

Available: Two-Stage Vacuum Rough Pumps No charge to college physics departments



Description

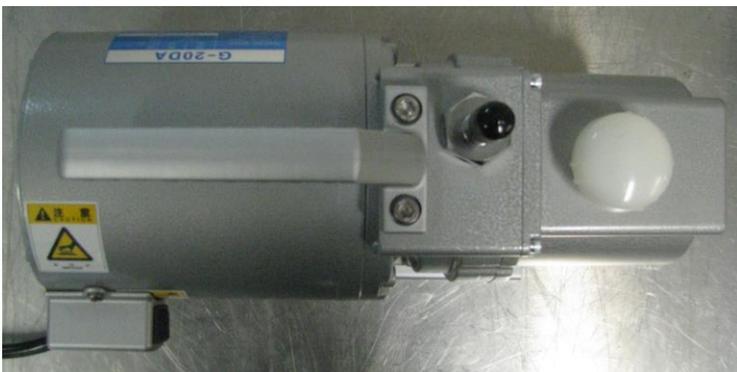
These are Ulvac G-20DA two-stage rough pumps. They are direct-drive oil-sealed rotary vacuum pumps. The pumps can reach an ultimate pressure of about 1.0×10^{-3} Torr and have a pumping speed of roughly 24 L/min. The pumps are useful in many teaching physics laboratory experiments, or as backing pumps for high vacuum experiments. The pumps are un-used and in the original factory packaging.

Specifications

G-20DA	Unit	50 Hz	60 Hz
Pumping Speed	L/min	20	24
Ultimate Pressure	Pa / Torr	1.3×10^{-1} / 1.0×10^{-3}	
Motor		Single Phase, 115V, 100W, 4 Poles, split phase starting	
Full load current	A	1.7	1.4
Motor revolution	r/min	1,450	1,740
Oil capacity	mL	350	
Recommended oil		SMR-100	
Weight	kg	9	
Inlet, outlet pipe diameter	mm	O.D. Ø18 x I.D. Ø14	
Ambient operation temp. range	°C	7 - 40	
Dimensions	mm	156(W) x 329.5(L) x 199.5(H)	

History

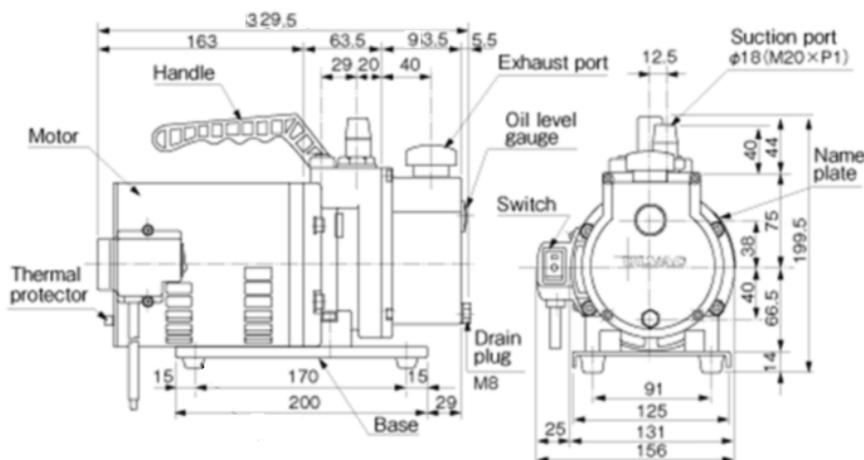
These G-20DA two-stage rough pumps were manufactured by Ulvac Technologies, Inc. (Japan) and purchased by an American original equipment manufacturer for use as built-in pumps in industrial equipment. After the pumps were purchased, the OEM decided to use a more advanced type of pump, but Ulvac declined to take the pumps back. By chance they were acquired by Kimball Physics. The pumps as acquired did not have a mounting base, power cord, on/off switch, or carrying handle. These parts were added at Kimball Physics with the intent to donate them to college physics teaching laboratories. Kimball Physics has a close relationship with the MIT Physics Department and after discussion it was decided to use MIT and the organization ALPhA to distribute the pumps.



The pumps are two-stage pumps, which imply that they are capable of reaching fairly good vacuums. One of the pumps was tested at Kimball Physics using a digital Granville-Phillips Micro-Ion gauge. After running blanked-off for several hours, this brand new pump did reach the 1.0×10^{-3} Torr that the manufacturer claims. Initially there were several one order of magnitude gas bursts, perhaps due to the small gas bubbles in the new, unused oil.



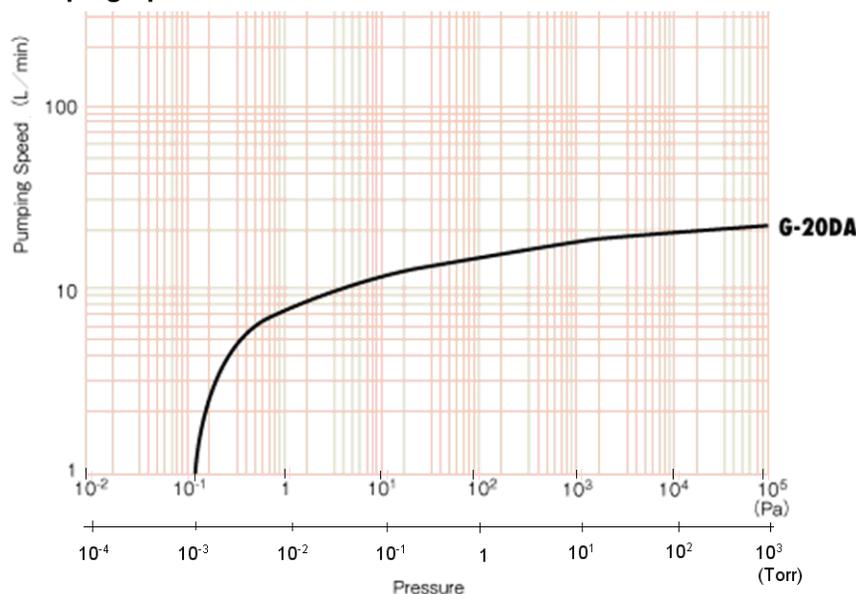
Dimensional Drawing



The intake port as furnished couples to a large diameter flexible tubing; other input ports are available. A list of compatible ports is included in the pump instruction manual.



Pumping Speed Curve



The pumps are shipped dry (without oil). However, two 250 mL bottles of SMR-100 high quality rough pump oil are included. The capacity of the pump is 350 mL which means that 150 mL of oil is left over for a refill. Note that because of DOT safety requirements the pumps cannot be shipped while filled with oil.



The units are intended for college physics departments, are free, and will be shipped pre-paid to qualified physics departments. About 40 pumps are available. Sadly, when these give-away pumps are gone, the project is over.

**To apply for a pump from the
ALPhA Vaccum Pump Giveaway Project,
please go to:**

<http://www.advlab.org/vacpumpgive.html>