



# LOAD CHARTS

for Use With

## WRITTEN EXAMINATIONS



# Grove AT400

**Manitowoc Crane Group, by providing pages of one of its manuals, is not providing a substitute for training on a Manitowoc crane.**

**These pages are reproduced for illustration only and not as a substitute for reviewing the entire manual for a particular crane.**

**Make sure that you are fully trained on, and review the entire manual for, every crane you operate.**

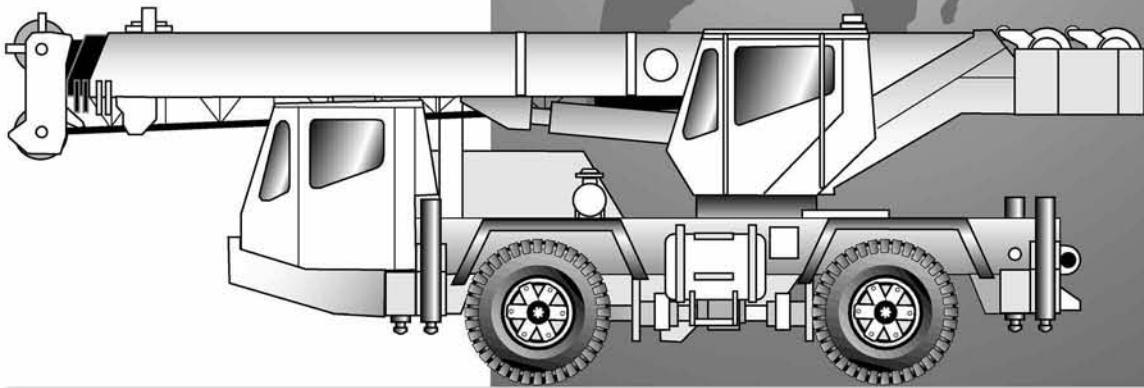
*This load chart has been adapted from the original manufacturer's load chart for use in the NCCER Mobile Crane Certification Examination. It is not to be used for calculating loads, planning lifts, or for any other purpose.*



**GROVE<sup>®</sup>**  
**CRANE**

A GROVE WORLDWIDE COMPANY

# AT400 Series



**All Terrain Hydraulic Crane**

# ***Weight Reductions for Load Handling Devices***

## **25 ft. (7.6 m) Fixed Extension**

*25 ft. (7.6 m) extension (stowed)	293 lbs.	(133 kg)
*25 ft. (7.6 m) extension (erected)	1,563 lbs.	(709 kg)

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

*25 ft. - 43 ft. (7.6 m - 13.1 m) extension (stowed)	535 lbs.	(243 kg)
*25 ft. - 43 ft. (7.6 m - 13.1 m) extension (erected [ret.])	3,906 lbs.	(1772 kg)
*25 ft. - 43 ft. (7.6 m - 13.1 m) extension (erected [ext.])	4,995 lbs.	(2266 kg)

\*Reduction of main boom capacities:

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

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

### **HOOKBLOCKS:**

+ 22 ton, 3 sheave	499 lbs.	(226 kg)
+ 15 ton, 2 sheave	462 lbs.	(210 kg)
+ 12 ton, 1 sheave	360 lbs.	(163 kg)
+ 5 ton headache ball	172 lbs.	(78 kg)
+ Auxiliary boom head	145 lbs.	(66 kg)

+ Refer to rating plate for actual weight.



27-70 ft.  
(8.3-21.4 m)



3,685 lbs.  
(1670 kg)



100°



360°



85% Domestic (Pounds)

25 ft. Ext.  
& 70 ft.

