EQUIPMENT

SARENS HLTC 2400

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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/ 450 kVA (675 kVA)	630A
3 x Slewing gear		
2 x Hoist winch		
1 x Luffing winch	3x400V+PE 50Hz/ 330 kVA (500 kVA)	500A
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.

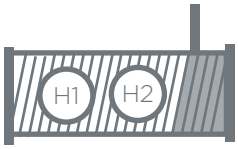
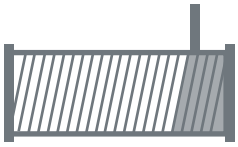
No inrush currents:

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.

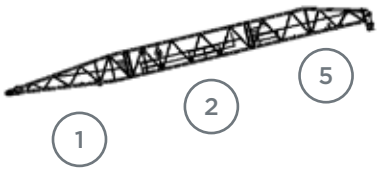
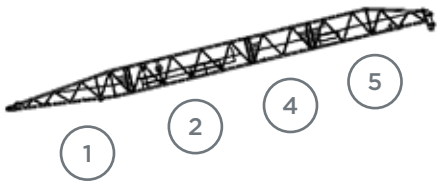
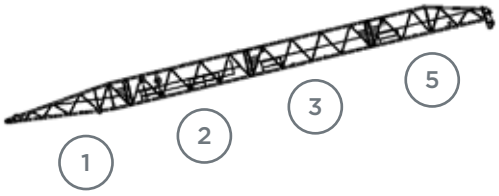
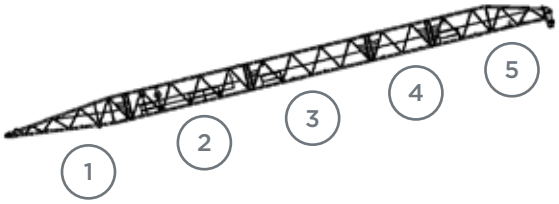
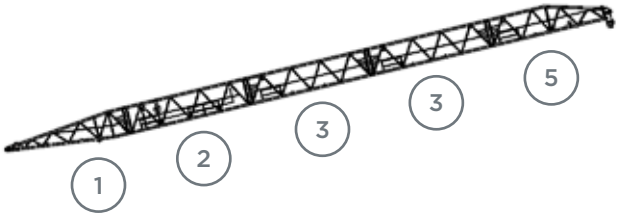
No grid disturbance due to harmonics:

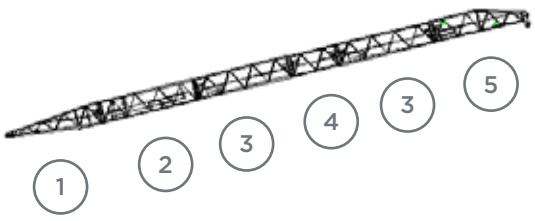
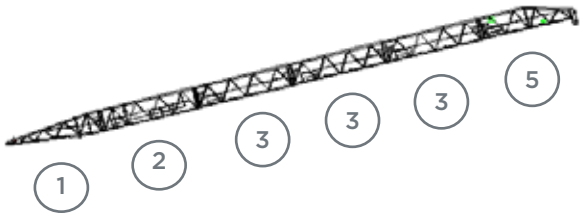
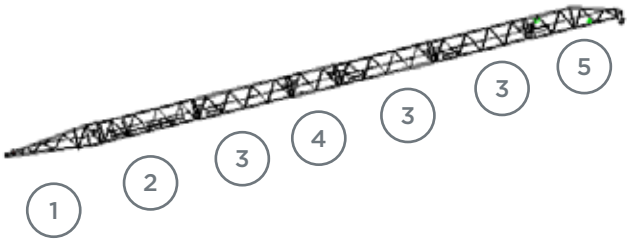
The rectifiers and inverters are active front end (AFE) types with an additional LCL filter (= EMC filter) installed. AFE inverters use IGBT transistors instead of diodes. The AFE inverter monitors the input current waveform and shapes it to be sinusoidal, greatly reducing total harmonic distortion (THD) 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)

