

SARENS HLTC 2400



HEAVY LIFT TOWER CRANE

- Load moment: 2.496tm
- Capacity: 128t
- Jib configuration: 36m / 42m / 48m / 54m / 60m / 66m / 72m / 78m
- Power supply:

Crane configuration	Power supply (grid / generator)	Main fuses
1 x Luffing winch	3x400V+PE 50Hz/ 600 kVA	720A
3 x Slewing gear		
2 x Hoist winch		
1 x Luffing winch	3x400V+PE 50Hz/ 550 kVA	660A
3 x Slewing gear		
1 x Hoist winch		

Regenerative / non-regenerative operation:

The AFE (Active Front End) inverters on the HLTC cranes can be switched between regenerative (standard) and non-regenerative operation (optional).

- If regenerative operation is selected, the crane has to be connected to the national grid through a transformer. The excess energy, e.g. when lowering a load or luffing down the jib, will be fed back to the grid, which saves energy.
- If non-regenerative operation is selected, a resistor bank has to be mounted on the crane. Braking resistors will dissipate the excess energy. The crane can then be connected to a generator or through a transformer to a grid that does not allow energy feedback.

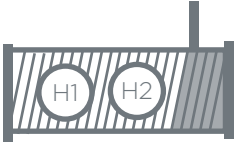
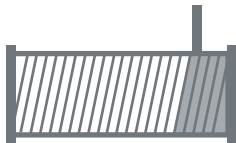

No inrush currents:

The HLTC cranes have an integrated energy buffer, avoiding inrush currents due to start of the winches. First the alternating current (3x400V 50Hz) is rectified to a direct current of around 650V. This direct current is then buffered, providing an amount of energy that is stored for instant use. The inverter converts the direct current to alternating current with variable frequency for variable speed. This system prevents inrush currents.

No grid disturbance due to harmonics:

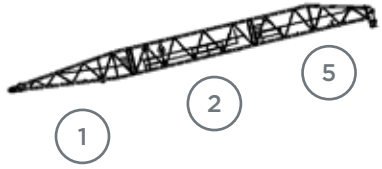
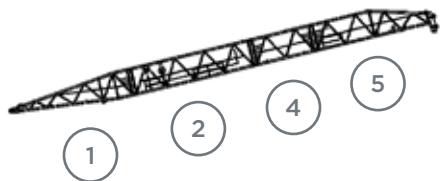
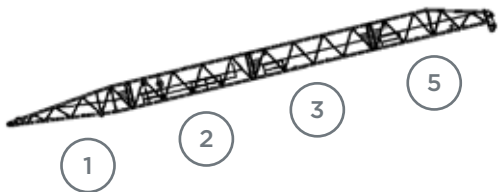
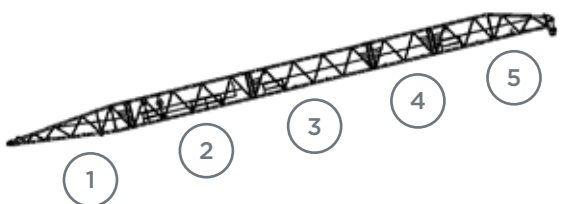
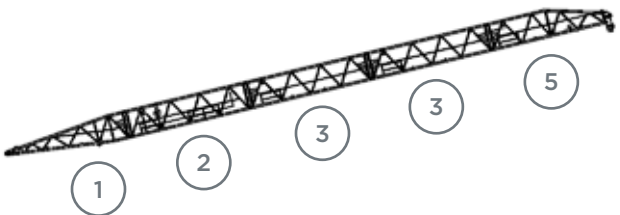
The rectifiers and inverters are active front end (AFE) types with an additional LCL filter (= EMC filter) installed. AFE inverters use IGBT transistors instead of diodes. The AFE inverter monitors the input current waveform and shapes it to be sinusoidal, greatly reducing total harmonic distortion (THD) and improving the power factor to almost 1. The LCL filter reduces further any residual higher-order harmonics caused by the switching frequency of the IGBTs.

