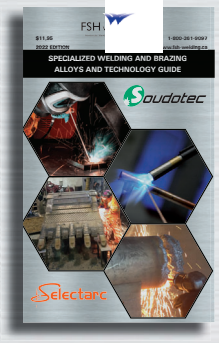
**Specialized Welding and Brazing Technical Guide Available**




Soudotec Selectarc

Par/By

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## CAST IRON & NICKEL ALLOYS

| PRODUCTS | | Oily and dirty cast iron | Unknown cast iron | Thin cast iron | Cast iron to steel assemblies | Machinability |
|---|---|---|---|---|---|---|
| **165** | Electrode with copper-clad ferro-nickel core for cold welding and building up of varied types of cast iron. Exceptional weldability. Tensile strength : 75 000 psi (517 MPa) Hardness : 200 BH AC/DC+ | 3 | 3 | | 2 | 3 |
| **168** | Electrode with a low-carbon steel core designed for cost-effective welding of dirty, contaminated and burnt cast irons. Excellent anchorage. Tensile strength : 65 000 psi (450 MPa) Hardness : 350 - 400 BH AC/DC+ | 2 | | | 3 | |
| **169 BF M8169 SP** | Baryum free electrode with high nickel core content recommended for cold welding of all types of cast irons where watertightness and/or 100% machinability are required. Tensile strength : 50 000 psi (350 MPa) Hardness : 160 BH AC/DC± | | 1 | 1 | 3 | 1 |
| **179** | Specially-coated electrode with very high nickel content and non-conductive flux coating recommended for cold welding of all types of cast irons, even when dirty and/or oily. 100% machinability. Tensile strength : 55 000 psi (380 MPa) Hardness : 150 BH AC/DC+ | 1 | 2 | 1 | 2 | 1 |
| **189 BF MC 8189G** | Unique steel coated nickel core baryum free electrode for easy welding of all types and quality of cast irons. Maximum resistance to cracking. Tensile strength : 70 000 psi (483 MPa) Hardness : 180 BH AC/DC+ | 1 | 1 | | 1 | 3 |
| **NICKEL ALLOYS** | | | | | | |
| **1690 FC 1690G** | Alloy core Inconel® type electrode for welding nickel alloys, stainless steels and steels difficult to weld together or as dissimilar assemblies. Superior resistance to severe stress. Tensile strength : 100 000 psi (689 MPa) Elongation : 40 - 43% DC+ | **Selectarc Nickel alloys also available** | | | | |

1 = Most efficient product(s)

## STAINLESS STEELS

**308L-16/17**
**309L-16/17**
**316L-16/17**
**316L-VD**
**416**

Selectarc

A full line of rutile coating stainless steel electrodes certified by the Canadian Welding Bureau (CWB) for all position welding (including vertical down) of a wide range of stainless steel grades. Also conforms to specification AWS A5.4.

*Also available in TIG rods, flux-cored wire and solid MIG wire.*

Very high-recovery (175%) 316L "JET" type electrode for welding and building up Cr-Ni-Mo stainless steel types. Excellent corrosion and heat resistance. Available in small diameters (1.6 mm and 2.0 mm).
Tensile strength : 90 000 psi (620 MPa) AC/DC+
Elongation : 40 %

## COPPER ALLOYS

**57 FC**

High strength flux-coated rod for brazing ferrous metals and copper alloys together or as dissimilar assemblies. May replace silver alloys in certain applications.
Tensile strength : 100 000 psi (689 MPa) Neutral flame
Hardness : 200 BH

**536 M8536**

Aluminum-bronze-manganese alloy electrode for building up and welding copper alloys and a wide range of ferrous metals to copper alloys. Excellent for parts subjected to compressive stress and wear.
Tensile strength : 100 000 psi (689 MPa) DC+
Hardness : 185 BH

**MIG / TIG CuSi3**

Silicon bronze alloy solid GMAW (MIG) wire for welding copper, copper alloys and galvanized steels. Also recommended for overlaying surfaces subjected to corrosion or wear.
Tensile strength : 50 000 psi (350 MPa) MIG: DC+
Hardness : 70 - 80 BH TIG: CC-
**Conforms to specifications: AWS A5.7 : ERCuSi-A**

## SURFACING PRODUCTS

**BlueClean** — BlueClean is a very powerful water based degreaser formulated with a mix of surfactants and alkaline agents. BlueClean is a concentrate that can be used pure on large jobs or diluted with water. Deeply cleans hard to remove contaminants

**EcoPassiv** — EcoPassiv is an extremely effective decontamination and passivating agent for cleaning free iron particles on all stainless steel surfaces. Formulated water base and a performing organic acid mix, surfactants and corrosion inhibitors, EcoPassiv has a very weak toxicity and replaces effectively the nitric acid base passivation agents.

