

Agilent TwisTorr 74 FS



The new generation Turbo Pump with Agilent Floating Suspension

The Agilent TwisTorr 74 FS turbomolecular high-vacuum pump combines TwisTorr drag stage technology and Agilent Floating Suspension to provide high performance, reliability, and economy in such applications as academia and research, and others that require pumps for long-term operation.

TwisTorr drag stages create high compression ratios for light gases such as hydrogen and helium to deliver high throughput and high tolerance of foreline pressure, thereby permitting the use of smaller and more economical backing pumps. This technology results in a compact rotor design that is energy-efficient and maintains a low operating temperature.

The Agilent Floating Suspension system reduces noise and vibration, and ensures optimal bearing operating conditions to extend operating life, minimize system downtime, and assure stability over time.

The unique bearing and dry lubrication in the TwisTorr 74 FS eliminate oil and maintenance, and permit operation of the pump in any orientation. Available with onboard or rack controllers.

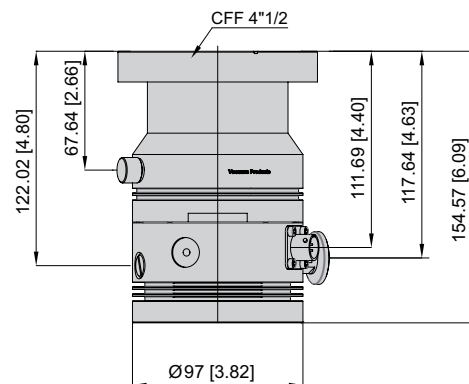
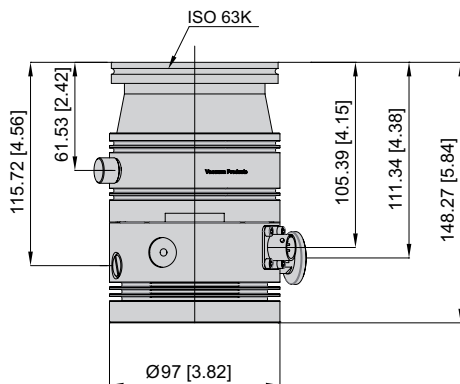
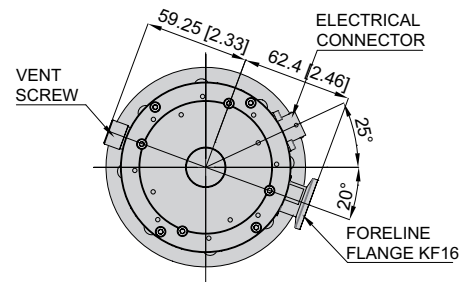
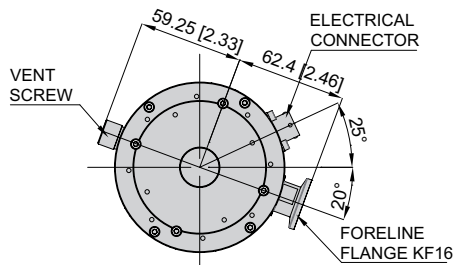
Technical Specifications

| Technical Specifications | | | | |
|---|---|-----------|--|----------|
| Pumping speed | KF40 | CFF 2.75" | ISO 63 | CFF 4.5" |
| N ₂ | 44 L/s | 50 L/s | 60 L/s | 60 L/s |
| He | 33 L/s | 40 L/s | 54 L/s | 54 L/s |
| H ₂ | 28 L/s | 31 L/s | 42 L/s | 42 L/s |
| Ar | 40 L/s | 51 L/s | 59 L/s | 59 L/s |
| Max Gas Throughput (*) | Air Cooling (35°C ambient temperature) | | Water Cooling (25°C water temp. / 35°C ambient temp.) | |
| N ₂ | 130 SCCM | | 130 SCCM | |
| Ar | 80 SCCM | | 80 SCCM | |
| (*) Backing pump 5 m ³ /h | | | | |
| Compression ratio and foreline tolerance (**) | | | | |
| N ₂ | 1.0 x 10 ⁹ | | >12 mbar | |
| He | 2.0 x 10 ⁵ | | >10 mbar | |
| H ₂ | 1.0 x 10 ⁴ | | >4 mbar | |
| Ar | > 1.0 x 10 ⁹ | | >14 mbar | |
| (**) Foreline Tolerance defined as the pressure at which the turbopump still produces a compression of 100, estimated in water cooling mode | | | | |
| Base pressure with recomm. forepump | < 5 x 10 ⁻¹⁰ mbar (< 3.75 x 10 ⁻¹⁰ Torr) | | | |
| Inlet flange | KF 40, ISO 63, CFF 4.5", CFF 2.75" | | | |
| Foreline flange | KF16 NW | | | |
| Rotational speed | 70000 rpm (1167 Hz driving frequency) | | | |
| Start-up time | < 2 minutes | | | |

