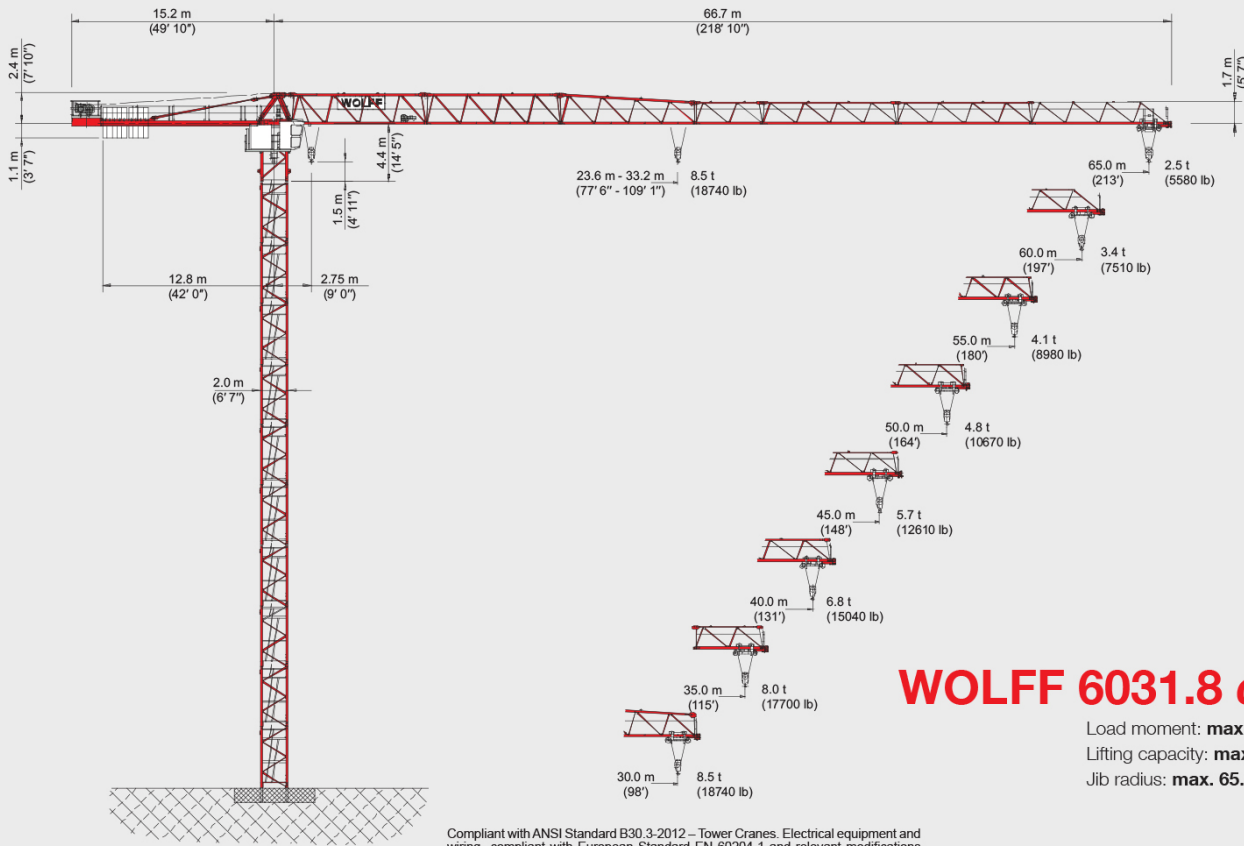




## WOLFFKRAN



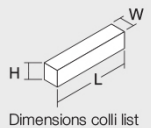
## WOLFF 6031.8 clear US

Load moment: **max. 2592 kNm**  
 Lifting capacity: **max. 8.5 t (18740 lb)**  
 Jib radius: **max. 65.0 m (213')**

Compliant with ANSI Standard B30.3-2012 – Tower Cranes. Electrical equipment and wiring compliant with European Standard EN 60204-1 and relevant modifications based on the US Standard NFPA-70. All loads indicated with activated WOLFFBoost.

