

New TwisTorr 305 Q Turbo Pump



TwisTorr 305 FSQ



TwisTorr 305-ICQ

Innovation expands: the TwisTorr 305 FSQ and 305-ICQ represent the latest addition to the Agilent's 300 L/s turbomolecular pump family.

The letter "Q" is used to indicate the characteristic feature of this pump, that is the very high throughput.

"Throughput" is the flow rate of pumped gas through the turbomolecular pump, and is a measure of the quantity of gas the pump can remove from its inlet. In fact, the 305 Q can withstand high levels of gas flow, and is the pump of choice for all those applications in which process gases are used.

The standalone pump 305 FSQ is compatible with remote and onboard controllers, while the 305-ICQ pump features an integrated controller.

The 305 product family shines as the new way for Agilent to manufacture turbomolecular pumps: these pumps are built with unsurpassed dedication and must pass several rigorous tests before being approved for customer shipment. All TwisTorr models can be operated and monitored using a smartphone, through the Vacuum Link App.

The reliable technology of the 305 family, coupled with smart innovations useful for a broad range of applications, creates a product line capable of satisfying the vast majority of user needs in vacuum.

The various models of 305 pumps offer different characteristics for different applications: the common denominator is wireless connectivity across all products; depending on model, Bluetooth or NFC are available to facilitate data exchange and to quickly check the pump status.

Technical Specifications TwisTorr 305 FSQ, 305-ICQ

Technical Specifications		
Pumping speed	ISO 100 K	
N ₂	250 l/s	
He	255 l/s	
H ₂	220 l/s	
Max gas flow rate:		
	TwisTorr 305 FSQ	TwisTorr 305-ICQ
N ₂	450 sccm	380 sccm
H ₂	500 sccm	500 sccm
He	500 sccm	500 sccm
Note: value refer to water-cooling pump version with: • water temperature between 15°C and 20°C (non condensing) • backing pump with pumping speed equal or above 5 m ³ /h		
Compression ratio	ISO 100 K	
N ₂	2 x 10 ⁸	
He	1 x 10 ⁵	
H ₂	2 x 10 ⁴	
Max foreline pressure tolerance N ₂	16 mbar	
Note: foreline tolerance defined as the pressure at which the turbopump still produces a compression of 100. For contiuous operation, water cooling recommended (water temperature between 15°C and 20°C)		
Base pressure with recommended forepump	< 1 x 10 ⁻¹⁰ mbar (< 1 x 10 ⁻¹⁰ Torr)	
(According to standard DIN 28 428, the base pressure is that measured in a leak-free test dome, 48 hours after the completion of test dome bake-out, with a Turbopump fitted with a ConFlat flange and using the recommended pre-vacuum pump)		
Inlet flange	ISO 100 K, CFF 6", ISO 160 K, CFF 8"	
Foreline flange	KF16 NW (KF25 – optional)	
Max Rotation Speed	60600 rpm (1010 Hz driving frequency)	
Start-up time	< 3 minutes	
Recommended forepump	Mechanical pump: Agilent DS 102, DS 302 Dry Pump: Agilent IDP-3 (no gas flow), IDP-7, IDP-10	
Operating position	Any	
Operating ambient temperature	+5°C to +35°C	
Relative humidity of air	From graph in Figure 1 (non condensing)	
Bakeout temperature	ISO flange: 75°C at inlet flange max CFF flange: 100°C at inlet flange max Note: Measure a point close to the sealing element.	
Lubricant	Permanent lubrication	
Air cooling requirements	Natural convection (only with no gas load) Forced air (5÷35°C ambient temperature)	
Coolant water	Minimum flow: 50 L/h (0.22 GPM) Maximum flow: 150 L/h (0.66 GPM) Temperature: +15 °C to +30°C Max pressure: 5 bar (75 psi)	
Noise Pressure level at 1 m, at full speed	41 dB(A)	
Note: mean values based on a significative sample (Ar and N ₂ compression ratio estimated); standard deviation per test: pumping speed: below ± 7%; noise pressure level ± 10%* (only pump)		

