

# CRN-SF

Installation and operating instructions



## CRN-SF

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<b>English (GB)</b>	
Installation and operating instructions . . . . .	4
<b>Dansk (DK)</b>	
Monterings- og driftsinstruktion . . . . .	6
<b>Deutsch (DE)</b>	
Montage- und Betriebsanleitung . . . . .	8
<b>Ελληνικά (GR)</b>	
Οδηγίες εγκατάστασης και λειτουργίας . . . . .	10
<b>Español (ES)</b>	
Instrucciones de instalación y funcionamiento . . . . .	12
<b>Français (FR)</b>	
Notice d'installation et de fonctionnement . . . . .	14
<b>Italiano (IT)</b>	
Istruzioni di installazione e funzionamento . . . . .	16
<b>Nederlands (NL)</b>	
Installatie- en bedieningsinstructies . . . . .	18
<b>Português (PT)</b>	
Instruções de instalação e funcionamento . . . . .	20
<b>Русский (RU)</b>	
Руководство по монтажу и эксплуатации . . . . .	22
<b>Suomi (FI)</b>	
Asennus- ja käyttöohjeet . . . . .	24
<b>Svenska (SE)</b>	
Monterings- och driftsinstruktion . . . . .	26
Appendix 1 . . . . .	28

English (GB) Installation and operating instructions

Original installation and operating instructions.

CONTENTS

	Page
1. Symbols used in this document	4
2. General information	4
3. Type key	4
4. Applications	4
5. Technical data	4
5.1 Minimum inlet pressure	4
5.2 Maximum inlet pressure	4
5.3 Maximum operating pressure	4
5.4 Dimensions	4
5.5 Electrical data	4
6. Installation	5
6.1 Example	5
7. Start-up	5
8. Disposal	5



**Warning**  
*Prior to installation, read these installation and operating instructions. Installation and operation must comply with local regulations and accepted codes of good practice.*

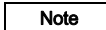
1. Symbols used in this document



**Warning**  
*If these safety instructions are not observed, it may result in personal injury!*



**Caution**  
*If these safety instructions are not observed, it may result in malfunction or damage to the equipment!*



**Note**  
*Notes or instructions that make the job easier and ensure safe operation.*

2. General information

This document is a supplement to installation and operating instructions of CR, CRI, CRN standard pumps, publication number 96462123.

3. Type key

Example	CRN- 10 - 21- SF - X - X - X- XXXX
Type range	CRN
Rated flow rate in m <sup>3</sup> /h	10
Number of impellers	21
Code for pump version	SF
Code for pipe connection	X
Code for materials	X
Code for rubber parts	X
Code for shaft seal	XXXX

4. Applications

CRN-SF pumps are used for pressure boosting and circulation in systems operating with high pressures. The pump requires a minimum inlet pressure of 2 bar and is usually supplied together with a CRN pump which is installed as a feed pump for the CRN-SF pump.

5. Technical data

5.1 Minimum inlet pressure

2 bar at +20 °C.

If the liquid temperature is higher than +20 °C, the inlet pressure must be increased according to Fig. B on page 29.

Example

The operating temperature is +80 °C. The total inlet pressure must thus be 2 bar + 0.5 bar = 2.5 bar.

5.2 Maximum inlet pressure

CRN-SF	Static pressure [bar]	Pressure during operation [bar]
3, 5	15	25
10, 15, 20	10	25
32, 45, 64, 90	10	25

5.3 Maximum operating pressure

50 bar.

**Caution** *The actual inlet pressure + the maximum pump pressure (at no flow) must not exceed 50 bar.*

**Caution** *The pump must not to run against a closed discharge valve.*

During start-up

If both pumps start at the same time, it is not necessary to take the inlet pressure to the CRN-SF pump into account.

**Caution** *If the pumps cannot start at the same time due to the total locked-rotor current, the CRN-SF pump must start first, followed by the feed pump with a delay of maximum three seconds.*

5.4 Dimensions

See Fig. A on page 28.

5.5 Electrical data

See the motor nameplate.

## 6. Installation

See the installation and operating instructions for the standard pump.

### 6.1 Example

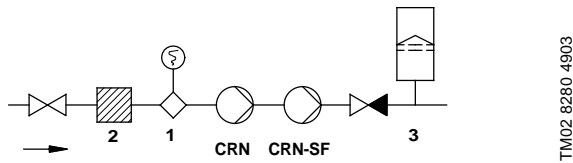


Fig. 1 System with CRN and CRN-SF pump

Pos.	Designation
1	Flow switch
2	Filter
3	Diaphragm tank

The flow switch will protect the pumps against damage caused by overheating by stopping the pumps if the flow rate is too small. The filter is fitted to protect the flow switch when pumping slightly polluted water.

