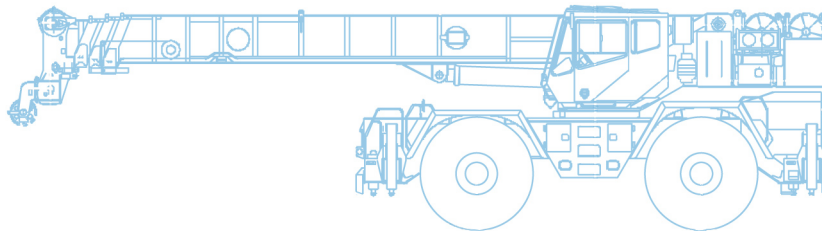


LOAD CHART & RIGGING LEARNING GUIDE

MOBILE HYDRAULIC CRANE 80 Tonnes & Under

Grove RT870



CraneSafe Certification

Mobile Hydraulic 80 Tonnes & Under LEARNING GUIDE
LCR.MH80.GVRT870.LG1.Q4(290109)

28 June 2011



CraneSafe Certification + Fulford Harbour Group
Tel: 604.952.6033 | www.fulford.ca

Introduction

These 10 questions are for you to use to help get ready for the load chart and rigging part of the CraneSafe Level A Certification assessment for Mobile Hydraulic – 80 Tonnes & Under.

The questions on your assessment will be different from these but will be presented in the same format as these questions.

With the questions are the answers with the relevant load charts. The answers explain how we arrived at the correct answer and you can use this to help work through any questions you may have gotten incorrect. We have not included all of the charts for this crane - but everything you need to answer the questions is included. You do not need the crane manual or full load chart package to answer the questions.

The crane industry in BC has stated that operators must get a minimum of 7 out of 10 questions right on the load chart and rigging part of the assessment to be competent.

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Specifications

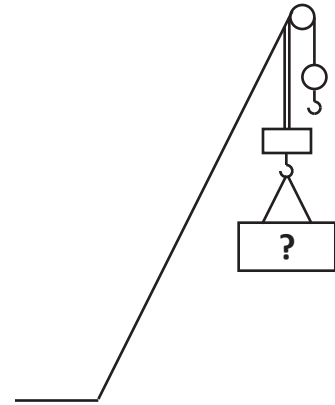
- Maximum permissible line pull – 12,920 pounds

Load Chart & Rigging Questions

1. What is the net capacity?

- Outrigger extension – 100%
- Main boom length – 85 feet
- Lifting with the 70 ton block
- 10 ton ball suspended from the auxiliary boom head
- 35 foot boom extension stowed
- Radius – 43 feet

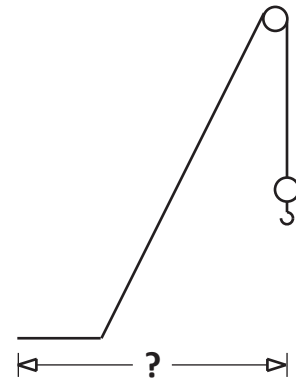
Answer: _____ pounds



2. What is the maximum radius the load can be placed?

- Outrigger extension – 50%
- Main boom length – 125 feet
- Lifting with the 10 ton ball
- Auxiliary boom head installed
- 35 foot boom extension stowed
- Rigging – 150 pounds
- Weight of load – 7,500 pounds

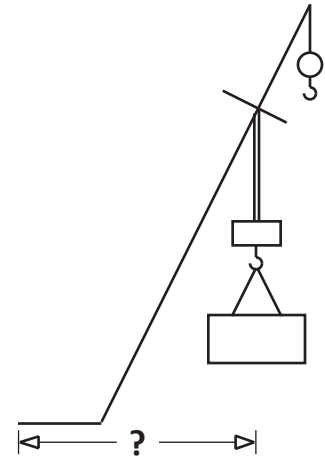
Answer: _____ feet



3. What is the maximum radius the load can be placed when lifting from the main boom?

- Outrigger extension – 100%
- Main boom length – 95 feet
- Lifting with the 15 ton block
- 35 foot boom extension erected
- 10 ton ball suspended from the boom extension
- Rigging – 100 pounds
- Weight of load – 22,000 pounds

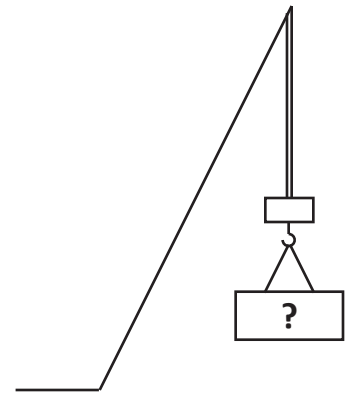
Answer: _____ feet



4. What is the net capacity?

- On rubber – stationary
- Main boom length – 65 feet
- Lifting with the 15 ton block
- 35-60 foot telescopic boom extension stowed
- Radius – 20 feet

