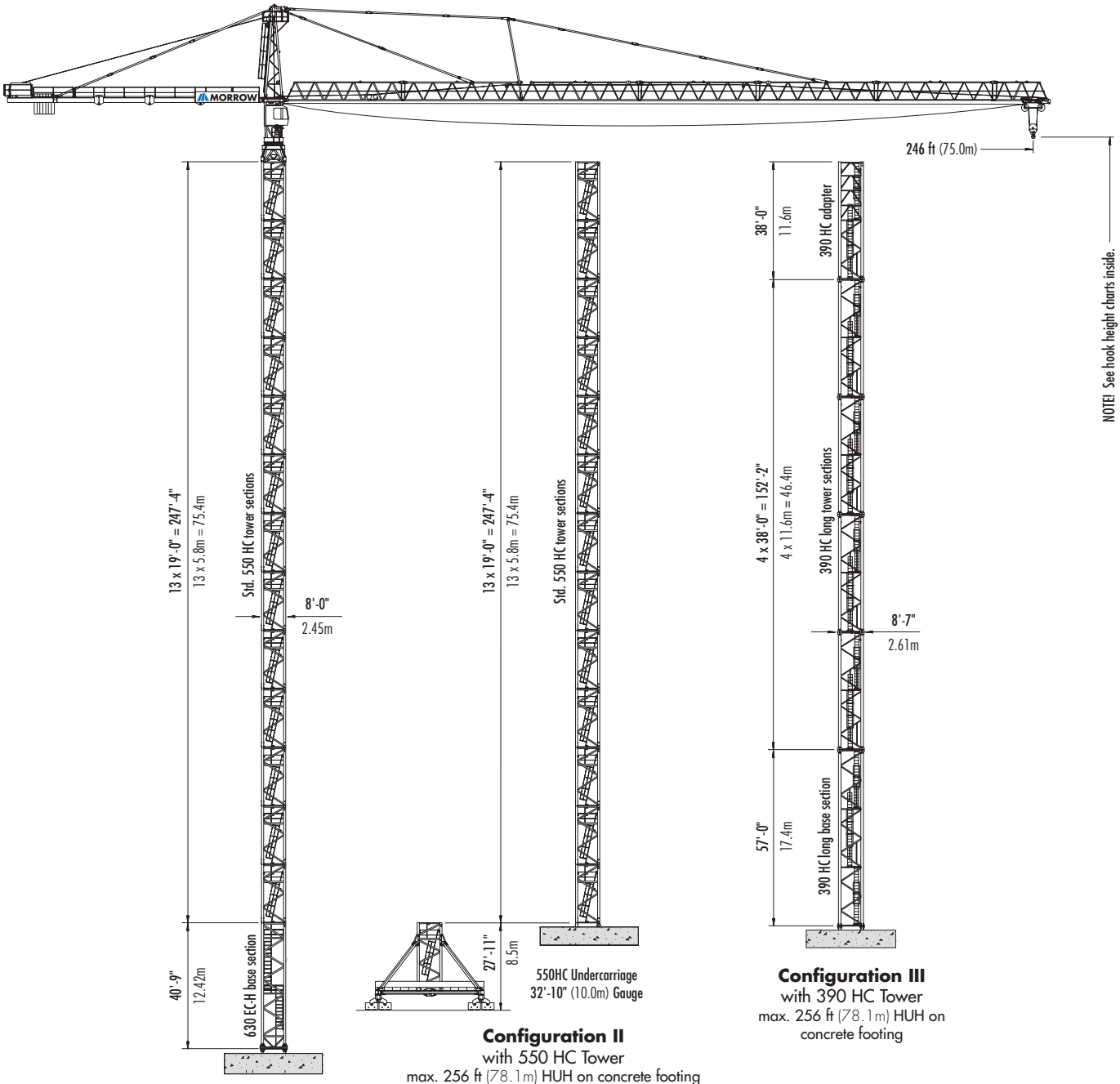
390 HC 16
LIEBHERR Hammerhead Tower Crane

