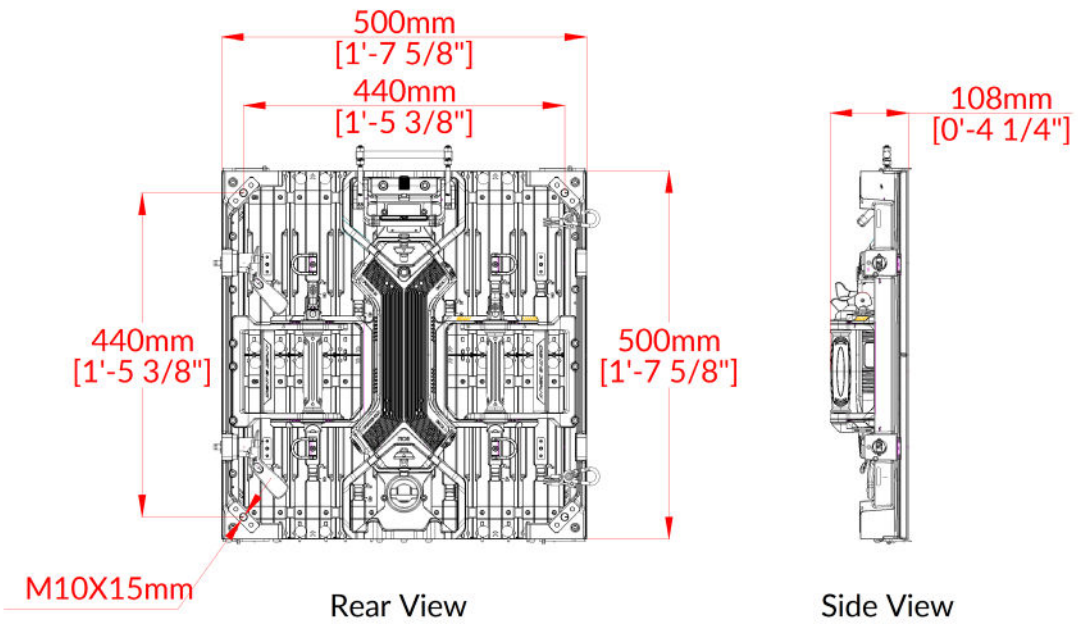
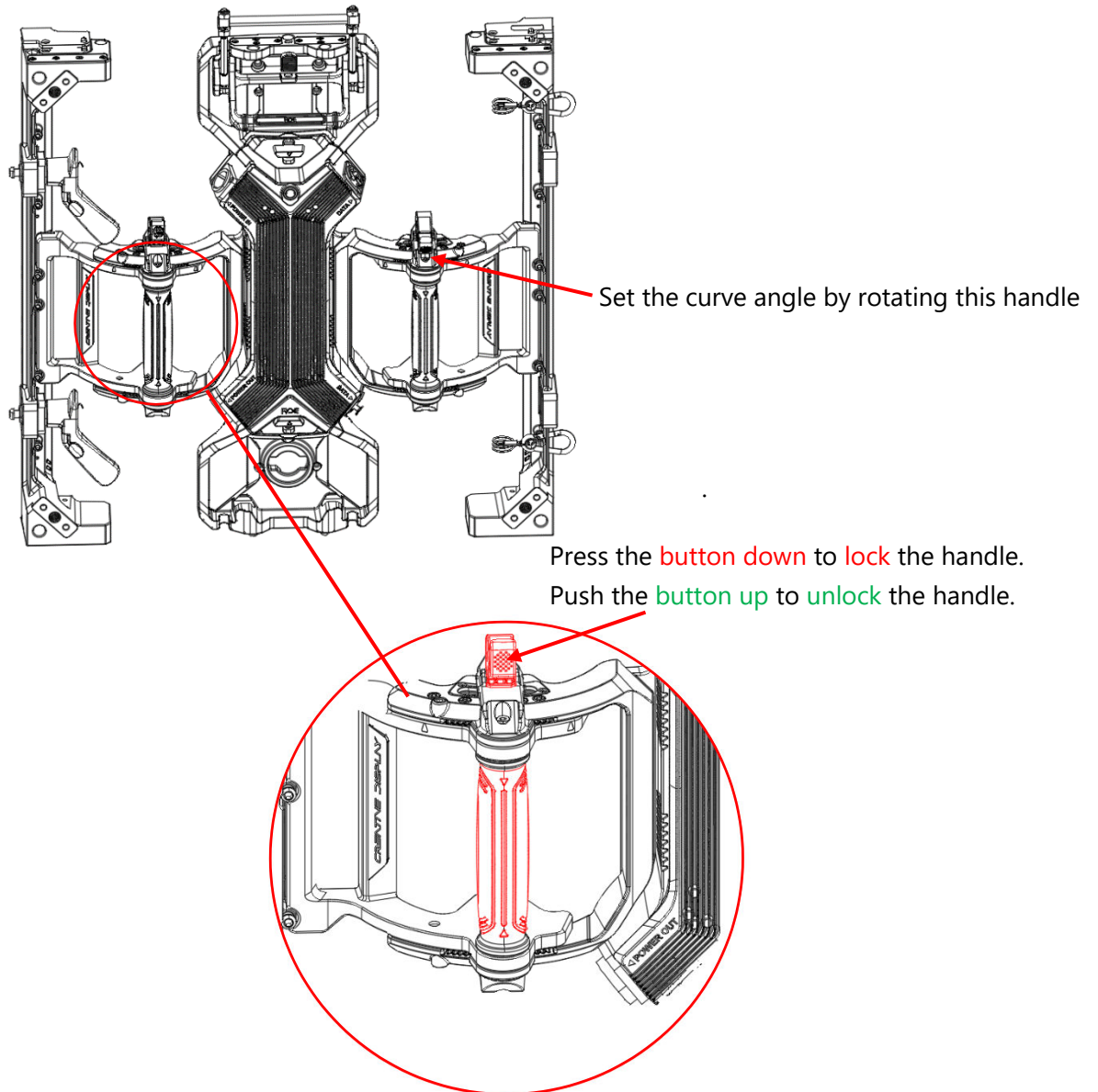


Figure 3-6. Topaz-Curved Module Dimensions

3.1.2.1 Tile Frame

**NOTE:**

The curve lock of TPC-2.6 support the adjustment of concave15° ~Convex15°,
With **1°per step** , TPC2.6 can make more angles possible.

3.1.3 Topaz-Cube (TP-B)

A Topaz-Cube tile consists of modules, tile frame and power box.

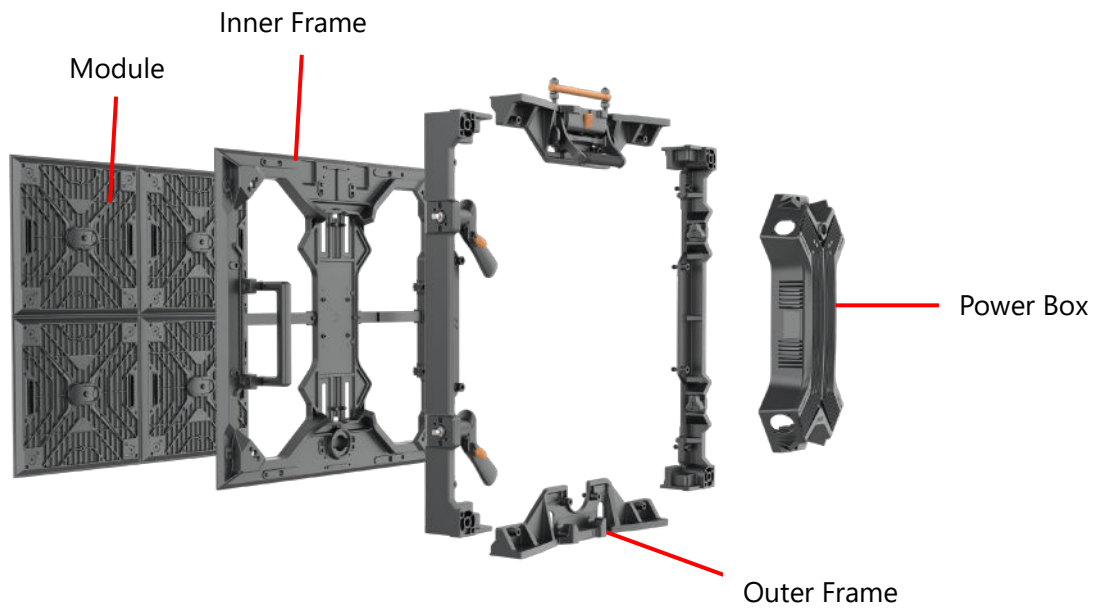


Figure 3-7. Topaz-B Components

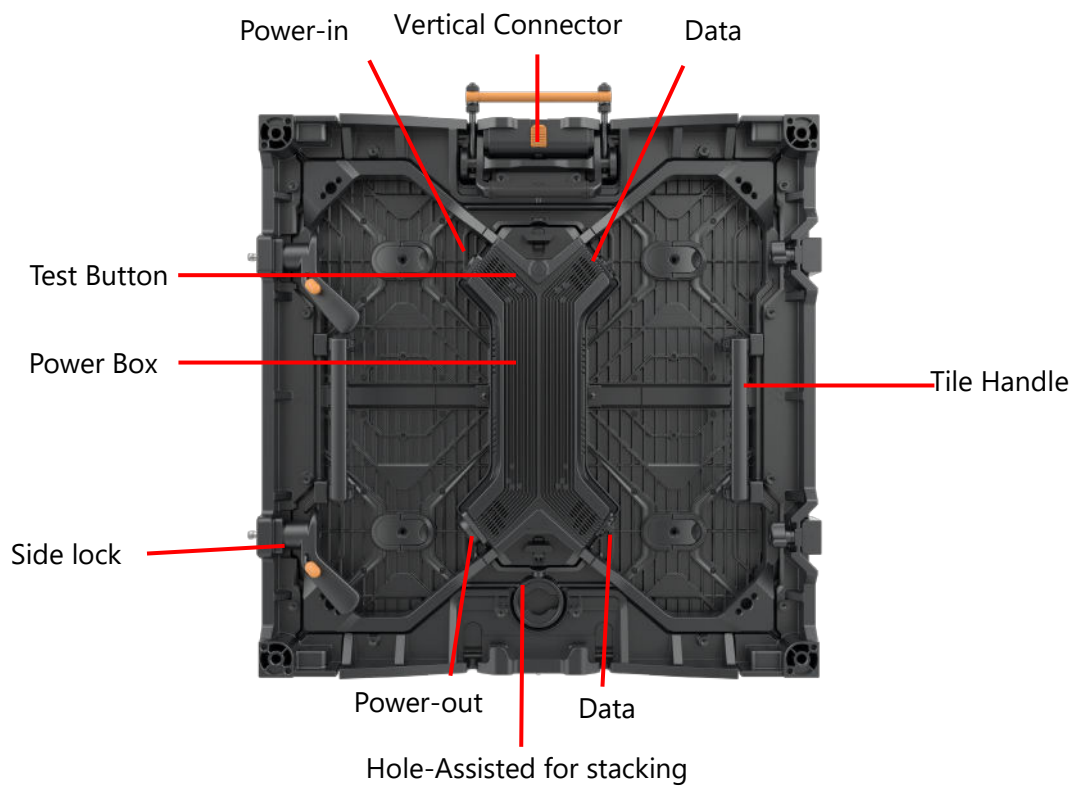


Figure 3-8. Topaz-B Parts Information

A Topaz-B tile consists of 4 pcs modules.

Dimensions: 500 x 500 x 108 mm

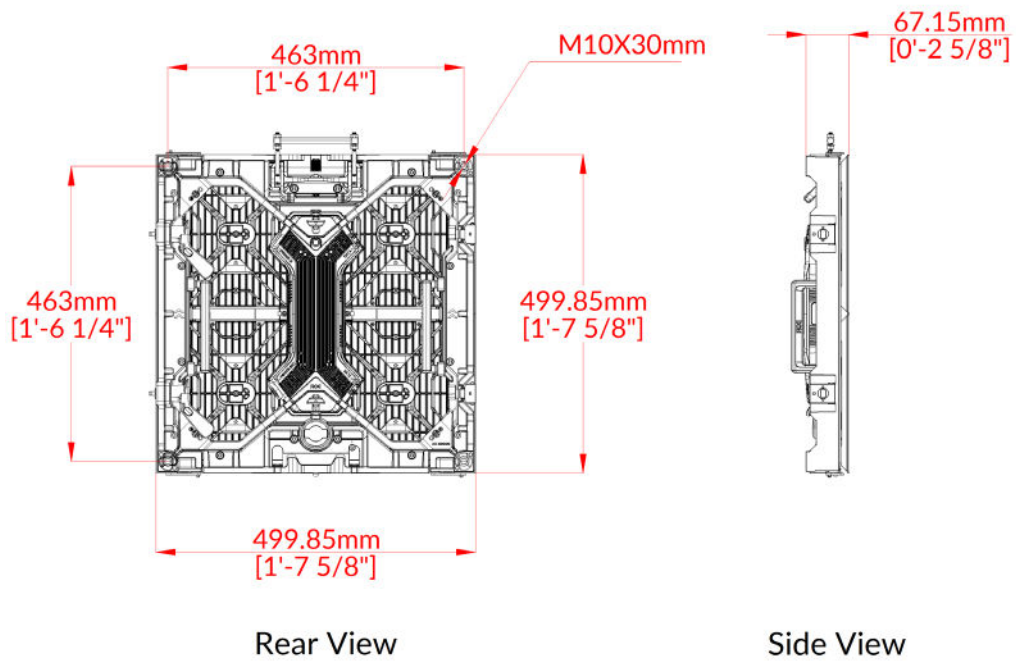


Figure 3-9. Topaz-B Module Dimensions

Note: Corners of cube modules are more fragile, and that damage may result in a beyond repair module.

3.2 Accessory Information

Topaz Series support both hanging and stacking installation.

Regarding whether the accessories of the three products can be used interchangeably, please refer to the table below.

“○” mean they use the same accessory,

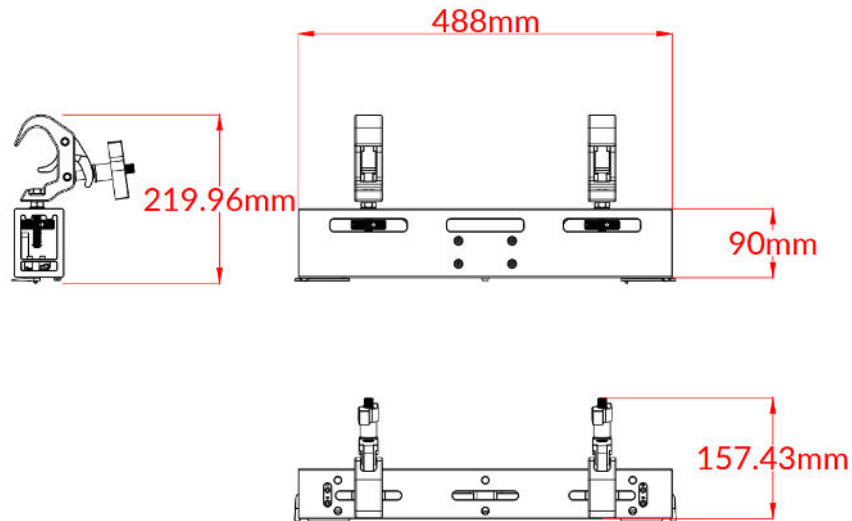
“X” mean they use their own unique accessory.

