

Magnetically Levitated Turbo-Molecular-Pump

Wide range models TMP-403/803/1003LM/LMC



Main Features

1. The Power supplies, which use no battery, are the first half rack size units for turbo molecular pumps of magnetically levitated type.
2. No maintenance is required for the power supply.
3. The pump main body and the power supply are both compact and lightweight.
4. An RS-232C serial interface is supplied as standard.
5. No readjustment is required after the replacement of the cables and pump main bodies.
6. The self diagnostic functions ensure easy location of faulty part(s).
7. The cable is available in any length between 3 meters and 30 meters.



Rotor blade of one-piece design

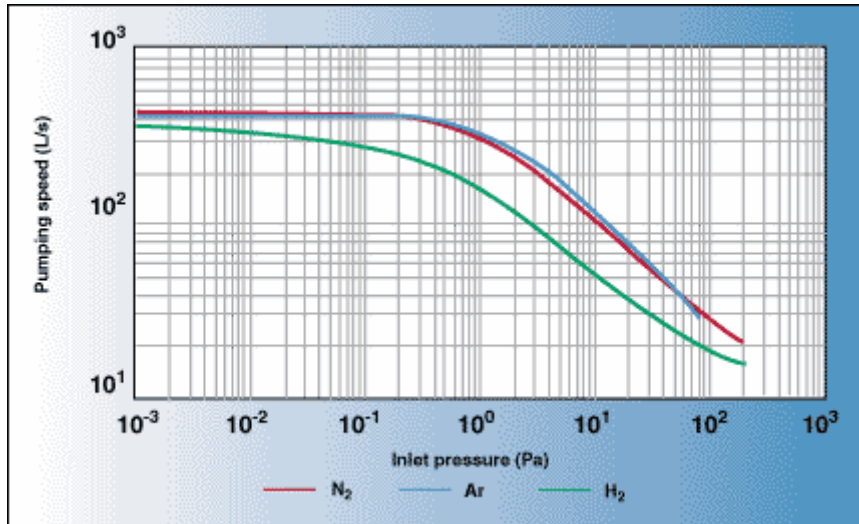
Specifications

| Turbomolecular Pump | 403 LM | 403 LMC | 803 LM | 803 LMC | 1003 LM | 1003 LMC |
|---------------------------------------|-----------------|-----------|-----------------|-----------|-----------------|-----------|
| Ult. pressure after bake out (Torr) | 10^{-10^*} | 10^{-8} | 10^{-11^*} | 10^{-8} | 10^{-11^*} | 10^{-8} |
| Max. inlet pressure (Torr) | 1.5 | | 3 | | 3 | |
| Max. outlet pressure (Torr) | 4 | | 5 | | 5 | |
| Pumping Speed** (L/s): | | | | | | |
| N ₂ | 420 | | 800 | | 1,080 | |
| He | 360 | | 800 | | 930 | |
| H ₂ | 340 | | 700 | | 790 | |
| Compression Ratio: | | | | | | |
| N ₂ | 1×10^9 | | 1×10^9 | | 1×10^9 | |
| He | 8×10^4 | | 8×10^4 | | 8×10^4 | |
| H ₂ | 1×10^4 | | 4×10^3 | | 4×10^3 | |
| Rotational speed (rpm) | 45,000 | | 35,000 | | 35,000 | |
| Vibration level [mm/s (μ m)] | <0.01 (0.047) | | <0.01 (0.036) | | <0.01 (0.036) | |
| Startup time (min.) | 5 | | 5 | | 5 | |
| Weight (kg.) | 14 | | 31 | | 32 | |
| Recom. purge gas flow rate (sccm.) | 20-30 | | 20-30 | | 20-30 | |
| Allowable magnetic flux density (mT): | | | | | | |
| Radial directions | 3 | | 3 | | 3 | |
| Axial directions | 15 | | 15 | | 15 | |
| Cooling flow rate (L/min.) | 1-3 | | 1-3 | | 1-3 | |
| Pressure (psi.) | 30-75 | | 30-75 | | 30-75 | |
| Temperature (°C) | 5-30 | | 5-30 | | 5-30 | |
| Power supply model | EL-303M | | EL-1003M | | EL-1003M | |

*This measurement occurs with a metal gasket used at the inlet flange. With an o-ring, the ultimate pressure will equal 10^{-9} Torr.

