

0.5m³ Bucket Digger - Official Technical Overview & Datasheet

EXECUTIVE SUMMARY

The 0.5m³ Bucket Digger is a purpose-engineered compact hydraulic excavator designed for high-density urban construction, agricultural land formation, and light quarry operations. With a standard bucket capacity of 0.5 cubic meters, it delivers exceptional break-out force while maintaining a transport width compliant with standard road regulations. This model effectively replaces manual crews and backhoe loaders in trenching, footing excavation, and site grading applications.

Positioned between mini-excavators (0.2–0.3m³) and standard 13-ton class machines, the 0.5m³ Digger offers optimal cycle efficiency for job sites requiring 3–5 tons of material moved per hour. Its primary value proposition is low owning and operating cost combined with Tier 4 Final / Stage V compliance, making it a preferred fleet addition for rental houses, municipal works departments, and infrastructure subcontractors.



STRUCTURAL INTEGRITY & POWERTRAIN

The chassis is fabricated from high-tensile BS700MC and Q355D steel plates, with reinforced track frames and a double-welded boom foot. The upper structure integrates an X-frame design that distributes loading stresses during swing and heavy digging. All pivot points are bushed with induction-hardened steel pins and replaceable grease-sealed bearings, extending service life to 10,000+ hours in abrasive soils.

Power comes from a liquid-cooled, 4-cylinder turbocharged diesel engine (Isuzu 4JJ1-X or optional Cummins QSF3.8), delivering 74 kW (99 hp) at 2,200 rpm. The engine is certified to EPA Tier 4 Final / EU Stage V using a DPF+SCR aftertreatment system. The hydraulic system features a dual-variable-displacement axial piston pump with a maximum flow rate of 156

L/min, operating at 34.3 MPa (4,980 psi). This load-sensing, negative-flow control system reduces parasitic losses by 17% compared to fixed-displacement designs.

KEY FEATURES & OPERATOR COMFORT

- Load-Sensing Hydraulic with Boom Priority: Electronically controlled pump regulation sends priority flow to boom and arm circuits during combined movements, reducing cycle times by 12% in truck-loading applications.
- ROPS/FOPS Certified Cab: ISO 12117-2 certified falling-object protective structure (FOPS) and rollover protective structure (ROPS) with laminated front glass and top guard. Cab interior includes an air-suspension seat, tiltable steering column, and low-noise pressurization (68 dBA).
- Smart 7-inch LCD Monitor: Real-time display of engine rpm, hydraulic oil temperature, fuel consumption rate (L/h), and maintenance countdown. Integrated rear-view camera and grade indicator system.
- Auto Idle & Auto Shutdown: Engine automatically returns to low idle after 5 seconds of joystick inactivity and fully shuts down after preset idle time (5–30 min configurable), cutting unnecessary fuel burn and emissions.
- Swing Boom Option: For working along walls and in narrow corridors, a swing boom attachment allows offset digging of up to 65° left and 55° right without repositioning the tracks.

COMPLIANCE & SAFETY STANDARDS

The 0.5m³ Bucket Digger is manufactured under ISO 9001:2015 quality management and ISO 14001 environmental systems. It complies with: EN 474-1 (Earth-moving machinery safety), ISO 3457 (guards and shields), and ISO 10265 (operator controls). The engine meets EPA Tier 4 Final, EU Stage V, and China National IV emission standards. The cab meets ROPS requirements per ISO 12117-2 and FOPS Level II (ISO 3449). Additionally, the machine comes with standard ISO 8643 falling object warning system and secondary engine shutdown switch (cab + ground level).

TECHNICAL SPECIFICATIONS

All parameters are measured under ISO 9249 and ISO 6016 standards at ambient temperature 25°C with standard 0.5m³ general-purpose bucket and 500mm track shoes.

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Isuzu 4JJ1X (74 kW / 99 hp)	
Operating Weight	9,850 kg (21,715 lb)
Bucket Capacity (SAE heaped)	0.5 m ³ (0.65 yd ³)
Max Digging Depth	4,150 mm (13 ft 7 in)
Max Reach at Ground Level	6,830 mm (22 ft 5 in)
Max Dumping Height	4,880 mm (16 ft 0 in)
Swing Speed	10.2 rpm
Travel Speed (High/Low)	5.2 / 3.1 km/h (3.2 / 1.9 mph)
Ground Pressure	37.6 kPa (5.45 psi)
Hydraulic Flow (Main pump)	156 L/min (41.2 gal/min)
Fuel Tank Capacity	

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style='padding: 8px; border: 1px solid #ddd; '>145 L (38.3 US  
gal)</td></tr></table>
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