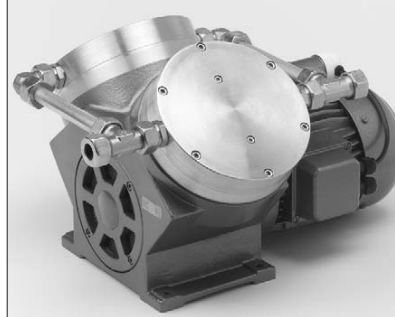


DIAPHRAGM GAS SAMPLING PUMPS

SECTION 86.20



N 0150 ANE



N 0150.1.2 ANE



N 0150 AN.12 E (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 USA and ATEX standards are available.

Features

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

Low maintenance

High level of gas tightness: Leak rate from $< 6 \times 10^{-3}$ mbar l/s (normal models) to $< 6 \times 10^{-6}$ mbar l/s (standard models with double diaphragm system)

Chemically-resistant versions are available pumps with the KNF double diaphragm system

Long product life

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, environmental, energy and production technology.

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

PERFORMANCE DATA

Type	Delivery (l/min)	Vacuum (mbar absolute)	atm. Press.	Pressure (bar g)	Weight (kg)
N 0150 ANE	150	100		2	21.5
N 0150.3 ANE	150	20			28.5
N 0150.1.2 ANE	280	100		2	28.5
N 0150 AN.12 E	150	100		2	22.0
N 0150.3 AN.12 E	150	20			30.0
N 0150.1.2 AN.12 E	280	100		2	30.0

N 0150

PERFORMANCE DATA

Type and Order No. ²⁾	Delivery at atm. pressure (l/min) ¹⁾	Max. operating pressure (bar g)	Ultimate vacuum (mbar abs.)
N 0150 ANE	150	2	100
N 0150 ATE	120	2	115
N 0150 STE	120	2	115

¹⁾ Litre at STP

MOTOR DATA

Protection class	IP 54	IP 54	
Voltage/Frequency (V/Hz)	~230/50	3~230/400/50	
Power P ₁ (W)	650	650	
Operating current (A)	3.3	3.5/2.0	

MODEL CODES AND MATERIALS

Type and Order No. ²⁾	Pump head	Diaphragm	Valves
N 0150 ANE	Aluminium	EPDM	Stainless steel
N 0150 ATE	Aluminium	PTFE coated	Stainless steel
Chemically resistant version			
N 0150 STE	Stainless steel	PTFE coated	Stainless steel

N 0150.3

PERFORMANCE DATA

Type and Order No. ²⁾	Delivery at atm. pressure (l/min) ¹⁾	Max. operating pressure (bar g)	Ultimate vacuum (mbar abs.)
N 0150.3 ANE	150	-	20
N 0150.3 ATE	120	-	25
N 0150.3 STE	120	-	25

¹⁾ Litre at STP

MOTOR DATA

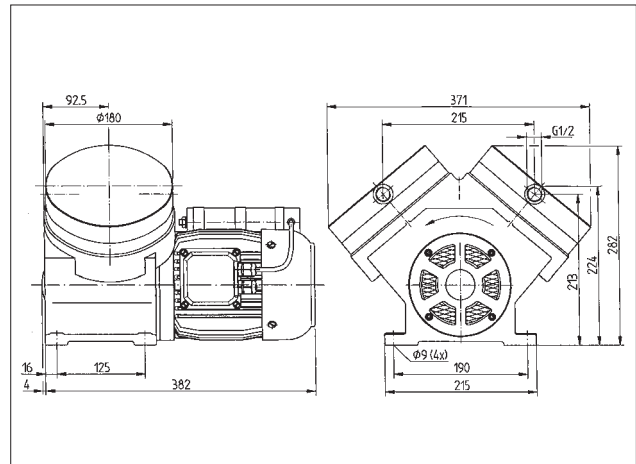
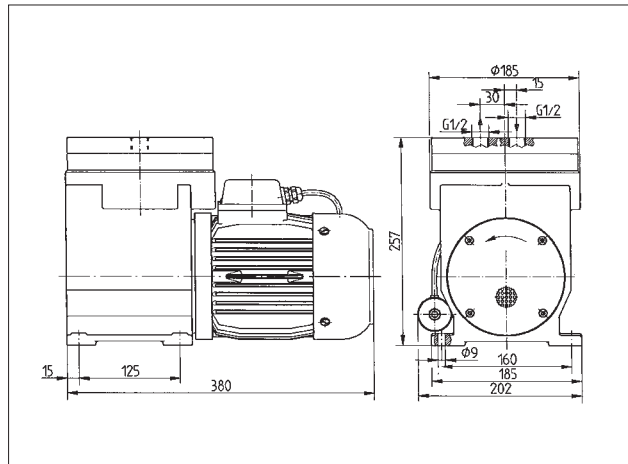
Protection class	IP 54	IP 54	
Voltage/Frequency (V/Hz)	~230/50	3~230/400/50	
Power P ₁ (W)	950	1000	
Operating current (A)	4.2	4.0/2.3	

