

# Quest® ATR Accessory Data Sheet

## The Quest® ATR, a journey into performance and value

The Quest® ATR Accessory is a performance single-reflection ATR accessory from Specac designed for laboratory spectroscopic sample analysis in the mid- and far- infrared. With an innovative optical design and durable monolithic diamond ATR crystal option, this product sets the benchmark in performance and value for ATR Spectroscopy.

In its standard configuration, the Quest® ATR Accessory has a strong and durable monolithic diamond ATR crystal which is ideal for analysing hard inflexible solid materials without risk of being scratched or damaged even for extreme point loads. Coupled with diamond's inherent chemical resilience, this allows the Quest® ATR Accessory to be used with the broadest range of sample types. A 1.8mm diameter diamond sample area means that good contact can be achieved even with the smallest amount of material available for analysis



The Quest® ATR Accessory features an all-reflective optical design, based around Specac's proprietary Synopti-Focal Array technology. This comprises precision-molded aspheric, mirrors and gold-coated optics as standard, and provides the Quest® ATR Accessory with high transmission throughput and an extended wavelength range capability to match that of your mid- and far- infrared FTIR instrument. Together with an optimised angle of incidence on the ATR crystal, these features ensure outstanding quality of spectra.

Four easily-interchangeable crystal pucks are available for use with the Quest® ATR Accessory: a high-throughput diamond puck for mid-infrared analysis (7800 to 400  $\text{cm}^{-1}$ ), an extended wavelength range diamond puck for the mid- and far- infrared (10000 to 40  $\text{cm}^{-1}$ ), a ZnSe crystal puck for softer materials, and a Ge crystal puck for strongly absorbing samples. These ATR crystals are mounted in a durable stainless steel puck and held in place against a robust metal seal to ensure compatibility with a broad range of sample types.

Repeatable and reproducible sample loads are enabled by a full-function pressure tower. This has an audible 'click' to indicate the preset pressure limit, and features a swing anvil arm to allow easy access to the ATR crystal puck. Both plane and pellet anvils are provided with the accessory to allow analysis of samples of various shapes. These anvils are easily interchangeable and stored on the top plate when not in use.

### Key Features

- Strong and durable monolithic diamond
- Extended wavelength capability from 10,000 to 40 wavenumbers
- High spectral quality and high throughput capability
- Interchangeable Diamond, ZnSe and Ge ATR crystal puck options



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## The Benchmark Baseplate™ System

Specac believe that your accessory should be able to be quickly and easily switched from instrument to instrument in your laboratory. To facilitate this we have developed the "Benchmark Baseplate™" system as an interface between the accessory and instrument, and to which the accessory can be fitted with a single thumbscrew fixing. The benchmark baseplate™ is unique to the instrument model being used (a baseplate is supplied with the Quest® ATR Accessory), and can be left in the sample compartment, if required, for the use with other Specac Benchmark compatible accessories. You should specify your spectrometer when ordering your Quest®.

## Ordering Information:

### Complete Quest ATR Accessory

GS10800-X	Quest ATR Diamond Accessory
GS10801-X	Quest ATR Diamond Extended Range Accessory
GS10802-X	Quest ATR ZnSe Accessory
GS10803-X	Quest ATR Ge Accessory

### Please specify spectrometer make & model

#### 'X' represents Top Plate Colour, the colours available are:

B is for Black colour	O is for Orange colour
R is for Red colour	G is for Green colour
Y is for Yellow colour	A is for Aqua colour
P is for Purple colour	

### Quest ATR Puck Only

GS10810	Quest ATR Diamond Crystal Puck
GS10811	Quest ATR Diamond Extended Range Crystal Puck
GS10812	Quest ATR ZnSe Crystal Puck
GS10813	Quest ATR Germanium Crystal Puck

### Spares and Accessories

GS10820	Quest ATR Stainless Steel Flat Anvil
GS10821	Quest ATR Stainless Steel Pellet Anvil
GS10825	Quest ATR Volatiles Cover
GS10707	Purge Bellows (Pair)

## Why is a monolithic diamond important?

'Diamond' ATR Accessories on the market are generally available in two forms: those that feature a solid monolithic diamond and those with a thin diamond wafer supported by an optical element (typically ZnSe). Monolithic diamond ATR accessories are seen to benefit from the inherent robustness and durability of a solid diamond element, and are particularly resilient to high point loads typically encountered when analysing hard irregularly-formed samples. They can also take advantage of the broad transmission window of diamond (10,000 to 40cm<sup>-1</sup>).

Conversely, diamond wafer ATR accessories are seen to be more fragile under point loads can suffer de-lamination from the supporting element, and have a useable transmission range that is often limited by the support material. However featuring a thinner diamond, they also have weaker diamond absorption features at 2000 to 2500cm<sup>-1</sup>.

