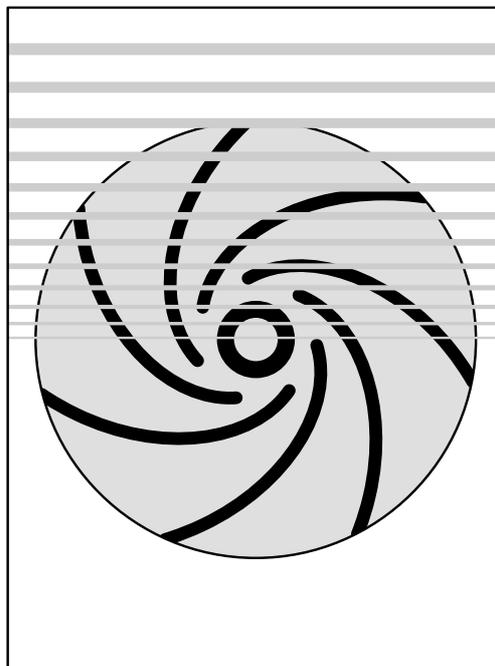


**KNOLL**

# Installation and Operating Instructions

**Centrifugal pump typ TG../TF..**

GB





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## 1 Description of product and functions

### Task

Pumping of liquids under counterpressure

### Range of applications

- Knoll centrifugal pumps are submerged pumps which are mounted on unpressurized containers and immerse in the liquid.
- Predominantly suitable for pumping cooling lubricants (water, emulsions, oil) and scouring water with grain sizes of up to 30 mm a and  $v < 30 \text{ mm}^2/\text{s}$
- Used at machine tools for coolant supply and purification as well as at purification and degreasing plants
- Maximum performance data  
 $Q = 96 \text{ m}^3/\text{h}$  (1600  $\text{l}/\text{min}$ )  
 $p = 3.2 \text{ bar}$   $T = 60^\circ\text{C}$

### Design

Type

Vertical centrifugal pump with the following characteristics:

- with normal suction, single-stage, ungasketed
- elongated, cantilever-supported motor shaft with splash ring
- radial pressure stages, offset upwards, axial suction nozzle
- runner closed (series TG) or open (series TF)
- noise level  $< 70 \text{ dB(A)}$

### Drive

Three-phase squirrel cage motor

- Type V 18, system of protection IP 54, insulation class B
- 220-240 V( $\Delta$ )/ 380-420 V(Y), 50 Hz, 2900  $\text{min}^{-1}$
- 220-265 V( $\Delta$ )/ 380-460 V(Y), 60 Hz, 3500  $\text{min}^{-1}$

### Materials

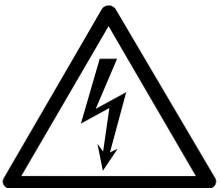
Motor shaft	ST 60
Pump plate	ST 37
Motor lantern	GG 20
Spiral housing	GG 20
Housing cover	GG 20
Runner	POM or GG 25

## 2 Danger signals and safety instructions

### 2.1 General instructions

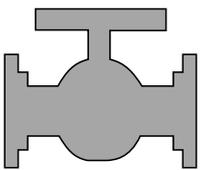


- **Danger! Risk of injury by runner and inducer - never insert your hands into the suction opening**
- **Always pay attention to all the information and instructions in the operating instructions supplied with the pump!**
- **Never bypass safety facilities (e.g. pressure control valves)!**
- **The functioning of safety facilities must always be guaranteed!**

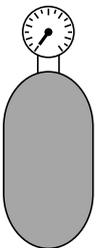


- **Work on the electrical installation (motors) must only be carried out by trained electricians!**
- **Pay attention to the relevant VDE (Association of German electrical engineers) regulations and the connection regulations of the EVU (electricity supply company) in question!**

### 2.2 Instructions for repair and maintenance work and failures



- **Switch off main switch!**
- **Close pipe valve!**
- **Remove any matter injurious to health!**
- **Cooling lubricants must not escape into the environment!**



- **Depressurize the plant!**

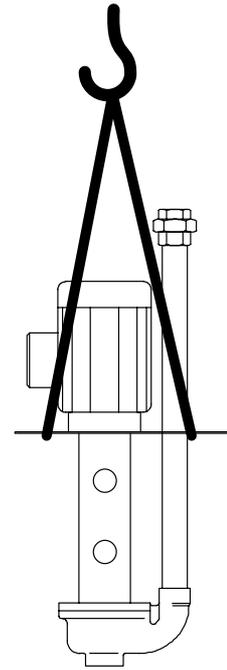


- When coming into contact with hazardous matter:**
- **Wear protective clothing and protective gloves!**

## 3 Transport



The transport of the unit must be expertly done. It must be ensured that the unit does not slip off the transport suspension during transport. It is forbidden to attach the ropes to the ring eye of the motor.



