

Oxford Alloy® 90S-B9

AWS ER90S-B9 • Chrome Moly

Key Features

- ❖ Designed to weld high temperature steels for hot hydrogen service.
- ❖ Suitable for 9% Chromium steels such as P91, T91 and F91.
- ❖ Applications include steam generation and petrochemical equipment. Preheat and interpass is required.

Conformances

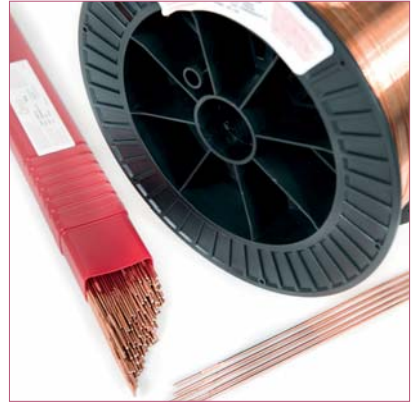
AWS/ASMS SFA 5.28
ER90S-B9
UNS S50482

Chemical Composition - As required per AWS 5.28

C	Mn	Si	Cr	Ni	Mo	Cu
0.07-0.13	1.20 max	0.15-0.50	8.0-10.50	0.80 max	0.85-1.20	0.20 max
V	P	S	Al	OET		
0.15-0.30	0.010 max	0.010 max	0.04 max	0.50 max		

Mechanical Properties - As required by AWS 5.28

	Tensile Strength MPa (kst)	Yield Strength MPa (kst)	Elongation %
AWS Requirements	620 (90) min	410 (60) min	16 min
Typical Results ⁽⁹⁾ -As welded	750 (109)	650 (94)	18



Typical Welding Parameters

Diameter		Process	Volt	Amps	Shielding Gas
in	(mm)				
.035	0.9	GMAW	28-32	165-200	Spray Transfer 98% Argon + 2% Oxygen or 75% Argon + 25% CO ₂
.045	1.2	GMAW	30-34	180-220	
1/16	1.6	GMAW	30-34	230-260	
.035	0.9	GMAW	22-25	100-140	Short Circuiting Transfer 100% CO ₂ or 75% Argon + 25% CO ₂
.045	1.2	GMAW	23-26	120-150	
1/16	1.6	GMAW	23-26	160-200	
1/16	1.6	GTAW	12-15	100-125	100% Argon
3/32	2.4	GTAW	15-20	125-175	100% Argon
1/8	3.2	GTAW	15-20	175-250	100% Argon

Diameters & Packaging

Oxford Alloys USA			Oxford Alloys Asia Pacific		
Diameter (in)	Form	Packaging (lbs)	Diameter (mm)	Form	Packaging (kgs)
.035	GMAW	33 lb spool 1980 lb pallet	0.9	GMAW	15 kg spool 900 kg pallet
.045	GMAW	33 lb spool 1980 lb pallet	1.2	GMAW	15 kg spool 900 kg pallet
1/16	GMAW	33 lb spool 1980 lb pallet	1.6	GMAW	15 kg spool 900 kg pallet
1/16	GTAW	10 lb tube 40 lb carton	1.6	GTAW	5 kg tube 20 kg carton
3/32	GTAW	10 lb tube 40 lb carton	2.4	GTAW	5 kg tube 20 kg carton
1/8	GTAW	10 lb tube 40 lb carton	3.2	GTAW	5 kg tube 20 kg carton

⁽⁹⁾ Typical Results are based on Preheat, Interpass, and PWHT temperatures per AWS 5.28. Actual test results may vary. Refer test result disclaimer on page 160.