



Variable Vacuum/Variable Flow, Extremely Dirt Tolerant Venturi Vacuum Pumps

VDF Series



VDF-375-ST8B
picks and places refrac bricks used to line refractory ovens.

CONFIGURE AND ORDER ON-LINE
[Click Here](#)



VDF 150-ST4

Standard Pump:

The VDF Series is a unique Vaccon innovation that places the vacuum port and exhaust path inline making a straight-through venturi vacuum pump. These compact pumps offer high flow rates up to 120 SCFM [3400 LPM] and high vacuum levels up to 25”Hg [847mbar].

Developed for extremely dirty and dusty environments such as foundries, refractory and bagging operations, VDF pumps don’t clog, lose suction or require a vacuum filter.

Standard VDF pumps are field-adjustable allowing you to regulate the vacuum flow and vacuum level to meet your application requirements. This maximizes energy efficiency by consuming only the compressed air necessary to do the job. A pressure regulator is not required as the pump can be tuned to operate at any pressure above 50 PSI [3.5 bar].

For applications requiring a fixed vacuum level, Vaccon offers preset and permanently locked VDF pumps at customer specified vacuum settings

(10-25”Hg/339-847mbar). Vaccon’s preset VDF pumps are “pinned” at the factory for consistent and tamper-proof operations.*

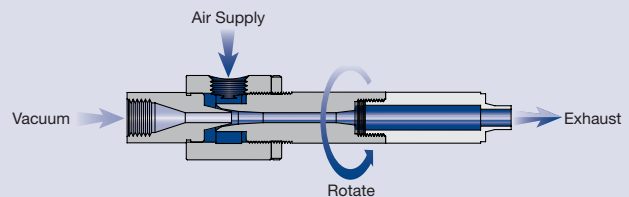
**NOTE: Preset pumps are customer specific and are, therefore, non-returnable.*

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]
- Preset fixed vacuum levels- 10-25”Hg [339-847mbar]*
- 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:

Changing the annular gap between the venturi nozzle and the diffuser varies the performance of the VDF pump. Rotating the diffuser section counter clockwise enlarges the opening, allowing more compressed air to flow through the pump and thereby increasing both the vacuum flow and the vacuum level. Likewise, rotating the diffuser section clockwise reduces the opening, allowing less compressed air to flow through the pump and thereby decreasing both the vacuum flow and the vacuum level. The result is a variable vacuum pump—adjustable to meet your exact application requirements.



Eliminate the Guesswork: Contact Us!

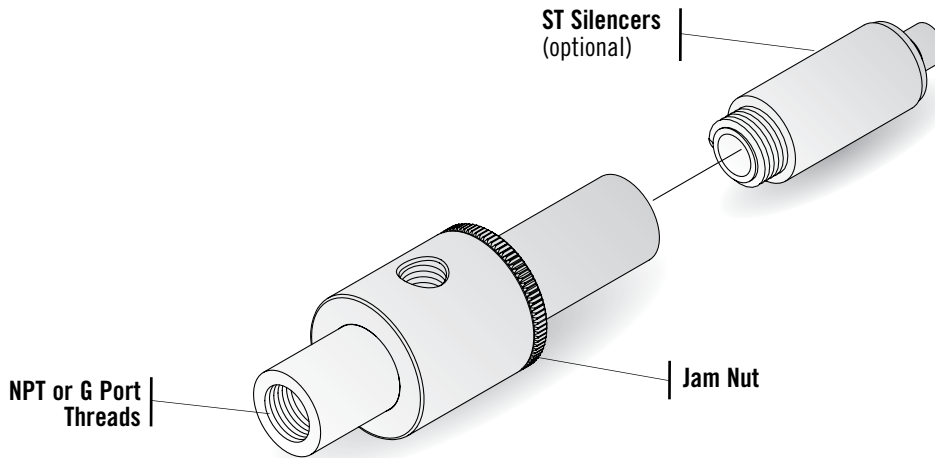
Vacuum technology isn’t an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

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

VDF 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.



