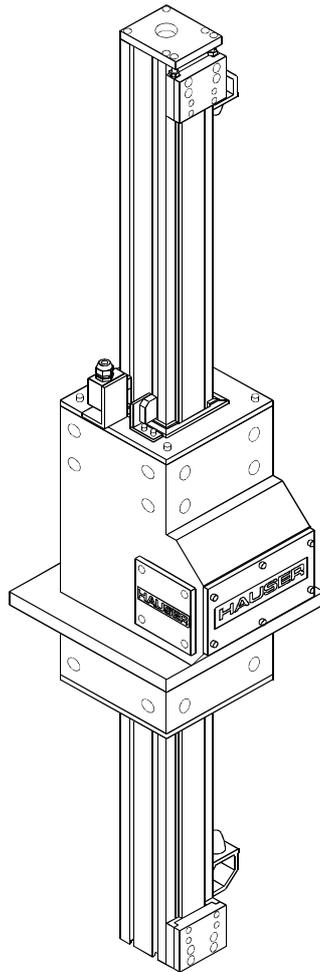


HZR - Projecting Part III

Start-up, Maintenance and Repairs



2. Editon

HAUSER
We automate motion



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6.0 Start-up

The HZR is delivered fully installed and ready for operation.

If no HAUSER-engine is intended to use, you are to fasten the combined engine / mechanism to the relevant manufacturer's instructions.

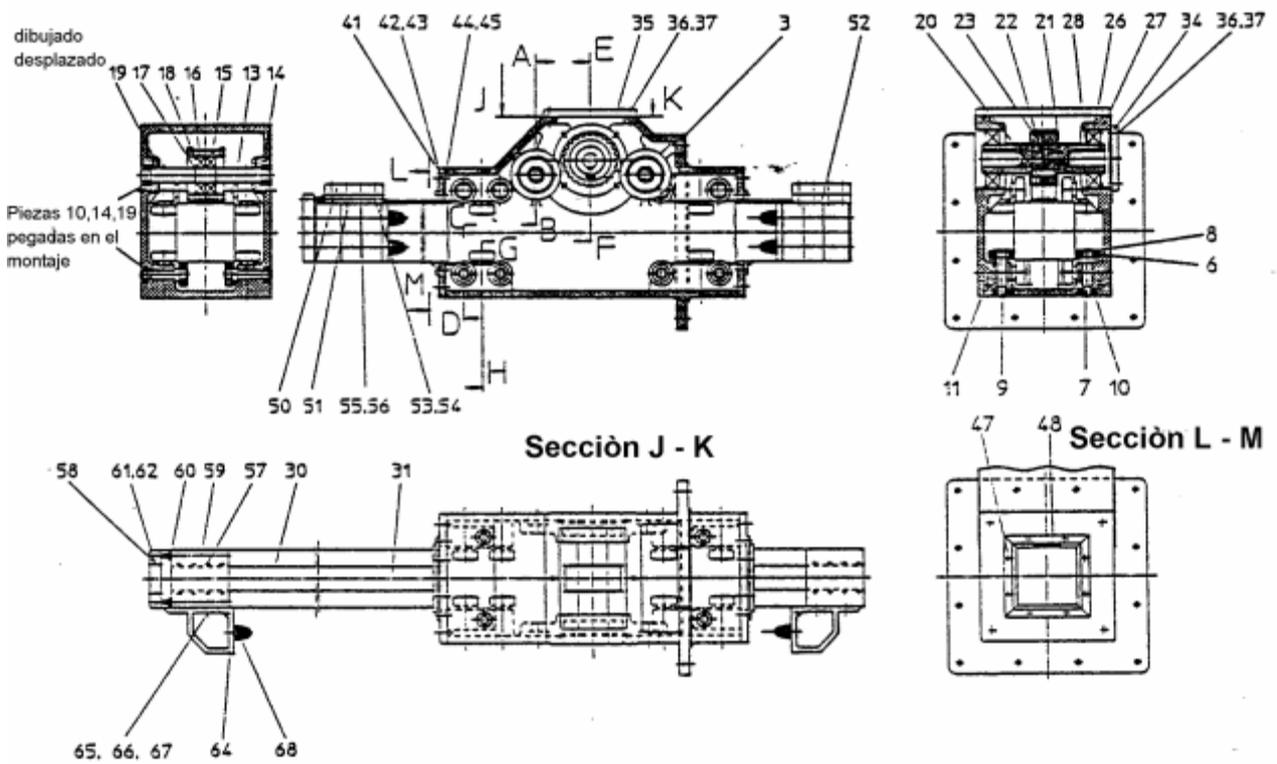
If not otherwise projected, the HZR is usually installed in vertical position,.

