

SkillWeld 2021

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Competition Drawing Pack

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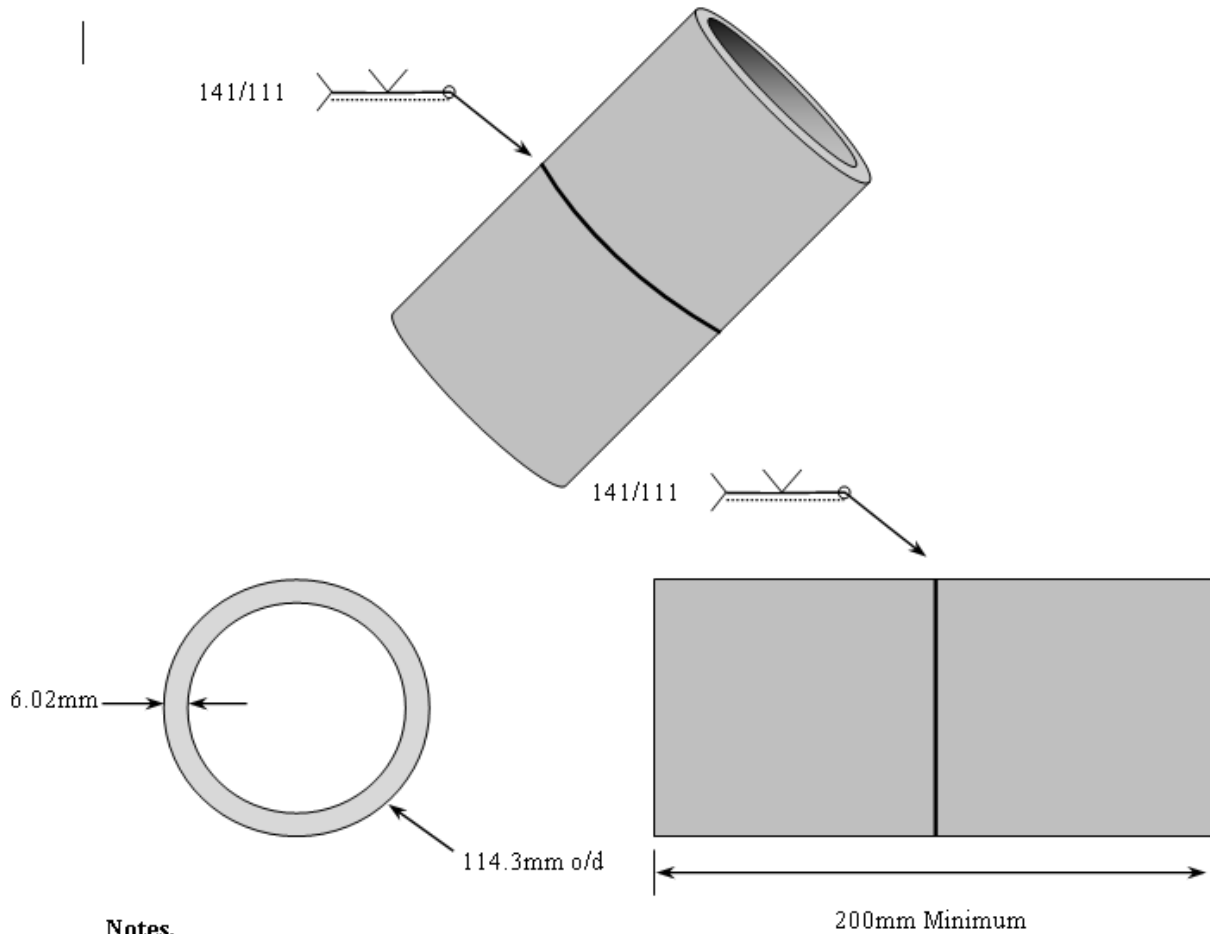
- 1.** Test No 1 (Mandatory) TIG – Root, MMA – Fill and Cap
- 2.** Test No. 2 (Mandatory) TIG
- 3.** Test No. 3 (Mandatory) TIG
- 4.** Test No.4 (Mandatory) MIG/MAG
- 5.** Test Piece Marking Explanation

