

STANLEY
Engineered Fastening



Case Study

Precision Torque Control Enhances Safety & Quality
For A Heavy Machinery Manufacturer



Case Study Torque Control System Provides Peace Of Mind For A North American Manufacturer

A major heavy machinery manufacturer faced significant challenges in the critical process of assembling air chamber fittings for their braking system.

Previous Assembly Solution

The company previously relied on impact pneumatic tools, which offered no quality data collection or process control. This lack of precision often led to safety risks from improperly tightened fittings, posing serious concerns for the reliability of the braking system.

Customer Challenges

The company needed a solution for clear visual feedback on torque quality, traceability for each operation, and to meet constraints for two lines with moving conveyors, handling four fittings per line with a 30-second takt time per piece.

The STANLEY Solution Value

Partnering with STANLEY Assembly Technologies, the manufacturer installed the **SAT® B-Series Cordless Tools** with an **SAT® SC Controller and Alpha Toolbox Software**, transforming the assembly line operations. As each piece of the braking system entered the station, it was scanned for identification. Operators then performed two precise torque passes on each fitting, using threaded tools pre-set to the correct torque and angle. Real-time visual feedback was provided through the centrally located SC Controller, allowing both operators on the floor and team leaders in the quality control room to monitor the torque status instantly. This system ensured quality by preventing the equipment from advancing to the next station until all fittings displayed green status for both torque passes, effectively combining efficiency with stringent quality control.

- Enhanced safety: ensuring proper tightening of air chamber fittings, preventing potential air leaks in the braking system.
- Process control: the two-pass system with color-coded feedback ensures accurate torque application, improving quality control through multiple points of quality verification.
- Increased traceability: barcode scanning and data collection in the Customer Pinpoint Manufacturing Execution System (MES) ensure each piece's assembly history is recorded.
- Data-driven insights: the ability to inspect torque curves allows for deeper analysis and continuous improvement of the assembly process.

STANLEY
Assembly Technologies



SAT Torque Control System Fully Integrated With The Customer Pinpoint Manufacturing Execution System



SAT® B-Series Cordless Tools
Transducer-controller battery powered tools for threaded fastening assemblies.



**SAT® SC Controller With Alpha
Toolbox Software**
Easy setup of torque, angle, scanning,
and tool enabling/ disabling.

STANLEY
Engineered Fastening



Product Portfolio

AVDEL

Structural Blind
Fasteners

INTEGRA

Plastic
Components

NELSON

Stud
Welding

OPTIA

Threaded
Fasteners

POP

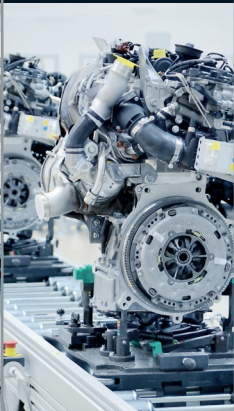
Non-structural
Blind Fasteners

STANLEY
Assembly Technologies

Specialist
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TUCKER

Automated
Fastener Systems



STANLEY
Engineered Fastening

Stanley Engineered Fastening — a division of Stanley Black and Decker — is the global leader in precision fastening and assembly solutions. Our industry-leading brands, Avdel®, Integra™, Nelson®, Optia™, POP®, STANLEY® Assembly Technologies, and Tucker®, elevate what our customers create. Backed by a team of passionate and responsive problem-solvers, we empower engineers who are changing the world.

STANLEY ENGINEERED FASTENING FAMILY OF BRANDS

AVDEL **INTEGRA** **NELSON** **OPTIA** **POP** **STANLEY** **TUCKER**
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