

nEXT TURBOMOLECULAR PUMPS

 **EDWARDS**

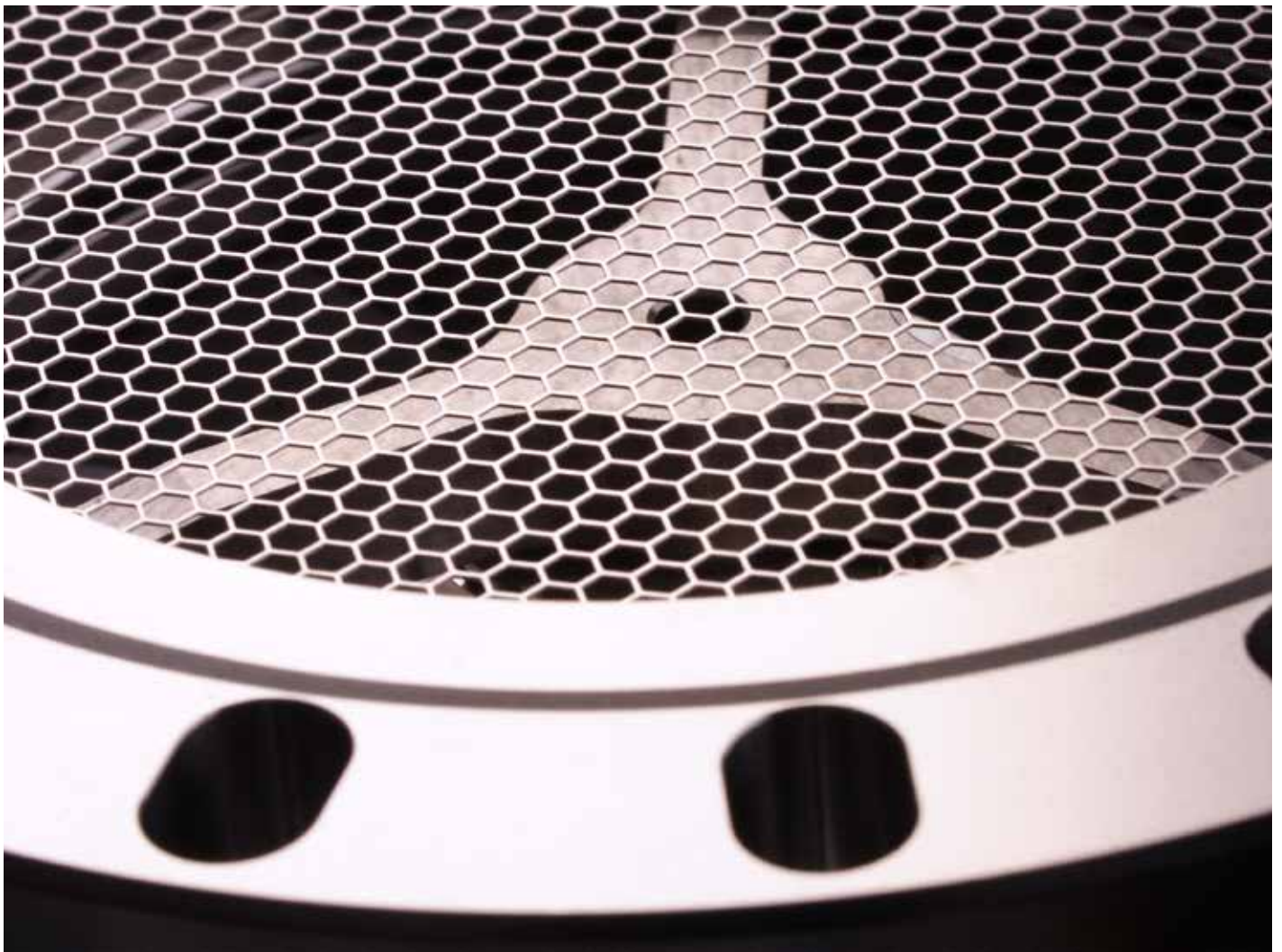




EDWARDS THE PARTNER OF CHOICE

Edwards is a world leader in the design, technology and manufacture of vacuum pumps, with over 100 years' history and more than 80 years' manufacturing experience.

We believe in delivering results that bring value to our customers by using our breadth of industry experience to identify and apply solutions to your problems. Using the most innovative and up-to-date modelling techniques and know-how, we can optimise the pumping configuration to achieve the maximum performance in the most reliable and cost-effective way.



