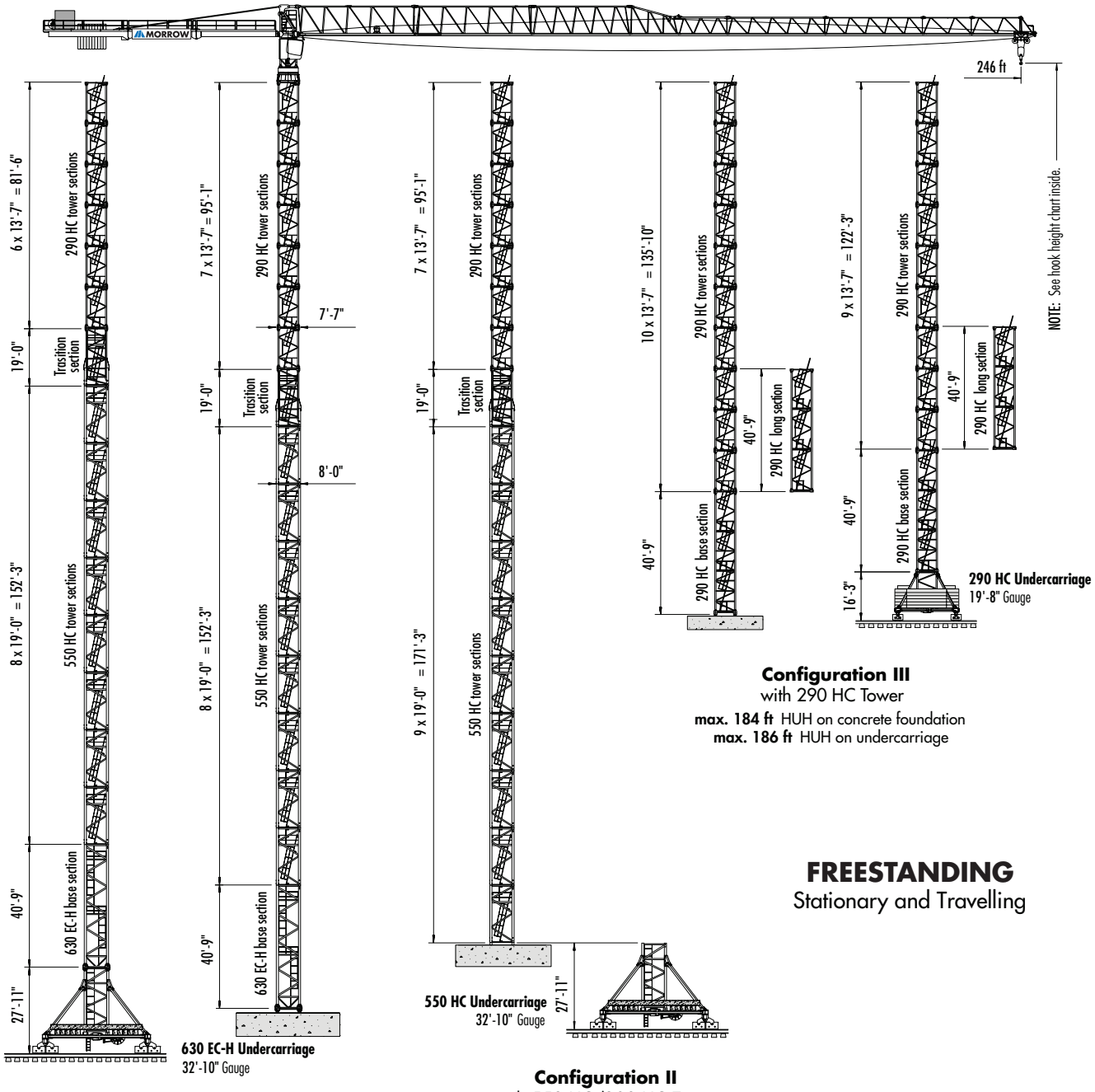
316 EC-B 12 Litronic®

LIEBHERR Flat-Top Tower Crane



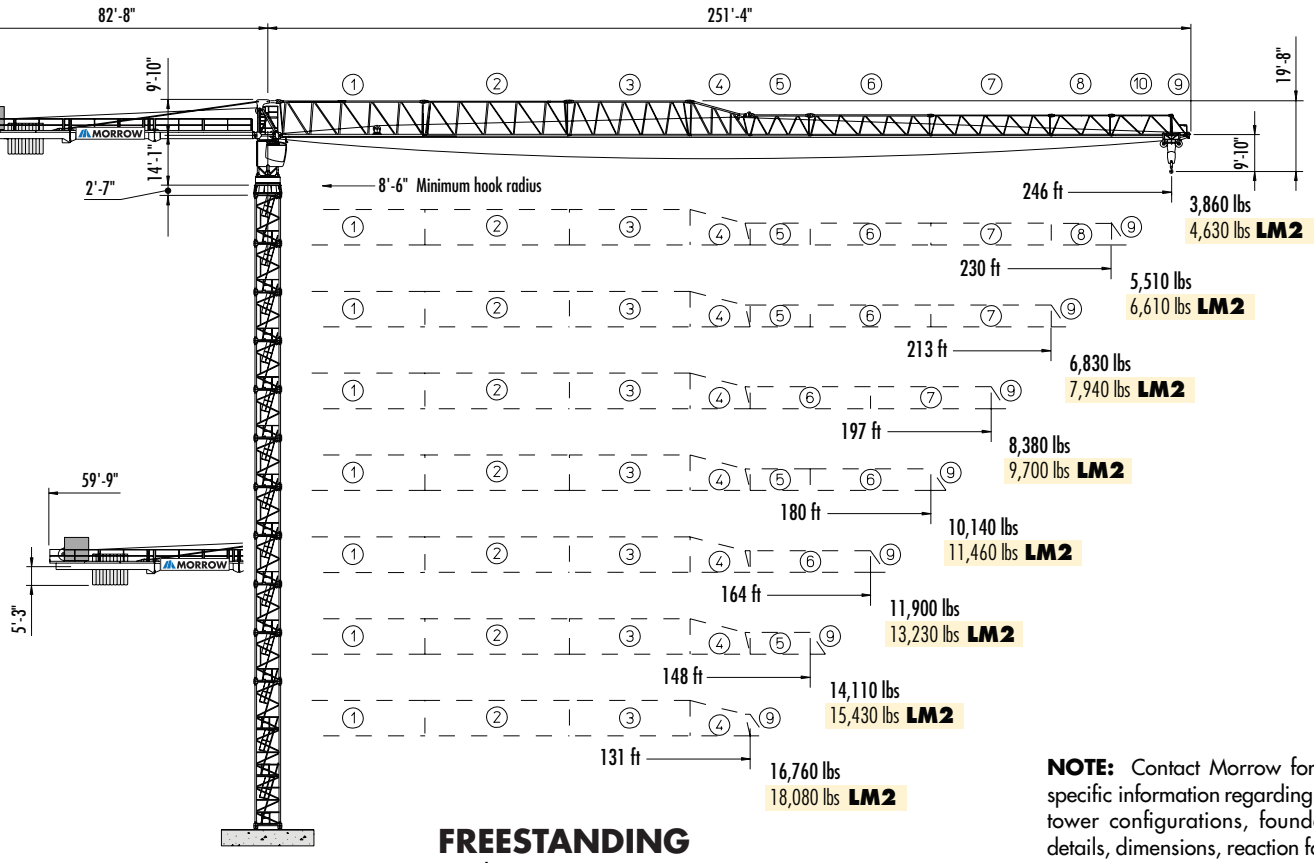
Configuration I
with 630 EC-H/550 HC/290 HC Tower
on 630 EC-H undercarriage
max. 315 ft HUH on concrete foundation
max. 328 ft HUH on undercarriage

Configuration II
with 550 HC/290 HC Tower
max. 294 ft HUH on concrete foundation
max. 320 ft HUH on undercarriage

Configuration III
with 290 HC Tower
max. 184 ft HUH on concrete foundation
max. 186 ft HUH on undercarriage

FREESTANDING
Stationary and Travelling

Jib Layout



FREESTANDING
with 290 HC Tower
Stationary

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

Hook Heights

No. of Tower Elements	Tower Configuration I	Hook Height Concrete Foundation ft	Hook Height 10m Undercarriage ft
1	630 EC-H BS	48	76
2	550 HC STS	67	95
3	550 HC STS	86	114
4	550 HC STS	105	133
5	550 HC STS	125	152
6	550 HC STS	144	171
7	550 HC STS	163	190
8	550 HC STS	182	209
9	550 HC STS	201	228
TR	Transition	220	247
1	290 HC STS	233	260
2	290 HC STS	247	274
3	290 HC STS	260	288
4	290 HC STS	274	301
5	290 HC STS	288	315
6	290 HC STS	301	328 [1]
7 [3,5]	290 HC STS	315 [1]	

