



# R0015029D Hepco Beam Alignment

Instructions to correctly align and mount hepco drive beam

 Difficulty **Very Hard**

 Duration **12 hour(s)**

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## Introduction

### Tools Required

Engineers level  
Hepco flat spanner  
Hepco Box spanner  
Standard hex key set  
Incremental shim pack  
Torque wrench

### Parts Required

B0000184 Journal Cap Seal 34 x 4  
B0000185 Double Row Long Stud Journal Eccentric x 2  
B0000186 Double Row Long Stud Journal Concentric x2  
B0001102 Double Edge Spacer Slide and Beam 7600mm x 1

D0015072 Carriage Plate x 1  
D0015492 Vertical Beam Adjustment Plate x5  
D0015493 Lateral Beam Adjustment Plate x 5  
P0000200 Elbow Adaptor 6mm - M5 x 1  
F0000529 T-Nut M6 (slot 10) x 3  
F0000530 T-nut M8 (slot 10) x1

## Step 1 - Unless otherwise stated

Always Use Loctite 243 on all fasteners  
Always use Loctite 570 on all threaded pneumatic connections  
Pen mark all fasteners to show finalised



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## Step 2 - Please note

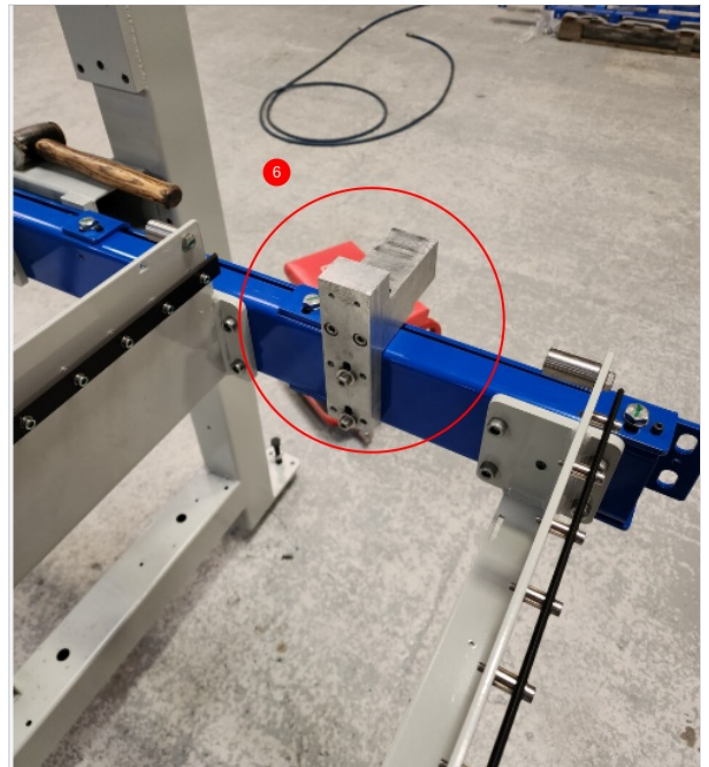
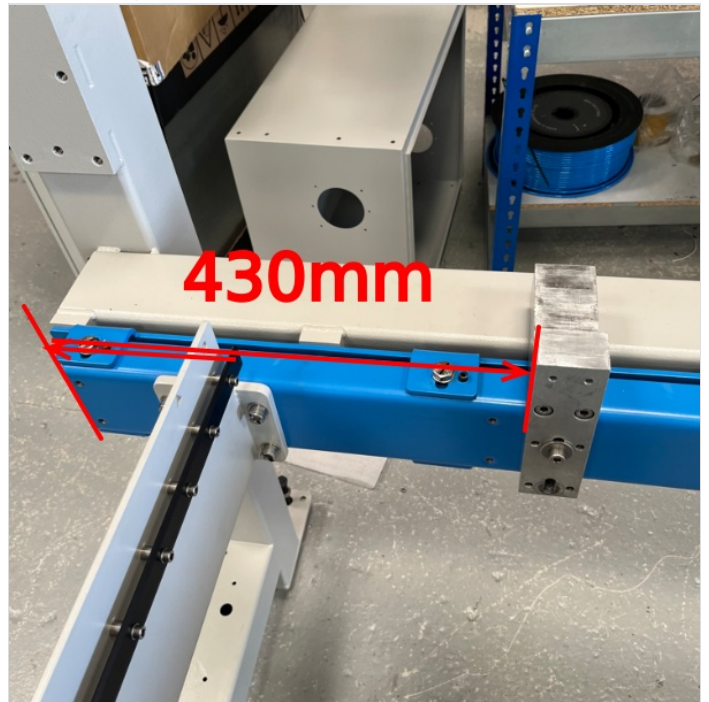
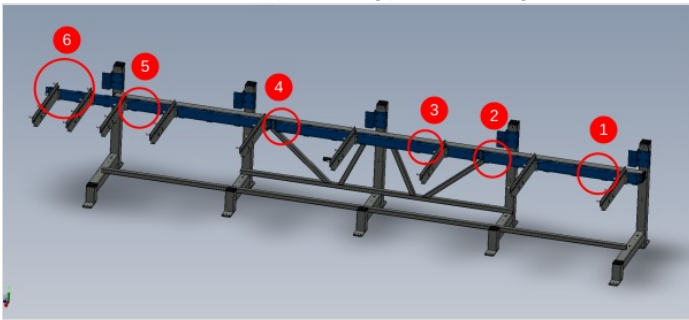
Following step has been amended to include the use of 6 setting jigs



## Step 3 - Attach Setting jigs

Mount setting jigs to channel section in positions shown using M8 cap head bolts and heavy washers

