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## **GROVE RT600E PRODUCT MANUAL**





## **Grove RT600E**

### **Product Guide**



### **Features**

- 10 m 32 m (33 ft 105 ft) four-section full power boom
- 8,8 m 15,5 m (29 ft 51 ft) telescopic swingaway extension
- Maximum main boom tip height of 34 m (112 ft)
- Maximum overall tip height of 49,3 m (162 ft)
- 40 t/45 t (40 USt/50 USt) capacity
- Cummins QSB 6.7 L Tier III, turbocharged diesel engine

### **Features**



#### Cab

The RT600E cab includes:

- hot water heater/defroster
- single axis joystick controllers
- sliding skylight and adjustable sunscreen
- engine instrumentation
- full accoustical lining

The PAT iFlex 5 graphic display LMI includes a work area definition system which allows the operator to define a preferred working area.



### Lattice extension

A telescopic swingaway lattice extension easily stows on the side of the base boom for easy transport. With a range of 29 ft - 51 ft the max tip height reaches 162 ft with a capacity of 6000 lb. An

optional fixed lattice is also available, reaching a max height of 141 ft.



Large open stowage compartment for tools and rigging accessories.



The RT600E uses a 12,250 lb pinned-on counterweight. Cable power is provided through model HP30A grooved drum hoists with 16,800 lb permissible line pull. Maximum

line speed is 588 fpm. Both the main and optional auxiliary hoists have cable capacity up to 694 ft.





#### Superstructure

The superstructure features a full power four section boom with a four plate rectangular design that can reach to a max tip height of 112 ft. The synchronized extension feature telescopes boom sections at the touch of the hand from an easy to use single lever joystick controller.

## **Contents**

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## **Specifications**

#### Superstructure



#### **Boom**

10.1~m - 32~m (33~ft - 105~ft) four-section, full-power synchronized boom.

Maximum tip height: 34,1 m (112 ft).



### \* Optional fixed swingaway extension

8,8 m (29 ft) offsettable lattice swingaway extension. Offsettable at 0°, 25° and 45°. Stows alongside base boom section.

Maximum tip height: 43,1 m (141.5 ft).



### \* Optional telescopic swingaway extension

8,8 m - 15,5 m (29 ft - 51 ft) telescoping lattice swingaway extension. Offsettable at 0°, 25° and 45°. Stows alongside base boom section.

Maximum tip height: 49,3 m (162 ft).



#### **Boom nose**

Three nylatron sheaves mounted on heavy-duty tapered roller bearings with removable pin-type rope guards. Quick-reeve type boom nose.

\*Optional removable auxiliary boom nose with removable pin type rope guard.



#### **Boom elevation**

One double-acting hydraulic cylinder with integral holding valve provides elevation from -2° to 78°.



### Load moment and anti-two block system

Standard "Graphic Display" load moment and anti-two block system with audio-visual warning and control lever lockout. These systems provide electronic display of boom angle, length, radius, tip height, relative load moment, maximum permissible load, load indication and warning of impending two-block condition. The system defaults to 360° on rubber chart. The standard Work Area Definition System allows the operator to pre-select and define working areas. If the crane approaches the pre-set limits, audio-visual warnings aid the operator in avoiding job-site obstructions.



#### Counterweight

5556 kg (12,250 lb) pinned to superstructure.



#### Cab

Full vision, all steel fabricated with acoustical lining and tinted safety glass throughout. Deluxe seat incorporates armrest-mounted hydraulic single-axis controllers. Dash panel incorporates gauges for all engine functions. Other standard features include: hot water heater/defroster, air conditioning, cab circulating air fan, sliding side and rear windows, sliding skylight with electric wiper and sunscreen, electric windshield wash/wipe, fire extinguisher, seat belt and circuit breakers.



#### Swing

Planetary swing with foot-applied multi-disc brake. Spring applied, hydraulically-released swing brake and plunger-type, one position, mechanical house lock operated from cab.

