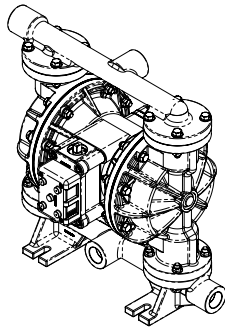
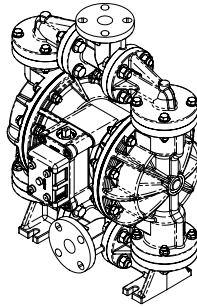


**WARREN
RUPP®**



INLINE PORTED



SIDE PORTED

SANDPIPER®

A WARREN RUPP PUMP BRAND

**S1F
Non-Metallic Ball Valve**

Design Level 3

**Air-Operated
Double Diaphragm Pump**

ENGINEERING, PERFORMANCE
& CONSTRUCTION DATA

Quality System
ISO9001 Certified

Environmental
Management System
ISO14001 Certified

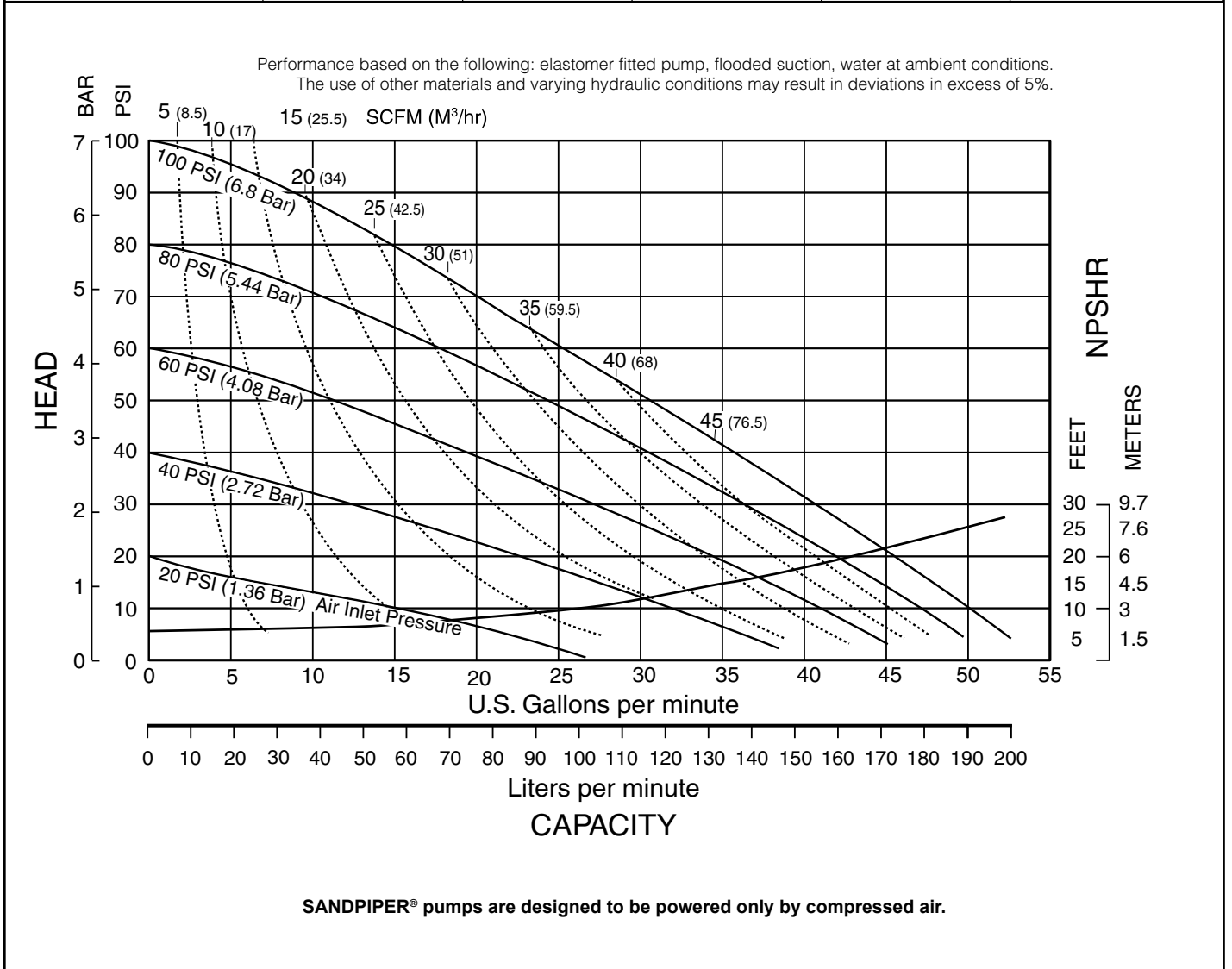
IDEX
FLUID & METERING

CE



See pages 2, 7 and 8
for ATEX ratings.

