# DIAPHRAGM VACUUM PUMPS AND COMPRESSORS

**DATA SHEET E 025**


N 023 ANE


N 023.1.2 AN.30E, very quiet version

## Concept

The diaphragm vacuum pumps from KNF are based on a simple principle – 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.

Thanks to the KNF modular system, the parts used to transfer the gases can be made from materials with varying degrees of resistance. The customer has a choice of pump drives ranging from a selection of motors.

## Features

**Uncontaminated flow**
No contamination of the media due to oil-free operation

**Maintenance-free**

**Very quiet and little vibration**

**High level of gas tightness**

**Long product life**

**High performance**

**Cool running motor**
even when in constant use

**Can operate in any installed position**

**KNF SUPERFLOW**
A diaphragm pump with minimum size and high performance.

**KNF SUPERSIL**
A specially quiet version for noise sensitive areas (noise level is below 49 dB[A]).

## Areas of use

The 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 medicine, analysis and production technology.

The pumps are used for transferring, compressing and sucking air, gases and vapors, taking samples (even liquids in a vacuum) and evacuating and compressing vessels and systems.

## PERFORMANCE DATA

| Type | Delivery (l/min) | Vacuum (mbar absolute) | atm. pressure | Pressure (bar g) | Weight (kg) |
|---|---|---|---|---|---|
| N 023 ANE | 23 | 213 | | 2 | 3.2 |
| N 023.1 ANE | 39 | 213 | | | 4.6 |
| N 023.2 ANE | 39 | | | 2 | 4.6 |
| N 023.1.2 ANE | 39 | 213 | | 2 | 4.6 |
| N 023.3 ANE | 23 | 52 | | 1 | 4.6 |

# N 023 ANE | N 023 AN.30E

## PERFORMANCE DATA

| Type | Delivery at atm. pressure (l/min)[1] | Max. operating pressure (bar g) | Ultimate vacuum (mbar abs.) |
|---|---|---|---|
| N 023 ANE (Superflow) | 23 | 2 | 213 |
| N 023 AN.30E (Supersil) | 23 | 2 | 213 |

[1] Liter at STP

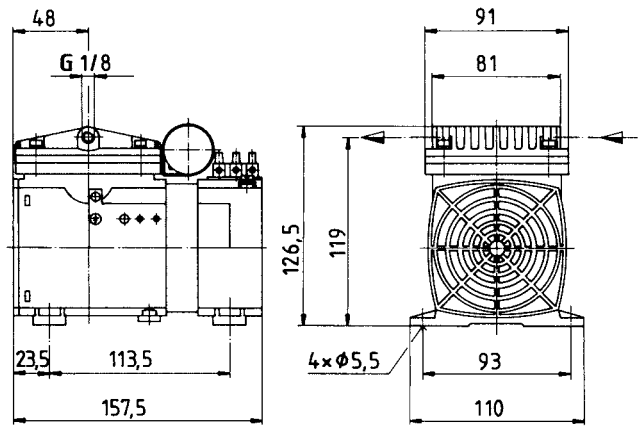
## MOTOR DATA

| | |
|---|---|
| Protection class | IP 20 |
| Voltage (V) | 230 |
| Frequencies (Hz) | 50 |
| Power $P_1$ (W) | 90 |
| $I_{max}$ (A) | 0.45 |

