

Fiber Optic ATR-Probes for Harsh Environment



art photonics

FlexiSpec®

High throughput in Mid Infrared-spectra

ATR-tip shaped for immersion
in liquid flow without dead zone

Robust for industrial applications
in harsh environment up to 250°C

Resistant to high pressure

Compatible with any spectrometer

FlexiSpec® probes from art photonics include Attenuated Total Reflection (ATR-) probes designed for harsh application conditions. HT-ATR immersion IR-fiber probes can be used for process-spectroscopy in Near & Mid IR range to monitor reactions in-line in a broad temperature range from -100° to +250°C. They can resist to high pressures up to 200Bar and used with FTIR or any other IR-spectrometers and sensors in automated process control with process-interfaces

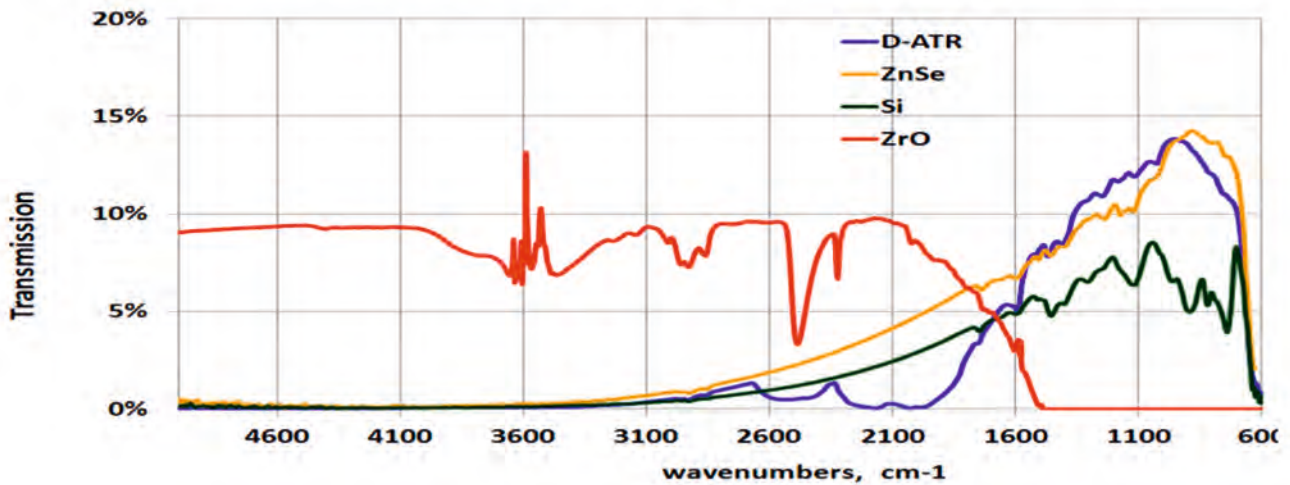
Applications:

- Remote Reaction Monitoring in-line in temperature range -100/+250°C
- PAT applications in lab, pilot plant or industry with process-interfaces for automated process control
- Polymerization Process Control
- In-situ IR-Spectroscopy for PAT in Chemical, Petrochemical, Atomic, Biopharmaceutical & Food Industry

broad spectra fiber solutions

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Transmission spectra of ATR probes. Probe length 1.5m

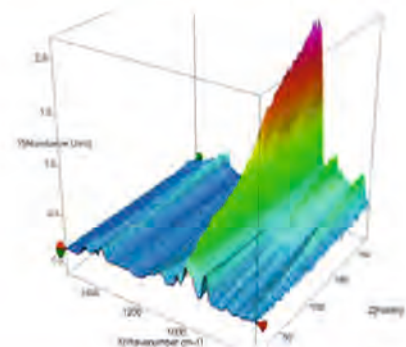
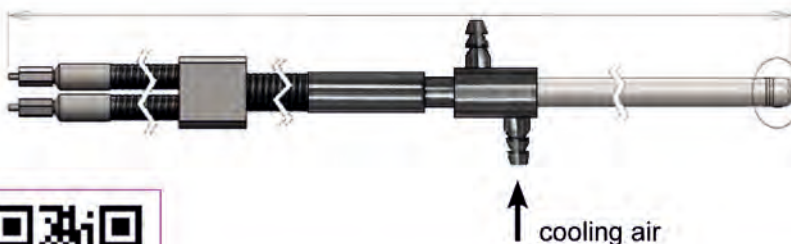


Specification of IR-Fiber HT-ATR-Probes for High Temperatures *FlexiSpec*[®]

| Probe type | Diamond ATR | Silicon | Cubic Zirconium ATR |
|--------------------|---|--------------------------------------|--|
| Transmission range | 5.2-17µm (600-1900cm ⁻¹) + 3.2-4.5µm (2300-3100cm ⁻¹) | 5.2-17µm (600-3100cm ⁻¹) | 1.1 - 6.5µm (1550-6650cm ⁻¹) |
| Fiber type | PIR-900/1000 Silver Halide | PIR-900/1000 Silver Halide | Chalcogenide glass (As-S) |
| Temperature range | -100°C / + 250°C | -100°C / + 250°C | -100°C / + 200°C |
| Pressure (max) | 200Bar | 100Bar | 100Bar |

Common Parameters of HT-ATR-Probes for High Temperatures *FlexiSpec*[®]

| | |
|-----------------------------|---|
| Total Length | 2m (opt. up to 5m)* |
| Shaft Length | 300 mm (opt.: 300-700 mm)* |
| Shaft Diameter | 12mm |
| Shaft Material | Hastelloy C22 |
| Length of Legs | 500mm (opt.: 300mm to 500mm) |
| Protective Tube Material | Liquid Tight SS-Conduit, KOPEX-Tube |
| Minimal Bending Radius | 130mm |
| Input / Output Connectors | Long SMA (opt.: any other type) |
| Cooling Air Flow Parameters | Excess pressure 0.5Bar, Flow 2300l/h |
| Inner temperature control | Inside the shaft to control ATR tip temperature |



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