TURBOMOLECULAR PUMPS
ULTIMATE VACUUM SOLUTIONS

EXT and nEXT Turbomolecular Pumps and Controllers

Our range of EXT and nEXT compound turbomolecular pumps and TIC Controllers use state-of-the-art technology to provide reliable, high and ultra high vacuum.

Key Performance Factors

A turbomolecular pump (TMP) is a multi-stage axial-flow turbine in which high speed rotating blades provide compression by increasing the probability of gas molecules moving in the pumping direction. The turbomolecular pump is optimised for molecular flow conditions and requires a suitably sized two stage rotary vane pump or an oil free scroll pump to exhaust to atmosphere.

A compound molecular pump (CMP) is based on the concept of combining bladed turbomolecular stages with molecular drag stages on the same rotor. This design allows:

- High critical foreline pressures (typically up to 10 mbar)
- Options to use smaller backing pumps or dry diaphragm backing pumps

Pumping Speed (volume flow rate) is determined by the rotor diameter, inlet flange size and rotational speed. The pumping speed reduces at high inlet pressures to a value determined by the size of the backing pump. As the inlet pressure rises, the motor power dissipation and pump temperature increase. Maximum continuous inlet pressure sets the maximum throughput limit for steady state pumping and depends on the cooling method used. Above this pressure, the rotational speed of the pump reduces as temperature sensors limit the pump power. With a water-cooled pump, the actual maximum throughput depends on the size of the backing pump.

Quiescent Electrical Power is the nominal power dissipated by a pump operating normally at full rotational speed and with low gas throughput (inlet pressure below the 10^{-3} mbar range). During the run-up time, or when operating at high gas throughput or above the critical backing pressure, the pump power dissipation will rise and approach the maximum power output for the turbo controller used. Critical backing pressure for compound turbomolecular pumps is typically up to 10 mbar.

Compression Ratio is determined by the rotational speed, the number of pump stages and the molecular weight of the pumped gas. It is higher for heavier gases which explains why the suppression of hydrocarbon backstreaming is so effective and why the ratio for hydrogen is important for ultra high vacuum applications.

Ultimate Pressure measured according to Pneurop standards, is the lowest pressure achieved in the test system, 48 hours after bakeout. The system is backed only by a two-stage rotary vane pump. Fluoroelastomer inlet seals are used with ISO-flanged pumps and metal seals are used with CF-flanged pump models.

Bearing and Suspension Technologies
We use two basic technologies: magnetic bearings and mechanical ceramic ball bearings.
Ceramic bearings, which are lubricated by oil, have replaced conventional steel bearings. The silicon nitride ceramic balls are lighter, harder and smoother than steel equivalents, leading to longer life and lower vibration characteristics. Reliability is increased because the ball and race materials are different, which prevents micro pitting. Magnetic bearings further increase reliability. Our EXT and nEXT turbomolecular pumps use a hybrid bearing arrangement with a permanent magnet upper bearing and an oil lubricated ceramic lower bearing.

Rotor Technologies
We use two basic technologies:

- Compound molecular (combining turbomolecular and drag stages) on all EXT and nEXT 'D' variant pumps.
- The T variants (combining turbomolecular, drag and fluid dynamic stages) are available on nEXT 'T' variant pumps. These have the highest compression for light gases where this may be needed on UHV applications.

Motor Technology
EXT pumps use brushless d.c. motors and are available in 24 (EXT75DX), 24 to 48 (nEXT) volt variants. For the 24 volt pumps the TIC line of controllers are available with the added benefit of integrated instrument controllers. The drives incorporate a regenerative back-up supply which provides power in the event of electrical supply failure to keep the vent-valve closed for several minutes.

Purge Port
The EXT and nEXT pumps all have purge-ports which can be used to purge the motor and bearing cavity with an inert gas (such as nitrogen). We recommend that you purge the pump when you pump corrosive and abrasive gas mixtures or those with an oxygen content over 20%. You can use our PRX10 purge-restrictor to set the purge gas flow rate. This typically adds up to 25 sccm to the total gas load and the backing pump must be sized accordingly.

Venting
To maintain the cleanliness of your vacuum system, we recommend that you vent a turbomolecular pump at or above half rotational speed, when the rotor is still spinning fast enough to suppress any backstreaming of hydrocarbons from the backing line. The vent port on the EXT and nEXT pump is part way up the rotor stack to ensure maximum cleanliness even with fluoroelastomer sealed vent-valves. Each pump is supplied with a manual vent-valve. If you use this manual valve care must be taken not to open it too quickly, especially if the system volume is small (typically less than the approximate volume of the turbomolecular pump), because if the rate of pressure rise is too high, the pump bearing life may be reduced.

In a small volume system, the rate of pressure rise will be greater than in a large volume for a given vent flow rate, and it may be necessary to restrict the vent gas flow. We offer the VRX range of vent restrictors which you can fit to your EXT or nEXT pump.

Since the rate of pressure rise cannot be accurately controlled by the manual vent-valve, we recommend that, unless you fit a suitable VRX restrictor to the vent port, you must wait until the turbomolecular pump has slowed down to 50% speed, as indicated by the controller, before you open the manual vent-valve.

The maximum rate of pressure rise varies by pump model, and the Instruction Manual supplied with the pump gives further guidance on this, and the size of vent restrictor needed to meet the fastest pressure rise allowed. Control of the rate of venting is particularly important with pumps using fully magnetic bearings, otherwise the safety bearings may be damaged.

The manual vent-valve can be replaced with a TAV solenoid valve driven by the Controller to allow venting after a 2 second delay on shut-off, or delaying vent until the rotational speed has dropped to 50%. The Controller can also control the TAV vent-valve in the event of power or pump failure. You can choose from two solenoid vent-valve options; the TAV5 which covers most auto-venting applications, and the TAV6 which has a higher conductance than the TAV5 and is designed either for use on larger chambers (typically with a volume greater than 10 litres), or when you want to use a two-stage venting procedure for the fastest possible vent times. For two-stage venting you need two TAV valves. By using the appropriately restricted flow for the first stage vent-valve you can start venting when the pump is still at full rotational speed. Once the pump has slowed to half rotational speed you can then introduce higher flow rates from the second stage vent-valve. EXT75DX and nEXT also have the facility for pulsed venting to allow rapid yet controlled venting of a system.

Inlet-screen

A coarse inlet-screen is fitted as standard to all EXT pumps and supplied with nEXT pumps. The inlet-screen prevents debris from falling into the pump-inlet. Coarse and fine inlet-screens are available.

Cooling

For most applications, we recommend that you use forced-air cooling with the appropriate ACX air-cooler connected to your EXT or nEXT pump. NB: high gas load, high backing pressure and rapid cycling require more cooling. However, if the ambient temperature is above 35 ˚C you must water-cool the pump.
Water cooling reduces the running temperature of the pump motor and bearings and is particularly recommended when you operate the pump with a continuous high throughput (that is, inlet pressure above 1 x 10^{-3} mbar) or when you bake the pump to above 115 ˚C (measured at the system flange). Water cooling accessories need to be purchased separately.

Scope of Supply

For end users desiring front panel controls and indications we suggest the following:

- TIC controller with EXT75DX and nEXT
- TAG controller with EXT75DX and nEXT

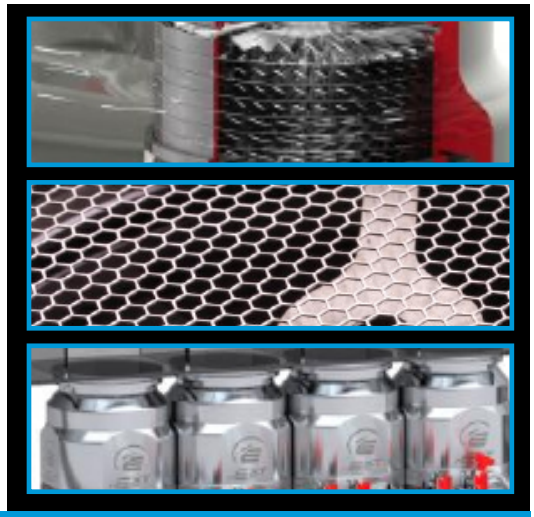
Each EXT or nEXT pump is supplied with an inlet screen, elastomer or copper gasket inlet seal (as appropriate) and manual vent valve. Where required a water cooling accessory is available. Turbo controllers require the appropriate mains cable to be selected.

Corrosive Applications

For maximum life and reliability in the exacting process conditions encountered in semiconductor wafer processing applications, we recommend that you use turbomolecular pumps from our Edwards STP-C and STP-H-C series. These Maglev pumps have magnetic bearings and are ideal for these harsh duty applications.

nEXT TURBOMOLECULAR PUMP

THE NEW EXPERIENCE IN TURBOMOLECULAR PUMPS



The nEXT is a hybrid bearing compound turbomolecular pump. nEXT pumps combine our proven bearing technology (oil lubricated ceramic lower bearing with dry permanent magnetic upper bearing), an improved rotor design with a new molecular drag stage to deliver improved pumping speed and compression ratios, and user serviceability. They feature 24 V to 48 V d.c. sensor less motors with a built in drive that is fully compatible with our range of TAG and TIC controllers. They are available pre-set for either 80 W or 160 W maximum power, the former enabling use with our 100 W TIC controllers are also recommended for pumping Argon, but with a longer ramp time to full operating speed. RoHS compliant and CSA/UL approved.

Features and Benefits

- Value for money – exceptional pumping speeds and compression ratios
- No unplanned downtime – field proven reliability in the most demanding environments
- Easy integration – standard fit in many scientific instruments
- Reliability for peace of mind – over 200,000 turbomolecular pumps installed
- Low cost of ownership – end user serviceable

Applications

- Mass spectrometry
- Electron microscopy
- Research and development
- High energy physics
- Industrial

Pump Range

nEXT

- nEXT240
- nEXT300
- nEXT400

Performance Curves

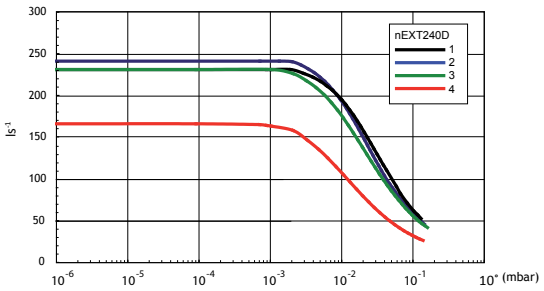
RoHS compliant and CSA/UL approved.

nEXT240 Turbomolecular Pump

nEXT240

Inlet pumping speed ls^{-1}
240 N_2
230 He
165 H_2
Compression ratio
> 1 x 10^{11}
3 x 10^5
1 x 10^4

nEXT240 Performance Curve



Ordering information

Product description	Order no:
nEXT240D Turbomolecular Pump ISO100 Inlet Flange 160 W	B81200100
nEXT240D Turbomolecular Pump ISO100 Inlet Flange, 80 W	B81200101
nEXT240D Turbomolecular Pump CF100 Inlet Flange 160W	B81200200
nEXT240D Turbomolecular Pump CF100 Inlet Flange, 80 W	B81200201
nEXT 240T HC Turbomolecular Pump ISO100 Inlet Flange 160 W	B81300100
nEXT 240T HC Turbomolecular Pump ISO100 Inlet Flange 80 W	B81300101
nEXT 240T HC Turbomolecular Pump CF100 Inlet Flange 160 W	B81300200
nEXT 240T HC Turbomolecular Pump CF100 Inlet Flange 80 W	B81300201

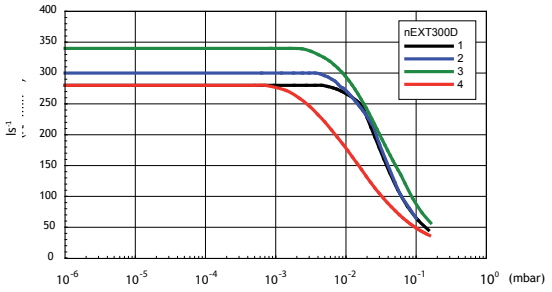
1	Argon
2	Nitrogen
3	Helium
4	Hydrogen

nEXT300 Turbomolecular Pump

nEXT300

Inlet pumping speed ls^{-1}
300 N_2
340 He
280 H_2
Compression ratio
> 1 x 10^{11}
1 x 10^6
5 x 10^4

nEXT300 Performance Curve



Ordering information

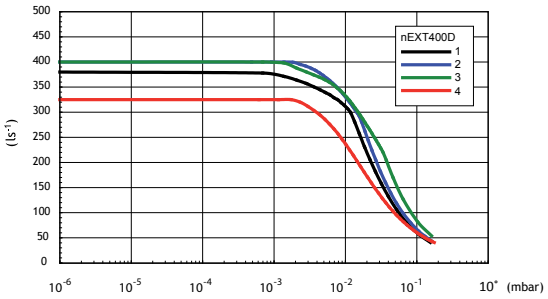
Product description	Order no:
nEXT300D Turbomolecular Pump ISO100 Inlet Flange 160 W	B82200100
nEXT300D Turbomolecular Pump ISO100 Inlet Flange, 80 W	B82200101
nEXT300D Turbomolecular Pump CF100 Inlet Flange 160 W	B82200200
nEXT300D Turbomolecular Pump CF100 Inlet Flange, 80 W	B82200201
nEXT 300T HC Turbomolecular Pump ISO100 Inlet Flange 160 W	B82300100
nEXT 300T HC Turbomolecular Pump ISO100 Inlet Flange 80 W	B82300101
nEXT 300T HC Turbomolecular Pump CF100 Inlet Flange 160 W	B82300200
nEXT 300T HC Turbomolecular Pump CF100 Inlet Flange 80 W	B82300201

1	Argon
2	Nitrogen
3	Helium
4	Hydrogen

nEXT400

Inlet pumping speed ls^{-1}
400 N_2
390 He
325 H_2
Compression ratio
> 1 x 10^{11}
1 x 10^8
5 x 10^5

nEXT400 Performance Curve



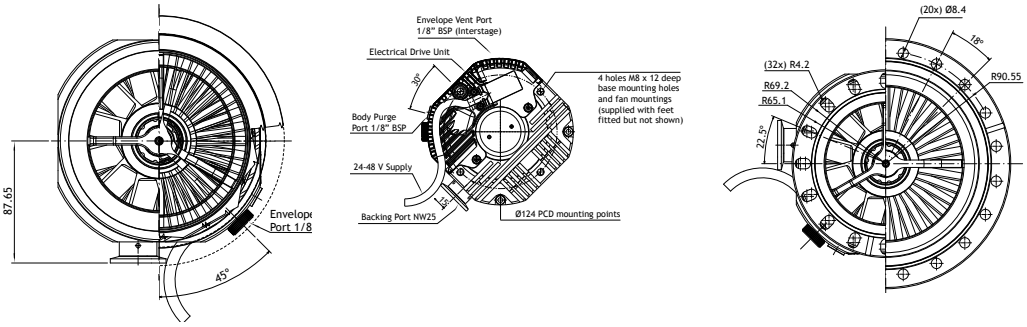
1	Argon
2	Nitrogen
3	Helium
4	Hydrogen

Ordering information

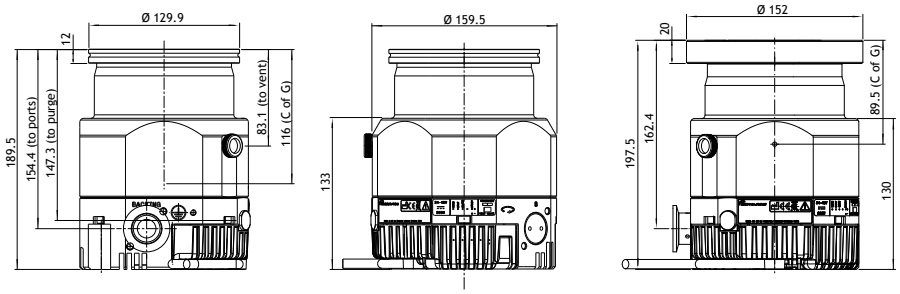
Product description	Order no:
nEXT400D Turbomolecular Pump ISO160 Inlet Flange 160 W	B83200300
nEXT400D Turbomolecular Pump ISO160 Inlet Flange, 80 W	B83200301
nEXT400D Turbomolecular Pump CF160 Inlet Flange 160 W	B83200400
nEXT400D Turbomolecular Pump CF160 Inlet Flange, 80 W	B83200401
nEXT 400T HC Turbomolecular Pump ISO160 Inlet Flange 160 W	B83300300
nEXT 400T HC Turbomolecular Pump ISO160 Inlet Flange 80 W	B83300301
nEXT 400T HC Turbomolecular Pump CF160 Inlet Flange 160 W	B83300400
nEXT 400T HC Turbomolecular Pump CF160 Inlet Flange 80 W	B83300401

Dimensions

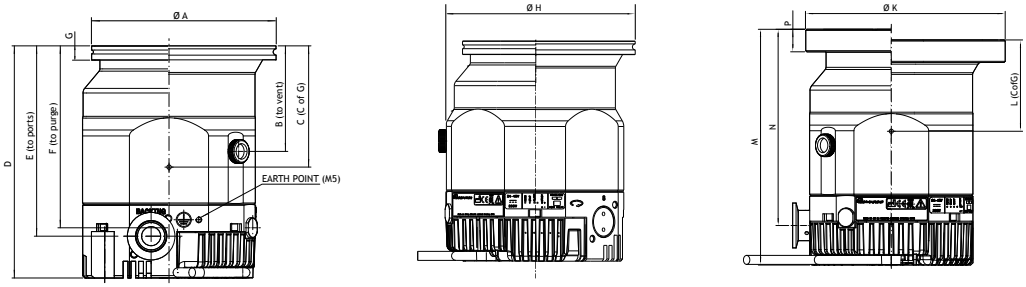
nEXT dimension



nEXT240 Dimension



nEXT300/400 Dimension



	A	B	C	D	E	F	G	H	J	K	L	M	N	P
nEXT300	129.9	88.7	117	195	159.9	152.8	12	159.9	87	152	81.1	200	164.9	20
nEXT400	179.9	88.7	102	195	159.9	152.8	12	159.9	87	202.4	100.4	209.5	174.4	20

Technical Data



	Units	nEXT240	nEXT300	nEXT400
Inlet flange		DN100 ISO-K or DN100CF	DN100 ISO-K or DN100CF	DN160 ISO-K or DN160-CF
Inlet pumping speed ls^{-1}	N_2	240	300	400
	He	230	340	390
	H_2	165	280	325
Compression ratio D / T	N_2	> 1 x 10^{11}	> 1 x 10^{11}	> 1 x 10^{11}
	He	3 x10^5 / 1 x10^6	1 x 10^6 / 3 x 10^6	1 x 10^8 / >1 x 10^8
	H_2	1 x 10^4 / 1.5 x 10^4	5 x 10^4 / 1 x 10^5	5 x 10^5 / 1 x 10^6
Backing port			NW25	
Vent/purge port	BSPP		⅛"	
Critical backing pressure D / T	mbar	9.5 / 20	9.5 / 20	10 / 20
Maximum continuous inlet flow (nitrogen)				
Water cooling (40 ˚C ambient)	sccm	45	95	105
Forced air cooling (35 ˚C ambient)	sccm	30	115	90
Natural convection (30 ˚C ambient)	sccm	10	35	45
Maximum continuous backing pressure				
Water cooling (40 ˚C ambient)	mbar	6	6.8	7.5
Forced air cooling (35 ˚C ambient)	mbar	4.8	7	7.5
Natural convection (30 ˚C ambient)	mbar	1	2.8	4
Recommended backing pump*			RV12/nXDS10i	
Normal rotational speed	rpm		60,000	
Start time to 90% speed D / T 160 W	sec	115 / 140	155 / 175	175 / 200
Sound pressure level at 1 m	dB(A)		< 45 (+/-3)	
Mass (kg) D (T)	ISO		5.7 (6)	6.5 (6.8)
	CF	8.8 (9.1)	8.5 (8.8)	9.5 (9.8)
Recommended controller			TIC200 Turbo and Instrument Controller or TAG	
Maximum temperature CF flange				
Water cooled/air cooled °C		120/115		
Ultimate pressure with RV backing pump ISO/CF mbar		< 6 x 10^{-8}/< 5 x 10^{-10}	< 6 x 10^{-8}/< 5 x 10^{-10}	< 1 x 10^{-8}/< 1 x 10^{-10}
Maximum magnetic field pump can tolerate mT			5	
Quiescent electric power W (Power set to 160 W)			Typically 20	
Min water cooling flow rate (water 15 °C) ls^{-1}			15	
Water temperature range °C			10 to 20	

* a smaller backing pump may be used depending on application.