### WOLFF 6031.8 clear US - Colli List

Pos.	Pcs.	Description	Colli	Length [m] (ft)	Width [m] (ft)	Height [m] (ft)	Weight [kg] (lb)	Volume [m³] (ft³)
1	1	Tower top complete		6.67 (21' 11")	2.30 (7' 7")	2.54 (8' 4")	9370 (20657)	38.97 (1376.21)
		Tower top upper part Item 1 disassembled		2.33 (7' 8")	0.58 (1' 11")	2.81 (9' 3")	1300 (2866)	3.80 (134.2)
		Tower top lower part Item 1 disassembled		5.77 (18' 11")	2.30 (7' 7")	2.54 (8' 4")	8070 (17791)	33.71 (1190.46)
2	1	Driver's cab with suspension		4.82 (15' 10")	1.96 (6' 5")	2.55 (8' 4")	2580 (5688)	24.10 (851.08)
3	1	Counterjib complete		14.10 (46' 3")	2.50 (8' 2")	0.80 (2' 7")	7577 (16704)	28.20 (998.87)
		Hw 845 FU Hoisting platform		2.17 (7' 1")	1.57 (5' 2")	1.04 (3' 5")	2035 (4496)	3.54 (125.01)
4		Hw 875 FU Hoisting platform		2.17 (7' 1")	1.88 (6' 2")	1.18 (3' 10")	2375 (5236)	4.82 (170.22)
		Box (small parts)		0.63 (2' 1")	0.50 (1' 8")	0.38 (1' 3")	100 (220)	1.12 (39.55)
6	1	Jib element 1		10.34 (33' 11")	1.20 (3' 11")	2.55 (8' 4")	3265 (7198)	31.64 (1117.36)
7	1	Jib element 2		10.32 (33' 10")	1.20 (3' 11")	2.36 (7' 9")	2150 (4740)	29.23 (1032.25)
8	1	Jib element 3		10.29 (33' 9")	1.20 (3' 11")	2.34 (7' 8")	1600 (3527)	28.90 (1020.59)
9	1	Jib element 4		5.27 (17' 3")	1.20 (3' 11")	1.74 (5' 9")	775 (1709)	11.00 (388.46)
10	1	Jib element 5		2.77 (9' 1")	1.20 (3' 11")	1.74 (5' 9")	470 (1036)	5.78 (204.12)
11	1	Jib element 6		10.25 (33' 8")	1.20 (3' 11")	1.72 (5' 8")	1365 (3009)	21.16 (747.26)
12	1	Jib element 7		10.17 (33' 4")	1.20 (3' 11")	1.70 (5' 7")	1045 (2304)	20.75 (732.78)
13	1	Jib element 8		10.17 (33' 4")	1.20 (3' 11")	1.70 (5' 7")	800 (1764)	20.75 (732.78)
14	1	Rope swivel traverse		0.99 (3' 3")	1.09 (3' 7")	0.45 (1' 6")	126 (278)	0.49 (17.3)
15	1	Trolley LK 8		1.87 (6' 2")	1.36 (4' 6")	0.95 (3' 1")	290 (639)	2.42 (85.46)
16	1	Service cage LK 8		0.75 (2' 6")	0.55 (1' 10")	1.69 (5' 7")	55 (121)	0.70 (24.72)
17	1	Hook block U 6 (8)		0.50 (1' 8")	0.22 (0' 9")	1.11 (3' 8")	350 (772)	0.12 (4.24)



Dimensions colli list

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6100403 - 01/2017

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## WOLFF 6031.8 clear US

### Main Components

30 m (98') basic jib with trolley gear. Extensions up to 65 m (213') radius in 2.5 m (8') steps. Slewing frame with driver's cabin, control cabinet, two slewing gears, ball race bearing with central lubrication unit and slipping system. Counterjib with hoisting platform and counterweights.

### Drive Technique

All drives frequency controlled squirrel cage motors, fully thermal protected. Hoisting winches Hw 845 FU or Hw 875 FU. Two slewing gears with electrically operated weathervaning device. Automatic windforce compensation controls. Trolley gear.

### Electrical Equipment

Multivoltage equipment for supplies of 480 V Y / 277 V 60 Hz. Electronic safety crane controls with bus technology. Incremental absolute encoders for all operating movements. Electronic load measuring device at basic jib section. Multilingual graphic display showing information to operator, both operational and diagnostics.

### Safety Devices

Electronic overload protection system. Increased load moment limitation by automatically hoisting speed reduction. Menu guided setting of overload protection system and of all limiters from operators cabin. Working space limiter. Anti collision interface. Trolley rope breakage safety device.

### Tower Elements, Climbing Device

Tower configuration of WOLFF system tower elements. WOLFF slug bolt connection. Detachable hydraulic WOLFF system climbing device KWH 20.3 or KWH 20.6. WOLFF system inner climbing device KSH 20 SH.

### Cross Frame KR, Mobile Cross Frame KRF

WOLFF cross frames KR can be used with gauge from 6.0 m up to 10.0 m (20' - 33'). WOLFF cross frames can be modified to KRF.

### Power Requirements and hook paths (Slewing part)

67 kVA (Hw 845 FU), hook path 190 m (623') in 2-fall operation.

94 kVA (Hw 875 FU), hook path 460 m (1509') in 2-fall operation.

### Mechanisms - WOLFF 6031.8 clear US - (Hw 845 FU)

Motor [kW] (hp)	45 (60)	7.5 (10)	2 x 6.0 (2 x 8)	2 x 5.5 (2 x 7.4)
Speed	0 - 1.6 t (0 - 3527 lb) 0 ... 115 m/min (0 ... 377 ft/min) steplless 0 - 8.5 t (0 - 18740 lb) (0 ... 26 m/min) (0 ... 85 ft/min)	0 - 3.0 t (0 - 6614 lb) 0 ... 100 m/min (0 ... 328 ft/min) steplless 0 - 8.5 t (0 - 18740 lb) (0 ... 65 m/min) (0 ... 213 ft/min)	0.80 min <sup>-1</sup>	25.0 m/min (82 ft/min)
Hook path [m] (ft)	190 (623')			

