XP200
Advanced™ Series METAL Pumps

Advance your process

EOM
Engineering
Operation &
Maintenance

WILDEN®
A DOVER COMPANY

WIL-11080-E-08
REPLACES WIL-11080-E-07
# TABLE OF CONTENTS

**SECTION 1** CAUTIONS—READ FIRST! .................................................. 1

**SECTION 2** WILDEN PUMP DESIGNATION SYSTEM .......................... 2

**SECTION 3** HOW IT WORKS—PUMP & AIR DISTRIBUTION SYSTEM ......... 3

**SECTION 4** DIMENSIONAL DRAWINGS ............................................. 4

**SECTION 5** PERFORMANCE

XP200 Performance Curves
   Rubber-Fitted ............................................................................. 5
   Suction Lift Curves ..................................................................... 5

**SECTION 6** SUGGESTED INSTALLATION, OPERATION & TROUBLESHOOTING .... 6

**SECTION 7** EXPLODED VIEW & PARTS LISTING

XP200 Rubber Fitted ................................................................. 9

**SECTION 8** ELASTOMER OPTIONS .................................................... 11
Section 1

CAUTIONS—READ FIRST!

**CAUTION:** Do not apply compressed air to the exhaust port — pump will not function.

**CAUTION:** Do not, under any circumstance loosen the set screw located at the adjuster dial of the Pro-Flo X™ pump. If the set screw is loose when the pump is pressurized, it could eject and cause injury to anyone in the area.

**CAUTION:** Do not over-lubricate air supply — excess lubrication will reduce pump performance. Pump is pre-lubed.

**Temperature Limits:**

- **Neoprene:** -18°C to 93°C (0°F to 200°F)
- **Buna-N:** -12°C to 82°C (10°F to 180°F)
- **EPDM:** -51°C to 138°C (-60°F to 280°F)
- **Viton®:** -40°C to 177°C (-40°F to 350°F)
- **Saniflex™:** -29°C to 104°C (-20°F to 220°F)
- **Polytetrafluoroethylene (PTFE):** 4°C to 104°C (40°F to 220°F)
- **Polyurethane:** -12°C to 66°C (10°F to 150°F)

**NOTE:** Not all materials are available for all models. Refer to Section 2 for material options for your pump.

**NOTE:** UL listed configured pumps have the following temperature limits:
- UL 79 Buna-N: -12.2°C (10°F) to 52°C (125°F)
- UL 79 PTFE: 4.4°C (40°F) to 52°C (125°F)

**CAUTION:** Canadian Standards Association (CSA) configured pumps should not be used in temperatures lower than 0.0°C to 51.6°C (32°F to 125°F).

**CAUTION:** When choosing pump materials, be sure to check the temperature limits for all wetted components. Example: Viton® has a maximum limit of 177°C (350°F) but polypropylene has a maximum limit of only 79°C (175°F).

**CAUTION:** Maximum temperature limits are based upon mechanical stress only. Certain chemicals will significantly reduce maximum safe operating temperatures. Consult Chemical Resistance Guide (E4) for chemical compatibility and temperature limits.

**WARNING:** Prevention of static sparking — If static sparking occurs, fire or explosion could result. Pump, valves, and containers must be grounded to a proper grounding point when handling flammable fluids and whenever discharge of static electricity is a hazard.

**CAUTION:** Canadian Standards Association (CSA) configured pumps must be electrically grounded using the grounding conductor provided. Improper grounding can cause improper and dangerous operation.

**CAUTION:** For U.L. listed pumps, do not exceed 3.4 bar (50 psig) air supply pressure.

**CAUTION:** Do not exceed 8.6 bar (125 psig) air supply pressure.

**CAUTION:** Canadian Standards Association (CSA) configured pumps should not exceed 6.9 bar (100 psig) natural gas supply pressure.

**CAUTION:** The process fluid and cleaning fluids must be chemically compatible with all wetted pump components. Consult Chemical Resistance Guide (E4).

**CAUTION:** Do not exceed 82°C (180°F) air inlet temperature for Pro-Flo X™ models.

**CAUTION:** Pumps should be thoroughly flushed before installing into process lines. FDA and USDA approved pumps should be cleaned and/or sanitized before being used.

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

**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. Disconnect all intake, discharge and air lines. Drain the pump by turning it upside down and allowing any fluid to flow into a suitable container.

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

**NOTE:** When installing PTFE diaphragms, it is important to tighten outer pistons simultaneously (turning in opposite directions) to ensure tight fit. (See torque specifications in Section 7.)