Technical Specifications		
Installation category	II	
Pollution degree	2	
Storage temperature	-40° C to +70° C	
Weight kg (lbs):	305 FSQ	305-ICQ
Pump ISO 100 K	5.84 (12.87)	5.74 (12.65)
Pump CFF 6"	8.16 (17.98)	8.06 (17.76)
Pump ISO 160 K	6.28 (13.84)	6.18 (13.62)
Pump CFF 8"	10.43 (22.99)	10.33 (22.77)
Note: versions with water cooling kit		
Remote Controller		
Voltage	100 - 240 Vac (voltage fluctuation +/- 10%)	
Frequency	50 to 60 Hz	
Power	450 VA	
Fuse	2 x T4 A (slow blow) 250 V	
Power supply (24 Vdc)		
Max input power:	300 VA	
Pump stand-by average power:	10 W	
Pump max operating power:	150 W	
Max operating altitude	3000 m	
The maximum magnetic field strengths allowed for Agilent turbo pumps are:	• 50 Gauss (5 mT) in the transversal direction • 100 Gauss (10 mT) in the axial direction	
Compliance with:	EN 61010-1 EN 61326-1 EN 1012-2 EN 12100 EN 50581 Machinery Directive 2006/42/EC Electromagnetic Compatibility Directive 2014/30/EU Directive 2011/65/EU	

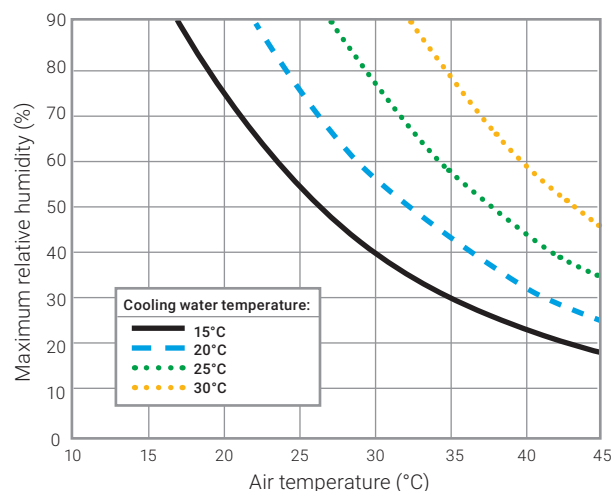
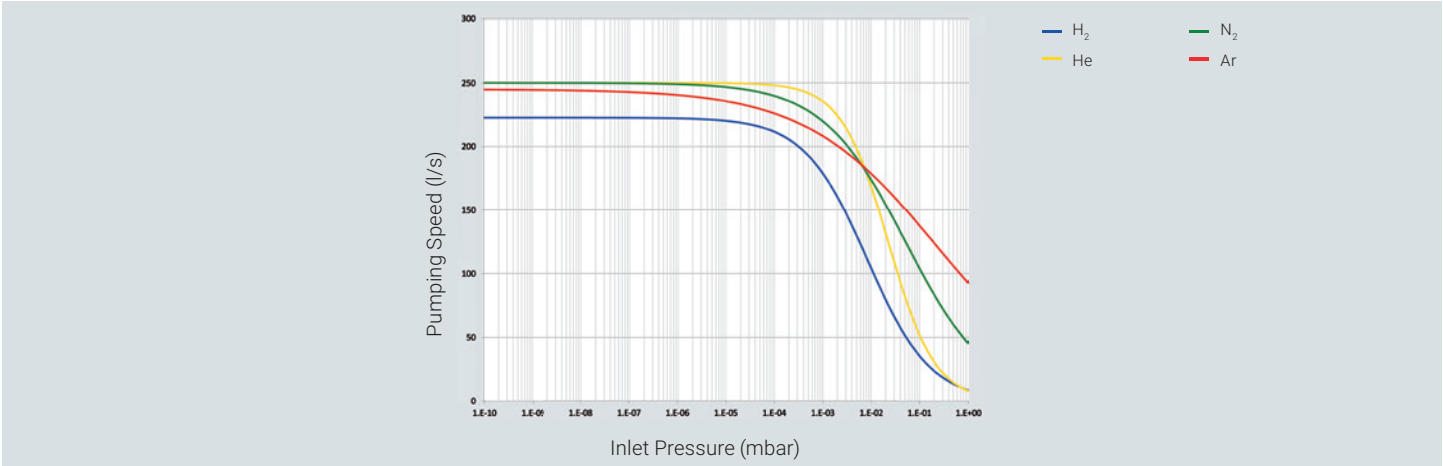
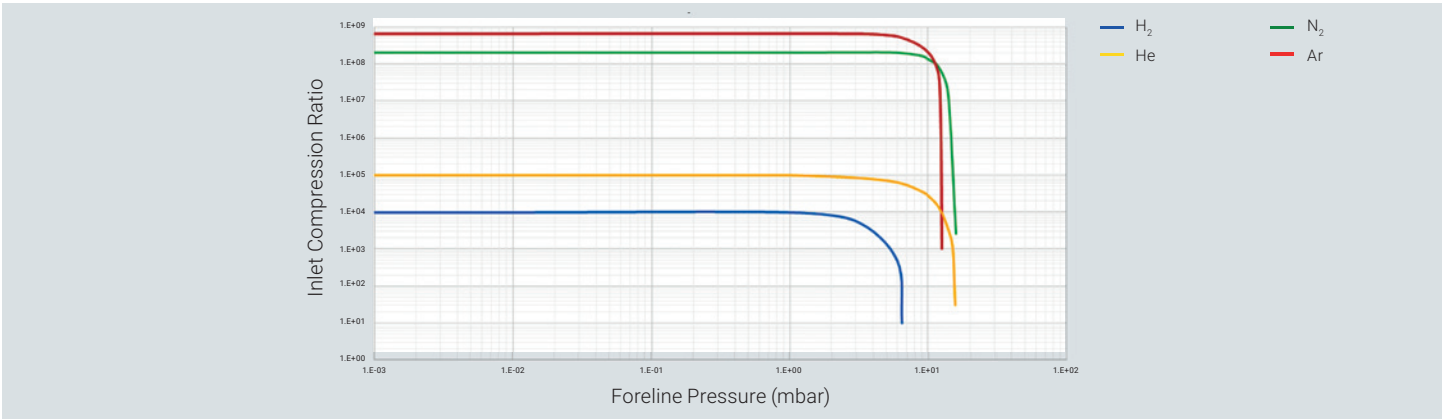


