

SARENS HLTC 1900



HEAVY LIFT TOWER CRANE

- Load moment: 2.048tm
- Capacity: 80t
- Jib configuration: 36m / 42m / 48m / 54m / 60m
- 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:

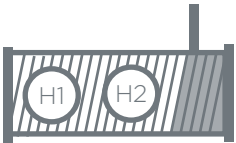
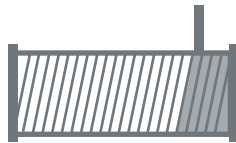

The HLTC cranes have an integrated energy buffer, avoiding inrush currents due to start of the winches. First the alternating current (3x400V 50Hz) is rectified to a direct current of around 650V. This direct current is then buffered, providing an amount of energy that is stored for instant use. The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

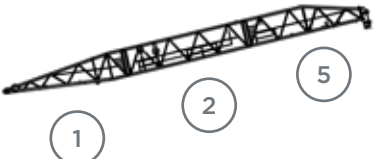
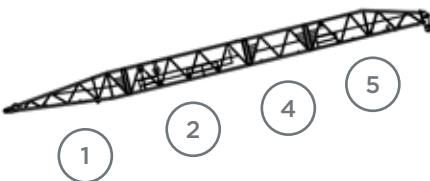
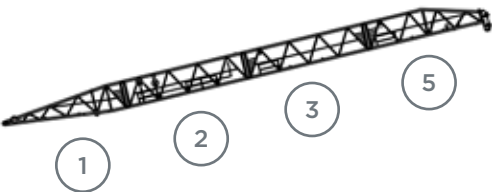
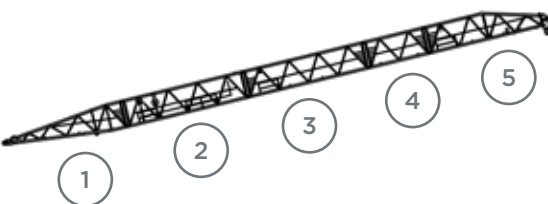
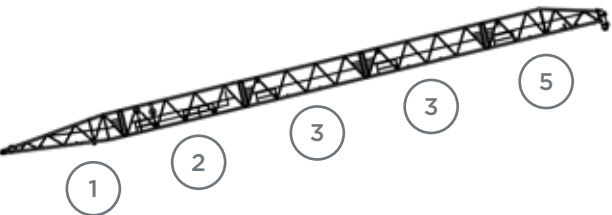
| | Gear | Working speed | Rope diameter | Rope length | Nominal single line pull |
|----------------|---|---|---------------|-------------|--------------------------|
| Hoisting winch |  | <p>at 16t line load 61m/min - 39m/min on layer 9 - 1</p> <p>at 8t line load 122m/min - 78m/min on layer 9 - 1</p>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

