HUSKY™ SANITARY SERIES

A complete line of FDA-Compliant Air-Operated Double Diaphragm Pumps

PROCESS EQUIPMENT

PROVEN QUALITY. LEADING TECHNOLOGY.

A pump for all of your food-related applications!

More sizes and materials of construction than the competition. More features than you ever expected - including standard or remote capabilities, aluminum or stainless steel center sections and one of the most reliable air valves in the industry. That's what makes our Sanitary Series pumps perfect for all of your food-related applications. You won't find a more complete line of FDA-compliant pumps anywhere else!

Product Benefits:

- All fluid contact materials are FDA-Compliant and meet the United States Code of Federal Regulations (CFR) Title 21.
- All Santoprene®, Buna-N, Viton® and Teflon elastomers are food-grade.
- Diaphragms offer flow rates from 25-50% greater than many competitive pumps with Teflon® diaphragms.
- Both models come standard with our patented dual cup air valve – one of the most reliable air valves in the market.
- Available with standard or remote capabilities.
- Longest warranty in the industry.

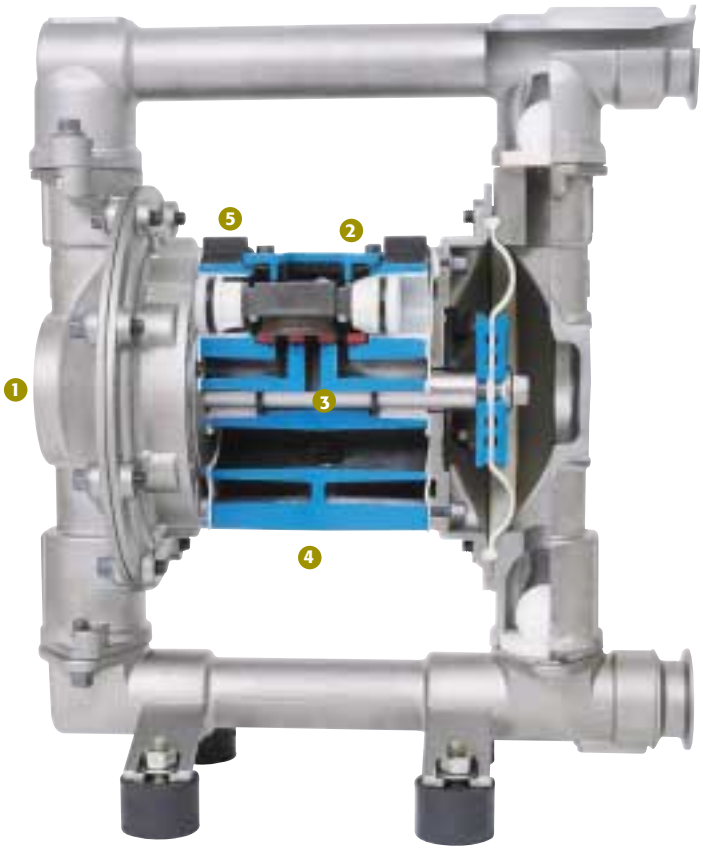
Key Materials

- Concentrated fruit juices
- Tomato paste
- Wine
- Oils
- Jams & jellies
- Sauces, pastes and starches
- Corn syrup
- Mineral oil
- Lanolin alcohol
- Glycol

Key Applications

- Evacuation of food process mixing kettles
- Transferring of ingredients from original container to mixing tanks
- High volume evacuation of liquid concentrates from shipping tankers to holding vessels.
- Repackaging of fluids from original container to smaller receptacles
- Pumping hand and massage lotions for the pharmaceutical industry

Product Features



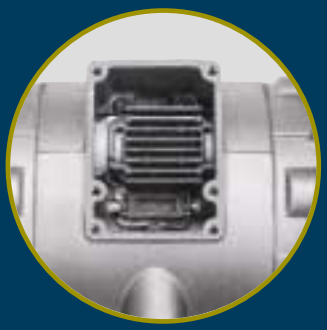
1. Bolted design for leak-free pumping and ease of assembly with integrated centering
2. Three-way pilot valve for no-stick operation
3. Long-lasting 300 Series stainless steel rod design for long life and corrosion resistance
4. 1 1/2″, 2″, 2 1/2″ Sanitary Series FDA pumps use common center sections to reduce inventory
5. 100% externally serviceable air valve