Position one shown will require fixing points drilling to channel section . Drill M8 and position to measurement shown of 430mm

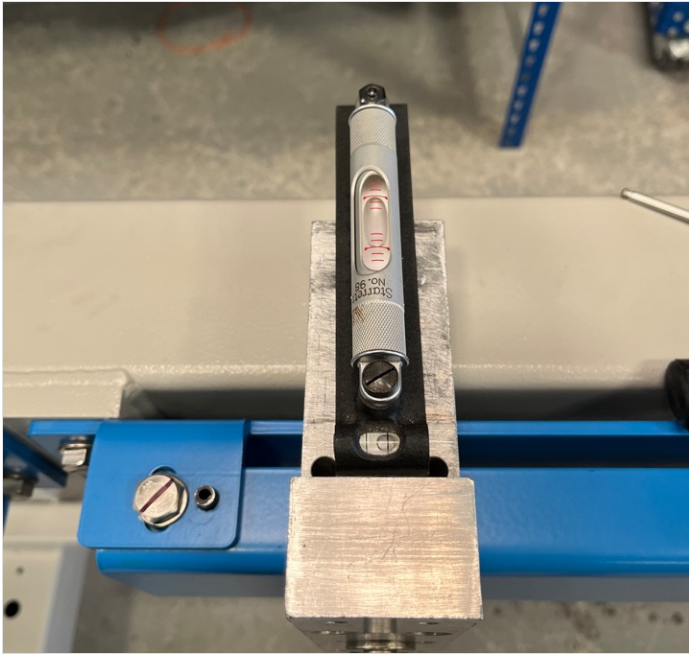


## Step 4 - Level Setting Jigs

**i** ...The correct setting of these jigs is vital to correct installation of the hepco drive system. Accurate positioning of these will enable quality checks to be performed on the supplied hepco rail

Use an engineers level to individually adjust each jig to be level on both axis

**!** ...Always ensure when levelling that the jig remains in contact with the blue support bar on at least one point . The distance between the top face and the blue mounting section is vital to the correct set up



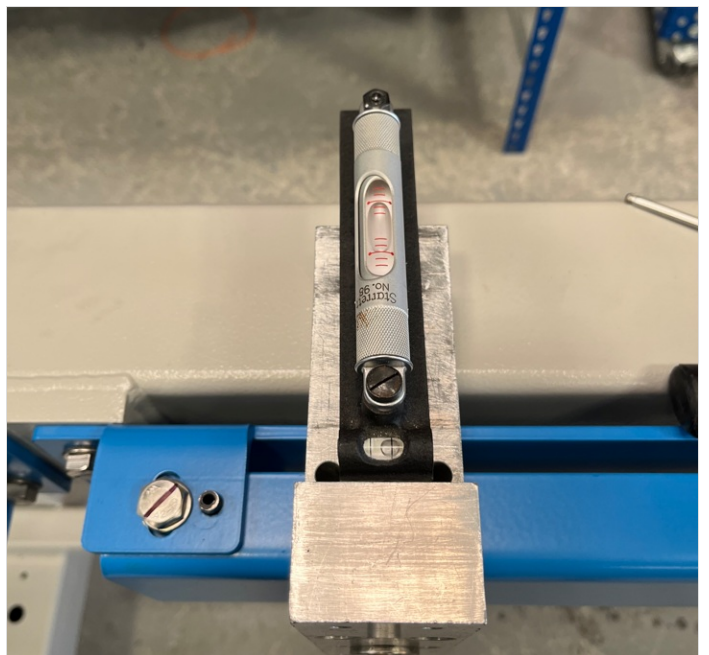
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## Step 5 - Level x axis between jigs

Using a 2 meter straight edge , the jigs should be levelled to each other as shown.

Identify which Jig is the lowest point by using the straight edge and level . Adjust the lower height jigs to match the highest point one. This is to ensure that the height is maintained as much as possible between blue mounting bar and jig top face

When a jig is adjusted for height, it will need rechecking to see if the other previous levelled plains have moved. If so, re adjust to bring jig level in all axis



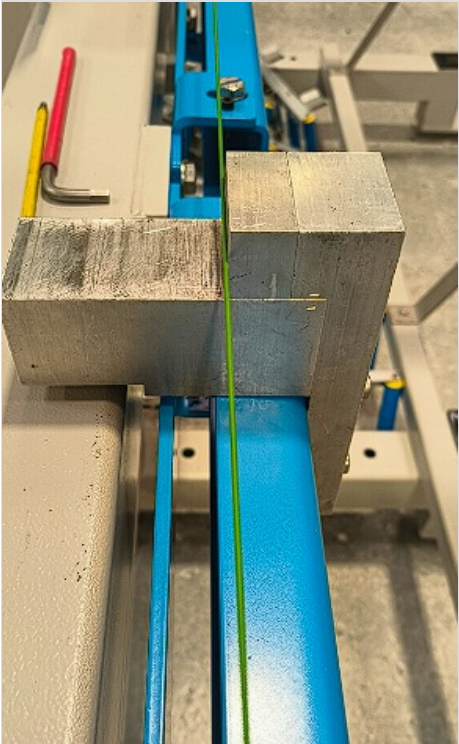


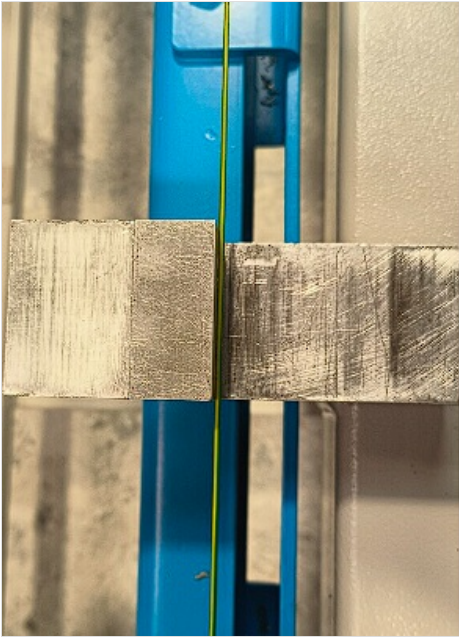
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## Step 6 - Wire line for setting straightness

