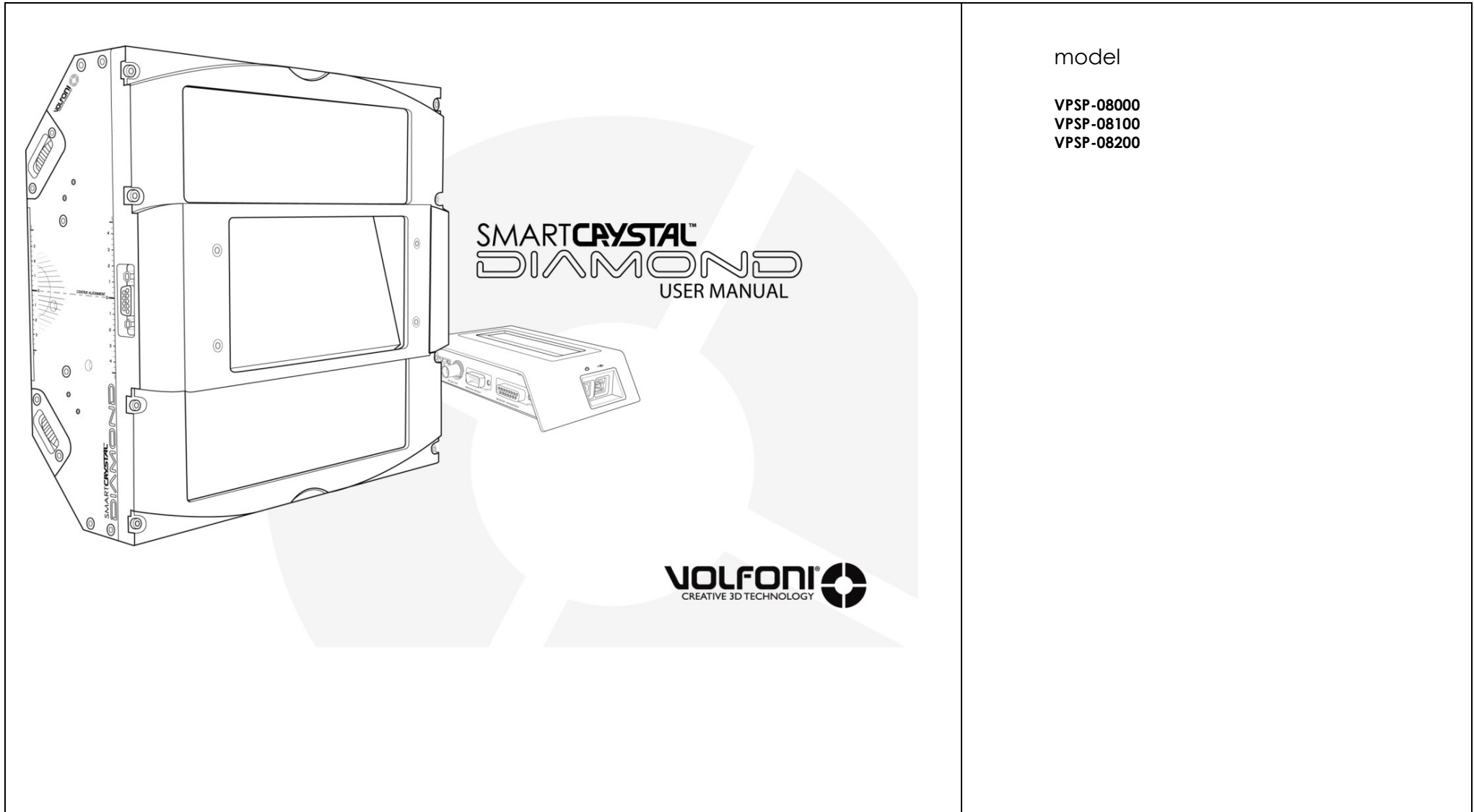
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## INTRODUCTION

### a. General points

The SmartCrystal™ Diamond is the latest passive 3-D innovation offered by Volfoni.

The SmartCrystal™ Diamond is directly put in front of a 3-D projector lens. Combined with an appropriate screen (silvered screen), it enables the audience wearing passive 3-D glasses to see in three dimensions.

The SmartCrystal™ Diamond technology offers a unique visual experience:

- High light performance
- Easy and quick installation: light and small-sized, it enables you to adapt to the variety and complexity of several configurations such as 'boothless', and can be easily installed or uninstalled.
- 2-D/3-D configuration: The system is ideally designed to be assembled with a support which enables you to move it manually/automatically according to the 2-D or 3-D projection mode.
- Compatibility: The SmartCrystal™ Diamond works for DLP digital projectors offered by Christie, Barco, NEC. For every other model, we invite you to contact Volfoni directly.
- 

### b. Contents of this manual


This manual is aimed at providing the SmartCrystal™ Diamond installation instructions and maintenance operations.

This manual has to be used while following the working and security rules of the projector, which are among other information mentioned in the projector user manual.

- Presentation of the SmartCrystal™ Diamond components
- Installation and adjustment of the SmartCrystal™ Diamond Box
- Installation and connection of the SmartCrystal™ Diamond Controller
- Transition from 2-D to 3-D mode and conversely
- Maintenance

This manual is meant for fitters who are entitled to install the SmartCrystal™ Diamond. The use of this manual implies that the cinema's equipment respects all the 3-D screening necessary conditions such as the lamp type, the silvered screen or the glasses type.

This manual is exclusively meant for professionals who are authorized to operate on screening systems in cinema projection rooms. Skilled technicians only, who are aware of potential dangers associated with high voltage, ultraviolet exposure and high temperatures generated by lamps and their power circuit, are authorized to install/de-install the SmartCrystal™ Diamond and to service it.

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#### c. Specification of the projector

The SmartCrystal™ Diamond is used with digital cinema projectors. It has been designed to work with the various digital cinema projectors developed by the main manufacturers using the Texas Instrument DLP® technology.

This manual is based on the assumption that all of the specifications for the installation of the projector have been respected and that the projector is ready for use. This manual has to be used while respecting the instructions for the installation of your system, among them the projector's user guide.

#### d. Specification of the bracket

The SmartCrystal™ Diamond is assembled on a specific bracket.

This manual is based on the assumption that all the specifications for the installation of the bracket have been respected and that the bracket is ready for use. This manual has to be used while respecting the installation instructions of your system, among them the bracket user guide.

#### e. Volfoni passive glasses


With the SmartCrystal™ Diamond, the audience is required to wear passive glasses with circular polarization to watch 3-D contents. Volfoni offers passive glasses with circular polarization which are optimized for a better quality 3-D visual experience.

These glasses are disposable or washable under the conditions recommended by Volfoni.

The polarizer filters of the glasses need to be compatible with the polarization generated by the SmartCrystal™ Diamond.

#### **WARNING**

**THE CINEMA PASSIVE GLASSES MUST NOT BE USED AS SUNGLASSES.  
POLARIZER FILTERS CANNOT PROTECT FROM ULTRAVIOLETS.**

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# I. GENERAL PRESENTATION

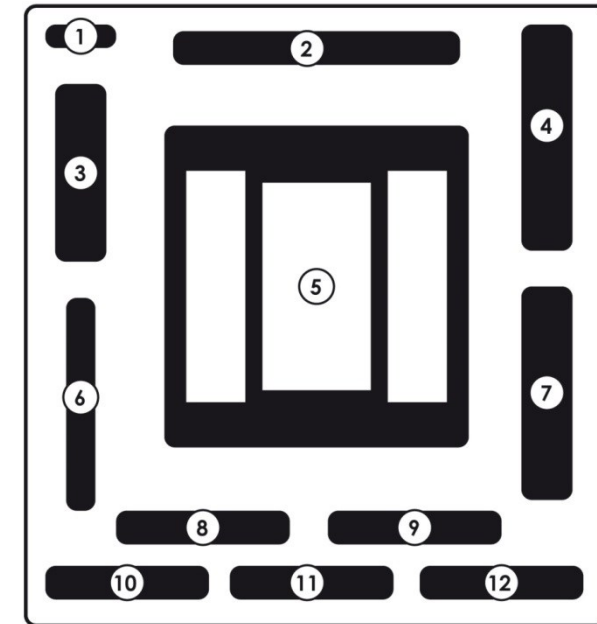
## 1. SmartCrystal™ Diamond (SCD) presentation

Each SmartCrystal™ Diamond is made up by the following components:


- SmartCrystal™ Diamond Box (opto-mechanical unit)
- SmartCrystal™ Diamond Controller (electronic unit)
- One set of 3-D bus cables (GPIO37-BNC, SubD15-BNC, BNC-BNC),
- Connection cable between SCD Box and SCD Controller (SubD9 M/F),
- Feeder cable (220/110V) with US, EU, UK, AUS plugs.
- Software maintenance cable (USB A-USB B)
- Volfoni passive glasses (2 pairs)
- Optional anti-reflection filter for room window
- USB key with aligning pattern and technical data
- Tools, holding screws
- Cleaning wipe
- Quick Start

- 1- USB Key + Wipes (x2)
- 2- RJ45 Cable (Used for network control)
- 3- USB-A / USB-B (cable for maintenance with Volfoni Software)
- 4- SmartCrystalDiamond Controller
- 5- SmartCrystalDiamond System
- 6- Polarization Filter Optional filter. (Only use in case of abnormal reflections)
- 7- SUB-D 9pts Dedicated to connect SCD Controller and SCD System
- 8- GPIO-15 pins & BNC / BNC ( Cables 3D Synchronization cable)
- 9- Passive glasses VPPG-03000 (x2)
- 10- GPIO-37 pins Cable 3D Synchronization cable
- 11- International plugs (EU, US, AUS, China, and UK)
- 12- Power supply for the SCD Controller

[ Fig 01 ]



- Each SmartCrystal™ Diamond will be delivered with a bracket which must be installed while respecting the instructions of its user guide.

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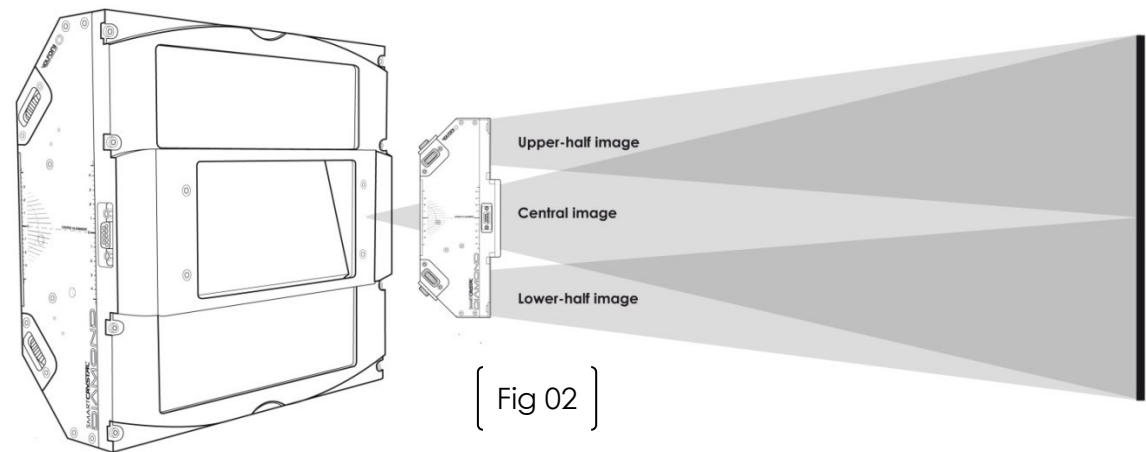
## a. The SmartCrystal™ Diamond Box

### General introduction


The SmartCrystal™ Diamond Box is the opto-mechanical unit.

The SmartCrystal™ Diamond technology splits up the incident light flux into three separate fluxes:

- The central flux (full image)
- The upper flux (upper half image)
- The lower flux (lower half image)



The system adjustment consists in perfectly recombining these three fluxes on the screen into a single image (see right).

If you want to switch two electronic boxes, <b>you must respect this compatibility table:</b>		
	SCD CONTROLLER (Electronic box)	SCD (Optical box)
	VSSP $\geq$ 10200	VSSP $\geq$ 13300
	VSSP-10100	VSSP $\leq$ 13200
	VSSP-10000	VSSP $\leq$ 13200

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### Detailed presentation

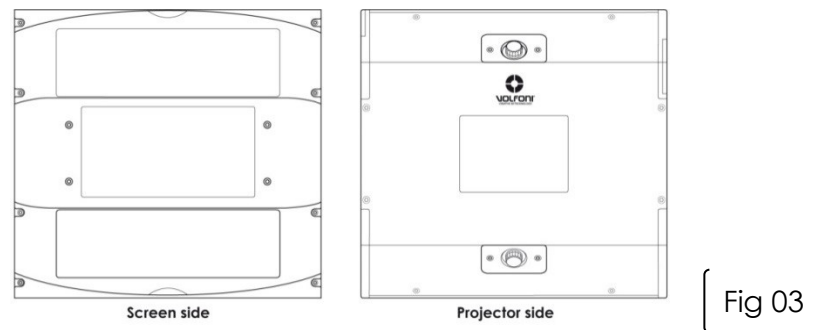
The SmartCrystal Diamond Box is compact and light:

Dimensions: W 28 cm X H 26 cm X D 10 cm

Weight: about 6kg.

On one side, the 'screen' side of the SmartCrystal™ Diamond Box is made up of the three outflow windows.

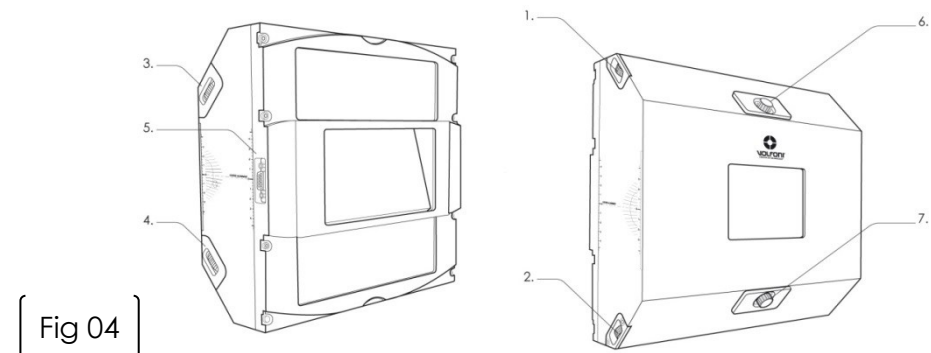
On the other side, the 'projector' side is made up of the entry window of the SmartCrystal™ Diamond Box, so as of two wheels to adjust the system (see below).




On both sides (left and right) of the SmartCrystal™ Diamond Box are fitting wheels for the upper and lower half images. They enable you to adjust the position of the two half images vertically and horizontally.

They are completed with two zoom wheels located on the projector side of the device. All of these six wheels are used to align/superimpose the two half images on the central image.

- 1) Upper half image left/right adjustment wheel
- 2) Lower half image left/right adjustment wheel
- 3) Upper half image up/down adjustment wheel
- 4) Lower half image up/down adjustment wheel
- 5) Connector of the SmartCrystal™ Diamond box (SubD-9)
- 6) Upper half image +/- zoom wheel
- 7) Lower half image +/- zoom wheel



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## b. SmartCrystal™ Diamond Controller

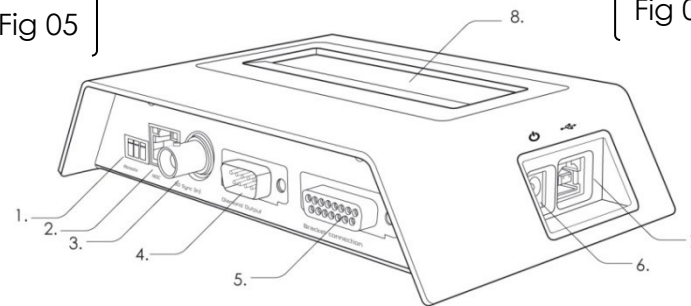
### General presentation

The SmartCrystal™ Diamond Controller is the electronic unit of the system. Figure 6 shows a general view of the SmartCrystal™ Diamond Controller.

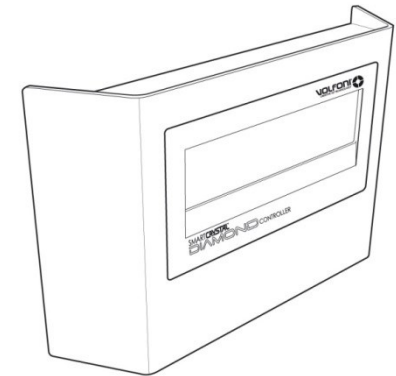
### Detailed presentation

- 1) Automation – pluggable terminal block connector (3 points): It enables you to control the system automatically with 'hit or miss' electrical entries.
- 2) Network Operating Center (NOC) - RJ45 connector: It enables you to run and to interact with the system from a remote/relocated computer center.
- 3) Sync\_3D – BNC connector: Synchronization signal generated by the projector or another source.
- 4) SCD Box interface - SUBD9 connector: This interface is used to run the SCD Box.
- 5) Bracket-connector SUBD15 interfaces: This duplex interface is used to interact with the bracket and to run it to automate 2-D/3-D modes.
- 6) Feeding of the SmartCrystal™ Diamond Controller. **This entry must be always used with the external feeding (5V/1.5A)**
- 7) Maintenance – USB connector: Entry designed for SmartCrystal™ Diamond Controller software maintenance.
- 8) Digital information area about the system state and functioning.

[ Fig 05 ]



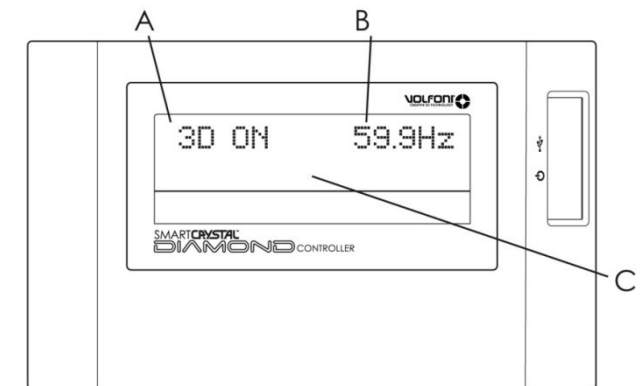
[ Fig 06 ]




The following Figure is a view of the SmartCrystal™ Diamond Controller digital display. The screen displays:


- A: The current working mode: 2-D or 3-D.
- B: The vision frequency received by the system through the SYNC\_3D entry.
- C: Other information about the system: bracket state etc.

[ Fig 07 ]



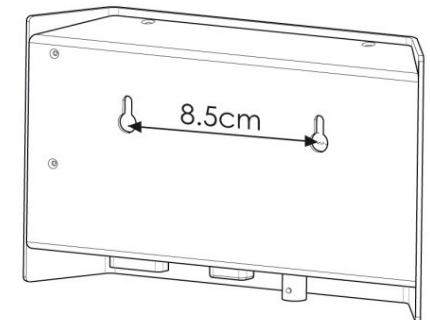
	<b>SmartCrystal™ Diamond</b>	n ° : MUV140036
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•

If you want to switch two electronic boxes, <b>you must respect this compatibility table:</b>		
	SCD CONTROLLER (Electronic box)	SCD (Optical box)
	VSSP ≥ 10200	VSSP ≥ 13300
	VSSP-10100	VSSP ≤ 13200
	VSSP-10000	VSSP ≤ 13200

The SCD Controller can be fixed using the perforations located on the back of the box (Fig 07).  
The distance between these two mounting points is 8,5 cm.

[ Fig 08 ]



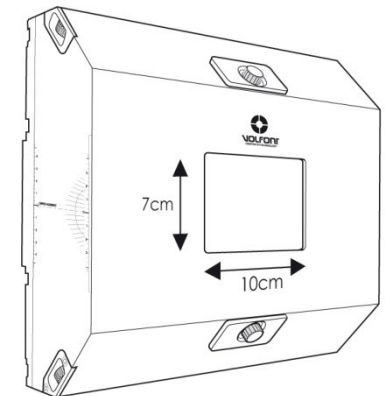
## 2. Requirements and important recommendations to install the SmartCrystal™ Diamond


IT IS ABSOLUTELY ESSENTIAL TO MEET THE FOLLOWING CRITERIA TO INSTALL THE SMARTCRYSTAL™ DIAMOND BOX.

### a. Room configuration

- Minimum size of the room window: 40cm X 40 cm
- Such an outflow image of the SmartCrystal™ Diamond Box requires that the size of the room window must be at least 40cm x 40cm if the 'screen' side of the system stands at less than 10cm from this window.

[ Fig 09 ]



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The farther the device will be positioned from the room window, the larger the size of this latter should be. Do not hesitate to contact your supplier for any technical support.

- Image centering on the window

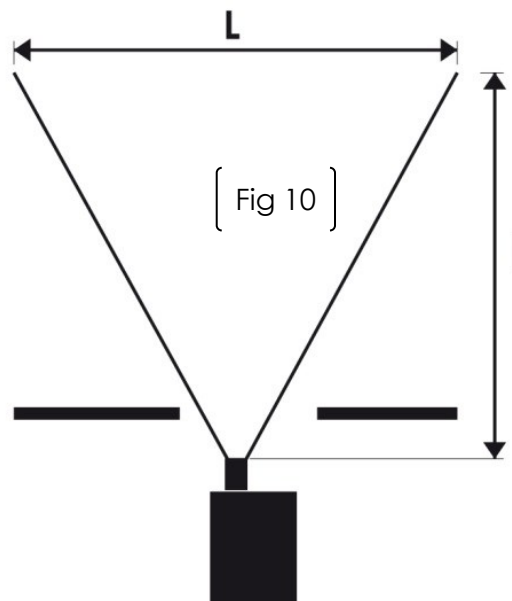
The projector has to be installed so that the image is centered to the room window, requirement all the more important if the latter is minimum-sized (40cm X 40cm).

### The projection room window must not depolarize light.

The image size at 2cm from the lens must not exceed 10 cm X 7 cm. This size corresponds to the size of the SmartCrystal™ Diamond Box inflow window.

#### b. Film theatre configuration: 'Throw Ratio' of the cinema

Before any installation, making sure that the device is compatible with the theatre is important. The 'Throw Ratio' (TR) enables a first assessment.




If the projector outflow image meets the previous requirements (\*), the 'Throw Ratios' to respect are the following:

THROW	Config Flat - 1.85	Config Scope - 2.39
DLP 1.2" PROJECTOR	TR >= 1.35	TR >= 1.2
DLP 0.98" PROJECTOR	TR >= 1.30	TR >= 1.2

(\*) : The SmartCrystal™ Diamond Box must be situated as close as possible to the lens, i.e. less than 2cm.

$$TR = (\text{Distance between projector and screen} \Rightarrow I) / (\text{screen width} \Rightarrow L)$$



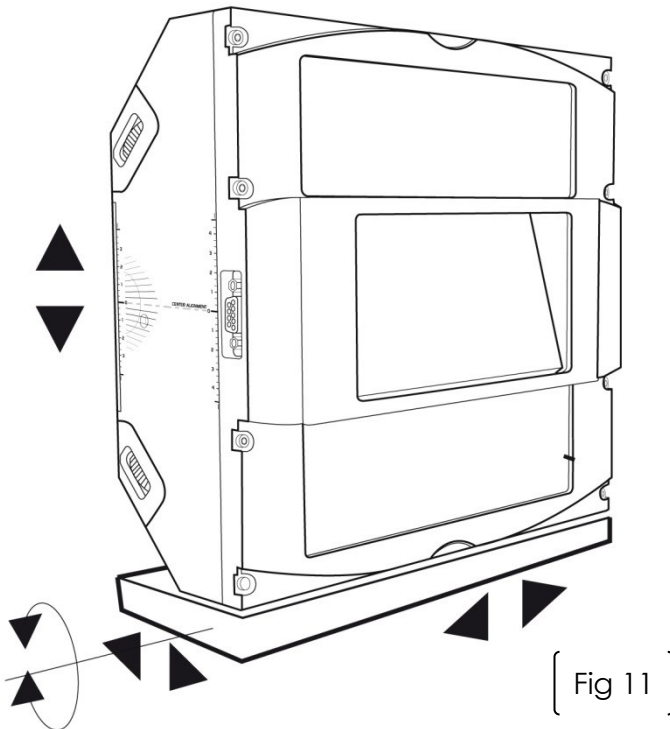
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### 3. SmartCrystal™ Diamond bracket presentation (VASP-10xxx)

**WARNING:** for the previous generation of bracket (VASP-09XXX) please refer to the ANNEXE 01 below.

#### a. The SmartCrystal™ Diamond bracket

The SmartCrystal™ Diamond Box must be assembled with a bracket which enables you to fit its position opposite the projector with high precision: Height, angle, distance from the projector (i.e. projector lens) and lateral movement for the 2D/3D modes.




