

Fixed, Dirt Tolerant Venturi Vacuum Pumps

FDF Series



*FDF 200-ST4
handles
porous ceramic
honeycomb*



FDF 250-ST4A-2

Standard Pump:

The FDF Series offers the same inline, dirt tolerant design as the VDF Series without the adjustability. The FDF Series have a “fixed” performance level.

The in-line vacuum to exhaust flow path ensures that ingested debris and dirt passes through the pump and out the straight-through silencer. Designed for extremely dirty environments these pumps perform reliably in applications such as furniture making, bottling and material handling.

The FDF Series pumps are set to generate the maximum vacuum level [25"Hg/847mbar] and maximum vacuum flow of the comparable VDF Series pump.

Ideal Applications

Ideal for dirty, dusty environments; the FDF holds porous materials securely:

- Bag/box opening
- Material handling
- Pick and place – dusty/dirty environments
- Vacuum filling – liquids and powders
- Vacuum packaging – coated materials

Features and Benefits:

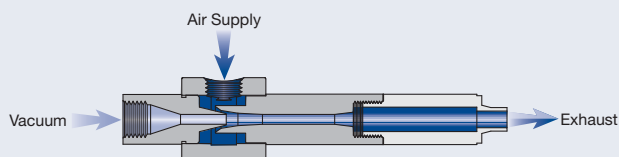
- Factory set for optimum performance
- Cost efficient – high performance to air consumption ratio
- Safe Operation:
 - ~ No electricity needed at the pump
 - ~ No heat generated
- Reliable, durable, trouble-free operation:
 - ~ Tamper proof
 - ~ No moving parts to wear
 - ~ Straight-through design – non-clogging
 - ~ No flap valves to stick open
 - ~ No maintenance
 - ~ No downtime

Pump Options:

- ST Silencers – straight through silencers won't clog
- G port threads for metric machines – an “I” prefix designates products with metric threads
- Choice of operating pressures: operates at any pressure above 50 PSI [3.5 BAR]
- For chemical compatibility requirements, high temperature, food, medical and caustic applications, custom materials are available including stainless steel, PEEK, Delrin,[™] Teflon,[™] PVC.

Principles of Operation:

Using an “inside-out” venturi design, compressed air is forced through a limiting annular gap into the main bore where it increases in velocity and develops a powerful vacuum. The vacuum to exhaust path is in a straight line allowing ingested debris to easily pass through the vacuum pump. This extremely simple design is efficient and indestructible. All FDF models generate 25"Hg at 80 PSI.



Eliminate the Guesswork: Contact Us!

Vacuum technology isn't an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

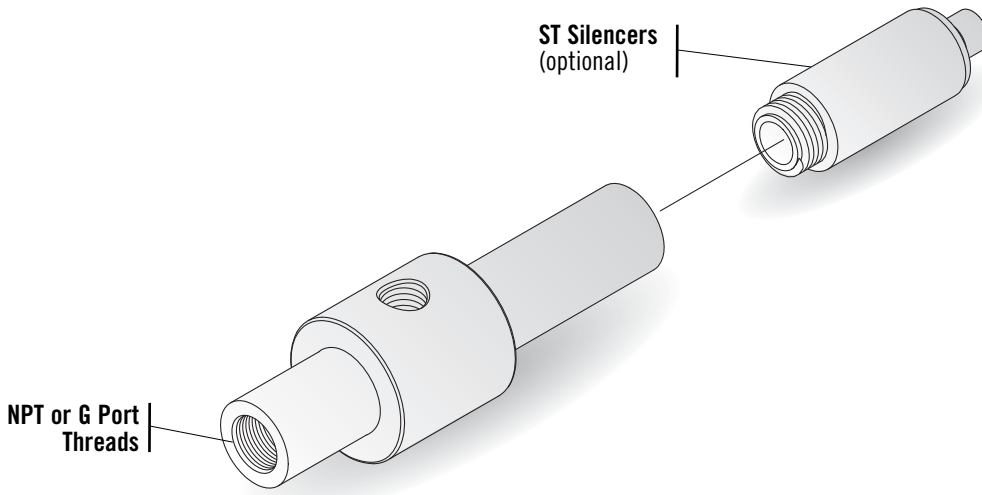
To download a complete set of drawings in 13 different CAD formats, please visit our website at www.vaccon.com

For more information or technical assistance, please call 508-359-7200 or 800-848-8788 or email engineering@vaccon.com

Fixed, Dirt Tolerant Venturi Vacuum Pumps

FD Series Configurations and Options:

All Vaccon pumps offer a variety of options and accessories to meet your specific requirements. Please configure your pump from the options listed below.