- Classification crane: A3
- Wind category: C25 (out-of-service)

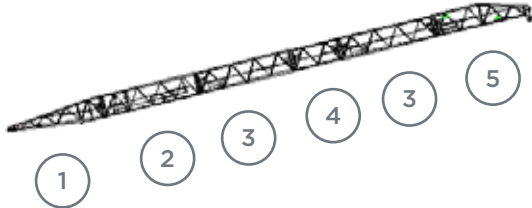
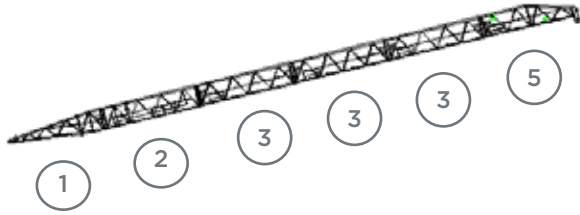
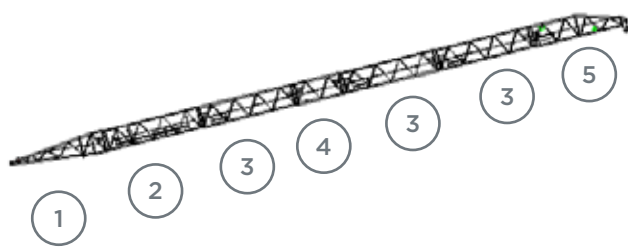
	Gear	Working speed	Rope diameter	Rope length	Nominal single line pull
Hoisting winch		<p>at 16t line load 61m/min - 39m/min on layer 9 - 1</p> <p>at 8t line load 122m/min - 78m/min on layer 9 - 1</p>	28mm	800m	173 kN on layer 9
Luffing winch		47m/min on layer 4	28mm	380m	
Slewing gear		0,7rpm			



