

Load charts main boom**Load charts**

The crane is classified in accordance with ISO 4301/1 and /2 in crane class A1 (Q1, U2) (see chpt. 2.2.1 of the operating manual).

The loads were calculated in accordance with:	pr EN	13000	2000 edition
	pr EN	13001	1997 edition
	F.E.M.	1.001	1998 edition

The loads are only valid for machines which are positioned on even (Tolerance 1%,1%), firm and sufficiently load-bearing ground.

For each boom length, different charts are available to correspond with track width and counter-weight.

Only areas specified in the charts may be reached by the crane operator. Radii without a load capacity value are not authorized.

The load chart is calculated for original crane and boom sections in new and perfect conditions as approved by LIEBHERR. Any damages, non factory approved alterations or additions will reduce or prohibit it's use.

The values, highlighted in grey, are loads limited by the crane's structure. All values highlighted in white are quoted as tipping load values.

Dependent on the counter-weight, the self-erectable boom lengths can be found in chapter 6 of the operating manual.

The free-hanging lifting cables, the hook and the lifting tackle are all part of the load. They must always be deducted from the chart values. (The cable weight per meter is indicated in the cable certificate.)

The rated cable pull of the hoisting winches totals 120kN. The reeving must be such that this value is not exceeded. The following chart shows the reeving with the associated maximum capacities. The efficiency of the rope drive has been taken into account.

Parts of line	1	2	3	4	5	6	7	8	9
Capacity [t]	12.1	24.0	35.9	47.6	59.2	70.7	82.1	93.3	104.5

The load hook should be reeved in accordance with the reeving plans in chapter 6 of the operating manual.

In order that the hook is always lowered to the ground with minimum radius, the maximum possible reeving dependent of the lifting cable(lifting cable length) being used should be checked. One allocation is represented in chapter 6.2.4 of this operating manual.

The crane is authorized for use in outdoor temperatures of between -20°C and $+40^{\circ}\text{C}$.

The capacities were calculated with following wind speeds:

Boom length [m]	Maximum permissible wind speed [m/s]
14.0m – 38.0m	14.0
41.0m – 68.0m	12.0

Crane operation must be stopped if higher wind speeds appear as listed in the above mentioned chart. Lifts may be carried out at higher wind speeds with extrem care and attention in exceptional cases. The load must be reduced according following chart. The chart shows the minimum values. The responsibility for reduction of the load chart lays with the machine operator.

Load charts main boom

Main boom length [m]	14 - 68m
Wind speed [m/s]	Reduction by: [%]
10	0
12	0
14	0
16	-10
over 16	Crane operation forbidden

Chapter 5.8 of the operating manual describes the authorised parking positions for the crane.

With the prospect or prediction of the wind speed exceeding 20 m/s, the entire boom should be laid flat on the ground. (see chapter 3.8 of the operating manual).

The wind loads prepared in the load capacity calculation are reckoned with 1,2 m²/t of the load. If this ratio is higher when handling light, broad-surfaced loads, reduced load values should be obtained from the manufacturer.

The reduction of the load chart and further restrictions for the use with runner must be taken out of chapter 5.7.1 of the operating manual. Following chart can be used for rough estimation.

	Reduction by: [kg]
Runner without rope	1000
Runner with single hook block [600kg]	2000
Runner with hook block, single sheave [1500kg]	3250

Increase of the radius, using the runner

Main boom angle [°]	Offset [m]
85	2.0
45	1.9
15	1.2

The load has to be reduced if the pendant straps of the luffing jib remain on the main boom. For each insert, where the pendants remain on the boom the capacity has to be reduced according to the following table:

Insert 3.0m	Insert 6.0m	Insert 12m
30kg	60kg	120kg

The crane operator shall be qualified according to given information in chapter 3.2 of the operating manual. The operator and assistant personnel associated with the crane shall read and fully understand the latest applicable national safety regulations and regulations for prevention of accidents.

