CR(I) deep-well pumps, 50 Hz

CR(I) deep-well pumps are used for deep-well pumping in small water supply systems where water is pumped from depths (H_D) down to 90 metres.

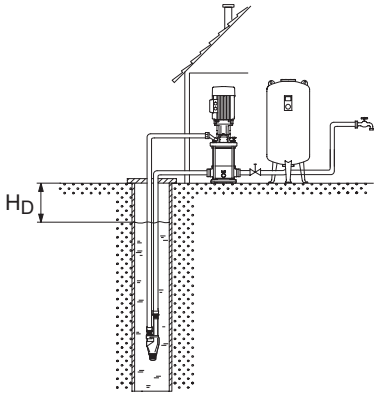


Fig. 1 System with CR(I) pump

The pump system consists of a dry-installed CR(I) multistage centrifugal pump connected to a submerged ejector via two pipes.

It is advisable to connect a pressure tank to the discharge side of the pump to maintain a suitable pressure at the tapping point.

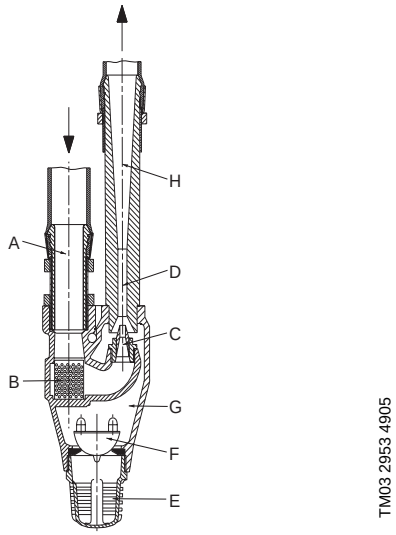


Fig. 2 Sectional drawing of ejector

Water is pumped through the pressure pipe (A) and the strainer (B) to the nozzle (C). The water passes the nozzle at high speed and runs into the diffusor (D). Via the strainer (E) and bottom valve (F), water which is to be pumped up is in connection with the chamber (G).

From the chamber, it is pressed into the diffusor (D) by the water jet from the nozzle (C). There the two water flows mix, and the velocity is converted into pressure, driving the water up through the riser pipe (H) to the suction port of the pump.

Technical data

Max. system pressure:	16 bar
Max. ambient temperature:	+40°C
Max. liquid temperature:	+40°C
Minimum size of borehole:	3"

Selection of ejector pump

The ejector pump is selected on the basis of the curve chart overleaf.

Curve conditions

The flow rate (Q) is based on the following conditions:

- The pump is installed at the well/borehole.
- The ejector is at the depths stated in relation to the pump.
- The water level is above the ejector.

Note: If the pump is placed 10 to 30 metres from the borehole, reduction can be prevented by using pipes one dimension larger than the dimensions in the table overleaf.

Example of selection of ejector pump

The ejector pump is selected on the basis of

- required suction depth, H_D, in metres.
- required flow rate, Q, in m^3/h.

When the duty point is known, the pump, ejector and pipe dimension can be selected from the curve chart.

