CE certified Excavating Machine - Official Technical Overview & Datasheet

EXECUTIVE SUMMARY

The CE certified Excavating Machine represents a paradigm shift in mid-size hydraulic excavator engineering, purpose-built for contractors and infrastructure developers operating under rigorous EU and global safety frameworks. Targeting the construction, quarry mining, and large-scale agriculture sectors, this platform delivers an optimal balance of breakout force (up to 185 kN), fuel efficiency (≤ 210 g/kWh), and operational agility. Its CE marking confirms full compliance with Machinery Directive 2006/42/EC, enabling seamless deployment across European and regulated international project sites.

Beyond regulatory adherence, this machine redefines cost-per-ton excavation economics. With a modular design supporting quick-coupler attachments (hydraulic thumbs, tilt rotators, and compaction wheels), the unit achieves up to 15% faster cycle times compared to previous generation equipment. Combined with a telematics-ready onboard diagnostics system, owners gain real-time fleet utilization tracking, predictive filter life alerts, and geo-fenced anti-theft protection—all standard from the factory.

STRUCTURAL INTEGRITY & POWERTRAIN

The chassis and boom arm are fabricated from high-tensile DOMEX 700 MC steel (yield strength ≥ 700 MPa) with double-welded robotic seam reinforcement at key stress nodes. The upper frame integrates a box-section swivel bearing housing with induction-hardened raceways, rated for 15,000 hours of continuous slewing under 20-ton class loading. Anti-corrosion undercoating (ZN/Ni duplex) exceeds ASTM B117 salt spray requirements for 1,000 hours.

Power is delivered via a certified EU Stage V / EPA Tier 4 Final common-rail diesel engine (Isuzu or Cummins option). The 6.7L turbocharged unit with DPF and selective catalytic reduction (SCR) produces 165 kW (221 HP) at 2,000 rpm, delivering peak torque of 950 N·m. The closed-center, load-sensing hydraulic

system features three variable-displacement axial piston pumps delivering 2× 380 L/min combined flow at 34.3 MPa (4,975 psi) operating pressure, achieving 92% pump efficiency at full load.

KEY FEATURES & OPERATOR COMFORT

- Load-Sensing Hydraulic Optimization: The KPM-SX22 main control valve incorporates pressure-compensated flow sharing, which prioritizes swing and arm crowd functions during simultaneous operation, reducing cycle time overlap losses by up to 22%.

- ROPS/FOPS Level 2 Certified Cab: Roll-Over Protective Structure (ISO 12117) and Falling Object Protective Structure (ISO 10262) tested to withstand 11,000 kg static load and 45 kJ impact energy. Cab includes dual-pane laminated front glass (ballistic rating B3) and emergency roof egress hatch.

- Smart 10" Touch Command Center: IP69K-rated display with real-time hydraulic temperature, fuel consumption per ton, and three configurable power modes (Power, Standard, Eco). Integrated 360° camera system with bird's-eye view and blind-spot object detection alarms.

- Automated Greasing System (Optional): Eight-point dual-line progressive

greaser with 15-liter tank and adjustable intervals (0.5–20 hours), reducing daily maintenance time by 90% and extending pin/bushing life by 1,500 hours.

- Positive Airflow Pressurization: Cabin maintains +60 Pa relative pressure with HEPA H13 filtration (99.95% efficiency at 0.3 μm), plus charcoal chemical filter for job sites with VOC or particulate hazards.

COMPLIANCE & SAFETY STANDARDS

This excavating machine holds full CE certification per Machinery Directive 2006/42/EC, Electromagnetic Compatibility Directive 2014/30/EU, and Noise Emission Directive 2000/14/EC (guaranteed LwA ≤ 104 dB(A)). Additional compliance includes ISO 9001:2015 production quality, ISO 14001 environmental management for assembly facility, and UKCA marking for British market access. Safety subsystems feature dual-circuit service brakes (ISO 3450), secondary park lock with spring-applied hydraulic release, and automatic swing brake engagement when pilot pressure drops below 2.5 MPa.

TECHNICAL SPECIFICATIONS

All parameters measured under ISO 9249, ISO 6016, and SAE J1263 standards at factory sea-level calibration (25°C ambient, fuel tank 100%, operator mass 75

kg).

<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;'>Isuzu GH-6HK1X (EU Stage V) or Cummins QSB6.7 (EPA Tier 4 Final)</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Net Power</td><td style='padding: 8px; border: 1px solid #ddd;'>165 kW (221 hp) @ 2,000 rpm</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Operating Weight</td><td style='padding: 8px; border: 1px solid #ddd;'>21,500 kg (47,400 lbs) ± 2% (cab + 1,600mm bucket)</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Bucket Capacity (SAE heaped)</td><td style='padding: 8px; border: 1px solid #ddd;'>0.85 - 1.4 m³ (1.11 - 1.83 yd³)</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Max Digging Reach (ground level)</td><td style='padding: 8px; border: 1px solid #ddd;'>10,150 mm (33 ft 4 in)</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Max Digging Depth</td><td style='padding: 8px; border: 1px solid #ddd;'>6,980 mm (22 ft 11 in)</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Arm Crowd Force (ISO)</td><td style='padding: 8px; border: 1px solid

#ddd;'>125 kN (28,100 lbf)</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Bucket Breakout Force (ISO)</td><td style='padding: 8px; border: 1px solid #ddd;'>185 kN (41,600 lbf)</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Swing Speed</td><td style='padding: 8px; border: 1px solid #ddd;'>11.2 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;'>5.5 / 3.3 km/h (3.4 / 2.1 mph)</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Ground Pressure (std tracks)</td><td style='padding: 8px; border: 1px solid #ddd;'>46.3 kPa (6.7 psi)</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Fuel Tank Capacity</td><td style='padding: 8px; border: 1px solid #ddd;'>380 L (100.4 US gal)</td></tr><tr><td style='padding: 8px; border: 1px solid #ddd;'>Hydraulic System Flow</td><td style='padding: 8px; border: 1px solid #ddd;'>2 x 380 L/min (total 760 L/min) @ 34.3 MPa</td></tr></table>