

STAINLESS STEELS



Description & Applications

ZULFI E307-15 is a basic coated SMAW electrode for welding of austenitic manganese steel. It is extremely resistance to crack resistance on the function of base materials of difficult weldability with austenitic and ferritic steels, junction of manganese steel with carbon steel. Applied as a cushion layer for difficult materials which is difficult to weld.

Re-baking: 350 °C ± 20 °C for 2 hours.

Suitable for welding dissimilar steels, quenched and tempered steels, steels difficult to weld such as: armor plate and austenitic Manganese steel, often used for buffer layers in hard facing applications.

Welding current

DC+

Welding Positions



Classifications

SFA/AWS A5.4 E307-15

All weld metal typical composition, %

C	Si	Mn	Cr	Ni	Mo
0.08	0.40	4.00	19.00	10.00	0.85

All weld metal typical mechanical properties,

Yield strength, MPa	>350
Tensile strength, MPa	>600
Elongation, %	>30

Charpy V

Test temperature, °C	+20
Impact values, J	60

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	50-125	1	10
4.0	350	90-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

ZULFI E307-16 is a rutile coated SMAW electrode for welding of austenitic manganese steel. It is extremely resistance to crack resistance on the function of base materials of difficult weldability with austenitic and ferritic steels, junction of manganese steel with carbon steel. Applier as a cushion layer for the difficult materials which is difficult to weld.

Re-baking: 350 °C ± 20 °C for 2 hours.

Suitable for welding steels that are difficult to weld such as: armor plate and austenitic Manganese steel, often used for buffer layers in hard facing applications.

Welding current

AC, DC+

Welding Positions



Classifications

SFA/AWS A5.4 E307-16

All weld metal typical composition, %

C	Si	Mn	Cr	Ni	Mo
0.09	0.80	4.00	19.00	10.00	0.80

All weld metal typical mechanical properties,

Yield strength, MPa	>350
Tensile strength, MPa	>600
Elongation, %	>30

Charpy V

Test temperature, °C	+20
Impact values, J	60

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	50-125	1	10
4.0	350	90-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

ZULFI E307-17 is a rutile silica coated SMAW electrode for welding of austenitic manganese steel. It is extremely resistance to crack resistance on the function of base materials of difficult weldability with austenitic and ferritic steels, junction of manganese steel with carbon steel. Applier as a cushion layer for the difficult materials which is difficult to weld.

Re-baking: 350 °C ± 20 °C for 2 hours.

Suitable for welding steels that are difficult to weld such as: armor plate and austenitic Manganese steel, often used for buffer layers in hard facing applications.

Welding current

AC, DC+

Welding Positions



Classifications

SFA/AWS A5.4 E307-17

All weld metal typical composition, %

C	Si	Mn	Cr	Ni	Mo
0.08	0.85	4.15	19.00	10.00	0.80

All weld metal typical mechanical properties,

Yield strength, MPa	>350
Tensile strength, MPa	>600
Elongation, %	>30

Charpy V

Test temperature, °C	+20
Impact values, J	60

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	50-125	1	10
4.0	350	90-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

Austenitic stainless-steel electrode suitable for welding of austenitic Cr-Ni steels as well as cast steels. Suitable for operating temperature up to +350 °C. Slag removal easy.

Re-baking: 350 °C ± 20 °C for 2 hours.

Electrodes were developed for the welding of Type 304L stainless steels but can be used for many other stainless steels including Types 301, 302 & 304. They are used extensively for the welding of chemical plant equipment and may be used successfully for the welding of Types 321 and 347 stainless steels provided the service temperature is less than about 700°F(371°C) Typical areas are Shipbuilding, Petrochemical, General Fabrication, Tank and Vessel Fabrication.

Welding current

DC+

Welding Positions



Classifications

SFA/AWS A5.4 E308-15

All weld metal typical composition, %

C	Si	Mn	Cr	Ni
0.04	0.40	1.00	19.00	10.00

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	550-620
Elongation, %	≥30

Charpy V

Test temperature, °C	+20
Impact values, J	75

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	50-125	1	10
4.0	350	90-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

Austenitic stainless-steel electrode suitable for welding of austenitic Cr-Ni steels as well as cast steels. Suitable for operating temperatures up to +350 °C. The electrode has a stable and concentrated arc.

Re-baking: 350 °C ± 20 °C for 2 hours.

Suitable for welding of 301, 302 & 304 stainless steels. They are used extensively for the welding of chemical plant equipment and may be used successfully for the welding of Types 321 and 347 stainless steels provided the service temperature is less than about 700°F (371° C) Typical areas are Shipbuilding, Petrochemical, General Fabrication, Tank and Vessel Fabrication.

Welding current

AC, DC+

Welding Positions



Classifications

SFA/AWS A5.4 E308-16

All weld metal typical composition, %

C	Si	Mn	Cr	Ni
0.03	0.80	1.00	19.00	10.00

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	550-620
Elongation, %	≥30

Charpy V

Test temperature, °C	+20
Impact values, J	75

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	50-125	1	10
4.0	350	90-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

Basic coated SMAW electrode for welding austenitic, creep resistant steels with higher carbon contents, type 18%Cr-8%Ni, e.g., AISI 304H. Good weldability in all positions except in vertical down. Easy slag removal and controlled and smooth arc.

Re-baking: 350 °C ± 20 °C for 2 hours.

The electrode is designed for high-temperature applications in petrochemical and chemical process plants.

Welding current

DC+

Welding Positions



Classifications

SFA/AWS A5.4 E308H-15

All weld metal typical composition, %

C	Si	Mn	Cr	Ni
0.05	0.40	1.00	19.00	10.00

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	>580
Elongation, %	≥30

Charpy V

Test temperature, °C	+20
Impact values, J	60

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.6	300	45-80	1	10
3.2	350	50-125	1	10
4.0	350	90-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

ZULFI E308H-16 electrodes contain higher carbon over 308 for the welding of austenitic, high carbon 18% Cr – 8% Ni stainless steels such as AISI-304-H. The weld deposit of this electrode contains a 0.04 - 0.08% carbon, which provides higher tensile and creep strengths at elevated temperatures. It has a high deposition rate resulting in excellent efficiency. This electrode may be used in all positions.