When travelling with the load, higher stability factors in accordance with prEN 13000 (tipping angle) and ISO 4305 charts 1 and 2 apply. To make it easier, the manufacturer has quoted the following rules for the chart values:

Load – 10%
Load - 1000kg

The lower value should be used.

Travelling with load should be carried out slowly (1st travel stage and less than 0.4m/s) and over firm and even ground only. Dynamic effects should be reduced to the bare minimum. Oscillation of the load is not permitted. See also chapter 5.5.6 of the operating manual.

Main boom head: Standard head 105t with 5 cable pulleys

Load charts main boom

main boom head: 1 footprint: extended track width
 degree rating: 360 ° counterweight [t]: 32.3
 Version: /9833241/20308 carbody counterweight [t]: 15.0

Radius [m]:	main boom angle [°]:	tip height [m]:	capacity [t]
14 m main boom			
3.1	86.0	15.9	104.5
4.0	82.4	15.7	103.7
5.0	78.2	15.5	82.2
6.0	73.9	15.1	65.8
7.0	69.5	14.7	54.8
8.0	64.9	14.2	46.8
9.0	60.1	13.6	39.5
10.0	55.0	12.8	34.1
11.0	49.5	12.0	30.0
12.0	43.5	10.9	26.6
13.0	36.5	9.5	23.9
14.0	27.8	7.6	21.6
15.0	19.6	5.7	12.1
17 m main boom			
3.3	86.0	18.8	104.5
4.0	83.7	18.7	101.1
5.0	80.3	18.5	77.5
6.0	76.8	18.3	62.6
7.0	73.3	17.9	52.5
8.0	69.6	17.5	45.0
9.0	65.9	17.1	39.4
10.0	62.1	16.5	34.2
11.0	58.0	15.8	30.0
12.0	53.8	15.1	26.7
13.0	49.3	14.2	24.0
14.0	44.4	13.1	21.7
16.0	32.7	10.3	18.1
18.0	17.4	6.1	12.1
20 m main boom			
3.5	86.0	21.8	104.5
4.0	84.7	21.8	94.1
5.0	81.8	21.6	73.2
6.0	78.8	21.4	59.7
7.0	75.9	21.1	50.3
8.0	72.9	20.8	43.4
9.0	69.8	20.4	38.1
10.0	66.6	19.9	33.9
11.0	63.4	19.4	30.0
12.0	60.1	18.8	26.7
13.0	56.6	18.1	24.0
14.0	52.9	17.3	21.7
16.0	45.0	15.4	18.1
18.0	35.6	12.8	15.5
20.0	22.6	8.7	13.3
21.0	15.7	6.4	12.1
23 m main boom			
3.8	86.0	24.8	94.3
4.0	85.4	24.8	88.0
5.0	82.9	24.7	69.3
6.0	80.3	24.5	57.0
7.0	77.8	24.2	48.3
8.0	75.2	23.9	41.8
9.0	72.6	23.6	36.8
10.0	69.9	23.2	32.8
11.0	67.2	22.8	29.5
12.0	64.4	22.3	26.7
13.0	61.5	21.7	23.9
14.0	58.6	21.1	21.7
16.0	52.3	19.5	18.1
18.0	45.4	17.6	15.4
20.0	37.5	15.2	13.3
22.0	29.4	12.4	11.7
23.0	23.3	10.1	11.0

