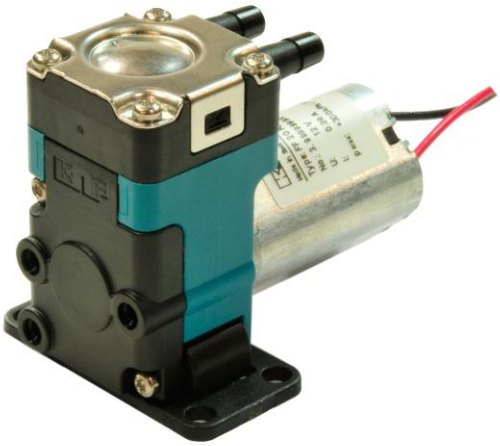
FF 20

INSTALLATION INSTRUCTIONS

DIAPHRAGM PUMP

FF 20 DCB-4



FF 20 DC-M

Before operating the pump and the accessories, please read the Installation Instructions and safety precautions.

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1 General

1.1 Information about the instructions

Table of Contents

The Installation Instructions describe the requirements for installing the product correctly and safely into the complete machine.

Storage location

These Installation Instructions are a part of the product. The safety-relevant information should be taken over for the documentation of the complete machine.

Project pumps

With customer-specific project pumps (pump types which begin with "PL" or "PML"), there may be differences from the Installation Instructions.

1.2 Warnings

Warnings in the Installation Instructions are marked by the hazard symbol, the keywords, and the color. These features provide information about the extent of the hazard.

⚠ DANGER

Indicates a dangerous situation, which will directly cause death or serious injury if not prevented.

⚠ WARNING

Indicates a dangerous situation, which may cause death or serious injury if not prevented.

⚠ CAUTION

Indicates a dangerous situation, which may cause moderate or slight injuries if not prevented.

NOTICE

Indicates a situation, which may cause damage to property if not prevented.

1.3 Disclaimer

The manufacturer accepts no liability for damage or malfunctions that are caused by non-compliance with the Installation Instructions.

The manufacturer accepts no liability for damage or malfunctions that are caused by modifications to or conversions of the device or by improper handling.

The manufacturer accepts no liability for damage or malfunctions that are caused by using spare parts or accessories that are not approved by the manufacturer.

1.4 Manufacturer's Address

KNF Flodos AG
Wassermatte 2
6210 Sursee, Switzerland

Phone +41 (0)41 925 00 25
Fax +41 (0)41 925 00 35

www.knf.com

1.5 Supporting documents

The listed documents must also be observed. The valid versions are available at www.knf.com/downloads.

- Data sheet
- 3D model

The following must also be observed:

- Local T&Cs
- Sales documents and agreement between KNF and the customer

2 Safety

2.1 Intended use

The pump is intended solely for the following uses:

- Transferring liquids and gases
- For operation in accordance with the operating parameters specified in the technical data of the supporting documents

2.2 Reasonably foreseeable misuse

The pump must not:

- be operated in an explosive atmosphere
- be used to transfer explosive media
- be used to transfer media whose compatibility with the pump head, valves, diaphragms, and seals has not been proven

2.3 Responsibility of the user

The user is responsible for ensuring that the safety precautions in these Installation Instructions are complied with. Applicable safety, accident prevention, and environmental protection regulations must be complied with.

2.4 Product-specific risks

Remaining risks that were determined in a risk assessment are described in this section. Safety precautions and warnings in this section and in the other sections of the Installation Instructions must be observed to prevent dangerous situations.

⚠ DANGER

Danger of injuries and damage to property due to dangerous substances

Poisoning and chemical burns or unintended reactions caused by leaking dangerous substances

- ➢ Observe the safety data sheets of the transferred media
- ➢ Before transferring a medium, check whether it can be transferred safely in the specific application case.
- ➢ Ensure that the system is not subject to any risks of explosion, also in extreme operating conditions (temperature, pressure) or in case of malfunctions.
- ➢ Ensure the pump is used only by suitably trained, skilled employees
- ➢ Clarify the wear resistance of the head material
- ➢ Check that the pump and the system do not leak at the operating temperature of the transferred medium
- ➢ Check the pump for damage regularly
- ➢ Operate the pump only when you are sure it has no technical malfunctions
- ➢ Operate the pump in accordance with the technical data
- ➢ Work on the pump or fluid circulation system only after they have been decontaminated and/or a decontamination declaration is present

