# Specifications

**Hydraulic Lattice Boom Crawler Crane**

**LS-248H 200-Ton (181.50 metric ton)**

![Diagram of crane](image)

### General Dimensions

<table>
<thead>
<tr>
<th>Description</th>
<th>Feet</th>
<th>Meters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic boom length</td>
<td>50</td>
<td>15.24</td>
</tr>
<tr>
<td>Overall width of machine with 44&quot; (1.12 m) track shoes</td>
<td>22.5</td>
<td>6.85</td>
</tr>
<tr>
<td>Overall width of cab w/catwalks both sides</td>
<td>13.64</td>
<td>4.15</td>
</tr>
<tr>
<td>Overall width of cab less catwalks</td>
<td>10.95</td>
<td>3.34</td>
</tr>
</tbody>
</table>

### General Dimensions

<table>
<thead>
<tr>
<th>Description</th>
<th>Feet</th>
<th>Meters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tailswing of counterweight &quot;A&quot;</td>
<td>16.80</td>
<td>5.12</td>
</tr>
<tr>
<td>Tailswing of counterweight &quot;AB&quot;</td>
<td>18.89</td>
<td>5.76</td>
</tr>
<tr>
<td>Tailswing of counterweight &quot;ABC&quot;</td>
<td>18.89</td>
<td>5.76</td>
</tr>
<tr>
<td>Overall height for transport w/boom base</td>
<td>13.31</td>
<td>4.05</td>
</tr>
<tr>
<td>Overall height for transport w/live mast only</td>
<td>13.31</td>
<td>4.05</td>
</tr>
</tbody>
</table>

*Not to Scale*
Machine Working Weights - approximate

Based on standard machine including [auxiliary equipment list], the machine weighs...

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>lbs.</td>
<td>kg</td>
<td>lbs.</td>
</tr>
<tr>
<td>201,400</td>
<td>91,355</td>
<td>246,100</td>
</tr>
<tr>
<td>275,100</td>
<td>124,785</td>
<td></td>
</tr>
</tbody>
</table>

Lifting Crane - includes 50' (15.24 m) basic tubular boom, 30' (9.14 m) live mast, 1,050' (320.04 m) of 1" (25 mm) diameter wire rope, 715' (217.93 m) of 7/8" (22 mm) diameter boomhoist rope, 175-ton (159 m) hookblock, and basic pendants.

Transport Weights and Dimensions - ±3%

Assembly Weight
168,700 lbs. (76,515 kg)

Basic Machine
Shipping Weight
64,700 lbs. (29,348 kg) Upper & Cabbody
6,000 lbs. (2,721 kg) Cab Body Jacks
68,100 lbs. (30,890 kg) Total

"C" Upper Counterweight
26,960 lbs. (12,208 kg)

"A" Upper Counterweight
22,730 lbs. (10,310 kg)

"B" Upper Counterweight
44,740 lbs. (20,294 kg)

"ABC" Counterweight Assembly

Counterweight Assist Frame
4,900 lbs. (2,223 kg)

Tread Members
49,300 lbs. (22,362 kg) each

30' (9.14 m) Jib Assembly
1,900 lbs. (862 kg)

30' (9.14 m) Peak Section
4,130 lbs. (1,873 kg)

20' (6.10 m) Base Section
4,650 lbs. (2,109 kg) - w/o third drum winch assembly
9,830 lbs. (4,459 kg) - w/ third drum winch assembly

Optional Boom Sections
| 10' (3.05 m) boom extension | 840 lbs. (381 kg) |
| 20' (6.10 m) boom extension | 1,680 lbs. (762 kg) |
| 30' (9.14 m) boom extension | 2,520 lbs. (1,143 kg) |
| 40' (12.19 m) boom extension | 3,360 lbs. (1,524 kg) |
Crawler Mounting

- Lower frame
  All welded high strength steel (100,000 psi yield), box construction; precision machined surfaces for turntable bearing and axle plates.

- Turntable bearing
  Outer race bolted to lower frame; inner race with internal swing gear bolted to upper.

