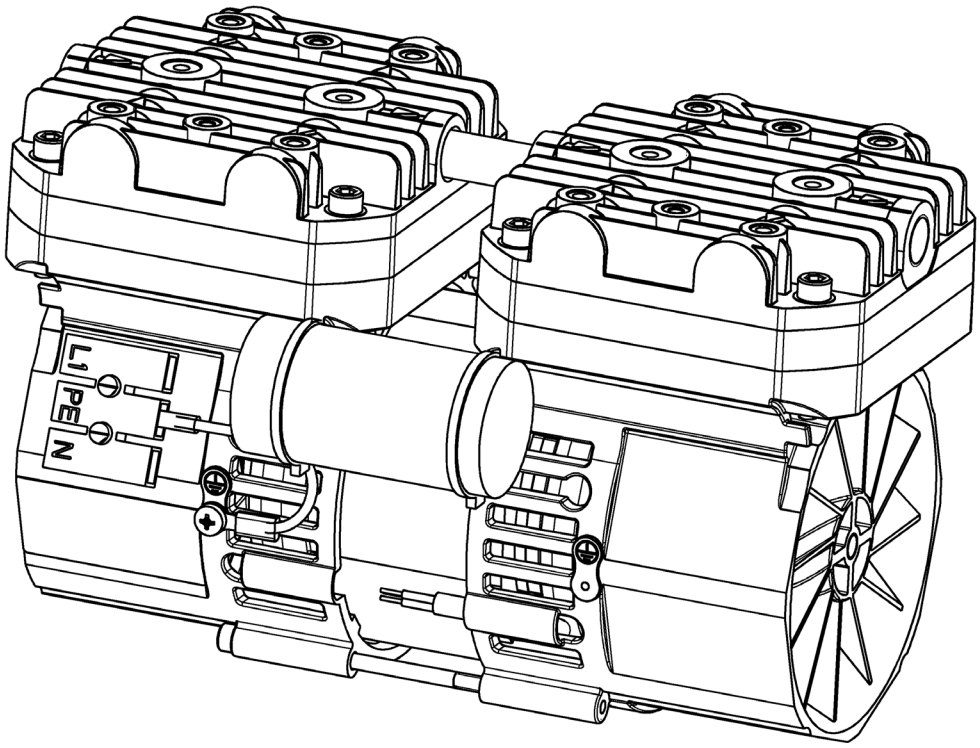
OEM

N 936
TRANSLATION OF ORIGINAL OPERATING AND INSTALLATION INSTRUCTIONS
ENGLISH

DIAPHRAGM VACUUM PUMP



Note!
Before operating the pump and the accessories, please read the operating instructions on the web site (www.knf.com/downloads) and pay attention to the safety precautions!

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1. About this document

1.1. Using the Operating and Installation Instructions

The Operating and Installation Instructions are part of the pump.

➔ Pass on the Operating and Installation Instructions to the next owner.

Project pumps

Customer-specific project pumps (pump models which begin with "PJ" or "PM") may differ from the Operating and Installation Instructions.

➔ For project pumps, also observe the agreed upon specifications.

1.2. Symbols and markings

Warning

WARNING

A danger warning is located here.

Possible consequences of a failure to observe the warning are specified here. The signal word, e.g. Warning, indicates the danger level.

➔ Measures for avoiding the danger and its consequences are specified here.

Danger levels

Signal word	Meaning	Consequences if not observed
DANGER	warns of immediate danger	Death or serious injuries and/or serious damage are the consequence.
WARNING	warns of possible danger	Death or serious injuries and/or serious damage are possible.
CAUTION	warns of a possibly dangerous situation	Minor injuries or damage are possible.

Tab. 1

Other information and symbols

➔ An activity to be carried out (a step) is specified here.

1. The first step of an activity to be carried out is specified here. Additional, consecutively numbered steps follow.

i This symbol refers to important information.

2. Use

2.1. Proper use

The pumps are exclusively intended for transferring gases and vapors.

Owner's responsibility

Operating parameters and conditions

Only install and operate the pumps under the operating parameters and conditions described in chapter 4, Technical data.

Only complete pumps may be taken into service.

Make sure that the installation location is dry and the pump is protected against rain, splash, hose and drip water.

Requirements for transferred medium

Before using a medium, check whether the medium can be transferred danger-free in the specific application case.

Before using a medium, check the compatibility of the materials of the pump head, diaphragm and valves with the medium.

Only transfer gases which remain stable under the pressures and temperatures occurring in the pump.

2.2. Improper use

The pumps may not be operated in an explosive atmosphere.

The pumps are not suitable for transferring dusts.

The pumps are not suitable for transferring liquids.

The pumps are not suitable for transferring Aerosol.

The pumps are not suitable for transferring biological and microbiological substances.

The pumps are not suitable for transferring fuel.

The pumps are not suitable for transferring explosive and combustible materials.

The pumps are not suitable for transferring fibers.

The pumps are not suitable for transferring oxidizing agent.

The pumps are not suitable for transferring foodstuffs.

The pumps are not suitable for aggressive media. For aggressive media there are other pumps in the KNF product program – please ask us for detail.

The pumps must not be used to create vacuum and overpressure simultaneously.

An overpressure must not be applied to the suction side of the pump.

3. Safety

Note the safety precautions in chapters 6. *Installation and connection,* and 7. *Operation*.

The pumps are built according to the generally recognized rules of technology and in accordance with the occupational safety and accident prevention regulations. Nevertheless, dangers can result during their use which lead to injuries to the user or others, or to damage to the pump or other property.

Only install and use the pumps when they are in a good technical and proper working order, in accordance with their intended use, observing the safety advice within the Operating and Installation Instructions, at all times.

