



GR-900XL-4

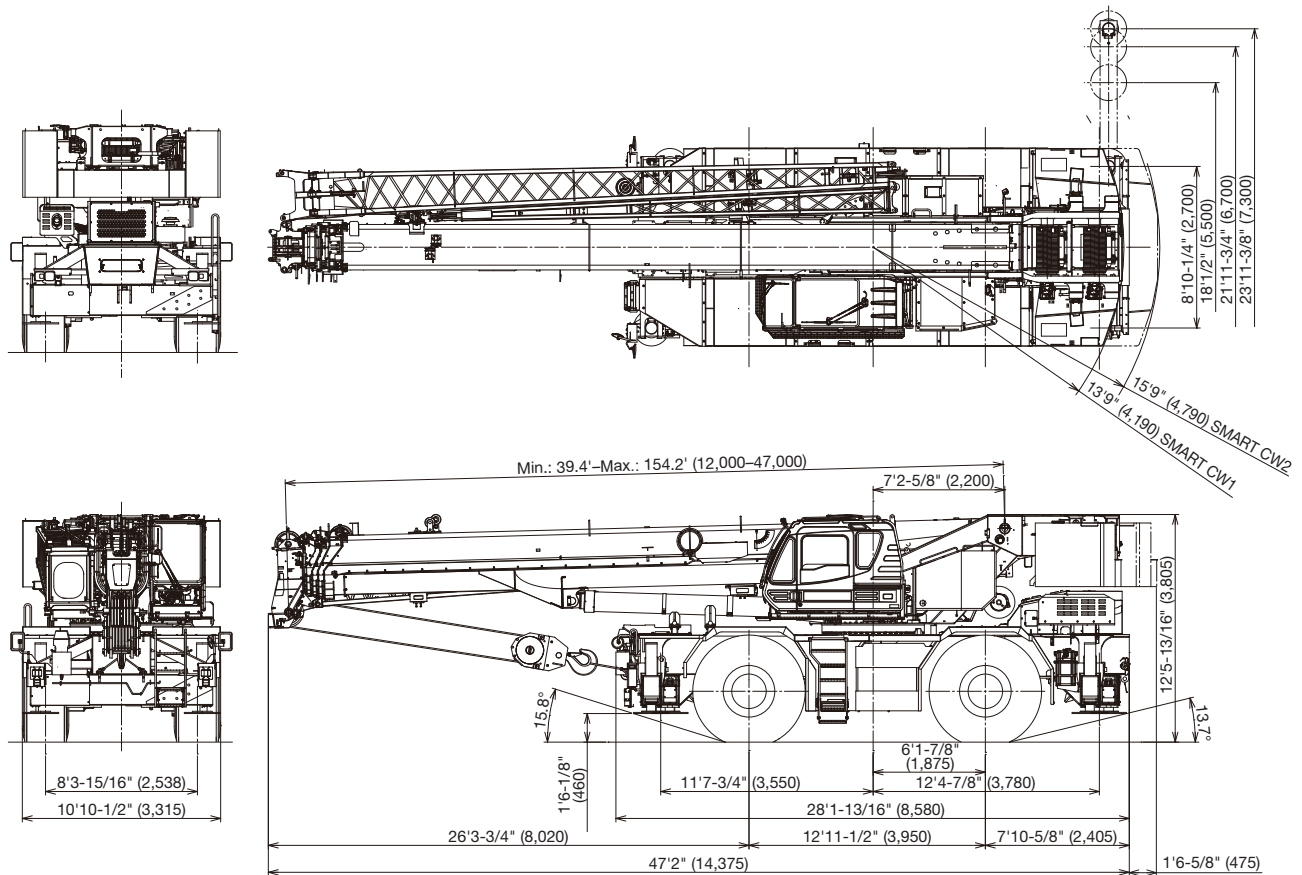
(Left-hand drive)

90 Ton (81.7 Metric Ton) Capacity

Form NO. GR-900-4-00101/US-02

HYDRAULIC ROUGH TERRAIN CRANE

DIMENSIONS



Note: Dimension is with boom angle at -1.5 degree.
() Reference dimensions in mm.

GENERAL DIMENSIONS

	Feet	Meters		Feet	Meters
Turning radius (29.5-25 Tires)			Overall length	approx. 47' 2"	14.375
4 wheel steer	22' 4"	6.8	Overall width	approx. 10' 10-1/2"	3.315
2 wheel steer	35' 9-3/32"	10.9	Overall height	approx. 12' 5-13/16"	3.805

CRANE SPECIFICATIONS

BOOM

5 section full power synchronized telescoping boom, 39.4'–154.2' (12.0 m–47.0 m), of round box construction with 7 sheaves, 17-5/16" (0.44 m) root diameter, at boom head.

The synchronization system consists of 2 telescope cylinders, an extension cable and retraction cable. Hydraulic cylinder fitted with holding valve. 2 easily removable wire rope guards, rope dead end provided on both sides of boom head. Boom telescope sections are supported by wear pads both vertically and horizontally. Extension speed 114.8' in 155 seconds.

BOOM ELEVATION - By a double acting hydraulic cylinder with holding valve. Elevation -1.5°-80.5°, combination controls for hand or foot operation. Boom angle indicator. Automatic speed reduction and slow stop function. Boom raising speed 20° to 60° in 46 seconds.

JIB - 2 stage bi-fold lattice type, 3.5°, 25° or 45° offset (tilt type). Single sheave, 15-5/8" (0.396 m) root diameter, at the head of both jib sections. Stored alongside base boom section. Jib length is 33.2' (10.1 m) or 58.1' (17.7 m). Assistant cylinders for mounting and stowing, controlled at right side of superstructure. Self stowing jib mounting pins.

AUXILIARY LIFTING SHEAVE (SINGLE TOP)

Single sheave, 15-5/8" (0.396 m) root diameter. Mounted to main boom head for single line work (stowable).

ANTI-TWO BLOCK - Pendant type over-winding cut out device with audio-visual (FAILURE lamp/BUZZER) warning system.

SLEWING

Hydraulic axial piston motor through planetary slewing speed reducer. Continuous 360° full circle slewing on ball bearing turn table at 1.5 min⁻¹ {rpm}. Equipped with manually locked/released slewing brake. A 360° positive slewing lock for pick and carry and travel modes, manually engaged in cab. Twin slewing system: Free slewing or lock slewing controlled by selector switch on front console.

WINCH

MAIN WINCH - Variable speed type with grooved drum driven by hydraulic axial piston motor through speed reducer. Power load lowering and raising. Equipped with automatic brake (neutral brake) and counterbalance valve. Controlled independently of auxiliary winch. Equipped with cable follower and drum rotation indicator.

DRUM - Grooved 14-1/4" (0.362 m) root diameter x 26-13/16" (0.681 m) wide. Wire rope: 830' of 3/4" diameter rope (253 m of 19 mm). Drum capacity: 1135' (346 m) 7 layers. Maximum single line pull: 1st layer 20,000 lbs (9,090 kg). Maximum permissible line pull wire strength: 14,600 lbs (6,600 kg).

AUXILIARY WINCH - Variable speed type with grooved drum driven by hydraulic axial piston motor through speed reducer. Power load lowering and raising. Equipped with automatic brake (neutral brake) and counterbalance valve. Controlled independently of main winch. Equipped with cable follower and drum rotation indicator.

DRUM - Grooved 14-1/4" (0.362 m) root diameter x 26-13/16" (0.681 m) wide. Wire rope: 456' of 3/4" diameter rope (139 m of 19 mm). Drum capacity: 1135' (346 m) 7 layers. Maximum single line pull: 1st layer 20,000 lbs (9,090 kg). Maximum permissible line pull wire strength: 14,600 lbs (6,600 kg).

WIRE ROPE - Non-rotating 3/4" (19 mm) P·S (19) + 39 x P·7 Breaking Strength 72,800 lbs (33,000 kg)

HOOK BLOCKS

100 ton (90.7 metric ton)-8 sheaves with swivel hook and safety latch, for 3/4" (19 mm) wire rope.

7.3 ton (6.6 metric ton) - Weighted hook with swivel and safety latch, for 3/4" (19 mm) wire rope.

COUNTERWEIGHT

Self-removable counterweight 20,100 lbs (9,100 kg)

HYDRAULIC SYSTEM

PUMPS - 2 variable piston pumps for crane functions. Tandem gear pump for steering slewing and other hydraulic systems. Powered by carrier engine. Pump disconnect for crane is engaged/ disengaged by rotary switch from operator's cab.

CONTROL VALVES - Multiple valves actuated by pilot pressure with integral pressure relief valves.

RESERVOIR - 210 gallon (795 lit.) capacity. External sight level gauge.

FILTRATION - BETA10=10 return filter, full flow with bypass protection, located inside of hydraulic reservoir. Accessible for easy replacement.

OIL COOLER - Air cooled fan type.

CAB AND CONTROLS

Both crane and drive operations can be performed from one cab mounted on rotating superstructure.

20° tilt, Left side, 1 man type, steel construction with sliding door access and safety glass windows opening at side. Door window is powered control. Windshield glass window and roof glass window are shatter-resistant. Tilt-telescoping steering wheel. Adjustable control lever stands for slewing, boom elevating, boom telescoping, auxiliary winch and main winch. Control lever stands can change neutral positions and tilt for easy access to cab. 3 way adjustable operator's seat with high back, headrest and armrest. Engine throttle knob. Foot operated controls: boom elevating boom telescoping, service brake and engine throttle. Hot water cab heater and air conditioning.

Dash-mounted Instrument panel, Multi Function Display, Starter switch (engine start/stop), 12 V power outlet, USB port, drive selector switch, parking brake switch, steering mode select switch, power window switch, pump engaged/disengaged switch, slewing brake switch, telescoping/auxiliary winch select switch, outrigger controls, free slewing/lock slewing selector switch, air conditioning control switch.

Instruments panel - Torque converter oil temperature, engine water temperature, air pressure, fuel, speedometer, tachometer, hour meter and odometer/tripmeter.

Multi Function Display - DEF level gauge, Fuel consumption monitor.

Tadano electronic LOAD MOMENT INDICATOR system (AML-E2) including:

- Control lever lockout function with audible and visual pre-warning
- Number of parts of line
- Boom position indicator
- Outrigger state indicator
- Slewing angle
- Boom angle / boom length / jib offset angle / jib length / load radius / rated lifting capacities / actual loads read out
- Potential lifting height
- Ratio of actual load moment to rated load moment indication
- Automatic Speed reduction and slow stop function on boom elevation and slewing
- Working condition register switch
- Load radius / boom angle / tip height / slewing range preset function
- External warning lamp
- Tare function
- Main Hydraulic oil pressure
- Fuel consumption monitor

- Main winch / auxiliary winch select
- Drum rotation indicator (audible and visible type) main and auxiliary winch
- On rubber indicator

TADANO AML-E2 monitors outrigger extended length and automatically programs the corresponding "RATED LIFTING CAPACITIES" table.

Operator's right hand console includes transmission gear selector, slewing lock lever and sight level bubble.

Upper console includes, roof washer and wiper switch, emergency outrigger set up key switch, jib equipped / removed select switch, high speed winch (main / aux) switch, Cab tilt switch, Pump disconnect enable switch and boom emergency telescoping switch (2nd and 3rd-top).

NOTE: Each crane motion speed is based on unladen conditions.

CARRIER SPECIFICATIONS

TYPE - Rear engine, left hand steering, driving axle 2-way selected type by manual switch, 4 x 2 front drive, 4 x 4 front and rear drive.

FRAME - High tensile steel, all welded mono-box construction.

TRANSMISSION - Electronically controlled full automatic transmission. Torque converter driving full powershift with driving axle selector. 6 forward and 2 reverse speeds, constant mesh.

- 3 speeds - high range - 2 wheel drive; 4 wheel drive
- 3 speeds - low range - 4 wheel drive

TRAVEL SPEED - 22 mph (36 km/h)

GRADEABILITY (tanθ) - 93% (at stall), 57%*

* Machine should be operated within the limit of engine crankcase design (30°: Cummins B6.7)

AXLE - Front: Full floating type, steering and driving axle with planetary reduction. Rear: Full floating type, steering and driving axle with planetary reduction and non-spin rear differential.

STEERING - Hydraulic power steering controlled by steering wheel. Four steering modes available: 2 wheel front, 2 wheel rear, 4 wheel coordinated and 4 wheel crab.