⚠ DANGER

Danger of injuries and damage to property due to leaks at the interfaces to the pump head

Poisoning and chemical burns or unintended reactions caused by leaking dangerous substances

- ➢ Wear personal protective equipment
- ➢ Connect the pump correctly
- ➢ Operate the pump only when you are sure it has no technical malfunctions
- ➢ Operate the pump in accordance with the technical data

⚠ DANGER

Danger of injuries and damage to property due to uncontrolled flow while the pump is not in operation

Poisoning and chemical burns or unintended reactions caused by leaking dangerous substances

- ➢ Construct the fluid system so that the operating pressure at the pressure side of the pump is higher than at the suction side
- ➢ Install a shut-off valve in the fluid circulation system

2.5 Compliance

The declaration of standard SJ-T 11364-2024 “Hazardous Substance Disclosure Table 有害物质含量表” is made in accordance with the specifications detailed in the appendix to this document.

3 Installation

⚠ WARNING

Danger from incorrect installation

Injuries or damage to property from leaking media

- ➢ After installation, check the system for leaks with a safe medium
- ➢ Observe the requirements for intended use
- ➢ Take precautions in the design of the end device so that leaking liquids cannot come into contact with live components

The following requirements apply to all activities described in this section:

3.1 Installation location

The installation location must:

- protect the pump against immersion
- keep aggressive and flammable liquids and vapors away
- allow hoses to be connected without tensile or bending stress
- take account of cooling the pump drive
- ensure that any leaks can be handled
- have appropriate precautions if flammable media are used

3.2 Mechanical mounting

- Protect the product against impacts, knocks, and strong vibrations
- For dimensions, installation positions, fluid connections, please refer to the product data sheet

3.3 Connecting the fluid system

Use suitable means to check the fluid connection for leaks.

For more information regarding dimensions, please refer to the data sheet.

3.4 Electrical connection

For terminal assignment, output data, and control requirements, please refer to the data sheet

Observe the regulatory requirements for electrical installations:

- Overload protection and separating protective devices
- Contact protection and additional insulation
- Ground connections
- Protection against vibrations, tensile stress, and corrosion

4 Initial start-up

The product must not be started up until it has been ensured that the machine in which the product is to be installed meets the requirements of the Machinery Directive 2006/42/EC, if applicable.

⚠ WARNING

Danger of bursting of the fluid system due to overpressure.

The pump builds up pressure. With a closed system, the max. permitted operating pressure can be exceeded. This may cause injuries to personnel or damage to the pump or the system.

- ➢ Prevent operation against a closed system
- ➢ In the case of parts that are in contact with the fluid, use only those that are designed to at least withstand the operating pressure of the pump
- ➢ If necessary, take suitable measures to limit the maximum system pressure

⚠ CAUTION

Danger of unexpected chemical reactions with water

Residues of water in the pump that come from testing in the factory may react with the transferred medium.

- ➢ Before starting the pump for the first time, rinse it with a medium that is uncritical as regards water

⚠ CAUTION

Danger due to automatic start

Pumps with brushless DC motors have a thermal fuse that stops the motor if it overheats. When the motor cools, it starts again automatically.

- ➢ Ensure that no dangerous situations can result from this.

⚠ CAUTION

Danger from hot surfaces

The pump becomes hot during operation. Burns from hot surfaces or injuries from uncontrolled movements are possible.

- ➢ Do not touch the pump while it is operating.
- ➢ Ensure a sufficient supply of cool air and keep a safe distance between the pump and neighboring components.
- ➢ Operate the pump in accordance with the technical data.
- ➢ If the temperature of the medium is above 50°C, take precautions to prevent burns from fluid components.

Before switching on the pump, check the following points:

- All hoses are attached properly
- Pump is mechanically fixed in place
- Specifications of the power supply correspond with the data on the pump’s type plate
- Pump discharge is not blocked
- All cables are attached properly
- Contact protection for electrical connections and moving parts is installed

5 Maintenance

Ask your KNF representative about the availability of spare parts for this product.

