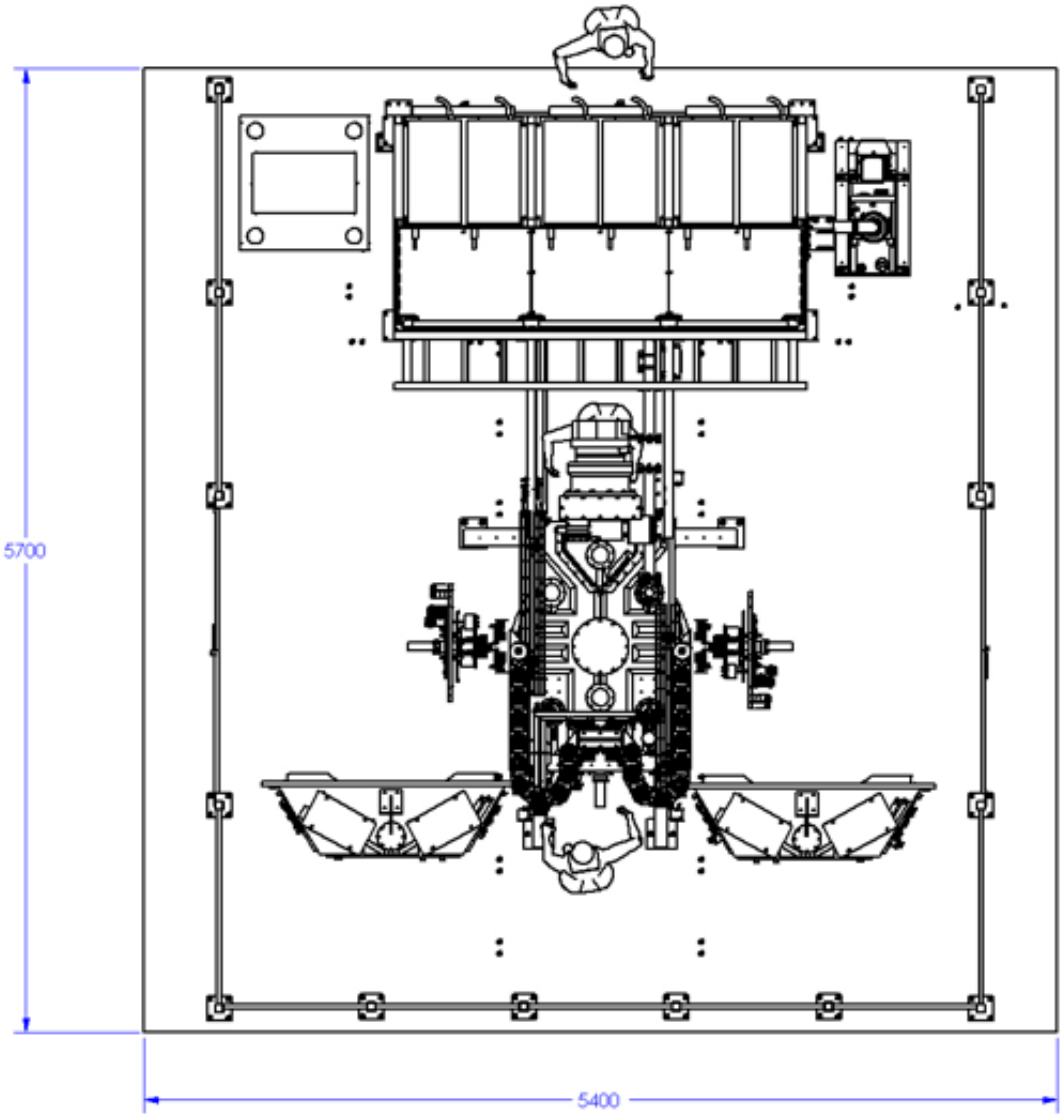
SPUN 4,000

HYBRID PVD COATING SYSTEM M-ARC 2/6

Sputtek HYBRID PVD COATING SYSTEM described below**:**

1) LAY-OUT with utilities



Utilities Required:

Electricity (3)	600 KVA; 3 Phases + Neutral + protective earth, 3 x 460 V
Working gases	N2, Ar, C2H2, H2, O2
Cooling water (1-2)	600 l /min; 22-24°C, particle free, pressure: 5 to 6 bars, hardness 7°DH, Ph neutral value
Compressed air (4)	Dry & free of oil 6 bar
Exhaust pipe (5)	For primary pump
Connecting size	For each inlet for all utilities see drawing
Internet connection	Static IP address

2) General data

A) Features of the mechanical vacuum system:

AISI 304 octagonal vacuum chamber with 1300 mm internal diameter and 1770 mm internal height.

