



PVD Coating System ARC-2, Custom Design

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1) Technical Specifications

A. Electrical Requirements:

- **Power Supply:** 200 KVA; 3-Phase + Neutral + Protective Earth, 3 x 460V ($\pm 10\%$)
 - **Working Gases:** N₂, Ar, H₂
 - **Cooling Water:** 60 l/min, 22-24°C, particle-free, pressure: 5-6 bars, hardness: 7°DH, pH neutral
 - **Compressed Air:** As per system requirements
 - **Exhaust Pipe:** Specifications per provided drawings
 - **Internet Connection:** Required for remote diagnostics and updates
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B. Mechanical Vacuum System Features:

- **Vacuum Chamber:** AISI 304 rectangular chamber, internal dimensions: $\varnothing 1000$ mm x H1000 mm
- **Flanges:**
 - 2 flanges, each $\varnothing 234$ mm, positioned on two chamber walls
 - ISO 320 flange for turbopump
 - ISO 100 for carousel conveyor electrical feedthrough
- **Rotating Table:** Carousel, extractable, $\varnothing 500$ mm
- **Cooling System:** Integrated cooling channels



- **Vacuum Components:**

- 1x **Turbomolecular Magnetic Pump** (3200 l/s, ISO-F 320, Osaka)
- 1x **Two-Stage Rotary Pump** (96 m³/h, E2M80, Edwards)
- 1x **ISO-F 320 Gate Valve for Turbopump** (VAT)
- Multiple **Angle Valves** (KF16, KF25, KF40, KF63, VAT)
- **Pressure Gauges:**
 - 3x Pirani Gauges (PIR-T0-1, KF16, Kurt J. Lesker)
 - 1x Penning Gauge (AIM-X, KF25, Edwards)
- 3x Gas Mass-Flow Controllers

C. Electrical System Features:

- **Heating Elements:** 2x 15 kW Infrared Electric Heaters
- **Power Supply:** 1x 15 kW Bias DC/Pulsed Power Supply
- **Temperature Monitoring:** 2x Fixed-position thermocouples with dummies
- **Control System:**
 - PLC Control Panel (Siemens)
 - 19" Touchscreen HMI Comfort Panel (Siemens)
- **Additional Components:**
 - 1x JB for gas equipment
 - 1x JB for ignition system
 - 4x Miller XMT-350 Power Supplies (or equivalent)
 - 1x Support Rack
 - 1x Uninterruptible Power Supply (UPS)

D. Coating System Features:

- **Loading Table:** Ø500 mm, including 2 sets of punch holders (300 punch capacity)
- **Cathodic Arc Sources:** 2x Circular DC sources, target Ø172 mm



- **Shutters & Anodes:**
 - 2x Air Rotary Shutters (ISO 63)
 - 2x Primary Anodes
 - 2x Secondary Anodes
 - **Protective Shields:** 2x Sets of internal protective shields
 - **Effective Coating Area:** Ø450 mm x H350 mm
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2) Materials Included with the System

- Spare mechanical and vacuum components
 - Spare electrical components
 - 4x Cr Targets for cathodic arc sources
 - **Documentation:** User manual, technical drawings
 - **Certifications:** CSA-compliant, meeting current regulatory standards
 - **Software:** Coating process control software
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3) Utilities to be Supplied by the Customer

- **Electrical:** 3x460V, 250A
 - **Compressed Air:** 6-7 bar
 - **Cooling Water:** 3-4 bar
 - **Gases:** Nitrogen (N₂), Hydrogen (H₂), Argon (Ar)
 - **Exhaust Line:** Required for the vacuum pumping system
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4) Acceptance Tests

- The customer must provide necessary materials for the acceptance test.
- The supplier will conduct **CrN coating tests** at its facility before shipment.
- After installation, the supplier will perform **on-site CrN coating tests** at the customer's facility.



5) Coating Technology & Performance

- **Coating Composition:** CrN
 - **Hardness:** 2000 ± 200 HV
 - **Coating Thickness:** 2-5 µm
 - **Process Cycle Time:** 4-5 hours (excluding cooling stage)
 - **Post-Coating Jet Polishing:** Media and parameters to be advised
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6) Packaging & Transport

- **Packaging:** Provided by the supplier
 - **Transport:** Arranged and covered by the supplier
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10) Warranty

- **Coverage:** 12 months from the date of final acceptance at the customer's facility
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11) Optional Additions

Additional spare parts and components such as:

- **Loading Tables**
- **Cathodic Arc Sources**
- **Spare Protective Shields**
- **Tool Holders**

These items can be provided under separate quotations and orders.

Extended Warranty & Technical Support: Available under a separate Service Agreement.

For further details or clarifications, please feel free to contact us directly.

Best Regards,

Sputtek Inc.



Dimensions: L x W x H: 4275mm X 2200mm X 2250mm