CONFIGURE AND ORDER ON-LINE

VACCON.COM
VACUUM PRODUCTS

Let us help you get the pump you need

[Click Here](#)

How to Specify:

VDF 250 - ST4A2 - P20

P/N	Imperial Thread	Silencer*
VDF 100	NPT	ST4
VDF 150	NPT	ST4
VDF 200	NPT	ST4
VDF 250	NPT	ST4A2
VDF 375	NPT	ST8B
VDF 500	NPT	ST12C
VDF 750	NPT	ST16C

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

P/N	Material
	Anodized Aluminum (Standard)
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

Optional Preset Vacuum Level[†]
 Indicate 10-25"Hg (339-847 mbar)

[†]Note: Preset pumps are customer specific and are, therefore, non-returnable.

For complete Performance Data, see page 177.

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

VDF Series Vacuum Pump Standard Specifications:

- Body Material:** Anodized Aluminum Standard (For silencer material - See page 245)
- Medium:** Filtered (50 Micron) un-lubricated, non-corrosive dry gases
- Operating Temperature:** -100° to ~ 400° F [-73° to ~204°C]
- Operating Pressure:** Above 50 PSI [3.4 bar]

VDF Series Vacuum Pump Installation Requirements:

Model #:	VDF 100, 150, 200, 250	VDF 375	VDF 500	VDF 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" [5mm] ID Hose

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



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



VDF 100, 150, 200



VDF 250



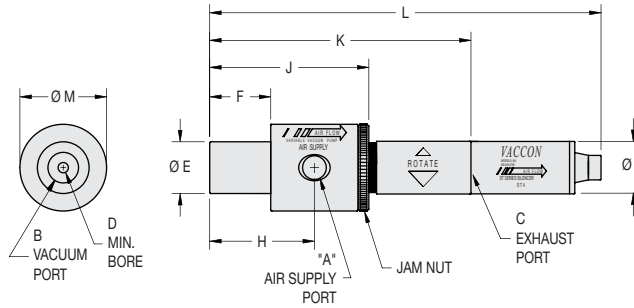
VDF 375



VDF 500



VDF 750



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

Model #	VDF Series – Imperial Dimensions (in.)												Weight
	A	B	C	D	E	F	H	J	K	L	M	N	
VDF 100	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.13	0.74	0.87	1.50	2.27	3.73		1.24		3.7 oz
VDF 100-ST4	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.13	0.74	0.87	1.50	2.27	3.73	5.60	1.24	0.75	4.3 oz
VDF 150	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.15	0.74	0.87	1.50	2.27	3.73		1.24		3.7 oz
VDF 150-ST4	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.15	0.74	0.87	1.50	2.27	3.73	5.60	1.24	0.75	4.3 oz
VDF 200	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.19	0.74	0.87	1.50	2.27	3.73		1.24		3.7 oz
VDF 200-ST4	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.19	0.74	0.87	1.50	2.27	3.73	5.60	1.24	0.75	4.3 oz
VDF 250	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.27	0.74	0.87	1.50	2.27	3.73		1.24		3.6 oz
VDF 250-ST4A2	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.27	0.74	0.87	1.50	2.27	3.73	6.29	1.24	1.00	5.0 oz
VDF 375	3/8 NPT F	1/2 NPT F	1/2 NPT F	0.38	0.99	1.50	2.37	3.45	6.04		1.74		9.7 oz
VDF 375-ST8B	3/8 NPT F	1/2 NPT F	1/2 NPT F	0.38	0.99	1.50	2.37	3.45	6.04	10.84	1.74	1.25	12.7 oz
VDF 500	3/8 NPT F	1/2 NPT F	3/4 NPT F	0.50	1.24	1.50	2.50	3.70	6.06		1.97		14.3 oz
VDF 500-ST12C	3/8 NPT F	1/2 NPT F	3/4 NPT F	0.50	1.24	1.50	2.50	3.70	6.06	13.00	1.97	2.00	1 lb 6 oz
VDF 750	1/2 NPT F	3/4 NPT F	1 NPT F	0.75	1.49	1.50	2.50	3.70	6.95		2.22		1 lb 3 oz
VDF 750-ST16C	1/2 NPT F	3/4 NPT F	1 NPT F	0.75	1.49	1.50	2.50	3.70	6.95	13.88	2.22	2.00	1 lb 11 oz

