

MDT 178



product guide



features

- **Topless jib with maximum radius of 197 ft (60 m)**
- **17,637 lb (8 000 kg) maximum capacity**
- **197 ft (60 m) maximum operating hook radius**
- **3,307 lb (1 500 kg) capacity at 197 ft (60 m)**
- **Internal and external climbing with K mast**

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features

2



Patented counterjib design arrives as one compact package.



Jib is mounted as a complete assembly including all necessary wire rope for the hoist and trolley mechanisms. Three pins connect the jib and counter-jib to the turntable for rapid assembly.



K mast available as monoblock or panel mast with stepped pins for easy installation and instant visual inspection. Climbing mast available to allow you to climb with your jobsite.



Patented six knot jib design creates a lighter jib with enhanced capacities for improved performance.



Optional Vision cab provides aesthetic appeal and ergonomic comfort to the operator with a clear and unobstructed view.

MDT 178

specifications

3

Jib

82 ft (25 m – sections 1,2,3a) radius standard lattice jib. Patented six (6) knot design and joints. Catwalks in first two (2) 33 ft (10 m) sections for maintenance and easy access to sling points for erection and dismantling. Mounted as whole wired jib with hoist rope and trolley rope installed. One (1) pin and two (2) safety pins at connection point to counter-jib. Sling points welded on jib, *lifting beam and *slings optional with crane.

*Jib Extension

Optional base jib length of 98 ft (30 m – sections 1,2,3). Additional jib sections of 16 ft (5 m) available up to maximum jib length of 197 ft (60 m).

Counter-Jib

Patented design in one compact package. Two (2) pins at connection point to turntable. Inclined position of ballast holder ensures self-locking of ballast blocks. Welded sling points.

Counter-Jib Ballast (customer supplied)

Two (2) concrete block styles for various ballasting combinations according to jib length: 2,425 lb (1 100 kg) and 7,937 lb (3 600 kg). Blocks are designed for safe and easy placement on the ground during erection and dismantling. Blocks are common to the MDT City range.

*Cab

140C and 140S Vision cabs include heater, window vent, tinted glass, windshield wipers, sun visor, document case, side pocket, bottle holder, ergonomic seat with high back, adjustable armrests, height and seating with control units, front-to-back shifting and reclining back.

140C: 4.6 ft (1 400 mm) width, 7.2 ft (2 200 mm) height, and 5.3 ft (1 620 mm) depth.

140S: 4.6 ft (1 400 mm) width, 7.2 ft (2 200 mm) height, and 7.2 ft (2 180 mm) depth; air conditioning optional.

Controls

Dual axis joystick controls via umbilical cord at ground level. *Remote control with dual axis joysticks or in cab controls at seat available.

Reeving

SM for 2-part line application standard. *Optional 2-trolley or SM/DM block for 2 or 4-part line applications.

Electrical Requirement

480 volt, 60 Hz measured at the turntable.

*Anemometer & *Dialog Visu

Electronic wind speed meter to alert the operator of wind speed conditions. Requires Dialog Visu to display information. Crane can be operated with wind gusts up to 45 MPH (72 KPH). Dialog Visu displays height under hook, position of jib trolley, loads and overload moment, and wind speed.

*Denotes optional equipment

Swing

RVF 152 Optima + slewing mechanism with maximum swing speed of 0.8 RPM. Progressive control of speed with counter-slewing possible, anti-load swinging system makes aligning the load and jib easier.

Hoist

Grooved drum with electromagnetic safety brake. Progressive speed change according to the accelerating or decelerating ramps. Optima allows the hoist to adapt its speed to the weight of the load.

	33 LVF 20 Optima	*50 LVF 20 Optima	*50 LVF 20 GH Optima
Single Line Pull:	2.2 USt (2 t)	2.2 USt (2 t)	2.2 USt (2 t)
Line Speed:	243 ft/min (74 m/min)	400 ft/min (122 m/min)	374 ft/min (114 m/min)
Horse Power:	30 HP	50 HP	50 HP
Spooling Capacity:	951 ft (290 m)	1,191 ft (363 m)	1,985 ft (605 m)

Specification of quantity of hoist rope is dependent upon customer's requirements and mast height.

Trolley

7 DVF 4: 7 HP variable frequency hoist with 882 lb (400 kg) line pull and line speed of 259 ft/min (79 m/min). Progressive speed change according to acceleration or deceleration ramps controlled by the frequency converter.

*Optional Equipment

- * STANDARD NORTH AMERICAN SPECIFICATION: includes electric slip ring, 164 ft (50 m) cable 4G25 mm², 197 ft (60 m) jib, 50 LVF 20 Optima hoist, auxiliary power supply, 656 ft (200 m) hoist rope, Vision 140S cab with insulation, Dialog Visu, and anemometer
- * Electric slip ring
- * Jib radius 82-197 ft (25-60 m)
- * 2-Trolley hookblock
- * SM/DM Hook block
- * Dialog Visu
- * Vision 140S cab air conditioning
- * Motorized greasing
- * Auxiliary hoist for maintenance derrick

*Consult price list for additional options

NOTE: The information above is useful as a basic introduction to the crane. In no case may this serve as a substitute for the serial numbered manuals. Dimensions have been rounded to the nearest tenth.

specifications

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Mast

K mast in sizes of K400 (5.2 ft [1.6 m]) or K600 (6.6 ft [2 m]), panel or monoblock, and climbing or non-climbing available. Lengths of 10.9 ft (3.33 m), 16.4 ft (5 m), and 32.8 ft (10 m) available. Identification plates welded on each section to designate the type of mast and pin box to stow pins when not in use.