INNOVATION AND RELIABILITY

Edwards nEXT is the ultimate experience in turbomolecular pumps

nEXT turbomolecular pumps are built on decades of experience and are drawing from our tried and trusted EXT and STP ranges. nEXT pumps offer superior performance, reliability and end user serviceability, setting the benchmark for scientific turbomolecular pumps.

Superior performance

Exceptional pumping speeds and compression ratios

Proven reliability for peace of mind

Huge install base of turbo pumps

Flexible solutions

Bespoke design service available

Ease of use

Integrated intelligent controls

Extended lifetime and low cost of ownership

Fully end user serviceable

Large variety of standard variants

Enhanced customer choice



nEXT85



nEXT240



nEXT300



nEXT400

Applications

Research & Development

- » Chamber evacuation, coating systems, turbomolecular pump systems

High Energy Physics

- » Beam Lines, accelerators, mobile pump carts, turbomolecular pump backing, laser evacuation, medical systems

Mass Spectrometry

- » GCMS, LCMS, ICPMS, MALDI, inorganic MS, RGA, surface science, leak detectors

Electron Microscopy

- » TEM, SEM, EPMA, sample prep benches

Industrial

- » Glove boxes, coating systems, XRD/XRF systems, lamp evacuation

You can be assured Edwards has the application expertise and vacuum solution to meet your needs.

ADVANCED TECHNOLOGY

nEXT has been designed to combine all the latest technological advances in turbomolecular pumps with some new thinking in design for manufacture, delivering a truly class leading product.

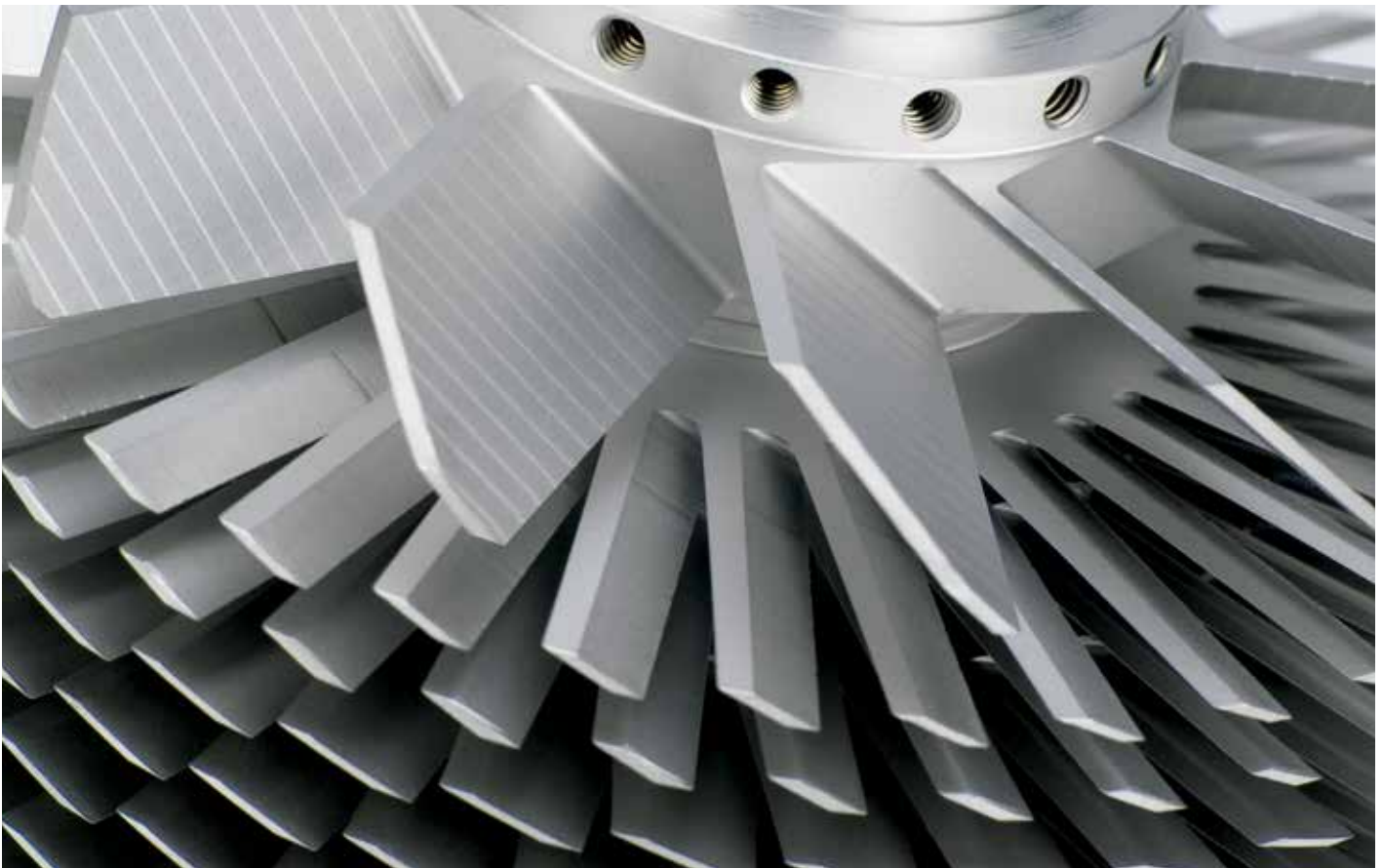
The nEXT platform brings a high level of modularity to offer maximum flexibility for customer application and requirements. Each pump is available in different internal configurations to offer differing functionality and performance.

