HALFEN LIFTING AND TURNING CLUTCH
Inspection and Assembly Instructions

Assembly, inspection and maintenance of the lifting and turning clutch

Application of the turning and lifting clutch to manufacture pipes of all sizes.

The turning and lifting clutch is reliable and safe.

The turning and lifting clutch is also used in the production of rectangular shafts.

Regular inspection of the turning and lifting clutch

The contractor has to ensure that the turning and lifting clutch is inspected regularly for damage and wear by a qualified expert.
An inspection report must be kept.

In addition to the checks described in point 1 to 5 (see page 4) the clutch should be disassembled intermittently and the parts checked for signs of damage and wear.

Usually this happens when unusual damage has been noticed during a routine visual inspection of the turning and lifting clutch or when the cable needs to be replaced due to damage. The disassembly procedure and inspection of the turning and lifting clutch is described on page 4 and 5.

Maintenance and inspection of the turning and lifting link

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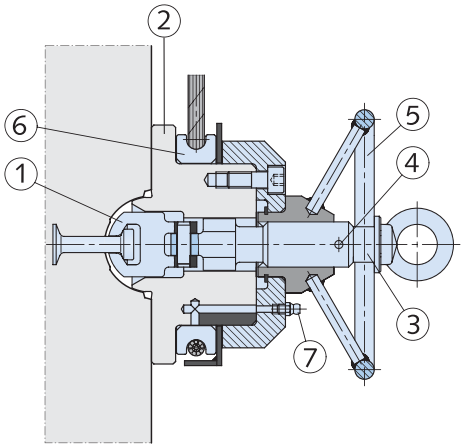
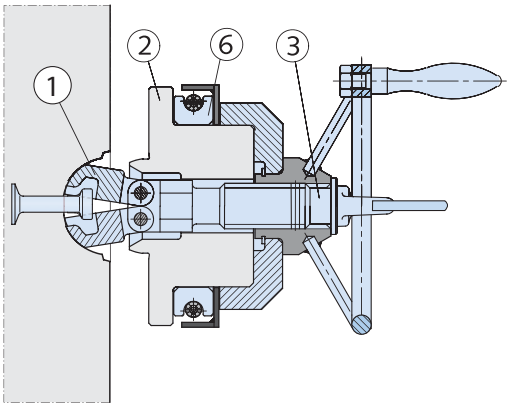


① 2-part anchor link
② Pressure plate with bearing
③ Mandrel
④ Monitor hole
⑤ Hand wheel
⑥ Cable guide
⑦ Grease-nipple

Open



The turning and lifting link must be stored in a clean and dry environment.

Do not store in the open without sufficient protection.

1. Checking the cables

Observe the regulations in DIN 3088 to determine discard periods for lifting cables.

The cables must be discarded if the following number of broken wires are visible:

- 4 broken wires in a cable length of 3 times the rope diameter
  or
- 6 broken wires in a cable length of 6 times the rope diameter
  or
- 16 broken wires in a cable length of 30 times the rope diameter

Cables must not be used with the following defects:

- breakage in a loop
- compressive deformation
- kinking
- bird-caging
- damage to the cable end connections
- especially heavy wear
- signs of corrosion
- or other obvious serious damage

Use brushes and penetrating oil to clean and check the loop. This check should also include the cable end clamped in the ferrule. Avoid contact with aggressive substances that can cause corrosion; acids, alkalis and similar.

A written detailed record must be kept that these inspections have been regularly carried out.
See page 6 for order numbers for new cables.

2. Visual checking

Check the condition of the turning and lifting link. The hand wheel and the cable guide may be slightly deformed, but must be correctly installed in order to use the lifting link. It is only permitted to open and close the turning and lifting link by hand (no tools are to be used). Ensure the cable moves freely and is not trapped or hindered by the cable cover.

3. Checking the mandrel movement

The mandrel must open and close smoothly without using tools. The mandrel is not to be forced beyond its designed stopping points.

4. Grease nippel

The turning and lifting link must be regularly greased to ensure the clutch moves freely. Use a suitable cup-grease applied via the grease-nipple. A damaged or missing grease-nipple must be replaced. The grease-nipple is a standard available item.

