

Glass Maker Sees A Clear Opportunity for Improvement

A leading glass product manufacturer designed and built a shearing distribution system that was used to precisely measure and shear specific amounts of molten glass for a finished glass component. The original design of the equipment employed a hydraulically actuated shearing mechanism that was not accurate enough to cut consistent amounts of molten glass to produce high quality glass components.



This problem became even more evident when the customer increased the throughput capacity of the shearing system. The hydraulic system was also subject to fluid leakage and too frequent failures, causing maintenance headaches and unacceptable downtime.

The manufacturer selected Torque Systems to solve their problem. Application requirements were extreme: The servomotor must drive a blade to precisely shear the molten glass and operate with an extensive mean time between failure. It must operate in a 100°C environment for 45000 hours before maintenance. It must also fit into a predefined envelope because it was to be retrofittable into existing shearing distribution systems.

The solution was a "clean sheet design" to meet the difficult requirements. Torque Systems developed custom electromagnetics for this application. The design took advantage of advanced material technology and custom windings to produce a very high torque density brushless motor. A custom cooling arrangement, shaft and mounting configuration was also designed in. The result: A specialty servomotor that could reliably operate in, and physically fit into the harsh environmental conditions of the shearing distribution system so that the manufacturer could produce consistent, high quality glass components with significant improvements in operating cost.