HepcoMotion®

MHD Installation and Handling Instructions

! CAUTION WHEN LIFTING. Suitable lifting equipment should be used when moving MHD tracks. A full 1.46m length weighs 41kg.

! CAUTION SHARP EDGES. MHD tracks are required to have sharp edges on their ends to ensure joint quality. Exposed non-butting track ends should have their edges bluntened.

INSTALLATION PROCEDURE

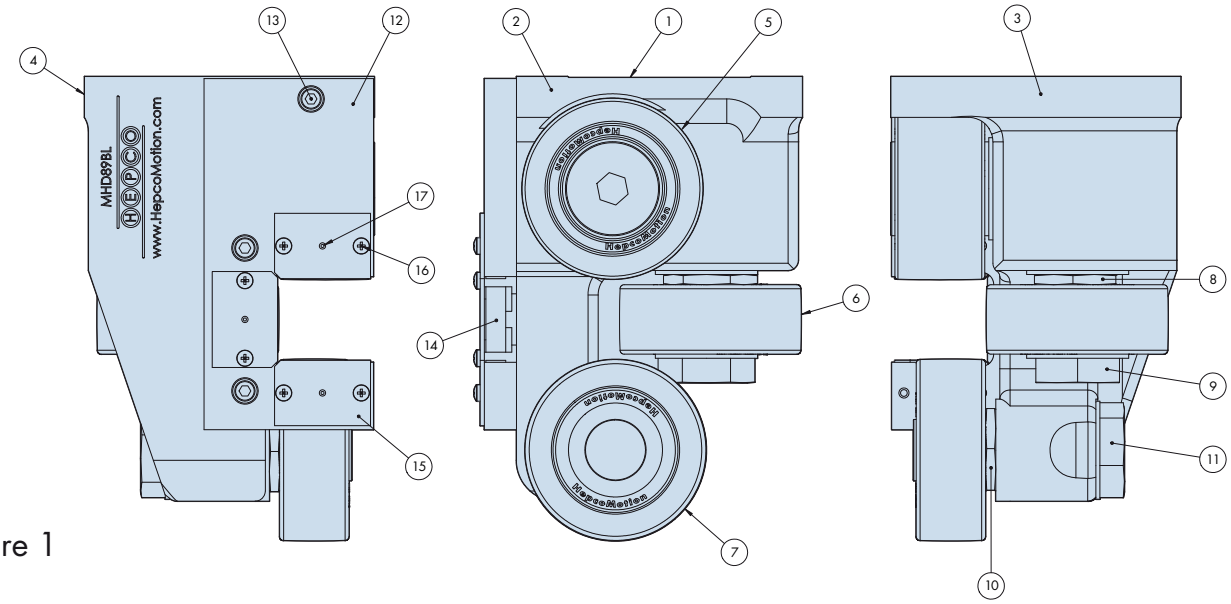

Figure 1

Part	Part Description	Notes
1	MHD block	Left and right hand versions
2	Register face	
3	Register face	
4	Register face	
5	Top roller	Concentrically mounted
6	Side roller	
7	Lower roller	
8	Side roller bush hexagon flange	Eccentric bush for adjustable types
9	Side roller fixing bolt	Tighten to **250Nm**
10	Lower roller bush hexagon flange	Eccentric bush
11	Lower roller fixing bolt	Tighten to **250Nm**
12	Lubricator body	
13	Lubricator body fixing screw	Tighten to 20Nm
14	Felt lubricator	Sprung loaded
15	Scraper plate	**0.05 - 0.1mm** clearance from track surface
16	Scraper plate fixing screw	
17	Lubrication point	**68cS** viscosity oil recommended

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Figure 1 shows details of the MHD block assemblies. Item numbers in square brackets refer to this figure and should be referenced to clarify the following installation steps.

1. For optimised performance mount MHD tracks on a flat surface, with a straight register at the rear. Ensure that track mounting surfaces are coplanar and the registers are parallel. A good quality installation can be achieved by machining the mounting surfaces of the carriage plate and the supporting structure, holding the dimensions between track registers to ~H7 limits.
2. For systems over 4m, use the track as a template for drilling holes in the mounting surface to avoid possible misalignment from the cumulative effect of hole position tolerances.
3. Position the first piece of track on the mounting surface with its fixing screws lightly fitted.
4. Pull the track tight against the register along its entire length. Screw clamps offer a suitable method for doing this, as is shown in Figure 2.

