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PARTICLE CHARACTERIZATION

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BELPYCNO

AUTOMATIC HIGH-PRECISION PYCNOMETER

DENSITY MEASUREMENT OF 3D PRINTER ADDITIVE MOLDING MATERIALS BY GAS DISPLACEMENT METHOD

part of VERDER

Highly accurate, quick, and easy to use

Density measurement of 3D printer additive molding material by gas displacement method

Evaluation of true density by gas displacement method, which is quick and easy to measure, is effective for understanding the strength of layered objects with complex shapes created by 3D printers

3D PRINTER LAYERED OBJECTS

LOW DENSITY ... HIGH POROSITY ... FRAGILE STRUCTURE

HIGH DENSIY ... LOW POROSITY ... ROBUST CONSTRUCTION

Understanding density is essential to structure determination

EXAMPLE:
SIMPLE LAYERED MOLDING BODY

EXAMPLE:
COMPLEX LAYERED MOLDINGS

Stacked molding body image by 3D printing

FIRING (DEBINDING) AND SINTERING

ELECTRIC FURNACE: CARBORITE

SIMPLE SHAPE AND FEW VOIDS

| Density (P) = W (Weight) / V (Volume)

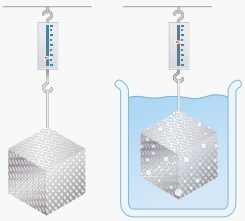
| V (Volume) = L (Length) x W (Width) x H (Hight

REGARDLESS OF COMPLEX SHAPES AND LARGE OR SMALL VOIDS

| Density evaluation by Archimedes method (displacement in water)

Problem

Liquid must be sufficiently wetted to the voids of the molding body (long stabilization time)



| Density evaluation by gas displacement method

Advantage

Short measurement time with or without voids

BELPYCNO SERIE

BELPYCNO
Dedicated to metal powders and other powders

BELPYCNO L
For density evaluation of large-volume moldings

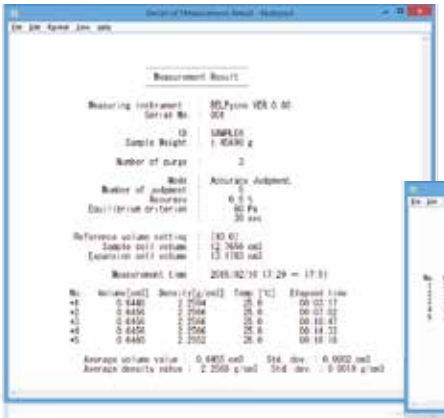
SPECIFICATIONS

Measurement principle	Gas displacement method
Sample cell volume	10 cm^3, 3.5 cm^3, 1 cm^3
Measurement accuracy	0.03% F.S + 0.03% R
Repeatability	0.02% F.S
Pretreatment	Gas purge, Flow, Vacuum (option)
Pretreatment pressure	0～145 kPa (Gauge)
Measurement pressure	145 kPa (Gauge)
Measurement repetition number of time	Max. 100 times
Mean number of times	Max. 100 times
Measurement temperature	Room temperature (Circulator (Option) : 15 to 50 °C)
Calibration method	Automatic calibration with calibration sphere
Interface Input	RS232C (communication with a electric balance)
Utility gas	He, inert gases: pres. 1.5bar (Gauge), 1/8" Swagelok joint
Allowed gases	He, N_2, inert gases
Power supply	AC 90～250 V / 200 W
Dimensions, Weight	270 (W) × 170 (H) × 300 (D) mm, 8 kg
Recommended Monitor	Full HD monitors

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

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