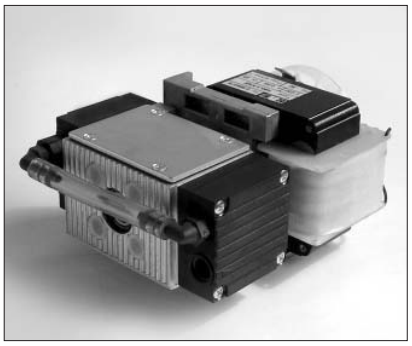
MINI-DIAPHRAGM VACUUM PUMPS & COMPRESSORS N85, N85.3, N86



N85.3KNI

N86KNDC

N86KNDCB

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 elastomeric 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 vapor 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 vapor 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 vumps 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 pumping 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 85.3 KNI	5	25		0.3	1.25
N 85.3 KNDC	5	25		0.3	0.72
N 86 KNI	6	100		2.4	1.1
N 86 KNDCB	6	100		2.4	0.56
N 86 KNDC	6.5	100		1.5	0.58

N85.3KNI N85.3KTI

PERFORMANCE DATA

Type and Order No.[2]	Delivery at atm. pressure (l/min)[1]	Max. operating pressure (bar g)	Ultimate vacuum (mbar abs.)
N 85.3 KNI	5	0 .3	25
N 85.3 KTI	5	0 .3	35

[1] Litre at STP

MOTOR DATA

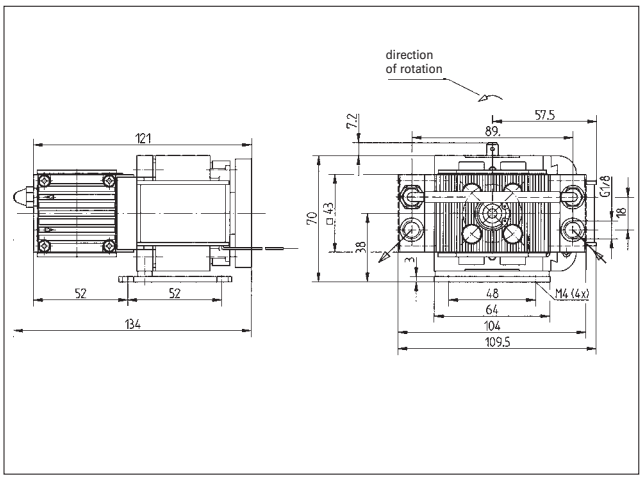
Protection class	**IP 00**		
Voltage/Frequencies (V/Hz)	115/60		
Power P_1 (W)	65		
Operating current (A)	1.2		

MODEL CODES AND MATERIALS

Type and Order No.[2]	**Pump head**	**Diaphragm**	**Valves**
N 85.3 KNI	Ryton [4]	EPDM	Neoprene
Chemically resistant version			
N 85.3 KTI	Ryton [4]	PTFE-coated	Kalrez [6]

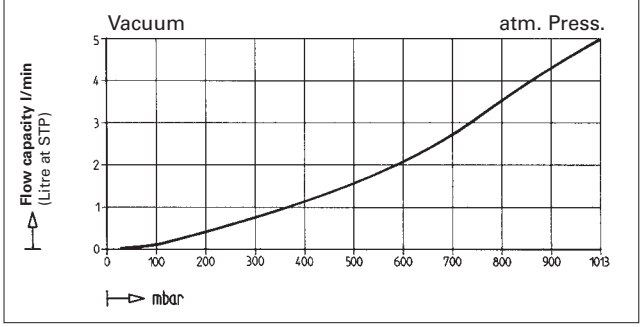
[2] See also „MODEL CODES FOR EASY ORDERING"
[4] Phillips Petroleum, registered trade mark
[6] Du Pont, registered trade mark

Dimensions [5] (mm)

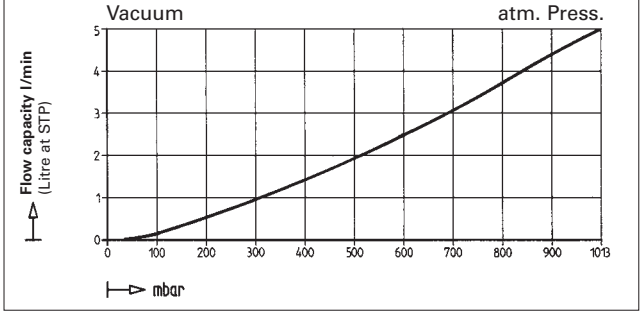


[5] All dimensional tolerances conform to DIN ISO 2768-1, Tolerance Class V

N 85.3 KNI



N 85.3 KTI



N85.3KNDC N85.3KTDC

PERFORMANCE DATA

Type and Order No.[2]	Delivery at atm. pressure (l/min)[1]	Max. operating pressure (bar g)	Ultimate vacuum (mbar abs.)
N 85.3 KNDC	5	0.3	25
N 85.3 KTDC	5.5	0.3	35

