

Series 600E2

product guide

features

- 90 ft (27.4 m) Four-Section Boom
- 20 USt (18.1 t) Rating
- Self-lubricating “Easy Glide” Wear Pads
- Internal Anti-two-block
- Auxiliary Stabilizers



contents

Features

2

Mounting Configurations

3

Specifications

4

Capacities

5

Accessories

14

Dimensions
Specifications

15

features

Why Buy a National Crane Series 600E2?

2



*Product may be shown with optional equipment.

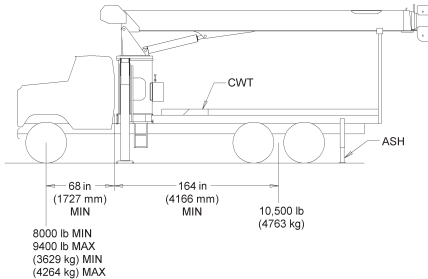
- **20 USt (18.1 t) Rating** – The new 600E2 provides a 20 USt (18.1 t) capacity.
- **New 90 ft (27.4 m) Four-section Boom** – The longest in its size range. The longer boom allows the operator to perform more lifts without the use of a jib, reducing setup time and improving efficiency.
- **Self-lubricating “Easy Glide” Wear Pads** – The self-lubricating pads, standard on the 600E2 reduce the conditions that cause boom chatter and vibration. The net result is smoother crane operation.
- **Internal Anti-two-block** – The patent-pending design, standard on the 600E2 eliminates the external reel and wire. No more snagging reel or wire on obstructions.
- **Adjustable Swing Speed** – A control knob located on the swing motor brake release valve can be easily adjusted to the crane operator’s swing speed preference.
- **Optional Integral Steel Torsion Bedbox** – Integral welded torsion box and flatbed. Further reduces frame flex.
- **Auxiliary Stabilizers** –
 - Independent stabilizer control
 - Bolt/Clamp on rear stabilizers
- **Quick-reeve Boom Tip and Sheave Blocks** – These standard features simplify rigging changes.
- **Pre-painted Components** – Painting crane components before assembly reduces the possibility of rust, improves serviceability and enhances the appearance of the machine.
- **Electronic versions of manuals available through Manitowoc Crane CARE**
- **Improved Serviceability** –
 - A removable winch allows the internal telescoping cylinder to be removed quickly, without dismantling the boom.
 - Bearings on the boom extend and retract cables can be greased through access holes in the boom side plates.
 - Internal anti-two-block wire routing eliminates damage potential.
 - The boom sheave case is open, allowing access to replace the internal anti-two-block wire and to observe internal boom components.
 - Pre-paint reduces rust.
 - Internal boom parts have been reduced, decreasing service time when rebuilding the machine.
- **National Crane Is the Market Leader** – National Crane is number one in the production of commercial truck-mounted boom trucks, with more than 35,000 units sold. National Crane has many programs and people directly and indirectly involved to provide our customers with reliable products.
 - Parts are available for all National Crane machines for the life of the crane.
 - National Crane has the boom truck industry’s leading test program. Every structural part of the crane is fully life cycle tested at full capacity. In addition to cycle testing, each model is subjected to state-of-the-art strain gauge testing that measures metal deformation as small as one-millionth of an inch. The net result is that weak areas are caught in test, not on job sites where costly downtime occurs.
 - All outrigger, lift and telescoping cylinders are manufactured to National Crane designs, so that the seals, packing glands, and end plates are traced for accurate shipment of replacement parts.
 - National Crane has a formalized quality program and is ISO 9001 approved.

- 20 USt (18.1 t) maximum capacity
- 140 ft (42.7 m) maximum vertical reach with jib*
- 100 ft (30.5 m) maximum vertical hydraulic reach main boom*
- Hydraulic Capacity Alert system (HCA)
- Proportional boom extension
- High performance planetary winch
- * Maximum vertical reach is ground-level to boom tip height at maximum extension and angle with outriggers/stabilizers fully extended.

600E2

mounting configurations

The configurations are based on the Series 600E2 with an 85% stability factor. The complete unit must be installed in accordance with factory requirements and a test performed to determine actual stability and counterweight requirements since individual truck chassis vary.

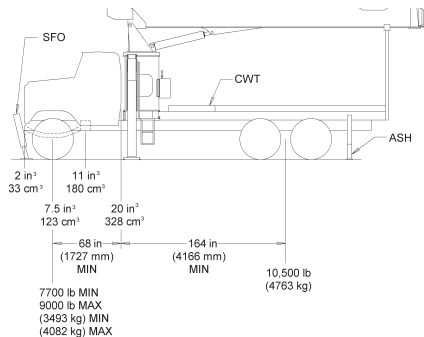


Configuration 1 with Torsion Box – 180° Full Capacity Work Area

Working area	180°
Gross Axle Weight Rating Front	14,000 lb (6350 kg)
Gross Axle Weight Rating Rear	34,000 lb (15,442 kg)
Gross Vehicle Weight Rating	48,000 lb (21,773 kg)
Wheelbase	232 in (589 cm)
Cab to Axle/trunnion (CA/CT)	164 in (417 cm)
Frame Section Modulus (SM) under crane:	
110,000 PSI (758 MPa)	15.9 in ³ (261 cm ³)
Frame Section Modulus (SM) over rear stabilizers:	
110,000 PSI (758 MPa)	13 in ³ (213 cm ³)
Stability Weight, Front	8,000 lb (3629 kg) minimum*
Stability Weight, Rear	10,500 lb (4763 kg) minimum*
Estimated Average Final Weight	30,000 lb (13,608 kg)

3

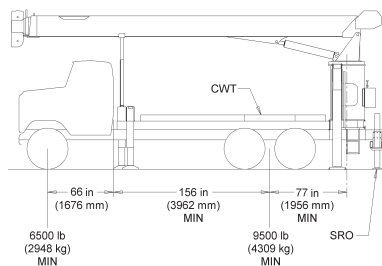
This configuration is the least expensive method for the Model 600E2. This mount, with the crane mounted behind the cab, requires the least weight of all mounts for stability; thus, you can haul larger payloads on your truck. It requires standard subbase and rear (ASH) stabilizers.



Configuration 2 with Torsion Box – 360° Full Capacity Work Area

Working area	360°
Gross Axle Weight Rating Front	14,000 lb (6350 kg)
Gross Axle Weight Rating Rear	34,000 lb (15,442 kg)
Gross Vehicle Weight Rating	48,000 lb (21,773 kg)
Wheelbase	232 in (589 cm)
Cab to Axle/trunnion (CA/CT)	164 in (417 cm)
Frame Section Modulus (SM) under crane:	
110,000 PSI (758 MPa)	20 in ³ (328 cm ³)
Frame Section Modulus (SM) over rear stabilizers:	
110,000 PSI (758 MPa)	13 in ³ (213 cm ³)
Stability Weight, Front	7,700 lb (3130 kg) minimum*
Stability Weight, Rear	10,500 lb (3175 kg) minimum*
Estimated Average Final Weight	30,600 lb (13,879 kg)

Requires front SFO stabilizer to give machine full capacity 360° around the truck. Truck must meet the minimum requirements above. Front stabilizer gives the machine a solid base, helping the operator control loads precisely. Extended front frame rails required for SFO installation.