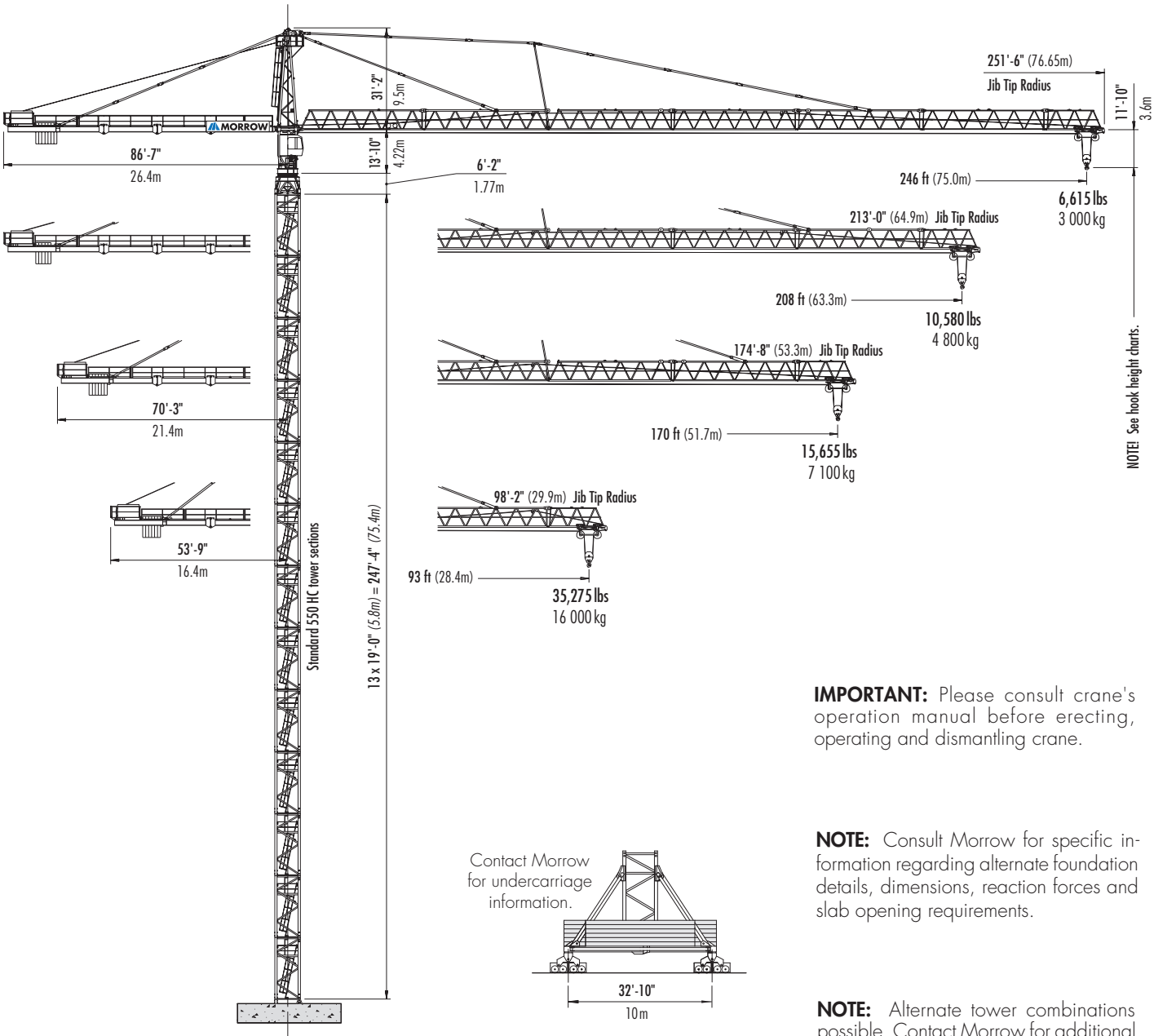


Configuration I
with 550 HC/630 EC-H Tower
max. 297 ft (90.5m) HUH on concrete footing

Configuration II
with 550 HC Tower
max. 256 ft (78.1m) HUH on concrete footing
max. 283 ft (86.3m) HUH on rail-travelling undercarriage

Configuration III
with 390 HC Tower
max. 256 ft (78.1m) HUH on concrete footing

Jib Assemblies



Configuration II

Rail-travelling Undercarriage
32'-10" (10 m) **Gauge**

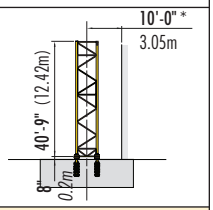
IMPORTANT: Please consult crane's operation manual before erecting, operating and dismantling crane.

NOTE: Consult Morrow for specific information regarding alternate foundation details, dimensions, reaction forces and slab opening requirements.

NOTE: Alternate tower combinations possible. Contact Morrow for additional information.

