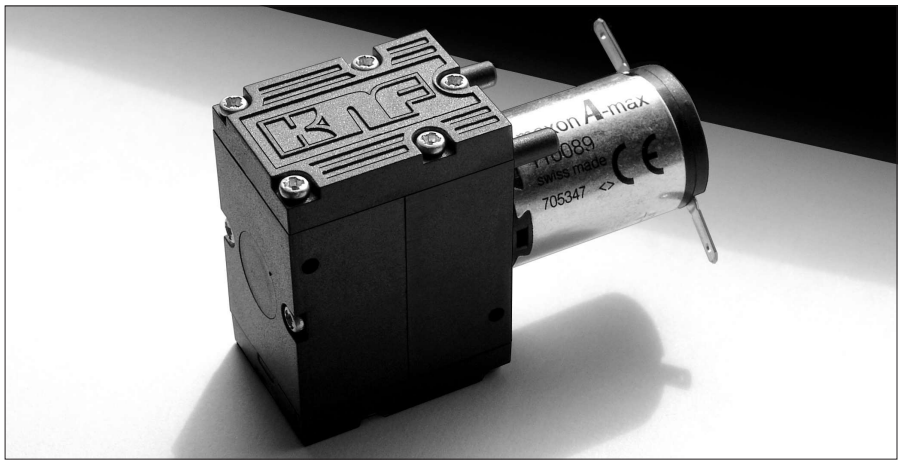
MICRO DIAPHRAGM GAS SAMPLING PUMPS WITH NEW TECHNOLOGY

DATA SHEET E 007



Double-headed Pump NMP 015.1.2 KN L

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 double-headed micro-diaphragm pump NMP 015.1.2 offers improved pneumatic performance in conjunction with a smaller size. The new technology results in low pulsation and minimum noise emission.

Additional technical features include efficient valve and sealing systems, as well as a precision bolting system on the pump heads.

Features

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

Chemically-resistant Versions

Maintenance-free

Compact size

High pneumatic performance

Low aerodynamic loss
by means of a new valve system

High level of gas tightness
thanks to the closed diaphragm surface, special sealing system, and internal block connection for the pump heads.

Slight pulsation

Low level of noise

Long product life

Ready for assembly

Can operate in any installed position

Areas of use

KNF Micro Diaphragm Pump NMP 015.1.2 is 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)	atm. Press.	Pressure (bar g)	Weight (g)
NMP 015.1.2 KN S (Standard dc motor)	1.7	600		0.2	55.0
NMP 015.1.2 KN M (motor with iron-free rotor)	2.2	700		0.4	80.0
NMP 015.1.2 KN L (motor with iron-free rotor, longlife)	2,1	600		0.6	60.0
NMP 015.1.2 KN B (brushless dc motor)	2,1	600		0.6	60.0
NMP 015.1.2 KT L (motor with iron-free rotor, longlife)	1,4	650		0,55	60.0
NMP 015.1.2 KT B (brushless dc motor)	1,4	650		0,55	60.0

NMP 015.1.2 KN S

PERFORMANCE DATA

Type and Order No.[2]	DC Motor	Delivery at atm. press.	Continuous running Max. pressure	Continuous running Max. vacuum	Ultimate pressure	Ultimate vacuum
	(V)	(l/min) [1]	(mbar g)	(mbar abs.)	(mbar g)	(mbar abs.)
NMP 015.1.2 KN S	6	1.7	200	800	600	600

[1] Litre at STP

[2] See also „MODEL CODES FOR EASY ORDERING“

MODEL CODES AND MATERIALS

Type and Order No. [2]	Housing/ Pump head	Diaphragm	Valves	Housing sealing
NMP 015.1.2 KN S	PEEK	EPDM	EPDM	FPM

NMP 015.1.2 KN M

PERFORMANCE DATA

Type and Order No.[2]	DC Motor	Delivery at atm. press.	Continuous running Max. pressure	Continuous running Max. vacuum	Ultimate pressure	Ultimate vacuum
	(V)	(l/min) [1]	(mbar g)	(mbar abs.)	(mbar g)	(mbar abs.)
NMP 015.1.2 KN M	6	2.2	400	700	400	700

