

Selection of CR, CRN high pressure pumps

Pump size

Selection of pump size should be based on:

- Required flow and pressure at the point of use.
- Pressure loss as a result of height differences.
- Friction loss in the pipework.
It may be necessary to account for pressure loss in connection with long pipes, bends or valves, etc.
- Best efficiency at the estimated duty point.

Efficiency

If the pump is expected always to operate at the same duty point, select a pump which is operating at a duty point corresponding with the best efficiency of the pump.

In case of varying consumption, select a pump which best efficiency falls within the duty range representing the highest power consumption, i.e. typically the duty range covering the greater part of the duty time.

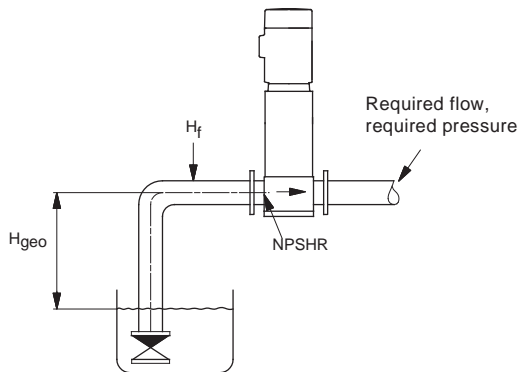
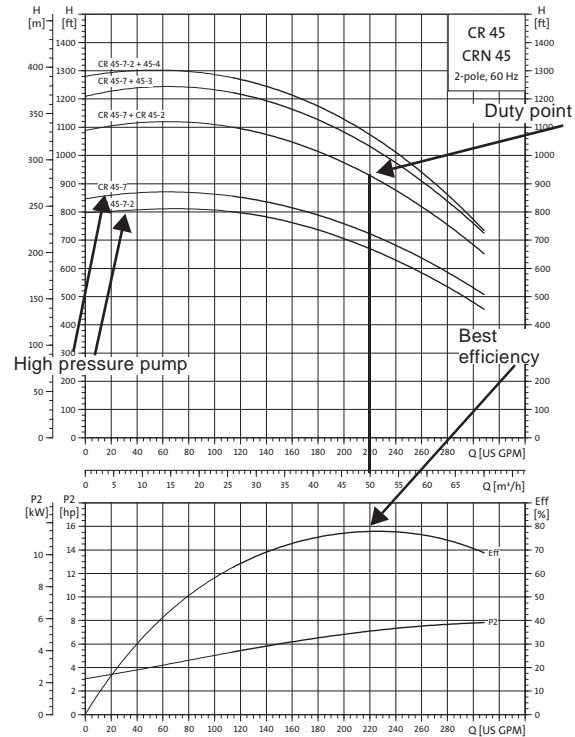


Fig. 14 Dimensional data

TM02 6711 1403



TM02 8316 2406

Fig. 15 Example of a duty point

Shaft seal

As standard, the CR, CRN high pressure range is fitted with a high pressure cartridge shaft seal suitable for the most common high pressure applications.

The following three key parameters must be taken into account, when selecting the shaft seal:

- type of pumped liquid and
- liquid temperature.

Grundfos offers a wide range of shaft seal variants to meet specific demands.

Inlet pressure and operating pressure

The limit values stated on pages 5-7 must not be exceeded as regards

- minimum inlet pressure
- maximum inlet pressure
- maximum operating pressure.

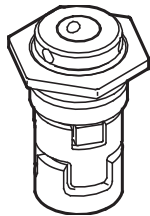


Fig. 16 Shaft seal (Cartridge type)

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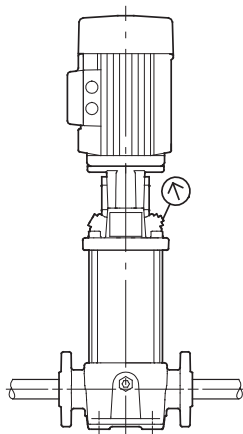


Fig. 17 Inlet and operating pressure

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Examples of operating and inlet pressures.

The values for the operating and inlet pressures shown in the tables must not be considered individually but must always be compared, see the following examples:

Example 1:

The following pumps in series are selected.

- First stage pump CRN 5-24
- Second stage pump CRN 5-24SF

	CRN 5-24	CRN 5-24SF
Maximum operating pressure	362 psi	725 psi
Maximum inlet operating pressure	218 psi	362 psi

The pump discharge pressure against a closed valve for a CRN 5-24 is 338 psi.

The first stage pump is not allowed to operate at an inlet pressure of 218 psi. The maximum inlet pressure of the the first stage pump is $362 - 338 = 24$ psi.

Example 2:

The following pumps in series are selected.

- First stage pump CRN32-3
- Second stage pump CRN32-10

	CRN 32-3	CRN 32-10
Maximum operating pressure	232 psi	580 psi
Maximum inlet operating pressure	145 psi	218 psi

The pump discharge pressure against a closed valve for the two pumps in series is 519 psi.

The first stage pump is not allowed to operate at an inlet pressure of 145 psi. The maximum inlet pressure of the the first stage pump is $580 - 519 = 61$ psi.