Q300R T and Q300T T

Triple Target Sputtering System

The Q300R T and Q300T T are large format, versatile, high vacuum sputter coaters for thin film and SEM applications.

The Q300R T and Q300T T features:

- Large format chamber
- Triple sputter head
- Rotary pump version or high resolution turbo pumped system
- Fully automated touch screen control
- Coater logging option
- Customer defined coating protocols
- Film thickness monitor option
- Vacuum shutdown

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Q300 RT and TT
Triple Target Sputtering System

The Q300R T and Q300T T coating units are versatile sputter coaters for thin film applications. They are also ideal coaters for the preparation of large specimens for examination by SEM, FEG-SEM. To ensure even deposition, the Q300 series of coaters are fitted with a rotating specimen stage and three individual magnetron target assemblies, which enhance the efficiency of the process by using low voltages.

This system is available as a rotary-pumped version, the Q300R T, suitable for non-oxidising metals such as gold (Au), platinum (Pt) etc. or as a turbomolecular pump version, Q300T T, for use with oxidising and non-oxidising metals. A scroll pump with pumping speeds of 5 m^3/hr or a diaphragm pump (for the Q300T T only) are excellent alternatives to rotary vane pumps where oil free or clean room quality pumping is required.

An integral shutter is fitted as standard to the Q300T T coater, this allows both cleaning of the oxidising metal targets and then a coating cycle to be carried out successively while still maintaining the vacuum.

As with the highly successful Q150 series of coaters and evaporators, both the Q300R T and Q300T T coater are mounted in an ergonomic, robust, moulded case and deliver excellent coating quality combined with simple touch screen control making them suitable for both experienced and first time users.

Triple sputter head with automatic shutter control

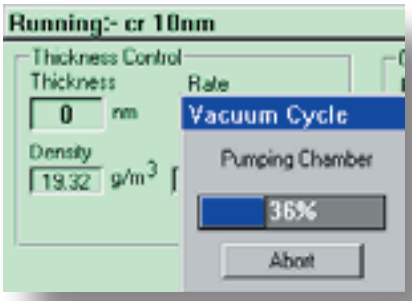
Main features

The Q300 RT and Q300 TT sputter coaters incorporate a 300mm x 127mm work chamber and the sample stage accepts substrates up to 8" in diameter. An extended height glass chamber is available as an option to enable coating of larger format samples.

Vacuum control

The option of rotary or high vacuum turbo pumping allows sputtering of a wide range of oxidising and non-oxidising metals for thin film and electron microscopy applications.

Also incorporated is automatic vacuum control, which can be pre-programmed to suit the process and material therefore there is no manual needle valve adjustment.



Touch screen control

A full graphical interface is included with touch screen buttons and controls enabling optimal control for the required functions. In addition profiles, parameters, the help screen, maintenance information etc. are also displayed.

Stages

A flat, adjustable stage capable of accepting either 6" or 8" wafers is supplied as standard with the Q300 RT and Q300 TT. This stage can also be used for SEM specimens. The stage has a variable rotation speed of 30 to 80rpm.

A planetary stage drive is also supplied as standard. The stage drive and mechanism rotates the stage under the targets to optimise coating areas of the specimen. Rotation speed is variable from 30rpm to 80rpm.

