

AT A GLANCE

- ▶ Diamond crystal design
- ▶ High energy throughput
- ▶ Full spectral range for analysis in the mid-IR and far-IR regions
- ▶ Temperature control options, sub-ambient up to 300 °C
- ▶ Optional Ge crystal plate



TEMPERATURE CONTROL
OPTIONS AVAILABLE

The GladiATR is a durable diamond ATR which is widely used in research and general testing laboratories. Its rugged design makes it ideal for use in environments where large numbers of samples are measured, while its configurability offers the flexibility to accommodate a variety of samples.

DIAMOND ATR ELEMENT

The GladiATR diamond crystal is a monolithic prism which will not scratch or fracture even at extreme pressures. This design permits analysis of hard, intractable objects such as coated metal wires, polymer pellets and geological samples without damage to the ATR crystal. The diamond crystal is brazed into the stainless steel or Hastelloy plate, which makes the GladiATR compatible with pressure up to 30,000 psi.

HIGH ENERGY THROUGHPUT

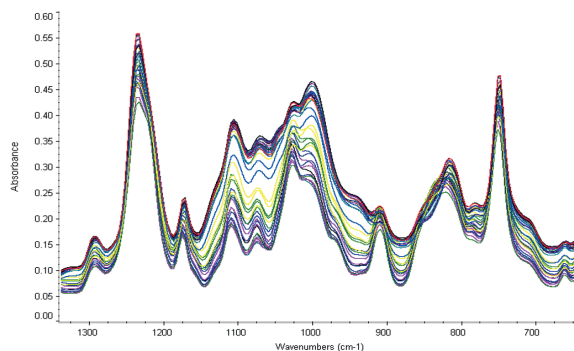
The energy throughput of the GladiATR is exceptional. This significantly improves spectral quality and reduces sampling time. This high-performance ATR is designed and manufactured using all reflecting optics providing full spectral range in the mid-IR and far-IR spectral regions.

GE CRYSTAL PLATE

An optional Ge crystal plate is available for analysis of high refractive index samples, and offers an extended spectral range from 5000–450 cm^{-1} . Crystal plates are easily changeable.

TEMPERATURE CONTROL

Temperature-controlled crystal plates are available for thermal studies. The resistively heated diamond plate has a range from ambient to 300 °C. The temperature controller has a touch-screen panel and is ready to use with PIKE TempPRO software. This program offers a graphical user interface for easy profile set up, and initiates data collection as a function of time and temperature when used with most commercial spectrometers. For sub-ambient studies, liquid jacketed plates are an option, which requires user-provided liquid circulator. The liquid jacketed/heated GladiATR diamond plate blends the benefits of both resistive heating and liquid jacketing.



ATR/FTIR spectra from cure of thermoset epoxy using the heated diamond crystal plate on the GladiATR.



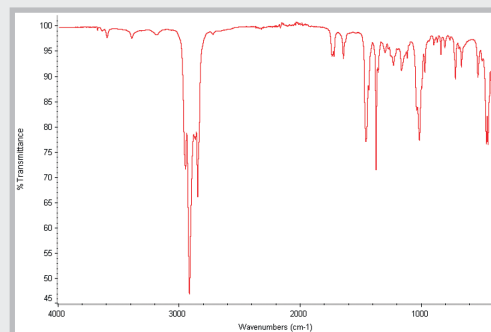
SPECIFICATION

ATR Crystal Choices	Diamond, Ge
Crystal Plate Mounting	User changeable plates
Crystal Type	Monolithic
Diamond Mounting	Brazed
Crystal Plate Housing	Stainless steel
Angle Of Incidence	45 degrees, nominal
Crystal Dimensions (surface)	3.0 mm diameter
Optics	All reflective
Pressure Device	Rotating, continuously variable pressure; click stop at maximum
Digital Force Adapter (option)	Load cell sensor for precise and reproducible pressure control. Attaches directly to GladiATR clamp. Digital readout. For ambient temperature measurements only.
Maximum Pressure	30,000 psi
Sample Access	80 mm, ATR crystal to pressure mount
Spectral Range, Diamond	4000 to 30 cm^{-1} (IR optics dependent)
Spectral Range, Ge	4000 to 450 cm^{-1}
Heating Options	Diamond, 300 °C maximum Ge, 130 °C maximum
Accuracy	+/- 0.5° up to 100 °C +/- 0.5% of set point > 100 °C
Sensor Type	3 wire Pt RTD (low drift, high stability)
Temperature Control	Touch-panel display with USB interface. PIKE TempPRO software for PC control with unlimited ramps and automated data collection.
CE	  
Input	100-240 VAC, auto setting, external power supply
Output	4A/24 VDC, 100 W maximum. 6A/24 VDC, 150 W max. (300 °C version)
Cooling Options	Liquid jacketed crystal plates available
Specular Reflection Option	Optional, 45 degree nominal angle of incidence
Purge Sealing	Purge tubes and purge line connector included
Accessory Dimensions (W X D X H)	140 x 205 x 340 mm (excludes FTIR baseplate and mount)
FTIR Compatibility	Most, specify model and type

