



NIRDESH

NATIONAL INSTITUTE FOR R&D IN DEFENCE SHIPBUILDING

(An autonomous society under the Ministry of Defence)

NIRDESH ADVISORY – 03

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WELDING SAFETY

Welding is the most commonly used production process in a shipyard. It is also one of the most risk-prone processes. Welding accidents can lead to electric shocks, gas/fume inhalation, sight problems, physical injury etc. Hence it is necessary to ensure utmost safety in welding. A list of welding safety measures is included in this advisory.

- Employ only qualified/certified welders for different kinds of welding jobs.
- Welding should always be carried out under supervision, using appropriate equipment, electric supply and consumables.
- Welders should always wear full-sleeved, dry boiler suits made of fire-resistant fabric.
- They should always put on safety shoes and hand gloves.
- They should not carry matches, gas lighters, oil-soaked rags, fuels and other flammable materials.
- Head, face, eye and body protection devices such as helmets, masks and goggles should be used.
- They should be checked regularly for defects/damages.
- Breathing apparatuses may be used in confined spaces, where heavy fumes may be generated.
- Read operational and safety procedures prescribed by welding equipment manufacturers and scrupulously follow them.
- Work place should be always kept clean and clear.
- Welding gases should not be used to blow away dust from welding sites.
- Always place a warning sign and position a trained sentry near place of welding.
- Shield welding arcs and sparks from surrounding areas.
- Ensure that welding area is properly ventilated.
- Tanks and other confined areas that may contain fluids should be emptied, dried, ventilated and certified 'gas-free' before entering.
- Keep inflammable materials away from welding locations.



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- Arrange fume extractors for confined welding areas.
- Provide adequate fire-fighting arrangements near welding sites.
- Ensure that welders and sentries are capable of first aid fire-fighting.
- Power sources should be correctly connected with proper connectors.
- Earthing clamps and cables should be connected properly and secured to the work piece.
- Handle gas cylinders carefully to avoid impact and mechanical damage.
- Gas cylinders should be positioned correctly and secured.
- Gas cylinders should not be exposed to excess temperature.
- Use appropriate gas regulators and use flash-back arrestors when required.
- Use hoses of good quality, without leaks and of correct colour code.
- Hoses should not have kinks or over-stretched, when in use.
- Hoses should be connected and clamped properly, without using temporary pipes, grease etc.
- Cables should be of correct insulation and oil resistant.
- Cable connectors should be properly secured and naked/frayed cable/cable ends should not touch metal surfaces.
- Electrode holders, nozzles, blow pipes, valves and torches should be tested before welding and should be in good working order.
- Hoses and cables should be laid clear of alleyways, doors, hatches and other passages.
- Provide safe platforms and safety belts when welding at heights.
- Avoid simultaneous welding on both sides of plates and strakes, in nearby areas.
- On completion of welding or during lunch/tea break, switch of electric supply, turn off gases, remove electrodes and secure torches.
- Let the welding area cool down and inspect the area thoroughly on completion of welding to ensure that there is no risk of fire.