- 12 flanges on 4 walls of the chamber, in three levels, Diameter 234 mm.
- ISO 320 flange for the turbopump.
- ISO 100 for carousel conveyor electrical feedthrough element.
- Carousel extractable. Table diameter 1100 mm with 6 satellites 330mm. Each satellite is extendable to 6 smaller subsatellites
- Cooling system with cooling channels,
- 1x Turbomolecular magnetic pump 3200 l/s ISO-F 320 (Osaka);
- 1x Two-stage rotary pump 96 m3/h, KF 40 (Edwards);
- 1x ISO-F 320 Gate Valve for turbo (VAT);
- 1x Angle valve KF63;1x Angle valve KF40; 1x Angle valve KF25; 2x Angle valve KF16(VAT);
- 3x Pirani gauge PIR-T0-1 KF16 (Kurt J Lesker);
- 1x Penning gauge AIM-X –KF25 (Edwards);
- 6x Gas mass-flow controllers.

B) Features of the electric system:

4x 20 Kw Infrared Electric heaters,
3x 10 Kw Advance Energy Magnetron DC/Pulsed power supply,
1x 30 Kw Bias DC/Pulsed power supply.
4x Thermocouples with fixed position and fixed dummy,
420 KW installed power,
1x Control Panel with PLC (Siemens),
1x HMI Comfort with 19" touch screen (Siemens),
1x JB for gas equipment – 1 pc
1x JB for Ignition system - 1pc
18x Miller XMT-350 Power Supply
1x supporting Ruck
1x uninterruptable power supply

C) Features of the coating system

1x Loading Table diam. 1100 with 6 satellites dia. 330 mm
9x circular DC Cathodic Arc sources with a target diameter 172 mm.
3x circular DC Magnetron sources with a target diameter 203 mm,
12x Air rotary shutter ISO 63,
9 primary anodes,
4 secondary anodes,
1x set of internal protective shields,
Effective Coatings area : D 1050 x 1400 mm.

3) Materials delivered with the system

- Spare parts of mechanical and vacuum components.
- Spare parts of electrical components,
- 6 Ti targets for cathodic Arc sources and
- 3 Ti targets for Magnetron Sputtering sources.
- User manual with technical drawings,
- CSA brand in compliance with the regulations in force.
- Software for coating processes control

4) Utilities supplied by customer

-3x460V – 400A Electric current
- 6-7 bar Compressed air
- 3-4 bar Water
- Nitrogen
- Hydrogen
- Argon
- Acetylene
- Oxygen
- Exhaust line for the pumping system

5) Acceptance Test

- The customer must supply the necessary material for the acceptance test.
- The supplier will carry out the running hard coating tests at his own premises.
- The supplier will carry out the running hard coating tests at customer facility after PVD system installation.

6) Packaging, Transport

- The system packaging is on the supplier.
- The system transport is on the customer.

7) System

The PVD COATING SYSTEM STM 1060 1PL will include:

- Software for Coating process control
-9 x Target Titanium Grade 2 for Arc source
-3 x Target Titanium Grade 2 for MS

8) Warranty

Warranty will be in force for 12 months after acceptance test at customer facility.

9) Optional

Additional PVD system spare parts and components like Loading table, Cathodic Arc Source, Sputtering source, set of spare shields, satellites and sub-satellites, tools holders and others will be supplied per separate quotation(s) and order (s).

Extended warranty and technical support are available under separate Service Agreement.

Note: Some technical parameters and coating system price will be revised upon completion of new PVD system design and obtaining updated technical requirements.

Sputtek Inc.