\*Optional 360° mechanical swing lock. Maximum speed: 2.5 rpm.



#### Hydraulic system

Three main gear pumps with combined capacity of 391 L/min (103 GPM), 511 L/min (135 GPM) with optional air conditioning.

Maximum operating pressure: 26.2 MPa (3500 psi)

Return line type filter with full flow by-pass protection and service indicator. Replaceable cartridge with micron filtration rating of 5/12/16. 509 L (134 gal) reservoir. Hydraulic oil cooler. System pressure test ports. Manual hydraulic pump disconnect.



### Hoist Specifications (HP30G) main and auxiliary hoist

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

Maximum single line pull: 8246 kg (18,180 lb)

Maximum single line speed: 179 m/min (588 FPM)

Maximum permissible line pull: 7620 kg (16,800 lb) with standard 6 x 37 class rope 7620 kg (16,800 lb) with optional 35 x 7 class rope

Rope diameter: 19 mm (3/4 in)

Rope length: 137 m (450 ft)

Rope type: 6 x 37 Class EIPS IWRC Optional rope type: 35 x 7 class rotation resistant

Maximum usable rope stowage: 211 m (694 ft)

# **Specifications**

#### Carrier



#### Chassis

Box section frame fabricated from high-strength, low alloy steel. Integral outrigger housings and front/rear lifting, towing, and tie down lugs.



#### Outrigger system

Four hydraulic telescoping single-stage double box beam outriggers with inverted jacks and integral holding valves. Three position setting. All steel fabricated, quick-release type round outrigger floats, 610 mm (24 in) diameter. Maximum outrigger pad load: 31 344 kg (69,100 lb).



#### Outrigger controls

Controls and crane level indicator located in cab.



#### **Engine (Tier III)**

Cummins QSB 6.7 L diesel, six cylinders, turbocharged, 129 kW (173 bhp) (Gross) @ 2500 rpm. Maximum torque: 800 Nm (590 ft lb) @ 1500 RPM.



#### Fuel tank capacity

220 L (58 gal)



#### **Transmission**

Full powershift with six forward and three reverse speeds. Front axle disconnect for 4 x 2 travel.



#### **Electrical system**

Two 12-volt maintenance free batteries. 12-volt starting and lighting, circuit breakers, battery disconnect switch.



4 x 4



#### Steering

Fully independent power steering:

Full hydraulic, steering wheel controlled. Front: Rear: Full hydraulic, switch controlled.

Provides infinite variations of 4 main steering modes: front only, rear only, crab, and coordinated. "Rear steer centered" indicating light. 4 wheel turning radius - 6,4 m (21 ft)



#### **Axles**

Drive/steer with differential and planetary Front: reduction hubs rigid-mounted to frame.

Rear: Drive/steer with differential and planetary reduction hubs pivot-mounted to frame. Automatic full hydraulic lockouts on rear axle permit oscillation only with boom centered





#### **Brakes**

Full hydraulic split circuit disc-type brakes operating on all wheels. Spring-applied, hydraulically released transmission-mounted parking brake.



#### **Tires**

Titan 23.5 x 25 - 20PR bias earthmover type



#### Lights

Full lighting package including turn indicators, head, tail, brake and hazard warning lights.



#### Maximum speed

39 km/h (24 mph)



#### Gradeability (theoretical)

78% (Based on 34 020 kg [75,000 lb] GVW) 23.5 x 25 tires, pumps engaged, 32 m (105 ft) boom, and tele-swingaway.

