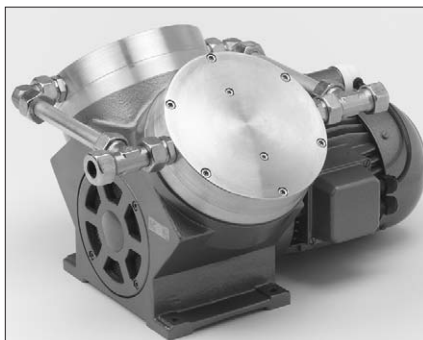


DIAPHRAGM GAS SAMPLING PUMPS

DATA SHEET E 059



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 ATEX see data sheet E 178.

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 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 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

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

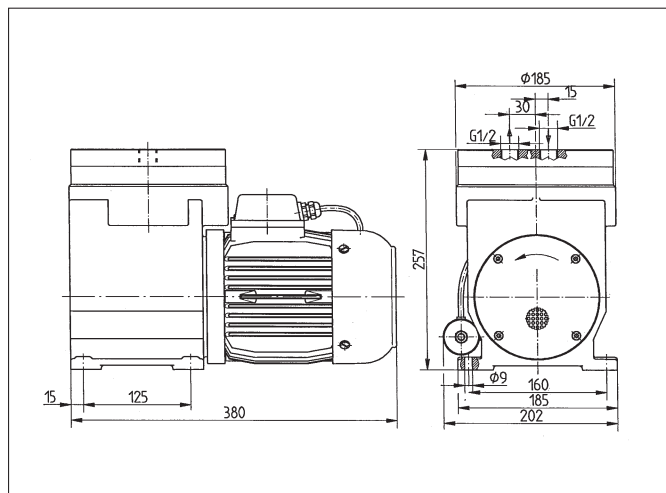
Protection class	IP 54	IP 54	
Voltage/Frequency (V/Hz)	~230/50	3~230/400/50	
Power P ₁ (W)	650	650	
Operating current (A)	3.3	3.5/2.0	

MODEL CODES AND MATERIALS

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

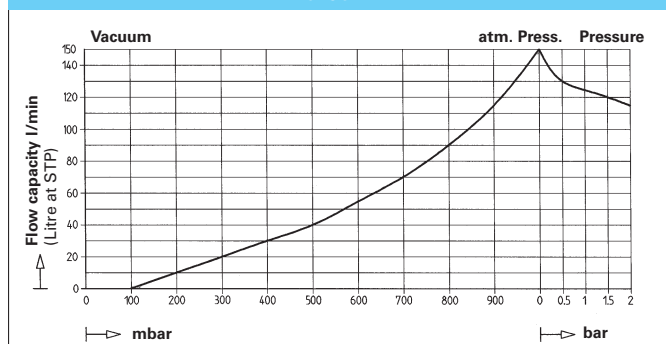
²⁾ See also „MODEL CODE FOR EASY ORDERING“

Dimensions ³⁾ (mm)