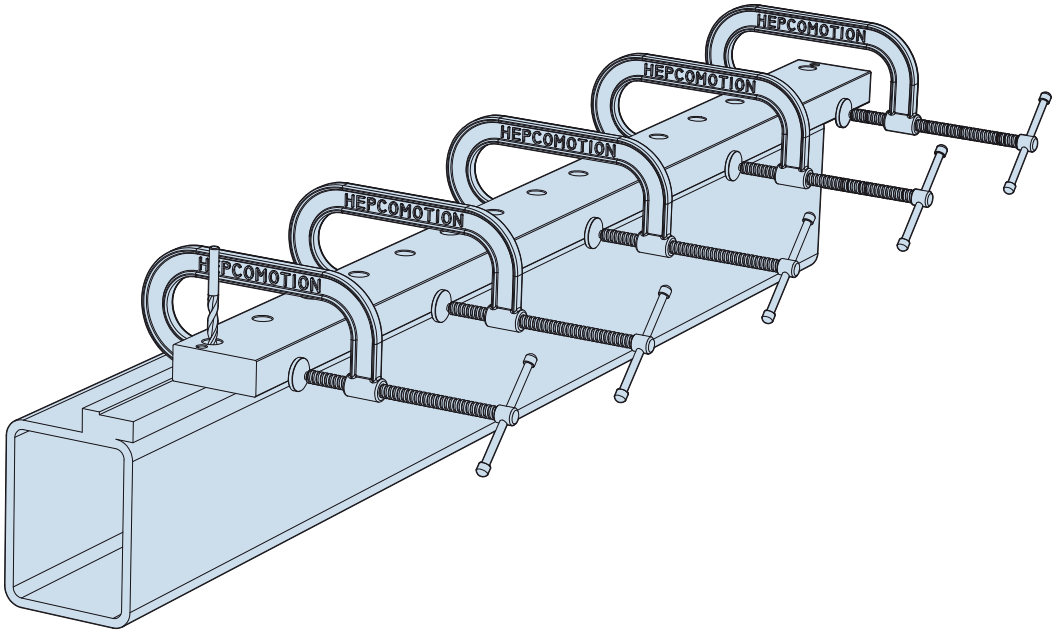

Figure 2

5. Fully tighten the fixing screws.
6. Place the second piece of track onto the mounting surface, against the back register. For butted joints ensure that the marks correspond either side of the joint, as shown in Figure 3.

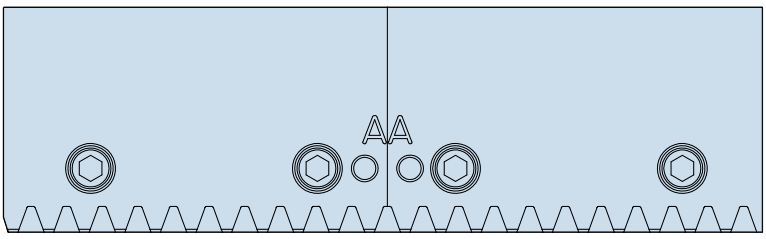

Figure 3

7. The two components should be butted end to end without clearance. This ensures best running quality and continuity of rack tooth pitch across the joints.
8. Pull the track tight against the register as in stage 4.
9. Fully tighten the fixing screws.
10. Check the continuity of the joint using a suitable measuring device, as shown in Figure 4: When correctly installed there should be a step of no more than 20µm between any two faces either side of the joint.

