The new integrated pumping solutions, with state-of-the-art TwisTorr FS turbo pumps

AGILENT TPS
TURBO PUMPING SYSTEMS
With TwisTorr FS Technology

The Measure of Confidence

TPS-mobile
TPS-compact
TPS-bench
TPS-mini

Agilent Technologies
Agilent TPS - Turbo Pumping Systems
The New Integrated Pumping Solutions with TwisTorr FS Technology

Powered by Agilent TwisTorr Turbomolecular pumps and backed by Agilent Dry Scroll or Rotary Vane Pumps.

**TPS-mini**
Portable, dry system with the smallest footprint, featuring the new TwisTorr 84 FS

**TPS-compact**
TwisTorr 304 FS: best vacuum performance, fast pumpdown time, integrated IDP-3 Dry Scroll Pump

**TPS-bench**
Table-top solutions, backed by Agilent Dry Scroll Pump or Rotary Vane Pump

**TPS-mobile**
Roll-around carts, high capacity systems, wide pumping speed range

*Customized configurations on request*

**IDP-3 Dry Scroll Pump**
- The most compact and light scroll pump in the market
- Innovative hermetic design, with motor and bearings outside the vacuum space
- Integrated pump isolation valve
- Cost effective and easy tip-seal replacement

**On Board Direct Pressure Reading**
- Large pressure reading display
- Torr, Pascal and mbar options
- Ready for FRG-700 Active Gauge

**Active Gauge Capability**
- FRG-700 Active Full Range combined gauge: Pirani and Cold Cathode from atmosphere to 5x10⁻⁹ mbar (7x10⁻⁹ Torr)
- Pressure data available on three independent channels:
  - Serial communication
  - Analog output
  - On board display

Agilent TPS Turbo Pumping Systems
Design for Reliability
- A rigorous test regime of product performance, reliability and durability according to Agilent standards
- Environmental Test method (Shock, Humidity, Noise, Temperature, Vibration Tests)
- Reliability assessment on Agilent systems
- Vacuum Test, Life Tests

Manufacturing
- New TPS Manufacturing Line in Agilent Vacuum Products plant in Torino, Italy

Service and Support
- Several levels of Service Programs to help you maximize your productivity: Advance Exchange, Upgrade Program, Factory Repair, Field Support

TwisTorr FS Technology
High Performance, Innovation, Reliability

Unique TwisTorr stages to deliver the best vacuum performance available:
- High pumping speed and compression ratios for H₂ and He
- High throughput, high foreline tolerance
- Low power consumption, low operating temperature

IDP-15 Dry Scroll Pump
- The next generation 15 m³/h scroll pump, designed for quiet and low vibration operation

User-friendly Interface
- T-Plus software for full PC/Laptop control enables easy data download and graphic display
Agilent TPS - Turbo Pumping Systems
The New Integrated Pumping Solutions with TwisTorr FS technology

The new TPS Turbo Pumping Systems: just plug and pump!
Portable, fully integrated vacuum solutions, available as light dry bench-top solutions, for small and medium volumes, or high capacity, wide pumping speed range cart versions.

Now available with the innovative, breakthrough TwisTorr FS Turbo Pumps, for outstanding performance and reliability.

<table>
<thead>
<tr>
<th>Turbo Pumping Systems: key features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated, complete vacuum systems</td>
</tr>
<tr>
<td>● Wide range from bench-top to cart versions</td>
</tr>
<tr>
<td>● Flexible: broad choice of gauges, valves and components</td>
</tr>
<tr>
<td>● Compact and portable: small footprint, light weight</td>
</tr>
<tr>
<td>● Enhanced, reliable vacuum performance</td>
</tr>
<tr>
<td>● Easy-to-use, simply plug and pump!</td>
</tr>
<tr>
<td>● Cost-effective solutions</td>
</tr>
<tr>
<td>● Worldwide power configurations and safety standards</td>
</tr>
<tr>
<td>● Global Technical, Application and Customer Service support</td>
</tr>
<tr>
<td>● Advance Exchange, Upgrade and Repair programs available</td>
</tr>
<tr>
<td>● Dry versions: no hydrocarbon contamination, no oil leaks</td>
</tr>
<tr>
<td>● Improved performance and reliability with the new Twistorr FS pumps</td>
</tr>
</tbody>
</table>

Applications

High Energy Physics and Research Centers
This new TPS Turbo Pumping System may be used in any laboratory where there is a need to create high vacuum in small-volume chambers quickly and easily. The new generation electronics and the pressure display ensure the accuracy of the process. Agilent TPS are well suited for UHV System pump down, Ion pump roughing, High Vacuum Systems operation, High and Ultra High Vacuum systems bake out.