Mast nomenclature:

K – Series of mast with box angled members

M – Monoblock, non-climbing

R – Reinforced

MT – Monoblock & climbing

RMT – Reinforced, monoblock, climbing

Equipped with aluminum ladders and galvanized steel resting platforms in each section. Cast connections are secured with two double tapered pins.

*Tirax tool and *Tirax pins available for faster easier assembly.

Combinations of masts can allow free-standing height under hook (HUH) to increase.

*Climbing Equipment

Equipment available for both internal climbing and external climbing of both 5.2 ft (1.6 m) and 6.6 ft (2 m) mast. Internal climbing equipment sold separately: 20 HP hydraulic unit, jack, and collars. External climbing equipment sold separately: climbing cage, 20 HP hydraulic unit, yoke, and jack.













*Anchor Stools

Anchor stools to be used in combination with a concrete foundation.


Anchors P41A: permanent anchor, maximum free-standing HUH: 175.9 ft (53.6 m), for 5.2 ft (1.6 m) K mast.

Anchors P61A: permanent anchor, maximum free-standing HUH: 219.5 ft (66.9 m), for 6.6 ft (2 m) K mast.

Base Ballast

	K400	ZC 4230	H (ft)	135.2	102.4	69.6	36.7								
			H (m)	41.2	31.2	21.2	11.2								
			 Ust	88.2	82.7	77.2	77.2								
			 t	80	75	70	70								
	K400	ZD 4230	H (ft)	151.6	135.2	118.8	102.4	86.0	69.6	53.1	36.7				
			H (m)	46.2	41.2	36.2	31.2	26.2	21.2	16.2	11.2				
			 Ust	77.2	71.7	66.1	66.1	60.6	60.6	60.6	60.6	60.6			
			 t	70	65	60	60	55	55	55	55	55			
	K400	S 41 A	H (ft)	183.1	166.7	150.3	133.9	117.5	101.0	84.6	68.2				
			H (m)	55.8	50.8	45.8	40.8	35.8	30.8	25.8	20.8				
			 Ust	125.7	99.2	72.8	59.5	52.9	52.9	52.9	52.9	52.9			
			 t	114	90	66	54	48	48	48	48	48			
	K600	V 60 A	H (ft)	219.8	203.4	187.0	170.6	154.2	137.8	121.4	105.0	88.6	72.2	55.8	
			H (m)	67	62	57	52	47	42	37	32	27	22	17	
			 Ust	145.5	119.0	92.6	79.4	52.9	26.5	26.5	26.5	26.5	26.5	26.5	26.5
			 t	132	108	84	72	48	24	24	24	24	24	24	24

H = Height Under Hook (HUH)

 = Required ballast

*Chassis

Chassis available with square footprints of 14.8 ft (4.5 m) for K400 mast and 19.7 ft (6 m) for K600 mast. Composed of 2 metallic structures connected with a central mast-chassis and 4 struts for rigidity. A chassis can be placed on either straight or curved traveling equipment or metallic stools embedded into a concrete block.

Chassis S41A: square footprint of 5.2 ft (1.6 m), maximum free-standing HUH: 183.1 ft (55.8 m), maximum ballast 126 Ust (114 t), for 5.2 ft (1.6 m) K mast.

Chassis V60A: square footprint of 6.6 ft (2 m), maximum free-standing HUH: 219.8 ft (67 m), maximum ballast 146 Ust (132 t), for 6.6 ft (2 m) K mast.

*Cross Shaped Base

Cross shaped bases available with square footprints of 12.5 ft (3.8 m) and 14.8 ft (4.5 m). Composed of 2 beams and able to be placed on screw jacks with support plates, screw jacks with concrete blocks or traveling equipment.
























Cross ZC4230: square footprint of 12.5 ft (3.8 m), maximum free-standing HUH 135.2 ft (41.2 m), maximum ballast 88 Ust (80 t), for 5.2 ft (1.6 m) K mast.

Cross ZD4230: square footprint of 14.8 ft (4.5 m), maximum free-standing HUH 151.6 ft (46.2 m), maximum ballast 88 Ust (80 t), for 5.2 ft (1.6 m) K mast.

