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CAUTIONS—READ FIRST!


CAUTION: This pump is designed to run only on clean, dry air at all times. If oil and water may migrate into pump from air supply, a desiccant dryer must be installed.



CAUTION: Do not lubricate air supply - lubrication will reduce pump performance.


TEMPERATURE LIMITS:

EPDM	-51.1°C to 137°C	-60°F to 280°F
PTFE	4.4°C to 120°C	40°F to 248°F



CAUTION: When choosing pump materials, be sure to check the temperature limits for all wetted components. Example: EPDM has a maximum limit of 137.8°C (280°F) but polyethylene has a maximum limit of only 70.0° C (158°F).



CAUTION: Maximum temperature limits are based upon mechanical stress only. Certain chemicals will significantly reduce maximum safe operating temperatures. Consult Wilden Chemical Resistance Guide (E-4) for chemical compatibility and temperature limits.



CAUTION: Always wear safety glasses and appropriate protection when operating pump. If a diaphragm rupture occurs, material being pumped may be forced out air exhaust.



WARNING: Prevention of static sparking - If static sparking occurs, fire or explosion could result. Pump valves and containers must be grounded when handling flammable fluids and whenever discharge of static electricity is a hazard. To ground a UB Series pump, connect to suitable grounding location. As each application has different requirements, please consult the local, regional or government regulatory agency for details on proper grounding for the application.



CAUTION: Do not exceed 7 bar (100 psig) air supply pressure.



CAUTION: Before any maintenance or repair is attempted, the compressed air line to the pump should be disconnected and all air pressure allowed to bleed from pump. Before disassembly of the pump, or removal from process lines, all pressure must also be bled from the liquid side of the pump and all fluid drained into a suitable container. Failure to do so may result in product under pressure being sprayed from system.



CAUTION: Blow out air line for 10 to 20 seconds before attaching to pump to make sure all pipeline debris is clear. A 5µ (micron) in-line air filter is recommended.



CAUTION: The UB Series pumps are not submersible. If your application requires your pump to be submersed, contact the factory for details on a different Wilden pump model.



CAUTION: Pumps should be flushed thoroughly with water before installation into process line.



CAUTION: Use caution not to over tighten air and liquid pipe connections or pump fasteners. Over-torque of fittings or fasteners may damage the pump or cause leaking of process fluid.



CAUTION: The valve lifting magnets are very strong NdFeB magnets. An appropriate safety distance of 500 mm (19.7") must be kept from all devices and objects which can be damaged by magnetism or impaired in their function. This includes persons with cardiac pacemakers, credit cards, ED cards, hearing aids, data media, televisions, monitors, computers, video tapes, mechanical clocks and loudspeakers. Magnets of very brittle and will become damaged if dropped on hard surface.

WILDEN PUMP DESIGNATION SYSTEM

UB2 METAL

LEGEND

UB2 / XXXX / XXX / XX / XXX / XXXX

MODEL

WETTED PARTS & OUTER PISTON

CENTER SECTION

AIR VALVE

DIAPHRAGMS

VALVE BALLS

VALVE SEAT

VALVE STOP O-RING

SPECIALTY CODE
(if applicable)

MATERIAL CODES

SIZE

UB2 = 25 mm (1")

WETTED PARTS & OUTER PISTON

SZ = 316L STAINLESS STEEL/
NO PISTON

CENTER SECTION

DD = CONDUCTIVE
POLYETHYLENE

AIR VALVE

E = POLYETHYLENE

DIAPHRAGM

LEL = PTFE W/INTEGRAL
OUTER PISTON

EPL = FDA EPDM W/INTEGRAL
OUTER PISTON

VALVE BALLS

EP = FDA EPDM W/METAL CORE
TF = PTFE W/METAL CORE

VALVE SEAT

S = 316L STAINLESS STEEL

VALVE STOP O-RING

EP = FDA EPDM
TF = PTFE

SPECIALTY CODES

- 812 = STROKE COUNTER
- 814 = STROKING COUNTING PNEUMATIC W/PRESSURE TRANSMITTER
- 816 = DIAPHRAGM SENSOR

HOW IT WORKS—PUMP

The Wilden UNITEC[™] pump is an air-operated, positive displacement, self-priming pump. These drawings show the flow pattern through the pump upon its initial stroke. It is assumed the pump has no fluid in it prior to its initial stroke.

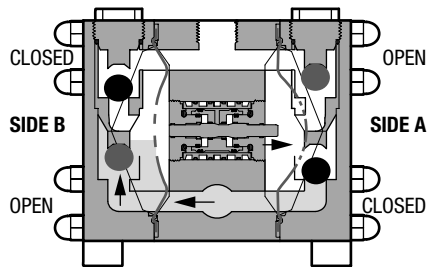


FIGURE 1: The air valve directs pressurized air to the back side of diaphragm A. The compressed air is applied directly to the liquid column separated by elastomeric diaphragms. The diaphragm acts as a separation membrane between the compressed air and liquid, balancing the load and removing mechanical stress from the diaphragm. The compressed air moves the diaphragm away from the center block of the pump. The opposite diaphragm is pulled in by the shaft connected to the pressurized diaphragm. Diaphragm B is on its suction stroke; air behind the diaphragm has been forced out to the atmosphere through the exhaust port of the pump. The movement of diaphragm B toward the center block of the pump creates a vacuum within chamber B. Atmospheric pressure forces fluid into the inlet manifold forcing the inlet valve ball off its seat. Liquid is free to move past the inlet valve ball and fill the liquid chamber (see shaded area).

