GAMMA VACUUM

# TiTan ION PUMPS

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Ion pumps are used in a wide variety of high and ultra-high vacuum (UHV) environments. They can reach the lowest possible vacuum for an economical cost. In addition, ion pumps have some technical advantages over other technologies:

- Vibration Free Operation
- Low Operational Cost
- Bakeable
- Low Maintenance
- Pressure Indication
- Permanent Gas Capture
- Radiation Tolerance
- Long Operational Life
- Non-contaminating Technology

## SMALL ION PUMPS

(MINI - 75S)

Small ion pumps come in a wide variety of sizes and configurations. Gamma Vacuum maintains stock of the most common configurations for same-day shipping. These pumps have the added advantage that they can be mounted in any orientation without additional support.

## LOW PROFILE ION PUMPS

(100L - 1200LX)

Low Profile ion pumps are under 12 in. (300 mm) high for standard configurations. Custom built to each order, the closed magnetic loop of these pumps reduces the stray magnetic field created by the pump making these pumps ideal for any type of charged particle application.

## TALL PROFILE ION PUMPS

(150TV - 600TV)

Tall Profile ion pumps are designed for mounting in narrow locations and matching competitive dimensions. These pumps are built to order and designed to fit into locations where a Low Profile ion pump might not fit.

## TiTan ION PUMP CHARACTERISTICS

### Lifetime

All Gamma Vacuum ion pumps are designed to operate for 45,000 – 50,000 hours at $1x10^{-6}$ mbar. Lifetime increases linearly with decreased pressure. At $1x10^{-9}$, for example, an ion pump can last for many years.

### Ultimate Pressure

Ion pumps are capable of reaching pressures below $1x10^{-10}$ mbar. Ultimate pressure of an ion pump is dictated by overall system conditions and materials.

### Vacuum Processing

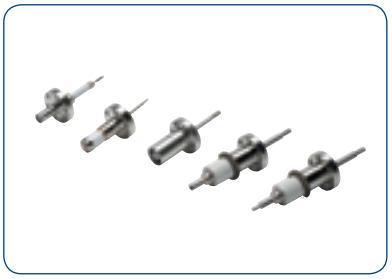
Ion pumps are shipped under vacuum at pressures less than $1x10^{-10}$ mbar. Certificates of conformance are provided and record all leak check points and pump characteristic values. RGA scans can be provided upon request.

### Port Configurations

Each ion pump can be configured with a variety of pumping port options. Additional ports are available in most designs on the top, bottom, or side and can accommodate TSP or non-evaporable getter (NEG) modules.

### Feedthroughs

Gamma Vacuum has standardized on the commercially available 10kV SHV feedthrough since 1996. For legacy purposes, alternate feedthroughs are available.

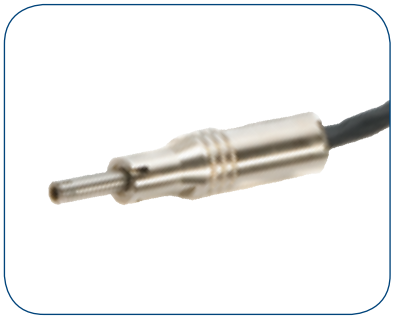


### Heaters

Integrated heaters can be added to ion pumps for economical and efficient baking.

### Cables

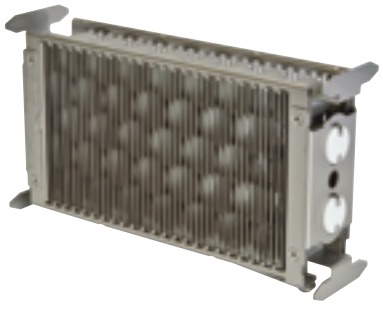
In addition to incorporating the SAFECONN interlock system, high voltage cables are made of flexible silicone materials that are bakeable and have high radiation tolerance.