## **Specifications**

#### **Carrier continued**

#### Miscellaneous standard equipment

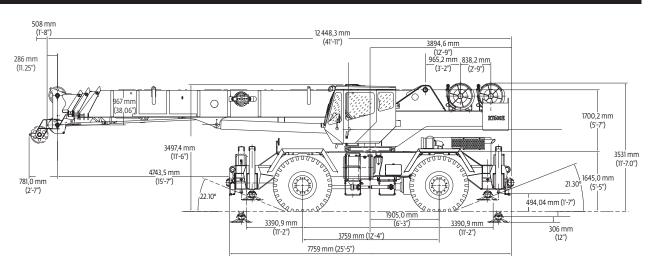
Full width steel fenders, dual rear view mirrors, hookblock tiedown, electronic back-up alarm, light package, front stowage well, tachometer, rear wheel position indicator, 36,000 BTU hot water heater, air conditioning, hoist mirrors, engine distress A/V warning system. Auxiliary hoist control valve arrangement (less hoist). Immersion type engine block heater.

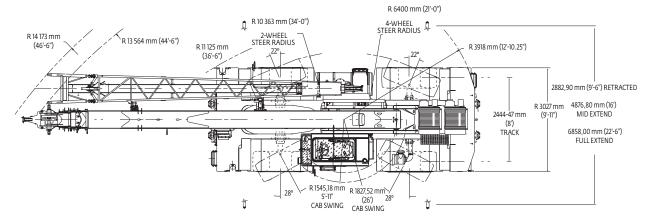
#### \* Optional equipment

- VALUE PACKAGE: includes 8,8 m -15,5 m (29 ft 51 ft) offsettable telescoping swingaway, 360° NYC style swing lock, and auxiliary hoist package.
- AUXILIARY HOIST PACKAGE (includes Model HP30G auxiliary hoist with electronic hoist drum rotation indicator, hoist drum cable follower, 137 m (450 ft) of 19 mm (3/4 in) 35 X 7 class wire rope, auxiliary single sheave boom nose.)
- AUXILIARY LIGHTING PACKAGE: includes cab mounted, 360° rotation spotlight, cab mounted amber flashing light, and dual base boom mounted floodlights, in-cab LMI Light bar, and rubber mat for stowage trough
- Full-length aluminum decking
- Pintle hook rear
- ≥ 360° positive swing lock
- Cab-controlled cross axle differential lock (front and rear)
- PAT Event Recorder
- Third wrap indicator (hoist)
- Mounting hardware for gooseneck/trailer attachment

