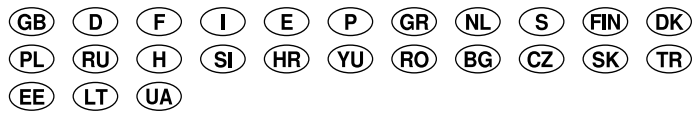


CR deep-well

Installation and operating instructions



CR deep-well

Installation and operating instructions	4	GB
Montage- und Betriebsanleitung	7	D
Notice d'installation et d'entretien	10	F
Istruzioni di installazione e funzionamento	13	I
Instrucciones de instalación y funcionamiento	16	E
Instruções de instalação e funcionamento	19	P
Οδηγίες εγκατάστασης και λειτουργίας	22	GR
Installatie- en bedieningsinstructies	25	NL
Monterings- och driftsinstruktion	28	S
Asennus- ja käyttöohjeet	30	FIN
Monterings- og driftsinstruktion	32	DK
Instrukcja montażu i eksploatacji	34	PL
Руководство по монтажу и эксплуатации	37	RU
Szerelési és üzemeltetési utasítás	40	H
Navodilo za montažo in obratovanje	43	SI
Montažne i pogonske upute	45	HR
Uputstvo za montažu i upotrebu	48	YU
Instrucțiuni de instalare și utilizare	51	RO
Упътване за монтаж и експлоатация	54	BG
Montážní a provozní návod	57	CZ
Návod na montáž a prevádzku	60	SK
Montaj ve kullanım kılavuzu	63	TR
Paigaldus- ja kasutusjuhend	66	EE
Įrengimo ir naudojimo instrukcija	68	LT
Інструкції з монтажу та експлуатації	71	UA

CONTENTS

	Page
1. Product description	4
2. Type key	4
3. Mechanical installation	4
3.1 Installation of pump	4
3.2 Ejector connection	5
3.2.1 Ejectors with iron pipe connection	5
3.2.2 Ejectors with plastic tube connection	5
3.3 Fitting the discharge pipe	5
3.4 Installing the pressure tank and pressure switch	5
3.4.1 Precharge pressure of pressure tank	5
3.4.2 Cut-in pressure	5
4. Electrical connection	5
5. Start-up	5
6. Maintenance	5
7. Frost protection	5
8. Fault finding	5
8.1 Fault finding of pump	5
8.2 Fault finding of pump system	5
8.2.1 Cleaning a clogged ejector	6
9. Disposal	6



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.

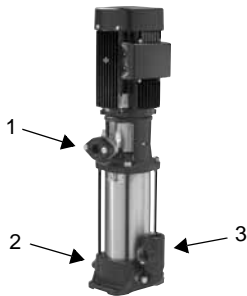


Fig. 1 Connections of CR deep-well pump

GrA2173

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	CR I 5 -13 -DW -F -I -E -H QQ E
Type range CR, CRI	
Nominal flow rate in m ³ /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.

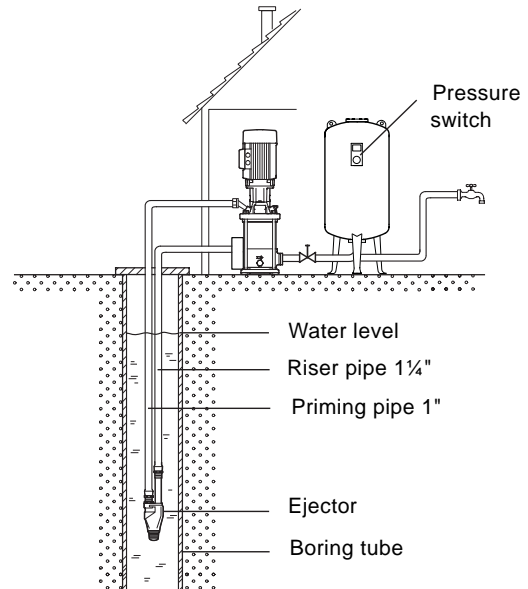


Fig. 2 Pump system with deep-well pump

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 (1 1/4") 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

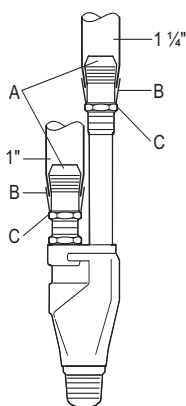
Ejectors with iron pipe connection have Whitworth thread and are connected as usual.

