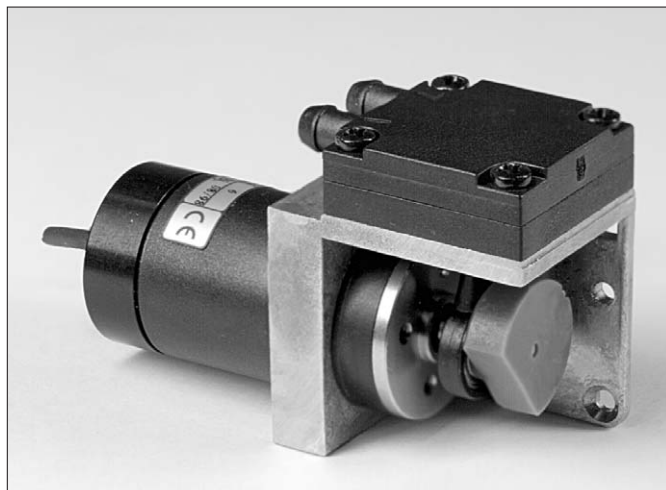


Micro Diaphragm Pumps

INNOVATIVE
TECHNOLOGY
WORLDWIDE



Series NMP 015 L + NMP 015 B

Micro Diaphragm Gas Sampling Pumps

TECHNICAL FEATURES:

- Uncontaminated flow
- No contamination of the media due to oil-free operation
- Compact size due to structured diaphragm
- Maintenance-free
- High pneumatic performance because of structured diaphragm
- Low aerodynamic loss by means of a new valve system
- High level of gas tightness thanks to the closed diaphragm surface and special sealing system
- Can operate in any installed position

CONCEPT

The Micro Diaphragm Gas Sampling Pumps from KNF are based on a simple principal - 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 new range of KNF Micro Pumps is for the first time equipped with the patented stress-optimised 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, durability and price.

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.

For the version with brushless dc motor the following also apply:

- No sparks
- Safe and reliable constant use
- Particular long durability

PERFORMANCE DATA

| Type | Delivery (l/min) | Vacuum (mbar absolute) | atm. Press. | Pressure (bar g) | Weight (g) |
|---|------------------|------------------------|-------------|------------------|------------|
| 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 |

More information about dc motors you find on page 3.

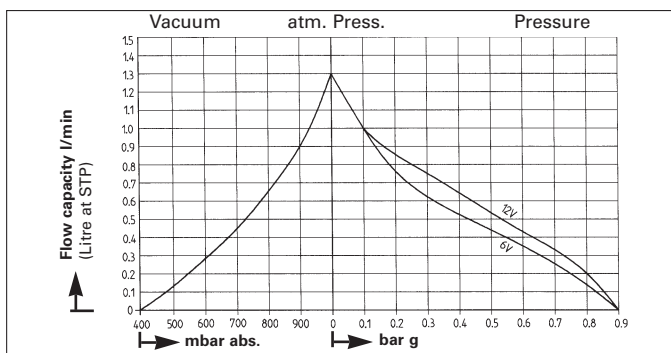
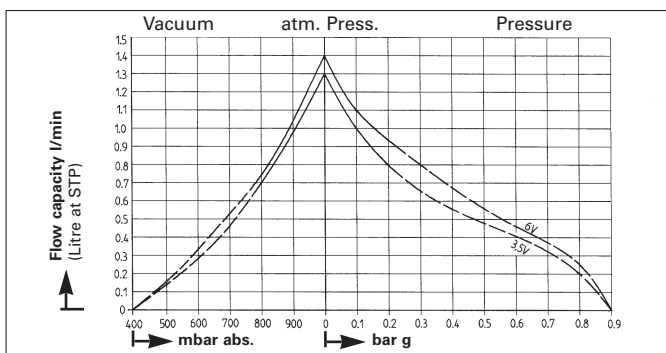
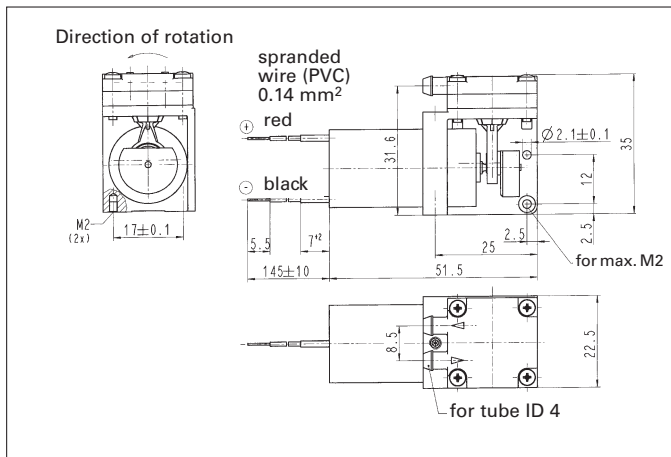
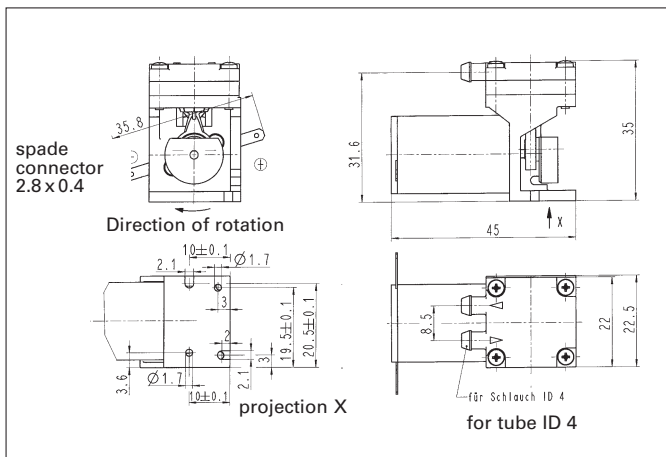
Micro Diaphragm Pumps



NMP 015 L

NMP 015 B

Dimensions (All dimensional tolerances conform to DIN ISO 2768-1, Tolerance Class V)



PERFORMANCE DATA

| Type and Order No. | DC Motor ²⁾ (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 (Version with brushless DC motor)

| Type and Order No. | DC Motor ²⁾ (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 |

Caution! Incorrect lead connection will damage motor electronics!