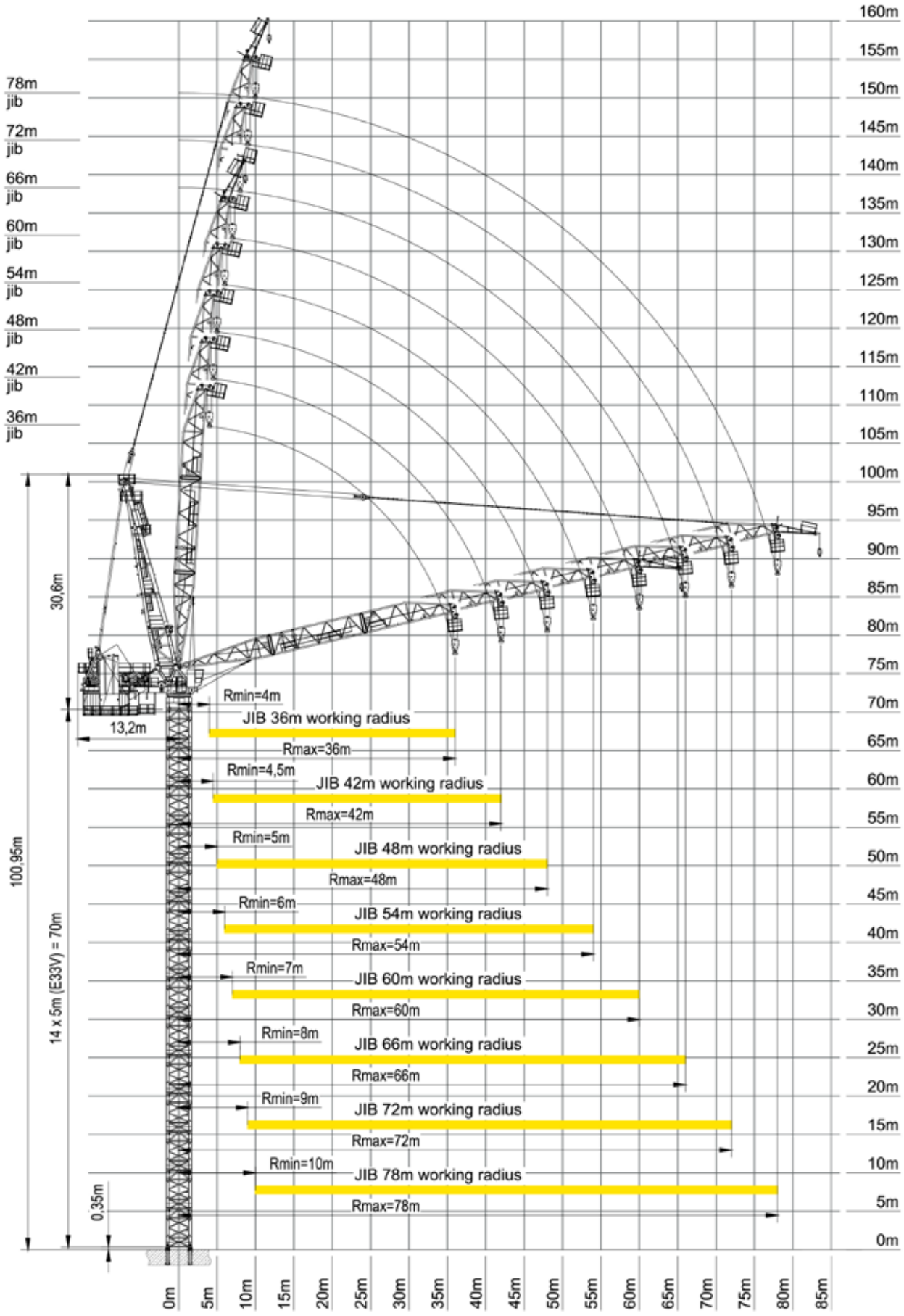
	Gear	Working speed	Rope diameter	Rope length	Nominal single line pull
Hoisting winch		at 16t line load 61m/min – 39m/min on layer 9 - 1 at 8t line load 122m/min – 78m/min on layer 9 - 1	28mm	800m	173 kN on layer 9
Luffing winch		47m/min on layer 4	28mm	380m	
Slewing gear		0,7rpm			

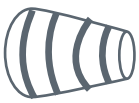
HLTC 2400
JIB CONFIGURATION

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

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

HLTC 2400
WORKING RANGE





17 - 14m/s

ISO

HLTC 2400
LOAD CHART

8-FALL

Radius [m]	min. R	19	19,5	20	22	24	26	30	32	36	40	42	WIND [m/s]
Capacity Jib 36m [t]	(4m) 128	128	128	124,7	112,9	103	94,7	81,4	76	67	-	-	17
Capacity Jib 42m [t]	(4,5m) 128	128	124,6	121,4	110,1	100,6	92,6	79,8	74,6	65,9	59	56	17