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 diffusor (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.

Denmark

GRUNDFOS DK A/S
Martin Bachs Vej 3
DK-8850 Bjerringbro
Tlf.: +45-87 50 50 50
Telefax: +45-87 50 51 51
E-mail: info_GDK@grundfos.com
www.grundfos.com/DK

Albania

COALB sh.p.k.
Rr.Dervish Hekali N.1
AL-Tirana
Phone: +355 42 22727
Telefax: +355 42 22727

Argentina

Bombas GRUNDFOS de Argentina S.A.
Ruta Panamericana km. 37.500 Lote 34A
1619 - Garin
Pcia. de Buenos Aires
Phone: +54-3327 414 444
Telefax: +54-3327 411 111

Australia

GRUNDFOS Pumps Pty. Ltd.
P.O. Box 2040
Regency Park
South Australia 5942
Phone: +61-8-8461-4611
Telefax: +61-8-8340 0155

Austria

GRUNDFOS Pumpen Vertrieb Ges.m.b.H.
Grundfosstraße 2
A-5082 Grödig/Salzburg
Tel.: +43-6246-883-0
Telefax: +43-6246-883-30

Belgium

N.V. GRUNDFOS Bellux S.A.
Boomssesteenweg 81-83
B-2630 Aartselaar
Tél.: +32-3-870 7300
Télécopie: +32-3-870 7301

Belorussia

Представительство ГРУНДФОС в
Минске
220090 Минск ул.Олешева 14
Телефон: (8632) 62-40-49
Факс: (8632) 62-40-49

Bosnia/Herzegovina

GRUNDFOS Sarajevo
Paromilinska br. 16,
BiH-71000 Sarajevo
Phone: +387 33 713290
Telefax: +387 33 231795

Brazil

GRUNDFOS do Brasil Ltda.
Rua Tomazina 106
CEP 83325 - 040
Pinhais - PR
Phone: +55-41 668 3555
Telefax: +55-41 668 3554

Bulgaria

GRUNDFOS Pumpen Vertrieb
Representative Office - Bulgaria
Bulgaria, 1421 Sofia
Lozenetz District
105-107 Arsenalski blvd.
Phone: +359 2963 3820, 2963 5653
Telefax: +359 2963 1305

Canada

GRUNDFOS Canada Inc.
2941 Brighton Road
Oakville, Ontario
L6H 6C9
Phone: +1-905 829 9533
Telefax: +1-905 829 9512

China

GRUNDFOS Pumps (Shanghai) Co. Ltd.
22 Floor, Xin Hua Lian Building
755-775 Huai Hai Rd, (M)
Shanghai 200020
PRC
Phone: +86-512-67 61 11 80
Telefax: +86-512-67 61 81 67

Croatia

GRUNDFOS predstavništvo Zagreb
Cebini 37, Buzin
HR-10000 Zagreb
Phone: +385 1 6595 400
Telefax: +385 1 6595 499

Czech Republic

GRUNDFOS s.r.o.
Čajkovského 21
779 00 Olomouc
Phone: +420-585-716 111
Telefax: +420-585-438 906

Estonia

GRUNDFOS Pumps Eesti OÜ
Peterburi tee 44
11415 Tallinn
Tel: + 372 606 1690
Fax: + 372 606 1691

Finland

OY GRUNDFOS Pumput AB
Mestarintie 11
Piispankylä
FIN-01730 Vantaa (Helsinki)
Phone: +358-9 878 9150
Telefax: +358-9 878 91550

France

Pompes GRUNDFOS Distribution S.A.
Parc d'Activités de Chesnes
57, rue de Malacombe
F-38290 St. Quentin Fallavier (Lyon)
Tél.: +33-4 74 82 15 15
Télécopie: +33-4 74 94 10 51

Germany

GRUNDFOS GMBH
Schlüterstr. 33
40699 Erkrath
Tel.: +49-(0) 211 929 69-0
Telefax: +49-(0) 211 929 69-3799
e-mail: info@grundfos.de
Service in Deutschland:
e-mail: kundendienst@grundfos.de

