

**T Level Technical Qualification in  
Engineering, Manufacturing,  
Process and Control  
(8713-34)**

**Fabrication and Welding  
Technologies (334)**

**Practical Assignment  
Sample Candidate Pack**

**First teaching from September 2022  
Version 2.0**

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Version and date	Change detail	Section
2.0 February 2024	Assignment brief figures updated (Figures 2-7) for clarity	2. Assignment brief

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## **1. Assessment**

This assessment is for the Fabrication and Welding Technologies Occupational Specialism component of the Technical Qualification. This pack consists of a practical assignment brief, including drawings and diagrams as necessary, that you will need to use to complete your assessment tasks.

## 2. Candidate Guidance

### General guidance

This is a formal assessment that you will be marked and graded on. You will be marked on the quality and accuracy of the work you produce. It is therefore important that you carry your work out to the highest standard you can.

### Plagiarism

Plagiarism is the failure to acknowledge sources properly and/or the submission of another person's work as if it were your own. Plagiarism is not allowed in this assignment.

This assignment is an assessment of your abilities, so the work submitted must be all your own and carried out under the conditions stated. You will be asked to sign a declaration that you have not had any help with the assignment. Your assessor is allowed to give you some help understanding the instructions, if necessary, but they will record any other guidance you need, and this will be taken into account during marking.

Where research is allowed, your assessor must be able to identify which work you have done yourself, and what you have found from other sources. It is therefore important to make sure you acknowledge sources used and clearly reference any information taken from them (e.g. providing as a minimum a list of web addresses/books/articles etc used).

### Timings and planning

You are advised to study the details of the assessment before starting.

You should check with your assessor that you have all the relevant materials, equipment and information/data sources that you need before starting the assessment.

You should take care when planning to make sure you have divided the time available between parts of the assignment tasks appropriately. Timings for tasks are provided within this pack to support with planning and time allocation.

If you have a good reason for needing more time, you will need to explain the reasons to your assessor and agree a new deadline date. Changes to dates will be at the discretion of the assessor, and they may not mark work that is handed in after the agreed deadlines.

Any requested changes to deadlines must be agreed by both your assessor and City & Guilds.

### Word counts

Typical word counts are to be used as approximates for guidance to support the production of sufficient evidence. The marking will relate to the quality of the evidence produced and not whether the word count have been met.

### Health and Safety

You must always work safely, in particular while you are carrying out practical tasks.

You must always follow any relevant Health and Safety regulations, Risk Assessments and codes of practice in line with centre requirements.

If your assessor sees you working in a way that is unsafe for yourself or others, they will highlight the issue and ask you to stop the task immediately. Your assessor will not be able to reassess you until they are sure you are ready for assessment and can work safely.

### **Presentation of work**

Presentation of work must be neat, legible and appropriate to the task, and evidence required for submission.

You should make sure that each piece of evidence including any forms are clearly labelled with your name and the assignment reference.

All electronic files must be given a clear file name that allows your assessor to identify it as your work.

Written work may be word-processed or handwritten unless stated otherwise.

All sketches and drawings should be neat and tidy, be appropriately proportioned or drawn to scale and be annotated.

Calculations should be set out clearly, with all working shown, as well as any assumptions made.

You should use appropriate units of measurement at all times, consistent with the requirements of the assignment.

### **Internet access**

Where internet access is allowed as part of a task (e.g. for research purposes) you will be advised that this is the case and be reminded of the importance of submitting your own work and the seriousness of plagiarism, malpractice and collusion. You will be advised that your browser history will be monitored and checked.

Where you are allowed the use of computer equipment for a task, equipment will be provided with internet capability disabled (e.g. Wi-Fi disabled, machine disconnected from network etc).

### **Instructions for this assignment**

Ensure you read all the provided assessment information issued by the assessor.

You must work independently and not share your work with any other candidates in these supervised assessment sessions.

Your work will be kept secure during any supervised breaks that are taken.

Internet access is **not** allowed, unless otherwise stated in the task.

You must complete all the tasks and present all evidence that is detailed in each task.

This assessment booklet contains the assignment brief.

The tasks have been separated into individual documents which will be handed to you at the start of each task.