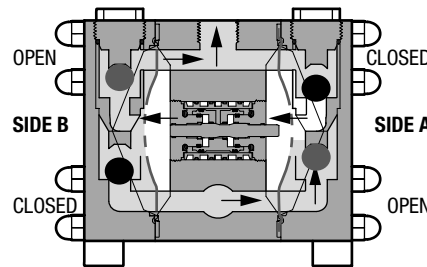


FIGURE 2: When the pressurized diaphragm, diaphragm A, reaches the limit of its discharge stroke, the air valve redirects pressurized air to the back side of diaphragm B. The pressurized air forces diaphragm B away from the center block while pulling diaphragm A to the center block. Diaphragm B is now on its discharge stroke. Diaphragm B forces the inlet valve ball onto its seat due to the hydraulic forces developed in the liquid chamber and manifold of the pump. These same hydraulic forces lift the discharge valve ball off its seat, while the opposite discharge valve ball is forced onto its seat, forcing fluid to flow through the pump discharge. The movement of diaphragm A toward the center block of the pump creates a vacuum within liquid chamber A. Atmospheric pressure forces fluid into the inlet manifold of the pump. The inlet valve ball is forced off its seat allowing the fluid being pumped to fill the liquid chamber.

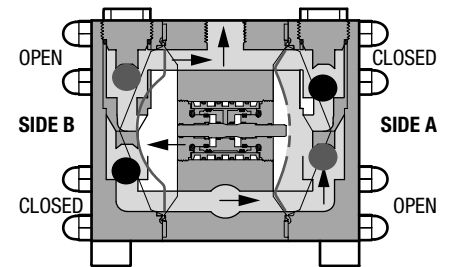


FIGURE 3: At completion of the stroke, the air valve again redirects air to the back side of diaphragm A, which starts diaphragm B on its exhaust stroke. As the pump reaches its original starting point, each diaphragm has gone through one exhaust and one discharge stroke. This constitutes one complete pumping cycle. The pump may take several cycles to completely prime depending on the conditions of the application.

HOW IT WORKS—AIR DISTRIBUTION SYSTEM

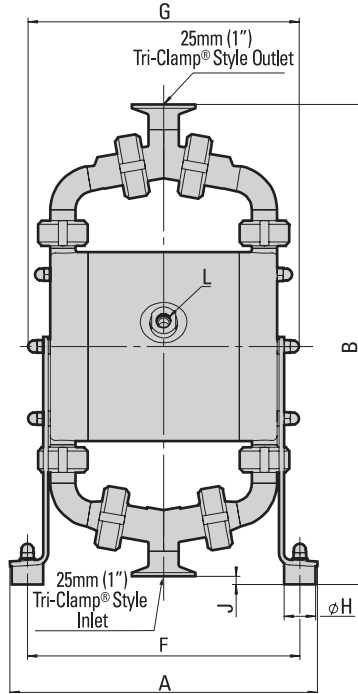
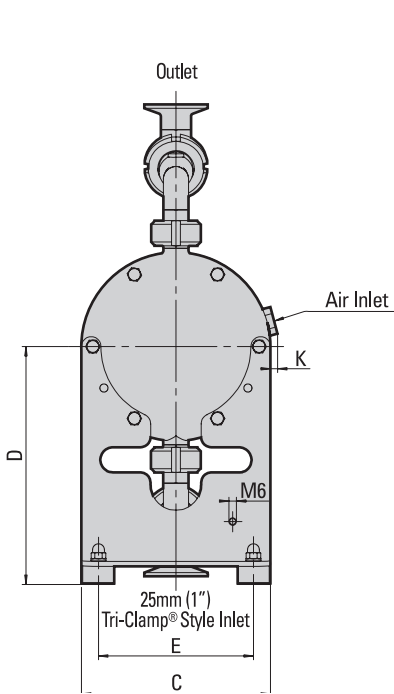


The Uni-Flo[™] air distribution system, the driving force behind UNITEC[™] pumps, is assembled inside the center section of the pump, between the reciprocating diaphragms. The Uni-Flo[™] systems uses a main air valve body and mechanically actuated pilot spool mechanism to direct inlet air pressure alternately behind each diaphragm while at the same time exhausting the air behind the opposite diaphragm to atmosphere. Air inlet pressure has a direct relation to the fluid discharge pressure that the pump can develop (head), while the volume of air has a direct relation to how quickly the pump will reciprocate (flow).

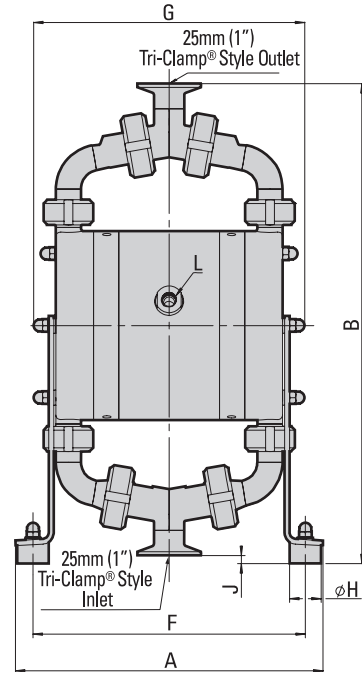
The pilot spool is pushed alternately left and right through contact with the inside of the diaphragm as it moves toward the center section on its exhaust stroke. The movement of the pilot spool from one side to the other changes the inlet and exhaust porting to each diaphragm by reversing the air flow behind each diaphragm. The diaphragm that pushed the pilot spool to shift the pump while on its exhaust stroke is now pressurized with inlet air pressure and pushed away from the center section displacing fluid.

This inherently safe design needs no electronic sensors or switches to operate reliably while delivering product. Speed and flow can be controlled with simple adjustments to the air regulator, air inlet valve or fluid system valves. The Uni-Flo[™] system operates solely on compressed air and is simple to use, specify and operate.

