

Safety Checklist

for welding and related thermal processes

Do not operate equipment for welding or related thermal processes unless you are thoroughly familiar with the process, the equipment, rules and regulations related to the process and equipment; including proper use of accessories, e.g. fire extinguishers. Preparation for hot-work onboard should include, without being limited to, the points below to ensure safe operation.

Hot Work Procedure

- 1 Ensure that all relevant check lists, certificates and permits for hot work have been issued.
- 2 If work is being done outside the ship's workshop, an assistant, protected like the welder (see under "Operator/assistant protection"), should accompany him.
- 3 If work has to be done inside a confined space the assistant should be located outside, within view of the welder and with the possibility to rapidly cut off gas and power supply.

Work Place

- 4 Tidy up the work place and remove any flammable materials, liquids and gases from workplace and adjacent spaces, including spaces above/below decks, behind bulkheads and inside pipes or containers which are to be worked on.
- 5 Cover any openings through which sparks may be led to other areas onboard which have not been prepared for hot work.
- 6 If necessary, shield the workplace to protect others from sparks and radiation from the arc. Post a warning sign that welding is in progress.
- 7 Ensure that sufficient and correct fire fighting equipment is available at the workplace, and that someone familiar with its use is present.
- 8 Ensure that the workplace is properly ventilated, if necessary with special fume extraction equipment and fresh air supply. This is especially important when working on galvanized or other coated surfaces which may produce harmful fumes when heated.

Gas Cylinders

- 9 Store gas cylinders in suitable storage rooms above deck. Avoid excessive temperatures. The use of gas distribution systems is recommended to increase safety and reduce the need for transport of cylinders around the ship.

- 10 Gas cylinders shall always be fitted with valve caps before transport, and appropriate cylinder trolleys shall always be used for transport. Secure the cylinders properly in upright position. Acetylene and oxygen regulators shall be fitted with flashback arrestors. Protect cylinders against heat and mechanical damage. The valve opening of the acetylene cylinder shall point away from other compressed gas cylinders, and a heat resistant mitten shall be available.

Equipment

- 11 Check that the power source functions correctly according to relevant regulations, is correctly connected to mains with correct voltage and frequency, and that you are familiar with the operator instructions for the power source.
- 12 Hoses shall be in good condition, without leaks or damage, and with correct colour coding for the gas. (Red for acetylene, blue for oxygen, black for shielding gases and filtered air). Use correct hose connectors and hose clamps. Check all gas connections for leaks, including torch valves. Replace defective gaskets with original gaskets only. Never use oil or grease in connection with welding gases and never use alloys containing more than 65% copper or 45% silver in connection with acetylene.
- 13 Cables shall be of oil resistant type with undamaged insulation and properly mounted cable connectors. Use safety cable connectors where both halves have recessed current carrying parts to protect from accidental contact.
- 14 Check that torches and electrode holders are in good working order, including check of blowpipes, nozzles, tungsten electrodes and insulation. Electrode holders should be fully insulated.
- 15 Keep hoses and cables clear of passage ways and protected from sparks, hot metal and mechanical damage in doorways, hatches, etc.
- 16 Both welding and ground clamp cables should be stretched to the work place, and the ground clamp should be fastened with good electrical contact directly on the work piece.

Operator /assistant protection

- 17 When working, wear safety shoes and proper boiler suit with long sleeves. Do not wear clothes of highly combustible materials or clothes that are wet, and do not carry combustible material, e.g. matches, lighters, oily rags.
- 18 Never touch electrically live parts, e.g. the welding electrode, without being properly insulated. Dry welding gloves should always be used, and when necessary also use additional dry leather clothing for protection against sparks, heat and electric shock.
- 19 Use head and face protection (helmet, shield, goggles) according to the job. Ensure that filter glasses are unbroken and have the correct shade.
- 20 Where necessary use a dust filter or breathing apparatus to avoid inhaling fumes and dust from the welding process.
- 21 Never use acetylene or oxygen to blow away dust from yourself or the workplace. Always keep dry and keep the workplace dry, especially when arc welding.

When work is interrupted or completed

- 22 Always switch off the welding machine and close off gas supply at the gas outlet station or cylinder valve, also during short breaks. Always remove the coated electrode from the electrode holder.
- 23 Do not leave the workplace unattended. When hot work is completed the work place shall be inspected at regular intervals to ensure that no risk of fire remains. Only when this has been assured should fire fighting equipment be returned to its normal storing place.