### Mechanisms - WOLFF 6031.8 clear US - (Hw 875 FU)

Motor [kW] (hp)	75 (100)	7.5 (10)	2 x 6.0 (2 x 8)	2 x 5.5 (2 x 7.4)
Speed	0 - 1.7 t (0 - 3748 lb) 0 ... 170 m/min (0 ... 558 ft/min) steplless 0 - 8.5 t (0 - 18740 lb) (0 ... 42 m/min) (0 ... 138 ft/min)	0 - 3.0 t (0 - 6614 lb) 0 ... 100 m/min (0 ... 328 ft/min) steplless 0 - 8.5 t (0 - 18740 lb) (0 ... 65 m/min) (0 ... 213 ft/min)	0.80 min <sup>-1</sup>	25.0 m/min (82 ft/min)
Hook path [m] (ft)	460 (1509')			

### Load Data [t] (lb) - WOLFF 6031.8 clear US - BOOST

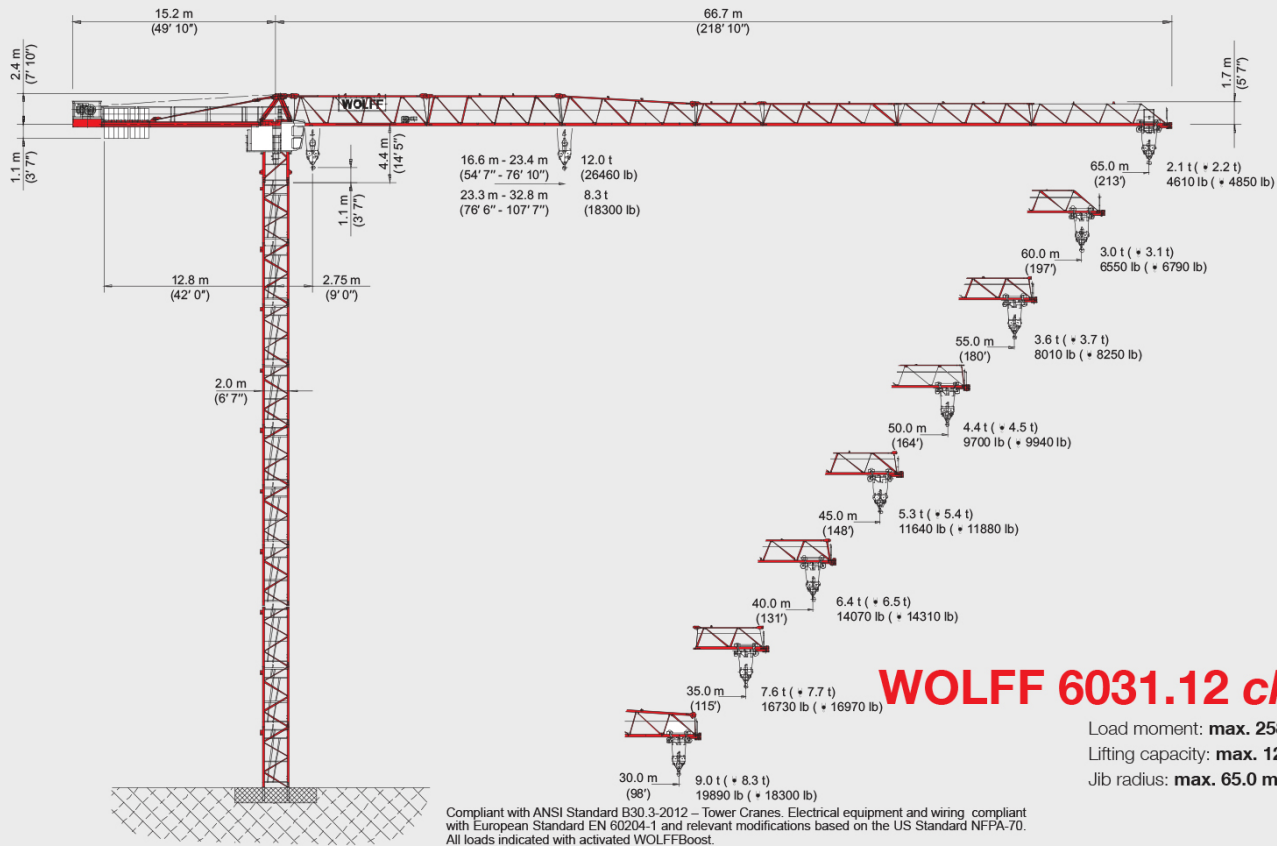
Jib radius [m] (ft)	25.0 (82' 0")	30.0 (98' 5")	35.0 (106' 8")	37.5 (114' 3")	40.0 (123' 0")	42.5 (131' 3")	45.0 (139' 5")	47.5 (147' 8")	50.0 (155' 10")	52.5 (164' 1")	55.0 (172' 3")	57.5 (180' 5")	60.0 (188' 8")	62.5 (196' 10")	65.0 (205' 1")	65.0 (213' 3")
85.0 (213')	8.0 (17410)	6.5 (14340)	5.0 (11000)	5.5 (12020)	4.7 (10270)	4.3 (9500)	4.1 (8920)	3.8 (8350)	3.5 (7780)	3.2 (7100)	3.0 (6600)	2.8 (6100)	2.7 (5900)	2.7 (5900)	2.7 (5900)	2.5 (5490)
82.5 (209')	8.5 (18740)	7.1 (15670)	6.0 (13210)	6.5 (14230)	5.7 (12480)	5.3 (11710)	5.1 (11140)	4.8 (10570)	4.5 (9990)	4.2 (9410)	4.0 (8830)	3.8 (8250)	3.7 (8050)	3.7 (8050)	3.7 (8050)	3.5 (7640)
80.0 (205')	8.5 (18740)	7.7 (17000)	6.5 (14230)	7.0 (15250)	6.0 (13210)	5.6 (12440)	5.2 (11670)	4.9 (11100)	4.6 (10520)	4.3 (9940)	4.1 (9360)	3.9 (8780)	3.8 (8580)	3.8 (8580)	3.8 (8580)	3.6 (7990)
77.5 (201')	8.5 (18740)	8.0 (17500)	7.0 (15250)	7.5 (16270)	6.5 (14230)	6.1 (13460)	5.7 (12690)	5.4 (12120)	5.1 (11540)	4.8 (10960)	4.6 (10380)	4.4 (9800)	4.3 (9600)	4.3 (9600)	4.3 (9600)	4.1 (8980)
75.0 (197')	8.5 (18740)	8.2 (18000)	7.5 (16270)	8.0 (17290)	7.0 (15250)	6.6 (14490)	6.2 (13720)	5.9 (13150)	5.6 (12570)	5.3 (11990)	5.1 (11410)	4.9 (10830)	4.8 (10630)	4.8 (10630)	4.8 (10630)	4.6 (10040)