*Consult price list for additional options

component weights

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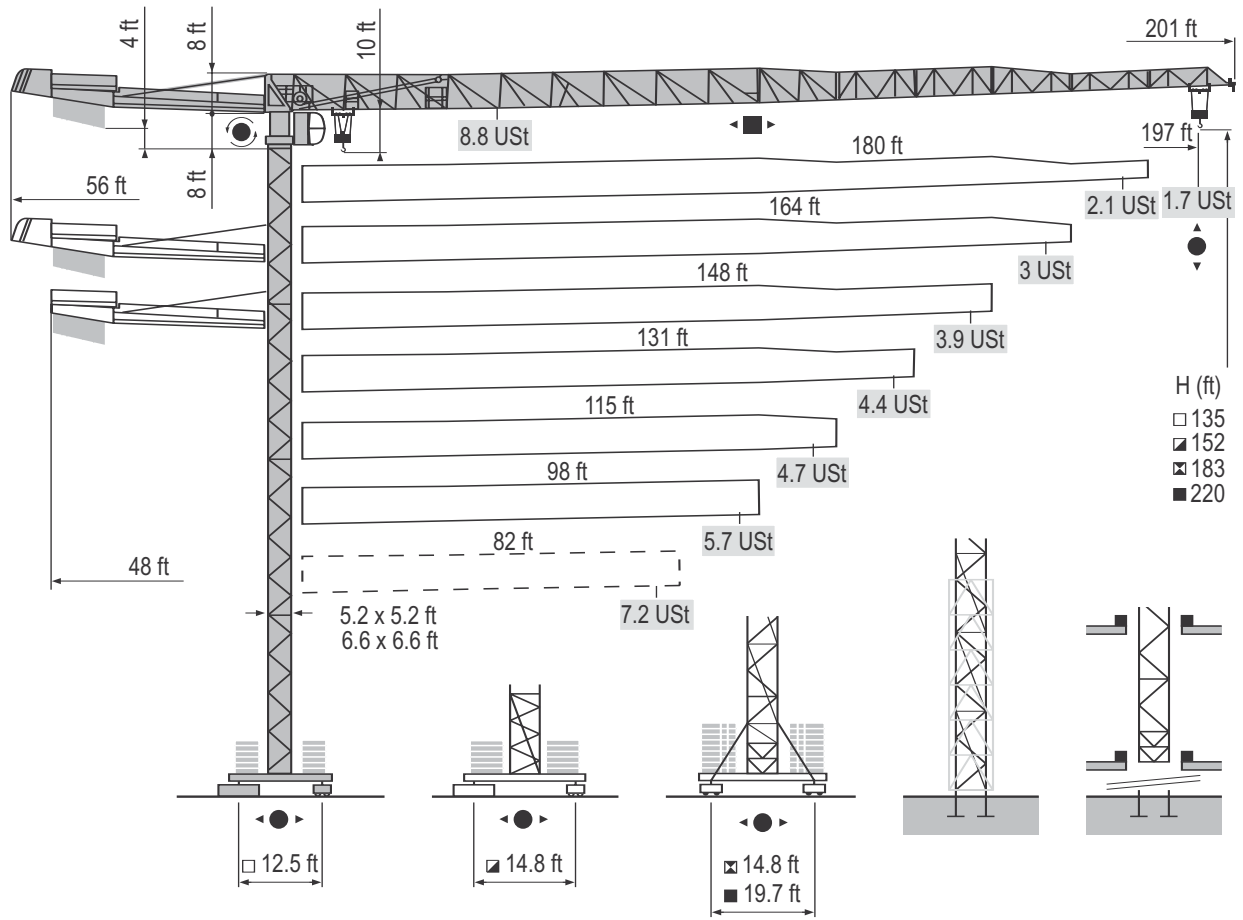
Component Weights						
Item	Qty.		l ft (m)	w ft (m)	h ft (m)	weight lb (kg)
1	1	Counter-jib 	39.0 (11.9)	5.3 (1.6)	8.2 (2.5)	11,343 (5 145)
2	1	Turntable 	14.4 (4.4)	7.0 (2.1)	8.9 (2.7)	11,773 (5 340)
3	1	Jib foot 	36.1 (11.0)	9.6 (2.9)	8.6 (2.6)	5,798 (2 630)
4	1	Jib sections 	33.5 (10.2)	3.4 (1.1)	7.7 (2.4)	3,208 (1 455)
	1		33.4 (10.2)	3.4 (1.1)	7.7 (2.4)	2,359 (1 070)
	1		17.0 (5.2)	3.4 (1.1)	7.6 (2.3)	992 (450)
	1		17.1 (5.2)	3.4 (1.1)	7.7 (2.3)	1,316 (597)
	1		17.0 (5.2)	3.4 (1.1)	7.6 (2.3)	1,268 (575)
	1		17.0 (5.2)	3.4 (1.1)	6.2 (1.9)	794 (360)
	1		16.9 (5.1)	3.4 (1.1)	6.2 (1.9)	739 (335)
	1		16.9 (5.2)	3.4 (1.1)	6.2 (1.9)	617 (280)
	1		16.9 (5.2)	3.4 (1.1)	3.9 (1.2)	485 (220)
	1		16.7 (5.1)	3.6 (1.1)	3.9 (1.2)	397 (180)
5	1	Jib Trolley SM/DM 	5.2 (1.6)	4.3 (1.3)	3.0 (0.9)	617 (280)
6	1	Hookblock SM/DM 	3.0 (0.9)	0.8 (0.2)	4.6 (1.4)	617 (280)
7	1	Mast section K437E 	33.5 (10.2)	5.6 (1.7)	5.2 (1.6)	7,474 (3 390)
8		Mast section K439A 	17.1 (5.2)	5.6 (1.7)	5.2 (1.6)	4,916 (2 230)
9	1	Mast section K437C 	11.5 (3.5)	5.6 (1.7)	5.2 (1.6)	2,998 (1 360)
10	1	Fixing angle P41A 	1.2 (0.4)	1.2 (0.4)	3.7 (1.1)	293 (133)
11	1	Cross shaped base: ZD4230 (4.5 m) 	21.7 (6.6)	2.6 (0.8)	3.6 (1.1)	4,034 (1 830)
	1		21.7 (6.6)	1.6 (0.5)	4.3 (1.3)	4,707 (2 135)
12	1	Ballast: Upperworks (CAV 1 100 kg) 	0.8 (0.2)	2.4 (0.7)	9.4 (2.9)	2,425 (1 100)
	1	Ballast: Upperworks (CAU 3 600 kg) 	2.6 (0.8)	2.4 (0.7)	9.2 (2.8)	7,937 (3 600)