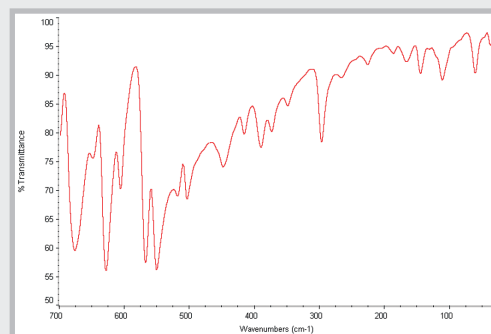


APPLICATION

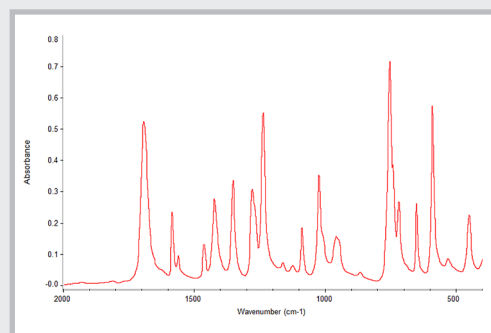
The GladiATR is a robust ATR accessory that may be configured with a full spectral range diamond or an extended-range Ge crystal. Measurements may also be made at sub-ambient temperatures using the liquid jacketed plates and up to 300 °C using the resistively heated diamond plate.



Polymer pellet spectrum collected using GladiATR with diamond crystal. Spectral range in the mid-IR is 4000–400 cm^{-1} .



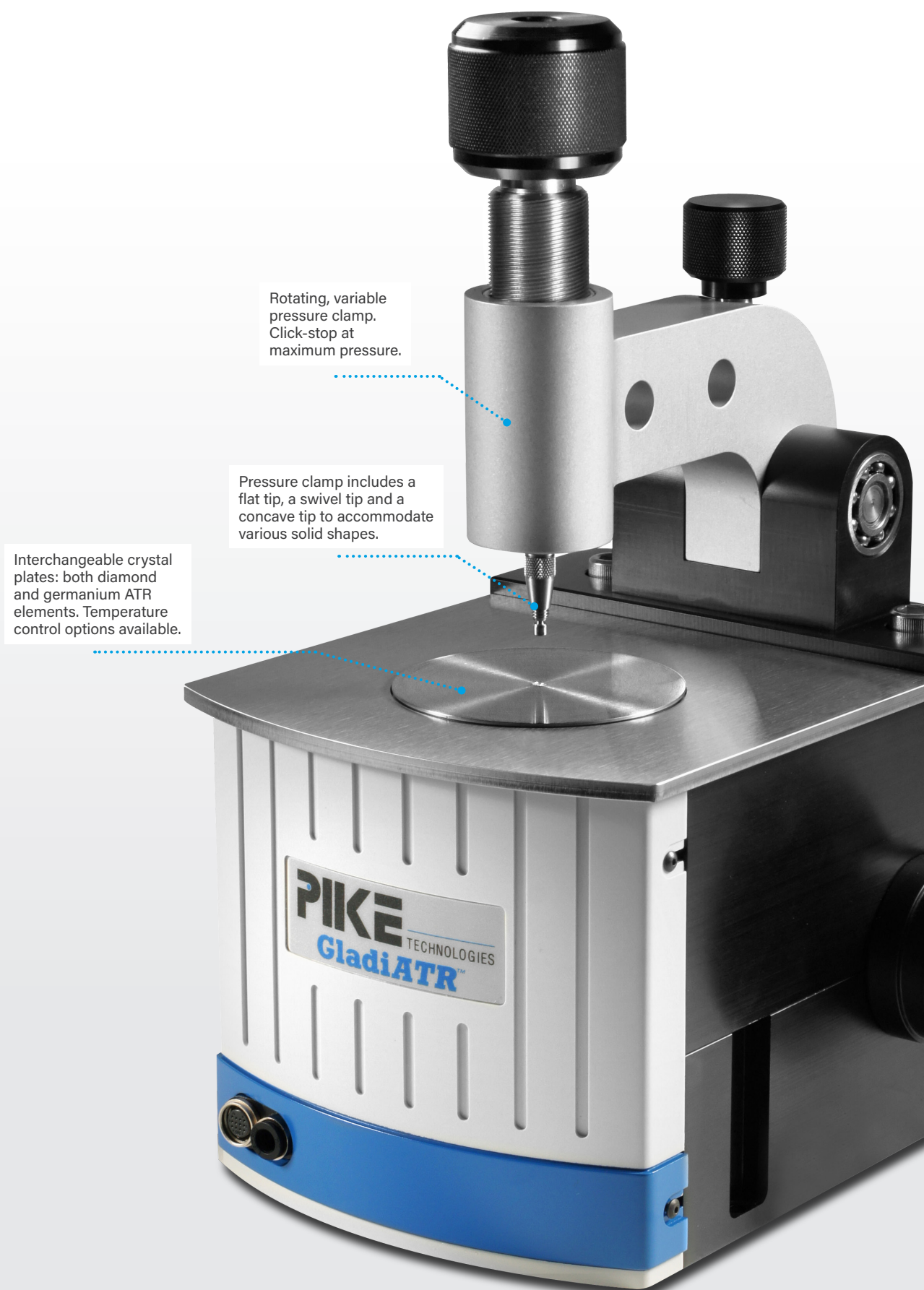
Sulfathiazole spectrum collected using GladiATR with diamond crystal plate and far-IR optics in an FTIR instrument.