72.5 (193')	8.5 (18740)	8.4 (18430)	7.7 (16700)	8.2 (17720)	7.2 (15670)	6.8 (14920)	6.4 (14150)	6.1 (13580)	5.8 (13000)	5.5 (12420)	5.3 (11840)	5.1 (11260)	5.0 (11060)	5.0 (11060)	5.0 (11060)	4.8 (10470)
70.0 (189')	8.5 (18740)	8.5 (18870)	8.0 (17290)	8.5 (18310)	7.5 (16270)	7.1 (15500)	6.7 (14730)	6.4 (14160)	6.1 (13580)	5.8 (13000)	5.6 (12420)	5.4 (11840)	5.3 (11640)	5.3 (11640)	5.3 (11640)	5.1 (11050)
67.5 (185')	8.5 (18740)	8.5 (18870)	8.1 (17710)	8.6 (18730)	7.6 (16690)	7.2 (15920)	6.8 (15150)	6.5 (14580)	6.2 (14000)	5.9 (13420)	5.7 (12840)	5.5 (12260)	5.4 (12060)	5.4 (12060)	5.4 (12060)	5.2 (11470)
65.0 (181')	8.5 (18740)	8.5 (18870)	8.2 (18110)	8.7 (19130)	7.7 (17090)	7.3 (16320)	6.9 (15550)	6.6 (14980)	6.3 (14400)	6.0 (13820)	5.8 (13240)	5.6 (12660)	5.5 (12460)	5.5 (12460)	5.5 (12460)	5.3 (11870)
62.5 (177')	8.5 (18740)	8.5 (18870)	8.5 (18510)	8.5 (18510)	7.9 (17210)	7.5 (16440)	7.1 (15670)	6.8 (15100)	6.5 (14520)	6.2 (13940)	6.0 (13360)	5.8 (12780)	5.7 (12580)	5.7 (12580)	5.7 (12580)	5.5 (11990)
60.0 (173')	8.5 (18740)	8.5 (18870)	8.5 (18510)	8.5 (18510)	8.0 (17630)	7.6 (16860)	7.2 (16090)	6.9 (15520)	6.6 (14940)	6.3 (14360)	6.1 (13780)	5.9 (13200)	5.8 (13000)	5.8 (13000)	5.8 (13000)	5.6 (12410)
57.5 (169')	8.5 (18740)	8.5 (18870)	8.5 (18510)	8.5 (18510)	8.0 (17630)	7.6 (16860)	7.2 (16090)	6.9 (15520)	6.6 (14940)	6.3 (14360)	6.1 (13780)	5.9 (13200)	5.8 (13000)	5.8 (13000)	5.8 (13000)	5.6 (12410)
55.0 (165')	8.5 (18740)	8.5 (18870)	8.5 (18510)	8.5 (18510)	8.0 (17630)	7.6 (16860)	7.2 (16090)	6.9 (15520)	6.6 (14940)	6.3 (14360)	6.1 (13780)	5.9 (13200)	5.8 (13000)	5.8 (13000)	5.8 (13000)	5.6 (12410)
52.5 (161')	8.5 (18740)	8.5 (18870)	8.5 (18510)	8.5 (18510)	8.0 (17630)	7.6 (16860)	7.2 (16090)	6.9 (15520)	6.6 (14940)	6.3 (14360)	6.1 (13780)	5.9 (13200)	5.8 (13000)	5.8 (13000)	5.8 (13000)	5.6 (12410)
