

Q150GB

A turbomolecular-pumped coating system
for SEM, TEM and many thin-film applications

Glove box coating system



The Q150GB features:

- Modular system for mounting in glove boxes
- Integral glove box pressure monitoring
- Metal sputtering, carbon evaporation – or both
- Remote operation from touchscreen control panel
- Fine grain sputtering
- High vacuum turbo pumping
- Thickness control using film thickness monitor

Q150GB

Turbo Pumped System for Glove Box Use

The Q150GB is available as a single platform incorporating: sputtering, carbon evaporation and metal evaporation. Depending upon the selected configuration, the Q150GB can be a top-of-the-range sputter coater for high resolution scanning electron microscopy (SEM), a carbon coater suitable for SEM and transmission electron microscopy (TEM), or both, in a single easy to use system.

A modular design enables the vacuum chamber to be mounted through the base of the glove box or when supplied with optional feedthroughs, inside the glove box when modification to the glove box floor is not possible. A separate power supply housed in a rugged case is designed to be floor mounted and can be positioned conveniently beneath the glove box or bench. The touch screen user interface is housed in a robust stainless steel case and can be positioned ergonomically for the operator outside of the glove box environment.

The ability of the Q150GB to rapidly sputter a wide selection of oxidising and non-oxidising metals also makes it an ideal platform for many thin film applications.



Main features

Vacuum module mounted in the floor of the glove box

A cut out is made in the floor of the glove box and the vacuum chamber is fitted and sealed with the gasket supplied. Connections from the floor mounted power supply, vacuum pump and argon gas can then be made externally direct to the chamber assembly.

Vacuum module placed inside the glove box

The chamber assembly is placed inside the glove box and the power supply, vacuum pump and argon gas connections are made through two KF40 feedthroughs in the rear of the glove box.

Colour touch-screen in stainless steel case

Mounted at a convenient position outside the glove box, the colour touch screen allows multiple users to input and store coating protocols.

Vacuum module assembly

Houses all the working components, including the efficient 70L/s air-cooled turbo molecular pump. Automatic bleed control ensures optimum vacuum conditions during sputtering. A full range active gauge is fitted as standard to monitor the vacuum. The Q150GB includes "vacuum shutdown" which enhances vacuum performance by allowing the chamber vacuum to be maintained when the system is not in use.

A unique feature of the Q150GB is the integral pressure interlock switch. This independently monitors the pressure inside the glove box and shuts off the vacuum pump if the glove box atmosphere is unacceptably reduced due to a vacuum leak.

The vacuum chamber is 214mm high for increased source to substrate distance and for coating large specimens. It has an external diameter of 165mm and comes with an integral implosion guard. The chamber assembly is easily removed to facilitate sample loading and cleaning.

A variable speed rotary specimen stage is fitted as standard, with full height adjustment from 0 to 190mm above the base plate, various other stages are available as options.

Sputter coating, carbon coating or metal evaporation?

Sputter — a high resolution sputter coater for oxidising and non-oxidising (noble) metals. A wide selection of sputtering targets are available, including iridium and chromium, which are highly recommended for FE-SEM applications.

Carbon coating — a high vacuum carbon coater, ideal for the production of highly stable carbon films and surface replicas for transmission electron microscopy (TEM). The system uses economical 3.05mm diameter carbon rods.

Metal evaporation — a quick change insert that allows metal evaporation from tungsten baskets or Molybdenum boats, ideal for thin film applications. For ease of loading, the metal charge can be loaded into the evaporation source away from the vacuum chamber. More convenient when using gloves.

The deposition inserts can be swapped in seconds and the intelligent system logic automatically recognises which insert is in place and displays the appropriate operating settings.

Each of the above configurations can be used with a range of optional accessories (eg film thickness monitor and various stage configurations). *See options for details.*

Rapid data entry

At the operational heart of Q150GB is a simple colour touch screen, which allows even the most inexperienced or occasional operators to rapidly enter and store their own process data. To further aid ease of use a number of typical sputtering and evaporation profiles are provided.



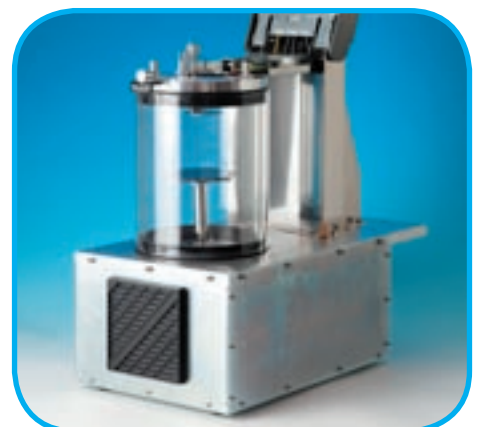
Q150GB mounted in a glove box



Sputter head



Metal evaporation head



Vacuum chamber assembly

Ordering Information

NB: For a full quotation, including on-site installation and customer training, please contact us or our local distributor