Item	Topaz-Flat	Topaz-Curved	Topaz-Cube*
Power Box	○	X	○
Hanging Bar	○	X	○
Stacking Bar	○	X	○
Base Truss	○	○	○
Stacker	○	○	○
Rear Bridge	○	○	○
Curved Block	○	/	○

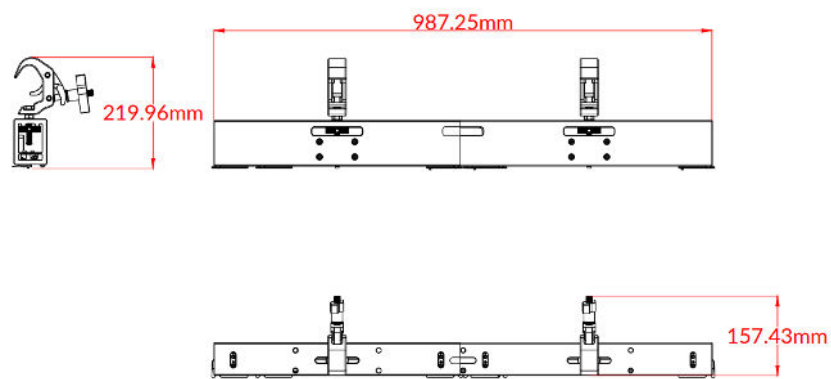
*: When you use the Cube series to build Right-Angled shapes, please note that special bars are required for the Right-Angled parts.

3.2.1 Hanging System

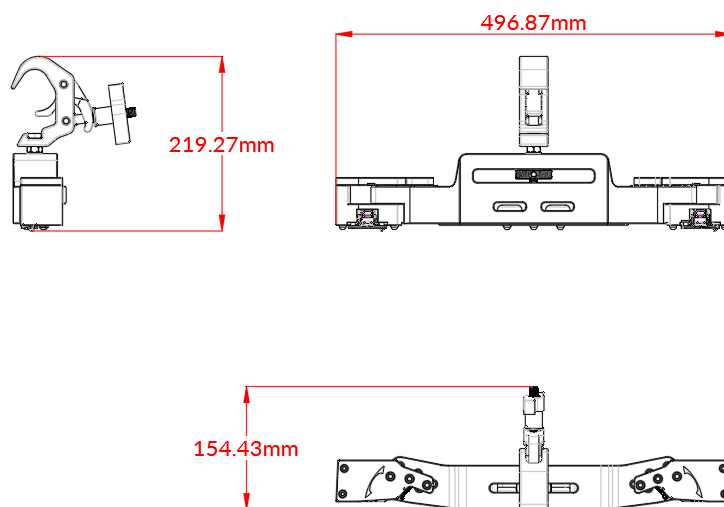
Basic dimensions of Topaz hanging bar, 0.5m.



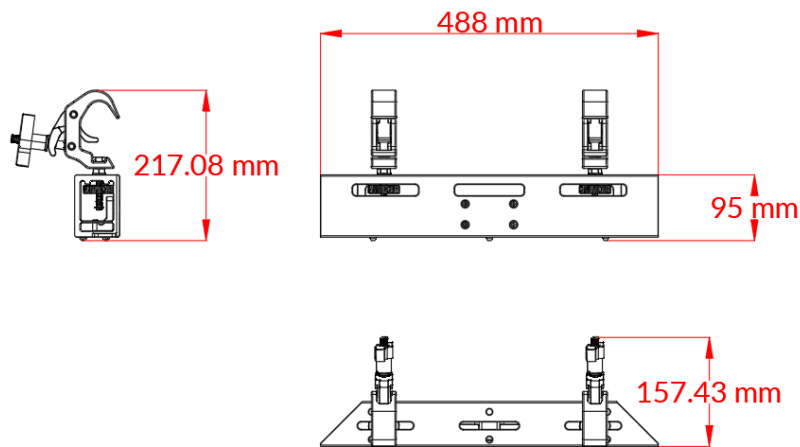
Basic dimensions of Topaz hanging bar, 1m.



Basic dimensions of Topaz-C hanging bar, 0.5m.



Basic dimensions of Topaz-Cube hanging bar, 0.5m (Right-Angle).



Hanging bars for Topaz Series.

	<p>TP hanging bar, 1W, clamp, V1.1 SAP: 207002S0717 Dimensions: 488 x 220 x 158 mm</p> <p>For TP & TP-B</p>
	<p>TP hanging bar, 2W, clamp, V1.0 SAP: 207002S0724 Dimensions: 987.75 x 220 x 157.43 mm</p> <p>For TP & TP-B</p>
	<p>TP-C hanging bar, 1W, clamp, V1.0 SAP: 207002S0696 Dimensions: 496.86X154.43X219.3 mm</p> <p>For TP-Curved</p>
	<p>TP-B hanging bar, 1W, clamp, V1.0 SAP: 207002S0749 Dimensions: 488X157.43X217.08 mm</p> <p>For TP-B in Right-Angle</p>

3.2.2 Stacking System

General view of Topaz stacking system.

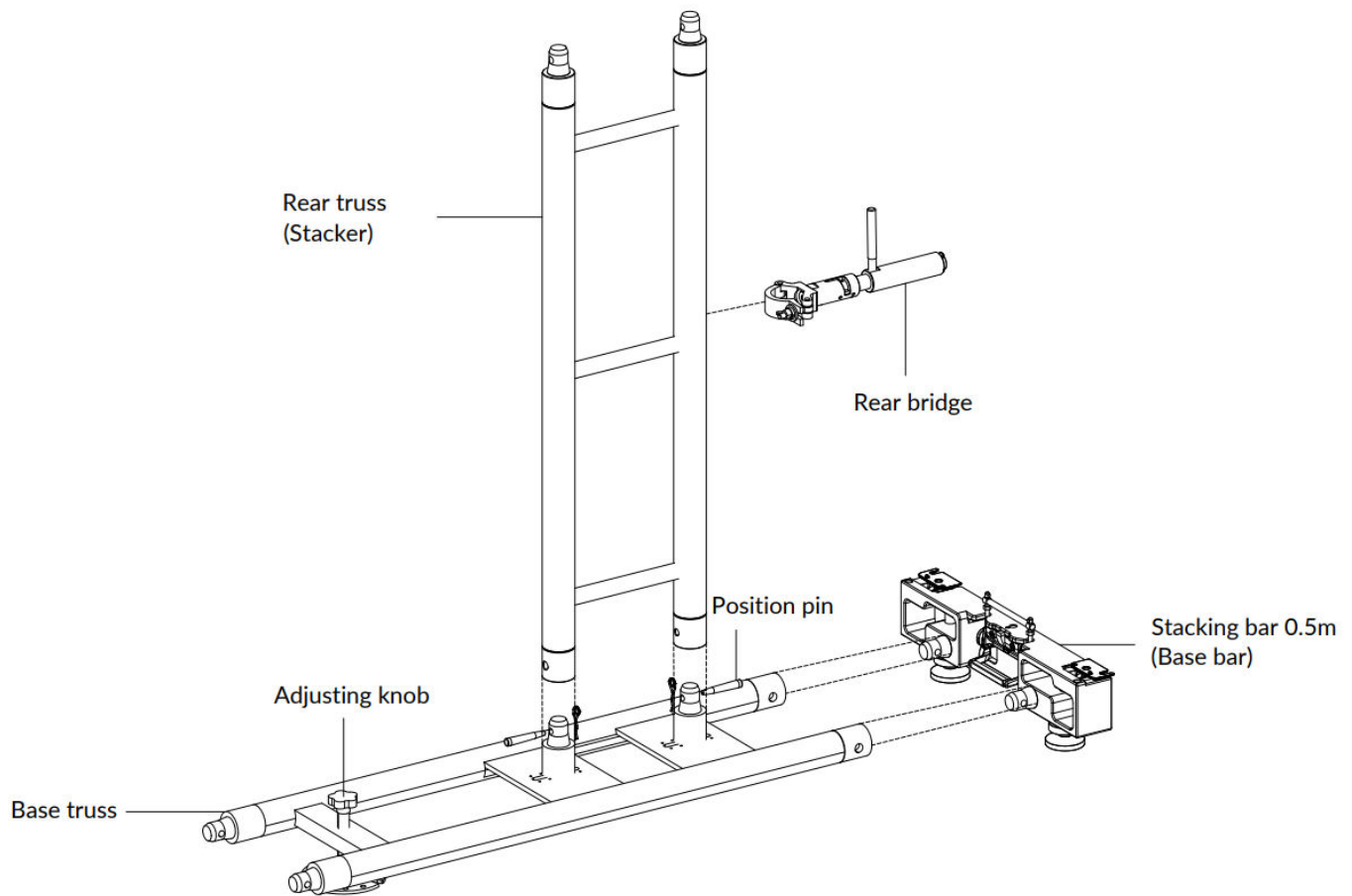
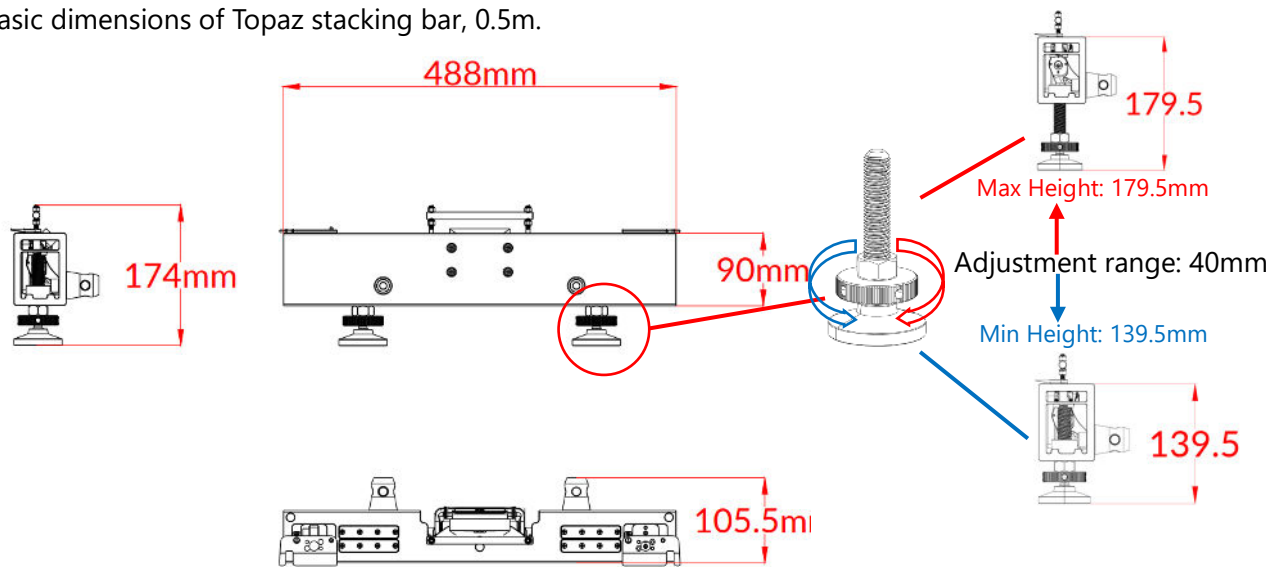


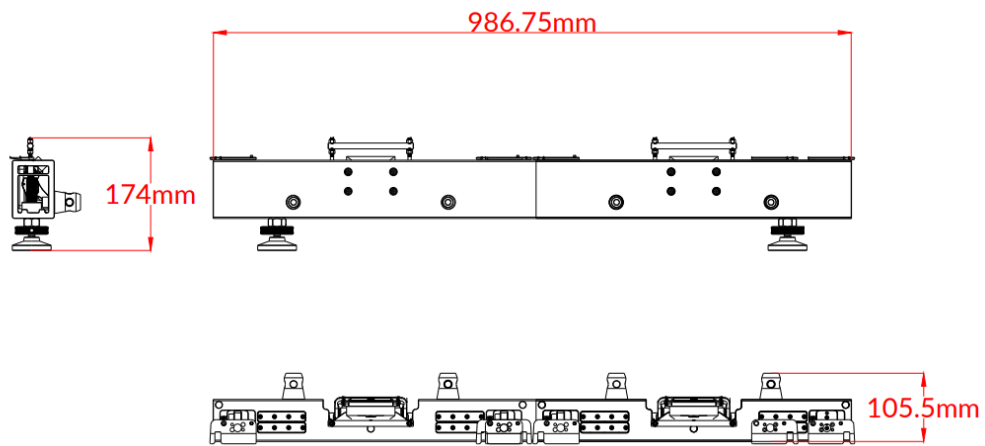
Figure 3-10 Topaz Series Stacking System

Note: The stacking system should be used every two-tile wide at least and it will be better to be used every one-tile wide when necessary.

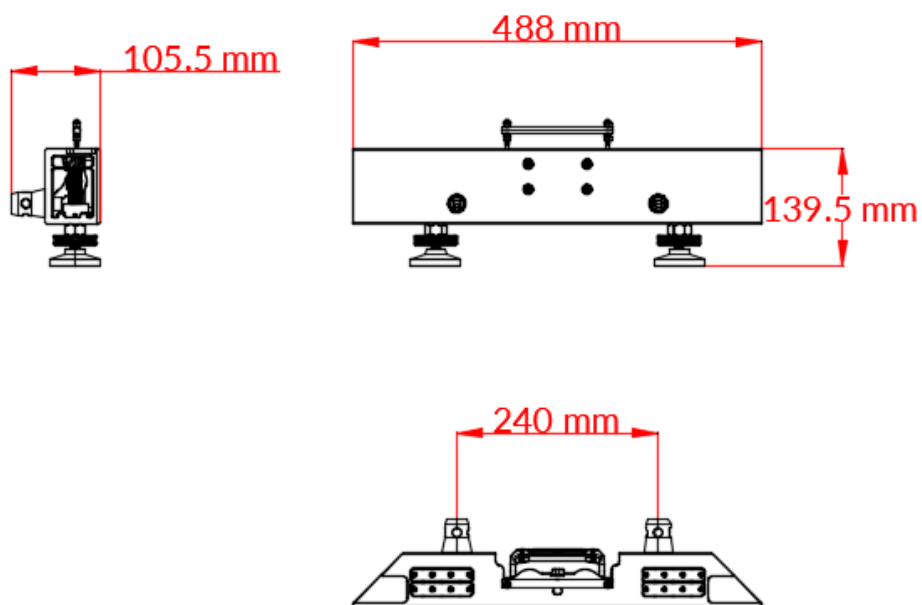
Basic dimensions of Topaz stacking bar, 0.5m.



