

# STAINLESS STEEL WELDING ELECTRODES

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WELDING STAINLESS STL INFO.

SS FILLER METAL SELECTOR GUIDE

AC-DC (-16) titania coated electrodes are the most popular because their "dual-current" usage allows for the stocking of one type for all needs. This electrode coating provides a smooth stable arc, with low spatter

and complete penetration. The spray type metal transfer produces a smooth flat bead with very easy slag removal. Titania coated electrodes have exceptional starting characteristics and may be used in all positions.



## ELECTRODE CHART

| Part No                  | Price per Pack | Size (dia) | Packaging  | Usages   | Typical Chemical Composition   | Mechanical Properties of All Weld Metal (as welded)   |
|--------------------------|----------------|------------|------------|--|--|---|
| <b>E308-16 AWS A5.4</b>  |                |            |            |  |  |   |
| 308-16-332-1             | \$9.95         | 3/32       | 1 lb Pack  | 308 electrodes are used to weld unstabilized 18-8 stainless steels such as Types 301, 302, 304, 305, and 308. 308 electrodes provide corrosion resistance and physical properties equal to or greater than the steels for which they are recommended. Typical applications include dairy, distillery and restaurant equipment, and chemical tanks.   | Carbon..... .05<br>Manganese..... 1.7<br>Silicon..... .52<br>Chromium..... 19.70<br>Nickel..... 9.30<br>Sulfur..... .021<br>Phosphorus..... .023<br>Nitrogen..... .04<br>Iron..... Balance | Tensile Strength<br>87,500 PSI .. 600 MPA<br><br>Yield Strength<br>58,000 PSI .. 400 MPA<br><br>Elongation ... 38%  |
| 308-16-332-8             | \$58.00        | 3/32       | 8 lb Pack  |  |  |   |
| 308-16-332-10            | \$72.50        | 3/32       | 10 lb Pack |  |  |   |
| 308-16-18-1              | \$9.95         | 1/8        | 1 lb Pack  |  |  |   |
| 308-16-18-10             | \$65.00        | 1/8        | 10 lb Pack |  |  |   |
| 308-16-532-1             | \$9.95         | 5/32       | 1 lb Pack  |  |  |   |
| 308-16-532-10            | \$65.00        | 5/32       | 10 lb Pack |  |  |   |
| <b>E308L-16 AWS A5.4</b> |                |            |            |  |  |   |
| 308L16-332-1             | \$11.95        | 3/32       | 1 lb Pack  | 308L is an extra low carbon electrode used to weld Types 304L and 347. The weld deposit contains a maximum of .04% carbon, which minimizes the formation of chromium carbides, and consequent susceptibility to intergranular corrosion. The weld deposit, with controlled ferrite, gives excellent notch toughness at -320°F (-196°C).  | Carbon..... .03<br>Manganese..... 1.65<br>Silicon..... .43<br>Chromium..... 19.70<br>Nickel..... 9.30<br>Sulfur..... .02<br>Phosphorus .. .021<br>Nitrogen..... .05<br>Iron..... Balance   | Tensile Strength<br>84,500 PSI .. 580 MPA<br><br>Yield Strength<br>55,000 PSI .. 380 MPA<br><br>Elongation ... 40%  |
| 308L16-332-8             | \$65.00        | 3/32       | 8 lb Pack  |  |  |   |
| 308L16-332-10            | \$81.25        | 3/32       | 10 lb Pack |  |  |   |
| 308L16-18-1              | \$11.95        | 1/8        | 1 lb Pack  |  |  |   |
| 308L16-18-10             | \$68.00        | 1/8        | 10 lb Pack |  |  |   |
| 308L16-532-1             | \$11.95        | 5/32       | 1 lb Pack  |  |  |   |
| 308L16-532-10            | \$68.00        | 5/32       | 10 lb Pack |  |  |   |
| <b>E309-16 AWS A5.4</b>  |                |            |            |  |  |   |
| 309-16-116-1             | \$14.95        | 1/16       | 1 lb Pack  | 309 electrodes are used for the welding of similar alloys in wrought and cast form, as well as for dissimilar metals such as stainless steels to carbon or low alloy steels. They also can be used for a barrier layer before cladding. Welding of Types 405 and 430 can be accomplished without preheat, while Types 410, 442, and 446 may call for preheating of a minimum of 300°F (150°C). | Carbon..... .08<br>Manganese..... 1.70<br>Silicon..... .52<br>Chromium..... 23.5<br>Nickel..... 12.3<br>Sulfur..... .021<br>Phosphorus .. .024<br>Nitrogen..... .05<br>Iron..... Balance   | Tensile Strength<br>87,500 PSI .. 600 MPA<br><br>Yield Strength<br>59,500 PSI .. 400 MPA<br><br>Elongation ... 35%  |
