

## The Golden Gate System – The World's Most Versatile ATR module



Outstanding sensitivity is achieved using high pressure contact against a solid, type IIIa diamond, selected for its unparalleled sensitivity as a single reflection ATR element together with its unique physical and chemical stability.

The accessory can be used to analyse a range of samples from single particles and fibers to corrosive liquids. While the large working area sample platform is ideal for macro sampling.

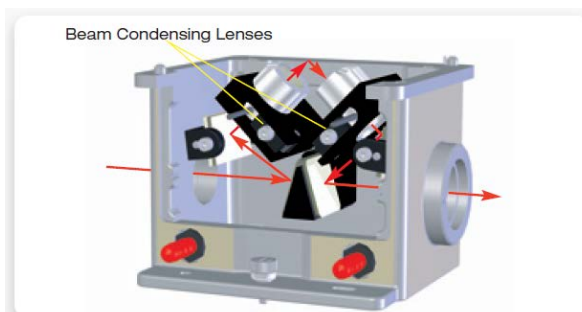
The diamond is high temperature bonded into its tungsten carbide mount, giving performance and strength to withstand the high pressures required for maximum optical contact with hard samples.

The quick lock and release bridge allows for fast sample change around. The built-in pressure control mechanism means reproducible results are obtainable and optimum sample clamping is achieved.

### Schematic of the Golden Gate™ Single Reflection ATR System

The Top-plates of the Golden Gate™ Single Reflection ATR Series are supplied on an optical unit which contains mirrors and a choice of beam condensing optics (ZnSe or KRS-5).

All Top-plates are interchangeable with the optical unit. A schematic is shown opposite of the beam path through the Golden Gate™ optical system. The symmetrical design coupled with the use of the Benchmark™ base-plate system means that the Golden Gate™ can be used in most commercially available FTIR instruments.



### Product Highlights

- High sample throughput - no sample preparation
- Rugged type IIIa diamond ATR metal-bonded into a tungsten carbide mount
- Hard, inert, sapphire self-levelling pressure anvil
- Pressure bridge for highest sensitivity
- A wide choice of available options
- Quick release bridge with safety interlock
- Built-in pressure control for reproducible results

### Applications

- QA on pharmaceutical powders
- Analysis of hard and soft polymer pellets
- Forensic sampling, paint chips and single fibers
- Hard samples, e.g. rock and geochemicals
- Corrosive liquids
- Coated wires
- Air sensitive samples

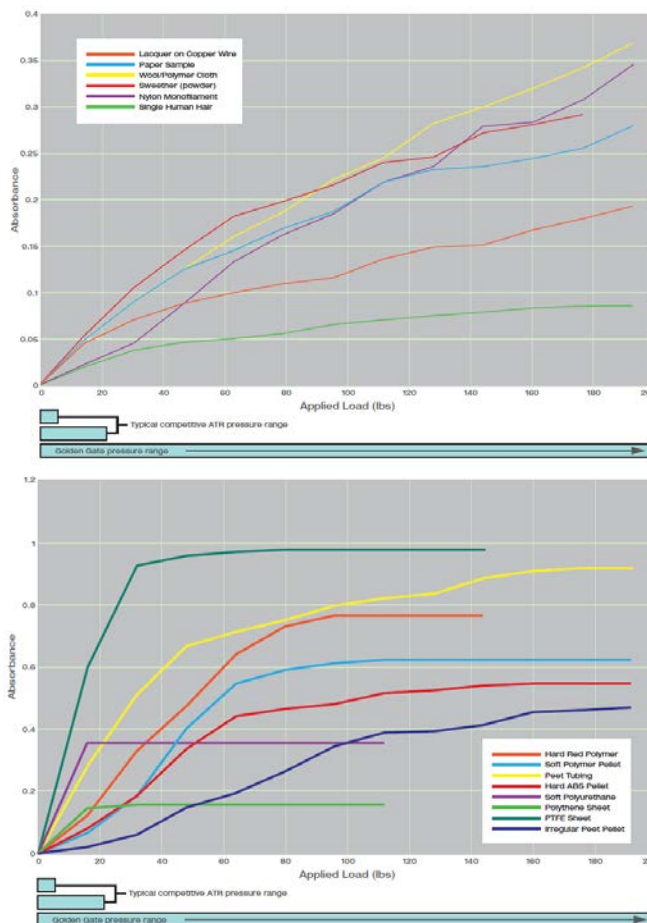
## Reproducibility and Sensitivity of the Golden Gate™ Single Reflection ATR System

A key feature of the Golden Gate™ Single Reflection ATR System is the outstanding contact achievable with solid samples to the diamond crystal. As the load is increased via the bridge clamping mechanism and optical contact between the diamond and the sample increases, there is a critical load at which the optimum optical contact is achieved.

Thereafter, no increase in absorbance intensity is possible and maximum sensitivity of the measurement is achieved.

With accessories capable of applying only small loads there is uncertainty as to whether the maximum optical contact has been achieved. Therefore, sensitivity for the technique is also compromised. In addition, until optimum contact is achieved, there is no control over experimental reproducibility. Low load measuring devices on low load ATR units are not sensitive to changes in the sample properties under applied load.

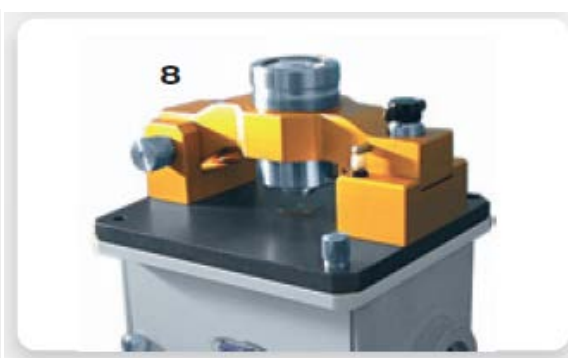
The unique high load capability of the Golden Gate™ Diamond ATR ensures that maximum sensitivity is achieved reproducibly.



## Anvil Options



- (1) is a reactive sample anvil
- (2) & (5) are grooved anvils
- (3) is the standard sapphire anvil
- (4) is the flat stainless steel anvil
- (6) is a pellet anvil
- (7) is a volatile cover
- (8) is a view-thru anvil
- (9) is a flow thru anvil



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