

200'-0" BOOM

4600 RINGER

PROFILE

FRAMES TO BE MODIFIED TO ACCEPT CRANE WEIGHT

269'-3"

EXISTING DECK STRUCTURE - 600#/SQFT

PLAN VIEW

218'-5"

BALLAST TANK - PORT

BALLAST TANK - STBD

CL BARGE#1

CL COMBINED UNIT

CL BARGE#1

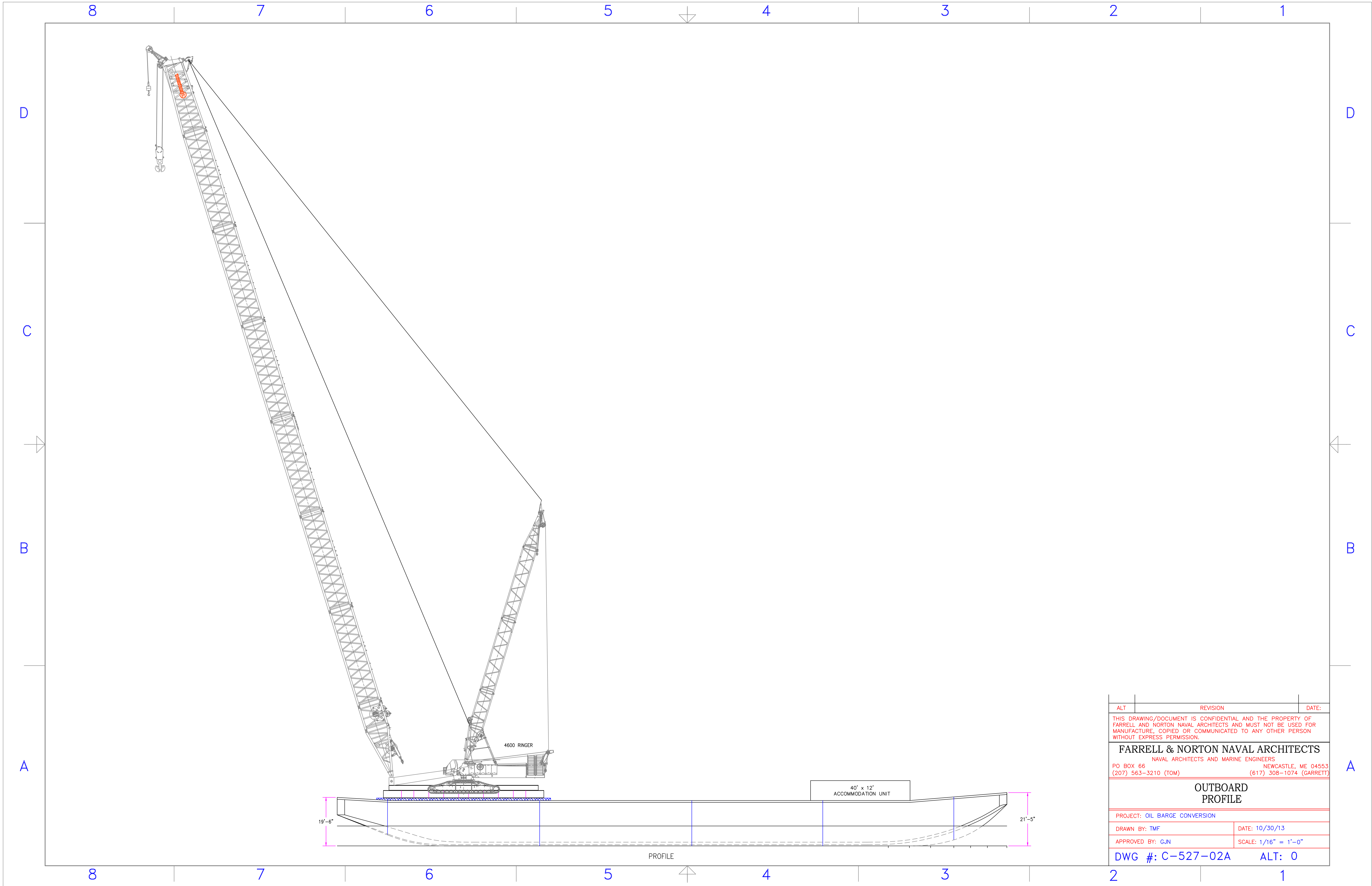
1	- REVISED CONNECTION AND ADDED BOW SHAPE	12/20/12
ALT	REVISION	DATE:

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**FARRELL & NORTON NAVAL ARCHITECTS**  
 NAVAL ARCHITECTS AND MARINE ENGINEERS  
 PO BOX 66 (207) 563-3210 (TOM) NEWCASTLE, ME 04553 (617) 308-1074 (GARRETT)

**GENERAL ARRANGEMENTS**

PROJECT: OIL BARGE CONVERSION	
DRAWN BY: TMF	DATE: 09/30/12
APPROVED BY: GJN	SCALE: 3/32" = 1'-0"
DWG #: C-527-02	ALT: 1



ALT	REVISION	DATE:
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NAVAL ARCHITECTS AND MARINE ENGINEERS		
PO BOX 66 (207) 563-3210 (TOM)	NEWCASTLE, ME 04553 (617) 308-1074 (GARRETT)	
<b>OUTBOARD PROFILE</b>		
PROJECT: OIL BARGE CONVERSION		
DRAWN BY: TMF	DATE: 10/30/13	
APPROVED BY: GJN	SCALE: 1/16" = 1'-0"	
DWG #: C-527-02A	ALT: 0	

# Liftcrane Boom Capacities

## 4600 SERIES 4 RINGER SERIES 3

**Boom No. 65**  
**60 ft RINGER Attachment On**  
**Blocking Or Pedestals**  
**123,000 lb Crane Counterweight**  
**978,700 lb Auxiliary Counterweight**  
**Barge Mount - 0 Degree thru 2 Degree Static Machine List**  
**360 Degree Rating**

**LIFTING CAPACITIES:** Lifting capacities are for a RINGER when operating on a barge. Machine shall be positively secured to prevent shifting. Lifting capacities for various boom lengths and operating radii are for freely suspended loads and do not exceed 75% of a static tipping load. Capacities based on structural competence are denoted by an asterisk (\*).

