


# Liftcrane Boom Capacities

**Boom No. B65:685-680**  
**with Mast No. M11:684**  
**440,900 lb VPC (Variable Position Counterweight)**  
**360 Degree Rating**

## MLC650 VPC-MAX SERIES 1


 **LIFTING CAPACITIES:** Lifting capacities for various boom lengths and operating radii are for freely suspended loads and may be based on percent of static tipping or strength of structural components. Capacities must be reduced by applicable deducts.


Upper boom point capacity for liftcrane service with single part whip line from Drum 3 is 30,000 lb or 60,000 lb with two part whip line. When Drum 1 or Drum 2 is used, capacity with single part whip line is 48,800 lb, or 73,500 lb with two part whip line. In all cases, upper boom point capacities cannot exceed those listed for main boom capacity.


Weight of all load blocks, hooks, weight ball, slings, hoist lines, etc., beneath boom point sheaves is considered part of 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, level, and uniformly supporting surface. Refer to Boom Rigging **No. 84038307**, Mast Rigging **No. 84050187**, Wire Rope Specifications chart **No. 9594-A**, Counterweight Arrangements chart **No. 9349-A**, and Wind Conditions chart **No. 9593-A**. Crane operator judgment must be used to allow for dynamic load effects of swinging, hoisting or lowering, travel, wind conditions, as well as adverse operating conditions and physical machine depreciation. Refer to the Operator Manual for operating guidelines.

**MACHINE TRAVEL:** Machine to travel on a firm, level, and uniformly supporting surface. Boom must be within boom angle range shown in capacity chart. Refer to Maximum Allowable Travel Specifications chart **No. 9592-A**.

 **OPERATING RADIUS:** Operating radius is horizontal distance from axis of rotation to center of vertical hoist line or load block.

 **BOOM ANGLE:** Boom angle in degrees (°) 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 ground level to centerline of boom point shaft.

**MACHINE EQUIPMENT:** Machine equipped with VPC-MAX, 36 ft 6 in. crawlers, 60 in. or 80 in. treads, 36 ft 1 in. live mast, 118.1 ft mast, 16 part boom hoist reeving, boom support straps, and 440,900 lb VPC.

Luffing Jib Backstay Deduct	
Boom Length (ft)	Deduct (lb)
183.7	8,500
203.4	10,000
223.1	10,000
242.8	10,000
262.5	11,000
282.2	12,500
301.8	13,500
321.5	14,800
341.2	16,000
Deduct the appropriate value from capacities when luffing jib backstays are stored on boom.	

# MLC650 VPC-MAX S-1

ASME B30.5



Refer to Table 1 (with luffing jib backstays stored) and Table 2 (without luffing jib backstays stored) for raising ability with the maximum weight of all load blocks, hooks, weight ball, slings, and hoist lines beneath boom point sheaves. For block weights shown with #, load blocks, hooks, weight ball, and slings must remain on ground until combined weights are within rated capacity of chart. Raising is not permitted in shaded areas of table.

Select counterweight position from Tables 1 or 2 that will allow raising and lowering of boom length. Counterweight position selection may be changed with boom on ground or while boom is within operating range of capacity chart.

Combined weight beneath boom point sheaves must not exceed block weight shown.

**Table 1a: With Luffing Jib Backstays**

Over End or Side of Crawlers		
Boom Length (ft)	38.7 ft Counterweight Position	60.0 ft Counterweight Position
	Block Weight (lb)	
183.7	22,600	46,500
203.4	16,200	46,500
223.1 - 262.5	#	46,500
282.2	#	22,600
301.8		16,200
321.5	<b>Raising Not Permitted</b>	
341.2		
360.9		

**Table 1b: With Luffing Jib Backstays**

Over End of Blocked Crawlers		
Boom Length (ft)	38.7 ft Counterweight Position	60.0 ft Counterweight Position
	Block Weight (lb)	
183.7	22,600	46,500
203.4	16,200	46,500
223.1 - 262.5	#	46,500
282.2	#	22,600
301.8	#	16,200
321.5	<b>Raising Not Permitted</b>	
341.2		
360.9		

**Warning:** Crane must remain in-line with crawlers when raising over end of blocked crawlers until operating radius is within 360 degree chart. *Crane tipping or structural damage can occur.*

