

DATA SHEET

Specifications & Performance

Certified Quality



Quality System
ISO9001 Certified



Environmental Management System
ISO14001 Certified



Warren Rupp, Inc.

A Unit of IDEX Corporation

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WWW.SANDPIPERPUMP.COM

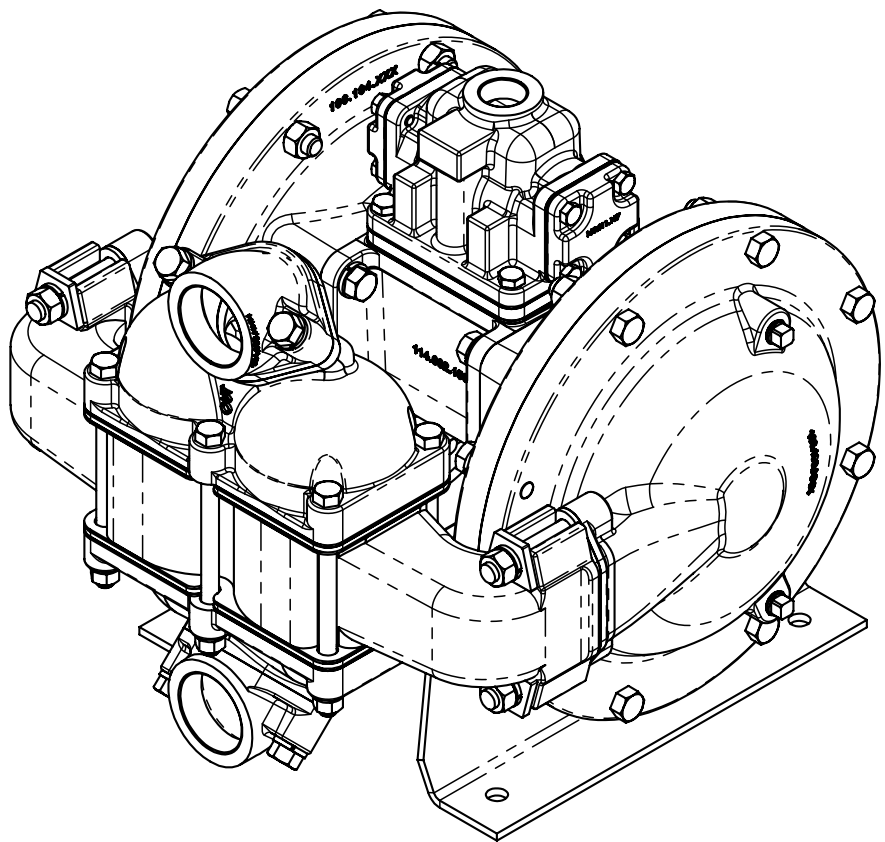


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HDB 1 1/2 / HDB40

Heavy Duty Ball Valve

Design Level 7

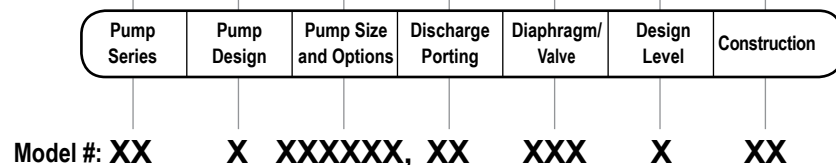


SANDPIPER®
A WARREN RUPP, INC. BRAND

WWW.SANDPIPERPUMP.COM

Explanation of Pump Nomenclature

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



Pump Series

S SANDPIPER®

Pump Design

B Solid Ball

Pump Size

1 1/2"

Discharge Porting Position

D Down Ported

S Side

Options

P1 Intrinsically Safe ATEX Compliant Pulse Output

Diaphragm Check Valve Materials

B Nitrile

C FKM with PTFE

F FDA Accepted White Nitrile

GN Neoprene Backup with PTFE Overlay and PTFE Check Balls

GR Hytrel Backup w/ PTFE Overlay/PTFE Balls

GZ PTFE/Nitrile Bonded

One-Piece/PTFE Balls

H EPDM with PTFE

I EPDM

N Neoprene

R Hytrel

S Santoprene

U Santoprene with PTFE

V FKM

Design Level

7

Construction

A Aluminum Wetted, Aluminum Air

CI Cast Iron Wetted, Aluminum Air

II Cast Iron Wetted, Cast Iron Air

SI Stainless Steel Wetted, Cast Iron Air

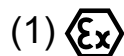
SS Stainless Steel Wetted, Aluminum Air

HC Alloy-C Wetted, Aluminum Air

HI Alloy-C Wetted, Cast Iron Air

Your Serial #: (fill in from pump nameplate) _____

ATEX Detail



II 1 G c T5

II 3/1 G c T5

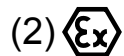
II 1 D c T100oC

I M1 c

I M2 c

Models equipped with Cast Iron, Stainless Steel, or Alloy C wetted parts, and Cast Iron midsection parts.

