MINI DIAPHRAGM VACUUM PUMPS AND COMPRESSORS

DATA SHEET E 010

N 89 KNDC

N 811 KNE

N 814 KNE

Concept

The Mini Diaphragm Vacuum 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 pumps are equipped with the patented stress-optimized structured diaphragm, resulting in a high pneumatic performance, a durable product and compact size. Special valves ensure that the product can cope easily with vapour and condensation.

Thanks to the KNF modular system, the parts used to transfer the gases can be made from materials with varying degrees of durability. 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
due to structured diaphragm

High performance
because of structured diaphragm

High level of gas tightness

Long product life
thanks to structured diaphragm

Very quiet and little vibration

Copes well with vapour and condensation

Cool running motor
even when in constant use

Ready for assembly

Can operate in any installed position

Areas of use

The Mini Diaphragm Vacuum Pumps offer a high level of performance despite their small size, as well as an excellent price performance ratio. They are required especially in the fields of analysis, medicine and production technology.

The pumps are used for sucking gases, taking samples (even liquids in a vacuum) and evacuating vessels.

The AC models are suited for use in machinery, which is permanent or mains-operated. Mini Diaphragm Pumps for portable and stand-alone equipment require DC power supplies.

PERFORMANCE DATA

Type	Delivery (l/min)	Vacuum (mbar abs.)	atm. Press.	Pressure (bar g)	Weight (kg)
N 89 KNDC	9	100		0.5	0.9
N 89 KNE	9.5	100		0.5	1.3
N 811 KNDC	11	100		0.5	0.9
N 811 KNE	11.5	100		0.5	1.3
N 814 KNE	11.5	240		2	2.4
N 814 KNDC	12	240		2	1.0

N 89 KNDC N 89 KTDC

PERFORMANCE DATA

Type and Order No. [3]	Delivery at atm. pressure (l/min)[1]	Max. operating pressure (bar g)[2]	Ultimate vacuum (mbar abs.)
N 89 KNDC	9	0.5	100
N 89 KTDC	9	0.5	170

[1] Litre at STP [2] Continuous running

MOTOR DATA

DC motor		**12 V**	**24 V**
Operating current	(A)	0.85	0.45

MODEL CODES AND MATERIALS

Type and Order No. [3]	Pump head	Diaphragm	Valves
N 89 KNDC	Ryton 4)	EPDM	CR
Chemically resistant version			
N 89 KTDC	Ryton 4)	PTFE coated	FFPM

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

N 89 KNE N 89 KTE

PERFORMANCE DATA

Type and Order No. [3]	Delivery at atm. pressure (l/min)[1]	Max. operating pressure (bar g)[2]	Ultimate vacuum (mbar abs.)
N 89 KNE	9.5	0.5	100
N 89 KTE	9.5	0.5	170