SUSPENSION - Front: Rigid mounted to frame. Rear: Pivot mounted with hydraulic lockout device.

ENGINE

Model	Cummins B6.7
Type	Direct injection diesel
No. of cylinders	6
Combustion	4 cycle, turbo charged and after cooled
BoreXStroke, in. (mm)	4.212 X 4.882 (107 X 124)
Displacement, cu. in (liters)	409 (6.7)
Air inlet heater	24 volt preheat
Air cleaner	Dry type, replaceable element
Oil filter	Full flow with replaceable element
Fuel filter	Full flow with replaceable element
Fuel tank, gal. (liters)	79.2 (300), right side of carrier
Cooling	Liquid pressurized, recirculating by-pass

BRAKE SYSTEMS - Service: Air over hydraulic disc brakes on all 4 wheels. Parking / Emergency: Spring applied-air released brake acting on input shaft of front axle. Auxiliary: Electro-pneumatic operated exhaust brake.

TIRES - 29.5-25 36PR (OR) Air pressure: 68 psi (470 kPa)
29.5-25 40PR (OR) Air pressure: 67 psi (465 kPa)

OUTRIGGERS - Four hydraulic, beam and jack outriggers. Vertical jack cylinders equipped with integral holding valve. Each outrigger beam and jack is controlled independently from cab. Beams extend to 23' 11-3/8" (7.3 m) center-line and retract to within 10' 10-1/2" (3.315 m) overall width with floats. Outrigger jack floats are attached thus eliminating the need of manually attaching and detaching them. Controls and sight bubble located in superstructure cab. Four outrigger extension lengths are provided with corresponding "RATED LIFTING CAPACITIES" for crane duty in confined areas.

- Min. Extension 8' 10-1/4" (2.7 m) center to center
- Mid. Extension 18' 1/2" (5.5 m) center to center
- Mid. Extension 21' 11-3/4" (6.7 m) center to center
- Max. Extension 23' 11-3/8" (7.3 m) center to center

Float size (Diameter) 1' 11- 5/8" (0.6 m)

Radiator	Fin and tube core, thermostat controlled
Fan, in. (mm)	Suction type, 9-blade, 28 (711) dia.
Starting	24 volt
Charging	24 volt system, negative ground
Battery	2-120 amp. Hour
Compressor, air, CFM (l /min)	17.0 CFM (481) at 2,400 rpm
Output, Max. HP (kW)	Gross 280 (209) at 2,200 rpm
Torque, Max. ft-lb (Nm)	850 (1,152) at 1,500 rpm
Capacity, gal. (liters)	
Cooling water	2.7 (10)
Lubrication	4.0 (15)
Fuel	79.2 (300)
DEF/AdBlue	15.0 (57)

STANDARD EQUIPMENT

- 5 section full power partially synchronized boom
39.4'-154.2' (12.0 m-47.0 m)
- 33.2' or 58.1' (10.1 m or 17.7 m) bi-fold lattice jib (tilt type)
with 3.5°, 25° or 45° pinned offsets and self storing pins.
- Quick reeving type bi-fold jib
- Anti-Two block device (overwind cutout)
- Winch drum camera with light
- LED work lights
- Variable speed main winch with grooved drum, cable follower, drum
rotation indicator (audible, visible and thumper type) and 830' of 3/4" cable.
- Variable speed auxiliary winch with grooved drum, cable follower, drum
rotation indicator (audible, visible and thumper type) and 456' of 3/4" cable.
- Auxiliary lifting sheave (single top) stowable
- 2-speed winch
- 100 ton (90.7 metric ton) hook block - 8 sheaves with swivel hook
and safety latch for 3/4" (19 mm) wire rope
- 7.3 ton (6.6 metric ton) hook with swivel
- Tadano twin slewing system and 360° positive slewing lock
- Positive control
- Hydraulic oil cooler
- 3 way adjustable cloth seat with armrests, high back and seat belt
- Tilt-telescoping steering wheel
- Tinted safety glass and sun visor
- Front windshield wiper and washer
- Roof window wiper and washer
- Power window (cab door)
- 12V power outlet
- Ashtray
- Cab floor mat
- Pump disconnect in operator's cab
- Air conditioner (hot water heater and cooler)
- Full instrumentation package
- Self centering finger control levers with pilot control
- Control pedals for boom elevating and boom telescoping
- Low oil pressure / high water temp. warning device (visual)
- Air cleaner dust indicator
- Cup holder
- Battery disconnect
- USB port
- 20° tilt cab
- Emergency steering system
- Tadano electronic load moment indicator system (AML-E2)
- Boom angle indicator
- Outrigger extension length detector
- Electronic crane monitoring system
- Rear view camera
- Right front view camera
- Fenders
- Air dryer
- Complete highway light package
- Towing hooks-Front and rear
- Hook block tie down (front bumper)
- Weighted hook storage compartment
- Halogen head lamp
- Independently controlled outriggers
- Four outrigger extension positions
- Self-storing outrigger pads
- Electronic controlled automatic transmission driven by torque converter
- 4 X 4 X 4 drive / steer
- Non-spin rear differential
- Automatic rear axle oscillation lockout system
- 29.5-25 36 PR tires
- 29.5-25 40 PR tires
- Disc brakes
- Water separator with filter (high filtration)
- Back-up alarm
- 24 volt electric system
- Tool storage compartment
- Tire inflation kit
- Cummins B6.7 turbo charged
after cooled engine (280 HP) with exhaust brake
- Engine over-run alarm
- Lifting eyes
- Telematics (machine data logging and monitoring system)
with HELLO-NET via internet (availability depends on countries)
- Fuel consumption monitor
- Eco mode system
- Self-removable counterweight
- Radiator cover
- Clearance sonar (Rear side)
- Automatic pump disconnect
- Over unwinding prevention

HOISTING PERFORMANCE

LINE SPEEDS AND PULLS

Layer	Main or auxiliary hoist - 14'-1/4" (0.362 m) drum							
	Line speeds ¹				Line pulls Available ²			
	Low		High		Low		High	
	F.P.M	m/min	F.P.M	m/min	Lbs.	kgf	Lbs.	kgf
1st	278	84	387	118	20,000	9,090	14,400	6,520
2nd	302	92	421	128	18,100	8,230	13,000	5,900
3rd	327	99	456	139	16,600	7,520	11,900	5,390
4th	352	107	491	149	15,300	6,920	10,900	4,960
5th	377	115	526	160	14,100	6,410	10,100	4,600
6th	402	122	560	170	13,200	5,970	9,400	4,280
7th ³	427	130	595	181	12,300	5,590	8,800	4,010

- Maximum permissible line pull wire strength
14,600 lbs (6,600 kg).

¹ Line speeds based only on hook block, not loaded.
² Developed by machinery with each layer of wire rope, but not based
on rope strength or other limitation in machinery or equipment.
³ Seventh layer of wire rope are not recommended
for hoisting operations.

DRUM WIRE ROPE CAPACITIES

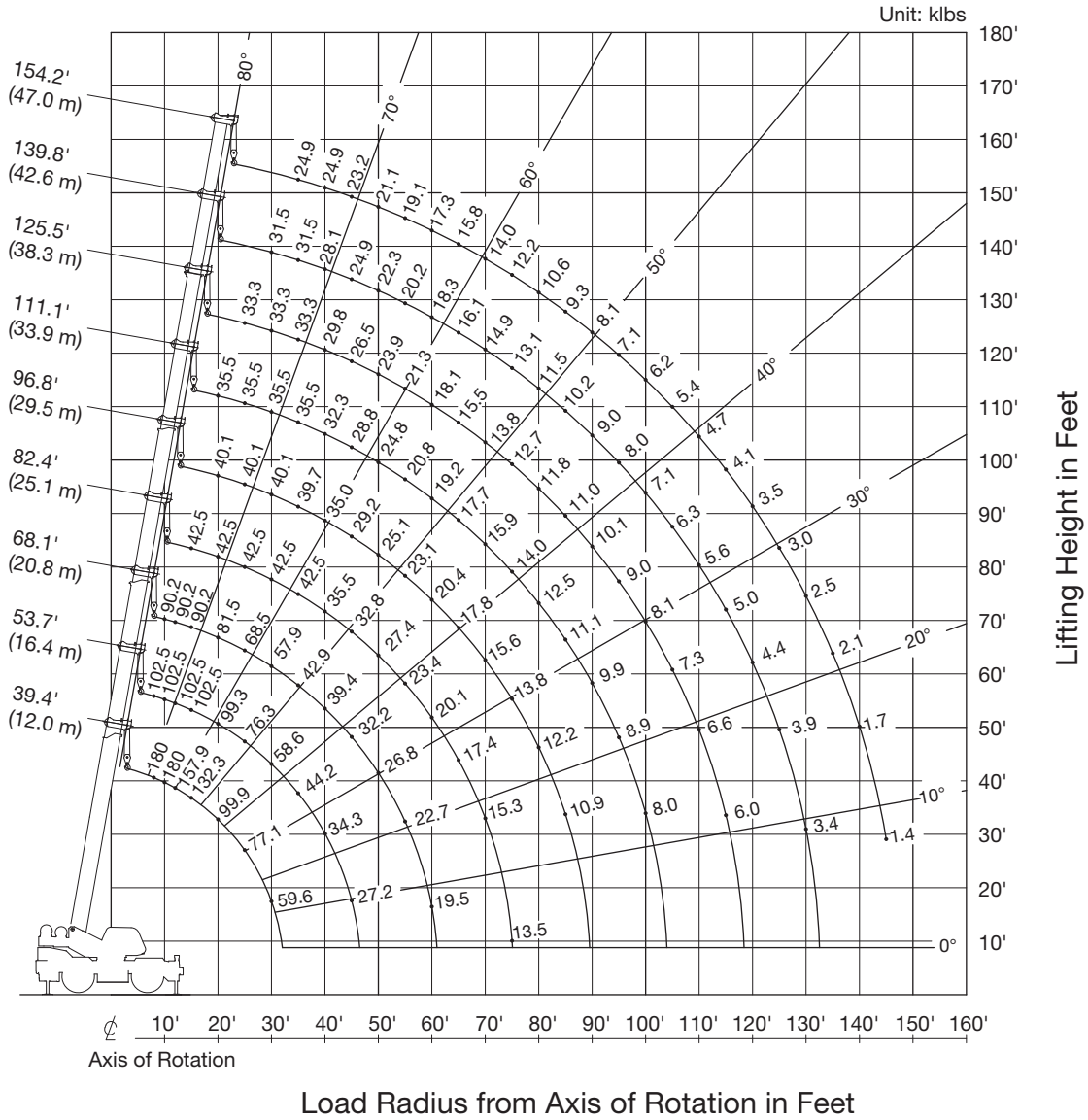
Wire rope layer	Main and auxiliary drum grooved lagging 3/4" (19 mm) wire rope			
	Rope per layer m		Total wire rope m	
	Feet	Meters	Feet	Meters
1	128.0	39.0	128.0	39.0
2	139.4	42.5	267.4	81.5
3	150.9	46.0	418.3	127.5
4	162.1	49.4	580.4	176.9
5	173.9	53.0	754.3	229.9
6	185.4	56.5	939.6	286.4
7	196.9	60.0	1,136.5	346.4

DRUM DIMENSIONS

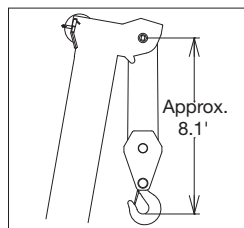
	Inch	mm
Root diameter	14-1/4"	362
Length Flange diameter	26-13/16"	681
	25-7/8"	657

