



UNITED STATES WELDING CORPORATION

<p align="center">USW ALLOY DESIGNATION AND DESCRIPTION</p>	<p align="center">TURBALOY® M190 HQ-GRADE GTAW SOLID BARE WELDING WIRE IRON BASE</p>	<p align="center">ISO 9001 AS 9100</p>	<p align="center">DATA SHEET 5823</p>																																										
<p align="center">CROSS-REFERENCE CONFORMANCE SPECIFICATIONS</p>	<table border="0"> <tr> <td>MSRR 9500/10</td> <td>UNS S41780</td> </tr> <tr> <td>Jethete M190</td> <td>OMAT 3/54A</td> </tr> <tr> <td>AMS 5822 (VM)</td> <td>USWC 5822 (V) MC-GRADE</td> </tr> <tr> <td>MSRR 6511 (Reference)</td> <td>AMS 5823</td> </tr> <tr> <td>11.8 Cr 2.8 Ni 1.6 Co 1.8 Mo 0.32 V</td> <td>Available in MC-GRADE</td> </tr> </table>			MSRR 9500/10	UNS S41780	Jethete M190	OMAT 3/54A	AMS 5822 (VM)	USWC 5822 (V) MC-GRADE	MSRR 6511 (Reference)	AMS 5823	11.8 Cr 2.8 Ni 1.6 Co 1.8 Mo 0.32 V	Available in MC-GRADE																																
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<p align="center">METALLURGICAL BACKGROUND INFORMATION</p>	<p>TURBALOY® M190 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, resulting in repeatable excellent weld quality.</p>																																												
<p align="center">MATERIALS TO BE WELDED AND APPLICATIONS</p>	<p>MSRR 6503, 6504, 6506, 6509, 6510, 6511, 6512, various forms of Jethete. MSRR 6513, 6514, 6515, various forms of FV607.</p> <p>TURBALOY® M190 is used for manufacture and repair of gas turbine components using GTAW and pure argon gas shielding.</p>																																												
<p align="center">WIRE CHEMISTRY WT%</p>	<table border="0"> <tr> <td>Carbon</td> <td>0.10</td> <td>0.15</td> <td>Nickel</td> <td>2.50</td> <td>3.00</td> </tr> <tr> <td>Manganese</td> <td>0.40</td> <td>1.30</td> <td>Molybdenum</td> <td>1.50</td> <td>2.00</td> </tr> <tr> <td>Silicon</td> <td>-</td> <td>0.40</td> <td>Copper</td> <td>-</td> <td>0.75</td> </tr> <tr> <td>Sulfur</td> <td>-</td> <td>0.030</td> <td>Cobalt</td> <td>1.30</td> <td>2.00</td> </tr> <tr> <td>Phosphorus</td> <td>-</td> <td>0.030</td> <td>Vanadium</td> <td>0.25</td> <td>0.40</td> </tr> <tr> <td>Chromium</td> <td>11.00</td> <td>12.50</td> <td>Nitrogen</td> <td>-</td> <td>0.045</td> </tr> <tr> <td></td> <td></td> <td></td> <td>Iron</td> <td></td> <td>Balance</td> </tr> </table>			Carbon	0.10	0.15	Nickel	2.50	3.00	Manganese	0.40	1.30	Molybdenum	1.50	2.00	Silicon	-	0.40	Copper	-	0.75	Sulfur	-	0.030	Cobalt	1.30	2.00	Phosphorus	-	0.030	Vanadium	0.25	0.40	Chromium	11.00	12.50	Nitrogen	-	0.045				Iron		Balance
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<p align="center">WELD PROPERTIES</p>	<p>Typical Proof strength: > 107ksi Typical Tensile strength: > 134ksi Typical Elongation: >8%</p>																																												
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<p align="center">PACKAGING</p>	<p>Sealed, air-evacuated, argon purged Vapor Barrier envelopes with desiccants ensure full protection from atmospheric contamination and prolonged shelf-life.</p>																																												
<p>DFARS Compliant</p>		<p align="right">www.usweldingcorp.com</p>																																											