SHUTTLELIFT
Carrydeck® Industrial Crane

DIMENSIONAL DATA: U.S. (METRIC):
A. Overall length—transport position:
   3330E .................................. 12'11" (3.94 m)
   3330EL .................................. 13'3" (4.04 m)
   3330ELB ................................ 16'3" (4.95 m)
B. Overall length of frame:
   3330E .................................. 12'0" (3.66 m)
   3330EL .................................. 12'4" (3.76 m)
C. 3p rotation to front of frame:
   3330E .................................. 5'7" (1.70 m)
   3330EL .................................. 5'3" (1.60 m)
D. 3p rotation to C1 front outrigger:
   3330E .................................. 5'11" (1.80 m)
E. 3p rotation to C1 rear outrigger:
   3330E .................................. 6'7" (2.01 m)
   3330EL .................................. 3'7" (1.01 m)
F. Ground clearance:
   3330E .................................. 1'4" (0.44 m)
   3330EL .................................. 1'6" (0.46 m)
G. Outrigger clearance:
   3330E .................................. 10'7" (3.20 m)
   3330EL .................................. 7'11" (2.41 m)
H. Swing:
   3330E .................................. 3'7" (1.11 m)
   3330EL .................................. 6'7" (2.01 m)
I. 3p rotation to tip of headsection:
   3330E .................................. 9'7" (2.97 m)
   3330EL .................................. 6'4" (1.97 m)
J. Boom end height:
   At 0° boom angle .................................. 3'9" (1.14 m)
   At 60° boom angle ................................ 2'5" (0.75 m)
K. Length of hook block:
   3330E .................................. 1'9" (0.57 m)
   3330EL .................................. 2'4" (0.72 m)
L. Height of hook from deck at 0°:
   3330E .................................. 8'9" (2.7 m)
   3330EL .................................. 8'7" (2.65 m)
M. Overall height—travel position:
   3330E .................................. 7'11" (2.41 m)
   3330EL .................................. 7'11" (2.41 m)
N. Ground clearance:
   3330E .................................. 9'5" (2.91 m)
   3330EL .................................. 9'5" (2.91 m)

Note: All dimensions with standard tires unless otherwise noted.

3330E & 3330ELB
Dimensions and Specifications
1. The rated loads are the maximum lifting capacities as determined by operating radius only. Any combination of boom lengths and angles may be used to obtain operating radius. The operating radius is the horizontal distance from a projection of the axis of rotation to the supporting surface, before loading, to the center of the vertical hoist line or tackle with load applied.

2. The rated loads shown on full extended outriggers do not exceed 85% of actual tipping. The rated loads shown on rubber do not exceed 75% of actual tipping. These ratings are based on freely suspended loads with the machine leveled, standing on a firm, uniform supporting surface. Practical working loads depend on supporting surface operating radius, and other factors affecting stability. Hazardous surroundings, experience of personnel and proper handling must all be taken into account by the operator.

3. Rated loads shown in the shaded areas are based on structural strength and/or strength of material and not on the stability of the machine.

4. The weights of all load handling devices such as hooks, hook blocks, slings, etc., except the hoist rope, shall be considered as part of the load.

5. Ratings on outriggers are based with all outriggers fully extended and fully down.

6. Ratings on rubber depend on tire capacity, condition of tires, and proper inflation pressure. Loads on rubber may be transported at maximum speed of 2.5 mph (4 km/h) on a smooth, hard, level surface, with boom retracted to shortest length possible and centered over front. Pick and carry is not allowed with loads on jib.

7. For operating radius not shown, use load ratings of the next larger radius.

8. The maximum combined total boom and deck load is 12,000 lb (5440 kg). For deck loads only, the maximum load is 14,000 lb (6350 kg) with 10 x 15 tires.

