



## The Manufacturers Association

### JOB QUALIFICATION STANDARD (JQS)

**Occupation:** WELDER

**Work Process:** GMAW (MIG)

**Practical Hours:** 1500 hrs.

**DOL Standard:** GMAW (MIG): Apply a working knowledge of the Gas Metal Arc Welding (GMAW) process in accordance with government safety regulations, manufacturer's recommendations and approved industry standards.

**Performance Objective:** Demonstrate the ability to weld with the gas metal arc welding (GMAW) process by selecting and setting up welding equipment; installing consumables; adjusting welding process parameters; fillet welding; groove welding; cleaning welds and measuring welds so that process operations are correctly performed in accordance with the weld procedure, equipment manufacturer's recommendations and the requirements of the applicable standard.

Performance Indicator	Qualification Date/Initial
Demonstrate the ability to prepare job layout by reading and interpreting fabrication documents, blue prints and drawings; identifying dimensions, materials, tolerances, notes and symbols; making rough sketches of fabrication job; selecting required stock and transferring dimensions to job layout so that layout is completed in accordance with fabrication documents and with efficient use of materials.	
Demonstrate the ability to select and set up welding equipment by selecting power source, feeder, welding cable assemblies, welding gun, gun liners, gas distributor, gas cup and seals, contact tubes, flow meter, purging equipment, personal equipment and tools, and assembling them so that all the equipment necessary to weld using the GMAW process is available and is correctly set up.	
Demonstrate the ability to install consumables by extracting requirements from the applicable welding procedure or following directions of supervisor; identifying the correct shielding gas or gas mixture, purging equipment and the type and size of filler metal for the welding position, joint type, and the composition and thickness of the base material and mounting these consumables so that the correct gas and filler wire are installed in accordance with manufacturer's instructions for the intended application.	
Demonstrate the ability to adjust and verify welding process parameters by choosing the equipment configuration which meets the specified requirements for size and quality of weld including voltage and wire feed speed, and shielding gas flow rate; purge flow rate and purge time; testing the settings and adjusting the operation of the equipment so that the correct balance of penetration, fusion, profile and weld size is achieved for the welding application and that it meets the weld inspection requirements of the applicable fabrication standards.	
Demonstrate the ability to fillet weld using the GMAW process on lap and corner and tee joints in the flat and horizontal and vertical positions, using plate, tube or pipe to plate assemblies with any one of mild steel, stainless steel, aluminum or other alloys, in the work environment	



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identified by the employer so that passes are done in the correct sequence and each pass of the weld meets the weld inspection requirements of the applicable fabrication standards.	
Demonstrate the ability to groove weld using the GMAW process on either flare and single bevel joints, square and single vee joints or 5G/6G pipe/tube, with backing, in the flat, horizontal and vertical positions, on plate or pipe using any one of; mild steel, stainless steel, aluminum or other alloys, in the work environment identified by the employer so that passes are done in the correct sequence and each pass of the weld meets the weld inspection requirements of the applicable fabrication standards.	
Demonstrate the ability to clean welds using wire brush, de-scaler, grinder or other appropriate abrasive process so that welds are free of slag, scale surface irregularities and meet the weld inspection requirements of the applicable fabrication standards.	
Demonstrate the ability to measure welds for completeness using fillet gauges, measuring tape or other devices so that welds meet the requirements specified by the engineering drawings or company procedures and the applicable fabrication standards.	

<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>	