UB2 Metal



Barrier Chamber



DIMENSIONS

ITEM	METRIC (mm)	STANDARD (inch)
A	244	9.6
B	381	14.9
C	150	5.9
D	189	7.4
E	123	4.8
F	216	8.5
G	216	8.5
H	25	0.9
J	6	0.2
K	6	0.2
L	$\phi 6$	$\phi 1/4$ "

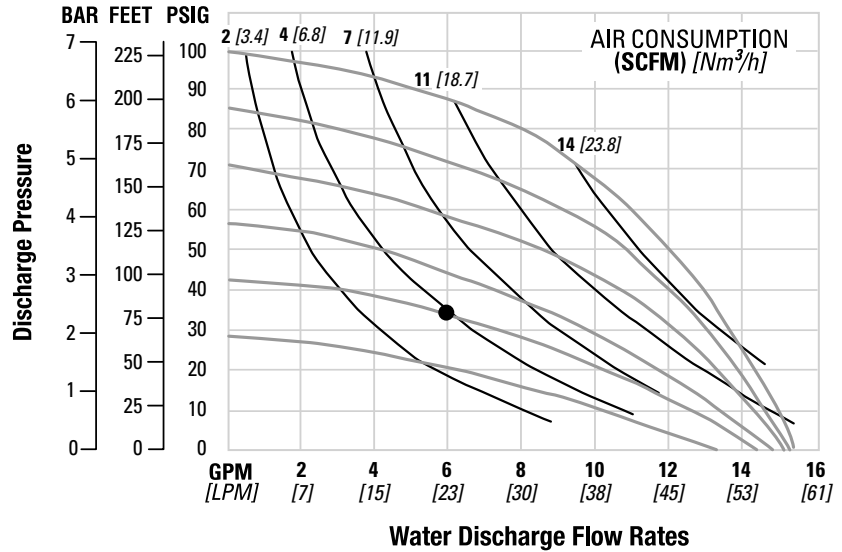
UB2 METAL

Height 381 mm (14.9")
 Width 244 mm (9.6")
 Depth 156 mm (6.1")
 Est. Ship Weight.....Stainless Steel 12 kg (27 lbs.)
 Air Inlet 6 mm (1/4")
 Inlet 25 mm (1")
 Outlet 25 mm (1")
 Suction Lift 2.5 m Dry (8.2')
 9.0 m Wet (29.5')
 Displacement Per Stroke..0.11 l (0.03 gal.)¹
 Max. Flow Rate 58 lpm (15.4 gpm)
 Max. Size Solids.....3 mm (1/8")

¹ Displacement per stroke was calculated at 7.0 bar (100 psig) air inlet pressure against a 0 bar (0 psig) head pressure.

Example: To pump 23 lpm (6 gpm) against a discharge pressure head of 2.3 bar (33 psig) requires 2.9 bar (42 psig) and 6.8 Nm³/h (4 scfm) air consumption. (See dot on chart.)

Caution: Do not exceed 7.0 bar (100 psig) air supply pressure.



SUGGESTED INSTALLATION

Wilden pumps are designed to meet the performance requirements of even the most demanding pumping applications. They have been designed and manufactured to the highest standard and are available in a variety of liquid path materials to meet your chemical resistance needs. Refer to the performance section of this manual for an in-depth analysis of the performance characteristics of your pump. Wilden offers the widest variety of elastomer options in the industry to satisfy temperature, chemical compatibility, abrasion resistance and flex concerns.

The suction pipe size should be equivalent or larger than the diameter of the suction inlet on your Wilden pump. The suction hose must be non-collapsible, reinforced type as these pumps are capable of pulling a high vacuum. Discharge piping should also be equivalent or larger than the diameter of the pump discharge to minimize friction losses. It is critical that all fittings and connections are airtight or a reduction or loss of pump suction capability will result.

INSTALLATION: Months of careful planning, study, and selection efforts can result in unsatisfactory pump performance if installation details are left to chance.

Premature failure and long term dissatisfaction can be avoided if reasonable care is exercised throughout the installation process.

LOCATION: Noise, safety, and other logistical factors usually dictate where equipment will be situated on the production floor. Multiple installations with conflicting requirements can result in congestion of utility areas, leaving few choices for additional pumps.

Within the framework of these and other existing conditions, every pump should be located in such a way that six key factors are balance against each other to maximum advantage.

ACCESS: First of all, the location should be accessible. If it's easy to reach the pump, maintenance personnel will have an easier time carrying out routine inspections and adjustments. Should major repairs become necessary, ease of access can play a key role in speeding the repair process and reducing total downtime.

AIR SUPPLY: Every pump location should have an air line large enough to supply the volume of air necessary to achieve the desired pumping rate. Do not exceed the maximum rated air pressure.

For best results, the pumps should use a 5 μ (micron) air filter, needle valve and regulator. The use of an air filter before the pump will ensure that the majority of any pipeline contaminants will be eliminated.

MUFFLER: Sound levels are reduced below OSHA specifications using the standard Wilden muffler. Other mufflers can be used to further reduce sound levels, but they usually reduce pump performance.

ELEVATION: Selecting a site that is well within the pump's dynamic lift capability will assure that loss-of-prime issues will be eliminated. In addition, pump efficiency can be adversely affected if proper attention is not given to site location.

PIPING: Final determination of the pump site should not be made until the piping challenges of each possible location have been evaluated. The impact of current and future installations should be considered ahead of time to make sure that inadvertent restrictions are not created for any remaining sites.

The best choice possible will be a site involving the shortest and straightest hook-up of suction and discharge piping. Unnecessary elbows, bends, and fittings should be avoided. Pipe sizes should be selected to keep friction losses within practical limits. All piping should be supported independently of the pump. In addition, the piping should be aligned to avoid placing stress on the pump fittings.

Flexible hose can be installed to aid in absorbing the forces created by the natural reciprocating action of the pump. If the pump is to be bolted down to a solid location, a mounting pad placed between the pump and the foundation will assist in minimizing pump vibration. If quick-closing valves are installed at any point in the discharge system, or if pulsation within a system becomes a problem, a surge suppressor should be installed to protect the pump, piping and gauges from surges and water hammer.

If the pump is to be used in a self-priming application, make sure that all connections are air tight and that the suction lift is within the model's ability. Note: Materials of construction and elastomer material have an effect on suction lift parameters. Please refer to the performance section for specifics.

When pumps are installed in applications involving flooded suction or suction head pressures, a gate valve should be installed in the suction line to permit closing of the line for pump service.

