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Mounting and Maintenance Instructions

Series DQ

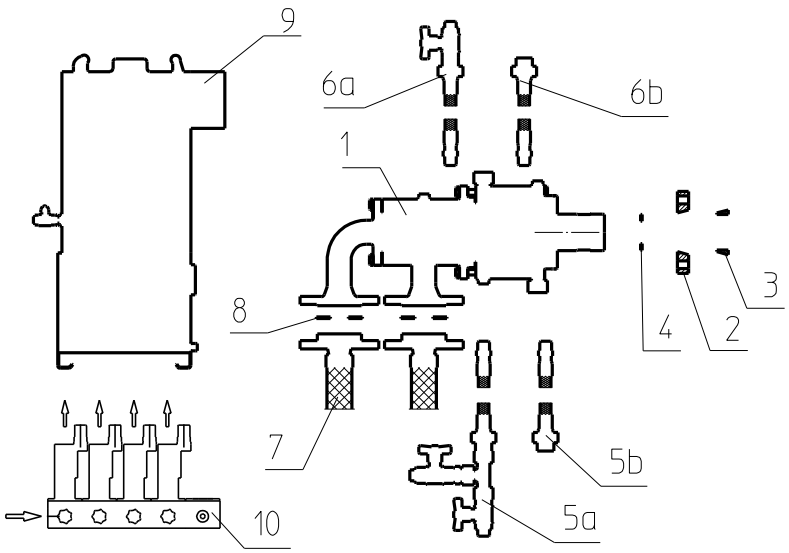
1 Safety information for rotary joints

- **Mount protective cover over rotary joint to avoid contact with, burns by or escaping of thermal oil.**
- **Operate rotary joints only with sufficient torque supports. We recommend that the anti-rotation fork is electrically monitored and linked to the emergency shut down system to reduce damage to the bearings. In addition we recommend to provide** our sensor plug S **with a vibration pickup in order to monitor status and condition of the bearings**. Further information see paragraph 8.
- Use only **flexible hose connections!**
- Use only clean thermal oil and cooling oil. **Install a filter in the thermal oil circuit with a mesh size of 0.25 mm maximum.**
- **Do not operate DQ, DQT and DQTX rotary joints without properly maintained cooling unit.**
- **DQL rotary joints do not require a cooling unit. Observe notes on relubrication** according to paragraph 9!
- **When DQ rotary joints are put out of operation for a longer period the bearings have to be protected against corrosion** with suitable means. We recommend to fill the bearing chamber completely with clean oil (e.g. thermal oil or anti-corrosion oil) via the cooling oil connections.
- **The service life of counter-rotating parts is limited. Therefore, exchange seals and bearings after 24 months usage!**

2 Check list for preparing assembly

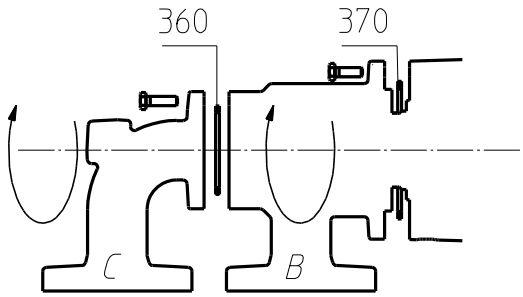
1	Series DQ rotary joint
2	K flange KF...
3	Inner ring IR...
4 [1)]	Gasket K...
5a/5b [2)]	Screw connection for supply flow / hose may also be used
6a/6b [2)]	Screw connection for return flow / hose may also be used
7	Metal hose E...CC
8	Gasket...
9 [2)]	Cooling unit KE ...
10 [2)]	Cooling oil distributor

1) Other sealing element may be used, depending on roll construction.
2) Not required for DQL!



3 Thermal oil connections

- **Connections B and C can be rotated through 45° increments.**
- **The housing parts should be handled as illustrated.** Be careful not to damage the flat packings 360 and 370!



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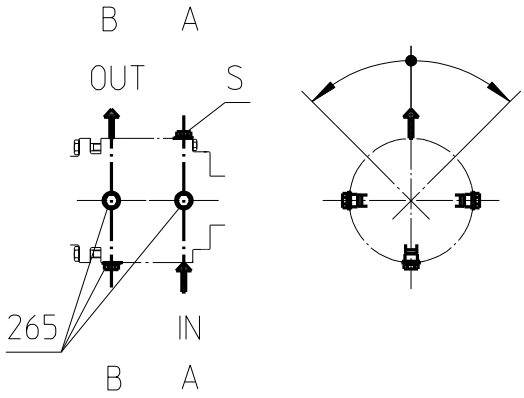
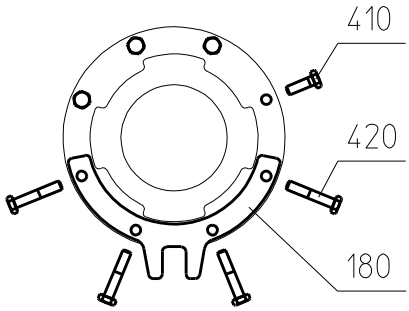
4 Cooling oil connections (not for DQL)

- Oil entry **IN** at **level A-A can be in any position.**
- Oil exit **OUT** at **level B-B must** always be at the **highest point**! **Otherwise bleeding of system is required on every system start up!**
- Change oil exit **OUT**, if necessary: Plug 265 can be repositioned in 90° increments; this is sufficient protection against trapped air - even if the rotary joint is in intermediate positions.
- **When monitoring the bearings with vibration pickups (see also paragraph 8): sensor plug S,** with M6x1 threaded pocket hole for receiving a vibration sensor, can be exchanged for any other plug 265 on level A-A or B-B according to requirement.



