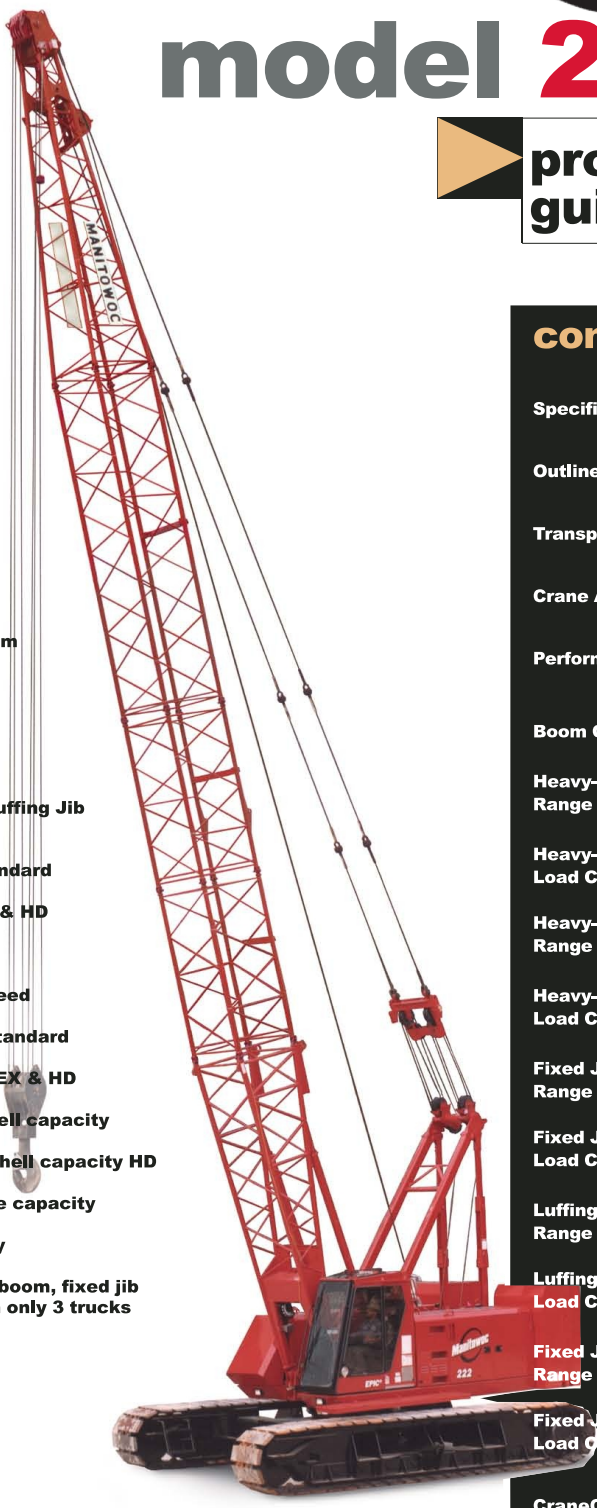
Appendix 5 – Civil Equipment

data

model 222

product guide



features

- 91 mton (100 ton) capacity
- 307 mton-m (2,224 ft-kips) Maximum Load Moment
- 61,0 m (200') Heavy-Lift Boom
- 76,2 m (250') Fixed Jib on Heavy-Lift Boom
- 80,8 m (265') Luffing Jib on Heavy-Lift Boom
- 96,0 m (315') Fixed Jib on Luffing Jib on Heavy-Lift Boom
- 172 kW (230 HP) engine standard
- 261 kW (350 HP) engine EX & HD
- EPIC® controls
- 174 m/min (570 fpm) line speed
- 89 kN (20,000 lb) line pull standard
- 178 kN (40,000 lb) line pull EX & HD
- 7 938 kg (17,600 lb) Clamshell capacity
- 13 600 kg (30,000 lb) Clamshell capacity HD
- 8 160 kg (18,000 lb) Dragline capacity
- Fast, efficient self-assembly
- Complete crane, maximum boom, fixed jib and counterweight ships on only 3 trucks
- Manitowoc CraneCARE℠

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Manitowoc

WARNING! The provided information is for reference purposes only and should not be used to operate the crane. The crane's specific operator's manual should be consulted and understood prior to crane operation.

specifications

Upperworks

Engine

222: Cummins 6 CTA 8.3C diesel, 6 cylinder, 172 kW (230 BHP) @ 2200 governed RPM.

One 12 volt maintenance-free, Group 8D battery, 1400 CCA at -18°C (0° F), 12 volt starting and 80 amp alternator.

222EX & 222HD: Cummins M11 diesel, 6 cylinder, 261 kW (350 BHP) @ 2100 governed RPM.

Two 12 volt maintenance-free, Group 8D batteries, 1400 CCA at -18°C (0° F), 12 volt starting and 100 amp alternator.

Optional additional pad for mounting of accessory hydraulic pumps on Cummins M11 only.

Manually operated disconnect clutch for cold weather starting. Multiple hydraulic pump drive transmission provides independent power for all machine functions.

Optional: consult factory for other available engines.

One 340 l (90 gal) capacity diesel fuel tank, mounted on rear of upperworks, with level indicator in operator's cab.

Controls

Modulating electronic-over-hydraulic controls provide infinite speed response directly proportional to control lever movement. Controls include Manitowoc's exclusive EPIC® ***E**lectronic **P**rocessed **I**ndependent **C**ontrols* system providing microprocessor driven control logic, pump control, on-board diagnostics, and service information.

Block-up limit control is standard for hoist and whip lines.

Integrated Load Moment Indicator system (LMI) is standard for main boom, upper boom point, and fixed jib. "Function cut-out" or "warning only" operation is available via a keyed switch on the LMI console.

Optional travel and swing alarms are available.

Hydraulic System

Six high-pressure piston pumps are driven through a multi-hydraulic pump transmission. These six pumps provide independent "closed loop" hydraulic power for front drum, rear drum, boom hoist system, swing system, and both left and right crawler operation.

System	kg/cm2 (psi)	lpm (gpm)
Front Drum	422 (6,000)	284 (75)
Rear Drum	422 (6,000)	284 (75)
Boom Hoist	422 (6,000)	155 (41)
Swing System	316 (4,500)	155 (41)
Left Crawler	422 (6,000)	155 (41)
Right Crawler	422 (6,000)	155 (41)

Hydraulic reservoir capacity is 568 l (150 gal) and is equipped with breather, dipstick, clean out access, and internal diffuser.

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

Replaceable, spin on ten micron (absolute) full flow line filter is furnished in the hydraulic circuit. All oil is filtered prior to return to the hydraulic reservoir.

Hydraulic system also includes pump transmission disconnect clutch & hydraulic oil cooler.

Optional **222EX & 222HD** only: Open Loop Hydraulic Power Package consists of: low profile 1 022 liter (270 gal) hydraulic tank mounted along the top left side of machinery enclosure. Additional hydraulic oil cooler and fan assembly. One main hydraulic pump up to 492 lpm (130 gpm). One pilot hydraulic pump. Ten micron filtration system and machine plumbing. Hydraulic manifold with up to five quick-disconnect couplings mounted on the front of the machine. Primary controls and valving.

Drums

Two equal width winches 543 mm (21-3/8") wide are driven by independent variable displacement axial piston hydraulic motors through planetary reduction mounted on separate front and rear shafts with anti-friction bearings.

Front Hoist	Diameter	Max Line Pull
222, 222EX	483 mm (19")	89 kn (20,000 lb)
222HD	647 mm (25-1/2")	178 kn (40,000 lb)

Rear Hoist	Diameter	Max Line Pull
All Models	483 mm (19")	89 kn (20,000 lb)

Optional **222HD** only: 178 kn (40,000 lb) high pull rear hoist drum can be ordered in place of standard rear 543 mm (21-3/8") wide 647 mm (25-1/2") diameter drum.

Powered hoisting/lowering and free-fall operation is standard with automatic (spring applied, hydraulically released) multi-disc brakes, clutches, and drum rotation indicators.

Free-fall operation for front and rear drums includes internally expanding clutch assembly and external contracting band brake manually applied by foot pedal with locking latch in operator's cab. Operator may select free-fall or powered lowering mode using a selector switch.

- Optional auxiliary (third) hydraulic powered drum rated at 66,7 kN (15,000 lb) line pull for third line over upper boom point, or luffing jib intermediate fall, mounted on front of rotating bed. Includes third sheave with boom top wire rope guide and boom butt wire rope guide and third drum control system.

- Optional auxiliary drum rated at 66,7 kN (15,000 lb) line pull as described above, mounted in boom butt.

- Optional **222EX & 222HD** only: 111 kN (25,000 lb) third hydraulic drum, for third line over boom point or luffing jib intermediate fall, mounted on front of rotating bed. Includes third sheave with boom top wire rope guide and boom butt wire rope guide and third drum control system.

- Optional auxiliary drum preparation includes electric wiring and hydraulic plumbing.

- Optional bolt-on liftcrane laggings.

- Optional bolt-on clamshell laggings.

- Optional wire rope for various applications (see pages 14-15).

Boom Hoist

Independent two-drum boom hoist with grooved drums including 131,1 m (430') of 15,88 mm (5/8") diameter wire rope reeved with 10 parts of line.

Drums are powered by a fixed displacement hydraulic motor coupled to an internal brake and planetary gearbox equipped with ratcheting pawl.

Boom hoist speed: raise 61,0 m (200') full main boom from 0°- 82° in 80 seconds.

Swing System

High strength fabricated steel alloy rotating bed is mounted on 1,64 m (64-3/4") diameter turntable bearing.

Reinforced rotating bed for duty cycle operation on the 222EX & 222HD.

Independent swing powered by a fixed displacement hydraulic motor coupled to a planetary gearbox with internal brake. 360° positive swing lock.

Counterweight

Total standard upper counterweight assembly is 24 177 kg (53,000 lb) consisting of one inner 12 927 kg (28,500 lb) counterweight and one outer 11 249 kg (24,800 lb) counterweight.

During self-assembly, the crane boom butt and hoist are used to lift the counterweights up onto lugs at the rear of the rotating bed upperworks via a tethered remote control. The counterweights are then secured in place by two pins for fast, safe assembly.

- Optional Series B counterweight system consisting of one 4 536 kg (10,000 lb) middle counterweight box and four crawler frame counterweights at 1 588 kg (3,500 lb) each. Includes connecting pins, brackets, and stops.

Operator's Cab

Fully enclosed and insulated steel module mounted to the left front corner of rotating bed. Module is equipped with sliding door, large safety glass windows on all sides and roof. Signal horn, cab space heater, front and roof windshield wipers, dome light, sun visor and shade, fire extinguisher and air circulating fan are standard equipment.

- Optional air conditioning for operator's cab.

- Optional nylon protective window covers for operator's cab.

Attachments

No. 222 Heavy-Lift Main Boom

The base 222 & 222EX liftcranes come standard with a 12,2 m (40') No. 222 basic heavy-lift tubular chord boom consisting of a 5,8 m (19') butt and 6,4 m (21') open throat top with four 50,8 cm (20") diameter roller bearing sheaves on one shaft.

The basic heavy-lift boom also includes a boom angle indicator, pendant rigging, cushioned boom stops, and automatic boom hoist stop.

Anti-two block limit controls for main and whip lines.

4,7 m (15' 6") gantry and telescopic backhitch with anti-friction bearings and nylon sheaves in gantry and equalizer system.

- Optional No. 222 3,0 m (10'), 6,1 m (20'), and 12,2 m (40') main boom inserts with pendants.

specifications

Optional 222 & 222EX detachable upper boom point with one 50.8 cm (20") roller bearing steel sheave grooved for 22,23 mm (7/8") diameter rope with rope guard for lift crane.

No. 222HD Heavy-Duty Main Boom

The base 222HD liftcrane comes standard with a 12,2 m (40') No. 222HD basic heavy-duty tubular chord boom consisting of 5,8 m (19') butt and 6,4 m (21') open throat top with two 86,3 cm (34") diameter taper roller bearing sheaves on one shaft.

The basic heavy-duty boom also includes a boom angle indicator, pendant rigging, cushioned boom stops, and automatic boom hoist stop.

Anti-two block limit controls for main and whip lines.

4,7 m (15' 6") gantry and telescopic backhitch with anti-friction bearings and nylon sheaves in gantry and equalizer system.

Optional No. 222HD 3,0 m (10') and 6,1 m (20') main boom inserts with pendants.

Note: 222HD utilizes No. 222 12,2 m (40') insert(s).

Optional 222HD heavy duty detachable upper boom point with one 76,2 cm (30") roller bearing steel sheave grooved for 31,75 mm (1-1/4") diameter rope with rope guard for liftcrane.

No. 10 Fixed Jib

Optional No. 10 basic fixed jib 9,1 m (30') length consisting of 4,6 m (15') jib butt and 4,6 m (15') jib top with 3,7 m (12') jib strut, pendants and backstay.

Optional No. 10 fixed jib inserts 3,0 m (10').

Utilize up to three fixed jib inserts in combination with the No. 10 basic fixed jib for total lengths of 12,2 m (40'), 15,2 m (50'), and 18,3 m (60').

Optional jib point roller assembly for use on No. 10 fixed jib extension on No. 222 luffing jib.

No. 260 Boom for No. 222 Luffing Jib

Optional 16,8 m (55') basic No. 260 boom for No. 222 luffing jib assembly consisting of: 8,8 m (29') No. 260 transition insert with wire rope guide, 2,1 m (7') boom cap assembly, pendants for transition and cap, and pendant spreader.

Note: above utilizes existing 5,8 m (19') No. 222 boom butt from base crane.

Optional 3,0 m (10'), 6,1 m (20'), and 12,2 m (40') No. 260 boom inserts with pendants.

No. 222 Luffing Jib requires No. 260 Main Boom

Optional 15,2 m (50') basic No. 222 luffing jib assembly consisting of: 5,8 m (19') No. 222 luffing jib butt with one 48,9 cm (19-1/4") diameter roller bearing sheave (intermediate-fall), 4,8 m (16') fixed strut assembly, 4,8 m (16') jib strut assembly, jib stop assembly, backstay pendants, luffing jib point roller assembly, 51,9 cm (20-7/16") grooved bolt-on lagging for luffing (rear drum), luffing jib hoist line, block up limit, LMI (load moment indicator) hardware for intermediate-fall, luffing jib, and fixed jib extension on luffing jib

Note: above utilizes existing 3,0 m (10') No. 222 boom insert and existing 6,4 m (21') No. 222 boom top from base crane – use existing No. 222 inserts for longer lengths)

Lowerworks

Carbody

Steel fabricated carbody with wide flange wings for mounting to crawler side frames.

Two variable displacement travel motors driven through planetary gearboxes provide narrow-profile mounting within the crawler modules.

Crawlers

Crawler assemblies are 6,83 m (22' 5") long with 91,4 cm (36") wide cast steel crawler pads.

Crawlers have full counter-rotation capability.

Hydraulic extension/retraction of crawler assemblies with tethered remote control.

Maximum ground speed of 1,56 kph (0.97 mph).

Optional crawler handling package includes a high capacity wire rope guide mounted on the boom butt, sheave frame that attaches to the boom butt, single sheave 20 mton (22 ton) self assembly block for 22 mm (7/8") or 31 mm (1-1/4") wire rope, and four 1,8 m (6') nylon eye round slings.

Optional Equipment

- Optional **222 & 222EX** Blocks and hooks –

  11 mton (12 ton) Swivel hook
  with 336 kg (740 lb) weight ball

  11 mton (12 ton) Non-swivel hook
  with 336 kg (740 lb) weight ball

  27 mton (30 ton) hook block with two 50,8 cm (20") sheaves for 22,23 mm (7/8") wire rope with swivel hook, hook latch, and swivel lock

  36 mton (40 ton) hook block with two 50,8 cm (20") sheaves for 22,23 mm (7/8") wire rope with swivel hook, hook latch, and swivel lock

  45 mton (50 ton) hook block with three 50,8 cm (20") sheaves for 22,23 mm (7/8") wire rope with swivel hook, hook latch, and swivel lock

  54 mton (60 ton) hook block with three 50,8 cm (20") sheaves for 22,23 mm (7/8") wire rope with swivel hook, hook latch, and swivel lock

  64 mton (70 ton) hook block with four 50,8 cm (20") sheaves for 22,23 mm (7/8") wire rope with swivel hook, hook latch, and swivel lock

  82 mton (90 ton) hook block with four 50,8 cm (20") sheaves for 22,23 mm (7/8") wire rope with swivel hook, hook latch, and swivel lock

  91 mton (100 ton) hook block with five 50,8 cm (20") sheaves for 22,23 mm (7/8") wire rope with swivel hook, hook latch, and swivel lock

- Optional **222HD** Blocks and hooks –

  17 mton (19 ton) Swivel hook
  with 340 kg (749 lb) weight ball

  32 mton (35 ton) hook block with two 76,2 cm (30") sheaves for 31,75 mm (1-1/4") wire rope with swivel hook, hook latch, and swivel lock

  36 mton (40 ton) hook block with two 76,2 cm (30") sheaves for 31,75 mm (1-1/4") wire rope with swivel hook, hook latch, and swivel lock

  82 mton (90 ton) hook block with two 76,2 cm (30") sheaves for 31,75 mm (1-1/4") wire rope with swivel hook, hook latch, and swivel lock

  91 mton (100 ton) hook block with two 76,2 cm (30") sheaves for 31,75 mm (1-1/4") wire rope with swivel hook, hook latch, and swivel lock

- Optional US Standard Tool Kit: includes all US tools required for routine maintenance (with the exception of a torque wrench).

- Optional Hydraulic Test Kit: required to properly analyze the performance of the EPIC® control system.

- Optional Service Interval Kits: for the regularly scheduled maintenance of general crane operations.

- Optional Lighting Packages: consult Factory for available options.

- Optional Special Paint: in color(s) other than Manitowoc standard red and black.

- Optional Special Customer Decals: custom vinyl decal(s) of name and/or logo from artwork supplied by customer.

- Optional Export Packaging: basic crane, boom and jib sections.

Optional Applications

- Optional **222 & 222EX** Clamshell: includes 51,9 cm (20-7/16") diameter laggings with helical grooves for 22,23 mm (7/8") rope for front and rear drums. Tagline, Rud-O-Matic® No. 1248 two barrel with 50,8 cm (20") wheel for maximum 24,4 m (80') boom. Boom point roller guide. Pressure rollers on both drums. Clamshell control system - upgrade to basic machine.

- Optional **222HD** Clamshell: includes laggings with helical grooves for 31,75 mm (1-1/4") rope for front and rear drums. Tagline, Rud-O-Matic® No. 1848 three barrel with 76,2 mm (30") wheel for maximum 30,5 m (100') boom. Boom point roller guide. Pressure rollers on both drums. Clamshell control system - upgrade to basic machine.

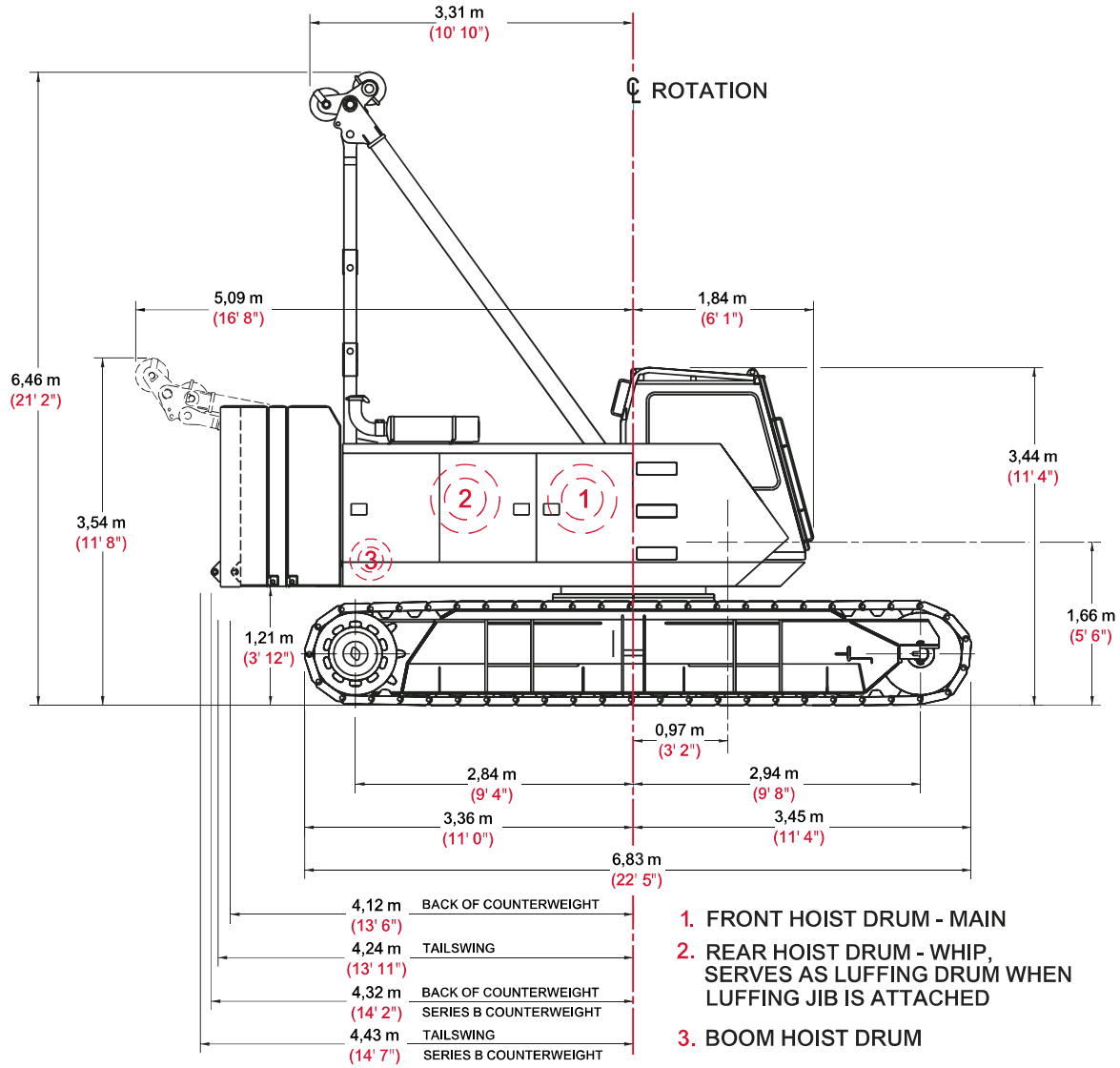
NOTE: 222HD clamshell package requires the purchase of 222HD high pull rear hoist drum.

- Optional **222 & 222EX** Dragline: includes 51,9 cm (20-7/16") diameter laggings with helical grooves for 22,23 mm (7/8") rope for both front and rear drums. Fairlead, hinged type with roller bearing steel sheaves. Boom point roller guide. Pressure rollers on both drums.

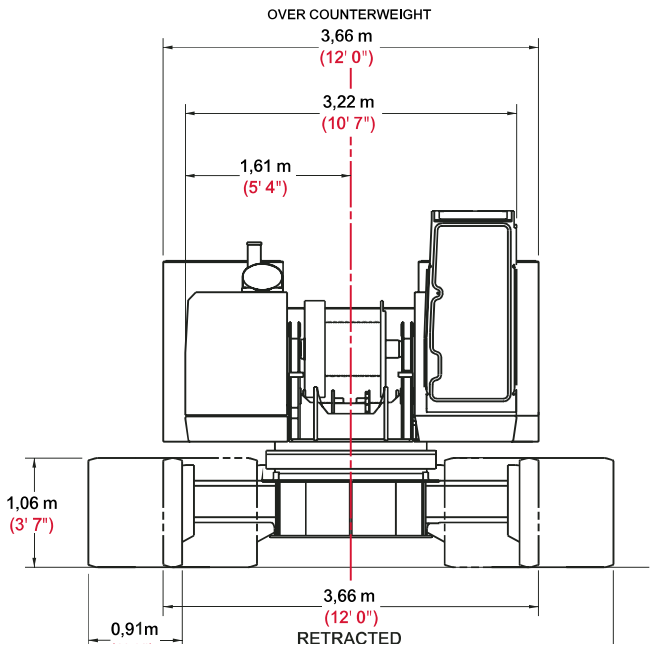
- Optional **222HD** Dragline: includes 51,9 cm (20-7/16") diameter laggings with helical grooves for 31,75 mm (1-1/4") rope for both front and rear drums. Fairlead, hinged type with roller bearing steel sheaves. Boom point roller guide. Pressure rollers on both drums.

- Optional Pile Driving: includes extended lower boom point shaft for attachment of fixed pile leads.

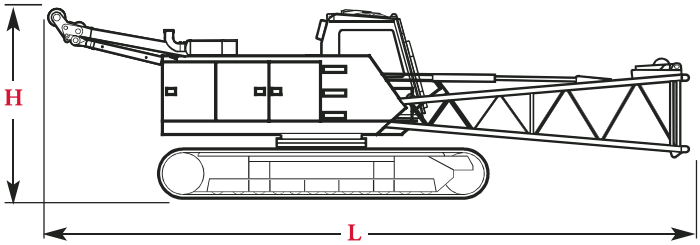
outline dimensions



1. FRONT HOIST DRUM - MAIN
2. REAR HOIST DRUM - WHIP, SERVES AS LUFFING DRUM WHEN LUFFING JIB IS ATTACHED
3. BOOM HOIST DRUM

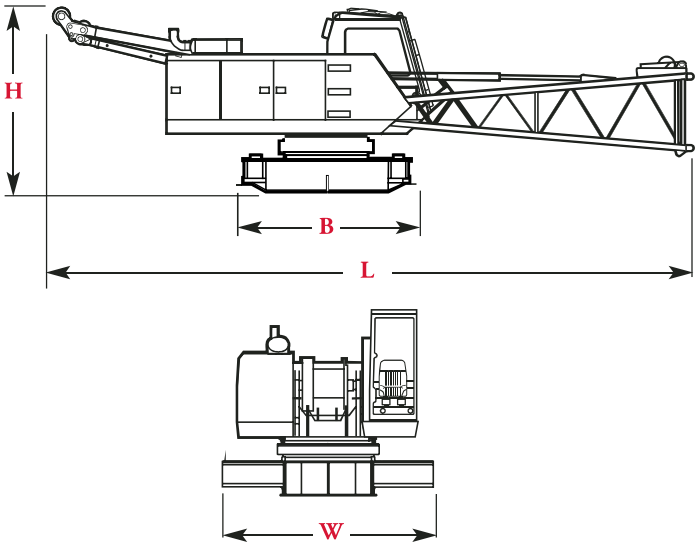


outline dimensions



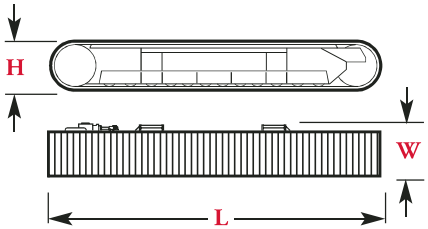
Basic Crane		x 1
Length	11,86 m	38' 11"
Width (retracted)	3,66 m	12' 0"
Height	3,56 m	11' 8"
Weight (222)	42 102 kg	92,818 lb
Weight (222EX)	44 124 kg	97,277 lb
Weight (222HD)	45 249 kg	99,756 lb

Note: Weight includes crawlers, carbody, and upperworks with hydraulic fluid, half tank of fuel, standard wire rope, gantry, and boom butt.

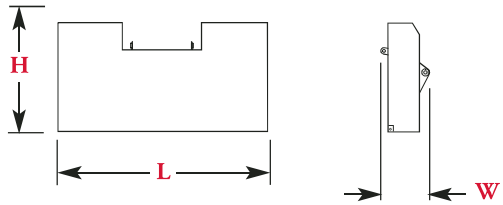


Basic Crane with crawlers removed		x 1
Length	11,86 m	38' 11"
Width	3,66 m	12' 0"
Height	3,25 m	10' 8"
Base	3,23 m	10' 7"
Weight (222)	24 657 kg	54,360 lb
Weight (222EX)	26 680 kg	58,819 lb
Weight (222HD)	27 804 kg	61,298 lb

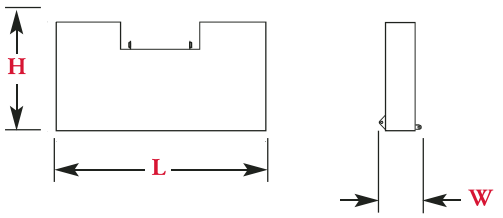
Note: Weight includes carbody, and upperworks with hydraulic fluid, half tank of fuel, standard wire rope, gantry, and boom butt.



