

SkillWeld 2022

National Qualifier Competitors Technical Handbook

SkillWeld 2022 is Part of:



Skillweld 2022 is supported by:



Competition Information Pack

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Competition Eligibility & Rules

The WorldSkills UK Competition Rules should be read in conjunction with the WorldSkills UK Terms and Conditions and the competition-specific rules, if applicable. The competition-specific rules can be found within each competition brief or on the competition web page. In the event of a conflict, the competition-specific rules are overridden by the WorldSkills UK Competition Rules.

1. Conditions of entry

- a. To be eligible to enter a WorldSkills UK competition, competitors must meet the following criteria:
 - Competitors must be at least 16 years of age on 1st September 2021 to be eligible to compete during the 2022 competition cycle.
 - Employed, studying or an apprentice at the specified level of the competition.
 - Educated and/or trained in a UK education, or training establishment, and hold or be working towards a related UK qualification.
- b. Past competitors may enter WorldSkills UK competitions in subsequent years provided they meet the entry criteria as above.
- c. The following are not eligible to compete:
 - Gold medal winners, who may not compete in the same competition and level in subsequent years.
 - Squad and Team UK members, who forfeit their right to participate in WorldSkills UK national competitions.
- d. Competitors may only enter one competition at one level in any given competition year.
- e. Competitors should have the support of their college, university, training provider and/or employer to participate in a WorldSkills UK competition. This support must extend to the competitor being free to attend all relevant competition events and includes any competition preparation.
- f. By entering into a WorldSkills UK competition, competitors and their representatives are declaring that they will abide by the WorldSkills UK and competition specific rules.
- g. Representatives and Competitors must ensure that all competition materials are read thoroughly and that they are confident with all aspects of the requirements of the competition including the competition overview and joining instructions. They should also be familiar with the procedures for being invited to qualifying events and the UK finals at WorldSkills UK –LIVE in November 2022
- h. Representatives and Competitors are responsible for covering any travel, subsistence or accommodation expenses incurred in participating in WorldSkills UK competitions, unless they are informed otherwise. Accommodation for LIVE will be covered.
- i. Special dispensation may be granted by the Competition Organiser for those that have declared a physical, sensory or learning difficulty prior to the competition. They will also endeavour to provide reasonable adjustments, where possible, for competitors who declare a physical, sensory or learning difficulty at any stage of the competition.
- j. Representatives and Competitors should understand the process for selecting competitors for international competitions. By agreeing to the competition registration Terms and Conditions, each Competitor confirms that they have read and understood the process. Please refer to the WorldSkills UK website.
- k. Representatives and Competitors should be aware that not all WorldSkills UK competitions lead to WorldSkills International competitions.
- l. By agreeing to the Terms and Conditions, each Competitor gives permission to WorldSkills UK and the Competition Organising Partner (COP) to use non-confidential information from the competition registration, relevant photographs and video film for any publicity purposes in relation to vocational education, training and the competition.

2. Overall responsibility

- a) Responsibility for the overall conduct of the competition; passive stage, qualifiers and the UK final rests with the Competition Organising Partner (COP) approved in this role by WorldSkills UK.

3. Code of conduct for Supporters

- a) Supporters (employers, teachers, trainers or parents) must not make any form of contact or communication with competitors during the competition (applies to qualifier and UK Final). Supporters will be in breach of the competition rules and run the risk of competitors being disqualified or penalty points deducted from their overall score.
- b) If a supporter needs to make contact with a competitor during the competition, please speak to the Competition Organising Partner (COP) or a Competition Judge.

4. During the competition

- a) Competitors who arrive late for the competition will not automatically receive additional time. However, this may be granted in exceptional circumstances by the COP.
- b) Unless otherwise stated there must be no communication between fellow competitors, the audience, your representatives or competition staff during the competition itself.

