ECIFSS04
Join materials by manually controlled welding process

Overview

This standard is about manually controlled welding of steel fabrications to meet specification in engineering construction.

You will need to be able to produce joints as specified using the appropriate thermal joining technique and to the required quality and dimensional accuracy whilst adhering to Health and safety legislation, regulations and safe working practices.

In the context of this standard, your responsibility is to interpret and work within given specifications, selecting techniques and making variations to achieve the best possible result. In some cases, you may still be expected to refer to others for final authorisation, even though you remain responsible for identifying and implementing decisions.

Who this standard is for

This standard is for Platers.

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Performance criteria

You must be able to:

P1 work safely at all times, complying with health and safety and other relevant legislation, regulations, guidelines and local rules or procedures

P2 ensure that the work environment, material, consumables, joining equipment and tools are fit for purpose for the activities to be undertaken

P3 make sure safety arrangements are in place to protect other workers from activities likely to disrupt normal working

P4 follow the relevant joining procedures and job instructions

P5 ensure that the joint preparation complies with the specification

P6 make joints as specified using the appropriate **welding techniques**

P7 produce **joints** of the required quality and of specified dimensional accuracy

P8 **reinstate the work area**

P9 deal promptly and effectively with problems within your control and report those that cannot be solved

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Knowledge and understanding

You need to know and understand:

K1 relevant legislative, regulatory and local requirements or procedures and safe working practices

K2 potential **risks and hazards** and how to minimise them

K3 preparation and reinstatement requirements in respect of work area, material, components and equipment, and the possible consequences of incorrect actions in these areas

K4 tools, equipment and terminology for joining materials by manually controlled welding

K5 **welding procedures and related specifications**

K6 materials and their joining characteristics

K7 how to check compliance with requirements and weld procedure

K8 your responsibilities for ensuring care and security of tools, components and equipment used

K9 your responsibilities with regard to reporting lines and procedures in your working environment

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Scope/range

Work environment

Typical work environments could include:

1 at height
2 confined spaces
3 controlled operational and offshore installations
4 designated work areas
5 engineering construction sites
6 existing plants and structures
7 fabrication workshops
8 nuclear sites
9 onshore and offshore installations
10 potentially explosive atmospheres
11 shafts
12 shipyards
13 tunnels
14 working inside plant and systems
15 working on access structures (scaffold)

Welding techniques

This could include the following processes:

1 FCAW (Flux Core Arc Weld)
2 MMA (Manual Metal Arc)
3 MIG/MAG (Metal Inert/Active Gas)
4 TIG (Tungsten Inert Gas)

This could include using the following material options:

5 aluminium and aluminium alloys
6 carbon steel
7 nickel and nickel alloys
8 stainless steel

Joints

This term could include:

1 plate butt welds
2 fillet welds

Reinstate the work area

This term could include:

1 returning the work area to a safe condition
2 correctly disposing of waste materials
3 storage of re-usable materials, consumables and equipment in accordance with appropriate procedures
4 completion of all necessary documentation

Risks and hazards

These could include:

1 arc radiation (skins, eyes and screening)
2 asphyxiation by inert gas
3 burns (spatter)
4 electrocution
5 fire
6 grinding, including tungsten grinding
7 ozone gas
8 slips, trips, falls (cable routing)

Welding procedure and related specifications

You must be able to interpret relevant specifications including welding procedure specifications and these could include:

1 arc initiation methods
2 cleaning (pre, post and intermediate)
3 consumable control
4 consumable specification (filler wire)
5 electrode type, size and preparation
6 preheat and interpass temperature
7 position/progression
8 shield gas and flow rates (as applicable)
9 technique
10 torch design (gas lens, ceramics etc)
11 weld fit-up/set-up
12 welding parameters

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