On-line Configurator and CAD Drawings @ www.vaccon.com

New powerful design tool saves you time by configuring the pump you need on-line. When complete, simply download the CAD drawing in any one of 13 different CAD formats and insert it right into your design.

Get the pump you need, in the format you like!

How to Specify:

FD 100 - ST4 - 303

P/N	Thread	Silencer
FD 100	NPT	ST4
FD 150	NPT	ST4
FD 200	NPT	ST4
FD 250	NPT	ST4A2
FD 375	NPT	ST8B
FD 500	NPT	ST12C
FD 750	NPT	ST16C
I-FD 100	G Port	ST4
I-FD 150	G Port	ST4
I-FD 200	G Port	ST4
I-FD 250	G Port	ST4A2
I-FD 375	G Port	ST8B
I-FD 500	G Port	ST12C
I-FD 750	G Port	ST16C

P/N	Material
	Anodized Aluminum
303	303 Stainless Steel
304	304 Stainless Steel
316	316 Stainless Steel
316L	316 Low Carbon Stainless
PVC	PVC
TEF	PTFE
PK	PEEK
DEL	Delrin

*Vaccon strongly recommends the use of silencers on all pumps except where the exhaust is plumbed away.

FD Series Vacuum Pump Standard Specifications:

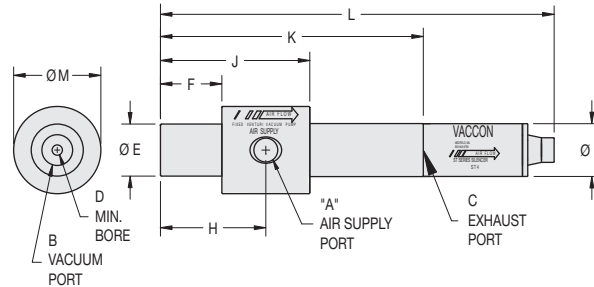
Body Material:	Anodized Aluminum (For silencer material - See page 235-236)
Medium:	Filtered (50 Micron) un-lubricated, non-corrosive dry gases
Operating Temperature:	-100° ~ 400° F [-73° ~ 204°C]
Operating Pressure:	Above 50 PSI

FD Series Vacuum Pump Installation Options:

Model #:	FD 100, 150, 200, 250	FD 375	FD 500	FD 750
Air Supply Line - Tubing†	3/8" [10mm]	1/2" [12mm]	1/2" [12mm]	5/8" [16mm]
Vacuum Line - Tubing†	3/8" [10mm]	5/8" [16mm]	3/4" [19mm] ID Hose	1.0" [25mm] ID Hose

†Tubing size is based on 0.062 wall – polyethylene & polyurethane.

Standard Pump: FDF Series (100, 150, 200, 250, 375, 500, 750) with ST Silencers



Vaccon strongly recommends the use of silencers on all pumps except where the exhaust is plumbed away.

Model #	FDF Series – Imperial Dimensions (in.)												Weight
	A	B	C	D	E	F	H	J	K	L	M	N	
FDF 100	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.13	0.74	0.87	1.50	2.12	3.73		1.24		3.5 oz
FDF 100-ST4	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.13	0.74	0.87	1.50	2.12	3.73	5.60	1.24	0.75	4.1 oz
FDF 150	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.15	0.74	0.87	1.50	2.12	3.73		1.24		3.5 oz
FDF 150-ST4	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.15	0.74	0.87	1.50	2.12	3.73	5.60	1.24	0.75	4.1 oz
FDF 200	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.19	0.74	0.87	1.50	2.12	3.73		1.24		3.5 oz
FDF 200-ST4	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.19	0.74	0.87	1.50	2.12	3.73	5.60	1.24	0.75	4.1 oz
FDF 250	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.27	0.74	0.87	1.50	2.12	3.73		1.24		3.4 oz
FDF 250-ST4A2	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.27	0.74	0.87	1.50	2.12	3.73	6.29	1.24	1.00	4.8 oz
FDF 375	3/8 NPT F	1/2 NPT F	1/2 NPT F	0.38	0.99	1.50	2.37	3.25	6.04		1.74		9.2 oz
FDF 375-ST8B	3/8 NPT F	1/2 NPT F	1/2 NPT F	0.38	0.99	1.50	2.37	3.25	6.04	10.84	1.74	1.25	12.2 oz
FDF 500	3/8 NPT F	1/2 NPT F	3/4 NPT F	0.50	1.24	1.50	2.50	3.50	6.06		1.97		13.7 oz
FDF 500-ST12C	3/8 NPT F	1/2 NPT F	3/4 NPT F	0.50	1.24	1.50	2.50	3.50	6.06	13.00	1.97	2.00	1 lb 5 oz
FDF 750	1/2 NPT F	3/4 NPT F	1 NPT F	0.75	1.49	1.50	2.50	3.50	6.95		2.22		1 lb 2 oz
FDF 750-ST16C	1/2 NPT F	3/4 NPT F	1 NPT F	0.75	1.49	1.50	2.50	3.50	6.95	13.88	2.22	2.00	1 lb 10 oz

