

FRAME-EVO-E20

Mounting frame for projectors

Manual Version 1.8



Date	Revision No.	Author	Checked	Approved	Description
19.12.2018	1.6	DWN	DWN	DWN	Epson model number changed
04.01.2018	1.7	DWN	VIU	DWN	US Version removed
21.01.2019	1.8	DWN	DWN	DWN	New layout

The following projectors can be mounted in this frame:

Epson 3LCD: **Epson EB-L20000U**
Epson EB-L12000Q

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1. Preamble

Congratulations on your purchase of the **FRAME-EVO-E20** projector frame from LANG AG.

Please read very carefully the instructions provided in this manual. In the following pages you will find all the information needed for a safe and fast installation.

After the installation is done properly, you can enjoy all the features of your new product.

Please consider keeping the original box and packaging materials, in case you ever need to ship the frame.

Model number: **FRAME-EVO-E20**

1.1 FRAME-EVO-E20 designation

Note: In this manual, when reference is made to the manufacturer model number it is also automatically a reference to the Epson model number like described in the table below:

Description	Number
Manufacturer model number	FRAME-EVO-E20
Epson model number	ELPMB57
Epson SKU	V12H989B57

1.2 Tools required

The only tool required is a 4 mm hex key to mount the projector in the FRAME-EVO-E20.



4 mm hex key (Allen key)

These installation instructions must always be handed over to the installing person¹

Read these instructions carefully before installing the system.

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2. Safety instructions

INTENDED USE

The FRAME-EVO-E20 frame is intended for use by fully qualified, trained and competent persons to provide safe and secure transportation, installation and adjustment of projectors.

Only use the frame with projector in a closed environment (conference rooms, theaters, convention halls, etc.) where there is no wind, moisture, excessive heat etc.

Make sure that only the corresponding projectors are installed in this frame! Do not try to use it with other projectors because serious accidents can occur!

¹ Only a qualified person should install this product

WARNINGS

Installation work should only be carried out by a qualified technician.

- If this product is not installed correctly, serious accidents may result.

Do not use the FRAME-EVO-E20 frame outdoors.

- This product is made only for indoor usage. If the FRAME-EVO-E20 frame is mounted outdoor, there are many influences like wind or rain that can have an effect on the stability of the whole system. This can cause serious accidents and property damage.

Do not place the frame on top of unstable surfaces.

- If the frame is placed on top of a surface which is sloped or unstable, it may fall down or tip over and injury or damage could result. Make sure that the surface can support a load of 280 kg (617.29 lbs)² plus the weight of all additional equipment as well as other potential systems.

Do not hang the frame from unstable or inappropriate structures.

- If the frame is hung on an unstable structure, the entire system can fall down and injuries may occur. Make sure that the construction can support a total weight of 280 kg (617.29 lbs) plus the weight of all additional equipment as well as other potential systems.

Make sure to not exceed max. weight loads for ceiling mounting.

- For suspended installations, use only designated hanging accessories, like TH-SHORT-150-8, TH-SHORT-350-8/10, FRAME-PF-UNI-PORADV2 Portrait Adapter Version 2 and FRAME-PF-UNI-CLP5030, FRAME-PF-UNI-CLP30PT rigging clamps for a max. weight load of 280 kg (617.29 lbs). Please refer to the corresponding instructions for the accessories used. Please also refer to chapter “4. Optional Accessories” and “11. Maximum stacking information”.

² 280 kg (617.29 lbs) = 3 x (weight of heaviest projector + weight of heaviest lens + weight of FRAME-EVO-E20)

For stacking, make sure that all four locking pins pass completely through the female stacking bolt.

- Make sure the four male bolts enter into the correspondent female bolts and are locked.

Do not install the FRAME-EVO-E20 or the projector while people are present under the mounting zone during the installation process.

- When installing the projector, make sure no one is in the area underneath the installation zone.

Always secure the frame to the rigging truss with a safety steel cable.

- The frame should always be secured with an appropriate safety steel cable so that in case of a malfunction it doesn't fall more than 5 cm. Please consult the local laws or regulations regarding the additional safety of hanging equipment.

CAUTION

Before installing the projector in the FRAME-EVO-E20 frame, please read the projector's user manual. When the projector has a lens attached, please remove it.

- The FRAME-EVO-E20 frame with the projector inside must be installed only in an environment that is recommended by the projector manufacturer.

Minimum two persons are required to install the FRAME-EVO-E20 frame.

- With regard to the overall weight of all necessary installation devices, make sure to handle those with at least two people.

Make sure that the structure from which you hang up to 3 FRAME-EVO-E20 frames including projectors is capable of carrying the overall weight of approx. 280 kg (617.29 lbs) plus the weight of all additional equipment as well as other potential systems.

- Prior to any installation, you must do a visual inspection to make sure that the system is in a good condition. For more information please refer to chapter "12. System maintenance and inspection (Re-examination)".

RISK SITUATIONS

Risk of injury due to the possibility of falling objects during the assembly or disassembly of the FRAME-EVO-E20 frame.

- Protection objective: avoid injury from falling parts.
- Wear appropriate safety shoes, gloves and helmet.
- Make sure the area under the installing places is clear.

Risk of hitting the head with the FRAME-EVO-E20 frame during the hanging set up process.

- Protection objective: avoid injury from hitting the head.
- Wear a helmet.

Incorrect installation may lead to certain parts of the FRAME-EVO-E20 frame or the entire FRAME-EVO-E20 frame to fall down.

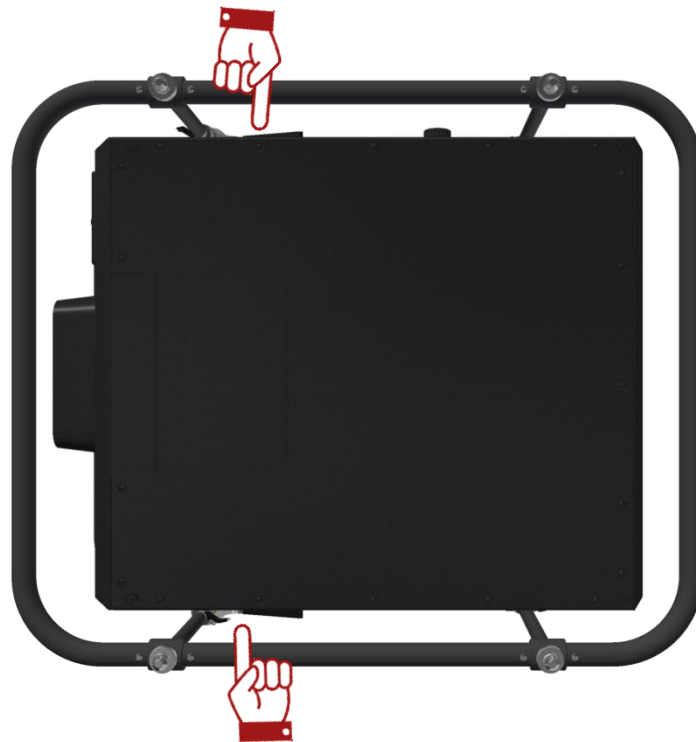
- Protection objective: prevent personal injury and property damage.
- Double check the FRAME-EVO-E20 frame and its installation.

Insufficient load capacity of the supporting structure may lead to certain parts of the FRAME-EVO-E20 frame or the entire FRAME-EVO-E20 frame to fall down.

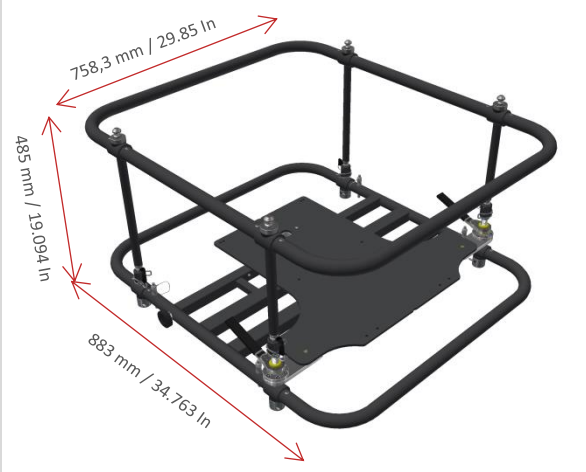


- Protection objective: prevent personal injury and property damage.
- Provide adequate dimensioning of the supporting structure. The supporting structure must be able to support the combined weight of all the equipment attached to, or hung from it.
- Ensure correct installation of the supporting structure.

