

Overview

This standard identifies the competences you need to produce marine sheet metal outfitting assemblies, in accordance with approved procedures. You will be required to interpret specifications and drawings correctly, to bring together, assemble and join, in the right order, sheet metal components and/or light sections, in order to construct complete marine outfitting assemblies or sub-assemblies, such as tanks, ducting and trunking, guards, hoods, stowage racks, shower and toilet cubicles, galley equipment, kit lockers, pyrotechnic lockers, protective covers and cladding. You will be required to lay out and secure the various component parts of the assembly, using mechanical fastenings, resistance welding or self-securing methods, in the correct order and to ensure 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 sheet metal outfitting assembly activities undertaken and to report any problems with the activities, tools, equipment or materials that you cannot personally resolve, or that are outside your permitted authority, to the relevant people. You will be expected to work 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 provide a good understanding of your work and will provide an informed approach to applying marine sheet metal outfitting assembly techniques and fixing procedures. You will understand the assembly techniques used and their application. You will know about the methods of assembling the components of the required strength and that are fit for purpose, in adequate depth to provide a sound basis for carrying out the activities, correcting faults and for ensuring that the work output is produced to the required specification.

You will understand the safety precautions required when working with sheet metal components and their 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:

1.
work safely at all times, complying with health and safety and other relevant regulations, directives and guidelines
2.
follow the relevant instructions, assembly drawings and any other specifications
3. ensure that the specified components are available and that they are in a usable condition
4. use the appropriate methods and techniques to assemble the components in their correct positions
5. secure the components using the specified connectors and securing devices
6. check the completed assembly to ensure that all operations have been completed and the finished assembly meets the required specification
7. deal promptly and effectively with problems within your control and report those that cannot be solved
8. complete relevant documentation in line with organisational procedures

Knowledge and understanding

You need to know and understand:

1. the specific safety precautions to be taken when working in a marine fabrication environment and when producing sheet metal outfitting assemblies (including general workshop and site safety, appropriate personal protective equipment (PPE), accident procedure; statutory regulations, risk assessment procedures and COSHH regulations, safe disposal of waste materials)
2. the personal protective clothing and equipment to be worn when carrying out the sheet metal outfitting assembly activities (such as leather gloves, eye protection, safety helmets, ear protection)
3. safe working practices and procedures for producing marine sheet metal outfitting assemblies
4. the correct methods of moving or lifting bulky sheet metal fabrications
5. the hazards associated with marine sheet metal outfitting assembly work (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
6. how to obtain the necessary drawings and joining specifications
7. how to extract information from engineering drawings and related specifications (to include symbols and conventions to appropriate BS or ISO standards), in relation to work undertaken
8. how to carry out currency/issue checks of the specifications you are working with
9. how to interpret first and third angle drawings, imperial and metric systems of measurement, workpiece reference points and system of tolerancing
10. how to interpret marking out conventions (such as cutting lines, centre lines, hole positions)
11. the preparations to be carried out on the components prior to assembling them
12. the various methods of securing the assembled components (such as threaded fasteners, screws, special fasteners, resistance and tack welding methods and techniques, adhesive bonding of components, and self-secured joints - such as knocked up, paned down, swaged and joggled)
13. how to set up and align the various components and the tools and equipment that are used
14. methods of temporarily holding the joints together to aid the assembly activities (such as clamps, rivet clamps)

15. the use and care of tools and equipment and the control procedures
16. the importance of using tools or equipment only for the purpose intended; the care that is required when using the tools or equipment; the proper way of preserving tools or equipment between operations
17. the problems that can occur when producing sheet metal assemblies and how these can be avoided
18. inspection techniques that can be applied to check that shape (including straightness) and dimensional accuracy are to specification and within acceptable limits
19. the extent of your own responsibility and to whom you should report if you have problems that you cannot resolve

Scope/range related to performance criteria

1.

Carry out all of the following during the marine sheet metal outfitting assembly operations:

- 1.1 obtain and use the correct issue of documents and specifications
- 1.2 adhere to procedures or systems in place for risk assessment, COSHH, personal protective equipment (PPE) and other relevant safety regulations
- 1.3 check that all tools and equipment to be used are in a safe and usable condition
- 1.4 obtain all the required components and securing devices for the assembly
- 1.5 correctly prepare, set up and align the components and faces to be joined
- 1.6 use the correct datum faces
- 1.7 use recognised and approved assembly techniques and the specified or appropriate fixing method
- 1.8 produce sheet metal outfitting assemblies which meet the required specification
- 1.9 leave the work area in a safe and tidy condition

2.

Produce four of the following marine sheet metal outfitting assemblies:

- 2.1 frames
- 2.2 panels
- 2.3 kit lockers
- 2.4 tanks/reservoirs
- 2.5 sectional trunking
- 2.6 bunk spaces
- 2.7 vent ducting/trunking
- 2.8 toilet (head)/cubicles
- 2.9 pyrotechnic lockers
- 2.10 guards
- 2.11 shower cubicles
- 2.12 protective covers/cladding
- 2.13 hoods
- 2.14 galley equipment
- 2.15 stowage racks
- 2.16 stores
- 2.17 other specific components

3.

Use four of the following types of component in the assemblies produced:

- 3.1 sheet metal covers
- 3.2 flanges
- 3.3 pre-fabricated square/rectangular components
- 3.4 light rolled section (angle, channel or tee section)
- 3.5 pre-fabricated cylindrical/conical components
- 3.6 stiffeners and frame components

3.7 brackets

4.

Apply all of the following assembly methods and techniques, for the assemblies produced:

- 4.1 ensuring that correct and undamaged components are used
- 4.2 ensuring that the correct `hand' of component is used at the appropriate position (left or right handed)
- 4.3 ensuring the correct orientation, position and alignment of components
- 4.4 using clamps to hold the components during the assembly activities
- 4.5 fitting of accessories (hinges, locks, handles, catches)

5.

Assemble sheet metal outfitting components, using two of the following methods:

- 5.1 temporary tack welding
- 5.2 adhesive bonding
- 5.3 soldering or brazing
- 5.4 flanged and mechanically fastened (bolts, screws)
- 5.5 resistance spot welding
- 5.6 self-securing joints (knocked up, paned down, swaged, joggled)
- 5.7 riveting (hollow or solid)

6.

Produce sheet metal assemblies which meet all of the following requirements:

- 6.1 all components are correctly assembled and aligned, in accordance with the specification
- 6.2 overall dimensions are within specification tolerances
- 6.3 assemblies meet appropriate geometric tolerances (square, straight, angles free from twists)
- 6.4 where appropriate, the pitches of erection holes meet specification requirements
- 6.5 completed assemblies have secure and firm joints and are clean and free from burrs or flash

7.

Complete the relevant documentation in line with organisational procedures, to include one of the following and pass it to the appropriate people:

- 7.1 production record
- 7.2 acceptance documentation
- 7.3 work authorisation documents
- 7.4 job cards
- 7.5 time sheets
- 7.6 craft/vessel log
- 7.7 other specific recording method

Behaviours

Behaviours:

You will be able to apply the appropriate behaviours required in the workplace to meet the job profile and overall company objectives, such as:

- strong work ethic
- positive attitude
- team player
- dependability
- responsibility
- honesty
- integrity
- motivation
- commitment

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Producing marine sheet metal outfitting assemblies

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