

Agilent TwisTorr 704 FS

The new generation Turbo Pump with Agilent Floating Suspension



The Agilent TwisTorr 704 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 permits operation of the pump in any orientation. Available with Onboard or Rack controllers.

The pump can be water cooled or air cooled: in the first case the customer can use the dedicated channels on the pump body, in the second case an external optional fan is available. A thermistor sensor is mounted near the upper bearing to prevent the pump from overheating.

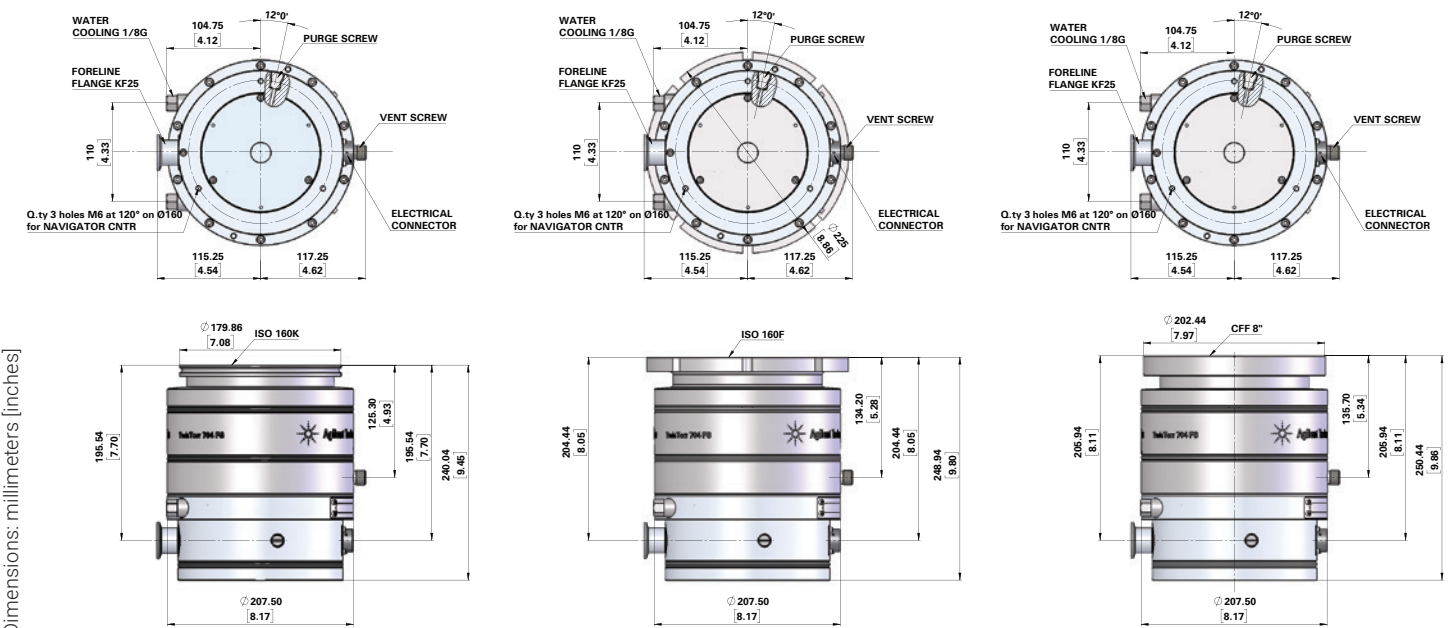
Technical Specifications

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Pumping speed	ISO 160 / CFF 8"	
N ₂	660 L/s	
He	640 L/s	
H ₂	480 L/s	
Ar	625 L/s	
Max Gas Throughput (*)	Air Cooling (25°C ambient temperature)	Water Cooling (15°C water temp. / 25°C ambient temp.)
N ₂	4.3 mbar L/s 255 SCCM	6.2 mbar L/s 367 SCCM
He	7.9 mbar L/s 467 SCCM	10.4 mbar L/s 615 SCCM
Ar	1.5 mbar L/s 89 SCCM	3.3 mbar L/s 195 SCCM
(*) Backing pump 11.6 m ³ /hr		
Compression ratio and foreline tolerance (**)		
N ₂	> 1 x 10 ¹¹	10 mbar
He	2 x 10 ⁸	10 mbar
H ₂	3 x 10 ⁶	>4 mbar
Ar	> 1 x 10 ¹¹	8.5 mbar
(**) Foreline Tolerance defined as the pressure at which the turbopump still produce a compression of 100 and estimated in water cooling mode		