Model #	VDF Series – Metric Dimensions (mm.)												Weight
	A	B	C	D	E	F	H	J	K	L	M	N	
I-VDF 100	G 1/8	G 1/4	G 1/4	3.2	18.8	22.1	38.1	57.7	94.7		31.5		105 g
I-VDF 100-ST4	G 1/8	G 1/4	G 1/4	3.2	18.8	22.1	38.1	57.7	94.7	142.2	31.5	19.1	122 g
I-VDF 150	G 1/8	G 1/4	G 1/4	3.7	18.8	22.1	38.1	57.7	94.7		31.5		105 g
I-VDF 150-ST4	G 1/8	G 1/4	G 1/4	3.7	18.8	22.1	38.1	57.7	94.7	142.2	31.5	19.1	122 g
I-VDF 200	G 1/8	G 1/4	G 1/4	4.8	18.8	22.1	38.1	57.7	94.7		31.5		105 g
I-VDF 200-ST4	G 1/8	G 1/4	G 1/4	4.8	18.8	22.1	38.1	57.7	94.7	142.2	31.5	19.1	122 g
I-VDF 250	G 1/8	G 1/4	G 1/4	6.7	18.8	22.1	38.1	57.7	94.7		31.5		102 g
I-VDF 250-ST4A2	G 1/8	G 1/4	G 1/4	6.7	18.8	22.1	38.1	57.7	94.7	159.8	31.5	25.4	142 g
I-VDF 375	G 3/8	G 1/2	G 1/2	9.5	25.1	38.1	60.2	87.6	153.4		44.2		275 g
I-VDF 375-ST8B	G 3/8	G 1/2	G 1/2	9.5	25.1	38.1	60.2	87.6	153.4	275.3	44.2	31.8	360 g
I-VDF 500	G 3/8	G 1/2	G 3/4	12.7	31.5	38.1	63.5	94.0	153.9		50.0		405 g
I-VDF 500-ST12C	G 3/8	G 1/2	G 3/4	12.7	31.5	38.1	63.5	94.0	153.9	330.2	50.0	50.8	618 g
I-VDF 750	G 1/2	G 3/4	G 1	19.1	37.8	38.1	63.5	94.0	176.5		56.4		544 g
I-VDF 750-ST16C	G 1/2	G 3/4	G 1	19.1	37.8	38.1	63.5	94.0	176.5	352.6	56.4	50.8	763 g

VDF Series Performance Chart

Model #	Imperial - Vacuum Flow (SCFM) vs Vacuum Level ("Hg) with VDF set at 25"Hg									
	0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	21"Hg	24"Hg	25"Hg
VDF 100	2.00	1.80	1.60	1.40	1.30	1.20	1.10	0.75	0.25	0.00
VDF 150	3.20	2.80	2.50	2.20	1.80	1.60	1.30	0.90	0.40	0.00
VDF 200	6.00	5.60	5.00	4.20	3.60	3.00	2.60	1.80	0.90	0.00
VDF 250	10.00	9.20	8.30	7.50	6.60	5.80	5.20	3.80	1.30	0.00
VDF 375	30.00	27.00	25.00	23.00	21.00	18.00	16.00	11.00	3.00	0.00
VDF 500	60.00	52.00	45.00	41.00	38.00	35.00	28.00	19.00	5.00	0.00
VDF 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 VDF set at 25"Hg									
	0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	21"Hg	24"Hg	25"Hg
VDF 100	0.00	3.34	7.95	13.60	20.53	28.48	38.74	53.88	84.15	104.94
VDF 150	0.00	2.57	5.90	10.00	15.39	22.06	31.05	46.18	75.69	97.50
VDF 200	0.00	1.03	2.57	4.11	6.41	9.49	13.34	19.50	31.05	38.23
VDF 250	0.00	0.51	1.03	1.80	2.82	4.11	5.90	9.75	17.19	21.55
VDF 375	0.00	0.00	0.51	1.03	1.28	2.05	3.08	4.87	8.47	12.83
VDF 500	0.00	0.00	0.21	0.48	0.73	1.08	1.54	2.73	4.45	6.92
VDF 750	0.00	0.00	0.00	0.00	0.12	0.38	0.70	1.09	3.07	5.38