Radius [m]:	main boom angle [°]:	tip height [m]:	capacity [t]
26 m main boom			
4.0	86.0	27.8	78.0
5.0	83.7	27.7	65.8
6.0	81.5	27.5	54.6
7.0	79.2	27.3	46.5
8.0	76.9	27.1	40.4
9.0	74.6	26.8	35.6
10.0	72.3	26.4	31.8
11.0	70.0	26.0	28.7
12.0	67.6	25.6	26.1
13.0	65.1	25.1	23.9
14.0	62.6	24.6	21.6
16.0	57.4	23.3	18.0
18.0	51.8	21.8	15.4
20.0	45.8	19.9	13.3
22.0	40.1	17.9	11.7
24.0	32.3	15.0	10.3
26.0	21.7	10.7	9.1
29 m main boom			
4.2	86.0	30.8	74.7
5.0	84.4	30.7	62.6
6.0	82.4	30.6	52.3
7.0	80.3	30.4	44.7
8.0	78.3	30.2	39.0
9.0	76.3	29.9	34.5
10.0	74.2	29.6	30.8
11.0	72.1	29.2	27.9
12.0	70.0	28.9	25.4
13.0	67.9	28.4	23.2
14.0	65.7	28.0	21.4
16.0	61.2	26.9	18.0
18.0	56.5	25.6	15.3
20.0	51.5	24.0	13.2
22.0	47.0	22.5	11.6
24.0	41.1	20.3	10.2
26.0	34.3	17.5	9.1
28.0	25.9	13.7	8.1
29.0	20.4	11.1	7.7
32 m main boom			
4.4	86.0	33.8	65.8
5.0	84.9	33.7	59.8
6.0	83.1	33.6	50.2
7.0	81.3	33.4	43.2
8.0	79.4	33.2	37.8
9.0	77.6	33.0	33.5
10.0	75.7	32.7	30.0
11.0	73.9	32.4	27.2
12.0	72.0	32.1	24.8
13.0	70.1	31.7	22.7
14.0	68.1	31.3	20.9
16.0	64.2	30.3	18.0
18.0	60.0	29.2	15.3
20.0	55.7	27.8	13.2
22.0	51.9	26.5	11.6
24.0	47.1	24.7	10.3
26.0	41.8	22.5	9.1
28.0	35.9	19.9	8.2
30.0	28.8	16.5	7.3
32.0	19.4	11.6	6.6

Radius [m]:	main boom angle [°]:	tip height [m]:	capacity [t]
35 m main boom			
4.6	86.0	36.8	57.5
5.0	85.3	36.8	57.1
6.0	83.7	36.6	48.2
7.0	82.0	36.5	41.6
8.0	80.4	36.3	36.5
9.0	78.7	36.1	32.5
10.0	77.0	35.8	29.2
11.0	75.3	35.6	26.4
12.0	73.6	35.2	24.1
13.0	71.9	34.9	22.1
14.0	70.1	34.5	20.4
16.0	66.5	33.7	17.6
18.0	62.9	32.6	15.2
20.0	59.1	31.5	13.1
22.0	55.8	30.3	11.5
24.0	51.6	28.8	10.2
26.0	47.2	26.9	9.0
28.0	42.4	24.8	8.1
30.0	37.1	22.3	7.2
32.0	31.0	19.1	6.5
34.0	23.4	14.9	5.9
35.0	18.4	12.1	5.6
38 m main boom			
4.8	86.0	39.8	50.5
5.0	85.7	39.8	50.5
6.0	84.2	39.7	46.4
7.0	82.7	39.5	40.2
8.0	81.1	39.3	35.3
9.0	79.6	39.1	31.5
10.0	78.0	38.9	28.3
11.0	76.5	38.7	25.7
12.0	74.9	38.4	23.4
13.0	73.3	38.1	21.5
14.0	71.7	37.7	19.9
16.0	68.5	36.9	17.1
18.0	65.2	36.0	15.0
20.0	61.8	35.0	13.0
22.0	58.8	34.0	11.4
24.0	55.2	32.6	10.1
26.0	51.3	31.0	8.9
28.0	47.3	29.2	8.0
30.0	42.9	27.1	7.1
32.0	38.1	24.6	6.4
34.0	32.7	21.6	5.8
36.0	26.3	17.9	5.2
38.0	17.6	12.5	4.7
41 m main boom			
5.0	86.0	42.8	44.3
6.0	84.6	42.7	42.7
7.0	83.2	42.5	38.8
8.0	81.8	42.4	34.2
9.0	80.4	42.2	30.5
10.0	78.9	42.0	27.5
11.0	77.5	41.8	24.9
12.0	76.1	41.5	22.8
13.0	74.6	41.2	20.9
14.0	73.1	40.9	19.3
16.0	70.2	40.2	16.7
18.0	67.1	39.3	14.6
20.0	64.0	38.4	12.8
22.0	61.4	37.5	11.3
24.0	58.1	36.2	9.9
26.0	54.7	34.8	8.8
28.0	51.1	33.2	7.8
30.0	47.3	31.4	7.0
32.0	43.3	29.3	6.3
34.0	38.9	26.9	5.7
36.0	34.1	24.1	5.1
38.0	28.5	20.6	4.6
40.0	21.5	16.0	4.1
41.0	16.9	12.9	3.9

