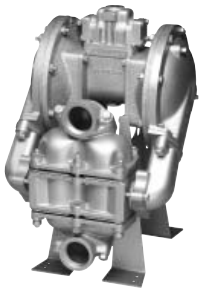
WARREN RUPP®

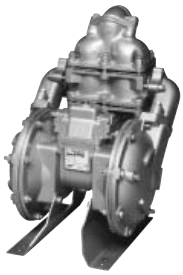
Quality System ISO9001 Certified

Environmental Management System ISO14001 Certified

IDEX FLUID & METERING



Bottom Discharge Porting



Top Discharge Porting

SANDPIPER®
A WARREN RUPP PUMP BRAND

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

ENGINEERING, PERFORMANCE & CONSTRUCTION DATA

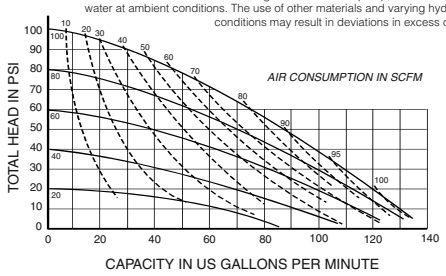
CE Ex I M2 cT5 II 2GD T5

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/cm² or 88 meters)	.43 Gallon / 1.63 liter

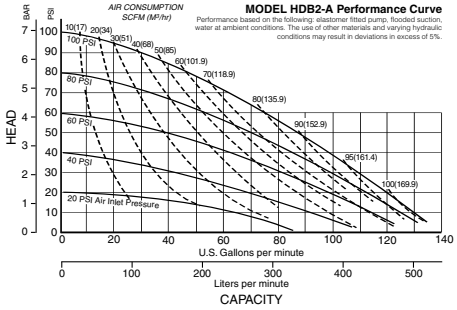
SANDPIPER® pumps are designed to be powered **only** by compressed air.
Temperature Limit: 212°F - 100°C

Model HDB2-A Performance Curve

MODEL HDB2-A 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%.



MODEL HDB2-A 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%.