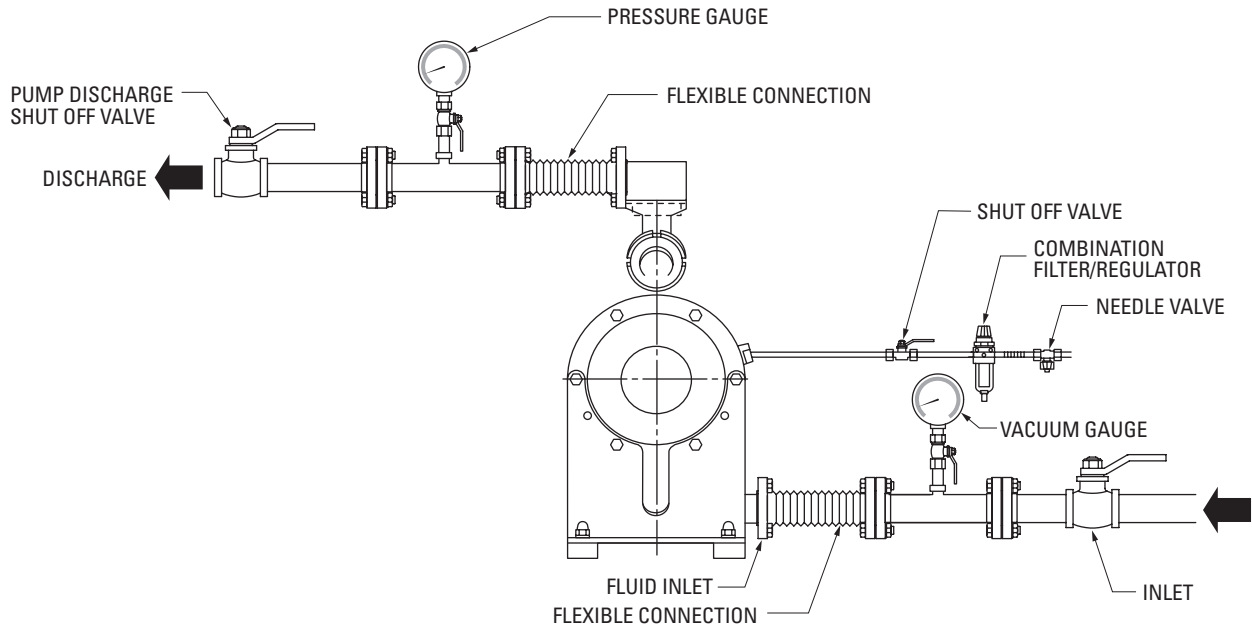
Pumps in service with a positive suction head are most efficient when inlet pressure is limited to 0.5-0.7 bar (7-10 psig). Premature diaphragm failure may occur if positive suction is 0.7 bar (10 psig) and higher.

THE UB2 PUMPS HAVE LIMITED SOLIDS PASSAGE CAPABILITY. WHENEVER THE POSSIBILITY EXISTS THAT LARGER SOLID OBJECTS MAY BE SUCKED INTO THE PUMP, A STRAINER SHOULD BE USED ON THE SUCTION LINE. (SEE SECTION 5 FOR MAXIMUM SOLIDS PASSAGE CAPABILITIES).

CAUTION: DO NOT EXCEED 7 BAR (100 PSIG) AIR SUPPLY PRESSURE.

UB2 PUMPS CANNOT BE SUBMERGED. FOR SUBMERGED APPLICATIONS CONTACT THE FACTORY FOR AN ALTERNATIVE WILDEN MODEL.

This illustration is a generic representation of an air-operated double-diaphragm pump.



NOTE: In the event of a power failure, the shut off valve should be closed, if restarting of the pump is not desirable once power is regained.

AIR OPERATED PUMPS: To stop the pump from operating in an emergency situation, simply close the shut off valve (user supplied) installed in the air

supply line. A properly functioning valve will stop the air supply to the pump, therefore stopping output. This shut off valve should be located far enough away from the pumping equipment such that it can be reached safely in an emergency situation.

SUGGESTED OPERATION & MAINTENANCE

OPERATION: The UB Series pumps are non-lubricated, and do not require in-line lubrication. Pump discharge rate can be controlled by limiting the volume and/or pressure of the air supply to the pump. An air regulator is used to regulate air pressure. A needle valve is used to regulate volume. Pump discharge rate can also be controlled by throttling the pump discharge by partially closing a valve in the discharge line of the pump. This action increases friction loss which reduces flow rate. This is useful when the need exists to control the pump from a remote location. When the pump discharge pressure equals or exceeds the air supply pressure, the pump will stop; no bypass or pressure relief valve is needed, and pump damage will not occur. The pump has reached a "deadhead" situation and can be started by reducing the fluid discharge pressure or increasing the air inlet pressure. The Wilden UB Series pumps run solely on compressed air and do not generate heat, therefore your process fluid temperature will not be affected.

MAINTENANCE AND INSPECTIONS: Since each application is unique, maintenance schedules may be different for every pump. Frequency of use, line pressure, viscosity and abrasiveness of process fluid all affect the parts life of a Wilden pump. Periodic inspections have been found to offer the best means for preventing unscheduled pump downtime. Personnel familiar with the pump's construction and service should be informed of any abnormalities that are detected during operation.

RECORDS: When service is required, a record should be made of all necessary repairs and replacements. Over a period of time, such records can become a valuable tool for predicting and preventing future maintenance problems and unscheduled downtime. In addition, accurate records make it possible to identify pumps that are poorly suited to their applications.

TROUBLESHOOTING

Pump will not run or runs slowly.

1. Ensure that the air inlet pressure is at least 0.4 bar (5 psig) above start up pressure and that the differential pressure (the difference between air inlet and liquid discharge pressures) is not less than 0.7 bar (10 psig).
2. Check air inlet filter for debris (see recommended installation).
3. Disassemble pump and check for obstructions in the air passageways or objects which would obstruct the movement of internal moving parts.
4. Piston rings may be excessively worn. Replace piston rings.
5. Air valve might be overly soiled. Clean or replace air control system.

Pump runs but little or not product flows.

1. Check for pump cavitation; slow pump speed down to allow thick material to flow into liquid chambers.
2. Verify that vacuum required to lift liquid is not greater than the vapor pressure of the material being pumped (cavitation).

