

EXT75DX & EXT255DX TURBOMOLECULAR PUMPS



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INNOVATIVE PRODUCTS

GLOBAL STRENGTH

LOCAL SUPPORT

VACUUM EXPERTISE

Turbomolecular pumps with on-board controller

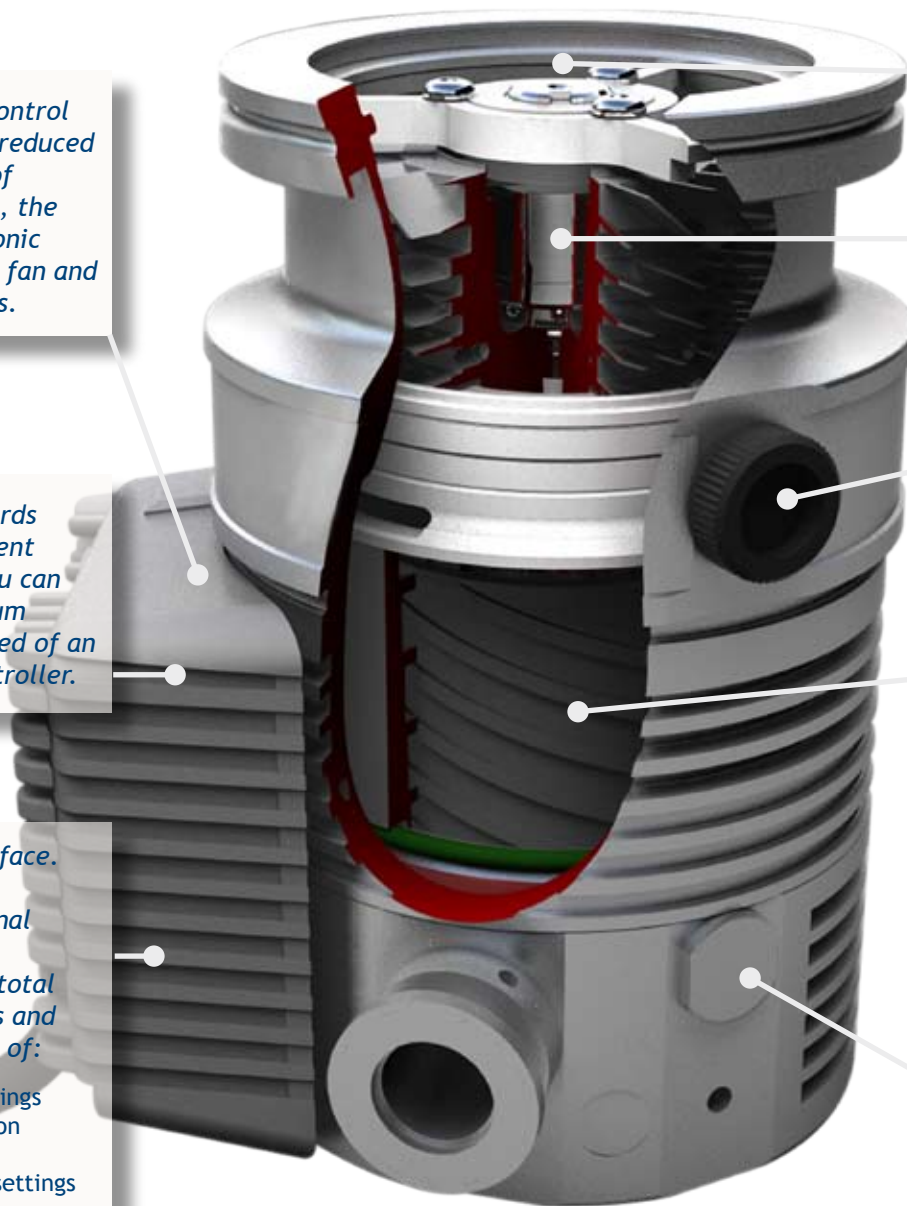
Edwards is a world leader in the design and manufacture of turbomolecular pumps with over 200,000 units installed worldwide. The range of products includes the EXT75DX and EXT255DX compound turbomolecular pumps that combine the proven technology of a ceramic mechanical lower bearing, a dry permanent magnetic upper bearing and Holweck drag stage with the added convenience of an on-board controller and a 24V motor.

On-board intelligent control gives ability to run at reduced power for lower cost of ownership. In addition, the controller adds electronic braking, smart cooling fan and automatic vent options.

Compatible with Edwards TIC Turbo and Instrument Controller meaning you can add one or more vacuum gauges without the need of an additional display controller.

