

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.

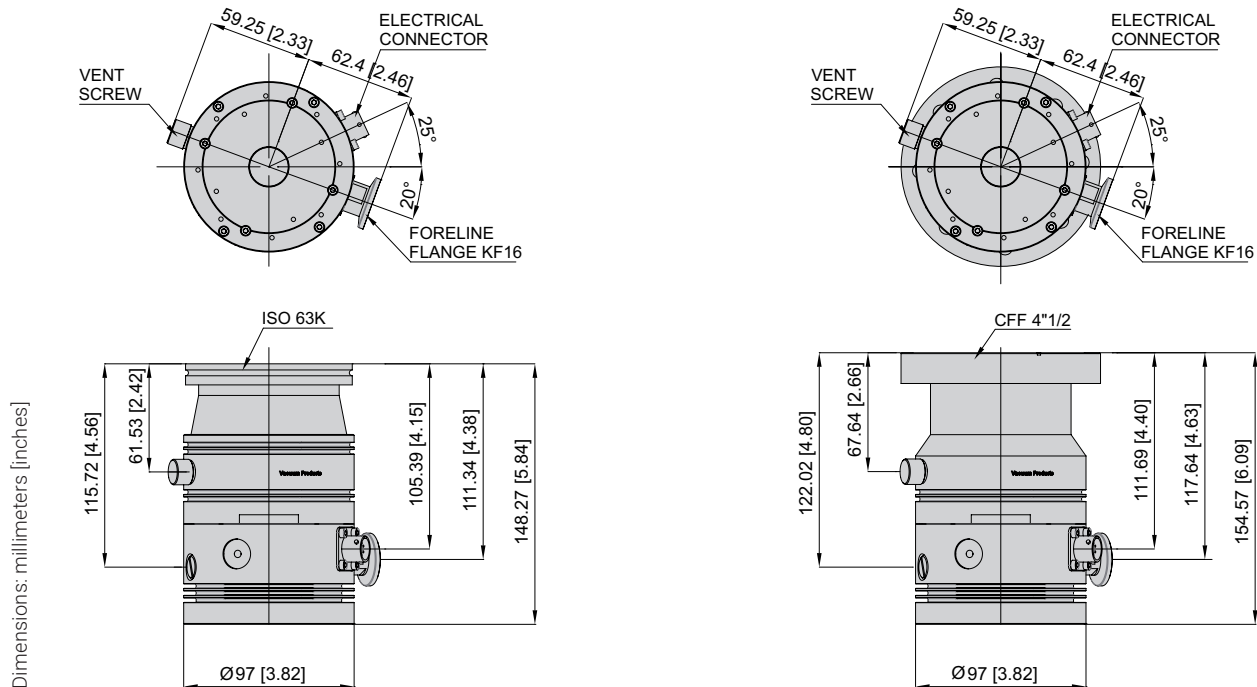
The unique bearing and dry lubrication in the TwisTorr 74 FS eliminate oil and maintenance, and permit operation of the pump in any orientation. Available with onboard or rack controllers.

Technical Specifications

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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		>04 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 Pump Agilent IDP-3/IDP-7 Dry Scroll Pump
Operating position	Any
Oper. ambient temp.	+5 °C to +35 °C
Rel. humidity of air	0 - 90 % (not condensing)
Bakeout temp.	80 °C for ISO (120 °C for CFF) at inlet flange
Lubricant	Permanent lubrication
Cooling requirements	
Air cooling	Forced air (5-35 °C ambient temp.) 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