INTAKE/DISCHARGE PIPE SIZE	CAPACITY	AIR VALVE	SOLIDS-HANDLING	HEADS UP TO	DISPLACEMENT/STROKE
1" ANSI Flange or PN10 25mm DIN Flange	0 to 53 gallons per minute (0 to 200 liters per minute)	No-lube, no-stall design	Up to .25 in. (6mm)	100 psi or 231 ft. of water (7 bar or 70 meters)	.19 Gallon / .72 liter



USA

Explanation of Pump Nomenclature

S1F Non-Metallic · Design Level 3 · Ball Valve

Model	Pump Brand	Pump Size	Check Valve Type	Design Level	Wetted Material	Diaphragm/Check Valve Materials	Check Valve Seat	Non-Wetted Material Options	Porting Options	Pump Style	Pump Options	Kit Options	Shipping Weight lbs. (kg)
S1FB3P1PPUS000.	S	1F	B	3	P	1	P	P	U	S	0	00.	42 (19)
S1FB3P2PPUS000.	S	1F	B	3	P	2	P	P	U	S	0	00.	42 (19)
S1FB3PBPPUS000.	S	1F	B	3	P	B	P	P	U	S	0	00.	42 (19)
S1FB3PGPPUS000.	S	1F	B	3	P	G	P	P	U	S	0	00.	42 (19)
S1FB3PNPPUS000.	S	1F	B	3	P	N	P	P	U	S	0	00.	42 (19)
S1FB3K1KPUS000.	S	1F	B	3	K	1	K	P	U	S	0	00.	54 (24)
S1FB3K2KPUS000.	S	1F	B	3	K	2	K	P	U	S	0	00.	54 (24)
S1FB3P3PPUV000.	S	1F	B	3	P	3	P	P	U	V	0	00.	48 (22)
S1FB3K3KPUV000.	S	1F	B	3	K	3	K	P	U	V	0	00.	64 (29)
S1FB3P4PPUV000.	S	1F	B	3	P	4	P	P	U	V	0	00.	48 (22)
S1FB3K4KPUV000.	S	1F	B	3	K	4	K	P	U	V	0	00.	64 (29)

Note: Models listed in the table are for reference only. See nomenclature below for other models.

Pump Brand

S= SANDPIPER®

Pump Size

1F= 1" Full Flow

Check Valve Type

B= Ball

Design Level

3= Design Level 3

Wetted Material

K= PVDF

P= Polypropylene

▲ C= Conductive Polypropylene

▲ V= Conductive PDVF

Diaphragm Check Valve Materials

1= Santoprene®/Santoprene®

2= PTFE Santoprene Backup/PTFE

3= PTFE Pumping, PTFE-Santoprene Backup Driver/PTFE

4= Santoprene Pumping/Santoprene®

B= Nitrile/Nitrile

G= PTFE-Neoprene Backup/PTFE

N= Neoprene/Neoprene

V= FKM/FKM

Y= PTFE Pumping/One-Piece Bonded Driver/PTFE

Z= One-Piece Bonded/PTFE

Check Valve Seat

K= PVDF

P= Polypropylene

Non-Wetted Material Options

P= Polypropylene

1= 40% Glass Filled Polypropylene with PTFE hardware

▲ C= Conductive Polypropylene

Porting Options

N= NPT Thread

U= Universal (Fits ANSI and DIN)

7= Dual Porting (ANSI)

8= Top Dual Porting (ANSI)

9= Bottom Dual Porting (ANSI)

Pump Style

D= With Electronic Leak Detection (110 V)

E= With Electronic Leak Detection (220V)