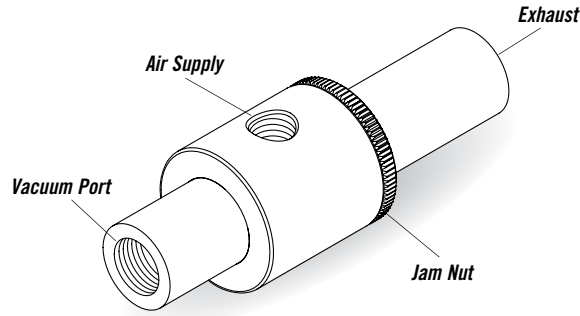
Model #	Metric - Vacuum Flow (LPM) vs Vacuum Level (mbar) with VDF set at 846 mbar									
	0 mbar	102 mbar	203 mbar	305 mbar	406 mbar	508 mbar	609 mbar	711 mbar	813 mbar	846 mbar
I-VDF 100	56.6	51.0	45.3	39.6	36.8	34.0	31.2	21.2	7.1	0.00
I-VDF 150	90.6	79.3	70.8	62.3	51.0	45.3	36.8	25.5	11.3	0.00
I-VDF 200	169.9	158.6	141.6	118.9	102.0	85.0	73.6	51.0	25.5	0.00
I-VDF 250	283.2	260.5	235.1	212.4	186.9	164.3	147.3	107.6	36.8	0.00
I-VDF 375	849.6	764.6	708.0	651.4	594.7	509.8	453.1	311.5	85.0	0.00
I-VDF 500	1699.2	1472.6	1274.4	1161.1	1076.2	991.2	793.0	538.1	141.6	0.00
I-VDF 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 VDF 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-VDF 100	0.00	0.1	0.3	0.5	0.7	1.0	1.4	1.9	3.0	3.7
I-VDF 150	0.00	0.1	0.2	0.4	0.5	0.8	1.1	1.6	2.7	3.4
I-VDF 200	0.00	0.0	0.1	0.1	0.2	0.3	0.5	0.7	1.1	1.3
I-VDF 250	0.00	0.0	0.0	0.1	0.1	0.1	0.2	0.3	0.6	0.8
I-VDF 375	0.00	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.5
I-VDF 500	0.00	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2
I-VDF 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 two cu. ft. volume will take twice as long as a one cu ft volume to evacuate.



VDF Series Operating Instructions



Standard VDF Operating Instructions: Adjustable

1. Loosen jam nut by rotating counter-clockwise.
2. Rotate exhaust body clockwise until closed, jam nut should be loose on exhaust body.
3. Attach air line to air supply port and vacuum line to vacuum port or connect cup to port. See chart on page 173 for minimum recommended line sizes.
4. Turn on compressed air.
5. Rotate exhaust body counter-clockwise to the desired vacuum level using rotation chart on page 177. Charts are based on 80 PSI [5.5 bar] and 60 PSI [4.1 bar] to provide a starting point. Pumps will achieve maximum vacuum levels at any pressure above 50 PSI [3.4 bar] (pressure regulator is not required).
6. After achieving desired vacuum level, tighten jam nut by rotating clockwise.

