



HM Government

T-LEVELS

T Level Technical Qualification in Engineering, Manufacturing, Process and Control (Level 3)

Fitting and Assembly Technologies Occupational Specialism (8713-331)

Practical Assignment

Candidate Pack (Sample)

September 2025 Version 3.0

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1. Assessment

This assessment is for the Fitting and Assembly 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.

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.

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 general advice, such as, clarification of the task instructions. However, general advice will not include:

- any specific advice on how to improve work to meet the required standard
- feedback on anything missing from your work
- any intervention that improves the standard or presentation of work

If there is a need to provide more than general advice your assessor will need to record the advice, they have given and take it into account when marking the submitted work.

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

Use of Artificial Intelligence (AI)

AI may only be used as a source where the use of the internet is allowed for a research task. Where you use AI, you must acknowledge its use and show clearly how you have used it. Please be aware that how you have decided to use it may impact on the overall mark you are allocated.

Guidance and feedback

There are some rules around how much guidance and feedback your assessor can provide as part of completing the assignment. Your assessor is allowed to give you some help in

understanding the task instructions if necessary. However, if significant clarification and guidance is provided by your assessor this will be recorded and considered as part of the marking process and may reduce your mark. Your assessor will make it clear if any guidance given may reduce your mark before it is given, so that you understand this when asking for guidance.

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 appropriately divided the time available between parts of the assignment tasks. 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 time for the assessment to take place. Any changes will be at the discretion of the assessor and agreed to by City & Guilds.

Word counts

Typical word counts, where indicated, 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 has been met.

Submission of evidence

Your work will be submitted as final at the end of each assessment session. You will not have an opportunity to rework any of your evidence once the assessment session ends. However, if through other tasks within the project, you develop your ideas or build on earlier tasks, then you should continue to build on these and should use your evaluation to outline the reasons why this happened.

Presentation of work

The presentation of your 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 task 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 digital or handwritten unless stated otherwise.

All sketches and drawings should be neat, tidy and annotated.

Calculations should be set out clearly, showing all working and any assumptions you made. You should use appropriate units at all times, consistent with the requirements of the assignment.

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 will not be permitted any additional notes, such as printed resources and textbooks, unless otherwise stated in the conditions for assessment.

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.

Any additional documents/templates needed for the task will be provided to you by the assessor.

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. For example, 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 that 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 is not limited to, photographic and video evidence.
- **Resources:** Provides a list of equipment, documents or tools that you will have access to, to complete the task/sub task.

3. Assignment brief

You are working as a fitter/maintenance engineer in a large-scale fabrication facility. You have been asked to join a team of engineers that are setting up production processes to create small batch (100 parts per batch) production of new components.

Each component has a number of spaced drilled holes so set-up speed, accuracy and efficiency of drilling, and machine up-time are all important. Technical drawings for the drill jig have been provided by the design department.

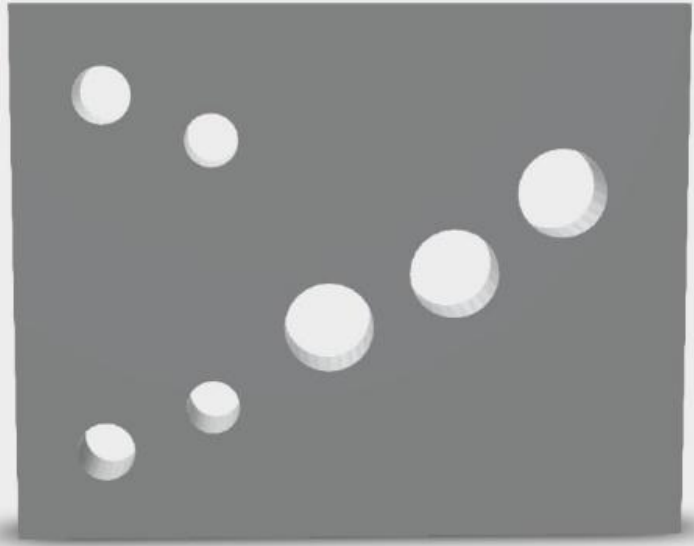
Design Criteria

You are required to:

- create a drill jig to drill a series of holes quickly and accurately for the manufacturing process
- quality test the drilling output and adjust the jig as needed
- produce a sample drilled part for quality checking
- evaluate the processes and procedures used to produce the finished drill jig assembly
- present your findings to your supervisor in a handover meeting.

This assignment has a time allocation of **25 hours and 15 minutes**.