#### WARNING

To avoid any damage to projector lens:

- The bracket has to be correctly fixed on the table or on the wall
- The product can move along the slide in both directions without touching the lens

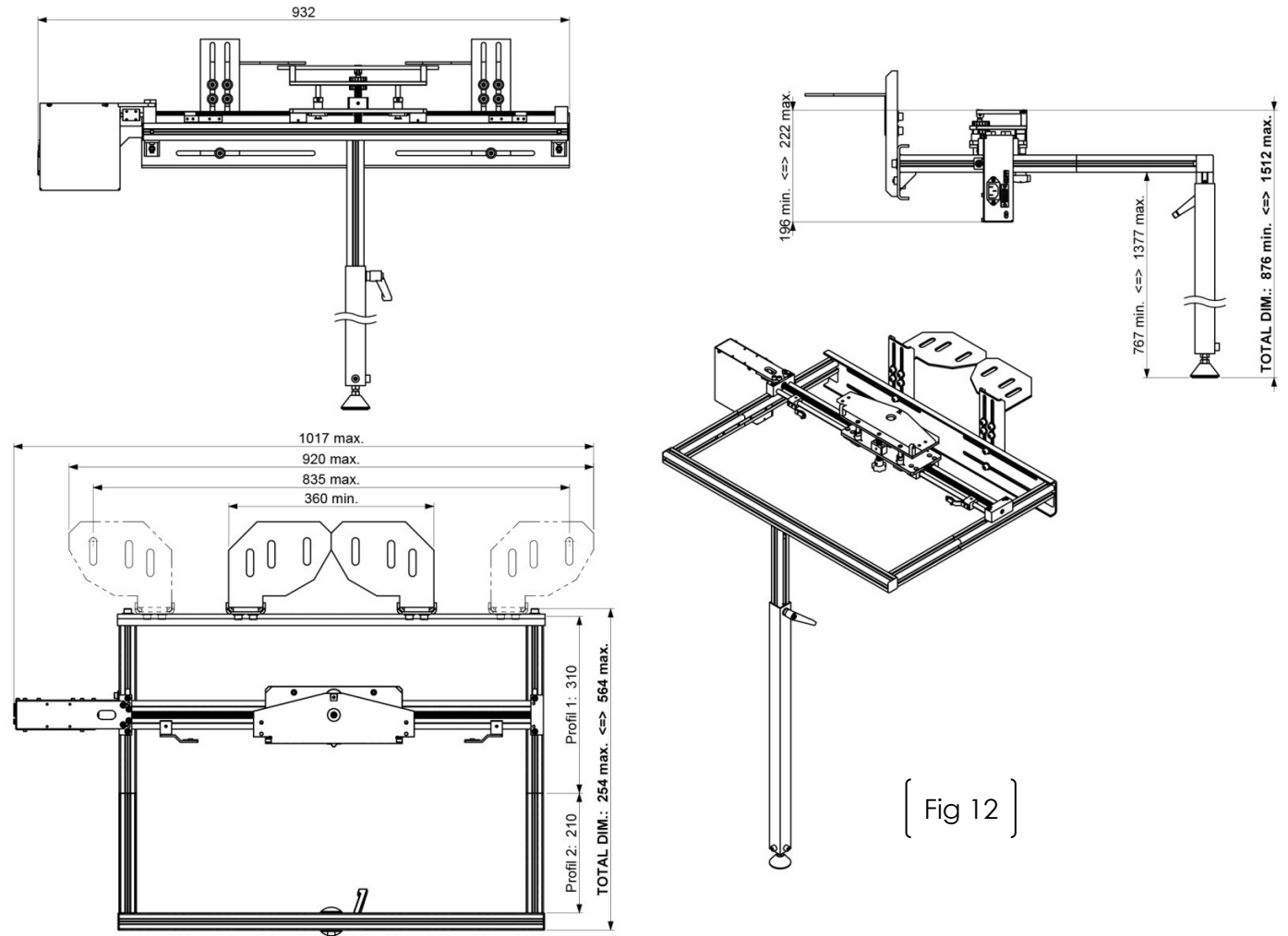
Volfoni provides the bracket to position the SmartCrystal™ Diamond Box properly in front of the projector lens.

For assembling instructions, please refer to the bracket user guide. It contains the possible assembly drawings depending on the various configurations.

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## b. The technical Specifications

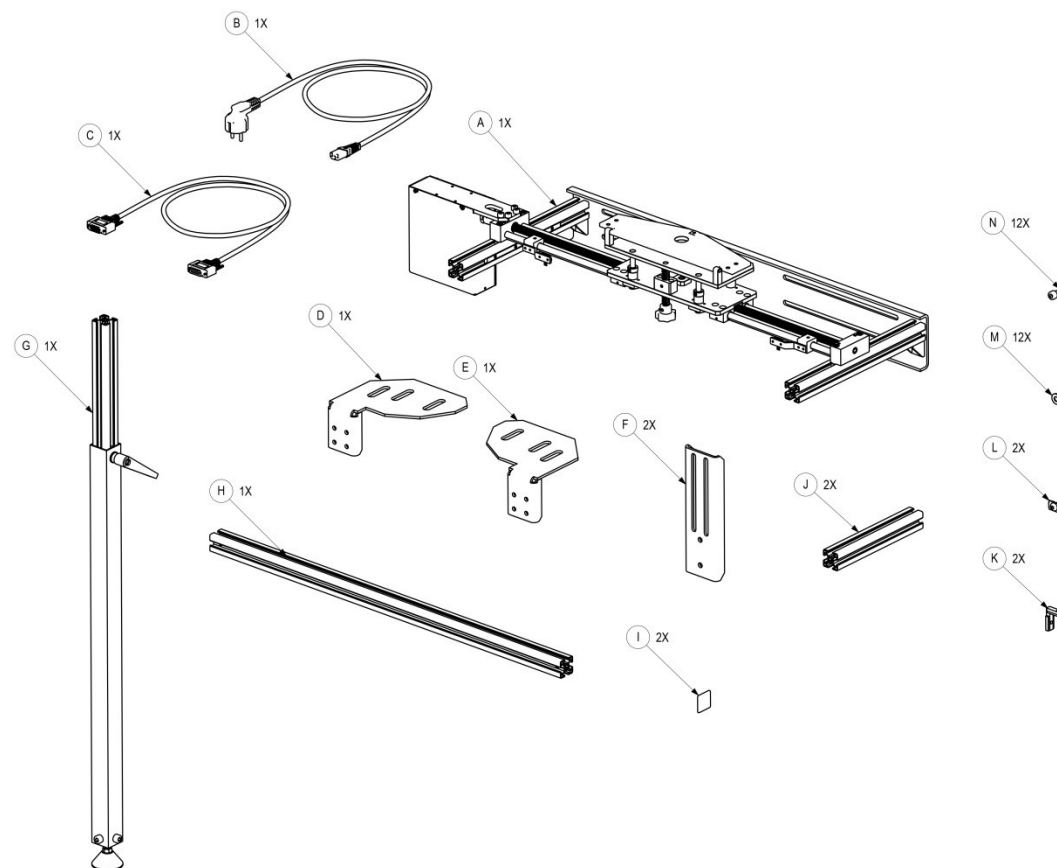
- DIMENSIONS: 900 x 310 x 150mm
- NET WEIGHT: 13 kg
- PACKING DIMENSIONS : 1000 x 370 x 250mm
- GROSS WEIGHT : 14 kg.
- FINISH IN : Aluminum powder coating
- COLOR: Aluminum Grey and black
- TILT RANGE: 15°
- MAX. HIGH ADJUSTMENT
- TABLE OPTION: 145 mm + 22 mm
- BENCH OPTION: 208 mm + 30 mm
- HIGH PRECISION ADJUSTMENT +/- 30 mm
- HORIZONTAL ADJUSTMENT CURSE: 250 mm + 200 mm



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### c. List of accessories

The kit includes all necessary accessories for mounting the support in all possible ways. It also includes the necessary screws.



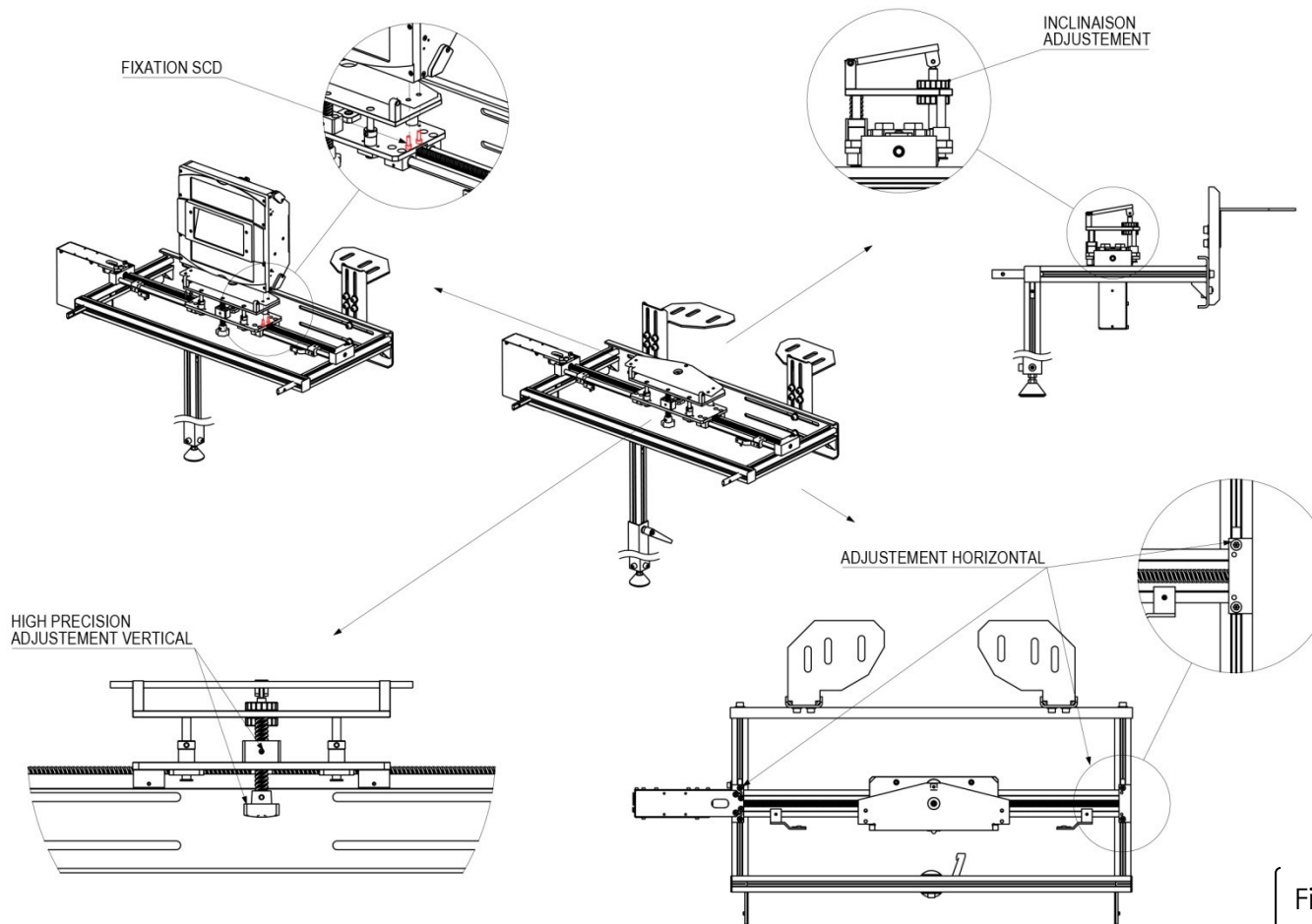
[ Fig 13 ]

The bracket is included in the KIT to assembly on site. Main parts are already assembled.

The packing includes a set of Allen wrenches to mount the bracket (2mm – 2.5mm – 3mm – 4mm – 5mm)

d. Mounting of the bracket overview

Installation and adjustment on the support overview

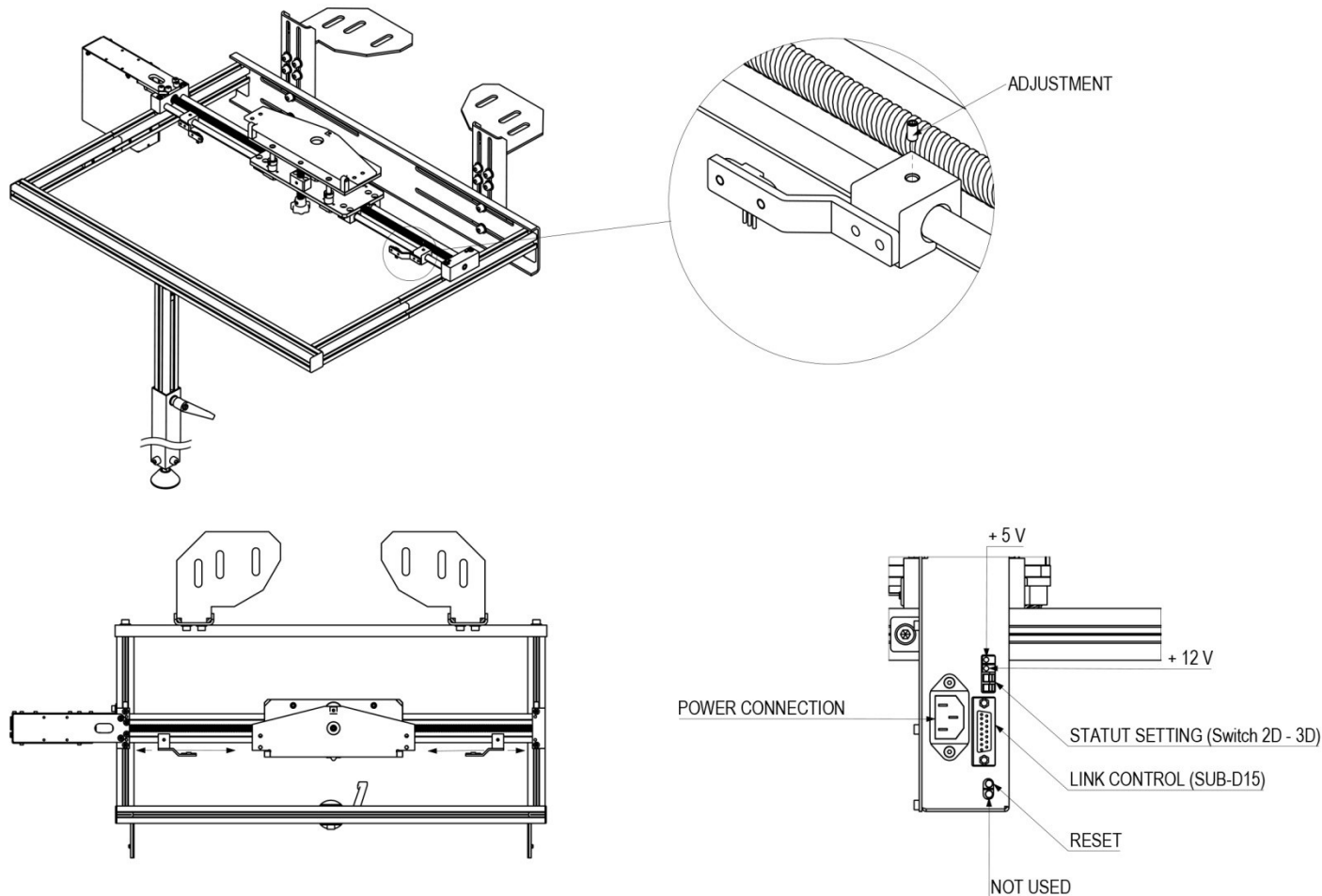


{ Fig 14 }

- Several steps to install the SCD on the Bracket
- - Fixing the SCD on the support with 4 screws.
- - Adjustment of the Horizontal position. SCD must be as closed as possible to the lens of the projector
- - Adjustment of the vertical position: Beam light should enter in the center of the entrance windows of the SCD.
- - Adjustment of the SCD angle


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## Setting 2D and 3D position



The bracket has two sensors to define 2D and 3D position. The position of these sensors must be adjusted depending on the position of the lens and will define the limits of the SCD displacement.




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## e. Appendix

Status LED, status settings & electrical wiring



[ Fig 16 ]

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## II. INSTALLATION OF THE SMARTCRYSTAL DIAMOND

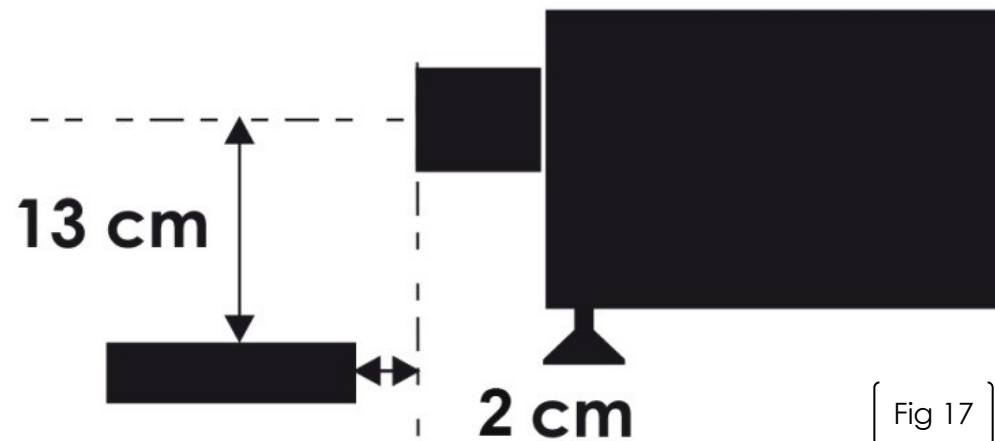
IT IS ABSOLUTELY ESSENTIAL TO FOLLOW CLOSELY ALL THE STEPS

### 1. The bracket installation


When installing the bracket it is important to keep in mind the goal is the following

- The upper plate of the bracket must be pre-positioned **13cm** far from the beam center, so as in the figure right
- The upper plate of the bracket must be pre-positioned **2cm** far from the lens, so as in the figure right

Before installing anything we invite you to do the measurements to have an idea where the upper will be. It will help you to visualize your goal and make the right decisions

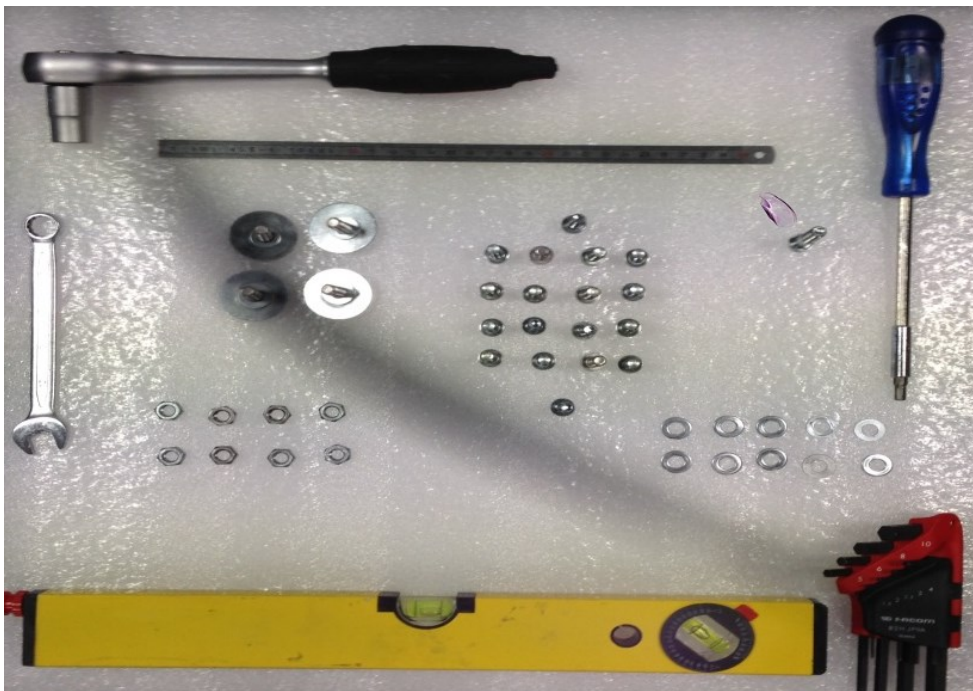


[ Fig 17 ]


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a. The bracket's elements and the different tools needed

### The necessary tools







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b. The bracket's installation type

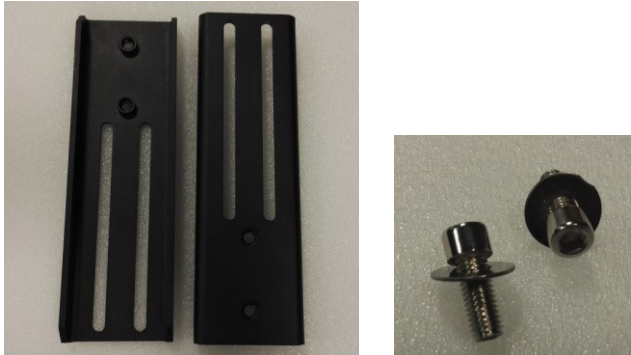


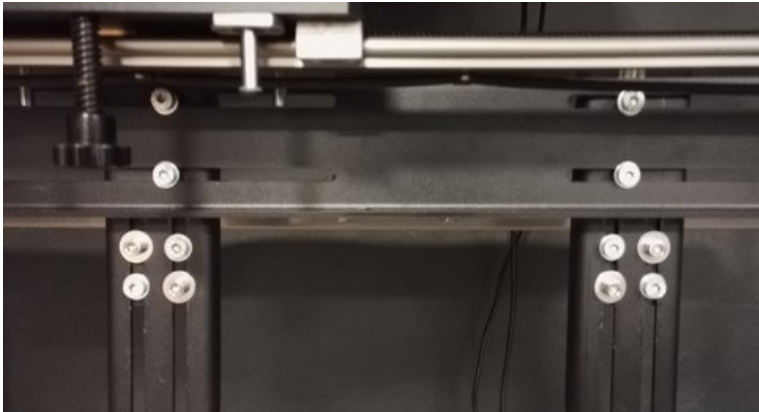
We have chosen to focus on the most common installation type: Mounting the bracket in the projector bench. You will find others way to install the bracket below. Please have a look before starting the installation


- ANNEXE 02 => Mounting the bracket in the projector legs
- ANNEXE 03 => Mounting the bracket in the projector bench
- ANNEXE 04 => Mounting the desktop bracket
- ANNEXE 05 => Wall mounting solution
- 

c. The bracket installation

STEP 01	STEP 02
	
Choose your configuration => ANNEXE 02 to 05 Bracket Maximum distance Minimum height	Depending on your configuration Fix D & E parts

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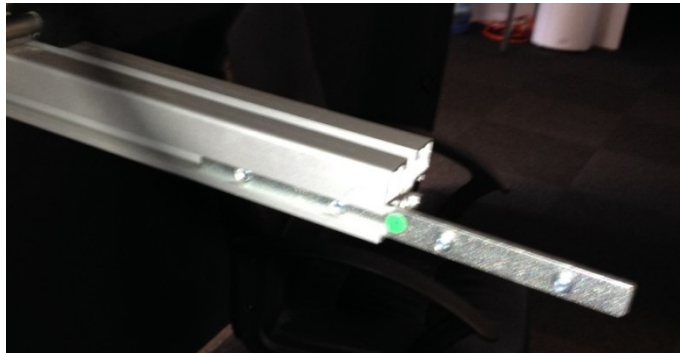
STEP 03	STEP 04
 	 
Fix F parts using 8 units of M and N pieces	Fix A part using 4 units of M and N pieces

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## STEP 05

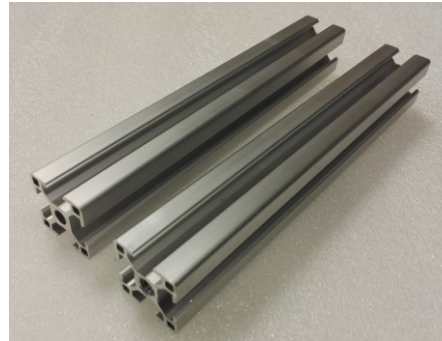
**If the length of the projector's lens is more than 15 centimeters  
Please follow the procedure if not please go directly to the STEP 08**

## STEP 06



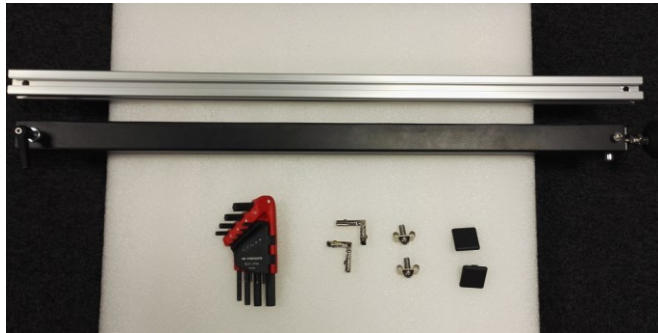
Positioning connecting bars on each side of J parts

## STEP 07



Fix the 4 screws to lock A and J part.  
The same operation has to be done on the other side of the bracket.

