

# Intlvac

T H I N F I L M

## Mark I+ Ion Source

Precision Ion Beam Processing for Advanced Thin Film Applications



- Gridless design eliminates fragile grids and reduces erosion
- Radiative cooling removes the need for water cooling
- High current density with 50–180 eV ion energy
- Self-neutralizing beam minimizes substrate charging
- Compact and lightweight design enables flexible mounting and easy integration

# TECHNICAL SPECIFICATIONS

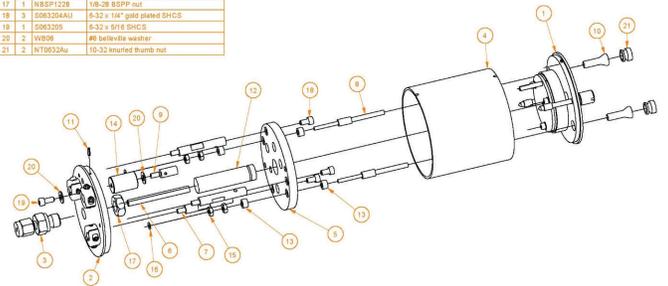
|                           |   |
|---------------------------|---|
| <b>Anode Voltage</b>      | 50–300 V (Ar)<br>100–300 V (O <sub>2</sub> )      |
| <b>Anode Current</b>      | 0.2 – 1.0 A                                       |
| <b>Continuous Power</b>   | 200 W   |
| <b>Peak Power</b>         | 300 W (≤60 min duty cycle)                        |
| <b>Operating Pressure</b> | 0.1 – 1.0 mTorr<br>100–300 V (O <sub>2</sub> )    |
| <b>Base Pressure</b>      | ≤ 1 × 10 <sup>-4</sup> Torr                       |
| <b>Gas Flow</b>           | 2 – 20 sccm                                       |
| <b>Gases</b>              | Ar, O <sub>2</sub> , N <sub>2</sub> , inert gases |
| <b>Cooling</b>            | Radiative   |
| <b>Cathode</b>            | 0.015" Tungsten Filament                          |
| <b>Dimensions</b>         | 68 mm × 70 mm                                     |
| <b>Weight</b>             | 0.9 kg  |
| <b>Gas Inlet</b>          | 1/8" Swagelok                                     |
| <b>Mounting</b>           | 10-32 UNF   |

# Mark I+ Gridless Ion Source

The Intlvac Thin Film Mark I+ Ion Source is a compact, radiatively cooled, gridless end-Hall ion source designed to deliver stable, high-current ion beams for demanding vacuum thin film applications. Optimized for reliability and ease of integration, the Mark I+ provides exceptional beam stability, low ion energy operation, and reduced maintenance — making it ideal for industrial and R&D thin film systems.

## Mark II+ Mounting Configurations

| ITEM | QTY | PART NUMBER | DESCRIPTION                              |
|------|-----|-------------|--|
| 1    | 1   | 40103-00    | Mark I+ anode assembly                   |
| 2    | 1   | 40103-02    | Mark I+ base retainer                    |
| 3    | 1   | 40103-08-1  | 1/8" 20 BSPP to 1/8" Compression Adaptor |
| 4    | 1   | 40103-09    | Mark I+ body                             |
| 5    | 1   | 40103-10    | Mark I+ partition plate                  |
| 6    | 1   | 40103-11    | Mark I+ gas tube                         |
| 7    | 3   | 40103-12    | Mark I+ standoff                         |
| 8    | 2   | 40103-13    | Mark I+ cathode connector                |
| 9    | 1   | 40103-15    | Mark I+ female anode connector           |
| 10   | 2   | 40103-16    | Mark I+ cathode connector sleeve         |
| 11   | 1   | 40103-18    | Mark I+ spring pin                       |
| 12   | 1   | 40103-20    | Mark I+ magnet                           |
| 13   | 4   | 40103-21    | Mark I+ partition plate insulator        |
| 14   | 1   | 40103-22    | Mark I+ anode insulator                  |
| 15   | 4   | N0440AU     | 4-40 gold plated nut                     |
| 16   | 2   | W06-1       | Operator flat washer                     |
| 17   | 1   | NBSPP128    | 1/8" 20 BSPP nut                         |
| 18   | 3   | S063204AU   | 6-32 x 1/4" gold plated SHCS             |
| 19   | 1   | S097205     | 6-32 x 3/16 SHCS                         |
| 20   | 2   | W02F        | #2 flatw/flat washer                     |
| 21   | 2   | N10632Au    | 10-32 knurled thumb nut                  |



| ITEM | QTY | PART NUMBER  | DESCRIPTION                       |
|------|-----|--------------|-----------------------------------|
| 1    | 1   | 40103-01     | Mark I+ pole piece                |
| 2    | 1   | 40103-02     | Mark I+ anode                     |
| 3    | 1   | 40103-03     | Mark I+ gas retainer bottom       |
| 4    | 1   | 40103-04     | Mark I+ gas retainer top          |
| 5    | 1   | 40103-05     | Mark I+ stainless gas distributor |
| 6    | 1   | 40103-06     | Mark I+ male anode connector      |
| 7    | 3   | 40103-17     | Mark I+ pole piece insulator      |
| 8    | 1   | 40103-18     | Mark I+ spring pin                |
| 9    | 1   | S044020AU    | 4-40 x 1/8" gold plated SHCS      |
| 10   | 3   | S044014AU    | 4-40 x 7/16 gold plated SHCS      |
| 11   | 3   | W06-1        | #4 arm flat washer                |
| 12   | 3   | S03F103220Au | 10-32 x 1/2" square panel screw   |
| 13   | 2   | W10          | #10 FLAT WASHER                   |

