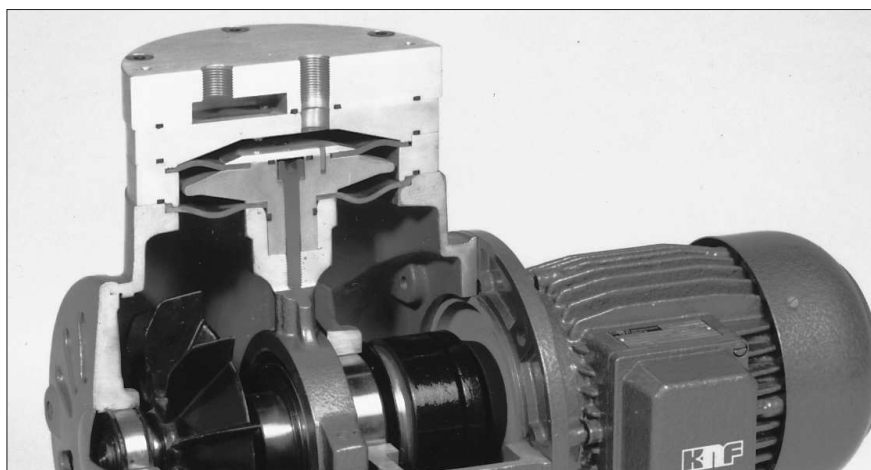


GAS SAMPLING PUMPS WITH KNF DOUBLE DIAPHRAGM SYSTEM

DATA SHEET E 065



Cutaway - Double diaphragm pump

Concept

The 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 KNF Double Diaphragm System for increased safety

A second diaphragm is located underneath the working diaphragm. If gas should leak at the working diaphragm, it will still remain inside the pump space.

Thanks to the **KNF Modular System**, the parts used to transfer the gases can be made from materials with varying degrees of durability. The customer has a choice of pump drives ranging from a selection of motors models. Please contact us for further details.

Explosion protection pumps in ATEX on request.

Features

Pure transferring, evacuation and compression of air, gases and vapours - no contamination of the media due to oil-free operation

Increased safety by KNF double diaphragm system

High level of gas tightness:
Leak rate from $< 6 \times 10^{-6}$ mbar l/s

Long product life

Low maintenance

Very quiet and little vibration

Cool running motor
even when in constant use

Can operate in any installed position

Areas of use

These Diaphragm Pumps for analysis and process gases offer a high level of performance despite their small size, as well as an excellent price performance ratio. They are used especially in the fields of chemical, chemical, environmental, energy and production technology.

Pumps with the KNF Double Diaphragm System are employed for expensive, toxic and dangerous gases. Double diaphragm pumps in ATEX for potentially explosive atmospheres on request. Please contact us for details.

PERFORMANCE DATA

Type	Delivery (l/min)	Vacuum (mbar absolute)	atm. Press.	Pressure (bar g)	Weight (kg)
N 143 AN.12E	30	100		3	13.0
N 186.3 AN.12E	30	3			18.0
N 186.1.2 AN.12E	50	100		3	18.5

N 143 __.12E

N 186.3 __.12E

PERFORMANCE DATA

Type and Order No. ²⁾	Delivery at atm. pressure (l/min) ¹⁾	Max. operating pressure (bar g)	Ultimate vacuum (mbar abs.)
N 143 AN.12E	30	3	100
N 143 AV.12E	30	3	100
N 143 SN.12E	30	3	100
N 143 SV.12E	30	3	100

¹⁾ Litre at STP

MOTOR DATA

Protection class	IP 44	IP 44	
Voltage/Frequency (V/Hz)	~230/50	3~230/400/50	
Power P ₁ (W)	300	420	
Operating current (A)	2,2	2,4/1,2	

MODEL CODES AND MATERIALS

Type and Order No. ²⁾	Pump head	Diaphragm	Valves
N 143 AN.12E	Aluminium	Neopren	Neopren
N 143 AV.12E	Aluminium	Viton	Viton
N 143 SN.12E	Stainless steel	Neopren	Neopren
N 143 SV.12E	Stainless steel	Viton	Viton

²⁾ See also „MODEL CODE FOR EASY ORDERING“

PERFORMANCE DATA

Type and Order No. ²⁾	Delivery at atm. pressure (l/min) ¹⁾	Max. operating pressure (bar g)	Ultimate vacuum (mbar abs.)
N 186.3 AN.12E	30	-	3
N 186.3 AV.12E	30	-	3
N 186.3 SN.12E	30	-	3
N 186.3 SV.12E	30	-	3