ADDITIONAL BENEFITS

- Lube-free operation for cleaner operation – essential when handling food products
- Protective Exhaust Port muffles the sound and reduces the decibel output.
- Superior air valve reliability with 15-year warranty on center section
- 5-year fluid end warranty
- Flow rates up to 150 gpm (567.8 lpm)
- Rugged exterior construction resists corrosion, prevents leakage and ensures clean fluid transfer

State-of-the-Art Husky Air Valve

Our Husky Air-Operated Double Diaphragm Pumps feature extremely reliable, externally serviceable air valves that make the Husky Sanitary Series pumps among the best in the industry.



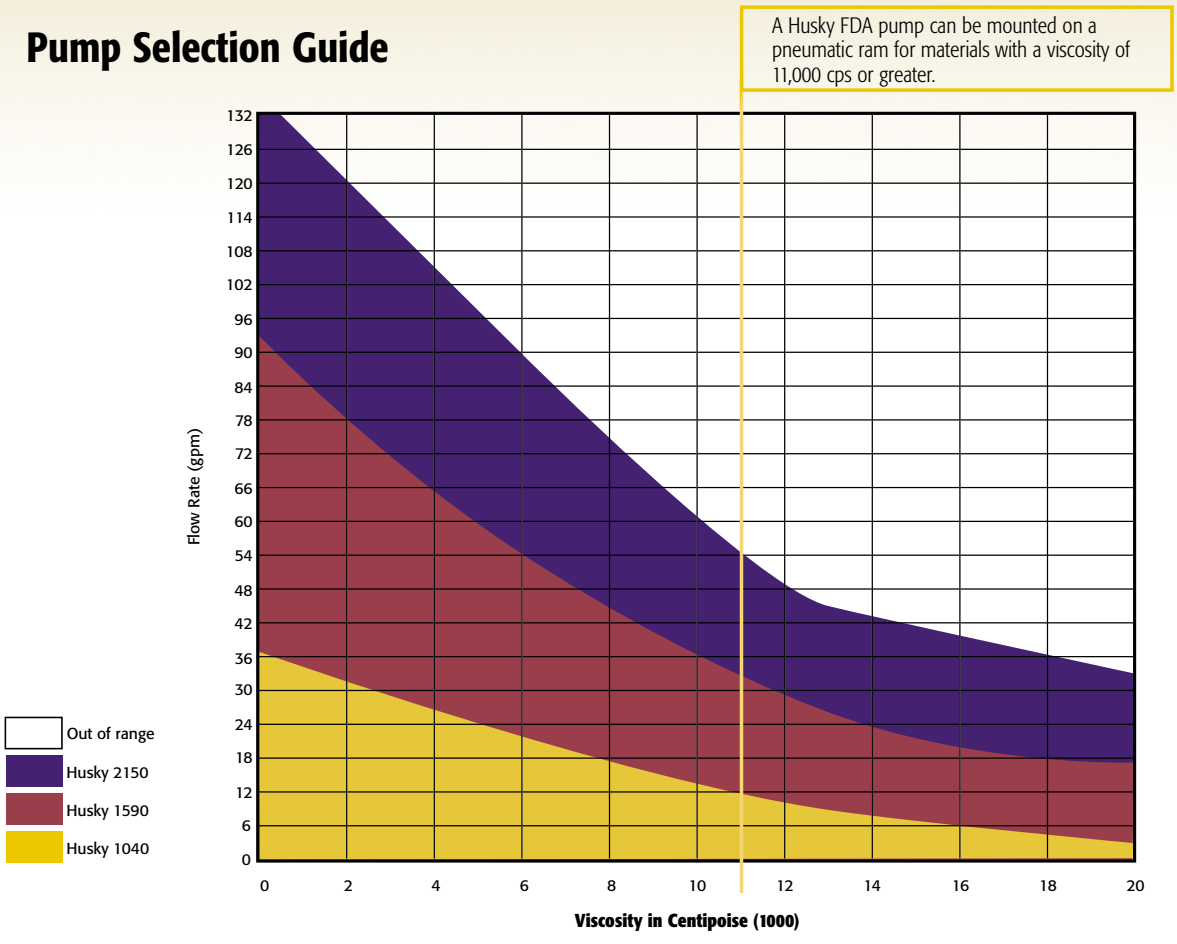
top view of air valve

FEATURES AND BENEFITS

- Fewer moving parts means increased durability and less repair time
- Three-way pilot valve for true non-sticking operation
- Externally serviceable for quick, inexpensive repairs
- The elimination of o-rings and a spool valve prevents centering; a common problem with competitive pumps
- Lube-free operation for cleaner operation – essential when handling food products
- Standard and remote air valve for additional application flexibility

Find the right pump for you!

Pump Selection Guide



FLOWS READILY	FLOWS SLOWLY	FLOWS VERY SLOWLY
FRUIT JUICE	TOMATO PASTE	SOFT PEANUT BUTTER
WINE	MOLASSES	THICK SAUCES AND PASTE
OILS	FROZEN JUICE CONCENTRATE	FLOWABLE ICING
SAUCES		
LIQUID DETERGENTS		

EXAMPLES:

Choose a **Husky FDA 1040** to pump low viscosity materials like fruit juice (2000 cps) at flow rates up to 30 gpm (114 lpm).

Choose a **Husky FDA 1590** to pump semi-viscous materials like frozen juice concentrate (6,000 cps) at flow rates up to 48 gpm (182 lpm).

Choose a **Husky FDA 2150** to pump more viscous materials like thick sauces (10,000 cps) at flow rates up to 54 gpm (204 lpm).