Model #	FDF Series – Metric Dimensions (mm.)												Weight
	A	B	C	D	E	F	H	J	K	L	M	N	
I-FDF 100	G 1/8	G 1/4	G 1/4	3.2	18.8	22.1	38.1	53.8	94.7		31.5		100 g
I-FDF 100-ST4	G 1/8	G 1/4	G 1/4	3.2	18.8	22.1	38.1	53.8	94.7	142.2	31.5	19.1	117 g
I-FDF 150	G 1/8	G 1/4	G 1/4	3.7	18.8	22.1	38.1	53.8	94.7		31.5		100 g
I-FDF 150-ST4	G 1/8	G 1/4	G 1/4	3.7	18.8	22.1	38.1	53.8	94.7	142.2	31.5	19.1	117 g
I-FDF 200	G 1/8	G 1/4	G 1/4	4.8	18.8	22.1	38.1	53.8	94.7		31.5		100 g
I-FDF 200-ST4	G 1/8	G 1/4	G 1/4	4.8	18.8	22.1	38.1	53.8	94.7	142.2	31.5	19.1	117 g
I-FDF 250	G 1/8	G 1/4	G 1/4	6.7	18.8	22.1	38.1	53.8	94.7		31.5		97 g
I-FDF 250-ST4A2	G 1/8	G 1/4	G 1/4	6.7	18.8	22.1	38.1	53.8	94.7	159.8	31.5	25.4	137 g
I-FDF 375	G 3/8	G 1/2	G 1/2	9.5	25.1	38.1	60.2	82.6	153.4		44.2		260 g
I-FDF 375-ST8B	G 3/8	G 1/2	G 1/2	9.5	25.1	38.1	60.2	82.6	153.4	275.3	44.2	31.8	345 g
I-FDF 500	G 3/8	G 1/2	G 3/4	12.7	31.5	38.1	63.5	88.9	153.9		50.0		388 g
I-FDF 500-ST12C	G 3/8	G 1/2	G 3/4	12.7	31.5	38.1	63.5	88.9	153.9	330.2	50.0	50.8	601 g
I-FDF 750	G 1/2	G 3/4	G 1	19.1	37.8	38.1	63.5	88.9	176.5		56.4		524 g
I-FDF 750-ST16C	G 1/2	G 3/4	G 1	19.1	37.8	38.1	63.5	88.9	176.5	352.6	56.4	50.8	743 g

FDf Series Pumps Performance Chart

Model #	Imperial - Vacuum Flow (SCFM) vs Vacuum Level ("Hg)									
	0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	21"Hg	24"Hg	25"Hg
FDf 100	2.00	1.80	1.60	1.40	1.30	1.20	1.10	0.75	0.25	0.00
FDf 150	3.20	2.80	2.50	2.20	1.80	1.60	1.30	0.90	0.40	0.00
FDf 200	6.00	5.60	5.00	4.20	3.60	3.00	2.60	1.80	0.90	0.00
FDf 250	10.00	9.20	8.30	7.50	6.60	5.80	5.20	3.80	1.30	0.00
FDf 375	30.00	27.00	25.00	23.00	21.00	18.00	16.00	11.00	3.00	0.00
FDf 500	60.00	52.00	45.00	41.00	38.00	35.00	28.00	19.00	5.00	0.00
FDf 750	120.00	99.00	83.00	74.00	62.00	51.00	46.00	34.00	9.00	0.00

