



COMPACT EXCAVATOR

Effective 02/12/2020

FEATURES REQUESTED

Enclosed Cab
Heat and Air
Suspension Seat
Travel Motion Alarm
Long Arm - 11ft Reach
Hydraulic Thumb
16" Bucket

COMPACT EXCAVATOR BID SPECIFICATIONS (3 - 4 TON)

OPERATING WEIGHTS & DIGGING FORCES – MUST MEET THE FOLLOWING SPECIFICATIONS

- Operating Weight (Includes Standard Equipment, 165 lb. operator, fluids full and 24 in. Bucket)
 - With Canopy.....7909 lbs. (3588 kg)
 - Add for Cab Heat & Air Conditioning+284 lbs. (129 kg)
 - Add for Steel Tracks+212 lbs. (96 kg)
 - Add for Angle Blade.....+251 lbs. (114 kg)
 - Add for Hydraulic Clamp.....+126 lbs. (57 kg)
- Arm Digging Force 4859 lbf. (21614 N.)
- Bucket Digging Force, with attachment quick-tach installed..... 6968 lbf. (30995 N.)

WORKING RANGE– MUST MEET FOLLOWING SPECIFICATIONS

- Maximum Radius of Working Equipment210.7 in. (5351 mm)
- Maximum Reach at Ground Level205.9 in. (5230 mm)
- Maximum Working Equipment Radius with Boom at Maximum Height89.3 in. (2267 mm)
- Maximum Blade Lift Height15.0 in. (382 mm)
- Maximum Blade Drop Depth17.9 in. (456 mm)
- Maximum Height of Working Equipment with Arm Retracted146.0 in. (3708 mm)
- Maximum Bucket Tooth Height189.1 in. (4804 mm)
- Maximum Dump Height.....131.5 in. (3340 mm)
- Maximum Depth of Vertical Wall which can be excavated84.1 in. (2136 mm)
- Maximum Dig Depth shall be no less than122.7 in. (3117 mm)
- Minimum Bucket Pivot Angle..... 185°

DIMENSIONS – MUST MEET FOLLOWING SPECIFICATIONS

- Clearance, Upper-structure to Groundline.....21.3 in. (540 mm)
- Groundline to Top of Engine Cover.....61.3 in. (1557 mm)
- Overall Length of Track Assembly.....81.7 in. (2074 mm)
- Length of Track on Ground64.8 in. (1647 mm)
- Machine Centerline to Blade – Standard Blade.....60.1 in. (1528 mm)
- Machine Centerline to Blade – Angle Blade70.1 in. (1780 mm)
- Minimum Blade Angle – Angle Blade 25° Left/Right
- Blade Height – Standard Blade12.7 in. (324 mm)
- Blade Height – Angle Blade13.9 in. (354 mm)
- Blade Width.....68.9 in. (1750 mm)
- Minimum Radius in Travel Position149.1 in. (3787 mm)
- Overall Length in Travel Position.....189.9 in. (4823 mm)
- Overall Height96.2 in. (2443 mm)
- Minimum Turning Radius70.4 in. (1788 mm)
- Rear Swing Clearance34.4 in. (875 mm)
- Tail swing shall not protrude beyond the width of the tracks must be zero tail swing.
- There shall be no protrusion from swing cylinder casting during boom swing left.
- Boom swing left shall be no less than 75°
- Boom swing right shall be no less than 55°

