



UNITED STATES WELDING CORPORATION

USW ALLOY DESIGNATION AND DESCRIPTION	TURBALOY® 15-5 HQ-GRADE GTAW SOLID BARE WELDING WIRE IRON BASE	ISSUED JANUARY 2007	DATA SHEET 5659 (7)																																				
		REVISION NO. A																																					
CROSS-REFERENCE CONFORMANCE SPECIFICATIONS	AMS 5659 UNS S15500 15-5 PH	15Cr 4.5Ni 030 Cb 3.5 Cu USWC 5659 (A) See also AMS 5826 (VM grade). Available in MC-GRADE																																					
METALLURGICAL BACKGROUND INFORMATION	<p>TURBALOY® 15-5 undergoes a series of proprietary abrading and cleaning processes to remove all surface contaminants. These manufacturing processes ensure a consistent ultra-clean weld wire surface.</p> <p>TURBALOY® 15-5 is a martensitic, precipitation hardening stainless engineering alloy giving excellent strength and corrosion resistance. TURBALOY® 15-5 is used to weld alloys of similar composition. The alloy is ferrite free in order to produce adequate toughness.</p>																																						
MATERIALS TO BE WELDED AND APPLICATIONS	<p>AMS 5348, 5347, 5346, 5356, 5357, 5400, 5862, 5658, 5659.</p> <p>ASTM A564(XM-12),A693(XM-12),A705(XM-12). No preheat required - non air hardening; (Controlled low carbon composition) May be used in place of 17-4PH (AMS 5825) when greater transverse toughness is required under conditions of high restraint.</p>																																						
WIRE CHEMISTRY WT%	<table> <tr> <td>Carbon</td> <td>-</td> <td>0.07</td> <td>Nickel</td> <td>3.50</td> <td>5.50</td> </tr> <tr> <td>Manganese</td> <td>-</td> <td>1.00</td> <td>Columbium</td> <td>5xC</td> <td>0.45</td> </tr> <tr> <td>Silicon</td> <td>-</td> <td>1.00</td> <td>Copper</td> <td>2.50</td> <td>4.50</td> </tr> <tr> <td>Sulfur</td> <td>-</td> <td>0.015</td> <td>Molybdenum</td> <td>-</td> <td>0.50</td> </tr> <tr> <td>Phosphorus</td> <td>-</td> <td>0.030</td> <td>Tantalum</td> <td>-</td> <td>0.05</td> </tr> <tr> <td>Chromium</td> <td>14.00</td> <td>15.50</td> <td>Iron</td> <td></td> <td>Balance</td> </tr> </table>			Carbon	-	0.07	Nickel	3.50	5.50	Manganese	-	1.00	Columbium	5xC	0.45	Silicon	-	1.00	Copper	2.50	4.50	Sulfur	-	0.015	Molybdenum	-	0.50	Phosphorus	-	0.030	Tantalum	-	0.05	Chromium	14.00	15.50	Iron		Balance
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WELD PROPERTIES	<p>Hardness of base metal: Annealed 28HRC Hardened 43HRC</p> <p>Density 7.8gm/cc</p>																																						
SIZES AND FORMS AVAILABLE	<table> <tr> <td>STRAIGHT LENGTHS</td> <td>SPOOLED WIRE</td> </tr> <tr> <td>5 lb. (2.2kg) packs</td> <td>Precision layer wound, with controlled cast and helix</td> </tr> <tr> <td>36" (914mm) lengths</td> <td>12" (300mm) diameter spools standard</td> </tr> <tr> <td>Flag tagged for traceability.</td> <td>8" (200mm), 4" (100mm) and proprietary spool sizes</td> </tr> <tr> <td>(Double tagging and other lengths on request)</td> <td>on request.</td> </tr> <tr> <td>Wide range of diameters.</td> <td>Wide range of diameters and spool weights.</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	(Double tagging and other lengths on request)	on request.	Wide range of diameters.	Wide range of diameters and spool weights.																								
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PACKAGING	Sealed polyethylene envelopes. (Desiccants optional)																																						

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