

New TwisTorr 305 SF Turbo Pump



TwisTorr 305 SF



TwisTorr 305-IC SF

Innovation expands: a Split Flow version of the TwisTorr 305 turbomolecular pump is now available from Agilent.

The 305 SplitFlow offers a dual flow input and is offered as a standalone pump, TwisTorr 305 SF, compatible with external controller units, or with an integrated controller (TwisTorr 305-IC SF).

The Split Flow version is ideally suited for demanding instrumentation applications, and is available with ISO100K inlet flange, KF40 side flange, air cooling. Specifically designed for multichamber mass spectrometers; the Lateral Port can be used for another chamber or backing another turbo pump.

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 SF, 305-IC SF

Technical Specifications		
Pumping speed	Main Flange (ISO 100K)	Side Port (KF40)
N ₂	250 L/s	11 L/s
He	255 L/s	15 L/s
H ₂	220 L/s	14.5 L/s
Max gas flow rate:		
	TwisTorr 305 SF	TwisTorr 305-IC SF
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	Total	Foreline/Side Port
N ₂	2 x 10 ⁹	2.1 x 10 ²
He	1 x 10 ⁹	1.4 x 10 ²
H ₂	2 x 10 ⁴	1 x 10 ²
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 continuous 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	
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 ÷ +35°C	
Relative humidity of air	From graph in Figure 1 (non condensing)	
Bakeout temperature	ISO flange: 75°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): Pump ISO 100 K	305 SF 5.84 (12.87) 305-IC SF 5.74 (12.65) 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

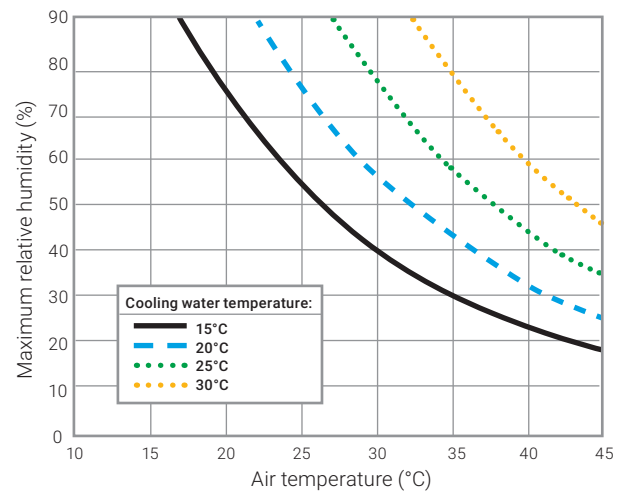
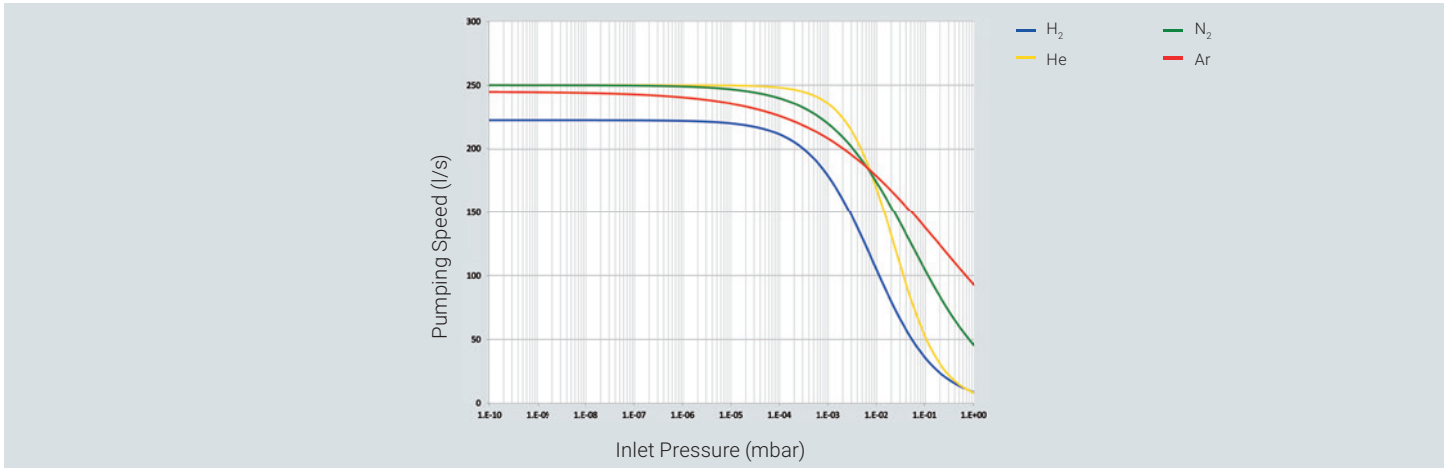
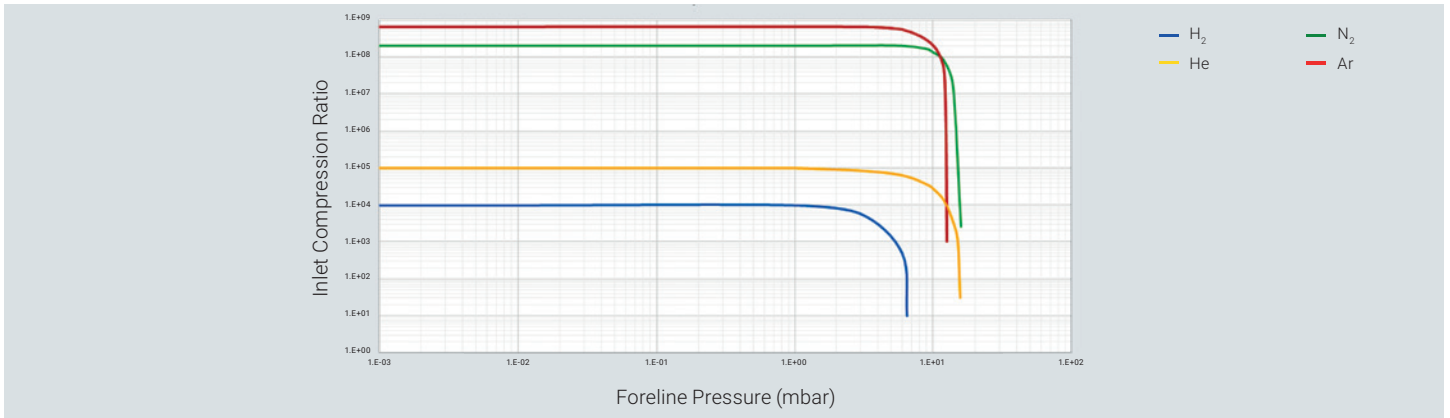