Components

Component name	Design representation
Drill jig top plate	

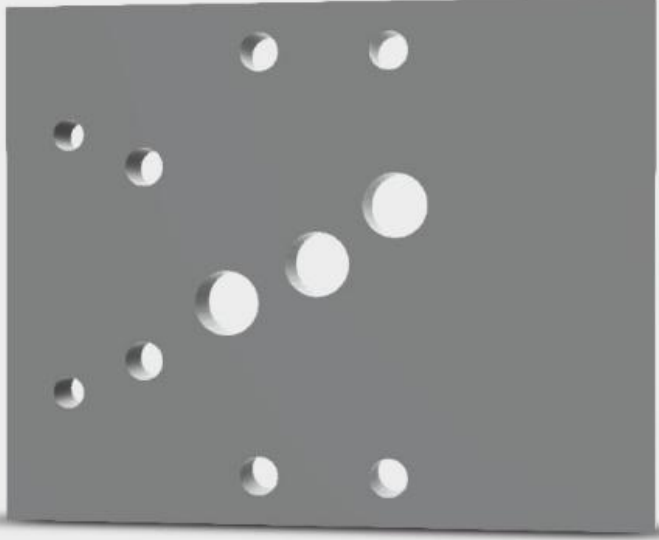
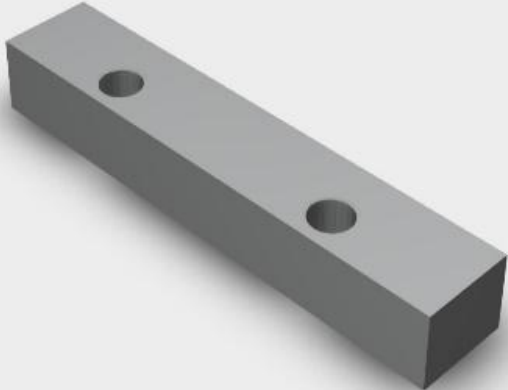

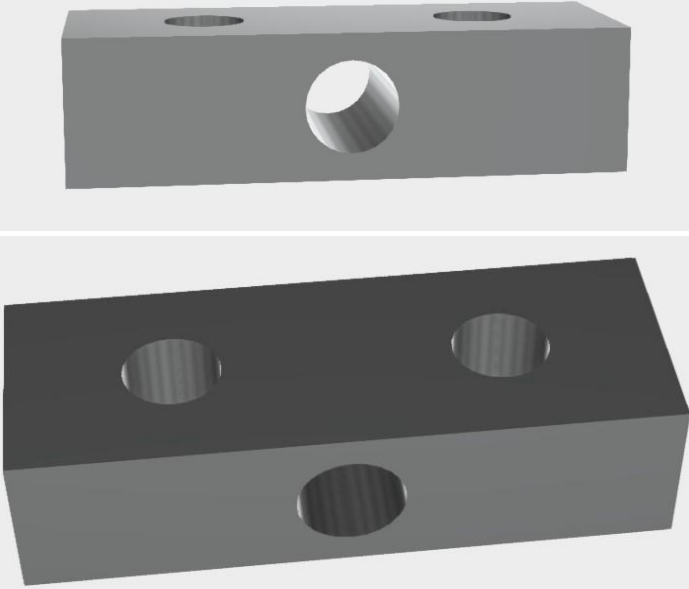
<p>Drill jig base plate</p>		
<p>Front support block</p>		
<p>Side support block</p>		