* **Note 1:** Maximum vacuum flow is achieved at 15" Hg.

Note 2: Further rotation will increase the vacuum level, while the flow remains constant.

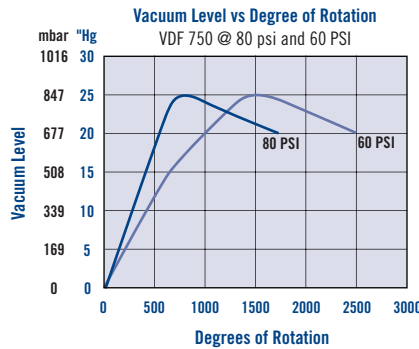
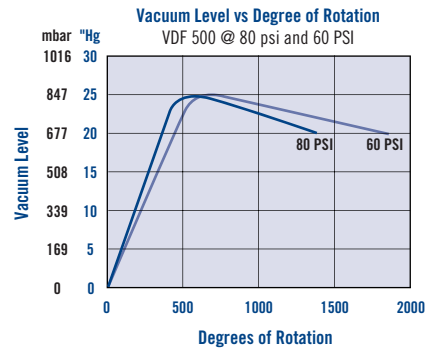
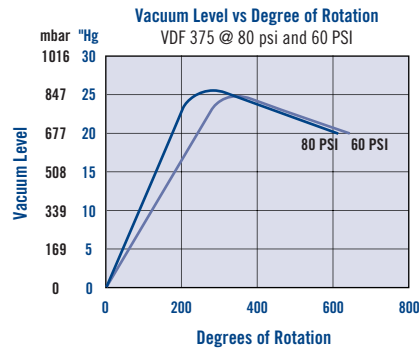
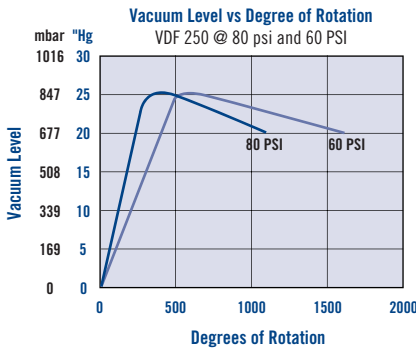
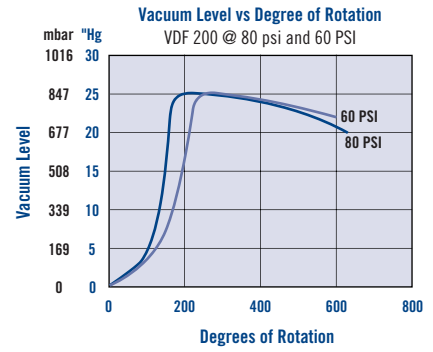
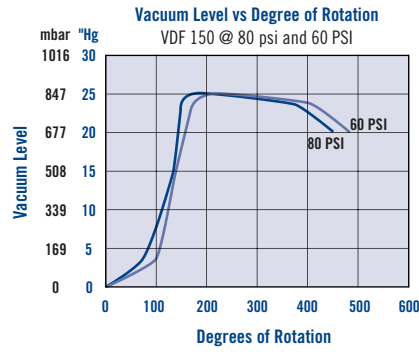
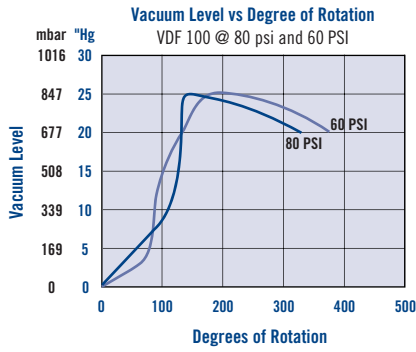
Note 3: VDF 375 and larger, it may be necessary to turn compressed air off while making adjustments to relieve pressure on threads and make rotating easier.

Note 4: "Preset" VDF's are permanently locked at the factory at a customer specified vacuum level and are not adjustable.