Configuration 3 with Torsion Box – Rear Mount

Working area	360°
Gross Axle Weight Rating Front	12,000 lb (5443 kg)
Gross Axle Weight Rating Rear	34,000 lb (15,442 kg)
Gross Vehicle Weight Rating	46,000 lb (20,865 kg)
Wheelbase	222 in (564 cm)
Cab to Axle/trunnion (CA/CT)	156 in (396 cm)
Frame Section Modulus (SM) under crane:	
110,000 PSI (758 MPa)	15.9 in ³ (261 cm ³)
Frame Section Modulus (SM) over rear stabilizers:	
110,000 PSI (758 MPa)	15.9 in ³ (213 cm ³)
Stability Weight, Front	6,500 lb (3629 kg) minimum*
Stability Weight, Rear	9,500 lb (4763 kg) minimum*
Estimated Average Final Weight	28,750 lb (13,040 kg)

Allows the installation of the Model 600E2 on a chassis. In most cases, the chassis will not require reinforcing, and the amount of counterweight required is minimized, increasing payload capacities. Extended front frame rails required for SFO installation.

Notes:

- Gross Vehicle Weight rating (GVWR) is dependent on all components of the vehicle (axles, tires, springs, frame, etc.) meeting manufacturers' recommendations: always specify GVWR when purchasing trucks
- Diesel engines require a variable speed governor and energize-to-run fuel solenoid for smooth crane operation; electronic fuel injection requires EET engine remote throttle
- All mounting data is based on a National Series 600E2 with

an 85 percent stability factor

- The complete unit must be installed in accordance with factory requirements, and a test performed to determine actual stability and counterweight requirements per SAE J765; contact the factory for details
- Transmission neutral safety interlock switch is required with optional remote control

*Estimated axle scale rates prior to installation of crane, stabilizers and subbase for 85% stability.

specifications


Boom and Jib Combinations Data

Available in six basic models.

4

Model 638E2 – Equipped with a 16-38 ft (4.88-11.58 m) three-section boom. Maximum tip height is 48 ft (14.63 m) (no jib option available).

16-38 ft (4.88-11.58 m) three-section boom




Model 649E2 – Equipped with a 16-49 ft (4.88-15 m) four-section boom. This model can be equipped with a 15-25 ft (4.6-7.6 m) two section jib. Maximum tip height w/25 ft (7.6 m) jib is 87 ft (26.5 m).

16-49 ft (4.88-15 m) four-section boom **6FJ29M** 15-25 ft (4.6-7.6 m) two-section jib



Model 660E2 – Equipped with a 24-60 ft (7.12-18.3 m) three-section boom. Maximum tip height is 70 ft (21.3 m) (no jib option available).

24-60 ft (7.2-18.3 m) three-section boom




Model 671E2 – Equipped with a 27-71 ft (8.23-21.64 m) three-section boom. This model can be equipped with a 25-45 ft (7.62-13.72 m) two-section jib. Maximum tip height w/45 ft (13.72 m) jib is 125 ft (38.25 m).

27-71 ft (8.23-21.64 m) three-section boom **6FJ45M** 25-45 ft (7.62-13.72 m) two-section jib



Model 680E2 – Equipped with a 24-80 ft (7.32-24.38 m) four-section boom. Maximum tip height is 90 ft (27.44 m) (no jib option available).

24-80 ft (7.32-24.38 m) four-section boom



Model 690E2 – Equipped with a 27-90 ft (8.23-27.43 m) four-section boom. This model can be equipped with a 25-45 ft (7.62-13.72 m) two section jib. Maximum tip height w/45 ft (13.72 m) jib is 144 ft (43.95 m).

27-90 ft (8.23-27.43 m) four-section boom **6FJ45M** 25-45 ft (7.62-13.72 m) two-section jib









Note: Maximum tip is measured with outriggers/stabilizers fully extended.

600E2 Winch Data

600E2 Winch Data

- All winch pulls and speeds in this chart are shown on the fourth layer
- Winch line pulls would increase on the first and second layers
- Winch line pulls may be limited by the winch capacity or the ANSI 5 to 1 cable safety factor, shown below this chart
- Hook blocks are rated at maximum capacity for the block. **Do not exceed rated cable pull with any block.**

			1 Part Line	2 Part Line	3 Part Line	4 Part Line	5 Part Line	6 Part Line
								
Winch	Cable Supplied	Average Breaking Strength	Max. Pull	Max. Pull	Max. Pull	Max. Pull	Max. Pull	Max. Pull
Standard Planetary Winch	9/16 in Diameter Rotation Resistant	38,500 lb (17,463 kg)	7,700 lb (3 492.66 kg)	15,400 lb (6 985.32 kg)	23,100 lb (10 477.98 kg)	30,800 lb (13 970.65 kg)	38,500 lb (14 514.96 kg)	40,000 lb (14 514.96 kg)

Layer	Winch Pull		Winch Speed		BOS Winch Speed		Rope Capacity	
	lb	(kg)	fpm	(mpm)	fpm	(mpm)	ft	(m)
1	10,380	(4708)	157	(48)	222	(68)	64	19
2	9,360	(4246)	175	(53)	246	(75)	136	41
3	8,520	(3865)	192	(59)	271	(83)	215	65
4	7,820	(3547)	209	(64)	294	(90)	301	91
5	7,230	(3279)	257	(69)	318	(97)	394	120

NOTE: All ratings based on 34 GPM at 3300 psi (128.7 LPM at 22.75 MPa)
Burst of Speed maximum pull = 3000 lb (1361 kg)

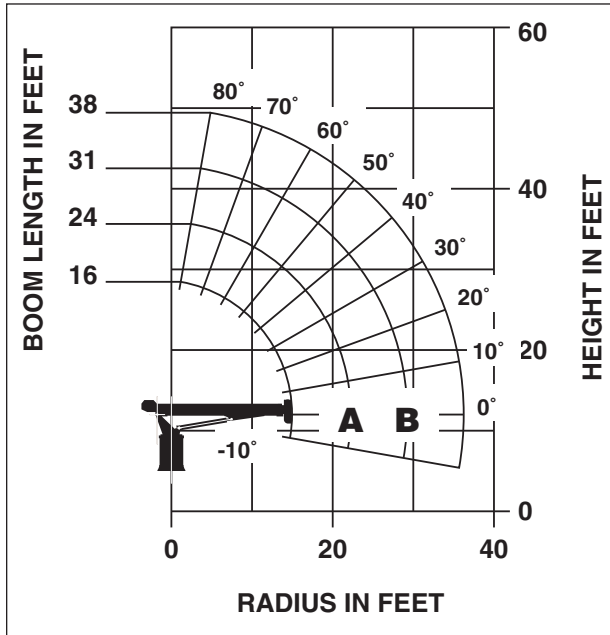
Winch	Bare Drum Pull	Allowable Cable Pull
With standard rotation resistant rope	10,200 lb (4627 kg)	7,700 lb (3493 kg)

Block Type	Rating	Weight
Downhaul Weight	3.85 USt (3.49 t)	150 lb (68 kg)
1 Sheave Block	11.55 USt (10.48 t)	200 lb (91 kg)
2 Sheave Block	19.25 USt (17.46 t)	355 lb (161 kg)

600E2

capacities

Load Rating Chart: Series 638E2 (11.58 m) Boom



CAUTION:

- Do not operate crane booms, jib extensions, any accessories or loads within 10 ft (3m) of live power lines or other conductors of electricity.
- Jib and boom capacities shown are maximum for each section.
- Do not exceed capacities at reduced radii
- Load ratings shown on the load rating charts are maximum allowable loads with the outriggers properly extended on a firm, level surface and the crane leveled and mounted on a factory recommended truck.
- Always level the crane with the level indicator located on the crane.
- The operator must reduce load to allow for factors such as wind, ground conditions, operating speeds and their effects on freely suspended loads.
- Overloading this crane may cause structural collapse or instability.
- Weights on any accessories attached to the boom or loadline must be deducted from the load chart capacities.
- Do not exceed jib capabilities at any reduced boom lengths.
- Do not deadhead lineblock against boom tip when extending boom or winching up.
- Keep at least three wraps of loadline on drum at all times.
- Use only specified cable with this machine.