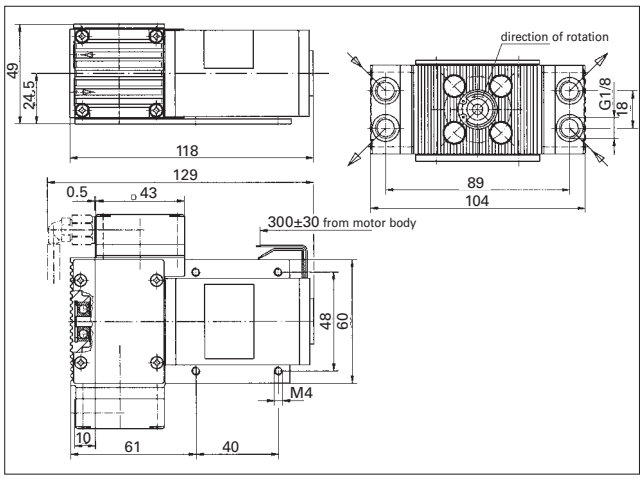
[1] Litre at STP

MOTOR DATA

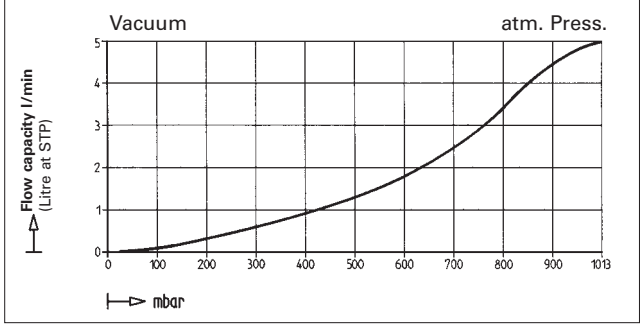
DC Motor	**6V**	**12V**	**24V**
Operating current (A)	2.8	1.4	0.7

MODEL CODES AND MATERIALS

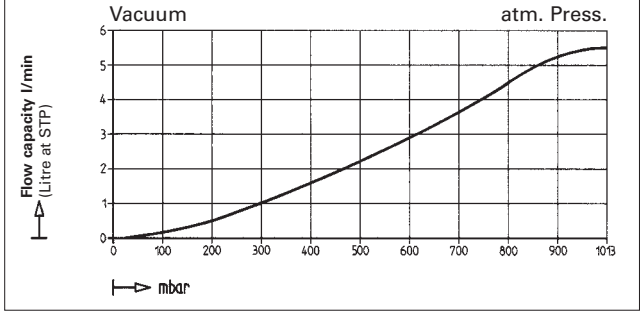
Type and Order No.[2]	**Pump head**	**Diaphragm**	**Valves**
N 85.3 KNDC	Ryton [4]	EPDM	Neoprene
Chemically resistant version			
N 85.3 KTDC	Ryton [4]	PTFE-coated	Kalrez [6]



N 85.3 KNDC



N 85.3 KTDC



N86KNI N86KTI

PERFORMANCE DATA

Type and Order No.[2]	Delivery at atm. pressure (l/min)[1]	Max. operating pressure (bar g)	Ultimate vacuum (mbar abs.)
N 86 KNI	6	2 .4	100
N 86 KTI	5.5	2.5	160

[1] Litre at STP

MOTOR DATA

Protection class	IP 00		
Voltage/Frequencies (V/Hz)	115/60		
Power P_1 (W)	60		
Operating current (A)	0.65		

MODEL CODES AND MATERIALS

Type and Order No.[2]	**Pump head**	**Diaphragm**	**Valves**
N 86 KNI	Ryton [4]	EPDM	Viton
Chemically resistant version			
N 86 KTI	Ryton [4]	PTFE-coated	Kalrez [6]

N86KNDCB N86KTDCB

VERSION WITH BRUSHLESS DC MOTOR

PERFORMANCE DATA

Type and Order No.[2]	Delivery at atm. pressure (l/min)[1]	Max. operating pressure (bar g)	Ultimate vacuum (mbar abs.)
N 86 KNDCB	6	2,4	100
N 86 KTDCB	5.5	2.5	160

