



UNITED STATES WELDING CORPORATION

USW ALLOY DESIGNATION AND DESCRIPTION	TURBALOY® 17-7 PH HQ-GRADE GTAW SOLID BARE WELDING WIRE IRON BASE	ISSUED JANUARY 2007	DATA SHEET 5824 (29)																														
		REVISION NO. A																															
CROSS-REFERENCE CONFORMANCE SPECIFICATIONS	AMS 5824 UNS S17780 USWC 5824 (A) 17-7 PH	17 Cr 7.1 Ni 1.0 Al AISI 631 ASTM A313																															
METALLURGICAL BACKGROUND INFORMATION	<p>TURBALOY® 17-7 undergoes a series of abrading and cleaning processes to remove all surface contaminants. These manufacturing processes ensure a consistent ultra-clean weld wire surface.</p> <p>TURBALOY® 17-7 is a precipitation hardening stainless engineering alloy with an austenitic structure prior to cold deformation or heat treatment cycle. It is used for fabricating base metals of similar composition. The aluminum content should be carefully protected during welding by using adequate argon gas shielding.</p>																																
MATERIALS TO BE WELDED AND APPLICATIONS	<p>AMS 5529, 5528, 5568. UNS S17780 ASTM 564, A693, A579, A705.</p> <p>Aircraft structural components and fittings. Can be used as welded although PWHT will give optimum strength. Welding austenitizes the weldment.</p>																																
WIRE CHEMISTRY WT%	<table> <tr> <td>Carbon</td> <td>-</td> <td>0.09</td> <td>Chromium</td> <td>16.00</td> <td>17.25</td> </tr> <tr> <td>Manganese</td> <td>-</td> <td>1.00</td> <td>Nickel</td> <td>6.50</td> <td>7.75</td> </tr> <tr> <td>Silicon</td> <td>-</td> <td>0.50</td> <td>Aluminum</td> <td>0.75</td> <td>1.25</td> </tr> <tr> <td>Sulfur</td> <td>-</td> <td>0.025</td> <td>Iron</td> <td></td> <td>Balance</td> </tr> <tr> <td>Phosphorus</td> <td>-</td> <td>0.025</td> <td></td> <td></td> <td></td> </tr> </table>			Carbon	-	0.09	Chromium	16.00	17.25	Manganese	-	1.00	Nickel	6.50	7.75	Silicon	-	0.50	Aluminum	0.75	1.25	Sulfur	-	0.025	Iron		Balance	Phosphorus	-	0.025			
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WELD PROPERTIES	<p>Hardness, solution treated: 85 HRB Hardness, fully hardened: 501 HV</p> <p style="text-align: right;">Density: 7.81gm/cc</p>																																
SIZES AND FORMS AVAILABLE	<table> <tr> <td style="text-align: center;">STRAIGHT LENGTHS</td> <td style="text-align: center;">SPOOLED WIRE</td> </tr> <tr> <td>5 lb. (2.2kg) packs 36" (914mm) lengths Flag tagged for traceability. (Double tagging and other lengths on request) Wide range of diameters.</td> <td>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.</td> </tr> </table>			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.																										
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PACKAGING	Sealed polyethylene envelopes. (Desiccants optional)																																

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