Greece

GRUNDFOS Hellas A.E.B.E.
20th km. Athinon-Markopoulou Av.
P.O. Box 71
GR-19002 Peania
Phone: +0030-210-66 83 400
Telefax: +0030-210-66 46 273

Hong Kong

GRUNDFOS Pumps (Hong Kong) Ltd.
Unit 1, Ground floor
Siu Wai Industrial Centre
29-33 Wing Hong Street &
68 King Lam Street, Cheung Sha Wan
Kowloon
Phone: +852-27861706/27861741
Telefax: +852-27858664

Hungary

GRUNDFOS Hungária Kft.
Park u. 8
H-2045 Törökbalint,
Phone: +36-23 511 110
Telefax: +36-23 511 111

India

GRUNDFOS Pumps India Private Limited
Flat A, Ground Floor
61/62 Chamiers Aptmt
Chamiers Road
Chennai 600 028
Phone: +91-44 432 3487
Telefax: +91-44 432 3489

Indonesia

PT GRUNDFOS Pompa
Jl. Rawa Sumur III, Blok III / CC-1
Kawasan Industri, Pulogadung
Jakarta 13930
Phone: +62-21-460 6909
Telefax: +62-21-460 6910/460 6901

Ireland

GRUNDFOS (Ireland) Ltd.
Unit A, Merrywell Business Park
Ballymount Road Lower
Dublin 12
Phone: +353-1-4089 800
Telefax: +353-1-4089 830

Italy

GRUNDFOS Pompe Italia S.r.l.
Via Gran Sasso 4
I-20060 Truccazzano (Milano)
Tel.: +39-02-95838112
Telefax: +39-02-95309290/95838461

Japan

GRUNDFOS Pumps K.K.
1-2-3, Shin Miyakoda
Hamamatsu City
Shizuoka pref. 431-21
Phone: +81-53-428 4760
Telefax: +81-53-484 1014

Korea

GRUNDFOS Pumps Korea Ltd.
6th Floor, Aju Building 679-5
Yeoksam-dong, Kangnam-ku, 135-916
Seoul, Korea
Phone: +82-2-5317 600
Telefax: +82-2-5633 725

Latvia

SIA GRUNDFOS Pumps Latvia
Deglava biznesa centrs
Augusta Deglava ielā 60, LV-1035, Rīga,
Tālr.: + 371 714 9640, 7 149 641
Fakss: + 371 914 9646

Lithuania

GRUNDFOS Pumps UAB
Smolensko g. 6
LT-03201 Vilnius
Tel: + 370 52 395 430
Fax: + 370 52 395 431

Macedonia

MAKOTERM
Dame Gruev Street 7
MK-91000 Skopje
Phone: +389 91 117733
Telefax: +389 91 220100

Malaysia

GRUNDFOS Pumps Sdn. Bhd.
7 Jalan Peguam U1/25
Glenmarie Industrial Park
40150 Shah Alam
Selangor
Phone: +60-3-5569 2922
Telefax: +60-3-5569 2866

Mexico

Bombas GRUNDFOS de Mexico S.A. de
C.V.
Boulevard TLC No. 15
Parque Industrial Stiva Aeropuerto
Apodaca, N.L. 66600
Mexico
Phone: +52-81-8144 4000
Telefax: +52-81-8144 4010

Netherlands

GRUNDFOS Nederland B.V.
Postbus 104
NL-1380 AC Weesp
Tel.: +31-294-492 211
Telefax: +31-294-492244/492299

New Zealand

GRUNDFOS Pumps NZ Ltd.
17 Beatrice Tinsley Crescent
North Harbour Industrial Estate
Aldershot, Auckland
Phone: +64-9-415 3240
Telefax: +64-9-415 3250

Norway

GRUNDFOS Pumper A/S
Strømsveien 344
Postboks 235, Leirdal
N-1011 Oslo
Tlf.: +47-22 90 47 00
Telefax: +47-22 32 21 50

Poland

GRUNDFOS Pompy Sp. z o.o.
ul. Klonowa 23
Baranowo k. Poznania
PL-62-081 Przeźmierowo
Phone: (+48-61) 650 13 00
Telefax: (+48-61) 650 13 50