**HLTC 1900
JIB CONFIGURATION**

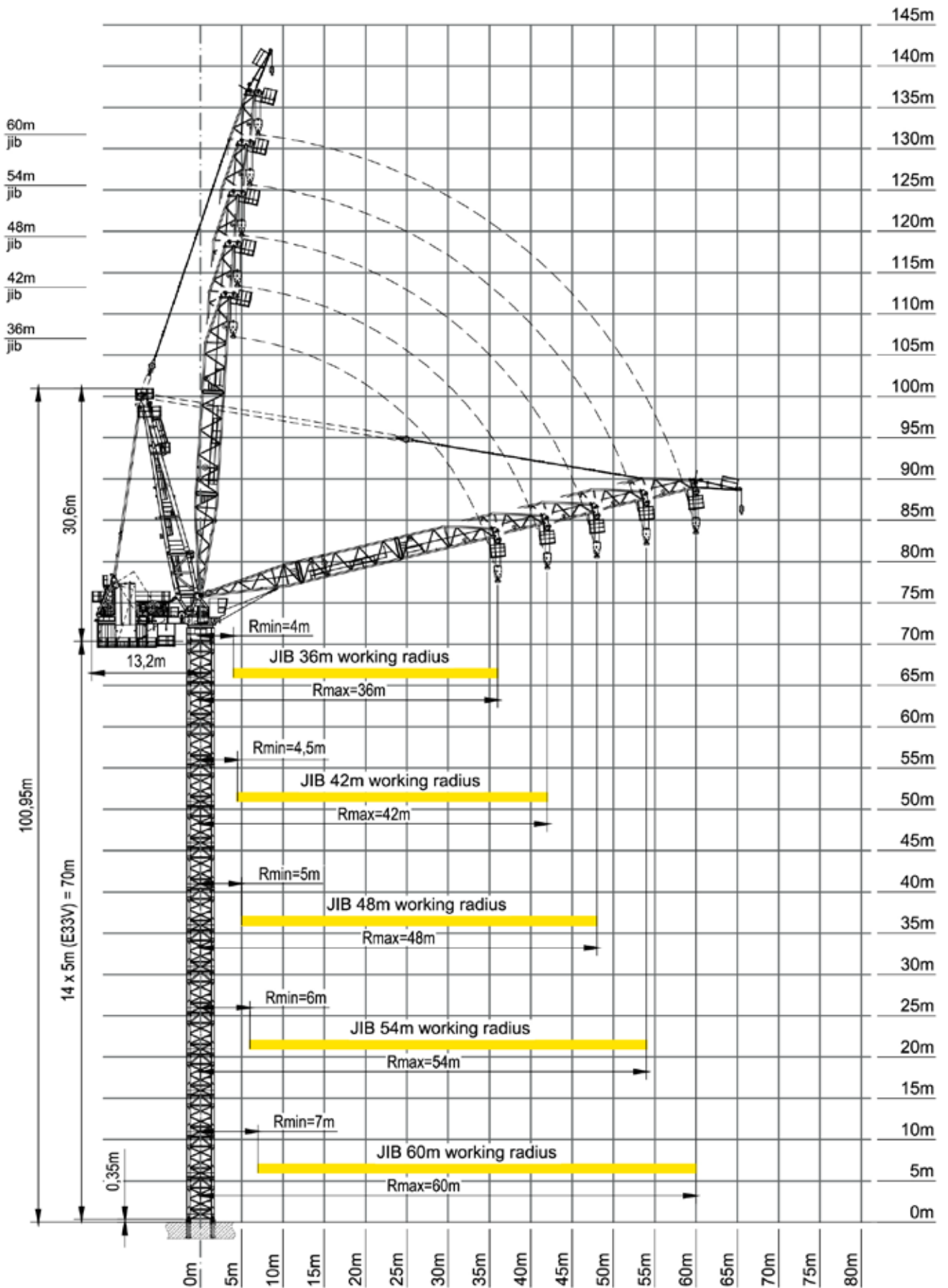


NOTHING TOO HEAVY, NOTHING TOO HIGH

HLTC 1900 JIB CONFIGURATION

| Jib Length | Jib Configuration | Counterweight | Counterweight configuration |
|------------|---|---------------|--|
| 36m |  | 101,9t | No.1 x 2 No.2 x 2 No.3 x 2 No.4 x 1 No.5 x 1 |
| 42m |  | 110,6t | No.2 x 3 No.3 x 3 No.4 x 1 No.5 x 1 |
| 48m |  | | |
| 54m |  | 128,9t | No.1 x 2 No.2 x 3 No.3 x 3 No.4 x 1 No.5 x 1 |
| 60m |  | | |

HLTC 1900 WORKING RANGE







17m/s



5-FALL

Radius [m]

| Capacity [t] | 4 | 4,5 | 5 | 6 | 10 | 20 | 22,5 | 23 | 24 | 24,5 | 26 |
|--------------|----|-----|----|----|----|----|------|------|------|------|------|
| Jib 36m | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 75,3 |
| Jib 42m | - | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 78,3 | 73,7 |
| Jib 48m | - | - | 80 | 80 | 80 | 80 | 80 | 80 | 76,6 | 75,1 | 70,7 |
| Jib 54m | - | - | - | 80 | 80 | 80 | 80 | 78,2 | 74,9 | 73,3 | 68,9 |

4-FALL

Radius [m]

| Capacity [t] | 4 | 4,5 | 5 | 6 | 7 | 10 | 20 | 30 | 30,5 | 31 | 31,5 |
|--------------|----|-----|----|----|----|----|----|----|------|------|------|
| 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 | 62,9 |
| Jib 54m | - | - | - | 64 | 64 | 64 | 64 | 64 | 64 | 62,8 | 61,7 |
| Jib 60m | - | - | - | - | 64 | 64 | 64 | 64 | 62,8 | 61,7 | 60,6 |

3-FALL

Radius [m]