5

**SERIES 638E2 /
NO JIB**

LOADLINE EQUIPMENT DEDUCT

Downhaul weight	150 lb (68 kg)
One sheave block	200 lb (91 kg)
Two sheave block	355 lb (161 kg)

Load Rating Chart: Series 638E2 (11.58 m) Boom

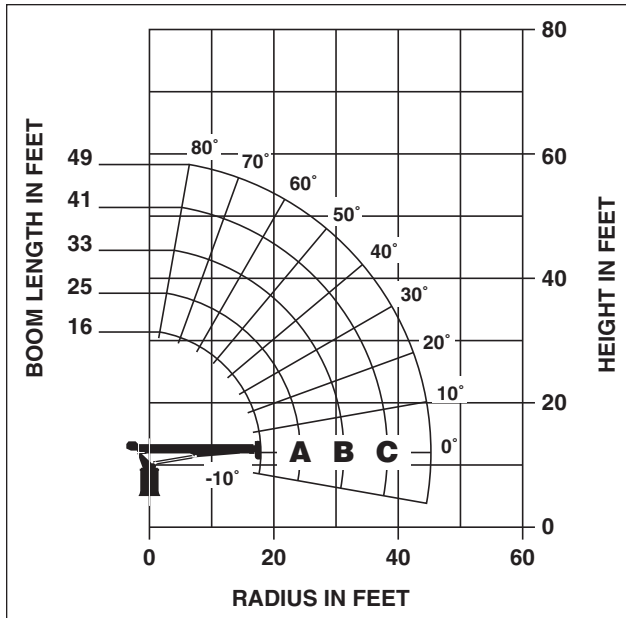
LOADED RADIUS (ft)	LOADED BOOM ANGLE (deg)	16 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	A 24 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	B 31 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	38 ft BOOM (lb)
5	67	40,000						
6	63	36,150						
8	55.5	30,250	68	28,550	74	27,500	77	25,750
10	45.5	25,600	62.5	24,300	69	23,450	73	22,200
12	34	21,900	56.5	20,900	65	20,150	70.5	19,200
14	15	16,750	50	18,150	60.5	17,800	66.5	17,050
16			43	16,200	56	15,800	64.5	15,200
18			34.5	14,200	51.5	14,150	59.5	13,750
20			26.5	12,200	47	12,900	57	12,500
25					31.5	10,150	46	9,950
30							35.5	8,350
35							18.5	6,200
	0	10,850	0	7,050	0	5,100	0	3,850

THIS CHART IS ONLY A GUIDE AND SHOULD NOT BE USED TO OPERATE THE CRANE. The individual crane's load chart, operating instructions and other instructional plates must be read and understood prior to operating the crane.

capacities

Load Rating Chart: Series 649E2 (15 m) Boom

6



CAUTION:

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- Load ratings shown on the load rating charts are maximum allowable loads with the outriggers properly extended on a firm, level surface and the crane leveled and mounted on a factory recommended truck.
- Always level the crane with the level indicator located on the crane.
- The operator must reduce load to allow for factors such as wind, ground conditions, operating speeds and their effects on freely suspended loads.
- Overloading this crane may cause structural collapse or instability.
- Weights on any accessories attached to the boom or loadline must be deducted from the load chart capacities.
- Do not exceed jib capabilities at any reduced boom lengths.
- Do not deadhead lineblock against boom tip when extending boom or winching up.
- Keep at least three wraps of loadline on drum at all times.
- Use only specified cable with this machine.

**SERIES 649E2 /
NO JIB**

LOADLINE EQUIPMENT DEDUCT

Downhaul weight 150 lb (68 kg)
One sheave block 200 lb (91 kg)
Two sheave block 355 lb (161 kg)

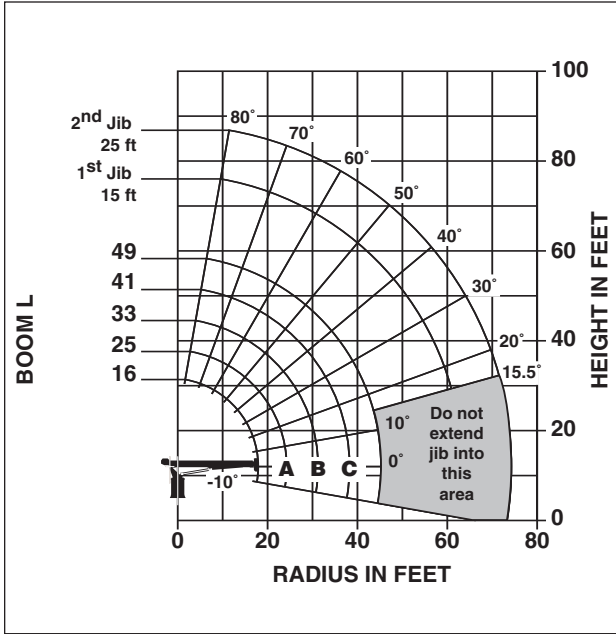
Load Rating Chart: Series 649E2 (15 m) Boom

LOADED RADIUS (ft)	LOADED BOOM ANGLE (deg)	16 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	A 25 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	B 33 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	C 41 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	49 ft BOOM (lb)
5	67	40,000	76	38,100						
8	54	29,600	68	27,400	74	26,200	77.5	25,300		
10	44	24,700	63	23,200	70.5	22,200	74.5	21,300	77.5	19,500
12	31.5	20,400	57.5	20,200	66.5	19,250	71.5	18,450	75	17,500
14	8.5	13,750	51.5	17,750	62.5	17,000	68.5	16,300	72.5	15,000
16			45	15,750	58.5	15,200	65.5	14,550	70	13,750
20			29	12,100	49.5	12,500	59	12,050	65	11,750
25					36	9,850	50	9,800	58	9,600
30					16.5	6,950	40	8,050	50.5	8,050
35							27.5	6,450	43	6,800
40									33	5,650
45									18.5	4,300
	0	10,950	0	6,350	0	4,350	0	3,200	0	2,600

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600E2

Load Rating Chart: Series 649E2 (15 m) Boom with 25 ft (7.6 m) Jib



CAUTION:

- Do not operate crane booms, jib extensions, any accessories or loads within 10 ft (3m) of live power lines or other conductors of electricity.
- Jib and boom capacities shown are maximum for each section.
- Do not exceed capacities at reduced radii
- Load ratings shown on the load rating charts are maximum allowable loads with the outriggers properly extended on a firm, level surface and the crane leveled and mounted on a factory recommended truck.
- Always level the crane with the level indicator located on the crane.
- The operator must reduce load to allow for factors such as wind, ground conditions, operating speeds and their effects on freely suspended loads.
- Overloading this crane may cause structural collapse or instability.
- Weights on any accessories attached to the boom or loadline must be deducted from the load chart capacities.
- Do not exceed jib capabilities at any reduced boom lengths.
- Do not deadhead lineblock against boom tip when extending boom or winching up.
- Keep at least three wraps of loadline on drum at all times.
- Use only specified cable with this machine.

