

MICRO DIAPHRAGM GAS SAMPLING PUMPS



NMP 05 S



NMP 09 M



NMP 015 B

Concept

The micro diaphragm gas sampling 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 medium is transferred using automatic valves.

The pumps are equipped with the patented stress-optimized structured diaphragm, resulting in a high pneumatic performance, a durable product and compact size. New, very efficient valves and sealing systems as well as the precise placement of the pump head are some of the other technical features we can offer.

For pump drive we provide a selection of DC motors with various levels of performance, resistance and price.

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

Can operate in any installed position

For the version with brushless motor the following also apply:

- no sparks
- safe and reliable constant use

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.

As they are DC driven, the micro diaphragm pumps are suited for use in portable and stand-alone equipment.

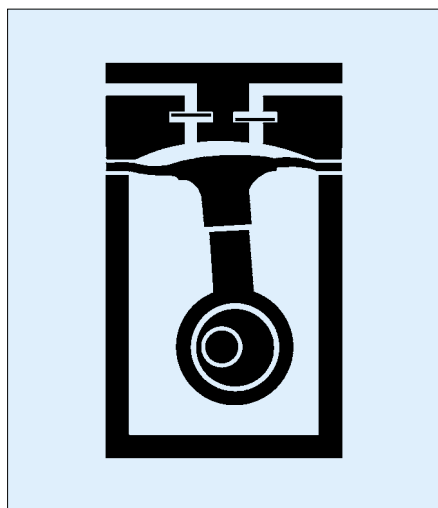
PERFORMANCE DATA

Type	Delivery (l/min)	Vacuum (mbar absolute)	atmospheric pressure	Pressure (bar g)	Weight (g)
NMP 05 S (standard DC motor, 5 V)	0.40	500		0.15	18.0
NMP 05 M (DC motor with iron-free rotor, 6 V)	0.40	500		0.15	19.5
NMP 05 L (DC motor with iron-free rotor, longlife)	0.45	500		0.25	27.0
NMP 05 B (brushless DC motor)	0.30	500		0.4	22.0
NMP 09 S (standard DC motor)	0.75	550		0.15	19.5
NMP 09 M (DC motor with iron-free rotor)	0.85	500		0.15	22.5
NMP 09 L (DC-Motor with iron-free rotor, longlife)	0.85	500		0.25	29.5
NMP 09 B (brushless DC motor)	0.75	500		0.65	24.5
NMP 015 S (standard DC motor)	1.4	400		0.9	44.0
NMP 015 M (DC motor with iron-free rotor)	1.6	400		0.9	65.0
NMP 015 L (DC motor with iron-free rotor, longlife)	1.4	400		0.9	47.0
NMP 015 B (brushless DC motor)	1.3	400	0.9	55.0	

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: Incorrect lead connection will damage motor electronics!
- 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.

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NMP 05 S | NMP 05 M

PERFORMANCE DATA

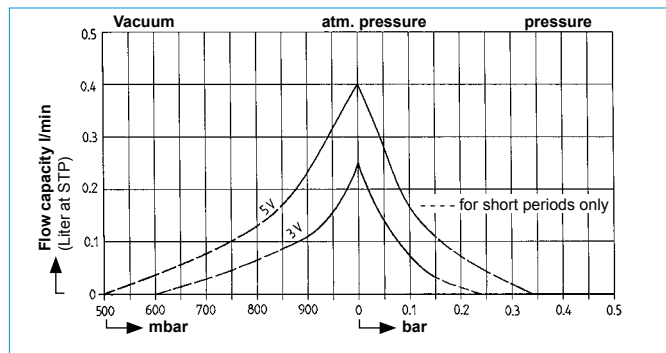
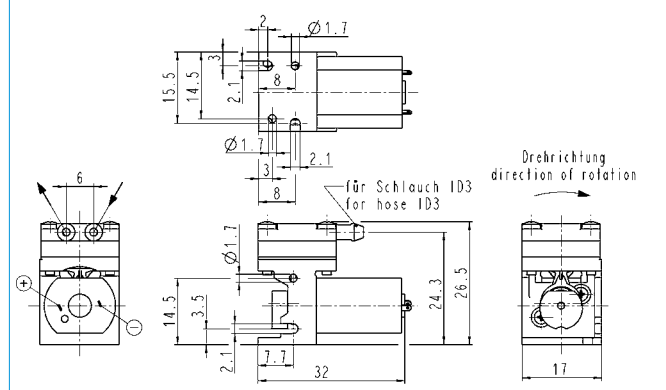
Type	DC motor (V)	Delivery at atm. pressure (l/min) ¹⁾	Max. operating pressure (mbar)	Ultimate vacuum (mbar abs.)
NMP 05 S	3	0.25	± 150	600
NMP 05 S	5	0.4	± 150	500
NMP 05 M	6	0.3	± 150	500
NMP 05 M	2.5	0.4	± 150	550