Crawlers		x 2
Length	6,83 m	22' 5"
Width	1,07 m	3' 6"
Height	1,09 m	3' 7"
Weight	8 654 kg	19,079 lb

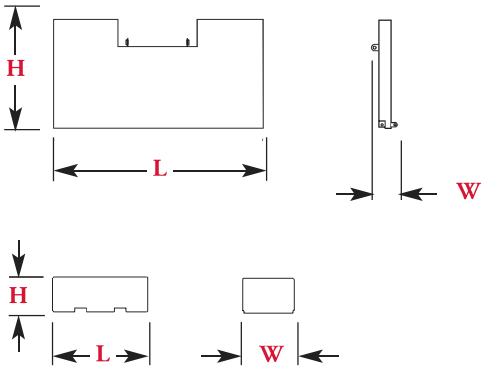


Inner Counterweight		x 1
Length	3,66 m	12' 0"
Width	0,84 m	2' 9"
Height	1,85 m	6' 1"
Weight	12 927 kg	28,500 lb



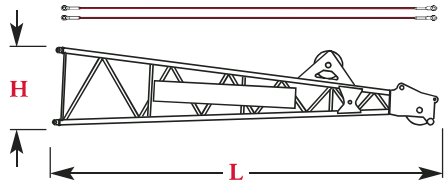
Outer Counterweight		x 1
Length	3,66 m	12' 0"
Width	0,69 m	2' 3"
Height	1,85 m	6' 1"
Weight	11 249 kg	24,800 lb

outline dimensions

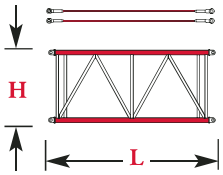


Middle Counterweight - Series B		x 1
Length	3,66 m	12' 0"
Width	0,41 m	1' 4"
Height	1,85 m	6' 1"
Weight	4 536 kg	10,000 lb

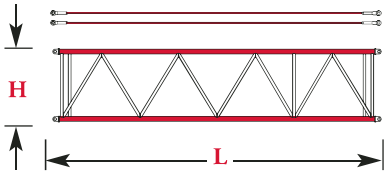
Crawler Frame Counterweights - Series B		x 4
Length	0,89 m	2' 11"
Width	0,66 m	2' 2"
Height	0,36 m	1' 2"
Weight each	1 588 kg	3,500 lb



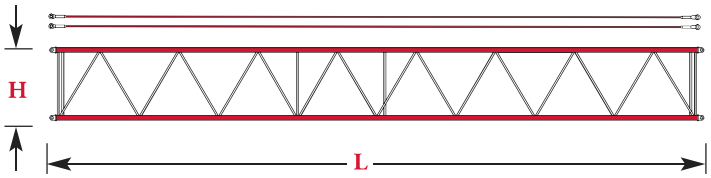
222 & 222EX Boom top 6,4 m (21') & Pendants		x 1
Length	6,76 m	22' 2"
Width	1,30 m	4' 3"
Height	1,37 m	4' 6"
Weight	1 077 kg	2,375 lb



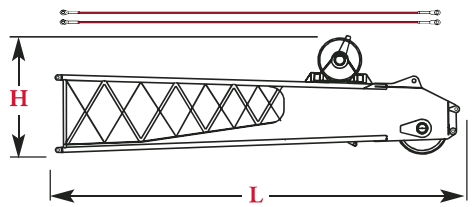
No. 222 Main Boom 3,1 m (10') Insert & Pendants		x 1, 2
Length	3,15 m	10' 4"
Width	1,30 m	4' 3"
Height	1,52 m	5' 0"
Weight	375 kg	826 lb



No. 222 Main Boom 6,1 m (20') Insert & Pendants		x 1, 2
Length	6,20 m	20' 4"
Width	1,30 m	4' 3"
Height	1,52 m	5' 0"
Weight	610 kg	1,345 lb



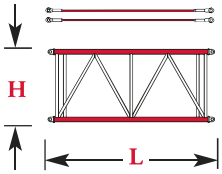
No. 222 Main Boom 12,2 m (40') Insert & Pendants		x 1, 2, 3
Length	12,29 m	40' 4"
Width	1,30 m	4' 3"
Height	1,52 m	5' 0"
Weight	1 089 kg	2,400 lb



222HD Boom top 6,4 m (21') & Pendants		x 1
Length	6,40 m	21' 0"
Width	1,30 m	4' 3"
Height	1,63 m	5' 4"
Weight	2 654 kg	5,850 lb

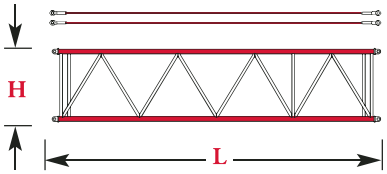
Optional

outline dimensions



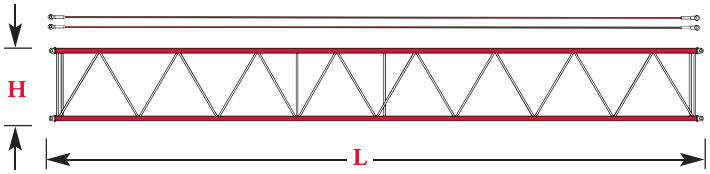
No. 222HD Main Boom 3,0 m (10')

Insert & Pendants		x 1, 2
Length	3,15 m	10' 4"
Width	1,30 m	4' 3"
Height	1,52 m	5' 0"
Weight	480 kg	1,059 lb



No. 222HD Main Boom 6,1 m (20')

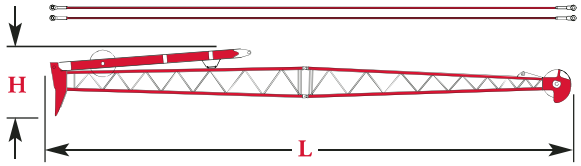
Insert & Pendants		x 1, 2
Length	6,20 m	20' 4"
Width	1,30 m	4' 3"
Height	1,52 m	5' 0"
Weight	826 kg	1,821 lb



No. 222HD Main Boom 12,2 m (40')

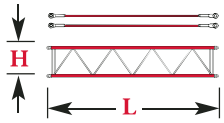
Insert & Pendants		x 1, 2
Length	12,19 m	40' 4"
Width	1,30 m	4' 3"
Height	1,52 m	5' 0"
Weight	1 089 kg	2,400 lb

Note: same insert as No. 222 Main Boom



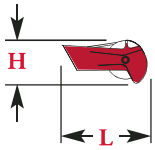
No. 10 Fixed Jib 3,1 m (10')

Strut & Pendants		x 1
Length	9,53 m	31' 4"
Width	0,71 m	2' 4"
Height	1,24 m	4' 1"
Weight	728 kg	1,604 lb



No. 10 Jib Inserts 3,1 m (10')

Strut & Pendants		x 1, 2, 3
Length	3,12 m	10' 3"
Width	0,61 m	2' 0"
Height	0,61 m	2' 0"
Weight	105 kg	232 lb

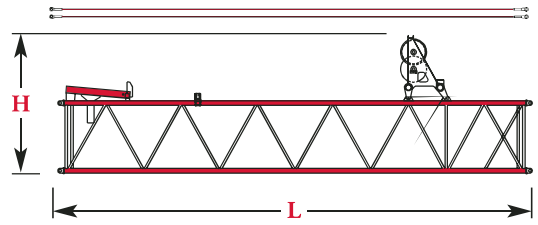


Upper Boom Point x 1

Length	1,27 m	4' 2"
Width	0,66 m	2' 2"
Height	0,53 m	1' 9"
Weight	153 kg	338 lb

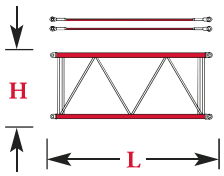
Optional

outline dimensions



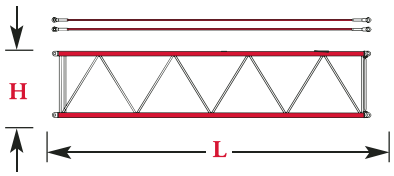
No. 260 Main Boom 8,8 m (29')
Transition Insert & Pendants x 1

Length	8,99 m	29' 4"
Width	1,93 m	6' 4"
Height	2,59 m	8' 6"
Weight	1 219 kg	2,687 lb



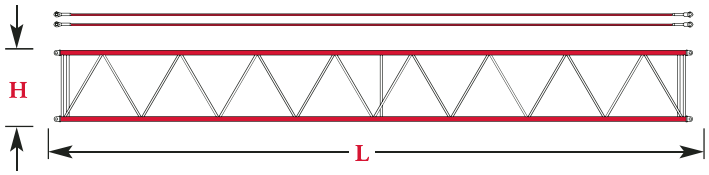
No. 260 Main Boom 3,0 m (10')
Insert & Pendants x 1

Length	3,15 m	10' 4"
Width	1,63 m	5' 4"
Height	1,52 m	5' 0"
Weight	411 kg	905 lb



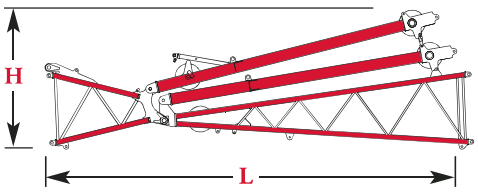
No. 260 Main Boom 6,1 m (20')
Insert & Pendants x 1, 2

Length	6,20 m	20' 4"
Width	1,63 m	5' 4"
Height	1,52 m	5' 0"
Weight	674 kg	1,485 lb



No. 260 Main Boom 12,2 m (40')
Insert & Pendants x 1

Length	12,19 m	40' 4"
Width	1,63 m	5' 4"
Height	1,52 m	5' 0"
Weight	1 211 kg	2,670 lb

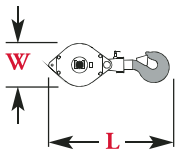


No. 260 Boom Cap 2,1 m (7')
& No. 222 Luffing Jib Butt 5,8 m (19')
& Strut Assembly x 1

Length	8,05 m	26' 5"
Width	1,63 m	5' 4"
Height	2,54 m	8' 4"
Weight	2 744 kg	6,050 lb

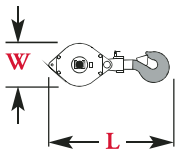
Optional

outline dimensions



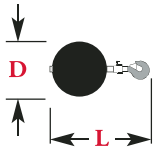
222, 222EX Hook block for 22,23 mm (7/8") wire rope

Capacity	91 mt	100 t	Length	1,7 m	5' 7"
Weight	1 121 kg	2,472 lb	Width	0,6 m	2' 1"
Capacity	82 mt	90 t	Length	1,5 m	5' 1"
Weight	974 kg	2,148 lb	Width	0,6 m	2' 1"
Capacity	54,4 mt	60 t	Length	1,3 m	4' 4"
Weight	636 kg	1,400 lb	Width	0,6 m	2' 1"
Capacity	45,4 mt	50 t	Length	1,3 m	4' 4"
Weight	595 kg	1,310 lb	Width	0,6 m	2' 1"
Capacity	36,3 mt	40 t	Length	1,2 m	4' 1"
Weight	590 kg	1,300 lb	Width	0,6 m	2' 1"
Capacity	27,2 mt	30 t	Length	1,1 m	3' 9"
Weight	535 kg	1,178 lb	Width	0,6 m	2' 1"



222HD Hook block for 31,75 mm (1-1/4") wire rope

Capacity	91,0 mt	100 t	Length	1,8 m	5' 11"
Weight	1 978 kg	4,361 lb	Width	0,9 m	3' 0"
Capacity	82,0 mt	90 t	Length	1,8 m	5' 11"
Weight	1 978 kg	4,361 lb	Width	0,9 m	3' 0"
Capacity	36,3 mt	40 t	Length	1,7 m	5' 6"
Weight	1 495 kg	3,295 lb	Width	0,9 m	2' 11"
Capacity	32,0 mt	35 t	Length	1,7 m	5' 6"
Weight	1 495 kg	3,295 lb	Width	0,9 m	2' 11"



222 & 222EX Weight Ball

Capacity/Swivel	13,6 mt	12 t	Diameter	0,5 m	1' 6"
Weight	336 kg	740 lb	Length	1,2 m	4' 0"
Capacity/Non-Swivel	13,6 mt	12 t	Diameter	0,5 m	1' 6"
Weight	336 kg	740 lb	Length	1,2 m	4' 0"

222HD Weight Ball

Capacity/Swivel	17 mt	19 t	Diameter	0,5 m	1' 6"
Weight	340 kg	749 lb	Length	1,2 m	4' 0"

Optional

transport data

Trailer Load Out Summary

Model 222 Series B
No. 10 Fixed Jib 18,3 m (60') on
No. 222 Main Boom 57,9 m (190')

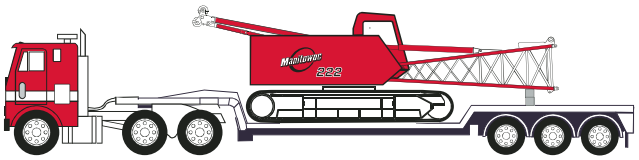
Item	Weight each Item kg (lb)	Quantity on Trailer Load # 1	2	3
No. 222 Basic Crane with Crawlers	42 102 (92,818)	1		
Standard Outer Counterweight	11 249 (24,800)		1	
Standard Inner Counterweight	12 927 (28,500)			1
Series B Middle Counterweight	4 536 (10,000)		1	
Series B Crawler Frame Counterweight	1 588 (3,500)		1	3
12,2 m (40') No. 222 Boom Insert, Pendants	1 089 (2,400)		2	1
6,1 m (20') No. 222 Boom Insert, Pendants	610 (1,345)			1
3,0 m (10') No. 222 Boom Insert, Pendants	375 (826)			1
Standard Boom Top 5,9 m (19')	1 077 (2,375)			1
Upper Boom Point	153 (338)		1	
9,1 m (30') No. 10 Fixed Jib Basic	728 (1,604)		1	
3,0 m (10') No. 10 Jib Insert, Pendants	105 (232)		3	
Hook Block 91,0 mton (100 ton)	1 121 (2,472)			1
Weight Ball	336 (740)		1	
Approximate Total Shipping Weight kg (lb)		42 102 (92,818)	21 083 (46,478)	21 963 (48,418)

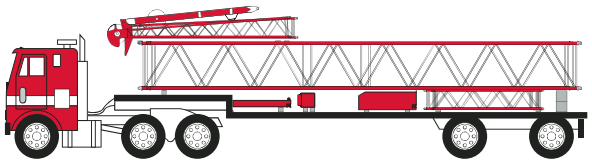
Trailer Load Out Summary

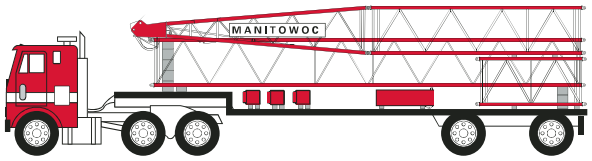
Model 222 Series B
No. 10 Fixed Jib 18,3 m (60') on
No. 222 Luffing Jib 39,6 m (130') on No. 260 Boom 38,1 m (125')

Item	Weight each Item kg (lb)	Quantity on Trailer Load # 1	2	3	4	5
No. 222 Basic Crane with Crawlers	42 102 (92,818)	1				
Standard Outer Counterweight	11 249 (24,800)		1			
Standard Inner Counterweight	12 927 (28,500)			1		
Series B Middle Counterweight	4 536 (10,000)		1			
Series B Crawler Frame Counterweight	1 588 (3,500)		1	3		
12,2 m (40') No. 222 Boom Insert, Pendants	1 089 (2,400)		2			
3,0 m (10') No. 222 Boom Insert, Pendants	375 (826)			1		
Standard Boom Top 5,9 m (19')	1 077 (2,375)			1		
Upper Boom Point	153 (338)				1	
9,1 m (30') No. 10 Fixed Jib Basic	728 (1,604)		1			
3,0 m (10') No. 10 Jib Insert, Pendants	105 (232)		3			
Hook Block 91,0 mton (100 ton)	1 121 (2,472)				1	
Weight Ball	336 (740)				1	
12,2 m (40') No. 260 Boom Insert, Pendants	1 211 (2,670)				1	
6,1 m (20') No. 260 Boom Insert, Pendants	674 (1,485)				1	
3,0 m (10') No. 260 Boom Insert, Pendants	411 (905)				1	
8,8 m (29') No. 260 Transition, Pendants	1 219 (2,687)					1
3,0 m (10') No. 260 Boom Cap with attached 4,5 m (15') No. 222 Luffing Jib Butt, Pendants,Strut Assembly, Rope Guide	2 744 (6,050)					1
Approximate Total Shipping Weight kg (lb)		42 102 (92,818)	20 594 (45,400)	19 143 (42,201)	3 906 (8,610)	3 963 (8,737)

crane assembly

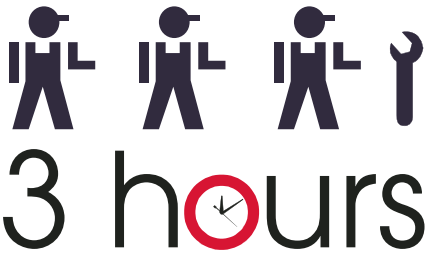


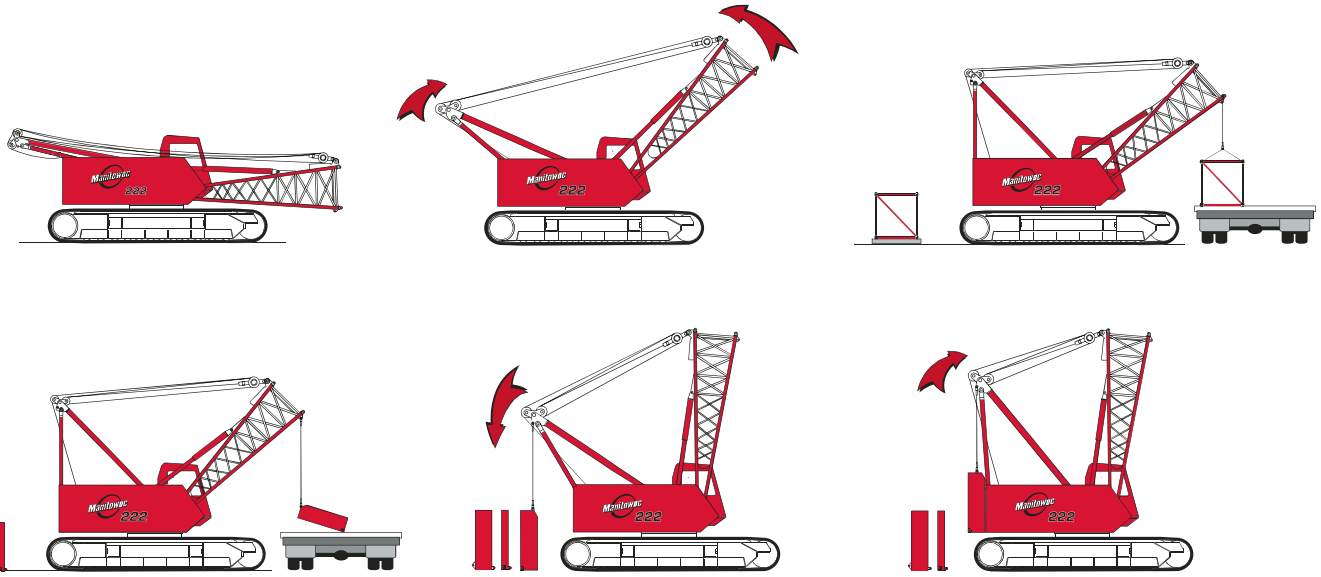


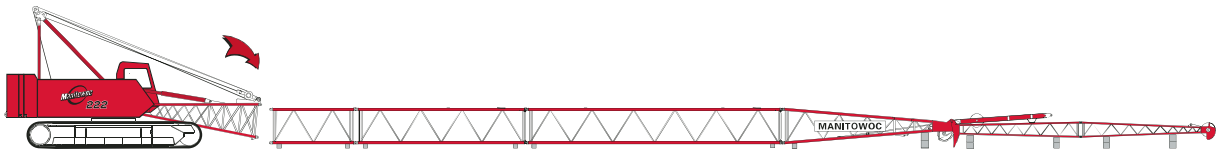


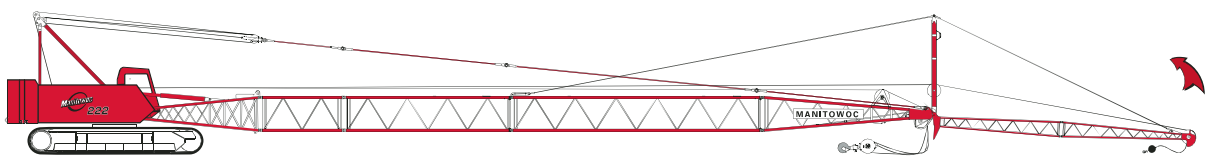
Fast Self Assembly

Three Trucks, Three People, Three Hours
Extremely well designed and utilizing efficient use of space allows the Manitowoc Model 222 to be mobilized with only three people using three trucks in three hours - or less - with maximum boom, fixed jib and counterweight.









performance data

Wire Rope Lengths - No. 222 Main Boom or No. 10 Fixed Jib on No. 222 Main Boom

Boom or Boom and Fixed Jib Length	Whip Line: Rear Drum (1 part of line)		Hoist line: Front Drum		Maximum Required parts of line*
m (ft)	m	(ft)	m	(ft)	
12,2 (40)	32	(105)	152	(500)	10
15,2 (50)	38	(125)	183	(600)	10
18,3 (60)	44	(145)	198	(650)	9
21,3 (70)	50	(165)	206	(675)	8
24,4 (80)	56	(185)	206	(675)	7
27,4 (90)	62	(205)	206	(675)	6
30,5 (100)	69	(225)	221	(725)	6
33,5 (110)	75	(245)	221	(725)	5
36,6 (120)	81	(265)	221	(725)	4
39,6 (130)	87	(285)	221	(725)	4
42,7 (140)	93	(305)	221	(725)	4
45,7 (150)	99	(325)	221	(725)	3
48,8 (160)	105	(345)	221	(725)	3
51,8 (170)	111	(365)	221	(725)	3
54,9 (180)	117	(385)	221	(725)	2
57,9 (190)	123	(405)	221	(725)	2
61,0 (200)	130	(425)	221	(725)	2
64,0 (210)	136	(445)	–	–	–
67,1 (220)	142	(465)	–	–	–
70,1 (230)	148	(485)	–	–	–
73,2 (240)	154	(505)	–	–	–
76,2 (250)	160	(525)	–	–	–

Note: Hoist line and whip line lengths given in table will allow hook to touch ground. When block travel below ground in required, add additional rope equal to parts of line times added travel distance. Hoisting distance or line pull may be limited when block travel below ground is required.

* Based on 89 kN (20 kips) maximum single line pull.

Wire Rope Lengths - No. 222HD Main Boom or No. 10 Fixed Jib on No. 222HD Main Boom

Boom or Boom and Fixed Jib Length	Whip Line: Rear Drum (1 part of line)		Hoist line: Front Drum		Maximum Required parts of line*
m (ft)	m	(ft)	m	(ft)	
12,2 (40)	32	(105)	85	(280)	5
15,2 (50)	38	(125)	104	(340)	5
18,3 (60)	44	(145)	122	(400)	5
21,3 (70)	50	(165)	122	(400)	4
24,4 (80)	56	(185)	133	(435)	4
27,4 (90)	62	(205)	133	(435)	3
30,5 (100)	69	(225)	133	(435)	3
33,5 (110)	75	(245)	149	(490)	3
36,6 (120)	81	(265)	149	(490)	2
39,6 (130)	87	(285)	149	(490)	2
42,7 (140)	93	(305)	149	(490)	2
45,7 (150)	99	(325)	149	(490)	2
48,8 (160)	105	(345)	–	–	–
51,8 (170)	111	(365)	–	–	–
54,9 (180)	117	(385)	–	–	–

Note: Hoist line and whip line lengths given in table will allow hook to touch ground. When block travel below ground in required, add additional rope equal to parts of line times added travel distance. Hoisting distance or line pull may be limited when block travel below ground is required.

* Based on 178 kN (40 kips) maximum single line pull.

Drum Capacities - Wire Rope

	Maximum Length: No Lagging	With Lagging
Front or Rear Drum 22,23 mm (7/8") Wire Rope*	250 m (819 ft) 6 Layers	265 m (870 ft) 6 Layers
Auxiliary Drum 15,88 mm (5/8") Wire Rope**	80 m (264 ft) 4 Layers	– –
Front or Rear Drum 31,75 mm (1-1/4") Wire Rope***	136 m (447 ft) 4 Layers	143 m (470 ft) 4 Layers
Boom Hoist Drum 15,88 mm (5/8") Wire Rope	131 m (430 ft) 5 Layers	– –

* 5 m (16') is deducted from maximum spooling capacities for 3 dead wraps per drum or lagging for 22,23 mm (7/8") wire rope.

** 3 m (9') is deducted from maximum spooling capacities for 3 dead wraps on Auxiliary Drum for 22,23 mm (7/8") wire rope.

*** 6 m (21') is deducted from maximum spooling capacities for 3 dead wraps per drum or lagging for 31,75 mm (1-1/4") wire rope.

performance data

Wire Rope Lengths - No. 222 Luffing Jib on No. 260 Main Boom

Boom Only (Includes All Luffing Jib Lengths)	Hoist Line			Intermediate Fall Line			
	Front Drum		Maximum Required Parts of Line*	Auxiliary Drum (1 Part of line**)		Auxiliary Drum (2 Parts of line**)	
m (ft)	m	(ft)		m	(ft)	m	(ft)
16,8 (55)	198	(650)	4	46	(150)	64	(210)
19,8 (65)	213	(700)	4	52	(170)	73	(240)
22,9 (75)	229	(750)	4	58	(190)	82	(270)
25,9 (85)	229	(750)	4	64	(210)	91	(300)
29,0 (95)	236	(775)	3	70	(230)	101	(330)
32,0 (105)	251	(825)	3	76	(250)	107	(350)
35,1 (115)	251	(825)	3	82	(270)	–	–
38,1 (125)	251	(825)	3	88	(290)	–	–
41,1 (135)	251	(825)	3	94	(310)	–	–
44,2 (145)	251	(825)	2	101	(330)	–	–

Note: Hoist line lengths given in table include all luffing jib lengths. Hoist and intermediate fall line lengths given in table will allow hook to touch ground. When block travel below ground in required, add additional rope equal to parts of line times added travel distance. Hoisting distance or line pull may be limited when block travel below ground is required.

* Based on 89 kN (20 kips) line pull.

** Based on 50 kN (11.25 kips) line pull.

Wire Rope Lengths - No. 10 Fixed Jib on No. 222 Luffing Jib on No. 260 Main Boom

Boom and Luffing Jib and Fixed Jib Length	Hoist Line	
	Front Drum (1 Part of line*)	
m (ft)	m	(ft)
74,7 (245)	162	(530)
77,7 (255)	168	(550)
80,8 (265)	174	(570)
83,8 (275)	180	(590)
86,9 (285)	186	(610)
89,9 (295)	192	(630)
93,0 (305)	198	(650)
96,0 (315)	204	(670)

Note: Hoist line lengths given in table include all luffing jib lengths and fixed jib lengths. Hoist and intermediate fall line lengths given in table will allow hook to touch ground. When block travel below ground in required, add additional rope equal to parts of line times added travel distance. Hoisting distance or line pull may be limited when block travel below ground is required.

* Based on 89 kN (20 kips) line pull.

Wire Rope Specifications

Part Number / Function	3.5:1 Safety Factor Regular Lay, 6x25 Filler Wire, Extra Improved Plow Steel, IWRC			5:1 Safety Factor Rotation Resistant, 2 160 N/mm² DYFORM 34LR 2160		
	No. 719111 Hoist Line	No. 719111 Whip Line	No. 719371 Luffing Jib Intermediate Fall Line	No. 719414 Hoist Line	No. 719414 Whip Line	No. 719427 Luffing Jib Intermediate Fall Line
Size Wire Rope	22,23 mm (7/8")	22,23 mm (7/8")	15,88 mm (5/8")	22,23 mm (7/8")	22,23 mm (7/8")	15,88 mm (5/8")
Minimum Breaking Strength	36 110 kg (79,600 lb)	36 110 kg (79,600 lb)	20 590 kg (45,400 lb)	48 140 kg (106,120 lb)	48 140 kg (106,120 lb)	25 590 kg (56,420 lb)
Maximum Load Per Line	9 070 kg (20,000 lb)	9 070 kg (20,000 lb)	5 100 kg (11,250 lb)	9 070 kg (20,000 lb)	9 070 kg (20,000 lb)	5 100 kg (11,250 lb)
Approximate Weight	2,11 kg/m (1.42 lb/ft)	2,11 kg/m (1.42 lb/ft)	1,07 kg/m (0.72 lb/ft)	2,46 kg/m (1.65 lb/ft)	2,46 kg/m (1.65 lb/ft)	1,25 kg/m (0.84 lb/ft)

performance data

Hoist Drum - 89 kN (20 kips)

Full Power Drum - Continuous Duty
Single Line Pull/Single Line Speed

Layer	m/min (ft/min) 1	2	3	4	5	6
Line Pull kg (lb)						
0 (0)	121 (395)	131 (430)	142 (465)	152 (500)	163 (535)	174 (570)
2 268 (5,000)	113 (369)	122 (399)	131 (429)	140 (458)	148 (487)	157 (515)
4 536 (10,000)	105 (343)	112 (368)	119 (389)	120 (394)	122 (399)	123 (404)
6 803 (15,000)	83 (272)	84 (276)	86 (281)	87 (286)	89 (291)	90 (296)
9 072 (20,000)	66 (218)	68 (223)	69 (227)	71 (232)	72 (237)	74 (242)

NOTE: Line pull is infinitely variable.

Hoist Drum - 178 kN (40 kips)

Full Power Drum - Continuous Duty
Single Line Pull/Single Line Speed

Layer	m/min (ft/min) 1	2	3	4
Line Pull kg (lb)				
0 (0)	63 (207)	69 (227)	75 (246)	81 (266)
4 536 (10,000)	59 (195)	65 (212)	69 (228)	75 (245)
9 072 (20,000)	55 (182)	60 (196)	64 (210)	68 (222)
13 608 (30,000)	47 (154)	48 (158)	49 (162)	51 (167)
18 144 (40,000)	39 (127)	40 (131)	41 (135)	42 (139)

NOTE: Line pull is infinitely variable.

Auxiliary Drum - 66,7 kN (15 kips)

Full Power Drum - Continuous Duty
Single Line Pull/Single Line Speed

Layer	m/min (ft/min) 1	2	3	4
Line Pull kg (lb)				
0 (0)	60 (196)	66 (215)	71 (234)	77 (252)
2 268 (5,000)	59 (191)	64 (209)	70 (228)	75 (245)
4 536 (10,000)	57 (188)	62 (204)	66 (218)	71 (232)
6 803 (15,000)	54 (176)			

NOTE: Line pull is infinitely variable.

Auxiliary Drum - 111 kN (25 kips)

Full Power Drum - Continuous Duty
Single Line Pull/Single Line Speed

Layer	m/min (ft/min) 1	2	3	4	5	6	7	8	9
Line Pull kg (lb)									
0 (0)	41 (133)	46 (151)	52 (170)	57 (188)	63 (206)	69 (225)	74 (243)	80 (261)	85 (280)
2 268 (5,000)	41 (132)	46 (150)	51 (168)	57 (186)	62 (203)	67 (221)	73 (239)	78 (255)	83 (273)
4 536 (10,000)	40 (130)	45 (148)	50 (164)	55 (180)	60 (196)	65 (213)	69 (228)	74 (243)	79 (258)
6 803 (15,000)	39 (127)	44 (143)	48 (157)	52 (172)	56 (185)	60 (197)			
9 072 (20,000)	37 (122)	42 (137)	46 (150)						
11 340 (25,000)	36 (117)								

NOTE: Line pull is infinitely variable.

performance data

Maximum Length – Unassisted Raising

No. 10 Fixed Jib on No. 222 Main Boom

Method	222, 222EX Series B Main Boom	222, 222EX Series B Fixed Jib	222, 222EX Main Boom	222, 222EX Fixed Jib
Over end of blocked crawlers m (ft)	61,0 (200)	– –	61,0 (200)	– –
	57,9 (190)	18,3 (60)	57,9 (190)	18,3 (60)
Over side of extended crawlers m (ft)	61,0 (200)	– –	61,0 (200)	– –
	57,9 (190)	18,3 (60)	57,9 (190)	– –
	54,9 (180)	– –	54,9 (180)	12,2 (40)
	51,8 (170)	– –	51,8 (170)	18,3 (60)
Over side of retracted crawlers m (ft)	57,9 (190)	– –	– –	– –
	54,9 (180)	– –	– –	– –
	51,8 (170)	15,2 (50)	51,8 (170)	– –
	48,8 (160)	18,3 (60)	48,8 (160)	– –
			45,7 (150)	15,2 (50)
			42,7 (140)	18,3 (60)

NOTE: Load block(s), hook(s) and weight ball(s) on ground at start.

