SANDPIPER®
A WARREN RUPP, INC. BRAND

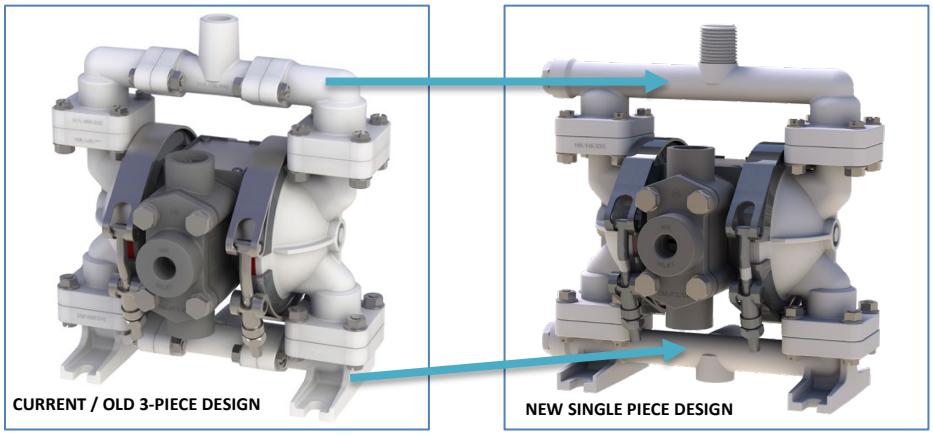
800 North Main Street, Mansfield, Ohio 44902

PCN # 4/20-01

Product Change Notification
PB ¼" Non-Metallic Manifold Design Update

Issue Date: April 24, 2020
Effective Date: June 1, 2020

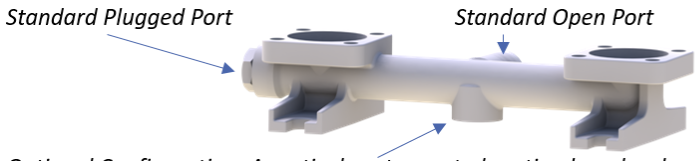
Change Overview: Both suction and discharge 3-piece manifolds are transitioning to single piece multi-port manifolds.



Benefits: The new single piece manifold design results in improved durability, serviceability and an overall complexity reduction with 85% fewer manifold parts (26 parts down to 4). This greatly reduces potential leak paths while improving speed & ease of service/maintenance. The performance curve has also been updated to reflect a maximum flow rating of 5 GPM (19 LPM) compared to the old design which was rated at 4 GPM (15 LPM). Overall pump weights have been slightly reduced and new dimensions have been updated as well (see attached updated Data Sheet for more details).

Suction Manifold Design Change Details:

• Standard Configuration: The suction manifold standard configuration will be horizontal center ported with optional end port (plugged). The plug can be easily removed and reinstalled into the center horizontal port to use the end ported horizontal option.



Optional Configuration: A vertical center ported suction boss has been added to the design for optional end-user machining.

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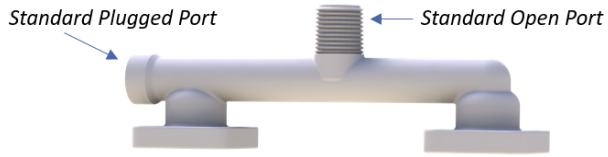
Discharge Manifold Design Change Details:

• Standard Configuration: The discharge manifold standard configuration will be vertical with optional horizontal end port (plugged)



Please note that the center ported horizontal discharge configuration will no longer be available. If a horizontal discharge port is desired, use end porting.

Pumps Affected: The model numbers of affected pumps will be changing/rev'ing from design level 3 to design level 4 as noted in the cross-reference chart below:

NDR = "No Direct Replacement" due to porting configuration change. Please consult with Application Engineering team if unsure of best alternative pump option.

