

# MICRO DIAPHRAGM GAS PUMPS

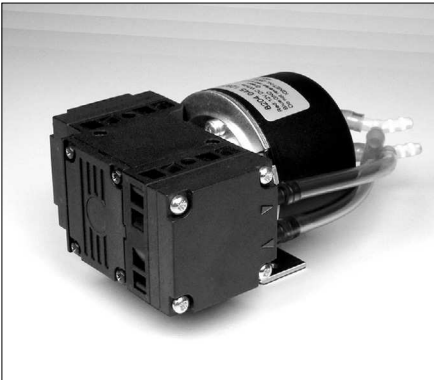
DATA SHEET E 005



NMP830KNE



NMP850KPDC



NMP850.1.2KPDC-B

## Concept

The micro diaphragm gas pumps from KNF are based on a simple principle – an elastic diaphragm, fixed on its edge, moves up and down its central point by means of an eccentric. In this way the gas is transferred using automatic valves.

The pumps are equipped with the stress-optimized diaphragm, resulting in a high pneumatic performance, a durable product and compact size. In addition special valves ensure the minimum resistance to flow.

Thanks to the KNF modular system, the parts used to transfer the gases can be made from materials with varying degrees of resistance. The pumps can be driven by either AC or DC motors.

## Features

Uncontaminated flow  
No contamination of the media due to oil-free operation

Maintenance-free

Compact size

High pneumatic performance

Low aerodynamic loss

High level of gas tightness

Long product life

Ready for assembly

Can operate in any installed position

For the version with brushless motor the following also apply:

- safe and reliable constant use
- particularly long durability

Connection hose barbs. Optional M5, UNF 1/4.-28, DN4/6 mm hose connector

## Areas of use

KNF micro diaphragm pumps are used frequently in the fields of analysis and medicine.

For instance as pumps for gas measurement, for example for sampling environmental conditions in the workplace, or for exhaust gas and smoke analysis or built into machines for measuring blood pressure.

The AC models are suited for use in machinery which is permanent or mains-operated. Micro diaphragm pumps for portable and stand-alone equipment require DC power supplies.

PERFORMANCE DATA				
Type	Delivery (l/min)	Vacuum (mbar absolute)	Pressure (bar)	Weight (g)
NMP830KNE	1.8	250	1	590
NMP830KNDC-B	2.5	240	1.4	270
NMP830KNDC	3.1	250	1	195
NMP850KPDC-B	4.2	230	1.5	360
NMP850KPDC	4.5	230	1.5	210
NMP850.1.2KPDC-B	8.0	230	1.5	430

# NMP830K\_E

## PERFORMANCE DATA

Type	Delivery at atm. pressure (l/min) <sup>1)</sup>	Max. operating pressure (bar)	Ultimate vacuum (mbar abs.)
NMP830KNE	1.8	1	250
NMP830KVE	1.8	1	250
NMP830KTE	1.6	1	310