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|---|--|
| Recommended forepump | Agilent DS 40M / DS 102 Rotary Vane Pumps Agilent IDP-3/IDP-7 Dry Scroll Pumps |
| Operating position | Any |
| Oper. ambient temp. | +5 °C to +35 °C |
| Rel. humidity of air | 0 - 90 % (not condensing) |
| Bakeout temperature | max 80 °C for ISO (120 °C for CFF) at inlet flange |
| Lubricant | Permanent lubrication |
| Cooling requirements | |
| Air cooling | Forced air Air flow temperature +5° C to +35 °C |
| Water cooling | Water temperature from +15°C to +25°C Water flow min. 65 L/h |
| Noise Pressure level (at 1 mt at full speed) | 40 dB(A) |
| Storage temp. | -40 °C to +70 °C |
| Max altitude | 3000 m |
| Weight kg (lbs) | ISO 63 2.05 (4.50) CFF 4.5" 3.50 (7.70) CFF 2.75" 3.34 (7.35) KF 40 2.37 (5.22) |

| Conformity to norms | |
|---|--|
| CE, C-CSA-US, RoHS compliant as per 2011/65/UE | |

Outline Drawing



Dimensions: millimeters [inches]

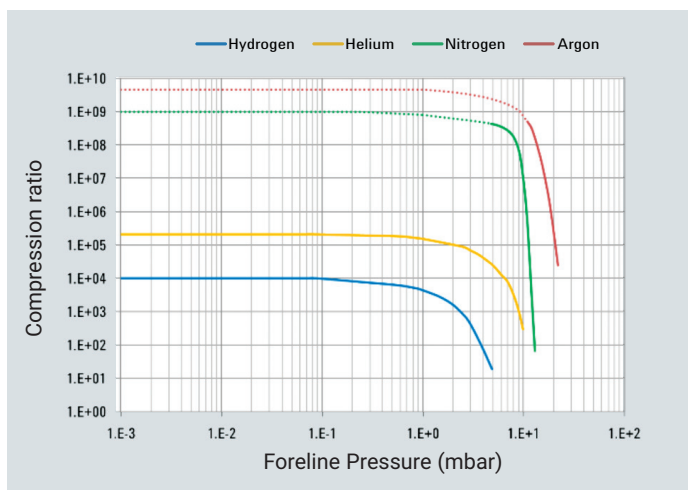
3D Drawings available for download on Agilent.com