6-FALL

Radius [m]	min. R	20,5	22	22,5	24	24,5	25,5	30	36	40	42	48	54	WIND [m/s]
Capacity Jib 36m [t]	(4m) 96	96	96	96	96	96	96	81,3	67,5	-	-	-	-	17
Capacity Jib 42m [t]	(4,5m) 96	96	96	96	96	96	92,3	78,6	65,6	59,2	56,4	-	-	17
Capacity Jib 48m [t]	(5m) 96	96	96	96	90	88,2	84,7	72	60	54	51,4	45	-	17
Capacity Jib 54m [t]	(6m) 96	96	89,5	87,5	82	80,3	77,2	65,6	54,7	49,2	46,9	41,1	36,5	17

4-FALL

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

3-FALL

Radius [m]	min. R	36	40,5	41	41,5	42	44	48	50	54	60	62	66	72	WIND [m/s]
Capacity Jib 36m [t]	(4m) 48	48	-	-	-	-	-	-	-	-	-	-	-	-	17
Capacity Jib 42m [t]	(4,5m) 48	48	48	48	48	48	-	-	-	-	-	-	-	-	17
Capacity Jib 48m [t]	(5m) 48	48	48	48	48	48	47,3	46	-	-	-	-	-	-	17
Capacity Jib 54m [t]	(6m) 48	48	48	48	48	47,5	45,4	41,9	40,3	37,5	-	-	-	-	17
Capacity Jib 60m [t]	(7m) 48	48	48	48	47,4	46,8	44,5	40,5	38,8	35,7	31,8	-	-	-	17
Capacity Jib 66m [t]	(8m) 48	48	48	47,4	46,8	46,2	43,9	40	38,3	35,3	31,4	30,3	28,3	-	16

