Torque Control in Manufacturing for Increased Productivity, Quality, Safety, and Ergonomics

Abstract:
DC torque tools are widely used in manufacturing areas such as automotive, aerospace, medical devices, farm equipment, and other fastening industries. Bolt fastening is one of the most economical and simplest forms of assembly. Other methods include welding, gluing and riveting. Bolt fastening is a simple design, uses standardized elements, easily assembled and disassembled, highly productive, and cost-efficient. They are found in almost all industrial activities: chemical process plants to jet engines and laptop assembly to name a few. What are the elements of a mechanical joint? Typically, they are bolt, nut and joining parts.

One of the critical items of torque fastening is the clamping force, the stretching of the bolt/screw. There are several joint types in fastening but the most common are soft joint and hard joint. The ability to know the joint type is crucial to having a proper clamp load. There are assembly challenges that affect quality and production efficiency. The most effective procedure to overcome these challenges and fastening errors is to use torque control. A more controlled torque process is to add a second variable-angle to the torque monitoring process. Using both torque and angle monitoring helps detect failures early on the fastening process eliminating costly repair later on. We will demonstrate these aspects with our Atlas Copco MicroTorque 6000 demonstration.

D’Andreti Bio:
D’Andreti has worked in industrial automation for nearly 40 years. He began his career as a field service engineer with a robotic circuit board automation company. D’Andreti joined Palma Company about two years ago, and started selling Atlas Copco fastening torque tools.

Linstrum Bio:
Linstrum has been in the industrial manufacturing industry for nearly 10 years. He started as a marketing and sales manager for a lead-edge welding manufacturer. Most recently, Linstrum served as a regional sales manager for Atlas Copco in the Northeast. Atlas Copco’s focus is to educate customers on the latest technology in industrial fastening with advanced error-proofing strategies and industry 4.0 data-driven initiatives.