The fingers or the hand of the user can be caught between the outer rings and the plates or projector.

- Protection objective: prevent personal injury by using safety gloves.
- When the adjustment of the image is made, the user must always keep his hands on the hand levers (see picture below).
- Because the spring of the spring clip is strong, please be careful not to clamp your fingers between the spring and the attachment nut.



3. What's in the box?

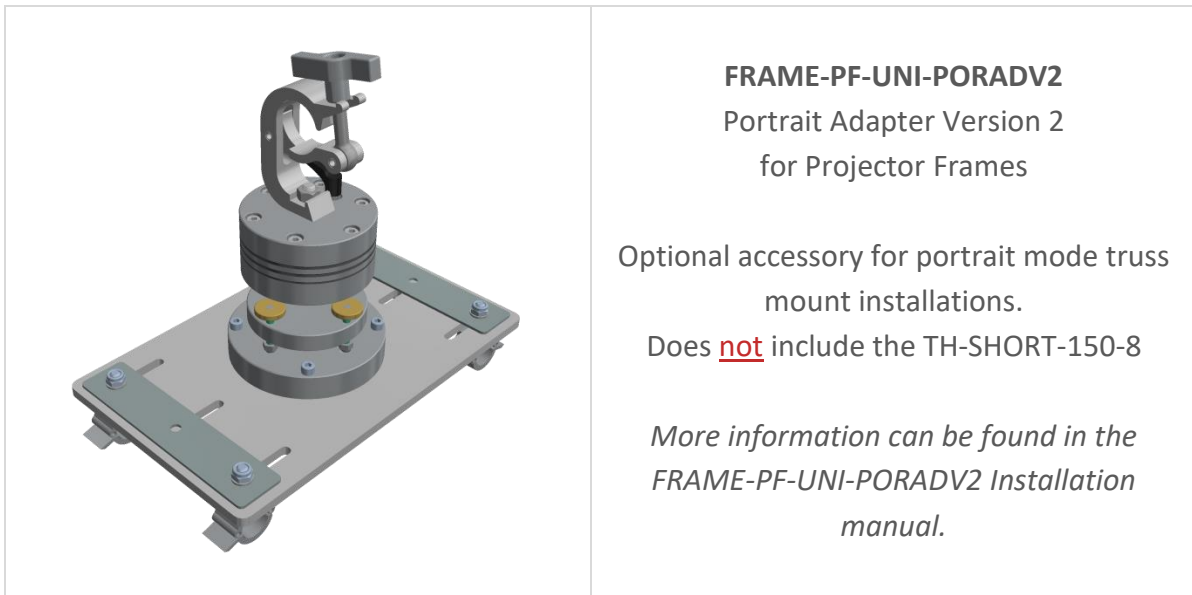
	<p>FRAME-EVO-E20</p> <ul style="list-style-type: none">• Used for projector installation• Number of units: 1• Weight: 16,2 kg / 35.715 lbs
	<ul style="list-style-type: none">• 6 x M6x30 ISO 7380 screws (galvanized steel 10.9)• 6 x Ø6 Schnorr Washer <p>Used to secure the projector in the frame</p>
	<p>User manual and installation guide for FRAME-EVO-E20</p>


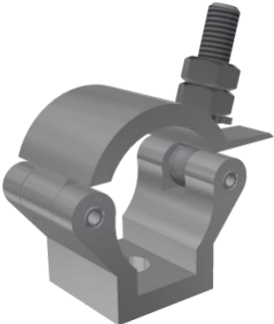
Make sure your box contains everything you ordered. If any pieces are missing, contact the vendor.

4. Optional Accessories

Please refer to chapter “10. Mounting the frame on a truss” and the following for information regarding the usability of the optional accessories.

	<p>TH-SHORT-150-8 Optional accessory for truss mount installations.</p> <p><i>More information can be found in the TH-SHORT-150-8 Installation manual.</i></p>
	<p>TH-SHORT-350-8/10 Optional accessory for truss mount installations.</p> <p><i>More information can be found in the TH-SHORT-350-8/10 Installation manual.</i></p>



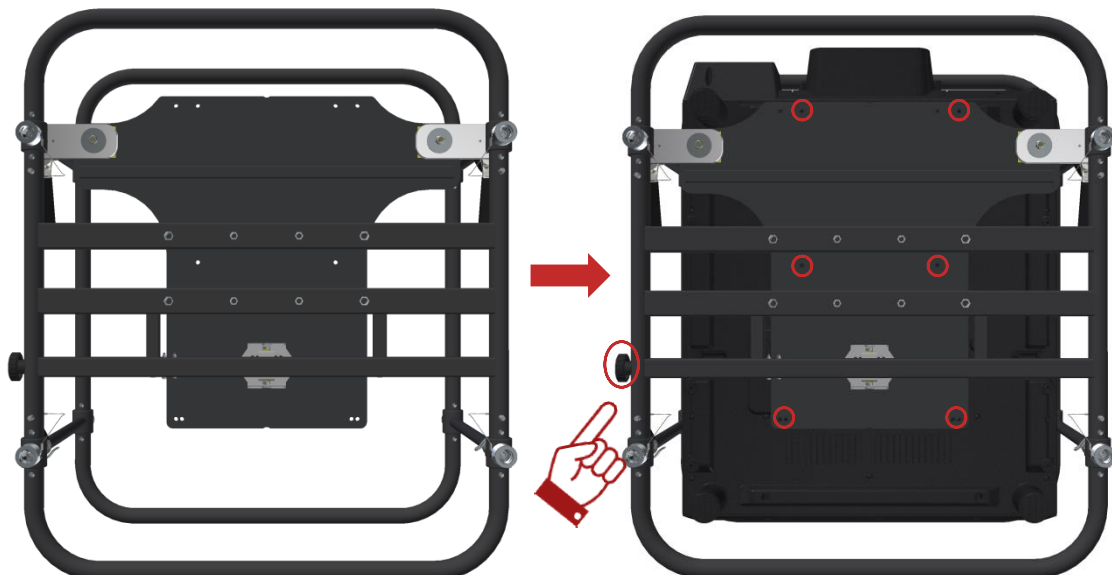
	<p>FRAME-PF-UNI-CLP5030 Optional accessory for hanging one FRAMES-EVO-E20 or two in tandem mode on a truss.</p> <p>FRAME-PF-UNI-CLP5030 represents a complete set of 4 pieces.</p>
	<p>FRAME-PF-UNI-CLP30PT Optional accessory for portrait mode table installation.</p> <p>FRAME-PF-UNI-CLP30PT represents a complete set of 4 pieces</p>

The optional accessories must be **purchased separately**. They are not included in the standard package!