Electron Microscopy and Mass Spectrometry
The new TPS Integrated Turbo Pumping System are the perfect tool to keep the column of an electron microscope under vacuum while performing maintenance or repair on the device. The oil-free nature of the dry systems guarantees freedom from contamination of the column.

Industrial Applications
The Agilent TPS Turbo Pumping Systems can create and maintain the required vacuum level in separate chamber of an industrial system during maintenance or repair. The TPS with Dry Scroll Pumps are particularly well suited for evacuating load-lock chambers, or in Medical Accelerators applications. Their oil-free design ensures the purity of the process. The TPS-mini may be mounted in any position, making it suitable for most systems.
Innovative Vacuum Technologies for Your System

**Agilent Rotary Vane Pumps**
- Wide pumping speed range from 1.8 to 20.5 m³/h
- Dual stage
- Forced oil circulation
- Gas ballast valve
- Anti-suckback valve and vent device

**New TPS Platform with TwisTorr FS Technology**
**The Value of Agilent Quality**
- Innovative TwisTorr molecular-drag technology with Floating Suspension
- Outstanding Reliability
- No maintenance required: Agilent Turbo Pumps don’t need oil refills
- Higher compression ratio and pumping speed

**Agilent Dry Scroll Pumps**
- Clean, dry primary vacuum; no maintenance required, simple tip seal replacement
- CE, UL/CUL, CSA and Semi S2-0200 certified
- Isolation valve integrated/included
- IDP-3: the smallest scroll pump in the market; peak pumping speed 3.0 m³/h, ultimate pressure 3.3 x 10⁻¹ mbar
- SH-110: peak pumping speed 5.4 m³/h
- IDP-15: quiet, low-vibration operation; pumping speed 15.4 m³/h (60 Hz), 12.8 m³/h (50 Hz); ultimate pressure 13.3 x 10⁻³ mbar (10 mTorr)
Agilent TPS-mini

A small and compact, easy-to-use, integrated dry vacuum system, featuring the new Agilent TwisTorr 84 FS Turbo Pump with improved vacuum performance, backed by a dry 10 l/min diaphragm pump. Operability in any position, no maintenance required. Active Gauge capability, large pressure display, PC connection. Universal voltage (90V/240V), CE/CSA certified.

Features
- New generation turbomolecular pump TwisTorr 84 FS
- Smallest footprint, lightest weight, compact, dry, clean and robust system
- Universal voltage (90 V/240 V) - CE/CSA certified
- RS-232 or analogical communication
- Wide range vacuum gauge driving capability
- Large pressure data display
- Pressure driven set point, analog set point

Benefits
- Designed for demanding applications
- Cost-effective pumping solution for small volumes
- Easy to use: plug and play system; easy PLC & PC interface
- Compatible with world-wide power configurations
- Complies with world-wide safety standards
- Easy system pressure measurement; no external gauge reading unit needed
- Direct mounting on customer’s system (no vacuum pipes needed / improved conductance / HW cost saving)

Technical Specifications

<table>
<thead>
<tr>
<th>Pumping Speed (l/s) (with inlet screen)</th>
<th>KF 40</th>
<th>ISO 63</th>
<th>CFF 4.5 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>N₂</td>
<td>38</td>
<td>52</td>
<td>52</td>
</tr>
<tr>
<td>He</td>
<td>30</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>H₂</td>
<td>24</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td>Base pressure*</td>
<td>2 x 10⁻⁸ mbar</td>
<td>2 x 10⁻⁷ mbar</td>
<td>5 x 10⁻⁹ mbar</td>
</tr>
<tr>
<td>Bakeout temperature</td>
<td>80 °C at inlet</td>
<td>80 °C at inlet</td>
<td>120 °C at inlet</td>
</tr>
<tr>
<td>Shipping Weight lbs. (kg)</td>
<td>7.9 kg (17.4 lbs)</td>
<td>7.5 kg (16.4 lbs)</td>
<td>8.8 kg (19.4 lbs)</td>
</tr>
<tr>
<td>Pumpdown time (1 liter volume)</td>
<td>60 sec. to 17 mbar; 114 sec. to 1 x 10⁻⁴ mbar; 140 sec. to 5 x 10⁻⁵ mbar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turbo pump rotational speed</td>
<td>81,000 rpm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Start-up time</td>
<td>122 sec.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating position</td>
<td>Vertical, Horizontal, Upside down position</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating ambient temperature</td>
<td>5 °C to 35 °C / 41 °F to 95 °F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input Voltage and Frequency</td>
<td>90V to 240V AC; 50 Hz / 60 Hz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum input power</td>
<td>220 VA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serial communications</td>
<td>RS-232 cable, 9-pin D-type male, 9-pin D-type female, T-Plus Navigator Software</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* According to standard DIN 28 428
Pumping Speed vs Inlet Pressure

