Low Alloy Steel BARE WIRE DATA SHEET

exocor 90SB9

DESCRIPTION

Exocor 90SB9 (P91) is a 9Cr-1Mo filler metal modified with niobium (columbium) and vanadium. It is designed to provide strength, toughness, fatigue life, oxidation resistance and corrosion resistance at elevated temperatures. This material is used extensively for headers, main steam piping and turbine casings in fossil fuel powered generating stations.

Thermal treatment of this alloy is critical and must be closely controlled. The temperature at which the micro-structure has complete transformation into martensite is relatively low; therefore, upon completion of welding and before post weld heat treatment, it is recommended to allow the weldment to cool to at least 200° F. A preheat and interpass temperature of not less than 300° F should be maintained during welding.

TYPICAL CHEMICAL VALUES

C	Ni	Cr	Mo	Mn	Si	P	S	Cu	V	Al	TOE
0.09	0.55	9.1	1.0	1.0	0.2	0.01	0.01	0.1	0.2	0.04	0.50

WELDING PARAMETERS

Process	Size	Volts	Amps	Speed of Welding / Gas Flow	Shielding Gas / Flux
GMAW	.035	28 - 32	165 - 200	30 - 50 CFH	98/99% Ar + 2/1% O_2
	.045	30 - 34	180 - 220	30 - 50 CFH	98/99% Ar + 2/1% O_2
GTAW	.093	Direct Current; Electrode –		30 - 40 CFH	100% Ar
	.125	Direct Current; Electrode –		30 - 40 CFH	100% Ar

MECHANICAL PROPERTIES

Tensile Strength:	96,000 PSI	660 MPA
Yield Strength:	81,500 PSI	560 MPA
Elongation:	25%	

NOTE: Mechanical properties shown above reflect the use of a postweld heat treatment of 1400° F for one hour.

CLASSIFICATION

Wire chemistry has been optimized for best performance and conforms to **AWS/SFA 5.28, Class ER90S-B9.**