A wire line should be used for setting the straightness of the jigs along the x axis

Use dokit Alignment guide using wire line for correct process to set up





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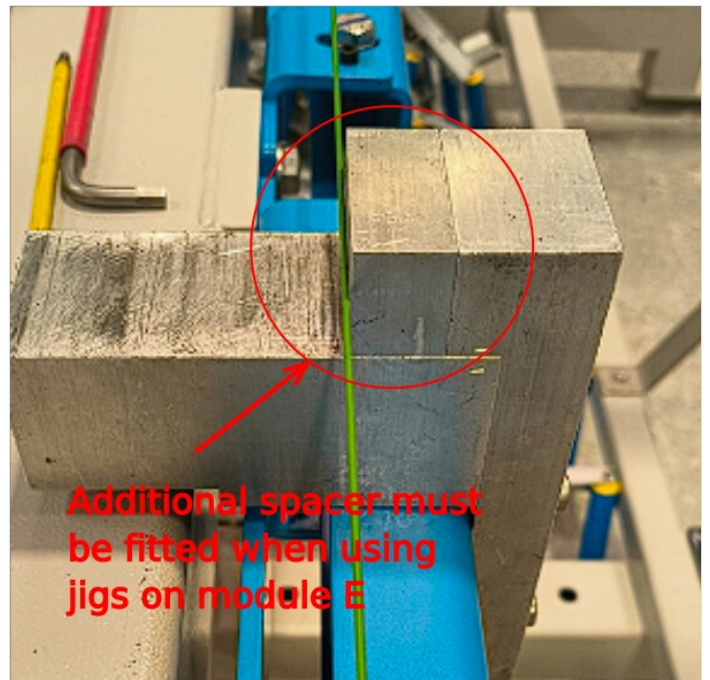
## Step 7 - Quality Check

Qc Double check required at this point from Supervisor that all alignment is correct.



## Step 8 - Additional spacer

Ensure additional spacer is fitted to jigs when using for alignment on module E



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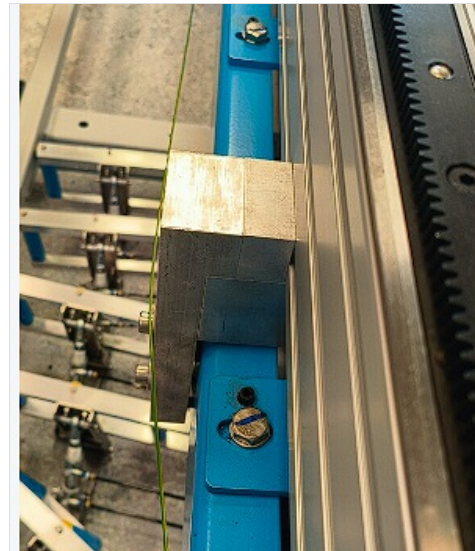
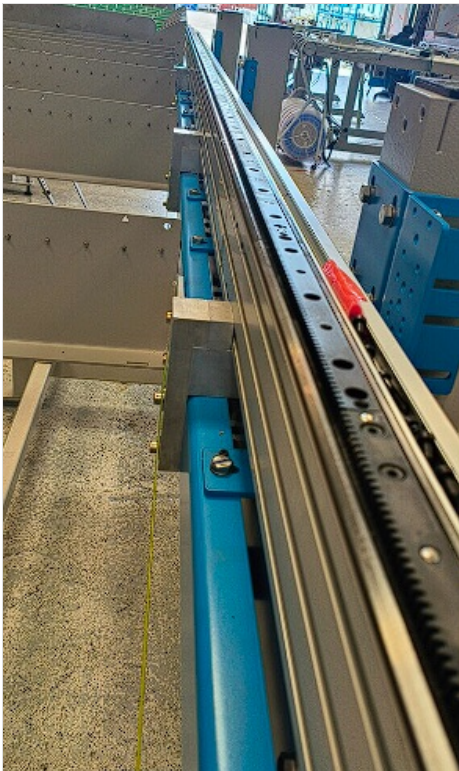
## Step 9 - Position Hepc double edge slide

B0001102 can now be assembled on jigs .