Figure 1 – Drill jig assembly

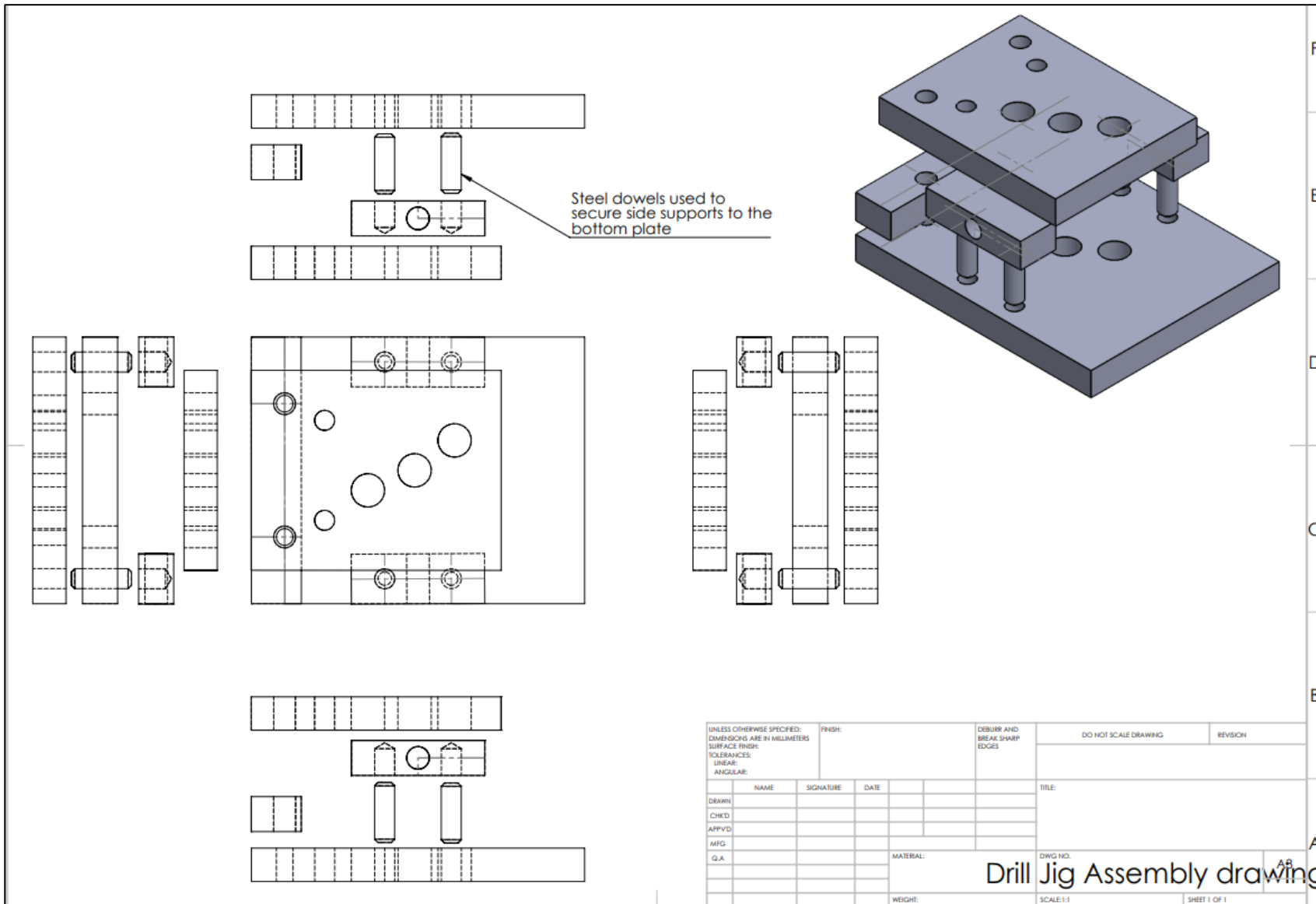


Figure 2 – Drill jig base plate

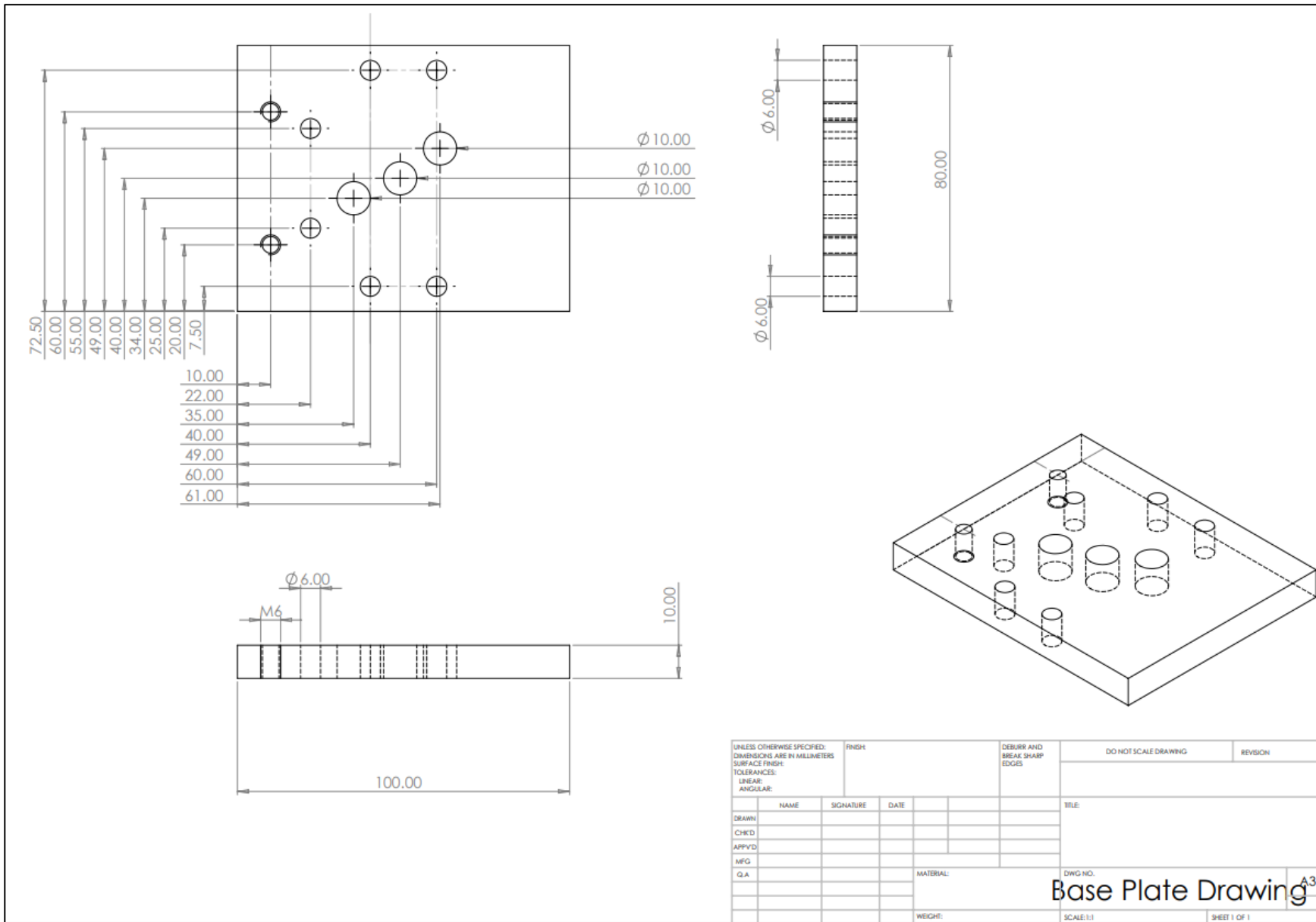


Figure 3 – Drill jig top plate

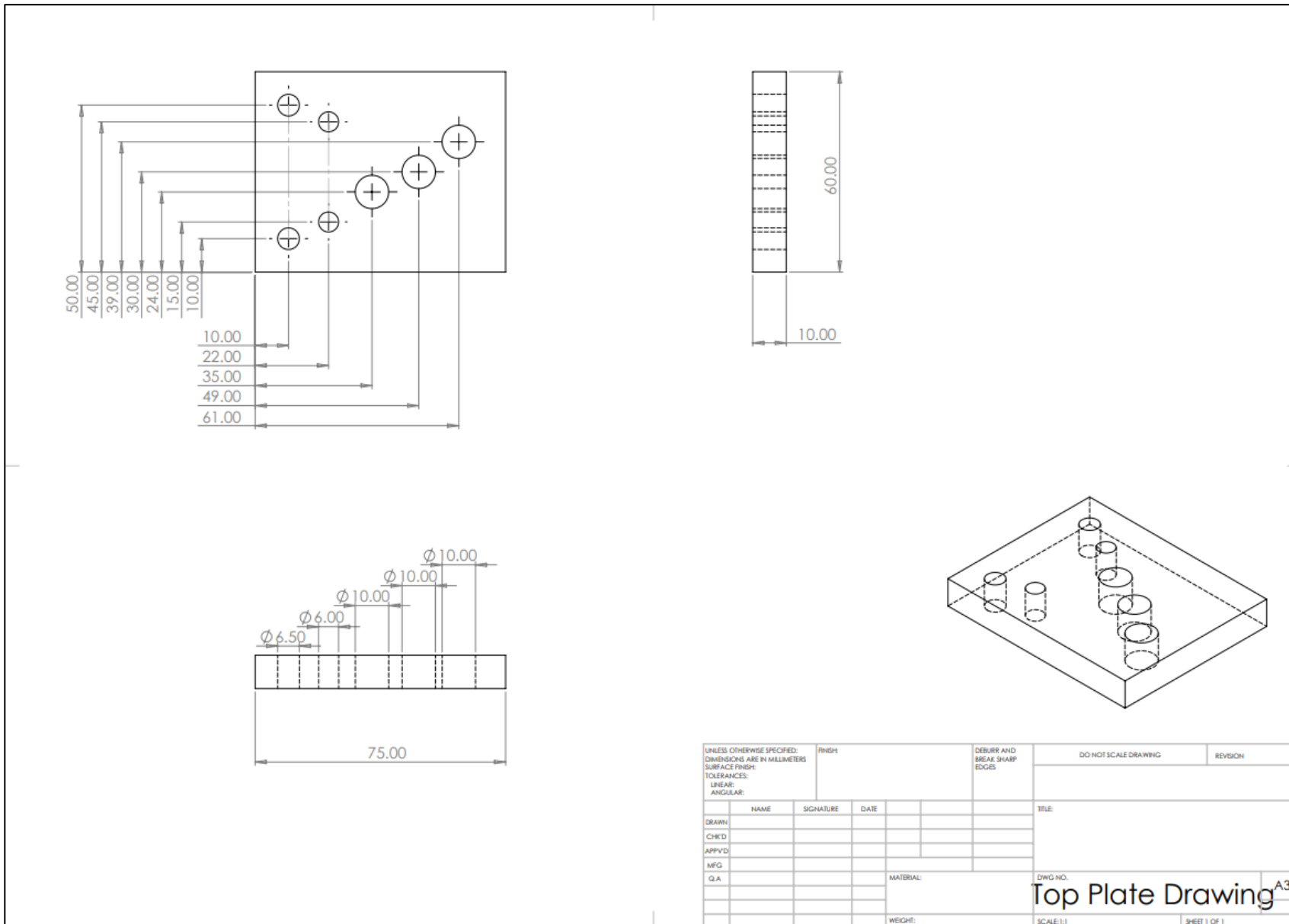


Figure 4 – Front support block

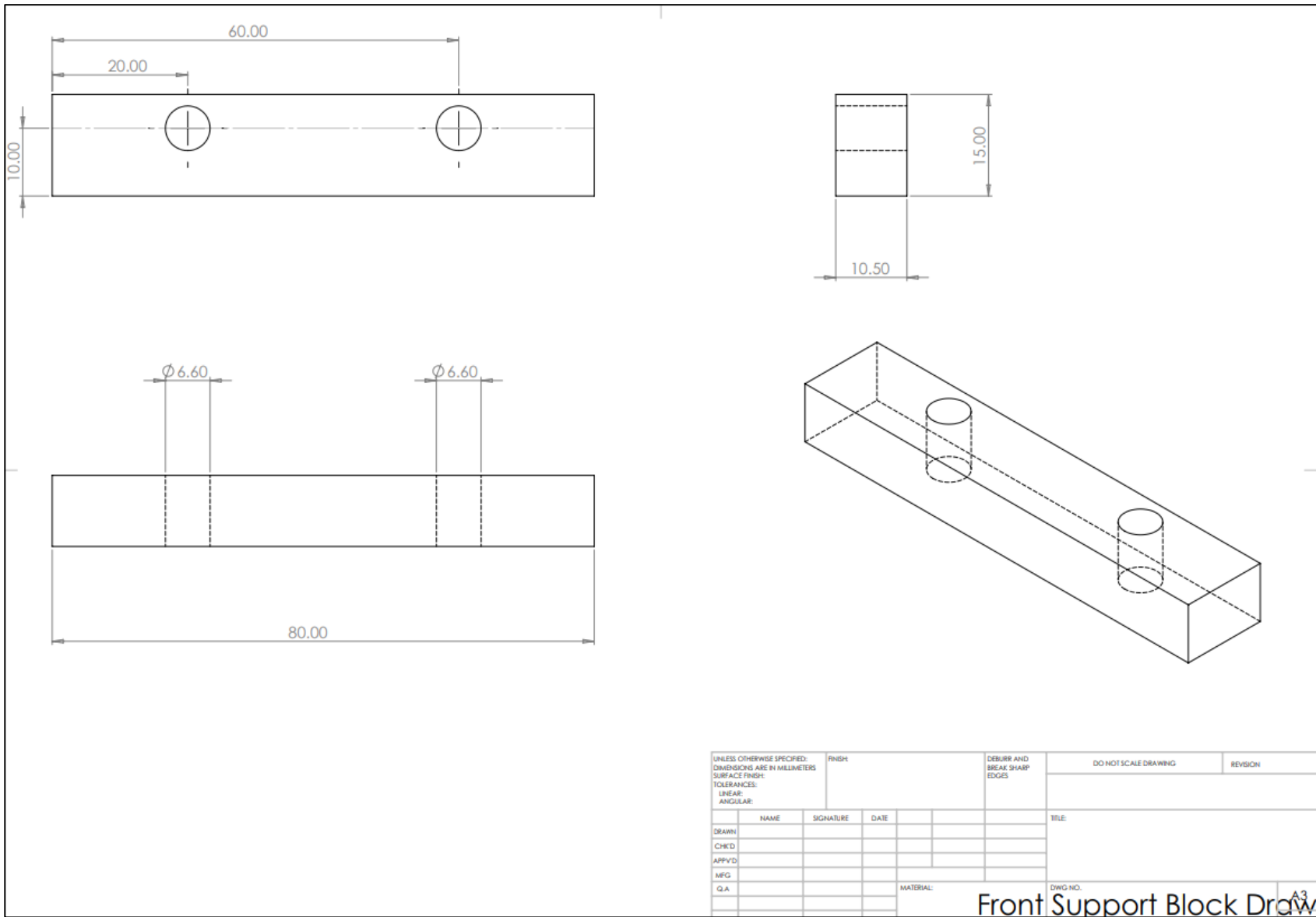


Figure 5 – Side support block

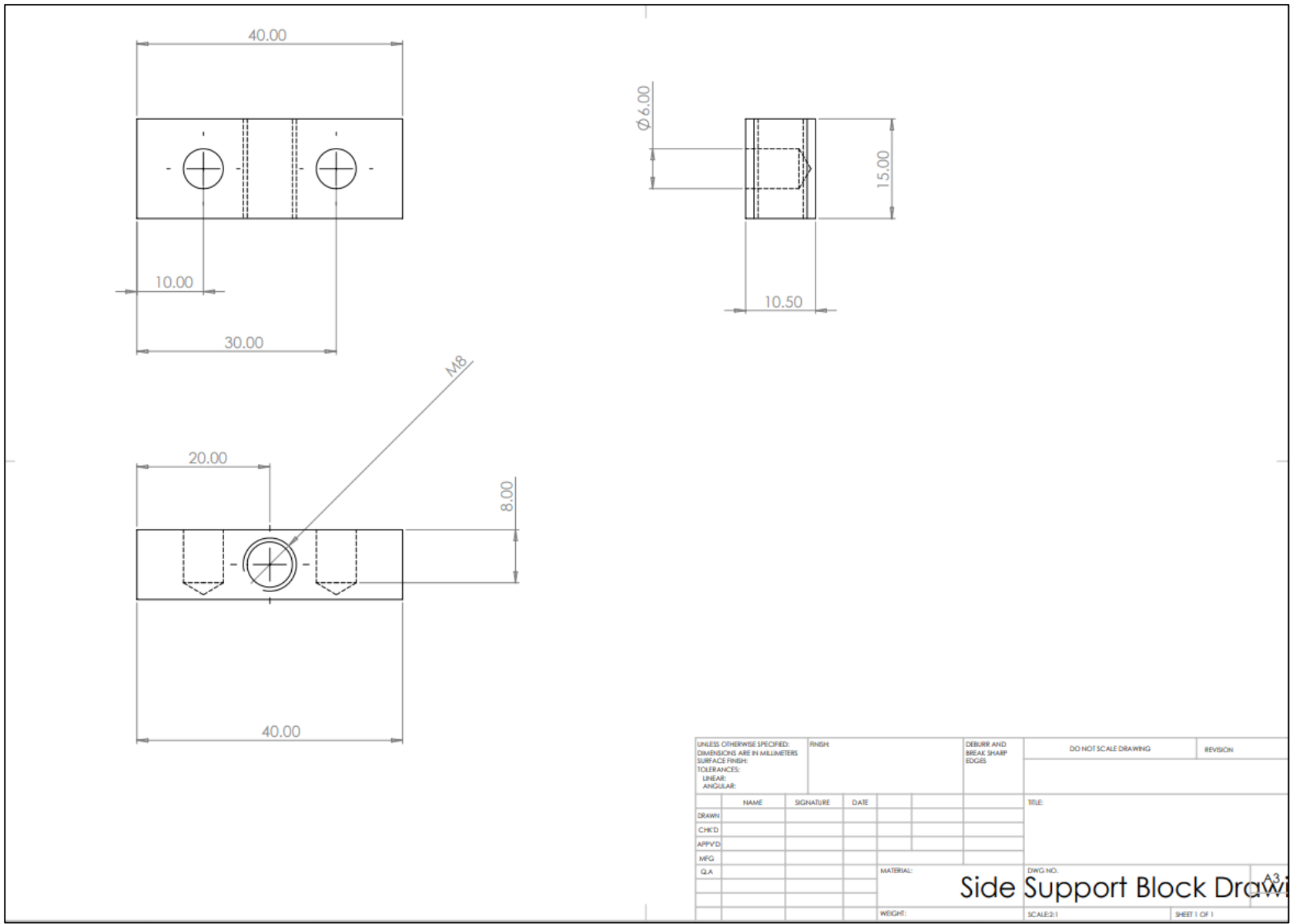


Figure 6 – Steel dowel

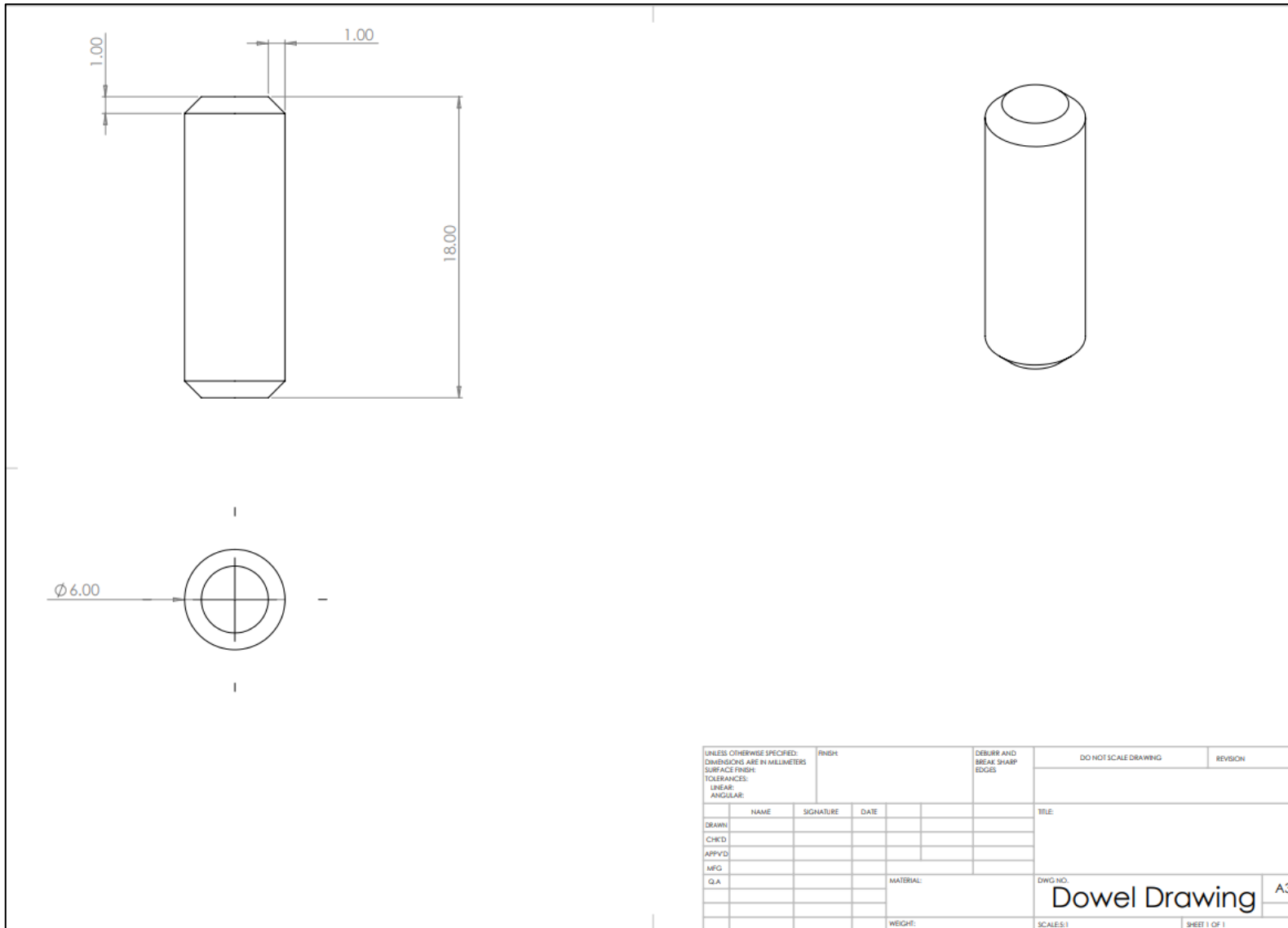


Figure 7 – Tolerances

Tolerances: Applicable to <u>all</u> drawings	
Surface finish	± 0
Flatness	$\pm .05$
All other dimensions	± 0.50

4. Tasks

Task 1 – Planning

You must:

- a) analyse the brief and technical information to produce a resources list needed for the production of the drill jig, with justifications for your selections