Configuration I

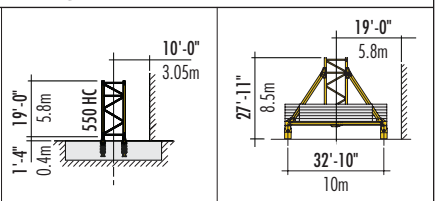
630 EC-H Base Section



No. of Tower Elements	Tower Element Type	static concrete footing	
		feet	meters
0	630ECH BTS	49.6	15.1
1	550HC STS	68.6	20.9
2	550HC STS	87.7	26.7
3	550HC STS	106.7	32.5
4	550HC STS	125.7	38.3
5	550HC STS	144.8	44.1
6	550HC STS	163.8	49.9
7	550HC STS	182.8	55.7
8	550HC STS	201.8	61.5
9	550HC STS	220.9	67.3
10	550HC STS	239.9	73.1
11	550HC STS	258.9	78.9
12	550HC STS	278.0	84.7
13 *	550HC STS	297.0	90.5

Configuration II

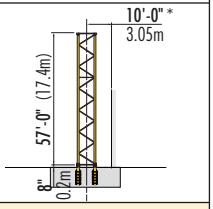
550 HC tower sections



No. of Tower Elements	Tower Element Type	static concrete footing		rail-travelling undercarriage	
		feet	meters	feet	meters
1	550HC STS	**27.9**	8.5	**54.8**	16.7
2	550HC STS	**46.9**	14.3	**73.8**	22.5
3	550HC STS	**65.9**	20.1	**92.8**	28.3
4	550HC STS	**85.0**	25.9	**111.9**	34.1
5	550HC STS	**104.0**	31.7	**130.9**	39.9
6	550HC STS	**123.0**	37.5	**149.9**	45.7
7	550HC STS	**142.0**	43.3	**169.0**	51.5
8	550HC STS	**161.1**	49.1	**188.0**	57.3
9	550HC STS	**180.1**	54.9	**207.0**	63.1
10	550HC STS	**199.1**	60.7	**226.0**	68.9
11	550HC STS	**218.2**	66.5	**245.1**	74.7
12	550HC STS	**237.2**	72.3	**264.1**	80.5
13 *	550HC STS	**256.2**	78.1	**283.1**	86.3

Configuration III

390 HC Long Base Section



No. of Tower Elements	Tower Element Type	static concrete footing	
		feet	meters
0	390HC BTS	65.9	20.1
1	390HC LTS	104.0	31.7
2	390HC LTS	142.1	43.3
3	390HC LTS	180.1	54.9
4	390HC LTS	218.2	66.5
5**	Adapter	256.2	78.1

NOTE: Alternate tower combinations possible. Contact Morrow for information.

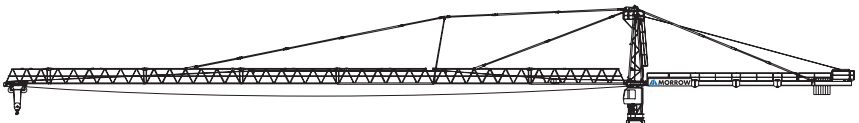
* Lower top climbing unit to base of crane prior to operating crane at maximum hook height.

**Remove top climbing unit from crane prior to operating crane at maximum height hook height.

NOTE: Contact MORROW for specific information regarding climbing inside the structure details such as dimensions, reaction forces and slab opening requirements.

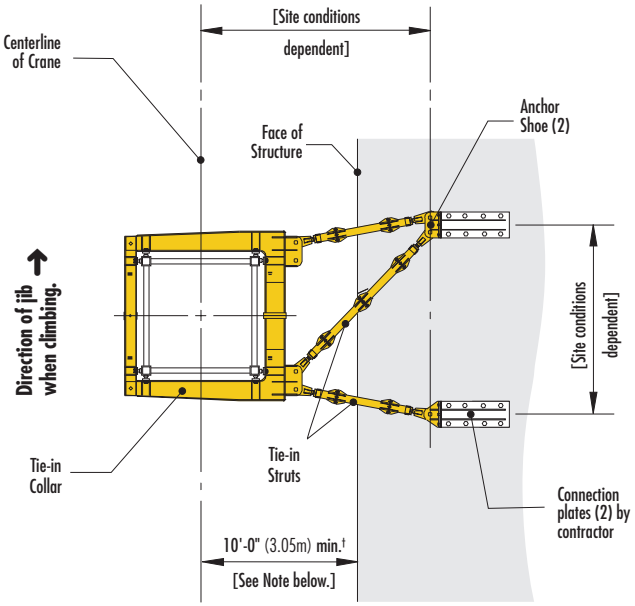
Tie-in Details

Consult Operation Manual before erecting, operating, servicing or dismantling crane.



