

316/316L



AWS A5.9: ER316 & ER316L

DESCRIPTION:

316/316L stainless steel solid wire and cut lengths are formulated with molybdenum for increased pitting corrosion resistance and low carbon for better intergranular corrosion.

TYPICAL WIRE ANALYSIS:

Weld Metal Analysis (%)		AWS Spec	
		ER316	ER316L
Carbon (C)	0.02	0.08 max	0.03 max
Manganese (Mn)	1.70	1.0 to 2.5	1.0 to 2.5
Phosphorus (P)	0.002	0.03 max	0.03 max
Silicon (Si)	0.40	0.30 to 0.65	0.30 to 0.60
Copper (Cu)	0.28	0.75 max	0.75 max
Chromium (Cr)	19.00	18.0 to 20.0	18.0 to 20.0
Nickel (Ni)	12.50	11.0 to 14.0	11.0 to 14.0
Molybdenum (Mo)	2.50	2.0 to 3.0	2.0 to 3.0
Iron (Fe)	Bal.	Bal.	Bal.

TYPICAL MECHANICAL PROPERTIES* (As Welded):

Mechanical Tests		AWS Spec
Tensile Strength	86,000 psi (593 MPa)	Not required
Yield Strength	57,000 psi (393 MPa)	Not required
Elongation % in 2" (50 mm)	36%	Not required
DeLong Ferrite Number Range	8-13	Not required
Schaeffler Number Range	8-13	Not required
WRC Number Range (1992)	8-13	Not required

TYPICAL CHARPY V-NOTCH IMPACT VALUES*:

CVN Temperatures		AWS Spec
Avg. at room temperature	82 ft•lbs (111 Joules)	Not required
Avg. at -320°F (-196°C)	34 ft•lbs (46 Joules)	Not required

*The information contained or otherwise referenced herein is presented only as "typical" without guarantee or warranty, and Hobart Brothers Company expressly disclaims any liability incurred from any reliance thereon. Typical data are those obtained when welded and tested in accordance with the AWS A5.9 specification. Other tests and procedures may produce different results. No data is to be construed as a recommendation for any welding condition or technique not controlled by Hobart Brothers Company.

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For Spray Transfer Welding with Bare Stainless Wire

Diameter		Weld Position	Type of Current	Amps	Volts	Stick-Out		98% Ar + 2% O ₂ Flow Rate	
Inches	(mm)					Inches	(mm)	cfh	(l/min)
0.035	(0.9)	Flat & Horizontal	DCEP	150-225	23-26	1/2-3/4	(13-19)	35	(16.5)
0.045	(1.2)	Flat & Horizontal	DCEP	200-325	24-28	1/2-3/4	(13-19)	35	(16.5)

For Short-Circuit Welding with Bare Stainless Wire

Diameter		Weld Position	Type of Current	Amps	Volts	Stick-Out		90% He - 7-1/2% Ar - 2-1/2% CO ₂	
Inches	(mm)					Inches	(mm)	cfh	(l/min)
0.035	(0.9)	Flat & Horizontal	DCEP	60-200	14-22	3/8-1/2	(10-13)	25	(11.8)
0.045	(1.2)	Flat & Horizontal	DCEP	75-225	15-23	3/8-1/2	(10-13)	25	(11.8)

For Welding with Stainless Cut-Lengths (DCEN, Argon Shield, Tungsten Electrode)

Diameter		Metal Thickness		Number of Passes	Tungsten Size		Amps	Travel Speed	
Inches	(mm)	Inches	(mm)		Inches	(mm)		In/Min	(mm/s)
1/16	(1.6)	1/16	(1.6)	1	1/16	(1.6)	35-60	12	(5.1)
3/32	(2.4)	3/32	(2.4)	1	1/16	(1.6)	45-85	12	(5.1)
3/32	(2.4)	1/8	(3.2)	1	1/16	(1.6)	55-100	12	(5.1)
1/8	(3.2)	3/16	(4.8)	1	3/32	(2.4)	65-130	10	(4.2)

AVAILABLE DIAMETERS AND PACKAGES: (Spooled and Coiled)

Diameter		30-Lb. Spool	60-Lb. Coil
Inches	(mm)		
0.035	(0.9)	S522308-I26	—
0.045	(1.2)	S522312-I26	—

36" CUT LENGTHS (Double Stamped with AWS Class) (0.045 - 1/8)

Diameter		10-Lb. Tube
Inches	(mm)	
0.035	(0.9)	S512308-I12
0.045	(1.2)	S512312-I12
1/16	(1.6)	S512311-I12
3/32	(2.4)	S512337-I12
1/8	(3.2)	S512346-I12

CONFORMANCES AND APPROVALS:

- **AWS A5.9**, Class ER316 & ER316L
- **ASME SFA 5.9**
- **CWB**, ER316L
- **ABS**, ER316L 100% Ar, all position, DCEN (0.9 mm - 4.0 mm)
- **ABS**, ER316L 98% Ar, 2% O₂, all position, DCEP (0.8 mm - 1.6 mm)

TECHNICAL QUESTIONS? For technical support of Hobart Filler Metals products, contact the Applications Engineering department by phone toll-free at 1-800-532-2618 or by e-mail at Applications.Engineering@hobartbrothers.com

CAUTION:

Consumers should be thoroughly familiar with the safety precautions on the warning label posted in each shipment and in the American National Standard Z49.1, "Safety in Welding and Cutting," published by the American Welding Society, 8669 NW 36th St., Miami, FL 33166 (can also be downloaded online at www.aws.org); OSHA Safety and Health Standards 29 CFR 1910 is available from the U.S. Department of Labor, Washington, D.C. 20210

Safety Data Sheets on any Hobart Brothers Company product may be obtained from Hobart Customer Service or at www.hobartbrothers.com.

Because Hobart Brothers Company is constantly improving products, Hobart reserves the right to change design and/or specifications without notice.

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