

VACUUM DEPOSITION SYSTEM

SAF BE



Technical Specification

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	Vacuum Deposition System SAF BE	 Technical Specification
ISO 9001:2008; ISO 14001:2004		Sidrabe Confidential

1. Overview

Vacuum coater SAF BE is an R&D tool for deposition of various multifunctional coatings by thermal evaporation and E-Beam evaporation methods. The substrate is 50x50 or 25x25mm solid, flat material that is suitable for vacuum coating. This equipment is designed for scientific research and development works.

Vacuum coater SAF BE is a single-chamber solution based on SAF multifunctional R&D cluster tool concept (<http://www.sidrabe.com/cluster-tool>).



2. Specification

2.1. Safety engineering

The coater is designed in accordance with ergonomic principles that ensure access to all parts of the coater for maintenance or replacement. All the equipment is suited for the specific processes within the limits of temperature, pressure and reactive medium requirements.

The coater is built in accordance with the safety regulations of the European Commission and European Standards:

- 2006/42/EC (Machinery Directive);
- 2006/95/EC (Low Voltage Directive);
- EN60204-1:2006+A1:2009 (Safety of Machinery).

The power supplies, electric components and the entire coater have CE marking.

2.2. Electric power

Frequency	50Hz/PEN
Voltage	3x400VAC
Power	12kW

2.3. Gases

Process gases	O ₂
Air pressure	0.5...0.7MPa

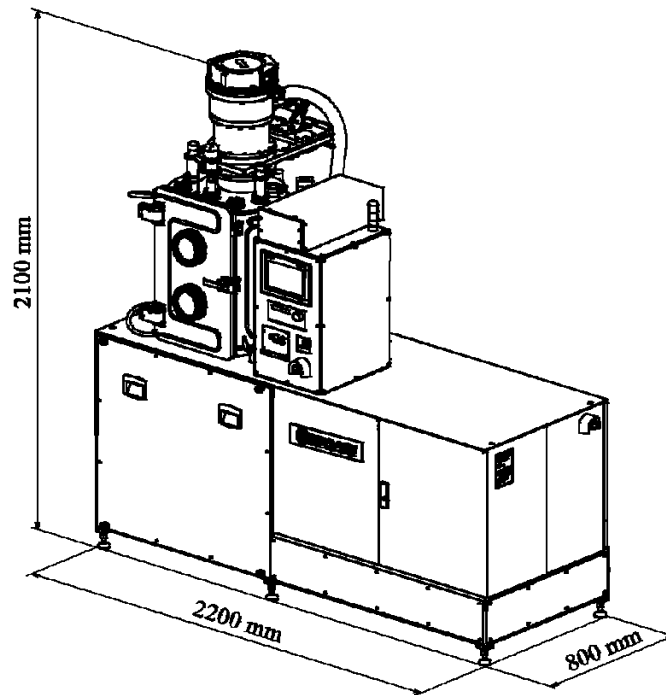
2.4. Water

Water inlet	16l/min (0.96m ³ /h)
Water pressure	0.25...0.3MPa

2.5. Dimensions of the vacuum chamber (C-shaped stainless steel chamber)

Diameter, mm	500
Hight, mm	700



2.6. Dimensions of the coater



2.7. Sample

2.7.1. Dimensions and properties of the sample

Material	Glass, metal, or other solid, flat sample, suitable for vacuum process
Dimensions, mm	25 x 25 and 50 x 50
Thickness, mm	1-20
Uncoated area, mm	Up to 1.5 from each side

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2.7.2. Sampleholder

Material	Copper (St.St. optional)
Dimensions, mm	84 x 84 x 1 (may be changed if necessary)

2.8. Process chamber



2.8.1. Thermal evaporation

Evaporator	1 pc.
Shield.	1 pc.
Ultimate pressure, Torr	1×10^{-6}
Base pressure, Torr	2×10^{-6}
Process pressure, Torr	1×10^{-5}
Evaporator power supply	1 pc.
Distance from evaporator to the center of the sample, mm	250

2.8.2. E-beam evaporator



Evaporator power	3 kW
Number of pockets, pc.	4 or 6 or 8 x 2.24 cc crucible

2.8.3. Sample heater

Sample temperature, °C	300 deg. C MAX
Heater type	IR heater
Heater	1 pc

2.8.4. Evaporation control

Quartz film thickness monitor,	1 pc.
Measurement precision, Å/s	$\leq 0,1$

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2.9. Control

Pumping station is controlled by touch panel. Control of other equipment is manufacturer dependant.

3. List of components

- 2.1. Process chamber
 - 2.1.1. Chamber door with two view ports 1 pc.
 - 2.1.2. Flanges with blanks 4 pc.
 - 2.1.3. Flanges with optical window 2 pc.
 - 2.1.4. Sample holder, rotatable, for 1 sample (sample amount may be varied using additional device) 1 pc.
 - 2.1.5. Thermal evaporator 1 pc.
 - 2.1.6. Multipocket e-beam evaporator with 4 pockets 1 pc.
 - 2.1.7. Quartz film thickness monitor 1 pc.
 - 2.1.8. Sample heater (optional)
 - 2.1.9. Air inlet valve 1 pc.
 - 2.1.10. Pumping:
 - 2.1.10.1. Fore vacuum pump (DUO20 forevacuum pump (ISO KF 25), Pfeiffer Vacuum or similar from different manufacturer) 1 pc.
 - 2.1.10.2. Turbo pump (HiPace 900 Turbopump DN 200 ISO-K, Pfeiffer Vacuum or similar from different manufacturer) 1 pc.
 - 2.1.10.3. Filter DN 16 1 pc.
 - 2.1.10.4. Silencer (ES 25S P/N109873, Alcatel) 1 pc.
 - 2.1.10.5. Gate valve (20044-PE44, DN 200 ISO-F) 1 pc.
 - 2.1.10.6. Angle valve (XLAV-25J-A90LA-5LU, SMC) 2 pc.
 - 2.1.10.7. EM air inlet valve (XSA3-43S-5DZ-Q, 24 VDC, SMC) 1 pc.
 - 2.1.10.8. Cold cathode vacuum sensor (KJLC 971, NW25 KF, Kurt J.Lesker) 1 pc.
 - 2.1.10.9. Digital Pirani type vacuum sensor Digital Pirani sensor (PPT100 DN16 ISO-KF, Pfeiffer Vacuum) 2 pc.
 - 2.1.11. Inner lights