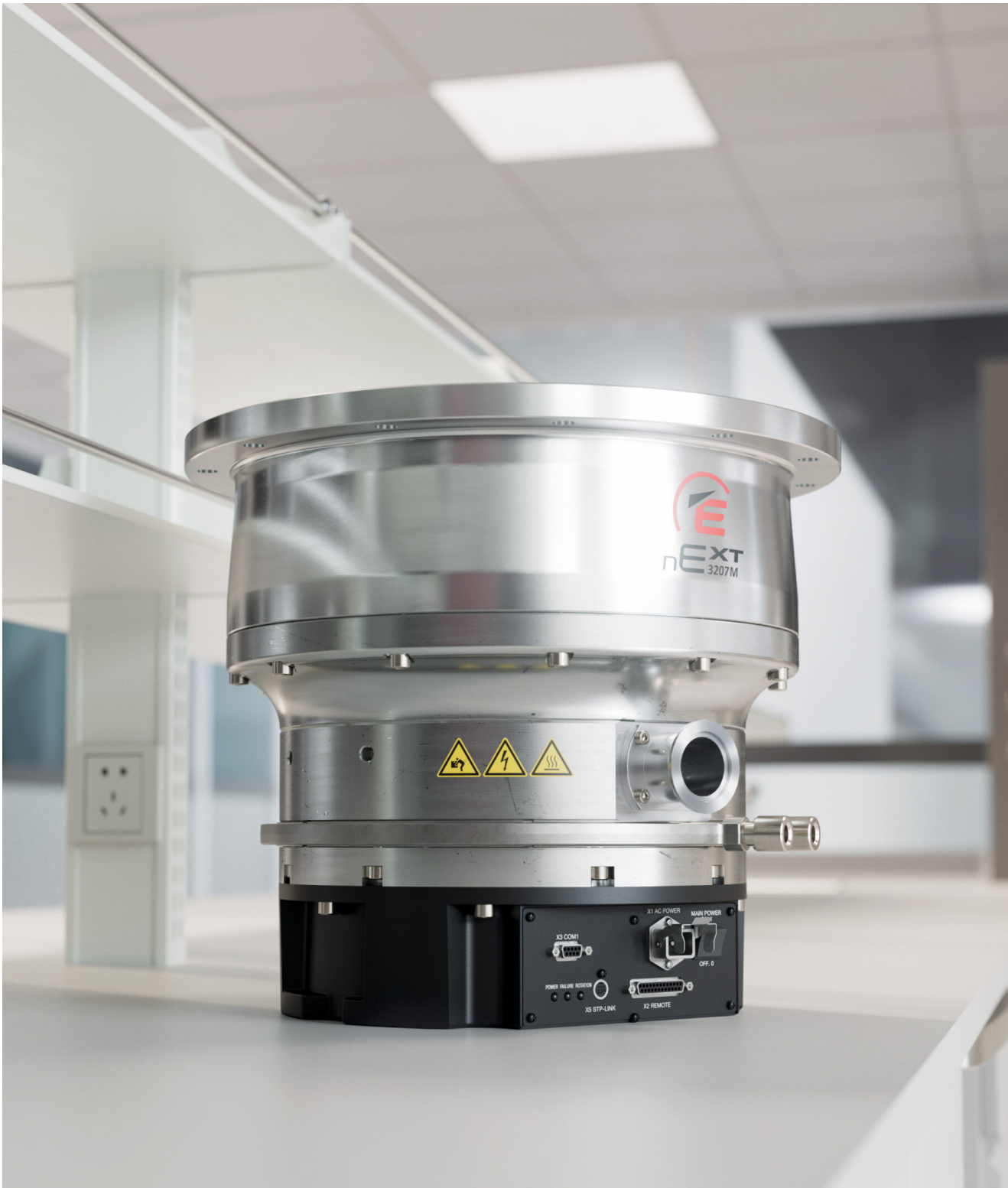


# nEXT M Maglev Turbo Pumps





# The nEXT step in compact maglev turbomolecular pump deployment

## Working principles of maglev turbo technology

Mag turbo pumps operate using a two-stage principle in conjunction with a primary pump to achieve desired vacuum levels:

- **Turbo Stage:** Static 'stator' blades are positioned between the moving 'rotor' blades, which rotate at extremely high speeds. This rotation impacts gas molecules, creating momentum and directing particles from the inlet to the exhaust.
- **Compression Stage:** As gas molecules pass through successive stages of the blades, they become increasingly compressed and are finally expelled through the exhaust.

In magnetically levitated turbo pumps the rotor blades are held in position by precisely deployed electromagnets, eliminating the need for mechanical bearing systems.

