

## MINI GAS SAMPLING PUMPS WITH DOUBLE DIAPHRAGM SYSTEM

## DATA SHEET E 081



**N 86 AN.12 DCB**



**N 838 AN.12 DCB**

### Concept

Double-diaphragm pumps from KNF are based on a simple principle: an elastic working membrane and safety membrane are held securely at their edges and moved up and down at their center by an eccentric. As a result, the working membrane moves the medium through automatic valves. The lower lying safety diaphragm provides the working diaphragm with additional security.

The safety membrane has a significantly longer service life than the working diaphragm. The redundant arrangement of the diaphragms ensures that no gas can escape into the environment even if the working diaphragm ruptures.

The KNF modular system permits selection of materials with various levels of gas resistance for parts in contact with gas. Several different motors are available to drive the pump. Please contact us for details.

### Features

#### Pure transfer

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:

$6 \times 10^{-4}$  mbar x l/s

#### Long product life

#### Very quiet and little vibration

#### With brushless DC motor

Cool running motor even when in constant use, gute Regelbarkeit der Motordrehzahl,

#### Can operate in any installed position

#### High security against escape of hazardous or valuable gases.

### Areas of use

The Double Diaphragm 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, process, chemical, fuel cell, production technology and resaeach.

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

## PERFORMANCE DATA

Type	Delivery (l/min)	Vacuum (mbar abs.)	atm. Press.	Pressure (bar g)	Weight (kg)
N 86 AN.12 DCB	4.5	250		1.0	0.7
N 838 AN.12 DCB	25	200		0.6	2.5

**N 86 AN.12 DCB**

Type and Order No. <sup>(2)</sup>	Delivery at atm. pressure (l/min) <sup>(1)</sup>	Max. operating pressure (bar g)	Ultimate vacuum (mbar abs.)
<b>N 86 AN.12 DCB</b>	4.5	1	250

<sup>(1)</sup> Litre at STP

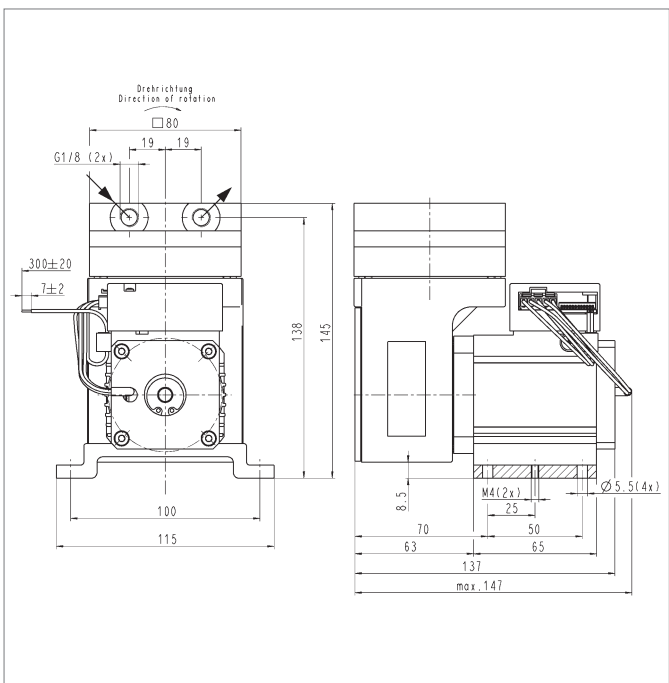
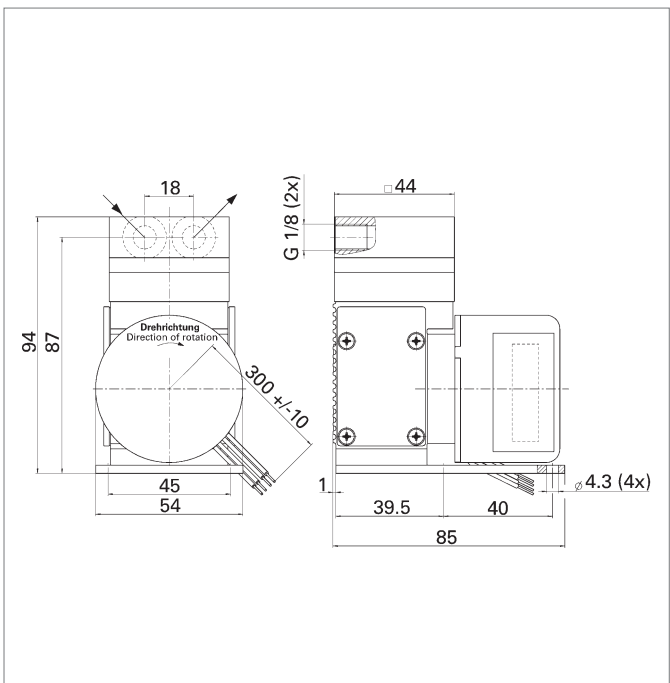
Type and Order No. 2)	<b>Pump head</b>	<b>Diaphragm</b>	<b>Valves</b>
<b>N 86 AN.12 DCB</b>	Aluminium	NBR	NBR