Pressure vs Time (with a pump down vol. of 1 lt.)

Ordering Information

<table>
<thead>
<tr>
<th>TPS-mini</th>
<th>KF 40</th>
<th>ISO 63</th>
<th>CFF 4.5in</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>G8703A#020</td>
<td>G8703A#021</td>
<td>G8703A#022</td>
</tr>
</tbody>
</table>

Accessories

- DIY Full Range Gauge Kit* 9699190 9699192 9699193
- Connection kit-gauge 9699180 9699181 9699182
- Mains cable EU plug**, 3 meters 9699957 9699957 9699957
- Mains cable NEMA plug**, 3 meters 9699958 9699958 9699958
- Serial Cable and T-Plus Software *** 9699883 9699883 9699883
- Inlet Screen for TwisTorr 84 FS Turbo Pump 9699309 9699300 9699300

NOTE Special Vent Valve available on request
* The DIY Gauge Kit can be ordered separately, and includes Full Range Gauge FRG-700, Cable for gauge connection, Vacuum Tee and Connecting Hardware (Flanges according to the System inlet flange)
** Power Cord to be ordered separately
*** Software available for free download at: http://www.chem.agilent.com/Library/software/Public/Agilent%20T-plus%201.2.4.exe.zip

Outline Drawing
Agilent TPS-compact

A portable, fully integrated, hydrocarbon-free pumping system powered by the innovative TwisTorr 84FS and 304 FS pumps, backed by the unique Agilent 60 l/min IDP-3 Dry Scroll, new generation primary pump: the fastest pumpdown in the market.

A cost effective pumping solution with large pressure display, Active Gauge capability, voltage 110-220 V, CE/CSA certified.

Technical Specifications

<table>
<thead>
<tr>
<th></th>
<th>Equipped with TwisTorr 84 FS</th>
<th>Equipped with TwisTorr 304 FS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pumping speed</td>
<td>N: 57 l/s (ISO 63, with inlet screen)*</td>
<td>N: 180 l/s (with inlet screen)*</td>
</tr>
<tr>
<td>Base Pressure**</td>
<td>1 x 10⁻⁸ mbar [CFF Flanges]</td>
<td>1 x 10⁻⁸ mbar [CFF Flanges]</td>
</tr>
<tr>
<td>Pumpdown Time (15 ft volume)</td>
<td>46 sec (100 mbar); 104 sec (1 mbar); 160 sec (1 x 10⁻⁸ mbar); 210 sec (5 x 10⁻⁵ mbar); 400 sec (1.3 x 10⁻⁵ mbar)</td>
<td>80 sec (16 mbar); 110 sec (3 mbar); 155 sec (6 x 10⁻³); 200 sec (1 x 10⁻²)</td>
</tr>
<tr>
<td>Turbo pump rotational speed</td>
<td>81.000 RPM</td>
<td>60.000 RPM</td>
</tr>
<tr>
<td>Start-up Time</td>
<td>144 sec.</td>
<td>150 sec.</td>
</tr>
<tr>
<td>Operating Ambient Temperature</td>
<td>5°C to 35°C</td>
<td>5°C to 35°C</td>
</tr>
<tr>
<td>Input Voltage and Frequency</td>
<td>115 Vac 60Hz or 220-240 Vac 50/60 Hz</td>
<td>115 Vac 60Hz or 220-240 Vac 50/60 Hz or 100 Vac 50/60 Hz</td>
</tr>
<tr>
<td>Maximum Input Power</td>
<td>260 VA</td>
<td>310 VA</td>
</tr>
<tr>
<td>Bakeout Temperature</td>
<td>120°C at inlet [CFF Flanges]</td>
<td>120°C at inlet [CFF Flanges]</td>
</tr>
<tr>
<td>Communication</td>
<td>RS232 - Analogical I/O</td>
<td>RS232 - Analogical I/O</td>
</tr>
<tr>
<td>Weight</td>
<td>16.7Kg [36.8 lbs]</td>
<td>20.1Kg [44.3 lbs]</td>
</tr>
</tbody>
</table>