Personnel

Make sure that only trained and instructed personnel or specially trained personnel work on the pumps. This especially applies to assembly, connection and servicing work.

Make sure that the personnel has read and understood the Operating and Installation Instructions, and in particular the "Safety" chapter.

Working in a safety-conscious manner

Observe the accident prevention and safety regulations when performing any work on the pump and during operation.

Handling dangerous media

When transferring dangerous media, observe the safety regulations when handling these media.

Handling combustible media

Be aware that the pumps are not designed to be explosion-proof.

Make sure the temperature of the medium is always sufficiently below the ignition temperature of the medium, to avoid ignition or explosion. This also applies for unusual operational situations.

Note that the temperature of the medium increases when the pump compresses the medium.

Hence, make sure the temperature of the medium is sufficiently below the ignition temperature of the medium, even when it is compressed to the maximum permissible operating pressure of the pump. The maximum permissible operating pressure of the pump is stated in the technical specifications (chapter 4).

If necessary, consider any external sources of energy, such as radiation, that may add heat to the medium.

In case of doubt, consult the KNF customer service.

Environmental protection

Store all replacement parts in a protected manner and dispose of them properly in accordance with the applicable environmental protection regulations. Observe the respective national and international regulations. This especially applies to parts contaminated with toxic substances.

EC Directives

The safety objectives of the following Directive(s) have been met:

- Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (Annex II amended by Commission Delegated Directive (EU) 2015/863).

- Directive 2014/35/EU on the harmonization of the laws of the Member States relating to the provision of electrical equipment for use within certain voltage limits on the market

For the purposes of the Machinery Directive 2006/42/EC, pumps are “partly completed machinery,” and are therefore to be regarded as not ready for use. Partly completed machinery may not be commissioned until such time as it has been determined that the machine in which the partly completed machinery is to be assembled is in conformity with the provisions of the Machinery Directive 2006/42/EC. The following essential requirements of Annex I of Directive 2006/42/EC (general principles) are applied and observed:

- General Principles No. 1
- No. 1.1.2. / 1.1.3. / 1.3.1. / 1.3.3. / 1.3.4. / 1.4.1. / 1.5.1. / 1.5.2. / 1.5.8. / 1.5.9. / 1.7.4. / 1.7.4.1. / 1.7.4.3.

As these partly completed machinery are OEM-models the power supplies and the equipment for disconnecting and switching-off the partly completed machinery respectively have to be considered when mounting as well as over-current and overload protective gear.

In addition a protection against mechanical parts in motion and hot parts, if existing, has to be provided when mounting.

Standards

The following standards were taken as a basis:

- EN IEC 55014-1/2
- EN IEC 61000-3-2
- EN 61000-3-3
- EN 61326-1 - Klasse A
- EN IEC 63000

The pumps are TÜV approved according to:

- IEC 61010-1
- UL 61010-1
- CAN/CSA-C22.2 No. 61010-1

including the following remarks:

- The pumps are intended for use in a pollution degree 2 or equivalent environment.
- Requirements for fire enclosure, mechanical protection and electrical enclosure shall be fulfilled in end-use application.
- Maximum surrounding air temperature for continuous operation: +50°C. If used at >+50°C ambient: short-time operation; temperatures must be determined in end use.
- Heating (temperature measurements) must be tested in end-use application.
- The Terminal block is suitable for factory wiring only.

- The pumps must be bonded to protective earth.
- Motor is isolation class F (+155°C) and protected by self-resetting over temperature switch.

Per IEC 664, the pumps comply with:

- Overvoltage category II
- Degree of soiling 2

China RoHS

Relevant information has been provided to comply with the regulations of SJ/T 11364-2024 ("Labeling to Control Pollution Caused by Electronic Information Products") and China's administrative methods for controlling pollution caused by electronic information products.

For detailed information, see chapter 12. Appendix: China RoHS.

Customer service and repairs

Only have repairs to the pumps carried out by the KNF Customer Service responsible.

Use only genuine parts from KNF for servicing work.

4. Technical Data

Pump materials

N 936.3

N 936.1.2

Assembly	Material
Pump head	Al anodized
Diaphragm	HNBR
Valves	HNBR
O-rings	FPM

Tab. 2

Pneumatic performance

Parameter	Value N 936.3	Value N 936.1.2
Max. permissible operating pressure [bar g]*	0.5	0.5
Ultimate vacuum [mbar abs.]	35	200
Delivery rate at atm. pressure [l/min]** (50 Hz)	36 ±10%	60 ±10%
Delivery rate at atm. pressure [l/min]** (60 Hz)	39 ±10%	66 ±10%

Tab. 3 **bar rel relative to 1000 hPa*

***Liters in the standard state (based on ISO 8778 and ISO 21360-1/2) (1000 hPa, 20°C)*

Electrical data

Parameter	Value N 936.3	Value N 936.1.2
Voltage	100 – 120 V and 200 – 240 V	100 – 120 V and 200 – 240 V
Frequency	50/60 Hz	50/60 Hz
Power	0.19 kW	0.19 kW
Maximum permitted mains voltage fluctuations	+/-10%	+/-10%
IP code motor	IP00	IP00
Protection class	I	I
Voltage 100 – 120 V		
Max. current consumption	2.3 A @ 50 Hz 1.8 A @ 60 Hz	2.1 A @ 50 Hz 1.9 A @ 60 Hz
Voltage 200 – 240 V		
Max. current consumption	1.3 A @ 50 Hz 1.0 A @ 60 Hz	1.2 A @ 50 Hz 1.1 A @ 60 Hz

Tab. 4

Thermal-switch The pumps are fitted as standard with a thermal-switch to protect against overloading.

