

CR deep-well

Installation and operating instructions

(GB) (D) (F) (I) (E) (P) (GR) (NL) (S) (FIN) (DK)
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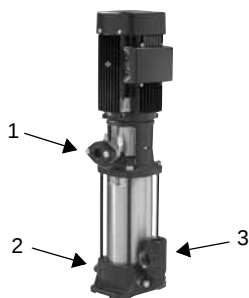
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Prior to installation, read these installation and operating instructions. Installation and operation must comply with local regulations and accepted codes of good practice.

1. Product description

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 and a pressure switch to the discharge side of the pump to maintain a suitable pressure at the tapping point.



GrA2173

Fig. 1 Connections of CR deep-well pump

Pos.	Description
1	Connection to the priming pipe of the ejector
2	Connection to pressure tank (partly hidden)
3	Priming container connection to riser pipe

2. Type key

Example	CRI	5	-13	-DW	-F	-I	-E	-H	QQ	E
Type range CR, CRI										
Nominal flow rate in m³/h										
Number of impellers										
Code for pump version										
DW: CR, CRI pump with ejector										
Code for pipe connection										
A: Oval flange										
CA: FlexiClamp										
F: DIN flange										
P: PJE coupling										
Code for materials										
A: Basic version										
I: Wetted parts 1.4301/AISI 304										
Code for rubber parts of pump										
E: EPDM										
V: FKM										
Code for shaft seal										
H: Balanced cartridge seal										
Code for seal faces										
B: Carbon										
Q: Silicon carbide										
Code for rubber parts of shaft seal										
E: EPDM										
V: FKM										

See also the installation and operating instructions of CR, CRI, CRN.

3. Mechanical installation



Installation and operation must comply with local regulations and accepted codes of good practice.

Before installation, check that

- the pump and its components correspond to the order.
- no visible parts have been damaged.

It is advisable to install the pump system as shown below.

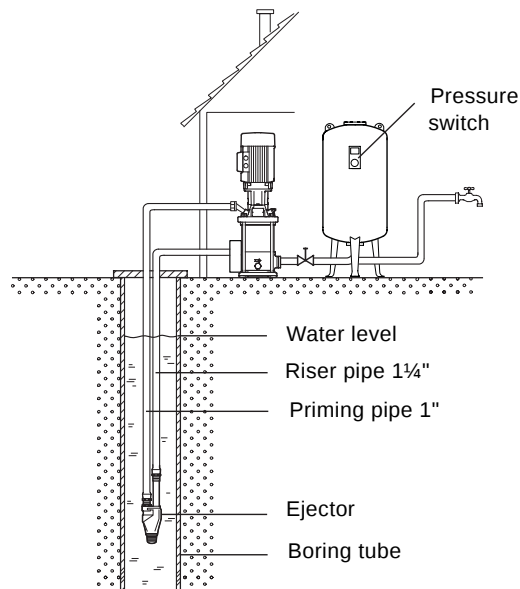


Fig. 2 Pump system with deep-well pump

3.1 Installation of pump

The pump must be installed as described in the installation and operating instructions of CR, CRI, CRN.

TM03 3346 0306

3.2 Ejector connection

1. Connect the larger pipe dimension (1¼") to the diffuser (the long ejector pipe) and to the priming container.
2. Connect the smaller pipe dimension (1") to the nipple (the short ejector pipe) and to the outlet on top of the pump.

3.2.1 Ejectors with iron pipe connection

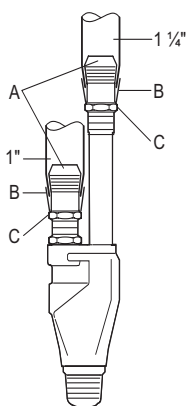
Ejectors with iron pipe connection have Whitworth thread and are connected as usual.

Fit a pipe clamp 3 to 4 metres above the ejector to keep the pipes at the right distance to each other, thus preventing damage to the ejector.