Finally, always ensure the Allen- bolts in the cap have all been sufficiently tightened.

Maintenance and inspection of the turning and lifting link

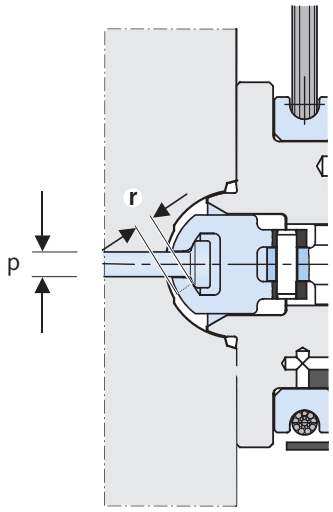
5. Anchor clutch

The anchor clutch must be checked for wear. Refer to table 1 for wear limits.

Table 1

Clutch wear-limits			
Load class	p [mm] max.	q [mm] min.	r [mm] min.
1.3	11.5	17.5	4.5
2.5	16.5	24.0	7.2
5.0	23.0	34.5	9.0
10.0	31.0	44.4	11.8
20.0	43.0	67.0	18.5
32.0	54.0	85.5	23.8

Closed



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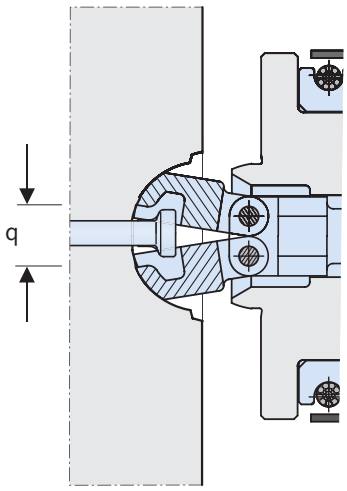


6. Replacing damaged components

Damaged components must be replaced if there is considerate damage visible when inspecting the turning and lifting clutch. The following replacement parts for the turning and lifting clutch can be ordered from HALFEN (see illustration below).

To facilitate replacement, the sets listed on page 6 can be ordered.

A maintenance report documenting any set replacement must be kept.

Please note!

Only use original HALFEN replacement parts.
Only original replacement parts are manufactured in safety and wear resistant especially hardened steel.

Parts of the turning and lifting link

SET 1
Mandrel with two-part anchor clutch

SET 2
Pressure plate with bearing ring

SET 3
Cable guide

SET 4
Cable cover

SET 5
Cap including bolts
(does not include a grease nipple; standard available part)

SET 6
Handwheel

SET 7
Ring-bolt with washer

Disassembly and inspection of the turning and lifting link

The turning and lifting clutch is disassembled if considerable damage to the cable makes this necessary or if there are visible signs of significant damage.

The following tools and materials are needed to disassemble and reassemble the clutch:

- Allen key
- Circlip pliers
- Grease, grease-gun
- Cleaning cloths

Remove all grease and other dirt from all parts of the clutch. Avoid contact with aggressive substances that can cause corrosion; acids, alkalis and similar.

Step 1
Unscrew the ring-bolt and remove the washer.

Check the condition and the function of the thread; the bolt should turn smoothly.

Set 7

Step 2

The spindel is removed by hand; do not use any tools.

Check the condition and the function of the thread; the bolt should turn smoothly. Check the tolerances according to table 1.

Set 1

The entire set 1 must be replaced if the thread does not run smooth or the bolt is damaged or deformed.

Step 3
Unscrew the bolts, 3 or 4 bolts depending on the load class of the link, (see table) using a hex-key (Allen key®).

Step 4
Remove the circlip; Detach the hand-wheel from the cap.

Step 5.1
Visual inspection of the cap; including the bolts.

Set 5

Step 5.2

Visual inspection of the handwheel and the circlip.

Set 6

Step 5.3
Each individual part of the clutch must be checked as follows:

Visual inspection; the cable cover needs to be replaced if there are signs of deformation or other damage.

Set 4

Step 5.4
The surface in the cable guide must be checked.