Other parameters

Parameter	Value
Permissible ambient temperature (permanent)	+ 15 °C to + 50 °C*
Permissible media temperature (permanent)	+ 5 °C to + 70 °C
Permissible media temperature (max. 30 s)	+ 5 °C to + 100 °C
Pneumatic connections	EU: Thread size G1/4
	US: Thread size NPT 1/4
Weight	5.2 kg
Maximum permissible ambient relative humidity	80 % for temperatures up to 31 °C, decreasing linearly to 50 % at 50 °C
Max. altitude of site [m above sea level]	2000
Voltage 100 – 120 V	
Dimensions L x H x W [mm] (N 936.3)	approx. 233 x 145 x 129
Dimensions L x H x W [mm] (N 936.1.2)	approx. 233 x 145 x 133
Voltage 200 – 240 V	
Dimensions L x H x W [mm] (N 936.3)	approx. 233 x 145 x 120
Dimensions L x H x W [mm] (N 936.1.2)	approx. 233 x 145 x 124

*Tab. 5 *at ambient temperature >+ 50°C during intermittent or short-term operation, the max. surface temperature at the capacitor must be checked when installed in the end device. This mustn't exceed 85°C.*

5. Design and Function

Design N 936

1 Fan
2 Pneumatic pump inlet
3 Pneumatic head connection
4 Pneumatic pump outlet
5 Electrical connection

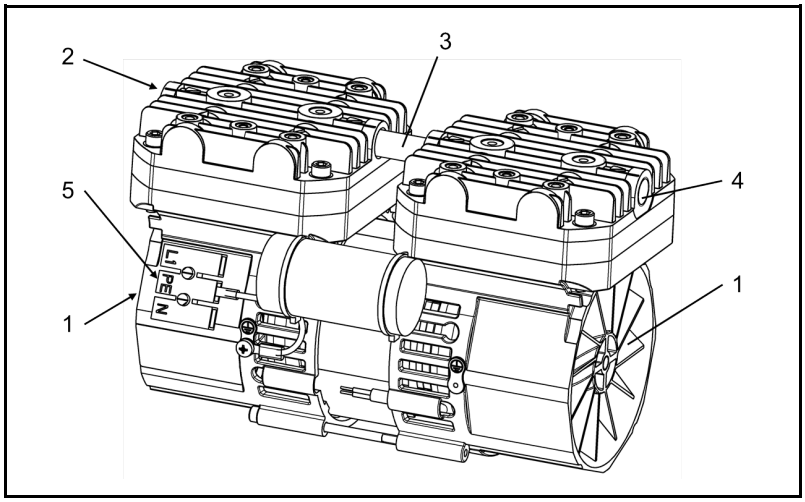

Fig. 1: Diaphragm Vacuum Pump N 936.3

Function Diaphragm Pump

1 Outlet valve
2 Inlet valve
3 Transfer chamber
4 Diaphragm
5 Eccentric
6 Connecting rod
7 Pump drive

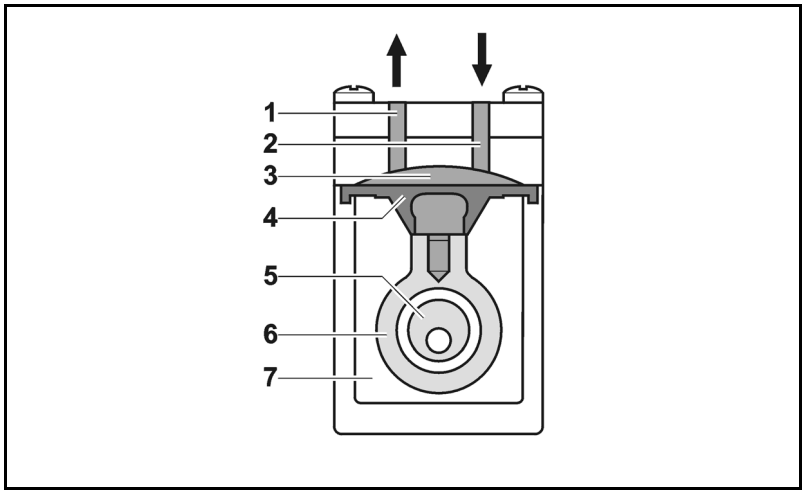

Fig. 2: Pump head

Diaphragm pumps transfer, compress (depending on pump version) and evacuate gases and vapors.

The elastic diaphragm (Fig. 2/**4**) is moved up and down by the eccentric (**5**) and the connecting rod (**6**). In the downward stroke it aspirates the gas to be transferred via the inlet valve (**2**). In the upward stroke, the diaphragm presses the medium out of the pump head via the outlet valve (**1**). The transfer chamber (**3**) is hermetically separated from the pump drive (**7**) by the diaphragm.

6. Installation and connection

Only install and operate the pumps under the operating parameters and conditions described in chapter 4, Technical data.

Observe the safety precautions (see chapter 3).

i Take protective measures against foreign objects which could enter the pump, because these can lead to damages to the pump.

6.1. Installation of the pump

➔ Before installation, store the pump at the installation location to bring it up to ambient temperature.

Mounting dimensions

➔ For the mounting dimensions see Fig. 4, p. 12 and Fig. 5, p. 13.

Immediate environment

➔ When installing the pump, ensure that no flammable objects or objects subject to thermal deformation are located in the immediate vicinity of hot pump parts (head, motor).

Installation position

➔ The pump may be installed in any position. Use metal screws to fasten the pump at the indicated attachment points.