EXT TURBOMOLECULAR PUMP

PERFORMANCE YOU CAN RELY ON

Edwards is a world leader in the design and manufacture of turbomolecular pumps with over 200,000 units installed worldwide. The range of products includes the EXT75DX compound turbomolecular pumps that combine the proven technology of a ceramic mechanical lower bearing, a dry permanent magnetic upper bearing and Holweck drag stage with the added convenience of an on-board controller and a 24 V d.c. motor.

Features and Benefits

- Compact design with high performance for efficient systemisation.
- Permanent magnetic upper bearing and oil lubricated bottom bearing for reliable running.
- Compatible with Edwards TAG and TIC turbo and instrument controller meaning you can add up to 3 vacuum gauges without the need of an additional gauge controller.
- RoHS compliant and CSA/UL approved.

Applications

- Mass spectrometry.
- Electron microscopy.
- Research and development.
- High energy physics.
- Industrial.

Pump Range

- EXT75DX

Performance Curves

EXT75DX Turbomolecular Pump

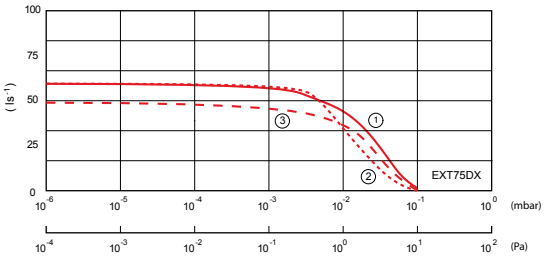
EXT75DX

Inlet pumping speed ls^{-1}	
ISO63/CF63, DN40NW) (ISO100)	61, 42, 66 N_2
	57, 49, 59 He
	53, 48, 54 H_2
Compression ratio	
	> 1 x 10^{11}
	1 x 10^{6}
	5 x 10^{4}

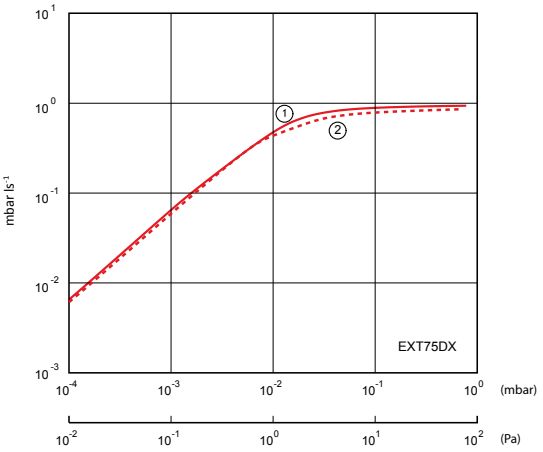
Ordering information

Product description	Order no:
EXT75DX DN63ISO-K	B72241000
EXT75DX DN63CF	B72242000
EXT75DX DN40NW	B72243000
EXT75DX DN100ISOK	B72245000
EXT75DX DN100ISO-K (DN25NW Backing)	B72246000
EXT75iDX Turbo Pump DN40NW	B72235000
EXT75iDX Turbo Pump DN63ISO-K	B72237000
EXT75iDX Turbo Pump DN63ISO-K (NW25 Interstage)	B72238000

EXT75DX Performance Curve



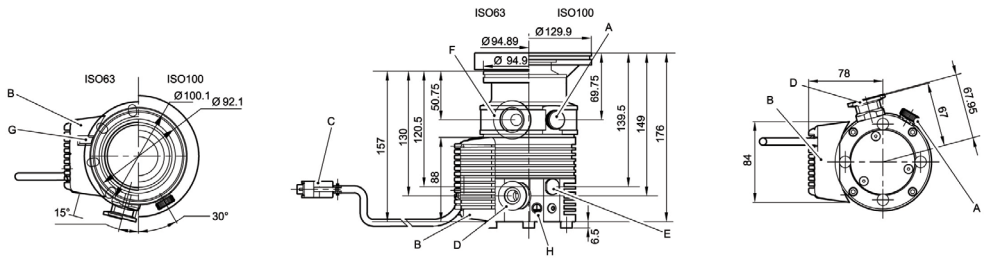
1	Nitrogen
2	Helium
3	Hydrogen



1	Nitrogen
2	Helium

Dimensions

EXT Dimension



A	Manual vent valve in vent port	D	Backing port	G	Podule connector socket
B	Podule	E	Purge port (blanked off)	H	Earth connection
C	Logic interface connector	F	Interstage port (EXT75iDX only)		

Technical Data

	Units	EXT75DX		
Inlet flange		DN40NW, DN63ISO-K, DN63CF or DN100ISO-K		
Outlet flange		DN16NW		
Pumping speed		NW40	ISO/CF63	ISO100
N_2	ls^{-1}	42	61	66
He	ls^{-1}	49	57	59
H_2	ls^{-1}	48	53	54
Compression ratio				
N_2		$> 1 \times 10^{11}$		
He		1×10^{6}		
H_2		5×10^{4}		
Recommended backing pump		E2M0.7/XXD1/RV5/nXDS6i		
Vent port	inch BSP	⅛		
Purge port	inch BSP	⅛		
Maximum continuous inlet pressure (light gas pumping)†				
Water cooling (water at 15 ˚C, ambient temp at 40 ˚C)	mbar	2×10^{-2}		
Forced air cooled, 35 ˚C ambient	mbar	1×10^{-2}		
Pump rotational speed				
Nominal rotational speed	rpm	90000		
Standby rotational speed	rpm	Variable from 49500 to 90000 (63000 default)		
Programmable power limit settings	W	Variable from 50-120 (80 W default)		
Start time to 90% speed	sec	110 ‡		
Analogue outputs		Pump rotational speed; Power consumption; Pump temperature; Controller temperature		
Cooling method Δ		Forced air/water		
Ambient air temperature for forced air cooling	˚C	5-35		
Minimum cooling water flow rate (water 15 ˚C)	lh^{-1}	15		
Water temperature range	˚C	10-20		
Maximum inlet flange temperature	˚C	100		
Operating attitude		Vertical and upright, through to horizontal		
Noise level at 1 m	dB(A)	< 50		
Maximum magnetic field pump can tolerate	mT	5		
Recommended controller		TIC100 turbo and instrument controller or TAG		
Quiescent electrical power	W	10		
Weight	kg	2.93.04.9 3.2		

† Above this inlet pressure, rotational speed drops to below nominal.
‡ Power limit set to 80 W.
Δ Air and water cooling accessories must be ordered separately.

Service, Spares and Accessories

Water-cooler

Product description	Pump	Order no:
nEXT water cooler	nEXT240/300/400	B80000815
WCX water-cooler WCX250	EXT75DX	B73600121

Inlet Screens

Spares	Pump	Inlet Flange Size	Order no:
Inlet flange seals with integrated inlet screen			
100 coarse	nEXT240/300	DN100ISO	B81000808
100 fine	nEXT240/300	DN100ISO	B81000809
160 coarse	nEXT400	DN160ISO	B80000825
160 fine	nEXT400	DN160ISO	B80000826
ISX inlet-screen			
100 coarse	nEXT240/300	DN100CF	B81000821
100 fine	nEXT240/300	DN100CF	B80000822
160 coarse	nEXT400	DN160CF	B80000823
160 fine	nEXT400	DN160CF	B80000824
63	EXT75DX	DN63ISO/ DN63CF	B72240860
100	EXT75DX	DN100ISO	B81000808
Inlet flange seals			
DN40NW Co-seal, fluoroelastomer			B27158453
ISO63 Trapped O-ring, fluoroelastomer			B27158170
63CF copper compression gasket (pack of 10)			C10007490
100CF copper compression gasket (pack of 10)			C10009290
160CF copper compression gasket (pack of 5)			C10011290
BX bake out band on application			
Vibration isolator on application			

Pump-to-controller cables

Product description	Order no:
1 m cable	D39700835
2 m cable	D39700836
5 m cable	D39700837

Air-cooler

Product description	Pump	Order no:
ACX75	EXT75DX	B58053075
nEXT Axial air cooler	nEXT240/300/400	B58053185
nEXT Radial air cooler	nEXT240/300/400	B58053175
nEXT Axial air cooler with connector	nEXT240/300/400	B58053180
nEXT Radial air cooler with connector	nEXT240/300/400	B58053170

Vibration Isolator

Product description	Order no:
DN63CF	B58101000
DN63ISO-K	B58115000
DN100ISO-K	B58120000
DN100CF	B58105000

VRX Vent-Restrictor

Product description	Orifice Diameter (mm)	Order no:
VRX10	0.1	B58066021
VRX20	0.2	B58066022
VRX30	0.3	B58066023
VRX50	0.5	B58066024
VRX70	0.7	B58066025

TAV vent-valve

Product description	Order no:
TAV5 vent-valve	B58066010
TAV6 vent-valve	B58066020

Vent-port adaptor

Product description	Order no:
Vent-port adaptor	B58066011

nEXT bearing service parts and tools

Product description	Order no:
Oil cartridge tool kit	B80000812
Bearing tool kit	B80000805
Oil cartridge	B80000811
Bearing and oil cartridge	B80000810
DX/nEXT pump profibus communications module	D39755000

Purge-Restrictors

Product description	Order no:
PRX10 purge-restrictor	B58065001

Interface cables

Product description	Order no:
TIC logic interface cable	D39700833
TIC RS232 interface cable 2 m	D39700834

Active gauge cables

Product description	Order no:
0.5 m	D40001005
1 m	D00001010

Other cable lengths also available
Please contact Edwards for further details

T-STATION 75 TURBOPUMPING SYSTEM

PERFORMANCE YOU CAN RELY ON

The T-Station 75 is Edwards's entry level Turbopumping system. It combines our proven EXT75DX with a choice of either an oil sealed E2M1.5 backing pump or an XDD1 diaphragm pump where a totally dry solution is desired.

The T-Station comes with our TAG (Turbo and Active Gauge) controller fitted as standard which enables single button start/stop of the system, the ability to control one of our Active Gauges*, vent valve control*, and delayed start to either time or pressure if a gauge is fitted making the T-Station ideal for general laboratory needs.

* Gauges and TAV5 vent valve must be purchased separately.

Features and Benefits

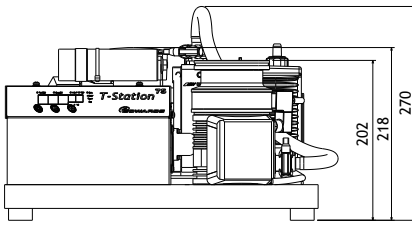
- Fully assembled and ready to use.
- Control of turbopump, backing pump and optional gauge from integrated controller.
- NW40, ISO63 or CF63 inlet flanges.
- Choice of backing pumps, E2M1.5 oil sealed pump. T-Station 75W or XDD1 diaphragm pump T-Station 75D.
- Delayed turbo start option for pumping larger volumes.

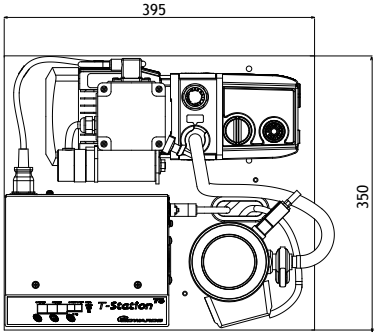
Applications

- General laboratory applications.
- Spectroscopy.
- Surface analysis.
- Small coating systems.
- Vacuum tube manufacturing.

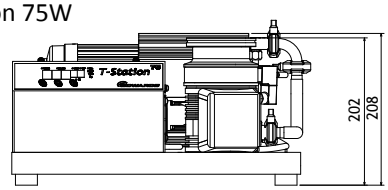
Dimensions

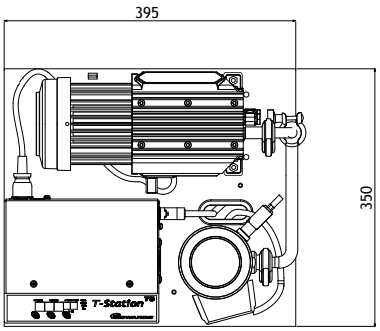
T-Station Dimension





T-Station 75W





T-Station 75D

Pumping system view

Technical Data

	Units	T-Station 75
Pumping speed for N_2		
NW40	ls^{-1}	42
ISO63/CF63	ls^{-1}	61
Compression ratio for N_2		> 1 x 10^{11}
Backing pump speed @ 50 Hz		
E2M1.5	m^3h^{-1}	1.6
XDD1	m^3h^{-1}	1.2
Ultimate pressure	mbar	< 5 x 10^{-8}
Inlet flange		NW40, ISO63 or CF63

	Units	T-Station 75
Exhaust flange		
E2M1.5		11 mm OD Nozzle or ⅜ inch BSP
XDD1		Fitted silencer or ⅛ inch BSP
Weight		
E2M1.5	kg/lb	22/48
XDD1	kg/lb	18/40
Noise level	dB(A)	55.4
Leak tightness	ls^{-1}	< 1 x 10^{-6} mbar
Operating temperature range	˚C/F	10 to 40/50 to 104

T-Station 75

Ordering information

Product description	Order no:
T-Station 75D NW40 200-230 V 50/60 Hz	TS75D1001
T-Station 75D NW40 100-120 V 50/60 Hz	TS75D1002
T-Station 75D ISO63 200-230 V 50/60 Hz	TS75D2001
T-Station 75D ISO63 100-120 V 50/60 Hz	TS75D2002
T-Station 75D CF63 200-230 V 50/60 Hz	TS75D3001
T-Station 75D CF63 100-120 V 50/60 Hz	TS75D3002
T-Station 75W NW40 200-230 V 50/60 Hz	TS75W1001
T-Station 75W NW40 100-120 V 50/60 Hz	TS75W1002
T-Station 75W ISO63 200-230 V 50/60 Hz	TS75W2001
T-Station 75W ISO63 100-120 V 50/60 Hz	TS75W2002
T-Station 75W CF63 100-120 V 50/60 Hz	TS75W3002
T-Station 75W CF63 200-230 V 50/60 Hz	TS75W3001

Gauge

Product description	Order no:
AIM-X Active inverted magnetron gauge	D14642000
APG100 Active Pirani vacuum gauge	D02603000
APGX-H Active Linear convection gauge	D02391000
WRG-S Active wide range gauge	D14701000

Active gauge cable

Product description	Order no:
0.5 m Active gauge cable	D40001005
1 m Active gauge cable	D40001010
3 m Active gauge cable	D40001030
5 m Active gauge cable	D40001050

Electrical supply cable

Product description	Order no:
2 m electrical supply cable for 1-ph pumps, no plug	A50508000
2 m electrical supply cable for 1-ph pumps, North America/Japan plug	A50507000
2 m electrical supply cable for 1-ph pumps, North European plug	A50506000
2 m electrical supply cable for 1-ph pumps, UK, Three-pin plug	A50505000

Mist filter

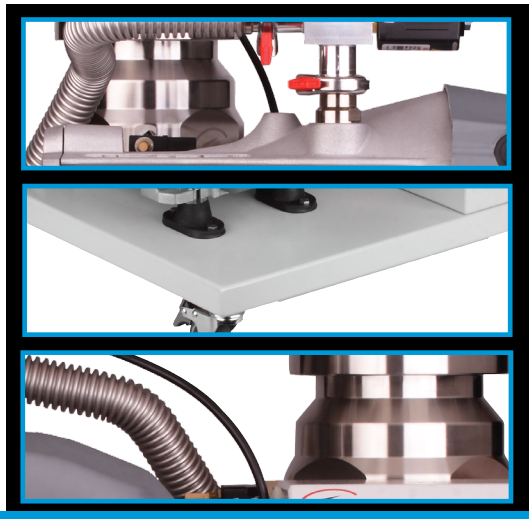
Product description	Order no:
Model EMF3 mist filter	A46220000

Vent valve

Product description	Order no:
TAV5 Vent valve 24 V DC ¼ Bsp	B58066010

nEXT TURBOPUMPING STATION

PERFORMANCE YOU CAN RELY ON



Our range of nEXT turbopumping stations build on our previous generation, but with a simplified ordering matrix and expanded range to include turbopumps with speeds from 42 ls^{-1} to 400 ls^{1}. For pumping speeds from 42 ls^{-1} to 66 ls^{-1} we offer our trusted EXT75DX pump with a choice of various wet and dry backing pumps and a Turbo and Instrument TIC100. For pumping speeds of 240 ls^{-1} to 400 ls^{-1} the nEXT turbopumping stations are based on our nEXT pumps offering the additional flexibility of end-user serviceability plus a choice of backing pumps and a Turbo and Instrument TIC200.

Features and Benefits

- Value for money – exceptional pumping speeds and compression ratios.
- No unplanned downtime – field proven reliability in the most demanding environments.
- Easy integration – standard fit in many scientific instruments.
- Reliability for peace of mind – over 200,000 turbo pumps installed.
- Low cost of ownership – end user serviceable.

Turbopumping stations fitted with E2M1.5 or RV pumps come with an EMF mist filter fitted, and those fitted with our class leading nXDS scroll pumps have an isolation valve fitted between the turbopump and backing pump as standard. All turbopumping stations include 4 locking castor wheels, a bench-top mounting kit, built in air cooling and come configured to suit a wide variety of applications such as: UHV systems; beam lines; load locks; surface science; high energy physics.

Ordering

‘Plug and play’ turbopumping station

Everything about our new range of nEXT turbopumping stations has been developed to provide a comprehensive vacuum solution with the latest technological advances for easy installation and operation.
A simplified ordering matrix and expanded range, to include turbopumps with speeds from 42 ls^{-1} to 400 ls^{-1}, enables you to select the most appropriate combination for your application, fully assembled and ready to go.