Re-baking: 350 °C ± 20 °C for 2 hours.

ZULFI E308H-16 electrodes may be used joint welds in construction parts for chemical engineering and cryogenic applications.

Welding current

AC, DC+

Welding Positions



Classifications

SFA/AWS A5.4 E308H-16

All weld metal typical composition, %

C	Si	Mn	Cr	Ni
0.05	0.80	1.00	19.00	10.00

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	550-620
Elongation, %	≥30

Charpy V

Test temperature, °C	+20
Impact values, J	75

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	50-125	1	10
4.0	350	90-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

ZULFI E308H-17 electrodes contain higher carbon over 308 for the welding of austenitic, high carbon 18% Cr – 8% Ni stainless steels such as AISI-304-H. The weld deposit of this electrode contains a 0.04 - 0.08% carbon, which provides higher tensile and creep strengths at elevated temperatures. It has a high deposition rate resulting in excellent efficiency. This electrode may be used in all positions.

Re-baking: 350 °C ± 20 °C for 2 hours.

ZULFI E308H-17 electrodes may be used joint welds in construction parts for chemical engineering and cryogenic applications.

Welding current

AC, DC+

Welding Positions



Classifications

SFA/AWS A5.4 E308H-17

All weld metal typical composition, %

C	Si	Mn	Cr	Ni
0.05	0.80	1.00	19.00	10.00

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	550-620
Elongation, %	≥30

Charpy V

Test temperature, °C	+20
Impact values, J	75

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	50-125	1	10
4.0	350	90-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

Austenitic stainless-steel electrode suitable for welding of austenitic Cr-Ni steels of low carbon content as well as cast steels. Suitable for operating temperature up to +350 °C. Slag removal easy.

Re-baking: 350 °C ± 20 °C for 2 hours.

Electrodes were developed for the welding of Type 304L stainless steels but can be used for many other stainless steels including Types 301, 302 & 304. They are used extensively for the welding of chemical plant equipment and may be used successfully for the welding of Types 321 and 347 stainless steels provided the service temperature is less than about 700°F(371°C) Typical areas are Shipbuilding, Petrochemical, General Fabrication, Tank and Vessel Fabrication.

Welding current

AC, DC+

Welding Positions



Classifications

SFA/AWS A5.4 E308L-15

All weld metal typical composition, %

C	Si	Mn	Cr	Ni
0.03	0.40	1.00	19.00	10.00

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	550-620
Elongation, %	≥30

Charpy V

Test temperature, °C	+20
Impact values, J	75

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	50-125	1	10
4.0	350	90-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

Austenitic stainless-steel electrode suitable for welding of austenitic Cr-Ni steels of low carbon content as well as cast steels. Suitable for operating temperatures up to +350 °C. The electrode has a stable and concentrated arc.

Re-baking: 350 °C ± 20 °C for 2 hours.

Electrodes were developed for the welding of Type 304L stainless steels but can be used for many other stainless steels including Types 301, 302 & 304. They are used extensively for the welding of chemical plant equipment and may be used successfully for the welding of Types 321 and 347 stainless steels provided the service temperature is less than about 700°F (371°C). Typical areas are Shipbuilding, Petrochemical, General Fabrication, Tank and Vessel Fabrication.

Welding current

AC, DC+

Welding Positions



Classifications

SFA/AWS A5.4 E308L-16

All weld metal typical composition, %

C	Si	Mn	Cr	Ni
0.03	0.40	1.00	19.00	10.00

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	550-620
Elongation, %	≥30

Charpy V

Test temperature, °C	+20
Impact values, J	75

Approvals

BV, DNV Grade E308L-16

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	50-125	1	10
4.0	350	90-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

Austenitic stainless-steel electrode suitable for welding of austenitic Cr-Ni steels of low carbon content as well as cast steels. Suitable for operating temperature up to +350°C. The electrode has a stable and concentrated arc.

Re-baking: 250°C-350°C for 2 hours.

Electrodes were developed for the welding of Type 304L stainless steels but can be used for many other stainless steels including Types 301, 302 & 304. They are used extensively for the welding of chemical plant equipment and may be used successfully for the welding of Types 321 and 347 stainless steels provided the service temperature is less than about 700°F (371°C). Typical areas are Shipbuilding, Petrochemical, General Fabrication, Tank and Vessel Fabrication.

Welding current

AC, DC+

Welding Positions



Classifications

SFA/AWS A5.4 E308L-17

All weld metal typical composition, %

C	Si	Mn	Cr	Ni
0.03	0.80	1.00	19.00	10.00

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	550-620
Elongation, %	≥30

Charpy V

Test temperature, °C	+20
Impact values, J	75

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	50-125	1	10
4.0	350	90-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

Austenitic stainless-steel electrode suitable for welding of austenitic Cr-Ni-Mo steels as well as cast steels. Suitable for operating temperature up to +350 °C. The electrode has a stable and concentrated arc.

Re-baking: 350 °C ± 20 °C for 2 hours.

All positional basic coated electrode which is extremely suitable for welding molybdenum containing austenite stainless steel. ZULFI E308Mo-15 can be used for welding such types as 316 stainless steels when increased ferrite is desired beyond that attainable with ZULFI E316-15 electrode.

Welding current

DC+

Welding Positions**Classifications**

SFA/AWS A5.4 E308Mo-15

All weld metal typical composition, %

C	Si	Mn	Cr	Ni	Mo
0.03	0.40	0.80	18.00	10.00	2.40

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	550-650
Elongation, %	≥30

Charpy V

Test temperature, °C	+20
Impact values, J	75

Approvals**Welding parameters**

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	50-125	1	10
4.0	350	90-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

Austenitic stainless-steel electrode suitable for welding of austenitic Cr-Ni-Mo steels as well as cast steels. Suitable for operating temperature up to +350 °C. The electrode has a stable and concentrated arc.

