

CHEMICALLY RESISTANT DIAPHRAGM GAS SAMPLING PUMPS

Section 41.30



N 87 TTE with IP 54 motor



N 87 TTE in ATEX std 94/9/EG version

Concept

The Mini Diaphragm Gas Sampling Pumps from KNF are based on a simple principle - an elastic diaphragm, fixed on its edge, moves up and down point its central by means of an eccentric. Thus, the medium is transferred via automatic valves.

The new range of KNF Mini Pumps for the first time is equipped with the patented stress-optimized structured diaphragm, resulting in a durable product of high pneumatic performance and compact size. Special valves ensure minimum resistance to flow.

Due to the KNF modular system, the parts used to transfer the gases can be made of materials with various degrees of durability. The pumps can be operated by either standard AC, or ex-proof motors with various options on voltages and frequencies. Please contact us for further details.

Features

Uncontaminated flow

No contamination of the media due to oil-free operation

Chemically resistant

against aggressive and corrosive gases and vapours

Maintenance-free

Compact size and high pneumatic performance

due to the structured diaphragm

High level of gas tightness

thanks to the closed diaphragm surface and special sealing system

Minimized pneumatic loss

by means of a new valve system

Long product life

due to the structured diaphragm

Ready for assembly

Can be operated in any installed position

Explosion proof versions are available

Areas of use

KNF Mini Diaphragm Pumps are used frequently in the fields of chemistry industry and environmental technology.

Beside other applications, pumps are used for gas measurement, for example for sampling gases out of the ambient environment, or for exhaust gas and smoke analysis. Easy installation and adaption to a variety of processes.

PERFORMANCE DATA

Type	Delivery (l/min)	Vacuum (mbar absolute)	atm. Press.	Pressure (bar g)	Weight (kg)
N 87 TTE with IP 54 motor	7.5	140		1.5	3.1
N 87 TTE in Ex version	7.5	140		1.5	3.3

N 87 TTE with IP 54 motor or in ATEX version

PERFORMANCE DATA

Type and Order No. ³⁾	Delivery at atm. pressure (l/min) ¹⁾	Max. operating pressure (bar g) ²⁾	Vacuum (mbar abs.)
N87TTE	7.5	1.5	140

¹⁾ Litre at STP ²⁾ Continuous running

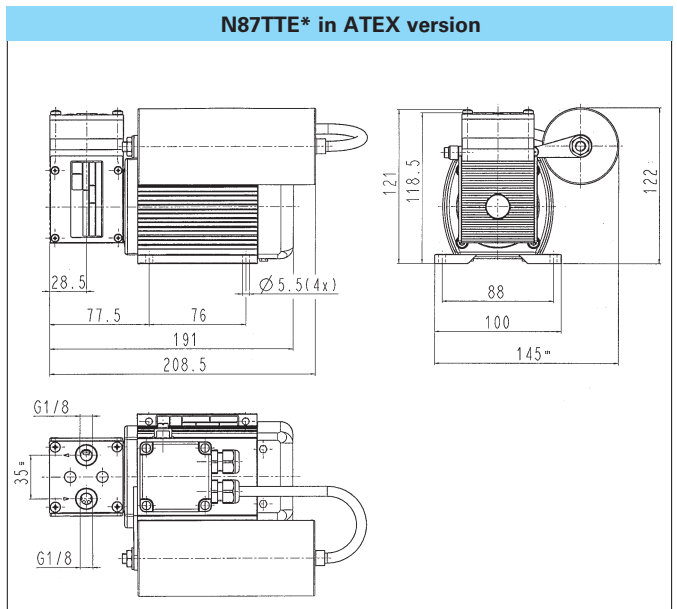
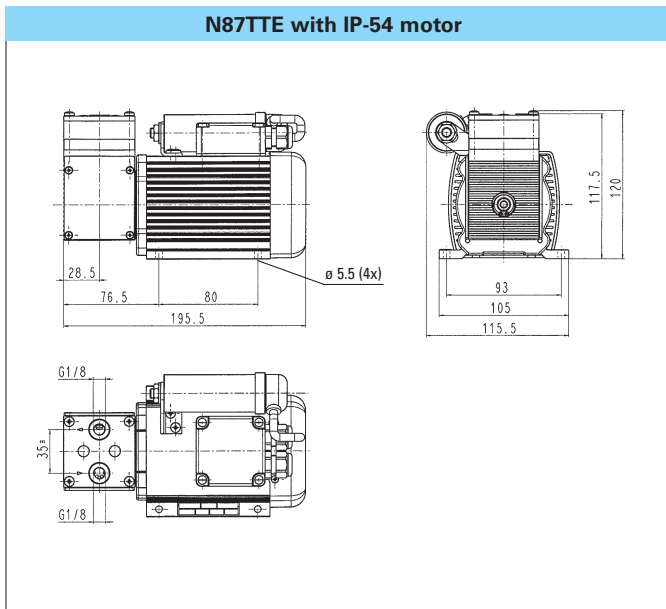
MODEL CODES AND MATERIALS