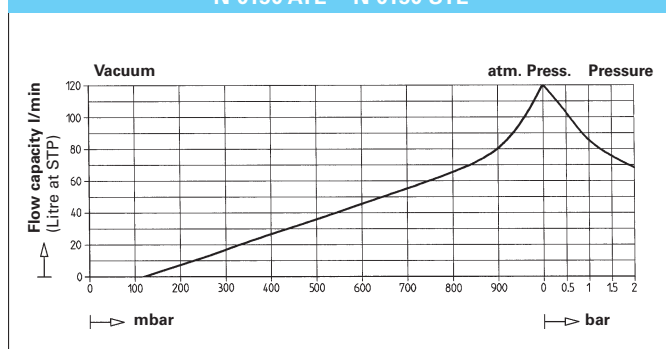


³⁾ All dimensional tolerances conform to DIN ISO 2768-1, Tolerance Class V

N 0150 ANE



N 0150 ATE N 0150 STE



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

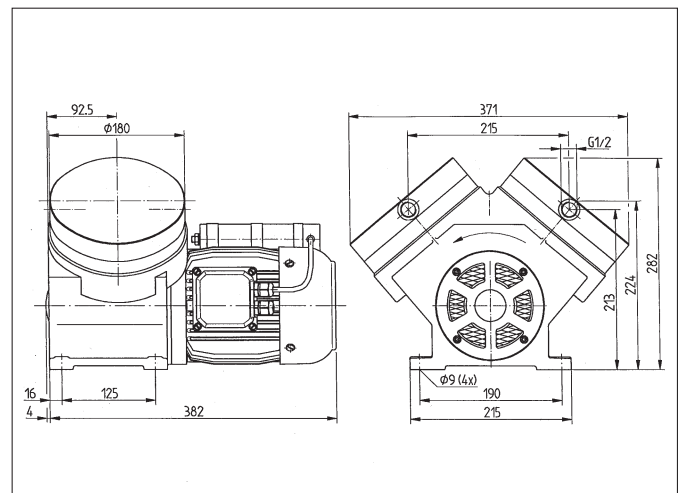
¹⁾ Litre at STP

MOTOR DATA

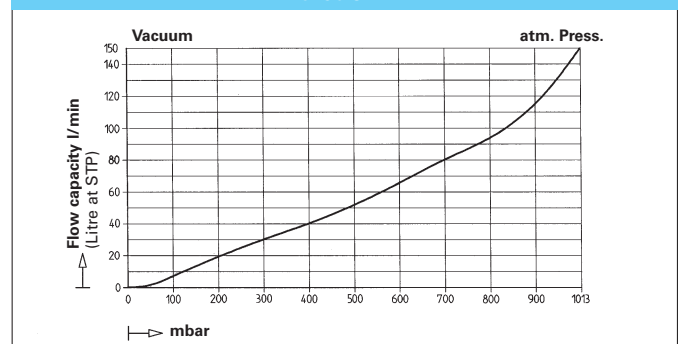
Protection class	IP 54	IP 54	
Voltage/Frequency (V/Hz)	~230/50	3~230/400/50	
Power P ₁ (W)	950	1000	
Operating current (A)	4.2	4.0/2.3	

MODEL CODES AND MATERIALS

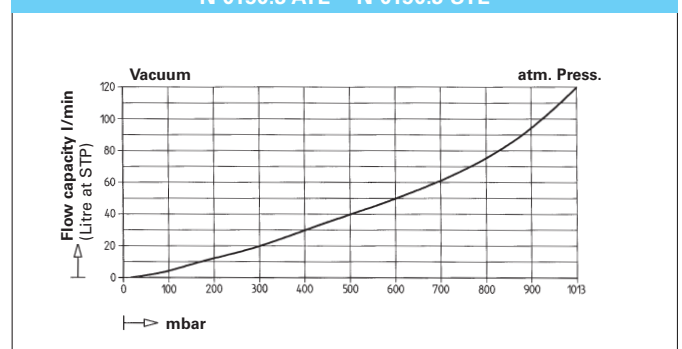
Type and Order No. ²⁾	Pump head	Diaphragm	Valves
N 0150.3 ANE	Aluminium	Neoprene	Stainless steel
N 0150.3 ATE	Aluminium	PTFE coated	Stainless steel
Chemically resistant version			
N 0150.3 STE	Stainless steel	PTFE coated	Stainless steel



N 0150.3 ANE



N 0150.3 ATE N 0150.3 STE



N 0150.1.2 _ _ E

N 0150 AN.12 E

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	Neoprene	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

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 AN.12 E	150	2	100

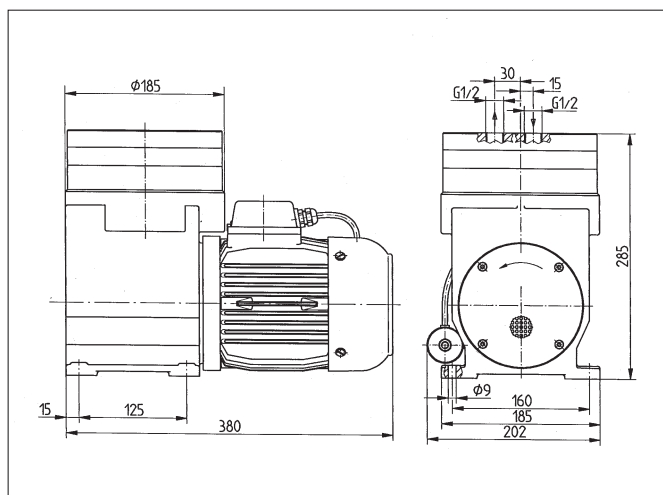
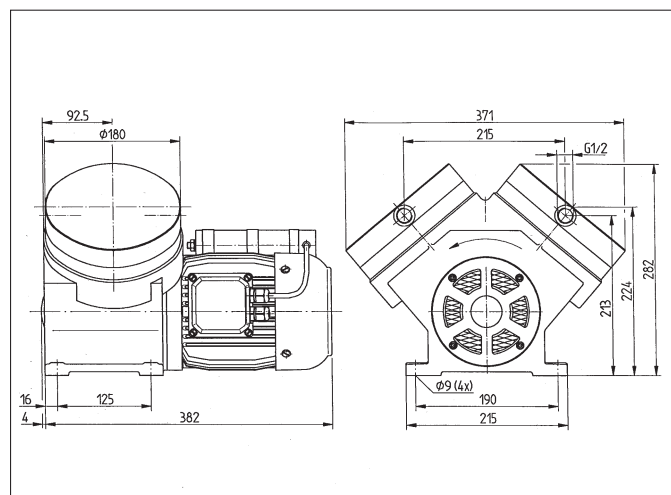
¹⁾ Litre at STP

