## MINERALS-TECH WELDING ELECTRODES

| Material Class | Minerals-Tech | Description | Applications | Properties | Current | Sizes and Amperage |
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| Steels | *100 SUPER Versatility | Electrode for welding all types of steels and dissimilar steels. Producing highest tensile strength and machinable welds. | For all parts made from, commonly used on industrial machinery application, construction equipment, automotive, chemical and mining. Excellent for repair of high alloy steels tool & die steels, stainless, spring steel. Also used as a cushion for tool steels and as a shaft buildup. | 126,750 PSI<br>36% El.<br>Work hardens to 36 Rc. | AC-DC Rev. Pol | 3/16 135-200<br>5/32 90-150<br>1/8 60-120<br>3/32 35-80<br>5/64 25-50 |
| | 481 | High strength electrode for joining applications requiring good impact strength on high strength alloyed or heat treated steels. | Designed to weld alloyed high strength steels such as T1, HY 80, HY 90, CORTEN JALLOY 100, SS 100 and cast steels. Deposits have outstanding elongation and ductility in high stress conditions. | 112,000 PSI<br>24% El. | AC-DC Rev. Pol | 3/16 190-265<br>5/32 110-200<br>1/8 95-140<br>3/32 65-110 |
| | 478 | High quality, all position low hydrogen type electrode for use on low & medium carbon steels. | Ideal for structural steel fabrication of beams, channel, pipe or other items subject to stress. Excellent for "problem" or tramp steels high in sulphur and phospuras. Superiour crack and impact resistance. | 82,831 PSI<br>31% | AC-DC Rev. Pol | 3/16 170-250<br>5/32 120-180<br>1/8 100-140<br>3/32 60-100 |
| | *480 | The choice electrode for mild steel welding. Low amperage requirements controls distortion on sheet metal. Beautiful bead appearance. Easy slag removal. | Fabrication or repair of thin, medium, heavy and dissimilar gauge mild steel. Uses include sheet metal, pipe, and angle iron and machine parts. Excellent for out of position welding, filling holes or when poor fits are encountered. | 81,250 PSI<br>26% El. | AC-DC | 3/16 120-210<br>5/32 90-160<br>1/8 65-125<br>3/32 30-70<br>5/64 25-60 |
| | 911 | All position mild steel alloy exhibiting deep penetration characteristics, without slag interference. | For fabrication or maintenance welding of low carbon steels. Produces high strength nonporous welds on pipe. Welds over paint, rust and oil with excellent results. | 81,750 PSI<br>31% El. | AC-DC | 5/32 110-160<br>1/8 85-120<br>3/32 40-70 |
| | *188 | The ultimate in corrosion resistance. | Dairy, chemical, distillery, food processing equipment, anywhere high corrosion is encountered. Used on fittings, tanks, pipe and as an overlay for steels that must resist corrosion | 100,000 PSI<br>40% El. | AC-DC Rev. Pol | 3/16 110-160<br>5/32 75-120<br>1/8 95-140<br>3/32 40-90 |

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| | *186 | All purpose stainless steel electrode with excellent corrosion resistnce Designed for use on all normal and low carbon stainless steels. The choice for fabrication or repair when base material is dissimilar or unknown. | Designed for use on all normal and low carbon stainless steels. The choice for fabrication or repair when base material is dissimilar or unknown. | 100,000 PSI 40% El. | AC-DC Rev. Pol | 3/16 140-200 5/32 110-160 1/8 75-120 3/32 40-90 |
| | *113 | High temperature and corrosion resistant electrode. | Welding and cladding of steels subject to elevated temperatures up to 2150°, such as furnace parts, heat treat parts, fan blades. | 100,000 PSI 40% El. | AC-DC Rev. Pol | 1/8 70-120 3/32 50-80 |
| Cast Iron | *600 | For welding all cast irons and steel to cast iron. Excellent machinabillity. | For fabrication and repair of all cast, alloyed cast iron and joining of steel to cast iron. Commonly used on gears, machinery housings, engines and manifolds. Building up of missing or worn sections. | 61,500 PSI 41% El. | AC-DC Rev. Pol | 5/32 110-160 1/8 60-115 3/32 35-75 |
| Aluminum | *200 | Extruded electrode for all weld able aluminum, sheet or cast. | For repair of automotive parts, cast parts, pipe tanks, missing sections, extrusions, casting and plate. Excellent arc stability, low amperage requirements. Good color match and corrosion resistance. | 34,000 PSI 25% El. | DC Rev. Pol | 5/32 110-180 1/8 80-120 3/32 100-140 |
| Coppers And Bronzes | 300 | Universal bronze electrode capable of welding on extreme range of different metals. | Can be used to join all metals (except white metals). Commonly used on brass, bronze, cast iron, steel, aluminum bronze and dissimilar combinations. Used as an overlay, it work hardens, leaving a tough deposit for long service life. | 100,000 PSI Work hardens to 220 BN | DC Rev. Pol | 5/32 110-150 1/8 80-120 3/32 100-140 |
| | *310 | Verstile bronze electrode that can be used on either AC or DC welders. | Excellent "all around" electrode, it can be used on steels, bronzes, cast iron and dissimilar metals. | 65,000 PSI 40% El. | AC-DC Rev. Pol | 5/32 125-190 1/8 100-150 |
| | 320 | Copper Electrode. | Extremely smooth running copper electrode designed for joining, surfacing and build up of deoxidized and electrolytic copper. Excellent electrical conductivity and corrision resistance. | 30,000 PSI 40% El. | DC Rev. Pol | 3/16 170-200 5/32 140-170 |