- c) Competitors must start and finish work when instructed to do so by the judges or COP.
- d) Competitors may be allowed a familiarisation period before the start of the competition. Additional information may be distributed/circulated in advance by COP. Competitors may ask questions during this defined period.
- e) Competitors wishing to leave the competition area while the competition is in progress must obtain the permission of the judges or COP.
- f) Competitors may leave before the competition time has elapsed but will be required to declare that they are finished to the lead judge and may not re-enter the competition area once they have left.
- g) In some competitions at qualifier stage there may be an option to ask the judges to fix a fault or provide a solution that is beyond the capability of the competitor for reasons other than time. Should the competitor choose to do this they will sacrifice all available marks for this criteria but may then be able to gain extra marks later for sequential but dependent tasks. The option to do this will be permitted solely at the discretion of the lead judge. This option will not exist at UK Finals.
- h) Should a Competitor feel unwell at any stage of the competition, he or she should make a judge or COP aware immediately.
- i) Competitors who need to repair their own tools or equipment during the competition will not be given additional time unless agreed by the judges or the COP.
- j) Competitors are not permitted to take any of the following into the competition area unless otherwise instructed: personal electronic devices including mobile phones, electronic cigarettes, tablets, mp3 players, written notes, sketches or special aids.
- k) The COP will ensure that marking is undertaken fairly and will calculate marks to establish places and awards.
- l) Judges are not allowed to discuss marks or provide one to one feedback to Competitors unless it has been built into the competition program. This feedback should be consistent and follow the same format for all competitors.
- m) Should a Competitor feel at a disadvantage for any reason before or during the competition, he or she should bring it to the COP attention immediately, following the complaints and appeals procedure.

5. Health and Safety

Occupational Health and Safety (OH&S) legislation applying to the competition and event derives from The Health & Safety at Work Act 1974 and all applicable regulations included under this legislation.

All activities must comply with the relevant national regulation and proven best practices. Any breaches of Health, Safety and Welfare must be reported to a responsible person.

- a) The COP and/or the Nominated Competitions Agent will carry out a safety check of the competition site prior to the competition.
- b) All Competitors, Representatives, and Judges will receive a health and safety briefing before the start of the competition.
- c) Competitors must wear appropriate clothing and safety equipment in accordance to health and safety regulations for the skill, such as safety glasses, gloves and ear defenders.
- d) All electrical equipment brought by Competitors or Representatives should be PAT tested within the last 12 months and used at the competitors' own risk.
- e) Adhering to health and safety practices is the responsibility of each competitor. Failure to do so may result in disqualification from the competition, and being asked to leave the competition venue.
- f) Safe work practices of the relevant industry and the venue must be adhered to at all times.

6. After each National qualifier (if applicable)

- a) First, Second and Third places are awarded at The Skillweld 2021 National qualifier
- b)
- g) Finalists are selected from the top scoring competitors nationally. So it is possible that winners from the qualifier may not necessarily go through to the final and those who have not gained a position at a qualifier may have gained a significantly high mark nationally to make it into the UK final.
- h) Once all qualifiers have taken place and finalists have been verified by WorldSkills UK, the COP will communicate with all competitors to notify those who have scored highly to participate in the UK final at Skillweld 2022 national Finals WorldSkills UK will publish the list of all finalists online from July 2022.

7. After the National Final

- a) Gold, Silver, Bronze and Highly Commended medals are awarded at the UK Final.
- b) WorldSkills UK will verify the results, and awards will be announced at the end of the National Final at WorldSkills UK Medal ceremony
- c) Complaints are to be made through the competition Complaints Procedure, as described in see section 8.0 and in accordance with the WorldSkills UK complaints procedure
- d) The following describes the procedure for awarding medals at UK Finals:
 - Competitors/Teams achieving the highest score will receive a Gold medal
 - Competitors/Teams achieving the 2nd highest score will receive a Silver medal
 - Competitors/Teams achieving the 3rd highest score will receive a Bronze medal

