

# THE PROCESS BALLPROBE® - 0.5 in.

0.5 in. diameter for demanding laboratory and process applications, with TouchRaman® immersion technology

MARQMETRIX

MEASUREMENT MADE SIMPLE

## Wetted Materials

<b>Probe Body</b>	0.5 in. (12.7mm) diameter Hastelloy C-276
<b>Immersion Optics</b>	6mm diameter UV-grade sapphire ball
<b>Sealing Materials</b>	Gold

## Specifications

<b>Standard Probe Length</b>	11 in. (275mm)
<b>Probe OD (Outside Diameter)</b>	0.5 in. (12.7mm)
<b>Clear Aperture (max. Laser Beam Waist)</b>	0.22 in. (4.6mm)
<b>Sample Working Distance</b>	TouchRaman (Sample contacts BallProbe lens)
<b>Continuous Operating Temperature Range</b>	-100°C to 300°C
<b>Pressured Design Condition</b>	6,000psi (413 bar)
<b>Compatible Laser Wavelengths</b>	500-1100nm

## The MarqMetrix® Process BallProbe

The MarqMetrix Process BallProbe is our most robust TouchRaman immersion contact probe. This 0.5 in. (12.7mm) diameter Hastelloy C-276 probe features a gold-compression seal with a pressure design condition of 6,000psi, allowing the probe to be used in extremely challenging chemical, pressure, and temperature conditions.



MarqMetrix BallProbe technology utilizes an exclusively sourced, high-grade spherical sapphire lens. The short focal length of the spherical optic allows for TouchRaman—where users simply touch the probe to the sample—yielding highly reproducible sampling of liquids, solids, slurries, powders and heterogeneous mixtures. The simplicity of design is especially important in process applications where measurement accuracy and reproducibility are mission critical.

Each probe accommodates a high-precision 6mm UV-grade sapphire ball lens and an internal focusing lens. The internal focusing lens improves performance and acts as an additional barrier against upstream chemical ingress.

Users simply touch the probe to the sample — yielding highly reproducible sampling.

For more information call:

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The power of **Raman**, the simplicity of **MarqMetrix**

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The use of corrosion resistant Hastelloy C-276, gold, and sapphire as the only wetted materials allow the Process BallProbe to withstand the harshest chemical environments. The Process BallProbe was inserted in 350°C hydrothermal vents at the bottom of the Pacific Ocean to obtain Raman data for the monitoring of biomass conversion in supercritical fluids.

The curvature of the sapphire ball facilitates material exchange near the surface of the lens, preventing the buildup of materials that interfere with spectral acquisition. The form factor and 'self-cleaning' properties make the BallProbe an ideal choice for process flow applications. The Process BallProbe has been installed in commercial applications ranging from cryogenic fuels to polymer extrusion.

The utility of the Process BallProbe is optimized when paired with our filtered fiber-optic interface, creating the MarqMetrix Fiber BallProbe—a complete sampling solution for accurate and repeatable Raman measurements. However, any BallProbe can be purchased as a standalone product for use with existing probes or open-optic configurations.

### Optical properties

Accepts a collimated laser beam up to 5.6mm (0.22 in.) diameter

Made with high purity UV-grade sapphire ball lens aligned along the C-axis, eliminating response variability due to birefringence

### Operating conditions

Suitable for continuous exposure to dilute and concentrated acids (hot & cold), bases and most organic solvents including ethanol, THF, ethyl acetate, acetone, DCM, toluene, pentane and acetonitrile

Avoid exposure to aqua regia

### Related Products

**Performance BallProbe** - 0.5 in. diameter, for less demanding process or laboratory applications

**Fiber BallProbe** - filtered fiber optic interface specifically designed for the MarqMetrix BallProbe and MarqMetrix Raman All-In-One



The simplicity of use allows non-specialists to collect high-quality data.



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