## 4 Assembly / installation

### 4.1 Safety regulations

- Electrical equipment which is used in explosive gas atmospheres must meet the relevant safety regulations. This is indicated by the name plate on the motor.
- When assembled in explosive gas atmospheres, the rules locally in force and the rules of the test certificate supplied with the pump and which was issued by the testing authorities in question must be observed and complied with.
- The test certificate supplied with the pump must be kept in the place of application (e.g. in the foreman's office etc.).

### 4.2 Installation of the unit

- Install the centrifugal pump up to the pump plate in the container opening. It serves as a support for the unit. The container must be covered in such a way that the suction opening of the pump cannot be reached with the hands.

### 4.3 Connecting the pipes

- The pipes connected by the customer must not exert any force whatsoever on the pressure line of the pump.
- With short pipes, the nominal diameters should at least correspond to those of the pump connections. With long pipes, the most economic nominal diameter must be determined from case to case.
- Reducers to larger nominal diameters should be constructed with an angle of reduction of approx. 8° in order to avoid heightened pressure losses.
- The installation of obturators is recommended, depending on the type of the plant and the pump.
- Expansions of the pipes due to temperature must be compensated by appropriate measures in order to not strain the pump.
- Before the initial operation of new plants, the containers, pipes, and connections must be free from coarse matter.

## 5 Initial operation

### 5.1 Initial operation phase

Before the initial operation phase, check the following points:

- Pump electrically connected and connected to all protective gear in accordance with the regulations?
- Direction of rotation checked?
- Subsequently connected pipes fastened?
- Pumping medium filled up?

## 6 Maintenance / care

- Work on the pump must be carried out only with disconnected power supply.

**Danger! Risk of injury!**



- **Never insert your hands into the suction opening!**
- **Secure pump against automatic starting and unwanted switching-on!**
- **If the pump has delivered liquids injurious to health, these must expertly be removed beforehand. Danger to people and environment must be impossible!**