¹⁾ Liter at STP

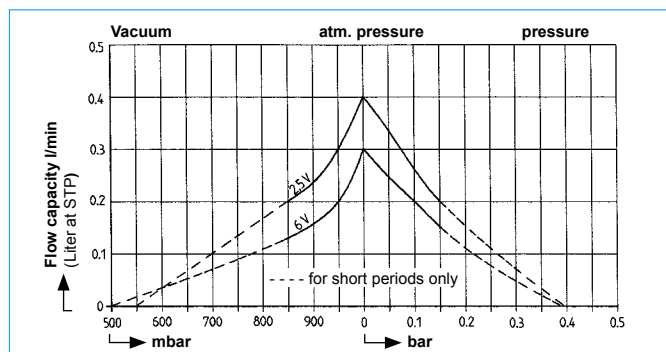
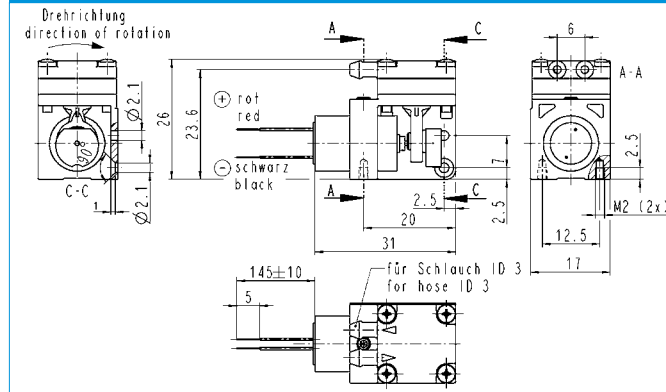
PUMP MATERIAL

Pump head	Diaphragm	Valves
PPS	EPDM	EPDM

NMP 05 S



NMP 05 M



NMP 05 L | NMP 05 B

PERFORMANCE DATA

Type	DC motor (V)	Delivery at atm. pressure (l/min) ¹⁾	Max. operating pressure (mbar)	Ultimate vacuum (mbar abs.)
NMP 05 L	6	0.45	± 250	500

