Turbomolecular Pumps

EXT and nEXT Turbomolecular Pumps and Controllers

Our range of EXT and nEXT compound turbo molecular 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 approximately 10 to 20 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 for life by either grease or 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

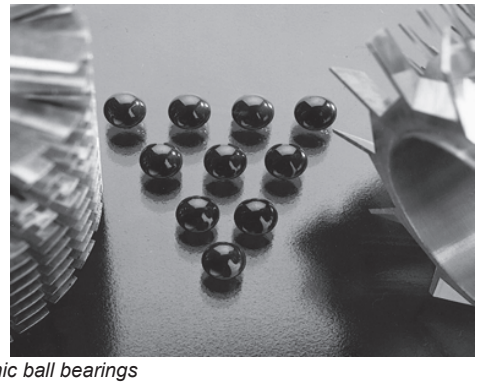
We use two basic technologies:

- compound molecular and fluid dynamic (combining turbomolecular, drag and fluid dynamic stages) available on nEXT 'T' variant pumps
- Compound molecular (combining turbomolecular and drag stages) on all EXT and nEXT 'D' variant pumps.

Motor Technology

EXT pumps use brushless d.c. motors and are available in 24 (EXT75DX), 24 to 48 (nEXT) and 80 (EXT556H) volt variants. For the 24 volt pumps the TIC line of controllers are available with the added benefit of integrated instrument controllers. For the 80 volt pumps you can choose from our EXC line of controllers to optimize the performance and cost options for your application.

The Controllers 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.



Ceramic ball bearings

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 STPH-C series. These Maglev pumps have magnetic bearings and are ideal for these harsh duty applications.

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

An 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. In addition, the inlet-screen prevents you from coming into contact with the blades of the pump when it is disconnected from your vacuum system.

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 1×10^{-3} mbar) or when you bake the pump to above 70 °C (measured at the inlet 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
- EXC300 controller with EXT556H and EXT to EXC cable

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.

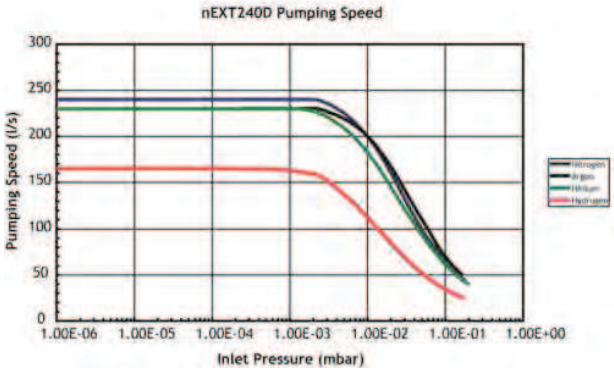
nEXT240D Turbomolecular Pump

The nEXT240D is a hybrid bearing compound turbopump that replaces the EXT255H and EXT255DX series of pumps. It is available with either an ISO100 or a CF100 inlet flange and has a N_2 pumping speed of 240l/s. nEXT pumps build on our previous products maintaining the proven bearing technology (oil lubricated ceramic lower bearing with dry permanent magnetic upper bearing), whilst adding an improved rotor design with a new molecular drag stage to deliver improved pumping speed and compression ratios, and true user serviceability. They feature 24V to 48Vdc sensorless motors with a built in drive that is fully compatible with those on our DX pumps and our range of TIC controllers.
A basic pump system would require an nEXT240D pump, a TIC controller, either an air or water cooling accessory and a suitable backing pump.

Features & Benefits

- State-of-the-art rotor design enhances performance to deliver exceptional pumping speeds and compression ratios
- Fully end user serviceable in minimum time without complex tooling or major disassembly...you can do it!
- Compact design with high performance for efficient systemisation
- Compatible with Edwards TIC turbo and instrument controllers meaning you can add up to 3 vacuum gauges without the need of an additional gauge controller
- RoHS compliant and CSA/UL approved

Performance Curves



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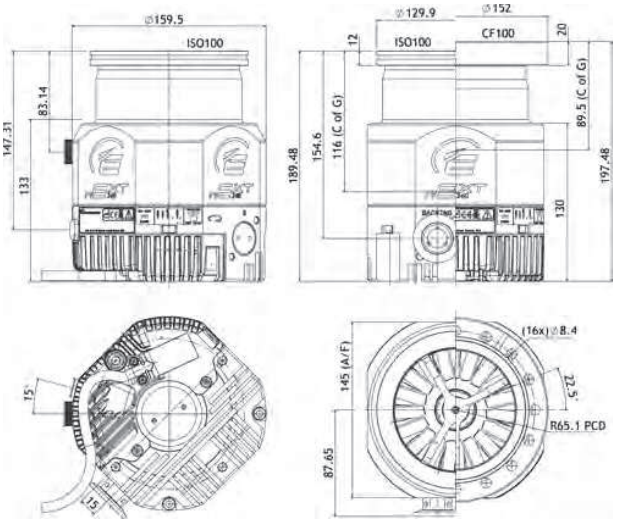


Ordering Information

Product Description	Order No.
nEXT240D Turbomolecular Pump ISO100 Inlet Flange	B81200100
nEXT240D Turbomolecular Pump ISO100 Inlet Flange, 80W	B81200101
nEXT240D Turbomolecular Pump CF100 Inlet Flange	B81200200
nEXT240D Turbomolecular Pump CF100 Inlet Flange, 80W	B81200201

Technical Data

Inlet flange	DN100ISO-K, DN100CF
Outlet flange	DN25NW
Pumping speed	
N_2	240 ls^{-1}
He	230 ls^{-1}
H_2	165 ls^{-1}
Compression ratio	
N_2	$>1 \times 10^{11}$
He	3×10^{5}
H_2	1×10^{4}
Ultimate pressure with RV backing pump ISO/CF	$<6 \times 10^{-8}$ / $<5 \times 10^{-10}$ mbar
Recommended backing pump*	RV12/XDS10
Vent port	1/8 inch BSP female
Purge port	1/8 inch BSP female
Max continuous inlet flow (Nitrogen)†	
Water cooling (water at 15°C, ambient temp at 40°C)	45 sccm
Forced air cooled, 35 °C ambient	30 sccm
Pump rotational speed	
Nominal rotational speed	60000 rpm
Standby rotational speed	Variable from 33000 to 60000 rpm (42000 rpm default)
Programmable power limit settings	Variable from 50-200W (160W default)
Start time to 90% speed	115s‡
Analogue outputs	Pump rotational speed;Power consumption; Pump temp; Controller temp
Cooling method?	Forced air / water
Ambient air temp for forced air cooling	5 - 35°C
Min cooling water flow rate (water 15°C)	15 $l\ h^{-1}$
Water temp range	10 - 20°C
Max inlet flange temp	75°C
Operating attitude	Vertical and upright, through to Horizontal +/- 2º
Noise level at 1 metre	<45 dB(A)
Max magnetic field pump can tolerate	5 mT
Recommended controller	TIC200 turbo and instrument controller
Quiescent electrical power	Typically 20W

* A smaller backing pump may be used depending on application. A suitable diaphragm pump with ultimate <5 mbar may also be used e.g. XDD1.
† Above this inlet pressure, rotational speed drops to below nominal.
‡ Power limit set to 80 W.
? Air and water cooling accessories must be ordered separately

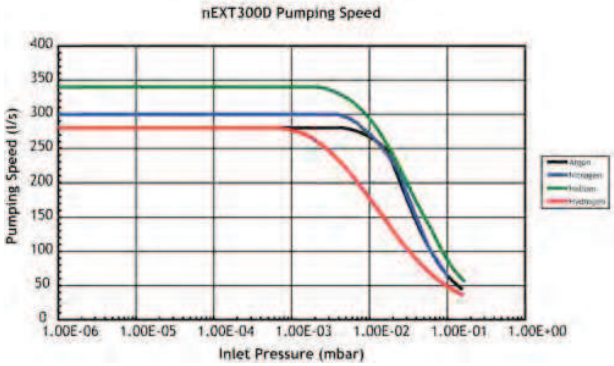
nEXT300D Turbomolecular Pump

The nEXT300D is a hybrid bearing compound turbopump that replaces the EXT406PX ISO100 pump. It is available with either an ISO100 or a CF100 inlet flange and has a N_2 pumping speed of 300l/s. nEXT pumps build on our previous products maintaining the proven bearing technology (oil lubricated ceramic lower bearing with dry permanent magnetic upper bearing), whilst adding an improved rotor design with a new molecular drag stage to deliver improved pumping speed and compression ratios, and true user serviceability. They feature 24V to 48Vdc sensorless motors with a built in drive that is fully compatible with those on our DX pumps and our range of TIC controllers.
A basic pump system would require an nEXT300D pump, a TIC controller, either an air or water cooling accessory and a suitable backing pump.

Features & Benefits

- State-of-the-art rotor design enhances performance to deliver exceptional pumping speeds and compression ratios
- Fully end user serviceable in minimum time without complex tooling or major disassembly... You can do it!
- Compact design with high performance for efficient systemisation
- Compatible with Edwards TIC turbo and instrument controllers meaning you can add up to 3 vacuum gauges without the need of an additional gauge controller
- RoHS compliant and CSA/UL approved

Performance Curves



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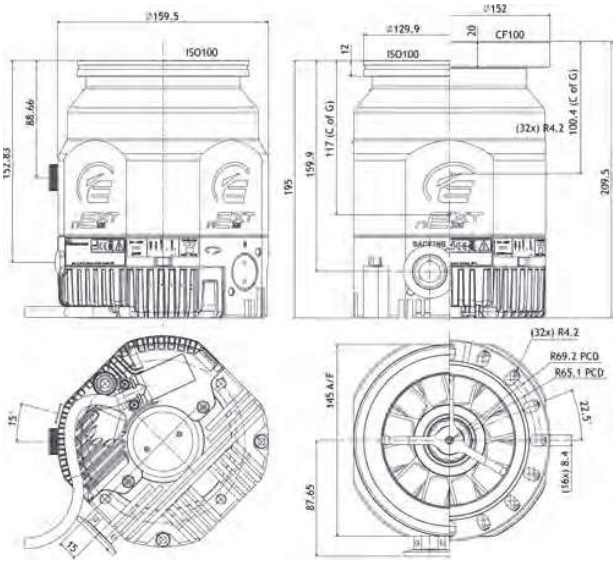


Ordering Information

Product Description	Order No.
nEXT300D Turbomolecular Pump ISO100 Inlet Flange	B82200100
nEXT300D Turbomolecular Pump ISO100 Inlet Flange, 80W	B82200101
nEXT300D Turbomolecular Pump CF100 Inlet Flange	B82200200
nEXT300D Turbomolecular Pump CF100 Inlet Flange, 80W	B82200201

Technical Data

Inlet flange	DN100ISO-K, DN100CF
Outlet flange	DN25NW
Pumping speed	
N_2	300 ls^{-1}
He	340 ls^{-1}
H_2	280 ls^{-1}
Compression ratio	
N_2	$>1 \times 10^{11}$
He	1×10^{6}
H_2	5×10^{4}
Ultimate pressure with RV backing pump ISO/CF	$<6 \times 10^{-8}$ / $<5 \times 10^{-10}$ mbar
Recommended backing pump*	RV12/XDS10
Vent port	1/8 inch BSP female
Purge port	1/8 inch BSP female
Max continuous inlet flow (Nitrogen)†	
Water cooling (water at 15°C, ambient temp at 40°C)	95 sccm
Forced air cooled, 35 °C ambient	115 sccm
Pump rotational speed	
Nominal rotational speed	60000 rpm
Standby rotational speed	Variable from 33000 to 60000 rpm (42000 rpm default)
Programmable power limit settings	Variable from 50-200W (160W default)
Start time to 90% speed	145s‡
Analogue outputs	Pump rotational speed;Power consumption; Pump temp; Controller temp
Cooling method?	Forced air / water
Ambient air temp for forced air cooling	5 - 35°C
Min cooling water flow rate (water 15°C)	15 $l\ h^{-1}$
Water temp range	10 - 20°C
Max inlet flange temp	80°C
Operating attitude	Vertical and upright, through to Horizontal +/- 2º
Noise level at 1 metre	<45 dB(A)
Max magnetic field pump can tolerate	5 mT
Recommended controller	TIC200 turbo and instrument controller
Quiescent electrical power	Typically 20W

* A smaller backing pump may be used depending on application. A suitable diaphragm pump with ultimate <5 mbar may also be used e.g. XDD1.
† Above this inlet pressure, rotational speed drops to below nominal.
‡ Power limit set to 80 W.
? Air and water cooling accessories must be ordered separately

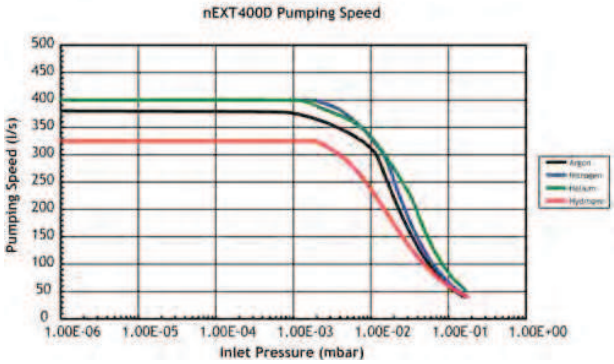
nEXT400D Turbomolecular Pump

The nEXT400D is a hybrid bearing compound turbopump that replaces the EXT406PX ISO160 pump. It is available with either an ISO160 or a CF160 inlet flange and has a N_2 pumping speed of 400l/s. nEXT pumps build on our previous products maintaining the proven bearing technology (oil lubricated ceramic lower bearing with dry permanent magnetic upper bearing), whilst adding an improved rotor design with a new molecular drag stage to deliver improved pumping speed and compression ratios, and true user serviceability. They feature 24V to 48Vdc sensorless motors with a built in drive that is fully compatible with those on our DX pumps and our range of TIC controllers.
A basic pump system would require an nEXT400D pump, a TIC controller, either an air or water cooling accessory and a suitable backing pump.

