Turbo Molecular Pumps

- Wide pressure range pumping
- High throughout
- High resistance to air inrush
- Corrosive resistant type for corrosive gases
- Maintenance free

For an ultimate pressure of 30E-10Torr at an ambient temperature of 30C.

Contact us for models other than the above.

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Series of Turbo Molecular Pumps

- TG203
- TG553
- TG1003
- TG3413
- TG3213
- TG1303
- TG1810/1813
- TG2813

- Sturdy, resists external impacts
- Durable structure for air inrush
- Maintenance free
- Corresponding to the safety standard NRTL / SEMI-S2 / CE

- Recommended backing vacuum pumps: H2, N2, SF6, SF2

- TG5500 / TG5503
- TG1810VW / TG1813VW
- TG1303CW
- TG553CW
- TG203VW
- TG203RA
- TC5500 / TC1003 / TC1813 / TC3213

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Products Line-up

- TG203
- TG553
- TG1003
- TG3413
- TG3213
- TG1303
- TG1810/1813
- TG2813

- Specifications
  - Max. compression ratio: 5
  - Max. throughput: 10-4 m³/min
  - Ambient temperature: 10°C

Contact us for models other than the above.
# Turbo Molecular Pumps

**Compound Molecular Pumps**

Please contact us with the exception of standard length.

<table>
<thead>
<tr>
<th>Type</th>
<th>TG5000/5003</th>
<th>TG5500/5503</th>
<th>TG1003</th>
<th>TG3413</th>
<th>TG3213</th>
<th>TG1303</th>
<th>TG1810/1813</th>
<th>TG2813</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inlet pressure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. throughput</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. compression ratio</td>
<td>10^{-1}</td>
<td>10^{-2}</td>
<td>10^{-3}</td>
<td>10^{-4}</td>
<td>10^{-5}</td>
<td>10^{-6}</td>
<td>10^{-7}</td>
<td>10^{-8}</td>
</tr>
<tr>
<td>Ambient temperature range to assure reaching the ultimate pressure</td>
<td>10^{-1}</td>
<td>10^{-2}</td>
<td>10^{-3}</td>
<td>10^{-4}</td>
<td>10^{-5}</td>
<td>10^{-6}</td>
<td>10^{-7}</td>
<td>10^{-8}</td>
</tr>
</tbody>
</table>

**Recommended backing vacuum pump**

- Small and medium-sized compound molecular pumps
  - In case of the backing vacuum pump of 3000L/min.

**Corresponding gases**

- Sf : Volume flow rate
  - N2
  - N2
  - N2

**Specifications**

- Max. throughput
- Power Supply
- Input connector: 1 / Remote connector: 1 / Serial communication connector
- Recommended backing vacuum pump

**Auto Balance System**

- High throughput: Stanford overhauls lead to a long useful life.

**Turbo Molecular Pumps**

**Series of Turbo Molecular Pumps**

**Compound Molecular Pumps**

- Wide pressure range pumping
- High throughput
- Durable structure for air flush
- Long lasting: Standard overhauls lead to a long useful life.

**Turbo Molecular Pumps**

**Compound Molecular Pumps**

**Turbo Molecular Pumps**

**Compound Molecular Pumps**
Compound Molecular Pumps

Osaka Vacuum, Ltd.

Specifications

- **Base pressure**:
  - 10⁻⁴ Torr
  - 10⁻³ Torr
  - 10⁻² Torr
  - 10⁻¹ Torr

- **Volume flow rate**:
  - 3000 L/min
  - 3000 L/min

- **Recommended backing vacuum pump**:
  - Sf = 1500

- **Max. backing pressure**:
  - 2.3 Torr
  - 7.5 Torr

- **Startup time**:
  - 3000 hours

- **Volume flow rate of backing pump**:
  - 10⁻² Torr
  - 10⁻¹ Torr
  - 10⁻² Torr
  - 10⁻¹ Torr

- **Inlet pressure**:
  - 10⁻³ Torr
  - 10⁻² Torr
  - 10⁻¹ Torr
  - 10⁻² Torr
  - 10⁻¹ Torr