Choose a **Husky FDA pump mounted on a pneumatic ram** to pump higher viscosity materials like soft peanut butter (14,000 cps) at flow rates up to 15 gpm (57 lpm).

Other factors such as line size, line length and application pressure will also affect pump evacuation performance.

Two Styles of FDA Pumps. One Decision.

Both of the Husky FDA and FDA Plus pumps offer the reliability and performance you've come to expect from Graco. The difference is the stainless steel center section that our Husky FDA Plus models offer for those food-related applications where stronger cleaning chemicals are necessary.

Husky 1040 FDA Pumps

1-1/2 INCH

IDEAL FOR:
Applications requiring a compact portable design, but with high flow rates (40 gpm)

SIZE:
1-1/2 in (38.1 mm)
Tri-clamp connection

FLOW RATE:
Max. flow: 40 gpm (151 lpm)

FLUID PRESSURE:
Max. pressure: 120 psi (8.4 bar, 0.84 MPa)

HUSKY 1040 FDA

HUSKY 1040 FDA PLUS

Husky 1590 FDA Pumps

2-INCH

IDEAL FOR:
Applications requiring high flow rates (100 gpm), but still desire a more portable pump

SIZE:
2 in (50.8 mm)
Tri-clamp connection

FLOW RATE:
Max. flow: 100 gpm (378 lpm)

FLUID PRESSURE:
Max. pressure: 120 psi (8.4 bar, 0.84 MPa)

HUSKY 1590 FDA

HUSKY 1590 FDA PLUS

Husky 2150 FDA Pumps

2-1/2 INCH

IDEAL FOR:
The most demanding applications. Highest flow capacity among FDA pumps (150 gpm)

SIZE:
2-1/2 in (63.5 mm)
Tri-clamp connection

FLOW RATE:
Max. flow: 150 gpm (568 lpm)

FLUID PRESSURE:
Max. pressure: 120 psi (8.4 bar, 0.84 MPa)

HUSKY 2150 FDA

HUSKY 2150 FDA PLUS

The Graco Advantage.

Built to Last

BOLTED CONSTRUCTION

The standard bolted design of Husky pumps provides ease-of-service and eliminates leakage associated with traditional clamp style pumps.

