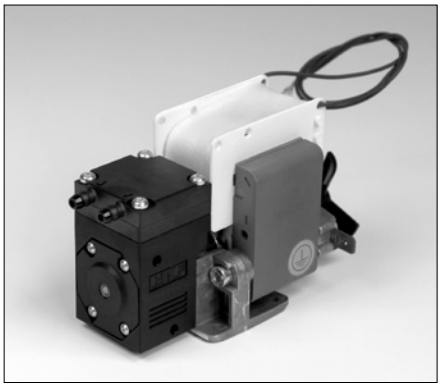
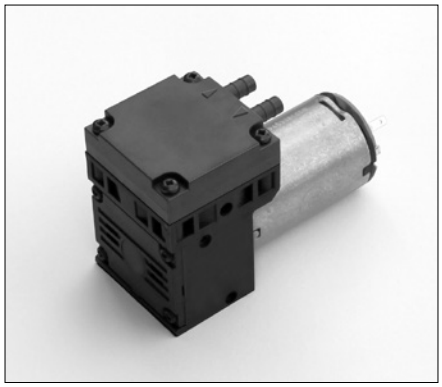
MICRO DIAPHRAGM GAS PUMPS

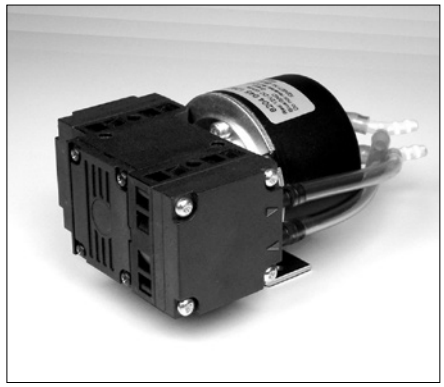
DATA SHEET E 005



NMP 830 KNE



NMP 850 KNDC



NMP 850.1.2 KNDC-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

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.

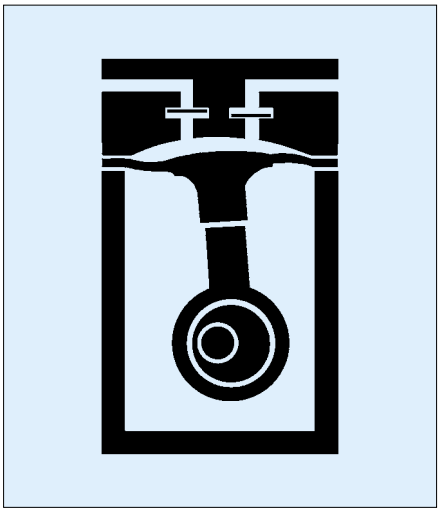
PERFORMANCE DATA

Type	Delivery (l/min)	Vacuum (mbar absolute)	atmospheric pressure	Pressure (bar)	Weight (g)
NMP 830 KNE	1.8	250		1	590
NMP 830 KNDC-B	2.5	240		1.4	270
NMP 830 KNDC	3.1	250		1	195
NMP 850 KNDC-B	4.2	230		1.5	360
NMP 850 KNDC	4.5	230		1.5	210
NMP 850.1.2 KNDC-B	8.0	230		1.5	430

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

KNF Neuberger GmbH
Pumps + Systems
Alter Weg 3
D 79112 Freiburg
Tel. +49 7664 5909 0
Fax +49 7664 5909 99
info@knf.de
www.knf.de

KNF 12/2017 (Produced in Germany)

NMP 830 K_E

PERFORMANCE DATA

Type	Delivery at atm. pressure (l/min)[1]	Max. operating pressure (bar)	Ultimate vacuum (mbar abs.)
NMP 830 KNE	1.8	1	250
NMP 830 KVE	1.8	1	250
NMP 830 KTE	1.6	1	310