[1] Litre at STP

MOTOR DATA

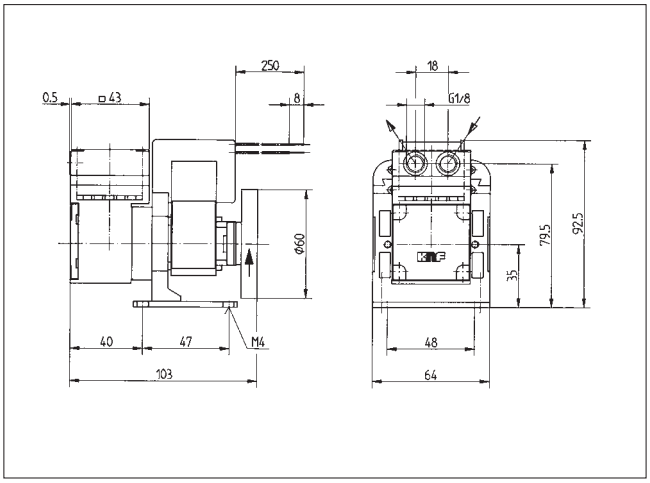
DC Motor		**12 V**	**24 V**
Operating current a) (A)		1.1	0.65
Operating current b) (A)		1.0	0.6

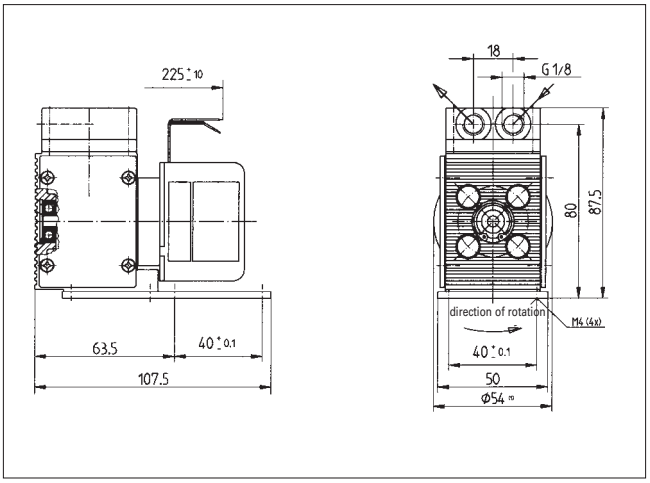
a) for Type **N 86 KNDCB** b) for Type **N 86 KTDCB**

MODEL CODES AND MATERIALS

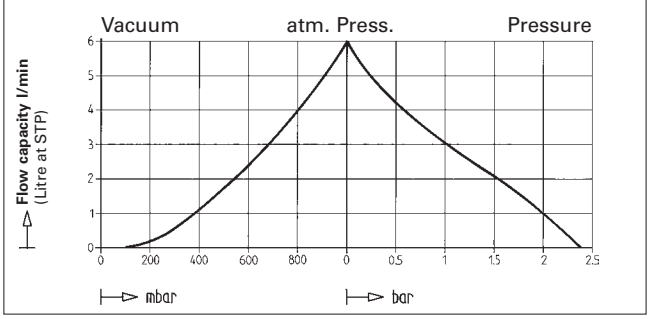
Type and Order No.[2]	**Pump head**	**Diaphragm**	**Valves**
N 86 KNDCB	Ryton [4]	EPDM	Viton
Chemically resistant version			
N 86 KTDCB	Ryton [4]	PTFE-coated	Kalrez [6]

To comply with CE standards (EMC guideliness to EN 55014-1), attention must be paid to the specifications in the operating instructions.