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| Tool Steels and Hard Facing | *500 | Electrode for water, oil and air hardening steels. | Outstanding for the repair of all water, oil and air hardening steels. Deposits are forgeable, temperable and crack resistant. Ideal for repairs and buildup of shears, tools, guides and parts subject to grinding wear and impact. Best results obtained by using 100 as an underlay. | 55-60 RC | AC-DC<br>Rev.<br>Pol | 1/8 80-120<br>3/32 45-70 |
| | *560 | High speed tool steel and hot working overlay. | Unique formulation enables this alloy to retain a sharp edge even at elevated temperatures. Used to make omposite type dies when impact and shearing are visible. Ideal for lathe tools, mandrels, mill cutters, reamers. Best results obtained using 100 as an | 58-62 RC<br>Heat reacts to 65 RC | AC-DC<br>Rev.<br>Pol | 1/8 80-120<br>3/32 45-90 |
| | 543 | Cobalt electrode for high heat and metal to metal wear. | Maintains its toughness and hardness at elevated temperatures. Deposits are resistant to impact, abrasion, erosion and corrosion. Typically used in hot metal handeling, furnace parts, exhaust valve seats, hot trimming dies, ingot tongs, hot shear blades, extursion dies for aluminum. | 36-43 RC as welded.<br>50 RC work hardened<br>42 RC at 1200°. | AC-DC<br>Rev.<br>Pol | 5/32 140-175<br>1/8 90-140<br>3/32 75-110 |
| | 555 | Multipurpose hard facing for abrasion and impact. | Buildup and surfacing electrode for new and worn machine parts of steels, manganese and cast steel. Multiple passes can be made without the need of an underlay. Used on crusher jaws, hammers, drives, gear teeth. | 55-60 RC | AC-DC<br>Rev.<br>Pol | 3/16 140-180<br>5/32 110-155<br>1/8 80-120<br>3/32 45-90 |
| | 558 | Hard surfacing for high abrasion and mild impact. | High deposition rate and smooth deposits are produced by this electrode. parts subjected to severe abrasion and light impact, screws, grinding plates augers, conveyors are typical applications. | 58 1/2-63 RC | AC-DC<br>Rev.<br>Pol | 3/16 140-180<br>5/32 100-155<br>1/8 80-120 |
| | 545 Impact Plus | Buildup for severe impact. | Smooth running high deposition electrode producing no cracking welds with long service life under heavy impact. Excellent as a joining electrode for high carbon alloyed or manganese steels | 105,000 PSI<br>20-45 RC | AC-DC<br>Rev.<br>Pol | 3/16 120-210<br>5/32 110-150<br>1/8 80-120<br>3/32 45-70 |