1. Choose your turbopump

EXT75DX
75 ls^{-1}

nEXT240 D or T
240 ls^{-1}

nEXT300 D or T
300 ls^{-1}

nEXT400 D or T
400 ls^{-1}

2. Choose your backing pump

OIL SEALED

1.6 m^3h^{-1}

RV5
5.1 m^3h^{-1}

RV12
12 m^3h^{-1}

DRY

1.2 m^3h^{-1}

nXDS6i
6.2 m^3h^{-1}

nXDS10i
11.4 m^3h^{-1}

nXDS15i
15.1 m^3h^{-1}

nXDS20i
22 m^3h^{-1}

3. Select your voltage

Ordering matrix

T	S			–			–	0	0	

Turbopump *
- M EXT75DX
- B nEXT240D
- C nEXT300D
- D nEXT400D
- E nEXT240T
- F nEXT300T
- G nEXT400T

Inlet Flange *
- 1 DN40NW (EXT75DX)
- 2 DN63ISO-K (EXT75DX)
- 3 DN63CF (EXT75DX)
- 4 DN100ISO-K (nEXT240/300)
- 5 DN100CF (nEXT240/300)
- 6 DN160ISO-K (nEXT400)
- 7 DN160CF (nEXT400)

Backing Pump
- 1 E2M1.5 ‡
- 2 RV5
- 3 RV12
- A XDD1
- D nXDS6i
- E nXDS10i
- F nXDS15i
- G nXDS20i

Vent Option
- 0 Manual Vent
- 1 TAV5 Vent Valve

Electrical Supply
- 1 220-240 V 50/60 Hz (Europe)
- 2 110-120 V 50/60 Hz (USA)
- 3 200 V 50/60 Hz (Japan)
- 4 220-240 V 50/60 Hz (UK)

* Turbopump and inlet flange must match as shown

‡ For Japan low volts on E2M1.5 please order the USA voltage variant, for all other pumps please order Japan version and specify pumps please order Japan version and specify low volts on your order

TURBO AND ACTIVE GAUGE (TAG) CONTROLLER

Edwards Turbo and Active (TAG) controller is a small low cost pumping system controller, suitable for a wide range of vacuum applications, and compatible with all Edwards EXT and nEXT turbomolecular pumps. The large LED display shows the pump speed or vacuum pressure, and an easy to use push button interface enables ease of operation and control. The TAG controller will also run a backing pump, air vent valve, an air cooler and an Edwards active gauge, making the TAG a versatile system controller. This compact 24 V controller is ideal for use on bench tops or suitable mobile platforms where space is limited, yet functionality and reliability are essential.

NOTE: TAG controller does not contain an in-built power source, a 24 V power supply is available from Edwards or users must supply their own.

Features and benefits

Turbopump control capabilities

- Turbopump start/stop.
- Display pump speed as % of full speed.
- Visual performance display; acceleration, deceleration or normal running.
- Control of a single vent valve when connected to the turbopump controller with choice of three vent modes.
  - Vent when pumping speed drops below 50%
  - Controlled vent from full speed then hard vent at 50%.
  - Fan mode, continuous power to the vent port so the system will not vent. Alternatively it may be used to power an air cooler connected directly to the pump.

Gauge control and display functions

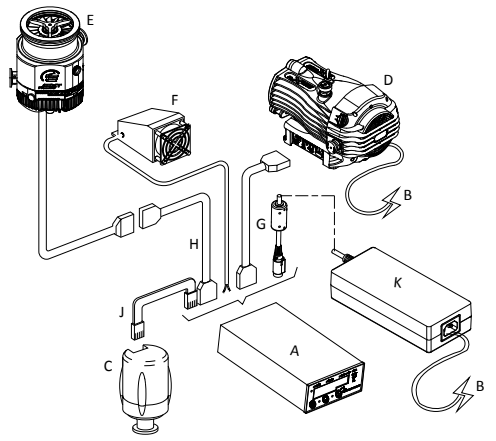
- Control of a single Active gauge: APG, AIM, ASG or WRG gauge.
- Choice of pressure display: mbar, Torr, Pascal or volts.
- Zero adjustment/calibration of gauges.
- Use of gauge signal to start/stop the turbopump.

Backing pump control, plus more

- TAG has the additional capability to control a backing pump.
- 24 V XDD1 may be connected directly and will share power with TAG/turbopump.
- nXDS and XDS35i pumps can be controlled by the TAG logic interface.
- Other mains backing pumps may need a relay (see instruction manual for details).
- A single 24 V isolation valve can be controlled and powered from the TAG.
- For pumping large chambers the TAG allows delayed start of the turbopump to either a time or pressure set point.

Dimensions

TAG Controller Configuration



A TAG controller
B Mains cable/line cord
C WRG-S-NW25
D Backing pump
E Turbomolecular pump
F Air-cooler
G XDD/DX/EXDC extension cable
H XDD/DX/EXDC extension cable (optional)
J Active gauge cable
K Power supply

Technical Data

Max input power	240 W
Mains input	
Electrical supply	24 V d.c.
Power consumption (max)	5 W
Auxiliary terminals	
Air cooling fan	24V d.c. 3.6 W max
Turbo pump	24V d.c. 160 W max
Dimensions	96 x 48 x 165 mm
Mass	0.3 kg
Operating temp	0 to 40 °C
Storage temp	-30 to 70 °C
Max ambient operating humidity	90% RH non-condensing at 40 ˚C
Max operating altitude	2000 m
Enclosure rating	IP20 IP40 when panel mounted

TAG Controller

Ordering information

Product description	Order no:
TAG Turbo and active gauge controller	D39592000

Linecord

Product description	Order no:
Linecord 2 m North Euro Plug	D40013030
Linecord 2 m UK Plug	D40013025
Linecord 2 m with US Plug	D40013120

Extension Cable

Product description	Order no:
XDD/DX/EXDC Extension Cable 1 m	D39700835
XDD/DX/EXDC Extension Cable 2 m	D39700836
XDD/DX/EXDC Extension Cable 5 m	D39700837

Power Supply

Product description	Order no:
200 W power supply	D39592800

TIC TURBO AND INSTRUMENT CONTROLLER

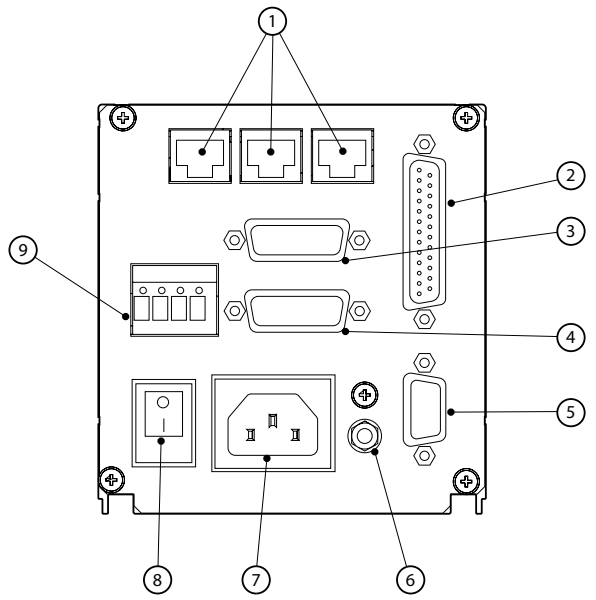
A compact turbo controller with a large clear graphical display, an intuitive user interface and serial communications providing full remote control and data logging functions via a new Windows™ based PC program. The controller automatically recognises and supports one 24 V turbomolecular pump from the EXT/nEXT range. Cooling and vent valve support is provided directly from the controller. Mains backing pumps (up to nXDS20i/RV12) may be controlled via an optional relay box. Two different power variants are available, 100W or 200W which determines the ramp speed of the turbo pump. In addition 200W models have the ability to power a 24V d.c. backing pump such as our XDD1 or nXDS through a 15-way 'D' socket. Turbo and instrument models add the ability to control up to 3 of our range of Active gauges.

Features and Benefits

- TIC automatically recognises and controls one 24 V turbomolecular pump from either the nEXT, DX or EXDC ranges. nEXT and DX turbos have full serial communication with TIC and may be both configured and report status via TIC.
- Both mains and 24 V backing pumps may be controlled by TIC. For larger vacuum systems the TIC may control mains backing pumps, up to and including nXDS10i and RV12, via the optional relay box.
- The optional external relay box enables mains backing pumps to be controlled and also provides interfaces for a turbo heater band, a backing line isolation valve and a logic bypass. See relay box section.
- In most instances, TIC systems may be simply and quickly configured using the range of standard cables on offer, there is therefore no need for the customer to prepare loom assemblies or relay boxes and special interfaces.
- TIC is packaged in a compact case and may be panel or rack (¼ 19 inch rack 3U) or bench mounted. With the addition of the bezel it becomes an attractive bench-top instrument. The large 128 x 64 pixel backlit graphics LCD and mobile phone style menu system simplifies programming and with a choice of summary screens excellent visibility of displayed parameters is assured.

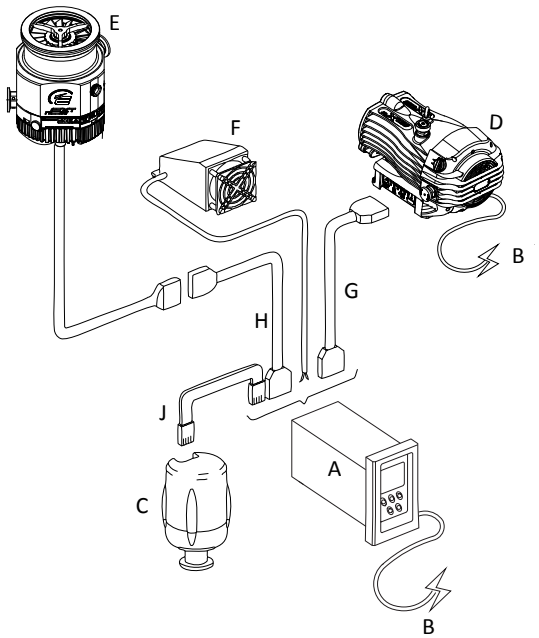
Technical Data

TIC Turbo and Instrument Controller – Back view



① Gauge inputs (FCC68 (RJ45) (turbo & instrument only)
② Logic interface (25-way 'D' socket)
③ Backing pump 24 V (15-way 'D' socket) (TIC200 only)
④ Turbo Pump 24 V (15-way 'D' socket)
⑤ RS232/485 (9-way 'D' socket)
⑥ Earth stud (M4)
⑦ Mains input (CEE/IEC 320 plug)
⑧ Mains on/off switch
⑨ Auxiliary vent valve and fan terminals (24 V supply) 4-way screw term.

TIC Turbo and Instrument Configuration



A TIC turbo and instrument controller, 200 W
B Mains cable/line cord
C WRG-S-NW25
D Backing pump
E Turbomolecular pump
F Air-cooler
G XDD/DX/EXDC extension cable
H XDD/DX/EXDC extension cable (optional)
J Active gauge cable

Technical Data

	Units	TIC Turbo and Instrument Controller
Pump/TIC power	W	100/200
EXT75DX		Fast/Fast
nEXT 80 W		Slow/Slow
nEXT 160 W		Slow/Fast
Mains input		
Electrical supply		90 to 264 V a.c. 47 to 63 Hz
Power consumption (max)		215 VA
Peak inrush current		10.3 A @ 110 V a.c./23.0 A @ 230 V a.c.
Earth stud		M4
Auxiliary terminals		
Air cooling fan		24 V d.c. 3 W max, ACX70, ACX75 & ACX250H
Vent valve		24 V d.c. 2 W max, TAV5 & TAV6
Dimensions		
Electronics housing	mm	110 high x 105 wide x 245 deep
Front panel	mm	106 wide x 128 high
Weight	kg	3.5
Operating temp	˚C	+0 to +40
Storage temp	˚C	-30 to +70
Max ambient operating humidity		90% RH non-condensing at 40 ˚C
Max operating altitude	m	3000
Electronic Design		EN 61010-1
Electromagnetic Compatibility		EN 61326 Industrial Location, Class B Emissions
Enclosure rating		IP20

TIC Turbo and Instrument Controller

Ordering information

Product description	Order no:
TIC Turbo & Instrument Controller, 100 W RS232	D39721000
TIC Turbo & Instrument Controller, 200 W RS232	D39722000
TIC Turbo Controller, 100 W RS232	D39711000
TIC Turbo Controller, 200 W RS232	D39712000

Extension Cable

Product description	Order no:
XDD/DX/EXDC Extension Cable 1 m	D39700835
XDD/DX/EXDC Extension Cable 2 m	D39700836
XDD/DX/EXDC Extension Cable 5 m	D39700837

Linecord

Product description	Order no:
Linecord 2 m UK Plug	D40013025
Linecord 2 m North Euro Plug	D40013030
Linecord 2 m With US Plug	D40013120

Communications Module

Product description	Order no:
TIC Profibus Communications Module	D39754000

Active gauge cable

Product description	Order no:
0.5 m Active gauge cable	D40001005
1 m Active gauge cable	D40001010
3 m Active gauge cable	D40001030
5 m Active gauge cable	D40001050
10 m Active gauge cable	D40001100

TIC RELAY BOXES

Two relay boxes are available for use with our TIC controllers:
- A small backing pump relay box is compatible with TIC turbo only and turbo and instrument controllers
- A small backing pump and instruments relay box is compatible with TIC turbo and instrument controllers

The small backing pump relay boxes are able to control mains backing pumps up to RV12/ nXDS10i. The relay box also controls a mains heater band and backing line isolation valve. In addition the small backing pump and instrument relay box includes three 250 V a.c. 3 A changeover relays, which are activated by the gauge open collector set point outputs.

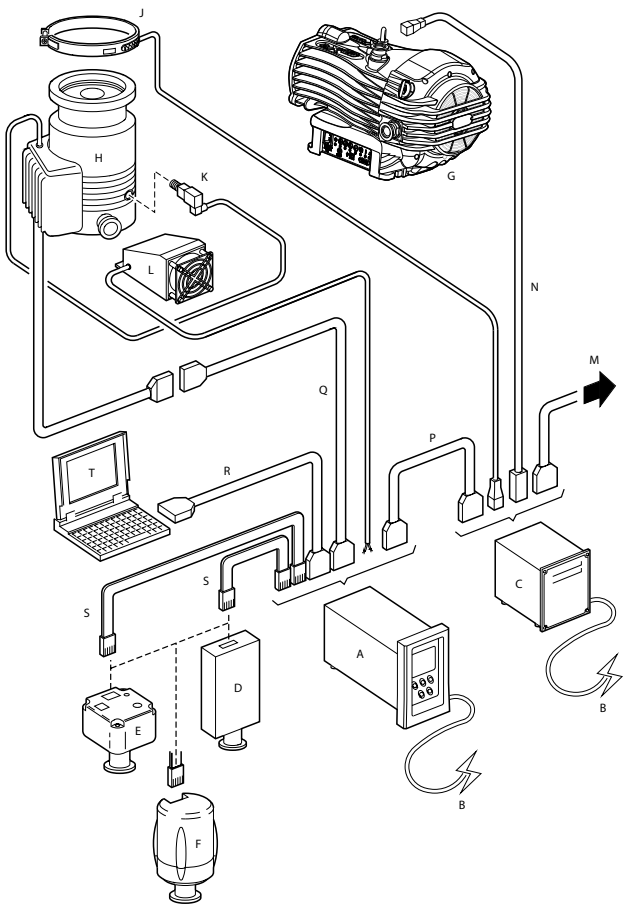
Features and Benefits

- Enables TIC to control mains backing pumps, up to and including nXDS10i and RV12.
- Provides interfaces for a turbo heater band, a backing line isolation valve and a logic bypass. All relay boxes include a logic bypass facility for further system integration.
- TIC relay is packaged in a compact case and may be panel or rack (¼ 19” rack 3U) or bench mounted.
- TIC relay will operate from mains supplies with voltages up to 240 V a.c.

Product Range

- TIC Relay Box

TIC Configuration



A TIC200 turbo and instrument
B Mains cable/line cord
C Relay box
D APG100 Pirani gauge
E AIGX Ion gauge
F AIM Penning gauge
G nXDS scroll pump
H EXT/nEXT turbopump
J BX heater band
K TAV5 vent valve
L ACX air cooler
M TIC logic interface cable
N IEC320 M/F cable
P TIC logic interface cable
Q XDD/DX/EXDC extension cable
R TIC RS232 interface cable
S Active gauge cable
T PC with RS232 interface

TIC Relay Boxes

Ordering information

Product description	Order no:
TIC Relay Box Sml Bkg	D39711805
TIC Relay Box Inst & Sml Bkg	D39721806

Linecord

Product description	Order no:
Linecord 2 m North Euro Plug	D40013030
Linecord 2 m UK Plug	D40013025
Linecord 2 m With US Plug	D40013120

Interface Cable

Product description	Order no:
TIC Logic Interface Cable 2 m	D39700833
TIC RS232 Interface Cable 2 m	D39700834

Extension Cable

Product description	Order no:
XDD/DX/EXDC Extension Cable 1 m	D39700835
XDD/DX/EXDC Extension Cable 2 m	D39700836
XDD/DX/EXDC Extension Cable 5 m	D39700837

Technical Data

	TIC Relay Boxes
Mains input	
Connector type	CEE/IEC320 inlet
Max rating	240 V a.c.
Earth stud	M4
Heater band outlet	
Connector type	CEE/IEC320 inlet
Max rating	240 V a.c. 1 A
Fuse	20 mm x 5 mm, 250 V, 1 A type F
Backing pump outlet	
Connector type	CEE/IEC320 inlet
Max rating	240 V a.c. 10 A
Fuse	20 mm x 5 mm, 250 V, 10 A type T
Setpoint connector	
Connector type	12-way positronic PLC plug
Max rating	250 V a.c. 3 A (resistive) Dry non conducting atmosphere only or 30 V d.c. 3 A (resistive)
Mating half (supplied)	12-way positronic PLC socket with hood
Backing line isolation valve connector	
Connector type	3-way DIN socket
Max rating	24V d.c. 0.5 A
Lead type	3 core 0,5 mm^2
Weight	695 g
Operating temperature	0 to 40 ˚C
Storage temperature	-30 to +70 ˚C
Max ambient operating humidity	90% RH non-condensing at 40 ˚C
Max operating altitude	3000 m
Electronic design	EN61010-1
Enclosure rating	IP20

STP MAGNETICALLY LEVITATED TURBOMOLECULAR PUMPS

THE INTELLIGENT CHOICE

The STP magnetically levitated turbomolecular pumps are the first choice for high-up time, hydrocarbon fre275e pumping. The multi-axis magnetic bearing system is used to suspend the rotor during operation, ensuring there is no risk of contamination while minimising vibration, noise and maintenance requirements. The STP pumps can be fully interfaced with advanced controllers to operate on a wide range of applications and processes. They offer class leading pumping performance demonstrating exceptional levels of reliability, and are widely accepted in the market with the installed base of over 140,000 units worldwide.

Features & Benefits

- Excellent pumping performance with speeds from 300 to 4500l/s covers all potential turbo pump applications.
- Advanced material and designs provide class leading performance in all classes.
- Automatic Balancing System (ABS) and Automatic Vibration Reduction (AVR) offer very low noise and vibration.
- Magnetic bearing system will allow installation in any angle.
- Field proven reliability.
- Low cost of ownership.
- Wide range of remote signal available- I/O Remote, RS232, RS485, Profibus (optional).
- RoHS Compliant and UL approved.