Fig. 1: Maximum allowed relative humidity as a function of the air temperature for each cooling-water temperature.

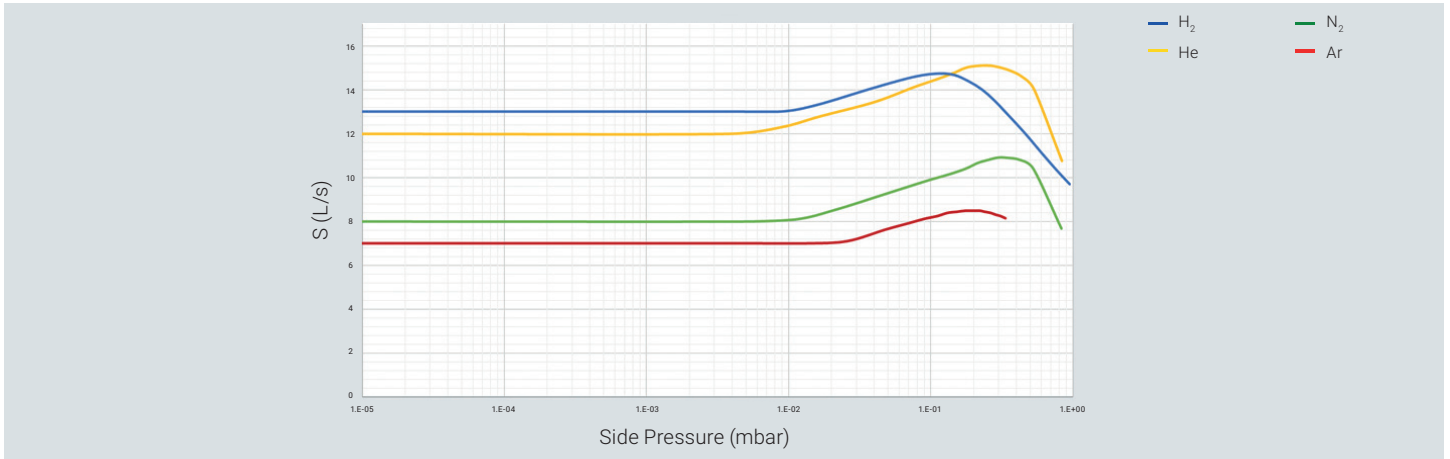
Pumping Speed - TwisTorr 305 SF, 305-IC SF



