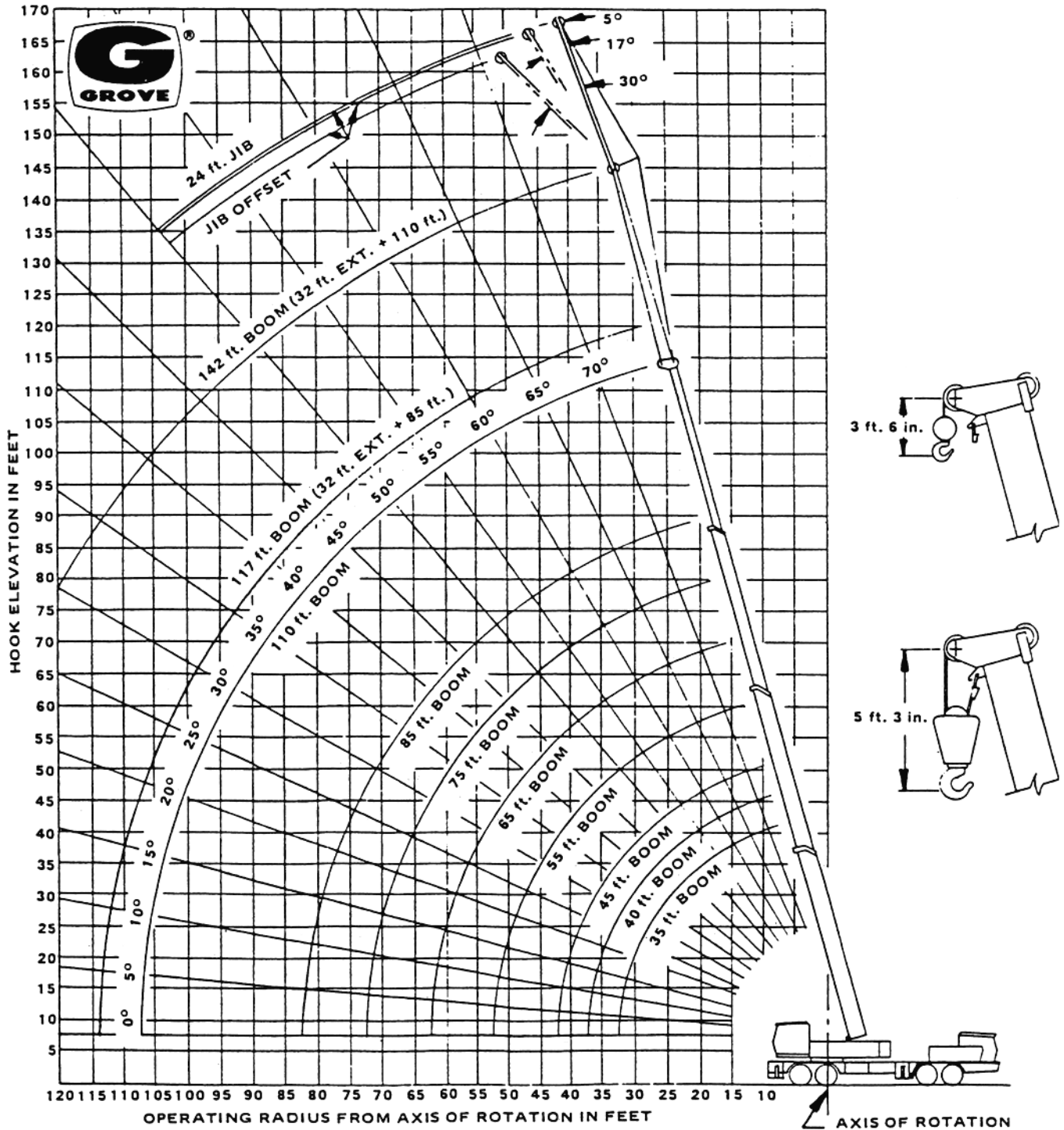




LIFTING CHARTS - Hydraulic Truck Cranes

GROVE MODEL TMS 475 - 50 TON CAPACITY

## RANGE DIAGRAM



## LIFTING CAPACITIES

### ON OUTRIGGERS FULLY EXTENDED – OVER SIDE

Radius In Feet	Main Boom Length in Feet (Power Pinned Fly Retracted)							Power Pin. Fly & 85 ft.	32 ft. Ext. & 85 ft.	32 ft. Ext. & 110 ft.
	*35	40	45	55	65	75	85	110	117	142
10	100,000 (71)	74,000 (73.5)	72,000 (75.5)					See Warning Note 5	See Warning Note 6	See Warning Note 7
12	90,000 (67.5)	70,000 (70.5)	67,500 (73)	64,000 (76.5)						
15	72,000 (62.5)	63,700 (66)	61,000 (69)	55,000 (73)	44,700 (76)					
20	53,000 (52.5)	52,200 (57.5)	49,800 (62)	44,000 (67.5)	37,900 (71.5)	35,000 (74)	31,000 (76.5)			
25	38,630 (41.5)	38,630 (48.5)	38,630 (54)	36,300 (61.5)	31,900 (66.5)	29,200 (70)	27,500 (73)	20,000 (77)	17,500 (76.5)	
30	27,010 (26)	27,010 (38)	27,010 (46)	27,010 (55.5)	27,000 (61.5)	25,000 (66)	23,900 (69)	17,700 (75)	16,400 (74.5)	
35		19,610 (23.5)	19,610 (36)	19,610 (49)	19,610 (56.5)	19,610 (61.5)	19,610 (65.5)	15,200 (72.5)	14,100 (72)	9,600 (77)