FULL FLOW DIAPHRAGM, BALLS AND SEATS

A wide range of full-flow diaphragms, seat and ball options ensure fluid compatibility for maximum efficiency, long life and better suction lift.

STANDARD AND REMOTE CONTROL CAPABILITIES

Husky pumps give you the choice between standard systems that feature uncontrolled flow rates, and remote-controlled pumps that offer controlled flow rates and running times.

Longest Warranty available for Air-Operated Double Diaphragm Pumps

Graco is so confident in the design of the Husky product line and the manufacturing process, we have extended the warranty period to 5 years on the fluid end and to15 years on the center sections. Most competitors with similar products only offer a 1-year warranty.

This means you can look forward to years of reliable service with Graco Husky FDA Sanitary Series Pumps.

Precise Control of Fluids

Graco CycleFlo™ Controllers allow precise control over pump speed, run time and quantity of product delivered by the pump, allowing various materials to be batched in simultaneously. CycleFlo Controllers also allow pumps to run at high fluid pressures, with low flow rates without any downstream regulation. (Note: In high-use wash down areas, the CycleFlo should be enclosed.)

For a simpler, more economical alternative, the Cycle Flo II Controller offers an adjustable pump speed and remote capabilities. It is used with remote pumps to automatically turn on or shut off, and run at a variable speed predetermined by the operator.

Simply the Best Choice

Graco is making it easy to select a pump that is right for you by offering the most complete line of FDA-Compliant pumps available.

Our diaphragm pumps offer flow rates from 25-50% greater than many competitive pumps with Teflon® diaphragms. Our Husky Air Valves make Graco pumps the best in the industry for ease-of-service and reliability.

For additional flexibility, the Husky FDA Sanitary Series pumps are available with both aluminum and stainless steel center sections, and offer both standard and remote air valves.

When it comes to the variety of features, sizes and materials of construction available, the choice is clearly Graco.

Graco's Air Valves are Extremely Reliable and Easy to Service

All Husky™ Air-Operated Double Diaphragm pumps feature a simple, exceptionally reliable air valve that makes the Sanitary Series line of pumps among the best in the business.

Not only will you save money on labor and repairs, but you will also save time because Graco air valves are less likely to stall or stick.

Return-on-investment

Use this exclusive cost of ownership analysis tool to see how much you can save due to the reliability and serviceability of the Air Valve in all Husky FDA and FDA Plus pumps.

		EXAMPLE ESTIMATE			ACTUAL ESTIMATE	
Labor Savings		Typical Air Valve	Husky Air Valve		Enter Your Labor Information Here	Husky Air Valve
Time to Repair Air Valve (min)	x	90	15	x		
Number of Rebuilds per year	x	2	1	x		
Labor rate per hour	=	$45.00	$45.00	=		
Annual Labor Cost		$135.00	$11.25			
Annual Labor Savings		$123.75				

Repair Part Savings		Typical Air Valve	Husky Air Valve		Enter Your Repair Information Here	Husky Air Valve
Total Cost of Repair Parts		$130.00	$40.00			
Number of Repairs per year	x	2	1	x		
Annual Repair Part Costs	=	$260.00	$40.00	=		
Annual Repair Part Savings		$220.00				
Total Annual Cost of Ownership Savings*		$343.75				

* Savings are based on the repair of one pump.

