

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