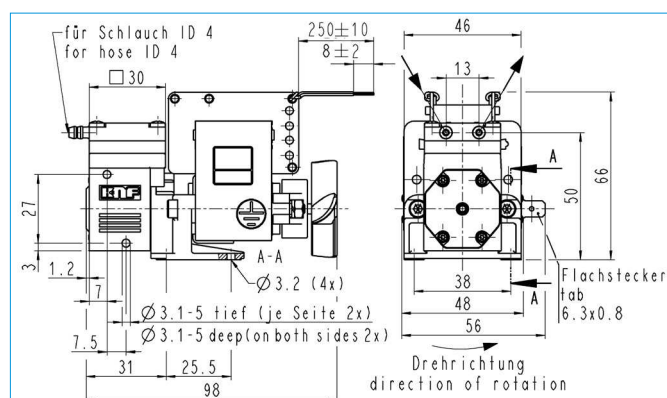
<sup>1)</sup> Liter at STP

## MOTOR DATA

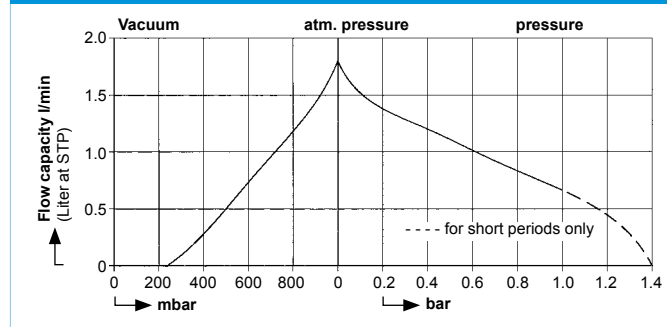
Protection class	IP 00
Voltage (V)	230
Frequencies (Hz)	50
Power P <sub>1</sub> (W)	25
I <sub>max</sub> (A)	0.3

## PUMP MATERIAL

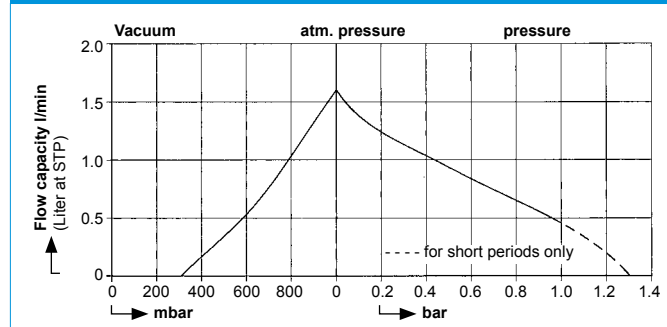
Type	Pump head	Diaphragm	Valves
NMP830KNE	PPS	EPDM	CR
NMP830KVE	PPS	FPM	FPM
Chemically resistant version			
NMP830KTE	PPS	PTFE-coated	FFPM



## NMP830KNE | NMP830KVE



## NMP830KTE



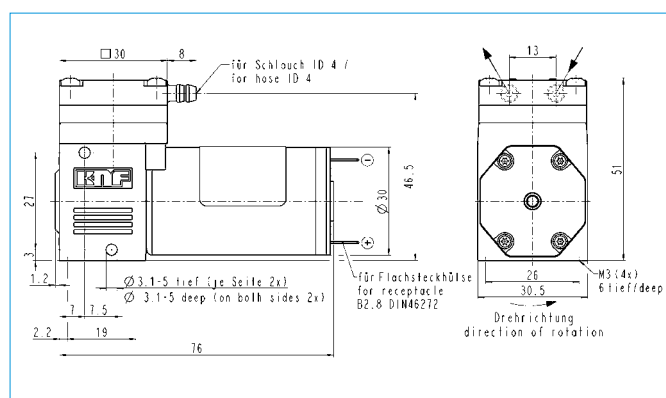
# NMP830K\_DC

## PERFORMANCE DATA

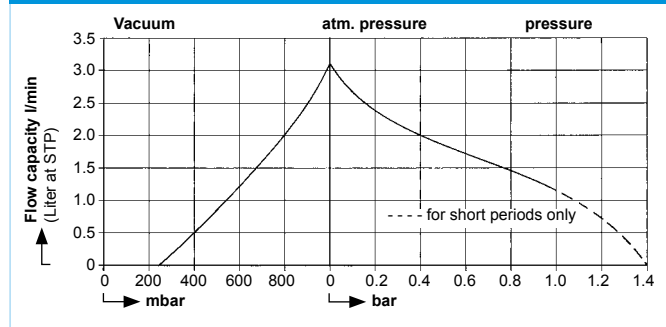
Type	DC motor (V)	Delivery at atm. pressure (l/min) <sup>1)</sup>	Max. operating pressure (bar)	Ultimate vacuum (mbar abs.)
NMP830KNDC	6	3.1	1	250
NMP830KVDC	6	2.7	1	250
NMP830KTDC	6	2.6	1	350
NMP830KNDC	12	3.1	1	250
NMP830KVDC	12	2.7	1	250
NMP830KTDC	12	2.6	1	350
NMP830KNDC	24	3.1	1	250
NMP830KVDC	24	2.7	1	250
NMP830KTDC	24	2.6	1	350