- Crawler side frames
  All welded, precision machined and removable. Positioned on cross axes by dowels and held in place with adjustable wedgespucks.

- Track drive sprockets
  Cast steel, heat treated; self-cleaning and sealed for lifetime lubrication. Mounted on anti-friction bearings and powered by hydraulic motor(s) through double reduction gear drive.

- Track carrier slide rails
  Slide rails on top of each side frame.

- Track rollers
  Heat treated, grease filled or mounted on "lifetime sealed" anti-friction bearings; 12 per crawler side frame.

- Tracks
  Heat treated, self-cleaning, multiple hinged track shoes joined by one piece full floating pins; 51 shoes per side frame - 44" (1.12 m) wide.

  Track tension adjustment - Idler wheel adjusted by means of hydraulic cylinder and hand pump. Idler wheel shaft held in position with shims after adjustment is made.

- Take up idlers
  Cast steel, heat treated, self-cleaning, mounted on aluminum/bronze bushings. Lubricated through idler shaft.

- Independent hydraulic travel/steering
  Power transmitted by axial piston hydraulic motors through planetary gear reduction unit to track drive sprocket.

Ground contact area and ground bearing pressure
Based on standard machine equipped with "ABC" counterweight and 50' (15.24 m) tubular boom.

<table>
<thead>
<tr>
<th>Track shoes</th>
<th>Ground contact area</th>
<th>Ground bearing pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>inches</td>
<td>meters</td>
<td>sq. in.</td>
</tr>
<tr>
<td>44</td>
<td>1.12</td>
<td>12,760</td>
</tr>
</tbody>
</table>

Revolving Upperstructure

- Frame
  All welded and precision machined.

- Turntable bearing
  With integral swing (ring) gear. Inner race with internal swing gear is bolted to upper revolving frame; outer race is bolted to machined surface on lower.

- Engine
  Full pressure lubrication, oil filter, air cleaner, hour meter and throttle, electric control shutdown.

- Fuel tank
  77 gallon (291 liter) capacity; equipped with fuel sight level gauge, flame arrester, and self-closing cap with locking eye for padlock.

- Steering
  Axial piston motor with reduction gear is located at inner drive end of each crawler side frame. Each track is driven simultaneously or individually for straightline, gradual turn, or pivot turn. The tracks can be counterrotated for spin turns.

- Brakes
  Spring applied, hydraulically released multiple disc brakes are applied automatically when the control lever is in the neutral position.

  Travel speed - 0.50 mph (0.80 km/hr).

  Gradeability - 30%

- Jacking system
  Optional; four ground controlled, power hydraulic jacks, pinned to the lower carbody frame, used to raise the machine to facilitate removal or installation of the crawler side frames.

<table>
<thead>
<tr>
<th>Engine Specifications</th>
<th>Isuzu 6SD1TPB-01</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of cylinders</td>
<td>6</td>
</tr>
<tr>
<td>Bore and stroke: inch</td>
<td>4.72 x 5.71</td>
</tr>
<tr>
<td>- (mm)</td>
<td>(120 x 145)</td>
</tr>
<tr>
<td>Piston displacement - cu. in.</td>
<td>600</td>
</tr>
<tr>
<td>- (cm³)</td>
<td>(9,839)</td>
</tr>
<tr>
<td>High idle speed - rpm</td>
<td>2,400</td>
</tr>
<tr>
<td>Engine rpm at full load speed</td>
<td>2,200</td>
</tr>
<tr>
<td>Net engine hp at full load speed</td>
<td>237</td>
</tr>
<tr>
<td>Peak torque - foot pounds</td>
<td>644</td>
</tr>
<tr>
<td>- joules</td>
<td>(873.3)</td>
</tr>
<tr>
<td>Peak torque - rpm</td>
<td>1,500</td>
</tr>
<tr>
<td>Electrical system</td>
<td>24-volt</td>
</tr>
<tr>
<td>Batteries</td>
<td>2 - 12 volt</td>
</tr>
</tbody>
</table>
### S-248H Load Hoisting Performance

Available line speed and line pull

Line pulls are not based on wire rope strength. See wire rope chart below for maximum permissible single part of line working loads.