Upper boom point capacities for liftcrane service with single part whip line are 44,000 lb for 1-1/4 in. wire rope, 45,000 lb for 1-3/8 in. wire rope and 50,000 lb for 1-1/2 in. or 1-5/8 in. wire rope. Capacities for two part line are 88,000 lb for 1-1/4 in. wire rope, 90,000 lb for 1-3/8 in. wire rope and 100,000 lb for 1-1/2 in. or 1-5/8 in. wire rope. In all cases, upper boom point capacities cannot exceed those listed for the main boom capacity.

Weight of all load blocks, hooks, weight ball, slings, hoist lines, etc., beneath boom point sheaves, is considered part of main boom load. Boom is not to be lowered beyond radii where combined weights are greater than rated capacity. Where no capacity is shown, operation is not intended or approved.

**OPERATING CONDITIONS:** Machine to operate on a firm uniformly supporting surface with roller path properly supported and machine list not to exceed degrees noted with exception of 0 degree machine list which must not

exceed 1-1/4 in. in 60 ft. Refer to boom rigging **No. 66184** and Wire Rope Specification chart **No. 7307-A** or **No. 7357-A**. Crane operator judgment must be used to allow for dynamic load effects of swinging, hoisting or lowering, wind conditions, as well as adverse operating conditions and physical machine depreciation.

**OPERATING RADIUS:** Operating radius is horizontal distance from axis of rotation at barge deck to center of vertical hoist line or load block. Boom angle is angle between horizontal and centerline of boom butt and inserts, and is an indication of operating radius. In all cases, operating radius shall govern capacity.

**BOOM POINT ELEVATION:** Boom point elevation is vertical distance from barge deck to centerline of boom point shaft.

**MACHINE EQUIPMENT:** Machine equipped with 60 ft RINGER attachment, 30 ft 5 in. crawlers, 60 in. treads, 33 ft retractable gantry, 130 ft mast, 18 part boom hoist reeving, eight 1-3/8 in. boom pendants, 123,000 lb crane counterweight. (120,000 lb with counterweight assembly **No. 49667**) and 978,700 lb auxiliary counterweight.

**Warning:** Check amount of auxiliary counterweight on machine before use of this chart.

Maximum Boom Lengths Lifted Unassisted	
List	Boom Length
0 Degree	400 ft
1/2 Degree	360 ft
1 Degree	320 ft
2 Degree	280 ft
Load block, hook and weight ball on barge deck until combined weights are within rated capacity of chart.	

Jib must be removed before use of this chart.

# Manitowoc Cranes

Manitowoc, Wisconsin 54220 U.S.A.



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Oper. Radius Feet	Boom Angle Deg.	Boom Point Elev. Feet	0 Degree List Boom Capacity Pounds	1/2 Degree List Boom Capacity Pounds	1 Degree List Boom Capacity Pounds	2 Degree List Boom Capacity Pounds	Oper. Radius Feet
140.0 ft							
55	80.1	145.5	1,500,000 *	615,200 *	594,200 *		55
60	78.0	144.4	1,500,000 *	562,300 *	542,200 *	521,200 *	60
65	75.9	143.2	1,500,000 *	517,600 *	498,300 *	478,000 *	65
70	73.8	141.8	1,500,000 *	479,300 *	460,600 *	441,000 *	70
75	71.6	140.1	1,333,200	446,000 *	427,900 *	408,900 *	75
80	69.5	138.3	1,198,700	416,900 *	399,300 *	380,900 *	80
85	67.2	136.2	1,084,800 *	391,300 *	374,100 *	356,100 *	85
90	65.0	133.9	982,200 *	368,500 *	351,700 *	334,100 *	90
95	62.7	131.4	895,100 *	348,100 *	331,600 *	314,400 *	95
100	60.3	128.6	820,300 *	329,700 *	313,600 *	296,700 *	100
105	57.9	125.5	753,100 *	313,100 *	297,200 *	280,600 *	105
110	55.5	122.1	693,200 *	298,000 *	282,400 *	266,000 *	110
115	52.9	118.4	640,000 *	284,200 *	268,800 *	252,700 *	115
120	50.3	114.3	592,500 *	271,500 *	256,400 *	240,500 *	120
125	47.5	109.8	549,700 *	259,900 *	244,900 *	229,300 *	125
130	44.7	104.9	510,900 *	249,200 *	234,400 *	218,900 *	130
135	41.6	99.4	475,300 *	239,200 *	224,600 *	209,300 *	135
140	38.4	93.2	442,400 *	230,000 *	215,500 *	200,300 *	140
145	34.9	86.3	411,600 *	221,400 *	207,000 *	192,000 *	145
150	31.0	78.4	382,600 *	213,300 *	199,100 *	184,300 *	150
155	26.7	69.0	354,500 *	205,800 *	191,700 *	177,000 *	155
160	21.5	57.3	326,500 *	198,800 *	184,800 *	170,200 *	160

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Blocking Or Pedestals  
123,000 lb Crane Counterweight  
978,700 lb Auxiliary Counterweight  
Barge Mount - 0 Degree thru 2 Degree Static Machine List  
360 Degree Rating

