WARREN RUPP®

Quality System ISO9001 Certified

Environmental Management System ISO14001 Certified

IDEX FLUID & METERING

See page 5 & 6 for ATEX ratings

CE

SANDPIPER®
A WARREN RUPP PUMP BRAND

Containment Duty
ST1½ Type 4
ST40 Type 4
Air-Operated Double Diaphragm Pump

ENGINEERING, PERFORMANCE & CONSTRUCTION DATA

INTAKE/DISCHARGE PIPE SIZE	CAPACITY	AIR VALVE	SOLIDS-HANDLING	HEADS UP TO	DISPLACEMENT/STROKE
ST1½: 1½ *(37.5mm)* NPT (F) ST40: 1½ *(37.5MM)* BSP (F)(Tapered)	0 to 90 gallons per minute (0 to 340 liters per minute)	No-lube, no-stall design	Occasional solids only. Up to ¼ in. *(6.3mm)*	125 psi or 289 ft. of water *(8.8 Kg/cm² or 88 meters)*	.37 Gallon / 1.29 liter

SANDPIPER® Containment Duty Pumps: Sealless Safety

This pump is part of the Containment Duty Pumps. It is specially fitted with PTFE diaphragms as well as elastomeric or elastomeric/PTFE driver diaphragms. The liquid-filled spill chambers provide an additional chemically-resistant barrier, should a pumping diaphragm fail. The Spill Containment design gives the pump user advanced warning of diaphragm failure, before pumpage can damage the air valve or be released into the work environment. Three optional leak detectors available for this model:

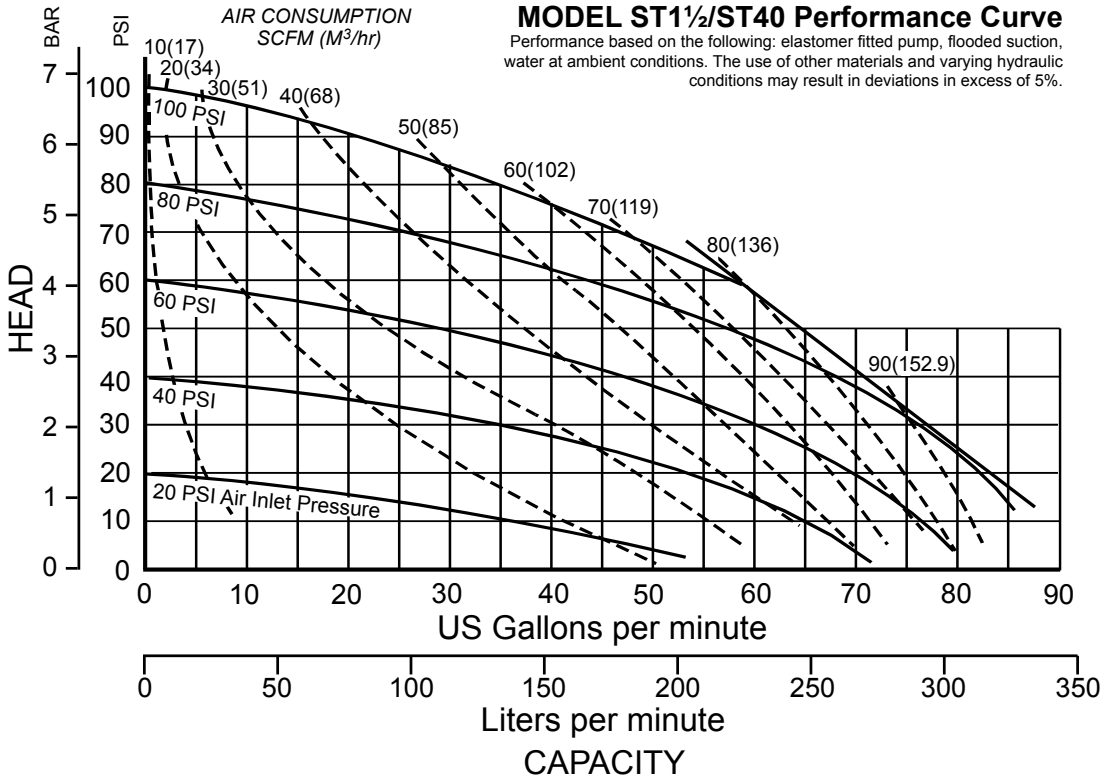
• Mechanical VIP Leak Detector* 031-025-000 **• Electronic Leak Detector* (115V) 032-043-000** **• Electronic Leak Detector* (220V) 032-043-000**

The Containment Duty pumps offer many different levels of materials and spill monitoring devices designed to fit a variety of applications and budgets.

