WELDWIRE COMPANY, INC. **Technical Information**

Stainless Steel Bare Wire

Alloy: WW505
Class: ER505

Conforms to Certification: AWS A5.9
ASME SFA A5.9

Alloy ER505 Welding Data

Weld Process: Used for Mig, Tig, and automatic Submerged Arc

AWS Chemical Composition Requirements

C = 0.10 max	P = 0.03 max
Cr = 8.0 – 10.5	S = 0.03 max
Ni = 0.50 max	Mo = 0.8 – 1.20
Mn = 0.60 max	Cu = 0.75 max
Si = 0.50 max	

Deposited Chemical Composition % (Typical)

C = 0.08	Si = 0.34	Mn = 0.45
P = 0.023	S = 0.022	Cr = 9.15
Mo = 1.05		

Deposited All Weld Metal Properties

Data is typical for ER505 weld metal deposited by mig using argon + 2% oxygen and tig using 100% argon as the shielding gas. Data on sub-arc is dependent of the type of flux used.

Mechanical Properties R.T.

Yield Strength	63,500psi
Tensile Strength	79,000psi
Elongation	30%

Application

ER505 is for welding tube or pipe of similar composition. Preheating and post-weld heat treatments are required.

Recommended Welding Parameters

GMAW "Mig Process" Reversed Polarity

Wire Diameter	Wire Feed	Amps	Volts	Shielding Gas	Gas CFH
Short Arc Welding					
.030	13-26	40-120	16-20	Argon+2% O_2	25
.035	13-26	60-140	16-22	Argon+2% O_2	25
Spray Arc Welding					
.035	20-39	140-220	24-29	Argon+2% O_2	38
.045	16-30	160-260	25-30	Argon+2% O_2	38
1/16	10-16	230-350	27-31	Argon+2% O_2	38

GTAW "Tig Process"

Wire Diameter	Amps DCRP	Voltage	Gases
.035	60-90	12-15	Argon 100%
.045	80-110	13-16	Argon 100%
1/16	90-130	14-16	Argon 100%
3/32	120-175	15-20	Argon 100%

Note: Parameters for tig welding are dependent upon plate thickness and welding position.

Other shielding Gases may be used for Mig and Tig welding. Shielding gases are chosen taking Quality, Cost, and Operability into consideration

Submerged Arc Welding

Reverse Polarity is suggested

Wire Diameter	Amps	Volts
3/32	250-450	28-32
1/8	300-500	29-34
5/32	400-600	30-35
3/16	500-700	30-35

Both Agglomerated and fused fluxes can be used for submerged arc welding.
Note: The chemical composition of the flux mainly affects the chemistry of the weld metal and consequently its corrosion resistance and Mechanical properties.

If additional information is needed Contact Weldwire Company, Inc. 800-523-1266