

DIAPHRAGM LIQUID PUMPS

NF 10 / 11



NF 10 KP.51 DC



NF 10 TTDCB



NF 11 KPDC

Concept

KNF diaphragm liquid pumps are based on the principle of the oscillating displacement pump which is remarkably simple in design. The circular power from the motor is converted into vertical movement by an eccentric. This motion is then transferred to a diaphragm by means of a connecting rod which in conjunction with an inlet and outlet valve creates a pumping action.

NF 10/11 type liquid pumps can be mounted in any position and can deliver up to 0.1 l/min depending on the model and will operate against pressures of up to 10 mWg.

The KNF modular system contains a wide standard range of materials, motors, voltages and frequencies to enable the selection of an optimal solution for your application.

Features

Small and powerful

Micro design and maximum performance resulting from built-in technology are the outstanding characteristics of this product.

Self-priming and excellent for pressure

Sophisticated diaphragm technology and precise valve structures enable performances of up to 3 mWg suction and 10 mWg pressure.

Extreme chemical resistance

The use of chemically resistant materials such as PTFE, PVDF, FFKM or other material combinations for the parts which come in contact with the liquid allows almost all neutral or corrosive liquids to be pumped.

Dry running, durable and maintenance free

The carefully considered design of these pumps allows them to run dry and ensures safe operation and a long life even under the most severe conditions.

Areas of use

The versatility of KNF pumps allows a wide field of applications to be covered. Over many years our pumps have proved themselves in the following areas:

Analyses

- Medical/pharmaceutical
- Environmental/water treatment
- Food/toxicology

Laboratory

- Filtration
- Chromatography

Cleaning industry

- Cuvette cleaning
- Sterilizers
- Industrial washing machines

Printing

- Ink jet printing
- Photographic/film development

Other applications for diaphragm liquid pumps include: fuel cells, hydrogen generators, semiconductor industry, dental technology, textiles and many more.

PERFORMANCE DATA			
Type	Flow rate (l/min)	Suction head (mWg)	Pressure head (mWg)
NF 10/11	0.1	3	10

THE KNF MODULAR CONCEPT OF SELECTION

General note

This Data Sheet provides an overview of the options with our NF 10/11 pumps. Certain standard options will be explained in more detail where necessary.

Flow curves

The flow curves illustrate how the flow rate alters in relation to the pressures before and after the pump. In the case of a combination of both we would be very happy to advise what the expected flow rate would be.

The values given in the curves are dependent upon the liquid, choice of head materials and the type of hoses being used. Therefore a certain deviation is to be expected.

Note: The flow rate is measured with water at 20°C.

1 Materials of head components

KNF Flodos offers a wide range of different materials for those parts which come in contact with the liquid thus allowing the possibility of pumping most liquids.

2 Motors

- **DC** Direct current motor
- **NF 11** Ironless direct current motor
This provides the following advantages compared to a conventional DC motor: higher durability, less power consumption and smaller size.
- **DCB** Brushless direct current motor
This type of motor has no brushes which can wear down thus giving it a higher lifetime and no brushes fire. Option with four leads (motor speed control and rpm. impulse output) available.

3 Voltages

Choose from the different electrical connection possibilities. Special variations are available.

Modules

Our versatile self-selection program allows you to personally determine the optimum characteristics that you require from your pump. Select your diaphragm pump from the following characteristics:

PUMP TYPE			
Basic model	Components		
	1	2	3
e.g. NF 10/11	KV	DC	24V

1 MATERIALS OF HEAD COMPONENTS		
KP KP .51*	Head Valves Diaphragm Resonating diaphragm	PP EPDM EPDM EPDM
KV	Head Valves Diaphragm Resonating diaphragm	PP FPM FPM FPM
KT	Head Valves Diaphragm Resonating diaphragm	PP FFKM PTFE FFKM
TV	Head Valves Diaphragm Resonating diaphragm	PVDF FPM FPM FPM
TT	Head Valves Diaphragm Resonating diaphragm	PVDF FFKM PTFE FFKM

* food conform according to the standard NSF/ANSI 169, for further information see options

2 MOTORS	
DC	Direct current motor
DCB	Brushless direct current motor

3 VOLTAGES	
12/24V	for DC motors
12/24V	for DCB motor

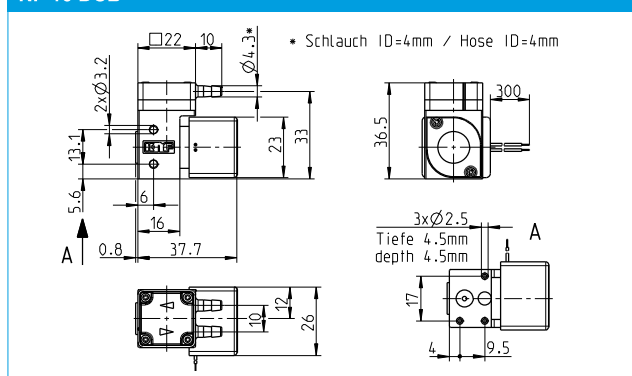
NF 10 DC / NF 11 DC

PERFORMANCE

Basic model	Flow rate at atmos. pressure (l/min)	Max. suction head (mWg)	Max. pressure head (mWg)
NF 10 DCB	0.1	3	10
NF 11 DC	0.1	3	10