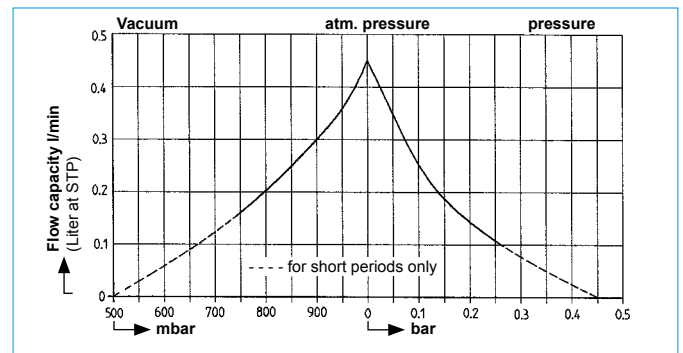
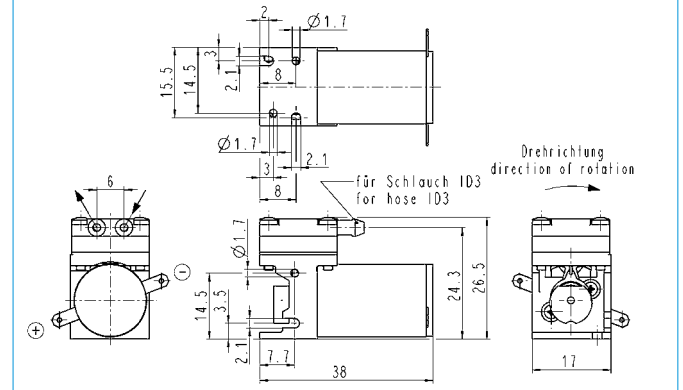
PERFORMANCE DATA

Type	Brushless DC motor (V)	Delivery at atm. pressure (l/min) ¹⁾	Ultimate pressure (mbar)	Ultimate vacuum (mbar abs.)
NMP 05 B	6	0.3	400	500

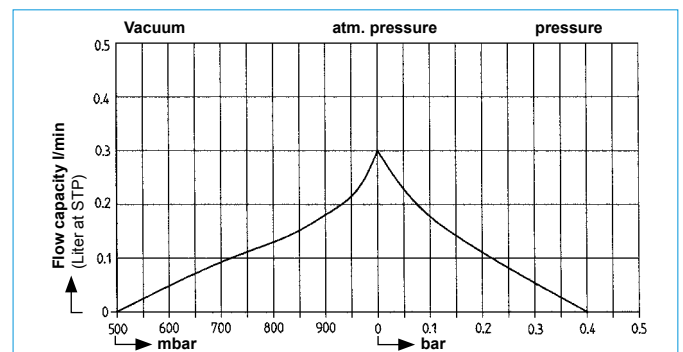
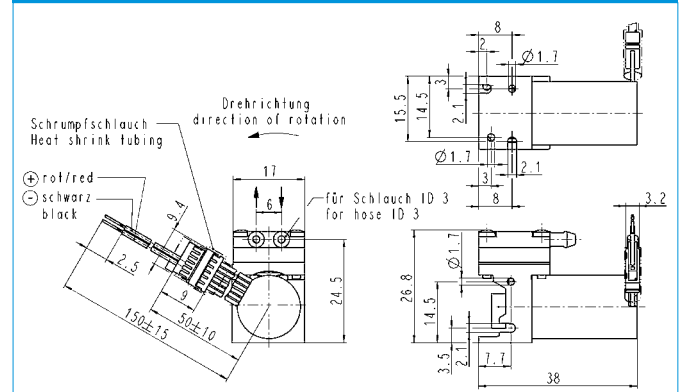
PUMP MATERIAL

