

Industrial Raman Probe



- **Swageable focusing, sealed lens shaft ideal for liquid immersion, pressure and vacuum applications**
- **High collection efficiency and effective laser line filtering**
- **Fused silica optics**
- **Customizable stainless steel armor fiber cable and focusing lens barrel**

High throughput optics and a backscattering probe optical design are incorporated into our compact Raman probes, resulting in a highly efficient probe for Raman measurements.

- **Ideal for** Raman measurements of various samples including solids, liquids and gases
- **Available in** various laser excitation wavelengths in the visible to the near-infrared.
- **Narrow bandwidth bandpass filter** is utilized in the excitation optical train to filter out unwanted silica background generated by the excitation laser in the optical fiber.
- **High Rayleigh rejection long-pass edge blocking filter** (optical density $>10^{-6}$) is also incorporated in the collection optical train to prevent the laser line from being transmitted into the collection optical fiber.

FEATURES

- **Ruggedized probe** that can be used for more demanding Raman measurements, such as direct liquid measurements, pressure and vacuum applications.
- The probe body is **encased in a hard anodized aluminum housing**.
- The focusing lens shaft is made of **stainless steel with a step fused silica window** (also available in sapphire) compression sealed at the tip with a Kalrez® o-ring. Other o-rings are available including teflon and gold.
- The **focusing lens** is located inside the tube and behind the optical window.
- The **optical fibers are also removable** allowing the user the flexibility of using the proper fiber core optimized for a specific Raman instrument.

Specifications	
Excitation Wavelength	405, 514, 532, 633, 670, 671, 785, 808 nm. Other wavelengths available
Spectral Range	100-4000 cm ⁻¹ (The ultimate range is spectrograph/detector dependent.)
Focal Length	9 mm standard (12, 15 & 18 mm optional) Note: Probe efficiency decreases with increasing focal length)
Spot Diameter at the Sample	100 microns for standard fiber (fiber core dependent)
Working Distance	3 mm for standard lens
Numerical Aperture	0.22 with standard lens
Probe Body Dimensions	2.25" L x 0.96" W x 0.58" H
Probe Body Material	Hard anodized aluminum
Probe Shaft Dimensions	3/8" diameter x 3" length (custom lengths available)
Probe Shaft Tip Seal	Kalrez o-ring
Probe Shaft Material	316 stainless steel (Hastelloy, inconel, titanium or other metals available)
Probe Shaft Window	fused silica or sapphire
Filter Efficiency	OD >6 at laser wavelength
Operating Temperature	0-325 °C
Maximum Operating Pressure	6000 psi
Fiber Configuration	100/100 micron core standard, custom optical fiber cores available
Fiber Optic Cable	5 m reinforced stainless steel armor cable standard, custom lengths available
Coupling System	FC connector standard, SMA connector also available
Part Number	SPS-RD