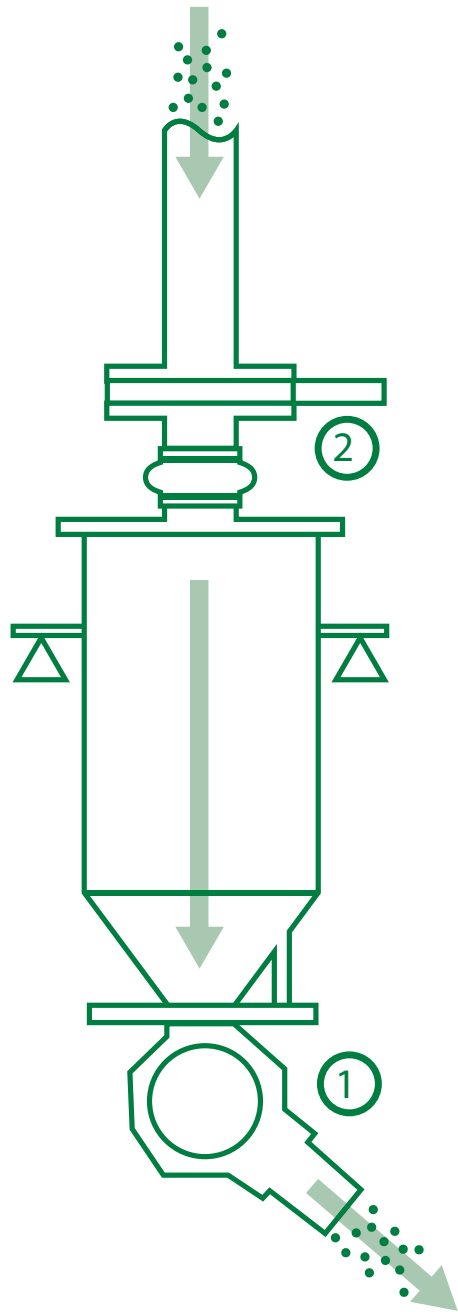




# Dynamic Density Meter

## The Only Inline Real-Time “Dynamic” Bulk Density Meter



The BatchHouse Dynamic Density Meter is the process industry's only on-line, real-time density meter providing an output representing the dynamic density of the dry solids material flowing through it.

Improve your process and product quality by using this complete sensor/control solution. The real-time output representing dynamic bulk density can be used in a feed-forward or feed-back mode to monitor or control a single flow stream's density or maintain a specified density of a material as the control variable of a blend of “light/heavy” materials.

The Dynamic Density Meter is designed for use in a manufacturing or packaging process.

- Processing– To maintain precise density in applications where varying bulk density could affect product quality
- Filling– To maintain consistent fill level in packaging

The Density Meter system consists of ① a BSP-100 volumetric feeder and material hopper on load cells that is in-line in the process. Above the feeder is an automated shut-off valve ② that receives material from the process.

In normal operation material flows through the shut-off valve and feeder into the process. To calculate density the controls close the shut-off valve on a demand or timed basis. As the level in the feed hopper lowers, a weight reading is triggered at a defined level. Upon taking a successful weight reading the shut-off valve opens. This entire process is completed in seconds and in-line without any interruption of material flow. A measurement can be taken as frequently as every 5-10 seconds.

Density is calculated by dividing material weight by the volume of the material.

$$\text{Density (lbs/ft}^3\text{)} = \text{Weight (lbs)}/\text{Volume (ft}^3\text{)}$$

As indicated, the Dynamic Density Meter weighs the material in the system when the material in the hopper reaches a specific level. This level equals a fixed volume. The real-time output signal equals the dynamic bulk density of the material in motion.



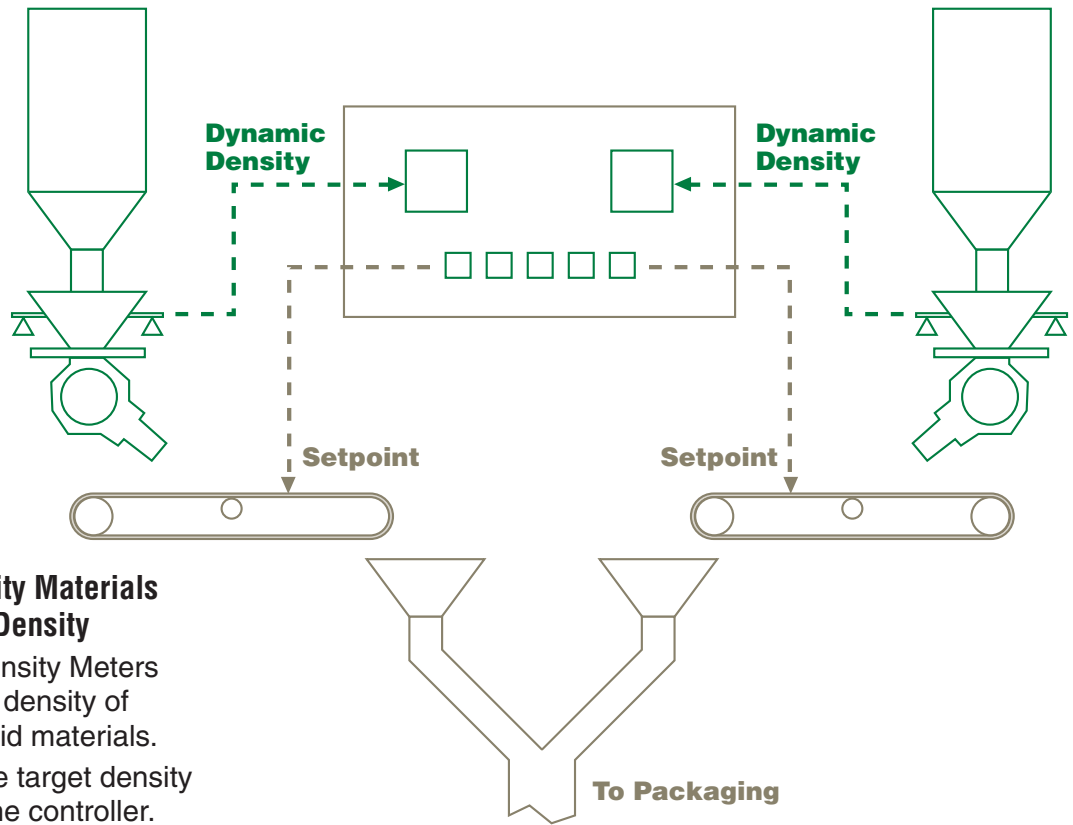
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### Blend Dissimilar Density Materials to a Controlled Target Density

In-line BatchHouse Density Meters measure dynamic bulk density of two streams of bulk solid materials. The operator enters the target density and line setpoint into the controller. Each belt feeder receives a setpoint to ensure the packaging line receives material at the proper dynamic bulk density and line setpoint.

### Spray Dryer Closed-Loop Control

The BatchHouse Density Meter is installed below a spray dryer to provide an in-line, real-time dynamic bulk density output signal.

The output signal is used as feedback to the spray dryer controls which then is used to:

- Control bulk density
- Achieve desired particle size
- Enhance Material Flowability