Features & Benefits

- State-of-the-art rotor design enhances performance to deliver exceptional pumping speeds and compression ratios
- Fully end user serviceable in minimum time without complex tooling or major disassembly... you can do it!
- Compact design with high performance for efficient systemisation
- Compatible with Edwards TIC turbo and instrument controllers meaning you can add up to 3 vacuum gauges without the need of an additional gauge controller
- RoHS compliant and CSA/UL approved

Performance Curves



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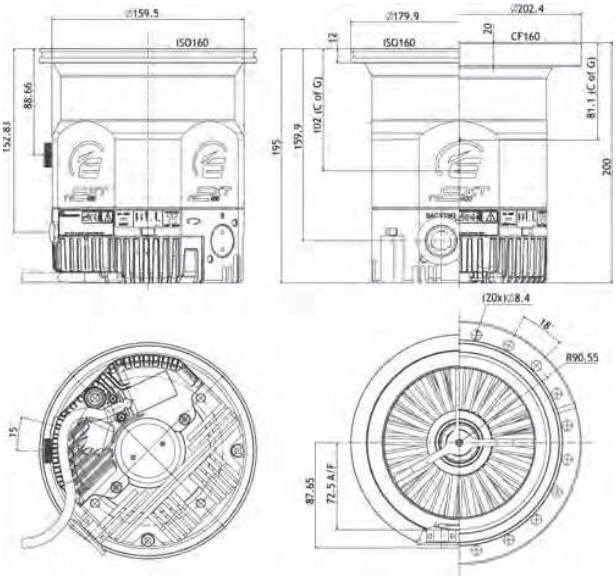


Ordering Information

Product Description	Order No.
nEXT400D Turbomolecular Pump ISO160 Inlet Flange	B83200300
nEXT400D Turbomolecular Pump ISO160 Inlet Flange, 80W	B83200301
nEXT400D Turbomolecular Pump CF160 Inlet Flange	B83200400
nEXT400D Turbomolecular Pump CF160 Inlet Flange, 80W	B83200401

Technical Data

Inlet flange	DN160ISO-K, DN160CF
Outlet flange	DN25NW
Pumping speed	
N_2	400 ls^{-1}
He	390 ls^{-1}
H_2	325 ls^{-1}
Compression ratio	
N_2	$>1 \times 10^{11}$
He	1×10^{8}
H_2	5×10^{5}
Ultimate pressure with RV backing pump ISO/CF	$<1 \times 10^{-8}$ / $<1 \times 10^{-10}$ mbar
Recommended backing pump*	RV12/XDS10
Vent port	1/8 inch BSP female
Purge port	1/8 inch BSP female
Max continuous inlet flow (Nitrogen)†	
Water cooling (water at 15°C, ambient temp at 40°C)	105 sccm
Forced air cooled, 35 °C ambient	90 sccm
Pump rotational speed	
Nominal rotational speed	60000 rpm
Standby rotational speed	Variable from 33000 to 60000 rpm (42000 rpm default)
Programmable power limit settings	Variable from 50-200W (160W default)
Start time to 90% speed	180s‡
Analogue outputs	Pump rotational speed;Power consumption; Pump temp; Controller temp
Cooling method?	Forced air / water
Ambient air temp for forced air cooling	5 - 35°C
Min cooling water flow rate (water 15°C)	15 $l\ h^{-1}$
Water temp range	10 - 20°C
Max inlet flange temp	70°C
Operating attitude	Vertical and upright, through to Horizontal +/- 2º
Noise level at 1 metre	<45 dB(A)
Max magnetic field pump can tolerate	5 mT
Recommended controller	TIC200 turbo and instrument controller
Quiescent electrical power	Typically 20 W

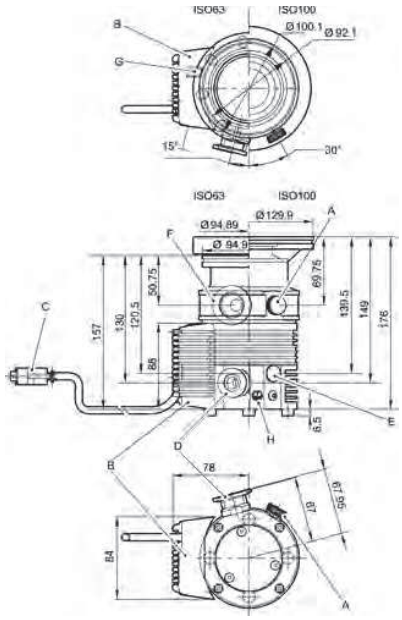
* A smaller backing pump may be used depending on application. A suitable diaphragm pump with ultimate <5 mbar may also be used e.g. XDD1.
† Above this inlet pressure, rotational speed drops to below nominal.
‡ Power limit set to 80 W.
? Air and water cooling accessories must be ordered separately

EXT75DX Compound Turbomolecular Vacuum Pump

The EXT75DX compound turbomolecular pumps 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 24V controller allowing parallel and serial communication compatible with our TIC controllers.

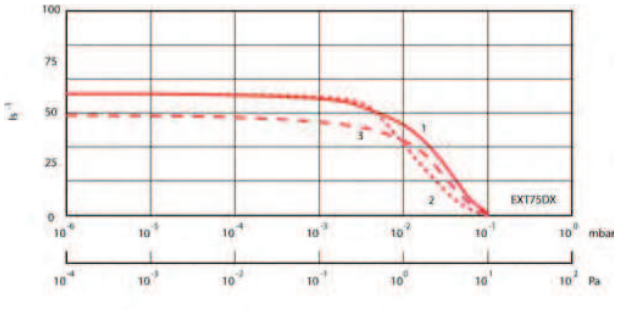
A basic pump system would require an EXT75DX pump, a TIC controller, either an air or water cooling accessory and a suitable backing pump.

Dimensions

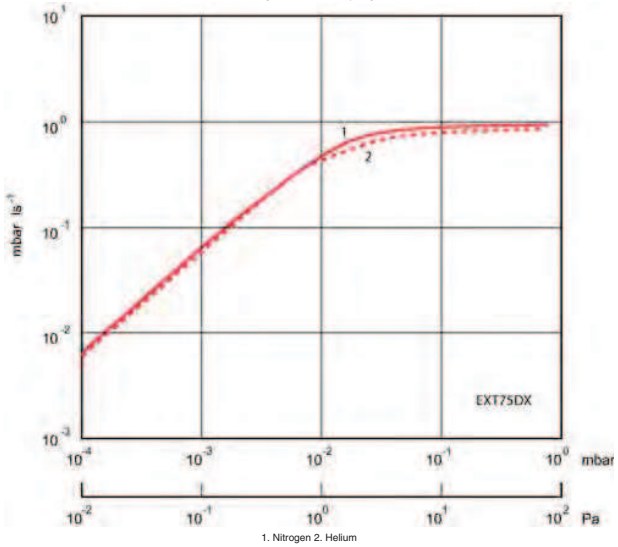


A	Manual vent valve in vent port	E	Purge port (blanked off)
B	Podule	F	Interstage port (EXT75iDX only)
C	Logic interface connector	G	Podule connector socket
D	Backing port	H	Earth connection

Performance Curves



1. Nitrogen 2. Helium 3. Hydrogen



1. Nitrogen 2. Helium

Technical Data

Inlet flange	DN63ISO-K, DN63CF, DN40NW or DN100ISO-K
Pumping Speed	
N_2 ISO63/63CF (DN40NW)(ISO100)	61 ls^{-1} (42 ls^{-1}) (66 ls^{-1})
He ISO63/63CF (DN40NW)(ISO100)	57 ls^{-1} (49 ls^{-1}) (59 ls^{-1})
H_2 ISO63/63CF (DN40NW)(ISO100)	53 ls^{-1} (48 ls^{-1}) (54 ls^{-1})
Compression ratio	
N_2	$>1 \times 10^{11}$
He	1×10^{6}
H_2	5×10^{4}
Ultimate Pressure (mbar)	
With RV backing pump ISO/CF	$<5 \times 10^{-9}$ / 5×10^{-10}
With diaphragm backing pump ISO/CF	$<5 \times 10^{-8}$ / 5×10^{-9}
Outlet flange	DN16NW
Recommended backing pump*	RV5/XDS5
Vent port	1/8 inch BSP
Purge port	1/8 inch BSP
Max continuous inlet pressure (light gas pumping)†	
Water cooling (water at 15 °C, ambient temp at 40 °C)	2×10^{-2} mbar
Forced air cooled, 35 °C ambient	1×10^{-2} mbar
Pump rotational speed	
Nominal rotational speed	90000 rpm
Standby rotational speed	Variable from 49500 to 90000 rpm (63000 rpm default)
Programmable power limit settings	Variable from 50-120W (80W default)
Start time to 90% speed	110 s ‡
Analogue outputs	Rotational speed;Power consumption; Pump temp; Controller temp
Cooling method?	Forced air / water
Ambient air temperature for forced air cooling	5 - 35 °C
Min cooling water flow rate (water 15 °C)	15 $l\,h^{-1}$
Water temp range	10 - 20 °C
Max inlet flange temp	100 °C
Operating attitude	Vertical and upright, through to Horizontal
Noise level at 1 metre	<50 dB(A)
Max magnetic field pump can tolerate	5 mT
Recommended controller	TIC100 turbo and instrument controller
Quiescent electrical power	10 W

* A smaller backing pump may be used depending on application. A suitable diaphragm pump with ultimate <5 mbar may also be used e.g. XDD1.
† Above this inlet pressure, rotational speed drops to below nominal.
‡ Power limit set to 80 W.
? Air and water cooling accessories must be ordered separately

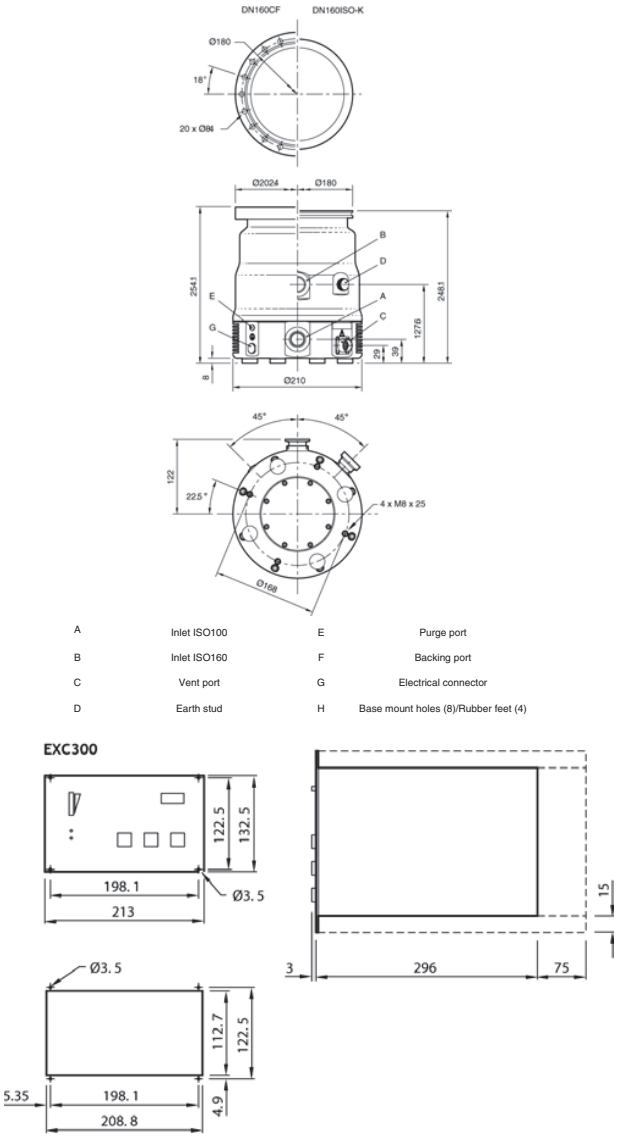
Ordering Information

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

EXT556H Compound Turbomolecular Vacuum Pump

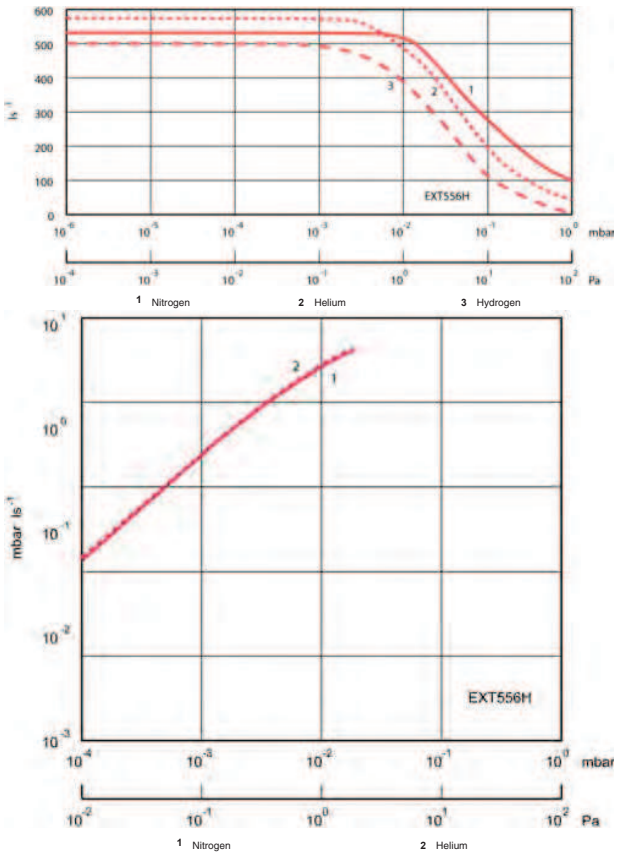
The EXT556H incorporates our hybrid bearing and enhanced molecular drag pumping technologies with turbomolecular pump stages on a single rotor. It is an 80V pump and therefore must be used with either an EXDC160, an EXC250 or an EXC300 controller. The EXDC160 is a pump mountable controller with no user controls or power supply; the EXC250 has a power supply but no user controls; the EXC300 is a fully featured controller with a user panel, backing pump relay and bake-out band control. EXC250 and EXC300 are rack mountable and can power an air cooler and control a vent valve. For EXC250 and EXDC160 you must provide your own remote control and an 80Vdc power supply for the latter. A basic pump system would require an EXT556H pump, an EXC controller, a pump to controller cable, either an air or water cooler accessory, and a suitable backing pump.

Dimensions



A	Inlet ISO100	E	Purge port
B	Inlet ISO160	F	Backing port
C	Vent port	G	Electrical connector
D	Earth stud	H	Base mount holes (8)/Rubber feet (4)

Performance Curves



Technical Data

Main Inlet flange	DN160ISO-K/DN160CF
Outlet Flange	DN25NW
Vent/purge port	$^{1}/_{8}$ inch BSP
Inlet pumping speed* (compression ratio)	
N_2	540 l s^{-1} (>10^{10})
He	580 l s^{-1} (10^{8})
H_2	500 l s^{-1} (10^{6})
Ar	510 l s^{-1} (>10^{10})
Ultimate Pressure (CF variant)	<10^{-10} mbar
Recommended backing pump	RV12/XDS10
Max continuous inlet pressure (N_2, He, H_2)**	
forced air cooled, 30 °C ambient	1 x 10^{-3} mbar
forced air cooled, 35 °C ambient	5 x 10^{-4} mbar
water cooling at 15 °C	2 x 10^{-3} mbar
Nominal rotational speed	50000 rpm
Start time to 90% speed	
EXC250	5 min
EXC300	6.5 min
EXDC160	8 min
Cooling method	Forced air/water
Ambient air temp for forced air cooling	0 °C - 35 °C
Recommended cooling water flow rate (water at 15°C)	15 l h^{-1}
Water temp range	10 - 20 °C
Max inlet flange temp	80 °C
Operating attitude	Vertical and upright, through to horizontal
Noise level at 1 metre	<60 dB(A)
Max axial magnetic field	<7 mT
Max radial magnetic field	<3 mT
Recommended controller	EXC250, EXC300
Quiescent power consumption	35 W
Electrical supply voltage	
EXDC160	70 – 85 V d.c.
EXC250/300	90 – 264 V a.c.
Electrical supply frequency (EXC250/300)	47 – 63 Hz
Max power output for pump	
EXDC160	160W
EXC250	250W
EXC300	290W
Weight	
EXT556H ISO/CF	13.4/21.2 kg
EXT556HF ISO/CF	19.3/20.5 kg
EXDC160	0.35 kg
EXC250	2.0 kg
EXC300	4.6 kg

* Measured without inlet screen. Inlet screens are supplied fitted and may reduce speed by up to 20%
** With backing pressure <0.3 mbar. Above this inlet pressure rotational speed drops

Ordering Information

Product Description	Order No.
EXT556H DN160ISO-K	B77751000
EXT556H DN160CF	B77752000
EXT556H DN160ISO-K (Martensitic envelope)	B77757000
EXT556H DN160CF (Martensitic envelope)	B77758000
EXT556H DN160ISO-K (Fine inlet screen)	B77761000
Accessories & Spares	**Order No.**
EXDC160 Turbomolecular Pump Drive Module	D39641000
EXC250L Controller	D39636000
EXC300 Controller	D39614000
EXT Pump To Controller Cable 1M	D39618010
EXT Pump To Controller Cable 3M	D39618030
EXT Pump To Controller Cable 5M	D39618050

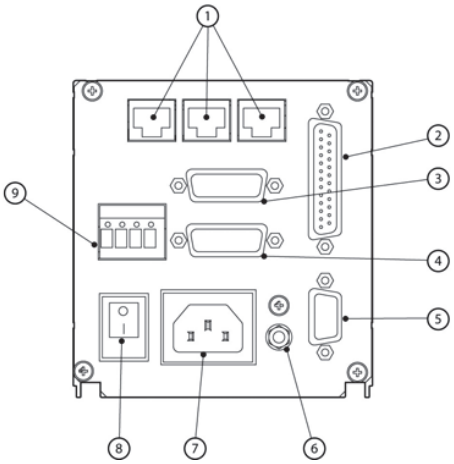
TIC Controller

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 recognizes 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 XDS10/RV12) may be controlled via an optional relay box. 2 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 24Vdc backing pump such as our XDD1. Turbo and instrument models add the ability to control up to 3 of our range of Active gauges (excluding IGC & Barocels).