**CleanRust** — CleanRust is an excellent biodegradable cleaner primarily used for the cleaning of inorganic contaminants. Formulated from a mix of surfactants, organic acids and chelating agents. CleanRust has a low pH which greatly increases the efficiency.

**PICK LF** — Pickling paste, producing 70% less nitrous gas, for stainless steel welds andacid-resistant steel welds. PICK LF contains hydrofluoric acid and nitric acid, essential for the stripping and passivation action to take place. Use with **Neutra** neutralizing paste.

**Neutra** — The Soudotec neutralizing paste is a white, creamy and alkaline paste that contains no toxic components. This product neutralizes and eliminates the effect of residual acids produced by pickling paste.

**Thermagel** — Thermagel is a unique odorless polymer gel specially formulated to create a heat barrier or shield to protect parts from brazing or soldering flames and welding. Thermagel helps avoid damage caused by heat when welding, brazing or soldering.

## STEELS and ALLOYS STEELS

| PRODUCTS | | Unknown steels | Unknown stainless steels | Manganese steels | Cast steels | T1, CHT Scandia steels | Galvanized steels |
|---|---|---|---|---|---|---|---|
| **SPECIAL** | Double-coated "controlled hydrogen" electrode specifically suited for welding structural steels and heavy equipment parts. All-positions. Tensile strength : 85 000 psi (586 MPa) Elongation : 26 - 40% AC/DC+ | | | | 1 | | |
| **Stud - Xtract** | Specially engineered flux coated electrode that protects the threads during the welding process. Designed to remove broken studs, bolts, taps, drill bits, screw extractors, etc. Tensile strength : 125 000 psi (860 MPa) Elongation : 30 - 35% AC/DC+ | 1 | 1 | 1 | 1 | 1 | 1 |
| **206 8206G** | High-recovery (160%) electrode containing manganese for welding and building up alloy steels, manganese steels and difficult-to-weld steels. Exceptional weldability. Tensile strength : 95 000 psi (655 MPa) Elongation : 38% AC/DC+ | 3 | 2 | 1 | 2 | 2 | |
| **220 8220G** | High-strength low-alloy electrode with very low diffusible hydrogen content for welding mild steels or low alloy steels. High crack-resistant deposit. Tensile strength : 115 000 psi (791 MPa) Elongation : 21 - 24% AC/DC+ | | | | 3 | 2 | |
| **222 M500** | Electrode specially designed for welding mild steels, and specifically galvanized steels. All-position welding, including vertical down. Tensile strength : 80 000 psi (550 MPa) Elongation : 24 - 28% AC/DC+ | | | | | | 1 |
| **230** | High-strength electrode for welding high carbon and high alloy steels. Highly recommended for welding all types of unknown steels. Excellent mechanical properties. Tensile strength : 120 000 psi (827 MPa) Elongation : 28 - 32% AC/DC+ | 2 | 3 | | 2 | | |
| **265 8265G** | Super strength electrode of high alloy steels and all types of unknown steels together, or as dissimilar assemblies. Excellent for extracting bolts and studs. Tensile strength : 122 000 psi (841 MPa) Elongation : 30 - 35% AC/DC+ | 1 | 3 | | 2 | | |
| **267** | Incomparable electrode, with exceptional resistance, designed for applications with extreme stress. Superior for welding of difficult-to-weld steel. Tensile strength : 140 900 psi (971 MPa) Elongation : 22 - 27% AC/DC+ | 2 | 2 | 1 | 1 | 2 | |
| **277 8277G** | High strength electrode for welding alloy and carbon steels, unknown stainless steels, tempered steels, manganese steels and difficult-to-weld steels requiring maximum elongation. Tensile strength : 100 000 psi (689 MPa) Elongation : 38 - 45 % AC/DC+ | 3 | 1 | 2 | 1 | 1 | |

1 = Most efficient product(s)

## SILVER ALLOYS

**TBW 5034** (34% Ag)
Seamless, tubular flux-cored cadmium-free brazing product with a medium silver content for brazing ferrous and non-ferrous metals; steel, stainless steel, nickel and copper alloys.
Tensile strength : 60 000 psi (414 MPa) Low carburizing flame
Bonding temperature : 630 - 730°C (1166 - 1346°F)

**TBW 5045** (45% Ag)
Seamless, tubular flux-cored cadmium-free brazing product with a high silver content for brazing ferrous and non-ferrous metals; steel, stainless steel, nickel and copper alloys.
Tensile strength : 75 000 psi (515 MPa) Low carburizing flame
Bonding temperature : 640 - 680°C (1184 - 1256°F)
**Conforms to specifications: AWS A5.8: BAg-36**

