

Precision and Vacuum Technology



# MAGNETRON SPUTTERING SET

Equipment for sputter deposition applications

## MS2 63C1 MAGNETRON SOURCE

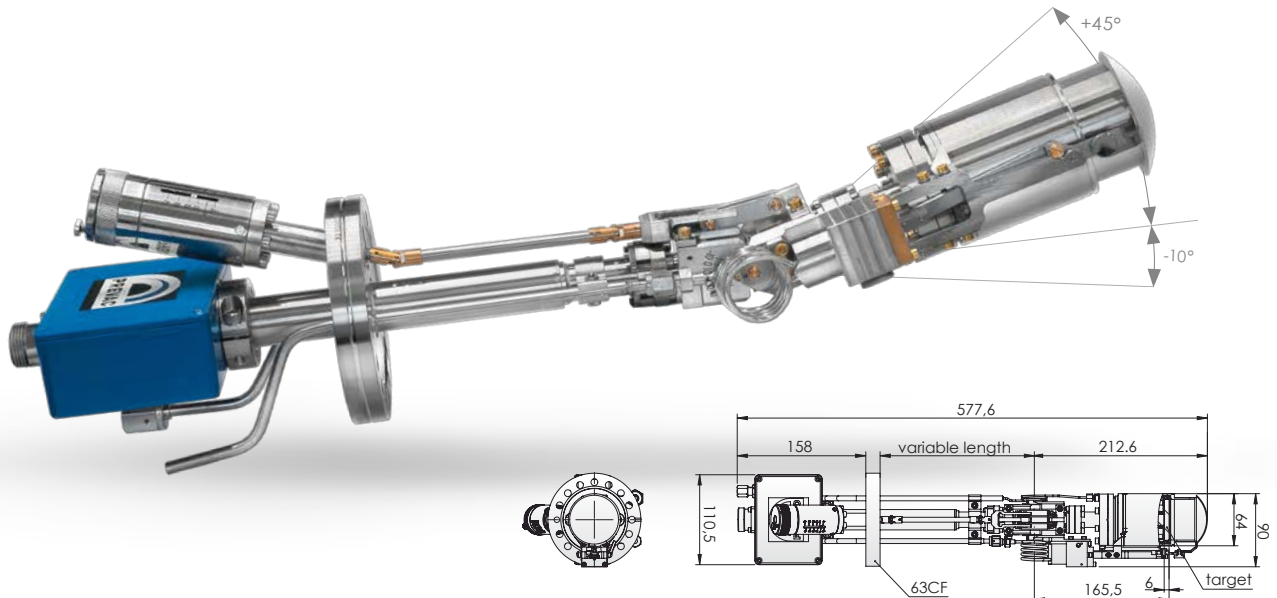
The MS2 63C1 Magnetron Source is used to apply thin layers with high homogeneity in the sputtering process.

The source is compatible with UHV conditions. Thanks to the integrated in situ tilt system, it can be used in both standard and custom geometry chambers. By using the dome type design we minimize the space needed to open the shutter. MS2 63C1 is fully compatible with our M600DC-PS power supply as well as all other DC, RF and pulsed DC power supplies available on the market.

- Mounting flange: DN 63 CF
- In situ tilt module (+45° ÷ -10°)
- Chimney as standard
- Pneumatic dome type shutter

Targets:

- Diameter: 2"
- Thickness | non-magnetic: 1 - 6 mm
- Thickness | magnetic: Fe 1 mm, Co 2-3 mm, Ni 2 mm
- Indirectly cooled



### TECHNICAL DATA

Mounting flange	DN 63 CF *
Max. power (DC mode)	400 W DC **
Max. power (RF mode)	400 W RF **
Max. voltage DC	1200 V
Connector DC/RF	type 7/16
Target	
form	circular
diameter	2" (50.8 mm) ± 0.2 mm
thickness	1 - 6 mm
cooling	indirect
Water flow	min. 1l/min
Max. inlet water temperature	<28 °C
Max. water pressure	max. 3 bar
Tubing diameter	Ø6×1 mm PTFE
Magnet material	Neodymium Iron Boride (NdFeB)
Magnet max. temperature	200 °C
Internal pneumatic shutter	yes - dome type shutter
In situ tilt module	yes (+45° ÷ -10°)
Chimney	yes
Typical rates	
Cu, 140 mm distance	45 nm/min @ 300 W
Ti, 140 mm distance	30 nm/min @ 300 W
Internal gas inlet	yes (VCR standard)
Working gas	Ar
Max. working pressure	5×10 <sup>-3</sup> - 1×10 <sup>-1</sup> mbar
Optimal working pressure	5×10 <sup>-3</sup> - 5×10 <sup>-2</sup> mbar

\* Other mounting flange on request (DN 100 CF, DN 160 CF).