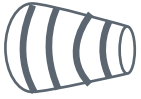
| Capacity [t] | 4 | 4,5 | 5 | 6 | 7 | 10 | 20 | 30 | 34 | 36 | 38 |
|--------------|----|-----|----|----|----|----|----|----|----|----|----|
| Jib 36m | 48 | 48 | 48 | 48 | 48 | 48 | 48 | 48 | 48 | 48 | - |
| Jib 42m | - | 48 | 48 | 48 | 48 | 48 | 48 | 48 | 48 | 48 | 48 |
| Jib 48m | - | - | 48 | 48 | 48 | 48 | 48 | 48 | 48 | 48 | 48 |
| Jib 54m | - | - | - | 48 | 48 | 48 | 48 | 48 | 48 | 48 | 48 |
| Jib 60m | - | - | - | - | 48 | 48 | 48 | 48 | 48 | 48 | 48 |

2-FALL

Radius [m]

| Capacity [t] | 4 | 4,5 | 5 | 6 | 7 | 10 | 20 | 30 | 36 | 40 | 42 |
|--------------|----|-----|----|----|----|----|----|----|----|----|----|
| Jib 36m | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | - | - |
| Jib 42m | - | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 |
| Jib 48m | - | - | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 |
| Jib 54m | - | - | - | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 |
| Jib 60m | - | - | - | - | 32 | 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.
 - 5-fall: 20kg/m
 - 4-fall: 16kg/m
 - 3-fall: 12kg/m
 - 2-fall: 8kg/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.



ISO

17m/s

5-FALL

Radius [m]

| Capacity [t] | 30 | 34 | 36 | 38 | 40 | 42 | 46 | 48 | 50 | 54 |
|--------------|------|------|------|------|------|------|------|------|------|----|
| Jib 36m | 65,1 | 57,3 | 54 | - | - | - | - | - | - | - |
| Jib 42m | 63,7 | 56 | 52,8 | 49,9 | 47,3 | 45 | - | - | - | - |
| Jib 48m | 61,2 | 53,9 | 50,9 | 48,2 | 45,7 | 43,5 | 39,7 | 38 | - | - |
| Jib 54m | 59,4 | 52,2 | 49,1 | 46,4 | 44 | 41,8 | 38 | 36,3 | 34,7 | 32 |

4-FALL

Radius [m]

| Capacity [t] | 32 | 34 | 36 | 38 | 40 | 42 | 46 | 48 | 50 | 54 | 60 |
|--------------|------|------|------|------|------|------|------|------|------|------|------|
| Jib 36m | 64 | 59,8 | 56 | - | - | - | - | - | - | - | - |
| Jib 42m | 62,9 | 59 | 55,5 | 52,4 | 49,6 | 47 | - | - | - | - | - |
| Jib 48m | 61,8 | 57,8 | 54,3 | 51,1 | 48,2 | 45,7 | 41,2 | 39,2 | - | - | - |
| Jib 54m | 60,7 | 56,6 | 53,1 | 49,9 | 47 | 44,4 | 39,9 | 37,9 | 36,1 | 32,9 | - |
| Jib 60m | 59,6 | 55,7 | 52,3 | 49,2 | 46,4 | 43,9 | 39,5 | 37,6 | 35,8 | 32,7 | 28,8 |

3-FALL

Radius [m]

| Capacity [t] | 40 | 41 | 42 | 44 | 46 | 48 | 50 | 54 | 60 |
|--------------|----|------|------|------|------|------|------|------|------|
| Jib 36m | - | - | - | - | - | - | - | - | - |
| Jib 42m | 48 | 48 | 48 | - | - | - | - | - | - |
| Jib 48m | 48 | 48 | 48 | 45,1 | 42,4 | 40 | - | - | - |
| Jib 54m | 48 | 48 | 46,6 | 43,9 | 41,5 | 39,2 | 37,2 | 33,5 | - |
| Jib 60m | 48 | 46,6 | 45,3 | 42,9 | 40,7 | 38,7 | 36,8 | 33,5 | 29,3 |