Re-baking: 350 °C ± 20 °C for 2 hours.

All positional basic coated electrode which is extremely suitable for welding molybdenum containing austenite stainless steel. ZULFI E308LMo-15 can be used for welding such type as 316 stainless steels when increased ferrite is desired beyond that attainable with ZULFI E316L-15 electrode.

Welding current

DC+

Welding Positions



Classifications

SFA/AWS A5.4 E308LMo-15

All weld metal typical composition, %

C	Si	Mn	Cr	Ni	Mo
0.03	0.40	0.80	18.00	10.00	2.40

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	550-650
Elongation, %	≥35

Charpy V

Test temperature, °C	+20
Impact values, J	75

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	50-125	1	10
4.0	350	90-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

Austenitic stainless-steel electrode suitable for welding of austenitic Cr-Ni-Mo steels as well as cast steels. Suitable for operating temperature up to +350 °C. The electrode has a stable and concentrated arc.

Re-baking: 350 °C ± 20 °C for 2 hours.

All positional basic coated electrode which is extremely suitable for welding molybdenum containing austenite stainless steel. ZULFI E308Mo-16 can be used for welding such type as 316 stainless steels when increased ferrite is desired beyond that attainable with ZULFI E316-16 electrode.

Welding current

AC, DC+

Welding Positions



Classifications

SFA/AWS A5.4 E308Mo-16

All weld metal typical composition, %

C	Si	Mn	Cr	Ni	Mo
0.03	0.60	0.80	19.0	10.0	2.40

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	550-650
Elongation, %	≥30

Charpy V

Test temperature, °C	+20
Impact values, J	75

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	50-125	1	10
4.0	350	90-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

Austenitic stainless-steel electrode suitable for welding of austenitic Cr-Ni-Mo steels as well as cast steels. Suitable for operating temperature up to +350 °C. The electrode has a stable and concentrated arc.

Re-baking: 350 °C ± 20 °C for 2 hours.

All positional basic coated electrode which is extremely suitable for welding molybdenum containing austenite stainless steel. ZULFI E308LMo-16 can be used for welding such type as 316 stainless steels when increased ferrite is desired beyond that attainable with ZULFI E316L-16 electrode.

Welding current

AC, DC+

Welding Positions



Classifications

SFA/AWS A5.4 E308LMo-16

All weld metal typical composition, %

C	Si	Mn	Cr	Ni	Mo
0.02	0.60	0.80	19.00	10.00	2.40

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	550-650
Elongation, %	≥30

Charpy V

Test temperature, °C	+20
Impact values, J	75

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	50-125	1	10
4.0	350	90-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

Austenitic stainless-steel electrode suitable for welding dissimilar steels (austenitic steels to ferritic steels) and for depositing austenitic claddings. Weld metal consists of approximately 15% delta ferrite.

Re-baking: 350 °C ± 20 °C for 2 hours.

Joining of unalloyed and low alloyed steels to stainless/ heat resistant steels (wrought and cast types), stainless claddings on mild steels.

Welding current

DC+

Welding Positions



Classifications

SFA/AWS A5.4 E309-15

All weld metal typical composition, %

C	Si	Mn	Cr	Ni
0.03	0.30	0.90	24.00	13.00

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	550-620
Elongation, %	≥30

Charpy V

Test temperature, °C	+20
Impact values, J	60

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	70-120	1	10
4.0	350	100-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

Austenitic stainless-steel electrode suitable for welding dissimilar steels (austenitic steels to ferritic steels) and for depositing austenitic claddings. Weld metal consists of approximately 15% delta ferrite.

Re-baking: 350 °C ± 20 °C for 2 hours.

Joining of unalloyed and low alloyed steels to stainless/ heat resistant steels (wrought and cast types), stainless claddings on mild steels.

Welding current

AC, DC+

Welding Positions



Classifications

SFA/AWS A5.4 E309L-15

All weld metal typical composition, %

C	Si	Mn	Cr	Ni
0.03	0.40	0.70	24.00	13.00

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	550-580
Elongation, %	≥30

Charpy V

Test temperature, °C	+20
Impact values, J	60

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	50-125	1	10
4.0	350	90-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

Austenitic stainless steel basic coated electrode suitable for welding dissimilar steels (austenitic steels to ferritic steels) and for depositing austenitic claddings. At high temperature Mo content improves creep strength.

Re-baking: 350 °C ± 20 °C for 2 hours.

Joining of unalloyed and low alloyed steels to stainless/ heat resistant steels (wrought and cast types), stainless claddings on mild steels and low alloy steels.

Welding current

DC+

Welding Positions



Classifications

SFA/AWS A5.4 E309LMO-15

All weld metal typical composition, %

C	Si	Mn	Cr	Ni	Mo
0.03	0.30	0.90	24.0	13.0	2.50

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	>550
Elongation, %	≥30

Charpy V

Test temperature, °C	+20
Impact values, J	60

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	60-120	1	10
4.0	350	100-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

Electrode for welding of stabilized stainless and cast steels. Austenitic stainless steel basic coated electrode suitable for welding dissimilar steels (austenitic steels to ferritic steels) and for depositing austenitic claddings. Weld metal consists of approximately 15% delta ferrite.

Re-baking: 350 °C ± 20 °C for 2 hours.

Joining of unalloyed and low alloyed steels to stainless/ heat resistant steels (wrought and cast types), stainless claddings on mild steels and low alloy steels.

Welding current

DC+

Welding Positions



Classifications

SFA/AWS A5.4 E309Nb-15

All weld metal typical composition, %

C	Si	Mn	Cr	Ni	Nb
0.03	0.30	0.90	24.0	13.0	0.80

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	550-620
Elongation, %	≥30

Charpy V

Test temperature, °C	+20
Impact values, J	60

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	60-120	1	10
4.0	350	100-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

Electrode for welding of austenitic stainless and cast steels. Austenitic stainless-steel electrode suitable for welding of dissimilar steels and for depositing austenitic claddings. Weld metal consists of approximately 15% delta ferrite. Highest joining temperature for dissimilar joints is +300 °C. Fine droplet metal transfer, good wash-in of joint sides, finely ripple bead, easily removable slag.

