

SelectAlloy 316L

Description:

SelectAlloy 316L is a gas shielded, flux cored, stainless steel electrode designed to weld in the flat and horizontal positions. It has a nominal weld metal composition of 19% Cr, 12.5% Ni, 2.5% Mo and a maximum carbon content of 0.04%. The presence of molybdenum improves resistance to pitting and provides increased creep resistance at elevated temperatures. The low carbon content minimizes carbide precipitation and makes it more resistant to intergranular corrosion. **SelectAlloy 316L** is designed for use with 100% carbon dioxide or a blend of 75-80% argon/balance carbon dioxide. Shielding gas mixes with more than 75-80% Argon are not recommended.

Classifications & Approvals:

- E316LTO-1, E316LTO-4 per AWS A5.22 (Also meets E316TO-1, E316TO-4)
- ABS: E316LTO-1, E316LTO-4
- CWB: E316LTO-1, E316LTO-4

Characteristics:

SelectAlloy 316L produces a finely rippled, even and well washed bead with either 100% CO₂ or 75-80% Ar/balance CO₂ shielding gas. The arc transfer is smooth, with minimal spatter. The slag peels freely, minimizing cleanup time.

Applications:

SelectAlloy 316L finds wide application in the pulp and paper industry, chemical and textile processing equipment, furnace parts and in parts exposed to marine environments. It is used to weld type 316 stainless and other similar alloys, such as ASTM A743 and A744, types CF-8M and CF-3M.

Typical Mechanical Properties:

	<u>CO₂</u>	<u>75% Ar/25% CO₂</u>
Ultimate Tensile Strength (psi)	83,500	86,500
Yield Strength (psi)	60,000	62,000
Percent Elongation	40	38

Typical Weld Deposit Chemistry:

	<u>CO₂</u>	<u>75% Ar/25% CO₂</u>
Carbon (C)	0.03	0.03
Chromium (Cr)	18.5	18.7
Nickel (Ni)	12.0	11.9
Manganese (Mn)	1.38	1.58
Silicon (Si)	0.75	0.86
Molybdenum (Mo)	2.57	2.52
Ferrite Number (WRC, 1992)	7	8

Typical Welding Parameters (CO₂)*:

<u>Diameter</u>	<u>WFS (ipm)</u>	<u>Amperage</u>	<u>Voltage</u>	<u>CTWD</u>	<u>Dep. Rate (lbs/hr)</u>
.045"	200	120	25	5/8 – 3/4"	4.3
.045"	335	170	27	5/8 – 3/4"	7.1
.045"	440	200	29	5/8 – 3/4"	9.3
.045"	780	290	35	5/8 – 3/4"	17.0
1/16"	150	150	24	3/4 – 1"	5.0
1/16"	235	210	28	3/4 – 1"	7.8
1/16"	345	270	31	3/4 – 1"	11.3
1/16"	500	350	34	3/4 – 1"	17.0

* Optimum conditions are in **boldface** type. Lower by 1-2 volts when using 75-80% Ar/balance CO₂.

Standard Diameters: **

1/16", 0.045"