



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

**SECTION
9**

WI-0304 DS113 HV-450, Rev. 2, Date 01.01.2011

HV-450	RUTILE - LOW ALLOY - HIGH EFFICIENCY HARDFACING ELECTRODE WITH EXCELLENT RESISTANCE TO IMPACT LOADING COMBINED WITH MEDIUM ABRASION RESISTANCE				DATA SHEET NO. 113					
					SPECIFICATION	AWS A5.13	DIN 8555	JIS Z 3251		
CLASSIFICATION	EFe2	E1-UM-45-GP	DF2A – 450-R							
PRODUCT DESCRIPTION	<p>The design emphasis of the alloyed weld metal ensures the desired hardness level to the specification is readily achieved as is the deposits maximum resistance to impact loading combined with medium resistance to abrasion.</p> <p>The flux contains the appropriate alloying elements plus iron powder addition and is extruded onto a ferritic wire with a balance of silicates that ensures both coating strength and resistance to moisture absorption.</p>									
WELDING FEATURES OF THE ELECTRODE	<p>The electrode is suitable for both AC and DC and is used to best advantage in the flat and HV positions. The arc is smooth and stable weld beads are evenly rippled, of bright appearance and the slag readily detachable. The weld deposit is highly crack resistant under normal circumstances, but on high carbon cast steels or restrained sections of mild steel, a pre-heat of 150°C should be used.</p>									
APPLICATIONS AND MATERIALS TO BE WELDED	<p>The tough crack resistant weld deposit may be used as a buffer layer both on mild and high carbon steels prior to depositing harder alloys. Used in its own right, it provides an excellent combination of abrasion and impact resistance making it ideal for hardfacing gear wheels, rails, roller guides, slideways, track wheels, sprockets and similar.</p> <p>Machining is not possible but may be profile ground.</p>									
WELD METAL ANALYSIS COMPOSITION % BY Wt.		C	Mn	Si	S	P	Cr	V	Mo	Fe
	MIN	0.1	0.5	-	-	-	2.0	-	0.5	
	MAX	0.3	1.2	0.8	0.03	0.03	3.0	0.3	0.8	
	TYPICAL	0.25	0.75	0.5	0.02	0.02	2.1	0.2	0.6	Bal.
WELD METAL HARDNESS (ALL WELD METAL)	AS WELDED 150°C PRE-HEAT		HRC			HV				
	1 st Layer		35			350				
	2 nd Layer		43			420				
	3 rd Layer		47			465				
Heat input, cooling rate, and dilution will affect hardness in the first two layers but no significant affect in next layers										
WELDING AMPERAGE AC or DC+	Ø (mm)	2.6	3.2	4.0	5.0					
	MIN	65	90	140	190					
	MAX	90	130	180	240					
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.									