FASTENER INTEGRITY MONITOR

By

Catalyst Solutions, Inc.

Fastener Integrity Monitor (FIM) is the first of its kind failure mode detection system designed to analyze torque/angle curve data, in real time, and detect failure modes that otherwise go undetected until product failure during normal use.

FIM Benefits

- *Out-of-the-box*
- *Easy to use*
- *Simplified Set-up*
- *Fully Supported (24x7,365)*
- *Earliest Failure Mode Detection Possible*
- *Affordable*
- *Rapid Deployment*

Expanded Protection with FIM

Torque assembly systems were introduced as a technological advancement enabling accurate, repeatable application of torque during the tightening of bolted joints. Torque assembly systems have evolved into complex electronic controllers with a variety of rundown strategies for the precise delivery of torque and angle values to insure compliance with engineering specifications. Upon successful application of configured torque and angle values to the bolted joint, these torque assembly systems provide the operator with a visual "OK" indication, typically a green LED light.

However, the green LED light indicating an OK condition only validates the proper application of prescribed torque and angle values during the tightening of the bolted joint. These torque assembly systems are not designed nor are they capable of monitoring and alerting the operator of the presence of hidden failure modes that render the bolted joint ineffective in handling the stresses it was designed to handle.

Catalyst's FIM is designed and capable of analyzing the torque/angle curves, generated during each rundown for every device, to detect the presence of failure modes in a bolted joint and alert designated staff of the detected conditions.

CATALYST SOLUTIONS INC.

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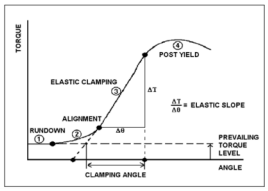
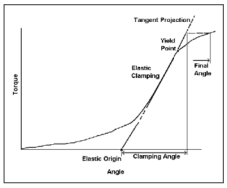
FIM Automates Proven Analytical Processes



(Torque/Angle Curve)



(Going Beyond Yield)

Current day engineering practices utilize the generated torque/angle data for manual analysis of failed bolted joints discovered during the service/warranty repair to determine ***"what happened"***. FIM automates this proven engineering practice of analyzing the torque/angle data using analytical algorithms to detect failure modes instantly within the build cycle for the earliest warning of ***"what is happening"*** right now.

FIM is Web-enabled for use with standard web browsers

FIM is web-enabled providing authorized staff accessibility to all screening and alert data and data handling tools within FIM, regardless of location. This can include but not limited to:

- Engineering Staff
- Quality Staff
- Production Staff
- Plant Management
- Corporate Staff

When alerts are generated, FIM connectivity gives responsible staff immediate and direct access to detailed data for further analysis without additional searching.

Designed to screen every torque rundown for detection and alerting

FIM is a failure mode screening system designed to mathematically analyze the results of a bolted joint being tightened and detect the presence of failure modes based on the engineering design of each and every respective bolted joint.

FIM enables the introduction of engineering specifications as the basis for analysis and degree of deviation from specifications before a detected failure mode is reported. In addition, the engineers and quality teams can determine the pattern of occurrence for each detected failure mode before an alert is issued to designated staff.

The email or SMS alert the designated staff receive will identify the station/device where the failure mode has been detected, what failure mode was detected, and what orders were affected. From that alert, the notified staff will have immediate, direct access to the torque/angle curves of the rundowns that contained the detected failure modes for validation and initiation of intervention plans.

FIM - Seamless, transparent integration into existing operations

1. Server-based system that connects to the existing plant network system to gather and analyze torque data instantly
2. Does not require any modifications to current processes or activities
3. Does not require any additional effort from torque system operators
4. Does not impact throughput or takt time of the process
5. Does not require local resets or intervention until initiated by authorized staff

FIM is the only advanced, comprehensive failure mode detection system available today for bolted joints. There is no other detection system available today that can provide this level of failure mode detection within the build cycle of a product. When you are ready to add the value of this early detection system to your quality control program and warranty reduction program . . Call Catalyst to learn more!

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