Diesel Digger - Official Technical Overview & Datasheet

EXECUTIVE SUMMARY

The HDX-1000 Diesel Digger is a next-generation heavy-duty excavator engineered for the most demanding applications in construction, quarry mining, and large-scale agricultural land development. Positioning itself between the 20-25 metric ton class, this machine delivers a superior power-to-weight ratio, reducing cycle times by up to 18% compared to industry averages while maintaining class-leading fuel efficiency below 15 L/h under standard load cycles.

Developed for owners and fleet managers who prioritize total cost of ownership, the HDX-1000 integrates a heavy-duty oscillating undercarriage with triple-flange track rollers and a deep-section boom arm. Its primary value proposition lies in combining Tier 4 Final clean diesel technology with brute-force breakout force (165 kN), making it equally capable of trenching through frozen ground, loading shot rock, or excavating irrigation canals.

STRUCTURAL INTEGRITY & POWERTRAIN

The chassis of the HDX-1000 is fabricated from high-tensile DOMEX 700 MC steel (minimum yield strength 700 MPa) on the main frame, with AR400 wear plates applied to the belly pan and track guiding guards. The upper structure utilizes a box-section car body with internal ribbing, achieving a torsional rigidity of 450 kNm/deg to withstand shock loads from hydraulic hammer attachments.

Power comes from a Cummins B6.7 Stage V/Tier 4 Final diesel engine, displacing 6.7 liters and producing 172 kW (230 hp) at 2,000 rpm. The aftertreatment system integrates a passive diesel particulate filter (DPF) and selective catalytic reduction (SCR) with a 25-liter diesel exhaust fluid (DEF) tank, achieving a 96% reduction in NOx and particulate matter without requiring

active regeneration during normal operation.

The closed-center, load-sensing hydraulic system features a dual-piston variable displacement pump with a total flow of 2 x 220 L/min at 2,200 rpm, operating at a nominal pressure of 34.3 MPa (350 bar). An independent swing circuit with a dedicated gear pump delivers 45 L/min to the swing motor, enabling a swing torque of 62 kNm and a swing speed of 11.2 rpm. Hydraulic oil cooling is managed by a variable-speed fan with reverse function, maintaining oil temperature below 85°C in ambient conditions up to 50°C.

KEY FEATURES & OPERATOR COMFORT

- Load-Sensing Independent Metering Valve (IMV): The main control valve employs electronic proportional control with independent metering edges for pump and tank ports, allowing the machine to actively reduce throttle losses by 12% and enable simultaneous boom-up and arm-in flows without flow starvation.

- ROPS/FOPS Level 2 Certified Cab: The pressurized operator station features 1,525 mm width, integrated falling object guards (FOPS) with 12 mm laminated polycarbonate front glass, and a viscous-damped isolation mounting system that reduces whole-body vibration (WBV) to below 0.8 m/s² RMS per ISO 2631.

- Smart 8" LCD Touch Panel: The main monitor provides real-time fuel consumption tracking, maintenance interval prediction, hydraulic oil temperature trending, and a grade indication system with 0.1° resolution. The panel supports three selectable work modes (Power, Standard, Economy) and an auxiliary flow setting for hydraulic attachments.

- Automatic Track Tensioning & Lubrication: The undercarriage is equipped with a hydraulic auto-tensioner maintaining 120-150 bar track sag pressure, plus a centralized greasing line for eight bottom rollers and two carrier rollers, extending track chain life to an estimated 4,500 hours.

- 360-Degree Coaxial Camera System: Four flush-mounted wide-angle cameras (170° FOV) feed into a digital processor that generates a bird's-eye view on the 8" screen, with dynamic grid lines showing track width and rear swing radius (1,735 mm).

COMPLIANCE & SAFETY STANDARDS

The HDX-1000 Diesel Digger has been certified for global markets under the following frameworks: EPA Tier 4 Final (USA), EU Stage V (European Union), Korea Tier 5, and Japan MLIT. The machine complies with ISO 12100:2010 for

general safety requirements of earth-moving machinery, ISO 3744 for sound power level certification (105 dB(A) at operator ear, 108 dB(A) LwA environmental), and ISO 3449 Level II for falling object protective structures.

The electrical system meets IP65 rating for all harness connectors and control box interfaces. Additionally, the machine carries the CE Mark for machinery directive 2006/42/EC, along with EMC directive compliance (2014/30/EU) for radio equipment. An optional fire suppression system pre-plumbing package is available, compatible with Ansul A-101 or similar automatic dry chemical systems.

TECHNICAL SPECIFICATIONS

All parameters below are measured under ISO 9249 and SAE J1349 standards at sea level with standard counterweight and 600 mm triple-grouser track shoes. Operating weight includes 2,500 kg backhoe bucket, full fuel tank, operator (75 kg), and standard tools.

Parameter	Specification
Engine Model	Cummins B6.7 (Tier 4 Final)
Net Power (ISO 9249)	172 kW @ 2,000 rpm
Operating Weight (standard boom +	22,450 kg

arm)	
Bucket Capacity (SAE heaped)	1.2 - 1.6 m³
Max Digging Depth	6,720 mm
Max Reach at Ground Level	9,850 mm
Max Dumping Height	6,950 mm
Breakout Force (arm cylinder)	165 kN (16,825 kgf)
Bucket Digging Force (ISO)	182 kN (18,560 kgf)
Swing Speed	11.2 rpm
Travel Speed (high / low)	5.2 / 3.1 km/h
Ground Pressure (standard shoes)	48.2 kPa
Fuel Tank Capacity	380 L
DEF Tank Capacity	25 L
Hydraulic System Capacity (total)	285 L