Maximum Length – Unassisted Raising

No. 222 Luffing Jib on No. 260 Main Boom

Method	222, 222EX Series B In-Line Procedure Main Boom	In-Line Procedure Luffing Jib	Jack-Knife Procedure Main Boom	Jack-Knife Procedure Luffing Jib
Over end of blocked crawlers m (ft)	16,8 (55)	15,2 - 36,6 (50 - 120)	16,8 (55)	39,6 - 45,7 (130 - 150)
	19,8 (65)	15,2 - 33,5 (50 - 110)	19,8 (65)	36,6 - 45,7 (120 - 150)
	22,9 (75)	15,2 - 30,5 (50 - 100)	22,9 (75)	33,5 - 45,7 (110 - 150)
	25,9 (85)	15,2 - 24,4 (50 - 80)	25,9 (85)	27,4 - 45,7 (90 - 150)
	29,0 (95)	15,2 - 21,3 (50 - 70)	29,0 (95)	24,4 - 45,7 (80 - 150)
	32,0 (105)	15,2 - 18,3 (50 - 60)	32,0 (105)	21,3 - 45,7 (70 - 150)
	– –	– –	35,1 (115)	15,2 - 45,7 (50 - 150)
	– –	– –	38,1 (125)	15,2 - 42,7 (50 - 140)
	– –	– –	41,1 (135)	15,2 - 30,5 (50 - 100)
	– –	– –	44,2 (145)	18,3 (60)

NOTE: Load block(s), hook(s) and weight ball(s) on ground at start.

Maximum Length – Unassisted Raising

No. 10 Fixed Jib on No. 222 Luffing Jib on No. 260 Main Boom

222, 222EX Series B

Jack-Knife Procedure

Method	Main Boom	Luffing Jib	Fixed Jib
Over end of blocked crawlers m (ft)	35,1 (115)	30,5 - 39,6 (100 - 130)	9,1 - 18,3 (30 - 60)
	38,1 (125)	30,5 - 39,6 (100 - 130)	9,1 - 18,3 (30 - 60)
	41,1 (135)	30,5 (100)	9,1 - 18,3 (30 - 60)

NOTE: Load block(s), hook(s) and weight ball(s) on ground at start.

Working Weight

Configuration	kg (lb) 222 Series B	222
12,2 m (40') No. 222 Main Boom	79 853 (176,043)	68 965 (152,043)
57,9 m (190') No. 222 Main Boom combined with 18,3 m (60') No. 10 Fixed Jib	85 148 (187,714)	74 260 (163,714)

Typical working weight consists of: hydraulic reservoirs full, fuel half-full, drums loaded with standard lengths of wire rope, upper boom point, 91 mt (100 t) hook block, and standard weight ball.

Note: Upper boom point not used with fixed jib.

boom combinations

No. 222 Heavy-Lift Boom Combinations

Boom Length m (ft)	Boom Inserts 3,1 m (10 ft)	6,1 m (20 ft)	12,2 m (40 ft)
12,2 (40)	–	–	–
15,2 (50)	1	–	–
18,3 (60)	–	1	–
21,3 (70)	1	1	–
24,4 (80)	–	–	1
27,4 (90)	1	–	1
30,5 (100)	–	1	1
33,5 (110)	1	1	1
36,6 (120)	–	–	2
39,6 (130)	1	–	2
42,7 (140)	–	1	2
45,7 (150)	1	1	2
48,8 (160)	–	–	3
51,8 (170)	1	–	3
54,9 (180)	–	1	3
57,9 (190)	1	1	3
61,0 (200)	2	1	3

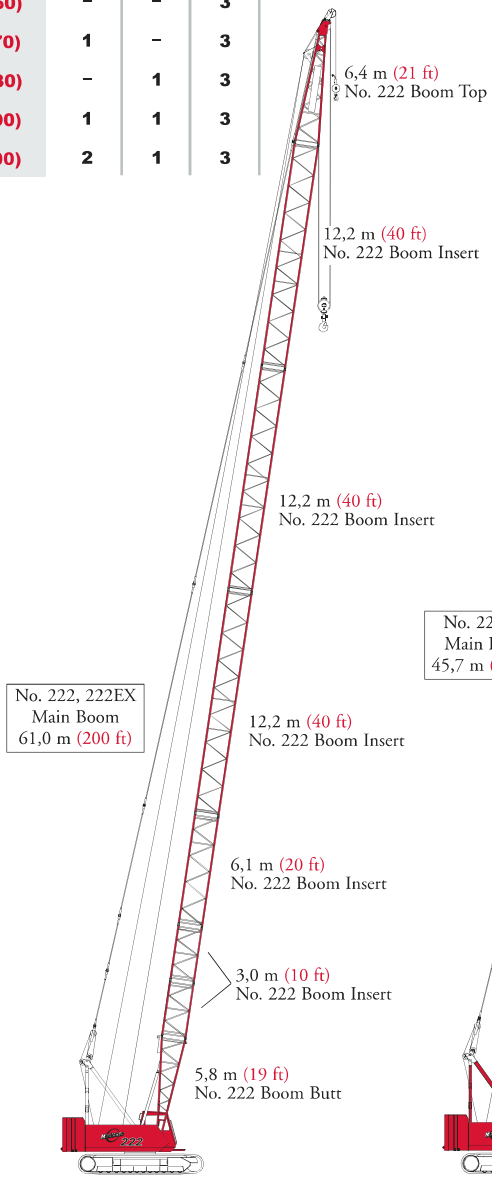
No. 222HD Heavy-Duty Boom Combinations

Boom Length m (ft)	Boom Inserts 3,1 m (10 ft)	6,1 m (20 ft)	12,2 m* (40 ft)
12,2 (40)	–	–	–
15,2 (50)	1	–	–
18,3 (60)	–	1	–
21,3 (70)	1	1	–
24,4 (80)	–	–	1
27,4 (90)	1	–	1
30,5 (100)	–	1	1
33,5 (110)	1	1	1
36,6 (120)	–	–	2
39,6 (130)	1	–	2
42,7 (140)	–	1	2
45,7 (150)	1	1	2

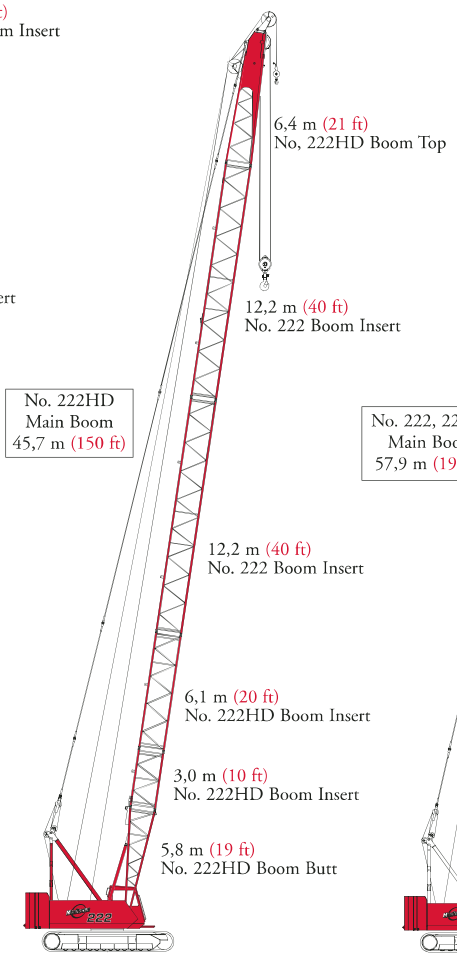
*12,2 m (40') insert same as No. 222 Main Boom.

No. 10 Fixed Jib Combinations

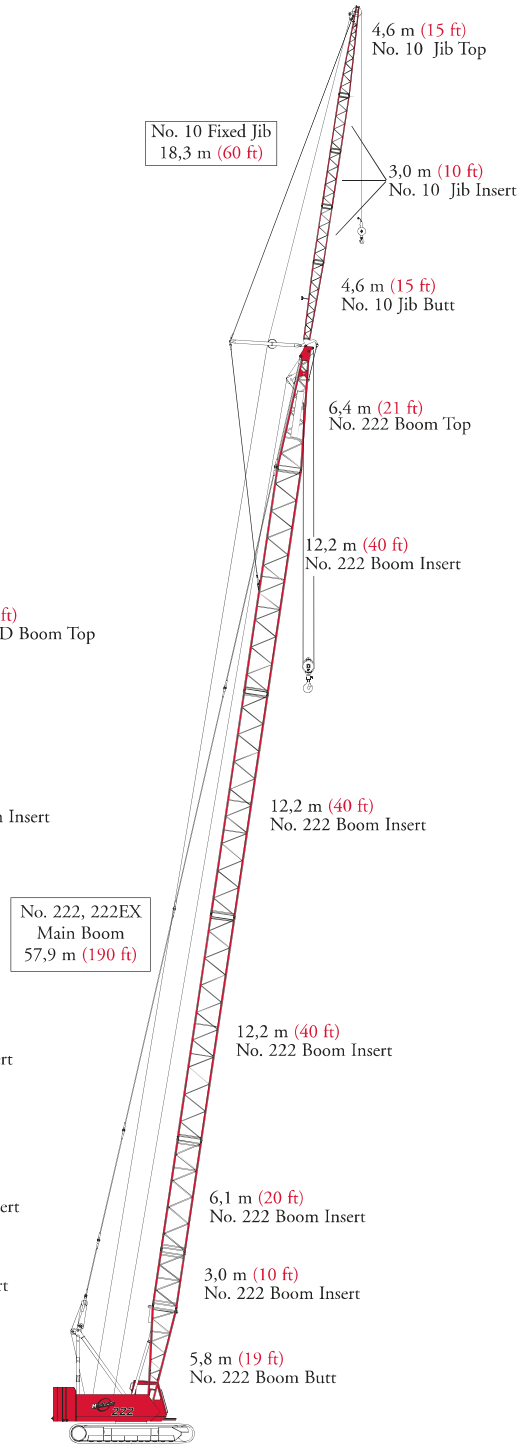
Jib Length m (ft)	Fixed Jib Inserts 3,1m (10 ft)
9,1 (30)	–
12,2 (40)	1
15,2 (50)	2
18,3 (60)	3



Model 222 Series B



Model 222 Series B



Model 222 Series B
No. 10 Fixed Jib on

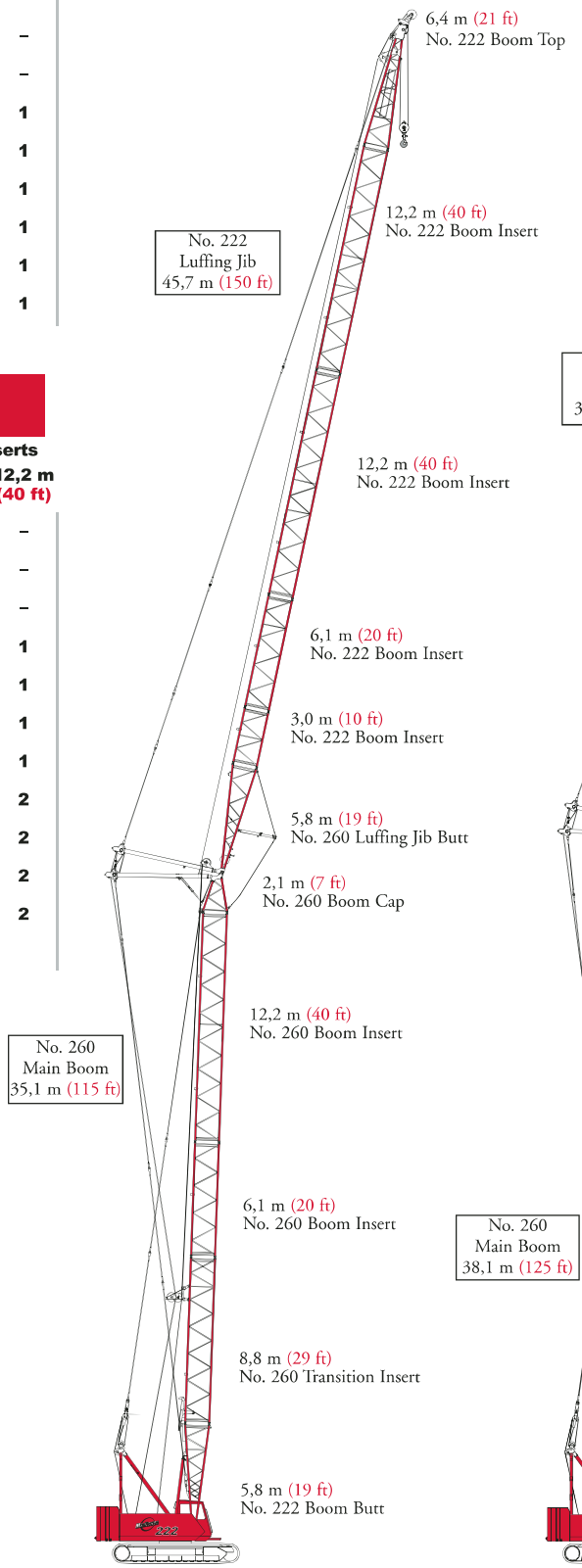
boom combinations

No. 260 Main Boom Combinations

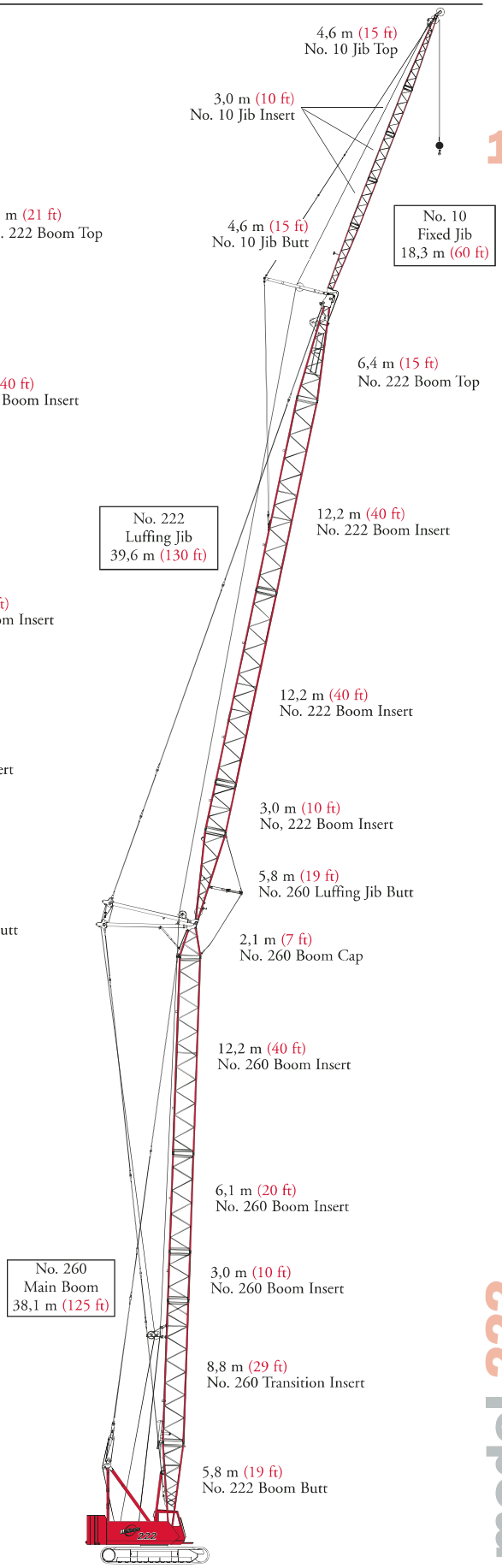
Boom Length m (ft)	Boom Inserts 3,1 m (10 ft)	6,1 m (20 ft)	12,2 m (40 ft)
16,8 (55)	–	–	–
19,8 (65)	1	–	–
22,9 (75)	–	1	–
25,9 (85)	1	1	–
29,0 (95)	–	–	1
32,0 (105)	1	–	1
35,1 (115)	–	1	1
38,1 (125)	1	1	1
41,2 (135)	–	2	1
44,3 (145)	1	2	1

No. 222 Luffing Jib Combinations

Luffing Jib Length m (ft)	Luffing Jib Inserts 3,1 m (10 ft)	6,1 m (20 ft)	12,2 m (40 ft)
15,2 (50)	1	–	–
18,3 (60)	–	1	–
21,3 (70)	1	1	–
24,4 (80)	–	–	1
27,4 (90)	1	–	1
30,5 (100)	–	1	1
33,5 (110)	1	1	1
36,6 (120)	–	–	2
39,6 (130)	1	–	2
42,7 (140)	–	1	2
45,7 (150)	1	1	2



Model 222 Series B
No. 222 Luffing Jib on



Model 222 Series B
No. 10 Fixed Jib on No. 222 Luffing Jib

model 222

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heavy-lift boom range diagram

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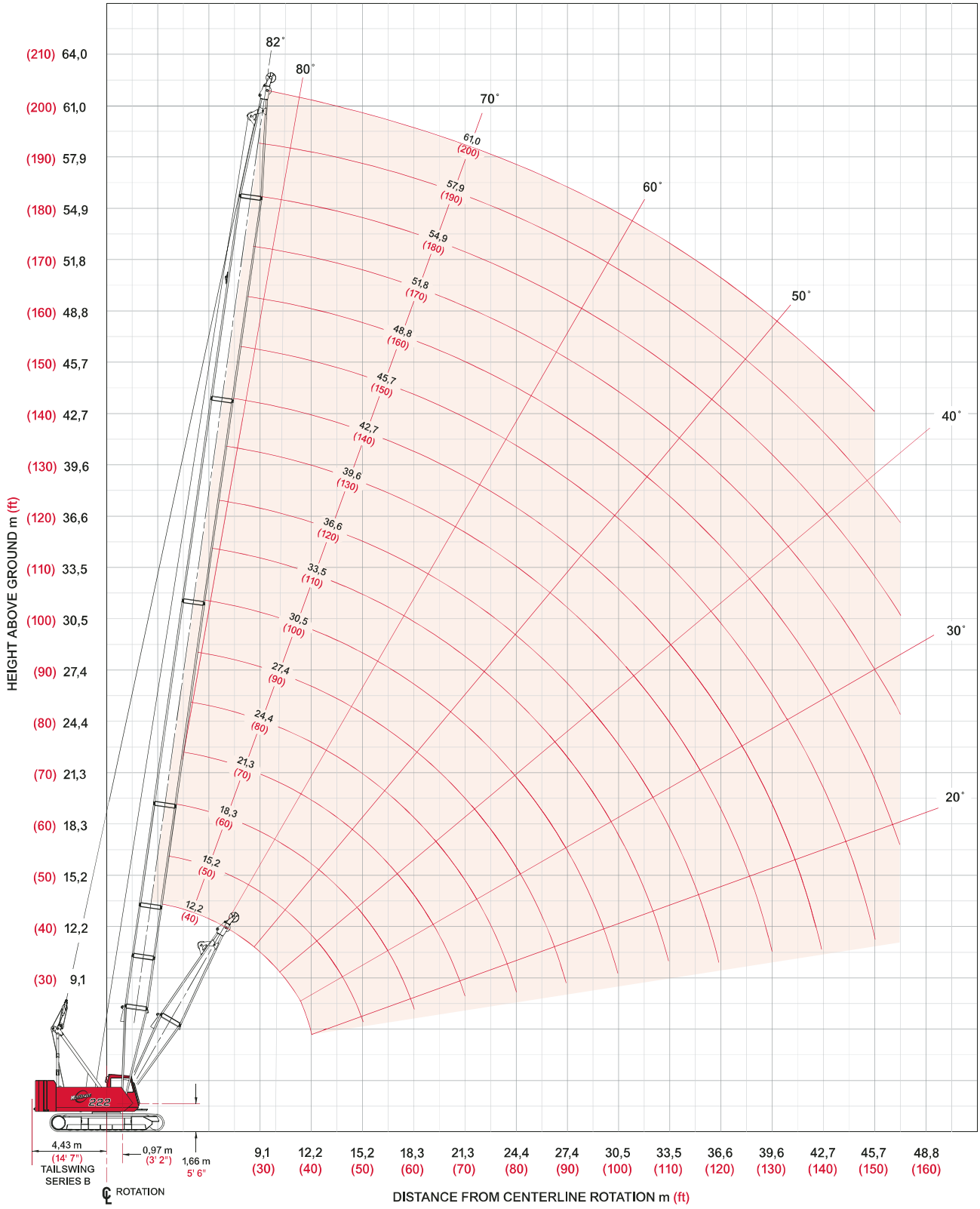
No. 222 Main Boom



model 222

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heavy-lift boom load charts

Liftcrane Boom Capacities - Series B
Boom No. 222 with Open Throat Top

28 710 kg (63,300 lb) Counterweight 6 350 kg (14,000 lb) Crawler Frame Counterweight
6,81 m (22' 4") Crawlers extended
360° Rating kg (lb) x 1 000

Boom m (ft)	12,2 (40)	18,3 (60)	24,4 (80)	30,5 (100)	36,6 (120)	42,7 (140)	48,8 (160)	54,9 (180)	61,0 (200)
Radius									
3,0 (10)	90,7 (200.0)								
4,5 (15)	68,2 (148.2)	66,0 (142.6)	– (133.5)						
6,0 (20)	49,3 (106.5)	47,0 (101.8)	44,0 (95.8)	41,7 (90.1)					
9,0 (30)	28,4 (61.2)	28,3 (61.2)	27,9 (60.6)	26,6 (58.1)	25,2 (54.7)	24,0 (52.0)	21,2 (46.7)	– (34.5)	
12,0 (40)	16,6 (35.4)	19,2 (41.6)	19,1 (41.3)	18,9 (41.0)	18,1 (39.3)	17,3 (38.1)	16,7 (36.0)	14,5 (32.0)	10,7 (23.3)
18,0 (60)		10,2 (21.4)	11,2 (24.4)	11,1 (24.0)	10,9 (23.6)	10,7 (23.2)	10,0 (21.6)	9,3 (20.2)	8,9 (19.3)
24,0 (80)			7,0 (14.5)	7,6 (16.5)	7,4 (16.1)	7,2 (15.7)	7,1 (15.3)	6,6 (14.3)	6,0 (12.9)
30,0 (100)				4,8 (10.0)	5,4 (11.7)	5,2 (11.3)	5,0 (10.9)	4,6 (10.0)	4,1 (8.8)
36,0 (120)					3,3 (6.7)	3,8 (8.1)	3,6 (7.7)	3,2 (7.0)	2,8 (6.0)
42,0 (140)						2,1 (4.3)	2,4 (5.1)	2,2 (4.8)	1,8 (4.0)
46,0 (155)							1,6 (3.1)	1,6 (3.3)	

Fixed Jib No. 10 on Boom No. 222

Jib Length m (ft)	Deduct from Capacity with fixed jib attached kg (lb)
9,1 (30)	770 (1,700)
12,2 (40)	950 (2,100)
15,2 (50)	1 170 (2,600)
18,3 (60)	1 400 (3,100)

Liftcrane Boom Capacities
Boom No. 222 with Open Throat Top

24 180 kg (53 300 lb) Counterweight
6,81 m (22' 4") Crawlers extended
360° Rating kg (lb) x 1 000

Boom m (ft)	12,2 (40)	18,3 (60)	24,4 (80)	30,5 (100)	36,6 (120)	42,7 (140)	48,8 (160)	54,9 (180)	61,0 (200)
Radius									
3,0 (10)	90,7 (200.0)								
4,5 (15)	68,2 (148.2)	66,0 (142.6)	– (133.5)						
6,0 (20)	43,6 (93.8)	43,5 (93.7)	43,4 (93.5)	41,7 (90.1)					
9,0 (30)	23,9 (51.6)	23,8 (51.4)	23,7 (51.1)	23,5 (50.8)	23,4 (50.5)	23,3 (50.1)	21,2 (46.7)	– (34.5)	
12,0 (40)	16,2 (35.1)	16,1 (34.8)	15,9 (34.5)	15,8 (34.2)	15,6 (33.9)	15,5 (33.5)	15,3 (33.1)	14,5 (32.0)	10,7 (23.3)
18,0 (60)		9,4 (20.5)	9,3 (20.1)	9,1 (19.8)	9,0 (19.5)	8,8 (19.2)	8,6 (18.8)	8,5 (18.4)	8,3 (18.0)
24,0 (80)			6,3 (13.7)	6,2 (13.4)	6,0 (13.0)	5,8 (12.6)	5,6 (12.2)	5,4 (11.8)	5,2 (11.4)
30,0 (100)				4,5 (9.7)	4,3 (9.3)	4,1 (8.9)	3,9 (8.5)	3,7 (8.1)	3,5 (7.6)
36,0 (120)					3,1 (6.7)	3,0 (6.5)	2,8 (6.1)	2,6 (5.6)	2,4 (5.2)
42,0 (140)						2,1 (4.3)	2,0 (4.4)	1,8 (4.0)	1,6 (3.5)
46,0 (155)							1,6 (3.1)	1,4 (3.0)	

Meets ANSI B30.5 Requirements - Capacities do not exceed 75% of static tipping load

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heavy-duty boom range diagram

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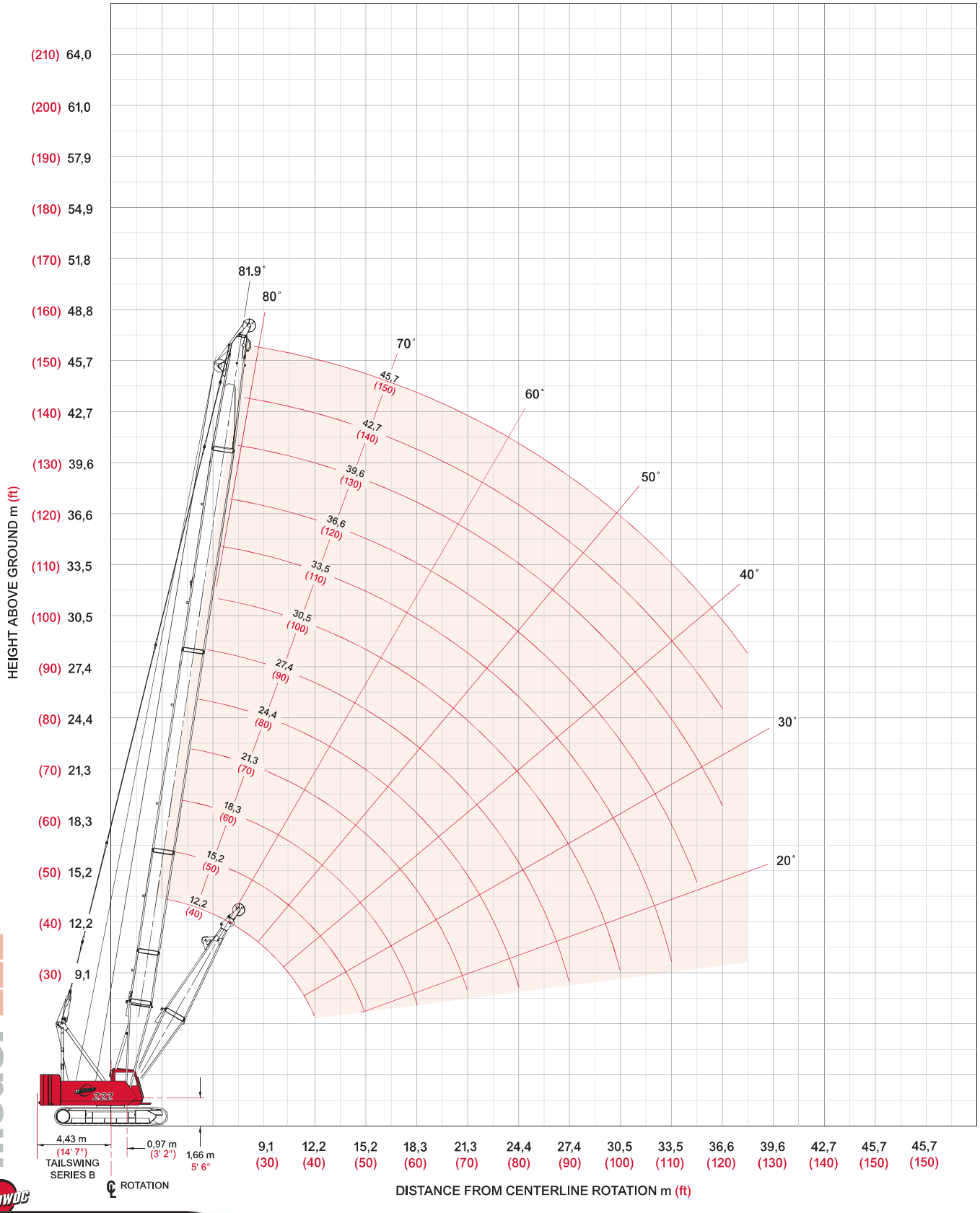
No. 222HD Main Boom



model 222

Manitowoc

heavy-duty boom load charts

Liftcrane Boom Capacities - Series B
Boom No. 222HD with Open Throat Top

28 710 kg (63,300 lb) Counterweight 6 350 kg (14,000 lb) Crawler Frame Counterweight
6,81 m (22' 4") Crawlers extended
360° Rating kg (lb) x 1 000