On nEXT240, 300, 400 Duplex “D” variants with both turbomolecular and drag stages for improved tolerance to higher backing line pressures. Triplex “T” variants feature turbomolecular, drag and Edwards unique regenerative pumping stages for the ultimate in compression ratio and boost technology for unique vacuum system rationalisation.

On nEXT85 pumps are available in “D” and “H” variants. The “D” variants offer superior pumping speed and compression across all gas species. Where an application has a focus on light gas compression, the “H” variant has been physically tuned to offer an improvement in this.

nEXT is available in four pumping speeds and a range of inlet flange sizes

<ul style="list-style-type: none">• nEXT85 NW40 or DN63 ISO-K, DN63 ISO CF or DN100 ISO-K	<ul style="list-style-type: none">• nEXT240 DN100 ISO-K or DN100 ISO CF	<ul style="list-style-type: none">• nEXT300 DN100 ISO-K or DN100 ISO CF	<ul style="list-style-type: none">• nEXT400 DN160 ISO-K or DN160 ISO CF
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BOOST TECHNOLOGY

For our Analytical Instrument Customers the "T" variants of nEXT 240,300,400 employ a unique regenerative pumping stage which can be used to 'boost' the performance of the backing pump. This offers a much simplified vacuum solution with greatly improved pumping speeds and system power reduction. The example in the image below shows how the boost ports can be used to replace a primary pump on a differentially pumped system.

Customers in general laboratory and R&D applications will also benefit from the improved compression achieved with the "T" variant. To take maximum advantage of boost technology, please contact Edwards.



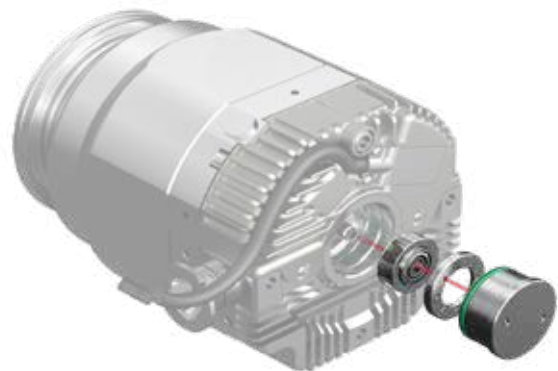
END USER SERVICEABILITY

New technologies employed in nEXT have enabled the pumps to be serviced by the end user in the field. An oil lubrication cartridge change can be performed, where access allows, typically in less than 5 minutes and a full bearing change can also be performed by the end user in around 10 minutes both with the minimum of specialist tooling. These simple interventions will, in many cases, mean that the pump never requires a full return to base service during its lifetime.

nEXT turbomolecular pumps will advise the user when a service is due and what level of intervention is required. The user is alerted to a service request by a simple flashing LED sequence on the pumps and by serial comms notification.

Flexibility is again key as these simple services can be performed either by the end user, on site by an Edwards field service technician, or the pump can be returned to an Edwards service hub.

Using remote diagnostics, a user can interrogate the pump to determine how long it is to the next service so that a proactive approach to preventative maintenance can be planned.



PERFORMANCE YOU CAN RELY ON

The compact design of nEXT allows for close pitch positioning in multiple pump installations. Backwards compatible with existing EXT and DX ranges offering superior performance in a smaller space envelope. Compatible with Edwards TIC and TAG controllers.