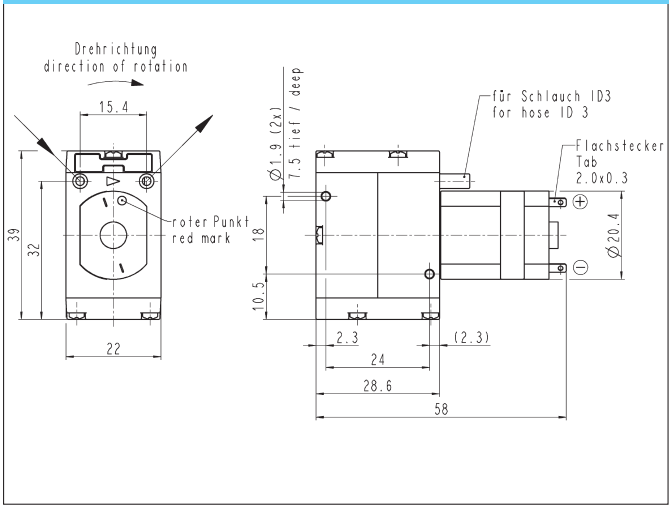
[1] Litre at STP

MODEL CODES AND MATERIALS

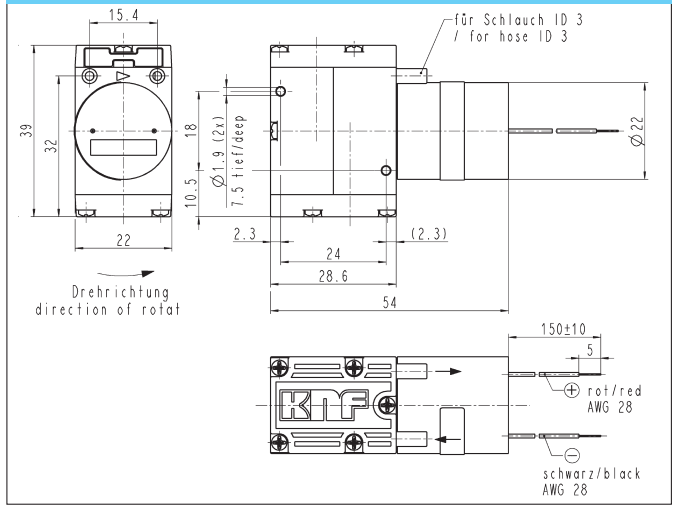
Type and Order No. [2]	Housing/ Pumpenkopf	Diaphragm	Valves	Housing dichtung
NMP 015.1.2 KN M	PEEK	EPDM	EPDM	FPM

