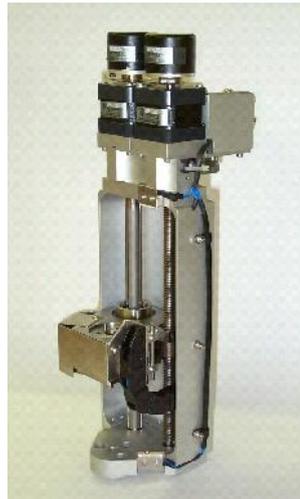




Two Axis Traverse System

Description

Quadratic has designed a number of traverse systems with both radial and yaw axes, to position aerodynamic probes. Designs can be adapted to suit the customers specification, but a typical system is described below. The probe is fitted on to the yaw module carriage, which traverses both up and down the actuator, via the radial drive, and rotates, via the yaw drive. The radial axis consists of a carriage driven by a ball-screw and supported by a secondary splined shaft. A stepper motor directly



Standard Configuration



Yaw Module Close-up

drives the lead-screw or via a toothed belt arrangement, with incremental encoder position feedback. A splined shaft rotates the yaw axis module on the carriage, via a unique metal band drive system, which eliminates backlash. The shaft is again, either directly driven by a stepper motor and harmonic drive or via a toothed belt with, again, incremental encoder position feedback. The actuator typically connects to the drive system by a single, multi core, flying lead cable that is approximately 500 mm to 15 m long (with extension leads) with a 32 way cable mounted plug connector. The control system is generally supplied in a 19" rack-mounted housing and LabVIEW PC based control and DAQ software.

Specification Summary

- Angular yaw traverse positional accuracy = ± 0.1 deg
- Linear traverse positional accuracy = ± 0.1 mm
- Angular yaw traverse half step resolution = 0.018 deg
- Linear traverse half step resolution = 0.0025 mm
- Max radial load capability = 500 to 800 N
- Max yaw axis torque capability = 8 to 10 Nm
- Max radial load traverse rate = 10 mm/s
- Max no load radial traverse rate = 25 mm/s
- Max yaw axis torque angular traverse rate = 15 deg/s
- Max no load yaw angular traverse rate = 25 deg/s



Mini Configuration for Restricted Space Applications