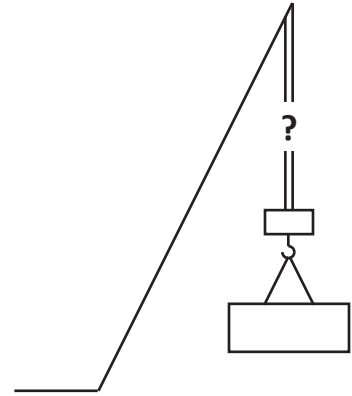
Answer: _____ pounds



5. How many parts of line are required to lift the gross load?

- Outrigger extension – 100%
- Main boom length – 55 feet
- Lifting with the 70 ton block
- Rigging – 250 pounds
- Weight of load – 40,000 pounds

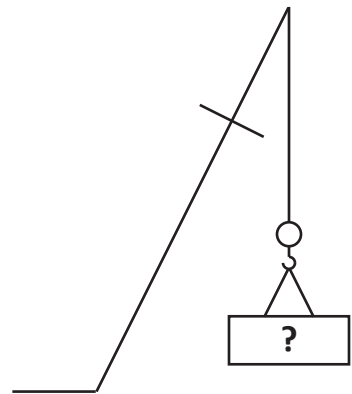
Answer: _____ parts



6. What is the net capacity when lifting from the 60 foot telescopic boom extension?

- Outrigger extension – 100%
- Main boom length – 125 feet
- Boom extension offset – 2 degrees
- Lifting with the 10 ton ball
- Main boom angle – 60 degrees

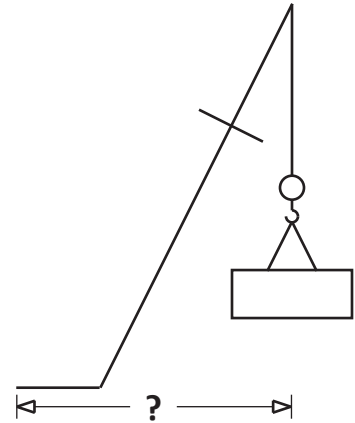
Answer: _____ pounds



7. What is the maximum radius the load can be placed when lifting from the 35 foot boom extension?

- Outrigger extension – 100%
- Main boom length – 125 feet
- Boom extension offset – 30 degrees
- Lifting with the 10 ton ball
- Rigging – 100 pounds
- Weight of load – 5,000 pounds

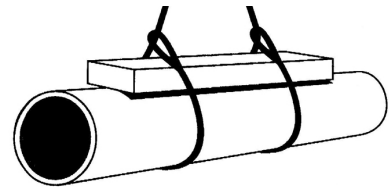
Answer: _____ feet



8. What is the minimum size of wire rope slings required when lifting a load of 11,000 pounds?

The two- leg bridle hitch is in a choker hitch configuration at a 45 degree angle.

Answer: _____ inch



9. What is the minimum size of nylon web slings required when lifting a load of 8,000 pounds?

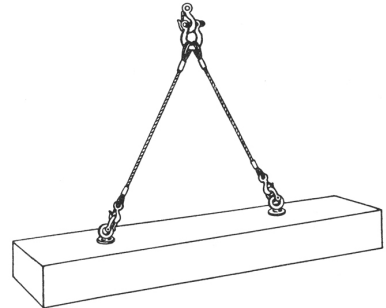
The two slings are in a basket hitch configuration at a 30 degree angle.



Answer: _____ inch

10. What is the minimum size of the two eye bolts required when lifting a load of 7,500 pounds?

The angle of pull is 60 degrees.