Boom m (ft)	12,2 (40)	18,3 (60)	24,4 (80)	30,5 (100)	36,6 (120)	42,7 (140)	45,7 (150)
Radius							
3,0 (10)	90,7 (200.0)						
4,0 (13)	76,8 (171.0)	77,4 (170.7)					
4,5 (15)	68,2 (148.2)	67,5 (145.8)					
6,0 (20)	50,7 (109.2)	47,5 (102.7)	43,8 (94.6)	41,0 (88.5)			
9,0 (30)	27,4 (59.1)	27,1 (58.6)	27,0 (58.1)	25,2 (54.6)	23,9 (51.6)	22,5 (48.6)	22,1 (47.8)
12,0 (40)	16,4 (34.3)	18,0 (38.9)	17,8 (38.5)	17,5 (38.0)	17,4 (38.0)	16,9 (36.1)	16,6 (35.5)
18,0 (60)		8,7 (18.1)	9,8 (21.3)	9,6 (20.8)	9,6 (20.7)	9,1 (19.6)	8,9 (19.2)
24,0 (80)			4,9 (10.1)	6,0 (13.0)	6,0 (13.0)	5,5 (11.8)	5,4 (11.7)
30,0 (100)				2,6 (5.2)	3,6 (7.6)	3,3 (7.0)	3,3 (7.1)
36,0 (120)						1,7 (3.4)	1,8 (3.7)
38,0 (125)							1,3 (3.0)

Fixed Jib No. 10 on Boom No. 222HD

Jib Length m (ft)	Deduct from Capacity with fixed jib attached kg (lb)
9,1 (30)	770 (1,700)
12,2 (40)	950 (2,100)
15,2 (50)	1 170 (2,600)
18,3 (60)	1 400 (3,100)

Liftcrane Boom Capacities
Boom No. 222HD with Open Throat Top

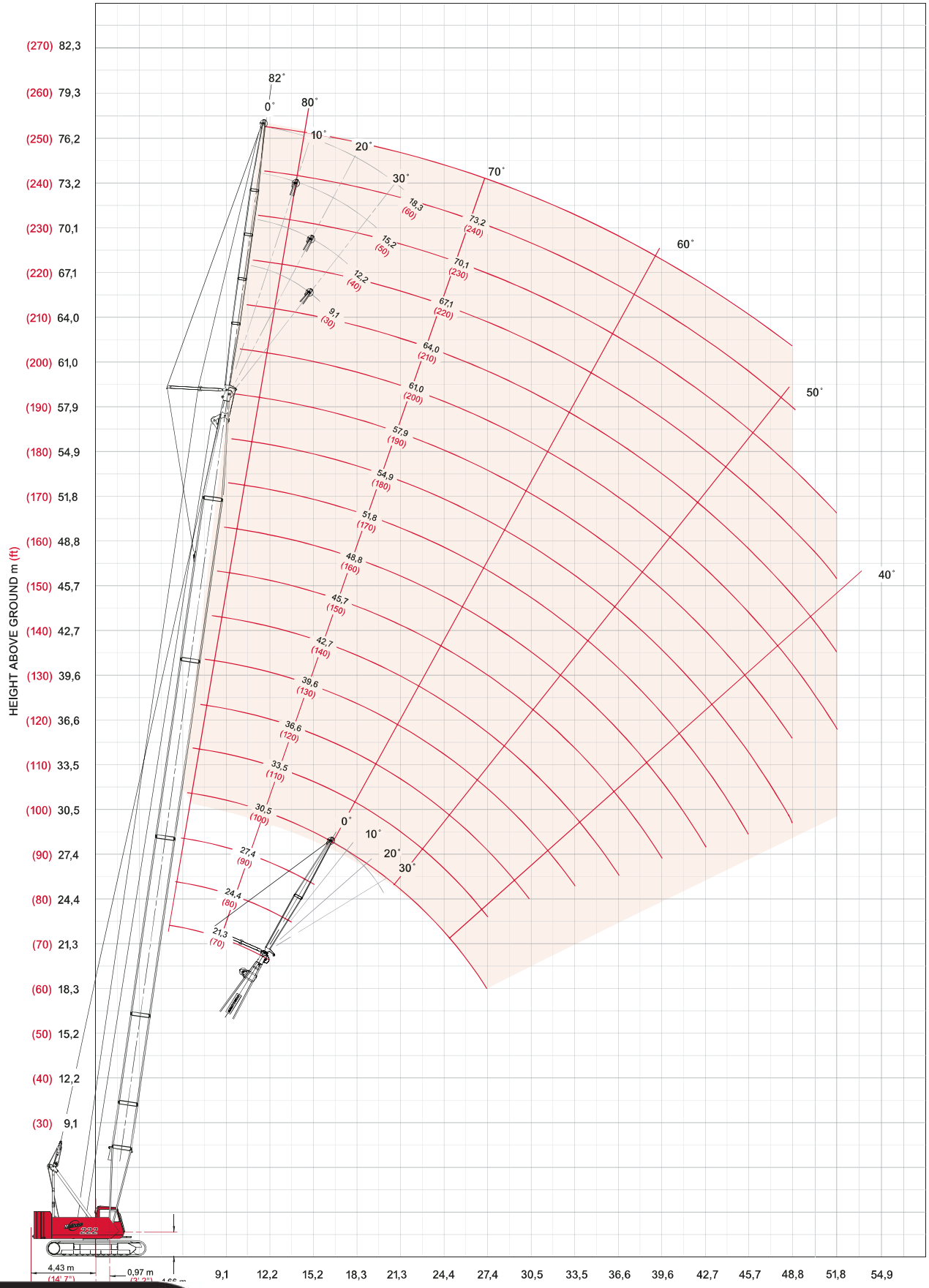
24 180 kg (53,300 lb) Counterweight
6,81 m (22' 4") Crawlers extended
360° Rating kg (lb) x 1 000

Boom m (ft)	12,2 (40)	18,3 (60)	24,4 (80)	30,5 (100)	36,6 (120)	42,7 (140)	45,7 (150)
Radius							
3,0 (10)	90,7 (200.0)						
4,0 (13)	75,9 (169.0)	75,8 (167.2)					
4,5 (15)	67,9 (147.4)	67,1 (145.8)					
6,0 (20)	42,7 (91.8)	42,6 (91.5)	42,4 (91.1)	41,0 (88.5)			
9,0 (30)	22,8 (49.3)	22,6 (48.8)	22,4 (48.3)	22,2 (47.8)	22,1 (47.7)	21,9 (47.2)	22,0 (47.3)
12,0 (40)	15,1 (32.6)	14,9 (32.1)	14,7 (31.7)	14,4 (31.2)	14,4 (31.1)	14,2 (30.6)	14,2 (30.7)
18,0 (60)		8,1 (17.6)	7,9 (17.1)	7,7 (16.6)	7,6 (16.5)	7,4 (15.9)	7,4 (16.0)
24,0 (80)			4,7 (10.1)	4,6 (10.0)	4,6 (9.9)	4,3 (9.3)	4,4 (9.4)
30,0 (100)				2,6 (5.2)	2,8 (6.1)	2,6 (5.6)	2,6 (5.7)
36,0 (120)						1,5 (3.2)	1,5 (3.3)

Meets ANSI B30.5 Requirements - Capacities do not exceed 75% of static tipping load

fixed jib range diagram

No. 10 Fixed Jib on No. 222 Main Boom



model 222

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WARNING! The provided information is for reference purposes only and should not be used to operate the crane. The crane's specific operator's manual should be consulted and understood prior to crane operation.

fixed jib load charts

Liftcrane Jib Capacities - Series B
Jib No. 10 with 3,81 m (12' 6") Strut on Boom No. 222 with Open Throat Top

28 710 kg (63,300 lb) Counterweight 6 350 kg (14,000 lb) Crawler Frame Counterweight
6,81 m (22' 4") Crawlers extended
360° Rating **kg (lb) x 1 000**

Jib Length 9,1 m (30 ft)

Boom m (ft)	0° Offset 21,3 (70)	30,5 (100)	39,6 (130)	48,8 (160)	57,9 (190)	30° Offset 21,3 (70)	30,5 (100)	39,6 (130)	48,8 (160)	57,9 (190)
Radius										
7,6 (25)	9,0 (20.0)									
10,0 (30)	9,0 (20.0)	9,0 (20.0)	9,0 (20.0)							
12,0 (40)	9,0 (20.0)	9,0 (20.0)	9,0 (20.0)	9,0 (20.0)	– (17.2)	8,2 (18.1)	– (19.5)			
16,0 (50)	9,0 (20.0)	9,0 (20.0)	9,0 (20.0)	9,0 (20.0)	7,5 (16.6)	7,0 (15.9)	7,7 (17.5)	8,2 (18.6)	8,6 (19.4)	
18,0 (60)	9,0 (20.0)	9,0 (20.0)	9,0 (20.0)	9,0 (20.0)	7,5 (16.6)	6,5 (14.3)	7,2 (15.9)	7,8 (17.1)	8,2 (18.0)	8,5 (18.7)
22,0 (70)	8,7 (20.0)	8,6 (19.7)	8,2 (18.9)	7,3 (17.0)	6,5 (15.1)	–	6,5 (14.6)	7,0 (15.8)	7,5 (16.8)	7,0 (16.2)
26,0 (90)	7,1 (14.6)	6,8 (14.0)	6,4 (13.2)	5,8 (11.9)	5,0 (10.2)			6,4 (13.8)	6,1 (12.7)	5,4 (11.1)
34,0 (110)		4,6 (10.5)	4,3 (9.8)	3,8 (8.6)	3,1 (7.1)				– (4.2)	3,4 (7.8)
42,0 (140)			2,8 (6.0)	2,4 (5.2)	1,8 (4.0)					
46,0 (150)				1,9 (4.3)	– (3.2)					
50,0 (170)				1,3 –						

Jib Length 12,2 m (40 ft)

Boom m (ft)	0° Offset 21,3 (70)	30,5 (100)	39,6 (130)	48,8 (160)	57,9 (190)	30° Offset 21,3 (70)	30,5 (100)	39,6 (130)	48,8 (160)	57,9 (190)
Radius										
7,6 (25)	9,0 (20.0)									
10,0 (30)	9,0 (20.0)	9,0 (20.0)								
12,0 (40)	9,0 (20.0)	9,0 (20.0)	9,0 (20.0)	– (20.0)		– (14.8)				
16,0 (50)	9,0 (20.0)	9,0 (20.0)	9,0 (20.0)	9,0 (20.0)	7,7 (17.0)	5,7 (13.0)	6,1 (14.0)	6,4 (14.6)		
18,0 (60)	9,0 (20.0)	9,0 (20.0)	9,0 (20.0)	9,0 (20.0)	7,7 (17.0)	5,3 (11.6)	5,8 (12.7)	6,1 (13.4)	6,4 (14.0)	– (14.5)
22,0 (70)	7,5 (17.4)	8,6 (19.7)	8,3 (19.0)	7,3 (16.9)	6,4 (15.0)	– (10.6)	5,1 (11.6)	5,5 (12.4)	5,8 (13.1)	6,0 (13.6)
26,0 (90)	6,1 (12.8)	6,8 (14.0)	6,4 (13.3)	5,8 (11.9)	5,0 (10.1)			5,0 (10.9)	5,3 (11.6)	5,6 (11.4)
34,0 (110)		4,7 (10.6)	4,3 (9.8)	3,8 (8.6)	3,1 (7.1)				4,2 (9.5)	3,5 (8.0)
42,0 (140)			2,9 (6.3)	2,4 (5.3)	1,8 (4.0)					
46,0 (150)			– (5.2)	1,9 (4.4)	– (3.2)					
50,0 (170)				1,4 –						

Meets ANSI B30.5 Requirements - Capacities do not exceed 75% of static tipping load

fixed jib load charts

Liftcrane Jib Capacities - Series B
Jib No. 10 with 3,81 m (12' 6") Strut on Boom No. 222 with Open Throat Top

28 710 kg (63,300 lb) Counterweight 6 350 kg (14,000 lb) Crawler Frame Counterweight
6,81 m (22' 4") Crawlers extended
360° Rating kg (lb) x 1 000

Jib Length 15,2 m (50 ft)

Boom m (ft)	0° Offset 21,3 (70)	30,5 (100)	39,6 (130)	48,8 (160)	57,9 (190)	30° Offset 21,3 (70)	30,5 (100)	39,6 (130)	48,8 (160)	57,9 (190)
Radius										
10,0 (30)	9,0 (20.0)									
12,0 (40)	9,0 (20.0)	9,0 (20.0)	– (20.0)	–						
16,0 (50)	9,0 (20.0)	9,0 (20.0)	9,0 (20.0)	8,6 (19.2)	7,6 (16.9)	4,8 (11.0)				
18,0 (60)	8,4 (18.1)	8,9 (19.8)	8,8 (19.5)	8,4 (18.6)	7,5 (16.7)	4,4 (9.8)	4,8 (10.5)	– (11.0)		
22,0 (70)	6,5 (14.9)	8,3 (18.8)	8,2 (18.8)	7,3 (16.8)	6,4 (14.9)	3,9 (8.9)	4,2 (9.6)	4,5 (10.2)	4,7 (10.6)	4,8 (10.9)
26,0 (90)	5,3 (11.0)	6,8 (14.1)	6,5 (13.3)	5,7 (11.8)	5,0 (10.1)		3,8 (8.3)	4,1 (8.9)	4,3 (9.3)	4,5 (9.7)
34,0 (110)		4,7 (10.6)	4,3 (9.8)	3,7 (8.5)	3,0 (7.0)			– (7.9)	3,7 (8.4)	3,6 (8.2)
42,0 (140)			3,0 (6.4)	2,5 (5.3)	1,8 (4.0)					2,2 (4.9)
46,0 (150)			2,4 (5.4)	2,0 (4.5)	– (3.2)					
50,0 (170)				1,5 (3.0)						

Jib Length 18,3 m (60 ft)

Boom m (ft)	0° Offset 21,3 (70)	30,5 (100)	39,6 (130)	48,8 (160)	57,9 (190)	30° Offset 21,3 (70)	30,5 (100)	39,6 (130)	48,8 (160)	57,9 (190)
Radius										
10,0 (30)	8,1 (18.2)									
12,0 (40)	7,9 (17.5)	7,7 (17.0)	– (16.1)							
16,0 (50)	7,3 (16.4)	7,3 (16.4)	7,0 (15.7)	6,5 (14.6)	5,9 (13.1)					
18,0 (60)	6,9 (15.3)	7,1 (15.8)	6,9 (15.3)	6,5 (14.3)	5,8 (12.9)	3,8 (8.5)	– (9.0)			
22,0 (70)	5,7 (13.2)	6,6 (14.9)	6,6 (14.8)	6,3 (14.0)	5,7 (12.7)	3,3 (7.6)	3,6 (8.2)	3,8 (8.6)	3,9 (8.9)	
26,0 (90)	4,6 (9.7)	5,9 (12.3)	6,3 (13.3)	5,7 (11.7)	4,9 (10.0)	3,0 (6.4)	3,2 (7.0)	3,4 (7.4)	3,6 (7.8)	3,7 (8.0)
34,0 (110)	3,3 (7.6)	4,2 (9.6)	4,3 (9.8)	3,7 (8.5)	3,0 (6.9)			2,9 (6.6)	3,1 (6.9)	3,2 (7.2)
42,0 (140)		3,3 (7.1)	3,0 (6.5)	2,4 (5.3)	1,8 (3.9)					2,3 (5.0)
46,0 (150)			2,5 (5.6)	2,0 (4.5)	– (3.2)					– (4.2)
50,0 (170)			1,9 –	1,5 (3.1)						

Meets ANSI B30.5 Requirements - Capacities do not exceed 75% of static tipping load

fixed jib load charts

Liftcrane Jib Capacities
Jib No. 10 with 3,81 m (12' 6") Strut on Boom No. 222 with Open Throat Top

24 180 kg (53,300 lb) Counterweight
6,81 m (22' 4") Crawlers extended
360° Rating

kg (lb) x 1 000

Jib Length 9,1 m (30 ft)

Boom m (ft)	0° Offset 21,3 (70)	30,5 (100)	39,6 (130)	48,8 (160)	57,9 (190)	30° Offset 21,3 (70)	30,5 (100)	39,6 (130)	48,8 (160)	57,9 (190)
Radius										
7,6 (25)	9,0 (20.0)									
10,0 (30)	9,0 (20.0)	9,0 (20.0)	9,0 (20.0)							
12,0 (40)	9,0 (20.0)	9,0 (20.0)	9,0 (20.0)	9,0 (20.0)	– (17.2)	8,2 (18.1)	– (19.5)			
16,0 (50)	9,0 (20.0)	9,0 (20.0)	9,0 (20.0)	9,0 (20.0)	7,5 (16.6)	7,0 (15.9)	7,7 (17.5)	8,2 (18.6)	8,6 (19.4)	
18,0 (60)	9,0 (20.0)	9,0 (19.9)	8,7 (19.1)	8,5 (18.5)	7,5 (16.6)	6,5 (14.3)	7,2 (15.9)	7,8 (17.1)	8,2 (18.0)	8,5 (18.7)
22,0 (70)	7,3 (16.8)	6,9 (16.1)	6,6 (15.3)	6,3 (14.6)	6,0 (13.9)	–	6,5 (14.6)	6,9 (15.8)	6,7 (15.6)	6,5 (15.1)
26,0 (90)	5,8 (12.0)	5,5 (11.3)	5,1 (10.5)	4,8 (9.8)	4,5 (9.1)			5,4 (11.0)	5,1 (10.5)	4,9 (9.9)
34,0 (110)		3,6 (8.3)	3,3 (7.6)	3,0 (6.8)	2,6 (6.1)				– (7.3)	2,9 (6.7)
42,0 (140)			2,2 (4.9)	1,9 (4.1)	1,5 (3.4)					
46,0 (150)				1,5 (3.4)						

Jib Length 12,2 m (40 ft)

Boom m (ft)	0° Offset 21,3 (70)	30,5 (100)	39,6 (130)	48,8 (160)	57,9 (190)	30° Offset 21,3 (70)	30,5 (100)	39,6 (130)	48,8 (160)	57,9 (190)
Radius										
7,6 (25)	9,0 (20.0)									
10,0 (30)	9,0 (20.0)	9,0 (20.0)								
12,0 (40)	9,0 (20.0)	9,0 (20.0)	9,0 (20.0)	– (20.0)		– (14.8)				
16,0 (50)	9,0 (20.0)	9,0 (20.0)	9,0 (20.0)	9,0 (20.0)	7,7 (17.0)	5,7 (13.0)	6,1 (14.0)	6,4 (14.6)		
18,0 (60)	9,0 (20.0)	9,0 (19.9)	8,7 (19.2)	8,5 (18.5)	7,7 (17.0)	5,3 (11.6)	5,8 (12.7)	6,1 (13.4)	6,4 (14.0)	– (14.5)
22,0 (70)	7,3 (16.9)	7,0 (16.1)	6,6 (15.4)	6,3 (14.7)	6,0 (14.0)	– (10.6)	5,1 (11.6)	5,5 (12.4)	5,8 (13.1)	6,0 (13.6)
26,0 (90)	5,8 (12.1)	5,5 (11.3)	5,1 (10.6)	4,8 (9.8)	4,5 (9.1)			5,0 (10.9)	5,3 (10.7)	5,0 (10.2)
34,0 (110)		3,7 (8.4)	3,3 (7.6)	3,0 (6.9)	2,6 (6.1)				3,3 (7.5)	3,0 (7.0)
42,0 (140)			2,3 (4.9)	1,9 (4.1)	1,6 (3.4)					
46,0 (150)			– (4.3)	1,5 (3.5)						

Meets ANSI B30.5 Requirements - Capacities do not exceed 75% of static tipping load

fixed jib load charts

Liftcrane Jib Capacities
Jib No. 10 with 3,81 m (12' 6") Strut on Boom No. 222 with Open Throat Top

24 180 kg (53,300 lb) Counterweight
6,81 m (22' 4") Crawlers extended
360° Rating

kg (lb) x 1 000

Jib Length 15,2 m (50 ft)

Boom m (ft)	0° Offset 21,3 (70)	30,5 (100)	39,6 (130)	48,8 (160)	57,9 (190)	30° Offset 21,3 (70)	30,5 (100)	39,6 (130)	48,8 (160)	57,9 (190)
Radius										
10,0 (30)	9,0 (20.0)									
12,0 (40)	9,0 (20.0)	9,0 (20.0)	– (20.0)							
16,0 (50)	9,0 (20.0)	9,0 (20.0)	9,0 (20.0)	8,6 (19.2)	7,6 (16.9)	4,8 (11.0)				
18,0 (60)	8,4 (18.1)	8,9 (19.8)	8,8 (19.3)	8,4 (18.6)	7,5 (16.7)	4,4 (9.8)	4,8 (10.5)	– (11.0)		
22,0 (70)	6,5 (14.9)	7,0 (16.2)	6,6 (15.4)	6,3 (14.7)	6,0 (14.0)	3,9 (8.9)	4,2 (9.6)	4,5 (10.2)	4,7 (10.6)	4,8 (10.9)
26,0 (90)	5,3 (11.0)	5,5 (11.3)	5,2 (10.6)	4,8 (9.9)	4,5 (9.1)		3,8 (8.3)	4,1 (8.9)	4,3 (9.3)	4,5 (9.7)
34,0 (110)		3,7 (8.4)	3,3 (7.6)	3,0 (6.9)	2,7 (6.2)			– (7.9)	3,4 (7.7)	3,1 (7.2)
42,0 (140)			2,3 (4.9)	1,9 (4.1)	1,6 (3.4)					1,9 (4.1)
46,0 (150)			1,9 (4.3)	1,5 (3.5)						

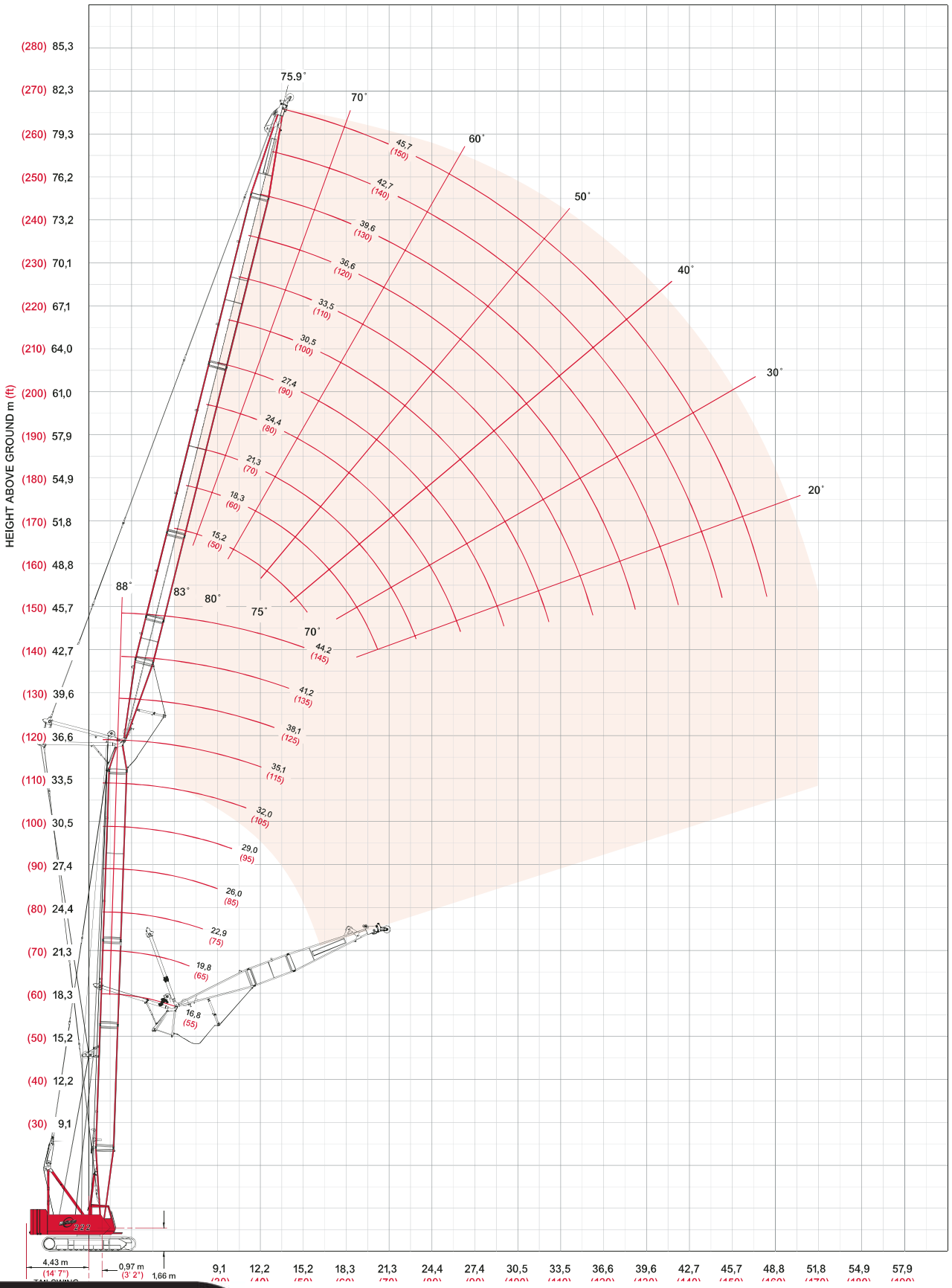
Jib Length 18,3 m (60 ft)

Boom m (ft)	0° Offset 21,3 (70)	30,5 (100)	39,6 (130)	48,8 (160)	57,9 (190)	30° Offset 21,3 (70)	30,5 (100)	39,6 (130)	48,8 (160)	57,9 (190)
Radius										
10,0 (30)	8,1 (18.2)									
12,0 (40)	7,9 (17.5)	7,7 (17.0)	– (16.1)							
16,0 (50)	7,3 (16.4)	7,3 (16.4)	7,0 (15.7)	6,5 (14.6)	5,9 (13.1)					
18,0 (60)	6,9 (15.3)	7,1 (15.8)	6,9 (15.3)	6,5 (14.3)	5,8 (12.9)	3,8 (8.5)	– (9.0)			
22,0 (70)	5,7 (13.2)	6,6 (14.9)	6,6 (14.9)	6,2 (14.0)	5,7 (12.7)	3,3 (7.6)	3,6 (8.2)	3,8 (8.6)	3,9 (8.9)	
26,0 (90)	4,6 (9.7)	5,5 (11.4)	5,2 (10.6)	4,9 (9.9)	4,5 (9.2)	3,0 (6.4)	3,2 (7.0)	3,4 (7.4)	3,6 (7.8)	3,7 (8.0)
34,0 (110)	3,3 (7.6)	3,7 (8.4)	3,4 (7.7)	3,0 (6.9)	2,7 (6.2)			2,9 (6.6)	3,1 (6.9)	3,2 (7.2)
42,0 (140)		2,6 (5.7)	2,3 (4.9)	1,9 (4.2)	1,6 (3.4)					2,0 (4.3)
46,0 (150)			1,9 (4.3)	1,5 (3.5)						– (3.5)

Meets ANSI B30.5 Requirements - Capacities do not exceed 75% of static tipping load

luffing jib range diagram

No. 222 Luffing Jib on No. 260 Main Boom



luffing jib load charts

Liftcrane Luffing Jib Capacities - Series B
Luffing Jib No. 222 on Boom No. 260

28 710 kg (63,300 lb) Counterweight 6 350 kg (14,000 lb) Crawler Frame Counterweight
6,81 m (22' 4") Crawlers extended
360° Rating **kg (lb) x 1 000**

88° Boom Angle

Luffing Jib Length 15,2 m (50 ft)

Boom m (ft)	16,8 (55)	22,9 (75)	29,0 (95)	35,1 (115)	41,2 (135)
Radius					
6,1 (20)	31,7 (70.0)				
8,0 (26)	25,6 (56.9)	26,7 (59.3)	25,3 (56.2)	23,2 (51.5)	
9,0 (30)	23,2 (50.7)	24,7 (53.9)	23,7 (51.9)	21,9 (48.0)	19,9 (43.6)
11,0 (36)	19,7 (43.6)	21,4 (47.3)	20,9 (46.3)	19,7 (43.5)	18,0 (39.9)
12,0 (40)	18,3 (39.8)	19,5 (42.4)	19,7 (43.1)	18,6 (40.7)	17,1 (37.4)
14,0 (45)	15,9 (35.9)	16,7 (37.7)	16,9 (38.3)	16,8 (37.8)	15,5 (34.7)
18,0 (60)					
20,0 (65)					
24,0 (80)					
26,0 (85)					

Luffing Jib Length 24,4 m (80 ft)

Boom m (ft)	16,8 (55)	22,9 (75)	29,0 (95)	35,1 (115)	41,2 (135)
Radius					
6,1 (20)					
8,0 (26)	22,9 (50.8)				
9,0 (30)	21,0 (45.9)	21,8 (47.7)	20,6 (45.2)	18,8 (41.3)	– (35.4)
11,0 (36)	18,0 (39.9)	19,2 (42.5)	18,5 (41.0)	17,2 (38.0)	15,1 (33.5)
12,0 (40)	16,7 (36.5)	18,0 (39.4)	17,6 (38.5)	16,4 (36.0)	14,5 (31.9)
14,0 (45)	14,6 (33.0)	16,1 (36.1)	15,9 (35.7)	15,0 (33.6)	13,5 (30.1)
18,0 (60)	11,6 (25.3)	12,0 (26.0)	12,0 (26.0)	12,0 (25.9)	11,4 (25.0)
20,0 (65)	10,4 (23.4)	10,4 (23.4)	10,4 (23.4)	10,4 (23.3)	10,4 (23.3)
24,0 (80)	8,1 (17.4)	8,2 (17.8)	8,2 (17.8)	8,1 (17.7)	8,1 (17.7)
26,0 (85)		– (16.4)	– (16.4)	– (16.3)	– (16.3)

Luffing Jib Length 36,6 m (120 ft)

Boom m (ft)	16,8 (55)	22,9 (75)	29,0 (95)	35,1 (115)	38,1 (125)
Radius					
11,0 (36)	15,4 (34.0)				
12,0 (40)	14,5 (31.6)	15,1 (33.1)	14,3 (31.4)	13,1 (28.8)	12,1 (26.8)
14,0 (45)	12,8 (28.8)	13,7 (30.8)	13,2 (29.5)	12,2 (27.3)	11,6 (25.9)
18,0 (60)	10,3 (22.4)	11,4 (25.0)	11,3 (24.7)	10,6 (23.3)	10,2 (22.5)
24,0 (80)	7,7 (16.8)	7,8 (17.0)	7,8 (16.9)	7,8 (16.9)	7,8 (16.9)
28,0 (90)	6,3 (14.3)	6,3 (14.3)	6,3 (14.3)	6,2 (14.3)	6,2 (14.3)
30,0 (100)	5,7 (12.3)	5,7 (12.3)	5,7 (12.3)	5,6 (12.2)	5,6 (12.2)
34,0 (110)	4,6 (10.6)	4,7 (10.6)	4,7 (10.6)	4,7 (10.6)	4,6 (10.6)
40,0 (130)					
44,0 (145)					
46,0 (150)					

