Motor

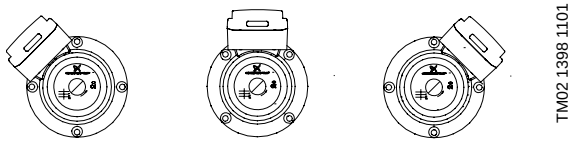
The motor, pos. 4, is a 2- or 4-pole, asynchronous squirrel-cage motor. As the motor is cooled by the pumped liquid, the noise level is very low.

Stator housing

Pressure die-cast aluminum stator housing can be turned to change the position of the terminal box.

The stator housing has eight drain holes to enable condensed water to escape. The vent hole under the terminal box allows the water to evaporate from the stator. The drain holes must point downwards.

The permissible terminal box positions are shown in the drawing below. The positions apply to both vertical and horizontal mounting.

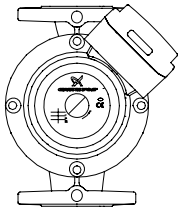


TM02 1398 1101

Fig. 4 Possible terminal box positions

Note: The terminal box must only be turned to the above positions.

The drawing below shows the standard box position.



TM03 2260 4005

Fig. 5 Standard terminal box position

The nameplate can be turned in steps of 45°.

The positions of the terminal box and the nameplate are changed as described above.

The stator wires are self-bonding. The wires and the terminal box are connected by a terminal plug.

The stator incorporates a thermal overload switch for protection of the motor if the winding temperature becomes too high.

Rotor can

The rotor can, pos. 7, is made of drawn steel sheet and fitted with an inspection screw directly at the top.

There is an O-ring seal between the inspection screw and the rotor can. For reasons of safety, the hole for the inspection screw will deflect a possible jet of liquid if the inspection screw is removed.

The outer radial bearing is fitted into the top of the rotor can.

Shaft with rotor

The shaft, pos. 8, is made of stainless steel and equipped with two tungsten carbide bearings.

To further improve the internal circulation of the pumped liquid in the rotor can, the shaft of 4-pole motors is fitted with a small rotor impeller.

The rotor is made of soft-annealed iron lamination and provided with copper or brass bars. The short-circuit rings are made of copper.

The rotor is encapsulated in a thin stainless steel cladding and dynamically balanced.

The thrust bearing is secured to the shaft in a spherically flexible suspension.

Bearing plate

The bearing plate, pos. 10, is made of stainless steel.

The inner radial bearing is pressed into the bearing plate, ground and honed. The relatively large bearing plate surface means that motor heat is effectively carried away by the pumped liquid.

Impeller

The stainless steel impeller, pos. 13, is of the radial type with curved blades. It is secured to the shaft by a split cone and nut (left-hand thread).

Pump housing

The pump housing, pos. 16, is available in cast iron or bronze. All pump housings are flanged for the individual markets. See also Product range concerning flanges and Product numbers concerning port-to-port lengths.

The pump housing is of the in-line type. A stainless steel/PTFE neck ring minimizes the recirculation and improves pump efficiency.

The bottom of the housing has threaded holes for fastening to a base plate.

Pumped liquids

CAUTION: This pump is intended for use with water only.

Your VersaFlo UP(S) pump can be used to circulate

- potable hot water
- water for hydronic heating
- cooling water.

In domestic hot-water systems it is advisable to use a bronze pump (VersaFlo UP(S) model) only for water with a degree of hardness lower than 14 grains per gallon of hardness. For water with a higher degree of hardness, a direct coupled VersaFlo TP pump is recommended.

If the pump is installed **in a heating system**, the water should meet the requirements of accepted standards on water quality in heating systems.

The pump is lubricated and cooled by the liquid being pumped. Therefore, the pumped liquid must always be allowed to circulate through the pump. Extended periods without circulation will cause premature wear to the bearings and excessive motor heat. The pumped liquid must also meet the following requirements.

The pumping of liquids with densities or kinematic viscosities higher than those of water will cause

- a considerable pressure drop
- a drop in the hydraulic performance
- a rise in the power consumption.

In these situations, contact Grundfos for assistance.

Temperature limits

Ambient air temperature:	32°F to 104°F.
Fluid temperature, open systems:	140°F.
Fluid temperature, closed systems:	
- UPS pumps:	248°F.
- UP pumps:	230°F.

Other technical data

Relative humidity:	Max. 95%.
Sound-pressure level:	The sound-pressure level of the pump is lower than 41 dB(A) (reference: 20 mPa).
Max. working pressure:	145 psi.
Approvals:	See the pump nameplate.

Inlet pressure

To avoid cavitation noise, the following minimum pressures are required at the pump suction flange:

UP(S) model	Liquid temperature					
	167°F 75°C		194°F 90°C		230°F 110°C	
	[psi]	hf	[psi]	hf	[psi]	hf
UPS 32-40	0.7	1.6	2.2	5.1	21	48.5
UPS 32-80	0.7	1.6	5.1	11.8	23.9	55.2
UPS 32-160	11.6	26.8	16	37	34.1	78.8
UPSD 40-40	0.7	1.6	4.4	10.2	23.2	53.6
UPS 40-80/4	0.7	1.6	1.5	3.5	18.1	41.8
UPS40-80/2	6.5	15	10.9	25.2	29	67
UPS 40-160	5.1	11.8	9.4	21.7	27.6	63.8
UPS 40-240	11.6	26.8	16	37	34.1	78.8
UPS 50-40	0.7	1.6	2.9	6.6	21.8	50.4
UPS 50-80/4	0.7	1.6	4.4	10.2	23.2	53.6
UPS 50-80/2	4.4	10.2	8.7	20.1	26.8	61.9
UPS 50-160	11.6	26.8	16	37	34.1	78.8
UPS 50-240	10.2	23.6	14.5	33.5	32.6	75.1
UPS 53-55/57	4.4	10.2	8.7	20.1	26.8	61.9
UPS 75-69	11.6	26.8	16	37	34.1	78.8
UPS 80-40	11.6	26.8	16	37	34.1	78.8
UPS 80-80	14.5	33.5	18.9	43.7	37	85.5
UPS 80-160	21.8	50.4	26.1	60.3	43.5	100.5
UPS 100-40	27.6	63.8	31.9	73.7	50	115.5
UP 43-70F	0.7	1.6	4.8	11	15.4	35.6
UP 43-110	3.6	8.4	8.2	19	18.9	43.7
UP 53-45	2.9	6.6	7.5	17.3	18.1	41.8
UP 53-46	1.1	2.5	5.8	13.4	16.4	37.9

Curve conditions

The guidelines listed below, apply to the performance curves found on pages 28-64;

1. Because of the danger of overheating the pumps must not be used at a flow below 0.1 x Q at best efficiency point.
2. The bold parts of the curves show the **recommended** performance range.
3. Test liquid: Airless water.
4. The curves apply to a liquid temperature of 68°F (20ºC).

All curves show average values and **should not be used as guarantee curves.** If a stated minimum performance is required, individual measurements must be made.