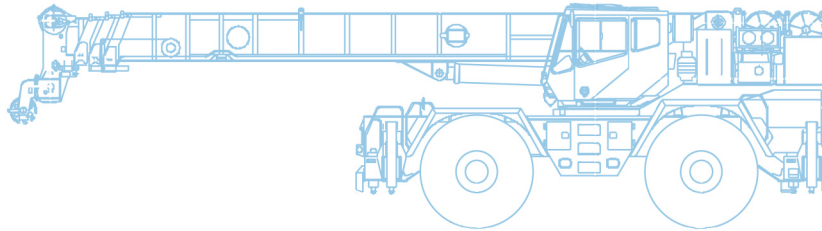


Answer: _____ inch

LOAD CHART & RIGGING LEARNING GUIDE – TABLES

MOBILE HYDRAULIC CRANE 80 Tonnes & Under

Grove RT870



CraneSafe Certification

Mobile Hydraulic 80 Tonnes & Under LEARNING GUIDE TABLES
LCR.MH80.GVRT870.LG1.LCR4(290109)

28 June 2011



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Load Charts

Grove TR870



40 - 125 ft.
(12 - 38 m)



11,500 lbs.
(5216 kg)



100%



360°



Feet	40	45	55	65	75	85	95	105	115	125
10	140,000 (70)	105,000 (72.5)								
12	111,000 (67)	105,000 (70)	94,600 (74)							
15	91,450 (61.5)	91,000 (65.5)	88,250 (70.5)	71,050 (74)						
20	69,550 (52.5)	69,050 (58)	68,400 (65)	60,400 (69)	55,250 (72.5)	48,150 (75)				
25	55,050 (41.5)	54,600 (49.5)	53,950 (58.5)	53,450 (64.5)	47,950 (68.5)	41,700 (71.5)	38,000 (73.5)	33,350 (75.5)		
30	42,950 (26)	42,450 (39.5)	41,700 (52)	41,200 (59)	41,950 (64)	36,700 (67.5)	33,300 (70.5)	30,750 (72.5)	24,550 (75)	*23,700 (76.5)
35		33,700 (26)	33,000 (44.5)	32,500 (53.5)	33,250 (59.5)	32,600 (64)	29,550 (67)	27,300 (69.5)	21,700 (72)	21,900 (74)
40			26,650 (35.5)	26,150 (47.5)	26,900 (54.5)	27,850 (60)	26,450 (63.5)	24,450 (66.5)	19,350 (69.5)	20,300 (71.5)
45			21,750 (23)	21,300 (40.5)	22,050 (49.5)	23,000 (55.5)	23,700 (60)	22,000 (63.5)	17,450 (66.5)	18,800 (69)
50				17,500 (32.5)	18,250 (44)	19,150 (51.5)	19,900 (56.5)	19,850 (60.5)	15,800 (64)	17,050 (66.5)
60					12,400 (30)	13,250 (41.5)	14,100 (48.5)	14,650 (53.5)	13,250 (58)	14,150 (61.5)
70						9,190 (28.5)	9,910 (39)	10,400 (46)	10,850 (51.5)	11,350 (55.5)
80							6,930 (27)	6,740 (37)	7,850 (44.5)	8,290 (49.5)
90								5,170 (25.5)	5,600 (36)	6,010 (42.5)
100									3,880 (25)	4,250 (34.5)
110										2,840 (24)

Minimum boom angle (deg.) for indicated length (no load)

0

Maximum boom length (ft.) at 0 degree boom angle (no load)

125

NOTE: () Boom angles are in degrees.

*Based on maximum obtainable boom angle.

A6-829-016051

Boom Angle	40	45	55	65	75	85	95	105	115
0°	22,800 (32.3)	18,250 (37.8)	12,200 (47.8)	7,990 (57.8)	5,720 (67.8)	4,320 (77.8)	3,210 (87.8)	2,380 (97.8)	1,570 (107.8)

NOTE: () Reference radii are in feet.

A6-829-012282

These charts are for assessment purposes only and should not be used to operate a crane. The individual crane's load chart, operating instructions and other instructional plates must be read and understood prior to operating the crane.



40 - 125 ft.
(12 - 38 m)



11,500 lbs.
(5216 kg)