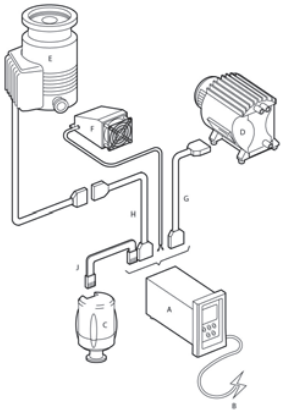
Features & Benefits

- TIC automatically recognizes 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 XDS10 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 19inch 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.

Dimensions



1. Gauge inputs (FCC68 (RJ45) (turbo & instrument only)
2. Logic interface (25-way 'D' socket)
3. Backing pump 24V (15-way 'D' socket) (TIC200 only)
4. Turbo Pump 24V (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 (24V supply) 4-way screw term.



A TIC turbo and instrument controller, 200W
B Mains cable/line cord
C WRG-S-NW25
D XDD1 24Vdc diaphragm pump
E EXT75DX ISO63
F ACX75 air-cooler
G XDD/DX/EXDC extension cable
H XDD/DX/EXDC extension cable (optional)
J Active gauge cable

Technical Data

Pump / TIC power	100W / 200W
EXT75DX	Fast / Fast
nEXT 80W	Slow / Slow
nEXT 160W	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	110 mm high x 105 mm wide x 245 mm deep
Front panel	106 mm wide x 128 mm high
Weight	3.5 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	3000 m
Electronic Design	EN 61010-1
Electromagnetic Compatibility	EN 61326 Industrial Location, Class B Emissions
Enclosure rating	IP20

Ordering Information

Product Description	Order No.
TIC Turbo Controller 100 W RS232	D39711000
TIC Turbo Controller 200 W RS232	D39712000
TIC Turbo & Instrument Controller 100 W RS232	D39721000
TIC Turbo & Instrument Controller 200 W RS232	D39722000
Accessories & Spares	**Order No.**
XDD/DX/EXDC Extension Cable 1m	D39700835
XDD/DX/EXDC Extension Cable 2m	D39700836
XDD/DX/EXDC Extension Cable 5m	D39700837
Linecord 2M UK Plug	D40013025
Linecord 2M North Euro Plug	D40013030
Linecord 2m With US Plug	D40013120
0.5M Active Gauge Cable	D40001005
1M Active Gauge Cable	D40001010
3M Active Gauge Cable	D40001030
5M Active Gauge Cable	D40001050
10M Active Gauge Cable	D40001100

TIC Relay Boxes

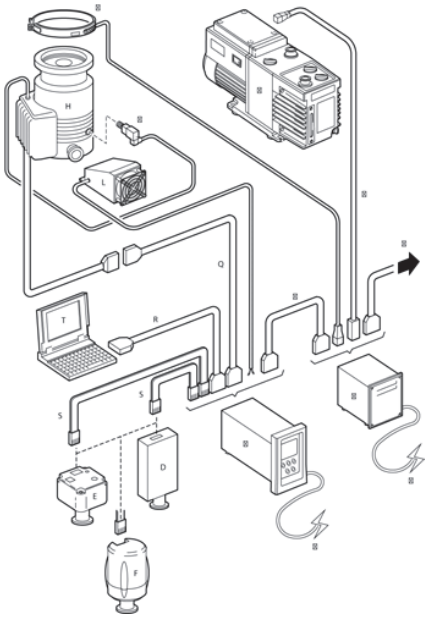
Two relay boxes are available for use with our TIC controllers:
- A small backing pump relay box is compatible with TIC turbo only and turbo and instrument controllers
- A small backing pump and instruments relay box is compatible with TIC turbo and instrument controllers

The small backing pump relay boxes are able to control mains backing pumps up to RV12/XDS10. 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 & Benefits

- Enables TIC to control mains backing pumps, up to and including XDS10 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 19inch rack 3U) or bench mounted.
- TIC relay will operate from mains supplies with voltages up to 240 V ac.

Dimensions



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

Technical Data

Mains input	
Connector type	CEE/IEC320 inlet
Max rating	240V a.c.
Earth stud	M4
Heater band outlet	
Connector type	CEE/IEC320 inlet
Max rating	240V a.c. 1A
Fuse	20mm x 5mm, 250V, 1A type F
Backing pump outlet	
Connector type	CEE/IEC320 inlet
Max rating	240V a.c. 10A
Fuse	20mm x 5mm, 250V, 10A type T
Setpoint connector	
Connector type	12-way positronic PLC plug
Max rating	250V a.c. or 30V d.c., 3A (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. 0.5A
Lead type	3 core 0,5mm^2
Weight	695g
Operating temperature	+0°C to +40°C
Storage temperature	-30°C to +70°C
Max ambient operating humidity	90% RH non-condensing at 40°C
Max operating altitude	3000m
Electronic design	EN61010-1
Enclosure rating	IP20

Ordering Information

Product Description	Order No.
TIC Relay Box Sml Bkg	D39711805
TIC Relay Box Inst & Sml Bkg	D39721806
Accessories & Spares	**Order No.**
0.5M Active Gauge Cable	D40001005
10M Active Gauge Cable	D40001100
1M Active Gauge Cable	D40001010
3M Active Gauge Cable	D40001030
5M Active Gauge Cable	D40001050
Linecord 2M North Euro Plug	D40013030
Linecord 2M UK Plug	D40013025
Linecord 2m With US Plug	D40013120
TIC Logic Interface Cable 2m	D39700833
TIC RS232 Interface Cable 2m	D39700834
XDD/DX/EXDC Extension Cable 1m	D39700835
XDD/DX/EXDC Extension Cable 2m	D39700836
XDD/DX/EXDC Extension Cable 5m	D39700837

Pump-to-Controller Extension Cables

EXT75DX and nEXT pumps come as standard with a 1m cable fitted. Where you wish to mount the pump further away from the controller, an extension cable is required. They are available in 1, 3 and 5 m lengths, to suit your installation.

Ordering Information

Product Description	Order No.
1 m cable	D39700835
3 m cable	D39700836
5 m cable	D39700837

Air-Cooler

An air-cooler is used to cool a turbo pump when a suitable cooling-water supply is not available or for a pump in a mobile pumping system. The air-cooler is an enclosed electrical fan and fixing bracket assembly which is easily fitted to bolt holes in the base of the pump.

The air-cooler has a 24 V d.c. motor which can be powered and controlled from a rear panel socket on the EXC/TIC Controller or nEXT/DX pump. It is supplied with 3 m of electrical cable.

nEXT air coolers are also available with a phoenix connector to plug directly into the pump.

Ordering Information

Product Description	To Fit Pumps	Order No.
ACX75	EXT75DX	B58053075
ACX555H	EXT556H	B58053561
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

BX Bakeout Band

Use a BX bakeout band to increase the rate of degassing of the pump body to achieve faster pump down and lower ultimate pressure. Bakeout bands are only fitted to CF flanged pumps and/or intended for use in ultra high vacuum systems.

Bakeout bands are available for use with 110-120 or 220-240 V a.c. electrical supplies and can be powered from a rear panel socket on the EXC/TIC Controller. It is supplied with 3 m cable and mating CE22 connector.

Ordering Information

Product Description	To Fit Pumps	Order No.
Contact Edwards for ordering information		

PRX10 Purge-Restrictor

The PRX10 purge-restrictor is used to set the flow-rate of purge gas into the (n)EXT pump. All of the (n)EXT pumps have a purge-port to allow you to purge the motor and bearing cavity with dry nitrogen or another inert gas. Fit a vent-port adaptor to the purge-port of the pump to convert it from ⅛ inch BSP to DN10NW, before you use the PRX10.

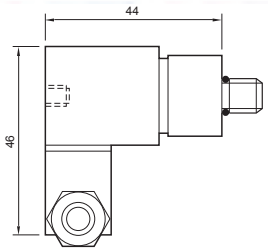
Ordering Information

Product Description	Order No.
PRX10 purge-restrictor	B58065001

TAV Vent-Valve

The TAV vent-valves are 24 V d.c. solenoid operated valves which you can use to vent your vacuum system with atmospheric air or dry nitrogen when you switch off the (n)EXT pump. The valves are supplied with a sintered bronze inlet-filter, a riffled hose connector, 3 m of electrical cable and a DN10NW adaptor. The vent-valves can be powered and controlled from a rear panel socket on the EXC/TIC Controller or directly on DX/nEXT. You can either use your TAV vent-valve to replace the manual vent-valve supplied with the (n)EXT pump, or adapt it to fit any other suitable port on the vacuum system upstream of the turbomolecular pump.

Dimensions



Ordering Information

Product Description	Order No.
TAV5 vent-valve	B58066010
TAV6 vent-valve	B58066020

Vent-Port Adaptor

This ⅛ inch BSP male to DN10NW adaptor can be used to replace the TAV5 vent-valve or the manual vent-valve fitted to the EXT pumps. It allows the threaded vent-port or purge port on the pump to be converted to a DN10NW flange.

The vent-port adaptor is supplied with a removable flow-restrictor and an O-ring to seal the adaptor to the pump.

Ordering Information

Product Description	Order No.
Vent-port adaptor	B58066011

Vibration Isolator

A vibration isolator can be fitted to the inlet-flange of the (n)EXT pump to reduce the transmission of the small amount of vibration generated by the pump to your vacuum system. The vibration isolator has two flanges separated by a flexible stainless steel bellows and an outer rubber anti-vibration collar.

The vibration isolator is designed for use with vertically mounted pumps only.

Ordering Information

To Fit Pump Inlet-Flange	Order No.
DN63CF	B58101000
DN63ISO-K	B58115000
DN100ISO-K	B58120000
DN160ISO-K	B58125000
DN100CF	B58105000
DN160CF	B58110000

VRX Vent-Restrictor

Fit a VRX vent-restrictor to your (n)EXT pump if you will vent the pump when the pump speed is above 50% of full rotational speed. The vent-restrictor restricts the flow-rate of the vent gas into the (n)EXT pump. You can also use the VRX to replace the standard restrictor supplied with the PRX10 purge restrictor to obtain a different purge rate.

You can fit the vent-restrictor to the TAV vent-valve, to the vent-port adaptor or directly to the vent or purge port of the pump.

Ordering Information

VRX Vent-Restrictor	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

Water-Cooler

A water cooler is used to cool a turbo pump where ambient temperatures are above 35°C, where high gas flows are required or where backing pressure is high.

For EXT75DX and EXT556H pumps the water cooler is fitted with 6mm OD nozzle connectors. For nEXT pumps the water cooler is supplied with push fit connectors to suit a 10mm OD pipe.

Ordering Information

Product description	Pump	Order No.
nEXT water cooler	nEXT240/300/400	B80000815
WCX water-cooler		
WCX250	EXT75DX	B73600121
WCX555H	EXT556H	B58067003

(n)EXT Spares

Each (n)EXT pump is supplied with an inlet seal and inlet screen. These items may also be ordered as spares.

Ordering Information

Product Description	Pump Type	To Fit Inlet Flange Size	Order No.
Inlet flange seals with integrated inet screen			
100 coarse	nEXT240/300	DN100ISO	B81000809
100 fine	nEXT240/300	DN100ISO	B81000808
160 coarse	nEXT400	DN160ISO	B80000825
160 fine	nEXT400	DN160ISO	B80000826
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
ISX inlet-screen			
63	EXT75DX	DN63ISO-K, DN63CF	B72240860
100 coarse	nEXT240/300	DN100CF	B80000821
100 fine	nEXT240/300	DN160CF	B80000822
160 coarse	nEXT400	DN160CF	B80000823
160 fine	nEXT400	DN160CF	B80000824
160 coarse	EXT556H	DN160ISO-K, DN160CF	B58051007
160 fine	EXT556H	DN160ISO-K, DN160CF	B58051008

nEXT bearing service parts and tools

On nEXT it is possible for end-users to change the oil cartridge and bearing in the field, using basic workshop tools and an Edwards tool kit. Service parts and tools are listed below.

Ordering Information

Product description	Order No.
Oil cartridge tool kit	B80000812
Bearing tool kit	B80000805
Oil cartridge	B80000811
Bearing and oil cartridge	B80000810

T-Station 75

The T-Station 75 is Edwards's new 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 new 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.

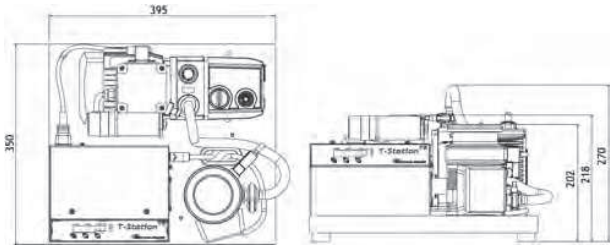
Features & Benefits

- 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

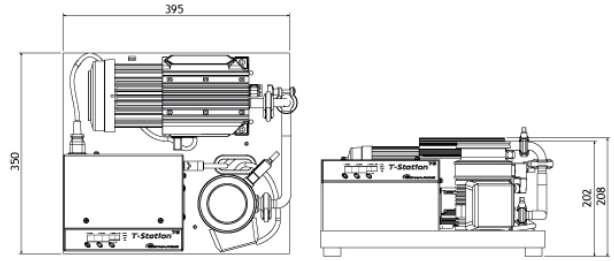
Applications

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

Dimensions



T-Station 75W



T-Station 75D

Ordering Information

Product Description	Order No.
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 200-230 V 50/60 Hz	TS75W3001
T-Station 75W CF63 100-120 V 50/60 Hz	TS75W3002
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
Accessories & Spares	**Order No.**
Model EMF3 mist filter	A46220000
TAV5 Vent Valve 24 V DC 1/8 bsp	B58066010
APG100 Active Pirani Vacuum Gauge	D02603000
APGX-H Active Linear Convection Gauge	D02391000
AIM-X Active Inverted Magnetron Gauge	D14642000
WRG-S Active Wide Range Gauge	D14701000
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
2 m electrical supply cable for 1-ph pumps, UK, Three-pin plug	A50505000
2 m electrical supply cable for 1-ph pumps, North European plug	A50506000
2 m electrical supply cable for 1-ph pumps, North America/Japan plug	A50507000
2 m electrical supply cable for 1-ph pumps, no plug	A50508000

Technical Data

Pumping Speed for N_2	
NW40	42 l s^{-1}
ISO63/CF63	61 l s^{-1}
Compression ratio for N_2	>1 x 10^{11}
Backing pump speed @ 50 Hz	
E2M1.5	1.6 m^3 h^{-1}
XDD1	1.2 m^3 h^{-1}
Ultimate pressure	<5 x 10^{-8} mbar
Inlet flange	NW40, ISO63 or C
Exhaust flange	
E2M1.5	11 mm OD Nozzle or 3/8 inch BSP
XDD1	Fitted silencer or 1/8 inch BSP
Weight	
E2M1.5	18 kg / 40 lb
XDD1	16 kg / 35 lb
Noise level	56 dB(A)
Leak tightness	<1 x 10^{-6} mbar l s^{-1}
Operating temperature range	10 to 40 °C / 50 to 104 °F

nEXT Turbopumping Stations

Our new 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 l s^{-1} to 400 l s^{-1}.

