

# ReactorMAX – High Temperature, High Pressure Horizontal ATR Accessory



## FEATURES

- Selectable angle of incidence from 25 to 65 degrees
- 0.5 to 10 micron depth of penetration – dependent on crystal material, angle of incidence, sample's refractive index and wavelength of IR beam – ideal for depth profiling studies
- 3 to 12 reflections of IR beam – dependent upon angle of incidence – ideal for optimizing ATR sampling methods
- Variable temperature control to 215 °C
- Sealed sample chamber for pressures to 55 bar
- Optional in chamber stirrer (*shown above*)
- Automated incidence angle control and TempPRO™ software for high-precision experiments

The PIKE ReactorMAX is a fully automated, variable angle ATR accessory equipped with a temperature-controlled pressure vessel. The design employs a unique optical layout of the ATRMax (U.S. patent 5,105,196), which enables samples to be analyzed over a range of incident angles. Variable angle of incidence provides experimental control over the depth of penetration of the IR beam into the sample and the number of beam reflections in the ATR crystal. Integrated reaction vessel may be pressurized up to 55 bar and heated to 215 °C. Optional stirring is available.

The ATR crystals for the ReactorMAX are of trapezoidal shape and 56-mm long, 10-mm wide and 4-mm thick. Standard bevel angles at each end of the crystal are available in 30-, 45- and 60-degree versions. Coupling the variable angle of incidence of the ReactorMAX with the variable crystal face angles, one can select effective angle of incidence ranging from 25 to 65 degrees and the range in number of reflections from 3 to 12. AMTIR 45-degree ATR

crystal having a pH tolerance from 1-9 is the standard; contact PIKE for other crystal material options.

The control of angle selection, temperature and stirring speed is automated and integrated into PIKE software. Automation streamlines experimental protocols; the entire experiment can be pre-programmed and executed by the computer. Advantages of the automated features include:

- Computer controlled precision, accuracy and repeatability,
- Synchronization of mirror position changes with collection of sample spectra
- Full integration of the PIKE Technologies software with most FTIR spectrometer programs for data collection
- Tailor-made, predefined experiments
- “Hands-free” operation

## SPECIFICATIONS

Max. Operating Pressure	55 bar
Max. Operating Temperature	215 °C
Max. Temperature	250 °C
Spectral Range	3600 - 800 cm <sup>-1</sup>
Path Length range	5 – 20µm with sample refractive index approx. 1.3 – 1.6
Reaction Chamber capacity	< 50mL
Dimensions (W x D x H)	229 x 152 x 610 mm
Total weight	15.65 kg

## ORDERING INFORMATION

### REACTORMAX

PART NUMBER DESCRIPTION

023-13XX	ReactorMAX with Stirring <i>Includes base optics, reactor vessel with stirring, 45-degree AMTIR ATR crystal, controller, cabling, and software.</i>
023-14XX	ReactorMAX <i>Includes base optics, reactor vessel, 45-degree AMTIR ATR crystal, controller, cabling, and software.</i>

Notes: replace **XX** with your spectrometer's Instrument Code listed on page 191. Contact us for alternative ATR crystal material options.

### REPLACEMENT PARTS

PART NUMBER DESCRIPTION

160-5566	Crystal 45°, Trap. 56 x 10 x 4 mm, AMTIR
160-5574	Crystal 60°, Trap. 56 x 10 x 4 mm, AMTIR