Bromoacetophenone spectrum collected using GladiATR with extended range Ge crystal plate.

PART NUMBER	DESCRIPTION
Base Optics (<i>must select</i>)	
026-18XX	GladiATR with heating capability up to 300 °C Notes: Replace XX with your spectrometer's Instrument Code listed in the back of the catalog. All GladiATRs include purge tubes, purge kit, and selected spectrometer base mount. Crystal plates must be selected from the table below. High-Pressure Clamp, Digital Force Adapter and Liquids Retainer/Volatiles Cover are optional and need to be ordered separately, if required.
GladiATR Stainless Top (<i>must select one</i>)	
026-2001	GladiATR Standard Stainless Top Note: Stainless top is not required for temperature controlled plates.
Crystal Plates for GladiATR (<i>must select one or more</i>)	
026-2100	Diamond Crystal Plate
026-2050	Ge Crystal Plate
026-2200	Specular Reflection Plate Notes: GladiATR crystal plates are pre-aligned and pinned-in-place. Changing crystal plates is easy and fast to optimize sampling results. Plate housing is stainless steel; contact us for Hastelloy options. Reconditioning service is available.
Pressure Clamp for GladiATR, All Models (<i>must select for solid or powdered samples</i>)	
026-3020	High-Pressure Clamp
076-6026	Digital Force Adapter for High-Pressure Clamp Notes: The High-Pressure Clamp is required for analysis of solids, powders and use of Liquids Retainer, Flow-Through Attachment and/or Digital Force Adapter (Digital Force Adapter may be used when measuring samples at ambient temperature only). Pressure clamp includes a flat tip, a swivel tip and a concave tip.

PART NUMBER	DESCRIPTION
GladiATR Temperature Controlled Crystal Plates	
026-4102	Heated Diamond Crystal Plate, 300 °C
026-4119	Liquid Jacketed/Heated Diamond Crystal Plate
026-4115	Liquid Jacketed Diamond Crystal Plate
026-4121	Heated Ge Crystal Plate, 130 °C
026-4131	Liquid Jacketed Ge Crystal Plate, 130 °C
076-1610	Digital Temperature Control Module
007-0207	PIKE TempPRO Software Notes: Ge becomes optically opaque at 150 °C; maximum operating temperature for this crystal is 130 °C. Temperature controller is required for heated crystal plates. If PC control is desired, TempPRO software must be purchased (sold separately). Liquid jacketed crystal plates require customer-provided circulator.
GladiATR Sampling Options	
025-3099	Tip Assortment for High-Pressure Clamp
025-3095	Flat Tip for High-Pressure Clamp
025-3093	Swivel Tip for High-Pressure Clamp
025-3092	Concave Tip for High-Pressure Clamp
026-5014	Flow-Through Attachment, 300 °C, 100 µL
026-5013	Liquids Retainer and Volatiles Cover Set
026-5015	Liquids Retainer and Volatiles Cover Set, 300 °C Note: Flow-Through Attachment and Liquids Retainer are compatible with all crystal plate offerings (require High-Pressure Clamp).



Rotating, variable pressure clamp. Click-stop at maximum pressure.

Pressure clamp includes a flat tip, a swivel tip and a concave tip to accommodate various solid shapes.

Interchangeable crystal plates: both diamond and germanium ATR elements. Temperature control options available.