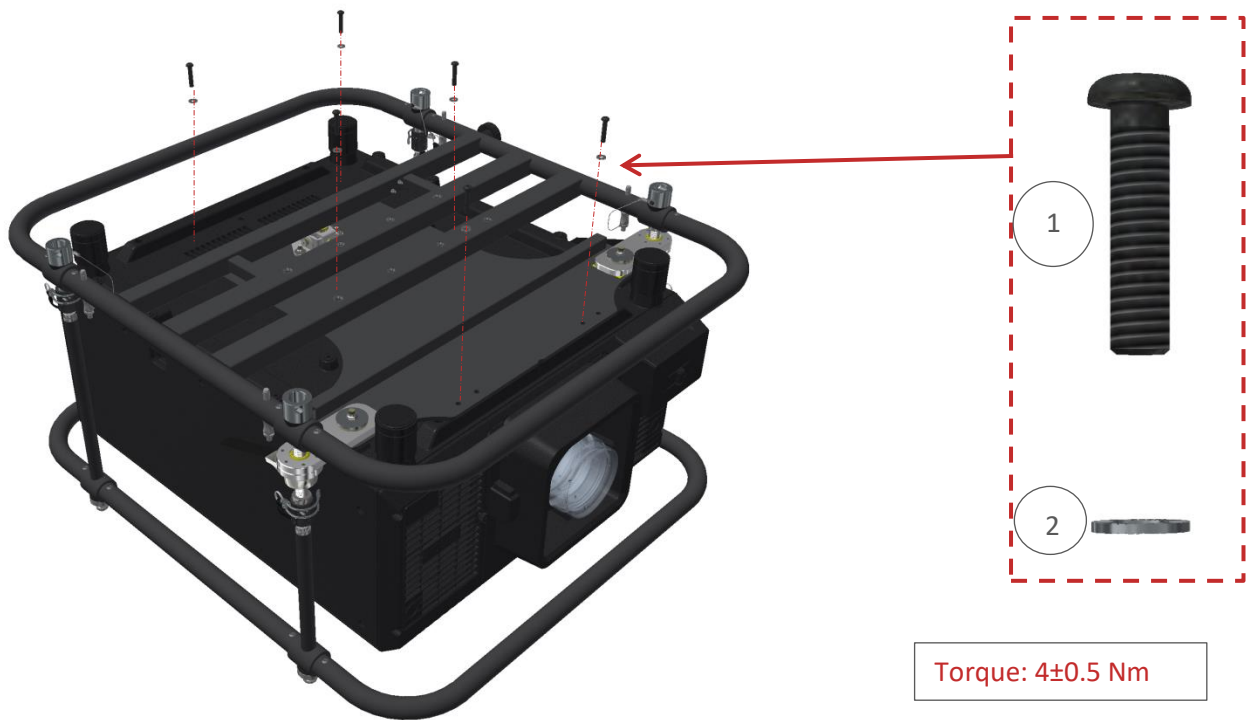
5. Fitting the projector in the frame



Step 1: Place the projector upside down on a suitable flat surface. For easier access you may first remove the upper ring before mounting the projector. Please refer to chapter “6. Removing the Upper Ring - Installation Version. Otherwise it is recommended to place an appropriate material underneath the projector so that it is lifted up for about 10 cm. This will help during the following process.



Step 2: Position the frame over the projector so that the adjustment screw is at the back, aligning the M6 screw holes. Please put the projector in the right position so that the front/back position is correct when installing. Otherwise the position of the holes will not match.



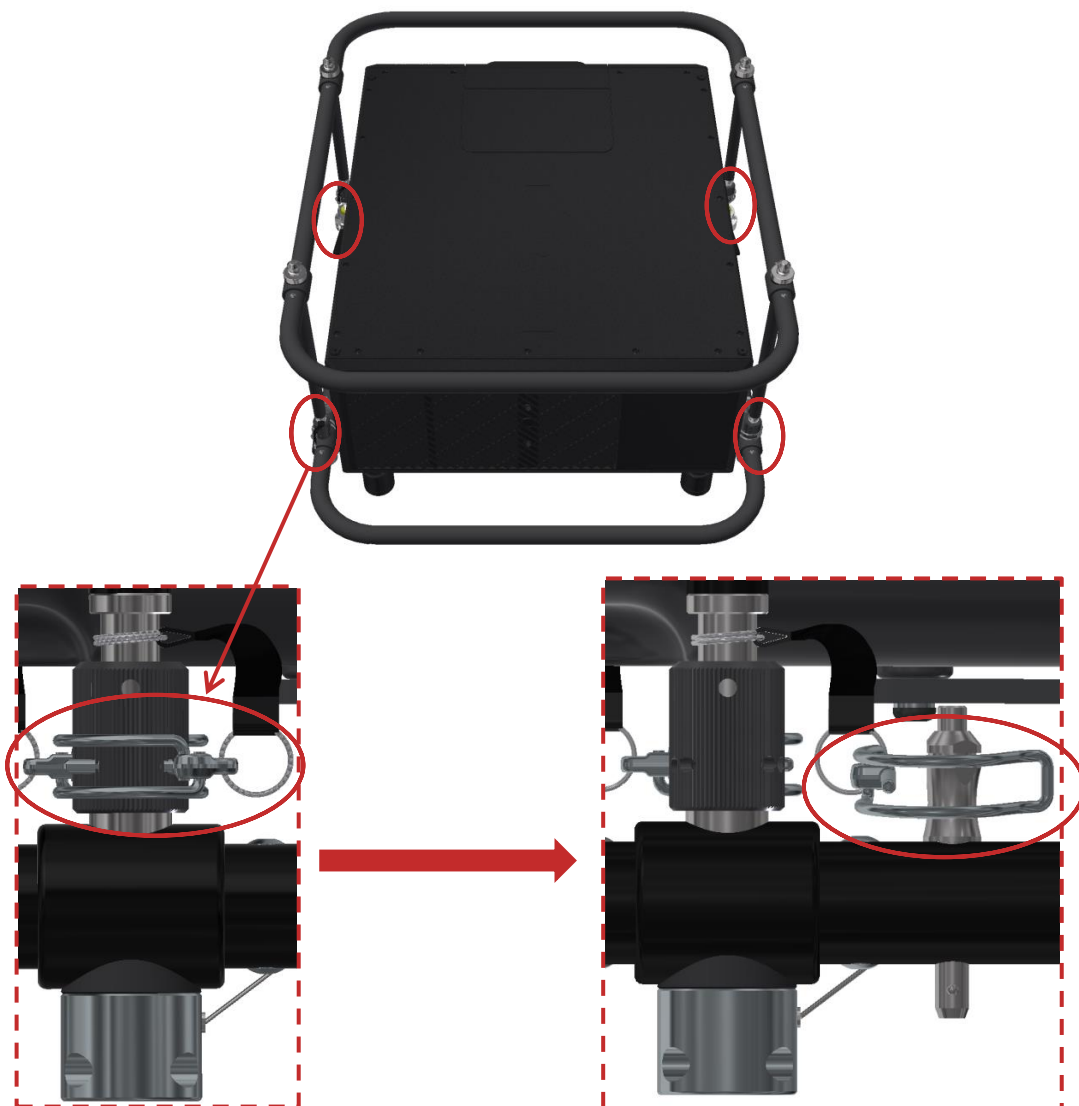
Step 3: Place the 6 x Ø6 Schnorr Washers (2) over each corresponding hole. Secure the 6 x M6x30 ISO 7380 screws (1) into each hole with 4 Nm torque. Ensure each screw runs through the plate and catches into the corresponding M6 hole in the projector surface. Please make sure to use only the correspondent screw holes when installing a projector!

Do not forget to use the 6 x Ø6 Schnorr Washers (2) as they are preventing the screws to loose themselves!

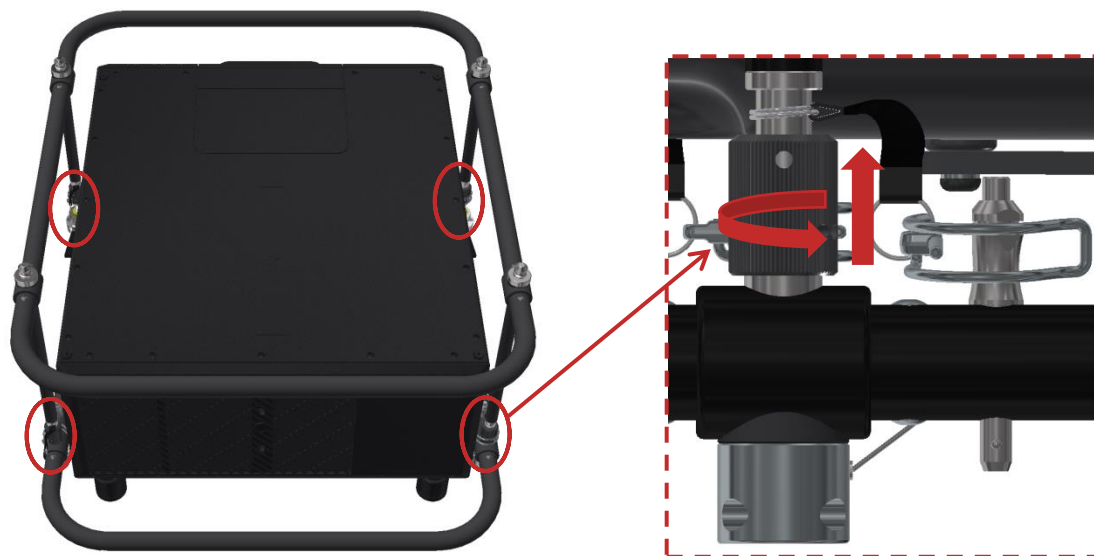
In case you removed the upper ring during Step 1 please now refer to chapter “7. Reinstalling the Upper Ring” and attach the upper ring back to the base.