50%
17' 4" Spread



360°



Feet	40	45	55	65	75	85	95	105	115	125
10	116,000 (70)	105,000 (72.5)								
12	102,500 (67)	102,000 (70)	94,600 (74)							
15	86,800 (61.5)	86,350 (65.5)	85,800 (70.5)	71,050 (74)						
20	67,250 (52.5)	64,850 (58)	60,550 (65)	56,950 (69)	55,250 (72.5)	48,150 (75)				
25	45,750 (41.5)	44,950 (49.5)	42,050 (58.5)	39,700 (64.5)	39,100 (68.5)	38,900 (71.5)	38,000 (73.5)	33,350 (75.5)		
30	32,500 (26)	32,050 (39.5)	31,000 (52)	29,250 (59)	29,050 (64)	29,250 (67.5)	29,300 (70.5)	29,250 (72.5)	24,550 (75)	*23,700 (76.5)
35		23,900 (26)	23,350 (44.5)	22,250 (53.5)	22,300 (59.5)	22,700 (64)	22,900 (67)	23,050 (69.5)	21,700 (72)	21,900 (74)
40			17,650 (35.5)	17,200 (47.5)	17,400 (54.5)	17,900 (60)	18,250 (63.5)	18,550 (66.5)	18,550 (69.5)	18,550 (71.5)
45			13,400 (23)	13,000 (40.5)	13,600 (49.5)	14,300 (55.5)	14,700 (60)	15,050 (63.5)	15,150 (66.5)	15,250 (69)
50				9,850 (32.5)	10,450 (44)	11,450 (51.5)	11,900 (56.5)	12,350 (60.5)	12,450 (64)	12,600 (66.5)
60					5,970 (30)	6,940 (41.5)	7,840 (48.5)	8,310 (53.5)	8,500 (58)	8,700 (61.5)
70						4,020 (28.5)	4,840 (39)	5,410 (46)	5,700 (51.5)	5,930 (55.5)
80							2,630 (27)	3,170 (37)	3,620 (44.5)	3,870 (49.5)
90								1,490 (25.5)	2,000 (36)	2,280 (42.5)
100										1,020 (34.5)
Minimum boom angle (deg.) for indicated length (no load)										27.5
Maximum boom length (ft.) at 0 degree boom angle (no load)										105

NOTE: () Boom angles are in degrees.
*Based on maximum obtainable boom angle.

A6-829-011802A

Boom Angle	40	45	55	65	75	85	95
0°	22,800 (32.3)	18,250 (37.8)	11,500 (47.8)	6,220 (57.8)	3,740 (67.8)	2,350 (77.8)	1,300 (87.8)

NOTE: () Reference radii are in feet.

A6-829-012282

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The individual crane's load chart, operating instructions and other instructional plates must be read and understood prior to operating the crane.



40 - 125 ft.
(12 - 38 m)



11,500 lbs.
(5216 kg)



0%
10' 4" Spread



360°



Feet	40	45	55	65	75	85	95	105	115	125
10	91,900 (70)	86,850 (72.5)								
12	70,100 (67)	66,600 (70)	61,200 (74)							
15	50,500 (61.5)	48,150 (65.5)	44,550 (70.5)	41,550 (74)						
20	31,200 (52.5)	30,950 (58)	28,900 (65)	26,950 (69)	26,600 (72.5)	26,600 (75)				
25	20,850 (41.5)	20,550 (49.5)	19,900 (58.5)	18,500 (64.5)	18,500 (68.5)	18,800 (71.5)	18,950 (73.5)	19,050 (75.5)		
30	14,650 (26)	14,350 (39.5)	13,850 (52)	12,950 (59)	13,850 (64)	13,650 (67.5)	13,950 (70.5)	14,200 (72.5)	14,200 (75)	*14,200 (76.5)
35		10,200 (26)	9,750 (44.5)	9,090 (53.5)	9,370 (59.5)	9,970 (64)	10,350 (67)	10,700 (69.5)	10,750 (72)	10,850 (74)
40			6,810 (35.5)	6,190 (47.5)	6,550 (54.5)	7,200 (60)	7,660 (63.5)	8,070 (66.5)	8,200 (69.5)	8,350 (71.5)
45			4,600 (23)	3,950 (40.5)	4,350 (49.5)	5,040 (55.5)	5,540 (60)	5,990 (63.5)	6,170 (66.5)	6,360 (69)
50				2,170 (32.5)	2,610 (44)	3,320 (51.5)	3,850 (56.5)	4,330 (60.5)	4,540 (64)	4,750 (66.5)
60							1,300 (48.5)	1,820 (53.5)	2,070 (58)	2,320 (61.5)

Minimum boom angle (deg.) for indicated length (no load)

51

Maximum boom length (ft.) at 0 degree boom angle (no load)

65

NOTE: () Boom angles are in degrees.

*Based on maximum obtainable boom angle.

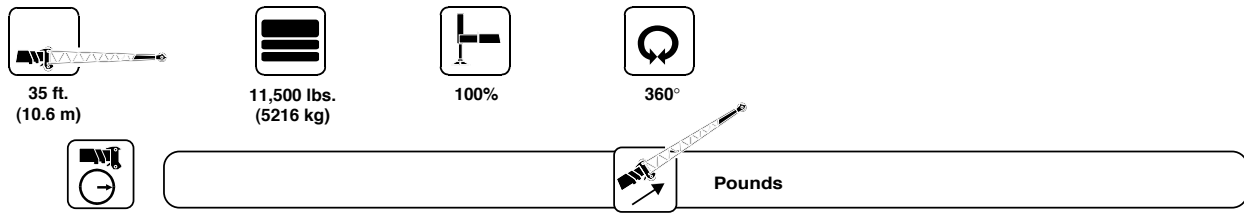
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Boom Angle	40	45	55
0°	12,550 (32.3)	8,440 (37.8)	3,610 (47.8)

NOTE: () Reference radii are in feet.