9. Cable capacity with 7/16" (11 mm) diameter 6 x 9 galvanized EIPS-IWR is 5,000 lb (2268 kg) per part of line.

10. No external side load is to be induced on boom.

11. Operation of this equipment in excess of rating charts and disregard of instructions is dangerous and voids warranty.

12. Operate jib on outriggers only.

13. Operate personnel platform on outriggers only.

14. With boom attachments such as jib or work platform, boom must be fully retracted and forward unless on outriggers.
### RATED LOAD CAPACITIES

#### Operating Radius

<table>
<thead>
<tr>
<th>Radius</th>
<th>3-Section Boom or 4-Section Boom</th>
<th>4-Section Boom Extended</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>On Rubber Less Jib 360°</td>
<td>On Full Extended Outriggers</td>
</tr>
<tr>
<td></td>
<td>Less Jib 360°</td>
<td>w/12’ Jib 360°</td>
</tr>
<tr>
<td>5’</td>
<td>10,000 lb</td>
<td>—</td>
</tr>
<tr>
<td>(1.5 m)</td>
<td>(4540 kg)</td>
<td>—</td>
</tr>
<tr>
<td>6</td>
<td>8,700 lb</td>
<td>14,500 lb</td>
</tr>
<tr>
<td>(1.8 m)</td>
<td>(3940 kg)</td>
<td>(6650 kg)</td>
</tr>
<tr>
<td>8</td>
<td>6,000 lb</td>
<td>11,600 lb</td>
</tr>
<tr>
<td>(2.4 m)</td>
<td>(2730 kg)</td>
<td>(5260 kg)</td>
</tr>
<tr>
<td>10</td>
<td>5,000 lb</td>
<td>10,000 lb</td>
</tr>
<tr>
<td>(3.0 m)</td>
<td>(2270 kg)</td>
<td>(4540 kg)</td>
</tr>
<tr>
<td>12</td>
<td>3,000 lb</td>
<td>8,800 lb</td>
</tr>
<tr>
<td>(3.7 m)</td>
<td>(1360 kg)</td>
<td>(3990 kg)</td>
</tr>
<tr>
<td>14</td>
<td>1,800 lb</td>
<td>6,600 lb</td>
</tr>
<tr>
<td>(4.9 m)</td>
<td>(820 kg)</td>
<td>(2990 kg)</td>
</tr>
<tr>
<td>16</td>
<td>1,400 lb</td>
<td>5,300 lb</td>
</tr>
<tr>
<td>(5.5 m)</td>
<td>(640 kg)</td>
<td>(2400 kg)</td>
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<tr>
<td>17</td>
<td>1,150 lb</td>
<td>4,700 lb</td>
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<tr>
<td>(2.6 m)</td>
<td>(520 kg)</td>
<td>(2130 kg)</td>
</tr>
<tr>
<td>18</td>
<td>1,050 lb</td>
<td>4,400 lb</td>
</tr>
<tr>
<td>(5.1 m)</td>
<td>(475 kg)</td>
<td>(2000 kg)</td>
</tr>
<tr>
<td>20</td>
<td>1,000 lb</td>
<td>4,000 lb</td>
</tr>
<tr>
<td>(6.1 m)</td>
<td>(450 kg)</td>
<td>(1810 kg)</td>
</tr>
<tr>
<td>22</td>
<td>900 lb</td>
<td>3,700 lb</td>
</tr>
<tr>
<td>(7.1 m)</td>
<td>(410 kg)</td>
<td>(1630 kg)</td>
</tr>
<tr>
<td>24</td>
<td>800 lb</td>
<td>3,300 lb</td>
</tr>
<tr>
<td>(8.1 m)</td>
<td>(360 kg)</td>
<td>(1520 kg)</td>
</tr>
<tr>
<td>26</td>
<td>700 lb</td>
<td>3,100 lb</td>
</tr>
<tr>
<td>(9.1 m)</td>
<td>(320 kg)</td>
<td>(1310 kg)</td>
</tr>
<tr>
<td>28</td>
<td>600 lb</td>
<td>2,900 lb</td>
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<tr>
<td>(10.1 m)</td>
<td>(270 kg)</td>
<td>(1180 kg)</td>
</tr>
<tr>
<td>30</td>
<td>500 lb</td>
<td>2,700 lb</td>
</tr>
<tr>
<td>(11.6 m)</td>
<td>(225 kg)</td>
<td>(1040 kg)</td>
</tr>
<tr>
<td>32</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