Film thickness monitor

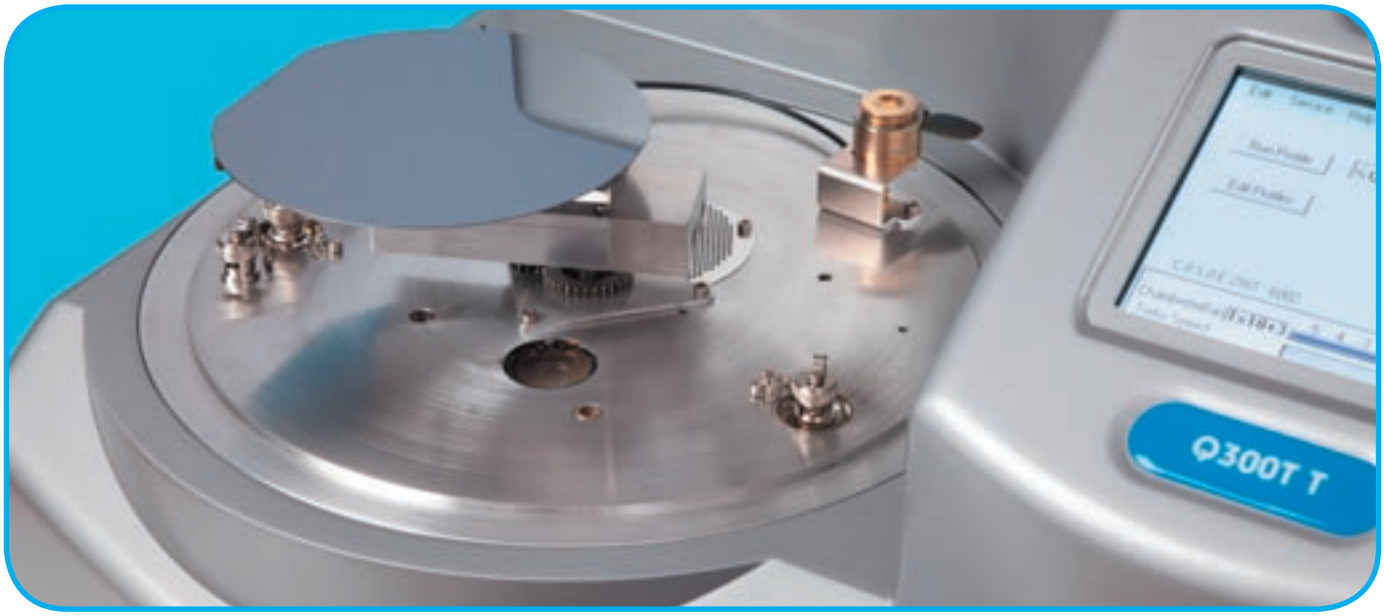
Both the Q300R T and Q300T T can be fitted with an optional film thickness monitor (FTM), which measures the coating thickness on a quartz crystal monitor within the chamber, in order to control the coating thickness of material deposited on to the sample. For example, both versions of this coater have the facility to automatically terminate a coating profile when the required thickness has been achieved.

Vacuum shutdown

This is a facility for leaving the process chamber under vacuum but not continuously pumped. The vacuum shutdown option can enhance vacuum performance by allowing the chamber vacuum to be maintained when the system is not in use.

Emergency stop switch

This is a lockable emergency stop switch which can be mounted on top of the system in a position easily accessible for the operator. It is provided with a key to release the knob after activation. Note: the addition of the e-stop does not inhibit or replace the normal on/off switch function. The e-stop can be retrofitted to existing systems.



Ordering Information

Q300R T

Q300R T	Large-chamber-rotary-pumped sputter coater, fitted with three sputtering heads to ensure even metal deposition. Includes three SC502-314A 57mm Ø x 0.1mm gold (Au) targets. A flat rotation stage for up to 8" wafers and a planetary stage drive is fitted as standard.
EK3180	Edwards RV5 two-stage rotary pump, 5m^3/Hr with vacuum hose, coupling kit and oil mist filter

Q300T T

Q300T T	Large-chamber-turbo-pumped sputter coater, fitted with three sputtering heads to ensure even metal deposition. Includes three TK8845 57mm Ø x 0.3mm chromium (Cr) targets. A flat rotation stage for up to 8" wafers and a planetary stage drive is fitted as standard
EK3175	Edwards RV3 two-stage rotary pump, approximately 4m^3/Hr with vacuum hose, coupling kit and oil mist filter