**Table 2a: Without Luffing Jib Backstays**

Over End or Side of Crawlers		
Boom Length (ft)	38.7 ft Counterweight Position	60.0 ft Counterweight Position
	Block Weight (lb)	
183.7	46,500	46,500
203.4	22,600	46,500
223.1 - 262.5	16,200	46,500
282.2	#	46,500
301.8	<b>Raising Not Permitted</b>	22,600
321.5		16,200
341.2		#
360.9		#

**Table 2b: Without Luffing Jib Backstays**

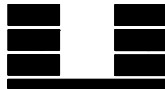
Over End of Blocked Crawlers		
Boom Length (ft)	38.7 ft Counterweight Position	60.0 ft Counterweight Position
	Block Weight (lb)	
183.7	46,500	46,500
203.4	22,600	46,500
223.1 - 262.5	16,200	46,500
282.2	#	46,500
301.8	#	22,600
321.5	<b>Raising Not Permitted</b>	16,200
341.2		#
360.9		#
		#

**Warning:** Crane must remain in-line with crawlers when raising over end of blocked crawlers until operating radius is within 360 degree chart. Crane tipping or structural damage can occur.

**Explanation of Symbols**



Boom No. B65:685-680



VPC (Variable Position Counterweight)



360 Degree Rating



Boom Length



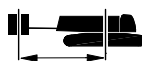
Operating Radius  
(see page 1)



Boom Angle  
(see page 1)



Boom Point Elevation  
(see page 1)



Counterweight Position  
from Axis of Rotation



Lifting Capacities  
(see page 1)

# MLC650 VPC-MAX S-1

ASME B30.5



B65



440,900 lb



360°

183.7 ft				
ft	°	ft	38.7 ft lb	60.0 ft lb
32	83.0	192.0	865,300	1,307,300
34	82.4	191.7	799,000	1,242,200
36	81.7	191.4	741,200	1,182,800
38	81.1	191.0	690,500	1,128,300
40	80.5	190.6	645,500	1,078,200
45	78.9	189.6	552,800	969,000
50	77.3	188.4	480,600	878,200
55	75.7	187.1	422,900	783,600
60	74.0	185.6	375,700	693,800
65	72.4	183.9	336,300	621,100
70	70.7	182.1	303,000	561,000
75	69.1	180.2	274,400	510,500
80	67.4	178.0	249,600	467,500
85	65.6	175.7	227,900	430,400
90	63.9	173.2	208,800	398,100
95	62.1	170.5	191,700	369,600
100	60.3	167.5	176,400	344,400
105	58.5	164.4	162,700	322,000
110	56.6	161.1	150,200	301,800
115	54.7	157.5	138,900	283,500
120	52.7	153.6	128,500	267,000
125	50.7	149.4	119,000	251,900
130	48.6	145.0	110,200	238,100
135	46.4	140.1	102,100	225,400
140	44.2	134.9	94,500	213,700
145	41.8	129.3	87,500	202,800
150	39.4	123.1	80,900	192,800
160	34.0	109.0	68,900	174,600
170	27.6	91.2	58,200	158,700
180	19.2	66.4	48,500	144,600

203.4 ft				
ft	°	ft	38.7 ft lb	60.0 ft lb
36	82.5	211.3	741,600	1,157,900
38	82.0	211.0	690,500	1,105,600
40	81.4	210.7	645,200	1,057,400
45	80.0	209.7	551,900	951,900
50	78.5	208.6	479,400	863,700
55	77.1	207.4	421,300	780,400
60	75.6	206.1	373,800	690,800
65	74.2	204.6	334,200	618,200
70	72.7	203.0	300,700	558,200
75	71.2	201.3	271,900	507,700
80	69.7	199.4	247,000	464,700
85	68.2	197.3	225,200	427,600
90	66.6	195.1	205,900	395,300
95	65.1	192.7	188,800	366,900
100	63.5	190.1	173,400	341,700
105	61.9	187.4	159,600	319,200
110	60.2	184.5	147,100	299,000
115	58.6	181.4	135,700	280,800
120	56.9	178.1	125,300	264,200
125	55.2	174.5	115,700	249,100
130	53.4	170.8	106,900	235,300
135	51.6	166.7	98,800	222,600
140	49.7	162.4	91,200	210,900
145	47.8	157.9	84,200	200,000
150	45.9	153.0	77,600	190,000
160	41.7	142.0	65,700	171,900
170	37.1	129.3	55,100	156,000
180	32.0	114.0	45,700	142,000
190	25.9	94.9	37,100	129,400
200	17.9	68.3	29,100	118,100

