



Features

Pump Design: Turbomolecular Pump

Pumping Speed (N₂): 260 L/s

Ultimate Pressure Torr (mbar): 5 x 10⁻¹⁰ (6.6 x 10⁻¹⁰)

Inlet Flange: 6" CF flange

Exhaust Flange: QF16

Max Foreline Pressure: 15 torr (20 mbar)

Cooling: Forced Air

Mounting Orientation: Any

Functionality

Turbo pumps, as they are commonly called, resemble jet engines. Turbo pumps have multiple stages consisting of a turbine-like rotor with angled blades rotating within a housing. Placed in between the rotors are fixed angle blade stators having similar geometries but inverted. Gas molecules randomly enter the pump and colliding with the underside of the spinning rotor blades, momentum transfers the gas down through the multiple rotor/stator stages in which gas is compressed to the exhaust. The rotor is mounted on a drive shaft which is supported by a lubricated ball bearing or magnetically levitated bearing for truly dry applications. Most turbos offered will incorporate a drag stage close to the pumps exhaust. The drag stages give higher compression ratios of light gases making turbos effective for pumping H₂ and He, allow the turbo to accept higher inlet pressures and higher foreline pressure which allows for less of a backing pump to be used. The ultimate vacuum of most turbos lies between 10⁻⁷ Torr and 10⁻¹⁰ Torr. Turbo pumping speeds range from 10 l/s to 6,000 l/s for normal commercial pumps. With proper venting, the turbo mechanism stops in less than a minute, which may mean chamber venting is accomplished without the need for a valve separating pump and chamber. Also, a separate roughing line is usually unnecessary because the chamber can be roughed through the stationary or accelerating turbo.

Turbo pumps are used in all vacuum applications between 10⁻⁴ and 10⁻¹⁰ Torr and are replacing other high vacuum as general workhorses. Turbo pumps are not used on dusty processes or those for which small high frequency vibration might be a problem. However, some turbo pumps are built to resist corrosion from reactive gases.

Benefits

- Compact design for minimum footprint
 - High gas throughputs and high pumping speeds
 - Corrosive gas models available
 - Clean pumping
 - Low power consumption
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- **Where Used:** PRO Line PVD 75
 - **Recommended Applications:** Thermal, Sputtering, E-Beam
 - **Recommended Maintenance:** None
 - **Installation Considerations:** Any orientation
 - **Non-Compatibility:** These pumps are not suitable for corrosive gases.