Anton Paar

DMA 4500

Density/Specific Gravity/
Concentration Meter

DMA 4500
Quality from the Market Leader

Few instruments have the reputation for accuracy, durability, and reliability associated with the legendary digital density meters from Anton Paar. The DMA 4500 continues that proud tradition.

Built for round-the-clock operation, it will measure your samples quickly, accurately and easily. An air and water adjustment at 20 °C lets you measure at any temperature throughout the entire 0 to 90 °C range - just pick a temperature and go. Fill in the sample, wait a few seconds and an acoustic signal informs you that the measurement is finished.

Results such as density, temperature, specific gravity, %concentration, etc. are displayed and can be stored, printed, transferred to LIMS or PC, whichever is preferred.

Features and Benefits

Full range viscosity correction

‣ Viscosity-related errors inherent to all types of oscillating U-tube density meters are automatically eliminated
‣ The viscosity correction covers all sample viscosities
‣ No need for viscous standards, such as sucrose standards
‣ Measurement results can be displayed with and without viscosity correction at the same time so results can be compared to older models of density meters

Built-in reference oscillator

‣ Allows accurate measurements immediately after changing the measuring temperature
‣ Eliminates long-term drift
‣ One adjustment at 20 °C is sufficient for the whole measuring temperature range
‣ Faster sample throughput

Efficient temperature control

‣ The high-precision platinum thermometer in the density sensor provides accurate measuring temperatures
‣ Adjustment and calibration of the temperature measurement traceable to international standards
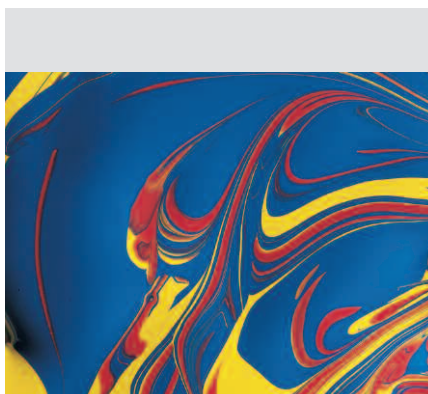
Ease of Use

Every measuring task can be defined as you wish. Step-by-step, you select what should be displayed, printed and stored. You set the measuring temperature, the measurement mode and the control parameters for the optional sample filling system and save your settings as a measurement method.

Each time you need it, simply recall it with the touch of a button or use one of the preset methods covering the most common measuring applications.
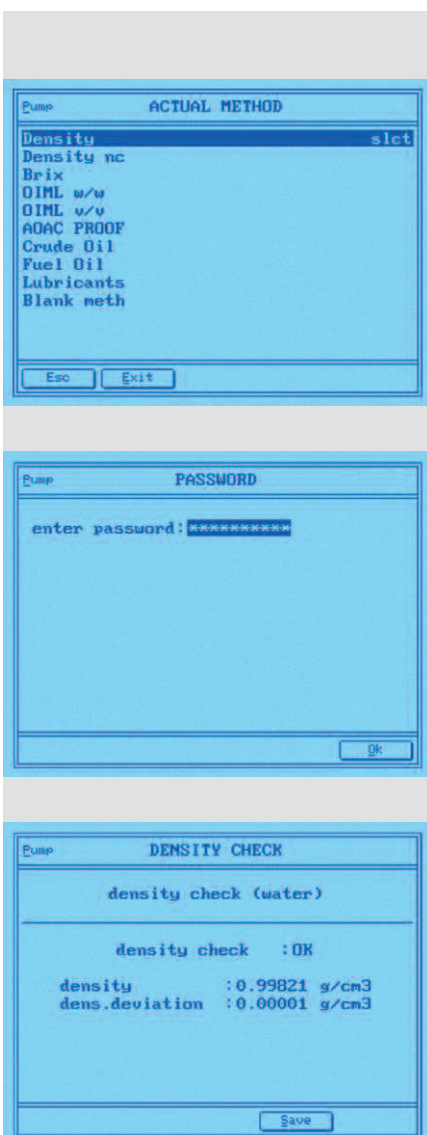
Advanced software

▶ All options are menu-driven and shown on the display

▶ Choose from 10 different measuring methods

▶ You define what is calculated, displayed and printed by selecting options right for you

▶ You set how the selected values shall be displayed

▶ Conversion tables for various applications permanently stored in memory

▶ Password protection available

▶ One button operation allows quick switching between measuring techniques

▶ Audit trail function for electronic logging and tamper-proof storing of all operating steps

▶ User-specific tables and equations for your own calculation method

▶ Accepts standard IBM keyboard for comfortable operation

▶ Memory for 100 measuring results

▶ Measuring results can be displayed, printed and transferred to a PC or LIMS system

Fast and Reliable Measurements

Like all the previous 4-place density meters from Anton Paar, the DMA 4500 is designed to perform reliably in the most demanding environments. The spillproof front panel and housing make sure that accidental spills stay on the outside. We even designed the DMA 4500 to minimize condensation on the instrument when the measuring temperature is below the dew point. Every feature is specifically aimed at keeping your instrument accurate and reliable.

