

Newall Helps Improve Performance MJC Engineering



MJC Engineering and Technology, Inc., Huntington Beach, CA, is a world leading builder of CNC spin forming machines, typically used for tube spinning and steel and aluminum pressure vessel production up to 24" in diameter. The company also retrofits spin forming machines and builds production-based specialty equipment. Industries served include Aerospace, Military applications, Natural Gas and Commercial applications. Their machines make everything from scuba tanks, compressed natural gas fuel tanks, paint ball cylinders, pots and pans, wheel rims and cowlings for jet engines.

All of MJC's machines are hydraulic due to the high amount of pressure required at the tool tip, which forms the vessel being manufactured into a seamless part. Tool pressures up to 5,000 lbs. of force to spin vessels up to 24" in diameter are not uncommon. The two axes of tool movement require exact positioning accuracy from the CNC control system, which uses linear encoders for position feedback. Newall linear encoders were selected by MJC as the standard encoder of choice for this job.

Newall SHG (Spherosyn Digital) and MHG (Microsyn Digital) linear encoders were chosen for several reasons. The application requires .0001" linearity over 24". The Magnetostrictive encoders they used previously were not accurate enough. Also, the encoders can be exposed to a dirty, wet, extremely harsh environment. Exposure to chip trimming, flood coolant and debris from torch operations are typical. Shock and vibration involved in the metal spinning operation can also be detrimental to certain types of linear encoder technologies. Only Newall Spherosyn (SHG) and Microsyn (MHG) linear encoders offered the combination of accuracy and resolution to maintain the machines positioning tolerances, combined with the inherent robustness and ruggedness to withstand the harsh machining conditions.

- The Problem / Challenge: Magnetostrictive position sensors, often used for hydraulic cylinder applications, do not offer high enough resolution and accuracy for the application. Because of the accuracy required, accumulative error with these encoders is a problem. Glass scales are too delicate for the dirty and wet environments the encoders are subjected to, where shock and vibration are also a factor.
- The Solution: Newall's linear encoders provide the resolution, accuracy and linearity required along with the shock, vibration and coolant/debris resistance necessary for the application.
- Control Device Used: Siemens 840Di Control / 611 axis drive.
- Newall Products Used: SHG and MHG encoders with SCC100 interface.
- Market Served: Machine Tool / Metal Forming.

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