GR-900XL-4 WORKING RANGE CHART

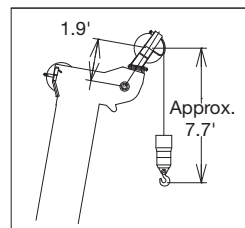
SMART CW1 360° ROTATION



BOOM



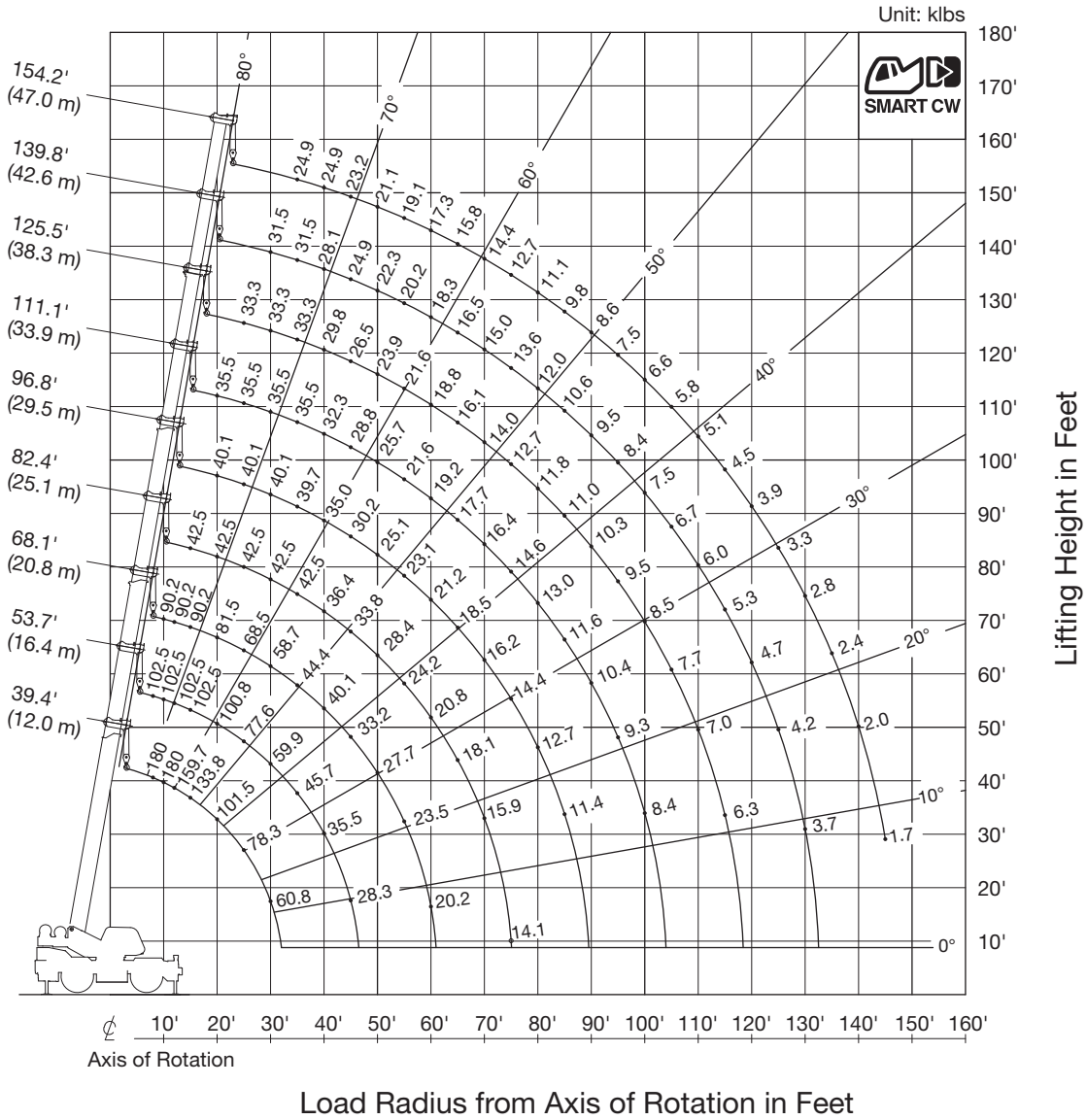
SINGLE TOP



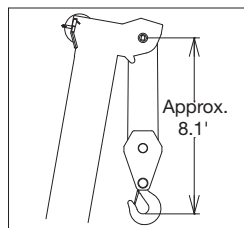
NOTE: Boom geometry shown is for unloaded condition and machine standing level on firm supporting surface. Boom deflection and subsequent radius and boom angle change must be accounted for when applying load to hook. When boom length is same as telescoping mode 1 and 2, it show large load.

GR-900XL-4 WORKING RANGE CHART

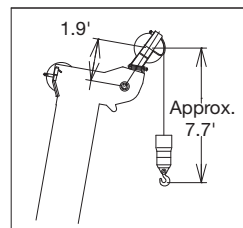
SMART CW2 360° ROTATION



BOOM



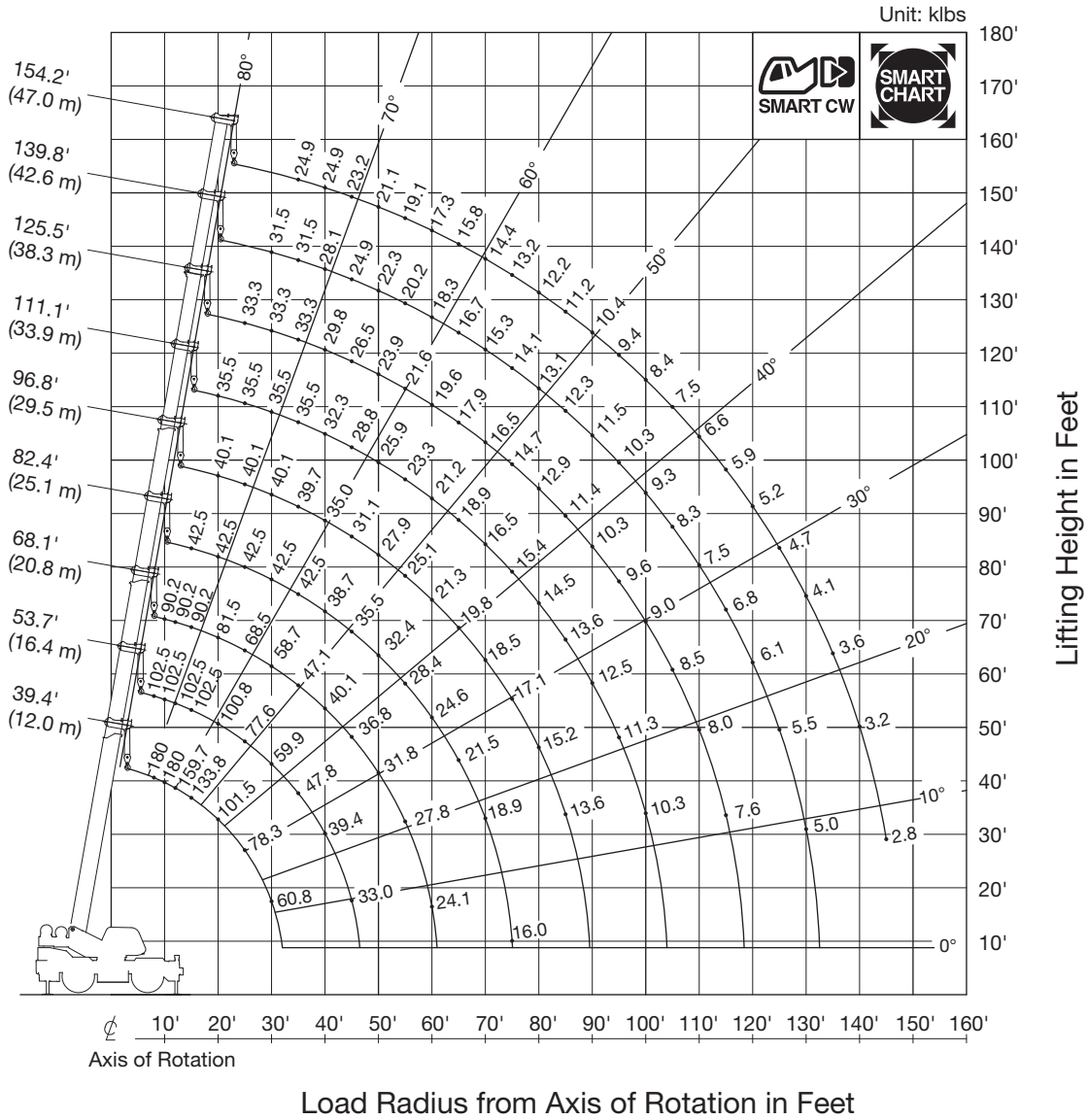
SINGLE TOP



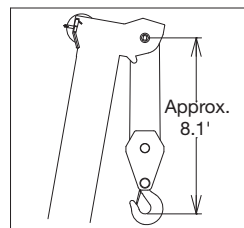
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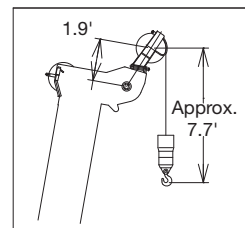
SMART CW2 SMART CHART