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

NMP 015.1.2 KN S

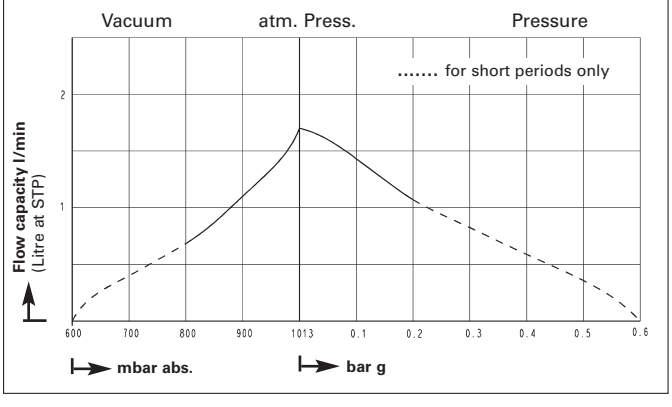


NMP 015.1.2 KN M

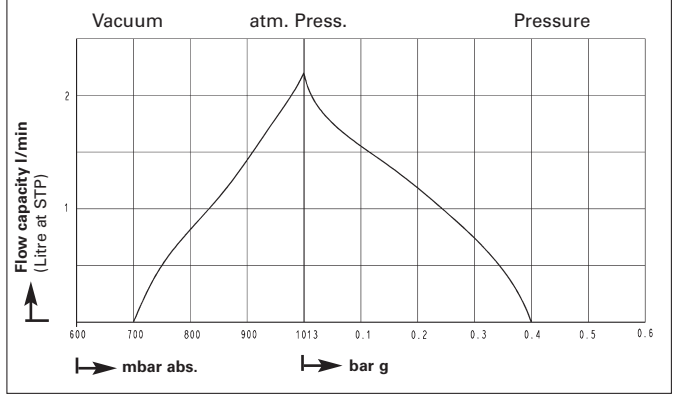


Performance characteristics

NMP 015.1.2 KN S



NMP 015.1.2 KN M



NMP 015.1.2 K_ L

PERFORMANCE DATA

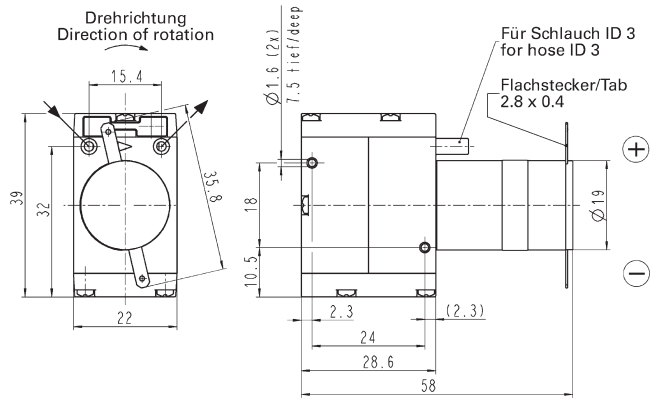
Type and Order No.[2]	DC Motor (V)	Delivery at atm. press. (l/min) [1]	Continuous running Max. pressure (mbar g)	Continuous running Max. vacuum (mbar abs.)	Ultimate pressure (mbar g)	Ultimate vacuum (mbar abs.)
NMP 015.1.2 KN L	6	2.1	600	600	600	600
NMP 015.1.2 KT L	6	1.4	550	650	550	650
NMP 015.1.2 KN L	12	2.1	600	600	600	600
NMP 015.1.2 KT L	12	1.4	550	650	550	650

[1] Litre at STP

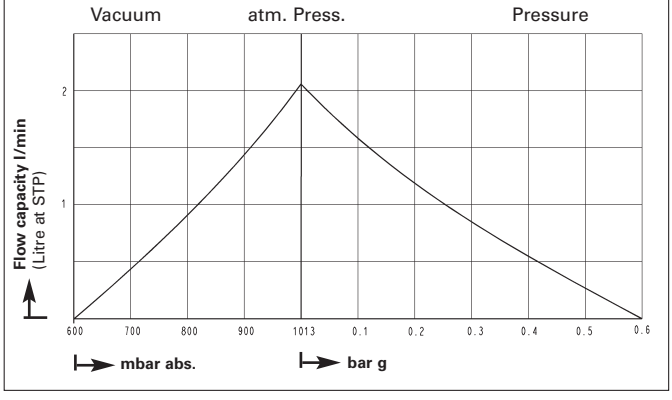
MODEL CODES AND MATERIALS

Type and Order No. [2]	Housing/ Pump head	Diaphragm	Valves	Housing sealing
NMP 015.1.2 KN L	PEEK	EPDM	EPDM	FPM
Chemically-resistant Version				
NMP 015.1.2 KT L	PEEK	PTFE-coated	FFPM	FPM

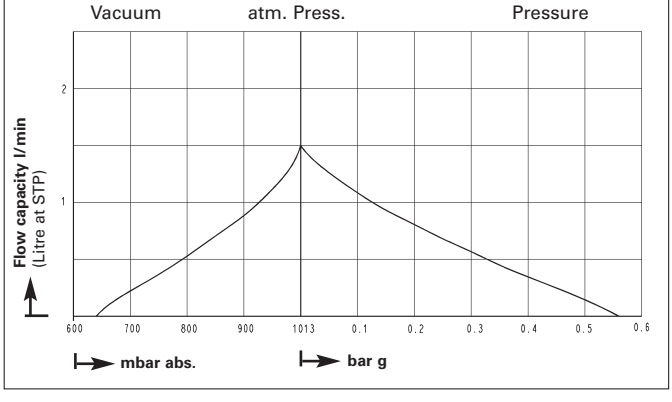
NMP 015.1.2 K_ L



NMP 015.1.2 KN L



NMP 015.1.2 KT L



NMP 015.1.2 K_ B

PERFORMANCE DATA

Type and Order No.[2]	Brushless DC Motor (V)	Delivery at atm. press. (l/min) [1]	Continuous running Max. pressure (mbar g)	Continuous running Max. vacuum (mbar abs.)	Ultimate pressure (mbar g)	Ultimate vacuum (mbar abs.)
NMP 015.1.2 KN B	6	2.1	600	600	600	600
NMP 015.1.2 KT B	6	1.4	550	650	550	650
NMP 015.1.2 KN B	12	2.1	600	600	600	600
NMP 015.1.2 KT B	12	1.4	550	650	550	650

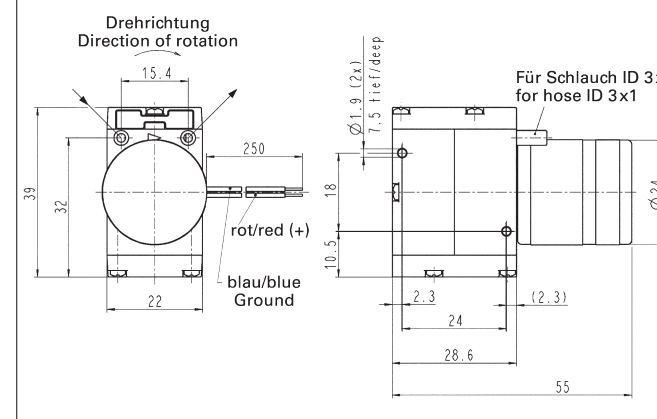
[1] Litre at STP

B = brushless dc motor (Caution! Incorrect lead connection will damage motor electronics!)