## STEP 08




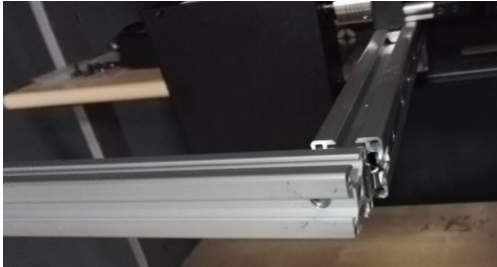
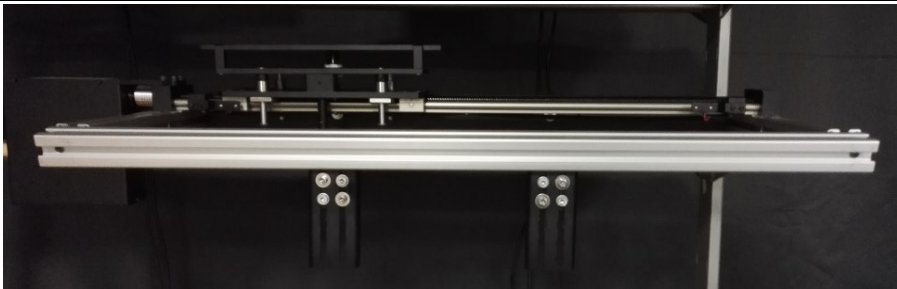



Bracket feet installation : Parts & tools

## STEP 09



Screw L pieces on J parts

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<b>STEP 10</b>		<b>STEP 11</b>	
			
Use H part		Slide the H part on the end of J parts	
<b>STEP 12</b>		<b>STEP 13</b>	
			
Put the H part with the L screws in front of the holes		Fix them together with the Allen key	
<b>STEP 14</b>		<b>STEP 15</b>	
			
Use the K parts		Slide them in the H part	



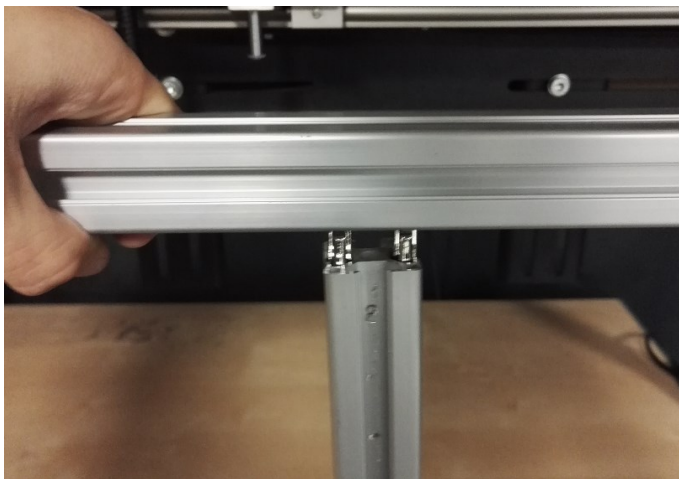
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#### STEP 16



Put the K parts in the middle of the H part

#### STEP 18



Put H part and G part together

#### STEP 17




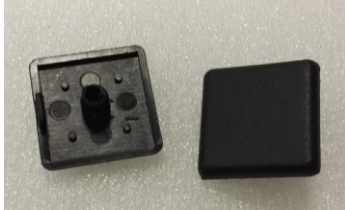
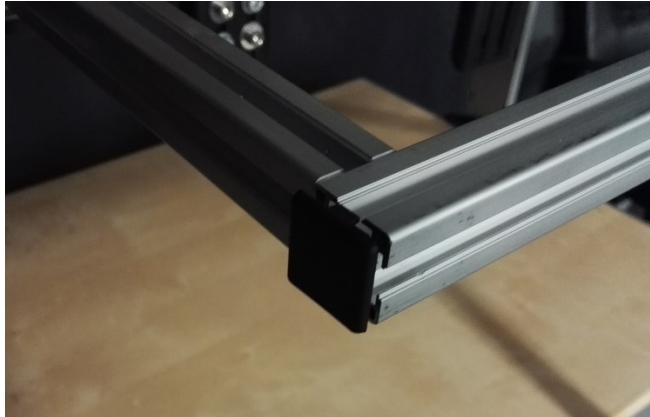


Use the G part

#### STEP 19

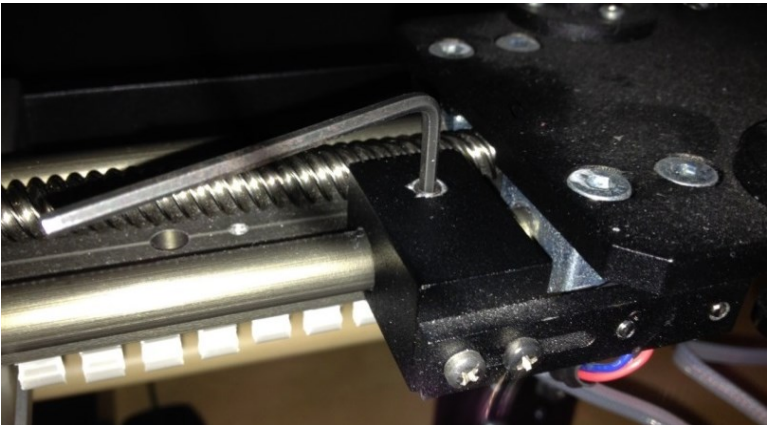
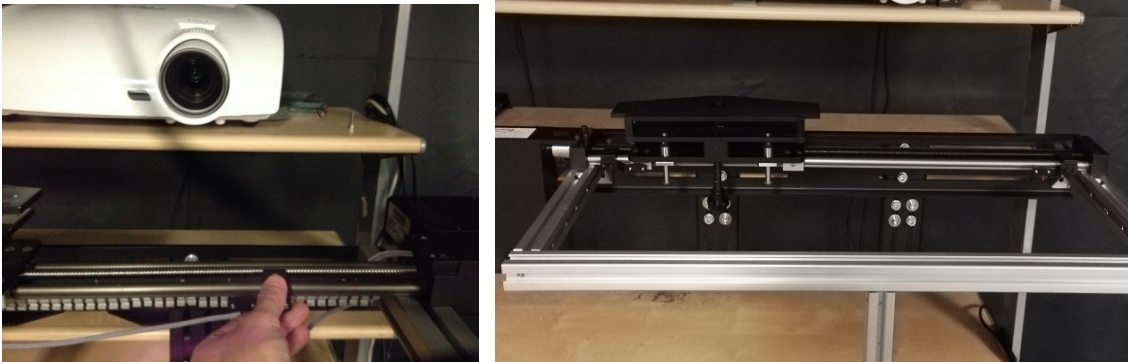
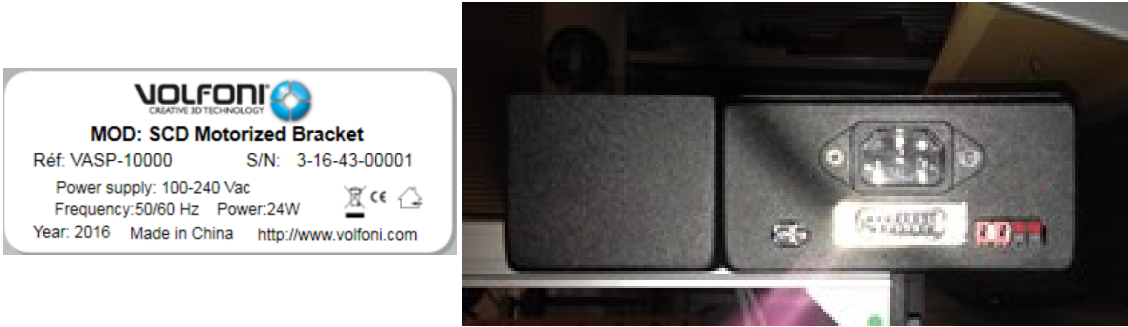


Once positioned, fit the screws of K parts

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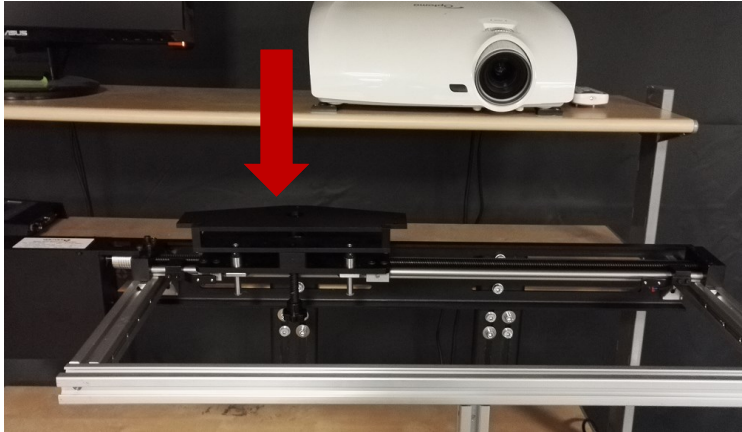
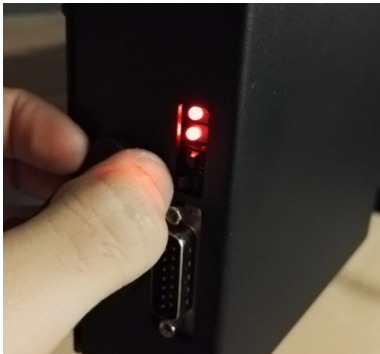

<b>STEP 20</b>	<b>STEP 21</b>
	 
Adjust the height of the G part	Add the I pieces at the end of H part
<b>STEP 22</b>	<b>STEP 23</b>
	
Remove fixations for sensor limit cables	Remove the 2 bracket position sensors wires from guide

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STEP 24	STEP 25
	
<p>Unscrew 2 bracket position sensors</p>	<p>In this configuration, move right position sensor from its position till a position that will allow to put bracket upper plate face to projector</p>
STEP 26	STEP 27
<p>General view of the bracket electronic</p> <ul style="list-style-type: none"> <li>• 1<sup>st</sup> button : Not used</li> <li>• 2<sup>nd</sup> button : Reset button</li> <li>• 1<sup>st</sup> contact : Motor command</li> <li>• 2<sup>nd</sup> contact : Set 2D / 3D position</li> <li>• 1<sup>st</sup> led : 12V</li> <li>• 2<sup>nd</sup> led : 5V</li> </ul>	




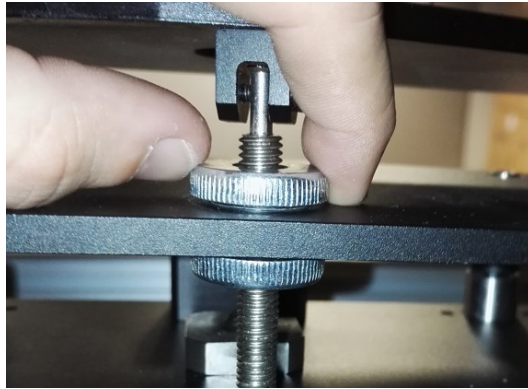


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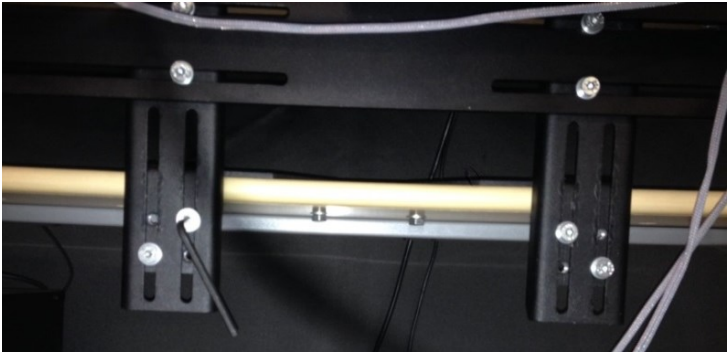
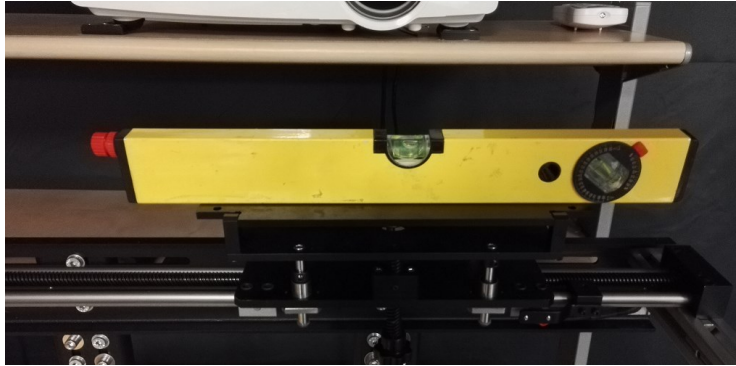
<b>STEP 28</b>	<b>STEP 29</b>
	
Power on bracket and check 2 leds red	Bracket upper plate is at 2D position
<b>STEP 30</b>	<b>STEP 31</b>
	
Use first contact	Bracket will move and will stop face to bracket position sensor. The bracket upper plate will be approximately face to projector




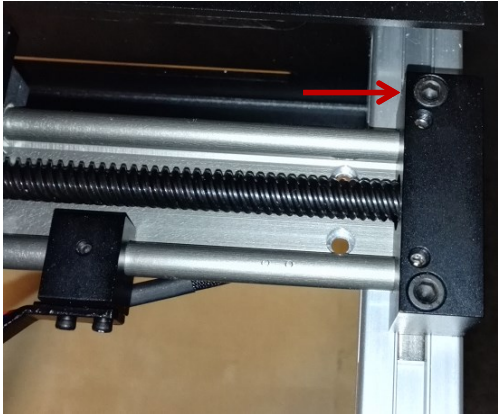
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<b>STEP 32</b>	<b>STEP 33</b>
	
Unscrew and move the sensor limit to place the bracket upper plate	Position the sensor limit to have the bracket upper plate perfectly in front of the projector
<b>STEP 34</b>	<b>STEP 35</b>
	
Unscrew 2 screws of the rings on both side of the trolley	Loosen stud bolt of the trolley

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STEP 36	STEP 37
	
<p>Set bracket upper plate at middle position Set bracket tilt at 0°</p>	<p>Check distance between bracket upper plate and middle of projector lens. Right distance should be approximately 13cm</p>
STEP 38	STEP 39
	
<p>In case of bracket upper plate too high or too low Readjust its position by modifying F parts position</p>	<p>Check horizontality is good</p>

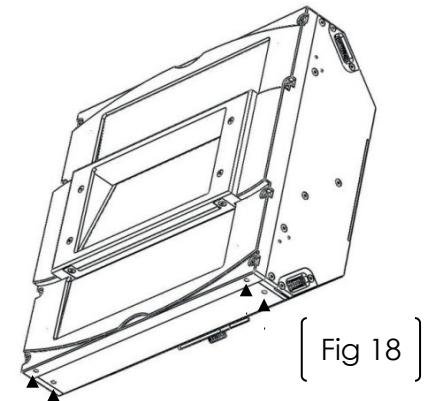
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STEP 40	STEP 41
	<p>In the next step we will mount the SCD on the bracket. Before be sure that the trolley of the bracket is far away enough from the lens of the projector</p>
Unscrew the 2 screws on the both side of the endless screw	

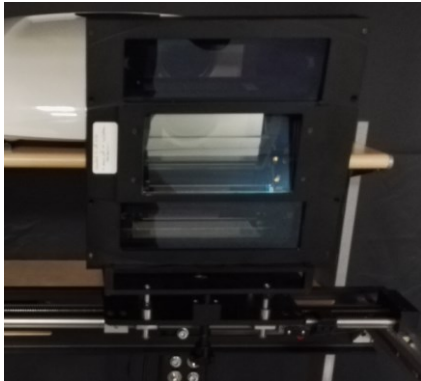

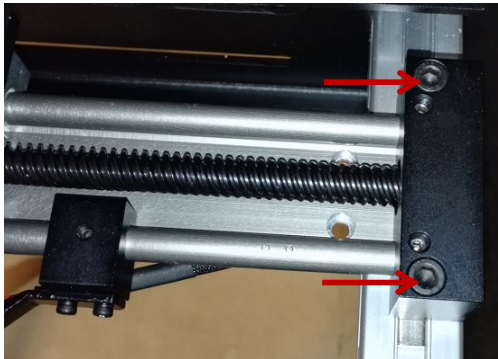
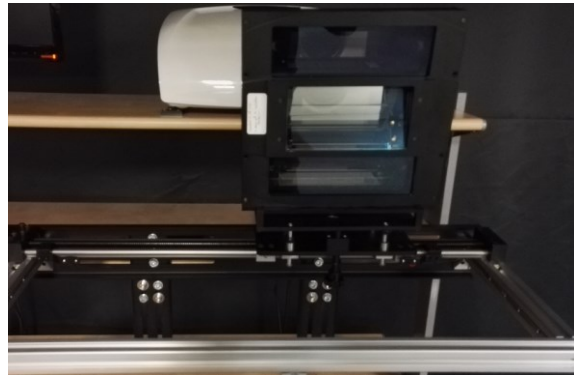
## 2. Assembly of the SmartCrystal™ Diamond box on the bracket and positioning in front of the projector

The purpose of this step is to assemble the SCD Box with the bracket and to make sure there is no risk of contact with the projector and its lens.

- Position the carriage as far as possible from the projector lens in order to avoid any risk of contact with this latter during the assembly of the SmartCrystal™ Diamond Box on the carriage.
- Assemble the SmartCrystal™ Diamond with the bracket carriage.
- After positioning the SmartCrystal™ Diamond Box, fix it on the carriage using 4 screws.
- The screws and the wrench are provided with the system (see packing list).
- As the SmartCrystal™ Diamond Box is properly fixed on the carriage, make the carriage slide and check the absence of contact with the projector and its lens. In case of contact, fit the bracket adjustment to eliminate any risk of contact.

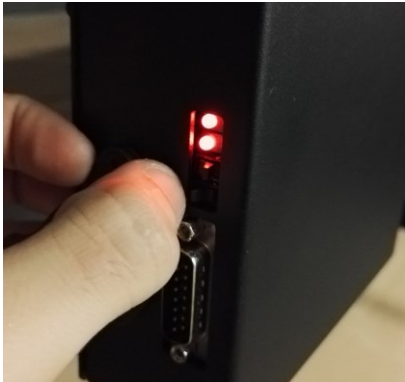
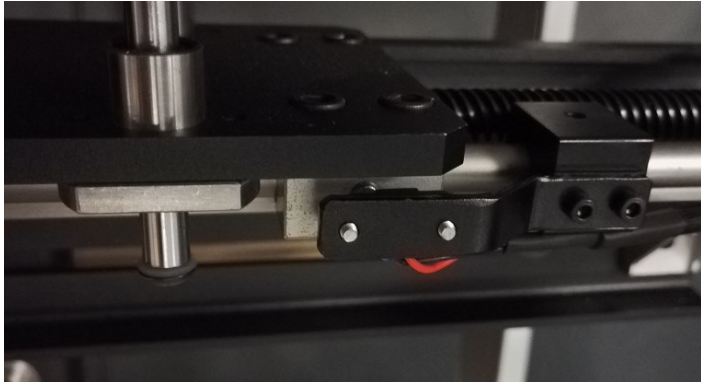


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<b>STEP 42</b>	<b>STEP 43</b>
	
Move bracket in order SCD entrance windows will be at approximately 2cm from projector lens	Check and adjust bracket position (same distance for both side). SCD will be at approximately 2cm from projector lens
<b>STEP 44</b>	<b>STEP 45</b>
	
Screw the 2 screws on the both side of the endless screw	In this case the Bracket is at 3D position



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STEP 46	STEP 47
	
Use first contact. SCD will reach automatically 2D position	Use a white pattern. Move slightly 3D bracket position sensor. The SCD will follow the sensor until you obtain a maximum of light on the side of the SCD

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### 3. The SmartCrystal™ Diamond box tilt adjustment and locking

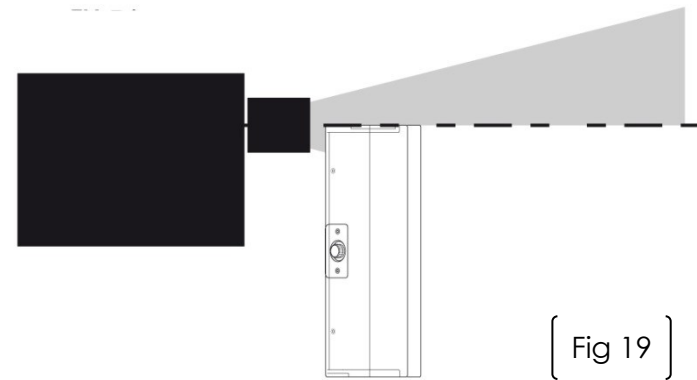
#### STEP 48



##### Adjustment of the SmartCrystal™ Diamond Box position

The purpose of this step is to position the SCD Box properly towards the light coming from the projector.

- Make the carriage slide so that the beam of light from the projector lights up the side of the SmartCrystal™ Diamond Box  
(See Fig 19 which shows a view from above).  
This process can be carried out using the left side or the right side of the SmartCrystal™ Diamond box.




[ Fig 19 ]

Move 3D bracket position sensor until you obtain a maximum of light on the side of the SCD

#### STEP 49

By having a look on “Center alignment”  
Adjust bracket height  
Adjust bracket tilt  
Image input has to be well centered  
Image output has to be well centered

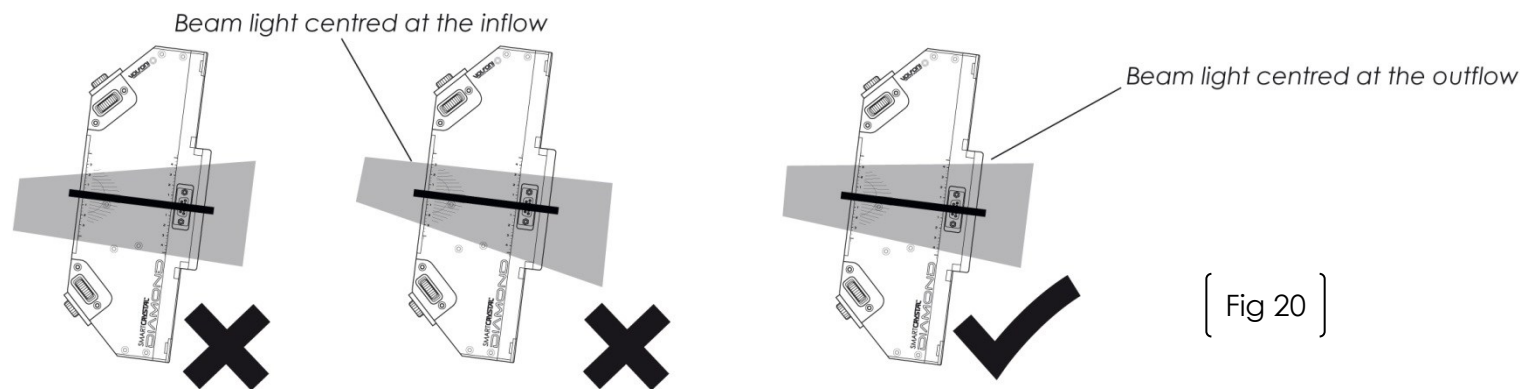


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Adjust the position (height, angle) of the SmartCrystal™ Diamond Box in relation to the beam light from the projector using the graduations on the sides of the SmartCrystal™ Diamond Box.

To fit this, use the carriage adjustment units of the bracket

The ideal position is when the beam light is centered at the inflow and at the outflow of the SCD Box, as mentioned by the figures below.



[ Fig 20 ]

- This step might alter slightly the position of the SCD Box in relation to the projector lens. Check again (removal/bringing close) by making the carriage slide:

- There must be no contact between the device and the projector (lens included).

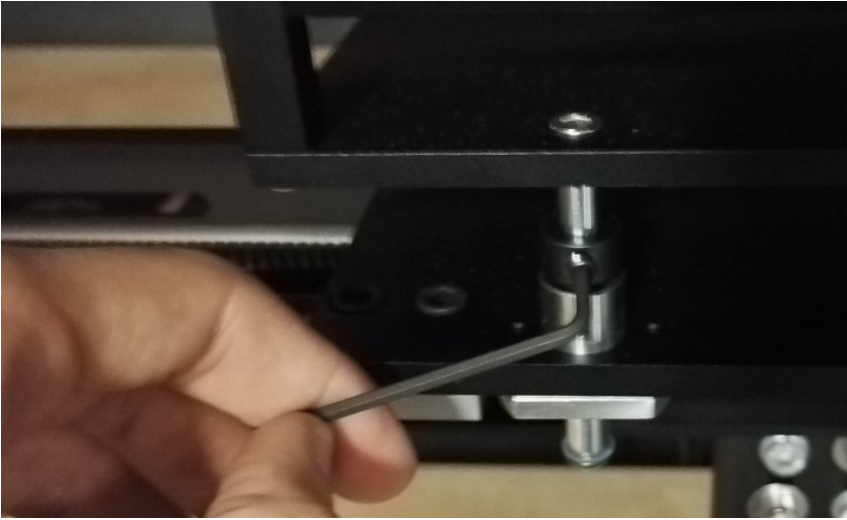
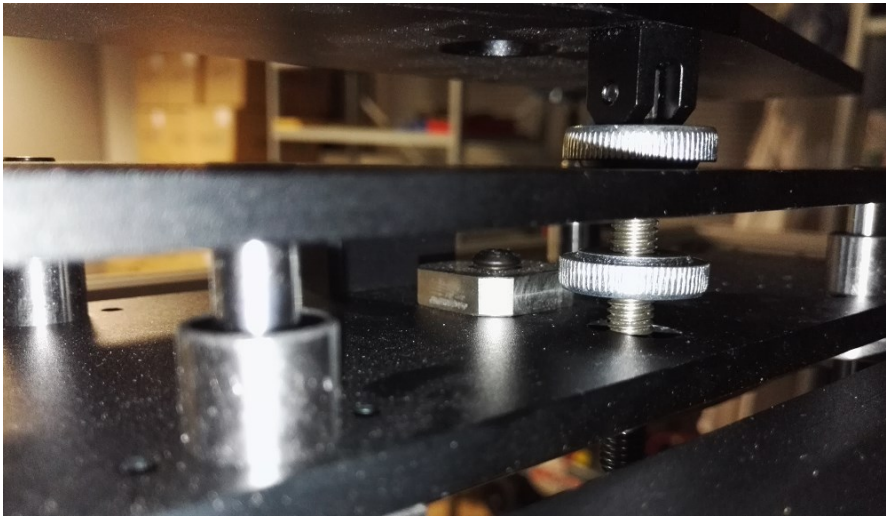
The SmartCrystal™ Diamond Box must be as close as possible to the projector lens without touching it, i.e. less than 2cm.