Technical Specifications and Ordering Information

Husky 1040 FDA

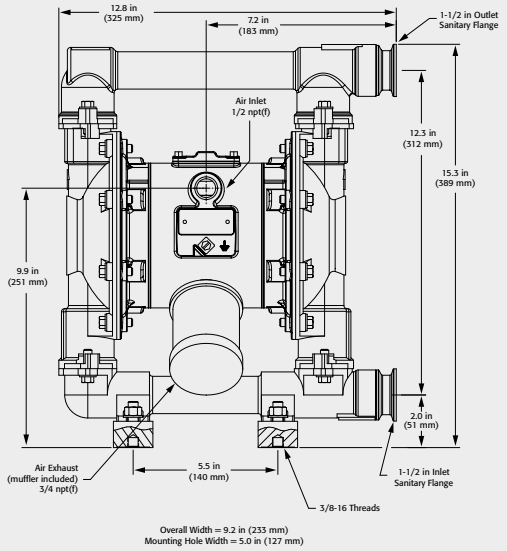
Technical Specifications

Maximum fluid working pressure . . . . . 120 psi (8.4 bar, 0.84 MPa)
Maximum free flow delivery* . . . . . 40 gpm (151 lpm)
Maximum pump speed . . . . . 276 cpm
Displacement per cycle** . . . . . 0.15 gallon (0.57 liter)
Maximum suction lift (D7S888) . . . . . 18 ft (5.48 m) wet or dry
Maximum size pumpable solids . . . . . 0.13 in (3.2 mm)
Maximum diaphragm ball and seat operating temperature ratings***
Teflon 220ºF (104.4ºC)
Santoprene 180ºF (82.2ºC)
Buna-N 180ºF (82.2ºC)
Viton 250ºF (121ºC)
Typical sound level at 70 psi air
(0.49 bar, 4.9 MPa) air @ 50 cpm . . . . . 78 dBa
Maximum air consumption . . . . . 60 scfm (1.7 m3/min)
Air pressure operating range . . . . . 20 to 120 psi (1.4 to 8.4 bar, 0.14 to 0.84 MPa)
Air inlet size . . . . . 1/2 npt(f)
Fluid inlet & outlet size . . . . . 1-1/2 in (38.1 mm) Tri-Clamp
Weight (with aluminum center section) . . . . . 34 lb (16 kg)
Weight (with SST center section) . . . . . 47 lb (22 kg)
Instruction manual 309528

** Flow rates are with muffler and do not vary based on diaphragm material.*
***Displacement per cycle may vary based on suction condition, discharge head, air pressure and fluid type.*
**** Actual pump performance may be affected by prolonged usage at temperature.*

Ordering Information

FDA		FDA Plus				
Aluminum Center Section		SST Center Section				
Standard Air Valve	Remote Air Valve	Standard Air Valve	Remote Air Valve	Seats	Balls	Diaphragms
D7S311	D8S311	DRS311	DSS311	SST with Teflon o-ring	Teflon	Teflon
D7SB11	D8SB11	DRSB11	DSSB11	SST with Viton o-ring	Teflon	Teflon
D7S666	D8S666	DRS666	DSS666	Santoprene with Teflon o-ring	Santoprene	Santoprene
D7SC66	D8SC66	DRSC66	DSSC66	Santoprene with Viton o-ring	Santoprene	Santoprene
D7S377	D8S377	DRS377	DSS377	SST with Teflon o-ring	Buna-N	Buna-N
D7SB77	D8SB77	DRSB77	DSSB77	SST with Viton o-ring	Buna-N	Buna-N
D7S388	D8S388	DRS388	DSS388	SST with Teflon o-ring	Viton	Viton
D7SB88	D8SB88	DRSB88	DSSB88	SST with Viton o-ring	Viton	Viton
D7S766	D8S766	DRS766	DSS766	Buna-N	Santoprene	Santoprene
D7S777	D8S777	DRS777	DSS777	Buna-N	Buna-N	Buna-N
D7S811	D8S811	DRS811	DSS811	Viton	Teflon	Teflon
D7S866	D8S866	DRS866	DSS866	Viton	Santoprene	Santoprene
D7S888	D8S888	DRS888	DSS888	Viton	Viton	Viton



