

Limited Warranty

KNF NEUBERGER, INC. (KNF) warrants to buyer that its products will be free from defects in material and workmanship under normal and appropriate use, and agrees to repair or replace any of its products without charge for parts or labor within one year from the date of shipment to the original purchaser.

Products to be evaluated for warranty coverage:

Determination of coverage under this warranty is the sole responsibility of the manufacturing engineering representative of KNF. This determination will frequently require the return of the product to KNF. All product returns will be handled in accordance with KNF's product return policy. KNF reserves the right to inspect custom installations and devices that use KNF products as part of the warranty evaluation process.

This warranty does not cover any misuse, negligence, deterioration by chemical action, unauthorized repair or alteration in any way, inappropriate handling or storage that in our judgement caused the product failure. KNF shall not be liable for any inconvenience, loss of use, or any consequential loss, damage or injury arising from any cause whatsoever. No employee, agent or representative of KNF shall have any right or authority to vary or alter the terms of this warranty. This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

Limitations

KNF offers engineering and technical assistance to support the application and selection of our products. **Except as otherwise agreed to in writing, it is expressly understood that this warranty is in lieu of any and all other warranties, whether expressed or implied, with respect to the goods sold, including any warranty of merchantability and fitness for a particular purpose. Sole responsibility or liability of KNF shall be to replace any products or parts thereof which shall not conform to such warranty, provided that the products are used in accordance with KNF specifications. Customer is responsible for determining the suitability of our products for customer's use or resale, or for incorporating them into objects or for applications which customer designs, assembles constructs or manufactures.** Please call our Technical Sales Department for further information.

Return Requests/Inquiries

Direct all warranty and repair requests to KNF Customer Service Department for instructions before returning any unit for repair or evaluation. We will fax you a "Return Instruction Sheet" for guidance on the proper marking, packing and documentation requirements.

Important information conforming to the "Right To Know" act, such as a Material Safety Data Sheet may be required.

Products shipped to KNF must have a Return Materials Authorization Number (RMA) file number marked on the outside of the package, otherwise they will be refused by our receiving department.

**For service or parts, contact:
KNF NEUBERGER, INC.**

Two Black Forest Road
Trenton, New Jersey 08691-1810
Fax: 609/890-8323 · Phone: 609/890-8600
<http://www.knf.com>

SECTION 972.00 (0809)

Operating and Maintenance Instructions

Laboratory Vacuum Pumps & Compressors

**Models: UN726FTP
UN726.1.2FTP
UN726.3FTP**



UN726.3FTP





This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid property damage, possible injury or death.

FT Series Features

KNF's N726FTP series of contamination-free diaphragm pumps feature solid PTFE heads combined with our exclusive PTFE coated molded diaphragm. They are capable of pumping highly aggressive gases without attack to the pump or contamination of the gas stream.

Solid PTFE completely eliminates blistering or peeling of pump components, assuring the longest duty available for corrosive gas pumping applications. This pump is available in single-head and our unique twin-head designs fitted for either table-top use or for OEM applications mounted directly into your equipment.

CONTAMINATION-FREE TRANSFER - The diaphragm design uses no coated-metal wetted parts. This insures a leak-tight seal and prevents contamination of the pumped medium while at the same time increasing system reliability.

PTFE heads and FFPM valves* are resistant to most corrosive gases & vapors, reducing periodic maintenance.

EASY MAINTENANCE - With a KNF pump, special tools or training are unnecessary if cleaning is required. The heads and valves are disassembled and reassembled in minutes.

*FFPM valves standard. PTFE valves optional - consult factory.

