

## STAINLESS STEEL BARE WIRE DM630

**Classification:**

**ER630**

**AWS A5.9 / ASME SFA 5.9**

### Description, Characteristics & Applications:

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 welded and solution treated. Mechanical properties of this alloy are greatly influenced by the heat treatment.

### Typical Chemical Composition (%)

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

### Deposited Chemical Composition (%) (Typical)

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

### Typical Mechanical Properties as Welded

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

**Notes** Deposited all weld metal properties are dependent on the utilization of a post weld heat treatment and precipitation hardening based on temperature and time exposed to temperature.

### Short Arc Welding / Spray Arc Welding

Process	Diameter	Wire Feed	Amps	Volts	Shielding Gas	CFH
SHORT ARC	.030	13-26	40-120	16-20	Argon + 2% O <sub>2</sub>	25
	.035	13-26	60-140	16-22	Argon + 2% O <sub>2</sub>	25
SPRAY ARC	.035	20-39	140-220	24-29	Argon + 2% O <sub>2</sub>	38
	.045	16-30	160-260	25-30	Argon + 2% O <sub>2</sub>	38
	1/16	10-16	230-350	27-31	Argon + 2% O <sub>2</sub>	38

### TIG Welding Parameters

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; gases are selected by considering quality, cost, and operability.

### Submerged Arc Welding Parameters

Wire Diameter	Amps	Voltage
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. The chemical composition of the flux affects the chemistry of the weld metal and, consequently, its corrosion resistance and mechanical properties.

The above information is to be used as a guideline and is based on the source Product Data Sheet. If additional information is needed please contact (800) 692-5930.