50.0 (157')	8.5 (18740)	8.5 (18870)	8.5 (18510)	8.5 (18510)	8.0 (17630)	7.6 (16860)	7.2 (16090)	6.9 (15520)	6.6 (14940)	6.3 (14360)	6.1 (13780)	5.9 (13200)	5.8 (13000)	5.8 (13000)	5.8 (13000)	5.6 (12410)
47.5 (153')	8.5 (18740)	8.5 (18870)	8.5 (18510)	8.5 (18510)	8.0 (17630)	7.6 (16860)	7.2 (16090)	6.9 (15520)	6.6 (14940)	6.3 (14360)	6.1 (13780)	5.9 (13200)	5.8 (13000)	5.8 (13000)	5.8 (13000)	5.6 (12410)
45.0 (149')	8.5 (18740)	8.5 (18870)	8.5 (18510)	8.5 (18510)	8.0 (17630)	7.6 (16860)	7.2 (16090)	6.9 (15520)	6.6 (14940)	6.3 (14360)	6.1 (13780)	5.9 (13200)	5.8 (13000)	5.8 (13000)	5.8 (13000)	5.6 (12410)
42.5 (145')	8.5 (18740)	8.5 (18870)	8.5 (18510)	8.5 (18510)	8.0 (17630)	7.6 (16860)	7.2 (16090)	6.9 (15520)	6.6 (14940)	6.3 (14360)	6.1 (13780)	5.9 (13200)	5.8 (13000)	5.8 (13000)	5.8 (13000)	5.6 (12410)
40.0 (141')	8.5 (18740)	8.5 (18870)	8.5 (18510)	8.5 (18510)	8.0 (17630)	7.6 (16860)	7.2 (16090)	6.9 (15520)	6.6 (14940)	6.3 (14360)	6.1 (13780)	5.9 (13200)	5.8 (13000)	5.8 (13000)	5.8 (13000)	5.6 (12410)
37.5 (137')	8.5 (18740)	8.5 (18870)	8.5 (18510)	8.5 (18510)	8.0 (17630)	7.6 (16860)	7.2 (16090)	6.9 (15520)	6.6 (14940)	6.3 (14360)	6.1 (13780)	5.9 (13200)	5.8 (13000)	5.8 (13000)	5.8 (13000)	5.6 (12410)
35.0 (133')	8.5 (18740)	8.5 (18870)	8.5 (18510)	8.5 (18510)	8.0 (17630)	7.6 (16860)	7.2 (16090)	6.9 (15520)	6.6 (14940)	6.3 (14360)	6.1 (13780)	5.9 (13200)	5.8 (13000)	5.8 (13000)	5.8 (13000)	5.6 (12410)
32.5 (129')	8.5 (18740)	8.5 (18870)	8.5 (18510)	8.5 (18510)	8.0 (17630)	7.6 (16860)	7.2 (16090)	6.9 (15520)	6.6 (14940)	6.3 (14360)	6.1 (13780)	5.9 (13200)	5.8 (13000)	5.8 (13000)	5.8 (13000)	5.6 (12410)
30.0 (125')	8.5 (18740)	8.5 (18870)	8.5 (18510)	8.5 (18510)	8.0 (17630)	7.6 (16860)	7.2 (16090)	6.9 (15520)	6.6 (14940)	6.3 (14360)	6.1 (13780)	5.9 (13200)	5.8 (13000)	5.8 (13000)	5.8 (13000)	5.6 (12410)