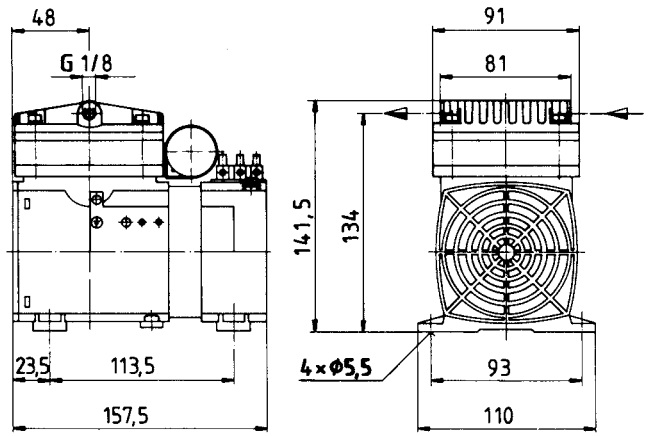
## PUMP MATERIAL

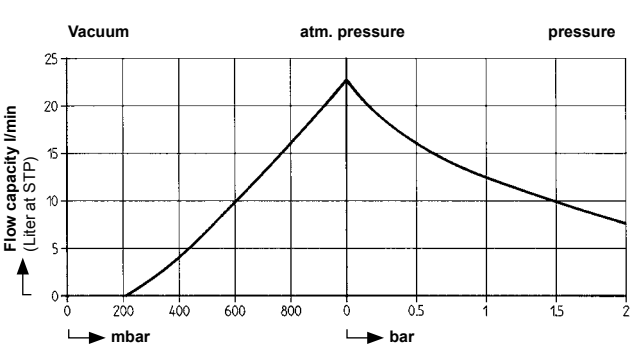
| Type | Pump head | Diaphragm | Valves |
|---|---|---|---|
| N 023 ANE | Aluminum | CR | CR |
| N 023 AN.30E | Aluminum | CR | CR |

## N 023 ANE




## N 023 AN.30E




# N 023.1 ANE | N 023.1 AN.30E

## PERFORMANCE DATA

| Type | Delivery at atm. pressure (l/min)[1] | Max. operating pressure (bar g) | Ultimate vacuum (mbar abs.) |
|---|---|---|---|
| N 023.1 ANE (Superflow) | 39 | - | 213 |
| N 023.1 AN.30E (Supersil) | 39 | - | 213 |

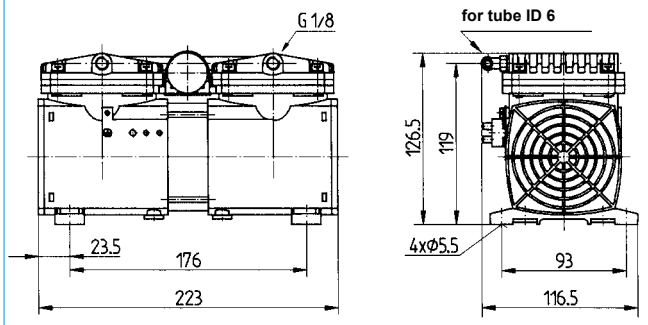
## MOTOR DATA

| | |
|---|---|
| Protection class | IP 20 |
| Voltage (V) | 230 |
| Frequencies (Hz) | 50 |
| Power $P_1$ (W) | 120 |
| $I_{max}$ (A) | 0.75 |

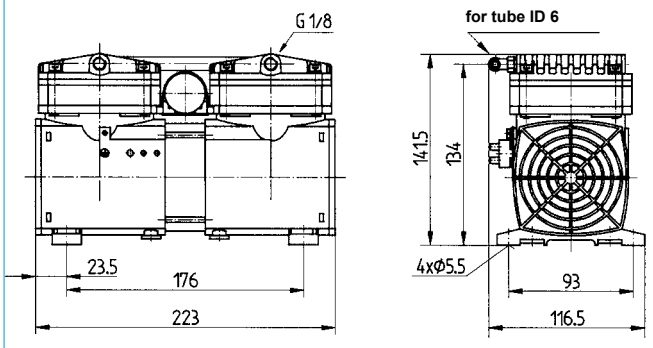
## PUMP MATERIAL

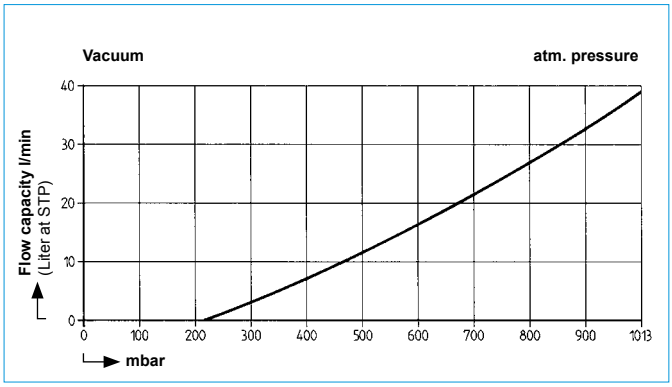
| Type | Pump head | Diaphragm | Valves |
|---|---|---|---|
| N 023.1 ANE | Aluminum | CR | CR |
| N 023.1 AN.30E | Aluminum | CR | CR |

## N 023.1 ANE




## N 023.1 AN.30E



# N 023.2 ANE | N 023.2 AN.30E

## PERFORMANCE DATA

| Type | Delivery at atm. pressure (l/min)[1] | Max. operating pressure (bar g) | Ultimate vacuum (mbar abs.) |
|---|---|---|---|
| N 023.2 ANE (Superflow) | 39 | 2 | - |
| N 023.2 AN.30E (Supersil) | 39 | 2 | - |