** This pumping speed occurs when no protective net is used.

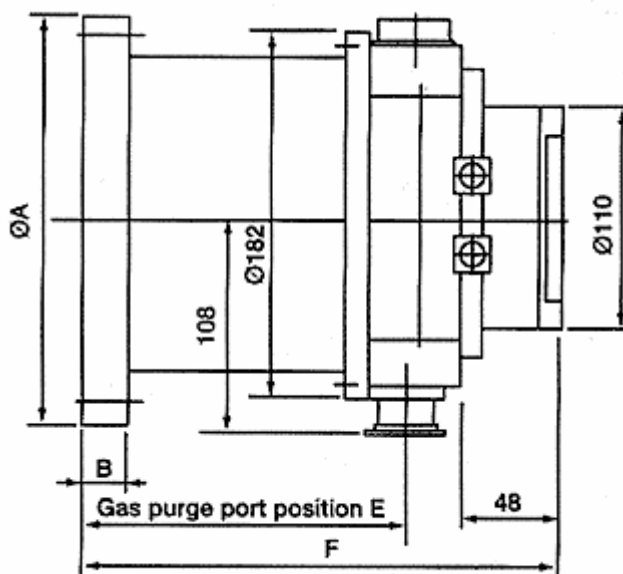
Pumping Speed Charts: TMP-403



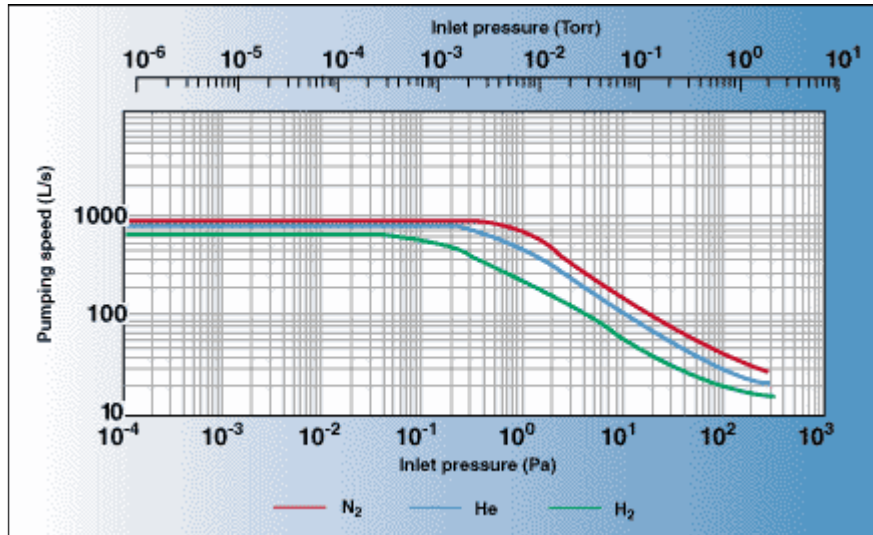
Dimensions: TMP-403

| Shimadzu TMP-403LM & TMP-403LMC | | | | | | |
|---------------------------------|------|----|---------|------|-----|-----|
| Inlet Flange | ØA | B | n-ØC | ØD | E | F |
| 8" CF | Ø203 | 22 | 20-Ø8.4 | Ø181 | 163 | 238 |
| ISO 160 | Ø180 | 12 | - | - | 166 | 241 |

(Dimensions in millimeters, except CF flange size)