40			14,790 (22)	14,790 (41.5)	14,790 (51)	14,790 (57)	14,790 (61.5)	13,200 (69.5)	12,400 (69.5)	8,340 (74.5)
45				11,770 (32.5)	11,770 (45)	11,770 (52)	11,770 (57.5)	11,600 (66.5)	11,100 (67)	7,540 (72.5)
50				9,220 (20)	9,220 (38)	9,220 (47.5)	9,220 (53.5)	10,300 (63.5)	10,000 (64)	6,830 (70.5)
55					7,540 (30)	7,540 (42)	7,540 (49)	9,200 (60.5)	9,130 (61.5)	6,240 (68)
60					6,010 (18.5)	6,010 (35.5)	6,010 (44.5)	7,910 (57.5)	8,030 (58.5)	5,710 (66)
65						4,720 (28)	4,720 (39.5)	6,430 (54.5)	6,490 (55.5)	5,240 (63.5)
70						3,680 (17.5)	3,680 (33.5)	5,150 (51)	5,210 (53)	4,800 (61.5)
75							2,750 (26.5)	4,070 (47.5)	4,130 (49.5)	4,420 (59)
80							1,920 (16.5)	3,250 (43.5)	3,430 (46)	4,070 (56.5)
85								2,590 (39.5)	2,760 (42.5)	3,640 (54)
90								1,960 (35)	2,270 (38.5)	2,960 (51.5)
95								1,360 (30)	1,810 (34.5)	2,350 (49)
100									1,310 (30)	1,760 (46)
105										1,090 (43)

NOTE: Boom angles are in degrees.

\* Capacities for the 35 ft. boom length shall be lifted with boom fully retracted.  
If boom is not fully retracted, capacities shall not exceed those shown for the 40 ft. boom length.