Pump head	Diaphragm	Valves
PPS	EPDM	EPDM

NMP 05 L



NMP 05 B



NMP 09 S | NMP 09 M

PERFORMANCE DATA

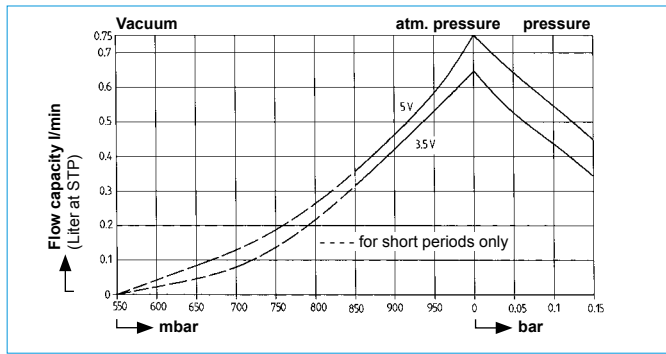
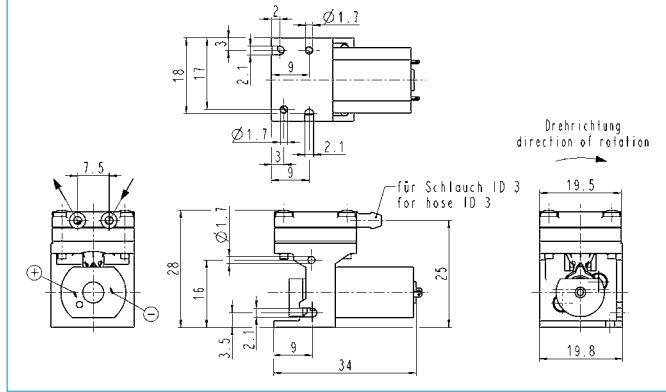
Type	DC motor (V)	Delivery at atm. pressure (l/min) ¹⁾	Max. operating pressure (mbar)	Ultimate vacuum (mbar abs.)
NMP 09 S	3.5	0.65	± 150	550
NMP 09 S	5	0.75	± 150	550
NMP 09 M	6	0.8	± 150	500
NMP 09 M	2.5	0.85	± 150	500

¹⁾ Liter at STP

PUMP MATERIAL

Pump head	Diaphragm	Valves
PPS	EPDM	EPDM

NMP 09 S



NMP 09 L | NMP 09 B

PERFORMANCE DATA

Type	DC motor (V)	Delivery at atm. pressure (l/min) ¹⁾	Max. operating pressure (mbar)	Ultimate vacuum (mbar abs.)
NMP 09 L	6	0.85	± 250	500

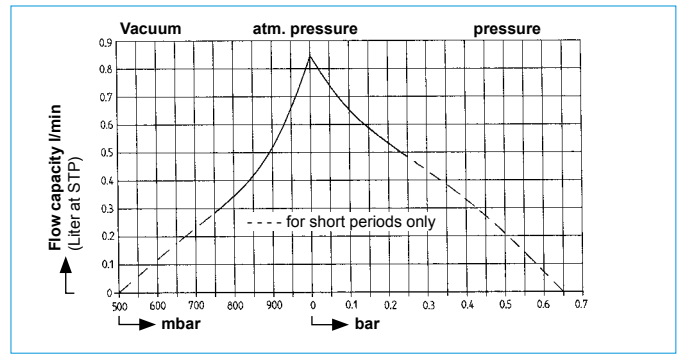
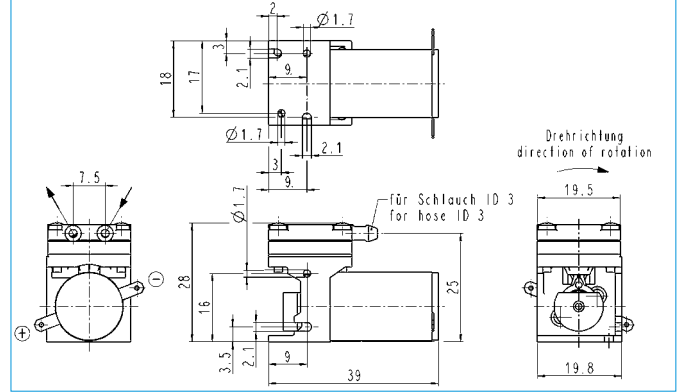
PERFORMANCE DATA

Type	Brushless DC motor (V)	Delivery at atm. pressure (l/min) ¹⁾	Max. operating pressure (mbar)	Ultimate vacuum (mbar abs.)
NMP 09 B	6	0.75	650	500