Performance Specifications

Model	Max vacuum	Max pressure	Free-Flow Cap
UN726FTP	50 Torr/28 in. Hg	20 PSIG	17 liters/minute
UN726.1.2FTP	50 Torr/28 in. Hg	20 PSIG	30 liters/minute
UN726.3FTP	10 Torr/29.5 in. Hg	N/A	17 liters/minute

Notes:

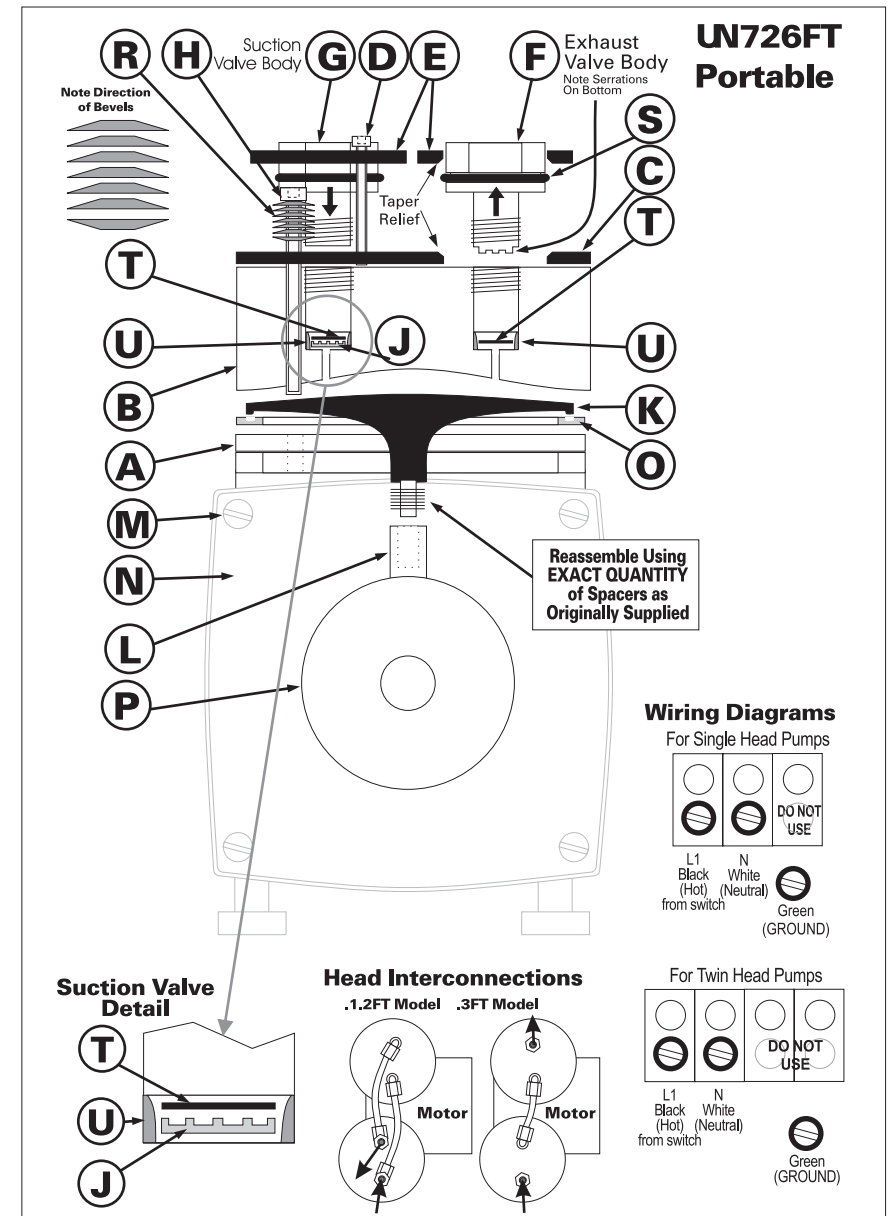
- UN726.3FTP designed for vacuum applications only.
- Pressure ratings listed are continuous.
- If your pump's model number begins with an MPU, PU or PJ, performance may vary from that listed above. Contact KNF.

Operating Instructions

The following guidelines should be observed to promote safe and reliable operation of your KNF pump.