MATERIALS OF CONSTRUCTION

Top Porting	Bottom Porting	Manifold	Outer Chamber	Inner Chamber	Outer Diaphragm Plate	Inner Diaphragm Plate	Intermediate Housing	Diaphragm Rod	Valve Seat	Hard-ware	Diaphragm	Ball Valve Material	Manifold Seat Gasket	Manifold Sealing Rings	Top Porting	Bottom Porting
TB-3-A	DB-3-A	AL	AL	AL380DC	CI	PS	AL356T6	416SS	316SS	PS	B	B	CB	B	88	95
TC-3-A	DC-3-A	AL	AL	AL380DC	CI	PS	AL356T6	416SS	316SS	PS	V	T	CT	V	88	95
TI-3-A	DI-3-A	AL	AL	AL380DC	CI	PS	AL356T6	416SS	316SS	PS	I	I	CT	I	88	95
TN-3-A	DN-3-A	AL	AL	AL380DC	CI	PS	AL356T6	416SS	316SS	PS	N	N	CN	N	88	95
TGI-3-A	DGI-3-A	AL	AL	AL380DC	CI	PS	AL356T6	416SS	316SS	PS	I/T	T	CT	V	88	95
TGN-3-A	DGN-3-A	AL	AL	AL380DC	CI	PS	AL356T6	416SS	316SS	PS	N/T	T	CT	V	88	95
TGR-3-A	DGR-3-A	AL	AL	AL380DC	CI	PS	AL356T6	416SS	316SS	PS	H/T	T	CT	V	88	95
TS-3-A	DS-3-A	AL	AL	AL380DC	CI	PS	AL356T6	416SS	316SS	PS	S	S	CT	I	88	95
TB-3-CI	DB-3-CI	CI	CI	AL380DC	CI	PS	AL356T6	416SS	316SS	PS	B	B	CB	B	134	143
TC-3-CI	DC-3-CI	CI	CI	AL380DC	CI	PS	AL356T6	416SS	316SS	PS	V	T	CT	V	134	143
TI-3-CI	DI-3-CI	CI	CI	AL380DC	CI	PS	AL356T6	416SS	316SS	PS	I	I	CT	I	134	143
TN-3-CI	DN-3-CI	CI	CI	AL380DC	CI	PS	AL356T6	416SS	316SS	PS	N	N	CN	N	134	143
TGI-3-CI	DGI-3-CI	CI	CI	AL380DC	CI	PS	AL356T6	416SS	316SS	PS	I/T	T	CT	V	134	143
TGN-3-CI	DGN-3-CI	CI	CI	AL380DC	CI	PS	AL356T6	416SS	316SS	PS	N/T	T	CT	V	134	143
TGR-3-CI	DGR-3-CI	CI	CI	AL380DC	CI	PS	AL356T6	416SS	316SS	PS	H/T	T	CT	V	134	143
TS-3-CI	DS-3-CI	CI	CI	AL380DC	CI	PS	AL356T6	416SS	316SS	PS	S	S	CT	I	134	143
TB-3-II	DB-3-II	CI	CI	CI	CI	PS	CI	416SS	316SS	PS	B	B	CB	B	166	172
TC-3-II	DC-3-II	CI	CI	CI	CI	PS	CI	416SS	316SS	PS	V	T	CT	V	166	172
TI-3-II	DI-3-II	CI	CI	CI	CI	PS	CI	416SS	316SS	PS	I	I	CT	I	166	172
TN-3-II	DN-3-II	CI	CI	CI	CI	PS	CI	416SS	316SS	PS	N	N	CN	N	166	172
TGN-3-II	DGN-3-II	CI	CI	CI	CI	PS	CI	416SS	316SS	PS	N/T	T	CT	V	166	172
TGR-3-II	DGR-3-II	CI	CI	CI	CI	PS	CI	416SS	316SS	PS	H/T	T	CT	V	166	172
TS-3-II	DS-3-II	CI	CI	CI	CI	PS	CI	416SS	316SS	PS	S	S	CT	I	166	172
TB-3-SS	DB-3-SS	SS	SS	AL380DC	SS	PS	AL356T6	416SS	316SS	PS	B	B	CB	B	149	156
TC-3-SS	DC-3-SS	SS	SS	AL380DC	SS	PS	AL356T6	416SS	316SS	PS	V	T	CT	V	149	156
TI-3-SS	DI-3-SS	SS	SS	AL380DC	SS	PS	AL356T6	416SS	316SS	PS	I	I	CT	I	149	156
TN-3-SS	DN-3-SS	SS	SS	AL380DC	SS	PS	AL356T6	416SS	316SS	PS	N	N	CN	N	149	156
TGN-3-SS	DGN-3-SS	SS	SS	AL380DC	SS	PS	AL356T6	416SS	316SS	PS	N/T	T	CT	V	149	156
TGR-3-SS	DGR-3-SS	SS	SS	AL380DC	SS	PS	AL356T6	416SS	316SS	PS	H/T	T	CT	V	149	156
TS-3-SS	DS-3-SS	SS	SS	AL380DC	SS	PS	AL356T6	416SS	316SS	PS	S	S	CT	I	149	156
TB-3-SI	DB-3-SI	SS	SS	CI	SS	PS	CI	416SS	316SS	PS	B	B	CB	B	179	186
TC-3-SI	DC-3-SI	SS	SS	CI	SS	PS	CI	416SS	316SS	PS	V	T	CT	V	179	186
TI-3-SI	DI-3-SI	SS	SS	CI	SS	PS	CI	416SS	316SS	PS	I	I	CT	I	179	186
TN-3-SI	DN-3-SI	SS	SS	CI	SS	PS	CI	416SS	316SS	PS	N	N	CN	N	179	186
TGN-3-SI	DGN-3-SI	SS	SS	CI	SS	PS	CI	416SS	316SS	PS	N/T	T	CT	V	179	186
TGR-3-SI	DGR-3-SI	SS	SS	CI	SS	PS	CI	416SS	316SS	PS	H/T	T	CT	V	179	186
TS-3-SI	DS-3-SI	SS	SS	CI	SS	PS	CI	416SS	316SS	PS	S	S	CT	I	179	186
	DI-3-HI	Alloy C	Alloy C	CI	Alloy C	PS	CI	416SS	Alloy C	PS	I	I	CT	I		186
	DGN-3-HI	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