If the flow rate is stable and higher than the minimum flow rate, the above precautions are not necessary.

If there is a risk of water hammering, a non-return valve should be fitted on the discharge side of the pump.

**Caution** Do not use rapid-closing valves, e.g. rapid-closing spray guns, as these may cause water hammering.

## 7. Start-up

See the installation and operating instructions for the standard pump.

**Caution** Check direction of rotation before starting the pump. If direction of rotation is wrong, the shaft seal will be damaged when the pump is started. Alternatively, you can remove the coupling before checking direction of rotation.

**Note** The direction of the flow in CRN-SF pumps is the opposite of the one in the standard pump.

System with a feed pump, see section 5.2 Maximum inlet pressure.

## 8. Disposal

This product or parts of it must be disposed of in an environmentally sound way:

1. Use the public or private waste collection service.
2. If this is not possible, contact the nearest Grundfos company or service workshop.

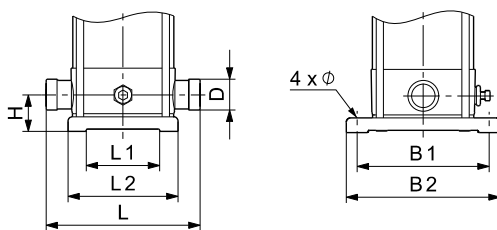
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Appendix

Fig. A

PJE

Connection type

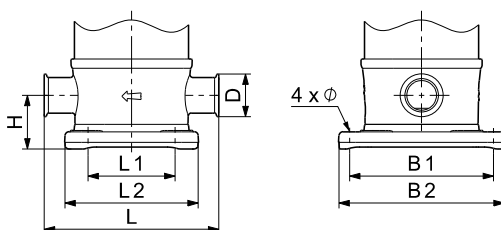


TM02 8371 4309

Pump type	L [mm]	H [mm]	D [mm]	L <sub>1</sub> [mm]	L <sub>2</sub> [mm]	B <sub>1</sub> [mm]	B <sub>2</sub> [mm]	Ø [mm]
CRN 3 SF CRN 5 SF	210	50	42.2	100	150	180	210	13
CRN 10 SF	261	80	60.1	130	200	215	248	13
CRN 15 SF CRN 20 SF	261	90	60.1	130	200	215	248	13
CRN 32 SF	320	105	88.9	170	226	240	298	14
CRN 45 SF	365	140	114.3	190	251	266	331	14
CRN 64 SF	365	140	114.3	190	251	266	331	14
CRN 90 SF	380	140	114.3	199	261	280	348	14

CX

Connection type

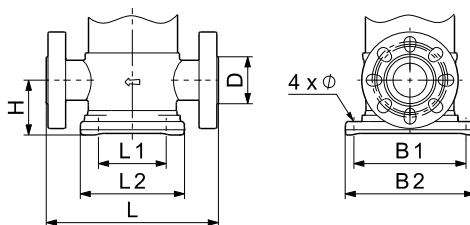


TM04 5872 4309

Pump type	L [mm]	H [mm]	D [mm]	L <sub>1</sub> [mm]	L <sub>2</sub> [mm]	B <sub>1</sub> [mm]	B <sub>2</sub> [mm]	Ø [mm]
CRN 3 SF CRN 5 SF	210	50	50.5	100	150	180	210	13
CRN 10 SF	261	80	64	130	200	215	248	13
CRN 15 SF CRN 20 SF	261	90	64	130	200	215	248	13

FGJ

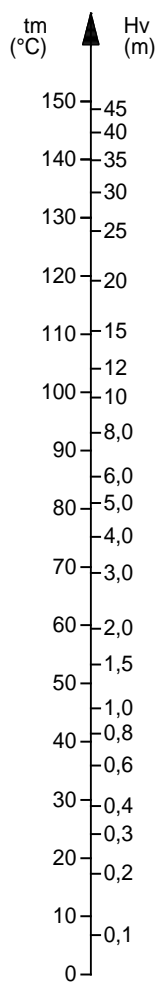
Connection type



TM04 5873 4309

Pump type	L [mm]	H [mm]	D [mm]	L <sub>1</sub> [mm]	L <sub>2</sub> [mm]	B <sub>1</sub> [mm]	B <sub>2</sub> [mm]	Ø [mm]
CRN 3 SF CRN 5 SF	280	85	55	100	150	180	210	13
CRN 10 SF CRN 15 SF CRN 20 SF	330	105	90	130	200	215	248	13

Fig. B



TM00 3037 3493

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