**SERIES 649E2
WITH
25 ft JIB**

NOTE:

1. Operate with jib by radius when main boom is fully extended. If necessary increase boom angle to maintain loaded radius.
2. Operate with jib by boom angle when main boom is not fully extended. Do not exceed rated jib capacities at any reduced boom lengths.

**LOADLINE EQUIPMENT
DEDUCT**

Downhaul weight	150 lb (68 kg)
One sheave block	200 lb (91 kg)
Two sheave block	355 lb (161 kg)

Load Rating Chart: Series 649E2 (15 m) Boom with 25 ft (7.6 m) Jib

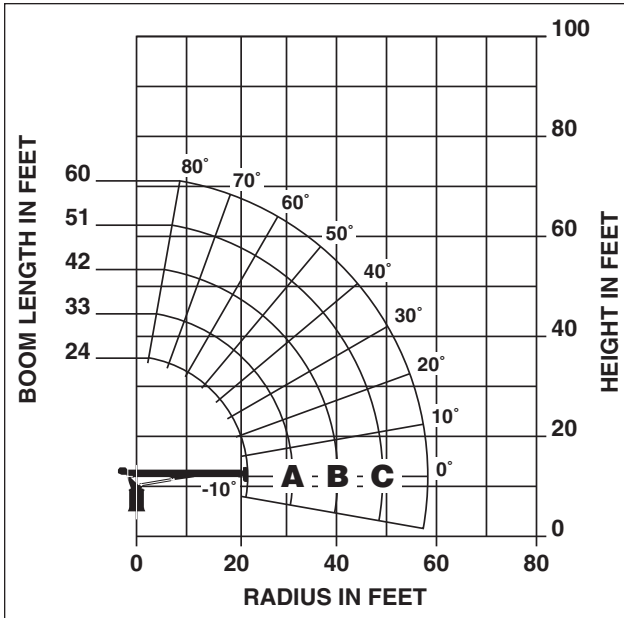
LOADED RADIUS (ft)	LOADED BOOM ANGLE (deg)	16 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	A 25 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	B 33 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	C 41 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	49 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	15 ft JIB (lb)	LOADED BOOM ANGLE (deg)	25 ft JIB (lb)
5	67	40,000	76	38,100										
8	54	29,600	68	27,400	74	26,200	77.5	25,300						
10	44	24,700	63	23,200	70.5	22,200	74.5	21,300	77.5	19,500				
12	31.5	20,400	57.5	20,200	66.5	19,250	71.5	18,450	75	17,500	78	7,700		
14	8.5	13,750	51.5	17,750	62.5	17,000	68.5	16,300	72.5	15,000	76	7,700	78.5	6,950
16			45	15,750	58.5	15,200	65.5	14,550	70	13,750	74.5	7,250	77	6,500
20			29	12,100	49.5	12,500	59	12,050	65	11,750	70.5	6,100	74	5,650
25					36	9,850	50	9,800	58	9,600	66	5,350	70	4,850
30					16.5	6,950	40	8,050	50.5	8,050	61	4,650	65.5	4,050
35							27.5	6,450	43	6,800	55.5	4,100	61.5	3,600
40									33	5,650	50	3,650	57	3,200
45									18.5	4,300	43.5	3,350	52	2,850
50											36.5	3,000	47	2,600
55											28	2,750	41	2,400
60											15.5	2,400	34.5	2,200
65													27	2,050
70													15.5	1,950
	0	10,950	0	6,350	0	4,350	0	3,200	0	2,600				
Subtract from capacities when jib stowed		350		250		200		150		100				

THIS CHART IS ONLY A GUIDE AND SHOULD NOT BE USED TO OPERATE THE CRANE. The individual crane's load chart, operating instructions and other instructional plates must be read and understood prior to operating the crane.

capacities

Load Rating Chart: Series 660E2 (18.3 m) Boom

8



CAUTION:

- Do not operate crane booms, jib extensions, any accessories or loads within 10 ft (3m) of live power lines or other conductors of electricity.
- Jib and boom capacities shown are maximum for each section.
- Do not exceed capacities at reduced radii
- Load ratings shown on the load rating charts are maximum allowable loads with the outriggers properly extended on a firm, level surface and the crane leveled and mounted on a factory recommended truck.
- Always level the crane with the level indicator located on the crane.
- The operator must reduce load to allow for factors such as wind, ground conditions, operating speeds and their effects on freely suspended loads.
- Overloading this crane may cause structural collapse or instability.
- Weights on any accessories attached to the boom or loadline must be deducted from the load chart capacities.
- Do not exceed jib capabilities at any reduced boom lengths.
- Do not deadhead lineblock against boom tip when extending boom or winching up.
- Keep at least three wraps of loadline on drum at all times.
- Use only specified cable with this machine.

**SERIES 660E2 /
NO JIB**

LOADLINE EQUIPMENT DEDUCT

Downhaul weight	150 lb (68 kg)
One sheave block	200 lb (91 kg)
Two sheave block	355 lb (161 kg)

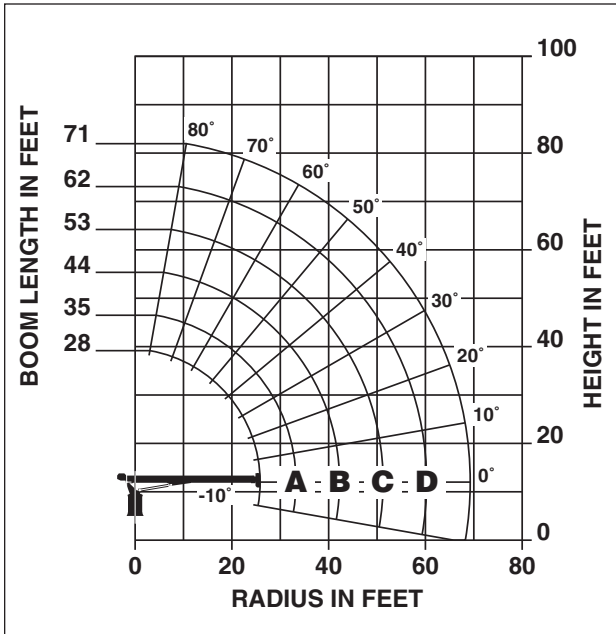
Load Rating Chart: Series 660E2 (18.3 m) Boom

LOADED RADIUS (ft)	LOADED BOOM ANGLE (deg)	24 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	A 33 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	B 42 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	C 51 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	60 ft BOOM (lb)
5	75.5	40,000								
8	67.5	27,200	74	25,800	77.5	25,000				
10	62	22,800	70	21,600	75	20,700	78	20,400		
12	56	19,650	67	18,700	72	17,800	75.5	17,400	78.5	17,150
14	49.5	17,150	62.5	16,400	69	15,750	73	15,250	76.5	14,950
16	43	15,150	58.5	14,600	66	14,050	71	13,600	74.5	13,200
20	24.5	11,150	49.5	11,950	60	11,550	66	11,200	70.5	10,850
25			37.5	9,400	51.5	9,350	59.5	9,100	65.5	8,800
30			18	6,600	42	7,700	53	7,600	60	7,400
35					30.5	6,100	45.5	6,400	54.5	6,200
40							36.5	5,350	48	5,400
45							25	4,250	41	4,550
50									33	3,900
55									21.5	3,000
	0	6,150	0	3,950	0	2,700	0	1,950	0	1,300