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#### Shaded area is structural strength. Do not rely on tipping.
STANDARD EQUIPMENT
- 333OE—3-section boom 6' 4" (1.93 m) to 18' 5" (5.58 m)
- 3330ELB—3-section boom, 9' 6" (2.84 m) to 27' 2" (8.28 m)
- All load carrying cylinders include load hold check valves
- 8.5 ton (7.7 metric ton) double sheave hook block.
- 2.75" (210 mm) pitch diameter sheaves
- 42 ft² (3.90 m²) carrydeck
- All steel cab structure less glass
- (top safety plate standard)
- Adjustable operator's seat with seat belt
- Electric horn
- Lights—head, tail, rear work, stop and turn signals
- Engine hourmeter
- Outriggers—hydraulic telescoping box—front and rear with independent control for each side
- 4-speed power shift transmission
- Power steering—hydraulic
- 10 x 15 tires
- Boom angle indicator
- 71/16" (11 mm) diameter 6 x 19 galvanized EIPS-IWRC wire rope
- Double blocking automatic boom extend kickout
- Backup alarm
- Cummins 4b3.9 diesel engine
- Hurth axle with no-spin differential
- 2-wheel steer
- Winch—anti two block kickout

OPTIONAL EQUIPMENT
- 3330E—4-section manually engaged boom— 6' 4" (1.93 m) to 24' 8" (7.52 m)
- 3330ELB—4-section manually engaged boom— 9' 6" (2.84 m) to 36' 8" (11.17 m)
- Enclosed cab (with windshield wiper)
- Adjustable operator cushion seat with seat belt
- 4-wheel/4-wheel steer Hurth drive/steer axle with no-spin differential
- Continental TM 2.7 gas/LP engine

ACCESSORIES & ATTACHMENTS
- Cold-start kit
- LMI indicator system
- Flashing strobe light
- Rear hitch
- Front hitch
- Jib—8' (2.44 m) or 10' (3.05 m)
- Electric recessed winch
- 4 ft (3.6 metric ton) hook and ball
- Heater and defroster (hot water)
- Spare wheel and tire—front and rear
- Engine shut-down gauges
- LMI indicator
- 3330E—heavy lift counterweight kit
- 2-man work platform
- High rail attachment

HYDRAULIC SYSTEM
Main pump: Tandem gear-type with two sections and flow divider.
Section 1: 30 gpm (113.6 L/min)
Section 2: 21 gpm (79.3 L/min)

Sway system: 360° hydraulic sway system has positive operator control. Sway speed: continuous at 2.05 rpm.

3330E & 3330ELB SPECIFICATIONS

CYLINDERS

<table>
<thead>
<tr>
<th>CYCLE TIME</th>
<th>1000 rpm</th>
<th>2200 rpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hoist cylinder (full stroke): Extend</td>
<td>42.7 sec</td>
<td>12.6 sec</td>
</tr>
<tr>
<td>Retract</td>
<td>33.6 sec</td>
<td>9.3 sec</td>
</tr>
<tr>
<td>Crowd cylinder (full stroke): 3330E Extend</td>
<td>71.2 sec</td>
<td>20.9 sec</td>
</tr>
<tr>
<td>Retract</td>
<td>29.0 sec</td>
<td>8.5 sec</td>
</tr>
<tr>
<td>3330ELB Extend</td>
<td>106.9 sec</td>
<td>31.4 sec</td>
</tr>
<tr>
<td>Retract</td>
<td>43.5 sec</td>
<td>12.8 sec</td>
</tr>
<tr>
<td>Outriggers:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Out</td>
<td>9.2 sec</td>
<td>2.7 sec</td>
</tr>
<tr>
<td>Down</td>
<td>16.4 sec</td>
<td>4.8 sec</td>
</tr>
<tr>
<td>Up</td>
<td>12.3 sec</td>
<td>3.6 sec</td>
</tr>
<tr>
<td>In</td>
<td>5.1 sec</td>
<td>1.5 sec</td>
</tr>
</tbody>
</table>