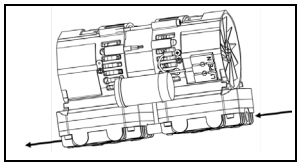

Fig. 3: Pump N 936

i In order to drain off possible condensate successfully, KNF recommends that pumps are installed in oblique position (with the suction line in higher position than the pressure line (see Fig. 3); for flow direction see the markings on the pump heads).

Cooling air supply

WARNING

Danger of burns from hot surfaces

Hot surfaces may be caused by overheating of the pump.

➔ Install the pump so that the motor fan can intake sufficient cooling air.

Attach connection cables

➔ Fasten the connection cables so that:

- the cables do not contact moving parts
- the cables will not chafe or be damaged on sharp edges or corners
- no pulling or pushing forces are exerted on the cable's connection points (strain relief)

Installation location

➔ Make sure that the installation location is dry and the pump is protected against rain, splash, hose and drip water.

i The IP protection class of the pump motor is indicated on the type plate.

➔ Install the pump at the highest point in the system to prevent condensate from collecting in the pump head.

➔ Protect the pump from dust.

➔ Protect the pump from exposure to fats and oils.

➔ Protect the pump from vibrations and jolts.

i When using feet (see chapter 10.2 Accessories), additionally equip the pump with the rubber-bonded metals to protect the pump from damage due to vibrations and jolts.

Protection against touching and foreign objects

WARNING

Hazard of injuries during operation

➔ Take protective measures against touching parts connected to electrical power (electrical connection, possibly motor coils).

➔ Take protective measures against touching moving parts (e.g. fans).

➔ The pump will restart automatically after the automatic resetting temperature limiter has been triggered.

Hazard of damage to the pump during operation

➔ Take protective measures against foreign objects which could enter the pump.

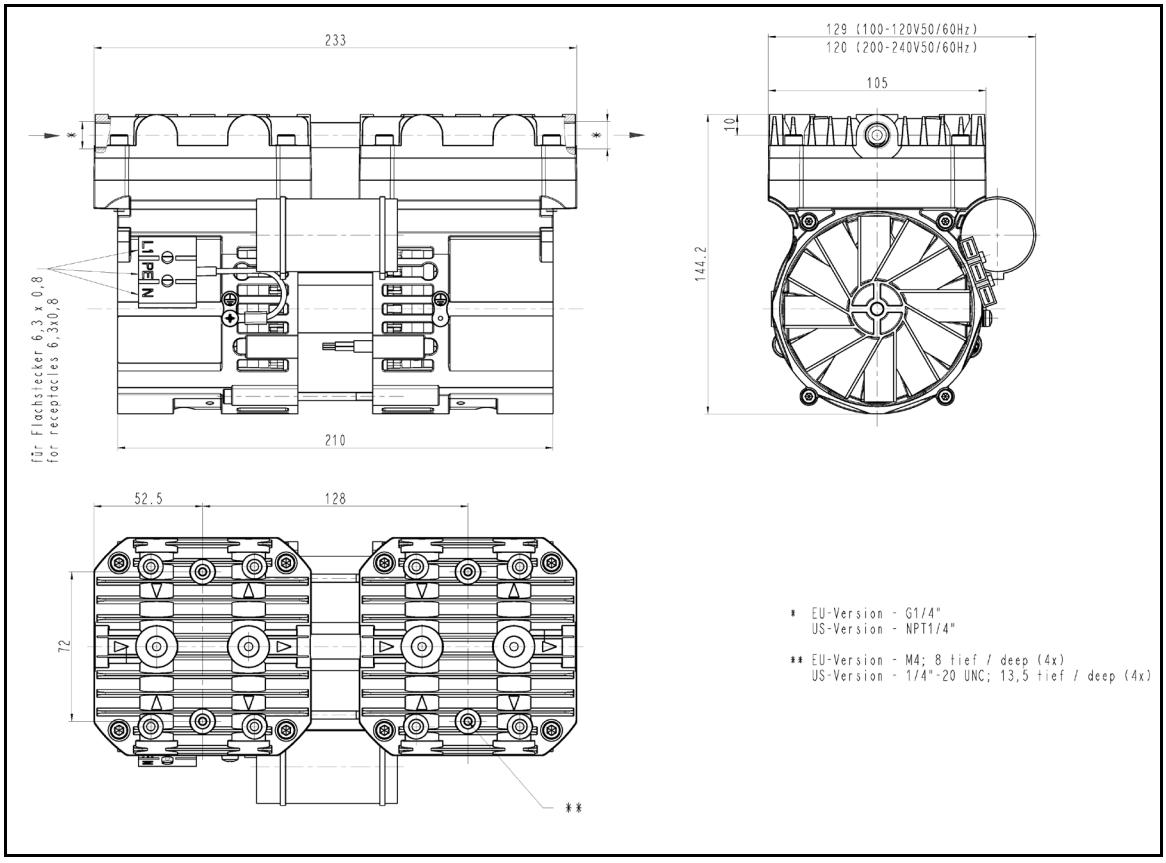

Fig. 4: Mounting dimensions pump N 936.3
(All dimensional tolerances conform to DIN ISO 2768-1, Tolerance Class V)

