



# UNITED STATES WELDING CORPORATION

<p align="center"><b>USW ALLOY DESIGNATION AND DESCRIPTION</b></p>	<p align="center"><b>TURBALOY® 90</b>  <b>HQ-GRADE</b>  <b>GTAW SOLID BARE WELDING WIRE</b>  <b>NICKEL BASE</b></p>	<p align="center"><b>ISSUED</b>  <b>JANUARY 2007</b></p>	<p align="center"><b>DATA SHEET</b>  <b>5829</b>  <small>(9)</small></p>																																																
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<p align="center"><b>METALLURGICAL BACKGROUND INFORMATION</b></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"><b>MATERIALS TO BE WELDED AND APPLICATIONS</b></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"><b>WIRE CHEMISTRY WT%</b></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"><b>WELD PROPERTIES</b></p>	<p>Tensile strength: 170 -181 ksi hot finished          Elongation: 28% - 30%          Density: 8.37 gm/cc</p>																																																		
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<p align="center"><b>PACKAGING</b></p>	<p>Sealed polyethylene envelopes. (Desiccants optional)</p>																																																		
<p><b>DISTRIBUTED BY:</b></p>																																																			