2-FALL

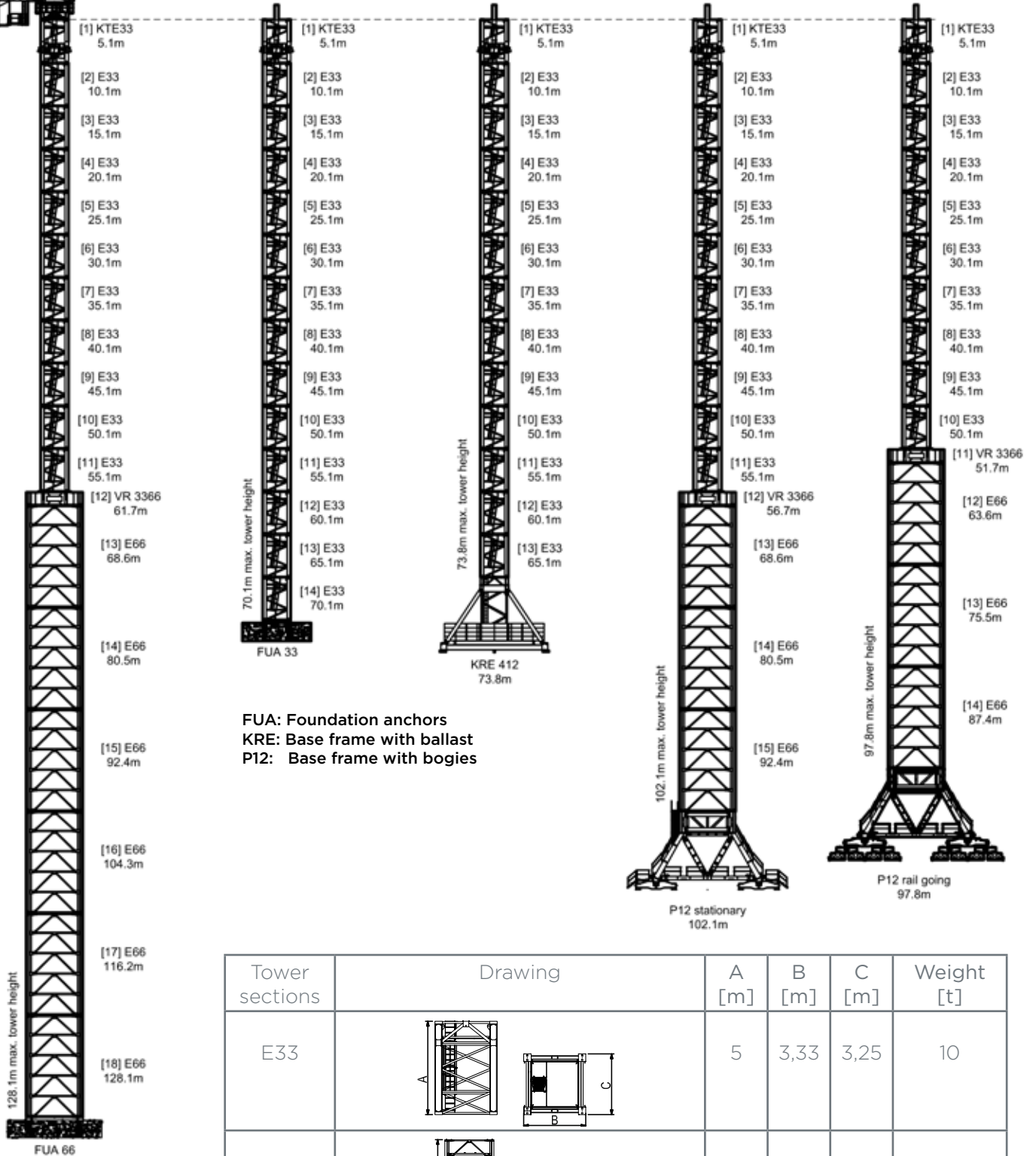
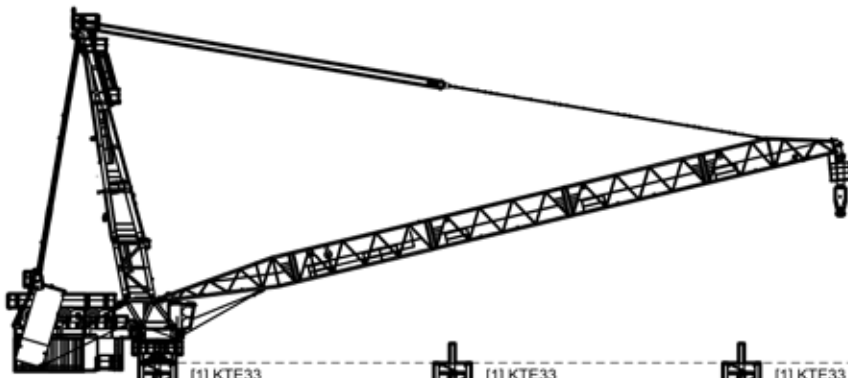
Radius [m]

| Capacity [t] | 48 | 50 | 54 | 57 | 58 | 60 |
|--------------|----|----|----|----|------|----|
| Jib 36m | - | - | - | - | - | - |
| Jib 42m | - | - | - | - | - | - |
| Jib 48m | 32 | - | - | - | - | - |
| Jib 54m | 32 | 32 | 32 | - | - | - |
| Jib 60m | 32 | 32 | 32 | 32 | 31,3 | 30 |