2-FALL

Radius [m]	min. R	36	42	48	54	56	57	58	59	60	62	66	72	78	WIND [m/s]
Capacity Jib 36m [t]	(4m) 32	32	-	-	-	-	-	-	-	-	-	-	-	-	17
Capacity Jib 42m [t]	(4,5m) 32	32	32	-	-	-	-	-	-	-	-	-	-	-	17
Capacity Jib 48m [t]	(5m) 32	32	32	32	-	-	-	-	-	-	-	-	-	-	17
Capacity Jib 54m [t]	(6m) 32	32	32	32	32	-	-	-	-	-	-	-	-	-	17
Capacity Jib 60m [t]	(7m) 32	32	32	32	32	32	32	32	32	32	-	-	-	-	17
Capacity Jib 66m [t]	(8m) 32	32	32	32	32	32	32	32	32	31,5	30,4	28,5	-	-	16
Capacity Jib 72m [t]	(9m) 32	32	32	32	32	32	32	31,3	30,7	30,1	28,9	26,8	24	-	15
Capacity Jib 78m [t]	(10m) 32	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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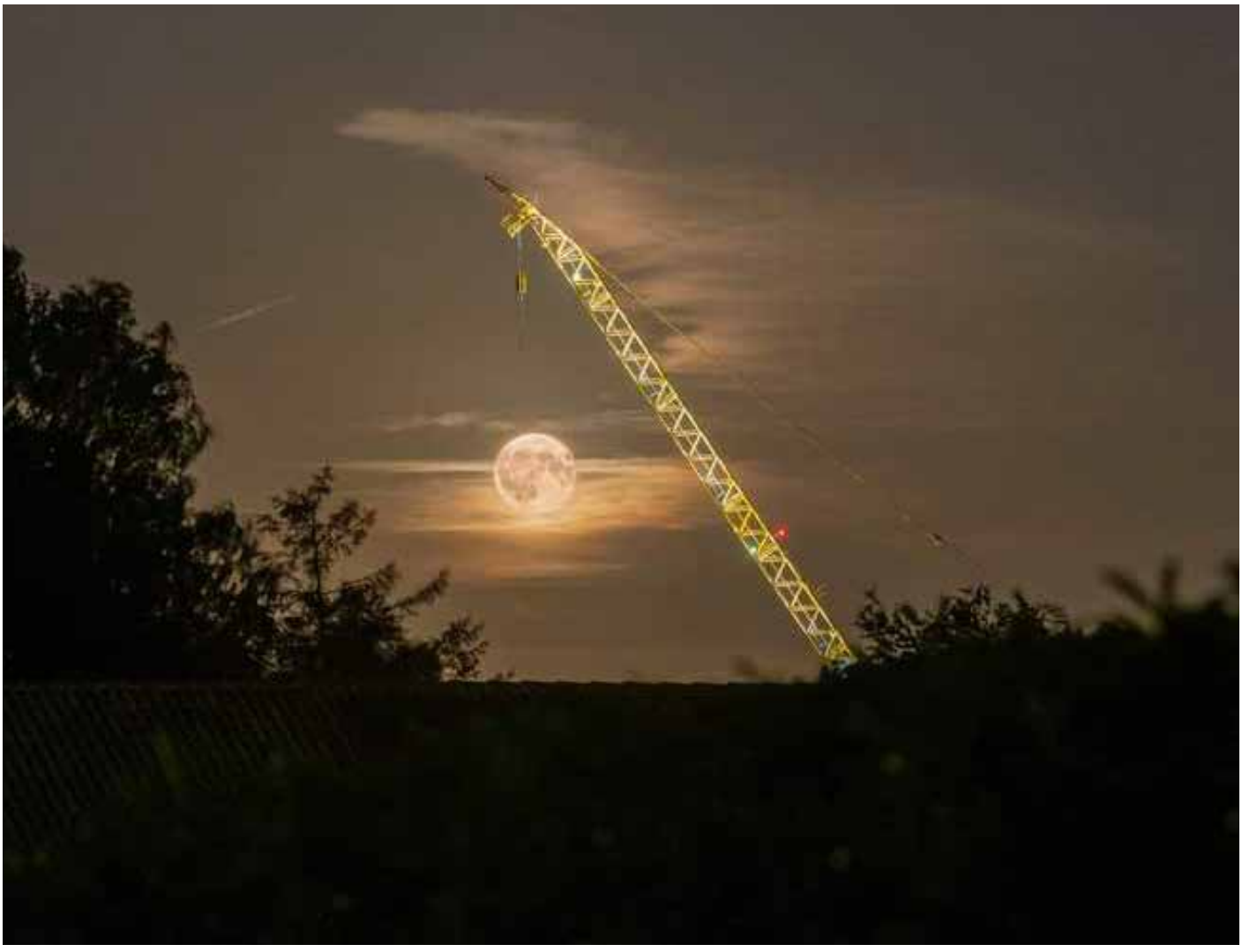
HLTC 2400
Tower 50m - Jib 78m

- 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. The maximum capacity for lifting at the auxiliary jib is 8t (2-fall).
- 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 m^2 per ton of lifted load multiplied by a drag factor of 1,2.