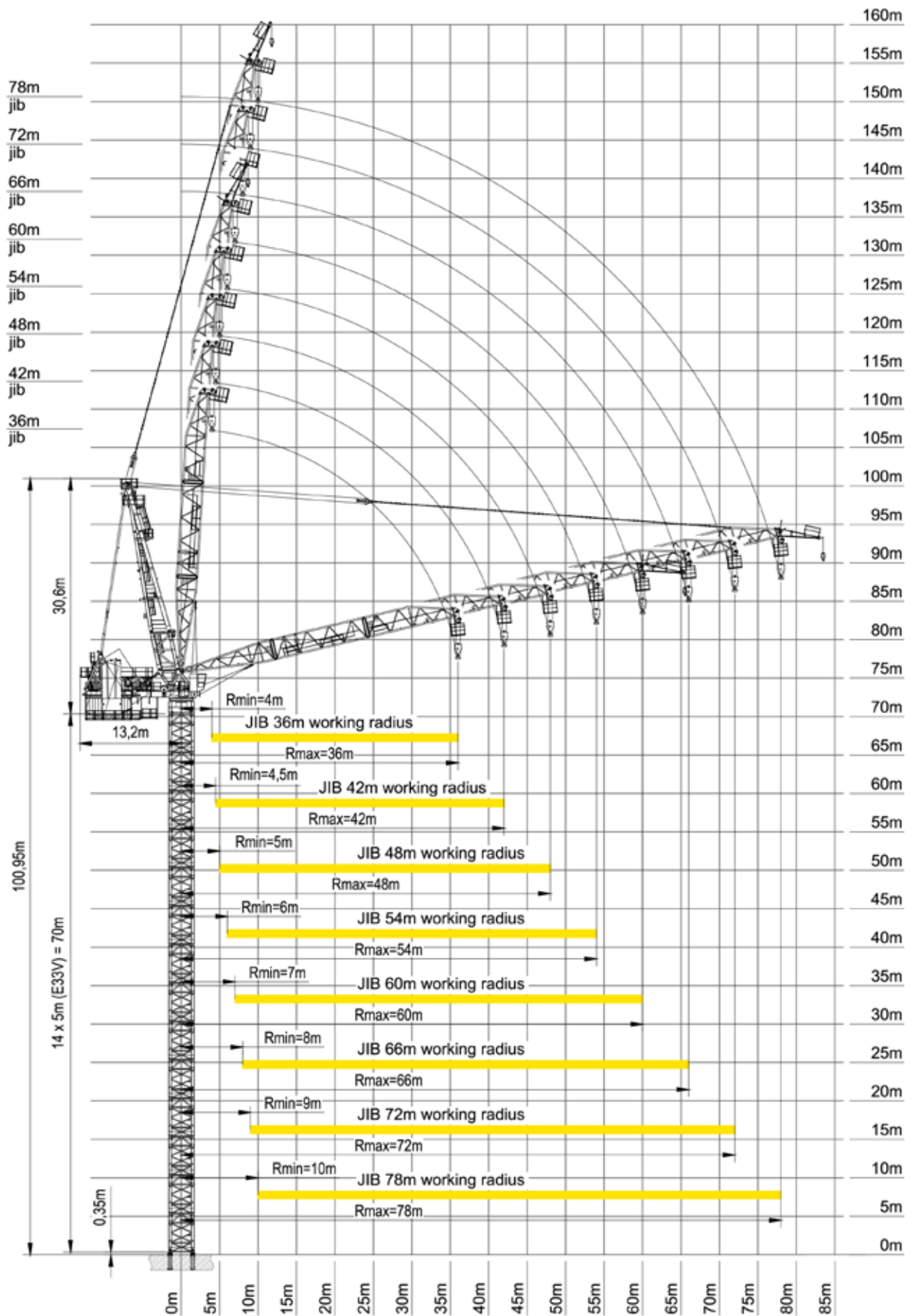
HLTC 2400 JIB CONFIGURATION

Jib Length	Jib Configuration	Counterweight	Counterweight configuration
36m		137,6t	No.2 x 4 No.3 x 4 No.4 x 1 No.5 x 1
42m			
48m			
54m			
60m			

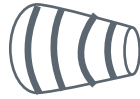
HLTC 2400 JIB CONFIGURATION

Jib Length	Jib Configuration	Counterweight	Counterweight configuration
66m		155,9t	No.1 x 2 No.2 x 4 No.3 x 4 No.4 x 1 No.5 x 1
72m		160,3t	No.1 x 1 No.2 x 5 No.3 x 4 No.4 x 1 No.5 x 1
78m		164,6t	No.2 x 5 No.3 x 5 No.4 x 1 No.5 x 1

HLTC 2400 WORKING RANGE







17 - 14m/s



8-FALL

Radius [m]

Capacity [t]	4	4,5	5	6	10	19	19,5	20	22	24	26
Jib 36m	128	128	128	128	128	128	128	124,7	112,9	103	94,7
Jib 42m	-	128	128	128	128	128	124,6	121,4	110,1	100,6	92,6

6-FALL

Radius [m]

Capacity [t]	4	4,5	5	6	10	20	20,5	22	22,5	24	24,5
Jib 36m	96	96	96	96	96	96	96	96	96	96	96
Jib 42m	-	96	96	96	96	96	96	96	96	96	96
Jib 48m	-	-	96	96	96	96	96	96	96	90	88,2
Jib 54m	-	-	-	96	96	96	96	89,5	87,5	82	80,3

4-FALL

Radius [m]

Capacity [t]	4	4,5	5	6	7	8	9	10	20	30	31
Jib 36m	64	64	64	64	64	64	64	64	64	64	64
Jib 42m	-	64	64	64	64	64	64	64	64	64	64
Jib 48m	-	-	64	64	64	64	64	64	64	64	64
Jib 54m	-	-	-	64	64	64	64	64	64	64	64
Jib 60m	-	-	-	-	64	64	64	64	64	64	64
Jib 66m	-	-	-	-	-	64	64	64	64	64	64
Jib 72m	-	-	-	-	-	-	64	64	64	64	61,8

- Capacities are given in metric tons.
- Capacities are based on 50m tower height and hook at ground level. For longer hook travel distances, a reduction of the capacity with the additional weight of the hoist rope is required.
 - 8-fall: 32kg/m
 - 6-fall: 24kg/m
 - 4-fall: 16kg/m
- Capacities are to be reduced by 3,5t if the auxiliary jib is installed.
- Hook block weight is included in the load chart and is therefore not to be deducted from the capacity as per load chart.
- Radius is from slewing centre.
- The maximum allowed wind speed for crane operation is measured by the anemometer in the top of the jib. The load charts take into account the wind effect on the load as exerted by the 3-second wind gust at the top of the jib, acting on a projected area of 1 m² per ton of lifted load multiplied by a drag factor of 1,2.



