



UNITED STATES WELDING CORPORATION

<p>USW ALLOY DESIGNATION AND DESCRIPTION</p>	<p>TURBALOY® 120 MC-GRADE GTAW SOLID BARE WELDING WIRE IRON BASE</p>	<p>ISO 9001 AS 9100</p>	<p>DATA SHEET 1587</p>																																																												
<p>CROSS-REFERENCE CONFORMANCE SPECIFICATIONS</p>	<p>USW 1587 TURBALOY® 120 2Ni 0.4Mo 1.6Mn 0.10C</p> <p>ER 120S-1 (AWS A5.28 nearest equivalent) MC-Grade MIL120S - 1 (MIL- E - 23765 Ref. Only)</p>																																																														
<p>METALLURGICAL BACKGROUND INFORMATION</p>	<p>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.</p> <p>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.</p>																																																														
<p>MATERIALS TO BE WELDED AND APPLICATIONS</p>	<p>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.</p>																																																														
<p>WIRE CHEMISTRY WT%</p>	<table border="0"> <tr> <td>Carbon</td><td>0.090</td><td>0.110</td><td>Zirconium</td><td>-</td><td>0.10</td></tr> <tr> <td>Manganese</td><td>1.40</td><td>1.80</td><td>Aluminum</td><td>-</td><td>0.10</td></tr> <tr> <td>Silicon</td><td>0.30</td><td>0.50</td><td>Copper</td><td>-</td><td>0.20</td></tr> <tr> <td>Sulfur</td><td>0.003</td><td>0.007</td><td>Antimony</td><td>-</td><td>0.0015</td></tr> <tr> <td>Phosphorus</td><td>-</td><td>0.008</td><td>Tin</td><td>-</td><td>0.0050</td></tr> <tr> <td>Chromium</td><td>0.10</td><td>0.30</td><td>Arsenic</td><td>-</td><td>0.0050</td></tr> <tr> <td>Nickel</td><td>1.60</td><td>2.10</td><td>Nitrogen</td><td>-</td><td>0.0025 (25 ppm)</td></tr> <tr> <td>Molybdenum</td><td>0.30</td><td>0.55</td><td>Hydrogen</td><td>-</td><td>0.0010 (10ppm)</td></tr> <tr> <td>Vanadium</td><td>-</td><td>0.03</td><td>Oxygen</td><td>-</td><td>0.0020 (20ppm)</td></tr> <tr> <td>Titanium</td><td>-</td><td>0.10</td><td>Iron</td><td>-</td><td>Balance</td></tr> </table>			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
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<p>WELD PROPERTIES</p>	<p>0.2% offset yield strength 105 - 121 ksi MC - GRADE TURBALOY® 120 will normally produce ductility values considerably in excess of the 14% elongation specified.</p> <p>Density 7.83 gm/cc</p>																																																														
<p>SIZES AND FORMS AVAILABLE</p>	<table border="0"> <tr> <td colspan="2" style="text-align: center;">STRAIGHT LENGTHS</td> <td colspan="2" style="text-align: center;">SPOOLED WIRE</td> </tr> <tr> <td colspan="2">5 lb. (2.2kg) packs</td> <td colspan="2">Precision layer wound, with controlled cast and helix</td> </tr> <tr> <td colspan="2">36" (914mm) lengths</td> <td colspan="2">12" (300mm) diameter spools standard</td> </tr> <tr> <td colspan="2">Flag tagged for traceability.</td> <td colspan="2">8" (200mm), 4" (100mm) and proprietary spool sizes on request.</td> </tr> <tr> <td colspan="2">(Double tagging and other lengths on request)</td> <td colspan="2">Wide range of diameters and spool weights.</td> </tr> <tr> <td colspan="2">Wide range of diameters.</td> <td colspan="2"></td> </tr> </table>			STRAIGHT LENGTHS		SPOOLED WIRE		5 lb. (2.2kg) packs		Precision layer wound, with controlled cast and helix		36" (914mm) lengths		12" (300mm) diameter spools standard		Flag tagged for traceability.		8" (200mm), 4" (100mm) and proprietary spool sizes on request.		(Double tagging and other lengths on request)		Wide range of diameters and spool weights.		Wide range of diameters.																																							
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<p>PACKAGING</p>	<p>Sealed, air-evacuated, argon purged Vapor Barrier envelopes with desiccants ensure full protection from atmospheric contamination and prolonged shelf-life.</p>																																																														

DFARS Compliant

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