



# TENSAWELD NICKEL-90

## FOR IMPROVED TENSILE STRENGTH

### DESCRIPTION

- A low alloy steel, gas shielded, flux cored electrode for all position welding
- Intended for use with 100% CO<sub>2</sub> or blends of 75-80% Ar/bal CO<sub>2</sub> shielding gases
- Designed with 1% nickel and micro alloying to produce welds with enhanced CVN toughness
- The arc transfer is soft; it melts onto the puddle in a small to medium droplet mode
- Typically used to weld steels such as ASTM A203, Gr A, and A352, Gr LC1 and LC2
- 100% compatibility with Tensalloy™ products

### TYPICAL WELD DEPOSIT CHEMISTRY (CO<sub>2</sub>)

	100% CO <sub>2</sub>	75-80% Ar/ Bal CO <sub>2</sub>
C	0.03	0.03
Mn	1.15	1.29
Si	0.41	0.5
Ni	0.91	0.9
P	0.008	0.009
S	0.008	0.009

### CONDITIONS OF USE

Current Type	Protection*
DC (+)	Gas Shielded

### TYPICAL MECHANICAL PROPERTIES (CO<sub>2</sub>)

	Ultimate Tensile Strength	Yield Strength	Percent Elongation	CVN at -40°F	CVN at -50°F
100% CO <sub>2</sub>	86,400	73,700	27	90	50
75-80% AR/ Bal CO <sub>2</sub>	89,000	80,000	24	94	46

### COMPATIBILITY

- Tensalloy™ AR400
- Tensalloy™ AR450
- Tensalloy™ AR500
- Tensalloy™ Extra HY 80
- Tensalloy™ 4150 Steel Bar
- AR250, A514

### APPLICATIONS

- Offshore Platform Construction
- Welding Mining Machinery
- Earth Moving Equipment
- Structural Applications
- Loader Bucket Teeth
- Asphalt Chutes
- Slag Hoppers
- Applications that require extra tensile strength in the weld joint





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## CLASSIFICATIONS

- MIL-81T1-NI1C & MIL-81T1-NI1M per MIL-E-24403/1
- E81T1-NI1CJ-4H, E81T1-NI1MJ-HA per AWS A5.29, ASME SFA-5.29
- E81T1-C1A4-NI1, E81T1-M21A4-NI1 per AWS A5.36, ASME SFA-5.36
- ABS 4YSA, DNV 4 YMS, Lloyds 3S, 3YS (all with 100% CO<sub>2</sub> and 75% Ar/25% CO<sub>2</sub>)
- CWB E551T1-C1A4-Ni1H4 (E551T1-NI1C-JH4), E551T1-M21A4-NI1H4 (E551T-1NI1M-JH4)

## TYPICAL WELDING PARAMETERS

Diameter		Position	Optimum			Range		CTWD
mm	in.		Amperage	WFS	Voltage	Amperage	Voltage	
1.6	1/16"	Flat	300	275	29	180-330	22-34	1 - 1 1/4"
		Overhead	225	160	26	150-310	22-28	
		Vertical Up	225	160	25	150-280	22-27	
1.2	.045"	Flat	250	282	28	100-300	21-32	3/4 - 1"
		Overhead	200	265	26	150-280	21-28	
		Vertical Up	200	265	25	100-230	21-28	

\* With CO<sub>2</sub> shielding gas. For 75-80% Ar/Bal CO<sub>2</sub>, decrease voltage by 1 to 1.5 volts.

Notice: The results reported are based upon testing of product under controlled laboratory conditions in accordance with American Welding Society Standards. Actual use of product may produce different results due to varying conditions. An example of such conditions would be electrode size, plate chemistry, environment, weldment design, fabrication methods, welding procedure and service requirements. Thus the results may differ. Consult with us for specific compatibility information.

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