MOTOR DATA

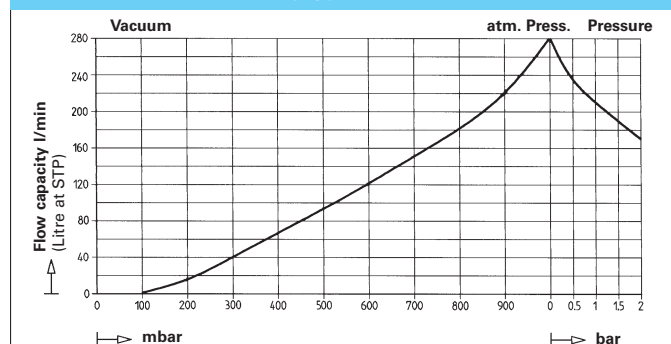
Protection class	IP 54	IP 54	
Voltage/Frequency (V/Hz)	~230/50	3~230/400/50	
Power P ₁ (W)	650	650	
Operating current (A)	3.3	3.5/2.0	

MODEL CODES AND MATERIALS

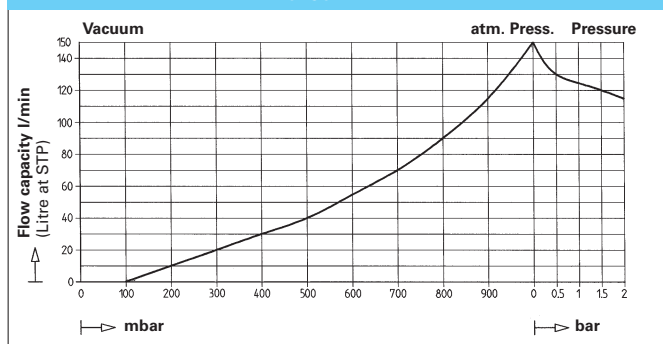
Type and Order No. ²⁾	Pump head	Diaphragm	Valves
N 0150 AN.12 E	Aluminium	Neoprene	Stainless steel
Chemically resistant version			
see below			



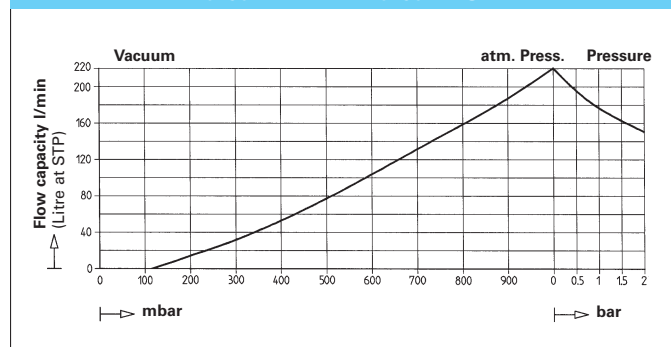
N 0150.1.2 ANE



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: $< 1 \times 10^{-5}$ mbar l/s.

For further information contact your KNF application engineers.

N 0150.3 AN.12 E

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

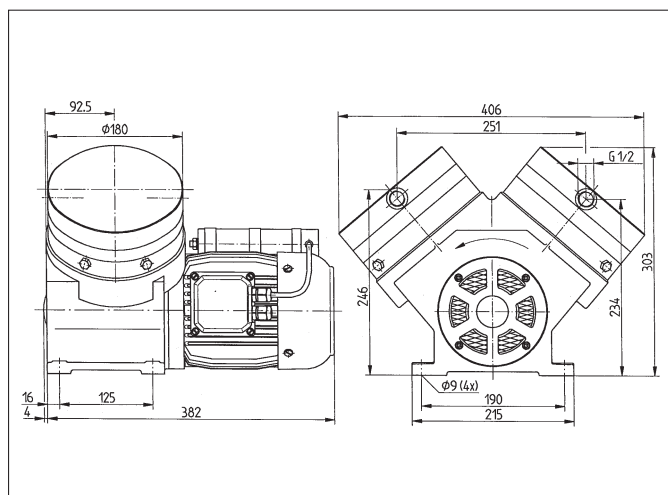
¹⁾ Litre at STP

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	Neoprene	Stainless steel
Chemically resistant version			
see below			



