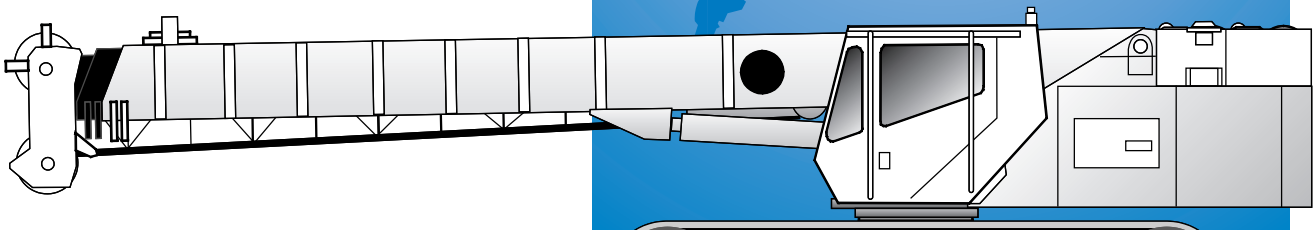
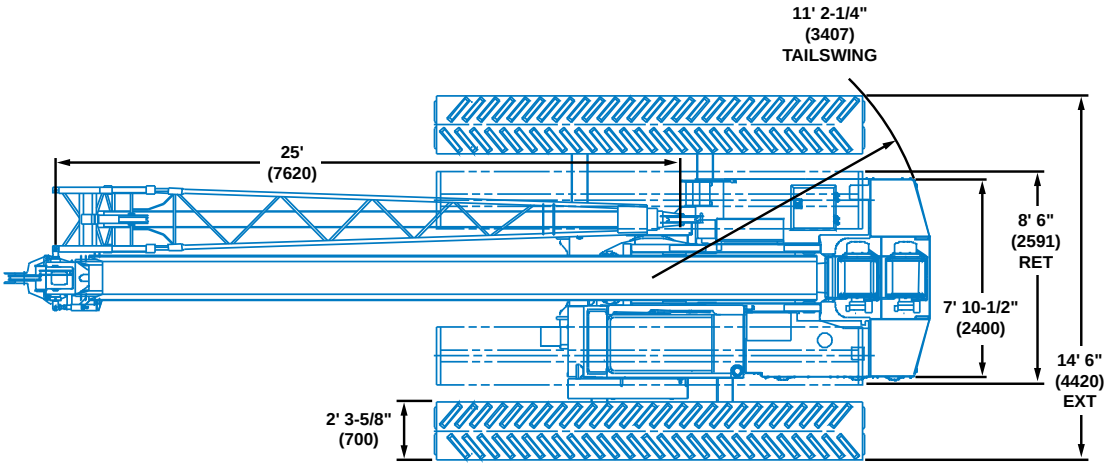
GROVE®
CRANE

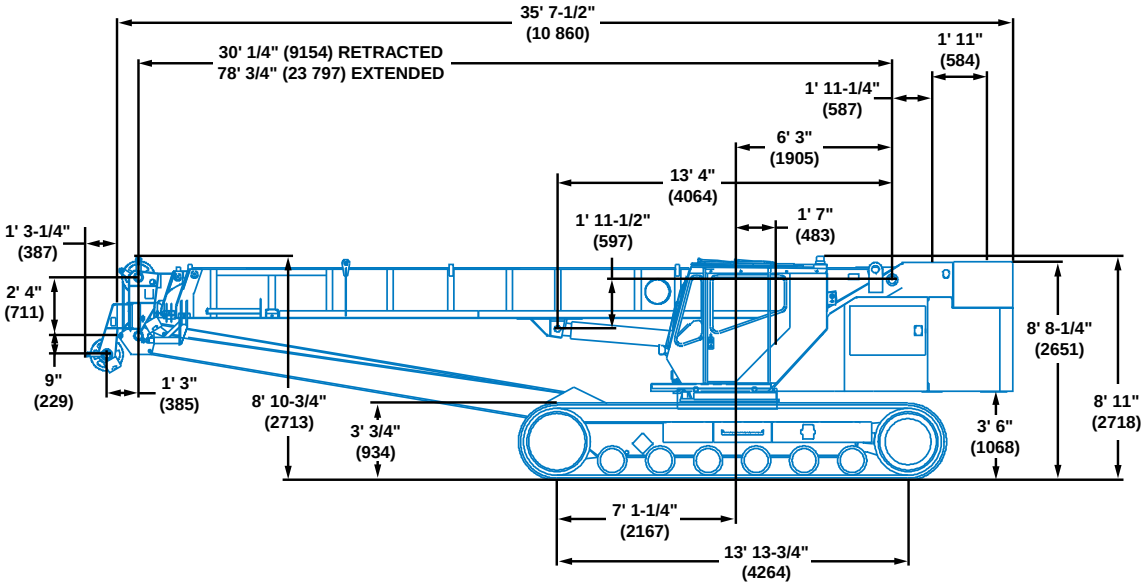
CM20



Crawler Mounted Hydraulic Crane

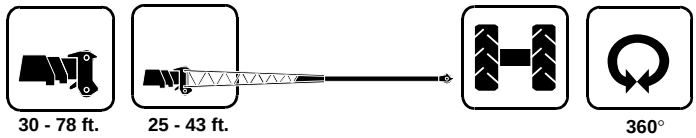
Dimensions (Rubber Tracks)





