# MINI DIAPHRAGM VACUUM PUMPS

**DATA SHEET E 024**

**N 815 KNE**

**N 828 KNDC-B**

**N 838 KNDC**

## Concept

The mini diaphragm gas sampling 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-optimised 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 tranfer 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 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 absolute) | atmospheric pressure | Pressure (bar g) | Weight (kg) |
|---|---|---|---|---|---|
| N 815 KNE | 15 | 100 | | | 1.55 |
| N 815 KNDC | 16 | 100 | | | 0.98 |
| N 828 KNDC | 27 | 100 | | 1 | 2.1 |
| N 828 KNDC-B | 28 | 100 | | 1 | 1.8 |
| N 828 KN.29DC-B | 28 | 100 | | 1 | 1.8 |
| N 828 KNE | 28 | 100 | | 1 | 2.2 |
| N 838 KNDC | 32 | 100 | | 0.5 | 2.2 |
| N 838 KNDC-B | 34 | 100 | | 0.5 | 2.0 |
| N 838 KN.29DC-B | 34 | 100 | | 0.5 | 2.0 |
| N 838 KNE | 34 | 100 | | 0.5 | 2.3 |

# N 815 KNDC | N 815 KTDC

## Performance data

| Type | Delivery at atm. pressure (l/min)[1] | Max. operating pressure (bar g) | Ultimate vacuum (mbar abs.) |
|---|---|---|---|
| N 815 KNDC | 16 | - | 100 |
| N 815 KTDC | 15 | - | 160 |

[1] Liter at STP

## Motor data

| Voltage | 12 V | 24 V |
|---|---|---|
| $I_{max}$ (A) | 1.8 | 0.9 |

## Pump material

| Type | Pump head | Diaphragm | Valves |
|---|---|---|---|
| N 815 KNDC | PPS | CR | EPDM |
| N 815 KTDC | PPS | PTFE-coated | FFPM |

# N 815 KNE | N 815 KTE

## Performance data

| Type | Delivery at atm. pressure (l/min)[1] | Max. operating pressure (bar g) | Ultimate vacuum (mbar abs.) |
|---|---|---|---|
| N 815 KNE | 15 | - | 100 |
| N 815 KTE | 14 | - | 160 |

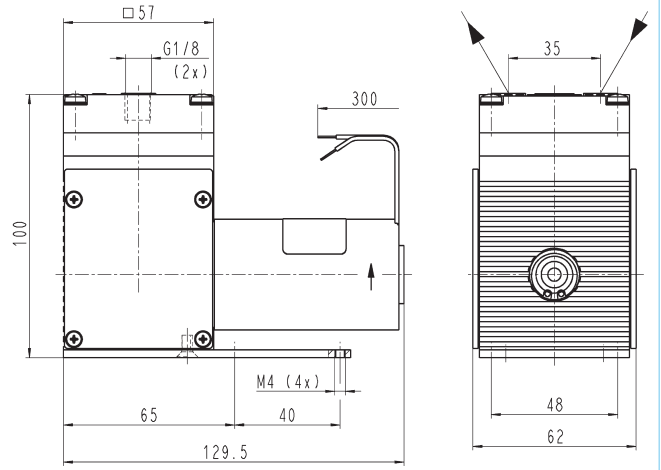
## Motor data

| Protection class | IP 00 |
|---|---|
| Voltage (V) | 230 |
| Frequencies (Hz) | 50 |
| Power $P_1$ (W) | 50 |
| $I_{max}$ (A) | 0.55 |

