INNOVATIVE
TECHNOLOGY
WORLDWIDE

MICRO DIAPHRAGM LIQUID PUMPS
NF 25

DATA SHEET E521

NF 25 KPDC-M

NF 25 KTDC-L

NF 25 KPDCB-4

Concept

KNF micro 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 25 type liquid pumps can be mounted in any position and can deliver up to 0.25 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 from 3 mWg suction and 10 mWg pressure.

Extreme chemical resistance
The use of chemically resistant materials such as PTFE (TFM), PVDF, FFPM 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 be 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:

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

Laboratory
- Filtration
- Chromatography

Cleaning industry
- Cuvette cleaning
- Sterilisers
- Industrial washing machines

Printing
- Ink jet printing
- Photographic / film development

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

Performance

Type	Flow rate (ml/min)	Suction head (mWg)	Pressure head (mWg)
NF 25 DC-M	[redacted] 250	3 [redacted]	[redacted] 10
NF 25 DC-L	[redacted] 250	3 [redacted]	[redacted] 10
NF 25 DCB-4	[redacted] 25 - 250	3 [redacted]	[redacted] 10

The KNF Modular Concept of Selection

General note

This Data Sheet provides an overview of the options with our NF 25 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 dependant 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-M Direct current motor

DC-L Ironless direct current motor
This provides the following advantages compared to a conventional DC motor: higher durability, less power consumption and smaller size.

DCB-4 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. Compact size, flow rate control over motor speed are the advantages of this motor.

Leads DCB-4			
Function	lead	signal name	signal
+ voltage	red	+Vs	10..28 VDC
- voltage	black	-Vs/GND	-
control voltage input signal	white	Vctrl	0.3..5 VDC
impulse generator	green	FG	6 Pulses/ rot

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
NF 25			

1	Materials of head components	
KP	Head	PP
	Valves	EPDM
	Diaphragm	EPDM
	Resonating diaphragm	EPDM
KT	Head	PP
	Valves	FFPM
	Diaphragm	PTFE covered
	Resonating diaphragm	FFPM
TT	Head	PVDF
	Valves	FFPM
	Diaphragm	PTFE covered
	Resonating diaphragm	FFPM

2	Motors
DC-M	Direct current motor
DC-L	Ironless direct current motor
DCB-4	Brushless direct current motor

3	Voltages
12 / 24 V	for DC motors
10....28 V	for DCB motor

Performance

Basic model	Flow rate at atmos. pressure (ml/min)	Max. suction head (mWg)	Max. pressure head (mWg)
NF 25 DC-M	250	3	10
NF 25 DC-L	250	3	10

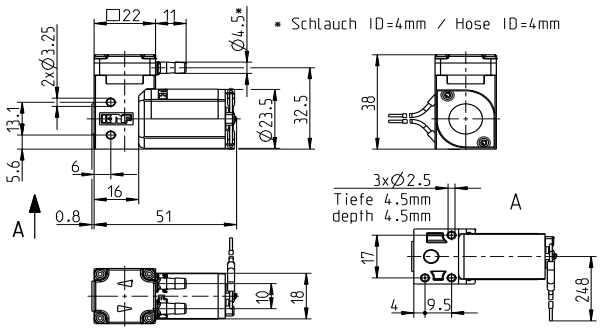
Motor selection	**DC-M**	**DC-L**
Supply voltage (V)	12 / 24	12 / 24
Power rating (W)	2.9 / 2.9	1.9 / 1.9
I max. last (A)	0.24 / 0.12	0.16 / 0.08
I max. (A)	0.31 / 0.14	0.25 / 0.12
EMC guideline	EN 555014	EN 55022
Motor protection factor	IP 30	IP 33
Weight (g)	64	74

Performance

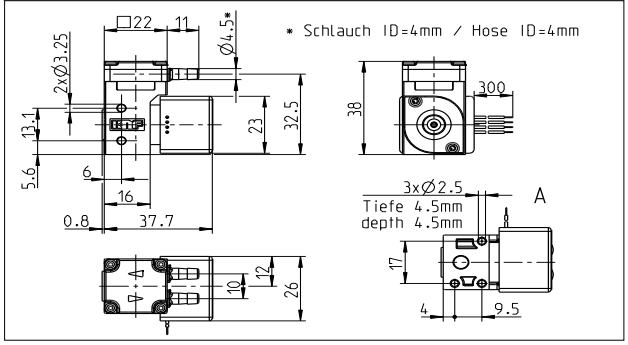
Basic model	Flow rate at atmos. pressure (ml/min)	Max. suction head (mWg)	Max. pressure head (mWg)
NF 25 DCB-4	250	3	10

