

# Raman Probes

B&W Tek Raman probes are designed and tested to work with B&W Tek laboratory Raman spectrometer systems to get the best Raman signal for sample measurements.

## Industrial Immersion Probe Options



The industrial immersion probes on B&W Tek's laboratory Raman instruments feature a stainless steel probe body along with a stainless steel or hastelloy probe shaft. They are immersible in liquids, slurries, powders, and solids under pressure up to 4000 psi and temperatures up to 300 °C for hastelloy (200 °C for stainless steel). Fiber cable length 1.5m.

Part Number	Model	Max Operating Temperature (°C)	Max Operating Pressure (psi)	Length	Diameter	Shaft Wall Thickness	Material of Construction
BWT-840000608	BAC101-SS-532	200	4000 (275 bar)	203.2mm (8")	12.7mm (0.5")	3.27 mm (0.109")	316 stainless steel body and shaft and an epoxied sapphire ball lens
BWT-840000607	BAC101-HS-532	300				1.65 mm (0.065")	316 stainless steel body, hastelloy C-276 shaft and an gold-sealed sapphire ball lens
BWT-840001114	BAC101-SS-532-HT	200				3.27 mm (0.109")	316 stainless steel body and shaft and an epoxied sapphire ball lens
BWT-840000606	BAC101-SS-785	200				3.27 mm (0.109")	316 stainless steel body and shaft and an epoxied sapphire ball lens
BWT-840000605	BAC101-HS-785	300				1.65 mm (0.065")	316 stainless steel body, hastelloy C-276 shaft and an gold-sealed sapphire ball lens
BWT-840000905	BAC101-SS-785-HT	200				3.27 mm (0.109")	316 stainless steel body and shaft and an epoxied sapphire ball lens
BWT-840000989	BAC101-SS-1064-HT	200				3.27 mm (0.109")	316 stainless steel body and shaft and an epoxied sapphire ball lens

## Probe Shaft Options for Lab-Grade BAC102 Probes



The standard probes on B&W Tek's laboratory Raman instruments (model BAC102-xxx) come with standard aluminum shafts that are 3" (76.2 mm) in length with a diameter of 0.371" (9.42 mm), operable up to 80°C for non-immersive use (model RSS100-xxx). In addition, the shafts on these probes are user-replaceable, giving the flexibility to adapt to different working environments.

Part Number	Model	Max Operating Temperature (°C)	Max Operating Pressure (psi)	Length	Diameter	Material of Construction
<b>Replacement laboratory-grade shafts for BAC102 probes (non-immersive):</b>						
BWT-840000529	RSS100-532	80	14	76.2 mm (3")	9.42 mm (0.371")	Stainless steel shaft with adhesive sealed fused silica window.
BWT-840000136	RSS100-785	80	14	76.2 mm (3")	9.42 mm (0.371")	Stainless steel shaft with adhesive sealed fused silica window.
BWT-840000530	RSS100-1064	80	14	76.2 mm (3")	9.42 mm (0.371")	Stainless steel shaft with adhesive sealed fused silica window.
<b>Low-cost immersion shafts for BAC102 probes:</b>						
BWT-840000130	RIS100-FS	200	14	76.2 mm (3")	12.0 mm (0.472")	316 L stainless steel body and fused silica window.
BWT-840000131	RIS100-SA	200	14	76.2 mm (3")	12.0 mm (0.472")	316L stainless steel body and sapphire window
<b>High pressure high temperature immersion shafts :</b>						
BWT-840001084	RIS101-HS-785	250	4000	279.4 mm (11")	12.7 mm (0.5")	Hastelloy C-276 shaft and a gold- sealed sapphire ball lens
BWT-840001202	RIS100-HS-785-08	250	4000	203. 2 mm (8")	12.7 mm (0.5")	Hastelloy C-276 shaft and a gold- sealed sapphire ball lens
BWT-840001203	RIS100-SS-785-08	200	4000	203. 2 mm (8")	12.7 mm (0.5")	Stainless steel shaft and an epoxied sapphire ball lens
BWT-840001204	RIS100-HS-532-08	250	4000	203. 2 mm (8")	12.7 mm (0.5")	Hastelloy C-276 and an epoxied sapphire ball lens
BWT-840001205	RIS100-SS-532-08	200	4000	203. 2 mm (8")	12.7 mm (0.5")	Stainless steel shaft and an epoxied sapphire ball lens

## See-Through Probes for i-Raman® Prime or i-Raman® EX



B&W Tek also offers see-through probe with increased penetration depth that can be used with our i-Raman Prime 785 or i-Raman EX (1064 nm) system to identify material through opaque packaging when used with our BWID software. With a large 4 mm diameter measurement area, bulk property measurements of heterogeneous samples can be made.

Model #	BAC102-785-ST	BAC102-1064-ST	BAC102-1064-ST-5M
Part Number	BWT-840000910	BWT-840001006	BWT-840001007
Main Body Material	Aluminum		
Excitation WL	785 nm	1064 nm	1064 nm
Raman Cut-off	150 cm <sup>-1</sup>	100 cm <sup>-1</sup>	100 cm <sup>-1</sup>
Mechanical shutter	Yes		
Rayleigh Rejection	>OD6		
Shaft Material	304 SS		
Shaft Window Material	Flat quartz		
Shaft Length	3" (76.2 mm)		
Shaft Diameter	0.371" (9.42 mm)		
Shaft Operating Temperature	Room Temperature (Max 80°C)		
Shaft Chemical Compatibility	NA		
Fiber Length	1.5 m in total, 1.0 m at common end and 0.5 m on each branch		5 m in total ; 4.5 m at common end and 0.5 m on each branch
Fiber for Excitation (FC/PC terminated)	105 µm core, FC/PC terminated		
Fiber for Collection	300 µm core, FC/PC terminated		
Usage	Large area measurements of heterogeneous solids; see through measurement through barrier layers		



## Zoom Lens Options



Replacing the shaft of a BAC102 probe with an RTS20x series zoom lens allows for stand-off Raman measurement. The lenses have adjustable working distances making them suitable for different environments such as measurement inside thick-walled glass reactors or non-contact high temperature, high pressure measurements.

Model	Part Number	Name	Suitable Raman excitation range, nm	Working distance (adjustable)	Aperture diameter (mm)
RTS200-VIS-NIR	BWT-840000679	Zoom Lens 20-60 mm	500 to 850	20 – 60 mm	23
RTS200-NIR	BWT-840000711	Zoom Lens 20-60 mm NIR	785 to 1064		
RTS201-VIS-NIR	BWT-840000680	Long working distance zoom lens 60 – 600 mm	500 to 850	60 - 600 mm	48
RTS201-NIR	BWT-840000712	Long working distance zoom lens 60 – 600 mm NIR	785 to 1064		
RTS202-VIS-NIR	BWT-840000681	Telescope zoom lens 0.6 – 6 m	500 to 850	0.6 – 6 m	70

*For more information on our probes and accessories for different instrument models, visit our website at **[www.metrohm.com](http://www.metrohm.com)***