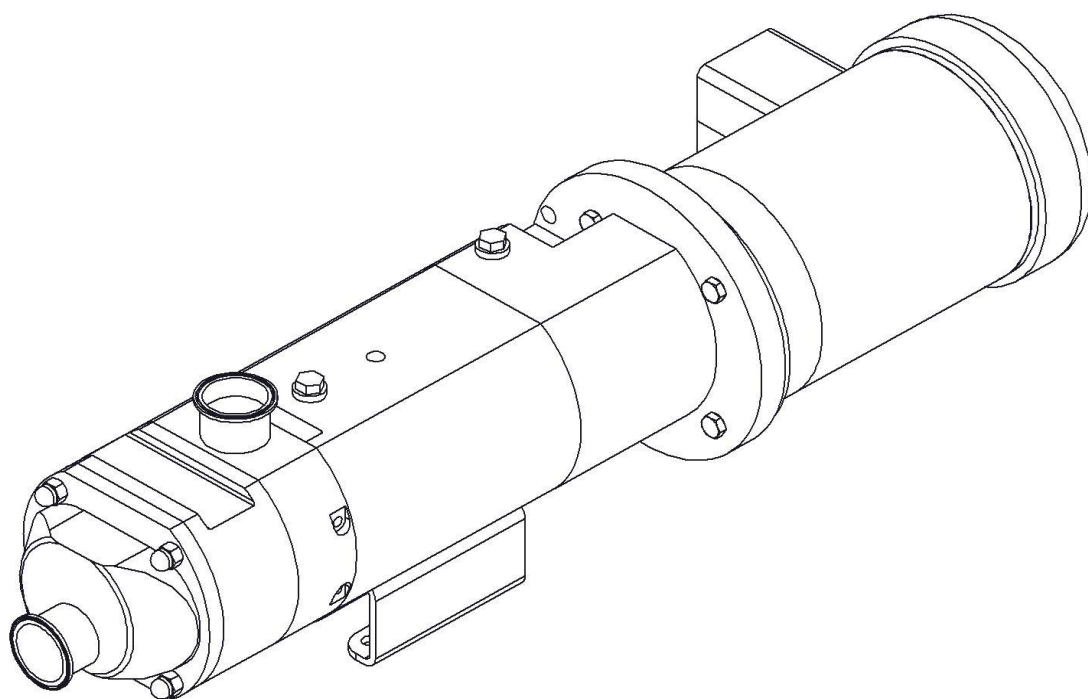


# Disassembly and assembly instructions



## Screw Spindle Pump Block Design



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## 1 General information

These instructions are designed to be used in conjunction with the sectional drawing.

For reasons of economy and operational safety the following parts should not be reused:

- Flat gaskets (item 128)
- O-rings (at the mechanical seal)
- Form rings (items 103, 126 and the mechanical seal)
- Radial shaft seals (item 106)
- Locking washers (item 109)
- Spring washers (items 113 and 114)

The materials and product compatibility of all ancillary products used (lubricants, cleaning agents, adhesives and securing devices) must be checked before use.

## 2 Removal of the pump from the unit

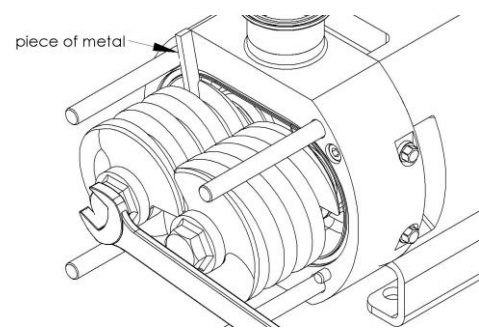
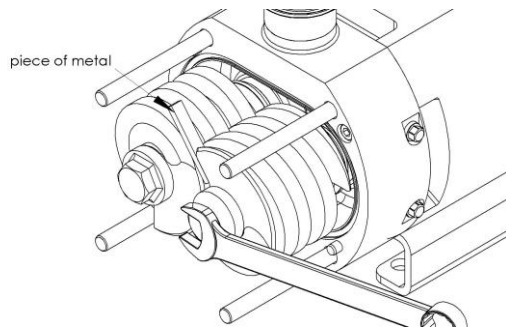
Switch off unit and make sure it cannot be switched on again.