Should you realise on putting into operation that the travelling path arranged is too wide you may adjust the path following the steps shown in chapter 7.3.4, Maintenance and Repairs.

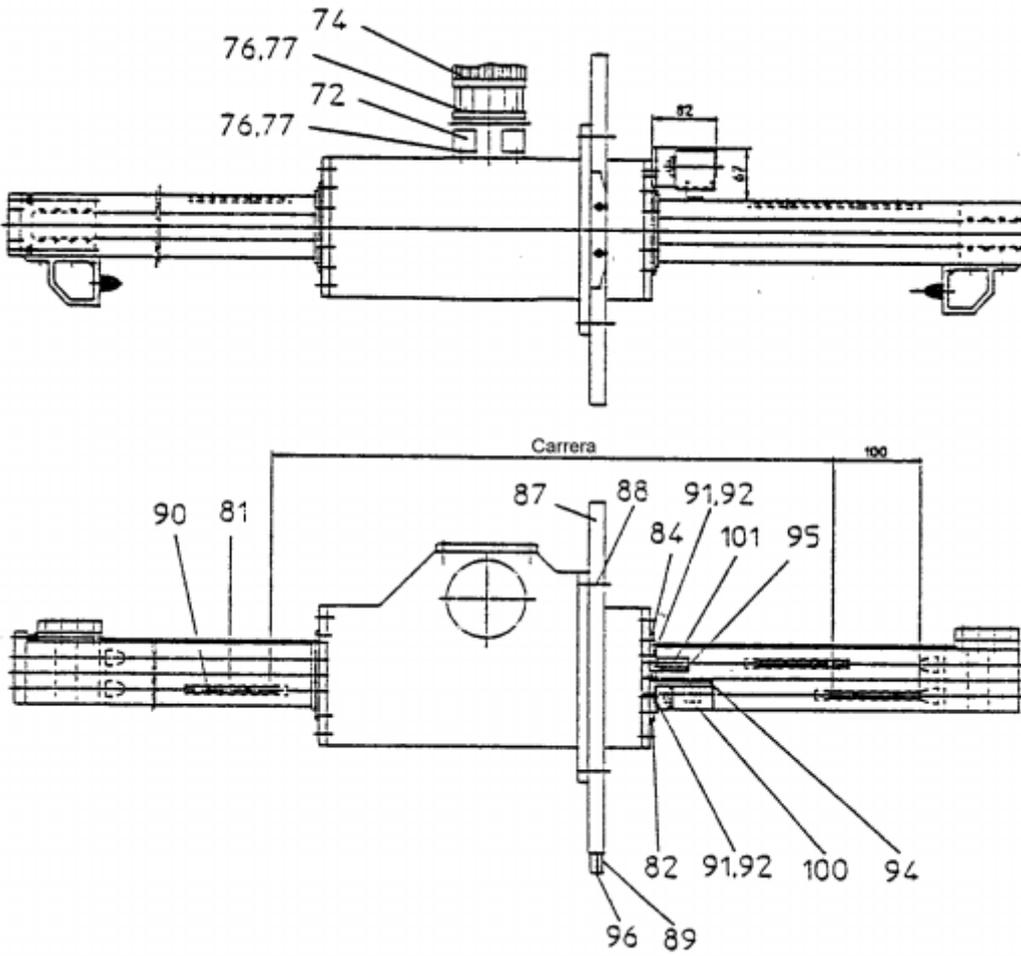
7.0 Maintenance and Repairs

7.1 Sectional view

7.1.1 Components



7.1.2 Accessories



7.2 Maintenance

We recommend:

Please check the backlash of the cursor, the pretension and the wear of the cogged V-belt after the first week as well as every 6 months.

1. Backlash of cursor:

On applying various pressures (shaking by hand) on pos. 30 of the sectional view, running loose (vibrating) should not be stated.

In case of vibrating: -> Adjusting the cursor, chapter 7.3.2.4

2. Pretension of V-belt:

Check the pretension by lifting the belt. It should not be possible to lift the belt off the section without aid.

In that case: -> Tensioning of V-belt, chapter 7.3.1.2

3. Wear of V-belt:

Check the wear of the belt by visual inspection. If there are any signs of abrasion -> wear.

In case of wear: -> Replacing the V-belt, chapter 7.3.1.4

7.3 Repairs

7.3.1 V-belt

7.3.1.1 Miscellaneous

1. New V-belts are to be unpacked at once. They are to be stored in a dry place at room temperature.
2. Do not bend the belts.
3. Pitching of belt and synchronous disks have to match.
4. Continuous operational temperatures of maximum 80° C are permitted. A short-term increase of temperature up to 120° C can be tolerated.
5. The drives are to be protected against dust, dirt, hot water, and steam as well as acids and lyes.
6. Pretension is to be brought in line with the operational load. It must not however surpass half the maximum tensile force.
(see also table 12).

7.3.1.2 Tightening

Important:

It means a considerable difference to the achieved pretension if the axis is adjusted unloaded (separate, in horizontal position) or loaded (built-in) All values given in the table refer to the unloaded condition. Deviating from these is only permitted on prior consulting of HAUSER.

1. Loosen the lock-nut pos. 60
2. Loosen belt clamping / tensioning component Pos. 50. Loosen locating screws pos. 53.
3. Tighten clamp bolts according to torque Ma (see table 12)
4. Tighten locating screws pos. 53
5. Tighten the lock-nut pos. 60.

Table 25: Torque Ma for correct pretension of the cogged belt of the HZR standard axis

HZR-Type	$\frac{F_v}{N}$	$\frac{M_a}{Nm}$
80	1000	0,67
100	1500	1,2

7.3.1.3 Positioning

Observing the torques, no further measures in view of positioning the cogged belt are required.

In case the belt runs sideways into the wipers (pos. 48) during continuous operation, the following details are to be checked:

1. Pretension of the loaded belt.
2. Quality and condition of the tail pulleys pos. 15,
(for this, remove the cover pos. 35 loosening the screws pos. 36)
in case the board is damaged -> inform HAUSER.

7.3.1.4 Replacing

1. Remove clamp bolts pos. 59 from clamping pos. 50/51 on having loosened the lock-nut pos. 60.
2. Loosen and remove clamping screws pos. 56 at pos. 50/51 and pos. 50/52.
3. Remove locating screws pos. 53 at pos. 50/51 and pos. 50/52.
4. Remove belt from clamping pos. 50/51 and Pos. 50/52.
5. Remove wiper pos. 48 from profile by loosening the clamping screws pos. 44.
6. Remove cover pos. 35 on having loosened clamping screws pos. 36.
7. Carefully put in the new belt (belt length see corresponding parts list) to the casing with help of the old belt and adhesive tape coupling, if necessary, support the setting up through the service opening (pos. 35).
8. Put in the belt to the clamping pos. 50/51 and pos. 50/52 (edge level) and fix it with locating screws pos. 53.
9. Fasten clamping pos. 50/52 on-centre to the profile and level to profile end by clamping screws pos. 55.
10. Fasten the clamping pos. 51/52 on-centre to the profile by clamping screws pos. 55.
11. Screw clamp bolts pos. 59 into clamping pos. 51/52 and tighten the belt according to chapter 7.3.1.2.
12. Put the wiper pos. 48 on the profile and clamp it on with clamping screws pos. 44.