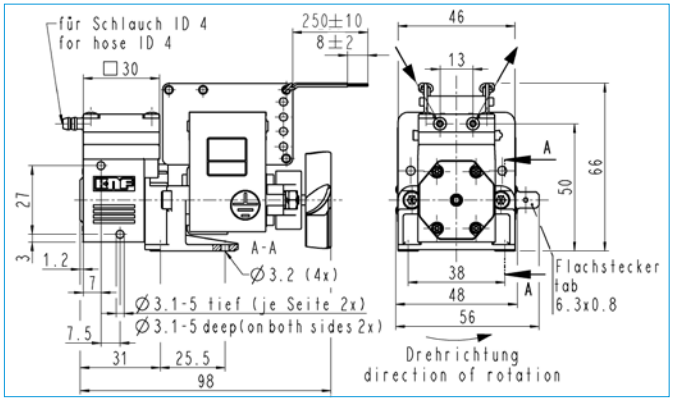
[1] Liter at STP

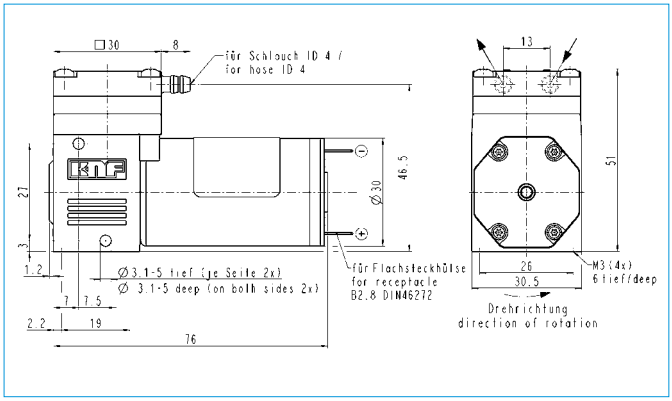
MOTOR DATA

Protection class	IP 00
Voltage (V)	230
Frequencies (Hz)	50
Power P_1 (W)	25
I_{max} (A)	0.3

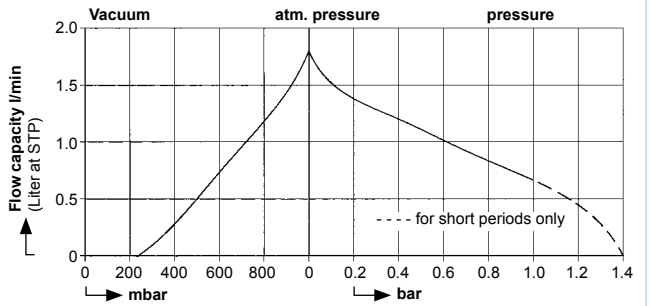
PUMP MATERIAL

Type	Pump head	Diaphragm	Valves
NMP 830 KNE	Ryton (PPS)	EPDM	CR
NMP 830 KVE	Ryton (PPS)	FPM	FPM
Chemically resistant version			
NMP 830 KTE	Ryton (PPS)	PTFE-coated	FFPM





NMP 830 KNE | NMP 830 KVE



NMP 830 K_DC

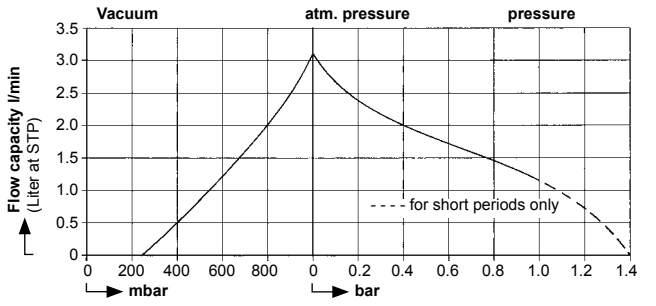
PERFORMANCE DATA

Type	DC motor (V)	Delivery at atm. pressure (l/min)[1]	Max. operating pressure (bar)	Ultimate vacuum (mbar abs.)
NMP 830 KNDC	6	3.1	1	250
NMP 830 KVDC	6	2.7	1	250
NMP 830 KTDC	6	2.6	1	350
NMP 830 KNDC	12	3.1	1	250
NMP 830 KVDC	12	2.7	1	250
NMP 830 KTDC	12	2.6	1	350
NMP 830 KNDC	24	3.1	1	250
NMP 830 KVDC	24	2.7	1	250
NMP 830 KTDC	24	2.6	1	350

