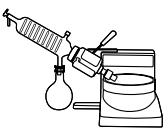




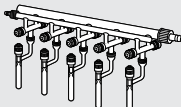


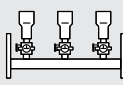



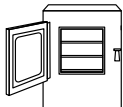





# Pump Quick Selection Chart | For Common Lab Applications

APPLICATION	WELCH VACUUM PUMPS & SYSTEMS	FLOW RATE X VACUUM	UNIT PHOTO	MODEL	PAGE
<b>Rotovap</b> Volatiles, Low B.P. B.P. <100°C Samples 0-5 Liter 	Self Cleaning System with regulator, gauge, condensate jars	35 l/min. 9 torr (12mbar)		202501	6 - 8
	DRYFAST PTFE Pump	25 l/min. 9 torr (12mbar)		2034B-01	
<b>Rotovap</b> DMF, Toluene, other non-volatiles Samples 0-5 Liter 	Self Cleaning System programmable w/condensate catchpots	35 l/min. 2 torr (2.7mbar)		202701	6 - 8
	DRYFAST ULTRA PTFE Pump	35 l/min. 2 torr (2.7mbar)		2042B-01	
<b>Concentrator</b> DNA Pelleting SpeedVac® & CentriVap® 	DRYFAST PTFE Pump	35 l/min. 9 torr (12mbar)		2044B-01	15
	DRYFAST ULTRA PTFE Pump	35 l/min. 2 torr (2.7mbar)		2042B-01	
	Welch High Capacity PTFE Pump	100 l/min. 6 torr (8.0mbar)		2054B-01	
<b>Vacuum Manifold</b> Schlenk Line 	DuoSEAL® & CHEMSTAR® Pumps	25 l/min. <1 millitorr (1.3x10 <sup>3</sup> mbar)		1400B-01 or 1400N-01	10 - 11
	GEM® System	31 l/min. 100 millitorr (0.13mbar)		8890A-70	
<b>Freeze Dryer</b> 	CRVpro, Your Robust Vacuum Pump	158 l/min.		3081-01	16 - 17
	CHEMSTAR Low RPM Pump	160 l/min.		1402N-01	
	Direct drive pump with integral oil filtration system	173 l/min.		8917A-80	
<b>Filtration</b> 	Welch Light Chemical Duty Pump	37 l/min.		2019B-01	18 - 19
	DRYFAST - Chemical Duty Pump	35 l/min.		2014B-01	
	WOB-L - Standard Duty Pump	45 l/min.		2546B-01	
<b>Aspiration/Automation</b> Cell Harvester Plate Washer 	WOB-L - Standard Duty Pump	100 l/min. 27.6 in. Hg (80mbar)		2567B-50	12 - 13
	DRYFAST - Chemical Duty Pump	70 l/min. 28.5 in. Hg (47mbar)		2047B-01	
<b>Cell Culture</b> Aspiration 	Welch Aspiration Station With gauge, regulator, 1200 ml autoclavable trap with liquid blockade system	34 l/min. 27.2 in. Hg (93mbar)		2515B-75	12 - 13
<b>Vacuum Oven</b> Drying Degassing 	WOB-L - Standard Duty Pump	100 l/min.		2581B-50	22 - 23
	DRYFAST - Chemical Duty Pump	35 l/min.		2042B-01	
	Welch High Capacity PTFE Pump	100 l/min.		2054B-01	
	CRVpro Pump	160 l/min.		3061-01	
<b>Gel Dryer</b> 	DRYFAST - Chemical Duty Pump	35 l/min.		2014B-01	14

## Model Selectors

Look for the Model Selector Charts in each Application Section for further pump selection guidance.

# Diaphragm Vacuum Pumps | DRYFAST® Chemical Duty Pumps



CE SP UL See specific Cat no. for specific listing.