Technical Specifications and Ordering Information

Husky 1590 FDA

Technical Specifications

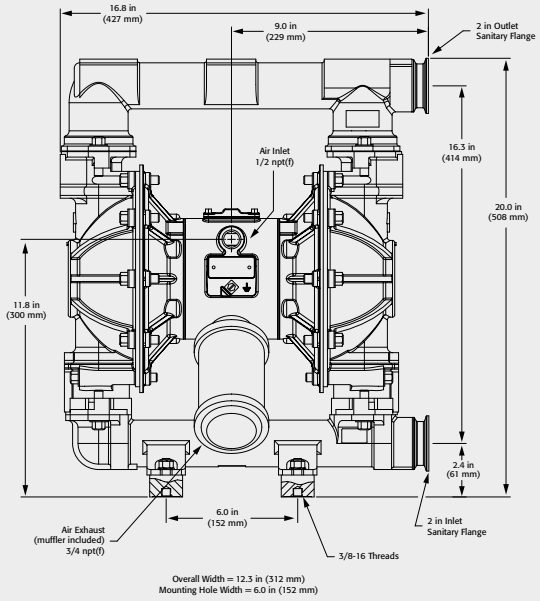
Maximum fluid working pressure . . . . . 120 psi (8.4 bar, 0.84 MPa)
Maximum free flow delivery* . . . . . 100 gpm (378.5 lpm)
Maximum pump speed . . . . . 200 cpm
Displacement per cycle** . . . . . 0.5 gallon (1.96 liter)
Maximum suction lift (DBS888) . . . . . 18 ft (5.48 m) wet or dry
Maximum size pumpable solids . . . . . 0.19 in (4.8 mm)
Maximum diaphragm operating temperature***
- Teflon 220ºF (104.4ºC)
- Santoprene 180ºF (82.2ºC)
- Buna-N 180ºF (82.2ºC)
- Viton 250ºF (121ºC)

Typical sound level
at 70 psi air (4.9 bar, 0.49 MPa) air @ 50 cpm . . . . . 72 dBa
Maximum air consumption . . . . . 125 scfm (3.5 m3/min)
Air pressure operating range . . . . . 20 to 120 psi (1.4 to 8.4 bar, 0.14 to 0.84 MPa)
Air inlet size . . . . . 1/2 npt(f)
Fluid inlet & outlet size . . . . . .2 in (50.8 mm) Tri-Clamp
Weight (with aluminum center section) . . . . . 72 lb (32.7 kg)
Weight (with SST center section) . . . . . 86 lb (40 kg)
Instruction manual 309528

** Flow rates are with muffler and do not vary based on diaphragm material.*
***Displacement per cycle may vary based on suction condition, discharge head, air pressure and fluid type.503*
**** Actual pump performance may be affected by prolonged usage at temperature.*

Ordering Information

FDA		FDA Plus				
Aluminum Center Section		SST Center Section				
Standard Air Valve	Remote Air Valve	Standard Air Valve	Remote Air Valve	Seats	Balls	Diaphragms
DBS311	DCS311	DTS311	DUS311	SST with Teflon o-ring	Teflon	Teflon
DBSB11	DCSB11	DTSB11	DUSB11	SST with Viton o-ring	Teflon	Teflon
DBS666	DCS666	DTS666	DUS666	Santoprene with Teflon o-ring	Santoprene	Santoprene
DBSC66	DCSC66	DTSC66	DUSC66	Santoprene with Viton o-ring	Santoprene	Santoprene
DBS377	DCS377	DTS377	DUS377	SST with Teflon o-ring	Buna-N	Buna-N
DBSB77	DCSB77	DTSB77	DUSB77	SST with Viton o-ring	Buna-N	Buna-N
DBS388	DCS388	DTS388	DUS388	SST with Teflon o-ring	Viton	Viton
DBSB88	DCSB88	DTSB88	DUSB88	SST with Viton o-ring	Viton	Viton
DBS766	DCS766	DTS766	DUS766	Buna-N	Santoprene	Santoprene
DBS777	DCS777	DTS777	DUS777	Buna-N	Buna-N	Buna-N
DBS811	DCS811	DTS811	DUS811	Viton	Teflon	Teflon
DBS866	DCS866	DTS866	DUS866	Viton	Santoprene	Santoprene
DBS888	DCS888	DTS888	DUS888	Viton	Viton	Viton