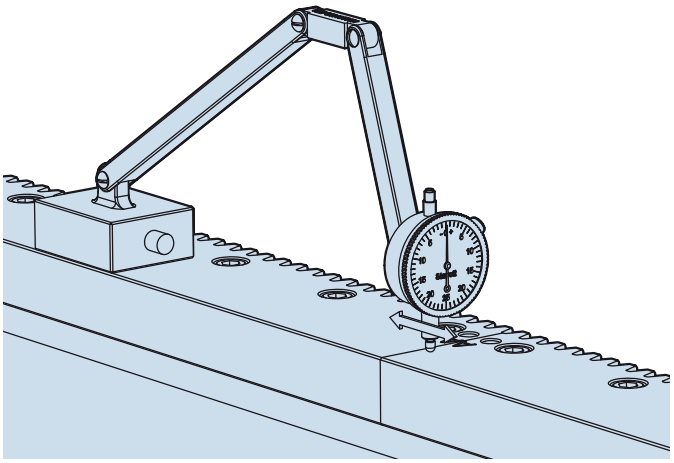

Figure 4

11. Repeat stages 6-10 for all track sections in the run.
12. Follow the same process for the installation of the second, parallel, track. See stages 3-11.
13. When setting up a system, choose a datum side of the carriage. The blocks with concentric side bearing bushes (MHD89BLC & MHD89BRC) are used on this side.
14. Assemble the MHD bearing blocks onto the carriage. To achieve optimum contact and running conditions machine mounting pads and register faces to co-operate with the block datum faces. Alternatively, drill accurate dowel holes to coincide with those in the MHD blocks. Securely fix blocks to the carriage using suitable screws.
15. Before assembling the carriage onto the tracks, adjust the side eccentric bushes [Item 8] (where applicable) to their outermost position. Remove the lubricators [Item 13] (where fitted).
16. Removal of the lower bearings [Item 7] allows the carriage to be lowered onto the tracks, rather than needing to slide the carriage on from one end.
17. The carriage can then be engaged onto the tracks. If lowered from above, loosely assemble the lower bearings [Item 7] back into place with the carriage on the tracks.
18. Adjust the eccentric side bearings [Item 6] of the adjustable blocks in the following way: Back off the fixing bolt [Item 9] using a standard 41mm spanner/socket to allow the eccentric bush [Item 8] to be rotated against moderate resistance using a 40mm Hepco AT95 spanner. Rotate the bush in an anti-clockwise direction, with respect to the head of the fixing bolt, until the bearing just contacts the running surface. Tighten the fixing bolt to ~250Nm, while maintaining the position of the eccentric bush by holding it with the AT95 spanner. Finally, assess the contact condition by rotating the bearing against the track using firm hand pressure. If the bearing does not skid readily, then re-adjust the bearing eccentric. Figure 5 shows the above procedure.

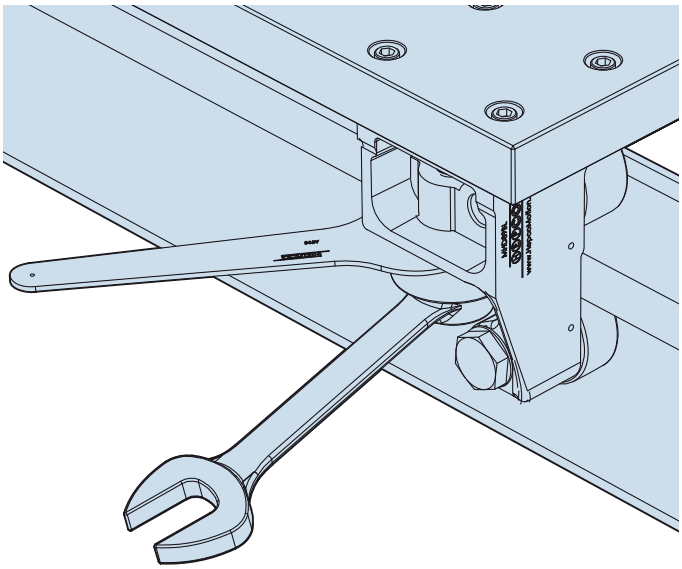

Figure 5

19. Confirm the alignment of the carriage to the track by moving the carriage along the track with a suitable measuring device running on the relevant register face of the MHD blocks, as shown in Figure 6. This should indicate that each block is parallel with the track and that the blocks on each side of the carriage are in line with each other. Re-adjust system if it is not correctly aligned.

