Road Construction Excavator - Official Technical Overview & Datasheet

EXECUTIVE SUMMARY

Designed for the rigorous demands of road construction, highway expansion, and infrastructure development, the Road Construction Excavator series bridges the gap between compact utility and mass excavation. Targeting contractors in civil construction, quarry loading, and large-scale agricultural land forming, this platform delivers a unique combination of digging force, precision grading capability, and transport mobility. Its primary value proposition centers on reducing cycle times in trenching and pipe-laying while maintaining stable attachment control for sloping and ditch cleaning.

Engineered to compete with legacy models from Caterpillar, Komatsu, and SANY, this excavator features a dedicated road-building calibration that prioritizes high-flow auxiliary hydraulics for breakers and compactors, plus an advanced swing dampening system for working near live traffic. With a reinforced undercarriage and optional rubber track pads, the machine transitions seamlessly from asphalt edges to virgin dirt without compromising flotation or traction.

STRUCTURAL INTEGRITY & POWERTRAIN

The chassis employs high-tensile DOMEX grade 80 steel for the upper frame and track frames, with double-welded box-section construction at all pivot points. This material choice provides a tensile strength of 800 MPa while keeping the operating weight within legal road transport limits without disassembly. The boom and arm are fabricated from wear-resistant BR1500HS hot-formed steel, achieving a service life of 12,000 hours in abrasive road base material before major bushing replacement.

The powertrain is centered on a Cummins X12 stage V / EPA Tier 4 Final diesel engine, rated at 310 HP (231 kW) at 1,800 RPM. The six-cylinder unit features high-pressure common rail fuel injection and a cooled exhaust gas recirculation system with diesel particulate filter and selective catalytic reduction. The

cooling package includes a hydraulically driven variable-speed fan that reverses automatically every 60 minutes to clear debris from road construction dust.

The closed-center load-sensing hydraulic system delivers 140 gpm (530 L/min) at 5,100 psi (352 bar) using a triple variable-displacement piston pump. This architecture reduces flow losses by 22% compared to open-center systems, enabling simultaneous boom lift, bucket curl, and swing functions without measurable slowdown. Hydraulic tank capacity is 75 gallons with a return filtration down to 5 microns.

KEY FEATURES & OPERATOR COMFORT

- Advanced Load Sensing & Flow Sharing: The main control valve implements post-compensation pressure logic, ensuring attachment speed remains constant regardless of engine load. This is critical for road edge trimming where bucket position accuracy must be within 1 cm.
- ROPS/FOPS Level 2 Cabin: Certified to ISO 12117-2, the six-post steel cab includes laminated front glass, an internal falling-object guard mesh, and a tilt-up console for curb-side entry. Sound pressure at operator ear is 71 dB(A) under full load.
- 8-Inch Smart Touch Command Center: A sunlight-readable display with integrated grade indicator, real-time fuel consumption histogram, and optional 2D machine control for subgrade preparation. Bluetooth, USB, and CANbus

connectivity for fleet management telematics.

- Automatic Swing Brake & Travel Lock: A spring-applied, hydraulic-released swing brake engages when the joystick returns to neutral, eliminating drift on road slopes. The travel lock pin engages from the cab when roading on a lowboy trailer.

- Articulated Track Frame: Up to 9 degrees of oscillation per side, allowing the undercarriage to conform to uneven road shoulders, reducing track pin stress and improving operator comfort during long trenching passes.

COMPLIANCE & SAFETY STANDARDS

All models are certified to CE Mark (2006/42/EC), EPA Tier 4 Final, and EU Stage V emission regulations. The design process follows ISO 9001:2015 for quality management and ISO 14001:2015 for environmental control. Safety features include a secondary engine shut-off at cab rear, travel alarm with adjustable volume for night work, and side-view cameras with 270-degree coverage. The excavator also meets ISO 10265 for falling object protective structures and ISO 13031 for quick coupler safety requirements. For road construction, the machine comes with standard LED strobe lighting and reflective markings compliant with MUTCD guidelines.

TECHNICAL SPECIFICATIONS

All parameters are measured under ISO 9249 standard conditions with standard boom, arm, and 1.8 cubic yard (1.4 m3) general-purpose bucket. Operating weight includes full fuel, hydraulic oil, and 190 lb operator.

Parameter	Specification
Engine Model	Cummins X12 (310 HP / 231 kW)
Operating Weight	64,500 lb (29,250 kg)
Max Digging Depth	23.5 ft (7.16 m)
Max Reach at Ground Level	34.8 ft (10.6 m)
Bucket Breakout Force	43,200 lbf (192 kN)
Arm Breakout Force	31,500 lbf (140 kN)
Swing Speed	10.2 rpm
Travel Speed (High / Low)	3.4 / 2.1 mph (5.5 / 3.4 km/h)
Fuel Tank Capacity	125 gal (473 L)
Hydraulic Flow (main pumps)	140 gpm (530 L/min)
Track Shoe Width	28 in (710 mm)
Ground Pressure	5.8 psi (40 kPa)