

Pump

The CRT and CRTE pumps are non-self-priming, vertical multistage centrifugal pumps. The pumps are available with Grundfos standard motors (CRT pumps) or frequency-controlled motors (CRTE pumps).

The pump consists of a base and a pump head. The chamber stack and the outer sleeve are secured between the pump head and the base by means of staybolts. The base has suction and discharge ports on the same level (in-line).

All pumps are equipped with a maintenance-free mechanical shaft seal.



GR7369

Fig. 1 CRT pumps

Motor

Grundfos standard motors - MG and Baldor® motors

CRT pumps are fitted with Grundfos specified motors. The motors are all heavy-duty 2-pole, NEMA frame, C-face motors.

Frequency-controlled motors - MLE motors

CRTE pumps are fitted with totally enclosed, fan-cooled, 2-pole frequency-controlled motors.

From 0.5 Hp to 1.5 Hp Grundfos offers CRTE pumps fitted with single-phase MLE motors (1 x 208-230 V).

From 1.0 Hp to 10 Hp Grundfos offers CRTE pumps fitted with three-phase MLE motors (3 x 460-480 V).

Electrical data

Mounting designation	NEMA
Insulation class	F/B/H
Efficiency class	Standard efficiency Energy efficient / EPAct - on request Premium efficiency - on request
Enclosure class	TEFC - Totally Enclosed Fan Cooled
60 Hz Standard voltages	1 x 115/208-230 V 3 x 208-230/460 V 3 x 575 V



Approvals



Optional motors

The Grundfos standard range of motors covers a wide variety of application demands. However, for special applications or operating conditions, custom-built motor solutions can be provided.

For special applications or operating conditions, Grundfos offers custom-built motors such as:

- Explosion proof motors,
- motors with anti-condensation heating units,
- low-noise motors,
- energy efficient and premium efficiency motors,
- motors with thermal protection.

Motor protection

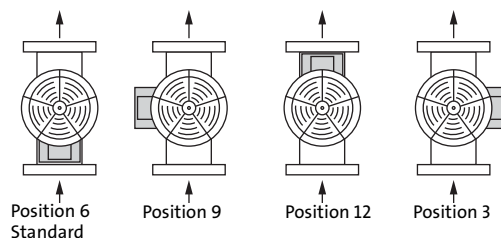
Single-phase Grundfos specified motors have built-in thermal overload switches (up to 7.5 Hp).

Three-phase motors **must** be connected to motor starters in accordance with local regulations.

Single- and three-phase MLE motors have built-in thermal protection.

Terminal box positions

As standard the terminal box is mounted on the suction side of the pump.



Terminal box positions

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Operating conditions

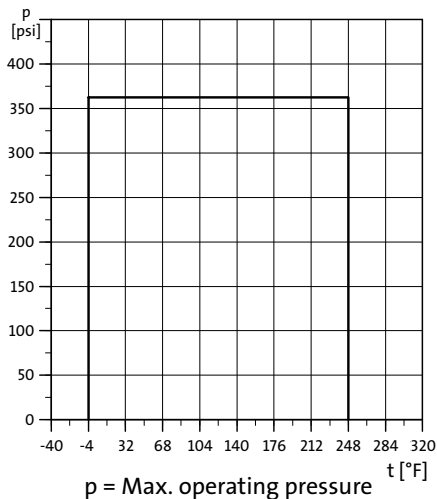
Description	Operating conditions
Liquid temperature	EPDM: -4°F to +248°F. FKM: -4°F to +194°F.
Ambient temperature	Maximum +104°F.
Minimum inlet pressure	According to the NPSH _R curve + a safety margin of minimum 2 feet.

Maximum inlet pressure

The following table shows the maximum permissible inlet pressure. However, the actual inlet pressure + pressure against a closed valve must always be lower than the maximum permissible operating pressure.

60 Hz		
CRT(E) 2-2	→ 2-6	145 psi
CRT(E) 2-7	→ 2-18	217 psi
CRT(E) 4-1	→ 4-7	145 psi
CRT(E) 4-8	→ 4-16	217 psi
CRT(E) 8-1	→ 8-16	145 psi
CRT(E) 16-2	→ 16-12	145 psi

Maximum operating pressure



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Fig. 2 Operating pressure and temperature limits.

Note: Liquid temperatures above 194°F may involve the risk of periodic noise from the shaft seal.

Pumped liquids

Thin, non-explosive liquids, not containing solid particles or fibers. The liquid must not attack the pump materials chemically.

When pumping liquids with a density and/or viscosity higher than that of water, motors with correspondingly higher outputs must be used, if required.

CRT pumps can be used for liquid transfer, circulation and pressure boosting.

Corrosion resistance for CRT(E)

Media	Conc. [%]	Temp. [°F]	Seal face		Bearing
			Binderless tungsten carbide (AUUx)	Silicon carbide (AQQx)	Silicon carbide
Demineralized water		248	●		●
Ground water		248	●		●
Brackish water		248	●		●
Seawater		176	●		●
Sulfuric acid	3	140		●●●	●
Phosphoric acid	30	95	●		●
	10	140			
Formic acid	50	176		●●●	●
Citric acid	50	212	●		●
Oxalic acid	5	68	●		●
Inorganic salts (including FeCl ₃)				●●●	●
Sodium hydroxide	10	212	●		●
	50	140			
Potassium hydroxide	50	68	●		●
Calcium hydroxide	saturated	212	●		●
Ammonium hydroxide	28	212	●		●
Alcohols (except for methanol ★), aldehydes, ketones			●		●

★ Titanium is susceptible to stress corrosion cracking (SSC) in methanol and should not be used with methanol.

★★ Available on request.