(Feet)	27	40	50	60	70	95
8	44,000 (64)	43,650 (73)	42,450 (76.5)			
9	41,000 (61.5)	41,000 (71.5)	39,850 (75.5)			
10	40,000 (59)	38,000 (70)	37,550 (74)			
12	31,450 (54)	31,450 (66.5)	31,450 (71.5)	31,450 (75.5)		
15	24,300 (45)	24,300 (61.5)	24,300 (68)	24,300 (72)	22,000 (76.5)	
20	18,000 (23)	17,650 (52.5)	17,650 (61.5)	17,650 (67)	17,650 (72)	12,500 (78)
25		13,300 (42)	13,300 (54.5)	13,300 (61.5)	13,300 (67)	10,750 (74.5)
30		10,400 (28.5)	10,400 (46.5)	10,400 (55.5)	10,400 (62.5)	9,810 (71)
35			8,580 (37.5)	8,580 (49.5)	8,580 (57.5)	8,930 (67.5)
40			7,000 (25)	7,000 (42.5)	7,000 (52)	8,090 (64)
45				5,840 (34)	5,840 (46)	6,720 (60.5)
50				4,800 (23.5)	4,800 (39.5)	5,490 (57)
55					3,900 (31.5)	4,520 (52.5)
60					3,200 (21.5)	3,740 (48.5)
65						3,100 (44)
70						2,560 (39)
75						2,090 (33.5)
80						1,700 (27)
85						1,350 (18.5)
Minimum boom angle (deg.) for indicated length (no load)					0	0
Maximum boom length (ft.) at 0 deg. boom angle (no load)					70	95

NOTE: ( ) Boom angles are in degrees.

Boom Angle	27	40	50	60	70
0°	13,050 (21.1)	7,920 (33.7)	5,700 (43.7)	4,190 (53.7)	2,930 (63.8)

NOTE: ( ) Boom angles are in degrees.

A6-829-008801

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.



27-70 ft.  
(8.3-21.4 m)



3,685 lbs.  
(1670 kg)



50%



360°



85% Domestic (Pounds)

25 ft. Ext.  
& 70 ft.

(Feet)	27	40	50	60	70	95
8	39,700 (64)	39,700 (73)	39,700 (76.5)			
9	36,800 (61.5)	36,800 (71.5)	36,800 (75.5)			
10	34,200 (59)	34,200 (70)	34,200 (74)			
12	29,900 (54)	29,900 (66.5)	29,900 (71.5)	29,000 (75.5)		
15	24,300 (45)	24,300 (61.5)	24,300 (68)	23,200 (72)	22,000 (76.5)	
20	14,700 (23)	14,700 (52.5)	14,700 (61.5)	14,700 (67)	14,700 (72)	12,500 (78)
25		9,970 (42)	9,970 (54.5)	9,970 (61.5)	9,970 (67)	10,600 (74.5)
30		7,250 (28.5)	7,250 (46.5)	7,250 (55.5)	7,250 (62.5)	8,230 (71)
35			5,490 (37.5)	5,490 (49.5)	5,490 (57.5)	6,440 (67.5)
40			4,250 (25)	4,250 (42.5)	4,250 (52)	5,020 (64)
45				3,340 (34)	3,340 (46)	3,970 (60.5)
50				2,630 (23.5)	2,630 (39.5)	3,160 (57)
55					2,070 (31.5)	2,510 (52.5)
60					1,620 (21.5)	1,990 (48.5)
65						1,560 (44)
70						1,190 (39)
Minimum boom angle (deg.) for indicated length (no load)					0	33.5
Maximum boom length (ft.) at 0 deg. boom angle (no load)					70	50
NOTE: ( ) Boom angles are in degrees.						

Boom Angle	27	40	50	60	70
0°	13,050 (21.1)	5,890 (33.7)	3,550 (43.7)	2,210 (53.7)	1,330 (63.8)

NOTE: ( ) Reference radii in feet.

A6-829-012447



27-70 ft.  
(8.3-21.4 m)



3,685 lbs.  
(1670 kg)



0%



360°



(Feet)



75% Domestic (Pounds)

(Feet)	27	40	50	60	70
8	28,700 (64)	28,700 (73)	27,100 (76.5)		
9	22,700 (61.5)	22,700 (71.5)	21,950 (75.5)		
10	18,650 (59)	18,650 (70)	18,650 (74)		
12	13,500 (54)	13,500 (66.5)	13,500 (71.5)	13,500 (75.5)	
15	9,250 (45)	9,250 (61.5)	9,250 (68)	9,250 (72)	9,250 (76.5)
20	5,640 (23)	5,640 (52.5)	5,640 (61.5)	5,640 (67)	5,640 (72)
25		3,730 (42)	3,730 (54.5)	3,730 (61.5)	3,730 (67)
30		2,550 (28.5)	2,550 (46.5)	2,550 (55.5)	2,550 (62.5)
35			1,740 (37.5)	1,740 (49.5)	1,740 (57.5)
40			1,160 (25)	1,160 (42.5)	1,160 (52)
Minimum boom angle (deg.) for indicated length (no load)					46.5
Maximum boom length (ft.) at 0 deg. boom angle (no load)					50
NOTE: ( ) Boom angles are in degrees.					