See 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 ATEX Explanation of Type Examination Certificate.

Performance

HDB1½/HDB40

SUCTION/DISCHARGE PORT SIZE

- HDB1½: 1½ NPT
- HDB40: 1½ BSP (Tapered)

CAPACITY

- 0 to 105 gallons per minute
(0 to 397 liters per minute)

AIR DISTRIBUTION VALVE

- No-lube, no-stall design

SOLIDS-HANDLING

- Up to .25 in. (6.3mm)

HEADS UP TO

- 125 psi or 289 ft. of water
(8.8 Kg/cm² or 88 meters)

MAXIMUM OPERATING PRESSURE

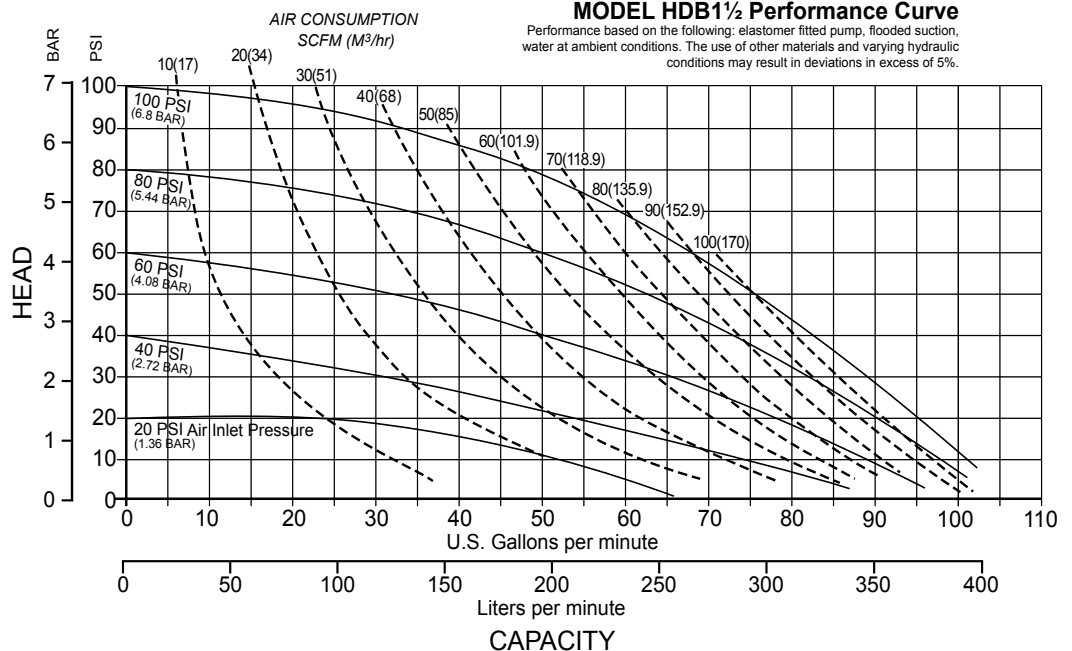
- 125 psi (8.6 bar)

DISPLACEMENT/STROKE

- .37 Gallon / 1.4 liter

SHIPPING WEIGHT

- Aluminum 75 lbs. (34kg)
- Cast Iron 104 lbs. (47kg)
- Stainless Steel 107 lbs. (48kg)



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

Ambient temperature range: -20°C to +40°C

Process temperature range: -20°C to +80°C for models rated as category 1 equipment
-20°C to +100°C for models rated as category 2 equipment

In addition, the ambient temperature range and the process temperature range do not exceed the operating temperature range of the applied non-metallic parts as listed in the manuals of the pumps.

Polypropylene: A thermoplastic polymer. Moderate tensile and flex strength. Resists strong 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.