These beams are paired so check you have been issued a set correctly

Pairs can be identified as follows

- 1 and 1
- 2 and 2
- A and A
- B and B





## Step 10 - Mechanically join Hepco beam

1 Move one off joining bar as shown . do not tension bars yet

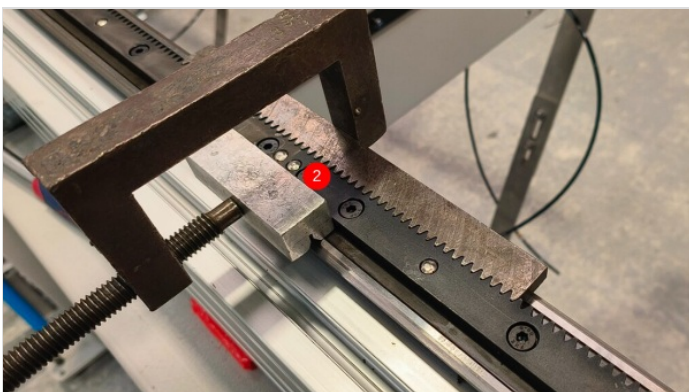
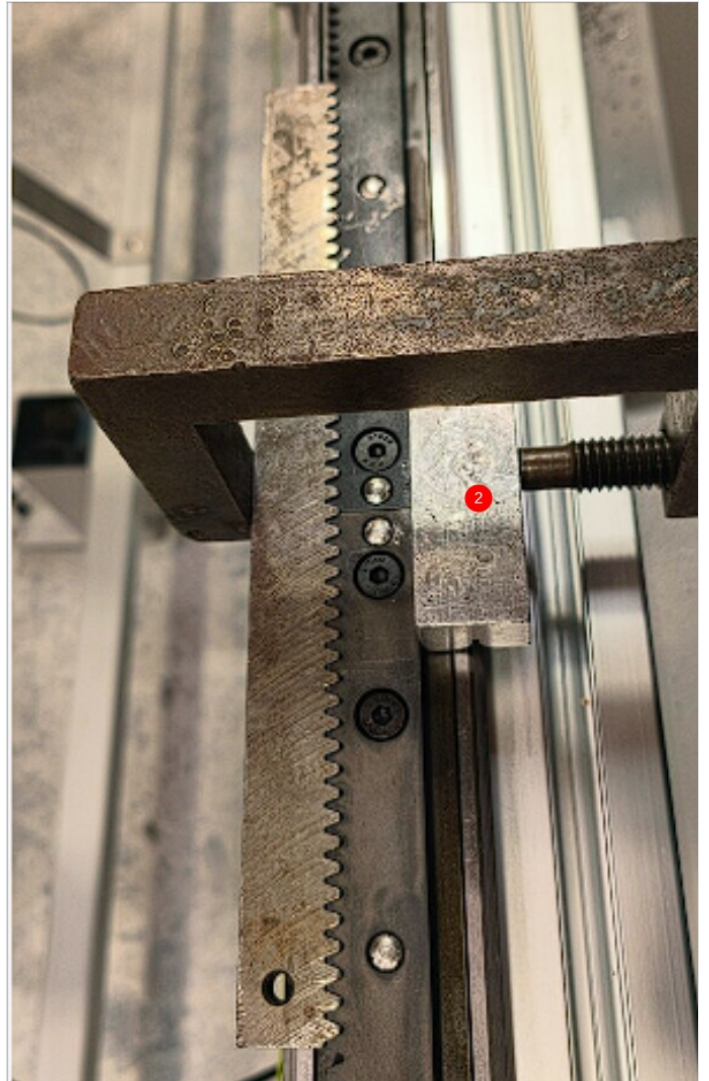
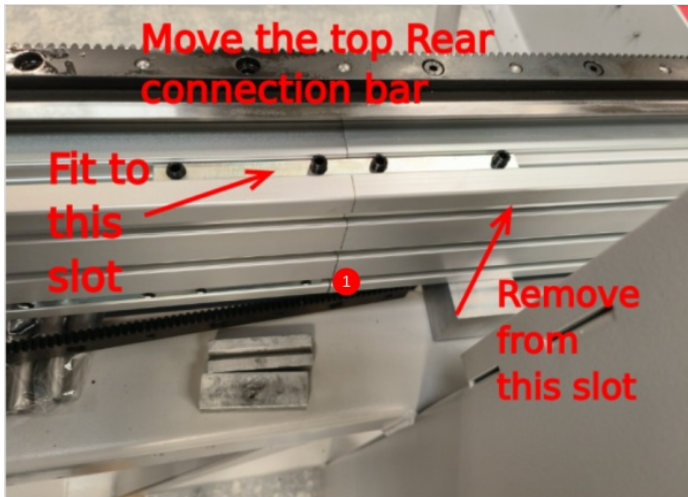
2 Use jig shown to ensure correct pitching of 2 sections of drive rail when coupled together

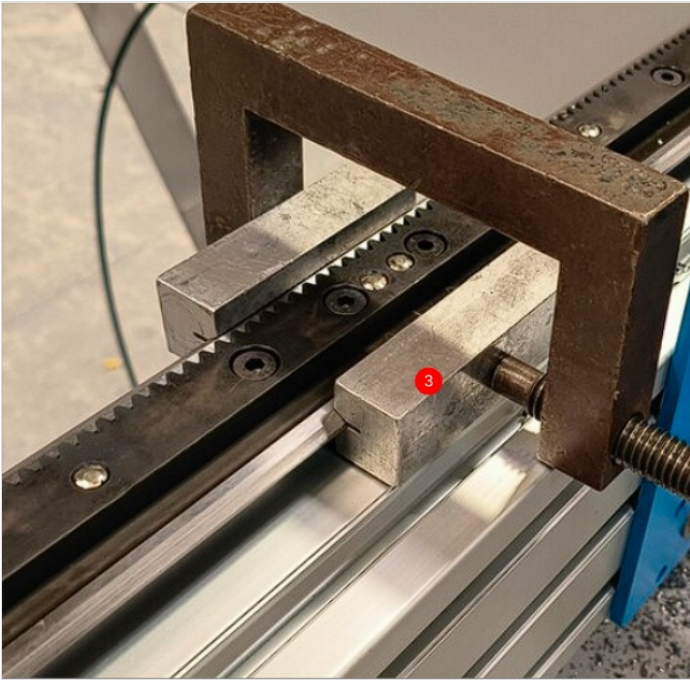
3 Use v blocks to ensure alignment of V's on hepco rail are correct when mating the two parts

