



## The Manufacturers Association

### JOB QUALIFICATION STANDARD (JQS)

**Occupation:** QUALITY ASSURANCE AUDITOR

**Work Process (Competency):** Auditing

**Practical Hours:** 2000 hrs.

**Standard (Objective Group):** Metrology: Apply a working knowledge of critical set up and measurement skills when interpreting specifications for dimensional or surface verification.

**Performance Objective (Skill Objective):** Demonstrate the ability to interpret part drawing specifications and then select, set up and use the gauges to measure features or characteristics, the applicable tolerance and the accuracy, and the resolution and capability of the test instrument.

Performance Indicator	Qualification Date/Initial
Demonstrate the ability to select and set up gauges according to feature or characteristics to be measured, the applicable tolerance and the accuracy, and the resolution and capability of the test instrument.	
Demonstrate the ability to determine whether the type of measurement should be direct, differential or transfer.	
Demonstrate the ability to identify and apply various methods of cleaning, handling and storing gauges.	
Demonstrate the ability to identify and apply methods for establishing the correlation between measurement instruments such as gauge-to-gauge or manual-to-automated processes.	
Demonstrate the ability to identify, set up and use variable gauges (micrometers, calipers, dial indicators, linear scales).	
Demonstrate the ability to identify, set up and use attribute gauges (tread plug, progressive ring, flush pin, radius gauge).	
Demonstrate the ability to identify, set up and use transfer gauge (small-hole gauges, spring calipers).	
Demonstrate the ability to describe, distinguish between, set up and use measurement scales (dial, digital and vernier scales).	
Demonstrate the ability to identify, set up and use electronic gauging tools (oscilloscopes, multimeters, pyrometers).	
Demonstrate the ability to identify, set up and use automatic gauging components (machine vision, ultrasonic, x-ray, laser).	
Demonstrate the ability to identify, set up and use pneumatic gauging components (air columns, probes, rings).	
Demonstrate the ability to select, set up and use surface plate equipment to measure various types of features (height gauges, V-blocks, indicators).	
Demonstrate the ability to identify, set up and use angle measurement instruments (protractors, sine bars, angle blocks).	



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Demonstrate the ability to select, set up and measure mass using weights and balances and scales.	
Demonstrate the ability to select, set up and measure finish using profilometers and fingernail comparators.	
Demonstrate the ability to select, set up and measure shape and profile using mechanical comparators, roundness testers, precision spindles and profile tracers.	
Demonstrate the ability to set up and use optical comparators, optical flats and microscopes.	
Demonstrate the ability to set up and use vision systems for product inspection (digital cameras, in-line optical sensors and other digital systems).	
Demonstrate the ability to set up and use a Coordinate Measuring Machine (CMM) to locate datums, target points and areas and hole positions.	
Demonstrate the ability to conduct nondestructive testing methods to include x-ray, eddy current, ultrasonic, dye penetrant, and magnetic particle.	
Demonstrate the ability to conduct destructive testing methods to include tensile, force testing, and drop test.	
Demonstrate the ability to conduct functionality testing methods to include tension, torque, leak testing and compression.	
Demonstrate the ability to conduct hardness testing methods to include Brinell, Rockwell, durometer and micro-hardness scales.	

**Performance Objective (Skill Objective):** Demonstrate the ability to apply a working knowledge of best practices when planning and carrying out the inspection of parts.

Performance Indicator	Qualification Date/Initial
Demonstrate the ability to identify and distinguish between inspection types such as incoming material, first-piece, in-process and final types.	
Demonstrate the ability to identify and apply methods to trace products and materials such as age control, shelf life and first-in first-out (FIFO).	
Demonstrate the ability to perform the various methods of identifying nonconforming materials such as tagging, labeling and segregating such materials.	
Demonstrate the ability to identify levels of severity (critical, major, minor) and apply them to product features and defects.	
Demonstrate the ability to identify and apply disposition methods of nonconforming material including rework, reprocess, scrap, customer waiver, as determined by a material review board (MRB) or other authority.	
Using the principles of calibration systems, identify and use basic tracking and identification methods such as logs, stickers and identification codes to control calibration equipment.	
Demonstrate the ability to apply working standards and international standards for the calibration of measurement equipment.	
Demonstrate the ability to perform calibration of measuring instruments with an understanding of tolerance requirements.	



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Demonstrate the ability to apply standards for the traceability of measurement equipment.	
Demonstrate the ability to synthesize environmental conditions on gage calibration and perform the appropriate actions to consider temperature, humidity, vibration and cleanliness of the gauge.	
Demonstrate the ability take the required actions when out-of-calibration instruments are detected.	
Demonstrate the ability to apply the parameters of a Measurable System Analysis (MSA) to determine an overall process variability to include bias, stability, accuracy, linearity, and repeatability/reproducibility.	
Demonstrate the ability to apply safeguarding, functional checks, comparison of test results, identification of attributes/parameters used to ensure that the software for test equipment adequately and correctly performs its intended functions.	
Demonstrate how to prepare a written summary to validate or show deviations from established standards after testing.	
Demonstrate the ability to determine required information for sampling including Acceptance Quality Limit (AQL), Random Sampling, Lot and Sample size, Acceptance number) and document the data in a Sampling plan.	
Demonstrate the ability to apply lean tools for eliminating waste through the implementation of a 5S project.	
Demonstrate the ability to apply lean tools for eliminating waste through the development of value-stream mapping.	
Demonstrate the ability to conduct a kaizen event to improve a designated process.	
Demonstrate the ability to perform all phases of the Six Sigma process to include Define, Measure Analyze, Improve, Control (DMAIC).	
Demonstrate the ability to apply the principles of Failure Mode Effects Analysis (FMEA) to quantify and prioritize risk within a process, product or system and then track actions to mitigate the risk.	
Demonstrate the tracing of defects to the originating section of their root cause.	
Demonstrate the use of cause mapping when performing Root Cause Analysis.	

**Performance Objective (Skill Objective):** Demonstrate the ability to apply a working knowledge of best practices when planning and carrying out the auditing process.

<b>Performance Indicator</b>	<b>Qualification Date/Initial</b>
Demonstrate the ability to identify and interpret the protocol for the various types of audits to include internal, external, system, product and process.	
Demonstrate the ability to develop and use various types of audit tools to include checklists, log sheets, sampling plans, record and document reviews and forward-and backward-tracing.	
Demonstrate the ability develop Corrective Action Requests (CARs) to support quality improvement.	



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Demonstrate the ability to develop quality tool and techniques to communicate quality data to include Pareto charts, cause and effect diagrams, flowcharts, control charts, check sheets, scatter diagrams and histograms.	
Demonstrate the ability to perform the various stages of the audit process to include planning, performance, and closure.	

<b>Apprentice Signature:</b>	<b>Completed:</b> MM/DD/YY
<b>Mentor Signature:</b>	<b>Completed:</b> MM/DD/YY
<b>Supervisor Signature:</b>	<b>Completed:</b> MM/DD/YY
<b>Comments:</b>	