Inline Particle Measurement

FBRM® in Process Development

Track Particle Dimension, Shape and Count
FBRM® G400 measures a fingerprint distribution of the particle system that is sensitive to changes in dimension, shape and count. Real-time measurements track changes in particles as they naturally exist in the process – eliminating the need for offline sampling.

Understand, Optimize and Control
Understand how the particle system responds to changing process parameters. Optimize the particle distribution to improve process performance and product quality. Control the particle distribution to achieve consistent endpoints, batch repeatability, and process stability.

Versatile, Ergonomic and Lightweight
A versatile interchangeable probe design ensures fast and easy adjustment to accommodate the scale or volume required. An ergonomic probe/conduit design simplifies integration into the reactor setup. Lightweight, stackable base units are easily installed inside the fume-hood or moved to the lab bench.

iC FBRM™ Software
iC FBRM™ provides powerful data acquisition and interpretation tools that enable users to quickly and easily evaluate experimental data. Intuitive tools allow users to combine data from multiple FBRM® experiments with inline PVM® (Particle Vision and Measurement) images to produce professional reports with a single-click of the mouse.

FBRM® G400
FBRM® (Focused Beam Reflectance Measurement) is a real-time quantitative measurement that tracks the rate and degree of change to particles, particle structures, and droplets as they actually exist in process. The inline FBRM® measurements enable scientists and engineers to quickly associate particle system dynamics to process conditions - assuring optimal product quality and efficiency in filtration and other downstream processes. The portable FBRM® G400 can be used for sample analysis, be mounted in a small scale laboratory vessel or inserted into a continuous pipeline for real-time monitoring.
Mettler Toledo FBRM® (Focused Beam Reflection Measurement) is the world leading Process Analytical Technology (PAT) for inline particle characterization in the pharmaceutical and chemical industries.

From the crystallization and precipitation of organic and inorganic chemicals to solids flocculation to crude oil/water separation and emulsion stabilization, FBRM® provides engineers and scientists with information to enhance process performance and control particles in real time.

Optimize Scale-Up
FBRM® real-time particle characterization can be used to optimize and control batch to batch repeatability upon scale-up from the lab to manufacturing.

### Specification FBRM® G400

- **Probe Tip Material**: Alloy-C22 Wetted
- **Probe Window**: Sapphire
- **Probe O-rings**: Kalrez O-rings (only on 19mm window design)
- **Probe Outer Diameter**: 19mm, 14mm, 9.5mm
- **Probe Length**: 400mm, 206mm, 91mm
- **Detection Range**: 0.5μm to 2000μm
- **Probe Temperature Range**: 10°C to 90°C; -80°C to 90°C (with purge)**
- **Pressure**: 3 bar (standard); Custom design up to 100 Bar
- **Conduit Length**: 3m
- **Conduit Diameter**: 11.6mm
- **Conduit Bend Radius**: 125mm
- **Certification**: CE, Class 1 Laser
- **Power**: 100 VAC to 240VAC, 50-60Hz

*Temperature Range (with purge) limited to -10°C to 90°C with 19mm optional O-ring window design

**Operating above 90°C will reduce bearing life; operating above 110°C will result in eventual bearing failure

www.mt.com/FBRM-GSeries

For more information