Shielded Metal Arc Welding: Preparation & Safety

Constant Current Welding
maintains a stable amperage supply at all times; used for shielded metal arc welding and gas tungsten arc welding

Constant Voltage Welding
maintains a stable voltage supply at all times; used for gas metal arc welding, flux cord arc welding and submerged arc welding

Transformer Machine
welding machine which produces AC current only

Transformer/Rectifier Machine
welding machine which produces AC and DC current

Inverter Machine
welding machine which produces constant current and constant voltage along with DC current

Amperage
amount of current flowing through a machine

Voltage
potential energy available to move a charge along a path

Wattage
total power used, both amperage and voltage

Alternating Current
electricity alternates between negative and positive in the current; also known as AC current

Direct Current
electricity flows in one direction only, from negative to positive in the circuit; also known as DC Current

DC Electrode Positive
arrangement of direct current arc welding cables and leads in which the electrode is the positive pole

DC Electrode Negative
arrangement of direct current arc welding cables and leads in which the electrode is the negative pole
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Duty Cycle
percentage of time, in a ten minute period, a machine can be used at a particular amount of current

Magnetic Arc Blow
welding defect which occurs when using DC current, allowing a magnetic field to build up around the arc

Electrical Circuit
path which electricity follows

Open Circuit Voltage
voltage available to start an arc

Power Supply
another term for welding machine

Work Cable
cable from the welding machine to the work which carries a charge opposite the electrode cable

Electrode Cable
cable from the welding machine to the electrode which carries a charge opposite the work cable

Work Clamp
clamp which fastens the work lead to the work

Electrode Holder
clamp attached to the electrode cable which holds the electrode

Electrode Storage Oven
oven for electrode storage which meets requirements

Tensile Strength
measurement of the maximum tension which can be applied to a material before it breaks

F-Numbers
designation which groups like electrodes into groups
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Fast Freezing Electrodes
SMAW electrode which solidifies quickly

High Deposition Electrodes
SMAW electrode which is used to weld metals which are high impact

Low Hydrogen Electrodes
SMAW electrode which is used to weld metals which can be susceptible to cracking

Right Angle Grinders
power tool used to clean or polish base metals and welds

Wire Brush Disc
power driven rotary brush used for scaling

Grinding Disc
used for heavy-duty grinding such as creating a bevel or removing an old weld

Flap Wheel Sanding Disc
used for a smoother finish on welds or finish a bevel

Pyrometer
instrument used for measuring high temperatures

Temperature Indicating Crayon/Pencil
crayon/pencil which melts at certain temperatures

Pre-Weld Heat Treatment
heating procedures applied to a metal before welding begins

Interpass Heat Treatment
heating procedures applied to a metal between welding passes

Post-Weld Heat Treatment
heating procedures applied to a metal and weld after welding is complete

Butt Joint
joint formed by two surfaces coming together at different angles

V-Groove Butt Joint
joint formed by two surfaces, both of which are beveled
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Single Bevel Butt Joint
joint formed by two surfaces, one of which is beveled

T-Joint
joint formed by two pieces of metal, one of which is horizontal and one which is vertical

Corner Joint
joint formed by two pieces of metal forming a corner

Lap Joint
joint formed when two pieces of metal overlap one another

Edge Joint
joint formed at the edge of two pieces of metal which lay directly on top of one another

Grove Weld
weld applied to two pieces of metal which forms a V, U or J cross section

Fillet Weld
weld applied to two pieces of metal which forms a triangular cross section

Seam/Spot Weld
weld applied lengthwise to overlapping pieces of metal; usually applied along an edge

Slot/Plug Weld
weld applied into a hole in one piece of metal and onto the bottom piece of metal, binding the two together

Surfacing
weld which consists of more than one bead

Welding Procedure Specification
document which describes the welding materials and procedures for a specific job

Polarity
state of either negative or positive in relation to electrical currents or magnetic fields
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Arc length
   distance between the end of the electrode and the surface of the base metal

Work Angle
   angle at which the electrode is in relation to the joint

Travel Angle
   angle at which the electrode travels down the joint

Travel Speed
   speed at which the electrode moves down the joint

Arc
   sustained luminous discharge of electricity across a gap in a circuit or between electrodes

Puddle
   molten metal which forms at the end of an electrode while welding

Toes of the puddle
   outside edges of the puddle

Soapstone
   metamorphic rock used for marking lines due to its resistance to heat