**NOTE:** Cast Iron PTFE-fitted pumps come standard from the factory with expanded PTFE gaskets installed in the diaphragm bead of the liquid chamber. Teflon® gaskets cannot be re-used. Consult PS-TG for installation instructions during reassembly. This excludes Pro-Flo® P200 Advanced™ metal pumps.

**NOTE:** Before starting disassembly, mark a line from each liquid chamber to its corresponding air chamber. This line will assist in proper alignment during reassembly.

**CAUTION:** Pro-Flo X™ pumps can be used for submersible applications, when using the Pro-Flo X™ submersible option. Turbo-Flo™ pumps can also be used for submersible applications when using the Turbo-Flo™ submersible option.

**CAUTION:** Tighten all hardware prior to installation.

**CAUTION:** The gas outlet of CSA configured pumps must be vented to a safe location in accordance with local codes or, in the absence of local codes, an industry or nationally recognized code having jurisdiction over the specified installation.

**CAUTION:** For U.L. listed pumps, all pipe connections are to be made using U.L. classified gasoline-resistant pipe compound.

**CAUTION:** For U.L. listed pumps all installations must conformation to NFPA 30, NFPA 30A, and all other applicable codes.

**CAUTION:** For U.L. listed pumps, air exhaust port is to be connected to pipe or tubing to be routed outdoors or other location determined to be equivalent.

**CAUTION:** For U.L. listed pumps, pump is to be grounded using the jam-nut located at the top of the long vertical carriage bolt. The ground connection is marked with a tag having the grounding symbol.
**XP200**

**ADVANCED™ METAL**

25 mm (1") Pump

Maximum Flow Rate: 212 lpm (56 gpm)

### Material Codes

<table>
<thead>
<tr>
<th>Model</th>
<th>Wetted Parts &amp; Outer Piston</th>
<th>Center Section</th>
<th>Air Valve</th>
<th>Valve Ball</th>
</tr>
</thead>
<tbody>
<tr>
<td>P200</td>
<td>AA = Aluminum / Aluminum</td>
<td>SS = Stainless Steel / Stainless Steel</td>
<td>AA = Aluminum</td>
<td>BN = BUNA-N (Red Dot)</td>
</tr>
<tr>
<td>XP200</td>
<td>SS = Stainless Steel / Stainless Steel</td>
<td>WW = Ductile Iron / Ductile Iron</td>
<td>PP = Polypropylene</td>
<td>FS = SANIFLEX™ (Cream)</td>
</tr>
</tbody>
</table>

### Diaphragms

- BNS = BUNA-N (Red Dot)
- EPS = EPDM (Blue Dot)
- FSS = SANIFLEX™ (Hytrel® (Cream))
- NES = NEOPRENE (Green Dot)
- PUS = POLYURETHANE (Clear)
- TUE = PTFE w/EPDM BACK-UP (White)
- TNU = PTFE w/NEOPRENE BACK-UP (White)
- TSU = PTFE w/SANIFLEX™ BACK-UP (White)
- VTS = VITON® (White Dot)
- WFS = WIL-FLEX™ [Santoprene® (Orange Dot)]
- XBS = CONDUCTIVE BUNA-N (Two Red Dots)
- TXU = PTFE w/CONDUCTIVE BUNA-N BACK-UP
- ESD = BUNA-N BACK-UP

### Valve Balls

- BN = BUNA-N (Red Dot)
- FS = SANIFLEX™ (Cream)
- EP = EPDM
- NE = NEOPRENE
- PU = POLYURETHANE (Clear)
- TF = PTFE (White)
- VT = VITON® (White Dot)
- WF = WIL-FLEX™ [Santoprene® (Orange Dot)]

### Valve Seat & Manifold O-Ring

- BN = BUNA-N
- FS = SANIFLEX™ (Cream)
- EP = EPDM
- NE = NEOPRENE
- PU = POLYURETHANE (Brown)
- TF = PTFE (White)
- VT = VITON®
- WF = WIL-FLEX™ [Santoprene®]

### Specialty Codes

- 0014 25 mm (1") BSPT side-ported inlet and discharge manifold
- 0090 25 mm (1") NPT center-ported inlet and discharge manifold, CSA
- 0391 25 mm (1") NPT center-ported inlet and discharge manifold, CSA
- 0392 25 mm (1") NPT side-ported inlet and discharge manifold, CSA
- 0492 U.L. Approved, Side-ported (1") inlet and discharge manifold
- 0493 U.L. Approved, Center Ported NPT, Turbo "drop-in" (1") Inlet facing air inlet, 3/4" discharge facing exhaust
- 0494 U.L. Approved, Center Ported NPT, Pro-Flo "drop-in" (1") inlet facing exhaust, 3/4" discharge facing air inlet