## PUMP MATERIAL

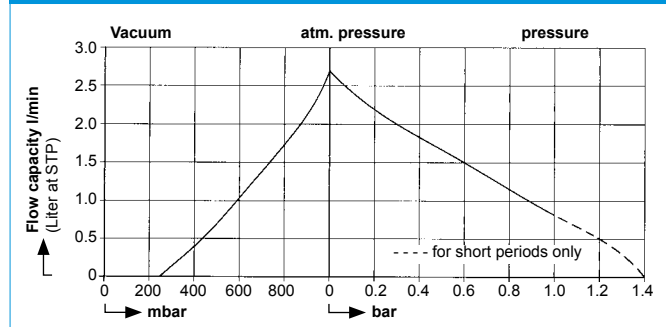
Type	Pump head	Diaphragm	Valves
NMP830KNDC	PPS	EPDM	CR
NMP830KVDC	PPS	FPM	FPM
Chemically resistant version			
NMP830KTDC	PPS	PTFE-coated	FFPM



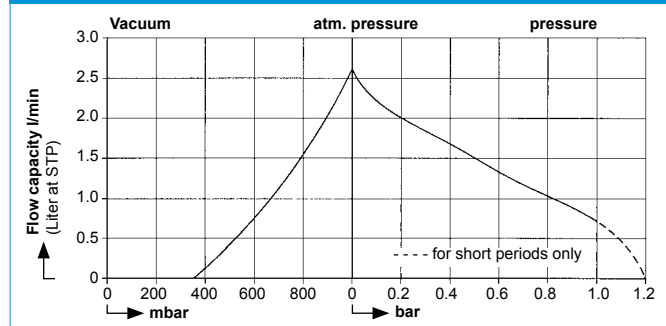
## NMP830KNDC



## NMP830KVDC



## NMP830KTDC



# NMP830K\_DC-B

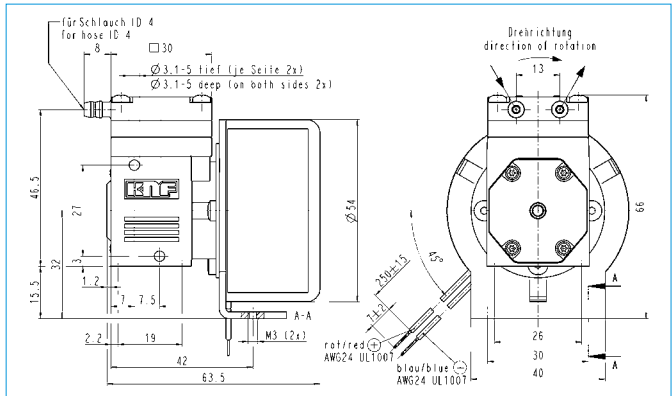
## PERFORMANCE DATA

Type	KNF DC motor, brushless (V)	Delivery at atm. pressure (l/min) <sup>1)</sup>	Max. operating pressure (bar)	Ultimate vacuum (mbar abs.)
NMP830KNDC-B	12	2.5	1.4	240
NMP830KVDC-B	12	2.1	1.4	240
NMP830KTDC-B	12	2.1	1.3	330
NMP830KNDC-B	24	2.5	1.4	240
NMP830KVDC-B	24	2.1	1.4	240
NMP830KTDC-B	24	2.1	1.3	330