¹⁾ Litre at STP

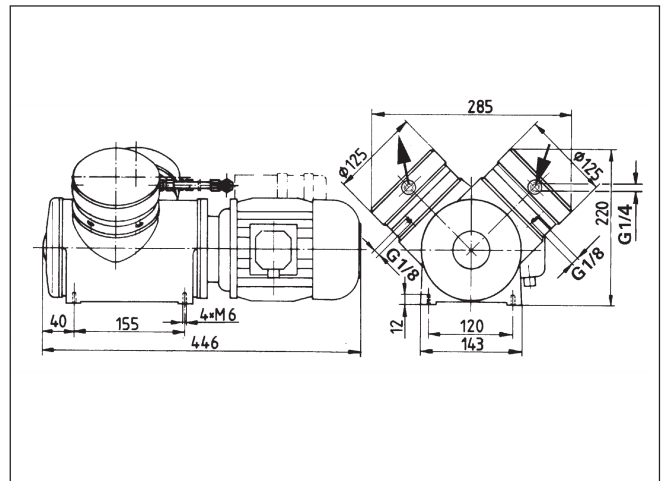
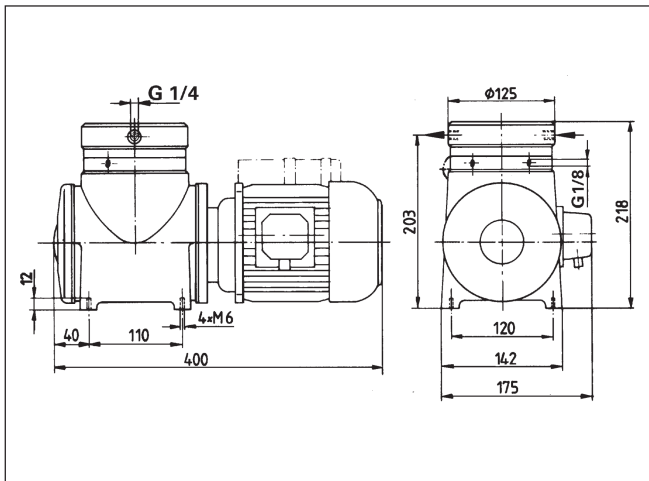
MOTOR DATA

Protection class	IP 44	IP 44	
Voltage/Frequency (V/Hz)	~230/50	3~230/400/50	
Power P ₁ (W)	360	400	
Operating current (A)	2,0	1,9/1,1	