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dimensions

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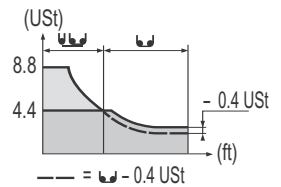
MDT 178

THIS CHART IS ONLY A GUIDE AND SHOULD NOT BE USED TO OPERATE THE CRANE. The individual crane's load chart, operating instructions and other instructional plates must be read and understood prior to operating the crane.

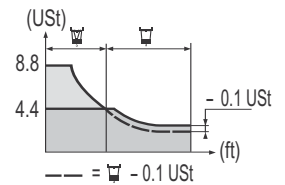
load charts

7

197 ft	10	▶	47	49	56	66	72	83	90	98	105	115	121	131	138	148	154	164	171	180	187	197	ft
▲▲▲			8.8	8.3	7.2	5.9	5.2	4.4	4.4	4	3.6	3.3	3.1	2.8	2.6	2.4	2.3	2.1	2	1.9	1.8	1.7	USt
180 ft	10	▶		51	56	66	72	82	91	98	105	115	121	131	138	148	154	164	171	180	ft		
▲▲▲				8.8	7.9	6.5	5.8	5	4.4	4.4	4.1	3.6	3.4	3.1	3	2.7	2.5	2.4	2.3	2.1	USt		
164 ft	10	▶			61	66	72	82	89	98	108	118	121	131	138	148	154	164	ft				
▲▲▲					8.8	8.2	7.3	6.2	5.6	5	4.4	4.4	4.3	3.9	3.6	3.4	3.2	3	USt				
148 ft	10	▶			68	72	82	89	98	105	115	121	132	138	148	ft							
▲▲▲					8.8	8.3	7.1	6.5	5.7	5.3	4.7	4.4	4.4	4.2	3.9	USt							
131 ft	10	▶			68	72	82	89	98	105	115	121	131	ft									
▲▲▲					8.8	8.2	7.1	6.4	5.7	5.3	4.7	4.4	4.4	USt									
115 ft	10	▶			68	72	82	89	98	105	115	ft											
▲▲▲					8.8	8.3	7.2	6.5	5.7	5.3	4.7	USt											
98 ft	10	▶			68	72	82	89	98	ft													
▲▲▲					8.8	8.3	7.2	6.5	5.7	USt													



197 ft	8	▶	48	49	56	66	72	85	87	98	105	115	121	131	138	148	154	164	171	180	187	197	ft
▲▲▲			8.8	8.5	7.4	6.1	5.4	4.4	4.4	3.7	3.5	3.1	2.9	2.6	2.4	2.3	2.1	1.9	1.8	1.7	1.6	1.5	USt
180 ft	8	▶		52	56	66	72	82	93	95	105	115	121	131	138	148	154	164	171	180	ft		
▲▲▲				8.8	8.2	6.7	6.1	5.2	4.4	4.4	3.9	3.5	3.3	3	2.8	2.5	2.4	2.2	2.1	1.9	USt		
164 ft	8	▶			62	66	72	82	89	98	105	112	114	121	131	138	148	154	164	ft			
▲▲▲					8.8	8.3	7.4	6.4	5.8	5.2	4.7	4.4	4.4	4.1	3.7	3.5	3.2	3	2.8	USt			
148 ft	8	▶			69	72	82	89	98	105	115	125	128	131	138	148	ft						
▲▲▲					8.8	8.4	7.3	6.6	5.8	5.4	4.9	4.4	4.4	4.3	4	3.7	USt						
131 ft	8	▶			70	72	82	89	98	105	115	126	129	131	ft								
▲▲▲					8.8	8.5	7.4	6.7	6	5.5	5	4.4	4.4	4.3	USt								
115 ft	8	▶			70	72	82	89	98	105	115	ft											
▲▲▲					8	7.7	6.7	6.1	5.4	5	4.5	USt											
98 ft	8	▶			70	72	82	89	98	ft													
▲▲▲					8.8	8.5	7.4	6.7	6	USt													



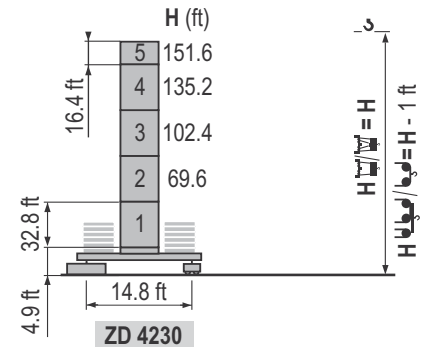
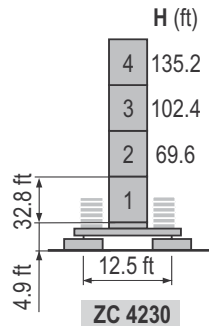
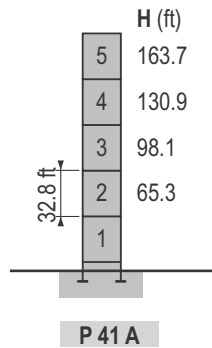
NOTE: Illustrated hook heights on this page were determined using the FEM 1.001. Configurations shown may include optional equipment. Other codes may require reduction in configurations.

