
TCP/IP Servos Improve Ball Joint Seal Tester

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TCP/IP-compatible servo drives from Baldor Electric Company have simplified the construction of an innovative automotive component tester.

Developed by a leading builder of structural and custom test equipment, Dynamic Testing & Equipment (DTE), the new machine fully automates the accelerated life testing of the flexible boot seals used to protect ball joints in automobile steering assemblies. The use of programmable AC servos - instead of conventional hydraulic actuators - provides an unprecedented level of control flexibility, enabling test parameters such as joint articulation angles to be varied on the fly.

Capable of testing up to six boot seals simultaneously, testing regimes can include continuous articulation of the ball joints, hot and cold brine sprays, elevated humidity levels and air temperature cycling from -25 to +80 degrees Celsius.

DTE's boot seal testing machine employs two motorized movement axes - one vertical and one horizontal - each driven by a Baldor MotiFlex e100 3-phase servo drive and servomotor fitted with a multi-turn absolute encoder. The precise feedback signals enable both axes to be programmed to absolute zero, facilitating optimal positioning of the machine's tooling for parts loading and unloading, and ensuring ease of start-up.

The servo drives are connected via industry-standard Ethernet to the test machine's host computer, which runs National Instruments' LabVIEW software, and are controlled via TCP/IP using the built-in ActiveX commands in Baldor's Mint programming language.

According to DTE machine designer Glenn Siddens, "We were looking for servo manufacturers who could support ActiveX. Baldor was also able to supply 3D CAD files for the motors. As we use SolidWorks' 3D CAD software for much of our design work, the availability of these files was a major time-saving advantage. What's more, Baldor has proved to be extremely supportive. As well as helping us with ActiveX/LabVIEW integration, applications specialists from the company visited our facility on several occasions to help set up and fine-tune the servo systems."

Designed primarily for automotive component manufacturers, DTE's boot seal testing machine can be used to influence component design, or to demonstrate conformance with end customers' performance standards.