#### Line Speeds and Pulls

<table>
<thead>
<tr>
<th>Rope layer</th>
<th>Front Drum - 1&quot; (25 mm) wire rope</th>
<th>Rear Drum - 1&quot; (25 mm) wire rope</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Maximum line pull</td>
<td>No load line speed</td>
</tr>
<tr>
<td></td>
<td>lbs.</td>
<td>kg</td>
</tr>
<tr>
<td>1</td>
<td>48,620</td>
<td>22,055</td>
</tr>
<tr>
<td>2</td>
<td>44,200</td>
<td>20,050</td>
</tr>
<tr>
<td>3</td>
<td>40,510</td>
<td>18,379</td>
</tr>
<tr>
<td>4</td>
<td>37,400</td>
<td>16,865</td>
</tr>
<tr>
<td>5</td>
<td>34,720</td>
<td>15,753</td>
</tr>
<tr>
<td>6</td>
<td>32,410</td>
<td>14,703</td>
</tr>
<tr>
<td>7</td>
<td>30,390</td>
<td>13,784</td>
</tr>
</tbody>
</table>

#### Wire Rope Drum Capacities

<table>
<thead>
<tr>
<th>Rope layer</th>
<th>Boomhoist Drum - 7/8&quot; (22 mm) wire rope</th>
<th>Third Drum - 1&quot; (25 mm) wire rope</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Maximum line pull</td>
<td>No load line speed</td>
</tr>
<tr>
<td></td>
<td>lbs.</td>
<td>kg</td>
</tr>
<tr>
<td>1</td>
<td>40,842</td>
<td>18,526</td>
</tr>
<tr>
<td>2</td>
<td>36,760</td>
<td>16,764</td>
</tr>
<tr>
<td>3</td>
<td>33,417</td>
<td>15,158</td>
</tr>
<tr>
<td>4</td>
<td>30,633</td>
<td>13,895</td>
</tr>
<tr>
<td>5</td>
<td>29,276</td>
<td>12,826</td>
</tr>
<tr>
<td>6</td>
<td>28,257</td>
<td>11,910</td>
</tr>
<tr>
<td>7</td>
<td>24,508</td>
<td>11,116</td>
</tr>
</tbody>
</table>

#### Wire Rope: size, type and working strength

<table>
<thead>
<tr>
<th>Wire rope application</th>
<th>Size: diameter</th>
<th>Type</th>
<th>Max. permissible load</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>inches</td>
<td>mm</td>
<td>lbs.</td>
</tr>
<tr>
<td>Boomhoist</td>
<td>7/8</td>
<td>22</td>
<td>LB</td>
</tr>
<tr>
<td>Plain load hoist</td>
<td>1</td>
<td>25</td>
<td>N</td>
</tr>
<tr>
<td>Jib load hoist (1-part)</td>
<td>1</td>
<td>25</td>
<td>RB</td>
</tr>
<tr>
<td>Jib load hoist (2-parts)</td>
<td>1</td>
<td>25</td>
<td>RB</td>
</tr>
<tr>
<td>Boom pendants (dual)</td>
<td>1</td>
<td>25</td>
<td>N</td>
</tr>
<tr>
<td>Jib staylines</td>
<td>7/8</td>
<td>22</td>
<td>N</td>
</tr>
</tbody>
</table>

**Wire Rope**: types available

- Type "N" - 6 x 25 (6 x 19 class) filler wire, extra improved plow steel, preformed, independent wire rope center, right lay, regular lay.
- Type "LB" - 6 x 25 (6 x 19 class) filler wire, preformed, independent wire rope center, right lay, regular lay.
- Type "RB" - 19 x 19 non-rotating, extra, extra improved plow steel, preformed, right regular lay, swaged.
Hydraulic System

Hydraulic pumps
Two variable displacement piston pumps operating at 4,000 psi (281.24 kg/cm²) power travel, main drum, auxiliary drum, third drum, and boomhoist functions. Two fixed displacement gear pumps operating at 3,000 psi (211 kg/cm²) power swing, counterweight lowering, and machine jack functions. One fixed displacement gear pump operating at 1,210 psi (85 kg/cm²) powers pilot control system, clutches, brakes, and pump controls.