Applications

- Metal/Oxide/Silicon Etch.
- Ion Implant.
- Film deposition CVD.
- Metrology and analytical instruments.
- Load lock and transfer chambers.
- PVD coating system.
- R&D applications.
- Heat treatment.

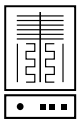
Pump Range

STP Turbo Pump Range

- Integrated controller Series - STP-iX455, STP-iXL455, STP-iXR1606, STP-iXR2206, STP-iXA2206, STP-iXA3306 and STP-iXA4506.
- Ultra High Vacuum (UHV) Series- STP-301, STP-451, STP-603, STP-1003.
- UHV Low Vibration Series - STP-L301, STP-L451.
- Advanced High Throughput Series - STP-H301, STP-H451, STP-A803, STP-A1303, STP-A1603, STP-A2203, STP-XA2703, STP-XA3203, STP-XA4503.
- STP turbo pump series provide a wide range of product offering to suit all high vacuum pumping applications.

STP series have 4 basic product ranges

Integrated Controller Series



The integrated controller series can be fully interfaced with advanced controllers to operate on a wide range of applications and processes. It eliminates the need for a conventional, rack-mounted controller and interconnecting cables. The fully integrated product offers easy installation and small footprint as an all-in-one solution for all application tools.

- STP-iX455, STP-iXL455, STP-iXR1606, STP-iXR2206, STP-iXA2206, STP-iXA3306, and STP-iXA4506.

Ultra High Vacuum (UHV) Series

The multistage pure bladed rotors in the UHV pumps provide the high vacuums required for clear beamlines on CD SEM machines, mass spectrometers and ion implanters. They provide optimum pumping performance with excellent light gas compression ratios.

- STP-301, STP-451, STP-603, STP-1003.

UHV Low Vibration Series

The low vibration series has been designed to meet the low vibration requirements of advanced spectroscopy and metrology tools. It provides the advantage of having the vibration system built into the pump body.

- STP-L301, STP-L451.

High Throughput Series

The high throughput pumps incorporate a Holweck drag stage that increases the pumps throughput at low pressure. Their advanced rotor design combined with selection of the best materials has allowed the creation of the next generation of high throughput turbo pump inside the same footprint as many of the existing models. The range contains pumps with throughput speeds from 300 l s^{-1} to 4500 l s^{-1}.

- STP-H301, STP-H451, STP-A803, STP-A1303, STP-A1603, STP-A2203, STP-XA2703, STP-XA3203, STP-XA4503.

Proven magnetic bearing technology

The rotor is entirely suspended by multi-axis magnetic bearings so all contact between the rotor and the remainder of the pump is eliminated. As well as giving very low vibration, the elimination of contact means no bearing wear and no requirement for consequent pump maintenance.

Oil Free

All STP turbomolecular pumps are oil free. The use of magnetic bearings eliminates all hydrocarbon lubricants ensuring no contamination of the vacuum process from the turbomolecular pump. This feature is vital in the semiconductor industry (where device densities are constantly increasing) and in surface science or high energy physics applications (where even minute degrees of contamination disrupt measurements).

Maintenance Free

Unlike conventional mechanical bearings, magnetic levitation means there is no frictional contact, eliminating sources of wear and vibration. This feature enables STP turbomolecular pumps to run for years with virtually no maintenance, reducing annual operating costs to a minimum and ensuring maximum up-time is achieved. This maintenance free feature can be particularly beneficial on processes producing chemical or radioactive contamination.

Vibration Free

Magnetic levitation of the rotor results in an extremely low level of noise and vibration. Peak-to-peak vibration level is less than 0.02 µm. This amplitude remains constant throughout the life of the pump and is free from troublesome sub-harmonics.

Safety Backup Bearings

STP pumps have dry lubricated axial and radial mechanical bearings as safety backup bearings. These support the rotor and protect the pump in the event of a total disruption of magnetic suspension or a massive air inrush which overcomes the magnetic bearing stiffness. These high precision ball bearings are dry lubricated and are not in contact with the rotor during normal operation.

Corrosion Resistant

To ensure a high level of resistance to corrosion, the corrosion resistant (C) and high throughput pumps have nickel coated rotors/stators and pump internals suitable for corrosive applications. Further enhanced levels of protection are available on request.

Nitrogen Purging

The corrosion resistant (C) pumps and the high throughput pumps have a nitrogen purge facility as standard, a constant flow of nitrogen through the pump dilutes corrosive gases minimising their damage to the pumps motor and sensor coils.

TMS System

The Edwards Temperature Management System is available on a wide range of turbo pumps. It is designed to optimize the temperature within the pump, dramatically reducing the particle condensation within. This will not only considerably enhance the performance of the pump under harsh process conditions, but also increase its operational life. Higher temperature setting option is available for even more harsh processes.

STP INTEGRATED CONTROLLER PUMP

THE INTELLIGENT CHOICE

The STP integrated controller pump series provide industry-leading performance and features a compact size integrated on-board control unit. An integrated controller eliminates the need for a conventional, rack-mounted controller and interconnecting cables. The pumping performance is improved by the newest developed revolutionary rotor design. This fully integrated product offers easy installation and small footprint as an all-in-one solution for all application tools.

Features & Benefits

- Excellent pumping performance with speeds from 300 to 4500 l/s.
- Compact design with fully integrated controller and power supply eliminates cabling requirement.
- Advanced rotor design technology offers class leading performance with compact size for all classes.
- Magnetic bearing system will allow installation in any angle.
- Automatic Balancing System (ABS) and Automatic Vibration Reduction (AVR) reduces vibration levels and provide stable operation.
- Various communication available- I/O Remote, RS232C, RS485, STP Link are standard ports, Profibus® available as option.
- Protection level IP 54 (expect STP-iX455/iXL455).
- Easy installation.

Applications

- Metrology and microscopic applications.
- Pre-clean process.
- Glass coating systems.
- Inline/Batch coating systems.
- Steel Degassing.
- Solid State Lighting.
- Semiconductor and FPD Etching systems.

On-board Pump Range

STP-iX

- STP-iX455
- STP-iXL455
- STP-iXR1606
- STP-iXR2206
- STP-iXA2206
- STP-iXA3306C
- STP-iXA4506C

STP Integrated Series and the Environment

Reducing Energy Use

Reducing global energy consumption is key in the fight against global warming. In addition to minimising the energy our production facilities and offices consume, STP integrated series enable our customers to meet their energy reduction targets. Future proofing against carbon taxes and potentially qualifying for 'Green Giants'.

Example:

In the production of coated products, existing vacuum pump energy could account for >50% of the total energy consumed by the process tool. With an installed base of 140,000 maglev turbo pumps globally in a wide range of applications, Edwards STP Maglevs typically reduce the power consumption of Diffusion by < 90%.

Switching from Diffusion pumps to the latest Maglev turbos from Edwards on an 80 pump glass coating line will dramatically reduce your carbon footprint by over 3,000 tonnes of CO_2e / year.

Economising by switching to the new generation of STP Maglev turbo pumps

Benefits of STP Maglev turbo pumps:

- Lower utility cost (Power and Water).
- No yearly services or oil changes.
- Increase pumping performance.
- Very low ambient noise and low vibration.
- Reduced space requirements.

Edwards HT10 Diffusion Pump vs Magnetically Levitated Turbo Pump

	HT10 Diffusion Pump	STP-iXA2206	% reduction	CO_2 reduction per year (tonnes)**
Power consumption	5.1 kW	0.2 kW*	96%	25.2 pa**
Water consumption	400 lh^{-1}	120 lh^{-1}	70%	

EHT16 Diffusion Pump vs Magnetically Levitated Turbo Pump

	HT16 Diffusion Pump	STP-iXA3306	% reduction	CO_2 reduction per year (tonnes)**
Power consumption	9 kW	0.3 kW*	97%	Pa**
Water consumption	700 lh^{-1}	120 lh^{-1}	83%	44.8

* At 300 sccm gas load power = 0.3 kW.
** Energy source units vs kW/h kg CO_2= kWh 0.490 Source: Department for Environment, Food, Rural Affairs, UK.

	STP-iX455	STP-iXL455	STP-iXR1606	STP-iXR2206	STP-iXA2206	STP-iXA3306	STP-iXA4506
Metrology	•	•					
PVD Process	•		•	•	•	•	•
PVD Pre-Clean	•		•	•	•	•	•
Glass Coating			•	•	•	•	•
Inline/Batch coating			•	•	•	•	•
Solid State Lighting			•	•	•	•	•
Oxide Etch					•	•	•
Metal Etch					•	•	•

Solar Cells

A photovoltaic solar cell (PV cell) is a semiconductor device which, in the presence of light, generates electricity. Solar cells provide clean renewable energy, producing zero air pollution, hazardous waste or noise.

Enabling Environmental Technology

Biofuel Production

The term biofuel applies to any solid, liquid or gaseous fuel produced from organic (once-living) matter. The word biofuel covers a wide range of products, some of which are commercially available today and some of which are still in research and development.

Glass Coating

Vacuum coated glass is primarily used to control the solar generated thermal energy load on buildings. Multiple layers comprising exotic metal oxides create infrared reflecting properties. Reducing the heat load on buildings reduces the need for electrical power to run air conditioning in hot countries. Conversely in cold countries these same reflective properties are used to retain heat and reduce fuel used for heating. We expect the trend to accelerate as sustainable building principles become part of International building design standards.

Steel Degassing

Vacuum degassing (VD) and vacuum oxygen decarburisation (VOD) are used in the production of speciality steel alloys to reduce the levels of hydrogen, carbon and other impurities during the secondary steel making process. Edwards dry mechanical vacuum pumps offer considerable energy savings compared to the traditional multi-stage steam ejector systems, backed with liquid ring pumps.

Solid State Lighting

Solid-state lighting sources, such as light emitting diodes (LEDs), offer energy savings and environmental benefits compared to traditional incandescent or fluorescent lamps. In some cases they can offer a 95% energy saving over conventional lighting systems.

STP-iXA4506

STP-iXA4506	
Peak Pumping Speed	
N_2	3800 ls^{-1} / 4000ls^{-1}/ 4300ls^{-1}
H_2	2700 ls^{-1} / 2700ls^{-1}/ 2700ls^{-1}
Compression Ratio	
N_2	$> 10^8$
H_2	10^3
Ultimate pressure	
	10^{-7} Pa

STP-iXR1606

STP-iXR1606	
Peak Pumping Speed	
N_2	1000 ls^{-1} / 1600 ls^{-1}
H_2	800 ls^{-1} / 1200 ls^{-1}
Compression Ratio	
N_2	$> 10^8$
H_2	1 x 10^3

STP-iXA2206C

STP-iXA2206C	
Peak Pumping Speed	
N_2	2200 ls^{-1}
H_2	1900 ls^{-1}
Compression Ratio	
N_2	$> 10^8$
H_2	1 x 10^4

STP-iXA3306C

STP-iXA3306C	
Peak Pumping Speed	
N_2	2650 ls^{-1} / 3200 ls^{-1}
H_2	2050 ls^{-1} / 2300 ls^{-1}
Compression Ratio	
N_2	$> 10^8$
H_2	1 x 10^3

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STP Sectional View Showing Key Features

Key

1. Advanced design rotor realizes high performance and compact size. (Reduced pump height and diameter)
2. Latest magnetic bearing technology provides lower power consumption compare to the existing models and stable operation
3. Upper and lower safety back up bearings support the rotor and protect the pump in the event of a total disruption of magnetic suspension or a massive air inrush
4. Optimised holweck stages (except for STP-iX455 and iXL455 which have whole bladed rotor) bring high throughput performance.
5. Reliable on-board platform with reduced power consumption and optimum heat structure
6. IP54 rated specification for protection against water and dust. It is innovatively designed to work in humid and high ambient temperatures.
7. Efficient motor technology enables to reduce power consumption at high flow condition
8. Purge port can be fitted as an option for all models. (Standard on STP-iXA3306C and STP-iXA4506C)
9. Flexible communication interface - I/O remote, RS232C/RS485 and STP-link port are equipped as standard, Profibus is available as an option.

Performance Curves

STP-iX455 Turbomolecular Vacuum Pump

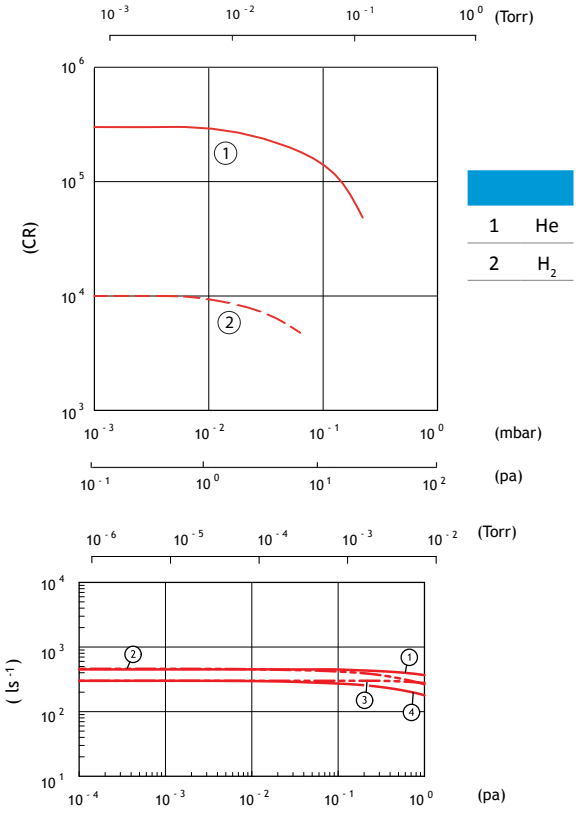
STP-iX455

Peak Pumping Speed	
N_2	300 ls^{-1}/450 ls^{-1}
H_2	300 ls^{-1}/460 ls^{-1}
Compression Ratio	
N_2	> 10^8
H_2	1 x 10^4
Ultimate pressure	
6.5 x 10^{-6} order Pa	

Ordering information

Product description	Order no:
STP-iX455 Turbomolecular pump ISO100K	PT640Z010
STP-iX455 Turbomolecular pump ISO160K	PT640Z020
STP-iX455 Turbomolecular pump DN100CF	PT640Z050
STP-iX455 Turbomolecular pump DN160CF	PT640Z060

STP-iX455 Performance Curve



1	N_2	450 ls^{-1} (ISO160, VG150)
2	H_2	460 ls^{-1} (ISO160, VG150)
3	N_2	300 ls^{-1} (ISO100, VG100)
4	H_2	300 ls^{-1} (ISO100, VG100)

STP-iXL455 Turbomolecular Vacuum Pump

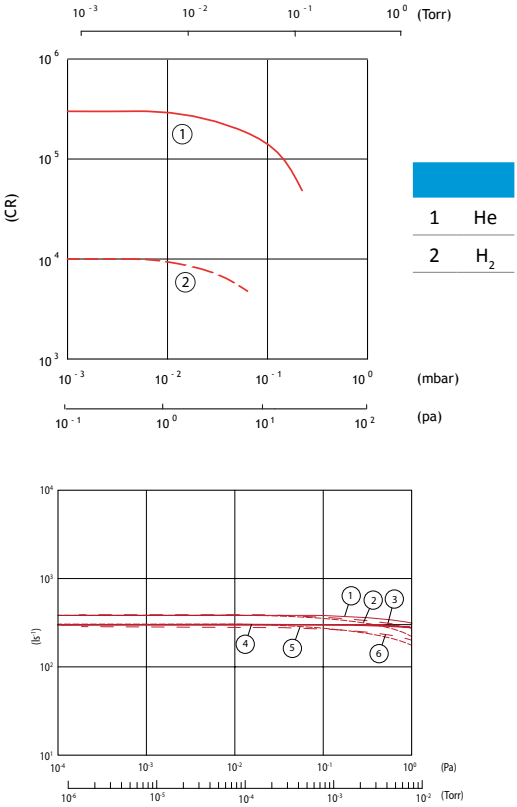
STP-iXL455

Peak Pumping Speed	
N_2	300 ls^{-1}/380 ls^{-1}
H_2	300 ls^{-1}/380 ls^{-1}
Compression Ratio	
N_2	> 10^8
H_2	1 x 10^4
Ultimate pressure	
6.5 x 10^{-6} order Pa	

Ordering information

Product description	Order no:
STP-iXL455 Turbomolecular pump ISO100K	YT642Z030
STP-iXL455 Turbomolecular pump ISO160K	PT642Z020

STP-iXL455 Performance Curve



1	N_2	380 ls^{-1} (ISO160, VG150)
2	H_2	380 ls^{-1} (ISO160, VG150)
3	He	390 ls^{-1} (ISO160, VG150)
4	N_2	300 ls^{-1} (ISO100, VG100)
5	H_2	300 ls^{-1} (ISO100, VG100)
6	He	280 ls^{-1} (ISO100, VG100)

STP-iXR1606 Turbomolecular Vacuum Pump

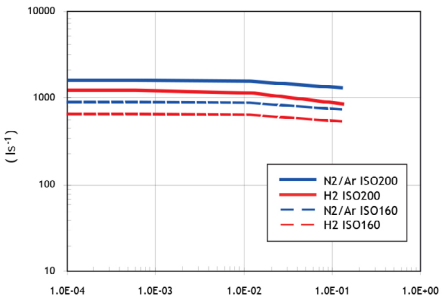
STP-iXR1606

Peak Pumping Speed	
N_2	1000 ls^{-1}/1600 ls^{-1}
H_2	800 ls^{-1}/1200 ls^{-1}
Compression Ratio	
N_2	> 10^8
H_2	1 x 10^3

Ordering information

Product description	Order no:
STP-iXR1606 Turbomolecular pump ISO160F	YT790Z070
STP-iXR1606 Turbomolecular pump VG150	YT790Z080
STP-iXR1606 Turbomolecular pump ISO200F	YT790Z010
STP-iXR1606 Turbomolecular pump VG200	YT790Z020

STP-iXR1606 Performance Curve



STP-iXR2206 Turbomolecular Vacuum Pump

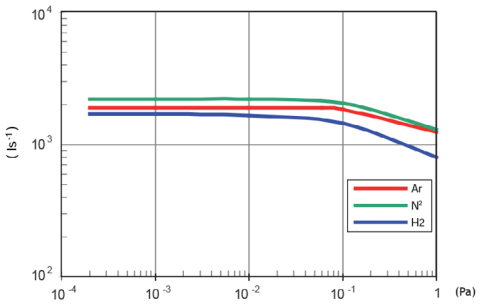
STP-iXR2206

Peak Pumping Speed	
N_2	2200 ls^{-1}
H_2	1350 ls^{-1}
Compression Ratio	
N_2	> 10^8
H_2	1 x 10^3

Ordering information

Product description	Order no:
STP-iXR2206 Turbomolecular pump ISO250F	YT850Z000
STP-iXR2206 Turbomolecular pump VG250	YT850Z010
STP-iXR2206 Turbomolecular pump DN250CF	YT850Z020
STP-iXR2206 Turbomolecular pump ISO250F Profibus	YT850Z030