* **NOTE:** Tie-in assemblies must be positioned and installed according to manufacturer requirements. Restrictions apply; please consult operation manual or contact MORROW for specific recommendations.

Lower top climbing unit to upper tie-in prior to operating crane.



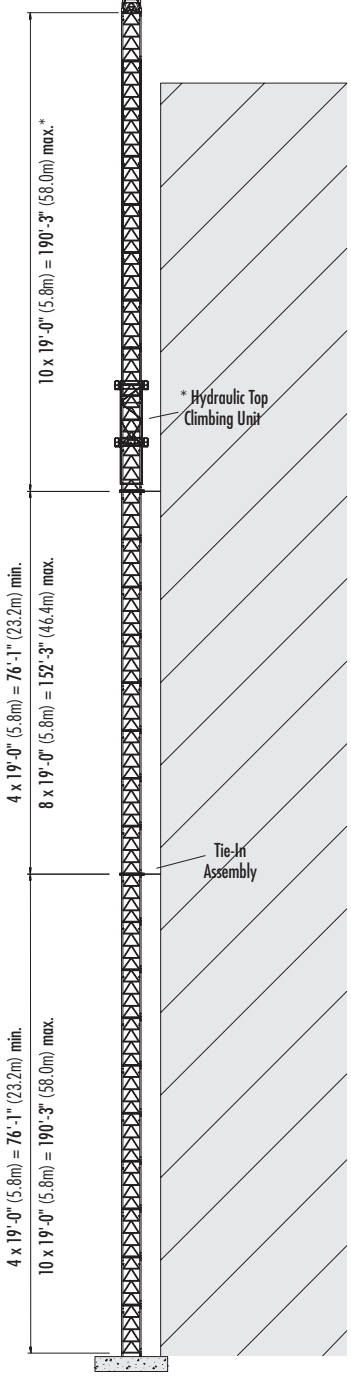
TIE-IN ASSEMBLY
with 550 HC Tower Sections
plan view

NOTE: The tie-in assembly shown above is an example of a typical installation. Please note, however, that factors determining the installation of tie-in assemblies may vary due to project specific criteria.

† Minimum clearance between face of structure and the center of crane is 10'-0" (3.05m) when using 550 HC tower. The maximum clearance is dependent upon project specific criteria.

Verify all dimensions.

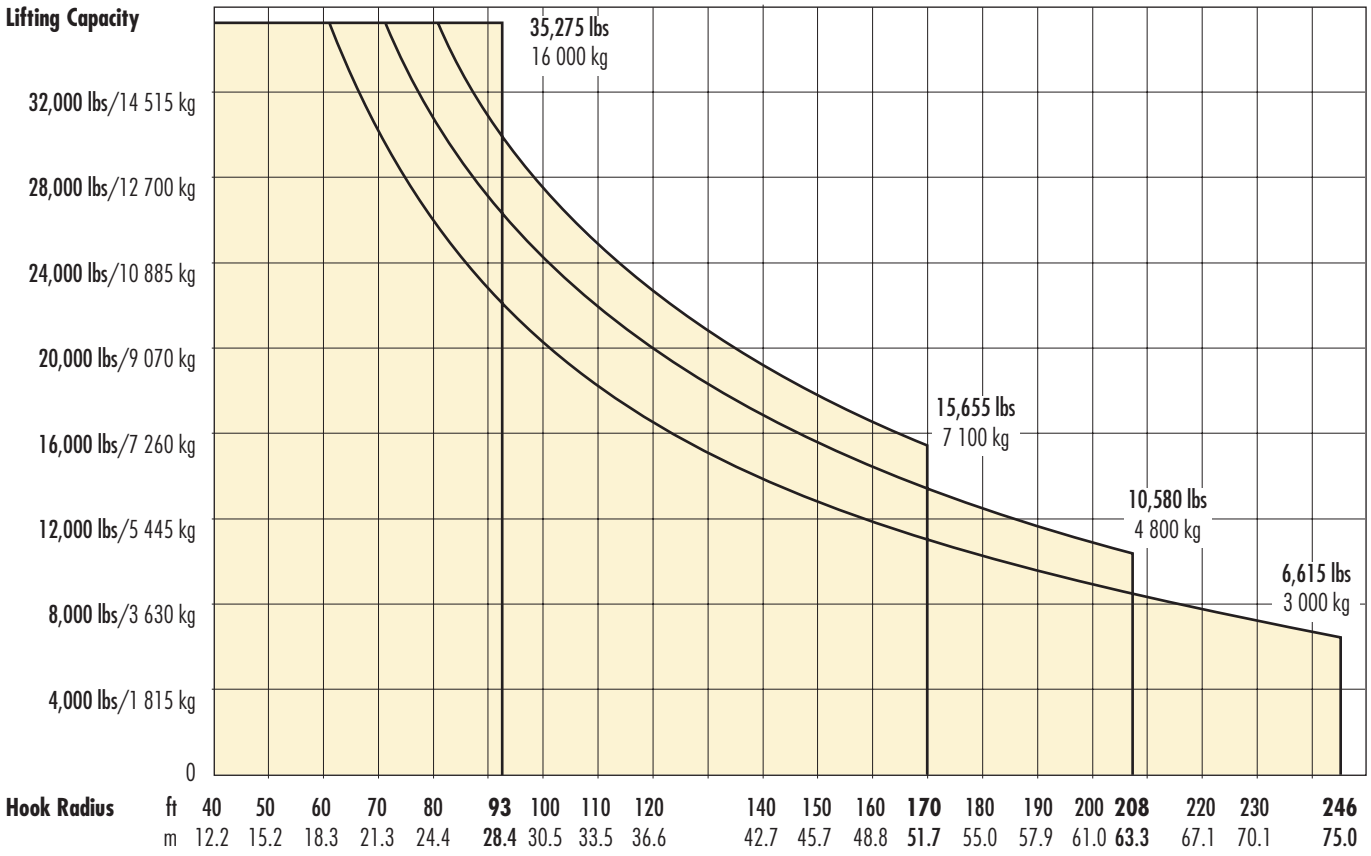
Contact Morrow for additional information regarding dimensions, alternate tower configurations, reaction forces, tie-in installation and slab opening requirements.