Re-baking: 350 °C ± 20 °C for 2 hours.

ZULFI E309-16 is designed for welding heat resistant base metals of similar compositions. It was also designed to weld dissimilar materials and for stainless steel overlays or plain carbon or low-alloy steels. It is preferred for cladding over carbon or low alloy steels, as well as dissimilar joints which undergo heat treatment.

Welding current

AC, DC+

Welding Positions**Classifications**

SFA/AWS A5.4 E309-16

All weld metal typical composition, %

C	Si	Mn	Cr	Ni
0.04	0.80	0.70	24.0	13.0

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	520-580
Elongation, %	≥30

Charpy V

Test temperature, °C	+20
Impact values, J	60

Approvals**Welding parameters**

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.6	300	45-80	1	10
3.2	350	70-120	1	10
4.0	350	100-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

Electrode for welding of austenitic stainless and cast steels. Austenitic stainless-steel electrode suitable for welding of dissimilar steels and for depositing austenitic claddings. Weld metal consists of approximately 15% delta ferrite. Highest joining temperature for dissimilar joints is +300 °C. Fine droplet metal transfer, good wash-in of joint sides, finely ripple bead, easily removable slag.

Re-baking: 350 °C ± 20 °C for 2 hours.

ZULFI E309L-16 is designed for welding heat resistant base metals of similar compositions. It was also designed to weld dissimilar materials and for stainless steel overlays or plain carbon or low-alloy steels. ZULFI E309L-16 is preferred to ZULFI E309-16 for cladding over carbon or low alloy steels, as well as dissimilar joints which undergo heat treatment.

Welding current

AC, DC+

Welding Positions



Classifications

SFA/AWS A5.4 E309L-16

All weld metal typical composition, %

C	Si	Mn	Cr	Ni
0.03	0.80	0.70	24.0	13.0

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	520-580
Elongation, %	≥30

Charpy V

Test temperature, °C	+20
Impact values, J	60

Approvals

BV, DNV Grade E309L-16

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	60-120	1	10
4.0	350	100-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

Electrode for welding of austenitic stainless and cast steels. Austenitic stainless-steel electrode suitable for welding of dissimilar steels and for depositing austenitic claddings. Weld metal consists of approximately 15% delta ferrite. Highest joining temperature for dissimilar joints is +300 °C. Fine droplet metal transfer, good wash-in of joint sides, finely ripple bead, easily removable slag.

Re-baking: 350 °C ± 20 °C for 2 hours.

ZULFI E309H-16 is designed for welding heat resistant base metals of similar compositions. It was also designed to weld dissimilar materials and for stainless steel overlays or plain carbon or low-alloy steels. ZULFI E309H-16 is preferred for cladding over carbon or low alloy steels, as well as dissimilar joints which undergo heat treatment.

Welding current

AC, DC+

Welding Positions



Classifications

SFA/AWS A5.4 E309H-16

All weld metal typical composition, %

C	Si	Mn	Cr	Ni
0.05	0.80	0.70	24.0	13.0

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	550-620
Elongation, %	≥30

Charpy V

Test temperature, °C	+20
Impact values, J	60

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	60-120	1	10
4.0	350	100-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

Rutile coated electrode for welding of austenitic stainless and cast steels. Austenitic stainless-steel electrode suitable for welding of dissimilar steels and for depositing austenitic claddings. Highest joining temperature for dissimilar joints is +300 °C. Fine droplet metal transfer, good wash-in of joint sides, finely ripple bead, easily removable slag. At high temperature Mo content improves creep strength.

Re-baking: 350 °C ± 20 °C for 2 hours.

ZULFI E309MoL-16 is designed for welding heat resistant base metals of similar compositions. It was also designed to weld dissimilar materials and for stainless steel overlays or plain carbon or low-alloy steels. It is preferred for cladding over carbon or low alloy steels, as well as dissimilar joints which undergo heat treatment.

Welding current

AC, DC+

Welding Positions



Classifications

SFA/AWS A5.4 E309MoL-16

All weld metal typical composition, %

C	Si	Mn	Cr	Ni	Mo
0.03	0.70	0.70	24.0	13.0	2.50

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	>550
Elongation, %	≥30

Charpy V

Test temperature, °C	+20
Impact values, J	60

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	60-120	1	10
4.0	350	100-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

Electrode for welding of austenitic stainless and cast steels. Austenitic stainless-steel electrode suitable for welding of dissimilar steels and for depositing austenitic claddings. Weld metal consists of approximately 15% delta ferrite. Highest joining temperature for dissimilar joints is +300 °C. Fine droplet metal transfer, good wash-in of joint sides, finely ripple bead, easily removable slag.

Re-baking: 350 °C ± 20 °C for 2 hours.

Suitable for joining Niobium stabilized stainless steel to high alloy & unalloyed steels, for welding AISI 309 –Nb type steels, straight chrome steels, Joining stainless steel to low alloy steel and carbon steel.

Welding current

AC, DC+

Welding Positions



Classifications

SFA/AWS A5.4 E309Nb-16

All weld metal typical composition, %

C	Si	Mn	Cr	Ni	Nb
0.03	0.80	0.70	24.0	13.0	0.80

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	520-580
Elongation, %	≥30

Charpy V

Test temperature, °C	+20
Impact values, J	60

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	60-120	1	10
4.0	350	100-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

Electrode for welding of austenitic stainless and cast steels. Austenitic stainless-steel electrode suitable for welding of dissimilar steels and for depositing austenitic claddings. Weld metal consists of approximately 15% delta ferrite. Highest joining temperature for dissimilar joints is +300 °C. Fine droplet metal transfer, good wash-in of joint sides, finely ripple bead, easily removable slag.

Re-baking: 350 °C ± 20 °C for 2 hours.

ZULFI E309L-17 is designed for welding heat resistant base metals of similar compositions. It was also designed to weld dissimilar materials and for stainless steel overlays or plain carbon or low-alloy steels. E309L-17 is preferred for cladding over carbon or low alloy steels, as well as dissimilar joints which undergo heat treatment.

