UNITED STATES WELDING CORPORATION

USW ALLOY DESIGNATION AND DESCRIPTION	**TURBALOY® 9-4-20** **MC-GRADE** **GTAW SOLID BARE WELDING WIRE** **IRON BASE**	**ISSUED** JANURAY 2007 REVISION NO. A	**DATA SHEET** 6468 (2)

CROSS-REFERENCE CONFORMANCE SPECIFICATIONS

USWC 6468 (V)
AMS 6468
Republic steel HP9-4-20
USW 1431 (HP9-4-20)

UNS K91461
1Cr 10Ni 3.8Co 0.45Mo 0.08V (0.14-0.17C)

(HP stands for high preformance)

METALLURGICAL BACKGROUND INFORMATION

TURBALOY® HP9 - 4 -20 is produced by vacuum induction melting and remelting techniques. The final wire is manufactured by special lubricant-free, roller-dies 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® HP9-4-20 and TURBALOY® HP9-4-30 were specially developed for the B1-B2 Bomber program. They are ultra high strength engineering alloys. TURBALOY® HP9-4-20 is a matching filler metal that produces joints of exceptional quality in the as-welded condition. Competitive alloy to AF1410. (AMS 6533).

MATERIALS TO BE WELDED AND APPLICATIONS

HP9-4-20, HP9-4-25, HP9-4-30.
A range of high strength low alloy steel repa irs, especially welds where heavy impact and/or shock loading is encountered.

AMS 6525, 6523, 6546, 6526, 6524, UNS K91122, UNS K91472.
Ideal filler metal for applications where assembly not adaptable to PH & PWHT.
Uses: Deep submersibles, rocket sleds, hydrofoils, solid fuel rocket motor cases.

WIRE CHEMISTRY WT%

Carbon	0.14	0.17	Molybdenum	0.40	0.50
Manganese	0.40	0.55	Vanadium	0.06	0.10
Silicon	0.15	0.25	Copper	-	0.10
Sulfur	-	0.005	Oxygen	-	0.0025 (25ppm)
Phosphorus	-	0.006	Nitrogen	-	0.0050 (50ppm)
Chromium	0.90	1.05	Hydrogen	-	0.005 (5ppm)
Nickel	9.75	10.25	Iron		Balance
Cobalt	3.50	4.00			

WELD PROPERTIES

Yield strength in excess of 239 ksi
CVN: weld deposit as - welded, -100°F, 40ft lbs
Density: 7.76gm/cc

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:

3579 HIGHWAY 50 EAST #104 □ CARSON CITY, NEVADA 89701-2826
775/883-7878 □ 800/423-5964 □ FAX: 775/883-7776