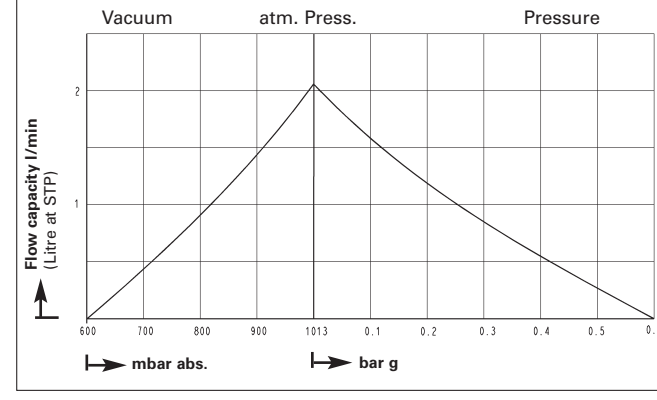
MODEL CODES AND MATERIALS

Type and Order No. [2]	Housing/ Pump head	Diaphragm	Valves	Housing sealing
NMP 015.1.2 KN B	PEEK	EPDM	EPDM	FPM
Chemically-resistant Version				
NMP 015.1.2 KT B	PEEK	PTFE-coated	FFPM	FPM

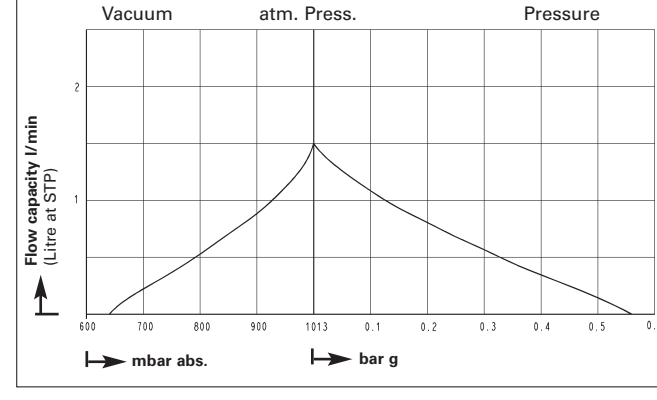
NMP 015.1.2 K_ B



NMP 015.1.2 KN B



NMP 015.1.2 KT B

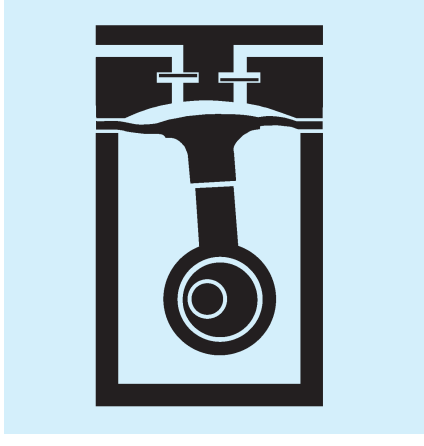


HINTS ON FUNCTION, INSTALLATION AND SERVICE

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



HINTS ON INSTALLATION AND OPERATION

- Range of use: Transfering 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: beetween + 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
- 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.

TECHNICAL DETAILS

Motors with other voltages or with speet control on request.

If you have any questions, please call our application engineers (see below for contact telephone number).

MODEL CODE FOR EASY ORDERING

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

NMP 015	.1.2	KN	L 6 V

- Base model
- Head connection
- Head materials
- Other motor data eg.:

THE NEW TECHNOLOGY

The double-headed KNF diaphragm pump features a head connection for the two pump heads that is integrated into the housing. Only slight pulsation results, thanks to the optimized design of the integrated head connection. This new technology, in conjunction with the principle of the double-headed micro-diaphragm pump, whereby the air volume in the pump housing is not compressed, means that it can operate with an extremely low level of noise.

DRIVE OPTIONS

Our Micro Diaphragm Pumps are available with a choice of four different drive motors.

S - Standard

The pump is equipped with a standard dc motor.

M - DC motor with iron-free rotor

The pump is equipped with a dc motor with an iron-free rotor. It provides a higher level of performance than the S version and is ideal for more demanding operations.

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 **M, L** and **B** pass the EU extreguideline **2004/108/EC.**

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R 09/2012 Printed in Germany

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