HYDRAULIC SYSTEM – MUST MEET FOLLOWING SPECIFICATIONS

- System shall utilize a load sensing, torque limiting, variable displacement piston pump in tandem with gear pump.
- Hydraulic pump capacity shall be capable of providing no less than 29.1 GPM (110.4 L/min)
- Hydraulic pump capacity for auxiliary flow shall be capable of providing no less than 16.9 GPM (63.9 L/min) for attachment operation.
- System relief pressure at auxiliary quick couplers shall be 2987 PSI (210 bar).
- Hydraulic reservoir tank shall be non-metallic.
- Variable flow auxiliary hydraulics shall be standard equipment.
 - Shall include boom mounted flush-face quick couplers.
 - Primary auxiliary couplers (M & F) shall be located on the left side of the boom.
- Control valve shall be a 9 spool, closed center, individually compensated valve.
 - Shall include detent position for blade float function.
- Cylinders shall be a double-acting type.
- Boom cylinder shall have end of stroke cushioning for boom up function.
- Arm cylinder shall have cushioning for arm out and arm in functions.
- Cylinders shall have inertia welded rods and bases at the ends of the cylinders.
- Engine warning & shutdown shall be provided as standard equipment and shall monitor hydraulic oil temperature and hydrostatic charge pressure.
- A hydraulic oil cooler shall be standard equipment.
- Drive motors shall be 2 axial piston motors.
- Slew motor shall be axial piston motor with planetary reduction.
- Slew speed shall be no less than 8.6 RPM

DRIVE SYSTEM – MUST MEET FOLLOWING SPECIFICATIONS

- Each track shall be independently driven by a hydrostatic axial piston motor.
- Shall utilize a two stage planetary gear reduction of 48.6:1
- Maximum drawbar pull shall be no less than 7658 lbf.(34034 N).
- Maximum gradability traveling down or backing up slopes shall be 30°.
- Travel Speeds shall be no less than:
 - Low 1.6 mph (2.6 km/hr)
 - High..... 2.9 mph (4.7 km/hr)

UNDERCARRIAGE – MACHINE MUST MEET FOLLOWING SPECIFICATIONS

- Undercarriage shall be a crawler-type tractor design.
- Track Rollers shall be sealed, with reinforced box-section track roller frame.
- Track Adjusters shall be grease-type with shock absorbing recoil springs
- Half pitch rubber track shall be standard equipment.
- Steel shoe track shall be optional equipment.
- Track width (rubber) shall be no more than 11.8” (300 mm).
- Track width (steel) shall be no more than 11.8” (300 mm).
- Each side will utilize 4 bottom track rollers and 1 top roller.
- Undercarriage shall have 4 tie down points on main frame and 2 tie down points on blade.
- Rubber track ground pressure shall not exceed 4.74 psi (32.7 kPa).
- Steel track ground pressure shall not exceed 4.87 psi (33.6 kPa).

ENGINE/ELECTRICAL – MUST MEET FOLLOWING SPECIFICATIONS

- Excavator shall have a 3 cylinder, liquid-cooled, diesel producing no less than:
 - 33.5 hp (25.0 kW) at 2400 RPM rated engine speed. (SAE J1995 Gross)
 - 31.2 hp (23.3 kW) at 2400 RPM rated engine Speed. (SAE J1349 Net)
- Engine shall be turbocharged.
- Engine shall produce no less torque than 82.2 ft.–lbs. (111.4 Nm) at 1600 RPM.
- Engine displacement shall be no more than 109.5 in.³ (1.79 L).
- Engine shall meet Tier 4 compliance without the aid of a diesel particulate filter (DPF).
- Engine shall utilize forced lubrication.
- Cold weather start assist, with automatic pre-heat system, shall be standard equipment.
- Air cleaner shall be a dry replaceable paper cartridge and must include safety element.
- Engine oil filter shall be a full flow cartridge type filter.
- Alternator shall be 12 volt, delivering no less than 90 amps.
- Battery shall be 12 volt, delivering no less than 540 cold cranking amps @ 0°F (-18°C)
- Starter shall be a 12 volt, gear reduction type delivering 2.7 hp (2.0 kW)
- Engine coolant shall include propylene glycol anti-freeze with freeze protection to -34°F (-37°C)
- Engine shutdown shall be provided as standard equipment and shall monitor engine coolant temperature, engine oil pressure, and engine RPM to help prevent engine damage.
- Engine block heater shall be provided as optional equipment to provide easier starting during cold weather.