Welding current

AC, DC+

Welding Positions



Classifications

SFA/AWS A5.4 E309L-17

All weld metal typical composition, %

C	Si	Mn	Cr	Ni
0.03	0.80	0.70	24.0	13.0

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	520-580
Elongation, %	≥30

Charpy V

Test temperature, °C	+20
Impact values, J	60

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	60-120	1	10
4.0	350	100-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

Rutile coated electrode for welding of austenitic stainless and cast steels. Austenitic stainless-steel electrode suitable for welding of dissimilar steels and for depositing austenitic claddings. Highest joining temperature for dissimilar joints is +300 °C. Fine droplet metal transfer, good wash-in of joint sides, finely ripple bead, easily removable slag. At high temperature Mo content improves creep strength.

Re-baking: 350 °C ± 20 °C for 2 hours.

ZULFI E309MoL-17 is designed for welding heat resistant base metals of similar compositions. It was also designed to weld dissimilar materials and for stainless steel overlays or plain carbon or low-alloy steels. It is preferred for cladding over carbon or low alloy steels, as well as dissimilar joints which undergo heat treatment.

Welding current

AC, DC+

Welding Positions



Classifications

SFA/AWS A5.4 E309LMo-17

All weld metal typical composition, %

C	Si	Mn	Cr	Ni	Mo
0.03	0.80	0.70	24.0	13.0	2.50

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	>550
Elongation, %	≥30

Charpy V

Test temperature, °C	+20
Impact values, J	60

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	60-120	1	10
4.0	350	100-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

Basic coated electrode for welding of heat resistant chromium and chromium-nickel steels or cast steels. Fully austenite weld metal, non-scaling up to +1200 °C. Weld metal is not resistant to sulphurous combustion gases.

Re-baking: 350 °C ± 20 °C for 2 hours.

Welding AISI 310 type, German steels 4762,4828,4841,4846 and 4848, cladding side of stainless clad steels, straight chrome steels and dissimilar steels, hydrogenation and polymerization plant, gas turbine combustion chamber parts, high temp furnace parts, annealing boxes, and carburizing pots.

Welding current

DC+

Welding Positions



Classifications

SFA/AWS A5.4 E310-15

All weld metal typical composition, %

C	Si	Mn	Cr	Ni
0.10	0.50	1.20	26.0	21.0

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	550-620
Elongation, %	≥35

Charpy V

Test temperature, °C	+20
Impact values, J	100

Approvals

BV, DNV Grade E310-15

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	50-125	1	10
4.0	350	100-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

Electrode for welding of heat resistant chromium and chromium-nickel steels or cast steels. Fully austenite weld metal, non-scaling up to +1200°C. Weld metal is not resistant to sulphurous combustion gases.

Re-baking: 350 °C ± 20 °C for 2 hours.

Welding AISI 310 type, German steels 4762,4828,4841,4846 and 4848, cladding side of stainless clad steels, straight chrome steels and dissimilar steels, hydrogenation and polymerization plant, gas turbine combustion chamber parts, high temp furnace parts, annealing boxes, and carburizing pots.

Welding current

AC, DC+

Welding Positions



Classifications

SFA/AWS A5.4 E310-16

All weld metal typical composition, %

C	Si	Mn	Cr	Ni
0.10	0.50	1.20	26.0	21.0

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	550-620
Elongation, %	≥35

Charpy V

Test temperature, °C	+20
Impact values, J	100

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	50-125	1	10
4.0	350	100-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

Electrode for welding of heat resistant chromium and chromium-nickel steels or cast steels. Fully austenite weld metal, non-scaling up to +1200°C. Weld metal is not resistant to sulphurous combustion gases.

Re-baking: 350 °C ± 20 °C for 2 hours.

Welding AISI 310 type, German steels 4762,4828,4841,4846 and 4848, cladding side of stainless clad steels, straight chrome steels and dissimilar steels, hydrogenation and polymerization plant, gas turbine combustion chamber parts, high temp furnace parts, annealing boxes, and carburizing pots.

Welding current

AC, DC+

Welding Positions



Classifications

SFA/AWS A5.4 E310-17

All weld metal typical composition, %

C	Si	Mn	Cr	Ni
0.10	0.70	1.20	26.0	21.0

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	550-620
Elongation, %	≥30

Charpy V

Test temperature, °C	+20
Impact values, J	100

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	50-125	1	10
4.0	350	100-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

Electrode for welding of heat resistant chromium and chromium-nickel steels or cast steels. Fully austenite weld metal, non-scaling up to +1200°C with molybdenum added for improved high temperature creep properties. Weld metal is not resistant to sulfurous combustion gases.

Re-baking: 350 °C ± 20 °C for 2 hours.

Welding AISI 310 type, German steels 4762,4828,4841,4846 and 4848, cladding side of stainless clad steels, straight chrome steels and dissimilar steels, hydrogenation and polymerization plant, gas turbine combustion chamber parts, high temp furnace parts, annealing boxes, and carburizing pots. Mainly used for cladding of SS316 and other molybdenum bearing stainless steel.

Welding current

AC, DC+

Welding Positions



Classifications

SFA/AWS A5.4 E310Mo-16

All weld metal typical composition, %

C	Si	Mn	Cr	Ni	Mo
0.08	0.70	1.20	26.0	21.0	2.50

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	550-620
Elongation, %	≥30

Charpy V

Test temperature, °C	+20
Impact values, J	100

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	50-125	1	10
4.0	350	100-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

Rutile coated SMAW electrode for welding similar austenitic steels as well as dissimilar welding. It is extremely resistant to cracks on the functions of the base materials of difficult weldability with carbon austenitic steel and ferritic steel, junctions of manganese steel with carbon steel which are bond, annealed and used for tools. Applied as a cushion layer for the above-mentioned materials. We can use this to the operating temperature of 900 °C.

Re-baking: 350 °C ± 20 °C for 2 hours.

