

Oxford Alloy® 718

AWS ERNiFeCr-2 • Nickel Alloys



Key Features

- ❖ Used for welding alloys 718, 706 and X-750.
- ❖ Primarily for welding high strength aircraft components and liquid rocket components involving cryogenic temperatures.
- ❖ High heat input processes such as MIG welding often result in micro fissuring. This alloy can be age hardened to higher strengths.

Conformances

AWS/ASME SFA 5.14
ERNiFeCr-2
UNS N07718

Chemical Composition - As required per AWS 5.14

Ni	C	Mn	Fe	S	Si	Cu
50.0-55.0	0.08 max	0.35 max	Bal	0.015 max	0.35 max	0.30 max
Cr	Al	Ti	Nb+Ta	Mo	P	OET
17.0-21.0	0.20-0.80	0.65-1.15	4.75-5.50	2.80-3.30	0.015 max	0.50 max

Mechanical Properties - As required by AWS 5.14

	Tensile Strength MPa (ksi)	Yield Strength MPa (ksi)	Elongation %
AWS Requirements	1140 (165) typical	Not Specified	Not Specified
Typical Results - As welded	860 (125)	630 (91)	27

Typical Welding Parameters

Diameter		Process	Volt	Amps	Shielding Gas
in	(mm)				
.035	0.9	GMAW	26-29	150-190	Spray Transfer 100% Argon
.045	1.2	GMAW	28-32	180-220	
1/16	1.6	GMAW	29-33	200-250	
1/16	1.6	GTAW	14-18	90-130	100% Argon
3/32	2.4	GTAW	15-20	120-175	100% Argon
1/8	3.2	GTAW	15-20	150-220	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

Actual test results may vary. Refer test result disclaimer on page 160.