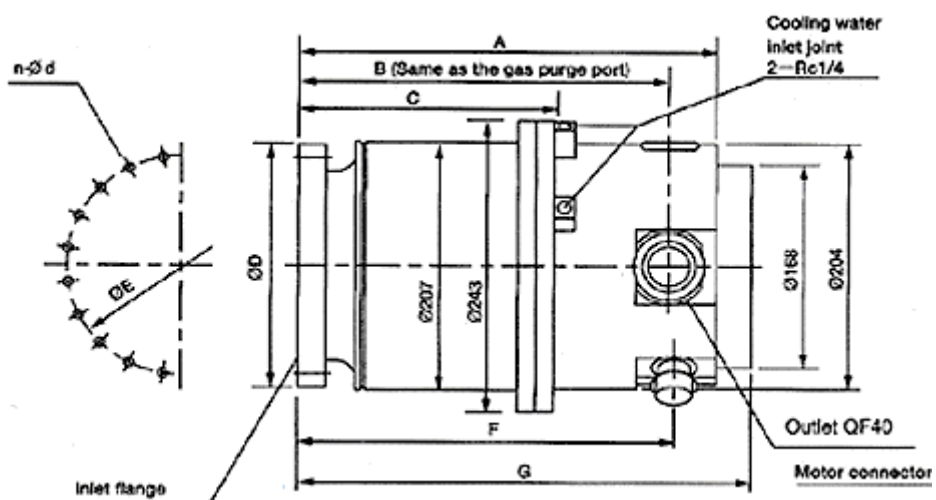
Pumping Speed Charts: TMP-803



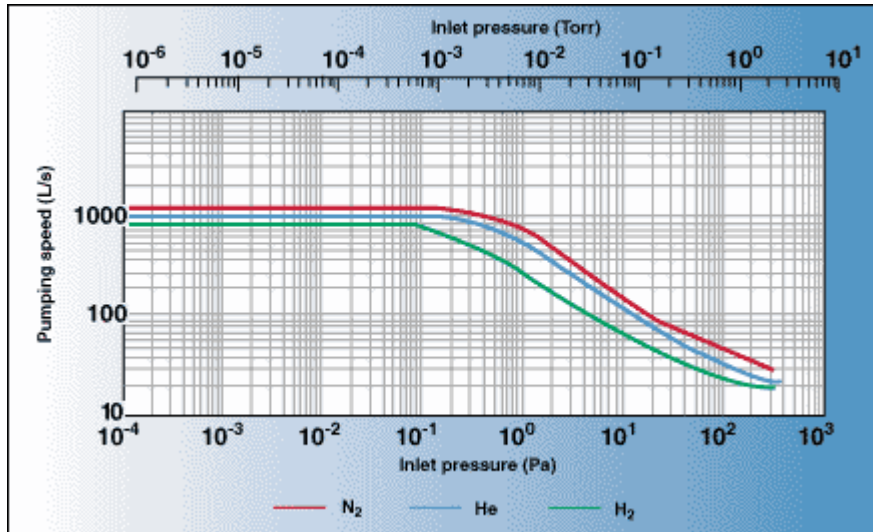
Dimensions: TMP-803

| Shimadzu TMP-803 & TMP-803LMC | | | | | | | | |
|-------------------------------|-----|-----|-----|-----|-------|---------|-----|-----|
| Inlet Flange | A | B | C | ØD | ØE | n-ØD | F | G |
| 8" CF | 329 | 291 | 211 | 203 | 181.1 | 20-Ø8.4 | 296 | 356 |
| ISO 160 | 328 | 290 | 210 | 180 | - | - | 295 | 355 |

(Dimensions in millimeters, except CF flange size)



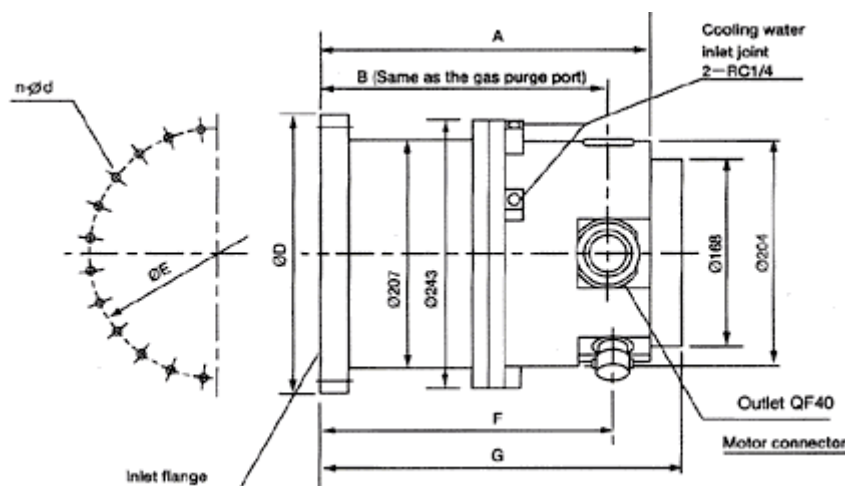
Pumping Speed Charts: TMP-1003



Dimensions: TMP-1003

| Shimadzu TMP-1003 & TMP-1003LMC | | | | | | | | |
|---------------------------------|-----|-----|-----|-----|-------|---------|-----|-----|
| Inlet Flange | A | B | C | ØD | ØE | n-ØD | F | G |
| 10" CF | 288 | 250 | 169 | 253 | 321.9 | 24-Ø8.4 | 255 | 315 |
| ISO 200 | 280 | 242 | 161 | 285 | 260 | 12-Ø11 | 247 | 307 |

(Dimensions in millimeters, except CF flange size)



Specifications: PWR Supply



| | EL-203 | EL-303/403 |
|---------------------------------|-----------------------|-----------------------|
| Rated frequency (Hz) | 833 | 750 |
| Power source (VAC) | 100-120 or 200-240 | 100-115 or 200-240 |
| Maximum power consumption (kVA) | 0.5 | 0.75 |
| Weight (kg) | 12 | 12 |

Rotational speed setting function

Optimum pumping performance for process. The power supply can set pump rpm at the range of 25-100% and tune pumping performance. The rpm setting is put to use tuning pressure of a vacuum chamber. It takes maximum 10 minutes to reach setting speed. Conductance valves may be cut if the pump is used at a stable condition.

Tuning-free

The turbomolecular pump main bodies, connecting cables and power supplies are all interchangeable. No adjustment is required after exchange of any component. The connecting cables are available in any length from 3 meters to 30 meters.

Trouble countermeasures

Complete safety against power failure. During a power failure, the magnetic levitation is automatically maintained by regenerative braking. The touchdown bearings are designed to withstand over 260 power failure events.

Network

This power supply unit equipped with the serial communication ports of RS-232C and RS-485 conformity facilitates start/stop of the pump, monitoring the operational status, and reading out of operational log. Maximum 32 pumps can be monitored by a PC.