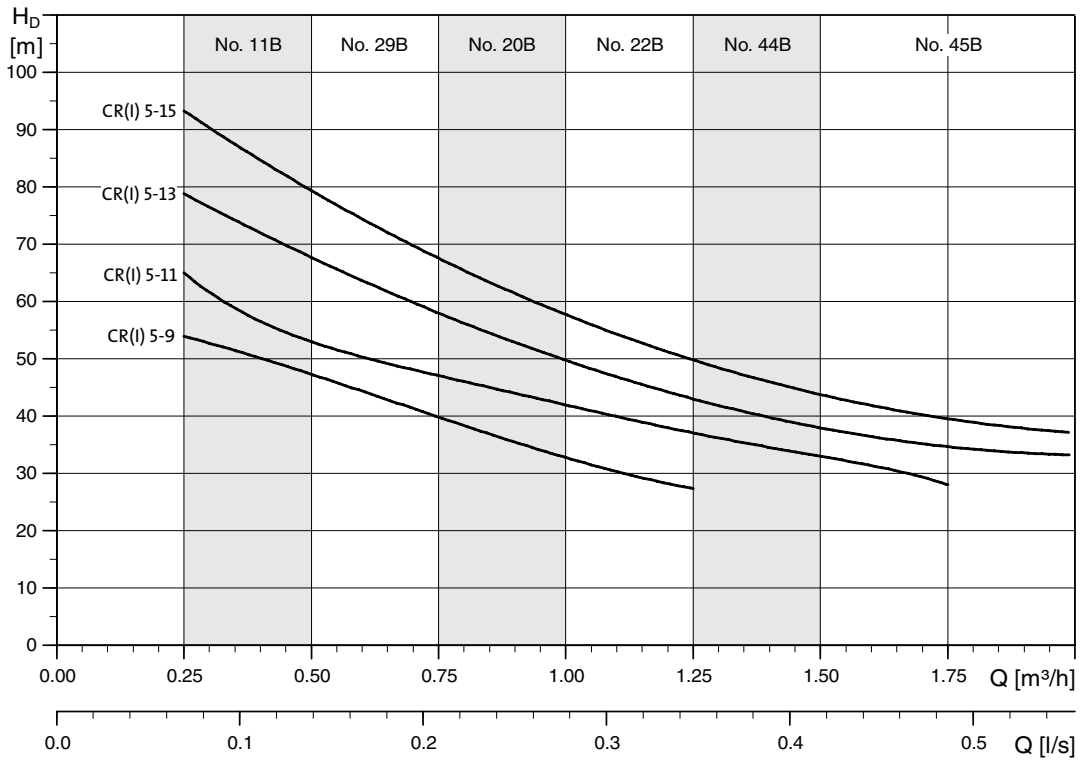
Example:

Required suction depth, H_D :	50 [m]
Required flow rate, Q:	0.8 [m^3/h]

The pump which meets these requirements the best is CR(I) 5-13 with ejector no. 20B.

Use of suction pipe

If the well capacity is lower than the pump capacity, dry running of the pump can be prevented by fitting a suction pipe below the ejector. To enable this, the ejector strainer (E) is replaced with a special threaded nipple.
Contact Grundfos for further information about CR(I).



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Pump	Suction depth H_D [m]	Flow rate [m^3/h]	Ejector no.	Pressure class, plastic pipe [kp/cm^2]	Pipe dimension [mm]		Largest ejector diameter [mm]
					Ejector inlet: External/internal	Ejector outlet: External/internal	
CR(I) 5-9	54	0.25	11B	6+6	32/26	40/32.6	76
	42	0.68	29B	6+6	32/26	40/32.6	76
	35	0.92	20B	6+6	32/26	40/32.6	76
	27	1.25	22B	6+6	32/26	40/32.6	76
CR(I) 5-11	65	0.25	11B	10+10	32/22.8	40/28.4	80
	50	0.62	29B	10+6	32/22.8	40/32.6	76
	45	0.85	20B	6+6	32/26	40/32.6	76
	40	1.10	22B	6+6	32/26	40/32.6	76
	35	1.37	44B	6+6	32/26	40/32.6	76
	28	1.75	45B	6+6	32/26	40/32.6	76
CR(I) 5-13	79	0.25	11B	10+10	32/22.8	40/28.4	80
	63	0.62	29B	10+10	32/22.8	40/28.4	80
	54	0.87	20B	10+6	32/22.8	40/32.6	76
	45	1.17	22B	10+6	32/22.8	40/32.6	76
	40	1.39	44B	6+6	32/26	40/32.6	76
	33	1.99	45B	6+6	32/26	40/32.6	76
CR(I) 5-15	93	0.25	11B	10+10	32/22.8	40/28.4	80
	73	0.63	29B	10+10	32/22.8	40/28.4	80
	62	0.88	20B	10+10	32/22.8	40/28.4	80
	53	1.14	22B	10+6	32/22.8	40/32.6	76
	46	1.40	44B	10+6	32/22.8	40/32.6	76
	37	1.99	45B	10+6	32/22.8	40/32.6	76

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Subject to alterations.

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