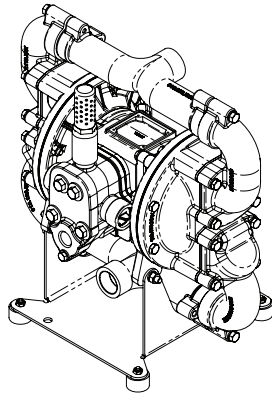


**WARREN RUPP®**

Quality System  
ISO9001 Certified

Environmental  
Management System  
ISO14001 Certified



**SANDPIPER®**

A WARREN RUPP PUMP BRAND

**Heavy Duty  
Flap Valve**

**HDF1** Type 1  
**HDF25** Type 1

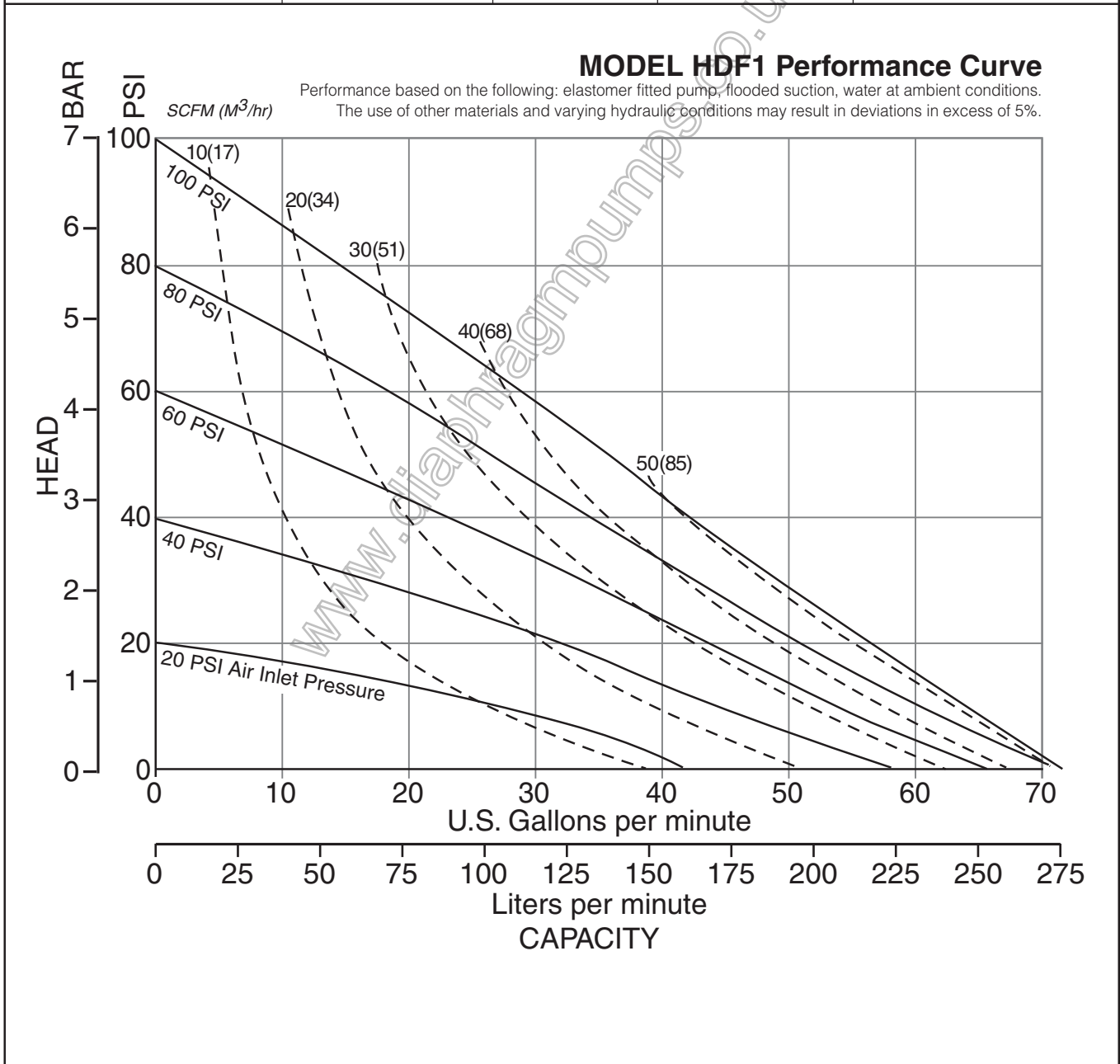
**Air-Operated  
Double Diaphragm Pump**

ENGINEERING, PERFORMANCE  
& CONSTRUCTION DATA

**IBEX**  
FLUID & METERING



INTAKE/DISCHARGE PIPE SIZE	CAPACITY	AIR VALVE	SOLIDS-HANDLING	HEADS UP TO
HDF1: 1" (25mm) NPT(F) HDF25: 1" (25mm) BSP Tapered	0 to 70 gallons per minute (0 to 265 liters per minute)	No-lube, no-stall design	1" (6.3mm)	125 psi or 289 ft. of water (8.8 Kg/cm <sup>2</sup> or 88 meters)