Utilized for welding stainless steels to mild steels and for welding high strength steels that are difficult to weld with ferritic electrodes Tool steels, Hard to weld steels, Cast and wrought alloys, Dissimilar metals.

Welding current

AC, DC+

Welding Positions



Classifications

SFA/AWS A5.4 E312-16

All weld metal typical composition, %

C	Si	Mn	Cr	Ni
0.10	0.90	1.20	28.50	9.50

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	>650
Elongation, %	≥22

Charpy V

Test temperature, °C	+20
Impact values, J	75

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	70-120	1	10
4.0	350	100-150	1	10
5.0	350	130-180	1	10

- Available in normal & metal can pack.

Description & Applications

Rutile coated SMAW electrode for welding similar austenitic steels as well as dissimilar welding. It is extremely resistant to cracks on the functions of the base materials of difficult weldability with carbon austenitic steel and ferritic steel, junctions of manganese steel with carbon steel which are bond, annealed and used for tools. Applied as a cushion layer for the above-mentioned materials. We can use this to the operating temperature of 900 °C.

Re-baking: 350 °C ± 20 °C for 2 hours.

Utilized for welding stainless steels to mild steels and for welding high strength steels that are difficult to weld with ferritic electrodes Tool steels, Hard to weld steels, Cast and wrought alloys, Dissimilar metals.

Welding current

AC, DC+

Welding Positions



Classifications

SFA/AWS A5.4 E312-17

All weld metal typical composition, %

C	Si	Mn	Cr	Ni
0.10	0.90	1.20	28.50	9.50

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	>650
Elongation, %	≥22

Charpy V

Test temperature, °C	+20
Impact values, J	75

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	70-120	1	10
4.0	350	100-150	1	10
5.0	350	130-180	1	10

- Available in normal & metal can pack.

Description & Applications

Austenitic stainless-steel electrode suitable for welding of austenitic Cr-Ni steels of low carbon content as well as cast steels. Suitable for operating temperatures up to +400 °C. Fine droplet metal transfer. Electrodes with lateral expansion up to -196 °C can be supplied on request.

Re-baking: 350 °C ± 20 °C for 2 hours.

Used to welding Molybdenum bearing austenitic stainless steel, type 316,316L and 317L. Specifically designed for chemical plants.

Welding current

DC+

Welding Positions



Classifications

SFA/AWS A5.4 E316-15

All weld metal typical composition, %

C	Si	Mn	Cr	Ni	Mo
0.04	0.30	1.20	18.50	12.0	2.70

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	520-580
Elongation, %	≥30

Charpy V

Test temperature, °C	+20
Impact values, J	65

Approvals

BV, DNV Grade E316-15

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	70-120	1	10
4.0	350	100-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

Austenitic stainless-steel electrode suitable for welding of austenitic Cr-Ni steels mostly used in chemical plant, desalination, and petrochemical industries. Suitable for operating temperature up to +400 °C.

Re-baking: 350 °C ± 20 °C for 2 hours.

Used to welding of Molybdenum bearing austenitic stainless steel, type 316,316L and 317L. Specifically designed for chemical plants.

Welding current

AC, DC+

Welding Positions



Classifications

SFA/AWS A5.4 E316-16

All weld metal typical composition, %

C	Si	Mn	Cr	Ni	Mo
0.03	0.80	0.80	18.50	12.0	2.70

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	520-580
Elongation, %	>30

Charpy V

Test temperature, °C	+20
Impact values, J	65

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	60-125	1	10
4.0	350	100-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

ZULFI E316H is a rutile coated MMA electrode for welding of high strength and creep resistance application. Easy slag removal, very good arc characteristics and less spatter. It can be used in wet corrosive environment with operating temperature of 500 °C.

Re-baking: 350 °C ± 20 °C for 2 hours.

Type E316H-16 electrodes can be used in all the applications that type E316-16 is used in. In addition, it can be used to weld type 316H where improved creep strength is required.

Welding current

AC, DC+

Welding Positions



Classifications

SFA/AWS A5.4 E316H-16

All weld metal typical composition, %

C	Si	Mn	Cr	Ni	Mo
0.05	0.80	0.80	18.50	12.0	2.50

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	550-620
Elongation, %	>35

Charpy V

Test temperature, °C	+20
Impact values, J	65

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	60-125	1	10
4.0	350	100-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

Austenitic stainless-steel electrode suitable for welding of austenitic Cr-Ni steels of low carbon content as well as cast steels. Suitable for operating temperatures up to +400 °C. Find droplet metal transfer. Electrodes with lateral expansion up to -196 °C can be supplied on request.

Re-baking: 350 °C ± 20 °C for 2 hours.

Used to welding Molybdenum bearing austenitic stainless steel, type 316,316L and 317L. Specifically designed for chemical plants.

Welding current

DC+

Welding Positions



Classifications

SFA/AWS A5.4 E316L-15

All weld metal typical composition, %

C	Si	Mn	Cr	Ni	Mo
0.03	0.30	1.20	18.50	12.0	2.70

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	520-580
Elongation, %	>35

Charpy V

Test temperature, °C	+20
Impact values, J	65

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	60-120	1	10
4.0	350	100-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

Austenitic stainless-steel electrode suitable for welding of austenitic Cr-Ni steels of low carbon content as well as cast steels. Suitable for operating temperature up to +400 °C.

Re-baking: 350 °C ± 20 °C for 2 hours.

Used to welding Molybdenum bearing austenitic stainless steel, type 316,316L and 317L. Specifically designed for chemical plants.

Welding current

AC, DC+

Welding Positions



Classifications

SFA/AWS A5.4 E316L-16

All weld metal typical composition, %

C	Si	Mn	Cr	Ni	Mo
0.03	0.80	0.80	18.50	12.0	2.70

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	520-580
Elongation, %	>35

Charpy V

Test temperature, °C	+20
Impact values, J	65

Approvals

BV, DNV Grade: E316L-16

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	60-125	1	10
4.0	350	100-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

Austenitic stainless-steel electrode suitable for welding of austenitic Cr-Ni steels of low carbon content as well as cast steels. Suitable for operating temperature up to +400 °C.