### Notes

1. The Wilden UL 79 Listed products covered by this manual are PX200 models followed by AA or SS, followed by AA, followed by A, followed by BNS or TNU, followed by BN or TF, followed by A or S, followed by BN or TF, followed by 0492, 0493, or 0494. Wilden UL Listed pumps have been evaluated for use at a 25 C (77F) ambient temperature with a maximum inlet pressure of 3.4 Bar (50 PSI).

2. Most elastomeric materials use colored dot for identification.

Nordel® and Viton® is a registered trademark of DuPont Dow Elastomers.

WILGEN PUMP & ENGINEERING, LLC
The Wilden diaphragm pump is an air-operated, positive displacement, self-priming pump. These drawings show 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 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 atmosphere through the exhaust port of the pump. The movement of diaphragm B toward the center 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 while pulling diaphragm A to the center. 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 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 suction stroke. As the pump reaches its original starting point, each diaphragm has gone through one suction 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 Pro-Flo® patented air distribution system incorporates two moving parts: the air valve spool and the pilot spool. The heart of the system is the air valve spool and air valve. This valve design incorporates an unbalanced spool. The smaller end of the spool is pressurized continuously, while the large end is alternately pressurized and exhausted to move the spool. The spool directs pressurized air to one air chamber while exhausting the other. The air causes the main shaft/diaphragm assembly to shift to one side — discharging liquid on that side and pulling liquid in on the other side. When the shaft reaches the end of its stroke, the inner piston actuates the pilot spool, which pressurizes and exhausts the large end of the air valve spool. The repositioning of the air valve spool routes the air to the other air chamber.
Section 4

DIMENSIONAL DRAWINGS

XP200 Advanced™ Metal—Threaded

DIMENSIONS

<table>
<thead>
<tr>
<th>ITEM</th>
<th>METRIC (mm)</th>
<th>STANDARD (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>361</td>
<td>14.2</td>
</tr>
<tr>
<td>B</td>
<td>36</td>
<td>1.4</td>
</tr>
<tr>
<td>C</td>
<td>163</td>
<td>6.4</td>
</tr>
<tr>
<td>D</td>
<td>254</td>
<td>10.0</td>
</tr>
<tr>
<td>E</td>
<td>287</td>
<td>11.3</td>
</tr>
<tr>
<td>F</td>
<td>56</td>
<td>2.2</td>
</tr>
<tr>
<td>G</td>
<td>287</td>
<td>11.3</td>
</tr>
<tr>
<td>H</td>
<td>71</td>
<td>2.8</td>
</tr>
<tr>
<td>J</td>
<td>122</td>
<td>4.8</td>
</tr>
<tr>
<td>K</td>
<td>160</td>
<td>6.3</td>
</tr>
<tr>
<td>L</td>
<td>206</td>
<td>8.1</td>
</tr>
<tr>
<td>M</td>
<td>173</td>
<td>6.8</td>
</tr>
<tr>
<td>N</td>
<td>104</td>
<td>4.1</td>
</tr>
<tr>
<td>P</td>
<td>127</td>
<td>5.0</td>
</tr>
<tr>
<td>R</td>
<td>10</td>
<td>0.4</td>
</tr>
</tbody>
</table>
Flow rates indicated on chart were determined by pumping water.

For optimum life and performance, pumps should be specified so that daily operation parameters will fall in the center of the pump performance curve.

Caution: Do not exceed 8.6 bar (125 psig) air supply pressure. Canadian Standards Association (CSA) configured pumps should not exceed 6.9 bar (100 psig) natural gas supply pressure. Please read all cautions and suggested installation sections before operating any Wilden product.
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 standards 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 at least the equivalent or larger than the diameter size 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 the equivalent or larger than the diameter of the pump discharge which will help reduce 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 balanced against each other to maximum advantage.

ACCESS: First of all, the location should be accessible. 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. Use air pressure up to a maximum of 8.6 bar (125 psig) depending on pumping requirements.

For best results, the pumps should use a 5μ (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.

NOTE: Canadian Standards Association (CSA) configured pumps should not exceed 6.9 bar (100psig) natural gas supply pressure. Only CSA configured pumps should be operated using natural gas.