# HDF1 & HDF25 Heavy Duty Flap Valve



## MATERIALS OF CONSTRUCTION

Type	Manifold & Elbow	Outer Chamber	Inner Chamber	Outer Diaphragm Plate	Inner Diaphragm Plate	Intermediate Housing	Diaphragm Rod	Valve Seat	Hardware	Diaphragm	Flap Valve Material	Seat/Manifold Seal	Air Valve	Air Valve Cap	Shipping Wt. (lbs)
DB-1-A	356-T6AL	356-T6AL	AL380DC	AL380DC	PS	AL380DC	416SS	SS	PS	B	B	B	PE	AL380DC	48
DI-1-A	356-T6AL	356-T6AL	AL380DC	AL380DC	PS	AL380DC	416SS	SS	PS	I	I	I	PE	AL380DC	48
DN-1-A	356-T6AL	356-T6AL	AL380DC	AL380DC	PS	AL380DC	416SS	SS	PS	N	N	N	PE	AL380DC	48
DV-1-A	356-T6AL	356-T6AL	AL380DC	AL380DC	PS	AL380DC	416SS	SS	PS	V	V	V	PE	AL380DC	48
DP-1-A	356-T6AL	356-T6AL	AL380DC	AL380DC	PS	AL380DC	416SS	SS	PS	S	S	I	PE	AL380DC	48
DR-1-A	356-T6AL	356-T6AL	AL380DC	AL380DC	PS	AL380DC	416SS	SS	PS	H	H	N	PE	AL380DC	48
DA-1-A	356-T6AL	356-T6AL	AL380DC	AL380DC	PS	AL380DC	416SS	SS	PS	N	U	N	PE	AL380DC	48
DB-1-I	CI	CI	AL380DC	AL380DC	PS	AL380DC	416SS	SS	PS	B	B	B	PE	AL380DC	61
DI-1-I	CI	CI	AL380DC	AL380DC	PS	AL380DC	416SS	SS	PS	I	I	I	PE	AL380DC	61
DN-1-I	CI	CI	AL380DC	AL380DC	PS	AL380DC	416SS	SS	PS	N	N	N	PE	AL380DC	61
DV-1-I	CI	CI	AL380DC	AL380DC	PS	AL380DC	416SS	SS	PS	V	V	V	PE	AL380DC	61
DP-1-I	CI	CI	AL380DC	AL380DC	PS	AL380DC	416SS	SS	PS	S	S	I	PE	AL380DC	61
DR-1-I	CI	CI	AL380DC	AL380DC	PS	AL380DC	416SS	SS	PS	H	H	N	PE	AL380DC	61
DA-1-I	CI	CI	AL380DC	AL380DC	PS	AL380DC	416SS	SS	PS	N	U	N	PE	AL380DC	61
DB-1-S	SS	SS	AL380DC	AL380DC	PS	AL380DC	416SS	SS	PS	B	B	B	PE	AL380DC	64
DI-1-S	SS	SS	AL380DC	AL380DC	PS	AL380DC	416SS	SS	PS	I	I	I	PE	AL380DC	64
DN-1-S	SS	SS	AL380DC	AL380DC	PS	AL380DC	416SS	SS	PS	N	N	N	PE	AL380DC	64
DV-1-S	SS	SS	AL380DC	AL380DC	PS	AL380DC	416SS	SS	PS	V	V	V	PE	AL380DC	64
DP-1-S	SS	SS	AL380DC	AL380DC	PS	AL380DC	416SS	SS	PS	S	S	I	PE	AL380DC	64
DR-1-S	SS	SS	AL380DC	AL380DC	PS	AL380DC	416SS	SS	PS	H	H	N	PE	AL380DC	64
DA-1-S	SS	SS	AL380DC	AL380DC	PS	AL380DC	416SS	SS	PS	N	U	N	PE	AL380DC	64
DB-1-II	CI	CI	CI	CI	PS	CI	416SS	SS	PS	B	B	B	PE	PE	76
DI-1-II	CI	CI	CI	CI	PS	CI	416SS	SS	PS	I	I	I	PE	PE	76
DN-1-II	CI	CI	CI	CI	PS	CI	416SS	SS	PS	N	N	N	PE	PE	76
DV-1-II	CI	CI	CI	CI	PS	CI	416SS	SS	PS	V	V	V	PE	PE	76
DP-1-II	CI	CI	CI	CI	PS	CI	416SS	SS	PS	S	S	I	PE	PE	76
DR-1-II	CI	CI	CI	CI	PS	CI	416SS	SS	PS	H	H	N	PE	PE	76
DA-1-II	CI	CI	CI	CI	PS	CI	416SS	SS	PS	N	U	N	PE	PE	76
DB-1-SI	SS	SS	CI	CI	PS	CI	416SS	SS	PS	B	B	B	PE	PE	79
DI-1-SI	SS	SS	CI	CI	PS	CI	416SS	SS	PS	I	I	I	PE	PE	79
DN-1-SI	SS	SS	CI	CI	PS	CI	416SS	SS	PS	N	N	N	PE	PE	79
DV-1-SI	SS	SS	CI	CI	PS	CI	416SS	SS	PS	V	V	V	PE	PE	79
DP-1-SI	SS	SS	CI	CI	PS	CI	416SS	SS	PS	S	S	I	PE	PE	79
DR-1-SI	SS	SS	CI	CI	PS	CI	416SS	SS	PS	H	H	N	PE	PE	79
DA-1-SI	SS	SS	CI	CI	PS	CI	416SS	SS	PS	N	U	N	PE	PE	79

### Meaning of Abbreviations:

AL = Aluminum      DC = Die Cast      N = Neoprene      S = Santoprene      U = Urethane  
 B = Nitrile      H = Hytrel      PE = Conductive HDPE      SS = Stainless Steel      V = FKM  
 CI = Cast Iron      I = EPDM      PS = Plated Steel

### Materials

Operating Temperatures  
 Maximum\*      Minimum\*      Optimum\*\*

**Nitrile/FDA White 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 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.

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

**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

**Urethane** Shows good resistance to abrasives. Has poor resistance to most solvents and oils.

150°F  
66°C      +32°F  
0°C      50° to 110°F  
10°C to 43°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

† **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.

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

\* Definite reduction in service life.  
 \*\* Minimal reduction in service life at ends of range.

# HDF1 & HDF25

## Heavy Duty Flap Valve