## How mag turbo pumps differ from mechanical turbomolecular pumps

Mag turbo pumps, sometimes referred to as Maglev pumps, have a number of features that make them well suited to specific applications:

- **Compact and Lightweight:** One of the most compact maglev pumps in their class, ideal for space-constrained applications
- **Mountable in any orientation:** Additional flexibility by having the choice to deploy your pump at multiple angles from your chamber
- **Minimal Noise and Vibration:** Ensures a quieter and smoother operation
- **Cleaner Performance:** Delivers contaminant-free vacuum making them well suited for sensitive operations
- **Range of Pumping Speeds:** Available up to 3200 l/s
- **Reduced Maintenance:** Less frequent maintenance intervals due to reduced wear-and-tear

## Applications

The clean, vibration and hydrocarbon-free operation of the nEXT M pumps make them ideal for applications such as:

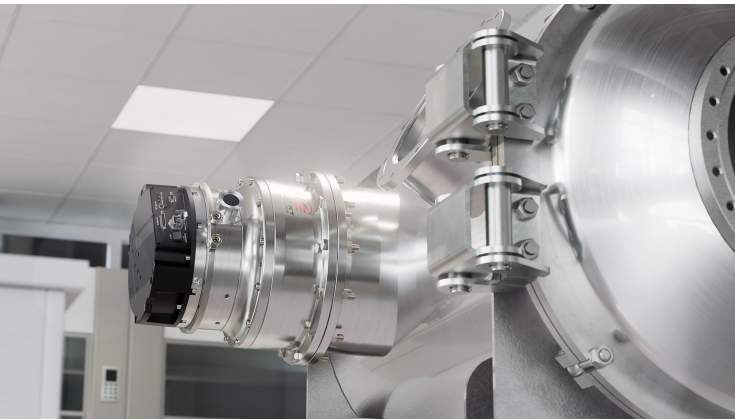
- **Coating:** Suitable for processes involving solar panels, architectural glass, lenses, surgical instruments, aerospace components, and precision-made machine parts.
- **Scientific Research:** Used in beamlines, particle accelerators, fusion research, and vacuum chambers simulating space conditions.
- **Industrial:** Able to withstand challenging environments, these pumps are ideal for a range of industrial applications including furnace and welding processes.

## Overview of turbomolecular technology

First developed in the mid-1950s, turbomolecular pumps have proven to be one of the most successful and reliable methods of achieving and maintaining high (HV) to ultra-high (UHV) vacuum levels.

By the 1970's magnetically levitated turbo pumps had been introduced. They offered a cleaner operation, reduced levels of vibration, noise, wear-and-tear, requiring minimal maintenance intervals.

# Key Features and Benefits



## — Compact, lightweight versatility

nEXT M pumps are one of the lightest and most compact mag turbo pumps in the 3000 l/s class. They can be mounted in any orientation and their space-efficient design makes them perfect for applications where space is tight or where the pump needs to be housed within equipment. The modern, lighter design also consumes less power during start/stop phases, enhancing energy efficiency.

## — Turbo charging profitability

With the performance of your process intrinsically linked to your overall productivity and profitability, maintaining consistent outputs has never been more critical.

With an updated rotor design, the nEXT M range offers minimal torque and impressive pumping speeds of up to 3200 l/s. The lower weight ratio of the rotors reduces power consumption during start/stop phases, further improving the pump's cost-of-ownership.



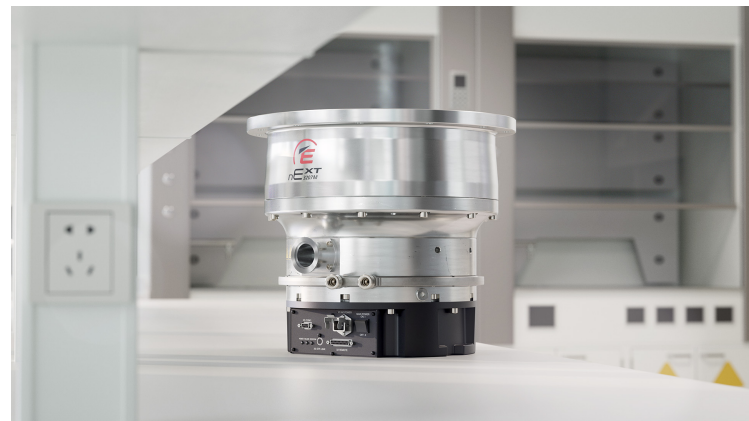


## Hydrocarbon-free and minimal levels of vibration

For industrial processes requiring minimal levels of vibration or hydrocarbon-free applications, nEXT M pumps are an ideal solution. This technology ensures delicate procedures are not compromised by external interference.