***Important: Make sure you read the Safety Section in the Operating Instructions!***

- Remove piping on the discharge and intake sides
- Remove the coupling protection
- Undo the pump-side coupling half from the drive shaft and pull the coupling apart
- Fix pump to crane with eye bolt or secure with crane harness
- Undo pump foot from baseplate. Caution – risk of tipping over!
- Lift pump and put down on a suitable support
- Remove lifting jack

## 3 Disassembling the feed screws and mechanical seals

- Remove cap nuts (item 100) and cover (item 1) and pump casing (item 2)
- Remove casing form rings (item 103)
- Block feed screws with the aid of a piece of soft metal (aluminium)



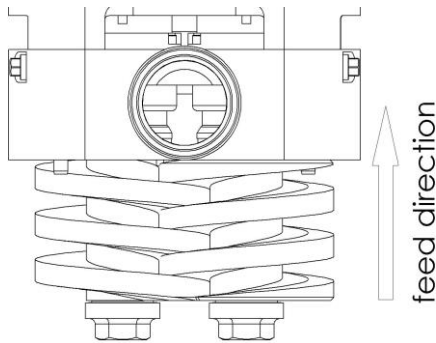
- Undo clamping nuts (item 18) by turning counter-clockwise
- Remove bottom stud bolts (item 9)
- Mark teeth position of feed screw towards shaft
- Remove pair of feed screws (item 6)
- Remove rotating units of the mechanical seals
- Remove cylindrical screws (item 102)
- Remove intermediate flange (item 3)
- Remove top stud bolts (item 9)
- In the case of double-acting mechanical seals (item 104), remove rotating seal rings from the shafts
- Remove cylindrical screws for mechanical seals at the intermediate flange (item 3)
- Remove mechanical seals (item 104) from the intermediate flange (item 3). If necessary, use set/jacking screws

## 4 Assembling the feed screws and mechanical seals

***For tightening torques, see table.***

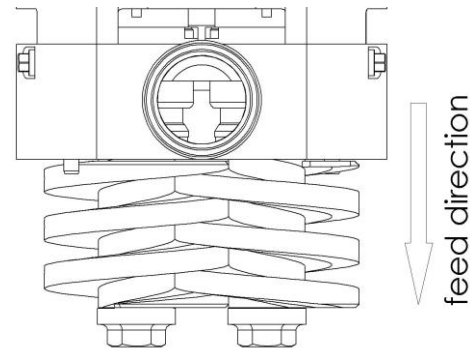
- Check sliding surfaces of the mechanical seals for score marks and cracks
- Insert mechanical seals (item 104) in the intermediate flange (item 3)
- Screw mechanical seals to intermediate flange (item 3) with cylindrical screws
- In the case of double-acting mechanical seals (item 104), mount rotating seal rings on the shafts
- Screw in 2 stud bolts (item 9) for guidance of the intermediate flange (do not insert completely)
- Fit casing form ring (item 103)
- Mount intermediate flange (item 3)

- Remove stud bolts again (item 9)
- Mount rotating units of the mechanical seals
- Position feed screws on a level surface so that they intermesh and rotate them against each other until both faces lie completely on the surface



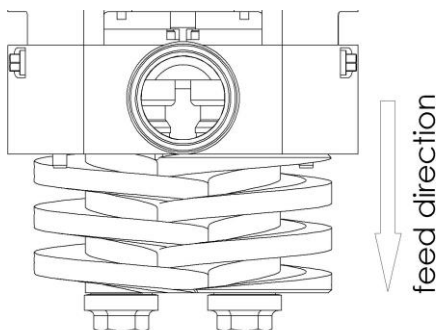
Type NR

Feed screws with rightward rotation with mechanical seal on the discharge side, "VS" on bottom of the pump casing



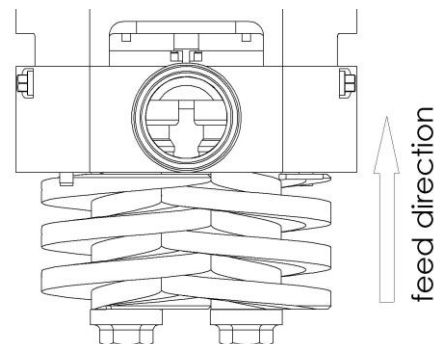
Type SR

Feed screws with rightward rotation with mechanical seal on the intake side, "VS" on bottom of the pump casing



Type SL

Feed screws with leftward rotation with mechanical seal on the intake side, "VS" on top of the pump casing



Type NL (standard)

Feed screws with leftward rotation with mechanical seal on the discharge side, "VS" on top of the pump casing