OPTIONAL ACCESSORIES

11540 ***(Q300T T only)***	Diaphragm pump. An alternative to the RV3 rotary pump. The diaphragm pump is an oil free pump with A KF25 fitting for connection to the Q300T T
EK3171	XDS 5 scroll pump (oil free)
Sputter Targets Q300R T	Our standard range of noble metal targets
Sputter Targets Q300T T	Our standard range of noble and oxidising metal targets
11577	Coating shield assembly, coating shields to protect large surfaces from coating deposition, easily removable for ease of cleaning
10067	50mm specimen stage. A 50mm diameter stage with 6 stub positions for 15mm, 10mm, 6.5mm or 1/8"pin stubs. Rotation speed max 38rpm, min 14rpm. Target to stage height variable between 25mm and 71mm for standard stage.
10454	Film thickness monitor and accessories. A fully integrated FTM system using the system touch screen display for control and display of all the FTM functions. Allows automatic termination of thickness. Displays rate for sputtering processes in nm/min. A FTM crystal holder is fixed in an optimal position in the chamber. Resolution 0.1nm. Includes 1 spare C5460 crystals
10596	Extended height vacuum chamber 87mm higher than standard for increased source to specimen distance and for coating large specimens
10357	Rotating specimen stage with adjustable tilt. A 50mm diameter stage with 6 stub positions for 15mm, 10mm, 6.5mm or 1/8" pin stubs when stage is inverted. Rotation speed: max 38rpm, min 14rpm. Target to stage height variable between 14mm and 60mm for standard stage
10360	Rotary tilting stage. A "rota cota" type stage with variable tilt angle horizontal to 30 degrees. A 50mm diameter stage with 6 stub positions for either 15mm, 10mm, 6.5mm or 1/8" pin stubs when stage is inverted. Rotation speed: Max 33rpm, min 13rpm. Requires the extended height cylinder to enable use of this accessory
10428	Full range gauge assembly for Q300T T. A factory fitted option active full range gauge capable of measurement range 1000 mbar to 5 x 10-9 mbar. Typical ultimate vacuum of system 5 x 10-5mbar
10422 ***(Q 300T T)***	Rotating vacuum spigot. The vacuum spigot that allows a more convenient connection of a vacuum hose to the rear of the Q300T T when the instrument is located close to a wall or other obstruction
10731 ***(Q 300R T)***	Rotating vacuum spigot. The vacuum spigot that allows a more convenient connection of a vacuum hose to the rear of the Q300R T when the instrument is located close to a wall or other obstruction
10358	Slide stage. A 90mm diameter stage with features for locating: 1 x 75 x 25mm slide, 2 x 75 x 25mm slides, 1 x 75 x 50mm slide or 6 x 1/8" pin stubs when stage is inverted
11223	A lockable emergency stop (e-stop) switch which can be mounted on top of the system in a position easily accessible for the operator. It is provided with a key to release the knob after activation. *Note: the addition of the e-stop does not inhibit or replace the normal on/off switch function. The e-stop can be retrofitted to existing systems*
11289	2 years spares kit for Q300T T
11290	2 years spares kit for Q300R T
C5460	Spare quartz crystal

Q300R T and Q300T T Specification

Instrument Case:	585mm W x 470mm D x 410mm H (Overall height of unit 650mm). PU moulding
Instrument Weight:	36.6Kg
Work Chamber:	Borosilicate glass with integral PET Implosion guard Size 300mm outside diameter x 127 High
Display:	145mm 320 x 240 colour graphic TFT (Thin film transistor) display
User interface:	Full graphical interface with touch screen buttons and controls
Specimen Stage:	A flat adjustable stage capable of accepting either 8" or 6" wafers. Rotation speed variable from 30rpm to 80rpm. A planetary stage which rotates the stage under the targets to optimise coating. Rotation speed is variable from 30rpm to 80rpm
Vacuum System:	Turbo pump – Internally mounted 70L/sec air cooled Rotary pump – 4 m^3/hr, two stage rotary pump with oil mist filter for the Q300T T and 5 m3/hr, two stage rotary pump with oil mist filter for the Q300R T
Vacuum Measurement:	Pirani gauge as standard, full range gauge available as an option

	Q300R T	**Q300T T**
Typical Ultimate Vacuum:	2 x 10^{-2}mbar	5 x 10^{-5}mbar
Sputter Vacuum Range:	3x10^{-2} to 5x10^{-1}mbar	5x10^{-2} to 5x10^{-3} mbar
Sputter Deposition Current:		
Single target:	0 - 80mA	1 - 140mA
All targets:	60 - 240mA	60 - 420mA

Services:	Gases: process gas argon, 99.999% Nominal 5psi Vent Gas: Nitrogen (optional). Nominal 5psi

For full specifications, please see our website

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