Note: ( ) Reference dimensions in mm

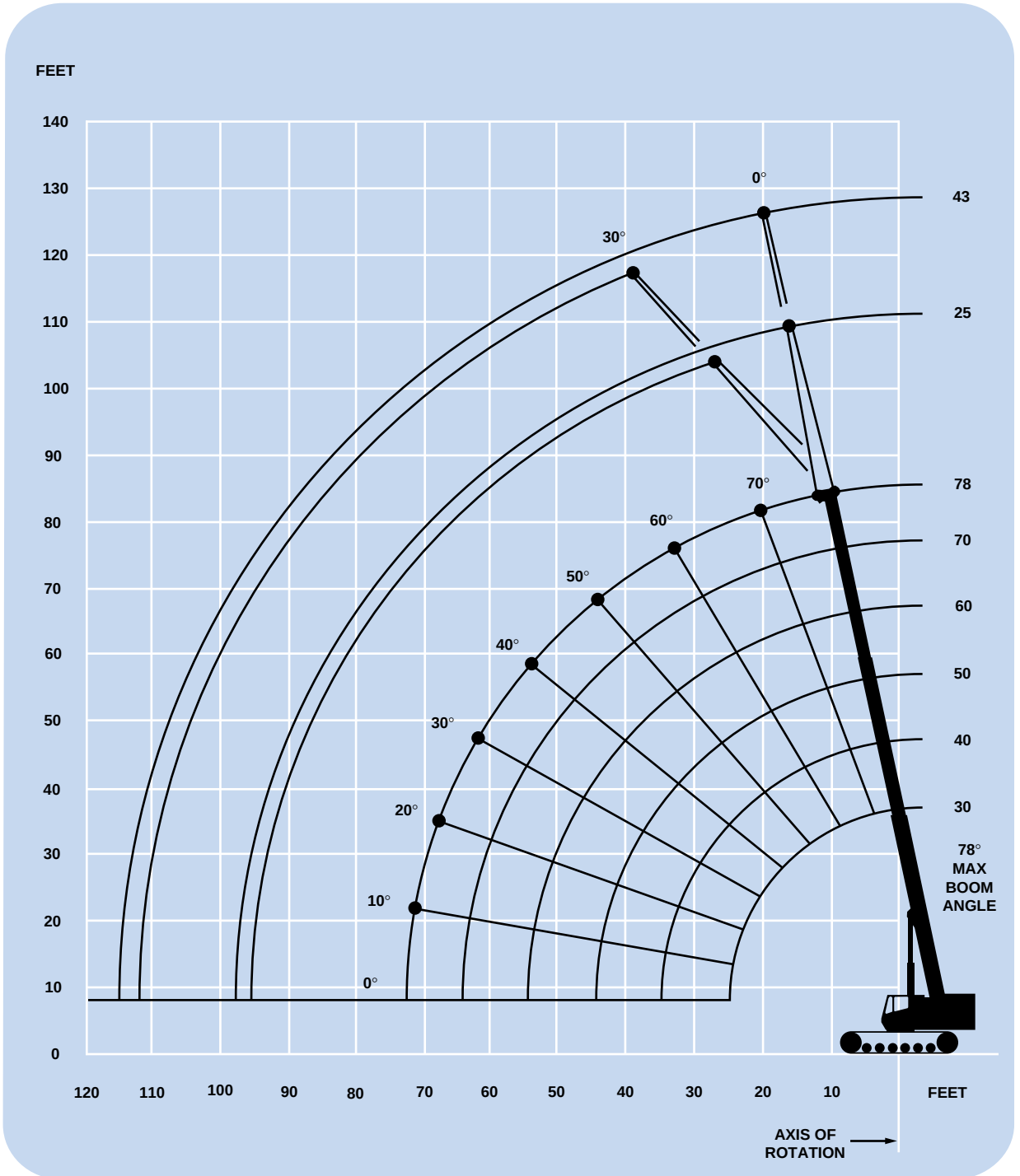
Working range

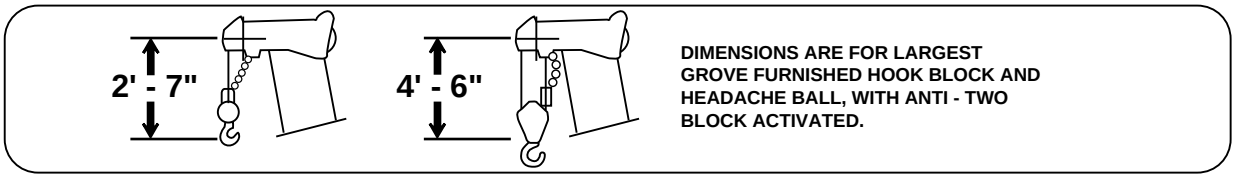


30 - 78 ft.
(9.1 - 23.8 m)

25 - 43 ft.
(7.6 - 13.1 m)

360°





DIMENSIONS ARE FOR LARGEST GROVE FURNISHED HOOK BLOCK AND HEADACHE BALL, WITH ANTI - TWO BLOCK ACTIVATED.

Superstructure specifications

Boom
30 ft. - 78 ft. (9.1 m - 23.8 m) three-section, full power boom. Maximum tip height: 82 ft. (25 m).

Fixed Swingaway Extension
25 ft. (7.6 m) lattice swingaway boom extension. Stows alongside base boom section.
Maximum tip height: 108 ft. (33 m).

*Optional Telescopic Swingaway Extension
25 ft. - 43 ft. (7.6 m - 13 m) telescoping lattice swingaway extension. Offsettable at 0° and 30°. Stows alongside base boom section.
Maximum tip height: 125 ft. 9 in. (38.3 m).

Boom Nose
Three steel sheaves mounted on heavy duty tapered roller bearings with removable pin-type rope guards. Quick reeve type boom nose. *Optional removable auxiliary boom nose with removable pin type rope guard.

Boom Elevation
One double acting hydraulic cylinder with integral holding valve provides elevation from -3° to 78°.

Load Moment & Anti-Two Block System
Standard load moment and anti-two block system with audio-visual warning and control lever lockout. These systems provide electronic display of boom angle, length, radius, level indication relative load moment, maximum permissible load, load indication and warning of impending two-block condition.

Cab
Full vision, all steel fabricated with acoustical lining and tinted safety glass throughout. Deluxe seat incorporates armrest mounted hydraulic single-axis controllers. Dash panel incorporates gauges for all engine functions. Other standard features include: hot water cab heater and defroster, opening skylight, sunscreen, sliding side window, electric windshield wiper/washer, cup holder, electric skylight wiper/washer, swing horn, fire extinguisher and seat belt.