## TiTan ION PUMP ELEMENTS

TiTan ion pump elements are “tuned” for specific pumping applications. Surfaces are chemically processed to remove potential surface contaminants and provide maximum adhesion for extended lifetime. Ceramics are optimally shielded to reduce exposure to sputtered material.

- TiTan CV (Conventional) – two titanium cathodes for high pumping speed of reactive gases.
- TiTan DI (Differential) – a titanium and tantalum cathode for maintained pumping speeds of reactive gases and long term stability of noble gases.
- TiTan TR – classic triode element for higher pressure operation



## TiTan ION PUMPS

| | SPECIFICATIONS | | | | COMPATIBILITY | | |
|---|---|---|---|---|---|---|---|
| | SPEED (l/s) | INLET FLANGE(S) | DIMENSIONS mm (in.) (H x L x W, max) | Weight, kg (lbs) | SPC | MPCq | QPC |
| **SMALL ION PUMPS** | | | | | | | |
| MINI | 0.2 | DN 16 (1.33 in.) | 38 x 38 x 51 (1.5 x 1.5 x 2.0) | 0.35 (0.8) | X | | |
| 3S | 2 - 3 | DN 16 (1.33 in.) | 45 x 45 x 108 (1.8 x 1.8 x 4.3) | 0.35 (0.8) | X | | |
| 10S | 8 - 10 | DN 35 (2.74 in.) | 107 x 113 x 190 (4.2 x 4.4 x 75) | 6 (13) | X | | |
| 25S | 15 - 20 | DN 35 (2.75 in.) | 202 x 125 x 130 (8.0 x 4.9 x 5.1) | 9 (20) | X | | |
| 45S | 30 - 40 | DN 35 (2.75 in.) DN 63 (4.5 in.) | 209 x 251 x 130 (8.2 x 9.9 x 5.1) | 16 (34) | X | | |
| 75S | 40 - 75 | DN 35 (2.75 in.) DN 63 (4.5 in.) DN 100 (6 in.) | 277 x 242 x 130 (10.9 x 9.5 x 5.1) | 19 (42) | X | | |
| **LOW PROFILE ION PUMPS** | | | | | | | |
| 100L | 80 - 100 | DN 100 (6 in.) | 325 x 325 x 128 (13 x 13 x 5) | 29 (62) | | X | X |
| 200L | 160 - 200 | DN 150 (8 in.) | 325 x 413 x 233 (13 x 16 x 9) | 49 (108) | | X | X |
| 300L | 240 - 300 | DN 150 (8 in.) | 325 x 413 x 337 (13 x 16 x 13) | 66 (145) | | X | X |
| 400L | 320 - 400 | DN 150 (8 in.) | 325 x 413 x 413 (13 x 16 x 16) | 72 (159) | | X | X |
| 400LX | 320 - 400 | DN 150 (8 in.) | 508 x 413 x 233 (20 x 16 x 9) | 115 (253) | | X | X |
| 600L | 480 - 600 | DN 150 (8 in.) | 325 x 513 x 513 (13 x 20 x 20) | 103 (226) | | X | X |
| 600LX | 480 - 600 | DN 150 (8 in.) | 508 x 413 x 336 (20 x 16 x 13) | 115 (253) | | X | X |
| 800LX | 640 - 800 | DN 150 (8 in.) | 508 x 413 x 413 (20 x 16 x 16) | 124 (273) | | X | X |
| 1200LX | 960-1200 | DN 150 (8 in.) DN 200 (10 in.) | 537 x 513 x 513 (21 x 20 x 20) | 206 (452) | | X | X |
| **TALL PROFILE ION PUMPS** | | | | | | | |
| 150TV | 120 - 150 | DN 100 (6") | 338 x 247 x 231 (14 x 10 x 9) | 32 (70) | | X | X |
| 300TV | 240 - 300 | DN 150 (6") | 345 x 450 x 231 (14 x 18 x 9) | 65 (143) | | X | X |
| 600TV | 480 - 600 | DN 150 (6") | 525 x 450 x 305 (21 x 18 x 12) | 109 (243) | | X | X |

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