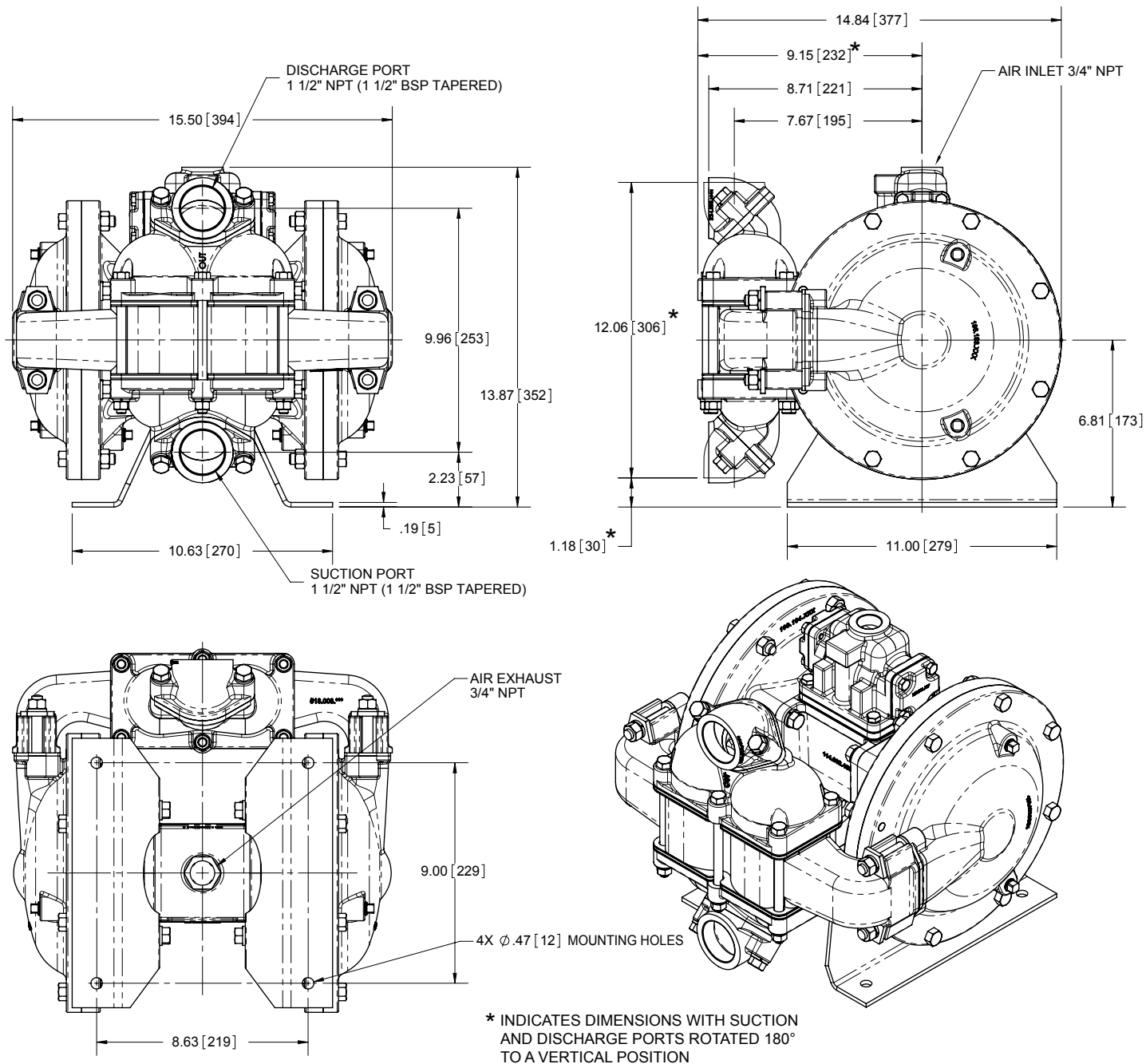
Stainless Steel: Equal to or exceeding ASTM specification A743 CF-8M for corrosion resistant iron chromium, iron chromium nickel and nickel based alloy castings for general applications. Commonly referred to as 316 Stainless Steel in the pump industry.

For specific applications, always consult the Chemical Resistance Chart.

