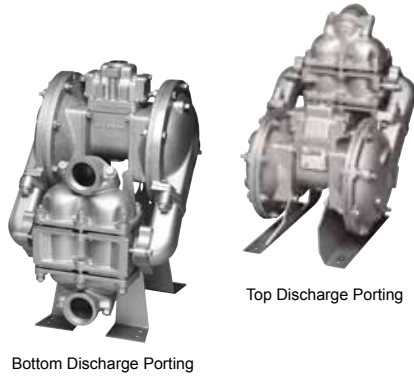


**WARREN RUPP®**

Quality System  
ISO9001 Certified

Environmental  
Management System  
ISO14001 Certified

**IDEX**  
FLUID & METERING



Bottom Discharge Porting

Top Discharge Porting

**SANDPIPER®**  
A WARREN RUPP PUMP BRAND

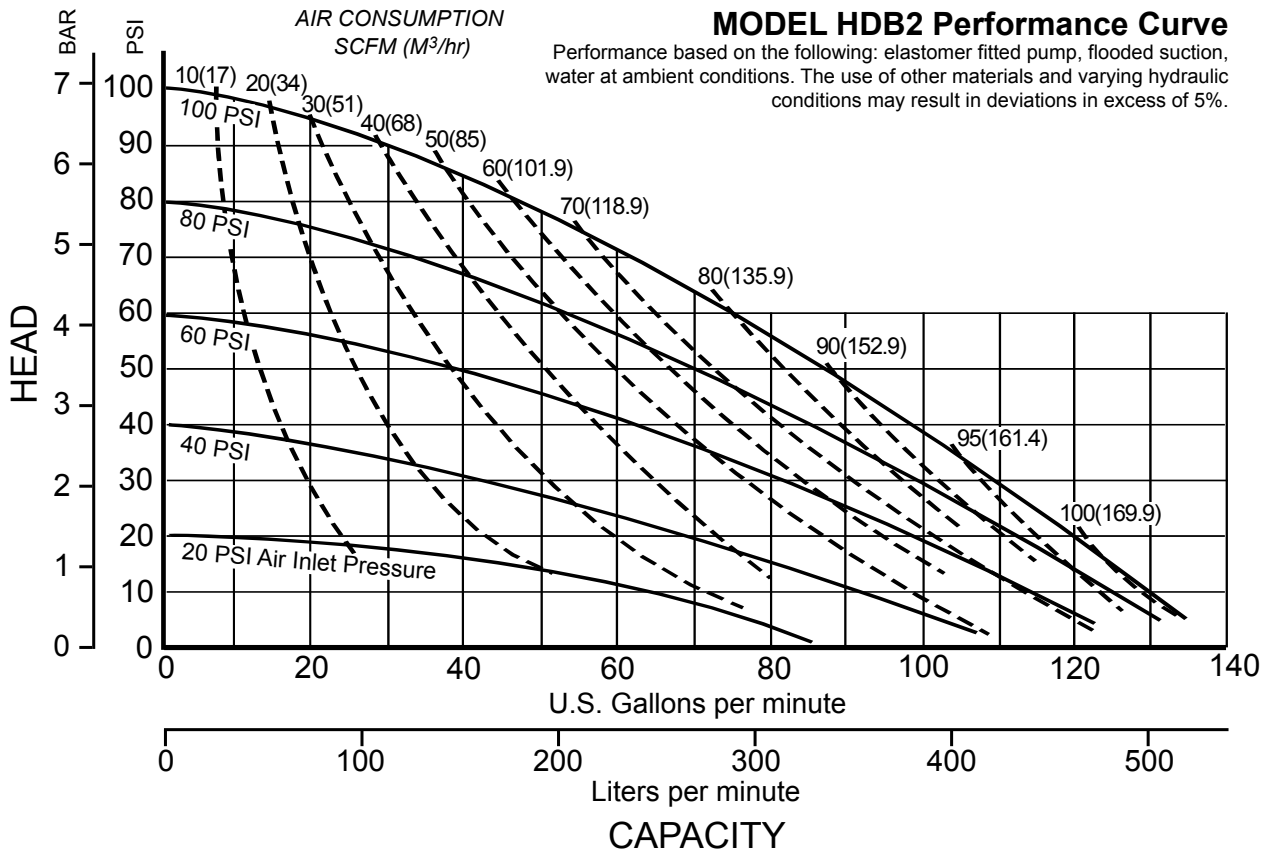
**HDB2 Type 3  
Heavy Duty Ball Valve  
Air-Operated  
Double Diaphragm Pump**