- If Competitors/Teams scores are equal, joint Gold, Silver or Bronze medals will be awarded
 - Competitors/Teams achieving above the average score will receive Highly Commended
 - Competitors/Teams achieving below the average score and who have not won a medal will receive a Participation Certificate.
- e) The completed project work is the property of the Competition Organisers who may pass it back to Competitors, where possible and at their own discretion.
- f) Competitors at UK Finals will receive a summary of their marks by email after the competition has taken place. Gold, Silver and Bronze winners will receive a medal for their achievement at the competition once marks have been verified by WorldSkills UK, where possible..
- g) If results cannot be announced after the competition, medals will be sent by post after the competition to the address entered at the point of registration. Certificates for medal winners will also be sent at this time.
- h)

8. Eligibility criteria for selection to WorldSkills Lyon 2024

Squad UK

those who are age eligible and have achieved the benchmark score will be invited to opt into Squad UK 12 months later, at the start of the WorldSkills Lyon 2024 journey

To be eligible to be a member of Squad UK or Team UK for WorldSkills Lyon 2024, you must meet the following criteria:

Age

WorldSkills International eligibility criteria states that competitors for the WorldSkills Lyon 2024, must be born on or after 1 January 2002 for all skills apart from Mechatronics, Engineering Team Challenge and Aeronautical Engineering where competitors must be born on or after 1 January 1999.

Residency and education

For selection to Squad UK competitors must:

- have been continuously resident in the UK for at least 2 years
- have been educated and trained in a UK education or training establishment, and
- hold one or more related UK qualifications.

Performance criteria at National Finals

For each skill the UK represents at WorldSkills International, the top three competitors/teams at LIVE in 2021 will be considered for a place in Squad Selection, providing they;

- Meet the eligibility criteria
- Meet a minimum score of 65%

9. Complaints and Appeals Procedure for WorldSkills UK National Competitions

This procedure is in accordance with the general principles and practices that apply specifically to WorldSkills UK, whether regional, national or international.

We aim to handle complaints quickly, effectively and in a fair and honest way. We take all complaints seriously and use valuable information from investigating to help us improve the service we provide. We treat all complaints in confidence.

WorldSkills UK assures competitors and their representative that by making a complaint, the competitor would not be disadvantaged in any way, due to a complaint being made in good faith.

Who can raise a complaint?

A competitor or their representative affected by the way WorldSkills UK provides its services can make a complaint. A representative may raise a complaint for the affected person if they:

- Cannot or do not wish to make a complaint themselves, or
- Have given consent for the representative to act on their behalf, (which must be evidenced as part of the submission).

If you are not happy about raising a complaint yourself and you do not know someone who can talk or write on your behalf, we will be happy to find someone from an independent organisation to act as an advocate for you. Please contact us by emailing competitions@worldskillsuk.org

Stage 1 of the procedure

In the first instance, we encourage you seek to early resolution at the competition or training activity with the relevant personnel i.e. Competition Organising Partner, Lead Judge or Training Manager.

This could mean an on-the-spot acknowledgment and explanation if something has gone wrong, and immediate action to resolve the problem

Stage 2 of the procedure

A complaint is defined as an expression of dissatisfaction about matters that affect the quality of the competitors' experience, or about a standard of service provided by or on behalf of WorldSkills UK.

The progression of individuals to the next stage of their competition journey i.e. national qualifier to national final or from national final to Squad or Squad to Team UK is not subject to an appeal. However, a complaint can be made against the conduct of those implementing the competition or training activity, or against the processes involved if any of the following are present:

- Evidence of unfair practice negatively or positively impacting a competitor and their performance
- Evidence of prejudice or of bias on the part of the WorldSkills UK Training Manager/Competition Organising Partner
- Evidence in the breach of the Competition Rules and Code of Ethics

Time limits

The complaint must be sent within five working days after the incident in writing, addressing the issue with sufficient evidence to competitions@worldskillsuk.org. WorldSkills UK will acknowledge, by email, receipt of your communication within two working days and aim to resolve within 20 working days, unless agreed otherwise.

10. Terms of reference

Within the WorldSkills UK Competition rules the following terms shall mean:

Term Definition

Awards refer to the Gold, Silver, Bronze and Highly Commended medals allocated to Competitors or Teams at UK Finals.

