

Q16 - Engineering Directed Standard Tool/Perishable Tool Inspection Requirements

"IMPORTANT NOTICE: A hard copy of this document may not be the document currently in effect. The current version is always the version on the Lockheed Martin network."

I. APPLICATION

Except as otherwise directed by Buyer, the governing revision of this document shall be the revision in effect on the date of this Purchase Order (PO). Subject to limitation by Buyer, if subsequent revisions of this Buyer document are issued, Seller is authorized to use the latest revision of this document. If Seller opts for use of the latest revision, Seller shall utilize the applicable portions of the latest revision in their entirety.

II. REQUIREMENTS

- A. Seller shall perform an inspection after all normal manufacturing operations have been completed. Seller shall perform this inspection of any item prior to delivery to Buyer.
- B. Seller shall furnish the results of this inspection and any previous inspections to Buyer or Buyer's Representative upon request.
- C. Seller shall be permitted to perform sample inspection on the items (reference Paragraph II. A.) as long as one (1) of the following statistically valid sampling plans is used.
 - 1. MIL-Std-105E
 - 2. ISO 2859-1
 - 3. ANSI/ASQ Z1.4-2003
- D. Seller shall furnish to Buyer or Buyer's Representative an electronic monthly report that contains, but is not limited to, the following data elements from the final inspection:
 - 1. Distributor (Source provider) if applicable
 - 2. Original Manufacturer
 - 3. LM Aero Part Number
 - 4. Total Lot Quantity

5. Sample Quantity Inspected
6. Number of Items Accepted
7. Number of Items Rejected
8. Feature Rejected
9. Equipment Utilized to Perform Inspection

III. ENGINEERING INSPECTION CRITERIA

- A. Equipment to inspect and/or validate the required characteristics varies based upon the tool type. Seller shall ensure that each piece of inspection equipment is capable of measuring to the tolerance specified in Industry Standard and/or Buyer specifications. Seller shall provide a listing of measuring equipment, gages, holding devices, and method employed for validating each characteristic identified in Paragraph III. C (at the Seller’s facility) to Buyer or Buyer’s Representative upon request.

- B. Prior to Buyer receipt , Seller shall ensure that all items delivered shall have the following inspected for conformance to the applicable Buyer’s Standard Tool Specification, “P” Sheet, ”C” Number Drawing, TMS (Tool Manufacturing Standard), and/or NAS (National Aerospace Standard):
 1. Tool number and Dash Number Identification
 2. Verification that the tool is obtained from an approved manufacturer (if applicable)
 3. Manufacturer’s Certification, as required

- C. In addition to the baseline requirements specified in Paragraph III. B, Seller shall inspect each tool category identified below against the respective requirements for each of the Buyer’s sites.

	MARIETTA, MERIDIAN, & CLARKSBURG	FORT WORTH
Common Characteristics for Each Tool Category	Body Diameter Damage Check Flute Length Identification Material Type Over-All-Length Surface Treatment Thread Size	Back Taper Cutting Diameter Damage Check Flute Length Hardness Helix Angle Identification Material Type Over-All-Length Relief/Clearance Angles Run-Out Surface Finish

	MARIETTA, MERIDIAN, & CLARKSBURG	FORT WORTH
Straight Shank Drills	Shank Diameter Point Type Drill Diameter Pilot Diameter and Length	Lip Height Variance Chisel Edge Centrality Web Thickness (W2) Point Type Shank Diameter Margin Width Surface Treatment Alignment of Secondary Cutting Edges
Threaded Shank Drills	Point Type Seat Angle Hex Diameter and Length Pilot Diameter and Length	Lip Height Variance Chisel Edge Centrality Web Thickness (W2) Point Type Seat Angle Shank Hardness Margin Width Surface Treatment Thread 2A Fit Alignment of Secondary Cutting Edges
Chuckling Reamers	Flute Configuration Shank Diameter Pilot Diameter and Length Reamer Diameter	Chamfer Lip Height Pilot Diameter Margin Width Shank Diameter Core Diameter Concentricity of Pilot/Cutter/Shank Diameters (between centers)
Threaded Reamers	Reamer Diameter Hex Diameter and Length Seat Angle Pilot Diameter and Length	Chamfer Lip Height Pilot Diameter Pilot Length Margin Width Seat Angle Thread 2A Fit Core Diameter Concentricity of Pilot/Cutter/Shank Diameters
End Mills	Flute Configuration Shank Configuration End Configuration Corner Radius	Radial Rake Angle Shank Diameter Corner Radius Radius Mismatch Preset Flats Length/Depth Core Diameter End Concavity Radial/Axial Clearance
Countersinks	Pilot Diameter/Pilot Hole Countersink Angle Pilot Length Seat Angle	Countersink Angle Relief/Clearance Angles Pilot Diameter Pilot Length Axial Rake Angle Seat Angle Thread 2A Fit Countersink/Pilot Radius

	MARIETTA, MERIDIAN, & CLARKSBURG	FORT WORTH
Counterbores	Corner Radius Diameter Pilot Hole	Radial/Axial Rake Corner Radius Pilot Diameter Margin Width Flat/Perpendicular Cutting Edges
Drill/Countersinks Drill/Countersink/Counterbore (Single-Pass Tools)	Pilot Diameter Countersink Angle Seat Angle Drill Diameter	Countersink Angle Countersink Axial Rake Angle Transition Between Countersink and Drill (radius or counterbore) Lip Height Variation Chisel Edge Centrality Web Thickness (W2) Shank Diameter Margin Width Alignment of Secondary Cutting Edges Key Characteristics Identified by Drawing
Taper-Lok Drills and Reamers	Test Drill Holes Per LM Aero - Marietta Standard Tool Control Memorandum No. 23	
Circular Saw Blades	Outside Diameter Arbor Hole Kerf Width Number of Teeth Magnetic Particle Inspection	
Hole Saws	Diameter End Configuration Arbor Threads	
Routers	Diameter End Configuration	
Bucking Bars	Surface Finish Hardness	
Drill & Reamer Bushings	Inside Diameter Outside Diameter Length	
Keller-Lok Bushings	Inside Diameter Outside Diameter Length	
Safety Apparel	Size Logo	
Process Tooling	Dimensional Check with Tape Measure or Equivalent	
Slings	Over-All-Length with Tape Measure or Equivalent	

D. Seller shall inspect the following characteristics by Standard Tool Number for the Marietta, Meridian, and Clarksburg facilities for the specific features identified below:

1. 550H006
Hole must be centered with no burrs per Buyer specification
2. 550H007
Dash number must match bushing size per Buyer specification
3. 550H008
Slot dimension = 0.141" +.002"/-.000"
4. 550H203
Surface coating adherence
Dash number location per Buyer specification