Oper. Radius Feet	Boom Angle Deg.	Boom Point Elev. Feet	0 Degree List Boom Capacity Pounds	1/2 Degree List Boom Capacity Pounds	1 Degree List Boom Capacity Pounds	2 Degree List Boom Capacity Pounds	Oper. Radius Feet
<b>180.0 ft</b>							
60	80.7	185.2	1,500,000 *	557,800 *	535,300 *		60
65	79.1	184.3	1,500,000 *	513,200 *	491,500 *	468,900 *	65
70	77.5	183.2	1,492,700	475,000 *	454,000 *	432,000 *	70
75	75.8	181.9	1,325,700	441,800 *	421,400 *	400,100 *	75
80	74.2	180.6	1,191,200	412,800 *	392,900 *	372,200 *	80
85	72.5	179.0	1,080,500	387,200 *	367,800 *	347,500 *	85
90	70.8	177.3	988,000	364,400 *	345,500 *	325,600 *	90
95	69.1	175.4	909,300	344,100 *	325,500 *	306,000 *	95
100	67.4	173.3	841,700	325,800 *	307,500 *	288,400 *	100
105	65.7	171.1	783,000	309,200 *	291,200 *	272,400 *	105
110	63.9	168.7	731,400	294,100 *	276,400 *	257,900 *	110
115	62.1	166.1	685,900	280,300 *	262,900 *	244,700 *	115
120	60.3	163.2	645,300	267,700 *	250,500 *	232,500 *	120
125	58.4	160.2	608,900	256,100 *	239,100 *	221,300 *	125
130	56.5	156.9	576,200	245,400 *	228,600 *	211,000 *	130
135	54.6	153.4	546,500	235,500 *	218,900 *	201,500 *	135
140	52.6	149.6	513,600 *	226,300 *	209,800 *	192,600 *	140
145	50.5	145.6	483,200 *	217,700 *	201,400 *	184,300 *	145
150	48.4	141.2	455,300 *	209,700 *	193,500 *	176,600 *	150
155	46.2	136.5	429,600 *	202,200 *	186,200 *	169,400 *	155
160	43.9	131.4	405,700 *	195,200 *	179,300 *	162,600 *	160
165	41.6	125.8	382,300 *	188,600 *	172,800 *	156,300 *	165
170	39.1	119.8	359,400 *	182,400 *	166,700 *	150,300 *	170
175	36.4	113.2	337,900 *	176,500 *	160,900 *	144,600 *	175
180	33.6	105.9	317,400 *	171,000 *	155,500 *	139,300 *	180
185	30.6	97.7	297,900 *	165,700 *	150,400 *	134,300 *	185
190	27.2	88.4	278,900 *	160,800 *	145,500 *	129,500 *	190
195	23.4	77.5	260,100 *	156,100 *	140,900 *	124,900 *	195
200	18.8	64.2	241,000 *	151,600 *	136,400 *	120,600 *	200

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360 Degree Rating

Oper. Radius Feet	Boom Angle Deg.	Boom Point Elev. Feet	0 Degree List Boom Capacity Pounds	1/2 Degree List Boom Capacity Pounds	1 Degree List Boom Capacity Pounds	2 Degree List Boom Capacity Pounds	Oper. Radius Feet
200.0 ft							
60	81.7	205.5	1,301,700 *				60
65	80.2	204.7	1,301,700 *	511,500 *	488,900 *		65
70	78.7	203.7	1,281,600 *	473,300 *	451,400 *	428,500 *	70
75	77.3	202.6	1,248,100 *	440,100 *	418,900 *	396,600 *	75
80	75.8	201.3	1,188,400	411,200 *	390,400 *	368,800 *	80
85	74.3	199.9	1,077,800	385,600 *	365,400 *	344,200 *	85
90	72.8	198.4	985,200	362,900 *	343,100 *	322,300 *	90
95	71.3	196.7	906,500	342,500 *	323,100 *	302,800 *	95
100	69.8	194.9	838,900	324,200 *	305,100 *	285,200 *	100
105	68.2	192.9	780,200	307,700 *	288,900 *	269,300 *	105
110	66.7	190.8	728,600	292,600 *	274,100 *	254,800 *	110
115	65.1	188.5	683,100	278,900 *	260,600 *	241,600 *	115
120	63.5	186.0	642,500	266,300 *	248,300 *	229,400 *	120
125	61.9	183.4	606,100	254,700 *	236,900 *	218,300 *	125
130	60.2	180.6	573,300	244,000 *	226,400 *	208,000 *	130
135	58.6	177.5	543,600	234,000 *	216,700 *	198,500 *	135
140	56.9	174.3	516,600	224,800 *	207,600 *	189,600 *	140
145	55.1	170.9	491,900	216,300 *	199,200 *	181,400 *	145
150	53.3	167.2	469,200	208,300 *	191,400 *	173,700 *	150
155	51.5	163.2	448,300	200,800 *	184,000 *	166,500 *	155
160	49.7	159.1	425,400 *	193,800 *	177,100 *	159,700 *	160
165	47.7	154.6	402,600 *	187,200 *	170,700 *	153,400 *	165
170	45.7	149.8	381,400 *	181,000 *	164,600 *	147,400 *	170
175	43.7	144.6	361,600 *	175,100 *	158,800 *	141,800 *	175
180	41.6	139.1	343,000 *	169,600 *	153,400 *	136,500 *	180
185	39.3	133.1	325,500 *	164,400 *	148,300 *	131,400 *	185
190	37.0	126.6	308,100 *	159,400 *	143,400 *	126,700 *	190
195	34.5	119.5	290,600 *	154,700 *	138,800 *	122,200 *	195
200	31.8	111.7	273,700 *	150,300 *	134,400 *	117,900 *	200
205	28.9	102.9	257,500 *	146,000 *	130,300 *	113,800 *	205
210	25.8	93.0	241,600 *	142,000 *	126,300 *	109,900 *	210
215	22.1	81.4	225,800 *	138,100 *	122,500 *	106,100 *	215
220	17.8	67.3	209,500 *	134,400 *	118,900 *	102,600 *	220