- **Inlet pressure**:
  - 10⁻³ Torr
  - 10⁻² Torr
  - 10⁻¹ Torr

- **Cooling water Inlet/Outlet**:
  - 20 m
  - 3 m

- **Option**:
  - Power Supply
  - Motor Cable

- **Weight**:
  - 405 g
  - 392 g

- **Connector**:
  - 8-M10 DP18
  - 3-M8 DP10

- **Dimensions**:
  - 335 mm
  - 210 mm
  - 185 mm

- **Oil sump**

- **Volume flow rate**:
  - H₂
  - N₂

- **Ambient temperature**:
  - 10°C

- **Thermal insulation structure is available.**

- **Recommended backing pumps**:
  - TG553 (BTUISPVHIQVU7PMVNFGMPXSBUF)
  - TG553CW
  - TG203CA
  - TG1003

- **Applications**:
  - Turbo Molecular Pumps
  - Series of Turbo Molecular Pumps

- **Additional Features**:
  - Turbo Molecular Pumps Compatibility
  - Series of Turbo Molecular Pumps Specifications

- **Contact Information**:
  - Osaka Vacuum, Ltd.
  - Tel support Field support Maintenance
  - Shin Won Tech. Co., Ltd.
  - Local stock

- **Service Support Center**

- **Maintenance**:
  - Local
  - Europe
  - Japan/Nabari Factory

- **Purge gas**

- **Option**
  - Purge gas inlet connector
  - Precision needle valve
  - Flanges and Fittings

- **Baking heater**, **Automatic slow leak valve**, **Purge gas inlet connector**, **Precision needle valve**, **Flanges and Fittings**

- **Corrosive resistant type for corrosive gases.**

- **Depend on the gas to be evacuated, some may damage the pump. Please contact us for details on corresponding gases.**

- **Startup time**:
  - 3000 hours

- **Thermal insulation structure**

- **Design**:
  - Compact footprint.

- **Note**:
  - Turbo Molecular Pumps Compatibility
  - Series of Turbo Molecular Pumps Specifications

- **Additional Features**:
  - Turbo Molecular Pumps Compatibility
  - Series of Turbo Molecular Pumps Specifications

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- **Startup time**:
  - 3000 hours

- **Thermal insulation structure**

- **Design**:
  - Compact footprint.
Compound Molecular Pumps

- Wide pressure range pumping
- High throughputs
- Durable structure for air inrush
- Long lasting: Standard overhauls lead to a long useful life

Recommend the following backing vacuum pump:

**Recommended backing vacuum pump**

*Series of Turbo Molecular Pumps*

<table>
<thead>
<tr>
<th>Model</th>
<th>Max. Backing Pressure</th>
<th>Inlet Pressure</th>
<th>Base Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>TG203</td>
<td>2000 Pa</td>
<td>100,000 Pa</td>
<td>10-7 Pa</td>
</tr>
<tr>
<td>TG553</td>
<td>5000 Pa</td>
<td>100,000 Pa</td>
<td>10-7 Pa</td>
</tr>
<tr>
<td>TG1003</td>
<td>7000 Pa</td>
<td>100,000 Pa</td>
<td>10-7 Pa</td>
</tr>
<tr>
<td>TG3413</td>
<td>10,000 Pa</td>
<td>100,000 Pa</td>
<td>10-7 Pa</td>
</tr>
</tbody>
</table>

**Serial communication**

- RS-232C serial interface
- Windows compatible
- High compression ratio, low Base pressure.
- Durable structure for air inrush.

**Maintenance**

- Overhaul cycle: 20,000 hours
- Recommended intervals:
  - 10,000 hours: Inspection and service
  - 20,000 hours: Overhaul

**Option**

- Corresponding gases
- Durable structure for air inrush.
- Durable structure for air inrush.

**Serial communication**

- RS-232C serial interface
- Windows compatible
- High compression ratio, low Base pressure.
- Durable structure for air inrush.
Turbo Molecular Pumps

### Compound Molecular Pumps

- High throughput
- High pressure range pumping
- Durable structure for airbrush
- Long lasting