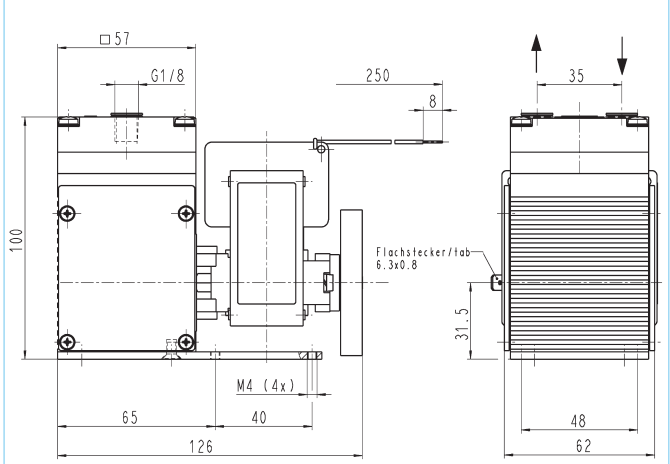
## Pump material

| Type | Pump head | Diaphragm | Valves |
|---|---|---|---|
| N 815 KNE | PPS | CR | EPDM |
| N 815 KTE | PPS | PTFE-coated | FFPM |

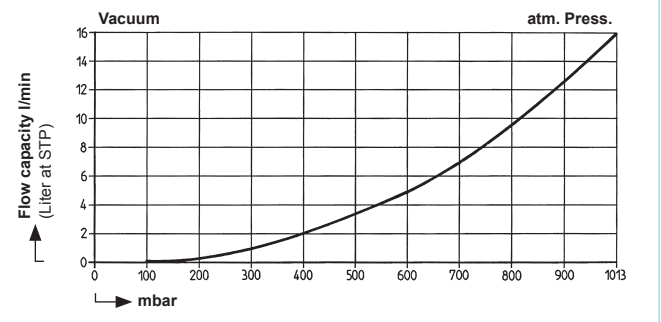
## N 815 KNDC | N 815 KTDC




## N 815 KNE | N 815 KTE




## N 815 KNDC

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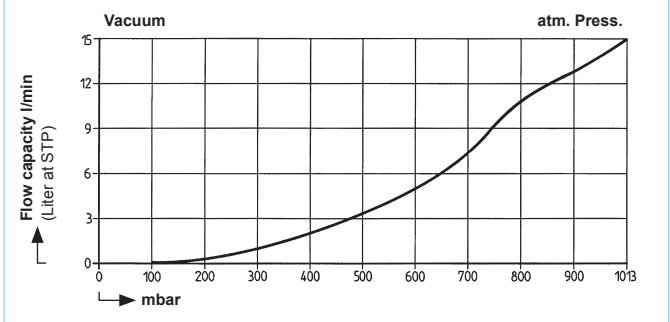


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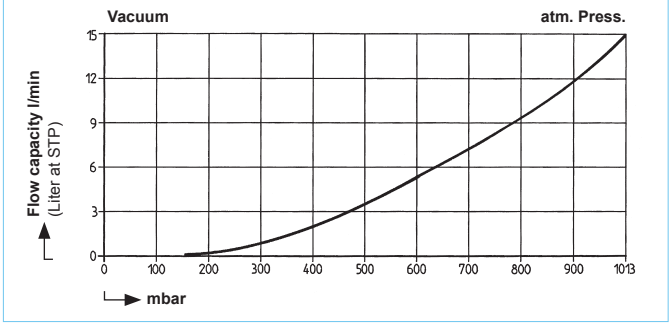
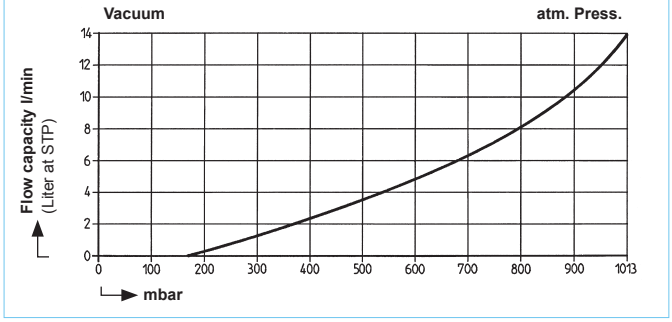



## N 815 KTE



# N 828 KN_ _ _ | N 828 ANDC

## Performance data

| Type | Delivery at atm. pressure (l/min)[1] | Max. operating pressure (bar g) | Ultimate vacuum (mbar abs.) |
|---|---|---|---|
| N 828 KNDC | 27 | 1 | 100 |
| N 828 ANDC | 27 | 1 | 100 |
| N 828 KNDC-B | 28 | 1 | 100 |
| N 828 KN.29DC-B | 6-28 | 1 | 100 |

