

EXT75DX turbomolecular pump

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



Features and benefits

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 TAG and 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

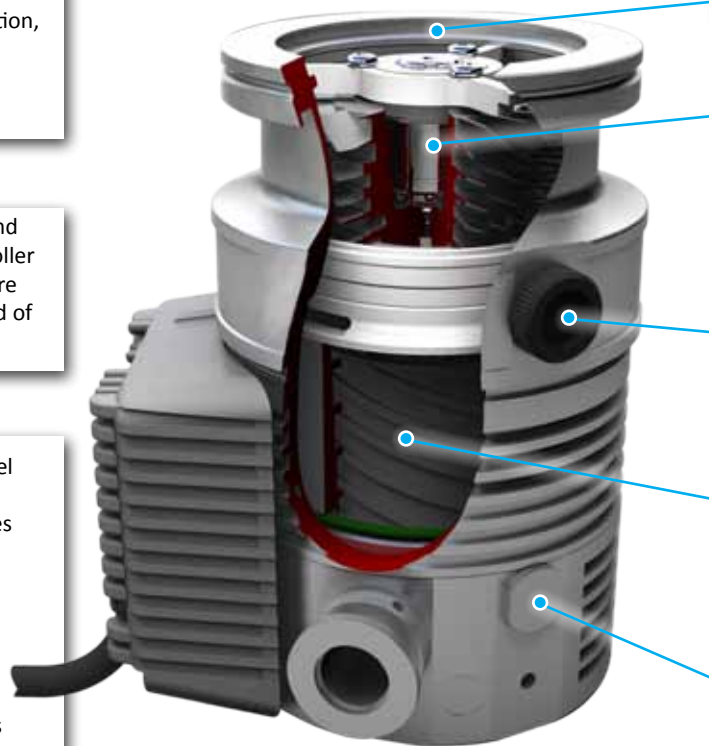
Inlet screen supplied as standard (not shown)

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

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

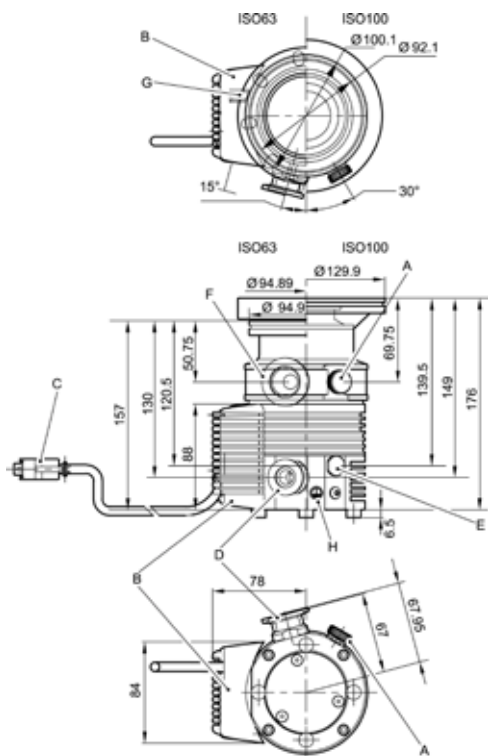
Holweck stage for high throughput and high backing pressure tolerance

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



Dimensions and technical data

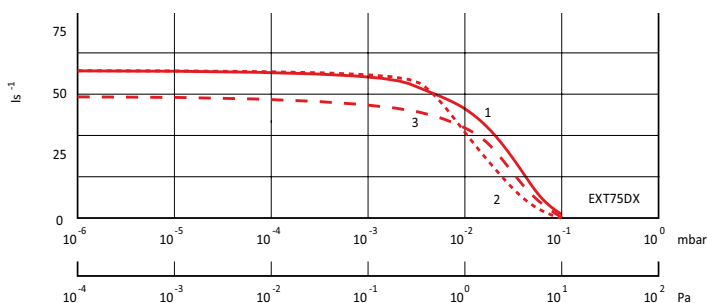
Dimensions in mm (inch)



- A Manual vent valve in vent port
- B Podule
- C Logic interface connector
- D Backing port
- E Purge port (blanked off)
- F Interstage port (EXT75DX only)
- G Podule connector socket
- H Earth connection