SOLENOID OPERATION: When operation is controlled by a solenoid valve in the air line, three-way valves should be used. This valve allows trapped air between the valve and the pump to bleed off which improves pump performance. Pumping volume can be estimated by counting the number of strokes per minute and then multiplying the figure by the displacement per stroke.

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.

Section 6

SU S G E S T E D  I N S T A L L A T I O N

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.

For U.L. listed pumps, all installation must conform with NFPA 30, NFPA 30A, and other applicable codes. All pipe connections are to be made using U.L. classified gasoline-resistant pipe compound. Exhaust port is to be connected to pipe or tubing to be routed outdoors or other location determined to be equivalent.

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. Flexible connections between the pump and rigid piping will also 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 (SD Equalizer®) 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 airtight 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.

SUBMERSIBLE APPLICATIONS: Pro-Flo X™ pumps can be used for submersible applications, when using the Pro-Flo X™ submersible option. Turbo-Flo™ pumps can also be used for submersible applications when using the Turbo-Flo™ submersible option.

NOTE: Pro-Flo® and Accu-Flo® pumps are not submersible.

ALL WILDEN PUMPS ARE CAPABLE OF PASSING SOLIDS. A STRAINER SHOULD BE USED ON THE PUMP INTAKE TO ENSURE THAT THE PUMP’S RATED SOLIDS CAPACITY IS NOT EXCEEDED.

CAUTION: DO NOT EXCEED 8.6 BAR (125 PSIG) AIR SUPPLY PRESSURE.

CAUTION: CANDAIN STANDARDS ASSOCIATION (CSA) CONFIGURED PUMPS SHOULD NOT EXCEED 6.9 BAR (100PSIG) NATURAL GAS SUPPLY PRESSURE.

CAUTION: FOR U.L. LISTED PUMPS, DO NOT EXCEED 3.4 BAR (50 PSIG) AIR SUPPLY PRESSURE.
NOTE: In the event of a power failure, the shut off valve should be closed, if the 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.
OPERATION: The Pro-Flo® and Pro-Flo X™ pumps are pre-lubricated, and do not require in-line lubrication. Additional lubrication will not damage the pump, however if the pump is heavily lubricated by an external source, the pump’s internal lubrication may be washed away. If the pump is then moved to a non-lubricated location, it may need to be disassembled and re-lubricated as described in the ASSEMBLY/DISASSEMBLY INSTRUCTIONS.

Pump discharge rate can be controlled by limiting the volume and/or pressure of the air supply to the pump. A regulator is used to control air pressure while a needle valve is used to control 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. (See Section 5.) 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 restarted by reducing the fluid discharge pressure or increasing the air inlet pressure. The Pro-Flo® and Pro-Flo X™ 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 0.3 Bar (5 psig) above startup 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. Check for extreme air leakage (blow by) which would indicate worn seals/bores in the air valve, pilot spool, main shaft.
4. Disassemble pump and check for obstructions in the air passageways or objects which would obstruct the movement of internal parts.
5. 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.
6. Check for broken inner piston which will cause the air valve spool to be unable to shift.
7. Remove plug from pilot spool exhaust.

Pump runs but little or no 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.
1. 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.
1. Check for ruptured diaphragm.
2. Check tightness of outer pistons (refer to Section 7).
3. Check tightness of fasteners and integrity of o-rings and seals, especially at intake manifold.
4. Ensure pipe connections are airtight.