Luffing Jib Length 45,7 m (150 ft)

Boom m (ft)	16,8 (55)	22,9 (75)	29,0 (95)	35,1 (115)
Radius				
11,0 (36)				
12,0 (40)				
14,0 (45)	11,5 (25.8)	12,0 (26.9)	11,3 (25.3)	9,8 (21.9)
18,0 (60)	9,3 (20.4)	10,2 (22.4)	9,9 (21.8)	9,2 (20.2)
24,0 (80)	7,0 (15.3)	7,5 (16.3)	7,5 (16.3)	7,5 (16.2)
28,0 (90)	5,9 (13.4)	6,0 (13.7)	6,0 (13.7)	5,9 (13.6)
30,0 (100)	5,3 (11.6)	5,3 (11.6)	5,3 (11.6)	5,3 (11.4)
34,0 (110)	4,4 (10.0)	4,4 (10.0)	4,4 (10.0)	4,2 (9.7)
40,0 (130)	3,3 (7.5)	3,3 (7.5)	3,3 (7.5)	3,1 (7.0)
44,0 (145)	2,3 (5.1)	2,7 (6.1)	2,7 (6.0)	2,5 (5.6)
46,0 (150)	– (3.8)	– (5.5)	– (5.5)	2,2 (5.1)

Meets ANSI B30.5 Requirements - Capacities do not exceed 75% of static tipping load

luffing jib load charts

Liftcrane Luffing Jib Capacities - Series B
Luffing Jib No. 222 on Boom No. 260

28 710 kg (63,300 lb) Counterweight 6 350 kg (14,000 lb) Crawler Frame Counterweight
6,81 m (22' 4") Crawlers extended
360° Rating kg (lb) x 1 000

70° Boom Angle

Luffing Jib Length 15,2 m (50 ft)

Boom m (ft)	16,8 (55)	22,9 (75)	29,0 (95)	35,1 (115)	41,2 (135)
Radius					
18,0 (60)	11,2 (24.2)	– (23.2)			
20,0 (65)	9,7 (21.8)	9,3 (20.9)	8,9 (19.9)		
24,0 (80)			7,0 (15.1)	6,5 (14.2)	– (13.1)
26,0 (85)			– (13.9)	5,9 (13.1)	5,4 (12.1)
28,0 (90)				– (12.1)	4,8 (11.1)
30,0 (100)					
32,0 (105)					
34,0 (110)					
36,0 (120)					
38,0 (125)					

Luffing Jib Length 24,4 m (80 ft)

Boom m (ft)	16,8 (55)	22,9 (75)	29,0 (95)	35,1 (115)	41,2 (135)
Radius					
18,0 (60)					
20,0 (65)					
24,0 (80)	7,3 (15.9)	7,0 (15.1)	– (14.2)		
26,0 (85)	6,6 (14.7)	6,2 (13.9)	5,8 (13.0)		
28,0 (90)	5,9 (13.5)	5,6 (12.8)	5,2 (12.0)	4,8 (11.1)	
30,0 (100)	5,3 (11.6)	5,1 (11.0)	4,7 (10.3)	4,4 (9.5)	4,0 (8.6)
32,0 (105)		4,6 (10.3)	4,3 (9.6)	4,0 (8.9)	3,6 (8.0)
34,0 (110)			– (8.9)	3,6 (8.2)	3,2 (7.4)
36,0 (120)				3,3 (7.1)	2,9 (6.4)
38,0 (125)					2,7 (6.0)

Luffing Jib Length 36,6 m (120 ft)

Boom m (ft)	16,8 (55)	22,9 (75)	29,0 (95)	35,1 (115)	38,1 (125)
Radius					
28,0 (90)	5,5 (12.5)				
32,0 (105)	4,4 (9.9)	4,1 (9.2)	3,8 (8.4)		
36,0 (120)	3,6 (7.9)	3,4 (7.3)	3,1 (6.7)	2,8 (6.0)	2,6 (5.6)
38,0 (125)	3,3 (7.4)	3,0 (6.8)	2,8 (6.2)	2,5 (5.5)	2,3 (5.1)
40,0 (130)	3,0 (6.9)	2,8 (6.4)	2,5 (5.7)	2,2 (5.1)	2,0 (4.7)
42,0 (140)	2,7 (6.0)	2,5 (5.5)	2,3 (5.0)	2,0 (4.4)	1,8 (4.0)
44,0 (145)		2,3 (5.1)	2,1 (4.6)	1,8 (4.0)	1,6 (3.7)
46,0 (150)			– (4.3)	1,6 (3.7)	1,5 (3.4)
48,0 (155)				1,4 (3.4)	– (3.1)
50,0 (165)					

Luffing Jib Length 45,7 m (150 ft)

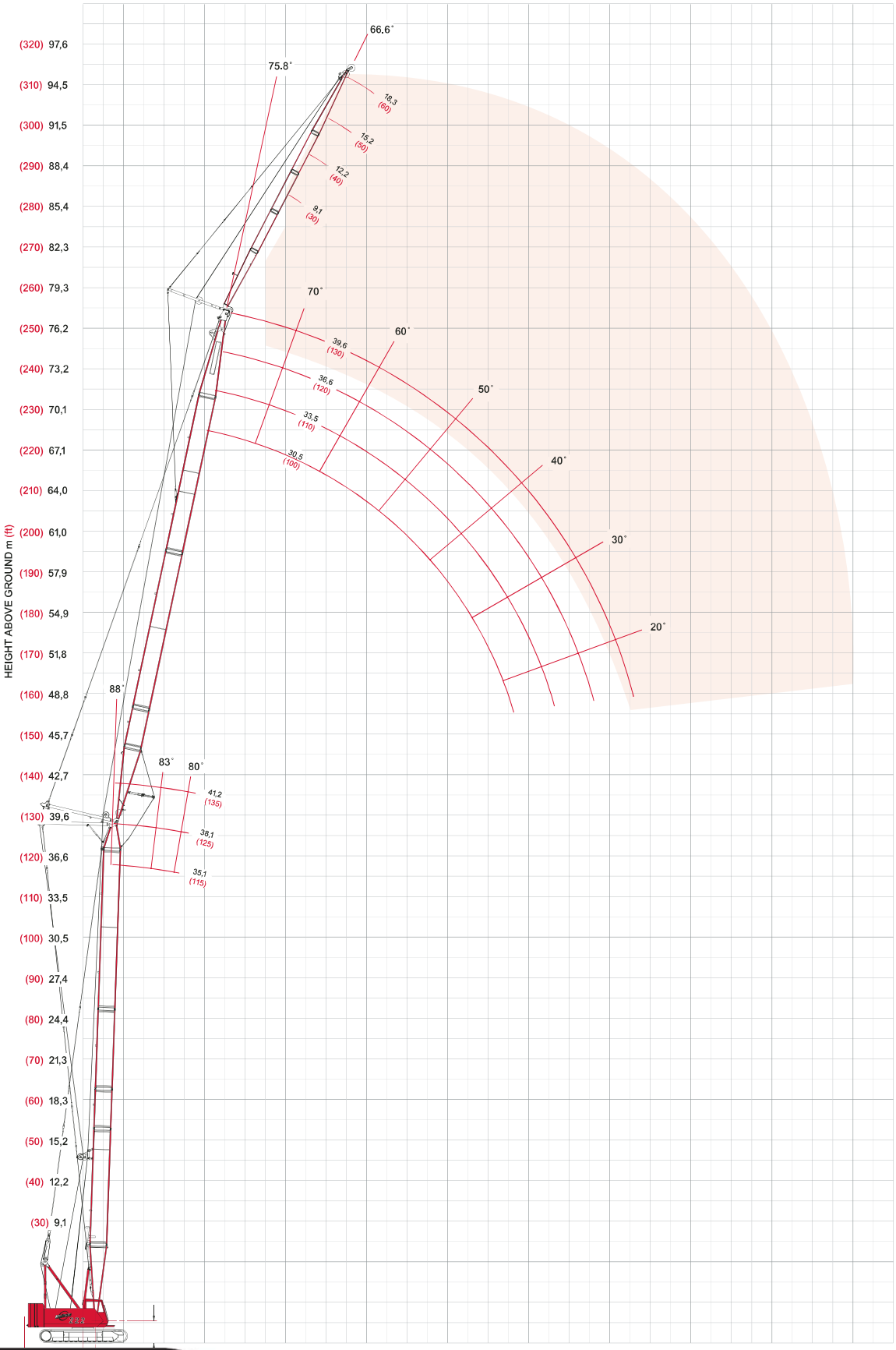
Boom m (ft)	16,8 (55)	22,9 (75)	29,0 (95)
Radius			
28,0 (90)			
32,0 (105)	4,0 (9.0)		3,8 (8.4)
36,0 (120)	3,3 (7.1)	3,0 (6.5)	3,0 (6.5)
38,0 (125)	3,0 (6.6)	2,7 (6.0)	2,7 (6.0)
40,0 (130)	2,7 (6.1)	2,4 (5.5)	2,4 (5.6)
42,0 (140)	2,4 (5.2)	2,2 (4.7)	2,2 (4.7)
44,0 (145)	2,1 (4.8)	1,9 (4.3)	2,0 (4.4)
46,0 (150)	2,0 (4.5)	1,7 (4.0)	1,7 (4.0)
48,0 (155)	1,7 (4.1)	1,6 (3.7)	1,6 (3.7)
50,0 (165)	1,6 (3.5)	1,4 (3.1)	1,4 (3.1)

Meets ANSI B30.5 Requirements - Capacities do not exceed 75% of static tipping load

fixed jib on luffing jib range diagram

No. 10 Fixed Jib on No. 222 Luffing Jib on No. 260 Main Boom

32



model 222

Manitowoc

fixed jib on luffing jib load charts

Liftcrane Fixed Jib on Luffing Capacities - Series B
Fixed Jib No. 10 on Luffing Jib No. 222 on Boom No. 260

28 710 kg (63,300 lb) Counterweight 6 350 kg (14,000 lb) Crawler Frame Counterweight
6,81 m (22' 4") Crawlers extended
360° Rating kg (lb) x 1 000

88° Boom Angle

Fixed Jib Length 9,1 m (30 ft) 7° offset

Luffing Jib m (ft)		30,5 (100)			33,5 (110)		36,6 (120)		39,6 (130)	
Boom m (ft)		35,1 (115)	38,1 (125)	41,2 (135)	35,1 (115)	38,1 (125)	35,1 (115)	38,1 (125)	35,1 (115)	38,1 (125)
Radius										
14,0	(45)	9,0 (20.0)	9,0 (20.0)	8,5 (18.9)						
18,0	(60)	8,7 (19.2)	8,1 (17.9)	7,5 (16.5)	8,2 (18.1)	7,6 (16.8)	7,8 (17.1)	7,2 (15.8)	7,3 (16.0)	6,7 (14.8)
28,0	(90)	4,8 (11.0)	4,8 (11.0)	4,8 (10.9)	4,9 (11.2)	4,9 (11.2)	5,0 (11.4)	4,9 (11.3)	5,1 (11.6)	4,9 (11.1)
36,0	(120)	3,5 (7.6)	3,5 (7.6)	3,4 (7.5)	3,5 (7.7)	3,5 (7.7)	3,5 (7.7)	3,6 (7.8)	3,6 (7.8)	3,5 (7.7)
46,0	(150)						2,6 (5.8)	2,4 (5.5)	2,4 (5.4)	2,3 (5.3)
50,0	(165)								1,9 (4.3)	1,8 (4.1)

Fixed Jib Length 18,3 m (60 ft) 7° offset

Luffing Jib m (ft)		30,5 (100)			33,5 (110)		36,6 (120)		39,6 (130)	
Boom m (ft)		35,1 (115)	38,1 (125)	41,2 (135)	35,1 (115)	38,1 (125)	35,1 (115)	38,1 (125)	35,1 (115)	38,1 (125)
Radius										
18,0	(60)	– (8.0)	– (8.0)	– (8.0)	– (8.0)	– (8.0)				
28,0	(90)	3,6 (8.0)	3,6 (8.0)	3,6 (8.0)	3,6 (8.0)	3,6 (8.0)	3,6 (8.0)	3,6 (8.0)	3,6 (8.0)	3,6 (8.0)
36,0	(120)	3,3 (7.2)	3,2 (7.0)	3,1 (6.7)	3,4 (7.4)	3,2 (7.0)	3,3 (7.3)	3,1 (6.9)	3,3 (7.2)	3,1 (6.8)
46,0	(150)	2,1 (4.9)	2,1 (4.7)	2,0 (4.5)	2,2 (5.0)	2,1 (4.8)	2,2 (5.1)	2,1 (4.8)	2,2 (5.1)	2,1 (4.8)
50,0	(165)	1,8 (4.1)	1,8 (4.0)	1,7 (3.8)	1,9 (4.2)	1,8 (4.0)	1,9 (4.3)	1,8 (4.0)	1,9 (4.3)	1,8 (4.0)
56,0	(185)						1,5 (3.5)	1,5 (3.3)	1,5 (3.3)	1,4 (3.2)
58,0	(190)								– 3.1	

Meets ANSI B30.5 Requirements. Capacities do not exceed 75% of static tipping load

CraneCARE℠

CraneCARE is Manitowoc's comprehensive service and support program. It includes classroom and on-site training, prompt parts availability, expert field service, technical support and documentation — for every one of the more than 7,000 Manitowoc cranes currently in use throughout the world.

That's commitment you won't find anywhere else.

That's **CraneCARE**.

Service Training

Manitowoc specialists work with you in our training center and in the field to make sure you know how to get maximum performance, reliability, and life from your cranes.

Manitowoc Cranes Technical Training Center provides valuable multi-level training, which is available for all models and attachments, in the following format:

- Basic – Provides technicians with the basic skills required in our Level I and II classes covering hydraulic and electrical theory and schematics, pump, motor, control, and LMI operation, and the use of meters and gauges.
- Level one – This model-specific class covers theory and offers hands-on training and trouble shooting for all crane systems.
- Level two – This model-specific class provides in-depth coverage of all crane systems and components, and advanced troubleshooting of simulated faults. (Requires Level I.)
- Masters – Covering all EPIC models and the 4100W, this class stresses high level system knowledge and trouble shooting of simulated faults. (Requires Level II.)

Parts Availability

Genuine Manitowoc replacement parts are accessible through your distributor 24 hours a day, 7 days a week, 365 days a year.

Service Interval Kits
Provides all the parts required by Manitowoc's Preventative Maintenance Checklist.

Cummins 6 CTA 8.3C 172 kW (230 BHP) Diesel

200 Hour – Part No. 499973-0
Consists of the following:

- Engine Water Filter (Part No. 413360-0)
- Primary Fuel Filter (Part No. 413392-0)
- Secondary Fuel Filter (Part No. 413393-0)
- Engine Oil Filter (Part No. 413394-0)
- Primary Air Filter (Part No. 426721-0)
- Secondary Air Filter (Part No. 426726-0)

1,000 Hour – Part No. 499974-0
Consists of the entire 200 Hour Service Kit (Part No. 499973-0), plus the following:

- Hydraulic Filter in Tank (Part No. 426727-0)
- Filter, Breather (Part No. 910636-2)
- Hydraulic Filter - Spin on (Part No. 970150-2)

2,000 Hour – Part No. 499975-0
Consists of the entire 1,000 Hour Service Kit (Part No. 499974-0), plus the following:

- Compressor Belt (Part No. 227220-0)

Cummins M11 261 kw (350 BHP) Diesel

200 Hour – Part No. 495061-0
Consists of the following:

- Engine Water Filter (Part No. 413624-0)
- Fuel Filter (Part No. 413623-0)
- Engine Oil Filter (Part No. 413619-0)
- Air Filter (Part No. 413401-0)

1,000 Hour – Part No. 495062-0
Consists of the entire 200 Hour Service Kit (Part No. 495061-0), plus the following:

- Hydraulic Filter in Tank (Part No. 426727-0)
- Filter, Breather (Part No. 910636-2)
- Two each Hydraulic Filters - Spin on (Part No. 970150-2)

2,000 Hour – Part No. 495063-0
Consists of the entire 1,000 Hour Service Kit (Part No. 495062-0), plus the following:

- Alternator Belt (Part No. 413621-0)
- Fan Belt (Part No. 413622-0)

Hydraulic Test Kit – Part No. 499791-6
Protect your investment by demanding Genuine Manitowoc Parts Service Kits. The Hydraulic Service Kit consist of the following:

- All hydraulic fittings to access all pressures and flows
- Hydraulic flow meters and pressure gauges to record hydraulic data.
- Electrical "Break out" harnesses to access voltages on all electrical circuits on all machines.
- Fluke® Digital volt ohm meter, as used in all Manitowoc service literature.

Hydraulic Test Kit with case – Part No. 499792-9
The above kit (Part No. 4299791-6) plus a custom heavy-duty carrying case.

U.S. Standard Tools Kit – Part No. 22205-1
All standard tools needed to properly maintain and service your crane. (Does not include torque wrench.)

Field Service

Factory-trained service experts are always ready to help maintain your crane's peak performance.

For a worldwide listing of dealer locations, please consult our website at: **www.manitowoccranes.com**

Technical Support

Manitowoc's dealer network and factory personnel are available 24 hours a day, 7 days a week, 365 days a year to answer your technical questions and more, with the help of computerized programs that simplify crane selection, lift planning, and ground-bearing calculations.

For a worldwide listing of dealer locations, please consult our website at: **www.manitowoccranes.com**

Technical Documentation

Manitowoc has the industry's most extensive documentation, and the easiest to understand, available in major languages and formats that include print, disk, and videotape.

A complete set of Operator's, Parts, Capacity, Vendor, and Service Technician's Manuals are shipped with each crane.

Additional copies available through your Authorized Manitowoc Distributor.

- **Crane Operator's Manual – Part No. 899721**
- **Crane Parts Manual – Part No. 899720**
- **Crane Capacity Manual – Part No. 899730**
- **Crane Vendor Manual – Part No. 899722**
- **Service Technician's Manual (EPIC) – Part No. 899732**

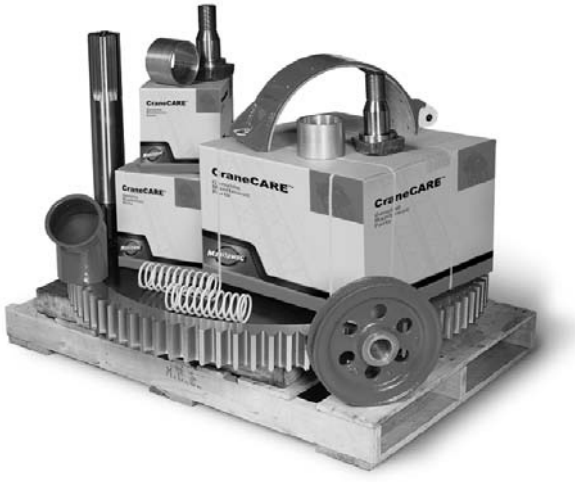
CD rom versions of the Operator's and Parts Manuals are shipped with each crane.

Also available are the following CDs:

- **222 Maintenance Operation Service Parts (MOPS) CD – Part No. 899800-0**
- **Ground Bearing Pressure Estimator CD – Part No. 899765-0**
- **Crane Selection and Planning Software (CompuCRANE®) CD – Part No. 899766-0**
- **Capacity Chart (all EPIC models) CD – Part No. 899801-0**

Available from your Authorized Manitowoc Cranes Distributor, these VHS videos are available in NTSC, PAL and SECAM formats.

- **Model 222 Assembly Video – Part No. 899802-0**
- **Model 222 Operation Video – Part No. 899803-0**
- **Model 222 Lubrication Video – Part No. 899804-0**
- **Your Capacity Chart Video – Part No. 899737**
- **Respect the Limits Video – Part No. 899734**
- **Crane Safety Video – Part No. 899736**
- **Boom Inspection/Repair Video – Part No. 899738**



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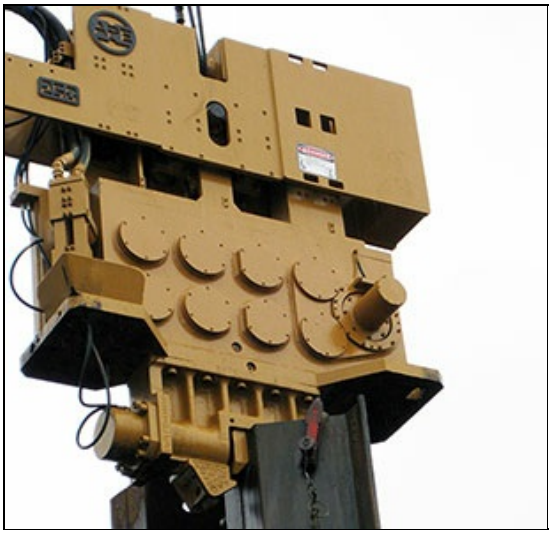
CraneCARE℠

CraneCARE is Manitowoc's comprehensive service and support program. It includes classroom and on-site training, prompt parts availability, expert field service, technical support and documentation — for every one of the more than 7,000 Manitowoc cranes currently in use throughout the world. That's commitment you won't find anywhere else. That's CraneCARE.

Manitowoc Cranes, Inc.
P.O. Box 70
Manitowoc, WI, USA 54221-0070
Telephone 920-684-6621
Facsimile 920-683-6277
www.manitowoccranes.com

APE Model 250 Variable Moment Vibratory Driver Extractor

The Worlds Largest Provider of Foundation Construction Equipment



SPECIFICATIONS	DATA
Eccentric Moment	4,500 in-lbs (51.85 kgm)
Drive Force	269 tons (2,389 kN)
Frequency Maximum (VPM)	0 - 2,050 vpm
Max Line Pull	99 tons (881 kN)
Bare Hammer Weight w/o Clamp	15,400 lbs (6,985 kg)
Throat Width	14.00 in (36 cm)
Length	69.00 in (175 cm)
Height w/o Clamp	102.00 in (259 cm)

APE Model 765 Power Unit

SPECIFICATIONS	DATA
Engine Type	Caterpillar C18 Tier II
Horse Power	765 HP (563 kW)
Drive Pressure	0 - 4,500 psi (310 bar)
Drive Flow	220 gpm (833 lpm)
Clamp Pressure	4,800 psi (69,618 bar)
Clamp Flow	10 gpm (3 lpm)
Engine Speed	2,100 rpm
Weight	20,000 lbs (9,072 kg)
Length	152 in (385 cm)
Width	82 in (208 cm)
Height	94 in (239 cm)
Hydraulic Reservoir	450 gal (1,703 L)
Fuel Capacity	150 gal (568 L)

Specifications may vary due to site conditions, specific hammer conditions or product set up.
Specifications may change without notice.
Consult the factory for details on any specific product (800) 248-8498.

WWW.AMERICANPILEDRIVING.COM
(800) 248-8498
ape@americanpiledriving.com

PRODUCT SPECIFICATIONS FOR 352 LRE

ENGINE

Net Power - ISO 9249	424 HP
Net Power - ISO 9249 (DIN)	429.9 hp (metric)
Engine Model	Cat C13
Engine Power - ISO 14396	425 HP
Engine Power - ISO 14396 (DIN)	431 hp (metric)
Bore	5 in
Stroke	6 in
Displacement	763 in^3
Biodiesel Capability	Up to B20[1]
Emissions	Meets U.S. EPA Tier 4 Final, EU Stage V, and Japan 2014 emission standards.
Note (1)	Net power advertised is the power available at the flywheel when the engine is equipped with fan, air intake system, exhaust system, and alternator with engine speed at 1,800 rpm. Advertised power is tested per the specified standard in effect at the time of manufacture.

Note (2)	[1]Cat diesel engines are required to use ULSD (ultra-low sulfur diesel fuel with 15 ppm of sulfur or less) or ULSD blended with the following lower-carbon intensity fuels** up to: 20% biodiesel FAME (fatty acid methyl ester)* or 100% renewable diesel, HVO (hydrotreated vegetable oil) and GTL (gas-to-liquid) fuels.Refer to guidelines for successful application. Please consult your Cat dealer or “Caterpillar Machine Fluids Recommendations” (SEBU6250) for details. *Engines with no aftertreatment devices can use higher blends, up to 100% biodiesel (for use of blends higher than 20% biodiesel, consult your Cat dealer). **Tailpipe greenhouse gas emissions from lower-carbon intensity fuels are essentially the same as traditional fuels.

WEIGHTS

Operating Weight	128800 lb
Note	Variable Gauge High Wide undercarriage, LRE boom, LRE 8.5B (27'9") stick, HD 1.19 m³ (1.56 yd³) bucket, 900 mm (35") triple grouser shoes, 12 mt (26,455 lb) counterweight.

WORKING RANGES & FORCES

Maximum Digging Depth	42.8 ft
Boom	LRE Boom 11.5 m (37'9")
Stick	LRE Stick 8.5 m (27'11')
Bucket	HD 1.19 m³ (1.56 yd³)
Maximum Reach at Ground Level	64.4 ft
Maximum Cutting Height	48.2 ft
Maximum Loading Height	39.4 ft
Minimum Loading Height	7.3 ft
Maximum Depth Cut for 2440 mm (8 ft) Level Bottom	42.5 ft
Bucket Digging Force - ISO	31700 lbf

Stick Digging Force - ISO	23380 lbf

HYDRAULIC SYSTEM

Maximum Flow - Main System	206 gal/min
Maximum Pressure - Equipment	5076 psi
Maximum Pressure - Equipment - Lift Mode	5511 psi
Maximum Pressure - Travel	5076 psi
Maximum Pressure - Swing	3771 psi

SWING MECHANISM

Maximum Swing Torque	138000 ft·lbf

SERVICE REFILL CAPACITIES

Fuel Tank Capacity	188.9 gal (US)
Cooling System	13.7 gal (US)
Engine Oil - With Filter	10.6 gal (US)
Swing Drive	2.8 gal (US)
Final Drive - Each	2.5 gal (US)
Hydraulic System - Including Tank	145.3 gal (US)
Hydraulic Tank	57.3 gal (US)
DEF Tank	12.2 gal (US)

DIMENSIONS

Boom	LRE Boom 11.5 m (37'9")

Stick	LRE Stick 8.5 m (27'11')
Bucket	HD 1.19 m³ (1.56 yd³)
Shipping Height - Top of Cab	11.1 ft
Handrail Height	11.6 ft
Shipping Length	54 ft
Tail Swing Radius	12.3 ft
Counterweight Clearance	4.7 ft
Ground Clearance	2.3 ft
Track Length	17.6 ft
Track Length to Center of Rollers	14.2 ft
Track Gauge	10.6 ft
Transport Width	13.6 ft

AIR CONDITIONING SYSTEM

Air Conditioning	The air conditioning system on this machine contains the fluorinated greenhouse gas refrigerant R134a (Global Warming Potential = 1430). The system contains 1 kg (2.2 lb) of refrigerant which has a CO2 equivalent of 1.430 metric tonnes (1.576 tons).

352 LRE STANDARD EQUIPMENT

NOTE

Standard and optional equipment may vary. Consult your Cat dealer for details.

BOOM AND STICK

11.5 m (37'9") LRE boom
8.5 m (27'11") LRE stick

CAB

Sound suppression
High-resolution 254 mm (10") LCD touch screen monitor
Heated seat with air-suspension (Deluxe only)
Heated and cooled seat with automatic suspension (Premium only)
Tilt-up left console
Auto bi-level air conditioner
Jog dial and shortcut keys for monitor control
Bluetooth® integrated radio

CAT TECHNOLOGY

VisionLink®
Remote Flash
Remote Troubleshoot
Cat Grade 2D
Cat Assist
Cat Payload
2D E-Fence

ELECTRICAL SYSTEM

Mainteance-free 1,000 CCA batteries
Centralized electrical disconnect switch
LED lights

ENGINE

Three selectable modes: Power, Smart, Eco
Auto engine speed control
52°C (126°F) high-ambient cooling capacity
-18°C (0°F) cold start capability
Double element air filter with integrated pre-cleaner

HYDRAUILC SYSTEM

Boom and stick regeneration circuit
Electronic main control valve
Auto hydraulic oil warmup
Auto swing parking brake
Reverse swing damping valve
Two speed travel
Bio hydraulic oil capability

SAFETY AND SECURITY

Caterpillar One Key security system
Lockable external tool / storage box
Lockable door, fuel and hyraulic tanks
Lockable fuel drain compartment
Service platform with anti-skid plate and recessed bolts
RH handrail and hand hold

Signaling / warning horn
Ground-level secondary engine shutoff switch
Lockable disconnect switch

SERVICE AND MAINTENANCE

Integrated vehicle health management system
Grouped location of engine & fuel filters
Sampling ports for Scheduled Oil Sampling (S·O·S℠)

UNDERCARRIAGE AND STRUCTURES

Variable Gauge High Wide undercarriage
12.0 mt (26,455 lb) counterweight
Grease lubricated track

352 LRE OPTIONAL EQUIPMENT

NOTE

Standard and optional equipment may vary. Consult your Cat dealer for details.

CAB

Cat Stick Steer

CAT TECHNOLOGY

VisionLink Productivity
Cat Grade Connectivity
Cat Grade 2D with Attachment Ready Option (ARO)
Cat Grade 3D single GNSS
Cat Grade 3D dual GNSS

ENGINE

Cold start block heaters
Automatic reverse fan
-32°C (-25°F) cold start capability

HYDRAULIC SYSTEM

SmartBoom™ (Europe only)
Combined two-way auxiliary circuit with direct return
Medium-pressure auxiliary circuit
Quick coupler circuit for Cat Pin Grabber and CW Dedicated

SAFETY AND SECURITY

Cat Command (remote control)
Boom lowering check valve (standard in Europe)
Stick lowering check valve (standard in Europe)

Travel alarm (standard in North America)
Swing alarm
360° visibility

SERVICE AND MAINTENANCE

Electric refueling pump with automatic shutoff (Europe only)
QuickEvac™ maintenance ready

UNDERCARRIAGE AND STRUCTURES

900 mm (35") triple grouser track shoes
750 mm (30") triple grouser track shoes
600 mm (24") triple grouser track shoes
600 mm (24") double grouser track shoes

345 GC
Hydraulic Excavator

Technical Specifications

Configurations and features may vary by region. Please consult your Cat® dealer for availability in your area.