**Within each task you will find the following:**

- **Conditions of assessment:** This will tell you the duration and rules you must follow when completing a task.
- **Controlled conditions:** This will tell you the rules you must follow when completing each task e.g. You must not share or discuss your work with other candidates.
- **What must be produced for marking:** This describes the evidence you must submit when the task is completed. Be aware, failure to submit any evidence requested can adversely affect your overall mark for the assessment.
- **Additional evidence for this task:** This describes other forms of evidence that will be collected by the assessor to support the marking of your performance. This will often include but not limited to photographic and video evidence.

**Assessment themes**

You will be assessed against a number of assessment themes. This assignment has a total of 90 marks. The table below shows the weighting of the marks for each of the assessment themes.

Assessment theme	Weighting %*
Health and safety	13%
Planning and preparation	13%
Production	47%
Quality review and evaluation	27%

### 3. Assignment Brief

You are working as a fabrication engineer for a local company which fabricates many products including products for the marine industry.

You have been asked to plan out the required material and cut sizes, and then fabricate and weld an anchor for a customer's small boat.

The customer has supplied the overall size of the anchor required.

You are required to fabricate all parts of the anchor including the:

- stock
- crown
- shank
- flukes and support.

Once the anchor has been fabricated and welded you will have to test the integrity of your welds using a non-destructive testing (NDT) method.

You will complete the assembly of the anchor by attaching the pre-fabricated chain and shackle.

You will evaluate the processes and procedures used to produce the finished anchor and present your findings to your supervisor in a handover meeting.

This assignment has a time allocation of **26 hours and 15 minutes**.