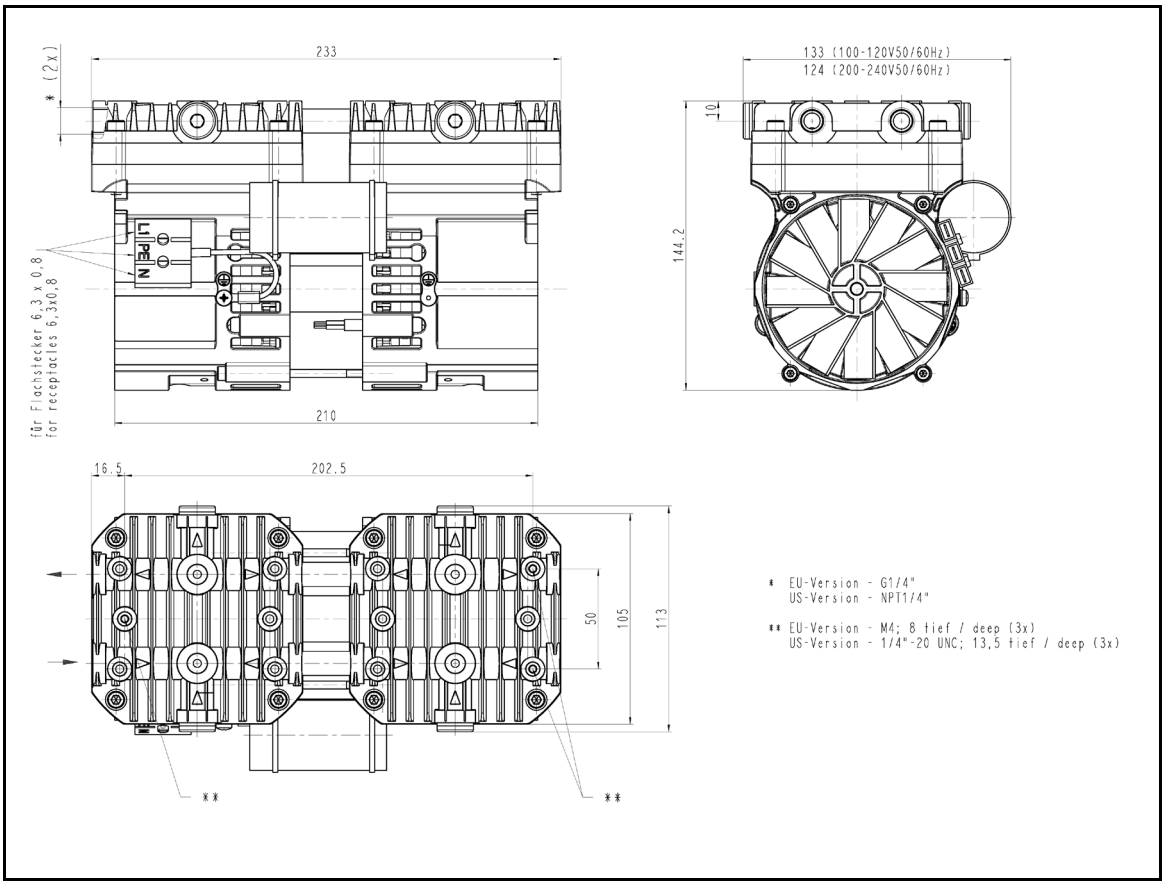

Fig. 5: Mounting dimensions pump N 936.1.2
(All dimensional tolerances conform to DIN ISO 2768-1, Tolerance Class V)

6.2. Electrical connection

DANGER

Extreme danger from electrical shock

➔ Only have the pump connected by an authorized specialist.

➔ Only have the pump connected when the power supply is disconnected.

➔ When connecting the device to a power source, the relevant standards, directives, regulations, and technical standards must be observed.

➔ In the electrical installation, arrangements (complying with e.g. EN 60335-1) must be made for disconnecting the pump motor from the electrical supply.

➔ KNF recommends that a fuse is installed in the motor supply circuit (overcurrent release).

For compliance with the standards EN 61010-1, IEC 61010-1, UL 61010-1 and CAN/CSA-C22.2 No. 61010-1, the supply circuit must be provided with a delay fuse.

Voltage	Frequency	Fuse rating
100-120V	50/60 Hz	3.2 A T
200-240V	50/60 Hz	2.0 A T

Tab. 6

➔ It is recommended that an additional “Emergency Stop” switch is installed.

➔ The pump must be installed so that contact with live parts is impossible.

Connecting pump

1. Compare the supply data with the data on the motor-plate. For operating current see type plate.

i The voltage must not vary by more than + 10% and - 10% from that shown on the type-plate.

2. Connect motor cables:

i The pump is connected using a three-pole tab terminal (one 6.3 x 0.8-plug each for L1, N and ground).

6.3. Pneumatic connection

Connected components

➔ Only connect components to the pump which are designed for the pneumatic data of the pump (see chapter 4, Technical data).

Pump exhaust

➔ If the pump is used as a vacuum pump, safely discharge the pump exhaust at the pump's pneumatic outlet.

Connecting pump

i A marking on the pump head shows the direction of flow.

CAUTION

Personal injury or damages to property by ejected plugs.

If the plug at the pressure side of the pump hasn't been removed, it could be ejected because of the overpressure during operation.

➔ Remove the plug during the installation.

1. Remove the protective plugs from the hose connection threads.
2. Connect the suction line and pressure line.

i Possible condensate is drained off through the pressure line; for that reason a tank to catch the condensate must be installed in the pressure line.

i Lay the suction and pressure line at a downward angle to prevent condensate from running into the pump.

7. Operation

WARNING

Injury of the eyes

During excessive approach to the inlet or outlet of the pump, the eyes could be injured by the upcoming vacuum or overpressure.

➔ Don't look into the pump's inlet or outlet during the operation.

➔ Only operate the pumps under the operating parameters and conditions described in chapter 4, Technical data.

➔ Make sure the pumps are used properly (see chapter 2.1).

➔ Make sure the pumps are not used improperly (see chapter 2.2).

➔ Observe the safety precautions (see chapter 3).