MODEL CODES AND MATERIALS

Type and Order No. ²⁾	Pump head	Diaphragm	Valves
N 0150.3 ANE	Aluminium	EPDM	Stainless steel
N 0150.3 ATE	Aluminium	PTFE coated	Stainless steel
Chemically resistant version			
N 0150.3 STE	Stainless steel	PTFE coated	Stainless steel

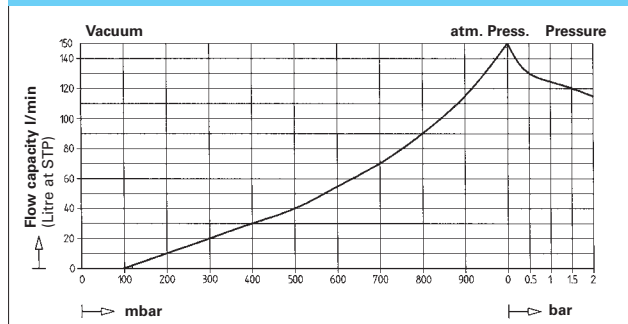
Other voltages and frequencies are available.

Dimensions ³⁾ (mm)

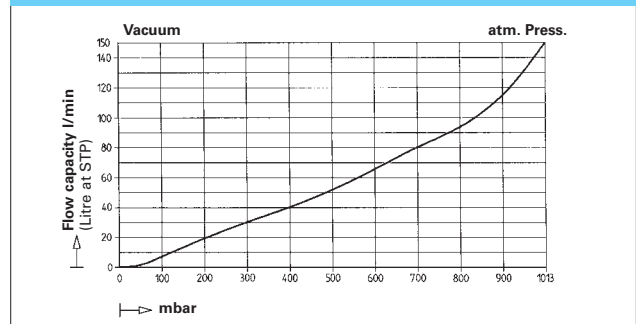


³⁾ All dimensional tolerances conform to DIN ISO 2768-1, Tolerance Class V

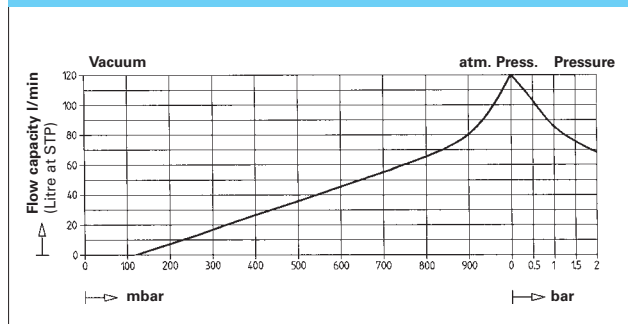
N 0150 ANE



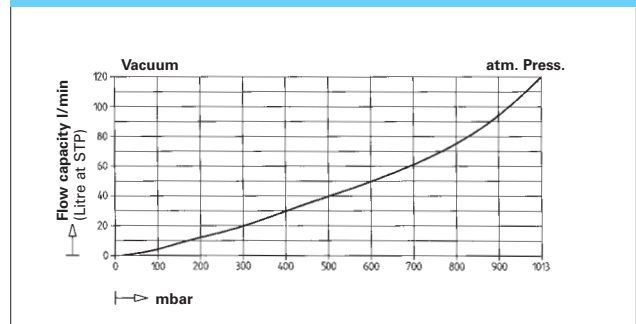
N 0150.3 ANE



N 0150 ATE N 0150 STE



N 0150.3 ATE N 0150.3 STE



**Pumps with double diaphragm system:
increased safety and gas-tightness
(leak rate: 6×10^{-6} mbar l/s).**

PERFORMANCE DATA

Type and Order No. ²⁾	Delivery at atm. pressure (l/min) ¹⁾	Max. operating pressure (bar g)	Ultimate vacuum (mbar abs.)
N 0150.1.2 ANE	280	2	100
N 0150.1.2 ATE	220	2	115
N 0150.1.2 STE	220	2	115