Multiple drag stages for higher compression ratios and greater backing pressure tolerance

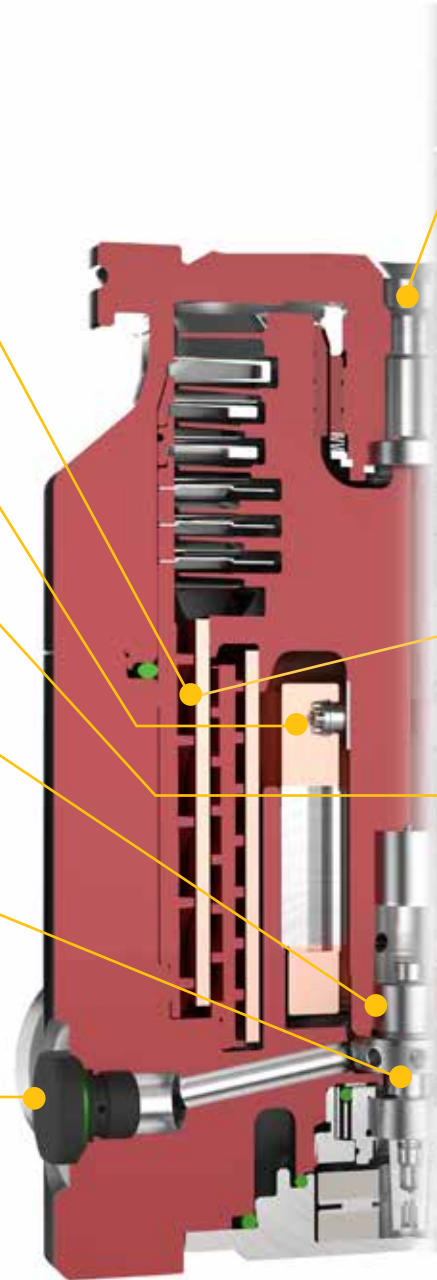
Direct temperature measurements within the pump enables wider operating envelope (nEXT85 only)

Third regenerative stage enables boost port options and higher compression (nEXT240, 300, 400 only)

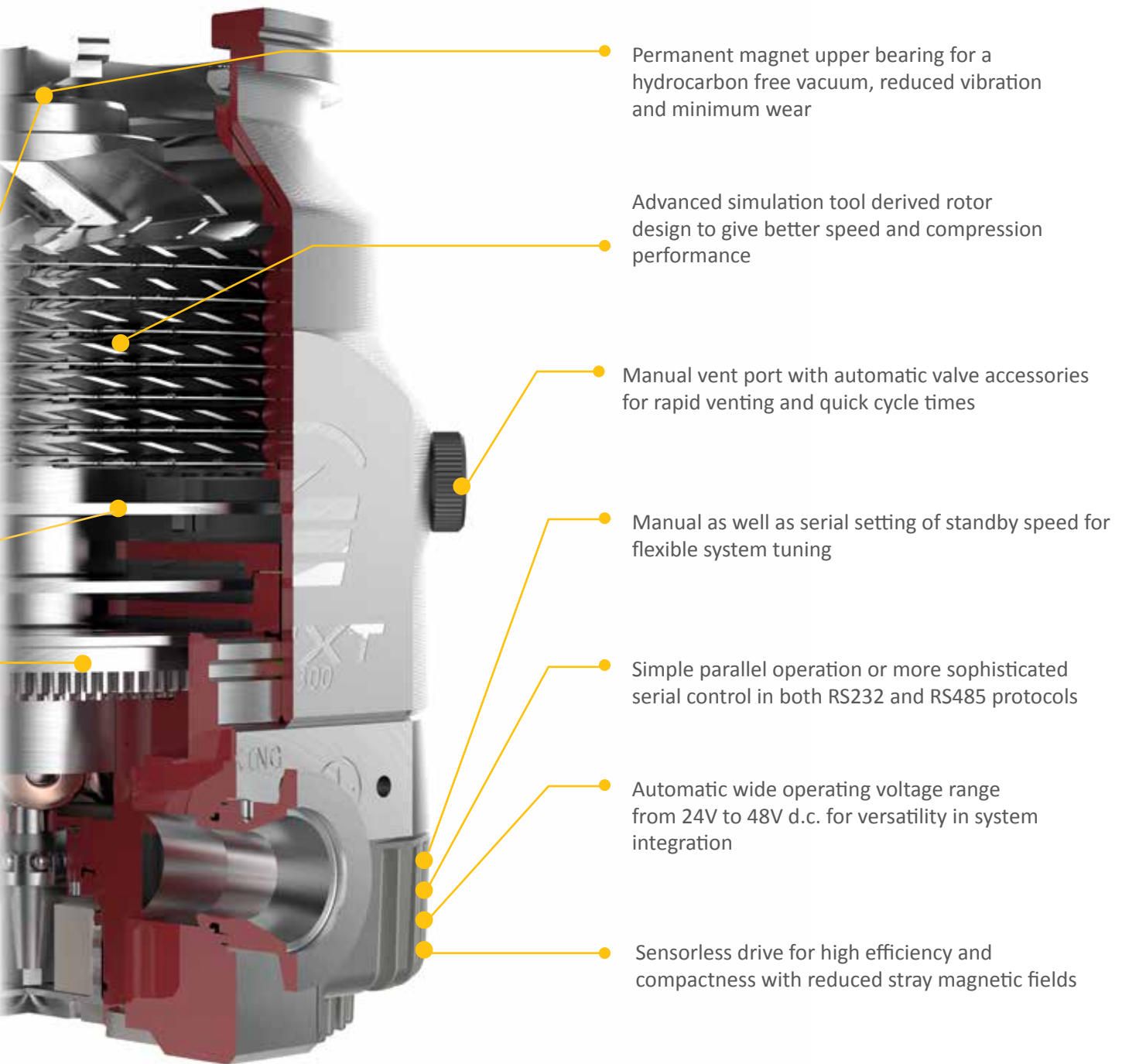
Patented bearing suspension system minimises noise and vibration transmitted to vacuum system