No. of Tower Elements	Tower Configuration II	Hook Height Concrete Foundation ft	Hook Height 10m Undercarriage ft
1	550 HC STS	27	54
2	550 HC STS	46	73
3	550 HC STS	65	92
4	550 HC STS	84	111
5	550 HC STS	103	130
6	550 HC STS	122	149
7	550 HC STS	141	168
8	550 HC STS	160	187
9	550 HC STS	179	206
TR	Transition	198	225
1	290 HC STS	212	239
2	290 HC STS	226	252
3	290 HC STS	239	266
4	290 HC STS	253	279
5	290 HC STS	267	293
6	290 HC STS	280	307
7 [5]	290 HC STS	294 [1]	320 [1,4]

No. of Tower Sections	Tower Configuration III	Hook Height Concrete Foundation ft	Hook Height 6m Undercarriage ft
0	290 HC BS	48	64
1 [6]	290 HC STS	62	77
2	290 HC STS	75	91
3	290 HC STS	89	105
4	290 HC STS	103	118
5	290 HC STS	116	132
6	290 HC STS	130	145
7	290 HC STS	143	159
8	290 HC STS	157	173
9	290 HC STS	171 [2]	186 [2,4]
10 [3,5,6]	290 HC STS	184 [2]	

[1] Remove top climbing unit from crane prior to operating crane at maximum hook height.

[2] Lower top climbing unit to base prior to operating crane.

[3] Crane must not be operated at this hook height if wind speed exceeds 40 mph (64 kph).

[4] No crane operations permitted when travelling.

[5] Heavy Lift Mode (LM2) NOT permitted.

[6] Permitted ONLY with reinforced tower section (no 1) and with wind speeds less than 40 mph (64 kph).

Tie-in Details

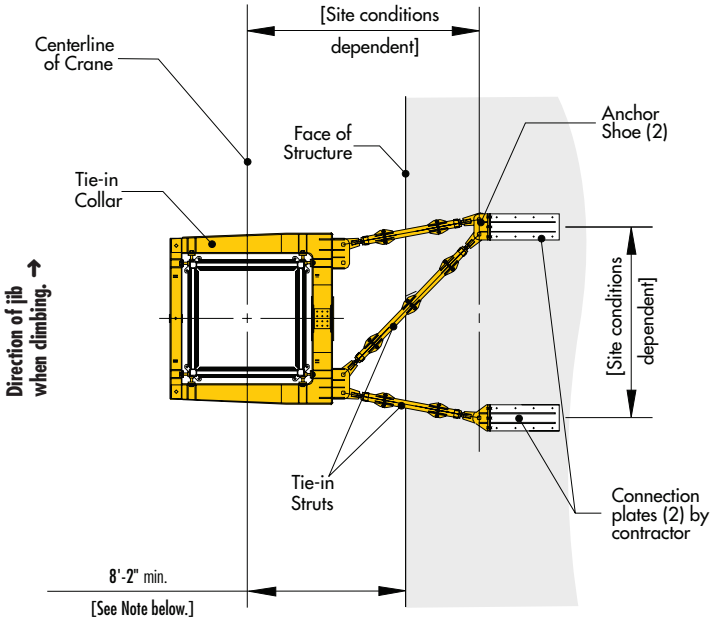
NOTE: For information regarding bottom climbing inside of structure, please contact Morrow.

NOTE: Restrictions apply; please consult Operations Manual or Morrow Engineering.

[1] **LM1:** For hook heights below 330 ft, a maximum of 9 tower sections may be installed above uppermost tie-in location. If winds exceed 40 mph (64 kph) and/or hook height exceeds 330 ft, a maximum of 8 tower sections may be installed.

[2] **LM2:** A maximum of 8 tower sections may be installed above uppermost tie-in location.

[3] Lower top climbing unit to upper tie-in assembly prior to operating crane.



TIE-IN ASSEMBLY
with 290 HC Tower Sections
plan view

TOP CLIMBING
with 290 HC Tower Sections
tied to structure

NOTE: The tie-in assembly shown is an example of a typical installation when using 290HC tower. Please note, however, that factors determining the installation of tie-in assemblies may vary due to project specific requiements.