I= Inline Porting NPT Threads

M= With Mechanical Leak Detection

S= Standard

V= With Visual Leak Detection

Pump Options

▲ 0= None

1= Sound Dampening Muffler

2= Mesh Muffler

3= High temperature Air Valve w/Integral Muffler

4= High temperature Air Valve w/Sound Dampening Muffler

5= High temperature Air Valve w/Mesh Muffler

▲ 6= Metal Muffler

▲ 7= Metal Muffler with Grounding Cable

Kit Options

▲ 00.= None

P0.= 10-30VDC Pulse Output Kit

◇ P1.= Intrinsically-Safe 5-30VDC, 110/120VAC 220/240 VAC Pulse Output Kit

P2.= 110/120 or 220/240VAC Pulse Output Kit

▲ E0.= Solenoid Kit with 24VDC Coil

▲ E1.= Solenoid Kit with 24VDC Explosion-Proof Coil

▲ E2.= Solenoid Kit with 24VAC/12VDC Coil

▲ E3.= Solenoid Kit with 12VDC Explosion-Proof Coil

▲ E4.= Solenoid Kit with 110VAC Coil

▲ E5.= Solenoid Kit with 110VAC Explosion-Proof Coil

▲ E6.= Solenoid Kit with 220VAC Coil

▲ E7.= Solenoid Kit with 220VAC Explosion-Proof Coil

▲ E8.= Solenoid Kit with 110VAC, 50 Hz Explosion-Proof Coil

▲ E9.= Solenoid Kit with 230VAC, 50 Hz Explosion-Proof Coil


SP.= Stroke Indicator Pins

◆ A1.= Solenoid Kit with 12 VDC ATEX Compliant Coil

◆ A2.= Solenoid Kit with 24 VDC ATEX Compliant Coil


◆ A3.= Solenoid Kit with 110/120 VAC 50/60 Hz ATEX Compliant Coil

◆ A4.= Solenoid Kit with 220/240 VAC 50/60 Hz ATEX Compliant Coil

(1)  II 1G c T5
II 3/1 G c T5
II 1D c T100°C
I M1 c
I M2 c




Note: Pumps are only ATEX compliant when ordered with wetted material option C or V, non-wetted material option C, pump option 0, 6 or 7, and kit option 0.

(2)  II 2G Ex ia c IIC T5
II 3/2 G Ex ia c IIC T5
II 2D Ex c ia 20 IP67 T100°C



Note: Pumps ordered with the options listed in (1) to the left are ATEX compliant when ordered with kit option P1.

(3*)  II 2G EEx m c II T5
II 3/2 2G EEx m c II T5
II 2D c IP65 T100°C



Note: Pumps ordered with the options listed in (1) to the left are ATEX compliant when ordered with kit option A1, A2, A3, or A4. Compressed Air Temperature Range: Maximum Ambient Temperature to plus 50°C.

(4)  IEC EEx m T4 



Note: Pump models equipped with these explosion-proof solenoid kit options E1, E3, E5, E7, E8 or E9, are certified and approved by the above agencies. They are NOT ATEX compliant.

**CAUTION! Operating temperature limitations are as follows:**

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.