¹⁾ Litre at STP

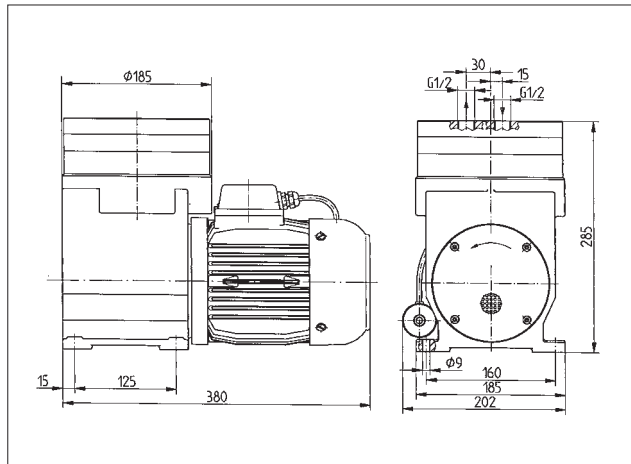
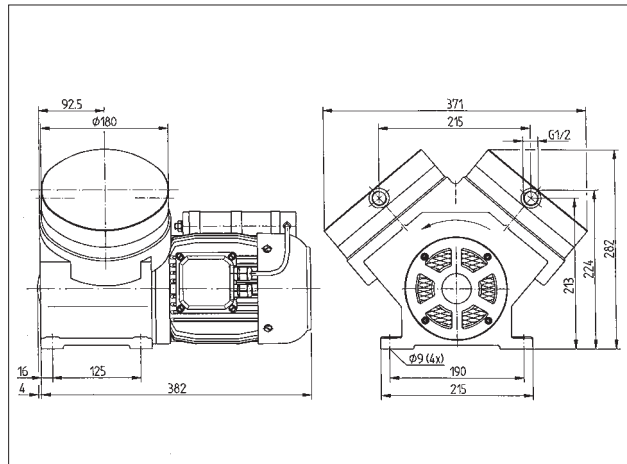
MOTOR DATA

Protection class	IP 54	IP 54
Voltage/Frequency (V/Hz)	~230/50	3~230/400/50
Power P ₁ (W)	950	1000
Operating current (A)	4.2	4.0/2.3

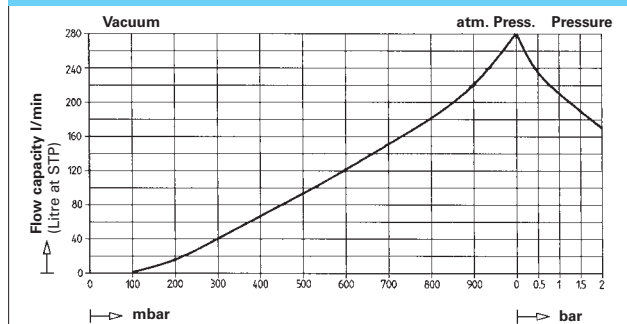
MODEL CODES AND MATERIALS

Type and Order No. ²⁾	Pump head	Diaphragm	Valves
N 0150.1.2 ANE	Aluminium	EPDM	Stainless steel
N 0150.1.2 ATE	Aluminium	PTFE coated	Stainless steel
Chemically resistant version			
N 0150.1.2 STE	Stainless steel	PTFE coated	Stainless steel

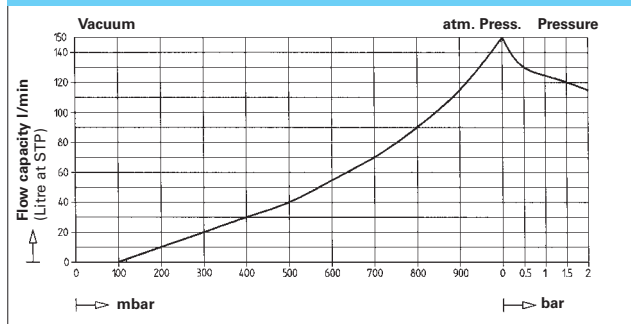
Other voltages and frequencies are available.