User replaceable oil cartridge for a speedy interim service and bearing cartridge for a quick low cost scheduled overhaul

Purge port for safe operation of pump with specialised gases



nEXT85 turbomolecular pump sectional view



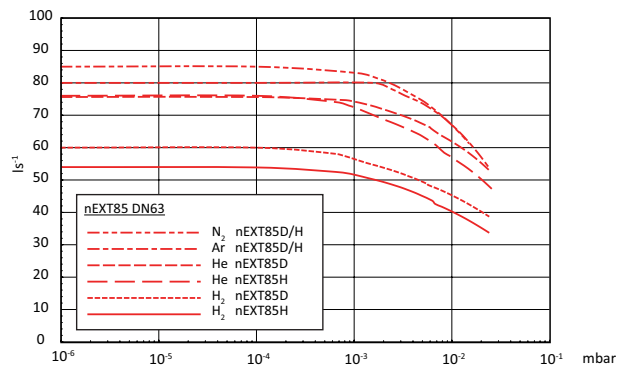
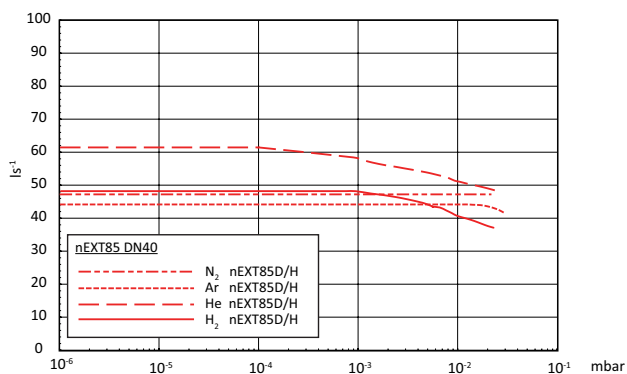
nEXT300 turbomolecular pump sectional view