# MLC650 VPC-MAX S-1

ASME B30.5



B65



440,900 lb



360°

223.1 ft				
ft	°	ft	38.7 ft lb	60.0 ft lb
38	82.7	230.9	686,400	1,082,700
40	82.2	230.6	640,900	1,035,900
45	80.9	229.8	547,100	933,200
50	79.6	228.8	474,100	847,100
55	78.2	227.7	415,700	773,900
60	76.9	226.5	367,900	685,100
65	75.6	225.1	328,100	612,600
70	74.3	223.7	294,400	552,600
75	72.9	222.1	265,500	502,200
80	71.6	220.4	240,500	459,200
85	70.2	218.5	218,500	422,100
90	68.8	216.5	199,200	389,800
95	67.4	214.4	182,000	361,400
100	66.0	212.1	166,600	336,200
105	64.6	209.7	152,700	313,700
110	63.1	207.1	140,100	293,500
115	61.7	204.4	128,700	275,200
120	60.2	201.5	118,200	258,700
125	58.7	198.4	108,600	243,600
130	57.1	195.1	99,800	229,800
135	55.6	191.6	91,600	217,000
140	54.0	187.9	84,000	205,300
145	52.3	184.0	77,000	194,500
150	50.7	179.8	70,400	184,400
160	47.2	170.7	58,500	166,300
170	43.5	160.5	48,000	150,400
180	39.5	148.7	38,600	136,400
190	35.2	135.0	30,100	123,900
200	30.3	118.7	22,400	112,700
210	24.5	98.4		102,600
220	16.7	70.0		93,300

242.8 ft				
ft	°	ft	38.7 ft lb	60.0 ft lb
40	82.8	250.5	639,600	1,014,200
45	81.6	249.7	545,300	915,300
50	80.4	248.8	472,000	831,900
55	79.2	247.8	413,400	760,700
60	78.0	246.7	365,400	681,700
65	76.8	245.5	325,400	609,400
70	75.6	244.2	291,500	549,500
75	74.3	242.7	262,500	499,200
80	73.1	241.2	237,400	456,200
85	71.9	239.5	215,400	419,200
90	70.6	237.7	195,900	386,900
95	69.3	235.8	178,600	358,400
100	68.1	233.7	163,200	333,200
105	66.8	231.5	149,200	310,800
110	65.5	229.2	136,600	290,600
115	64.2	226.7	125,100	272,300
120	62.8	224.1	114,600	255,700
125	61.5	221.3	105,000	240,600
130	60.1	218.4	96,100	226,800
135	58.7	215.3	88,000	214,100
140	57.3	212.1	80,400	202,400
145	55.9	208.6	73,300	191,500
150	54.4	205.0	66,700	181,500
160	51.4	197.1	54,800	163,300
170	48.3	188.4	44,300	147,500
180	45.0	178.6	34,900	133,500
190	41.5	167.5	26,500	121,000
200	37.7	154.9	18,900	109,900
210	33.5	140.4		99,800
220	28.8	123.1		90,600
230	23.2	101.5		82,200
240	15.7	71.4		74,500

# MLC650 VPC-MAX S-1

ASME B30.5



B65



440,900 lb



360°

262.5 ft				
ft	°	ft	38.7 ft lb	60.0 ft lb
45	82.3	269.7	544,200	897,300
50	81.1	268.8	470,600	816,800
55	80.0	267.9	411,700	747,800
60	78.9	266.9	363,500	678,900
65	77.8	265.8	323,400	606,700
70	76.7	264.6	289,400	547,000
75	75.6	263.2	260,300	496,700
80	74.4	261.8	235,000	453,800
85	73.3	260.2	212,900	416,800
90	72.1	258.6	193,400	384,500
95	71.0	256.8	176,100	356,100
100	69.8	254.9	160,600	330,900
105	68.6	252.9	146,600	308,400
110	67.4	250.8	133,900	288,200
115	66.2	248.6	122,400	270,000
120	65.0	246.2	111,900	253,400
125	63.8	243.7	102,200	238,300
130	62.6	241.1	93,300	224,500
135	61.3	238.3	85,100	211,800
140	60.1	235.4	77,500	200,100
145	58.8	232.3	70,400	189,200
150	57.5	229.0	63,800	179,100
160	54.8	222.1	51,900	161,000
170	52.1	214.4	41,400	145,200
180	49.2	205.9	32,000	131,200
190	46.2	196.5	23,600	118,700
200	43.0	186.0		107,600
210	39.7	174.2		97,500
220	36.0	160.8		88,400
230	32.0	145.4		80,100
240	27.5	127.2		72,500
250	22.1	104.5		65,400

