BEL
MicrotracBEL Corp.

Automatic high precision pycnometer

BELPycno

Cell volume : 10cm³, 3.5cm³, 1.0cm³

Specialists in Adsorption

One-touch, high-accuracy, automatic measurement

BELPycno

█ Features

- Accurate result with variable volume in cells
- Sample cell cap is grease-less and one-touch
- Touch panel display

█ Outline

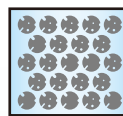BELPycno is an instrument to measure true density by the gas displacement method.
BELPycno is utilizing new technologies; high resolution pressure measurement, variable cell volume, grease-less and one-touch sample cell cap.Those features realize high accuracy measurement result and easy handling.

█ Principle

● Type of density

The density can be classified into two types, bulk density, and true density. The bulk density is calculated from the mass of a material(including void) in a unit volume. The true density is calculated from mass of a material that excludes void in contrast to bulk density. When the material includes closed pores, the gas molecules cannot diffuse into pores. Density of material including closed pores is regarded as apparent density.

● Measurement priniciple

BELPycno measures true density by gas displacement method. As shown in figure to the right, gas is introduced to the small cell with sample. Then, gas is diffused into expansion cell when opening the valve between sample cell and expansion cell. Sample volume is calculated from 'blank sample cell volume', 'blank expansion cell volume' and 'pressure decrease'. The sample density is calculated with sample weight dividing by sample volume.

Type of density

Bulk density   True density   Apparent density

Measurement principle
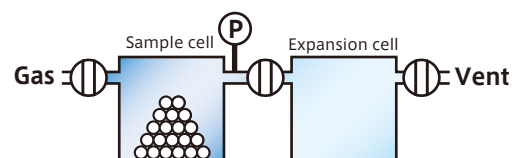
Pressure is measured after He is introduced to sample cell.
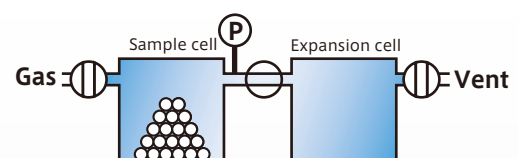
Gas is diffused into expansion cell when opening the valve and pressure is decreased. The sample volume is measured from the change in pressure.

Function

High accuracy measurement with variable expansion cell volume*

● Variable cell volume

Expansion cell volume: 10cm^3, 5cm^3
Appropriate expansion cell volume can be selected for sample cell volume to measure with highest accuracy.
*Patent applied for.

Grease-less and one-touch built-in sample cell cap*

● Sample cell cap is grease-less and one-touch.

Buit-in sample cell cap can minimize the risk of pollution by grease and outside contamination leaking. Moreover, this unique structure makes for fast and easy operation.
*Patent applied for.

● Storage of sample cell and calibration sphere

Sample cell and calibration sphere are stored in the main unit to prevent loss of it.

Built-in sample cell cap

Touch panel display

SD card slot

Sample cells and calibration spheres

Expansion chamber and sample chamber

Easy operation with touch panel display

Multi-language function, English and Japanese.
Automatic measurement with simple measurement condition setting.

Accuracy estimation mode: measurement is repeated until the result error is within a predetermined criteria.

Multiple test mode: measurement is repeated until the set number of times are reached.

Measurement is started with input of sample ID and sample weight after determination of measurement condition. Sample weight can be optionally loaded from balance to prevent the error. Measurement result is displayed on the touch panel display.
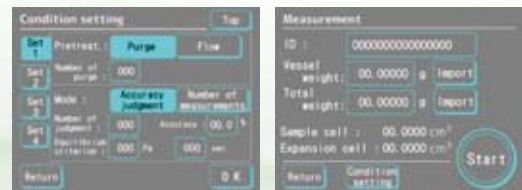
Options

- ● Label printer for result output
- ● Sample weight acquisition from electronic balance
- ● Thermostatic water bath to maintain the sample temperature

Applications

BELPycno can evaluate following materials; catalyst, battery cell, pharmaceutical, cosmetic, cement, toner, colorant, electronic component, mineral.

Catalyst | Battery cell | Pharmaceutical | Cosmetic | Cement | Toner | Pigment | Electronic component | Mineral

Specifications

|	
Measurement principle	Gas displacement method
Sample cell volume	10cm³, 3.5cm³, 1cm³
Measurement accuracy	(+/-0.5% of F.S.)+ (+/-0.03% of reading)
Repeatability	+/-0.2% of F.S.
Pretreatment	Gas purge, Flow, Vacuum (option)
Pretreatment pressure	0～145kPa (Gauge)
Measurement pressure	145kPa (Gauge)
Measurement repetition number of time	Max. 100 times
Mean number of times	Max. 10 times
Temperature range	15～35℃, Water bath: 15～50℃ (option)
Calibration method	Automatic calibration with calibration sphere
Interface input output	RS232C (communication with personal computer) RS232C (communication with printer)
Utility gas	He, inert gases: pres. 1.5bar (Gauge), 1/8" Swagelok joint
Allowed gases	He, N₂, inert gases
Power supply	AC90～250V/ 200W
Dimensions, Weights	270 (W) × 170 (H) × 300 (D) mm, 8kg

Data sheet

Measurement result output is in text-flie format and can be printed in report form.
Measurement data can also be edited by Microsoft Excel.

▼Detail of measurement result
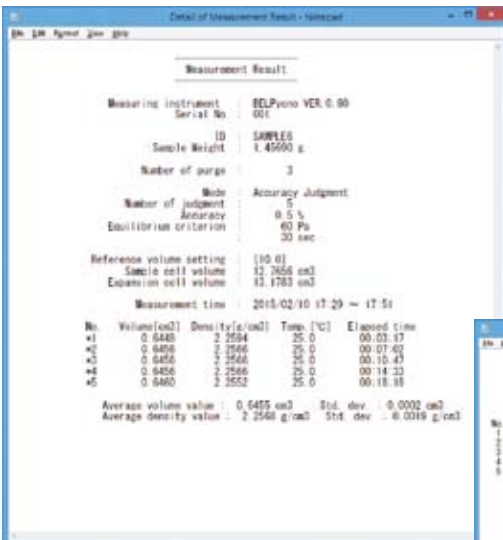
▼List of measurement results
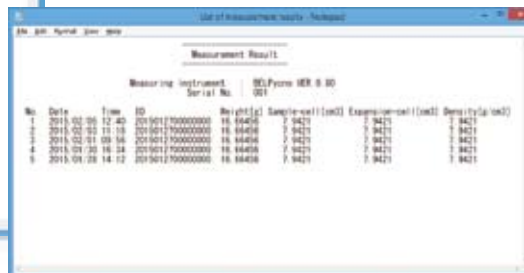
※The design and the specifications in the catalog are subject to change without notice due to continual improvements.
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