**TBW 5056** (56% Ag)
Seamless, tubular flux-cored cadmium-free brazing product with a very high silver content for brazing ferrous and non-ferrous metals; steel, stainless steel, nickel and copper alloys.
Tensile strength : 80 000 psi (550 MPa) Low carburizing flame
Bonding temperature : 620 - 655°C (1148 - 1211°F)
**Conforms to specifications: AWS A5.8: BAg-7**

**TBW 3050** (50% Ag + 2% Ni)
Seamless, tubular flux-cored cadmium-free brazing product with a very high silver content and containing nickel for brazing ferrous and non-ferrous metals; steel, stainless steel, nickel and copper alloys.
Tensile strength: 78 300 psi (540 MPa) Low carburizing flame
Bonding temperature: 660 - 705°C (1220 - 1300°F)
**Conforms to specifications: AWS A5.8: BAg-24**

**6020 FC** (56% Ag)
Universal coated cadmium-free rod with very high silver content for brazing ferrous and non-ferrous metals. Ideal for stainless steels.
Tensile strength : 80 000 psi (550 MPa) Low carburizing flame
Bonding temperature : 570-620°C (1060 - 1150°F)
**Conforms to specifications: AWS A5.8: BAg-7**

**6030 FC** (30% Ag)
Economical coated cadmium-free rod with medium silver content for brazing ferrous and non-ferrous metals.
Tensile strength : 60 000 psi (414 MPa) Low carburizing flame
Bonding temperature : 720-750°C (1330 - 1385°F)

**6045 FC** (45% Ag)
Versatile coated cadmium-free rod with high silver content for brazing ferrous and non-ferrous metals. High capillarity.
Tensile strength : 75 000 psi (515 MPa) Low carburizing flame
Bonding temperature : 650-680°C (1200 - 1260°F)
**Conforms to specifications: AWS A5.8: BAg-36**

**6800** (0% Ag) **6804** (2% Ag) **6805** (5% Ag) **6806** (15% Ag)
**"Exclusive" : Laser printed rods (AWS standard)**
A full line of bare cadmium-free self-fluxing rods with a high capillary action made up of a copper, silver and phosphorous alloy for brazing of copper and copper alloys (brass and bronze).

**6800 Conforms to specifications: AWS A5.8 BCuP-2**
**6804 Conforms to specifications: AWS A5.8: BCuP-6**
**6805 Conforms to specifications: AWS A5.8: BCuP-3**
**6806 Conforms to specifications: AWS A5.8: BCuP-5**

**6157**
Solid wire made up of a tin-silver alloy for soldering ferrous and non-ferrous metals at low temperatures. Ideal for brazing thin sections.
Tensile strength : 15 500 psi (106 MPa) Low carburizing flame
Bonding temperature : 195°C (385°F)