Model 2019

Model 2014 DryFast

Models 2034 / 2044 / 2037 / 2047 DRYFAST

Specifications	Coated Head		Ultimate Vacuum Pressure 9 torr to 40 torr			
Model	2019	2014	2034	2044	2037	2047
Free Air Displacement						
cfm(l/min.) @60Hz	1.3 (37)	1.2 (35)	0.9 (25)	1.2 (35)	1.8 (50)	2.5 (70)
m <sup>3</sup> /hr(l/min.) @50Hz	1.9 (31)	1.75 (29)	1.25 (21)	1.75 (29)	2.5 (42)	3.5 (58)
Ult. Vac. Pressure, torr(mbar)	150 (200)	40 (53)	9 (12)	9 (12)	35 (47)	35 (47)
Maximum Vacuum, in. Hg	24	28.3	29.6	29.6	28.5	28.5
Motor Horsepower - HP(watts)	1/15	1/5 (150)	1/5 (150)	1/5 (150)	1/5 (150)	1/5 (150)
Adjustable Vac./Gas Ballast	No	Yes	Yes	Yes	Yes	Yes
Tubing Needed, I.D. in.(mm)	1/4 (7)	1/4 (7)	1/4 (7)	1/4 (7)	1/4 (7)	1/4 (7)
Intake(Exhaust) Thread NPT	1/4 NPT	M14 (1/8)	M14 (1/8)	M14 (1/8)	M14 (1/8)	M14 (1/8)
Weight lbs.(kg)	10.2 (4.6)	15.0 (6.8)	21.25 (9.6)	21.25 (9.6)	21.25 (9.6)	21.25 (9.6)
Overall Dimensions LxWxH in.(cm)	8.8x5.0x8.8 (22x13x22)	12x7.0x8.3 (31x 18x2)	13.8x6.8x8.8 (35x17x22)	13.8x6.8x8.8 (35x17x22)	13.8x6.8x8.8 (35x17x22)	13.8x6.8x8.8 (35x17x22)
Ship Weight, lbs.(kg)	10.2 (4.6)	19 (8.6)	25 (11.3)	25 (11.3)	25 (11.3)	25 (11.3)
Shipping Carton Dimensions LxWxH in.(cm)	16x12x12.8 (41x30x33)	21x14x15 (52x35x37)	21x14x15 (52x35x37)	21x14x15 (52x35x37)	21x14x15 (52x35x37)	21x14x15 (52x35x37)
<b>Ordering Information</b>						
Wired for 115V, 60Hz, 1 Ph with N. Amer. 115V Plug	2019B-01 UL	2014B-01 CSA	2034B-01 CSA	2044B-01 CSA	2037B-01 CSA	2047B-01 CSA
Wired for 230V, 50/60Hz, 1Ph, w/UK and Schuko cord sets included <sup>1</sup>	2019C-02 CE	2014C-02 CE	2034C-02 CE	2044C-02 CE	2037C-02 CE	2047C-02 CE
Wired for 100V, 50/60Hz for Japan	----	2014C-05	2034C-05	2044C-05	---	---

Notes: 1. 230V in US also requires Cord 61-8707 2. For 8 mm Hose Barb, Order 710798

## Applications

	page
1. Rotary Evaporation	6
2. Vacuum Filtration	18
3. Vacuum Oven	22
4. Desiccator	20
5. Aspiration / Automation	12
6. Gel Dryer	14
7. Concentrator	15
8. Distillation	6 - 9

### DryFast Diaphragm Vacuum Pumps

- Chemical Resistant
- Oil Free

#### Tuneable Vacuum

**Model 2019** PTFE coated head for filtration of moderate solvents

**DRYFAST models 2014, 2034, 2044, 2037, 2047 & DryFast Ultra models 2032, 2042.** All major parts in contact with vapor are constructed of corrosion resistant PTFE and perfluoro plastic materials. Models comes standard with tuneable vacuum control.

**Model 2163** Coated heads for moderate solvent vapors

**Models 2052, 2054, 2062, 2064 & 2067** Wetted parts are made of PTFE and other fluorinated plastics. High flow models are commonly used for scale-up operations.



