



PRODUCT

DATA SHEET

Stainless Steel Bare Wire

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

Alloy: 630 (17-4PH) Class: ER630

Conforms to Certification: AWS A5.9 / ASME SFA 5.9

Alloy: DM630



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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
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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 DCEN	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.