A6-829-012282

These charts are for assessment purposes only and should not be used to operate a crane.
The individual crane's load chart, operating instructions and other instructional plates must be read and understood prior to operating the crane.

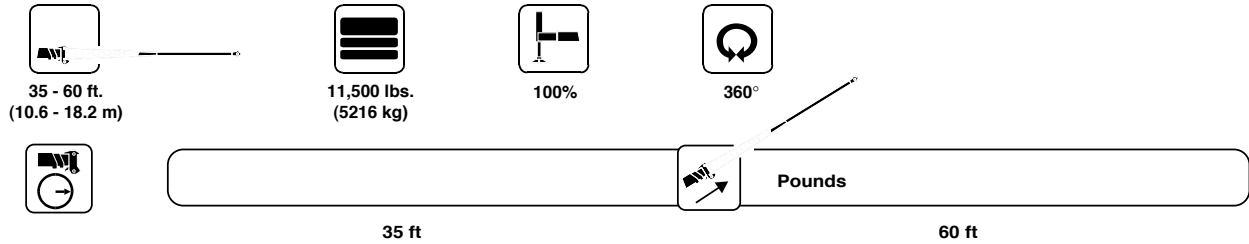


Feet	2° OFFSET	30° OFFSET
40	*12,900 (77)	
45	11,900 (75.5)	
50	11,200 (73.5)	
55	10,600 (71.5)	*7,800 (77)
60	10,050 (69.5)	7,530 (74.5)
65	9,650 (67.5)	7,410 (72.5)
70	9,110 (65.5)	7,280 (70.5)
75	8,700 (63.5)	7,160 (68)
80	8,330 (61.5)	7,050 (66)
85	7,990 (59)	6,950 (64)
90	<u>7,330</u> (57)	<u>6,850</u> (61.5)
95	6,330 (54.5)	6,330 (59)
100	5,450 (52.5)	5,450 (56.5)
105	4,660 (50)	4,660 (54)
110	3,950 (47.5)	3,950 (51.5)
115	3,310 (44.5)	3,310 (48.5)
120	2,730 (41.5)	2,730 (45.5)
125	2,200 (38.5)	2,200 (42.5)
130	1,710 (35.5)	1,710 (38.5)
135	1,270 (31.5)	1,270 (34.5)

NOTE: () Boom angles are in degrees.
 *This capacity is based upon maximum boom angle.

A6-829-012285

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Feet	35 ft		60 ft	
	2° OFFSET	30° OFFSET	2° OFFSET	30° OFFSET
40	*12,900 (77)			
45	11,600 (73.5)			
50	10,900 (73.5)		*6,700 (77)	
55	10,300 (71.5)	*7,500 (77)	6,320 (75)	
60	9,750 (69.5)	7,250 (74.5)	6,000 (73.5)	
65	9,250 (67.5)	7,110 (72.5)	5,630 (71.5)	
70	8,810 (65.5)	6,980 (70.5)	5,260 (70)	
75	8,400 (63.5)	6,860 (68)	4,900 (68.5)	*4,000 (77)
80	8,030 (61.5)	6,750 (66)	4,630 (66.5)	3,700 (74.5)
85	7,690 (59)	6,650 (64)	4,360 (65)	3,500 (73)
90	<u>6,840</u> (57)	6,560 <u>(61.5)</u>	4,100 (63)	3,350 (71)
95	5,840 (54.5)	5,840 (59)	3,800 (61)	3,270 (69)
100	4,950 (52.5)	4,950 (56.5)	3,640 (59.5)	3,210 (67)
105	4,160 (50)	4,160 (54)	3,490 (57.5)	3,150 (65)
110	3,450 (47.5)	3,450 (51.5)	3,350 (55.5)	3,100 (63)
115	2,810 (44.5)	2,810 (48.5)	3,220 (53.5)	3,050 (61)
120	2,230 (41.5)	2,230 (45.5)	3,100 (51)	3,010 (58.5)
125	1,700 (38.5)	1,700 (42.5)	2,990 (49)	2,970 (56.5)
130	1,210 (35.5)	1,210 (38.5)	<u>2,770</u> (47)	<u>2,770</u> (54)
135			2,290 (44.5)	2,290 (51.5)
140			1,850 (42)	1,850 (48.5)
145			1,450 (39.5)	1,450 (46)
150			1,070 (36.5)	1,070 (42.5)

NOTE: () Boom angles are in degrees.
 *This capacity is based upon maximum boom angle.

