



# UNITED STATES WELDING CORPORATION

<p align="center"><b>USW ALLOY DESIGNATION AND DESCRIPTION</b></p>	<p align="center"><b>TURBALOY® 17-4 VM</b> MC-GRADE <b>GTAW SOLID BARE WELDING WIRE</b> IRON BASE</p>	<p align="center"><b>ISSUED</b> JANUARY 2007</p>	<p align="center"><b>DATA SHEET</b> <b>5803</b> (21)</p>																																																						
<p align="center"><b>CROSS-REFERENCE CONFORMANCE SPECIFICATIONS</b></p>	<table border="0"> <tr> <td>AMS 5803</td> <td>16.4Cr 4.8Ni 0.22Cb 3.6Cu VM</td> </tr> <tr> <td>UNS S17480</td> <td>Available in HQ-GRADE</td> </tr> <tr> <td>17 - 4PH</td> <td>(See Data Sheet 5825 also.)</td> </tr> <tr> <td>USWC 5803 (V)</td> <td>(High purity form of AWS A5.9 ER 630)</td> </tr> </table>			AMS 5803	16.4Cr 4.8Ni 0.22Cb 3.6Cu VM	UNS S17480	Available in HQ-GRADE	17 - 4PH	(See Data Sheet 5825 also.)	USWC 5803 (V)	(High purity form of AWS A5.9 ER 630)																																														
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<p align="center"><b>METALLURGICAL BACKGROUND INFORMATION</b></p>	<p>TURBALOY® 17-4 VM is produced by vacuum induction melting and remelting techniques. The final wire is manufactured 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® 17-4 VM is a high purity version of AMS 5825 martensitic, precipitation hardening stainless alloy and is used for more critical welding applications where consistently sound joints and reproducible properties are specified: for example: thick section fabrication and/or highly restrained joints. Alternatively, alloy 15-5PH (AMS 5826) can be considered.</p>																																																								
<p align="center"><b>MATERIALS TO BE WELDED AND APPLICATIONS</b></p>	<p>AMS 5643, 5622, 5398, 5342, 5344, 5355, 5604. CB - 7Cu ANC 22, FV520, Custom 450, AISI 630, ASTM A564, A693, A705. 17 - 4PH and 15-5PH base alloys. Aircraft seating frames, defense equipment, black boxes, engine parts. Often used as-welded. Ultra clean weldment conditions are beneficial.</p>																																																								
<p align="center"><b>WIRE CHEMISTRY WT%</b></p>	<table border="0"> <tr> <td>Carbon</td> <td>-</td> <td>0.05</td> <td>Molybdenum</td> <td>-</td> <td>0.75</td> </tr> <tr> <td>Manganese</td> <td>0.25</td> <td>0.75</td> <td>Aluminum</td> <td>-</td> <td>0.05</td> </tr> <tr> <td>Silicon</td> <td>-</td> <td>0.50</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>0.001 (10ppm)</td> </tr> <tr> <td>Phosphorus</td> <td>-</td> <td>0.015</td> <td>Boron</td> <td>-</td> <td>0.001 (10ppm)</td> </tr> <tr> <td>Chromium</td> <td>16.00</td> <td>16.75</td> <td>Nitrogen</td> <td>-</td> <td>0.0150 (150ppm)</td> </tr> <tr> <td>Nickel</td> <td>4.50</td> <td>5.00</td> <td>Oxygen</td> <td>-</td> <td>0.0050 (50ppm)</td> </tr> <tr> <td>Columbium</td> <td>0.15</td> <td>0.30</td> <td>Hydrogen</td> <td>-</td> <td>0.0005 (5ppm)</td> </tr> <tr> <td>Copper</td> <td>3.25</td> <td>4.00</td> <td>Iron</td> <td>-</td> <td>Balance</td> </tr> </table>			Carbon	-	0.05	Molybdenum	-	0.75	Manganese	0.25	0.75	Aluminum	-	0.05	Silicon	-	0.50	Tin	-	0.0050 (50ppm)	Sulfur	-	0.008	Lead	-	0.001 (10ppm)	Phosphorus	-	0.015	Boron	-	0.001 (10ppm)	Chromium	16.00	16.75	Nitrogen	-	0.0150 (150ppm)	Nickel	4.50	5.00	Oxygen	-	0.0050 (50ppm)	Columbium	0.15	0.30	Hydrogen	-	0.0005 (5ppm)	Copper	3.25	4.00	Iron	-	Balance
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<p align="center"><b>WELD PROPERTIES</b></p>	<p>Melting point: 2550°F <span style="float:right">Density: 7.8gm/cc</span> Hardness soft condition: 32 HRC Hardness hard condition: 44 HRC</p>																																																								
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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>																																																								

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