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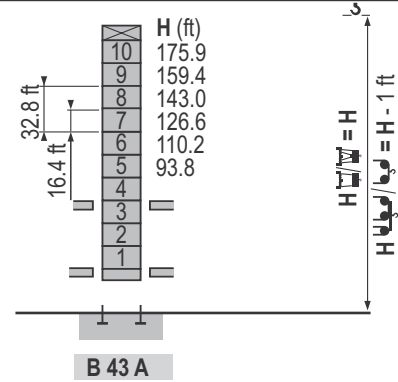
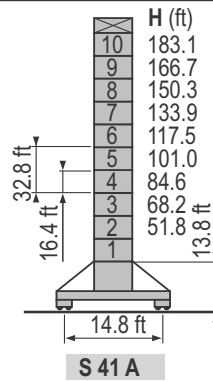
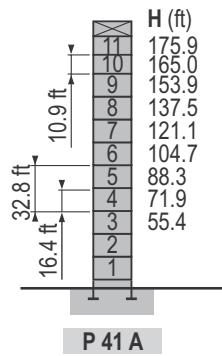
mast

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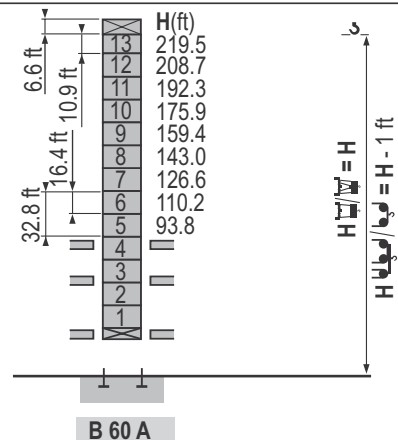
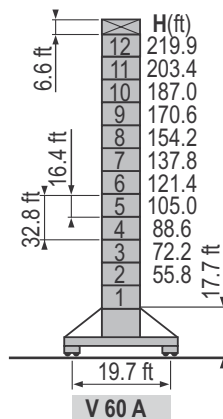
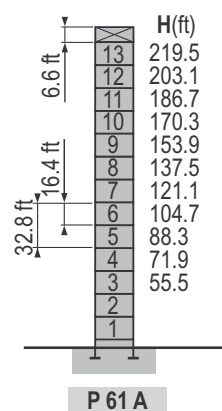
City K400 Mast



Climbing K400 Mast











Climbing K600 Mast

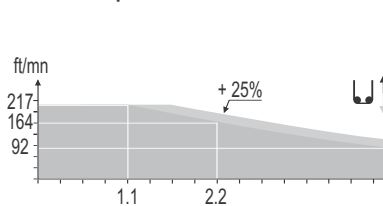


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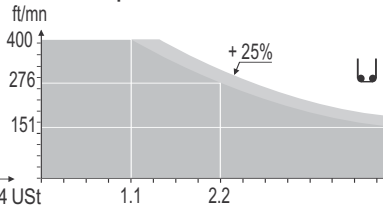
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		U					UU					ch - PS hp	kW				
	33 LVF 20 Optima	ft/min	7	29	92	118	164	243	4	14	46	59	82	121	30	22	951 ft
		USt	4.4	4.4	4.4	3.3	2.2	1.1	8.8	8.8	8.8	6.6	4.4	2.2			
	50 LVF 20 Optima	ft/min	12	49	151	190	276	400	6	24	75	95	138	200	50	37	1,191 ft
		USt	4.4	4.4	4.4	3.3	2.2	1.1	8.8	8.8	8.8	6.6	4.4	2.2			
	50 LVF 20 GH Optima	ft/min	12	138	184	276	374	6	69	92	138	187	50	37	1,985 ft		
		USt	4.4	4.4	3.3	2.2	1.1	8.8	8.8	6.6	4.4	2.2					
	7 DVF 4	ft/min	0 → 259									6,5	4,8				
	RVF 152 Optima +	tr/min U/min rpm	0 → 0,8									2 x 5,5	2 x 4				
	ZC 4230 ZD 4230	RT 324	ft/min 41 - 82									2 x 7	2 x 5,2				
	S 41 A	RT 443 A1 2V R ≥ 10 m	ft/min 49 - 98									4 x 5	4 x 3,7				
	V 60 A	RT 544 A1 2V R ≥ 13 m	ft/min 44 - 89									4 x 7	4 x 5,2				
CEI 38 						IEC 38						kVA					
400 V (+6% -10%) 50 Hz												33 LVF : 50 kVA 50 LVF : 65 kVA					