A6-829-011806A

These charts are for assessment purposes only and should not be used to operate a crane.
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40 - 125 ft.
(12 - 38 m)



11,500 lbs.
(5216 kg)



33.25 x 29
(32 Ply)
Stationary



360°



Feet	40	45	55	65	75	85	95
10	66,250 (70.5)	63,400 (73)					
12	51,800 (67.5)	51,500 (70.5)	50,900 (74.5)				
15	35,850 (62.5)	35,450 (66)	33,500 (71)	30,800 (74.5)			
20	21,500 (53.5)	21,200 (58.5)	20,650 (65)	18,950 (69.5)	21,250 (72.5)	18,200 (75)	
25	14,050 (42.5)	13,800 (50)	13,300 (59)	12,850 (64.5)	13,650 (68.5)	14,800 (71.5)	13,950 (74)
30	9,430 (28)	8,920 (40)	8,590 (52)	8,260 (59.5)	8,470 (64)	8,920 (68)	9,980 (70.5)
35		5,750 (26.5)	5,100 (44.5)	4,460 (54)	5,000 (59.5)	6,060 (64)	6,500 (67.5)
40			3,000 (35.5)	2,160 (47.5)	3,260 (55)	3,870 (60)	4,100 (64)
45							2,330 (60.5)

NOTE: () Boom angles are in degrees.

A6-829-012279

Boom Angle	40	45
0°	7,420 (32.3)	4,770 (37.8)

NOTE: () Reference radii are in feet.

A6-829-012282

These charts are for assessment purposes only and should not be used to operate a crane. The individual crane's load chart, operating instructions and other instructional plates must be read and understood prior to operating the crane.

WEIGHT REDUCTIONS FOR LOAD HANDLING DEVICES

35 FT. BOOM EXTENSION	
*Stowed -	767 lbs.
*Erected -	4,823 lbs.
35 - 60 FT. TELE. BOOM EXTENSION	
*Stowed -	1,033 lbs.
*Erected (Retracted) -	6,499 lbs.
*Erected (Extended) -	8,740 lbs.

*Reduction of main boom capacities

AUXILIARY BOOM HEAD	112 lbs.
HOOKBLOCKS and HEADACHE BALLS:	
70 Ton, 6 Sheave w/o cheekplates	1,674 lbs.+
15 Ton, 1 Sheave	420 lbs.+
10 Ton Headache Ball	560 lbs.+

+Refer to rating plate for actual weight.

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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

NOTES FOR LIFTING CAPACITIES

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 meet ANSI/ASME B30.5, Mobile and Locomotive Cranes. Testing and development were performed to SAEJ1063, Cantilevered Boom Crane Structures - Method of Test, and SAEJ765 Crane Stability Test Code.
2. Rated loads include the weight of hookblock, slings and auxiliary lifting devices and their weights shall be subtracted from the listed rating to obtain the net load to be lifted. When more than the minimum required hoist reeving is used, the additional rope weight shall be considered part of the load to be handled.
3. Capacities appearing above the bold line are based on structural strength. Tipping should not be relied upon as a capacity indication. The designated crane load chart indicates crane capacity.
4. The machine shall be leveled on a firm supporting surface. 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 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 next longer or shorter boom length shall be used.
6. Tires shall be inflated to the recommended pressure before lifting on rubber.
7. For outrigger operation, outriggers shall be properly extended with tires raised free of crane weight before operating the boom or lifting loads.

*These charts are for assessment purposes only and should not be used to operate a crane.
The individual crane's load chart, operating instructions and other instructional plates must be read and understood prior to operating the crane.*