- KNF units are 100% oil-free. No maintenance at all is necessary for the bearings. All bearings are sealed and permanently lubricated. Lubrication should not be attempted. For bearing replacement, call KNF.
- Be sure that the available electric power matches specifications of the electric motor listed on the identification plate. Serious damage may occur to the motor if connected to an improper voltage. All KNF units must be grounded. In the event of an electrical short circuit, grounding reduces the

Cutaway View of the Pump Head



- across). Carefully align and seat the bead of the diaphragm **K** in the groove of the head spacer ring **O**.
10. Position the head **B** and pressure plate **C** according to your previously drawn markings, then tighten the four socket screws **H** until the 7 disc springs **R** are flattened. Do not overtighten. Turn the counterweight **P** by hand to insure that the pump turns freely and then replace the cover **N** and four screws **M**.
 11. Apply a fresh, *single layer* of Teflon® tape centered (not overhanging edge) around the threads of each valve body **F** and **G**, being sure that it is smooth, overlapped and applied in a clockwise direction so it will adhere when the valve bodies are screwed back into the Teflon® head. *Do not use in excess or substitute any other type of tape.*
 12. Slip a new O-ring **S** onto the EXHAUST valve body **F**. Prior to assembly, make sure that the PTFE protection ring **U** is correctly positioned with the *taper up* and that it is flat on the bottom of the valve cavity. Remove the old valve disk **T** and replace with a new one. Carefully thread the EXHAUST valve body **F** into the head **B** and tighten *gently*. *Do not over tighten.*
 13. Slip a new O-ring **S** onto the SUCTION valve body **G**. Prior to assembly, make sure that the PTFE protection ring **U** is correctly positioned with the *taper up* and that it is flat on the bottom of the valve cavity, and the PTFE serrated airgate **J** is positioned on the bottom with the grooves up. Remove the old valve disk **T** and replace with a new one. Carefully thread the SUCTION valve body **G** into the head **B** and tighten gently. *Do not over tighten.*
 14. Set the clamping rings **E** over each valve body and tighten the six socket screws **D** securely.
 15. Carefully apply three layers of Teflon® tape around the center of each fitting (not overhanging edge) and re-install the head connecting tubing and fittings as previously sketched in step 1 above. *Do not use in excess or substitute any other type of tape.* Ensure that the compression rings (ferules) are correctly positioned under the union nuts before tightening.

Note: *Should you need to send a KNF pump to our factory for repairs, please be sure to read the instructions in the Limited Warranty section with regard to obtaining an RMA (Return Materials Authorization) number prior to shipment.*

- risk of electric shock by providing an escape wire for the electric current. This product is equipped with a cord having a grounding wire with an appropriate grounding plug. The plug must be plugged into an outlet that is properly installed and grounded in accordance with all local codes and ordinances.
3. The pump should be placed where the surrounding temperature remains between 40°F and 104°F (5°C and 41°C). This is particularly important when the unit is installed in a confined space. Do not block the ventilation ports located on the motor housing.
 4. Standard models are designed to start against atmospheric pressure only, not under any vacuum load. Care must be taken to eliminate vacuum load after pump is turned off for any reason.
 5. Use only to pump air or gas, not liquids or particulates. Damage to the pump or loss of performance can occur if liquids or particulates enter the system. The life of the pump can be prolonged if the formation of condensate within the pump is avoided.
 6. Always install the pump in such a location that its external parts are protected from direct or indirect moisture contact.
 7. Avoid operating the pump in very dusty conditions. If this cannot be prevented, then install a suction filter. Be sure to inspect and change it frequently to avoid excessive pressure build-up on the pressure side.
 8. Output flow should not be throttled or restricted for any reason. The maximum rated operating pressure is not to be exceeded, particularly if the pump is used as a compressor.
 9. Be sure that the pump is installed at the highest point within the system to prevent possible condensate from entering the unit.
 10. Please remove any protective plastic plugs supplied in the intake or pressure ports of your pump prior to applying power to the motor.

WARNING

KNF portable pumps are not explosion proof, however, most have been evaluated and approved by UL for laboratory use, according to General Requirement UL61010-1. As with all laboratory procedures, safety codes (i.e., NFPA 45, Fire Protection for Laboratories Using Chemicals) pertaining to proper laboratory ventilation and solvent handling should be adhered to, especially when processing potentially toxic and/or combustible liquids and vapors.

The following precautions should be taken:

1. Run the pump for a few minutes to warm it up before handling saturated or nearly saturated vapors.
2. After use, let the pump run for about 2 minutes in air before switching it off, to purge out droplets of liquid that may have formed on the inside of the pump.

This prevents crystallization and/or absorption of liquids by the pump materials.