²⁾ Motors with other voltages on request. ¹⁾ Litre at STP

L = DC motor with iron-free rotor
B = brushless DC motor
 (see the next page „DRIVE OPTIONS“)

MODEL CODES AND MATERIALS

| Pump head | Diaphragm | Valves |
|---------------------|-----------|--------|
| Ryton ³⁾ | EPDM | EPDM |

³⁾ Phillips Petroleum, registered trademark

HINTS ON INSTALLATION AND OPERATION

- Range of use: Transferring air and gases at temperatures between +5°C and +40°C

- These pumps are not suitable for aggressive gases and vapours. In these cases there are other products in the KNF program - please ask us for details
- 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!
- 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.

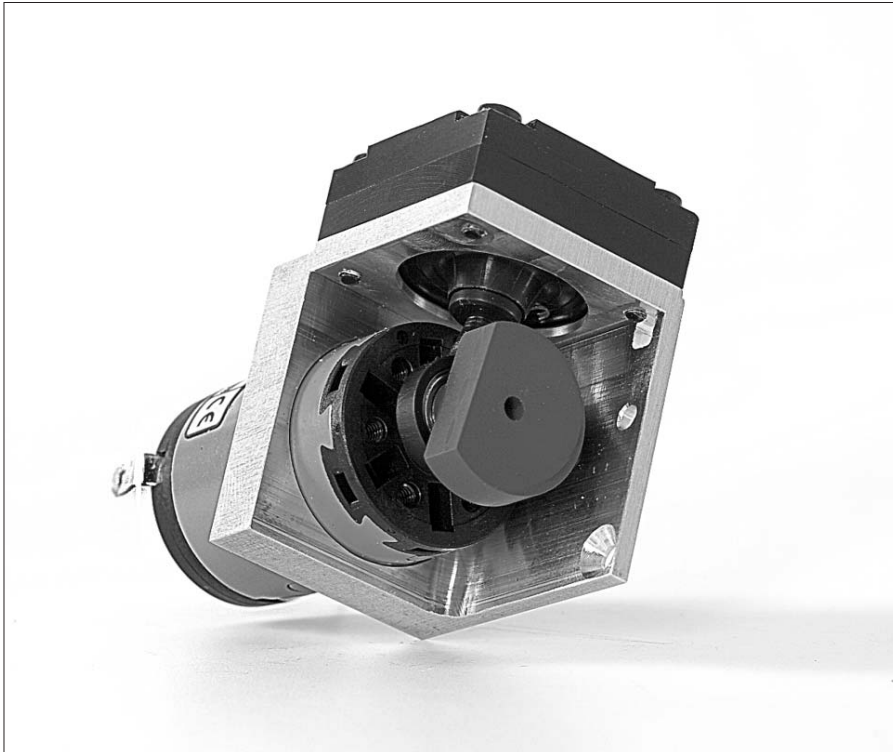
Micro Diaphragm Pumps

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TECHNICAL INFORMATION

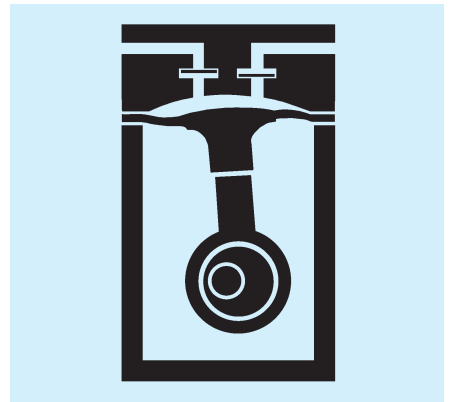
MICRO DIAPHRAGM GAS SAMPLING PUMPS WITH THE WORLD SMALLEST STRUCTURED DIAPHRAGM!



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.

Diaphragm pump



MODEL CODE FOR EASY ORDERING

The model code is identical to the order number. It is made up as follows:



- Base model
- DC motor - drive option
- Other motor data eg.:

DRIVE OPTIONS

Our Micro Diaphragm Pumps are available with different drive motors:

L - DC motor with iron-free rotor

The pump is equipped with a dc motor which is based on the same technology as the M model but is even more robust and durable. This drive is ideal for higher operational.

B - brushless DC motor

The pump is equipped with a brushless electronically commutated dc motor (electronics integrated in motor). The motor runs vibration and spark free, almost silently, is very dynamic and extremely durable. This model can be used permanently at all pressure levels.

The models **NMP 015 L** and **NMP 015 B** pass the EU guideline 89/336 for EMC.

In our extensive program you are sure to find the pump you need for your particular application.

KNF - the competent partner for vacuum and compressor technology. Especially for unusual problems. Call us and talk to our application engineers.