## LIFTING CAPACITIES

### ON OUTRIGGERS FULLY EXTENDED – OVER SIDE

Radius In Feet	Main Boom Length in Feet (Power Pinned Fly Retracted)							Power Pin. Fly & 85 ft.	32 ft. Ext. & 85 ft.	32 ft. Ext. & 110 ft.
	*35	40	45	55	65	75	85	110	117	142
10	100,000 (71)	74,000 (73.5)	72,000 (75.5)					See Warning Note 5	See Warning Note 6	See Warning Note 7
12	90,000 (67.5)	70,000 (70.5)	67,500 (73)	64,000 (76.5)						
15	72,000 (62.5)	63,700 (66)	61,000 (69)	55,000 (73)	44,700 (76)					
20	53,000 (52.5)	52,200 (57.5)	49,800 (62)	44,000 (67.5)	37,900 (71.5)	35,000 (74)	31,000 (76.5)			
25	39,150 (41.5)	39,150 (48.5)	39,150 (54)	36,300 (61.5)	31,900 (66.5)	29,200 (70)	27,500 (73)	20,000 (77)	17,500 (76.5)	
30	27,300 (26)	27,300 (38)	27,300 (46)	27,300 (55.5)	27,000 (61.5)	25,000 (66)	23,900 (69)	17,700 (75)	16,400 (74.5)	
35		20,900 (23.5)	20,900 (36)	20,900 (49)	20,900 (56.5)	20,900 (61.5)	20,500 (65.5)	15,200 (72.5)	14,100 (72)	9,600 (77)
40			16,850 (22)	16,850 (41.5)	16,850 (51)	16,850 (57)	16,850 (61.5)	13,200 (69.5)	12,400 (69.5)	8,340 (74.5)
45				13,430 (32.5)	13,430 (45)	13,430 (52)	13,430 (57.3)	11,600 (66.5)	11,100 (67)	7,540 (72.5)
50				10,920 (20)	10,920 (38)	10,920 (47.5)	10,920 (53.5)	10,300 (63.5)	10,000 (64)	6,830 (70.5)
55					8,930 (30)	8,930 (42)	8,930 (49)	9,200 (60.5)	9,130 (61.5)	6,240 (68)
60					7,330 (18.5)	7,330 (35.5)	7,330 (44.5)	8,250 (57.5)	8,380 (58.5)	5,710 (66)
65						5,870 (28)	5,870 (39.5)	7,420 (54.5)	7,680 (55.5)	5,240 (63.5)
70						4,530 (17.5)	4,530 (33.5)	6,360 (51)	6,400 (53)	4,800 (61.5)
75							3,360 (26.5)	5,290 (47.5)	5,320 (49.5)	4,420 (59)
80							2,260 (16.5)	4,350 (43.5)	4,460 (46)	4,070 (56.5)
85								3,650 (39.5)	3,710 (42.5)	3,740 (54)
90								3,020 (35)	3,040 (38.5)	3,440 (51.5)
95								2,460 (30)	2,500 (34.5)	3,160 (49)
100								1,900 (24)	2,070 (30)	2,620 (46)
105								1,430 (15)	1,720 (24.5)	2,120 (43)
110									1,500 (17)	1,730 (39.5)
115										1,380 (36.5)
120										1,040 (32.5)

NOTE: Boom angles are in degrees.

\* Capacities for the 35 ft. boom length shall be lifted with boom fully retracted.  
If boom is not fully retracted, capacities shall not exceed those shown for the 40 ft. boom length.

# STERLING CRANE

## WEIGHT REDUCTION FOR LOAD HANDLING DEVICES

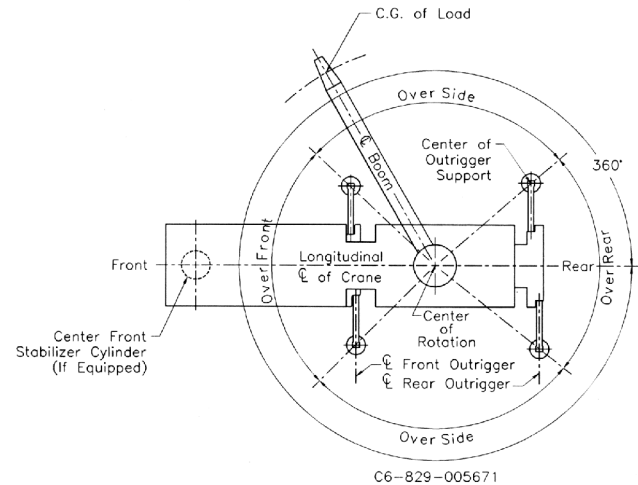
HOOK BLOCKS	
45 Ton 4-Sheave	700 lbs.
15 Ton 1-Sheave	310 lbs.
Auxiliary Boom Head	
18 in. Root Sheaves	220 lbs.
15 in. Root Sheaves	190 lbs.
5 Ton Headache Ball	150 lbs.
7 1/2 Ton Headache Ball	300 lbs.
10 Ton Headache Ball	500 lbs.

32 ft. BOOM EXTENSION	
*STOWED -	329 lbs.
*ERECTED -	2,316 lbs.
24 ft. JIB & 32 ft. EXT. COMB.	
*ERECTED -	5,900 lbs.
**ERECTED -	1,200 lbs.

\*Reduction of main boom capacities.  
\*\*Reduction of 32 ft. Ext. capacities.