[1] Litre at STP [2] Continuous running

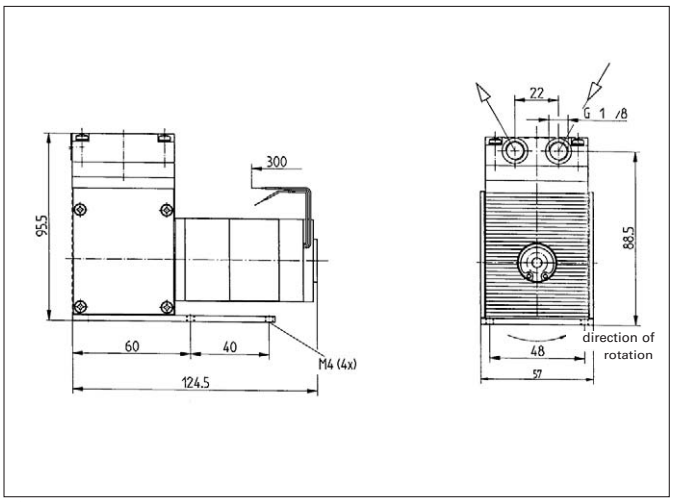
MOTOR DATA

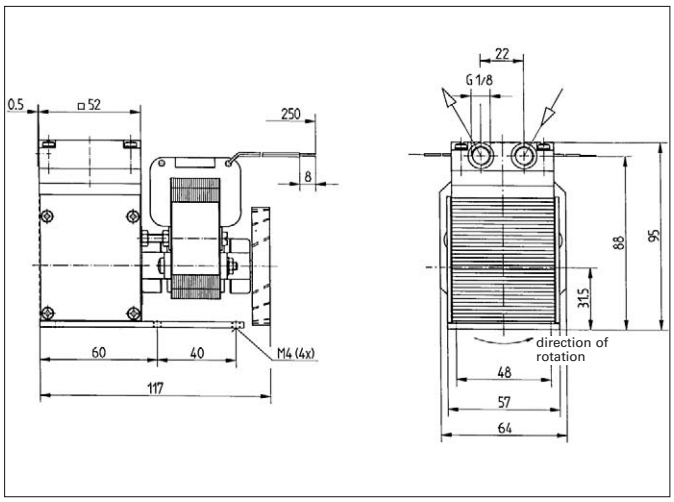
Protection class		**IP 00**		
Voltage/Frequencies	(V/Hz)	230/50		
Power P_1	(W)	60		
Operating current	(A)	0.6		

MODEL CODES AND MATERIALS

Type and Order No. [3]	Pump head	Diaphragm	Valves
N 89 KNE	Ryton 4)	EPDM	CR
Chemically resistant version			
N 89 KTE	Ryton 4)	PTFE coated	FFPM

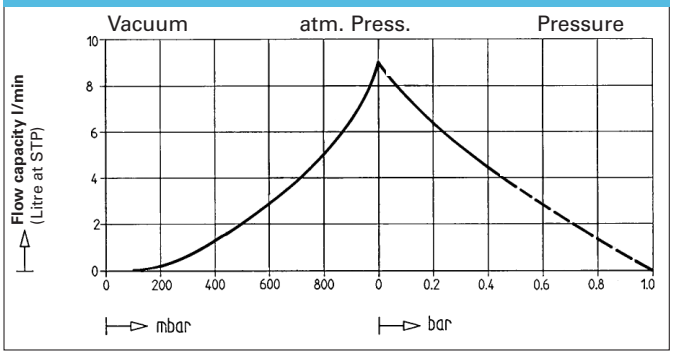
Dimensions [5] (mm)



