
Overview

This standard identifies the competences you need to produce heavy platework (3mm thick plate and above) and rolled section, minor sub-assemblies, in accordance with instructions and approved procedures. You will be required to interpret specifications and drawings correctly, to identify and select the correct components, to lay out and follow the build-strategy procedures, to bring together, prepare for joining and assemble in the right order, platework and rolled section components, in order to produce marine minor sub-assemblies. The sub-assemblies produced could cover such items as deck components, shell/cover plates, girders/beams/transverses, seating/platforms, tanks, tube/pipe trusses, guards/uptakes, floor components, brackets and stiffener structures, posts/pillars/columns and cylindrical structures. You will be required lay out and secure the various component parts of the structure, using mechanical fastenings, temporary tack welding or adhesive bonding techniques, in the correct order and ensuring that the components are assembled in a manner that is fit for purpose.

Your responsibilities will require you to comply with organisational policy and procedures for the marine sub-assembly activities to be undertaken and to report any problems with the activities, tools, equipment or materials that you cannot personally resolve, or are outside your permitted authority, to the relevant people. You will be expected to work to instructions, with a minimum of supervision, taking personal responsibility for your own actions and for the quality and accuracy of the work that you carry out.

Your underpinning knowledge will be sufficient to provide a good understanding of your work and will provide an informed approach to applying fabrication techniques, assembly and fixing procedures to marine sub-assemblies. You will understand the assembly techniques used and the requirements of the manufacturing and assembling procedures and their application. You will know about the methods of assembly and the role of the components, in adequate depth to provide a sound basis for carrying out the activities, correcting faults and ensuring that the sub-assemblies are produced to the required specification.

You will understand the safety precautions required when lifting and handling marine platework and rolled section components and when using the associated tools and equipment. You will be required to demonstrate safe working practices throughout and will understand the responsibility you owe to yourself and others in the workplace.

**Performance
criteria**

You must be able to:

- P1 work safely at all times, complying with health and safety and other relevant regulations, directives and guidelines
- P2 follow the relevant instructions, assembly drawings and any other specifications
- P3 ensure that the specified components are available and that they are in a usable condition
- P4 use the appropriate methods and techniques to assemble the components in their correct positions
- P5 secure the components using the specified connectors and securing devices
- P6 check the completed assembly to ensure that all operations have been completed and the finished assembly meets the required specification
- P7 deal promptly and effectively with problems within your control and report those that cannot be solved

Knowledge and understanding

You need to know and understand:

- K1 the specific safety precautions to be taken when working in a marine fabrication environment and when producing marine platework assemblies (general workshop and site safety, appropriate personal protective equipment, accident procedure; statutory requirements, risk assessment procedures and relevant requirements of HASAWA, COSHH and Work Equipment Regulations; safe disposal of waste materials)
- K2 the personal protective clothing and equipment (PPE) to be worn when carrying out the sub-assembly activities (including leather gloves, eye protection, safety helmets and ear protection)
- K3 safe working practices and procedures for producing marine sub-assemblies
- K4 the correct methods of moving or lifting bulky and heavy components and fabrications
- K5 the hazards associated with marine platework fabrication and assembly activities (such as using dangerous or badly maintained tools and equipment; lifting and handling long and heavy components; cuts, slips trips and falls) and how they can be minimised
- K6 how to obtain the necessary drawings and build specifications
- K7 how to extract information from engineering drawings and related build specifications (to include symbols and conventions to appropriate BS or ISO standards) in relation to work undertaken
- K8 how to carry out currency/issue checks of the specifications you are working with
- K9 how to interpret marking out conventions (such as cutting lines, centre lines)
- K10 the preparations to be carried out on the components prior to assembling them
- K11 the various methods of securing the assembled components (including threaded fasteners, tack welding methods and techniques, riveting, adhesive bonding of components)
- K12 how to set up and align the various components and the tools and equipment to be used
- K13 methods of temporarily holding the joints together to aid the assembly activities (such as jigs, clamps, rivet clamps, jacks and wedges)
- K14 the use and care of tools and equipment and their control procedures
- K15 the importance of using tools or equipment only for the purpose intended
- K16 the care that is required when using the tools or equipment and the proper way of preserving tools or equipment between operations
- K17 the problems that can occur when producing marine sub-assemblies and how these can be avoided

- K18 inspection techniques that can be applied to check that shape (including straightness) and dimensional accuracy are to specification and within acceptable limits
- K19 the extent of your own authority and whom you should report to if you have problems that you cannot resolve

Additional Information

Scope/range related to performance criteria

You must be able to:

1. Carry out **all** of the following during the marine sub-assembly operations:
 - 1.1. correctly prepare and set up the components and faces to be joined
 - 1.2. use the correct datum faces
 - 1.3. correctly align the components and faces to be joined
 - 1.4. assemble/fabricate the platework components in the correct order or manner
 - 1.5. produce an assembly which meets the required specification
2. Produce **five** of the following minor sub-assemblies:
 - 2.1. deck assemblies
 - 2.2. shell and cover plates
 - 2.3. girders/beams/transverses
 - 2.4. seating/platforms
 - 2.5. tanks
 - 2.6. tube/pipe trusses
 - 2.7. guards/uptakes
 - 2.8. floor/bracket/stiffener structures
 - 2.9. posts/pillars/columns
 - 2.10. bulkhead
 - 2.11. cylindrical structures
3. Use **four** of the following types of components in the sub-assemblies produced:
 - 3.1. rolled sections
 - 3.2. tubes/pipes
 - 3.3. stiffeners
 - 3.4. brackets/beam knees
 - 3.5. flat plates
 - 3.6. pressed plates
 - 3.7. rolled plates
 - 3.8. pre-fabricated components
4. Assemble platework components, using **two** of the following methods:
 - 4.1. temporary tack welding
 - 4.2. pin-table jig
 - 4.3. panel line fabrication
 - 4.4. riveting
 - 4.5. mechanically fastened (nuts and bolts)

- 4.6. adhesive bonding
- 4.7. fairing aids

- 5. Produce marine sub-assemblies which meet **all** of the following standards:
 - 5.1. all components are correctly assembled and aligned in accordance with the specification
 - 5.2. overall dimensions are within specification tolerances
 - 5.3. assemblies meet appropriate geometric tolerances (square, straight, angles, free from twists)
 - 5.4. where appropriate, pitches of erection holes meet specification requirements
 - 5.5. completed sub-assemblies have secure and firm joints and are clean and free from burrs or flash

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