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360 Degree Rating

Oper. Radius Feet	Boom Angle Deg.	Boom Point Elev. Feet	0 Degree List Boom Capacity Pounds	1/2 Degree List Boom Capacity Pounds	1 Degree List Boom Capacity Pounds	2 Degree List Boom Capacity Pounds	Oper. Radius Feet
<b>220.0 ft</b>							
65	81.1	225.0	1,138,000 *	509,900 *			65
70	79.8	224.1	1,110,500 *	471,700 *	449,000 *	425,200 *	70
75	78.5	223.1	1,083,900 *	438,600 *	416,500 *	393,400 *	75
80	77.1	221.9	1,058,300 *	409,700 *	388,100 *	365,600 *	80
85	75.8	220.7	1,033,500 *	384,100 *	363,100 *	341,100 *	85
90	74.4	219.3	982,600	361,400 *	340,800 *	319,300 *	90
95	73.1	217.8	904,000	341,100 *	320,900 *	299,800 *	95
100	71.7	216.1	836,300	322,800 *	303,000 *	282,200 *	100
105	70.3	214.4	777,600	306,300 *	286,700 *	266,300 *	105
110	68.9	212.5	726,100	291,200 *	272,000 *	251,900 *	110
115	67.5	210.4	680,500	277,500 *	258,500 *	238,700 *	115
120	66.1	208.2	639,900	264,900 *	246,200 *	226,600 *	120
125	64.6	205.9	603,500	253,300 *	234,800 *	215,500 *	125
130	63.2	203.4	570,800	242,600 *	224,300 *	205,200 *	130
135	61.7	200.7	541,100	232,700 *	214,600 *	195,700 *	135
140	60.2	197.9	514,000	223,500 *	205,600 *	186,900 *	140
145	58.7	194.9	489,300	215,000 *	197,200 *	178,600 *	145
150	57.2	191.7	466,700	207,000 *	189,400 *	171,000 *	150
155	55.6	188.3	445,800	199,500 *	182,100 *	163,800 *	155
160	54.0	184.7	426,500	192,500 *	175,200 *	157,100 *	160
165	52.3	180.9	408,600	185,900 *	168,700 *	150,700 *	165
170	50.7	176.8	392,000	179,700 *	162,600 *	144,800 *	170
175	48.9	172.5	376,500	173,900 *	156,900 *	139,200 *	175
180	47.2	167.9	358,500 *	168,400 *	151,500 *	133,900 *	180
185	45.4	163.1	340,700 *	163,200 *	146,400 *	128,800 *	185
190	43.5	157.9	324,000 *	158,200 *	141,500 *	124,100 *	190
195	41.5	152.3	308,300 *	153,500 *	136,900 *	119,600 *	195
200	39.5	146.3	293,400 *	149,100 *	132,600 *	115,300 *	200
205	37.4	139.9	279,200 *	144,800 *	128,400 *	111,200 *	205
210	35.2	133.0	265,700 *	140,800 *	124,400 *	107,300 *	210
215	32.8	125.4	251,800 *	136,900 *	120,700 *	103,600 *	215
220	30.3	117.1	237,700 *	133,200 *	117,000 *	100,100 *	220
225	27.5	107.8	223,900 *	129,700 *	113,600 *	96,700 *	225
230	24.5	97.4	210,400 *	126,400 *	110,300 *	93,500 *	230
235	21.1	85.2	196,900 *	123,100 *	107,100 *	90,400 *	235
240	17.0	70.2	182,800 *	120,100 *	104,100 *	87,400 *	240

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Oper. Radius Feet	Boom Angle Deg.	Boom Point Elev. Feet	0 Degree List Boom Capacity Pounds	1/2 Degree List Boom Capacity Pounds	1 Degree List Boom Capacity Pounds	2 Degree List Boom Capacity Pounds	Oper. Radius Feet
240.0 ft							
65	81.9	245.2	1,009,900 *				65
70	80.6	244.4	992,400 *	470,200 *			70
75	79.4	243.5	975,000 *	437,100 *	414,200 *		75
80	78.2	242.4	957,700 *	408,200 *	385,900 *	362,500 *	80
85	77.0	241.3	940,700 *	382,700 *	360,900 *	338,100 *	85
90	75.8	240.0	924,000 *	360,000 *	338,600 *	316,300 *	90
95	74.5	238.7	901,500	339,700 *	318,700 *	296,800 *	95
100	73.3	237.2	833,800	321,400 *	300,800 *	279,300 *	100
105	72.0	235.6	775,100	304,900 *	284,600 *	263,500 *	105
110	70.8	233.8	723,500	289,900 *	269,900 *	249,000 *	110
115	69.5	232.0	678,000	276,100 *	256,500 *	235,900 *	115
120	68.2	230.0	637,400	263,600 *	244,100 *	223,800 *	120
125	66.9	227.9	601,000	252,000 *	232,800 *	212,700 *	125
130	65.6	225.6	568,200	241,300 *	222,300 *	202,500 *	130
135	64.3	223.2	538,500	231,400 *	212,600 *	193,000 *	135
140	62.9	220.7	511,500	222,200 *	203,600 *	184,200 *	140
145	61.6	218.0	486,800	213,700 *	195,300 *	176,000 *	145
150	60.2	215.2	464,100	205,700 *	187,400 *	168,300 *	150
155	58.8	212.2	443,200	198,300 *	180,100 *	161,200 *	155
160	57.4	209.0	424,000	191,300 *	173,300 *	154,400 *	160
165	56.0	205.7	406,100	184,700 *	166,800 *	148,100 *	165
170	54.5	202.1	389,500	178,500 *	160,700 *	142,200 *	170
175	53.0	198.4	374,000	172,700 *	155,000 *	136,600 *	175
180	51.5	194.5	359,500	167,100 *	149,600 *	131,300 *	180
185	49.9	190.3	346,000	161,900 *	144,500 *	126,300 *	185
190	48.3	185.9	333,300	157,000 *	139,700 *	121,600 *	190
195	46.7	181.3	320,000 *	152,300 *	135,100 *	117,100 *	195
200	45.0	176.3	305,000 *	147,900 *	130,700 *	112,800 *	200
205	43.3	171.1	290,700 *	143,600 *	126,600 *	108,700 *	205
210	41.5	165.5	277,200 *	139,600 *	122,600 *	104,800 *	210
215	39.7	159.6	264,400 *	135,700 *	118,800 *	101,100 *	215
220	37.7	153.2	252,200 *	132,100 *	115,200 *	97,600 *	220
225	35.7	146.4	240,500 *	128,600 *	111,800 *	94,200 *	225
230	33.6	139.1	229,300 *	125,200 *	108,500 *	91,000 *	230
235	31.4	131.1	218,300 *	122,000 *	105,300 *	87,900 *	235
240	28.9	122.3	206,300 *	118,900 *	102,300 *	85,000 *	240
245	26.3	112.5	194,600 *	115,900 *	99,400 *	82,100 *	245
250	23.4	101.5	182,900 *	113,100 *	96,600 *	79,400 *	250
255	20.1	88.7	171,200 *	110,400 *	93,900 *	76,800 *	255
260	16.2	73.1	158,900 *	107,700 *	91,400 *	74,200 *	260