STP-iXR2206 Performance Curve



STP-iXA2206 Turbomolecular Vacuum Pump

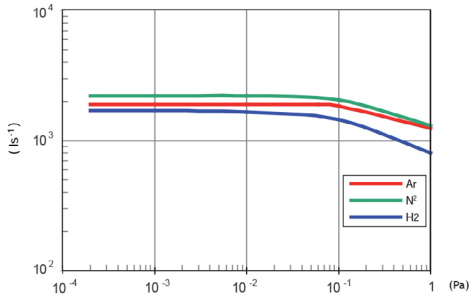
STP-iXA2206

Peak Pumping Speed	
N_2	2200 ls^{-1}
Ar	1900 ls^{-1}
Compression Ratio	
N_2	> 10^8
H_2	1 x 10^4

Ordering information

Product description	Order no:
STP-iXA2206C ISO250F	YT810Z010
STP-iXA2206C VG250	YT810Z020
STP-iXA2206C DN250CF	YT810Z030
STP-iXA2206C ISO250F Profibus	YT810Z040

STP-iXA2206 Performance Curve



STP-iXA3306C Turbomolecular Vacuum Pump

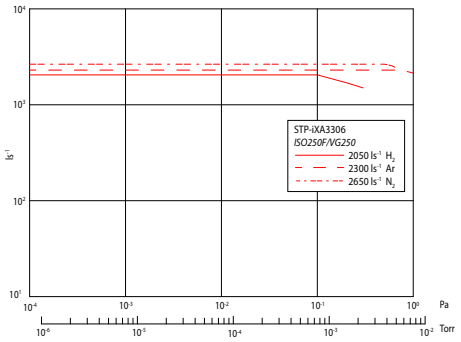
STP-iXA3306C

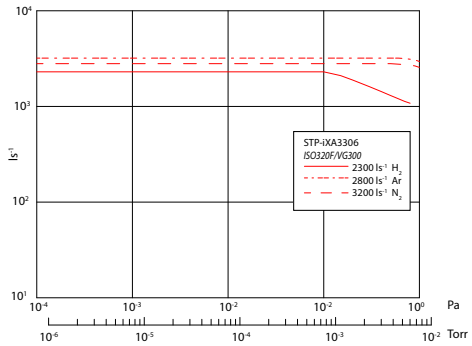
Peak Pumping Speed	
N_2	2650 ls^{-1}/3200 ls^{-1}
H_2	2050 ls^{-1}/2300 ls^{-1}
Compression Ratio	
N_2	> 10^8
H_2	2 x 10^3
Ultimate pressure	
> 10^{-7} Pa	

Ordering information

Product description	Order no:
STP-iXA3306C ISO250F	YT820Z020
STP-iXA3306C VG250	YT820Z030
STP-iXA3306C ISO320F	YT820Z040
STP-iXA3306C VG300	YT820Z050
STP-iXA3306C ISO250F with Profibus	YT820Z060
STP-iXA3306C ISO320F with Profibus	YT820Z070

STP-iXA3306C Performance Curve





STP-iXA4506C Turbomolecular Vacuum Pump

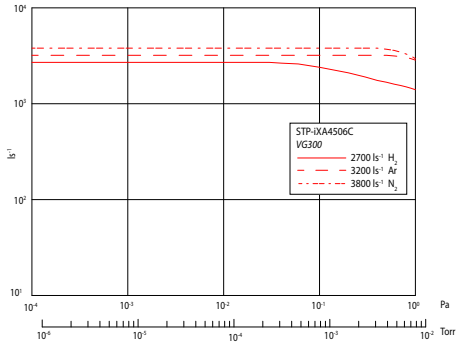
STP-iXA4506

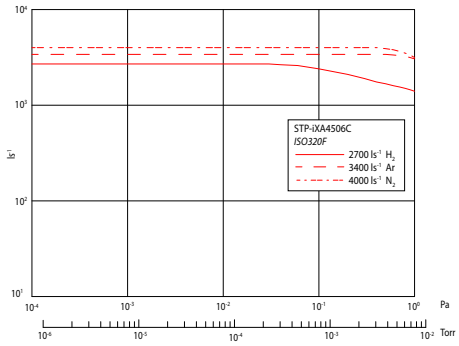
Peak Pumping Speed	
N_2	3800 ls^{-1}/4000 ls^{-1}/4300 ls^{-1}
H_2	2700 ls^{-1}/2700 ls^{-1}/2700 ls^{-1}
Compression Ratio	
N_2	> 10^8
H_2	10^3
Ultimate pressure	
	10^{-7} Pa

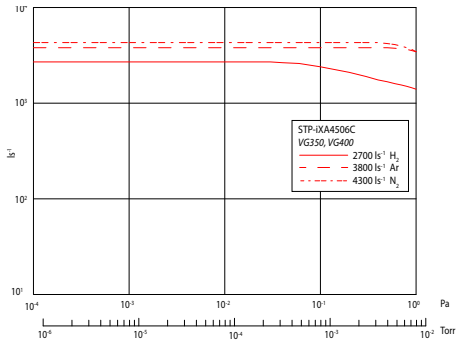
Ordering information

Product description	Order no:
STP-iXA4506C Turbomolecular pump ISO320F	YT780Z010
STP-iXA4506C Turbomolecular pump VG300	YT780Z100
STP-iXA4506C Turbomolecular pump VG350	YT780Z090
STP-iXA4506C Turbomolecular pump VG400	YT780Z030
STP-iXA4506C Turbomolecular pump ISO320F Profibus	YT780Z050
STP-iXA4506C Turbomolecular pump VG300 Profibus	YT780Z110
STP-iXA4506C Turbomolecular pump VG350 Profibus	YT780Z060

STP-iXA4506 Performance Curve

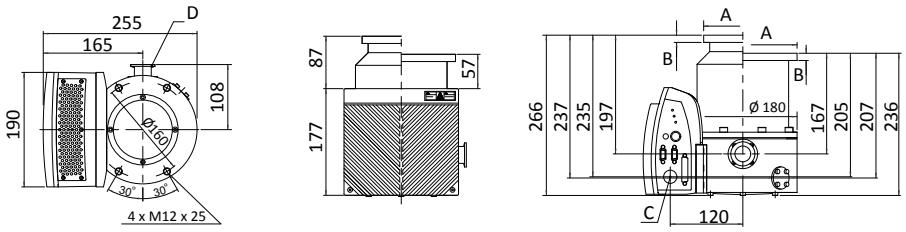






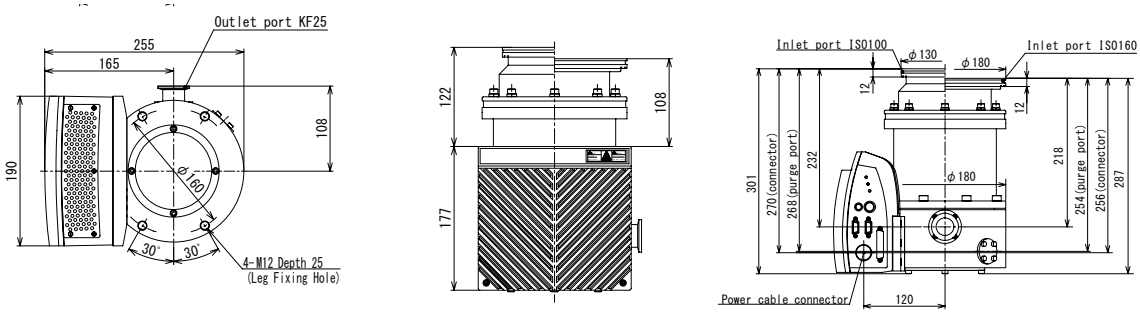
Dimensions

STP-iX455/iX455C Dimensions

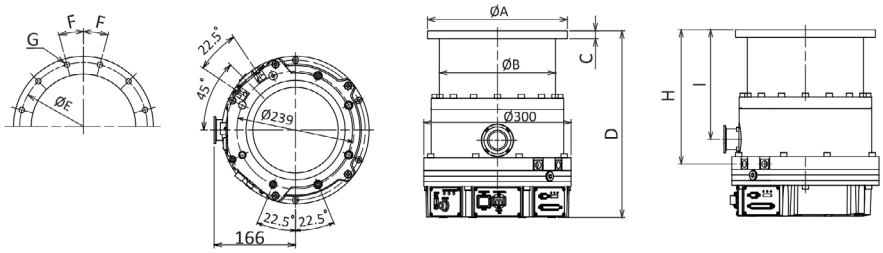


Inlet Flange	ISO100	DN100CF	VG100	ISO160	DN160CF	VG150
A	130 (5.12)	152 (5.98)	182 (7.17)	180 (7.09)	203 (7.99)	235 (9.25)
B	12 (0.47)	21 (0.83)	12 (0.47)	12 (0.47)	22 (0.87)	12 (0.47)
C	Power Cable Connector					
D	Outlet Port KF25					

STP-iXL455 Dimensions

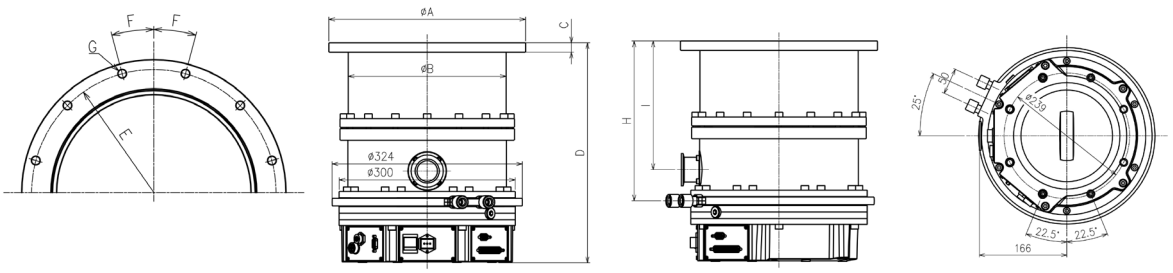


STP-iXR1606



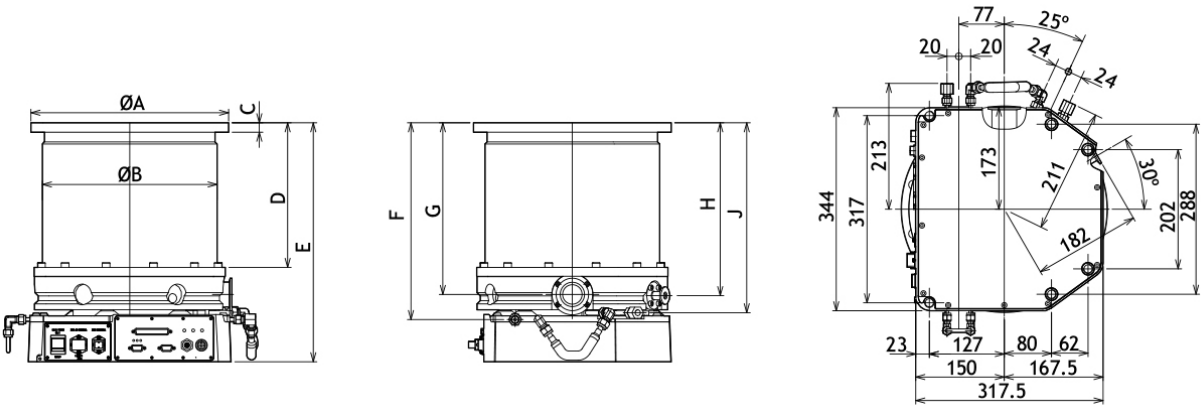
Inlet port flange	VG150	VG200	VG250	ISO160F	ISO200F	ICF250F	ICF203	ICF253	ICF305
ØA	235	300	350	225	285	335	203	253	305
ØB	237	237	237	237	237	237	237	237	237
C	15	16	16	15	16	16	22	25	28
D	420	380	380	420	380	380	420	418	380
ØE	210	270	320	200	260	310	181	231.8	284
F	22.5	22.5	15	22.5	15	15	9	7.5	5.625
G	8-Ø12	8-Ø15	12-Ø15	8-Ø12	12-Ø11	12-Ø11	20-Ø8.4	24-Ø8.4	32-Ø8.4
H	313	273	273	313	273	273	313	311	273
I	263	223	223	263	223	223	263	261	223

STP-iXR2206 Dimensions



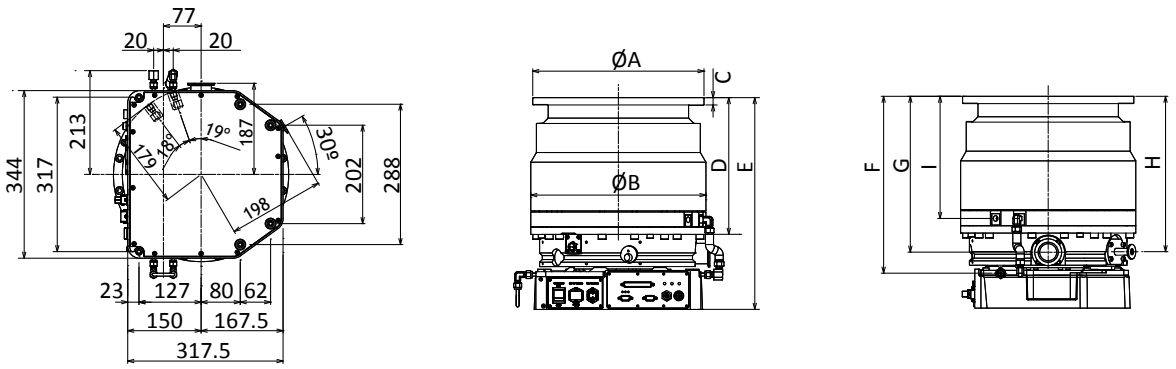
Inlet port flange	VG200	VG250	ISO200F	ISO250F	ISF253	ICF305
A	300	350	285	335	253	305
B	269	269	269	269	269	269
C	16	16	16	16	25	28
D	405	375	405	375	420	400
E	270	320	260	310	231.8	284
F	22.5°	15°	15°	15°	7.5°	5.625°
G	8-15	12-15	12-11	12-11	24-8.4	32-8.4
H	301	271	301	271	316	296
I	249	219	249	219	264	244

STP-iXA2206 Dimensions



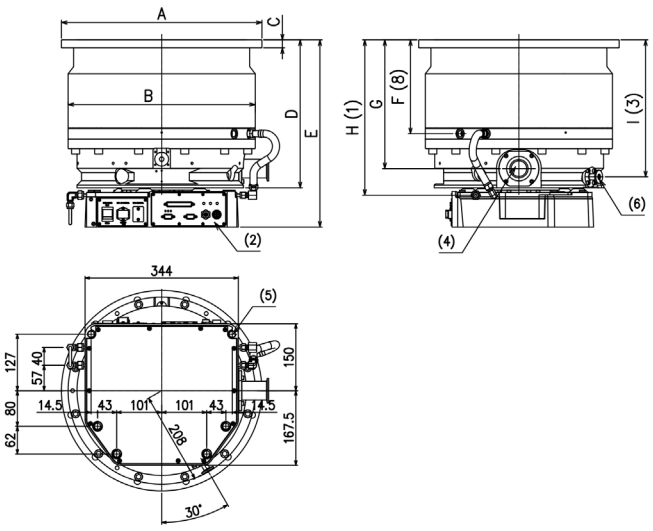
Inlet port flange	VG250	ISO250F	ICF305
ØA	350	335	305
ØB	296	296	296
C	18	16	28
D	235	245	275
E	395	405	435
F	312	322	352
G	281	291	321
H	283	293	323
I	322	332	322

STP-iXA3306C Dimensions



Inlet port flange	VG250	ISO250F	VG300	ISO320F	ICF305	ICF356
ØA	350	335	400	425	305	356
ØB	358	358	358	358	358	358
C	15	15	18	20	28	28.5
D	281	281	242	242	286	281
E	435	435	396	396	440	435
F	363	363	325	325	368	364
G	320	320	282	282	325	321
H	319	319	281	281	324	320
I	251	251	212	212	256	251

STP-iXA4506C Dimensions



No.	Item
1	Height of water cooling port (IN)
2	Control Unit
3	Height of the purge port
4	Outlet port flange
5	Screw hole for securing the base
6	Purge port
7	Cooling water port
8	Height of water coolilng port (OUT)

Inlet port flange	VG300	VG350	VG400	ISO320F	ISO400F	ICF458
ØA	400	450	520	425	510	458
ØB	420	420	420	420	420	420
C	18	18	18	20	20	28
D	387	332	332	378	332	332
E	475	420	420	466	420	420
F	266	211	211	256	211	211
G	344	289	289	335	289	289
H	404	349	349	394	349	349
I	362	307	307	353	307	307

Technical Data

	STP-iX455		STP-iXL455	
Inlet flange	ISO100K	ISO160K	ISO100K	ISO160K
Backing port size	KF25		KF25	
Pumping Speed				
N_2	300 ls^{-1}	450 ls^{-1}	300 ls^{-1}	380 ls^{-1}
H_2	300 ls^{-1}	460 ls^{-1}	300 ls^{-1}	380 ls^{-1}
Compression ratio				
N_2	> 10^8			
H_2	> 1 x 10^4			
Ultimate pressure	6.5 x 10^{-6} Pa			
	5 x 10^{-8} Torr			
Max working pressure	1.3 x 10^{-1} Pa			
Allowable backing pressure	67 Pa			
Rated speed	55000 rpm			
Run-up time to 90% rated speed				
Starting time	< 6 min			
Mounting position	Any orientation			
Cooling method	Natural cooling (Air cooling Fan when baking or gas pumping)			
Lubricating oil	Not necessary			
Backing pump	240 $lmin^{-1}$			
Leakage Magnetic Flux				
Axial direction	≤ 100 mGauss			
Radial direction	≤ 100 mGauss			
Ambient temperature range	0 to 40 ˚C			
Storage temperature range	-25 to 55 ˚C			
Input voltage	48 V a.c.			
Maximum input current				
Weight	16 kg			

* The maximum gas flow is applicable under conditions that N_2 or Ar gas is pumped continuously with water cooling temperature between 15-25 ˚C and the backing pump (10,000 $lmin^{-1}$ size) is used. It is changed on condition.

	STP-iXR1606		STP-iXR2206	
Inlet flange	VG150/ISO160F /ICF203	VG200/VG250/ISO200F /ISO250F/ICF253/ICF305	VG200/ISO200F /ICF253	VG250/ISO250F /ICF305
Backing port size	KF40	KF40	KF40	KF40
Pumping Speed				
N_2	1000 ls^{-1}	1600 ls^{-1}	1850 ls^{-1}	2200 ls^{-1}
H_2	800 ls^{-1}	1200 ls^{-1}	1250 ls^{-1}	1350 ls^{-1}
Ar	-	-	1650 ls^{-1}	2000 ls^{-1}
Compression ratio				
N_2	> 10^8			
H_2	> 1 x 10^3			
Ultimate pressure	10^{-7} Pa (10^{-9} Torr)			
Max working pressure	-			
Allowable backing pressure	266 Pa (2 Torr)			
Rated speed	36,500 rpm			
Run-up time to 90% rated speed				
Starting time	≤ 8 min		≤ 10 min	
Mounting position	Any orientation			
Cooling method	Water Cooling			
Lubricating oil	Not necessary			
Backing pump	-			
Leakage Magnetic Flux				
Axial direction	-			
Radial direction	-			
Ambient temperature range	0 to 40 ˚C			
Storage temperature range	-5 to 55 ˚C			
Input voltage	200 to 240 V a.c.			
Maximum input current	750 VA			
Weight	48 kg			

* The maximum gas flow is applicable under conditions that N_2 or Ar gas is pumped continuously with water cooling temperature between 15-25 ˚C and the backing pump (10,000 $lmin^{-1}$ size) is used. It is changed on condition.