Fit in the bracket again if necessary.

If you alter one of the adjustments (position or orientation), you systematically need to carry out all the checks and repeat the process as many times as necessary. If you have respected the procedure, one iteration should be enough.

As the position and the orientation are satisfying, the SCD Box is installed.

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STEP 50	STEP 51
	
Lock bracket height with the right and left rings	Lock bracket angle with the counter screw

There are more information in looking at ANNEXE 06 Precision and tilt adjustments.



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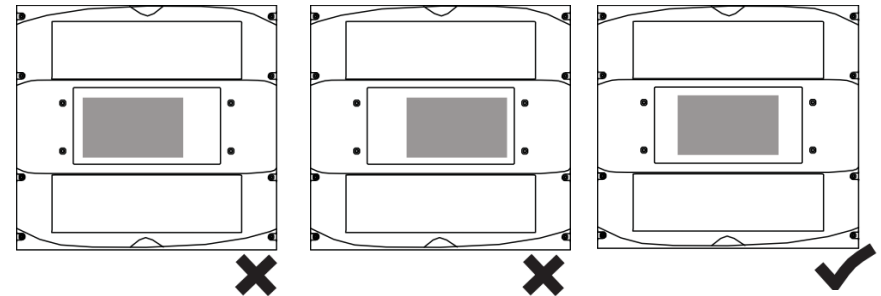
## 4. 2-D/3-D position stops positioning

The stops enable you to define accurately and permanently the positions of the SCD Box for the 2-D and 3-D projection modes

### Adjustment of the 3-D position

In 3-D mode, the SCD Box must be positioned so that the projector beam outflow is horizontally centered on the central window of the projector front and also on the outflow window (screen side).

- Fixing the 3-D position:
- If possible, look at the SmartCrystal™ Diamond Box screen side and make sure that the central image is properly centered
- At this moment, do not worry about the position of the upper and lower half images
- Look at the SmartCrystal™ Diamond Box inflow window and make sure that the central image is properly centered like Fig 21
- As the SmartCrystal™ Diamond Box is properly positioned, lock the bracket stop in 3-D position (see step 55).
- It is then possible to make the carriage slide and to come back easily and accurately to this position



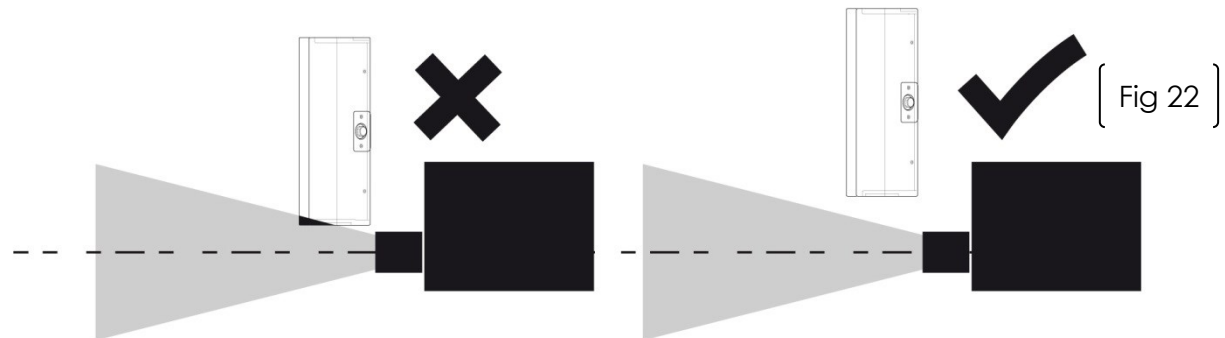
[ Fig 21 ]

### Adjustment of the 2-D position

In 2-D mode, the position of the SCD Box should not interfere with the projector beam. Make the bracket carriage slide until the SCD Box is out of the beam light.



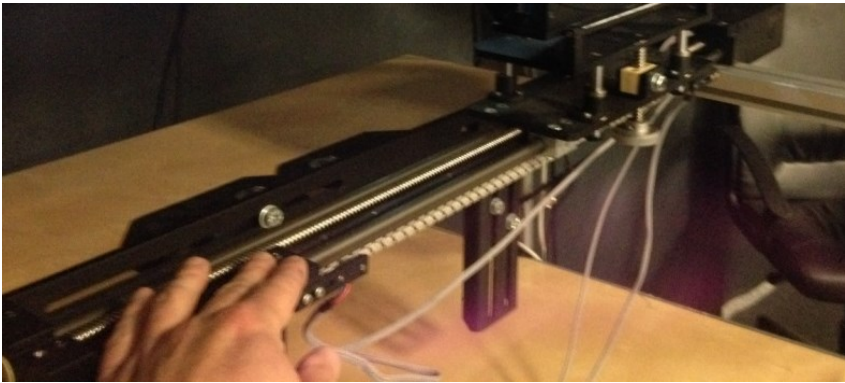

**Do not hesitate to take a margin of room in order to avoid any subsequent problem.**


As the SmartCrystal™ Diamond Box is properly positioned; lock the bracket stop in 2-D position.


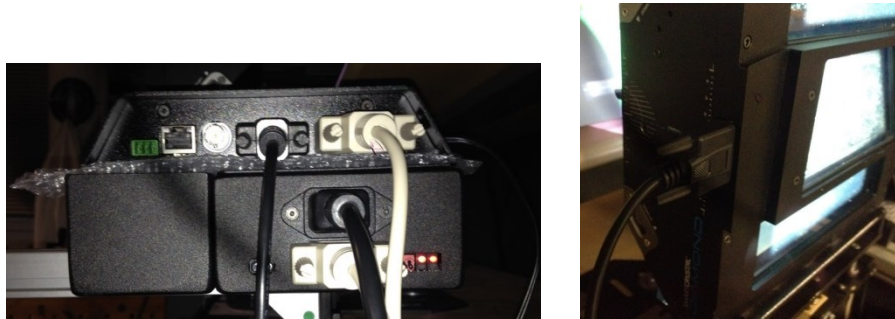


[ Fig 22 ]

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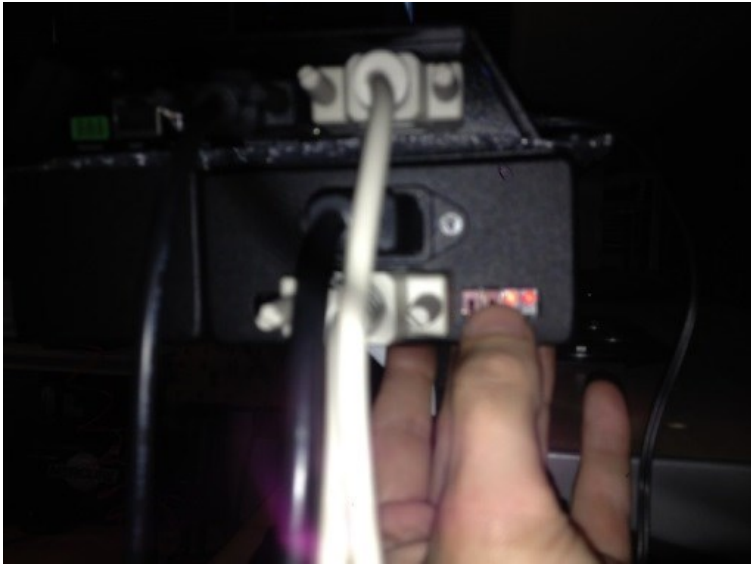
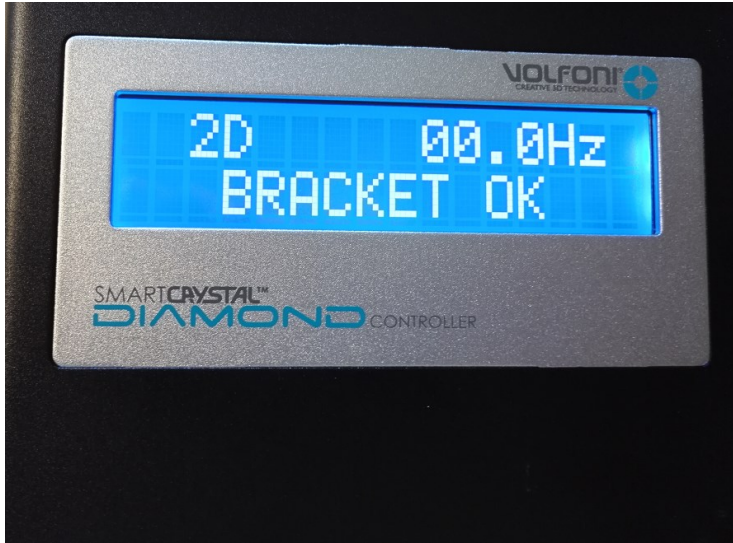
<b>STEP 52</b>	<b>STEP 53</b>
	
Check inflow image is well centered (vertically and horizontally). Image size has to be < 10cm x 7cm	Check 3 outflow images are well centered
<b>STEP 54</b>	<b>STEP 55</b>
	
Adjust, set and lock 2D bracket position sensor	Lock 3D bracket position sensor

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STEP 56	STEP 57
	
Put wires properly	Connect all cables except synchronization and RJ45 cables. <b>You must plug the power supply of the SCD controller</b>

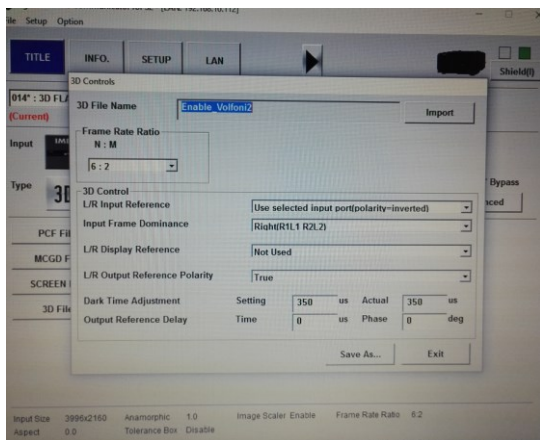


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STEP 58	STEP 59
	
<p>Use the 1<sup>st</sup> contact to position the SCD in 2D position. Look at the Controller box screen :</p> <ul style="list-style-type: none"> <li>- If 2D-00Hz-Bracket OK : nothing more to do,</li> <li>- If 2D-00Hz-Bracket unready : Use the 2<sup>nd</sup> contact to display the right parameters =&gt; 2D-00Hz-Bracket OK</li> </ul>	<p>The SCD displays now the right parameters. We are in 2D position and we have 2D / 00.0Hz / BRACKET OK</p>



## STEP 60



### Projector settings

- 3D ON
- Dark time = 350μs or 1000μs (see table below)


ELECTRONIC BOX	OPTICAL BOX	DARKTIME
VSSP ≥ 10200	VSSP ≥ 13300	350μs
VSSP 10100	VSSP ≤ 13200	1000μs
VSSP 10000	VSSP ≤ 13200	1000μs

If you notice an excessive 'ghosting' effect, test other values for the Darktime, increasing it. **Do not hesitate to contact your technical support.**

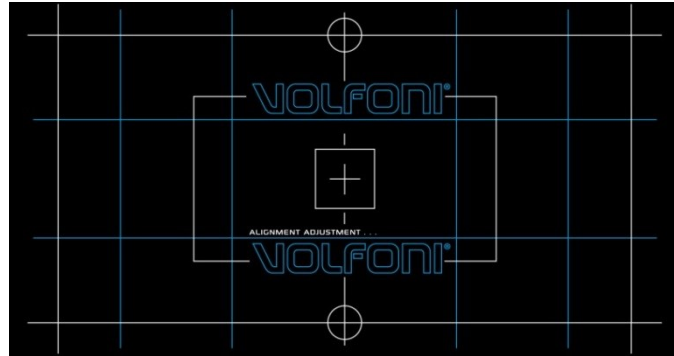
- Delay = 0μs
- 3D Synchronization output activated
- Triple flash / 6:2 / 48Hz

### SCD Controller display

- Connect synchronization cable to SCD Controller
- SCD will reach automatically 3D position
- SCD Controller will display : 3D ON / 72Hz / BRACKET OK

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## 6. The SmartCrystal™ Diamond box Image adjustment

STEP 61	
<p><b>Loading the adjustment pattern</b></p> <p>Please load the adjustment pattern into the server and display it on the screen. The pattern is stored in the USB key provided with the device.</p>	


The installation and the positioning of the SmartCrystal™ Diamond Box are now completed. Re-position the SCD Box in front of the projector lens (3-D position) for the next operation (image adjustment).

### Image adjustment

Now that the SCD Box is properly positioned, we can carry out the image adjustment. The principle consists in aligning every half image (upper and lower) with the central image

The fitting wheels are located on each side so as on the projector side of the SmartCrystal™ Diamond Box.

- On one side of the SmartCrystal™ Diamond Box, you will find the up/down adjustment wheels of the upper half image (at the top) so as of the lower half image (at the bottom). They can be spotted with the 'left/right' inscription.
- On the other side of the SmartCrystal™ Diamond Box, you will find the right/left adjustment wheels of the upper half image (at the top) and of the lower half image (at the bottom). They can be spotted with the 'left/right' inscription.
- On the front projector side of the SmartCrystal™ Diamond Box, you will find the zoom in/out wheel for the upper half image (at the top) and the zoom in/out wheel for the lower half image (at the bottom). They can be spotted with the 'adjust' inscription.

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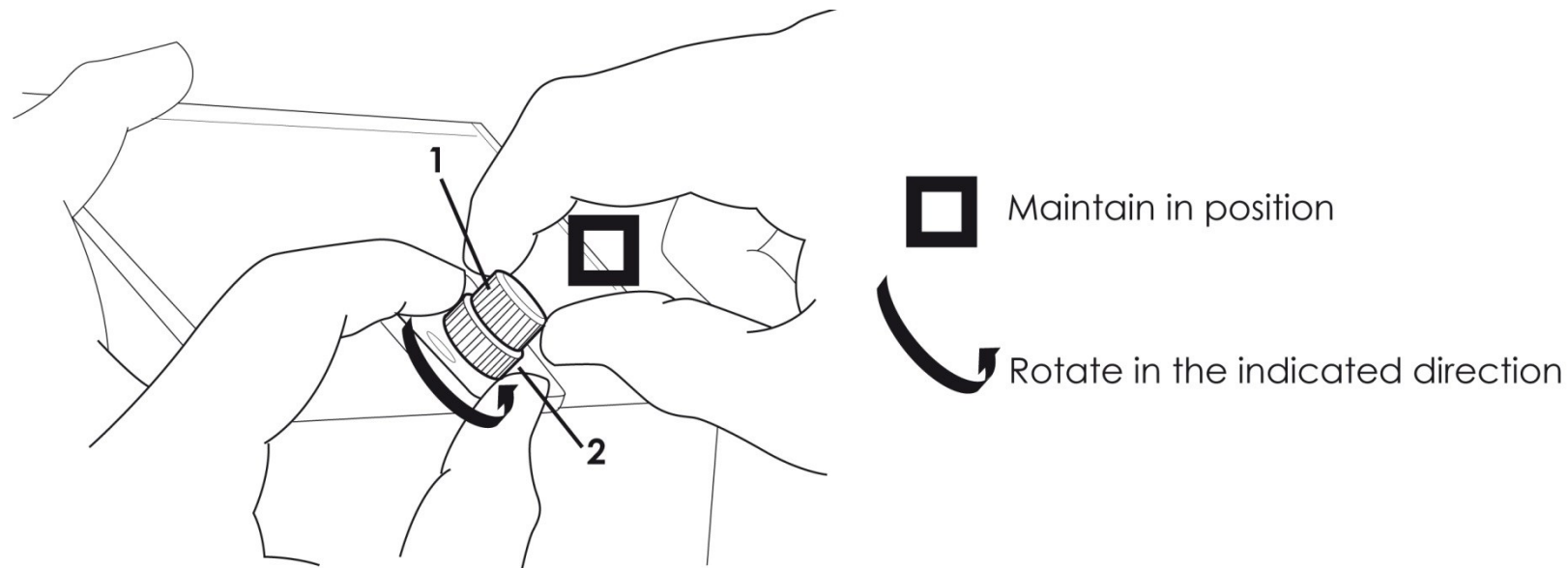
Before starting the image adjustment, display the Volfoni adjustment pattern on the screen. The observed screen image shows line splitting and different gaps between the upper and the lower parts of the image.

### Fitting the upper half image

The purpose of this step is to superimpose all the information of the upper half of the image proceeding as following:

First of all you need to make sure that the adjustable wheel is unlocked.

To do so, you have to maintain in position the top part of the adjustable wheel (1) then unscrew (rotate counterclockwise) the bottom part of the adjustable wheel (2) until feeling the stop. During this step you must not force. This locking system is working on the principle nut/locknut. *The system is now ready to be set.*

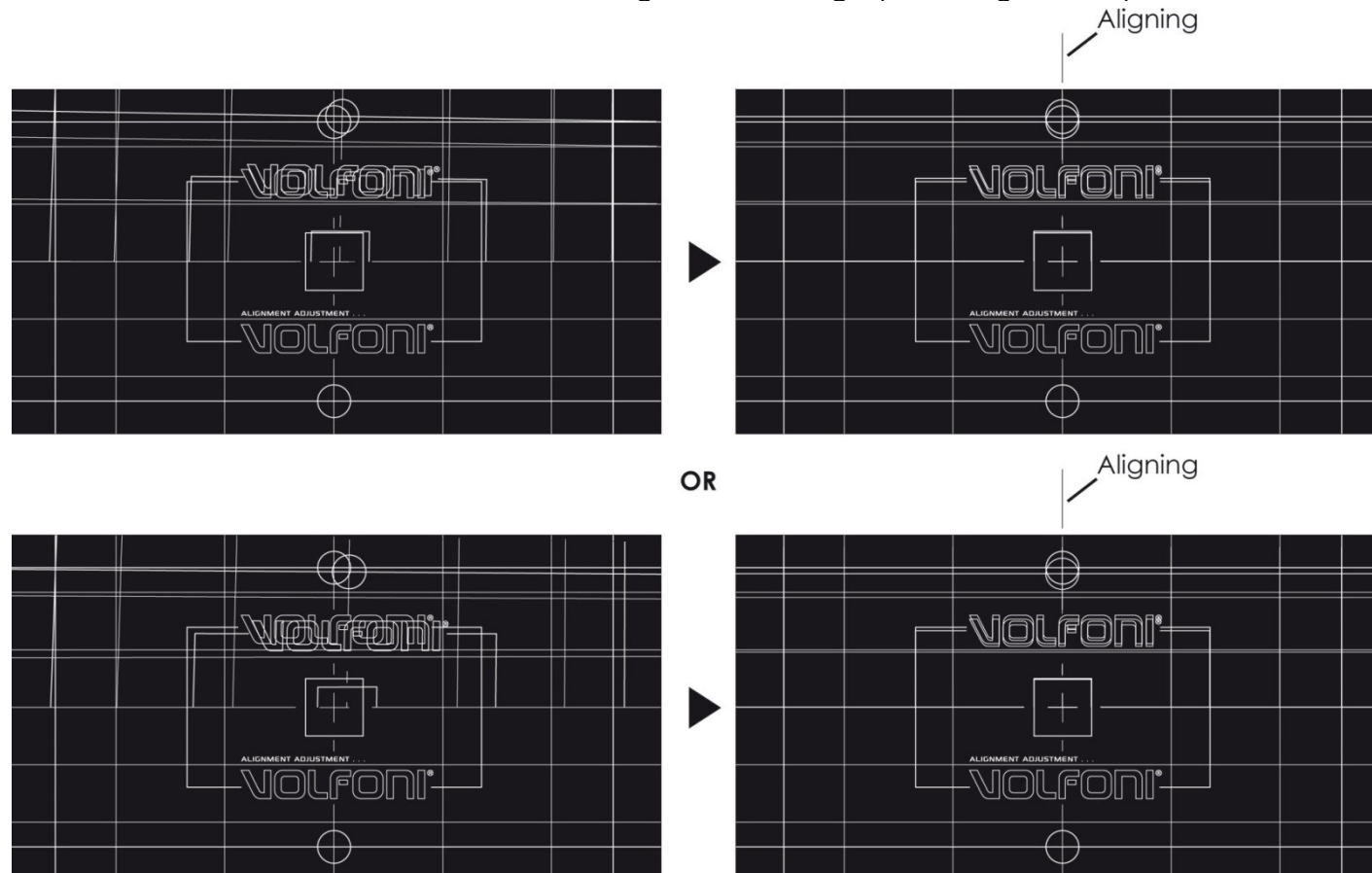


[ Fig 25 ]

**Left/right fitting observing the VERTICAL lines**


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- Align/superimpose the vertical lines at the center of the upper image using the left/right wheel located at the top of the device (n°1 wheel of the figure 5).
- When the aligning is correct at the center, the vertical lines on the image sides are not systematically superimposed. Check that gaps between the lines are identical on the left and the right of the image (see image below).



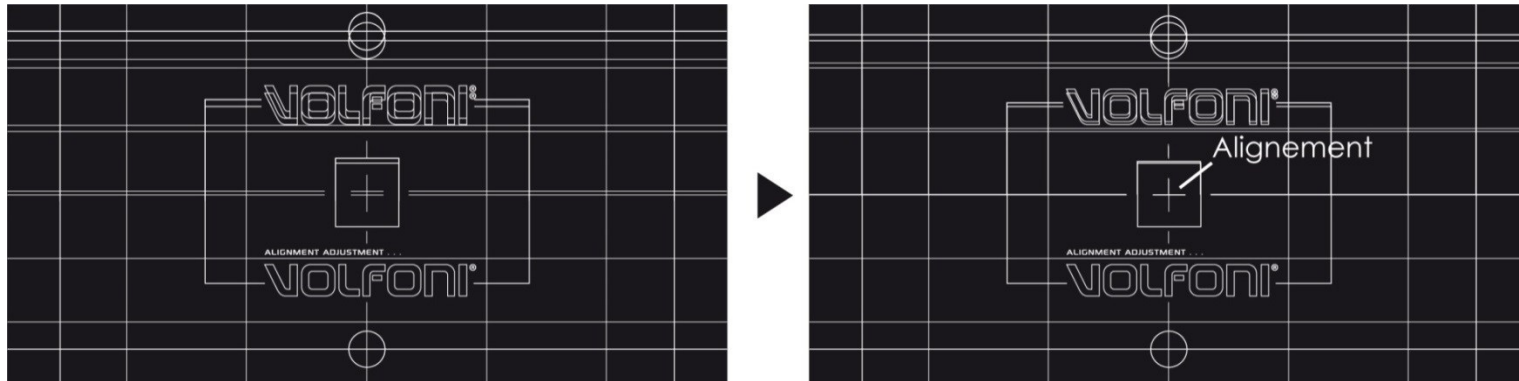
[ Fig 26 ]

Up/down fitting observing the HORIZONTAL lines

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o Align/superimpose the horizontal line(s) of the upper image using the 'up/down' wheel located at the top of the device (n°3 wheel of the figure 5). Focus mainly on the center of the image (the horizontal lines at the top of the image are probably still irregular, which is not disturbing at the moment).

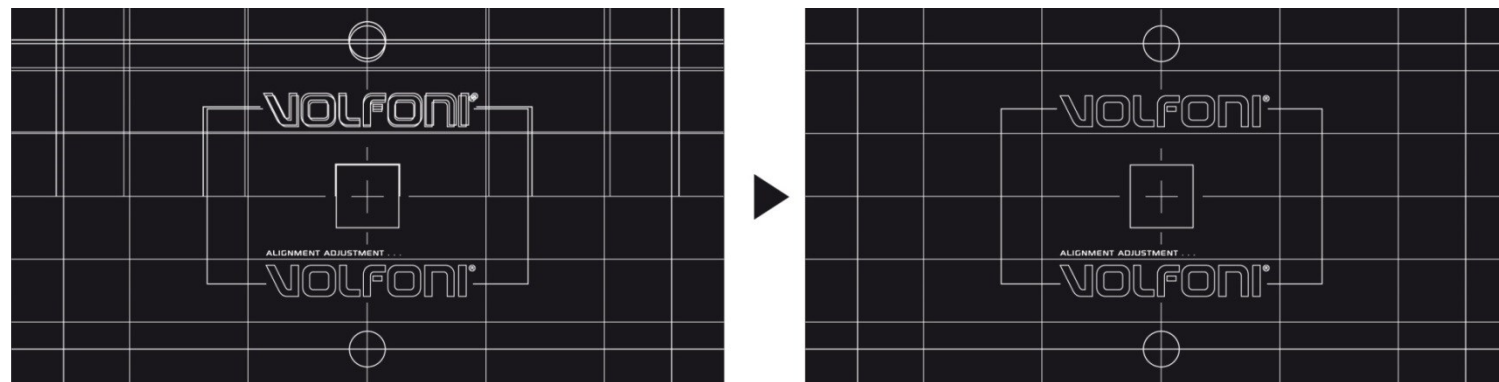
•



[ Fig 27 ]

### 'Scale/zoom' size fitting


Using the upper central wheel (n°6 wheel of the figure 5), fit the size of the upper half image superimposing all the information (lines, circles, text).



[ Fig 28 ]

Lock the upper half image



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At the end of the previous adjustment, the superimposition might not be optimum.