#### Design representation

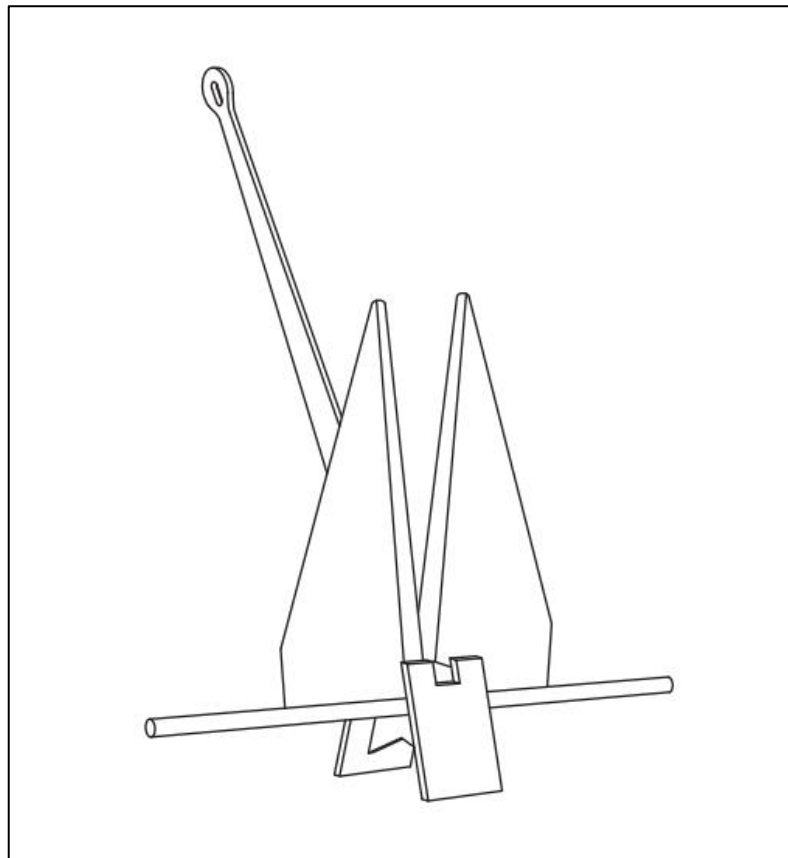
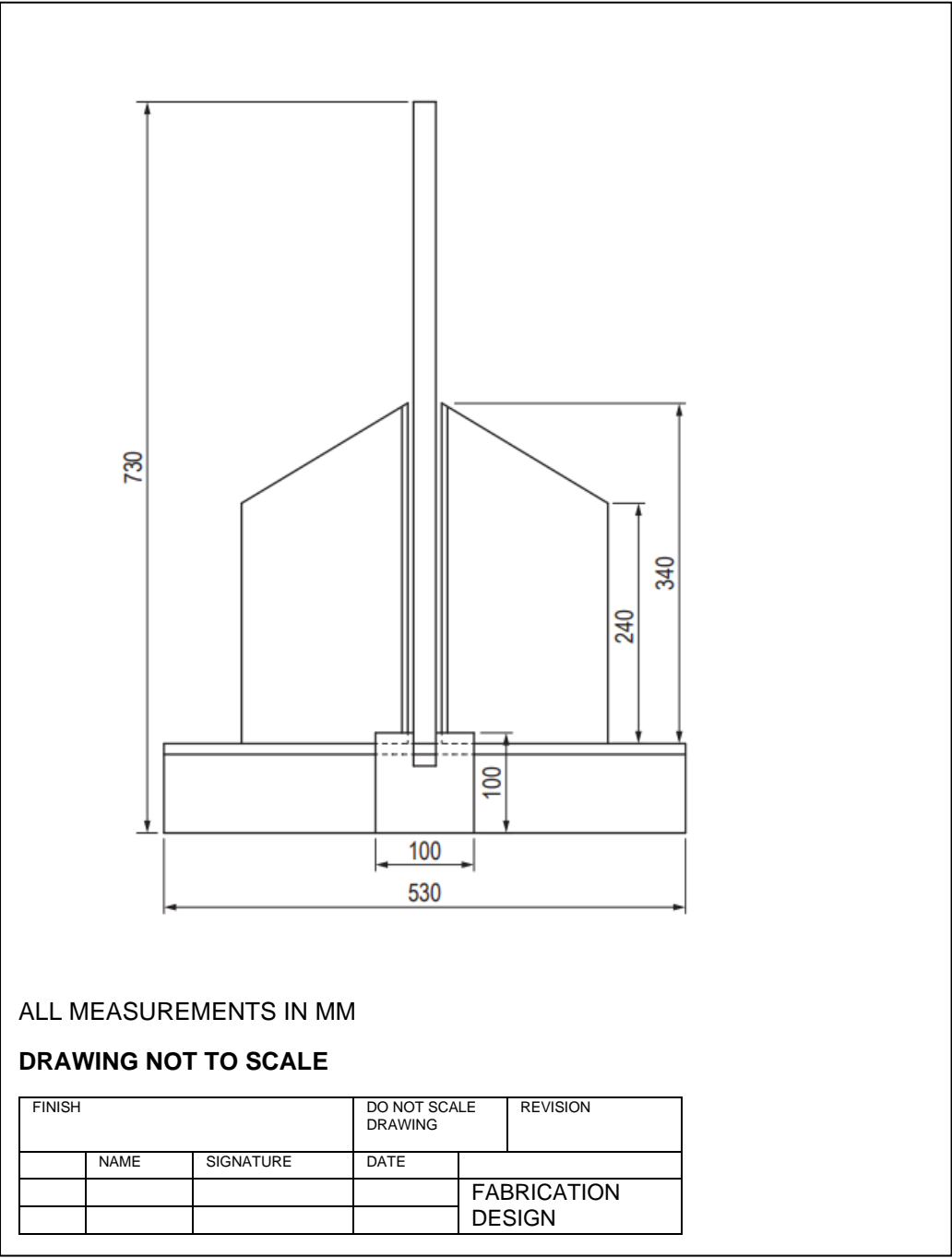
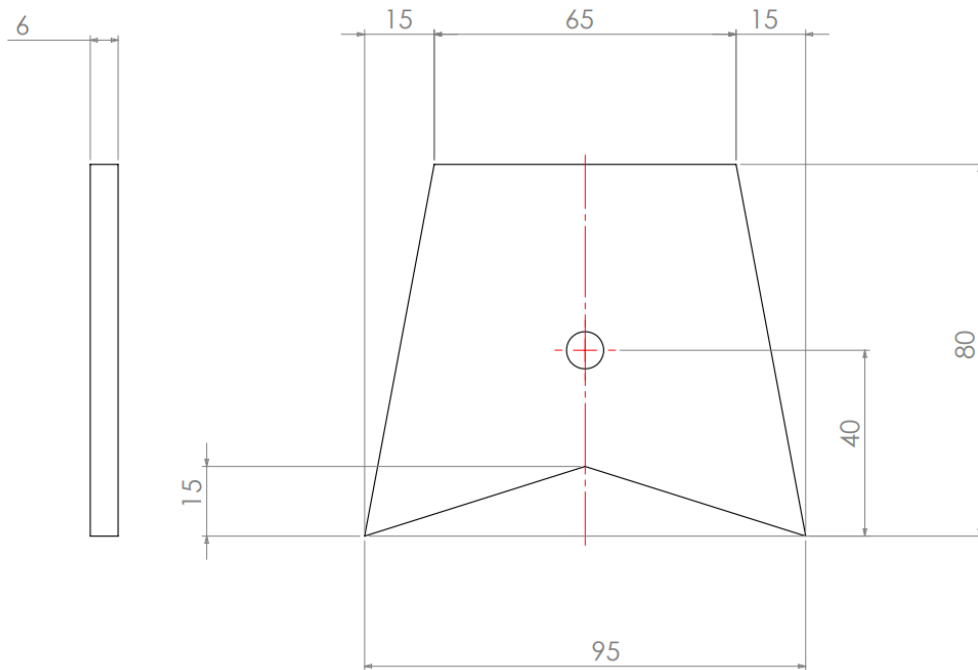




