



UNITED STATES WELDING CORPORATION

USW ALLOY DESIGNATION AND DESCRIPTION	TURBALOY[®] 918 MC-GRADE GTAW SOLID BARE WELDING WIRE COBALT BASE	ISSUED JANUARY 2007	DATA SHEET 5814 (6)																																																																		
		REVISION NO. A																																																																			
CROSS-REFERENCE CONFORMANCE SPECIFICATIONS	AMS 5814 MAR-M-918 USWC 5809 (V) UNS R30918	GE B50A824 USW 1559 13256BB 52 Co 20 Cr 20 Ni 7.5 Ta																																																																			
METALLURGICAL BACKGROUND INFORMATION	<p>TURBALOY[®]918 is produced by vacuum induction melting and re-melting techniques and the final wire is manufactured by special lubricant-free, roller-die forming followed by surface abrasion and cleaning processes.</p> <p>These manufacturing routes ensure consistent metallurgical integrity of the alloy with regard to control of trace elements and physical purity of the welding wire surface, resulting in repeatable excellent weld quality.</p> <p>TURBALOY[®] 918 is a Co-Cr-Ni-Ta-C high temperature alloy used to repair weld parts subject to severe thermal cycling and castings of similar composition.</p> <p>(NOTE: AMS 5814 can only be produced using the MC manufacturing process).</p>																																																																				
MATERIALS TO BE WELDED AND APPLICATIONS	<p>Nozzle guide valve repair. Casting repair welding.</p> <p>Pure argon gas shielding and ultra clean weldment conditions required.</p>																																																																				
WIRE CHEMISTRY WT%	<table border="0"> <tr> <td>Carbon</td> <td>0.04</td> <td>0.10</td> <td>Copper</td> <td>-</td> <td>0.15</td> </tr> <tr> <td>Manganese</td> <td>-</td> <td>0.10</td> <td>Zirconium</td> <td>-</td> <td>0.02</td> </tr> <tr> <td>Silicon</td> <td>-</td> <td>0.20</td> <td>Tin</td> <td>-</td> <td>0.0050 (50ppm)</td> </tr> <tr> <td>Sulfur</td> <td>-</td> <td>0.008</td> <td>Lead</td> <td>-</td> <td>0.0025 (25ppm)</td> </tr> <tr> <td>Phosphorus</td> <td>-</td> <td>0.01</td> <td>Bismuth</td> <td>-</td> <td>0.0025 (25ppm)</td> </tr> <tr> <td>Chromium</td> <td>19.00</td> <td>21.00</td> <td>Silver</td> <td>-</td> <td>0.0025 (25ppm)</td> </tr> <tr> <td>Nickel</td> <td>19.00</td> <td>21.00</td> <td>Cobalt</td> <td></td> <td>Balance</td> </tr> <tr> <td>Tantalum</td> <td>7.00</td> <td>8.00</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Aluminum</td> <td>-</td> <td>0.10</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Boron</td> <td>-</td> <td>0.0030</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Iron</td> <td>-</td> <td>0.50</td> <td></td> <td></td> <td></td> </tr> </table>			Carbon	0.04	0.10	Copper	-	0.15	Manganese	-	0.10	Zirconium	-	0.02	Silicon	-	0.20	Tin	-	0.0050 (50ppm)	Sulfur	-	0.008	Lead	-	0.0025 (25ppm)	Phosphorus	-	0.01	Bismuth	-	0.0025 (25ppm)	Chromium	19.00	21.00	Silver	-	0.0025 (25ppm)	Nickel	19.00	21.00	Cobalt		Balance	Tantalum	7.00	8.00				Aluminum	-	0.10				Boron	-	0.0030				Iron	-	0.50			
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SIZES AND FORMS AVAILABLE	STRAIGHT LENGTHS		SPOOLED WIRE																																																																		
	5 lbs. (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 standards 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 envelopes with desiccants ensure full protection from atmospheric contamination and prolonged shelf-life.																																																																				

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