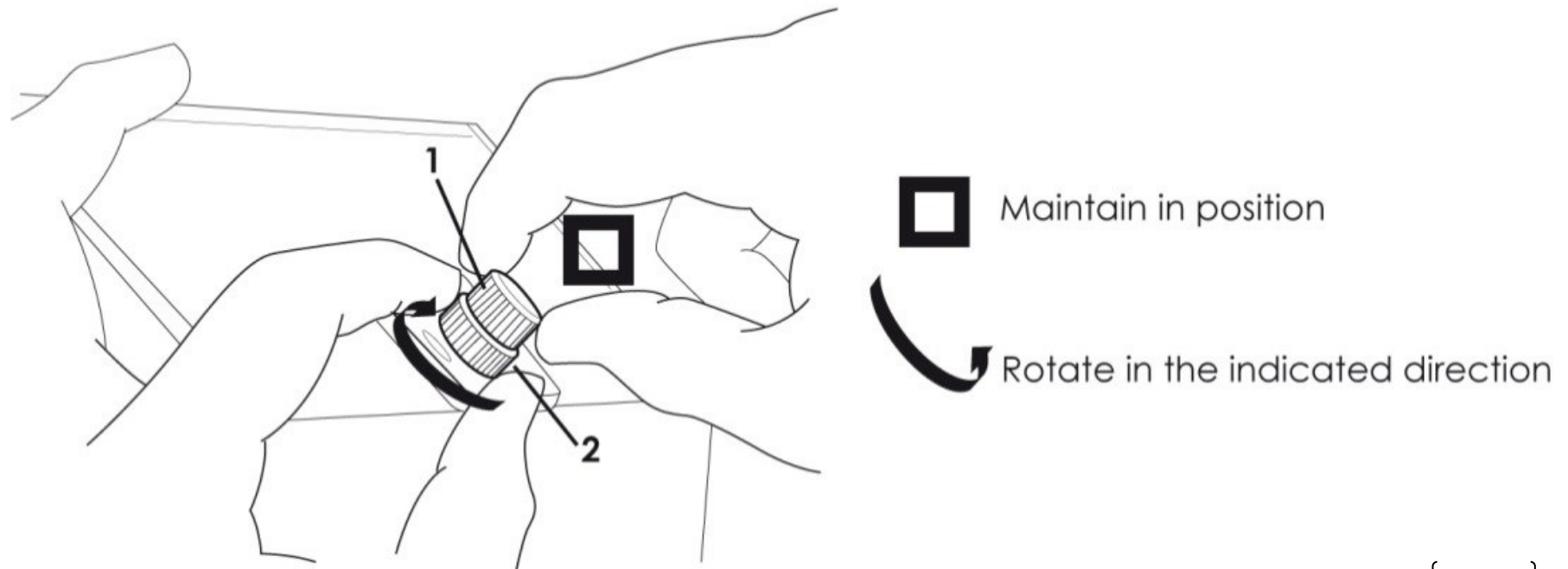
The three previous steps need to be repeated, proceeding to a finer fitting until you get a satisfying result. The adjustment is satisfying when there is no image splitting on the upper half image anymore.

**Now as the adjustment of the top image is completed you have to lock it.**

**To do so, you have to maintain in position the top part of the adjustable wheel (1) then screw (rotate clockwise) the bottom part of the adjustable wheel (2) until the stop.**

The locking can have a slight impact on the 'Scale/zoom' size fitting.

In this case you have to unlock the adjustable wheel (do the contrary of the previous step) then start over until finding the good balance.



[ Fig 29 ]

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## Lock the left/right button

### STEP 62



Unscrew the right top silver screw located on the aluminum cover


### STEP 63



Fix the locking mechanical piece by tightening the screw as illustrated

If the vertical alignment moved, remove the locking mechanical piece, redo the vertical alignment and fix again the locking mechanical piece until having a perfect vertical alignment after tightening the knurl screw.

**In general the horizontal moved after this step it is normal.**

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**Lock the up/down button.**

**STEP 64**



Unscrew the right top silver screw located on the aluminum cover


**STEP 65**



Fix the locking mechanical piece by tightening the screw as illustrated

If the horizontal and/or vertical alignment moved, remove the locking mechanical piece, redo the alignment and fix again the locking mechanical piece until having a perfect alignment after tightening the knurl screw. It might be necessary to redo this last step 2 or 3 times.

**The adjustment and locking of the upper half image is completed.**

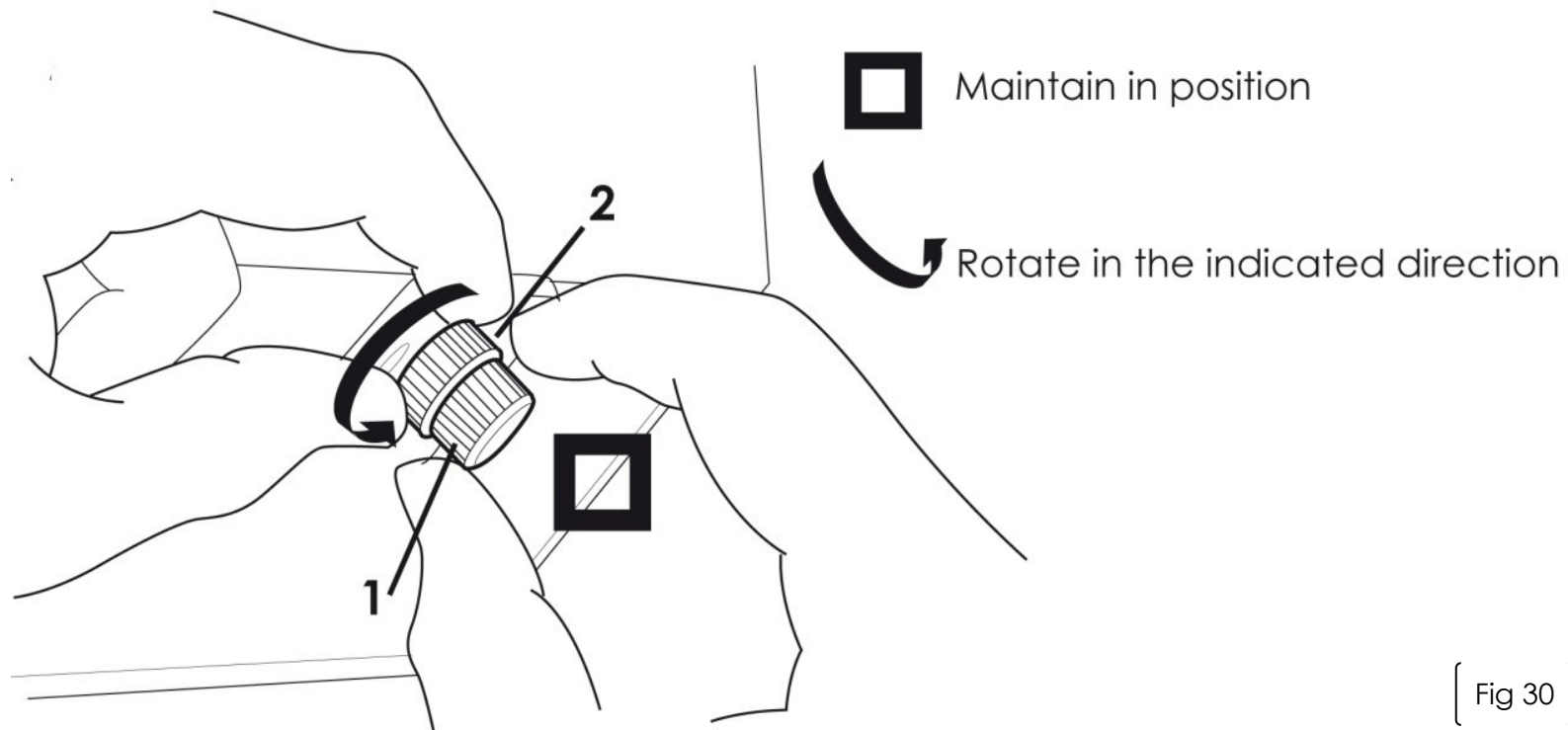
	<b>SmartCrystal™ Diamond</b>	n ° : MUV140036
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### Fitting the lower half image


Follow the same procedure for bottom image

The purpose of this step is to superimpose all the information of the lower half of the image proceeding as following:

**First of all you need to make sure that the adjustable wheel is unlocked. To do so, you have to maintain in position the top part of the adjustable wheel (1) then unscrew (rotate counterclockwise) the bottom part of the adjustable wheel (2) until feeling the stop. During this step you must not force. This locking system is working on the principle nut/locknut. The system is now ready to be set.**

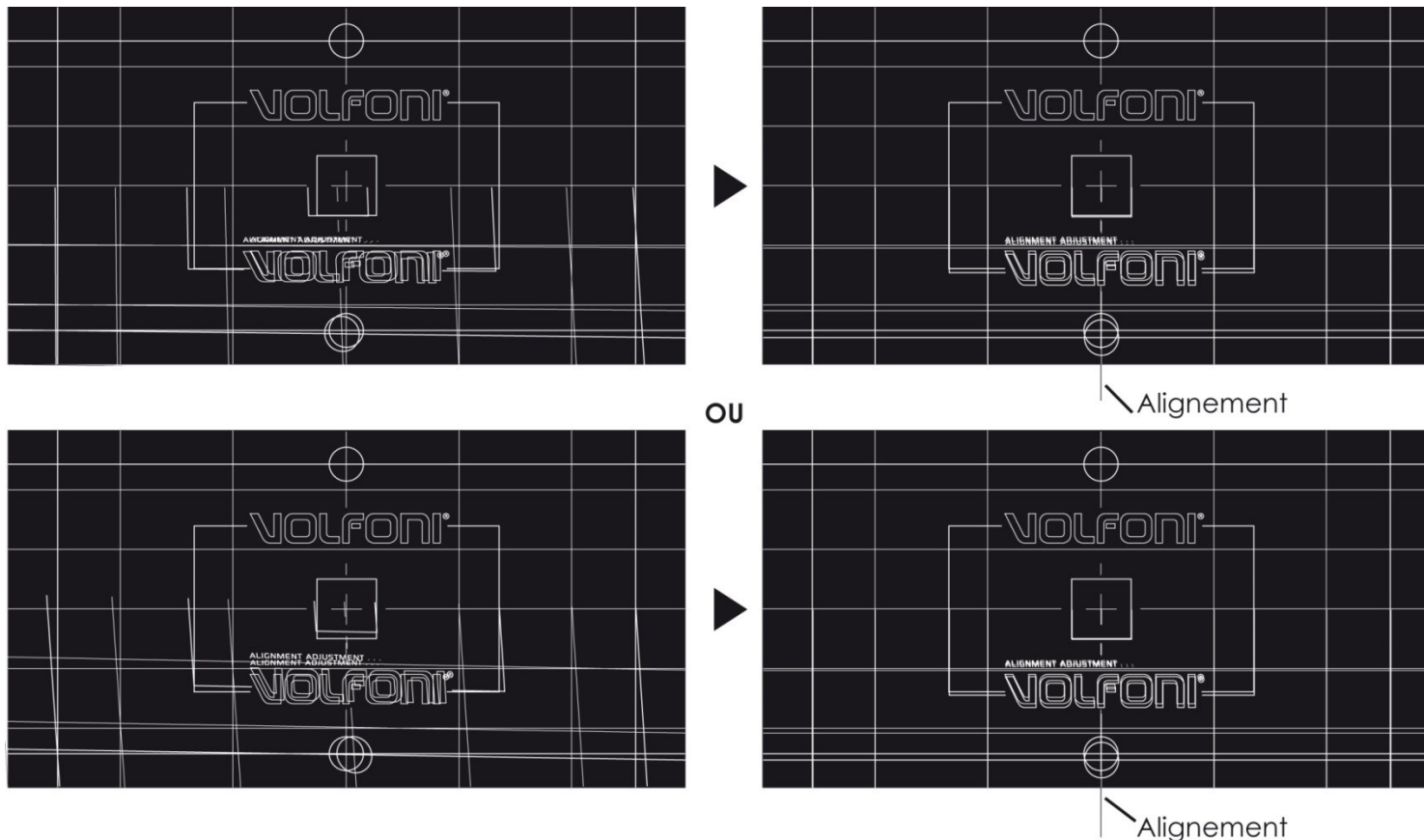


[ Fig 30 ]

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Left/right fitting observing the VERTICAL lines

- Align/superimpose the vertical lines at the center of the lower image using the left/right wheel located at the bottom of the device (n°2 wheel of the image 5).
- As the aligning is correct at the center, the vertical lines on the image sides are not systematically superimposed. Check however that the gaps between the lines are identical on the left and the right of the image (see figure below).
- 



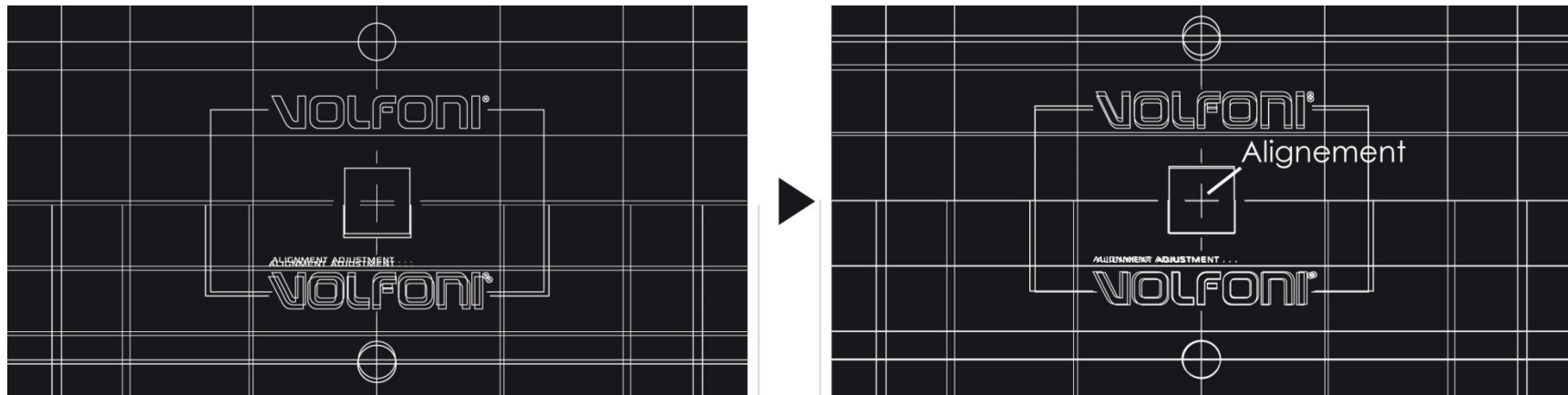
Up/down fitting observing the HORIZONTAL lines

[ Fig 31 ]



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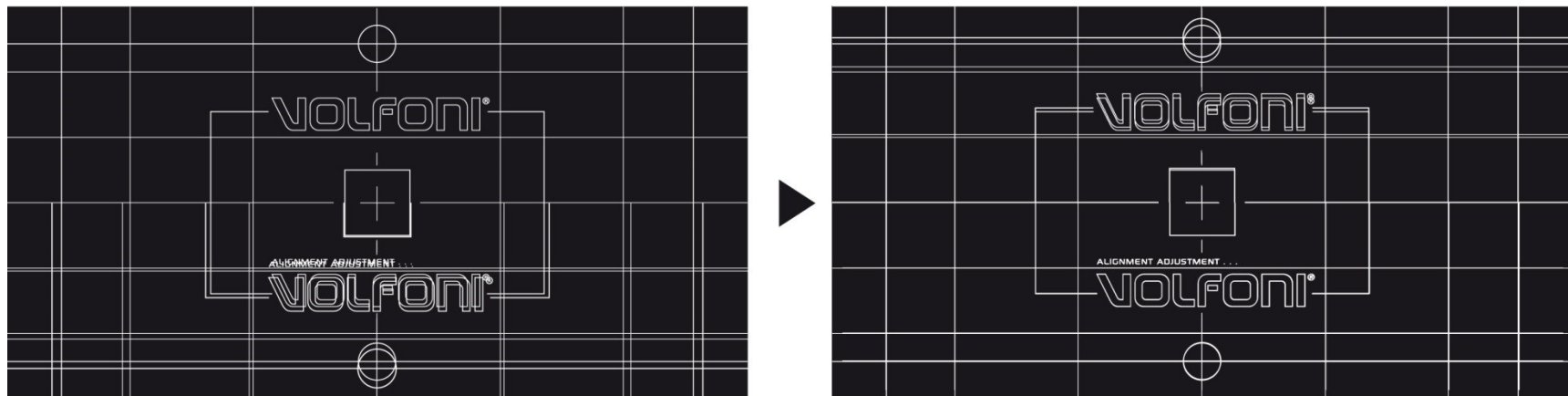
Align/superimpose the horizontal line(s) of the lower image using the 'up/down' wheel located at the bottom of the device (n°4 wheel of the figure 5). Focus mainly on the center of the image (the horizontal lines at the top of the image are likely still irregular, which is not disturbing at the moment).



[ Fig 32 ]


- **'Scale/zoom' size fitting**

Using the central wheel (n°7 wheel of the figure 5), fit the size of the lower half image by superimposing all the information (lines, circles, text).



[ Fig 33 ]

- **¶ Final fitting**

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At the end of the previous adjustment, the superimposition might not be optimum.

The three previous steps need to be repeated, proceeding to a finer fitting until you get a satisfying result. The adjustment is satisfying when there is no splitting information on the lower half image.

#### • Final locking

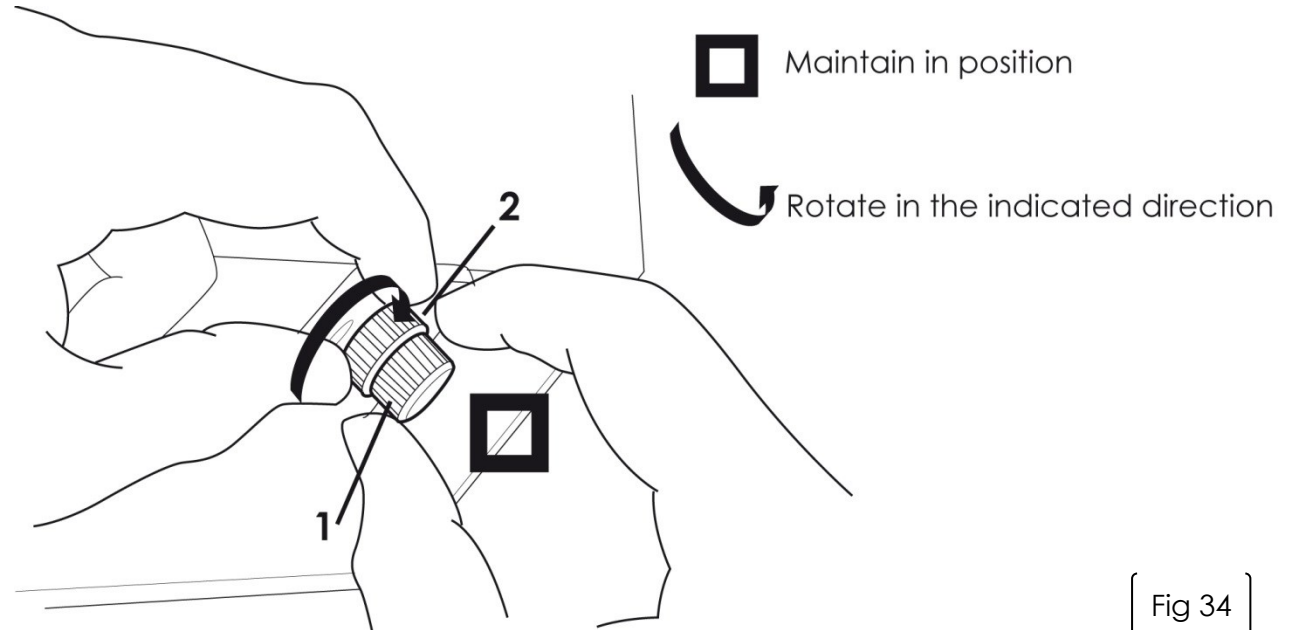
Now as the adjustment of the bottom image is completed you have to lock it.

To do so, you have to maintain in position the top part of the adjustable wheel (1) then screw (rotate clockwise) the bottom part of the adjustable wheel (2) until the stop.

The locking can have a slight impact on the 'Scale/zoom' size fitting.

In this case you have to unlock the adjustable wheel (do the opposite of the previous step) then start over until finding the good balance.

**THE LOWER HALF IMAGE ADJUSTMENT IS COMPLETED.**



[ Fig 34 ]

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**Lock the left/right button**

#### STEP 66



Unscrew the right top silver screw located on the aluminium cover

#### STEP 67



Fix the locking mechanical piece by tightening the screw as illustrated

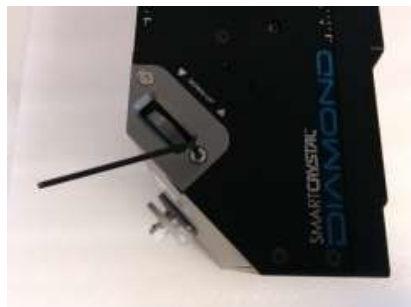
If the vertical alignment moved, remove the locking mechanical piece, redo the vertical alignment and fix again the locking mechanical piece until having a perfect vertical alignment after tightening the knurl screw.

In general, the horizontal alignment moved after this step.

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## Lock the up/down button

### STEP 68



Unscrew the right top silver screw located on the aluminium cover

### STEP 69



Fix the locking mechanical piece by tightening the screw as illustrated

If the horizontal and/or vertical alignment moved, remove the locking mechanical piece, redo the alignment and fix again the locking mechanical piece until having a perfect alignment after tightening the knurl screw. It might be necessary to redo this last step 2 or 3 times. The bottom image is now locked.

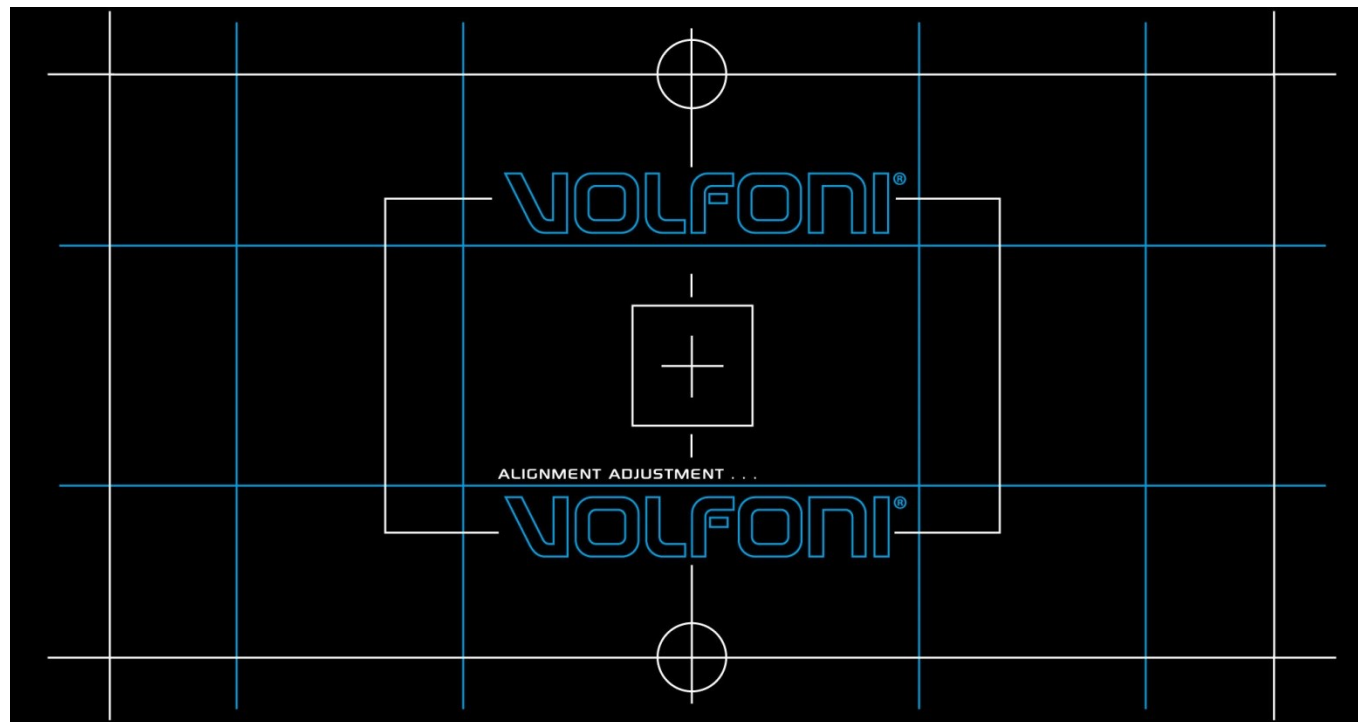
**THE IMAGE ADJUSTMENT AND LOCKING IS COMPLETED.**

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## The result expected


### STEP 70

With the Volfoni test pattern you will a perfect match between the three superposed images.