### WOLFF-Boost

With the WOLFF-Boost function, the load is allowed to exceed the load torque range specified for the lifting capacities by up to 10%. This is, however, subject to the restriction that hoisting gear and trolley gear must only be moved alternately.

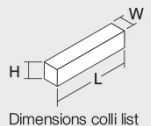


## WOLFFKRAN



### WOLFF 6031.12 clear US - Colli List

Pos.	Pcs.	Description	Colli	Length [m] (ft)	Width [m] (ft)	Height [m] (ft)	Weight [kg] (lb)	Volume [m³] (ft³)
1	1	Tower top complete		6.67 (21' 11")	2.30 (7' 7")	2.54 (8' 4")	9370 (20657)	38.97 (1376.21)
		Tower top upper part Item 1 disassembled		2.33 (7' 8")	0.58 (1' 11")	2.81 (9' 3")	1300 (2866)	3.80 (134.2)
		Tower top lower part Item 1 disassembled		5.77 (18' 11")	2.30 (7' 7")	2.54 (8' 4")	8070 (17791)	33.71 (1190.46)
2	1	Driver's cab with suspension		4.82 (15' 10")	1.96 (6' 5")	2.55 (8' 4")	2580 (5688)	24.10 (851.08)
3	1	Counterjib complete		14.10 (46' 3")	2.50 (8' 2")	0.80 (2' 7")	7577 (16704)	28.20 (998.87)
4		Hw 845 FU Hoisting platform		2.17 (7' 1")	1.57 (5' 2")	1.04 (3' 5")	2035 (4486)	3.54 (125.01)
		Hw 875 FU Hoisting platform		2.17 (7' 1")	1.88 (6' 2")	1.18 (3' 10")	2375 (5236)	4.82 (170.22)
5	1	Box (small parts)		0.63 (2' 1")	0.50 (1' 8")	0.38 (1' 3")	100 (220)	1.12 (39.55)
6	1	Jib element 1		10.34 (33' 11")	1.20 (3' 11")	2.55 (8' 4")	3265 (7198)	31.64 (1117.36)
7	1	Jib element 2		10.32 (33' 10")	1.20 (3' 11")	2.36 (7' 9")	2150 (4740)	29.23 (1032.25)
8	1	Jib element 3		10.29 (33' 9")	1.20 (3' 11")	2.34 (7' 8")	1600 (3527)	28.90 (1020.59)
9	1	Jib element 4		5.27 (17' 3")	1.20 (3' 11")	1.74 (5' 9")	775 (1709)	11.00 (388.46)
10	1	Jib element 5		2.77 (9' 1")	1.20 (3' 11")	1.74 (5' 9")	470 (1036)	5.78 (204.12)
11	1	Jib element 6		10.25 (33' 8")	1.20 (3' 11")	1.72 (5' 8")	1365 (3009)	21.16 (747.26)
12	1	Jib element 7		10.17 (33' 4")	1.20 (3' 11")	1.70 (5' 7")	1045 (2304)	20.75 (732.78)
13	1	Jib element 8		10.17 (33' 4")	1.20 (3' 11")	1.70 (5' 7")	800 (1764)	20.75 (732.78)
14	1	Rope swivel traverse		0.99 (3' 3")	1.09 (3' 7")	0.45 (1' 6")	126 (278)	0.49 (17.3)
15	1	Trolley LK 8/12		1.87 (6' 2")	1.36 (4' 6")	1.03 (3' 5")	355 (783)	2.66 (93.94)
16	1	Service cage LK 8/12		0.75 (2' 6")	0.55 (1' 10")	1.69 (5' 7")	55 (121)	0.70 (24.72)
17	1	Hook block U 8/16 AU		1.02 (3' 4")	0.27 (0' 11")	1.84 (6' 0")	550 (1213)	0.51 (18.01)



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61000404 - 01/2017

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# WOLFF 6031.12 clear US

### Main Components

30 m (98') basic jib with trolley gear. Extensions up to 65 m (213') radius in 2.5 m (8') steps. Slewing frame with driver's cabin, control cabinet, two slewing gears, ball race bearing with central lubrication unit and slipping system. Counterjib with hoisting platform and counterweights.

### Drive Technique

All drives frequency controlled squirrel cage motors, fully thermal protected. Hoisting winches Hw 845 FU or Hw 875 FU. Automatic re-reveing device (from 2-fall to 4-fall operation). Two slewing gears with electrically operated weathervaning device. Automatic windforce compensation controls. Trolley gear.

### Electrical Equipment

Multivoltage equipment for supplies of 480 VY / 277 V 60 Hz. Electronic safety crane controls with bus technology. Incremental absolute encoders for all operation movements. Electronic load measuring device at basic jib section. Multilingual graphic display showing information to operator, both operational and diagnostics.

### Safety Devices

Electronic overload protection system. Increased load moment limitation by automatically hoisting speed reduction. Menu guided setting of overload protection system and of all limiters from operators cabin. Working space limiter. Anti collision interface. Trolley rope breakage safety device.

### Tower Elements, Climbing Device

Tower configuration of WOLFF system tower elements. WOLFF slug bolt connection. Detachable hydraulic WOLFF system climbing device KWH 20.3 or KWH 20.6. WOLFF system inner climbing device KSH 20 SH.

### Cross Frame KR, Mobile Cross Frame KRF

WOLFF cross frames KR can be used with gauge from 6.0 m up to 10.0 m (20' - 33'). WOLFF cross frames can be modified to KRF.

### Power Requirements and hook paths (Slewing part)

67 kW (Hw 845 FU), hook path 190 m (623') in 2-fall operation.  
94 kW (Hw 875 FU), hook path 460 m (1509') in 2-fall operation.

### Mechanisms - WOLFF 6031.12 clear US - (Hw 845 FU)

Motor [kW] (hp)	45 (60)	45 (60)	7.5 (10)	2 x 6.0 (2 x 8)	2 x 5.5 (2 x 7.4)
Speed	0 - 1.3 t (0 - 2866 lb) 0 ... 115 m/min (0 ... 377 ft/min) steplless 0 - 8.3 t (0 - 18300 lb) (0 ... 26 m/min) (0 ... 85 ft/min)	0 - 3.5 t (0 - 7716 lb) 0 ... 58 m/min (0 ... 190 ft/min) steplless 0 - 12.0 t (0 - 26460 lb) (0 ... 18 m/min) (0 ... 59 ft/min)	0 - 3.0 t (0 - 6614 lb) 0 ... 100 m/min (0 ... 328 ft/min) steplless 0 - 8.3 t (0 - 18300 lb) (0 ... 213 ft/min) 0 - 12.0 t (0 - 26460 lb) (0 ... 40 m/min) (0 ... 131 ft/min)	0.80 min <sup>-1</sup>	25.0 m/min (82 ft/min)
Hook path [m] (ft)	190 (623)	95 (312)			

