

Oxford Alloy® 90S-B3

AWS ER90S-B3 • Chrome Moly



Key Features

- ❖ Designed for welding 2-1/4 Cr / 1 Mo steels, which are used for high temperature applications.
- ❖ A preheat and interpass temperature of not less than 350°F should be maintained during welding.
- ❖ Typical applications include power generation, pressure vessels, petrochemical, and process piping.

Conformances

AWS/ASME SFA 5.28
ER90S-B3
UNS K30960

Chemical Composition - As required per AWS 5.28

C	Mn	Si	Cr	Mo	P	S
0.07-0.12	0.40-0.70	0.40-0.70	2.30-2.70	0.90-1.20	0.025 max	0.025 max
Cu	Ni	OET				
0.35 max	0.20 max	0.50 max				

Mechanical Properties - As required by AWS 5.28

	Tensile Strength MPa (ksi)	Yield Strength MPa (ksi)	Elongation %
AWS Requirements	620 (90) min	540 (78) min	17 min
Typical Results ^(a) - As welded	670 (97)	550 (80)	26

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

^(a) 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.