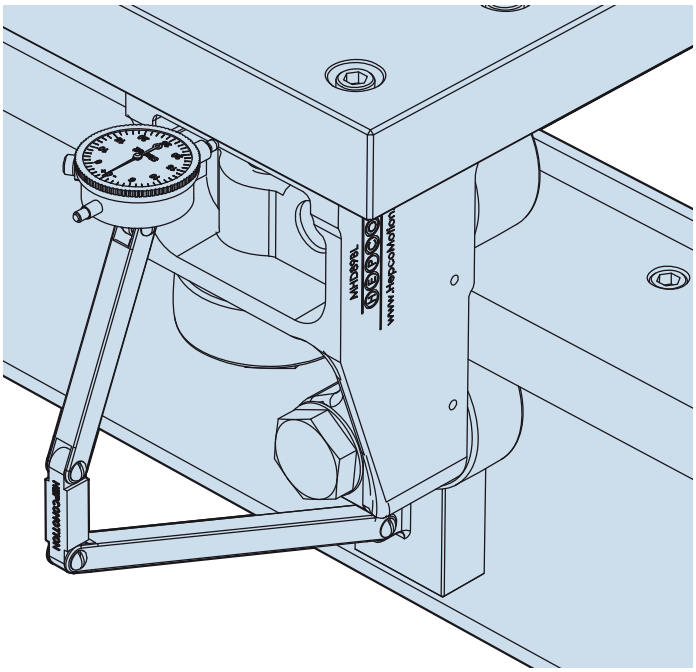

Figure 6

20. Adjust the eccentric bush [Item 10] of the lower rollers on all blocks as per Stage 18.
21. With the carriage aligned and blocks adjusted, reciprocate the carriage over the length of the track, monitoring the system feel for the quality of the joints, and the consistency of fit of the carriage on the tracks. If necessary, adjust the track to get this right.
22. With the track positions confirmed, the joints should be doweled in place to prevent any subsequent movement in service. To do this, drill the Ø9.8 holes in the end of each track through into the mounting surface and then ream holes in both parts to Ø10. Fit appropriate dowel pins. Figure 7 shows the position of the dowel holes.

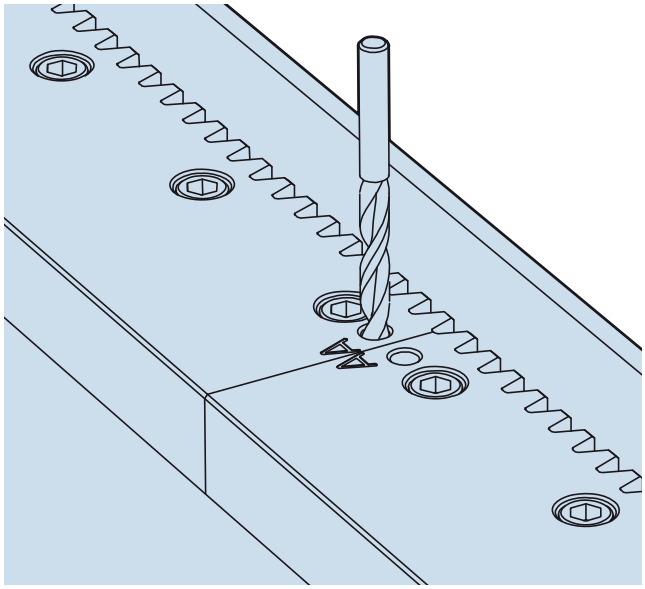

Figure 7

23. Once the tracks are fitted it is recommended that the joints are 'stoned in'. This involves using a lubricated oilstone to abrade the tracks at the joint to level out any minor deviations and optimise running quality. Use the carriage to assess running quality during this operation.
24. Where specified, the lubricators [Items 12-16] for the bearing blocks should be fitted. Before this is done, back off the three scraper plates [Item 15] to their outermost positions.
25. Engage the lubricator assembly onto the track outboard of the relevant MHD block, while holding back the protruding felts [Item 14].
26. Screw the lubricator onto the face of the MHD block ensuring that the gap between the aluminium body and the MHD track is uniform between all three faces. When centralised, fully tighten the fixing screws [Item 13].
27. Position the three scraper plates [Item 15] to have a controlled clearance of 0.05mm - 0.1mm from the track surface, using feeler gauges as shown in Figure 8. Fully tighten the fixing screws [Item16] when positioned.

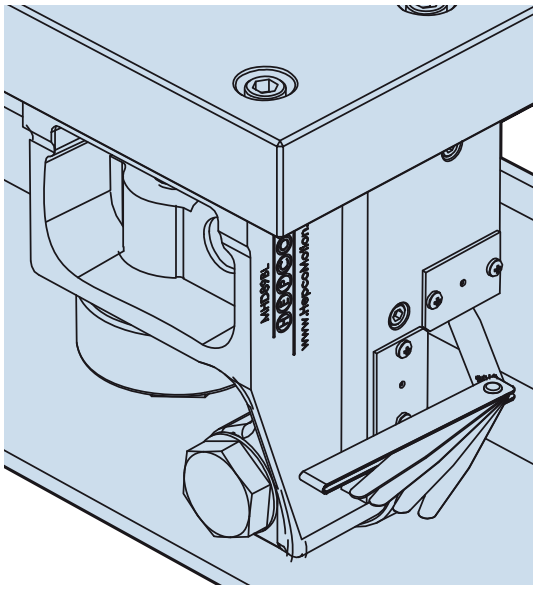

Figure 8

28. Apply extra lubricant to each wiper cavity, via the lubrication point [Item 17] in each scraper plate, as shown in Figure 9. Use a suitable slideway oil, 68cS viscosity is appropriate.