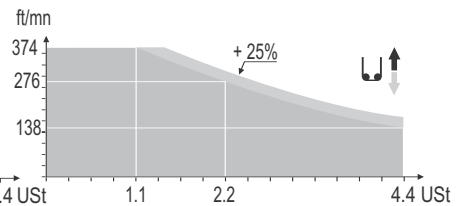
33 LVF 20 Optima



50 LVF 20 Optima



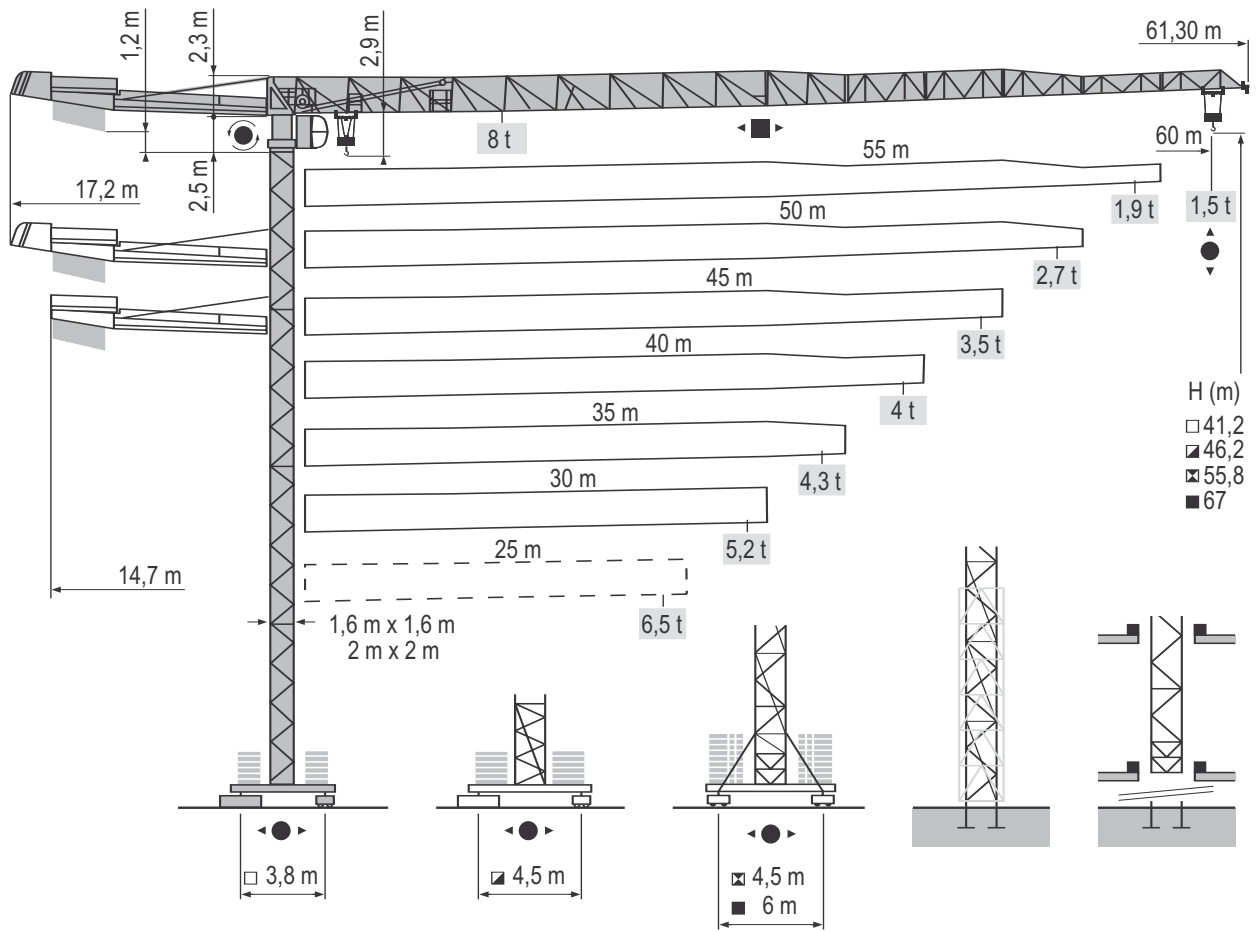
50 LVF 20 GH Optima



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metric dimensions

10



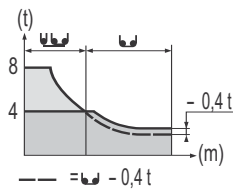
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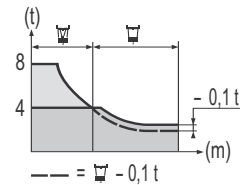
metric load charts