### Mechanisms - WOLFF 6031.12 clear US - (Hw 875 FU)

Motor [kW] (hp)	75 (100)	75 (100)	7.5 (10)	2 x 6.0 (2 x 8)	2 x 5.5 (2 x 7.4)
Speed	0 - 1.5 t (0 - 3307 lb) 0 ... 170 m/min (0 ... 558 ft/min) steplless 0 - 8.3 t (0 - 18300 lb) (0 ... 42 m/min) (0 ... 138 ft/min)	0 - 3.7 t (0 - 8157 lb) 0 ... 85 m/min (0 ... 279 ft/min) steplless 0 - 12.0 t (0 - 26460 lb) (0 ... 29 m/min) (0 ... 95 ft/min)	0 - 3.0 t (0 - 6614 lb) 0 ... 100 m/min (0 ... 328 ft/min) steplless 0 - 8.3 t (0 - 18300 lb) (0 ... 65 m/min) (0 ... 213 ft/min) 0 - 12.0 t (0 - 26460 lb) (0 ... 40 m/min) (0 ... 131 ft/min)	0.80 min <sup>-1</sup>	25.0 m/min (82 ft/min)
Hook path [m] (ft)	460 (1509)	230 (755)			

### Load Data [t] (lb) - WOLFF 6031.12 clear US - BOOST

Jib radius [m] (ft)	Load capacity [t] (lb)															
	25.0 (82' 0")	30.0 (98' 5")	32.5 (106' 8")	35.0 (114' 10")	37.5 (123' 3")	40.0 (131' 3")	42.5 (139' 5")	45.0 (147' 8")	47.5 (155' 10")	50.0 (164' 1")	52.5 (172' 3")	55.0 (180' 5")	57.5 (188' 8")	60.0 (196' 10")	62.5 (205' 1")	65.0 (213' 3")
8.3 t (18300 lb)	7.7 (16930)	6.2 (13820)	5.6 (12360)	5.1 (11240)	4.7 (10300)	4.3 (9400)	4.0 (8700)	3.7 (8000)	3.5 (7400)	3.3 (7100)	3.0 (6400)	2.8 (6000)	2.6 (5600)	2.5 (5400)	2.3 (5000)	2.2 (4800)
8.3 t (18300 lb)	8.3 (18300)	6.8 (15020)	6.2 (13650)	5.7 (12490)	5.3 (11480)	4.9 (10560)	4.6 (9810)	4.3 (9120)	4.1 (8500)	3.9 (7940)	3.7 (7440)	3.5 (6920)	3.3 (6500)	3.1 (6100)	2.9 (5700)	2.8 (5260)
8.3 t (18300 lb)	8.3 (18300)	7.4 (16250)	6.7 (14800)	6.2 (13540)	5.7 (12400)	5.2 (11320)	4.9 (10680)	4.6 (9940)	4.4 (8880)	4.2 (8360)	4.0 (7800)	3.8 (7310)	3.6 (6850)	3.4 (6400)	3.2 (6000)	3.1 (5790)
8.3 t (18300 lb)	8.3 (18300)	7.7 (17000)	7.0 (15400)	6.4 (14070)	5.9 (12950)	5.4 (11940)	5.0 (11100)	4.7 (10350)	4.4 (9600)	4.1 (8940)	3.9 (8300)	3.7 (7700)	3.5 (7140)	3.4 (6600)	3.2 (6100)	3.1 (5820)
8.3 t (18300 lb)	8.3 (18300)	8.0 (17340)	7.2 (15800)	6.6 (14480)	6.1 (13340)	5.6 (12340)	5.2 (11450)	4.9 (10700)	4.6 (10040)	4.4 (9340)	4.2 (8680)	4.0 (8060)	3.8 (7480)	3.6 (6940)	3.4 (6420)	3.3 (6250)
8.3 t (18300 lb)	8.3 (18300)	8.3 (18300)	7.6 (16730)	7.0 (15350)	6.4 (14150)	5.9 (13060)	5.5 (12170)	5.2 (11340)	4.9 (10500)	4.6 (9840)	4.4 (9140)	4.2 (8480)	4.0 (7860)	3.8 (7280)	3.6 (6740)	3.5 (6490)
8.3 t (18300 lb)	8.3 (18300)	8.3 (18300)	7.8 (17180)	7.2 (15780)	6.6 (14530)	6.1 (13480)	5.7 (12510)	5.3 (11670)	5.0 (10810)	4.7 (10090)	4.5 (9400)	4.3 (8700)	4.1 (8040)	3.9 (7400)	3.7 (6800)	3.6 (6500)
8.3 t (18300 lb)	8.3 (18300)	8.3 (18300)	7.9 (17480)	7.3 (16040)	6.7 (14800)	6.2 (13710)	5.8 (12740)	5.4 (11880)	5.1 (11020)	4.8 (10200)	4.6 (9500)	4.4 (8800)	4.2 (8100)	4.0 (7500)	3.8 (6900)	3.7 (6590)
