

# NEXTorr® D1000-StarCell®



## HIGHLIGHTS

### General Features

- Compact and low weight
- High and constant pumping speed for all active gases in UHV-XHV
- StarCell ion element
- Pumping speed for noble gases and methane
- Long lasting in UHV-XHV
- Negligible power consumption in operation
- Reduced magnetic interference
- Able to indicate system pressure
- Maintenance-free

### Applications

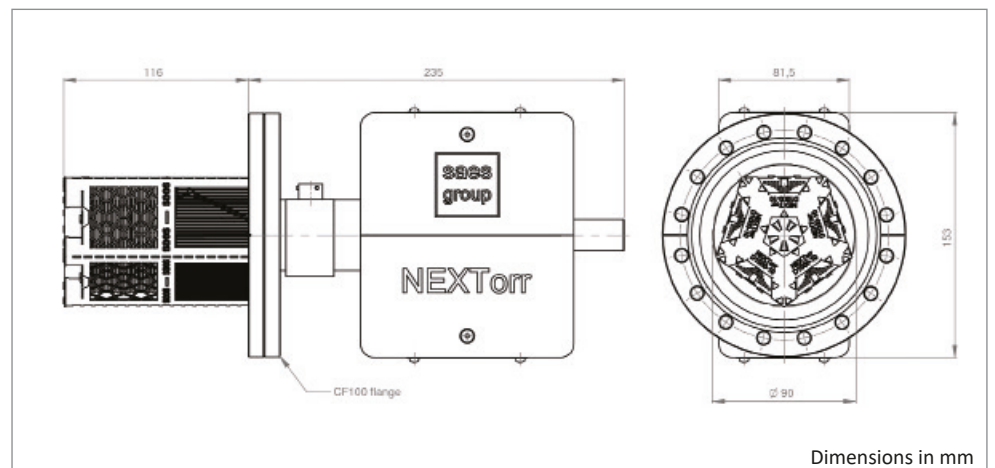
- Improvement of the ultimate vacuum in UHV-XHV systems
- Particle accelerators, synchrotron radiation sources
- Atom/Ion Trap systems, atomic clocks/fountains, interferometers
- Scanning/Transmission electron microscopes
- Portable vacuum instrumentation and suitcases
- Surface analysis systems
- General purpose UHV systems

The NEXTorr® D1000-StarCell® is a compact Ultra High Vacuum pump that efficiently integrates a StarCell sputter ion pump (SIP) and a Non Evaporable Getter (NEG) pump into a vacuum solution featuring high pumping speeds and capacities with a low weight and small footprint.

The NEG element of the NEXTorr D 1000-StarCell is based on high performance sintered porous getter disks (St 172), stacked in an optimized gas trapping structure, and featuring pumping speed in excess of 1000 l/s (H<sub>2</sub>).

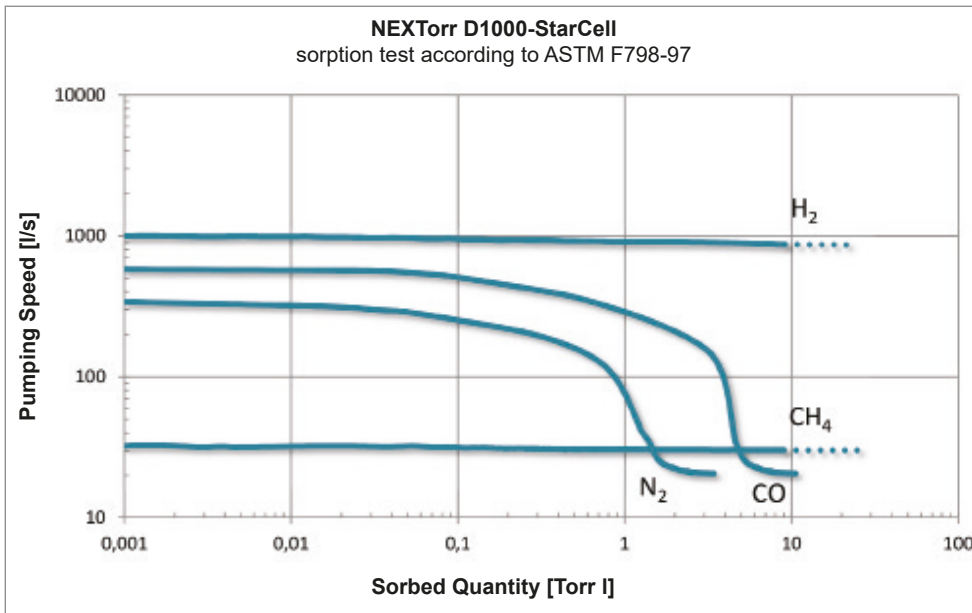
The NEG cartridge is integrated onto a CF 100 flange containing a heater for the getter activation (500°C x 1 h). Once activated, the NEG will operate at room temperature without the use of power. The pump is equipped with a K-type thermocouple electrically insulated within an alumina tube for optimal temperature control during the conditioning and activation.