**Volfoni test pattern after alignment (line=3 pixels)**



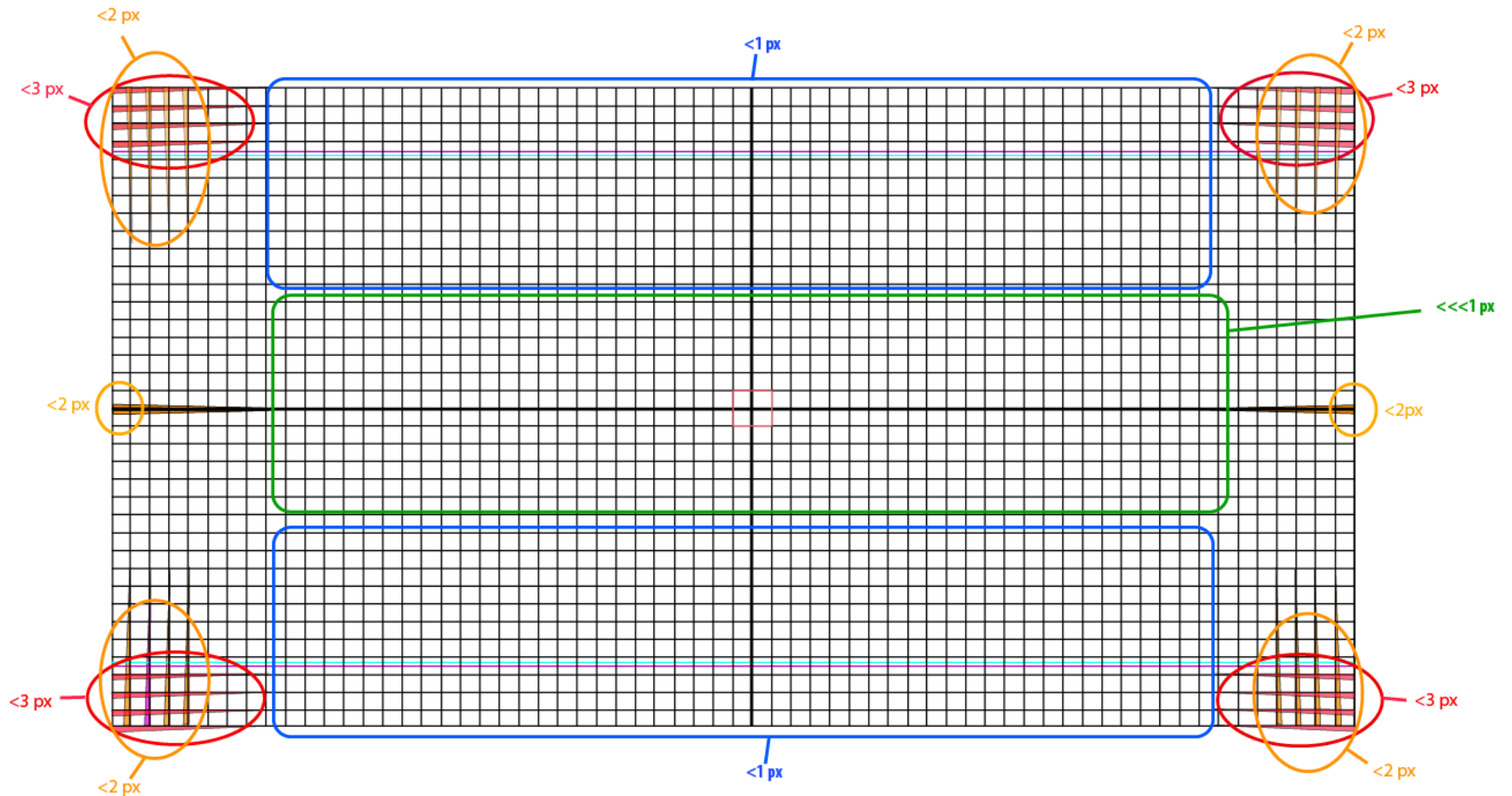
	<b>SmartCrystal™ Diamond</b>	n ° : MUV140036
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If you use the Cross Hatch test pattern (line = 1 pixels) you may observe some local disparities. The figure below shows the maximum disparity in overlay of the two images. We recommend using the Volfoni test pattern.

[www.volfoni.com](http://www.volfoni.com)

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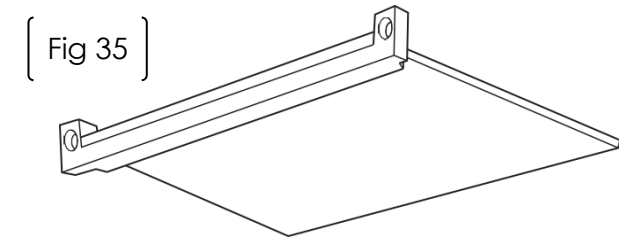
	<b>SmartCrystal™ Diamond</b>	n ° : MUV140036
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### III. ADDITIONAL ANTI-REFLECTION FILTER

#### 1. Context

An optional additional filter is in the packaging.  
In some installations, some 'room' windows may not be processed with an anti-glare layer or it might be insufficient/inadequate.  
In this case, you might notice undesirable reflections on the screen.

Volfoni has developed this filter in order to compensate for this situation to the detriment of a loss of light power. We recommend using this filter as a last resort only and advise instead to change the window angle in order to deflect the reflection or to change it.



#### 2. Filter assembly

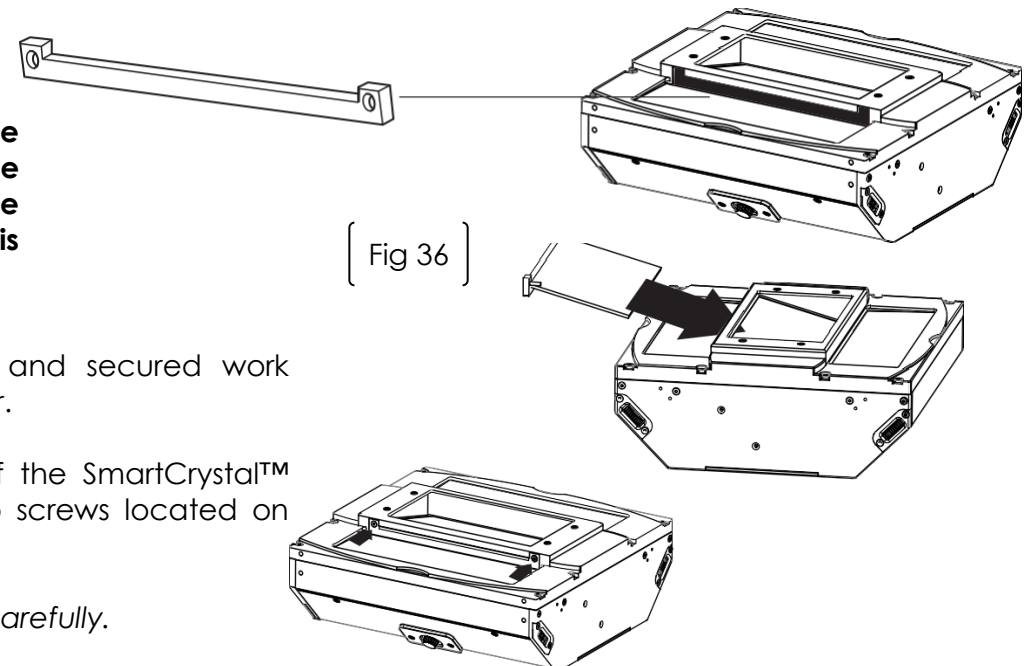
**It is absolutely essential to carry out this process after the SmartCrystal™ Diamond Box has been dismantled from the bracket, and to make all necessary arrangements to protect the equipment before operating. Any operation on this installed unit is delicate and may probably damage it.**


Proceed as following to assemble the filter:

- Before any operation, it is necessary to have a clean and secured work environment for the SmartCrystal™ Diamond Box so as its filter.
- Dismantle the SmartCrystal™ Diamond Box from its bracket.
- Dismantle the mask located under the central window of the SmartCrystal™ Diamond Box (screen side), in purple in figure 21. The two screws located on each side must be unscrewed.
- 

*As you have dismantled this component, we invite you to keep it carefully.*

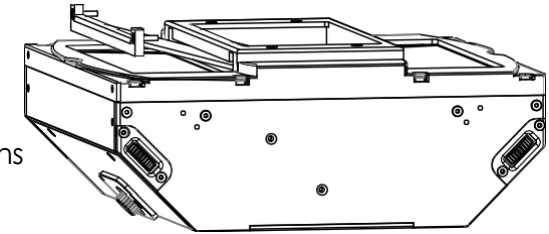
- Insert the filter making it slide like the following figure.



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**Warning: never force and never leave the device without mask or filter.**

- Fix the filter with the two screws initially used to fix the mask.
- The operation is now completed. Reposition the device and check that the reflections have disappeared.
- This operation may have disturbed the installation and the system adjustments.



[ Fig 37 ]

## IV. SOFTWARE INTERFACE

### 1. Introduction

The system is run by the SCD Controller.

Several operations can be carried out such as:


- Update of the software version of the SCD system
- Change of the default working settings (3-D mode automatic detection for instance)
- Diagnosis (unavailable)

### 2. SCD software version

The system is run by the SCD Controller. By default, the system is delivered with the newest software version at the moment the product was manufactured. A new software version might be available when you receive/install your system.

On receipt of equipment, Volfoni recommends to carry out the following operations to ensure you have the latest software version:

- Visit the Volfoni website: [www.volfoni.com](http://www.volfoni.com)
- Select the 'SERVICES/SUPPORT' menu
- Select 'DOWNLOAD'
- Download, install and launch the 'VOLFONI LOADER' program
- Connect your computer with the SmartCrystal™ Diamond Controller using the USB-A /USB-B cable (cable provided by Volfoni)
- Feed the SmartCrystal™ Diamond Controller with the external feeding (provided by Volfoni)

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- Check that the program recognizes the SmartCrystal™ Diamond Controller
- As the SmartCrystal™ Diamond Controller is connected, press 'CHECK FOR UPDATE'. If your system uses the latest version, the program will indicate that your system is up to date. If the version is not the latest, accept and launch the new version loading.

**During this process, warning:**

- Do not disconnect the SCD Controller from your computer
- Do not unplug the SCD Controller feeding

### 3. Functioning modes, settings, other functions

The SCD Controller has other functions:

- Activation/inhibition of the working mode
- Settings change
- Remote running (Network Operating Center)
- Functioning data recording

For further information, refer to the XXXX document (Document in progress, please contact Volfoni support), which contains all the information. For any question, do not hesitate to contact your support.

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## V. TROUBLES SHOOTING


PROBLEM	POSSIBLE REASONS	SOLUTIONS												
<b>Hazy image, poor contrast</b>	<ul style="list-style-type: none"> <li>The lens focus is wrong</li> <li>The image aligning is bad</li> <li>The protective films on the front and back sides have not been removed</li> <li>Presence of fingerprints or dirt on the lens and/or on the SCD Box inflow and outflow windows</li> </ul>	<ul style="list-style-type: none"> <li>Fit the lens focus</li> <li>Check if the protective films have been removed</li> <li>Remove the protective films and clean the inflow and outflow SCD Box windows using the provided wipes</li> <li>Adjust the SCD Box aligning again using the pattern</li> </ul>												
<b>No 3-D effect</b>	<ul style="list-style-type: none"> <li>Problem on the silvered screen</li> <li>Projector settings are not right</li> <li>The SCD Box is not connected with the SCD Controller</li> <li>The SCD Controller is not plugged in</li> <li>The projection window depolarizes light</li> <li>The SCD B</li> <li>Box and the SCD Controller are not compatible</li> </ul>	<ul style="list-style-type: none"> <li>Check if the screen is silvered</li> <li>Check if the 'DarkTime' and 'Delay' values are right</li> <li>Check the SCD Controller connections. In 3-D mode, the SCD Controller should display '3D ON' and the frequency.</li> <li>Carry out a checking by removing the room window to ensure the latter do not influence polarization</li> <li>Check the table compatibility table below</li> </ul> <table border="1"> <thead> <tr> <th>ELECTRONIC BOX</th><th>OPTICAL BOX</th><th>DARKTIME</th></tr> </thead> <tbody> <tr> <td>VSSP ≥ 10200</td><td>VSSP ≥ 13300</td><td>350μS</td></tr> <tr> <td>VSSP 10100</td><td>VSSP ≤ 13200</td><td>1000μS</td></tr> <tr> <td>VSSP 10000</td><td>VSSP ≤ 13200</td><td>1000μS</td></tr> </tbody> </table>	ELECTRONIC BOX	OPTICAL BOX	DARKTIME	VSSP ≥ 10200	VSSP ≥ 13300	350μS	VSSP 10100	VSSP ≤ 13200	1000μS	VSSP 10000	VSSP ≤ 13200	1000μS
ELECTRONIC BOX	OPTICAL BOX	DARKTIME												
VSSP ≥ 10200	VSSP ≥ 13300	350μS												
VSSP 10100	VSSP ≤ 13200	1000μS												
VSSP 10000	VSSP ≤ 13200	1000μS												
<b>Too dark image</b>	<ul style="list-style-type: none"> <li>The power of the projector lamp is too low</li> <li>The lamp settings are badly adjusted</li> </ul>	<ul style="list-style-type: none"> <li>Change the lamp settings</li> </ul>												



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<b>The image seems to be in 3D but the rendering is uncomfortable</b>	<ul style="list-style-type: none"> <li>• The right/left live wire is reversed on the projector</li> </ul>	<ul style="list-style-type: none"> <li>• Change the right/left live wire (switch from 'TRUE' to 'INVERTED' or conversely) on the projector</li> </ul>
<b>Flickering image</b>	<ul style="list-style-type: none"> <li>• The SmartCrystal™ Diamond settings are faulty</li> <li>• The content is not 3-D</li> <li>• The image frequency given by the projector is not right</li> </ul>	<ul style="list-style-type: none"> <li>• Check the SmartCrystal™ Diamond settings</li> <li>• Check if the content is in 3D</li> <li>• Try to check the image frequency given by the projector (see SCD Controller display)</li> </ul>
<b>Bracket Error</b>	<ul style="list-style-type: none"> <li>• High voltage</li> </ul>	<ul style="list-style-type: none"> <li>• Let everything plug and press the reset button of the bracket</li> </ul>

**IF YOU DO NOT NOTICE ANY IMPROVEMENT FURTHER TO THE SUGGESTED SOLUTIONS, PLEASE CONTACT YOUR SUPPORT**

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## VI. IMPORTANT SAFETY RECOMMENDATIONS

Protect all parts of the 3D system from direct sunlight, heat or water.

- Extreme conditions may alter the product's performance.
- Do not modify the electrical or mechanical components of your 3D system.
- Do not apply force to the window of the polarization modulator.
- Do not touch the polarization window.
- Avoid vibrations and shock.
- Use a clean soft cloth when cleaning the polarization modulator to avoid scratching.
- Always transport the SmartCrystal™ Diamond system in its original packaging to avoid scratching the LCDs or the frame.
- In case of damage to the SmartCrystal™ Diamond where the skin is exposed to liquid crystal material, we recommend that you immediately wash the area with soap and water.
- In case of eye exposure to liquid crystal material, please seek medical advice immediately.
- Please note that passive 3D glasses must not be used as sunglasses.

## VII. WARRANTY

The SmartCrystal™ Diamond is protected under warranty to the original purchaser for three (3) years according to local legislation. Equipment (modules and cables) should be returned in their original packaging along with the original proof of purchase. Equipment that is broken or scratched is not covered. Volfoni does not guarantee uninterrupted or error-free operation of the product.

## VIII. FURTHER INFORMATION

NOTICE:

The Volfoni Group reserves the right to make changes in the hardware, packaging or other documentation without prior written notice. SmartCrystal™ Diamond is a trademark of the Volfoni Group. All trademarks are the property of their respective companies.  
[www.volfoni.com](http://www.volfoni.com)

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## IX. REGULATORY STANDARDS

### European Union - Disposal information

This symbol means that according to local laws and regulations your product should be disposed of separately from household waste. When this product reaches the end of its life, take it to a collection point designated by local authorities. Some collection points accept product for free.

The separate collection and recycling of your product at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment.

This Class B digital apparatus complies with Canadian ICES-003.



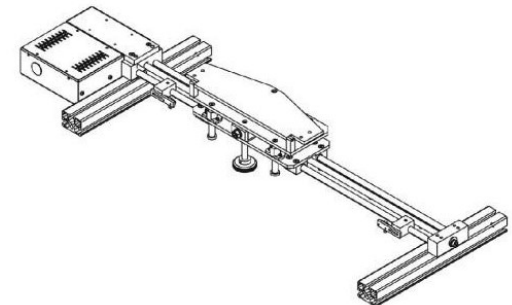
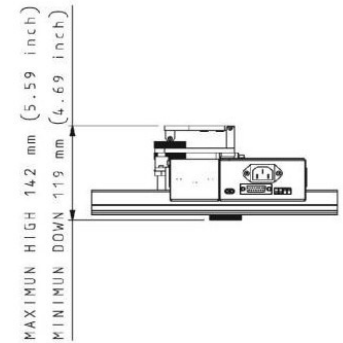
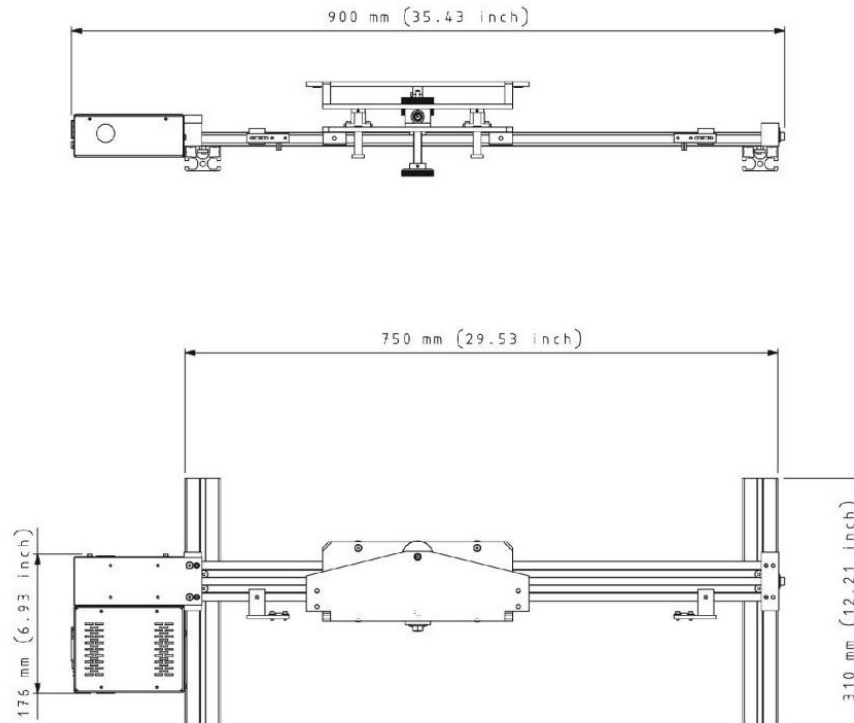
	<b>SmartCrystal™ Diamond</b>	n ° : MUV140036
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## ANNEXE 01

### VASP-09xxx SCD bracket installation

#### The technical Specifications

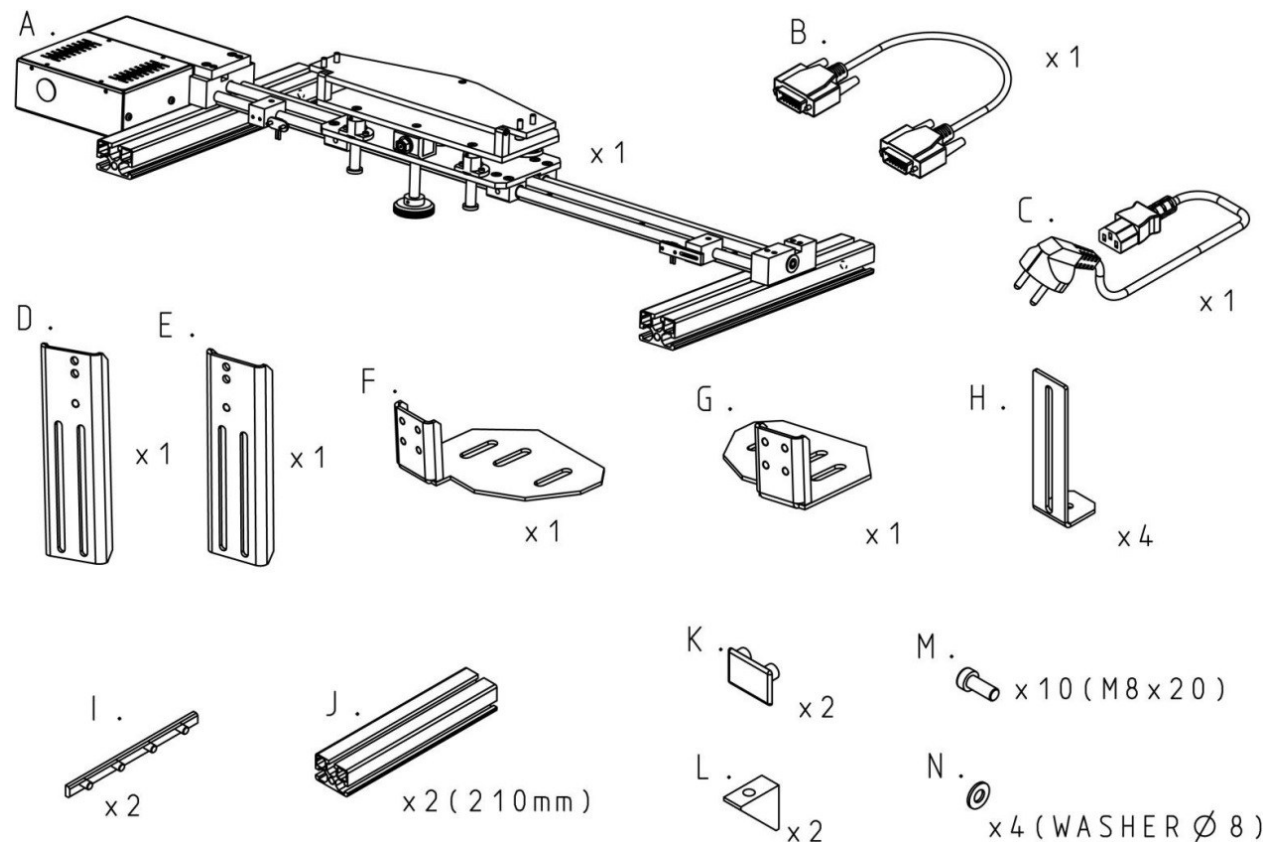
- DIMENSIONS: 900 x 310 x 150mm
- NET WEIGHT: 13 kg
- PACKING DIMENSIONS : 1000 x 370 x 250mm
- GROSS WEIGHT : 14 kg.
- FINISH IN : Aluminum powder coating
- COLOR: Aluminum Grey and black
- TILT RANGE: 15°
- MAX. HIGH ADJUSTMENT
- TABLE OPTION: 145 mm + 30 mm
- BENCH OPTION: 208 mm + 30 mm
- HIGH PRECISION ADJUSTMENT +/- 30 mm
- HORIZONTAL ADJUSTMENT COURSE: 250 mm + 200 mm



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### List of accessories

The kit includes all necessary accessories for mounting the support in all possible ways. It also includes the necessary screws.

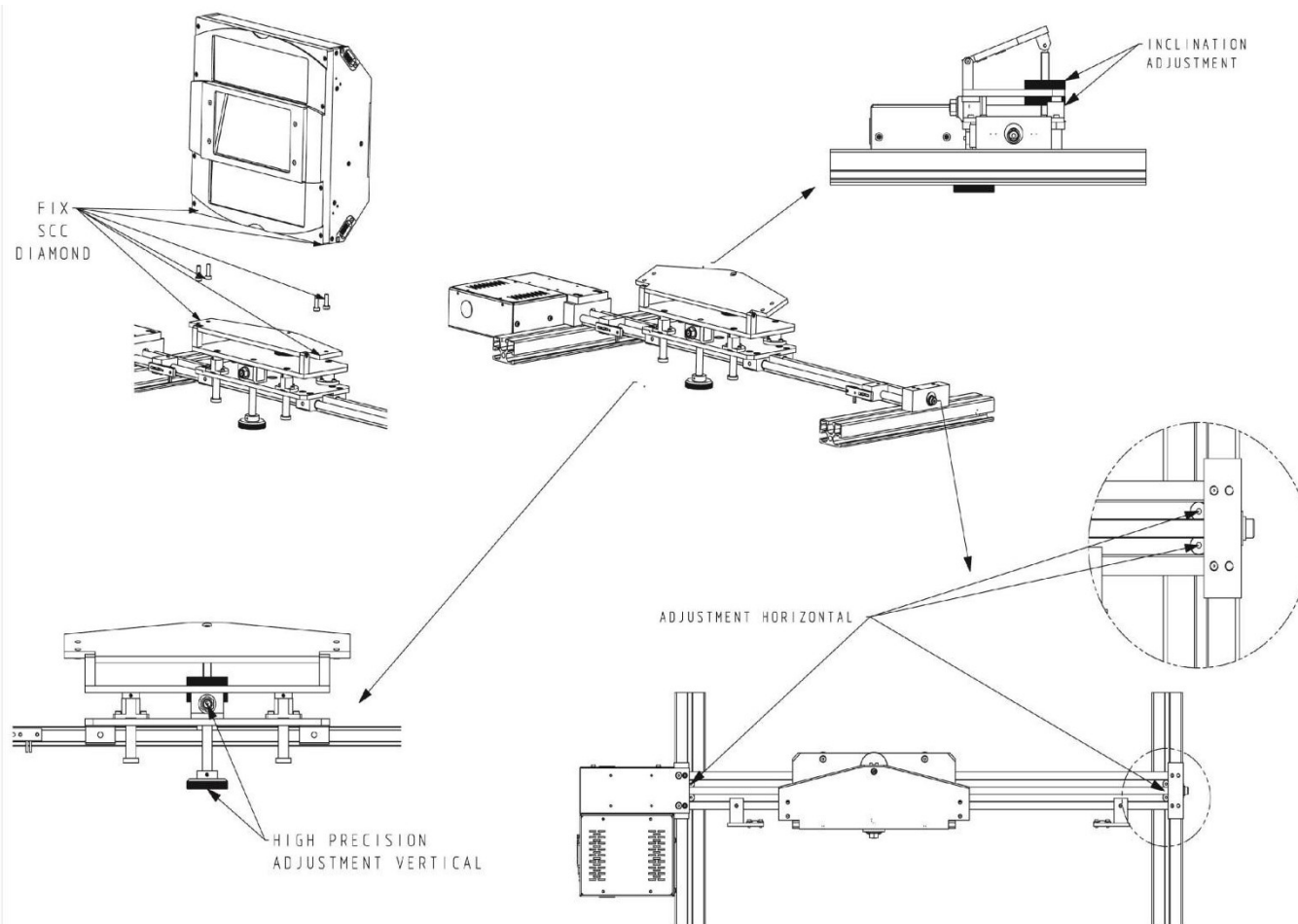


The bracket is included in the KIT to assembly on site. Main parts are already assembled.