600E2

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Load Rating Chart: Series 671E2 (21.64 m) Boom



CAUTION:

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- Jib and boom capacities shown are maximum for each section.
- Do not exceed capacities at reduced radii
- Load ratings shown on the load rating charts are maximum allowable loads with the outriggers properly extended on a firm, level surface and the crane leveled and mounted on a factory recommended truck.
- Always level the crane with the level indicator located on the crane.
- The operator must reduce load to allow for factors such as wind, ground conditions, operating speeds and their effects on freely suspended loads.
- Overloading this crane may cause structural collapse or instability.
- Weights on any accessories attached to the boom or loadline must be deducted from the load chart capacities.
- Do not exceed jib capabilities at any reduced boom lengths.
- Do not deadhead lineblock against boom tip when extending boom or winching up.
- Keep at least three wraps of loadline on drum at all times.
- Use only specified cable with this machine.

**SERIES 671E2 /
NO JIB**

LOADLINE EQUIPMENT DEDUCT

Downhaul weight	150 lb (68 kg)
One sheave block	200 lb (91 kg)
Two sheave block	355 lb (161 kg)

Load Rating Chart: Series 671E2 (21.64 m) Boom

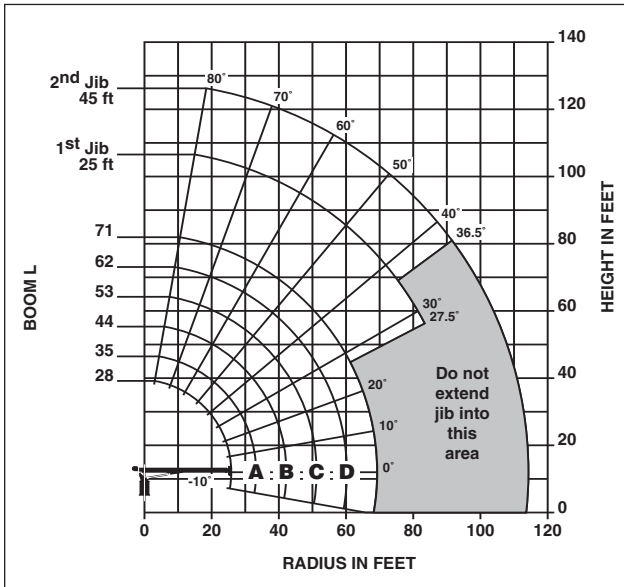
LOADED RADIUS (ft)	LOADED BOOM ANGLE (deg)	28 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	A 35 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	B 44 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	C 53 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	D 62 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	71 ft BOOM (lb)
5	77	40,000										
8	70.5	26,150	75	25,200	78.5	24,600						
10	65.5	21,600	71.5	21,450	76	20,800	79	20,400				
12	61	18,500	68	18,400	73	17,800	76.5	17,450	79	16,800		
14	56	16,600	64.5	16,000	70.5	15,850	74.5	15,300	77	14,650		
16	50.5	14,900	60.5	14,200	67.5	14,000	72	13,550	75	13,000	77.5	12,650
20	38	11,900	52.5	11,600	61.5	11,350	67	11,000	71	10,600	74	10,300
25	15.5	8,250	40.5	9,400	53.5	9,100	61	8,800	66	8,550	69.5	8,300
30			26	7,100	45.5	7,500	55	7,300	61	7,100	65.5	6,850
35					35	6,200	48.0	6,150	55.5	6,000	61	5,950
40					20	4,500	40.0	5,200	49.5	5,100	56	5,050
45							29.5	4,350	43	4,350	51	4,400
50							14.0	2,800	35	3,700	45.5	3,800
55									25.5	3,000	39	3,250
60									5.5	1,800	31.5	2,750
65											22	2,150
	0	4,800	0	3,600	0	2,250	0	1,500	0	950	0	550

THIS CHART IS ONLY A GUIDE AND SHOULD NOT BE USED TO OPERATE THE CRANE. The individual crane's load chart, operating instructions and other instructional plates must be read and understood prior to operating the crane.

capacities

10

Load Rating Chart: Series 671E2 (21.64 m) Boom with 45 ft (13.72 m) Jib



CAUTION:

- Do not operate crane booms, jib extensions, any accessories or loads within 10 ft (3m) of live power lines or other conductors of electricity.
- Jib and boom capacities shown are maximum for each section.
- Do not exceed capacities at reduced radii
- Load ratings shown on the load rating charts are maximum allowable loads with the outriggers properly extended on a firm, level surface and the crane leveled and mounted on a factory recommended truck.
- Always level the crane with the level indicator located on the crane.
- The operator must reduce load to allow for factors such as wind, ground conditions, operating speeds and their effects on freely suspended loads.
- Overloading this crane may cause structural collapse or instability.
- Weights on any accessories attached to the boom or loadline must be deducted from the load chart capacities.
- Do not exceed jib capabilities at any reduced boom lengths.
- Do not deadhead lineblock against boom tip when extending boom or winching up.
- Keep at least three wraps of loadline on drum at all times.
- Use only specified cable with this machine.

**SERIES 671E2
WITH
45 ft JIB**

LOADLINE EQUIPMENT DEDUCT

Downhaul weight 150 lb (68 kg)
One sheave block 200 lb (91 kg)
Two sheave block 355 lb (161 kg)

NOTE:

- Operate with jib by radius when main boom is fully extended. If necessary increase boom angle to maintain loaded radius.
- Operate with jib by boom angle when main boom is not fully extended. Do not exceed rated jib capacities at any reduced boom lengths.

