

Powder Metallurgy

Powder metallurgy is a branch of metallurgy and materials science.

The technology of making powder particles of metals, alloys, or oxides, carbides, etc., into fines, then put the powder into the mold, **apply high pressure to shape**, and then **sinter and solidify** to manufacture the required materials or products.

Because this technology can **minimize the segregation of alloy components** and **eliminate uneven casting structure**, reduce production costs and doesn't require complicated secondary processing, it has a wide range of applications.



Green Compact Density



When the powder has completed its preliminary appearance & compression molding, this sample is called a green compact.

In the production process, the measurement of the density of the green compact allows the field personnel to adjust the mold and the amount of powder filling by the value of the density of the green embryo, so as to extend the service life of the mold and increase the yield of product production



Green compact samples are porous samples with permeability (open pores) or pore size > 2%
The density measuring range includes as the followings:
Closed pores & Open pores in the sample object is called **Bulk density**.

Sintering Density

Sintering is heating the green compact to a proper temperature, so that the total particles of the diffused powder are coalesced, and finally form a monolithic solid. The operation to increase its mechanical strength & hardness, and effectively reduce the porosity.



In addition, the density is also effectively upgraded to **quality control standards**.



Sintered samples are not permeable (open pores) or porous products with pore size < 2%
The density measuring range includes as the followings:
After **deducting the space** occupied by the pores, the measured density is **apparent density**.

What MatsuHaku Do:

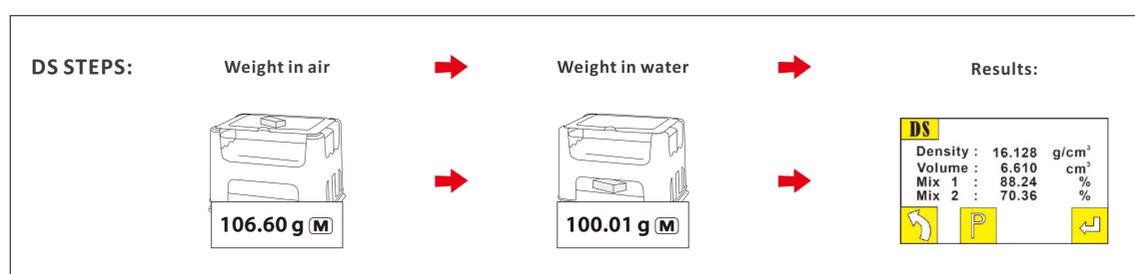
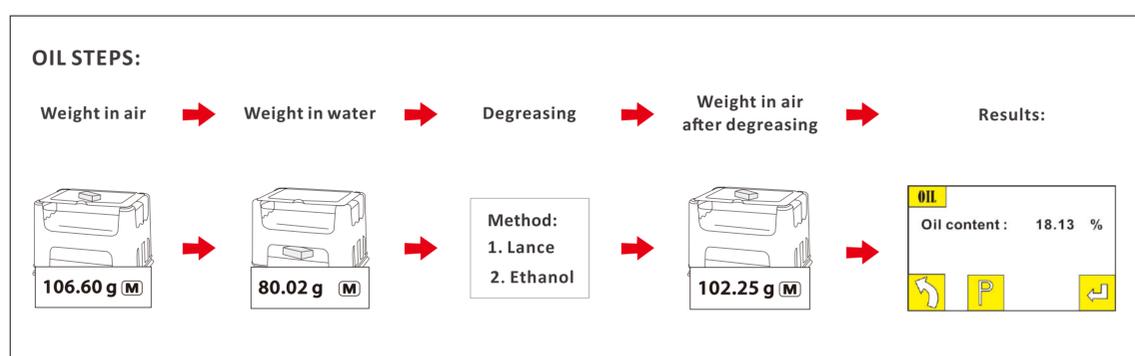
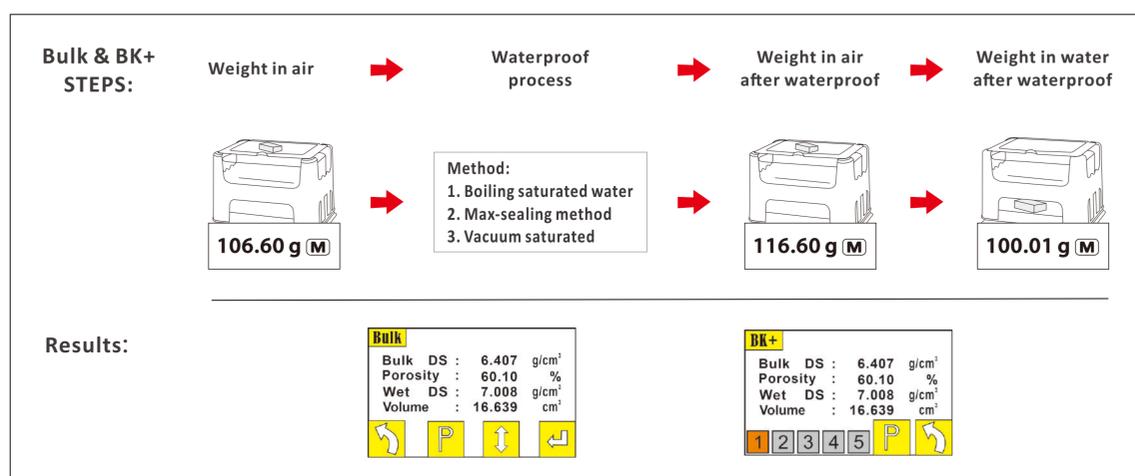


MatsuHaku PM series equipped **4** modes:

- BULK** - Adopting water saturation method for porous material. Show Bulk density, Wet density, Apparent porosity density, Volume.
- BK +** - Adopting water saturation method for porous absorbent material. Show Bulk density, Wet density, Apparent porosity density, Volume.
- OIL** - Content sample Show Oil-content directly.
- DS** - Nonabsorbent material. Show Density, Volume, Mix ratio directly.

The pore structure **greatly affects** the **physical properties of the powder**, so it is very important for the density detection of the green compact and sintered body.

If you want to **confirm the quality**, the very important point is to **know the whole density of it**.



MatsuHaku Density Tester Keep You Aware Of

- Reduce** the cost and the **Defect** loss
- Fit the international **Standard**
- Make sure the quality **Stable**



*With MatsuHaku Density Tester
Quality control is more easier than you thought*