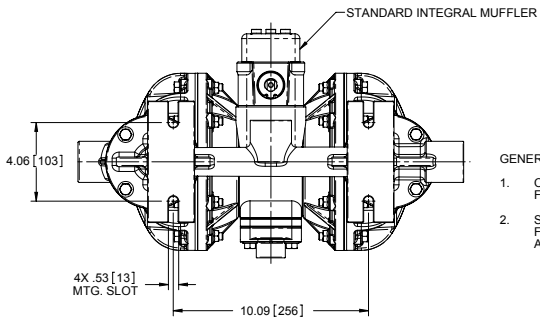
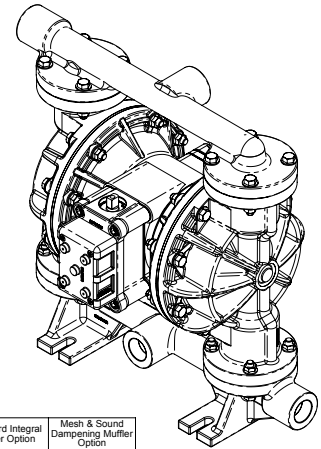
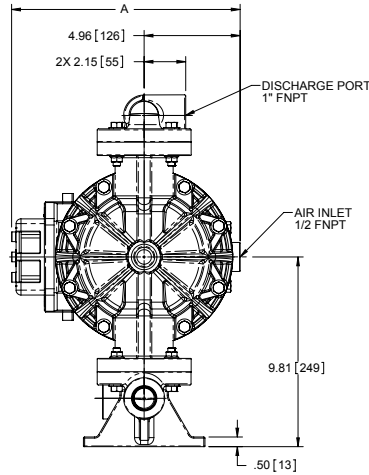
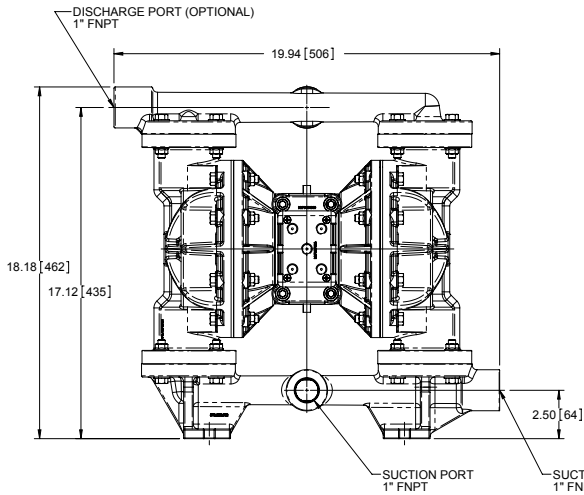
Materials	Operating Temperatures	
	Maximum	Minimum
Nitrile General purpose, oil-resistant. Shows good solvent, oil, water and hydraulic fluid resistance. Should not be used with highly polar solvents like acetone and MEK, ozone, chlorinated hydrocarbons and nitro hydrocarbons.	190°F 88°C	-10°F -23°C
PVDF 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
NEOPRENE All purpose. Resistant to vegetable oils. Generally not affected by moderate chemicals, fats, greases and many oils and solvents. Generally attacked by strong oxidizing acids, ketones, esters, nitro hydrocarbons and chlorinated aromatic hydrocarbons.	200°F 93°C	-10°F -23°C
PTFE Chemically inert, virtually impervious. Very few chemicals are known to react chemically 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
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) will attack FKM.	350°F 177°C	-40°F -40°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
Polypropylene A thermoplastic polymer. Moderate tensile and flex strength. Resists strong acids and alkalis. Attacked by chlorine, fuming nitric acid and other strong oxidizing agents.	180°F 82°C	32°F 0°C
Conductive HDPE	180°F 82°C	-35°F -37°C

For specific applications, always consult the Warren Rupp "Chemical Resistance Chart"

CAUTION: Nonmetallic pumps and plastic components are not UV stabilized. Ultraviolet radiation can damage these parts and negatively affect material properties. Do not expose to UV light for extended periods of time.

Dimensions: S1F Non-Metallic Inline Ported Option - Polypropylene Wet End Models ONLY

Dimensions in inches
Dimensions in millimeters (metric dimensions in brackets)



**S1F NON-METALLIC
IN-LINE PORTED OPTION**
DIMENSIONAL TOLERANCE = $\pm .125$ [3mm]

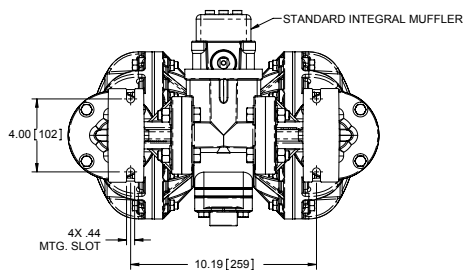
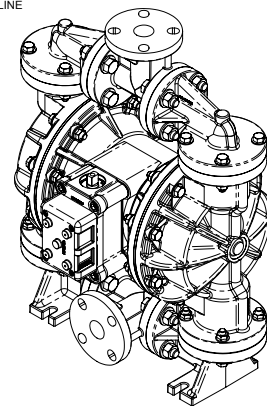
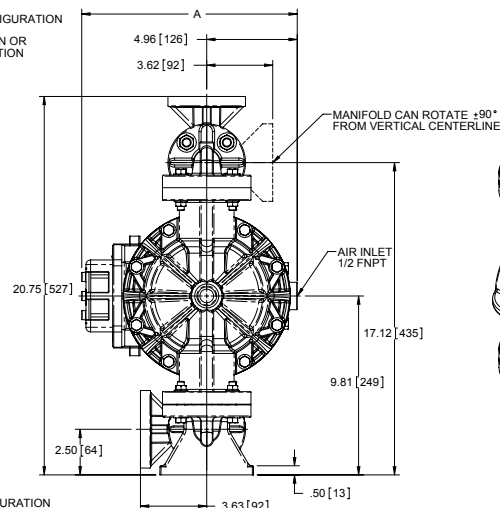
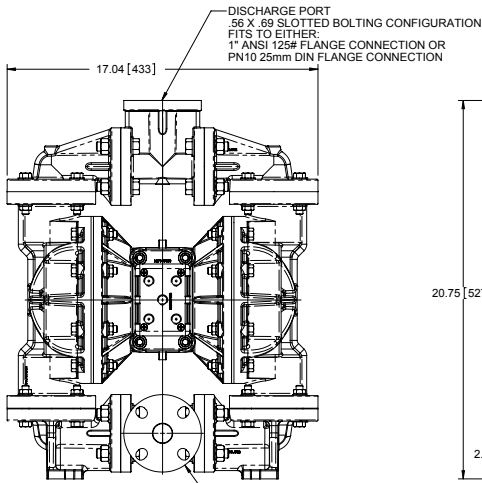
	Standard Integral Muffler Option	Mesh & Sound Dampening Muffler Option
A	11.81 [300]	13.50 [343]