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| | | | Used as an underlay for 558. | | | |
| | 572 | Hard surfacing for extreme abrasion. | Tungsten carbide electrode offering the highest in abrasion resistance. Heat, impact and corrosion resistance very similar to solid tungsten carbide. Used to surface mild and alloyed steels subject to extreme abrasion, friction and cutting action. Used on conveyor screws, Muller blades, refractory dies. Also used in place of tungsten carbide strips and plates. | 68-72 RC | AC-DC<br>Rev.<br>Pol | 3/16 120-210<br>5/32 110-160<br>1/8 80-115 |
| Metal Working | 800<br>"Cut-Alloy" | Electrode which gouges, pierces chamfers, grooves or removes unwanted metal. | Efficient, controllable low carbon electrode which works on all types of welding machines. Improves weld design and works on all metals (not magnesium). Cuts stainless and other metals which are difficult to cut with a torch. | | AC-DC<br>Rev.<br>Pol | 3/16 300-500<br>5/32 250-475<br>1/8 200-325<br>3/32 125-225 |

## MINERALS-TECH TORCH ALLOYS

| Filler Composition | Minerals-Tech | Description | Applications | Properties | Working Temperature | Sizes |
|---|---|---|---|---|---|---|
| Copper Base Alloys | 985T<br>OUT-OF-POSITION | High strength flux coated alloy for use on ferrous and no ferrous metals. Used for joining, buildups or overlays. | Unique alloy having dual working temperature. Can be thin flowed and used as a substitute for silver soder. Excellent for joining buildup or overlays such as a bearing surface, shaft, or a whom gear tooth. Work hardens for longer wear life. | Up to<br>110,000 PSI<br>200 BN | 1300-1700 | 3/16<br>1/8<br>3/32<br>1/16 |
| | 965T | Ideal all purpose brazing red for general maintenance and production jobs. | Economical flux coated brazing alloy is excellent for a wide range of brazing situations. It's high ductillity makes it good for copper alloys steels cast iron and galvanized sheet metal. | 65,000 PSI<br>110 BN | 1500°F | 3/16<br>1/8<br>3/32 |
| Silver Braze | 788T | Special salves alloy designed to meet all maintenance needs. Durable flux coating. | Can be used on a wide range of materials including stainless, copper alloys, nickel and nickel alloys, brasses and bronzes or any combination of these dissimilar materials. It's low melting point makes it ideal for repairing | 88,000 PSI | 1125°F | 3/32<br>1/16 |

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| | | | delicate instruments and carbide tool tipping. Highly active flux aids wetting. | | | |
| | 786T | Cadmium free silver alloy for use around processing and food handling equipment. Durable Flux coating. | Variation of 788 possessing additional silver giving it a closer match to stainless steel. Used where a cadmum free silver is required | 75,000 PSI | 1145°F | 3/32<br>1/16 |
| | 745T | Silver bearing copper based alloy for copper and bronze. | Thin flowing alloy for joining copper to brass or bronze. Self fluxing on copper. Typically used on copper tubing heat exchangers, radiators and electrical gear. High silver content makes it more fluid and increases its bonding capacity compared to copper phosphorous alloys. | 45,000 PSI<br>24% El | 1300°-1500° | 1/8<br>3/32 |
| | 704B | Low melting, high strength solder designed to meet all maintenance needs. | Silver bearing alloy that color matches stainless. Contains no lead, zinc or other filler materials. 5 times stronger than ordinary solder. Commonly used on stianless hospital, food and instrument repair. Active flux core- additional liquid flux (9900) available. | 22,000 PSI<br>431 F | 431°F | 1/16 X 9' Tubes<br>1/16 X 1/2 lb Colls |
| Aluminum | 230T | Aluminum torch alloy with highly active flux core. | Can be applied in all positions with a torch, also with T.I.G Flux is a protected from contamination by the alloy itself. Used on all weldable grades of the aluminum sheet or cast. Good for poor fit joints where a less fluid deposit is easier to control Good Corrosion resistance. | 34,000 PSI | 1100°F | 3/16<br>1/8 |
| | 233T | Aluminum torch alloy with dual stage melting characteristics. | Special alloy for torch or TIG welding. Flows like silver solder so it is not necessary to melt the base metal. Good color match, excellent electrical conductivity. Can be used on all weidable grades of aluminum, sheet or cast. | 33,000 PSI | 1070°F | 1/8<br>3/32<br>1/16 |
| Steel | 480T | Copper plated alloy for general steel welding. | Used where steel filler is required, such as exhaust pipes or where the weld must respond to post heat treatment like the base metal. | 75,000 PSI | FUSION | 1/8<br>3/32<br>1/16 |