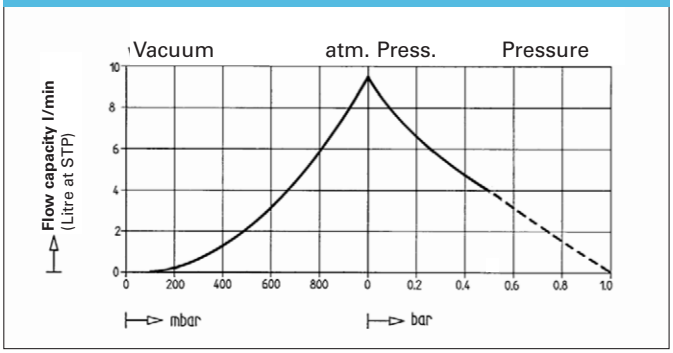


[5] All dimensional tolerances conform to DIN ISO 2768-1, Tolerance Class V

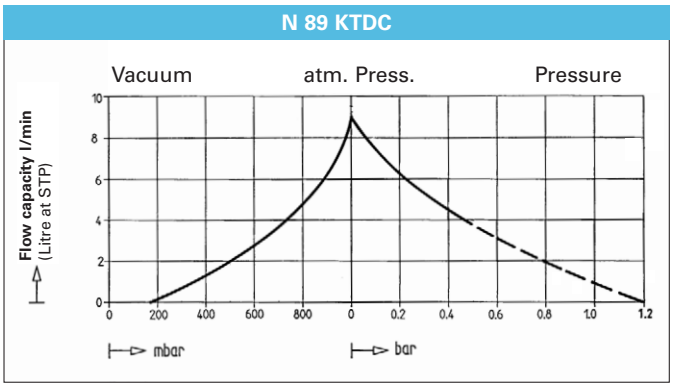
N 89 KNDC



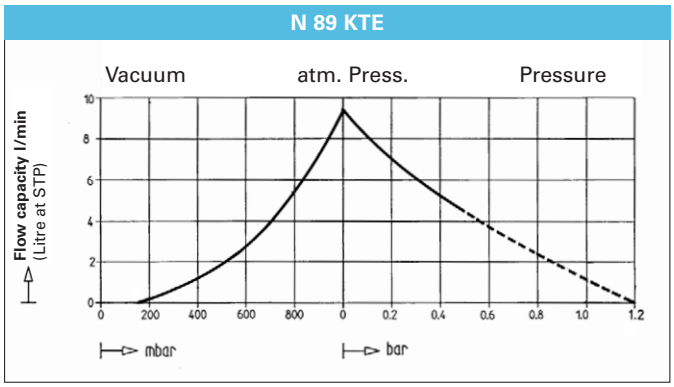
N 89 KNE



N 89 KTDC



N 89 KTE



- - - - - - - for short periods only

N 811 KNDC N 811 KTDC

PERFORMANCE DATA

Type and Order No. [3]	delivery at atm. pressure (l/min)[1]	Max. operating pressure (bar g)[2]	Ultimate vacuum (mbar abs.)
N 811 KNDC	11	0.5	100
N 811 KTDC	11	0.5	170

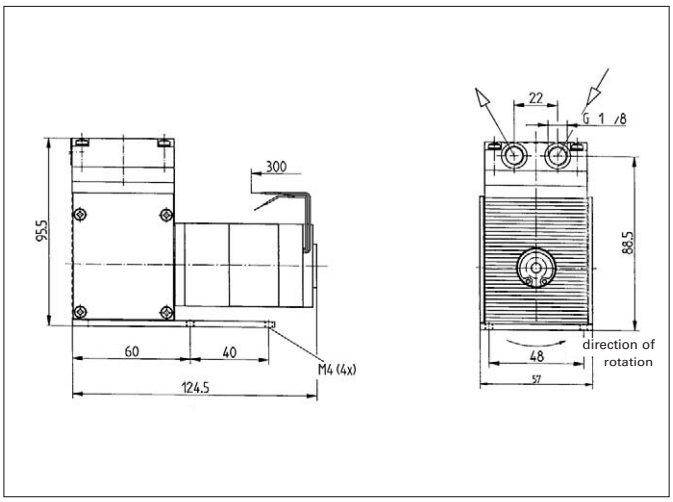
[1] Litre at STP [2] Continuous running

MOTOR DATA

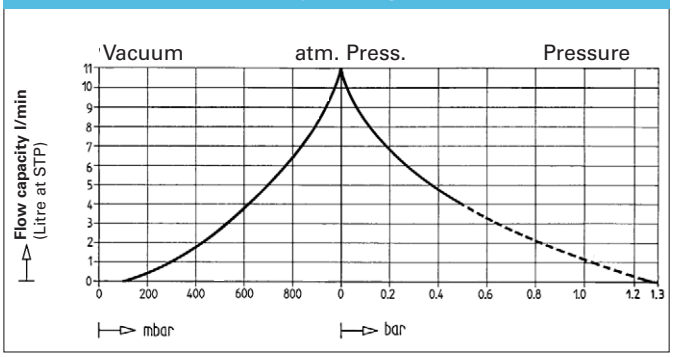
DC motor		**12 V**	**24 V**
Operating current	(A)	0.95	0.5

MODEL CODES AND MATERIALS

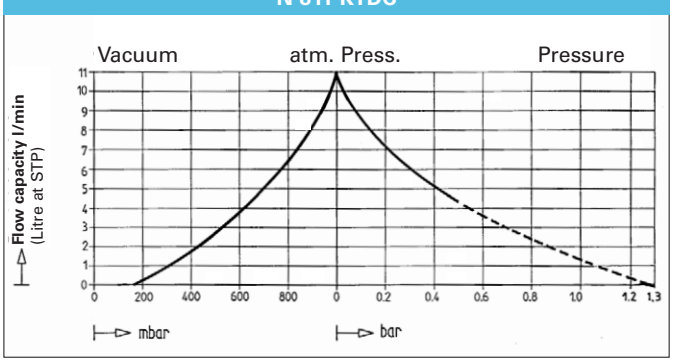
Type and OrderNo. [3]	**Pump head**	**Diaphragm**	**Valves**
N 811 KNDC	Ryton 4)	EPDM	CR
Chemically resistant version			
N 811 KTDC	Ryton 4)	PTFE coated	FFPM