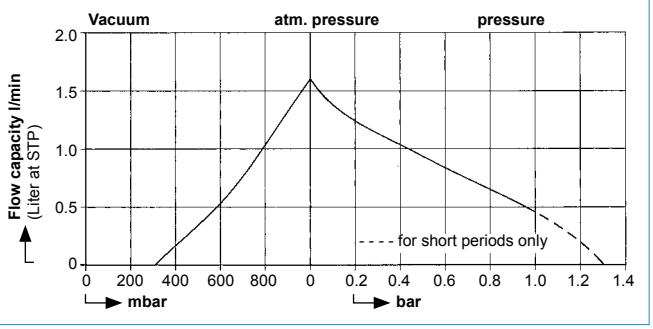
PUMP MATERIAL

Type	Pump head	Diaphragm	Valves
NMP 830 KNDC	Ryton (PPS)	EPDM	CR
NMP 830 KVDC	Ryton (PPS)	FPM	FPM
Chemically resistant version			
NMP 830 KTDC	Ryton (PPS)	PTFE-coated	FFPM

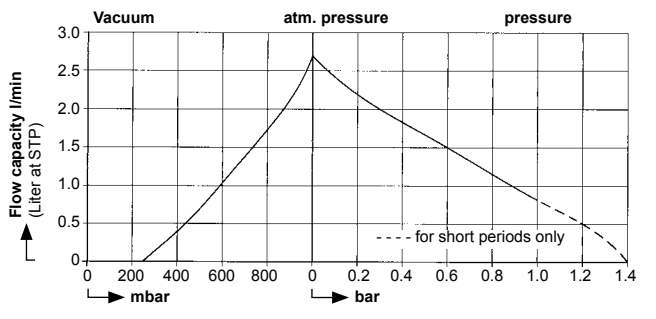
NMP 830 KNDC



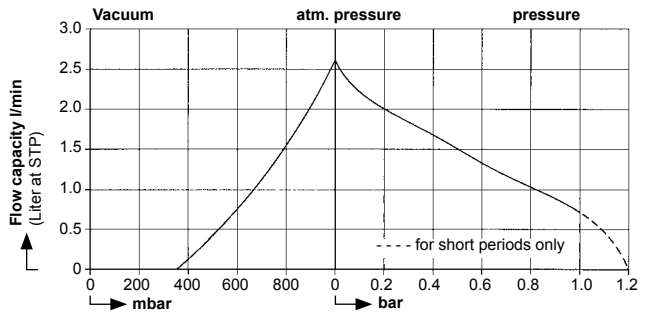
NMP 830 KTE



NMP 830 KVDC



NMP 830 KTDC



NMP 830 K_DC-B

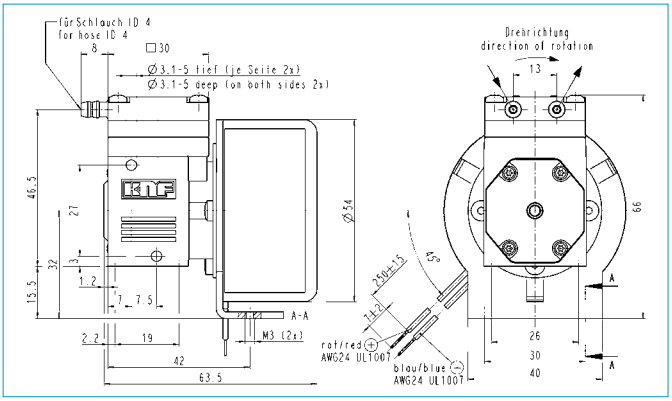
PERFORMANCE DATA

Type	KNF DC motor, brushless (V)	Delivery at atm. pressure (l/min)[1]	Max. operating pressure (bar)	Ultimate vacuum (mbar abs.)
NMP 830 KNDC-B	12	2.5	1.4	240
NMP 830 KVDC-B	12	2.1	1.4	240
NMP 830 KTDC-B	12	2.1	1.3	330
NMP 830 KNDC-B	24	2.5	1.4	240
NMP 830 KVDC-B	24	2.1	1.4	240
NMP 830 KTDC-B	24	2.1	1.3	330