Model #	Max Vacuum Flow SCFM*	Air Consumption SCFM**
VDF 100	2.00	1.30
VDF 150	3.20	2.40
VDF 200	6.00	4.70
VDF 250	10.00	8.30
VDF 375	30.00	17.00
VDF 500	60.00	28.00
VDF 750	120.00	44.00
Model #	Max Vacuum Flow LPM*	Air Consumption LPM**
I-VDF 100	56.6	36.8
I-VDF 150	90.6	68.0
I-VDF 200	169.9	133.1
I-VDF 250	283.2	235.1
I-VDF 375	849.6	481.4
I-VDF 500	1699.2	793.0
I-VDF 750	3398.4	1246.1

** These values are achieved when pumps are set to 15" Hg [

Vacuum Level vs. Degree of Rotation



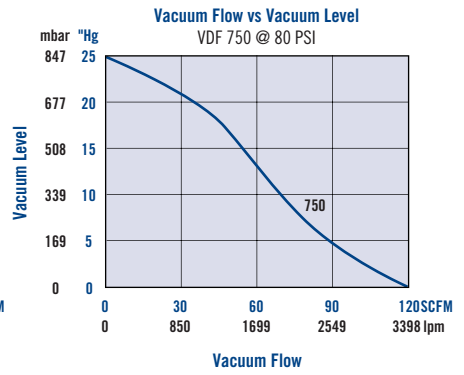
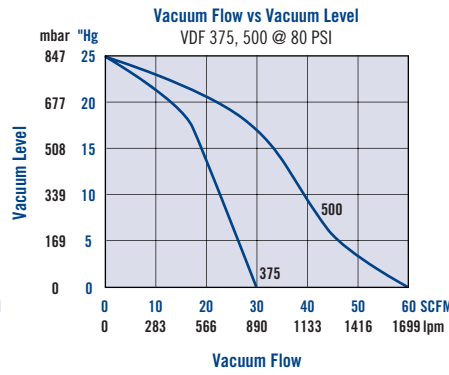
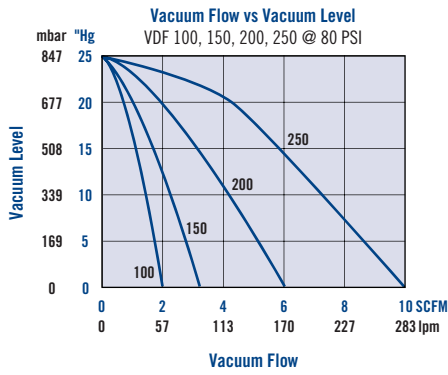
Rotational Chart

Model #	Degrees of Rotation vs. Vacuum Level "Hg @ 80 PSI										Degrees of Rotation vs. Vacuum Level "Hg @ 60 PSI									
	0"	3"	6"	9"	12"	15"	18"	21"	24"	25"	0"	3"	6"	9"	12"	15"	18"	21"	24"	25"
VDF 100	0	30	60	100	115	120	125	130	134	135	0	60	70	80	90	110	120	140	160	170
VDF 150	0	80	90	105	120	135	145	150	160	165	0	90	100	110	120	130	145	165	19-0	195
VDF 200	0	90	105	120	150	160	170	175	185	190	0	100	135	165	175	185	200	215	235	240
VDF 250	0	100	140	180	195	210	250	275	340	355	0	145	180	205	260	320	370	440	510	530
VDF 375	0	60	90	100	125	155	180	195	220	230	0	65	90	115	165	190	210	255	290	300
VDF 500	0	80	130	170	200	260	340	390	460	490	0	100	170	190	260	360	420	480	560	600
VDF 750	0	95	170	260	350	450	540	630	710	730	0	145	260	350	475	610	730	1080	1370	1440