Boom  
Angle

	27	40
0°	5,120 (21.1)	1,930 (33.7)

NOTE: ( ) Reference radii in feet.

A6-829-012448

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.



27-70 ft.  
(8.3-21.4 m)



25-43 ft.  
(7.6-13.1 m)



3,685 lbs.  
(1670 kg)



100%



360°



(Feet)



85% Domestic (Pounds)

(Feet)	25' LENGTH			34' LENGTH			43' LENGTH		
	0°	15°	30°	0°	15°	30°	0°	15°	30°
20	*12,500 (78.0)			*8,500 (78.0)			*5,000 (78.0)		
25	10,750 (75.0)	7,500 (78.0)		8,030 (77.0)			4,750 (77.5)		
30	9,810 (71.5)	6,870 (74.5)	*5,500 (78.0)	7,170 (74.0)	*5,500 (78.0)		4,360 (75.0)		
35	8,930 (68.0)	6,330 (71.0)	5,110 (74.5)	6,390 (71.0)	4,910 (75.5)	*3,600 (78.0)	4,020 (72.0)	3,000 (78.0)	
40	7,860 (64.5)	5,860 (67.5)	4,770 (71.0)	5,680 (68.0)	4,540 (72.5)	3,290 (76.0)	3,710 (69.5)	2,800 (75.5)	*2,300 (78.0)
45	6,220 (61.0)	5,450 (64.0)	4,490 (67.5)	5,040 (65.0)	4,180 (69.0)	2,930 (72.5)	3,420 (66.5)	2,650 (72.5)	2,210 (76.5)
50	4,960 (57.0)	4,960 (60.0)	4,260 (63.5)	4,590 (61.5)	3,840 (66.0)	2,650 (69.5)	3,170 (64.0)	2,510 (70)	2,160 (73.5)
55	3,970 (53.0)	3,970 (56.0)	3,970 (59.5)	4,200 (58.5)	3,510 (62.5)	2,430 (66.0)	2,940 (61.0)	2,400 (67.0)	2,100 (70.5)
60	3,170 (49.0)	3,170 (52.0)	3,170 (55.5)	3,520 (55.0)	3,200 (59.0)	2,250 (62.0)	2,730 (58.0)	2,300 (64.0)	2,030 (67.0)
65	2,510 (44.0)	2,510 (47.0)	2,510 (50.5)	2,910 (51.0)	2,900 (55.5)	2,100 (58.5)	2,540 (54.5)	2,210 (60.5)	1,970 (63.5)
70	1,960 (39.5)	1,960 (42.5)	1,960 (45.5)	2,390 (47.5)	2,390 (51.5)	1,970 (54.0)	2,360 (51.5)	2,130 (57.5)	1,890 (60.0)
75	1,480 (33.5)	1,480 (36.5)	1,480 (40)	1,960 (43)	1,960 (47)	1,850 (49.5)	2,140 (48.0)	2,060 (54.0)	1,820 (56.5)
80	1,080 (27)	1,080 (30)	1,080 (32.5)	1,580 (38.5)	1,580 (42.5)	1,580 (44.5)	2,010 (44.0)	2,000 (50.0)	1,730 (52.0)
85				1,250 (33)	1,250 (37)	1,250 (39)	1,670 (40)	1,670 (46)	1,640 (48)
90							1,370 (35.5)	1,370 (41.5)	1,370 (42.5)
95							1,100 (30.5)	1,100 (36.5)	

NOTE: ( ) Boom angles are in degrees.

\*This capacity is based upon maximum boom angle.

A6-829-008810

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.