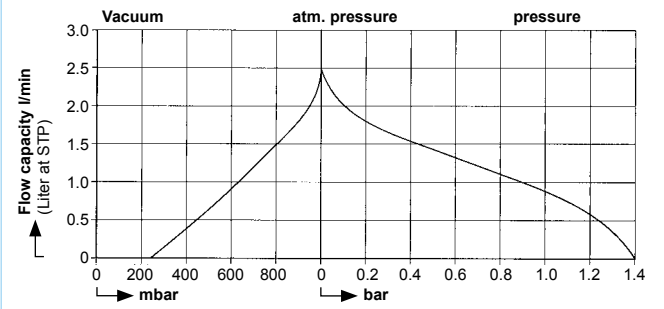
[1] Liter at STP

PUMP MATERIAL

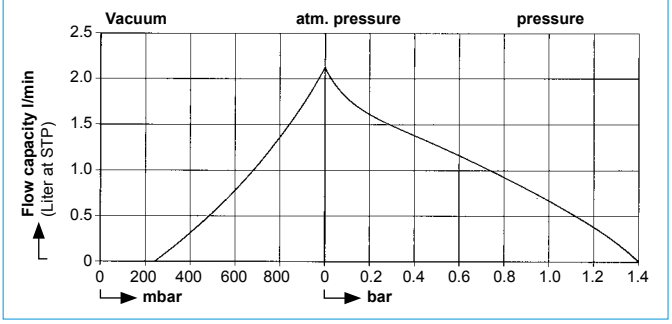
Type	Pump head	Diaphragm	Valves
NMP 830 KNDC-B	Ryton (PPS)	EPDM	CR
NMP 830 KVDC-B	Ryton (PPS)	FPM	FPM
Chemically resistant version			
NMP 830 KTDC-B	Ryton (PPS)	PTFE-coated	FFPM