## REBUILDING & HARDFACING

| PRODUCTS | | ELECTRODES | FLUX-CORED WIRE | Deposit Thickness (nb of passes max.) | Machinable deposit | All-position electrodes |
|---|---|---|---|---|---|---|
| **REBUILDING** | | | | | | |
| **340 8342** | Welding alloys specifically designed for building-up manganese steels, low carbon steels and low alloy steels. Excellent for severe impacts and moderate abrasion. Excellent as a cushion before hardfacing. Hardness (as-welded) : 170 - 250 BH Work hardening : 425 - 550 BH | 340 AC/DC+ | 8342 DC+ | Unlimited | √ | √ |
| **HB 40 8342W** | Welding alloys specifically designed for semi-hard and tough build-up on carbon steels and low alloy steels. Can be used as a cushion before hardfacing. Hardness (as-welded) : 39 - 42 HRC | HB 40 AC/DC- | 8342W with gas DC+ | Unlimited | √ | √ |
| **342 8340** | Cr-Ni-Mn welding alloys for joining and build-up low carbon steels, low alloy and manganese steels. Excellent for severe impacts, moderate abrasion and corrosion. Excellent as a cushion before hardfacing. Tensile strength : 125 000 psi (860 MPa) Hardness (as-welded) : 250 BH Work hardening : 550 BH | 342 AC/DC+ | 8340 DC+ | Unlimited | √ | |
| **HARDFACING** | | | | | | |
| **330 8330** | Welding alloys with high chromium carbide for hardfacing on steels. Excellent for severe abrasion and moderate impacts. Hardness (as-welded) : 58 - 63 HRC | 330 AC/DC+ | 8330 DC+ | 2 | | |
| *Available in slag-free very high recovery version :* **Soudotec 336** | | | | | | |
| **333 SP 8333** | Electrode with complex Cr-Nb-W-Mo-V carbides for hardfacing mild steel, low alloy steel, stainless steel and manganese steel parts subjected to extreme abrasion, heat and moderate impacts. Hardness (as-welded) : 62 - 67 HRC | 333 SP AC/DC+ | 8333 DC+ | 2 | | |
| **344** | All position hardfacing electrode containing fine carbides of tungsten, chromium and vanadium for hardfacing steels subjected to abrasion, moderate impacts and metal-to-metal friction up to 550°C (1022°F). Hardness (as-welded): 42 - 45 HRC | 344 AC/DC+ | | 5 | √ | √ |
| **346 TUBULAR** | High alloy tubular electrode containing chromium carbide for hardfacing. Ideal for severe abrasion, corrosion and moderate impacts. Welding at very low amperages in all-positions. Hardness (as-welded) : 58 - 62 HRC | 346 AC/DC+ | | 2 | | √ |
| **390 8332W** | Low chromium economical hardfacing welding alloys. Excellent for abrasion, moderate impacts, and metal-to-metal friction. Hardness (as-welded) : 55 - 60 HRC | 390 AC/DC+ | 8332W with gas DC+ | 2-3 | | √ |
| *Available in tubular rods for torch :* **Soudotec 397** | | | | | | |
| **399 8399G** | Welding alloys with a Ni-Cr-B-Si matrix with a high percentage of tungsten carbide particles for hardfacing. Excellent for extreme abrasion with no violent impacts. Excellent resistance to acids and other corrosive agents. Tungsten carbides : 2360 HV (Vickers) Hardness (matrix) : 54 - 56 HRC | 399 AC/DC+ | 8399G with gas DC+ | 2 | | √ |
| *Available in continuous, flexible cord for torch :* **Soudotec 8105, 8108 and 8112** | | | | | | |
| **TOOL STEELS** | | | | | | |
| **345 8345G** | Superior high-alloy electrode for hardfacing, building up and manufacturing tool steels. Excellent heat and metal-to-metal frictional wear resistance. Hardness (as-welded) : 61 - 65 HRC | 345 AC/DC+ | 8345G with gas DC+ | 2 | | √ |
| *Also available :* **Soudotec P20 and Soudotec H13, TIG rods for building up and repairing tool steels.** | | | | | | |

√= Recommended product(s)

## LIGHT METAL

**70**
Specially designed electrode for welding and rebuilding aluminum and its various alloys. Corrosion resistant deposit.
Tensile strength : 34 000 psi (235 MPa) DC+
Elongation : 15 - 25%

**TBW Zinal 4**
Zinc-aluminum extruded tubular flux-cored rod containing a non-corrosive flux for low temperature soldering of aluminum and its various alloys, aluminum with copper and aluminum with stainless steel.
Bonding temperature : 440 - 460°C (824 - 860°F)

**EasyMig Alu**
Solid GMAW (MIG) wire made up of a high-strength and highly-liquefied aluminum alloy for welding difficult-to-weld thin sheet, forged and cast aluminum alloys. Specially designed for dirty or difficult-to-weld aluminum alloys.
Tensile strength : 34 000 psi (235 MPa)

Also available : **Soudotec 75 :** bare rod for brazing and TIG welding thin sheet, forged and cast aluminum alloys.
**Soudotec 78 :** Bare rod for assembling and building up white metal - **Soudotec 780 :** bare rod for welding magnesium.

## CUTTING, CHAMFERING & PIERCING

**212 SP**
Electrode specially designed for easy gouging, cutting and piercing of any ferrous and non-ferrous metals. Very low fuming. AC/DC-
Also available : Electrode with superior blowing capacity for cutting and gouging : **Soudotec G12.**

**PRIME CUT** Ultrathermic cutting system **"EXCLUSIVE"**
Prime Cut is a compact ultrathermic cutting system operating at temperatures exceeding 10,000°F (5538°C). Because of the unique burning action of Prime Cut's proprietary, ultrathermic rods literally liquefies any material in their path, using material itself as fuel. They will quickly cut, pierce or gouge almost any known material including cast iron, stainless steel, alloy or mild steel, concrete, nickel, titanium and aluminum. The 6, 12 or 24 volt DC ignition system, and its single oxygen fuel source with one regulator assure that Prime Cut systems are easy to operate and safe…even for the first time user. Ideal for pin piercing and removal.

**Also available : torch BR-22 for underwater cutting**

**To choose the best electrodes and rods based on your specific applications, consult the selection at pages 11-01 and 11-02 in our Specialized Welding and Brazing Alloys and Technology Guide.**
**For more information and other products available, see our detailed technical data sheets and videos on our web site: www.fsh-welding.ca or contact our Technical Department.**

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