7.3.2 Cursor / guideway

7.3.2.1 General Remarks

The HAUSER HZR axes are designed as follow drives, i.e. the guideway of the axes are integrated in the casing of the drive.

For replacing of the cursor, we recommend to remove the axis from your system and to secure the guide casing horizontally by an appropriate device (vice).

7.3.2.2 Removing

1. Loosen lock-nut pos. 60
2. Completely remove clamp bolts pos. 59
3. Discharge clamping pos. 50/51 and 50/52 from profile by removing clamping screws pos. 55 and remove the affiliated groove stones from the profile.
4. Dismantle clamping pos. 50/51 and 50/52 by removing the locating screws pos. 53.
5. Dismantle cover plate pos. 58 by loosening screws pos. 62.
6. Possibly provide for markings of fixed stops pos. 64, from the outer edge of the profile, on the new cursor profile.
7. Remove fixed stops pos. 64 from profile by loosening the clamping screws pos. 65.
8. Push the wipers pos. 47/48 aside from the profile by loosening the clamping screws pos. 44.
9. Carefully take off the cover plate pos. 41 over the profile on having removed the clamping screws pos. 42.
10. Pull the profile out of the casing.

7.3.2.3 Fitting

1. Introduce the profile in the casing.
2. Check the backlash of the cursor. If necessary, adjust it following chapter 7.3.2.4.
3. Put the cover plate pos. 41 carefully on across the profile ends and fasten it with the clamping screws pos. 42 at the casing.
4. Put the wipers pos. 47/48 on the cursor profile applying light pressure and fasten them with the clamping screws pos. 44.
5. Insert the groove stones pos. 57 required for fastening the clamping.

Important:

Use the grooves lateral to the belt.

6. Mount the fixed stops pos. 64 to the profile, position them according to the dimensioned sheet H4ZR8010/H4ZR1002 or respectively to your own specifications and fasten them by tightening the clamping screws pos. 65.
7. Fasten the cover plate pos. 58 at the front side of the cursor with screws pos. 62.
8. Fasten the clamping pos. 50/52 at the cursor profile with locating screws pos. 53.
9. Fix the clamping pos. 50/51 at the cursor profile slightly with the locating screws pos. 53.
10. Screw clamp bolts pos. 59 and tighten the belt according to chapter 7.3.1.2.
11. Fasten the clamping pos. 50/51 with the locating screws pos. 53.

7.3.2.4 Adjusting

The HZR is usually equipped with 6 fixed pulleys and 18/22 (HZR80/HZR100) eccentrics. This ensures that all guide rolls transport / run.

1. For easier working, remove the engine combined with the mechanism pos. 72/74 by loosening the clamping screws pos. 76.

Important:

In case the servo shaft has already been in use, it is recommended to reset the shaft to the start position and to mark this position on the cursor profile prior to proceeding.

With this, checking of the start position required for your programme becomes easy before restarting operations.

2. Dismantle cover plate pos. 41 from casing by removing the screws pos. 42 and carefully shift it over the cursor profile as far as it will go.
3. Loosen the slotted-head nuts pos. 10 (special tools required, see also chapter 7.4)
4. Adjust pulley by turning the eccentric stud pos. 7 so that it runs with only slight pressing.

Important:

Only slight pressing of the pulleys is permitted as otherwise marks develop needlessly which increase an uneven running of the cursor profile.

