UNITED STATES WELDING CORPORATION

USW ALLOY DESIGNATION AND DESCRIPTION	**TURBALOY® 120** **MC-GRADE** **GTAW SOLID BARE WELDING WIRE** **IRON BASE**	**ISSUED** JANURAY 2007 REVISION NO. A	**DATA SHEET** 1587 (5)

CROSS-REFERENCE CONFORMANCE SPECIFICATIONS

USW 1587
TURBALOY® 120
2Ni 0.4Mo 1.6Mn 0.10C

ER 120S-1 (AWS A5.28 nearest equivalent)
MC - Trace Elements Controlled Grade
MIL120S - 1 (MIL- E - 23765)

METALLURGICAL BACKGROUND INFORMATION

TURBALOY® 120 is produced by vacuum induction melting and re-melting 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® 120 is a matching filler metal for use on military ship steels of the type HY 100 and similar high strength steels. It is designed to be used with GMAW site welding, semi-automatic, with non-argon gas shielding, producing superior welds consistently.

MATERIALS TO BE WELDED AND APPLICATIONS

Q/T and HY steels in the class HY 80, HY 100.
Also used for manufacture and repair of steam turbine components and for fabricating high strength steels; defense equipment, such as ASTM A592, A514, A517.

WIRE CHEMISTRY WT%

Carbon	0.090	0.110	Zirconium	-	0.10
Manganese	1.40	1.80	Aluminum	-	0.10
Silicon	0.30	0.50	Copper	-	0.20
Sulfur	0.003	0.007	Antimony	-	0.0015
Phosphorus	-	0.008	Tin	-	0.0050
Chromium	0.10	0.30	Arsenic	-	0.0050
Nickel	1.60	2.10	Nitrogen	-	0.0025 (25 ppm)
Molybdenum	0.30	0.55	Hydrogen	-	0.0010 (10ppm)
Vanadium	-	0.03	Oxygen	-	0.0020 (20ppm)
Titanium	-	0.10	Iron		Balance

WELD PROPERTIES

0.2% offset yield strength 105 - 121 ksi Density 7.83 gm/cc
MC - GRADE TURBALOY® 120 will normally produce ductility values considerably in excess of the 14% elongation specified.

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