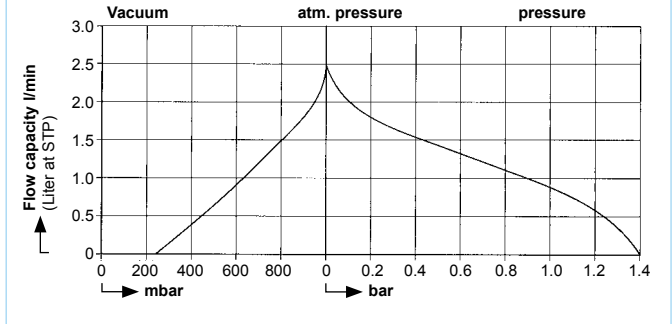
<sup>1)</sup> Liter at STP

## PUMP MATERIAL

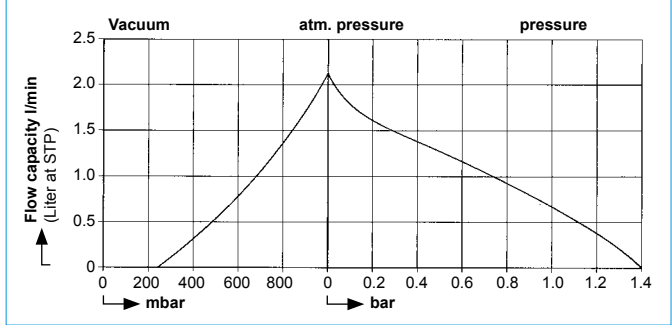
Type	Pump head	Diaphragm	Valves
NMP830KNDC-B	PPS	EPDM	CR
NMP830KVDC-B	PPS	FPM	FPM
Chemically resistant version			
NMP830KTDC-B	PPS	PTFE-coated	FFPM



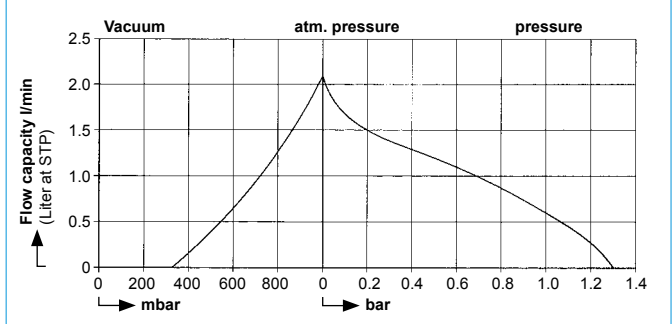
## NMP830KNDC-B



## NMP830KVDC-B



## NMP830KTDC-B



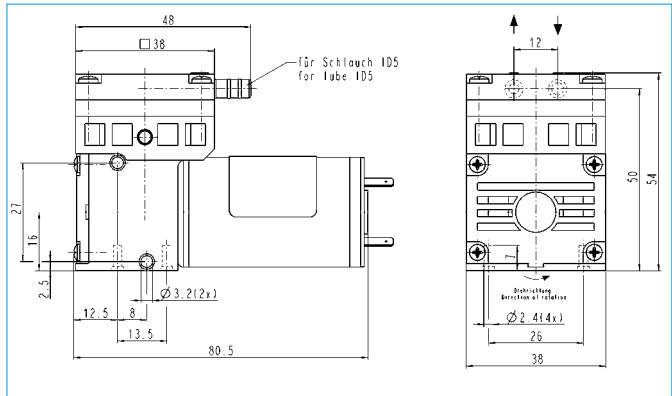
# NMP850K\_DC

## PERFORMANCE DATA

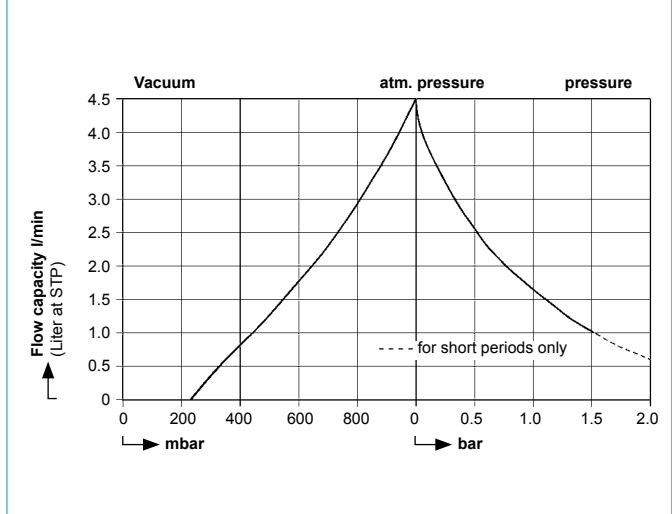
Type	DC motor (V)	Delivery at atm. pressure (l/min) <sup>1)</sup>	Max. operating pressure (bar)	Ultimate vacuum (mbar abs.)
NMP850KPDC	12	4.5	1.5	230
NMP850KTDC	12	3.9	1.5	300
NMP850KPDC	24	4.5	1.5	230
NMP850KTDC	24	3.9	1.5	300