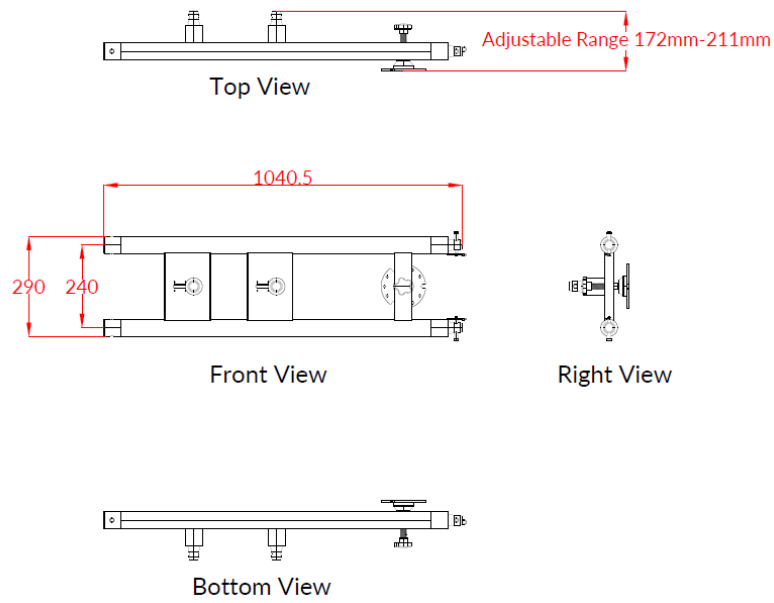
Basic dimensions of Topaz stacking bar, 1m.



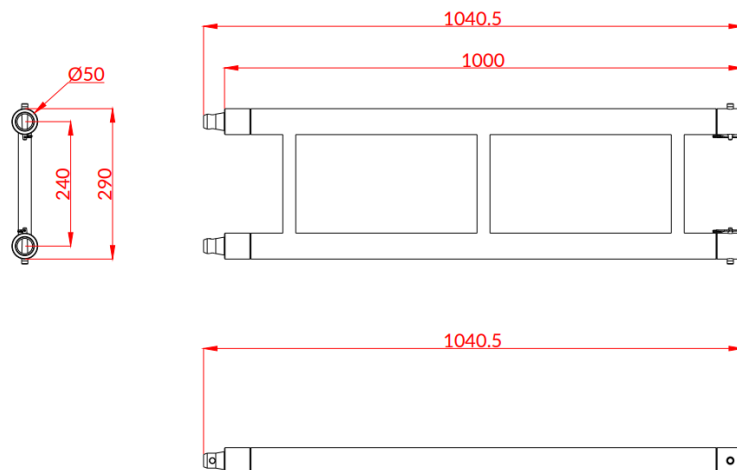
Basic dimensions of Topaz-Cube stacking bar, 0.5m



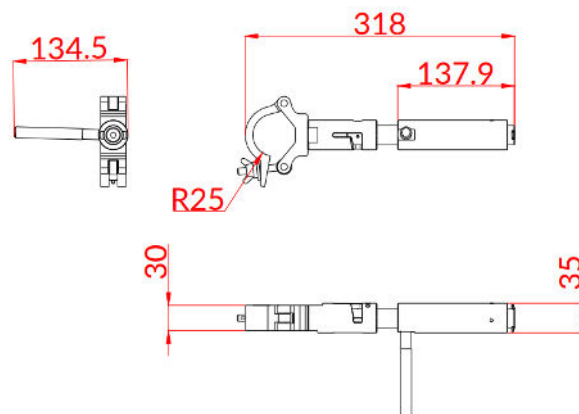
Basic dimensions of Topaz-Series base truss.



Basic dimensions of Topaz rear truss.



Basic dimensions of Topaz rear bridge.



Mechanical accessories for Topaz stacking.

	<p>Stacking Bar_0.5m_V1.1 SAP: 207002S0714 Dimensions: 488 x 174 x 105.5 mm Stacking Bar_0.5m_V1.1 (EU Only) SAP: 207002S0722 Dimensions: 488 x 174 x 105.5 mm</p>
	<p>Stacking Bar_1.0m_V1.0 (EU Only) SAP: 207002S0723 Dimensions: 987.75 x 174 x 105.5 mm</p>
	<p>Base Stabilizer (Universal Base Trusses) SAP: 215003S0128 Weight: 8.0kg Dimensions: 1040.5 x 293 x 90 mm</p>
	<p>Stacker(Rear truss) SAP: 304012-00504 Weight: 4.65kg Dimensions: 1040.5 x 290 x 50 mm</p>
	<p>Rear Bridge SAP: 215002S0114 (Only for Topaz) Weight: 1.02kg Dimensions: 327 x 106 x 30 mm</p>
	<p>Stacking Bar_0.5m_V1.1 (for TP-C) SAP: 207002S0697 Dimensions: 488 x 174 x 105.5 mm Stacking Bar_0.5m_V1.1 (EU Only) SAP: 207002S0698 Dimensions: 495x105.5x146.5 mm</p>
	<p>Stacking Bar_0.5m_V1.0 (for TP-B in Right-Angle) SAP: 207002S0761 Dimensions: 488 x 174 x 105.5 mm</p>

Mechanical accessories for Topaz-B (Right Angle / Cube).

	<p>Stacking Bar_0.5m_V1.0 (for TP-B in Right-Angle) SAP: 207002S0761 Dimensions: 488 x 174 x 105.5 mm</p>
	<p>TP-B Flat Plate, 4 Screws (for Cube Shape) SAP: 307006-00320 Weight: TBD Dimensions: 170 x 170 x 18.5 mm</p>
	<p>TP-B Connector, 3 Screws SAP: 307006-00306 Weight: 123g Dimensions: 53 x 53 x 53 mm</p>
	<p>TP-B Right Angle, 4 Screws (both Cube & Right angle can be used) SAP: 307006-00311 Weight: 308g Dimensions: 38.65 x 38.65 x 145 mm</p>
	<p>Screws_HM10 x 20 The connecting plate is shipped with screws. If you need to but it additional, please make sure the specifications are consistent.</p>

3.3 Cables

3.3.1 Cable Types

	<p>Power cable, 10m, 16A, Weipu CEE-True 1, V3.0 SAP: 208001S2006 Weight: 0.7 kg Weipu _ Neutrik (Female) Connectors Connect the power source and panels.</p>
	<p>Power cable, 10m, 16A, True 1-True 1, V3.0 SAP: 208001S1976 Weight: 0.7 kg Neutrik _ Neutrik Connectors Connect the power source and panels.</p>
	<p>Power cable, 0.4m, 16A, True 1-True 1, V2.0 SAP: 208001S1919 Weight: 0.12 kg Neutrik _ Neutrik Connectors Connect neighboring panels vertically.</p>
	<p>Power cable, 5m, 16A, True 1-True 1, V3.0 (Optional) SAP: 208001S1977 Weight: 0.2 kg Neutrik _ Neutrik Connectors Connect panels in neighboring columns.</p>
	<p>Data cable, 30m, etherCON-etherCON, Belden, V1.0 SAP: 208004S1019 Weight: 7±3% kg Neutrik _ Neutrik Connectors Connect the processor and panels.</p>
	<p>Data cable, 0.4m, etherCON-etherCON, Belden, V1.0 SAP: 208004S1021 Weight: 0.08 kg Neutrik _ Neutrik Connectors Connect neighboring panels vertically.</p>
	<p>Data cable, 0.9m, etherCON-etherCON, Belden, V1.0 SAP: 208004S1020 Weight: 100±5 g Neutrik _ Neutrik Connectors Connect panels in neighboring columns.</p>

4 Installation

4.1 Precautions for Installation

4.1.1 Mechanical Requirements

4.1.1.1 Weight

Do not underestimate the weight of tiles and frames. Please make sure the floor or truss on which ROE tiles and frames will be installed is capable of handling five times the complete weight of tiles and frames.

Do not forget to take into consideration the ballast weight required by the stacking system.

4.1.1.2 Levelling

The surface on which tiles and frames will be installed must be levelled. Never install ROE tiles and frames on an inclined surface.

4.1.1.3 Ballast

In consideration of the expected wind load, the height and position of the LED wall upon the stacking system, the additional weight (ballast) should be required. The detailed information how to calculate the ballast weight refers to Ballast Weight Calculation.

4.1.2 Electrical Requirements

4.1.2.1 Power

Topaz requires 100~240 VAC, 50/60 Hz and should be less than or equal to 16A.

This equipment MUST be earthed. 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.

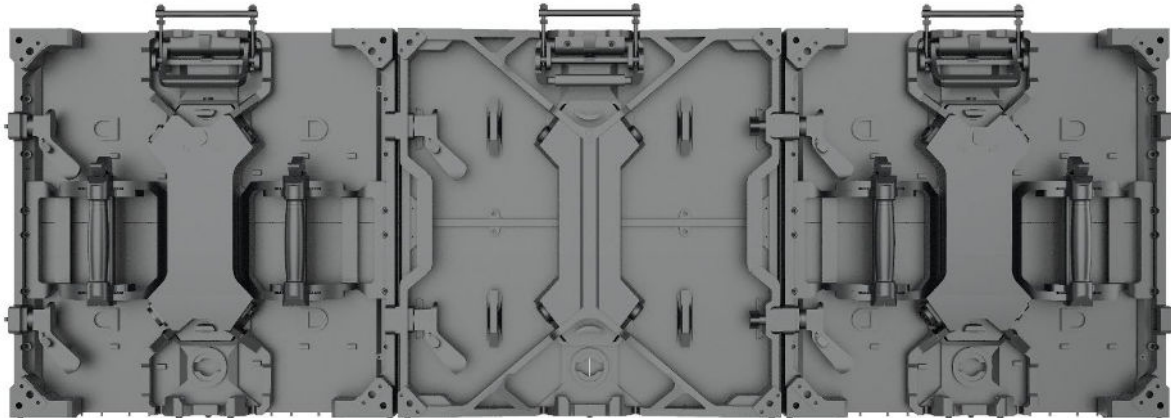
4.1.3 System Requirements

4.1.3.1 Control System

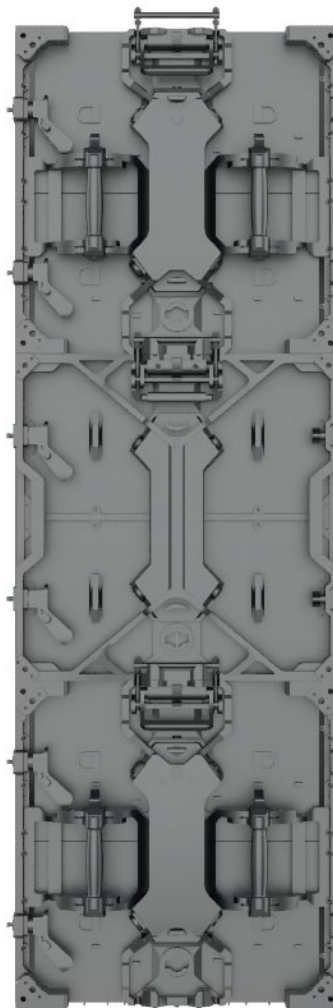
Generally, ROE LED tiles can support Brompton, Evision, Nova and MVR processing. An additional inquiry is needed for the control system information of a specific order.

4.2 TP Series Mix and Match

A: You can splice left and right with TP-Flat / TP-B and TP- Curved with left and right splicing
Splicing up and down is not allowed.

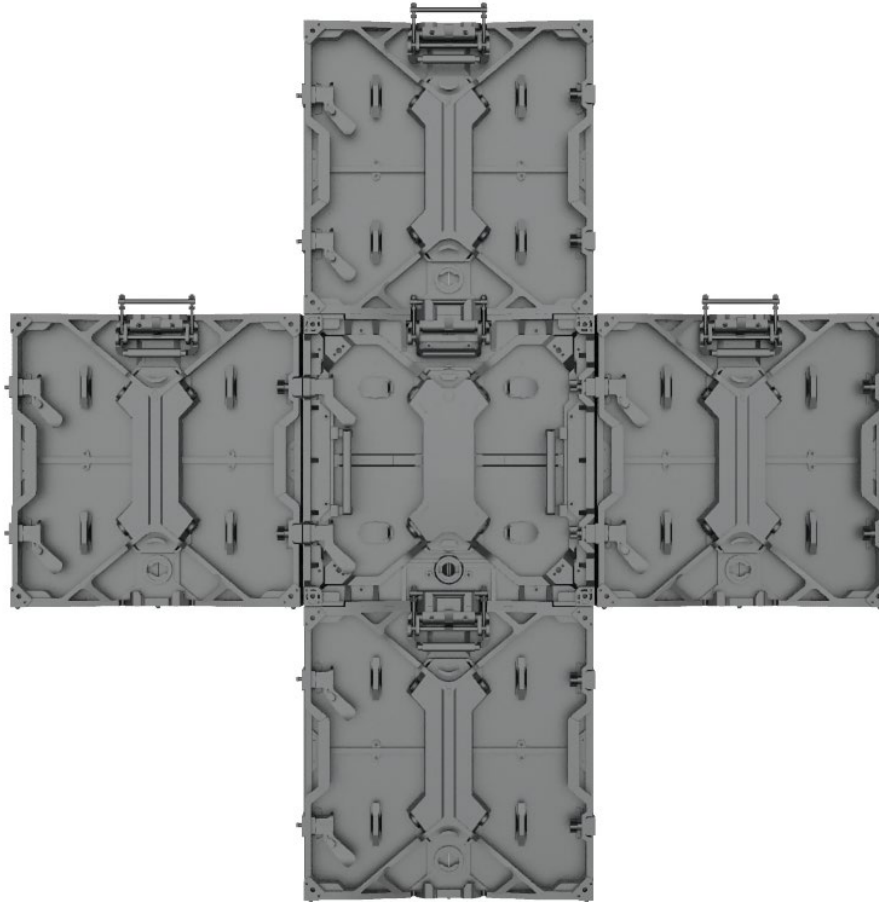


Horizontal Combination
ok

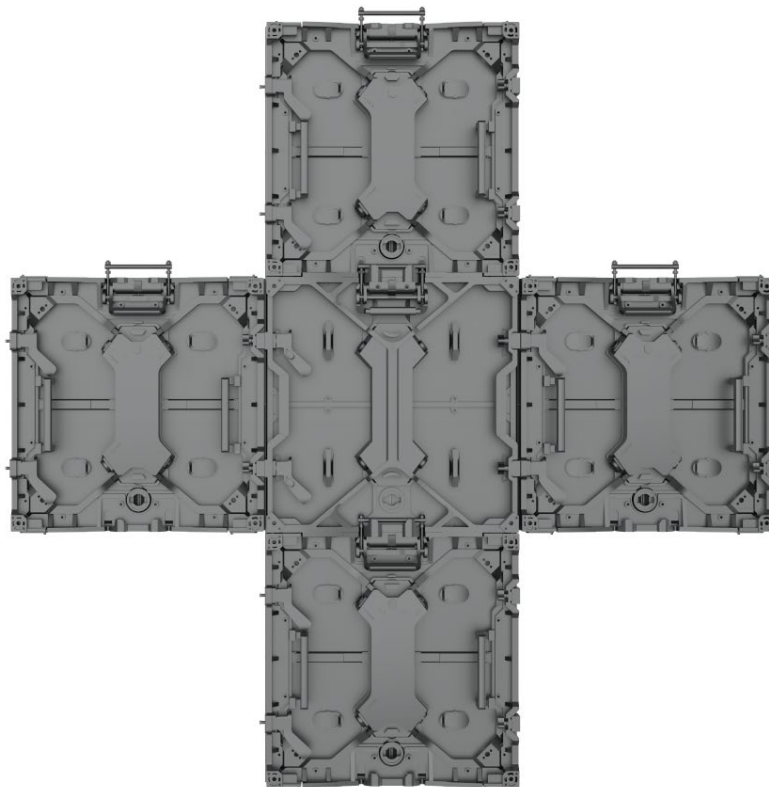


Vertical Combination
NOT Allowed!

