Data Sheet

Three Axis Traverse System

Description

Based upon our standard 2 axis aerodynamic probe traverse systems with radial and yaw axes, this 3 axis traverse system uses our well established concept mounted to a third pitch axis. The design of the system is modular and the linear axis range can be designed from 100 mm to in excess of 200 mm. The motor drive and encoder locations can be re-arranged to suite different space envelopes and there is provision for applying pressurised air into a sealing chamber between the actuator and vehicle under test, if required. The concept and specification of the two axis (radial and yaw) system is discussed in detail within our Two Axis Traverse System Data Sheet, which is available on request.

The traverse third axis pitch mechanism consists of two side plates with circular arc rails and linear bearings for precision guiding. A similar motor and encoder system to the other axes is then used to drive the pitch axis through a geared drive system. This is generally a precision, low or anti-backlash worm gear. The side plates are then mounted to the main base of the traverse, which also house the seal for the probe. This consists of a spherical surface, close clearance seal, inside a housing, with a close clearance hole through the centre for probe access. The control system is supplied in a 19” rack-mounted housing with LabVIEW PC based control and DAQ software.

Specification Summary

- Max probe dia = 12.7 mm
- Radial axis range = 50 to 200 mm
- Radial axis accuracy = +/- 0.1 mm
- Radial axis maximum speed = 25 mm/s
- Max radial load capability = 500 to 800 N
- Yaw angular range = +/- 180 deg
- Yaw angular accuracy = +/- 0.1 deg
- Yaw angular maximum speed = 25 deg/s
- Max yaw axis torque capability = 8 to 10 Nm
- Pitch angular range = +/- 5.0 deg
- Pitch angular accuracy = +/- 0.1 deg
- Pitch angular maximum speed = 10 deg/s
- Max operating temperature = 50 to 60 deg C

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