Dimensional Drawings

HDB1 1/2 & HDB40, Side Ported

Dimensions are $\pm .13"$ (3mm). Figures in parenthesis = millimeters

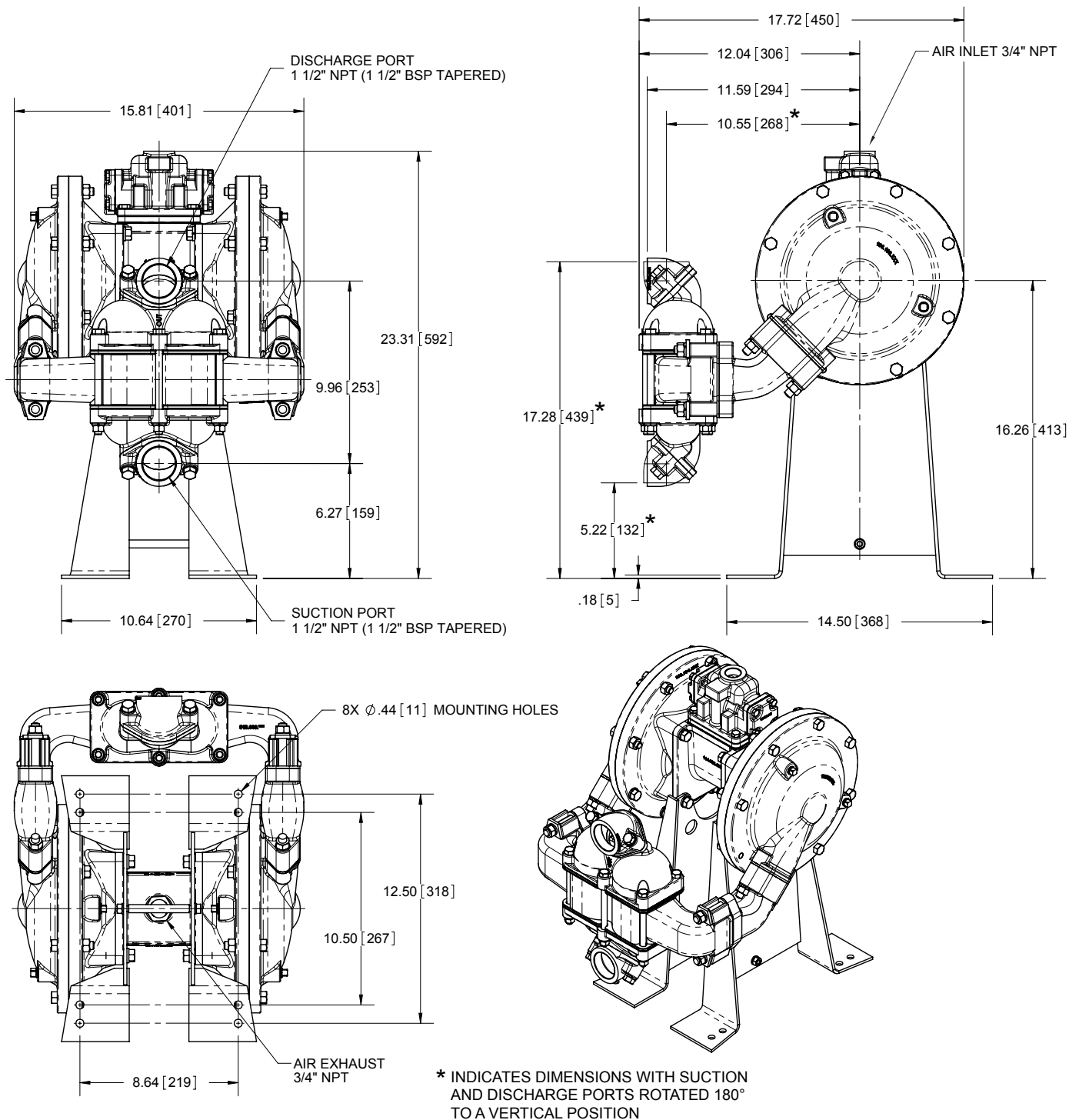


Model HDB1½-A features 1½" NPT threaded connections.
Model HDB40-A features 1½" BSP Tapered connections.

Dimensional Drawings

HDB1 1/2 & HDB40, Down Ported

Dimensions are $\pm .13$ " (3mm). Figures in parenthesis = millimeters



Model HDB1½-A features 1½" NPT threaded connections.
Model HDB40-A features 1½" BSP Tapered connections.

Written Warranty

5 - YEAR Limited Product Warranty

Quality System ISO9001 Certified • Environmental Management Systems ISO14001 Certified

Warren Rupp, Inc. ("Warren Rupp") warrants to the original end-use purchaser that no product sold by Warren Rupp that bears a Warren Rupp brand shall fail under normal use and service due to a defect in material or workmanship within five years from the date of shipment from Warren Rupp's factory. Warren Rupp brands include SANDPIPER®, MARATHON®, PortaPump®, SludgeMaster™ and Tranquilizer®.

~ See complete warranty at www.sandpiperpump.com/About/guaranteesandwarranties.html ~

**WARREN
RUPP, INC.®**

Declaration of Conformity

**Manufacturer: Warren Rupp, Inc.®, 800 N. Main Street
Mansfield, Ohio, 44902 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, U Series, EH and SH High Pressure, RS Series, 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 EN809:1998+A1:2009, Pumps and Pump Units for Liquids - Common Safety Requirements, to verify conformance.

David Roseberry
Signature of authorized person

David Roseberry
Printed name of authorized person

October 20, 2005
Date of issue

Engineering Manager
Title

Revision Level: F

August 23, 2012
Date of revision

IDEX
FLUID & METERING





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 44902 USA

EN 60079-25: 2004

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

Applicable Standard:
EN13463-1: 2001,
EN13463-5: 2003



AODD Pumps and Surge Suppressors
For Type Examination Designations

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



Tranquilizer®



DATE/APPROVAL/TITLE:
27 MAY 2010

David Roseberry
David Roseberry, Engineering Manager

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
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
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
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
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

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