CURRENT / OLD MODEL #	NEW MODEL #	CURRENT / OLD MODEL #	NEW MODEL #
PB 1/4,HS3K.	*NDR	PB 1/4,VVT3K.	*NDR
PB 1/4,HT3CA.	*NDR	PB 1/4,VVS3PP.	*NDR
PB 1/4,HT3K.	*NDR	PB 1/4,VVT3PP.	*NDR
PB 1/4,HT3PP.	*NDR	PB 1/4BS,TS3PP.	Replaced by PB 1/4BS,TS4PP.
PB 1/4,HU3K.	*NDR	PB 1/4E0,TS3K.	Replaced by PB 1/4E0,TS4K.
PB 1/4,HU3PP.	*NDR	PB 1/4E0,TS3PP.	Replaced by PB 1/4E0,TS4PP.
PB 1/4,TR3PP.	*NDR	PB 1/4E0,TT3K.	Replaced by PB 1/4E0,TT4K.
PB 1/4,TS3CA.	Replaced by PB 1/4,TS4CA.	PB 1/4E0,TT3PP.	Replaced by PB 1/4E0,TT4PP.
PB 1/4,TS3K.	Replaced by PB 1/4,TS4K.	PB 1/4E1,TS3PP.	Replaced by PB 1/4E1,TS4PP.
PB 1/4,TS3PP.	Replaced by PB 1/4,TS4PP.	PB 1/4E2,TT3K.	Replaced by PB 1/4E2,TT4K.
PB 1/4,TT3CA.	Replaced by PB 1/4,TT4CA.	PB 1/4E2,TT3PP.	Replaced by PB 1/4E2,TT4PP.
PB 1/4,TT3K.	Replaced by PB 1/4,TT4K.	PB 1/4E4,TS3PP.	Replaced by PB 1/4E4,TS4PP.
PB 1/4,TT3PP.	Replaced by PB 1/4,TT4PP.	PB 1/4E4,TT3K.	Replaced by PB 1/4E4,TT4K.
PB 1/4,TU3CA.	Replaced by PB 1/4,TU4CA.	PB 1/4E4,TT3PP.	Replaced by PB 1/4E4,TT4PP.
PB 1/4,TU3K.	Replaced by PB 1/4,TU4K.	PB 1/4P0,TS3PP.	Replaced by PB 1/4P0,TS4PP.
PB 1/4,TU3PP.	Replaced by PB 1/4,TU4PP.	PB 1/4P0,TT3K.	Replaced by PB 1/4P0,TT4K.
PB 1/4,VS3CA.	*NDR	PB 1/4P0,TT3PP.	Replaced by PB 1/4P0,TT4PP.
PB 1/4,VS3K.	*NDR	PB 1/4P0,TU3PP.	Replaced by PB 1/4P0,TU4PP.
PB 1/4,VS3PP.	*NDR	PB 1/4P2,TS3PP.	Replaced by PB 1/4P2,TS4PP.
PB 1/4,VT3CA.	*NDR	PB 1/4P2,TT3K.	Replaced by PB 1/4P2,TT4K.
PB 1/4,VT3K.	*NDR	PB 1/4P2,TT3PP.	Replaced by PB 1/4P2,TT4PP.
PB 1/4,VU3PP.	*NDR	PB1/4,VVT3PPE4.	*NDR

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Parts Affected: The old 3-piece manifold design components will be available through service for a limited time to support products already in the field. SANDPIPER recommends upgrading end-users to the new design level to realize the benefits of these improvements. A service parts cross-reference chart is provided below:

OLD COMPONENT PART/KIT #	NEW COMPONENT PART/KIT #	BRIEF DESCRIPTION (MATERIAL)	TARGET AVAILABILITY / TRANSITION DATE
312.096.552	518.210.552	Polypropylene Discharge Manifold	6/1/2020
518.128.552			
720.033.600			
312.096.520	518.210.520	PVDF Discharge Manifold	
518.128.520			
720.033.600			
312.096.502	518.210.502	Conductive Acetal Discharge Manifold	
518.128.502			
720.033.600			
312.095.552	518.211.552	Polypropylene Suction Manifold	
518.127.552			
720.033.600			
312.095.520	518.211.520	PVDF Suction Manifold	
518.127.520			
720.033.600			
312.095.502	518.211.502	Conductive Acetal Suction Manifold	
518.127.502			
720.033.600			

