

HV 400 Wafer Module



HIGHLIGHTS

General Features

- > High pumping speed for all active gases
- > High sorption capacity and increased lifetime
- > Constant pumping speed in HV, UHV and XHV
- > Reversible pumping of hydrogen and its isotopes
- > Operation in the presence of high magnetic fields
- > Oil free and vibration free
- > Low weight
- > Fast pumpdown after air venting and without baking
- > Capable of coping with large air leaks
- > Suitable for viton sealed systems

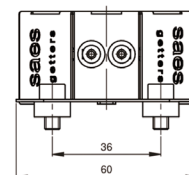
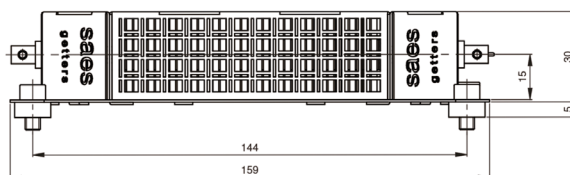
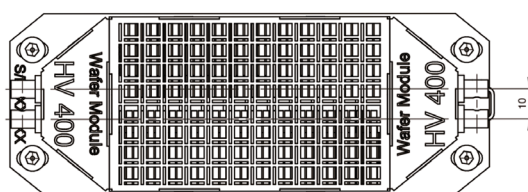
Applications

- > Improving ultimate vacuum in combination with ion, diffusion, cryogenic or turbomolecular pumps
- > Surface analysis systems
- > Particle accelerators, synchrotron radiation sources and related equipment
- > Process pumps for vacuum devices and deposition chambers
- > Thin films deposition systems
- > Portable vacuum instrumentation
- > Pumping, storing and releasing hydrogen isotopes
- > Impurities removal in rare gas filled devices

The HV 400 Wafer Module is a flangeless high performance NEG pump solution suited for several vacuum applications requiring the distribution of large pumping speeds and capacity for H₂ and all the active gases (i.e., H₂O, O₂, N₂, CO, CO₂). The module consists of a stainless steel structure made of SS316L hosting two stacks of sintered Non Evaporable Getter (NEG) disks. Two built-in heaters allow for the activation and the operation in warm condition (~200 °C) of the module. The NEG disks are made of the new ZAO1 getter alloy. Thanks to the flexibility of the ZAO1 technology, the benefits of the NEG pumping can be extended to the high vacuum regime ($1 \cdot 10^{-9}$ Torr to $1 \cdot 10^{-7}$ Torr). The HV 400 Wafer Module presents also significant pumping speed for hydrocarbon species. Operating it at approximately 200 °C, the hydrocarbon species can be dissociated on the surface of the ZAO1 sintered disks and partially diffuses into the bulk. As a result, the HV 400 Wafer Module can distribute large pumping speeds for H₂, all active gases and hydrocarbon species in vacuum systems characterized by large gas loads with minimum power requirement (approximately 15 W at 200 °C). The two heaters are connected in series by electrical bridge connection. The bridge can be removed in the case the two stacks of ZAO disks must be activated in parallel. The electrical parameters reported in the table are recommended when the modules is at least 15 cm far from the front wall. If a more screened configuration is used or several modules are installed close to each other, the electrical parameters can be evaluated.

More NEG Wafer Modules can be powered at the same time by series and/or parallel connection. Recommendations on the best electrical parameters and installation of the Wafer Modules can be given on request.

HV 400 wafer module with thermocouple are also available.



Dimension in mm

Ordering Information

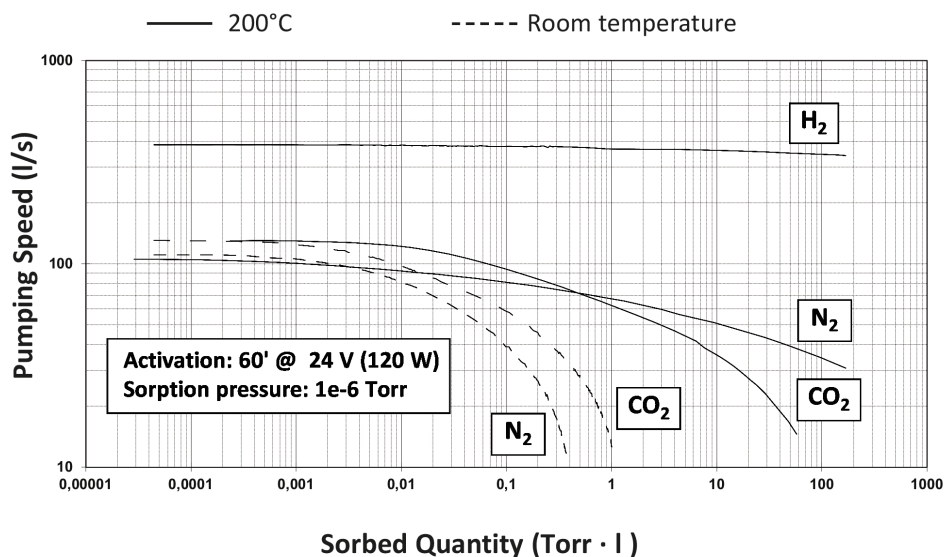
Product	Product description	Code
NEG ZAO1 module for high vacuum	HV 400 wafer module	5H0702
Power supply	NEG POWER C1	3B0501
Output cable	OUTPUT CABLE WAFER MODULE - 3 MT	3B8003
Flange-wafer module connecting cable	WAFER MODULE KIT OF CABLES	3B8002
Flange with feedthroughs	WAFER MODULE FLANGE CF35	3B8001

HV 400 Wafer Module

Typical of Module	Type of operation	Temperature	Electrical parameter
HV 400 WAFER MODULE	Activation	550° C	24 V (120 W)
	Working	200° C	6 V (15 W)

The parameters must be considered in nude configuration

HV400 Wafer Module sorption test (according to ASTM F798-97)



Typical Pump Characteristics		HV 400 Wafer Module
Alloy Type		ZAO®
Alloy Composition		Zr V Ti Al
Getter Mass (g)		250
Getter Surface (cm ²)		750
Pumping Speed (l/s)@200 °C	H ₂	390
	O ₂	180
	CO ₂	130
	N ₂	105
Sorption Capacity (Torr·l)	H ₂	5000
	O ₂ Single run at 200 °C	240
	CO ₂ Single run at 200 °C	58
	N ₂ Single run at 200 °C	240
Number of runs (sorption cycles)		>20

Note: Pumping speed data refer to the initial values.

The "Single run" capacity is intended as the recommended absorbed quantity per run allowing to perform more than 20 sorption cycles at 1e-6 Torr. In case of operation under much lower gas loads or at RT, the module can be reactivated 100 times or more.

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

D.VS.165.1.24

© SAES Group. Printed in Italy. All rights reserved.
SAES®, ZAO® and CapaciTorr® are registered trademarks of SAES Group.

SAES reserves the right to change or modify product specifications at anytime without notice.

saes

SAES
www.saesvacuum.com
neg_technology@saes-group.com