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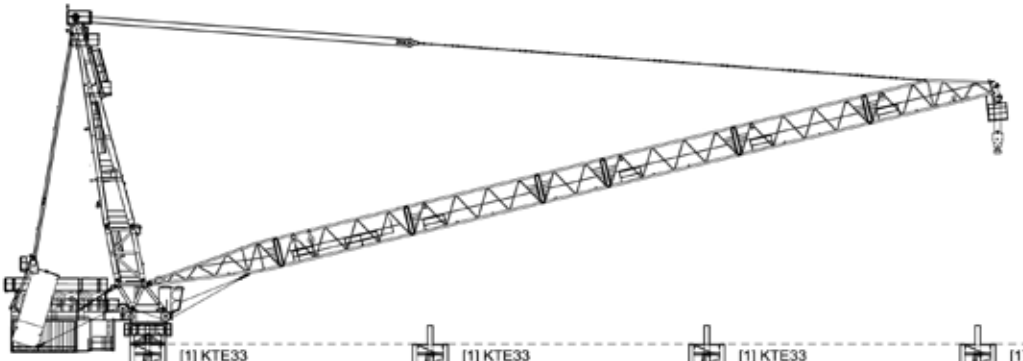
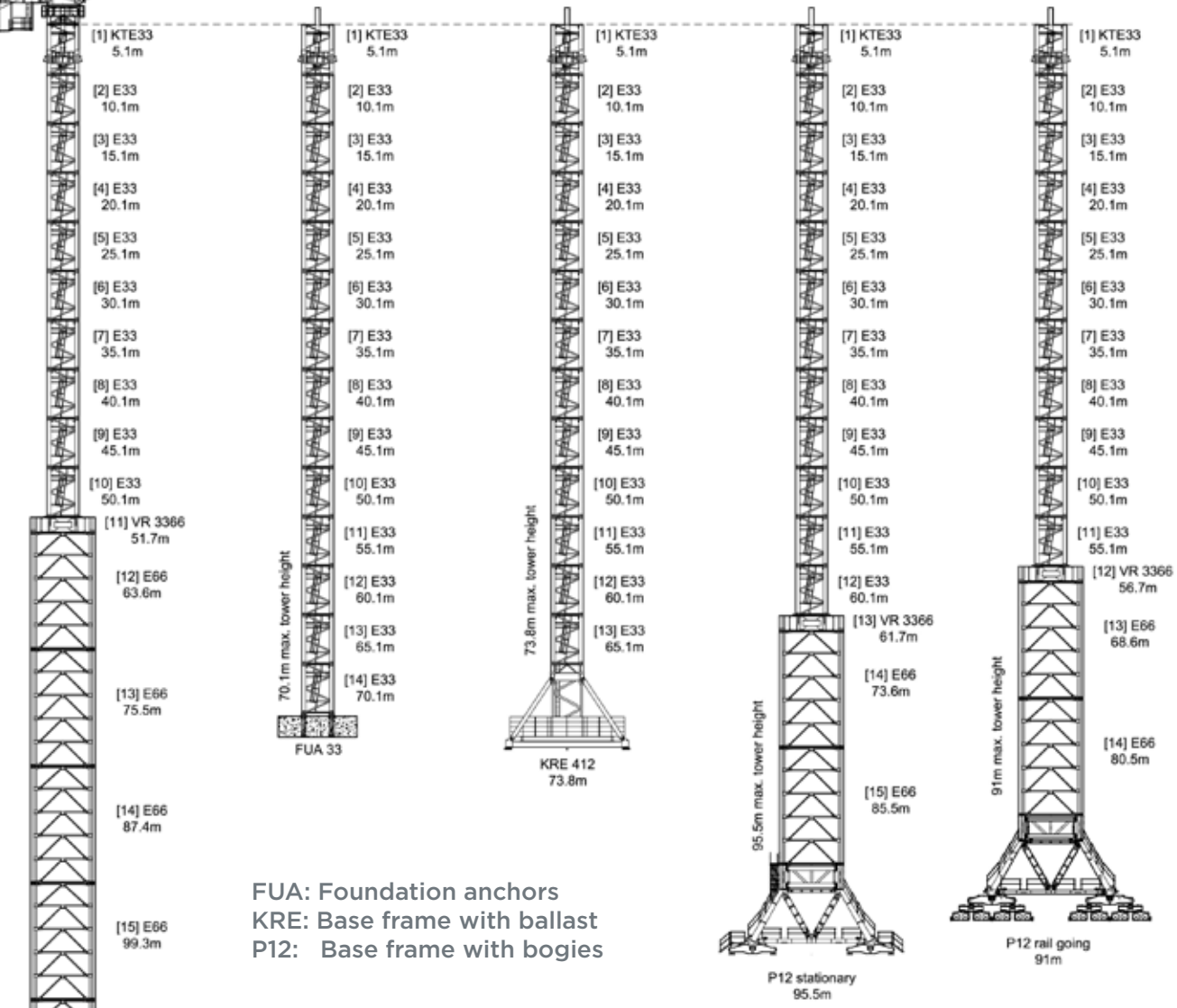
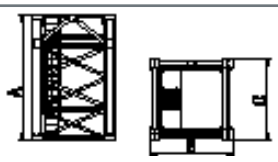
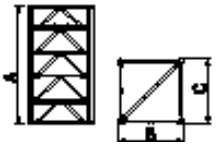


