



ER320LR

Shanti Metal Supply Corporation ER320LR
AWS CLASS ER320LR

CODE AND SPECIFICATION DATA:
AWS A5.9 ASME SFA 5.9; UNS N08022

TYPICAL DEPOSIT COMPOSITION		
Element	AWS Spec (%)	Weld Metal Analysis (%)
Carbon (C)	0.025	0.006
Chromium (Cr)	19.0 - 21.0	20.08
Copper (Cu)	3.00 - 4.00	3.16
Manganese (Mn)	1.50 - 2.00	1.85
Molybdenum (Mo)	2.00 - 3.00	2.4
Nickel (Ni)	32.0 - 36.0	33.02
Nitrogen (N)	N.S.*	0.019
Phosphorus (P)	0.015	0.011
Silicon (Si)	0.15	0.04
Sulfur (S)	0.02	0.002
Niobium (Nb) + Tantalum (Ta)	(8 x C) min – 0.4 max	0.27

Description

Shanti Metal Supply Corporation ER320LR filler metal features a nominal composition of 20% Cr, 34% Ni, 2.5% Mo, and 3.5% Cu, with Nb for enhanced resistance to intergranular corrosion. Compared to ER320, it has lower maximum levels of C, Si, P, and S, while Nb and Mn are tightly controlled to minimize hot cracking and fissuring. This ensures excellent corrosion resistance while maintaining weldability similar to austenitic stainless steel with ferrite. Ideal for GTAW and GMAW, it has also been used in submerged arc overlay welding but may crack when joining base metals via submerged arc welding. ER320LR is best suited for welding similar composition base metals, offering superior resistance to harsh chemicals, including sulfuric and sulfurous acids.

TYPICAL MECHANICAL PROPERTIES		
Property	AWS Spec (min)	As Welded
Ultimate Tensile Strength	Not required	81,000 psi (560 MPa)
Percent Elongation in 2"	Not required	38%





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TYPICAL WELDING PARAMETERS

Process	Diameter	Amperage	Volts	Shielding Gas
GTAW	1/16"	80-110	-	100% Ar
	3/32"	90-130	-	100% Ar
	1/8"	120-175	-	100% Ar
	5/32"	150-220	-	100% Ar
GMAW (Spray Transfer)	.030"	130-200	23-27	98% Ar / 2% O ₂ (35 cfh)
	.035"	150-225	23-26	98% Ar / 2% O ₂ (35 cfh)
	.045"	200-325	24-28	98% Ar / 2% O ₂ (35 cfh)
	1/16"	300-350	24-27	98% Ar / 2% O ₂ (35 cfh)
GMAW (Short-Circuit)	.030"	50-150	14-20	90% He / 7.5% Ar / 2.5% CO ₂ (25 cfh)
	.035"	60-200	14-22	90% He / 7.5% Ar / 2.5% CO ₂ (25 cfh)
	.045"	75-225	15-23	90% He / 7.5% Ar / 2.5% CO ₂ (25 cfh)
	1/16"	100-250	16-23	90% He / 7.5% Ar / 2.5% CO ₂ (25 cfh)
SAW	3/32"	275-350	28-30	Suitable Flux
	1/8"	350-450	29-32	Suitable Flux

Notice

Shanti Metal Supply Corporation tests its products under controlled laboratory conditions per AWS standards. Actual results may vary due to factors like electrode size, plate chemistry, environment, weldment design, and welding procedures. These results are not guarantees for field use. Shanti Metal disclaims any warranty of merchantability or fitness for a specific purpose regarding its products.



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