

SC7640 Sputter Coater



Polaron SC7640 high resolution SEM sputter coater

fine grain "cool"
sputter coating

Automatic and
manual operation

advanced magnetron
style sputtering head
with annular target

solenoid backed leak,
vent and flush valves

carbon evaporation
option, fibre or rod

sample stage options

shielded HT lead with
positive break
mechanical interlock

built to latest
safety standards



Quorum Technologies
www.quorumtech.com

SC7640 SEM Sputter Coater

The perfect all-rounder

For all SEM coating applications

The SC7640 is the ideal all-round SEM sputter coater. Operation is switchable between automatic and manual. Automatic operation saves operator time and allows inexperienced users to prepare samples. A unique "cool" sputtering head with annular target means that fine grain coatings are routinely achieved. The large target diameter (82mm) ensures that coatings have an even thickness over a wide diameter.

The SC7640 is supplied with a gold/palladium target, with others (gold, platinum, nickel, silver, and palladium) available as options.



5 year Warranty
see back for details



The glass vacuum chamber has an internal diameter of 156mm (6 1/8") and is 133mm (5 1/4") high. The 60mm diameter universal sample stage is height adjustable.

A routine cycle time for coating SEM samples, with a typical conductive coating (5 - 10nm) of gold or gold/palladium, is less than three minutes.

The SC7640 is a complete working system and comes with sputtering target, (gold/palladium as standard) vacuum and electrical fittings, and a comprehensive 40 page manual. A suitable 90 litre per minute rotary pump is required (see E50005G).

The SC7640 comes with a **five-year warranty** (see back page for details).

Automatic and manual operation

The SC7640 can be used in two modes: automatic for standard coatings, or manual operation with complete control of all parameters - essential for the production of high-resolution films. When the SC7640 is operated in manual mode, pump down, purge and flush are still carried out automatically, this maintains system versatility but releases the user from time consuming mundane operations. For Field Emission SEM and high resolution SEM the platinum target (SC510-314C) is recommended.

Requirement

A 90 l/m two-stage rotary pump with oil mist filter is recommended (see E5005G). If existing rotary pump is to be used, its capacity should be 90 l/m or greater.



Advanced annular style magnetron head

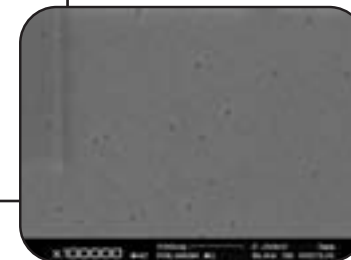
The SC7640 is an extremely versatile sputter coater designed to produce fine grain "cool" coatings. At its heart the SC7640 has an advanced annular style magnetron head which is designed to ensure even coating over a wide area. This enables thin coatings of 2-3nm to be achieved without charging effects being experienced in the SEM. The sputter head when operated at 800V DC gives high-resolution coatings. Alternatively, standard coatings with rapid deposition can be achieved at higher voltages. Coating time is controlled with a 999-second timer. Pressure levels and analogue meters monitor plasma currents.



sputtering head with annular target

Extremely versatile

Borosilicate glass with surface imperfections (dark spots). Coated with 3nm of platinum using the Polaron SC7640 sputter coater. Settings: 800V 12mA using argon gas and vacuum of 0.004 bar.



Options to fulfill current and future needs

Standard stage and stage options

The SC7640 is fitted with a 60mm diameter standard "universal" sample stage. There are three interchangeable stage options:

- FT7607 Film thickness monitor stage
- RC7606 Rota cota stage
- WS7608 Water cooled stage

Please note only one stage can be fitted at any time.

Film thickness monitor (FTM) FT7690 and FTM stage (FT7607)

Enables the deposition thickness to be selected and controlled with a resolution of 0.1 nm. The FT7690 module and FT7607 stage are required. See the FT7690 Film Thickness Monitor brochure for further details.

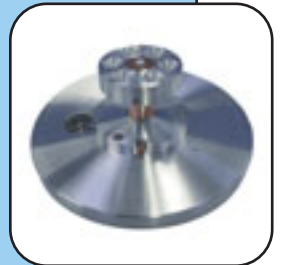
'Rota cota' stage (RC7606) includes built-in motor

Sputtering is essentially an omni-directional technique and will give conductive coatings to most SEM samples. However, some small spherical samples (e.g. latex spheres, embryos etc.) do sometimes require rotation in order to give a complete and continuous coating. The RC7606 rota cota replaces the existing universal stage and allows the operator to tilt and rotate samples at an optimal 45° angle with respect to the sputtering head.

Carbon evaporation, using the optional carbon attachment, is essentially a "line of sight" (unidirectional) technique. For samples with complicated surfaces, the RC7606 option is useful for ensuring even deposition of carbon.

Water cooled sample stage (WS7608)

An optional water cooled sample stage can replace the standard universal stage. Because the SC7640 has a very efficient "cool" sputtering head, energy (heat) reaching the samples is negligible and sample cooling is normally unnecessary. However the WS7608 stage is sometimes useful for samples that have melting points at around ambient temperature (e.g. some waxes).