[1] Liter at STP

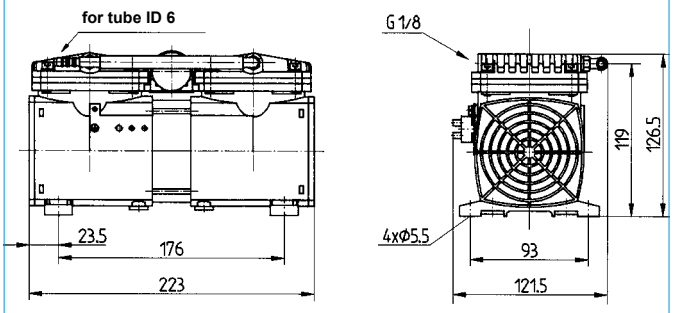
## MOTOR DATA

| | |
|---|---|
| Protection class | IP 20 |
| Voltage (V) | 230 |
| Frequencies (Hz) | 50 |
| Power $P_1$ (W) | 120 |
| Imax (A) | 0.75 |

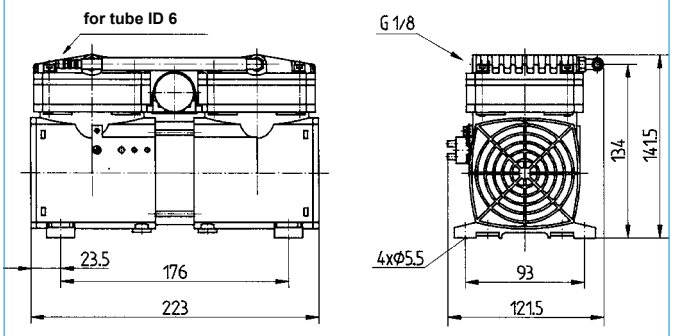
## PUMP MATERIAL

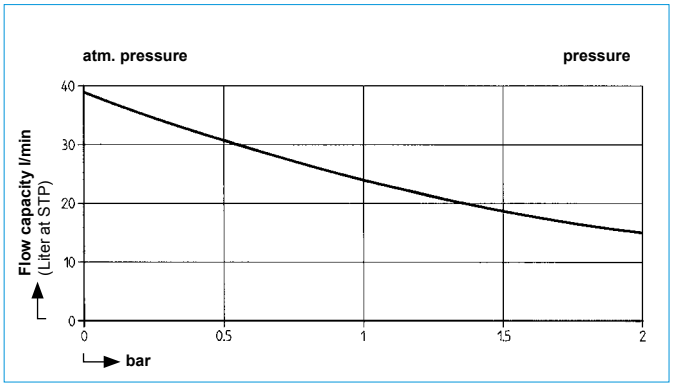
| Type | Pump head | Diaphragm | Valves |
|---|---|---|---|
| N 023.2 ANE | Aluminum | CR | CR |
| N 023.2 AN.30E | Aluminum | CR | CR |

## N 023.2 ANE




## N 023.2 AN.30E




# N 023.1.2 ANE | N 023.1.2 AN.30E

## PERFORMANCE DATA

| Type | Delivery at atm. pressure (l/min)[1] | Max. operating pressure (bar g) | Ultimate vacuum (mbar abs.) |
|---|---|---|---|
| N 023.1.2 ANE (Superflow) | 39 | 2 | 213 |
| N 023.1.2 AN.30E (Supersil) | 39 | 2 | 213 |

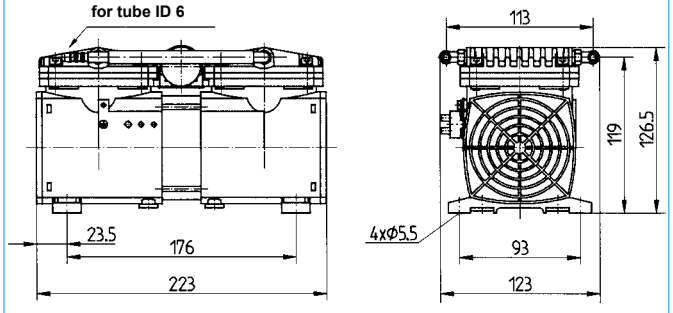
## MOTOR DATA

| | |
|---|---|
| Protection class | IP 20 |
| Voltage (V) | 230 |
| Frequencies (Hz) | 50 |
| Power $P_1$ (W) | 120 |
| Imax (A) | 0.75 |