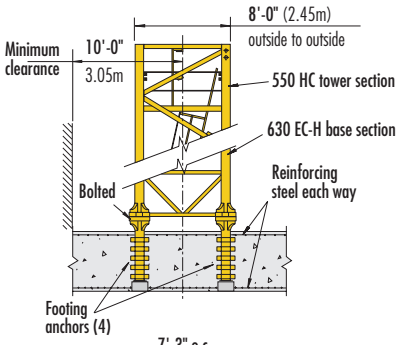
TOP CLIMBING
with 550 HC Tower Sections
Tied to Structure

Radius and Capacities

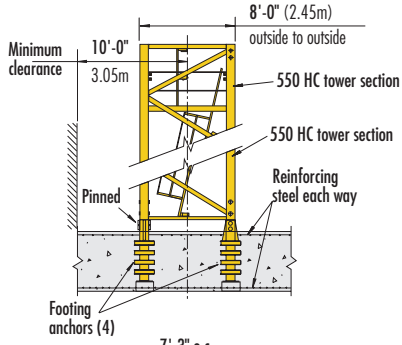
Hook Radius	2-Part Line Max Capacity – Radius	ft / m	60 18.3	70 21.3	80 24.4	**93 28.4**	102 31.0	110 33.5	120 36.6	**131 40.0**	140 42.7	150 45.7	160 48.8	**170 51.7**	180 55.0	190 57.9	**208 63.3**	225 68.6	**246 75.0**
246 ft 75.0m	35,275 lbs – 61 ft 16 000 kg – 18.7m	lbs kg	35,275 16 000	31,085 14 100	26,667 12 095	22,222 10 080	20,172 9 150	18,177 8 245	16,528 7 497	15,080 6 840	13,823 6 270	12,758 5 787	11,784 5 345	11,023 5 000	10,163 4 610	9,502 4 310	8,422 3 820	7,482 3 394	**6,615 3 000**
208 ft 63.3m	35,275 lbs – 72 ft 16 000 kg – 22.0m	lbs kg	35,275 16 000	35,275 16 000	32,210 14 610	26,852 12 180	24,449 11 090	22,099 10 024	20,135 9 133	18,430 8 360	16,594 7 527	15,681 7 113	14,551 6 600	13,624 6 180	12,633 5 730	11,852 5 376	**10,580 4 800**		
170 ft 51.7m	35,275 lbs – 81 ft 16 000 kg – 24.6m	lbs kg	35,275 16 000	35,275 16 000	35,275 16 000	30,423 13 800	27,734 12 580	25,121 11 395	22,291 10 397	21,010 9 530	19,357 8 780	17,946 8 140	16,678 7 565	**15,655 7 100**					
93 ft 28.4m	35,275 lbs – 93 ft 16 000 kg – 28.4m	lbs kg	35,275 16 000	35,275 16 000	35,275 16 000	**35,275 16 000**													