Fig. 1: Maximum allowed relative humidity as a function of the air temperature for each cooling-water temperature.

Pumping Speed - TwisTorr 305 FSQ, 305-ICQ



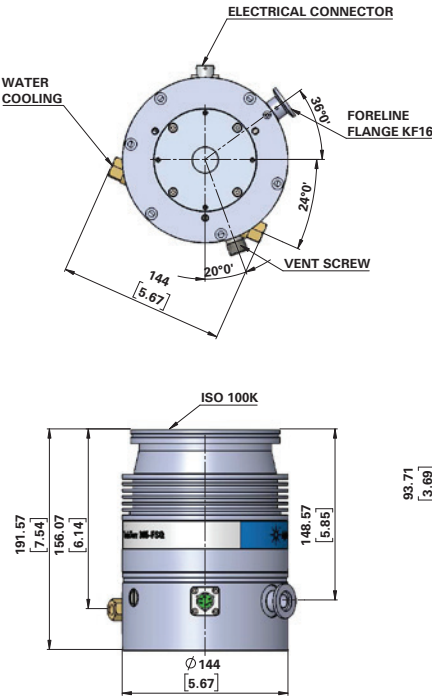
Compression Ratio - TwisTorr 305 FSQ, 305-ICQ



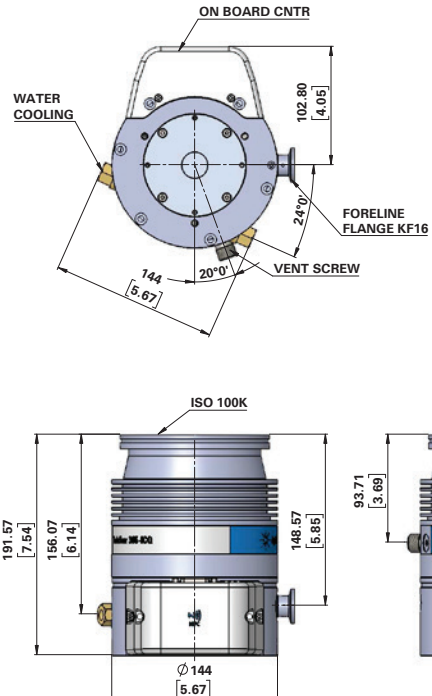
Outline Drawings

Agilent TwisTorr 305 FSQ

Dimensions: millimeters [inches]



