



## SPECIFICATIONS

|                |                                |
|----------------|--------------------------------|
| Model          | 16RF08                         |
| Beam Current   | 100 – 1000mA                   |
| Beam Voltage   | 100 – 1500eV                   |
| Grid Materials | Molybdenum, Graphite, Titanium |
| Water Cooling  | Antenna and Shroud             |
| Weight         | 7.7 kg (17 lbs.)               |



Flange Mount



Extension Mount



Internal Mount

## ▲INTERNAL MOUNT

Using an Internal Mount configuration places the ion source loosely inside the vacuum chamber, allowing angular (pointing) adjustment to suit process needs. The maximum distance from the RF vacuum feedthrough for this configuration is 18-inches. This option allows some freedom of location of the ion source and the ability to use multiple smaller feedthroughs instead of one large feedthrough. The standard flanges for this configuration are three 2.75 inch Conflat. Other flange combinations are available. The RF Matching Network mounts directly to the RF feedthrough.

plasmaprocessgroup.com

# 16cm Source

Our 16cm RF ion beam source is an industry workhorse, serving as the dominant deposition source in ion beam deposition (IBD) systems around the world. With an output capacity of 600mA, 800mA, or even 1000mA this dynamic and versatile source can satisfy a huge array of needs in deposition and large-scale Ion assist processes. Available with standard molybdenum, collimated graphite, or titanium grids, this source can be used in almost any type of contamination-sensitive ion beam process. This 16cm source can even be equipped with modulators allowing it to be used in metal deposition and etch processes, an operational regime normally challenging for RF ion beam. The source provides a 16cm ion beam which is then shaped by the choice of grids. Convergent, divergent, collimated, and even multi-focal point grids are available with this source. Please refer to the grid selection table below.

## ◀ FLANGE/EXTENSION MOUNT

The Flange and Extension Mount options for this ion source offer fixed positioning for maximum process repeatability. The Flange Mount places the source directly against the flange using the smallest amount of space, while the Extension Mount stands off the flange with fixed posts. The minimum flange size for these options is a 16.5-inch Conflat. These packages include a high-voltage cover on the atmosphere side of the flange to which the RF Matching Network mounts directly. Also provided are connection points for cooling water, source gas, and DC bias.

## NOMINAL PERFORMANCE DATA - USING ARGON @ 18 SCCM

| BEAM        |              | ACCELERATOR |              | RF POWER    |               | NEUTRALIZER   |
|-------------|--------------|-------------|--------------|-------------|---------------|---------------|
| Voltage (V) | Current (mA) | Voltage (V) | Current (mA) | Forward (W) | Reflected (W) | Emission (mA) |
| 250         | 300          | 550         | 11           | 199         | 0             | 450           |
| 500         | 300          | 400         | 8            | 193         | 0             | 450           |
| 750         | 450          | 300         | 17           | 266         | 0             | 675           |
| 1000        | 600          | 350         | 18           | 347         | 1             | 900           |
| 1250        | 600          | 250         | 15           | 352         | 2             | 900           |
| 1250        | 800          | 400         | 24           | 485         | 4             | 1200          |
| 1500        | 800          | 250         | 20           | 475         | 3             | 1200          |
| 250-1500    | 100 floor    | 200         | ~3           | ~94         | 1             | 150           |

## OPTIONS & ACCESSORIES

|                            |                    |   |  |
|----------------------------|--------------------|---|--|
| Ion Source                 | 16RF08             | Standard Ion Source   | Used for 600mA Configuration   |
|                            | 16RF HC            | Advanced Ion Source   | Required for 800mA and 1000mA configuration  |
| Interface Kits             | 504901A            | Flange Mount  | Includes Vacuum Feedthroughs and vacuum-side connections to source for RF Power, DC bias, cooling water, and gas |
|                            | 504902A            | Extension Mount   |  |
|                            | 504903A            | Internal Mount  |  |
| Neutralizer                | 504424B            | RFN   | Radio frequency – requires a mounting flange   |
| Common Neutralizer Flanges | 504854A            | 2¾" CF RFN Flange   | Each flange has a RFN matching network.  |
|                            | 504891A            | 4.5" CF RFN Flange  |  |
|                            | 504855A            | 6" CF RFN Flange  |  |
| Power Supplies             | IBEAM 703-1 series |   | RF Power, DC Bias, Control, and RFN Operation  |
|                            | IBEAM 701-4        | 1000mA / 1500V Beam configuration, requires separate RF Generator |  |
| RF Matching                | 505914A            | Source RF   | Includes Matching Network & Controller for source  |
| RF Generator               | 505311A            | 1000W RF Generator  | Used only with I-Beam 701 power supplies   |
| Cable Kits                 | 505752A            | I-Beam 703 Cable Kit with beam, RFN and RF cables                 |  |
|                            | 507128A            | I-Beam 701/703 Cable Kit for use with 1kW RF Generator            |  |
| Adapter Box                | IBOX-104           |   | Adapts connections to an Ion-Tech style configuration  |

## GRID OPTIONS

|                            |         |            |  |         |
|----------------------------|---------|------------|--|---------|
| <b>3 Focal Point</b>       | 504296B | Molybdenum | 3 grid, 104/72/40cm FPs, 0.065" spacing, .020" thick | Sputter |
|                            | 504296J | Molybdenum | 3 grid, 104/72/40cm FPs, 0.065" spacing, .015" thick | Sputter |
|                            | 507103A | Titanium   | 3 grid, 104/72/40cm FPs, 0.065" spacing              | Sputter |
| <b>2 Focal Point</b>       | 504137A | Molybdenum | 3 grid, 104/72cm FPs, 0.065" spacing, .020" thick    | Sputter |
| <b>66cm FP, Div.</b>       | 504373B | Molybdenum | 3 grid, 66cm FP, Divergent                           | Assist  |
| <b>66cm FP, Convergent</b> | 504599A | Molybdenum | 3 grid, 66cm FP, Convergent                          | Sputter |
|                            | 504851A | Titanium   | 3 grid, 66cm FP, Convergent                          | Sputter |
| <b>33cm FP, Div.</b>       | 504455A | Molybdenum | Moly, 3 grid, 33cm FP                                | Assist  |
| <b>Collimated</b>          | 504822A | Graphite   | 3 grid, Graphite, flat                               | Etch    |