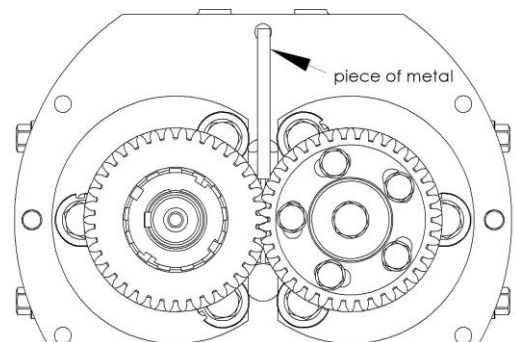
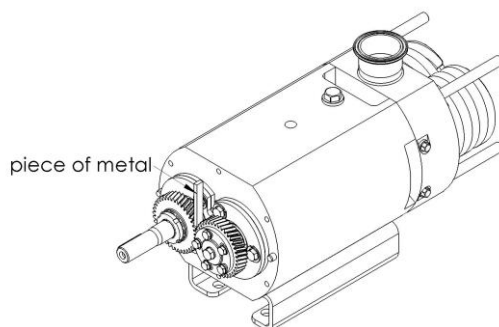
***Important: The feed screws must not be swapped, as this changes the direction of feed. The type label (NR, SR, SL or NL) is printed on the pump name plate***

- Block feed screws with the aid of a piece of soft metal aluminium)
- Tighten feed screws clockwise (item 6) with clamping nuts (Pos. 18)

- Screw in stud bolts (item 9) (do not insert completely)
- Mount pump casing (item 2). When the main direction of rotation is rightward, the "VS" stamped on the face must point down towards the cover (clockwise when looking towards the end of the drive shaft)
- Adjust flank clearance – see item 7. The flank clearances are pre-adjusted in our works
- Mount pump casing (item 2)
- Insert casing form ring (item 103) in cover
- Mount cover (item 1)
- Screw on and tighten cap nuts (item 100) with washers (item 101)

## 5 Removing the bearing support

- Remove product-contact parts
- Drain gear oil using the oil drain screw (item 19)
- Unscrew cylindrical screws (item 122)
- Remove gear cover (item 5) and flat gasket (item 128)
- Block gearwheels (items 11 and 13) with the aid of a piece of soft metal aluminium )



- Undo hexagonal screws (item 112) and remove together with washers (item 111)
- Undo hexagonal screw (item 115)
- Remove gearwheel (item 11) together with spring washer (item 12) and clamping sleeve (item 10)
- Undo hexagonal screw (Pos. 115)
- Remove gearwheel (Pos. 13) with locking plate (Pos. 12) and coupling (Pos. 300)
- Remove bearing covers (items 14 and 15) with Nilos ring (item 121)
- Remove spacer sleeves (item 16)

- Pull shafts (item 7) out of the bearing casing (Pos. 4)
- Remove front securing V ring (item 125)
- Move spacer sleeve (item 17)
- Remove angular contact ball bearings (item 107) with the aid of an extractor
- Remove spacer sleeves (item 17)
- Remove rear securing V ring (item 125)
- Remove needle bearings (item 123)
- Remove shaft seal rings (item 106)

## 6 Assembling bearing support

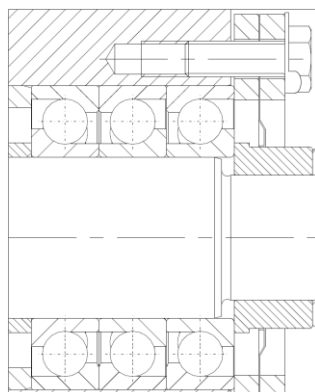
- Mount one securing V ring (item 125) on shaft (item 7)
- Warm bearings before assembly to 90°C with the aid of a suitable device

***Important: The bearing temperature must NOT exceed 120°C, even partially!***

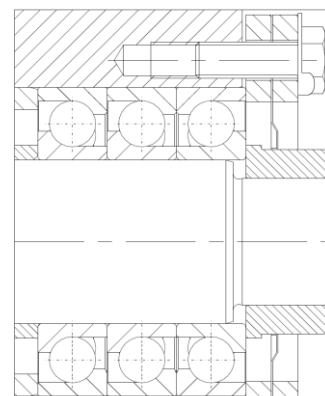
- Pull bearing inner ring and needle bearings (item 123) onto shafts (item 7)
- Mount rear securing V rings (item 125) onto shafts (item 7)
- Mount spacer sleeves (item 17) with larger diameter on the needle bearings
- Mount angular contact ball bearings (item 107) on the shafts