* Pump nominal speed: TwisTorr 84FS N2: 87 l/s; TwisTorr 304FS N2: 250 l/s
** According to standard DIN 28 428

Features

- New generation TwisTorr 84FS and 304 FS Turbomolecular Pumps
- IDP-3 Dry Scroll backing pump
- Compact, light, dry, clean and robust system
- Nominal voltage (90-240 V) - CE/CSA certified
- RS-232 or analogical communication
- Wide range vacuum gauge driving capability
- Large pressure data display
- Pressure driven set point, analog set point
- Wheels option available

Benefits

- Designed for demanding applications
- Cost-effective pumping solution
- Easy to use: plug and play system; easy PLC & PC interface
- Complies with world-wide safety standards
- Easy system pressure measurement; no external gauge reading unit needed
- Easy Tip-seal replacement (10 min)
- Excellent base pressure, down to 10⁻⁹ mbar
- Easy to be moved in small space
- Highest compression ratio for H₂/He

Ordering Information

<table>
<thead>
<tr>
<th>TPS Compact</th>
<th>TwisTorr 84FS KF40</th>
<th>TwisTorr 84FS CFF 2.75”</th>
<th>TwisTorr 84FS ISO 63</th>
<th>TwisTorr 84FS CFF 4.5”</th>
<th>TwisTorr 84FS ISO 100</th>
<th>TwisTorr 304FS CFF 6”</th>
<th>TwisTorr 304FS ISO 100</th>
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<tbody>
<tr>
<td>120 V</td>
<td>X3580A#101#091#120</td>
<td>X3580A#101#091#221#120</td>
<td>X3580A#101#091#221#120</td>
<td>X3580A#101#091#221#120</td>
<td>X3580A#101#091#221#120</td>
<td>X3580A#101#091#221#120</td>
<td>X3580A#101#091#221#120</td>
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<tr>
<td>220 V</td>
<td>X3580A#101#091#220</td>
<td>X3580A#101#091#221#220</td>
<td>X3580A#101#091#221#220</td>
<td>X3580A#101#091#221#220</td>
<td>X3580A#101#091#221#220</td>
<td>X3580A#101#091#221#220</td>
<td>X3580A#101#091#221#220</td>
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<tr>
<td>105 V</td>
<td>X3580A#101#091#105</td>
<td>X3580A#101#091#221#105</td>
<td>X3580A#101#091#221#105</td>
<td>X3580A#101#091#221#105</td>
<td>X3580A#101#091#221#105</td>
<td>X3580A#101#091#221#105</td>
<td>X3580A#101#091#221#105</td>
</tr>
</tbody>
</table>

Accessories

- Gauge Kit 9699190 9699199 9699192 9699193 9699194 9699201 9699195 9699202
- Inlet Screen 9699309 9699328 9699300 9699306 9699302 9699302 9699304 9699304

**NOTE** Special Vent Valve available on request

* The DIY Full Range Gauge Kit can be ordered separately, and includes Full Range Gauge FRG-700, Cable for gauge connection, Vacuum Tee and Connecting Hardware (Flanges according to the System inlet flange)
Other Accessories

<table>
<thead>
<tr>
<th>Accessory</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheels accessory kit</td>
<td>9698233</td>
</tr>
<tr>
<td>Mains cable EU plug**. 3 meters</td>
<td>9699957</td>
</tr>
<tr>
<td>Mains cable NEMA plug**, 3 meters</td>
<td>9999958</td>
</tr>
<tr>
<td>Serial Cable and T-Plus Software</td>
<td>9699883</td>
</tr>
</tbody>
</table>

Pumping Speed vs Inlet Pressure

Pressure vs Time (with a pump down vol. of 15 lt.)

Outline Drawing

TPS-compact with TwisTorr 84 FS
ISO 63

TPS-compact with TwisTorr 304 FS
ISO 100
Agilent TPS-bench

Flexible table-top, compact and reliable vacuum solutions. 72 possible standard configurations with the new TwisTorr 84 FS and 304 FS Turbo Pumps, backed by Agilent Dry Scroll and Rotary Vane Pumps, ensure top vacuum performance, and fast vacuum chamber roughing.