For pumping speeds from 42 l s^{-1} to 66l/s 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 l s^{-1} to 400 l s^{-1} the new 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.

Turbopumping stations fitted with E2M1.5 or RV pumps come with an EMF mist filter fitted, and those fitted with our class leading XDS 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

Features & Benefits

- Fully assembled and ready to use
- Where nEXT is fitted the turbopump is fully end user-serviceable
- Control of the turbopump, backing pump and gauges from the integrated TIC
- Serial communication control available with RS232 and RS485 (Windows software included)
- Dry pumping options with XDD1, XDS5 and XDS10

Ordering Information

Turbopump *
M EXT75DX
B nEXT240D
C nEXT300D
D nEXT400D

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
B XDS5
C XDS10

T S [ ][ ] **–** [ ][ ] **– 0 0** [ ]

Vent Option
Manual vent **0**
TAV5 vent valve W **1**

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

* 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 low volts on your order

STP Magnetically Levitated Turbomolecular Pumps

In April 2002, Edwards Acquired the Turbomolecular Pump Business of Seiko Instruments, Inc.

- Distributed and supported globally by Edwards for nearly twenty years
- Designed by continuous improvement on existing proven reliable technology
- Advanced materials and designs provide:
  - Class leading performance
  - Low vibration
  - Guaranteed reliability
  - Low cost of ownership
- The broad product range covers all potential turbo pump applications.
- Qualified by all major semiconductor OEM's
- Used in all major semiconductor fabrication plants
- Installed base of over 80000 units, 85% in the semiconductor industry

Key Features

- Multi-axis magnetic bearing system
- High Throughput versions for high flow processes
- Low vibration characteristics
- Advanced controller technology
- Full interfacing capability

Features & Benefits

- Improved pumping performance
  - Optimised for semiconductor process pressures
  - Maximised gas throughput for each flange size
  - Applications specific models
- New generation universal controllers
- Compact (1/2 rack) controller
  - Auto tune enabling "mix and match" pumps
  - Integrated TMS control
  - Improved diagnostics
- High power d.c. motor drive
  - Fast ramp-up time
  - Self regeneration upon power failure, eliminating the need for batteries

Edwards is a leader in clean and dry vacuum technology. The first STP pumps were sold in 1983 and there are now over 80000 installations worldwide. 85% are operating on semiconductor process tools where they demonstrate exceptional levels of reliability. STP pumps are the first choice for applications demanding high up-time, hydrocarbon-free pumping, minimal maintenance and low vibration.

- Proven reliability.
- Clean oil-free high vacuum.
- Complete range from 300 to 4500 l s^{-1}.
- Application specific models.
- Very low noise and vibration.
- Low cost of ownership.
- Virtually maintenance free.
- Installation in any orientation.
- Full remote control interface.
- Supported globally by Edwards

Proven Magnetic Bearing Technology

The rotor is entirely suspended by 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.

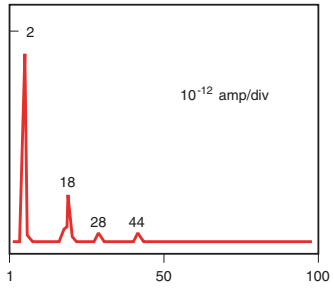
STP Range

UHV Series The Ultra High Vacuum series of magnetically levitated turbo molecular pumps are the products of choice for the semiconductor, surface science or high energy physics industries. They offer unrivalled reliability, performance, cleanliness and class leading low vibration levels. The pumps are all d.c. powered, eliminating the need for batteries, they use a half rack controller which features auto-tuning and advanced diagnostic features. The range contains pumps with speeds from 300 l s^{-1} to 1000 l s^{-1} all of which are available in ISO or CF flange variants.

High Throughput Series The high throughput series of magnetically levitated turbo pumps generate the high gas flows required by the current generation of semiconductor etch, ion implant and LCD systems. All the pumps feature a five active axis magnetic bearing system and a d.c. drive for increased robustness and stability. They use a Holweck stage to provide advanced throughput performance. They operate via a half rack controller with auto-tuning, advanced diagnostics and an integrated temperature management system. The range operates with throughput speeds from 300 l s^{-1} to 1300 l s^{-1}.

Advantage Series The new Advantage series of magnetically levitated turbo pumps have been designed to provide the highest levels of throughput required by the next generation of semiconductor etch and CVD processes. They have been developed, using continuous improvement techniques, from the ultra reliable, high performance H series of products. 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 800 l s^{-1} to 4500 l s^{-1}.

STP Features

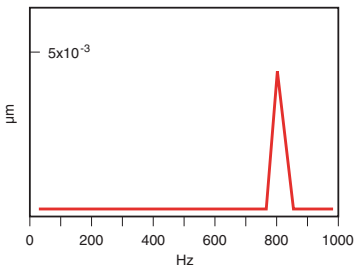


Residual gas analysis

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.



Vibration analysis STP300 displacement/frequency

Automatic Balancing System (ABS) ABS is a unique patented development of 5-axis technology. If any rotor imbalance is introduced (by deposition of process by-products, for example), sensors in the pump detect changes in the rotor motion and compensate the magnetic bearing fields to allow the rotor to spin on its natural inertial axis. This minimizes the vibration transmitted to the inlet flange. ABS works at all pump rotational speeds.

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.

Optimised Rotors 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.

Compound Rotors The high throughput pumps incorporate a Holweck drag stage that increases the pumps throughput at low pressure.

Advanced Series Compound Rotors The advanced series pumps have a redesigned compound rotor, the materials of manufacture have been improved to reduce the clearances within the pump, the rotors have an advanced 3D design and the Holweck stage has been redesigned to increase the throughput.

Corrosion Resistant To ensure a high level of resistance to corrosion, the corrosion resistant (C) and high throughput (H-C) pumps have nickel coated rotors/stators and pump internals suitable for ion implantation and plasma etching. Further enhanced levels of protection are available on request.

Nitrogen Purging The corrosion resistant (C) pumps and the high throughput (H-C) pumps have a nitrogen purge facility, 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.

Applications

Semiconductor Fabrication STP turbomolecular pumps are the number one choice for the world's leading semiconductor etch and implant manufacturers. The pumps are installed on the harshest applications (for example, metal etch) and demonstrate exceptional levels of reliability.

- Plasma etch (chlorine, fluorine and bromine chemistries) for metal (aluminium), tungsten and dielectric (oxide) and polysilicon
- Electron cyclotron resonance (ECR) etch
- Film deposition CVD, PECVD, ECRCVD, MOCVD
- Sputtering
- Ion implantation source, beam line pumping end station
- MBE
- Diffusion
- Photo resist stripping
- Crystal/epitaxial growth
- Wafer inspection
- Load lock chambers

Scientific Applications STP pumps are used extensively in the world's foremost research and development institutes. The pumps satisfy stringent performance criteria and reliability expectations. They are also used in the following applications:

- Scientific instruments: surface analysis, mass spectrometry, electron microscopy
- High energy physics: beam lines, accelerators
- Radioactive applications: fusion systems, cyclotrons

STPs and the Environment

Reducing Energy Usage

Reducing global energy consumption is key in the fight against global warming. In addition to minimising the energy our production facilities and offices consume, our latest generation of Maglev turbo pumps enable our customers to meet their energy reduction targets. Future proofing against carbon taxes and potentially qualifying for 'Green Grants'.

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 95,000 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
- Increased pumping performance
- Very low ambient noise and low vibration
- Reduced space requirements

Edwards HT10 Diffusion Pump vs Maglev Turbo Pump

	HT10 Diffusion Pump	STP iXA2205	% reduction	CO^2 reduction per year (tonnes)
Power consumption	5.1 kW	0.3 kW*	94%	22.6 pa**
Water consumption	400 l h^{-1}	120 l h^{-1}	70%	

Edwards HT16 Diffusion Pump vs Maglev Turbo Pump

	HT16 Diffusion Pump	STP XA3203	% reduction	CO^2 reduction per year (tonnes)
Power consumption	9 kW	0.3 kW*	97%	40.9 pa**
Water consumption	700 l h^{-1}	120 l h^{-1}	83%	

* at 300 sccm gas load power = 0.3 kW
** Energy source units vs kW/h
Kg CO_2 = kWh 0.537
Source: Department for Environment, Food, Rural Affairs, UK

Enabling Environmental Technology

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.

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.

Switching from just one 10 inch Diffusion pump to a Maglev turbo reduces the energy consumption by up to 95%, with a CO_2 reduction of 22.6 tonnes per year.

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 Turbo Pump Range

Integrated Controller

- 300 to 3300 l s^{-1}
- Compact design including a fully integrated controller
- Innovative, self-sensing magnetic bearing system
- Digital 5-axis control
- Can be configured to run corrosive processes
- Automatic Balancing System (ABS) standard
- Automatic Vibration Reduction (AVR) standard
- Reduces cabling requirement (no separate controller)
- Profibus® available
- IP54 rated

Ultra High Vacuum (UHV) Series

- 300 to 1000 l s^{-1}, <10^{-10} mbar (CF flange)
- Low vibration
- Highest reliability
- Maintenance free
- Harsh process compatible (C version)

UHV Low Vibration Series

- 300 to 500 l s^{-1}
- Built-in vibration isolator gives ultra low vibration performance
- Increased pumping performance
- Compact design
- Easy installation - one simple pump component solution
- Low magnetic field variants available

Advanced High Throughput Maglev Pumps

- 300 to 4500 l s^{-1}, 6 slm throughput class pump
- Advanced series rotor technology and 3D blade design
- The Holweck drag stage with reversed spiral for high gas throughput
- Digital 5-axis control
- Harsh duty compatible
- Class leading performance on ISO250
- Increased H_2, N_2 and Ar performances

STP-IX455 Turbomolecular vacuum pump

The STP-iX455 turbo-molecular pump features an innovative, magnetic bearing and motor drive system, providing a 50% reduction in vibration compared to previous generation turbo pumps. An integrated controller eliminates the need for a conventional, rack-mounted controller and interconnecting cables, and does not require water cooling.
The pump features 450 l/s pumping speed for nitrogen. The STP-iX455 is an excellent fit for electron microscope, metrology, lithography and other vibration sensitive applications.

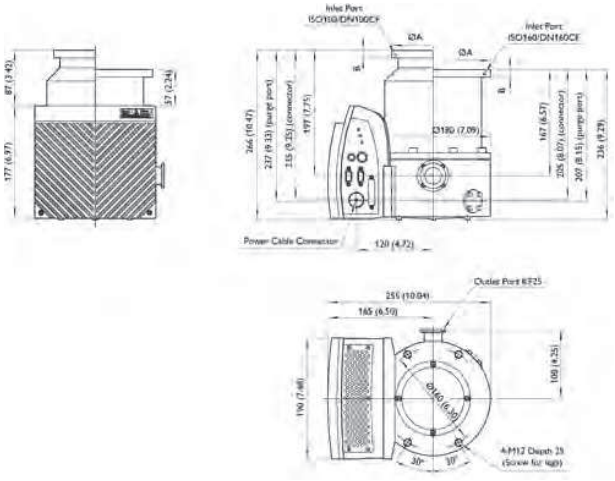
Features & Benefits

- Compact Design including a fully integrated controller
- Inovative, Self-Sensing magnetic bearing system
- Digital 5-axis control
- Vibration levels reduced by 50% compared to the existing turbo pumps
- Can be configured to run corrosive processes

Applications

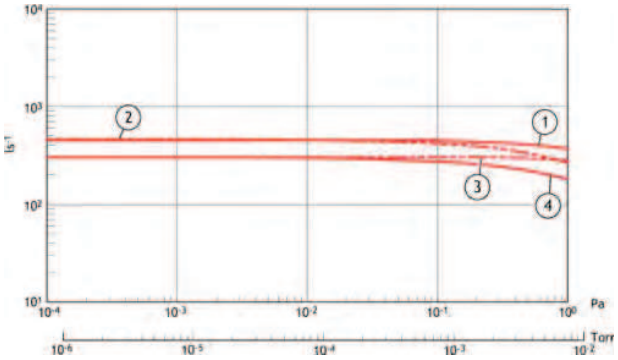
- Plasma etch (chlorine, fluorine and bromine chemistries) for metal (aluminum), tungsten and dielectric (oxide) and polysilicon
- Electron cyclotron resonance (ECR) etch
- Film deposition CVD, PECVD, ECRCVD, MOCVD
- Sputtering
- Ion implantation source, beam line pumping end station

Dimensions



Inlet Flange	A	B
ISO100	130 (5.12)	12 (0.47)
DN100CF	152 (5.98)	21 (0.83)
VG100	182 (7.17)	12 (0.47)
ISO160	180 (7.09)	12 (0.47)
DN160CF	203 (7.99)	22 (0.87)
VG150	235 (9.25)	12 (0.47)

Performance Curves



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)

Technical Data

Inlet flange	ISO100K
Pumping Speed	
N_2	300 l s^{-1}
H_2	300 l s^{-1}
Compression ratio	
N_2	$>10^8$
H_2	$>1 \times 10^4$
Ultimate pressure	6.5×10^{-6} order Pa
Maximum working pressure	1.3×10^{-1} Pa
Allowable backing pressure	67 Pa
Rated speed	55000 rpm
Starting time	<6 min
Mounting position	Any orientation
Cooling method	Natural cooling (water cooling or air cooling when baking and gas pumping)
Lubricating oil	Not necessary
Backing pump	240 l min^{-1}
Leakage Magnetic Flux	
Axial direction	<100 m Gauss
Radial direction	<100 m Gauss
Ambient temperature range	0 to 40 °C
Storage temperature range	-25 to 55 °C
Weight	15 kg

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
Accessories & Spares	**Order No.**
iPS240 Power supply	PT64W0Z00
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
Power supply cable for iPS240 3m	PT64Y0A10
Power supply cable for iPS240 5m	PT64Y0A20
iDT-001 Display unit	PT64W1Z00

STP301 Turbomolecular Vacuum Pump

Edwards STP301 is for use in electron microscopes and semiconductor applications. Edwards rotor technology gives class-leading performance for maximum process flexibility. The STP301 has been approved for use by major equipment manufacturers in the scientific instrument, semiconductor and magnetic media industries.

This STP pump is supplied with an inlet screen.

For a complete installation order an STP pump, a controller, a connection cable and power cable.

