

NEXTorr® Z 100



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

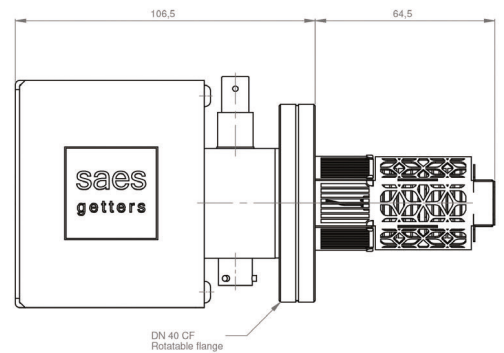
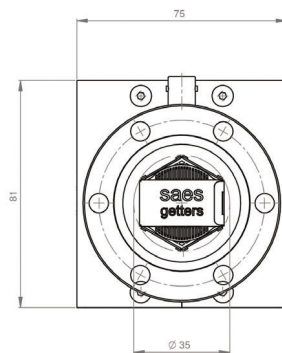
- > Improvement of the ultimate vacuum in UHV-XHV systems
- > Particle accelerators, synchrotron radiation sources
- > Atom/Ion Trap systems, atomic clocks/fountains, interferometers
- > Scanning/Transmission electron microscopes
- > Portable vacuum instrumentation and suitcases
- > Surface analysis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

The NEXTorrr® Z 100 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 NEXTorrr Z 100 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 150 l/s (H₂). The ZAO getter material provides a superior H₂ pumping performance relative to the St 172.

The NEG cartridge is integrated onto a CF 35 flange containing a heater for the getter activation (500 °C x 1h). Once activated, the NEG will operate at room temperature without the use of power.

The opposite side of the same flange hosts a diode ion pump featuring 6 l/s for Ar and 15 l/s for CH₄. 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.

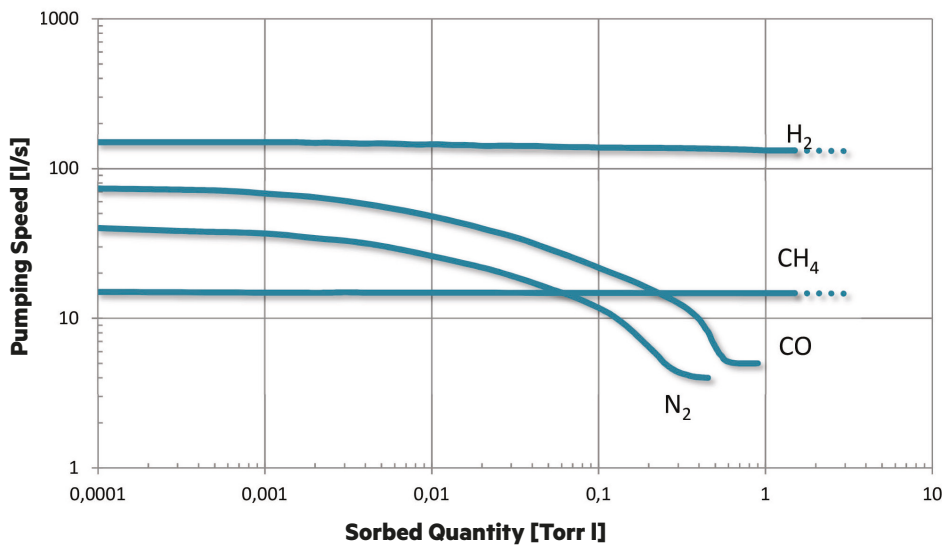


Dimension in mm

Total pump weight (magnets included)	2.2 kg
Type of pump	Noble Diode
Flange type	CF35

NEXTorr® Z 100

NEXTorr Z 100 sorption test (according to ASTM F798-97)



Initial pumping speed (l/s)	Gas	NEG activated	NEG saturated
	H ₂	150	6
	H ₂ O ¹	100	4
	CO	75	5
	N ₂	40	4
	CH ₄	15	
	Argon ²	6 (0.3)	

Sorption capacity (Torr-l)	Gas	Single-run capacity ^{3,4}
	H ₂	600
	H ₂ O ¹	9
	CO	0.6
	N ₂	0.35
	CH ₄	50,000 hours at 10 ⁻⁶ Torr

NEG section	Getter alloy type	ZAO
	Alloy composition	Zr V Ti Al
	Getter mass (g)	30
	Getter surface (cm ²)	156
	Activation power (W) ⁵	45
Ion section	Voltage applied	DC +5 kV

¹ The values for H₂O 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 H₂).

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 100	5H0211
Pump Body	SPECIAL BODY CF35/CF35 L=126	4H0470
ION Pump controller	SIP POWER	3B0506
NEG Pump controller	NEG POWER MINI [#]	3B0110
ION cable	IP CABLE 3 MT* ^{\$}	3B0568
NEG cable	NEG CABLE 3P5A 3 MT* ^{\$}	3B0598

(#) NEG POWER models which can simultaneously activate up to four pumps are available.

(*) Longer cables are available on request.

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

The SAES manufacturing companies are ISO9001 certified, the Asian and 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

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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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