Parallel or serial interface. Parallel mode allows traditional control signal interface. Serial mode gives RS232 providing total control of pump status and continuous monitoring of:

- vent valve control settings
- running speed indication
- standby running speed
- programmable power settings
- power consumption
- pump/controller temperature



Inlet screen fitted as standard (not shown).

Permanent magnetic upper bearing for clean vacuum, reduced vibration and minimum wear.

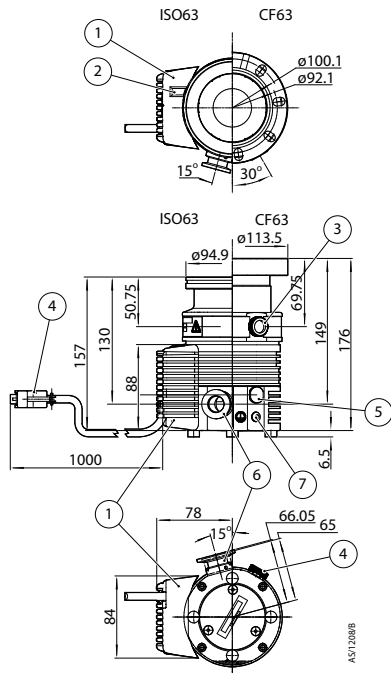
Manual vent valve (solenoid operated version available for fully automatic venting).

Holweck stage for high throughput and high backing pressure tolerance.

Gas purge port for process gas dilution to protect motor and lower bearing.

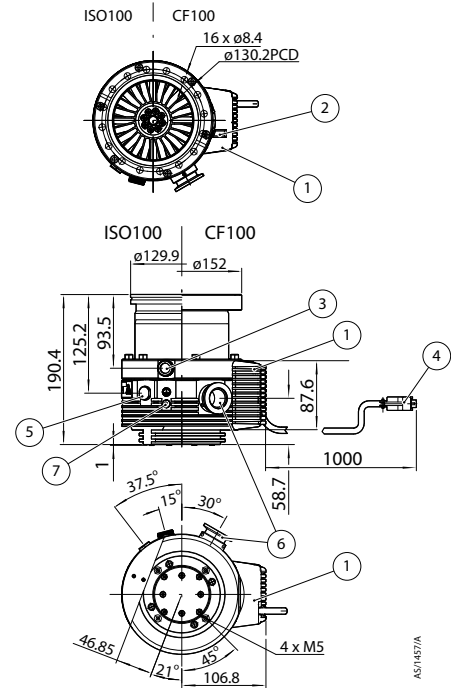
Dimensions

EXT75DX

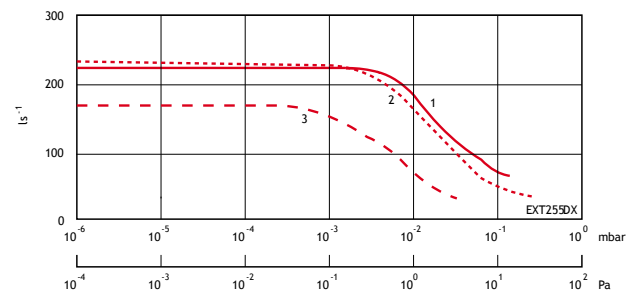
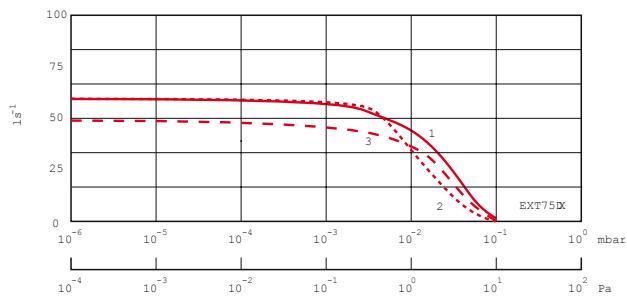


- 1 Electronic control podule
- 2 Accessories connector socket
- 3 Vent port
- 4 Electrical connection (to TIC)
- 5 Purge port
- 6 Backing port
- 7 Earth connection

