

# Spark Of Excellence

Stainless Steel Welding Electrodes



**spark**  
WELDING ELECTRODES



THE INDIAN STEEL & WIRE PRODUCTS LIMITED  
A SUBSIDIARY OF TATA STEEL LTD.

# spark 308

Electrode for fabrication of 18Cr-8Ni type austenitic stainless steels.

**Classifications:** AWSA5.4: E308 –16 || IS5206: E 19.9 R26

**Descriptions:** Electrode for welding 18-8 austenitic stainless steels corresponding to AISI 301, 302, 304, 305 and 308. Spark 308 electrode's intrinsic properties offers high corrosion resistance in acidic medium and provides smooth arc, low smoke & spatter and excellent slag detachability.

**Applications:**

- Welding of machinery in food, beverage industries, chemical & petrochemical industries.
- Finishing material in furniture making and welding of Ship hulls.
- Extensively used in general purpose fabrication utensils and machinery.

**Welding Parameters:**

Size (mm X mm)	Current (Amps)
2.50 x 350	55-80
3.15 x 350	70-100
4.00 x 350	90-130

**Typical Mechanical Properties:**

UTS	600 N/mm <sup>2</sup>
Elongation	42%
Yield Strength	440 N/mm <sup>2</sup>

**Typical All weld metal composition (%):**

C	Mn	Si	Cr	Ni	S	P
0.06	1.30	0.95	19.86	9.07	0.022	0.031

# spark 308-L

Electrode for joining austenitic,  
Low Carbon, 18Cr-8Ni Stainless Steels

**Classifications:** AWSA5.4: E308L -16 || IS5206: E 19.9 LR26

**Descriptions:** Spark 308L is an all position welding electrode used for joining austenitic steels of the types 301, 302, 308, 308L, 304, 304L, 321 and 347. With lower than 0.04% carbon content, it provides high resistance to carbide precipitation and avoids the inter-granular corrosion.

**Applications:**

- Extensively used for welding of stainless steel pipelines in refineries, oil and gas industries.
- Storage tanks in chemical plants, power plants etc.
- Surface welding of impeller vanes, valves, heat exchangers.
- Nuclear plant structural welding and cryogenic steel equipment fabrication.

**Welding Parameters:**

Size (mm X mm)	Current (Amps)
2.50 x 350	55-80
3.15 x 350	70-100
4.00 x 350	90-130

**Typical Mechanical Properties:**

UTS	570 N/mm <sup>2</sup>
Elongation	42%
Yield Strength	390 N/mm <sup>2</sup>

**Typical All weld metal composition (%):**

C	Mn	Si	Cr	Ni	S	P
0.03	1.27	0.91	19.93	9.12	0.022	0.031

# spark 316-L

Electrode for joining 316, 316L, 317L,  
318 and similar stainless steels

**Classifications:** AWS A/SFA 5.4: E 316L-16 || IS5206 : E19.12.2 LR26

**Descriptions:** An extra low carbon, rutile type, all position Molybdenum bearing stainless steel electrode used for welding, 18% Cr, 12% Ni, 2.5% Mo type steels. The electrode provides maximum resistance to hot cracking due to low ferrite content and also offers high resistance from stress corrosion cracking and chemical corrosion in chloride ion media. The electrode has excellent welding performance giving smooth beads of excellent appearance.

**Applications:**

- Commonly used in industries where acid resistance upto 300°C is required.
- Welding Chemical tanks of Dye industries, textile industries, paint, paper & pulp industries.
- For corrosion resistant castings and bleaching equipment of chemical industries.
- For tanks and vessels whose surfaces are affected by acids.

**Welding Parameters:**

Size (mm X mm)	Current (Amps)
2.50 x 350	55-80
3.15 x 350	75-110
4.00 x 350	120 - 160

**Typical Mechanical Properties:**

UTS	570 N/mm <sup>2</sup>
Elongation	40 %
Yield Strength	430 N/mm <sup>2</sup>

**Typical All weld metal composition (%):**

C	Mn	Si	Mo	Cr	Ni	S	P
0.03 max	1.05	0.85	2.6	18.9	12.2	0.014	0.03

# spark 309

Rutile based 23/12 type Stainless Steel Electrodes  
for joining AISI 309 type grades and welding dissimilar alloys

**Classifications:** AWS A 5.4: E 309-16 || IS 5206: E 23.12 R26

**Descriptions:** Spark 309 is a medium coated, rutile based Stainless Steel, all position electrode with 23% Cr and 12 % Ni composition. The weld metal exhibits radiographic quality with excellent resistance to corrosion and oxidation up to 1100°C. Spark 309 has smooth and stable arc, excellent slag detachability, low spatter, fine weld beads and operates well in both AC

**Applications:**

- Ideal for Welding dissimilar metal joints between carbon & low alloy steels and stainless steels such as cleats for superheaters, anchors for castable.
- Intermediate welds in clad steels of 18/8 type.
- Welding all 309 grades in cast or wrought form.

**Welding Parameters:**

Size (mm X mm)	Current (Amps)
2.50 x 350	60 – 80 A
3.15 x 350	75 – 100 A
4.00 x 350	90 – 130 A

**Typical Mechanical Properties:**

UTS	620 N/mm <sup>2</sup>
Elongation	38%
Yield Strength	410N/mm <sup>2</sup>

**Typical All weld metal composition (%):**

C	Mn	Si	Cr	Ni	S	P
0.07	1.25	0.7	24.2	13.1	0.014	0.03

# spark 310

Heat resistant Stainless Steel Welding Electrode

**Classifications:** AWS A5.4: E310 –16 || IS5206: E 25.20LR26

**Descriptions:** A rutile - basic type 25 Cr - 20 Ni, heat resistant electrode with resistance to oxidation upto 1150°C. The austenitic stainless steel electrode possesses features like smooth arc, low smoke-spatter and excellent slag detachability.

**Applications:**

- Welding high temperature furnace parts, cladding side of stain less clad steels.
- Extensive uses in polymerization plants, annealing boxes, carburizing pots, gas turbine combustion chambers.
- High temperatures chutes for hot sinter, slag granulation ducts, blast furnace overburden probes etc.
- Welding stainless to low alloy and harden-able dissimilar steels etc.

**Welding Parameters:**

Size (mm X mm)	Current (Amps)
2.50 x 350	55-80
3.15 x 350	75-110
4.00 x 350	120 - 160

**Typical Mechanical Properties:**

UTS	580 N/mm <sup>2</sup>
Elongation	36%
Yield Strength	390 N/mm <sup>2</sup>

**Typical All weld metal composition (%):**

C	Mn	Si	Cr	Ni	S	P
0.09	1.7	0.7	26.4	20.8	0.016	0.027



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