Verify all dimensions.

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

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

Radius and Capacities

2-Part Line

Hook Radius	Jib Tip Radius	Maximum Capacity – Radius	ft	62	72	82	92	102	121	131	148	164	180	197	213	230	246
246 ft	251'-4"	26,460 lbs – 56 ft	lbs	23,280	19,690	16,950	14,840	13,120	10,540	9,550	8,180	7,100	6,220	5,490	4,850	4,320	3,860
230 ft	234'-11"	26,460 lbs – 65 ft	lbs	26,460	23,480	20,300	17,810	15,830	12,810	11,640	10,050	8,770	7,740	6,880	6,130	5,510	
213 ft	218'-6"	26,460 lbs – 70 ft	lbs	26,460	25,570	22,130	19,440	17,280	14,040	12,760	11,050	9,680	8,550	7,630	6,830		
197 ft	202'-1"	26,460 lbs – 75 ft	lbs	26,460	26,260	23,960	21,080	18,760	15,260	13,910	12,060	10,580	9,390	8,380			
180 ft	185'-8"	26,460 lbs – 80 ft	lbs	26,460	26,460	25,660	22,580	20,130	16,400	14,970	12,990	11,420	10,140				
164 ft	169'-3"	26,460 lbs – 83 ft	lbs	26,460	26,460	26,460	23,460	20,900	17,040	15,560	13,540	11,900					
148 ft	152'-11"	26,460 lbs – 86 ft	lbs	26,460	26,460	26,460	24,380	21,740	17,750	16,230	14,110						
131 ft	136'-6"	26,460 lbs – 88 ft	lbs	26,460	26,460	26,460	25,150	22,440	18,340	16,760							

LM1
Standard mode

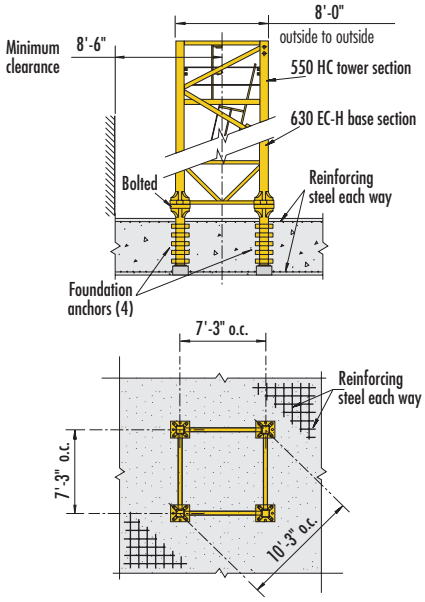
2-Part Line

Hook Radius	Jib Tip Radius	Maximum Capacity – Radius	ft	62	72	82	92	102	121	131	148	164	180	197	213	230	246
246 ft	251'-4"	26,460 lbs – 62 ft	lbs	26,390	22,350	19,310	16,930	15,010	12,130	11,000	9,480	8,270	7,280	6,440	5,750	5,160	4,630
230 ft	234'-11"	26,460 lbs – 74 ft	lbs	26,460	26,460	23,440	20,590	18,320	14,900	13,580	11,770	10,320	9,150	8,160	7,320	6,610	
213 ft	218'-6"	26,460 lbs – 78 ft	lbs	26,460	26,460	25,040	22,020	19,620	15,980	14,570	12,650	11,110	9,850	8,820	7,940		
197 ft	202'-1"	26,460 lbs – 84 ft	lbs	26,460	26,260	26,460	23,940	21,340	17,420	15,900	13,820	12,170	10,820	9,700			
180 ft	185'-8"	26,460 lbs – 88 ft	lbs	26,460	26,460	26,460	25,200	22,490	18,360	16,780	14,620	12,880	11,460				
164 ft	169'-3"	26,460 lbs – 90 ft	lbs	26,460	26,460	26,460	25,840	23,040	18,850	17,220	14,990	13,230					
148 ft	152'-11"	26,460 lbs – 92 ft	lbs	26,460	26,460	26,460	26,460	23,680	19,380	17,700	15,430						
131 ft	136'-6"	26,460 lbs – 94 ft	lbs	26,460	26,460	26,460	26,460	24,160	19,780	18,080							