# **Dimensions and weights**

#### Dimensions



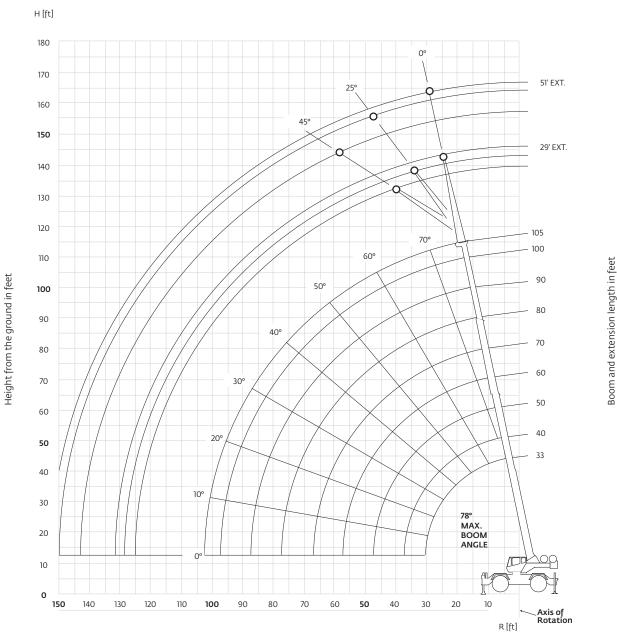


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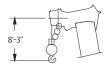
	G	VW	Front		Re	ear
	kg	(lb)	kg	(lb)	kg	(lb)
<b>RT600E Basic Machine:</b> Including 105 ft main boom, main hoist with 450 ft of wire rope, IPO, full pinned counterweight, and air conditioner	32 841	<b>(</b> 72,402 <b>)</b>	14 760	<b>(</b> 32,539 <b>)</b>	18 082	(39,864)
Add: 29 ft - 51 ft telescopic swingaway + carrier brackets	-957.00	(2109)	1432	(3456)	-611	<b>(</b> -1347 <b>)</b>
Add: 450 ft of wire rope on Auxiliary Hoist	-255	<b>(</b> 563 <b>)</b>	-96	<b>(</b> -213 <b>)</b>	-342	<b>(</b> 755 <b>)</b>
Add: Auxiliary boom nose	59	<b>(</b> 131 <b>)</b>	162	(358)	-102	(-227)
Add: 35 t (40 USt) 3-sheave hookblock (stowed in trough)	373	(823)	383	(845)	-9.9	(-22)
Add: 45 t (50 USt) 3-sheave hookblock (stowed in trough)	458	(1010)	470	(1037)	-12	(-27)
Add: 7,5 t (8.3 USt) headache ball	161	(355)	279	(616)	-118	(-261)
Add: Full aluminum decking	113	<b>(</b> 250 <b>)</b>	58	(128)	55	(122)
Remove: Counterweight	-5556	<b>(</b> -12,250 <b>)</b>	2257	<b>(</b> 4976 <b>)</b>	-7814	(-17,226)

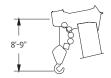
# Working range

#### 105 ft main boom



Operating radius in feet from axis of rotation





Dimensions are for largest Grove furnished Hook Block and Headache Ball, with Anti-Two Block activated.

## **Load chart RT650E**

33 ft-105 ft	12,250 lb	100% 22 ft 6 in s		50°					
					Pounds				
Feet	33	40	50	60	70	80	90	100	105
10	100,000 (69.5)	80,550 (73.5)	67,250 (77)						
12	87,100 (65.5)	79,150 (70.5)	64,200 (75)	*56,100 (78)					
15	69,050 (59.5)	69,550 (65.5)	59,950 (71)	51,800 (75)	45,200 (77.5)				
20	50,500 (47.5)	50,950 (57)	51,400 (64.5)	44,500 (69.5)	38,550 (73)	34,450 (75.5)	*31,400 (78)		
25	38,300 (32)	38,850 (47)	39,350 (58)	39,650 (64.5)	37,100 (68.5)	29,850 (72)	27,250 (74.5)	21,000 (76.5)	18,350 (77.5)
30	,	30,700 (34.5)	31,200 (50.5)	31,500 (58.5)	31,700 (64)	26,350 (68)	24,100 (71)	21,000 (73.5)	18,350 (74.5)
35		(5.115)	25,450 (41.5)	25,750 (52.5)	26,000 (59)	23,650 (64)	21,500 (67.5)	19,150 (70)	18,350 (71.5)
40	See Note 16		20,850 (30.5)	21,200 (46)	21,600 (54)	21,350 (59.5)	19,400 (64)	16,650 (67)	17,300 (68.5)
45	1101010		(50.5)	17,100 (38)	17,350 (48.5)	17,300 (55)	17,300 (60)	14,650 (64)	15,750 (65.5)
50				13,950 (28)	14,150 (42.5)	14,200 (50.5)	14,200 (56)	13,000 (60.5)	14,300 (62.5)
55				(20)	11,700	11,750 (45.5)	11,850 (52)	11,900	12,000 (59)
60					9730 (26)	9870 (39.5)	9980 (47.5)	10,100 (53.5)	10,150 (55.5)
65					(20)	8300 (33)	8440 (42.5)	8600 (49.5)	8680 (52)
70						6960 (24.5)	7170 (37.5)	7340 (45.5)	7430 (48.5)
75						(24.5)	6080	6290 (40.5)	6390 (44.5)
80							5130 (23)	5380 (35.5)	5490 (40)
85							(23)	4580 (29.5)	4720 (35)
90								3880 (22)	4020 (29)
95								(LL)	3400 (21.5)
	om angle (°) for ir								0
NOTE: () Boo #LMI operatir	om length (ft) at m angles are in o ng code. Refer to / is based on ma	degrees. LMI manual fo	or operating ins	tructions.					105
			Lifting on	capacities at ze	ero degree boon extended - 360	n angle )°			
Boom angle	33	40	50	Main boom I 60		80	90	100	
0°	16,250 (28.2)	12,500 (35)	8780 (45)	6290 (55)	4510 (65)	3160 (75)	2110 (85)	1260 (95)	_

NOTE: () Reference radii in feet.