Pump control ("fine inching") mode
Special fine metering pump setting selectable from the operator's cab allows very slow movements for precision work. Main hoist, auxiliary hoist, boomhoist, third drum, and travel are all supplied with this standard feature.

Hydraulic reservoir
42 gal. (159 L), equipped with sight level gauge.

Relief valves
Each function is equipped with relief valves to protect the circuit from overload or shock.

Brake valves
Travel circuit is provided with brake valves for all terrain capability.

Hydraulic filtration
Ten micron, full flow line filter furnished in control circuit. All oil is filtered prior to return to sump tank.

Hydraulic motors
Main hoist drum, auxiliary hoist drum, boomhoist, swing, and travel are powered by axial piston motors.

Counterbalance valves
Upper - Hoist motors are equipped with counterbalance valves to provide positive load lowering and prevent accidental load drop when hydraulic power is suddenly reduced.
Lower - Travel motors equipped with counterbalance valve to prevent overspeeding of motors when traveling down an incline.

Principal Operating Functions

Control system
Remote controlled hydraulic servo for main drum and auxiliary drum. Mechanical linkage controls swing. Function speed is proportional to lever movement. Levers are adjustable for operator comfort.

Load hoisting and lowering
Main and auxiliary hoist drums are driven by individual axial piston motors and reduction gearing. Load hoisting or lowering is provided by actuating or reversing a hydraulic motor. The control lever provides two speeds for hoisting and lowering. Hoisting or lowering speeds are proportional to lever movement.

Freefall - The incorporation of power hydraulic controlled, two-shoe clutches allow freefall operation of the main and auxiliary hoist drums for high cycle crane and duty cycle application. Mode selection switch on control panel allows operator to select the most productive operation mode.

Load hoist drums
Main (front) and auxiliary (rear) hoist drums are 19" (.48 m) root diameter grooved for 1" (25 mm) wire rope. Mounted on anti-friction bearings.

Third operating drum - Optional; 12-1/2" (.32 m) grooved drum lagging, mounted in boom base section.

Drum clutches
Speed-o-Matic® power hydraulic two-shoe clutches; internal expanding, lined shoes. Clutch spiders are splined to shafts; clutch drums are integral with hoist drums.

Load hoist clutches - Front and rear main drums - clutch drums 30" (.76 m) diameter, 6-1/2" (.17 m) width.

Drum brakes
External contracting band type; operated by foot pedal equipped with a locking latch. Operator may select automatic brake mode® (spring applied, hydraulically released), which will apply brakes when the hoist control lever is in the neutral position. *When in the automatic brake mode, the LS-248H meets all OSHA requirements for personnel handling.

Drum rotation indicators
Standard for front and rear drums. Audible-type indicators.

Drum locking pawl
Standard for front and rear drums; electrically actuated and prevents drum rotation in a lowering direction.

Anti two-block system
Standard - A switch mounted on the boom peak activates a buzzer to warn the operator of a two-block condition and simultaneously disengages hoist function while applying the hoist brakes.

Swing system
Independent, hydraulic swing is driven by two axial piston motors through a gear reduction system; free swing when lever is in neutral position.

Swing brake - Spring applied, hydraulically released; controlled by button on swing control lever.

Swing lock - Mechanically controlled, two-position locking mechanism.

Optional - 360° locking mechanism available to meet New York City code.

Swing speed - Variable from 0 to 2 rpm.

Boomhoist/lowering system
Independent, hydraulic boomhoist is driven by an axial piston motor through a gear reduction system. Boom hoisting or lowering is performed by actuating or reversing the motor. Boomhoist speed is infinitely variable. Boomhoist speed from 0° to 70° boom angle is 90 seconds.