4 Tension all fasteners on hepco rail to secure positions of hepco rails in relation to each other ( DO NOT FIT DOWELS AT THIS POINT NEW PICTURE REQUIRED )

5 Tension joining bars

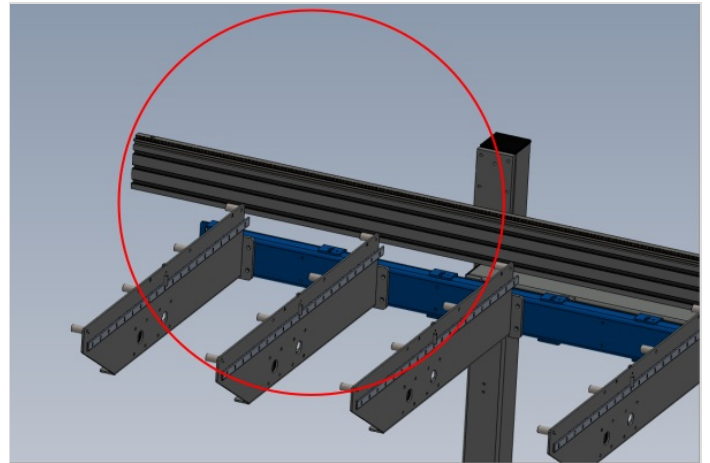
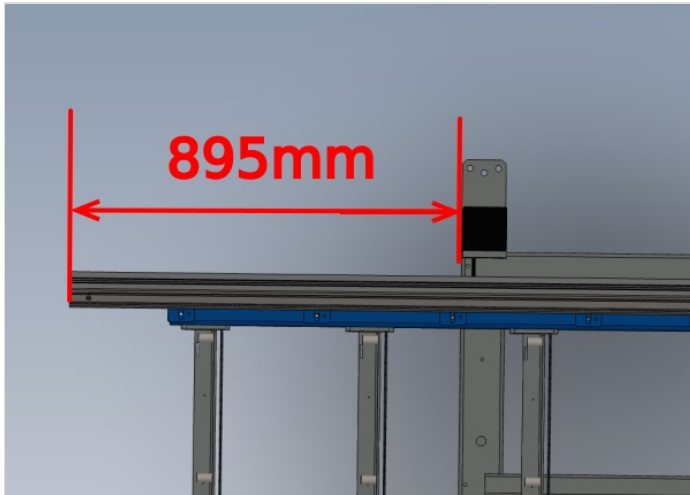
6 Check correct pitching by using toothed jig again once all fasteners are tensioned. Toothed jig should lay flat with no rock when laid against toothed rail as shown





## Step 11 - Set beam position

Hepco slide rail should be positioned as drawing



## Step 12 - Assemble carriage

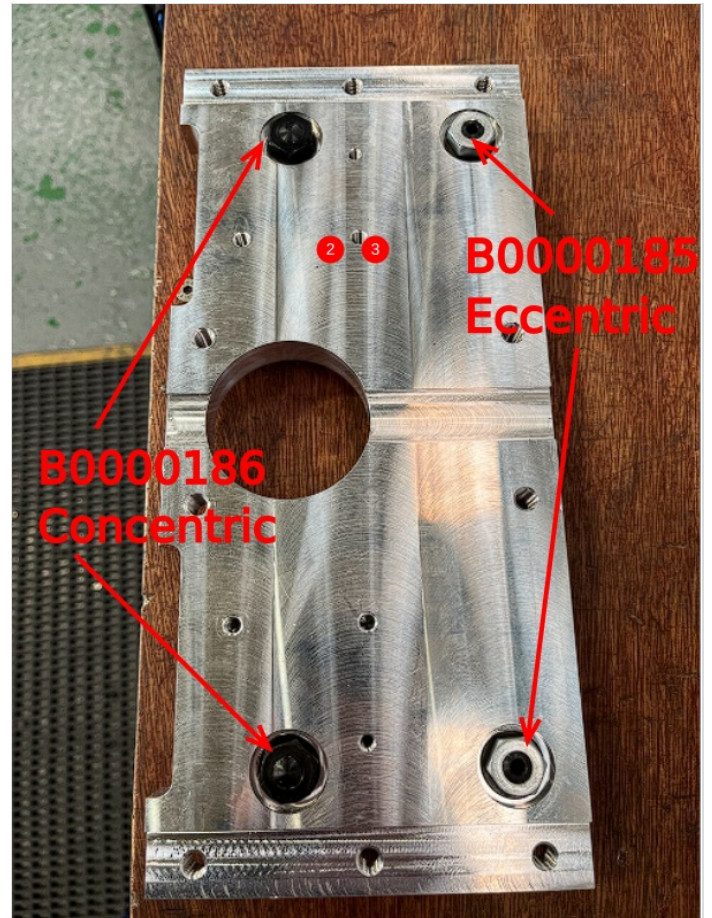
D0015072 Carriage Plate x 1

B0000185 Double Row Long Stud Journal Eccentric x 2

B0000186 Double Row Long Stud Journal Concentric x2

- 1 Remove nuts and washers from journals
- 2 Insert into carriage plate in positions shown
- 3 Add washer and nut to top face with no adhesive