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Oper. Radius Feet	Boom Angle Deg.	Boom Point Elev. Feet	0 Degree List Boom Capacity Pounds	1/2 Degree List Boom Capacity Pounds	1 Degree List Boom Capacity Pounds	2 Degree List Boom Capacity Pounds	Oper. Radius Feet
<b>260.0 ft</b>							
70	81.4	264.7	862,800 *	468,600 *			70
75	80.3	263.8	848,600 *	435,600 *	411,800 *		75
80	79.1	262.9	834,500 *	406,700 *	383,500 *	359,400 *	80
85	78.0	261.8	820,400 *	381,200 *	358,600 *	334,900 *	85
90	76.9	260.7	806,400 *	358,500 *	336,400 *	313,200 *	90
95	75.7	259.4	792,700 *	338,200 *	316,500 *	293,800 *	95
100	74.6	258.0	779,100 *	320,000 *	298,600 *	276,300 *	100
105	73.4	256.6	765,600 *	303,500 *	282,500 *	260,500 *	105
110	72.3	255.0	720,900 *	288,500 *	267,800 *	246,100 *	110
115	71.1	253.3	675,300 *	274,800 *	254,300 *	233,000 *	115
120	70.0	251.5	634,700 *	262,200 *	242,000 *	220,900 *	120
125	68.8	249.6	598,400 *	250,600 *	230,700 *	209,900 *	125
130	67.6	247.5	565,600 *	240,000 *	220,300 *	199,600 *	130
135	66.4	245.3	535,900 *	230,100 *	210,600 *	190,200 *	135
140	65.2	243.0	508,900 *	220,900 *	201,600 *	181,400 *	140
145	63.9	240.6	484,200 *	212,400 *	193,200 *	173,200 *	145
150	62.7	238.1	461,500 *	204,400 *	185,400 *	165,600 *	150
155	61.5	235.4	440,600 *	196,900 *	178,100 *	158,400 *	155
160	60.2	232.5	421,300 *	190,000 *	171,300 *	151,700 *	160
165	58.9	229.5	403,400 *	183,400 *	164,800 *	145,400 *	165
170	57.6	226.4	386,800 *	177,200 *	158,800 *	139,500 *	170
175	56.3	223.1	371,300 *	171,400 *	153,100 *	133,900 *	175
180	54.9	219.6	356,900 *	165,900 *	147,700 *	128,600 *	180
185	53.6	215.9	343,400 *	160,700 *	142,600 *	123,600 *	185
190	52.2	212.1	330,700 *	155,700 *	137,700 *	118,900 *	190
195	50.8	208.0	318,700 *	151,000 *	133,100 *	114,400 *	195
200	49.3	203.8	307,500 *	146,600 *	128,800 *	110,200 *	200
205	47.8	199.3	296,900 *	142,400 *	124,600 *	106,100 *	205
210	46.3	194.6	286,900 *	138,300 *	120,700 *	102,200 *	210
215	44.8	189.6	274,400 *	134,500 *	116,900 *	98,500 *	215
220	43.2	184.3	262,100 *	130,800 *	113,300 *	95,000 *	220
225	41.5	178.8	250,300 *	127,300 *	109,900 *	91,700 *	225
230	39.8	172.8	239,200 *	124,000 *	106,600 *	88,500 *	230
235	38.0	166.6	228,500 *	120,800 *	103,500 *	85,400 *	235
240	36.2	159.8	218,300 *	117,700 *	100,400 *	82,400 *	240
245	34.3	152.6	208,400 *	114,700 *	97,600 *	79,600 *	245
250	32.2	144.9	198,900 *	111,900 *	94,800 *	76,900 *	250
255	30.1	136.5	189,700 *	109,200 *	92,100 *	74,300 *	255
260	27.8	127.3	179,900 *	106,500 *	89,500 *	71,700 *	260
270	22.5	105.5	159,600 *	101,600 *	84,700 *	67,000 *	270
280	15.6	75.8	138,400 *	97,000 *	80,200 *	62,500 *	280



# Liftcrane Boom Capacities

## 4600 SERIES 4 RINGER SERIES 3

Boom No. 65  
60 ft RINGER Attachment On  
Blocking Or Pedestals  
123,000 lb Crane Counterweight  
978,700 lb Auxiliary Counterweight  
Barge Mount - 0 Degree thru 2 Degree Static Machine List  
360 Degree Rating

Oper. Radius Feet	Boom Angle Deg.	Boom Point Elev. Feet	0 Degree List Boom Capacity Pounds	1/2 Degree List Boom Capacity Pounds	1 Degree List Boom Capacity Pounds	2 Degree List Boom Capacity Pounds	Oper. Radius Feet
280.0 ft							
70	82.0	284.9	759,800 *				70
75	81.0	284.1	748,200 *	434,000 *	409,500 *		75
80	79.9	283.2	736,500 *	405,200 *	381,300 *	356,200 *	80
85	78.9	282.3	724,700 *	379,700 *	356,300 *	331,900 *	85
90	77.8	281.2	713,000 *	357,100 *	334,200 *	310,200 *	90
95	76.8	280.0	701,300 *	336,800 *	314,300 *	290,800 *	95
100	75.7	278.8	689,700 *	318,600 *	296,500 *	273,300 *	100
105	74.7	277.4	678,200 *	302,100 *	280,300 *	257,600 *	105
110	73.6	276.0	666,800 *	287,100 *	265,600 *	243,200 *	110
115	72.5	274.4	655,500 *	273,400 *	252,200 *	230,100 *	115
120	71.4	272.7	632,000	260,800 *	239,900 *	218,100 *	120
125	70.4	271.0	595,600	249,300 *	228,600 *	207,000 *	125
130	69.3	269.1	562,900	238,600 *	218,200 *	196,800 *	130
135	68.2	267.1	533,200	228,700 *	208,500 *	187,400 *	135
140	67.1	265.0	506,100	219,600 *	199,600 *	178,600 *	140
145	65.9	262.8	481,400	211,000 *	191,200 *	170,400 *	145
150	64.8	260.4	458,700	203,100 *	183,400 *	162,800 *	150
155	63.7	258.0	437,900	195,600 *	176,100 *	155,700 *	155
160	62.5	255.4	418,600	188,600 *	169,300 *	149,000 *	160
165	61.4	252.7	400,700	182,100 *	162,800 *	142,700 *	165
170	60.2	249.8	384,100	175,900 *	156,800 *	136,800 *	170
175	59.0	246.8	368,600	170,100 *	151,100 *	131,200 *	175
180	57.8	243.7	354,200	164,600 *	145,700 *	125,900 *	180
185	56.6	240.4	340,600	159,400 *	140,600 *	121,000 *	185
190	55.3	237.0	327,900	154,500 *	135,800 *	116,200 *	190
195	54.1	233.4	316,000	149,800 *	131,200 *	111,800 *	195
200	52.8	229.6	304,800	145,300 *	126,800 *	107,500 *	200
205	51.5	225.7	294,200	141,100 *	122,700 *	103,500 *	205
210	50.1	221.6	284,200	137,100 *	118,800 *	99,600 *	210
215	48.8	217.2	274,700	133,200 *	115,000 *	95,900 *	215
220	47.4	212.7	265,700	129,600 *	111,400 *	92,400 *	220
225	46.0	207.9	257,200	126,100 *	108,000 *	89,100 *	225
230	44.5	202.9	247,200 *	122,700 *	104,700 *	85,900 *	230
235	43.0	197.6	236,500 *	119,500 *	101,600 *	82,800 *	235
240	41.5	192.0	226,200 *	116,400 *	98,600 *	79,800 *	240
245	39.9	186.1	216,400 *	113,500 *	95,700 *	77,000 *	245
250	38.3	179.9	206,900 *	110,700 *	92,900 *	74,300 *	250
255	36.6	173.2	197,900 *	107,900 *	90,200 *	71,700 *	255
260	34.8	166.2	189,200 *	105,300 *	87,700 *	69,200 *	260
270	31.0	150.5	172,600 *	100,400 *	82,800 *	64,400 *	270
280	26.7	132.0	156,700 *	95,800 *	78,300 *	60,000 *	280
290	21.6	109.3	138,800 *	91,500 *	74,100 *	55,900 *	290