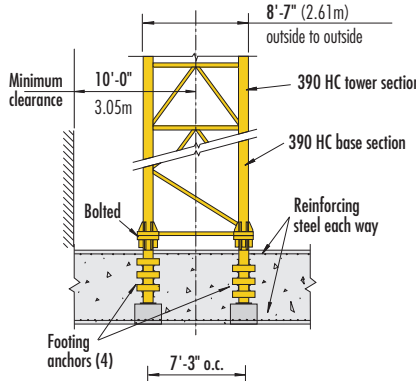
Foundation Details on concrete footing



with 630 EC-H Base Section

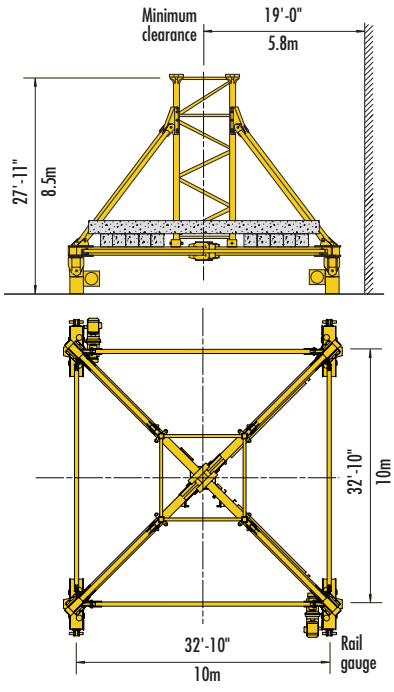


with 550 HC Tower

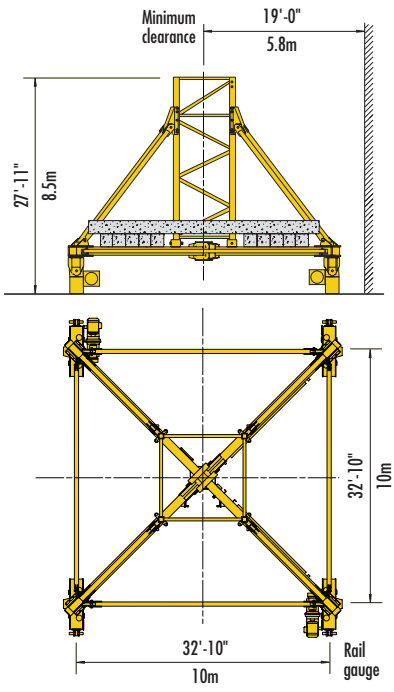


with 390 HC Tower

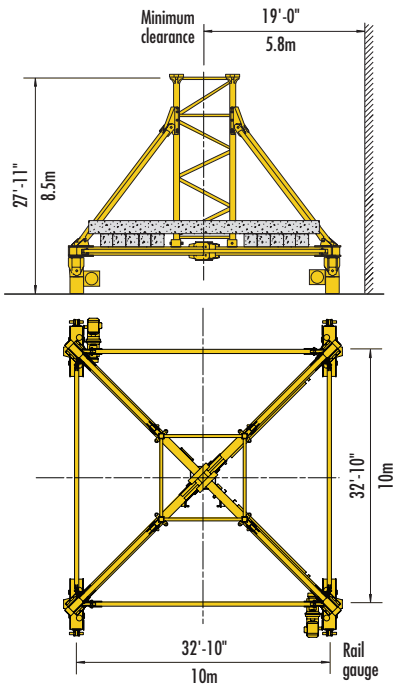
Undercarriage Details on rail-travelling undercarriage



630 EC-H



550 HC



630 EC-H

NOTE: For information regarding rail-travelling, static undercarriages and central ballast configurations, see 390 HC Operation Manual.

Hoist Speed and Capacity

Hoist Unit WiW 301 RX 031	2-Part Line				
147 hp (110 kW) AC hoist unit 4-speed gearbox Electromagnetic gear shifting Eddy current brake 2L-155	Gear	Capacity	Line Speed	Capacity	Line Speed
	1	35,275 lbs	@ 85 fpm	16 000 kg	@ 25.8 m/min
	2	31,745 lbs	@ 134 fpm	14 400 kg	@ 40.8 m/min
	3	13,445 lbs	@ 279 fpm	6 100 kg	@ 85 m/min
	4	3,305 lbs	@ 707 fpm	1 500 kg	@ 215.6 m/min

NOTE: Capacities and line speeds indicated will vary depending on the amount of hoist rope installed. This crane model may be equipped with a hoist unit other than that specified in the data above. To verify, check the serial number of the crane and refer to the 390 HC 16 Operation Manual for additional information.