Technical Specifications and Ordering Information

Husky 2150 FDA

Technical Specifications

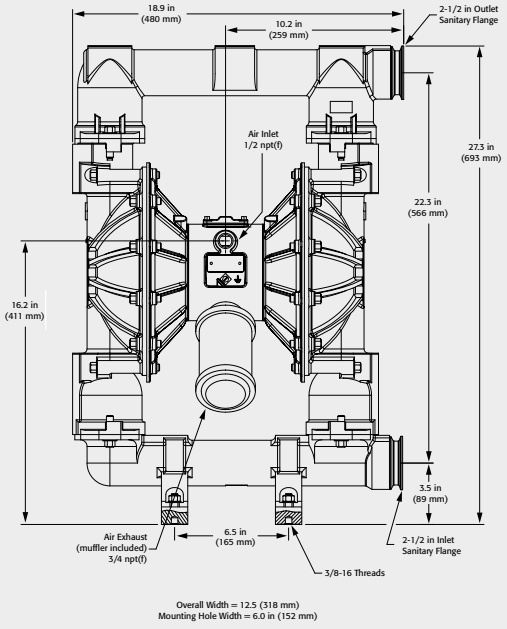
Maximum fluid working pressure . . . . . 120 psi (8.4 bar, 0.84 MPa)
Maximum free flow delivery* . . . . . 150 gpm (568 lpm)
Maximum pump speed . . . . . 145 cpm
Displacement per cycle** . . . . . 1.03 gallon (3.90 liter)
Maximum suction lift (DFS888) . . . . . 18 ft (5.48 m) wet or dry
Maximum size pumpable solids . . . . . 0.25 in (6.3 mm)
Maximum diaphragm operating temperature***
- Teflon 220ºF (104.4ºC)
- Santoprene 180ºF (82.2ºC)
- Buna-N 180ºF (82.2ºC)
- Viton 250ºF (121ºC)

Typical sound level at 70 psi air
(4.9 bar, 0.49 MPa) air @ 50 cpm . . . . . 85 dBa
Maximum air consumption . . . . . 175 scfm (4.9 m3/min)
Air pressure operating range . . . . . 20 to 120 psi (1.4 to 8.4 bar, 0.14 to 0.84 MPa)
Air inlet size . . . . . 1/2 npt(f)
Fluid inlet & outlet size . . . . . 2-1/2 in (63.5 mm) Tri-Clamp
Weight (with aluminum center section) . . . . . 122 lb (50.8 kg)
Weight (with SST center section) . . . . . 134 lb (61 kg)
Instruction manual 309528

** Flow rates are with muffler and do not vary based on diaphragm material.*
*** Displacement per cycle may vary based on suction condition, discharge head, air pressure and fluid type.*
**** Actual pump performance may be affected by prolonged usage at temperature.*