GENERAL NOTES

- OPTIONAL SUCTION & DISCHARGE SIDE PORTS WILL BE PLUGGED AT FACTORY, NOT SHOWN
- STANDARD INTEGRAL MUFFLER (SHOWN) COVERS 1" FNPT EXHAUST PORT FOR OPTIONAL MUFFLER STYLES OR PIPING EXHAUST AIR IN SUBMERGED APPLICATIONS

Metric Dimensions: S1F Non-Metallic Side Ported Options

Dimensions in inches
Dimensions in millimeters (metric dimensions in brackets)



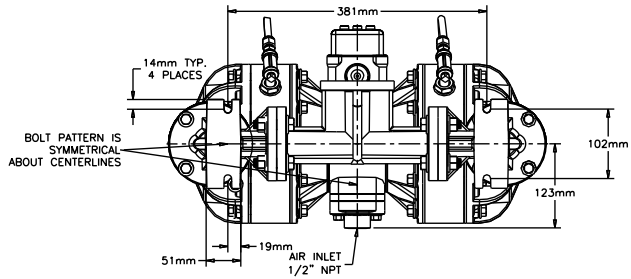
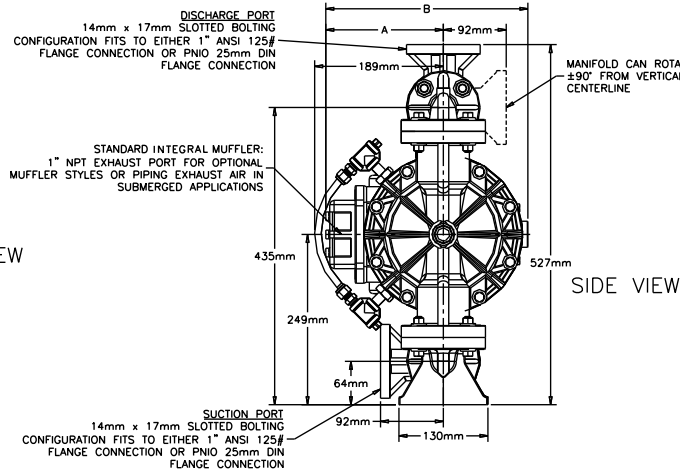
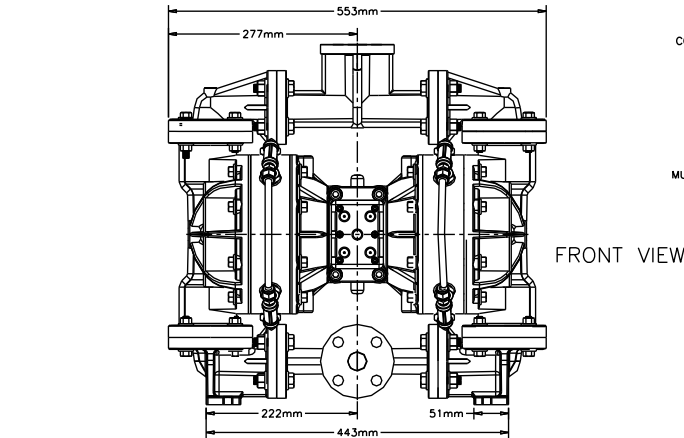
**S1F NON-METALLIC
CENTER PORTED OPTION**
DIMENSIONAL TOLERANCE = $\pm .125$ [3mm]