Load Rating Chart: Series 671E2 (21.64 m) Boom with 45 ft (13.72 m) Jib

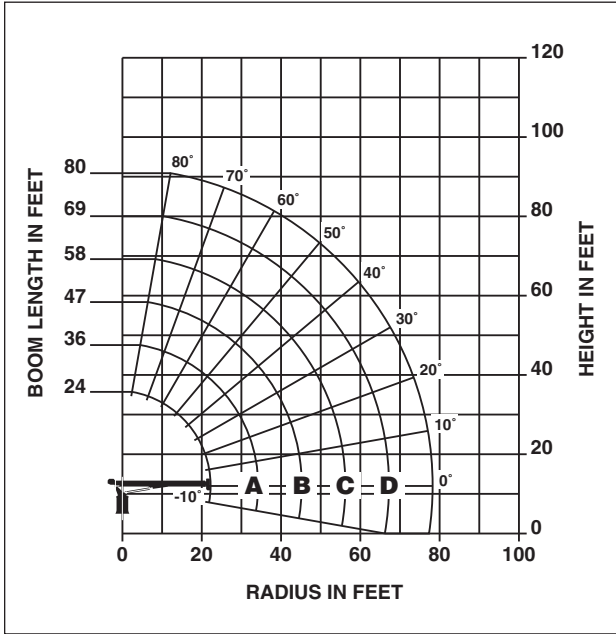
LOADED RADIUS (ft)	LOADED BOOM ANGLE (deg)	28 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	A 35 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	B 44 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	C 53 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	D 62 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	71 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	25 ft JIB (lb)	LOADED BOOM ANGLE (deg)	45 ft JIB (lb)	
5	77	40,000															
8	70.5	25,550	75	24,750	78.5	24,250											
10	65.5	21,000	71.5	21,000	76	20,450	79	20,100									
12	61	17,900	68	17,950	73	17,450	76.5	17,150	79	16,550							
14	56	16,000	64.5	15,550	70.5	15,500	74.5	15,000	77	14,400	79	14,450					
16	50.5	14,300	60.5	13,700	67.5	13,650	72	13,250	75	12,750	77.5	12,450					
20	38	11,300	52.5	11,100	61.5	10,950	67	10,700	71	10,350	74	10,050					
25	19.5	7,650	40.5	8,900	53.5	8,700	61	8,500	66	8,300	69.5	8,050	75.5	4,400			
30			26	6,600	45.5	7,100	55	7,000	61	6,850	65.5	6,600	72.5	3,900	76.5	2,600	
35					35	5,800	48.0	5,850	55.5	5,750	61	5,700	69	3,200	74	2,450	
40					20	4,100	40.0	4,900	49.5	4,850	56	4,800	66	2,750	72	2,300	
45							29.5	4,050	43	4,050	51	4,150	62.5	2,350	69	2,100	
50							14.0	2,450	35	3,400	45.5	3,550	59.5	2,000	66.5	1,900	
55									25.5	2,700	39	3,000	55.5	1,750	64	1,700	
60									10	1,500	31.5	2,500	52	1,500	61	1,500	
65											22	1,900	48	1,300	58.5	1,350	
70													43.5	1,100	55	1,200	
75													39	900	52	1,050	
80														33.5	700	48.5	900
85														27.5	600	45	800
90															41	700	
95															36.5	600	
	0	4,200	0	3,100	0	1,850	0	1,150	0	650							

THIS CHART IS ONLY A GUIDE AND SHOULD NOT BE USED TO OPERATE THE CRANE. The individual crane's load chart, operating instructions and other instructional plates must be read and understood prior to operating the crane.

600E2

capacities

Load Rating Chart: Series 680E2 (24.38 m) Boom



CAUTION:

- Do not operate crane booms, jib extensions, any accessories or loads within 10 ft (3m) of live power lines or other conductors of electricity.
- Jib and boom capacities shown are maximum for each section.
- Do not exceed capacities at reduced radii
- Load ratings shown on the load rating charts are maximum allowable loads with the outriggers properly extended on a firm, level surface and the crane leveled and mounted on a factory recommended truck.
- Always level the crane with the level indicator located on the crane.
- The operator must reduce load to allow for factors such as wind, ground conditions, operating speeds and their effects on freely suspended loads.
- Overloading this crane may cause structural collapse or instability.
- Weights on any accessories attached to the boom or loadline must be deducted from the load chart capacities.
- Do not exceed jib capabilities at any reduced boom lengths.
- Do not deadhead lineblock against boom tip when extending boom or winching up.
- Keep at least three wraps of loadline on drum at all times.
- Use only specified cable with this machine.

11

**SERIES 680E2 /
NO JIB**

LOADLINE EQUIPMENT DEDUCT

Downhaul weight	150 lb (68 kg)
One sheave block	200 lb (91 kg)
Two sheave block	355 lb (161 kg)

Load Rating Chart: Series 680E2 (24.38 m) Boom

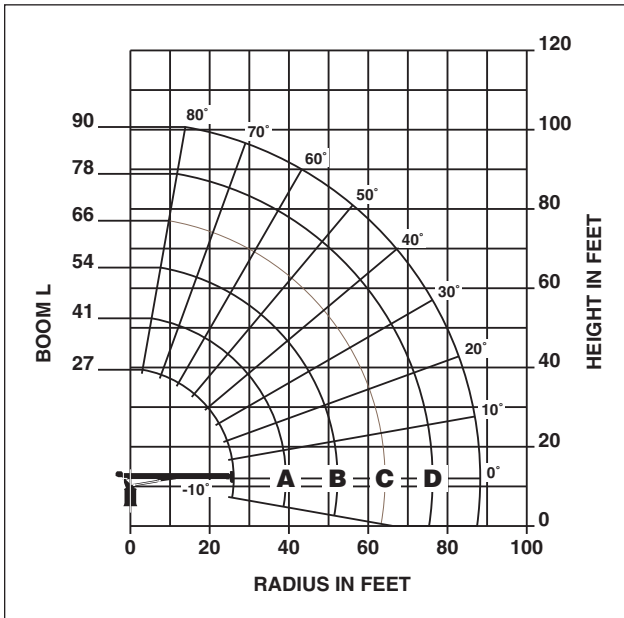
LOADED RADIUS (ft)	LOADED BOOM ANGLE (deg)	24 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	A 36 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	B 47 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	C 58 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	D 69 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	80 ft BOOM (lb)
5	76	40,000										
8	68	27,100	75	25,400								
10	62.5	22,400	72	21,400	76.5	20,600						
12	56.5	19,500	68.5	18,350	74	17,550	77.5	17,050				
14	50.5	17,100	65	16,000	71.5	15,300	75.5	14,750				
16	43.5	14,750	61	14,200	70	13,550	73.5	13,050	77	12,150		
20	27	11,100	53.5	11,450	63.5	11,000	69.5	10,550	73.5	10,100	77	8,550
25			43	9,150	55.5	9,000	64	8,450	69	8,200	73	8,000
30			29.5	7,000	48	7,200	58.5	7,050	64.5	6,850	69	6,550
35					39	5,850	52	5,900	59.5	5,700	65	5,500
40					28	4,650	45	4,800	54.5	4,850	61	4,650
45					7.5	2,600	37	4,100	49	4,150	56.5	4,000
50							28	3,450	43	3,500	52	3,450
55							13.5	2,200	36	2,950	47	3,000
60									28	2,450	41.5	2,550
65									16	1,550	35.5	2,150
70											28.5	1,700
75											18.5	1,150
	0	5,800	0	3,050	0	1,750	0	1,000				

THIS CHART IS ONLY A GUIDE AND SHOULD NOT BE USED TO OPERATE THE CRANE. The individual crane's load chart, operating instructions and other instructional plates must be read and understood prior to operating the crane.

capacities

12

Load Rating Chart: Series 690E2 (27.43 m) Boom



CAUTION:

- Do not operate crane booms, jib extensions, any accessories or loads within 10 ft (3m) of live power lines or other conductors of electricity.
- Jib and boom capacities shown are maximum for each section.
- Do not exceed capacities at reduced radii
- Load ratings shown on the load rating charts are maximum allowable loads with the outriggers properly extended on a firm, level surface and the crane leveled and mounted on a factory recommended truck.
- Always level the crane with the level indicator located on the crane.
- The operator must reduce load to allow for factors such as wind, ground conditions, operating speeds and their effects on freely suspended loads.
- Overloading this crane may cause structural collapse or instability.
- Weights on any accessories attached to the boom or loadline must be deducted from the load chart capacities.
- Do not exceed jib capabilities at any reduced boom lengths.
- Do not deadhead lineblock against boom tip when extending boom or winching up.
- Keep at least three wraps of loadline on drum at all times.
- Use only specified cable with this machine.