282.2 ft				
ft	°	ft	38.7 ft lb	60.0 ft lb
45	82.8	289.6	589,300	849,500
50	81.8	288.8	510,100	799,500
55	80.7	287.9	446,700	732,900
60	79.7	287.0	394,900	675,000
65	78.7	286.0	351,700	603,200
70	77.6	284.8	315,100	543,500
75	76.6	283.6	283,800	493,300
80	75.5	282.3	256,600	450,400
85	74.5	280.8	232,800	413,500
90	73.4	279.3	211,900	381,200
95	72.3	277.7	193,200	352,800
100	71.3	275.9	176,500	327,600
105	70.2	274.1	161,500	305,200
110	69.1	272.1	147,900	285,000
115	68.0	270.1	135,500	266,700
120	66.9	267.9	124,200	250,200
125	65.8	265.6	113,800	235,100
130	64.7	263.2	104,300	221,300
135	63.5	260.7	95,500	208,500
140	62.4	258.0	87,300	196,800
145	61.2	255.2	79,700	186,000
150	60.0	252.3	72,600	175,900
160	57.6	246.0	59,800	157,800
170	55.2	239.1	48,500	141,900
180	52.6	231.6	38,500	127,900
190	50.0	223.3	29,500	115,500
200	47.2	214.2	21,400	104,400
210	44.4	204.1		94,300
220	41.3	193.0		85,200
230	38.1	180.5		76,900
240	34.6	166.4		69,300
250	30.7	150.2		62,300
260	26.3	131.1		55,800
270	21.1	107.2		49,800

# MLC650 VPC-MAX S-1

ASME B30.5



B65



440,900 lb



360°

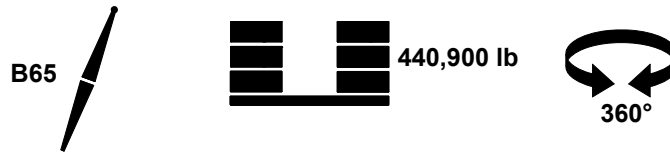
301.8 ft				
ft	°	ft	38.7 ft lb	60.0 ft lb
50	82.3	308.7	504,900	780,600
55	81.4	307.9	441,300	716,200
60	80.4	307.0	389,300	660,000
65	79.4	306.1	345,900	597,900
70	78.5	305.0	309,200	538,300
75	77.5	303.9	277,800	488,200
80	76.5	302.6	250,500	445,400
85	75.5	301.3	226,700	408,400
90	74.5	299.9	205,600	376,100
95	73.5	298.4	186,900	347,800
100	72.5	296.8	170,200	322,600
105	71.5	295.0	155,100	300,100
110	70.5	293.2	141,500	279,900
115	69.5	291.3	129,000	261,700
120	68.5	289.3	117,700	245,100
125	67.5	287.2	107,300	230,000
130	66.4	285.0	97,700	216,200
135	65.4	282.7	88,900	203,500
140	64.3	280.2	80,700	191,800
145	63.3	277.7	73,100	180,900
150	62.2	275.0	66,000	170,800
160	60.0	269.3	53,200	152,700
170	57.8	263.0	41,900	136,900
180	55.5	256.2	31,800	122,900
190	53.1	248.8	22,800	110,400
200	50.6	240.7		99,300
210	48.1	231.8		89,300
220	45.5	222.1		80,200
230	42.7	211.5		71,900
240	39.8	199.7		64,300
250	36.6	186.6		57,300
260	33.2	171.8		50,900
270	29.5	154.8		44,900
280	25.2	134.7		39,400
290	20.1	109.7		34,100