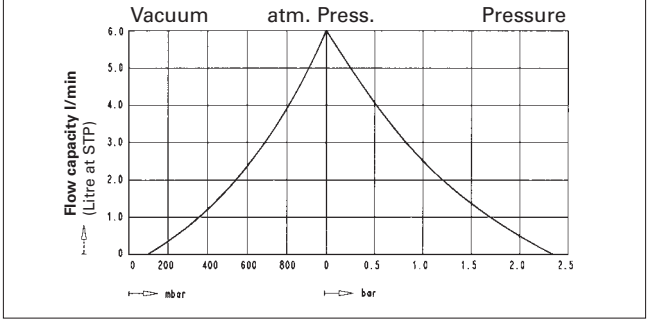




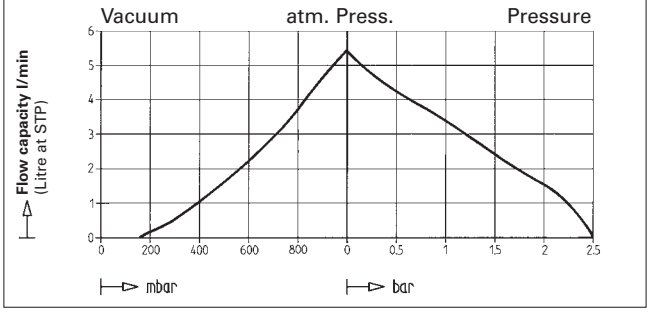
N 86 KNI



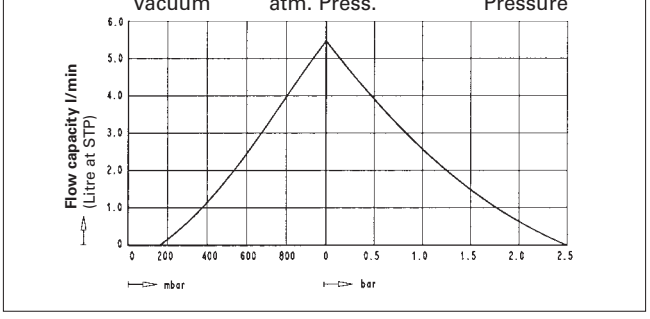
N 86 KNDCB



N 86 KTI



N 86 KTDCB



N86KNDC N86KTDC

PERFORMANCE DATA

Type and Order No.[2]	Delivery at atm. pressure **(l/min)** [1]	Max. operating pressure **(bar g)** [3]	Ultimate vacuum **(mbar abs.)**
N 86 KNDC	6.5	1.5	100
N 86 KTDC	6	1.5	160

[1] Litre at STP [3] continuous running

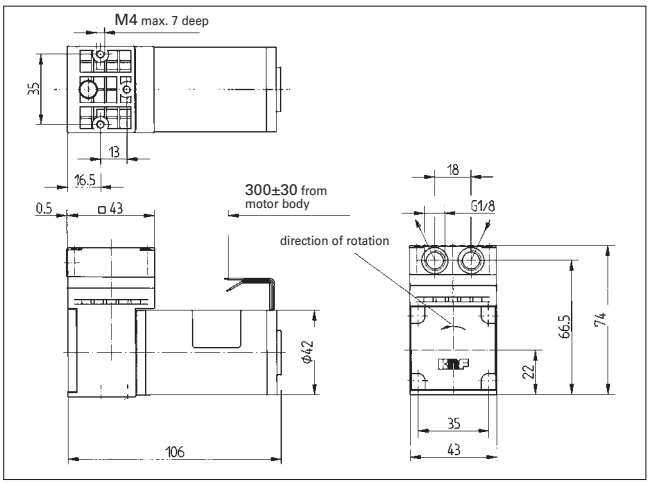
MOTOR DATA

DC Motor	**6 V**	**12 V**	**24 V**
Operating current a) (A)	2.6	1.3 A	0.65 A
Operating current b) (A)	3	1.5 A	0.75 A

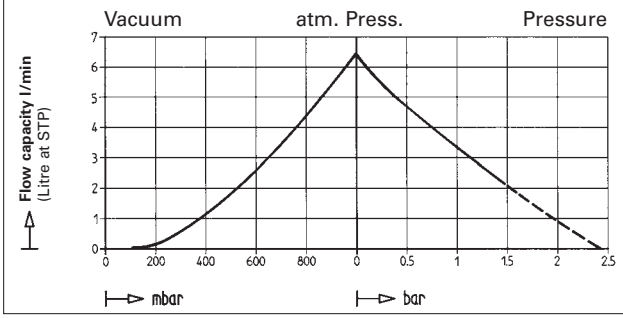
a) for Type **N 86 KNDC** b) for Type **N 86 KTDC**