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345 GC Hydraulic Excavator Specifications

Engine

Engine Model	Cat® C9.3B	
Net Power – ISO 9249	258 kW	346 hp
Engine Power – ISO 14396	259 kW	347 hp
Bore	115 mm	5 in
Stroke	149 mm	6 in
Displacement	9.3 L	568 in³
Biodiesel capability	Up to B20(1)	

- Meets China Nonroad Stage III emission standards, equivalent to U.S. EPA Tier 3 and EU Stage IIIA.
- Recommended for use up to 3300 m (10,830 ft) altitude with engine power derate above 2300 m (7,550 ft).
- Net power is tested per ISO 9249. Standards in effect at the time of manufacture.
- Net power advertised is the power available at the flywheel when the engine is equipped with fan, air intake system, exhaust system and alternator.
- Rated speed at 1,900 rpm.

(1)Cat engines are compatible with the following renewable, alternative, and bio-fuels* with lower greenhouse gas emission impact:
- ✓ Up to B20 biodiesel (FAME)**
- ✓ Up to 100% HVO and GTL renewable fuels

**Refer to guidelines for successful application. Please consult your Cat dealer or "Caterpillar Machine Fluids Recommendations" (SEBU6250) for details.*

***For use of blends up to B100, consult your Cat dealer.*

Swing Mechanism

Swing Speed	8.27 rpm	
Maximum Swing Torque	155 kN·m	114,543 lbf-ft

Weights

Operating Weight	42 200 kg	93,000 lb

- Reach boom, R2.9TB (9'6") stick, HD 2.41 m³ (3.15 yd³) bucket, 600 mm (24") double grouser shoes, 9.0 mt (19,842 lb) counterweight.

Operating Weight	43 300 kg	95,500 lb

- Mass boom, M3.0UB (9'10") stick, SDV 2.77 m³ (3.62 yd³) bucket, 600 mm (24") double grouser shoes, 9.0 mt (19,842 lb) counterweight.

Track

Standard Track Shoes Width	600 mm	24 in
Optional Track Shoes Width	700 mm	28 in
Optional Track Shoes Width	800 mm	31 in
Number of Shoes (each side)	49	
Number of Track Rollers (each side)	8	
Number of Carrier Rollers (each side)	2	

Drive

Gradeability	35°/70%	
Maximum Travel Speed	5.2 km/h	3.2 mph
Maximum Drawbar Pull	292 kN	65,532 lbf

Hydraulic System

Main System – Maximum Flow – Implement	630 L/min (315 L/min × 2 pumps)	166 gal/min (83 gal/min × 2 pumps)
Maximum Pressure – Equipment – Implement	35 000 kPa	5,076 psi
Maximum Pressure – Travel	35 000 kPa	5,076 psi
Maximum Pressure – Swing	28 000 kPa	4,061 psi
Boom Cylinder – Bore	160 mm	6 in
Boom Cylinder – Stroke	1392 mm	55 in
Stick Cylinder – Bore	180 mm	7 in
Stick Cylinder – Stroke	1758 mm	69 in
TB Bucket Cylinder – Bore	150 mm	6 in
TB Bucket Cylinder – Stroke	1356 mm	53 in
UB Bucket Cylinder – Bore	160 mm	6 in
UB Bucket Cylinder – Stroke	1396 mm	55 in

Service Refill Capacities

Fuel Tank Capacity	600 L	158.5 gal
Cooling System	40 L	10.5 gal
Engine Oil (with filter)	32 L	8.5 gal
Swing Drive	13.5 L	3.6 gal
Final Drive (each)	8 L	2.1 gal
Hydraulic System (including tank)	423 L	111.7 gal
Hydraulic Tank (including suction pipe)	186 L	49.1 gal

Standards

Brakes	ISO 10265:2008
Cab/ROPS	ISO 12117-2:2008

Sound Performance

ISO 6395:2008 (external)	107 dB(A)
ISO 6396:2008 (inside cab)	73 dB(A)

- Hearing protection may be needed when operating with an open operator station and cab (when not properly maintained or doors/windows open) for extended periods or in a noisy environment.

Operating Weights and Ground Pressures

	600 mm (24") Triple Grouser Shoes		600 mm (24") Double Grouser Shoes		600 mm (24") HD Triple Grouser Shoes		700 mm (28") Triple Grouser Shoes		800 mm (31") Triple Grouser Shoes	
	Weight	Ground Pressure	Weight	Ground Pressure	Weight	Ground Pressure	Weight	Ground Pressure	Weight	Ground Pressure
	kg (lb)	kPa (psi)	kg (lb)	kPa (psi)	kg (lb)	kPa (psi)	kg (lb)	kPa (psi)	kg (lb)	kPa (psi)
9.0 mt (19,842 lb) Counterweight + Base Machine										
Reach Boom + R3.35TB (11'0") Stick + 2.41 m³ (3.15 yd³) HD Bucket	41 500 (91,400)	77.3 (11.2)	42 200 (93,100)	78.7 (11.4)	42 100 (92,900)	78.5 (11.4)	41 800 (92,200)	66.8 (9.7)	42 500 (93,700)	59.3 (8.6)
Reach Boom + R2.9TB (9'6") Stick + 2.41 m³ (3.15 yd³) HD Bucket	41 400 (91,300)	77.2 (11.2)	42 200 (93,000)	78.6 (11.4)	42 100 (92,800)	78.4 (11.4)	41 800 (92,100)	66.7 (9.7)	42 400 (93,500)	59.3 (8.6)
Mass Boom + M3.0UB (9'10") Stick + 2.77 m³ (3.62 yd³) SDV Bucket	42 600 (93,800)	79.3 (11.5)	43 300 (95,500)	80.7 (11.7)	43 200 (95,300)	80.5 (11.7)	42 900 (94,600)	68.5 (9.9)	43 600 (96,100)	60.9 (8.8)
Mass Boom + M2.55UB (8'4") Stick + 2.77 m³ (3.62 yd³) SDV Bucket	42 400 (93,500)	79.0 (11.5)	43 200 (95,200)	80.4 (11.7)	43 100 (94 900)	80.2 (11.6)	42 800 (94,300)	68.3 (9.9)	43 400 (95,700)	60.6 (8.8)

All operating weights include a 90% fuel tank with 75 kg (165 lb) operator.

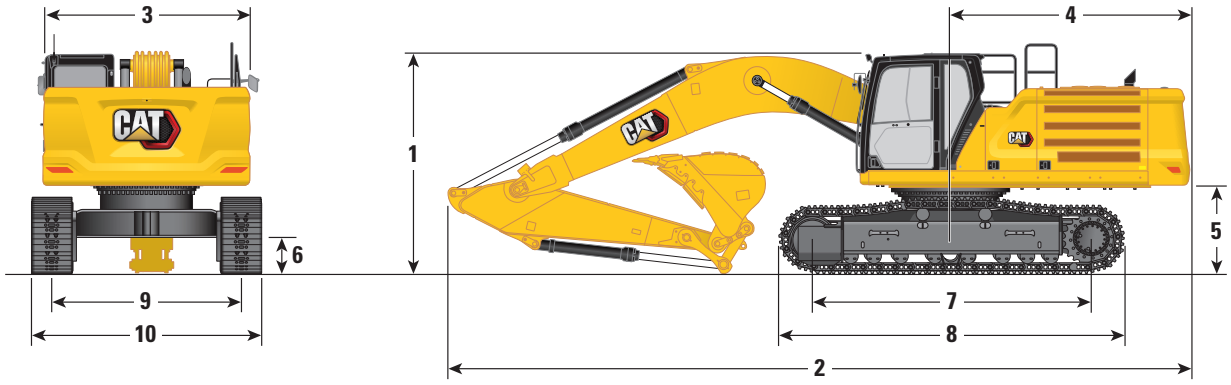
Major Component Weights

	kg	lb
Base machine with 9.0 mt (19,842 lb) counterweight, swing frame, two boom cylinders, and SD track rollers and carrier rollers	28 110	61,970
Track Shoes:		
600 mm (24") Width, 11 mm (0.43") Thick, Triple Grouser Track Shoes	4090	9,010
600 mm (24") Width, 15.5 mm (0.61") Thick, Double Grouser Track Shoes	4850	10,700
600 mm (24") Width, 15.5 mm (0.61") Thick, HD Triple Grouser Track Shoes	4750	10,460
700 mm (28") Width, 11 mm (0.43") Thick, Triple Grouser Track Shoes	4440	9,790
800 mm (31") Width, 13 mm (0.51") Thick, Triple Grouser Track Shoes	5100	11,230
Two Boom Cylinders	790	1,740
Weight of 90% Fuel Tank and 75 kg (165 lb) Operator	550	1,210
Counterweight:		
9.0 mt Counterweight	8990	19,842
Swing Frame:		
Swing Frame	3730	8,220
Undercarriage:		
Base Frame with SD Track Rollers and Carrier Rollers	8890	19,590
Booms (including lines, pins, stick cylinder):		
Reach Boom 6.9 m (22'8")	4020	8,870
Mass Boom 6.55 m (21'6")	4160	9,180
Sticks (including lines, pins, bucket cylinder, bucket linkage):		
Reach Stick R2.9TB (9'6")	2200	4,840
Reach Stick R3.35TB (11'0")	2250	4,960
Mass Stick M2.55UB (8'4")	2550	5,620
Mass Stick M3.0UB (9'10")	2710	5,980
Buckets (without linkage):		
2.41 m³ (3.15 yd³) HD	2460	5,410
2.77 m³ (3.62 yd³) SDV	2950	6,490

345 GC Hydraulic Excavator Specifications

Dimensions

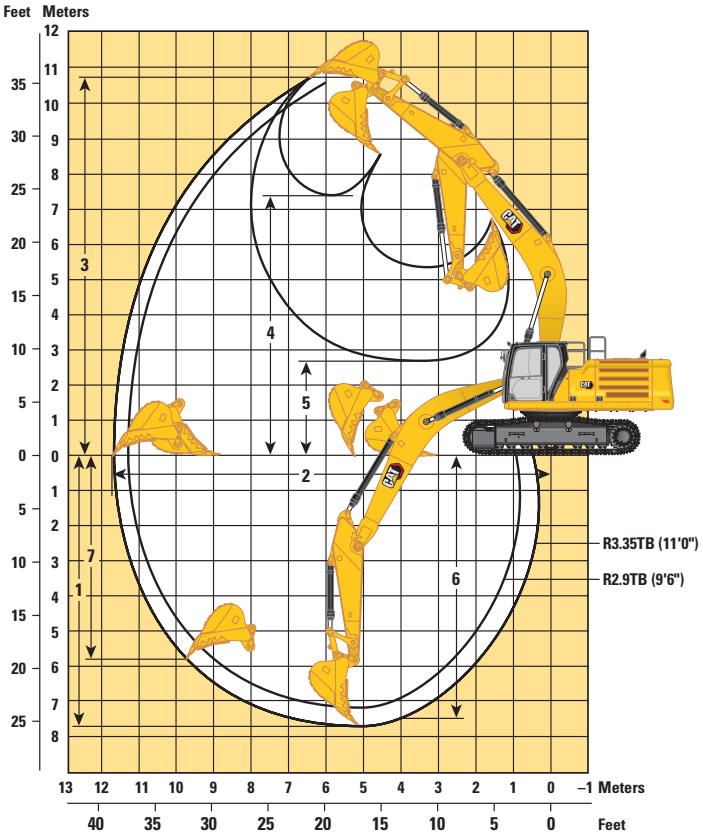
All dimensions are approximate and may vary depending on bucket selection.

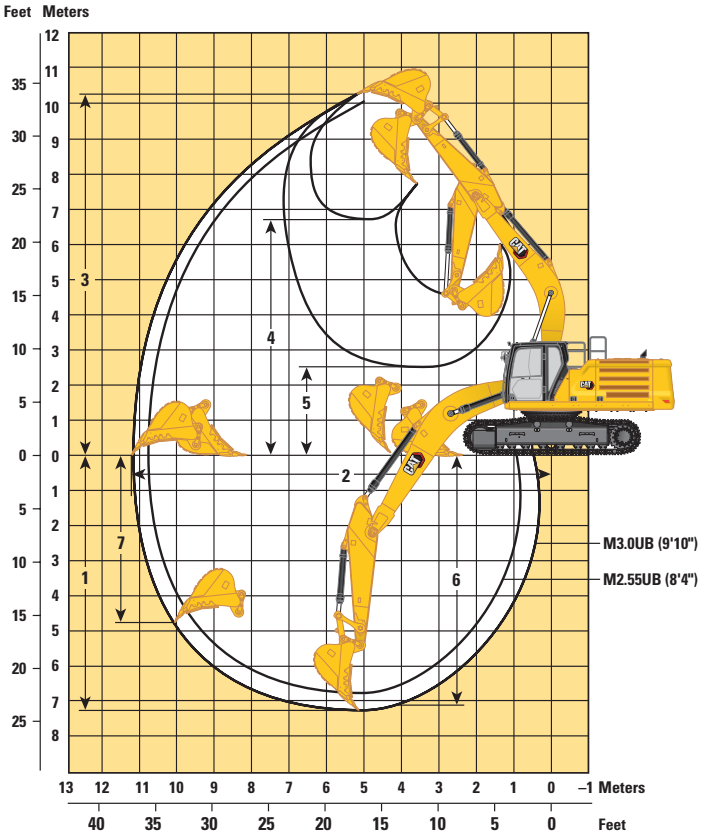


Boom Options	Reach Boom 6.9 m (22'8")				Mass Boom 6.55 m (21'6")			
Stick Options	Reach Stick				Mass Stick			
	R3.35TB (11'0")		R2.9TB (9'6")		M3.0UB (9'10")		M2.55UB (8'4")	
	mm	ft	mm	ft	mm	ft	mm	ft
1 Machine Height:								
Cab Height	3230	10.6	3230	10.6	3230	10.6	3230	10.6
FOGS Height (if equipped)	3370	11.1	3370	11.1	3370	11.1	3370	11.1
Handrails Height	3370	11.1	3370	11.1	3370	11.1	3370	11.1
With Boom/Stick/Bucket Installed	3560	11.7	3660	12.0	4040	13.3	3990	13.1
With Boom/Stick Installed	3490	11.5	3420	11.2	3880	12.7	3840	12.6
With Boom Installed	3050	10.0	3050	10.0	3080	10.1	3080	10.1
With Boom/Stick/Bucket Installed (with auxiliary lines)	3560	11.7	3660	12.0	4040	13.3	3990	13.1
With Boom/Stick Installed (with auxiliary lines)	3490	11.5	3420	11.2	3880	12.7	3840	12.6
With Boom Installed (with auxiliary lines)	3050	10.0	3050	10.0	3080	10.1	3080	10.1
2 Machine Length:								
With Boom/Stick/Bucket Installed	11 600	38.1	11 620	38.1	11 300	37.1	11 390	37.4
With Boom/Stick Installed	11 580	38.0	11 560	37.9	11 270	37.0	11 350	37.2
With Boom Installed	10 370	34.0	10 370	34.0	10 010	32.8	10 010	32.8
With Boom/Stick/Bucket Installed (with auxiliary lines)	11 600	38.1	11 620	38.1	11 300	37.1	11 390	37.4
With Boom/Stick Installed (with auxiliary lines)	11 580	38.0	11 560	37.9	11 270	37.0	11 350	37.2
With Boom Installed (with auxiliary lines)	10 370	34.0	10 370	34.0	10 010	32.8	10 010	32.8
3 Upperframe Width without Walkways	2970	9.7	2970	9.7	2970	9.7	2970	9.7
4 Tail Swing Radius	3530	11.6	3530	11.6	3530	11.6	3530	11.6
5 Counterweight Clearance	1300	4.3	1300	4.3	1300	4.3	1300	4.3
6 Ground Clearance	520	1.7	520	1.7	520	1.7	520	1.7
7 Length to Center of Rollers	4040	13.3	4040	13.3	4040	13.3	4040	13.3
8 Track Length	5030	16.5	5030	16.5	5030	16.5	5030	16.5
9 Track Gauge	2740	9.0	2740	9.0	2740	9.0	2740	9.0
10 Track Width/Undercarriage Width:								
600 mm (24") Shoes	3340	11.0	3340	11.0	3340	11.0	3340	11.0
700 mm (28") Shoes	3440	11.3	3440	11.3	3440	11.3	3440	11.3
800 mm (31") Shoes	3540	11.6	3540	11.6	3540	11.6	3540	11.6
Bucket Type	HD		HD		SDV		SDV	
Bucket Capacity	2.41 m^3	3.15 yd^3	2.41 m^3	3.15 yd^3	2.77 m^3	3.62 yd^3	2.77 m^3	3.62 yd^3
Bucket Tip Radius	1930 mm	6.3 ft	1930 mm	6.3 ft	2100 mm	6.9 ft	2100 mm	6.9 ft

Working Ranges and Forces

All dimensions are approximate and may vary depending on bucket selection.

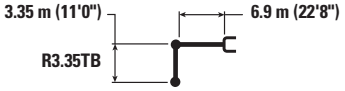


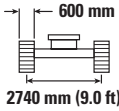


Boom Options	Reach Boom 6.9 m (22'8")				Mass Boom 6.55 m (21'6")			
Stick Options	Reach Stick				Mass Stick			
	R3.35TB (11'0")		R2.9TB (9'6")		M3.0UB (9'10")		M2.55UB (8'4")	
1 Maximum Digging Depth	7650 mm	25.1 ft	7200 mm	23.6 ft	7280 mm	23.9 ft	6780 mm	22.2 ft
2 Maximum Reach at Ground Line	11 710 mm	38.4 ft	11 290 mm	37.0 ft	11 220 mm	36.8 ft	10 760 mm	35.3 ft
3 Maximum Cutting Height	10 720 mm	35.2 ft	10 540 mm	34.6 ft	10 250 mm	33.6 ft	10 060 mm	33.0 ft
4 Maximum Loading Height	7390 mm	24.2 ft	7210 mm	23.7 ft	6710 mm	22.0 ft	6510 mm	21.4 ft
5 Minimum Loading Height	2680 mm	8.8 ft	3130 mm	10.3 ft	2520 mm	8.3 ft	3020 mm	9.9 ft
6 Maximum Depth Cut for 2440 mm (8'0") Level Bottom	7500 mm	25.0 ft	7040 mm	23.0 ft	7130 mm	23.0 ft	6610 mm	22.0 ft
7 Maximum Vertical Wall Digging Depth	5800 mm	19.0 ft	5390 mm	17.7 ft	4760 mm	15.6 ft	4320 mm	14.2 ft
Bucket Digging Force (ISO)	235 kN	52,860 lbf	235 kN	52,860 lbf	262 kN	59,010 lbf	262 kN	59,010 lbf
Stick Digging Force (ISO)	180 kN	40,530 lbf	198 kN	44,550 lbf	190 kN	42,790 lbf	216 kN	48,540 lbf
Bucket Type	HD		HD		SDV		SDV	
Bucket Capacity	2.41 m^3	3.15 yd^3	2.41 m^3	3.15 yd^3	2.77 m^3	3.62 yd^3	2.77 m^3	3.62 yd^3
Bucket Tip Radius	1930 mm	6.3 ft	1930 mm	6.3 ft	2100 mm	6.9 ft	2100 mm	6.9 ft

345 GC Hydraulic Excavator Specifications

Reach Boom Lift Capacities – Counterweight: 9.0 mt (19,842 lb) – without Bucket





		3000 mm/120 in		4500 mm/180 in		6000 mm/240 in		7500 mm/300 in		9000 mm/360 in				
														mm **in**
9000 mm **360 in**	kg **lb**											*7200 ***16,000**	*7200 ***16,000**	7180 **280**
7500 mm **300 in**	kg **lb**							*9150 ***20,100**	*9150 ***20,100**			*6750 ***14,900**	*6750 ***14,900**	8390 **330**
6000 mm **240 in**	kg **lb**							*9500 ***20,750**	9400 **20,200**	*8000	6950	*6600 ***14,550**	*6600 ***14,550**	9190 **360**
4500 mm **180 in**	kg **lb**			*15 650 ***33,650**	*15 650 ***33,650**	*12 100 ***26,150**	*12 100 ***26,150**	*10 200 ***22,200**	9050 **19,500**	*9100 ***19,800**	6800 **14,600**	*6700 ***14,700**	6000 **13,250**	9690 **380**
3000 mm **120 in**	kg **lb**			*18 950 ***40,750**	18 050 **38,950**	*13 650 ***29,500**	11 950 **25,750**	*11 050 ***23,900**	8650 **18,650**	*9450 ***20,550**	6600 **14,200**	*6950 ***15,300**	5650 **12,450**	9950 **400**
1500 mm **60 in**	kg **lb**			*16 950 ***40,550**	*16 950 **36,500**	*14 800 ***32,050**	11 300 **24,400**	*11 650 ***25,300**	8300 **17,900**	9400 **20,200**	6400 **13,800**	*7450 ***16,350**	5500 **12,150**	9970 **400**
0 mm **0 in**	kg **lb**			*18 350 ***42,650**	16 550 **35,550**	*15 200 ***32,900**	10 950 **23,550**	*11 950 ***25,850**	8050 **17,350**	9250 **19,900**	6250 **13,450**	*8250 ***18,100**	5600 **12,300**	9750 **390**
–1500 mm **–60 in**	kg **lb**	*12 550 ***28,400**	*12 550 ***28,400**	*19 300 ***41,850**	16 500 **35,400**	*14 750 ***32,000**	10 750 **23,200**	*11 650 ***25,150**	7900 **17,050**	9200 **19,750**	6200 **13,350**	*8800 ***19,350**	5950 **13,100**	9300 **370**
–3000 mm **–120 in**	kg **lb**	*20 150 ***45,550**	*20 150 ***45,550**	*17 200 ***37,300**	16 650 **35,750**	*13 500 ***29,150**	10 800 **23,250**	*10 600 ***22,750**	7950 **17,100**			*8650 ***19,050**	6700 **14,850**	8550 **340**
–4500 mm **–180 in**	kg **lb**	*17 350 ***37,400**	*17 350 ***37,400**	*14 050 ***30,150**	*14 050 ***30,150**	*11 050 ***23,600**	11 000 ***23,600**					*8200 ***17,950**	*8200 ***17,950**	7430 **290**

* **ISO 10567**

* Indicates that the load is limited by hydraulic lifting capacity rather than tipping load. The above loads are in compliance with hydraulic excavator lift capacity standard ISO 10567:2007. They do not exceed 87% of hydraulic lifting capacity or 75% of tipping load. Weight of all lifting accessories must be deducted from the above lifting capacities. Lifting capacities are based on the machine standing on a firm, uniform supporting surface. The use of a work tool attachment point to handle/lift objects, could affect the machine lift performance.

Lift capacity stays with ±5% for all available track shoes.

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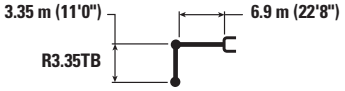
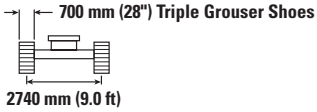
Reach Boom Lift Capacities – Counterweight: 9.0 mt (19,842 lb) – without Bucket





		3000 mm/120 in		4500 mm/180 in		6000 mm/240 in		7500 mm/300 in		9000 mm/360 in				
														mm **in**
9000 mm **360 in**	kg **lb**											*7200 ***16,000**	*7200 ***16,000**	7180 **280**
7500 mm **300 in**	kg **lb**							*9150 ***20,100**	*9150 ***20,100**			*6750 ***14,900**	*6750 ***14,900**	8390 **330**
6000 mm **240 in**	kg **lb**							*9500 ***20,750**	9300 **20,000**	*8000	6900	*6600 ***14,550**	*6600 ***14,550**	9190 **360**
4500 mm **180 in**	kg **lb**			*15 650 ***33,650**	*15 650 ***33,650**	*12 100 ***26,150**	*12 100 ***26,150**	*10 200 ***22,200**	9000 **19,350**	*9100 ***19,800**	6750 **14,450**	*6700 ***14,700**	5950 **13,150**	9690 **380**
3000 mm **120 in**	kg **lb**			*18 950 ***40,750**	17 900 **38,650**	*13 650 ***29,500**	11 850 **25,550**	*11 050 ***23,900**	8600 **18,500**	*9450 **20,450**	6550 **14,050**	*6950 ***15,300**	5600 **12,300**	9950 **400**
1500 mm **60 in**	kg **lb**			*16 950 ***40,550**	16 800 **36,200**	*14 800 ***32,050**	11 200 **24,200**	*11 650 ***25,300**	8250 **17,700**	9300 **20,000**	6350 **13,650**	*7450 ***16,350**	5450 **12,000**	9970 **400**
0 mm **0 in**	kg **lb**			*18 350 ***42,650**	16 400 **35,250**	*15 200 ***32,900**	10 850 **23,350**	11 900 **25,600**	7950 **17,150**	9150 **19,700**	6200 **13,350**	8150 **17,950**	5550 **12,200**	9750 **390**
–1500 mm **–60 in**	kg **lb**	*12 550 ***28,400**	*12 550 ***28,400**	*19 300 ***41,850**	16 350 **35,100**	*14 750 ***32,000**	10 650 **23,000**	*11 650 ***25,150**	7850 **16,900**	9100 **19,600**	6150 **13,250**	8700 **19,200**	5900 **13,000**	9300 **370**
–3000 mm **–120 in**	kg **lb**	*20 150 ***45,550**	*20 150 ***45,550**	*17 200 ***37,300**	16 500 **35,400**	*13 500 ***29,150**	10 700 **23,050**	*10 600 ***22,750**	7850 **16,950**			*8650 ***19,050**	6650 **14,700**	8550 **340**
–4500 mm **–180 in**	kg **lb**	*17 350 ***37,400**	*17 350 ***37,400**	*14 050 ***30,150**	*14 050 ***30,150**	*11 050 ***23,600**	10 900 **23,550**					*8200 ***17,950**	*8200 ***17,950**	7430 **290**

* **ISO 10567**

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Lift capacity stays with ±5% for all available track shoes.

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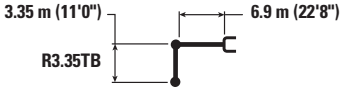
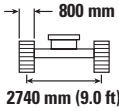
345 GC Hydraulic Excavator Specifications

Reach Boom Lift Capacities – Counterweight: 9.0 mt (19,842 lb) – without Bucket





		3000 mm/120 in		4500 mm/180 in		6000 mm/240 in		7500 mm/300 in		9000 mm/360 in				
														mm in
9000 mm **360 in**	kg **lb**											*7200 ***16,000**	*7200 ***16,000**	7180 **280**
7500 mm **300 in**	kg **lb**							*9150 ***20,100**	*9150 ***20,100**			*6750 ***14,900**	*6750 ***14,900**	8390 **330**
6000 mm **240 in**	kg **lb**							*9500 ***20,750**	9450 **20,300**	*8000	6950	*6600 ***14,550**	*6600 ***14,550**	9190 **360**
4500 mm **180 in**	kg **lb**			*15 650 ***33,650**	*15 650 ***33,650**	*12 100 ***26,150**	*12 100 ***26,150**	*10 200 ***22,200**	9100 **19,600**	*9100 ***19,800**	6850 **14,700**	*6700 ***14,700**	6050 **13,350**	9690 **380**
3000 mm **120 in**	kg **lb**			*18 950 ***40,750**	18 150 **39,150**	*13 650 ***29,500**	12 000 **25,900**	*11 050 ***23,900**	8700 **18,750**	*9450 ***20,550**	6650 **14,250**	*6950 ***15,300**	5700 **12,500**	9950 **400**
1500 mm **60 in**	kg **lb**			*16 950 ***40,550**	*16 950 **36,700**	*14 800 ***32,050**	11 400 **24,550**	*11 650 ***25,300**	8350 **18,000**	9450 **20,350**	6450 **13,850**	*7450 ***16,350**	5550 **12,200**	9970 **400**
0 mm **0 in**	kg **lb**			*18 350 ***42,650**	16 650 **35,750**	*15 200 ***32,900**	11 000 **23,700**	*11 950 ***25,850**	8100 **17,450**	9300 **20,000**	6300 **13,550**	*8250 ***18,100**	5650 **12,400**	9750 **390**
–1500 mm **–60 in**	kg **lb**	*12 550 ***28,400**	*12 550 ***28,400**	*19 300 ***41,850**	16 550 **35,600**	*14 750 ***32,000**	10 850 **23,300**	*11 650 ***25,150**	7950 **17,150**	9250 ***19,850**	6250 **13,450**	*8800 ***19,350**	6000 **13,200**	9300 **370**
–3000 mm **–120 in**	kg **lb**	*20 150 ***45,550**	*20 150 ***45,550**	*17 200 ***37,300**	16 700 **35,900**	*13 500 ***29,150**	10 850 **23,400**	*10 600 ***22,750**	8000 **17,200**			*8650 ***19,050**	6750 **14,900**	8550 **340**
–4500 mm **–180 in**	kg **lb**	*17 350 ***37,400**	*17 350 ***37,400**	*14 050 ***30,150**	*14 050 ***30,150**	*11 050 ***23,600**	*11 050 ***23,600**					*8200 ***17,950**	*8200 ***17,950**	7430 **290**

* ISO 10567

* Indicates that the load is limited by hydraulic lifting capacity rather than tipping load. The above loads are in compliance with hydraulic excavator lift capacity standard ISO 10567:2007. They do not exceed 87% of hydraulic lifting capacity or 75% of tipping load. Weight of all lifting accessories must be deducted from the above lifting capacities. Lifting capacities are based on the machine standing on a firm, uniform supporting surface. The use of a work tool attachment point to handle/lift objects, could affect the machine lift performance.

Lift capacity stays with ±5% for all available track shoes.

