VPC-02 Vacuum Pump Cart: Data Sheet

Infinity Turbine LLC · Rev A · 15 November 2026 · 4-cylinder reciprocating dry vacuum pump on a mobile work cart



What it is

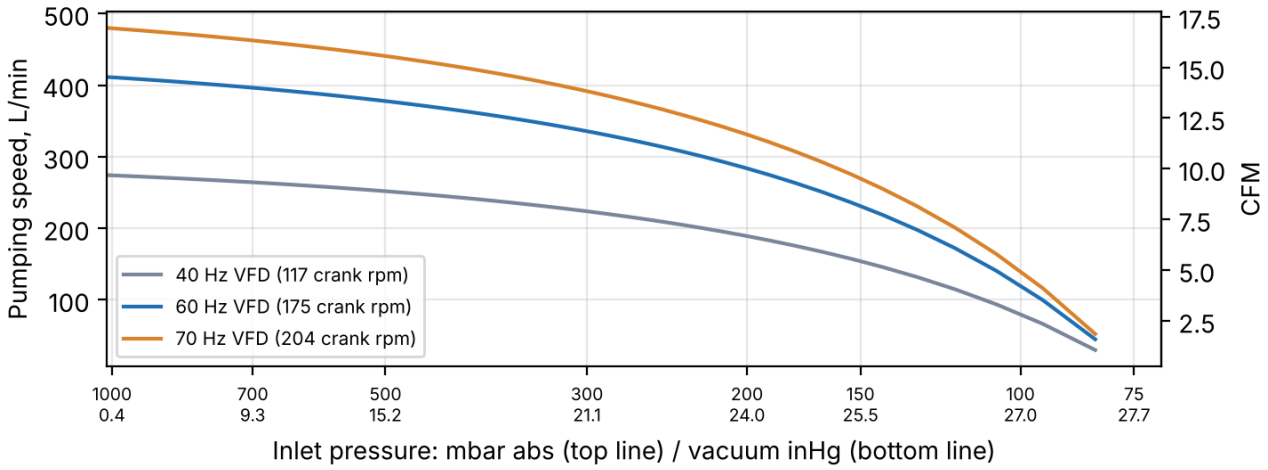
A mobile, oil-free reciprocating vacuum pump for evacuating vacuum bags (composites, vacuum bagging, clamping, degassing pre-vacuum). Four 3-1/2 in bore cylinders on a two-throw crankshaft, driven by a 1 hp 3-phase motor through a 10:1 worm gearbox and a VFD. Six independent hose ports with on/off valves.

Highlights

- 14.6 CFM (413 L/min) displacement at 60 Hz
- Ultimate ≈ 27 inHg vac (≈ 75-110 mbar abs)
- 240 V single-phase, under 0.6 kW input
- AUTO mode holds vacuum and stops the motor in between
- 1 in HDPE work top, removable vented side panels

Vacuum performance (imperial and metric)

Parameter	Imperial	Metric
Displacement, 60 Hz (175 crank rpm)	14.6 CFM	413 L/min · 24.8 m³/h
Displacement range, 20-70 Hz	4.9-17.0 CFM	138-481 L/min
Ultimate vacuum (sea level, estimated)	26.5-27.6 inHg vac (1.1-1.6 psia)	75-110 mbar abs (−0.90 to −0.94 bar g)
Pumping speed at 15 inHg vac	13.4 CFM	378 L/min at 505 mbar abs
Pumping speed at 24 inHg vac	10.0 CFM	284 L/min at 200 mbar abs
Hose ports	6 × 1/2 in hose barb, lever ball valve each	6 × 12.7 mm hose barb
Vacuum switch (AUTO)	adjustable, about 6-28 inHg	about −0.2 to −0.95 bar g
Gauge	2-1/2 in dial, inHg	—
Pump type	4 × double-acting cylinders, 3-1/2 in bore × 1.9 in stroke	89 mm bore × 48 mm stroke
Lubrication of pumped gas	none (dry pump; cylinder seals pre-lubricated)	—