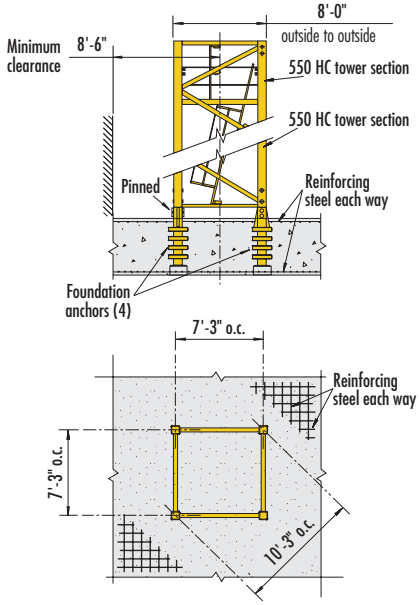
LM2
Heavy lift mode

IMPORTANT: Litronic® cranes are equipped with Liebherr's state of the art PLC system that provides precise monitoring, control and coordination of all cranes functions. This feature also permits a load increase of up to 20% as illustrated in the heavy lift mode (**LM2**) chart above. Heavy lift mode is permitted only when wind speed is less than 31 mph (50 kph). Contact Morrow for more information regarding the many features of the 316 EC-B 12 Litronic tower crane.

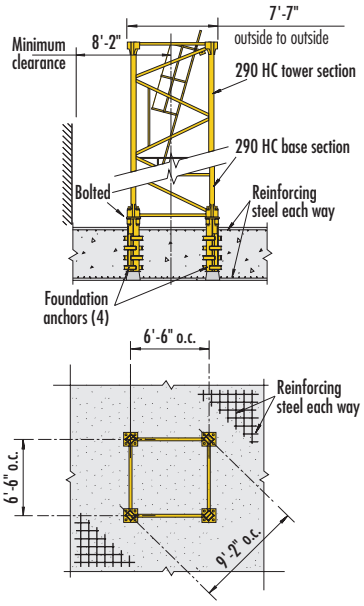
Foundation Details on concrete footing



on 630 EC-H Base Section

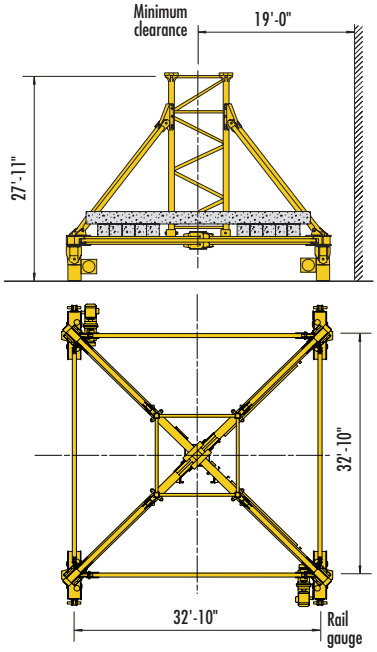


with 550 HC Tower

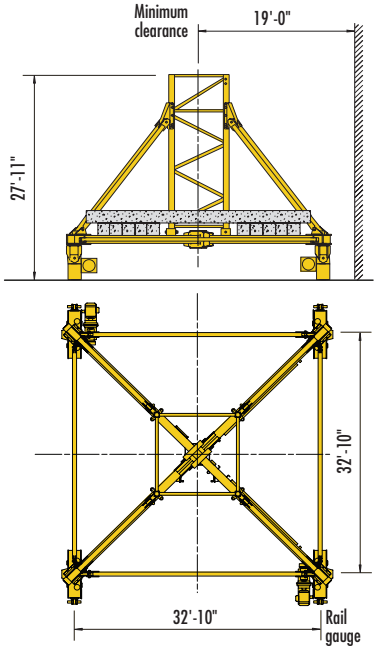


with 290 HC Tower

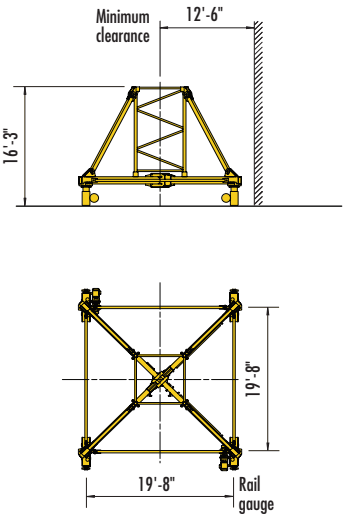
Undercarriage Details on rail-travelling undercarriage



630 EC-H



550 HC



290 HC

NOTE: For information regarding rail-travelling, static undercarriages and central ballast configurations, see 316 EC-H Litronic Operation Manual.