N 811 KNDC



N 811 KTDC



N 811 KNE N 811 KTE

PERFORMANCE DATA

Type and Order No. [3]	Delivery at atm. pressure (l/min)[1]	Max. operating pressure (bar g)[2]	Ultimate vacuum (mbar abs.)
N 811 KNE	11.5	0.5	100
N 811 KTE	11.5	0.5	170

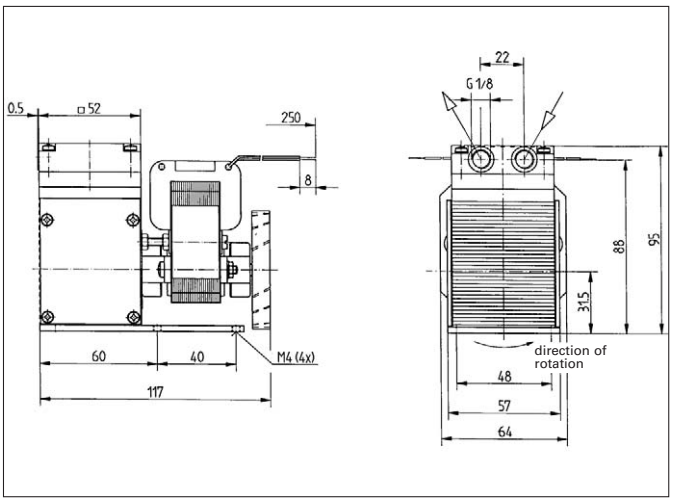
[1] Litre at STP [2] Continuous running

MOTOR DATA

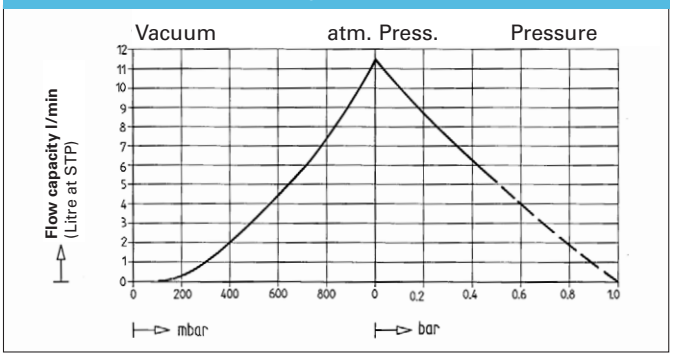
Protection class		IP 00		
Voltage/Frequencies	(V/Hz)	230/50		
Power P_1	(W)	60		
Operating current	(A)	0.6		

MODEL CODES AND MATERIALS

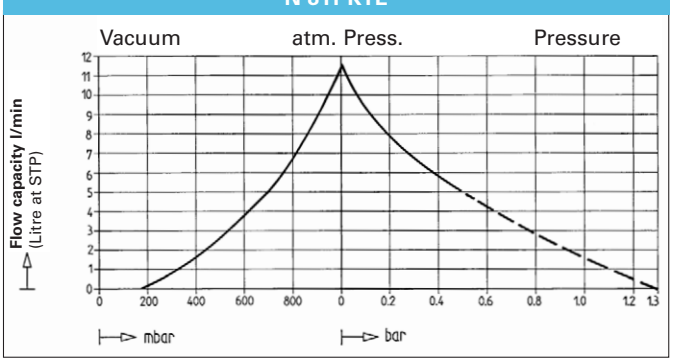
Type and Order No. [3]	**Pump head**	**Diaphragm**	**Valves**
N 811 KNE	Ryton 4)	EPDM	CR
Chemically resistant version			
N 811 KTE	Ryton 4)	PTFE coated	FFPM



N 811 KNE



N 811 KTE



N 814 KNDC N 814 KTDC

PERFORMANCE DATA

Type and Order No. [3]	Delivery at atm. pressure (l/min)[1]	Max. operating pressure (bar g)[2]	Ultimate vacuum (mbar abs.)
N 814 KNDC	12	2	240
N 814 KTDC	12	2	290