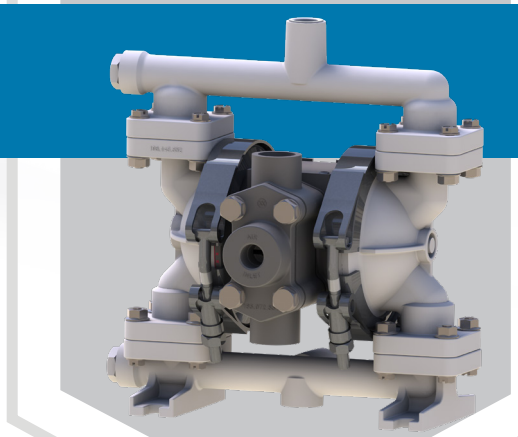
Kits Affected: The new Wet End Kits 476.388.xxx include; Diaphragms, Balls, Seat Seals, and a Diaphragm Seal. The prior PB ¼ Design Level 3 wet end kits (476.117.xxx) also included a Manifold Seal in addition to the previously mentioned items. These manifold seals are no longer needed with the manifold design update. If you have one of the prior DL3 kits, it would still have the necessary components to make a wet-end repair of the new Design Level 4 pumps. A Wet Kit cross-reference chart is provided below:

KIT DESCRIPTION	Design Level 3 KIT #	Design Level 4 KIT #	BRIEF DESCRIPTION	TARGET AVAILABILITY / TRANSITION DATE
Wet End Kit: Santoprene	476.117.354	475.388.354	Wet End Kit: Santoprene	6/1/2020
Wet End Kit: Hytrel	476.117.356	475.388.356	Wet End Kit: Hytrel	
Wet End Kit: PTFE	476.117.600	475.388.600	Wet End Kit: PTFE	
Wet End Kit: Santoprene Diaphragm & PTFE Balls	476.117.644	475.388.644	Wet End Kit: Santoprene Diaphragm & PTFE Balls	

Pump Pricing Change: None

If you have any questions, please contact Bryan Grabowski at 419.526.7243 or bgrabowski@idexcorp.com

PB¼ NON-METALLIC PUMP TECHNICAL DATA SHEET



SERIES

STANDARD DUTY BALL VALVE PUMPS

Offering the widest range of performance and application capabilities

PERFORMANCE

SUCTION / DISCHARGE PORT SIZE

- ¼" NPT (internal)
- ½" NPT (external)

CAPACITY

- 0 to 5 GPM (0 to 19 LPM)

AIR DISTRIBUTION VALVE

- No-lube, no-stall design

SOLIDS-HANDLING

- Up to $^{1}/_{32}$" in. (1mm)