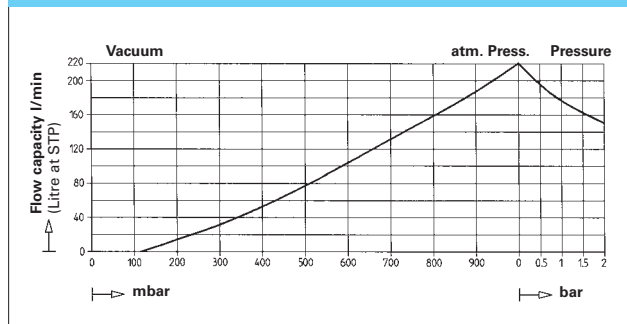
N 0150.1.2 ANE



N 0150 AN.12 E



N 0150.1.2 ATE N 0150.1.2 STE



Chemically resistant versions with double diaphragm system

Pumps with the double diaphragm system are available in chemically resistant versions. Increased safety can be combined with high resistance to chemicals. The properties of the new pumps:

- Pump head and valves of stainless steel, working diaphragm PTFE-coated
- Delivery: 120 l/min at atm. pressure (Litre at STP)
- Ultimate vacuum: 115 mbar abs.
- Maximum permissible operating pressure: 2 bar g
- Leak rate: 1×10^{-5} mbar l/s.

For further information contact your KNF application engineers.

N 0150.3 AN.12

Pumps with double diaphragm system:
increased safety and gas-tightness
(leak rate: $< 6 \times 10^{-6}$ mbar l/s).

PERFORMANCE DATA

Type and Order No. ²⁾	Delivery at atm. pressure (l/min) ¹⁾	Max. operating pressure (bar g)	Ultimate vacuum (mbar abs.)
N 0150.3 AN.12 E	150	-	20

¹⁾ Litre at STP

MOTOR DATA

Protection class	IP 54	IP 54	
Voltage/Frequency (V/Hz)	~230/50	3~230/400/50	
Power P ₁ (W)	950	1000	
Operating current (A)	4.2	4.0/2.3	

MODEL CODES AND MATERIALS

Type and Order No. ²⁾	Pump head	Diaphragm	Valves
N 0150.3 AN.12 E	Aluminium	EPDM	Stainless steel
Chemically resistant version see below			

N 0150.1.2 AN.12

Pumps with double diaphragm system:
increased safety and gas-tightness
(leak rate: $< 6 \times 10^{-6}$ mbar l/s).

PERFORMANCE DATA

Type and Order No. ²⁾	Delivery at atm. pressure (l/min) ¹⁾	Max. operating pressure (bar g)	Ultimate vacuum (mbar abs.)
N 0150.1.2 AN.12 E	280	2	100

¹⁾ Litre at STP

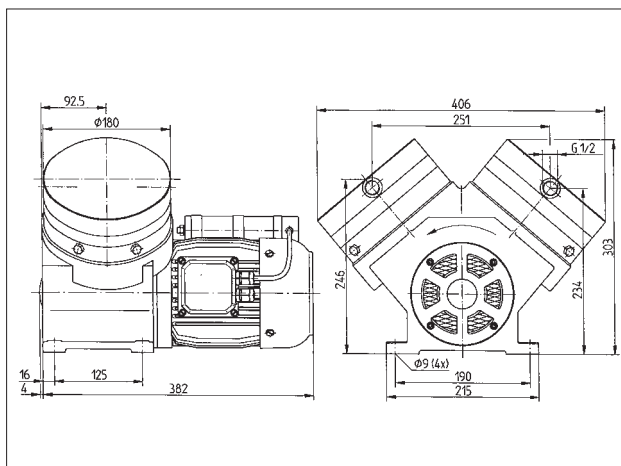
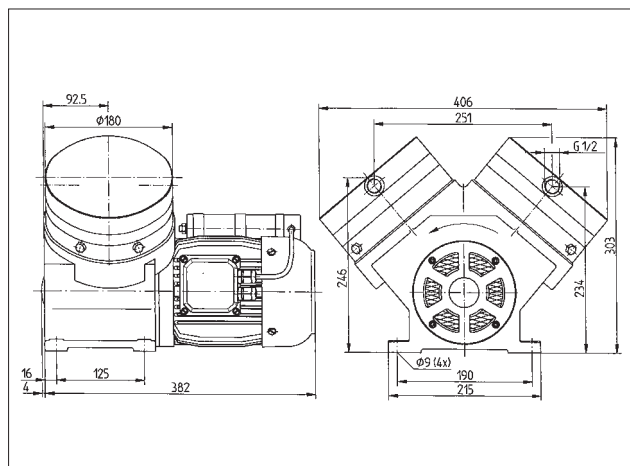
MOTOR DATA