3. Check for sticking ball check valves. If material being pumped is not compatible with pump elastomers, swelling may occur. Replace ball check valves and seats with proper elastomers. Also, as the check valve balls wear out, they become smaller and can become stuck in the seats. In this case, replace balls and seats.

Pump air valve freezes.

Check for excessive moisture in compressed air. Either install a dryer or hot air generator for compressed air. Alternatively, a coalescing filter may be used to remove the water from the compressed air in some applications.

Air bubbles in pump discharge.

Check for ruptured diaphragms.

Product comes out air exhaust.

Check for ruptured diaphragms.

PUMP DISASSEMBLY

TOOLS REQUIRED:

- Hook Wrench
- 5 mm Hex Head Wrench
- 10 mm Box End Wrench
- Air Valve Tool (included with pump)
- Adjustable Wrench

CAUTION: Before any maintenance or repair is attempted, the compressed air line to the pump should be disconnected and all air pressure allowed to bleed from the pump. Disconnect all intake, discharge, and air lines.

The pump can be drained by using the following methods:

- Turning it upside down and allow the fluid to flow into a suitable container.
- Without turning pump over and using the valve ball lifting magnets, pull ball check valves off ball seats to drain fluid through fluid inlet of pump.

**Step 1**

Prior to disassembly, alignment marks should be placed on the liquid chambers and air chambers to assist with proper alignment during reassembly.

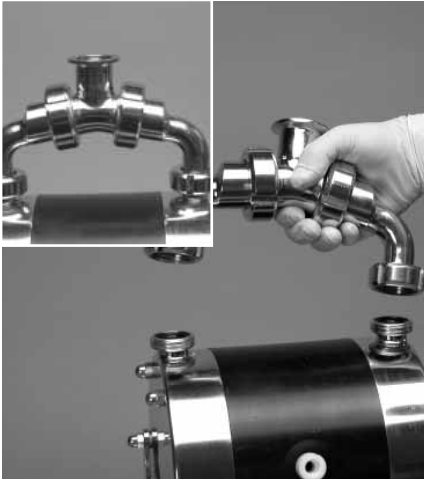
**Step 2**

Using a hook wrench or equivalent, loosen couplings attaching the liquid chamber to the manifold tee sections.

**Step 3**

Using a 10 mm box end wrench, remove liquid chamber fasteners.

PUMP DISASSEMBLY



Step 4

Using a hook wrench or equivalent, loosen couplings attaching the discharge manifold to the liquid chambers.



Step 5

After removing the discharge manifold, inspect the manifold o-rings for excessive wear or damage. Replace worn parts with genuine Wilden parts for reliable performance.



Step 6

With liquid chamber fasteners removed, now you can remove the pump stand.



Step 7

Next, remove the inlet manifold from the liquid chambers.



Step 8

After removing the pump stand and inlet manifold, one of the liquid chambers can be removed from the center section.



Step 9

Remove center section assembly from the other liquid chamber.



Step 10

Now the valve stops can be removed. NOTE: When reinstalling the valve stops, place the valve stop set screw into the notch located on the tee section to ensure that the valve stop is seated properly.



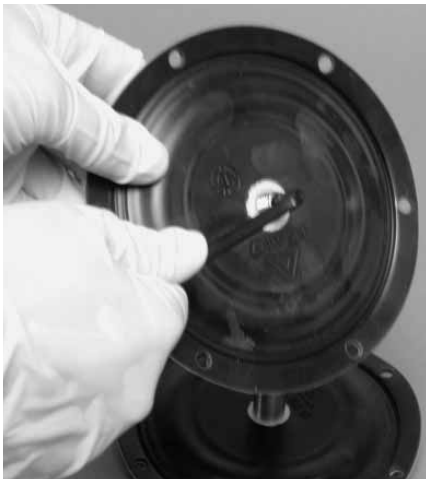
Step 11

Remove the valve stop o-rings and valve balls. Inspect for signs of wear and replace if necessary.



Step 12

Remove diaphragm assembly by rotating counter-clockwise.



Step 13

Using a 5 mm hex head wrench, remove shaft set screw from diaphragms.



Step 14

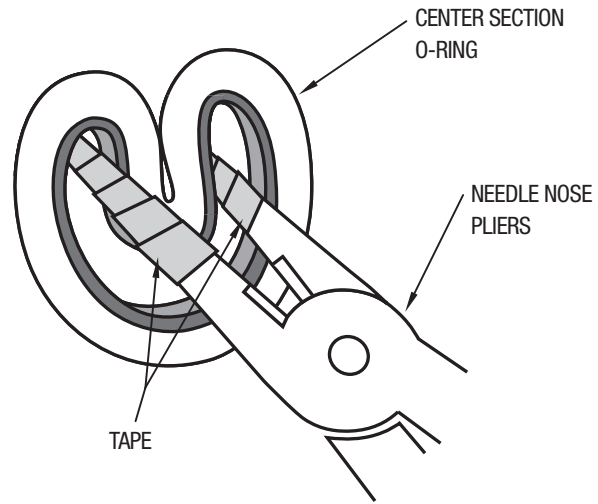
Using air valve tool supplied with pump, remove air valve by turning counter-clockwise.

When reassembling a UA series pump, it is important to pay particular attention to specific details to avoid damaging the pump or limiting pump performance. To reassemble a UB pump follow disassembly instructions 1 through 14 in reverse order and be sure to adhere to the following assembly hints & tips:

ASSEMBLY:

Upon performing applicable maintenance to the air distribution system, the pump can now be reassembled. Please refer to the disassembly instructions for photos and parts placement. To reassemble the pump, follow the disassembly instructions in reverse order. The air distribution system needs to be assembled first, then the diaphragms and finally the wetted path. Please find the applicable torque specifications on this page. The following tips will assist in the assembly process.

