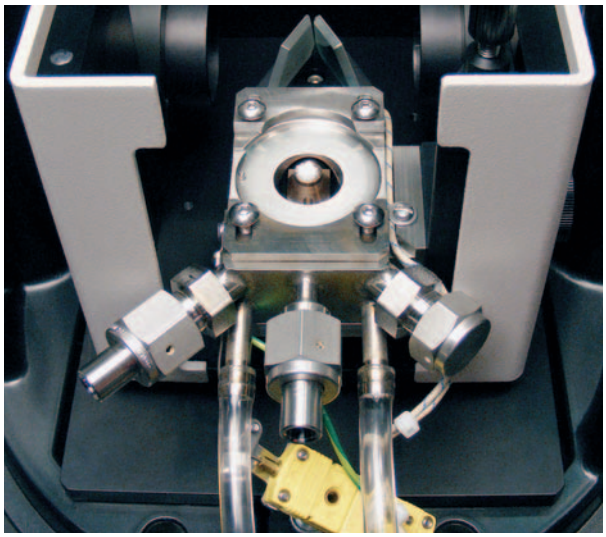
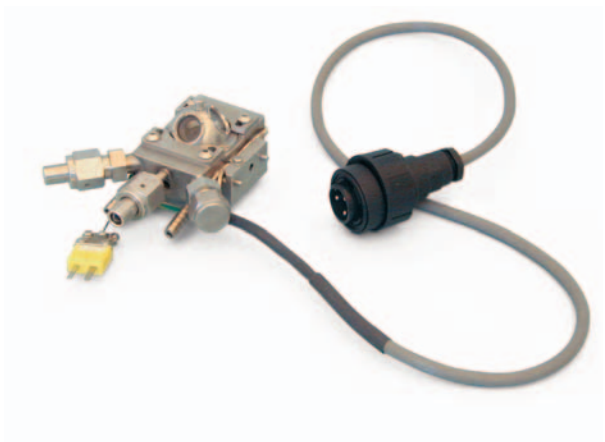
Perform *in-situ* UV-Vis measurements on your solid samples under controlled atmosphere or reaction conditions up to 910 °C and 34 bar.

Product Specifications

Thermo Scientific High Temperature and Pressure Reaction Chamber

Praying Mantis diffuse reflectance accessory in Evolution 300 and 600 spectrophotometers





The high temperature reaction chamber attaches to the Praying Mantis diffuse reflectance accessory for the Thermo Scientific Evolution 300 or Evolution 600 UV-Vis spectrophotometer. Diffuse reflectance electronic spectra give you access to information on:

- Electronic states in semiconductors
- Changes in oxidation state under catalytic conditions
- Changes in electronic structure as a function of temperature
- Coking rates
- Presence of adsorbed species with conjugated double bonds or phenyl rings that absorb in the ultra-violet range

Configured for the Most Common Applications Right Out of the Case

The high temperature reaction chamber ships with a dome with three quartz windows for use in the UV-Visible range. This dome has 2 mm thick windows and will withstand pressures from 0.1 mPa to 3 bar and temperatures up to 910 °C. The chamber is supplied with two each of three sizes of metal screen. Your sample mounts on top of the metal screen.

The reaction chamber has three gas ports for evacuating, pressurizing, or flowing gas through the sample. These ports are equipped with 1/4" VCO fittings. The central port leads directly under the sample cup; the other two lead into the sides of the chamber.

The chamber is designed for operation up to 910 °C under vacuum. The pressure range is from high vacuum to 34.4 bar (the high pressure dome is required for pressures above 3 bar). At higher pressures, the maximum operating temperature may be lower.

The high temperature reaction chamber is made of chemically resistant 316 stainless steel. Within the chamber is a temperature-controlled sample stage with integral sample cup. This stage incorporates a cartridge heater and a thermocouple. It is thermally isolated from the outer chamber wall. A water-cooling jacket controls the temperature of the outer surface of the chamber and windows during high temperature operation.

The chamber is enclosed by a dome with three windows, two for the spectrophotometer beam to enter and exit the chamber and the third for viewing, illuminating, or irradiating the sample. This enables the use of the reaction chamber for photochemical studies. For UV-Vis operation, the standard material for all windows is UV quartz. If you wish to use the chamber in a FT-IR spectrometer, a dome with IR transparent windows, such as ZnSe, is required.

Optional High Pressure Dome for Extreme Conditions

An optional high pressure dome equipped with 4 mm thick windows allows the chamber to be used at pressures up to 34.4 Bar.