Boomhoist drum
Single grooved lagging 15" (.38 m) root diameter.

Boomhoist drum locking pawl
Electrically operated.

Boomhoist brake
Spring applied, hydraulically released, multiple disc type brake. Brake is automatically applied when control lever is in neutral position.
Boomhoist limiting device - Restricts hoisting boom beyond recommended minimum radius.

Electrical system
24 volt negative ground system with two 12-volt batteries. Standard lighting system includes: two 70 watt headlights mounted on machine front and one interior cab light.

Operator's cab
Full vision, modular compartment with safety glass panels. The completely independent cab is insulated against noise and vibration. Sliding operator's door, swing up roof window. Standard equipment includes: heater, defroster, windshield wiper, dry chemical fire extinguisher, sun visor, bubble-type level, fuel gauge, tachometer, hydraulic temperature gauge, engine oil pressure gauge, coolant temperature gauge, and service monitor system.

Machinery cab
Hinged doors (one on right side, two on left side) for machinery access. Equipped with roof-top access ladder, electric warning horn and skid resistant finish on roof.

Catwalks
Standard on right and left sides. Catwalks revolve for reduced travel width.

Bail
Pinned to revolving frame. Seven sheaves are provided for 16 part boomhoist wire rope reeving. Sheaves mounted on "lifetime sealed" anti-friction bearings.

Counterweights
*A* upper cwt. - 22,730 lb. (10 310 kg)
*AB* upper cwt. - 44,700 lb. (20 294 kg)
*ABC* upper cwt. - 28,960 lb. (13 136 kg)

Boom and Jib

Tubular boom
Two-piece basic boom 50' (15.24 m) long with open throat top section. Boom 80" (2.03 m) wide, 68" (1.73 m) deep at connections. Alloy steel round tubular cords 4" (.10 m) outside diameter. Maximum boom length 1290' (85.34 m).

Base section
20' (6.10 m) long; boomfeet on 55" (1.40 m) centers.

Boom extensions
Available in 10', 20', 30' and 40' (3.05, 6.10, 9.14 and 12.19 m) lengths with appropriate length pendants.

Boom connections
In-line pin connections.

Boom top section
Open throat; 30' (9.14 m) long.

Boompoint machinery
Six 21" (.53 m) root diameter sheaves mounted on "lifetime sealed" anti-friction bearings.

Hydraulic boomset pin removal
Standard; Speed-o-Matic controlled; located between mounting lugs on boom base section.

Boom live mast
30' (9.14 m) long; supports boomhoist bridge and boom pendants. Required for all boom lengths. May be used as short boom for assembling and disassembly of side frames and boom, but is not intended for general crane service. Refer to operator's manual for boom live mast lifting capacities.

Jib
Tubular; two-piece basic jib 30' (9.14 m) long; 32" (.81 m) wide, 24" (.61 m) deep at centerline of connections. Alloy steel tubular chords 2-1/4" (.57 mm) outside diameter.

**Base section** - 13' 3" (4.04 m) long.
**Jib extensions** - Available in 10' (3.05 m) and 20' (6.10 m) lengths with appropriate length pendants.
**Jib connections** - In-line, tapered pins.
**Tip section** - 15' (4.57 m) long; equipped with single peak sheave 21" (.53 m) root diameter, heat treated and mounted on anti-friction bearings. Anchor provided at peak of jib tip section for two-part load hoist wire rope (whipline) connection.
**Maximum jib length permitted** - 100' (30.48 m). All jib lengths may be mounted at 5°, 15°, or 25° offset to boom.

Auxiliary Equipment

Boom angle indicator
Pendulum type; mounted on boom base section. Electronic type readout on load indicator.

Hook blocks
Blocks, or weighted ball with swivel hook, optional - refer to price list.

Rated capacity limiter
Standard; electronic load indicator for main hoist line.

Swing alarm
Standard; audio/visual warning device signals when upper is swinging.