Gauges and accessories available. T-Plus Software, and Isolation valve integrated/included.

Voltage 110/230V. CE, UL/CUL, CSA and Semi S2-0200 certified.

Applications include UHV System pump down, Ion pump roughing, Lamp and tube processing, Cryopump regeneration, High Vacuum Systems operation, High and Ultra High Vacuum systems bake out.

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**Turbomolecular Pumps - Pumping Speed**

<table>
<thead>
<tr>
<th>TwisTorr 84 FS</th>
<th>TwisTorr 304 FS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pumping Speed</td>
<td>N: 57 l/s (with inlet screen)*</td>
</tr>
</tbody>
</table>

* Pump nominal speed: TwisTorr 84FS N: 67 l/s; Twistorr 304FS N: 250 l/s

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**Base Pressure**

<table>
<thead>
<tr>
<th>TwisTorr 84 FS</th>
<th>TwisTorr 304 FS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Pumps Dry</td>
<td>5.0 x 10⁻⁶ mbar (3.75 x 10⁻⁴ Torr)</td>
</tr>
<tr>
<td>Primary Pumps Mechanical</td>
<td>5.0 x 10⁻⁶ mbar (3.75 x 10⁻¹⁴ Torr)</td>
</tr>
</tbody>
</table>

* According to standard DIN 28 428

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**Pumpdown time**

| TPS-bench with TwisTorr 84 FS ISO 63 and SH 110 Scroll Pump |
|---------------|---------------|
| Pumpdown Time (15 liter volume) | 34 sec | 100 mbar |
| | 76 sec | 1 mbar |
| | 120 sec | 1x10⁻⁴ mbar |
| | 160 sec | 5x10⁻⁴ mbar |
| | 400 sec | 1x10⁻⁵ mbar |

| TPS-bench with TwisTorr 304 FS ISO 100 and SH 110 Scroll Pump |
|---------------|---------------|
| Pumpdown Time (15 liter volume) | 40 sec | 45 mbar |
| | 60 sec | 7 mbar |
| | 80 sec | 5 x 10⁻¹ mbar |
| | 100 sec | 8 x 10⁻² mbar |
| | 115 sec | 1 x 10⁻² mbar |

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**Pressure vs Time** (with a pump down vol. of 15 l.)

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Agilent TPS Turbo Pumping Systems
TPS-bench standard configurations

<table>
<thead>
<tr>
<th>TPS-bench</th>
<th>TwisTorr 84 FS</th>
<th>TwisTorr 84 FS</th>
<th>TwisTorr TwisTorr 84 FS</th>
<th>TwisTorr 84 FS</th>
<th>TwisTorr 304 FS</th>
<th>TwisTorr 304 FS</th>
<th>TwisTorr 304 FS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>KF 40</td>
<td>ISO 63</td>
<td>CFF 2 ½”</td>
<td>CFF 4 ½”</td>
<td>ISO 100</td>
<td>CFF 6”</td>
<td>ISO 160</td>
</tr>
<tr>
<td>DS 102 - 120 V</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
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<tr>
<td>DS 102 - 220 V</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
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<tr>
<td>DS 202 - 120 V</td>
<td>●</td>
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</tr>
<tr>
<td>DS 202 - 220 V</td>
<td>●</td>
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</tr>
<tr>
<td>DS 302 - 120 V</td>
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<tr>
<td>DS 302 - 220 V</td>
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<tr>
<td>IDP-3 - 120 V</td>
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<tr>
<td>IDP-3 - 220 V</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
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<tr>
<td>SH 110 - 120 V</td>
<td>●</td>
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<td>SH 110 - 220 V</td>
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Ordering Information available on request: call Agilent for details.