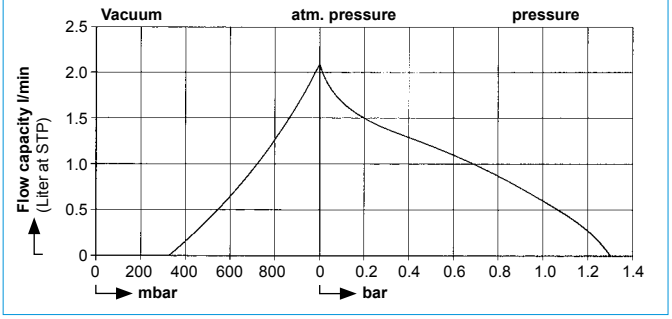
NMP 830 KNDC-B



NMP 830 KVDC-B



NMP 830 KTDC-B



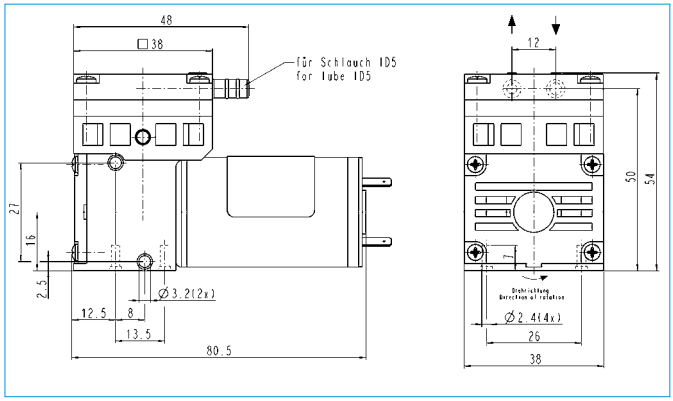
NMP 850 K_DC

PERFORMANCE DATA

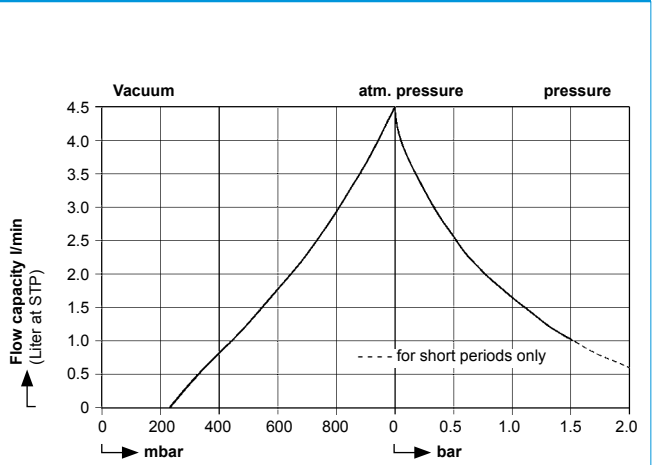
Type	DC motor (V)	Delivery at atm. pressure (l/min)[1]	Max. operating pressure (bar)	Ultimate vacuum (mbar abs.)
NMP 850 KNDC	12	4.5	1.5	230
NMP 850 KTDC	12	3.9	1.5	300
NMP 850 KNDC	24	4.5	1.5	230
NMP 850 KTDC	24	3.9	1.5	300

PUMP MATERIAL

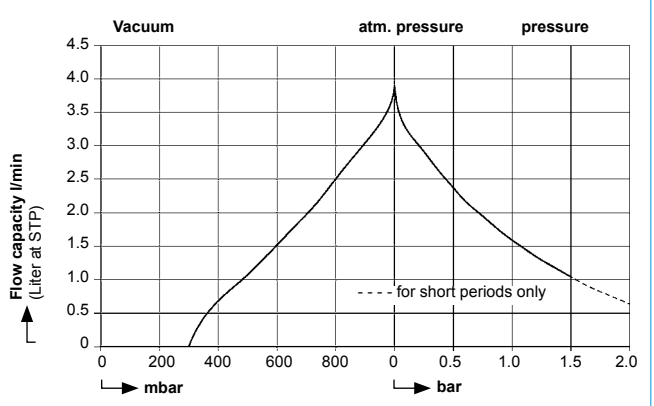
Type	Pump head	Diaphragm	Valves
NMP 850 KNDC	Ryton (PPS)	EPDM	EPDM
Chemically resistant version			
NMP 850 KTDC	Ryton (PPS)	PTFE-coated	FFPM



NMP 850 KNDC



NMP 850 KTDC



NMP 850 K_DC-B

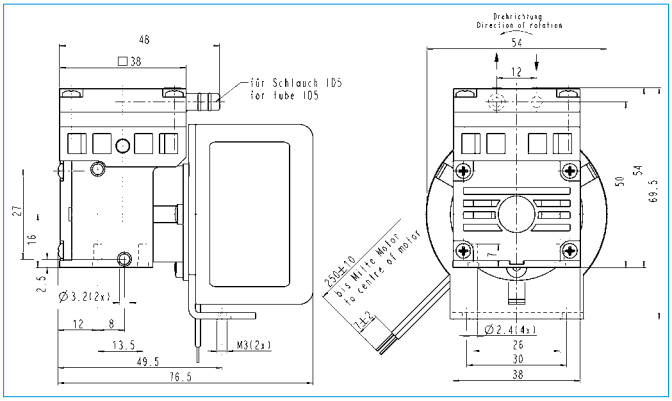
PERFORMANCE DATA

Type	KNF DC motor, brushless (V)	Delivery at atm. pressure (l/min)[1]	Max. operating pressure (bar)	Ultimate vacuum (mbar abs.)
NMP 850 KNDC-B	12	4.2	1.5	230
NMP 850 KTDC-B	12	3.5	1.5	300
NMP 850 KNDC-B	24	4.2	1.5	230
NMP 850 KTDC-B	24	3.5	1.5	300