Figure 1: Fabrication design



**Figure 2a: Crown (1)**

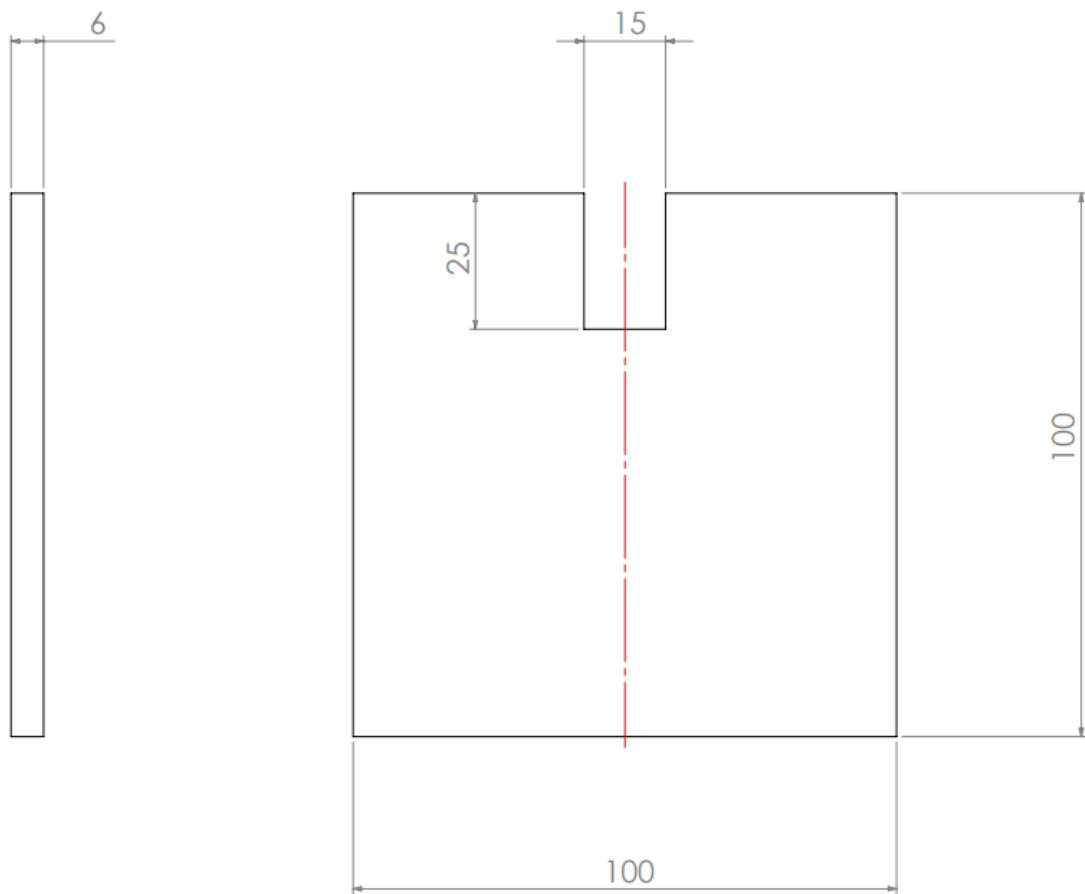


ALL MEASUREMENTS IN MM

**DRAWING NOT TO SCALE**

FINISH			DO NOT SCALE DRAWING		REVISION