<sup>2)</sup> See also „MODEL CODES FOR EASY ORDERING“

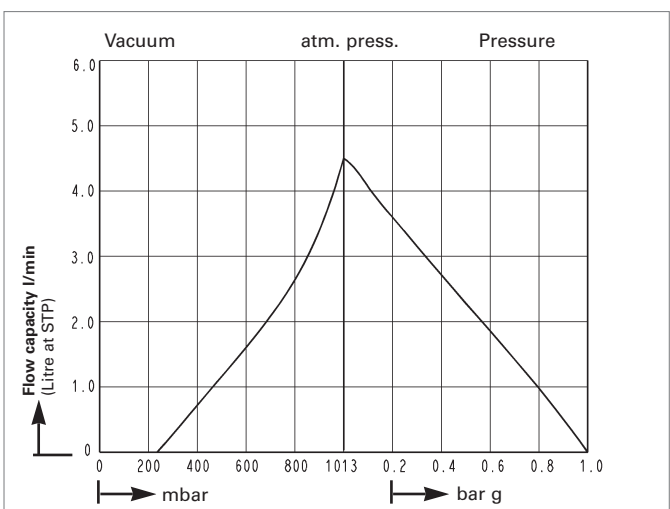
Brushless dc motor	12 V	24 V	
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<sup>3)</sup> Other motors on request.

Dimensions mm (All dimensional tolerances conform to DIN ISO 2768-1, Tolerance Class V)



### Performance characteristic



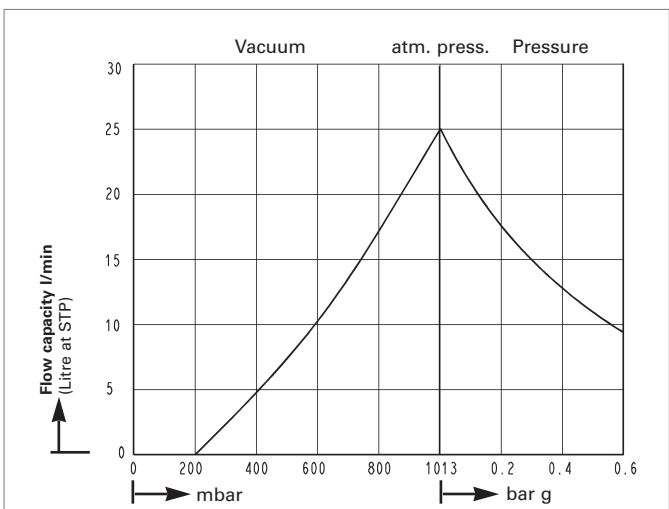
**N 838 AN.12 DCB**

Type and Order No. <sup>2)</sup>	Delivery at atm. pressure (l/min) <sup>1)</sup>	Max. operating pressure (bar g)	Ultimate vacuum (mbar abs.)
<b>N 838 AN.12 DCB</b>	25	0.6	200

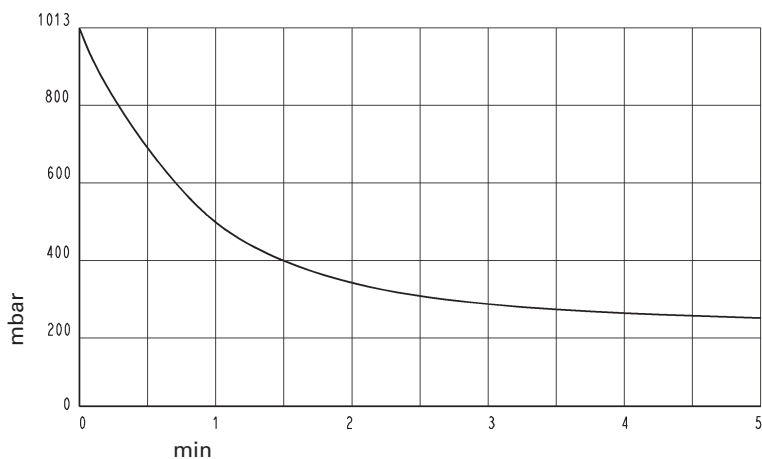
<sup>1)</sup> Litre at STP

Type and Order No. <sup>2)</sup>	<b>Pump head</b>	<b>Diaphragm</b>	<b>Valves</b>
<b>N 838 AN.12 DCB</b>	Aluminium	NBR	NBR