Motor Information

Drive Unit	Horsepower	Kilowatts	Speed	
Trolley	7.4 hp	5.5 kW	25 - 50 - 164 - 328 fpm	7.5 - 15 - 50 - 100 m/min
Swing (fluid coupling)	2 x 14.2 hp	2 x 10.6 kW	0.6 rpm	
Traveling (fluid coupling)	4 x 10 hp	4 x 7.5 kW	82 fpm	25.0 m/min

Power Requirements

Power supply: 3-phase 480 V, 60 Hz; 3-wire plus ground; no Neutral.
480 V phase-phase, 277 V each phase to ground with 120° phase shift between phases.
Service size: 250 Amperes

NOTES:
1. For electric power provided by an electric utility, do not use open Delta transformers.
2. For electric power provided by a generator, the minimum generator size required is 500 kW.
A properly sized generator is critical to the safe operation of the crane.

Specifications subject to change without prior notice. For additional information, contact MORROW.

Component List

Description	Dimensions L x W x H	Weight
Tower Top	31'-0" x 5'-10" x 6'-2" 9.45m x 1.78m x 1.88m	9,260 lbs 4 200 kg
Slewing Assembly (Complete) [1]	22'-1" x 9'-9" x 8'-10" 6.74m x 2.98m x 2.7m	34,000 lbs 15 420 kg
Slewing Assembly Upper Part [2]	15'-2" x 9'-9" x 8'-10" 4.62m x 2.98m x 2.7m	17,200 lbs 7 800 kg
Slewing Assembly Lower Part [3]	7'-1" x 8'-0" x 8'-0" 2.17m x 2.44m x 2.44m	16,800 lbs 7 620 kg
AC Hoist Unit w/Frame [4] 147 hp (110 kW)	19'-1" x 8'-7" x 6'-3" 5.82m x 2.61m x 1.9m	22,930 lbs 10 400 kg
Counterjib Section #1 (Inner)	20'-10" x 6'-4" x 6'-1" 6.35m x 1.93m x 1.85m	4,410 lbs 2 000 kg
Counterjib Section #2 (Intermediate)	17'-2" x 6'-2" x 6'-1" 5.2m x 1.87m x 1.85m	4,060 lbs 1 840 kg
Counterjib Section #3 (Outer)	29'-11" x 7'-11" x 6'-1" 9.11m x 2.42m x 1.85m	7,430 lbs 3 370 kg
Counterjib A [5]	50'-2" x 7'-11" x 6'-1" 15.3m x 2.42m x 1.85m	11,840 lbs 5 370 kg
Counterjib B [6]	66'-7" x 7'-11" x 6'-1" 20.3m x 2.42m x 1.85m	15,895 lbs 7 210 kg
Counterjib C [7]	83'-0" x 7'-11" x 6'-1" 25.3m x 2.42m x 1.85m	19,950 lbs 9 050 kg
Base Section 390 HC (B/B)	57'-0" x 8'-10" x 8'-10" 17.4m x 2.68m x 2.68m	31,200 lbs 14 150 kg
Long Tower Section 390 HC (Bolt/Bolt)	38'-1" x 8'-7" x 8'-7" 11.6m x 2.61m x 2.61m	16,865 lbs 7 650 kg
Adapter Section 390 HC (Pin/Bolt)	38'-1" x 8'-7" x 8'-7" 11.6m x 2.61m x 2.61m	17,880 lbs 8 110 kg
Standard Tower Section 550 HC (Pin/Pin)	20'-7" x 7'-11" x 7'-11" 6.28m x 2.41m x 2.41m	13,340 lbs 6 050 kg
Bottom Climbing Unit w/hydraulics (Bolt/Bolt)	19'-0" x 8'-7" x 9'-2" 5.8m x 2.61m x 2.8m	19,290 lbs 8 750 kg
Base Section [8] 500 HC-L (P/B)	40'-9" x 8'-10" x 8'-10" 12.42m x 2.68m x 2.68m	39,470 lbs 17 905 kg
Base Section 630 EC-H (P/B)	40'-9" x 8'-10" x 8'-10" 12.42m x 2.68m x 2.68m	31,965 lbs 14 500 kg