Type and Order No. ³⁾	Pump head	Diaphragm	Valves
N87TTE	PVDF	CR, PTFE coated	FFPM

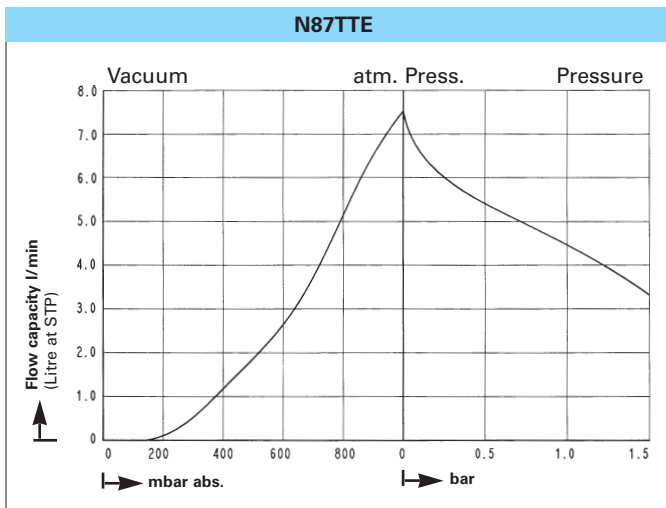
MOTOR DATA

Protection class	IP54	EExde IIBT4	
Voltage/Frequencies (V/Hz)	115/60	115/60	
Power P ₁ (W)	70	60	
Operating current (A)	1.0	0.3	

Dimensions ⁵⁾ (mm)

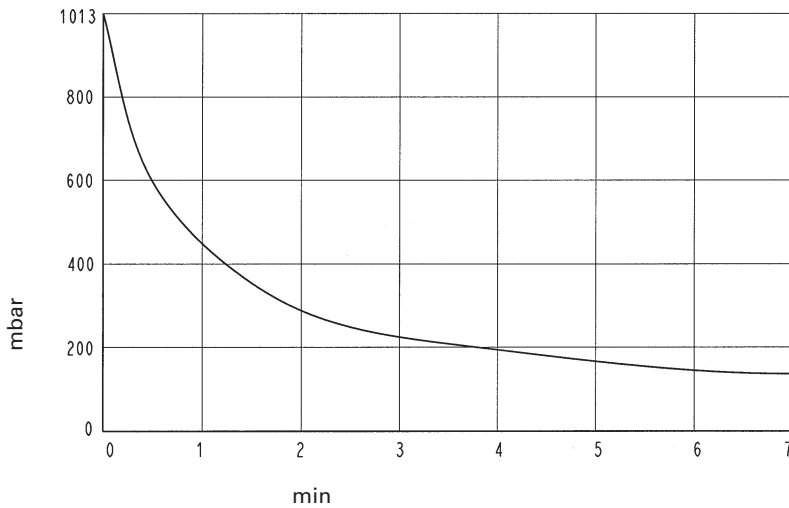


* Mechanical region (pump) and motor in EEx IIBT4



⁵⁾ All dimensional tolerances conform to DIN ISO 2768-1, Tolerance Class V

Pump down time for 5 Liter receiver



MODEL CODE FOR EASY ORDERING

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



- Base model
- Head materials
- OEM Version with ac (E) or dc motor (DC)
- 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 can be 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.

Gas-tightness of pump head: leakage rate approx. 6×10^{-3} mbar l/s, not tested in serial production.

Please note, if the pumps are to be used for conveying gases of **Explosion Group IIC**, we can provide customer-specific versions. Please talk to our technical sales department.

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

Accessories

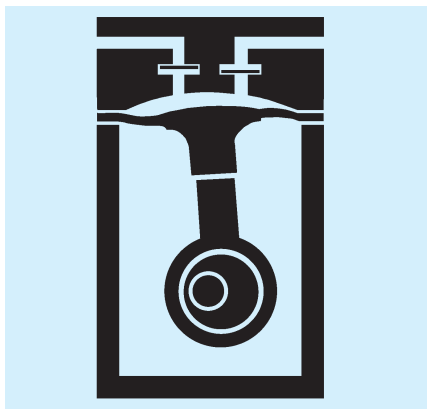
Description	Order No.	Details
Hose connector for tube ID 6	014052	PVDF, G 1/8
Inserted screw connection D 6	014049	PVDF, G 1/8

OPERATION, INSTALLATION AND SERVICE

OPERATION 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



INSTALLATION AND OPERATION

- Range of use: Transferring air and gases at temperatures between +5°C and +40°C
- Use chemically resistant version for aggressive gases and vapors
- Permissible ambient temperature: between +5°C and +40°C
- 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 placed on 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.

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.

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