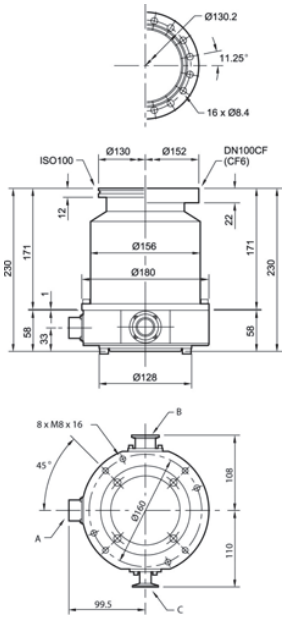
Features & Benefits

- Advanced rotor technology
- Maximized process flexibility
- Oil free
- Low vibration
- High reliability

Applications

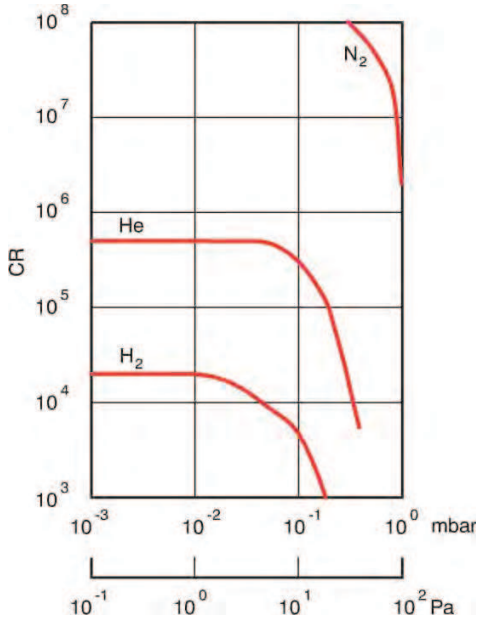
- Plasma etch (chlorine, fluorine and bromine chemistries) for metal (aluminum), tungsten and dielectric (oxide) and polysilicon
- Electron cyclotron resonance (ECR) etch
- Film deposition CVD, PECVD, ECRCVD, MOCVD
- Sputtering
- Ion implantation source, beam line pumping end station

Dimensions



A Electrical connector **B** Outlet port **C** Purge port

Performance Curves



Technical Data

Inlet flange	ISO100
Outlet port	KF25
Pumping Speed	
N_2	300 l s^{-1}
H_2	300 l s^{-1}
Compression ratio	
N_2	$>10^8$
H_2	$>2 \times 10^4$
Ultimate pressure with bake out heating	6.5×10^{-6} Pa (5×10^{-8} Torr)
Maximum allowable inlet pressure	
Ambient cooled	0.066 Pa (5×10^{-4} Torr)
Maximum continuous outlet pressure	
Ambient cooled	13 Pa (0.1 Torr)
Rated speed	48000 rpm
Starting time	3 min
Maximum inlet flange temperature	120 °C
Input voltage	100 to 120 V a.c. (± 10%) or 200 to 240 V a.c. (± 10%)
Power consumption	
Start up	0.55 kVA
Weight	
Pump	11 kg
Controller	7 kg

Ordering Information

Product Description	Order No.
STP301 ISO100 Inlet KF25 Outlet	B74830020
STP301 DN100CF Inlet	B74831010
STP301C ISO100 inlet KF25 outlet	B74871000
STP301C ISO100 Inlet	B74871010
STP301C ISO100 inlet KF40 outlet	B74872000
STP301C DN100CF Inlet	B74881010
Accessories & Spares	**Order No.**
STP straight connection cable, 3m	B70700010
STP straight connection cable, 5m	B70700000
Connection cable, 12m	PT21Y0B08
Type B P/Cab 3M UK Plug	A50505010
Type B P/Cab 3M Europe Plug	A50506010
Type B P/Cab 5M Ring Terminals	B70700040
Type B P/Cab 3M Ring Terminals	B70700090

STP-L301 Turbomolecular Vacuum Pump

Edwards corrosion resistant STP-L301(C) is for use in electron microscopes and semiconductor applications. Edwards rotor technology gives class-leading performance for maximum process flexibility.

The STP-L301(C) has been approved for use by major equipment manufacturers in the scientific instrument, semiconductor and magnetic media industries.

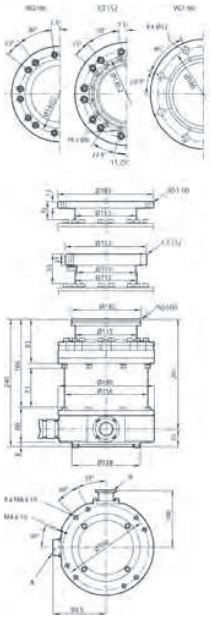
Features & Benefits

- Advanced rotor technology
- Maximized process flexibility
- Oil free
- Low vibration
- High reliability

Applications

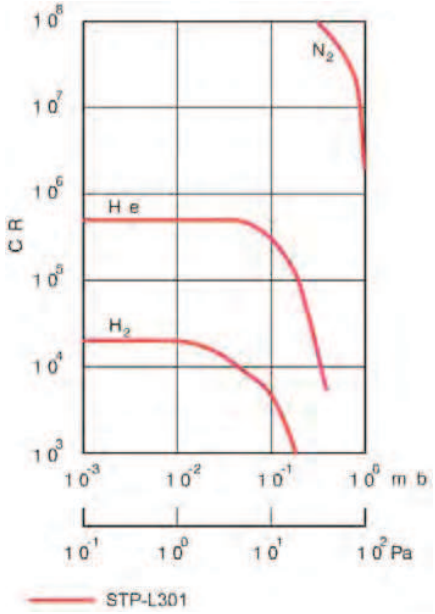
- Plasma etch (chlorine, fluorine and bromine chemistries) for metal (aluminum), tungsten and dielectric (oxide) and polysilicon
- Electron cyclotron resonance (ECR) etch
- Film deposition CVD, PECVD, ECRCVD, MOCVD
- Sputtering
- Ion implantation source, beam line pumping end station

Dimensions



A	Connector	B	Outlet port

Performance Curves



Technical Data

Inlet flange	ISO100
Outlet port	KF25
Purge port	KF10
Pumping Speed	
N_2	260 l s^{-1}
H_2	290 l s^{-1}
Compression ratio	
N_2	$>10^8$
He	5×10^5
H_2	2×10^4
Ultimate pressure with bake out heating	10^{-6} Pa (10^{-8} Torr)
Maximum allowable inlet pressure	
Ambient cooled	6.7×10^{-2} Pa (5×10^{-4} Torr)
Maximum continuous outlet pressure	
Ambient cooled	13 Pa (0.1 Torr)
Rated speed	48000 rpm
Starting time	3 min
Maximum inlet flange temperature	120 °C
Input voltage	100 to 120 V a.c. (± 10) or 200 to 240 V a.c. (± 10)
Power consumption	
Start up	0.55 kVA
Weight	
Pump	13 kg
Controller	7 kg

Ordering Information

Product Description	Order No.
STP-L301C ISO100 Inlet	B75800010
STP-L301 ISO100 Inlet	B75800090
STP-L301 DN100CF Inlet	PT470Z000
STP-L301C DN100CF Inlet	PT47AZ030
Accessories & Spares	**Order No.**
Connection cable, 12m	PT21Y0B08
STP straight connection cable, 3m	B70700010
STP straight connection cable, 5m	B70700000
Type B P/Cab 3M Europe Plug	A50506010
Type B P/Cab 3M Ring Terminals	B70700090
Type B P/Cab 3M UK Plug	A50505010
Type B P/Cab 5M Ring Terminals	B70700040

STP603 Turbomolecular Vacuum Pump

Edwards STP603 is a new turbomolecular pump for use in the most advanced semiconductor applications. Edwards rotor technology gives class-leading performance for maximum process flexibility. This pump has been approved for use by major equipment manufacturers in the semiconductor and magnetic media industries.

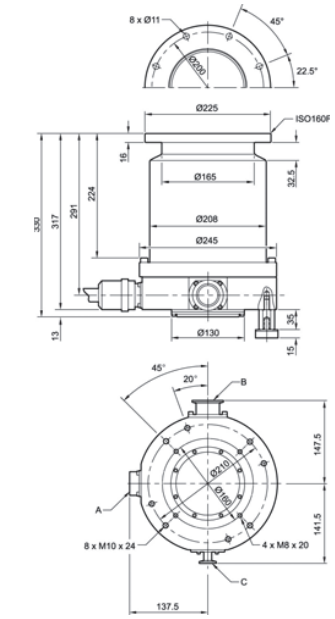
Features & Benefits

- Advanced rotor technology
- Maximized process flexibility
- Oil free
- Low vibration
- High reliability

Applications

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

Dimensions

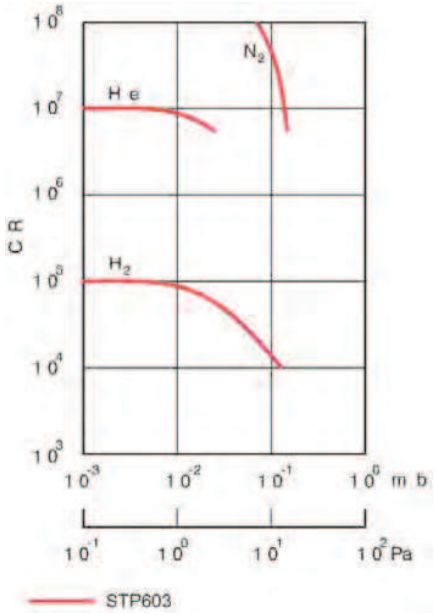


A Electrical connector

B Outlet port

C Purge port

Performance Curves



Technical Data

Inlet flange	ISO160F
Outlet port	KF40
Pumping Speed	
N_2	650 l s^{-1}
H_2	550 l s^{-1}
Compression ratio	
N_2	$>10^8$
H_2	$>10^5$
Ultimate pressure with bake out heating	10^{-7} Pa (10^{-9} Torr)
Maximum continuous outlet pressure	13 Pa (0.1 Torr)
Rated speed	35000 rpm
Starting time	6 min
Maximum inlet flange temperature	120 °C
Input voltage	100 to 120 V a.c. (± 10) or 200 to 240 V a.c. (± 10)
Power consumption	
Start up	0.8 kVA
Weight	
Pump	31 kg
Controller	9 kg

Ordering Information

Product Description	Order No.
STP603 ISO160F Inlet	YT39B0030
STP603C ISO160F Inlet	YT39B0110
STP603 DN160CF Inlet	YT390Z005
STP603C DN160CF Inlet	YT39AZ002
Accessories & Spares	**Order No.**
Connection Cable 3m	B75130050
Power Cable 10m	PT49Y0A01
Power Cable 5m	PT49Y0A00
SCU-800 Control unit	YT49Z2Z00
STP straight connection cable ,10m	B75130060
STP straight connection Cable, 5m	B75130020
Vibration Isolator ISO200-K	B58061000
Water cooling coil	B72132020

STP1003 Turbomolecular Vacuum Pump

Edwards corrosion resistant STP1003C is a new turbomolecular pump for use in the most advanced of semiconductor applications. Edwards rotor technology gives class-leading performance for maximum process flexibility. This pump has been approved for use by major equipment manufacturers in the semiconductor and magnetic media industries.

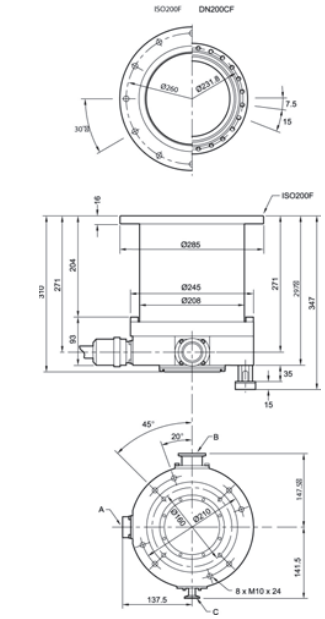
Features & Benefits

- Advanced rotor technology
- Maximized process flexibility
- Oil free
- Low vibration
- High reliability

Applications

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

Dimensions

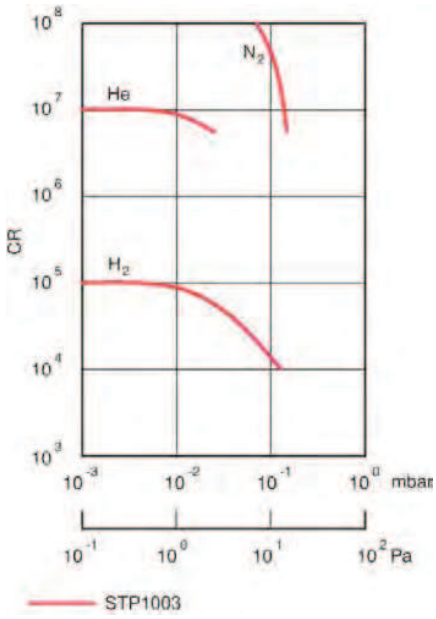


A Electrical connector

B Outlet port

C Purge port

Performance Curves



Technical Data

Inlet flange	ISO200F
Outlet port	KF40
Purge port	KF10
Pumping Speed	
N_2	1000 l s^{-1}
H_2	800 l s^{-1}
Compression ratio	
N_2	$>10^8$
H_2	$>10^5$
Ultimate pressure with bake out heating	10^{-7} Pa (10^{-9} Torr)
Maximum continuous outlet pressure	13 Pa (0.1 Torr)
Rated speed	35000 rpm
Starting time	6 min
Maximum inlet flange temperature	120 °C
Input voltage	100 to 120 V a.c. (± 10) or to 240 V a.c. (± 10)
Power consumption	
Start up	0.8 kVA
Weight	
Pump	31 kg
Controller	9 kg

Ordering Information

Product Description	Order No.
STP1003C ISO200F Inlet	YT39B0130
STP1003 ISO200F Inlet	YT390Z001
STP1003C DN200CF Inlet	PT39AZ003
STP1003 DN200CF Inlet	YT39B0010
Accessories & Spares	**Order No.**
Connection Cable 3m	B75130050
Power Cable 10m	PT49Y0A01
Power Cable 5m	PT49Y0A00
SCU-800 Control unit	YT49Z2Z00
STP straight connection cable ,10m	B75130060
STP straight connection Cable, 5m	B75130020
Vibration Isolator ISO200-K	B58061000
Water cooling coil	B72132020

STPH301 Turbomolecular Vacuum Pump

Edwards high performance STPH301C turbomolecular pump has been designed for use in the harshest of semiconductor applications. The pumps field proven reliability and class-leading performance give maximum process flexibility. The STPH301C has been approved for use by major equipment manufacturers in the semiconductor and magnetic media industries.