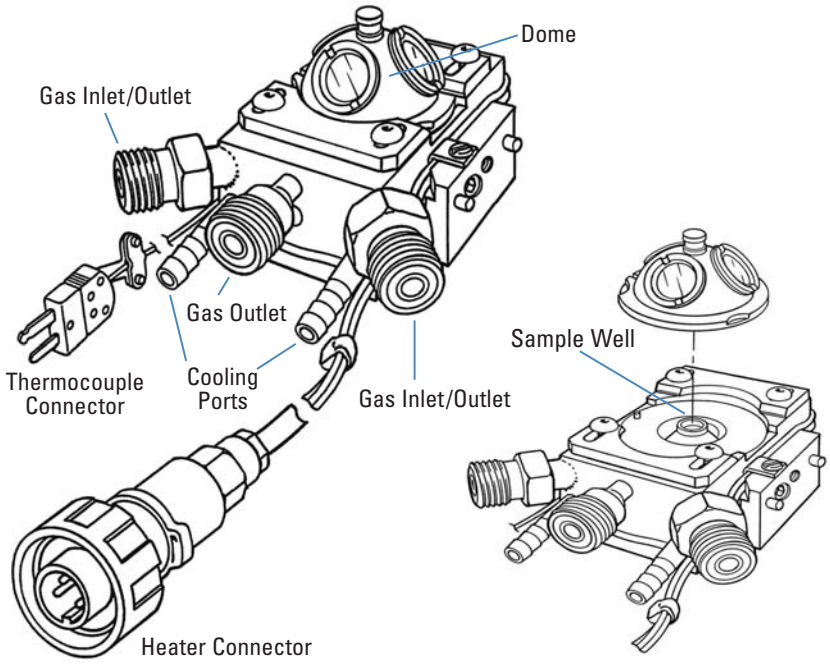
Product Specifications

Your Choice of High Quality Materials to Suit Your Experimental Needs

For corrosive gas or catalyst material applications, a Kalrez® O-ring is available for the seal and/or a SilcoTek™ coating can be applied to the interior steel surfaces of the chamber to improve chemical resistance.

Compatible with Your Thermo Scientific FT-IR Spectrometer

All you need to record DRIFTS spectra on your FT-IR is a second dome with IR transparent windows for your high temperature reaction chamber and an installation conversion kit to enable your Praying Mantis to be installed in your FT-IR. These items are all available directly from Thermo Fisher Scientific.



Specifications

Housing Material		316 Stainless Steel
Window Material	Standard dome, maximum pressure 3 bar High pressure dome, maximum pressure 34.4 bar	2 mm quartz, 4 mm quartz
Volumes	Total chamber and pipe volume Volume of each fitting and pipe	14 mL Approximately 0.7 mL
Temperature Range	Ambient to 910 °C*	
Optional Design Features	Chemically inert O-rings Corrosion resistant coating for steel	Kalrez SilcoTek *(formerly Restek)*

** Note: The lifetime of the heater is significantly reduced at temperatures above 450 °C.*

Ordering Information

Recommended system for 0-3 atm.	**Part Number**
Evolution™ 300 PC controlled spectrophotometer with VISION*pro* software	10300201
Praying Mantis diffuse reflectance accessory with Evolution base	222-220000
High Temperature Reaction Chamber with quartz windows	268-833100
110 V Automatic Temperature Controller for Praying Mantis reaction chambers	268-833300
220 V Automatic Temperature Controller for Praying Mantis reaction chambers	268-833400

Optional Accessories and Spares

High pressure dome with quartz windows for pressures to 34.4 bar	268-833500
Replacement screen set for reaction chamber	268-833700
VCO to Swagelok® conversion fitting	222-261600
Replacement cartridge heater for Praying Mantis reaction chambers	268-834100

Conversion Items for Use in a Thermo Scientific FT-IR Spectrometer

Conversion kit for Praying Mantis installation	268-833600
Low pressure dome with ZnSe windows for pressures to 3 bar	268-833900
High pressure dome with ZnSe windows for pressures to 34.4 bar	268-834000

Thermo Electron Scientific Instruments LLC, Madison, WI USA is ISO Certified.

PS51812_E 10/09M

Africa-Other +27 11 570 1840
Australia +61 2 8844 9500
Austria +43 1 333 50 34 0
Belgium +32 2 482 30 30
Canada +1 800 530 8447
China +86 10 8419 3588
Denmark +45 70 23 62 60
Europe-Other +43 1 333 50 34 0
Finland/Norway/Sweden +46 8 556 468 00
France +33 1 60 92 48 00
Germany +49 6103 408 1014
India +91 22 6742 9434
Italy +39 02 950 591
Japan +81 45 453 9100
Latin America +1 608 276 5659
Middle East +43 1 333 50 34 0
Netherlands +31 76 579 55 55
South Africa +27 11 570 1840
Spain +34 914 845 965
Switzerland +41 61 716 77 00
UK +44 1442 233555
USA +1 800 532 4752
www.thermo.com

Thermo SCIENTIFIC