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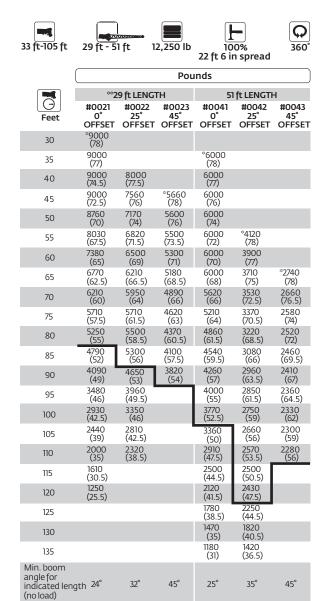
## **Load chart RT640E**

33 ft-105 ft	12,250 lb	100% 22 ft 6 in s		<b>Q</b> 860°					
					Pounds				
Feet	33	40	50	60	70	80	90	100	105
10	80,000 (69.5)	73,500 (73.5)	67,200 (77)						
12	77,750 (65.5)	69,500 (70.5)	62,300 (75)	*56,100 (78)					
15	69,050 (59.5)	65,550 (65.5)	57,300 (71)	51,800 (75)	45,200 (77.5)				
20	50,500 (47.5)	50,950 (57)	51,400 (64.5)	44,500 (69.5)	38,550 (73)	34,450 (75.5)	*31,400 (78)		
25	38,300 (32)	38,850 (47)	39,350 (58)	39,650 (64.5)	37,100 (68.5)	29,850 (72)	27,250 (74.5)	21,000 (76.5)	18,350 (77.5)
30		30,700 (34.5)	31,200 (50.5)	31,500 (58.5)	31,700 (64)	26,350 (68)	24,100 (71)	21,000 (73.5)	18,350 (74.5)
35		, and a	25,450 (41.5)	25,750 (52.5)	26,000 (59)	23,650 (64)	21,500 (67.5)	19,150 (70)	18,350 (71.5)
40	See Note 16		20,850 (30.5)	21,200 (46)	21,600 (54)	21,350 (59.5)	19,400 (64)	16,650 (67)	17,300 (68.5)
45			(22.2)	17,100 (38)	17,350 (48.5)	17,300 (55)	17,300 (60)	14,650 (64)	15,750 (65.5)
50				13,950 (28)	14,150 (42.5)	14,200 (50.5)	14,200 (56)	13,000 (60.5)	14,300 (62.5)
55				(20)	11,700	11,750 (45.5)	11,850 (52)	11,900 (57)	12,000 (59)
60					9730 (26)	9870 (39.5)	9980 (47.5)	10,100 (53.5)	10,150 (55.5)
65					, ,	8300 (33)	8440 (42.5)	8600 (49.5)	8680 (52)
70						6960 (24.5)	7170 (37.5)	7340 (45.5)	7430 (48.5)
75							6080 (31)	6290 (40.5)	6390 (44.5)
80							5130 (23)	5380 (35.5)	5490 (40)
85							(2)	4580 (29.5)	4720 (35)
90								3880 (22)	4020 (29)
95								<u> </u>	3400 (21.5)
	om angle (°) for i								0
NOTE: () Boor #LMI operatin	m angles are in 19 code. Refer to 15 based on ma	degrees. o LMI manual f	or operating in	structions.					105
				g capacities at z n outriggers ful					
Boom angle	33	40	50	55 1	ength in feet 70	80	90	100	105
0°	16,250 (28.2)	12,500 (35)	8780 (45)	6290 (55)	4510 (65)	3160 (75)	2110 (85)	1260 (95)	103

NOTE: ( ) Reference radii in feet.