BOOM

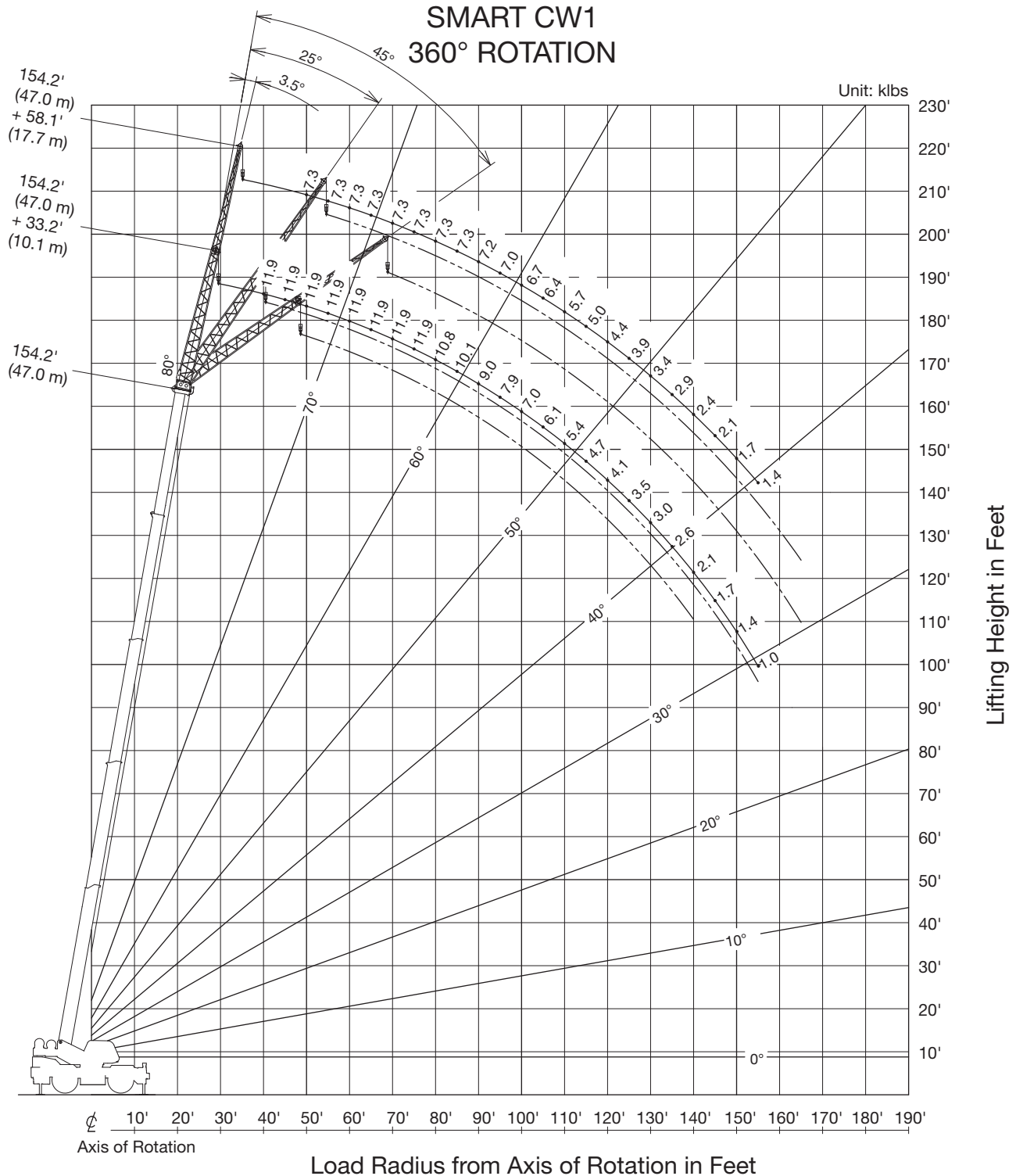


SINGLE TOP



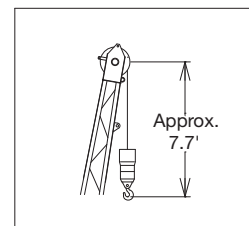
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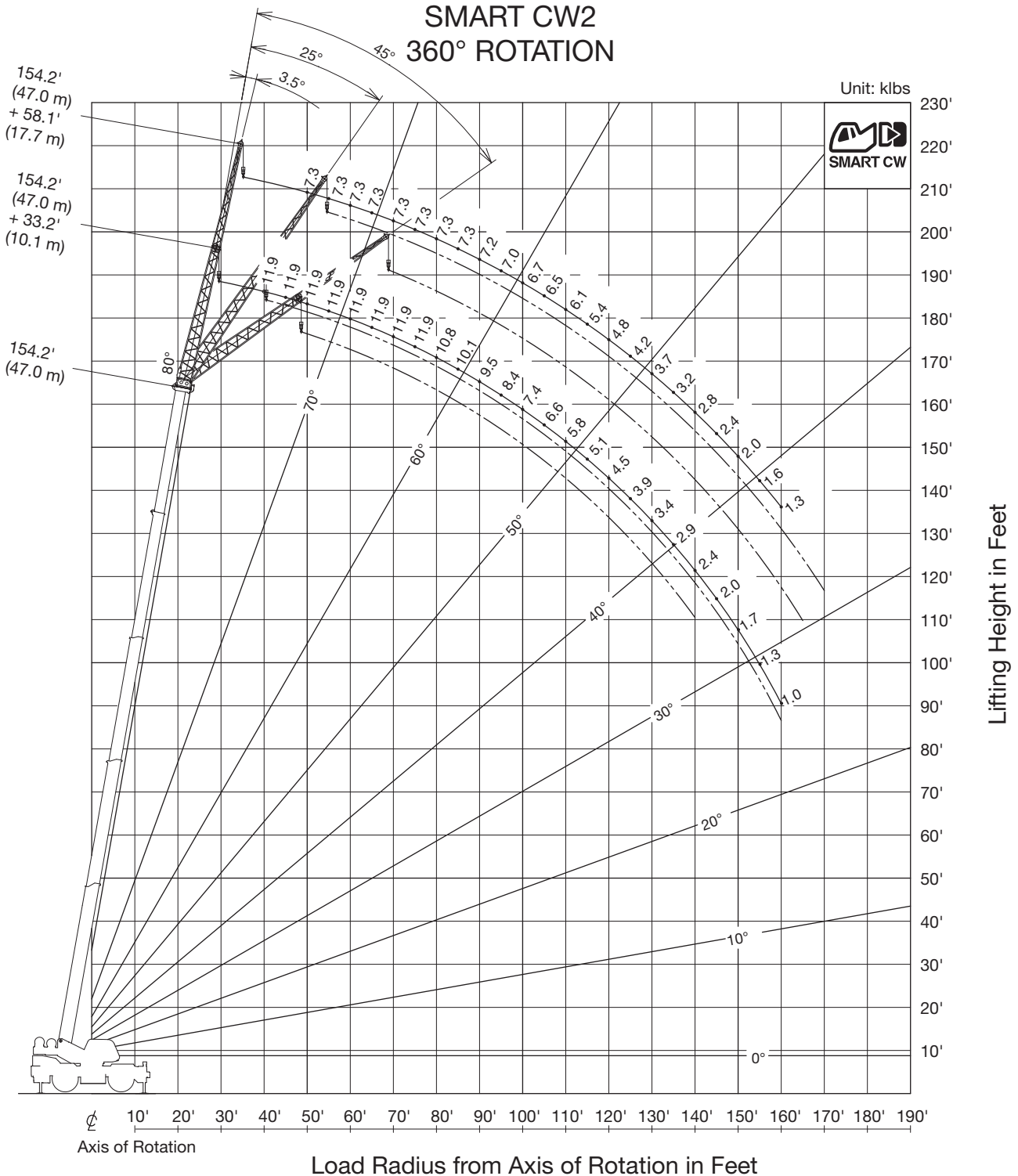


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JIB

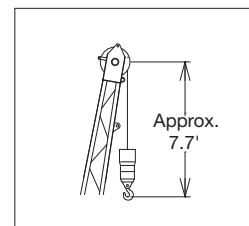


GR-900XL-4 WORKING RANGE CHART

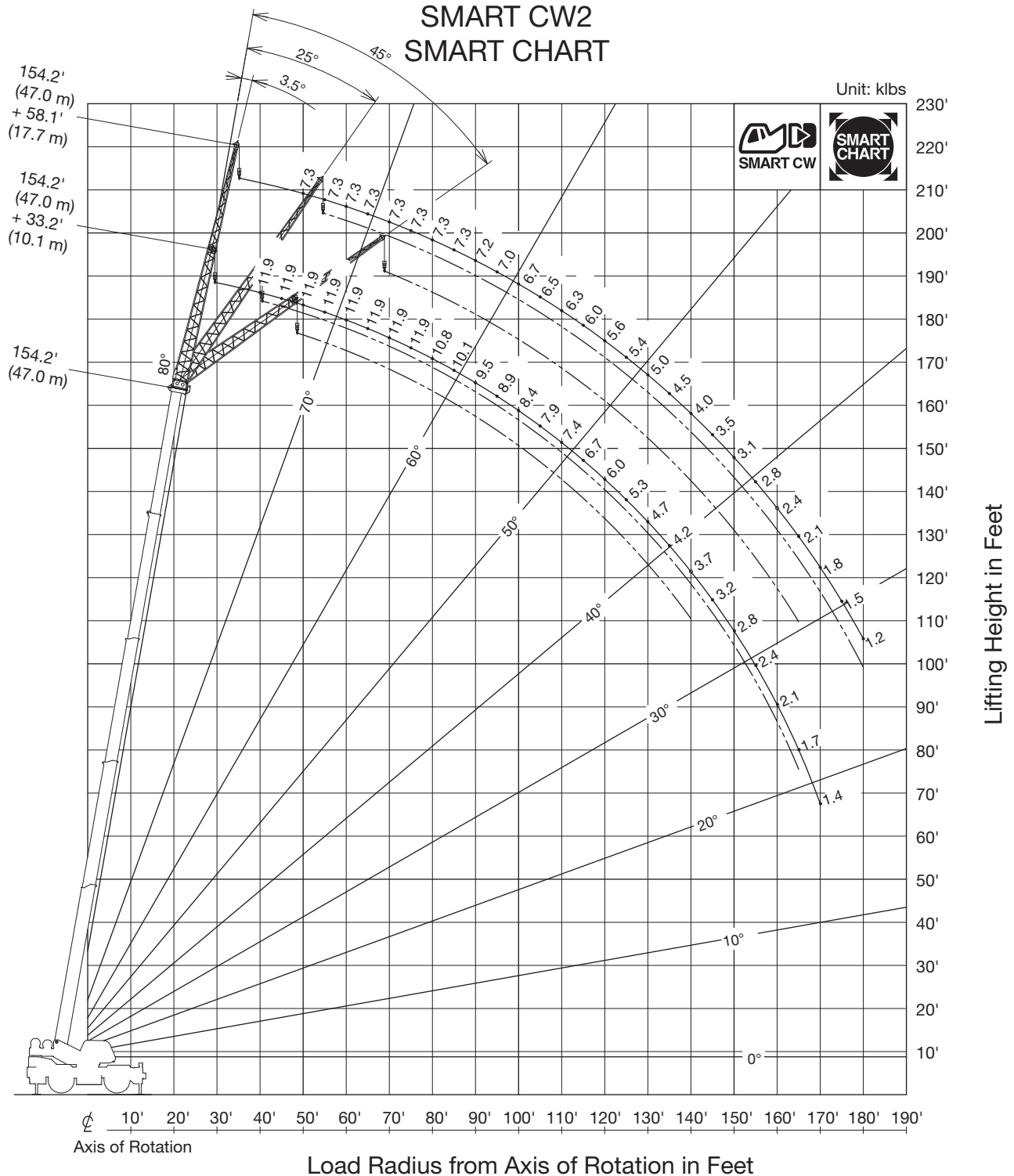


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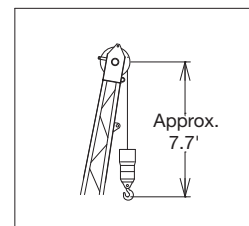


GR-900XL-4 WORKING RANGE CHART



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JIB



GR-900XL-4 RATED LIFTING CAPACITIES (IN POUNDS)

COUNTERWEIGHT 20,100 lbs (9.1 t) ON OUTRIGGERS FULLY EXTENDED 23' 11-3/8" (7.3 m) SPREAD 360° ROTATION SMART CW1															
B \ A	39.4'	53.7'	68.1'		82.4'		96.8'		111.1'		125.5'		139.8'		154.2'
	(12 m)	(16.4 m)	(20.8 m)		(25.1 m)		(29.5 m)		(33.9 m)		(38.3 m)		(42.6 m)		(47 m)
8	180,000	102,500													
10	180,000	102,500	90,200	40,100											
12	157,900	102,500	90,200	40,100											
15	132,300	102,500	90,200	40,100	42,500	35,500									
20	99,900	99,300	81,500	40,100	42,500	35,500	40,100	33,300	35,500	32,200					
25	77,100	76,300	68,500	40,100	42,500	35,500	40,100	33,300	35,500	32,200	33,300	32,200			
30	59,600	58,600	57,900	40,100	42,500	35,500	40,100	33,300	35,500	32,200	33,300	28,800	31,500	28,900	
35		44,200	42,900	40,100	42,500	35,500	39,700	33,300	35,500	30,800	33,300	25,500	31,500	27,200	24,900
40		34,300	33,200	39,400	35,200	35,500	35,000	30,500	32,300	27,600	29,800	22,800	28,100	24,500	24,900
45		27,200	26,300	32,200	28,200	32,800	29,200	27,600	28,800	24,900	26,500	20,700	24,900	22,200	23,200
50			21,200	26,800	23,000	27,400	24,000	25,100	24,800	22,700	23,900	18,800	22,300	20,300	21,100
55			17,300	22,700	19,100	23,400	20,100	23,100	20,800	20,800	21,300	17,300	20,200	18,700	19,100
60			14,300	19,500	15,900	20,100	16,900	20,400	17,600	19,200	18,100	15,900	18,300	17,300	17,300
65					13,400	17,400	14,400	17,800	15,000	17,700	15,500	14,800	15,900	16,100	15,800
70					11,200	15,300	12,200	15,600	12,900	15,900	13,400	13,800	13,700	14,900	14,000
75					9,500	13,500	10,400	13,800	11,100	14,000	11,600	12,700	11,900	13,100	12,200
80								8,900	12,200	9,600	12,500	10,000	11,800	10,400	11,500
85								7,600	10,900	8,300	11,100	8,700	11,000	9,000	10,200
90										7,100	9,900	7,600	10,100	7,900	9,000
95										6,100	8,900	6,600	9,000	6,900	8,000
100										5,200	8,000	5,700	8,100	6,000	7,100
105												4,900	7,300	5,200	6,300
110												4,200	6,600	4,500	5,600
115												3,600	6,000	3,900	5,000
120														3,300	4,400
125														2,800	3,900
130														2,400	3,400
135															2,100
140															1,700
145															1,400
D															
Telescoping mode	1, 2	1	1	2	1	2	1	2	1	2	1	2	1	2	1, 2
2nd Boom	0	50	100	0	100	0	100	0	100	0	100	0	100	50	100
3rd Boom	0	0	0	33	16	50	33	67	50	83	67	100	83	100	100
4th Boom	0	0	0	33	16	50	33	67	50	83	67	100	83	100	100
Top Boom	0	0	0	33	16	50	33	67	50	83	67	100	83	100	100

COUNTERWEIGHT 20,100 lbs (9.1 t) ON OUTRIGGERS FULLY EXTENDED 23' 11-3/8" (7.3 m) SPREAD 360° ROTATION SMART CW1																												
C \ A	39.4'		53.7'		68.1'		68.1'		82.4'		82.4'		96.8'		96.8'		111.1'		111.1'		125.5'		125.5'		139.8'			
	B	(12 m)	B	(16.4 m)	B	(20.8 m)	B	(20.8 m)	B	(25.1 m)	B	(25.1 m)	B	(29.5 m)	B	(29.5 m)	B	(33.9 m)	B	(33.9 m)	B	(38.3 m)	B	(38.3 m)	B	(42.6 m)		
0°	32.4	2,4100	46.7	13,800	60.9	7,300	60.8	12,800	75.1	7,500	74.9	13,600	89.2	3,400	88.9	6,800	103.5	2,200	102.9	5,600	117.6	1,400	116.9	4,500			131.3	2,300
Telescoping mode	1, 2		1		1		2		1		2		1		2		1		2		1		2		1		2	

- A: Boom length in feet
- B: Load radius in feet
- C: Loaded boom angle (°)
- D: Minimum boom angle (°) for indicated length (no load)

NOTE: The lifting capacity data stored in the LOAD MOMENT INDICATOR (AML-E2) is based on the standard number of parts of line listed in the chart. Standard number of parts of line for each boom length should be according to the following table.