DRAWBAR PULL
Unit equipped with 10 x 15 tires, diesel engine and no load on deck.
1st gear: 10,850 lb (4922 kg)
2nd gear: 5,925 lb (2688 kg)
3rd gear: 3,175 lb (1440 kg)
4th gear: 1,800 lb (816 kg)
Note: Wheels will spin before reaching these values.

ENGINE
Make and model: Cummins 4b3.9 diesel
Number of cylinders: 4
Horsepower: 71 @ 2200 rpm

OPTIONAL
Make and model: Continental TM 2.7
Fuel: Gas or dual fuel (Gas/LP)
Horsepower: Gas 68 @ 2650 rpm
LP 60 @ 2650 rpm

ELECTRICAL
Starting: 12 volt electric
Battery (1): 530 CCA @ 0° F (-18° C) for 30 sec. rate
(2 batteries with recessed winch or cold-start option)
Alternator: 63 amp

TRANSMISSION
Make: Shimla PS 720 Powershift
Type: 4-speed forward/4-speed reverse

DRIVE AXLE
Make: Hurth
Location: Front of vehicle

DRIVE/STEER AXLE (OPTIONAL)
Make: Hurth
Location: Front of vehicle

STEERING AXLE (NON-DRIVE)
Make: Shuttlelift
Location: Rear of vehicle

TIRE SIZE
10.00 x 15 14PR pneumatic (standard)

TURNING SPECIFICATIONS
Turning radius:
2-wheel steer: 14' 8" (4.47 m)
4-wheel steer: 10' 2" (3.10 m)

TRAVEL SPEEDS
(Forward and reverse — standard tires)
2-Wheel Steering:
1st gear: 4.0 mph (6.4 kph)
2nd gear: 7.1 mph (11.4 kph)
3rd gear: 12.7 mph (20.4 kph)
4th gear: 22.6 mph (36.3 kph)

MAXIMUM GRADEABILITY
(PAVED SURFACE)
1st gear and torque converted (calculated), standard tires:
No load: 62°
12,000 lb (5443 kg) load: 29°
Note: Gradeability is a measure of tractive effort only and does not represent grades on which the machine can operate.

NOTE: All specifications are stated in accordance with PCSA definitions, SAE standards or recommended practices, where applicable.

IMPORTANT: Shuttlelift reserves the right to change these specifications without notice and without incurring any obligation relating to such changes.
FACTORS THAT DETERMINE SAFE WORKING LOADS

1. The safe working loads of a crane are the maximum loads under specified conditions for which a crane may be used.

2. Safe working loads, as specified on crane manufacturer's and government statute approved rating charts, are based on uniform world standards of crane design and take into account appropriate factors of safety based on crane design technology, extensive testing and experience.

3. Rating charts show vital information that affect the safe working load capacities of each particular crane and these differ between makes, models and types. The operator must know a particular crane's capacity under all conditions and configurations.

4. Load charts capacities are based on ideal conditions seldom achieved under actual working conditions. It is extremely important not only to know how to determine the capacity from the chart but also to recognize the factors which can reduce the capacity.

5. Crane manufacturer's safe working loads are based on cranes in good condition and apply only to machines which are standing or installed on a LEVEL, FIRM and UNIFORM supporting surface. Safe working loads apply only to freely suspended loads. Weights of hooks, hook blocks, slings and all other handling devices must be considered as part of the load.