Turbomolecular Pumps

<table>
<thead>
<tr>
<th>Turbo Pump Model</th>
<th>Turbo Pump Model</th>
<th>Turbo Pump Model</th>
<th>Turbo Pump Model</th>
<th>Turbo Pump Model</th>
<th>Turbo Pump Model</th>
<th>Turbo Pump Model</th>
<th>Turbo Pump Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>TwisTorr 84 FS Pump</td>
<td>ISO 63, KF 40”, CFF 2.75”, CFF 4.5”</td>
<td>ISO 63, KF 40”, CFF 2.75”, CFF 4.5”</td>
<td>ISO 63, KF 40”, CFF 2.75”, CFF 4.5”</td>
<td>ISO 63, KF 40”, CFF 2.75”, CFF 4.5”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TwisTorr 304 FS Pump</td>
<td>ISO 100, CFF 6”, ISO 100, CFF 8”</td>
<td>ISO 100, CFF 6”, ISO 100, CFF 8”</td>
<td>ISO 100, CFF 6”, ISO 100, CFF 8”</td>
<td>ISO 100, CFF 6”, ISO 100, CFF 8”</td>
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<td></td>
<td></td>
</tr>
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</table>

*Configuration available on request.

Managing Gauges

<table>
<thead>
<tr>
<th>GAUGE KIT</th>
<th>Inlet Flange</th>
<th>DIY FRG-700 Full Range Gauge Kit (atmosphere to 3.8 x 10⁻⁹ Torr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TwisTorr 84 FS</td>
<td>KF 40</td>
<td>9699190</td>
</tr>
<tr>
<td></td>
<td>ISO 63</td>
<td>9699192</td>
</tr>
<tr>
<td></td>
<td>CFF 2.75”</td>
<td>9699199</td>
</tr>
<tr>
<td></td>
<td>CFF 4.5”</td>
<td>9699193</td>
</tr>
<tr>
<td>TwisTorr 304 FS</td>
<td>ISO 100</td>
<td>9699194</td>
</tr>
<tr>
<td></td>
<td>CFF 6”</td>
<td>9699201</td>
</tr>
<tr>
<td></td>
<td>ISO 160</td>
<td>9699195</td>
</tr>
<tr>
<td></td>
<td>CFF 8”</td>
<td>9699202</td>
</tr>
</tbody>
</table>

For other gauge configurations, please contact your local Agilent representative.

Cables

Power cords are included free of charge in all TPS-bench and TPS-mobile models, with US, EU or UK plug.

Outline Drawing

TPS-bench with TwisTorr 84 FS

TPS-bench with TwisTorr 304 FS

TPS-bench with TwisTorr 84 FS

TPS-bench with TwisTorr 304 FS

TPS-bench with TwisTorr 84 FS

TPS-bench with TwisTorr 304 FS

TPS-bench with TwisTorr 84 FS

TPS-bench with TwisTorr 304 FS

Dimensions: mm (inches)

Depth: 453 (17.83)
Agilent TPS-mobile

Roll-around cart, high capacity systems, with higher compression ratio and wide pumping speed range.

160 possible configurations, with the new TwisTorr 84 FS and 304 FS, and the Turbo-V 551 Navigator Turbo Pumps, backed by Agilent Dry Scroll Pumps (including the new IDP-15) or DS Mechanical Pumps.

Large selection of gauges and accessories available for customized solutions.

T-Plus Software, Isolation valve integrated/included.

Voltage 110/230V. CE, UL/CUL, CSA and Semi S2-0200 certified.

Applications include UHV System pump down, Ion pump roughing, Lamp and tube processing, Cryopump regeneration, High Vacuum Systems operation, High and Ultra High Vacuum systems bake out.

Turbomolecular Pumps - Pumping Speed*

<table>
<thead>
<tr>
<th>TwisTorr 84 FS</th>
<th>TwisTorr 304 FS</th>
<th>Turbo-V 551 Navigator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pumping Speed</td>
<td>N₂: 57 l/s (with inlet screen)*</td>
<td>N₂: 180 l/s (with inlet screen)*</td>
</tr>
</tbody>
</table>

* Pump nominal speed: TwisTorr 84FS N₂: 67 l/s; Twistorr 304FS N₂: 250 l/s.

