

## Agilent TwisTorr 84 FS



### The new generation Turbo Pump with Agilent Floating Suspension

The Agilent TwisTorr 84 FS turbomolecular high-vacuum pump combines TwisTorr drag stage technology and Agilent Floating Suspension to provide high performance, reliability, and economy.

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.

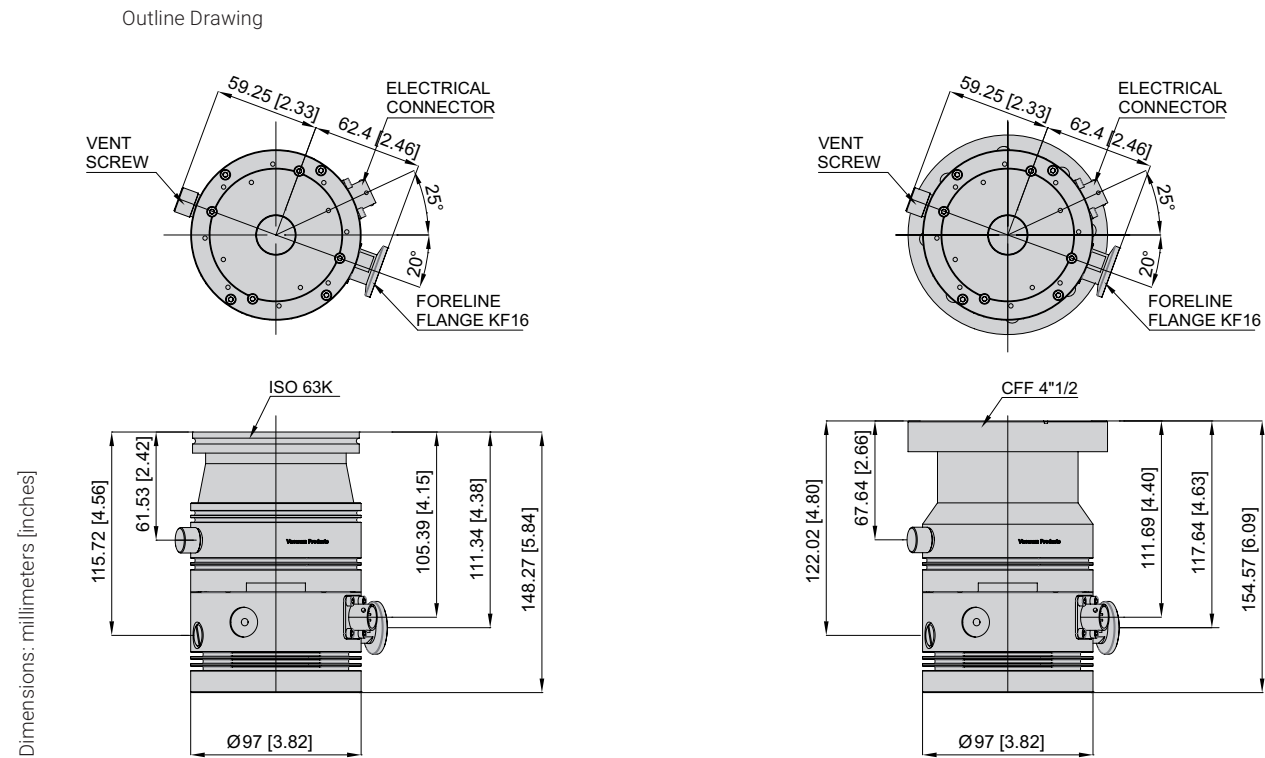
The unique bearing and dry lubrication in the TwisTorr 704 FS eliminate oil and maintenance, and permit operation of the pump in any orientation. Available with onboard or rack controllers.

## Technical Specification

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<b>Pumping speed</b>	KF40	CFF 2.75"	ISO 63	CFF 4.5"
N <sub>2</sub>	49 L/s	56 L/s	67 L/s	67
He	38 L/s	46 L/s	63 L/s	63
H <sub>2</sub>	36 L/s	40 L/s	53 L/s	53
Ar	44	57 L/s	66 L/s	66
<b>Gas throughput at full rotational speed (with recomm. forepump)</b>	Air cooling (35 °C)		Water cooling (25 °C, 65 L/h)	
N <sub>2</sub>	100 sccm		100 sccm	
Ar	70 sccm		70 sccm	
<b>Compression ratio and foreline tolerance</b>				
N <sub>2</sub>	≥ 1.0 x 10 <sup>11</sup>		>14 mbar	
He	2.0 x 10 <sup>6</sup>		>12 mbar	
H <sub>2</sub>	5.0 x 10 <sup>4</sup>		>4 mbar	
Ar	> 1.0 x 10 <sup>11</sup>		>14 mbar	
<b>Base pressure with recommended forepump (5 m<sup>3</sup>/h)</b>	< 5 x 10 <sup>-10</sup> mbar (< 3.75 x 10 <sup>-10</sup> Torr)			
<b>Inlet flange</b>	CFF 4.5" od CFF 2.75" od		ISO 63 KF 40	
<b>Foreline flange</b>	KF16 NW			
<b>Rotational speed</b>	81000 rpm (1350 Hz driving frequency)			
<b>Start-up time</b>	< 2 minutes			