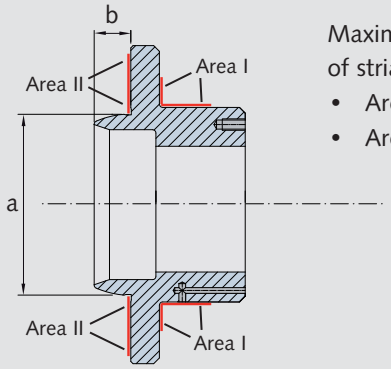
There should be no visible scoring or striations in the cable-guide. Any scoring in all other surfaces should be less than 0.5 mm.

Set 2

Step 5.5
Visual inspection of the pressure plate. The wear on the plate has to be checked.

Control values according to table 2

Set 3



Maximum width of striations in
- Area I ≤ 0.5 mm
- Area II ≤ 1.5 mm

Table 2

Minimum values		
Load class	**min. a**	**min. b**
1.3	58.5	11.5
2.5	72.5	14
5	92.5	17
10	116	19
20	157	31
32	210.5	40.5

See tables on page 6 if damage is found that require components to be replaced.

Reassembly of the the turning and lifting link

Observe the following points when reassembling:

1. If any damage is found, the relevant components must be replaced.
2. Check all parts of the clutch are clean before reassembling.
3. To reassemble the clutch, follow the instructions for disassembly in the reverse order.
4. The safety checked steel cable is placed between set 3 and set 4 and must move freely after assembly. Make sure the steel cable is not trapped.
5. Tighten all bolts by hand using a hex-key (Allen key®).
6. After being successfully reassembled, the turning and lifting link needs to be lubricated with fresh grease applied with a grease-gun to the grease nipple.
7. All maintenance and repairs must be documented.

Replacement parts – Turning and lifting clutch

Set 1 Mandrel

Load class	Article name		Order no. 0738.140-
1.3	6116-Mandrel-	1.3	00001
2.5		2.5	00002
5.0		5.0	00003
10.0		10.0	00004
20.0		20.0	00005
32.0		32.0	00006

Set 2 Pressure plate

Load class	Article name		Order no. 0738.160-
1.3	6116-Pressure plate-	1.3	00001
2.5		2.5	00002
5.0		5.0	00003
10.0		10.0	00004
20.0		20.0	00005
32.0		32.0	00006

Set 3 Cable guide

Load class	Article name		Order no. 0738.170-
1.3	6116-Cable guide-	1.3	00001
2.5		2.5	00002
5.0		5.0	00003
10.0		10.0	00004
20.0		20.0	00005
32.0		32.0	00006

Set 4 Cable cover

Load class	Article name		Order no. 0738.180-
1.3	6116-Cable cover-	1.3	00001
2.5		2.5	00002
5.0		5.0	00003
10.0		10.0	00004
20.0		20.0	00005
32.0		32.0	00006

Cable — order numbers

Load class	Cable Ø	Order no. 0568.129-	
1.3	10	00001	Cable length according to customer's specifications
2.5	14		
5.0	18		
10.0	26		
20.0	34		
32.0	42		

Please state orientation of the thimble and ferrule

Set 1

Set 2

Set 3

Set 4

Set 5

Set 6

Set 7

Steel cable

Set 5 Cap including bolts

Load class	Article name		Order no. 0738.190-
1.3	6116-Cap-	1.3	00001*
2.5		2.5	00002*
5.0		5.0	00003**
10.0		10.0	00004**
20.0		20.0	00005**
32.0		32.0	00006**

*incl. 3 bolts ** incl. 4 bolts

Set 6 Handwheel

Load class	Article name		Order no. 0738.150-
1.3	6116-Handwheel-	2.5	00001
2.5			
5.0		10.0	00002
10.0			
20.0		32.0	00003
32.0			

Set 7 Ring-bolt with washer

Load class	Article name		Order no. 0738.200-
1.3	6116-Bolt-	2.5	00001
2.5			
5.0		10.0	00002
10.0			
20.0		32.0	00003
32.0			

Ordering example: for set 7 ring-bolt with washer, load class 10.0

A grease nipple is not available as a replacement part.
A standard available grease nipple can be used.

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