HDB2-A Ball Valve

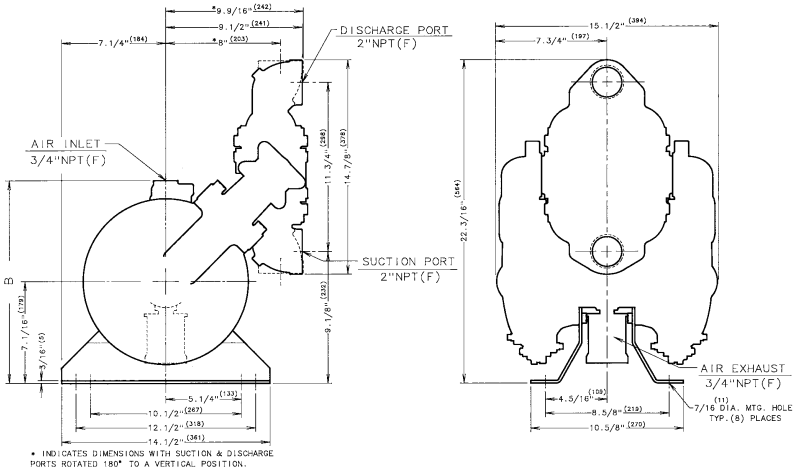
SANDPIPER®
A WARREN RUPP PUMP BRAND

Materials	Operating Temperatures Maximum*	Minimum*	Optimum**
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	50°F to 140°F 10°C to 60°C
EPDM Shows very good water and chemical resistance. Has poor resistance to oil and solvents, but is fair in ketones and alcohols.	212°F 100°C	-10°F -23°C	50°F to 212°F 10°C to 100°C
NEOPRENE All purpose. Resistant ot vegetable oils. Generally not affected by moderate chemicals, fats, greases and many oils and solvents. Generally attacked by strong olidizing acids, ketones, esters, nitro hydrocarbons and chlorinated aromatic hydrocarbons.	170°F 77°C	-35°F -37°C	50°F to 130°F 10°C to 54°C
HYTREL® Good on acids, bases, amines and glycols at room temperature.	190°F 88°C	-10°F -23°C	50°F to 140°F 10°C to 60°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.	212°F 100°C	-35°F -37°C	50°F to 212°F 10°C to 100°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.	212°F 100°C	32°F 0°C	75°F to 212°F 24°C to 100°C
SANTOPRENE® Injection molded thermoplastic elastomer with no fabric layer. Long mechanical flex life. Excellent abrasion resistance.	212°F 100°C	-10°F -23°C	50° to 212°F 10°C to 100°C
STAINLESS STEEL CF-8M 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	* Definite reduction in service life. ** Minimal reduction in service life at ends of range.		

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

TOP DISCHARGE PORTING

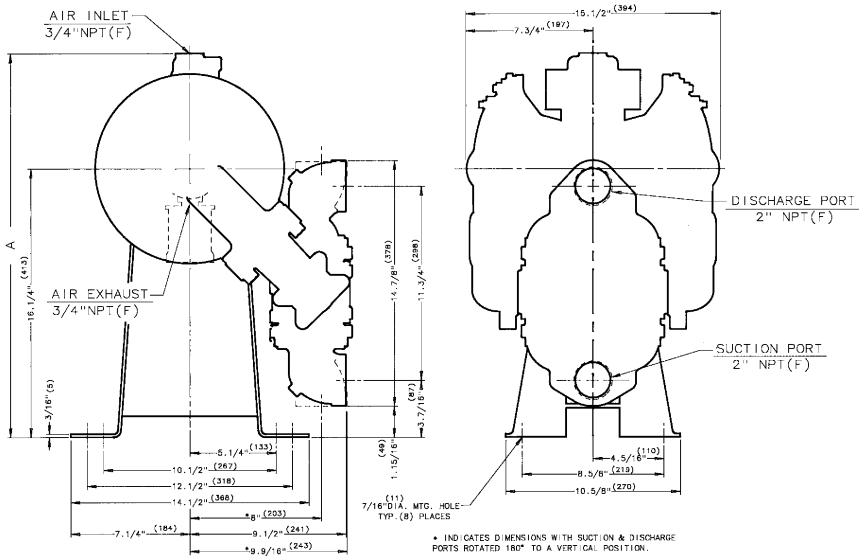
* Indicates dimensions with suction and discharge ports rotated 180° to a vertical position.



Dimension	A	B
Standard Pump	23 ¼" (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.



WARREN RUPP®, IDEX AODD, Inc. • A Unit of IDEX Corporation • 800 N. Main St., P.O. Box 1568, Mansfield, Ohio 44901-1568 USA
Telephone (419) 524-8388 • Fax (419) 522-7867 • www.warrenrupp.com