Technical specifications

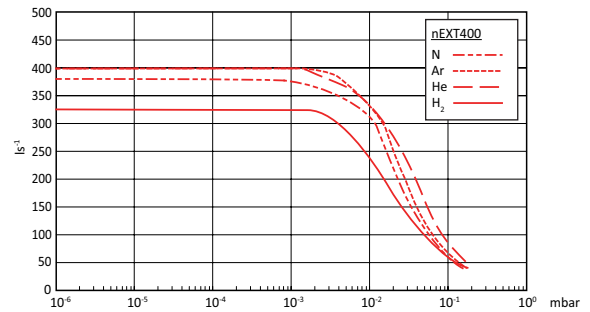
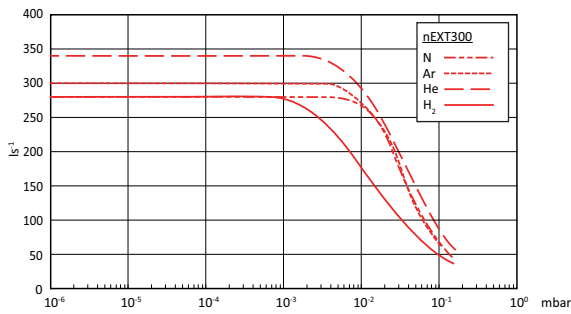
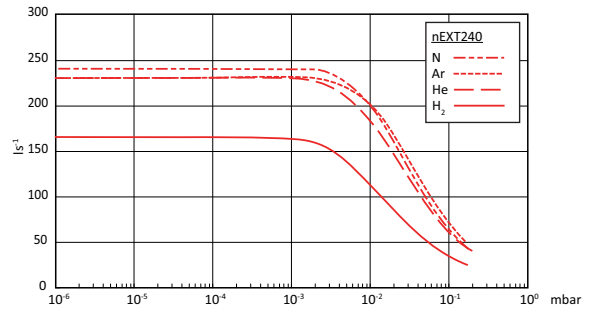
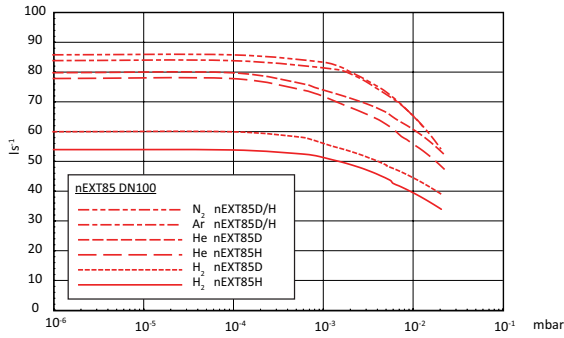
		nEXT85			nEXT240	nEXT300	nEXT400
Inlet flange		NW40	DN63 ISO-K or DN63 CF	DN100 ISO-K	DN100 ISO-K or DN100 CF	DN100 ISO-K or DN100 CF	DN160 ISO-K or DN160 CF
Inlet pumping speed $l\ s^{-1}$	N ₂	47	84	86	240	300	400
	Ar	44	80	84	230	280	380
	He	61	78	80/78 (D/H)	230	340	390
	H ₂	49/44 (D/H)	60/54 (D/H)	60/54 (D/H)	165	280	325
Compression ratio (D)	N ₂ /Ar	>1 x 10 ¹¹	>1 x 10 ¹¹	>1 x 10 ¹¹	>1 x 10 ¹¹	>1 x 10 ¹¹	>1 x 10 ¹¹
	He	8 x 10 ⁶			3 x 10 ⁵	1 x 10 ⁶	1 x 10 ⁸
	H ₂	2 x 10 ⁵			1 x 10 ⁴	5 x 10 ⁴	5 x 10 ⁵
Compression ratio (T/H)	N ₂ /Ar	>1 x 10 ¹¹	>1 x 10 ¹¹	>1 x 10 ¹¹	>1 x 10 ¹¹	>1 x 10 ¹¹	>1 x 10 ¹¹
	He	2 x 10 ⁷	2 x 10 ⁷	2 x 10 ⁷	1 x 10 ⁶	3 x 10 ⁶	>1 x 10 ⁸
	H ₂	5 x 10 ⁵	5 x 10 ⁵	5 x 10 ⁵	1.5 x 10 ⁴	1 x 10 ⁵	1 x 10 ⁶
Backing/interstage/boost ports		NW16			NW25	NW25	NW25
Vent/purge port		1/8" BSPP	1/8" BSPP	1/8" BSPP	1/8" BSPP	1/8" BSPP	1/8" BSPP
Critical backing pressure (D/H)	mbar	18			9.5	9.5	10
Critical backing pressure (T)	mbar	NA			20	20	20
Water cooled/forced air cooled max. bake out	°C	120 / 115°	120 / 115°	120 / 115°	120 / 115°	120 / 115°	120 / 115°
Recommended backing pump*		nXDS15	nXDS15	nXDS15	RV12/nXDS10i	RV12/nXDS10i	RV12/nXDS10i
Normal rotational speed (rpm)		90,000	90,000	90,000	60,000	60,000	60,000
Start time to 90% speed (sec) D/H (T)		90	90	90	115 (150)	145 (190)	180 (210)
Mass (kg) D/H (T)	ISO	2.9	3.0	3.2	5.7 (6)	5.7 (6)	6.5 (6.8)
	CF		4.4		8.8 (9.1)	8.5 (8.8)	9.5 (9.8)