- b) produce a risk assessment covering all the activities needed to produce the drill jig
- c) produce a method statement with justifications
- d) produce a quality check sheet (for use in task 3a)
- e) carry out calibration checks on measurement equipment, with the results recorded on your resources list.

Conditions of assessment:

- the time allocated for this task is **3 hours**
- you must carry out the task on your own, under **controlled conditions** while being observed.

Controlled conditions:

- you must only work on the tasks in the allocated times
- assessment evidence must be handed in at the end of each session for secure storage which cannot be accessed
- all practical work areas and any evidence produced must be kept secure and only accessible by the assessor
- you must not share or discuss your work with other candidates
- you are not permitted to bring any materials into the assessment session.

What must be produced for marking:

- resources list with justifications for your selections, and measuring equipment calibration check recorded
- risk assessment
- method statement with justifications
- quality check sheet.

Resources:

- technical information (including drawings)
- writing materials
- measuring and marking out equipment (with calibration certificate (if applicable)) (e.g. callipers, go-no-go gauges, DTI clock gauge, rules, tape, scribe)
- COSHH data sheets
- non-programmable calculator.

Task 2 – Production

You must:

- a) prepare the work area
- b) produce and assemble the drill jig assembly using both hand tools and workshop machinery
- c) reinstate the work area following the production of the drill jig assembly.

Conditions of assessment:

- the time allocated for this task is **18 hours**
- you must carry out the task on your own, under **controlled conditions** while being observed.

Controlled conditions:

- you must only work on the tasks in the allocated times
- assessment evidence must be handed in at the end of each session for secure storage which cannot be accessed
- all practical work areas and any evidence produced must be kept secure and only accessible by the assessor
- you must not share or discuss your work with other candidates
- you are not permitted to bring any materials into the assessment session.

What must be produced for marking:

- functioning drill jig assembly.

Additional evidence for this task:

- assessor observation to include:
 - the production of the drill jig assembly
 - preparation, application and use of tools and equipment
 - set up and use of workshop machinery
 - checks carried out before, during and after production
 - work area prior to, during and on completion of tasks.

To support the comments made within the Practical Observation the assessor must capture the following photographic evidence that must be submitted as supporting evidence for each candidate.

Photographic evidence which shows:

- sequence of photographs during the construction of the drill jig to include:
 - work area, prior to, during and on completion of production activities
 - stages of production of the drill jig components (including setting up, marking out of materials, removal of material using equipment, finishing and assembly)
 - completed drill jig assembly.