- Before installing or inserting any components, moisten all parts with distilled water for lubrication. DO NOT use any oil or silicone lubricants as these may damage the pump or render it inoperable.
- When tightening the air valve end into the center section, be sure to use the tool included with pump upon arrival.
- Continue to tighten the air valve ends until the top of the end cap is flush with the center section.
- To prevent damage to o-rings in center section from being damaged upon insertion, carefully fold into kidney shape before insertion (see figure on right). After inserting, carefully smooth o-rings with a tie rod before inserting shaft.
- When reattaching diaphragms to shaft, first insert and tighten the shaft stud into the diaphragm piston using a hex head wrench. Then proceed to hand-tighten diaphragms onto end of shaft. If diaphragms are hand-tight on the shaft and the bolt holes do not line up, attempt to continue rotating clockwise until holes align if possible. Reverse rotation to align holes only if it is impossible to align holes through clockwise rotation.
- To prevent seizing of hardware upon reassembly, spray a PTFE lubricant on the tie-rod threads before tightening.



UB2 MAXIMUM TORQUE SPECIFICATIONS

DESCRIPTION OF PART	TORQUE
Liquid Chamber to Center Section	15 N-m (11 ft.-lbs)

Elastomer Kits

Your Solutions — Wrapped Up

Program Details:

**Elastomer & ADS
Repair Kits**

All Sizes Available

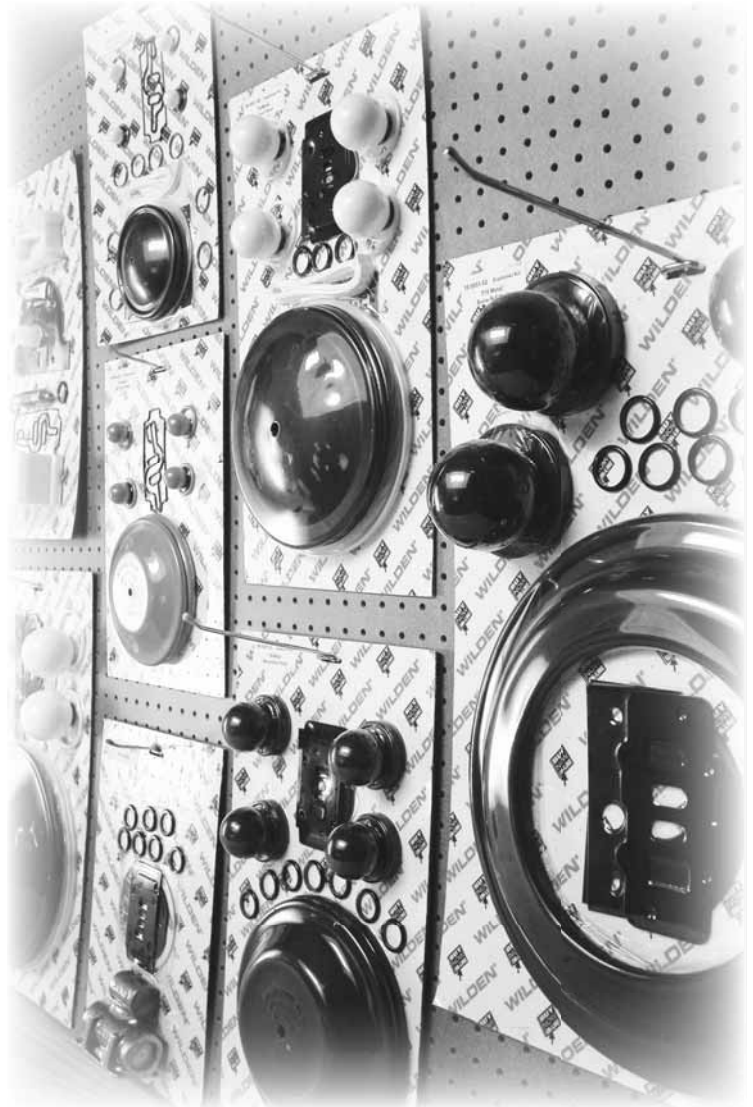
**PTFE, Rubber &
TPE Elastomers**

**One Part Number
Simplifies Inventory**

Eliminates Order Errors

Reduces Re-Build Time

Rejuvenates Your Pump



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A DOVER COMPANY

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www.wildenpump.com

VALVE LIFTING MAGNETS



CAUTION: The valve lifting magnets are very strong NdFeB magnets. An appropriate safety distance of 500 mm (19.7") must be kept from all devices and objects which can be damaged by magnetism or impaired in their function. This includes persons with cardiac pacemakers, credit cards, ED cards, hearing aids, data media, televisions, monitors, computers, video tapes, mechanical clocks and loudspeakers. Magnets are very brittle and will become damaged if dropped on hard surface.

To raise the valve balls from the valve seats, position magnets in the same manner as indicated by arrows in picture above. To remove fluid from pump, operate pump very slowly. This allows diaphragms to displace fluid through inlet of pump.

CIP & SIP CLEANING

CIP and SIP Cleaning

The design of the UB2 Series pump allows for ease of cleaning. The UB2 pump can be cleaned and sterilized in place without disassembly.

To Clean Pump

Clean in place by slowly cycling pump and drawing the cleaning fluid into the pump inlet. Limit the cleaning cycle time to 30 minutes maximum. Limit the cleaning fluid temperature to 100°C (212°F) maximum.

To Sterilize Pump

Sterilize in place by slowly cycling pump and drawing steam into the pump inlet. Limit the cleaning cycle time to 30 minutes maximum. Limit the steam pressure to 1 bar (14 psig) maximum.

Stroke Sensor

The Unitec™ UB Series pumps are available with an optional Stroke Counter to count pump strokes. To count the pump strokes, a sensor is installed in the center section assembly. This allows each stroke to be counted without coming into contact with or interfering with diaphragm movement or pump operation. This safe form of monitoring can be used for preventative maintenance which can reduce maintenance costs and equipment downtime. As an added benefit, the Stroke Counter available on the UB Series pumps can be connected to an external controller; the controller, combined with a solenoid valve can be used for batching, metering and other electrically controlled operations. To order a UB Series pump with stroke sensor use specialty code 812. To order a UB Series pump with stroking counting pneumatic pressure transmitter use specialty code 814.