***Important: Make sure the installation position is correct!***

Mechanical seal on the discharge side

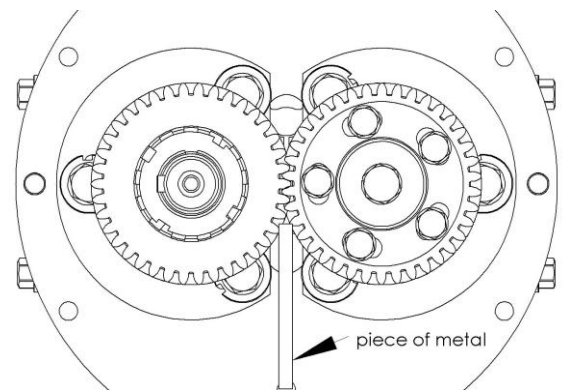
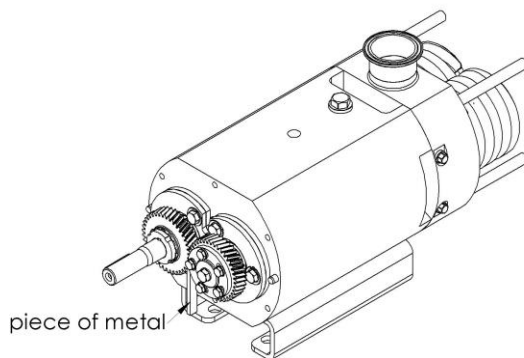


Mechanical seal on the intake side





- Push shaft (item 7) into the bearing casing. The lubrication holes of the needle bearings should be aligned upwards
- Mount spacer sleeves (item 16)
- Mount bearing cover with groove downward (item 14)
- Mount Nilos ring (item 121) and bearing cover (item 15)
- Mount locking washers (item 109) with hexagonal screws (item 110)
- Tighten hexagonal screws (item 110) in accordance with tightening torque table
- Rotate shafts and check that there is no sound of grinding/friction between Nilos rings (item 121) and spacer sleeves (item 16). Adjust if necessary
- Mount gearwheel on drive side (item 13) and coupling half with locking plate (item 12)
- Mount driven gearwheel (item 11) with clamping sleeve (item 10) and spring washer (item 12)
- Mount hexagonal screws (item 112) with washers (item 111) and spring washer (113). The hexagonal screws (item 112) should be centrally positioned in the elongated holes of the gearwheel (item 11)
- Tighten hexagonal screws (Pos. 115)
- Undo hexagonal screws (item 112) again
- Mount product-contact part of the pump in accordance with instructions "Mounting the feed screws and mechanical seals"
- Set the clearance between the feed screws (item 6) with the aid of the elongated holes in the gearwheel (item 11). If the elongated holes are not sufficient, undo the hexagonal screw (item 115) and the gearwheel (item 11) in order to move it along by one or more teeth
- Block gearwheels (items 11 and 13) again with the aid of a piece of soft metal (aluminium ) and tighten hexagonal screws (item 112) in accordance with the tightening torque table



- Press shaft seal rings (item 106) into bearing casing (item 4). Use the manufacturer's assembly tools for this
- Mount gear cover (item 5) with flat gasket (item 128)
- Screw in cylindrical screws (item 122)
- Screw in oil drain screw (item 19) and fill with gear oil via the locking screw up to the oil level indicator marking
- Mount product-contact part of the pump ready for operation in accordance with instructions for "Mounting the feed screws and mechanical seals"

## 7 Adjustment of Flank Clearance

- For the adjustment of the clearance between the feed screw flanks the toothed wheel of the driven shaft (11) and the bushing (10) will be used
- Tighten the bushing (10) and the grooved nut (118)
- Disassemble the hexagon screws (112) and turn the toothed wheel (11) by each one tooth towards the toothed wheel (13) until the thread bore of the toothed wheel (11) is located approximately in the middle of the long slot of the bushing (10)
- Hold the driven shaft and turn the drive shaft to the left until limit stop – memorize position
- Hold the driven shaft and turn the drive shaft to the right until limit stop – memorize position
- Adjust the driven shaft in the middle of both determined positions. The clearance on both sides of a tooth flank of the feed screw should be approximately the same
- Tighten hexagon screws (112)

## Tightening torque table

Designation	Item no.	Hyghspin50	Hyghspin70	Hyghspin90	Hyghspin125
Clamping nut	18	60 Nm (M8)	100 Nm (M10)	190 Nm (M16)	200 Nm (M24)
Cap nut	100	25 Nm (M10)	50 Nm (M12)	110 Nm (M16)	200 Nm (M20)
Hexagonal screw	110	11 Nm (M6)	26 Nm (M8)	53 Nm (M10)	53 Nm (M10)
Hexagonal screw	112	7 Nm (M5)	11 Nm (M6)	26 Nm (M8)	53 Nm (M10)
Hexagonal screw	115	16 Nm (M8)	16 Nm (M8)	60 Nm (M12)	420 Nm (M24)





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