**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.

## LIFTING AREA DIAGRAM



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

## JIB CAPACITIES IN POUNDS

### 24 ft. JIB and 32 ft. EXT. Combination

Main Boom Angle	Min. 5° Offset	17° Offset	Max. 30° Offset
76°	6,000	5,200	4,600
70°	4,300	3,940	3,650
65°	3,430	3,200	3,010
60°	2,760	2,600	2,470
55°	2,220	2,110	2,020

## HOIST SPECIFICATIONS

**DESCRIPTION:** Series parallel circuitry and two motors provide both high line pull and speed ranges. Power up and down, equal speed, planetary reduction with integral automatic brake and electronic hoist drum rotation indicator.

HOIST DATA	MAIN HOIST Grove Model HO30B-16		*AUXILIARY HOIST Grove Model HO30B-16	
<b>Drum Dimensions</b>	16 in. dia. (406mm) 16 in. length (406mm) 24 in. flange dia. (610mm)		16 in. dia. (406mm) 16 in. length (406mm) 24 in. flange dia. (610mm)	
<b>Performance:</b>				
<b>Max. Single Line Speed Bare Drum</b>	<b>Hi-Speed Range</b> 385 FPM (117.3 m/min)	<b>Lo-Speed Range</b> 195 FPM (59.4 m/min)	<b>Hi-Speed Range</b> 385 FPM (117.3 m/min)	<b>Lo-Speed Range</b> 195 FPM (59.4 m/min)
<b>Mean Drum</b>	460 FPM (140.2 m/min)	230 FPM (70.1 m/min)	460 FPM (140.2 m/min)	230 FPM (70.1 m/min)
<b>Full Drum</b>	525 FPM (160 m/min)	265 FPM (80.8 m/min)	525 FPM (160 m/min)	265 FPM (80.8 m/min)
<b>Max. Single Line Pull Bare Drum</b>	8,400 lbs. (3810 kg)	16,800 lbs. (7620 kg)	8,400 lbs. (3810 kg)	16,800 lbs. (7620 kg)
<b>Mean Drum</b>	6,945 lbs. (3150 kg)	13,890 lbs. (6301 kg)	6,945 lbs. (3150 kg)	13,890 lbs. (6301 kg)
<b>Full Drum</b>	6,125 lbs. (2778 kg)	12,245 lbs. (5554 kg)	6,125 lbs. (2778 kg)	12,245 lbs. (5554 kg)
<b>Drum Rope Storage + Max. Storage</b>	650 ft. off 3/4 in. dia. rope (198m of 19mm)		650 ft. off 3/4 in. dia. rope (198m of 19mm)	
<b>++ Max. Usable</b>	525 ft. of 3/4 in. dia. rope (160m of 19mm)		525 ft. of 3/4 in. dia. rope (160m of 19mm)	
<b>Permissible Single Line Rope Pull w/ 3.5:1 Safety factor</b>	3/4 in. (19mm) 6x41 class 14,605 lbs. (6625 kg) 3/4 in. (19mm) 19x7 class 13,700 lbs. (6214 kg)		3/4 in. (19mm) 6x41 class 14,605 lbs. (6625 kg) 3/4 in. (19mm) 19x7 class 13,700 lbs. (6214 kg)	

**NOTES:** \* Denotes Optional Equipment.

+ 6th layer of rope not recommended for hoisting operations.

++ With wire rope minimum 1/2 in. (13mm) below top of drum flange.

19x7 is a non-spin rope intended for single line operation and is not recommended for multiple part reeving.

## NOTES FOR ON OUTRIGGERS

1. Capacities appearing above the bold line are based on structural strength and tipping should not be relied upon as a capacity limitation. Capacities do not exceed 85% of tipping loads with counterweight fully extended as determined by test in accordance with SAE-J-765.
2. Do not exceed any rated load when lifting regardless of whether it is based on structural strength or stability.
- \*3. Capacities for the 35 ft. boom length shall be lifted with boom fully retracted. If boom is not fully retracted, capacities shall not exceed those shown for the 40 ft. boom length.
4. Boom angle is the included angle between horizontal and the longitudinal axis of the boom base section after lifting rated load.
5. For boom lengths less than 110 ft. with power pinned fly extended, the rated loads are determined by boom angle in the column headed by 110 ft. boom (power pinned fly extended). For boom angles not shown, use rating of next lower boom angle.
6. For boom lengths less than 117 ft. with power pinned fly retracted and 32 ft boom ext. erected, the rated loads are determined by boom angle only in the column headed by 117 ft. boom. For boom angles not shown, use rating of next lower boom angle.
7. For boom lengths less than 142 ft. with power pinned fly extended and 32 ft. boom ext. erected, the rated loads are determined by boom angle only in the column headed by 142 ft. boom. For boom angles not shown, use rating of next lower boom angle.