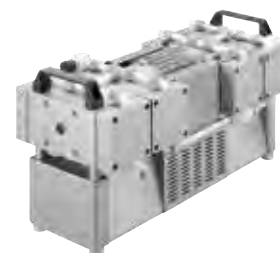
# Diaphragm Vacuum Pumps | DRYFAST® Chemical Duty Pumps



Models  
2032 / 2042  
DRYFAST Ultra



Models  
2052 / 2054



Models  
2163 / 2062 / 2064 /  
2067

Coated Heads	Flow Rate > 100 L/min				Ultimate Vacuum Pressure ≤ 2 torr			
2163	2054	2064	2067	2032	2042	2052	2062	
6.1 (173)	3.4 (100)	6.1 (173)	7.8 (221)	0.9 (25)	1.2 (35)	2.3 (65)	4.2 (119)	
----	----	----	----	1.25 (21)	1.75 (29)	----	----	
6 (8)	6 (8)	6 (8)	56 (75)	2 (2.7)	2 (2.7)	1.5 (2)	1.5 (2)	
29.7	29.7	29.7	27.72	29.85	29.85	29.9	29.9	
0.5/0.6 (370/440)	1/2 (370)	0.5/0.6 (370/440)	0.5/0.6 (370/440)	1/5 (150)	1/5 (150)	0.53 (390)	0.53 (370)	
No	No	No	No	Yes	Yes	No	No	
hose connector available	1/4 (8)	hose connector available	hose connector available	1/4 (7)	1/4 (7)	1/4 (8)	1/4 (8)	
NW 16 - 1/4" NPT <sup>2</sup>	NW 16 - 1/4" NPT <sup>2</sup>	NW 16 - 1/4" NPT <sup>2</sup>	NW 16 - 1/4" NPT <sup>2</sup>	M14(1/8)	M14(1/8)	NW 16 - 1/4" NPT	NW 16 - 1/4" NPT	
72.3 (32.8)	40.3 (18.3)	72.3 (32.8)	72.3 (32.8)	21.25 (9.6)	21.25 (9.6)	40.3 (18.3)	72.3 (32.8)	
21x11x12 (53x28x31)	9x15x7 (23x38x18)	21x11x12 (53x28x31)	21x11x12 (53x28x31)	13.8x6.8x8.8 (35x17x22)	13.8x6.8x8.8 (35.2x17x22)	9x15x7 (23x38x18)	21x11x12 (53x28x31)	
88.2 (40.1)	48.5 (22)	88.2 (40.1)	88.2 (40.1)	25 (11.3)	25 (11.3)	49.8 (22.6)	40.3 (18.3)	
23.6x15.8x16.1 (60x40x41)	18.9x12.6x11.8 (48x32x30)	23.6x15.8x16.1 (60x40x41)	23.6x15.8x16.1 (60x40x41)	21x14x15 (52x35x37)	21x14x15 (52x35x37)	10.2x16.6x7.5 (26x42x19)	9.1x15x6.7 (23x38x16.9)	
2163B-01 CE	2054B-01 CE	2064B-01 CE	2067B-01 CE	2032B-01 CSA	2042B-01 CSA	2052B-01 CE	2062B-01 CE	
2163C-02 CE	2054C-02 CE	2064C-02 CE	2067C-02 CE	2032C-02 CE	2042C-02 CE	2052C-02 CE	2062C-02 CE	
----	----	----	----	2032C-05	2042C-05	----	----	

## For a Complete System

**Inlet/Exhaust Separator Jars**  
230 ml glass jar assembly attaches to pump intake or exhaust to capture ingested liquids. See page 79 for replacement Jars.



1423B

Pump Model	CAT. No.
All DryFast models	1423B

## Digital Vacuum Regulator

- Rack mountable
- Variable vacuum control

The Digital Vacuum Regulator works with Welch DryFast™ pumps or any brand dry pump with flow up to 35 l/min torr vacuum ranging from 1 torr(1.3 mbar) to atmosphere. See p. 76 for more information.



Pump Model	CAT. No.
2014, 2034, 2032, 2044, 2042	1640A-01



Component	page
• Traps	69
• CAPTURE Recovery System	71
• Hose	67
• Gauges	76
• Vacuum Regulator	76
• Service Kit	80