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

Performance

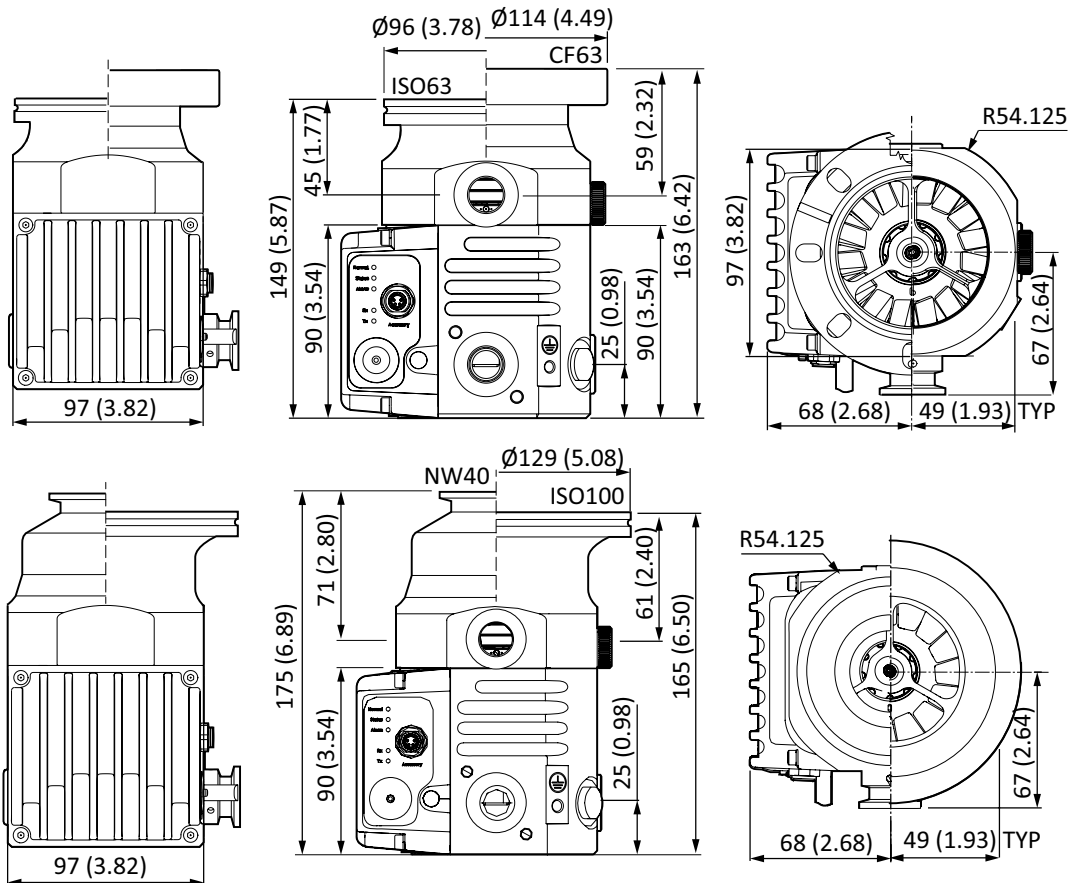


Performance



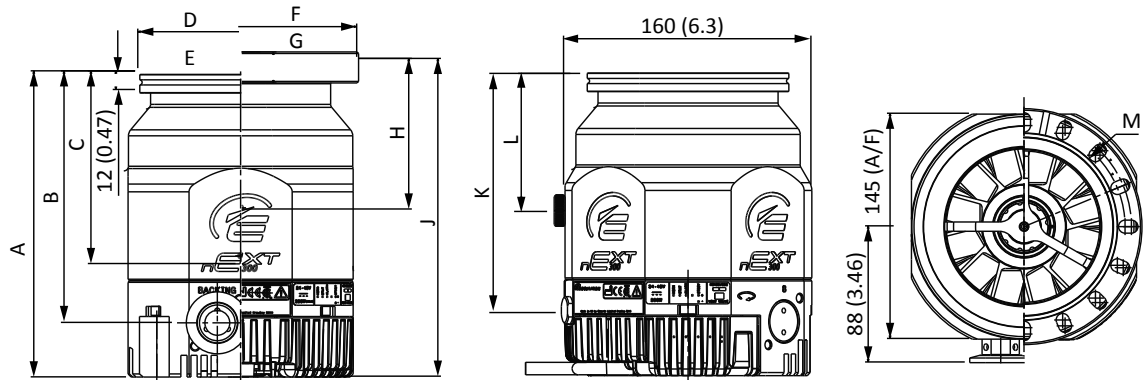
Dimensions

nEXT85



Dimensions

nEXT240/300/400



	nEXT240	nEXT300	nEXT400
A	189	195	195
B	155	160	160
C (C of G)	116	117	102
D	130	130	180
E	ISO100	ISO100	ISO160
F	152	152	202

	nEXT240	nEXT300	nEXT400
G	CF100	CF100	CF160
H (C of G)	90	100	81
J	197	210	200
K	147	153	153
L	83	87	89
M	(16)Ø8.4	(16)Ø8.4	(20)Ø8.4

Controllers and accessories

The **TIC (Turbo and Instrument Controller)** automatically recognises and supports one turbomolecular pump from the nEXT range, plus three Edwards active gauges. 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.

nXDS and large XDS pumps can be controlled directly via the backing pump connector on a TIC 200. 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.