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60 m	3,1	▶	14,3	15	17	20	22	25,2	27,4	30	32	35	37	40	42	45	47	50	52	55	57	60 m
▲▲▲			8	7,5	6,5	5,3	4,7	4	4	3,6	3,3	3	2,8	2,55	2,4	2,2	2,05	1,9	1,8	1,7	1,6	1,5 t
55 m	3,1	▶		15,6	17	20	22	25	27,6	29,9	32	35	37	40	42	45	47	50	52	55 m		
▲▲▲				8	7,2	5,9	5,3	4,5	4	4	3,7	3,3	3,1	2,8	2,7	2,45	2,3	2,15	2,05	1,9 t		
50 m	3,1	▶			18,6	20	22	25	27	30	33	35,9	37	40	42	45	47	50 m				
▲▲▲					8	7,4	6,6	5,6	5,1	4,5	4	4	3,9	3,5	3,3	3,1	2,9	2,7 t				
45 m	3,1	▶				20,8	22	25	27	30	32	35	36,9	40,1	42	45 m						
▲▲▲						8	7,5	6,4	5,9	5,2	4,8	4,3	4	4	3,8	3,5 t						
40 m	3,1	▶					20,7	22	25	27	30	32	35	36,8	40 m							
▲▲▲							8	7,4	6,4	5,8	5,2	4,8	4,3	4	4 t							
35 m	3,1	▶						20,8	22	25	27	30	32	35 m								
▲▲▲								8	7,5	6,5	5,9	5,2	4,8	4,3 t								
30 m	3,1	▶							20,8	22	25	27	30 m									
▲▲▲									8	7,5	6,5	5,9	5,2 t									



60 m	2,4	▶	14,5	15	17	20	22	26	26,5	30	32	35	37	40	42	45	47	50	52	55	57	60 m
▲▲▲			8	7,7	6,7	5,5	4,9	4	4	3,4	3,2	2,8	2,6	2,4	2,2	2,05	1,9	1,75	1,65	1,55	1,45	1,35 t
55 m	2,4	▶		15,8	17	20	22	25	28,4	29	32	35	37	40	42	45	47	50	52	55 m		
▲▲▲				8	7,4	6,1	5,5	4,7	4	4	3,5	3,2	3	2,7	2,5	2,3	2,2	2	1,9	1,75 t		
50 m	2,4	▶			18,9	20	22	25	27	30	32	34,1	34,8	37	40	42	45	47	50 m			
▲▲▲					8	7,5	6,7	5,8	5,3	4,7	4,3	4	4	3,7	3,4	3,2	2,9	2,75	2,55 t			
45 m	2,4	▶				21,1	22	25	27	30	32	35	38,2	38,9	40	42	45 m					
▲▲▲						8	7,6	6,6	6	5,3	4,9	4,4	4	4	3,9	3,6	3,35 t					
40 m	2,4	▶					21,3	22	25	27	30	32	35	38,4	39,2	40 m						
▲▲▲							8	7,7	6,7	6,1	5,4	5	4,5	4	4	3,9 t						
35 m	2,4	▶						21,4	22	25	27	30	32	35 m								
▲▲▲								8	7,7	6,7	6,1	5,4	5	4,5 t								
30 m	2,4	▶							21,4	22	25	27	30 m									
▲▲▲									8	7,7	6,7	6,1	5,4 t									



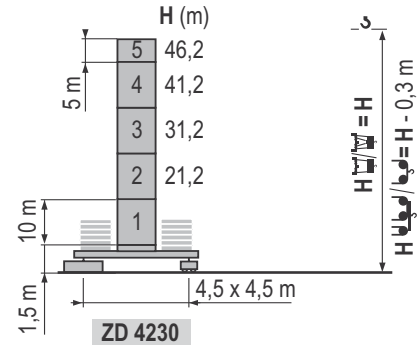
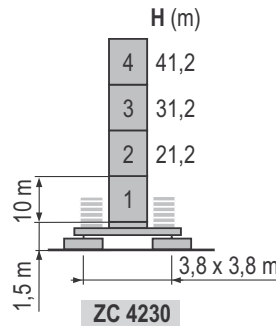
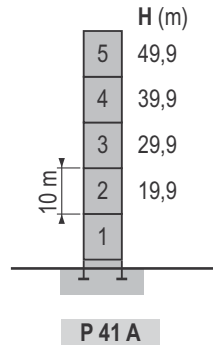
NOTE: Illustrated hook heights on this page were determined using the FEM 1.001. Configurations shown may include optional equipment. Other codes may require reduction in configurations.

MDT 178

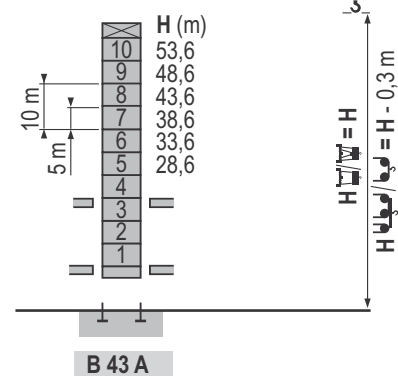
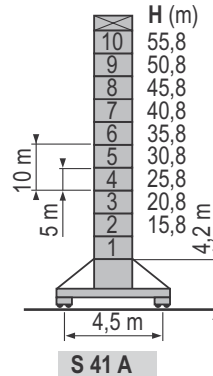
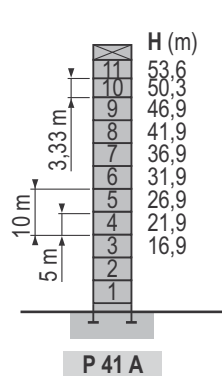
metric mast