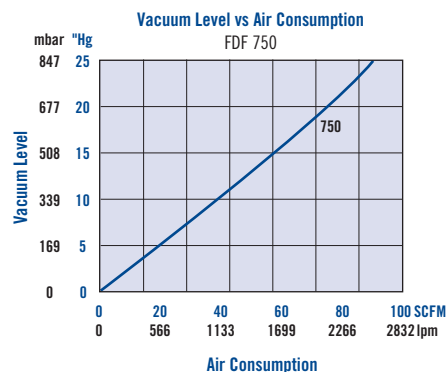
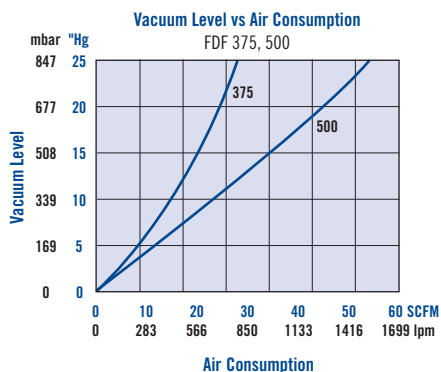
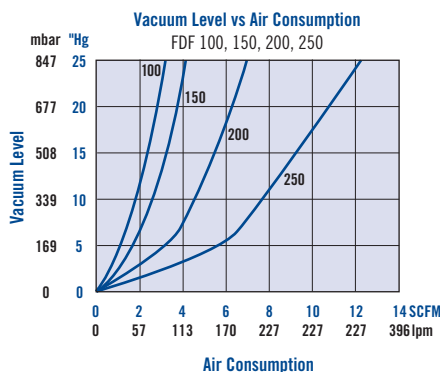
Model #	Imperial - Evacuation Time (seconds) based on 1 cu. ft. volume with FDf set at 25"Hg									
	0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	21"Hg	24"Hg	25"Hg
FDf 100	0.00	3.34	7.95	13.60	20.53	28.48	38.74	53.88	84.15	104.94
FDf 150	0.00	2.57	5.90	10.00	15.39	22.06	31.05	46.18	75.69	97.50
FDf 200	0.00	1.03	2.57	4.11	6.41	9.49	13.34	19.50	31.05	38.23
FDf 250	0.00	0.51	1.03	1.80	2.82	4.11	5.90	9.75	17.19	21.55
FDf 375	0.00	0.00	0.51	1.03	1.28	2.05	3.08	4.87	8.47	12.83
FDf 500	0.00	0.00	0.21	0.48	0.73	1.08	1.54	2.73	4.45	6.92
FDf 750	0.00	0.00	0.00	0.00	0.12	0.38	0.70	1.09	3.07	5.38

Model #	Metric - Vacuum Flow (LPM) vs Vacuum Level (mbar)									
	0 mbar	102 mbar	203 mbar	305 mbar	406 mbar	508 mbar	609 mbar	711 mbar	813 mbar	846 mbar
I-FDf 100	56.6	51.0	45.3	39.6	36.8	34.0	31.2	21.2	7.1	0.00
I-FDf 150	90.6	79.3	70.8	62.3	51.0	45.3	36.8	25.5	11.3	0.00
I-FDf 200	169.9	158.6	141.6	118.9	102.0	85.0	73.6	51.0	25.5	0.00
I-FDf 250	283.2	260.5	235.1	212.4	186.9	164.3	147.3	107.6	36.8	0.00
I-FDf 375	849.6	764.6	708.0	651.4	594.7	509.8	453.1	311.5	85.0	0.00
I-FDf 500	1699.2	1472.6	1274.4	1161.1	1076.2	991.2	793.0	538.1	141.6	0.00
I-FDf 750	3398.4	2803.7	2350.6	2095.7	1755.8	1444.3	1302.7	962.9	254.9	0.00

Model #	Metric - Evacuation Time (seconds) based on 1 liter volume with FDf set at 846 mbar									
	0 mbar	102 mbar	203 mbar	305 mbar	406 mbar	508 mbar	609 mbar	711 mbar	813 mbar	846 mbar
I-FDf 100	0.00	0.1	0.3	0.5	0.7	1.0	1.4	1.9	3.0	3.7
I-FDf 150	0.00	0.1	0.2	0.4	0.5	0.8	1.1	1.6	2.7	3.4
I-FDf 200	0.00	0.0	0.1	0.1	0.2	0.3	0.5	0.7	1.1	1.3
I-FDf 250	0.00	0.0	0.0	0.1	0.1	0.1	0.2	0.3	0.6	0.8
I-FDf 375	0.00	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.5
I-FDf 500	0.00	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2
I-FDf 750	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2

Note: Evacuation speed is linear with volume i.e. a 2 cu. ft. volume will take twice as long as a 1 cu ft volume to evacuate.

FD Series – Vacuum Flow vs. Vacuum Level



FD Series – Vacuum Level vs. Air Consumption