	STP-iXA2206C		
Inlet flange	ISO250F/VG250/ICF305		
Backing port size	KF40		
Pumping Speed			
N_2	2200 ls^{-1}		
H_2	1700 ls^{-1}		
Ar	1900 ls^{-1}		
Compression ratio			
N_2	$>10^8$		
H_2	1.0 X 10^4		
Ultimate pressure	10^{-7} Pa (10^{-9} Torr)		
Max working pressure	-		
Allowable backing pressure	266 Pa (2 Torr)		
Rated speed	27000 rpm		
Run-up time to 90% rated speed	-		
Starting time	≤8 min		
Mounting position	Any orientation		
Cooling method	Water cooling		
Lubricating oil	Not necessary		
Backing pump	-	-	
Leakage Magnetic Flux	-	-	
Axial direction	-	-	
Radial direction	-	-	
Ambient temperature range	0 to 40 °C		
Storage temperature range	-25 to 55°C		
Input voltage	-	-	
Maximum input power	1200 VA		
Weight	62 Kg		

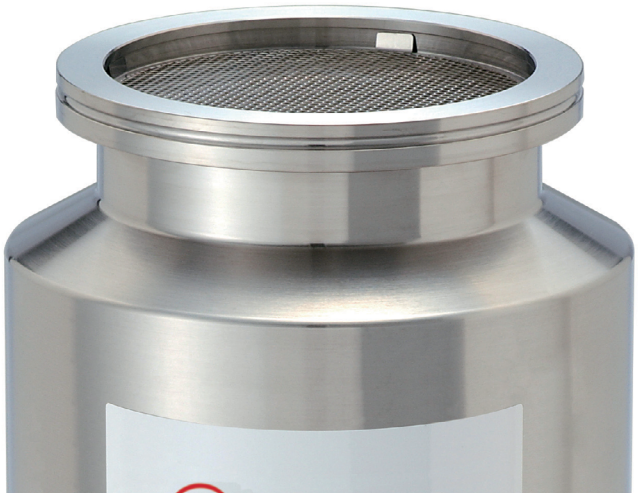
* The maximum gas flow is applicable under conditions that N_2 or Ar gas is pumped continuously with water cooling temperature between 15-25 ˚C and the backing pump (10,000 $lmin^{-1}$ size) is used. It is changed on condition.

	STP-iXA3306C		STP-iXA4506C		
Inlet flange	ISO250F/VG250/ ICF305	ISO320F/VG300/ ICF356/VG350	VG300	ISO320F	VG350/VG400
Backing port size	KF40				
Pumping Speed					
N_2	2650 ls^{-1}	3200 ls^{-1}	3800 ls^{-1}	4000 ls^{-1}	4300 ls^{-1}
H_2	2050 ls^{-1}	2300 ls^{-1}	2700 ls^{-1}	2700 ls^{-1}	2700 ls^{-1}
Ar	2300 ls^{-1}	2800 ls^{-1}	3200 ls^{-1}	3400 ls^{-1}	3800 ls^{-1}
Compression ratio					
N_2	> 10^8				
H_2	2 x 10^3		1 x 10^3		
Ultimate pressure	10^{-7} Pa (10^{-9} Torr)				
Max working pressure	-		-		
Allowable backing pressure	266 Pa (2 Torr)				
Rated speed	27700 rpm		24240 rpm		
Run-up time to 90% rated speed	-				
Starting time	≤ 10 minutes		≤ 11 minutes		
Mounting position	Any orientation				
Cooling method	Water cooling				
Lubricating oil	Not necessary				
Backing pump	> 1300 $lmin^{-1}$				
Leakage Magnetic Flux					
Axial direction	< 100m Gauss				
Radial direction	< 100m Gauss				
Ambient temperature range	0 to 40 ˚C				
Storage temperature range	-25 to 55 ˚C				
Input voltage	200 to 240 ±10% ACV				
Maximum input power	1500 VA		1700 VA		
Weight	80 kg	83 kg	109 kg	111 kg	104 kg/111 kg

* The maximum gas flow is applicable under conditions that N_2 or Ar gas is pumped continuously with water cooling temperature between 15-25 ˚C and the backing pump (10,000 $lmin^{-1}$ size) is used. It is changed on condition.

STP ULTRA HIGH VACUUM PUMP

THE INTELLIGENT CHOICE



A new turbomolecular pump for use in surface science or high energy physics in research applications. They offer unrivalled reliability, performance, cleanliness and class leading low vibration levels. Edwards rotor technology gives class-leading performance for maximum process flexibility.

The low vibration STP-L series has been designed to meet the low vibration requirements of advanced spectroscopy and metrology tools. It provides the advantage of having the vibration system built into the pump body.

Features and Benefits

- Advanced rotor technology.
- Oil free.
- Low vibration.
- Compact size.
- High reliability.
- Maintenance free.
- Corrosion resistant option available.
- RoHS compliant and UL approved.

Applications

- Electron microscope
- Surface analysis tool
- Mass spectrometer
- Nuclear fusion tool
- Accelerator
- R&D
- Semiconductor tool

Pump Range

STP-Series
- STP-301/STP-451
- STP-603/STP-1003

STP-L Series
- STP-L301/L451

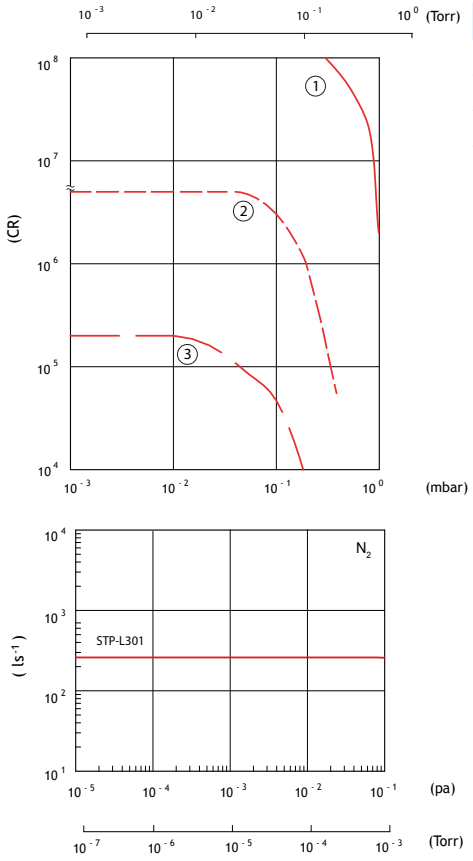
Performance Curves

STP-301 Turbomolecular Vacuum Pump

STP-301

Peak pumping speed
N_2 300 ls^{-1}
H_2 300 ls^{-1}
Compression ratio
$N_2 > 10^8$
$H_2 > 2 \times 10^4$
Ultimate pressure
10^{-8} Pa

STP-301 Performance Curve



1	N_2
2	He
3	H_2

Ordering information

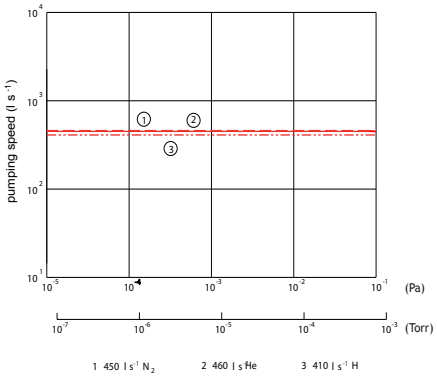
Product description	Order no:
STP-301 Turbomolecular pump ISO100K	YT21B0350
STP-301 Turbomolecular pump VG100	YT21B0190
STP-301 Turbomolecular pump DN100CF	YT21B0010
STP-301C Turbomolecular pump ISO100K Corrosion resistant	YT21B0660
STP-301C Turbomolecular pump VG100 Corrosion resistant	YT21AZ000
STP-301C Turbomolecular pump DN100CF Corrosion resistant	YT21B0630

STP-451 Turbomolecular Vacuum Pump

STP-451

Peak pumping speed
N_2 480 ls^{-1}
H_2 460 ls^{-1}
Compression ratio
$N_2 > 10^8$
$H_2 > 2 \times 10^4$
Ultimate pressure
10^{-8} Pa

STP-451 Performance Curve



1	N_2
2	He
3	H_2

Ordering information

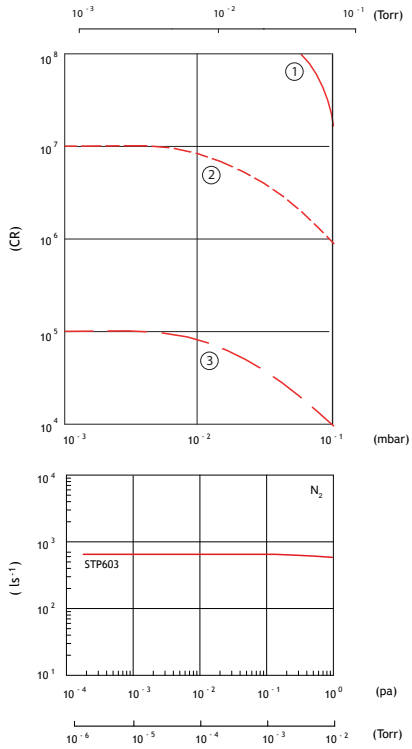
Product description	Order no:
STP-451 Turbomolecular pump ISO160K	YT21B0460
STP-451 Turbomolecular pump VG150	YT210Z000
STP-451 Turbomolecular pump DN160CF	YT21B0080
STP-451C Turbomolecular pump ISO160K Corrosion resistant	YT21B0790
STP-451C Turbomolecular pump VG150 Corrosion resistant	YT21AZ001
STP-451C Turbomolecular pump DN160CF Corrosion resistant	YT21B0880

STP-603 Turbomolecular Vacuum Pump

STP-603

Peak pumping speed
N_2 650 ls^{-1}
H_2 550 ls^{-1}
Compression ratio
N_2 > 10^8
H_2 > 10^4
Ultimate pressure
KF40

STP-603 Performance Curve



1	N_2
2	He
3	H_2

Ordering information

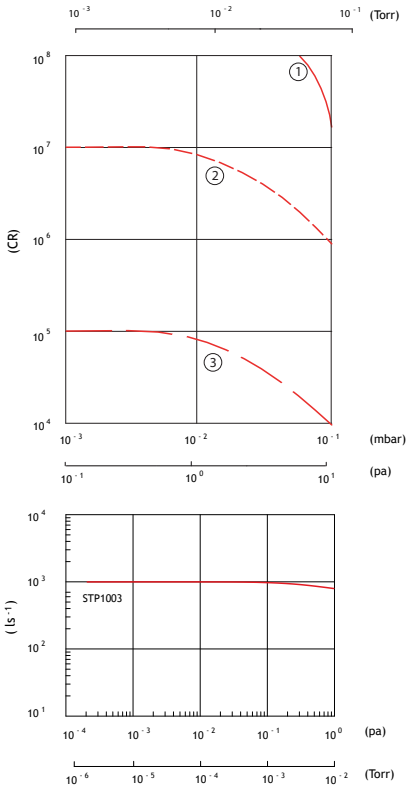
Product description	Order no:
STP-603 Turbomolecular pump ISO160F	YT39B0030
STP-603 Turbomolecular pump VG150	YT390Z003
STP-603 Turbomolecular pump DN160CF	YT390Z005
STP-603C Turbomolecular pump ISO160F Corrosion resistant	YT39B0110
STP-603C Turbomolecular pump VG150 Corrosion resistant	YT39AZ000
STP-603C Turbomolecular pump DN160CF Corrosion resistant	YT39AZ002

STP-1003 Turbomolecular Vacuum Pump

STP-1003

Peak pumping speed
N_2 1000 ls^{-1}
H_2 800 ls^{-1}
Compression ratio
N_2 > 10^8
H_2 > 10^5
Ultimate pressure
KF40

STP-1003 Performance Curve



1	N_2
2	He
3	H_2

Ordering information

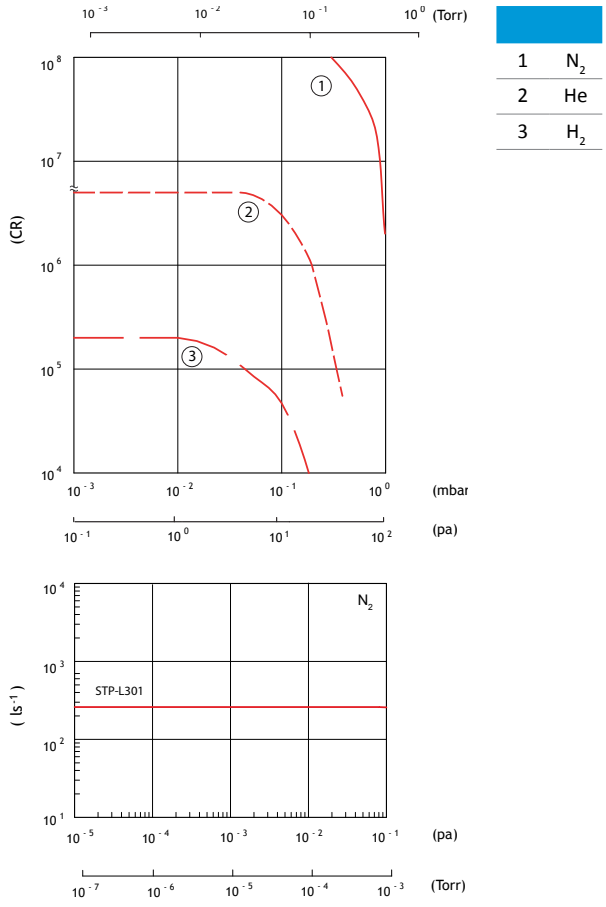
Product description	Order no:
STP-1003 Turbomolecular pump ISO200F	YT390Z001
STP-1003 Turbomolecular pump VG200	YT390Z004
STP-1003 Turbomolecular pump DN200CF	YT39B0010
STP-1003C Turbomolecular pump ISO200F Corrosion resistant	YT39B0130
STP-1003C Turbomolecular pump VG200 Corrosion resistant	YT39AZ001
STP-1003C Turbomolecular pump DN200CF Corrosion resistant	YT39AZ003

STP-L301 Turbomolecular Vacuum Pump

STP-L301

Peak pumping speed
N_2 260 ls^{-1}
H_2 290 ls^{-1}
Compression ratio
$N_2 > 10^8$
$H_2 > 2 \times 10^4$
Ultimate pressure
10^{-6} Pa

STP-L301 Performance Curve



1	N_2
2	He
3	H_2

Ordering information

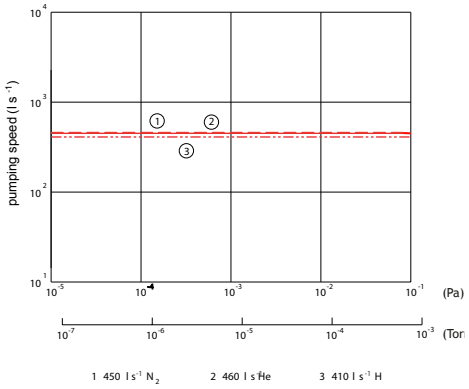
Product description	Order no:
STP-L301 Turbomolecular pump ISO100K	YT47B0030
STP-L301 Turbomolecular pump VG100	YT47B0020
STP-L301 Turbomolecular pump DN100CF	YT470Z000
STP-L301C ISO100 inlet	B75800010
STP-L301 ISO100 inlet	B75800090
STP-L301 DN100CF inlet	PT470Z000
STP-L301C DN100CF inlet	PT47AZ030

STP-L451 Turbomolecular Vacuum Pump

STP-L451

Peak pumping speed
N_2 450 ls^{-1}
H_2 410 ls^{-1}
Compression ratio
$N_2 > 10^8$
$H_2 > 2 \times 10^4$
Ultimate pressure
10^{-6} Pa

STP-L451 Performance Curve



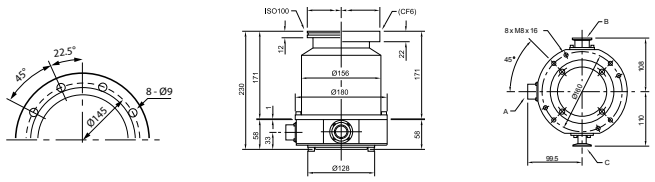
1	N_2
2	He
3	H_2

Ordering information

Product description	Order no:
STP-L451 Turbomolecular pump ISO160K	YT47B0150
STP-L451 Turbomolecular pump VG150	YT47B0050
STP-L451 Turbomolecular pump DN160CF	YT47B0010

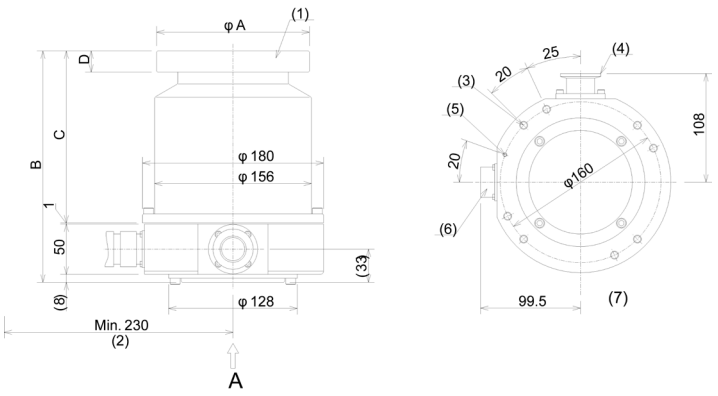
Dimensions

STP-301 Dimensions



A	Electrical connector
B	Outlet port
C	Purge Port (only for corrosion resistance type)

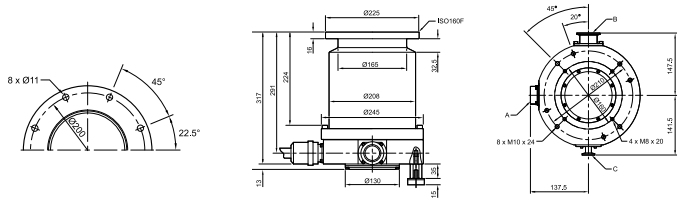
STP-451 Dimensions



No.	Item
1	Inlet port flange
2	Bending dimension of the STP connection cable
3	Screw hole of legs
4	Outlet port flange
5	Screw hole for earth
6	STP connector
7	Viewed from arrow A

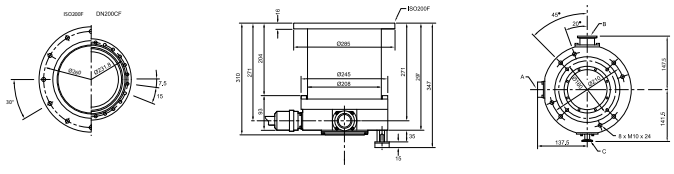
	STP-451 Series		
	ICF203	VG150	ISO160
ØA	203	235	180
B	200	200	200
C	141	141	141
D	22	12	12

