

# Wear Resistance Ltd.

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## TECHNICAL DATA SHEET No. 7

<b>Product:</b>	Grade WRA Electrodes (Blue Tip)
<b>Description:</b>	A Fused Tungsten Carbide alloy tubular electrode consisting of pre-formed carbides in a Carbon/Tungsten/Chromium/Iron matrix. Flux Coat - Rutile base.
<b>Nominal Composition:</b>	C. 5%, W. 38%, Cr. 1%, Balance Fe. + alloying elements.
<b>Hardness:</b>	82 HRA average.
<b>Availability:</b>	6.3mm dia. x 355mm long (nominal)
<b>Application Instructions:</b>	
<b>A) Work Preparation:</b>	It is essential that all surfaces to be welded are clean and free from rust, scale etc. This may be achieved by wire brushing, or in the case of heavy rust or scale, by grinding.
<b>B) Pre-Heating:</b>	The workpiece should be pre-heated to 100° C to reduce cracking of the deposit.
<b>C) Deposition:</b>	The welding generator must be of DC type for these electrodes, and the electrode should be connected to the negative pole. Wherever possible the electrode should be deposited in the down hand position, i.e. with the workpiece horizontal. The electrode should be deposited with minimum amps consistent with good weld flow and a steady arc - as a guide this should be in the range 180-220 amps for the 6.3mm dia. electrode. Where possible the required thickness of deposit should be achieved in one pass, up to a thickness of 6mm, to reduce cracking. Each run or bead should be deposited with a weave to produce a run 10-12mm wide, and should overlap the previous run by 5-6mm. The distance from the electrode tip to the weld pool should be 10mm max and the electrode should be positioned at an angle of 45°-60° to the workpiece.
<b>D) Cooling:</b>	Slow cool large workpieces in still air or cover with thermal blankets, smaller workpieces should be immersed in suitable insulating material until cold.
<b>E) Storage &amp; Drying of Electrodes:</b>	Electrodes should be stored in a dry, well ventilated store under heated conditions where the humidity is below the general level (0 - 60% humidity). Redrying should be carried out at 250° C for 12 hours if the electrodes have been stored in adverse conditions, or the deposit shows signs of porosity.
<b>Typical Applications:</b>	High abrasion, erosion and low impact applications, site repairs & seal welding of components originally hardfaced with Grade WRN Gas Rods, or Grade HD1 deposit.