# Manitowoc Cranes

Manitowoc, Wisconsin 54220 U.S.A.



## Liftcrane Boom Capacities

## 4600 SERIES 4 RINGER SERIES 3

Boom No. 65  
60 ft RINGER Attachment On  
Blocking Or Pedestals  
123,000 lb Crane Counterweight  
978,700 lb Auxiliary Counterweight  
Barge Mount - 0 Degree thru 2 Degree Static Machine List  
360 Degree Rating

Oper. Radius Feet	Boom Angle Deg.	Boom Point Elev. Feet	0 Degree List Boom Capacity Pounds	1/2 Degree List Boom Capacity Pounds	1 Degree List Boom Capacity Pounds	Oper. Radius Feet
<b>300.0 ft</b>						
75	81.6	304.4	653,500 *			75
80	80.6	303.5	643,900 *	403,500 *		80
85	79.6	302.6	634,100 *	378,000 *		85
90	78.7	301.6	624,200 *	355,400 *		90
95	77.7	300.6	614,300 *	335,200 *		95
100	76.7	299.4	604,400 *	317,000 *	294,000 *	100
105	75.7	298.1	594,600 *	300,500 *	277,900 *	105
110	74.7	296.8	584,800 *	285,500 *	263,200 *	110
115	73.7	295.3	575,000 *	271,800 *	249,800 *	115
120	72.7	293.8	565,300 *	259,300 *	237,600 *	120
125	71.7	292.1	555,700 *	247,700 *	226,300 *	125
130	70.7	290.4	546,200 *	237,100 *	215,900 *	130
135	69.7	288.6	530,100	227,200 *	206,200 *	135
140	68.7	286.6	503,100	218,100 *	197,200 *	140
145	67.6	284.6	478,400	209,600 *	188,900 *	145
150	66.6	282.4	455,700	201,600 *	181,100 *	150
155	65.5	280.2	434,800	194,200 *	173,800 *	155
160	64.5	277.8	415,500	187,200 *	167,000 *	160
165	63.4	275.3	397,600	180,600 *	160,600 *	165
170	62.3	272.7	381,000	174,500 *	154,600 *	170
175	61.3	270.0	365,600	168,600 *	148,900 *	175
180	60.2	267.1	351,100	163,100 *	143,500 *	180
185	59.1	264.2	337,600	157,900 *	138,400 *	185
190	57.9	261.1	324,900	153,000 *	133,600 *	190
195	56.8	257.8	313,000	148,300 *	129,000 *	195
200	55.6	254.4	301,700	143,900 *	124,700 *	200
205	54.5	250.9	291,100	139,700 *	120,500 *	205
210	53.3	247.2	281,100	135,700 *	116,600 *	210
215	52.1	243.3	271,600	131,800 *	112,800 *	215
220	50.8	239.3	262,600	128,200 *	109,300 *	220
225	49.6	235.0	254,100	124,700 *	105,800 *	225
230	48.3	230.6	246,000	121,300 *	102,600 *	230
235	47.0	226.0	238,300	118,100 *	99,400 *	235
240	45.7	221.2	231,000	115,100 *	96,400 *	240
245	44.3	216.1	222,500 *	112,100 *	93,500 *	245
250	42.9	210.8	213,000 *	109,300 *	90,800 *	250
255	41.5	205.2	203,900 *	106,600 *	88,100 *	255
260	40.0	199.3	195,200 *	103,900 *	85,500 *	260
270	36.9	186.6	178,800 *	99,000 *	80,700 *	270
280	33.6	172.2	163,500 *	94,400 *	76,200 *	280
290	29.9	155.8	149,200 *	90,200 *	72,000 *	290
300	25.8	136.6	135,400 *	86,200 *	68,100 *	300
310	20.9	113.0	119,800 *	82,400 *	64,500 *	310

# Manitowoc Cranes

Manitowoc, Wisconsin 54220 U.S.A.



## Liftcrane Boom Capacities

## 4600 SERIES 4 RINGER SERIES 3

Boom No. 65  
60 ft RINGER Attachment On  
Blocking Or Pedestals  
123,000 lb Crane Counterweight  
978,700 lb Auxiliary Counterweight  
Barge Mount - 0 Degree thru 2 Degree Static Machine List  
360 Degree Rating