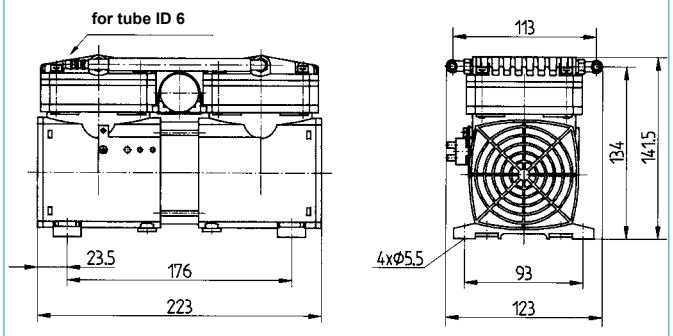
## PUMP MATERIAL

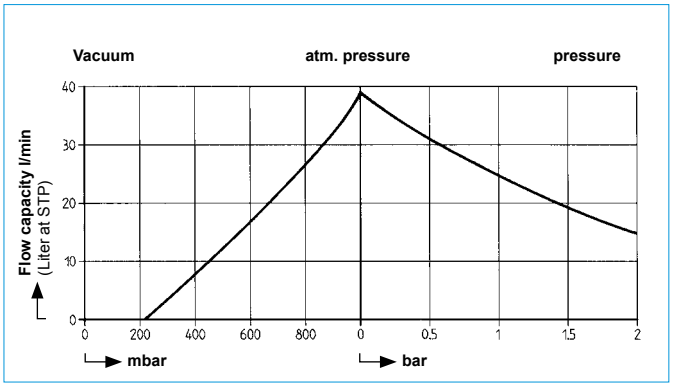
| Type | Pump head | Diaphragm | Valves |
|---|---|---|---|
| N 023.1.2 ANE | Aluminum | CR | CR |
| N 023.1.2 AN.30E | Aluminum | CR | CR |

## N 023.1.2 ANE




## N 023.1.2 AN.30E



# N 023.3 ANE | N 023.3 AN.30E

## PERFORMANCE DATA

| Type | Delivery at atm. pressure (l/min)[1] | Max. operating pressure (bar g) | Ultimate vacuum (mbar abs.) |
|---|---|---|---|
| N 023.3 ANE (Superflow) | 23 | 1 | 52 |
| N 023.3 AN.30E (Supersil) | 23 | 1 | 52 |

[1] Liter at STP

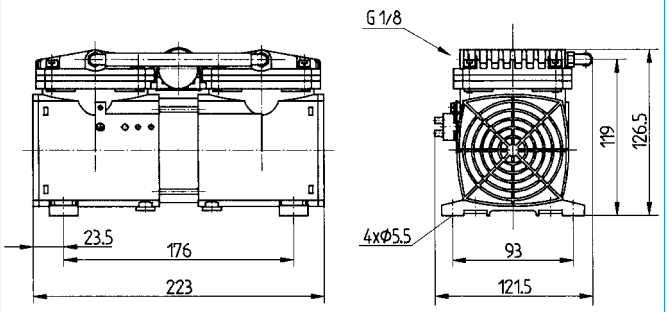
## MOTOR DATA

| | |
|---|---|
| Protection class | IP 20 |
| Voltage (V) | 230 |
| Frequencies (Hz) | 50 |
| Power $P_1$ (W) | 120 |
| $I_{max}$ (A) | 0.75 |

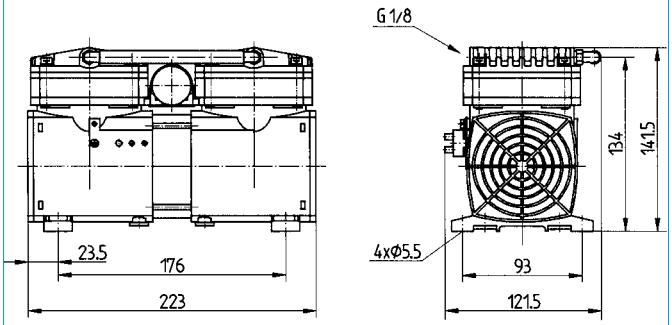
## PUMP MATERIAL

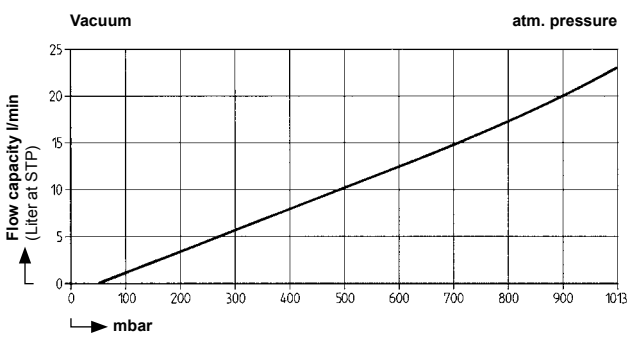
| Type | Pump head | Diaphragm | Valves |
|---|---|---|---|
| N 023.3 ANE | Aluminum | CR | CR |
| N 023.3 AN.30E | Aluminum | CR | CR |