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<b>Recommended forepump</b>	mechanical: Agilent DS 40M / DS 102 dry pump: Agilent IDP-3/IDP-7
<b>Operating position</b>	Any
<b>Oper. ambient temperature</b>	+5 °C to +35 °C
<b>Rel. humidity of air</b>	0 - 90 % (not condensing)
<b>Bakeout temperature</b>	80 °C for ISO (120 °C for CFF) at inlet flange
<b>Lubricant</b>	Permanent lubrication
<b>Cooling requirements</b>	Forced air (5-35 °C ambient temperature)
Air cooling	Air flow temperature +5° C to +35 °C
Water cooling	Cooling water temperature: +15 °C to +25 °C Minimum flow: 65 L/h (0.30 GPM) Pressure: 2 to 4 bar (45 to 75 psi)
<b>Noise Pressure level (at 1 mt at full speed)</b>	40 dB(A) *
<b>Storage temperature</b>	-40 °C to +70 °C
<b>Max altitude</b>	3000 m
<b>Weight kg (lbs)</b>	Pump ISO 63 kg 2.05 Pump CFF 4.5" kg 3.50 Pump CFF 2.75" kg 3.34 Pump KF 40" kg 2.37
<b>Conformity to norms</b>	
CE, C-CSA-US, RoHS compliant as per 2011/65/UE	

\*average value ± 4 dB(A) std deviation

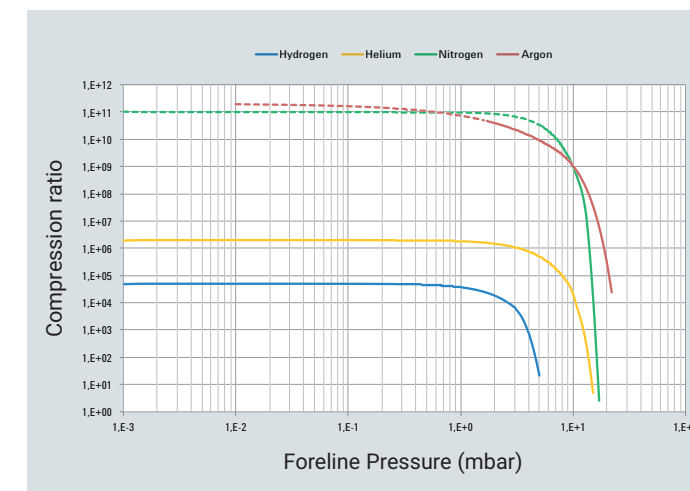


## Ordering Information

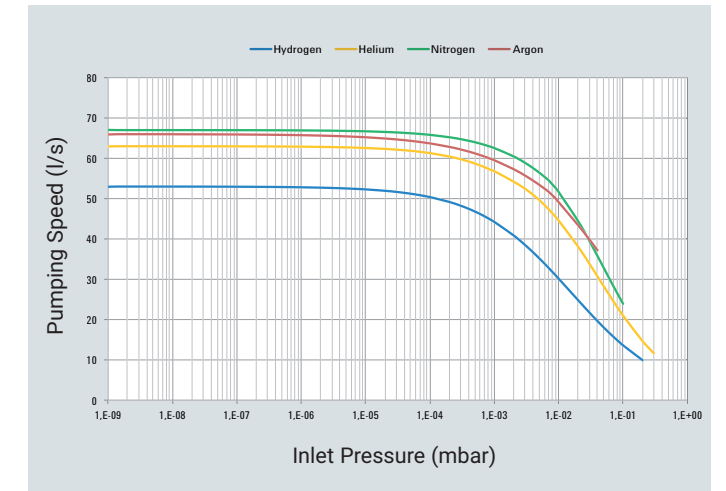
Pumps	Configuration Options
TwisTorr 84 FS ISO 63	X3502-64000
TwisTorr 84 FS KF 40	X3502-64001
TwisTorr 84 FS CFF 4.5"	X3502-64002
TwisTorr 84 FS CFF 2.75"	X3502-64003
Controllers	Part Numbers
TwisTorr 84 FS AG Rack controller RS232/485	X3508-64001
TwisTorr 84 FS AG Rack controller Profibus	X3508-64002
TwisTorr 84 FS onboard controller 110/220V	X3509-64000
TwisTorr 84 FS onboard controller 24V	X3509-64001
TwisTorr 84 FS PCB Controller	X3510-64000
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	Ask Agilent for details
PVG 500 Pirani Vacuum Gauge	
PCG 750 Pirani Capacitance Gauge	
CDG-500 Capacitance Diaphragm Gauge	

## Compression Ratio



## Pumping Speed



3D Drawings available for download

[www.agilent.com/chem/vacuum](http://www.agilent.com/chem/vacuum)

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