## PUMP MATERIAL

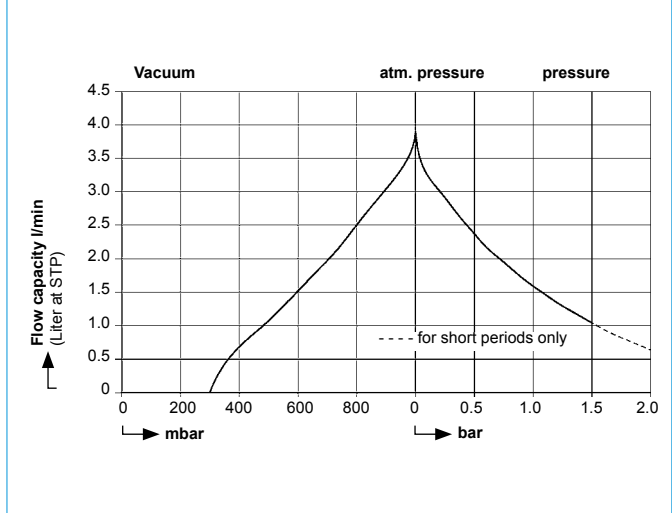
Type	Pump head	Diaphragm	Valves
NMP850KPDC	PPS	EPDM	EPDM
Chemically resistant version			
NMP850KTDC	PPS	PTFE-coated	FFPM



## NMP850KPDC



## NMP850KPDC



# NMP850K\_DC-B

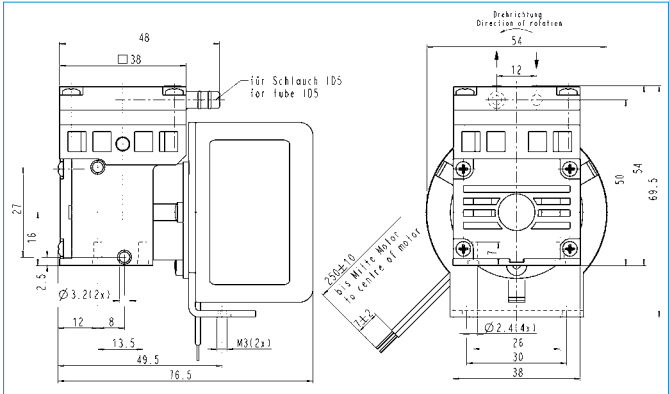
## PERFORMANCE DATA

Type	KNF DC motor, brushless (V)	Delivery at atm. pressure (l/min) <sup>1)</sup>	Max. operating pressure (bar)	Ultimate vacuum (mbar abs.)
NMP850KPDC-B	12	4.2	1.5	230
NMP850KTDC-B	12	3.5	1.5	300
NMP850KPDC-B	24	4.2	1.5	230
NMP850KTDC-B	24	3.5	1.5	300