B: You can use TP-Cube and TP-Flat for any splicing (flat only).



OK

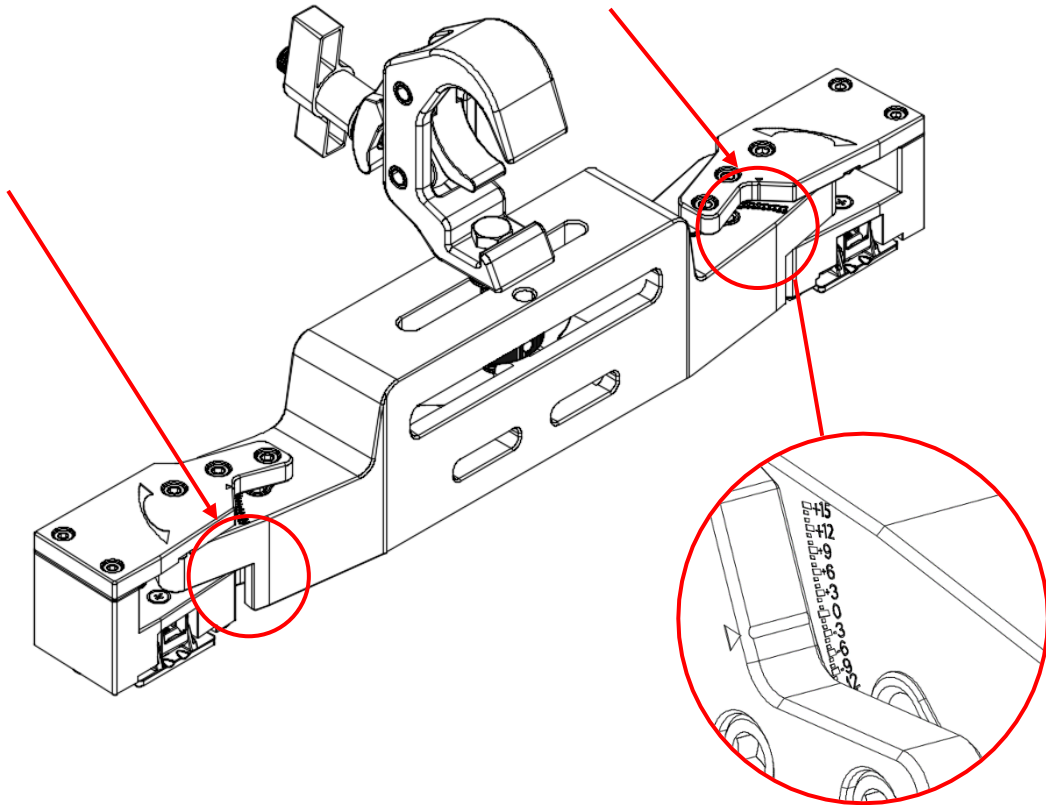


OK

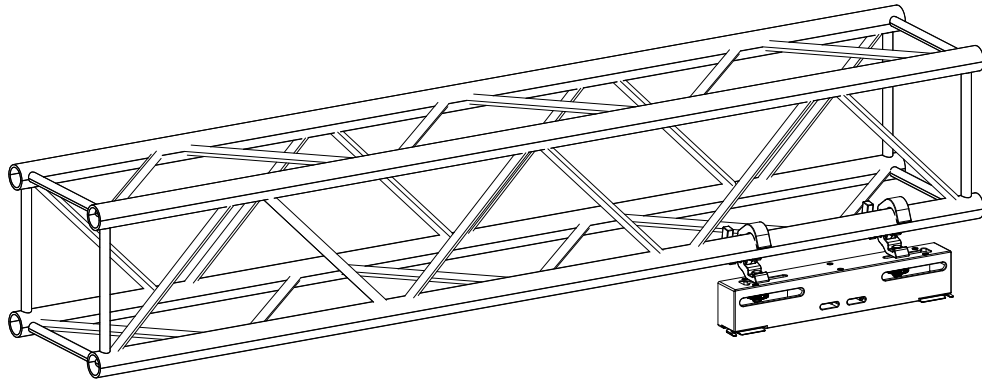
4.3 Hanging System

The **installation steps** for the three types of TP screens **are the same**, but when you install TP-Curved, please pay attention to adjusting the degree of the hanging bar/base bar to be consistent with the tile before installation.

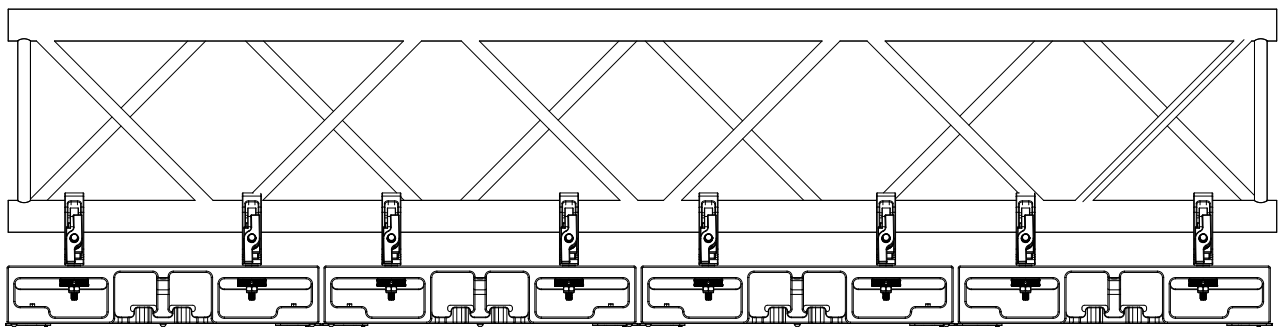
Set the curve angle by rotating this block.



1. Attach the hanging bar onto the truss, move the clamps horizontally to avoid interference with the truss.

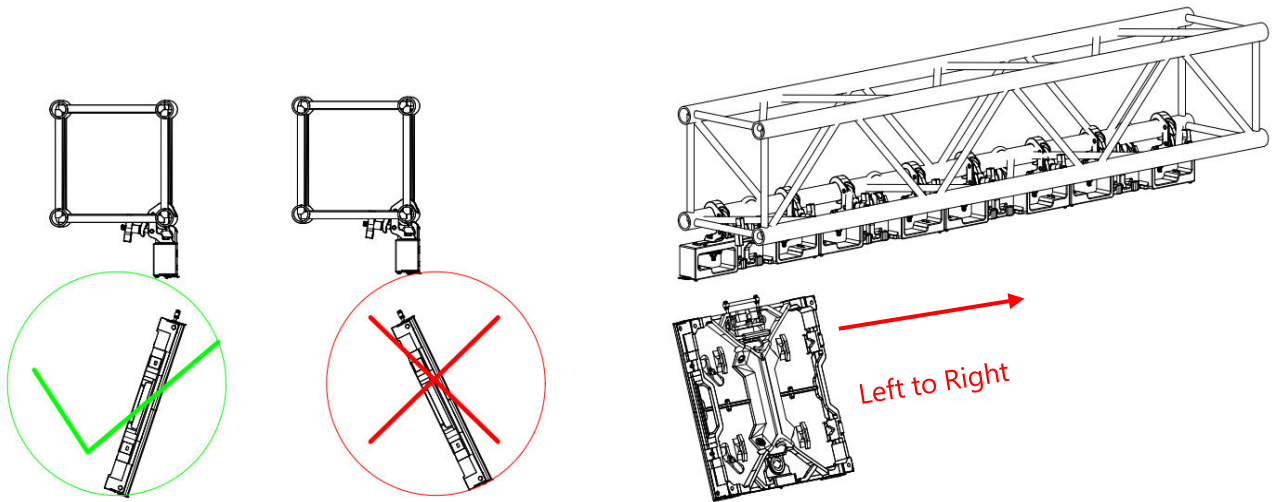


2. Attach all hanging bars onto the truss. Leave around 8mm gap between hanging bars. Fix more hanging bars and keep them at the same horizontal level through the adjustment wheel.

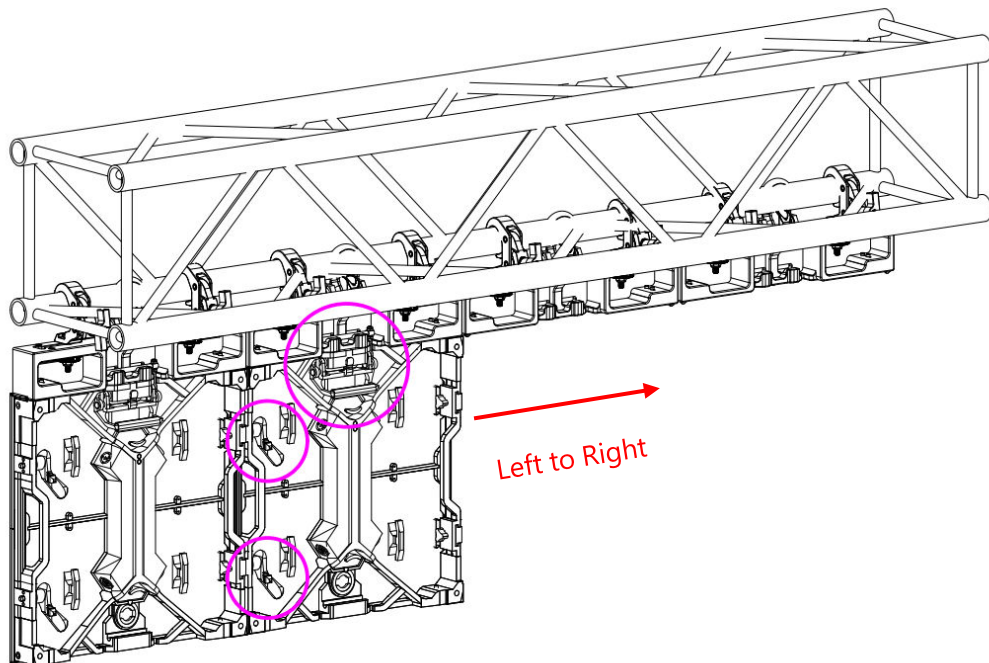
**Notes:**

- 1) The adjusting range of the adjustment wheel is about 11.5 mm (vertical) and 91 mm (horizontal) respectively.
- 2) Please note that there is a 8 mm gap between neighboring hanging bars.
3. Install tiles on hanging bars. Hanging bars will attract tiles to correct target position automatically with magnets. After aligning all hanging bars horizontally, rotate the lever of the clamps to fix the clamps to the truss.

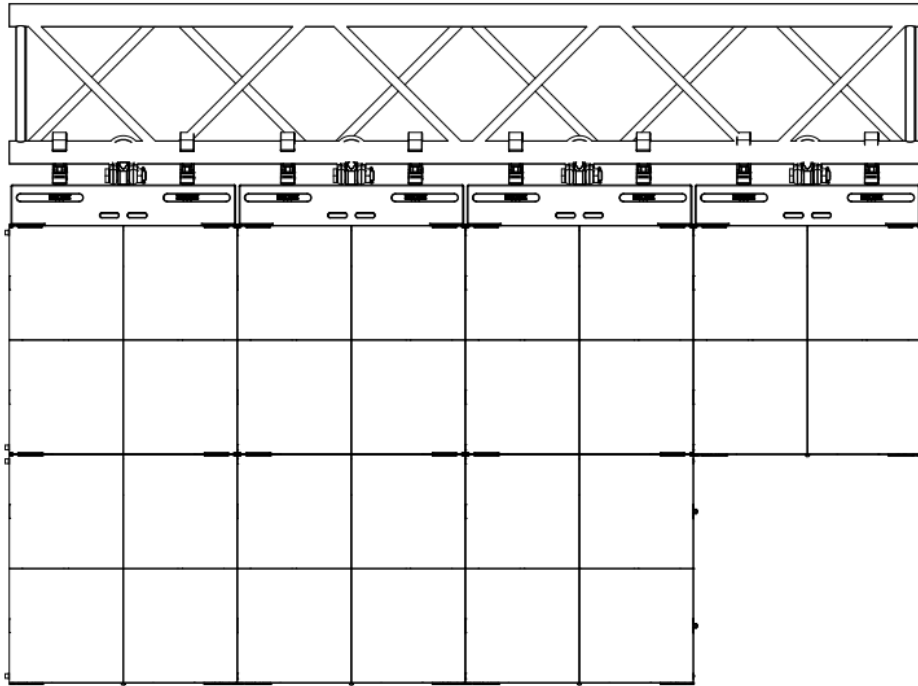
4. Take out the panel from the flight case and remove the protective EVA cover.
Keep panels at an angle to avoid damage to LEDs when magnets attract panels. Then press the red button and lock the tiles by vertical connector.