Competition Organiser is a person or organisation responsible for the design and delivery of individual or clusters of WorldSkills UK competitions.

Competitors are those who will compete in a WorldSkills UK competition. This may also include teams of competitors for some competitions.

Nominated Competitions Agent is a member of staff from the organisation leading on the competition or a representative acting on behalf of WorldSkills UK.

Places are allocated to those who have achieved first, second or third in a competition qualifier.

Representative is either an individual or organisation representing the competitor and/or team.

Entry to the National Qualifiers

Please note entry into the qualifier is by invitation only. Invitations will be sent to those competitors who have successfully gained a place in the qualifiers from the Skillweld 2022 Passive Stage.

The Competition Tasks

Included in the pack will be drawings of four weld tests covering the three main manual fusion processes. As the following table shows, all test pieces are mandatory.

| TEST NO. | PROCESS | TEST PIECE | REQUIREMENT |
|----------|----------------------------|--|-------------|
| 1 | TIG Root MMA Fill & cap | Pipe butt weld H- Lo 45 in carbon steel | Mandatory |
| 2 | TIG | Pipe to plate fillet weld in the PB position in Aluminium | Mandatory |

| | | | |
|----------|-----|---|-----------|
| 3 | TIG | Plate fillet weld in the PD position in stainless steel | Mandatory |
| 4 | MAG | Plate fillet weld in the PF position in carbon steel | Mandatory |
| | | | |

Candidates will have one full set of material for all weld tests.

All test pieces must be completed within four hours.

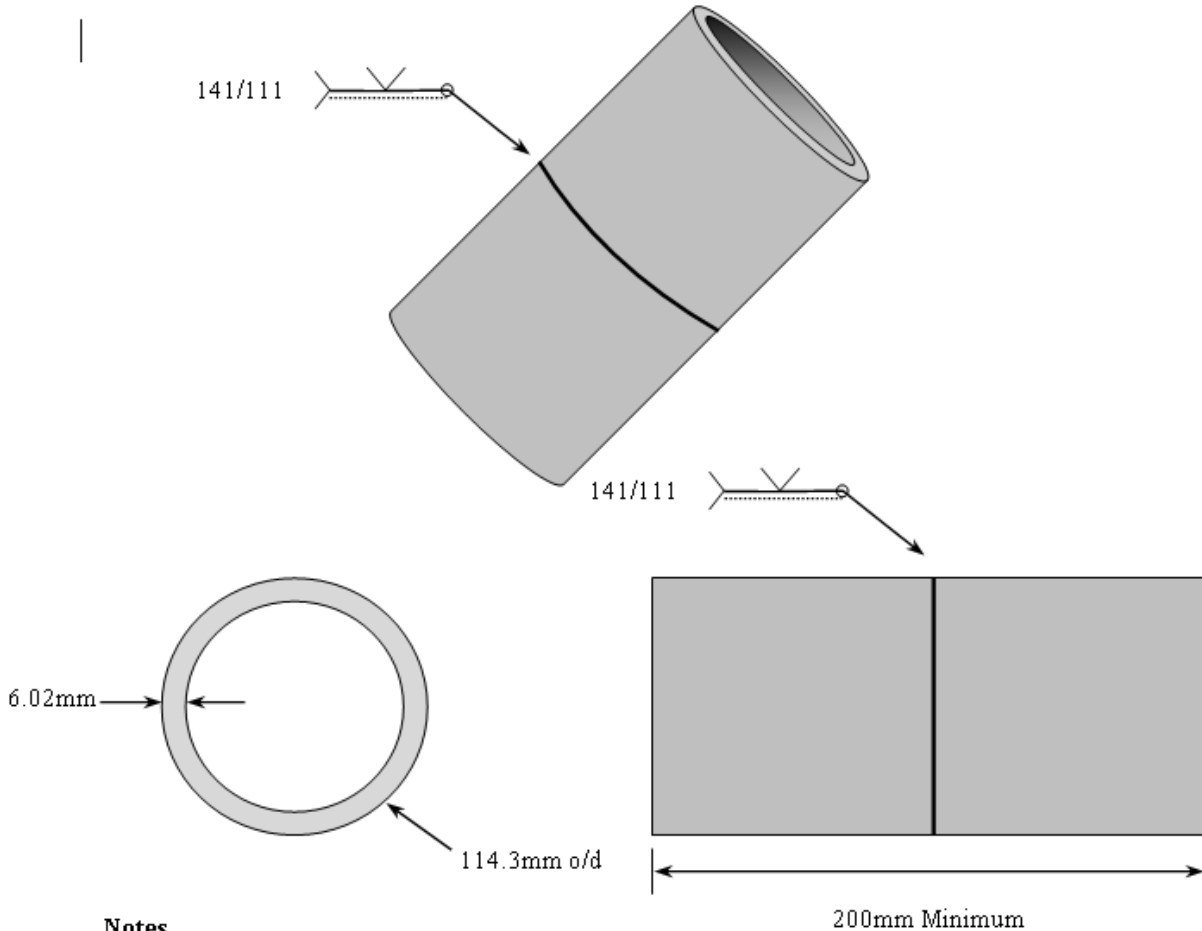
Judging of test pieces will take place on during the competition.