## Reliable performance, even in challenging conditions

Built to deliver consistent results in even the most hostile environments, including tolerance to vibration, mechanical shock, as well as dust and humidity, making them suitable for harsh or industrial environments.



## Minimal maintenance, maximum uptime

By using electromagnetic bearings, nEXT M pumps require minimal servicing. The reduced wear and tear compared to mechanical pumps ensure reliable and cost-effective vacuum solutions, with up to 80,000 hours or 10,000 cycles of maintenance-free operation.



# Advanced functionality made easy

## — Mountable in any orientation

Providing the ultimate in flexible deployment, mount your pump from a range of orientations. Making integrating your nEXT M pump into your vacuum infrastructure even easier.



## — At your fingertips

Simple functionality and clear layout, and with a range of communications interfaces, all displayed on the same side/panel for ease of operation and installation.

The nEXT M range is easy to set up and install and is fully supported by access to Edwards configuration software for easy integration and systemisation.

— **High vacuum flange**

Connects your vacuum pump to the chamber, available in flange sizes of DN250 and DN320.



— **One of the most compact designs on the market**

Approximately 10% reduced height compared to typical turbo mag pumps. An ideal choice in environments with reduced space and where the pump needs to be housed with equipment.

— **Integrated controller.**

One-piece design, robust, compact, smooth, minimalist. I/O interface as standard and optional Profibus or RS485/RS232.



# Markets and Applications

## Coating Sector

- Solar panels
- Decorative coatings
- Architectural glass
- Lenses
- Surgical instruments
- Aerospace components



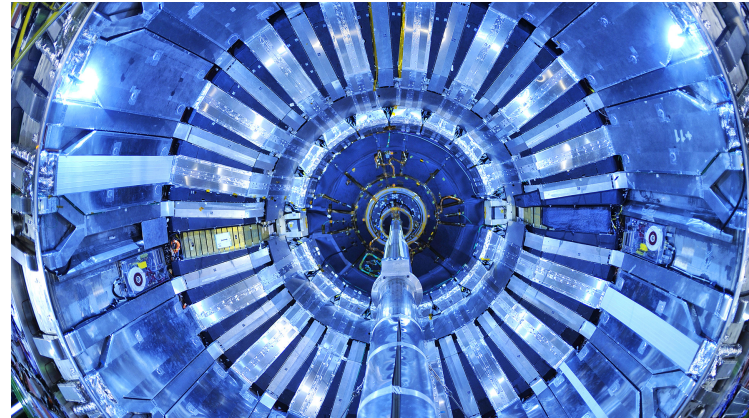
## Industrial Applications

- Furnace welding applications
- Precision-made machine parts



## — Scientific Research

- Analytical systems
- Space simulation chambers (TVAC)
- Beamlines
- particle accelerators
- Nuclear fusion



## — Why Edwards Vacuum?

With decades of experience in the scientific sector, Edwards Vacuum has established itself as the partner of choice for customers in the scientific, industrial, and coating sectors.

Our expansive range of vacuum solutions are renowned for their reliability, precision, and efficiency, making them ideal for a wide range of applications.

Our commitment to being at the forefront of innovation, ensures that we provide cutting-edge solutions tailored to meet the unique needs of our clients. Trust Edwards Vacuum to deliver unparalleled performance and support, backed by a legacy of excellence and expertise.

# Technical Specifications

## Technical Specifications

	Unit	nEXT2807M	nEXT3207M
Weight	Kg	59	57
Power In	W	750	750
Admissible ambient magnetic field (Axial)	mT	15	15
Admissible ambient magnetic field (Radial)	mT	3	3
Pumping Speed (l/s)	N <sub>2</sub>	2350	3200
	Ar	2150	3000
	He	2500	2750
	H <sub>2</sub>	1850	1950
Max. Compression Ratio	N <sub>2</sub>	5 x 10 <sup>6</sup>	
	Ar	> 10 <sup>7</sup>	
	He	1 x 10 <sup>4</sup>	
	H <sub>2</sub>	1 x 10 <sup>3</sup>	
Max. Throughput (mbar l/s)	N <sub>2</sub>	33 continuously	
	Ar	26 continuously	
Max. FV Pressure (mbar)	N <sub>2</sub> / Ar	1.4	
Ultimate pressure (mbar)	< 1 x 10 <sup>-8</sup>	< 1 x 10 <sup>-8</sup> (after baking)	