	Standard Integral Muffler Option	Mesh & Sound Dampening Muffler Option
A	11.81 [300]	13.50 [343]

GENERAL NOTES

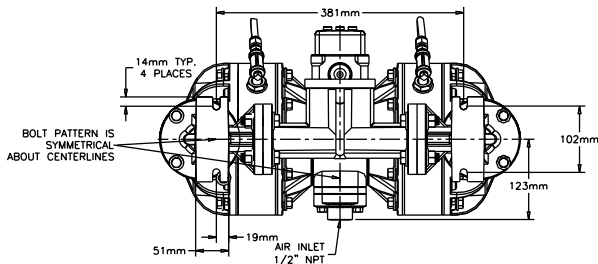
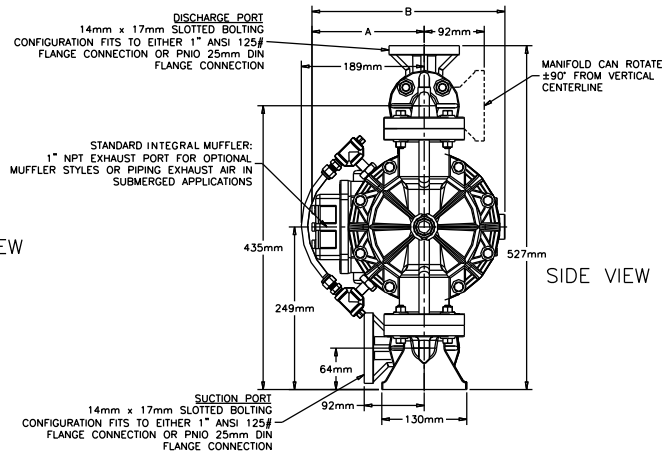
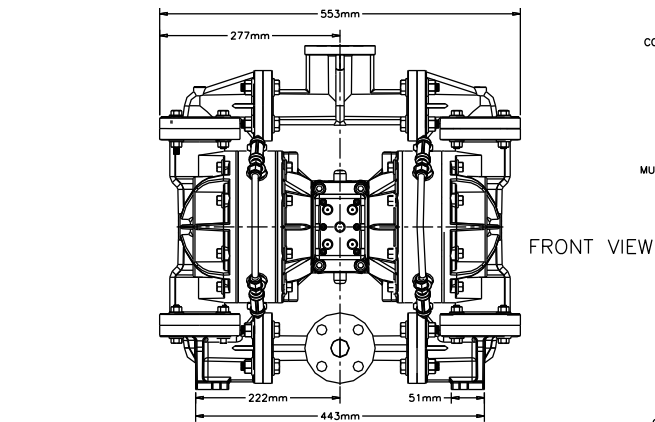
- STANDARD INTEGRAL MUFFLER (SHOWN) COVERS 1" FNPT EXHAUST PORT FOR OPTIONAL MUFFLER STYLES OR PIPING EXHAUST AIR IN SUBMERGED APPLICATIONS

Dimensions: S1F Non-Metallic with Spill Containment



DIMENSION	A	B
Standard Pump	5 5/8"	10 1/4"
Pulse Output Kit	5 5/8"	10 1/4"
Mesh Muffler	8 9/16"	11 1/8"
Sound Dampening Muffler	8 9/16"	11 1/8"

BOTTOM VIEW



DIMENSION	A	B
Standard Pump	143mm	260mm
Pulse Output Kit	143mm	260mm
Mesh Muffler	167mm	283mm
Sound Dampening Muffler	167mm	283mm

BOTTOM VIEW

Declaration of Conformity

Declaration of Conformity

WARREN RUPP®

Declaration of Conformity

Manufacturer:

**Warren Rupp, Inc.®, 800 N. Main Street, P.O. Box 1568,
Mansfield, Ohio, 44901-1568 USA**

certifies that Air-Operated Double Diaphragm Pump Series: HDB, HDF, M Non-Metallic, S Non-Metallic, M Metallic, S Metallic, T Series, G Series, RS Series U Series, EH and SH High Pressure, W Series, SMA and SPA Submersibles, and Tranquilizer Surge Suppressors comply with the European Community Directive 2006/42/EC on Machinery, according to Annex VIII. This product has used Harmonized Standard EN 809, Pumps and Pump Units for Liquids - Common Safety Requirements, to verify conformance.