Troubleshooting

Your KNF Vacuum Pump should perform to specifications for years if the simple operating instructions and precautions are observed.

If you experience a problem and suspect the pump, try these simple checks prior to calling for assistance.

1. Check that all system interconnections are gas-tight.
2. Remove the head assembly as described in "Changing the Diaphragm and Valves". Look for any foreign matter; commonly bits of Teflon® tape or particulates carried into the valve system or crystallized material from previously pumped vapors. All of the above must be cleared out and the pump reassembled with clean parts.
3. If pitting of the pump parts or tearing of the diaphragm is observed, it is possible that the gas/vapor being pumped is capable of dissolving the PTFE or FFPM wetted parts of the pump. There are very few materials that will attack the pump parts, such as Nitric and Fluorine vapors. Chemical resistance charts should be consulted if you are in doubt. Generally, replacement of the diaphragm and valves will restore the pump.

Spare Parts Kits (per head)

For Head Materials FT

Kit Part No: 071814 Consists of:

Qty	ID#	Description
1	K	Molded Diaphragm
2	T	FFPM Valve Disks
2	S	O-Rings

Note: Above kit is to renew one head only. Two kits are required to renew a twin-head pump (.3 or .1.2 models).

Individual Spare Parts: (per head)

ID#	Description
C	Pressure Plate
D	Socket Screw (6 per head)
E	Clamp Ring (2 per head)
F	Exhaust Valve Body
G	Suction Valve Body
H	Large Socket Screw (4 per head)
J	Air Gate (SUCTION valve only)
K	Molded Diaphragm
Q	Diaphragm Spacers (See Note 1)
R	Spring Washers (7 required per screw)
S	O-Ring (2 per head)
T	Valve Disk (2 per head)
U	PTFE Protection Ring (2 per head)

Notes:

1. Use same quantity as originally supplied
2. Contact KNF Customer Service for ordering information.

Maintenance Procedures

During normal use, the diaphragm and valves are the only part of the pump that need to be replaced. Changing them is a simple process when the following steps are taken.

If you run into a problem or have a question regarding the following procedure, please call KNF Application Engineering for assistance.

Note: For twin-head pumps, always change the diaphragm and valve plates in both heads at the same time. Follow the below procedures for each head.

Materials needed:

Replacement kit(s) 071814, Marking pencil

Roll of Teflon® tape (*do not substitute other types of tape*)

Tools Required:

4 mm socket key

20 mm open-end wrench

27 mm socket and driver

5/8" Deep-socket driver

Slotted-head screwdriver

Changing the Diaphragm and Valve Disks

WARNING

Shut off all power before proceeding. Unplug pump's power cord from electrical source.

1. Make a sketch of the position of interconnecting tubes and fittings for ease of reassembly later. Remove them by undoing nuts with the 20 mm wrench and carefully pulling tubing from fittings.
2. Mark the position of the pressure plate **C**, PTFE head **B** and crankcase **A** relative to each other by drawing a line on the edges with a pencil or other marker to assure proper reassembly.
3. Mark the pressure **F** and the suction **G** valve bodies as they are unique and must be properly re-installed in their respective holes.
4. Remove the six socket screws **D** with the 4 mm socket key and remove both clamp rings **E**. Unscrew valve bodies **F** and **G** using 27 mm socket. Important: Clean off any residual Teflon® tape from the threads of the valve bodies and inside the threaded holes of the head to avoid clogging the valves after the system is reassembled. Discard both old O-Rings **S**.
5. Remove the four screws and washers **M** and housing cover **N**.
6. Remove the four socket screws **H** and lift off the pressure plate **C** and head **B** as an assembly, maintaining their relative position to each other.
7. Unscrew the old diaphragm **K** by turning it counter-clockwise using both hands. *Do not use tools*. Important: Take care not to lose any of the spacers, as the *exact quantity* must be reassembled later for proper operation of the pump.
8. Position *the same quantity of spacers* removed in step 6 above onto the threaded stud of the new diaphragm. Carefully screw the new diaphragm **K** into the connecting rod **L** and hand-tighten firmly without using *tools*.
9. Turn the counterweight **P** until the diaphragm **K** is in mid-position (flat