# GloQube®

## Glow discharge system for TEM grids

- Dual or single chamber
- Hydrophilic/hydrophobic and negative/positive modes
- Fully automatic, short process times
- Intuitive touch screen control
- Safe vapour delivery using septum-sealed vials
- Automatic valving between chambers to prevent cross-contamination
- Quick and easy sample loading
- Controlled venting to prevent sample disturbance
- Consistent, reliable results
- Three-year warranty


THE QUEEN'S AWARDS FOR ENTERPRISE: INTERNATIONAL TRADE 2014

Quorum TECHNOLOGIES

+44 (0)1323 810981 | www.quorumtech.com | sales@quorumtech.com

# Rapid, reliable results with the GloQube™

The GloQube™ is a compact, easy to use, stand-alone glow discharge system.

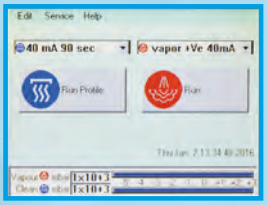
The primary application of the GloQube™ is the hydrophilisation (wetting) of carbon-coated TEM support films and grids which otherwise have the tendency to be hydrophobic. Glow discharge treatment with air will make film surfaces negatively charged and hydrophilic and allow the easy spread of aqueous solutions. This and other processes are outlined below.

| Glow discharge processes | | | |
|---|---|---|---|
| **Surface state** | **Charge** | **Atmosphere** | **Typical applications** |
| Hydrophilic | Negative | Air | Carbon coated TEM grids |
| Hydrophilic | Positive | Air – with magnesium acetate post-treatment | Nucleic acid adhesion to carbon films |
| Hydrophobic | Positive | Alkylamine | Proteins, antibodies and nucleic acids |
| Hydrophobic | Negative | Methanol | Positively charged protein molecules (e.g. ferritin, cytochrome c) |

# Single or dual chamber, safe handling of reagents

The GloQube™ is available in two formats:
The GloQube-S has a single "clean" chamber designed for applications requiring hydrophobic-hydrophilic conversion, typically using air as the process gas.

The GloQube-D has two independent vacuum chambers: a clean chamber and a vapour chamber, which is designed for use with reagents such as methanol and alkylamine. With operator safety firmly in mind, reusable septum-sealed reagent vials are used. Loading and removing reagents is convenient and reliable – the vial, located in its holder, is inserted into a shielded needle using a simple bayonet fitting.



*Start-up screen*

*Clean chamber*

*Vapour chamber*

*Vapour delivery system*

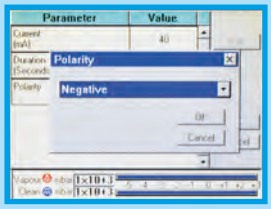
## Easy sample loading, fast turnaround times

Each chamber can accommodate two 25 x 75 mm glass microscopes slides. Loading could not be easier using draw-style chamber doors and specimen stages. The stages are height adjustable and fitted with removable glass slide holders. For additional convenience – and to allow easy access for chamber cleaning – the stages can be completely removed.

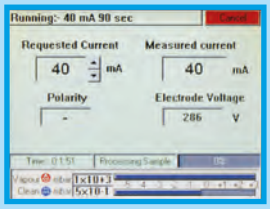
## Touch screen control – rapid data input, simple operation

The intuitive touch screen allows multiple users to rapidly input and store preferred process "recipes". Typical default glow discharge protocols are loaded as standard. Additionally, help files and useful maintenance data such as system on time and time since last clean are readily available to the operator. An Ethernet communications port is included for software updates.

*Stored profiles*




*Selecting a new profile*



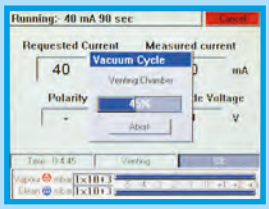

*A typical process run*

*GloQube™ clean chamber during a process run*

## Vacuum, automatic valving and controlled venting

The GloQube-D has automatic valving between chambers which maintains cleanliness by preventing cross-contamination. At the end of a process run, automatic soft venting to atmosphere through filtered inlets ensures TEM grids are not disturbed.

Both GloQube-S and GloQube-D require a single vacuum pump working in the 0.1 to 1 mbar range. A typical pump time to operational vacuum is 60 seconds.