SkillWeld 2021 judges will inform the competitors of the results of the local competition on the day (1st 2nd and 3rd Places) and give feed back to the competitors so that they can improve the performance

The top 10 competitor nationally will be invited to compete at the Skillweld 2021 National Finals in November
WorldSkills UK will announce the results in July 2021

Test No 1 (Mandatory) TIG/MMA

| | |
|----------------------------------|----------------------------------|
| <u>Weld Specification</u> | <u>Test Specification</u> |
|----------------------------------|----------------------------------|



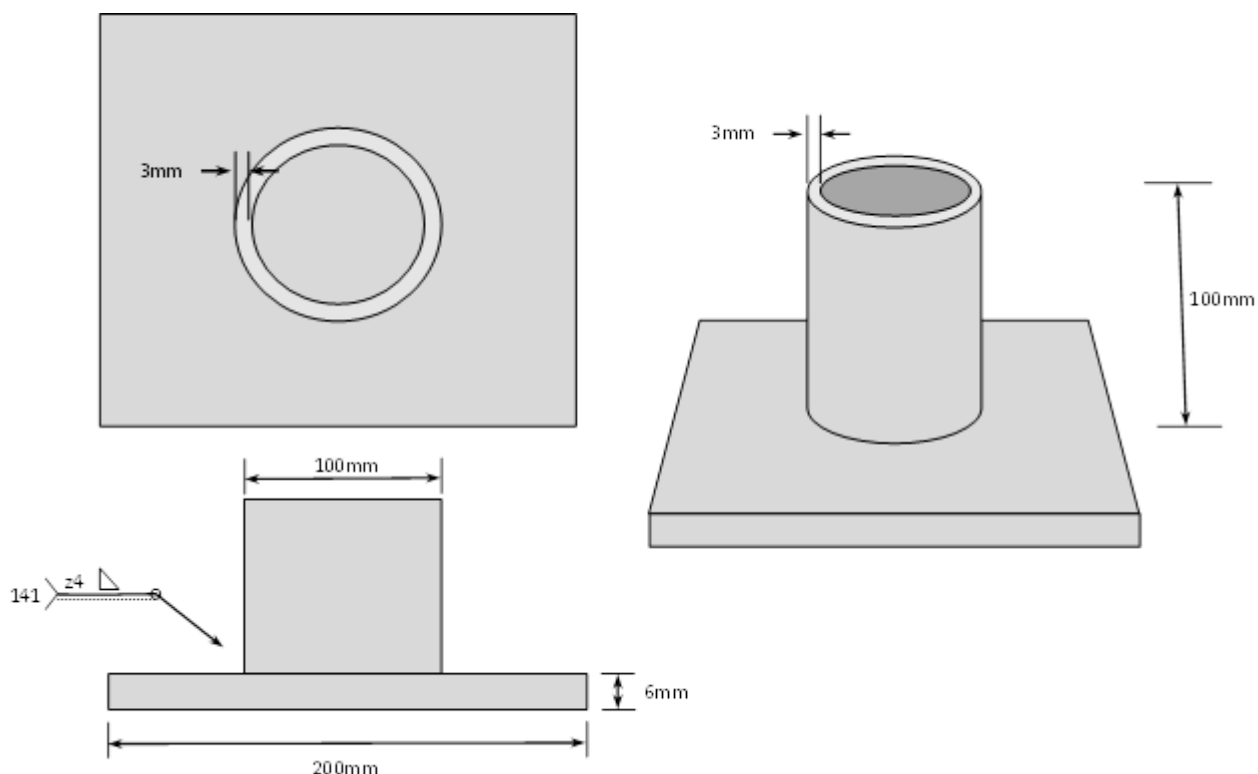
Notes,

- 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

| | | | | | | | | | | | | | | | | | | | | | |
|--|------------------------------------|---------------------|------------------|--------------------|------------------|--------------------|-----------------|--------------------|-----------------------|------------------------------------|---------------------|-----------------|-----------------------|------------|----------------------|--------------------|-----------------------|--------------------|------------------------------|----------------|--|
| <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Materials</td> <td>Carbon Steel</td> </tr> <tr> <td>Weld Prep</td> <td>37.5° bevel</td> </tr> <tr> <td>Root Face</td> <td>As required</td> </tr> <tr> <td>Weld Gap</td> <td>As required</td> </tr> <tr> <td>Weld Processes</td> <td>Root-TIG Fill & Cap MMA</td> </tr> <tr> <td>Current Type</td> <td>AC or DC</td> </tr> <tr> <td>Electrode Type</td> <td>Any</td> </tr> <tr> <td>Electrode Dia</td> <td>As required</td> </tr> <tr> <td>Number