Diaphragm Sensor

Along with a stroke counter, the Unitec™ UB Series pumps are also available with a Diaphragm Monitoring System. Even though the UB Series pumps are fitted with an integral piston PTFE diaphragm for optimum flex life, the diaphragm remains a primary wear part. The Diaphragm Monitoring system is mounted to the pump muffler and detects diaphragm failure when pumping conductive and nonconductive materials. When connected to an external controller, the diaphragm monitoring system can be used to shut down the pump when a diaphragm failure is detected. The use of an effective diaphragm monitoring system protects non-wetted components, reduces hazardous emissions, improves containment and reduces maintenance costs. To order a UB Series pump with a diaphragm sensor use specialty code 816.

Note: If the pump is being used in an extremely humid environment, the Unitec™ UB Series Diaphragm Monitoring System can record a false failure. This can happen despite the use of a dried compressed air source.

Pump Solids Maximize Your Yield

Is your process limping along with a pump that wasn't designed to transfer sanitary solids? Are your inspection, cleaning, and maintenance costs too high? Are you looking for a pump that is actually designed for your application?

Wilden has your answer. The Saniflo™ VC pump can transfer your product without damage from bruising or shearing. The pump is specifically designed to meet your performance needs while minimizing cleaning and inspection time. Contact us for a unique perspective and proven results. The Saniflo™ VC will handle any food product that you can dish out.

- **3 sizes available**
- **Solids passage to 152 mm (6")**
- **Stainless steel construction**
- **Only 2 moving parts**
- **Low liquid content requirement**
- **Complies with USDA requirements**
- **Variable flow**
- **CE marked**
- **Low voltage directive by TÜV**
- **PED & machinery directive**



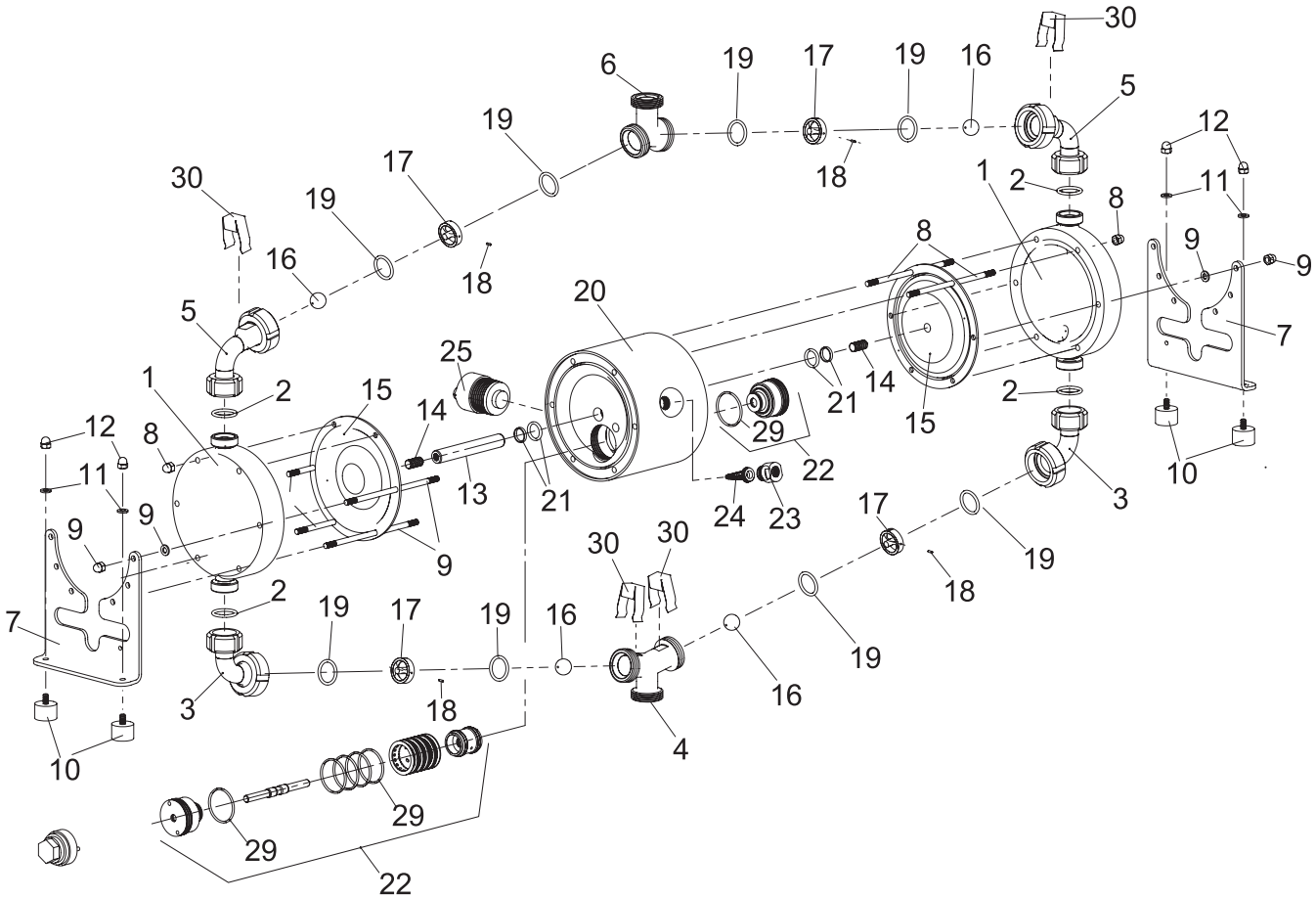
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 www.wildenpump.com

