



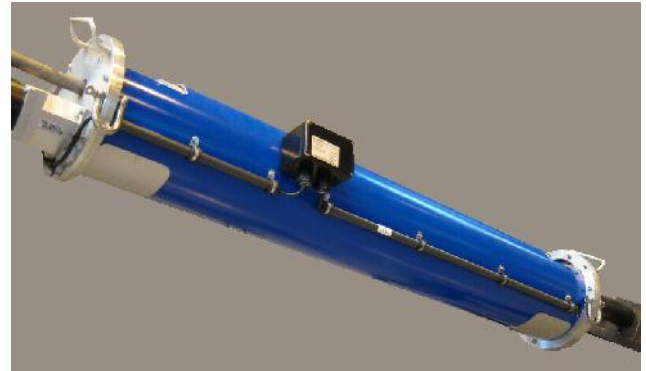
# Large Two Axis Traverse System

## Description

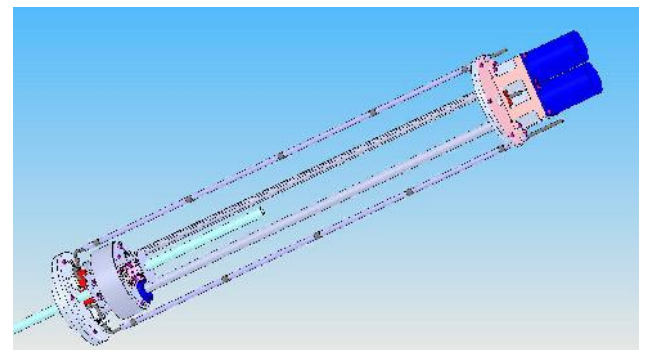
Design and manufacture of a 1000 mm, Radial and Yaw Traverse Tower System to accurately position high temperature aerodynamic probes for testing a power generation, industrial gas turbine. The design was a major adaptation of the Quadratic standard Probe Traverse System, to suit the customer's much larger stroke and load requirements. Stepper motors, radial and yaw drive components were significantly increased in size.

Finite Element Analysis was utilised to check the maximum overall stiffness, frequency and stress levels of the Traverse System and Probe at different mounting angles and to minimise interference between the probe shaft and the casing seal.

The main Traverse Yaw mechanism was mounted inside a cylindrical, closed housing, instead of the more usual open design, thus significantly increasing stiffness for a given mass and cost. The Traverse was ATEX Zone 2G, Cat 3 rated and supplied with a 2 axis, 19" rack mounted Stepper Control Cabinet and 30 m cables.



*Large 1000 mm Two Axis Traverse*



*3D CAD Model showing Drive System*

## Specification Summary

- Radial traverse positional accuracy =  $\pm 0.25$  mm
- Yaw traverse positional accuracy =  $\pm 0.25$  deg
- Typical radial axis traverse rate = 25 mm/s
- Max radial axis traverse = 1000 mm
- Typical yaw axis traverse rate = 30 deg/s
- Yaw axis traverse range =  $\pm 180$  deg

## Disciplines Used

- Mechanical and electro-mechanical design, Finite Element Analysis, manufacture, assembly & test



*Yaw Module with 'dummy' probe*