Swing
Ball bearing swing circle with 360° continuous rotation. Dual, Grove planetary glide-swing gear boxes with foot applied multi-disc brake. Spring applied hydraulically released parking brake and plunger type, 1 position, mechanical house lock operated from cab.
Maximum speed: 2.0 RPM.

Counterweight
3,925 lbs. (1780 kg) integral with superstructure.
780 lbs. (354 kg) slab in place of auxiliary hoist.

Hydraulic System
Five main gear pumps with a combined capacity of 164 GPM (621 LPM) for craning functions; 2 variable displacement piston pumps, combined capacity 82.4 GPM (312 LPM) for propel functions.
NOTE: P.T.O. with pump disconnect will disconnect 3 main gear pumps and 2 variable displacement piston pumps.

Three individual valve banks.

Return line type filter with full flow by-pass protection and service indicator. Replaceable cartridge with micron filtration rating of 10.

77.5 gallon (293.3 L) reservoir.

Remote mounted oil cooler with thermostatically controlled hydraulic motor driven fan.

System pressure test ports permits easy verification of circuit pressures.

Engine
Cummins 6BTA 5.9L six cylinder turbo-charged, aftercooled, water cooled diesel, 185 hp (138 kW) (gross) @ 2200 RPM.
Maximum torque: 532 ft. lbs. (721 Nm) @ 1500 RPM.

Fuel Tank Capacity
65 gallons (246 L).

Denotes optional equipment

Superstructure specs continued

Hoist Specifications

Main and Auxiliary Hoist

Planetary reduction with automatic spring applied multi-disc brake. Grooved drum. Electronic hoist drum rotation indicator and hoist drum cable followers.

