

## Start up information ZPD

### 1. BRIEF INTRODUCTION ZPD

#### 1.1 GENERAL

Please note that all advice in this manual is obligatory for trouble-free operation. Beinlich can not accept any liability for damage or injury resulting from not complying with these requirements. The disassembly of pumps within warranty is only permitted after consultation and agreement with Beinlich. The supplied unit is designed for the specific application for which it was specified. Any subsequent changes to the application parameters must be discussed with Beinlich.

(See the operating and maintenance instruction ZPD.)

#### 1.2 ORIENTATION

Pumps may be mounted in any orientation.

#### 1.3 DIRECTION OF ROTATION

Defined by the designations "S" and "D" together with the direction arrow stamped on the back plate or next to the connection ports. The pumps must be operated in the correct direction.

#### 1.4 FILTRATION

We recommend a filtration of 60 µm in the suction line to the pump.

#### 1.5 DE-AERATION

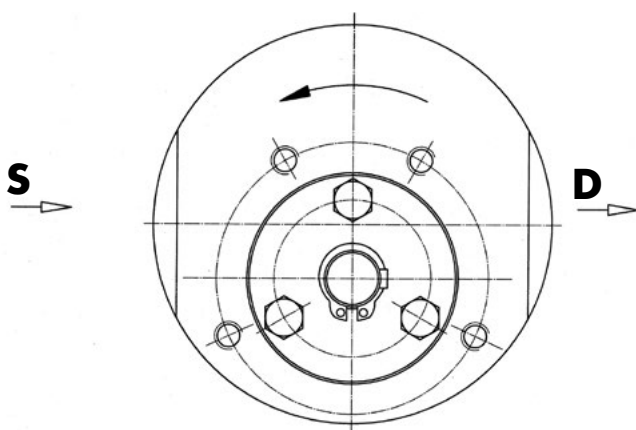
The pumps are self-bleeding. Only the shaft sealing system may require de-aeration.

#### 1.6 SHAFT SEALING SYSTEM

See heading 2

#### 1.7 DRIVE

The drive should preferably be connected by a flexible/elastic coupling (e.g. Softex® or Starex® couplings from HBE). If using a belt drive or a gear wheel drive a support-bearing **MUST** be used to avoid potential radial/axial forces. We can supply pumps with an integral shaft bearing for this purpose. The clutch or pulley must be used with ISA-fit H7. Misalignment between motor and pump drive shaft **MUST** be avoided at all times.



**S = Suction Port**

**D = Discharge Port**

**The attached arrow shows the direction of rotation – NOT the flow direction!**

**e.g. Direction of rotation: Anti-clockwise seen on drive shaft!**

## 1.8 BUILT-IN PRESSURE RELIEF VALVE

**V1** = External bypass of the over-flow. The pipe-work must be connected un-pressurised back to tank

**V2** = internal bypass back to the suction side

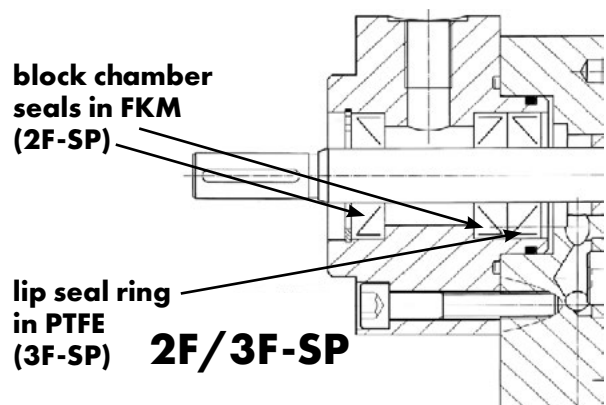
The relief pressure setting in both versions may be made via the adjustment screw after undoing the securing nut. If there is no built-in pressure relief valve one must be incorporated into the pipe-work as an independent safeguard.

## 2. INTRODUCTION SHAFT SEALING SYSTEM ZPD

**Radial lip seal ring, standard, 1F no description in order code.**

The radial lip seal ring is maintenance free. If it leaks, it has to be renewed.

### 2.1 SHAFT SEALING SYSTEM 2F-SP/3F-SP



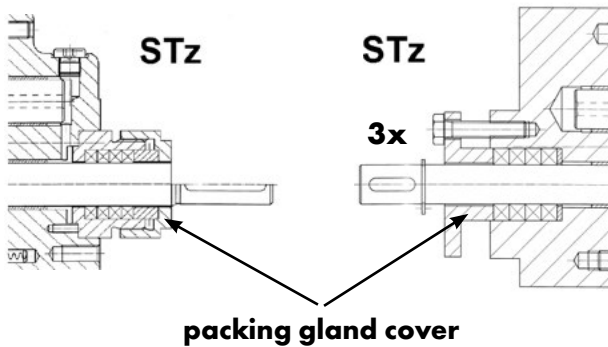
Standard inlet pressure  $p_1$ : 7 bar (in certain special solutions up to 50 bar!) Before start-up the block chamber must be filled with fluid. Beinlich recommends using Mesamoll® oil or another inert medium which does not react with the pumped fluid and which is environmentally inert should it leak. The block chamber is formed by the seal housing or by attaching a drip-feed lubricator.