17 - 14m/s



ISO

**HLTC 2400
LOAD CHART**

8-FALL

Radius [m]

Capacity [t]	28	30	32	34	36	38	40	42	WIND [m/s]
Jib 36m	87,6	81,4	76	71,2	67	-	-	-	17
Jib 42m	85,7	79,8	74,6	70	65,9	62,3	59	56	17

6-FALL

Radius [m]

Capacity [t]	25,5	26	30	34	36	40	42	48	50	54	WIND [m/s]
Jib 36m	96	94,1	81,3	71,6	67,5	-	-	-	-	-	17
Jib 42m	92,3	90,5	78,6	69,4	65,6	59,2	56,4	-	-	-	17
Jib 48m	84,7	83,1	72	63,5	60	54	51,4	45	-	-	17
Jib 54m	77,2	75,7	65,6	57,9	54,7	49,2	46,9	41,1	39,4	36,5	17

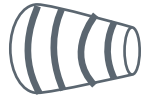
4-FALL

Radius [m]

Capacity [t]	32	33	34	36	38	40	42	48	50	54	60	62	66	72	WIND [m/s]
Jib 36m	64	64	64	64	-	-	-	-	-	-	-	-	-	-	17
Jib 42m	64	64	64	64	61,3	59	56,8	-	-	-	-	-	-	-	17
Jib 48m	64	64	64	60,5	57,3	54,5	51,9	45,5	-	-	-	-	-	-	17
Jib 54m	64	64	62	58,3	54,9	51,9	49,2	42,5	40,6	37,2	-	-	-	-	17
Jib 60m	64	61,9	59,9	56,3	53	50,1	47,4	40,8	38,9	35,6	31,5	-	-	-	17
Jib 66m	61,9	59,9	58	54,6	51,5	48,7	46,2	40	38,2	35,1	31,2	30,1	28	-	16
Jib 72m	59,7	57,7	55,9	52,5	49,4	46,7	44,2	38	36,3	33,2	29,4	28,3	26,2	23,6	15

- Capacities are given in metric tons.
- Capacities are based on 50m tower height and hook at ground level. For longer hook travel distances, a reduction of the capacity with the additional weight of the hoist rope is required.
 - 8-fall: 32kg/m
 - 6-fall: 24kg/m
 - 4-fall: 16kg/m
- Capacities are to be reduced by 3,5t if the auxiliary jib is installed.
- Hook block weight is included in the load chart and is therefore not to be deducted from the capacity as per load chart.
- Radius is from slewing centre.
- The maximum allowed wind speed for crane operation is measured by the anemometer in the top of the jib. The load charts take into account the wind effect on the load as exerted by the 3-second wind gust at the top of the jib, acting on a projected area of 1 m² per ton of lifted load multiplied by a drag factor of 1,2.

HLTC 2400 LOAD CHART



17 - 14m/s



ISO

3-FALL

Radius [m]

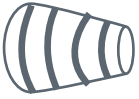
Capacity [t]	4	4,5	5	6	7	8	9	10	20	30	36	40	40,5
Jib 36m	48	48	48	48	48	48	48	48	48	48	48	-	-
Jib 42m	-	48	48	48	48	48	48	48	48	48	48	48	48
Jib 48m	-	-	48	48	48	48	48	48	48	48	48	48	48
Jib 54m	-	-	-	48	48	48	48	48	48	48	48	48	48
Jib 60m	-	-	-	-	48	48	48	48	48	48	48	48	48
Jib 66m	-	-	-	-	-	48	48	48	48	48	48	48	48
Jib 72m	-	-	-	-	-	-	48	48	48	48	48	48	47,3