EXPLODED VIEW AND PARTS LISTING

UB2 METAL

EXPLODED VIEW



EXPLODED VIEW AND PARTS LISTING

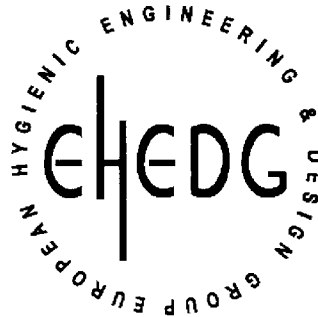
UB2 METAL

PARTS LISTING

Item	Description	Qty.	UB2/S2DDE/EPL/EP/SEP P/N	UB2/S2DDE/LEL/TF/STF P/N
1	Liquid Chamber	2	U5-20-140-23	U5-20-140-23
2	O-ring, Liquid Chamber	4	U9-17-557-73	U9-17-557-60
3	Elbow, Inlet	2	U5-20-138-23	U5-20-138-23
4	Suction Port, Code A (DIN 11864)	1	U5-20-441-23	U5-20-441-23
	Suction Port, Code N1 (Naue)	1	U5-20-041-23	U5-20-041-23
	Suction Port, Code N2 (Neumo)	1	U5-20-141-23	U5-20-141-23
	Suction Port, Code M (DIN 11851)	1	U5-20-241-23	U5-20-241-23
	Suction Port, Code T (Tri-Clamp® Style)	1	U5-20-341-23	U5-20-341-23
5	Elbow, Discharge	2	U5-20-139-23	U5-20-139-23
6	Discharge Port, Code A (DIN 11864)	1	U5-20-442-23	U5-20-442-23
	Discharge Port, Code N1 (Naue)	1	U5-20-042-23	U5-20-042-23
	Discharge Port, Code N2 (Neumo)	1	U5-20-142-23	U5-20-142-23
	Discharge Port, Code M (DIN 11851)	1	U5-20-242-23	U5-20-242-23
	Discharge Port, Code T (Tri-Clamp® Style)	1	U5-20-342-23	U5-20-342-23
7	Stand	2	U5-20-143-22	U5-20-143-22
8	Housing Bolt, cpl., Short	2	U5-20-154-22	U5-20-154-22
9	Housing Bolt, cpl., Long	4	U5-20-156-22	U5-20-156-22
10	Shock Absorber	4	U1-15-022-78	U1-15-022-78
11	Disc, DIN 125	4	U9-06-151-60	U9-06-151-60
12	Nut, DIN 1587	4	U9-06-106-22	U9-06-106-22
13	Shaft	1	U5-20-145-22	U5-20-145-22
14	Set Screw, Shaft, DIN 913	2	U9-10-220-22	U9-10-220-22
15	Diaphragm	2	U1-15-031-73	U1-15-031-67
16	Valve Ball	4	U1-15-032-82	U1-15-032-89
17	Valve Stop	4	U5-20-044-23	U5-20-044-23
18	Set Screw, DIN 7	4	U9-02-401-22	U9-02-401-22
19	O-ring, Valve Stop	8	U9-23-668-73	U9-23-668-60
20	Center Block	1	U5-20-053-56	U5-20-053-56
21	Shaft Piston Ring, cpl.	2	U1-15-041-64	U1-15-041-64
22	Uni-Flo™ Air Valve	1	U5-20-101-84	U5-20-101-84
23	Air Inlet	1	U1-15-047-84	U1-15-047-84
24	Air Filter	1	U1-15-043-51	U1-15-043-51
25	Muffler	1	U1-15-244-51	U1-15-244-51
29*	O-ring, Air Valve Housing	6	U9-35-504-71	U9-35-504-71
30	Valve Lifting Magnet	4	U5-20-046-22	U5-20-046-22

*Uni-Flo™ air valve includes item 29.

CERTIFICATE OF COMPLIANCE



*TNO Certification
hereby declares that the product*

*BIOCOR Diaphragm Pump,
Size DN10 up to and including DN100*

From

ALMATEC Maschinenbau GmbH

*has been evaluated for compliance with the Hygienic Equipment Design Criteria
of the EHEDG, Document No. 8, by:*

*TNO Quality of Life at Zeist, Netherlands
and meets the criteria of this document as demonstrated by:*

Evaluation Report No. V658C

Signed _____

Evaluation Officer

Date: September 19, 2005

Signed _____

Managing Director, TNO Certification

Date: September 19, 2005



Certificate No. C05-6875

*TNO Certification BV, P.O. Box 541, 7300 AM Apeldoorn, Netherlands
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WARRANTY

Each and every product manufactured by Wilden Pump and Engineering, LLC is built to meet the highest standards of quality. Every pump is functionally tested to insure integrity of operation.

Wilden Pump and Engineering, LLC warrants that pumps, accessories and parts manufactured or supplied by it to be free from defects in material and workmanship for a period of five (5) years from date of installation or six (6) years from date of manufacture, whichever comes first. Failure due to normal wear, misapplication, or abuse is, of course, excluded from this warranty.

Since the use of Wilden pumps and parts is beyond our control, we cannot guarantee the suitability of any pump or part for a particular application and Wilden Pump and Engineering, LLC shall not be liable for any consequential damage or expense arising from the use or misuse of its products on any application. Responsibility is limited solely to replacement or repair of defective Wilden pumps and parts.

All decisions as to the cause of failure are the sole determination of Wilden Pump and Engineering, LLC.

Prior approval must be obtained from Wilden for return of any items for warranty consideration and must be accompanied by the appropriate MSDS for the product(s) involved. A Return Goods Tag, obtained from an authorized Wilden distributor, must be included with the items which must be shipped freight prepaid.

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PUMP INFORMATION			
Item # _____		Serial # _____	
Company Where Purchased _____			
YOUR INFORMATION			
Company Name _____			
Industry _____			
Name _____		Title _____	
Street Address _____			
City _____	State _____	Postal Code _____	Country _____
Telephone _____	Fax _____	E-mail _____	Web Address _____
Number of pumps in facility? _____		Number of Wilden pumps? _____	
Types of pumps in facility (check all that apply): <input type="checkbox"/> Diaphragm <input type="checkbox"/> Centrifugal <input type="checkbox"/> Gear <input type="checkbox"/> Submersible <input type="checkbox"/> Lobe			
<input type="checkbox"/> Other _____			
Media being pumped? _____			
How did you hear of Wilden Pump? <input type="checkbox"/> Trade Journal <input type="checkbox"/> Trade Show <input type="checkbox"/> Internet/E-mail <input type="checkbox"/> Distributor			
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