Motor selection	**DCB-4**
Suply voltage (V)	10.....28
Power rating (W)	2.6
I max. last (A)	0.26....0.09
I max. (A)	0.45
EMC guideline	EN 55011/55022
Motor protection factor	IP 40
Weight (g)	60

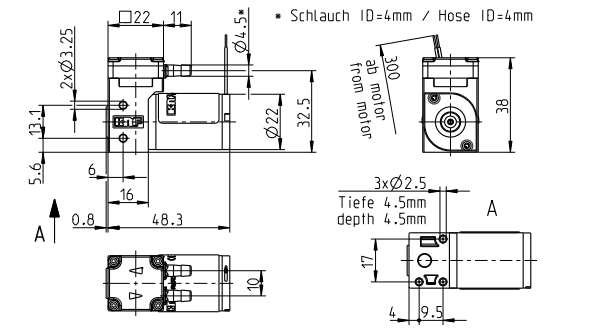
NF 25 DC-M



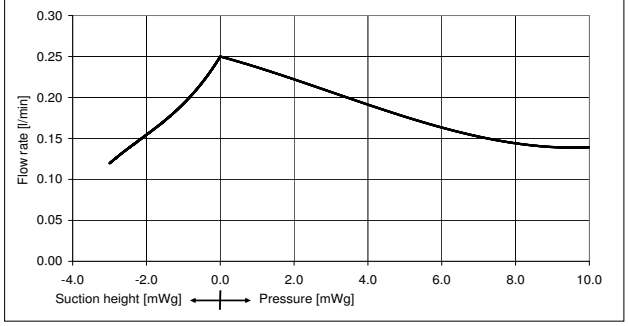
NF 25 DCB-4



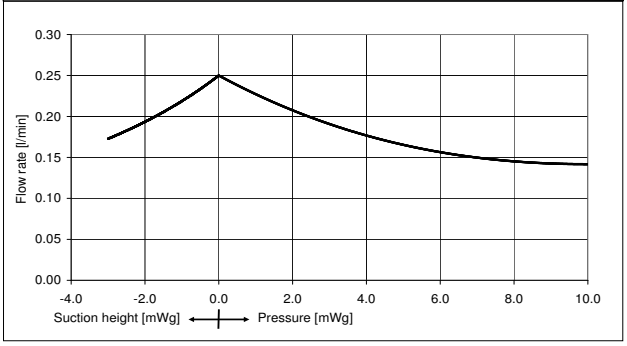
NF 25 DC-L



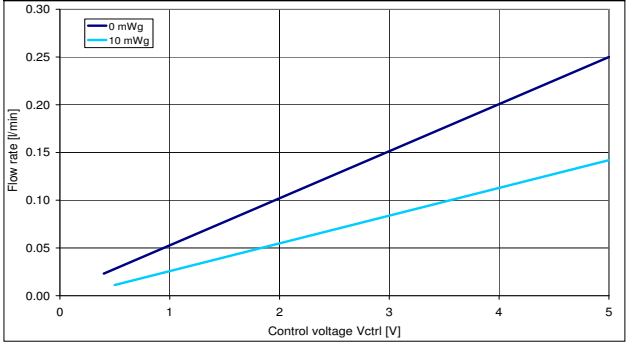
NF 25 Flow curve NF25 DCB-4



NF 25 DC flow curve DC- L



NF 25 DCB-4 Control curve



Accessories

Options

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 correct it can save pumps, plumbings and other fittings from damage. Example FDV 30 KPZ, for more information see data sheet FDV

Pulsation damper

This very versatile pulsation damper reduzes the vibration in hoses and pipes and it helps to remove pulsation which is preventing the system from functionning correctly. It also protects instrumentation connected after the pump. Suggestion FPD 06 KPZ-1, for more details see data sheet FPD

Further accessories

- Hoses
- Hoses connections
- Shock mounts

Further options

- Other materials
- Motors with special voltages and frequencies
- The incorporation of customers special requirements, or example special
- electrical connections (Molex, AMP, etc.)
- DCB Motor with 2 wires (12 V and 24 V)

We specialise in tailor made solutions. For all the possible options please feel free to contact us.

KNF FLODOS AG, Wassermatte 2, 6210 Sursee, Switzerland - www.knf-flodos.ch, info@knf-flodos.ch

INNOVATIVE
TECHNOLOGY
WORLDWIDE

Technical status: 08/2009
KNF FLODOS reserves the right to make technical changes.

Printed in Switzerland
ID No. 159 608