[1] Liter at STP

## Motor data

| | | | |
|---|---|---|---|
| Voltage | 12 V | 24 V | 24 V (DC-B) |
| Protection class | | | IP 20 |
| Power $P_1$ (W) | | | 58 |
| $I_{max}$ (A) | 3.2 | 1.7 | 2.4 |

## Pump material

| Type | Pump head | Diaphragm | Valve plates/ sealings |
|---|---|---|---|
| N 828 KN... | PPS | EPDM | FPM |
| N 828 ANDC | Aluminum | EPDM | FPM |

# N 828 KNE | N 828 ANE

## Performance data

| Type | Delivery at atm. pressure (l/min)[1] | Max. operating pressure (bar g) | Ultimate vacuum (mbar abs.) |
|---|---|---|---|
| N 828 KNE | 28 | 1 | 100 |
| N 828 ANE | 28 | 1 | 100 |

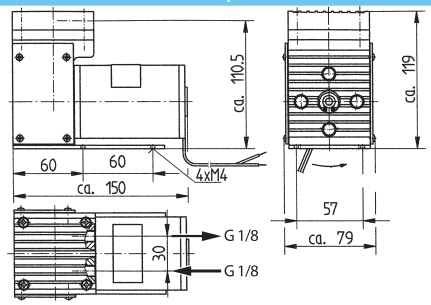
## Motor data

| | |
|---|---|
| Protection class | IP 00 |
| Voltage (V) | 230 |
| Frequencies (Hz) | 50 |
| Power $P_1$ (W) | 100 |
| $I_{max}$ (A) | 0.6 |

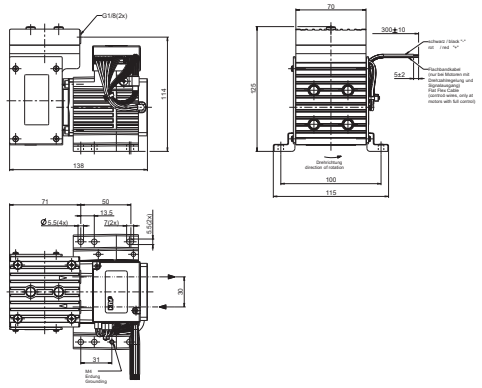
## Pump material

| Type | Pump head | Diaphragm | Valve plates/ sealings |
|---|---|---|---|
| N 828 KNE | PPS | EPDM | FPM |
| N 828 ANE | Aluminum | EPDM | FPM |