Base pressure with recomb. forepump	< 1 x 10 ⁻¹⁰ mbar (< 1 x 10 ⁻¹⁰ Torr)	
Inlet flange	ISO 160K, ISO 160F, CFF 8"	
Foreline flange	NW25 (NW40 as option)	
Rotational speed	Auto setting from 40'800 RPM to 49'500 RPM	
Start-up time	< 5 minutes	

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Recommended forepump	Agilent DS302 Rotary Vane Pump Agilent IDP-10 Dry Scroll Pump Agilent IDP-15 Dry Scroll Pump
Operating position	Any
Oper. ambient temp.	+5 °C to +35 °C
Rel. humidity of air	0 - 90 % (not condensing)
Bakeout temp.	ISO pump: 80 °C at inlet flange CFF pump: 120 °C at inlet flange
Lubricant	Permanent lubrication
Cooling requirements	
Air cooling	Air temperature from +5°C to 35°C
Water cooling	Water temperature from +15°C to +25°C Water flow min. 100L/h
Noise Pressure Level (at 1m at full speed)	43dB(A)
Storage temp.	-40°C to +70°C
Max altitude	3000 m
Weight kg (lbs)	ISO160K 20.6 kg (45.3) ISO160F 22.6 kg (49.7) CFF 8" 22 kg (48.4)

Conformity to norms	
EMC (Control Units)	61326-1
Safety (CE/CSA)	61010-1
Machinery Directive	DIR 2006/42/CE
Low Voltage Directive	DIR 2014/35/EU
EMC Directive (Control Units)	DIR 2014/30/EU
ROHS	DIR 2011/65/EU

Outline Drawing



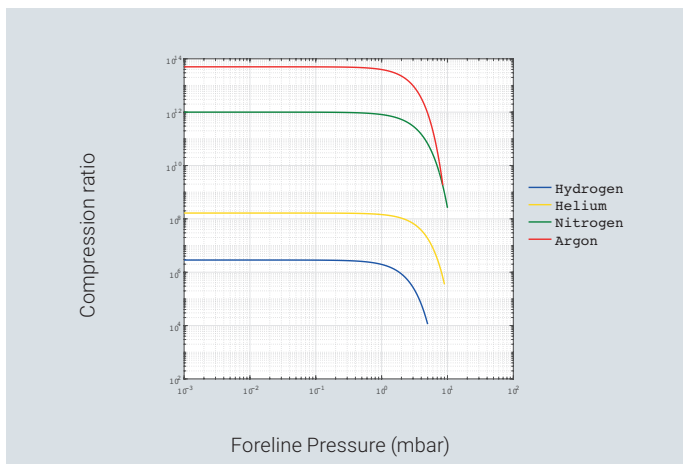
Dimensions: millimeters (inches)