HEADS UP TO

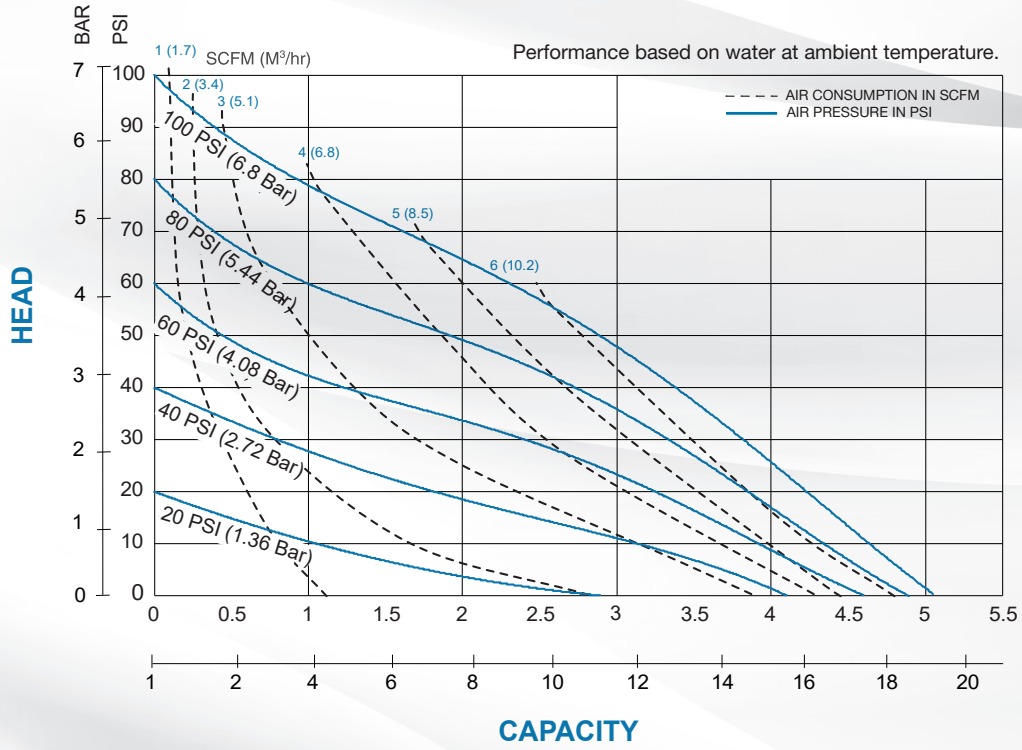
- 100 psi or 231 ft. of water (7 bar or 70 meters)

MAXIMUM OPERATING PRESSURE

- 100 psi (7 bar)

DISPLACEMENT/STROKE

- .01 Gallon / .04 liter



5 YEAR LIMITED PRODUCT WARRANTY

5 Year Guarantee for defects in material or workmanship. See sandpiperpump.com/content/warranty-certifications for complete warranty, including terms and conditions, limitations and exclusions.

USE ONLY GENUINE SANDPIPER PARTS

All certification, standards, guarantees & warranties originally supplied with this pump will be invalidated by the use of service parts not identified as "Genuine SANDPIPER Parts."

