

# Special Fiber Assemblies and Probes

For some applications a very specific fiber or probe is needed. Avantes has almost 20 years of experience in designing the custom probes for unique applications. Avantes has significant expertise in designing fiber-optics for high temperature (HTX), high pressure (HP), vacuum and other difficult conditions. Avantes wide variety of standard and custom materials can be configured to provide a fiber assembly which can meet the challenges of your environment.

Below are some examples of our special designs. Please contact us to discuss your needs.

## High temperature UV/VIS/NIR probe with gas connection

The universities of Bochum (Germany) and Utrecht (The Netherlands) approached us with a problem doing high temperature measurements at low pressure of dehydrogenation of propane: an ideal situation for the creation of cokes. Therefore every time the probe was contaminated with coke residue on the tip, meaning they could only do a single test after which they had to replace the probe.

Avantes responded by designing this high temperature probe. It's resistant to temperatures of 700 degrees centigrade or more and features a connection for gas insertion into the probe. So far, during one test the probe was used over 150 hours continuously, with temperatures of 550-600 degrees. The gas used was nitrogen. The result was a clean tip, re-usable probe and very happy customers.

## Chemical resistant reflection probe

In chemical environments, standard reflection probes have a huge disadvantage: many chemicals interfere with the glue used to construct the probes. This version eliminates this disadvantage: all connections are mechanical, sapphire windows and o-rings are used. The material used is stainless steel 310, which is chemical resistant as well.

A reflection probe is inserted into the back of this probe: it serves as a protective sleeve. The path length is variable and up to 30 mm.