6. Removing the Upper Ring - Installation Version

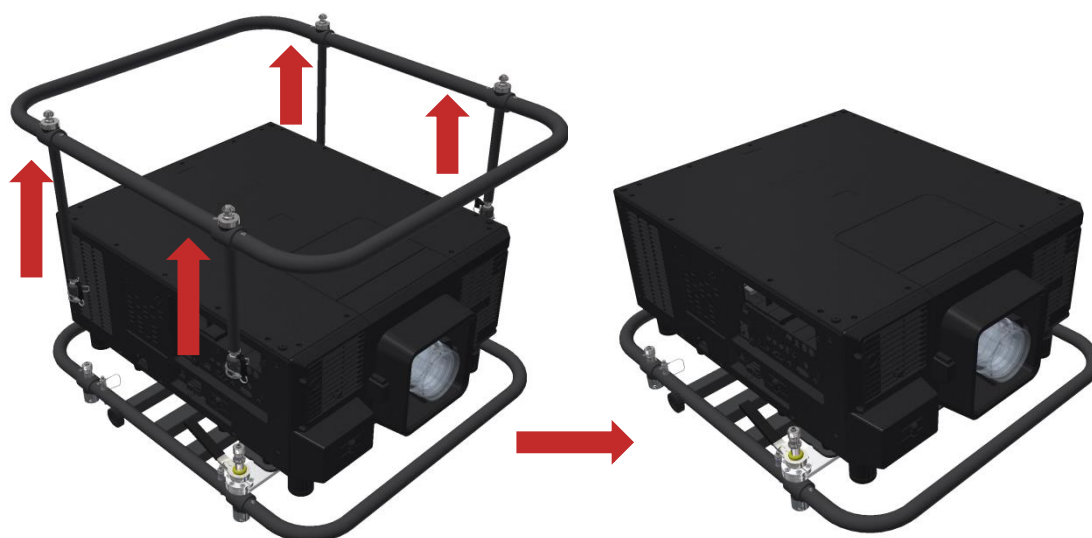
The purpose of the Installation Version is to have a quick, simple and **tool free** possibility to install the **ELPLX02** ultra-short throw lens, or any other short throw lenses, without any limitation regarding the frame.



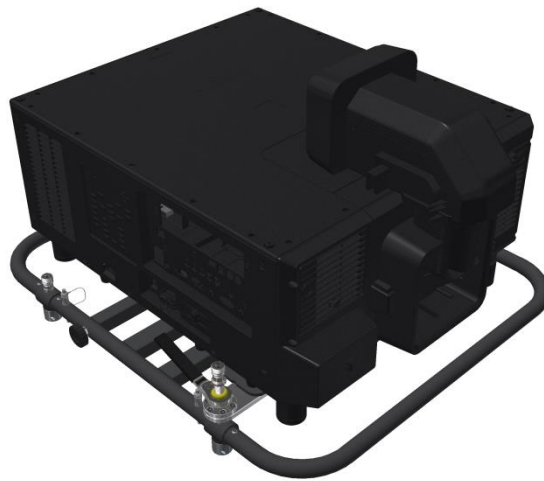
Step 1: Remove the 4 x spring clips as presented in the above picture. Because the spring of the spring clip is strong, please be careful **not to clamp your fingers** between the spring and the attachment nut.



Step 2: Unscrew the 4 x attachment nuts (as presented in the above picture) until they are completely loose and can be move up and down freely.

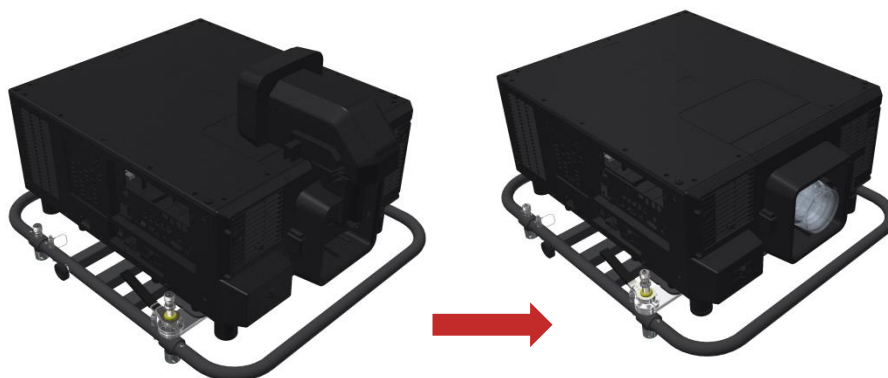


Step 3: Remove the Upper Ring and you will have the Installation Version of the frame.

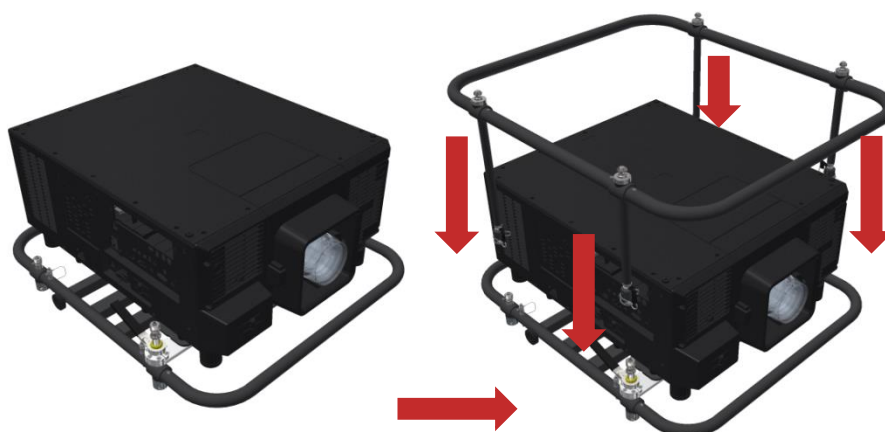


Step 4: Now the **ELPLX02** ultra-short throw lens can be attached to the projector.