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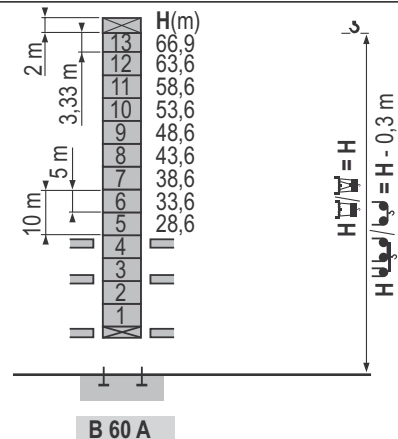
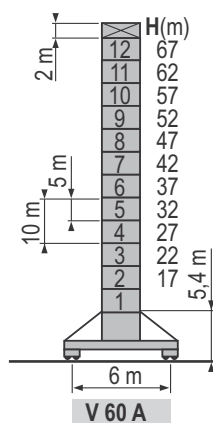
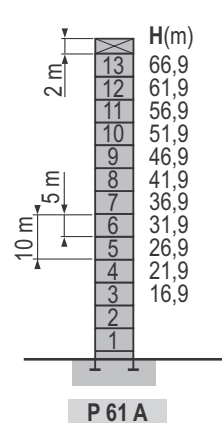
City K400 Mast



Climbing K400 Mast



Climbing K600 Mast





MDT 178

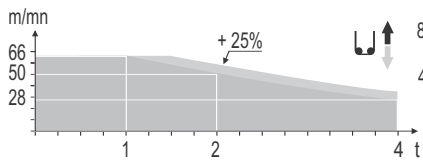
THIS CHART IS ONLY A GUIDE AND SHOULD NOT BE USED TO OPERATE THE CRANE. The individual crane's load chart, operating instructions and other instructional plates must be read and understood prior to operating the crane.

metric mechanisms

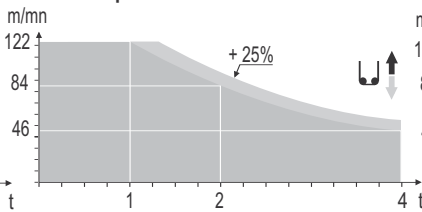
13

		♂♂						♀♀						ch - PS hp	kW												
▲	33 LVF 20 Optima	m/min	2,2	→	8,8	→	28	→	36	→	50	→	74	1,1	→	4,4	→	14	→	18	→	25	→	37	30	22	290 m
		t	4		4		4		3		2		1	8		8		8		6		4		2			
	50 LVF 20 Optima	m/min	3,8	→	14,8	→	46	→	58	→	84	→	122	1,9	→	7,4	→	23	→	29	→	42	→	61	50	37	363 m
		t	4		4		4		3		2		1	8		8		8		6		4		2			
	50 LVF 20 GH Optima	m/min	3,6	→	42	→	56	→	84	→	114	1,8	→	21	→	28	→	42	→	57	50	37	605 m				
		t	4		4		3		2		1	8		8		6		4		2							
◀ ▶	7 DVF 4	m/min	0 → 79										6,5	4,8													
⊙	RVF 152 Optima +	tr/min U/min rpm	0 → 0,8										2 x 5,5	2 x 4													
ZC 4230 ZD 4230	RT 324	m/min	12,5 - 25										2 x 7	2 x 5,2													
◀ ● ▶ IIII	S 41 A RT 443 A1 2V R ≥ 10 m	m/min	15 - 30										4 x 5	4 x 3,7													
◀ ● ▶ IIII	V 60 A RT 544 A1 2V R ≥ 13 m	m/min	13,5 - 27										4 x 7	4 x 5,2													
		CEI 38  IEC 38											kVA														
		400 V (+6% -10%) 50 Hz										33 LVF : 50 kVA 50 LVF : 65 kVA															

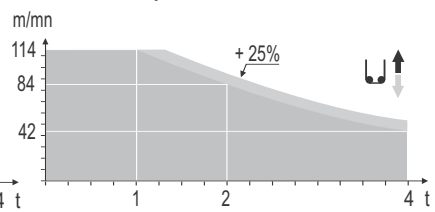
33 LVF 20 Optima



50 LVF 20 Optima



50 LVF 20 GH Optima



THIS CHART IS ONLY A GUIDE AND SHOULD NOT BE USED TO OPERATE THE CRANE. The individual crane's load chart, operating instructions and other instructional plates must be read and understood prior to operating the crane.

symbols glossary

14



Anchor Stools



Counter Jib



Jib



Swing



Anemometer



Cross-Shaped Base



Jib Extension



Traveling



Ballast



Curve Track Traveling Equipment



Mast



Traversing Trolley



Cab



Electrical Requirement



Reeving 2-Part



Traversing Trolley & Load Diagrams



Chassis



Hoist



Reeving 4-Part



Trolley



Climbing Equipment



Hoisting Mechanism



Straight Track Traveling Equipment



Weight in Base Ballast



Controls



Hydraulic Equipment

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Italy

Niella Tanaro

Portugal

Baltar

Fânzeres

Slovakia

Saris

U.S.A.

Manitowoc

Port Washington

Shady Grove

Constant improvement and engineering progress make it necessary that we reserve the right to make specification, equipment and price changes without notice. Illustrations shown may include optional equipment and accessories, and may not include all standard equipment.