## N 023.3 ANE



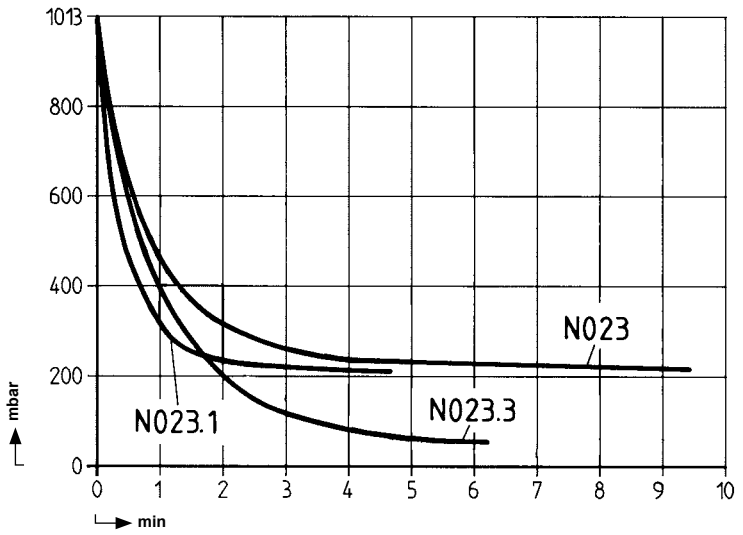

## N 023.3 AN.30E



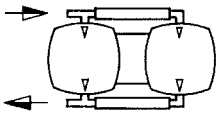



# TECHNICAL INFORMATION

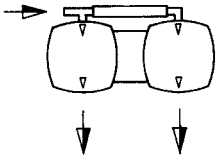
## PUMP DOWN TIME FOR 20 LITER VESSEL



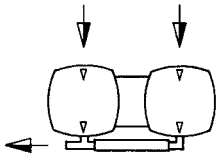

## HEAD CONNECTIONS



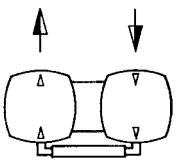
**N 023.1.2**
**Heads in parallel both sides**



**N 023.1**
**Heads with suction side in parallel**



**N 023.2**
**Heads with pressure side in parallel**



**N 023.3**
**Heads in series (2-stage)**

## CONNECTIONS

| Description | Order No. | Details |
|---|---|---|
| for N 023.1 | 017522 | Polyamide/Perbunan |
| for N 023.2 | 017519 | Polyamide/Perbunan |
| for N 023.3 | 018964 | Polyamide/Perbunan |

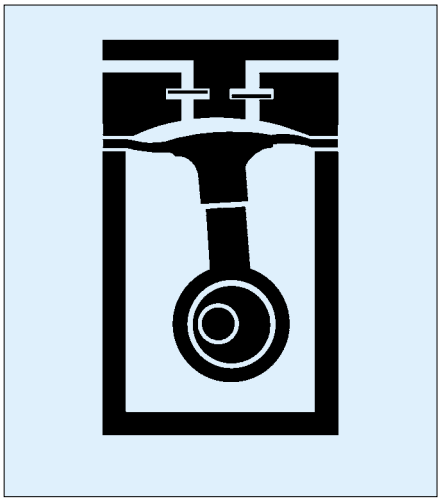
## ACCESSORIES

| Description | Order No. | Details |
|---|---|---|
| Silencer/Filter | 007006 | G 1/8 |
| Hose connector | 000360 | G 1/8 PA |
| Cover for terminal block | 018819 | 3-pole |
| Cover for terminal block | 018818 | 4-pole (for thermal switch) |

# HINTS ON FUNCTION AND INSTALLATION

## 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.



## Hints on installation and operation

- Range of use: Transferring air and gases at temperatures between +5 °C and +40 °C.
- Permissible ambient temperature: +5 °C ... +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.
- 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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