		Main and/or Auxiliary Hoist
Make/Model		Grove Model HO15I-16G
Maximum Single Line Speed:	Bottom layer	235 FPM (72 m/min)
	Intermediate layer	255 FPM (78 m/min)
	Top layer	276 FPM (84 m/min)
Maximum Single Line Pull:	Bottom layer	11,610 lbs. (5266 kg)
	Intermediate layer	10,670 lbs. (4840 kg)
	Top layer	9,870 lbs. (4477 kg)
Maximum Permissible Line Pull		9,080 lbs. (4119 kg)
w/5:1 Strength Factor:		5/8 in. (16mm) 18 x 19 class
Maximum Rope		370 ft. (113 m) 5/8 in. (16 mm)
Stowage:	Note: 360 ft. (110 m) length of 5/8 in. (16 mm) diameter wire rope supplied with basic standard unit.	

Electrical System

24 V maintenance free batteries.

Carrier specifications

Lower Frame

High strength alloy steel design for full 360° bearing support. Eight port rotary hydraulic swivel to operate propel circuit.

Crawler Side Frames

Fabricated from high strength alloy steel. Manual pins lock sideframes in fully retracted position or fully extended position, for quick adjustment of machine width.

Track Belt

27.6 in. (700 mm) wide. Mobile-Trac system, rubber belt with integral rubber cleats.

Track Rollers

Twelve 14 in. (355.6 mm) diameter, steel fabricated rollers per side (24 total).

Crawler Drive System

Forward-reverse and counter rotation, high/low speed propel. Each crawler is powered by its own independent radial piston type drive motor (with integral brake). Idlers are fabricated steel disks with 32.2 in. (818 mm) hard rubber drive tires. Continuous hydraulic tension cylinder track take-up.

Maximum Speed

5 mph (8 kph) high range.
2.7 mph (4.35 kph) low range.

Gradeability (Theoretical)

90% (30% grade limited by fluid levels).

Gross Vehicle Weight

BASIC STANDARD MACHINE
G.V.W.: 55,130 lbs. (25 007 kg) Rubber tracks.
70,443 lbs. (31 953 kg) Steel tracks.

Miscellaneous Standard Equipment

Hook block tiedown, rear view mirror, tow/tie down lugs front & rear, electronic back-up alarm, cold start aid, hoist mirror, remote mounted engine oil filter, hydraulic system test ports, tach/hour meter.

*Optional Equipment

*Auxiliary hoist with follower and rotation indicator
*360° flashing light
*Cab worklight
*Engine block heater
*Hookblocks/headache balls
*Tool kit
*Dual axis joystick controllers
*360° positive swing lock
*Air conditioning
*Remote control cab work light
*Boom mounted floodlights
*LMI light bars
*Remote turntable lube system
*23.6 in. wide steel track crawlers

Denotes optional equipment

Weight Reductions for Load Handling Devices

25 ft. (7.6 m) Boom Extension

*Stowed	225 lbs.	(102 kg)
*Erected	1,147 lbs.	(520 kg)

25 ft. - 43 ft. (7.6 m - 13.1 m) Tele Boom Extension

*Stowed	497 lbs.	(225 kg)
*Erected (Retracted)	3,505 lbs.	(1590 kg)
*Erected (Extended)	4,456 lbs.	(2021 kg)

*Reduction of main boom capacities:

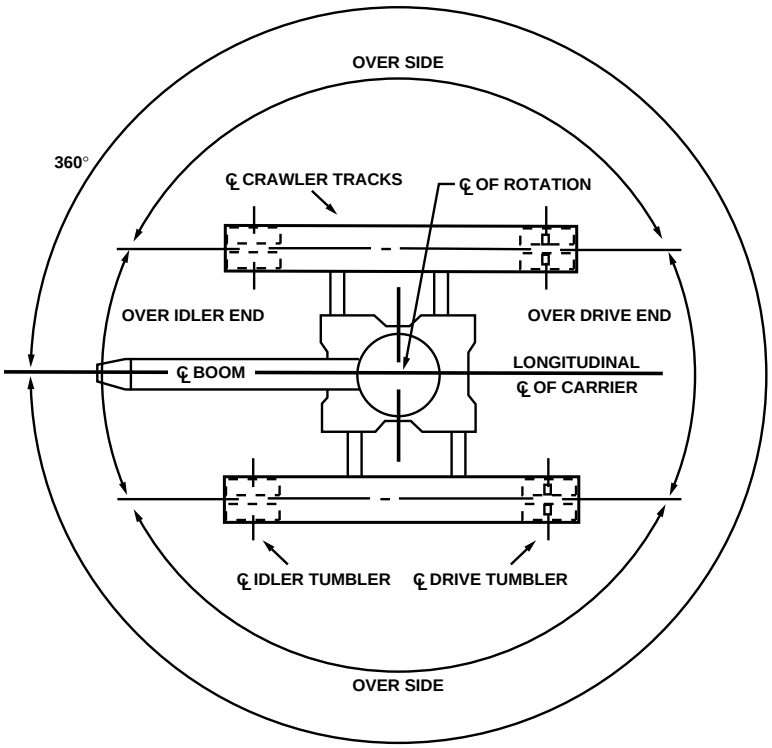
When lifting over swingaway and/or jib combinations, deduct total weight of all load handling devices reeved over main boom nose directly from swingaway or jib capacity.

