



UNITED STATES WELDING CORPORATION

<p align="center">USW ALLOY DESIGNATION AND DESCRIPTION</p>	<p align="center">TURBALOY® 4140 MC-GRADE GTAW SOLID BARE WELDING WIRE IRON BASE</p>	<p align="center">ISSUED JANURAY 2007</p>	<p align="center">DATA SHEET 6452 (12)</p>																																										
<p align="center">CROSS-REFERENCE CONFORMANCE SPECIFICATIONS</p>	<table border="0"> <tr> <td>AMS 6452</td> <td>MIL-R-5632 Type II</td> </tr> <tr> <td>UNS G41400</td> <td>(AMS 6382 Reference)</td> </tr> <tr> <td>AISI 4140</td> <td>0.95Cr 0.2Mo (0.38-0.43C)</td> </tr> <tr> <td>USWC 6452 (V)</td> <td></td> </tr> </table>			AMS 6452	MIL-R-5632 Type II	UNS G41400	(AMS 6382 Reference)	AISI 4140	0.95Cr 0.2Mo (0.38-0.43C)	USWC 6452 (V)																																			
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<p align="center">METALLURGICAL BACKGROUND INFORMATION</p>	<p>TURBALOY® 4140 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® 4140 is a high strength Cr,Mo C steel filler metal used for fabricating critical joints of similar composition base metal.</p>																																												
<p align="center">MATERIALS TO BE WELDED AND APPLICATIONS</p>	<p>AMS 6395, 6349, 6529, 6382, 6381, 6390. UNS G41400 - AISI 4140. Tubular frames for engines. Weapons and defense equipment. Tooling. Use ultra clean weldment preparation. Refer to PH & PWHT chart.</p>																																												
<p align="center">WIRE CHEMISTRY WT%</p>	<table border="0"> <tr> <td>Carbon</td> <td>0.38</td> <td>0.43</td> <td>Nickel</td> <td>-</td> <td>0.25</td> </tr> <tr> <td>Manganese</td> <td>0.75</td> <td>1.00</td> <td>Molybdenum</td> <td>0.15</td> <td>0.25</td> </tr> <tr> <td>Silicon</td> <td>0.15</td> <td>0.35</td> <td>Copper</td> <td>-</td> <td>0.35</td> </tr> <tr> <td>Sulfur</td> <td>-</td> <td>0.008</td> <td>Oxygen</td> <td>-</td> <td>0.0025 (25ppm)</td> </tr> <tr> <td>Phosphorus</td> <td>-</td> <td>0.008</td> <td>Nitrogen</td> <td>-</td> <td>0.0050 (50ppm)</td> </tr> <tr> <td>Chromium</td> <td>0.80</td> <td>1.10</td> <td>Hydrogen</td> <td>-</td> <td>0.0010 (10ppm)</td> </tr> <tr> <td></td> <td></td> <td></td> <td>Iron</td> <td></td> <td>Balance</td> </tr> </table>			Carbon	0.38	0.43	Nickel	-	0.25	Manganese	0.75	1.00	Molybdenum	0.15	0.25	Silicon	0.15	0.35	Copper	-	0.35	Sulfur	-	0.008	Oxygen	-	0.0025 (25ppm)	Phosphorus	-	0.008	Nitrogen	-	0.0050 (50ppm)	Chromium	0.80	1.10	Hydrogen	-	0.0010 (10ppm)				Iron		Balance
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<p align="center">WELD PROPERTIES</p>	<p>Melting Point: 2740°F CVN: 58.3ft lbs at 0°F, 100% shear. (Minimum specification requirement: 28 CVN).</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, air-evacuated, argon purged Vapor Barrier envelopes with desiccants ensure full protection from atmospheric contamination and prolonged shelf-life.</p>																																												

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