weld reinforcement: weld metal on the face or root of a groove weld in excess of the metal necessary for the specified weld size.

weld size: for equal leg fillet welds: the leg lengths of the largest isosceles right triangle which can be inscribed within the fillet weld cross section.

weld size: for unequal leg fillet welds: the leg lengths of the largest right triangle which can be inscribed within the fillet weld cross section.

weld size: groove welds: the depth of chamfering plus any penetration beyond the chamfering, resulting in the strength carrying dimension of the weld.

weld, autogenous: a fusion weld made without filler metal.

welder: one who performs manual or semiautomatic welding.

welding gun, electron beam: a device that generates, accelerates, and forms a directed beam of electrons. This includes the beam alignment, focusing, and deflection coils. The electron gun forms a part of the electron beam gun column that includes shielding, mechanical components to control the vacuum in the electron beam path, and an optical viewing arrangement.

welding operator: one who operates machine or automatic welding equipment.

welding, arc stud (SW): an arc welding process that uses an arc between a metal stud, or similar part, and the other workpiece. The process is used without filler metal, with or without shielding gas or flux, with or without partial shielding from a ceramic or graphite ferrule surrounding the stud, and with the application of pressure after the faying surfaces are sufficiently heated.

welding, automatic: welding with equipment which performs the welding operation without adjustment of the controls by a welding operator. The equipment may or may not perform the loading and unloading of the work. See also machine welding.

welding, consumable guide electroslag: an electroslag welding process variation in which filler metal is supplied by an electrode and its guiding member.

welding, diffusion (DFW): a solid-state welding process producing a weld between multiple layers of sheet or plate by the application of mechanical pressure at elevated temperature with no macroscopic deformation or relative motion of the work pieces. A solid filler metal may be inserted between the faying surfaces.

welding, electrogas (EGW): an arc welding process that uses an arc between a continuous filler metal electrode and the weld pool, employing approximately vertical welding progression with retainers to confine the weld metal. The process is used with or without an externally supplied shielding gas and without the application of pressure. Shielding for use with solid or metal-cored electrodes is obtained from a gas or gas mixture. Shielding for use with flux-cored electrodes may or may not be obtained from an externally supplied gas or gas mixture.

welding, electron beam (EBW): a welding process that produces coalescence with a concentrated beam composed primarily of high velocity electrons, impinging on the joint. The process is used without shielding gas and without the application of pressure.

welding, electroslag (ESW): a welding process producing coalescence of metals with molten slag which melts the filler metal and the surfaces of the work to be welded. The molten weld pool is shielded by this slag which moves along the full cross section of the joint as welding progresses. The process is initiated by an arc which heats the slag. The arc is then extinguished and the conductive slag is maintained in a molten condition by its resistance to electric current passing between the electrode and the work. See electroslag welding electrode and consumable guide electroslag welding.

welding, flux-cored arc (FCAW): a gas metal-arc welding process that uses an arc between a continuous filler metal electrode and the weld pool. The process is used with shielding gas from a flux contained within the tubular electrode, with or without additional shielding from an externally supplied gas, and without the application of pressure.

welding, friction (FRW): a solid state welding process that produces a weld under compressive force contact of workpieces rotating or moving relative to one another to produce heat and plastically displace material from the faying surfaces.

welding, friction stir (FSW): a variation of friction welding producing a weld by the friction heating and plastic material displacement caused by a rapidly rotating tool traversing the weld joint.

welding, friction, inertia and continuous drive: processes and types of friction welding (solid state welding process) wherein coalescence is produced after heating is obtained from mechanically induced sliding motion between rubbing surfaces held together under pressure. Inertia welding utilizes all of the kinetic energy stored in a revolving flywheel spindle system. Continuous drive friction welding utilizes the energy provided by a continuous drive source such as an electric or hydraulic motor.

welding, gas metal-arc (GMAW): an arc welding process that uses an arc between a continuous filler metal electrode and the weld pool. The process is used with shielding from an externally supplied gas and without the application of pressure.