#### Specifications of Compound Molecular Pumps

<table>
<thead>
<tr>
<th>Model</th>
<th>Max. Compression Ratio</th>
<th>Max. Throughput</th>
<th>Max. Throughput @ 10⁻² Torr</th>
<th>Max. Throughput @ 10⁻³ Torr</th>
<th>Max. Throughput @ 10⁻⁴ Torr</th>
<th>Max. Throughput @ 10⁻⁵ Torr</th>
</tr>
</thead>
<tbody>
<tr>
<td>TG203</td>
<td>400</td>
<td>3000</td>
<td>1500</td>
<td>500</td>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td>TG553</td>
<td>800</td>
<td>6000</td>
<td>3000</td>
<td>1500</td>
<td>500</td>
<td>100</td>
</tr>
<tr>
<td>TG1003</td>
<td>1000</td>
<td>10000</td>
<td>5000</td>
<td>2500</td>
<td>600</td>
<td>120</td>
</tr>
<tr>
<td>TG3413</td>
<td>1200</td>
<td>12000</td>
<td>6000</td>
<td>3000</td>
<td>700</td>
<td>140</td>
</tr>
<tr>
<td>TG3213</td>
<td>1400</td>
<td>14000</td>
<td>7000</td>
<td>3500</td>
<td>800</td>
<td>160</td>
</tr>
<tr>
<td>TG1303</td>
<td>1600</td>
<td>16000</td>
<td>8000</td>
<td>4000</td>
<td>900</td>
<td>180</td>
</tr>
<tr>
<td>TG1810/1813</td>
<td>1800</td>
<td>18000</td>
<td>9000</td>
<td>4500</td>
<td>1000</td>
<td>200</td>
</tr>
<tr>
<td>TG2813</td>
<td>2000</td>
<td>20000</td>
<td>10000</td>
<td>5000</td>
<td>1200</td>
<td>240</td>
</tr>
</tbody>
</table>

#### Series of Turbo Molecular Pumps

- Turbo Molecular Pumps
- Wide pressure range pumping
- High throughput
- Durable structure for airbrush
- Long lasting

#### Built-to-order products

- Pump + Power Supply + Motor Cable

#### Osaka Vacuum, Ltd.

- puppet.support@osaka-vacuum.com
- Osaka Vacuum, Ltd.
- +81-595-64-1163

#### UK/EBARA Precision Machinery Europe GmBH

- +44(0)1506 460232
- +1-916-920-5451

#### Technical support

- + Fan Cable
- Water cooling
- Oil sump
- Oil level sensor
- VG450 25
- M2
- JISB2290 :1968
- ISO1609:1986
- JIVS 003
- Bakeable Flanges : Dimensions-Knife-edge sealed type
- TG3210 / TG3213 / TG3410 / TG3413
- JQA-EMA5143
- N2
- \[ S_f \] = 1500
- 10⁻² 10⁻¹ 10⁻² 10⁻³ 10⁻⁴ 10⁻⁵ 10⁻⁶ Torr
- 10⁻² 10⁻¹ 10⁻² 10⁻³ 10⁻⁴ 10⁻⁵ 10⁻⁶ L/s
- 10⁻² 10⁻¹ 10⁻² 10⁻³ 10⁻⁴ 10⁻⁵ 10⁻⁶ L/min
- 10⁻² 10⁻¹ 10⁻² 10⁻³ 10⁻⁴ 10⁻⁵ 10⁻⁶ sccm
- 10⁻² 10⁻¹ 10⁻² 10⁻³ 10⁻⁴ 10⁻⁵ 10⁻⁶ Hz

####Startup time

- 101
- 106
- 10⁻² 10⁻¹ 10⁻² 10⁻³ 10⁻⁴ 10⁻⁵ 10⁻⁶
Compound Molecular Pumps

**Turbo Molecular Pumps**

- Wide pressure range pumping
- High throughput
- Durable structure for air brush
- Long lasting: Standard overhauls lead to a long useful life
- Safe and quiet operation

**Series of Turbo Molecular Pumps**

- Compound Molecular Pumps
  - Standard set
  - Magnetically Levitated Compound Molecular Pumps
  - Small and medium-sized compound molecular pumps
  - Large-sized compound molecular pumps

**Compound Molecular Pumps**

- TG203
- TG553
- TG1003
- TG1303
- TG1810/1813
- TG2813

- Turbo Molecular Pumps
  - TG5000/5003
  - TG5500/5503
  - TG3213
  - VG150 16

**Connector**

- ISO-G1/4
- ISO1609:1986

**Specifications**

- Inlet pressure
- Inlet/Outlet
- Cooling water

**Cooling water**

- Inlet: [L/s]
- Outlet: [Torr]

**Shutdown time**

- [Hz]

**Power supply**

- [W]

**Oil sump**

- [mL]