➔ The pumps are intended for installation. Before putting them into service it must be established that machinery or equipment in which they are installed meets the relevant regulations.

WARNING

Personal injury during operation

Hazard of the pump head bursting due to excessive pressure increase.

➔ Do not exceed max. permissible operating pressure (see chapter 4, Technical data).

➔ Monitor pressure during operation.

➔ If the pressure exceeds the maximum permissible operating pressure, immediately switch off pump and eliminate fault (see chapter 9. Troubleshooting).

➔ Only throttle or regulate the air or gas quantity in the suction line to prevent the maximum permissible operating pressure from being exceeded.

➔ If the air or gas quantity in the pressure line is throttled or regulated, make sure that the maximum permissible operating pressure is not exceeded.

➔ Ensure that the pump outlet is not closed or constricted.

i Excessive pressure (with all of the related hazards) can be prevented by placing a bypass line with a pressure-relief valve between the pressure and suctions sides of the pump. For further information, contact our technical adviser (see last page for telephone number).

Pump standstill

➔ With the pump at a standstill, open pressure and suction lines to normal atmospheric pressure.

WARNING

Automatic starting can cause personal injury and pump damage

When the operation of the pump is interrupted by the thermal switch, the pump will restart automatically after cooling down.

➔ Take all necessary care to prevent this leading to a dangerous situation.

Switching pump on

The pump may not start up against pressure or vacuum during switch-on. This also applies in operation following a brief power failure. If a pump starts against pressure or vacuum, it may block. This activates the thermal switch, and the pump switches off.

➔ Make sure that no pressure or vacuum is present in the lines during switch-on.

Switching pump off

➔ KNF recommends that, at the end of an evacuation operation, the pump should be allowed to run for a few minutes to remove condensate from the pump heads (drying of the pump).

➔ Open pressure and suction lines to normal atmospheric pressure.

8. Servicing

8.1. Servicing schedule

Component	Servicing interval
Pump	- Regular inspection for external damage or leaks
Tube connection	- Regular inspection for external damage or leaks
Diaphragm and valves and O-rings	- Replace if pump's pressure or flow rate change without apparent reason - Replace at the latest, when pump output decreases

Tab. 7

8.2. Cleaning

i When cleaning, make sure that no liquids enter the inside of the housing.

8.2.1. Flushing pump

➔ Flush the pump under atmospheric conditions some minutes with air (or, if necessary for safety reasons, with an inert gas) prior to switch-off.

8.2.2. Cleaning pump

Conditions
- Motor disconnected from mains and de-energized

WARNING

Health hazard due to dangerous substances in the pump

Depending on the substance transferred, caustic burns or poisoning are possible.

➔ Wear protective clothing if necessary, e.g. protective gloves.

➔ Clean pump with suitable measures.

CAUTION

Danger of burns from hot pump parts

The pump head or motor may be hot even after the pump has been shut off.

➔ Allow the pump to cool off after operation.

➔ As far as possible, clean the parts with a dry cloth. Solvents should not be used as they can attack the plastics, and synthetic rubber parts.

➔ If compressed air is available, blow out the components.

8.3. Replacing diaphragm, valves and O-rings

Conditions

- Motor disconnected from mains and de-energized
- Pump is clean and free of dangerous substances
- Tubes removed from pump's pneumatic inlet and outlet

CAUTION

Danger of burns from hot pump parts

The pump head or motor may be hot even after the pump has been shut off.

➔ Allow the pump to cool off after operation.

➔ Always replace diaphragm, valves and O-rings together to maintain the performance and safety of the pump.

WARNING

Health hazard due to dangerous substances in the pump!

Depending on the substance transferred, caustic burns or poisoning are possible.

➔ Wear protective clothing if necessary, e.g. protective gloves.

➔ Clean pump with suitable measures.

Spare parts

Spare part*	Position**	Quantity
Diaphragm	(17)	2
Valve	(14)	4
O-ring valve	(13)	4
O-ring connection (N 936.3)	(19)	2
O-ring connection (N 936.1.2)	(19)	4
O-ring below diaphragm	(18)	2
Screw for retainer plate	(15)	2

Tab. 8 ** according to Spare parts list, chapter 10*
*** according to Fig. 7*

Tools and material

Qty.	Tools/material
1	Torx TX30 screwdriver
1	Torx TX25 screwdriver
1	Felt-tip pen

Tab. 9 ** according to accessories list, chapter 10*

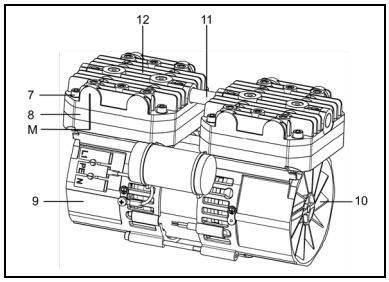

Fig. 6: Pump N 936.3

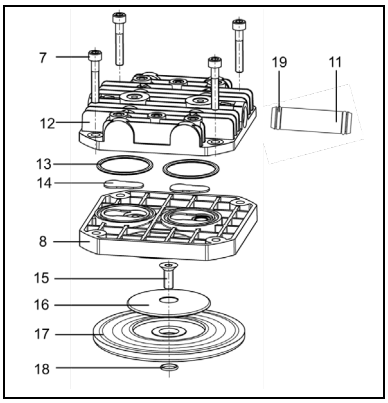

Fig. 7: Pump head (exploded drawing, symbolic)

Remove pump head

1. At both pump heads:
   Mark the position of head plate (Fig. 6/**12**), intermediate plate (**8**) and pump housing (**9**) relative to each other by a drawing line (**M**) with a felt-tip pen. This helps avoid incorrect assembly later.
2. At both pump heads:
   Undo the four screws (**7**) in the head plate.
3. Remove both pump heads (each consisting of a head plate (**12**) and intermediate plate (**8**)) together from the pump housing (**9**).

i N 936.3:
The connecting tube should remain in place.
N 936.1.2:
The connecting tubes should remain in place.

