WELDWIRE COMPANY, INC. **Technical Information**

Stainless Steel Bare Wire

Alloy: WW630 Conforms to Certification: AWS A5.9
Class: ER630 ASME SFA A5.9

Alloy ER630

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

AWS Chemical Composition Requirements

C = 0.05 max	Si = 0.75 max
Cr = 16.0 – 16.75	P = 0.03 max
Ni = 4.5 – 5.0	S = 0.03 max
Mo = 0.75 max	Cu = 3.25 – 4.00
Mn = 0.25 – 0.75	Nb + Ta = 0.15 – 0.30

Deposited Chemical Composition % (Typical)

C = 0.03	Mo = 0.20	P = 0.020
Cr = 16.51	Mn = 0.54	S = 0.018
Ni = 4.75	Si = 0.41	Cu = 3.62
Nb + Ta = 0.23		

Deposited All Weld Metal Properties

They are dependent on the utilization of a post weld heat treatment and a precipitation hardening based on temp, and time exposed to temperature.

Mechanical Properties (R.T.)

Yield Strength	150,000psi
Tensile Strength	135,000psi
Elongation	10%

Application

ER630 classification is designed primarily for welding ASTM A564 type 630 and some other precipitation-hardening stainless steels. The composition is modified to prevent the formation of ferrite networks in the martensitic microstructure which has a great effect on mechanical properties. The weld metal may be used either as welded, welded and precipitation hardened, or welding and solution treated.
Mechanical properties of this alloy are greatly influenced by the heat treatment.

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