MODEL CODES AND MATERIALS

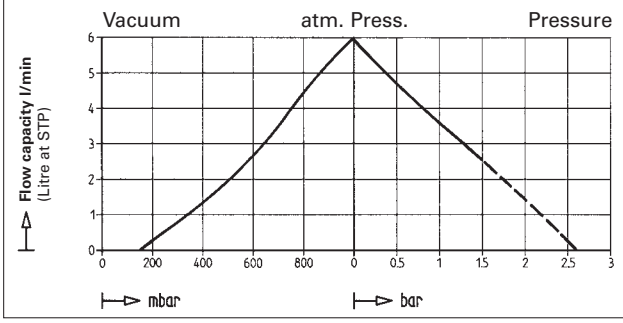
Type and Order No.[2]	**Pump head**	**Diaphragm**	**Valves**
N 86 KNDC	Ryton [4]	EPDM	Viton
Chemically resistant version			
N 86 KTDC	Ryton [4]	PTFE-coated	Kalrez [6]



N 86 KNDC

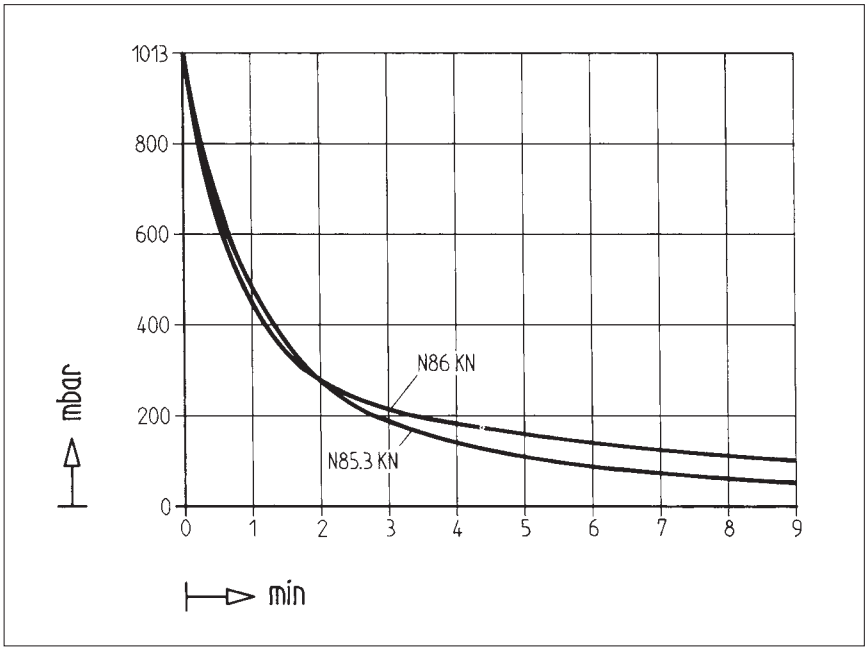


N 86 KTDC

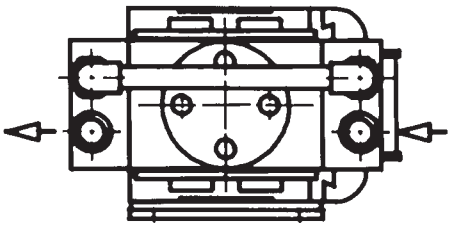


- - - - - - - for short periods only

Pump down time for 5 L receiver



Head connections



N 85.3 Heads in series (2-stage)

MODEL CODE FOR EASY ORDERING

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

N 85	.3	KN	I DC	115 V/60 Hz, IP 00 or 12 V

- Base model
- Head connections
- Head materials
- OEM Versions 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 40°C.

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

Accessories

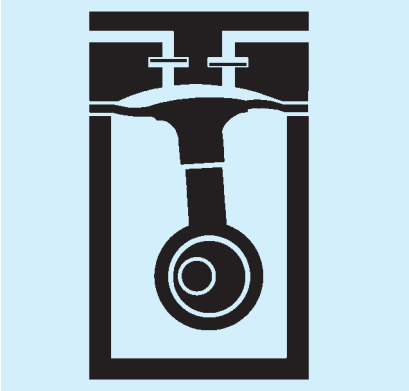
Description	Order No.	Details
Silencer	000345	
Filter	000346	
Hose connector	001936	PA
Hose connector	025671	PVDF
Rubber foot	024435	for N 85.3/N 86_ _E

TIPS 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



INSTALLATION AND OPERATION

- Range of use: Transferring air and gases at temperatures between +5°C and +40°C
- Use chemically resistant version for aggressive gases and vapours
- 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.

SERVICE

The diaphragm and valve plates 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).

KNF NEUBERGER, INC.
Two Black Forest Road
Trenton, New Jersey 08691-1810
Phone: 609-890-8600 · Fax: 609-890-8323
Web: http://www.knf.com