Note: Weld test piece material specification may vary

Test No 1 (Mandatory) MMA

Weld Specification

Test Specification



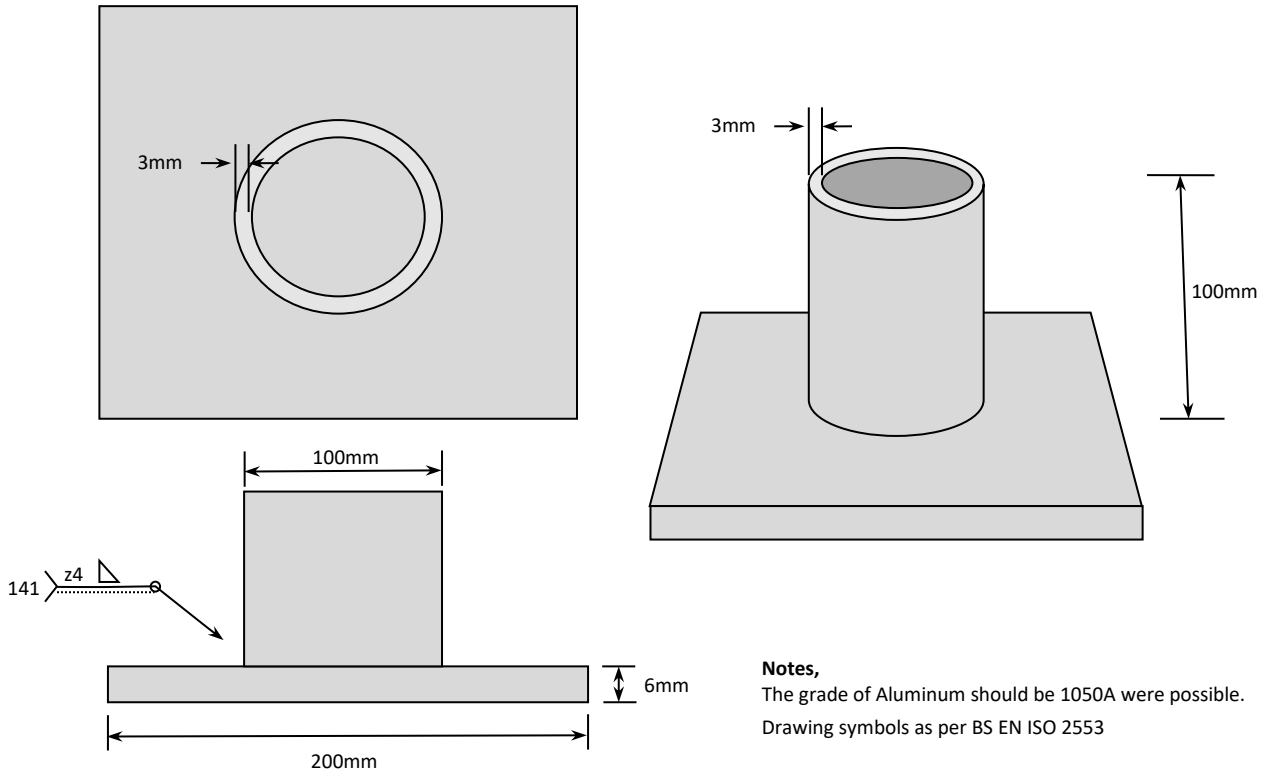
Notes,

- Maximum reinforcement (Cap) 3mm
- Maximum penetration (Root) 3mm
- Pipe sizes as per 4 inch standard Sch 40
- Drawing symbols as per BS EN ISO 2553

Materials	Carbon Steel	<h3><u>Visuals</u></h3> <p>12 O'clock pipe position to be marked</p> <p>Root stops and starts to be marked</p> <p>Root penetration – 3mm (max)</p> <p>Overfill – 3mm (max)</p> <p>All dimensions in millimeters.</p>
Weld Prep	37.5° bevel	
Root Face	As required	
Weld Gap	As required	
Weld Process	TIG & MMA	
Current Type	AC or DC	
Electrode Type	Any	
Electrode Dia	As required	
Number of Runs	As required	
Weld Position (Fixed)	H-L045	
Stop/Starts may be ground on root only		