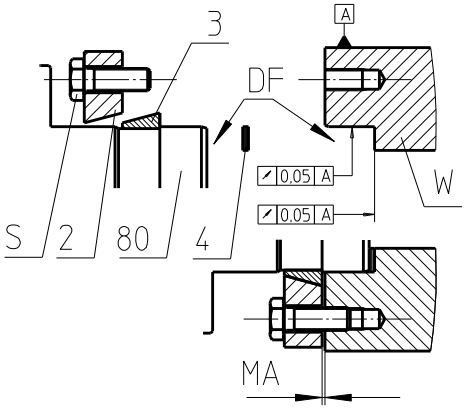
5 Anti-rotation Fork

- **Torque support** for the rotary joint is supplied by this fork position 180. Adjustments **can be made in 8 x 45° increments.**
- Disassemble and reposition screws **410** and **420** as shown.
- **Make sure that the housing parts are always secured by at least two screws**. Warning: spring under load. Also possibility of damaging gasket!



6 Mounting rotary joint to roller

- **Rotary joint with internal pipe:** Place or screw internal pipe into the rotary joint (depending on version).
- **For smooth operation of rotary joint ensure concentricity and minimum run-out tolerance of roller!**
- Clean surfaces **DF**, apply mounting paste and place flat gasket **4** into roller **W**.
  Recommended material: pure graphite with metal insert gasket.
- Mount K flange **2** with screws **S** over rotor **80** and place inner ring **3** into rotor groove.
- **Place rotary joint into roller - loosely engage screws** with K flange into roller. **Do not tighten yet!**
- **Minimum distance MA = 1 mm - otherwise, leakage will occur at flat gasket 4.**



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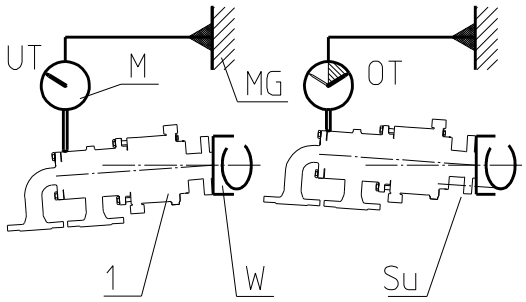
7 Rotary joint alignment

- **Place dial gauge M** to machine frame MG **in a suitable position to measure rotor alignment.**
- **Rotate roller W** until the dial gauge is at the bottom dead centre UT. Mark the pointer position.
- Rotate roller until you reach the upper dead centre OT.
- **Tighten the bottom screws Su** until the dial gauge is in the centre position.
- Repeat **alignment procedure until** the concentricity lies within the limits of the following table:



	n (Upm / rpm)		
DN	≤ 100	≤ 400	> 400
25-50	± 0,25 mm		
65-150		± 0,1 mm	

8 Connection and start-up of the rotary joint

- **Use flexible connections** for both thermal oil and cooling oil connections. Metal hoses must be used between supply flow and rotary joint housing in order to compensate for thermal expansion and vibrations. Never apply torsion, tensile or pressure loads to metal hoses. Observe the minimum bending radius quoted by the manufacturer.
- **Always secure the rotary housing against rotating**. The support element must allow for axial and radial movement of the housing. We recommend to provide a torque monitoring device with connection to the emergency-off chain in order to prevent further damages in case of bearing failure.
- **Additional safety devices:** if the torque monitoring device responds we recommend according to stop the rotation of the roller immediately and to isolate the thermal oil connections in front of the metal hoses by means of quick-action stop valves.
- **When monitoring the bearings via vibration pickups:** monitoring by suitable pickup device (e.g. by FAG or SKF). Installation of the pickup at sensor plug S with inside thread M6x1.
- **For DQ, DQT and DQTX (not for DQL):** cooling oil connection and installation of cooling oil circuit to mounting instructions of the cooling unit. **The rotary joint must not be operated without cooling device!**
- **Do not exceed application data** for rotary joints as per our catalogue! **It is not admissible to let the rotary joint run dry** – exception during test run for a max. period of 15 minutes at very low speed. **Filter** thermal oil as the lifetime of a seal depends on the absence of solid matter.

9 Maintenance

- **DQ, DQT and DQTX rotary joints** are **maintenance-free if the cooling unit operates properly.** If failure occurs overhaul cooling unit as described in the maintenance instructions.
- **The bearings of DQL rotary joints** are filled **with high-quality grease. Grease only** with Lubricant Consult grease **Lubcon TURMO TEMP LP 5002**. Contact manufacturer if you want to use other grease brands! (Tel.: ++49-6109-76500)!
- **Lubrication intervals :** temperatures of

up to 150 °C	**every six months**
150 °C to 200 °C	**every 8 weeks**
higher than 200°C	**every 4 weeks**

- Relubrication Quantities:

Nominal diameter (DN)	25	32	40	50	65	80	100	125	150
Lubrication quantity in full strokes (grease gun DIN 1283 -1,2 cm^3 / full stroke)	9	9	13	8	13	16	20	30	75

10 Customer service

- Maier rotary joints can be **repaired** by experienced mechanics. Repair according to separate instruction or send rotary joint back to manufacturer. Use only genuine Maier spare parts.

- We reserve the right to technical modifications -

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