

# THE PROCESS ELITE BALLPROBE® 0.5

with TouchRaman™ immersion technology

## Wetted Materials

<b>1/2" Probe Body (OD)</b>	Hastelloy C-276
<b>Immersion Optics</b>	6.00 mm diameter UV-grade sapphire ball
<b>Sealing Materials</b>	Gold

## Specifications

<b>Standard probe length</b>	6" or 11"
<b>Probe OD</b>	0.500" (12.7 mm)
<b>Probe Wall Thickness</b>	0.065" (1.65 mm)
<b>Clear Aperture</b> (max. laser beam waist)	0.220" (5.6 mm)
<b>Sample Working Distance</b>	TouchRaman™ (sample contacts probe lens) to 410 µm standoff
<b>Continuous Operating Temperature Range</b>	-100 to 300°C
<b>Pressure Certification</b>	6,000 psi (413 bar)
<b>Compatible Laser Wavelengths</b>	400-1500 nm

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

## The MarqMetrix® Process Elite BallProbe® 0.5

The MarqMetrix® Process Elite BallProbe® 0.5 is a robust TouchRaman™ immersion contact probe utilizing a spherical sapphire ball lens interface. Our patented optics, exclusively sourced, high-grade sapphire lens and precision manufacturing allow for greatly reduced sampling variation, extreme durability and remarkable ease-of-use in an elegant and simple design.



The short focal length enabled by 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 use allows non-specialists to collect high-quality data and eliminates user-to-user variation.

Each probe accommodates a high-precision 6 mm UV-grade sapphire ball lens and an internal focusing lens. The internal focusing lens improves performance and acts as additional protection against upstream chemical ingress. The spherical optic is affixed to high-performance Hastelloy housing using gold-based compression sealing, providing a reliable high pressure and high temperature seal with exceptional chemical resistance.

For more information call:

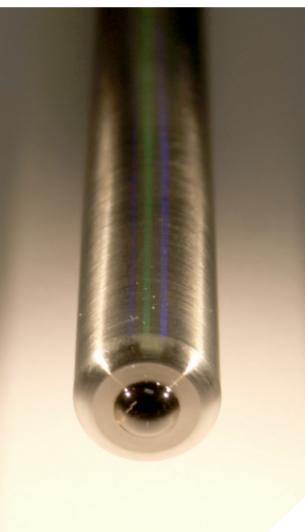
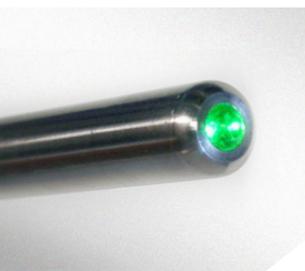
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The use of high-performance Hastelloy and sapphire makes the Process Elite BallProbe® impervious to harsh chemical environments. The Process Elite BallProbe® has been to the bottom of the Pacific Ocean in hydrothermal vents, at more than 7000 feet deep and more than 300° C, to obtain Raman data for the monitoring of biomass conversion in supercritical water. The Process Elite BallProbe® has been installed in commercial applications ranging from cryogenic environments to boiling concentrated acids.

Additionally, the curved shape of the sapphire ball facilitates material exchange near the surface, preventing the buildup of materials that interfere with spectral acquisition. The form factor and 'self-cleaning' properties of the design allow the Process Elite BallProbe® to be used effectively in a variety of standard fluid handling systems (e.g. NeSSI, continuous-flow reactors).

The Process Elite BallProbe® can be used with fiber optic probes that have a collimated excitation beam co-linear with the collection path.

### Optical properties

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

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

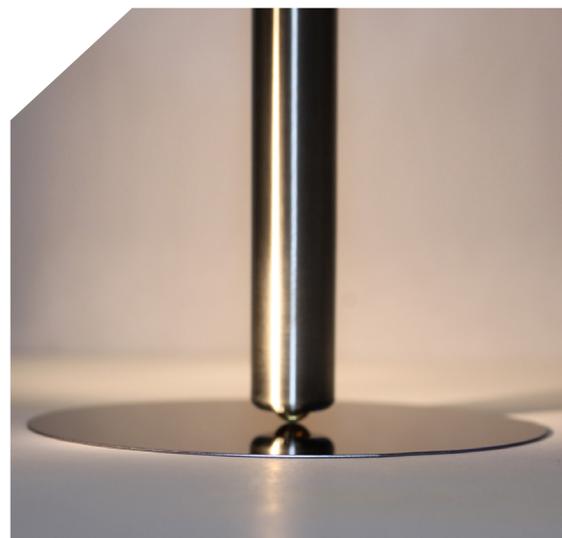
### Operating Conditions

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 prolonged exposure to aqua regia



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



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