6. Safe working loads are for cranes with the correct counterweight fit as specified by the manufacturer.

7. The approved rating plate or chart in the crane cab tells the operator what the crane can do and also what the crane cannot do.

CRANE CAPACITY

1. A full understanding of and complete compliance with approved rating plates and charts and knowledge of the basic principles of how a crane is rated are essential requirements for crane operators and users.

2. The maximum rated capacity (the maximum weight a crane can safely lift) is figured at the minimum radius with the minimum length of boom. From these charts are the same.

3. Cranes differ. Some cranes are superior lifters "in close" with short booms, and others prove best at greater reaches because of better stability, light weight booms, or a different crane geometry.

4. A crane's rated lifting capacities are dependent on three main factors:
   a. The weight of the crane
   b. The strength of the crane
   c. The stability of the crane

5. The stability of a crane is the ability of a crane to resist tipping.

6. The strength of a crane is the ability of the main structural and mechanical components to resist failure under load.

7. In general terms, on most cranes the lifting capacity is limited by structural strength when the working radius is small and by stability when the working radius is large.

8. The diagram illustrates the changing distances between the center of gravity and the fulcrum point as a crane is slewed from over the rear to over the side.

9. The weight of the boom and rigging projecting beyond the fulcrum point reduce the stability of the crane.

10. On truck cranes, capacities over the rear are generally greater due to the front of a carrier acting as additional counterweight.

11. To lift a load at a given radius there must be some weight to counter balance the load being lifted. A crane uses its own weight plus counterweight to give stability to the machine.

12. On mobile cranes outriggers provide additional stability and reduce the amount of counterweight required. The weight of structural and mechanical parts acting behind the fulcrum point also act as counterweight. The fulcrum point of a crane with outriggers is the nearest outrigger or outriggers to the load. On crawler cranes or mobile cranes operating free on wheels, it is the crawler tracks or tires nearest the load.

13. The ability of a crane to lift a given load and retain stability is dependent on the amount of weight reacting at the center of gravity point of the crane and the distance from the center of gravity to the fulcrum point.

14. For a crane to remain stable the distance from the center of gravity to the fulcrum point multiplied by the weight of the crane must be greater than the distance from the fulcrum point to the center of the load multiplied by the weight of the load.

15. NOTE: The stability factor often changes dramatically as a crane is slewed due to the changing distance between the center of gravity point and the fulcrum point.
RATING AND CAPACITY CHARTS

1. Strength and Stability Factors

a. Stability means the ability of a crane to resist tipping.

b. Manufacturers rated capacities and load charts on most cranes are limited by both strength and stability factors.

c. Capacities limited by structural strength are based on the yield strength of components with a safety factor.

d. The rating charts on most cranes have a bold line (or shaded area) dividing the chart into two segments. This shows the operator which capacities are limited by structural strength and which are limited by stability.

e. Ratings above the line are based on structural strength and the ratings below the line are based on machine stability.

f. It is extremely important to know the difference between strength and stability. If a crane is overloaded in one case a structural or mechanical component of the crane will fail and in the other case the crane will overturn. Safe working loads shown in the stability area of the rating charts are based on a percentage of the ultimate load which will cause tipping.

g. The manufacturer loads the crane and determines for every situation listed in the load chart how much weight it takes to make the crane tip. These loads are called the tipping loads.

h. To maintain a margin of safety, tipping loads are then reduced by a percentage set by national standards to develop the rated loads listed in the load chart of the machine for every situation. Charts are marked accordingly with the percentage that applies to each particular crane.

i. The ultimate load will be the tipping load for certain cranes but for others a structural failure would occur before the crane reached a tipping condition. In these cases the ultimate load will relate to the manufacturer's design capacity of the crane. The percentage margin between the safe working load and the ultimate load is a safety margin to allow for the various forces which effect on the crane in operation. These include allowances for wind loading and for dynamic forces set up by normal operational movement of the crane and load.

j. NOTE: Always use the load chart to determine capacity. Never use signs of tipping to determine capacity limits as there is no warning of an impending structural failure.