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### **Load chart RT600E**



NOTE: () Boom angles are in degrees.

Max. boom

length at 0° boom angle

(no load)

90 ft

90 ft

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			Pot	unds	)
			#9005		
<u>.</u>		Main	boom lengt	h in feet	
Feet	33	40	50	60	70
10	38,550 (69.5)	38,550 (73.5)			
12	32,550 (65.5)	32,550 (70.5)	32,550 (75)		
15	23,700 (59.5)	23,700 (65.5)	23,700 (71)	23,700 (75)	
20	14,450 (47.5)	14,450 (57)	14,450 (64.5)	14,450 (69.5)	14,450 (73)
25	9640 (32)	9640 (47)	9640 (58)	9640 (64.5)	9640 (68.5)
30		6840 (34.5)	6840 (50.5)	6840 (58.5)	6840 (64)
35			4850 (41.5)	4850 (52.5)	4850 (59)
40			3450 (30.5)	3450 (46)	3450 (54)
45				2410 (38)	2410 (48.5)
50				1610 (28)	1610 (42.5)
Min. boom a	ingle (°) for i	ndicated leng	gth (no load)		30
		: 0° boom and re in degrees			60

#LMI operating code. Refer to LMI manual for operating instructions.

Lifting capacities at zero degree boom angle on rubber - 360°							
Boom	Boom Main boom length in feet						
angle	33	40	50	_			
0°	7580 (28.2)	4850 (35)	2410 (45)				
NOTE: () Re	NOTE: () Reference radii in feet.						

#### NOTES:

- 1. All capacities above the bold line are based on structural strength of boom extension.
- 2. 29 ft and 51 ft boom extension lengths may be used for single line lifting service.
- 3. Radii listed are for a fully extended boom with the boom extension erected. For main boom lengths less than fully extended, the rated loads are determined by boom angle. Use only the column which corresponds to the boom extension length and offset for which the machine is configured. For boom angles not shown, use the rating of the next lower boom angle.

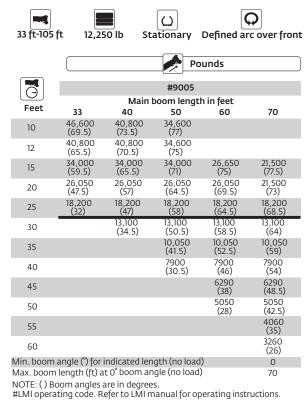
WARNING: Operation of this machine with heavier loads than the capacities listed is strictly prohibited. Machine tipping with boom extension occurs rapidly and without advance warning.

- 4. Boom angle is the angle above or below horizontal of the longitudinal axis of the boom base section after lifting rated load.
- 5. Capacities listed are with outriggers fully extended and vertical jacks set.

<sup>#</sup>LMI operating code. Refer to LMI manual for instructions.

<sup>&</sup>quot;This capacity based on maximum boom angle.
"29 ft capacities are also applicable to fixed offsettable ext.
However, the LMI codes will change to #0051, #0052 and #0053 for 0°, 25° and 45° offset, respectively.

### **Load charts**



Lifting capacities at zero degree boom angle

Lifting capacities at zero degree boom angle on rubber - Defined arc over front							
Boom	Boom Main boom length in feet						
angle	33	40	50	60	70		
0°	14,550 (28.2)	10,050 (35)	6290 (45)	4060 (55)	2590 (65)		
NOTE: ( ) Reference radii in feet. A6-829-100835B							