Description	Dimensions L x W x H	Weight
Jib Section ① #611	39'-2" x 6'-5" x 7'-2" 11.94m x 1.95m x 2.18m	7,600 lbs 3 450 kg
Jib Section ② #621	39'-4" x 5'-9" x 6'-5" 11.98m x 1.74m x 1.95m	5,600 lbs 2 540 kg
Jib Section ③ #631	39'-1" x 5'-9" x 6'-5" 11.91m x 1.74m x 1.95m	4,700 lbs 2 130 kg
Jib Section ④ #632	39'-4" x 5'-9" x 6'-5" 11.98m x 1.74m x 1.95m	4,000 lbs 1 815 kg
Jib Section ⑤ #633	39'-4" x 5'-9" x 6'-5" 11.98m x 1.74m x 1.95m	3,745 lbs 1 700 kg
Jib Section ⑥ #634	39'-4" x 5'-9" x 6'-5" 11.98m x 1.74m x 1.95m	3,470 lbs 1 575 kg
Jib Section ⑦ #641	18'-8" x 5'-9" x 7'-4" 5.68m x 1.74m x 2.24m	2,400 lbs 1 090 kg
Jib Assembly (Part 1) [9] for 170-ft to 246-ft jibs ①②	77'-9" x 6'-5" x 7'-2" 23.7m x 1.95m x 2.18m	17,415 lbs 7 900 kg
Jib Assembly (Part 2) [10] 246-ft (75.0m) ③④⑤⑥⑦	169'-3" x 5'-9" x 7'-4" 51.6m x 1.74m x 2.24m	24,690 lbs 11 200 kg
Jib Assembly (Part 2) [10] 208-ft (63.3m) ③④⑤⑦	130'-11" x 5'-9" x 7'-4" 39.9m x 1.74m x 2.24m	19,180 lbs 8 700 kg
Jib Assembly (Part 2) [10] 170-ft (51.7m) ③⑤⑦	92'-9" x 5'-9" x 7'-4" 28.3m x 1.74m x 2.24m	14,330 lbs 6 500 kg
Jib Assembly (Complete) [11] 93-ft (28.4m) ①②⑦	93'-11" x 6'-5" x 7'-4" 28.63m x 1.95m x 2.24m	17,855 lbs 8 100 kg
Top Climbing Unit [8] w/hydraulics	40'-9" x 9'-1" x 10'-2" 12.43m x 2.77m x 3.11m	19,995 lbs 9 070 kg
Hook Block	2'-6" x 1'-6" x 5'-0" 0.76m x 0.46m x 1.52m	1,520 lbs 690 kg
Counterweight Block A	4'-6" x 11" x 6'-9" 1.37m x 0.28 x 2.06m	4,410 lbs 2 000 kg
Counterweight Block B	4'-6" x 11" x 3'-1" 1.37m x 0.28 x 0.95m	2,205 lbs 1 000 kg
Trolley	7'-9" x 7'-0" x 4'-5" 2.36m x 2.14 x 1.35m	1,600 lbs 725 kg

NOTE: Weights and dimensions are approximate. Scale components before lifting.

[1] Slewing Assembly Complete includes operator's cab, swing motors, slewing ring, slewing ring support & 4 climbing shoes. Climbing shoes are detachable; deduct 430 lbs (195 kg) each. Dimensions above are without climbing shoes.
[2] Slewing Assembly Upper Part includes operator's cab and swing motors.
[3] Slewing Assembly Lower Part includes slewing ring, slewing ring support and 4 climbing shoes. Climbing shoes detachable; deduct 430 lbs (195 kg) each. Dimensions above without climbing shoes.
[4] Includes 147 hp (110 kW) hoist unit, electrical panel and handrails. Does not include wire rope.
[5] Counterjib A includes one each counterjib sections #1, #3, plus handrails and pendant bars. Counterjib A is required for jib 93 ft (28.4m).
[6] Counterjib B includes one each counterjib sections #1, #2, #3, plus handrails and pendant bars. Counterjib B is required for jib 170 ft (51.7m).
[7] Counterjib C includes one each counterjib sections #1 and #3, two each counterjib section #2, plus handrails and pendant bars. Counterjib C is required for jibs 208 ft (63.3m) and longer.
[8] Can be broken down into two panels.
[9] Jib Assembly (Part 1) includes jib sections, pendant bars, pendant bar connecting pins and plates, trolley drive unit, erection wire rope, trolley wire rope and trolley.
[10] Jib Assemblies (Part 2) for 170-ft (51.7m) to 246-ft (75.0m) include jib sections, A-frame, pendant bars with connecting pins and plates. Weight of A-frame: 1,490 lbs (675 kg).
[11] Jib Assembly (Complete) includes jib sections, pendant bars with connecting pins and plates, trolley drive, trolley, trolley wire rope and erection wire rope.

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