of Runs</td> <td>As required</td> </tr> <tr> <td>Weld Position (Fixed)</td> <td>H-Lo 45</td> </tr> </table> <p>Stop/Starts may be ground on root only</p> | Materials | Carbon Steel | Weld Prep | 37.5° bevel | Root Face | As required | Weld Gap | As required | Weld Processes | Root-TIG Fill & Cap MMA | Current Type | AC or DC | Electrode Type | Any | Electrode Dia | As required | Number of Runs | As required | Weld Position (Fixed) | H-Lo 45 | <p style="text-align: center;">Visuals</p> <p>12 O'clock pipe position to be marked</p> <p>Root stops and starts to be marked Root to be witnessed before Fill & Cap completed</p> <p>Root Penetration – 2mm (max) Overfill – 3mm (max)</p> <p>All dimensions in millimetres.</p> |
| Materials | Carbon Steel | | | | | | | | | | | | | | | | | | | | |
| Weld Prep | 37.5° bevel | | | | | | | | | | | | | | | | | | | | |
| Root Face | As required | | | | | | | | | | | | | | | | | | | | |
| Weld Gap | As required | | | | | | | | | | | | | | | | | | | | |
| Weld Processes | Root-TIG Fill & Cap MMA | | | | | | | | | | | | | | | | | | | | |
| Current Type | AC or DC | | | | | | | | | | | | | | | | | | | | |
| Electrode Type | Any | | | | | | | | | | | | | | | | | | | | |
| Electrode Dia | As required | | | | | | | | | | | | | | | | | | | | |
| Number of Runs | As required | | | | | | | | | | | | | | | | | | | | |
| Weld Position (Fixed) | H-Lo 45 | | | | | | | | | | | | | | | | | | | | |

Test No. 2 (Mandatory) TIG

| | |
|---------------------------|---------------------------|
| <u>Weld Specification</u> | <u>Test Specification</u> |
|---------------------------|---------------------------|



Notes.

The grade of Aluminium should be 1050A were possible.