\*\* The maximum power is determined by the target material.

### OPTIONS

- Mass Flow Controller (MKS MF1)
- Z manipulator



## M600DC-PS MAGNETRON POWER SUPPLY

The M600DC-PS is compact switch-mode DC power supply designed to drive up to 3 magnetron sources.

All adjustable parameters are displayed on the large TFT display with touchscreen. All settings can be manually adjusted or can be stored and recalled automatically after unit switch on. The unit also features a built in timer and automatic standby mode. It is fully interlocked for both, user and device safety. Unit can be remotely controlled via one of available analog or digital interfaces.

- Easy to extend power up to 1200 W/1800 W/2400 W with additional modules
- Switch for 3 magnetron sources with shutters control
- Adjustable limits of voltage, current and power separately for each output
- Multiple I/O - individual programmable
- Arc detection system

Support for:

- Thickness and evaporation rate measurements
- Vacuum measurements
- Mass Flow Controller



600 W

M600DC-PSE additional power extending modules

⊕ 600 W  
1200 W

⊕ 600 W  
1800 W

⊕ 600 W  
2400 W



### TECHNICAL DATA

Supply voltage	100 - 240 V, 50-60 Hz
Output voltage	up to 1200 V (from 50 V)
Output current	up to 1200 mA* (from 1 mA)
Output power	up to 600 W** (from 1 W)
Switch-mode	3 outputs for magnetrons
Analog inputs/outputs	3 (0 - 10V)/ 3 (0 - 10V)
Digital inputs and outputs	individual programmable
Timer	dual mode timer 0 s - 99 h 59 min.
Vacuum measurement	1 channel for active vacuum gauges: CTR90, TTR90, TTR91, TTR211, PTR225, PTR90, ITR90, ITR100, Baratron, ANALOG IN, MKS937A, PG105, MG13/14, PKR251/360/361, PCR280, ATMION
Thickness and evaporation rate measurements	1 channel for Thickness Monitors TM13 /14
Mass Flow Controller	1 channel
Communication interface	RS232/485, Ethernet
Communication protocol	MODBUS-TCP/RTU
User interface	5" TFT display with touchscreen, digital encoder
Interface languages	English, German, Polish
Dimensions	242 × 87 × 450 mm (W×H×D), 2U 42HP
Weight (approx.)	6 kg

\* easy to extend with additional modules, up to: 2.4 A/3.6 A/4.8 A

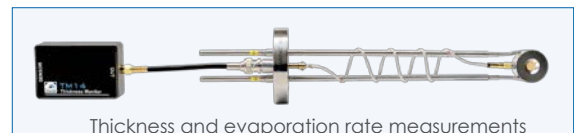
\*\* easy to extend with additional modules, up to: 1200 W/1800 W/2400 W



Mass Flow Controller



Vacuum measurements



Thickness and evaporation rate measurements

Innovative software tool optimized for easy and complete control over the entire deposition process and all components in the system.

- **Automatic process of sequences**  
e.g. macros, loops, calibrations, pauses
- **Graphical modules representing status of system elements**  
e.g. sources, substrates, pumps, valves
- **Adjusting parameters of all system components**  
e.g. MFC, valves, pumps, gauges, power supplies
- **Recipe Editor (XManager) with drag&drop operation**
- **Extended recipes with macros within python script**
- **Password protected access rights using 1 of 9 levels**  
e.g. engineer, scientist, operator
- **Process data stored in MySQL database archiver**
- **Generation of text protocol files with all process information**
- **Remote access by VNC protocol**

Synthesium is dedicated to vacuum deposition systems, contains convenient and intuitive graphical user interface and allows to operate system in two general modes:

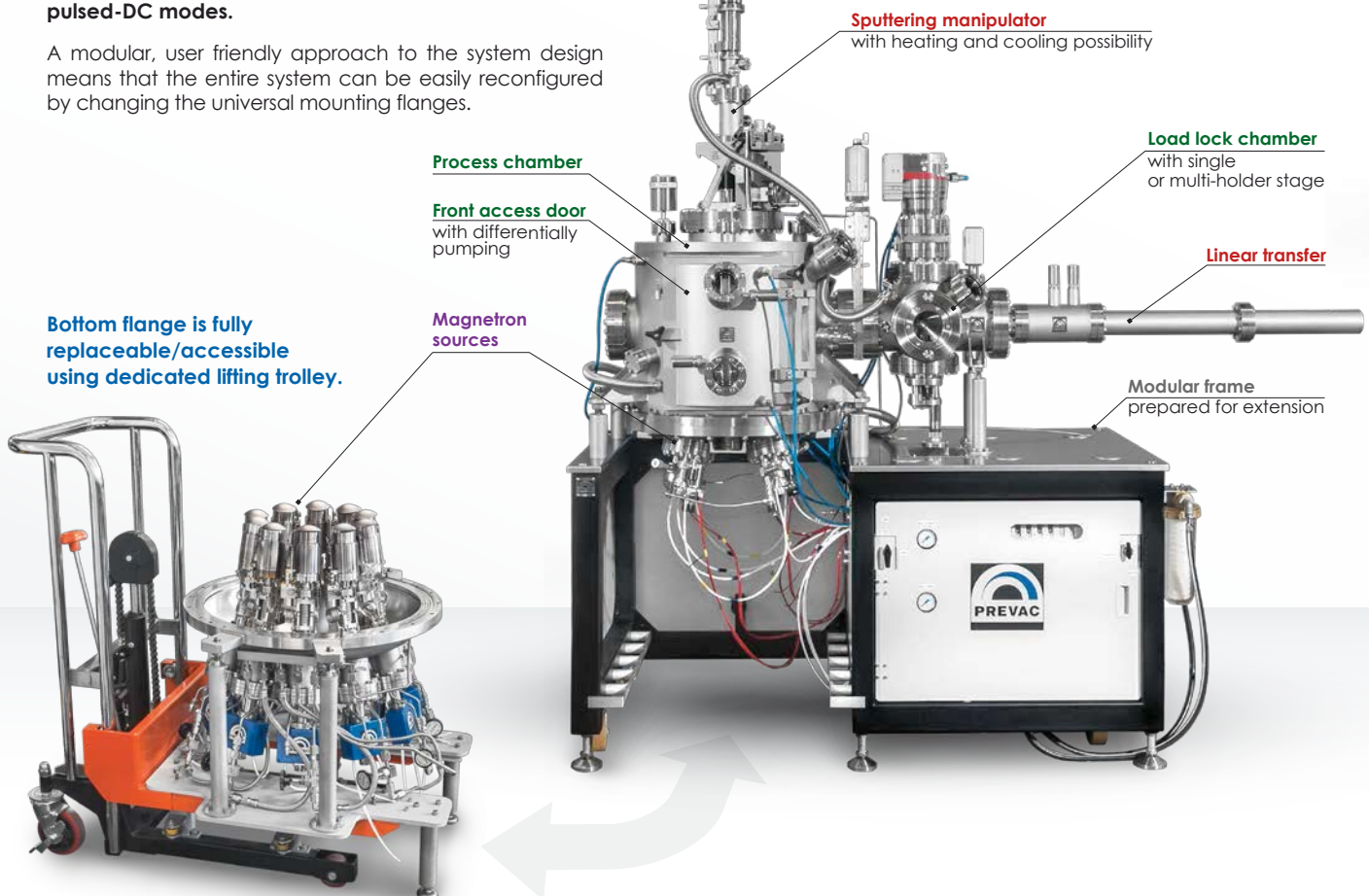
- Automated control by predefined recipes
- Manual control of all system elements



## SPUTTERING SYSTEMS

PREVACs sputtering systems are ideally suited for accurate and reproducible metal and dielectric thin film layer depositing in both, sputter-up and sputter-down arrangement, operated in DC, RF and pulsed-DC modes.

A modular, user friendly approach to the system design means that the entire system can be easily reconfigured by changing the universal mounting flanges.



MS2 63C1



If you need any further information, please do not hesitate to contact our sales department

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