Boom length in feet (meters)	39.4' (12 m)	39.4' to 68.1' (12 m to 20.8 m)	68.1' to 154.2' (20.8 m to 47 m)	Single top jib
Telescoping mode	1, 2	1	2	1, 2
Number of parts of line	16	8	4	1

GR-900XL-4 RATED LIFTING CAPACITIES (IN POUNDS)

		COUNTERWEIGHT 20,100 lbs (9.1 t) ON OUTRIGGERS FULLY EXTENDED 23' 11-3/8" (7.3 m) SPREAD 360° ROTATION SMART CW2														
B	A	39.4' (12 m)	53.7' (16.4 m)	68.1' (20.8 m)		82.4' (25.1 m)		96.8' (29.5 m)		111.1' (33.9 m)		125.5' (38.3 m)		139.8' (42.6 m)		154.2' (47 m)
	8		180,000	102,500												
10		180,000	102,500	90,200	40,100											
12		159,700	102,500	90,200	40,100											
15		133,800	102,500	90,200	40,100	42,500	35,500									
20		101,500	100,800	81,500	40,100	42,500	35,500	40,100	33,300	35,500	32,200					
25		78,300	77,600	68,500	40,100	42,500	35,500	40,100	33,300	35,500	32,200	33,300	32,200			
30		60,800	59,900	58,700	40,100	42,500	35,500	40,100	33,300	35,500	32,200	33,300	28,800	31,500	28,900	
35			45,700	44,400	40,100	42,500	35,500	39,700	33,300	35,500	30,800	33,300	25,500	31,500	27,200	24,900
40			35,500	34,400	40,100	36,400	35,500	35,000	30,500	32,300	27,600	29,800	22,800	28,100	24,500	24,900
45			28,300	27,300	33,200	29,200	33,800	30,200	27,600	28,800	24,900	26,500	20,700	24,900	22,200	23,200
50				22,100	27,700	23,900	28,400	24,900	25,100	25,700	22,700	23,900	18,800	22,300	20,300	21,100
55				18,100	23,500	19,900	24,200	20,900	23,100	21,600	20,800	21,600	17,300	20,200	18,700	19,100
60				15,000	20,200	16,600	20,800	17,600	21,200	18,300	19,200	18,800	15,900	18,300	17,300	17,300
65						14,000	18,100	15,000	18,500	15,700	17,700	16,100	14,800	16,500	16,100	15,800
70						11,800	15,900	12,800	16,200	13,500	16,400	14,000	13,800	14,300	15,000	14,400
75						10,100	14,100	11,000	14,400	11,700	14,600	12,100	12,700	12,500	13,600	12,700
80								9,400	12,700	10,100	13,000	10,500	11,800	10,900	12,000	11,100
85								8,100	11,400	8,700	11,600	9,200	11,000	9,500	10,600	9,800
90										7,600	10,400	8,000	10,300	8,300	9,500	8,600
95										6,500	9,300	7,000	9,500	7,300	8,400	7,500
100										5,600	8,400	6,100	8,500	6,400	7,500	6,600
105												5,300	7,700	5,600	6,700	5,800
110												4,500	7,000	4,900	6,000	5,100
115												3,900	6,300	4,200	5,300	4,500
120														3,600	4,700	3,900
125														3,100	4,200	3,300
130														2,700	3,700	2,800
135																2,400
140																2,000
145																1,700
D																
Telescoping mode		1, 2	1	1	2	1	2	1	2	1	2	1	2	1	2	1, 2
2nd Boom		0	50	100	0	100	0	100	0	100	0	100	0	100	50	100
3rd Boom		0	0	0	33	16	50	33	67	50	83	67	100	83	100	100
4th Boom		0	0	0	33	16	50	33	67	50	83	67	100	83	100	100
Top Boom		0	0	0	33	16	50	33	67	50	83	67	100	83	100	100

		COUNTERWEIGHT 20,100 lbs (9.1 t) ON OUTRIGGERS FULLY EXTENDED 23' 11-3/8" (7.3 m) SPREAD 360° ROTATION SMART CW2																											
C	A	39.4' (12 m)		53.7' (16.4 m)		68.1' (20.8 m)		68.1' (20.8 m)		82.4' (25.1 m)		82.4' (25.1 m)		96.8' (29.5 m)		96.8' (29.5 m)		111.1' (33.9 m)		111.1' (33.9 m)		125.5' (38.3 m)		125.5' (38.3 m)		139.8' (42.6 m)			
	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B		
0°		32.4	2,4100	46.7	13,800	60.9	7,300	60.8	12,900	75.1	7,800	74.9	14,100	89.2	3,500	88.9	6,900	103.5	2,200	102.9	5,700	117.6	1,500	116.9	4,600			131.3	2,500
Telescoping mode		1, 2		1		1		2		1		2		1		2		1		2		1		2				2	

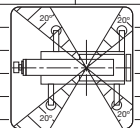
- A: Boom length in feet
- B: Load radius in feet
- C: Loaded boom angle (°)
- D: Minimum boom angle (°) for indicated length (no load)

NOTE: The lifting capacity data stored in the LOAD MOMENT INDICATOR (AML-E2) is based on the standard number of parts of line listed in the chart. Standard number of parts of line for each boom length should be according to the following table.

Boom length in feet (meters)	39.4' (12 m)	39.4' to 68.1' (12 m to 20.8 m)		68.1' to 154.2' (20.8 m to 47 m)	Single top jib
Telescoping mode	1, 2	1	2	1, 2	1, 2
Number of parts of line	16	8	4	4	1

GR-900XL-4 RATED LIFTING CAPACITIES (IN POUNDS)

		COUNTERWEIGHT 20,100 lbs (9.1 t) ON OUTRIGGERS FULLY EXTENDED 23' 11-3/8" (7.3 m) SPREAD																
		SMART CHART SMART CW2																
B	A	39.4' (12 m)	53.7' (16.4 m)	68.1' (20.8 m)		82.4' (25.1 m)		96.8' (29.5 m)		111.1' (33.9 m)		125.5' (38.3 m)		139.8' (42.6 m)		154.2' (47 m)		
	8		180,000	102,500														
10		180,000	102,500	90,200	40,100													
12		159,700	102,500	90,200	40,100													
15		133,800	102,500	90,200	40,100	42,500	35,500											
20		101,500	100,800	81,500	40,100	42,500	35,500	40,100	33,300	35,500	32,200							
25		78,300	77,600	68,500	40,100	42,500	35,500	40,100	33,300	35,500	32,200	33,300	32,200					
30		60,800	59,900	58,700	40,100	42,500	35,500	40,100	33,300	35,500	32,200	33,300	28,800	31,500	28,900			
35			47,800	47,100	40,100	42,500	35,500	39,700	33,300	35,500	30,800	33,300	25,500	31,500	27,200	24,900		
40			39,400	38,600	40,100	38,700	35,500	35,000	30,500	32,300	27,600	29,800	22,800	28,100	24,500	24,900		
45			33,000	32,300	36,800	33,900	35,500	31,100	27,600	28,800	24,900	26,500	20,700	24,900	22,200	23,200		
50				27,100	31,800	28,900	32,400	27,900	25,100	25,900	22,700	23,900	18,800	22,300	20,300	21,100		
55				22,400	27,800	24,100	28,400	25,100	23,100	23,300	20,800	21,600	17,300	20,200	18,700	19,100		
60				18,600	24,100	20,300	24,600	21,300	21,300	21,200	19,200	19,600	15,900	18,300	17,300	17,300		
65						17,300	21,500	18,200	19,800	18,900	17,700	17,900	14,800	16,700	16,100	15,800		
70						14,700	18,900	15,700	18,500	16,400	16,500	16,500	13,800	15,300	15,000	14,400		
75						12,700	16,800	13,600	17,100	14,200	15,400	14,700	12,700	14,100	14,000	13,200		
80								11,800	15,200	12,500	14,500	12,900	11,800	13,000	13,100	12,200		
85								10,300	13,600	10,900	13,600	11,400	11,000	11,700	12,300	11,200		
90										9,600	12,500	10,000	10,300	10,300	11,500	10,400		
95										8,400	11,300	8,900	9,600	9,200	10,300	9,400		
100										7,400	10,300	7,800	9,000	8,100	9,300	8,400		
105												6,900	8,500	7,200	8,300	7,500		
110												6,100	8,000	6,400	7,500	6,600		
115												5,400	7,600	5,700	6,800	5,900		
120														5,000	6,100	5,200		
125														4,400	5,500	4,700		
130														3,900	5,000	4,100		
135																3,600		
140																3,200		
145																2,800		
D		0°														8°	0°	9°
Telescoping mode		1, 2	1	1	2	1	2	1	2	1	2	1	2	1	2	1	2	
2nd Boom		0	50	100	0	100	0	100	0	100	0	100	0	100	50	100	100	
3rd Boom		0	0	0	33	16	50	33	67	50	83	67	100	83	100	100	100	
4th Boom		0	0	0	33	16	50	33	67	50	83	67	100	83	100	100	100	
Top Boom		0	0	0	33	16	50	33	67	50	83	67	100	83	100	100	100	



		COUNTERWEIGHT 20,100 lbs (9.1 t) ON OUTRIGGERS FULLY EXTENDED 23' 11-3/8" (7.3 m) SPREAD																									
		SMART CHART SMART CW2																									
C	A	39.4' (12 m)	53.7' (16.4 m)	68.1' (20.8 m)	68.1' (20.8 m)	82.4' (25.1 m)	82.4' (25.1 m)	96.8' (29.5 m)	96.8' (29.5 m)	111.1' (33.9 m)	111.1' (33.9 m)	125.5' (38.3 m)	125.5' (38.3 m)	139.8' (42.6 m)													
	0°		32.4	2,410	46.7	13,800	60.9	7,300	60.8	13,300	75.1	10,200	74.9	16,100	89.2	3,600	88.9	7,300	103.5	2,400	102.9	6,200	117.6	1,800	116.9	5,200	131.2
Telescoping mode		1, 2	1	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2

A: Boom length in feet
 B: Load radius in feet
 C: Loaded boom angle (°)
 D: Minimum boom angle (°) for indicated length (no load)

NOTE: The lifting capacity data stored in the LOAD MOMENT INDICATOR (AML-E2) is based on the standard number of parts of line listed in the chart. Standard number of parts of line for each boom length should be according to the following table.

