



# UNITED STATES WELDING CORPORATION

<p align="center"><b>USW ALLOY DESIGNATION AND DESCRIPTION</b></p>	<p align="center"><b>TURBALOY® 4140</b> MC-GRADE <b>GTAW SOLID BARE WELDING WIRE</b> IRON BASE</p>	<p align="center">ISO 9001 AS 9100</p>	<p align="center"><b>DATA SHEET</b>  <b>6452</b></p>																																										
<p align="center"><b>CROSS-REFERENCE CONFORMANCE SPECIFICATIONS</b></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"><b>METALLURGICAL BACKGROUND INFORMATION</b></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"><b>MATERIALS TO BE WELDED AND APPLICATIONS</b></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 &amp; PWHT chart.</p>																																												
<p align="center"><b>WIRE CHEMISTRY WT%</b></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"><b>WELD PROPERTIES</b></p>	<p>Melting Point: 2740°F CVN: 58.3ft lbs at 0°F, 100% shear. (Minimum specification requirement: 28 CVN).</p>																																												
<p align="center"><b>SIZES AND FORMS AVAILABLE</b></p>	<p align="center">STRAIGHT LENGTHS</p> <p>5 lb. (2.2kg) packs 36" (914mm) lengths Flag tagged for traceability. (Double tagging and other lengths on request) Wide range of diameters.</p>		<p align="center">SPOOLED WIRE</p> <p>Precision layer wound, with controlled cast and helix 12" (300mm) diameter spools standard 8" (200mm), 4" (100mm) and proprietary spool sizes on request. Wide range of diameters and spool weights.</p>																																										
<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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