



City & Guilds Level 2 Extended Technical Occupational Entry in Engineering (Diploma)– Fabrication and Welding (2145- 12)

Version 1.0 (November 2024)

**Practical Assignment Pack 2145-
253**

Candidate Pack (Sample)

Version and date	Change detail	Section
V1.0 November 2024	Initial version	All

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1. Assessment overview

This assessment is for the **City & Guilds Level 2 Extended Technical Occupational Entry in Engineering (Diploma) Fabrication and Welding pathway**.

This pack consists of a practical assignment brief that you will need to use to complete your assessment tasks.

2. Candidate guidance

General task guidance

Please read **all** information carefully before completing the assignment.

This is a formal assessment that you will be graded on. You will be graded on the quality and accuracy of the work you produce. It is therefore important that you carry out your work 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 general advice i.e., clarification of the task instructions. However, general advice will not include:

- Any specific advice on how to improve work to meet the required standard
- Provide feedback on anything missing from your work
- Intervene in any way 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 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 (eg 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 time for the assessment to take place. Any changes will be at the discretion of the assessor and agreed 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.

Health and Safety

You must always work safely, 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.

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 project 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, tidy and annotated.

Calculations should be set out clearly, with all working shown, as well as any assumptions 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 candidate pack contains the assignment brief.

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

Within each task you will find the following:

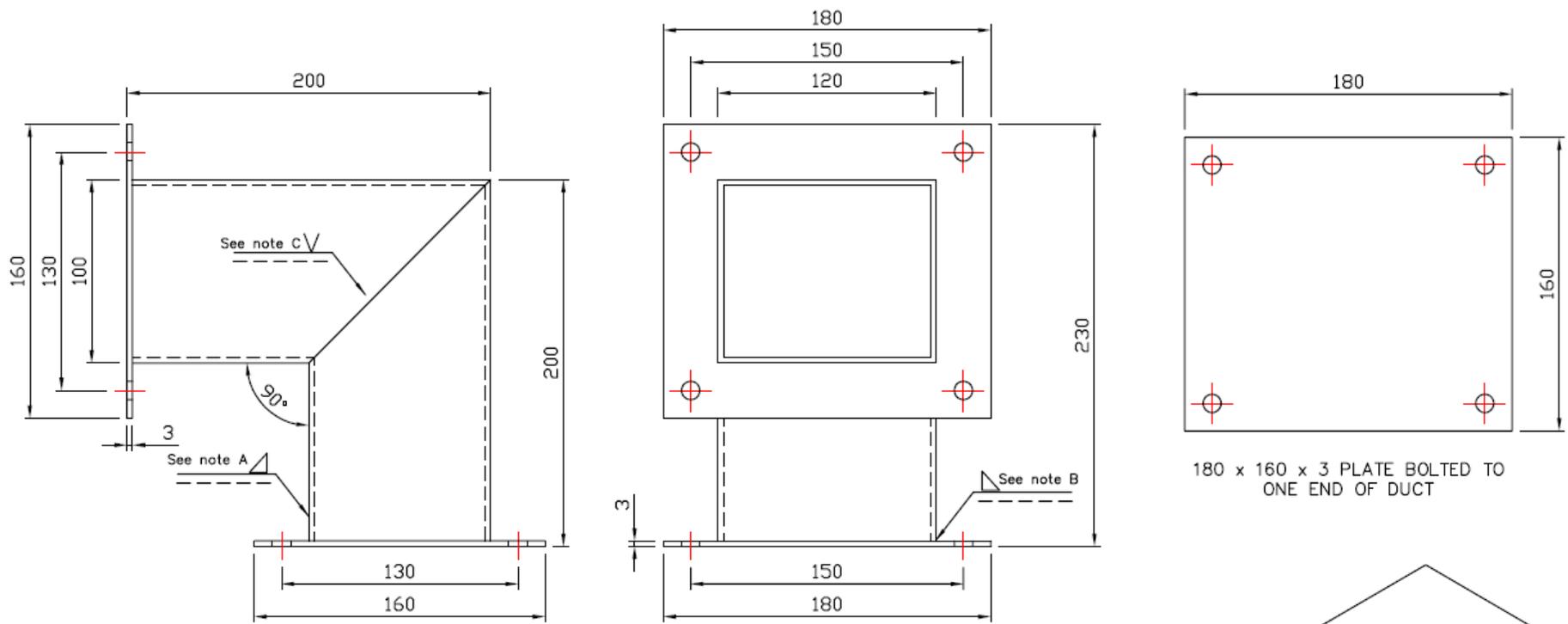
- **Resources:** This provides a list of equipment, documents or tools that you will have access to, to complete the task.
- **Conditions of assessment:** This will tell you the duration and rules you must follow when completing a task.
- **Controlled conditions:** This will tell you the rules you must follow when completing each task e.g. You must not share or discuss your work with other candidates.
- **What must be produced for grading:** 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 is not limited to photographic and video evidence.