2-FALL

Radius [m]

Capacity [t]	4	4,5	5	6	7	8	9	10	20	30	36	40	42
Jib 36m	32	32	32	32	32	32	32	32	32	32	32	-	-
Jib 42m	-	32	32	32	32	32	32	32	32	32	32	32	32
Jib 48m	-	-	32	32	32	32	32	32	32	32	32	32	32
Jib 54m	-	-	-	32	32	32	32	32	32	32	32	32	32
Jib 60m	-	-	-	-	32	32	32	32	32	32	32	32	32
Jib 66m	-	-	-	-	-	32	32	32	32	32	32	32	32
Jib 72m	-	-	-	-	-	-	32	32	32	32	32	32	32
Jib 78m	-	-	-	-	-	-	-	32	32	32	32	32	32

- Capacities are given in metric tons.
- Capacities are based on 50m tower height and hook at ground level. For longer hook travel distances, a reduction of the capacity with the additional weight of the hoist rope is required.
 - 3-fall: 12kg/m
 - 2-fall: 8kg/m
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17 - 14m/s



ISO

HLTC 2400 LOAD CHART

3-FALL

Radius [m]

Capacity [t]	41	41,5	42	44	48	50	54	60	62	66	72	WIND [m/s]
Jib 36m	-	-	-	-	-	-	-	-	-	-	-	17
Jib 42m	48	48	48	-	-	-	-	-	-	-	-	17
Jib 48m	48	48	48	47,3	46	-	-	-	-	-	-	17
Jib 54m	48	48	47,5	45,4	41,9	40,3	37,5	-	-	-	-	17
Jib 60m	48	47,4	46,8	44,5	40,5	38,8	35,7	31,8	-	-	-	17
Jib 66m	47,4	46,8	46,2	43,9	40	38,3	35,3	31,4	30,3	28,3	-	16
Jib 72m	46,7	46	45,4	43,1	38,9	37,1	33,9	29,9	28,7	26,6	23,8	15

2-FALL

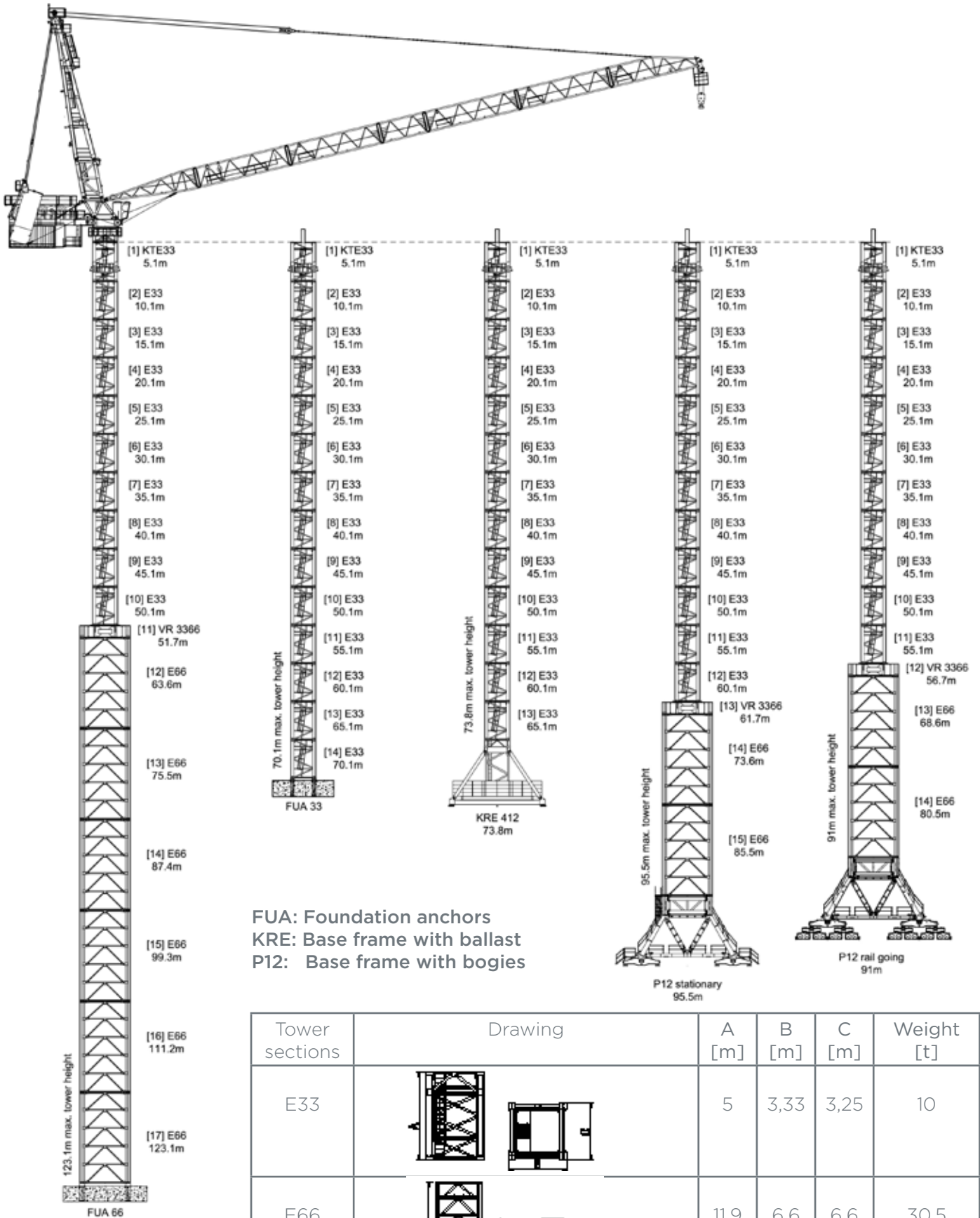
Radius [m]

