UNITED STATES WELDING CORPORATION

USW ALLOY DESIGNATION AND DESCRIPTION	**TURBALOY® AF1410** **MC-GRADE** **GTAW SOLID BARE WELDING WIRE** **IRON BASE**	**ISSUED** JANUARY 2007 REVISION NO. A	**DATA SHEET** 6533 (4)

CROSS-REFERENCE CONFORMANCE SPECIFICATIONS

AMS 6533
UNS K92571
USWC 6533(V)

2.0Cr 10Ni 14Co 1.0Mo (0.13 - 0.17C) VM
AF1410 (Air force 14Co 10Ni)

METALLURGICAL BACKGROUND INFORMATION

TURBALOY® AF1410 is a premium quality aircraft steel produced by vacuum induction melting and remelting techniques and the final wire is manufactured by special lubricant-free, roller-die forming followed by surface abrasion and cleaning processes.
These manufacturing processes ensure consistent metallurgical integrity of the alloy with regard to control of trace elements and physical purity of the welding wire surface.

TURBALOY® AF1410 is an ultra high strength Ni-Co alloy steel developed specially for military aircraft structural components. It is a competitive material to the HP9-4-20 series. TURBALOY® AF1410 filler metal produces sound welds in matching base metal. The alloy uses the Co-Ni effect to prevent austenite transformation to normal eutectoid phases.

MATERIALS TO BE WELDED AND APPLICATIONS

TURBALOY® AF1410 and similar high alloy, high strength aircraft quality structural members which are loaded to near the proof strength - helicopter components, armor, high performance ships, shallow draft vessels, rocket motor cases, air-frame & undercarriage parts, pressure vessel, gears, dies, fasteners.
Competes with titanium alloys for superior strength and economy.

WIRE CHEMISTRY WT%

Carbon	0.13	0.17	Cobalt	13.50	14.50
Manganese	-	0.10	Titanium	-	0.015
Silicon	-	0.10	Oxygen	-	0.0025 (25ppm)
Sulfur	-	0.005	Nitrogen	-	0.0015 (15ppm)
Phosphorus	-	0.008	Hydrogen	-	0.0005 (5ppm)
P + S	-	0.010	Copper	-	0.10
Chromium	1.80	2.20	Iron		Balance
Nickel	9.50	10.50			
Molybdenum	0.90	1.10			

WELD PROPERTIES

Place welds in low stress areas, with good welding access.
Use butt joints in preference to fillet joints. Use GTAW & MC-GRADE wire and ultra clean conditions. Follow procedure closely.

SIZES AND FORMS AVAILABLE

STRAIGHT LENGTHS	SPOOLED WIRE
5 lb. (2.2kg) packs 36” (914mm) lengths Flag tagged for traceability. (Double tagging and other lengths on request) Wide range of diameters.	Precision layer wound, with controlled cast and helix 12” (300mm) diameter spools standard 8” (200mm), 4” (100mm) and proprietary spool sizes on request. Wide range of diameters and spool weights.

PACKAGING

Sealed, air-evacuated, argon purged Vapor Barrier e nvelopes with desiccants ensure full protection from atmospheric contamination and prolonged shelf-life.

DISTRIBUTED BY:

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