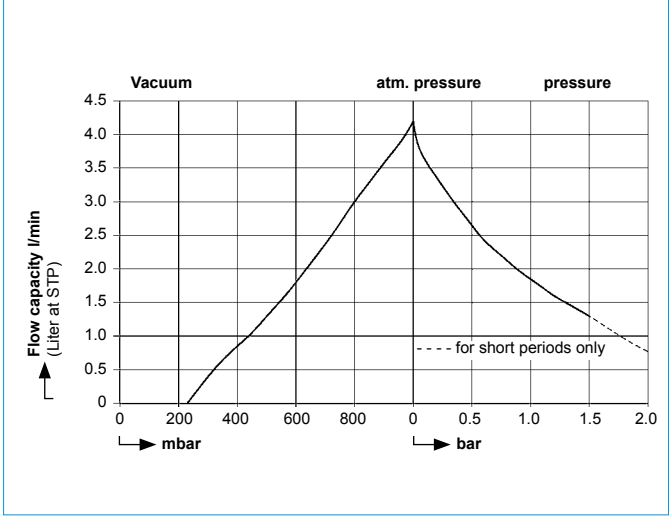
<sup>1)</sup> Liter at STP

## PUMP MATERIAL

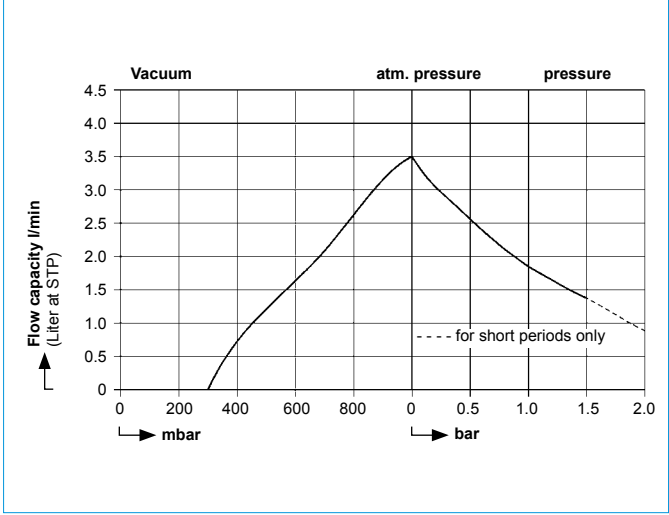
Type	Pump head	Diaphragm	Valves
NMP850KPDC-B	PPS	EPDM	EPDM
Chemically resistant version			
NMP850KTDC-B	PPS	PTFE-coated	FFPM