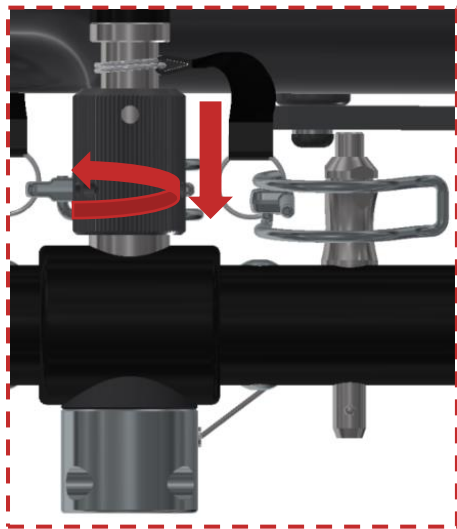
7. Reinstalling the Upper Ring



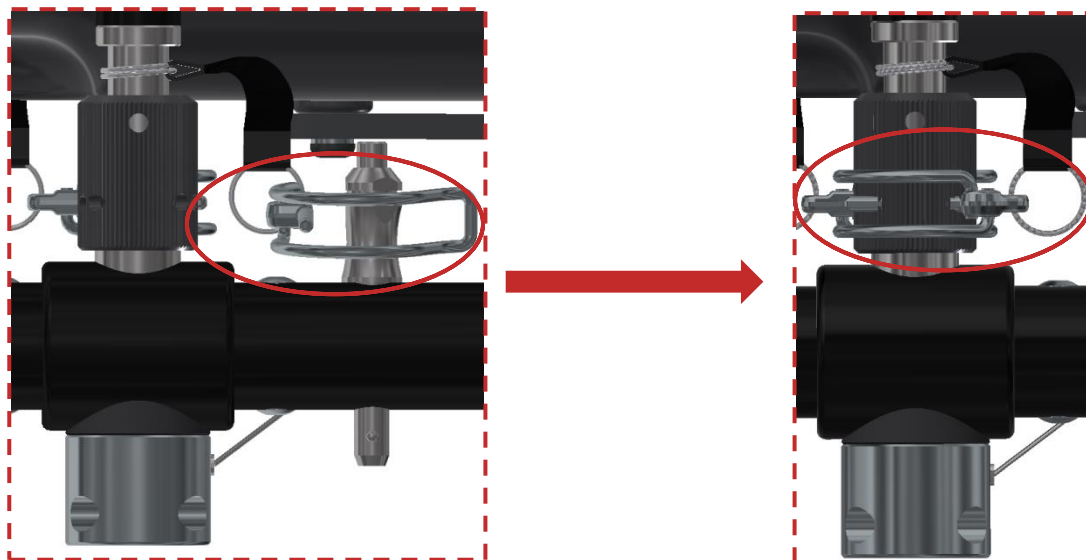
Step 1: Remove the ELPLX02 ultra-short throw lens.



Step 2: Reposition the Upper Ring on the top of the Bottom Ring in such a way that the 4 x attachment nuts are on the corresponding position.

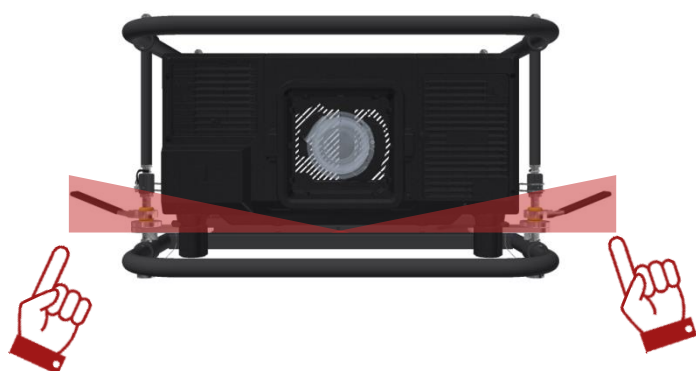
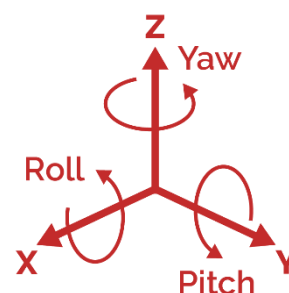
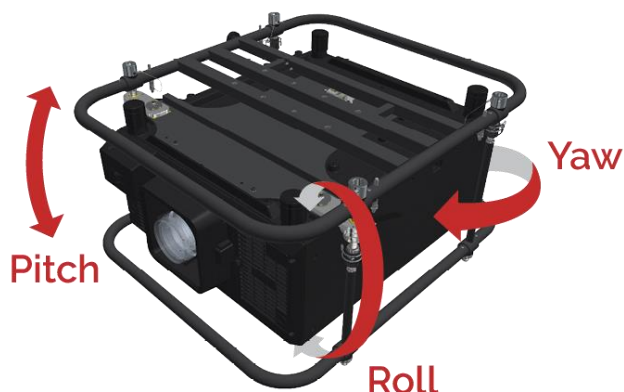


Step 3: Tighten back the 4 x attachment nuts until there is no play and the attachment nuts can not be moved up or down.



Step 4: In the process of attaching the Upper Ring back to the frame, as a last step, please don't forget to reinsert the **4 x spring clips** into the attachment nut. Because the spring of the spring clip is strong, please be careful **not to clamp your fingers** between the spring and the attachment nut.

8. Adjustment options



Roll:

Using the hand levers to the left and right you can adjust the position of the projector with an angle of ± 2.5 degrees.

You can lower or lift the front left or right corner.

To roll the projector around the center axis, the two hand levers must be turned in opposite directions.



Pitch:

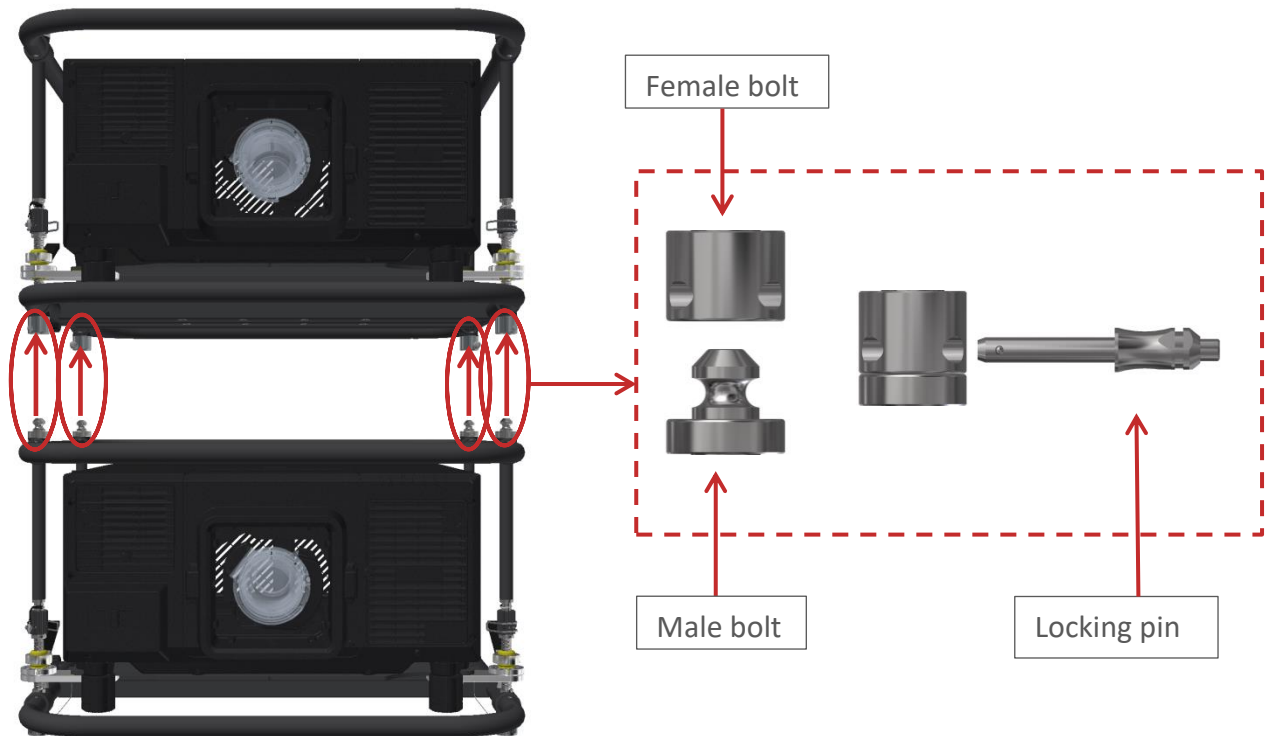
Also by using the two hand levers at the sides you can lower the projector with an angle of -2.2 degrees and lift it with an angle of $+2.8$ degrees.



Yaw:

By turning the adjustment screw below the projector, you can move the back of the projector to the left or to the right with an angle of ± 2.6 degrees.