Protection class	IP 54	IP 54	
Voltage/Frequency (V/Hz)	~230/50	3~230/400/50	
Power P ₁ (W)	950	1000	
Operating current (A)	4.2	4.0/2.3	

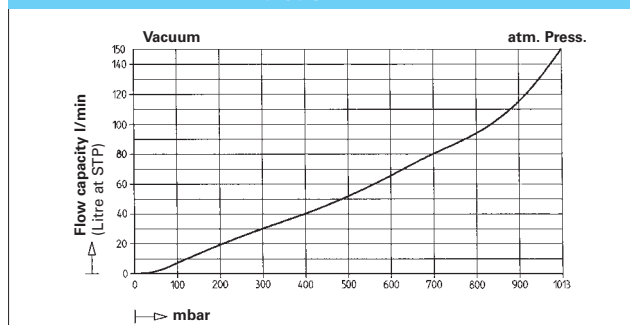
MODEL CODES AND MATERIALS

Type and Order No. ²⁾	Pump head	Diaphragm	Valves
N 0150.1.2 AN.12 E	Aluminium	EPDM	Stainless steel
Chemically resistant version see below			

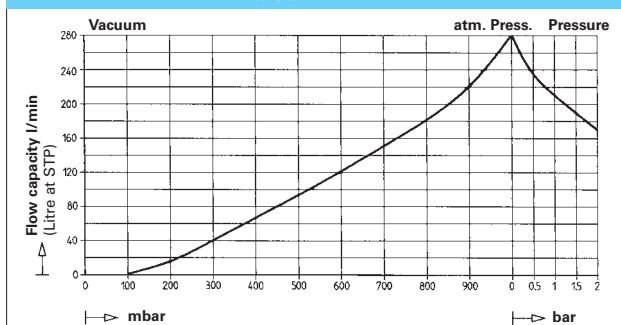
Other voltages and frequencies are available.



N 0150.3 AN.12 E



N 0150.1.2 AN.12 E



Chemically resistant versions with double diaphragm system

Pumps with the double diaphragm system are available in chemically resistant versions. Increased safety can be combined with high resistance to chemicals. The properties of the new pumps:

- Pump head and valves of stainless steel, working diaphragm PTFE-coated
- Delivery: 120 l/min at atm. pressure (Litre at STP)
- Ultimate vacuum: 25 mbar abs.
- Leak rate: $< 1 \times 10^{-5}$ mbar l/s.

For further information contact your KNF application engineers.

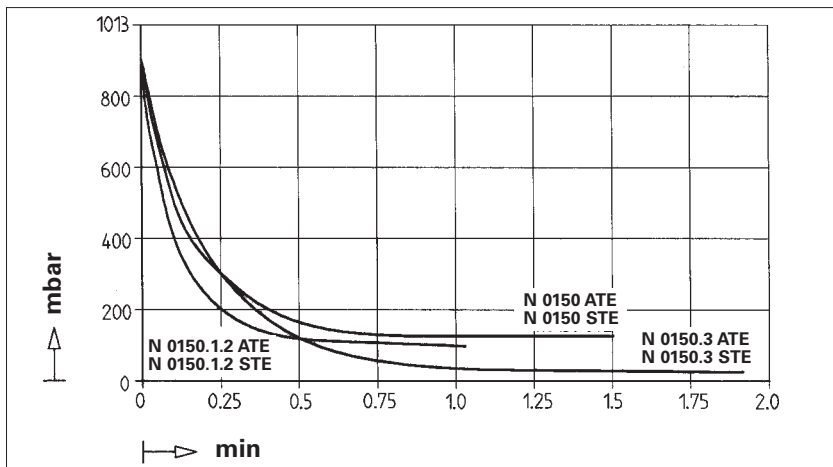
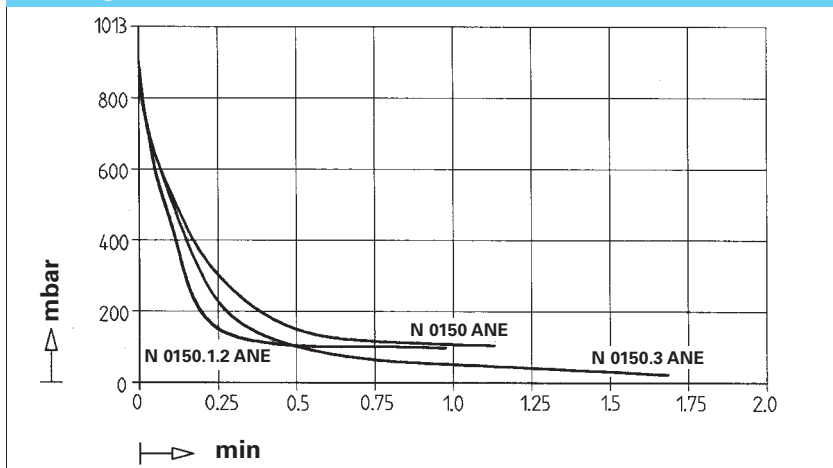
Chemically resistant versions with double diaphragm system

