

## CR with air-cooled top

CR pumps with an air-cooled top are used where the pumping of hot liquids is crucial for a successful production. A CR pump with an air-cooled top is a pump with a special air-cooled shaft seal chamber. No external cooling is necessary; the ambient temperature is sufficient.



Fig. 37 CR pump with an air-cooled top

CR pumps with air-cooled top have a mechanical silicon carbide/silicon carbide/EPDM cartridge shaft seal, type HQQE, as standard.

The pumps are able to handle liquid temperatures up to 356 °F at max. 362 psi.

**Note:** If the pumped liquid is oil, the pumps can handle following liquid temperatures:

- CR 1s to 90: 464 °F at max. 232 psi.
- CR 120 and 150: 356 °F at max. 232 psi.

The following rubber part variants are available for our air-cooled top solutions:

Liquid temperature [°F]	Rubber part material
<b>Water-based liquids</b>	
365 °F	FXM/EPDM
<b>Thermal oils</b>	
464 °F	FKM

Temperatures above 248 °F normally result in a substantial reduction of seal life due to poor lubrication of the seal faces. As the temperature in the seal chamber does not exceed 248 °F during operation, a standard Grundfos shaft seal can be used.

An automatic air vent is required for venting the pump seal chamber.

**Note:** For safety reasons, fit a pipe in order to lead away steam from the air vent to a drain. Local regulations must be observed.

## CR 1s, 1, 3 and 5

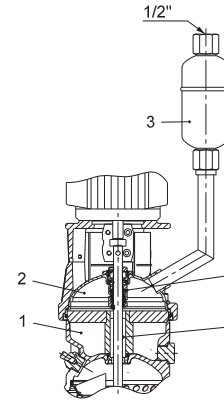


Fig. 38 CR 1s, 1, 3 and 5 with air-cooled top

## CR 10, 15 and 20

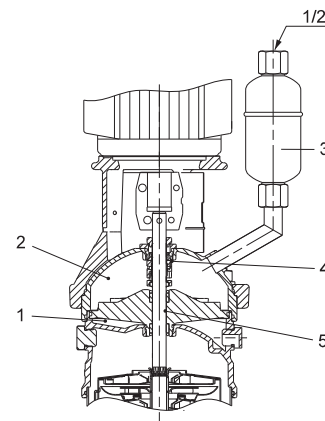


Fig. 39 CR 10, 15 and 20 with air-cooled top

## CR 32, 45, 64 and 90

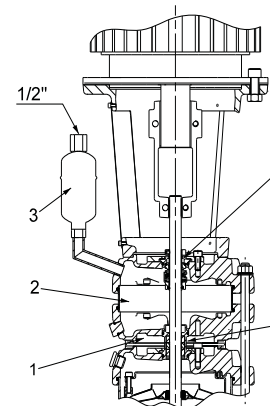


Fig. 40 CR 32, 45, 64 and 90 with air-cooled top

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## CR 120 and 150

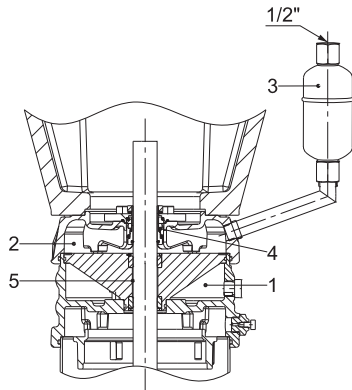


Fig. 41 CR 120 and 150 with air-cooled top

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## Key

Pos.	Designation
1	Air chamber
2	Liquid
3	Air vent
4	Shaft seal
5	Cooling channel

## Pump range

The air-cooled top is available for these pump types:

Pump type	CR pumps with air-cooled top												
	1s	1	3	5	10	15	20	32	45	64	90	120	150
CR(E)								●	●	●	●	●	●
CRI(E)	●	●	●	●	●	●	●						
CRN(E)	●	●	●	●	●	●	●	●	●	●	●	●	●

● Available.

**Note:** CRT(E) pumps and CR(E) high pressure pumps are not available with air-cooled top.

## Air vent positions on CR pumps with air-cooled top

The air vent of vertical CR pumps with air-cooled top is in line with the discharge port (12 o'clock position) as standard. The air vent is mounted vertically (3 o'clock position) on horizontal pumps.

The possible air vent positions are shown below.

## Vertical CR pumps with air-cooled top

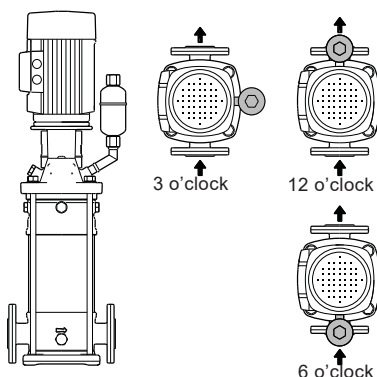


Fig. 42 Air vent positions on vertical CR pumps

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## Dimensions

All dimensions are in inches.

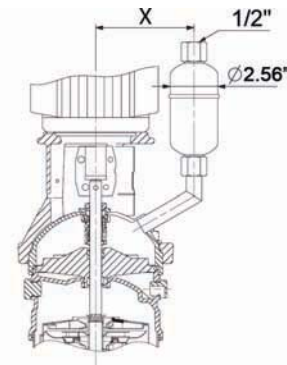


Fig. 43 Air-cooled top

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Pump type	X
CRI, CRN 1s, 1, 3, 5	6.77
CRI, CRN 10, 15, 20 (10 Hp and smaller)	7.32
CRI, CRN 10, 15, 20 (15 Hp and larger)	8.54
CR, CRN 32	6.93
CR, CRN 45, 64	7.32
CR, CRN 90	7.48
CR, CRN 120, 150 (60 Hp and smaller)	7.48
CR, CRN 120, 150 (75-100 Hp)	9.57

## Additional pump height

Pump type	Additional pump height
CRI, CRN 1, 3, 5	4.25
CRI, CRN 10, 15, 20	3.54
CR, CRN 32	8.27
CR, CRN 45	9.45
CR, CRN 64	6.54
CR, CRN 90	7.24
CR, CRN 120, 150	4.37

## Horizontal CR pumps with air-cooled top

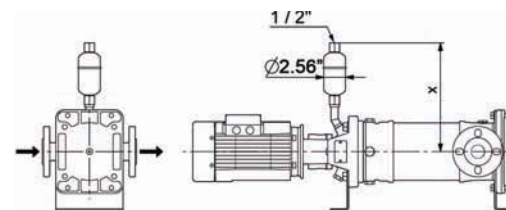


Fig. 44 Air vent positions on horizontal CR pumps with air-cooled top

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## Key to fig. 44

Pump type	X
CRI, CRN 1s, 1, 3, 5	12.13
CRI, CRN 10, 15, 20	12.76
CR, CRN 32	15.39
CR, CRN 45, 64	15.67
CR, CRN 90, 120, 150	15.91

**Note:** 100 Hp motors are higher than distance x.