

Guidelines for SkillWeld2015 Passive Heats

Introduction

The competitors will be required to complete a Welding Test Piece (WTP) using Manual Metal Arc (MMA), Metal Active Gas (MAG) and Tungsten Inert Gas (TIG) processes. Marks will be awarded for the accuracy of the fabrication and welding ability.

Assembly Guidelines

The WTP consists of a top and bottom plate separated by two vertical plates placed at right angles forming a corner weld. On each of the vertical plates a pipe sections is to be welded. All dimensions are set out on the WTP drawings along with the appropriate welding reference line, indicating the fillet weld leg length or butt weld penetration together with a Welding Joint (WJ) number.

The competitors can only set out the WTP using the tools listed below. No other tools or equipment is allowed. All WJs on the WTP will be marked. WJs must be welded with the correct process and in the correct position, as indicated by the welding guidelines and drawings.

Welding Guidelines

The SkillWeld 2014 Passive Heat consists of welding a WTP using MMA (111), MAG (135) & TIG (141) processes using 2.5mm and/or 3.25mm low hydrogen MMA electrodes, 0.8mm wire, and 2.4mm diameter Tungsten electrodes with 2.4mm diameter low carbon steel filler wire.

The WTP consists of nine (9) welded joints. The WJs are numbered 1-9 and the relevant WJ number is located at the end of the reference line for each joint.

The welding joint number does not indicate of the order in which the joints have to be completed.

Tacking of the WTP can be carried out in any position using any welding process available. Tack welds may be made on the inside of the vertical plates.

It is the competitors choice which welding technique he/she adopts (eg stringer bead or weave) judgement centres on his/her ability to produce the required weld dimensions etc. with the welding technique and arc welding parameters of his choosing.

A stop start is required on each of the nine welding joints approximately half way along its length. Stop starts are also required in the root runs of the butt welds and the penetration of the corner welds. Stop starts must be clearly marked by the competitor.

WJ1, WJ2, WJ5 and WJ6 must be welded using the MAG (135) process with 0.8mm wire.

WJ3 is welded in MMA (111) and may be welded prior to assembly if the competitor intends to use 'strong backs' to control joint distortion.

WJ4 (corner weld in the PF position) must be welded using the TIG (141) welding process. WJ4 must be done using the vertically up technique as defined by its PF designation.

WJ9 is welded using MMA (111) and must be welded in position as described on the WTP drawing whether or not 'strong backs' are used.

WJ7 & WJ8 are welded using MMA (111)

Failure to carry out any of the 9 welding joints in the welding position as specified by the reference line will be considered a major non-compliance and the weld will be given zero marks.

The top plate of the WTP must be marked with the competitor name, number and college.

Tools & Equipment

Each competitor will be required to supply the following:-

12" engineer's ruler

6" engineers set square

Engineer's scribe

Stick of French chalk

Welding head screen (Reactalight type may be advantageous)

Goggles for grinding

Welding PPE suitable for the welding tasks to be carried out

No magnetic positioning aids are allowed