

Ion Pumps

- Best ultimate vacuum pump for MBE
- Compatible with all MBE systems
- Suitable for pumping reactive gases
- Very clean - no contamination introduced into the system
- Many years of use before reconditioning



Product introduction

Ion pumps have been a primary choice for UHV systems. They are clean, bakeable, vibration free, operate in the 10-11 Torr range with low power consumption and have long operating lives. Riber diode pumps offer the highest pumping speed for oxygen O₂, hydrogen H₂, nitrogen N₂, carbon dioxide CO₂, carbon monoxide CO and other getterable gases.

Ion pumps require periodic bakeouts to preserve performances. The bakeout system consists of insulated chambers completely surrounding the pump. The pump is baked up to 150°C during operation, removing water vapor and preserving a high limit vacuum.

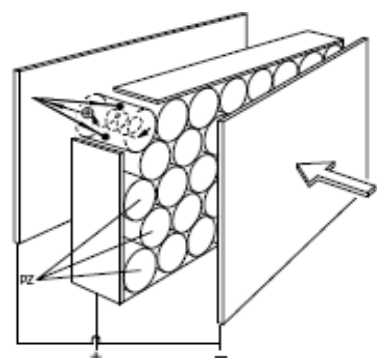
Technical note :

All ion pumps are made of 25 l/s pumping elements. They are made of the same basic components: a parallel array of short stainless-steel tubes, two plates spaced at a short distance from the open/end of the tubes and a strong

magnetic field parallel to the tube axes.

The electrode is positioned between the poles of a magnet. Electrons released from the cathodic tube plates are constrained by the magnetic field into tight helical trajectories in the anodic tubes. The potential energy of gas molecules ionized in the tube is converted to kinetic energy and the cathode sputters titanium when struck by an ion.

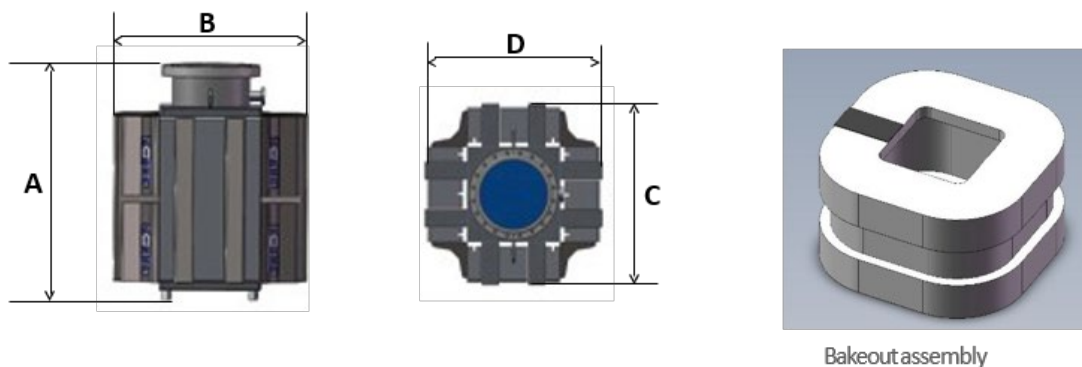
The TTZ model has the same electrical arrangement as the standard but one Ti plate is associated with a getter material.



- ←-⊕- Direction of movement of the gas ions
- >- Direction of movement of the sputtered titanium
- - - Spiral tracks of the electrons
- PZ Penning cells

Pumping elements of the ion pump

Layout



Specifications

SPECIFICATIONS	PI 200	PI 400	PI 900
Dimensions A/B/C/D in mm	208 / 203 / 392 / 392	472 / 203 / 392 / 392	670 / 254 / 495 / 495
Nominal speed for air	200 l/s	400 l/s	900 l/s
Connecting flange	DN150CF	DN150CF	DN200CF
Starting pressure	8.10 ⁻³ Torr		
Ultimate pressure	< 8.10 ⁻¹² Torr		
Operating voltage	4.8 kV		
Maximum bakeout temperature	150°C with magnet / 450°C without magnet		
Number of high voltage feedthroughs – MTHT CF16 *	1	1	2
Mass	63 kg	110 kg	230 kg
Number of pumping elements	8	16	32
TTZ version	Optional	Optional	Included

*: for power supplies contact Riber

ION PUMPING ELEMENTS:	Standard elements STT % of nominal speed	Noble gas rare elements TTZ % of nominal speed
Hydrogen	200 %	200 %
Carbon oxides / Water vapour / Nitrogen	100 %	90 %
Light hydrocarbon	90-160 %	80-150 %
Oxygen	60 %	55 %
Helium	10 %	35 %
Argon	1 %	30 %

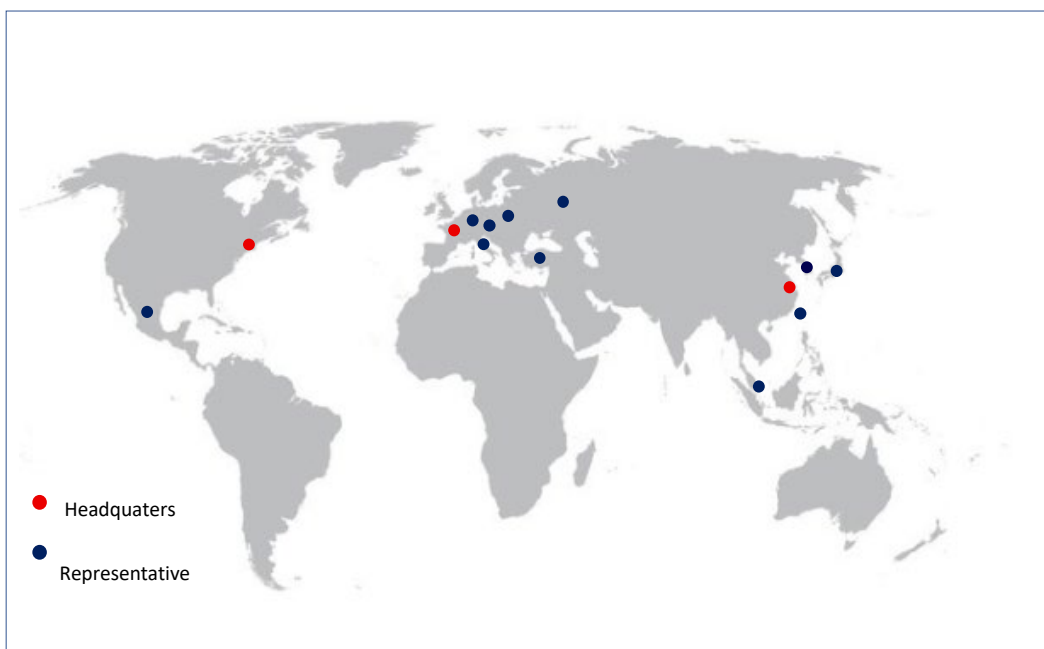
Standard pump elements are perfectly suited to pumping residual static atmospheres including typical quantities of noble/rare gases.

Ion pump reconditioning

By design the ion pump requires reconditioning or replacement after many years of use only. Riber provides a complete reconditioning contract that allows you to make a standard exchange of the defective or contaminated ion pump. The pump offered for a standard exchange has been completely refurbished: dismantled, cleaned, repaired and tested. Its characteristics are equivalent to those of a brand new one with much lower price.

RIBER SALES AND SERVICE NETWORK

For more information, please contact your local sales representative



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