



UNITED STATES WELDING CORPORATION

USW ALLOY DESIGNATION AND DESCRIPTION	TURBALOY® 901 MC-GRADE GTAW SOLID BARE WELDING WIRE NICKEL BASE	ISO 9001 AS 9100	DATA SHEET 5830																																																																		
		Revision A																																																																			
CROSS-REFERENCE CONFORMANCE SPECIFICATIONS	MSRR 9500/227 MSRR 7013 OMAT 3/203A AMS 5830 AMS 5660 (chemistry only) <p style="text-align: right;">12.5Cr 42.5Ni 6.0Mo 2.7Ti 0.015B 35Fe (VM) UNS N09901 USWC 5830(V) Available in HQ-GRADE</p>																																																																				
METALLURGICAL BACKGROUND INFORMATION	<p>TURBALOY® 901 is produced by vacuum induction melting and remelting techniques. The final wire is produced by special lubricant-free, roller-die forming followed by surface abrasion and cleaning processes.</p> <p>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® 901 is a high purity, nickel-base precipitation hardening alloy for welding alloys of similar composition.</p> <p><i>(Note: Formerly, welding alloy 901 was issued to AMS 5660, 5830 is upgraded version.)</i></p>																																																																				
MATERIALS TO BE WELDED AND APPLICATION	Knife edge seal repair, turbine disc shafts and other gas turbine component fabrication. Space rocket components. AMS 5660, 5661. Pure argon gas shielding and ultra clean conditions are required for optimum results.																																																																				
WIRE CHEMISTRY WT%	<table border="0" style="width: 100%;"> <tr> <td>Carbon</td><td>-</td><td>0.10</td><td>Aluminum</td><td>-</td><td>0.35</td></tr> <tr> <td>Manganese</td><td>-</td><td>1.00</td><td>Copper</td><td>-</td><td>0.50</td></tr> <tr> <td>Silicon</td><td>-</td><td>0.60</td><td>Lead</td><td>-</td><td>0.0005 (5ppm)</td></tr> <tr> <td>Sulfur</td><td>-</td><td>0.010</td><td>Bismuth</td><td>-</td><td>0.00003 (0.03ppm)</td></tr> <tr> <td>Phosphorus</td><td>-</td><td>0.015</td><td>Selenium</td><td>-</td><td>0.0003 (3ppm)</td></tr> <tr> <td>Chromium</td><td>11.00</td><td>14.00</td><td>Calcium</td><td>-</td><td>0.0010 (10ppm)</td></tr> <tr> <td>Nickel</td><td>40.00</td><td>45.00</td><td>Oxygen</td><td>-</td><td>0.0025 (25ppm)</td></tr> <tr> <td>Molybdenum</td><td>5.00</td><td>7.00</td><td>Nitrogen</td><td>-</td><td>0.0050 (50ppm)</td></tr> <tr> <td>Titanium</td><td>2.35</td><td>3.10</td><td>Hydrogen</td><td>-</td><td>0.0010 (10ppm)</td></tr> <tr> <td>Boron</td><td>0.010</td><td>0.020</td><td>Iron</td><td>-</td><td>Balance</td></tr> <tr> <td>Cobalt</td><td>-</td><td>1.00</td><td></td><td></td><td></td></tr> </table>			Carbon	-	0.10	Aluminum	-	0.35	Manganese	-	1.00	Copper	-	0.50	Silicon	-	0.60	Lead	-	0.0005 (5ppm)	Sulfur	-	0.010	Bismuth	-	0.00003 (0.03ppm)	Phosphorus	-	0.015	Selenium	-	0.0003 (3ppm)	Chromium	11.00	14.00	Calcium	-	0.0010 (10ppm)	Nickel	40.00	45.00	Oxygen	-	0.0025 (25ppm)	Molybdenum	5.00	7.00	Nitrogen	-	0.0050 (50ppm)	Titanium	2.35	3.10	Hydrogen	-	0.0010 (10ppm)	Boron	0.010	0.020	Iron	-	Balance	Cobalt	-	1.00			
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WELD PROPERTIES	Precipitation hardened: HRC 32-42 Solution treated: HRB 91 Typical tensile strength hot finished 177ksi, 15% elongation. <p style="text-align: right;">Density: 8.22 gms/cc</p>																																																																				
SIZES AND FORMS AVAILABLE	<table border="0" style="width: 100%;"> <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</td> <td>Precision layer wound, with controlled cast and helix</td> </tr> <tr> <td>36" (914mm) lengths</td> <td>12" (300mm) diameter spools standards</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 standards	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)																																																																				
DFARS Compliant		www.usweldingcorp.com																																																																			