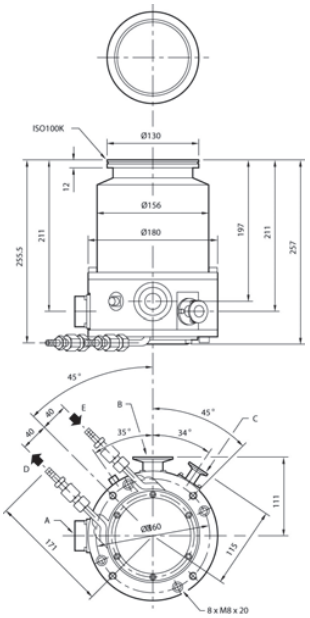
Features & Benefits

- Advanced rotor technology
- Higher gas throughput
- Maximized process flexibility
- Oil free
- Low vibration

Applications

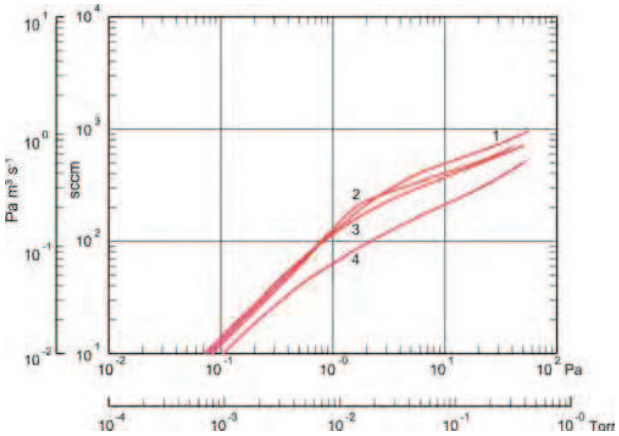
- Plasma etch (chlorine, fluorine and bromine chemistries) for metal (aluminum), tungsten and dielectric (oxide) and polysilicon
- Electron cyclotron resonance (ECR) etch
- Film deposition CVD, PECVD, ECRCVD, MOCVD
- Sputtering
- Ion implantation source, beam line pumping end station

Dimensions



A Electrical connector **B** Outlet port **C** Purge port **D** Cooling water out **E** Cooling water in

Performance Curves



1 Ar **2** N_2 **3** He **4** H_2

Technical Data

Inlet flange	ISO100K
Outlet port	KF40
Purge port	KF10
Water cooling fitting	PT1/4
Pumping Speed	
N_2	300 l s^{-1}
H_2	200 l s^{-1}
Compression ratio	
N_2	$>10^8$
H_2	10^3
Ultimate pressure with bake out heating	10^{-7} Pa (10^{-9} Torr)
Maximum continuous outlet pressure	660 Pa (5 Torr)
Maximum Nitrogen throughput	2500 sccm
Rated speed	48000 rpm
Starting time	4 min
Maximum inlet flange temperature	120 °C
Input voltage	100 to 120 V a.c. (± 10) or 200 to 240 V a.c. (± 10)
Power consumption	0.6 kVA
Weight	
Pump	15 kg
Controller	9 kg

Ordering Information

Product Description	Order No.
STPH301C ISO100K Inlet	B71901010
STPH301C DN100CF Inlet	YT340Z004
STPH301CV TMS ISO100F Inlet	YT3416001
STPH301CV TMS DN100CF Inlet	YT3416005
Accessories & Spares	**Order No.**
Connection Cable 3m	B75130050
Power Cable 10m	PT49Y0A01
Power Cable 5m	PT49Y0A00
SCU-800 Control unit	YT49Z2Z00
STP straight connection cable ,10m	B75130060
STP straight connection Cable, 5m	B75130020
TMS Connection Cable Kit	PT330V000
TMS Connection Cable Kit	PT330V001
TMS Connection Cable Kit	PT330V002

STPH451 Turbomolecular Vacuum Pump

Edwards high performance STPH451C turbomolecular pump has been designed for use in the harshest of semiconductor applications. The pumps field proven reliability and class-leading performance give maximum process flexibility. The STPH451C has been approved for use by major equipment manufacturers in the semiconductor and magnetic media industries.

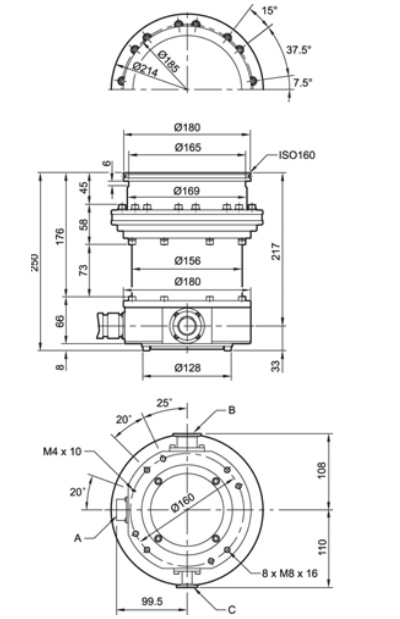
Features & Benefits

- Advanced rotor technology
- Higher gas throughput
- Maximized process flexibility
- Oil free
- Low vibration

Applications

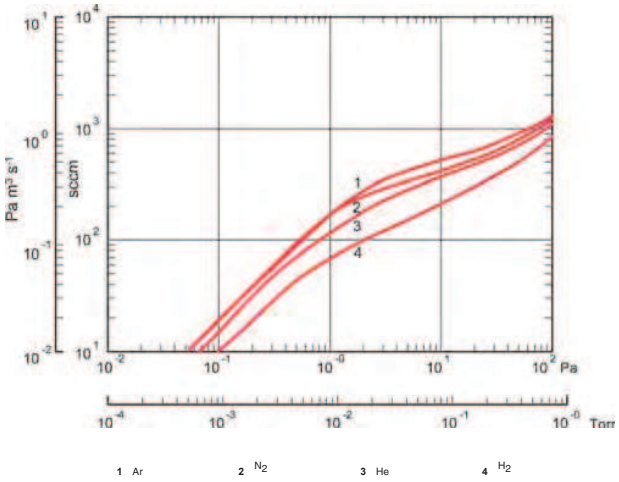
- Plasma etch (chlorine, fluorine and bromine chemistries) for metal (aluminum), tungsten and dielectric (oxide) and polysilicon
- Electron cyclotron resonance (ECR) etch
- Film deposition CVD, PECVD, ECRCVD, MOCVD
- Sputtering
- Ion implantation source, beam line pumping end station

Dimensions



A Electrical connector
B Outlet port
C Purge port
D Cooling water out
E Cooling water in

Performance Curves



1 Ar
2 N_2
3 He
4 H_2

Technical Data

Inlet flange	ISO160K
Outlet port	KF40
Purge port	KF10
Water cooling fitting	PT1/4
Pumping Speed	
N_2	450 l s^{-1}
H_2	300 l s^{-1}
Compression ratio	
N_2	$>10^8$
H_2	10^3
Ultimate pressure with bake out heating	10^{-7} Pa (10^{-9} Torr)
Maximum continuous outlet pressure	660 Pa (5 Torr)
Maximum Nitrogen throughput	2500 sccm
Rated speed	48000 rpm
Starting time	4 min
Maximum inlet flange temperature	120 °C
Input voltage	100 to 120 V a.c. (± 10) or 200 to 240 V a.c. (± 10)
Power consumption	0.6 kVA
Weight	
Pump	15 kg
Controller	9 kg

Ordering Information

Product Description	Order No.
STPH451C ISO160K Inlet	B71901001
STPH451C DN160CF Inlet	PT340Z005
STPH451CV TMS ISO160F Inlet	YT3416007
STPH451CV TMS DN160CF Inlet	YT3416006
Accessories & Spares	**Order No.**
Connection Cable 3m	B75130050
Power Cable 10m	PT49Y0A01
Power Cable 5m	PT49Y0A00
SCU-800 Control unit	YT49Z2Z00
STP straight connection cable ,10m	B75130060
STP straight connection Cable, 5m	B75130020
TMS Connection Cable Kit	PT330V000
TMS Connection Cable Kit	PT330V001
TMS Connection Cable Kit	PT330V002

STPA803C Turbomolecular Vacuum Pump

Edwards STPA803C turbomolecular pump is designed for use in semiconductor applications. Edwards advanced rotor technology gives class-leading performance for maximum process flexibility. The STPA803C has been approved for use by major equipment manufacturers in the semiconductor and magnetic media industries.

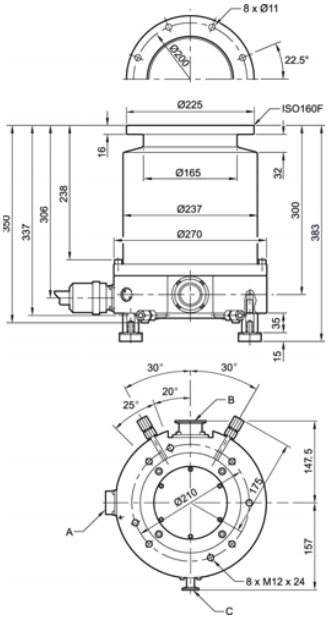
Features & Benefits

- Advanced rotor technology
- Maximized process flexibility
- Oil free
- Low vibration
- High reliability

Applications

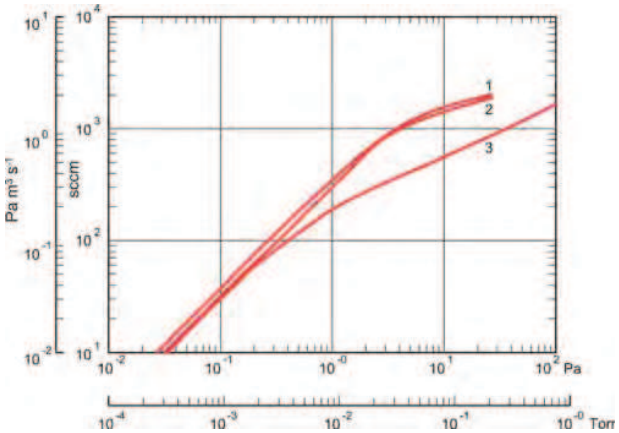
- Plasma etch (chlorine, fluorine and bromine chemistries) for metal (aluminum), tungsten and dielectric (oxide) and polysilicon
- Electron cyclotron resonance (ECR) etch
- Film deposition CVD, PECVD, ECRCVD, MOCVD
- Sputtering
- Ion implantation source, beam line pumping end station

Dimensions



A Electrical connector **B** Outlet port **C** Purge port

Performance Curves



1 Ar **2** N_2 **3** H_2

Technical Data

Inlet flange	ISO160F
Outlet port	KF40
Purge port	KF10
Water cooling fitting	PT1/4
Pumping Speed	
N_2	800 l s^{-1}
H_2	520 l s^{-1}
Compression ratio	
N_2	$>10^8$
H_2	10^3
Ultimate pressure with bake out heating	10^{-7} Pa (10^{-9} Torr)
Maximum continuous outlet pressure	270 Pa (2 Torr)
Maximum Nitrogen throughput	1500 sccm
Rated speed	32500 rpm
Starting time	7 min
Maximum inlet flange temperature	120 °C
Input voltage	200 to 240 V a.c. (± 10)
Power consumption	0.85 kVA
Weight	
Pump	39 kg
Controller	9 kg

Ordering Information

Product Description	Order No.
STPA803C ISO160F Inlet	YT36B0040
STPA803C DN160CF Inlet	YT36B0010
STPA803CV (TMS) ISO160F Inlet	YT3626000
STPA803CV (TMS) DN160CF Inlet	YT3626003
Accessories & Spares	**Order No.**
Power Cable 10m	PT49Y0A01
Power Cable 5m	PT49Y0A00
SCU-800 Control unit	YT49Z2Z00
STP straight connection cable ,10m	B75130060
STP straight connection Cable, 5m	B75130020
STPA803C Turbomolecular Vacuum Pump	YT3626003
TMS Connection Cable Kit	PT330V000
TMS Connection Cable Kit	PT330V001
TMS Connection Cable Kit	PT330V002

STPA1303C Turbomolecular Vacuum Pump

Edwards STPA1303C is a turbomolecular pump designed for use in semiconductor applications. Edwards advanced rotor technology gives class-leading performance for maximum process flexibility. The STPA1303C has been approved for use by major equipment manufacturers in the semiconductor and magnetic media industries.

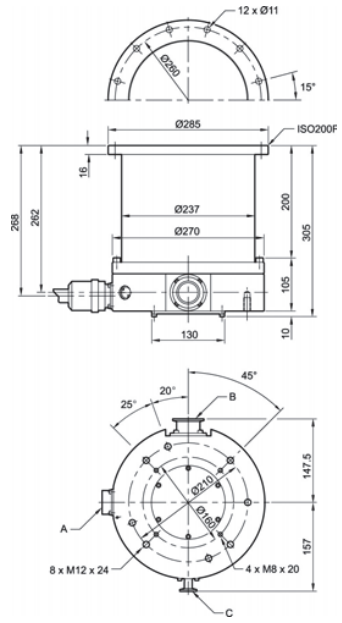
Features & Benefits

- Advanced rotor technology
- Higher gas throughput
- Maximized process flexibility
- Oil free
- Low vibration

Applications

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

Dimensions

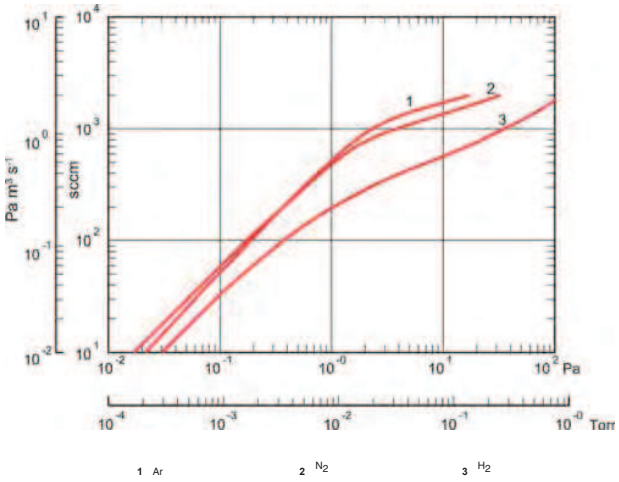


A Electrical connector

B Outlet port

C Purge port

Performance Curves



1 Ar

2 N_2

3 H_2

Technical Data

Inlet flange	ISO200F
Outlet port	KF40
Purge port	KF10
Water cooling fitting	PT1/4
Pumping Speed	
N_2	1300 l s^{-1}
H_2	800 l s^{-1}
Compression ratio	
N_2	$>10^8$
H_2	10^3
Ultimate pressure with bake out heating	10^{-7} Pa (10^{-9} Torr)
Maximum continuous outlet pressure *	270 Pa (2 Torr)
Maximum Nitrogen throughput *	1500 sccm
Rated speed	32500 rpm
Starting time	7 min
Maximum inlet flange temperature	120 °C
Input voltage	200 to 240 V a.c. (± 10)
Power consumption	0.85 kVA
Weight	
Pump	39 kg
Controller	9 kg

* Water cooled

Ordering Information

Product Description	Order No.
STPA1303C ISO200F Inlet	B71802020
STPA1303C DN200CF Inlet	YT36B0030
STPA1303C TMS ISO200F Inlet	YT3626005
STPA1303C TMS DN200CF Inlet	YT3626004
Accessories & Spares	**Order No.**
Connection Cable 3m	B75130050
Power Cable 10m	PT49Y0A01
Power Cable 5m	PT49Y0A00
SCU-800 Control unit	YT49Z2Z00
STP straight connection cable ,10m	B75130060
STP straight connection Cable, 5m	B75130020
STPA1303C Turbomolecular Vacuum Pump	YT3626005
STPA1303C Turbomolecular Vacuum Pump	YT3626004
TMS Connection Cable Kit	PT330V000
TMS Connection Cable Kit	PT330V001
TMS Connection Cable Kit	PT330V002

STPA1603C Turbomolecular Vacuum Pump

The small and powerful Edwards STPA1603C turbo-molecular pump has been designed using Edwards advanced rotor technology. This provides high throughput, maximum reliability and class leading performance which is demanded by the latest generation of semiconductor processes. Its half rack controller and compact design provide considerable space saving, whilst its advanced deposition reduction system gives improved reliability and performance. The STPA1603C has been qualified on the latest 200 mm etch tools as well as on new generation 300 mm oxide etch processes.