**Small and medium-sized compound molecular pumps**

- Corresponding gases

**Volume flow rate**

- [L/s]

**Max. compression ratio**

- [Hz]

**Conforms to recognized safety standard**

- NRTL / SEMI-S2 / CE

**Durable structure for air inrush.**

**The maximum temperature for the cooling water which assures the**

**Volume flow rate**

- [L/s]

**Shutdown time**

- [min]
### Turbo Molecular Pumps

#### Compound Molecular Pumps

- **Wide pressure range pumping**
- **High throughput**
- **Durable structure for air flush**
- **Long lasting**: Standard overhauls lead to a long useful life

#### Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Volume Flow Rate</th>
<th>Ultimate Pressure</th>
<th>Inlet Pressure</th>
<th>Amount of Lubrication Oil Required</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>TG203</td>
<td>3000 L/min</td>
<td>3.0 × 10⁻³ Torr</td>
<td>750 ~ 3500 Pa</td>
<td>100 mL/L h</td>
<td>115 kg</td>
</tr>
<tr>
<td>TG553</td>
<td>3000 L/min</td>
<td>3.0 × 10⁻³ Torr</td>
<td>750 ~ 3500 Pa</td>
<td>100 mL/L h</td>
<td>115 kg</td>
</tr>
<tr>
<td>TG1003</td>
<td>3000 L/min</td>
<td>3.0 × 10⁻³ Torr</td>
<td>750 ~ 3500 Pa</td>
<td>100 mL/L h</td>
<td>115 kg</td>
</tr>
<tr>
<td>TG3413</td>
<td>1500 L/min</td>
<td>3.0 × 10⁻³ Torr</td>
<td>750 ~ 3500 Pa</td>
<td>100 mL/L h</td>
<td>115 kg</td>
</tr>
<tr>
<td>TG3213</td>
<td>1250 L/min</td>
<td>3.0 × 10⁻³ Torr</td>
<td>750 ~ 3500 Pa</td>
<td>100 mL/L h</td>
<td>115 kg</td>
</tr>
</tbody>
</table>

- Small and medium-sized compound molecular pumps
- Large-sized compound molecular pumps

#### Notes

- The permissible ambient temperature range to assure reaching the ultimate pressure is 10⁴ ~ 10⁷ K
- The permissible temperature for the cooling water which assures the ultimate pressure is 30°C.

### Series of Turbo Molecular Pumps

#### Compound Molecular Pumps

- **Serial communication**
- Conforms to recognized safety standard
  - NRTL / SEMI-S2 / CE

#### Oil level sensor

- Dimensions - Part 1
- Connector

#### TG203

- Specifications
- Model Number
- Motor Power
- Motor Speed
- Inlet Pressure
- Ultimate Pressure
- Amount of Lubrication Oil Required
- Weight

#### TG553

- Specifications
- Model Number
- Motor Power
- Motor Speed
- Inlet Pressure
- Ultimate Pressure
- Amount of Lubrication Oil Required
- Weight

#### TG1003

- Specifications
- Model Number
- Motor Power
- Motor Speed
- Inlet Pressure
- Ultimate Pressure
- Amount of Lubrication Oil Required
- Weight

#### TG3413

- Specifications
- Model Number
- Motor Power
- Motor Speed
- Inlet Pressure
- Ultimate Pressure
- Amount of Lubrication Oil Required
- Weight

#### TG3213

- Specifications
- Model Number
- Motor Power
- Motor Speed
- Inlet Pressure
- Ultimate Pressure
- Amount of Lubrication Oil Required
- Weight
Turbo Molecular Pumps

1. Compound Molecular Pumps

- Wide pressure range pumping
- High throughput
- Durable structure for air brush
- Long lasting: Standard overhauls lead to a long useful life

2. Series of Turbo Molecular Pumps

- Conforms to recognized safety standard

3. Performance curve

- TG203: Max. compression ratio
- TG553: Max. compression ratio
- TG1003: Max. compression ratio
- TG3213: Max. compression ratio

4. Specifications

- TG203: Max. compression ratio
- TG553: Max. compression ratio
- TG1003: Max. compression ratio
- TG3213: Max. compression ratio

5. Other Models

- TG3213: Max. compression ratio
- TG1303: Max. compression ratio
- TG1810/1813: Max. compression ratio
- TG2813: Max. compression ratio