

## Ion Beam Systems - ST3000

### ST3000 (Series III) 3.0 kW ion beam system - for Physical Vapor Deposition processes in large vacuum systems

The **ST3000 Ion Beam System** has been specially developed to provide an extremely reliable and maintenance-free facility for many applications in physical vapor deposition processes. The compact design and rugged construction allows easy installation to both new and existing vacuum deposition systems.

#### The ST3000 and Ion Assisted Deposition

The IAD of thin film growth is a proven technique that provides dense and highly stable films without need of additional substrate heating.

The **ST3000** has further enhanced the IAD process to include deposition onto a wide variety of glasses, plastics and metals.

The **ST3000** provides unparalleled film adhesion for both metal and non-metal films.



#### ST3000 Features:

- Ion beam energies up to 300eV
- Anode currents to 15 amps max
- Full-time use of high purity oxygen, argon or nitrogen.
- Highly efficient design greatly reduces gas load
- Water-cooled to reduce maintenance and radiation load
- Extremely low maintenance. The patented design utilizes a specially coated anode, which resists build-up of electrically insulating oxide coatings. No need to change anodes for different gases
- Extremely stable operation in IAD processes due to patented electrode design
- Broad - beam divergence for large area coverage with a uniform ion flux.
- **Pulse-mode** operation for ion-assistance of radiation-sensitive film materials such as many commonly used infrared and UV thin film materials eg  $MgF_2$  &  $LaF_2$ . For further information please refer to separate information sheets.
- Remote Control and Monitoring – all control through an RS232 interface
- Choice of coiled or straight wire filaments
- **Dual Filament** - Electronic system detects filament failure and auto switches to second filament.

#### Optional Feature Available

- **Dual Gas** - This feature provides use of either pure gas delivery or a mixture of two gases in any ratio.

## ION BEAM SYSTEMS SPECIFICATION – SERIES III ST3000

<b>Dimensions</b>	Source diameter 115 mm diameter by 80 mm long Source weight – 4 kg
<b>Beam power</b>	Anode volts selectable to 300 volts; anode power 3000 W Anode current to maximum 15 amps under manual or automatic beam control
<b>Beam divergence</b>	Wide beam divergence in excess of 80 degrees
<b>Gas flow</b>	Approximately 8sccm required to produce 2 amps (typical)
<b>Cooling water</b>	minimum 4.5 liters/minute. Water flow is constantly monitored
<b>Power Unit</b>	weight approx. 30 kg 180mm x 525mm x 435mm

### Options Available:

**Dual Gas DG.** Option provides facility to deliver either of two installed gases in either pure gas or specified gas mix ratio. Gas mixture is set from the touch screen.

**Ion Current Monitor.** Provides real-time monitoring of Ion Flux, with electronics built into the power supply, together with sensor head, feed through and cables.

**Mounting Hardware MH.** Several options are available. The mounting brackets are clamped to a special gas feedthrough.

### Complete Series III ST3000 package includes:

- ST3000 Ion Source.
- ST3000 Series III Power supply - 208 or 230 VAC, single phase 50 or 60Hz; 10 amps.
- Gas flow controller supplied 30 sccm Alicat Scientific.
- Operational, maintenance and service manual.
- All feedthroughs – gas, electrical & water.

Complete system supplied with all hardware for installation to new or existing vacuum systems. All vacuum feedthroughs for process cooling water, reactant gas and electrical supply are supplied to individual requirements. Vacuum chamber flange types supplied to individual requirements.



ST3000 Series III power supply  
with Touch Screen interface