N 0150.1.2 AN.12 E

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

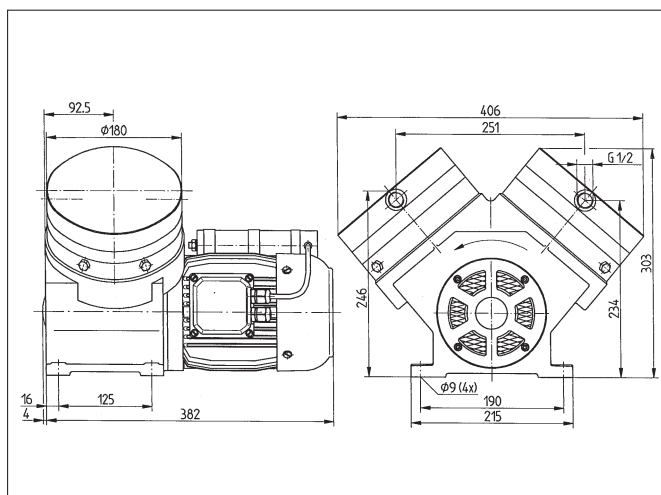
¹⁾ Litre at STP

MOTOR DATA

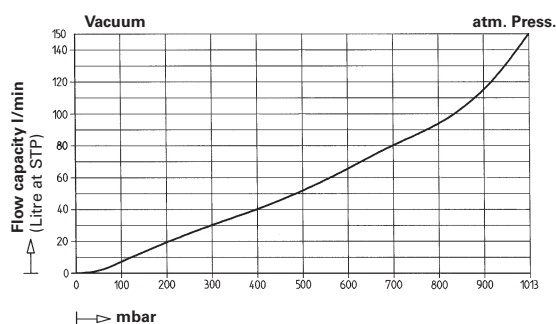
Protection class	IP 54	IP 54	
Voltage/Frequency (V/Hz)	~230/50	3~230/400/50	
Power P ₁ (W)	950	1000	
Operating current (A)	4.2	4.0/2.3	

MODEL CODES AND MATERIALS

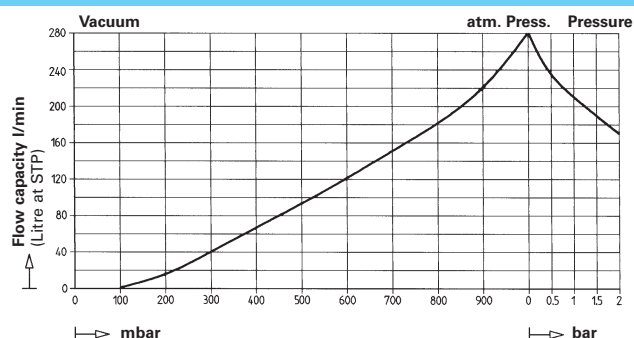
Type and Order No. ²⁾	Pump head	Diaphragm	Valves
N 0150.1.2 AN.12 E	Aluminium	Neoprene	Stainless steel
Chemically resistant version			
see below			



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.

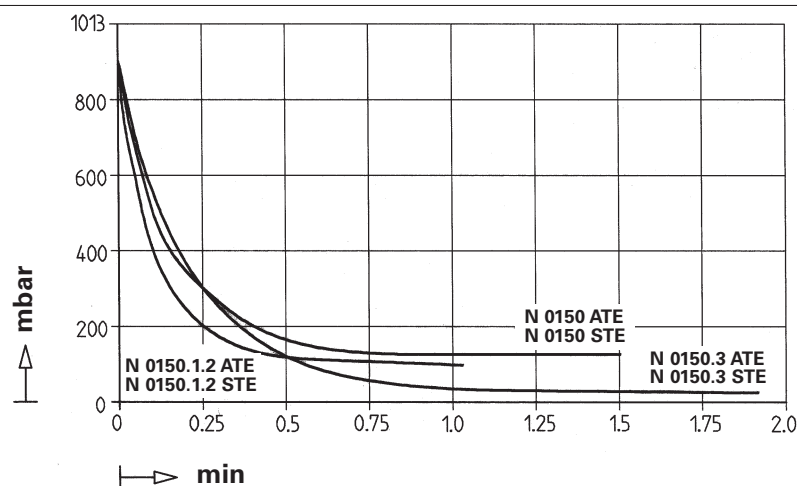
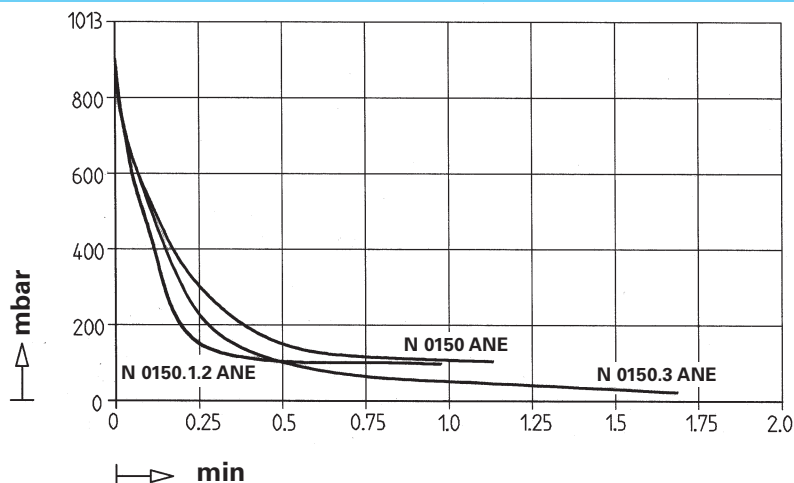
Chemically resistant versions with double diaphragm system