## NMP850KPDC-B



## NMP850KTDC-B



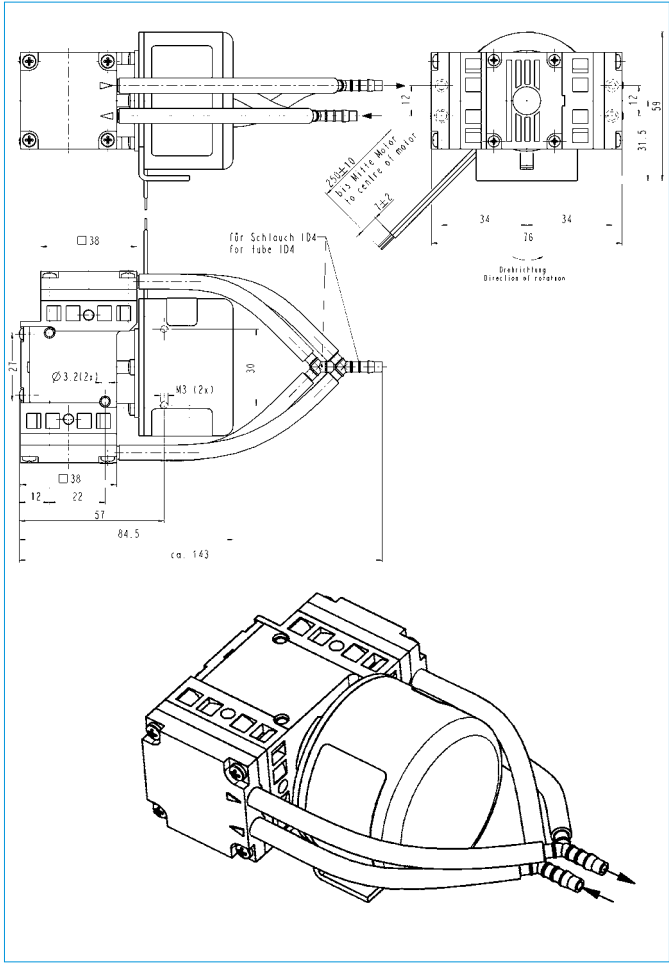
# NMP850.1.2KPDC-B

## PERFORMANCE DATA

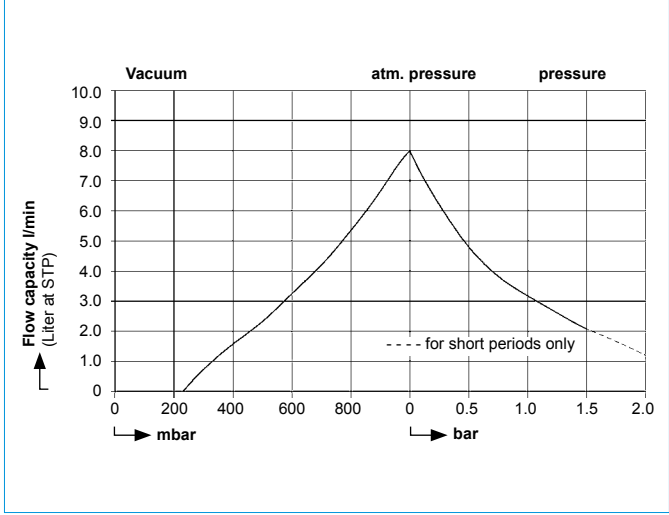
Type	KNF DC motor, brushless (V)	Delivery at atm. pressure (l/min) <sup>1)</sup>	Max. operating pressure (bar)	Ultimate vacuum (mbar abs.)
NMP850.1.2KPDC-B	12	8.0	1.5	230
NMP850.1.2KPDC-B	24	8.0	1.5	230

## PUMP MATERIAL

Type	Pump head	Diaphragm	Valves
NMP850.1.2KPDC-B	PPS	EPDM	EPDM



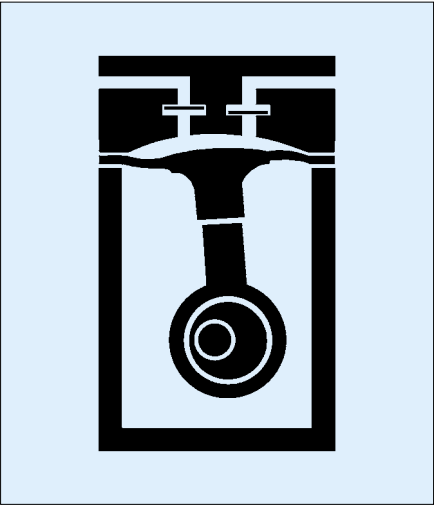
## NMP850.1.2KPDC-B



# HINTS ON FUNCTION AND INSTALLATION

## Function of KNF micro diaphragm gas sampling pumps

An elastic diaphragm is moved up and down by an eccentric (see illustration). On the down-stroke it draws the air or gas being handled through the inlet valve. On the up-stroke the diaphragm forces the medium through the exhaust valve and out of the head. The compression chamber is hermetically separated from the drive mechanism by the diaphragm. The pumps transfer, evacuate and compress completely oil-free.



## Hints on installation and operation

- Range of use: Transferring air and gases at temperatures between +5 °C and +40 °C.
- Please check the compatibility of the materials of the pump head, diaphragm and valves with the medium.
- The KNF product line contains pumps suitable for pumping aggressive gases and vapors – please contact us.
- Permissible ambient temperature: between +5 °C and +40 °C.
- The standard pumps are not suitable for use in areas where there is a risk of explosion. In these cases there are other products in the KNF program – please ask us for details.
- The pumps are not designed to start against pressure or vacuum; when a pump is switched on the pressure in the suction and pressure lines must be atmospheric. Pumps that start against pressure or vacuum are available on request.
- To prevent the maximum operating pressure being exceeded, restriction or regulation of the air flow should only be carried out in the suction line.
- For the version with brushless motor the following also apply: Caution! Incorrect lead connection will damage motor electronics!
- Install the pump so that the fan can draw in sufficient cooling air.
- Components connected to the pump must be designed to withstand the pneumatic performance of the pump.
- Fit the pump at the highest point in the system, so that condensate cannot collect in the head of the pump – that prolongs working-life.

Accessories		
Description	Order No.	Details
Filter/silencer	024805	for NMP 830

# YOUR LOCAL PARTNER AROUND THE WORLD

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### **Micro Gas Pumps** KNF Micro AG

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### **Liquid Pumps** KNF Flodos AG

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