



# CEWELD ER 90S-B9 (P91) Tig

TYPE	Medium alloyed, high-strength creep resistant 9% Chromium alloy.																
APPLICATIONS	Designed for welding equivalent type 91~ 9% Cr Steels modified with small additions of Niobium, Vanadium and Nitrogen to offer improved long term creep properties. This alloy is specially intended for high integrity structural service at elevated temperature such as: Headers, main steam piping and turbine casings, gasification plants etc.																
PROPERTIES	Filler metal specifically intended for high integrity structural service at elevated temperature so the minor alloy additions responsible for its creep strength are kept above the minimum considered necessary to ensure satisfactory performance.																
CLASSIFICATION	<table border="0"> <tr> <td>AWS</td> <td>A 5.28: ER 90S-B91</td> </tr> <tr> <td>EN ISO</td> <td>21952-A: W CrMo91</td> </tr> <tr> <td>F-nr</td> <td>6</td> </tr> <tr> <td>FM</td> <td>4</td> </tr> <tr> <td>W.Nr.</td> <td>1.4903</td> </tr> </table>	AWS	A 5.28: ER 90S-B91	EN ISO	21952-A: W CrMo91	F-nr	6	FM	4	W.Nr.	1.4903						
AWS	A 5.28: ER 90S-B91																
EN ISO	21952-A: W CrMo91																
F-nr	6																
FM	4																
W.Nr.	1.4903																
SUITABLE FOR	<p><b>P91: 9%Cr-1% Mo ISO 15608: ~5,4 C ≤ 0,35 %, 7,0 % ≤ Cr &lt; 10,0 % und 0,7 &lt; Mo ≤ 1,2 %</b>            1.7386, 1.7688, 1.7389, 1.4903, 1.4955            X12CrMo 9 1, GX12CrMo 10 1, X11CrMo9-1, X7CrMo9-1, X10CrMoVNb9-1, GX12CrMoVNbN9-1            ASTM: Grade 91, T91, P91, F91, FP91, A182/A336 grade F91, A213 grade T91, A217 grade C12A, A234 grade WP91, A387 grade 91, A335 grade P91            STPA28, STBA28</p>																
APPROVALS	CE																
WELDING POSITIONS																	
TYPICAL CHEMICAL ANALYSIS OF THE FILLER METAL (%)	<table border="1"> <thead> <tr> <th>C</th> <th>Si</th> <th>Mn</th> <th>Cr</th> <th>Ni</th> <th>Mo</th> <th>V</th> <th>Other</th> </tr> </thead> <tbody> <tr> <td>0.1</td> <td>0.32</td> <td>0.52</td> <td>9.15</td> <td>0.65</td> <td>0.95</td> <td>0.22</td> <td>0.04</td> </tr> </tbody> </table>	C	Si	Mn	Cr	Ni	Mo	V	Other	0.1	0.32	0.52	9.15	0.65	0.95	0.22	0.04
C	Si	Mn	Cr	Ni	Mo	V	Other										
0.1	0.32	0.52	9.15	0.65	0.95	0.22	0.04										
ALL WELD MECHANICAL PROPERTIES	<table border="1"> <thead> <tr> <th rowspan="2">Heat Treatment</th> <th rowspan="2">R<sub>P0,2</sub> MPa</th> <th rowspan="2">R<sub>m</sub> MPa</th> <th rowspan="2">A<sub>5</sub> (%)</th> <th>Impact Energy (J) ISO-V</th> </tr> <tr> <th>RT</th> </tr> </thead> <tbody> <tr> <td>620°C /3h</td> <td>520</td> <td>750</td> <td>19</td> <td>200</td> </tr> </tbody> </table>	Heat Treatment	R <sub>P0,2</sub> MPa	R <sub>m</sub> MPa	A <sub>5</sub> (%)	Impact Energy (J) ISO-V	RT	620°C /3h	520	750	19	200					
Heat Treatment	R <sub>P0,2</sub> MPa					R <sub>m</sub> MPa	A <sub>5</sub> (%)	Impact Energy (J) ISO-V									
		RT															
620°C /3h	520	750	19	200													
REDRYING TEMPERATURE	Not required																
GAS ACCORDING EN 14175	I1																