The packing includes a set of Allen wrenches to mount the bracket (2mm – 2.5mm – 3mm – 4mm – 5mm)



## Installation and adjustment on the support overview

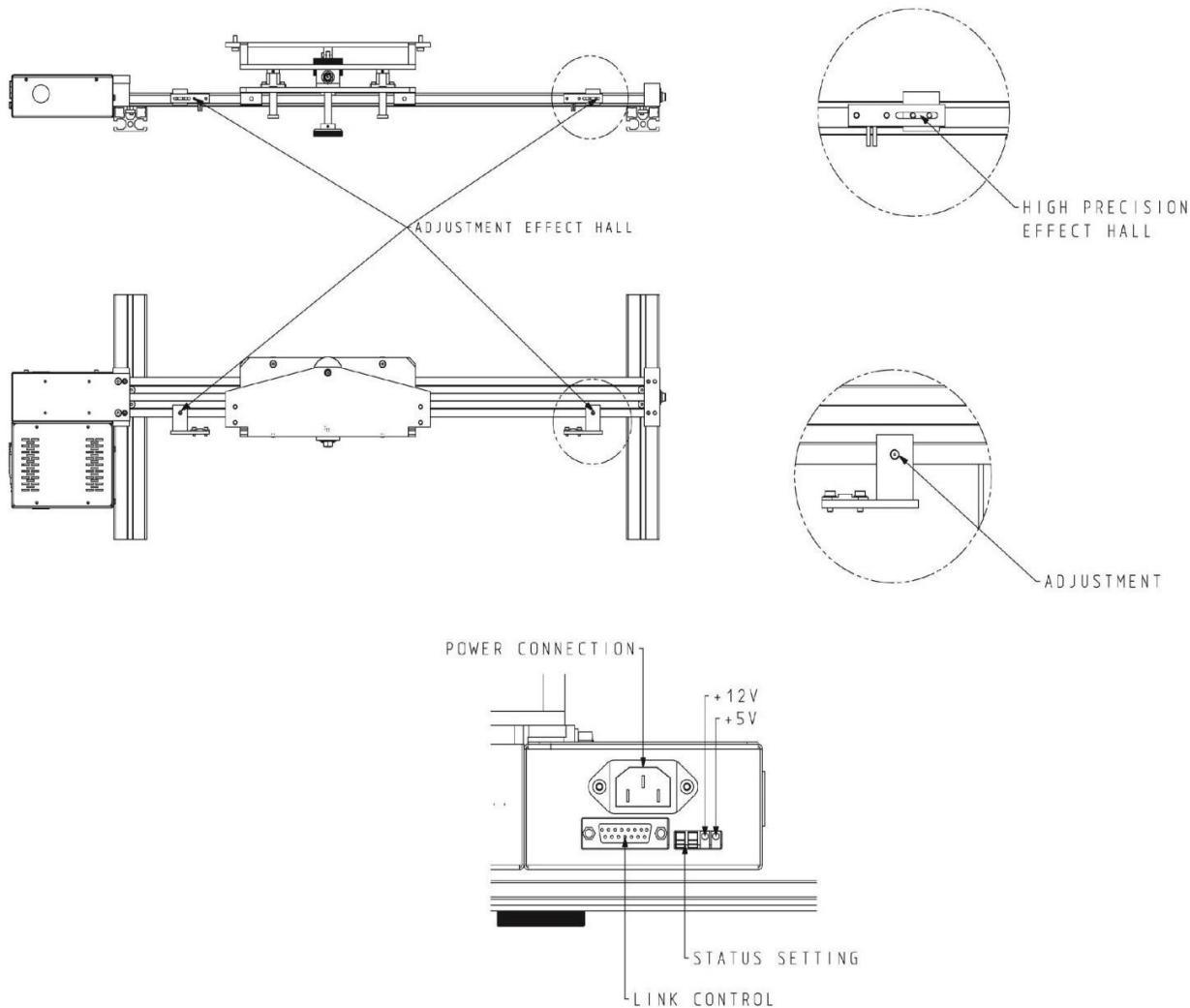


Several steps to install the SCD on the Bracket


- Fixing the SCD on the support with 4 screws.
- Adjustment of the Horizontal position. SCD must be as closed as possible to the lens of the projector
- Adjustment of the vertical position: Beam light should enter in the center of the entrance windows of the SCD.
- Adjustment of the SCD angle

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## Setting 2D and 3D position






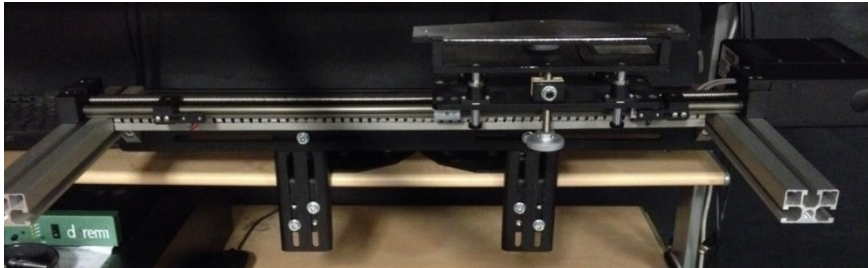
The bracket has two sensors to define 2D and 3D position. The position of these sensors must be adjusted depending on the position of the lens and will define the limits of the SCD displacement.

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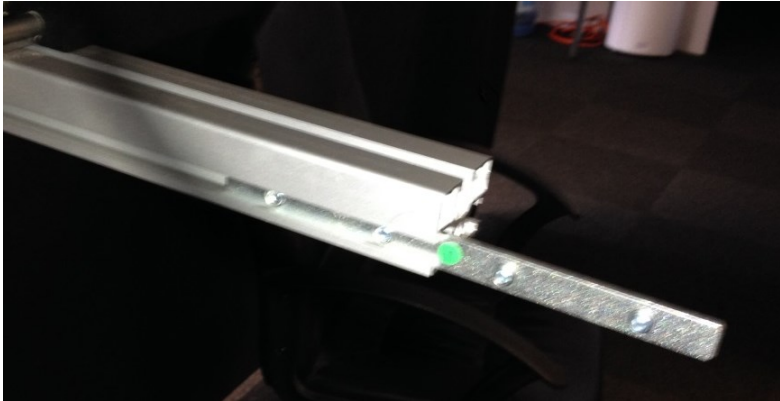

## The bracket installation

STEP 01	STEP 02
	
<p>Choose your configuration =&gt; ANNEXE 01 to 05 Bracket Maximum distance. Minimum height</p>	<p>Depending on your configuration Fix F &amp; G parts</p>

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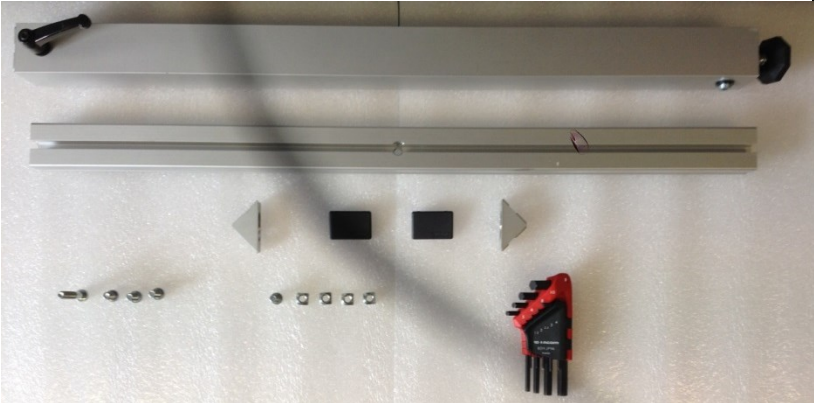

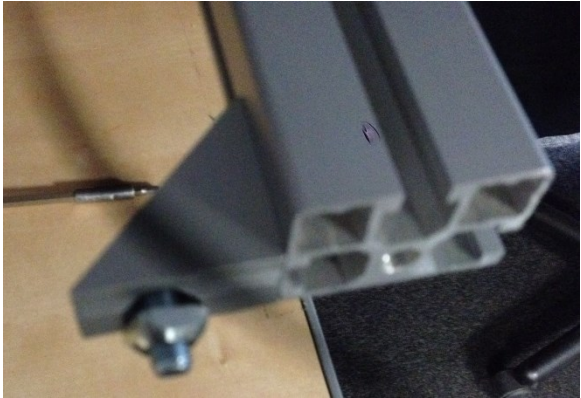
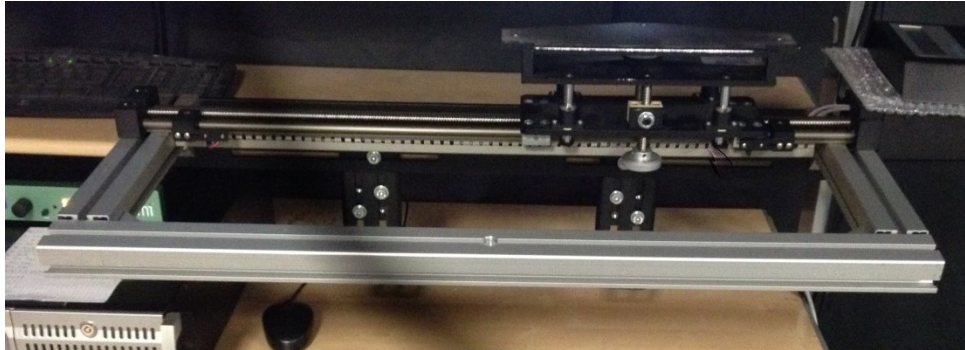
<b>STEP 03</b>	<b>STEP 04</b>
	
Fix D & E parts	Fix O part
<b>STEP 05 (Part 1/2)</b>	<b>STEP 05 (Part 2/2)</b>
	
Fix L parts	Fix A part on O & L parts

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<b>STEP 06</b>	<b>STEP 07</b>
	<p><b>If the length of the projector's lens is more than 15 centimeters</b></p> <p><b>Please follow the procedure if not please go directly to the STEP 10</b></p>
Do not forget to screw 2 L parts	Bracket feet installation : Parts & tools
<b>STEP 08</b>	<b>STEP 09</b>
	
Positioning I part	After positioning J part, fix screw I part. The same operation has to be done on the other side of the bracket



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<b>STEP 10</b>	<b>STEP 11</b>
	
Bracket feet installation : Parts & tools	Fix screws & bolts on P & Q parts
<b>STEP 12</b>	<b>STEP 13</b>
	
Fix P & Q on both sides of the bracket	Fix R part



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#### STEP 14




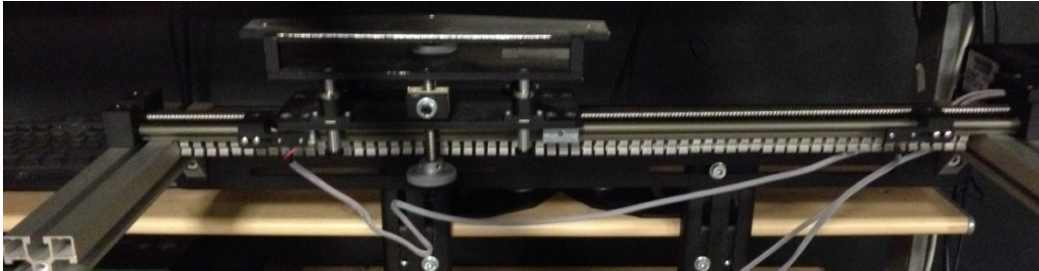
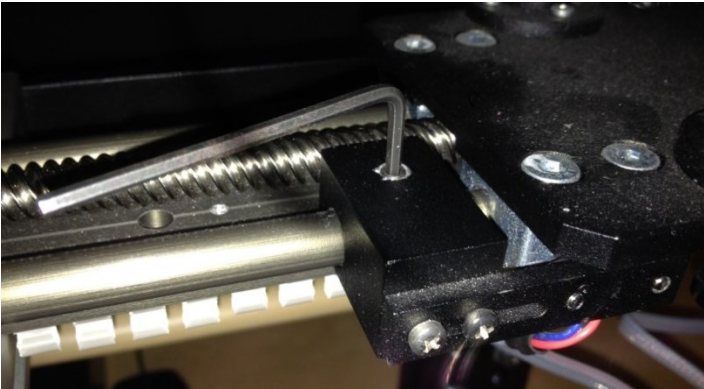

Put the bolt in the middle hole of R


#### STEP 15



Fix T part and adjust its position

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<b>STEP 16</b>	<b>STEP 17</b>
	
Remove protection guide	Remove 2 bracket position sensors wires from guide
<b>STEP 18</b>	<b>STEP 19</b>
	
Unscrew 2 bracket position sensors	In this configuration, move right position sensor from its position till a position that will allow to put bracket upper plate face to projector

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## STEP 20





General view of the bracket electronic

- 1<sup>st</sup> button : not used
- 2<sup>nd</sup> button : reset button
- Left contact : Motor command
- Right contact : Set 2D / 3D position
- Left led : 12V
- Right led : 5V


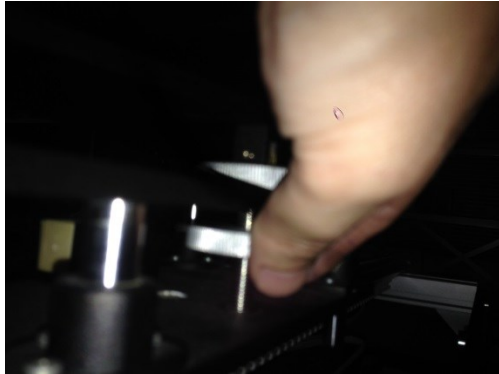
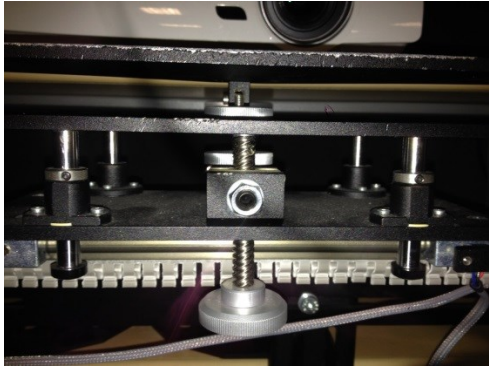






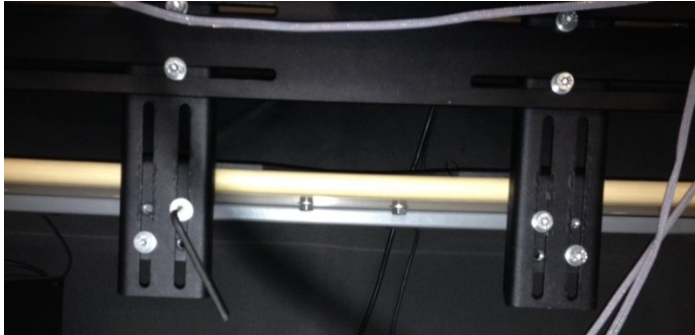

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STEP 21	STEP 22
	
Power on bracket Check 2 leds red	Bracket upper plate is at 2D position
STEP 23	STEP 24
	
Use left contact	Bracket will move and will stop face to bracket position sensor. The bracket upper plate will be approximately face to projector

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<b>STEP 25</b>	<b>STEP 26</b>
	
Unscrew 2 screws of the rings on both side of the trolley	Loosen stud bolt of the trolley
<b>STEP 27</b>	<b>STEP 28</b>
	
Set bracket upper plate at middle position Set bracket tilt at 0°	Check distance between bracket upper plate and middle of projector lens. Right distance should be approximately 13cm

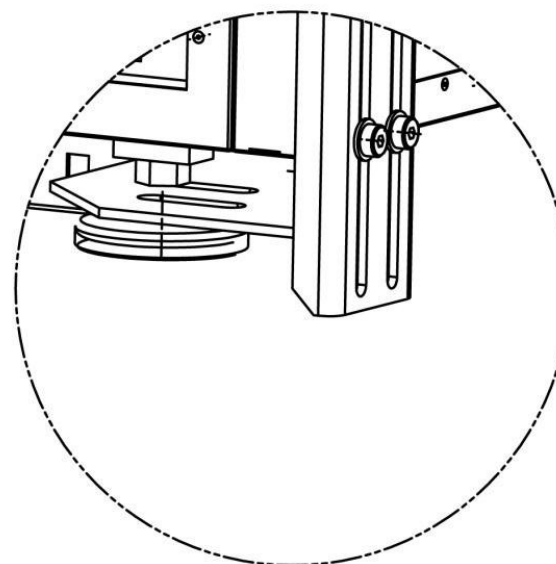
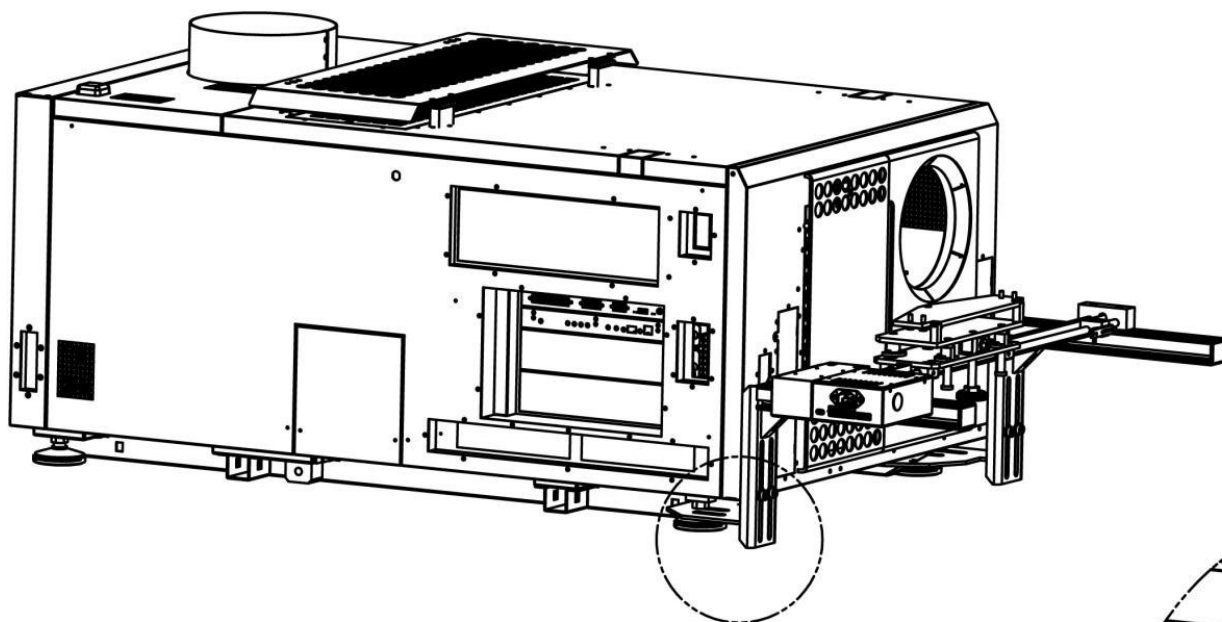
	<b>SmartCrystal™ Diamond</b>	n ° : MUV140036
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<b>STEP 29</b>	<b>STEP 30</b>
	
<p>In case of bracket upper plate too high or too low Readjust its position by modifying D &amp; E parts position</p>	<p>Check horizontality is good</p>
<b>STEP 31</b>	<b>STEP 32</b>
	<p>In the next step we will mount the Scd on the bracket.</p> <p><b>Please go to Step 41 page 31</b></p>
<p>Unscrew the 4 screws on the both side of the endless screw</p>	









## ANNEXE 02

### Mounting the bracket in the projector legs



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STEP 01	STEP 02	STEP 03
		
Assemble parts A, L and M.	Screw parts A and L.	Repeat operation
STEP 04	STEP 05	STEP 06
		
The 2 L parts are screwed onto part A. on the other side.	Take parts F and M.	Screw part D to part A.

**STEP 07**



Screw parts D and L.

**STEP 08**



Unscrew projector foot. Repeat process with part E

**STEP 09**



Insert parts F and G in each projector foot

**STEP 10**



Put back projector feet with F and G parts attached.

**STEP 11**



Screw bracket to F and G parts.

**STEP 12**



Loosen bracket screws Adjust height. (DO NOT TAKE OUT)

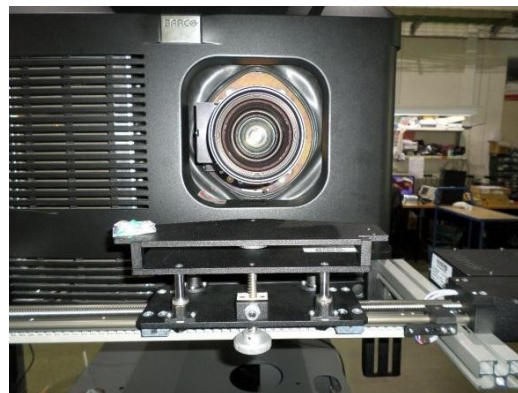


**STEP 13**



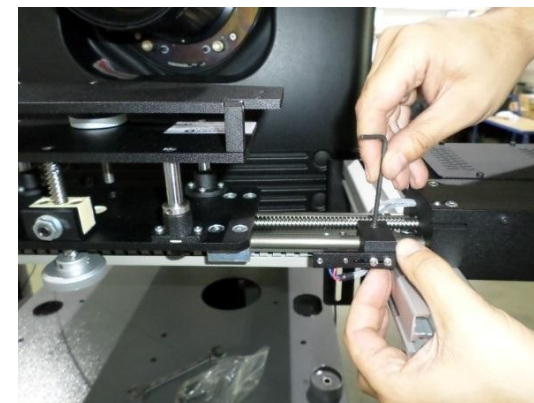
Adjust according to the lens installed.