9. Stacking frames



Step 1: Place the upper frame with mounted projector on top of the lower frame with mounted projector. Make sure the four male bolts enter into the correspondent female bolts. To secure, insert the locking pins through the holes in the female bolts. Always make sure that the locking pins are locked after being inserted.

10. Mounting the frame on a truss

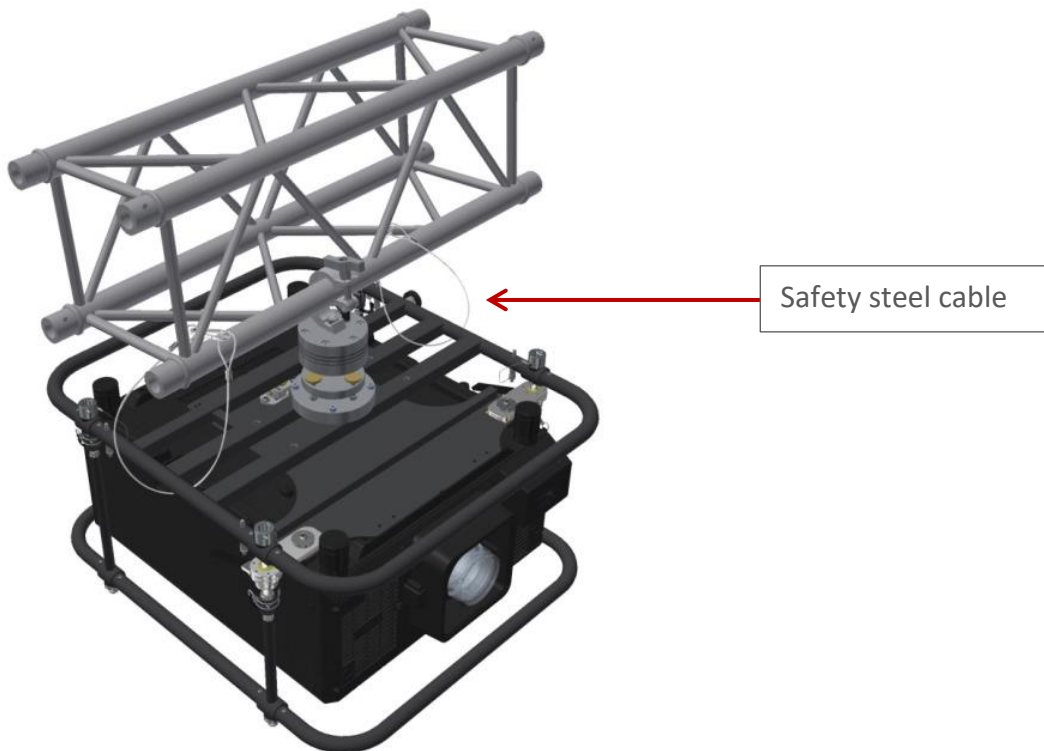


To hang the frame on a truss one must use the recommended **4 x M8** or/and the **4 x M10** threaded holes to attach a mounting accessory like the **TH-SHORT-150-8** or **TH-SHORT-350-8/10**. Use only the original and recommended accessories for this procedure.

Another mounting option is using the optional **Portrait Adapter Version 2 FRAME-PF-UNI-PORADV2** that can be mounted on the frame and then hung on the truss. For further information regarding the setup of the Portrait Adapter Version 2 (FRAME-PF-UNI-PORADV2), please consult the FRAME-PF-UNI-PORADV2 Installation manual.

Always secure the frame using appropriate **safety steel cables**. Make sure they are chosen correctly regarding strength, format and length. Please avoid high dynamic forces by ensuring that the frame will not drop more than **5 cm** into the safety.





Please consult the local laws or regulations regarding the additional safety of hanging equipment.



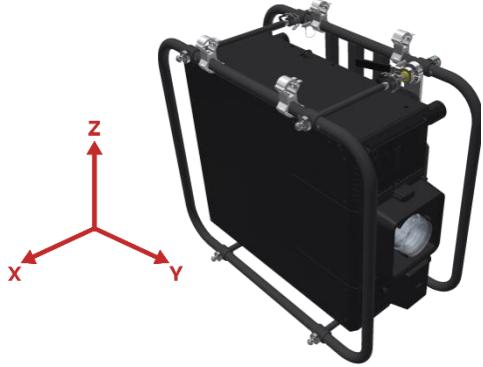

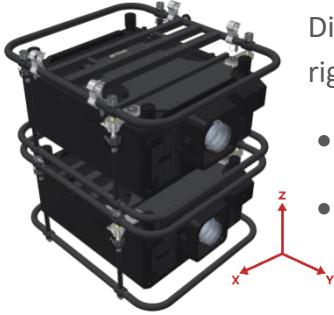
11. Maximum stacking information


Please refer to the tables below to confirm proper usage.

Do not try to setup the frame in other positions as presented, because accidents can occur!

With TH-SHORT-150-8		
Landscape	1	2
		
With TH-SHORT-350-8/10		
Landscape	1	2
		

With rigging clamps (FRAME-PF-UNI-CLP5030)

<p>Portrait</p>	<div style="display: flex; align-items: center; justify-content: space-around;">  <div data-bbox="1007 461 1345 719"> <p>Distance between the rigging clamps:</p> <ul style="list-style-type: none"> • On X axis: 387 mm • On Y axis: between 240 mm and 350 mm </div> </div>	
<p>Landscape</p>	<p>1</p>	<p>2</p>
		<div style="display: flex; align-items: center; justify-content: space-around;">  <div data-bbox="1038 954 1377 1211"> <p>Distance between the rigging clamps:</p> <ul style="list-style-type: none"> • On X axis: 718,5 mm • On Y axis: between 240 mm and 350 mm </div> </div>
<p>Warning: triple-hanging with the rigging clamps is not possible! Please do not try to hang three projectors with the rigging clamps because mechanical failure and accidents can occur.</p>		

With rigging clamps (FRAME-PF-UNI-CLP5030)	
<p>Vertical Down</p>	<div style="display: flex; align-items: center; justify-content: center;">  <div style="margin-left: 20px;"> <p>Distance between the rigging clamps:</p> <ul style="list-style-type: none"> • On X axis: between 240 mm and 450 mm • On Y axis: 387 mm </div> </div>
<p>Vertical Up</p>	<p>Not possible because of the cooling system that is located on the back side of the projector. There always must be an unobstructed space around the projector, please refer to the corresponding projector manual.</p>

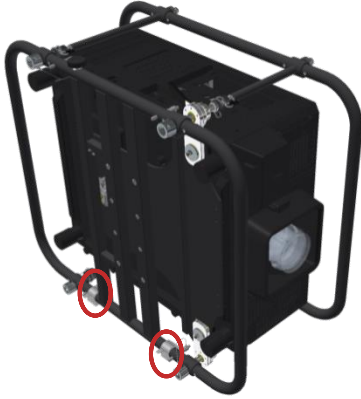

With Portrait Adapter Version 2 FRAME-PF-UNI-PORADV2 together with TH-SHORT-150-8