David Roseberry
Signature of authorized person

October 20, 2005
Date of issue

David Roseberry
Printed name of authorized person

Engineering Manager
Title

Revision Level: E

MAY 27, 2010
Date of revision



WARREN RUPP®

EC Declaration of Conformity

In accordance with ATEX Directive 94/9/EC,
Equipment intended for use in potentially explosive environments.

Manufacturer:

Warren Rupp, Inc.®
A Unit of IDEX Corporation
800 North Main Street
P.O. Box 1568
Mansfield, OH 44901-1568 USA

Applicable Standard:

EN13463-1: 2001,
EN13463-5: 2003



EN 60079-25: 2004

For pumps equipped with Pulse Output ATEX Option
KEMA Quality B.V. (0344)

AODD Pumps and Surge Suppressors

For Type Examination Designations, see page 2 (back)

AODD (Air-Operated Double Diaphragm) Pumps

EC Type Examination Certificate No. Pumps: KEMA 09ATEX0071 X

KEMA Quality B.V.
Utrechtseweg 310
6812 AR Arnhem, The Netherlands

SANDPIPER®
A WARREN RUPP PUMP BRAND

Tranquilizer®

DATE/APPROVAL/TITLE:
27 MAY 2010


David Roseberry
David Roseberry, Engineering Manager

IDEX
FLUID & METERING

WARREN RUPP®

EC Declaration of Conformity

ATEX Summary of Markings

Type		Marking	Listed In	Non-Conductive Fluids	
Pump types, S1F, S15, S20, and S30 provided with the pulse output option		II 2 G Ex ia c IIC T5 II 3/2 G Ex ia c IIC T5 II 2 D Ex c iaD 20 IP67 T100°C	KEMA 09ATEX0071 X CE 0344	KEMA 09ATEX0071 X KEMA 09ATEX0071 X KEMA 09ATEX0071 X	No Yes Yes
Pump types, S1F, S15, S20, and S30 provided with the integral solenoid option		II 2 G EEx m c II T5 II 3/2 G EEx m c II T5 II 2 D c IP65 T100°C	KEMA 09ATEX0071 X CE 0344	KEMA 09ATEX0071 X KEMA 09ATEX0071 X KEMA 09ATEX0071 X	No Yes Yes
Pump types, HDB1½, HDB40, HDB2, HDB50, HDB3, HDF1, HDF25, HDF2, HDF3M, PB¼, S05, S1F, S15, S20, S30, SB1, SB25, ST1½, ST40, G15, G20, and G30, without the above listed options, no aluminum parts		II 1 G c T5 II 3/1 G c T5 II 1 D c T100°C I M1 c I M2 c	KEMA 09ATEX0071 X KEMA 09ATEX0072 X CE 0344	KEMA 09ATEX0071 X KEMA 09ATEX0071 X KEMA 09ATEX0071 X KEMA 09ATEX0071 X KEMA 09ATEX0072 X	No Yes Yes No Yes
Pump types, DMF2, DMF3, HDB1½, HDB40, HDB2, HDB50, HDB3, HDF1, HDF25, HDF2, HDF3M, PB¼, S05, S1F, S15, S20, S30, SB1, SB25, SE½, ST1, ST25, ST1½, ST40, U1F, G05, G1F, G15, G20, and G30		II 2 G c T5 II 3/2 G c T5 II 2 D c T100°C	KEMA 09ATEX0072 X CE	KEMA 09ATEX0072 X KEMA 09ATEX0072 X KEMA 09ATEX0072 X	No Yes Yes
Surge Suppressors all types		II 2 G T5 II 3/2 G T5 II 2 D T100°C	KEMA 09ATEX0073 CE	KEMA 09ATEX0073 KEMA 09ATEX0073 KEMA 09ATEX0073	No Yes Yes

EC Type Certificate No. Pumps: KEMA 09ATEX0071 X
 Type Certificate No. Pumps: KEMA 09ATEX0072 X
 Type Certificate No. Suppressors: KEMA 09ATEX0073