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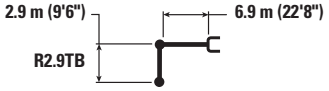
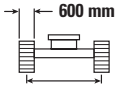
Reach Boom Lift Capacities – Counterweight: 9.0 mt (19,842 lb) – without Bucket





		3000 mm/120 in		4500 mm/180 in		6000 mm/240 in		7500 mm/300 in		9000 mm/360 in				
														mm **in**
9000 mm **360 in**	kg **lb**											*8600 ***19,150**	*8600 ***19,150**	6600 **260**
7500 mm **300 in**	kg **lb**							*9750 ***20,850**	9400 **20,150**			*8000 ***17,700**	*8000 ***17,700**	7890 **310**
6000 mm **240 in**	kg **lb**					*11 300 ***24,450**	*11 300 ***24,450**	*9950 ***21,750**	9250 **19,900**			*7850 ***17,250**	7200 **15,950**	8740 **350**
4500 mm **180 in**	kg **lb**			*16 800 ***35,950**	*16 800 ***35,950**	*12 700 ***27,400**	12 500 **26,950**	*10 600 ***23,000**	8950 **19,250**	*9400 ***20,050**	6750 **14,450**	*7950 ***17,450**	6400 **14,150**	9270 **370**
3000 mm **120 in**	kg **lb**			*18 950 ***42,700**	17 600 **38,000**	*14 150 ***30,500**	11 800 **25,400**	*11 350 ***24,550**	8600 **18,500**	9550 **20,550**	6550 **14,100**	*8300 ***18,200**	6000 **13,200**	9530 **380**
1500 mm **60 in**	kg **lb**			*12 600 ***30,850**	*12 600 ***30,850**	*15 050 ***32,600**	11 200 **24,200**	*11 850 ***25,650**	8250 **17,800**	9350 **20,150**	6400 **13,750**	8600 **18,900**	5850 **12,900**	9550 **380**
0 mm **0 in**	kg **lb**			*17 000 ***39,700**	16 550 **35,550**	*15 200 ***32,900**	10 900 **23,500**	*11 950 **25,850**	8050 **17,300**	9250 **19,900**	6250 **13,500**	8800 **19,350**	6000 **13,150**	9330 **370**
–1500 mm **–60 in**	kg **lb**	*12 550 ***28,600**	*12 550 ***28,600**	*18 550 ***40,300**	16 550 **35,600**	*14 500 ***31,450**	10 800 **23,250**	*11 450 ***24,750**	7950 **17,150**			*9150 ***20,150**	6400 **14,100**	8850 **350**
–3000 mm **–120 in**	kg **lb**	*19 350 ***42,300**	*19 350 ***42,300**	*16 250 ***35,200**	*16 250 ***35,200**	*12 950 ***27,950**	10 900 **23,450**	*10 100 ***21,500**	8000 **17,300**			*8900 ***19,600**	7350 **16,200**	8060 **320**
–4500 mm **–180 in**	kg **lb**			*12 650 ***27,150**	*12 650 ***27,150**	*10 050 ***21,250**	*10 050 ***21,250**					*8200 ***17,900**	*8200 ***17,900**	6860 **270**

* **ISO 10567**

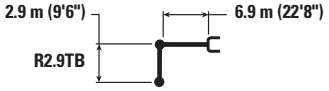
* Indicates that the load is limited by hydraulic lifting capacity rather than tipping load. The above loads are in compliance with hydraulic excavator lift capacity standard ISO 10567:2007. They do not exceed 87% of hydraulic lifting capacity or 75% of tipping load. Weight of all lifting accessories must be deducted from the above lifting capacities. Lifting capacities are based on the machine standing on a firm, uniform supporting surface. The use of a work tool attachment point to handle/lift objects, could affect the machine lift performance.

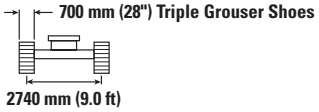
Lift capacity stays with ±5% for all available track shoes.

Always refer to the appropriate Operation and Maintenance Manual for specific product information.

345 GC Hydraulic Excavator Specifications

Reach Boom Lift Capacities – Counterweight: 9.0 mt (19,842 lb) – without Bucket





		3000 mm/120 in		4500 mm/180 in		6000 mm/240 in		7500 mm/300 in		9000 mm/360 in				
														mm in
9000 mm **360 in**	kg **lb**											*8600 ***19,150***	*8600 ***19,150***	6600 **260**
7500 mm **300 in**	kg **lb**							*9750 ***20,850***	9350 **20,000**			*8000 ***17,700***	*8000 ***17,700***	7890 **310**
6000 mm **240 in**	kg **lb**					*11 300 ***24,450***	*11 300 ***24,450***	*9950 ***21,750***	9200 **19,750**			*7850 ***17,250***	7150 **15,850**	8740 **350**
4500 mm **180 in**	kg **lb**			*16 800 ***35,950***	*16 800 ***35,950***	*12 700 ***27,400***	12 400 **26,750**	*10 600 ***23,000***	8900 **19,100**	*9400 ***20,050***	6650 **14,300**	*7950 ***17,450***	6350 **14,050**	9270 **370**
3000 mm **120 in**	kg **lb**			*18 950 ***42,700***	17 450 **37,700**	*14 150 ***30,500***	11 700 **25,200**	*11 350 ***24,550***	8500 **18,350**	9450 **20,350**	6500 **13,950**	*8300 ***18,200***	5950 **13,100**	9530 **380**
1500 mm **60 in**	kg **lb**			*12 600 ***30,850***	*12 600 ***30,850***	*15 050 ***32,600***	11 100 **23,950**	*11 850 ***25,650***	8200 **17,650**	9300 **20,000**	6350 **13,600**	8500 **18,750**	5800 **12,750**	9550 **380**
0 mm **0 in**	kg **lb**			*17 000 ***39,700***	16 400 **35,250**	*15 200 ***32,900***	10 800 **23,250**	11 900 **25,600**	7950 **17,150**	9150 **19,700**	6200 **13,400**	8700 **19,200**	5900 **13,000**	9330 **370**
–1500 mm **–60 in**	kg **lb**	*12 550 ***28,600***	*12 550 ***28,600***	*18 550 ***40,300***	16 450 **35,300**	*14 500 ***31,450***	10 700 **23,050**	*11 450 ***24,750***	7900 **16,950**			*9150 ***20,150***	6350 **14,000**	8850 **350**
–3000 mm **–120 in**	kg **lb**	*19 350 ***42,300***	*19 350 ***42,300***	*16 250 ***35,200***	*16 250 ***35,200***	*12 950 ***27,950***	10 800 **23,250**	*10 100 ***21,500***	7950 **17,150**			*8900 ***19,600***	7250 **16,050**	8060 **320**
–4500 mm **–180 in**	kg **lb**			*12 650 ***27,150***	*12 650 ***27,150***	*10 050 ***21,250***	*10 050 ***21,250***					*8200 ***17,900***	*8200 ***17,900***	6860 **270**

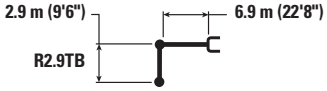
* **ISO 10567**

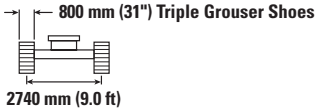
* Indicates that the load is limited by hydraulic lifting capacity rather than tipping load. The above loads are in compliance with hydraulic excavator lift capacity standard ISO 10567:2007. They do not exceed 87% of hydraulic lifting capacity or 75% of tipping load. Weight of all lifting accessories must be deducted from the above lifting capacities. Lifting capacities are based on the machine standing on a firm, uniform supporting surface. The use of a work tool attachment point to handle/lift objects, could affect the machine lift performance.

Lift capacity stays with ±5% for all available track shoes.

Always refer to the appropriate Operation and Maintenance Manual for specific product information.

Reach Boom Lift Capacities – Counterweight: 9.0 mt (19,842 lb) – without Bucket





		3000 mm/120 in		4500 mm/180 in		6000 mm/240 in		7500 mm/300 in		9000 mm/360 in				
														mm **in**
9000 mm **360 in**	kg **lb**											*8600 ***19,150**	*8600 ***19,150**	6600 **260**
7500 mm **300 in**	kg **lb**							*9750 ***20,850**	9450 **20,250**			*8000 ***17,700**	*8000 ***17,700**	7890 **310**
6000 mm **240 in**	kg **lb**					*11 300 ***24,450**	*11 300 ***24,450**	*9950 ***21,750**	9300 **20,000**			*7850 ***17,250**	7250 **16,050**	8740 **350**
4500 mm **180 in**	kg **lb**			*16 800 ***35,950**	*16 800 ***35,950**	*12 700 ***27,400**	12 550 **27,100**	*10 600 ***23,000**	9000 **19,350**	*9400 ***20,050**	6750 **14,500**	*7950 ***17,450**	6450 **14,250**	9270 **370**
3000 mm **120 in**	kg **lb**			*18 950 ***42,700**	17 700 **38,200**	*14 150 ***30,500**	11 850 **25,550**	*11 350 ***24,550**	8650 **18,600**	9600 **20,650**	6600 **14,150**	*8300 ***18,200**	6050 **13,300**	9530 **380**
1500 mm **60 in**	kg **lb**			*12 600 ***30,850**	*12 600 ***30,850**	*15 050 ***32,600**	11 300 **24,300**	*11 850 ***25,650**	8300 **17,900**	9450 **20,300**	6400 **13,800**	8650 **19,000**	5900 **12,950**	9550 **380**
0 mm **0 in**	kg **lb**			*17 000 ***39,700**	16 650 **35,750**	*15 200 ***32,900**	10 950 **23,600**	*11 950 ***25,900**	8100 **17,400**	9300 **20,050**	6300 **13,600**	8850 **19,500**	6000 **13,250**	9330 **370**
–1500 mm **–60 in**	kg **lb**	*12 550 ***28,600**	*12 550 ***28,600**	*18 550 ***40,300**	16 650 **35,800**	*14 500 ***31,450**	10 850 **23,400**	*11 450 ***24,750**	8000 **17,250**			*9150 ***20,150**	6450 **14,200**	8850 **350**
–3000 mm **–120 in**	kg **lb**	*19 350 ***42,300**	*19 350 ***42,300**	*16 250 ***35,200**	*16 250 ***35,200**	*12 950 ***27,950**	10 950 **23,550**	*10 100 ***21,500**	8050 **17,400**			*8900 ***19,600**	7350 **16,300**	8060 **320**
–4500 mm **–180 in**	kg **lb**			*12 650 ***27,150**	*12 650 ***27,150**	*10 050 ***21,250**	*10 050 ***21,250**					*8200 ***17,900**	*8200 ***17,900**	6860 **270**

* **ISO 10567**

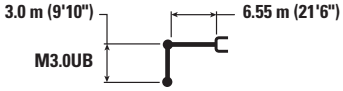
* Indicates that the load is limited by hydraulic lifting capacity rather than tipping load. The above loads are in compliance with hydraulic excavator lift capacity standard ISO 10567:2007. They do not exceed 87% of hydraulic lifting capacity or 75% of tipping load. Weight of all lifting accessories must be deducted from the above lifting capacities. Lifting capacities are based on the machine standing on a firm, uniform supporting surface. The use of a work tool attachment point to handle/lift objects, could affect the machine lift performance.

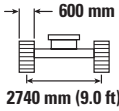
Lift capacity stays with ±5% for all available track shoes.

Always refer to the appropriate Operation and Maintenance Manual for specific product information.

345 GC Hydraulic Excavator Specifications

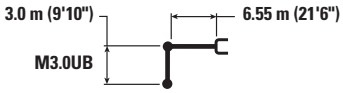
Mass Boom Lift Capacities – Counterweight: 9.0 mt (19,842 lb) – without Bucket

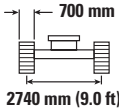




		3000 mm/120 in		4500 mm/180 in		6000 mm/240 in		7500 mm/300 in		9000 mm/360 in				
														mm in
7500 mm 300 in	kg lb							*8400	*8400			*7900 *17,500	*7900 *17,500	7570 300
6000 mm 240 in	kg lb							*9500 *20,750	9000 19,250			*7650 *16,900	7300 16,200	8450 330
4500 mm 180 in	kg lb			*15 250 *32,750	*15 250 *32,750	*11 850 *25,600	*11 850 *25,600	*10 050 *21,850	8650 18,600			*7750 *17,000	6400 14,100	9000 360
3000 mm 120 in	kg lb			*18 400 *39,500	17 550 37,850	*13 300 *28,700	11 500 24,800	*10 750 *23,300	8250 17,800	9200 19,800	6200 13,300	*8050 *17,700	5900 13,050	9270 370
1500 mm 60 in	kg lb			*20 000 *43,250	16 400 35,300	*14 350 *31,050	10 850 23,400	*11 300 *24,500	7900 17,000	9050 19,400	6050 12,950	8600 18,950	5750 12,650	9290 370
0 mm 0 in	kg lb			*19 850 *43,050	15 950 34,350	*14 700 *31,750	10 450 22,550	*11 500 *24,850	7650 16,450	8900	5900	8800 19,400	5850 12,900	9060 360
–1500 mm –60 in	kg lb	*15 000 *34,000	*15 000 *34,000	*18 550 *40,300	15 950 34,200	*14 150 *30,600	10 300 22,200	*11 050 *23,800	7550 16,250			*9150 *20,100	6300 13,900	8570 340
–3000 mm –120 in	kg lb	*20 700 *44,950	*20 700 *44,950	*16 250 *35,200	16 150 34,650	*12 600 *27,150	10 400 22,400	*9500 *20,200	7650 16,500			*8950 *19,700	7350 16,250	7750 310
–4500 mm –180 in	kg lb			*12 500 *26,700	*12 500 *26,700	*9450 *19,750	*9450 *19,750					*8250 *18,050	*8250 *18,050	6490 260

Mass Boom Lift Capacities – Counterweight: 9.0 mt (19,842 lb) – without Bucket





		3000 mm/120 in		4500 mm/180 in		6000 mm/240 in		7500 mm/300 in		9000 mm/360 in				
														mm in
7500 mm 300 in	kg lb							*8400	*8400			*7900 *17,500	*7900 *17,500	7570 300
6000 mm 240 in	kg lb							*9500 *20,750	8900 19,100			*7650 *16,900	7200 16,050	8450 330
4500 mm 180 in	kg lb			*15 250 *32,750	*15 250 *32,750	*11 850 *25,600	*11 850 *25,600	*10 050 *21,850	8600 18,450			*7750 *17,000	6350 14,000	9000 360
3000 mm 120 in	kg lb			*18 400 *39,500	17 400 37,500	*13 300 *28,700	11 400 24,600	*10 750 *23,300	8200 17,600	9150 19,600	6150 13,200	*8050 *17,700	5850 12,900	9270 370
1500 mm 60 in	kg lb			*20 000 *43,250	16 250 34,950	*14 350 *31,050	10 750 23,200	*11 300 *24,500	7800 16,850	8950 19,200	5950 12,800	8500 18,750	5700 12,500	9290 370
0 mm 0 in	kg lb			*19 850 *43,050	15 800 34,000	*14 700 *31,750	10 350 22,300	*11 500 24,750	7550 16,300	8800	5850	8750 19,200	5800 12,750	9060 360
–1500 mm –60 in	kg lb	*15 000 *34,000	*15 000 *34,000	*18 550 *40,300	15 800 33,900	*14 150 *30,600	10 200 22,000	*11 050 *23,800	7450 16,100			*9150 *20,100	6250 13,800	8570 340
–3000 mm –120 in	kg lb	*20 700 *44,950	*20 700 *44,950	*16 250 *35,200	16 000 34,350	*12 600 *27,150	10 300 22,200	*9500 *20,200	7550 16,350			*8950 *19,700	7250 16,100	7750 310
–4500 mm –180 in	kg lb			*12 500 *26,700	*12 500 *26,700	*9450 *19,750	*9450 *19,750					*8250 *18,050	*8250 *18,050	6490 260

* ISO 10567

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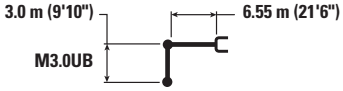
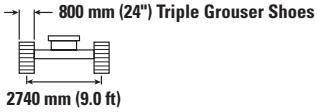
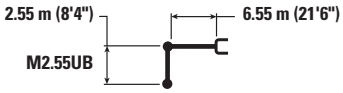
Mass Boom Lift Capacities – Counterweight: 9.0 mt (19,842 lb) – without Bucket

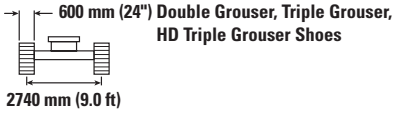




		3000 mm/120 in		4500 mm/180 in		6000 mm/240 in		7500 mm/300 in		9000 mm/360 in				
														mm in
7500 mm 300 in	kg lb							*8400	*8400			*7900 *17,500	*7900 *17,500	7570 300
6000 mm 240 in	kg lb							*9500 *20,750	9000 19,350			*7650 *16,900	7300 16,250	8450 330
4500 mm 180 in	kg lb			*15 250 *32,750	*15 250 *32,750	*11 850 *25,600	*11 850 *25,600	*10 050 *21,850	8700 18,700			*7750 *17,000	6400 14,200	9000 360
3000 mm 120 in	kg lb			*18 400 *39,500	17 600 38,050	*13 300 *28,700	11 550 24,950	*10 750 *23,300	8300 17,850	*9250 19,900	6250 13,400	*8050 *17,700	5950 13,100	9270 370
1500 mm 60 in	kg lb			*20 000 *43,250	16 450 35,500	*14 350 *31,050	10 900 23,550	*11 300 *24,500	7950 17,100	9100 19,500	6050 13,050	8650 19,050	5800 12,700	9290 370
0 mm 0 in	kg lb			*19 850 *43,050	16 050 34,500	*14 700 *31,750	10 550 22,650	*11 500 *24,850	7700 16,550	8950	5950	8850 19,550	5900 12,950	9060 360
–1500 mm –60 in	kg lb	*15 000 *34,000	*15 000 *34,000	*18 550 *40,300	16 000 34,400	*14 150 *30,600	10 400 22,350	*11 050 *23,800	7600 16,350			*9150 *20,100	6350 14,000	8570 340
–3000 mm –120 in	kg lb	*20 700 *44,950	*20 700 *44,950	*16 250 *35,200	16 200 34,850	*12 600 *27,150	10 450 22,550	*9500 *20,200	7700 16,600			*8950 *19,700	7400 16,350	7750 310
–4500 mm –180 in	kg lb			*12 500 *26,700	*12 500 *26,700	*9450 *19,750	*9450 *19,750					*8250 *18,050	*8250 *18,050	6490 260

Mass Boom Lift Capacities – Counterweight: 9.0 mt (19,842 lb) – without Bucket





		3000 mm/120 in		4500 mm/180 in		6000 mm/240 in		7500 mm/300 in				
												mm in
7500 mm 300 in	kg lb					*23,450	*23,450			*10 400 *23,000	10 100 22,800	7000 280
6000 mm 240 in	kg lb					*11 300 *24,550	*11 300 *24,550	*10 150 *22,200	8900 19,050	*9950 *22,000	8050 17,900	7950 310
4500 mm 180 in	kg lb			*16 500 *35,450	*16 500 *35,450	*12 550 *27,100	12 150 26,200	*10 600 *23,000	8600 18,500	*9800 *21,600	6950 15,450	8520 340
3000 mm 120 in	kg lb			*19 450 *41,850	17 150 37,000	*13 850 *29,950	11 400 24,600	*11 150 *24,200	8250 17,750	9550 21,050	6450 14,200	8810 350
1500 mm 60 in	kg lb			*36,200	35,050	*14 700 *31,850	10 850 23,350	*11 600 *25,100	7950 17,050	9350 20,550	6250 13,800	8830 350
0 mm 0 in	kg lb			*19 450 *42,350	16 100 34,600	*14 750 *31,950	10 550 22,700	*11 550 *25,000	7750 16,650	9600 21,200	6400 14,100	8590 340
–1500 mm –60 in	kg lb	*15 050 *34,350	*15 050 *34,350	*17 800 *38,750	16 150 34,700	*13 900 *30,100	10 450 22,550	*10 800 *23,250	7700 16,550	*9650 *21,300	7000 15,450	8070 320
–3000 mm –120 in	kg lb	*18 000 *39,300	*18 000 *39,300	*15 200 *32,900	*15 200 *32,900	*11 950 *25,700	10 600 22,900			*9300 *20,450	8300 18,450	7190 290
–4500 mm –180 in	kg lb			*10 800	*10 800					*8100 *18,300	*8100 *18,300	5810 220

* ISO 10567

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Lift capacity stays with ±5% for all available track shoes.

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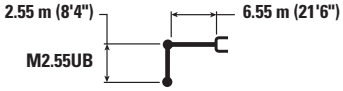
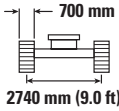
345 GC Hydraulic Excavator Specifications

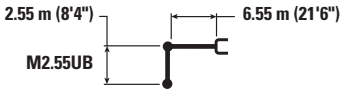
Mass Boom Lift Capacities – Counterweight: 9.0 mt (19,842 lb) – without Bucket

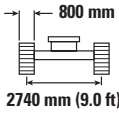




		3000 mm/120 in		4500 mm/180 in		6000 mm/240 in		7500 mm/300 in				
												mm in
7500 mm 300 in	kg lb					 *23,450	 *23,450			*10 400 *23,000	10 000 22,600	7000 280
6000 mm 240 in	kg lb					*11 300 *24,550	*11 300 *24,550	*10 150 *22,200	8800 18,900	*9950 *22,000	7950 17,700	7950 310
4500 mm 180 in	kg lb			*16 500 *35,450	*16 500 *35,450	*12 550 *27,100	12 050 25,950	*10 600 *23,000	8550 18,350	*9800 *21,600	6900 15,300	8520 340
3000 mm 120 in	kg lb			*19 450 *41,850	17 000 36,700	*13 850 *29,950	11 300 24,400	*11 150 *24,200	8150 17,600	9450 20,850	6400 14,050	8810 350
1500 mm 60 in	kg lb			 *36,200	 34,750	*14 700 *31,850	10 750 23,150	*11 600 *25,100	7850 16,900	9250 20,350	6200 13,650	8830 350
0 mm 0 in	kg lb			*19 450 *42,350	15 950 34,250	*14 750 *31,950	10 450 22,450	*11 550 24,950	7650 16,450	9550 21,000	6350 14,000	8590 340
–1500 mm –60 in	kg lb	*15 050 *34,350	*15 050 *34,350	*17 800 *38,750	16 000 34,400	*13 900 *30,100	10 350 22,300	*10 800 *23,250	7600 16,400	*9650 *21,300	6950 15,300	8070 320
–3000 mm –120 in	kg lb	*18 000 *39,300	*18 000 *39,300	*15 200 *32,900	*15 200 *32,900	*11 950 *25,700	10 500 22,650			*9300 *20,450	8250 18,300	7190 290
–4500 mm –180 in	kg lb			*10 800	*10 800					*8100 *18,300	*8100 *18,300	5810 220

Mass Boom Lift Capacities – Counterweight: 9.0 mt (19,842 lb) – without Bucket





		3000 mm/120 in		4500 mm/180 in		6000 mm/240 in		7500 mm/300 in				
												mm in
7500 mm 300 in	kg lb					 *23,450	 *23,450			*10 400 *23,000	10 150 22,900	7000 280
6000 mm 240 in	kg lb					*11 300 *24,550	*11 300 *24,550	*10 150 *22,200	8950 19,150	*9950 *22,000	8050 17,950	7950 310
4500 mm 180 in	kg lb			*16 500 *35,450	*16 500 *35,450	*12 550 *27,100	12 200 26,300	*10 600 *23,000	8650 18,600	*9800 *21,600	7000 15,500	8520 340
3000 mm 120 in	kg lb			*19 450 *41,850	17 200 37,200	*13 850 *29,950	11 450 24,750	*11 150 *24,200	8300 17,850	9600 21,150	6500 14,250	8810 350
1500 mm 60 in	kg lb			 *36,200	 35,250	*14 700 *31,850	10 900 23,500	*11 600 *25,100	7950 17,150	9400 20,700	6300 13,850	8830 350
0 mm 0 in	kg lb			*19 450 *42,350	16 200 34,800	*14 750 *31,950	10 600 22,800	*11 550 *25,000	7750 16,750	9700 21,300	6450 14,200	8590 340
–1500 mm –60 in	kg lb	*15 050 *34,350	*15 050 *34,350	*17 800 *38,750	16 250 34,900	*13 900 *30,100	10 550 22,650	*10 800 *23,250	7750 16,650	*9650 *21,300	7050 15,500	8070 320
–3000 mm –120 in	kg lb	*18 000 *39,300	*18 000 *39,300	*15 200 *32,900	*15 200 *32,900	*11 950 *25,700	10 700 23,000			*9300 *20,450	8350 18,550	7190 290
–4500 mm –180 in	kg lb			*10 800	*10 800					*8100 *18,300	*8100 *18,300	5810 220

ISO 10567

*Indicates that the load is limited by hydraulic lifting capacity rather than tipping load. The above loads are in compliance with hydraulic excavator lift capacity standard ISO 10567:2007. They do not exceed 87% of hydraulic lifting capacity or 75% of tipping load. Weight of all lifting accessories must be deducted from the above lifting capacities. Lifting capacities are based on the machine standing on a firm, uniform supporting surface. The use of a work tool attachment point to handle/lift objects, could affect the machine lift performance.

Lift capacity stays with ±5% for all available track shoes.

Always refer to the appropriate Operation and Maintenance Manual for specific product information.

Bucket Specifications and Compatibility – Africa, Middle East and CIS

		Width		Capacity		Weight		Fill	9.0 mt (19,842 lb) Counterweight			
									Reach Boom		Mass Boom	
	Linkage	mm	in	m^3	yd^3	kg	lb	%	R2.9 (9'6")	R3.35 (11'0")	M2.55 (8'4")	M3.0 (9'10")
Pin-On (No Quick Coupler)												
Heavy Duty (HD)	TB	1350	54	1.87	2.44	1979	4,363	100	●	●		
	TB	1650	66	2.41	3.15	2220	4,894	100	⊖	⊖		
	TB	1850	72	2.60	3.40	2349	5,179	100	⊖	○		
	TB	1850	72	2.69	3.52	2349	5,179	100	⊖	○		
	TB	1900	74	2.78	3.64	2427	5,350	100	X	X		
Severe Duty (SD)	TB	1400	55	1.87	2.44	2170	4,783	90	●	●		
	TB	1550	61	2.14	2.80	2327	5,129	90	●	◉		
	TB	1900	75	2.78	3.64	2683	5,914	90	X	X		
Severe Duty (SD) – V edge	TB	1700	67	2.41	3.16	2479	5,464	90	◉	⊖		
Extreme Duty (XD)	TB	1700	67	2.41	3.16	2722	6,000	90	⊖	○		
General Duty (GD)	UB	2000	79	3.60	4.71	2890	6,371	100			◇	◇
Heavy Duty (HD)	UB	1650	65	2.77	3.62	2573	5,672	100			⊖	○
	UB	1850	73	3.21	4.20	2758	6,079	100			○	◇
	UB	1950	77	3.43	4.48	2912	6,419	100			◇	◇
Severe Duty (SD)	UB	1550	61	2.61	3.41	2658	5,859	90			◉	⊖
	UB	1600	64	2.70	3.53	2725	6,007	90			⊖	○
	UB	1650	65	2.77	3.62	2738	6,035	90			⊖	○
	UB	1850	73	3.21	4.20	2972	6,552	90			○	◇
	UB	1950	77	3.43	4.48	3106	6,847	90			○	◇
Maximum load with pin-on (payload + bucket)								kg	6215	5785	6680	6025
								lb	13,702	12,754	14,727	13,283
Pin-On (No Quick Coupler)												
HD	TB	1900	74	2.78	3.64	2427	5,350	90	92%	92%		
SD	TB	1900	75	2.78	3.64	2683	5,914	92	97%	97%		

The above loads are in compliance with hydraulic excavator standard EN474-5:2006+A3:2013, they do not exceed 87% of hydraulic lifting capacity or 75% of tipping capacity with front linkage fully extended at ground line with bucket curled.

Capacity based on ISO 7451:2007.

Bucket weight with Long tips.

Maximum Material Density:

- ● 2100 kg/m^3 (3,500 lb/yd^3)
- ◉ 1800 kg/m^3 (3,000 lb/yd^3)
- ⊖ 1500 kg/m^3 (2,500 lb/yd^3)
- ○ 1200 kg/m^3 (2,000 lb/yd^3)
- ◇ 900 kg/m^3 (1,500 lb/yd^3)

Caterpillar recommends using appropriate work tools to maximize the value customers receive from our products. Use of work tools, including buckets, which are outside of Caterpillar's recommendations or specifications for weight, dimensions, flows, pressures, etc. may result in less-than-optimal performance, including but not limited to reductions in production, stability, reliability, and component durability. Improper use of a work tool resulting in sweeping, prying, twisting and/or catching of heavy loads will reduce the life of the boom and stick.

345 GC Hydraulic Excavator Specifications

Bucket Specifications and Compatibility – Southeast Asia

		Width		Capacity		Weight		Fill	9.0 mt (19,842 lb) Counterweight			
									Reach Boom		Mass Boom	
	Linkage	mm	in	m^3	yd^3	kg	lb	%	R2.9 (9'6")	R3.35 (11'0")	M2.55 (8'4")	M3.0 (9'10")
Pin-On (No Quick Coupler)												
Heavy Duty	TB	1200	48	1.60	2.09	1852	4,083	100	●	●		
	TB	1350	54	1.87	2.44	1979	4,363	100	●	●		
	TB	1500	60	2.14	2.80	2143	4,724	100	◉	⊖		
	TB	1650	66	2.41	3.15	2307	5,086	100	⊖	⊖		
	TB	1800	72	2.69	3.52	2437	5,373	100	○	○		
	TB	1850	73	2.69	3.52	2527	5,571	100	○	○		
Severe Duty	TB	1400	55	1.87	2.44	2170	4,783	90	●	●		
	TB	1550	61	2.14	2.80	2369	5,222	90	●	◉		
	TB	1700	67	2.41	3.16	2509	5,531	90	⊖	⊖		
	TB	1550	61	2.14	2.80	2254	4,968	90	●	◉		
General Duty	UB	2000	79	3.60	4.71	2890	6,371	100			◇	◇
Heavy Duty	UB	1500	61	2.50	3.27	2455	5,411	100			⊖	⊖
	UB	1650	65	2.77	3.62	2573	5,672	100			⊖	○
	UB	1750	70	3.00	3.92	2670	5,885	100			○	◇
	UB	1850	73	3.21	4.20	2758	6,079	100			○	◇
	UB	1950	77	3.43	4.48	2912	6,419	100			◇	◇
Maximum load with pin-on (payload + bucket)								kg	6215	5785	6680	6025
								lb	13,702	12,754	14,727	13,283
Pin-On (No Quick Coupler)												
HD	TB	1900	74	2.78	3.64	2427	5,350	90	92%	92%		
SD	TB	1900	75	2.78	3.64	2683	5,914	92	97%	97%		

The above loads are in compliance with hydraulic excavator standard EN474-5:2006+A3:2013, they do not exceed 87% of hydraulic lifting capacity or 75% of tipping capacity with front linkage fully extended at ground line with bucket curled.