Motor selection	DCB (NF 10)	DC (NF 11)
Voltage (V)	12 / 24	12 / 24
Power rating (W)	1.7	2.5 / 2.3
I max. load (A)	0.14 / 0.07	0.17 / 0.08
I max. (A)	0.45	0.21 / 0.09
EMC-guideline ¹⁾	EN 61000-6-2 EN 61000-6-3	EN 55022 EN 55011
Weight (g)	56	70
Motor protection factor	IP 40	IP 33

NF 10 DCB



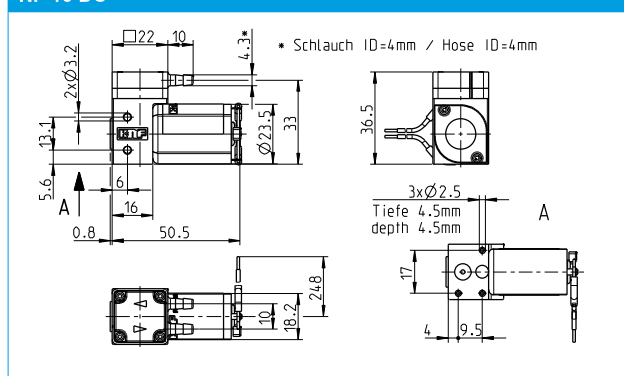
NF 10 DC

PERFORMANCE

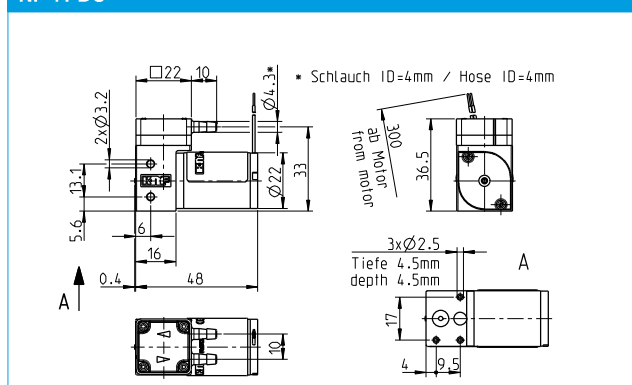
Basic model	Flow rate at atmos. pressure (l/min)	Max. suction head (mWg)	Max. pressure head (mWg)
NF 10 DC	0.1	3	10

Motor selection	DC (NF 10)
Voltage (V)	12 / 24
Power rating (W)	3.7 / 3.4
I max. load (A)	0.28 / 0.13
I max. (A)	0.31 / 0.14
EMC-guideline ¹⁾	EN 55022 EN 55011
Weight (g)	60
Motor protection factor	IP 30

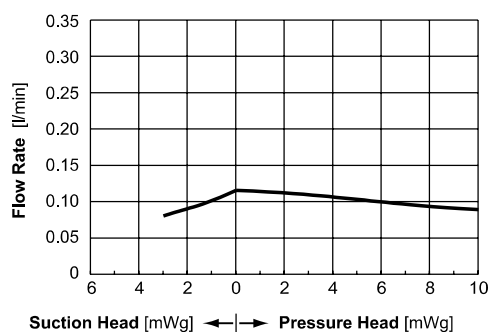
NF 10 DC



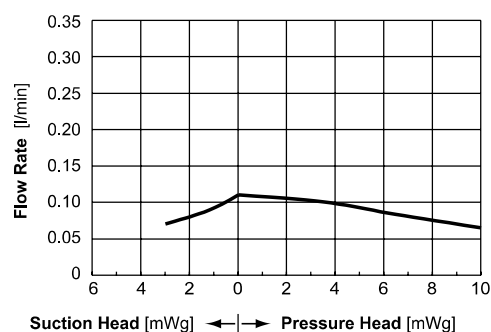
NF 11 DC



FLOW CURVE NF 11 DC / NF 10 DCB



FLOW CURVE NF 10 DC



OPTIONS, ACCESSORIES



Diaphragm pressure control valve

The pressure control valve can be used for a more accurate control of flow against a fluctuating back pressure, metering into a vacuum and from a pressurised system. Used correctly it can save pumps, plumbings and other fittings from damage.



Pulsation damper

This very versatile pulsation damper reduces the vibration in hoses and pipes and it helps to remove pulsation which is preventing the system from functioning correctly. It also protects instrumentation connected after the pump.

Further accessories

- Hoses
- Hoses connections
- Shock mounts



NSF National Sanitary Foundation

NSF is market leader in the development and controlling of standards relevant for equipment used for handling foodstuffs. By using different toxicological tests our products will be certified according to the standard NSF/ANSI 169. This certification will confirm that all of the pumps with the code .51 are certified for the use with foods/consumables. In addition to this it also means that the pumps are constructed with wetted parts which come with a FDA* declaration of conformity. A yearly audit from NSF will be carried out to ensure that these standards are being maintained. A list of the various products are available on request.

* FDA = Food and Drug Administration

Further options

- Special hose connections: UNF 1/4"-28, compression fitting for ID 4mm; OD 6mm hosing
- Suitable for pressures over 1.0 bar
- Other head materials
- Motors with special voltages and frequencies
- The incorporation of customers special requirements, or example special
- electrical connections (Molex, AMP, etc.)