EXT255DX



Pumping Speed

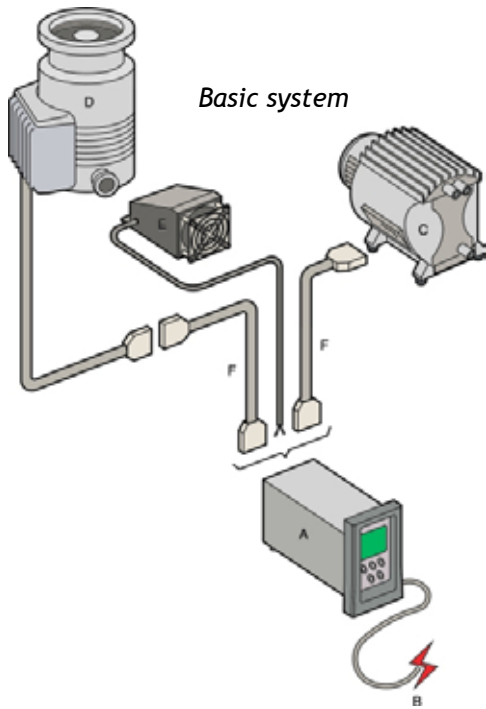


1 Nitrogen 2 Helium 3 Hydrogen

Complete range of Edwards Turbomolecular pumps from 70 to 4500 l/s



Typical EXT DX Configuration



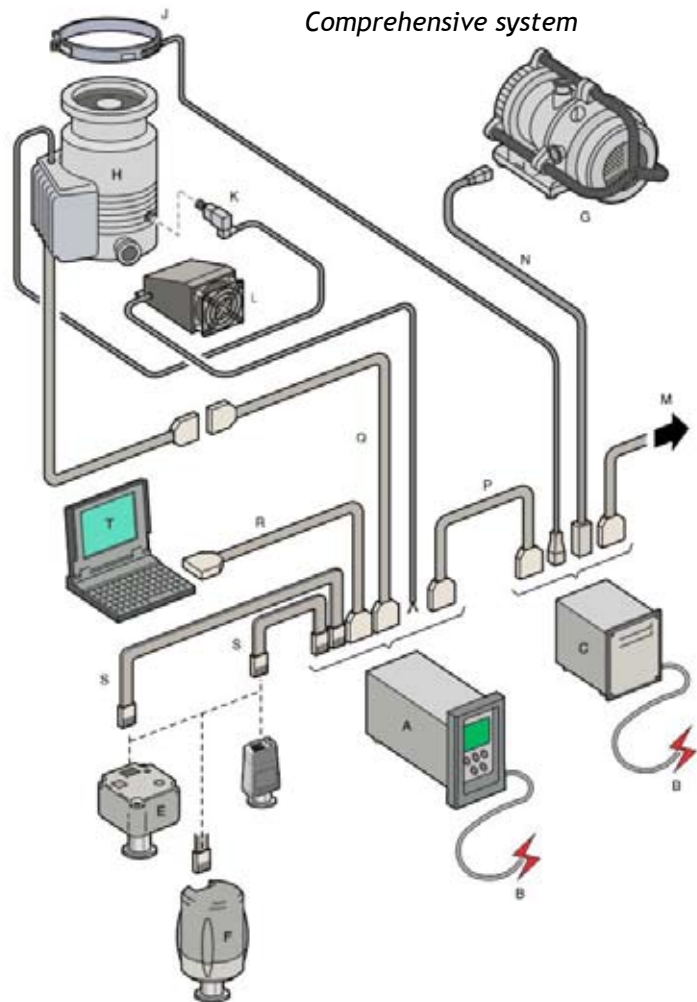
Basic System

- A TIC 200 Turbo Controller
- B Mains cable (TIC and relay box supply)
- C XDD1 diaphragm pump (24V)
- D EXT DX turbo pump#
- E ACX air cooler
- F XDD/DX/EXDC extension cable

Comprehensive System

- A TIC200 Turbo & instrument
- B Mains cable (TIC and relay box supply)
- C Relay box
- D APG100 Pirani gauge
- E AIGX ion gauge
- F AIM inverted magnetron gauge
- G XDS5 scroll pump
- H EXT DX turbo pump#
- J BX heater band *
- K TAV5 vent valve
- L ACX air cooler
- M TIC logic interface cable
- N TIC mains cable IEC320 M/F
- P TIC logic interface cable
- Q XDD/DX/EXDC extension cable
- R TIC RS232 interface cable
- S Active gauge cable
- T PC with RS232 interface

* For use with water-cooled pumps only
 # EXT75DX used for illustrative purposes on diagram



Note: The pumps are also available in pre-configured EXPT pumping stations. Contact Edwards for details.

