

### Test Piece Marking (Based on BS EN 25817)

#### Butt Welds

##### **Penetration (max 15 marks)**

This is required over the full length of the weld. Full marks will be given where the penetration is completely made but does not exceed 3mm. Penetration, which exceeds this value, will lose 1 mark for every 2mm length over penetration. The same rule will apply where evidence of lack of penetration is observed.

##### **Stop Start Positions (max 10 marks)**

Stop Starts have to be made about half way along the capping run of each weld and clearly marked by the competitor. Full marks will be given where clear evidence of good stop start fusion is obtained. Failure to clearly mark stop starts will result in the loss of 5 marks.

##### **Overfill (max 10 marks)**

Overfill should not be higher than 3 mm above the plate surface. Of the 10 marks apportioned for this section 1 mark will be lost where overfill exceeds this dimension over each 5mm of weld length where this is evident. Similarly marks will also be lost where a competitor fails to have the overfill at least the full thickness of the parent plate.

##### **Undercut/Cold Lap (max 10 marks)**

The toes of the weld should blend with the plate surface with no high re-entry angle. Undercut should be absent. Of the 10 marks allocated 1 mark will be lost for every 5mm of undercut or poor toe blending present. This will also be the case between runs where the competitor has chosen to use stringer beads to complete the weld capping, and between weaves where a single run technique has been selected by the competitor

##### **Weld uniformity (max 15 marks)**

The completed weld must be uniform in nature. Judges will be assessing change of weld width as well as variations in overfill height, weld bead or weave irregularities

#### Fillet Welds

##### **Throat Thickness (max 15 marks)**

The throat thickness must be that stated in the drawing. Marks will be lost where there is evidence of failure to achieve this requirement as shown either by direct throat measurement or unequal leg measurement throughout the fillet weld

##### **Stop Start Marks (max 10 marks)**

Full marks will be given where clear evidence of good stop start fusion is obtained. (See also the requirements in 1.2 butt welds)

##### **Weld Overfill (max 10 marks)**

This must not exceed 3mm in either convexity or 1mm in concavity. 1 mark will be lost for every 5mm of weld length where this is in evidence.

**Weld Undercut/ Cold Lap (max 10 marks).**

Weld toes should be blended with the parent plate. Weld undercut or where a steep re-entry angle occurs at the weld toes or between stringer beads or weaves – 1 mark for every 5mm of weld length on either plate where undercut or cold lapping is identified.

**Weld Uniformity (max 10 marks)**

The completed weld must be uniform in nature. Judges will assess changes in weld width as well as variations in overfill height.

## Fabrication Guidance

**Fabrication Marking**

This assessment is only made on Weld Test Pieces 3 and 4. The positioning of plates to the base plate as specified in the drawing is being assessed. 5 marks are available in this assessment. The judges will use the following marking criteria.

- +/- 1mm (5 marks);
- +/- 2mm (4 marks) ;
- +/- 3mm (3marks) ;
- +/-4mm (1 marks);
- +/- 5mm or greater (0 marks)

Measurements will be taken at two points along the positioned plate with the edge of the base plate as indicated in the drawing.

**Setting of Plates**

Once plate setting measurements on the base plate has been established, the competitor may tack weld the plates to the base plate using the most convenient welding position. Plate location tacks will be allowed on the reverse side of the plate to the fillet welds. However, the full welds must be made in the position indicated on the drawing. Any deviation by the competitor from this requirement will be considered a major non-compliance and no marks will be given for that particular welded joint of the Weld Test Piece.

**Tools & Equipment**

All competitors should bring with them the following:-

- 12 inch Engineering Steel Ruler
- Stick of French chalk
- 6 inch Engineer's Set Square
- Engineers Scriber
- Welding Head Shield
- Safety Goggles suitable for Grinding
- PPE for Welding Activity

A 'Reactalight' type welding helmet would be an advantage in the setting of the offset plates to the base plate

**No** magnetic location aids are permitted.