STP-603 Dimensions



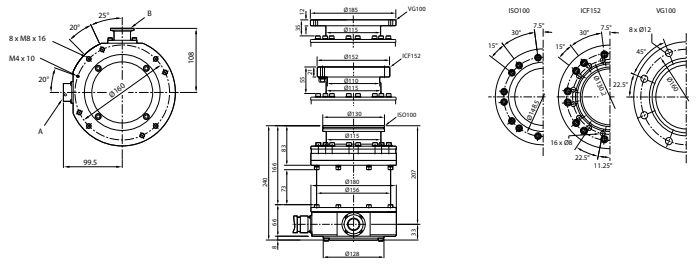
A	Electrical connector
B	Outlet port
C	Purge Port (only for corrosion resistance type)

STP-1003 Dimensions



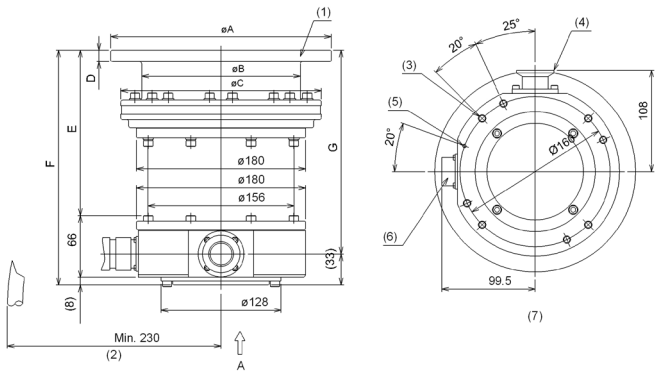
A	Electrical connector
B	Outlet port
C	Purge Port (only for corrosion resistance type)

STP-L301 Dimensions



A	Electrical connector
B	Outlet port
C	Purge Port (only with STP-L301C)

STP-L451 Dimensions



No.	Item
1	Inlet port flange
2	Bending dimension of the STP connection cable
3	Screw hole of legs
4	Outlet port flange
5	Screw hole for earth
6	STP connector
7	Viewed from arrow A

	STP-L451 Series		
	VG150	ISO0160	ICF203
ØA	235	180	203
ØB	169	169	169
ØC	214	214	214
D	12	12	22
E	176	176	196
F	250	250	270
G	217	217	237

Technical Data

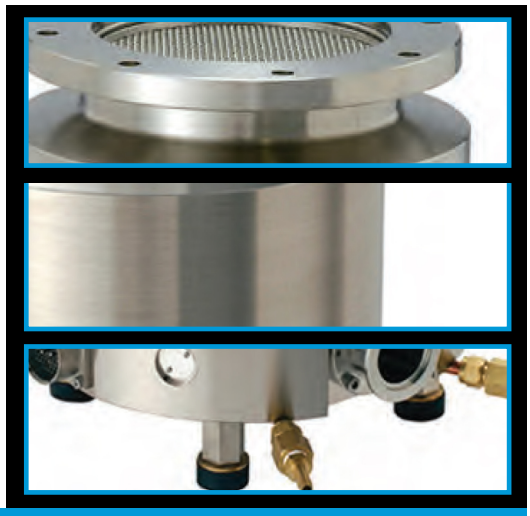





	STP-301	STP-451	STP-603	STP-1003	STP-L301	STP-L451
Inlet flange	ISO100 VG100 ICF152	ISO160 VG150 ICF203	ISO160F	ISO200F	ISO100 VG100 ICF152	VG150 ISO160 ICF203
Outlet port	KF25		KF40		KF25	
Purge port	KF10 (only for corrosion resistance type)					
Pumping speed						
N_2	300 ls^{-1}	480 ls^{-1}	650 ls^{-1}	1000 ls^{-1}	260 ls^{-1}	450 ls^{-1}
H_2	300 ls^{-1}	460 ls^{-1}	550 ls^{-1}	800 ls^{-1}	290 ls^{-1}	410 ls^{-1}
Ar						
Compression ratio						
N_2	$> 10^8$					
He	5×10^5				5×10^5	
H_2	2×10^4		$> 10^5$		2×10^4	
Ultimate pressure with bake out heating (VG/ISO flange)	6.5×10^{-6} Pa (5×10^{-8} Torr)				10^{-6} Pa (10^{-8} Torr)	
Ultimate pressure with bake out heating (ICF flange)	10^{-8} Pa (10^{-10} Torr)		10^{-7} Pa (10^{-9} Torr)	10^{-8} Pa (10^{-10} Torr)	10^{-6} Pa (10^{-8} Torr)	
Max allowable inlet pressure (ambient cooled)	6.7×10^{-4} Pa (5×10^{-4} Torr)				6.7×10^{-4} Pa (5×10^{-4} Torr)	
Max continuous outlet pressure (ambient cooled)	13 Pa (0.1 Torr)					
Rated speed	48000 rpm		35000 rpm		48000 rpm	
Starting time	3 min		6 min		3 min	
Max inlet flange temperature	120 ˚C					
Input voltage	AC 100~240 V ±10% V a.c.		100 to 120 ±10% V a.c. or 200 to 240 ±10% V a.c.		AC 100~240 V ±10% V a.c.	
Power consumption at start up	350 VA		800 VA		350 VA	
Pump weight	11 kg	12 kg	31 kg	31 kg	14 kg	
Controller weight	8 kg		9 kg		8 kg	

STP HIGH THROUGHPUT PUMP

THE INTELLIGENT CHOICE



Edwards high performance high throughput series, STP-H, STP-A and STP-XA pump series incorporate a Holweck drag stage that increases the pump throughput at low pressure. They have been designed for use in the harshest of semiconductor and flat panel applications. The pumps field proven reliability and class leading performance increase the maximum process flow capability and provide process flexibility. They give a wide process window, from high vacuum, to high flow requirements with enhanced throughput for all gases. The range contains pumps with throughput speeds from 300 ls^{-1} to 4500 ls^{-1}.

Features and Benefits

- Advanced rotor technology gives industry leading pumping performance.
- Higher gas throughput gives maximised process flexibility.
- Optimised temperature distribution provides low deposition and increased operating life.
- Harsh process compatible.
- TMS (Temperature Management System) reduces particle accumulation inside the pump and provides extended overhaul intervals.
- Higher temp setting TMS is available for very harsh process.
- High reliability.
- RoHS Compliant and UL approved.

Applications

- Plasma etch (chlorine, fluorine and bromine chemistries) for metal (aluminum), tungsten and dielectric (oxide) and polysilicon.
- Film deposition CVD, PECVD, ECRCVD, MOCVD.
- Sputtering.
- Ion implantation source, beam line pumping end station.
- FPD Etch.

Pump Range

STP-H
- STP-H301C
- STP-H451C

STP-A
- STP-A803C
- STP-A1303C
- STP-A1603C
- STP-A2203C

STP-XA
- STP-XA2703C
- STP-XA3203C
- STP-XA4503C

Performance Curves

STP-H301C Turbomolecular Vacuum Pump

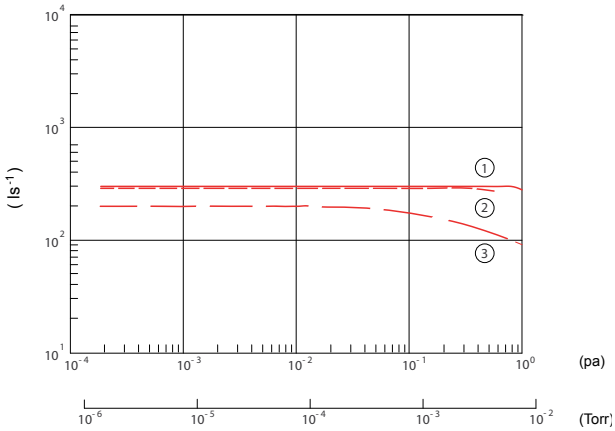
STP-H301C

Peak pumping speed
N_2 300 ls^{-1}
H_2 200 ls^{-1}
Compression Ratio
$>10^8$
$>10^3$

Ordering information

Product description	Order no:
STP-H301C ISO100K inlet	YT340Z000
STP-H301C VG100 inlet	YT340Z006
STP-H301C DN100CF inlet	YT340Z004
STP-H301CV TMS, ISO100K inlet	YT3416000
STP-H301CV TMS, VG100 inlet	YT3416003
STP-H301CV TMS, DN100CF inlet	YT3416005

STP-H301C Performance Curve



STP-H451C Turbomolecular Vacuum Pump

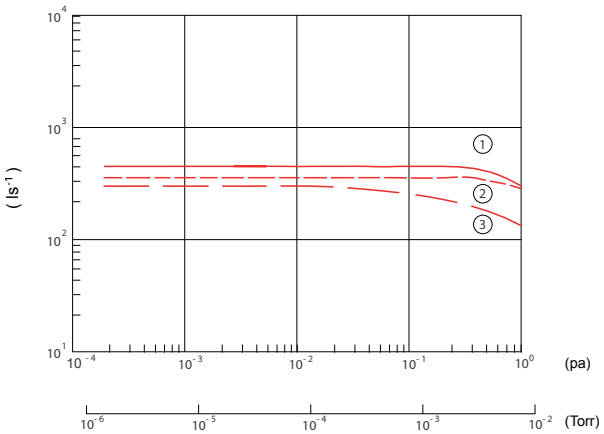
STP-H451C

Peak pumping speed
N_2 450 ls^{-1}
H_2 300 ls^{-1}
Compression Ratio
$>10^8$
$>10^3$

Ordering information

Product description	Order no:
STP-H451C ISO160K inlet	YT340Z002
STP-H451C VG150 inlet	YT340Z007
STP-H451C DN160CF inlet	YT340Z005
STP-H451CV TMS, ISO160K inlet	YT3416002
STP-H451CV TMS, VG150 inlet	YT3416004
STP-H451CV TMS, DN160CF inlet	YT3416006

STP-H451 Performance Curve

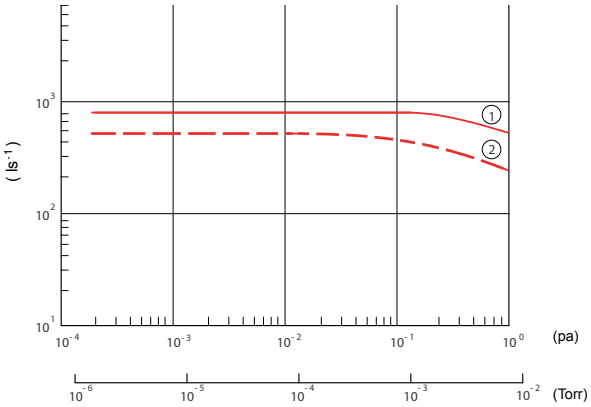


STP-A803C Turbomolecular Vacuum Pump

STP-A803C

Peak pumping speed
N_2 800 ls^{-4}
H_2 520 ls^{-4}
Compression Ratio
$>10^8$
$>10^3$

STP-A803C Performance Curve



Ordering information

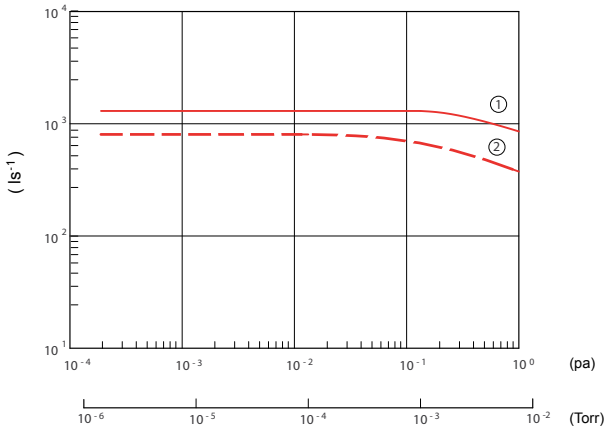
Product description	Order no:
STP-A803C ISO160F inlet	YT36B0040
STP-A803C VG150 inlet	YT360Z000
STP-A803C DN160CF inlet	YT36B0010
STP-A803CV TMS, ISO160F inlet	YT3626000
STP-A803CV TMS, VG150 inlet	YT3626001
STP-A803CV TMS, DN160CF inlet	YT3626003

STP-A1303C Turbomolecular Vacuum Pump

STP-A1303C

Peak pumping speed
N_2 1300 ls^{-1}
H_2 800 ls^{-1}
Compression Ratio
$>10^8$
$>10^3$

STP-A1303C Performance Curve



Ordering information

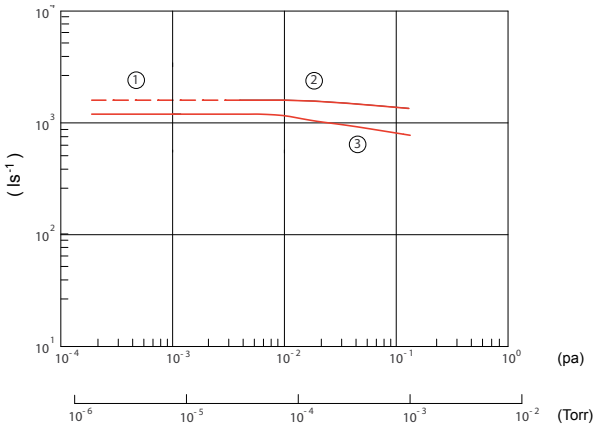
Product description	Order no:
STP-A1303C ISO200F inlet	YT36B0120
STP-A1303C VG200 inlet	YT360Z001
STP-A1303C DN200CF inlet	YT36B0030
STP-A1303CV TMS, ISO200F inlet	YT3626005
STP-A1303CV TMS, VG200 inlet	YT3626002
STP-A1303CV TMS, DN200CF inlet	YT3626004

STP-A1603C Turbomolecular Vacuum Pump

STP-A1603C

Peak pumping speed
N_2 1600 ls^{-1}
H_2 1200 ls^{-1}
Compression Ratio
$>10^8$
7×10^3

STP-A1603C Performance Curve



Ordering information

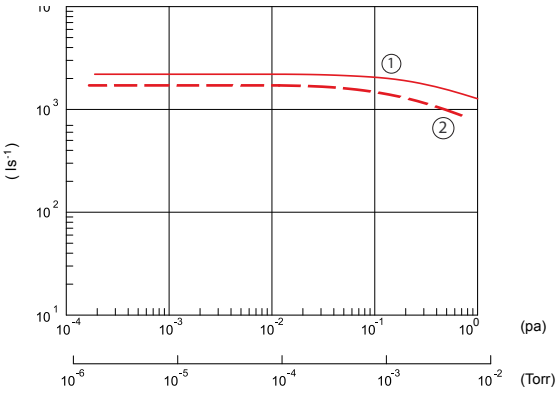
Product description	Order no:
STP-A1603C ISO200F inlet	YT46B0060
STP-A1603C VG200 inlet	YT460Z000
STP-A1603C DN200CF inlet	YT46B0010
STP-A1603CV TMS, ISO200F inlet	YT4616004
STP-A1603CV TMS, VG200 inlet	YT4616003
STP-A1603CV TMS, DN200CF inlet	YT4616005

STP-A2203C Turbomolecular Vacuum Pump

STP-A2203C

Peak pumping speed
N_2 2200 ls^{-1}
H_2 1700 ls^{-1}
Compression Ratio
$>10^8$
2.5×10^4

STP-A2203C Performance Curve



Ordering information

Product description	Order no:
STP-A2203C ISO250F inlet	YT4V0Z002
STP-A2203C VG250 inlet	YT4V0Z001
STP-A2203C DN250CF inlet	YT4V0Z003
STP-A2203CV TMS, ISO250F inlet	YT4V66001
STP-A2203CV TMS, VG250 inlet	YT4V66000
STP-A2203CV TMS, DN250CF inlet	YT4V66002

STP-XA2703C Turbomolecular Vacuum Pump

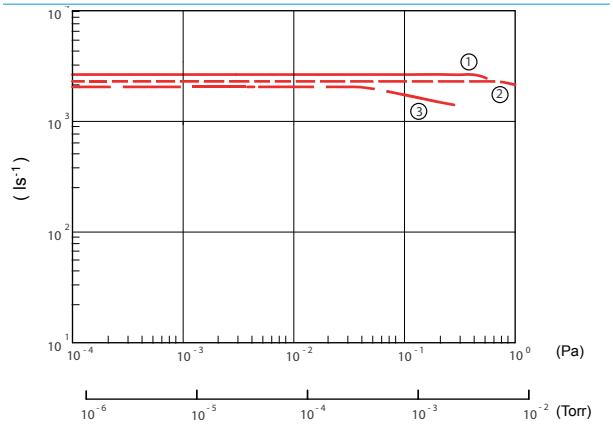
STP-XA2703C

Peak pumping speed
N_2 2650 ls^{-1}
H_2 2050 ls^{-1}
Compression ratio
$N_2 > 10^8$
$H_2 > 6 \times 10^3$

Ordering information

Product description	Order no:
STP-XA2703C ISO250F inlet	YT660Z030
STP-XA2703C VG250 inlet	YT660Z040
STP-XA2703C DN250CF inlet	YT6610010
STP-XA2703CV TMS, ISO250F inlet	YT6616000
STP-XA2703CV TMS, VG250 inlet	YT6616010
STP-XA2703CV TMS, DN250CF inlet	YT6616140

STP-XA2703C Performance Curve



STP-XA3203C Turbomolecular Vacuum Pump

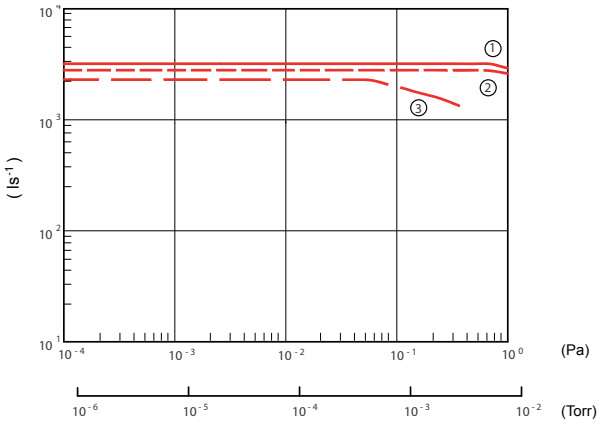
STP-XA3203C

Peak pumping speed
N_2 3200 ls^{-1}
H_2 2300 ls^{-1}
Compression ratio
$N_2 > 10^8$
$H_2 > 6 \times 10^3$

Ordering information

Product description	Order no:
STP-XA3203C ISO320F inlet	YT660Z050
STP-XA3203C VG300 inlet	YT660Z060
STP-XA3203C DN320CF inlet	YT660Z080
STP-XA3203CV TMS, ISO320F inlet	YT6616020
STP-XA3203CV TMS, VG300 inlet	YT6616030

STP-XA3203C Performance Curve



STP-XA4503C Turbomolecular Vacuum Pump

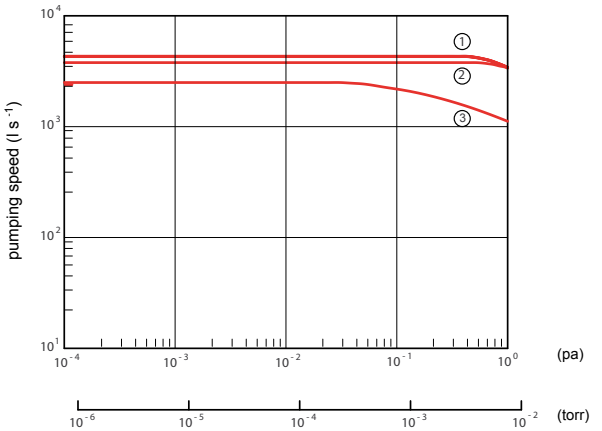
STP-XA4503C

Peak pumping speed
N_2 3800-4300 ls^{-1}
H_2 2500 ls^{-1}
Compression ratio
$N_2 > 10^8$
$H_2 > 6 \times 10^3$