5. Re-tighten the slotted-head nuts pos. 10 keeping hold of the eccentric stud pos. 7.
6. Proceed repeating 4, 5 until all pulleys are running.
7. Return the cover plate pos. 41 to the casing and fasten it with screws pos. 42.

Important:

Take care that the wipers are evenly used.

7.3.3 Pulleys

7.3.3.1 General Remarks

1. The pulleys of the HAUSER linear unit are ball-bearing pulleys with reamless plastic coating.
2. The plastic coating of polyamide (PA 6) allows high specific surface pressing and offers sufficient abrasion resistance.
3. With prolonged standstills, the pulleys may flatten out a little which recovers completely.
4. The ball-bearings used comply with common standards for antifriction bearings and are self-lubricating. Z-type seals are generally used as seals.
5. The pulleys are allowed for an ambient temperature of -40° to 80° .
6. With an increased ambient temperature as well as an increased air humidity, the allowed loads are to be reduced and/or even other material is to be used.
7. With increased air humidity, rust-resistant bearings are to be used due to possible corrosion.

Important:

Replacing of pulleys should be carried out only by HAUSER staff, wherever possible. For any questions and problems concerning cursor please refer to chapter 7.3.2.

7.3.3.2 Exchanging fixed pulleys

1. Remove the cursor according to chapter 7.3.2.1
2. Remove the retaining ring pos. 8.
3. Replace pulley.
4. Re-mount the retaining ring pos. 8.
5. Re-mount cursor according to chapter 7.3.2.2.
6. Adjust the cursor according to chapter 7.3.2.3.

7.3.3.3 Replacing eccentrics

1. Remove the cursor according to chapter 7.3.2.1
2. Remove the retaining ring pos. 8.
3. Replace eccentric.
4. Re-mount the retaining ring pos. 8.
5. Loosen the slotted-head nut pos. 10 (special tools required, see also chapter 7.4).
6. Re-mount cursor according to chapter 7.3.2.2.
7. Adjust cursor according to chapter 7.3.2.3.

7.3.4 Travelling path

7.3.4.1 General Remarks

A safety path of each 100 mm above and below the HZR shafts is common standard.

The width of the path usually depends on load, travelling speed, and composition of the installed engine and mechanism.

Dimensioning of the safety path has to ensure that the cursor under load runs into the buffer with zero kinetic energy.

7.3.4.2 Adjusting the travelling path

1. Loosen the clamping screws pos. 90.
2. Move the cam pos. 81 as needed.
3. Tighten the clamping screws pos. 90.
4. Loosen the nuts pos. 67.
5. Move the terminal stop pos. 64 as needed.

Important:

On moving the lower terminal stop, the cam of the start position has to be adjusted.

(clear definition of the travelling path.)

7.4 HZR components subject to wear

7.4.1 HZR80

Table 23: HZR80 components subject to wear

Pos.	Pieces	Description	Order no.	Unit
31	1	Timing belt 32AT10	420-000030	m ¹⁾
6	24	Roller wheels R4OL0027	416-201030	Pcs.
15	2	Return wheel R4OL0058	125-068260	Pcs.
-	1	Special tool for pos. 10	125-068095	Pcs.
-	1	Special tool for pos. 14	125-068096	Pcs.

7.4.2 HZR100

Table 24: HZR100 components subject to wear

Pos.	Pieces	Description	Order no.	Unit
31	1	Timing belt 50AT10	420-000040	m ²⁾
6	32	Roller wheels R4OL0025	416-201020	Pcs.
15	2	Return wheel R4OL0061	125-068540	Pcs.
-	1	Special tool for pos. 10	125-068095	Pcs.
-	1	Special tool for pos. 14	125-068096	Pcs.

1) Depending on application, general: $l_{\text{belt}} = l_{\text{inner profile}} + 100\text{mm}$

2) Depending on application, general: $l_{\text{belt}} = l_{\text{inner profile}} + 100\text{mm}$