Capacity [t]	48	50	54	55	56	57	58	59	60	62	66	72	78	WIND [m/s]
Jib 36m	-	-	-	-	-	-	-	-	-	-	-	-	-	17
Jib 42m	-	-	-	-	-	-	-	-	-	-	-	-	-	17
Jib 48m	32	-	-	-	-	-	-	-	-	-	-	-	-	17
Jib 54m	32	32	32	-	-	-	-	-	-	-	-	-	-	17
Jib 60m	32	32	32	32	32	32	32	32	32	-	-	-	-	17
Jib 66m	32	32	32	32	32	32	32	32	31,5	30,4	28,5	-	-	16
Jib 72m	32	32	32	32	32	32	31,3	30,7	30,1	28,9	26,8	24	-	15
Jib 78m	32	32	32	32	31,2	30,5	29,8	29,1	28,5	27,2	24,9	22	19,5	14

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 - 3-fall: 12kg/m
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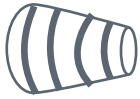


HLTC 2400
Tower 50m - Jib 78m



Tower sections	Drawing	A [m]	B [m]	C [m]	Weight [t]
E33		5	3,33	3,25	10
E66		11,9	6,6	6,6	30,5

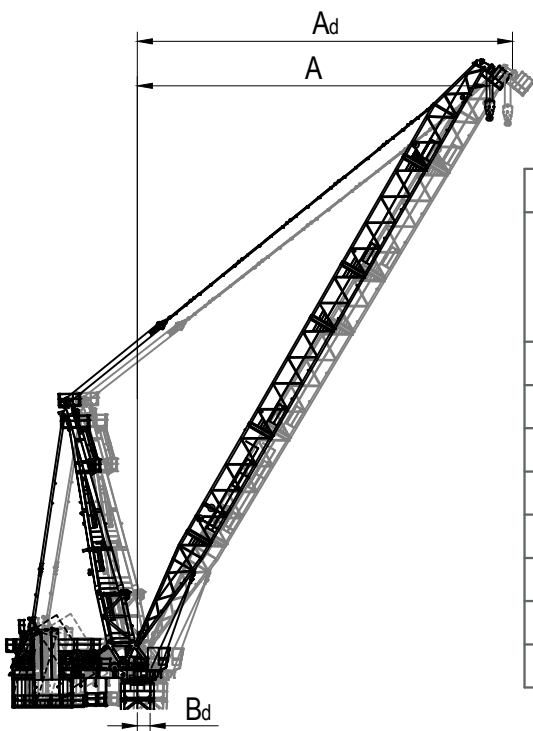
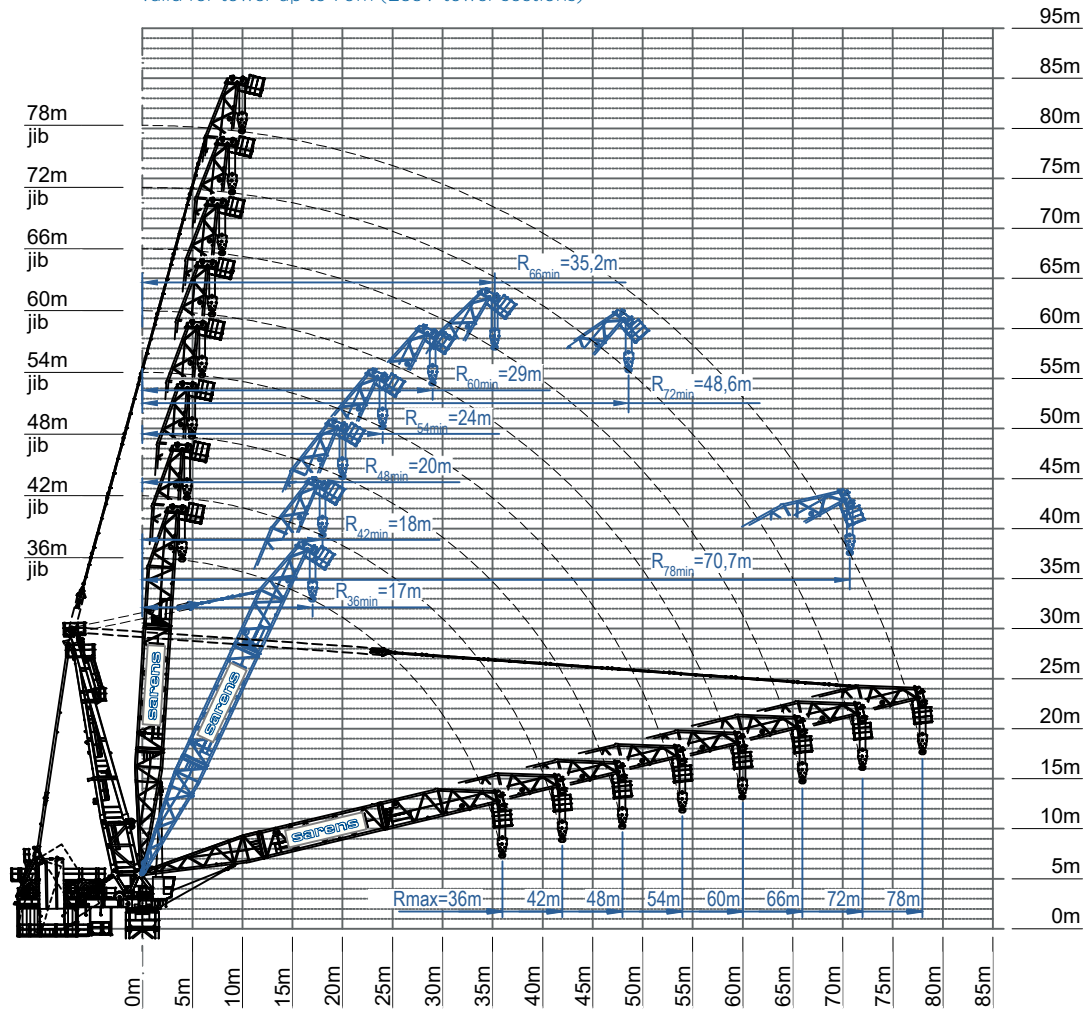




wind category C25


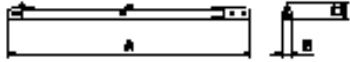
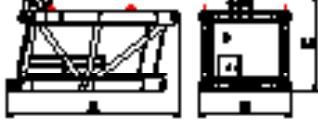