Re-baking: 350 °C ± 20 °C for 2 hours.

Used to welding Molybdenum bearing austenitic stainless steel, type 316,316L and 317L. Specifically designed for chemical plants.

Welding current

AC, DC+

Welding Positions



Classifications

SFA/AWS A5.4 E316L-17

All weld metal typical composition, %

C	Si	Mn	Cr	Ni	Mo
0.03	0.80	0.80	18.50	12.0	2.50

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	520-580
Elongation, %	>35

Charpy V

Test temperature, °C	+20
Impact values, J	65

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	60-125	1	10
4.0	350	100-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

Electrode for welding of stabilized austenitic stainless Cr-Ni steels, as well as stainless or heat resisting chromium steels or cast steels. For operating temperature of up to +400 °C. Non scaling up to 800 °C.

Re-baking: 350 °C ± 20 °C for 2 hours.

Welding of 18/8Nb stabilized stainless steel, represented by AISI type 321 and 347. Fabrication of equipment in refineries, chemical industries, power plants, centrifugal pump impellers and shafts, valve faces, seats.

Welding current

DC+

Welding Positions



Classifications

SFA/AWS A5.4 E347-15

All weld metal typical composition, %

C	Si	Mn	Cr	Ni	Nb
0.025	0.40	0.80	19.0	12.0	0.40

All weld metal typical mechanical properties,

Yield strength, MPa	>420
Tensile strength, MPa	540-620
Elongation, %	>35

Charpy V

Test temperature, °C	+20
Impact values, J	65

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	60-125	1	10
4.0	350	100-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

Electrode for welding of stabilized austenitic stainless Cr-Ni steels, as well as stainless or heat resisting chromium steels or cast steels. For operating temperature of up to +400 °C. Non scaling up to 800 °C.

Re-baking: 350 °C ± 20 °C for 2 hours.

Welding of 18/8Nb stabilized stainless steel, represented by AISI type 321 and 347. Fabrication of equipment's in refineries, chemical industries, power plants, centrifugal pump impellers and shafts, valve faces, seats.

Welding current

AC, DC+

Welding Positions



Classifications

SFA/AWS A5.4 E347-16

All weld metal typical composition, %

C	Si	Mn	Cr	Ni	Nb
0.025	0.90	0.80	19.0	10.0	0.40

All weld metal typical mechanical properties,

Yield strength, MPa	>420
Tensile strength, MPa	540-620
Elongation, %	>33

Charpy V

Test temperature, °C	+20
Impact values, J	65

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	60-125	1	10
4.0	350	100-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

Electrode for welding of stabilized austenitic stainless Cr-Ni steels, as well as stainless or heat resisting chromium steels or cast steels. For operating temperature of up to +400 °C. Non scaling up to 800 °C.

Re-baking: 350 °C ± 20 °C for 2 hours.

Welding of 18/8Nb stabilized stainless steel, represented by AISI type 321 and 347. Fabrication of equipment in refineries, chemical industries, power plants, centrifugal pump impellers and shafts, valve faces, seats.

Welding current

AC, DC+

Welding Positions



Classifications

SFA/AWS A5.4 E347-17

All weld metal typical composition, %

C	Si	Mn	Cr	Ni	Nb
0.025	0.90	0.80	19.0	10.0	0.40

All weld metal typical mechanical properties,

Yield strength, MPa	>420
Tensile strength, MPa	540-620
Elongation, %	>30

Charpy V

Test temperature, °C	+20
Impact values, J	65

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	60-125	1	10
4.0	350	100-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

ZULFI E410-15 is a basic coated electrode used for welding of similar compositions and is also used for the surfacing of carbon steels to resist abrasion, erosion, and corrosion. Preheat and post heat treatments are required to achieve welds of adequate ductility for many engineering purposed. It has a nominal composition of 12% Cr that is an air hardening steel. ZULFI E410-15 is more of welder friendly. Preheat and interpass temperature should be greater than 200 °C.

Re-baking: 350 °C ± 20 °C for 2 hours.

It is mainly used for steel mill rolls, furnace and burner parts, turbine parts and welding 410 and 410S stainless steels.

Welding current

DC+

Welding Positions



Classifications

SFA/AWS A5.4 E410-15

All weld metal typical composition, %

C	Si	Mn	Cr	Mo
0.08	0.40	1.00	12.00	0.10

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	550-680
Elongation, %	≥20

Charpy V

Test temperature, °C	+20
Impact values, J	50

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	50-125	1	10
4.0	350	90-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

ZULFI E410-16 is a basic coated electrode used for welding of similar compositions and is also used for the surfacing of carbon steels to resist abrasion, erosion, and corrosion. Preheat and post heat treatments are required to achieve welds of adequate ductility for many engineering purposed. It has a nominal composition of 12% Cr that is an air hardening steel. ZULFI E410-16 is more of welder friendly. Preheat and interpass temperature should be greater than 200 °C.

Re-baking: 350 °C ± 20 °C for 2 hours.

It is mainly used for steel mill rolls, furnace and burner parts, turbine parts and welding 410 and 410S stainless steels.

Welding current

AC, DC+

Welding Positions



Classifications

SFA/AWS A5.4 E410-16

All weld metal typical composition, %

C	Si	Mn	Cr	Mo
0.08	0.40	1.0	12.0	0.10

All weld metal typical mechanical properties,

Yield strength, MPa	>400
Tensile strength, MPa	550-680
Elongation, %	≥20

Charpy V

Test temperature, °C	+20
Impact values, J	50

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	50-125	1	10
4.0	350	90-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

ZULFI E410NiMo-16 used for welding of similar compositions and is also used for the surfacing of carbon steels to resist abrasion, erosion, and corrosion. Preheat and post heat treatments are required to achieve welds of adequate ductility for many engineering purposes. It has a nominal composition of 12Cr-4.5Ni-0.50Mo. It is more of welder friendly. Preheat and interpass temperature should be greater than 200 °C.

Re-baking: 350 °C ± 20 °C for 2 hours.