* Leak Detectors are not ATEX Compliant

MODEL ST1½/ST40 Performance Curve

Performance based on the following: elastomer fitted pump, flooded suction, water at ambient conditions. The use of other materials and varying hydraulic conditions may result in deviations in excess of 5%.



SANDPIPER® pumps are designed to be powered only by compressed air.

Explanation of Pump Nomenclature, ST1½ & ST40

MATERIALS OF CONSTRUCTION

To order a pump or replacement parts, first enter the Model Number ST15, or ST40, followed by the Type Designation listed below in the far left column.

Type 4 ST1½ ST40	Manifold Porting Side	Manifold	Outer Chamber	Driver Chamber	Inner Chamber	Outer Diaphragm Plate	Inner Diaphragm Plate	Intermediate Housing	Diaphragm Rod	Valve Seat	Hard-ware	Diaphragm	Ball Valve Material	Seat Gasket	Manifold Gasket Sealing Rings	Shipping Wt.(lbs)
SGI4A.	X	AL356T6	AL356T6	AL356T6	AL356T6	316SS	AL380DC	AL356T6	416SS	316SS	304SS	T/I	T	T	T	99
SGN4A.	X	AL356T6	AL356T6	AL356T6	AL356T6	316SS	AL380DC	AL356T6	416SS	316SS	304SS	T/N	T	T	T	99
SGV4A.	X	AL356T6	AL356T6	AL356T6	AL356T6	316SS	AL380DC	AL356T6	416SS	316SS	304SS	T/V	T	T	T	99
SGI4SS.	X	SS	SS	AL356T6	AL356T6	316SS	AL380DC	AL356T6	416SS	316SS	304SS	T/I	T	T	T	146
SGN4SS.	X	SS	SS	AL356T6	AL356T6	316SS	AL380DC	AL356T6	416SS	316SS	304SS	T/N	T	T	T	146
SGV4SS.	X	SS	SS	AL356T6	AL356T6	316SS	AL380DC	AL356T6	416SS	316SS	304SS	T/V	T	T	T	146
SGI4HC.	X	Alloy C	Alloy C	AL356T6	AL356T6	316SS	AL380DC	AL356T6	416SS	Alloy C	304SS	T/I	T	T	T	146
SGN4HC.	X	Alloy C	Alloy C	AL356T6	AL356T6	316SS	AL380DC	AL356T6	416SS	Alloy C	304SS	T/N	T	T	T	146
SGV4HC.	X	Alloy C	Alloy C	AL356T6	AL356T6	316SS	AL380DC	AL356T6	416SS	Alloy C	304SS	T/V	T	T	T	146
SGI4II.	X	CI	CI	CI	DI	316SS	CI	CI	416SS	316SS	304SS	T/I	T	T	T	212
SGN4II.	X	CI	CI	CI	DI	316SS	CI	CI	416SS	316SS	304SS	T/N	T	T	T	212
SGV4II.	X	CI	CI	CI	DI	316SS	CI	CI	416SS	316SS	304SS	T/V	T	T	T	212
SGN4HI.	X	Alloy C	Alloy C	CI	DI	316SS	CI	CI	416SS	Alloy C	304SS	T/N	T	T	T	212
SGV4HI.	X	Alloy C	Alloy C	CI	DI	316SS	CI	CI	416SS	Alloy C	304SS	T/V	T	T	T	212
SGN4SI.	X	SS	SS	CI	DI	316SS	CI	CI	416SS	316SS	304SS	T/N	T	T	T	209
SGV4SI.	X	SS	SS	CI	DI	316SS	CI	CI	416SS	316SS	304SS	T/V	T	T	T	209

Kit available to convert to top or bottom porting.

Meanings of Abbreviations:

AL = Aluminum
CI = Cast Iron
DC = Die Cast
DI = Ductile Iron
SS = Stainless Steel
T = PTFE
T/I = PTFE Diaphragm/EDPM Driver
T/N = PTFE Diaphragm/Neoprene Driver
T/V = PTFE Diaphragm/FKM Driver
Alloy C = Alloy C

II 1 G c T5
II 3/1 G c T5
II 1 D c T100oC
I M1 c
I M2 c
Models equipped with Cast Iron, Stainless Steel, or Alloy C wetted parts, and Cast Iron midsection parts. See page 6 for ATEX Explanation of EC-Type Certificate.

II 2 G c T5
II 3/2 G c T5
II 2 D c T100oC
All models, including pumps equipped with Aluminum wetted and midsection parts. See page 6 for ATEX Explanation of Type Examination Certificate.