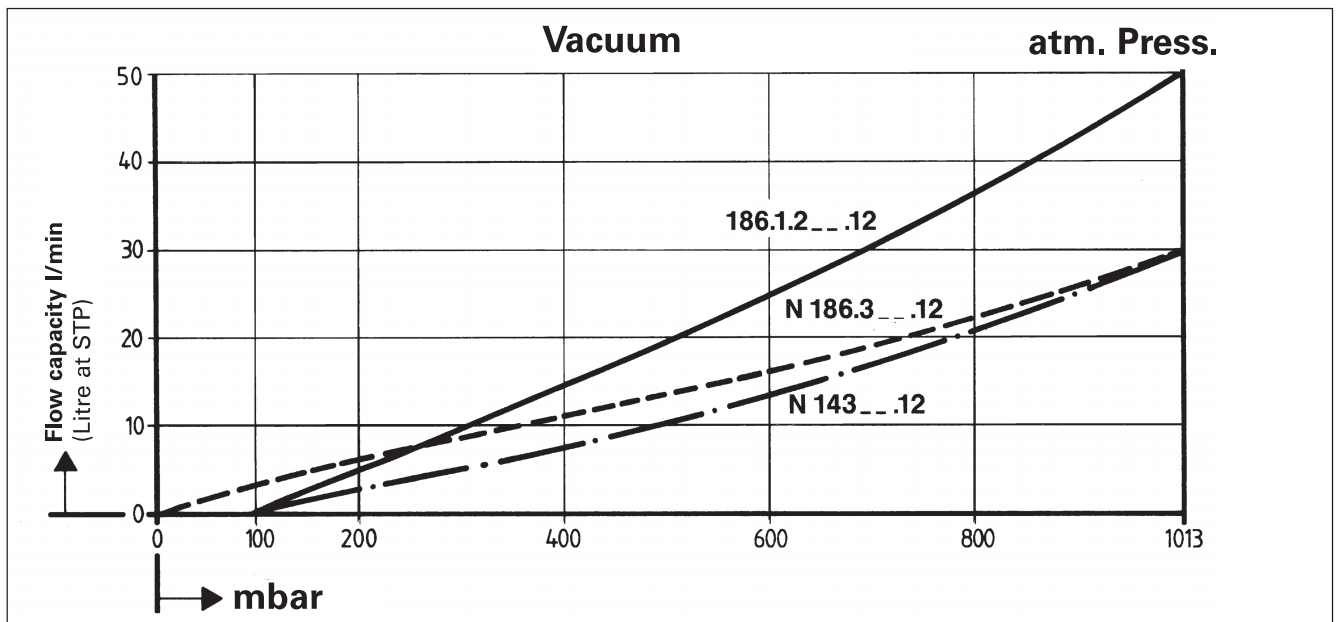
MODEL CODES AND MATERIALS

Type and Order No. ²⁾	Pump head	Diaphragm	Valves
N 186.3 AN.12E	Aluminium	Neopren	Neopren
N 186.3 AV.12E	Aluminium	Viton	Viton
N 186.3 SN.12E	Stainless steel	Neopren	Neopren
N 186.3 SV.12E	Stainless steel	Viton	Viton

Dimensions ³⁾ (mm)



³⁾ All dimensional tolerances conform to DIN ISO 2768-1, Tolerance Class V



N 186.1.2 _ _ .12E

PERFORMANCE DATA

Type and Order No. ²⁾	Delivery at atm. pressure (l/min) ¹⁾	Max. operating pressure (bar g)	Ultimate vacuum (mbar abs.)
N 186.1.2 AN.12E	50	3	100
N 186.1.2 AV.12E	50	3	100
N 186.1.2 SN.12E	50	3	100
N 186.1.2 SV.12E	50	3	100

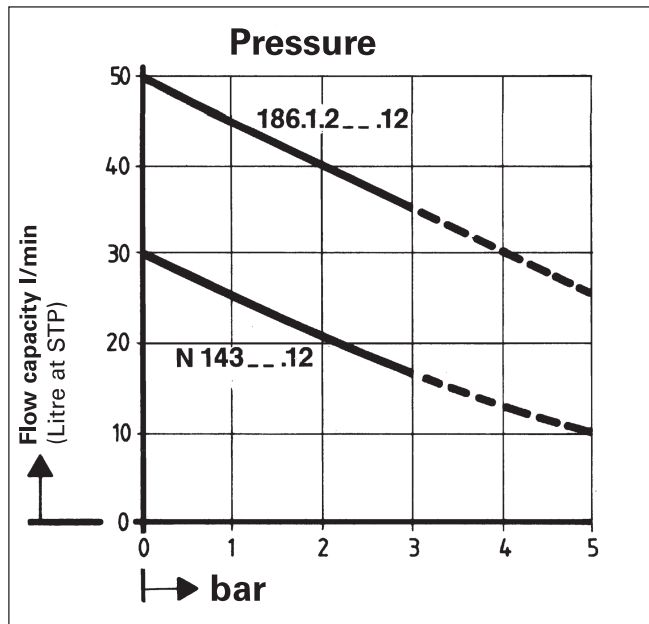
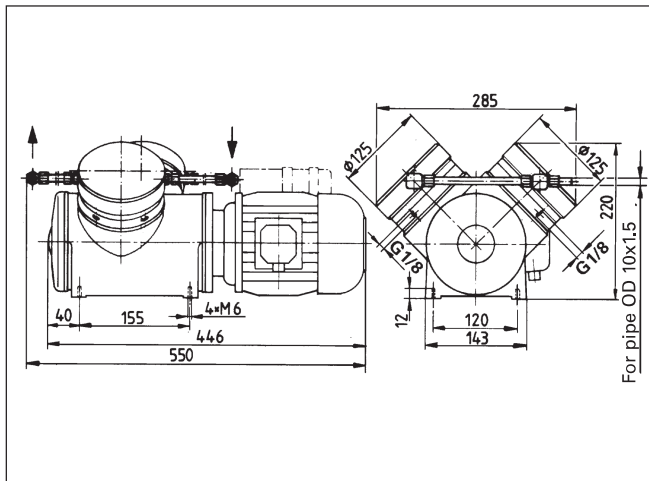
¹⁾ Litre at STP

MOTOR DATA

Protection class	IP 44	IP 44	
Voltage/Frequency (V/Hz)	~230/50	3~230/400/50	
Power P ₁ (W)	360	400	
Operating current (A)	2,0	1.9/1.1	

