



**MANUFACTURERS OF A DIVERSE RANGE OF
ADVANCED WELDING CONSUMABLES**

**SECTION
4**

WI-0304 DS38 RD-90 Rev. 4 Date 01.02.2012

RD-90	BASIC LOW HYDROGEN ELECTRODE FOR WELDING STEELS WITH A MINIMUM UTS OF 600 N/mm ²				DATA SHEET NO. 38																																																	
SPECIFICATION	AWS A5.5																																																					
CLASSIFICATION	E9016-G																																																					
PRODUCT DESCRIPTION	<p>The design emphasis of the chemically basic flux is engineered to ensure the optimum weld metal properties demanded by the specification are fully met.</p> <p>The basic flux containing the appropriate alloying elements but minimal iron powder, is extruded onto a high purity ferritic core wire and bound with a blend of silicates that ensure both coating strength and a coating resistant to subsequent moisture absorption.</p>																																																					
WELDING FEATURES OF THE ELECTRODE	<p>The chemical nature of the flux together with its controlled coating factor allows the electrode to be used at relatively low amps. This factor together with the fairly fluid but quick freezing slag facilitate vertical up welding including controlled penetration root runs.</p> <p>Overall the arc is very stable, slag detachability is good, fillet welds are slightly convex and metal recovery is some 98% with respect to weight of the core wire.</p>																																																					
APPLICATIONS AND MATERIALS TO BE WELDED	<p>ASTM A508 class 1, 1a, 2, 3. ASTM A533 Types A-D Class 1 and 2. BS 1501 Grades 271 and 281, equivalent to Oncol W30 Grades A & B (obsolete designations). AISI/SAE 4130 and similar high strength low alloy steels. Strength and toughness levels maintained after extended post-weld stress relief heat treatments.</p>																																																					
WELD METAL ANALYSIS COMPOSITION % BY Wt.	<table border="1"> <thead> <tr> <th></th> <th>C</th> <th>Mn</th> <th>Si</th> <th>S</th> <th>P</th> <th>Cr</th> <th>Ni</th> <th>Mo</th> <th>Cu</th> <th>V</th> <th>Fe</th> </tr> </thead> <tbody> <tr> <td>MIN</td> <td>-</td> <td>1.0</td> <td>0.3</td> <td>-</td> <td>-</td> <td>-</td> <td>0.5</td> <td>-</td> <td>-</td> <td>-</td> <td></td> </tr> <tr> <td>MAX</td> <td>0.12</td> <td>1.8</td> <td>0.55</td> <td>0.03</td> <td>0.03</td> <td>0.3</td> <td>1.0</td> <td>0.5</td> <td>0.5</td> <td>0.5</td> <td></td> </tr> <tr> <td>TYPICAL</td> <td>0.1</td> <td>1.5</td> <td>0.4</td> <td>0.01</td> <td>0.01</td> <td>0.2</td> <td>0.7</td> <td>0.25</td> <td>0.1</td> <td>0.1</td> <td>Bal.</td> </tr> </tbody> </table> <p><i>* Undiluted weld metal shall have the minimum of at least one of the element as specified on AWS A5.5-2006</i></p>							C	Mn	Si	S	P	Cr	Ni	Mo	Cu	V	Fe	MIN	-	1.0	0.3	-	-	-	0.5	-	-	-		MAX	0.12	1.8	0.55	0.03	0.03	0.3	1.0	0.5	0.5	0.5		TYPICAL	0.1	1.5	0.4	0.01	0.01	0.2	0.7	0.25	0.1	0.1	Bal.
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WELD METAL PROPERTIES (ALL WELD METAL)	PROPERTY		UNITS	MINIMUM	TYPICAL	OTHERS																																																
	Tensile strength		N/mm ²	620	760																																																	
	0.2% Proof stress		N/mm ²	530	715																																																	
	Elongation on 4d		%	17	24																																																	
	Reduction of Area (RA)		%	-	70																																																	
	Impact energy -50 °C		J	-	100																																																	
WELDING AMPERAGE AC or DC+	Ø (mm)	2.6	3.2	4.0	5.0																																																	
	MIN	50	75	130	180																																																	
	MAX	85	125	170	220																																																	
OTHER DATA	Electrodes that have become damp should be re-dried at 150°C for 1 hour.																																																					
RELATED PRODUCTS	Please contact our Technical Department for detail.																																																					