33 ft-105 ft	12,25		k & carry o 2.5 mph	Boom cent over fro	
			Po	unds	
			#9006		
$\bigcirc$		Main bo	om length i	n feet	
Feet	33	40	50	60	70
10	30,150 (69.5)	30,150 (73.5)	17,850 (77)		
12	30,150 (65.5)	30,150 (70.5)	17,850 (75)		
15	29,650 (59.5)	29,650 (65.5)	17,850 (71)	17,850 (75)	14,750 (77.5)
20	22,650 (47.5)	22,650 (57)	17,850 (64.5)	17,850 (69.5)	14,750 (73)
25	17,850 (32)	17,850 (47)	17,850 (58)	17,850 (64.5)	14,750 (68.5)
30		13,100 (34.5)	13,100 (50.5)	13,100 (58.5)	13,100 (64)
35			10,050 (41.5)	10,050 (52.5)	10,050 (59)
40			7340 (30.5)	7340 (46)	7340 (54)
45				6020 (38)	6020 (48.5)
50				4940 (28)	4940 (42.5)
55					4030 (35)
60					3260 (26)
			ngth (no loac		0
NOTE: () Bo	om angles ing code. R	are in degree	ngle (no load es. nanual for o	,	70
	Liftin	g capacities on rubbe	at zero degr r - Pick & car	ee boom an ry	gle
Boom angle	33		n length in fe 50		70
	14 550	10.050	6030	4020	2500

NOTE: () Reference radii in feet.

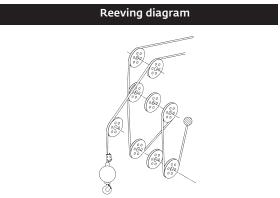
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# Load handling

Weight reductions for load handling devices						
29 ft offsettable boom extension	Pounds					
*Erected –	4412					
29 ft 51 ft tele. boom extension	Pounds					
*Erected (retracted) –	6611					
*Erected (extended) –	9332					
*Reduction of main boom cap	oacities					
Auxiliary boom nose	Pounds					
	137					
Hookblocks and headache balls	Pounds					
50 USt, 4-sheave	1075					
50 USt, 3-sheave	1000					
40 USt, 3-sheave	800					
8.3 USt headache ball (non-swivel)	350					
8.3 USt headache ball (swivel)*	370					
+Refer to rating plate for actual weig	ht.					

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

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



Line pulls and reeving information								
Hoists	Cable specs	Permissable line pulls	Nominal cable length					
Main	19 mm (3/4 in) 6 x 37 class, EIPS, IWRC Special Flexible Min. Breaking Str. 58,800 Ib	16,800 lb	450 ft					
Main and auxiliary	19 mm (3/4 in) Flex-X 35 Rotation resistant (non-rotating) Min. breaking Str. 85,800 lb	16,800 lb	450 ft					

The approximate weight of 3/4 in wire rope is 1.5 lb/ft

Hoist performance								
Wire rope layer	Hoist li two-spe	ne pulls ed hoist	Drum rope capacity (ft)					
	Low available lb*	High available lb*	Layer	Total				
1	18,134	9067	101	101				
2	16,668	8334	110	211				
3	15,420	7710	120	331				
4	14,347	7174	129	460				
5	13,413	6707	139	599				
6	12,594	6297	149	748				

\* Max lifting capacity: 6 x 37 class or 35 x 7 class = 16,800 lb

#### Working area diagram REAR AXLE CENTERLINE CENTERLINE OSCILLATION LOCKOUTS MUST BE SET TO MAINTAIN 360° OF OUTRIGGER SUPPORT воом CENTERED OVER FRONT CAPACITIES LONGITUDINAL CENTERLINE OF CRANE CG OF LOAD OVER OVER FRONT SEE NOTE AT BOTTOM DIAGRAM FOR LIFTING ON OUTRIGGERS DIAGRAM FOR LIFTING ON TIRES C6-829-003529 C6-829-001159 CENTERLINE OVER

Bold lines determine the limiting position of any load for operation within working areas indicated.

## Notes

## **Notes**

Courtesy of Crane.Market

Grove RT600E



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Breda **Poland** Warsaw

Netherlands

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