



TURBO SPUTTER COATER

208HRD High Resolution Sputter Coater for FE-SEM applications



*208HRD shown above with Rotary-Planetary-Tilting RPT Stage and MTM-20 Thickness Controller.
The control panel for this system has recently been updated and new images are not yet available.*

The 208HRD High Resolution Sputter Coater from Cressington offers real solutions to the problems encountered when coating difficult samples for FESEM imaging. FESEM applications need extremely thin, fine-grained, uniform coatings to eliminate charging and to improve contrast on low density materials. In order to minimize the effects of grain size, the 208HR offers a full range of coating materials and gives unprecedented control over thickness and deposition conditions. The 208HRD Turbo Pumped High Vacuum System offers a wide range of operating pressures allowing precise control of both uniformity and conformity of the coating, minimizing charging effects.

The 208HRD High Resolution Sputter Coater is a complete coating solution, including as standard:

- Pumping system with turbo pump, backing pump for turbo, and vacuum connections
- MTM-20 High Resolution Film Thickness Controller
- Rotary-Planetary-Tilting Stage with sample holder selection (4)
- Large Target selection

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Main Features:

- **Wide choice of Coating Materials.** Magnetron head design and effective gas handling allow a wide choice of target materials.
- **Economical target utilization.** The 208HRD offers a smaller diameter target and modified chamber configurations to give more economical usage for costly materials like iridium.
- **Precision Thickness Control.** Thickness optimized for FESEM application using the MTM-20 High Resolution Thickness Controller, which has a resolution of 0.1nm. This enables precise and reproducible thin coatings, especially in the range of 0.5 - 3nm, a thickness desirable for FESEM applications.
- **Multi-angle Stage Movements.** Separate rotary, planetary and tilting stage movements ensure uniform coating with excellent conformity, even on highly topographic samples. Four sample holders are provided with options to accommodate sample sizes as large as 32mm diameter.
- **Variable Chamber Geometry.** Chamber geometry is used to adjust deposition rate to optimize structure. Height can be adjusted by the addition of metal spacer rings (2 included).
- **Compact, Modern, Benchtop Design.** Space and energy saving design eliminates need for floor space, water or specialized electrical connections. Integrated turbo pump ensures fast pump down combined with high positive pumping speed during sputtering process. Integrated turbo pump ensures fast pump down speed. The backing pump for the turbo is a diaphragm pump, giving oil free operation.



208HRD Sputter Head

The 208HRD employs a compact 28mm diameter target design that offers higher efficiency to better utilize more expensive target materials such as iridium. An additional benefit with using a smaller diameter sputter source is that it helps lower the total system cost with target compared to larger target systems.



28mm Diameter Target



Preferred Coating Materials for FESEM Applications:

- Ir: Excellent, very fine grain coating material
- Pt/Pd: General-purpose high resolution coating material for non-conducting specimens
- Cr: Excellent for semiconductor materials and high resolution back scattered electron imaging

This the complete list of 28mm diameter targets for 208HRD:

- Aluminum (Al) Target, 99.999% , dia. 28mm, thick 1mm
- Chromium (Cr) Target , 99.95%, dia, 28mm, thick 3.2mm
- Cobalt (Co) Target, 99.99%, dia. 28mm, thick 0.5mm
- Copper (Cu)Target, 99.99%, dia. 28mm, thick 1mm
- Gold (Au) Target, 99.99% , dia. 28mm, thick 0.2mm (or 0.5mm or 1mm)
- Gold/Palladium (Au:Pd, 60:40) Target, 99.99%, dia. 28mm, thick 0.2mm
- Iridium Target (Ir), 99.8%, dia. 28mm, thick 0.3mm (or 0.2mm)
- Iron (Fe) Target , 99.5%, dia. 28mm, thick 0.5mm
- ITO (In₂O₃/SnO₂ 90/10wt%) Target, 99.99%, 1mm Cu backing plate, dia. 28mm, thick 3.2mm
- Molybdenum (Mo) Target, 99.95%, dia. 28mm, thick 3.2mm
- Nickel (Ni) Target, 99.98% , dia. 28mm, thick 0.5mm
- Nickel/Chromium (Ni:Cr, 80:20) Target, 99.95%, dia. 28mm, thick 0.5mm
- Niobium (Nb) Target, 99.9%, dia. 28mm, thick 0.5mm
- Palladium (Pd) Target, 99.9% , dia. 28mm, thick 0.2mm
- Platinum (Pt) Target, 99.95%, dia. 28mm, thick 0.2mm (or 0.5mm)
- Platinum/Palladium (Pt:Pd, 80:20) Target, 99.99%, dia. 28mm, thick 0.2mm (or 0.4mm)
- Silver (Ag) Target, 99.99%, dia. 28mm, thick 1mm
- Tantalum (Ta) Target, 99.95% , dia. 28mm, thick 0.5mm
- Titanium (Ti) Target, 99.6% , dia. 28mm, thick 0.5mm
- Tungsten (W) Target, 99.95% , dia. 28mm, thick 0.2mm
- Zirconium (Zr) Target, 99.8% , dia. 28mm, thick 0.5mm

208HRD Chamber

The 208HRD has a modular chamber that consists of glass chamber, metal spacer rings (2 included), and rotary-planetary-tilting stage. These components are labeled in the image below.

The sputter head support pillar can be adjusted into three different positions, varying the overall chamber height. Each adjustment location corresponds to a different metal spacer/ glass chamber / rotary-planetary-tilting RPT stage configuration. The addition of a spacer ring above the RPT stage increases the deposition distances by 15mm (height of metal spacer ring). Two metal spacers are included with the 208HRD, but a third can be purchased separately.



208HRD Chamber as shown on 208HRD



Support pillar adjustment locations

Chamber configuration variations

MTM20 High Resolution Thickness Coater

- 6 MHz Quartz measuring head.
- 4-digit display.
- Measurement from 0 to 999,9 nm.
- Resolution 0,1 nm.
- Density range: 0.5 to 30.0 g/cm³.
- Compensation factor from 0.25 to 8.0 adjustable according to the height of the object.
- Four values can be stored in memory for Density and four for Tooling factor.
- Programmable thickness termination function. Termination facility range 0 to 999.9 nm.





OPTIONS:

Also available is the Second Chamber Outfit (#7021-208HR) which includes a stationary stage with 150mm tall chamber, along with an additional spacer ring.



Stationary stage with tall glass chamber



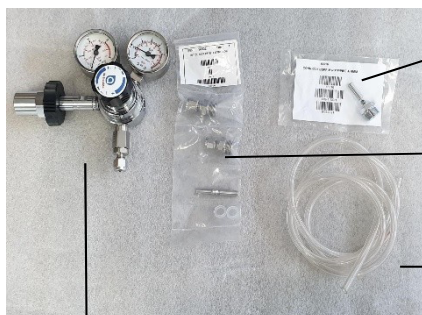
Rotary-Planetary-Tilting stage with third spacer ring

Ref: CR-87054 - Rotary Tilting Stage (R-T-S)



- Variable speed rotation and tilt from 0 to 90° with locking system.
- Delivered with a mounting base including a free port, a glass chamber extension $\varnothing$ 150 x 65 mm and two metal rings $\varnothing$ 150 x 15 mm.
- Multi-support rotary stage. Can accommodate one microscope slide, 7 standard $\frac{1}{2}$ " $\varnothing$ tail holders or (optional) 3X $\varnothing$ 45 mm sample holders tables, accepting 6X $\varnothing$ 13 mm sample holders for example.

Ref: AL-HD-300 - Pressure Gauge for Argon Cylinder



"olive" type outlet
Recommended with
tygon type hose)

"Kit n°2"
connections & tube

Tygon hose
 $\varnothing$ i:4.8mm
 $\varnothing$ e:7.9mm
Thickness:1.6mm

- Output pressure: 0.2 to 4 bar
- Argon leak: 0.4 to 1 bar

H300 gauge