3.2.2 Ejectors with plastic tube connection

Ejectors with plastic tube connection (PE) have unions and are to be connected as follows:

1. Cut the pipe at right angles.
2. Chamfer the inside and outside of the pipe.
3. Heat the pipe end to be connected to the ejector in boiling water to soften it.
4. Press the pipe home on the knurled taper of the ejector (A).
5. Slide the external ejector taper (B) up around the plastic tube.
6. Tighten the ejector nut (C) until the pipe is securely fixed.



TM03 3100 0206

Fig. 3 Ejector with plastic tube connection

3.3 Fitting the discharge pipe

Fit an isolating valve in the discharge pipe between the pump and pressure tank for use at start-up.

It is not advisable to use a non-return valve between the pump and pressure tank.

The pipe dimension between the pump and the pressure tank must correspond to the discharge connection of the pump. For further information on connection dimensions, see the installation and operating instructions of CR, CRI, CRN.

3.4 Installing the pressure tank and pressure switch

Install the pressure tank and pressure switch as described in the installation and operating instructions of the products.

3.4.1 Precharge pressure of pressure tank

Unless otherwise stated, the precharge pressure of the pressure tank can be calculated as follows:

Precharge pressure = 0.7 x cut-in pressure.

3.4.2 Cut-in pressure

The cut-in pressure is set on the pressure switch by means of two setting screws for cut-out pressure and differential pressure, respectively.

Cut-out pressure	The pump stops.
Differential pressure	Pressure drop. The pump starts again.

Cut-in pressure = cut-out pressure – differential pressure.

Example

Cut-out pressure	5 bar
Differential pressure	1.5 bar
Cut-in pressure	<u>3.5 bar</u>

4. Electrical connection

The electrical installation of the pump must be carried out as described in the installation and operating instructions of CR, CRI, CRN.

5. Start-up

1. Close the isolating valve between the pump and the pressure tank.
2. Remove the air vent screw of the pump.
3. Remove the plug of the priming container and fill the container with clean water until the riser pipe and the container have been filled.
4. Start the pump. The priming container is now being emptied. Keep filling the container with water until all air has been removed from the system and an air-free water flow comes out of the priming container.
5. Fit the air vent screw.
6. Slowly open the isolating valve between the pump and the pressure tank until just a little water flows out of the priming container.
7. Fit the plug into the priming container while the pump is running, and tighten the plug.
8. Slowly open the isolating valve between the pump and the pressure tank until it is completely open.

6. Maintenance

The pump system requires no maintenance if it is installed according to the instructions.

7. Frost protection

The pump must be protected against frost as described in the installation and operating instructions of CR, CRI, CRN.

The remaining pump system must be sufficiently protected against frost.

8. Fault finding

8.1 Fault finding of pump

See the installation and operating instructions of CR, CRI, CRN.

8.2 Fault finding of pump system

If only a little water is pumped out of the hole for the air vent screw during start-up, the cause may be:

- The ejector is not sufficiently submerged.
- The pump system is partly filled with air and thus not primed sufficiently.
- The ejector nozzle is clogged.

If the start-up has been carried out as described in 5. *Start-up* without any result, the ejector is most likely not sufficiently submerged, or the ejector nozzle is clogged.

If the pump pressure is reduced in relation to the total pump pressure, the most likely causes are:

- The ejector is not sufficiently submerged.
- The pump system is partly filled with air and thus not primed sufficiently.
- The pump runs with wrong direction of rotation.

8.2.1 Cleaning a clogged ejector

1. Pull the ejector out of the well/borehole. Keep the ejector in its normal vertical position so that any impurities do not flow back into the pipework.
2. Separate the ejector from the pipes.
3. Flush the pipes to remove any impurities.
4. Screw the diffuser (the long pipe) off the ejector housing. Remove only the strainer and foot valve if they are clogged.
5. Screw the nipple (the short pipe) off the ejector housing and pull out the internal strainer.
6. Check and clean the stainless steel nozzle and the inside of the ejector housing.
7. Assemble the ejector.

9. Disposal

This product or parts of it must be disposed of as described in the installation and operating instructions of CR, CRI, CRN.

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