## 7 Failures /causes and clearance

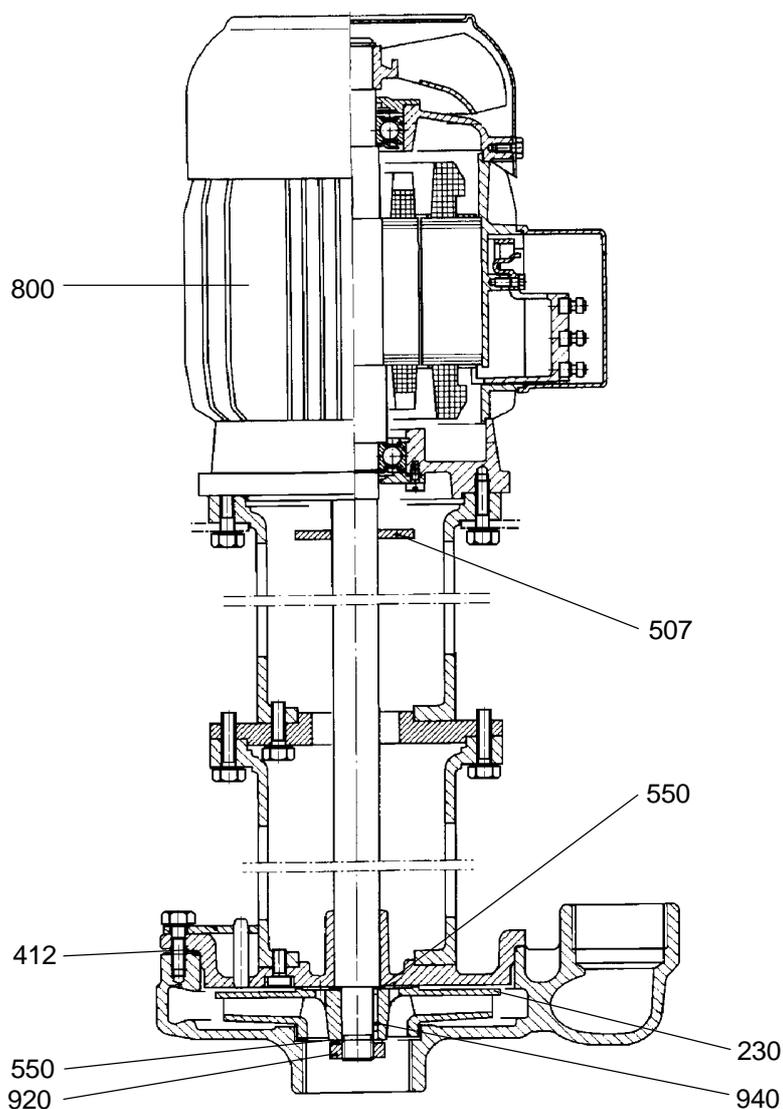
Flow of the pump too small	Overload of the driving motor	Heightened storing temperature	Pump runs erratically	Cause	Clearance <sup>1)</sup>
-				Pump delivers against too high a pressure	Regulate the operating point anew
-				Counterpressure too high	Install a larger runner
-				Supply line or runner clogged	Remove deposits in the pump or the pipes
-			-	Supply too small	Correct the liquid level and check built-in filters
-				Wrong direction of rotation	Interchange the 2 phases of the power supply
-			-	Wear of internal parts	Replace worn parts
-			-	Counterpressure of pump is less than specified on the order form	Accurately regulate the operating point
-				Higher density and viscosity, respectively, of the pumping medium than specified on the order form	<sup>2)</sup>
			-	Defective deep groove ball bearing	Replace
			-	Two-phase run	Replace defective fuse Check electrical connections Clean runner
			-	Unbalance of the runner	Rebalance runner
			-	Faulty bearing	Replace
			-	Flow too small	Increase minimum flow