Oper. Radius Feet	Boom Angle Deg.	Boom Point Elev. Feet	0 Degree List Boom Capacity Pounds	1/2 Degree List Boom Capacity Pounds	1 Degree List Boom Capacity Pounds	Oper. Radius Feet
320.0 ft						
80	81.2	323.8	567,200 *			80
85	80.3	323.0	559,000 *			85
90	79.4	322.0	550,700 *	354,100 *		90
95	78.5	321.0	542,300 *	333,900 *		95
100	77.5	319.9	533,900 *	315,700 *		100
105	76.6	318.8	525,400 *	299,200 *		105
110	75.7	317.5	517,000 *	284,200 *	261,300 *	110
115	74.8	316.1	508,500 *	270,600 *	247,900 *	115
120	73.8	314.7	500,100 *	258,000 *	235,700 *	120
125	72.9	313.2	491,700 *	246,500 *	224,400 *	125
130	72.0	311.6	483,300 *	235,900 *	214,000 *	130
135	71.0	309.9	475,000 *	226,000 *	204,400 *	135
140	70.1	308.0	466,800 *	216,900 *	195,400 *	140
145	69.1	306.1	458,600 *	208,400 *	187,100 *	145
150	68.1	304.2	450,500 *	200,400 *	179,300 *	150
155	67.2	302.1	432,400 *	193,000 *	172,000 *	155
160	66.2	299.9	413,100 *	186,000 *	165,200 *	160
165	65.2	297.6	395,300 *	179,500 *	158,800 *	165
170	64.2	295.2	378,600 *	173,300 *	152,800 *	170
175	63.2	292.7	363,200 *	167,500 *	147,100 *	175
180	62.2	290.0	348,700 *	162,000 *	141,700 *	180
185	61.2	287.3	335,200 *	156,800 *	136,600 *	185
190	60.2	284.5	322,500 *	151,900 *	131,800 *	190
195	59.1	281.5	310,600 *	147,200 *	127,300 *	195
200	58.1	278.4	299,300 *	142,800 *	122,900 *	200
205	57.0	275.2	288,700 *	138,600 *	118,800 *	205
210	55.9	271.8	278,700 *	134,500 *	114,900 *	210
215	54.8	268.3	269,200 *	130,700 *	111,100 *	215
220	53.7	264.7	260,300 *	127,000 *	107,500 *	220
225	52.6	260.9	251,700 *	123,600 *	104,100 *	225
230	51.4	256.9	243,600 *	120,200 *	100,900 *	230
235	50.3	252.8	235,900 *	117,000 *	97,700 *	235
240	49.1	248.5	228,600 *	113,900 *	94,700 *	240
245	47.9	244.0	221,600 *	111,000 *	91,800 *	245
250	46.7	239.4	214,900 *	108,200 *	89,100 *	250
255	45.4	234.5	208,500 *	105,500 *	86,400 *	255
260	44.1	229.4	201,100 *	102,900 *	83,900 *	260
270	41.5	218.4	184,600 *	97,900 *	79,000 *	270
280	38.7	206.4	169,300 *	93,300 *	74,600 *	280
290	35.7	193.1	155,100 *	89,100 *	70,400 *	290
300	32.5	178.1	141,800 *	85,100 *	66,500 *	300
310	28.9	161.0	129,200 *	81,400 *	62,800 *	310
320	24.9	141.0	117,100 *	77,900 *	59,400 *	320
330	20.2	116.6	103,400 *	74,600 *	56,200 *	330

# Manitowoc Cranes

Manitowoc, Wisconsin 54220 U.S.A.



## Liftcrane Boom Capacities

## 4600 SERIES 4 RINGER SERIES 3

Boom No. 65  
60 ft RINGER Attachment On  
Blocking Or Pedestals  
123,000 lb Crane Counterweight  
978,700 lb Auxiliary Counterweight  
Barge Mount - 0 Degree thru 2 Degree Static Machine List  
360 Degree Rating

Oper. Radius Feet	Boom Angle Deg.	Boom Point Elev. Feet	0 Degree List Boom Capacity Pounds	1/2 Degree List Boom Capacity Pounds
<b>340.0 ft</b>				
80	81.7	344.1	508,800 *	
85	80.9	343.3	501,700 *	
90	80.0	342.4	494,500 *	
95	79.1	341.5	487,100 *	
100	78.3	340.4	479,700 *	314,000 *
105	77.4	339.3	472,100 *	297,600 *
110	76.6	338.1	464,500 *	282,600 *
115	75.7	336.9	456,900 *	269,000 *
120	74.8	335.5	449,300 *	256,500 *
125	73.9	334.1	441,700 *	245,000 *
130	73.1	332.6	434,100 *	234,300 *
135	72.2	331.0	426,500 *	224,500 *
140	71.3	329.3	419,000 *	215,300 *
145	70.4	327.5	411,500 *	206,800 *
150	69.5	325.7	404,000 *	198,900 *
155	68.6	323.7	396,600 *	191,500 *
160	67.7	321.7	389,300 *	184,500 *
165	66.8	319.5	382,100 *	178,000 *
170	65.8	317.3	374,900 *	171,800 *
175	64.9	315.0	360,000	166,000 *
180	64.0	312.5	345,600	160,500 *
185	63.0	310.0	332,100	155,300 *
190	62.1	307.4	319,400	150,400 *
195	61.1	304.6	307,400	145,700 *
200	60.1	301.8	296,200	141,300 *
205	59.2	298.8	285,600	137,100 *
210	58.2	295.7	275,600	133,100 *
215	57.2	292.5	266,100	129,300 *
220	56.2	289.2	257,100	125,600 *
225	55.1	285.7	248,600	122,100 *
230	54.1	282.1	240,500	118,800 *
235	53.0	278.4	232,800	115,600 *
240	52.0	274.5	225,500	112,500 *
245	50.9	270.5	218,400	109,600 *
250	49.8	266.3	211,800	106,800 *
255	48.7	261.9	205,400	104,100 *
260	47.5	257.4	199,200	101,400 *
270	45.2	247.8	187,800	96,500 *
280	42.8	237.3	173,100 *	91,900 *
290	40.2	225.8	158,800 *	87,700 *
300	37.5	213.2	145,600 *	83,700 *
310	34.6	199.3	133,200 *	80,000 *
320	31.5	183.8	121,500 *	76,500 *
330	28.1	166.0	110,300 *	73,200 *
340	24.2	145.3	99,500 *	70,100 *
350	19.6	120.0	87,600 *	67,200 *

S/N: 10306

# Manitowoc Cranes

Manitowoc, Wisconsin 54220 U.S.A.



## Liftcrane Boom Capacities

## 4600 SERIES 4 RINGER SERIES 3

Boom No. 65  
60 ft RINGER Attachment On  
Blocking Or Pedestals  
123,000 lb Crane Counterweight  
978,700 lb Auxiliary Counterweight  
Barge Mount - 0 Degree thru 2 Degree Static Machine List  
360 Degree Rating