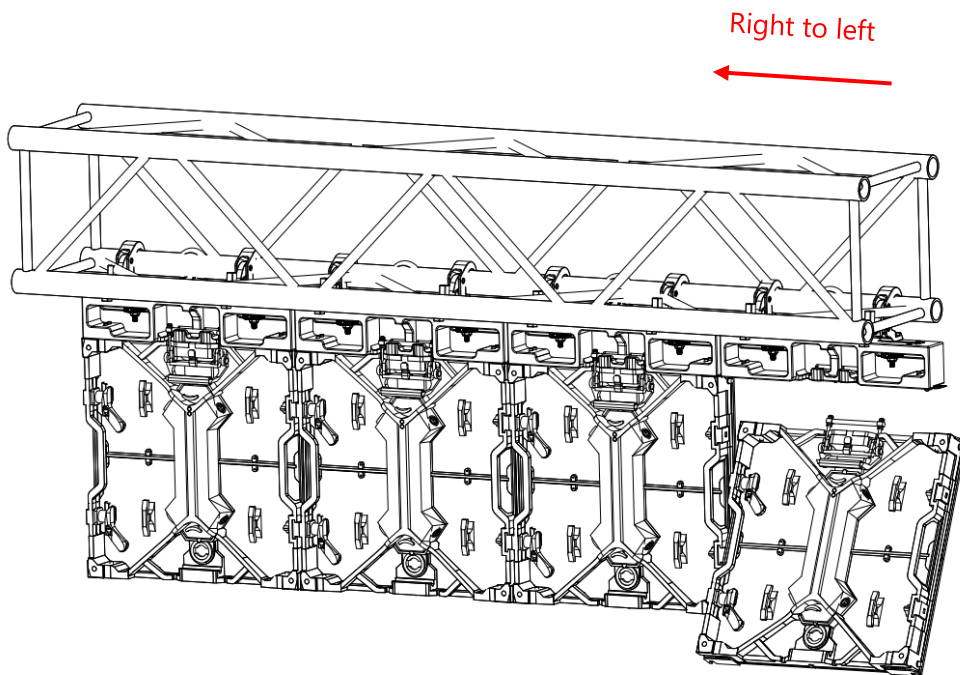
5. Lock the panel and hanging bar and install the second panel. Lock neighboring panels.



6. Repeat above steps until all panels are installed.

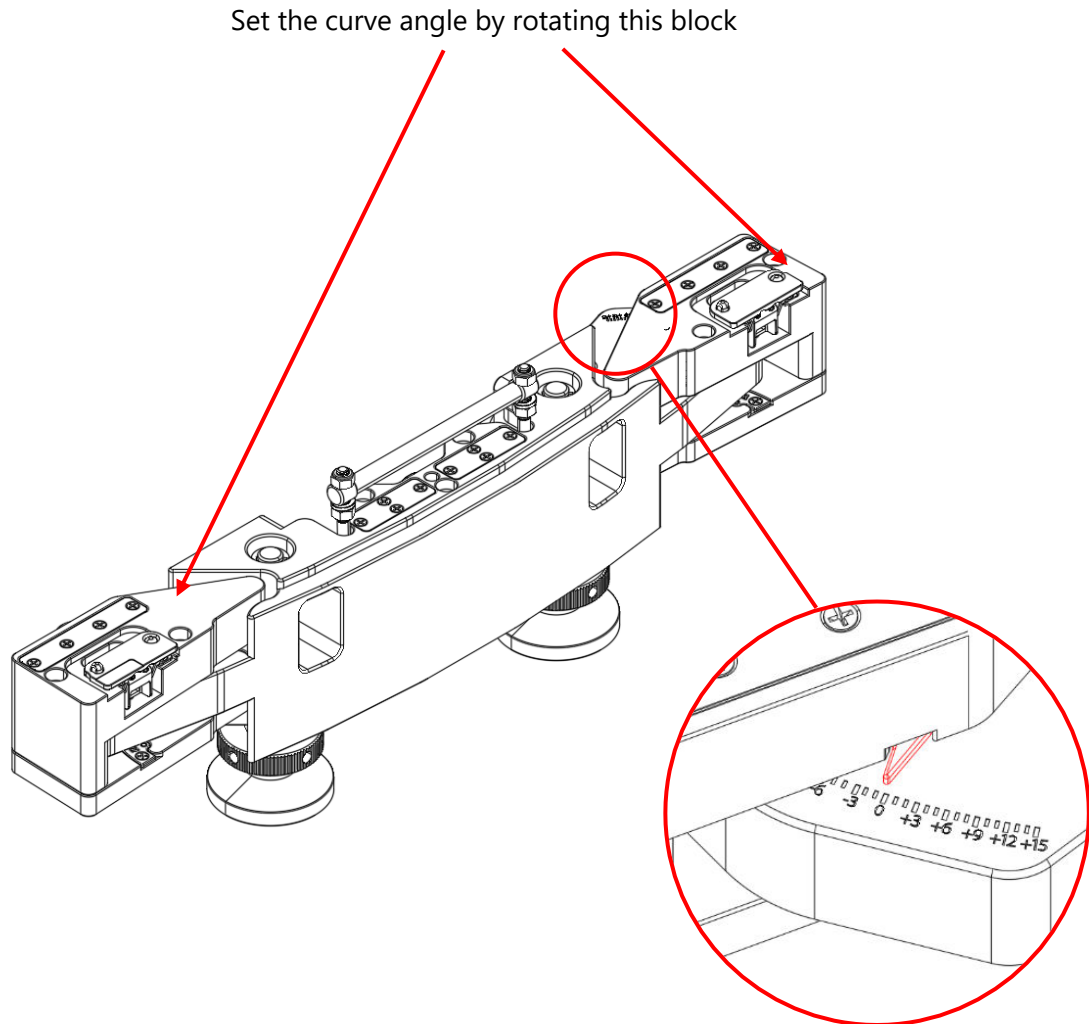


7. It is recommended to uninstall from right to left when uninstall tiles.

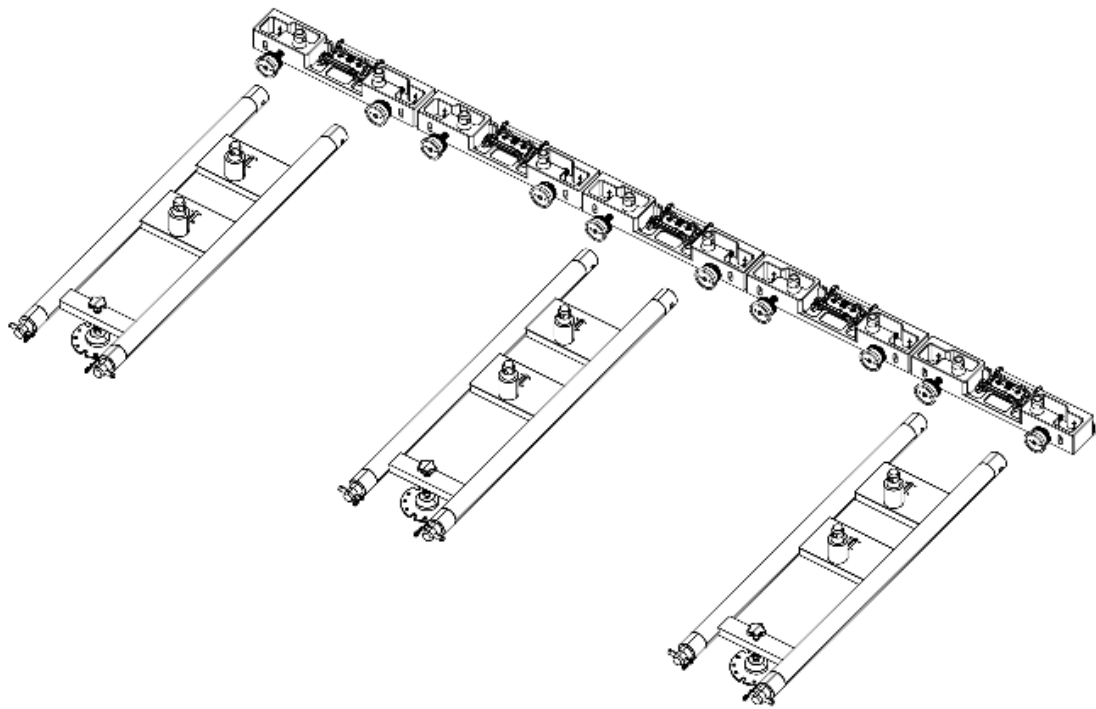


4.4 Stacking System

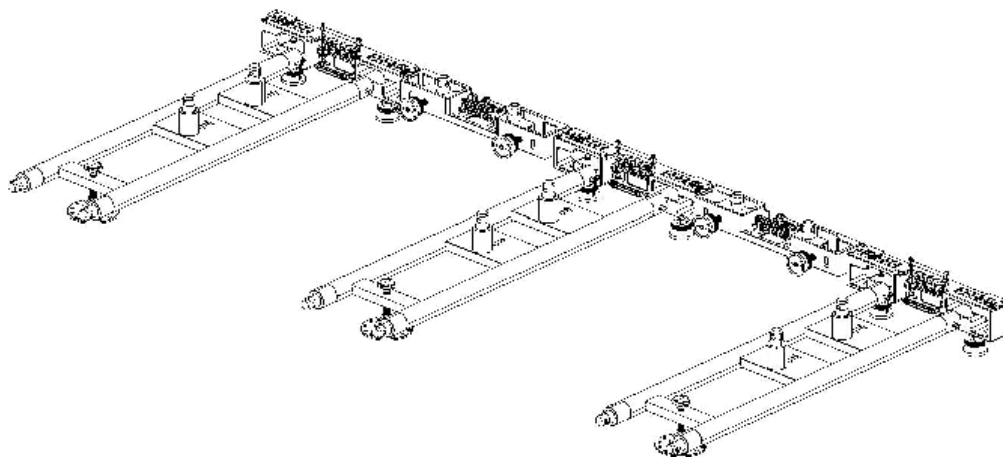
The **installation steps** for the three types of TP screens **are the same**, but when you install TP-C, please pay attention to adjusting the degree of the hanging bar/base bar to be consistent with the tile before installation.



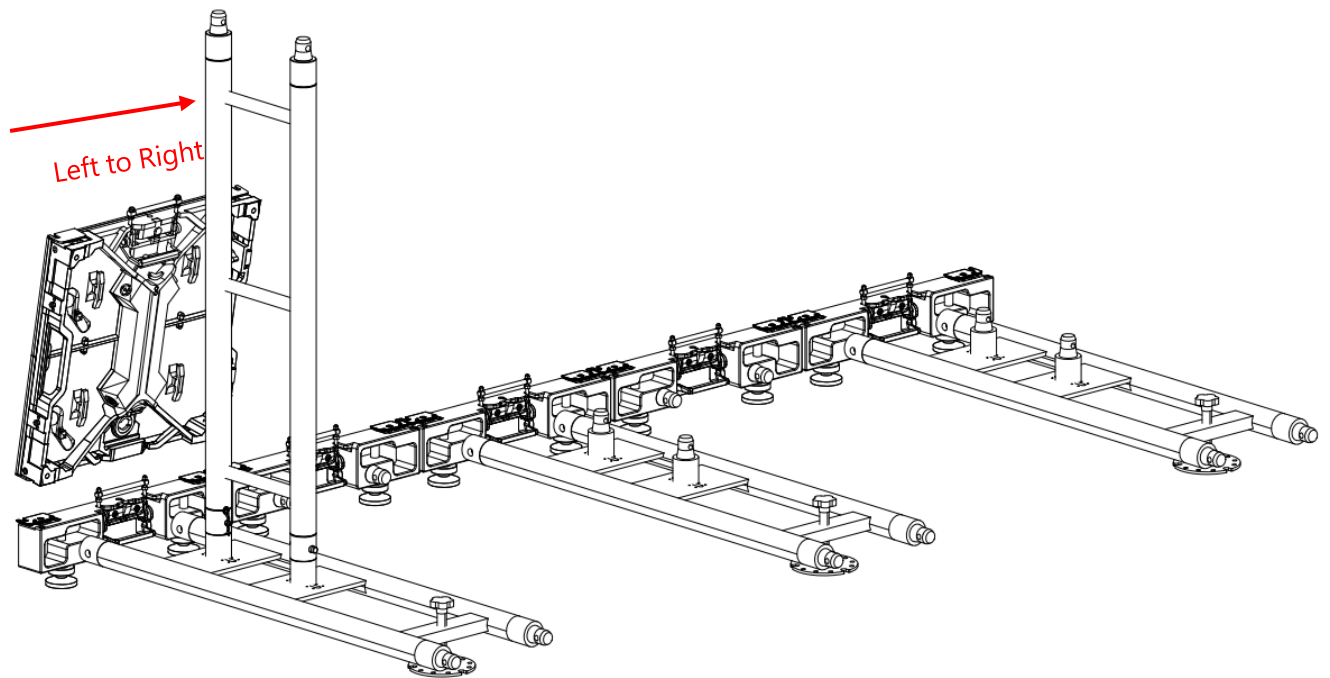
1. Take stacking accessories from the flight case and put the base bars and base trusses at the target place.



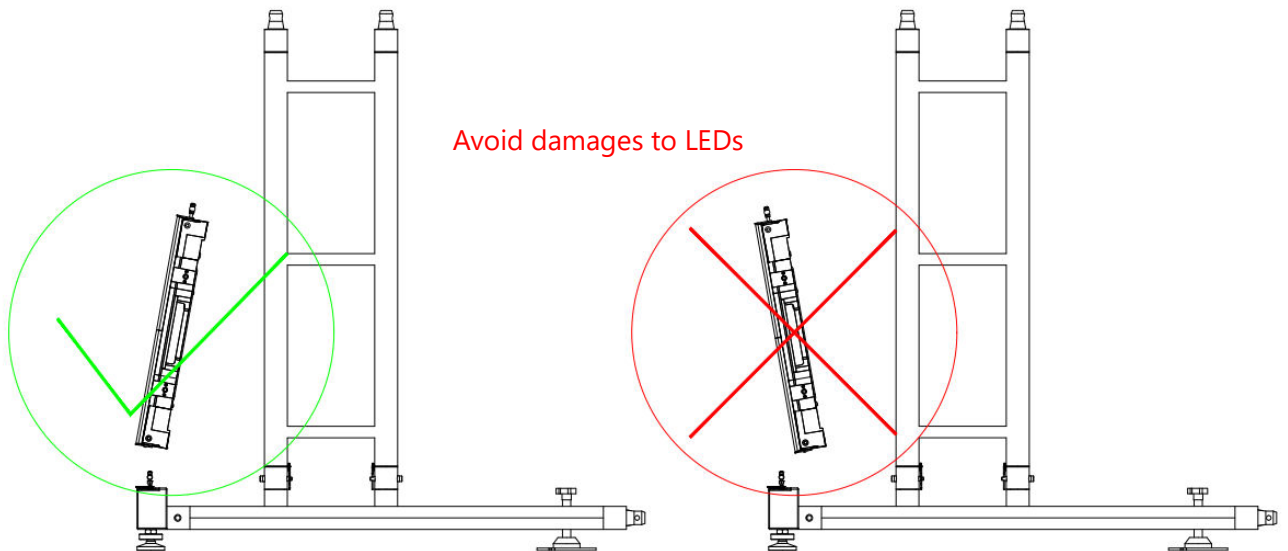
2. Assemble stacking bars with base trusses.



