TFP Corp

TRU-WELD

STUD WELDING DIVISION

STUD WELDING PROCESS

Electric-Arc stud welding is the most common process and is utilized whenever metal is fabricated. It is used to best advantage when the base plate is heavy enough to support the full strength of the welded fasteners, but is sometimes used with lighter gauge material.

The stud is held in the welding gun with the end of the stud placed against the work. The cycle is started by depressing the trigger button start switch. The fastener is then automatically retracted from the workpiece to establish an arc. The arc continues for a predetermined period of time until a portion of the stud and base plate have been melted. Then the welding gun automatically plunges the fastener into the molten pool of metal and holds it there until spring pressure. At the same time, the welding current is stopped and when the molten metal solidifies, the weld is completed and the welding gun is removed from the stud. The entire operation is carried out under carefully controlled welding conditions.

The molten metal is held in place by a ceramic ferrule which also serves to shield the arc. The weld metal is deoxidized by a flux in the end of the fastener, or protected by a shielding gas as in the case with aluminum. This results in a dense, strong weld which will develop the full strength of the fastener and base plate. The weld cycle depends on the diameter of the fastener and the materials being joined, and varies in time from 1/10 to 1-1/2 seconds. Welding currents range from 240 to 3,000 amps.