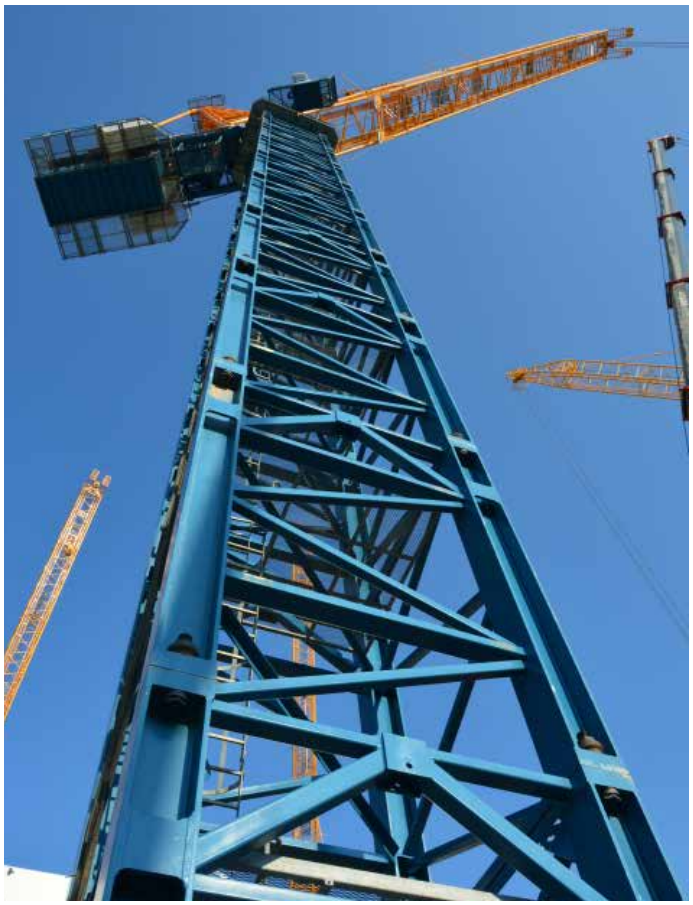


FUA: Foundation anchors
KRE: Base frame with ballast
P12: Base frame with bogies

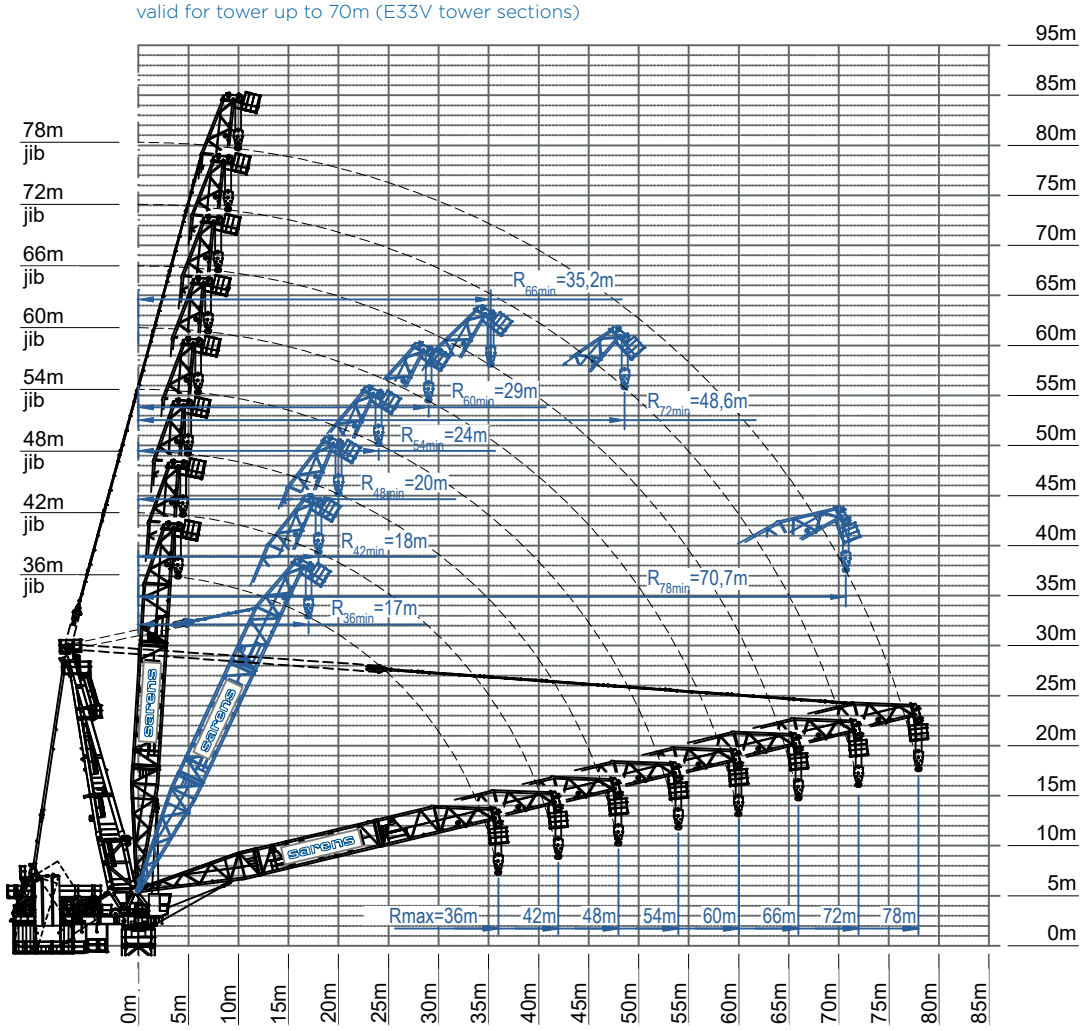
Tower sections	Drawing	A [m]	B [m]	C [m]	Weight [t]
E33		5	3,33	3,25	10
E66*		11,9	6,6	6,6	30,5