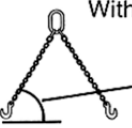
Rigging Tables

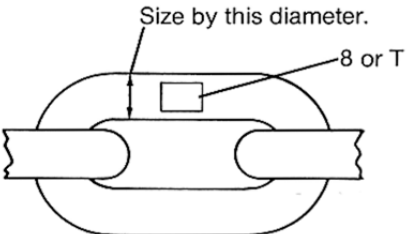
Wire Rope Slings

6 x 19 Classification Group, Improved Plow Steel, IWRC						
Rope Diameter (Inches)	Working Load Limit in pounds					
	Single Vertical Hitch	Single Choker Hitch	Single Basket Hitch (Vertical Legs)	2-Leg Bridle Hitch & Single Basket Hitch With Legs Inclined		
				60°	45°	30°
3/16	650	480	1,300	1,100	900	650
1/4	1,150	860	2,300	2,000	1,600	1,150
5/16	1,750	1,300	3,500	3,000	2,500	1,750
3/8	2,550	1,900	5,100	4,400	3,600	2,550
7/16	3,450	2,600	6,900	6,000	4,900	3,450
1/2	4,700	3,500	9,400	8,150	6,650	4,700
9/16	5,700	4,200	11,400	9,900	8,050	5,700
5/8	7,100	5,300	14,200	12,300	10,000	7,100
3/4	10,200	7,650	20,400	17,700	14,400	10,200
7/8	13,750	10,300	27,500	23,800	19,400	13,750
1	17,950	13,450	35,900	31,100	25,400	17,950
1 1/8	22,750	17,000	45,500	39,400	32,200	22,750
1 1/4	28,200	21,200	56,400	48,800	39,900	28,200
1 3/8	34,800	26,100	69,600	60,300	49,200	34,800
1 1/2	41,300	31,000	82,600	71,500	58,400	41,300
<p>When using a 2-leg bridle in a choker hitch configuration, multiply the above values by .75.</p> <p>When using a double basket hitch configuration, multiply the above values by 2.</p>						
<p>Note: For training and assessment use only.</p>						

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Chain Slings

GRADE T (8) ALLOY STEEL						
Chain Size (Inches)	Working Load Limit in pounds					
	Single Vertical Hitch	Single Choker Hitch	Single Basket Hitch (Vertical Legs)	2-Leg Bridle Hitch & Single Basket Hitch With Legs Inclined		
					Sling Angle	
				60°	45°	30°
1/4	2,800	2,100	5,600	4,850	3,959	2,800
3/8	5,680	4,260	11,360	9,838	8,032	5,680
1/2	9,600	7,200	19,200	16,627	13,574	9,600
5/8	14,480	10,860	28,960	25,079	20,475	14,480
3/4	22,640	16,980	45,280	39,212	32,013	22,640
7/8	27,360	20,520	54,720	47,388	38,687	27,360
1	38,160	28,620	76,320	66,093	53,958	38,160
1 1/4	57,840	43,380	115,680	100,179	81,786	57,840



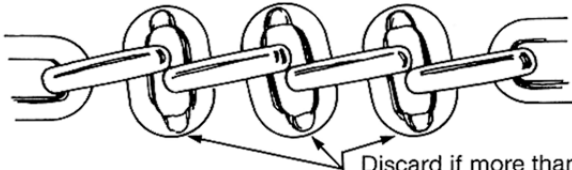
Size by this diameter.

8 or T

Use only alloy steel chain. Links will be stamped with 8 or T.

When using a 2-leg bridle in a choker hitch configuration, multiply the above values by **.75**.

When using a double basket hitch configuration, multiply the above values by **2**.



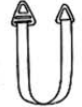



Discard if more than 10% wear at bearing surfaces.

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Nylon Web Slings

6800 lb/in Material						
Web Width (Inches)	Working Load Limit in pounds					
	Single Vertical Hitch 	Single Choker Hitch 	Single Basket Hitch (Vertical Legs) 	2-Leg Bridle Hitch & Single Basket Hitch With Legs Inclined 		
				60°	45°	30°
1	1,100	825	2,200	1,905	1,555	1,100
2	2,200	1,650	4,400	3,810	3,110	2,200
3	3,300	2,475	6,600	5,715	4,665	3,300
4	4,400	3,300	8,800	7,620	6,220	4,400
5	5,500	4,125	11,000	9,525	7,775	5,500
6	6,600	4,950	13,200	11,430	9,330	6,600
<p>When using a 2-leg bridle in a choker hitch configuration, multiply the above values by .75.</p> <p>When using a double basket hitch configuration, multiply the above values by 2.</p>						
<p>Note: Capacities are for flat eye, twisted eye and triangle fittings. For training and assessment use only.</p>						

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Eye Bolts

Stock Diameter (Inches)	Working Load Limit in pounds			
	Vertical	60°	45°	Less than 45°
1/4	500	175	125	NOT RECOMMENDED
5/16	800	280	200	
3/8	1,200	420	300	
1/2	2,200	770	550	
5/8	3,500	1,225	875	
3/4	5,200	1,820	1,300	
7/8	7,200	2,520	1,800	
1	10,000	3,500	2,500	
1 1/4	15,200	5,320	3,800	
1 1/2	21,400	7,490	5,350	

SHOULDER BOLTS

Correct for Shoulder Eye and Ring Bolts
Providing loads are reduced to account for angular loading

Nut must be properly torqued. Ensure that bolt is tightened into place. Ensure that tapped hole is deep enough. Pack with washers to ensure that shoulder is firmly in contact with surface.