## NOTES FOR JIB CAPACITIES

1. 24 ft. jib and 32 ft. boom extension combination may be used for single line lifting crane service only. Capacities are based on structural strength of 24 ft. jib and 32 ft. boom extension combination at given main boom angle regardless of main boom length. When lifting with 24 ft. jib and 32 ft. boom extension, capacities must not exceed structural capacity of jib combination at given main boom angle or stability capacity of applicable boom length listed in boom capacity chart for actual working radius, whichever is less. **NOTE:** Capacities comply with structural requirements of SAE J-987 or SAE J-1063.
2. Maximum total length of boom including 32 ft. boom extension for purpose of erecting 24 ft. jib below 10° elevation is 92 ft.
3. **WARNING:** Operation of machine with heavier loads than the capacities listed is strictly prohibited. Machine tipping with jib occurs rapidly and without advance warning.
4. **24 FT. JIB WARNING:** For total boom length including 32 ft. boom extension greater than 92 ft. with 24 ft. jib in working position the boom angle must not be less than 50° since loss of stability will occur causing a tipping condition.
5. Lifting over front of machine with 24 ft. jib is strictly prohibited. (**NOTE:** Not applicable to units equipped with front outrigger jack)

## NOTES FOR LIFTING CAPACITIES

1. Do not exceed any rated lifting capacity. Rated lifting capacities are based on freely suspended loads with the machine leveled and standing on a firm supporting surface. Ratings with outriggers are based on outriggers being extended to their maximum position and tires raised free of crane weight before extending the boom or lifting loads.
2. Practical working loads for each particular job shall be established by the user depending on operating condition to include: the supporting surface, wind and other factors affecting stability, hazardous surroundings, experience of personnel, handling of load, etc. No attempt must be made to move a load horizontally on the ground in any direction.
3. Operating radius is the horizontal distance from the axis of rotation before loading to the centerline of the vertical hoist line or tackle with loads applied.
4. "On Rubber" Lifting (if permitted) depends on proper tire inflation, capacity and condition. "On Rubber" loads may be transported at a maximum vehicle speed of 2.5 mi/hr (4 Km/hr) on a firm and level surface under conditions specified.
5. Jibs may be used for lifting crane service only. Jib capacities are based on structural strength of jib or main boom and on main boom angle.
6. Operation is not intended or approved for any conditions outside of those shown hereon. Handling of personnel from the boom is not authorized except with equipment furnished and installed by Grove Manufacturing Company.
7. For clamshell or concrete bucket operation, weight of bucket and load must not exceed 80% of rated lifting capacities.
8. Power-telescoping boom sections must be extended equally at all times. Long cantilever booms can create a tipping condition when in extended and lowered position.
9. The maximum load which may be telescoped is limited by hydraulic pressure, boom angle, boom lubrication, etc. It is safe to attempt to telescope any load within the limits of rated lifting capacity chart.
10. With certain boom and hoist tackle combinations, maximum capacities may not be obtainable with standard cable lengths.
11. With certain boom and load combinations, raising of load with boom lift cylinders may not be possible. Operational safety is not affected by this condition.
12. Keep load handling devices a minimum of 12 inches (30 cm) below boom head when lowering or extending boom.
13. If actual boom length and/or radius is between values listed, use lifting capacity for the next longer rated length and/or radius.
14. All load handling devices and boom attachments are considered part of the load and suitable allowances must be made for their combined weights.
15. Operation of this equipment in excess of rating charts or disregard of the instructions is hazardous and voids the warranty and manufacturer's liability.

# STERLING CRANE

## DIMENSIONS

TAILSWING -120 In. (3048) retracted counterweight  
 144 In. (3657) extended counterweight

TURNING RADIUS - 42' (12.8m)

GROUND CLEARANCE -10 1/2 In. (266)

NOTE: Dimensions In parentheses ( )  
 are in millimeters (mm).

