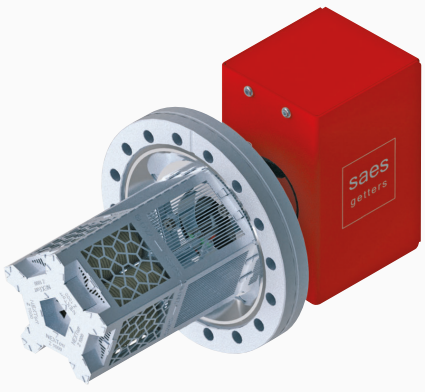
NEXTorr® Z 1000



HIGHLIGHTS

General Features

- Extremely compact and low weight
- High and constant pumping speed for all active gases in UHV-XHV
- 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

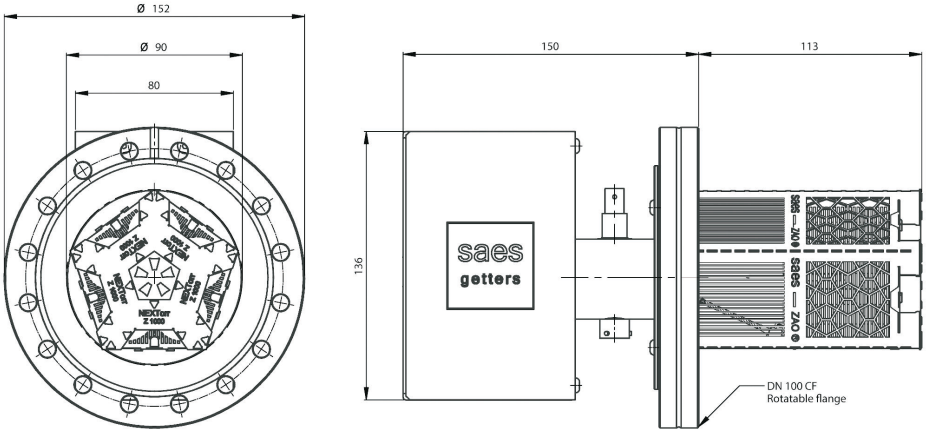
- Improvement of the ultimate vacuum in UHV-XHV systems
- Particle accelerators, synchrotron radiation sources
- Atom/Ion Trap systems, atomic clocks/fountains, interferometers
- Scanning/Transmission electron microscopes
- Portable vacuum instrumentation and suitcases
- Surface analysis systems
- General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

The NEXTorr® Z 1000 is a compact Ultra High Vacuum pump that efficiently integrates a 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 Z 1000 is based on the SAES® high performance ZAO® sintered porous getter disks, stacked in an optimized gas trapping structure, and featuring pumping speed in excess of 1150 l/s (H_2). The ZAO getter material provides a superior H_2 pumping performance relative to the St 172.

The NEG cartridge is integrated onto a CF 100 flange containing heaters for the getter activation (500 °C x 1h). 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 noble diode ion pump featuring 10 l/s for Ar and 32 l/s for CH_4. 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.

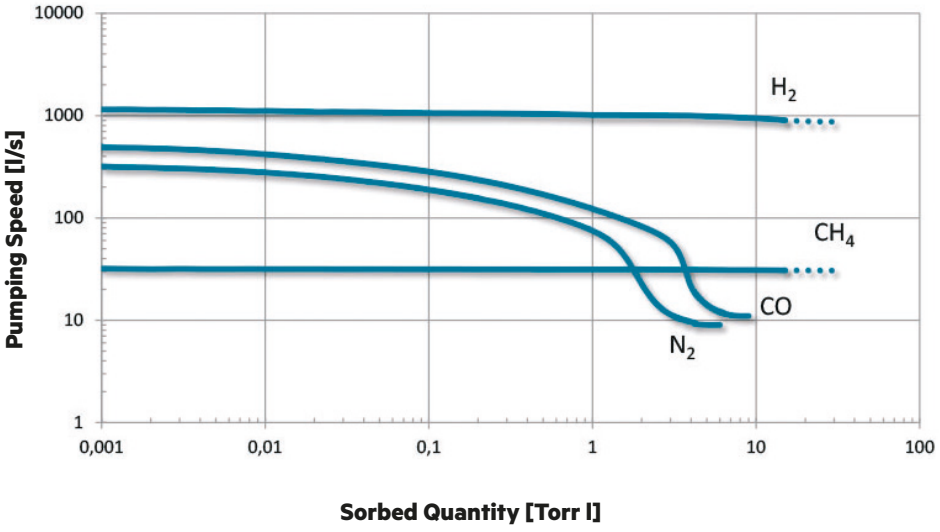


Dimension in mm

Total pump weight (magnets included)	6.5 kg
Type of pump	Noble Diode
Flange type	CF100

NEXTorr® Z 1000

NEXTorr Z 1000 sorption test (according to ASTM F798-97)



Initial pumping speed (l/s)	Gas	NEG activated	NEG saturated
	H_2	1150	13
	H_2O[1]	850	9
	CO	500	11
	N_2	320	9
	CH_4	32	
	Argon[2]	10 (2.5)	

Sorption capacity (Torr·l)	Gas	Single-run capacity[3,4]
	H_2	4380
	H_2O[1]	400
	CO	7
	N_2	4
	CH_4	50,000 hours at 10^{-6} Torr

NEG section	Getter alloy type	ZAO
	Alloy composition	Zr V Ti Al
	Getter mass (g)	219
	Getter surface (cm^2)	1076
	Activation power (W)[5]	195
Ion section	Voltage applied	DC +5 kV

1 The values for H_2O are estimated.

2 Measured at 3×10^{-6} 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_2).

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 Z 1000	5H0237
Pump controller	NEXTorr PS NIOPS-06#	3B0440
Controller cables	NEXTorr Kit of cables 04-06§	3B0416

(#) It is also possible to order split controllers: NEG POWER for the NEG element (available in various models able to simultaneously activate up to four pumps), and SIP POWER for the ion element.
(§) Bakeable up to 250°C, and radiation resistant (1000 Mrad).

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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).

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