The opposite side of the same flange hosts a StarCell ion pump featuring 21 l/s for Ar and 30 l/s for CH<sub>4</sub>. Gas flows from the vacuum system to the ion pump through a path optimized for conductance. The design of the pump provides additional pumping synergies: gases eventually released by the ion pump during operation are intercepted and removed by the NEG element, thus minimizing back-streaming effects; even fine Titanium particles, known to be potentially emitted by ion pumps, are effectively trapped by the NEG, reducing the risk of contamination of the vacuum system.



Total pump weight (magnets included)	7.3 kg
Type of ion pump	StarCell
Flange size	CF100

**saes**



Initial pumping speed (l/s)	Gas	NEG activated	NEG saturated
	H <sub>2</sub>	1000	30
	H <sub>2</sub> O <sup>1</sup>	850	25
	CO	580	20
	N <sub>2</sub>	320	20
	CH <sub>4</sub>	30	
	Argon <sup>2</sup>	21 (12)	

Sorption capacity (Torr-l)	Gas	Single run capacity <sup>3,4</sup>
	H <sub>2</sub>	1125
	H <sub>2</sub> O <sup>1</sup>	500
	CO	6
	N <sub>2</sub>	2.5
	CH <sub>4</sub>	80,000 hours at 10 <sup>-6</sup> Torr

NEG section	Getter alloy type	St 172
	Alloy composition	Zr V Fe
	Getter mass (g)	112.5
	Getter surface (cm <sup>2</sup> )	950
	Activation power (W) <sup>5</sup>	220
ION section	Voltage applied	DC -7 kV

- 1 The values for H<sub>2</sub>O are estimated.
- 2 Measured at 1x10<sup>-7</sup> Torr. Unsaturated ion pump (saturated ion pump).
- 3 Single-run capacity is reached when pumping speed is equal to the pumping speed of the ion element only (this limit does not apply for H<sub>2</sub>).
- 4 > 100 reactivations (sorption cycles) are possible.
- 5 It is referred to the "nude" configuration (NEG element completely immersed in the vacuum chamber).

## Ordering Information

Product	Product description	Code
NEXTorr PUMP	NEXTorr D1000-StarCell	5H0220
ION Pump controller	IPC MINI SINGLE CONTROLLER <sup>#</sup>	3B0543
NEG Pump controller	NEG POWER C1 <sup>#</sup>	3B0501
ION cable	HV BAKEABLE CABLE 4 MT* <sup>§</sup>	3B0546
NEG cable	NEG CABLE 6P5A 3 MT* <sup>§</sup>	3B0854

(#) Controllers which can simultaneously drive up to four pumps are available.

(\*) Longer cables are available on request.

(§) Bakeable up to 250 °C, and radiation resistant (1000 Mrad).

The NEXTorr® product line incorporates and exploits the patented concept of a combined pumping system comprising a getter pump and an ion pump, and have global Intellectual Property Rights coverage with patents already granted in the US (8,287,247), Europe (2,409,034), Japan (5,372,239), China (102356236).

The SAES manufacturing companies are ISO9001 certified and the Italian companies are also ISO14001 certified. Full information about our certifications for each company of the Group are available on our website at: [www.saesgroup.com](http://www.saesgroup.com)

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