



PREMIER 712MJ DATA SHEET

Pinnacle Alloys Premier 712MJ (E71T-12M-J)

AWS CLASS E71T-12M-J

CODE AND SPECIFICATION DATA:

AWS A5.20 ASME SFA 5.20; UNS W07612

DESCRIPTION:

Pinnacle Alloys Premier 712MJ (E71T-12M-J) is a carbon steel electrode designed for single and multipass welding of low temperature service steels. These electrodes are designed for use with DCEP power sources. They are characterized by a spray transfer, low spatter loss, flat to slightly convex bead contour, and a moderate volume of slag which completely covers the weld bead. These electrodes have a titanium-type flux and have the ability to produce high deposition rates. The "-12" suffix indicates that the classification has been formulated to have good impact toughness and to meet the lower manganese requirements of the A-No. 1 Analysis Group in the ASME *Boiler and Pressure Vessel Code*, Section IX. They, therefore, have an accompanying decrease in tensile strength and hardness. The "-J" designator indicates that the classification will deposit weld metal with Charpy V-Notch properties of at least 20 ft•lb_f at -40°F when the welds are made in a manner prescribed by the AWS specification A5.20. Typical applications include oil and gas construction, pipe, and offshore structures. Typical base metal specifications for these steels are ASTM A 572 and materials with similar composition and strength.

DIAMETERS: .045"**WELDING POSITIONS:** All positions**TYPICAL DEPOSIT COMPOSITION:**

	AWS Spec	Weld Metal Analysis (%)
		75% Ar/ 25% CO ₂
Carbon (C)	0.12	0.06
Manganese (Mn)	1.60	1.24
Nickel (Ni)	0.50	0.45
Phosphorus (P)	0.03	0.012
Silicon (Si)	0.90	0.35
Sulfur (S)	0.03	0.012

NOTE: Single values are maximums.

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**TYPICAL MECHANICAL PROPERTIES:**

75% Ar/ 25% CO ₂ Shielding Gas	AWS Spec (min)	As Welded
Ultimate Tensile Strength	70,000-90,000 psi (490-620 MPa)	83,000 psi (575 MPa)
Yield Strength	58,000 psi (390 MPa)	78,500 psi (540 MPa)
Percent Elongation in 2"	22%	30%
CVN @ -40°F (-40°C)	20 ft•lb _f (27 Joules)	84 ft•lb _f (115 Joules)
CVN @ -60°F (-50°C)	Not required	62 ft•lb _f (85 Joules)

75% Ar/ 25% CO ₂ Shielding Gas	AWS Spec (min)	SR 2 HR @ 1150°F
Ultimate Tensile Strength	70,000-90,000 psi (490-620 MPa)	80,000 psi (550 MPa)
Yield Strength	58,000 psi (390 MPa)	75,800 psi (520 MPa)
Percent Elongation in 2"	22%	33%
CVN @ -40°F (-40°C)	20 ft•lb _f (27 Joules)	66 ft•lb _f (90 Joules)
CVN @ -60°F (-50°C)	Not required	51 ft•lb _f (70 Joules)

TYPICAL WELDING PARAMETERS:

Diameter	Position	Optimum			Amperage Range	Voltage Range
		Amperage	Voltage	WFS (ipm)		
.045"	Flat	250	26	282	120-300	19-30
	Overhead	200	24	265	150-280	19-27
	Vertical Up	200	23	265	120-230	19-26

NOTE: Parameters reflect 75-80% Ar/ balance CO₂ shielding gas. Maintaining a proper welding procedure, including pre-heat and interpass temperatures, may be critical depending on the type and thickness of steel being welded.

NOTICE: The results reported are based upon testing of the product under controlled laboratory conditions in accordance with American Welding Society Standards. Actual use of the 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 are not guarantees for the use in the field. The manufacturer disclaims any warranty of merchantability of fitness for any particular purpose with respect to its products.

CAUTION: Consumers should be thoroughly familiar with the safety precautions on the warning label posted in each shipment and in the American National Standards A49.1, "Safety in Welding and Cutting," published by the American Welding Society, 8669 NW 36 Street, #130, Miami, FL 33126: OSHA Safety and Health Standards 29 CFR 1910 is available from the U.S. Department of Labor, Washington, D.C. 20210.

Pinnacle Alloys SDS sheets may be obtained on the website below.