

Positioning a ParticleTrack™ or ParticleView™ Probe

1. Probe Positioning

ParticleTrack™ probes use Focused Beam Reflectance Measurement (FBRM®) technology to track the rate and degree of change to particles and particle structures as they exist in process. ParticleView™ probes use Particle Vision and Measurement (PVM®) technology to visualize particles and particle mechanisms in real time.

This quick reference guide contains separate instructions for orienting the probe (Section 2), positioning the probe in a pipeline (Section 3) or a reactor (Section 4). Probe orientation applies to both pipeline and reactor. Good data starts with good probe positioning.

2. Probe Orientation

The most important factor in obtaining a representative measurement of your particle system is orientation of the probe window to the flow of material.

Do...

- Orient the probe so the flow of material impinges on the probe window surface at a 30° to 60° angle (**Figure 1**).

Ideal probe orientation:

This is the only probe orientation that impinges the flow onto the window surface. The flow carries particles close to the window for the best measurement presentation. The action of the particles against the window prevents buildup of scale on the window surface. The best orientation is achieved when the angle of the probe window is between 30° and 60° to the flow, though 45° is the optimum angle.

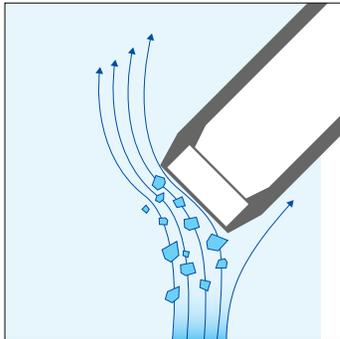


Figure 1: Ideal probe orientation—
Probe window at a 30° to 60° angle to the flow of material

Do NOT...

- Mount the probe window flush with the pipeline or reactor wall (**Figure 2**). Friction at the wall will prevent particles from getting close to the window.

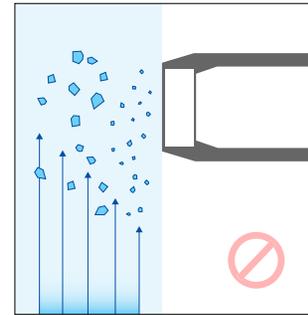


Figure 2: Non-ideal orientation—
Probe window flush with the pipeline or reactor wall

- Insert the probe parallel to the flow (**Figure 3**) or as a flat obstruction to the flow (**Figure 4**). Both positions create a dead zone in front of the probe window that prevents representative measurement and allows deposits to form on the window.

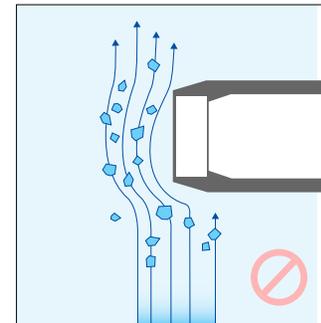


Figure 3: Non-ideal orientation—
Probe window parallel to the flow of material

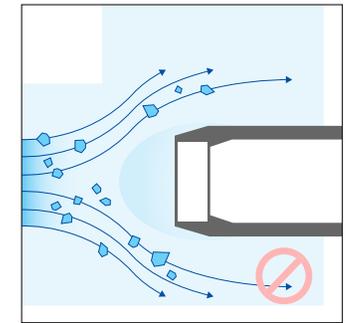


Figure 4: Non-ideal orientation—
Probe window as flat obstruction to the flow of material

3. Positioning Probe in a Pipeline

Do...

- Place the probe in an upward-flow section of pipe, three to five pipe diameters downstream of the last bend or disturbance.
- Face the probe window into the flow at a 30° to 60° angle.

Do NOT...

- Face probe window away from the flow.
- Face probe window directly into the flow, parallel to the flow, or flush with the wall.
- Place probe in a downward-flow section of pipe.
- Place probe near a bend in the pipe.
- Place probe in an area where flow is segregated.

For best results...

- Face probe window at a 45° angle to the direction of flow.
- Locate probe window in the middle of the pipe.
- Ensure probe is in an upward-flow section of pipe.
- Ensure probe is three to five pipe diameters downstream of any flow disturbances.

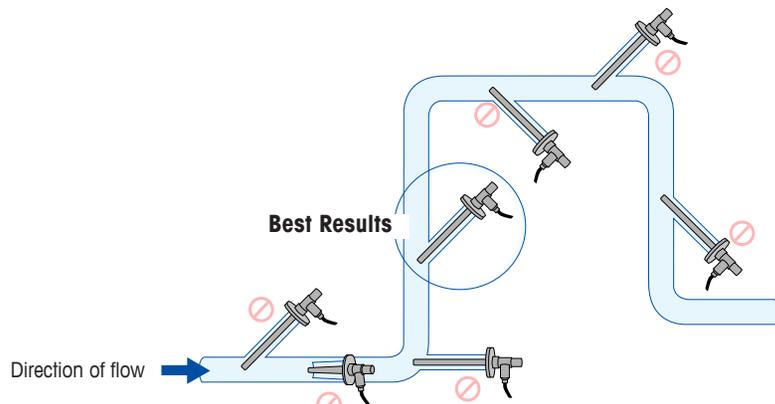


Figure 5: Positioning probe in a pipeline

4. Positioning Probe in a Reactor

Do...

- Face probe window into the flow.
- Use an impeller with effective solids agitation.

Do NOT...

- Face probe window away from the flow.
- Place probe in a dead zone behind a baffle or other object.
- Place probe in an area where flow is segregated.

For best results...

- Face probe window into the direction of flow.
- Face probe window into the direction of impeller rotation and flow.
- Place probe just to the inside of the leading edge of the baffle (if present).
- Ensure probe is **not touching anything—especially the impeller shaft.**

5. Further Information

More information on probe positioning and orientation can be found in the hardware manual accompanying your ParticleTrack or ParticleView instrument. Please send an email to AutoChemCustomerCare@mt.com with any questions.

Remember: Good data starts with probe positioning.

www.mt.com/particle

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