

WELDING

WELDING TECHNIQUES AND SAFETY PRECAUTIONS

ELECTRIC ARC WELDING

- A transformer converts high voltage electricity into low voltage, high current supply.
- The electric circuit is joined through the metal and the welding rod.
- The rod touches the metal and then pulled away 5mm and melts the ends of the welding rod.

SLAG SHIELDED WELDING

- In this method, a rod of weld metal is coated with slag.
- The slag provides a gas shield for the arc reducing the amount of oxygen coming in contact with the molten metal.
- The slag helps to make for a good shape.

SLAG SHIELDED WELDING

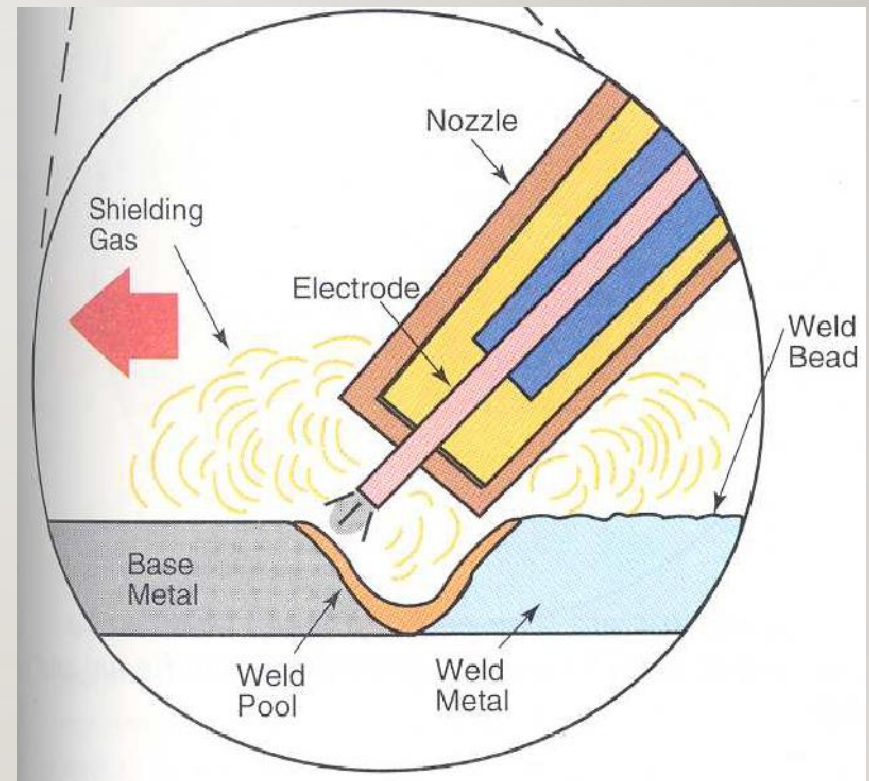
- This can be done downhand, vertically, diagonally or overhead.
- This can be done manually or automatic.
- Automatic can only be done downhand position.

SUBMERGED ARC WELDING

- The joint is covered in granulated slag flux.
- This slag flux is laid down just before welding and swept away immediately.

METAL INERT GAS WELDING

The heat is produced by an electric arc between the continuously fed metal electrode and the base metal. Both the base metal and the filler are melt. The weld area is protected by inert shield gases.



WELDING JOINTS

- Butt joints are the strongest joints.

- Square Butt Joints



- Single V butt joint



WELDING JOINTS

- Butt joints are the strongest joints.
 - Double V butt joint



- Single U butt joint



WELDING JOINTS

- Fillet Welds
 - Used to weld two pieces at right angles to each other



- Lap Welds
 - Used for doubling plates and lapped brackets



WELD TESTING

- Visual methods by trained inspectors
- Radiography (x-ray photography)
- Dye penetrant and ultra violet light
- Magnetic particles and oil
- Ultrasonic

PRECAUTIONS

- Competent welders must be employed.
- All equipment is fully tested.
- Adjacent compartment to be cleared of flammable materials.
- Protective clothing to be worn.
- Permit to work obtained.

PRECAUTIONS

- All surface clean and free from oil.
- Stand by man with extinguisher.
- Safe and efficient ventilation.
- Inform OOW and ER.