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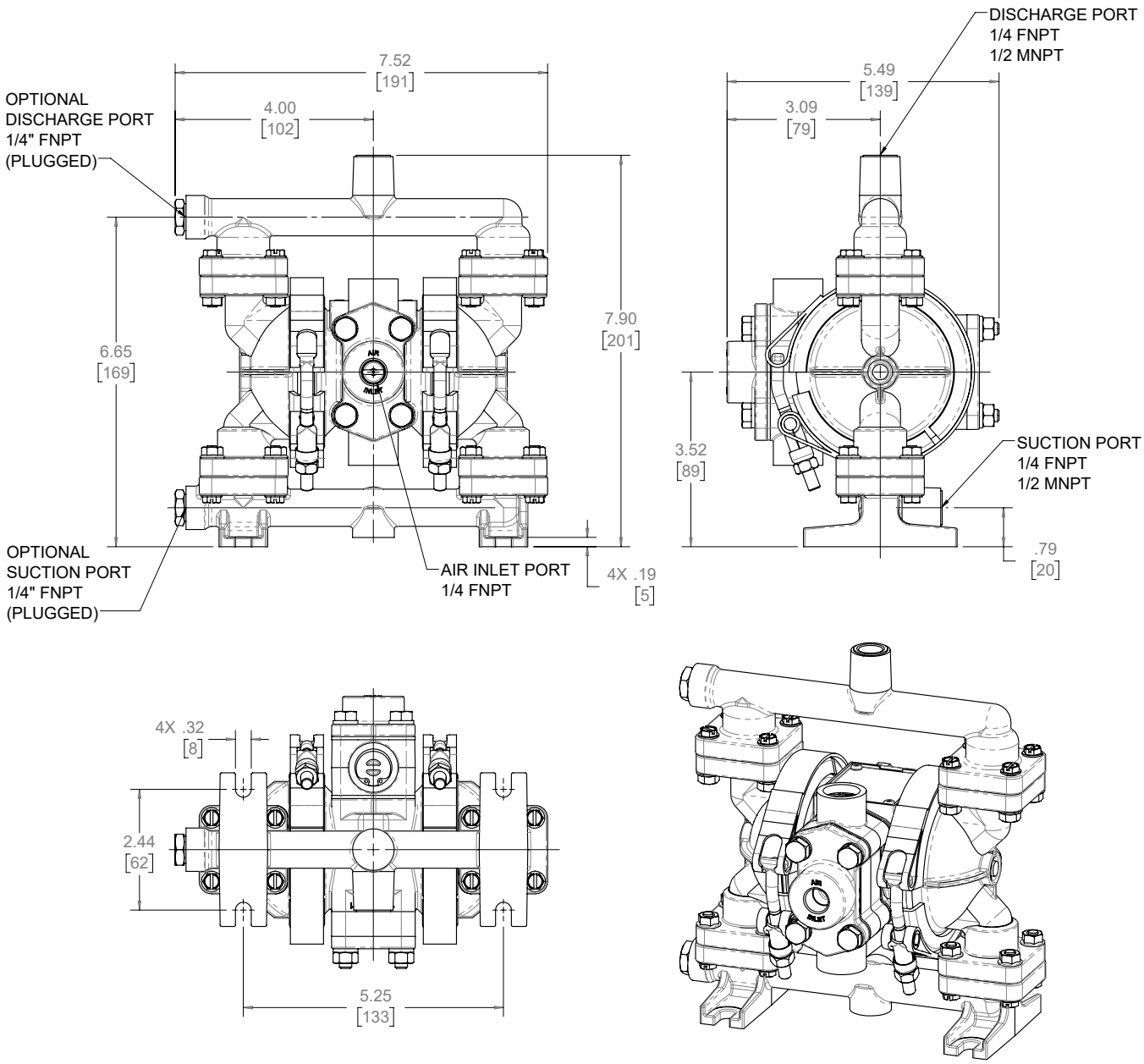
ISO 9001 Certified
ISO 14001 Certified

DIMENSIONS



PB 1/4 NON-METALLIC

DESIGN LEVEL 4

DIMENSIONAL TOLERANCE = ±.125 [3mm]

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EXPLANATION OF PUMP NOMENCLATURE

Your Model #: XX
(fill in from pump nameplate)

Pump Config.	Pump Size	Check Valve	Design Level	Wetted Material	Diaphragm/ Check Valve	Check Valve Seat	Non-Wetted Material	Porting Options	Pump Style	Pump Options	Kit Options
Model #: XX	XX	X	X	X	X	X	X	X	X	X	XX

PUMP SERIES
P Plastic

PUMP DESIGN
B Soilid Ball

PUMP SIZE AND OPTIONS
1/4 1/4" NPT
P1 Intrinsically Safe ATEX Compliant Pulse Output
P0 10-30VDC Pulse Output Option
P2 110/120 or 220/240VAC Pulse Output Option
E0 Integral Solenoid 24VDC Coil
E1 Integral Solenoid 24VDC Explosion-Proof Coil
E2 Integral Solenoid 24VAC/12VDC Coil
E3 Integral Solenoid 12VDC Explosion-Proof Coil
E4 Integral Solenoid 110VAC Coil
E5 Integral Solenoid 110VAC Explosion-Proof Coil
E6 Integral Solenoid 220VAC Coil
E7 Integral Solenoid 220VAC Explosion-Proof Coil
E8 Integral Solenoid 115VAC, 50Hz Explosion-Proof Coil
E9 Integral Solenoid 230VAC, 50Hz, Explosion-Proof Coil

DISCHARGE PORTING POSITION
T Horizontal Suction, Vertical Discharge

DIAPHRAGM CHECK VALVE MATERIALS
R Hytrel
S Santoprene
T Virgin PTFE
U Santoprene Diaphragms/PTF E Ball