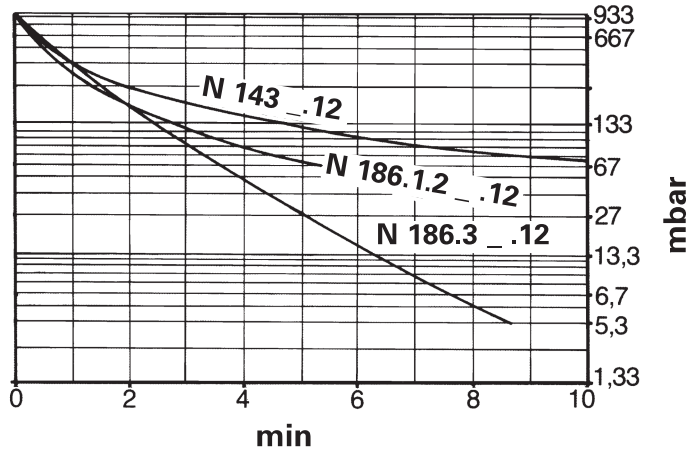
MODEL CODES AND MATERIALS

Type and Order No. ²⁾	Pump head	Diaphragm	Valves
N 186.1.2 AN.12E	Aluminium	Neopren	Neopren
N 186.1.2 AV.12E	Aluminium	Viton	Viton
N 186.1.2 SN.12E	Stainless steel	Neopren	Neopren
N 186.1.2 SV.12E	Stainless steel	Viton	Viton



Technical Informations

Pump down time for 20 l receiver



MODEL CODE FOR EASY ORDERING

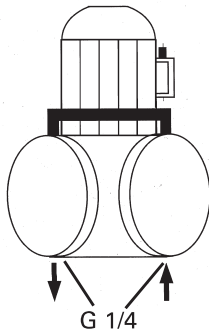
The model code is identical to the order number. It is set up as follows:

N 186 .3 AN .12 E 230 V/50 Hz, IP 44

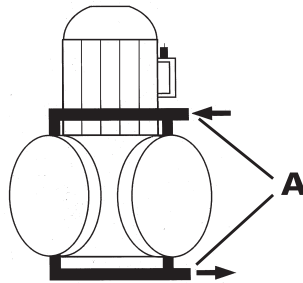
- Base model
- Head connections
- Head materials
- Double diaphragm system
- OEM version with ac motor (E)
- Other motor data e.g.:

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.

Head connections



N 186.3 _ _ .12
Heads in series
(2-stage)



N 186.1.2 _ _ .12
Heads in parallel
both side

A = Compressing pipe caupling for pipe OD 10

TECHNICAL DETAILS

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

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

ACCESSORIES

Silencer for G1/4
Order No. 000352

Wrench for retainer plate
Order No.018816

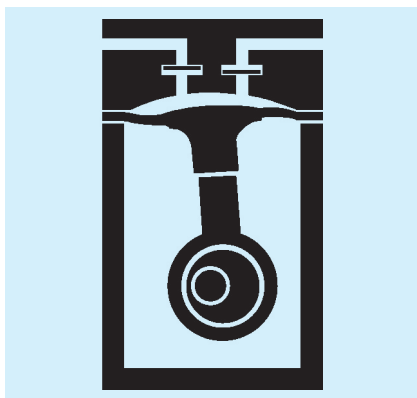
KNF - the competent partner for vacuum and compressor technology. Especially for unusual problems. Call us and talk to our application engineers.

HINTS ON FUNCTION, INSTALLATION AND SERVICE

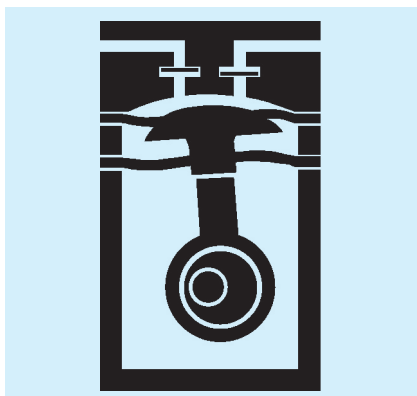
FUNCTION OF KNF DIAPHRAGM VACUUM PUMPS AND COMPRESSORS

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



Double 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.
- To prevent the maximum operating pressure being exceeded, restriction or regulation of the gas 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 can not collect in the head of the pump.

THE KNF DOUBLE DIAPHRAGM SYSTEM FOR INCREASED SAFETY

A second diaphragm is located underneath the working diaphragm. This second diaphragm is under less mechanical stress when the pump is operating. If gas should leak at the working diaphragm, it will still remain inside the pump space. The space between both diaphragms can be monitored so that any damage to the working diaphragm will be noted immediately.

Pumps with the KNF Double Diaphragm System are employed for expensive, toxic and dangerous gases. Please contact us for details.

HINTS ON 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 GmbH

Alter Weg 3
D 79112 Freiburg
Tel. ++49 (0)7664/5909-0
Fax ++49 (0)7664/5909-99
E-mail: info@knf.de
www.knf.de