

## IMMERSION RAMAN MARQMETRIX BALLPROBE™ 0.125" O.D.



The 0.125" MarqMetrix BallProbe™ is a robust Raman immersion contact probe utilizing a spherical sapphire ball lens interface. Thanks to the excellent properties of sapphire and the precision manufacturing of the probe, the 0.125" BallProbe™ confers greatly reduced sampling variation, extreme durability, and remarkable ease-of-use in an elegant and simple design.

This is the smallest product in the MarqMetrix BallProbe™ family. Featuring a 3mm ball lens, it is compatible with standard 1/8" compression fittings and provides a reduced focal length of 200 micrometers (µm). Due to the probe's small form-factor, the effective collection volume is only 3 nanoliters (nL).



Raman analysis of small (nL) volumes can be performed in low volume conical vials with almost no interference from the vial. Combined with the great sensitivity (as high as that of the larger ballprobes), the 0.125" probe is perfect for analysis of small volume, difficult-to-access samples, monitoring continuous-flow and micro-batch reactors, as well as other applications.

### MATERIALS

1/2" probehead adapter	Stainless Steel 316
1/8" tube	Hastelloy C-276
Immersion optics	3 mm diameter UV-grade sapphire ball
Internal optics	AR-coated for 750-1550 nm
Sealing material	Specialty epoxy or active braze alloy

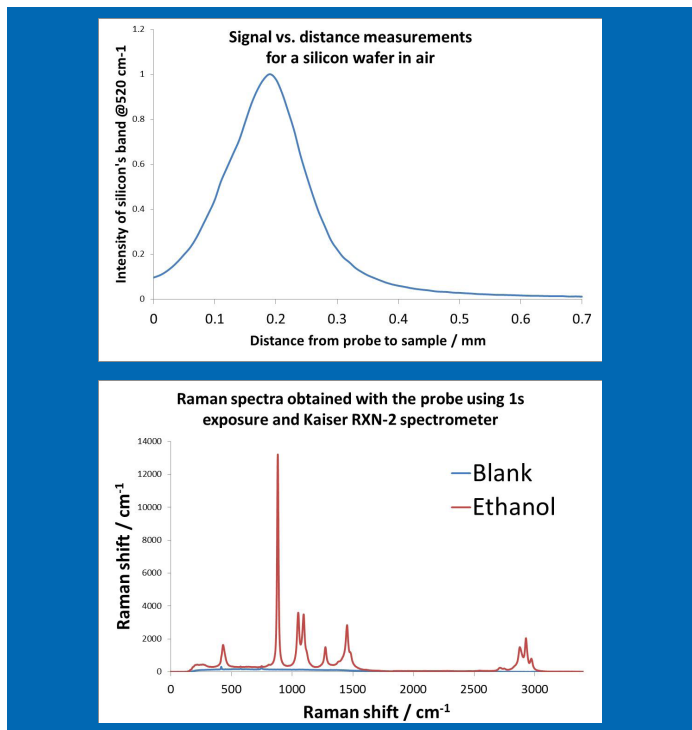
### SPECIFICATIONS

Standard immersion length	4"
Tube wall thickness	0.5 mm (0.020")
Tube I.D. / clear aperture	2.16 mm (0.085")
Custom probe lengths	1"-6" or longer (with reduced sensitivity)
Working distance	200 µm in air 30 µm in water (nD = 1.33)

### OPTICAL PROPERTIES

Accepts a collimated laser beam up to 3-3.5 mm in diameter. Sapphire ball is aligned along the C-axis, eliminating all response variations due to birefringence.

Compatible laser wavelengths: 785-1064 nm (probes for any other laser in VIS-NIR ranges can be made upon request)



### OPERATING CONDITIONS

#### Epoxy Seal

Resistant to dilute and concentrated acids and alkali (hot and cold), majority of organic solvents, including ethanol, THF, ethyl acetate, acetone, DCM, toluene, pentane, acetonitrile

Avoid exposure to aqua regia, hot concentrated nitric acid and hot glacial acetic acid

- Operating Temperature
  - From -55 to 200° C (continuous exposure)
  - From -55 to 300° C (intermittent exposure)
- Operating Pressure
  - Designed to withstand high pressures >> 40 psi

#### Brazed Seal

Resistant to dilute and concentrated acids and alkali (hot and cold), and organic solvents

Avoid exposure to concentrated oxidizing acids such as aqua regia and concentrated nitric acid

- Operating Temperature
  - > 300° C (continuous exposure)
- Operating Pressure
  - Designed to withstand high pressures >>40 psi

### CUSTOM BALLPROBE™

MarqMetrix builds custom BallProbe™ with dimensions and optical properties tailored for your requirements, including probes smaller than 0.125". Contact MarqMetrix for a quote on a custom BallProbe™ to meet your exact specifications and needs.