The **TAG (Turbo and 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 turbomolecular pumps. It contains no power source and therefore you either need to supply your own power or buy the optional power supply. In addition to a turbomolecular pump 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

Pumps:

Product description	Order number
nEXT85D ISO63 NW16 80W	B8G210B01
nEXT85D CF63 NW16 80W	B8G210C01
nEXT85D ISO100 NW16 80W	B8G210101
nEXT85D NW40 NW16 80W	B8G210A01
nEXT85D ISO100 NW25 80W	B8G240101
nEXT85ID ISO63 NW16/16 80W	B8G211B01
nEXT85ID ISO63 NW16/25 80W	B8G214B01
nEXT85H ISO63 NW16 80W	B8G410B01
nEXT85H CF63 NW16 80W	B8G410C01
nEXT85H NW40 NW16 80W	B8G410A01
nEXT85IH CF63 NW16/16 80W	B8G411C01
nEXT85H ISO100 NW16 80W	B8G410101
nEXT240D ISO100 160W	B81200100
nEXT240D CF100 160W	B81200200
nEXT240T ISO100 160W	B81300100
nEXT240T CF100 160W	B81300200
nEXT300D ISO100 160W	B82200100
nEXT300D CF100 160W	B82200200
nEXT300T ISO100 160W	B82300100
nEXT300T CF100 160W	B82300200
nEXT400D ISO160 160W	B83200300
nEXT400D CF160 160W	B83200400
nEXT400T ISO160 160W	B83300300
nEXT400T CF160 160W	B83300400

Extended warranty:

Warranty extension (total)	Order number
nEXT85 2 year	EW2AA5093
nEXT85 3 year	EW3AA5093
nEXT240 2 year	EW2AA5008
nEXT240 3 year	EW3AA5008
nEXT300 2 year	EW2AA5009
nEXT300 3 year	EW3AA5009
nEXT400 2 year	EW2AA5010
nEXT400 3 year	EW3AA5010

Accessories and spares:

Pump	Product description	Order number	
nEXT85	Controller ⁽¹⁾	TAG controller	D39592000
		TAG power supply	D39592800
		TIC100 turbo and instrument controller	D39721000
	Cooling	WCX85 water cooling kit (4 position)	B8G200833
		ACX85 air cooler connector fitted	B8G200820
	Venting	N/O TAV5 vent valve connector fitted	B8G200834
		N/C TAV5 vent valve connector fitted	B8G200835
	Bakeout	CF63 flange heater 110 V	B8G200823
		CF63 flange heater 240 V	B8G200824
	Service	Oil cartridge kit	B8G200828
		Bearing and oil cartridge kit	B8G200811
		Bearing replacement tool kit	B8G200845
	Miscellaneous	Accessory "Y" adaptor	B8G200837
		Accessory cable 90 degree / extension	B8G200836
		Accessory connector bare wired	B8G200839
nEXT85 / EXT75DX base mounting adaptor		B8G200838	
nEXT240/ 300/400	Controller ⁽¹⁾	TAG controller	D39592000
		TAG power supply	D39592800
		TIC200 turbo and instrument controller	D39722000
	Cooling	nEXT radial air cooler	B58053175
		nEXT axial air cooler	B58053185
		nEXT water cooler	B80000815
	Bakeout	CF100 100-120 V flange heater	B58052773
		CF100 200-240 V flange heater	B58052774
		CF160 100-120 V flange heater	B58052775
CF160 200-240 V flange heater		B58052776	
Venting	TAV5 solenoid operated vent valve	B58066010	
Service	Oil cartridge tool kit	B80000812	
	Bearing tool kit	B80000805	
	Oil cartridge	B80000811	
	Bearing and oil cartridge	B80000810	
All	Extension cables	1 m pump to controller cable	D39700835
		3 m pump to controller cable	D39700836
		5 m pump to controller cable	D39700837
	Power cables ⁽¹⁾	2 m electrical supply cable UK plug	D40013025
		2 m electrical supply cable EU plug	D40013030
		2 m electrical supply cable US plug	D40013120
	Miscellaneous	Vent port adaptor	B58066011
		PRX10 purge restrictor	B58065001
		TIC relay	D39711805

(1) Denotes required accessory. Others optional depending on application.



Global contacts

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