ENGINEERING, PERFORMANCE  
& CONSTRUCTION DATA



See pages 5 & 6  
for ATEX ratings

INTAKE/DISCHARGE PIPE SIZE	CAPACITY	AIR VALVE	SOLIDS-HANDLING	HEADS UP TO	DISPLACEMENT/STROKE
2" (50mm) NPT (F)	0 to 135 gallons per minute (0 to 511 liters per minute)	No-lube, no-stall design	Up to 3/8 in. (9mm)	125 psi or 289 ft. of water (8.8 Kg/cm <sup>2</sup> or 88 meters)	.43 Gallon / 1.63 liter



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

# Explanation of Pump Nomenclature, HDB2

## MATERIALS OF CONSTRUCTION

To order a pump or replacement parts, first enter the Model Number **HDB2**, followed by the Type Designation listed below in the far left column.

Top Porting	Bottom Porting	Manifold	Outer Chamber	Inner Chamber	Outer Diaphragm Plate	Inner Diaphragm Plate	Intermediate Housing	Diaphragm Rod	Valve Seat	Hardware	Diaphragm	Ball Valve Material	Manifold Seat Gasket	Manifold Sealing Rings	Top Porting	Bottom Porting
TB3A	DB3A	AL	AL	AL380DC	CI	PS	AL356T6	416SS	316SS	PS	B	B	CB	B	88	95
TC3A	DC3A	AL	AL	AL380DC	CI	PS	AL356T6	416SS	316SS	PS	V	T	CT	V	88	95
TI3A	DI3A	AL	AL	AL380DC	CI	PS	AL356T6	416SS	316SS	PS	I	I	CT	I	88	95
TN3A	DN3A	AL	AL	AL380DC	CI	PS	AL356T6	416SS	316SS	PS	N	N	CN	N	88	95
TG13A	DG13A	AL	AL	AL380DC	CI	PS	AL356T6	416SS	316SS	PS	I/T	T	CT	V	88	95
TGN3A	DGN3A	AL	AL	AL380DC	CI	PS	AL356T6	416SS	316SS	PS	N/T	T	CT	V	88	95
TGR3A	DGR3A	AL	AL	AL380DC	CI	PS	AL356T6	416SS	316SS	PS	H/T	T	CT	V	88	95
TS3A	DS3A	AL	AL	AL380DC	CI	PS	AL356T6	416SS	316SS	PS	S	S	CT	I	88	95
TB3CI	DB3CI	CI	CI	AL380DC	CI	PS	AL356T6	416SS	316SS	PS	B	B	CB	B	134	143
TC3CI	DC3CI	CI	CI	AL380DC	CI	PS	AL356T6	416SS	316SS	PS	V	T	CT	V	134	143
TI3CI	DI3CI	CI	CI	AL380DC	CI	PS	AL356T6	416SS	316SS	PS	I	I	CT	I	134	143
TN3CI	DN3CI	CI	CI	AL380DC	CI	PS	AL356T6	416SS	316SS	PS	N	N	CN	N	134	143
TG13CI	DG13CI	CI	CI	AL380DC	CI	PS	AL356T6	416SS	316SS	PS	I/T	T	CT	V	134	143
TGN3CI	DGN3CI	CI	CI	AL380DC	CI	PS	AL356T6	416SS	316SS	PS	N/T	T	CT	V	134	143
TGR3CI	DGR3CI	CI	CI	AL380DC	CI	PS	AL356T6	416SS	316SS	PS	H/T	T	CT	V	134	143
TS3CI	DS3CI	CI	CI	AL380DC	CI	PS	AL356T6	416SS	316SS	PS	S	S	CT	I	134	143
TB3II	DB3II	CI	CI	CI	CI	PS	CI	416SS	316SS	PS	B	B	CB	B	166	172
TC3II	DC3II	CI	CI	CI	CI	PS	CI	416SS	316SS	PS	V	T	CT	V	166	172
TI3II	DI3II	CI	CI	CI	CI	PS	CI	416SS	316SS	PS	I	I	CT	I	166	172
TN3II	DN3II	CI	CI	CI	CI	PS	CI	416SS	316SS	PS	N	N	CN	N	166	172
TGN3II	DGN3II	CI	CI	CI	CI	PS	CI	416SS	316SS	PS	N/T	T	CT	V	166	172
TGR3II	DGR3II	CI	CI	CI	CI	PS	CI	416SS	316SS	PS	H/T	T	CT	V	166	172
TS3II	DS3II	CI	CI	CI	CI	PS	CI	416SS	316SS	PS	S	S	CT	I	166	172
TB3SS	DB3SS	SS	SS	AL380DC	SS	PS	AL356T6	416SS	316SS	PS	B	B	CB	B	149	156
TC3SS	DC3SS	SS	SS	AL380DC	SS	PS	AL356T6	416SS	316SS	PS	V	T	CT	V	149	156
TI3SS	DI3SS	SS	SS	AL380DC	SS	PS	AL356T6	416SS	316SS	PS	I	I	CT	I	149	156
TN3SS	DN3SS	SS	SS	AL380DC	SS	PS	AL356T6	416SS	316SS	PS	N	N	CN	N	149	156
TGN3SS	DGN3SS	SS	SS	AL380DC	SS	PS	AL356T6	416SS	316SS	PS	N/T	T	CT	V	149	156
TGR3SS	DGR3SS	SS	SS	AL380DC	SS	PS	AL356T6	416SS	316SS	PS	H/T	T	CT	V	149	156
TS3SS	DS3SS	SS	SS	AL380DC	SS	PS	AL356T6	416SS	316SS	PS	S	S	CT	I	149	156
TB3SI	DB3SI	SS	SS	CI	SS	PS	CI	416SS	316SS	PS	B	B	CB	B	179	186
TC3SI	DC3SI	SS	SS	CI	SS	PS	CI	416SS	316SS	PS	V	T	CT	V	179	186
TI3SI	DI3SI	SS	SS	CI	SS	PS	CI	416SS	316SS	PS	I	I	CT	I	179	186
TN3SI	DN3SI	SS	SS	CI	SS	PS	CI	416SS	316SS	PS	N	N	CN	N	179	186
TGN3SI	DGN3SI	SS	SS	CI	SS	PS	CI	416SS	316SS	PS	N/T	T	CT	V	179	186
TGR3SI	DGR3SI	SS	SS	CI	SS	PS	CI	416SS	316SS	PS	H/T	T	CT	V	179	186
TS3SI	DS3SI	SS	SS	CI	SS	PS	CI	416SS	316SS	PS	S	S	CT	I	179	186
	DI3HI	Alloy C	Alloy C	CI	Alloy C	PS	CI	416SS	Alloy C	PS	I	I	CT	I		
	DGN3HI	Alloy C	Alloy C	CI	Alloy C	PS	CI	416SS	Alloy C	PS	N/T	T	CT	V		186