AT400 Series

11



27-70 ft.  
(8.3-21.4 m)



25-43 ft.  
(7.6-13.1 m)



3,685 lbs.  
(1670 kg)



50%



360°



(Feet)



85% Domestic (Pounds)

(Feet)	25' LENGTH			34' LENGTH			43' LENGTH		
	0°	15°	30°	0°	15°	30°	0°	15°	30°
20	<u>*12,500</u> (78.0)			<u>*8,500</u> (78.0)			<u>*5,000</u> (78.0)		
25	<u>9,930</u> (75.0)	<u>7,500</u> (78.0)		<u>8,030</u> (77.0)			<u>4,750</u> (77.5)		
30	<u>7,520</u> (71.5)	<u>6,870</u> (74.5)	<u>*5,500</u> (78.0)	<u>7,170</u> (74.0)	<u>*5,500</u> (78.0)		<u>4,360</u> (75.0)		
35	<u>5,680</u> (68.0)	<u>5,680</u> (71.0)	<u>5,110</u> (74.5)	<u>5,500</u> (71.0)	<u>4,910</u> (75.5)	<u>*3,600</u> (78.0)	<u>4,020</u> (72.0)	<u>3,000</u> (78.0)	
40	<u>4,280</u> (64.5)	<u>4,280</u> (67.5)	<u>4,280</u> (71.0)	<u>4,260</u> (68.0)	<u>4,260</u> (72.5)	<u>3,290</u> (76.0)	<u>3,710</u> (69.5)	<u>2,800</u> (75.5)	<u>*2,300</u> (78.0)
45	<u>3,220</u> (61.0)	<u>3,220</u> (64.0)	<u>3,220</u> (67.5)	<u>3,320</u> (65.0)	<u>3,320</u> (69.0)	<u>2,930</u> (72.5)	<u>3,420</u> (66.5)	<u>2,650</u> (72.5)	<u>2,210</u> (76.5)
50	<u>2,390</u> (57.0)	<u>2,390</u> (60.0)	<u>2,390</u> (63.5)	<u>2,580</u> (61.5)	<u>2,580</u> (66.0)	<u>2,580</u> (69.5)	<u>3,150</u> (64.0)	<u>2,510</u> (70)	<u>2,160</u> (73.5)
55	<u>1,720</u> (53.0)	<u>1,720</u> (56.0)	<u>1,720</u> (59.5)	<u>1,980</u> (58.5)	<u>1,980</u> (62.5)	<u>1,980</u> (66.0)	<u>2,510</u> (61.0)	<u>2,400</u> (67.0)	<u>2,100</u> (70.5)
60	<u>1,170</u> (49.0)	<u>1,170</u> (52.0)	<u>1,170</u> (55.5)	<u>1,500</u> (55.0)	<u>1,500</u> (59.0)	<u>1,500</u> (62.0)	<u>1,990</u> (58.0)	<u>1,990</u> (64.0)	<u>1,990</u> (67.0)
65				<u>1,090</u> (51.0)	<u>1,090</u> (55.5)	<u>1,090</u> (58.5)	<u>1,560</u> (54.5)	<u>1,560</u> (60.5)	<u>1,560</u> (63.5)
70							<u>1,190</u> (51.5)	<u>1,190</u> (57.5)	<u>1,190</u> (60.0)

NOTE: ( ) Boom angles are in degrees.

\*This capacity is based upon maximum boom angle.

A6-829-013943

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.



# Rated Lifting Capacities

## IMPORTANT NOTES:

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

1. All rated loads have been tested to and meet minimum requirements of SAEJ1063 NOV93 - Cantilevered Boom Crane Structures - Method of Test, perform to SAEJ765 OCT90 Crane Stability Test Code.

2. Capacities given do not include the weight of hook blocks, slings, auxiliary lifting equipment and load handling devices. Their weights **MUST** be added to the load to be lifted. When more than minimum required reeving is used, the additional rope weight shall be considered part of the load.

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

4. All capacities are for crane on firm, level surface. It may be necessary to have structural supports under the outrigger floats to spread the load to a larger bearing surface.

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

6. For outrigger operation, ALL outriggers shall be properly extended with tires raised free of ground before raising the boom or lifting loads.

# Symbols Glossary

	Frame		Steering
	Outriggers		Transmission
	Outrigger Controls		Axles
	Engine		Brakes
	Fuel Tank Capacity		Tires
	Electrical System		Suspension
	Drive		360° Rotation
	Lights		Boom Elevation
	Cab		Swing
	Boom		Counterweight
	Fixed Swingaway		Oil
	Tele-Swingaway		Hydraulic System
	Jib		Hoist
	Boom Nose		Radius
	Boom Extension		Boom Length
	Speed		Hookblock
	Grade		Gear
	Lattice Extension		Luffing Jib