This is achieved by:

1. remove one or both of the block chamber screw plugs;
2. connect a line to the main supply;
3. or screw on a drip-feed lubricator.

Beinlich block chambers are also designed to be incorporated into a flushing circuit using both of the block chamber screw plug ports as an inlet and outlet. A change of the block chamber fluid level indicates wear on the lip seal ring and/or the drive shaft.

## 2.2 SHAFT SEALING SYSTEM STZ/ST



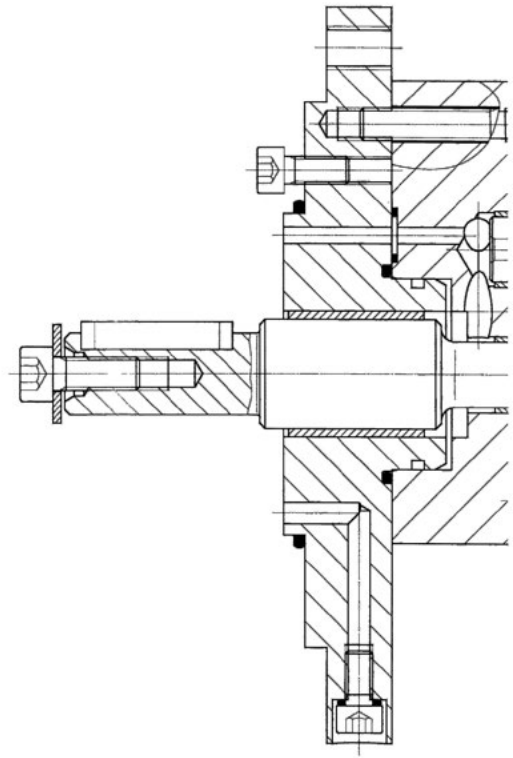
Standard inlet pressure  $p_1$ : 50 bar

The packing gland cover **MUST NOT** be tightened too hard! If too tight, free and easy rotation of the drive shaft is impossible. This will cause excessive heating and result in damage to the seals and possibly to the pump shaft. In the ST version, ensure that the packing gland cover is tightened down evenly. Periodic checking of the leakage flow is necessary. Packing gland seals are designed to weep a small amount of fluid. This is to keep the seals lubricated and cool. If the leakage rate increases then:

1. For ST: tighten 3 bolts evenly
2. For STz: tighten the gland nut  $1/6$  of a turn to minimise the leakage.

If an adjustment of the bolts or the gland nut is no longer possible only one black packing ring needs to be renewed. A complete change of all the rings is not normally necessary. The packing gland seal consists of four packing rings. The joints of each packing ring must be installed at a  $90^\circ$  angle to each other. The correct sequence of the rings is two black rings in the centre with one white ring on either side.

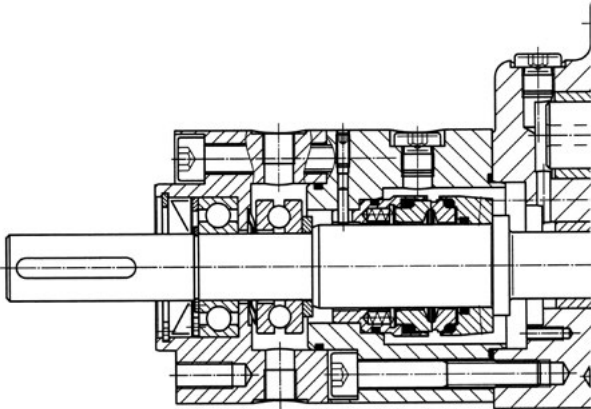
## 2.3 SHAFT SEALING SYSTEM MAG



→ See the "Operating and maintenance instructions for Permanent Magnet Couplings" of DST Dauermagnet-SystemTechnik GmbH.

### 3. INTRODUCTION SHAFT SEALING SYSTEM ZPD

#### 3.1 Shaft sealing system GL-SP-DP



Standard inlet pressure  $p_1$ : 15 bar (in certain special solutions up to 50 bar!)

There are two ball bearings in front of the mechanical contact seal to absorb axial and radial forces. To cool these bearings and to minimise wear a block chamber is added. This allows for the containment of any potential leakage. Before start-up the block chamber must be filled with fluid. Beinlich recommends using Mesamoll® oil or another inert medium which does not react with the pumped fluid and which is environmentally inert should it leak.

The block chamber is formed by the seal housing or by attaching a drip-feed lubricator.

This is achieved by:

1. remove one or both of the block chamber screw plugs;
2. connect a line to the main supply;
3. or screw on a drip-feed lubricator.

Beinlich block chambers are also designed to be incorporated into a flushing circuit using both of the block chamber screw plug ports as an inlet and outlet.

Please refer to the corresponding manual of the mechanical contact seal manufacturer.

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#### NOTE

For further information, especially on returning the pump, please refer to the ZPD operating and maintenance instruction manual.

You may request this from us or download it from [www.beinlich-pumpen.com](http://www.beinlich-pumpen.com).

**beinlich**<sub>pump</sub>  
systems

Beinlich Pumpen GmbH  
Gewerbstraße 29  
58285 Gevelsberg/Germany  
Phone +49 (0) 23 32 / 55 86 0  
[info@beinlich-pumps.com](mailto:info@beinlich-pumps.com)  
[www.beinlich-pumps.com](http://www.beinlich-pumps.com)



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