DESIGN LEVEL
4

CONSTRUCTION
P Polypropylene Wet End and Center
K PVDF Wet End and Polypropylene Center
CA Conductive Acetal Wet End and Center

MATERIALS

Material Profile: ⚠ CAUTION! Operating temperature limitations are as follows:	Operating Temperatures: Max.	Min.
CONDUCTIVE ACETAL: Tough, impact resistant, ductile. Good abrasion resistance and low friction surface. Generally inert, with good chemical resistance except for strong acids and oxidizing agents.	190°F 88°C	-20°F -29°C
EPDM: Shows very good water and chemical resistance. Has poor resistance to oils and solvents, but is fair in ketones and alcohols.	280°F 138°C	-40°F -40°C
FKM (FLUOROCARBON): Shows good resistance to a wide range of oils and solvents; especially all aliphatic, aromatic and halogenated hydrocarbons, acids, animal and vegetable oils. Hot water or hot aqueous solutions (over 70°F(21°C)) will attack FKM.	350°F 177°C	-40°F -40°C
HYTREL®: Good on acids, bases, amines and glycols at room temperatures only.	220°F 104°C	-20°F -29°C
NEOPRENE: All purpose. Resistance to vegetable oils. Generally not affected by moderate chemicals, fats, greases and many oils and solvents. Generally attacked by strong oxidizing acids, ketones, esters and nitro hydrocarbons and chlorinated aromatic hydrocarbons.	200°F 93°C	-10°F -23°C
NITRILE: General purpose, oil-resistant. Shows good solvent, oil, water and hydraulic fluid resistance. Should not be used with highly polar solvents like acetone and MEK, ozone, chlorinated hydrocarbons and nitro hydrocarbons.	190°F 88°C	-10°F -23°C
NYLON: 6/6 High strength and toughness over a wide temperature range. Moderate to good resistance to fuels, oils and chemicals.	180°F 82°C	32°F 0°C
POLYPROPYLENE: A thermoplastic polymer. Moderate tensile and flex strength. Resists stong acids and alkali. Attacked by chlorine, fuming nitric acid and other strong oxidizing agents.	180°F 82°C	32°F 0°C
PVDF: (Polyvinylidene Fluoride) A durable fluoroplastic with excellent chemical resistance. Excellent for UV applications. High tensile strength and impact resistance.	250°F 121°C	0°F -18°C
SANTOPRENE®: Injection molded thermoplastic elastomer with no fabric layer. Long mechanical flex life. Excellent abrasion resistance.	275°F 135°C	-40°F -40°C
UHMW PE: A thermoplastic that is highly resistant to a broad range of chemicals. Exhibits outstanding abrasion and impact resistance, along with environmental stress-cracking resistance.	180°F 82°C	-35°F -37°C
URETHANE: Shows good resistance to abrasives. Has poor resistance to most solvents and oils.	150°F 66°C	32°F 0°C
VIRGIN PTFE: (PFA/TFE) Chemically inert, virtually impervious. Very few chemicals are known to chemically react with PTFE; molten alkali metals, turbulent liquid or gaseous fluorine and a few fluoro-chemicals such as chlorine trifluoride or oxygen difluoride which readily liberate free fluorine at elevated temperatures.	220°F 104°C	-35°F -37°C

Maximum and Minimum Temperatures are the limits for which these materials can be operated. Temperatures coupled with pressure affect the longevity of diaphragm pump components. Maximum life should not be expected at the extreme limits of the temperature ranges.

Metals:

ALLOY C: Equal to ASTM494 CW-12M-1 specification for nickel and nickel alloy.

STAINLESS STEEL: Equal to or exceeding ASTM specification A743 CF-8M for corrosion resistant iron chromium, iron chromium nickel and nickel based alloy castings for general applications. Commonly referred to as 316 Stainless Steel in the pump industry.

NOTE: See service manual for ATEX details.

For specific applications, always consult the Chemical Resistance Chart.

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