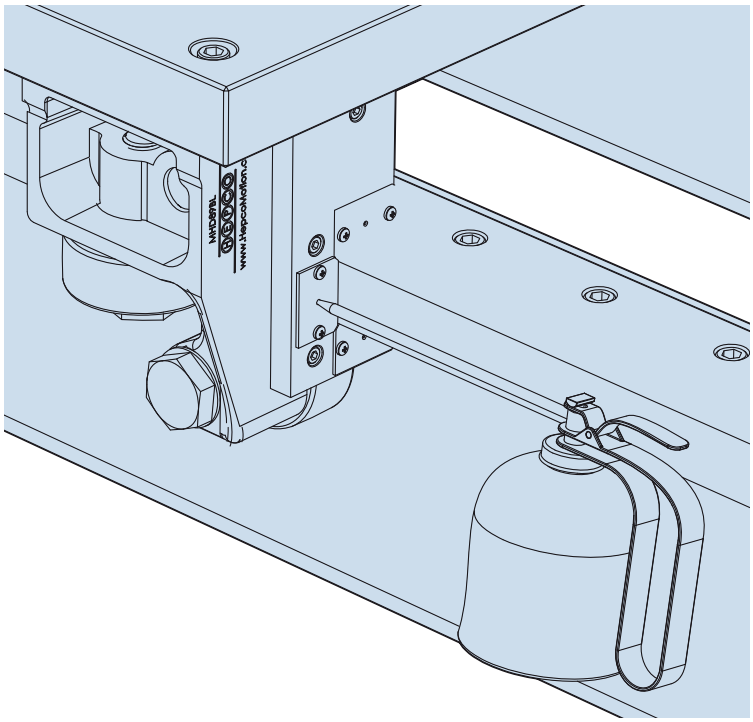

Figure 9

29. For systems where a rack and pinion have been specified, the pinion must be set with the correct engagement in the rack. To facilitate this setting, it is recommended that the pinion be provided with an adjustment facility. Figure 10 shows an assembled driven carriage which incorporates an adjustment feature to set rack and pinion engagement via an eccentric bush. In normal circumstances, there should be a minimal clearance between the rack pitch line and the pinion pitch circle, and this can be checked by rotating the pinion with the carriage position locked. It is recommended that backlash be set at ~0.1mm of linear travel (~0.12°).

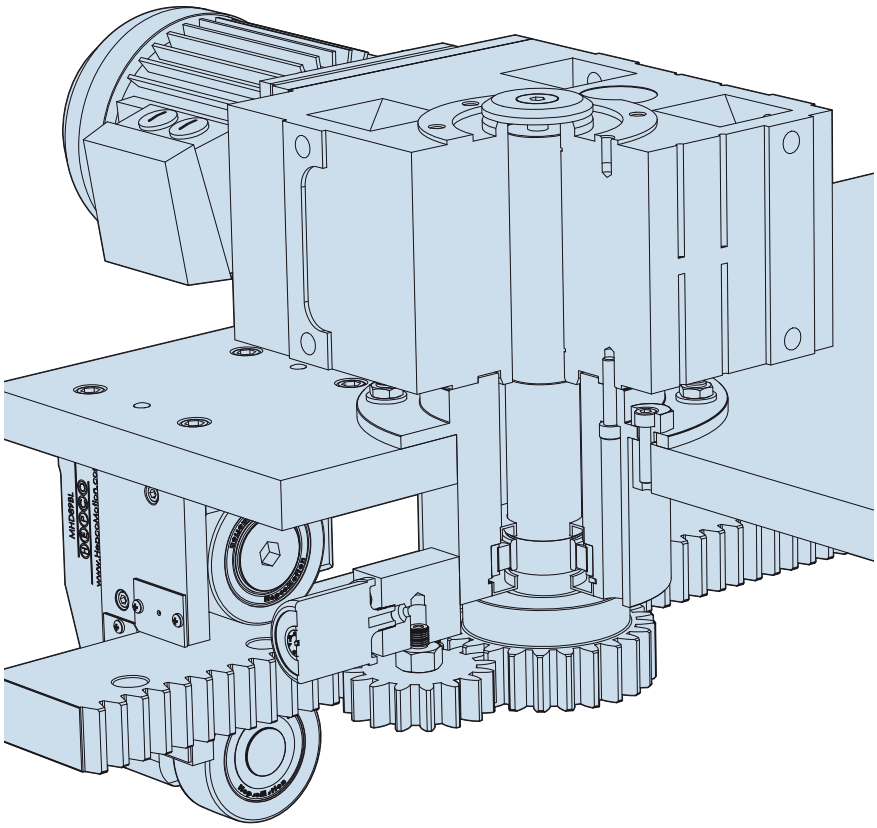

Figure 10

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