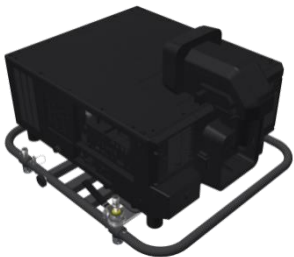


Portrait


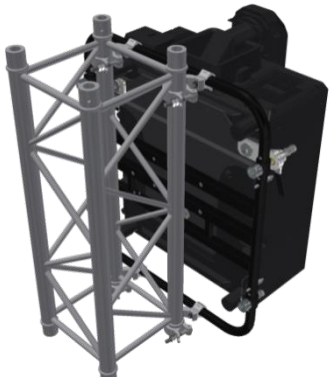


Vertical
Down



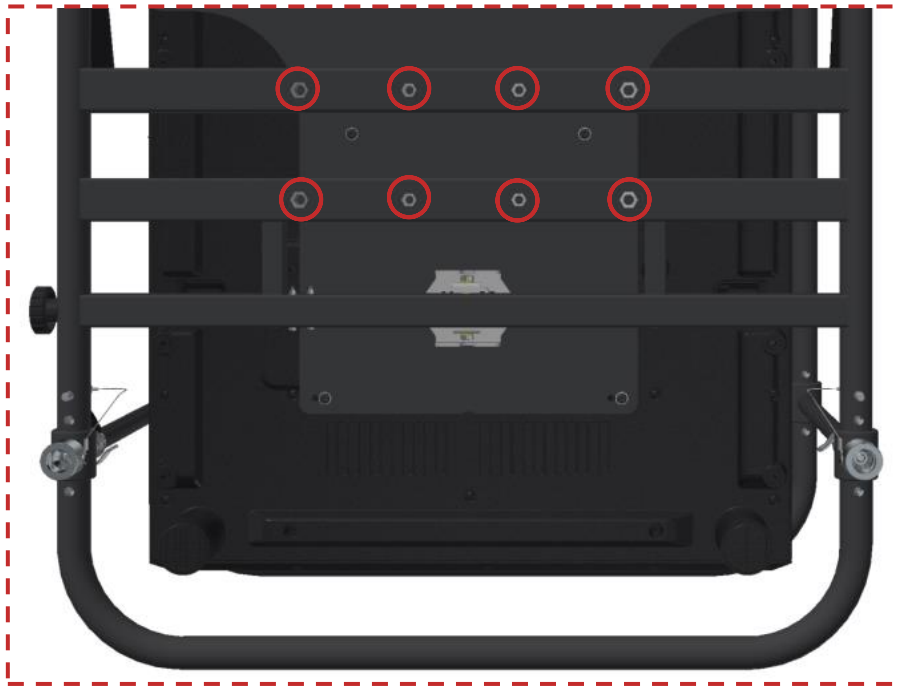
On a table			
Portrait	 <p>In this position one must use the FRAME-PF-UNI-CLP30PT and the frame has to be positioned with the adjustment screw on top.</p>		
Landscape	1	2	3
			
Vertical Up	<p>Not possible because of the cooling system that is located on the back side of the projector. There always must be an unobstructed space around the projector, please refer to the corresponding projector manual.</p>		

Installation Version – without the Upper Ring			
Portrait	With rigging clamps FRAME-PF-UNI-CLP5030		
			
Landscape	On a table	With TH-SHORT-150-8	With rigging clamps FRAME-PF-UNI-CLP5030
			

With rigging clamps FRAME-PF-UNI-CLP5030	
Vertical Down	 <p>In this case, please always be sure that the minimum distance between the back of the projector and the nearby surface is respected. This value can be found in the projector manual.</p>
Vertical Up	 <p>In this case, please always be sure that the minimum distance between the back of the projector and the nearby surface is respected. This value can be found in the projector manual.</p>

12. System maintenance and inspection (Re-examination)

The FRAME-EVO-E20 does not require special maintenance but a visual inspection must be done **prior to every installation** in which the system is involved:

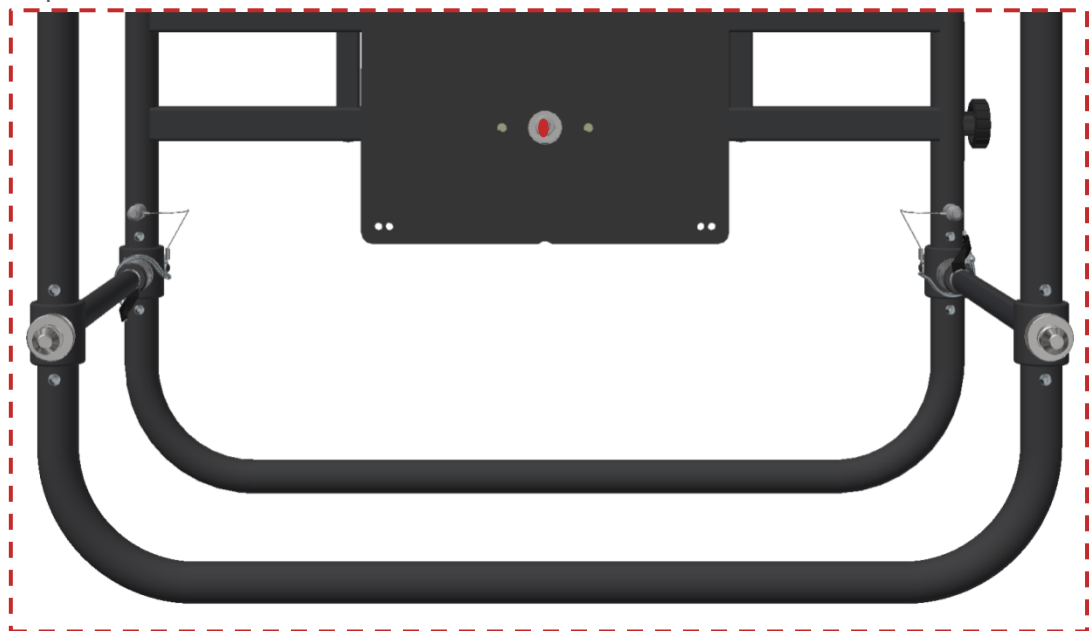


- Before and after each installation, the **M8 and M10 mounting holes** must be carefully inspected, as they may get damaged during the installation of the hanging accessory.
- Please carefully examine the M8 and M10 mounting holes by looking inside each one of them and make sure the thread is not broken or damaged in any way.
- Please make a visual inspection to be sure that all the screws are in the right place and none are missing.
- Make sure that the screws, nuts, stacking pins, connection rods, mounting plate and all the components are not bended, damaged, or broken.
- If any parts are broken or missing, please contact the seller so he can provide the spare parts.

Bottom view:



Top view:



- On the three screws + nuts presented on the above picture a red color sealing wax was applied to be sure that the nuts will always be on the same position and no one will try to tighten or loosen them.
- **Do not try to manipulate the nuts, because the adjustment mechanism can be blocked and accidents can occur!**
- If one notices that the sealing wax is broken or the nut is moved, please contact the manufacturer!

- Except for the situation described on the previous point, please control, with corresponding tool, that all the other screws are properly tightened.

Do not exchange broken or malfunctioning parts with ones that are not accredited by the manufacturer because serious injuries and property damage can occur!

The inspection must be done by a qualified person!

One meticulous inspection must be performed **every year**. For that, a qualified person needs to carefully check that none of the components are damaged or broken.

13 Declaration of Conformity

EC - Declaration of Conformity

We hereby confirm that the following described lifting accessory in its conception, construction and form put by us in circulation is in full accordance with all relevant health and safety requirements and complies with the following EC-directive:

2006 / 42 / EG (EG-Machinery Directive)

This declaration is no longer valid if the lifting accessory is modified without our written consent.

Manufacturer:

I LANG AG
 Schlosserstraße 8
 D-51789 Lindlar
 Tel.: +49(0)226674764-0

Description of the lifting accessory:

- Function: Rigging frame for EPSON projectors series: EB-L20000U, EB-L12000Q
- Type/model: FRAME-EVO-E20 or FRAME-EVO-E20-US
- Serial number: FE-E20XX.YYYYY or FE-E20XX.US.YYYYY
- Year of construction: 2018

The applied harmonized EN - standards include:

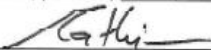
- **DIN EN ISO 1200:2010** Safety of machinery – General principles for design – Risk assessment and risk reduction

Further applied standards and regulations include:

- **DIN EN 1991-1** DE: Eurocode 1: Einwirkungen auf Tragwerke (12/2010)
EN: Eurocode 1: Actions on structures (12/2010)
- **DIN EN 1993 -1** DE: Eurocode 3: Bemessung und Konstruktion von Stahlbauten (12/2010)
EN: Eurocode 3: Design of steel structures (12/2010)
- **DIN EN 1999 -1** DE: Eurocode 9: Bemessung und Konstruktion von Aluminiumtragwerken (05/2010)
EN: Eurocode 9: Design of aluminum structures (05/2010)
- **DGUV V17/18** DE: UVV Veranstaltungs- und Produktionsstätten für szenische Darstellung, Stand Januar 2011 (bisher: BGV C1)
EN: Accident Prevention Regulation for Staging and Production Facilities for the Entertainment Industry (formerly DGV C1)
- **DGUV 315-390** DE: Grundsätze für die Prüfung maschinentechnischer Einrichtungen in Bühnen und Studios (bisher: BGG/GUV-G 912)
EN: Fundamentals for testing in stages and studios of the mechanical equipment (formerly BGG/GUV-G 912)
- **BGI 810-3** DE: Lasten über Personen. Sicherheit bei Produktionen und Veranstaltungen von Fernsehen, Hörfunk, Film, Theater, Messen, Veranstaltungen
EN: Safety at Productions and Events – Loads Suspended above Persons

Place/date: Lindlar, 04.10.2018

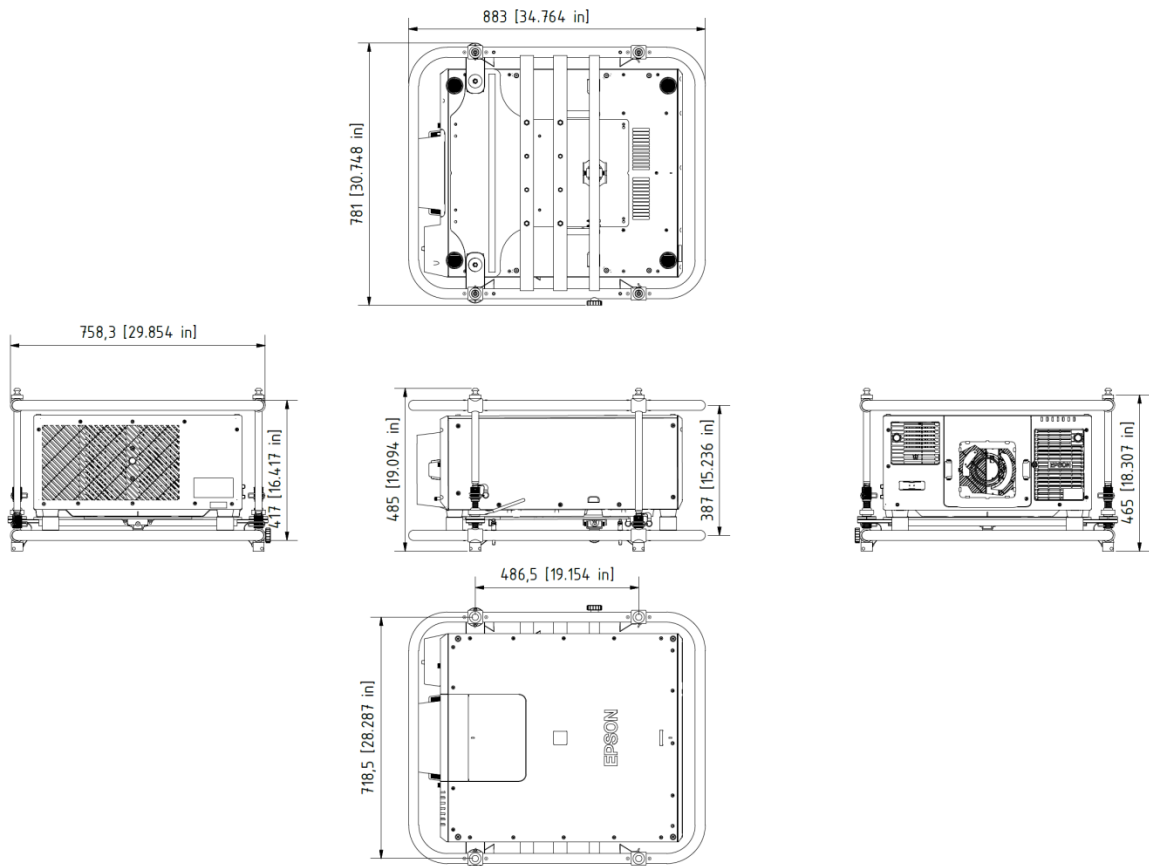
Personal data of signer (name, position): Peter Kathia, CEO

Signature: 

CE

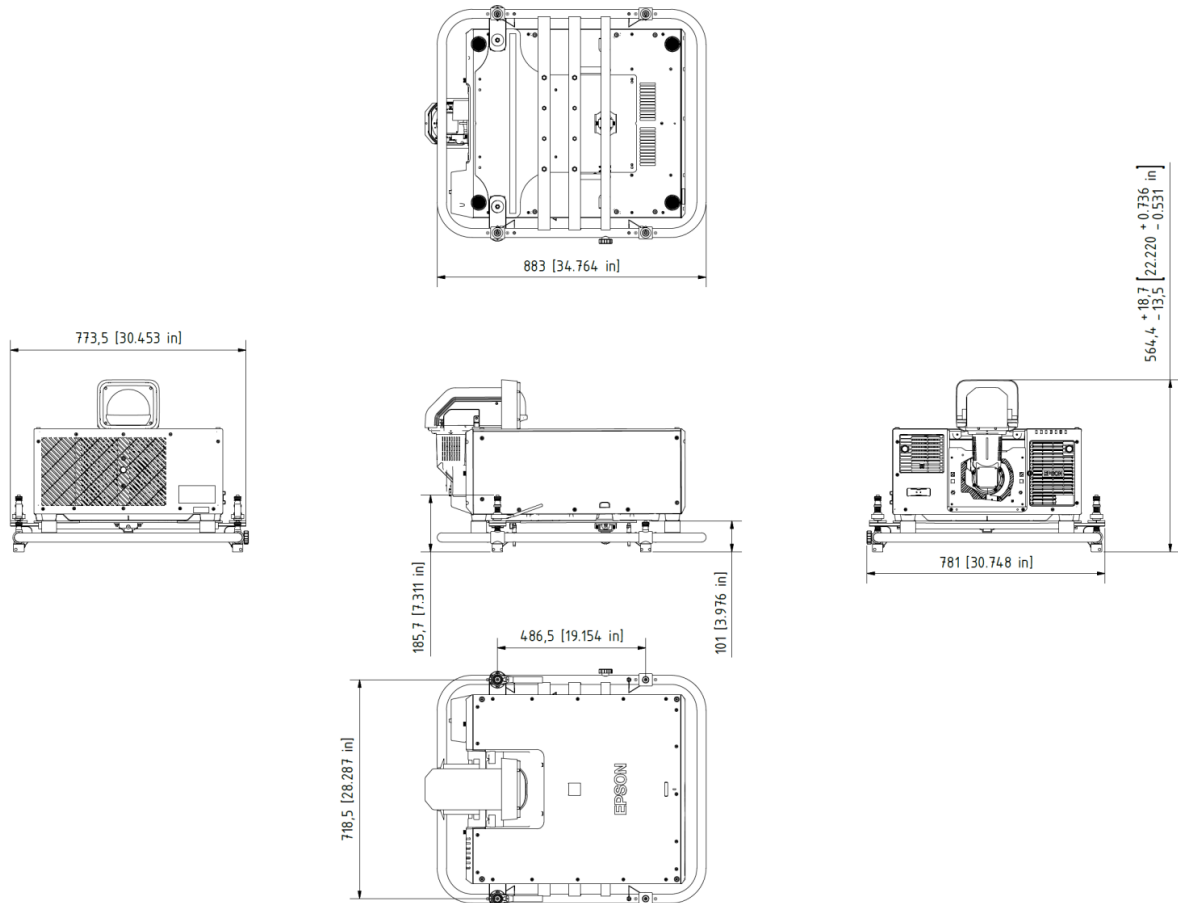
14 Dimensions

14.1 FRAME-EVO-E20



Frame weight: 16,2 kg / 35.715 lbs; (only frame)

14.2 FRAME-EVO-E20 Installation Version - without the Upper Ring



Frame weight: 11,8 kg / 26.014 lbs; (only frame)

Imprint

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