

TECHALLOY 630

I. **DESCRIPTION:** Techalloy 630 is a precipitation hardening stainless steel used for welding of materials of similar chemical composition. Mechanical properties of this alloy are greatly influenced by the heat treatment.

Note: Mechanical properties listed below reflect utilization of a postweld heat treatment between 1875°F and 1925°F for one hour, followed by precipitation hardening between 1135°F and 1165°F for four hours.

II. **APPROVALS:** Manufactured under Quality System approved by ASME, ISO9001. Meets AWS 5.9 Class ER630. Approved by Canadian Welding Bureau.

III. **CHEMICAL COMPOSITION**

Carbon	.03
Manganese	.54
Silicon	.43
Chromium	16.49
Nickel	4.78
Molybdenum	0.2
Copper	3.6
Columbium + Tantalum	.22
Sulfur	.021
Phosphorus	.017
Iron	Balance

MECHANICAL PROPERTIES

Tensile Strength	
150,000 PSI	1030 MPA
Yield Strength	
135,000 PSI	930 MPA
Elongation	
10%	

V. **WELDING PARAMETERS**

- a) **MIG WELDING:** Direct current; Electrode +Ve
Shielding Gas 98/99% Argon + 2/1% Oxygen
97% Argon + 3% CO₂
Gas Flow 30 to 50CFH
Voltage 29 to 33
Amperage 160/180 for .035" (0.9mm)
180/220 for .045" (1.14mm)
210/250 for .062" (1.6mm)
- b) **T.I.G. WELDING:** Direct Current; Electrode -Ve
Shielding Gas 100% Argon
Gas Flow 30 to 40 CFH
- c) **SUB-ARC WELDING:** Direct Current; Electrode + Ve
Voltage 29 to 32
Amperage 300 to 350 for 3/32" (2.5mm)
400 to 550 for 1/8" (3.14mm)
500 to 650 for 5/32" (4.0mm)
Speed of Welding 20 to 30 IPM (500 to 750mm)/min.

V. **STANDARD PACKAGES:**

MIG Wire -30# spools; **TIG Wire** -10# Tubes; **SAW**-60# coils