6 Rectifying transfer problems

Symptom	Cause	Remedy
Pump does not work, no movement or sounds detectable	No or incorrect control	Check that voltage and signal form comply with the specification
Pump does not work, drive becomes very hot	Motor is controlled with an incorrect signal	Check that voltage and signal form comply with the specification
The pump does not suck or vacuum is insufficient	External valve is closed	Check external valve
	Counterpressure on pressure side is too high	Change the pressure conditions on the pressure side
	Particles in the pump head	Rinse the pump head Use a preventive preliminary filter
Pump does not transfer	External valve is closed or filter is clogged or too small	Check external valves and filter
	Connections or hoses are blocked	Check connections and hoses Remove blockage.
Flow rate is insufficient or unstable	Incorrect control	Check that voltage and signal form comply with the specification
	Cross-section of hydraulic hoses or connectors too narrow or restricted	Disconnect the pump from the system and determine output values Remove restriction (e.g. valve) if necessary. If applicable, use larger-diameter hoses or connectors
	Higher counterpressure in the system than assumed for the design	Contact KNF representative
	Particles in the pump head	Rinse the pump head Use a preventive preliminary filter Replace pump head
	Pump has reached the end of its service life	Replace the pump
Leak on pump head	Diaphragm defective	Replace the pump
	Oscillating diaphragm defective	Replace pump or pump head

If the malfunction cannot be rectified, contact your local KNF representative (www.knf.com)

7 Returning the pump

KNF undertakes to repair the pump only under the condition that the customer provides a certificate of the pumped medium and cleaning of the pump. For this purpose, please follow the instructions on www.knf.com/repairs.

Please contact your KNF sales representative directly if you need additional support for your return service.

8 Appendix

8.1 RoHs declaration for China

SJ-T 11364-2024 Hazardous Substance Disclosure Table / SJ-T 11364-2024 有害物质含量表

This declaration is valid for the KNF products produced by:
本声明适用于由以下KNF公司生产的产品:

KNF Flodos AG CH-6210 Sursee Switzerland

The following information has been made available to comply with SJ-T 11364-2024 the Marking for Control of Pollution Caused by Electronic Information Products as required by China's Management Methods for the Control of Pollution from Electronic Information Products.
提供以下信息旨在遵守中国《电子信息产品污染控制管理办法》所要求的 SJ-T 11364-2024《电子信息产品污染控制标识》标准。

Part Name 部件名称	Hazardous Substances Table 有害物质含量表						EFUP / 环境友好使用期限	China RoHS comment / 中国RoHS注释	EU RoHS compliant / 符合欧盟RoHS指令
	Lead 铅 (Pb)	Mercury 汞 (Hg)	Cadmium 镉 (Cd)	Hexavalent Chromium 六价铬 (Cr(VI))	Polybrominated biphenyls 多溴联苯 (PBB)	Polybrominated diphenyl ethers 多溴二苯醚 (PBDE)			
Pump head / 泵头	X	O	O	O	O	O	20	Lead within EU RoHS exemption limit / 铅含量在欧盟RoHS豁免限值以内	Yes / 是
Pump housing / 泵体	X	O	O	O	O	O	20	Lead within EU RoHS exemption limit / 铅含量在欧盟RoHS豁免限值以内	Yes / 是
Pump motor / 泵的电机	X	O	O	O	O	O	20	Lead within EU RoHS exemption limit / 铅含量在欧盟RoHS豁免限值以内	Yes / 是
Additional components for systems / 系统附加部件	X	O	O	O	O	O	20	Lead within EU RoHS exemption limit / 铅含量在欧盟RoHS豁免限值以内	Yes / 是

O: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in SJ-T 11364-2024. 表示该有害物质在该部件所有均质材料中的含量均在 SJ-T 11364-2024 规定的限量要求以下。

X: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ-T 11364-2024. 表示该有害物质至少在该部件的某一均质材料中的含量超出 SJ-T 11364-2024 规定的限量要求。

EFUP /环境友好使用期限: Environment Friendly Using Period / 环境友好使用期