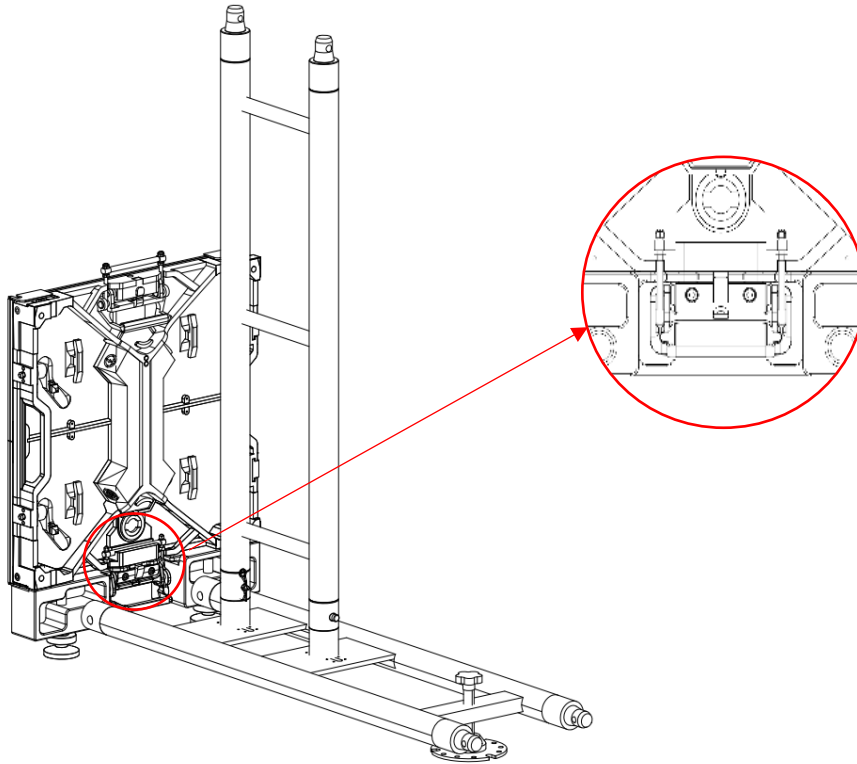
- Put the rear support truss onto the base truss (The base trusses and rear support trusses should be used every second row at least. If it's even rows, there should be used at both ends). Install the first panel on the stacking bar, which will attract panels to the target position automatically with magnets.



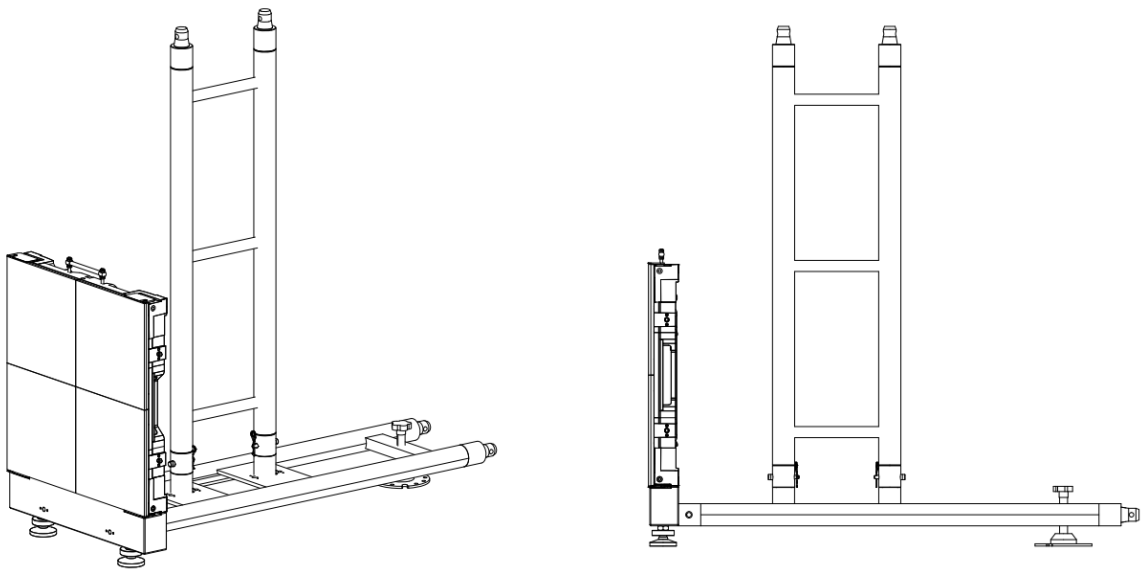
Note: It's recommended to install panel from left to right based on the rear view. Keep panels at an angle to avoid damage to LEDs when magnets attract panels.



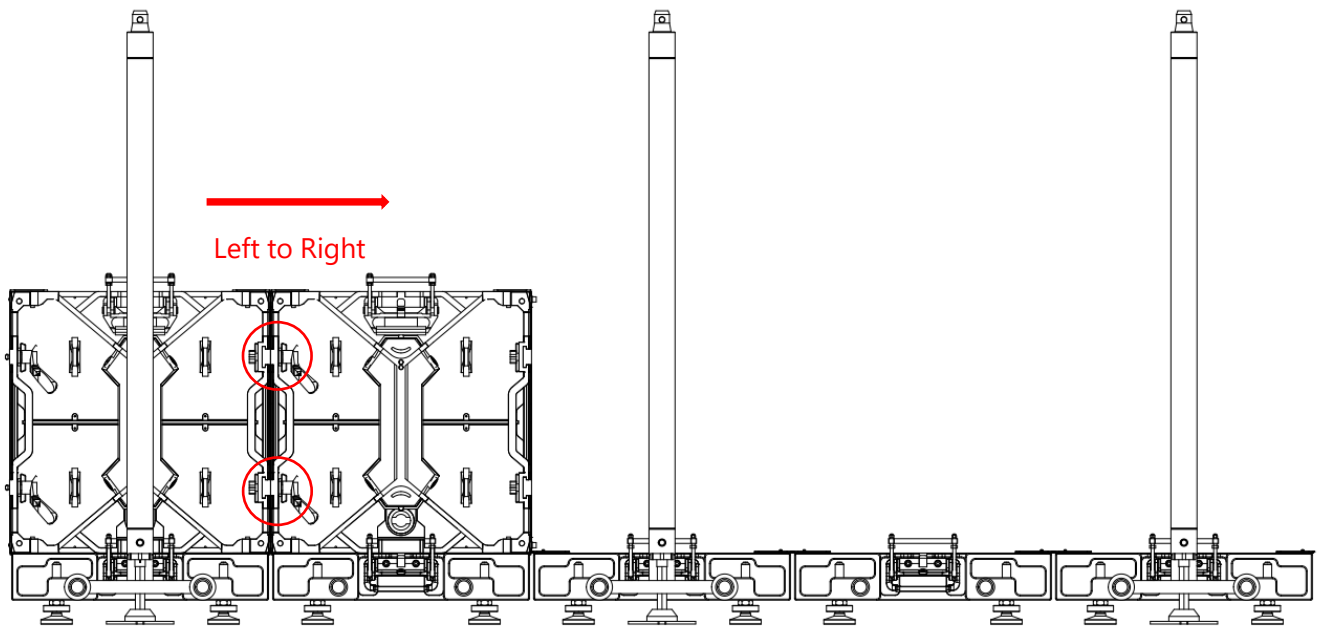
4. Lock the panel with the stacking bar.



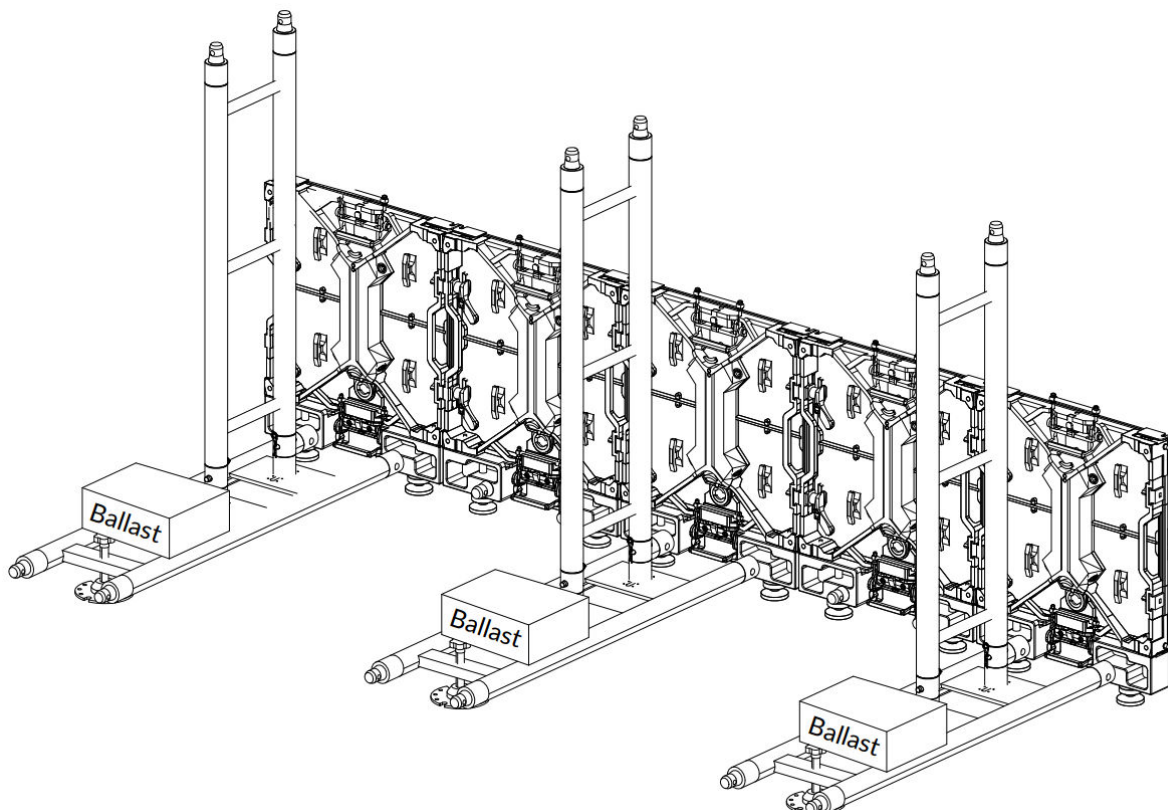
5. Adjust the stacking bar and the base truss to make the panel stand upright.



- Lock the second panel with the stacking bar by the top lock and the first panel by the left lock.

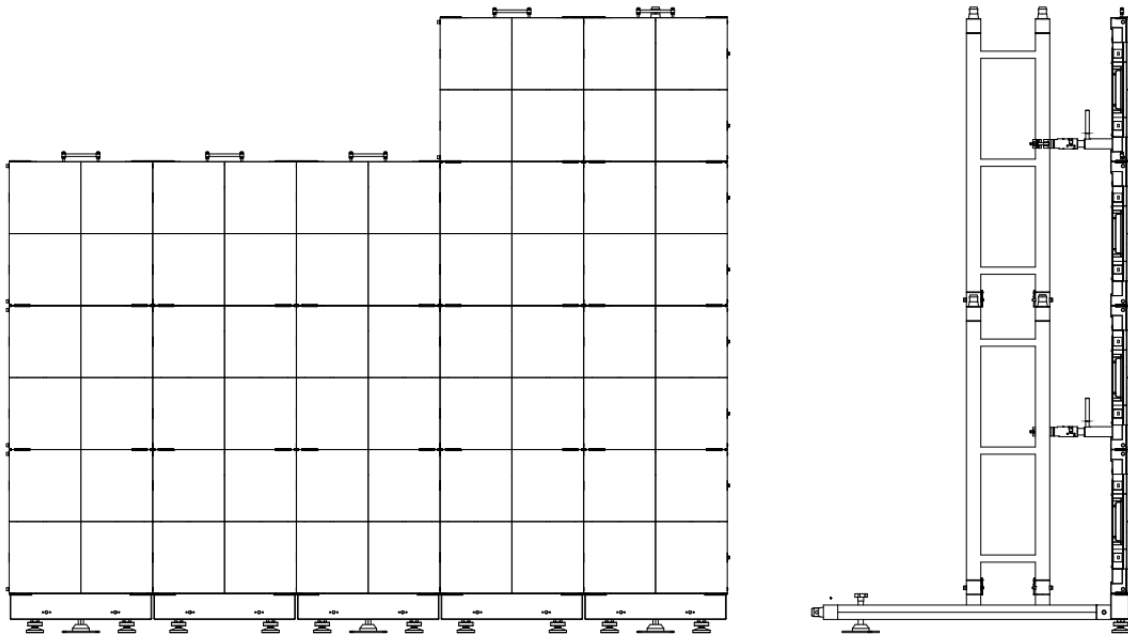


- Start to add the ballast on base trusses after installing the first row of panels. The ballast weight should be distributed evenly to every base truss.



Note: The certain ballast weight please refer to 5.4 Ballast Weight Calculation.

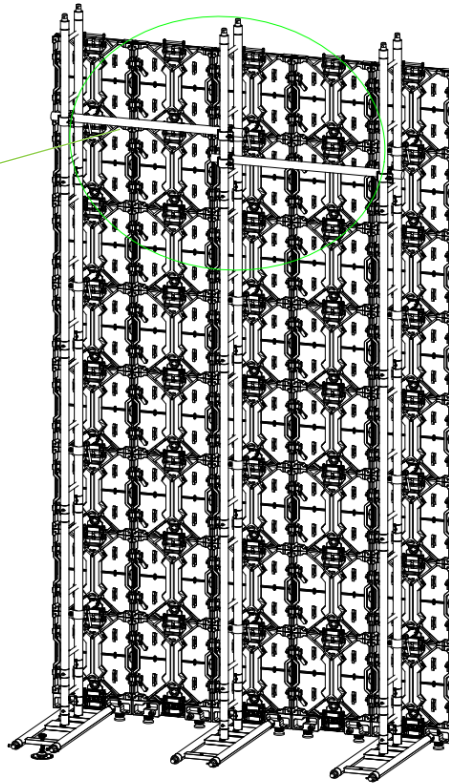
8. Install more panels and fix them with locks. When the second row of panels are installed, connect the rear bridge and rear support truss. (Rear bridge should be used every other row and start from 2nd row) .



