

TECHNICAL DATA SHEET — PERFECT KING

Heavy Industrial & Structural Arc Welding Electrode (AWS A5.1
E6013 / JIS Z 3211)

PERFECT CRAFT (PVT.) LTD.

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ISO 9001:2015 Quality Management System

1. PRODUCT IDENTIFICATION & CLASSIFICATION

Product Brand	Perfect King
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	Heavy rutile formulation with enhanced iron deoxidizers
Welding Positions	All positions: Flat (1G), Horizontal (2G), Vertical-Up (3G), Overhead (4G)
Current Type & Polarity	AC (minimum open circuit voltage 55V) / DCEP (DC+) / DCEN (DC-)
Primary Target Applications	Heavy structural steel fabrication, industrial machinery repair, pre-engineered building (PEB) frames, trailer beds, storage tanks, and thick plate welding.
Key Operational Features	Penetrating arc force, dense slag coverage, high crack resistance under dynamic vibration, deep root fusion.

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	55 – 95 A	50 – 85 A	2.5 kg inner box
3.2 mm (1/8")	10 Number (SWG)	350 mm	95 – 135 A	85 – 125 A	5.0 kg inner box
4.0 mm (5/32")	8 Number (SWG)	400 mm	145 – 195 A	125 – 175 A	5.0 kg inner box
5.0 mm (3/16")	6 Number (SWG)	400 mm	185 – 245 A	165 – 215 A	5.0 kg inner box

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

Typical Chemical Composition (%)

Carbon (C)	0.06 – 0.09%
Manganese (Mn)	0.40 – 0.60%
Silicon (Si)	0.18 – 0.35%
Sulfur (S)	≤ 0.020%
Phosphorus (P)	≤ 0.020%

Typical Mechanical Properties

Tensile Strength (Rm)	470 – 560 MPa (68,000 – 81,000 psi)
Yield Strength (ReL)	≥ 390 MPa (≥ 56,500 psi)
Elongation (A5)	≥ 22%
Impact Energy (Charpy-V)	≥ 47 J @ 0°C
Radiographic Quality	Grade II high-integrity weld metal

4. STANDARD COMMERCIAL PACKAGING SPECIFICATIONS

2.5 mm (12 Number)	8 inner boxes × 2.5 kg = 20 kg master carton
3.2 mm (10 Number)	4 inner boxes × 5.0 kg = 20 kg master carton
4.0 mm (8 Number)	4 inner boxes × 5.0 kg = 20 kg master carton
5.0 mm (6 Number)	4 inner boxes × 5.0 kg = 20 kg master carton
Packaging Barrier	Double moisture barrier shrink-wrap in reinforced industrial cartons

5. STORAGE, HANDLING & REDRYING INSTRUCTIONS

Store in clean, dry indoor warehouse conditions (RH ≤ 60%, temperature 15°C–30°C). Keep in original packaging until point of application.
Re-drying: If moisture absorption occurs due to prolonged exposure to high ambient humidity, re-dry at 110°C–130°C for 45–60 minutes.
Avoid baking above 150°C as this degrades the flux binder and impairs arc shielding.

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.