Boom length in feet (meters)	39.4' (12 m)	39.4' to 68.1' (12 m to 20.8 m)	68.1' to 154.2' (20.8 m to 47 m)	Single top jib
Telescoping mode	1, 2	1	2	1, 2
Number of parts of line	16	8	4	1

GR-900XL-4 RATED LIFTING CAPACITIES (IN POUNDS)

COUNTERWEIGHT 20,100 lbs (9.1 t) ON OUTRIGGERS FULLY EXTENDED 23' 11-3/8" (7.3 m) SPREAD 360° ROTATION SMART CW1						
B	154.2' (47 m) Boom + 33.2' (10.1 m) JIB			154.2' (47 m) Boom + 58.1' (17.7 m) JIB		
	3.5° Offset	25° Offset	45° Offset	3.5° Offset	25° Offset	45° Offset
40	11,900					
45	11,900					
50	11,900			7,300		
55	11,900	11,900		7,300		
60	11,900	11,900		7,300		
65	11,900	11,900	10,000	7,300		
70	11,900	11,100	9,600	7,300	6,200	
75	11,900	10,400	9,400	7,300	6,000	
80	10,800	9,800	9,300	7,300	5,900	5,100
85	10,100	9,200	8,800	7,300	5,700	5,000
90	9,000	8,700	8,300	7,200	5,600	4,900
95	7,900	8,200	7,900	7,000	5,400	4,800
100	7,000	7,800	7,500	6,700	5,300	4,800
105	6,100	6,900	7,200	6,400	5,200	4,700
110	5,400	6,100	6,600	5,700	5,100	4,600
115	4,700	5,400	5,800	5,000	5,000	4,500
120	4,100	4,700	5,100	4,400	4,900	4,500
125	3,500	4,100	4,400	3,900	4,800	4,400
130	3,000	3,500	3,800	3,400	4,400	4,400
135	2,600	3,000	3,200	2,900	3,800	4,300
140	2,100	2,500	2,700	2,400	3,300	3,900
145	1,700	2,100		2,100	2,900	3,400
150	1,400	1,700		1,700	2,400	2,900
155	1,000	1,300		1,400	2,000	2,400
160					1,700	2,000
165					1,300	1,600
Telescoping mode	1, 2	1, 2	1, 2	1, 2	1, 2	1, 2

COUNTERWEIGHT 20,100 lbs (9.1 t) ON OUTRIGGERS FULLY EXTENDED 23' 11-3/8" (7.3 m) SPREAD 360° ROTATION SMART CW1						
B	139.8' (42.6 m) Boom + 33.2' (10.1 m) JIB			139.8' (42.6 m) Boom + 58.1' (17.7 m) JIB		
	3.5° Offset	25° Offset	45° Offset	3.5° Offset	25° Offset	45° Offset
35	14,100	13,000				
40	14,100	13,000				
45	14,100	13,000				
50	14,100	13,000	13,400	13,000		
55	14,100	13,000	12,900	12,800	10,300	
60	14,100	13,000	12,400	12,200	10,000	10,000
65	14,100	12,500	12,000	11,400	9,800	9,700
70	14,100	11,600	11,600	10,600	9,600	9,500
75	13,300	10,800	11,300	9,900	9,400	9,400
80	11,700	10,000	10,900	9,300	9,200	8,900
85	10,300	9,400	10,600	8,800	9,100	8,400
90	9,100	8,800	10,000	8,200	8,900	8,000
95	8,000	8,300	8,800	7,800	8,800	7,500
100	7,100	7,800	7,800	7,400	8,300	7,100
105	6,200	7,100	6,900	7,000	7,300	6,800
110	5,500	6,300	6,100	6,600	6,500	6,500
115	4,800	5,600	5,400	6,200	5,700	6,200
120	4,200	5,000	4,700	5,500	4,900	5,700
125	3,600	4,500	4,100	4,900	4,300	5,100
130	3,100	3,900	3,500	4,300	3,700	4,500
135	2,600	3,500	3,000	3,800		
140	2,200	3,000	2,500	3,300		
145	1,800	2,600	2,100	2,900		
150	1,400	2,300	1,700	2,500		
155	1,100	1,900	1,300	2,100		
160		1,600				
165						
170						
175						
180						
Telescoping mode	1	2	1	2	1	2

COUNTERWEIGHT 20,100 lbs (9.1 t) ON OUTRIGGERS FULLY EXTENDED 23' 11-3/8" (7.3 m) SPREAD 360° ROTATION SMART CW1						
B	125.5' (38.3 m) Boom + 33.2' (10.1 m) JIB			125.5' (38.3 m) Boom + 58.1' (17.7 m) JIB		
	3.5° Offset	25° Offset	45° Offset	3.5° Offset	25° Offset	45° Offset
30	14,600	14,300				
35	14,600	14,300				
40	14,600	14,300				
45	14,600	14,300	13,900	13,700		
50	14,600	14,300	13,300	13,100	10,500	10,400
55	14,600	13,900	12,800	12,600	10,200	10,100
60	14,600	12,700	12,300	11,600	10,000	9,900
65	14,600	11,700	11,800	10,800	9,800	9,700
70	14,600	10,800	11,400	10,000	9,500	9,500
75	13,200	10,000	11,100	9,400	9,400	9,000
80	11,600	9,300	10,800	8,800	9,200	8,500
85	10,200	8,700	10,400	8,200	9,100	8,000
90	9,000	8,100	9,900	7,700	8,900	7,500
95	7,900	7,600	8,700	7,300	8,800	7,100
100	7,000	7,100	7,700	6,900	8,100	6,700
105	6,100	6,700	6,800	6,500	7,100	6,400
110	5,400	6,300	5,900	6,100	6,200	6,000
115	4,700	6,000	5,200	5,800	5,400	5,700
120	4,100	5,600	4,500	5,500		
125	3,500	5,300	3,900	5,200		
130	3,000	4,800	3,300	5,000		
135	2,500	4,400	2,800	4,600		
140	2,100	3,900	2,300	4,100		
145	1,700	3,500				
150		3,200				
155						
160						
165						
170						
Telescoping mode	1	2	1	2	1	2

B: Load radius in feet

GR-900XL-4 RATED LIFTING CAPACITIES (IN POUNDS)

SMART CW2
 COUNTERWEIGHT 20,100 lbs (9,1 t)
 ON OUTRIGGERS FULLY EXTENDED 23' 11-3/8" (7.3 m) SPREAD
 360° ROTATION

B	154.2' (47 m) Boom + 33.2' (10.1 m) JIB			154.2' (47 m) Boom + 58.1' (17.7 m) JIB		
	3.5° Offset	25° Offset	45° Offset	3.5° Offset	25° Offset	45° Offset
40	11,900					
45	11,900					
50	11,900			7,300		
55	11,900	11,900		7,300		
60	11,900	11,900	10,000	7,300		
65	11,900	11,900	9,800	7,300		
70	11,900	11,100	9,600	7,300	6,200	
75	11,900	10,400	9,400	7,300	6,000	
80	10,800	9,800	9,300	7,300	5,900	5,100
85	10,100	9,200	8,800	7,300	5,700	5,000
90	9,500	8,700	8,300	7,200	5,600	4,900
95	8,400	8,200	7,900	7,000	5,400	4,800
100	7,400	7,800	7,500	6,700	5,300	4,800
105	6,600	7,400	7,200	6,500	5,200	4,700
110	5,800	6,500	6,800	6,100	5,100	4,600
115	5,100	5,800	6,200	5,400	5,000	4,500
120	4,500	5,100	5,400	4,800	4,900	4,500
125	3,900	4,400	4,800	4,200	4,800	4,400
130	3,400	3,900	4,100	3,700	4,700	4,400
135	2,900	3,300	3,600	3,200	4,100	4,300
140	2,400	2,800	3,000	2,800	3,600	4,200
145	2,000	2,400		2,400	3,200	3,700
150	1,700	2,000		2,000	2,700	3,200
155	1,300	1,600		1,600	2,300	2,700
160	1,000	1,200		1,300	1,900	2,300
165					1,600	1,900
170					1,200	
Telescoping mode	1, 2	1, 2	1, 2	1, 2	1, 2	1, 2

SMART CW2
 COUNTERWEIGHT 20,100 lbs (9,1 t)
 ON OUTRIGGERS FULLY EXTENDED 23' 11-3/8" (7.3 m) SPREAD
 360° ROTATION

B	139.8' (42.6 m) Boom + 33.2' (10.1 m) JIB			139.8' (42.6 m) Boom + 58.1' (17.7 m) JIB		
	3.5° Offset	25° Offset	45° Offset	3.5° Offset	25° Offset	45° Offset
35	14,100	13,000				
40	14,100	13,000				
45	14,100	13,000				
50	14,100	13,000	13,400			
55	14,100	13,000	12,900	12,800	10,300	
60	14,100	13,000	12,400	12,200	10,000	10,000
65	14,100	12,500	12,000	11,400	9,800	9,700
70	14,100	11,600	11,600	10,600	9,600	9,500
75	13,600	10,800	11,300	9,900	9,400	9,400
80	12,200	10,000	10,900	9,300	9,200	8,900
85	10,800	9,400	10,600	8,800	9,100	8,400
90	9,500	8,800	10,300	8,200	8,900	8,000
95	8,400	8,300	9,300	7,800	8,800	7,500
100	7,500	7,800	8,200	7,400	8,700	7,100
105	6,600	7,300	7,300	7,000	7,700	6,800
110	5,800	6,700	6,500	6,600	6,800	6,500
115	5,100	6,000	5,700	6,300	6,000	6,200
120	4,500	5,400	5,000	5,800	5,300	5,900
125	3,900	4,800	4,400	5,200	4,600	5,400
130	3,400	4,200	3,800	4,600	4,000	4,800
135	2,900	3,700	3,300	4,100		
140	2,500	3,300	2,800	3,600		
145	2,100	2,900	2,300	3,100		
150	1,700	2,500	1,900	2,700		
155	1,300	2,200	1,500	2,300		
160	1,000	1,900				
165						
170						
175						
180						
Telescoping mode	1, 2	2	1, 2	1, 2	1, 2	2

SMART CW2
 COUNTERWEIGHT 20,100 lbs (9,1 t)
 ON OUTRIGGERS FULLY EXTENDED 23' 11-3/8" (7.3 m) SPREAD
 360° ROTATION

B	125.5' (38.3 m) Boom + 33.2' (10.1 m) JIB			125.5' (38.3 m) Boom + 58.1' (17.7 m) JIB		
	3.5° Offset	25° Offset	45° Offset	3.5° Offset	25° Offset	45° Offset
30	14,600	14,300				
35	14,600	14,300				
40	14,600	14,300				
45	14,600	14,300	13,900	13,700		
50	14,600	14,300	13,300	13,100	10,500	10,400
55	14,600	13,900	12,800	12,600	10,200	10,100
60	14,600	12,700	12,300	11,600	10,000	9,900
65	14,600	11,700	11,800	10,800	9,800	9,700
70	14,600	10,800	11,400	10,000	9,500	9,500
75	13,700	10,000	11,100	9,400	9,400	9,000
80	12,100	9,300	10,800	8,800	9,200	8,500
85	10,600	8,700	10,400	8,200	9,100	8,000
90	9,400	8,100	10,200	7,700	8,900	7,500
95	8,300	7,600	9,100	7,300	8,800	7,100
100	7,400	7,100	8,100	6,900	8,500	6,700
105	6,500	6,700	7,100	6,500	7,500	6,400
110	5,700	6,300	6,300	6,100	6,600	6,000
115	5,000	6,000	5,500	5,800	5,800	5,700
120	4,400	5,600	4,800	5,500		
125	3,800	5,300	4,200	5,200		
130	3,300	5,100	3,600	5,000		
135	2,800	4,700	3,100	4,700		
140	2,400	4,200	2,600	4,400		
145	2,000	3,800				
150		3,400				
155						
160						
165						
170						
Telescoping mode	1, 2	2	1, 2	1, 2	1, 2	2

B: Load radius in feet

GR-900XL-4 RATED LIFTING CAPACITIES (IN POUNDS)

COUNTERWEIGHT 20,100 lbs (9.1 t)
ON OUTRIGGERS FULLY EXTENDED 23' 11-3/8" (7.3 m) SPREAD
SMART CHART
SMART CW2

B	154.2' (47 m) Boom + 33.2' (10.1 m) JIB			154.2' (47 m) Boom + 58.1' (17.7 m) JIB			
	3.5° Offset	25° Offset	45° Offset	3.5° Offset	25° Offset	45° Offset	45° Offset
40	11,900						
45	11,900						
50	11,900			7,300			
55	11,900			7,300			
60	11,900			7,300			
65	11,900			7,300			
70	11,900			7,300			
75	11,900			7,300			
80	10,800			7,300			
85	10,100			7,300			
90	9,500			7,200			
95	8,900			7,000			
100	8,400			6,700			
105	7,900			6,500			
110	7,400			6,300			
115	6,700			6,000			
120	6,000			5,600			
125	5,300			5,400			
130	4,700			5,000			
135	4,200			4,500			
140	3,700			4,000			
145	3,200			3,500			
150	2,800			3,100			
155	2,400			2,800			
160	2,100			2,400			
165	1,700			2,100			
170	1,400			1,800			
175				1,500			
180				1,200			
Telescoping mode	1, 2	1, 2	1, 2	1, 2	1, 2	1, 2	1, 2