| 309-16-332-1             | \$10.95        | 3/32       | 1 lb Pack  |  |  |   |
| 309-16-332-8             | \$68.00        | 3/32       | 8 lb Pack  |  |  |   |
| 309-16-332-10            | \$85.00        | 3/32       | 10 lb Pack |  |  |   |
| 309-16-18-1              | \$10.95        | 1/8        | 1 lb Pack  |  |  |   |
| 309-16-18-10             | \$69.50        | 1/8        | 10 lb Pack |  |  |   |
| 309-16-532-1             | \$10.95        | 5/32       | 1 lb Pack  |  |  |   |
| 309-16-532-10            | \$69.50        | 5/32       | 10 lb Pack |  |  |   |
| <b>E309L-16 AWS A5.4</b> |                |            |            |  |  |   |
| 309L16-332-1             | \$12.95        | 3/32       | 1 lb Pack  | 309L gives a weld deposit similar to 309, with reduced carbon levels (.04% maximum) that offer increased resistance to intergranular corrosion. Type 309L is ideal for joining stainless steels to themselves or to carbon or low alloy steels. 309L is preferred to 309 for cladding over carbon or low alloy steels, as well as dissimilar joints which undergo heat treatment.              | Carbon..... .035<br>Manganese..... 1.58<br>Silicon..... .53<br>Chromium..... 23.45<br>Nickel..... 12.6<br>Sulfur..... .021<br>Phosphorus .. .024<br>Iron..... Balance                      | Tensile Strength<br>88,500 PSI .. 555 MPA<br><br>Yield Strength<br>59,000 PSI .. 410 MPA<br><br>Elongation ... 36%  |
| 309L16-332-8             | \$69.00        | 3/32       | 8 lb Pack  |  |  |   |
| 309L16-332-10            | \$86.25        | 3/32       | 10 lb Pack |  |  |   |
| 309L16-18-1              | \$11.95        | 1/8        | 1 lb Pack  |  |  |   |
| 309L16-18-10             | \$80.00        | 1/8        | 10 lb Pack |  |  |   |
| 309L16-532-1             | \$11.95        | 5/32       | 1 lb Pack  |  |  |   |
| 309L16-532-10            | \$80.00        | 5/32       | 10 lb Pack |  |  |   |
| <b>E310-16 AWS A5.4</b>  |                |            |            |  |  |   |
| 310-16-332-1             | \$14.95        | 3/32       | 1 lb Pack  | 310 electrodes are used to weld stainless steels of similar composition in wrought and cast form. The weld deposit is fully austenitic, and as such calls for minimum heat input during welding.   | Carbon..... .11<br>Manganese..... 1.90<br>Silicon..... .52<br>Chromium..... 26.2<br>Nickel..... 20.95<br>Sulfur..... .012<br>Phosphorus .. .016<br>Iron..... Balance                       | Tensile Strength<br>90,500 PSI .. 525 MPA<br><br>Yield Strength<br>61,500 PSI .. 425 MPA<br><br>Elongation ....34%  |
| 310-16-332-8             | \$78.00        | 3/32       | 8 lb Pack  |  |  |   |
| 310-16-332-10            | \$97.50        | 3/32       | 10 lb Pack |  |  |   |
| 310-16-18-1              | \$12.95        | 1/8        | 1 lb Pack  |  |  |   |
| 310-16-18-10             | \$90.00        | 1/8        | 10 lb Pack |  |  |   |
| 310-16-532-1             | \$12.95        | 5/32       | 1 lb Pack  |  |  |   |
| 310-16-532-10            | \$90.00        | 5/32       | 10 lb Pack |  |  |   |
| <b>E312-16 AWS A5.4</b>  |                |            |            |  |  |   |
| 312-16-332-1             | \$14.95        | 3/32       | 1 lb Pack  | 312 electrodes are used for welding wrought and cast alloys of similar composition as well as for welding of dissimilar metals. The weld deposits exhibit high tensile strength and after good resistance to abrasion.   | Carbon..... .12<br>Manganese..... 1.80<br>Silicon..... .56<br>Chromium..... 29.3<br>Nickel..... 9.4<br>Sulfur..... .021<br>Phosphorus .. .022<br>Iron..... Balance                         | Tensile Strength<br>109,500 PSI .. 750 MPA<br><br>Yield Strength<br>78,000 PSI ...540 MPA<br><br>Elongation ....23% |
| 312-16-332-8             | \$78.00        | 3/32       | 8 lb Pack  |  |  |   |
| 312-16-332-10            | \$97.50        | 3/32       | 10 lb Pack |  |  |   |
| 312-16-18-1              | \$12.95        | 1/8        | 1 lb Pack  |  |  |   |
| 312-16-18-10             | \$95.00        | 1/8        | 10 lb Pack |  |  |   |
| 312-16-532-1             | \$12.95        | 5/32       | 1 lb Pack  |  |  |   |
| 312-16-532-10            | \$95.00        | 5/32       | 10 lb Pack |  |  |   |