

Quick Reference Guide

Raman Probes

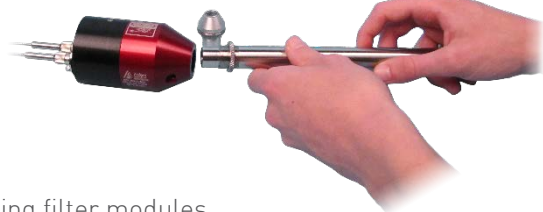
RFP-400 SERIES LAB RAMAN PROBES



The ultimate in flexibility and performance, RFP-400 probes feature interchangeable objective optics and filter modules, allowing a probe to be tailored to virtually any requirement.

- Interchangeable objective/immersion assemblies
- Interchangeable filter sets (785, 633, and 532 nm standard)
- 6.35 mm diameter probe tip (RFP-420)
- Compatible with high temperatures and pressures (RFP-435, 440, and 442)
- Compatible with highly aggressive chemistries (RFP-420 through 442)
- > 10X gas phase spectral enhancement (RFP-465)

Interchanging objectives



Interchanging filter modules



Standard Configurations:

RFP-410: Sight glass probe

For analyzing samples in beakers or flasks or through a window. Standard focal offsets: 15 & 26 mm. Others available.



RFP-420: 6.35 mm diameter immersion probe

For use with small reaction vessels in applications such as small scale reaction development and flow chemistry.



RFP-435: ½ UNF extruder probe

Dynisco compatible mounting for applications ranging from food product QC to polymer melt analysis.



RFP-440: 16 mm diameter immersion probe

Extremely robust immersion optic for applications involving high temperatures or pressures or highly aggressive chemicals.



RFP-442: 12.7 mm diameter probe

Similar to the RFP-440 but with the immersion diameter reduced to 12.7 mm for the last 20 cm for use in smaller reaction vessels.



RFP-465: Multipass probe for enhanced vapor phase analysis

More than an order of magnitude signal enhancement for gas phase analysis.



RFP-500 SERIES PROCESS PROBES

RFP-500 probes feature comparable optical performance to the lab probes but in a robust structure capable of performing reliably under the harshest process conditions. The use of Hellma Analytics proprietary welded metal seals with Axiom Technology makes these probes impervious to thermal shock and chemical attack.

RFP-540: Process Probe for clear fluid streams

Available with a choice of excitation wavelengths and focus offsets.



RFP-550: Process Probe for turbid streams

The RFP-550 employs a truncated ball lens probe tip along with a moveable internal lens enabling the focal offset to be set between 0.1 and 1 mm.

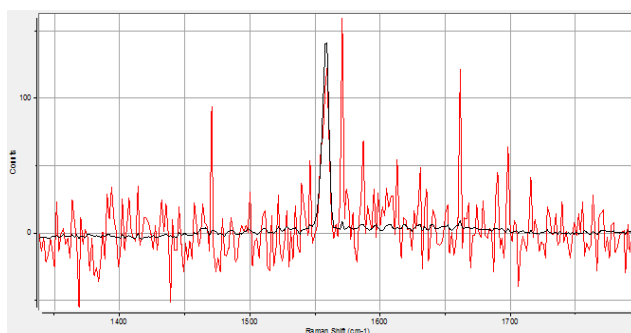
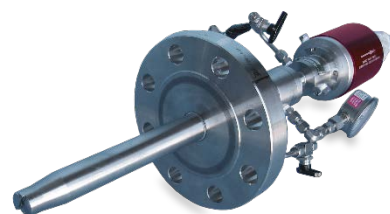
ENHANCED GAS PHASE ANALYSIS USING THE RFP-465 PROBE

The RFP-465 provides more than an order of magnitude spectral enhancement for clear vapors.

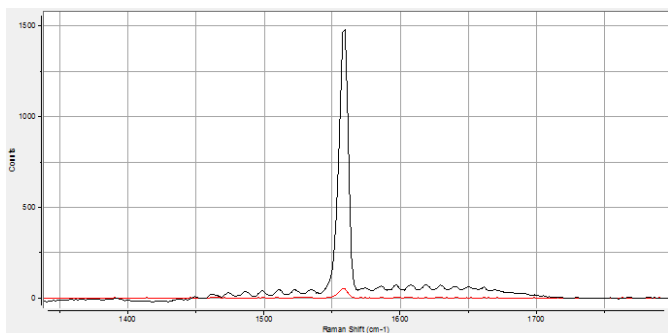


- Withstand most aggressive chemicals
- Compatible with process temperatures to 400° C and pressures to 200 bar
- Withstand repeated thermal shock
- Standard Hastelloy C-276 construction available
- Interchangeable filters for application flexibility
- Available secondary confinement
- Large depth of field and illumination area (RFP-540)
- Large numeric aperture and adjustable focus (RFP-550)

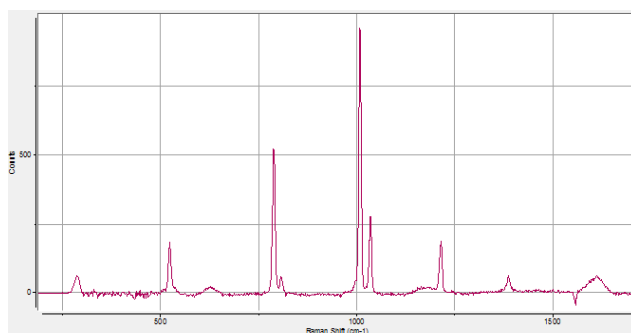
RFP-500 Series probe with spray cleaning capability and secondary confinement.



Ambient oxygen comparison with reduced signal intensity. (Spectra scaled for comparison.)



Ambient oxygen with multipass probe (black) and sight glass probe (red).



Spectrum of toluene vapor (0.029 bar) after subtracting probe background.