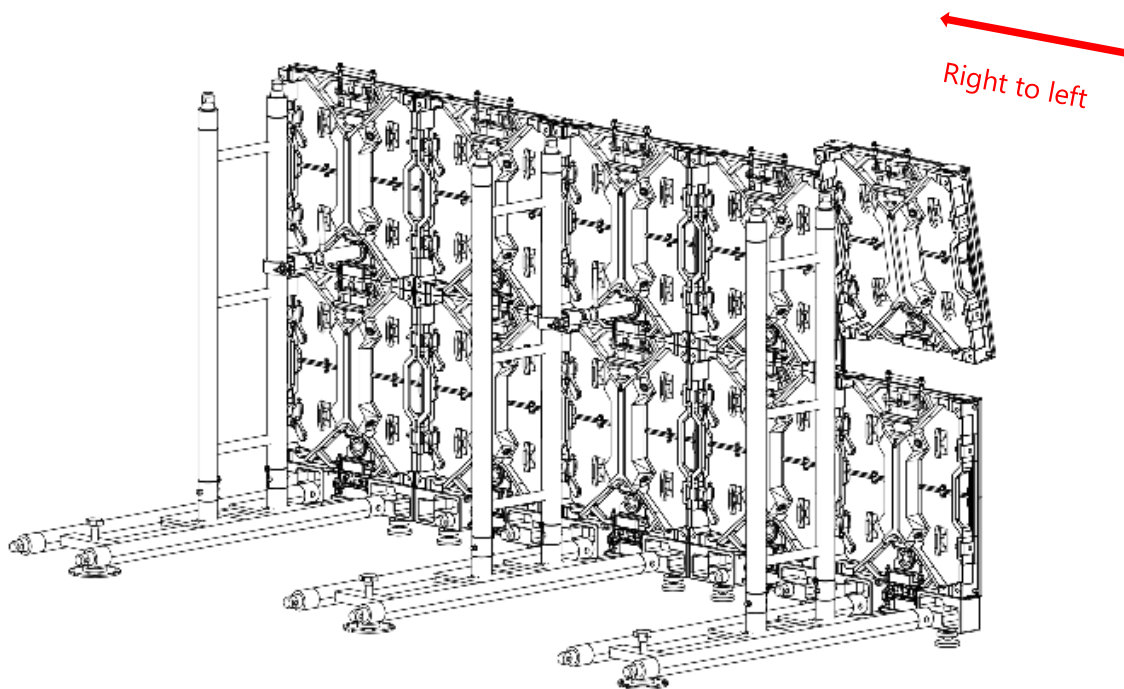
9. Conditions of using stacking system:

Version	Stacking Limits
Global Truss 1m	Up to 4m height you can use rear trusses on alternating columns. Higher, up to 6m, you need to use rear trusses on every column.
Global Truss Reinforced 1m	Up to 4.5m height you can use rear trusses on alternating columns. Higher, up to 6m, you need to use rear trusses on every column.
Prolyte 0.91m	Up to 6m you can use rear trusses on alternating columns without problem.
<p>Note:</p> <ul style="list-style-type: none"> -Within a complete screen the LED panels need a rear bridge connector on every 2nd row, including the top row. -LED screens that are only 2 panels wide need 2 rear support trusses and bases. -The first and the last column in a screen always needs to be connected to a stacking system. -Above 4m height the rear truss needs extra lateral support. -For more options, you can check the Ballast Calculation on 44th page. 	

It is recommended that above 4m height the rear truss needs extra lateral support.



10. It is recommended to uninstall from right to left based on the rear view when uninstall tiles.

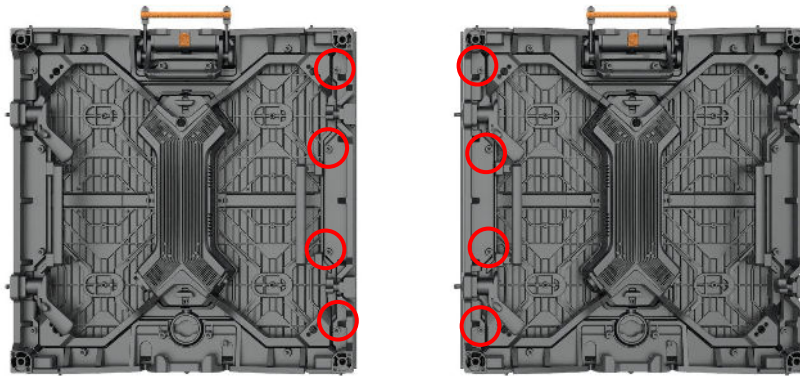


Notes:

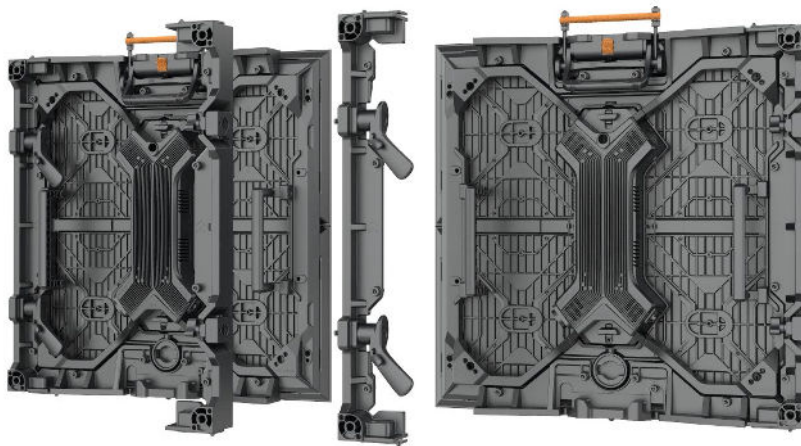
- (1) The adjusting range of the feet (stacking bar) is 48mm.
- (2) The rear bridge should be used in even rows. (Except the first row)

4.5 Use TP-B to build right angles

1. Loosen the screws securing the outer frame

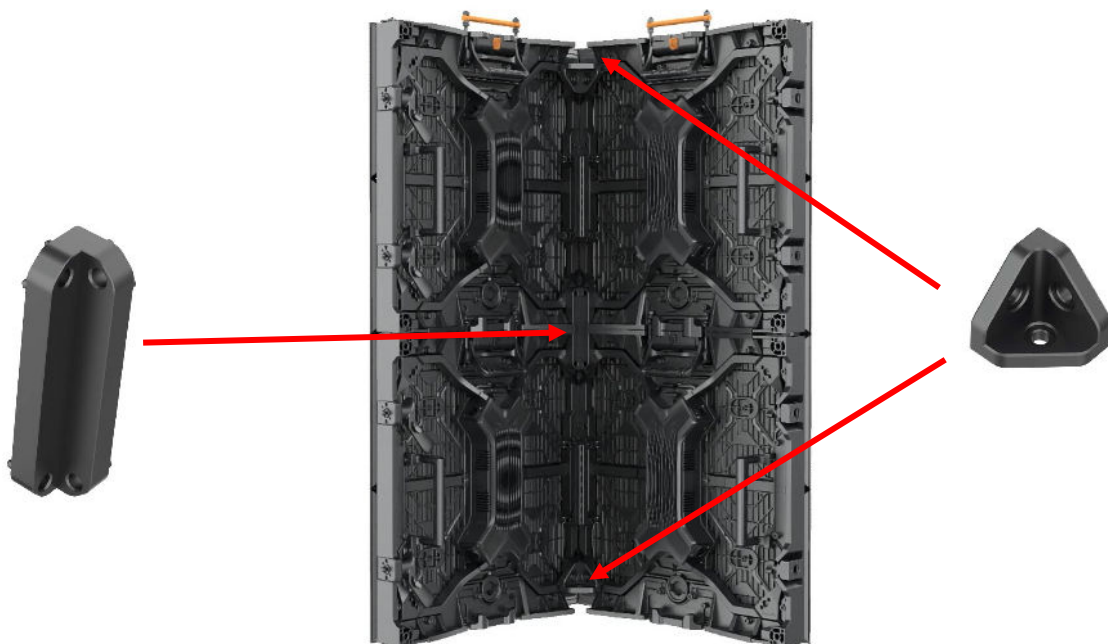


2. Take off the outer frame.



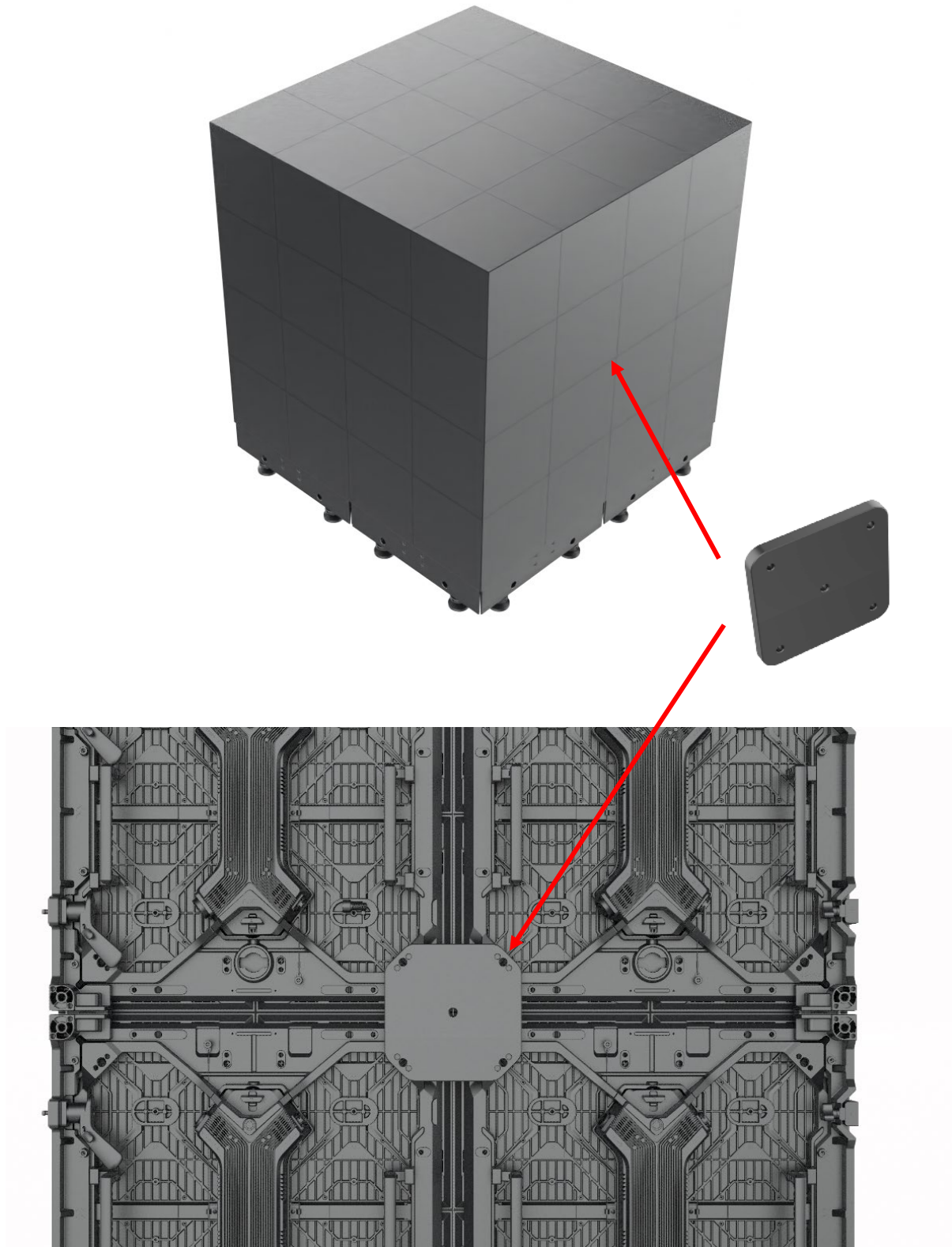
3. Make the screen into a right angle.

Use [Connector,3 screws] in the top and bottom, and use [right angle, 4 screws] in the middle, so that your right-angle shape is completed.



4.6 Use TP-B to build Cube

1. Please use this additional connector (TP-B flat plate 4 screws) on the basis of right angles to easily build the Cube shape.



4.7 Ballast Calculation

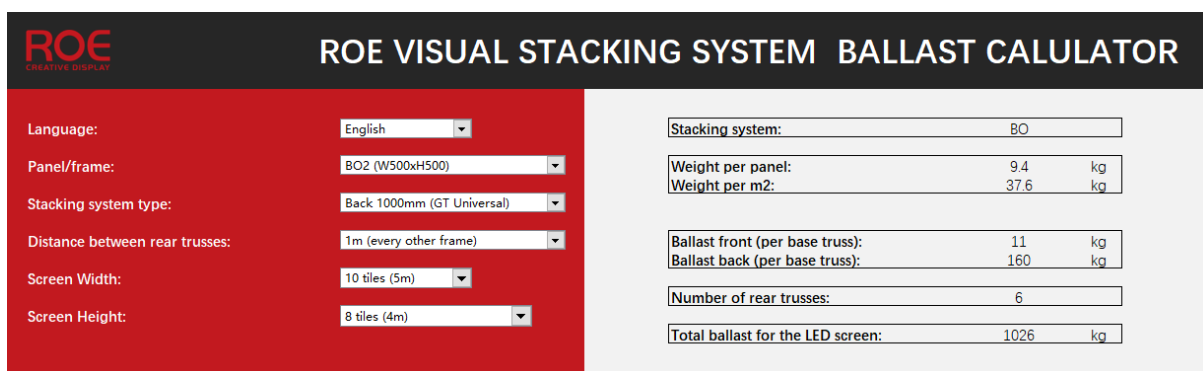
In order to confirm the correct total ballast weight for your LED screen, we created the stacking system ballast calculator based on the ROE stacking system structural analysis reports.

To use, select the corresponding options in the left of the calculator according to the wall build. The results will be shown on the right side of the calculator.

The calculator will not allow you to select a height that is higher than the setup you plan to use. If you cannot reach your height, the first step is to reduce your distance between your vertical trusses by adding additional trusses to the wall.

If you want to go higher you should contact an engineering consulting company. In most cases the height limitation is due to the limitations of the stacking system.

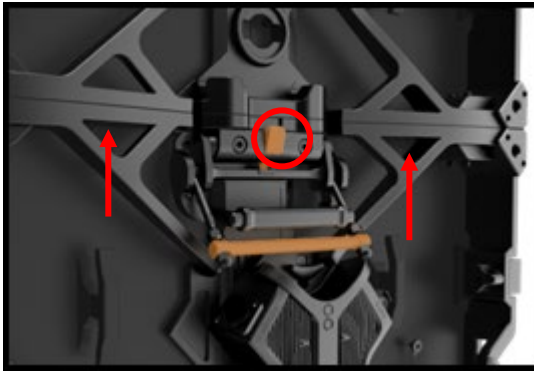
Please download the ballast calculator at <https://www.roevisual.com/news/news-blog/build-your-led-screen-safe-using-the-roe-visual-ballast-calculator.html> or contact the customer service.