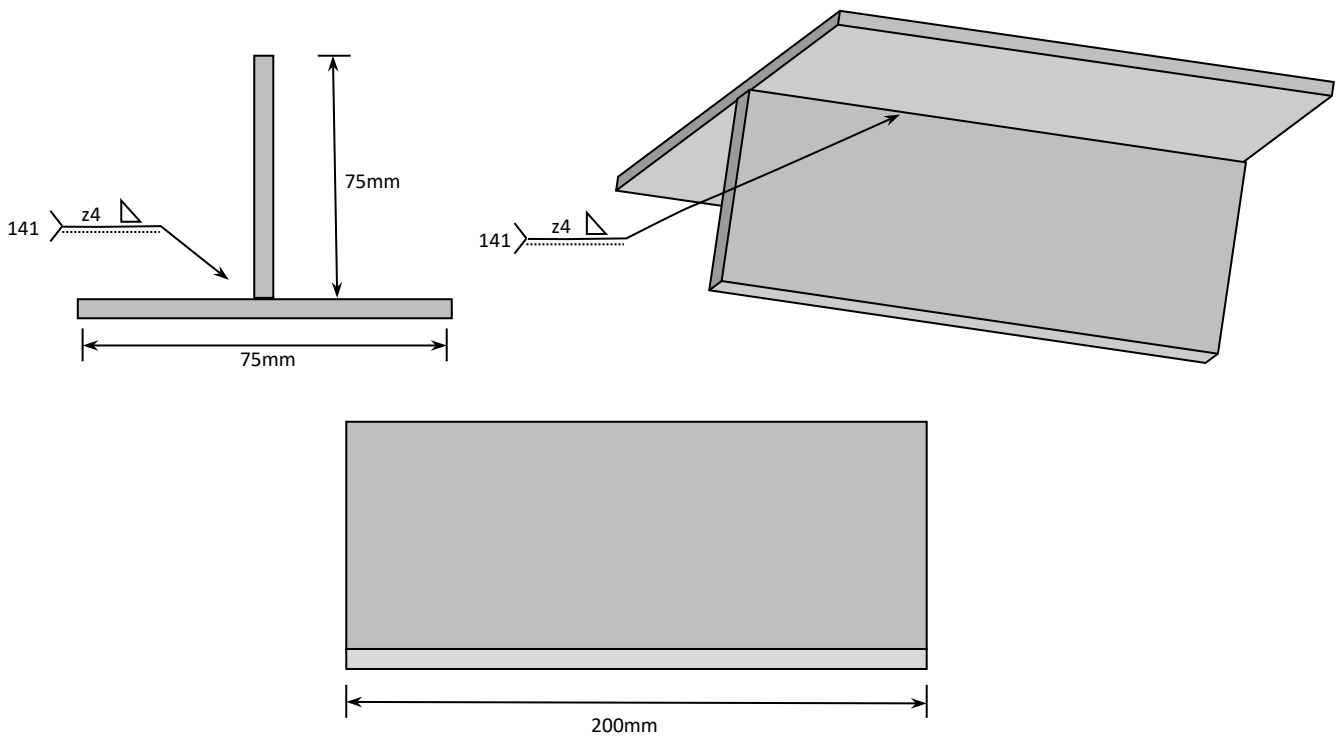
Drawing symbols as per BS EN ISO 2553

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

Test No. 3 (Mandatory) TIG.