Q150GB	High-resolution turbomolecular pumped sputter coater, including a TK8845 57mm Ø x 0.3mm chromium target and high vacuum carbon rod evaporation coater for 3.05mm Ø carbon rods
13137	Glove box Conversion Kit. (Only required if vacuum chamber is placed inside the glove box.) Requires 2 x KF 40 ports at rear of glove box. Includes vacuum, argon gas and electrical feedthroughs for all interconnection cables
Pumping	Rotary pump requirements (needs to be ordered separately):
13034	5m ³ hr ⁻¹ 2 stage oil sealed rotary vane pump

Optional accessories

Sputter Targets	The Q150GB is fitted with a 0.3mm thick chromium sputter target (TK8845) as standard. Other optional targets:
SC502-314A	57mm Ø x 0.1mm Gold*
SC502-314B	57mm Ø x 0.1mm Gold/Palladium (80/20)*
SC502-314C	57mm Ø x 0.1mm Platinum*
SC502-314D	57mm Ø x 0.1mm Nickel*
SC502-314E	57mm Ø x 0.1mm Silver*
SC502-314G	57mm Ø x 0.1mm Palladium*
SC502-314H	57mm Ø x 0.1mm Copper*
TK8845	57mm Ø x 0.3mm Chromium
TK8846	57mm Ø x 0.5mm Tungsten
TK8862	57mm Ø x 1.5mm Chromium
TK8867	57mm Ø x 0.2mm Tungsten
TK8869	54mm Ø x 1.5mm Carbon
TK8875	57mm Ø x 0.1mm Aluminium*
TK8878	57mm Ø x 0.1mm Platinum/Palladium (80/20)*
TK8879	57mm Ø x 1.5mm Titanium
TK8887	57mm Ø x 0.3mm Platinum/Palladium (80/20)
TK8889	57mm Ø x 0.3mm Gold
TK8891	57mm Ø x 0.3mm Gold/Palladium (80/20)
TK8893	57mm Ø x 0.3mm Platinum
TK8895	57mm Ø x 0.5mm Titanium
TK8897	57mm Ø x 0.1mm Iron*
TK8899	57mm Ø x 0.3mm Iridium
TK8900	57mm Ø x 0.1mm Cobalt
TK8902	57mm Ø x 0.1mm Tin*
TK8903	57mm Ø x 0.1mm Molybdenum*
TK8905	57mm Ø x 0.3mm Magnesium
TK8906	57mm Ø x 0.1mm Tantalum*
TK8907	57mm Ø x 3mm Indium Tin Oxide (90/10)

* To avoid a short target life it is not advisable to use targets of less than 0.3 mm for coatings of 50nm or thicker in conjunction with high sputter currents. Please consider using a bonded or thicker target

Carbon Supplies

A0830A	Carbon rods – 6.15mm Ø x 100mm length (unshaped) pack of 10
A0832A	Carbon rods – 6.15mm Ø x 50mm length (shaped) pack of 10
C5422	Carbon rods – 3.05mm Ø x 300mm length (unshaped) pack of 10
A0819	Carbon fibre cord – high purity – 1m
A0819-5	Carbon fibre cord – high purity – 5m
C5421	Carbon fibre cord – standard grade – 1m
C5421-10	Carbon fibre cord – standard grade – 10m
C5421-100	Carbon fibre cord – standard grade – 100m
S8650	Manual rod shaper for 6.15mm Ø carbon rods
S8651	Manual rod shaper for 3.05mm Ø carbon rods

Other Consumables and Spare Kits

A0754	Metal evaporation basket – pack of 10 (for use with 10457 metal evaporation head)
10449	Two-year spares kit for Q150GB Includes: TK8845 chromium target, C5421 carbon fibre cord, C5461 carbon fibre - fine, C5422 carbon rods 3.05mm, spare glass cylinder assembly, C5460 quartz crystals, O-rings, springs

Q150GB Specification

Vacuum Module Size:	267mm W x 490mm D x 494mm H (total height with coating head open: 767mm)
Power Supply Size:	310mm W x 357mm D x 262mm H
User Interface Size:	160mm W x 157mm D x 42mm H
Total Weight:	40kg
Packed Dimensions:	725mm W x 660mm D x 787mm H (44kg)
Work Chamber:	Borosilicate glass 152mm Ø (inside) x 214mm H
Safety Shield:	Integral polyethylene terephthalate (PET) cylinder
Display:	145mm 320 x 240 colour graphic TFT (Thin Film Transistor) display
User Interface:	Intuitive full graphical interface with touch screen buttons, includes features such as a log of the last 100 coatings carried out and reminders for when maintenance is due
Sputtering Target:	Disc style 57mm Ø x 0.3mm thick chromium target is fitted as standard
Specimen Stage:	50mm Ø rotating stage. Rotation speed 8-20 rpm

For full specifications, please see our website