

ION PUMPS

Primary Features :

- ◆ Ultra High Vacuum pressure down to 10^{-12} mbar
- ◆ Diode pumps
- ◆ From 3 L/s to 800 L/s
- ◆ Bakeout temperature up to 300°C
- ◆ Lowest electrical leaking current
- ◆ No vibration
- ◆ Pressure measurement on the controller
- ◆ Standard or noble gaz pumping elements ; special elements for Hydrogen isotopes
- ◆ Options:
 - titanium sublimation pump to increase the pumping speed
 - Possibility of regeneration with specific oven



Meca 2000 ion pumps have diode pump elements and meet all requirements of UHV applications in terms of pumping speed, stability and lifetime.. They can reach pressures down to 10^{-12} mbar due to their UHV design. They require no maintenance and are easily started from 10^{-4} mbar. They are often used in installations permanently kept under vacuum.

Two types of ion pumps are proposed: the ionic pumps of the **PID series** and of the **PIDG series**. The PIDG series are ion pumps with integrated titanium sublimation pumping.

For both series, the integrated pumping elements differ depending on the type of gas pumped. For the noble gases which do not combine with titanium, specially adapted pumping elements are installed.

The standard ion getter pumps consists of a cathode made by the getter materials (titanium) plates and one anode consisting of multiple stainless steel cylinders.

ION PUMPS PID SERIES :

The ion pumps of the PID series have an operating voltage of 5 kV supplied by dedicated power supplies. The current absorbed by these pumps is proportional to the pressure, its value is determined by the power supply. The geometry of the ceramic insulators of the pumping elements and the high voltage connector minimize the risk of electrical leakage current. The excellent symmetry of the magnetic circuit also provides a very low stray magnetic field. It consists of standard ferrite elements (magnets) with very large magnetic field. The maximum bakeout temperature of these pumps is 200°C with the magnetic field and 300°C without magnetic field.

These pumps can have standard elements or noble gas elements. Standard elements: PID series pumps are composed of standard 25 L/s elements (12.5 L/s for PID 50) easily interchangeable and experience has shown they were the most reliable and robust.

ION PUMPS PIDG SERIES:

The PIDG series combines a diode ion pump PID with a titanium sublimation pumping.

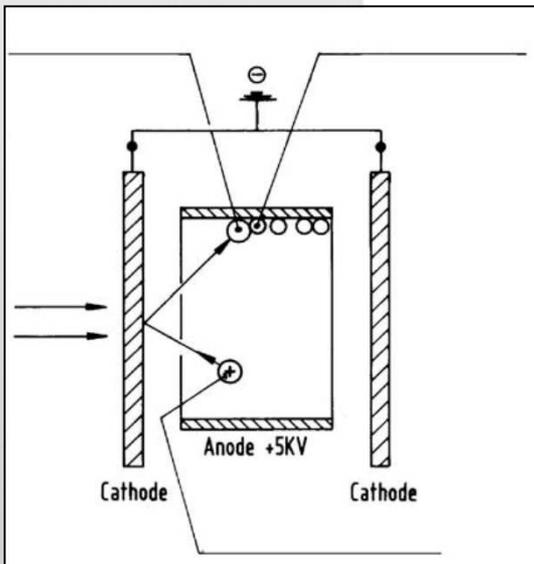
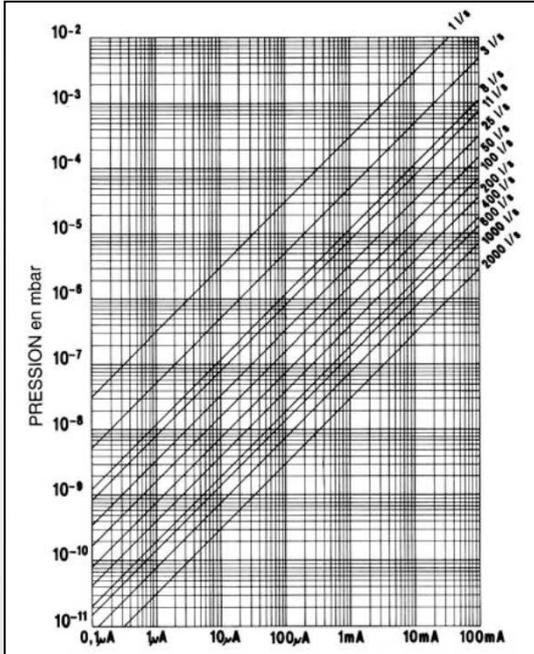
Operating principle:

Ion pumping : with the same design as the PID pumps, PIDG pumps supply the basic pumping of a system and do not require any maintenance.

Titanium sublimation pumping :

The titanium sublimation greatly increases the pumping capacity. The pumping speed given by the sublimation is proportional to the deposition surface and its temperature. Thus internal pumping speed higher than 2000 L/s can be obtained.

The lower the temperature of the cooling panel is, the higher the pumping speed will be. For a more efficient pumping of hydrogen, liquid nitrogen cooling is needed in order to improve condensation.



PID SERIES	PIDG SERIES
PID 3 : 3 L/s	-
PID 25 : 25 L/s	-
PID 50 : 50 L/s	-
PID 100 : 100 L/s	-
PID 200 : 200 L/s	PIDG 1020 : 1200 L/s
PID 400 : 400 L/s	PIDG 1040 : 1400 L/s
PID 600 : 600 L/s	PIDG 1060 : 1600 L/s
PID 800 : 800 L/s	PIDG 1080 : 1800 L/s