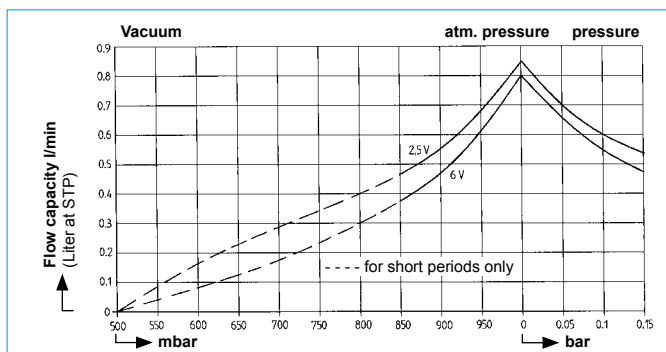
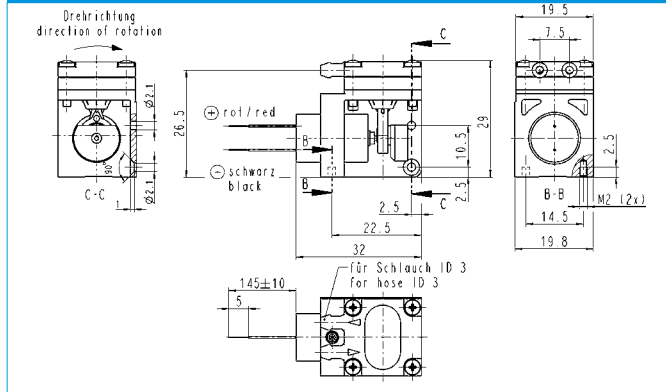
PUMP MATERIAL

Pump head	Diaphragm	Valves
PPS	EPDM	EPDM

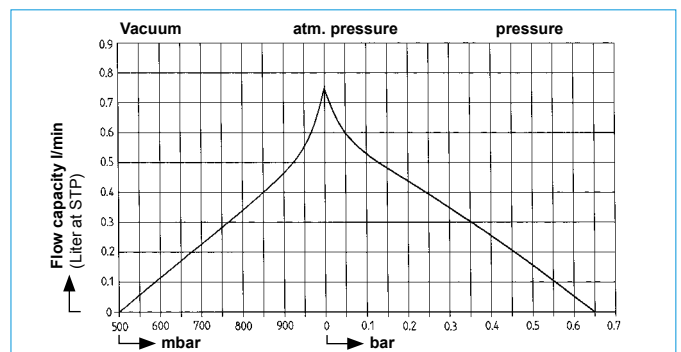
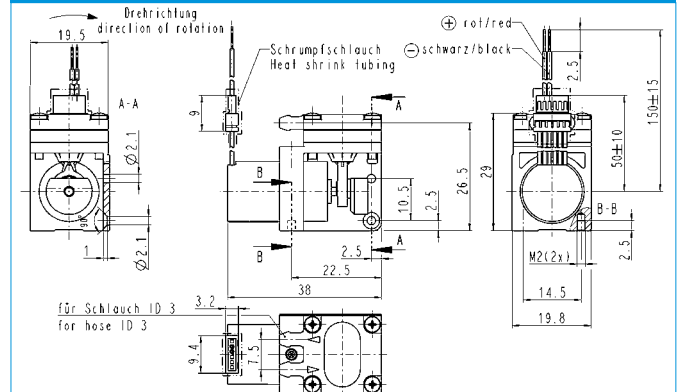
NMP 09 L