Change diaphragm

1. Turn the fan (Fig. 6/**10**) to bring one diaphragm (Fig. 7/**17**) to top dead centre.
2. Unscrew the screw for retainer plate (Fig. 7/**15**), and take off the retainer plate (**16**).
3. Remove diaphragm (Fig. 7/**17**) from reception.
4. Check that all parts are free from dirt and clean them if necessary (see chapter 8.2.2).
5. Turn the fan (Fig. 6/**10**) until the connecting rod (connecting part between motor shaft and diaphragm) is at top dead centre.
6. Replace the O-ring below the retainer plate (Fig. 7/**18**) with a new one.
7. Lay in the new diaphragm (Fig. 7/**17**); then apply the retainer plate (**16**) and tighten it to the connecting rod with the screw for retainer plate (**15**) (tightening torque: 9 Nm).

i The self-locking screw for retainer plate (**15**) can only be used once.

8. Carry out steps 1 to 7 for the second pump head.

Change valves and O-rings

1. Pull the connecting tube(s) (Fig. 7/**11**) out of one of the two head
   plates (**12**).
2. Separate the head plate (Fig. 7/**12**) from the intermediate plate (**8**).
3. Remove the valves (Fig. 7/**14**) and O-rings (**13**) from the intermediate plate (**8**).
4. Check that the valve seats, the head plate and intermediate plate are clean; if scratches or distortion are evident on these parts they should be replaced.

5. Lay in valves and O-rings:

The valves and O-rings for suction and pressure sides are identical, as are upper and lower sides of the valves and O-rings.

Lay the new valves (Fig. 7/**14**) and O-rings (**13**) in the recesses in the intermediate plate (**8**).

6. Place the head plate (Fig. 7/**12**) on the intermediate plate (**8**), in the position indicated by the marking (Fig. 6/**M**).
7. Check that the head plate (Fig. 7/**12**) is centred by moving it gently sideways.
8. Carry out steps 2 to 7 for the second pump head.
9. Dispose of the old diaphragm, valves and O-rings properly.

Refit pump heads

1. Push the connecting tube(s) (Fig. 7/**11**) into the hole in the head plate (**12**).

Ensure that the O-rings (**19**) lie in the grooves of the connecting tube(s).

2. Place the two pump heads that are joined by the connecting tube(s) (Fig. 7/**11**) on the housing according to the markings (Fig. 6/**M**).
3. On both pump heads:
   Gently tighten the screws (Fig. 7/**7**) , evenly and diagonally.
4. Turn the fan (Fig. 7/**10**) to check that the pump rotates freely.
5. Now tighten at both pump heads screws (Fig. 7/**7**) diagonally (tightening torque: 6 Nm).

Final steps

1. Reconnect suction and pressure line to the pump.
2. Reconnect the pump to the electricity supply.

If you have any questions about servicing call out technical adviser (see last page for contact telephone number).

9. Troubleshooting

Extreme danger from electrical shock!

➔ Disconnect the pump power supply before working on the pump.

DANGER ➔ Make sure the pump is de-energized and secure.

➔ Check the pump (see Tab. 10 and Tab. 11)

Pump does not transfer	
Cause	Fault remedy
Thermal switch has operated following to over-heating.	➔ Disconnect pump from mains. ➔ Allow pump to cool. ➔ Trace cause of over-heating and eliminate it.
Connections or lines blocked.	➔ Check connections and lines. ➔ Remove blockage.
External valve is closed or filter is clogged.	➔ Check external valves and filters.
Condensate has collected in pump head.	➔ Detach the condensate source from the pump. ➔ Flush pump (see chapter 8.2.1). ➔ Install the pump at the highest point in the system ➔ Install the pump in an oblique position (see chapter 6.1 *Installation of the pump*), so that the condensate can drain away better.
Diaphragm, valves or O-rings are worn	➔ Replace diaphragm, valves or O-rings (see chapter 8.3).

Tab. 10

Flow rate, pressure or vacuum too low The pump does not achieve the output specified in the Technical data or the data sheet.	
Cause	Fault remedy
Condensate has collected in pump head.	➔ Detach the condensate source from the pump. ➔ Flush pump (see chapter 8.2.1). ➔ Install the pump at the highest point in the system ➔ Install the pump in an oblique position (see chapter 6.1 *Installation of the pump*), so that the condensate can drain away better.
There is gauge pressure on pressure side and at the same time vacuum or a pressure above atmospheric pressure on suction side.	➔ The pump is not designed for this condition.
The cross section of pneumatic lines, or connected components is too small, or they are restricted.	➔ To measure the performance, disconnect the pump from the system (small diameter tubing or valve can significantly affect performance). ➔ Eliminate throttling (e.g. valve) if necessary. ➔ Use lines or connection parts with larger cross section if necessary.
Leaks occur on connections, lines or pump head.	➔ Eliminate leaks.
Connections or lines completely or partially jammed.	➔ Check connections and lines. ➔ Remove the jamming parts and particles.

Flow rate, pressure or vacuum too low The pump does not achieve the output specified in the Technical data or the data sheet.	
Cause	Fault remedy
Head parts are soiled.	➔ Clean head components.
Diaphragm, valves or O-rings are worn	➔ Replace diaphragm, valves or O-rings (see chapter 8.3).

Tab. 11

Fault cannot be rectified

If you are unable to determine any of the specified causes, send the pump to KNF Customer Service (see last page for the address).