8.3 t (18300 lb)	8.3 (18300)	8.3 (18300)	8.1 (17940)	7.5 (16480)	6.9 (15200)	6.4 (14150)	5.9 (13060)	5.5 (12170)	5.2 (11340)	4.9 (10500)	4.6 (9840)	4.4 (9140)	4.2 (8480)	4.0 (7860)	3.8 (7280)	3.6 (6740)
8.3 t (18300 lb)	8.3 (18300)	8.3 (18300)	8.3 (18300)	7.6 (16730)	7.0 (15350)	6.4 (14150)	5.9 (13060)	5.5 (12170)	5.2 (11340)	4.9 (10500)	4.6 (9840)	4.4 (9140)	4.2 (8480)	4.0 (7860)	3.8 (7280)	3.6 (6740)
8.3 t (18300 lb)	8.3 (18300)	8.3 (18300)	8.3 (18300)	7.7 (16970)	7.1 (15590)	6.5 (14390)	6.0 (13290)	5.6 (12300)	5.3 (11470)	5.0 (10640)	4.7 (9900)	4.5 (9200)	4.3 (8500)	4.1 (7800)	3.9 (7200)	3.7 (6800)
8.3 t (18300 lb)	8.3 (18300)	8.3 (18300)	8.3 (18300)	8.3 (18300)	7.7 (16970)	7.1 (15590)	6.5 (14390)	6.0 (13290)	5.6 (12300)	5.3 (11470)	5.0 (10640)	4.7 (9900)	4.5 (9200)	4.3 (8500)	4.1 (7800)	3.9 (7200)
8.3 t (18300 lb)	8.3 (18300)	8.3 (18300)	8.3 (18300)	8.3 (18300)	7.7 (16970)	7.1 (15590)	6.5 (14390)	6.0 (13290)	5.6 (12300)	5.3 (11470)	5.0 (10640)	4.7 (9900)	4.5 (9200)	4.3 (8500)	4.1 (7800)	3.9 (7200)
8.3 t (18300 lb)	8.3 (18300)	8.3 (18300)	8.3 (18300)	8.3 (18300)	7.7 (16970)	7.1 (15590)	6.5 (14390)	6.0 (13290)	5.6 (12300)	5.3 (11470)	5.0 (10640)	4.7 (9900)	4.5 (9200)	4.3 (8500)	4.1 (7800)	3.9 (7200)
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8.3 t (18300 lb)	8.3 (18300)	8.3 (18300)	8.3 (18300)	8.3 (18300)	7.7 (16970)	7.1 (15590)	6.5 (14390)	6.0 (13290)	5.6 (12300)	5.3 (11470)	5.0 (10640)	4.7 (9900)	4.5 (9200)	4.3 (8500)	4.1 (7800)	3.9 (7200)
8.3 t (18300 lb)	8.3 (18300)	8.3 (18300)	8.3 (18300)	8.3 (18300)	7.7 (16970)	7.1 (15590)	6.5 (14390)	6.0 (13290)	5.6 (12300)	5.3 (11470)	5.0 (10640)	4.7 (9900)	4.5 (9200)	4.3 (8500)	4.1 (7800)	3.9 (7200)
8.3 t (18300 lb)	8.3 (18300)	8.3 (18300)	8.3 (18300)	8.3 (18300)	7.7 (16970)	7.1 (15590)	6.5 (14390)	6.0 (13290)	5.6 (12300)	5.3 (11470)	5.0 (10640)	4.7 (9900)	4.5 (9200)	4.3 (8500)	4.1 (7800)	3.9 (7200)
8.3 t (18300 lb)	8.3 (18300)	8.3 (18300)	8.3 (18300)	8.3 (18300)	7.7 (16970)	7.1 (15590)	6.5 (14390)	6.0 (13290)	5.6 (12300)	5.3 (11470)	5.0 (10640)	4.7 (9900)	4.5 (9200)	4.3 (8500)	4.1 (7800)	3.9 (7200)
8.3 t (18300 lb)	8.3 (18300)	8.3 (18300)	8.3 (18300)	8.3 (18300)	7.7 (16970)	7.1 (15590)	6.5 (14390)	6.0 (13290)	5.6 (12300)	5.3 (11470)	5.0 (10640)	4.7 (9900)	4.5 (9200)	4.3 (8500)	4.1 (7800)	3.9 (7200)
8.3 t (18300 lb)	8.3 (18300)	8.3 (18300)	8.3 (18300)	8.3 (18300)	7.7 (16970)	7.1 (15590)	6.5 (14390)	6.0 (13290)	5.6 (12300)	5.3 (11470)	5.0 (10640)	4.7 (9900)	4.5 (9200)	4.3 (8500)	4.1 (7800)	3.9 (7200)
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8.3 t (18300 lb)	8.3 (18300)	8.3 (18300)	8.3 (18300)	8.3 (18300)	7.7 (16970)	7.1 (15590)	6.5 (14390)	6.0 (13290)	5.6 (12300)	5.3 (11470)	5.0 (10640)	4.7 (9900)	4.5 (9200)	4.3 (8500)	4.1 (7800)	3.9 (7200)
8.3 t (18300 lb)	8.3 (18300)	8.3 (18300)	8.3 (18300)	8.3 (18300)	7.7 (16970											