Incorrect

Shoulder must be in full contact with surface.

SHOULDERLESS BOLTS

Correct

Shoulderless eye and ring bolts are designed for vertical loads only.

Shoulderless Eye Bolt Shoulderless Ring Bolt

Incorrect

If shoulderless eye and ring bolts are pulled at an angle as shown they will either bend or break

Shoulderless Eye Bolt Shoulderless Ring Bolt

Results In →

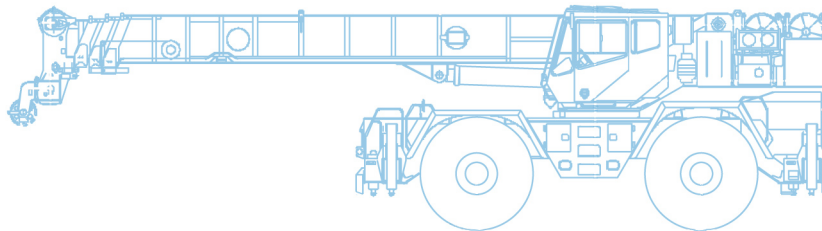
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LOAD CHART & RIGGING LEARNING GUIDE – ANSWER KEY

MOBILE HYDRAULIC CRANE 80 Tonnes & Under

Grove RT870



CraneSafe Certification

Mobile Hydraulic 80 Tonnes & Under LEARNING GUIDE ANSWER KEY
LCR.MH80.GVRT870.LG1.AK4(290109)

28 June 2011



CraneSafe Certification + Fulford Harbour Group
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Answer Key

1. Answer: **19,887 pounds**

Deductions from Gross Capacity

Block	1,674 pounds
Ball	560 pounds
Auxiliary boom head	112 pounds
<u>Extension stowed</u>	<u>767 pounds</u>
	3,113 pounds

The gross capacity at a 45 foot radius is $23,000 - 3,113 = 19,887$ pounds.

2. Answer: **50 feet**

Gross Load

Ball	560 pounds
Auxiliary boom head	112 pounds
Extension stowed	767 pounds
Rigging	150 pounds
<u>Load</u>	<u>7,500 pounds</u>
	9,089 pounds

The gross capacity at a 50 foot radius is 12,600 pounds.

3. Answer: **35 feet**

Gross Load

Block	420 pounds
Extension erected	4,823 pounds
Ball	560 pounds
Rigging	100 pounds
<u>Load</u>	<u>22,000 pounds</u>
	27,903 pounds

The gross capacity at a 35 foot radius is 29,550 pounds.

4. Answer: **17,497 pounds**

Deductions from Gross Capacity

Block	420 pounds
<u>Extension erected</u>	<u>1,033 pounds</u>
	1,453 pounds

The gross capacity at a 20 foot radius is $18,950 - 1,453 = 17,497$ pounds.

5. Answer: **4 parts**

Gross Load

Block	1,674 pounds
Rigging	250 pounds
<u>Load</u>	<u>40,000 pounds</u>
	41,924 pounds

$41,924 \text{ pounds} \div \text{line pull of } 12,920 = 3.24$ or 4 parts of line.

6. Answer: **3,080 pounds**

Deductions from Gross Capacity

Ball	560 pounds
------	------------

The gross capacity at a 59.5 degree boom angle is $3,640 - 560 = 3,080$ pounds.

7. Answer: **95 feet**

Deductions from Gross Capacity

Ball	560 pounds
Rigging	100 pounds
<u>Load</u>	<u>5,000 pounds</u>
	5,660 pounds

The gross capacity at a 95 foot radius is 6,330 pounds.

8. Answer: **7/8 inch**

The capacity of a 7/8 inch 2-leg bridle is 19,400 pounds.

$$19,400 \text{ pounds} \times .75 = 14,550 \text{ pounds}$$

9. Answer: **4 inch**

Capacity of one 4 inch belt is 4,400 pounds.

$$4,400 \text{ pounds} \times 2 = 8,800 \text{ pounds}$$

10. Answer: **1-1/4 inch**

The capacity of one 1-1/4 eye bolt is 5,320 pounds at a 60 degree angle of pull

$$5,320 \times 2 = 10,640 \text{ pounds}$$