2. Load Capacity Charts

a. Load charts contain a large amount of information which must be thoroughly understood by the operator.

b. With a known load the operator can determine the correct radius and boom length to enable the load to be lifted safely to the desired position.

c. Capacity charts show the operator what the machine can safely handle. Exact weight, boom length and radii should be checked and verified with the capacity chart before lifting a load.

d. They specify the safe working loads for various boom and jib angles.

e. They state which lifting areas the capacities apply to: over the side, over the rear, over the front or 360 degree.

f. They indicate which capacities are limited by stability and which are limited by structural strength.

g. The operator must be guided by the ratings on the chart and understand the conditions which effect the capacity.
h. A jib capacity chart and notes are also included as part of the load chart to list the capacities for the degree of offset and boom angle.

i. An important portion of the load chart is the section concerning notes to lifting capacities. Be sure to read all notes carefully so that you understand what each one means.

OTHER INFORMATION ON PLATES AND CHARTS

1. Typical details included on many rating plates.
   a. Deductions from main boom ratings with jib fitted
   b. Correct jib offset angles
   c. Minimum permissible boom angles
   d. Weight of hook blocks
   e. Free on wheels ratings
   f. Pick and Carry ratings
   g. Correct boom telescoping procedure
   h. Correct rope reeving
   i. Permissible line loads
   j. Load telescoping limitations
   k. Tire inflation pressures and on rubber rating speed limitations.
   l. THE OPERATOR must be aware of all special conditions on the rating charts for each particular crane.
HAND SIGNALS

HOIST: With forearm vertical, forefinger pointing up, move hand in small horizontal circles.

LOWER: With arm extended downward, forefinger pointing down, move hand in small horizontal circles.

USE MAIN HOIST: Tap fist on head, then use regular signals.

USE WHIP LINE: (Auxiliary Hoist) Tap elbow with one hand, then use regular signals.

RAISE BOOM: Arm extended, fingers closed, thumb pointing upward.

LOWER BOOM: Arm extended, fingers closed, thumb pointing downward.

MOVE SLOWLY: Use one hand to give any motion signal and place other hand motionless in front of hand giving the motion signal. (Most slowly shown as example.)

RAISE THE BOOM AND LOWER THE LOAD: With arm extended, thumb pointing up. Flex fingers in and out as long as load movement is desired.

LOWER THE BOOM AND RAISE THE LOAD: With arm extended, thumb pointing down. Move arm in and out as long as load movement is desired.

SWING: Arm extended, point with finger in direction of swing of boom.

STOP: Arm extended, palm down, move arm back and forth horizontally.

EMERGENCY STOP: Both arms extended, palms down, move arms back and forth horizontally.

TRAVEL: (One Track) Lock the track on side indicated by raised fist. Travel opposite track in direction indicated by circular motion of arm.

TRAVEL: (Both Tracks) Use both fists in front of body, making a circular motion about each other, indicating direction of travel forward or backward. (For hand cranes only.)

DOG EVERYTHING: Clasp hands in front of body.

TRAVEL: (Both Tracks) Use both fists in front of body with thumbs pointing toward each other.

TRAVEL: (One Track) Lock the track on side indicated by raised fist. Travel opposite track in direction indicated by circular motion of arm.

RETRACT BOOM: (Telescoping Booms) Both fists in front of chest with thumbs pointing outward.

EXTEND BOOM: (Telescoping Booms) Both fists in front of chest with thumbs pointing outward.

RETRACT BOOM: (Telescoping Booms) One fist in front of chest. Both hands held out, one fist reaching chest, other point downward.

EXTEND BOOM: (Telescoping Boom) One Hand Signal One fist in front of chest with thumb tapping chest.