### Meanings of Abbreviations:

A = Compressed Fibre  
 AL = Aluminum  
 B = Nitrile  
 CB = Conductive Nitrile  
 CI = Cast Iron  
 CN = Conductive Neoprene  
 CT = Conductive PTFE  
 DC = Die Cast  
 H/T = Hytrel® Backup/PTFE Overlay  
 I = EPDM  
 I/T = EPDM Backup/PTFE Overlay  
 N = Neoprene  
 N/T = Neoprene Backup/PTFE Overlay  
 PS = Plated Steel  
 S = Santoprene®  
 SS = Stainless Steel  
 T = PTFE  
 V = FKM  
 Alloy C = Alloy C

®Hytrel is a registered trademark of E. I. duPont. ®Santoprene is a registered trademark of Exxon Mobil Corp. ®Warren Rupp and SANDPIPER are registered trademarks of Warren Rupp, Inc.



II 1 G c T5  
 II 3/1 G c T5  
 II 1 D c T100c  
 I M 1 c  
 I M 2 c

Models equipped with Cast Iron, Stainless Steel, or Alloy C wetted parts, and Cast Iron mid-section 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 T100c

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
<b>Nitrile</b> 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
<b>EPDM</b> 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
<b>NEOPRENE</b> 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
<b>HYTREL®</b> Good on acids, bases, amines and glycols at room temperature.	220°F 104°C	-20°F -29°C
<b>PTFE</b> 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
<b>FKM (Fluorocarbon)</b> 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
<b>Santoprene®</b> Injection molded thermoplastic elastomer with no fabric layer. Long mechanical flex life. Excellent abrasion resistance.	275°F 135°C	-40°F -40°C
‡ <b>CF-8M Stainless Steel</b> 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.		
<b>ALLOY C</b> CW-12MW equal to or exceeding ASTM A494 specification for nickel and nickel alloy castings.		

