



# UNITED STATES WELDING CORPORATION

<p align="center"><b>USW ALLOY DESIGNATION AND DESCRIPTION</b></p>	<p align="center"><b>TURBALOY® 918 MOD. MC-GRADE GTAW SOLID BARE WELDING WIRE COBALT BASE</b></p>	<p align="center">ISO 9001 AS 9100</p>	<p align="center"><b>DATA SHEET 1631</b></p>																																																						
<p align="center"><b>CROSS-REFERENCE CONFORMANCE SPECIFICATIONS</b></p>	<p>USW 1631 MAR-M-918 MOD. 52Co 29Cr 20Ni 7 Ta .04 Ce</p>																																																								
<p align="center"><b>METALLURGICAL BACKGROUND INFORMATION</b></p>	<p>TURBALOY® 918 MOD. is produced by vacuum induction melting and re-melting techniques. The final wire is manufactured by special lubricant-free, roller-die forming followed by surface abrasion and cleaning processes. 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® 918 MOD. is a Co-Cr-Ni-Ta-C alloy with high temperature wear and oxidation resistance. Similar composition to AMS 5814 but modified with higher Cr and Cerium addition.</p>																																																								
<p align="center"><b>MATERIALS TO BE WELDED AND APPLICATIONS</b></p>	<p>Nozzle guide vane refurbishment. Misc. land based turbines.  FSX 414  Casting repair.</p>																																																								
<p align="center"><b>WIRE CHEMISTRY WT%</b></p>	<table border="0"> <tr> <td>Carbon</td> <td>0.03</td> <td>0.08</td> <td>Zirconium</td> <td>-</td> <td>0.01</td> </tr> <tr> <td>Silicon</td> <td>-</td> <td>0.15</td> <td>Copper</td> <td>-</td> <td>0.10</td> </tr> <tr> <td>Manganese</td> <td>-</td> <td>0.15</td> <td>Boron</td> <td>-</td> <td>0.005</td> </tr> <tr> <td>Sulfur</td> <td>-</td> <td>0.008</td> <td>Tantalum</td> <td>6.50</td> <td>7.40</td> </tr> <tr> <td>Phosphorus</td> <td>-</td> <td>0.010</td> <td>Oxygen</td> <td>-</td> <td>0.005 (50 ppm)</td> </tr> <tr> <td>Chromium</td> <td>28.0</td> <td>30.0</td> <td>Nitrogen</td> <td>-</td> <td>0.006 (60 ppm)</td> </tr> <tr> <td>Nickel</td> <td>19.0</td> <td>21.0</td> <td>Hydrogen</td> <td>-</td> <td>0.0010 (10 ppm)</td> </tr> <tr> <td>Cerium</td> <td>0.03</td> <td>0.10</td> <td>Cobalt</td> <td>-</td> <td>Balance</td> </tr> <tr> <td>Iron</td> <td>-</td> <td>0.30</td> <td></td> <td></td> <td></td> </tr> </table>			Carbon	0.03	0.08	Zirconium	-	0.01	Silicon	-	0.15	Copper	-	0.10	Manganese	-	0.15	Boron	-	0.005	Sulfur	-	0.008	Tantalum	6.50	7.40	Phosphorus	-	0.010	Oxygen	-	0.005 (50 ppm)	Chromium	28.0	30.0	Nitrogen	-	0.006 (60 ppm)	Nickel	19.0	21.0	Hydrogen	-	0.0010 (10 ppm)	Cerium	0.03	0.10	Cobalt	-	Balance	Iron	-	0.30			
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<p align="center"><b>PACKAGING</b></p>	<p>Sealed, air-evacuated, argon purged Vapor Barrier envelopes with desiccants ensure full protection from atmospheric contamination and prolonged shelf-life.</p>																																																								

DFARS Compliant

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