

**TEAM**®

## Controlled Bolting

# Bolted Joint Integrity Services

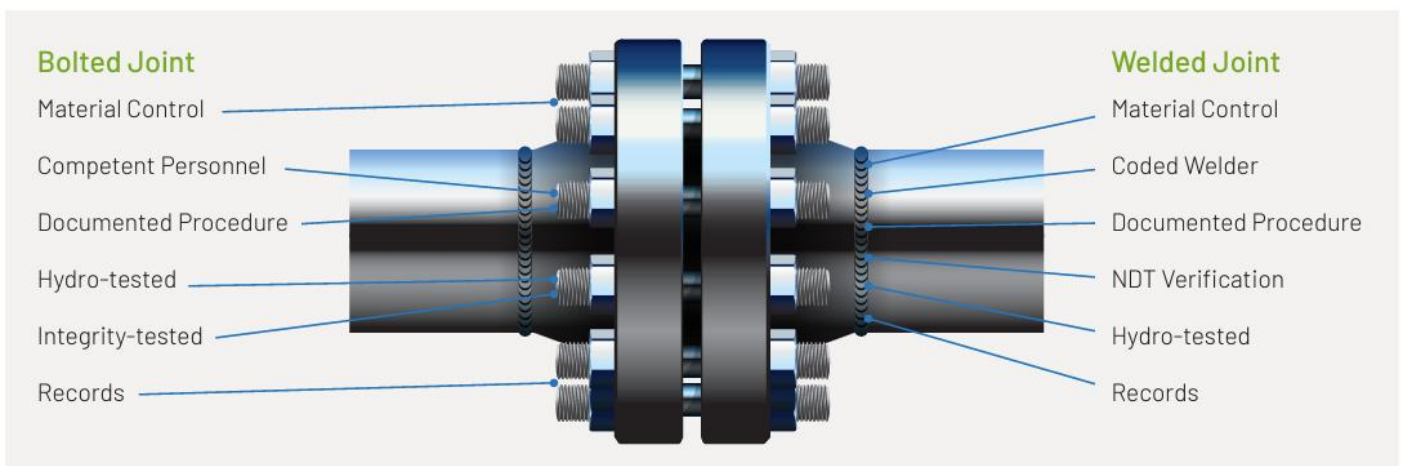
The cost of a leak is exponential compared to the cost of a solid bolted joint integrity program. Even if a leak does not result in a major incident, to rework an integrity point can cost ten times the amount it would cost to properly install and maintain the bolted joint the first time.

TEAM's bolted joint integrity services go beyond just tightening. To minimize downtime, our comprehensive program offering provides analysis, development of procedures, engineering support, training, inspections and more.

We are committed to assisting companies in the establishment and implementation of bolted joint integrity management programs. This includes analyzing joint criticalities to determine risk based upon process media, temperature and pressures, focusing on the leak and loss potential of each flange. Based upon this information, unique and specific rules are then applied to the management of each bolt integrity risk category. TEAM utilizes this data to help customers develop best-in-class procedures covering facility-specific execution, management and inspection.

## Managing a Bolted Joint Like a Welded Joint

The make-up of a solid bolted joint integrity program should parallel that of a welded joint integrity program – trained and certified bolters, material control, documented procedures, integrity and hydro testing and comprehensive record keeping. Both joints are used on the same line with the same pressure, same processes, same cycling and same stresses. Yet, one joint is often fabricated with a certified technician, tested and inspected, while the other may have a few testing requirements in place, but minimal at best.



At TEAM, we help companies recognize the importance of client ownership of a solid integrity program and set requirements and standards around a bolted joint, just like they would with a welded joint, rather than just general guidelines.

## Getting It Right the First Time

TEAM's comprehensive bolted joint management programs include proper training and competency management, utilization of the right tools and components, and the development of a set of processes and procedures to ensure each step along the way is clear, concise, and repeatable throughout company facilities. Our procedures are ASME PCC-1 compliant assuring that we perform all bolting activity from break out and assembly to the tightening in accordance with a well-defined standard and industry accepted standard. Additionally, TEAM can provide Joint Integrity Engineers to manage all items related to flange management as well as certified Joint Integrity Inspectors to support TEAM's work or the work of any contractor on site.

## Range of Technical Bolting, Tensioning and Torquing Services include:

Break-Out	Controlled Tightening	Live Bolting (leaking and sealed)	Consulting Services
Hydraulic Nut Splitting	Torquing / Tensioning	Single Stud Replacement	Joint Integrity Review – Joint Calculations
	Ultrasonic Measurement	Turn of Nut	Flange Management
	Heat Induction		Criticality Assessments

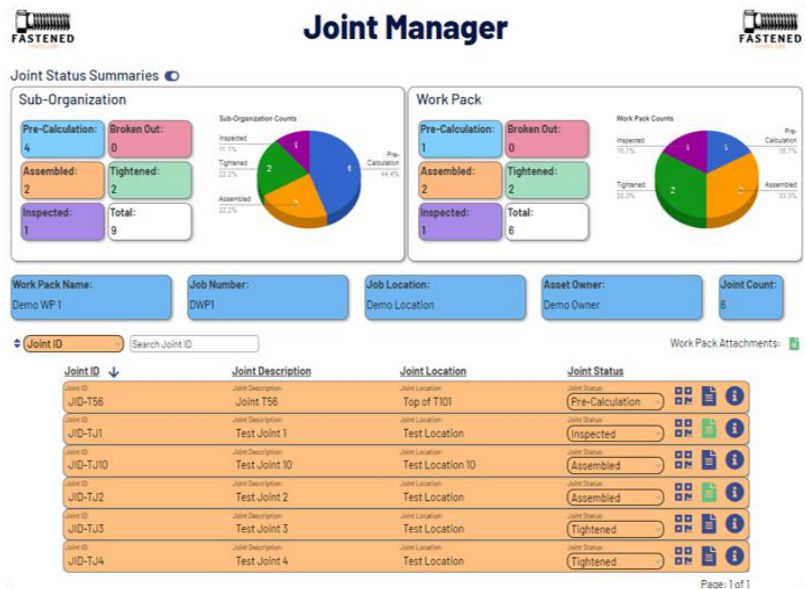
## Technical Bolting Services – Joint Integrity Programme

On average UK plants have 180 leaks per year. Effective programs will record:

- Joint identification
- Joint progress and location tagging
- Joint inspection data
- Track changes and events
- Create accurate reports
- Record data for analysis

The program will support proactive maintenance over reactive -

- The primary objective of a Joint Integrity Management program is to provide assurance that bolted joints will not leak.
- Delivers fully auditable data of their assets life cycle.
- Reduces planning and data entry time.
- Provides technicians with current data in line with ASME PCC-1



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For over a century, TEAM Inc. has provided asset integrity to diverse industries, including oil and gas, aerospace, petrochemicals, pipeline, and power generation. Our integrated service approach covers everything from inspection to repair, ensuring our communities operate safely and efficiently.

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