Capacity based on ISO 7451:2007.

Bucket weight with Long tips.

Maximum Material Density:

- ● 2100 kg/m^3 (3,500 lb/yd^3)
- ◉ 1800 kg/m^3 (3,000 lb/yd^3)
- ⊖ 1500 kg/m^3 (2,500 lb/yd^3)
- ○ 1200 kg/m^3 (2,000 lb/yd^3)
- ◇ 900 kg/m^3 (1,500 lb/yd^3)

Caterpillar recommends using appropriate work tools to maximize the value customers receive from our products. Use of work tools, including buckets, which are outside of Caterpillar's recommendations or specifications for weight, dimensions, flows, pressures, etc. may result in less-than-optimal performance, including but not limited to reductions in production, stability, reliability, and component durability. Improper use of a work tool resulting in sweeping, prying, twisting and/or catching of heavy loads will reduce the life of the boom and stick.

Attachments Offering Guide – Africa, Middle East and CIS

Not all Attachments are available in all regions. Consult your Cat dealer for configurations available in your region.

✓ Match * Working range front only No Match

PIN-ON ATTACHMENTS

Counterweight		9.0 mt (19,842 lb)			
Boom Type		**Reach**	**Reach**	**ME**	**ME**
Stick Size		**2.9m (9'6")**	**3.35m (11'0")**	**2.5m (8'2")**	**3.0m (9'10")**
Hydraulic Hammers	H140 GC	✓	✓		
	H140 GC S	✓	✓		
	H160 GC	✓	✓	✓	✓
	H160 GC S	✓	✓	✓	✓
	H160 S			✓	✓
	H180 GC	✓	✓	✓	✓
	H180 GC S	✓	✓	✓	✓
	H180 S			✓	✓
Multi-Processors	MP332 Concrete Cutter Jaw				
	MP332 Demolition Jaw				
	MP332 Pulverizer Jaw				
	MP332 Shear Jaw				
	MP332 Tank Shear Jaw				
	MP332 Universal Jaw				
	MP345 Concrete Cutter Jaw			✓	✓
	MP345 Demolition Jaw			✓	✓
	MP345 Pulverizer Jaw			✓	✓
	MP345 Shear Jaw			✓	✓
Demolition and Sorting Grapples	G345			✓	✓
Mobile Scrap and Demolition Shears	S3050			✓	✓*
	S3050 Flat Top			✓*	
Pulverizers	P235			✓	✓
Crushers	P335			✓	✓
Orange Peel Grapples	GSH455-1000				
	GSH455-1500				
	GSH455-2000				
	GSH555-1000				
	GSH555-1500				
	GSM-50-1250				
	GSM-50-1500				
	GSM-50-2000				
Hydraulic Transfer Grab	CTV30-1700				
	CTV30-1900				
	CTV30-2300				
	CTV30-2700				

Attachments Offering Guide – Africa, Middle East and CIS *(continued)*

Not all Attachments are available in all regions. Consult your Cat dealer for configurations available in your region.

✓ Match * Working range front only No Match

CAT PIN GRABBER COUPLER ATTACHMENTS

Counterweight		9.0 mt (19,842 lb)			
Boom Type		**Reach**	**Reach**	**ME**	**ME**
Stick Size		**2.9m (9'6")**	**3.35m (11'0")**	**2.5m (8'2")**	**3.0m (9'10")**
Hydraulic Hammers	H140 GC	✓	✓		
	H140 GC S	✓	✓		
	H160 GC	✓	✓	✓	✓
	H160 GC S	✓	✓	✓	✓
	H180 GC	✓*		✓*	
	H180 GC S	✓	✓	✓	✓*

CW-55 DEDICATED COUPLER ATTACHMENTS

Counterweight		9.0 mt (19,842 lb)			
Boom Type		**Reach**	**Reach**	**ME**	**ME**
Stick Size		**2.9m (9'6")**	**3.35m (11'0")**	**2.5m (8'2")**	**3.0m (9'10")**
Hydraulic Hammers	H140 GC S	✓	✓		
	H160 GC	✓	✓		
	H160 GC S	✓	✓		
	H160 S			✓	✓
	H180 S			✓	✓*
	H180 GC			✓	
	H180 GC S			✓	✓*
Multi-Processors	MP332 Concrete Cutter Jaw				
	MP332 Demolition Jaw				
	MP332 Pulverizer Jaw				
	MP332 Shear Jaw				
	MP332 Tank Shear Jaw				
	MP332 Universal Jaw				
	MP345 Concrete Cutter Jaw			✓*	
	MP345 Demolition Jaw			✓*	
	MP345 Pulverizer Jaw			✓*	
	MP345 Shear Jaw			✓*	
Demolition and Sorting Grapples	G345			✓	✓
Pulverizers	P235			✓	✓
Crushers	P335			✓	✓

BOOM-MOUNT ATTACHMENTS

Counterweight		9.0 mt (19,842 lb)
Boom Type		**ME**
Mobile Scrap and Demolition Shears	S2090	✓
	S3070	✓
	S3090	✓

Attachments Offering Guide – Southeast Asia

Not all Attachments are available in all regions. Consult your Cat dealer for configurations available in your region.

✓ Match ☐ No Match

PIN-ON ATTACHMENTS

Counterweight		9.0 mt (19,842 lb)			
Boom Type		**Reach**	**Reach**	**ME**	**ME**
Stick Size		**2.9m (9'6")**	**3.35m (11'0")**	**2.5m (8'2")**	**3.0m (9'10")**
Hydraulic Hammers	H140 GC	✓	✓		
	H140 GC S	✓	✓		
	H160 GC	✓	✓	✓	✓
	H160 GC S	✓	✓	✓	✓
	H160 S			✓	✓
	H180 GC	✓	✓	✓	✓
	H180 GC S	✓	✓	✓	✓
	H180 S			✓	✓

345 GC Standard and Optional Equipment

Standard and Optional Equipment

Standard and optional equipment may vary. Consult your Cat dealer for details.

	Standard	Optional
BOOMS AND STICKS		
6.9 m (22'8") Reach boom		✓
6.55 m (21'6") Mass boom		✓
2.9 m (9'6") Reach stick		✓
3.35 m (11'0") Reach stick		✓
2.55 m (8'4") Mass stick		✓
3.0 m (9'10") Mass stick		✓
CAB		
ROPS	✓	
High-resolution 203 mm (8 in) LCD touchscreen monitor	✓	
Automatic bi-level air conditioner	✓	
Jog dial and shortcut keys for monitor control	✓	
Keyless push-to-start engine control	✓	
Height-adjustable console, three steps with tool	✓	
Mechanically adjustable seat suspension	✓	
51 mm (2 in) seat belt	✓	
Fixed left-side console	✓	
Bluetooth integrated radio with USB ports	✓	
12V DC outlets (×2)	✓	
Document storage	✓	
Cup and bottle holders	✓	
Openable two-piece front window	✓	
Upper radial wiper with 70/30 with washer	✓	
Openable steel hatch	✓	
LED dome and lower interior lights	✓	
Roller front sunscreen	✓	
CAT TECHNOLOGY		
Cat Product Link™	✓	
Auto hammer stop	✓	
ELECTRICAL SYSTEM		
Maintenance-free 1,000 CCA batteries (×2)	✓	
Maintenance-free 1,000 CCA batteries (×4) for –32° C (–25° F) cold start capability		✓
Centralized electrical disconnect switch	✓	
LED chassis light, LH boom lights, cab lights	✓	
Premium surrounding light package		✓
ENGINE		
Cold start block heater		✓
Two selectable modes: Power, Smart	✓	
Automatic engine speed control	✓	
2300 m (7,550 ft) altitude capability with no engine power de-rating	✓	
52° C (126° F) high-ambient cooling capacity	✓	
Hydraulic reverse fan		✓
–18° C (0° F) cold start capability	✓	
–32° C (–25° F) cold start capability		✓
Double element air filter with integrated precleaner	✓	
Remote disable (depending on region and VisionLink® subscription)	✓	

	Standard	Optional
HYDRAULIC SYSTEM		
Boom and stick regeneration circuit	✓	
Electronic main control valve	✓	
Automatic hydraulic oil warmup	✓	
Reverse swing damping valve	✓	
Automatic swing parking brake	✓	
High performance hydraulic return filter	✓	
Two speed travel	✓	
Bio hydraulic oil capability	✓	
Fine swing (depending on region)		✓
Combined two-way auxiliary circuit		✓
Combined two-way auxiliary circuit with hammer return filter		✓
SAFETY AND SECURITY		
Caterpillar One Key security system	✓	
Lockable external tool/storage box	✓	
Lockable door, fuel, and hydraulic tank locks	✓	
Lockable fuel drain compartment	✓	
Service platform with anti-skid plate and recessed bolts	✓	
RH handrail and handhold (ISO 2867:2011 compliant)	✓	
Standard visibility mirror package	✓	
Signaling/warning horn	✓	
Ground-level secondary engine shutoff switch	✓	
Rearview camera and right-hand-side mirror	✓	
Right-hand-side camera (depending on region)		✓
Travel alarm		✓
SERVICE AND MAINTENANCE		
Grouped location of engine oil and fuel filters	✓	
Scheduled Oil Sampling (S·O·S℠) sampling ports	✓	
Electric refueling pump with automatic shutoff		✓
UNDERCARRIAGE AND STRUCTURES		
Towing eye on base frame	✓	
9 mt (19,842 lb) counterweight	✓	
600 mm (24") triple grouser track shoes		✓
600 mm (24") HD triple grouser track shoes		✓
600 mm (24") double grouser track shoes		✓
700 mm (28") triple grouser track shoes		✓
800 mm (31") triple grouser track shoes		✓

Dealer Installed Kit and Attachments

Attachments may vary. Consult your Cat dealer for details.

CAB
- Lower radial wiper
- Polycarbonate hatch
- LH/RH electrical pedal for tool control

SAFETY AND SECURITY
- Bluetooth® receiver
- Bluetooth key fob

GUARDS
- Falling object guard system
- Mesh guard full front
- Mesh guard lower half front
- Full protecting vandalism guard

For more complete information on Cat products, dealer services, and industry solutions, visit us on the web at **www.cat.com**

AEXQ2488-04 (09-2021)
Replaces AEXQ2488-03
Build Number: 07D
(Afr-ME, CIS, SE Asia)

Appendix 6 – Marine Support Vessels

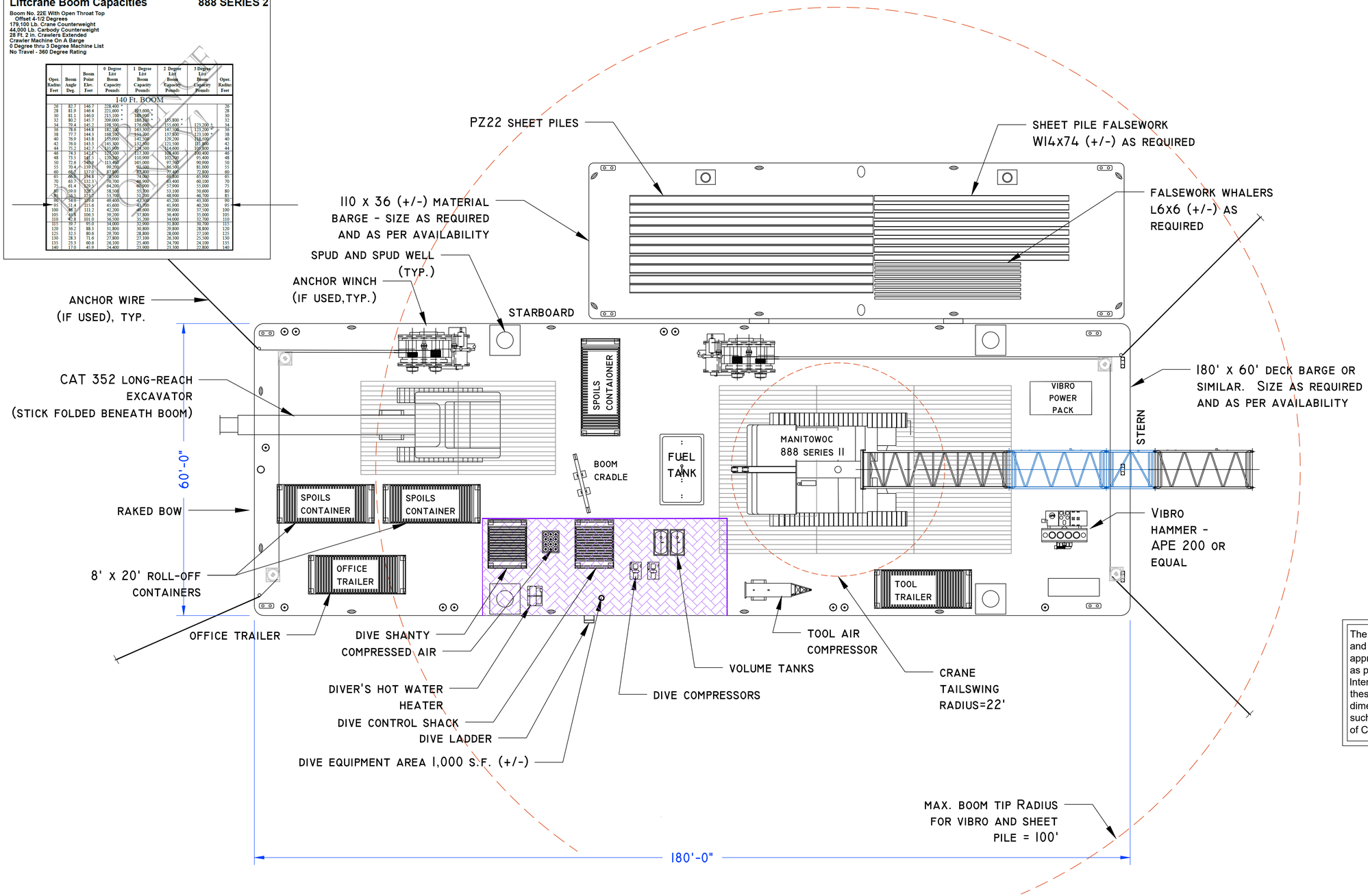
Manitowoc Cranes, Inc.
Manitowoc, Wisconsin 54220 U.S.A.

Liftcrane Boom Capacities — 888 SERIES 2

Boom No. 22E With Open Throat Top
Offset 4-1/2 Degrees
179,100 Lb. Crane Counterweight
44,000 Lb. Carbody Counterweight
28 Ft. 2 in. Crawlers Extended
Crawler Machine On A Barge
0 Degree thru 3 Degree Machine List
No Travel - 360 Degree Rating

140 Ft. BOOM

Oper. Radius Feet	Boom Angle Deg.	Boom Point Elev. Feet	0 Degree List Boom Capacity Pounds	1 Degree List Boom Capacity Pounds	2 Degree List Boom Capacity Pounds	3 Degree List Boom Capacity Pounds	Oper. Radius Feet
26	82.7	148.7	238,400 *				26
28	81.9	146.4	221,600 *	183,600 *			28
30	81.1	144.0	215,100 *	188,000 *			30
32	80.2	141.7	209,000 *	180,300 *	185,800 *		32
34	79.4	139.3	198,500	176,600	155,600 *	123,200 *	34
36	78.6	136.8	182,100	163,300	147,500	123,200 *	36
38	77.7	134.3	168,000	154,200	137,800	123,100 *	38
40	76.9	131.8	155,900	141,500	129,200	118,500	40
42	76.0	129.3	145,300	131,200	121,500	111,900	42
44	75.2	126.7	135,900	122,500	114,600	106,300	44
46	74.3	124.1	127,500	117,300	108,400	100,600	46
48	73.5	121.5	120,000	110,900	102,700	95,400	48
50	72.6	118.9	113,400	105,000	97,500	90,600	50
55	70.4	112.3	99,200	93,500	86,500	81,000	55
60	68.2	105.6	87,800	83,400	77,400	72,800	60
65	66.0	98.8	78,500	74,700	69,800	65,900	65
70	63.7	92.0	70,700	66,900	63,400	60,100	70
75	61.4	85.1	64,200	60,600	57,900	55,000	75
80	59.0	78.1	58,500	55,300	53,100	50,600	80
85	56.5	71.0	53,700	51,200	48,900	46,700	85
90	54.0	63.8	49,600	47,500	45,200	43,300	90
95	51.4	56.5	45,600	43,900	41,900	40,200	95
100	48.7	49.1	42,200	40,600	39,000	37,500	100
105	45.8	41.5	39,200	37,800	36,400	35,000	105
110	42.8	33.7	36,500	35,300	34,000	32,700	110
115	39.7	25.7	34,000	32,900	31,800	30,700	115
120	36.2	17.4	31,800	30,800	29,800	28,800	120
125	32.5	8.8	29,700	28,800	28,000	27,100	125
130	28.3	0.0	27,800	27,100	26,300	25,500	130
135	23.3	-9.4	26,100	25,400	24,700	24,100	135
140	17.0	-20.1	24,400	23,900	23,300	22,800	140



PLAN VIEW
BULKHEAD INSTALLATION SUPPORT BARGE CONFIGURATION
GENERAL ARRANGEMENT

Caldwell Marine International

Region Hudson River- Bronx N.Y.
Job: Bulkhead Installation

CRANE LIFT CALCULATION SHEET - SHEET PILE INSTALLATION

Date: 5/1/2024

Type of Crane: Manitowoc 888 Series 2 with 179,100 lb Counterweight

Radius	95	Ft	(Maximum)
Boom Length	140	Ft	
Outrigger Configuration	Extended Tracks	Ft	
Barge List	3*	Degrees	
Capacity @ Radius & List:	40,200	Lbs	

Line Pull:

Single Part Line Pull 29,500 (lbs) X 3 Line Parts = Line Pull 88,500 (lbs)

(Note: actual horseblock may have greater number of line parts, thus increasing LINE PULL).
(Note: The line pull is not the crane capacity)

Load:

Add crane equipment up to boom tip:

Cable type/dia.:	1.0		Boom Tip	500 Lbs	
Length (ft.):	300		Hookblock:	4,000 Lbs	(Max.)
Pounds/ft:	2.13		Cable below boom tip:	1,917 Lbs	
No. of Wire Falls:	3		**Subtotal (A):**	6,417 Lbs	

Hanging rigging and equipment:

anging Rigging and Loa					
Elliptical Hook	20.00	Lbs	Two ways:	0.00 Lbs	
Shackles	30.00	Lbs	Four ways:	200.00 Lbs	
Misc. Connections	200.00	Lbs	Picking beam & rigging:	0.00 Lbs	
Vibro Hammer	19,000.00	Lbs	Misc. (list to the left):	0.00 Lbs	
Sheeting Clamp	1,500.00	Lbs	**Subtotal (B):**	20,950.00 Lbs	
		Lbs	**Weight of Load (C):**	4,050 Lbs	

Total pick weight (A+B+C):	=	31,417 Lbs
Crane Capacity (from above)	=	40,200 Lbs
% of Max. Capacity	=	78.15%

Total weight of the pick must be less than the cranes capacity at the picking radius.

The depicted procedures, equipment, materials, locations, and dimensions in this drawing portray the techniques and approaches necessary for implementing the described tasks as per the current design. Nevertheless, Caldwell Marine International retains the right to modify, adjust, or replace these procedures, equipment, materials, locations, and dimensions at its discretion, if on-site conditions require such alterations during execution. NKT's Management of Change policy will be followed for all changes.

No.	REVISION:	DATE	BY

Caldwell Marine INTERNATIONAL
1333 Campus Parkway
Wall Township, N.J. 07753
(732) 557-6100

Project:	CHAMPLAIN-HUDSON POWER EXPRESS
Drawing Name:	BULKHEAD INSTALLATION BARGE
Client:	NKT/TDI
Drawn By: WMP	Date Drawn: 5/1/24
Approved By: GG	Date Approved:
Scale: 3/32" = 1'-0"	Project No.: 1233
Sheet No.: 1	Rev.: 0

CMI Equipment
Crew Boat 'Alexis'

OR SIMILAR

Vessel Name:	'Alexis'
Vessel Type:	USCG Inspected , mono-hull crew boat
Propulsion:	Twin screw powered by 2 x Caterpillar 3406E diesel engines
Builder:	Aluminum Boats of Virginia / Hull #102
Year Built:	1998
Official Number:	1073420
Call Sign:	WDA6065
LOA	55ft
Beam	16ft
Depth:	7ft 3inches
Gross Tonnage:	42
Net Tonnage:	33
Deck Space:	116 ft^2
Capacities:	Persons -29 + crew
	Fuel – 2,200 US Gallons
	Hydraulic Oil – 10 US Gallons
Nav Equipment:	GPS & chartplotter, radar, AIS,
Life Saving Appliances:	Per USCG requirements

NYS MARINE HIGHWAY
TRANSPORTATION CO., LLC
www.nysmarinehighway.com

TUG "SARAH D"
OR SIMILAR

Vessel Name:	Sarah D
Class:	Coastal Tug
Email:	Tug_SarahD@nysmarinehighway.com
Mobile:	518.391.1304
Official Number:	566998
Port of Registry:	New York
Radio Call Sign:	WDI-9093
Length:	90
Width:	29
Depth:	12
Gross Tons:	162
Main Engine:	(2) Caterpillar 399
Horsepower:	2,200
Generator:	(2) Detroit 40 KW
Fuel Capacity:	56,000 US Gal.
Lube Capacity:	500 US Gal.
Potable Water:	5,000 US Gal.
Berthing:	7
Electronics:	(2) Radar, (3) VHF, AIS, GPS, Heading Indicator, Chart Plotter, Depth, (2) PC's, Printer, Internet, EPIRB
Push Gear:	(2) 40T Hydraulic Face Winches
Other Equipment:	Life Raft, Portable Dewatering Pumps, Cutting, Welding Gear, Washer, Dryer, Heat and AC

“GAVIN” TRUCKABLE WORK VESSEL OR SIMILAR

NOTE: Photo shows same class/ design vessel

LENGTH:	**25’-3”** LOA
BEAM:	**14′**
DEPTH:	**5′**
AIR DRAFT:	Air draft in salt water ≤16’6”
DISPLACEMENT:	40,000 # (approx.)
USCG EQUIPMENT:	Safety equipment, communications equipment, lifesaving, fire fighting, protection and suppression equipment, mooring lines and towing gear as required by the USCG.
FUEL TANK:	Fuel tank capacity is approximately 500 gallons
POWER TRAIN:	Two John Deere 6081 diesel engines, 300 HP each@ 2200 RPM (M2 rating) • Two Twin Disc MG-5075 2.88:1 ratio. • Two 21/2″ stainless steel propeller shafts with two 36″ x 20″ (34”x18”) x 4 blade stainless steel propeller. • Two 21/2″ Cutlass stern bearings. • Exhausts installed with “cowl” spiral exhaust silencers - Residential quiet.
ENGINE COOLING:	Closed fresh water system circulated through 8″ x 8.5 # channel welded to bottom of hull.
ENGINE CONTROLS:	Single lever control head with heavy-duty 43C control cables.- electrically operated
BILGE PUMP:	Two 12 volt 1,000 GPH pump.

FIRE DET/GEN ALARM: One fire detection and general alarm system

BLOWER: One 250 CFM 12 VDC blower for engine room

RUDDERS: Two independent flanking rudders with independent rudder angle indicators (RAI's)

HYDRAULIC STEERING: Two hydraulic pumps, one driven off each main engine. Control valve and flow regulator mounted in engine room.

ELECTRICAL SYSTEM: Two 12-volt heavy-duty 8D marine batteries mounted in Coast Guard approved engine room battery box.

NAVIGATION LIGHTS: Mast on top of pilot house has two white tow lights forward and two amber tow lights aft. Green and red side lights are installed on the sides of the pilot house. Mast light is detachable or hinged to lower

PILOTHOUSE: 4′ 6″ wide x 4′ long x 6′ 9″ high

- One overhead cabin light.
- One 7″ sealed beam searchlight and one single-bugle horn mounted on pilothouse top.
- Two six-gang 12 volt fused switch panels mounted in dash of pilothouse.
- Front window 4′ x 3′ horizontal slide
- Side windows are 3′ x 3′ horizontal slide
- Rear windows are 15″ x 30″ vertical slide with one of these mounted in 6′ x 2′ steel door
- All pilot house windows are tempered safety glass.

SHELL PLATING: Deck, sides, bottom, headlog and transom of 1/4″ steel plate.

FRAMING: Deck framed with 3″ x 3″ x ¼″ angle on 24″ centers
Sides framed with 3″ x 3″ x ¼″angle on 20″ centers
Bottom framed with 4″ x 3″ x ¼″ angle on 20″ centers.

BULWARKS: Continuous all around hull. Bulwarks extend 14″ above deck and flanged 2" built from ¼" plate and brackets.

RUB BARS: 20′ x ½″ x 4″ flat bar down each side of hull.

PUSH-KNEES: Constructed of 12″ x 20.7 # channel extending 54″ above deck. Push-knee braces are ¼″ steel plate finished with 3/8″ x 2″ flat bar. Pads are 2″ thick rubber bonded to ½″ x 10″ steel backing plate

WINCHES: Two 5 ton manual winches shall be installed on the forward deck.

BITTS: One double towing bit, one single head bitt, and four single quarter bitts.-
NOTE: Double tow bit is thru deck and tied into bottom of hull

LIFTING EYES: Four permanent eye straps welded to hull.

Typical
Truckable Work Vessel

MAKE: Lifetyme 30' Landing craft with Cabin (Model 30120)

SPECIFICATIONS:
*30' LOA plus motor bracket
*120" Beam
*No bow door add front deck
*Fuel Capacity: 120 gallons
*.250" 5086-H116 bottom plating
*.190" 5052 side plating
*.190" 5052-H32 deck plating
*Centerline vertical keel (CVK): 3/8"X4" 5086

HULL PACKAGE:
*30' high speed mono hull landing craft incorporating ¼" hull plating & framing
*Hull will have 2 structural bulkhead; forward collision bulkhead watertight; the aft bulkhead limbered for drainage via bilge pump
*Transom will be designed for 25" shaft outboard motors with a motor bracket
*1/2" aluminum double padeye will be welded on center of the bow
*Duel gill bracket for engines
*Motor cage around engines
*4-T-cleats
*4-Lifting eyes (Pick-up boat)
*Tow bit
*Anode

WELDING:
*Hull and superstructure will be constructed of marine grade aluminum and MIG welded throughout.
*Weld seams in the hull will be welded 100% both interior & exterior
*Welding will be performed in accordance with American Welding Society D1.2-2003 procedure qualifications

HULL OUTFITTINT:
*4-2"X7" open scuppers at midship, pipe drains in the stern and 2-1" pipe drains at the bow will create a self-bailing Main deck. Drains and scuppers will be sized & Installed in accordance with ABYC deck drainage requirements.
*1/4"X4" beaching wear plate installed on bow forefoot
*DB 503 3" D-rubber fender will be installed on the gunwale, port and starboard side
*1-15"X24" aluminum hatch watertight
*Push-bumpers

FUEL SYSTEM:
*120 gallons non-integral fuel tank installed complete with fill, vent, 12V sender and fuel level gauge on console
*Fuel tank will be built from ¼" plate, pressure tested to 4 psi and bolted into hull framing using doublers and stainless steel fasteners.
*Fuel system will comply with U.S. diurnal emission standards
*EPA certified fuel system
*Fill and Vent

*1-Fuel gauge
*2-Fuel filters

CABIN:

*10'X9', 1-front door, 2-sliders, rubber windows
*2-Captain seats
*1-bench seat across back of cabin with cushions/dry storage
*1-bench seat on starboard with cushions/dry storage
*1-bench seat on portside with cushions/dry storage
*Insulated cabin roof and sidewalls (Floor to bottom of windows)
*Air conditioner with heater
*Honda generator si3000 watts

TRIM TABS:

*9"X18" Lenco Electric trim tabs

PAINT:

*Anti-fouling on hull bottom
*Non-skid tape on deck floor

ELECTRIC SYSTEM:

*Vessels electrical system will be 12VDC. All electrical cable will be marine grade copper tinned boat cable and labeled For each circuit. Cables should be routed in wireways wherever possible. Wherever exposed to potential damage, cables will be protected with rubber. Electric cables will be sized in accordance with American Boat & Yacht Council. Electric cables will be marked in accordance with the markings in electrical drawings. Electrical switches will be of a heavy-duty type and properly insulated. Electrical system will be grounded. In any case the hull shall not be used as part of a galvanic feeding loop.

RADAR:

*GARMIN GPSMAP 743xsv US+Canada GN+w/18HD+Bundle 010-02365-80
*AIRMAR B60-20-MN, Bronze low profile 20 degree tilt, mix and match transducer
*AIRMAR MM-8G, 8-Pin mix and match cable for B60MM Garmin
*2-Standard Horizon Eclipse VHF radio with antennas

12V DC ACCESSORIES:

*1-12V 8 position waterproof distribution panel installed on console
*1-12V power receptacle will be installed with weather cover
*1-12V 2200 GPH bilge pump auto-matic
*2-12V self-parking windshield wiper will be installed on the front window
*1-12V Electric horn
*2/2Batteries/plastic cases for engine starting bank, 2-batteries selector switches

STEERING SYSTEM:

*Hydraulic steering dual Teleflex, stainless steel steering wheel

LIGHTING:

*Navigation Lights will be installed to USCG requirements
*1-Dome light (red/white)
*2-dome light (white)
*2-L.E.D. deck lights
*1-Searchlight remote control

MOTORS:

*2-150HP Honda, dual top mount control, dual key switch, wiring harnesses, 2-tach gauges, 2-stainless steel propellers

TRAILER:

*Aluminum triple axles with brakes on two axle, CAP#15,000 lbs.,

SEA TRAILS:

* Sea trails

"JORY"

Typical Support Vessels

Manufacturer: Carolina Skiff

FL-540 Specs

- Length-21'2"
- Beam-98"
- Draft-6"
- Max HP-115
- Max persons-12
- Max capacity-2405lbs
- Weight-1600lbs

FL-541 Specs

- Length-27'1"
- Beam-98"
- Draft-5"
- Max HP-200
- Max persons-12
- Max capacity-3405lbs
- Weight-2400lbs