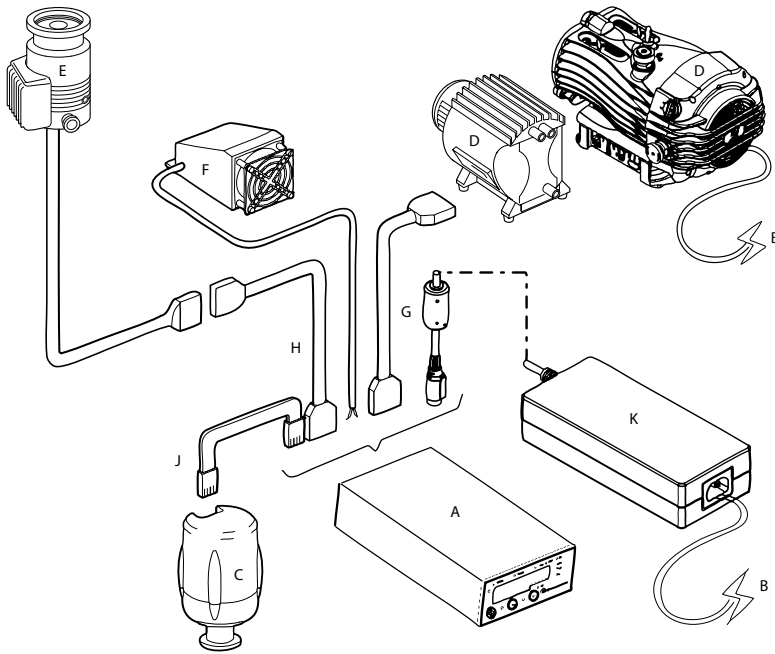
Inlet flange	DN40NW, DN63ISO-K, DN63CF or DN100ISO-K
Compression ratio	
N ₂	>1 × 10 ¹¹
He	1 × 10 ⁶
H ₂	5 × 10 ⁴
Outlet flange	DN16NW
Recommended backing pump	E2M0.7/XXD1/RV5/nXDS6i
Vent port	1/8 inch BSP
Purge port	1/8 inch BSP
Maximum continuous inlet pressure (light gas pumping) [†]	
Water cooling (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	Pump rotational speed; Power consumption; Pump temperature; Controller temperature
Cooling method ^Δ	Forced air / water
Ambient air temperature for forced air cooling	5 - 35 °C
Minimum cooling water flow rate (water 15 °C)	15 l h ⁻¹
Water temperature range	10 - 20 °C
Maximum inlet flange temperature	100 °C
Operating attitude	Vertical and upright, through to horizontal
Noise level at 1 metre	<50 dB(A)
Maximum magnetic field pump can tolerate	5 mT
Recommended controller	TIC100 turbo and instrument controller
Quiescent electrical power	10 W
[†] Above this inlet pressure, rotational speed drops to below nominal.	
[‡] Power limit set to 80 W.	
^Δ Air and water cooling accessories must be ordered separately	

Pumping speed



1 Nitrogen 2 Helium 3 Hydrogen

Typical EXT75DX configuration

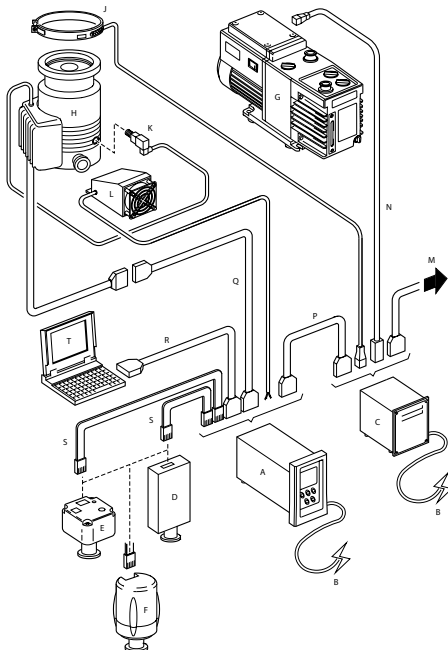
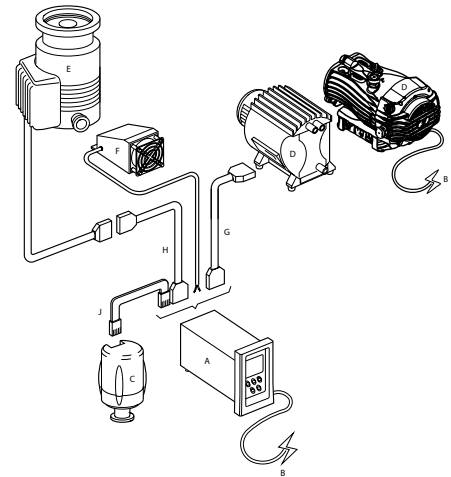