NOTE: All load handling devices and boom attachments are considered part of the load and suitable allowances MUST BE MADE for their combined weights. Weights are for Grove furnished equipment.

Auxiliary Boom Head	155 lbs.	(70 kg)
Hookblocks and Headache Balls:		
+ 22 ton, 3 sheave w/o cheekplates	567 lbs.	(257 kg)
+ 15 ton, 2 sheave	378 lbs.	(171 kg)
+ 7.5 ton headache ball	338 lbs.	(153 kg)
+ 5 ton headache ball	172 lbs.	(78 kg)

+ Refer to rating plate for actual weight.

LIFTING ON CRAWLERS
D6-829-012706



WORKING AREA DIAGRAM

30 - 78 ft.
(9.1 - 23.8 m)

3,925 lbs.
(1780 kg)

Steel
Fully Extended

360°

0° to 2° Slope

Pounds

Feet	30	40	50	60	70	78	25 ft. Extension & 78 ft. Boom 103
8	44,000 (66.5)	44,000 (73)	42,750 (77)				
9	43,650 (64.5)	41,900 (71.5)	40,750 (76)				
10	41,150 (62)	39,500 (70)	38,350 (74.5)	31,450 (78)			
12	36,900 (57.5)	35,450 (67)	34,350 (72)	31,450 (76)			
15	31,300 (50)	30,700 (62)	29,700 (68.5)	27,850 (73)	25,300 (76)	16,200 (78)	
20	24,150 (34)	24,150 (53)	24,150 (62)	23,250 (67.5)	21,000 (71.5)	16,200 (74)	*12,500 (78)
25		17,300 (42.5)	17,300 (55)	17,300 (62)	17,300 (67)	13,300 (70)	11,400 (75.5)
30		13,150 (29)	13,150 (47)	13,150 (56.5)	13,150 (62.5)	11,200 (66)	10,200 (72.5)
35			10,400 (38)	10,400 (50)	10,400 (57.5)	9,600 (61.5)	9,500 (69.5)
40			8,510 (26)	8,510 (43)	8,510 (52)	8,330 (57.5)	8,250 (66.5)
45				7,080 (35)	7,080 (46.5)	7,080 (52.5)	7,170 (63.5)
50				5,970 (24)	5,970 (40)	5,970 (47.5)	6,190 (60)
55					5,090 (32.5)	5,090 (42)	5,220 (57)
60					4,380 (22.5)	4,380 (35.5)	4,420 (53)
65						3,780 (27.5)	3,770 (49.5)
70						3,280 (16)	3,220 (45.5)
75							2,750 (41)
80							2,340 (36.5)
85							1,980 (31)
90							1,670 (24)
95							1,400 (14)
Minimum boom angle (degrees) for indicated length (no load)							0
Maximum boom length (ft.) at 0 degree boom angle (no load)							103

NOTE: ( ) Boom angles are in degrees.
*Capacity based on maximum boom angle.

Boom Angle	30	40	50	60	70	78
0°	10,200 (23.8)	6,840 (33.8)	4,800 (43.8)	3,450 (53.8)	2,480 (63.8)	1,890 (71.8)

NOTE: ( ) Reference radii in feet.

A6-829-013416

30 - 78 ft.
(9.1 - 23.8 m)

3,925 lbs.
(1780 kg)

Steel
Fully Extended

360°

2° to 5° Slope

Pounds

Feet	30	40	50	60	70	78	25 ft. Extension & 78 ft. Boom 103
8	28,900 (66.5)	23,350 (73)					
9	27,750 (64.5)	22,600 (71.5)					
10	26,700 (62)	21,850 (70)					
12	24,750 (57.5)	20,550 (67)	17,500 (72)				
15	22,100 (50)	18,800 (62)	16,200 (68.5)	14,200 (73)			
20	17,700 (34)	16,300 (53)	14,350 (62)	12,700 (67.5)	11,400 (71.5)	10,550 (74)	
25		14,050 (42.5)	12,800 (55)	11,500 (62)	10,400 (67)	9,650 (70)	
30		11,550 (29)	11,350 (47)	10,400 (56.5)	9,490 (62.5)	8,850 (66)	5,880 (72.5)
35			9,960 (38)	9,420 (50)	8,690 (57.5)	8,150 (61.5)	5,500 (69.5)
40			8,200 (26)	8,200 (43)	7,960 (52)	7,510 (57.5)	5,100 (66.5)
45				6,810 (35)	6,810 (46.5)	6,810 (52.5)	4,750 (63.5)
50				5,750 (24)	5,750 (40)	5,750 (47.5)	4,430 (60)
55					4,900 (32.5)	4,900 (42)	4,130 (57)
60					4,200 (22.5)	4,200 (35.5)	3,850 (53)
65						3,630 (27.5)	3,610 (49.5)
70						3,140 (16)	3,070 (45.5)
75							2,620 (41)
80							2,220 (36.5)
85							1,880 (31)
90							1,570 (24)
95							1,300 (14)
Minimum boom angle (degrees) for indicated length (no load)							0
Maximum boom length (ft.) at 0 degree boom angle (no load)							103

NOTE: ( ) Boom angles are in degrees.