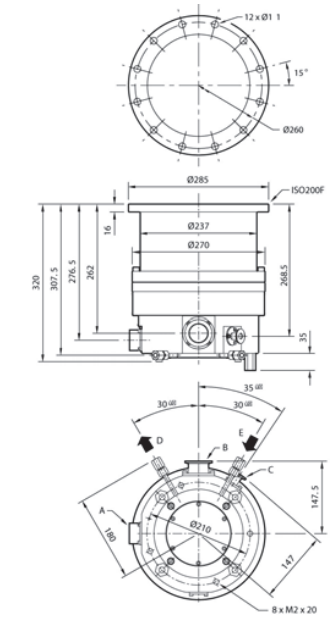
Features & Benefits

- Advanced rotor design
- Increased performance
- Higher gas throughput
- High reliability
- Maintenance free

Applications

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

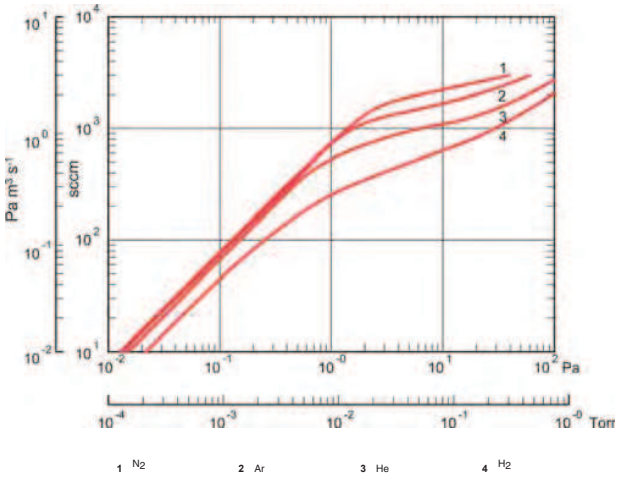
Dimensions



A Electrical connector **B** Outlet port **C** Purge port

D Cooling water out **E** Cooling water in

Performance Curves



1 N_2 **2** Ar **3** He **4** H_2

Technical Data

Inlet flange	ISO200F
Outlet port	KF40
Purge port	KF16
Water cooling fitting	PT1/4
Pumping Speed	
N_2	1600 l s^{-1}
H_2	1200 l s^{-1}
Compression ratio	
N_2	$>10^8$
H_2	$>7 \times 10^3$
Ultimate pressure with bake out heating	10^{-7} Pa
Maximum allowable backing pressure	266 Pa (2 Torr)
Maximum Nitrogen throughput	2500 sccm
Rated speed	36500 rpm
Starting time	7 min
Mounting position	Any
Water cooling flow	2 l min^{-1}
Temperature	5-25 °C
Pressure	3 kgf / cm^{-2}
Recommended purge gas flow	20 sccm
Input voltage	200 to 240 V a.c. (± 10)
Power consumption	0.85 kVA
Weight	
Pump	35 kg
Controller	9 kg

Ordering Information

Product Description	Order No.
STPA1603C ISO200F Inlet	B75100010
STPA1603C DN200CF Inlet	B75100100
STPA1603CV TMS ISO200F Inlet	YT4616004
STPA1603CV TMS DN200CF Inlet	YT4616005
Accessories & Spares	**Order No.**
Power Cable 10m	PT49Y0A01
Power Cable 5m	PT49Y0A00
SCU-800 Control unit	YT49Z2Z00
STP straight connection cable ,10m	B75130060
STP straight connection Cable, 5m	B75130020

STPA2203C Turbomolecular Vacuum Pump

Edwards STPA2203C is a new turbomolecular pump designed for use in semiconductor applications. It has advanced rotor technology that gives class-leading performance for maximum process flexibility. A new half rack controller gives additional space savings and incorporates d.c. drive technology for battery-free operation. The STPA2203C has been approved for use by major etch, ion implant and deposition equipment manufacturers in the semiconductor and magnetic media industries.

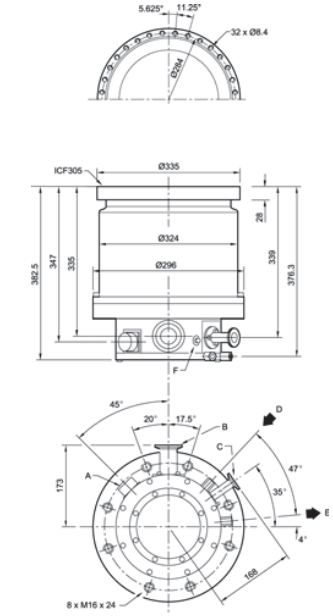
Features & Benefits

- Advanced rotor design
- Higher gas throughput
- Maximized process flexibility
- 5 Axis Magnetic Suspension System
- Zero contamination

Applications

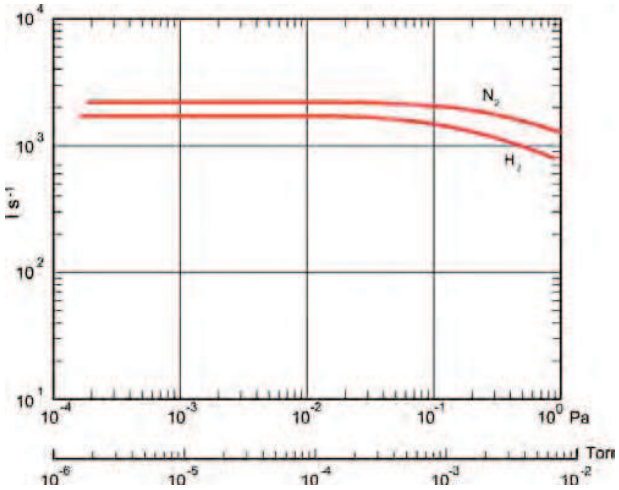
- Plasma etch (chlorine, fluorine and bromine chemistries) for metal (aluminum), tungsten and dielectric (oxide) and polysilicon
- Electron cyclotron resonance (ECR) etch
- Film deposition CVD, PECVD, ECRCVD, MOCVD
- Sputtering
- Ion implantation source, beam line pumping end station

Dimensions



A Electrical connector
B Outlet port
C Purge port
D Cooling water out
E Cooling water in
F Temperature sensor connector

Performance Curves



Technical Data

Inlet flange	ISO250F
Outlet port	KF40
Purge port	KF10
Water cooling fitting	PT1/4
Pumping Speed	
N_2	2200 l s^{-1}
H_2	1700 l s^{-1}
Compression ratio	
N_2	$>10^8$
H_2	$>2.5 \times 10^4$
Ultimate pressure	10^{-6} Pa (10^{-8} Torr)
Maximum allowable backing pressure	400 Pa (3 Torr)
Maximum Nitrogen throughput	1500 sccm
Rated speed	27000 rpm
Starting time	7 min
Mounting position	Any
Water cooling	
Flow	2 l min^{-1}
Temperature	5-25 °C
Pressure	2.9×10^5 Pa (3 kgf $cm^{-1)}$
Recommended purge gas flow	20 sccm
Input voltage	200 to 240 V a.c. (± 10)
Power consumption	1.5 kVA
Weight	
Pump	61 kg
Controller	12 kg

Ordering Information

Product Description	Order No.
STPA2203C ISO250F Inlet	YT4V0Z002
STPA2203C DN250CF Inlet	YT4V0Z003
STPA2203CV TMS ISO250F Inlet	YT4V66001
STPA2203CV TMS DN250CF Inlet	YT4V66002
Accessories & Spares	**Order No.**
10m TMS connection cable kit	PT351V001
15m TMS connection cable kit	PT351V002
5m TMS connection cable kit	PT351V000
Power Cable 10M	PT35Y0A00
Power Cable 5m	B75030020
SCU-1400 Control unit	YT72Z0Z00
STP straight connection cable, 10m	B75030040
STP straight connection cable, 5m	B75030010

STP-XA2703 Turbomolecular Pump

The STP-XA2703C turbo pump offers high performance in the process range of high vacuum to 2300 sccm process flow with enhanced throughput for all gases.

This pump is based on a new platform design offering features to improve thermal management, which enhances performance on harsh processes, increases the maximum process flow capability and reduces the effects of corrosion and deposition.

The outstanding performance is suited to both light and harsh applications, such as semiconductor etch, implant, lithography and LCD processes.

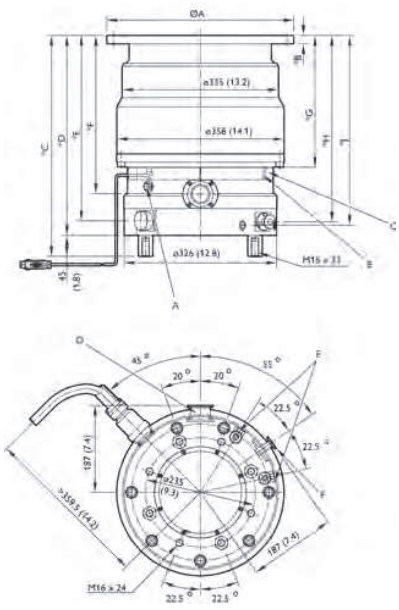
Features & Benefits

- Advanced rotor design
- Increased H_2, N_2 and Ar performance
- Improved performance in the process pressure range of high vacuum to 2300 sccm
- Maintenance free
- 5-axis magnetic suspension system

Applications

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

Dimensions

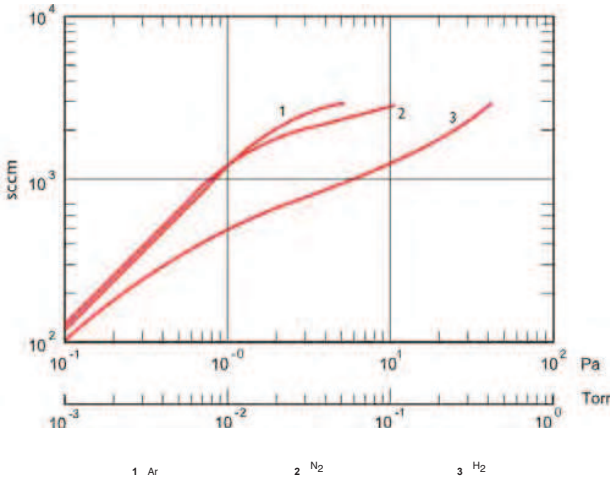


	VG250	ISO250F	ICF305 (DN250CF)
A	350 (13.8)	335 (13.2)	305 (12.0)
*B	15 (0.6)	15 (0.6)	28 (1.1)
*C	454 (17.9)	454 (17.9)	459 (18.1)
*D	409 (16.1)	409 (16.1)	414 (16.3)
*E	377.5 (14.9)	377.5 (14.9)	383 (15.1)
*F	319 (12.6)	319 (12.6)	325 (12.8)
*G	262 (10.3)	262 (10.3)	267 (10.5)
*H	379.5 (14.9)	379.5 (14.9)	385 (15.2)
*J	387 (15.2)	387 (15.2)	393 (15.5)

mm (inch)

A Temperature management system (TMS) sensor
B TMS Heater (TMS spec only)
C TMS heater cover (TMS spec only)
D Outlet port KF40
E Cooling water port Rc 1/4 ISO
F Purge port KF10

Performance Curves



1 Ar 2 N_2 3 H_2

Technical Data

Inlet flange	VG250
Pumping Speed	
N_2	2650 l s^{-1}
H_2	2050 l s^{-1}
Compression ratio	
N_2	$>10^8$
H_2	$>6 \times 10^3$
Ultimate pressure	10^{-7} Pa
Maximum allowable backing pressure	266 Pa
Maximum allowable gas flow	
N_2 (water cooled)	2300 sccm (3.8 Pa m^3/s)
Ar (water cooled)	1900 sccm (3.2 Pa m^3/s)
Rated speed	27500 rpm
Starting time	8 min
Mounting position	Any orientation
Water cooling	
Flow	3 l min^{-1}
Temperature	5-25 °C (41-77 °F)
Pressure	0.3 MPa
Recommended purge gas flow	50 sccm (8.4×10^{-2} Pa m^3/s)
Input voltage	200 to 240 V a.c. (± 10)
Power consumption	1.5 kVA
Weight	
Pump	75 kg (165 lb)
Controller	12 kg (26.4 lb)

Ordering Information

Product Description	Order No.
STP-XA2703C VG250	YT660Z110
STP-XA2703C ISO250	PT660Z140
STP-XA2703C DN250CF	YT6610010
Accessories & Spares	**Order No.**
Power Cable 10M	PT35Y0A00
Power Cable 5m	B75030020
SCU-1400 Control unit	YT72Z0Z00
STP straight connection cable, 10m	B75030040
STP straight connection cable, 5m	B75030010

STP-XA3203 Turbomolecular Pump

The STP-XA3203C turbo pump offers high performance in the process range of high vacuum to 2300 sccm process flow with enhanced throughput for all gases.

This pump is based on a new platform design offering features to improve thermal management, which enhances performance on harsh processes, increases the maximum process flow capability and reduces the effects of corrosion and deposition.

The outstanding performance is suited to both light and harsh applications, such as semiconductor etch, implant, lithography and LCD processes.