Base Pressure

<table>
<thead>
<tr>
<th>TwisTorr 84 FS</th>
<th>TwisTorr 304 FS</th>
<th>Turbo-V 551 Navigator</th>
</tr>
</thead>
<tbody>
<tr>
<td>With SH110 Dry Scroll Pump</td>
<td>5.0 x 10⁻⁶ mbar (3.75 x 10⁻³ Torr)</td>
<td>&lt; 1.0 x 10⁻⁹ mbar (&lt; 7.5 x 10⁻¹¹ Torr)</td>
</tr>
<tr>
<td>With DS-102 Rotary Vane Pump</td>
<td>5.0 x 10⁻¹⁶ mbar (3.75 x 10⁻¹⁹ Torr)</td>
<td>&lt; 1.0 x 10⁻¹⁹ mbar (&lt; 7.5 x 10⁻¹¹ Torr)</td>
</tr>
</tbody>
</table>

* According to standard DIN 28 428

Pumpdown time

<table>
<thead>
<tr>
<th>TPS-mobile with TwisTorr 84 FS ISO 63 and SH 110 Scroll Pump</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pumpdown Time (15 liter volume)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TPS-mobile with TwisTorr 304 FS ISO 100 and SH 110 Scroll Pump</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pumpdown Time (15 liter volume)</td>
</tr>
</tbody>
</table>

Pressure vs Time (with a pump down vol. of 15 lt.)

Agilent TPS Turbo Pumping Systems
**TPS-mobile standard configurations**

<table>
<thead>
<tr>
<th>TPS-mobile</th>
<th>TwistTorr 84 FS</th>
<th>TwistTorr 84 FS</th>
<th>TwistTorr TwistTorr 84 FS</th>
<th>TwistTorr TwistTorr 84 FS</th>
<th>TwistTorr TwistTorr 84 FS</th>
<th>TwistTorr TwistTorr 84 FS</th>
<th>TwistTorr TwistTorr 84 FS</th>
<th>TwistTorr TwistTorr 84 FS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS 102 - 120 V</td>
<td>84 FS</td>
<td>84 FS</td>
<td>84 FS</td>
<td>84 FS</td>
<td>304 FS</td>
<td>304 FS</td>
<td>304 FS</td>
<td>304 FS</td>
</tr>
<tr>
<td>DS 102 - 220 V</td>
<td>84 FS</td>
<td>84 FS</td>
<td>84 FS</td>
<td>84 FS</td>
<td>304 FS</td>
<td>304 FS</td>
<td>304 FS</td>
<td>304 FS</td>
</tr>
<tr>
<td>DS 202 - 120 V</td>
<td>84 FS</td>
<td>84 FS</td>
<td>84 FS</td>
<td>84 FS</td>
<td>304 FS</td>
<td>304 FS</td>
<td>304 FS</td>
<td>304 FS</td>
</tr>
<tr>
<td>DS 202 - 220 V</td>
<td>84 FS</td>
<td>84 FS</td>
<td>84 FS</td>
<td>84 FS</td>
<td>304 FS</td>
<td>304 FS</td>
<td>304 FS</td>
<td>304 FS</td>
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<tr>
<td>DS 302 - 120 V</td>
<td>84 FS</td>
<td>84 FS</td>
<td>84 FS</td>
<td>84 FS</td>
<td>304 FS</td>
<td>304 FS</td>
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<tr>
<td>DS 302 - 220 V</td>
<td>84 FS</td>
<td>84 FS</td>
<td>84 FS</td>
<td>84 FS</td>
<td>304 FS</td>
<td>304 FS</td>
<td>304 FS</td>
<td>304 FS</td>
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<tr>
<td>DS 402 - 120 V</td>
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<td>84 FS</td>
<td>84 FS</td>
<td>84 FS</td>
<td>304 FS</td>
<td>304 FS</td>
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<td>304 FS</td>
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<tr>
<td>DS 402 - 220 V</td>
<td>84 FS</td>
<td>84 FS</td>
<td>84 FS</td>
<td>84 FS</td>
<td>304 FS</td>
<td>304 FS</td>
<td>304 FS</td>
<td>304 FS</td>
</tr>
<tr>
<td>SH 110 - 120 V</td>
<td>84 FS</td>
<td>84 FS</td>
<td>84 FS</td>
<td>84 FS</td>
<td>304 FS</td>
<td>304 FS</td>
<td>304 FS</td>
<td>304 FS</td>
</tr>
<tr>
<td>SH 110 - 220 V</td>
<td>84 FS</td>
<td>84 FS</td>
<td>84 FS</td>
<td>84 FS</td>
<td>304 FS</td>
<td>304 FS</td>
<td>304 FS</td>
<td>304 FS</td>
</tr>
<tr>
<td>IDP-3 - 120 V</td>
<td>84 FS</td>
<td>84 FS</td>
<td>84 FS</td>
<td>84 FS</td>
<td>304 FS</td>
<td>304 FS</td>
<td>304 FS</td>
<td>304 FS</td>
</tr>
<tr>
<td>IDP-3 - 220 V</td>
<td>84 FS</td>
<td>84 FS</td>
<td>84 FS</td>
<td>84 FS</td>
<td>304 FS</td>
<td>304 FS</td>
<td>304 FS</td>
<td>304 FS</td>
</tr>
<tr>
<td>TS 300 VPI - 120 V</td>
<td>84 FS</td>
<td>84 FS</td>
<td>84 FS</td>
<td>84 FS</td>
<td>304 FS</td>
<td>304 FS</td>
<td>304 FS</td>
<td>304 FS</td>
</tr>
<tr>
<td>TS 300 VPI - 220 V</td>
<td>84 FS</td>
<td>84 FS</td>
<td>84 FS</td>
<td>84 FS</td>
<td>304 FS</td>
<td>304 FS</td>
<td>304 FS</td>
<td>304 FS</td>
</tr>
<tr>
<td>TS 600 VPI - 120 V</td>
<td>84 FS</td>
<td>84 FS</td>
<td>84 FS</td>
<td>84 FS</td>
<td>304 FS</td>
<td>304 FS</td>
<td>304 FS</td>
<td>304 FS</td>
</tr>
<tr>
<td>TS 600 VPI - 220 V</td>
<td>84 FS</td>
<td>84 FS</td>
<td>84 FS</td>
<td>84 FS</td>
<td>304 FS</td>
<td>304 FS</td>
<td>304 FS</td>
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</tr>
</tbody>
</table>