NMP 09 M



NMP 09 B



NMP 015 S | NMP 015 M

PERFORMANCE DATA

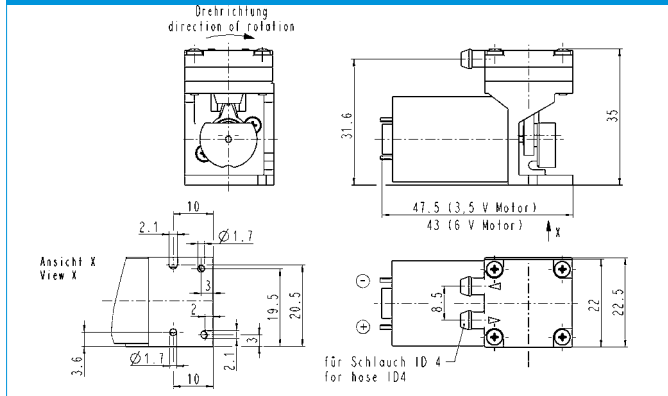
Type	DC motor (V)	Delivery at atm. pressure (l/min) ¹⁾	Max. operating pressure (mbar)	Ultimate vacuum (mbar abs.)	Ultimate pressure (bar g)
NMP 015 S	3.5	1.4	± 200	400	0.9
NMP 015 S	6	1.4	± 200	400	0.9
NMP 015 M	6	1.5	± 200	400	0.9
NMP 015 M	12	1.6	± 200	400	0.9

¹⁾ Liter at STP

PUMP MATERIAL

Pump head	Diaphragm	Valves
PPS	EPDM	EPDM

NMP 015 S



NMP 015 L | NMP 015 B

PERFORMANCE DATA

Type	DC motor (V)	Delivery at atm. pressure (l/min) ¹⁾	Max. operating pressure (mbar)	Ultimate vacuum (mbar abs.)	Ultimate pressure (bar g)
NMP 015 L	3.5	1.3	± 250	400	0.9
NMP 015 L	6	1.4	± 250	400	0.9

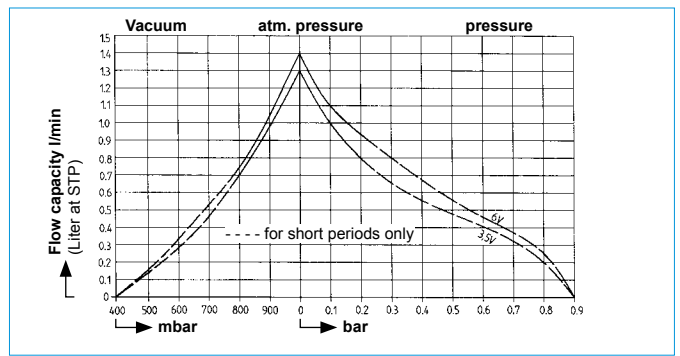
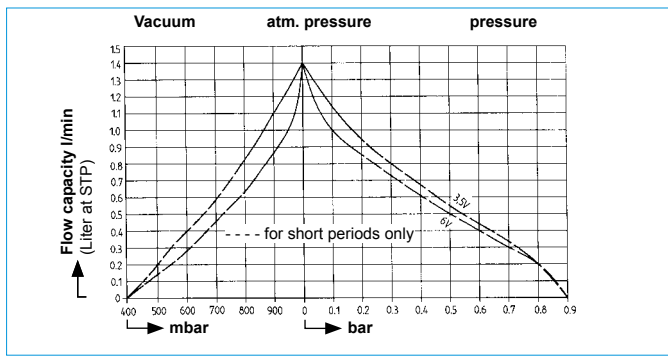
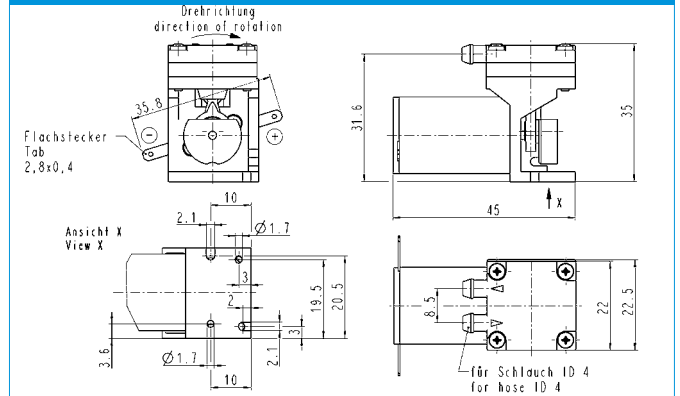
PERFORMANCE DATA

