TORQUE MANAGEMENT
Finally made reliable and error proof

- Revolutionary residual torque and angle measurement
- Eliminate false readings and operator error
- Increased efficiency dramatically
TORQUE COMMAND AND CONTROL

Whether your mission is assessing residual torque on previously tightened fasteners or measuring real time dynamic torque on production power tools or precision torque on hand tightened joints, ASI DATAMYTE’s Torque Management Solution has you covered. We raise quality in all assembly and manufacturing areas where torque measurement comes into play.

Regardless of the specific torque application, ASI DATAMYTE strengthens quality by ensuring efficient, error-proof collection of measurement data and organizing it for focused analysis and generation of clear, powerful reports. This solution is scalable. It may be applied as a standalone solution to a pure torque measurement task, or be integrated with data collection and work planning – all of which may be combined to feed a consolidated, automated reporting structure.

TRUE RESIDUAL TORQUE

Residual torque measurement is an assessment of the torque required to move a previously tightened fastener. This measurement is a composite that gages the performance of power tools as well as the materials used to create the joint. Traditionally residual torque has been measured using a peak reading device or a dial wrench. In practice, this methodology has proven to be highly operator dependent.

ASI DATAMYTE has developed its ▶LightStar technology to overcome variance due to operator differences, substantially error-proofing the torque measurement process. The ▶LightStar system employs a high resolution solid state gyro that can differentiate between “flex” or “windup” in the wrench, socket, and work piece and actual fastener rotation. This breakthrough captures residual torque at the onset of actual fastener retightening motion. Differences in operator practices that introduce variability during flex and windup are eliminated, producing readings that are accurate – and the truest indicators of residual torque possible.

Operators can take higher quality measurements in a much shorter period of time. In addition, the ability to automatically upload both torque/time and torque/angle curves directly to analytical tools and spreadsheets provides real time documentation of joint performance.

POWER TOOL OPTIMIZATION

As power tools continue to become more capable, proficient, dynamic torque measurement tools must be applied to keep them on course. While stall, clutch or pulse tool performance can be measured by capturing simple installation peak torque, DC electric tools present additional challenges. DC electrics can be programmed for simple peak installation torque, or set to tighten to a number of degrees of fastener rotation past a defined “snug” condition. Either of these operations can be performed in either a one- or two-speed rundown.

The ASI DATAMYTE Torque Management Solution assesses power tool performance by capturing the actual torque following peak torque installation, angle of rotation from snug to peak, and/or torque at crossover from high speed to low speed. Sophisticated yet simple to configure tools allow for rejection of noise spikes or high frequency components above the mechanical response time of the subject joint.

Power tool performance can be measured with an in-line rotary transducer installed between the power tool and the socket. Alternatively the power tool can drive a joint simulator into a stationary transducer mounted to a cart or other fixed object.
HAND ASSEMBLY AND REWORK

If you’ve ever taken a commercial flight, it’s quite likely that you have been on an aircraft whose wing-to-body join received its final torque using ASI DATAMYTE’s Torque Management Solution in a critical hand assembly operation.

This application is a must in prototype shops, high value operations (such as aircraft assembly) and rework facilities. When auditing and compliance mandates require recording installed torque values, or when a work plan requires that a pattern of fasteners be tightened in a prescribed order, you’ll want the confidence of knowing you have the best technology working for you.

The ▶Wireless LightStar System can prompt operators to tighten a given fastener or pattern of fasteners. The prompting can include the name of the fastener, the socket size, the correct wrench size, the direction of rotation, the minimum and maximum acceptable torque, a color graphic image plus additional user-defined information. Joints may be installed to a final torque or to a prescribed angle after a prescribed torque.

DATA COLLECTION

ASI DATAMYTE is the industry leader in automated torque measurement data collection. Automated data collection minimizes the time that an operator must spend managing the data collection system, freeing him or her up to focus on the measurement task itself. Operators simply select a measurement plan and proceed to take tens, dozens, or even hundreds of measurements without having to stop to make further entries.

Torque measurement finally made reliable and error-proof

A wealth of information is just a keystroke away for operators who need guidance on how to measure, where to measure, specific measurement tools required, how to treat nonconformances, and more. Prompts can even include instructions with clear illustrations using a relevant image.

Measurement values and identifying information such as serial numbers, operator names, production codes, or shift identifiers can be captured automatically, selected from an electronic list, read from barcode or manually keyed in. All of these methods are carried out using simple fill in the blank configuration tools. Complicated programming is not required. After collection, the data may be uploaded directly into ▶QDA software.

REPORTING

ASI DATAMYTE’s Torque Management Solution makes use of three classes of reports: single event torque/time or torque/angle curve plot reports, exception reports, and statistical analysis reports. The torque curve plot enables analysis of joint behavior. It can be used to differentiate between assembly and material problems and to blueprint proper operation. Exception reports highlight measurements that were out of specification, as well as measurements were not taken when scheduled. Statistical analysis reports can detect shifts or trends in a process before out of specification joints are produced. These reports include control charts, frequency distribution charts, correlation studies and many more. The ▶QDA report structure provides an intuitive editor that allows for customized report generation.
ASI DATAMYTE’s Torque Management solution raises the quality bar by error-proofing residual torque, power tool optimization, hand assembly and rework operations. It eliminates the crippling downtime associated with reacting to false out-of-spec readings and the big costs associated with missing true defect conditions.

Major solution benefits and key features:
- Patented use of angle to measure residual torque at the start of actual fastener rotation
- Eliminate false high readings due to excessive operator overshoot
- Eliminate false low readings due to wrench release before fastener rotation
- Optimized for economical speed
- Route based measurement routines increases operator efficiency
- Torque/time, torque/angle curves upload: documentation of problem and normal operation
- Rotary transducers may be used to capture:
  - Dynamic installation torque from air, pulse, or DC electric power tools
  - Crossover torque in two speed applications
  - Installation angle
- Both torque set and angle set modes are available for hand assembly, prototype or rework
- Integration into Quality Management System