## Ordering Information

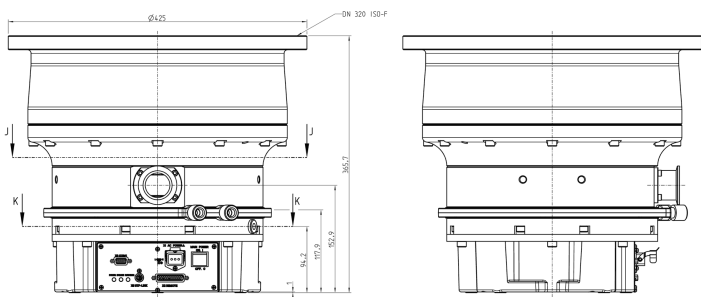
Pumps	
B8SM-A0G-60	nEXT2807M – DN 250 ISO-F; ProfiBus
B8SM-A0G-61	nEXT2807M – DN 250 ISO-F; RS485
B8TM-A0M-60	nEXT3207M – DN 320 ISO-F; ProfiBus
B8TM-A0M-61	nEXT3207M – DN 320 ISO-F; RS485
Accessories	
B8G200850	Purging gas valve 0.6 / 24VDC / 1, 5-6 Bar
B8G200851	Purging gas valve 0.6 / 24VDC / 1-1, 5-6 Bar

## Ordering Information

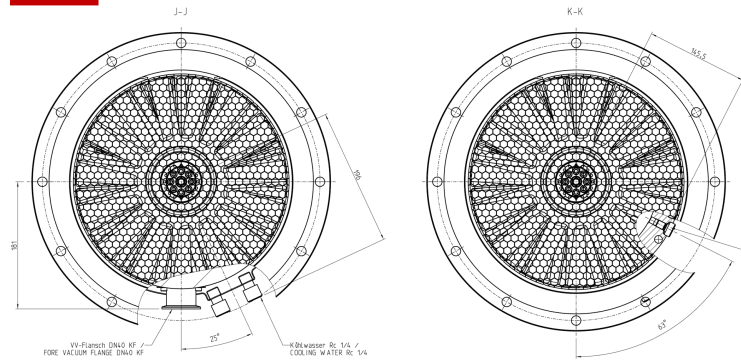
Pumps	
412207V01	Purge adapter set for nEXT2807M and nEXT3207M
<b>Set of bolts, nuts and washers for ISO-F flange</b>	
400153V0023	Bolts set 12 x M 10 x 35, 12.9 - coated (nEXT2807M)
400153V0022	Bolts set 12 x M 10 x 50, 12.9 - coated (nEXT2807M)
400153V0021	Bolts set acc 12 x M10 x 50 (stud bolts), 12.9 - coated (nEXT2807M)
400153V0019	Bolts set 12 x M x 12 x 45, 12.9 - coated (nEXT3207M)
400153V0020	Bolts set 12 x M 12 x 60, 12.9 - coated (nEXT3207M)

# Dimensional Drawings

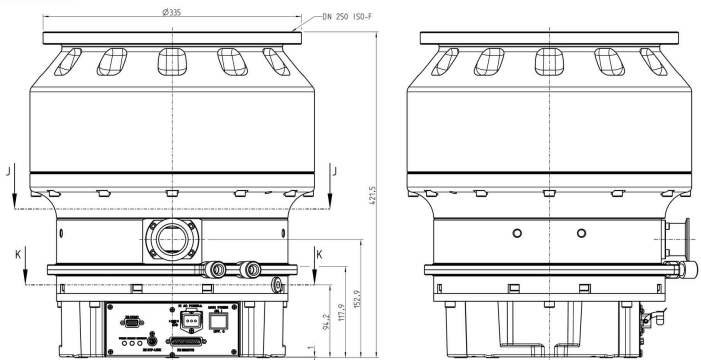
nEXT3207M



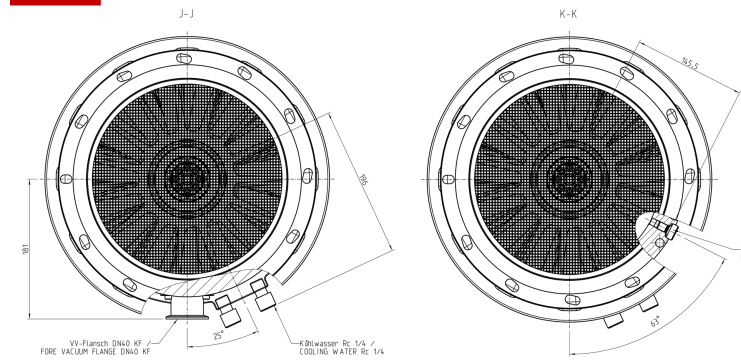
nEXT3207M



nEXT2807M



nEXT2807M







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