3. Assignment brief

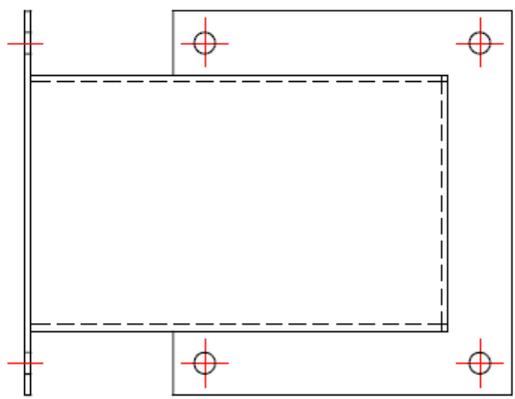
An engineering company needs to produce 25 rectangular ducts, shown in Figure 1, used in grain feed systems.

You must plan the production of one rectangular duct and produce a sample of the rectangular duct.

This assignment has a total duration of **18 hours**.



180 x 160 x 3 PLATE BOLTED TO ONE END OF DUCT



Note
 A. All joints on 120mm x 100mm duct to be corner to corner fully welded.
 B. Flanges welded to duct 25mm long at ends and 15mm long in the centre.
 C. V - butt fully welded.

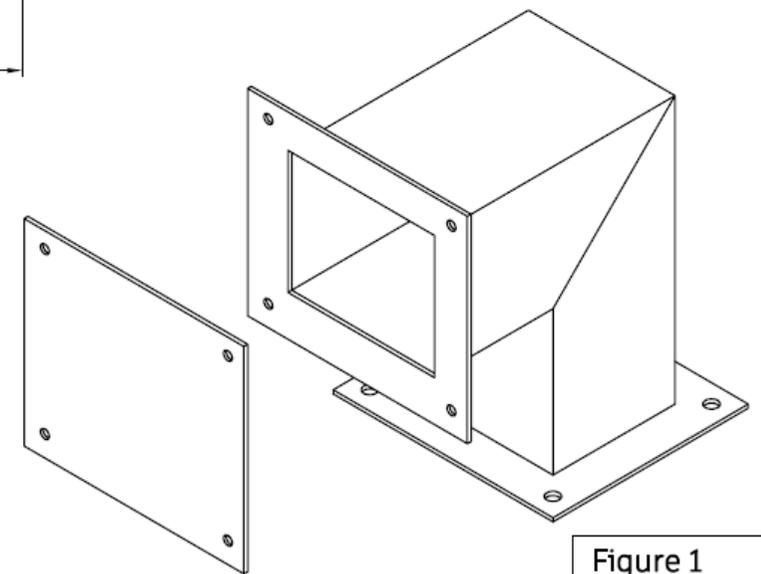


Figure 1

MATERIAL: 3mm LCS PLATE 30x3mm LCS FLAT BAR ALL HOLES FOR M8 BOLTS	SCALE NOT TO SCALE	TOLERANCE + 2mm - 2mm	DRAWING TITLE: Rectangular Duct 120mm x 100mm	First Angle Projection	
	ALL DIMENSIONS mm				

4. Tasks

Task 1 – Plan a fabrication and welding activity

Plan the production of one sample rectangular duct component shown in Figure 1 that is attached to the assignment brief.

You must use the tungsten active gas shielded (TAGS) welding process for all welding specified in Figure 1.

You must:

- a) Plan the production of **one** rectangular duct using Appendix 1 – Planning template. The plan must include:
 - the processes and methods required to cut, form, assemble and weld the rectangular duct
 - time estimates for each step in the plan
 - resources required (tools, equipment, machinery and consumables).
- b) Use Appendix 2 – Parts and material cutting list template to produce a list for production of one rectangular duct, including:
 - material type
 - component part sizes
 - estimate of material(s) required for one rectangular duct component. You must show your workings.
- c) Estimate the material(s) required for **25** rectangular duct components based on a stock material plate size of 2.5 m x 1.25 m. You must show your workings and record your response in the Appendix 2 – Parts and material cutting list template.
- d) Complete a risk assessment for the task using Appendix 3 – Risk assessment template, including:
 - identified hazards
 - who is at risk
 - control measures.

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.
- Internet access is **not** permitted for this task.

Controlled conditions

- You must only work on the task in the allocated time.
- Assessment evidence must be handed in at the end of each session for secure storage which cannot be accessed.

- You must not share or discuss your work with other candidates.
- You are not permitted to bring any additional materials into the assessment session.

What must be produced for grading

- Completed planning template
- Completed parts and material cutting list, including estimation of materials for 25 rectangular duct components
- Completed risk assessment

Additional evidence for this task

- n/a

Resources

- Pens, paper and computer for completing templates
- Non-programmable calculator

Task 2 – Produce a fabricated component

Produce **one** rectangular duct component to the required standard and tolerance in Figure 1 that is attached to the assignment brief.

You must:

- Safely fabricate **one** rectangular duct to the specification in Figure 1 using the tungsten active gas shielded (TAGS) welding process.
- Apply an oil finish to the component.
- Complete a record of your work using Appendix 4 – Job card template, including actual timings for each step, and the overall timing of the task.