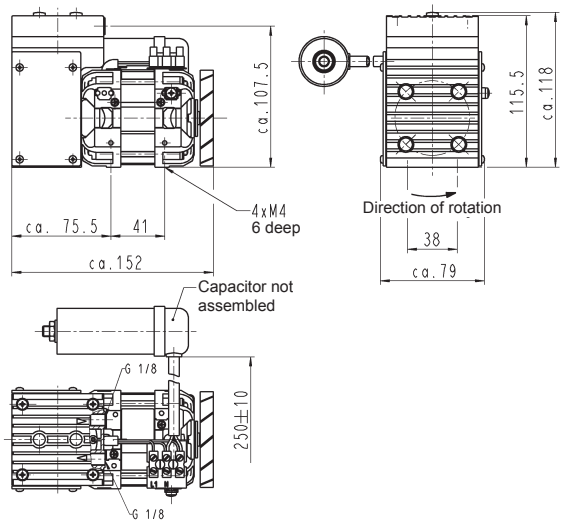
### N 828 KNDC | N 828 ANDC



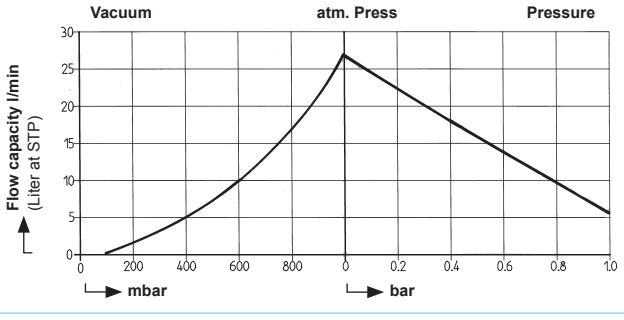

### N 828 KNDC-B | N 828 KN.29DC-B



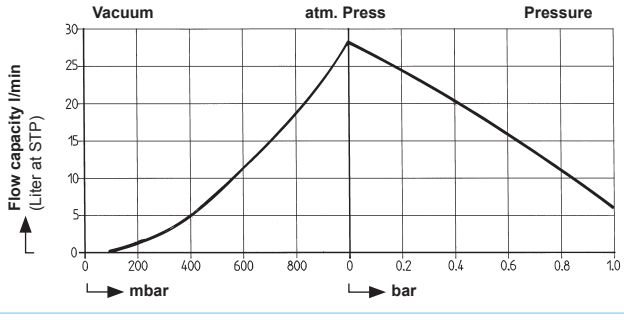
### N 828 KNE | N 828 ANE



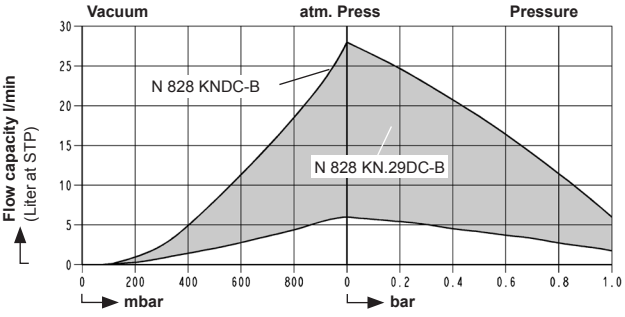

### N 828 KNDC | N 828 ANDC




### N 828 KNE | N 828 ANE




### N 828 KNDC-B | N 828 KN.29DC-B



# N 838 KN_ _ _ | N 838 ANDC

## Performance data

| Type | Delivery at atm. pressure (l/min)[1)] | Max. operating pressure (bar g) | Ultimate vacuum (mbar abs.) |
|---|---|---|---|
| N 838 KNDC | 32 | 0.5 | 100 |
| N 838 ANDC | 32 | 0.5 | 100 |
| N 838 KNDC-B | 34 | 0.5 | 100 |
| N 838 KN.29DC-B | 8.5-34 | 0.5 | 100 |

[1)] Liter at STP

## Motor data

| | | | |
|---|---|---|---|
| Voltage | 12 V | 24 V | 24 V (DC-B) |
| Protection class | | | IP 20 |
| Power $P_1$ (W) | | | 58 |
| $I_{max}$ (A) | 3.7 | 1.9 | 2.4 |

## Pump material

| Type | Pump head | Diaphragm | Valve plates/ sealings |
|---|---|---|---|
| N 838 KN... | PPS | EPDM | FPM |
| N 838 ANDC | Aluminum | EPDM | FPM |

# N 838 KNE | N 838 ANE

## Performance data

| Type | Delivery at atm. pressure (l/min)[1)] | Max. operating pressure (bar g) | Ultimate vacuum (mbar abs.) |
|---|---|---|---|
| N 838 KNE | 34 | 0.5 | 100 |
| N 838 ANE | 34 | 0.5 | 100 |

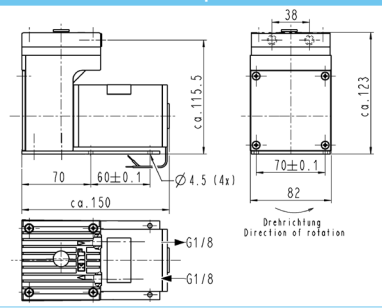
## Motor data

| | |
|---|---|
| Protection class | IP 00 |
| Voltage (V) | 230 |
| Frequencies (Hz) | 50 |
| Power $P_1$ (W) | 100 |
| $I_{max}$ (A) | 0.6 |