There are 10 built-in measuring methods to handle the most common applications. Use them as they are or customize them to match your specific needs.

Applications

Soft drinks and fruit juices
▶ Determination of sugar content
▶ Apparent density for filling volume control

Petrochemicals industry
▶ Determination of API gravities
▶ Quality control of fuels and additives

Chemical industry
▶ Concentration determination of all acids, bases and other solutions
▶ Research into polymer solutions
▶ Dilution series

Breweries and alcoholic beverages
▶ Determination of alcohol, extract and original extract content

Pharmaceutical industry
▶ Determination of specific gravities of medical preparations
▶ Quality control of infusion solutions

Quality control
▶ Monitor batch for batch consistency
▶ Ensure proper blending ratios

DMA 4500 + SP-3m

Options

Several options are available that make measurements with the DMA 4500 even more comfortable: Anton Paar sample changers or sample handling units help to automate sample filling and cleaning and drying of the measuring cell.

The operation of the instrument is easier using a keyboard and/or a bar code reader. A printer can be connected for printing out the current or saved measuring results.

Comfortable measurements with the DMA 4500

For automatic sample filling

SH-1 Sample handling unit
Automatic filling and cleaning for samples with low viscosity up to 100 mPa.s

SH-3 Sample handling unit
Automatic filling, cleaning and drying for samples with low to medium viscosity up to 500 mPa.s

SP-1m Sample changer
Automatic filling for samples with low viscosity up to 100 mPa.s

SP-3m Sample changer
Automatic filling, cleaning and drying of samples with a viscosity up to 1000 mPa.s

More sample filling systems available upon request.
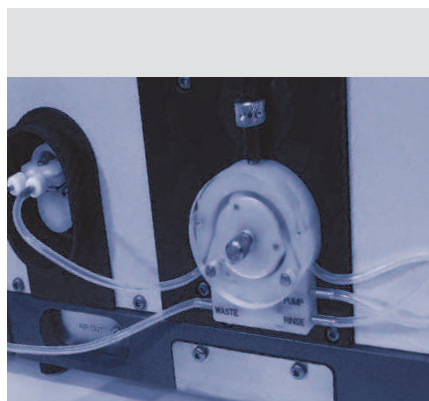
For easy operation

Bar code reader
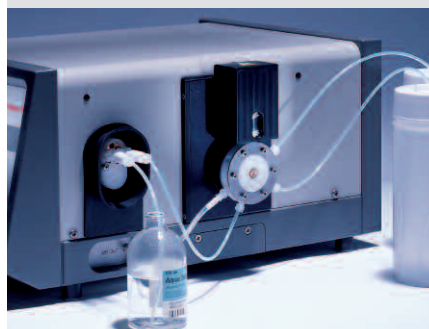For easy sample identification

Keyboard
For comfortable sample identification and operation of the whole menu

Printer
For printed documentation of the measuring results

SH-1 Sample handling unit

SH-3 Sample handling unit

SP-1m Sample changer

Measuring Systems

Simplify your measuring tasks and extend the number of parameters that can be determined within one measuring cycle – combine the reliable Anton Paar density measuring technology with other renowned methods such as refractometry and viscometry or also with the latest innovations such as NIR spectroscopy for the analysis of alcoholic beverages.

For combined measurement of density and refractive index

Connect the digital automatic refractometer RXA 156 or RXA 170 to the DMA 4500 and simultaneously measure the density and refractive index of your sample

RXA 156
Measuring range: 1.32 to 1.56 nD

RXA 170
Measuring range: 1.30 to 1.70 nD

DMA 4500
+ RXA 170 + SP-3m

For analysis of alcoholic beverages

Combine the DMA 4500 with the various models of the Anton Paar Alcolyzer for automatic alcohol, extract and optional pH and color determination of alcoholic beverages.

DMA 4500
+ Alcolyzer + SP-1m

For combined density and viscosity measurement

We provide automatic systems which combine the DMA 4500 with Anton Paar viscometers like the AMVn.

DMA 4500
+ AMVn + SP-1m

Specifications

Measuring range	0 to 3 g/cm^3
Accuracy	Density: ±0.00005 g/cm^3, Temperature: ±0.03 °C
Repeatability s.d.	Density: 0.00001 g/cm^3, Temperature: 0.01 °C
Measuring temperature	0 °C to +90 °C (32 to 194 °F)
Pressure range	0 to 10 bars (0 to 150 psi)
Minimum amount of sample	approx. 1 ml
Materials in contact with the sample	PTFE, borosilicate glass
Typical measuring time per sample	approx. 30 seconds
Sample throughput	10 to 30/hour
Dimensions (L x W x H)	440 x 315 x 220 mm (17.5 x 12.5 x 9 inches)
Weight	approx. 21 kg (44 lbs)
Power supply	AC 85 to 260 V; 48 to 62 Hz
Power consumption	50 VA
Interfaces	2 x RS 232 for printer/PC/IBM-compatible keyboard/bar code reader
Standards	For traceable density standards, please contact your local Anton Paar distributor
Permanently stored tables	Alcohol (v/v, w/w), extract/sugar tables, API functions, acid/base tables, 19 tables/equations for your own concentration conversions