



FITTING AND OPERATING INSTRUCTIONS

FOR

SUP SCREW PUMPS

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FITTING AND OPERATING INSTRUCTIONS FOR SCREW PUMPS - TYPE: SUP

- **Protection plugs**

Before connecting the pipes remove the plugs which are used for protection during transport.

- **Installation**

The pump axis should always be horizontal.

- **Assembling of pump with electric motor**

When connecting the pump to the motor, care must be taken that the shaft ends are aligned exactly and are kept apart by approximately 3-30mm (depending upon the flexible coupling being used). The SUP screw pump should be driven by an electric motor whose drive shaft is connected to the pump drive shaft via a semi-flexible coupling, whose halves should be pushed on by hand (not forced by hammer).

The pump and motor should be mounted on a common base plate and must be secured by means of alignment pins after the test run.

Incorrectly aligned pumps cause noise and vibration which result in excessive wear on the coupling, drive shaft, bearings, rotors and rotor bush.

- **Installation of pipes**

Before connecting the pipe system the pipes and fittings have to be cleaned and checked in order to avoid possible damage of the pump parts by scale, welding residues, screws etc., left in the pipes.

Warning:



The pipes MUST be aligned exactly with the ports of the SUP pump and fitted in such a way that there is no external forces exerted on the pump.
MISALIGNMENT OF PIPES WILL CAUSE DAMAGE TO THE PUMP

- **Suction behaviour of pump**

Connect the suction and delivery pipes tightly and free from tension with compatible joints. The nominal bore of the pipes should be greater or equal to the nominal bore of the connection port of the pump depending on viscosity of medium to be pumped.

Please pay attention to the direction of flow.

The pump should only rotate when it is full with the medium to be pumped. The pipes must be assembled so that the pump cannot empty during the shut down period.

Warning:



Running dry will destroy the pump
For service work on pump electric power must be disconnected.
Prior to operation of pump cover must be closed and safely fastened.

- **Commissioning**

- Check oil level on gauge (part number 36 in spare parts list).
- Fill the pump with the liquid to be pumped.
- Check the direction of rotation by means of a short run with the motor. Pay attention to the arrow marking the direction of rotation of the pump.
- Check flow of liquid.
- Ensure that the maximum allowed operating pressure of the pump is not exceeded.

- **Maintenance**

- The rotors and rotor bush should be cleaned before start up.
- Measure the rotors and rotor bush regularly (e.g. once a month) to ensure that neither the rotors nor the bush in which the rotors fit are out of tolerance. Wear is normal and components should be replaced when they are out of tolerance (see wear-out dimensions sheet for details).
- Check oil level monthly and change oil after 4 years.
- Oil viscosity = 75 mm² /s @ 50°C. At temperatures $\geq 70^{\circ}\text{C}$ at bearing support a gear oil with a viscosity of 31 mm² /s is recommended.

- **Soft packings**

Slight leakage of the stuffing box is regarded as normal. Should the leakage become heavy, tighten the gland flange slightly by hand. **DO NOT OVERTIGHTEN THE STUFFING BOX AS THIS WILL CAUSE THE PACKING AND THE DRIVE SHAFT TO WEAR PREMATURELY DUE TO EXCESSIVE FRICTION AND INCREASE THE ABSORBED POWER OF THE PUMP.**

In case of permanent leakage, which cannot be repaired by repeated tightening of the gland flange, the packing rings must be replaced. When replacing the packing material check the drive shaft for signs of wear.

Before replacing the packing rings, first remove all old packings, residue and dirt. The new rings must be fitted with an offset of the joints of 90°-180°. If the drive shaft and/or the stuffing box are damaged by scratches, scoring etc., they should be replaced.

Use food and pharmaceutical approved sealing materials only.

- **Faults and possible causes**

Every SUP screw pump is subject to a test run of several hours duration and leaves the factory in perfect condition. If faults appear during commissioning, the cause may be found in the system itself. The following table will assist in the recognition of possible faults arising either during commissioning or after a longer period of operation.

<u>Fault</u>	<u>Possible causes</u>
1.No vacuum on suction port. Possible secondary symptom: Pump becomes hot and/or noisy.	Wrong direction of rotation. Pump not primed. Suction resistance too high because suction pipe being too long, pipe diameter too small or viscosity too high. Rotors damaged.
2.Pump rating below normal. Possible secondary symptom: Pump becomes hot and/or noisy.	Speed too low. Viscosity too low (overheating). Wrong direction of rotation. Suction resistance too high because suction Pipe diameter is too small or suction pipe is too long. Suction pipe connections loose. Excessive wear on rotors.

- **Important**

Verbal or written enquiries must state the full model designation as well as the serial number of the pump as on the name plate.

If the pump has to be returned to our works for repair, ensure that all external parts are removed from the pump, as no responsibility can be taken for their return. Please also ensure that the pump is completely cleaned of all pumping residues.