Oper. Radius Feet	Boom Angle Deg.	Boom Point Elev. Feet	0 Degree List Boom Capacity Pounds	1/2 Degree List Boom Capacity Pounds
<b>360.0 ft</b>				
90	80.6	362.7	434,300 *	
95	79.8	361.8	428,000 *	
100	78.9	360.9	421,700 *	
105	78.1	359.8	415,200 *	296,300 *
110	77.3	358.7	408,700 *	281,400 *
115	76.5	357.5	402,100 *	267,700 *
120	75.7	356.2	395,400 *	255,200 *
125	74.9	354.9	388,800 *	243,700 *
130	74.0	353.5	382,100 *	233,100 *
135	73.2	352.0	375,400 *	223,300 *
140	72.4	350.4	368,800 *	214,100 *
145	71.5	348.7	362,100 *	205,600 *
150	70.7	347.0	355,500 *	197,700 *
155	69.8	345.1	348,800 *	190,300 *
160	69.0	343.2	341,800 *	183,300 *
165	68.1	341.2	334,900 *	176,800 *
170	67.3	339.2	328,100 *	170,600 *
175	66.4	337.0	321,300 *	164,800 *
180	65.5	334.7	314,600 *	159,300 *
185	64.6	332.4	308,000 *	154,200 *
190	63.8	329.9	301,400 *	149,200 *
195	62.9	327.4	294,900 *	144,600 *
200	62.0	324.7	288,500 *	140,200 *
205	61.1	322.0	282,100 *	136,000 *
210	60.1	319.1	273,100	131,900 *
215	59.2	316.1	263,700	128,100 *
220	58.3	313.1	254,700	124,500 *
225	57.3	309.9	246,200	121,000 *
230	56.4	306.6	238,100	117,700 *
235	55.4	303.1	230,300	114,500 *
240	54.4	299.6	223,000	111,400 *
245	53.4	295.9	216,000	108,500 *
250	52.4	292.1	209,300	105,600 *
255	51.4	288.1	202,900	102,900 *
260	50.4	284.0	196,800	100,300 *
270	48.3	275.4	185,300	95,400 *
280	46.1	266.0	174,800	90,800 *
290	43.9	255.9	162,800 *	86,600 *
300	41.5	244.9	149,500 *	82,600 *
310	39.0	232.9	137,000 *	78,900 *
320	36.4	219.9	125,400 *	75,400 *
330	33.6	205.4	114,500 *	72,100 *
340	30.6	189.2	95,900 *	69,100 *
350	27.2	170.9	72,300 *	66,200 *

# Liftcrane Boom Capacities

## 4600 SERIES 4 RINGER SERIES 3

**Boom No. 65**  
**60 ft RINGER Attachment On**  
**Blocking Or Pedestals**  
**123,000 lb Crane Counterweight**  
**978,700 lb Auxiliary Counterweight**  
**Barge Mount - 0 Degree thru 2 Degree Static Machine List**  
**360 Degree Rating**

Oper. Radius Feet	Boom Angle Deg.	Boom Point Elev. Feet	0 Degree List Boom Capacity Pounds
380.0 ft			
95	80.3	382.1	385,100 *
100	79.5	381.2	379,500 *
105	78.8	380.2	373,700 *
110	78.0	379.2	367,800 *
115	77.2	378.1	361,800 *
120	76.4	376.9	355,800 *
125	75.7	375.6	349,700 *
130	74.9	374.2	343,600 *
135	74.1	372.8	337,400 *
140	73.3	371.3	331,300 *
145	72.5	369.8	325,100 *
150	71.7	368.1	318,800 *
155	70.9	366.4	312,500 *
160	70.1	364.6	306,200 *
165	69.3	362.8	299,900 *
170	68.5	360.8	293,600 *
175	67.7	358.8	287,200 *
180	66.9	356.6	281,000 *
185	66.1	354.4	274,700 *
190	65.2	352.1	268,600 *
195	64.4	349.7	262,400 *
200	63.6	347.3	256,300 *
205	62.7	344.7	250,100 *
210	61.9	342.0	244,100 *
215	61.0	339.3	238,100 *
220	60.1	336.4	232,300 *
225	59.3	333.5	226,400 *
230	58.4	330.4	220,700 *
235	57.5	327.2	215,000 *
240	56.6	324.0	209,300 *
245	55.7	320.6	203,600 *
250	54.7	317.0	198,000 *
255	53.8	313.4	192,500 *
260	52.9	309.6	187,100 *
270	50.9	301.7	176,400 *
280	49.0	293.2	166,000 *
290	46.9	284.1	155,700 *
300	44.8	274.3	145,700 *
310	42.6	263.7	133,100 *
320	40.3	252.3	110,600 *
330	37.9	239.9	88,600 *
340	35.4	226.3	67,100 *

# Manitowoc Cranes

Manitowoc, Wisconsin 54220 U.S.A.



## Liftcrane Boom Capacities

**4600 SERIES 4**  
**RINGER SERIES 3**

Boom No. 65  
60 ft RINGER Attachment On  
Blocking Or Pedestals  
123,000 lb Crane Counterweight  
978,700 lb Auxiliary Counterweight  
Barge Mount - 0 Degree thru 2 Degree Static Machine List  
360 Degree Rating

Oper. Radius Feet	Boom Angle Deg.	Boom Point Elev. Feet	0 Degree List Boom Capacity Pounds
<b>400.0 ft</b>			
95	80.8	402.4	333,800 *
100	80.1	401.6	329,100 *
105	79.3	400.6	324,300 *
110	78.6	399.6	319,300 *
115	77.9	398.6	314,000 *
120	77.1	397.4	308,400 *
125	76.4	396.2	302,700 *
130	75.7	395.0	296,900 *
135	74.9	393.6	291,200 *
140	74.2	392.2	285,400 *
145	73.4	390.7	279,600 *
150	72.7	389.2	273,800 *
155	71.9	387.5	268,000 *
160	71.2	385.9	262,200 *
165	70.4	384.1	256,400 *
170	69.6	382.2	250,600 *
175	68.9	380.3	244,800 *
180	68.1	378.3	239,000 *
185	67.3	376.2	233,300 *
190	66.6	374.1	227,700 *
195	65.8	371.9	222,000 *
200	65.0	369.5	216,300 *
205	64.2	367.1	210,800 *
210	63.4	364.6	205,200 *
215	62.6	362.0	199,800 *
220	61.8	359.4	194,400 *
225	60.9	356.6	189,100 *
230	60.1	353.8	183,800 *
235	59.3	350.8	178,500 *
240	58.5	347.7	173,300 *
245	57.6	344.6	168,200 *
250	56.7	341.3	163,100 *
255	55.9	338.0	158,100 *
260	55.0	334.5	153,100 *
270	53.2	327.2	143,400 *
280	51.4	319.4	133,900 *
290	49.6	311.0	124,600 *
300	47.6	302.1	113,700 *
310	45.7	292.6	93,700 *
320	43.6	282.4	74,100 *
330	41.5	271.4	54,800 *