Electroslag Welding

- A welding process where fusion of base metal as well as filler metal is achieved from the heat generated by the electrical resistance of the molten slag.

- Weld pool is shielded by the molten slag, which moves along the joint as welding progresses.

- The process is initiated by an arc that heats up the granulated flux and forms the slag.
• The arc then gets extinguished and the molten slag provides the conducting path to the current.

• The slag remains in the molten state by the heat generated by its resistance.

• The electrode remains dipped in the molten slag and gets melted and deposited as the welding progresses.
Features

- It is a vertical position welding process
- Once started, continues to completion.
- A single pass welding process irrespective of plate thickness.
- Very high deposition rates can be achieved with ESW
  - Very thick sections can be welded in a single pass.
- Because of even distribution of heat across the thickness,
  - No angular distortion of plates results.
• The molten slag bath over the weld pool acts both as the heat source as well as a shielding medium.

• A progressive solidification takes place from bottom upwards, and always there is a molten metal pool over the solidifying weld metal.

• Welds plates ranging in thickness from about 19 to 460 mm

• Two types of electroslag welding.
  
  ➢ Non-consuming electrode guide cum contact tube
  ➢ Consumable guide extending down to the molten slag.