Boom Angle	30	40	50	60	70	78
0°	8,270 (23.8)	5,530 (33.8)	3,890 (43.8)	2,790 (53.8)	2,010 (63.8)	1,530 (71.8)

NOTE: ( ) Reference radii in feet.

A6-829-013417

30 - 78 ft.
(9.1 - 23.8 m)

3,925 lbs.
(1780 kg)

Steel
Fully Retracted

360°

On Level Ground

Pounds

Feet	30	40	50	60	70	78
8	44,000 (66.5)	44,000 (73)	42,750 (77)			
9	43,650 (64.5)	41,900 (71.5)	40,750 (76)			
10	41,150 (62)	38,900 (70)	36,700 (74.5)	31,450 (78)		
12	32,450 (57.5)	31,000 (67)	29,600 (72)	28,250 (76)		
15	23,500 (50)	23,400 (62)	22,600 (68.5)	21,800 (73)	21,000 (76)	16,200 (78)
20	15,550 (34)	15,550 (53)	15,550 (62)	15,350 (67.5)	14,950 (71.5)	14,600 (74)
25		11,400 (42.5)	11,400 (55)	11,400 (62)	11,250 (67)	11,050 (70)
30		8,640 (29)	8,640 (47)	8,640 (56.5)	8,640 (62.5)	8,640 (66)
35			6,790 (38)	6,790 (50)	6,790 (57.5)	6,790 (61.5)
40			5,450 (26)	5,450 (43)	5,450 (52)	5,450 (57.5)
45				4,440 (35)	4,440 (46.5)	4,440 (52.5)
50				3,660 (24)	3,660 (40)	3,660 (47.5)
55					3,030 (32.5)	3,030 (42)
60					2,510 (22.5)	2,500 (35.5)
65						2,030 (27.5)
70						1,640 (16)
Minimum boom angle (degrees) for indicated length (no load)						0
Maximum boom length (ft.) at 0 degree boom angle (no load)						78

NOTE: ( ) Boom angles are in degrees.
*Capacity based on maximum boom angle.

Boom Angle	30	40	50	60	70	78
0°	10,200 (23.8)	6,840 (33.8)	4,670 (43.8)	3,170 (53.8)	2,180 (63.8)	1,570 (71.8)

NOTE: ( ) Reference radii in feet.

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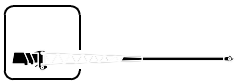
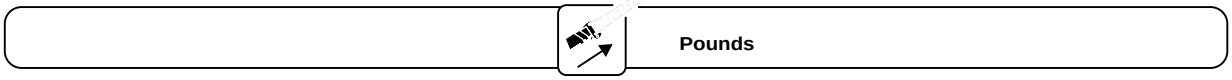


25 - 43 ft.
(7.6 - 13.1 m)

3,925 lbs.
(1780 kg)