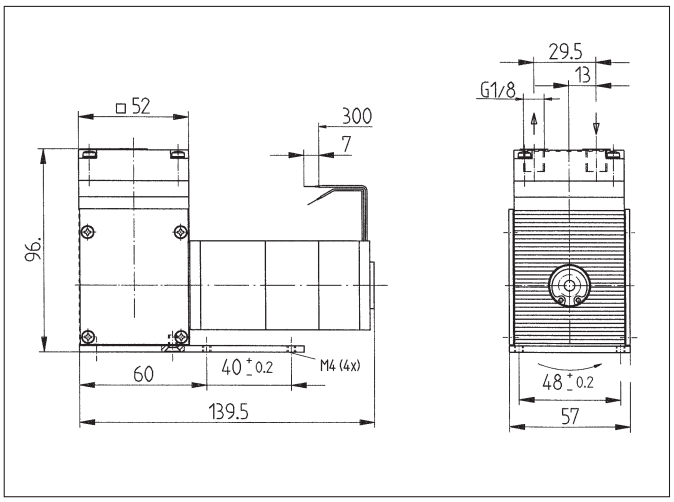
[1] Litre at STP [2] Continuous running

MOTOR DATA

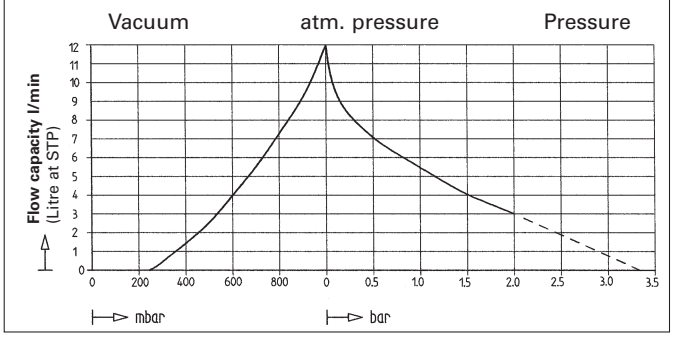
DC motor	**12 V**	**24 V**
Operating current, **N 814 KNDC**	2.1 A	1.1 A
Operating current, **N 814 KTDC**	2.3 A	1.3 A

MODEL CODES AND MATERIALS

Type and Order No. [3]	**Pump head**	**Diaphragm**	**Valves**
N 814 KNDC	Ryton 4)	EPDM	FPM
Chemically resistant version			
N 814 KTDC	Ryton 4)	PTFE coated	FFPM



N 814 KNDC



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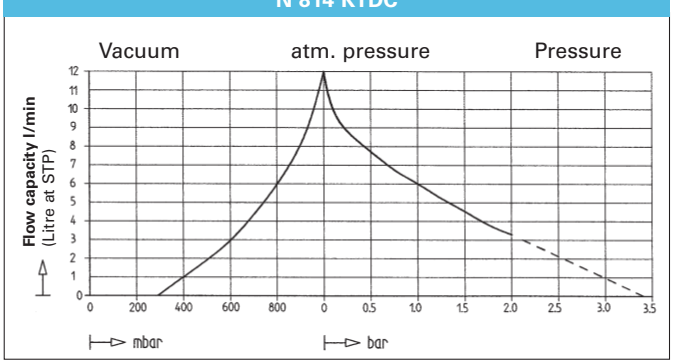


N 814 KNE N 814 KTE

PERFORMANCE DATA

Type and Order No. [3]	Delivery at atm. pressure (l/min)[1]	Max. operating pressure (bar g)[2]	Ultimate vacuum (mbar abs.)
N 814 KNE	11.5	2	240
N 814 KTE	11.5	2	290

