



## Underwater Welding

By [Josh Riverside](#)

Underwater welding techniques are most commonly used in executing marine engineering projects such as installation of oil and gas rigs. Underwater welding is mostly related to welding work pieces made from different types of metals such as steel, aluminum, copper, and others.

Underwater welding can be classified according to the type of equipment used and the type of processes followed. The most common underwater welding process is known as manual metal arc welding (MMA) which has the advantage of being relatively insensitive to depth. This makes it the most suited technique for undertaking deep-water repair activities.

Cofferdam welding involves the use of a rigid structure to house the welders, which is sealed against the side of the structure to be welded. Another type of underwater welding technique is commonly known as Hyperbaric welding in which an enclosure is sealed around the structure to be welded, and is filled with a gas (commonly helium containing 0.5 bar of oxygen) at the prevailing pressure. This welding technique is often combined with MMA (SMA), TIG (GTA), or FCAW for effecting high integrity welds, particularly for deep-water welds, including tie-ins in pipelines and risers in the oil and gas industries.

Underwater welding techniques are used for welding steel pipelines, other offshore structures, submerged parts of large ships, and underwater structures supporting a harbor. Welding in depths of 500 to 1000 meters generates high weld metal diffusible hydrogen, which can increase the risk of hydrogen-assisted cracking. This can be prevented with the use of electrode coating formulations and improved power source technology.

Underwater welding techniques can be dangerous if proper procedures and equipment is not used. An underwater welder faces the potential risk from electric shocks and from nitrogen introduced into the bloodstream during exposure to air at increased pressure. Underwater welding safety measures include emergency air or gas supply, stand-by divers, and decompression chambers to avoid decompression sickness following rapid surfacing after saturation diving.

Welding provides detailed information on Welding, Welding Projects, Welding Supplies, Welding Jobs and more. Welding is affiliated with Maple Work Benches. Website: <http://www.i-workbenches.com/>

*This book may be given to a third person as a gift but cannot be modified in any manner.*

*The rule have been established to protect the rights and ownership of the authors and to ensure that their work is upheld as their own*