Steel or Rubber
Fully Extended

360°



Feet	0° - 2° SLOPE				2° - 5° SLOPE			
	25 ft. LENGTH		43 ft. LENGTH		25 ft. LENGTH		43 ft. LENGTH	
	0° OFFSET	30° OFFSET	0° OFFSET	30° OFFSET	0° OFFSET	30° OFFSET	0° OFFSET	30° OFFSET
20	*12,500 (78)							
25	11,400 (76)		*5,000 (78)					
30	10,200 (73)	*5,500 (78)	4,500 (76.5)		5,390 (73)			
35	9,500 (70)	5,300 (76)	4,250 (74)		5,040 (70)		3,400 (74)	
40	8,250 (67)	4,950 (73)	3,900 (71)		4,720 (67)	4,950 (73)	3,120 (71)	
45	6,870 (64)	4,650 (69.5)	3,600 (68.5)	2,300 (77.5)	4,420 (64)	4,660 (69.5)	2,880 (68.5)	
50	5,640 (60.5)	4,400 (66)	3,400 (66)	2,200 (75)	4,140 (60.5)	4,370 (66)	2,720 (66)	
55	4,670 (57.5)	4,250 (63)	3,100 (63.5)	2,120 (72)	3,870 (57.5)	4,100 (63)	2,480 (63.5)	1,700 (72)
60	3,880 (53.5)	3,880 (59)	2,900 (60.5)	2,070 (69.5)	3,620 (53.5)	3,830 (59)	2,320 (60.5)	1,660 (69.5)
65	3,230 (50)	3,230 (55.5)	2,700 (57.5)	2,000 (66.5)	3,220 (50)	3,220 (55.5)	2,160 (57.5)	1,600 (66.5)
70	2,680 (46)	2,680 (51)	2,500 (54.5)	1,950 (63)	2,670 (46)	2,670 (51)	2,000 (54.5)	1,560 (63)
75	2,210 (41.5)	2,210 (46.5)	2,300 (51.5)	1,890 (60)	2,200 (41.5)	2,200 (46.5)	1,840 (51.5)	1,510 (60)
80	1,810 (37)	1,810 (41.5)	2,150 (48)	1,820 (56.5)	1,800 (37)	1,800 (41.5)	1,720 (48)	1,460 (56.5)
85	1,450 (31.5)	1,450 (36)	2,000 (45)	1,750 (53)	1,450 (31.5)	1,450 (36)	1,600 (45)	1,400 (53)
90	1,140 (24.5)		1,740 (41)	1,700 (49)	1,140 (24.5)		1,520 (41)	1,360 (49)
95			1,480 (37)	1,480 (44.5)			1,420 (37)	1,260 (44.5)
100			1,260 (32.5)	1,260 (39.5)			1,250 (32.5)	1,160 (39.5)
105			1,050 (27)	1,050 (33)			1,050 (27)	1,050 (33)

NOTE: ( ) Boom angles are in degrees.
***This capacity is based on maximum obtainable boom angle.**

A6-829-012697B

30 - 78 ft.
(9.1 - 23.8 m)

3,925 lbs.
(1780 kg)

Rubber
Fully Extended
0° to 2° Slope

360°

0° to 2° Slope

Pounds

Feet	30	40	50	60	70	78	25 ft. Extension & 78 ft. Boom 103
8	44,000 (66.5)	44,000 (73)	42,750 (77)				
9	43,650 (64.5)	41,900 (71.5)	40,750 (76)				
10	41,150 (62)	39,500 (70)	38,350 (74.5)	31,450 (78)			
12	36,900 (57.5)	35,450 (67)	34,350 (72)	31,450 (76)			
15	31,300 (50)	30,700 (62)	29,700 (68.5)	27,850 (73)	25,300 (76)	16,200 (78)	
20	24,150 (34)	24,150 (53)	24,150 (62)	23,250 (67.5)	21,000 (71.5)	16,200 (74)	*12,500 (78)
25		16,750 (42.5)	16,750 (55)	16,750 (62)	16,750 (67)	13,300 (70)	11,400 (75.5)
30		12,500 (29)	12,500 (47)	12,500 (56.5)	12,500 (62.5)	11,200 (66)	10,200 (72.5)
35			9,780 (38)	9,780 (50)	9,780 (57.5)	9,600 (61.5)	9,500 (69.5)
40			7,870 (26)	7,870 (43)	7,870 (52)	7,870 (57.5)	8,250 (66.5)
45				6,470 (35)	6,470 (46.5)	6,470 (52.5)	7,170 (63.5)
50				5,390 (24)	5,390 (40)	5,390 (47.5)	6,190 (60)
55					4,540 (32.5)	4,540 (42)	5,220 (57)
60					3,850 (22.5)	3,850 (35.5)	4,420 (53)
65						3,280 (27.5)	3,770 (49.5)
70						2,800 (16)	3,220 (45.5)
75							2,750 (41)
80							2,340 (36.5)
85							1,980 (31)
90							1,670 (24)
95							1,400 (14)
Minimum boom angle (degrees) for indicated length (no load)							0
Maximum boom length (ft.) at 0 degree boom angle (no load)							103

NOTE: ( ) Boom angles are in degrees.
*Capacity based on maximum boom angle.

Boom Angle	30	40	50	60	70	78
0°	10,200 (23.8)	6,840 (33.8)	4,800 (43.8)	3,450 (53.8)	2,480 (63.8)	1,890 (71.8)

NOTE: ( ) Reference radii in feet.