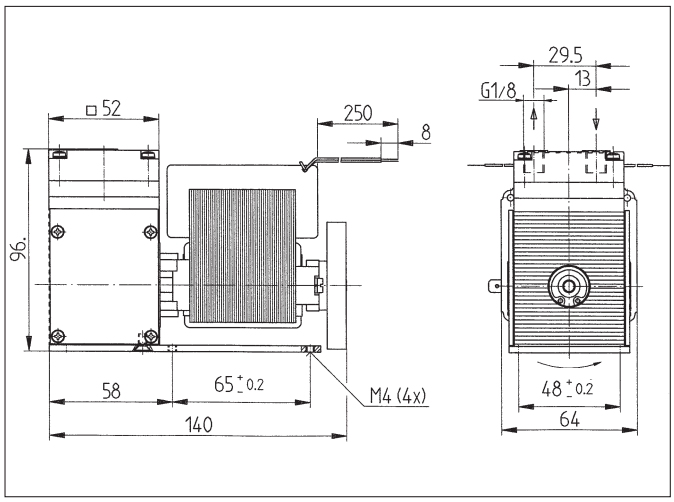
[1] Litre at STP [2] Continuous running

MOTOR DATA

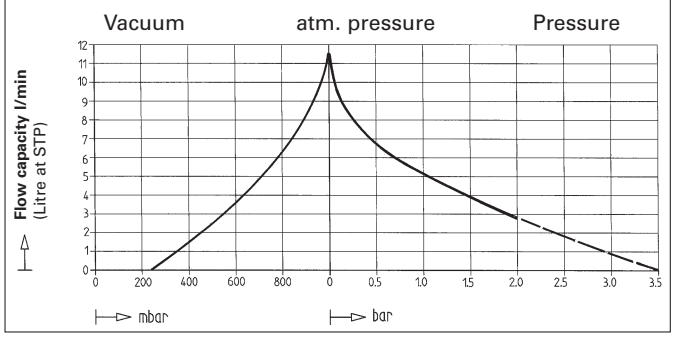
Protection class	**IP 00**		
Voltage/Frequencies (V/Hz)	230/50		
Power P_1 (W)	85		
Operating current (A)	0.7		

MODEL CODES AND MATERIALS

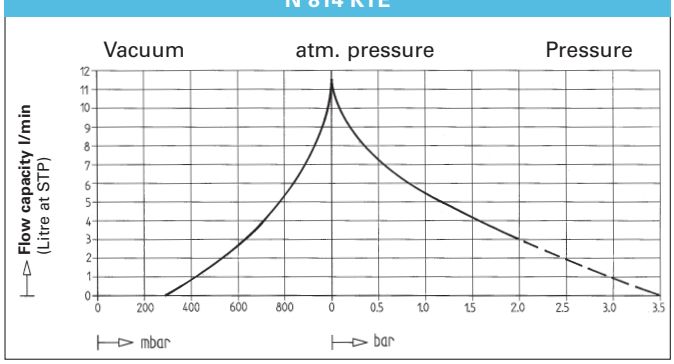
Type and Order No. [3]	**Pump head**	**Diaphragm**	**Valves**
N 814 KNE	Ryton 4)	EPDM	FPM
Chemically resistant version			
N 814 KTE	Ryton 4)	PTFE coated	FFPM