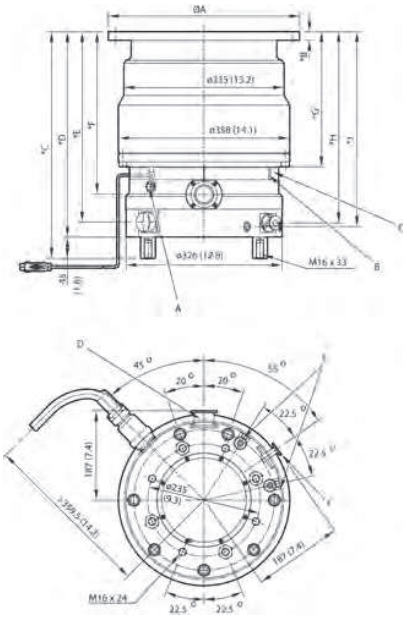
Features & Benefits

- Advanced rotor design
- Increased H_2, N_2 and Ar performance
- Improved performance in the process pressure range of high vacuum to 2300 sccm
- Maintenance free
- 5-axis magnetic suspension system

Applications

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

Dimensions

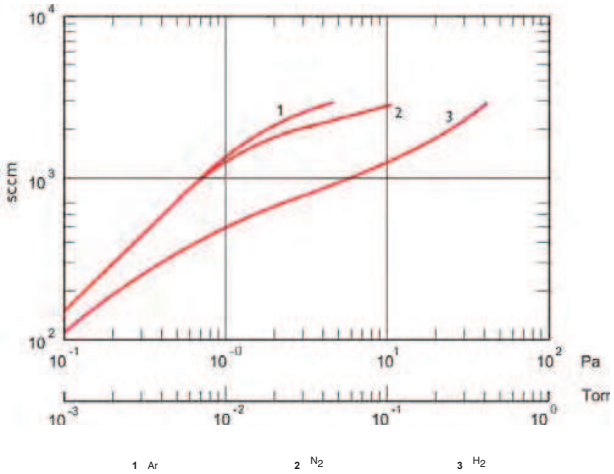


	VG300	ISO320F	ICF356 (DN320CF)
A	400 (15.8)	425 (16.7)	356 (14.0)
*B	18 (0.7)	20 (0.8)	28.5 (1.1)
*C	415.5 (16.4)	415.5 (16.4)	454.5 (17.9)
*D	370.5 (14.6)	370.5 (14.6)	409.5 (16.1)
*E	339 (13.3)	339 (13.3)	378.5 (14.9)
*F	280.5 (11.0)	280.5 (11.0)	320.5 (12.6)
*G	223.5 (8.8)	223.5 (8.8)	262.5 (10.3)
*H	341 (13.4)	341 (13.4)	380.5 (15.0)
*J	348.5 (13.7)	348.5 (13.7)	388 (15.3)

mm (inch)

A Temperature management system (TMS) sensor
B TMS Heater (TMS spec only)
C TMS heater cover (TMS spec only)
D Outlet port KF40
E Cooling water port Rc 1/4 ISO
F Purge port KF10

Performance Curves



1 Ar 2 N_2 3 H_2

Technical Data

Inlet flange	ISO320F
Pumping Speed	
N_2	3200 l s^{-1}
H_2	2300 l s^{-1}
Compression ratio	
N_2	$>10^8$
H_2	$>6 \times 10^3$
Ultimate pressure	10^{-7} Pa
Maximum allowable backing pressure	266 Pa
Maximum allowable gas flow	
N_2 (water cooled)	2300 sccm (3.8 Pa m^3/s)
Ar (water cooled)	1900 sccm (3.2 Pa m^3/s)
Rated speed	27500 rpm
Starting time	8 min
Mounting position	Any orientation
Water cooling	
Flow	3 l min^{-1}
Temperature	5-25 °C (41-77 °F)
Pressure	0.3 MPa
Recommended purge gas flow	50 sccm (8.4×10^{-2} Pa m^3/s)
Input voltage	200 to 240 V a.c. (± 10)
Power consumption	1.5 kVA
Weight	
Pump	80 kg (176 lb)
Controller	12 kg (26.4 lb)

Ordering Information

Product Description	Order No.
STP-XA3203C ISO320F	YT660Z050
STP-XA3203C DN320CF	PT660Z080
STP-XA3203C VG300	YT660Z150
Accessories & Spares	**Order No.**
Power Cable 10M	PT35Y0A00
Power Cable 5m	B75030020
SCU-1400 Control unit	YT72Z0Z00
STP straight connection cable, 10m	B75030040
STP straight connection cable, 5m	B75030010

STP-XA4503C Turbomolecular Pump

The STP-XA4503C magnetic bearing turbomolecular pump has a wide process window, from high vacuum, to high flow requirements with enhanced throughput for all gases.

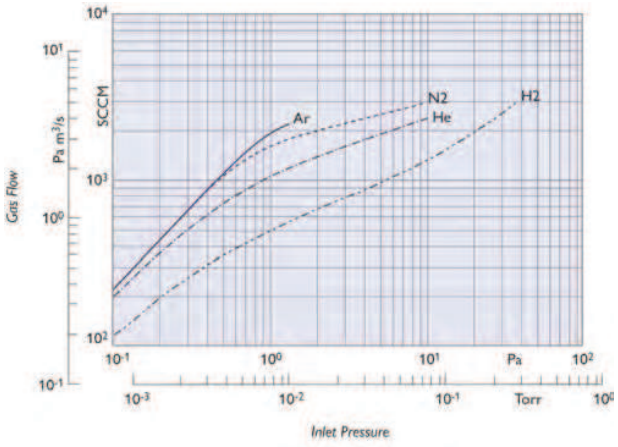
This pump is based on a new design, offering features to improve thermal management, which enhances performance on harsh processes, increases the maximum process flow capability and reduces the effects of corrosion and deposition.

It has been designed to handle light and harsh duty applications, such as etch, implant, lithography and FPD processes.

Features & Benefits

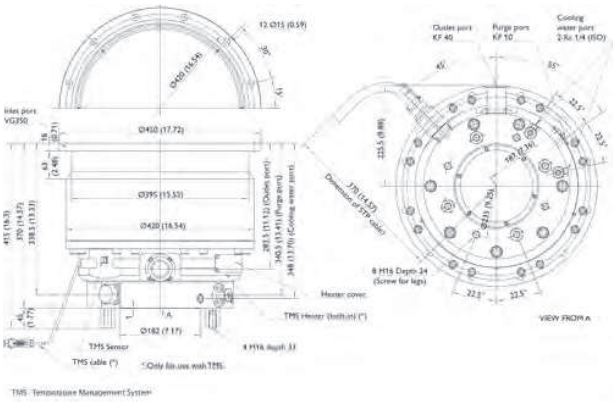
- Advanced Rotor Design
- Increased Argon performance
- Highest pumping speed in its class
- Wide process window
- Higher throughput at lower pressure

Performance Curves



P-Q characteristics of STP-4503C series

Dimensions



Ordering Information

Product Description	Order No.
STP-XA4503C ISO320F Inlet	YT670Z040
Accessories & Spares	**Order No.**
SCU-1500 Control unit	PT59Z0Z00
STP straight connection cable, 5m	B75030010
STP straight connection cable, 10m	B75030040
Power Cable 5m	B75030020
Power Cable 10M	PT35Y0A00

Technical Data

Inlet flange size	VF300, ISO320F, VG350
Backing port size	KF40
Pumping speed	
N_2	3800 to 4300 Litres/second(dependant on model)
H_2	2500 Litres/second
Compression ratio	
N_2	$>10^8$
H_2	6×10^3
Ultimate pressure	10^{-7} Pa / 10^{-9} mbar
Maximum allowable backing pressure	266 Pa / 2.66 mbar
Maximum allowable gas flow*1 N_2(Water cooled only)	2800 sccm / 4.73 Pa m^3/s
Maximum allowable gas flow*1 Ar(Water cooled only)	2150 sccm / 3.63 Pa m^3/s
Rated speed	24000 rpm
Run up time to 90% rated speed	12 minutes
Mounting position	Any orientation
Water cooling	
Flow	3 Litres / minutes
Temperature	5 – 25 °C / 41 – 77 °F
Pressure	3 Kgf/cm^2
Recommended purge gas flow N_2	50 sccm / 8.4×10^{-2} Pa m^3/s
Input voltage	200 – 240 +/- 10 % ac V
Maximum input power (without TMS)	1.5 KVA

SCU-21 Control Unit

The Edwards SCU21 turbo pump control unit is a fully digital controller, and has perfect compatibility for middle sized pumps. New AVR (Auto vibration reduction) technology achieves a further reduction in vibration levels, and the advanced pre-maintenance call function provides advanced notice of precise maintenance time.
The reliability focused design, enhanced communication function, and perfect compatibility bring significant back up units savings and contributes to a reduction in total C_0O.

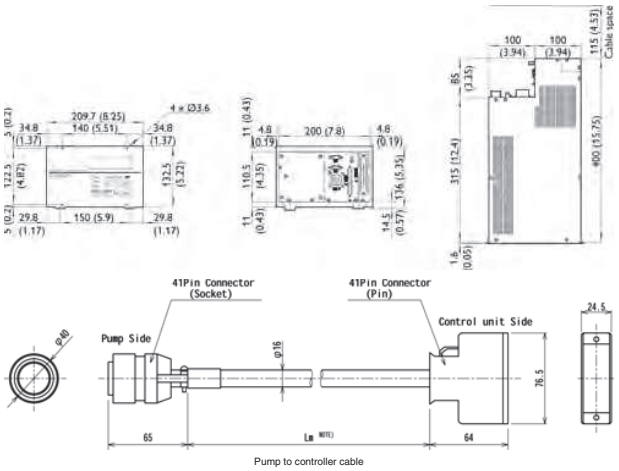
Features & Benefits

- Universal Controller
- Single controller is used for middle sized pumps. No requirement for different controllers for each pump type
- Service back up stocks will be reduced
- Advanced Pre-maintenance Function
- AVR (Auto Vibration Reduction) minimizes the rotate system vibration during acceleration.

Applications

- Applicable Models
- STP301/451 series

Dimensions



Pump to controller cable

Ordering Information

Product Description	Order No.
SCU-21 Turbo Pump Control Unit	B74810030
SCU-21 Turbo Pump Control Unit	PT21z0z04
Accessories & Spares	**Order No.**
Type B P/Cab 3M Ring Terminals	B70700090
Type B P/Cab 5M Ring Terminals	B70700040
Type B P/Cab 10M Ring Terminals	PT21Y0A00
Type B P/Cab 15M Ring Terminals	PT21Y0A01
STP straight connection cable, 3m	B70700010
STP straight connection cable, 5m	B70700000
STP straight connection cable, 10m	B70700130
STP straight connection cable, 15m	B70700070
STP straight connection cable, 20m	B70700150

Technical Data

Magnetic bearing control system	Digital control
Input voltage	100 – 120 V a.c. ±10
	200 – 240 V a.c. ±10
Power consumption (Start up)	Max 550 VA
Power consumption (continuous)	Max 150 VA
Input frequency	50/60 Hz ±2
Leak current	3.5 mA
Main breaker rated current	10 A
Motor drive system	3-phase DC
Allowable ambient temperature	0 to 40 ºC (32 to 104 ºF)
Weight	7 kg
TMS control unit	Built-in
Serial communication function (RS232/RS485)	Standard
Panel display	LCD

SCU-800 Control unit

The Edwards SCU800 turbo pump control unit is a fully digital controller, and has perfect compatibility for middle sized pumps. New AVR (Auto vibration reduction) technology achieves a further reduction in vibration levels, and the advanced pre-maintenance call function provides advanced notice of precise maintenance time.
The reliability focused design, enhanced communication function, and perfect compatibility bring significant back up units savings and contributes to a reduction in total C_0O.

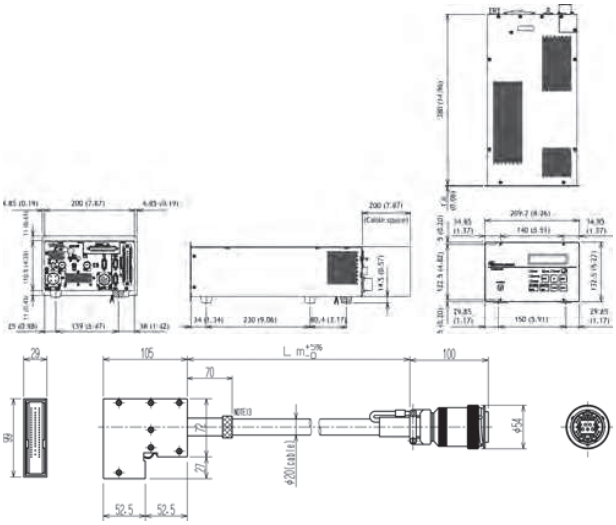
Features & Benefits

- Universal Controller
- Single controller is used for middle sized pumps. No requirement for different controllers for each pump type
- Service back up stocks will be reduced
- Advanced Pre-maintenance Function
- AVR (Auto Vibration Reduction) minimizes the rotate system vibration during acceleration.

Applications

- Applicable Models
- STP603/1003 series
- STPH301/H451 series
- STPH803/H1303 series
- STPA803C/A1303 series

Dimensions



Pump to controller cable

Ordering Information

Product Description	Order No.
SCU-800 Turbo Pump Control Unit	YT49Z2Z00
Accessories & Spares	**Order No.**
Power Cable 5m	PT49Y0A00
Power Cable 10m	PT49Y0A01
Power Cable 15m	PT49Y0A02
Power Cable 20m	PT49Y0A03
STP straight connection Cable, 5m	B75130020
STP straight connection cable ,10m	B75130060
STP straight connection cable, 15M	B75130070
STP straight connection cable, 20M	B75130190

Technical Data

Magnetic bearing control system	Digital control
Input voltage	100 – 120 V a.c. ±10
	200 – 240 V a.c. ±10
Power consumption (without Temperature Management System, TMS)	Max 850 VA
Power consumption (with TMS)	Max 1200 VA
Input frequency	50/60 Hz ±2
Leak current	3.5 mA
Main breaker rated current	10 A
Motor drive system	3-phase DC
Allowable ambient temperature	0 to 40 ºC (32 to 104 ºF)
Weight	8.5 kg
TMS control unit	Built-in
Serial communication function (RS232/RS485)	Standard
Panel display	LCD

SCU-1600 Control unit

The fully digital SCU-1600 turbo pump control unit is compatible with STP turbo pumps ranging from 2000 l s^{-1} to 3500 l s^{-1}. It provides reliability, enhanced communication and pump compatibility with reduced back-up unit requirements and minimized overall cost of ownership.

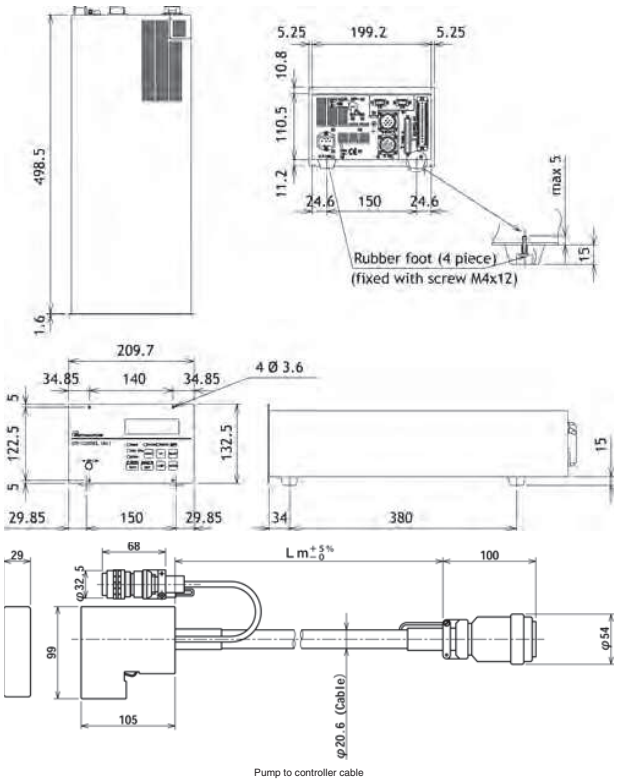
Features & Benefits

- Advanced pre-maintenance function
- Precise maintenance timing
- Two stage warning messages
- Rotor imbalance monitoring
- Back-up bearing damage monitoring

Applications

- The following turbomolecular pump models:
- STP-A2203/2503/2803/3003/3503
- STP-F2203
- STP-XA2703/3203/4503
- STP-XH2603/3203

Dimensions



Ordering Information

Product Description	Order No.
SCU-1600 Turbo Pump Control Unit	YT76Z0Z00
Accessories & Spares	**Order No.**
Power cable, 5m	YT76Y0A01
Power cable, 10m	YT76Y0A02
Power cable, 15m	YT76Y0A03
Power cable, 20m	YT76Y0A04
STP straight connection cable, 5m	B75030010
STP straight connection cable, 10m	B75030040
STP straight connection cable, 15m	B75030220
STP straight connection cable, 20m	B75030230

Technical Data

Magnetic bearing control system	Digital control
Input voltage	200 – 240 V a.c. ±10
Power consumption (without Temperature Management System, TMS)	Max 1600 VA
Power consumption (with TMS)	Max 2100 VA
Input frequency	50/60 Hz ±2
Leak current	3.5 mA
Main breaker rated current	15 A
Motor drive system	3-phase DC
Allowable ambient temperature	0 to 40 ºC (32 to 104 ºF)
Weight	12 kg
TMS control unit	Built-in
Serial communication function (RS232/RS485)	Standard
Operation switch	Start, Stop, Reset, Select, Up, Down, Enter, Manual/Remote
Panel display	LCD