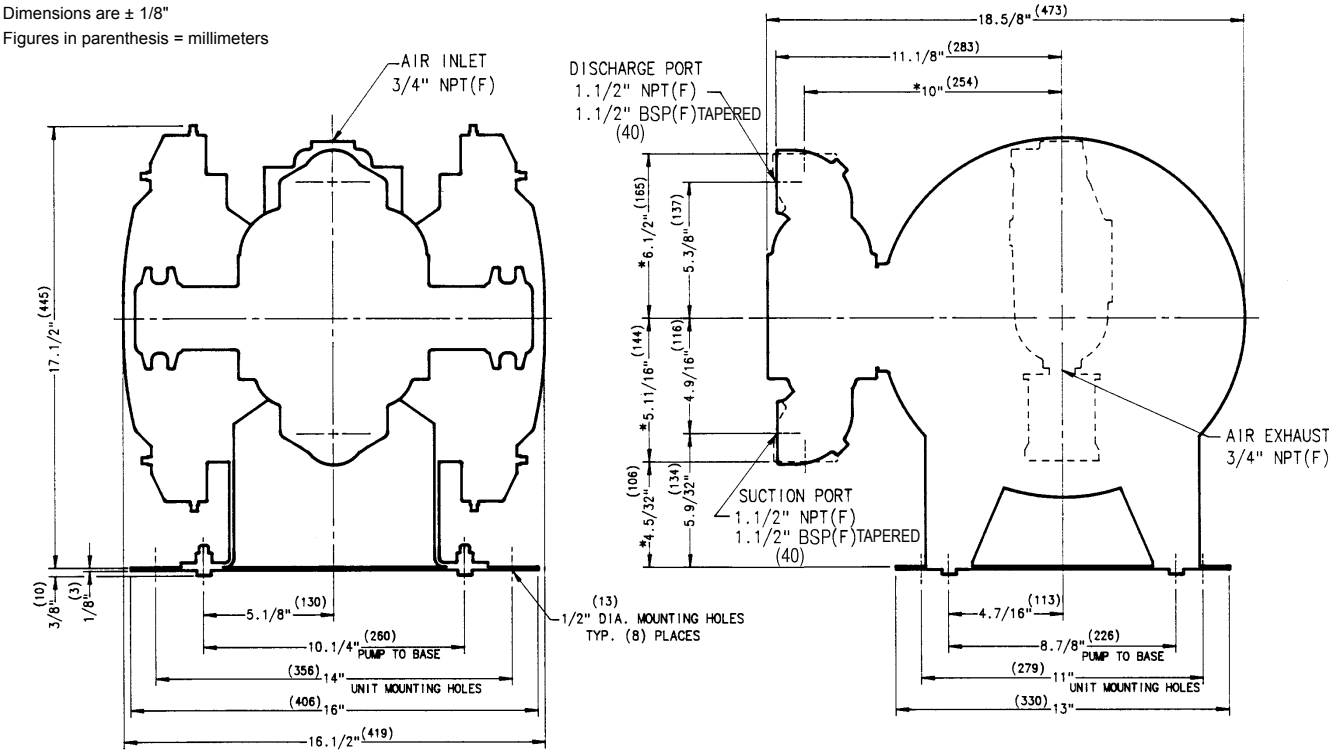
Maximum and Minimum Temperatures are the limits for which these materials can be operated. Temperatures coupled with pressure affect the longevity of diaphragm pump components. Maximum life should not be expected at the extreme limits of the temperature ranges.

Materials	Operating Temperatures Maximum	Minimum
EPDM Shows very good water and chemical resistance. Has poor resistance to oil and solvents, but is fair in ketones and alcohols.	280°F 138°C	-40°F -40°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
‡ **CF-8M Stainless Steel** equal to or exceeding ASTM specification A743 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.		
ALLOY C CW-12MW equal to or exceeding ASTM A494 specification for nickel and nickel alloy castings.		

For specific applications, always consult “Chemical Resistance Chart" Technical Bulletin

Dimensions: ST1½ & ST40

Dimensions are ± 1/8"
Figures in parenthesis = millimeters



* INDICATES DIMENSIONS WITH SUCTION AND DISCHARGE PORTS ROTATED 180° TO A VERTICAL POSITION.

DIMENSIONAL OUTLINES AVAILABLE SHOWING OPTIONAL TOP AND BOTTOM PORTING

* DIMENSIONS WITH SUCTION AND DISCHARGE PORTS ROTATED 90° TO VERTICAL POSITION (SHOWN WITH DOTTED LINES).

Model ST1½-A features NPT threaded connections.
Model ST40-A features British Standard Pipe (BSP) tapered threaded connections.

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

IDEX FLUID & METERING

CE

Declaration of Conformity

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 Corpordtion
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, 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 T100ºC	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 T100ºC	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 T100ºC 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 T100ºC	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 T100ºC	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

IDEX FLUID & METERING