Product comes out air exhaust.
1. Check for diaphragm rupture.
2. Check tightness of outer pistons to shaft.
ALL CIRCLED PART IDENTIFIERS ARE INCLUDED IN REPAIR KITS (see section 9).
<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Qty</th>
<th>P200/AAPPP P/N</th>
<th>P200/WSPPP P/N</th>
<th>P200/SSPPP P/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pro-Flo® Air Valve Assembly¹</td>
<td>1</td>
<td>01-2010-20</td>
<td>01-2010-20</td>
<td>01-2010-20</td>
</tr>
<tr>
<td>2</td>
<td>End Cap</td>
<td>1</td>
<td>01-2332-20</td>
<td>01-2332-20</td>
<td>01-2332-20</td>
</tr>
<tr>
<td>3</td>
<td>End Cap O-ring</td>
<td>1</td>
<td>01-2395-52</td>
<td>01-2395-52</td>
<td>01-2395-52</td>
</tr>
<tr>
<td>4</td>
<td>Air Valve Gasket</td>
<td>1</td>
<td>01-2615-52</td>
<td>01-2615-52</td>
<td>01-2615-52</td>
</tr>
<tr>
<td>5</td>
<td>Muffler Plate Gasket</td>
<td>1</td>
<td>01-3505-52</td>
<td>01-3505-52</td>
<td>01-3505-52</td>
</tr>
<tr>
<td>6</td>
<td>Muffler</td>
<td>1</td>
<td>01-3181-20</td>
<td>01-3181-20</td>
<td>01-3181-20</td>
</tr>
<tr>
<td>7</td>
<td>Screw, SHC, 1/4&quot;-20 x 3&quot;</td>
<td>4</td>
<td>01-6001-03</td>
<td>01-6001-03</td>
<td>01-6001-03</td>
</tr>
<tr>
<td>8</td>
<td>Muffler</td>
<td>1</td>
<td>02-3510-99</td>
<td>02-3510-99</td>
<td>02-3510-99</td>
</tr>
<tr>
<td>9</td>
<td>Center Section</td>
<td>1</td>
<td>02-3142-20</td>
<td>02-3142-20</td>
<td>02-3142-20</td>
</tr>
<tr>
<td>10</td>
<td>Reducer Bushing</td>
<td>1</td>
<td>01-6950-20</td>
<td>01-6950-20</td>
<td>01-6950-20</td>
</tr>
<tr>
<td>11</td>
<td>Removable Pilot Sleeve Assy.</td>
<td>1</td>
<td>02-3880-99</td>
<td>02-3880-99</td>
<td>02-3880-99</td>
</tr>
<tr>
<td>12</td>
<td>Pilot Spool Retaining O-ring</td>
<td>2</td>
<td>04-2650-49-708</td>
<td>04-2650-49-708</td>
<td>04-2650-49-708</td>
</tr>
<tr>
<td>13</td>
<td>Shaft Seal</td>
<td>2</td>
<td>02-3210-55-225</td>
<td>02-3210-55-225</td>
<td>02-3210-55-225</td>
</tr>
<tr>
<td>14</td>
<td>Retaining Snap Ring</td>
<td>2</td>
<td>00-2650-03</td>
<td>00-2650-03</td>
<td>00-2650-03</td>
</tr>
<tr>
<td>15</td>
<td>Shaft</td>
<td>1</td>
<td>02-3810-03</td>
<td>02-3810-03</td>
<td>02-3810-03</td>
</tr>
<tr>
<td>16</td>
<td>Disc Spring</td>
<td>2</td>
<td>02-6802-08</td>
<td>02-6802-08</td>
<td>02-6802-08</td>
</tr>
<tr>
<td>17</td>
<td>Inner Piston</td>
<td>2</td>
<td>02-3701-01</td>
<td>02-3701-01</td>
<td>02-3701-01</td>
</tr>
<tr>
<td>18</td>
<td>Diaphragm</td>
<td>2</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>19</td>
<td>Outer Piston</td>
<td>2</td>
<td>02-4550-01</td>
<td>02-4550-03</td>
<td>02-4550-03</td>
</tr>
<tr>
<td>20</td>
<td>Valve Ball</td>
<td>4</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>21</td>
<td>Manifold O-ring</td>
<td>4</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>22</td>
<td>Valve Seat</td>
<td>4</td>
<td>02-1125-01</td>
<td>02-1125-08</td>
<td>02-1125-03</td>
</tr>
<tr>
<td>23</td>
<td>Valve Seat O-ring</td>
<td>4</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>24</td>
<td>Liquid Chamber</td>
<td>2</td>
<td>02-5015-01</td>
<td>02-5015-02</td>
<td>02-5015-03</td>
</tr>
<tr>
<td>25</td>
<td>Inlet Manifold, ANSI Flange</td>
<td>1</td>
<td>02-5090-01</td>
<td>02-5090-02</td>
<td>02-5090-03</td>
</tr>
<tr>
<td></td>
<td>Inlet Manifold, DIN Flange</td>
<td>1</td>
<td>02-5091-01</td>
<td>02-5091-02</td>
<td>02-5091-03</td>
</tr>
<tr>
<td></td>
<td>Inlet Manifold, Side Ported, 1&quot; NPT</td>
<td>1</td>
<td>02-5095-01</td>
<td>02-5095-02</td>
<td>02-5095-03</td>
</tr>
<tr>
<td></td>
<td>Inlet Manifold, Side Ported, 1&quot; BSPT</td>
<td>1</td>
<td>02-5096-01</td>
<td>02-5096-02</td>
<td>02-5096-03</td>
</tr>
<tr>
<td></td>
<td>Inlet Manifold, Center Ported, 1&quot; NPT</td>
<td>1</td>
<td>02-5095-01-677</td>
<td>02-5095-02-677</td>
<td>02-5095-03-677</td>
</tr>
<tr>
<td></td>
<td>Inlet Manifold, Center Ported, 1&quot; BSPT</td>
<td>1</td>
<td>02-5096-01-678</td>
<td>02-5096-02-678</td>
<td>02-5096-03-678</td>
</tr>
<tr>
<td>26</td>
<td>Discharge Manifold, ANSI Flange</td>
<td>1</td>
<td>02-5030-01</td>
<td>02-5030-02</td>
<td>02-5030-03</td>
</tr>
<tr>
<td>27</td>
<td>Screw, HHC, 5/16&quot;-18 x 1&quot;</td>
<td>32</td>
<td>08-6180-03-42</td>
<td>08-6180-03-42</td>
<td>08-6180-03-42</td>
</tr>
<tr>
<td>28</td>
<td>Washer, 5/16&quot;</td>
<td>32</td>
<td>02-6731-03</td>
<td>02-6731-03</td>
<td>02-6731-03</td>
</tr>
<tr>
<td>29</td>
<td>Pipe Plug, 1&quot; NPT</td>
<td>2</td>
<td>02-7010-01</td>
<td>02-7010-02</td>
<td>02-7010-03</td>
</tr>
</tbody>
</table>