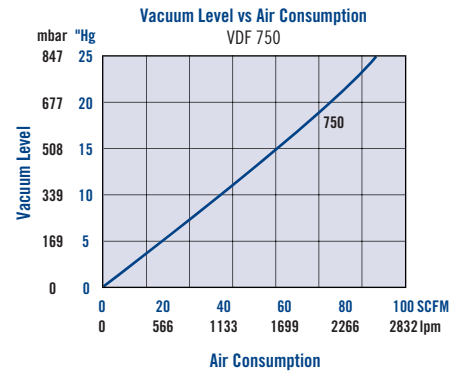
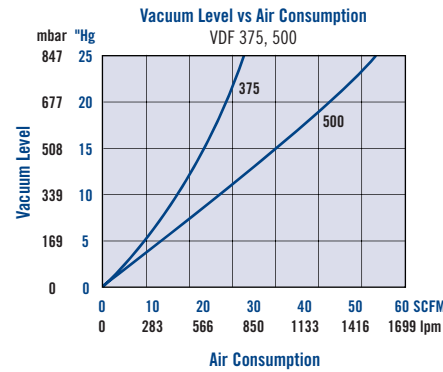
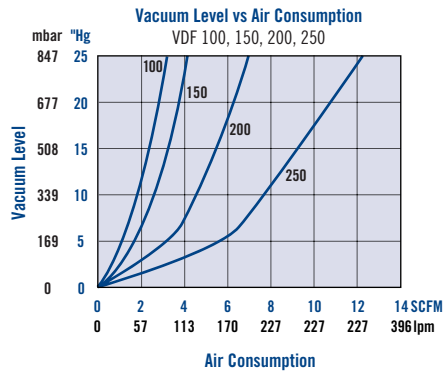
Note: All degrees of rotation are approximate. For example: At 80 PSI, a VDF 200 to be set at 21"Hg would be rotated approximately 175° from the closed position.



VDF Series – Vacuum Flow vs. Vacuum Level



VDF Series – Vacuum Level vs. Air Consumption



Note: The graphs were generated by presetting the pumps to their maximum vacuum level.

VDF Series – Noise Levels at 80 PSI					
Model #	Silencer Options				
	Silencer #	With Silencer		Without Silencer	
		Open Flow	Sealed Vacuum	Open Flow	Sealed Vacuum
VDF 100	ST4	70db	68db	88db	76db
VDF 150	ST4	74db	68db	88db	90db
VDF 200	ST4	78db	80db	86db	100db
VDF 200	ST4A	76db	80db	86db	100db
VDF 250	ST4A	82db	80db	90db	100db
VDF 250	ST4A2	84db	82db	90db	100db
VDF 375	ST8B	88db	82db	102db	104db
VDF 500	ST12C	82db	78db	96db	100db
VDF 750	ST16C	98db	88db	112db	108db

Custom VDF Series

Ideal for OEM engineers and designers

Creative Engineering • Precision Manufacturing • Extensive Application Experience

When off the shelf doesn't work, Vaccon's engineering expertise and manufacturing capabilities can provide custom solutions to your specifications.

Whether it's as simple as modifying a standard product, or more complex, requiring new products with precise tolerances, or special materials, Vaccon has the solution.



Specialty Materials:

For chemical compatibility requirements, high temperature, food, medical and caustic applications, custom materials are available including stainless steel, PEEK, Delrin™, Teflon™, PVC.



VDF 500-61:

Used as a hand held vacuum pump to allow an operator to wind continuous flowing filament onto drive pulleys and the shipping spool. The high flow and high vacuum creates the necessary tension on the filament strand to maintain filament production line speed. The added length on the vacuum side makes it easier for the operator to wind the filament through the drive pulley system.



VDF 750P:

A standard pump that was made without inlet or exhaust threads and comes complete with a bolt circle for easy installation into the head of industrial vacuum cleaners or other enclosures.

The adjustable feature allows each manufacturer to determine the maximum vacuum level for their equipment to ensure that the container does not implode.

When size, shape, material and performance matter, it's Vaccon Vacuum Pumps.