- 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.
 - 5-fall: 20kg/m
 - 4-fall: 16kg/m
 - 3-fall: 12kg/m
 - 2-fall: 8kg/m
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HLTC 1900
Tower 50m - Jib 60m



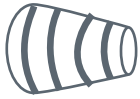
FUA: Foundation anchors
 KRE: Base frame with ballast
 P12: Base frame with bogies

| 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 |



Istanbul, Turkey
Tower 50m - Jib 60m

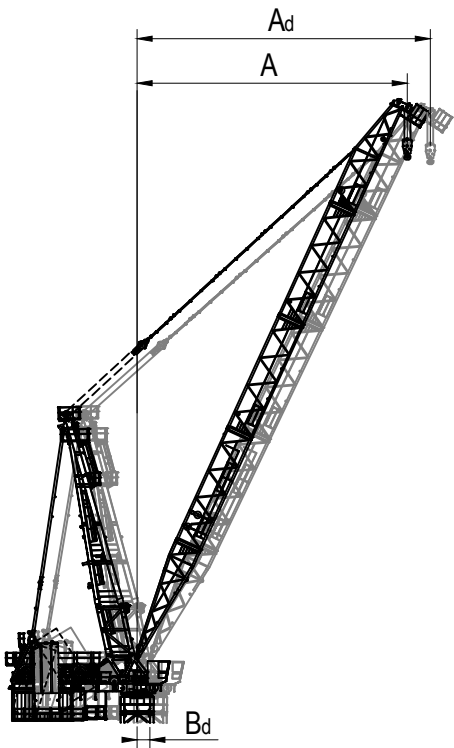
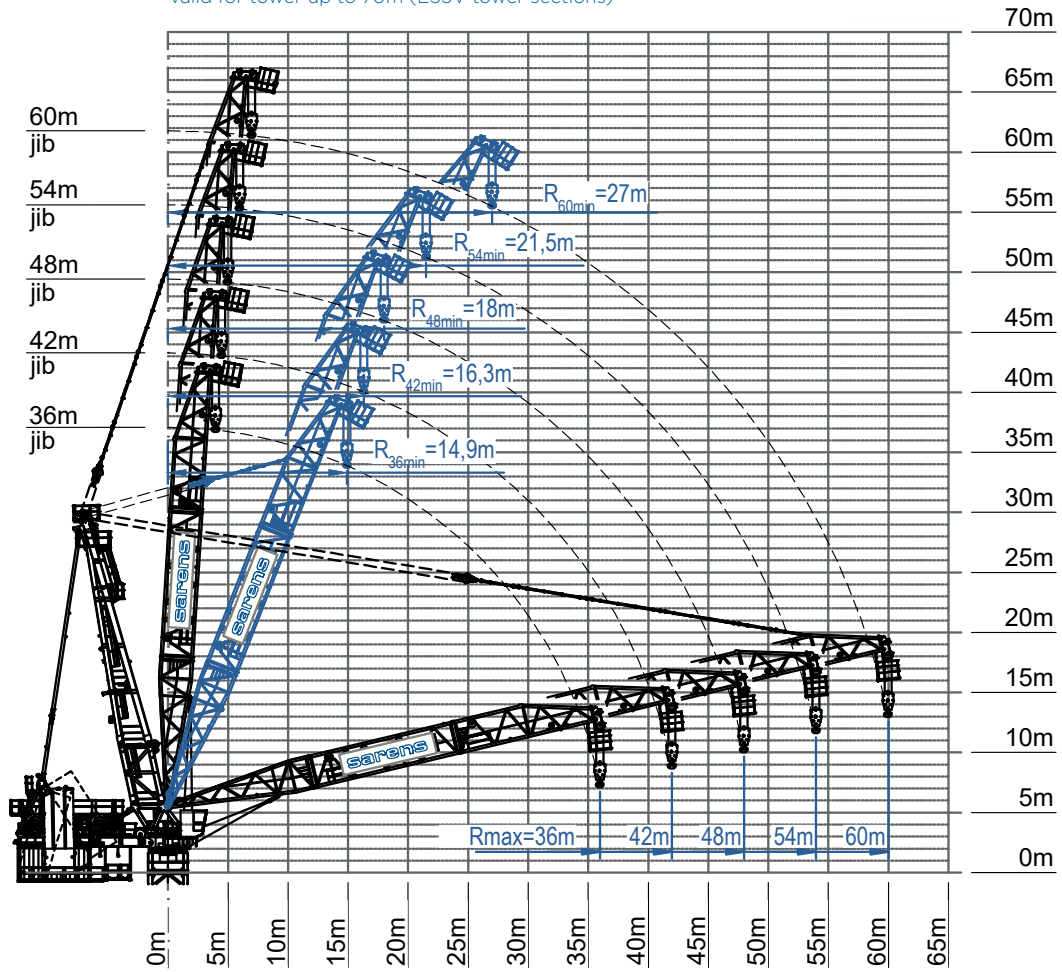