Agilent TwisTorr 305-ICQ



Ordering Information

Pumps	Cooling	Flange	Part Number
TwisTorr 305 FSQ	Air/Water	ISO100K	X3513-64068
TwisTorr 305-ICQ, 485A	Water	ISO100K	X3513-64060
TwisTorr 305-ICQ, 485A	Air	ISO100K	X3513-64061
TwisTorr 305-ICQ, 485A	Water	CFF6"	X3513-64062
TwisTorr 305-ICQ, 485A	Air	CFF6"	X3513-64063
TwisTorr 305-ICQ, 485A	Water	ISO160K	X3513-64064
TwisTorr 305-ICQ, 485A	Water	CFF8"	X3513-64065
Controllers			
TwisTorr 305 FS Remote Controller 232-485			X3506-64130
TwisTorr 305 FS Remote Controller Profibus			X3506-64131
Cables			
Mains cable NEMA plug, 3 m long *			9699958
Mains cable European plug, 3 m long *			9699957
Mains cable China plug, 3 m long *			8121-0723
5 m Turbopump Extension Cable *			969-9942M007
10 m Turbopump Extension Cable *			969-9942M006
15 m Turbopump Extension Cable *			969-9942M005
20 m Turbopump Extension Cable *			969-9942M004
50 m Turbopump Extension Cable *			969-9942M015
5 m Turbopump Fan Extension Cable **			9699949
Inlet Screens			Part Number
Inlet Screen ISO 100 K			X3500-68000
Inlet Screen CFF 6"			9699302
Inlet Screen ISO 160 K			X3500-68001
Inlet Screen CFF 8"			9699304
Cooling			
Water Cooling Kit			9699337
Metric Water Kit 4 x 6 mm			9699347

* For TwisTorr 305 FSQ

** For TwisTorr 305-ICQ

Air cooling kit for TwisTorr 305-IC models ** (Kit X3514-68001 is required)	X3500-68010
Air cooling kit for TwisTorr 305 Remote controller *	X3500-68011
Fan extension cable for Remote Controller *	9699940
5 m Vent Valve Extension cable *	9699941
Vibration isolators	
Vibration isolator ISO 100 K	9699344
Vibration isolator CFF 6"	9699334
Vibration isolator ISO 160 K	9699345
Vibration isolator CFF 8"	9699335
Venting	
Vent Valve N.O. 1, 2 mm for TwisTorr 305-IC models ** (Kit X3514-68001 is required)	9699834
Vent Valve N.O. 0,5 mm for TwisTorr 305-IC models ** (Kit X3514-68001 is required)	9699834M006
DB15 Mating Connector not wired 7.5A **	X3514-68000
TwisTorr 305-IC Fan/Vent Adapter kit **	X3514-68001
Vent Valve N.O. 0,5 mm Orifice *	9699844
Vent Valve N.O. 1.2 mm Orifice *	9699845
Vent Valve N.C. 1.2 mm Orifice *	9699846
Vent Valve N.C. 0,5 mm Orifice *	9699847
Purge	
Purge valve 10 SCCM NW16KF - M12	9699239
Purge valve 10 SCCM ¼ Swagelock - M12	9699240
Purge valve 20 SCCM NW16KF - M12	9699241
Purge valve 20 SCCM ¼ Swagelock - M12	9699242
Purge valve 10 SCCM ¼ Swagelock - ¼ Swagelock	9699232
Purge valve 20 SCCM ¼ Swagelock - ¼ Swagelock	9699236
Other accessories	
Serial to Bluetooth adapter (necessary for App) *	X3514-68003
KF25 Foreline flange	X3513-68000

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