

TECHNICAL DATA SHEET —
PERFECT BRIDGE

PERFECT CRAFT (PVT.) LTD.

Mild Steel Rutile Arc Welding Electrode (AWS A5.1 E6013 / JIS Z 3211)

Plot No. S-51, SITE Area, Mauripur Road, Karachi
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ISO 9001:2015 Quality Management System

1. PRODUCT IDENTIFICATION & CLASSIFICATION

Product Brand	Perfect Bridge
Manufacturer	Perfect Craft (Pvt.) Ltd. (SITE Area, Karachi, Pakistan)
Standard Classification	AWS A5.1 E6013 JIS Z 3211 D4313 GB/T 5117 E4313 (J421)
Flux Coating Type	High Titania / Rutile type with potassium stabilizers
Welding Positions	All positions: Flat (1G), Horizontal (2G), Vertical-Up (3G), Overhead (4G)
Current Type & Polarity	AC (minimum open circuit voltage 50V) / DCEN (DC-) / DCEP (DC+)
Primary Target Applications	General civil construction, structural steel framing, gate/grill fabrication, sheet metal, vehicle bodies, maintenance and repair.
Key Operational Features	Rapid arc ignition and restriking, low spatter, smooth finely rippled bead, self-detaching friable slag.

2. RECOMMENDED WELDING CURRENT & OPERATING PARAMETERS

Diameter (Metric)	Local SWG Gauge	Length	Flat / Horizontal Current	Vertical-Up / Overhead	Packaging Box
2.5 mm (3/32")	12 Number (SWG)	300 mm	50 – 90 A	50 – 80 A	2.5 kg inner box
3.2 mm (1/8")	10 Number (SWG)	350 mm	90 – 130 A	80 – 120 A	5.0 kg inner box
4.0 mm (5/32")	8 Number (SWG)	400 mm	140 – 190 A	120 – 170 A	5.0 kg inner box
5.0 mm (3/16")	6 Number (SWG)	400 mm	180 – 240 A	160 – 210 A	5.0 kg inner box

3. ALL-WELD METAL PROPERTIES (NOMINAL / TYPICAL VALUES)

Typical Chemical Composition (%)		Typical Mechanical Properties	
Carbon (C)	0.06 – 0.10%	Tensile Strength (Rm)	450 – 540 MPa (65,000 – 78,000 psi)
Manganese (Mn)	0.35 – 0.55%	Yield Strength (ReL)	≥ 380 MPa (≥ 55,000 psi)
Silicon (Si)	0.15 – 0.35%	Elongation (A5)	≥ 22%
Sulfur (S)	≤ 0.025%	Impact Energy (Charpy-V)	≥ 47 J @ 0°C
Phosphorus (P)	≤ 0.025%	Radiographic Quality	Grade II sound weld metal

4. STANDARD COMMERCIAL PACKAGING SPECIFICATIONS

2.5 mm (12 Number)	8 inner boxes × 2.5 kg = 20 kg master carton (approx. 140–150 rods per box)
3.2 mm (10 Number)	4 inner boxes × 5.0 kg = 20 kg master carton (approx. 140–150 rods per box)
4.0 mm (8 Number)	4 inner boxes × 5.0 kg = 20 kg master carton (approx. 90–100 rods per box)
5.0 mm (6 Number)	4 inner boxes × 5.0 kg = 20 kg master carton (approx. 60–65 rods per box)
Packaging Barrier	Moisture-resistant inner poly-shrink wrap enclosed in durable corrugated carton

5. STORAGE, HANDLING & REDRYING INSTRUCTIONS

Store electrodes in a dry, ventilated indoor room off concrete floors (min 100mm on wooden pallets) at room temperature (15°C–30°C) and relative humidity ≤ 60%. Do not break the moisture-proof inner shrink wrap until ready for welding. **Re-drying:** Rutile electrodes require a small amount of moisture for optimal arc characteristics. Do not bake at high temperatures. If electrodes have been exposed to high

atmospheric humidity (e.g. coastal Karachi monsoon), re-dry at 100°C–120°C for 30–60 minutes.

Important QA Note: Data published in this Technical Data Sheet represents typical laboratory production results and complies with AWS A5.1 / JIS Z 3211 guidelines under ISO 9001:2015 quality surveillance. For critical project specifications, request an official batch Certificate of Conformity (COC) from the Karachi sales desk. Revision: TDS-2026-REV1 · Effective Date: October 2026.