Load charts main boom

main boom head: 1

footprint: extended track width

degree rating: 360 °

counterweight [t]: 32.3

Version: /9833241/20308

carbody counterweight [t]: 15.0

Radius [m]:	main boom angle [°]:	tip height [m]:	capacity [t]
44 m main boom			
5.2	86.0	45.8	35.9
6.0	85.0	45.7	35.2
7.0	83.7	45.6	34.3
8.0	82.3	45.4	33.1
9.0	81.0	45.3	29.7
10.0	79.7	45.1	26.8
11.0	78.4	44.8	24.3
12.0	77.0	44.6	22.3
13.0	75.7	44.3	20.5
14.0	74.3	44.0	18.9
16.0	71.6	43.4	16.3
18.0	68.8	42.6	14.3
20.0	65.9	41.7	12.6
22.0	63.5	40.9	11.2
24.0	60.5	39.8	9.9
26.0	57.4	38.5	8.8
28.0	54.2	37.1	7.8
30.0	50.9	35.5	7.0
32.0	47.4	33.7	6.3
34.0	43.7	31.6	5.6
36.0	39.6	29.3	5.1
38.0	35.2	26.5	4.6
40.0	30.2	23.2	4.1
42.0	24.3	19.1	3.7
44.0	16.3	13.3	3.3
47 m main boom			
5.4	86.0	48.8	31.2
6.0	85.3	48.7	31.0
7.0	84.1	48.6	30.1
8.0	82.8	48.5	29.3
9.0	81.6	48.3	28.2
10.0	80.4	48.1	26.0
11.0	79.1	47.9	23.7
12.0	77.9	47.7	21.7
13.0	76.6	47.4	19.9
14.0	75.4	47.2	18.4
16.0	72.8	46.6	15.9
18.0	70.2	45.8	13.9
20.0	67.6	45.0	12.2
22.0	65.3	44.2	10.9
24.0	62.6	43.2	9.8
26.0	59.8	42.1	8.7
28.0	56.9	40.8	7.7
30.0	53.9	39.3	6.9
32.0	50.7	37.7	6.1
34.0	47.4	35.9	5.5
36.0	44.0	33.9	5.0
38.0	40.2	31.6	4.5
40.0	36.2	28.9	4.0
42.0	31.7	25.8	3.6
44.0	26.5	22.0	3.2
46.0	19.9	17.0	2.9
47.0	15.7	13.7	2.7