Weld Specification

Test Specification

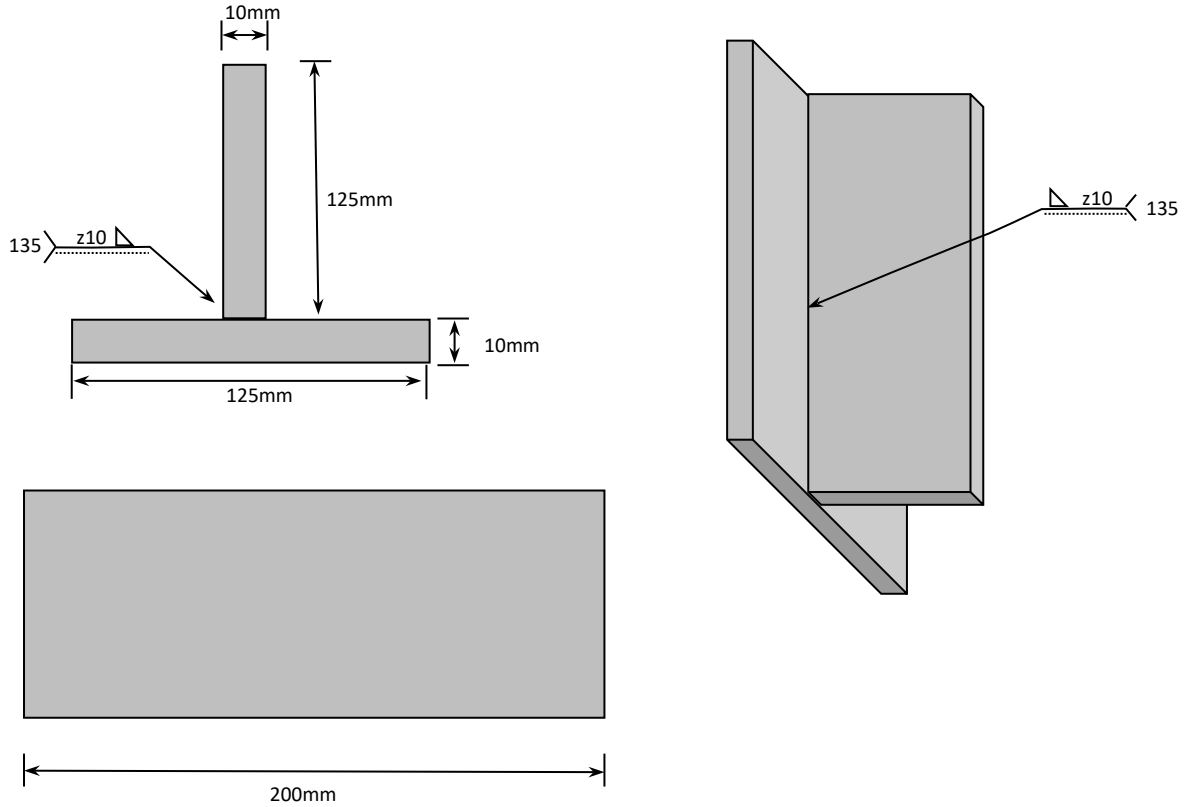


Notes,

Drawing symbols as per BS EN ISO 2553

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

Test No.4 (Mandatory) MIG/MAG.



Notes,

Drawing symbols as per BS EN ISO 2553

| | | |
|----------------------------|--------------|--|
| Material | Carbon Steel | <p style="text-align: center;"><u>Visuals</u></p> <p>Weld stops and starts to be made at weld mid-point and marked</p> <p>The Root Run must be witnessed by the Shop master</p> <p>All dimensions in millimetres</p> |
| Weld Process | MIG/MAG | |
| Electrode Dia. | 0.8 mm | |
| Shielding Gas | Argon/Co2 | |
| Number of Runs | 2 | |
| Weld Position | PE | |
| Stop/starts may be ground. | | |

Test Piece Marking (Based on BS EN 25817)

Butt Welds

1.1. 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.

1.2. Stop Start Positions (max 10 marks)

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

1.3 Overfill (max 10 marks)

The 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.

1.4. Undercut (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.

1.5. Weldface Appearance (max 15 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.

Fillet Welds

1.1. Leg Length (max 15 marks)

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 or unequal leg length.

1.2. Stop Start Marks (max 10 marks)

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

1.3. Weld Overfill (max 10 marks)

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 (max 10 marks).

Weld undercut on either plate will lose marks – 1 mark for every 5mm of weld length on either plate where undercut exceed is identified.

1.5. Weld Appear (max 15 marks)

The ripple should be even on the weld face. The weld `bead width should be regular throughout its length.

