



THE JOHNSON GAGE COMPANY
AN ISO 9001-2000 COMPANY

TRI-ROLL EXTERNAL THREAD INSPECTION SYSTEM SERIES C3/C3



- The Ideal Inspection System for High Volume or High Value Parts
- Standard Configurations for Functional, Pitch, Minor, or Major Diameter Size
- Pitch Diameter Rolls More Accurate and Repeatable than Wires or Pitch Micrometers
- Functional Rolls Far More Versatile than Thread Rings
- Rolls Designed for Inspection of any thread size of same TPI, regardless of Diameter
- Detects Three-Point Out-of-Round
- System Linearity and Versatility Eliminates Need for Special Ring Gages
- Direct Replacement for Pitch Micrometers & Thread Measuring Wires
- Fast, Simple, and Easy Set-up: No Interchanging Components
- Uniform Gage Pressure Assures Repeatable and Reproducible Accuracy
- Inspection of Features related to datum thread easily added to the Inspection System
- Adaptable for the Inspection of virtually any part profile beyond basic thread inspection
- Competitive Pricing and Volume Discounts for Systems Integration

- GENERAL SYSTEMS BENEFITS -

Verifies Thread Conformance as Required by AS8879, MIL-S-8879, MIL-S-7742, GM X120, Ford Q101, and ASME Systems 21 and 22

Strict conformance to gage design requirements of FED-STD H/28 and ASME B1.2

Simple and Less Frequent Calibration than Alternative Inspection Methods

Superior Gage Life and Faster Inspection Time

Objective and Uniform Results Free from Operator Influence

Real-Time Process Control at Point of Manufacture

Available with a Wide Range of Analog and Digital Indicators

Compatible with most Process Control Software

Analysis of both Thread Size and Form: Isolates and Detects Angle Error, Lead Error, Non-Uniform Helix, Taper and Two Point Out-of-Round

Hardened Bearing and Adjustment Surfaces Assure Accuracy and Long-Life

Available for Inspection of UN, UNJ, Metric, Metric J, Acme, Buttress and other Thread Forms

TRI-ROLL THREAD INSPECTION

Variable Thread Inspection Systems have been used for the inspection and verification of critical thread dimensions and tolerances. While there are many different designs and configurations, Tri-Roll Gages Pitch Diameter and Functional Gages are commonly utilized for many aerospace and general inspection applications.

Originally developed by Pratt & Whitney Small Tool, the Tri-Roll Gaging Design has been duplicated by a wide variety of gage manufacturers since its original introduction. For more than 50 years, Johnson Gage has manufactured its own Tri-Roll Gages for both Single-Size Thread Inspection and Range-Adjustable applications. While Johnson gage and Tri-Roll components are not interchangeable, Johnson Gage Thread Roll-Style Gaging Systems provide identical Thread Inspection capability as the original Tri-Roll design. Please refer to the chart below for Model Number compatibility.

Thread Dimension	Tri-Roll Model	Johnson Gage Model
Full Profile Functional Size	Type 3	CGF or CGJF
Cone & Vee Single Element Pitch Diameter	Type 4	CN/PLT
Best Wire Size Radius Single Element Pitch Diameter	Type 5	CN/PLT
Major Diameter or Cylindrical Part Inspection	Type 6	CN/CYL
Minor Diameter	Type 7	CN/55
Lead/Flank Angle Analysis	Type 8	CGF/LA

The adoption and approval of the Industrial Fastener Institutes IFI-301 Standard "Gage Calibration Requirements and Procedures for Thread Gages" has highlighted the necessity for timely calibration and maintenance of Thread Gages and Thread Inspection Systems. In addition to the calibration of its own products, Johnson Gage has the capability and capacity to calibrate, repair, or remanufacture any Variable Thread Inspection System or system component regardless of original manufacturer. Contact Johnson Gage directly to further discuss your requirements.

UNDERSTANDING THE SCREW THREAD

Safe and reliable threaded connections depend on the dimensional conformance of both Pitch Diameter Size and Functional Size. Pitch Diameter, as the Minimum Material Limit of External and Internal Threads, is the primary datum for isolating size, form and profile variation. Functional Size, the Maximum Material Limit of External and Internal threads, includes variation in Size, Angle, Lead (including Uniformity of Helix), Taper, and Roundness. This differential inspection of Functional and Pitch Diameter Size assures dimension conformance, reveals the magnitude of thread form error in the manufacturing process, and is the key to both efficient production and ultimate performance. Combined with process targeting based in measured data, control of the differential will minimize process error, optimize initial set-up and production, and assure maximum flank-to-flank engagement in any threaded connection.

MUCH MORE THAN JUST INSPECTION SOLUTIONS

External Inspection Systems • Internal Inspection Systems • FIM/Thread Related Features
GO-NOT GO Attribute Gages • Solid Work Rings with Johnson Pro-Step Setting Plugs
Calibration and Certification Service • Complete Gage Rebuilding: All Makes and Models
Educational Seminars: Regional and In-House • Contract Part Inspection
Dimensional and Thread Manufacturing Consulting • Process Control Integration
Thread Dimensional Software