Ordering Information

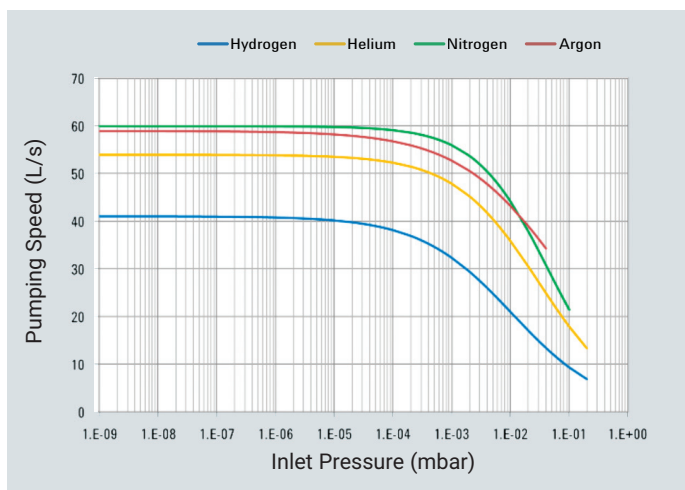
| Pumps | Part Numbers |
|---|--|
| TwisTorr 74 FS ISO 63 | X3502-64170 |
| TwisTorr 74 FS KF 40 | X3502-64171 |
| TwisTorr 74 FS CFF 4.5" | X3502-64172 |
| TwisTorr 74 FS CFF 2.75" | X3502-64173 |
| Controllers | |
| TwisTorr 74 FS AG rack controller RS232/485 | X3508-64301 |
| TwisTorr 74 FS AG rack controller Profibus | X3508-64022 |
| TwisTorr 74 FS onboard controller 110/220V | X3509-64030 |
| TwisTorr 74 FS onboard controller 24V | X3509-64021 |
| TwisTorr 74 FS PCB controller | X3510-64050 |
| Cables | |
| Mains cable NEMA plug 3 m long | 9699958 |
| Mains cable EU plug 3 m long | 9699957 |
| Serial cable and A-PLUS software | 9699883 |
| PCB cable | 9699869 |
| Pump extension cables | 9699942 (3 m) 9699942M007 (5 m) 9699942M006 (10 m) 9699942M005 (15 m) 9699942M004 (20 m) |
| Inlet Screen | |
| Inlet screen ISO 63 | X3502-68001 |
| Inlet screen CFF 4.5" | X3502-68000 |
| Inlet screen, KF 40 | 9699309 |
| Inlet screen CFF 2.75" | 9699328 |
| Cooling | |
| Metal water cooling kit | X3502-68002 |
| Plastic water cooling kit | X3502-68003 |
| Air cooling kit (0,5 m cable) | 9699290 |
| Air cooling kit extension cable (5 m) | 9699940 |

| Vibration isolator | |
|--|---|
| Vibration isolator ISO 63 | 9699375 |
| Vibration isolator CFF 4.5" | 9699376 |
| Venting | |
| Vent Valve N.O. 0.5 mm orifice (0.5 m cable) | 9699844 |
| Vent Valve extension cables | 9699941 (5 m) 9699941M003 (10 m) 9699941M001 (15 m) 9699941M005 (20 m) |
| Vent Screw M5 | X3502-68005 |
| Vent Adapter kit M5-M8 | X1699-64039 |
| Purge | |
| Purge Screw | X3502-68004 |
| Purge valve 10 SCCM NW16KF - M12 | 9699239 |
| Purge valve 10 SCCM ¼ Swagelok - M12 | 9699240 |
| Purge valve 20 SCCM NW16KF - M12 | 9699241 |
| Purge valve 20 SCCM ¼ Swagelok - M12 | 9699242 |
| Purge valve 10 SCCM ¼ Swagelok - ¼ Swagelok | 9699232 |
| Purge valve 20 SCCM ¼ Swagelok - ¼ Swagelok | 9699236 |
| Mounting | |
| Onboard controller side mounting bracket | X3502-68006 |
| CFF4.5 Mounting kit | X3502-68007 |
| Metric screws kit | X3502-68008 |
| American screws kit | X3502-68009 |
| Active Gauges | |
| FRG 700 Full Range Gauge PVG 500 Pirani Vacuum Gauge PCG 750 Pirani Capacitance Gauge CDG-500 Capacitance Diaphragm Gauge | Ask Agilent for details |

Compression Ratio



Pumping Speed



www.agilent.com/chem/twistorrfsfamily

United States

Agilent Technologies
121 Hartwell Avenue, Lexington MA 02421, USA
Tel: +1 781 861 7200
Toll free: +1 800 882 7426
vpl-customer care@agilent.com

Europe and other countries

Agilent Technologies Italia SpA
via F.lli Varian 54, 10040 Leini, (Torino), Italy
Tel: +39 011 9979 111
Toll free: 00 800 234 234 00
vpt-customer care@agilent.com

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