A6-829-012541B

30 - 78 ft.
(9.1 - 23.8 m)

3,925 lbs.
(1780 kg)

Rubber
Fully Extended
2° to 5° Slope

360°

2° to 5° Slope

Pounds

Feet	30	40	50	60	70	78	25 ft. Extension & 78 ft. Boom 103
8	28,900 (66.5)	23,350 (73)					
9	27,750 (64.5)	22,600 (71.5)					
10	26,700 (62)	21,850 (70)					
12	24,750 (57.5)	20,550 (67)	17,500 (72)				
15	22,100 (50)	18,800 (62)	16,200 (68.5)	14,200 (73)			
20	17,700 (34)	16,300 (53)	14,350 (62)	12,700 (67.5)	11,400 (71.5)	10,550 (74)	
25		14,050 (42.5)	12,800 (55)	11,500 (62)	10,400 (67)	9,650 (70)	
30		11,550 (29)	11,350 (47)	10,400 (56.5)	9,490 (62.5)	8,850 (66)	5,880 (72.5)
35			9,270 (38)	9,270 (50)	8,690 (57.5)	8,150 (61.5)	5,500 (69.5)
40			7,440 (26)	7,440 (43)	7,440 (52)	7,440 (57.5)	5,100 (66.5)
45				6,100 (35)	6,100 (46.5)	6,100 (52.5)	4,750 (63.5)
50				5,070 (24)	5,070 (40)	5,070 (47.5)	4,430 (60)
55					4,250 (32.5)	4,250 (42)	4,130 (57)
60					3,590 (22.5)	3,590 (35.5)	3,850 (53)
65						3,040 (27.5)	3,610 (49.5)
70						2,580 (16)	3,070 (45.5)
75							2,620 (41)
80							2,220 (36.5)
85							1,880 (31)
90							1,570 (24)
95							1,300 (14)
Minimum boom angle (degrees) for indicated length (no load)							0
Maximum boom length (ft.) at 0 degree boom angle (no load)							103

NOTE: ( ) Boom angles are in degrees.

Boom Angle	30	40	50	60	70	78
0°	8,270 (23.8)	5,530 (33.8)	3,890 (43.8)	2,790 (53.8)	2,010 (63.8)	1,530 (71.8)

NOTE: ( ) Reference radii in feet.

A6-829-012542B

Rated lifting capacities

NOTES FOR LIFTING CAPACITIES

WARNING: THIS CHART IS ONLY A GUIDE.
The notes below are for illustration only and should not be relied upon to operate the crane. The individual crane's load chart, operating instructions and other instruction plates must be read and understood prior to operating the crane.

1. All rated loads meet ANSI/ASME B30.5, Mobile and Locomotive Cranes. Testing and development were performed to SAEJ1063, Cantilevered Boom Crane Structures - Method of Test and SAEJ765 Crane Stability Test Code.

2. Rated loads include the weight of hookblock, slings and auxiliary lifting devices and their weights shall be subtracted from the listed rating to obtain the net load to be lifted. When more than the minimum required hoist reeving is used, the additional rope weight shall be considered part of the load to be handled.

3. Capacities appearing above the bold line are based on structural strength. Tipping should not be relied upon as a capacity indication.

4. The machine shall be leveled on a firm supporting surface. Depending on the nature of the supporting surface, it may be necessary to have structural supports under the outrigger floats or tires to spread the load to a larger bearing surface.

5. When either boom length or radius or both are between values listed, the smallest load shown at either the next larger radius or next longer or shorter boom length shall be used.

Symbols Glossary


Frame


Steering


Crawlers


Transmission


Outrigger Controls


Axles


Engine


Brakes


Fuel Tank Capacity


Tires


Electrical System


Suspension


Drive


Rotation


Lights

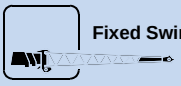

Boom Elevation


Cab


Swing


Boom

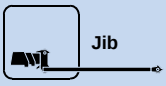

Counterweight


Fixed Swingaway


Oil


Tele-Swingaway


Hydraulic System


Jib


Hoist


Boom Nose


Radius


Boom Extension


Boom Length


Speed

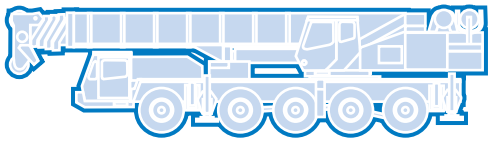

Hookblock

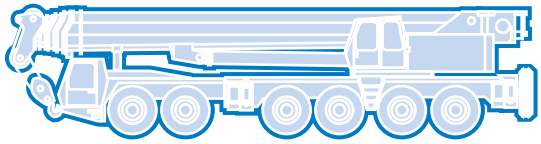

Grade

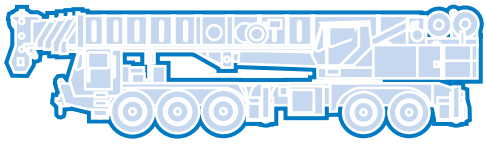

Gear

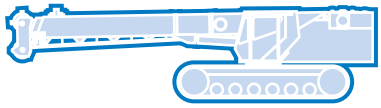

Lattice Extension


Luffing Jib









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