Basic TAG system

- A TAG Controller
- B Mains cable
- C Active gauge, e.g. WRG-S-NW25
- D Backing pump - XDD1 24Vdc diaphragm pump or nXDS scroll pump
- E EXT75DX turbopump
- F Air cooler
- G XDD/DX/EXDC extension cable
- H XDD/DX/EXDC extension cable (optional)
- J Active gauge cable
- K Power supply

Basic TIC system

- A TIC, 200W
- B Mains cable
- C Active gauge - WRG-S-NW25
- D Backing pump XDD1 24Vdc diaphragm pump or nXDS scroll pump
- E EXT75DX turbopump
- F Air cooler
- G XDD/DX/EXDC extension cable
- H XDD/DX/EXDC extension cable (optional)
- J Active gauge cable



Comprehensive TIC system

- A TIC200 Turbo & instrument
- B Mains cable
- C Relay box
- D APG100 Pirani gauge
- E AIGX ion gauge
- F AIM Penning gauge
- G RV pump
- H EXT75DX turbopump
- J CF Flange heater
- K TAV5 vent valve
- L ACX air cooler
- M TIC logic interface cable
- N IEC 320 M/F cable
- P TIC logic interface cable
- Q XDD/DX/EXDC extension cable
- R TIC RS232 interface cable
- S Active gauge cable
- T PC with RS232 interface

Note: EXT75DX turbopumps are also available in pre-configured nEXT pumping stations and T-station 75 pumping station. Contact Edwards for details. TIC100 can also be used with EXT75DX if second 15 way D connector not required to control backing pump.

TIC controller

The TIC controller automatically recognises and supports one 24 V turbomolecular pump from the EXT/nEXT range. Cooling and vent valve support is provided directly from the controller. Backing pump power is provided for a compact 24 V 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 CF flange heater 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.

TAG controller

The TAG (Turbo & Active Gauge) controller is a small, compact, low cost pumping system Controller, which is suitable for a wide range of vacuum applications. It is a 24V controller that is compatible with all Edwards DX and nEXT turbopumps. It contains no power source and thus you either need to supply your own power or buy the optional power supply. In addition to a turbopump it can control a backing pump, a vent valve, an air cooler and an Edwards active gauge.



The TAG Controller is controlled by an easy to use interface. A large clear LED display shows the pump speed or vacuum pressure. The compact size of the controller is ideal for use on bench-tops or suitable mobile platforms.

Ordering information and accessories

Pump	Order no.	Vent Valve	Order No.
EXT75DX, DN63ISO inlet flange	B72241000	TAV5 vent valve	B58066010
EXT75DX, DN63CF inlet flange	B72242000	Mains cables (suitable for TIC or relay box)	
EXT75DX, DN40NW inlet flange	B72243000	UK 2m	D40013025
EXT75DX, DN100ISO inlet flange	B72245000	US 2m	D40013120
Controllers	Order No.	EUR 2m	D40013030
TIC100 turbo and instruments*	D39721000	Mains cable IEC320 M/F 2m	D39700831
TIC200 turbo and instruments*	D39722000	Interface cables	
TAG turbo and active gauge controller	D39592000	TIC logic interface cable	D39700833
TIC relay box		TIC RS232 interface cable 2m	D39700834
Small backing pump	D39711805	XDD/DX/EXDC extension cable 2m	D39700836
Instruments & small backing pump	D39721806	Active gauge cables	
Coolers		0.5 m	D40001005
ACX75 air cooling accessory	B58053075	1 m	D40001010
Bakeout bands			
BX70 heater band 110V 30W	B58052040		
BX70 heater band 240V 30W	B58052060		

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

* Lower cost turbo only TIC controllers also available.

Global contacts

EUROPE

UK Crawley +44 1293 528844
UK (local rate) 08459 212223
Belgium Brussels +32 2 300 0730
France Paris +33 1 4121 1256
Germany Munich 0800 000 1456
Italy Milan +39 02 48 4471

USA

Niagara (toll free) +1 800 848 9800
BRAZIL
Sao Paulo +55 11 3952 5000
ISRAEL
Qiryat-Gat +972 8 681 0633

ASIA PACIFIC

China (toll free) +86 400 111 9618
India, Pune +91 20 4075 2222
Japan, Yachiyo +81 47 458 8831
Korea, Bundang +82 31 716 7070
Singapore +65 6546 8408
Taiwan R.O.C. Jhunan Town +886 3758 1000