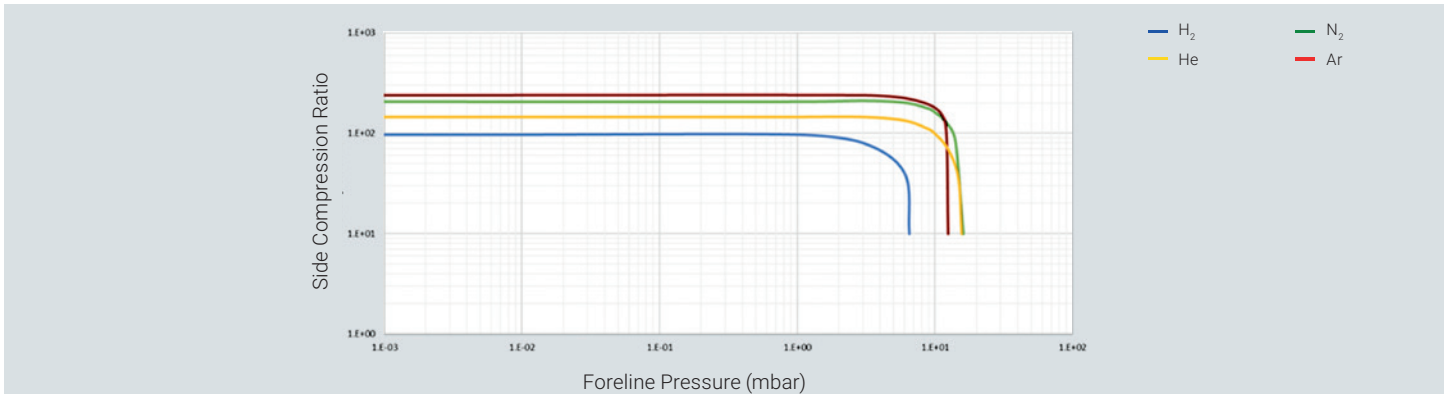
Compression Ratio - TwisTorr 305 SF, 305-IC SF



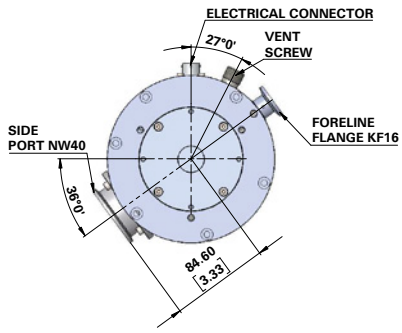
Pumping Speed - TwisTorr 305 SF, 305-IC SF - Side Port



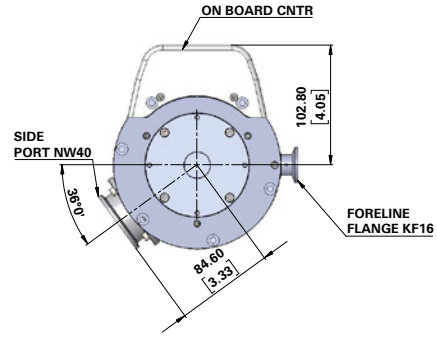
Compression Ratio - TwisTorr 305 SF, 305-IC SF - Side Port



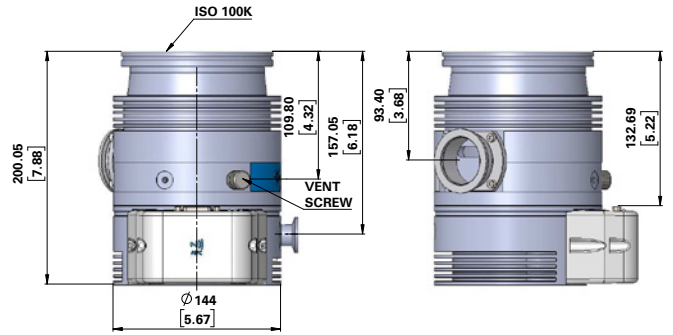
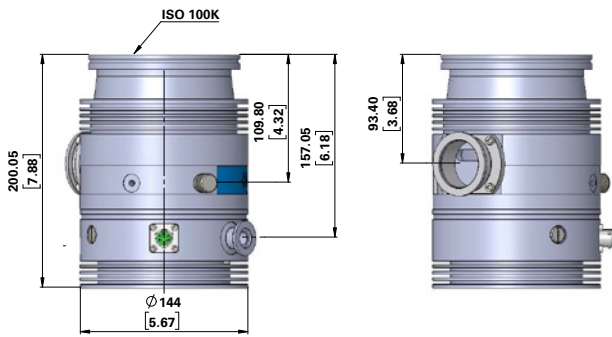
Agilent TwisTorr 305 SF



Agilent TwisTorr 305-IC SF



Dimensions: millimeters [inches]



3D Drawings available for download

Ordering Information

Pumps	Cooling	Flange	Part Number
TwisTorr 305 SF	Air	ISO100K	X3513-64067
TwisTorr 305-IC SF, 485A	Air	ISO100K	X3513-64066
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
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

* For TwisTorr 305 SF

** For TwisTorr 305-IC SF

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