Type	Brushless DC motor (V)	Delivery at atm. pressure (l/min) ¹⁾	Ultimate vacuum (mbar abs.)	Ultimate pressure (bar g)
NMP 015 B	6	1.3	400	0.9
NMP 015 B	12	1.3	400	0.9

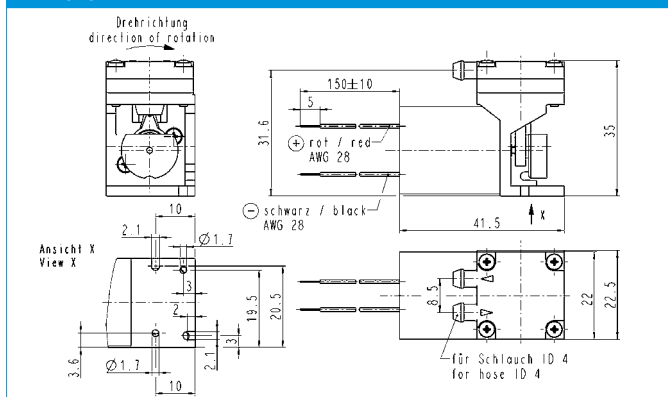
PUMP MATERIAL

Pump head	Diaphragm	Valves
PPS	EPDM	EPDM

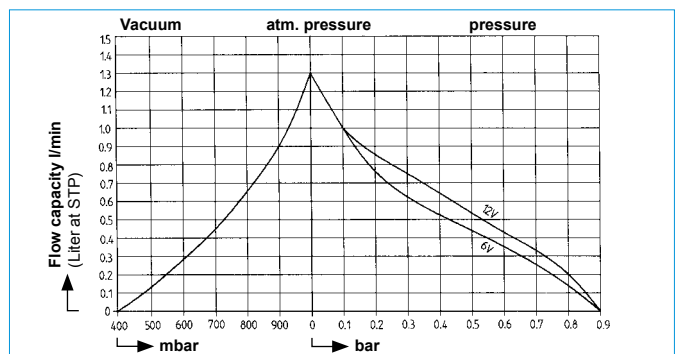
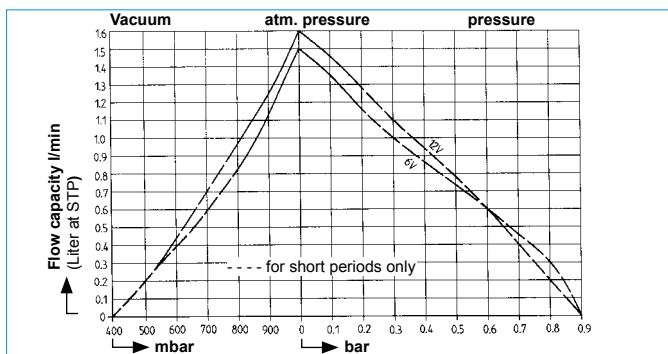
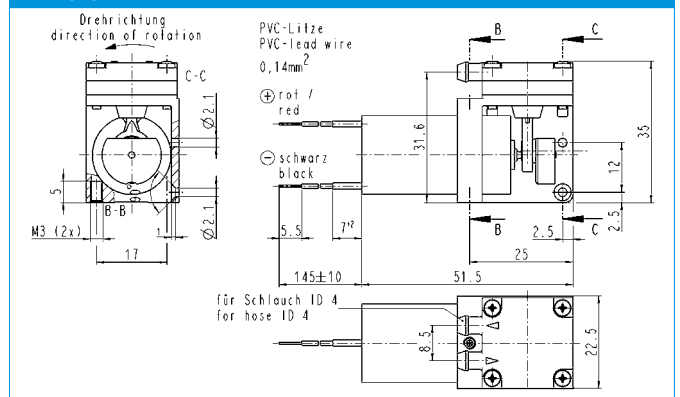
NMP 015 L



NMP 015 M



NMP 015 B



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