## Step 13 - Set journals

Fit assembled carriage plate to hepcoslide, orientated as shown

Set Tension on eccentric journals using hepcos flat spanner and box wrench

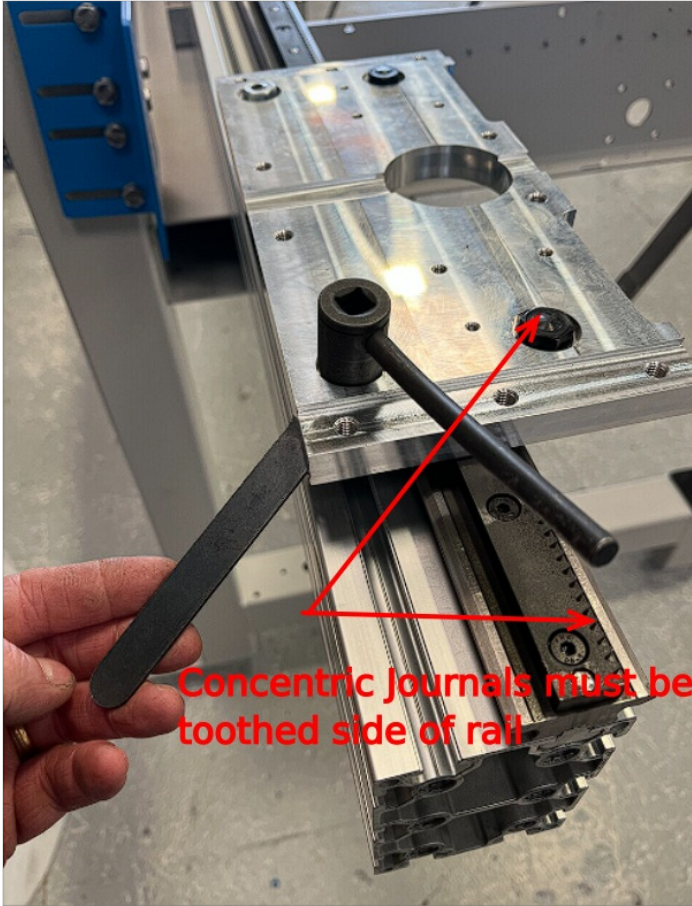
Correct tension is

**i** ...When the carriage is pushed by hand, it must be just possible to skid the journal on the v rail when held. Journal must have enough contact to be turned when the carriage plate is pushed

**!** ...Caution must be used when tension is applied when setting. Too much can cause damage to journal and rail. Gradually increase tension checking at each point to confirm

The journal setting must be checked at several points across the hepcos rail. Journals should be adjusted to give the best contact overall along the entire travel of the carriage plate

Once correct setting has been achieved, Journal fixing nuts should be tensioned to 33nm using torque wrench



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## Step 14 - Fit wipers and finalise

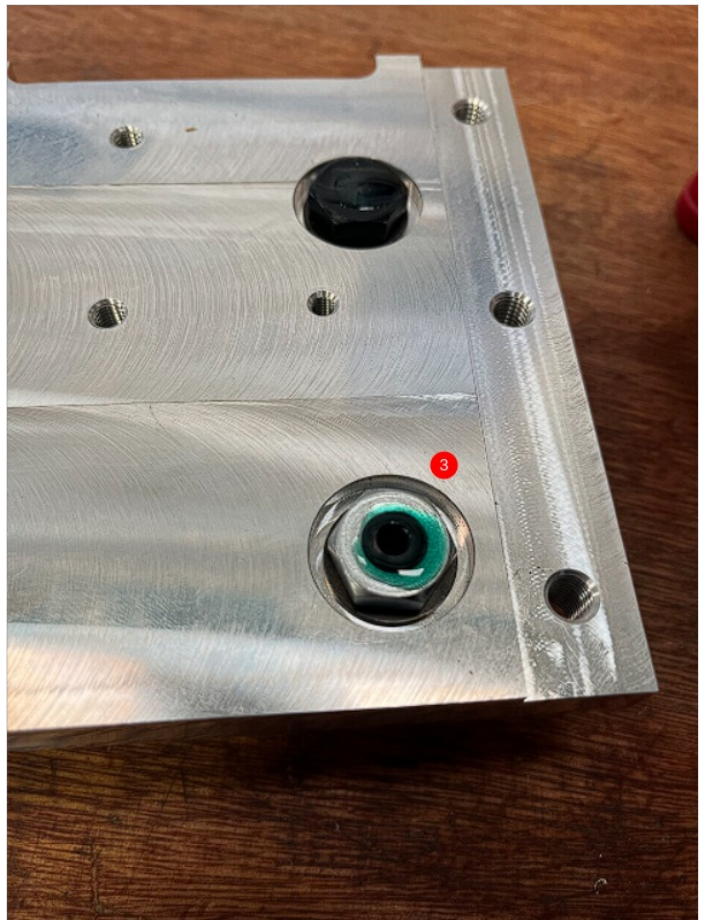
Remove carriage plate

1 Fit B0000184 x 4 cap seals with adjustable inserts (supplied with cap) Adjust so journal is not in contact with cap seal but close as possible  
Use 2 off M4 x 20 socket caps and M4 A Form washers per cap seal to fix

2 Dispose of fixed variant

3 Add Loctite 290 to finalised journal nuts





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## Step 15 - Refit carriage plate