¹ Air Valve Assembly includes items 2 and 3.

All boldface items are primary wear parts.

* Refer to Elastomer Options in Section 9.
### Elastomer Options

#### XP200 Advanced™ Metal Pumps

<table>
<thead>
<tr>
<th>Material</th>
<th>Diaphragm</th>
<th>Back-Up Diaphragm</th>
<th>Valve Ball</th>
<th>Manifold O-Ring</th>
<th>Valve Seat O-Ring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyurethane</td>
<td>02-1010-50</td>
<td>-</td>
<td>02-1085-50</td>
<td>02-1372-50</td>
<td>02-1205-50</td>
</tr>
<tr>
<td>Neoprene</td>
<td>02-1010-51</td>
<td>02-1060-51</td>
<td>02-1085-51</td>
<td>02-1372-51</td>
<td>02-1205-51</td>
</tr>
<tr>
<td>Buna</td>
<td>02-1010-52</td>
<td>-</td>
<td>02-1085-52</td>
<td>70-1280-52</td>
<td>02-1205-52</td>
</tr>
<tr>
<td>Viton®</td>
<td>02-1010-53</td>
<td>-</td>
<td>02-1085-53</td>
<td>02-1372-53</td>
<td>02-1205-53</td>
</tr>
<tr>
<td>EPDM</td>
<td>02-1010-54</td>
<td>02-1060-54</td>
<td>02-1085-54</td>
<td>02-1372-54</td>
<td>02-1205-54</td>
</tr>
<tr>
<td>PTFE</td>
<td>02-1010-55</td>
<td>-</td>
<td>02-1085-55</td>
<td>70-1280-55</td>
<td>02-1205-55</td>
</tr>
<tr>
<td>Saniflex™</td>
<td>02-1010-56</td>
<td>02-1060-56</td>
<td>02-1085-56</td>
<td>02-1372-56</td>
<td>02-1205-56</td>
</tr>
<tr>
<td>Wil-Flex™</td>
<td>02-1010-58</td>
<td>-</td>
<td>02-1085-58</td>
<td>02-1372-58</td>
<td>02-1205-58</td>
</tr>
</tbody>
</table>

Neoprene and EPDM back-up diaphragms are available upon request. Please consult your local distributor.

#### Elastomer Kit Options

<table>
<thead>
<tr>
<th>Neoprene</th>
<th>Buna</th>
<th>Viton®</th>
<th>EPDM</th>
</tr>
</thead>
<tbody>
<tr>
<td>02-9572-51</td>
<td>02-9572-52</td>
<td>02-9572-53</td>
<td>02-9572-54</td>
</tr>
<tr>
<td>PTFE</td>
<td>Wil-Flex™</td>
<td>Saniflex™</td>
<td>Polyurethane</td>
</tr>
<tr>
<td>02-9572-55</td>
<td>02-9572-58</td>
<td>02-9572-56</td>
<td>02-9572-50</td>
</tr>
</tbody>
</table>