Ordering information

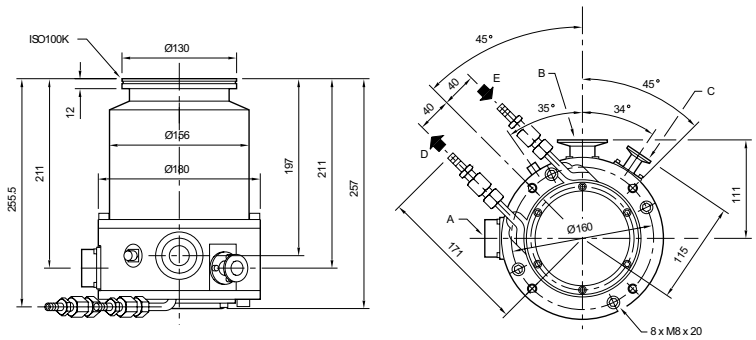
Product description	Order no:
STP-XA4503C ISO320F inlet	YT670Z040
STP-XA4503C VG300 inlet	YT670Z030
STP-XA4503C VG350 inlet	YT670Z000
STP-XA4503CV TMS, ISO320F inlet	YT6716000
STP-XA4503CV TMS, VG300 inlet	YT6706020
STP-XA4503CV TMS, VG350 inlet	YT6706010

STP-XA4503C Performance Curve



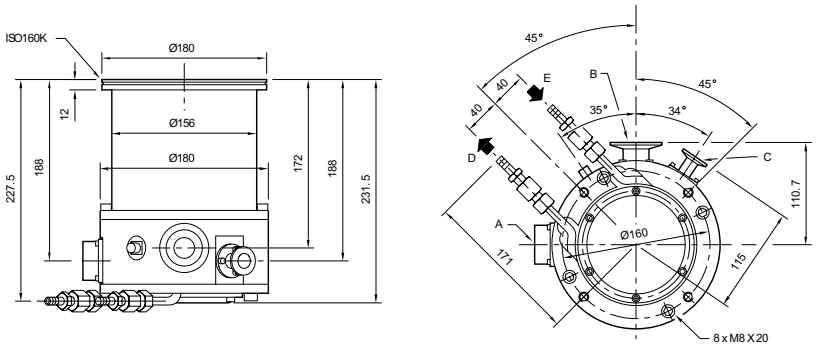
Dimensions

STP-H301C



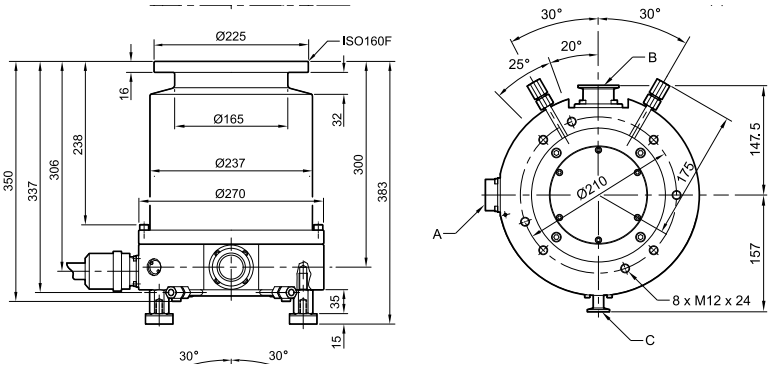
A	Electrical Connector
B	Outlet Port
C	Purge Port
D	Cooling Water out
E	Cooling Water in

STP-H451C



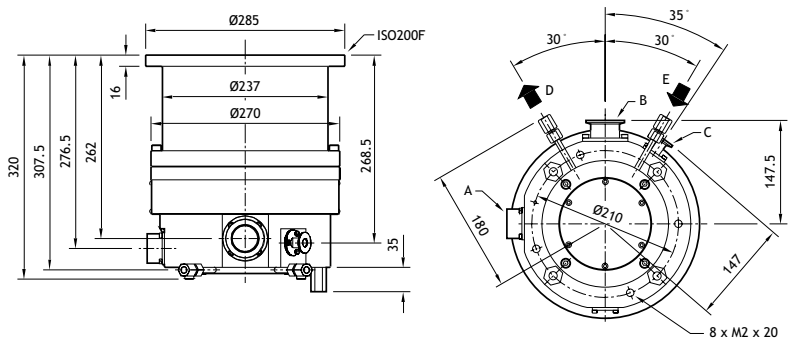
A	Electrical Connector
B	Outlet Port
C	Purge Port
D	Cooling Water out
E	Cooling Water in

STP-A803C



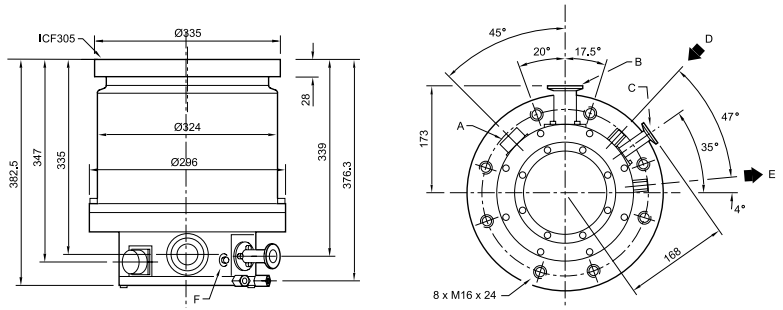
A	Electrical Connector
B	Outlet Port
C	Purge Port

STP-A1603C



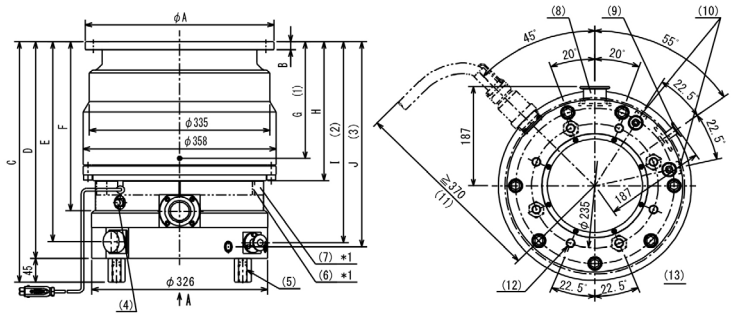
A	Electrical Connector
B	Outlet Port
C	Purge Port
D	Cooling Water out
E	Cooling Water in
F	Temp Sensor Connector

STP-A2203C



A	Electrical Connector
B	Outlet Port
C	Purge Port
D	Cooling Water out
E	Cooling Water in
F	Temp Sensor Connector

STP-XA2703C/STP-XA3203C

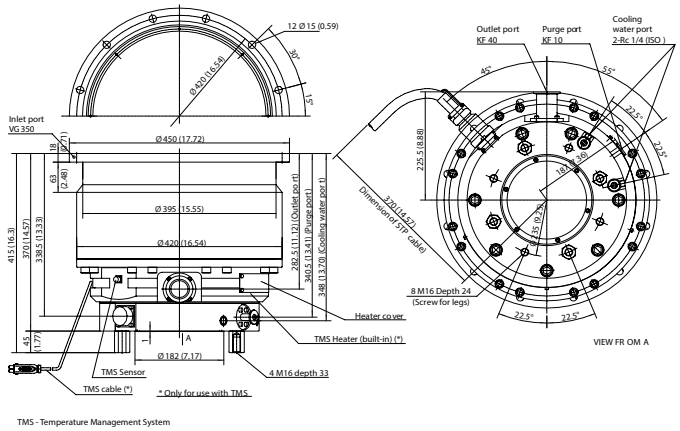


A	Temperature Management System (TMS) Sensor
B	TMS Heater*
C	TMS Heater cover*
D	Outlet port KF40
E	Cooling water port Rc ¼ (ISO)
F	Purge port KF10

*TMS spec only

Inlet flange port	STP-XA2703			STP-XA3203		
	VG250	ISO250F	ICF305 (DN25OCF)	VG300	ISO320F	ICF356 (DN32OCF)
A	350	335	305	400	425	356
B*	15	15	28	18	20	28.5
C*	454	454	459	415	415	454.5
D*	409	409	414	370	370	409.5
E*	378	378	383	339	339	378.5
F*	320	320	325	281	281	320. 5
G*	262	262	267	224	224	262.5
H*	262	262	385	341	341	380.5
J*	387	387	393	349	349	388

STP-XA4503C



Technical Data






	STP-H301C	STP-H451C	STP-A803C	STP-A1303C	STP-A1603C	STP-A2203C
Inlet flange	ISO100K	ISO160K	ISO160	ISO200F	ISO200F	ISO250F
Outlet port	KF40	KF40	KF40	KF40	KF40	KF40
Purge port	KF10	KF10	KF10	KF10	KF10	KF10
Water cooling fitting	PT1/4	PT1/4	PT1/4	PT1/4	PT1/4	PT1/4
Pumping Speed						
N_2	300 ls^{-1}	450 ls^{-1}	800 ls^{-1}	1300 ls^{-1}	1600 ls^{-1}	2200 ls^{-1}
H_2	200 ls^{-1}	300 ls^{-1}	520 ls^{-1}	800 ls^{-1}	1200 ls^{-1}	1700 ls^{-1}
Compression ratio						
N_2	> 10^8	> 10^8	> 10^8	> 10^8	> 10^8	> 10^8
H_2	10^3	10^3	10^3	10^3	10^3	>2.5 x 10^4
Ultimate pressure with bake out heating	10^{-7} Pa (10^{-9} Torr)	10^{-7} Pa (10^{-9} Torr)	10^{-7} Pa (10^{-9} Torr)	10^{-7} Pa (10^{-9} Torr)	10^{-7} Pa (10^{-9} Torr)	10^{-6} Pa (10^{-8} Torr)
Max continuous outlet pressure	660 Pa (5 Torr)	660 Pa (5 Torr)	270 Pa (2 Torr)	270 Pa (2 Torr)	270 Pa (2 Torr)	400 Pa (3 Torr)
Max Nitrogen throughput	2500 sccm	2500 sccm	1500 sccm	1500 sccm	2500 sccm	1500 sccm
Rated speed	48000 rpm	48000 rpm	32500 rpm	32500 rpm	36500 sccm	27000 rpm
Starting time	4 min	4 min	7 min	7 min	7 min	7 min
Max inlet flange temperature	120 °C	120 °C	120 °C	120 °C	120 °C	Any
Input voltage	100 to 120 (± 10) V a.c. or 200 to 240 (± 10) V a.c.	100 to 120 V a.c. (± 10) or 200 to 240 V a.c. (± 10)	200 to 240 V a.c. (± 10)	200 to 240 V a.c. (± 10)	200 to 240 V a.c. (± 10)	200 to 240 V a.c. (± 10)
Power consumption	0.6 kVA	0.6 kVA	0.85 kVA	0.85 kVA	0.85 kVA	1.5 kVA
Pump weight	15 kg	15 kg	39 kg	39 kg	35 kg	61 kg
Controller weight	9 kg	9 kg	9 kg	9 kg	9 kg	11 kg



	STP-XA2703C	STP-XA3203C	STP-XA4503C
Inlet flange	VG250/ISO250	VG300/ISO320F	VG300/ISO320F/ VG350
Outlet port	KF40	KF40	KF40
Pumping Speed			
N_2	2650 ls^{-1}	3200 ls^{-1}	3800/4000/4300 ls^{-1}
H_2	2050 ls^{-1}	2300 ls^{-1}	2500 ls^{-1}
Compression ratio			
N_2	> 10^8	> 10^8	> 10^8
H_2	> 6 x 10^3	> 6 x 10^3	6 x 10^3
Ultimate pressure	10^{-7} Pa (10^{-9} Torr)	10^{-7} Pa (10^{-9} Torr)	10^{-7} Pa (10^{-9} Torr)
Max allowable backing pressure	266 Pa (2 Torr)	266 Pa (2 Torr)	266 Pa (2 Torr)
Max allowable gas flow			
N_2 (water cooled)	2300 sccm (3.88 Pam^3s^{-1})	2300 sccm (3.88 Pam^3s^{-1})	2800 sccm (4.73 Pam^3s^{-1})
Ar (water cooled)	1900 sccm (3.21 Pam^3s^{-1})	1900 sccm (3.21 Pam^3s^{-1})	2150 sccm (3.63 Pam^3s^{-1})
Rated speed	27500 rpm	27500 rpm	24000 rpm
Starting time	8 min	8 min	12 min
Mounting position	Any orientation	Any orientation	Any orientation
Water cooling			
Flow	3 $lmin^{-1}$	3 $lmin^{-1}$	3 $lmin^{-1}$
Temperature	5-25 °C/41-77 °F	5-25 °C/41-77 °F	5-25 °C/41-77 °F
Pressure	0.3 MPa	0.3 MPa	0.3 MPa
Recommended purge gas flow	50 sccm/8.4 x 10^{-2} Pam^3s^{-1}	50 sccm/8.4 x 10^{-2} Pam^3s^{-1}	50 sccm/8.4 x 10^{-2} Pam^3s^{-1}
Input voltage	200 to 240 V a.c. (± 10)	200 to 240 V a.c. (± 10)	200 to 240 V a.c. (± 10)
Power consumption	1.5 kVA	1.5 kVA	1.5 kVA
Pump weight	75 kg	80 kg	105/105/97 kg
Controller weight	11 kg	11 kg	11 kg

Service, Spares and Accessories

STP-iX Series Common Accessories

Display Unit

Product description	Order no:
iDT-001 Display terminal	YT79U1Z00

STP-iX455, STP-iXL455 Accessories

Power cables

Product description	Order no:
iPS-240 Power supply unit	PT64W0Z00
Power supply cable for iPS240 3 m	PT64Y0A10
Power supply cable for iPS240 5 m	B70700040

DC cables

Product description	Order no:
STP-iX455 iPS240 interconnection cable 5 m	PT64Y0B20
STP-iX455 iPS240 interconnection cable 10 m	PT64Y0B30
STP-iX455 iPS240 interconnection cable 15 m	PT64Y0B40
STP-iX455 iPS240 interconnection cable 20 m	PT64Y0B50

Air cooling unit

Product description	Order no:
STP-iX455 air cooling unit	PT640U101

STP-iXR1606, STP-iXR2206, STP-iXA2206C, STP-iXA3306C Accessories

Power cables

Product description	Order no:
5 m power cable	YT79Y0A00
10 m power cable	YT79Y0A03
Power connector only	PTZ003114

STP-iXA4506 Accessories

Power cables

Product description	Order no:
5 m power cable	YT78Y0A00
10 m power cable	YT78Y0A01
Power connector only	PTZ003114

STP-301, STP-451, STP-L301, STP-L451 Accessories

Control unit

Product description	Order no:
SCU-350 Control Unit 100-240 V a.c.	YT21ZOZ01

Connection cables

Product description	Order no:
3 m straight cable	B70700010
5 m straight cable	B70700000
10 m straight cable	B70700130

Power cables

Product description	Order no:
3 m cable	B70700090
5 m cable	B70700040
10 m cable	PT21Y0A00

Vibration isolators

Product description	Order no:
ISO100	B58046000
ISO160	B58049000
VG100	PT01QDE00
VG150	PT01QDF00
DN100CF	B74834010
DN160CF	B70652040

Air cooling units

Product description	Order no:
100 V with 1 m cable	YT01BA500
115 V with 1 m cable	YT011A003
200 V with 1 m cable	YT011A000

Water cooling coil

Product description	Order no:
Water Cooling Coil	YT21CA001

STP-603, 1003 Accessories

Control unit

Product description	Order no:
SCU-800 Control Unit 100-240 V a.c.	YT49Z2Z00

Connection cables

Product description	Order no:
5 m straight cable	B75130020
10 m straight cable	B75130060
15 m straight cable	B75130070

Power cables

Product description	Order no:
5 m cable	PT49YOA00
10 m cable	PT49YOA01
15 m cable	PT49YOA02

Vibration isolators

Product description	Order no:
ISO160K	PT05QDK00
ISO200K	B58061000
VG150	PT05QDC00
VG200	B72132030
DN160CF	B70652040
DN200CF	PT05QDA00

Air cooling units

Product description	Order no:
100 V with 1 m cable	YT011A030
200 V with 1 m cable	YT01BA030

Water cooling coil

Product description	Order no:
Water Cooling Coil	YT170A001

STP-H301C, STP-H451C, STP-603C, STP-1003C, STP-A1303C, STP-A803C and STP-A1603C Accessories

Control unit

Product description	Order no:
SCU-800 Turbo Pump Control Unit	YT49Z2Z00

Connection cables

Product description	Order no:
5 m STP straight connection cable	B75130020
10 m STP straight connection cable	B75130060
15 m STP straight connection cable	B75130070

Power cables

Product description	Order no:
5 m power cable	PT49Y0A00
10 m power cable	PT49Y0A01
15 m power cable	PT49Y0A02

TMS connection cable kits

Product description	Order no:
5 m for STP-H301CV, STP-H451CV, STP-A803CV, STP-A1303CV	PT330V000
10 m for STP-H301CV, STP-H451CV, STP-A803CV, STP-A1303CV	PT330V001
15 m for STP-H301CV, STP-H451CV, STP-A803CV, STP-A1303CV	PT330V002
5 m for STP-A1603CV	PT461V000
10 m for STP-1603CV	PT461V001
15 m for STP-1603CV	PT461V002

STP-A2203C, STP-XA2703C, STP-XA3203C and STP-XA4503C Accessories

Control unit

Product description	Order no:
SCU-1600 control unit 200-240 V	YT76Z0Z00

Connection cables

Product description	Order no:
5 m straight cable	B75030010
10 m straight cable	B75030040
15 m straight cable	B75030220

Power cables

Product description	Order no:
5 m power cable	YT76Y0A01
10 m power cable	YT76Y0A02
15 m power cable	YT76Y0A03

TMS connection cable kits

Product description	Order no:
5 m for STP-A2203CV	PT351V000
10 m for STP-A2203CV	PT351V001
15 m for STP-A2203CV	PT351V002
5 m for STP-XA2703CV, STP-XA3203CV, STP-XA4503CV	PT660V010
10 m for STP-XA2703CV, STP-XA3203CV, STP-XA4503CV	PT660V020
15 m for STP-XA2703CV, STP-XA3203CV, STP-XA4503CV	PT660V030

Service

Edwards products, spares and accessories are available from Edwards companies in Belgium, Brazil, China, France, Germany, Israel, Italy, Japan, Korea, Singapore, United Kingdom, U.S.A. and a worldwide network of distributors.

The majority of these centres employ Service Engineers who have undergone comprehensive Edwards training courses. Order spare parts and accessories from your nearest Edwards company or distributor.

When you order, please state for each part required:

- Model and item number of your equipment.
- Serial number (if any).
- Item number and description of the part.