Resources:

- access to a range of hand tools

- access to a pillar drill
- marking out tools
- measurement and inspection tools (with calibration certificate (if applicable)) (e.g. callipers, go-no-go gauges, DTI clock gauge, rules, tape)
- suitable surface treatment: degreaser, lubricant, rust protection spray
- appropriate Personal Protective Equipment (PPE) (as per resources list)
- COSHH data sheets
- access to the required production drawings
- commissioning checklist template
- copies of completed documentation from Task 1.
- Materials:
 - low carbon mild steel plate
 - steel dowels
 - pre-manufactured bolts.

Task 3a – Quality review

You must:

- a) carry out a full quality inspection of the completed drill jig, recording findings using the quality check sheet
- b) produce a sample drilled part.

Conditions of assessment:

- the time allocated for this task is **1 hour**
- you must carry out the task on your own, under **controlled conditions**.

Controlled conditions:

- you must only work on the tasks in the allocated times
- assessment evidence must be handed in at the end of each session for secure storage which cannot be accessed
- all practical work areas and any evidence produced must be kept secure and only accessible by the assessor
- you must not share or discuss your work with other candidates
- you are not permitted to bring any materials into the assessment session.

What must be submitted:

- completed quality check sheet
- sample drilled part.

Additional evidence for this task:

- completed drill jig assembly
- assessor observations:
 - usage of measuring equipment
 - accuracy of drilled holes sample and measurements taken.

To support the comments made within the Practical Observation the assessor must capture the following photographic and video evidence that must be submitted as supporting evidence for each candidate.

Photographic evidence which shows:

- quality review process with consideration of
 - checking of tolerances and use of appropriate measuring equipment
- completed drill jig assembly and the sample drilled part.

Video evidence which shows:

- creation of the sample drilled part.

Resources

- measurement and inspection tools (with calibration certificate (if applicable)) (e.g. callipers, go-no-go gauges, DTI clock gauge, rules, tape)

- writing materials
- copies of completed documentation from Task 1
- quality check sheet from Task 1
- drill jig assembly from Task 2
- materials to create sample part
- drilling equipment and tooling.

Task 3b – Evaluation and recording

You must:

- a) produce a quality inspection report evaluating the production of the finished drill jig. The report should typically be 800 words.

This must include:

- finished sizes of components and confirmation the drill jig assembly conforms to the dimensional requirements of the specification
- an explanation of the quality checks undertaken and the reasons for their use
- result of the sample drilled part and functioning of the drill jig assembly
- a concessions list for every facet of the drill jig assembly that does not conform to the specification, reasons for occurrence and how to prevent reoccurrence
- an evaluation of the fitness for purpose of the finished drill jig assembly and method of production used with reasoning and justifications
- any improvements or adaptations required to the drill jig assembly, including any reasoning and justifications if adaptations or improvements are not required.

Conditions of assessment:

- the time allocated for this task is **3 hours**
- you must carry out the task on your own, under controlled conditions while being observed.

Controlled conditions:

- you must only work on the tasks in the allocated times
- assessment evidence must be handed in at the end of each session for secure storage which cannot be accessed
- all practical work areas and any evidence produced must be kept secure and only accessible by the assessor
- you must not share or discuss your work with other candidates
- you are not permitted to bring any materials into the assessment session.

What must be submitted:

- quality inspection report.

Additional evidence for this task:

- completed drill jig assembly
- sample drilled part.

Resources

- writing materials
- access to a computer to write report
- copies of completed documentation from Task 1
- drill jig assembly
- sample drilled part
- completed quality check sheet from Task 3A.

Task 3c – Handover

You must:

- a) hold a meeting with your supervisor to complete handover procedures, including:
 - confirmation of work completed
 - overview of finding in quality inspection report
 - suggested improvements to design or process
 - handover of finished drill jig assembly, sample part and quality inspection report.

Conditions of assessment:

- the time allocated for this task is **15 minutes**
- you must work on your own, under **controlled conditions** while being observed
- you must carry out the handover meeting, with the assessor (or another staff member) taking the part of the supervisor
- there will be no interaction required or permitted from your assessor as part of the handover.

Controlled conditions:

- you must only work on your tasks in the allocated times
- assessment evidence must be handed in at the end of each session for secure storage which cannot be accessed by candidates
- all practical work areas and any evidence produced must be kept secure and only accessible by the assessor
- you must not share or discuss your work with other candidates
- you are not permitted to bring any materials into the assessment session.

What must be submitted:

- assessor observation:
 - handover meeting.

Additional evidence for this task:

- handover materials consisting of:
 - completed drill jig assembly (from Task 2)
 - sample drilled part (from Task 3a)
 - quality inspection report (from Task 3b).

To support the comments made within the Practical Observation the assessor must capture the following video that must be submitted as supporting evidence for each candidate.

Video evidence which shows:

- handover meeting.

Resources

- quality inspection report

- completed drill assembly from Task 2
- sample drilled part from Part 3A.

End of assessment

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