COUNTERWEIGHT 20,100 lbs (9.1 t)
ON OUTRIGGERS FULLY EXTENDED 23' 11-3/8" (7.3 m) SPREAD
SMART CHART
SMART CW2

B	139.8' (42.6 m) Boom + 33.2' (10.1 m) JIB			139.8' (42.6 m) Boom + 58.1' (17.7 m) JIB					
	3.5° Offset	25° Offset	45° Offset	3.5° Offset	25° Offset	45° Offset	45° Offset	45° Offset	
35	14,100	13,000							
40	14,100	13,000							
45	14,100	13,000							
50	14,100	13,000	13,400	13,000					
55	14,100	13,000	12,900	12,800	10,300				
60	14,100	13,000	12,400	12,200	10,000	10,000			
65	14,100	12,500	12,000	11,400	9,800	9,700			
70	14,100	11,600	11,600	10,600	9,600	9,500			
75	13,600	10,800	11,300	9,900	9,400	9,400			
80	12,500	10,000	10,900	9,300	9,200	8,900			
85	11,500	9,400	10,600	8,800	9,100	8,400			
90	10,600	8,800	10,300	8,200	8,900	8,000			
95	9,800	8,300	10,000	7,800	8,800	7,500			
100	9,100	7,800	9,300	7,400	8,700	7,100			
105	8,300	7,300	8,600	7,000	8,600	6,800			
110	7,400	6,900	8,000	6,600	8,100	6,500			
115	6,600	6,600	7,200	6,300	7,500	6,200			
120	5,900	6,200	6,400	6,000	6,700	5,900			
125	5,300	5,900	5,700	5,700	5,900	5,600			
130	4,700	5,500	5,100	5,400	5,200	5,400			
135	4,100	5,000	4,500	5,200					
140	3,600	4,500	3,900	4,800					
145	3,200	4,000	3,400	4,300					
150	2,800	3,600	3,000	3,800					
155	2,400	3,200	2,500	3,400					
160	2,000	2,800							
165									
170									
175									
180									
Telescoping mode	1	2	1	2	1	2	1	2	

COUNTERWEIGHT 20,100 lbs (9.1 t)
ON OUTRIGGERS FULLY EXTENDED 23' 11-3/8" (7.3 m) SPREAD
SMART CHART
SMART CW2

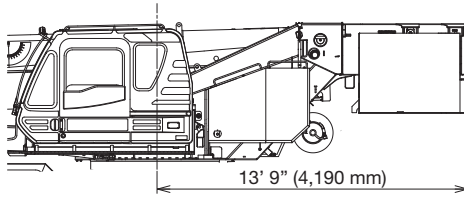
B	125.5' (38.3 m) Boom + 33.2' (10.1 m) JIB			125.5' (38.3 m) Boom + 58.1' (17.7 m) JIB					
	3.5° Offset	25° Offset	45° Offset	3.5° Offset	25° Offset	45° Offset	45° Offset	45° Offset	
30	14,600	14,300							
35	14,600	14,300							
40	14,600	14,300							
45	14,600	14,300	13,900	13,700					
50	14,600	14,300	13,300	13,100	10,500	10,400			
55	14,600	13,900	12,800	12,600	10,200	10,100			
60	14,600	12,700	12,300	11,600	10,000	9,900			
65	14,600	11,700	11,800	10,800	9,800	9,700			
70	14,600	10,800	11,400	10,000	9,500	9,500			
75	14,300	10,000	11,100	9,400	9,400	9,000			
80	13,200	9,300	10,800	8,800	9,200	8,500			
85	12,200	8,700	10,400	8,200	9,100	8,000			
90	11,300	8,100	10,200	7,700	8,900	7,500			
95	10,300	7,600	9,900	7,300	8,800	7,100			
100	9,100	7,100	9,700	6,900	8,700	6,700			
105	8,200	6,700	9,800	6,500	8,600	6,400			
110	7,300	6,300	7,900	6,100	8,200	6,000			
115	6,500	6,000	7,000	5,800	7,300	5,700			
120	5,800	5,600	6,300	5,500					
125	5,200	5,300	5,600	5,200					
130	4,600	5,100	4,900	5,000					
135	4,000	4,800	4,300	4,700					
140	3,500	4,600	3,700	4,500					
145	3,100	4,400							
150		4,200							
155									
160									
165									
170									
Telescoping mode	1	2	1	2	1	2	1	2	

B: Load radius in feet

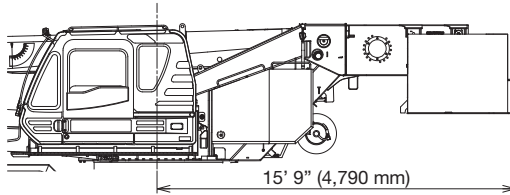
SMART COUNTERWEIGHT

You can increase the capacity by changing the mounting position of the counterweight.

SMART CW 1 status



SMART CW 2 status



- SMART CW 1: Counterweight is mounted at the front.
- SMART CW 2: Counterweight is mounted at the rear.

WARNING AND OPERATING INSTRUCTIONS FOR LIFTING CAPACITIES

GENERAL

1. RATED LIFTING CAPACITIES apply only to the machine as originally manufactured and normally equipped by TADANO LTD. Modifications to the machine or use of optional equipment other than that specified can result in a reduction of capacity.
2. Hydraulic cranes can be hazardous if improperly operated or maintained. Operation and maintenance of this machine must be in compliance with information, in the Operation Manual supplied with the crane. If this manual is missing, order a replacement through the distributor.
3. The operator and other personnel associated with this machine shall fully acquaint themselves with the latest American National Standards Institute (ANSI) safety standards for cranes.

SET UP

1. Rated lifting capacities on the chart are the maximum allowable crane capacities and are based on the machine standing level on firm supporting surface under ideal job conditions. 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 loads to a larger bearing surface.
2. For outrigger operation, outriggers shall be properly extended with tires free of supporting surface before operating crane.

OPERATION

1. Rated lifting capacities have been tested to and meet minimum requirements of SAE J1063-Cantilevered Boom Crane Structures Method of Test.
Rated lifting capacities do not exceed 85% of the tipping load on outriggers fully extended as determined by SAE J765-Crane Stability Test Code.
2. Rated lifting capacities for partially extended outriggers are determined from the formula, Rated Lifting Capacities = (Tipping Load - $0.1 \times$ Tip Reaction) / 1.25.
3. Rated lifting capacities are based on actual load radius increased by boom deflection.
4. The weight of handling device such as hook blocks, slings, etc., must be considered as part of the load and must be deducted from the lifting capacities.
5. Rated lifting capacities are based on freely suspended loads and make no allowance for such factors as the effect of wind, sudden stopping of loads, supporting surface conditions, inflation of tires, operating speeds, side loads, etc. Side pull on boom or jib is extremely dangerous.
Such action can damage the boom, jib or slewing mechanism, and lead to overturning of the crane.
6. Rated lifting capacities do not account for wind on lifted load or boom. We recommend against working under the condition that the load is out of control due to a strong wind. During boom lift, consider that the rated lifting capacity is reduced by 50% when the wind speed is 20 mph (9 m/s) to 27 mph (12 m/s); reduced by 70% when the wind speed is 27 mph (12 m/s) to 31 mph (14 m/s). If the wind speed is 31 mph (14 m/s) or over, stop operation. During jib lift, stop operation if the wind speed is 20 mph (9 m/s) or over.
7. Rated lifting capacities at load radius shall not be exceeded. Do not tip the crane to determine allowable loads.
8. Do not operate at boom lengths, radii, or boom angle, where no capacities are shown. Crane may overturn without any load on the hook.
9. When boom length is between values listed, refer to the rated lifting capacities of the next longer and next shorter booms for the same radius. The lesser of the two rated lifting capacities shall be used.
10. When making lifts at a load radius not shown, use the next longer radius to determine allowable capacity.
11. Load per line should not exceed 14,600 lbs. (6,600 kg) for main winch and auxiliary winch.
12. Check the actual number of parts of line with LOAD MOMENT INDICATOR (AML-E2) before operation. Maximum lifting capacity is restricted by the number of parts of line of LOAD MOMENT INDICATOR (AML-E2). Limited capacity is as determined from the formula, Single line pull for main winch 14,600 lbs. (6,600 kg) \times number of parts of line.

13. The boom angle before loading should be greater to account for deflection. For rated lifting capacities, the loaded boom angle and the load radius is for reference only.
14. The 39.4' (12.0 m) boom length capacities are based on boom fully retracted. If not fully retracted [less than 53.7' (16.4 m) boom length], use the rated lifting capacities for the 53.7' (16.4 m) boom length.
15. Extension or retraction of the boom with loads may be attempted within the limits of the RATED LIFTING CAPACITIES.
The ability to telescope loads is limited by hydraulic pressure, boom angle, boom length, crane maintenance, etc.
For lifting capacity of single top, deduct the weight of the load handling equipment from the rated lifting capacity of the boom.
16. For the lifting capacity of single top, the net capacity shall not exceed 14,600 lbs. (6,600 kg) including the main boom hook mass attached to the boom.
17. When the base jib or top jib or both jibs are removed, set the jib state switch to the REMOVED position.
18. When erecting and stowing jib, be sure to retain it by hand or by other means to prevent its free movement.
19. Use "ANTI-TWOBLOCK" disable switch when erecting and stowing jib and when stowing hook block. While the switch is pushed, the hoist does not stop, even when overwind condition occurs.
20. When lifting a load by using jib (aux. winch) and boom (main winch) simultaneously, do the following:
 - Enter the operation status as jib operation, not as boom operation.
 - Before starting operation, make sure that mass of load is within rated lifting capacity for jib.
21. Before telescoping the boom, set the telescoping mode selector switch to mode 1 or mode 2 fully retracted.
A change of the telescoping mode is not permissible when the boom has been partially or fully extended.
22. Crane operation is prohibited without full counterweight 20,100 lbs. (9.1 ton) installed. Outriggers shall be extended 23' 11-3 / 8" (7.3 m) spread when installing or removing removable counterweight.

DEFINITIONS

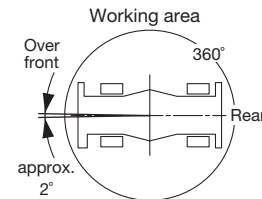
1. Load Radius: Horizontal distance from a projection of the axis of rotation to supporting surface before loading to the center of the vertical hoist line or tackle with load applied.
2. Loaded Boom Angle: The angle between the boom base section and the horizontal, after lifting the rated lifting capacity at the load radius.
3. Working Area: Area measured in a circular arc about the centerline of rotation.
4. Freely Suspended Load: Load hanging free with no direct external force applied except by the hoist line.
5. Side Load: Horizontal side force applied to the lifted load either on the ground or in the air.