**SERIES 690E2 /
NO JIB**

LOADLINE EQUIPMENT DEDUCT

Downhaul weight 150 lb (68 kg)
One sheave block 200 lb (91 kg)
Two sheave block 355 lb (161 kg)

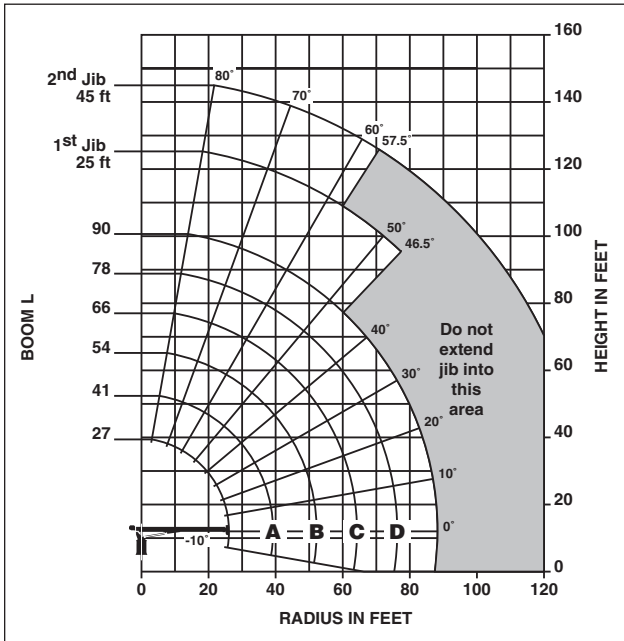
Load Rating Chart: Series 690E2 (27.43 m) Boom

LOADED RADIUS (ft)	LOADED BOOM ANGLE (deg)	27 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	A 41 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	B 54 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	C 66 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	D 78 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	90 ft BOOM (lb)	
5	77	40,000											
8	70	25,750											
10	66	21,400	74	20,950									
12	61.5	18,450	71	17,750	76	17,000							
14	57	16,400	68	15,250	74	15,000	77.5	14,450					
16	51	14,750	65.5	13,300	71.5	13,200	75.5	12,600					
20	40	11,250	58.5	10,800	67.5	10,500	72	9,950	76	9,700	77.5	7,850	
25	19	7,500	50	9,050	61.5	8,150	67	7,900	71.5	7,750	74.5	7,550	
30			40	7,550	55	6,750	62.5	6,450	68	6,250	71.5	6,150	
35			26.5	5,250	48	5,700	58	5,450	63.5	5,200	68	5,050	
40					40	4,600	52	4,550	59.5	4,400	64.5	4,200	
45						3,850	46.5	3,850	54.5	3,700	61	3,550	
50						2,450	39.5	3,150	50	3,150	57	3,000	
55							31	2,550	44.5	2,650	53.0	2,550	
60								21.5	1,800	39.5	2,250	48.5	2,150
65										32.5	1,750	44	1,850
70										24	1,250	39	1,500
75										11	450	33	1,150
80												26.5	800
	0	4,150	0	1,950	0	850							

THIS CHART IS ONLY A GUIDE AND SHOULD NOT BE USED TO OPERATE THE CRANE. The individual crane's load chart, operating instructions and other instructional plates must be read and understood prior to operating the crane.

600E2

Load Rating Chart: Series 690E2 (27.43 m) Boom with 45 ft (13.72 m) Jib



CAUTION:

- Do not operate crane booms, jib extensions, any accessories or loads within 10 ft (3m) of live power lines or other conductors of electricity.
- Jib and boom capacities shown are maximum for each section.
- Do not exceed capacities at reduced radii
- Load ratings shown on the load rating charts are maximum allowable loads with the outriggers properly extended on a firm, level surface and the crane leveled and mounted on a factory recommended truck.
- Always level the crane with the level indicator located on the crane.
- The operator must reduce load to allow for factors such as wind, ground conditions, operating speeds and their effects on freely suspended loads.
- Overloading this crane may cause structural collapse or instability.
- Weights on any accessories attached to the boom or loadline must be deducted from the load chart capacities.
- Do not exceed jib capabilities at any reduced boom lengths.
- Do not deadhead lineblock against boom tip when extending boom or winching up.
- Keep at least three wraps of loadline on drum at all times.
- Use only specified cable with this machine.

**SERIES 690E2
WITH 45'
JIB**

NOTE:

1. Operate with jib by radius when main boom is fully extended. If necessary increase boom angle to maintain loaded radius.
2. Operate with jib by boom angle when main boom is not fully extended. Do not exceed rated jib capacities at any reduced boom lengths.

LOADLINE EQUIPMENT DEDUCT	
Downhaul weight	150 lb (68 kg)
One sheave block	200 lb (91 kg)
Two sheave block	355 lb (161 kg)

Load Rating Chart: Series 690E2 (27.43 m) Boom with 45 ft (13.72 m) Jib

LOADED RADIUS (ft)	LOADED BOOM ANGLE (deg)	27 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	A 41 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	B 54 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	C 66 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	D 78 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	90 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	25 ft JIB (lb)	LOADED BOOM ANGLE (deg)	45 ft JIB (lb)
5	77	40,000														
8	70	25,200														
10	66	20,800	74	20,550												
12	61.5	17,850	71	17,350	76	16,700										
14	57	15,800	68	14,850	74	14,700	77.5	14,250								
16	51	14,150	65.5	12,900	71.5	12,900	75.5	12,350								
20	40	10,650	58.5	10,400	67.5	10,200	72	9,700	76	9,500	77.5	7,700				
25	19	6,900	50	8,650	61.5	7,850	67	7,650	71.5	7,550	74.5	7,400	78	2,800		
30			40	7,150	55	6,450	62.5	6,200	68	6,050	71.5	6,000	75.5	2,500	78.5	1,700
35			26.5	4,850	48	5,400	58	5,200	63.5	5,000	68	4,850	73	2,200	76.5	1,500
40					40	4,300	52	4,300	59.5	4,200	64.5	4,000	70	1,900	74	1,300
45					32	3,550	46.5	3,600	54.5	3,500	61	3,350	67.5	1,600	72	1,100
50					16.5	2,150	39.5	2,900	50	2,950	57	2,800	65.5	1,400	70	1,000
55							31	2,300	44.5	2,450	53	2,350	62.5	1,200	67.5	900
60							21.5	1,550	39.5	2,050	48.5	1,950	59.5	1,000	65.5	800
65									32.5	1,550	44	1,650	56.5	800	63	700
70									24	1,050	39	1,300	53.5	700	60.5	600
75											33	950	50	600	58	500
80											26.5	600	47	500		
0	0	3,550	0	1,550	0	550										

THIS CHART IS ONLY A GUIDE AND SHOULD NOT BE USED TO OPERATE THE CRANE. The individual crane's load chart, operating instructions and other instructional plates must be read and understood prior to operating the crane.

accessories

14

Radio Remote Controls –

Eliminate the handling and maintenance concerns that accompany cabled remotes. Operate to a range of about 250 ft (76 m), varying with conditions.

• **RB4R**

One-Person Basket –

Strong but lightweight steel basket with 300 lb (139 kg) capacity, gravity hung with swing lock and full body harness.

• **B1-S**
• **2B1-S** (for dual locking baskets)

Heavy-duty Personnel Basket –

1,200 lb (544 kg) capacity steel basket with safety loops for four passengers. Gravity leveling 72 x 42 in (183 x 107 cm) platform. Fast attachment and secure locking systems. Load chart must show 2,300 lb (1043 kg) minimum to operate this accessory.

