UNITED STATES WELDING CORPORATION

USW ALLOY DESIGNATION AND DESCRIPTION	**TURBALOY® 4340** **MC-GRADE** **GTAW SOLID BARE WELDING WIRE** **IRON BASE**	ISO 9001 AS 9100 Revision A	**DATA SHEET** 6456

CROSS-REFERENCE CONFORMANCE SPECIFICATIONS

AMS 6456
AISI 4340
USWC 6456(V)
UNS G43400
MIL-R-5632 Type III
0.8Cr 1.8Ni 0.25Mo (0.35 - 0.40C)
ASTM A547
AMS 6414

METALLURGICAL BACKGROUND INFORMATION

TURBALOY® 4340 is produced by vacuum induction melting and remelting techniques. 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® 4340 is a high strength, low alloy steel filler metal suitable for welding base metal of similar composition, giving good toughness and sound weld deposit.

MATERIALS TO BE WELDED AND APPLICATIONS

AMS 6415, 6409, 6414, 5331, 6359, 6454, 5330.
UNS G43400.
ASTM A322, A331, A505, A519.
Steam turbine and gas turbine applications; military and defense equipment, tooling, rocket motor cases, investment casting repair.
Use ultra clean weldment preparation. Refer to PH & PWHT chart.

WIRE CHEMISTRY WT%

Carbon	0.35	0.40	Molybdenum	0.20	0.30
Manganese	0.60	0.90	Copper	-	0. 30
Silicon	0.15	0.35	Oxygen	-	0.0025 (25ppm)
Sulfur	-	0.008	Nitrogen	-	0.0050 (50ppm)
Phosphorus	-	0.008	Hydrogen	-	0.0010 (10ppm)
Chromium	0.70	0.90	Iron		Balance
Nickel	1.65	2.00			

WELD PROPERTIES

Melting Point: 2740°F
Density: 7.82 gm/cc
Hardness annealed: 24 HRC
Oil quench & tempered: 31 HRC
CVN: 27.3ft lbs at 0°F, 100% shear. (Minimum specification requirement: 12ft lbs.)

SIZES AND FORMS AVAILABLE

STRAIGHT LENGTHS
5 lb. (2.2kg) packs
36" (914mm) lengths
Flag tagged for traceability.
(Double tagging and other lengths on request)
Wide range of diameters.

SPOOLED WIRE
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.

DFARS Compliant

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