CONTROLS – MACHINE MUST MEET FOLLOWING SPECIFICATIONS

- Excavator direction, steering, and travel speed shall be controlled by two hand or foot levers.
 - Thumb buttons control auxiliary hydraulics and boom swing
 - Blade control shall be a separate lever with float function
- Excavator boom and arm functions shall be controlled by two joysticks attached to the operator group.
- High and Low travel speed shall be controlled by a push button on the blade lever
- Excavator Functions shall be selectable between ISO and Standard controls.
- Engine speed control shall be a rotary dial with auto-idle feature.
- Excavator auxiliary function shall be controlled by switches on right-hand joystick.
- Service brake (Travel) shall be a hydraulic lock on the motor.
- Parking brake (Travel) shall be a hydraulic lock on the motor.
- Service brake (Slew) shall be a hydraulic lock on the motor.
- Holding brake (Slew) shall be an automatically applied slew brake integrated in motor.
- Engine starting and shutdown functions shall be controlled electrically with a key switch or optional keyless start.

CAPACITIES – MACHINE MUST MEET FOLLOWING SPECIFICATIONS

- Fuel Tank shall be made of polypropylene and have a minimum capacity of 13.7 gal (52.0 L).
- Cooling System (radiator) shall have a minimum capacity of 1.8 gal (6.8 L).
- Engine capacity (with oil filter) shall be a maximum of 6.7 qts (6.3 L).
- Hydraulic System capacity shall be no more than 10.5 gal (39.7 L).
- Hydraulic Reserve shall have a maximum capacity of 2.2 gal (8.3 L).

INSTRUMENTATION

- The standard excavator instrumentation panel shall be positioned forward of the operator for optimum visibility.
- Standard Instrumentation shall consist of:
 - Gauges for engine coolant temperature and fuel level
 - Warning lights for fuel level, seat belt, engine coolant temperature, engine malfunction, hydraulic system malfunction, general warning.
 - Indicator lights for 2-Speed travel mode, engine preheat
 - Data display for operating hours, engine RPM, maintenance clock, battery voltage, service codes, engine preheat countdown.
- The system shall alert the operator of monitored excavator malfunctions by way of an audible alarm and visual warning light.
 - The system shall have engine shut down provisions to prevent damage to engine and hydraulic system.
- A deluxe display panel shall be available as optional equipment. In addition to features provided in the standard instrumentation, the deluxe panel shall provide:
 - Digital clock and resettable job clock.
 - Keyless start system that provides one Owner Code and eight Operator codes.
 - Owner and Operator codes shall be (5) digit, programmable at owners discretion.
 - System shall have ability to track individual operator fuel consumption and idle time.
 - System shall Eco Mode function.
 - System shall provide real time data including engine coolant temperature, engine oil pressure, battery voltage, hydraulic oil temperature.
 - System shall provide input capability and visual feedback for depth guidance system.

ATTACHMENTS

Attachment Requirements:

- All attachments must be mounted on a quick-change mechanism.
- Quick-Change mechanism will maintain original bucket to arm geometry.
- Quick-Change shall not affect bucket or arm digging forces.
- A hydraulic powered Quick-Change mechanism shall be available as optional equipment.
- Attachments shall be available:

-Auger	-Hydraulic Clamp
-Buckets: Grading & Trenching	-Packer Wheel
-Flail Mower	-Plate Compactor
-Grading Blade	-PowerTilt®
-Grapple, 3-Tine	-Hydraulic Clamp with
-Hydraulic Breaker	interchangeable work tools
-Hydra-Tilt	
-Ripper Tooth	

STANDARD FEATURES SHALL INCLUDE:

- Excavator shall feature an Auto-Idle function.
- Excavator shall have 2-Speed Travel with Auto-Shift drive motors.
- Excavator shall have Battery Run-down protection.
- Excavator shall have Auxiliary Hydraulics with Boom Mounted Flush Face Quick Couplers.
- Excavator shall have Control Console Locks, which disable all hydraulic functions.
- Excavator shall have Control Pattern Selector Valve (ISO/STD) within reach of operator.
- Excavator shall be equipped with 12V power port.
- Excavator Dozer Blade with Float shall be standard equipment.
- Engine/Hydraulic Monitor with Shutdown shall be standard equipment.
- Fingertip Auxiliary Hydraulic Control shall be standard equipment.
- Fingertip Boom Swing Control shall be standard equipment.
- Excavator shall utilize composite engine panels.
- Excavator shall have a horn as standard equipment.
- Excavator shall have two front operating lights.
- Hydraulic Joystick Controls shall be standard equipment
- Rubber track shall be standard equipment.
- Spark Arrestor exhaust system shall be standard equipment.
- Suspension Seat shall be standard equipment.
- A retractable seatbelt shall be standard equipment.
- Adjustable arm rests shall be standard equipment.
- Cup holder shall be standard equipment.
- TOPS/ROPS/FOPS Canopy shall be standard equipment.
- Vandalism Protection shall be standard equipment.
- Standard warranty shall be 12 Months, Unlimited Hours.
- A Quick-Change (Attachment Mounting System) shall be standard equipment.

AVAILABLE OPTIONS/ACCESSORIES:

- Add-On Counterweight shall be available as optional equipment.
- Mirror Kit shall be available.
- Beacon Light shall be available.
- Deluxe cloth seat shall be available.
- Deluxe display panel, with integrated Keyless Start system, shall be available as optional equipment.
- Enclosed cab with heat & air conditioning shall be available as optional equipment without changing excavator profile.
- Excavator Cab shall have clear visibility of the blade and both tracks from the operator group.
- An AM/FM radio shall be available as an option.
- Front cab window shall be frameless.
- Hydraulic activated angle blade shall be available as optional equipment.
- Hydraulic activated attachment mounting system shall be available as optional equipment.
- Secondary Auxiliary Hydraulic circuit shall be available as optional equipment.
- Steel Tracks shall be available as optional equipment.
- Rubber pads for steel tracks shall be available as standard equipment.
- Front guard structure shall be available as optional equipment.
- Travel motion alarm shall be available as optional equipment.

SAFETY

- A four-post canopy or optional enclosed cab provided.
- Four post canopy and cab shall meet Rollover Protective Structure (ROPS) in accordance with ISO 12117-2 and Tip Over Protective Structure (TOPS) in accordance with ISO 12117 and Falling Object Protective Structure (FOPS) in accordance with ISO 10262.
- Retractable seat belt with reminder indicator (located on dash panel) shall be provided as standard equipment.
- Additional operator protection shall be provided by deactivating ALL excavator functions when the operator console is in the upright position.
- An automatic spring applied multi-disc brake shall be provided to lock the upper structure to the undercarriage for transporting.
- Grab handles to assist the operator in entering and exiting the excavator will be provided as standard equipment.
- Front working lights for indoor use and low light operation will be standard.
- A weather resistant operator handbook written in English will be attached to inside of cab, providing operational instructions and warning by decals with pictorials and international symbols plus some messages in four basic languages: English, French, German and Spanish.

SERVICEABILITY

- Access to the following items shall be gained by opening the rear hood or side access hood:
 - Air cleaner with indicator
 - Battery
 - Cooling System (engine coolant, hydraulic oil cooler) for cleaning
 - Cooling coils must be separable without aid of tools
 - Engine fuel filter
 - Engine oil level check point and fill point.
 - Sight gauge for hydraulic oil level
 - Starter
- Rear hood, side hood, and fuel fill shall have locking provisions for vandal proofing
- Easy access to all grease points
- Central grease point for slew bearing, and slew pinion.

TRAINING RESOURCES

- A comprehensive Excavator Service Safety Training Kit shall be available.
- A comprehensive Excavator Operator Training Kit shall be available.