Pumps with the double diaphragm system are available in chemically resistant versions. Increased safety can be combined with high resistance to chemicals. The properties of the new pumps:

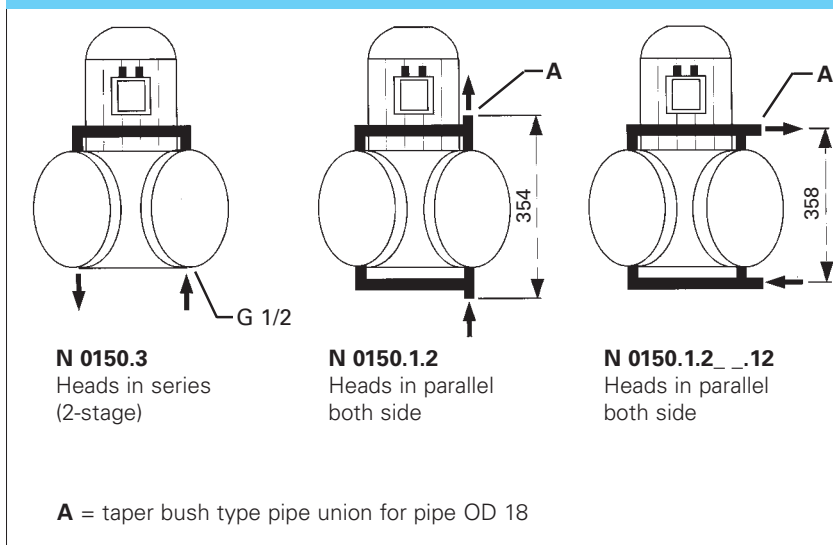
- Pump head and valves of stainless steel, working diaphragm PTFE-coated
- Delivery: 220 l/min at atm. pressure (Litre at STP)
- Ultimate vacuum: 115 mbar abs.
- Maximum permissible operating pressure: 2 bar g
- Leak rate: $< 1 \times 10^{-5}$ mbar l/s.

For further information contact your KNF application engineers.

Pump down time for 20 l receiver



Head connections



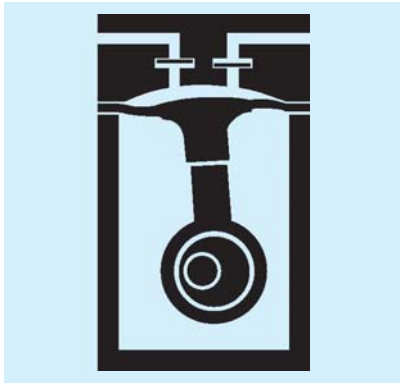
KNF Neuberger, Inc.
 2 Black Forest Road
 Trenton, NJ 08691-1810
 Tel. 609-890-8600
 Fax 609-890-8323
www.knf.com/usa.htm

HINTS ON FUNCTION, INSTALLATION AND SERVICE

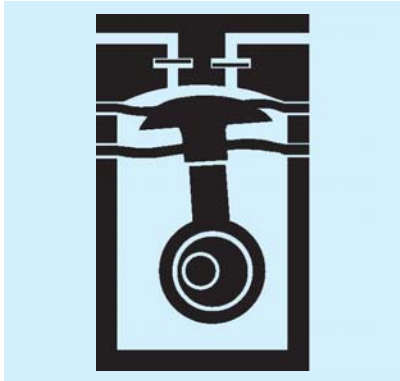
FUNCTION OF KNF DIAPHRAGM VACUUM PUMPS AND COMPRESSORS

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.
- Use chemically resistant versions 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.
- 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).