	NAME	SIGNATURE	DATE		
				CROWN 1	

**Figure 2b: Crown (2)**



ALL MEASUREMENTS IN MM

**DRAWING NOT TO SCALE**

FINISH			DO NOT SCALE DRAWING		REVISION
	NAME	SIGNATURE	DATE		
				CROWN 2	

Figure 3: Flukes

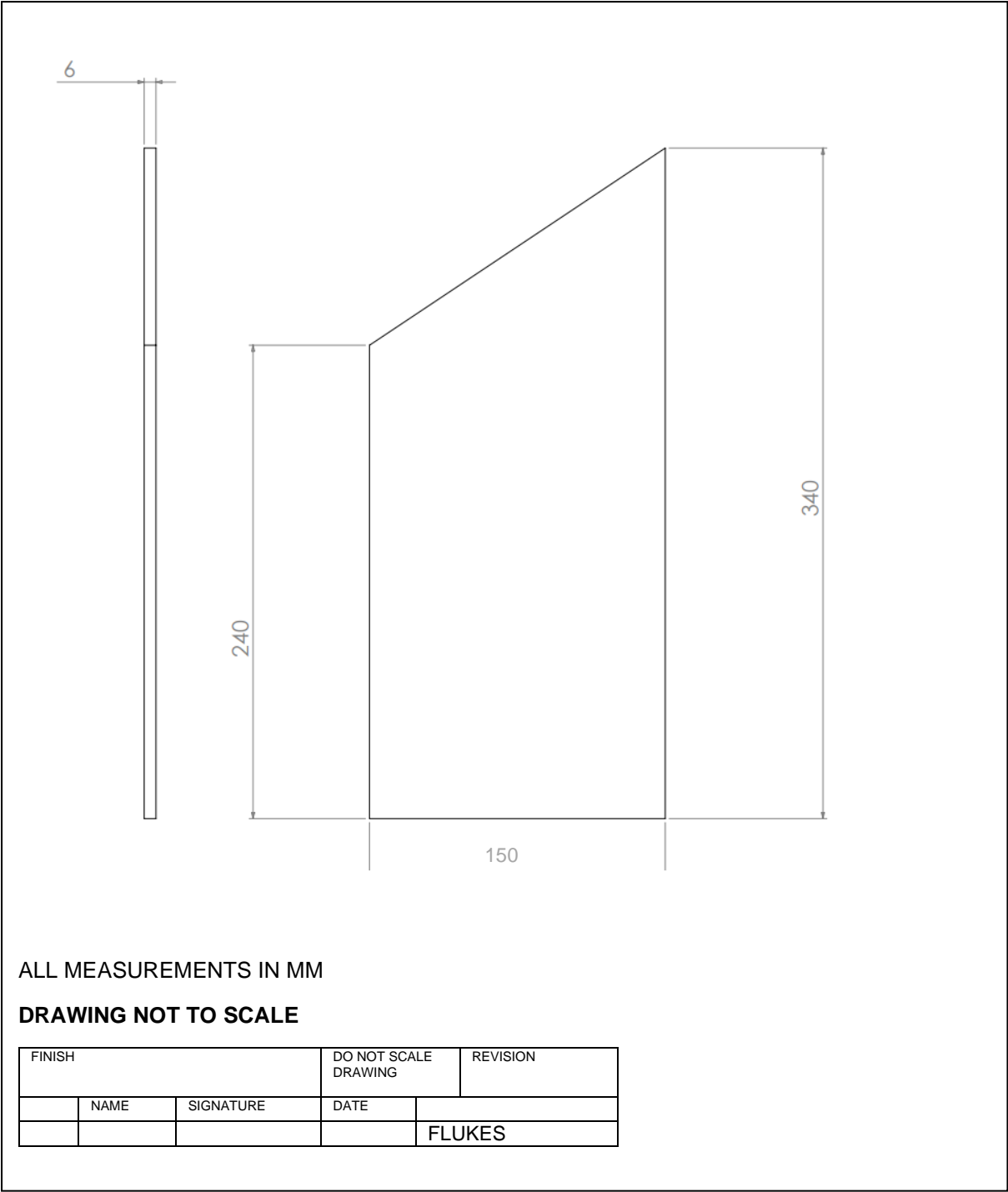


Figure 4: Shank

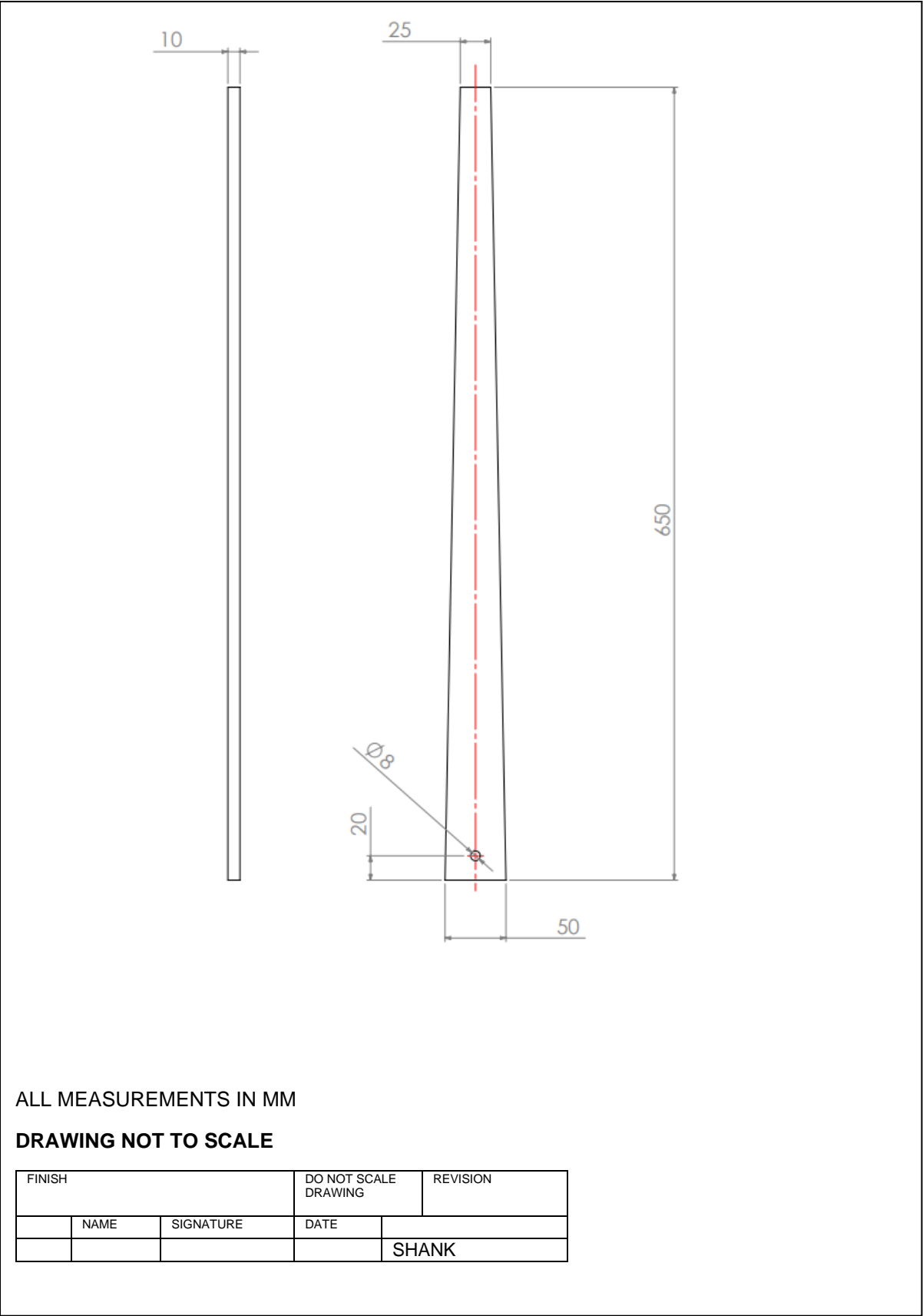
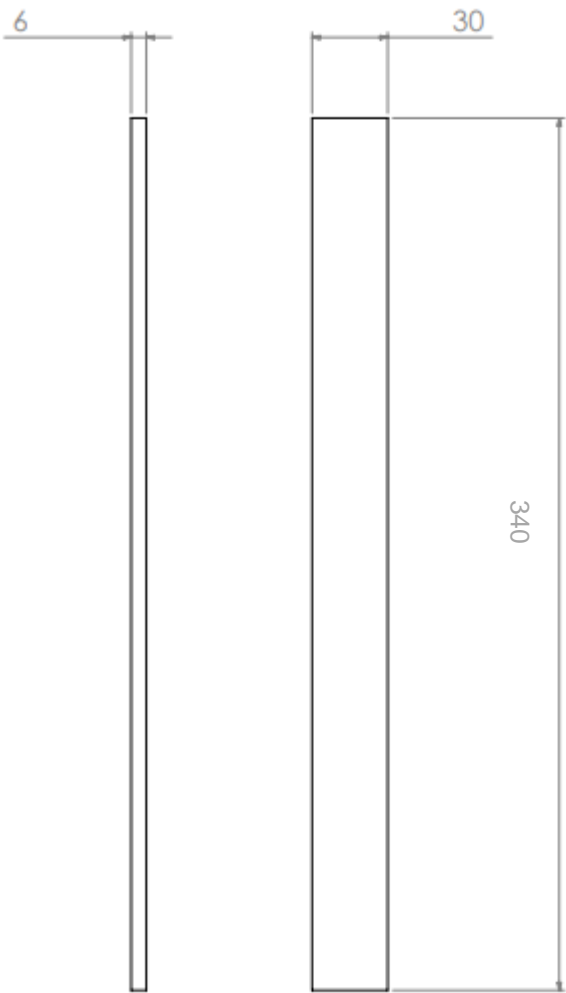