<sup>1)</sup> Depressurize the plant

<sup>2)</sup> on request

## 8 Spare parts

### Centrifugal pump type TG 30 / TG 40

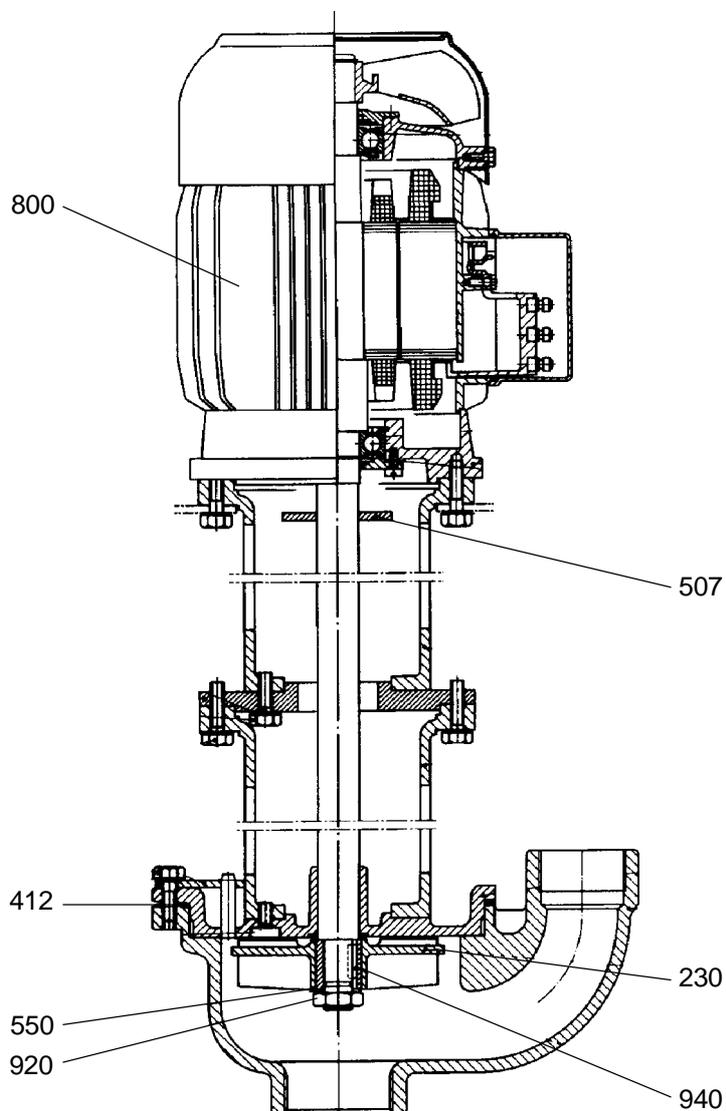


**When ordering spare parts, please note down and state the designation on the nameplate.**

**Part no. Part designation**

230	Impeller
412	O-ring
507	Splash ring
550	Disc
800	Motor
920	Nut
940	Feather key

## Centrifugal pump type TF 40

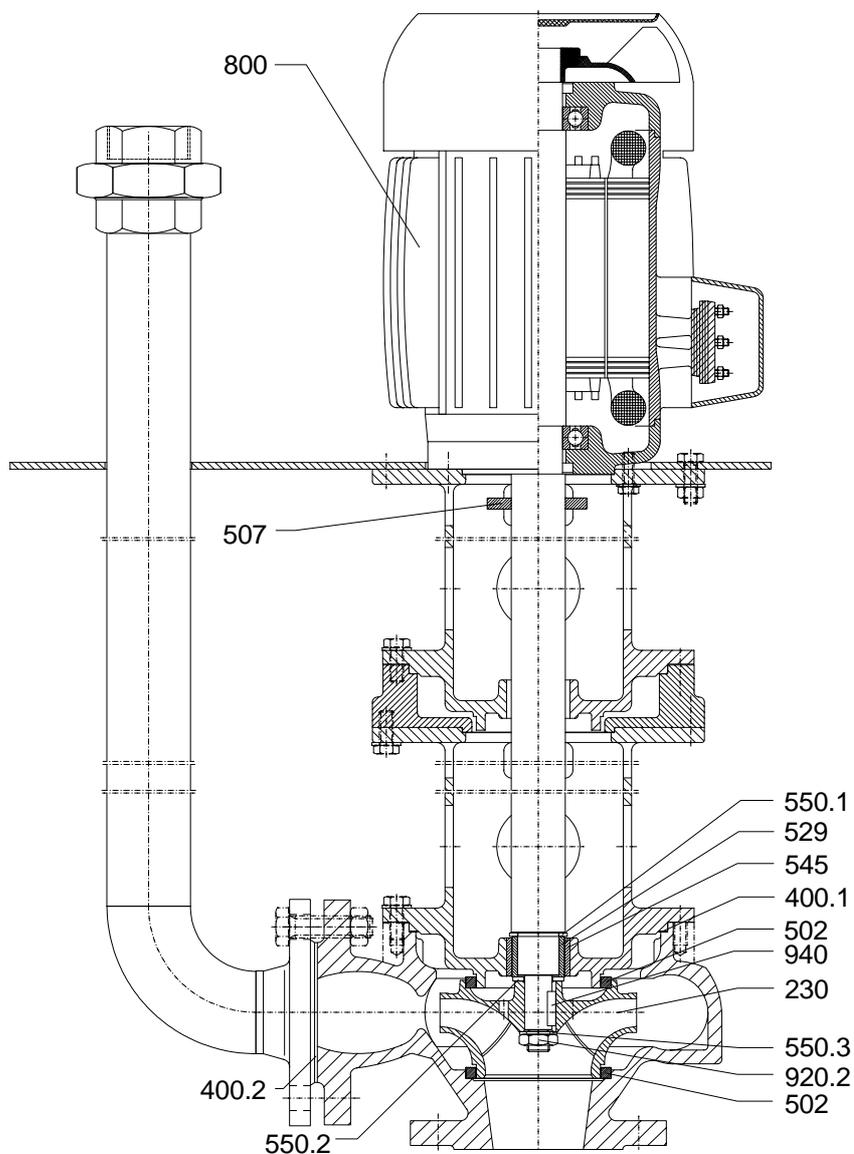


**When ordering spare parts. please note down and state the designation on the nameplate.**

**Part no. Part designation**

230	Impeller
412	O-ring
507	Splash ring
550	Disc
800	Motor
920	Nut
940	Feather key

## Centrifugal pump type TG 50

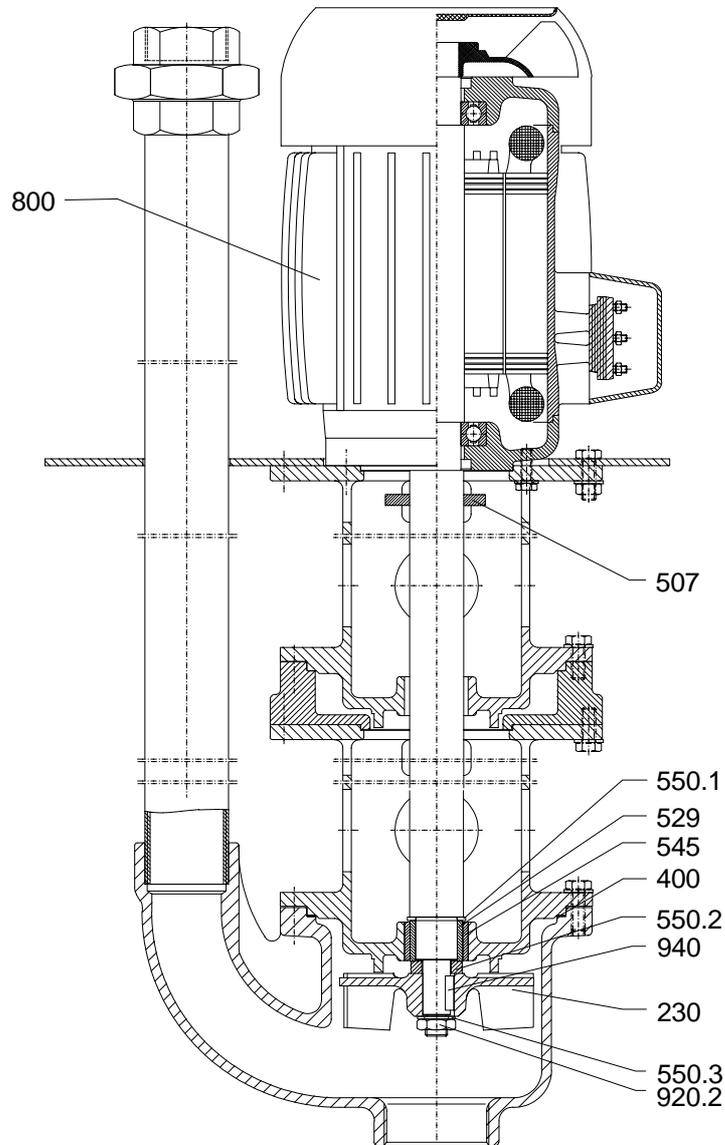


**When ordering spare parts, please note down and state the designation on the nameplate.**

Part no.	Part designation
230	Impeller
400.1	Sealing
400.2	Packing ring
502	Split ring
507	Splash ring
529	Bush inside
545	Bush outside

Part no.	Part designation
550.1	Disc
550.2	Disc
550.3	Disc
800	Motor
920.2	Nut
940	Feather key

## Centrifugal pump type TF 50



**When ordering spare parts. please note down and state the designation on the nameplate.**

<b>Part no.</b>	<b>Part designation</b>
230	Impeller
400	Sealing
507	Splash ring
529	Bush inside
545	Bush outside
550.1	Disc
550.2	Distance disc

<b>Part no.</b>	<b>Part designation</b>
550.3	Disc
800	Motor
920.2	Nut
940	Feather key



# Certificate of conformity

in accordance with the EC regulation for machines (98/37/EEC)

The company:

Knoll Maschinenbau GmbH  
Schwarzachstrasse 20  
D-88348 Saulgau

herewith states that the pump units of the series

TG 25...  
TG 30...  
TG 32...  
TF 40...  
TG 40...  
TF 50...  
TG 50...

are in accordance with the terms of the

EC regulation for machines vers. 98/37/EEC

Applied standards

EN 292-1, EN 292-2, EN 60204, EN 809

**KNOLL Maschinenbau GmbH**  
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Unterschrift

M. Knoll

**KNOLL**

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Späneförderanlagen  
Nieder- und Hochdruckpumpen

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