RAY-RAN
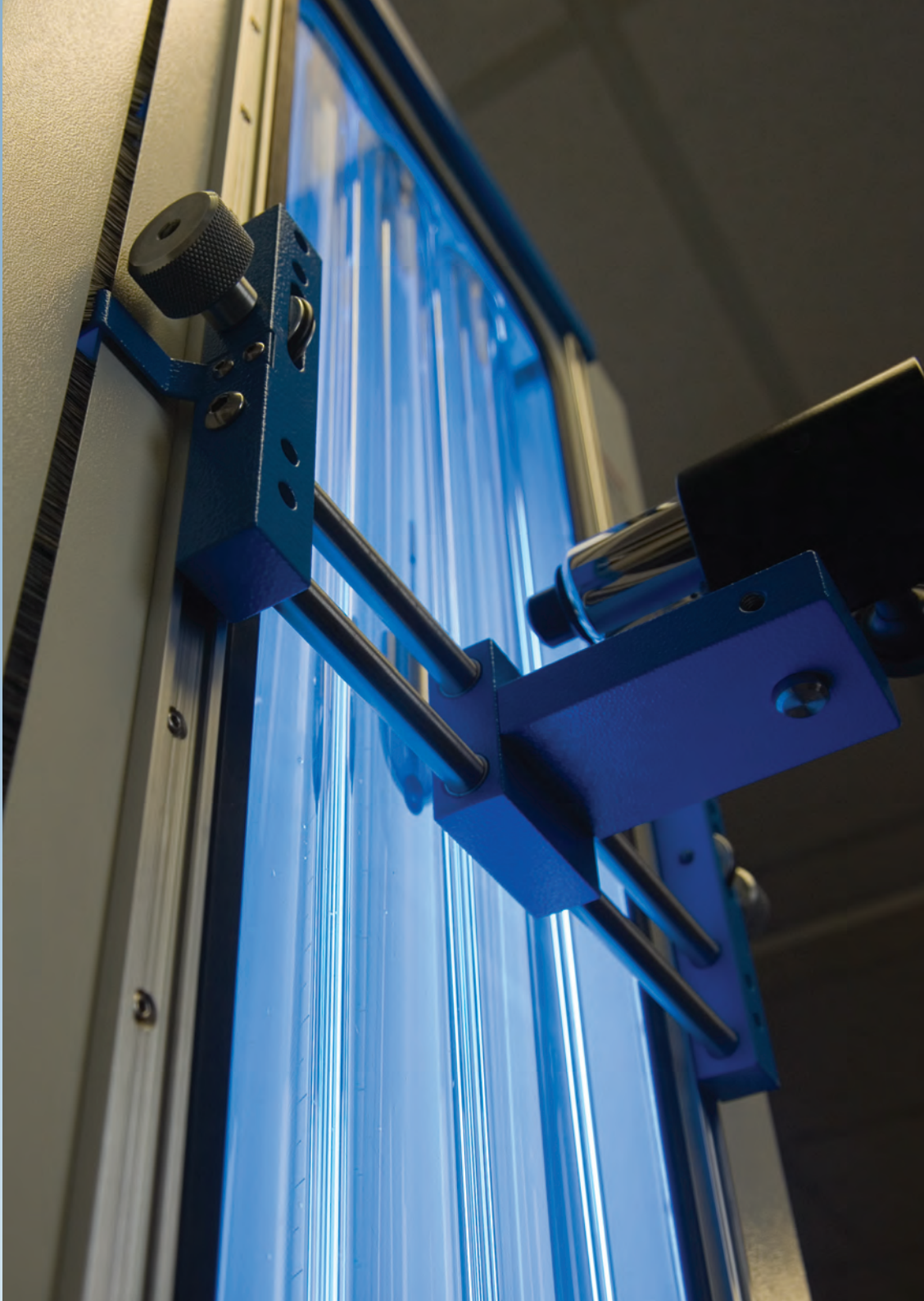
3 COLUMN DGA & 6 COLUMN DGA (RR/DGA)

AUTO DENSITY GRADIENT APPARATUS

The **Auto Density Gradient Apparatus** from Ray-Ran has become the world's benchmark for accurate density measurement of small solid specimens using the column method. Offered as a **3 or 6 column version**, the built in on-board Microprocessor System accurately calculates the specimen's density more quickly and more accurately by using the latest linear encoder technology that measures the samples position in the column relative to the calibrated glass marker floats. Once the correct position of the sample is recorded the density is displayed on the LCD screen.

To ensure results accuracy the Density Gradient Apparatus is supplied with digital temperature control to ensure the temperature of each column is at 23°C +/- 0.1°C. For ambient temperatures in excess of 23°C the integrated cooling coil can be used in conjunction with an optional water chiller unit so the correct temperature can be maintained.

To build each glass column with a fluid of a known density range a variable speed peristaltic pumped filling system is supplied with the apparatus. Column filling speeds are variable from 0.5ltrs/hr to 1.5ltrs/hr to keep the gradient accurate. The density range of the column is formed by mixing two fluids having different densities in the supplied glass flasks.

The resulting solution has a density which when introduced into the column increases uniformly from top to bottom. Calibrated glass marker floats of precise known densities are introduced into the column and sink to a point where the density matches that of the solution.

A linear encoder which is attached to a trammel guide is used to calibrate the gradient of the column by focusing the optical microscope onto the centre of the calibrated float and entering the floats density value into the microprocessor. Once test samples have been introduced into the column and have reached a point of static equilibrium they are accurately sighted using the microscope. The resultant density of the sample is obtained and displayed on the LCD without the need for complicated graphs. Test results can be downloaded via the RS232 serial interface connector to an optional thermal printer.

To remove the samples and glass marker floats simply turn on the automatic sweep mechanism and wait for the items to be extracted from each column. Particles and floats are removed at a slow speed so the gradient of each column is not damaged by the sweep basket. To replace the floats and new samples into the column simply reverse the sweep motor and lower them into the column.

The Gradient of the column can be calibrated & checked at any time as the calibration procedure stores the values in the microprocessor ensuring that density values of your samples remain accurate to the column. If the density gradient of the column changes at any time the column can be quickly re-calibrated saving time or the necessity to create a new gradient for the column. Depending on use or age the density distribution of the column can remain stable for up to 40 weeks.

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TECHNICAL SPECIFICATION
- Automatic density calculation
- Automatic calibration system
- LCD display
- Resolution 0.0001 g/ml
- Accuracy 0.0001 g/ml
- Backlight
- Variable speed pumped filling system
- Twin conical filling flasks
- Automatic magnetic stirrer
- Automatic sweep mechanism
- Stainless steel sweep baskets
- 7x optical microscope
- Digital temperature control to 0.1°C
- RS232 output
- Cooling coil
- 110v 60hz and 240v 50Hz
- Product user manual
- Traceable calibration certificate
- CE declaration certificate
- 1 year return to base warranty
- Conforms to ISO1183 & ASTM D1505

OPTIONAL ANCILLARIES
- Thermal Printer
- Water chiller unit
- Glass marker floats 0.7g/ml up to 2.2g/ml
- Microprocessor controlled filling system

WEIGHTS & DIMENSIONS: AUTO DENSITY GRADIENT APPARATUS

	3 COLUMN DGA	6 COLUMN DGA
Net Weight (kg)	70	80
Width (cm)	85	120
Depth (cm)	40	40
Height (cm)	110	110