Figure 5: Fluke support

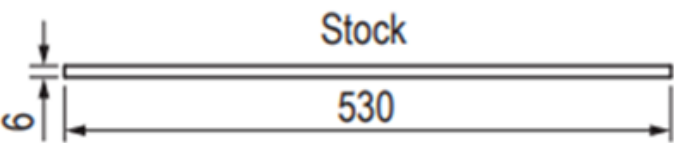


ALL MEASUREMENTS IN MM

DRAWING NOT TO SCALE

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	NAME	SIGNATURE	DATE		
				FLUKE SUPPORT	

Figure 6: Stock



ALL MEASUREMENTS IN MM

**DRAWING NOT TO SCALE**

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	NAME	SIGNATURE	DATE		
				STOCK	

**Figure 7 - Fabrication criteria**

<b>Component</b>	<b>Measurement</b>
<b>Anchor height</b>	730 mm.
<b>Stock</b>	530 mm x 6 mm round bar.
<b>Crown</b>	100 mm high x 100 mm wide at widest point.
<b>Shank</b>	650 mm x base width 50 mm to 25 mm at top.
<b>Flukes and fluke support</b>	340 mm overall height x 150 mm wide x 240 mm at shortest height side x 30-degree angle to meet top.  Fluke support 340mm x base width 30 mm.
<b>Hole and notch sizes</b>	8mm hole for the round bar.
<b>Pre-fabricated components</b>	<ul style="list-style-type: none"> <li>• Pin.</li> <li>• Shackle.</li> <li>• Chain.</li> </ul>
<b>Cutting equipment</b>	To be selected from: <ul style="list-style-type: none"> <li>• flame</li> <li>• plasma</li> <li>• laser</li> <li>• power nibblers</li> <li>• hand tools.</li> </ul>
<b>Welding processes</b>	<p><b>Two</b> processes <b>must</b> be selected from:</p> <ul style="list-style-type: none"> <li>• TIG</li> <li>• MIG</li> <li>• MAG</li> <li>• MMA.</li> </ul> <p>For each selected process, at least one 150 mm continuous single run weld must be completed.</p>
<b>Welding positions</b>	<p><b>Two</b> positions <b>must</b> be demonstrated from:</p> <ul style="list-style-type: none"> <li>• flat (PA)</li> <li>• horizontal (PC)</li> <li>• vertical up (PF).</li> </ul>
<b>Non-destructive testing method</b>	Magnetic particle testing.
<b>Industrial Standard</b>	Welding <b>must</b> be produced to BS EN ISO 5817.



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