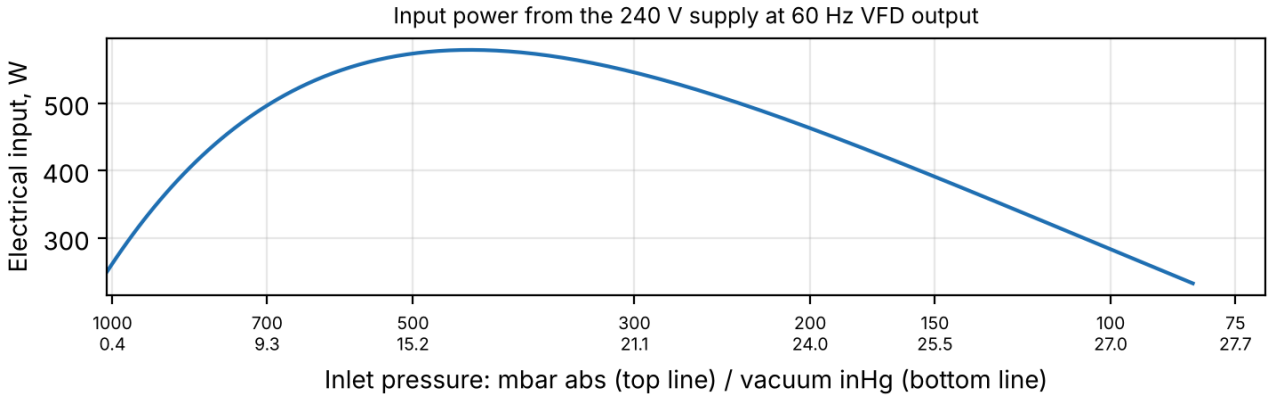
Pump-down time (no leaks, 60 Hz)

Volume	To −0.5 bar / 14.8 inHg	To −0.8 bar / 23.6 inHg	To −0.9 bar / 26.6 inHg
10 L (0.35 ft³)	1 s	3 s	4 s
25 L (0.88 ft³)	3 s	6 s	11 s
50 L (1.77 ft³)	5 s	13 s	21 s
100 L (3.53 ft³)	10 s	26 s	42 s
200 L (7.06 ft³)	21 s	51 s	85 s
500 L (17.66 ft³)	51 s	129 s	212 s

Times are for the bag, hose and manifold volume together. Real bags leak a little and breather fabrics release air slowly, so allow longer for the last part of pump-down.

Electrical and energy (USA)

Item	Value
Supply	208-240 V AC, single-phase, 60 Hz, 3-wire + ground
Branch circuit / plug	20 A, 240 V receptacle NEMA 6-20R; cord SJOOW 12/3 with NEMA 6-20P
Drive	VFD 1 hp (0.75 kW), 230 V single-phase input, 3-phase output, 20-70 Hz
Motor	1 hp, 3-phase 230/460 V 60 Hz (wired 230 V), 1750 rpm, TEFC, inverter-duty, NEMA 56C
Maximum input power	≈ 579 W (worst point, mid pump-down at about 450 mbar / 17 inHg)
Holding at deep vacuum	≈ 369 W while running; 0 W when AUTO has stopped the motor
Standby (VFD powered, motor stopped)	≈ 15-25 W
Input current	≈ 3.4 A typical at 240 V (input power factor ≈ 0.7); breaker per VFD rated input current
Energy for one pump-down	50 L to −0.8 bar ≈ 1.8 Wh; 8 h continuous at deep vacuum ≈ 3.0 kWh
115 V option	Possible with a 115 V-input VFD that outputs 230 V 3-phase (doubler type): input current about twice the 240 V figure. 240 V recommended.



Physical

Parameter	Imperial	Metric
Overall (L × W × H)	42 × 28 × 27.4 in	1067 × 711 × 696 mm
Work top	1 in HDPE, 42 × 28 in	25 mm HDPE, 1067 × 711 mm
Work-top load (distributed)	150 lb suggested	68 kg
Weight (estimated)	≈ 260 lb	≈ 118 kg
Casters	4 × 5 in swivel, 2 with brakes	4 × 125 mm
Noise (estimate, to verify)	< 70 dBA at 1 m	—
Ambient	40-104 °F, indoor, dry	5-40 °C

All performance figures are engineering estimates from a crank-torque and gas-cycle simulation (polytropic n = 1.2, 1.7 in³ trapped volume per cylinder end, 0.3 psi check-valve cracking pressure, 20 lbf seal friction). They will be confirmed by test on the first build. Vacuum values assume sea-level atmosphere (1013 mbar, 29.92 inHg).