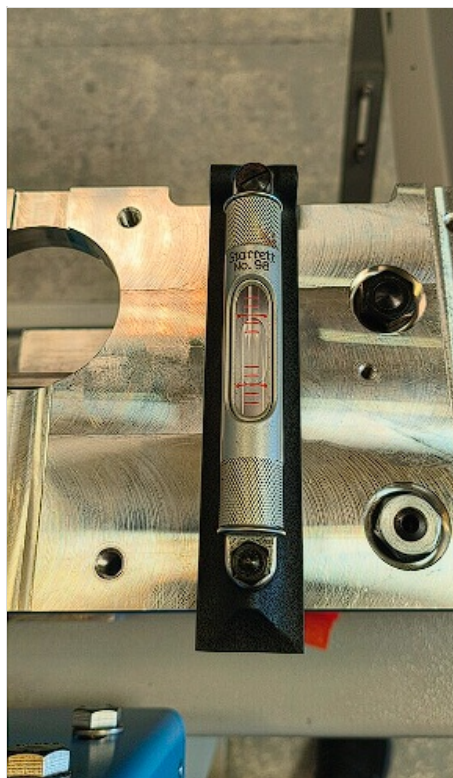
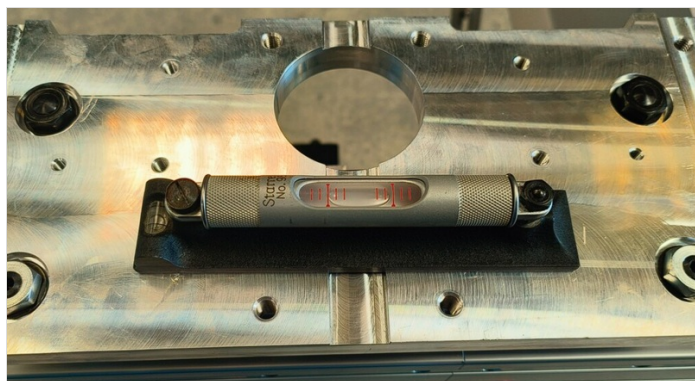
Refit carriage plate to hepco rail and check travel along the entire length to confirm correct position of cap seals. If it has become hard to push cap seals are not positioned correctly

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## Step 16 - Check level of carriage plate

Inspect Level of hepco beam as shown . These levels should be checked at every 300mm along the entire length of the beam. This will give an indication of what is required for adjustment .

**i** ...If levels are all accurate skip to step on installing mounting brackets



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## Step 17 - 1st stage levelling

Tolerancing

X axis level -+ 2 divisions on engineers 300m level

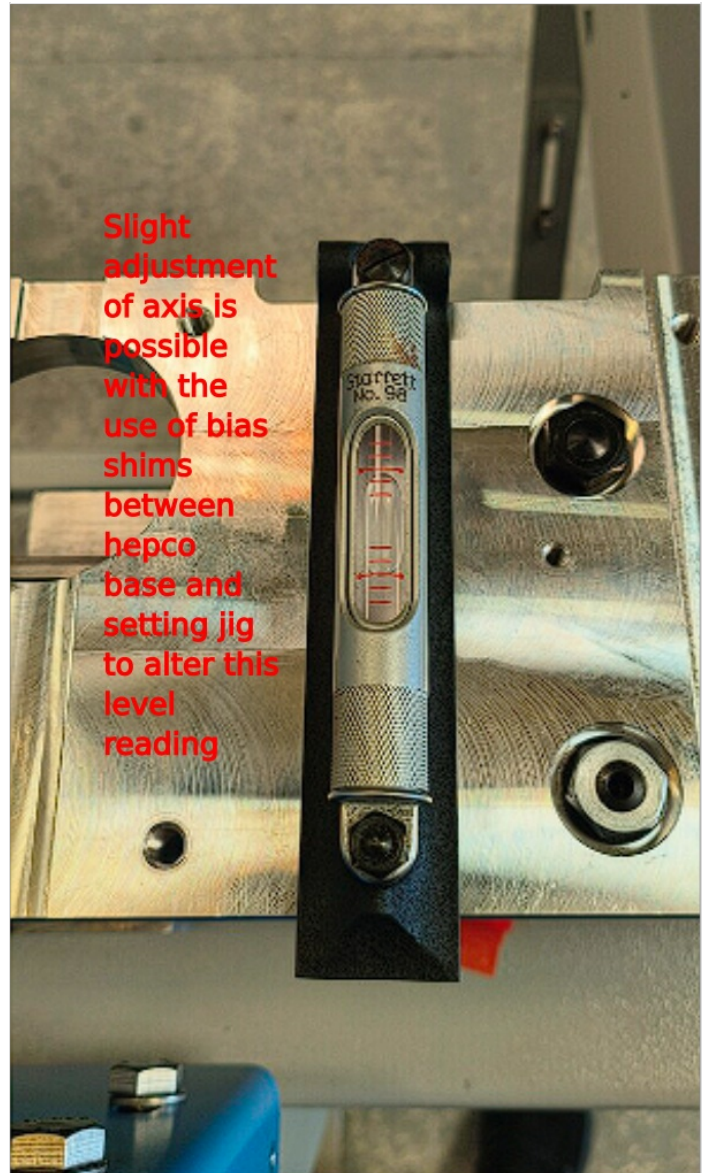
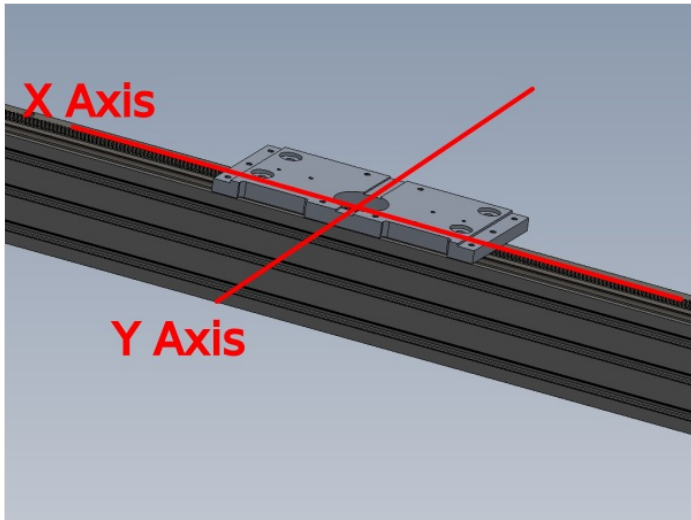
Y axis level -+ 3 divisions on engineers 300mm level