Radius [m]:	main boom angle [°]:	tip height [m]:	capacity [t]
50 m main boom			
5.6	86.0	51.8	27.7
6.0	85.6	51.7	27.7
7.0	84.4	51.6	26.9
8.0	83.3	51.5	26.2
9.0	82.1	51.3	25.2
10.0	81.0	51.2	24.5
11.0	79.8	51.0	23.0
12.0	78.6	50.8	21.1
13.0	77.4	50.5	19.4
14.0	76.3	50.3	17.9
16.0	73.9	49.7	15.5
18.0	71.5	49.0	13.5
20.0	69.4	48.4	12.0
22.0	66.9	47.6	10.6
24.0	64.4	46.6	9.5
26.0	61.8	45.5	8.5
28.0	59.1	44.4	7.6
30.0	56.4	43.0	6.7
32.0	53.5	41.6	6.0
34.0	50.6	39.9	5.4
36.0	47.5	38.1	4.8
38.0	44.2	36.1	4.4
40.0	40.8	33.8	3.9
42.0	37.0	31.3	3.5
44.0	32.9	28.3	3.1
46.0	28.2	24.7	2.8
48.0	22.7	20.3	2.5
50.0	15.2	14.1	2.2
53 m main boom			
5.8	86.0	54.8	24.6
6.0	85.8	54.7	24.6
7.0	84.7	54.6	24.1
8.0	83.7	54.5	22.9
9.0	82.6	54.4	22.2
10.0	81.5	54.2	21.4
11.0	80.4	54.0	20.8
12.0	79.3	53.8	20.3
13.0	78.2	53.6	18.9
14.0	77.1	53.4	17.4
16.0	74.8	52.8	15.0
18.0	72.5	52.2	13.1
20.0	70.6	51.6	11.5
22.0	68.3	50.8	10.3
24.0	65.9	49.9	9.2
26.0	63.5	49.0	8.2
28.0	61.1	47.9	7.4
30.0	58.5	46.6	6.6
32.0	55.9	45.3	5.9
34.0	53.2	43.8	5.3
36.0	50.4	42.2	4.7
38.0	47.5	40.4	4.2
40.0	44.5	38.4	3.8
42.0	41.2	36.1	3.4
44.0	37.7	33.6	3.0
46.0	34.0	30.7	2.7
48.0	29.7	27.4	2.4
50.0	24.8	23.3	2.1
51.0	22.0	20.9	2.0
52.0	18.7	18.0	1.8

Radius [m]:	main boom angle [°]:	tip height [m]:	capacity [t]
56 m main boom			
6.1	86.0	57.7	18.8
7.0	85.0	57.7	18.6
8.0	84.0	57.5	18.2
9.0	83.0	57.4	17.9
10.0	81.9	57.3	17.5
11.0	80.9	57.1	17.2
12.0	79.9	56.9	16.9
13.0	78.8	56.7	16.5
14.0	77.8	56.5	15.9
16.0	75.6	56.0	14.7
18.0	73.5	55.4	12.8
20.0	71.7	54.8	11.4
22.0	69.5	54.1	10.1
24.0	67.3	53.2	9.0
26.0	65.1	52.3	8.0
28.0	62.8	51.3	7.2
30.0	60.4	50.2	6.5
32.0	58.0	48.9	5.8
34.0	55.5	47.6	5.2
36.0	53.0	46.1	4.7
38.0	50.3	44.4	4.2
40.0	47.6	42.6	3.7
42.0	44.7	40.6	3.3
44.0	41.6	38.4	3.0
46.0	38.4	35.9	2.6
48.0	34.9	33.1	2.3
50.0	31.0	29.9	2.0
55.0	18.2	18.5	1.4
59 m main boom			
6.3	86.0	60.7	17.5
7.0	85.3	60.7	17.4
8.0	84.3	60.6	17.0
9.0	83.3	60.4	16.7
10.0	82.3	60.3	16.2
11.0	81.4	60.1	15.7
12.0	80.4	60.0	15.3
13.0	79.4	59.8	14.9
14.0	78.4	59.5	14.4
16.0	76.4	59.1	13.5
18.0	74.4	58.5	12.5
20.0	72.7	58.0	11.0
22.0	70.6	57.3	9.8
24.0	68.5	56.5	8.7
26.0	66.4	55.6	7.8
28.0	64.3	54.7	7.0
30.0	62.1	53.6	6.2
32.0	59.8	52.5	5.6
34.0	57.5	51.2	5.1
36.0	55.2	49.8	4.5
38.0	52.7	48.3	4.0
40.0	50.2	46.7	3.6
42.0	47.6	44.8	3.2
44.0	44.9	42.9	2.8
46.0	42.0	40.7	2.5
48.0	38.9	38.3	2.2
50.0	35.7	35.5	1.9
55.0	25.9	26.8	1.3
56.0	23.5	24.5	1.2
57.0	20.8	21.9	1.1