Height adjustable 'universal' stage



Film thickness monitor (FT7690)



FTM stage (FT7607)



'Rota cota' stage (RC7606)



Water cooled stage (WS7608)

SC7640 SEM Sputter Coater



Ordering Information

SEM Sputter Coater:	Code
High resolution automatic/manual sputter coater 220-240V	SC7640
High resolution automatic/manual sputter coater 110-120V	SC7640/110V

Dimensions and weight:

455 x 355 x 375mm (unpacked, excluding chamber)	N/A
20Kg	N/A

Supplied with:

Gold/palladium target (82mm OD, 0.1mm thick)	SC510-314B
1m length of 20mm bore flexible vacuum hose	351220320
Hose adapter flange and fittings to fit rotary pump	N/A
Rotary pump plug	N/A
Comprehensive operating instructions	N/A

Options and accessories:

Stages:

Film thickness monitor and oscillator	FT7690
Film thickness monitor stage incorporating FTM crystal holder	FT7607
'Rota Cota' rotary planetary stage	RC7606
Water cooled stage	WS7608

Pumps:

90l/m two-stage rotary pump with oil mist filter - 115/230V 50/60Hz	E5005G
Replacement oil mist filter	E5004

Choosing a target:

Gold / Palladium: Supplied as standard. Has the same properties (sputtering rate, secondary electron yield, cost) as gold but grain size is smaller.

Gold: The traditional choice.

Platinum: The sputtered grain size is smaller than gold or gold/palladium. Slower sputtering rate.

Silver: Compared to the other metals, it is relatively easy to remove silver. Therefore, useful for museum and forensic samples.

Palladium: Sometimes used instead of gold, gold / palladium and platinum for x-ray microanalysis.

Targets: All targets are annular, 82mm OD, 0.1mm thick and mounted on an aluminium backing assembly

Gold target	SC510-314A
Gold/palladium target	SC510-314B
Platinum target	SC510-314C
Nickel target	SC510-314D
Silver target	SC510-314E
Palladium target	SC510-314F

Warranty

All Polaron Range products have a comprehensive 12 months warranty as standard. The warranty on the SC7640 and its options may be extended to FIVE years at no cost simply by completing and returning a registration form. In the unlikely event of a defect arising as a result of material failure in normal usage our extended warranty requires the return of the equipment to our factory for repair. This extended warranty does not cover consumables or any vacuum pumps which are covered by the original manufacturers warranty only.

Free telephone and email technical support is available for the life of the product by contacting customer support on tel +44 (0)1273 510621, fax +44 (0)1273 510536 or email: support@quorumtech.com.

Distributed by

Carbon coating

Polaron systems are supported by a wide range of carbon coating products

A carbon coating accessory consisting of CA7625 power supply and CA076F carbon fibre or CA076R carbon rod source is available. The power supply is switchable between 20V/50A (fibre) and 10V/100A (rod).

Fitting the optional CA7625 and carbon evaporation head (CA076F or CA076R) is simple. The hinged sputtering head of the SC7640 is tilted back and replaced with either the CA076F or CA076R. Connection is then made to the CA7625 power supply.

Please note that in order to ensure that the exposed sputtering head cannot be powered when the add-on carbon head is under vacuum, a positive-break electro-mechanical interlock ensures electrical isolation of the sputtering head.

We also offer a "stand alone" SEM carbon coater – the CC7650



CC7650

CC7650 SEM carbon coater

The CC7650 is a compact bench top carbon evaporation system. The standard carbon fibre evaporation head can be replaced with the optional carbon rod head (see CC7650 brochure)



CA7625

Carbon evaporation power supply (CA7625)

The carbon evaporation power supply can be used in conjunction with the SC7640 high resolution sputter coater and the SC7620 'mini' sputter coater.



CA076F

Carbon fibre head (CA076F)

The same carbon fibre evaporation head that is used with the CC7650 can also be added to the SC7640 high resolution sputter coater (CA7625 also required).



CA076R

Carbon rod head (CA076R)

The same carbon rod evaporation head that is optionally available with the CC7650 can also be added to the SC7640 high resolution sputter coater (CA7625 also required).

Options and accessories:

Carbon coating:

Carbon evaporation power supply 220-240V	CA7625
Carbon evaporation power supply 110-120V	CA7625/110V
Carbon rod evaporation head with 10 shaped 50mm high purity carbon rods (A0834A)	CA076R
Carbon fibre evaporation head with 100cm high purity carbon fibre (A0819)	CA076F
6.2mm diameter x 50mm shaped high purity carbon rods (packet of 10)	A0834A
100cm of carbon fibre (high purity)	A0819
Motorised carbon rod grinder	SC7605

www.quorumtech.com

Manufactured in England by



Quorum Technologies

15a Euro Business Park, New Road, Newhaven, East Sussex, BN9 0DQ
Tel: +44 (0)1273 510535 Fax: +44 (0)1273 510536
email: sales@quorumtech.com www.quorumtech.com

Quorum Technologies Ltd reserves the right to alter the specification of its products from time to time without notice. Although every effort has been made to ensure the accuracy of the information contained within this document it is not warranted or represented by Quorum Technologies Ltd to be a complete and up-to-date description.