



UNITED STATES WELDING CORPORATION

<p align="center">USW ALLOY DESIGNATION AND DESCRIPTION</p>	<p align="center">TURBALOY® 90 HQ-GRADE GTAW SOLID BARE WELDING WIRE NICKEL BASE</p>	<p align="center">ISO 9001 AS 9100</p>	<p align="center">DATA SHEET 5829</p>																																																
<p align="center">CROSS-REFERENCE CONFORMANCE SPECIFICATIONS</p>	<table border="0"> <tr> <td>MSRR 9500/4</td> <td>56Ni 19.5Cr 16.5Co 2.5Ti 1.5Al</td> </tr> <tr> <td>AMS 5829</td> <td>W No. 2.4632</td> </tr> <tr> <td>NIMONIC 90</td> <td>UNS N07090</td> </tr> <tr> <td>USWC 5929 (A)</td> <td>OMAT 312A</td> </tr> </table>			MSRR 9500/4	56Ni 19.5Cr 16.5Co 2.5Ti 1.5Al	AMS 5829	W No. 2.4632	NIMONIC 90	UNS N07090	USWC 5929 (A)	OMAT 312A																																								
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<p align="center">METALLURGICAL BACKGROUND INFORMATION</p>	<p>TURBALOY® 90 undergoes a series of proprietary abrading and cleaning processes to remove all surface contamination. These manufacturing processes ensure a consistent ultra-clean weld wire surface.</p> <p>TURBALOY® 90 is a Ni-Cr-Co precipitation hardening alloy used for welding similar base metal turbine components. AMS 5829 is the first AMS filler metal specification indicating control of residual elements to improve properties.</p>																																																		
<p align="center">MATERIALS TO BE WELDED AND APPLICATIONS</p>	<p>High pressure compressor blades and vanes. High pressure turbine blades and rotors. Service temperature up to 1700°F. MSRR 7137, 7087, 7106, 7129, 7067. BS 3075.</p>																																																		
<p align="center">WIRE CHEMISTRY WT%</p>	<table border="0"> <tr> <td>Carbon</td> <td>-</td> <td>0.13</td> <td>Iron</td> <td>-</td> <td>1.50</td> </tr> <tr> <td>Manganese</td> <td>-</td> <td>1.00</td> <td>Copper</td> <td>-</td> <td>0.20</td> </tr> <tr> <td>Silicon</td> <td>-</td> <td>1.00</td> <td>Zirconium</td> <td>-</td> <td>0.15</td> </tr> <tr> <td>Sulfur</td> <td>-</td> <td>0.015</td> <td>Boron</td> <td>-</td> <td>0.02</td> </tr> <tr> <td>Chromium</td> <td>18.00</td> <td>21.00</td> <td>Lead</td> <td>-</td> <td>0.002 (20ppm)</td> </tr> <tr> <td>Cobalt</td> <td>15.00</td> <td>18.00</td> <td>Silver</td> <td>-</td> <td>0.0005 (5ppm)</td> </tr> <tr> <td>Titanium</td> <td>2.00</td> <td>3.00</td> <td>Bismuth</td> <td>-</td> <td>0.0001 (1ppm)</td> </tr> <tr> <td>Aluminum</td> <td>1.00</td> <td>2.00</td> <td>Nickel</td> <td>-</td> <td>Balance</td> </tr> </table>			Carbon	-	0.13	Iron	-	1.50	Manganese	-	1.00	Copper	-	0.20	Silicon	-	1.00	Zirconium	-	0.15	Sulfur	-	0.015	Boron	-	0.02	Chromium	18.00	21.00	Lead	-	0.002 (20ppm)	Cobalt	15.00	18.00	Silver	-	0.0005 (5ppm)	Titanium	2.00	3.00	Bismuth	-	0.0001 (1ppm)	Aluminum	1.00	2.00	Nickel	-	Balance
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<p align="center">WELD PROPERTIES</p>	<p>Tensile strength: 170 -181 ksi hot finished Elongation: 28% - 30% Density: 8.37 gm/cc</p>																																																		
<p align="center">SIZES AND FORMS AVAILABLE</p>	<table border="0"> <tr> <td align="center" colspan="2">STRAIGHT LENGTHS</td> <td align="center" colspan="2">SPOOLED WIRE</td> </tr> <tr> <td>5 lb. (2.2kg) packs</td> <td></td> <td>Precision layer wound, with controlled cast and helix</td> <td></td> </tr> <tr> <td>36" (914mm) lengths</td> <td></td> <td>12" (300mm) diameter spools standard</td> <td></td> </tr> <tr> <td>Flag tagged for traceability.</td> <td></td> <td>8" (200mm), 4" (100mm) and proprietary spool sizes</td> <td></td> </tr> <tr> <td>(Double tagging and other lengths on request)</td> <td></td> <td>on request.</td> <td></td> </tr> <tr> <td>Wide range of diameters.</td> <td></td> <td>Wide range of diameters and spool weights.</td> <td></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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<p align="center">PACKAGING</p>	<p>Sealed polyethylene envelopes. (Desiccants optional)</p>																																																		
<p>DFARS Compliant</p>		<p align="right">www.usweldingcorp.com</p>																																																	