321.5 ft				
ft	°	ft	38.7 ft lb	60.0 ft lb
50	82.8	328.6	501,900	701,000
55	81.9	327.9	438,100	699,900
60	81.0	327.0	385,900	645,800
65	80.1	326.1	342,400	594,300
70	79.2	325.1	305,600	534,800
75	78.3	324.1	274,000	484,700
80	77.3	322.9	246,700	441,900
85	76.4	321.7	222,800	405,000
90	75.5	320.3	201,700	372,700
95	74.6	318.9	182,900	344,400
100	73.6	317.4	166,100	319,200
105	72.7	315.8	151,000	296,800
110	71.8	314.1	137,300	276,600
115	70.8	312.4	124,800	258,300
120	69.9	310.5	113,500	241,800
125	68.9	308.5	103,100	226,700
130	68.0	306.5	93,500	212,800
135	67.0	304.3	84,600	200,100
140	66.0	302.1	76,400	188,400
145	65.0	299.7	68,800	177,500
150	64.0	297.2	61,600	167,500
160	62.0	292.0	48,800	149,300
170	60.0	286.2	37,500	133,500
180	57.9	280.0	27,400	119,500
190	55.7	273.2	18,400	107,100
200	53.5	265.9		95,900
210	51.2	258.0		85,900
220	48.9	249.3		76,800
230	46.4	239.9		68,500
240	43.9	229.7		61,000
250	41.2	218.5		54,000
260	38.4	206.1		47,600
270	35.3	192.4		41,600
280	32.0	176.9		36,100
290	28.4	159.1		31,000
300	24.3	138.2		26,100
310	19.3	112.1		21,500



# MLC650 VPC-MAX S-1

ASME B30.5



341.2 ft				
ft	°	ft	38.7 ft lb	60.0 ft lb
55	82.4	347.8	472,100	617,500
60	81.5	347.0	416,200	617,500
65	80.7	346.1	369,700	584,900
70	79.8	345.2	330,300	530,600
75	78.9	344.2	296,500	480,500
80	78.1	343.1	267,300	437,800
85	77.2	341.9	241,700	400,900
90	76.4	340.7	219,100	368,700
95	75.5	339.4	199,000	340,400
100	74.6	338.0	181,100	315,200
105	73.7	336.5	164,900	292,800
110	72.9	334.9	150,300	272,600
115	72.0	333.2	137,000	254,300
120	71.1	331.5	124,800	237,800
125	70.2	329.7	113,700	222,700
130	69.3	327.7	103,400	208,900
135	68.4	325.7	94,000	196,100
140	67.5	323.6	85,200	184,400
145	66.6	321.4	77,000	173,600
150	65.6	319.1	69,400	163,500
160	63.8	314.2	55,700	145,400
170	61.9	308.9	43,600	129,500
180	59.9	303.2	32,900	115,500
190	58.0	297.0	23,300	103,100
200	55.9	290.3		91,900
210	53.9	283.0		81,900
220	51.7	275.2		72,800
230	49.5	266.8		64,600
240	47.3	257.6		57,000
250	44.9	247.7		50,100
260	42.4	237.0		43,700
270	39.8	225.2		37,700
280	37.1	212.3		32,200
290	34.1	197.9		27,100
300	31.0	181.7		22,300
310	27.4	163.3		17,800

360.9 ft				
ft	°	ft	38.7 ft lb	60.0 ft lb
55	82.8	367.7	468,600	539,000
60	82.0	366.9	412,600	539,000
65	81.2	366.1	365,900	539,000
70	80.4	365.2	326,400	526,900
75	79.6	364.3	292,600	476,900
80	78.7	363.3	263,200	434,200
85	77.9	362.2	237,600	397,300
90	77.1	361.0	214,900	365,100
95	76.3	359.7	194,800	336,800
100	75.5	358.4	176,800	311,700
105	74.7	357.0	160,600	289,200
110	73.8	355.5	145,900	269,100
115	73.0	354.0	132,600	250,800
120	72.2	352.3	120,400	234,300
125	71.3	350.6	109,200	219,200
130	70.5	348.8	98,900	205,300
135	69.6	346.9	89,400	192,600
140	68.8	344.9	80,600	180,900
145	67.9	342.9	72,500	170,000
150	67.1	340.7	64,900	160,000
160	65.3	336.2	51,100	141,800
170	63.5	331.2	39,000	126,000
180	61.7	325.9	28,300	112,000
190	59.9	320.1	18,700	99,500
200	58.0	313.9		88,400
210	56.1	307.3		78,400
220	54.2	300.1		69,300
230	52.2	292.4		61,000
240	50.1	284.2		53,500
250	48.0	275.2		46,500
260	45.8	265.6		40,100
270	43.5	255.3		34,200
280	41.1	244.0		28,700
290	38.6	231.7		23,600
300	35.9	218.2		18,800