It is mainly used for steel mill rolls, offshore, high pressure piping, furnace and burner parts, turbine parts and valve bodies.

Welding current

AC, DC+

Welding Positions



Classifications

SFA/AWS A5.4 E410NiMo-16

All weld metal typical composition, %

C	Si	Mn	Cr	Mo	Ni
0.08	0.80	1.00	12.00	0.50	4.50

All weld metal typical mechanical properties,

Yield strength, MPa	>600
Tensile strength, MPa	>760
Elongation, %	≥15

Charpy V

Test temperature, °C	+20
Impact values, J	50

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	50-125	1	10
4.0	350	90-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

Weld metal deposited by these electrodes has duplex microstructure consisting of an austenitic-ferritic matrix. Weld metal deposited by E2209 electrodes combines increased tensile strength with improved resistance to pitting corrosive attack and to stress corrosion cracking, especially in environments containing hydrogen sulfide and chlorides.

Re-baking: 350 °C ± 20 °C for 2 hours.

ZULFI E2209-15 is used primarily to weld duplex stainless steel such as S32101, S31803 and S32205. They are also used for lean duplex stainless steel such as UNS S32101 and S32304. It is designed for applications with service temperature up to 250 °C and down to 50°C.

Welding current

DC+

Welding Positions



Classifications

SFA/AWS A5.4 E2209-15

All weld metal typical composition, %

C	Si	Mn	Cr	Mo	Ni	N
0.03	0.50	1.00	22.50	3.00	9.50	0.17

All weld metal typical mechanical properties,

Yield strength, MPa	>600
Tensile strength, MPa	>760
Elongation, %	≥15

Charpy V

Test temperature, °C	+20
Impact values, J	100

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	50-110	1	10
4.0	350	90-140	1	10
5.0	-	-	-	-

Available in normal & metal can pack.

Description & Applications

Weld metal deposited by these electrodes has duplex microstructure consisting of an austenitic-ferritic matrix. Weld metal deposited by E2209 electrodes combines increased tensile strength with improved resistance to pitting corrosive attack and to stress corrosion cracking, especially in environments containing hydrogen sulfide and chlorides.

Re-baking: 350 °C ± 20 °C for 2 hours.

ZULFI E2209-16 is used primarily to weld duplex stainless steel such as S32101, S31803 and S32205. They are also used for lean duplex stainless steel such as UNS S32101 and S32304. It is designed for applications with service temperature up to 250 °C and down to 50°C.

Welding current

AC, DC+

Welding Positions



Classifications

SFA/AWS A5.4 E2209-16

All weld metal typical composition, %

C	Si	Mn	Cr	Mo	Ni	N
0.03	0.80	1.00	22.50	3.00	9.50	0.17

All weld metal typical mechanical properties,

Yield strength, MPa	>500
Tensile strength, MPa	690-800
Elongation, %	≥20

Charpy V

Test temperature, °C	+20
Impact values, J	100

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	50-125	1	10
4.0	350	90-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

ZULFI E2594-15 is an all-position basic coated electrode with a nominal composition of 25% chromium, 9% nickel, 4% molybdenum, and 0.25% nitrogen. The Pitting Resistance Equivalent Number, given as $Cr + 3.3 \cdot (Mo + 0.5W) + 16N$, is equal or greater than 40. This semi quantitative number provides a measure of the resistance to pitting in aqueous environments containing chlorides.

Re-baking: $350\text{ }^{\circ}\text{C} \pm 20\text{ }^{\circ}\text{C}$ for 2 hours.

ZULFI E2594-15 electrodes are designed for welding duplex (2500 family) and super-duplex (wrought UNS S32750 and S32760 and cast UNS J93380 and J93404) materials in the chemical and fertilizer industries, energy generation, flue gas desulfurization, and for many offshore applications including piping systems, pumps, valves, and heat exchangers.

Welding current

DC+

Welding Positions



Classifications

SFA/AWS A5.4 E2594-15

All weld metal typical composition, %

C	Si	Mn	Cr	Mo	Ni	N
0.02	0.50	1.50	25.50	4.00	9.00	0.25

All weld metal typical mechanical properties,

Yield strength, MPa	>550
Tensile strength, MPa	760-850
Elongation, %	≥24

Charpy V

Test temperature, $^{\circ}\text{C}$	+20
Impact values, J	75

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	50-110	1	10
4.0	350	90-140	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.

Description & Applications

ZULFI E2594-16 is an all-position electrode with a nominal composition of 25% chromium, 9% nickel, 4% molybdenum, and 0.25% nitrogen. The Pitting Resistance Equivalent Number, given as $Cr + 3.3 \cdot (Mo + 0.5W) + 16N$, is equal or greater than 40. This semi quantitative number provides a measure of the resistance to pitting in aqueous environments containing chlorides.

Re-baking: $350\text{ }^{\circ}\text{C} \pm 20\text{ }^{\circ}\text{C}$ for 2 hours.

ZULFI E2594-16 electrodes are designed for welding duplex (2500 family) and super-duplex (wrought UNS S32750 and S32760 and cast UNS J93380 and J93404) materials in the chemical and fertilizer industries, energy generation, flue gas desulfurization, and for many offshore applications including piping systems, pumps, valves, and heat exchangers.

Welding current

AC, DC+

Welding Positions



Classifications

SFA/AWS A5.4 E2594-16

All weld metal typical composition, %

C	Si	Mn	Cr	Mo	Ni	N
0.02	0.80	1.00	25.50	4.00	9.00	0.25

All weld metal typical mechanical properties,

Yield strength, MPa	>550
Tensile strength, MPa	760-850
Elongation, %	≥20

Charpy V

Test temperature, $^{\circ}\text{C}$	+20
Impact values, J	75

Approvals

Welding parameters

Diameter, mm	Length, mm	Welding Current, A	Packet weight, kg	No. of Packet per Carton
2.5	300	45-80	1	10
3.2	350	50-120	1	10
4.0	350	90-150	1	10
5.0	-	-	-	-

- Available in normal & metal can pack.