GR-900XL-4 RATED LIFTING CAPACITIES (IN POUNDS)

COUNTERWEIGHT 20,100 lbs (9.1 t) ON RUBBER STATIONARY SMART CW1									
Over front					360° Rotation				
B \ A	39.4' (12 m)	68.1' (20.8 m)	82.4' (25.1 m)	96.8' (29.5 m)	B \ A	39.4' (12 m)	68.1' (20.8 m)	82.4' (25.1 m)	96.8' (29.5 m)
12	64,300				12	40,900			
15	53,000				15	31,700			
20	40,000	35,000	28,400		20	19,200	22,400	22,400	
25	30,500	33,300	28,400	24,700	25	12,500	15,400	16,000	16,400
30	21,900	24,800	25,200	24,700	30	8,200	11,000	11,600	12,000
35		19,100	19,600	20,000	35		8,000	8,600	8,900
40		15,100	15,600	16,000	40		5,800	6,400	6,700
45		12,100	12,600	13,000	45		4,200	4,700	5,000
50		9,900	10,300	10,700	50		2,900	3,400	3,700
55		8,000	8,600	8,900	55		1,900	2,400	2,700
60		6,600	7,100	7,400	60			1,500	1,800
65			5,900	6,200	65				
70			4,900	5,200	70				
75			4,100	4,300	75				
80				3,500	80				
85				2,900	85				
D	0°				D	0°	11°	31°	39°
Telescoping mode	1, 2	2	2	2	Telescoping mode	1, 2	2	2	2
2nd Boom	0	0	0	0	2nd Boom	0	0	0	0
3rd Boom	0	33	50	67	3rd Boom	0	33	50	67
4th Boom	0	33	50	67	4th Boom	0	33	50	67
Top Boom	0	33	50	67	Top Boom	0	33	50	67

COUNTERWEIGHT 20,100 lbs (9.1 t) ON RUBBER STATIONARY SMART CW1									
C \ A	39.4' (12 m)		68.1' (20.8 m)		82.4' (25.1 m)		96.8' (29.5 m)		
0°	32.4	15,500	60.8	6,500	74.9	4,100	88.9	2,700	
C \ A	39.4' (12 m)								
0°	32.4	5,300							

COUNTERWEIGHT 20,100 lbs (9.1 t) ON RUBBER CREEP SMART CW1					
Over front					
B \ A	39.4' (12 m)	68.1' (20.8 m)	82.4' (25.1 m)	96.8' (29.5 m)	
12	49,800				
15	40,700				
20	30,200	32,200	28,400		
25	23,000	25,700	26,200	24,700	
30	17,900	20,600	21,100	21,600	
35		16,700	17,300	17,600	
40		13,800	14,300	14,700	
45		11,400	11,900	12,300	
50		9,400	10,000	10,300	
55		7,800	8,300	8,600	
60		6,400	6,800	7,200	
65			5,600	6,000	
70			4,700	5,000	
75			3,900	4,100	
80				3,400	
85				2,800	
D	0°				
Telescoping mode	1, 2	2	2	2	2
2nd Boom	0	0	0	0	0
3rd Boom	0	33	50	67	67
4th Boom	0	33	50	67	67
Top Boom	0	33	50	67	67



- A: Boom length in feet
- B: Load radius in feet
- C: Loaded boom angle (°)
- D: Minimum boom angle (°) for indicated length (no load)

NOTE: The lifting capacity data stored in the LOAD MOMENT INDICATOR (AML-E2) is based on the standard number of parts of line listed in the chart. Standard number of parts of line for on-rubber operation should be according to the chart.

COUNTERWEIGHT 24,700 lbs (11.2 t) ON RUBBER CREEP SMART CW1								
C \ A	39.4' (12 m)		68.1' (20.8 m)		82.4' (25.1 m)		96.8' (29.5 m)	
0°	32.4	13,800	60.8	6,200	74.9	3,900	88.9	2,600

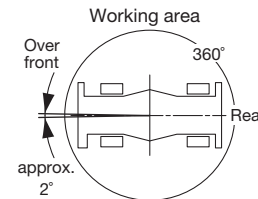
Boom length in feet (meters)	39.4' (12 m)	42.0' to 96.8' (12 m to 29.5 m)	Single top jib
Number of parts of line	6	4	1

GR-900XL-4 RATED LIFTING CAPACITIES (IN POUNDS)

SMART CW		COUNTERWEIGHT 20,100 lbs (9.1 t) ON RUBBER STATIONARY SMART CW2									
Over front					360° Rotation						
B \ A	39.4' (12 m)	68.1' (20.8 m)	82.4' (25.1 m)	96.8' (29.5 m)	B \ A	39.4' (12 m)	68.1' (20.8 m)	82.4' (25.1 m)	96.8' (29.5 m)		
12	66,400				12						
15	54,900				15						
20	41,500	35,000	28,400		20	21,000					
25	32,200	34,900	28,400	24,700	25	13,800	16,800				
30	23,300	26,200	26,600	24,700	30	9,300	12,100	12,700	12,700		
35		20,200	20,700	21,000	35		9,000	9,500	9,900		
40		16,000	16,600	16,900	40		6,700	7,200	7,500		
45		12,900	13,500	13,800	45		4,900	5,400	5,800		
50		10,600	11,100	11,400	50		3,500	4,100	4,400		
55		8,700	9,200	9,500	55		2,400	3,000	3,300		
60		7,200	7,700	8,000	60		1,600	2,000	2,400		
65			6,400	6,700	65						
70			5,400	5,700	70						
75			4,500	4,800	75						
80				4,000	80						
85				3,300	85						
D		0°				0°		29°	37°		
Telescoping mode	1, 2	2	2	2	Telescoping mode	1, 2	2	2	2		
2nd Boom	0	0	0	0	2nd Boom	0	0	0	0		
3rd Boom	0	33	50	67	3rd Boom	0	33	50	67		
4th Boom	0	33	50	67	4th Boom	0	33	50	67		
Top Boom	0	33	50	67	Top Boom	0	33	50	67		

COUNTERWEIGHT 20,100 lbs (9.1 t) ON RUBBER STATIONARY SMART CW1										
C \ A	39.4' (12 m)		68.1' (20.8 m)		82.4' (25.1 m)		96.8' (29.5 m)			
0°	32.4	16,600	60.8	7,000	74.9	4,500	88.9	3,100		
C \ A	39.4' (12 m)		68.1' (20.8 m)							
0°	32.4	6,200	60.8	1,500						

SMART CW		COUNTERWEIGHT 20,100 lbs (9.1 t) ON RUBBER CREEP SMART CW2									
Over front											
B \ A	39.4' (12 m)	68.1' (20.8 m)	82.4' (25.1 m)	96.8' (29.5 m)							
12	51,900										
15	42,600										
20	31,600	32,200	28,400								
25	24,300	27,000	27,500	24,700							
30	19,000	21,700	22,200	22,600							
35		17,700	18,200	18,600							
40		14,600	15,100	15,500							
45		12,100	12,700	13,000							
50		10,100	10,600	11,000							
55		8,400	9,000	9,300							
60		7,000	7,500	7,800							
65			6,200	6,500							
70			5,200	5,500							
75			4,300	4,600							
80				3,800							
85				3,200							
D		0°									
Telescoping mode	1, 2	2	2	2							
2nd Boom	0	0	0	0							
3rd Boom	0	33	50	67							
4th Boom	0	33	50	67							
Top Boom	0	33	50	67							



- A: Boom length in feet
- B: Load radius in feet
- C: Loaded boom angle (°)
- D: Minimum boom angle (°) for indicated length (no load)

NOTE: The lifting capacity data stored in the LOAD MOMENT INDICATOR (AML-E2) is based on the standard number of parts of line listed in the chart. Standard number of parts of line for on-rubber operation should be according to the chart.

COUNTERWEIGHT 24,700 lbs (11.2 t) ON RUBBER CREEP SMART CW1										
C \ A	39.4' (12 m)		68.1' (20.8 m)		82.4' (25.1 m)		96.8' (29.5 m)			
0°	32.4	14,700	60.8	6,800	74.9	4,400	88.9	3,000		

Boom length in feet (meters)	39.4' (12 m)	42.0' to 96.8' (12 m to 29.5 m)	Single top jib
Number of parts of line	6	4	1

WARNING AND OPERATING INSTRUCTIONS FOR ON RUBBER LIFTING CAPACITIES

- Rated lifting capacities on-rubber are in pounds and do not exceed 75% of tipping loads as determined by SAE J765-Crane Stability Test Code.
- Rated lifting capacities shown in the chart are based on condition that crane is set on firm level surfaces with suspension-lock applied. They are based on actual load radius increased by tire deformation and boom deflection.
- If the suspension-lock cylinders contain air, the axle will not be locked completely and rated lifting capacities may not be obtainable. Bleed the cylinders according to the operation safety and maintenance manual.
- Rated lifting capacities are based on proper tire inflation, capacity and condition. Damaged tires are hazardous to safe operation of crane.
- Tires shall be inflated to correct air pressure.

Tires	Air Pressure
29.5-25 36PR	68 psi. (470 kPa)
29.5-25 40PR	67 psi. (465 kPa)

- Over front operation shall be performed within 2 degrees in front of chassis.
- On-rubber lifting with "jib" is not permitted. Maximum permissible boom length is 96.8 ft. (29.5 m).
- When making lift on-rubber stationary, set parking brake.
- For creep operation, boom must be centered over front of machine, slewing lock engaged, and load restrained from slewing. Travel slowly and keep the lifted load as close to the ground as possible, and especially avoid any abrupt steering, accelerating or braking.
- Do not operate the crane while carrying the load.
- Creep is motion for crane not to travel more than 200 ft. (60 m) in any 30 minute period and to travel at the speed of less than 1 mph (1.6 km/h).
- For creep operation, choose the drive mode and proper gear according to the road or working condition.

NOTES FOR LOAD MOMENT INDICATOR (AML-E2)

- Set AML select keys in accordance with the actually operating crane conditions and don't fail to make sure, before crane operation, that the displays on front panel are correct.
- When operating crane on outriggers:
 - Set "P.T.O." switch to "ON".
 - Press the outrigger state select key to register for the outrigger operation. If the display agrees with the actual state, press the set key to register. After the completion of the registration, the display returns to the crane operation status.
 - Press the lift state select key to register the lift state to be used (single top/jib/boom).
 - Each time the lift state select key is pressed, the display changes. If the display agrees with the actual state, press the set key to register. After the completion of the registration, the display returns to the crane operation status.
 - When erecting and stowing jib, select the status of jib set (Jib state indicative symbol lights up).
- When operating crane on-rubber:
 - Set "P.T.O." switch to "ON".
 - Press the outrigger state select key to register for the on-rubber operation. Each time the outrigger state select key is pressed, the display changes. Select the creep operation, the on-rubber state indicator symbol lights up.
 - Press the lift state select key to register the lift state. However, pay attention to the following.
 - For stationary operation.
 - The front capacities are attainable only when the over front position symbol comes on.
 - When the boom is more than 2 degrees from centered over front of chassis, 360° capacities are in effect.
 - When a load is lifted in the front position and then slewed to the side area, make sure the value of the LOAD MOMENT INDICATOR (AML-E2) is below the 360° lifting capacity.
 - For creep operation.
 - The creep capacities are attainable only when boom is in the straight forward position of chassis and the over front position symbol is on. If boom is not in the straight forward position of chassis, never lift load.
- This machine is equipped with an automatic slewing stopping device. (For the details, see Operation Manual.) But, operate very carefully because the automatic slewing stop does not work in the following cases.
 - During on-rubber operation.
 - When the "P.T.O." switch is set to "OVERRIDE" and the "OVERRIDE" key switch outside the cab is on.
- During crane operation, make sure that the displays on front panel are in accordance with actual operating conditions.
- The displayed values of LOAD MOMENT INDICATOR (AML-E2) are based on freely suspended loads and make no allowance for such factors as the effect of wind, sudden stopping of loads, supporting surface conditions, inflation of tire, operating speed, side loads, etc.
For safe operation, it is recommended when extending and lowering boom or slewing, lifting loads shall be appropriately reduced.
- LOAD MOMENT INDICATOR (AML-E2) is intended as an aid to the operator. Under no condition should it be relied upon to replace use of capacity charts and operating instruction. Sole reliance upon LOAD MOMENT INDICATOR (AML-E2) aids in place of good operating practice can cause an accident. The operator must exercise caution to assure safety.
- The lifting capacity differs depending on the outrigger extension width and slewing position.
Work with the capacity corresponding to the outrigger extension width and slewing position.
For the relationship among the outrigger extension width, slewing position and lifting capacities, refer to the working area charts.

GR-900XL-4 AXLE WEIGHT DISTRIBUTION CHART

	Pounds			Kilograms		
	GWV	Front	Rear	GWV	Front	Rear
Base machine	117,220	58,470	58,750	53,170	26,520	26,650
Remove:						
1. 7.3 ton (6.6 metric ton) hook block	-360	-550	190	-165	-251	86
2. 100 ton (90.7 metric ton) hook block	-1,900	-3,460	1,590	-850	-1,571	721
3. Top jib	-740	-990	250	-336	-450	114
4. Base jib	-1,910	-3,760	1,850	-867	-1,704	837
5. Removable Counterweight	-20,100	7,690	-27,760	-9,100	3,490	-12,590

TADANO LTD. (International Sales Division)

4-12, Kamezawa 2-chome, Sumida-ku,
Tokyo 130-0014, JAPAN
PHONE: 81-3-3621-7750
FAX: 81-3-3621-7785
www.tadano.com

TADANO AMERICA CORPORATION

4242 West Greens Road.
Houston, Texas, 77066 U.S.A.
PHONE: (281) 869-0030
FAX: (281) 869-0040
<http://www.tadanoamerica.com>