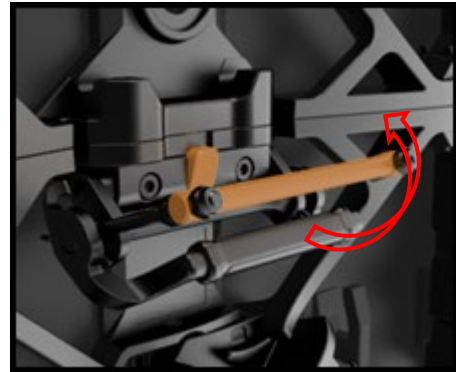
ROE VISUAL STACKING SYSTEM BALLAST CALCULATOR		
Language:	English	
Panel/frame:	BO2 (W500xH500)	
Stacking system type:	Back 1000mm (GT Universal)	
Distance between rear trusses:	1m (every other frame)	
Screen Width:	10 tiles (5m)	
Screen Height:	8 tiles (4m)	
Stacking system:	BO	
Weight per panel:	9.4	kg
Weight per m2:	37.6	kg
Ballast front (per base truss):	11	kg
Ballast back (per base truss):	160	kg
Number of rear trusses:	6	
Total ballast for the LED screen:	1026	kg

4.8 Installation

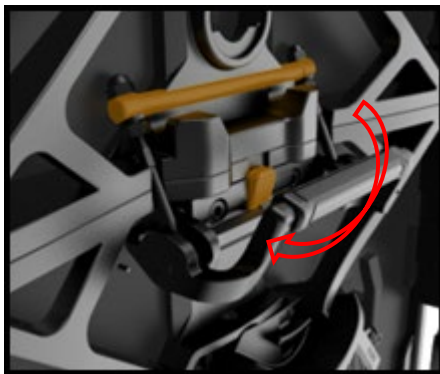
4.8.1 Vertical connector operation



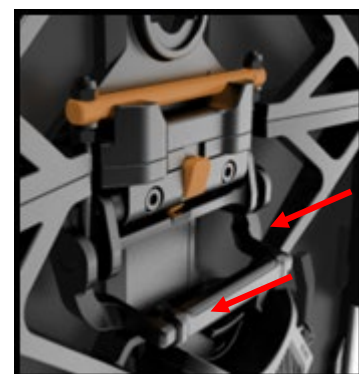
Picture 1



Picture 2



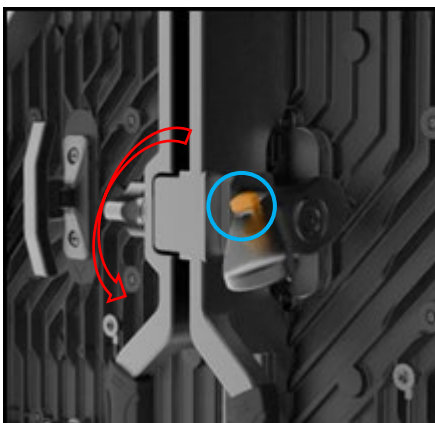
Picture 3



Picture 4

1. Tiles will be attached together by magnets automatically. Press the vertical red button to loosen the handle. (Picture 1)
2. Pull the handle to turn the connecting bar. (Picture 2)
3. Connect two tiles and align them. (Picture 3)
4. Push handle back for locking. (Picture 4)

4.8.2 Side lock operation



Press the button in the blue circle and then rotate side lock down for locking.

5 Cabling

5.1 Power Cabling

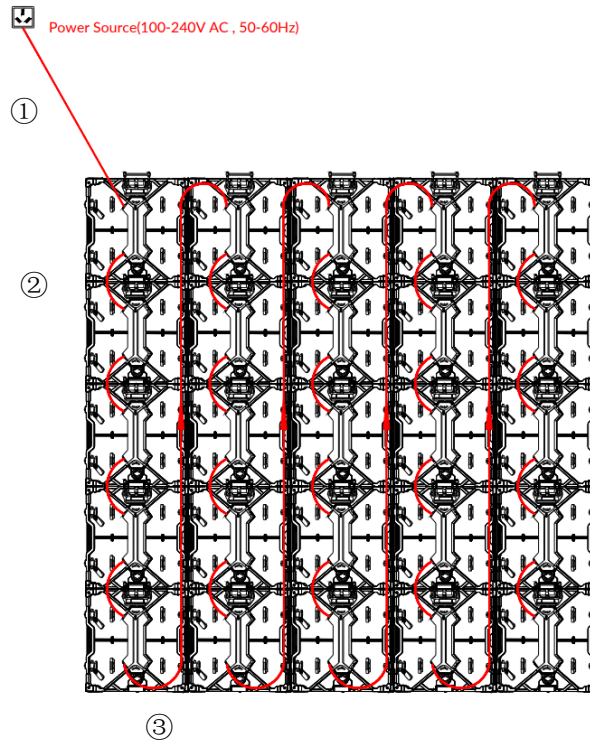
Connect neighboring tiles (in the vertical direction) with 0.43m power cables from the power-in port to the power-out port.

Connect the first power-in port and power source with one 10m main power cable.




How to calculate the power cable capacity

Formula: Voltage * 16A / Max Power Consumption

For example: The voltage is 220V, one power cable can load 25 pcs Topaz 2.6 tiles.



Notes:

- ①  1. Main Power Cable_10m_Weipu_Neutrik
(Main Power Cable_10m_Neutrik_Neutrik)
- ②  2. Power Cable_0.43m_Neutrik_Neutrik
- ③  3. Power Cable_2.4m_Neutrik_Neutrik

Note: The number in cabling is in line with that of in cables. (See 5.4 Cables.)

5.2 Data Cabling

Connect neighboring (vertical) tiles with 0.43m data cables.

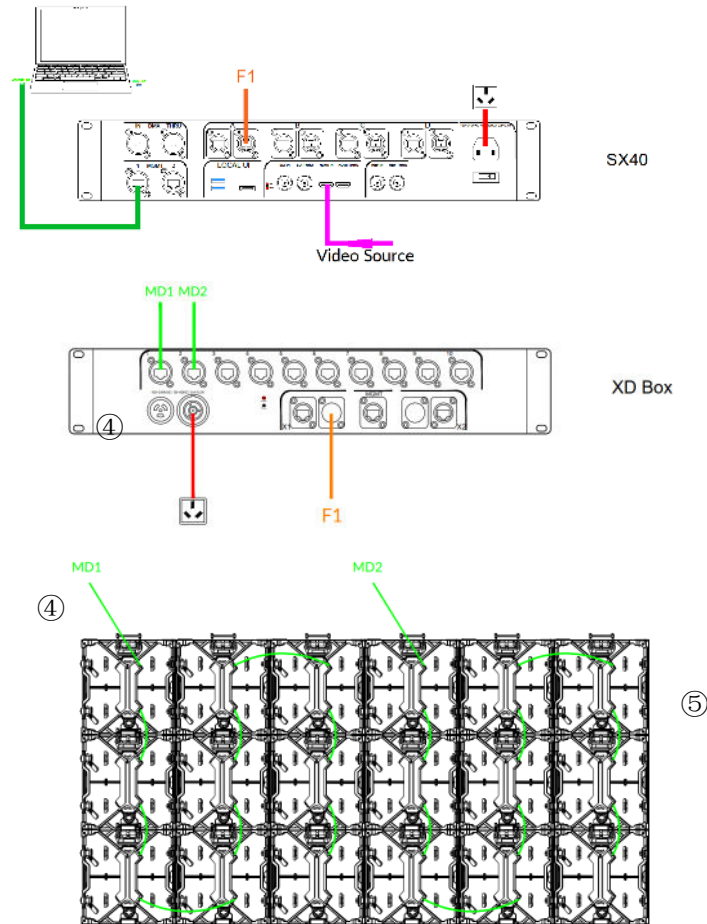
5.3 Others

Connect tiles with the processor through 30m data cables.

Connect the processor with a PC / laptop via the Ethernet port.

Connect the video source.

Take Brompton system for example, the data cabling are below:



⑥: Mainly used for cascading between columns

④ 4. Main Data Cable_30m_Neutrik_Neutrik

⑤ 5. Data Cable_0.43m_Neutrik_Neutrik

⑥ 6. Data Cable_0.75m_Neutrik_Neutrik

Notes:

(1) For example: One main data cable can load at most 9 pcs Topaz 2.6 tiles (12 bit, 60Hz, Brompton).

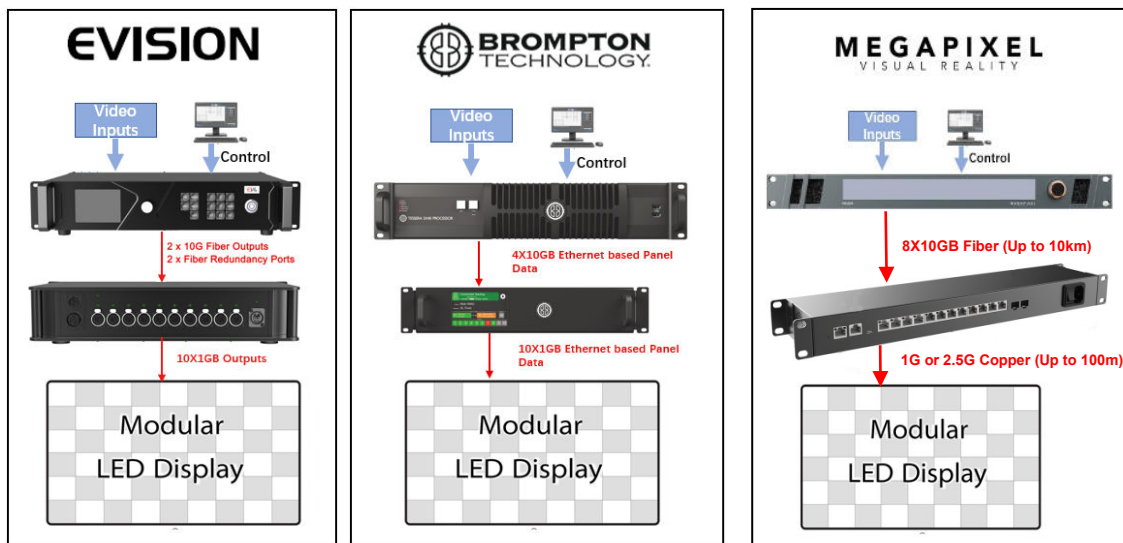
(2) The cascade control data cables should not be more than 60 meters. When it's over 60 meters, please switch to fiber cables.

6 Control System

ROE provides three different control systems: Megapixel VR Helios, Brompton Tessera and ROE Evison.

For more information about system operation, please check the corresponding control system user manual.

1. **ROE Evison Control System User Manual**
2. **Brompton Tessera Control System User Manual**
3. **Megapixel VR Helios Control System User Manual**



7 Service Manual

7.1 Cleaning Tiles

7.1.1 Needed Tools:



Dust-free Cloth for LEDs

Step 1: Spray a little detergent on the cloth and clean the tile gently.

Step 2: Spray more and keep cleaning until the tile is clean.

Note:

- 1: In terms of the cleaning frequency, it depends on the actual situation.
- 2: This method only suits for small area cleaning.

7.1.2 Steps

The LED screen requires a light touch.

Please slightly dampen a clean microfiber cloth with WATER ONLY.

It should never be dripping-wet. Use gentle pressure to wipe only the smudged areas.

Immediately use a clean, dry microfiber cloth to dry the screen.

7.2 Module Replacement

If dead pixels are found on the LED modules, it's suggested to replace the bad modules with the spares.

Put the suction pad onto the target module and press the button to evacuate the air for several seconds. After the module is firmly absorbed by the suction pad, pull out the module.

Disconnect the safety wire and swap the module.



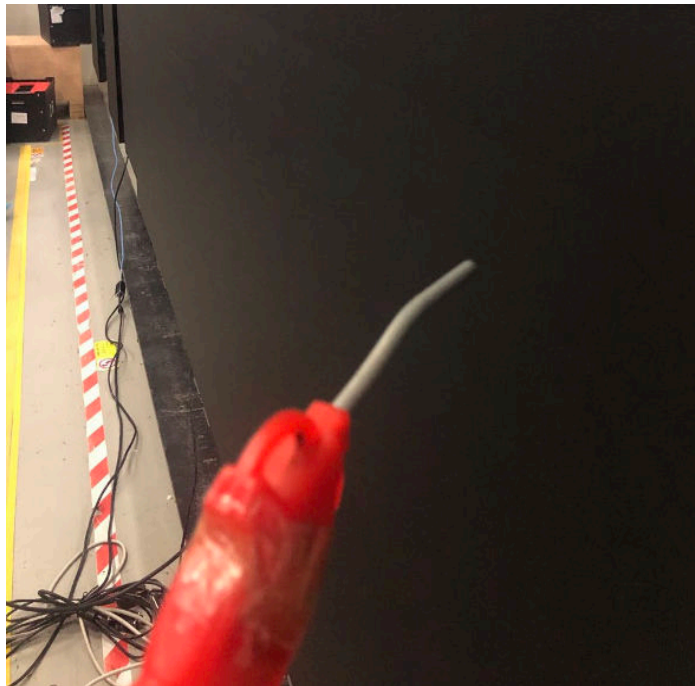
7.2.1 Wiping with Soft Toothbrush

Wipe off dust and dirt with a soft toothbrush gently.



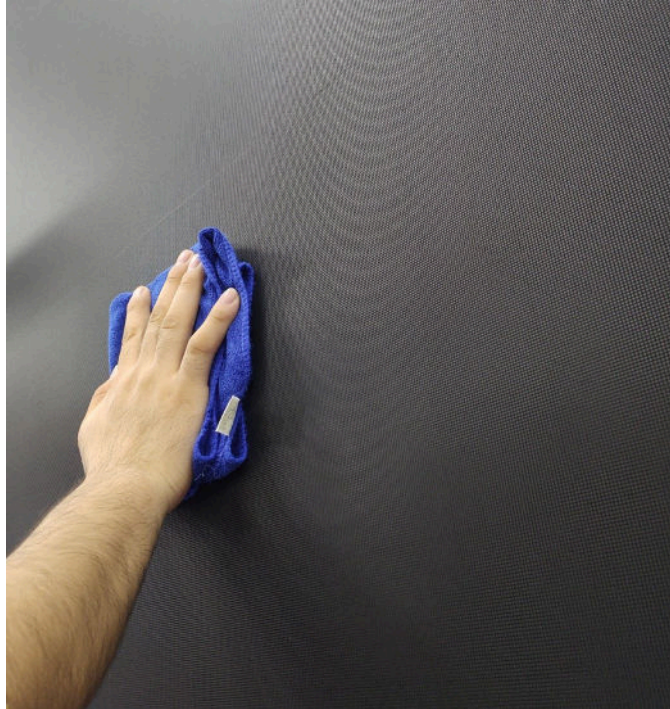
7.2.2 Air compressor

Aim the air gun at the spot where you want to clean, then start to blow the dirt away.



7.2.3 Large area cleaning

You can use a wrung-out rag to clean large area of panels (the rag should be wet with pure water)



Revision History

Revision	Update date	Remarks	Editor
1.0	2023-09-22	Original Release	Harper
1.1	2023-10-27	Added TP-Curved & TP-CUBE and corresponding accessories and installation methods, indicating compatibility	Bruce
1.2	2023-12-15	Add adjustment range of stacking bar. Updated the description of the M10 hole on the tile. Updated Topaz-Cube specifications	Bruce
1.3	2024-01-09	Updated Specifications of Topaz Series. Add Topaz2.2 & TP-C 1.9V2 Add product naming abbreviation -Topaz Curved (TP-C) -Topaz Cube (TP-B)	Bruce
1.4	2024-03-15	Added introduction to the use of TP-B connecting plate Updated Specifications of Topaz Series.	Bruce