Portugal

Bombas GRUNDFOS Portugal, S.A.
Rua Calvet de Magalhães, 241
Apartado 1079
P-2770-153 Paço de Arcos
Tel.: +351-21-440 76 00
Telefax: +351-21-440 76 90

Republic of Moldova

MOLDOCON S.R.L.
Bd. Dacia 40/1
MD-277062 Chishinau
Phone: +373 2 542530
Telefax: +373 2 542531

Romania

GRUNDFOS Pompe România SRL
Bd. Biruintei, nr 103
Pantelimon county Ilfov
Phone: +40 21 200 4100
Telefax: +40 21 200 4101
E-mail: romania@grundfos.ro

Russia

ООО Грундфос
Россия, 109544 Москва, Школьная 39
Тел. (+7) 095 737 30 00, 564 88 00
Факс (+7) 095 737 75 36, 564 88 11
E-mail grundfos.moscow@grundfos.com

Serbia and Montenegro

GRUNDFOS Predstavništvo Beograd
Dr. Milutina Ivkovića 2a/29
YU-11000 Beograd
Phone: +381 11 26 47 877, 11 26 47 496
Telefax: +381 11 26 48 340

Singapore

GRUNDFOS (Singapore) Pte. Ltd.
24 Tuas West Road
Jurong Town
Singapore 638381
Phone: +65-6865 1222
Telefax: +65-6861 8402

Slovenia

GRUNDFOS PUMPEN VERTRIEB
Ges.m.b.H.,
Podružnica Ljubljana
Blatnica 1, SI-1236 Trzin
Phone: +386 1 563 5338
Telefax: +386 1 563 2098
E-mail: slovenia@grundfos.si

Spain

Bombas GRUNDFOS España S.A.
Camino de la Fuentecilla, s/n
E-28110 Algete (Madrid)
Tel.: +34-91-848 8800
Telefax: +34-91-628 0465

Sweden

GRUNDFOS AB
Lunnagårdsgatan 6
431 90 Mölndal
Tel.: +46-0771-32 23 00
Telefax: +46-31 331 94 60

Switzerland

GRUNDFOS Pumpen AG
Bruggacherstrasse 10
CH-8117 Fällanden/ZH
Tel.: +41-1-806 8111
Telefax: +41-1-806 8115

Taiwan

GRUNDFOS Pumps (Taiwan) Ltd.
7 Floor, 219 Min-Chuan Road
Taichung, Taiwan, R.O.C.
Phone: +886-4-2305 0868
Telefax: +886-4-2305 0878

Thailand

GRUNDFOS (Thailand) Ltd.
947/168 Moo 12, Bangna-Trad Rd., K.M.
3,
Bangna, Phrakonong
Bangkok 10260
Phone: +66-2-744 1785 ... 91
Telefax: +66-2-744 1775 ... 6

Turkey

GRUNDFOS POMPA San. ve Tic. Ltd. Sti.
Gebze Organize Sanayi Bölgesi
İhsan dede Caddesi,
2. yol 200. Sokak No. 204
41490 Gebze/ Kocaeli
Phone: +90 - 262-679 7979
Telefax: +90 - 262-679 7905
E-mail: satis@grundfos.com

Ukraine

ТОВ ГРУНДФОС Україна
ул. Владимирская, 71, оф. 45
г. Киев, 01033, Украина,
Тел. +380 44 289 4050
Факс +380 44 289 4139

United Arab Emirates

GRUNDFOS Gulf Distribution
P.O. Box 16768
Jebel Ali Free Zone
Dubai
Phone: +971-4- 8815 166
Telefax: +971-4-8815 136

United Kingdom

GRUNDFOS Pumps Ltd.
Grovebury Road
Leighton Buzzard/Beds. LU7 8TL
Phone: +44-1525-850000
Telefax: +44-1525-850011

U.S.A.

GRUNDFOS Pumps Corporation
17100 West 118th Terrace
Olathe, Kansas 66061
Phone: +1-913-227-3400
Telefax: +1-913-227-3500

Usbekistan

Представительство ГРУНДФОС в
Ташкенте
700000 Ташкент ул.Усмана Носира 1-й
тулик 5
Телефон: (3712) 55-68-15
Факс: (3712) 53-36-35

96620754 0306	194