wind category C25

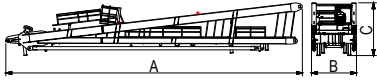
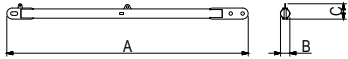
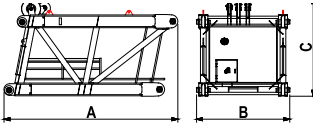
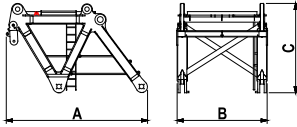
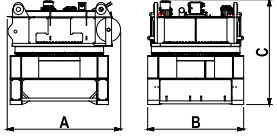
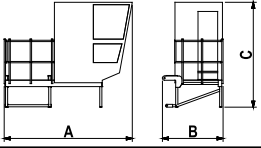
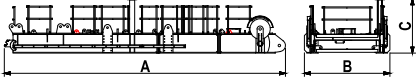
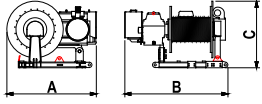
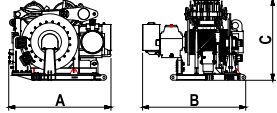
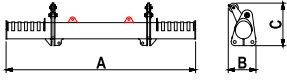
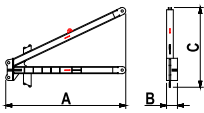
HLTC 1900 OUT OF SERVICE

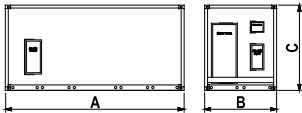
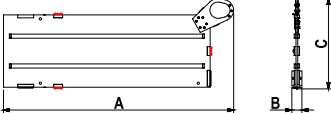
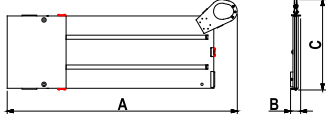
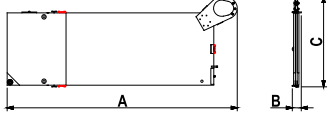
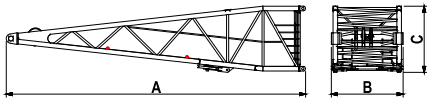
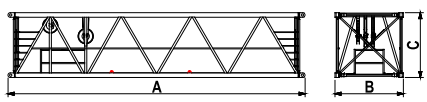
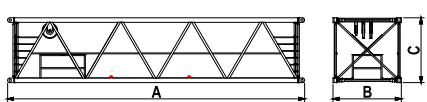
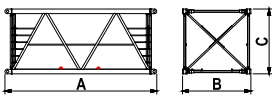
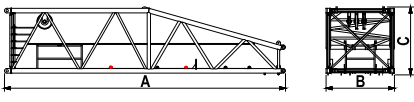
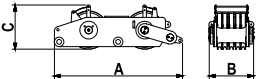
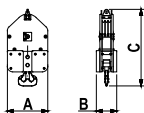
HLTC 1900 out-of-service jib position
valid for tower up to 70m (E33V tower sections)



| HLTC 1900, out-of-service condition | | | |
|-------------------------------------|--------------------------|--|------------------------------------|
| jib | "A" min radius [m] | "Ad" min radius + deflection [m] | "Bd" deflection of tower [m] |
| 36 | 14.9 | 15.7 | 1.12 |
| 42 | 16.3 | 17.3 | 1.22 |
| 48 | 18.0 | 19.4 | 1.26 |
| 54 | 21.5 | 23.2 | 1.32 |
| 60 | 27.0 | 29.3 | 1.30 |

HLTC 1900 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 | 6 |
| 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 |



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