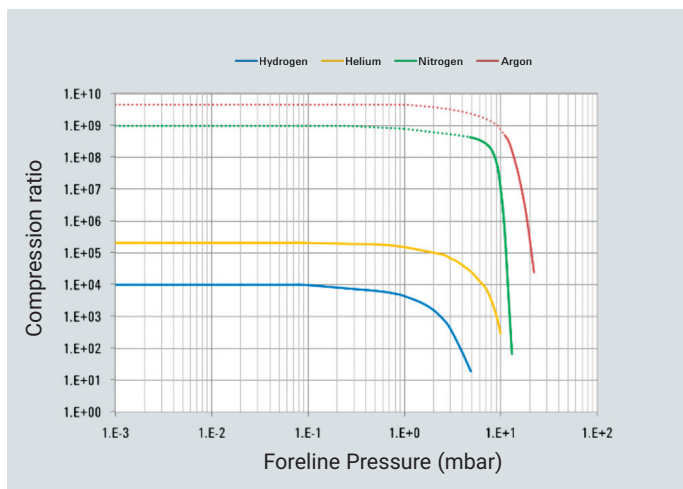
3D Drawings available for download

Ordering Information

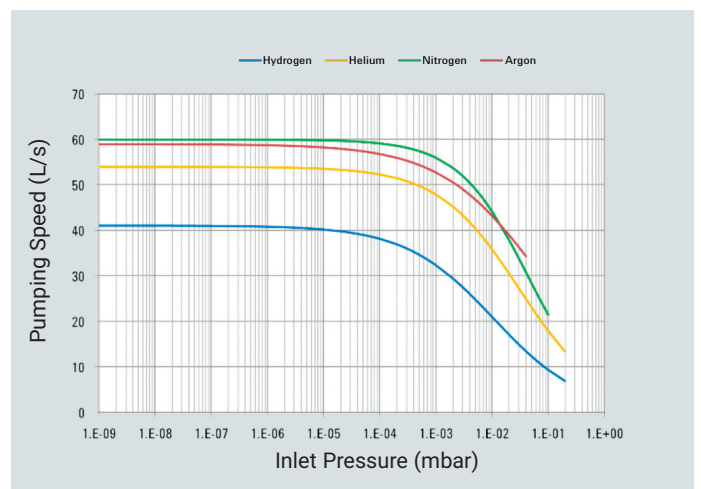
Pumps	Configuration Options
TwisTorr 74 FS ISO 63	X3502-64170
TwisTorr 74 FS KF 40	X3502-64171
TwisTorr 74 FS CFF 4.5"	X3502-64172
TwisTorr 74 FS CFF 2.75"	X3502-64173
Controllers	Part Numbers
TwisTorr 74 FS AG Rack controller RS232/485	X3508-64301
TwisTorr 74 FS AG Rack controller Profibus	X3508-64022
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	Part Numbers
Mains cable NEMA plug 3 m long	9699958
Mains cable EU plug 3 m long	9699957
Serial cable and T-plus software	9699883
PCB cable	9699869
Pump extension cable (3 m)	9699942
Extension cable	969-9942M007 (5 m) 969-9942M006 (10 m) 969-9942M005 (15 m) 969-9942M004 (20 m)
Inlet Screen	Part Numbers
Inlet screen ISO 63	X3502-68001
Inlet screen CFF 4.5"	X3502-68000
Inlet screen, KF 40	969-9309
Inlet screen CFF 2.75"	969-9328
Cooling	Part Numbers
Metal water cooling kit	X3502-68002
Plastic water cooling kit	X3502-68003
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	Part Numbers
Vibration isolator ISO	63 969-9375
Vibration isolator CFF 4.5"	969-9376
Venting	Part Numbers
Vent Valve N.O. 0.5 mm orifice (0.5 m cable)	9699844
Vent Valve extension cable	9699941 (5 m) 969-9941M003 (10 m) 969-9941M001 (15 m) 969-9941M005 (20 m)
Vent Screw M5	X3502-68005
Vent Adapter kit M5-M8	X1699-64039
Purge	Part Numbers
Purge Screw	X3502-68004
Purge valve 10 SCCM NW16KF - M12	9699834
Purge valve 10 SCCM ¼ Swagelok - M12	9699108
Purge valve 20 SCCM NW16KF - M12	969-9241
Purge valve 20 SCCM ¼ Swagelok - M12	969-9242
Purge valve 10 SCCM ¼ Swagelok - ¼ Swagelok	969-9232
Purge valve 20 SCCM ¼ Swagelok - ¼ Swagelok	969-9236
Mounting	Part Numbers
Controller side mounting bracket	X3502-68006
CFF4.5 Mounting kit	X3502-68007
Metric screws kit	X3502-68008
American screws kit	X3502-68009
Active Gauges	Part Numbers
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

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