Test No. 2 (Mandatory) TIG

<u>Weld Specification</u>	<u>Test Specification</u>
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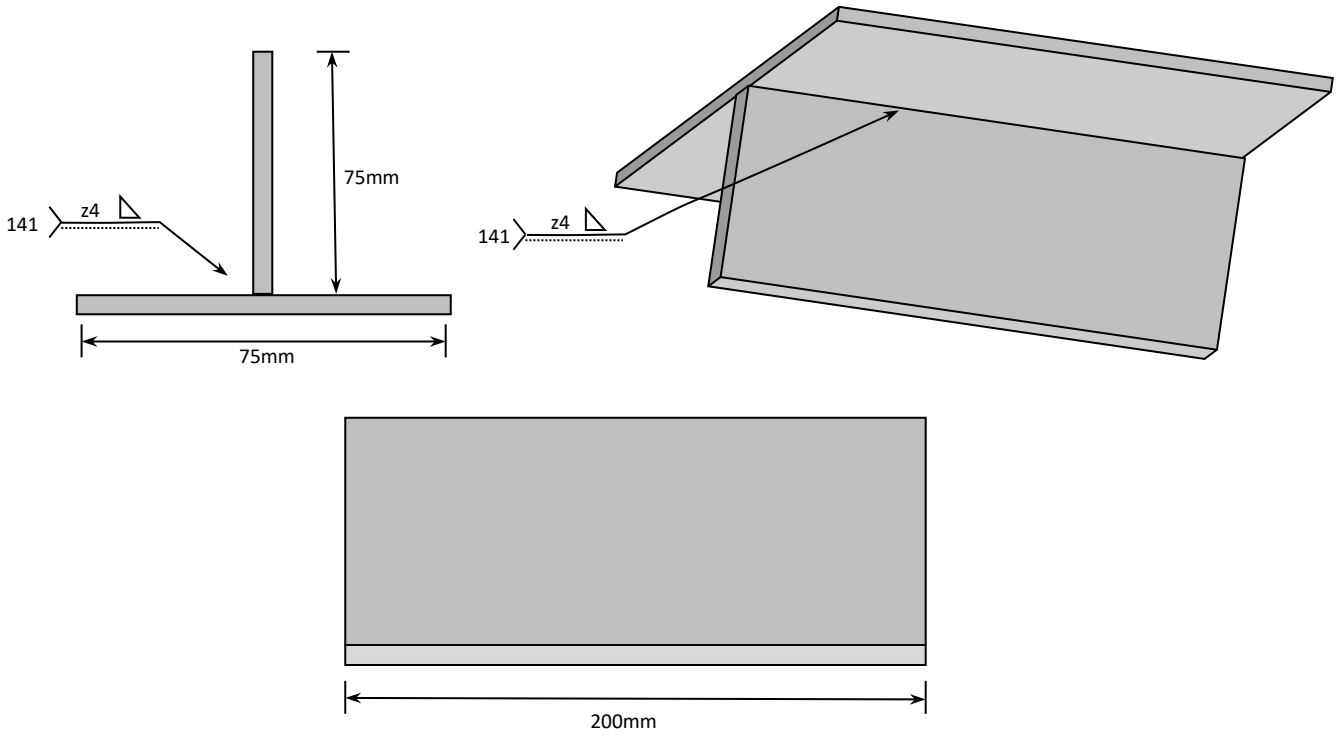


		<u>Visuals</u>
Materials	Aluminium Grade 1050A	Weld stop and starts to be marked
Weld Process	TIG	No grinding of re-starts.
Current Type	AC	Stops maybe ground as long as the grind marks are welded over on the re-start.
Electrode Dia	As required	All dimensions in millimeters
Filler Dia	As required	
Shielding Gas	Pure Argon	
Weld Position	PB	
Number of Runs	1	

Test No. 3 (Mandatory) TIG.