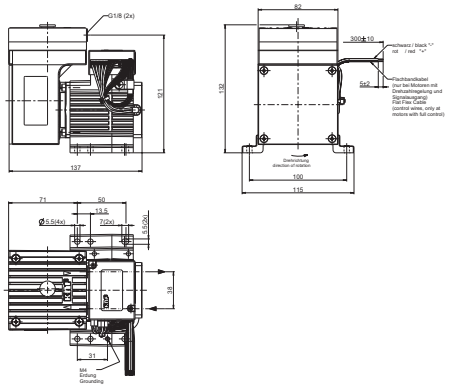
## Pump material

| Type | Pump head | Diaphragm | Valve plates/ sealings |
|---|---|---|---|
| N 838 KNE | PPS | EPDM | FPM |
| N 838 ANE | Aluminum | EPDM | FPM |

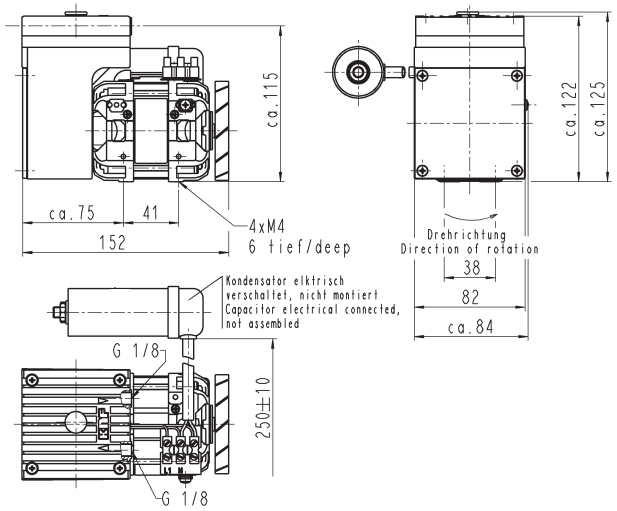
### N 838 KNDC | N 838 ANDC



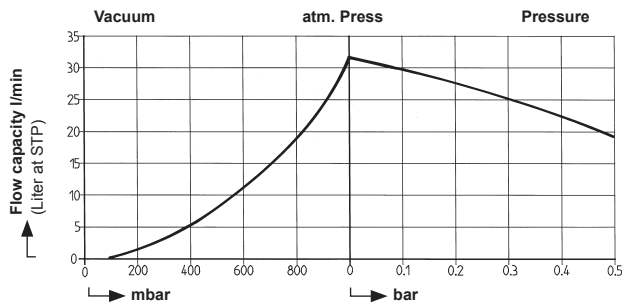

### N 838 KNDC-B | N 838 KN.29DC-B



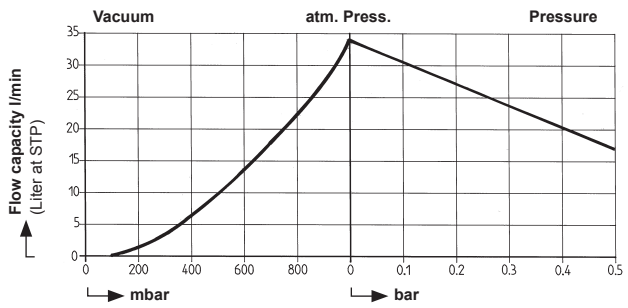

### N 838 KNE | N 838 ANE



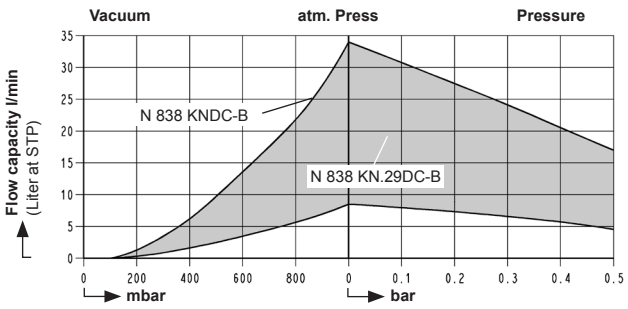

### N 838 KNDC | N 838 ANDC



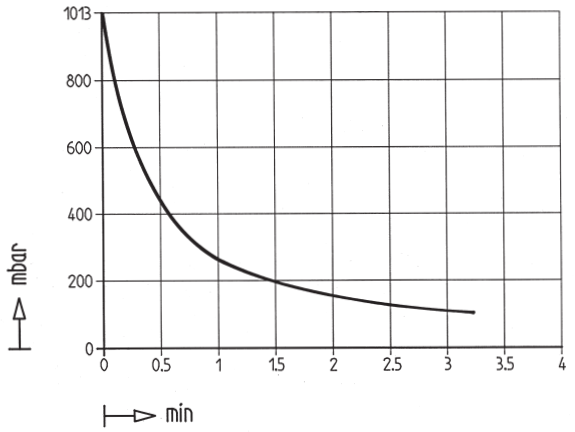

### N 838 KNE | N 838 ANE



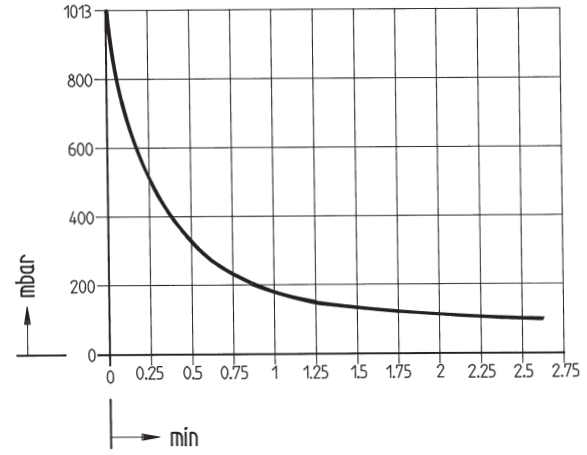

### N 838 KNDC-B | N 838 KN.29DC-B



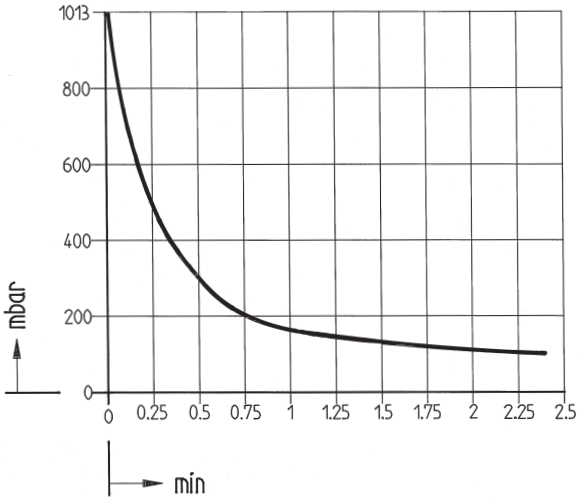