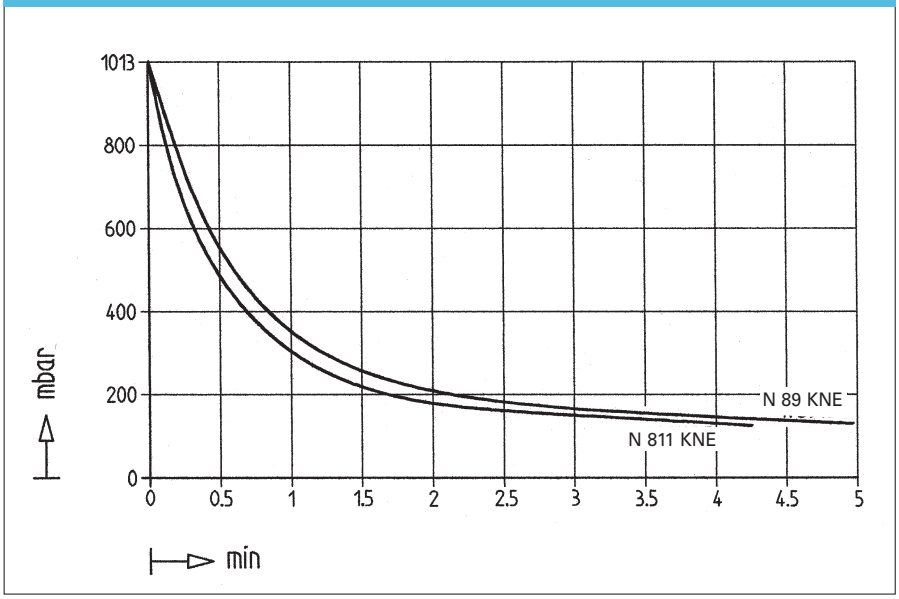
N 814 KNE

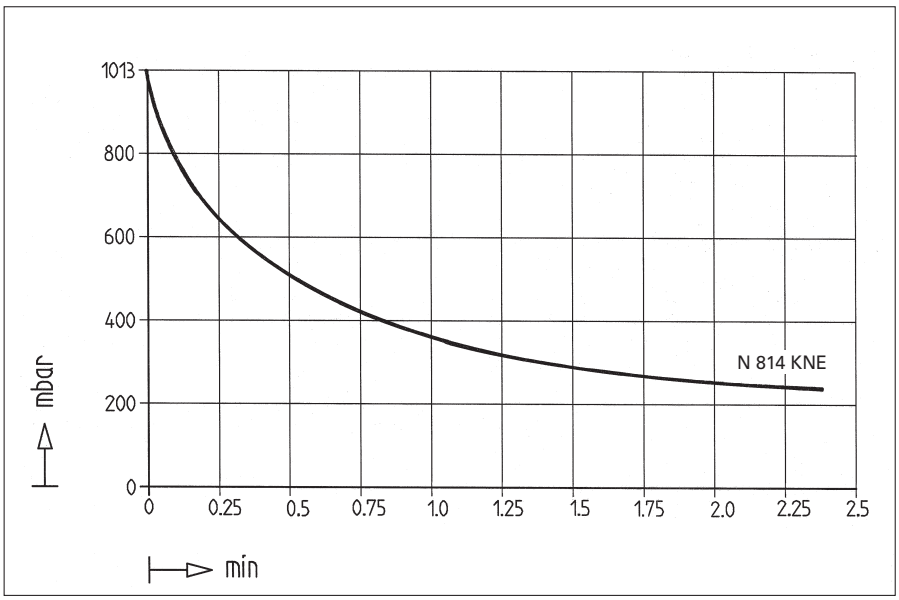


N 814 KTE



Pump down time for 5 l receiver





MODEL CODE FOR EASY ORDERING

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

N 814	KN	E DC	230 V/50 Hz, IP 00 or 12 V

- Base model
- Head materials
- Version with ac (E) or dc motor (DC)
- Other motor data eg.:

In addition the motor data must be given in the purchase order (voltage, frequency, and protection class). In our extensive program you are sure to find the pump you need for your particular application.

TECHNICAL DETAILS

Maximum permissible gas and ambient temperature: between +5°C and +40°C.

Motors with other voltages, frequencies and protection classes on request.

4) Phillips Petroleum registered trade mark

Hints on function, installation, and service: see back side

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

Accessories

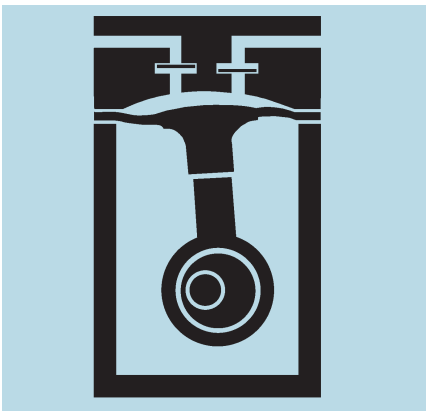
Description	Order No.	Details
Silencer/filter	000346	G 1/8
Hose connector	000360	G 1/8 / PA
Hose connector	014052	G 1/8 / PVDF

HINTS ON FUNCTION, INSTALLATION AND SERVICE

FUNCTION OF KNF DIAPHRAGM VACUUM PUMPS AND COMPRESSORS

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: 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
- Components connected to the pump must be designed to withstand the pneumatic performance of the pump
- Install the pump so that the fan can draw in sufficient cooling air
- 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.

HINTS ON SERVICE

The diaphragm and valves are the only parts of the KNF diaphragm pumps subject to wear. They are easy to change, as no special tools are needed.

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

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