• **BSA-1**
• **BSA-R1** (provides rotation)

Hydraulic Oil Cooler –

Automatic, self-contained radiator system with electric fans cools oil under continuous operation.

• **OC**

Continuous Rotation –

Allows rotation of turret/boom without rotation stop.

• **CR**

Burst-of-Speed Winch –

Provides faster winch payout and pickup of unloaded cable.

• **BOS**

Single Front Outrigger –

Center mount front stabilizer for 360° stability with a 25 in vertical stroke.

• **SFO**

Outrigger Motion Alarms –

Available for “A” frame O/R and ASH stabilizers.
Available for HO O/R and RSOD stabilizers.

• **OMA-1**
• **OMA-2**

Hour Meter –

Hour meter in truck cab to record crane operation hours.

• **HRM**

Bulkhead Options –

Steel 30 in solid wall bulkhead

• **BHSI**
• **BHSD**

Steel Tool Box Options

Spanish-Language Danger Decals,
Control Knobs, and Operators’ Manuals

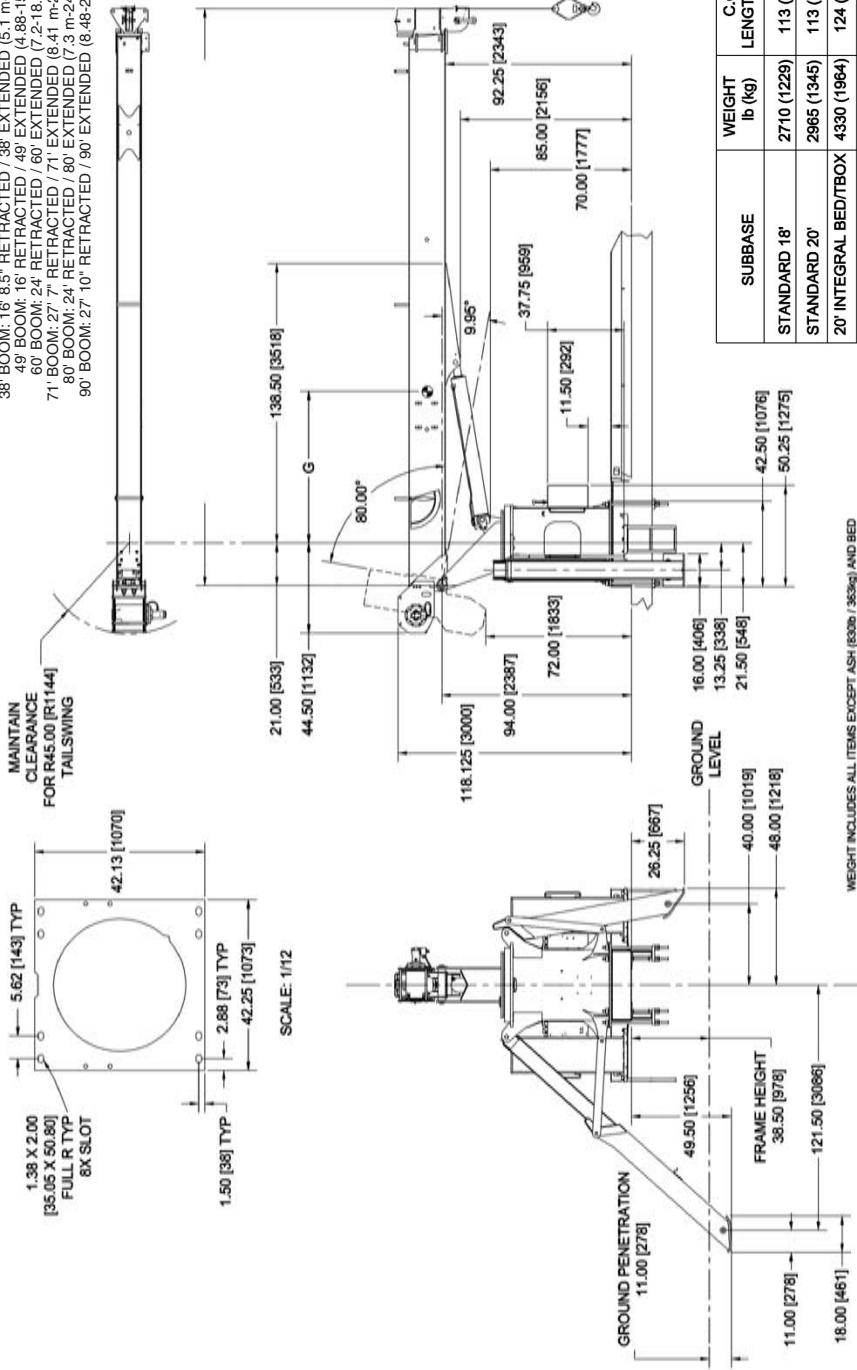
• **SDD**
• **SOM**

600E2

dimensions specifications

Dimensions Specifications

- 38' BOOM: 16' 8.5" RETRACTED / 38' EXTENDED (5.1 m-11.6 m)
- 49' BOOM: 16' RETRACTED / 49' EXTENDED (4.88-15 m)
- 60' BOOM: 24' RETRACTED / 60' EXTENDED (7.2-18.3 m)
- 71' BOOM: 27' 7" RETRACTED / 71' EXTENDED (8.41 m-21.64 m)
- 80' BOOM: 24' RETRACTED / 80' EXTENDED (7.3 m-24.4 m)
- 90' BOOM: 27' 10" RETRACTED / 90' EXTENDED (8.48-27.43 m)



SUBBASE	WEIGHT lb (kg)	C.G. LENGTH (m)
STANDARD 18'	2710 (1229)	113 (2.87)
STANDARD 20'	2965 (1345)	113 (2.87)
20' INTEGRAL BED/TBOX	4330 (1964)	124 (3.15)
STANDARD 22'	3184 (1444)	125 (3.18)

SUBBASE C.G. ARE LOCATED FROM CENTER OF ROTATION

WEIGHT INCLUDES ALL ITEMS EXCEPT ASH (8300) AND BED

NOTES:
1. DIMENSIONS ARE IN INCHES [mm] UNLESS OTHERWISE SPECIFIED.

SERIES	RETRACTED LENGTH	EXTENDED LENGTH	SUBBASE ft	G (wet) Inches (m)	DRY/W/T lb (kg)	WITH OIL/W/T lb (kg)
638E2	16' 7"	38' 3"	18'	48.3 (1.23)	13,651 (6,192)	14,246 (6,462)
649E2	16'	49'	18'	50.7 (1.28)	14,289 (6,481)	14,884 (6,751)
660E2	24'	60'	18'	59.9 (1.52)	14,876 (6,748)	15,471 (7,018)
671E2	27' 7"	71'	20'	74.7 (1.90)	15,831 (7,181)	16,426 (7,451)
671E2	27' 7"	71'	20' bed/box	80.3 (2.04)	17,196 (7,800)	17,791 (8,070)
680E2	24'	80'	18'	67.5 (1.71)	15,996 (7,256)	16,591 (7,526)
690E2	27' 10"	90'	20'	78.1 (1.98)	16,976 (7,700)	17,571 (7,970)
690E2	27' 10"	90'	20' bed/box	83.1 (2.11)	18,341 (8,319)	18,936 (8,589)

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Constant improvement and engineering progress make it necessary that we reserve the right to make specification, equipment and price changes without notice. Illustrations shown may include optional equipment and accessories, and may not include all standard equipment.