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



MODEL CODE FOR EASY ORDERING

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

N 0150 .3 AN E 230 V/50 Hz, IP 54

- Base model
- Head connections
- Head materials
- OEM version with ac motor
- 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.

TECHNICAL DETAILS

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

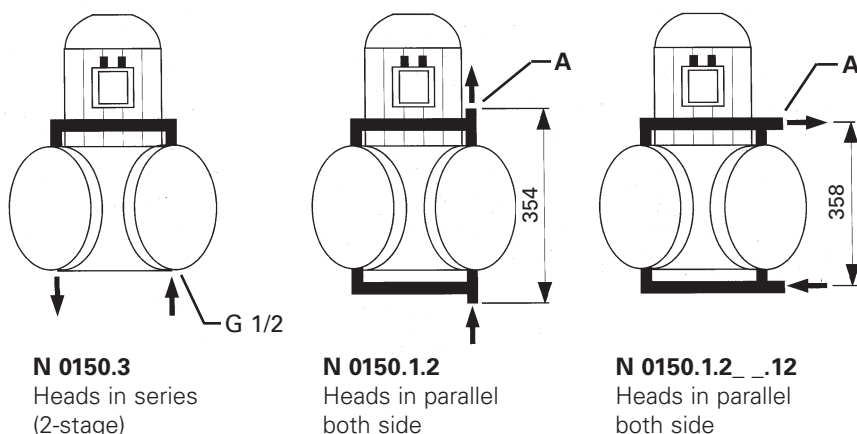
Motors with other voltages, frequencies and protection classes on request.

ACCESSORIES

Silencer for G1/2
Order No. 046104

Wrench for retainer plate
Order No. 018816

Head connections



A = taper bush type pipe union for pipe OD 18

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

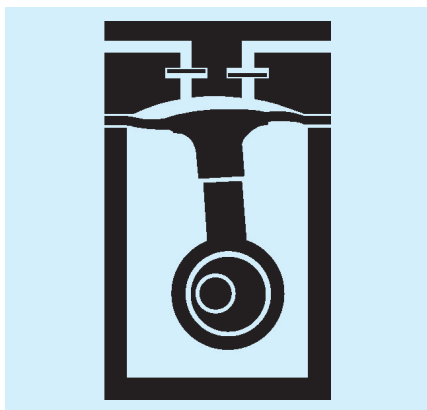
KNF - the competent partner for vacuum and compressor technology. Especially for unusual problems. Call us and talk to our application engineers.

HINTS ON FUNCTION, INSTALLATION AND SERVICE

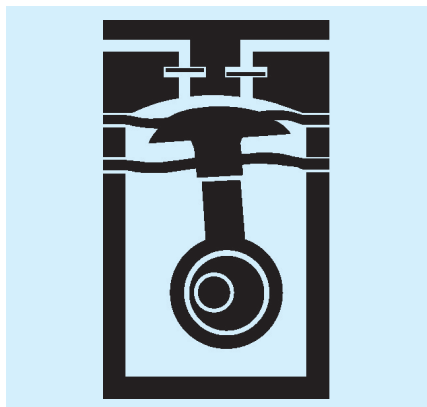
FUNCTION OF KNF DIAPHRAGM VACUUM PUMPS AND COMPRESSORS

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).

KNF Neuberger GmbH
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