

OXY-ACETYLENE WELDING

OXY-ACETYLENE welding requires a high temperature flame, created by a mixture of pure oxygen and acetylene in correct proportions and adjusted using a valve on a handheld torch or blowpipe.

One of the oldest welding processes, it is still used to weld pipes and tubes, as well as all types of repair work. It is also used for fabricating metal-based ornamental artwork and sculptures.

Oxy-acetylene equipment is portable and easy to use. The gases used are stored under pressure in steel cylinders colour to help identify the gases contained, maroon for acetylene and white for oxygen although the only way to safely identify the contents is the product label on the cylinder. To prevent the interchange of fittings between cylinders containing inert, active and fuel gases, oxygen cylinders have right-hand threaded equipment and acetylene have a left-hand threaded equipment.

The oxygen and acetylene gas mixture is the only gas mixture suitable for the welding of steel; other gases such as propane and hydrogen are used on lower melting point, non-ferrous metals, for brazing and silver soldering and as a preheating gas for cutting. A propane and air flame heats at about 2,000°C, propane and oxygen flame cuts at about 2,500°C and an acetylene and oxygen flame welds at about 3,200°C.

Each cylinder is fitted with a regulator to control the gas pressure and flow. Flexible hoses connect the regulators with the torch or blowpipe. Flashback Arrestor safety devices must be fitted between each hose and regulator to prevent flames generated by a 'flashback' incident occurring, from reaching the gas cylinders. ■