Ordering Information available on request: call Agilent for details

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**Turbomolecular Pumps**

<table>
<thead>
<tr>
<th>Turbo Pump Model</th>
<th>Inlet Flange</th>
</tr>
</thead>
<tbody>
<tr>
<td>TwistTorr 84 FS Pump</td>
<td>ISO 63, KF 40&quot; , CFF 2 ⅜&quot; , CFF 4 ⅜&quot;</td>
</tr>
<tr>
<td>TwistTorr 304 FS Pump</td>
<td>ISO 100, CFF 6&quot; , ISO 160, CFF 8&quot;</td>
</tr>
<tr>
<td>Turbo-V 551 Navigator</td>
<td>ISO 100, CFF 6&quot; , ISO 160, CFF 8&quot;</td>
</tr>
</tbody>
</table>

*Configuration available on request

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**Primary Pumps**

<table>
<thead>
<tr>
<th>Pump Type</th>
<th>Peak Pumping Speed 50 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry Scroll Pumps</td>
<td>50 l/min - 3.0 m³/h - 1.8 cfm</td>
</tr>
<tr>
<td>SH 110, single phase</td>
<td>90 l/min - 5.4 m³/h - 3.3 cfm</td>
</tr>
<tr>
<td>TriScroll 300, single phase, with Vacuum Pump Isolation Valve (VPI)</td>
<td>210 l/min - 12.6 m³/h - 7.4 cfm</td>
</tr>
<tr>
<td>TriScroll 600, single phase, with Vacuum Pump Isolation Valve (VPI)</td>
<td>420 l/min - 25.2 m³/h - 14.8 cfm</td>
</tr>
<tr>
<td>IDP-15, single phase</td>
<td>214 l/min - 12.8 m³/h - 7.5 cfm</td>
</tr>
</tbody>
</table>

---

**Managing Gauges**

<table>
<thead>
<tr>
<th>GAUGE KIT</th>
<th>Inlet Flange</th>
</tr>
</thead>
<tbody>
<tr>
<td>TwistTorr 84 FS</td>
<td>KF 40</td>
</tr>
<tr>
<td></td>
<td>ISO 63</td>
</tr>
<tr>
<td></td>
<td>CFF 4 ⅜&quot;</td>
</tr>
<tr>
<td></td>
<td>ISO 100</td>
</tr>
<tr>
<td>TwistTorr 304 FS and Turbo-V 551 Navigator</td>
<td>ISO 160 K</td>
</tr>
<tr>
<td></td>
<td>CFF 8&quot;</td>
</tr>
</tbody>
</table>

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**Cables**

Power cords are included free of charge in all TPS-bench and TPS-mobile models, with US, EU or UK plug.

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[Outline Drawing]

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For other gauge configurations, please contact your local Agilent representative.
Agilent Technologies

The New Integrated Pumping Solutions with TwisTorr FS Technology

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