

Welch®

**Laboratory Vacuum Catalog
2005-2006**

**Vacuum Chamber, Annular Space & Transfer Line
Catalog Page 17**

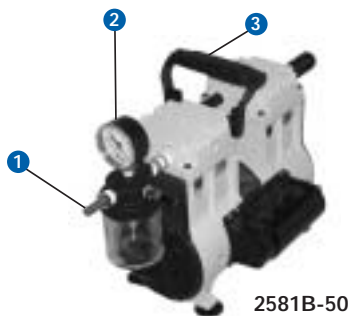
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Vacuum Chamber, Annular Space & Transfer Line



Portable Oil-Free General Utility Roughing Pump



2581B-50

"Did you know that the depth of vacuum and chamber volume determines what type and flow of pump is needed?"

- 1 Pumping capacity to 100 L/min and vacuum to < 5 Torr
- 2 Vacuum gauge, inlet trap and vacuum regulator
- 3 Lightweight, compact pump

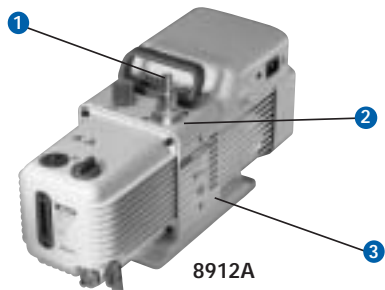
Standard Duty Dry Vacuum Pump

Oil-Free Vacuum Pump is used for roughing vacuum chambers, annular spaces (i.e. dewars) and transfer lines. Pump mechanism is an economical twin head oil-free Wob-L piston known for reliability and durability. Rugged pump handles 20,000+ roughing cycles – atmospheric to 5 torr – before needing simple piston seal maintenance. Pump weighs only 23 lbs(10.5 kg) and is 17.3" L x 7.6" W x 11.7" H(439 x 193 x 297 cm).

Cat. No.	Description ¹
2581B-50	100 L/min, 115V, 60Hz with N. American 115V plug
2581C-50	83 L/min, 230V, 50/60Hz 1 Ph with IEC connector and detachable Schuko line cord, CE

Note: 1. See pages 20-21 for more details.

Portable High Vacuum Roughing Pump



8912A

- 1 Pumping capacity to 320 L/min and vacuum to <0.003 Torr
- 2 Built-in isolation device
- 3 Lightweight, compact pump

Welch® Direct-Drive High Vacuum Pump

Welch direct-drive pumps are high performance pumps that are portable. With ultimate vacuum to <0.003 Torr, annular spaces can be evacuated to a deep vacuum. Pump can be ordered with optional exhaust filter (see pg 30) to control oil mist during evacuation. Model 8912A, 108 L/min, weighs 41 lbs.(18 kg) and is 18.5" L x 6.5" W x 9.6" H(47.1 x 16.5 x 24.3 cm).

Cat. No.	Description ²
8912A	108 L/min, 115/230V, 50/60Hz with N. American. 115V plug
8912C-02	90 L/min @ 50Hz, 115/230V, 50/60Hz with IEC connector and detachable Schuko line cord, CE

Note: 2. See pages 22-23 for more details.

Application Note for Roughing Vacuum Chambers

Evacuation of chambers, annular spaces and transfer lines is common in material science, physics and physical chemistry labs. These vacuum tight spaces are evacuated to provide insulation, roughing out the volume prior to using a turbomolecular pump, cryopump regeneration, etc. The depth of vacuum and size of the space determines what type and size of pump is needed.

A dry pump with a pumping capacity of 100 L/min can be used to evacuate 840 L volume (0.84 cubic meters) in a reasonable time. High vacuum pumps based on oil sealed rotary vane technology use the rule of thumb of 1 to 1.5 times the volume of space to determine pumping capacity (300 L volume needs a 300 to 350 L/min pump). The reason for the differing rule on oil sealed pumps is that the evacuation needs to be below 10 Torr in less than 30 minutes to avoid overheating the mechanism. Oil-free piston pumps don't overheat while evacuating larger chambers, however the time to maximum vacuum takes longer the smaller the capacity.