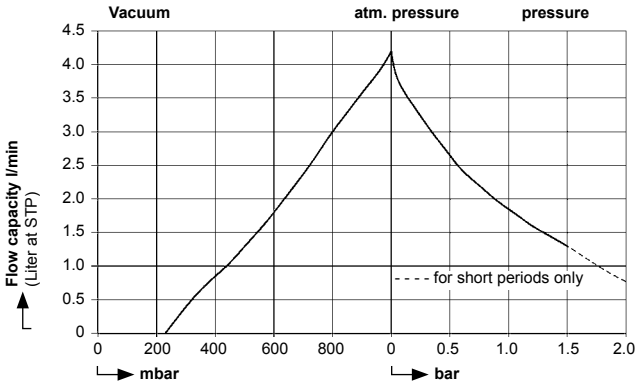
[1] Liter at STP

PUMP MATERIAL

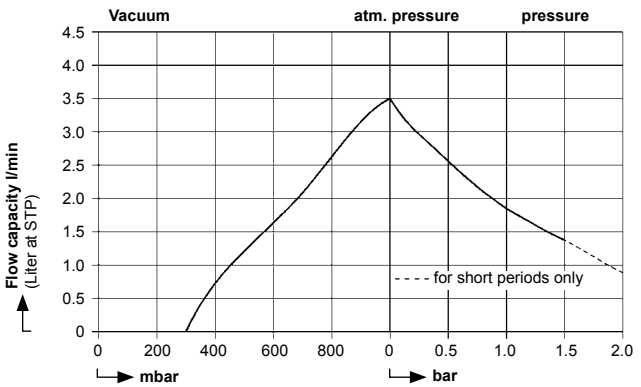
Type	Pump head	Diaphragm	Valves
NMP 850 KNDC-B	Ryton (PPS)	EPDM	EPDM
Chemically resistant version			
NMP 850 KTDC-B	Ryton (PPS)	PTFE-coated	FFPM



NMP 850 KNDC-B



NMP 850 KTDC-B



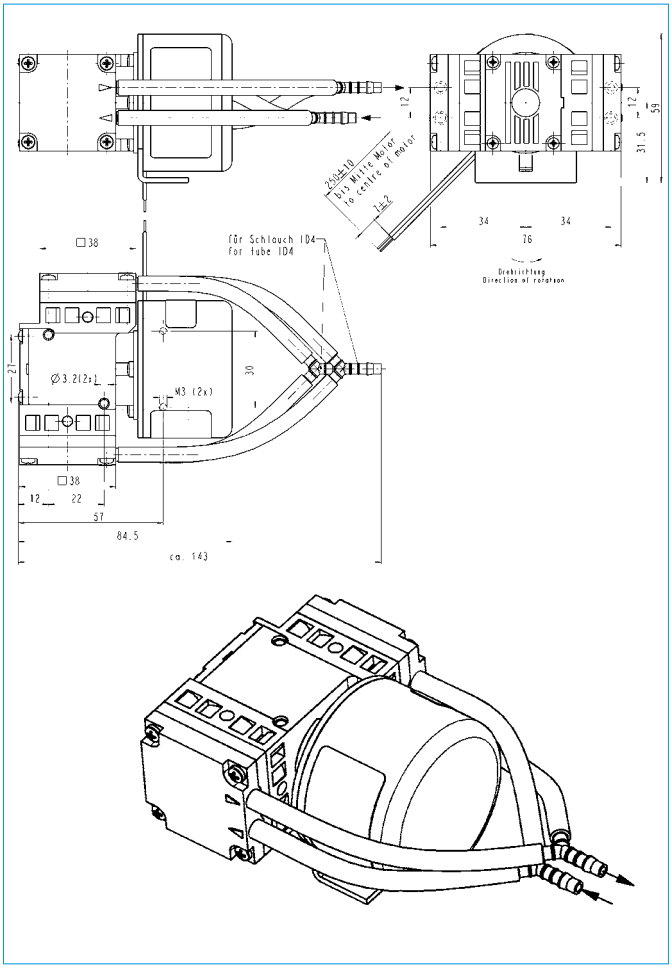
NMP 850.1.2 KNDC-B

PERFORMANCE DATA

Type	KNF DC motor, brushless (V)	Delivery at atm. pressure (l/min)[1]	Max. operating pressure (bar)	Ultimate vacuum (mbar abs.)
NMP 850.1.2 KNDC-B	12	8.0	1.5	230
NMP 850.1.2 KNDC-B	24	8.0	1.5	230

PUMP MATERIAL

Type	Pump head	Diaphragm	Valves
NMP 850.1.2 KNDC-B	Ryton (PPS)	EPDM	EPDM



NMP 850.1.2 KNDC-B