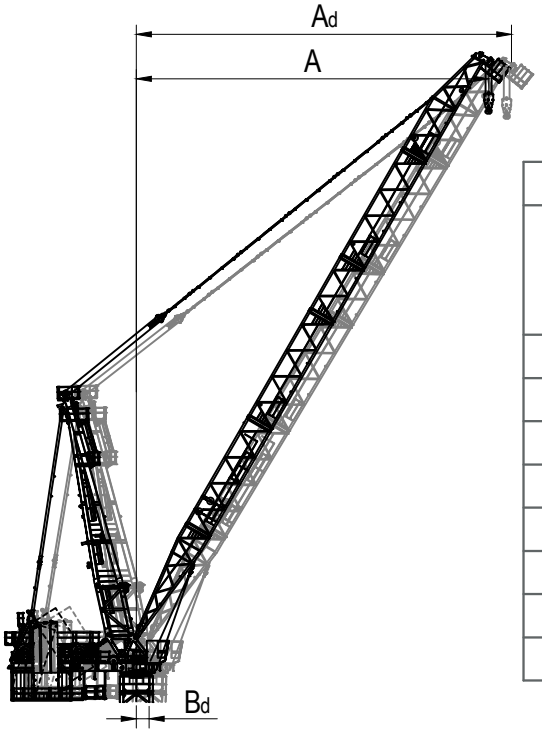
*The tower sections are disassembled for transport.

HLTC 2400



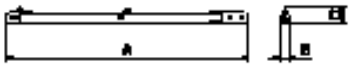
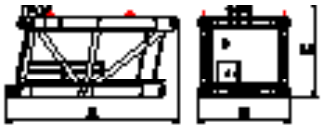
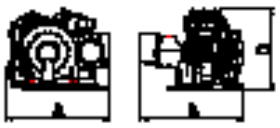
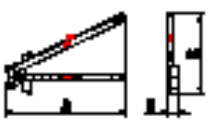
HLTC 2400 out-of-service jib position
valid for tower up to 70m (E33V tower sections)

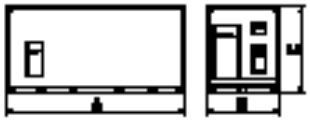
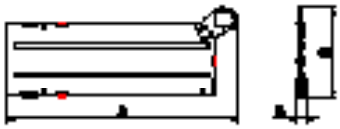
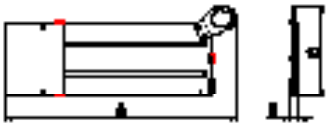
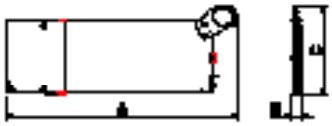
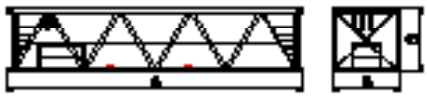
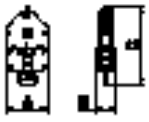
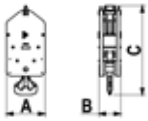




HLTC 2400, out-of-service condition			
jib	"A" min radius [m]	"Ad" min radius + deflection [m]	"Bd" deflection of tower [m]
36	17.0	17.6	1.27
42	18.0	18.9	1.25
48	20.0	21.2	1.27
54	24.0	25.6	1.26
60	29.0	30.9	1.27
66	35.2	37.5	1.28
72	48.6	51.5	1.25
78	70.7	73.3	1.11

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

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