**STEP 14**



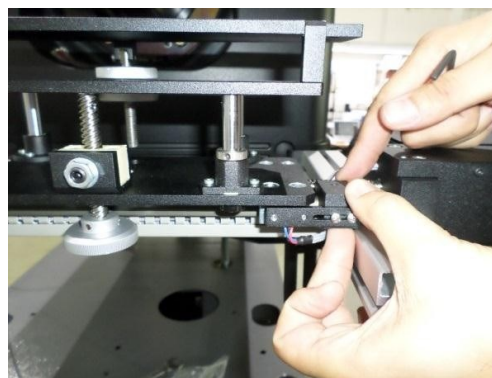
Adjust manually with the Tighten screws from step 12

**STEP 15**



Adjust stop sensor to the control board

**STEP 16**

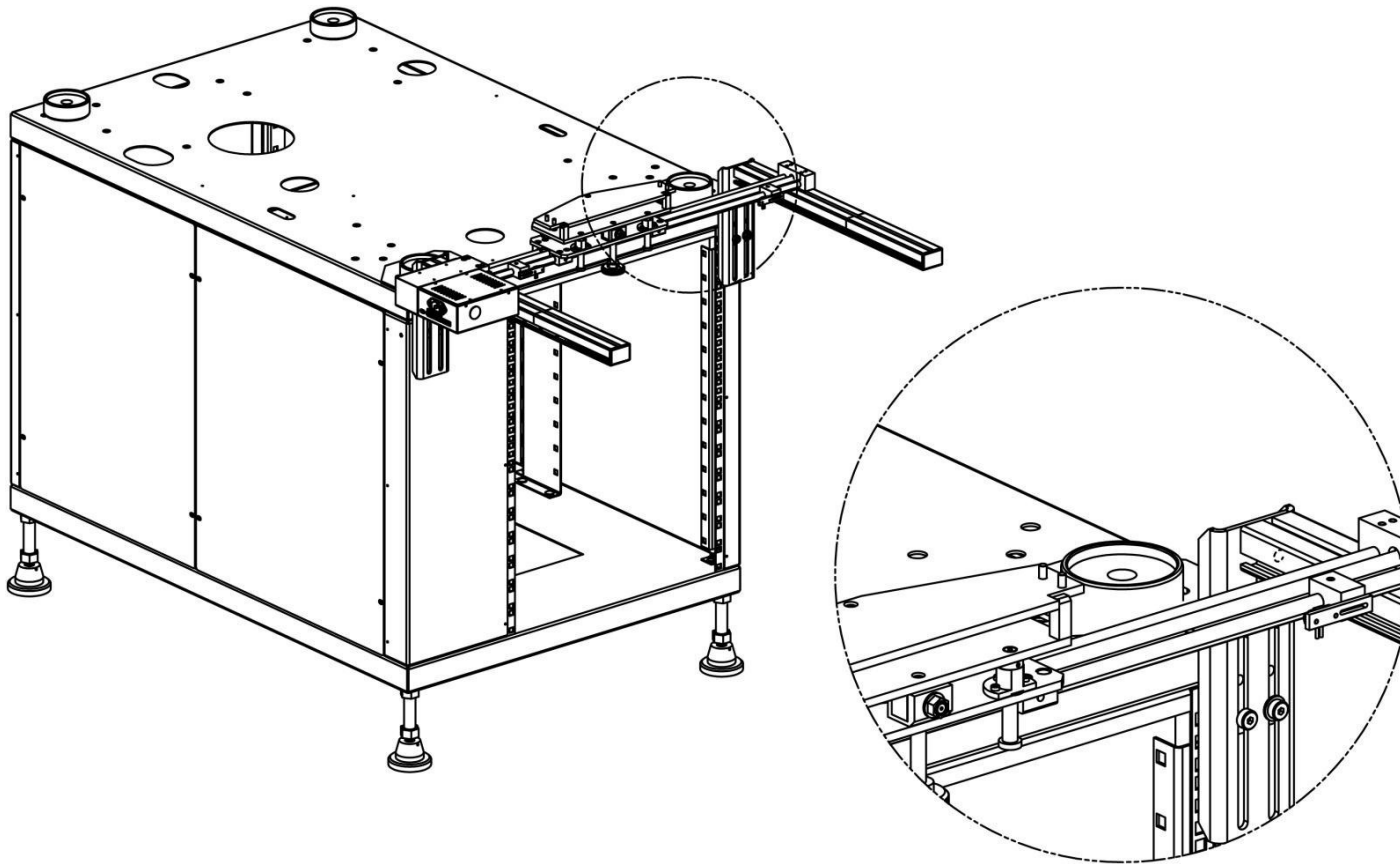



Fix the sensor to its limit switch desired position

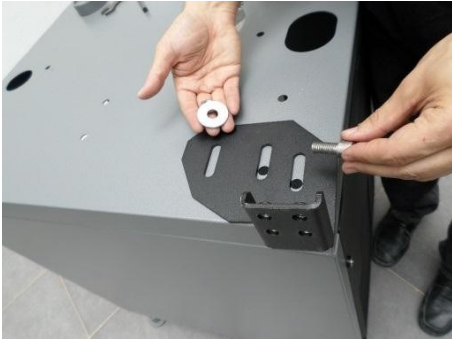





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## ANNEXE 03

### Mounting the bracket in the projector bench




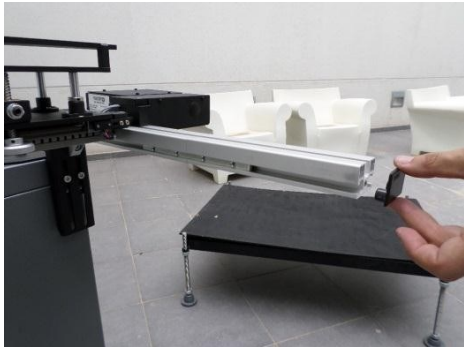



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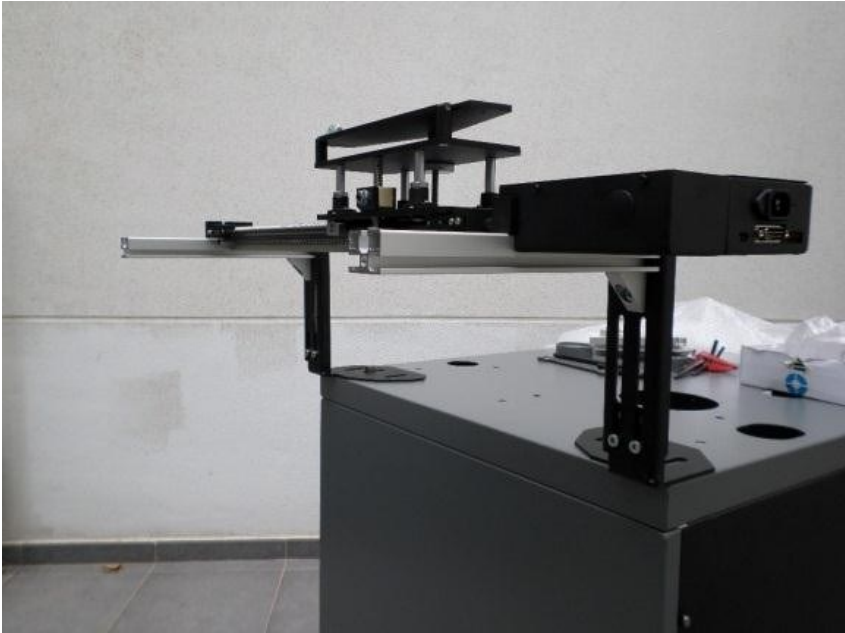

STEP 01	STEP 02	STEP 03
		
Use adequate screws	Screw parts F and G. Pedestal	(OPTION 1) Maximum bracket height
STEP 04	STEP 05	STEP 06
		
(OPTION 2) Minimum bracket height	Place the bracket after repeated Steps 01 to 07 ANNEXE 01	Pin up bracket with part M to parts F and G




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<b>STEP 07</b>	<b>STEP 08</b>	<b>STEP 09</b>
		
Once fitted in place	Insert K parts (covers)	If needed, lenght can be increased
<b>STEP 10</b>	<b>STEP 11</b>	<b>STEP 12</b>
		
Bracket with attachment	Insert K parts (covers)	Bracket with attachment

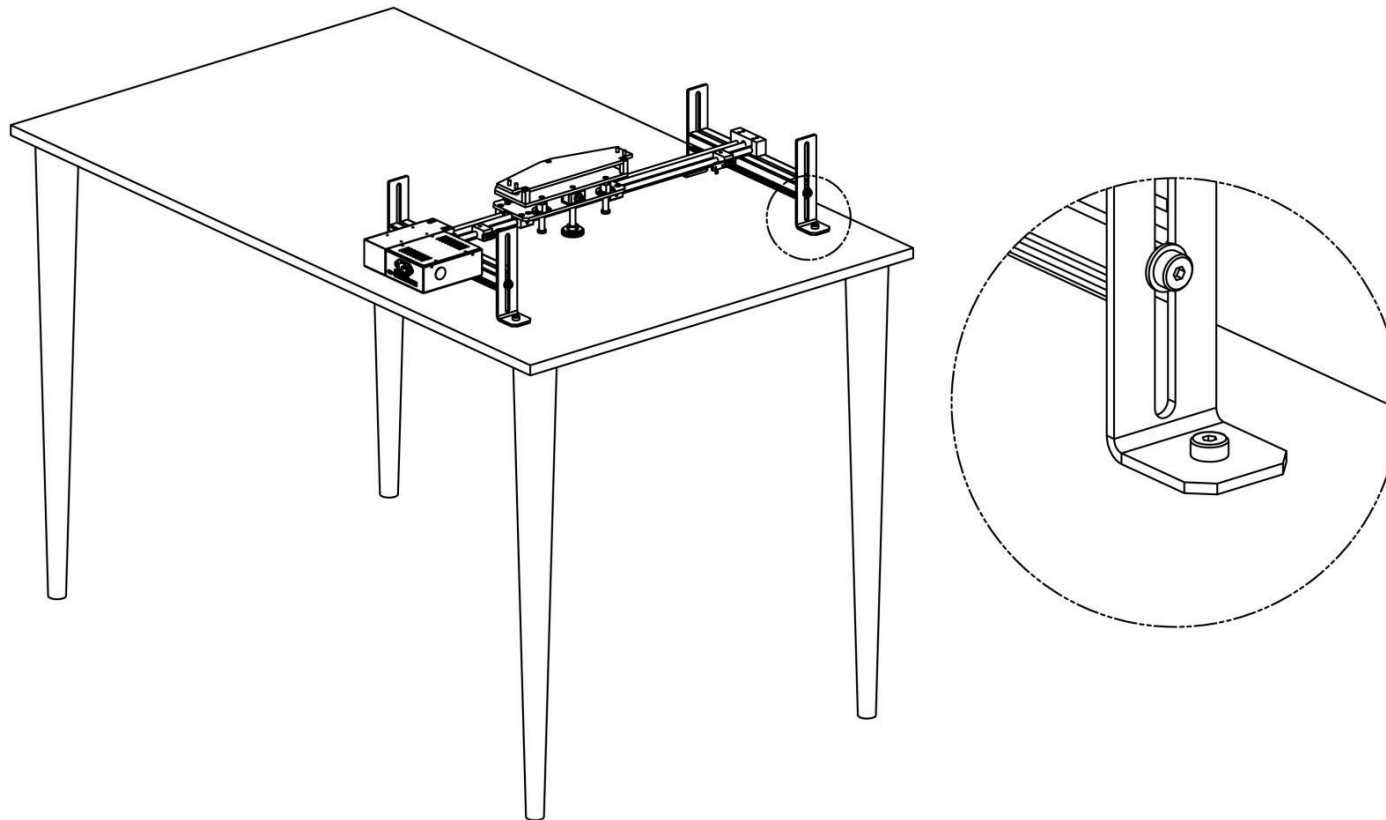
	<b>SmartCrystal™ Diamond</b>		n ° : MUV140036
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STEP 13	STEP 14
	
(OPTION 1) Bracket at maximum height	(OPTION 2) Bracket at minimum height

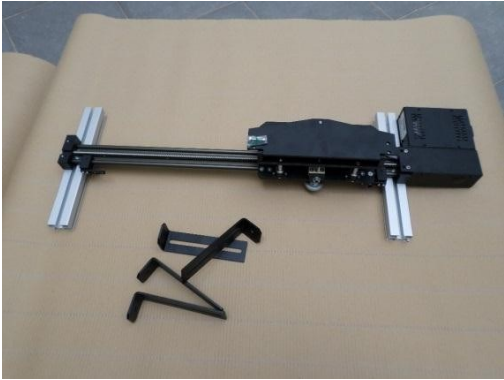
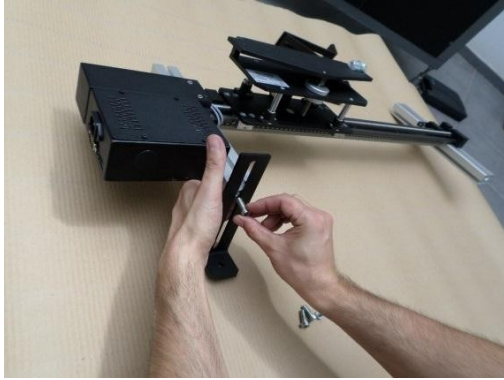



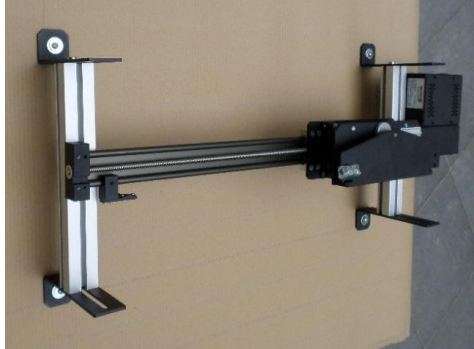
	<b>SmartCrystal™ Diamond</b>		n ° : MUV140036
			Version : A12
	USER MANUAL		Date : 11/01/2018

## ANNEXE 04

### Mounting the desktop bracket



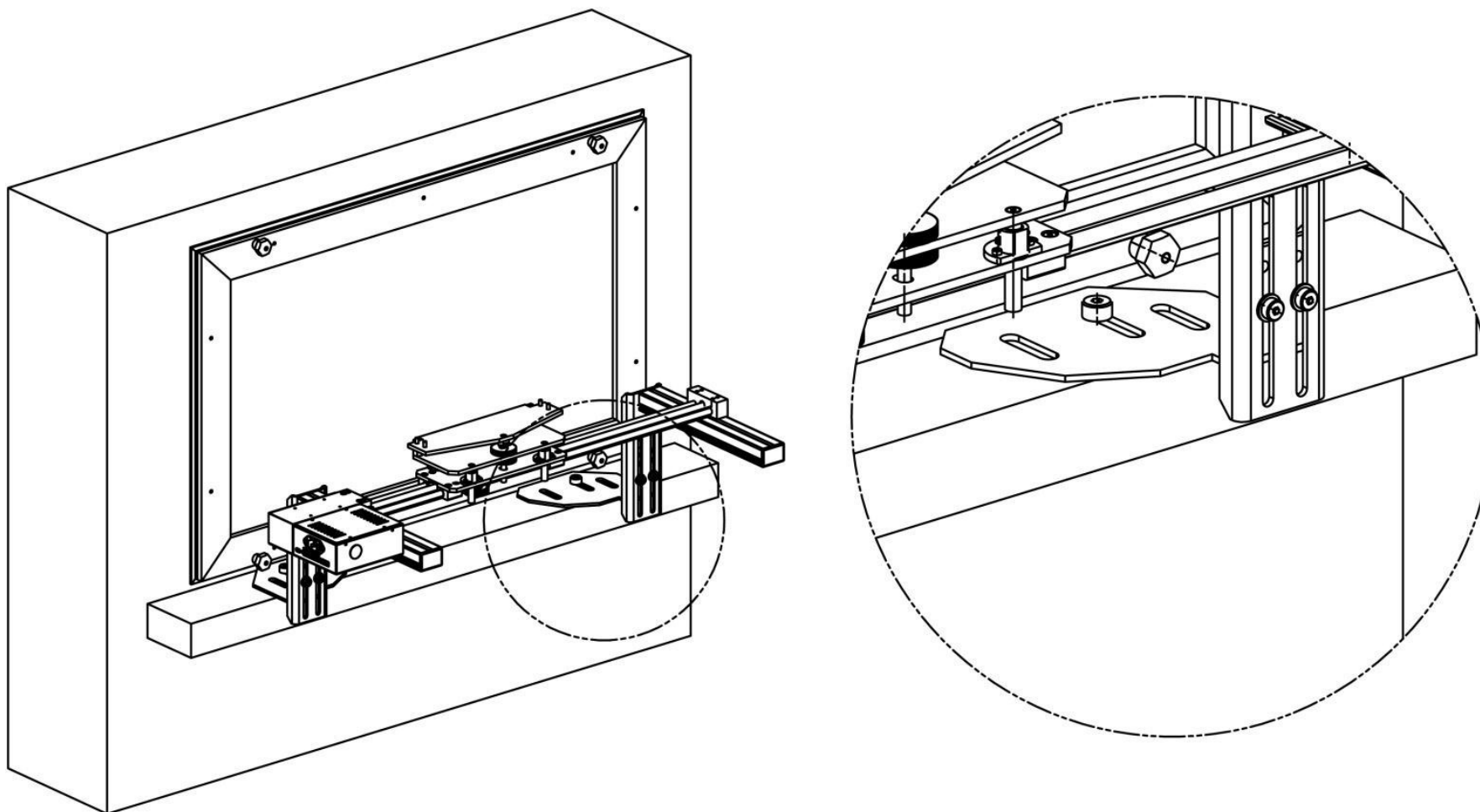
	<b>SmartCrystal™ Diamond</b>		n ° : MUV140036
			Version : A12
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<b>STEP 01</b> 	<b>STEP 02</b> 	<b>STEP 03</b> 
Take parts A, H, M and N	Screw parts A and H	Adjust height
<b>STEP 04</b> 	<b>STEP 05</b> 	<b>STEP 06</b> 
Place bracket on the table	Screw the four fixing points	Bracket screwed to the table

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		Date : 11/01/2018

## ANNEXE 05

### Wall mounting solution



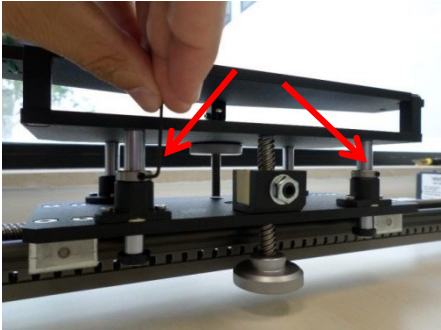
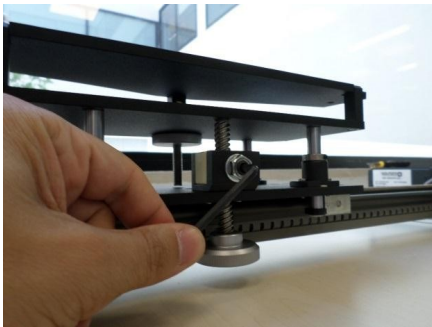
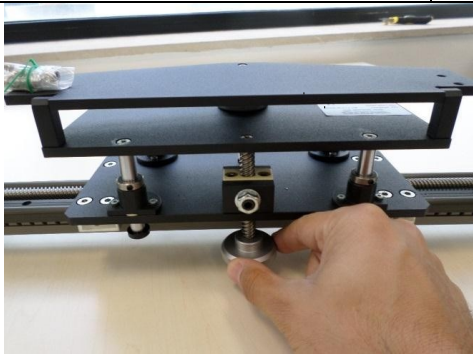
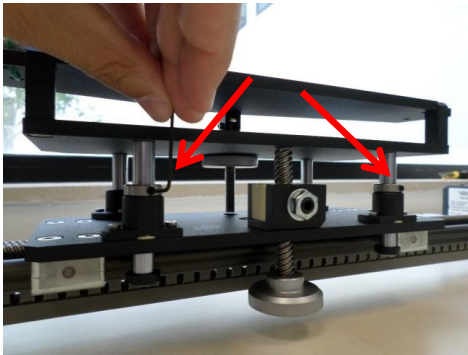
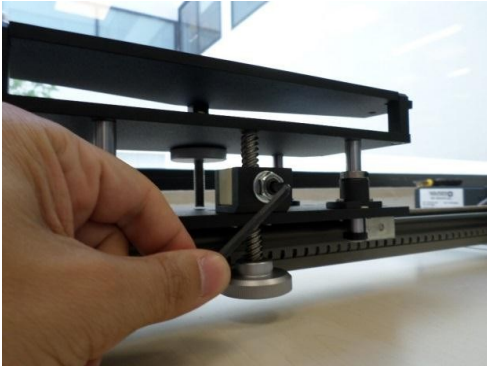


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## ANNEXE 06

### Precision and tilt adjustments


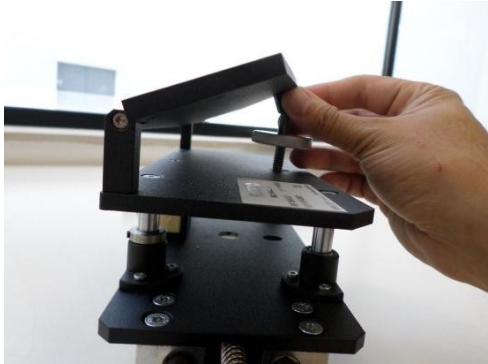
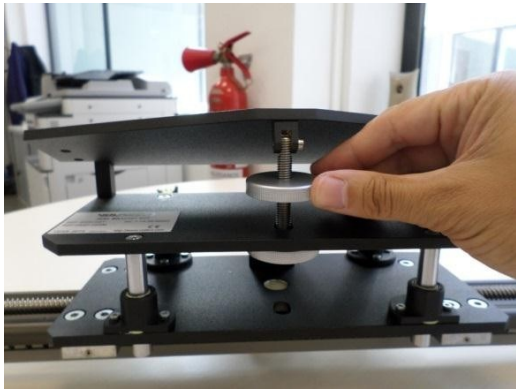

#### Height precision adjustment


STEP 01	STEP 02	STEP 03
		
Loosen marked screws	Loosen the stud bolt	Adjust height
STEP 04		
		
When SCC DIAMOND is at its desired position, fasten again bolts and screws		



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Tilt adjustment

<b>STEP 01</b>	<b>STEP 02</b>
	
Losen lower bushing	Adjust to desired position
<b>STEP 03</b>	
	
Tighten lower bushing	


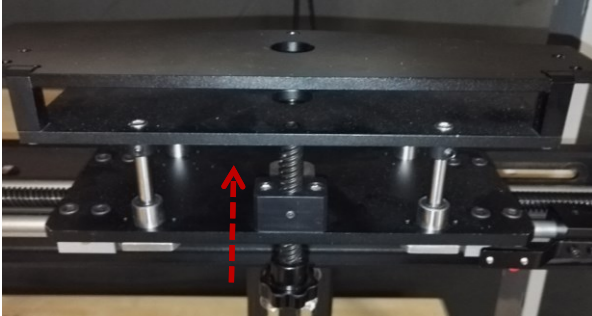
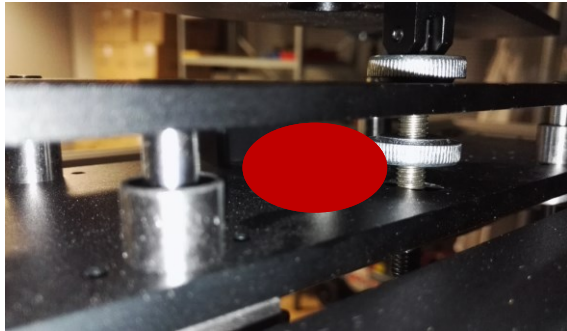
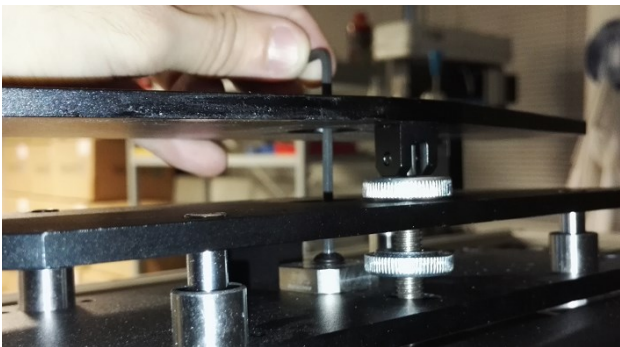
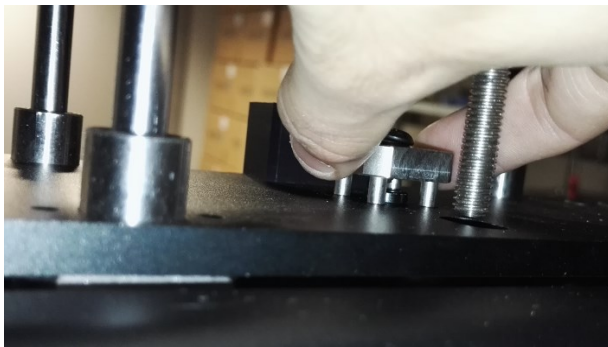

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## ANNEXE 07

### SCD bracket disengagement.

For the models VASP-09XXX please see annexe 08

**WARNING: Please remove SCD product and disconnect the power supply cable before to disengage the bracket.**

STEP 01	STEP 02	STEP 03
		
If you have a motor problem and you need to move the SCD platform manually	First, lift the tray turning the button	We have to remove this piece
STEP 04	STEP 05	STEP 06
		
Remove the screw with Allen key	Once unscrewed, remove the piece	Now, we can move the platform manually

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STEP 07	STEP 08	STEP 09
		
<p>To put the bracket in the initial configuration, position the gold piece under the platform</p>	<p>The 4 holes must be perfectly aligned</p>	<p>Screw the piece to fix the platform. The system is again motorized</p>



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## ANNEXE 08


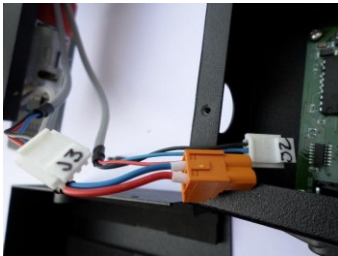
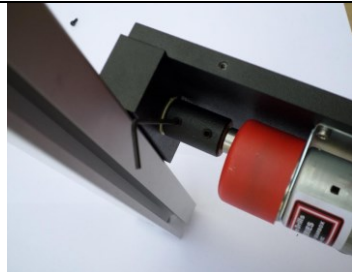

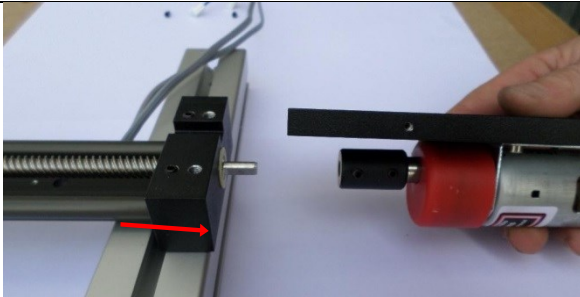
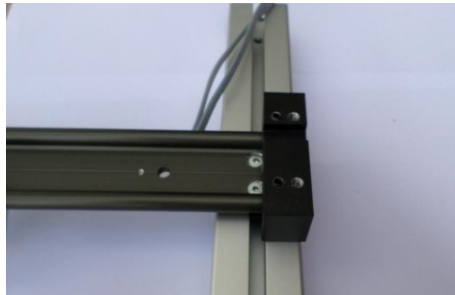
### SCD bracket disengagement for the models VASP-09XXX.

The aim is to release the endless screw

**WARNING: Please remove SCD product and disconnect the power supply cable before to disengage the bracket.**

STEP 01	STEP 02	STEP 03
		
Start with motor mounted	Remove the control box cover; 4 screws	Remove the screws that are fixing the control box to the motor box. 2 screws
STEP 04	STEP 05	STEP 06
		
	Remove the motor cover: 2 screws	Remove the motor cover: 2 screws

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STEP 07		STEP 08
		
Disconnect the J2, J3 cable and motor cable		Loosen the rod that secures the motor shaft
STEP 09	STEP 10	STEP 11
		
Unscrew the motor support	Pull the motor and its support axially stretching carefully in order not to break the spindle housing to the engine	The endless screw is release

To assemble the motor, follow the same steps to remove it but in inverse order.

**WARNING: Please place the cables before mounting the motor support**

**END**