1. Flush the pump under atmospheric conditions some minutes with air (if necessary for safety reasons: with an inert gas) to free the pump head of dangerous or aggressive gases (see chapter 8.2.1).
2. Remove the pump.
3. Clean the pump (see chapter 8.2.2).
4. Send the pump, together with completed Health and Safety Clearance and Decontamination Form, to KNF stating the nature of the transferred medium.

10. Spare parts and accessories

10.1. Spare parts

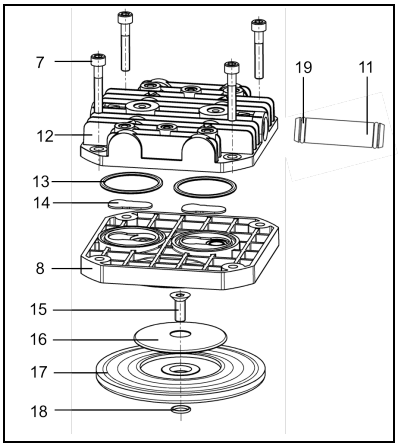

Fig. 8: Pump head (exploded drawing, symbolic)

A spare parts kit contains all parts needed for complete overhaul of the pump head:

2x diaphragm (Fig. 8/**17**)

4x valve (Fig. 8/**14**)

4x O-ring valve (Fig. 8/**13**)

2x O-ring connection (Fig. 8/**19**) (For N 936.1.2: 4x O-ring)

2x O-ring below diaphragm (Fig. 8/**18**)

2x Screw for retainer plate (Fig. 8/**15**)

Parameter	Order No.
Spare parts kit: N 936.3	306208
Spare parts kit: N 936.1.2	310644

Tab. 12

10.2. Accessories

Parameter	Order No.
Foot (2 pcs/pump)*	302892
Mounting screw for foot (4 pcs/pump)	110713
Rubber-bonded metal, M4 female thread, (4 pcs/pump)	124782

Tab. 13

i * When using feet, additionally equip the pump with the rubber-bonded metals to protect the pump from damage due to vibrations and jolts.

Accessory-kit	Order No.
Accessory-kit Foot, contains: – 2x foot – 4x Mounting screw for foot – 4x rubber-bonded metal; M4 IG – 4x Washer – 4x Allen head cap screw M6x10	331584

Tab. 14

Further accessories

Parameter	Order No.
Hose connector Ms G1/4” for ID-9mm	004950
Cu sealing	005150

Tab. 15

11. Returns

Preparing for return

1. Flush the pump with air for a few minutes (if necessary for safety reasons: with inert gas) to free the pump head of dangerous or aggressive gases (see Chapter 8.2.1 Flushing pump).

i Please contact your KNF sales partner if the pump cannot be flushed due to damages.

2. Remove the pump.
3. Clean the pump (see Chapter 8.2.2 Cleaning pump).
4. Send the pump together with the completed Health and Safety Clearance and Decontamination Form to KNF, stating the nature of the transferred medium.
5. Pack the device securely to prevent further damages to the product. If necessary, request original packaging for a fee.

Returns

KNF shall undertake to repair the pump only under the condition that the customer presents a certificate regarding the medium that is pumped and the cleaning of the pump. Please follow the instructions at knf.com/repairs here.

Contact your KNF sales partner directly if you require additional support for your return service.

12. Appendix: China RoHS

SJ-T 11364-2024 Hazardous Substance Disclosure Table / SJ-T 11364-2024 有害物质含量表

This declaration is valid for the KNF products produced by:

本声明适用于由以下KNF公司生产的产品:

KNF Neuberger GmbH DE-79112 Freiburg Germany

The following information has been made available to comply with SJ-T 11364-2024 the Marking for Control of Pollution Caused by Electronic Information Products as required by China's Management Methods for the Control of Pollution from Electronic and Electrical Products.

提供以下信息旨在遵守中国《电子信息产品污染控制管理办法》所要求的 SJ-T 11364-2024《电子信息产品污染控制标识》标准。

Part Name 部件名称	Hazardous Substances Table 有害物质含量表						EFUP / 环境友好使用期限 	China RoHS comment / 中国RoHS注释	EU RoHS compliant / 符合欧盟RoHS指令
	Lead 铅 (Pb)	Mercury 汞 (Hg)	Cadmium 镉 (Cd)	Hexavalent Chromium 六价铬 (Cr(VI))	Polybrominated biphenyls 多溴联苯 (PBB)	Polybrominated diphenyl ethers 多溴二苯醚 (PBDE)			
Pump head / 泵头	X	O	O	O	O	O	20	Lead within EU RoHS exemption limit / 铅含量在欧盟RoHS豁免限值以内	Yes / 是
Pump housing / 泵体	X	O	O	O	O	O	20	Lead within EU RoHS exemption limit / 铅含量在欧盟RoHS豁免限值以内	Yes / 是
Pump motor / 泵的电机	X	O	O	O	O	O	20	Lead within EU RoHS exemption limit / 铅含量在欧盟RoHS豁免限值以内	Yes / 是
Additional components for systems / 系统附加部件	X	O	O	O	O	O	20	Lead within EU RoHS exemption limit / 铅含量在欧盟RoHS豁免限值以内	Yes / 是

O: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in SJ-T 11364-2024. 表示该有害物质在该部件所有均质材料中的含量均在 SJ-T 11364-2024 规定的限量要求以下。

X: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ-T 11364-2024. 表示该有害物质至少在该部件的某一均质材料中的含量超出 SJ-T 11364-2024 规定的限量要求。

EFUP /环境友好使用期限: Environment Friendly Using Period / 环境友好使用期