Technical Data

	EXT75DX	EXT255DX
Inlet flange	DN40NW, DN63ISO-K, DN63CF or DN100ISO-K	DN100ISO-K, DN100CF
Compression ratio		
N ₂	>1 × 10 ¹¹	>1 × 10 ⁸
He	1 × 10 ⁶	4 × 10 ⁵
H ₂	5 × 10 ⁴	1.6 × 10 ⁴
Outlet flange	DN16NW	DN25NW
Recommended backing pump*	E2M0.7/XDD1/XDS5	RV3/XDS5
Vent port	1/8 inch BSP	1/8 inch BSP female
Purge port	1/8 inch BSP	1/8 inch BSP female
Maximum continuous inlet pressure (light gas pumping)†		
Water cooling (water at 15 °C, ambient temp at 40 °C)	2 × 10 ⁻² mbar	5 × 10 ⁻³ mbar
Forced air cooled, 35 °C ambient	1 × 10 ⁻² mbar	5 × 10 ⁻³ mbar
Pump rotational speed		
Nominal rotational speed	90000 rpm	60000 rpm
Standby rotational speed	Variable from 49500 to 90000 rpm (63000 rpm default)	Variable from 33000 to 60000 rpm (42000 rpm default)
Programmable power limit settings	Variable from 50-120W (80W default)	Variable from 80-200W (160W default)
Start time to 90% speed	110 s ‡	80 s #
Analogue outputs		Pump rotational speed; Power consumption; Pump temperature; Controller temperature
Cooling method ^Δ	Forced air / water	Forced air / water
Ambient air temperature for forced air cooling	5 - 35 °C	5 - 35 °C
Minimum cooling water flow rate (water 15 °C)	15 l h ⁻¹	15 l h ⁻¹
Water temperature range	10 - 20 °C	10 - 20 °C
Maximum inlet flange temperature	100 °C	100 °C (CF version)
Operating attitude	Vertical and upright, through to horizontal	Vertical and upright, through to horizontal
Noise level at 1 metre	<50 dB(A)	<50 dB(A)
Maximum magnetic field pump can tolerate	5 mT	5 mT
Recommended controller	TIC100 turbo and instrument controller	TIC200 turbo and instrument controller
Quiescent electrical power	10 W	25 W

* A larger backing pump may be required for maximum throughput. A suitable diaphragm pump with ultimate <5 mbar may also be used.

† Above this inlet pressure, rotational speed drops to below nominal.

‡ Power limit set to 80 W.

Power limit set to 160 W

Δ Air and water cooling accessories must be ordered separately

Ordering Information



The TIC controller automatically recognises and supports one 24V turbomolecular pump from the EXT range. Cooling and vent valve support is provided directly from the controller. Backing pump power is provided for a compact 24V diaphragm pump (on 200W versions only), or where greater pumping speeds are required, mains backing pumps (up to RV12) may be controlled via an optional relay box. The relay box can also be used to control a mains heater band and backing line isolation valve.

Time delays and normal speed signals may be used to control events such as turbo start and there is a comprehensive selection of protection and safety interlock features.

The TIC turbo controller may be either rack or bench mounted and provides a useful hub for the flexible operation of a wide range of vacuum system configurations.

EXT75DX

Pump	Inlet Flange	Order No.
EXT75DX	DN63ISO	B72241000
EXT75DX	DN63CF	B72242000
EXT75DX	DN40NW	B72243000
EXT75DX	DN100ISO	B72245000

EXT255DX

Pump	Inlet Flange	Order No.
EXT255DX	DN100ISO-K	B75311000
EXT255DX	DN100CF	B75312000

Controllers & Accessories

Controllers	Order No.
TIC100 turbo and instruments*	D39721000
TIC200 turbo and instruments*	D39722000
TIC relay box	
Small backing pump	D39711805
Instruments & small backing pump	D39721806
Coolers	
ACX75 air cooling accessory†	B58053075
ACX250 air cooling accessory#	B58053160
WCX250 water cooling accessory-	B73600121
Bakeout bands	
BX70 heater band 110V 30W†	B58052040
BX70 heater band 240V 30W†	B58052060
BX250 heater band 110V 60W#	B58052041
BX250 heater band 240V 60W#	B58052061

Vent Valve	Order No.
TAV5 vent valve	B58066010
Mains cables (suitable for TIC or relay box)	
UK 2m	D40013025
US 2m	D40013120
EUR 2m	D40013030
Mains cable IEC320 M/F 2m	D39700831
Interface cables	
TIC logic interface cable	D39700833
TIC RS232 interface cable 2m	D39700834
XDD/DX/EXDC extension cable 2m	D39700836
Active gauge cables	
0.5 m	D40001005
1 m	D40001010

Other cable lengths also available. Please contact Edwards for further details

* Lower cost turbo only TIC controllers also available.
 †For EXT75DX. # For EXT255DX. - Suitable for both EXT75DX & EXT255DX.

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