Brushless dc motor	24 V	
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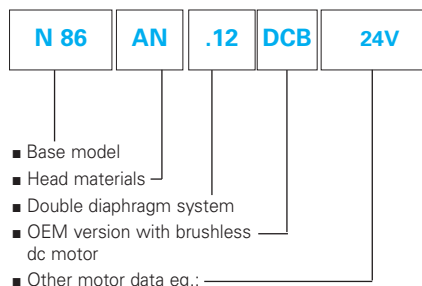
## Pump down time for 5 l receiver



**N 86 AN.12 DCB**

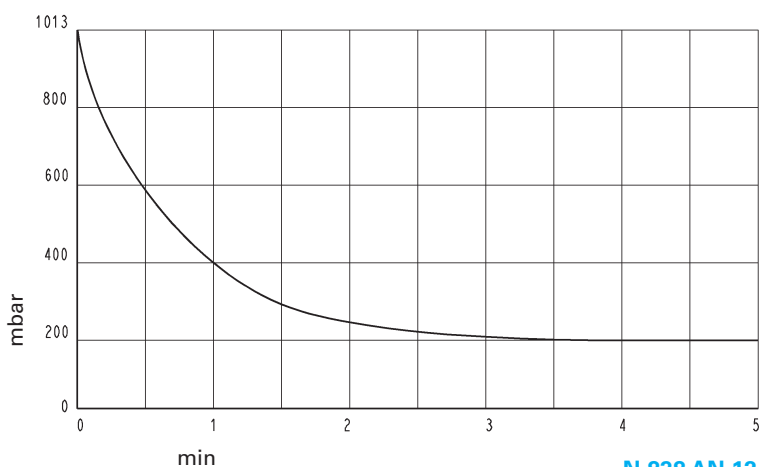
## MODEL CODE FOR EASY ORDERING

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



In our extensive program you are sure to find the pump you need for your particular application.

## Pump down time for 20 l receiver



**N 838 AN.12 DCB**

## TECHNICAL DETAILS

Observe all information in the operating instructions in order to maintain CE conformity and compliance with EMC directives according to EN 55014-1.

Motors with other voltages and frequencies on request.

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.

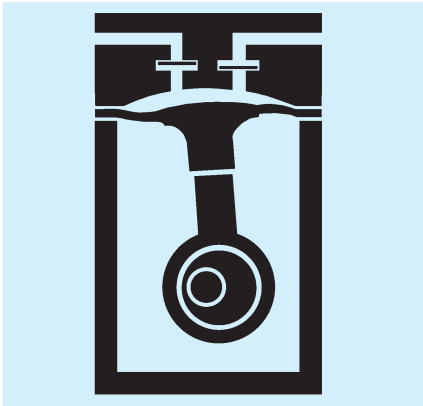
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## HINTS ON FUNCTION, INSTALLATION AND SERVICE

### FUNCTION OF KNF DIAPHRAGM 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.

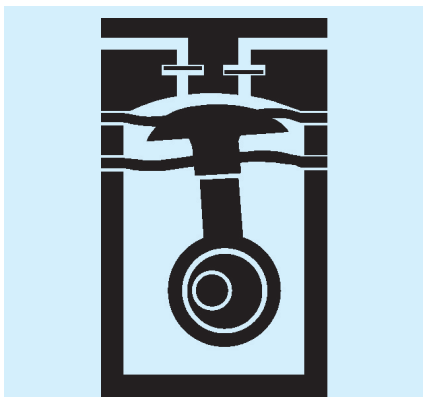
#### Diaphragm pump



### 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 user can monitor the closed space between the two diaphragms in order to immediately detect any damage to the working diaphragm that may occur during a process, for example. For this, the factory will add an additional connection or access point into the closed space upon request.

#### 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
- 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.

### HINTS ON SERVICE

The diaphragm and valves 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).