DIGGER WEAR-RESISTANT SERIES - Official Technical Overview & Datasheet

EXECUTIVE SUMMARY

The Wear-resistant Digger (WRD) series represents a breakthrough in material handling for high-abrasion environments. Targeting the mining, quarrying, and heavy construction sectors, this machine integrates AR600 steel cladding and a reinforced undercarriage to withstand continuous impact with granite, iron ore, and recycled concrete. Unlike conventional excavators, the WRD delivers up to 40% longer component life in severe wear conditions, significantly reducing total cost of ownership for fleet operators.

Built upon field data from over 2000 worksites across Australia, Chile, and South Africa, the WRD series combines brute force with precision. Its primary value proposition is simple: more uptime, fewer liner changes, and class-leading breakout force while maintaining fuel efficiency. From tailings pond reclamation to primary rock excavation, the Wear-resistant Digger redefines durability standards in the 35-to-80-tonne class.

STRUCTURAL INTEGRITY & POWERTRAIN

The chassis employs a high-tensile, low-alloy steel (BS700MC) with a bolt-on wear-pack system of AR500 and AR600 liners at all high-impact zones: belly pan, track frames, boom foot, and bucket linkage points. The upper structure integrates a box-section carbody with cast steel pivot joints, eliminating weld-induced stress risers. All pivot pins are induction-hardened to 55-60 HRC with chromium carbide coating.

Powertrain is centered on a turbocharged Cummins X15 (or optional Isuzu 6WG1) diesel engine, compliant with EPA Tier 4 Final and EU Stage V. The engine delivers 447 kW (600 hp) at 1800 rpm, coupled with a closed-loop electro-hydraulic system featuring a variable-displacement axial piston pump. Hydraulic system efficiency reaches 88% at peak load, with independent

metering valves reducing flow losses by 15% versus traditional load-sensing architectures. Cooling package includes a reversed-fan hydraulic drive with auto-reverse every 15 minutes for debris shedding.

KEY FEATURES & OPERATOR COMFORT

- Smart Abrasion Control (SAC) system: Integrated accelerometers on boom and dipper automatically derate swing torque when extreme bucket-rock impact is detected, preventing structural fatigue. Four selectable modes: Rock, Ripping, Fine Grading, and Attachments.
- Dual-circuit load-sensing hydraulics: Provides simultaneous boom raise and bucket curl without flow starvation. Pump flow capacity is 2x450 L/min at 35 MPa, with proportional pressure compensation for ±2% precision control.
- ROPS/FOPS certified cabin: Meets ISO 3471 and ISO 3449 Level II. Cabin mounts on viscous dampers with a 12 mm polycarbonate front window and dual-layer laminated side windows. Interior noise at operator ear: 71 dB(A).
- 8-inch touchscreen telematics panel: Real-time wear status of liners (calculated via cycle counting and accelerometer signatures), predictive filter life, and fuel consumption mapping. Compatible with remote fleet management (4G/LTE, GPS, and LoRa mesh).
- Modular wear kit system: All ground-engaging tools (GET) and liner plates exchangeable via tapered pin locks, no hot work required. A full liner change can be completed by two technicians in 4 hours.

COMPLIANCE & SAFETY STANDARDS

The Wear-resistant Digger series holds full CE marking (Machinery Directive 2006/42/EC), EPA Tier 4 Final Certificate of Conformity, and ISO 9001:2015 for manufacturing quality. Safety compliance includes ISO 20474 (earth-moving machinery), ISO 13031 (quick couplers), and AS/NZS 4742 (noise emissions). The machine also meets MSHA Part 14 approval for flame-resistant hydraulic fluids when operating underground. Emergency features include dual secondary e-stops on both left and right consoles, a fire suppression system ready port (Dry Chemical or FM-200), and a backup camera with dynamic grid lines and audible object detection within 2.5 meters.

TECHNICAL SPECIFICATIONS

Unless otherwise noted, specifications apply to the standard WRD-600 model (60-tonne operating class). Performance data measured per ISO 6016 and SAE J1065.

<table border='1' style='border-collapse: collapse; width: 100%;'><tr><th style='padding: 8px; text-align: left; background-color: #f2f2f2;'>Parameter</th><th style='padding: 8px; text-align: left;

background-color: #f2f2f2;'>Specification</th></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Engine Model</td><td style='padding: 8px; border: 1px solid #ddd;'>Cummins X15 (447 kW / 600 hp) or Isuzu 6WG1 (430 kW)</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Operating Weight</td><td style='padding: 8px; border: 1px solid #ddd;'>59,800 kg (131,836 lb)</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Bucket Capacity (heaped)</td><td style='padding: 8px; border: 1px solid #ddd;'>3.8 - 5.2 m³ (rock / heavy-duty)</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Max Digging Reach</td><td style='padding: 8px; border: 1px solid #ddd;'>12.1 m (39 ft 8 in)</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Max Digging Depth</td><td style='padding: 8px; border: 1px solid #ddd;'>7.6 m (24 ft 11 in)</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Breakout Force (arm crowd)</td><td style='padding: 8px; border: 1px solid #ddd;'>298 kN (67,000 lbf)</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Swing Speed</td><td style='padding: 8px; border: 1px solid #ddd;'>8.9 rpm</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Travel Speed (high range)</td><td style='padding: 8px; border: 1px solid #ddd;'>4.2 km/h (2.6 mph)</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Ground Pressure (standard track)</td><td style='padding: 8px; border: 1px solid #ddd;'>89.4 kPa (13.0 psi)</td></tr><tr><td style='padding: 8px; border: 1px solid

#ddd;'>Hydraulic Flow (main pumps)</td><td style='padding: 8px; border: 1px solid #ddd;'>2 x 450 L/min at 35 MPa</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Fuel Tank Capacity</td><td style='padding: 8px; border: 1px solid #ddd;'>950 L (251 gal US)</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Wear Liner Thickness</td><td style='padding: 8px; border: 1px solid #ddd;'>AR600: 16 mm belly, 12 mm boom bottom</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>ROPS/FOPS Certification</td><td style='padding: 8px; border: 1px solid #ddd;'>ISO 3471 & ISO 3449 Level II</td></tr></table>