## Pump down time 5 l receiver | N 815 KNE




## Pump down time 10 l receiver | N 828 KNE | N 828 ANE




## Pump down time 10 l receiver | N 838 KNE | N 838 ANE

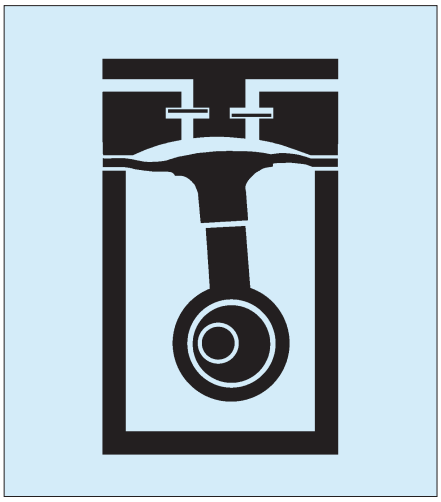



| Accessories | | |
|---|---|---|
| **Description** | **Order No.** | **Details** |
| Filter/Silencer | 000346 | G 1/8 (N 815) |
| Filter/Silencer | 007006 | G 1/8 |
| Hose connector | 000360 | G 1/8 / PA |
| Hose connector | 014052 | G 1/8 / PVDF |

# HINTS ON FUNCTION, INSTALLATION AND TECHNIQUE

## Function of KNF diaphragm gas sampling pumps

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.



## Hints on installation and operation

- Range of use: Transfering 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.

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