Conditions of assessment

- The time allocated for this task is **12 hours**.
- You must carry out the task on your own, under **controlled conditions** while being observed.
- Internet access is **not** permitted for this task.

Controlled conditions

- You must only work on the task in the allocated time.
- Assessment evidence must be handed in at the end of each session for secure storage which cannot be accessed.
- You must not share or discuss your work with other candidates.
- You are not permitted to bring any additional materials into the assessment session.
- You will be given a copy of your completed plan, parts and material cutting list and risk assessment from Task 1 (for reference only).

What must be produced for grading

- One rectangular duct with a blank plate attached to one end
- Completed job card

Additional evidence for this task

- Assessor observation and photos of the rectangular duct

Resources

- Pens, paper and computer for completing templates
- Appropriate workshop, tools, equipment and machinery
- Materials and consumables for fabrication of one rectangular duct
- Personal protective equipment (PPE)

Task 3 – Produce a quality inspection report

Complete a quality inspection of your rectangular duct produced in Task 2.

You must:

- Inspect the completed fabrication for:
 - dimensional accuracy (tolerance +/- 2mm)
 - weld quality (visual inspection only).
- Complete Appendix 5 – Quality inspection report template with:
 - your findings and comments on the quality of the inspection criteria
 - weld defects, including possible causes, and methods of rectification
 - comments on the impact of variable parameters on the quality of the welded joints – to include current, voltage and gas flow.

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.
- Internet access is **not** permitted for this task.

Controlled conditions

- You must only work on the task in the allocated time.
- Assessment evidence must be handed in at the end of each session for secure storage which cannot be accessed.
- You must not share or discuss your work with other candidates.
- You are not permitted to bring any additional materials into the assessment session.
- You will be given your rectangular duct from Task 2 (for reference only).

What must be produced for grading

- Completed quality inspection report

Additional evidence for this task

- Assessor observation

Resources

- Pens, paper and computer for completing templates
- Appropriate workshop, tools, equipment and machinery
- Personal protective equipment (PPE)

Appendix 1 – Planning template (Task 1)

Task	Qualification number
Task 1 – Plan a fabrication and welding activity	2145-12
Candidate name	Candidate number
Centre name	Centre number

	Process/method	Details and equipment	Estimated time
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
Total number of hours			

Assessor signature	Date

Appendix 2 – Parts and material cutting list (Task 1)

Task	Qualification number
Task 1 – Plan a fabrication and welding activity	2145-12
Candidate name	Candidate number
Centre name	Centre number

	Part description	Material size and type	Parts required
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

Estimated material required to make **one** of Figure 1 rectangular duct:

Show workings:

Estimated material required to make **25** of Figure 1 rectangular duct:

Show workings:

Assessor signature	Date

Appendix 3 – Risk assessment (Task 1)

Task	Qualification number
Task 1 – Plan a fabrication and welding activity	2145-12
Candidate name	Candidate number
Centre name	Centre number

Name (Competent person carrying out the risk assessment)		Role (Job title/company)	
Work being carried out			
Date (DD/MM/YYYY)		Latest date for review (DD/MM/YYYY)	
Site details (Enter details of the site that the risk assessment is being carried out on, including site information if multiple sites)			
People at risk	Workers Adjacent workers Site wide workers Visitors Members of the public	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

Hazards identified (Consider the hazards specific to the type of activities being assessed)	Level of risk (High, medium, low)	Control measures currently in place (Enter details of all control measures that are currently in place)	Additional control measures required (Enter details of any new actions that need to be taken to reduce, control or eliminate the risks of each hazard)	Name (Person responsible for implementing controls)	Date controls must be actioned by (DD/MM/YYYY)

Assessor signature	Date

Appendix 4 – Job card (Task 2)

Task	Qualification number
Task 2 – Produce a fabricated component	2145-12
Candidate name	Candidate number
Centre name	Centre number

Activity	Start	End	Hours
Total number of hours			

Assessor signature	Date

Appendix 5 – Quality inspection report template (Task 3)

Task	Qualification number
Task 3 – Produce a quality inspection report	2145-12
Candidate name	Candidate number
Centre name	Centre number

	Inspection criteria	Checked	Findings and comments on the quality of the inspection criteria
1	Most up to date issue of drawing used		
2	Correct material and thickness used as drawing specification		
3	Material cut to correct dimensions as drawing specification		
4	Materials positioned correct to drawing specification		
5	Angles on component cut or formed correctly to drawing specification		

6	Correct hole diameters and location drilled or punched to drawing specification		
7	Quality of welded joints, including: <ul style="list-style-type: none"> • defects identified • causes of defects • rectification of defects • impact of variable parameters on the quality of the welded joints (to include current, voltage and gas flow). 		
8	Specified bolt size used		
9	Post fabrication & thermal joining cleaning process carried out effectively		
10	All burred edges removed; oil finish applied		
11	Overall size of component is within tolerance of +/-2mm; if out of tolerance, explain why		

Assessor signature	Date