Hoist Speed and Capacity

Hoist Unit	2-Part Line	LM1
147 hp (110 kW) FC hoist unit Variable frequency drive (VFD)	**Capacity**	**Hook Speed**
	26,460 lbs	@ 0 - 157 fpm
	14,110 lbs	@ 0 - 272 fpm
	11,900 lbs	@ 0 - 315 fpm
	6,170 lbs	@ 0 - 545 fpm
8L - 242	2,870 lbs	@ 0 - 906 fpm

IMPORTANT: Capacities and line speeds indicated will vary depending on the amount of hoist wire rope installed. This crane model may be equipped with a hoist unit other than that specified in the data shown above. To verify, check serial number and refer to 316 EC-B 12 Litronic Operation Manual for additional information.

Motor Information

Drive Unit	Horsepower	Kilowatts	Speed	
Trolley (VFD)	10 hp	7.5 kW	0 - 360 fpm	0 - 110m/min
Swing (VFD)	2 x 10 hp	2 x 7.5 kW	0.7 rpm	
Travelling (290 HC)	2 x 10 hp	2 x 7.5 kW	82 fpm	25m/min
Travelling (550 HC)	4 x 10 hp	4 x 7.5 kW	82 fpm	25m/min

Counterweights*

Counterjib	76 ft					60 ft		
Jib length	246 ft	230 ft	213 ft	197 ft	180 ft	164 ft	148 ft	131 ft
No. of blocks	4x A + 2x B	5x A	4x A + 1x B	3x A + 1x B	3x A + 1x B	8x A + 1x B	8x A	7x A
Weight in lbs	31,530 lbs	30,090 lbs	28,330 lbs	23,370 lbs	23,370 lbs	48,170 lbs	44,970 lbs	40,010 lbs

NOTE: Weight of the A Block is 4,960 lbs; the B Block is 3,200 lbs; the D Block is 5,290 lbs.
Counterweights must be installed from rear to front, i.e. towards the tower. It is recommended that the weight of each counterweight be verified before installation. Counterweight figures displayed in the chart above are for crane with hoist unit WiW 300 VZ 410 installed. If another hoist unit is installed, refer to the Liebherr 316 EC-B 12 Litronic Operation Manual or contact Morrow Equipment for additional information.