Weld Specification

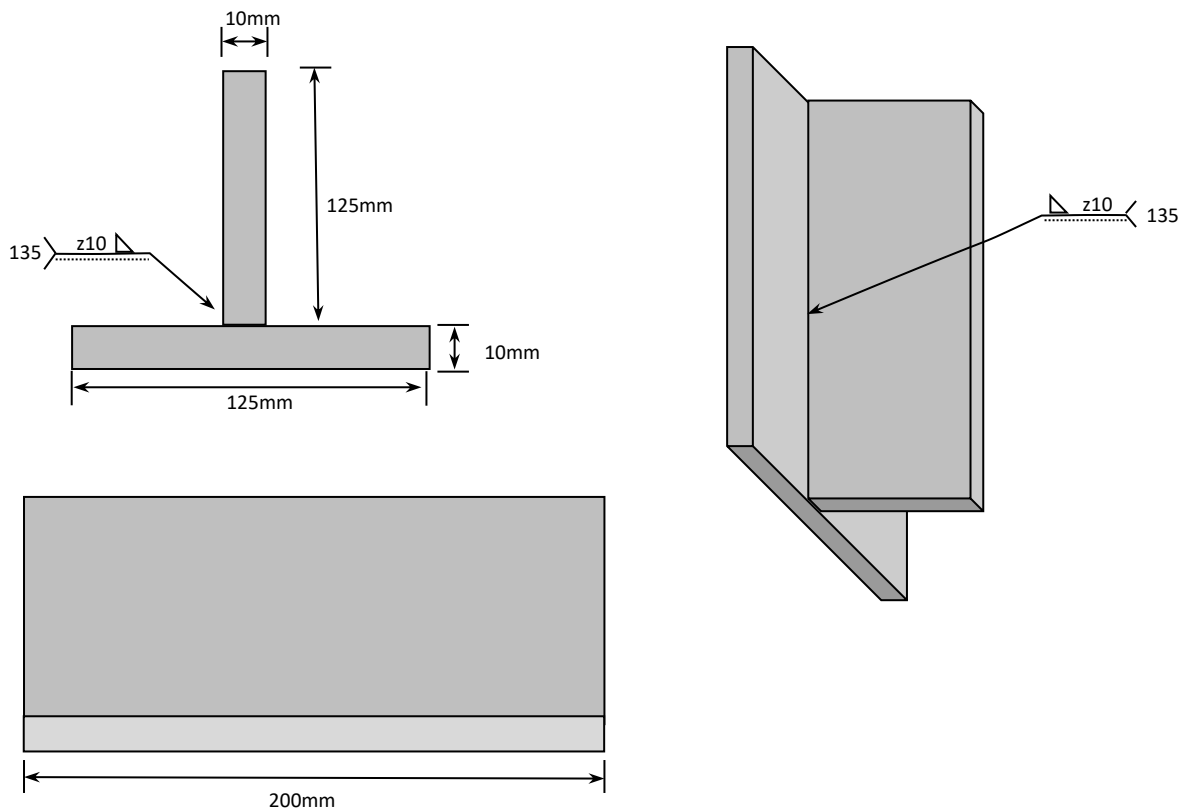
Test Specification



Notes,
Drawing symbols as per BS EN ISO 2553

Material	Stainless Steel	<u>Visuals</u>
Weld Process	TIG	Weld stop and starts to be made at weld mid point and marked
Current Type	DC	
Filler Dia.	As required	
Electrode Dia	As required	
Shielding Gas	Pure Argon	
Number of Runs	1	
Weld Position	PD	
No Grinding of Stop/Starts		All dimensions in millimeters.

Test No.4 (Mandatory) MIG/MAG.



Notes,

Drawing symbols as per BS EN ISO 2553

Material	Carbon Steel	<u>Visuals</u>
Weld Process	MAG	Weld stop and starts to be made at weld mid point and marked
Filler Dia.	0.8/1.0mm	
Shielding Gas	Argon/CO2	
Number of Runs	Minimum of 2	
Weld Position	PF	
Stop may be ground but no grinding of re-starts		All dimensions in millimeters.

Test Piece Marking (Based on BS EN ISO 5817)

Butt Welds

1.1. Penetration

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.

1.2. Stop Start Positions

Full marks will be given where clear evidence of good stop start fusion is obtained. 1 mark will be lost for every stop start that doesn't show a smooth transition.

1.3 Overfill, Excessive weld metal

The weld metal should not be $\leq 1\text{mm} + 0.15$ of the cap width from pipe surface. Of the 4 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.

1.4. Undercut

The toes of the weld should blend with the pipe surface with no sharp angle re-entry. Continuous undercut is not permitted which will lose all 4 marks. Of the 4 marks allocated 1 mark will be lost for every 5mm of undercut with a depth of $\geq 0.3\text{mm}$ or poor toe blending present with angles of $\leq 110^\circ$

1.5. Weldface Appearance (max 6 marks)

The bead ripple should be regular on the weld face and weld penetration. Marks will be lost where the ripple is marked, irregular or weld profile uneven. There shall be no evidences of lack of fusion, porosity, stray arcing, slag or crater cracks.

Fillet Welds

1.1. Leg Length

The leg length 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 measurement, short imperfections of $\leq 0.5\text{mm}$ are acceptable and leg lengths shall not differ by more than 0.5mm for test 3 and 1.5mm for tests 2 and 4.

1.2. Stop Start Marks

Full marks will be given where clear evidence of a smooth transition and good stop start fusion is obtained.

1.3. Weld Overfill

This must not exceed 2mm (test 2 and 3) and 4mm (test 4). 1 mark will be lost for every 5mm of weld length where this is in evidence.

1.4. Weld Undercut

Weld undercut on either plate will lose marks – 1 mark for every 5mm of weld length where the undercut exceeds 0.05 of the thickness on either plate.

1.5. Weld Appearance

The ripple should be even on the weld face. The weld bead width should be regular throughout its length and there shall be no evidences of lack of fusion, porosity, stray arcing, slag or crater cracks.