Quarry Excavator - Official Technical Overview & Datasheet

EXECUTIVE SUMMARY

Designed for the most punishing quarry and hard-rock mining environments, the Quarry Excavator represents a paradigm shift in mass excavation productivity. Built to withstand high-impact loading, abrasive dust, and extreme duty cycles, this machine delivers class-leading breakout force and cycle times while reducing fuel consumption by up to 12% compared to previous generation models. Target markets include dimensional stone quarries, aggregate production, large-scale construction earthmoving, and heavy civil engineering projects where reliability and throughput are paramount.

Integrating advanced telematics and a purpose-engineered powertrain, the Quarry Excavator offers a unique value proposition: maximum uptime through structural redundancy and simplified service access. Operators benefit from a sealed, pressurized cab with advanced air filtration, while fleet owners gain real-time visibility into machine health and production metrics. The result is a heavy-duty excavator that consistently delivers lower cost per ton in 24/7 applications.

STRUCTURAL INTEGRITY & POWERTRAIN

The foundation of the Quarry Excavator is its box-section chassis fabricated from high-tensile DOMEX 700 steel grade, offering three times the impact resistance of conventional construction-grade steel. The reinforced track frame features seven bottom rollers and a two-piece bolt-on track guard system to prevent derailment in rocky terrain. All pivot points are equipped with induction-hardened bushings and floating seals, rated for 8,000 hours of severe-service life.

Power is delivered by a heavy-duty Cummins X12 or Isuzu 6WG1 diesel engine, compliant with EPA Tier 4 Final and EU Stage V emissions standards. The engine features selective catalytic reduction (SCR) and a diesel particulate filter (DPF) with fully automatic regeneration. The closed-center hydraulic system employs

variable displacement axial piston pumps, delivering a system efficiency of 88% at nominal operating pressure of 34.3 MPa (4,975 psi). Combined flow rate reaches 780 L/min, enabling simultaneous boom, arm, and bucket operations with zero cross-flow interference.

KEY FEATURES & OPERATOR COMFORT

- Load-Sensing Hydraulics with Electronic Pump Control: The hydraulic management system adjusts flow and pressure in real time based on control lever movement, reducing parasitic losses by 18%. Operators experience precise, simultaneous motion control for grading and rock fitting.
- ROPS/FOPS Level 2 Certified Cab: The reinforced cab meets ISO 12117-2 and ISO 3449 Level 2 falling-object protection standards. A 10 mm thick polycarbonate front windshield and roof guard provide protection against falling boulders. The cabin is pressurized to 60 Pa with a dual-stage HEPA filter (capturing 99.7% of particles down to 0.3 microns).
- 8-Inch High-Resolution Smart Control Panel: Fully sealed against dust (IP67 rating), the touchscreen display provides real-time telematics, fuel consumption trending, hydraulic oil temperature, and service interval tracking. Integrated rearview and right-side cameras offer 270-degree visibility with dynamic gridlines.
- Automatic Greasing System (Optional): A programmable dual-line centralized lubrication system automatically greases all bucket, boom, and arm pivot pins

every 2.5 operating hours, extending component life by 40% in dusty quarry environments.

- Heavy-Duty Boom and Arm Configuration: The one-piece cast steel boom foot and arm tip are stress-relieved and X-ray inspected. Available arm lengths from 2.2 m to 3.6 m with additional wear plates on the bottom side for rock loading applications.

COMPLIANCE & SAFETY STANDARDS

The Quarry Excavator is manufactured under ISO 9001:2015 quality management systems and certified to ISO 14001 environmental standards. Safety certifications include CE marking (Machinery Directive 2006/42/EC), AS 2958 (Australian earthmoving standards), and OSHA-compliant secondary boom lock valves. The machine also meets ISO 6394 operator sound pressure level limits (guaranteed LpA = 71 dB(A) inside cab). All electrical systems are IP65 rated for water and dust ingress protection. The emergency steering and braking system complies with ISO 3450:2011.

TECHNICAL SPECIFICATIONS

The following parameters are measured under SAE J/ISO 9249 standards for a standard quarry configuration with a 4.5 m^3 heavy-duty rock bucket and 600

mm triple-grouser pads. Values may vary depending on attachments and operating conditions.

Parameter	Specification
Engine Model	Cummins X12 (or Isuzu 6WG1)
Gross Power (SAE J1995)	354 kW (475 hp) @ 1,800 rpm
Operating Weight (standard boom/arm)	48,500 kg (106,900 lbs)
Bucket Capacity (rock, SAE struck)	3.2 - 4.5 m³ (4.2 - 5.9 yd³)
Max Digging Reach (ground level)	12.1 m (39 ft 8 in)
Max Digging Depth	7.6 m (24 ft 11 in)
Breakout Force (bucket, SAE)	285 kN (64,000 lbf)
Arm Tearout Force	215 kN (48,300 lbf)
Swing Speed	9.2 rpm
Travel Speed (high/low)	5.3 / 3.2 km/h (3.3 / 2.0 mph)
Hydraulic Main Pump Flow	2 x 390 L/min (total 780 L/min)
Hydraulic Pressure (implement)	34.3 MPa (4,975 psi)
Fuel Tank Capacity	750 L (198 US gal)
Tail Swing Radius	3,680 mm (12 ft 1 in)
Track Shoe Width (standard)	600 mm (24 in) triple-grouser
Ground Pressure (standard shoe)	89.3 kPa (13.0 psi)