*** IMPORTANT:** One (1) D Block must be installed beneath the hoist unit frame of the counterjib.

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: 200 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 200 kW.
Verify the generator provided is suitable for use with variable frequency drives (VFDs). 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	Description	Dimensions L x W x H	Weight
Slewing Assembly (Complete) [1]	26'-7" x 9'-0" x 9'-3"	31,300 lbs	Jib Section #611 ①	41'-2" x 6'-1" x 10'-4"	12,590 lbs
Slewing Assembly Upper Part [2]	21'-1" x 6'-0" x 9'-3"	15,430 lbs	Jib Section #621 ②	40'-4" x 5'-6" x 9'-10"	7,760 lbs
Slewing Assembly Lower Part [3]	8'-4" x 9'-0" x 7'-9"	15,870 lbs	Jib Section #622 ③	33'-9" x 5'-5" x 9'-9"	4,780 lbs
Hoist Unit (VFD) [4] 147 hp (110 kW)	9'-5" x 7'-3" x 6'-9"	7,495 lbs	Jib Section #631 ④	17'-2" x 5'-5" x 9'-9"	2,600 lbs
Counterjib Section (Inner)	28'-2" x 7'-9" x 6'-11"	7,720 lbs	Jib Section #632 ⑤	17'-1" x 5'-5" x 6'-1"	1,810 lbs
Counterjib Section (Intermediate)	23'-7" x 7'-9" x 6'-11"	6 610 lbs	Jib Section #633 ⑥	33'-8" x 5'-5" x 6'-1"	2,730 lbs
Counterjib Section (Outer)	28'-10" x 7'-9" x 6'-11"	10,140 lbs	Jib Section #634 ⑦	33'-7" x 5'-5" x 6'-0"	1,830 lbs
Counterjib (83 ft) [5]	79'-5" x 7'-9" x 6'-11"	32,190 lbs	Jib Section #635 ⑧	17'-3" x 5'-5" x 6'-0"	1,060 lbs
Counterjib (60 ft) [6]	56'-5" x 7'-9" x 6'-11"	24,690 lbs	Jib Section #635 ⑩	17'-3" x 5'-5" x 6'-0"	1,060 lbs
Counterweight Block A [7]	4'-4" x 11" x 8'-11"	4,960 lbs	Jib Tip Section #641 ⑨	6'-3" x 5'-11" x 5'-11"	550 lbs
Counterweight Block B [7]	4'-4" x 11" x 5'-11"	3,195 lbs	Jib Assembly Pt 1 246 ft & 230 ft Jibs ①②③④	128'-0" x 6'-1" x 10'-4"	32,630 lbs
Tower Section 290HC (B/B)	13'-7" x 7'-7" x 7'-7"	5,070 lbs	Jib Assembly [8] 246 ft Pt 2 ⑤⑥⑦⑧⑩⑨	120'-1" x 5'-5" x 6'-1"	9,260 lbs
Base Section 290HC (B/B)	40'-9" x 7'-7" x 7'-7"	17,505 lbs	Jib Assembly [8] 230 ft Pt 2 ⑤⑥⑦⑧⑨	103'-8" x 5'-5" x 6'-1"	8,160 lbs
Long Section 290HC (B/B)	40'-9" x 7'-7" x 7'-7"	12,720 lbs	Jib Assembly [8] 213 ft Complete ①②③④⑤⑥⑦⑨	215'-3" x 6'-1" x 10'-4"	39,680 lbs
Std Tower Section 550HC (P/P)	20'-7" x 8'-0" x 8'-0"	14,150 lbs	Jib Assembly [8] 197 ft Complete ①②③④⑥⑦⑨	198'-10" x 6'-1" x 10'-4"	37,920 lbs
Transition (P/B) 550 HC - 290HC	27'-7" x 9'-2" x 8'-10"	13,050 lbs	Jib Assembly [8] 180 ft Complete ①②③④⑤⑥⑨	182'-5" x 6'-1" x 10'-4"	37,700 lbs
Top Climbing Unit 290HC	27'-7" x 9'-2" x 8'-10"	16,535 lbs	Jib Assembly [8] 164 ft Complete ①②③④⑥⑨	166'-0" x 6'-1" x 10'-4"	35,710 lbs
Trolley	6'-2" x 6'-0" x 5'-5"	2,310 lbs	Jib Assembly [8] 148 ft Complete ①②③④⑤⑨	149'-7" x 6'-1" x 10'-4"	34,830 lbs
Base Section 630 EC-H (B/P)	40'-9" x 8'-10" x 8'-10"	31,970 lbs	Jib Assembly [8] 131 ft Complete ①②③④⑨	133'-2" x 6'-1" x 10'-4"	32,850 lbs

NOTE: Weights and dimensions are approximate. Scale components before lifting. Consult Operation Manual before erecting, operating, servicing or dismantling crane.

[1] Slewing Assembly Complete includes operator's cab, platforms, two swing motors, slewing ring, slewing ring support. Dimensions shown above are with climbing shoes in transport position.
[2] Slewing Assembly Upper Part includes operator's cab, platforms and two swing motors.
[3] Slewing Assembly Lower Part includes slewing ring, slewing ring support and four non-detachable climbing shoes. Dimensions shown above are with climbing shoes in transport position.
[4] Includes 147 hp (110 kW) hoist drive with rope drum, switchgear panels, and hoist unit frame. Weight indicated DOES NOT include wire rope. Weight of hoist rope, based on a typical installation of 1,000 ft of rope, is approximately 1,410 lbs. Contact Morrow for information.
[5] Counterjib A includes counterjib sections #1, #3, pendant bars, handrails and D block. Counterjib A is required for jibs 164 ft and shorter. D block weighs 5,290 lbs.
[6] Counterjib B includes counterjib sections #1, #2, #3, pendant bars, handrails and D block. Counterjib B is required for jibs 180 ft and longer. D block weighs 5,290 lbs.
[7] Counterweight block dimensions are for blocks constructed WITHOUT frames. When fabricating counterweights, consult Operations Manual for concrete requirements.
[8] Jib Assemblies include jib sections, pendant bars, connecting pins and plates, trolley drive unit, trolley wire rope, hook block and trolley.

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