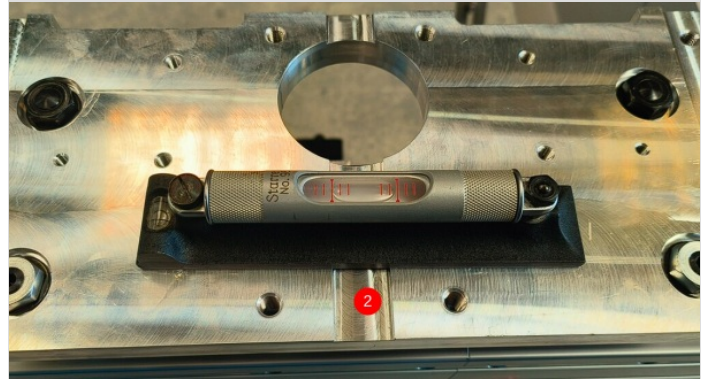
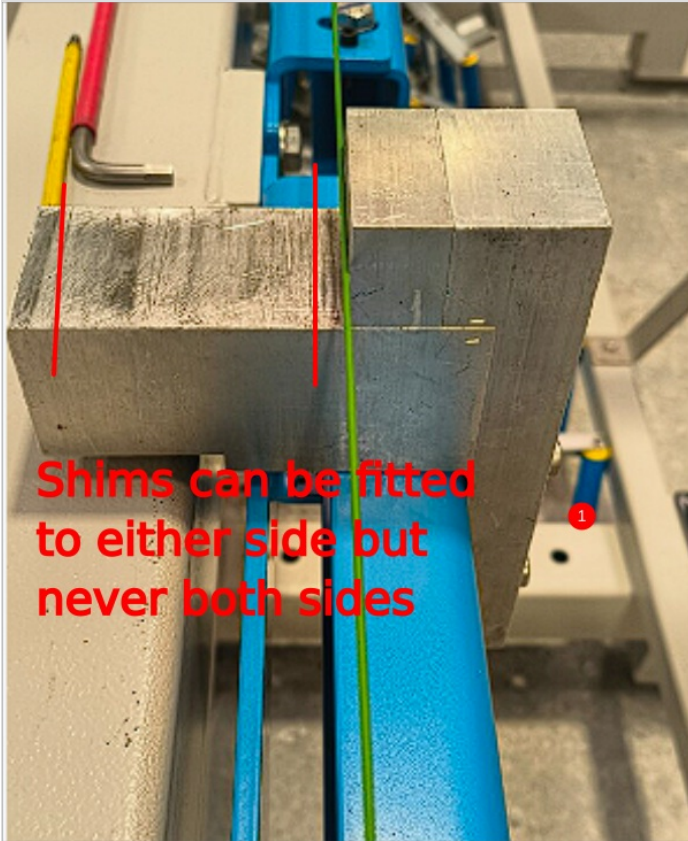
1 The first stage of levelling any discrepancy from the rail is to add bias shims to the setting jigs that the hepco rails is sitting on . This will only give slight adjustment in one direction . Image shows where shims can be added to adjust level indicated. Never add shims to both sides (hepco beam is removed for clarity of shim location )

2 Leveling in this direction is not likely, if setting jigs are set up correctly then this level will be correct

If this process corrects any discrepancies on level move to mounting bracket stage . If more adjustment is required continue to step 17





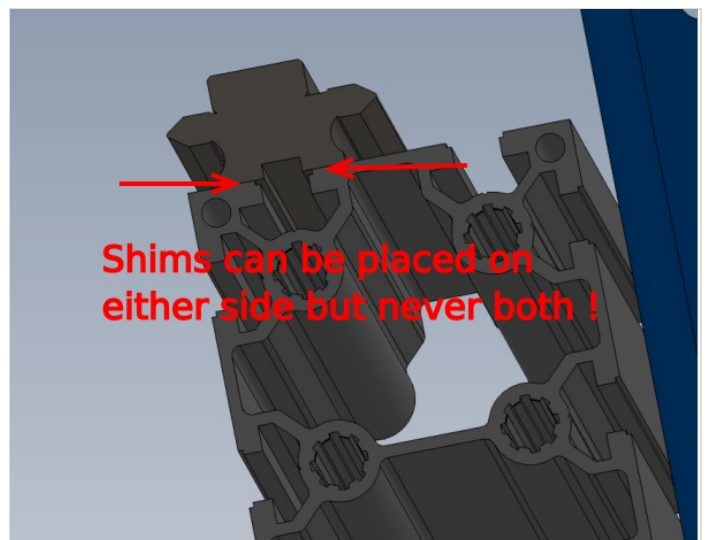


## Step 18 - 2nd stage leveling if required

In extreme cases additional adjustment may be required for correct positioning

Shims can be placed between the main hepco slide and extruded mounting section. This step should only be undertaken with supervisor authorisation

**⚠** ...If shimming is required at these points ,care must be taken to add shims incrementally on size to avoid the straightness of the rail being compromised



## Step 19 - Laser checks

Tolerance.  $\pm 6\text{mm}$

Once the hepco rail has been positioned and levelled correctly, a laser check must be performed to ensure straightness of hepco rail

1 Position laser as shown and move carriage to indicated area

2 Mark laser dot onto carriage

3 Move carriage along entire length of hepco rail observing any deviation from marked point and laser dot

4 Report any deviation greater than 6mm