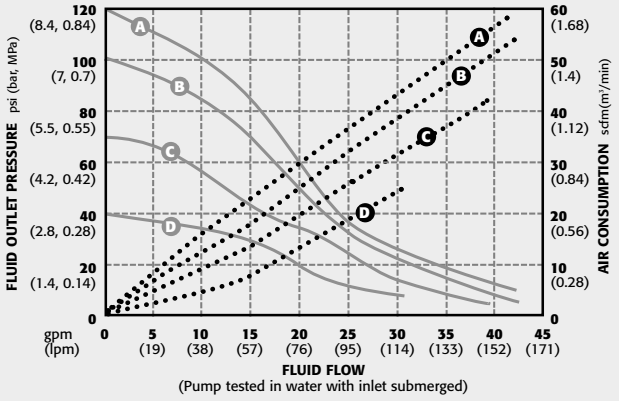
Ordering Information

FDA		FDA Plus				
Aluminum Center Section		SST Center Section				
Standard Air Valve	Remote Air Valve	Standard Air Valve	Remote Air Valve	Seats	Balls	Diaphragms
DFS311	DGS311	DVS311	DWS311	SST with Teflon o-ring	Teflon	Teflon
DFSB11	DGSB11	DVSB11	DWSB11	SST with Viton o-ring	Teflon	Teflon
DFS666	DGS666	DVS666	DWS666	Santoprene with Teflon o-ring	Santoprene	Santoprene
DFSC66	DGSC66	DVSC66	DWSC66	Santoprene with Viton o-ring	Santoprene	Santoprene
DFS377	DGS377	DVS377	DWS377	SST with Teflon o-ring	Buna-N	Buna-N
DFSB77	DGSB77	DVSB77	DWSB77	SST with Viton o-ring	Buna-N	Buna-N
DFS388	DGS388	DVS388	DWS388	SST with Teflon o-ring	Viton	Viton
DFSB88	DGSB88	DVSB88	DWSB88	SST with Viton o-ring	Viton	Viton
DFS766	DGS766	DVS766	DWS766	Buna-N	Santoprene	Santoprene
DFS777	DGS777	DVS777	DWS777	Buna-N	Buna-N	Buna-N
DFS811	DGS811	DVS811	DWS811	Viton	Teflon	Teflon
DFS866	DGS866	DVS866	DWS866	Viton	Santoprene	Santoprene
DFS888	DGS888	DVS888	DWS888	Viton	Viton	Viton



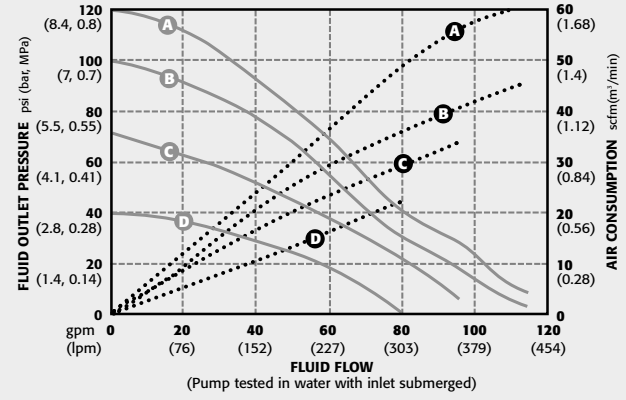
Performance Curves

Husky 1040 Performance Chart



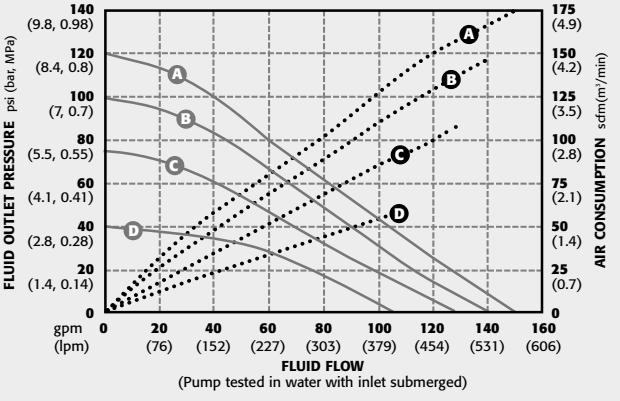
(Pump tested in water with inlet submerged)

Husky 1590 Performance Chart



(Pump tested in water with inlet submerged)

Husky 2150 Performance Chart



(Pump tested in water with inlet submerged)

How to use this chart:

Step 1: Locate the required fluid flow rate along bottom axis of chart.

Step 2: Follow vertical line to the intersection with the solid curve (A, B or C – based on your air inlet pressure).

Step 3: Follow to left axis to read fluid outlet pressure.

Step 4: From Step 2, follow vertical line up or down to the intersection with the dotted line (A, B or C – based on your air inlet pressure) then follow to right axis to read air consumption.

Example:

With a Husky 2150 pump, to obtain 80 gpm (302.8 lpm) at approximately 50 psi (3.4 bar, 0.34 MPa), you will need 100 psi (7.0 bar, 0.7 MPa) of air pressure. The air consumption will be approximately 70 scfm.

AIR PRESSURES	LEGEND
(A) = at 120 psi (8.4 bar, 0.84 MPa)	
(B) = at 100 psi (7 bar, 0.7 MPa)	Air Consumption ••••
(C) = at 70 psi (4.8 bar, 0.48 MPa)	Fluid Flow ——
(D) = at 40 psi (2.8 bar, 0.28 MPa)	