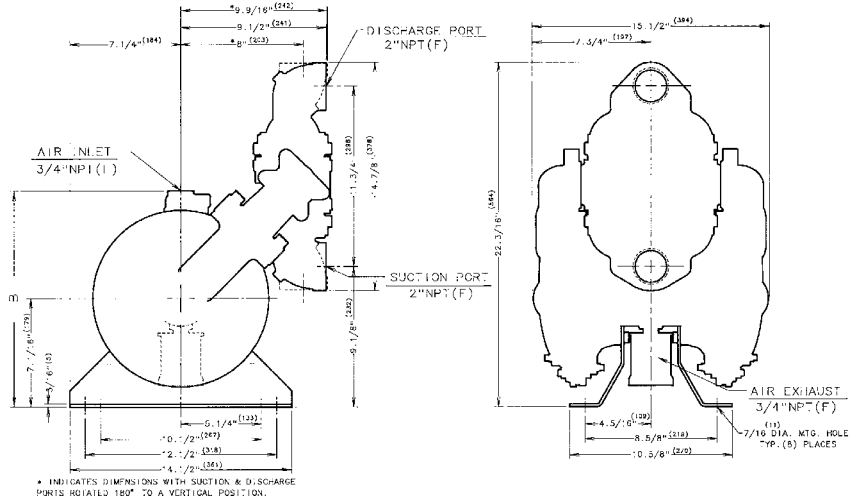
For specific applications, always consult "Chemical Resistance Chart" Technical Bulletin

# Dimensions: HDB2

Dimensions are  $\pm 1/8"$   
 Figures in parenthesis = millimeters

## TOP DISCHARGE PORTING

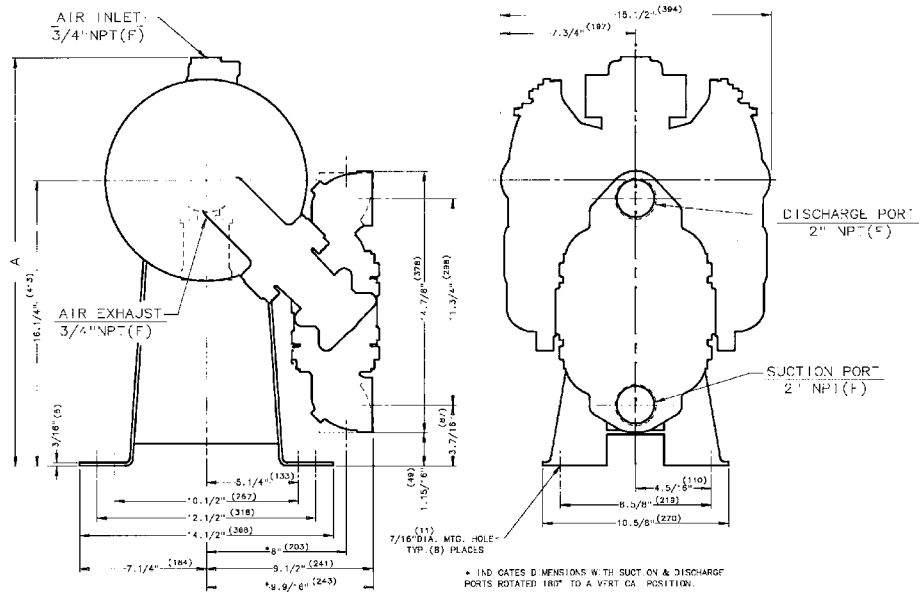
\* Indicates dimensions with suction and discharge ports rotated 180° to a vertical position.



Dimension	A	B
Standard Pump	23 1/4" (590)	14 1/16" (357)
Pulse Output Kit	23 13/16" (605)	14 5/8" (371)

## BOTTOM DISCHARGE PORTING

\* Indicates dimensions with suction and discharge ports rotated 180° to a vertical position.



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