0.5m³ Excavator - Official Technical Overview & Datasheet

EXECUTIVE SUMMARY

Engineered for maximum productivity in confined spaces, the 0.5m³ (0.65 cu yd) hydraulic excavator represents a fusion of compact agility and robust digging performance. Weighing in the 5.5 – 6.0 metric ton class, this machine is purpose-built for urban construction, residential foundations, utility trenching, and agricultural waterway maintenance. Its balanced combination of a 0.5m³ general-purpose bucket and a high-torque powertrain ensures superior cycle times while maintaining exceptional fuel efficiency—delivering a clear return on investment for contractors and fleet managers.

Targeting the Tier 4 Final / Stage V emission-regulated markets, this excavator also offers a versatile configuration for emerging economies with lower emission requirements. The primary value proposition centers on three pillars: heavy-duty structural longevity, intuitive multi-function hydraulic control, and low daily operating costs. Whether backfilling trenches, loading dump trucks, or grading slopes, the 0.5m³ excavator outperforms larger models in tight quarters while keeping transport logistics simple.

STRUCTURAL INTEGRITY & POWERTRAIN

The chassis is fabricated from high-tensile DOMEX 700 MC steel (yield strength >700 MPa) for the main track frame and turntable bearing housing. The boom and arm utilize a box-section design with internal baffles and cast steel nodes at high-stress pivot points, exceeding ISO 6015 fatigue life standards by 35%. A heavy-duty X-frame undercarriage supports 450 mm triple-seal track shoes with hardened pins and bushings, reducing track tension maintenance intervals to 500 hours.

Power comes from a liquid-cooled, turbocharged diesel engine meeting EPA Tier 4 Final / EU Stage V (alternative mechanical injection models for low-sulfur fuel regions). The standard configuration uses a 45.4 kW (60.8 hp) Yanmar 4TNV98C or equivalent Isuzu 4LE2X, featuring common rail direct injection and

a maintenance-free diesel oxidation catalyst (DOC) only — no EGR or DPF required on select variants. The closed-center, load-sensing hydraulic system delivers a main pump flow of 140 L/min at 24.5 MPa (3,553 psi), driving independent travel, swing, and attachment circuits with a dedicated hydraulic oil cooler and 10-micron return filter.

KEY FEATURES & OPERATOR COMFORT

- Advanced Load-Sensing Hydraulics: Variable displacement piston pump automatically adjusts flow and pressure to match digging resistance, reducing fuel consumption by 12-18% during partial-load operations. Precise boom/arm/bucket feathering enables delicate work near underground utilities.
- ROPS/FOPS Level II Cab: Certified to ISO 12117-2, the pressurized cab includes a laminated front windshield (top hinged for overhead clearance), a steel top guard against falling objects, and a sliding side window. Integrated rollover protection structure (ROPS) withstands 3.2x machine weight.
- High-Resolution 7" LCD Smart Control: Real-time display of fuel rate, hydraulic temperature, maintenance codes, and two selectable work modes (Power / Economy). Bluetooth connectivity for smartphone diagnostics and fleet management system (FMS) telematics.
- Enhanced Service Accessibility: Hinged side panels with gas struts provide ground-level access to engine oil dipstick, fuel/water separator, primary air filter, and battery disconnect switch. Centralized grease points for swing bearing and

bucket linkages reduce daily greasing time by 40%.

- Compact Tail Swing (CTS): Radius of 1,350 mm (rear swing), enabling the machine to rotate fully within a 2.8 m wide corridor—safe for sidewalk and indoor demolition operations.

COMPLIANCE & SAFETY STANDARDS

Manufactured under ISO 9001:2015 quality management and ISO 14001 environmental systems. The 0.5m³ excavator holds CE marking (Machinery Directive 2006/42/EC) and EPA Certificate of Conformity for Tier 4 Final models. Safety features include: two emergency stop switches (cab + external), travel alarm, reverse camera with dynamic grid lines, and an automatic swing brake (holding torque 1,200 Nm). ANSI/SAE J1176 compliant for fire-resistant hydraulic fluid compatibility. The standard falling object protective structure (FOPS) meets ISO 3449 Level II requirements. Optional FOPS Level I for forestry applications.

TECHNICAL SPECIFICATIONS

All performance data measured at sea level, 25°C ambient temperature, using standard 0.5m³ bucket and 45.4 kW engine rating. Values may vary with track pad type and counterweight configuration.

<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;'>Yanmar 4TNV98C / Isuzu 4LE2X (Tier 4 Final / Stage V)</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Net Power</td><td style='padding: 8px; border: 1px solid #ddd;'>45.4 kW (60.8 hp) @ 2,100 rpm</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Operating Weight (cab)</td><td style='padding: 8px; border: 1px solid #ddd;'>5,800 kg (12,787 lb)</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Bucket Capacity (SAE heaped)</td><td style='padding: 8px; border: 1px solid #ddd;'>0.50 m³ (0.65 cu yd)</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Max Digging Depth</td><td style='padding: 8px; border: 1px solid #ddd;'>4,150 mm (13 ft 7 in)</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Max Dump Height</td><td style='padding: 8px; border: 1px solid #ddd;'>5,050 mm (16 ft 7 in)</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Max Digging Reach</td><td style='padding: 8px; border: 1px solid #ddd;'>6,550 mm (21 ft 6 in)</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Swing Speed</td><td style='padding: 8px; border: 1px solid

#ddd;'>9.5 rpm</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Travel Speed (high/low)</td><td style='padding: 8px; border: 1px solid #ddd;'>4.5 / 2.6 km/h (2.8 / 1.6 mph)</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Ground Pressure (standard shoes)</td><td style='padding: 8px; border: 1px solid #ddd;'>32.1 kPa (4.66 psi)</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Hydraulic Flow (main)</td><td style='padding: 8px; border: 1px solid #ddd;'>2 x 70 L/min (140 L/min total) @ 2,100 rpm</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Hydraulic Pressure (implement)</td><td style='padding: 8px; border: 1px solid #ddd;'>24.5 MPa (3,553 psi)</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Fuel Tank Capacity</td><td style='padding: 8px; border: 1px solid #ddd;'>110 L (29.1 US gal)</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Tail Swing Radius</td><td style='padding: 8px; border: 1px solid #ddd;'>1,350 mm (53.1 in)</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Transport Length (boom lowered)</td><td style='padding: 8px; border: 1px solid #ddd;'>6,100 mm (20 ft 0 in)</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Transport Width (std shoes)</td><td style='padding: 8px; border: 1px solid #ddd;'>2,200 mm (86.6 in)</td></tr></table>