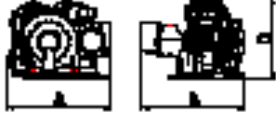

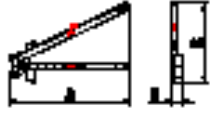
HLTC 2400 OUT OF SERVICE

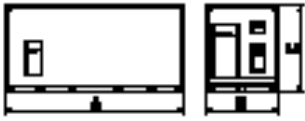
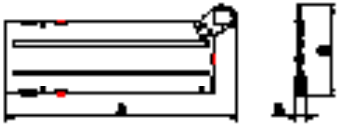
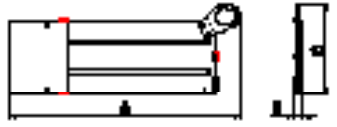
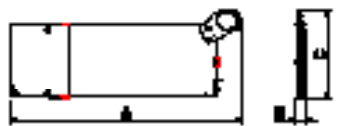

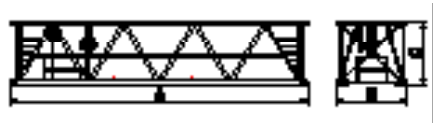





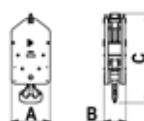
HLTC 2400 out-of-service jib position
valid for tower up to 70m (E33V tower sections)



HLTC 2400, out-of-service condition			
jib	"A" min radius [m]	"Ad" min radius + deflection [m]	"Bd" deflection of tower [m]
36	17.0	17.6	1.27
42	18.0	18.9	1.25
48	20.0	21.2	1.27
54	24.0	25.6	1.26
60	29.0	30.9	1.27
66	35.2	37.5	1.28
72	48.6	51.5	1.25
78	70.7	73.3	1.11

HLTC 2400 COMPONENTS

Item	Description	Drawing	A [m]	B [m]	C [m]	Weight [t]	Quantity
1	Cat head		20,1	3,1	3,6	31	1
2	Cat head pendants L5700		5,68	0,22	0,36	0,33	2
3	Cat head extension		5,9	3,2	3,4	9,5	1
4	Short head section		4,8	3,05	3,1	8,6	1
5	Slewing platform		3,85	3,25	3,6	30	1
6	Operator cab		3,65	1,75	3,0	1,3	1
7	Machinery platform (3 parts)		11,6	3,55	2,3	13,6	1
8	Hoist winch with base frame (with 800m rope)		2,55	2,95	1,9	11,2	2
9	Luffing winch with base frame and roller block		2,9	2,91	2,3	12	1
10	Counterweight crossbar		5,35	0,79	1,2	1,65	1
11	V-shaped support (right + left)		4,1	0,37	2,7	1,2	2

Item	Description	Drawing	A [m]	B [m]	C [m]	Weight [t]	Quantity
12	Electrical container		6,1	2,44	2,9	8	1
13	Counterweight No. 1		7,8	0,34	3,1	9,15	2
14	Counterweight No. 2 + 3		7,8	0,34	3,1	13,5	10
15	Counterweight No. 4 + 5		7,8	0,3	3,1	14,8	2
16	Jib foot ①		12,7	3,1	2,8	7,2	1
17	Jib insert L12350 ②		12,6	2,9	2,75	6,8	1
18	Jib insert L12350 ③		12,6	2,9	2,75	5,6	2
19	Jib insert L6200 ④		6,5	2,9	2,7	3,3	1
20	Jib head ⑤		11,9	2,9	2,9	6,4	1
21	Jib head sheave set		2,17	0,75	0,75	1,4	1
22	Hook block 80t		1,15	0,58	2,2	2,8	1
23	Hook block 128t		1,15	0,66	2,65	5,3	1



SARENS HLTC 2400 - version April 2023

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