Pumping cycle

*GloQube-D and optional Pfeiffer DUO 6 rotary pump*

## Ordering information

- **025235** GloQube-D. Dual chamber glow discharge system.
  025678 accessory kit, including: mains power lead, rotary pump power lead, 07803 oil mist filter and KF16 clamp, 750 mm long flexible stainless steel vacuum tube with clamps, fuses
  10 x 025266 glass vials, 3 x vial caps and sealing washers, 1 x 025345 needle (spare)
  Vacuum pump to be ordered separately
- **025261** GloQube-S. Single chamber glow discharge system.
  025938 accessory kit, including: mains power lead, rotary pump power lead, 07803 oil mist filter and KF16 clamp, 750 mm long flexible stainless steel vacuum tube with clamps, fuses. Vacuum pump to be ordered separately

### Vacuum pumping

- **13034** 5 $m^3$/hr Pfeiffer DUO 6 two-stage rotary vacuum pump with 07803 oil mist filter
- **07803** Oil mist filter (spare)

### Options, accessories and spares

- **026032** Single chamber upgrade kit. For retrospective conversion of GloQube-S to GloQube-D
- **025195** Microscope slide tray
- **025266** Glass vial (packet of 10)
- **025267** Glass vial caps (packet of three)
- **025345** Needle
- **024755** Door seal

# Specifications

| | | GloQube-S Single chamber | GloQube-D Dual chamber |
|---|---|---|---|
| **Power and processes** | | | |
| Plasma current | 1-40 mA | ✔ | ✔ |
| HV power supply | 30 W | ✔ | ✔ |
| Maximum voltage | 800 V | ✔ | ✔ |
| Electrode polarity – clean chamber | DC glow positive DC glow negative | ✔ | ✔ |
| Electrode polarity – vapour chamber | DC glow positive DC glow negative | NA | ✔ |
| Sample stage | 125 x 100 mm (4.9" x 3.94") with location for two 25 x 75 mm (1" x 3") glass slides | x 1 | x 2 |
| Sample stage operational heights | Adjustable 12.5 mm (0.5"), 22.5 mm (0.9") or 35 mm (1.38") | ✔ | ✔ |
| Pump hold time | 0-24 hours | ✔ | ✔ |
| Process time | 1-600 seconds | ✔ | ✔ |
| **Safety** | | | |
| Chamber vent inlets | Filtered air inlets with slow vent to minimise sample disturbance | x 1 | x 2 |
| On-board reagent storage | Reagents (e.g. methanol or alkylamine) are contained in reusable sealed glass vials to minimise exposure to hazards. (GloQube-D only) | NA | ✔ |
| High voltage safety interlocks | Hardware safety interlocked and software for process control | ✔ | ✔ |
| **Vacuum** | | | |
| Vacuum control | Integrated pirani gauge | x 1 | x 2 |
| Working vacuum range | 0.1 to 1 mbar | ✔ | ✔ |
| Vacuum pump minimum requirements | 6 $m^3$/hr, 3600 l/m, 0.03 mbar ultimate vacuum. Inlet flange: KF 16 | ✔ | ✔ |
| Pumping time | Typical pump time to an operational vacuum of 0.27 mbar in 60 seconds | ✔ | ✔ |
| Vacuum isolation | Isolation valves to switch vacuum and prevent process chamber cross-contamination | x 1 | x 2 |
| **User interface** | | | |
| User interface | Full graphical interface with touch screen buttons and controls. In addition to displaying profiles, parameters, help screen and maintenance information are available | ✔ | ✔ |
| Profiles and profile logging | Capability to store 100 user profiles (name, date, time, vacuum, current and polarity) | ✔ | ✔ |
| **Dimensions and communications** | | | |
| Chamber size | 100 mm W x 100 mm H x 127 mm D (3.94" x 3.94" x 5") | x 1 | x 2 |
| Instrument size | 336 mm H x 364 mm D (13.2" x 14.3") | 350 W (13.8") | 366 W (14.4") |
| Instrument weight | 19.5 kg (42.9 lbs.) (GloQube-D) | TBA | 19.5 |
| Pump (optional) | 391 mm W x 127 mm D x 177 mm H (15.4" x 5" x 7") | ✔ | ✔ |
| Pump weight | 16 kg (35.3 lbs) | ✔ | ✔ |
| Footprint with optional pump | 366 mm W x 600 mm D x 336 mm H (14.4" x 23.6" x 13.2") | ✔ | ✔ |
| Power requirements | 120 V 60 Hz, 15 A or 230 V 50 Hz, 10 A | ✔ | ✔ |
| Instrument power rating | 100-240 V AC 60/50 Hz 700 VA including pump, IEC inlet | ✔ | ✔ |
| Optional pump power rating | 115/230 V 60/50 Hz 450 W | ✔ | ✔ |
| Communication port | Ethernet port for instrument software updates | ✔ | ✔ |


Quorum Technologies Ltd

**Judges House, Lewes Road, Laughton, Lewes, East Sussex BN8 6BN UK**

**T: +44(0)1323 810981**

**E: sales@quorumtech.com www.quorumtech.com**