Ordering Information

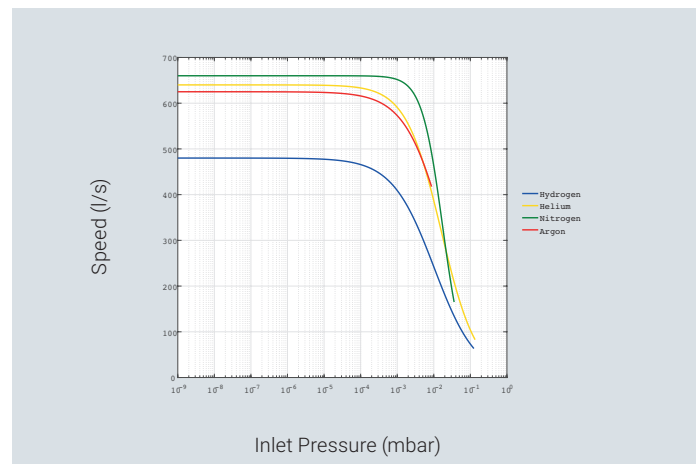
Pumps	Configuration Options
TwisTorr 704 FS ISO160K KF25	X3511-64015
TwisTorr 704 FS ISO160F KF25	X3511-64016
TwisTorr 704 FS CFF8" KF25	X3511-64017
TwisTorr 704 FS CFF8" Long-Neck KF25	X3511-64018
Controllers	Part Numbers
TwisTorr Medium-TMP Rack controller	X3501-64016
TwisTorr Medium-TMP Onboard controller	X3512-64016
Cables	Part Numbers
Mains cable NEMA plug 3 m long	9699958
Mains cable EU plug 3 m long	9699957
Mains cable UK plug 2.5 m long	X3501-68005
Serial Cable and A-plus	9699883
Medium-TMP Extension Cable	9699948M001 (5 m) 9699948M003 (10 m) 9699948M004 (15 m) 9699948M002 (20 m) 9699948M005 (30 m) 9699948M006 (50 m) 9699948M009 (75 m) 9699948M010 (100 m)
Inlet Screen	Part Numbers
Inlet Screen ISO160/CFF8	9699304
Cooling	Part Numbers
Medium-TMP Air Cooling Kit for rack controller	X3501-68001
Medium-TMP Air Cooling Kit for onboard controller	9699297
Plastic water cooling kit	9699347
Metal Water cooling Kit	9699337
Air Cooling Kit Extension Cable	X3501-68101 (5 m) X3501-68051 (10 m) X3501-68061 (15 m) X3501-68021 (20 m) X3501-68011 (30 m) X3501-68071 (50 m) X3501-68081 (75 m) X3501-68091 (100 m)

Venting	Part Numbers
Vent valve driven by Rack Controller, N.O., 1.2 mm orifice	X3501-68002
Vent valve driven by Onboard Controller, N.O., 1.2 mm orifice	9699834
Vent valve driven by Rack Controller, N.C., 1.2 mm orifice (Minimum revision required: A0005 for controller PN X3501-64016. Controller factory setting: N.O. - Switch to N.C. setting to operate the N.C. valve)	X3501-68022
Vent valve driven by Onboard Controller, N.C., 1.2 mm orifice (Minimum revision required: A003. Controller factory setting: N.O. - Switch to N.C. setting to operate the N.C. valve)	9699834M010
Vent flange, NW 10 KF / M8	9699108
Vent valve Rack Extension Cable	X3501-68004 (5 m) X3501-68054 (10 m) X3501-68064 (15 m) X3501-68074 (20 m) X3501-68084 (30 m) X3501-68034 (50 m) X3501-68094 (75 m) X3501-68104 (100 m)
Purge	Part Numbers
Purge 10SCCM M12-NW16KF	9699239
Purge 10SCCM M12-1/4Swagelok	9699240
Purge 20SCCM M12-NW16KF	9699241
Purge 20SCCM M12-1/4Swagelok	9699242
Spare Purge Screw	X3502-68004
Mounting	Part Numbers
Medium-TMP onboard ctr. side-mounting bracket	X3511-68003
Medium-TMP KF25 foreline flange	X3511-68001
Medium-TMP KF40 foreline flange	X3511-68002

Compression Ratio



Pumping Speed



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you can chat live with a vacuum expert.



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