

QAY130 ALL TERRAIN CRANE

I . Main Technical Features

1. Adopt electro-proportional control with computer IC control system, in which CAN-BUS technology is applied. The signals of electric components such as length sensor, angle sensor, and position sensor and joystick controls are transferred to computer by CAN-BUS for calculation. All the lifting information including crane work state and work procedure are shown on the display for operator to control the crane, easy and convenient for operation, safety and reliability in work.
 2. Pump controlled variable displacement hydraulic system of electro-proportional servo control, with partial output regulator and limit load adjustment, combined with electro- proportion control system, makes more accurate and precision for the crane control.
 3. Single cylinder automatic telescoping system realize boom section automatic extraction and extension according to desired work mode and logical program and telescoping real-time monitored by display of crane lifting information and keyboard input.
 4. U-shape boom profile not only increases boom strength but also reduces boom dead weight, and also improves lifting capacity. Boom twin-pin interlocking system ensures safety and reliability of crane lifting operation.
 5. Crane superstructure has its own independent power, Volvo new type water-cooling turbo-charged engine, power output optimized by CAN-BUS and computer IC control system according to boom load variation, power-saving.
 6. Crane carrier equipped with Cummins ISM440E20 engine, electronic injection, Euro II, powerful and well-performed drive.
 7. 5-axle all terrain crane chassis, off-road, equipped with advanced hydro-pneumatic suspension, all-wheel steering and multi-axle drive. The hydro-pneumatic suspension is adjustable for ground clearance to improve passing ability. The chassis features small turning diameter, strong off-road capacity, and auto-leveling based on road condition and auto-shifting based on travel speed.
 8. Black box function, crane work conditions real-time registered and monitored by computer in order to analyze and deal with troubles.
 9. Combined multi-slab counterweight promotes lifting capacity for mid-extended boom at large radius. The slewing ballasting cylinder is used for counterweight self-installation/ removal.
 10. Crane designed with advanced method of ANSYS, F.E.M. and dynamic simulating assembly etc., overall vehicle, boom, turntable, frame optimized to reduce the total vehicle mass in less than 60t, first time in China to equip with 5-axle chassis on more than 100t mobile crane.
- This crane is a high-tech product developed by us with our intellectual property and tens of China patents.

I . Main Technical Data for Lifting Operation

Category	Item		Unit	Parameter		
Lifting performance	Max. total rated lifting capacity		t	130		
	Min. rated working radius		m	3		
	Swing radius at turntable tail		mm	3958		
	Swing radius at counterweight tail		mm	4450		
	Swing radius at auxiliary winch tail		mm	4878		
	Max. load moment	Base boom		kN.m	4120 (4m×105t)	
		Full length boom		kN.m	1342(12m×11.4t)	
		Full length boom + jib		kN.m	1760(28m×6.41t)	
	Outrigger span (full-extended)	Longitudinal		m	8.0	
		Lateral		m	7.5	
	Lifting height	Base boom		m	12.2	
		Full length boom		m	50	
		Full length boom + jib		m	68.5	
	Boom length	Base boom		m	12.8	
Full length boom		m	50			
Full length boom + jib		m	70			
Jib offset				0° , 15° , 30°		
Working speed	Boom elevating time	Boom raising		s	60	
	Boom telescoping time	Full extension / Full retraction		s	420	
	Max. swing speed			r/min	2	
	Outrigger extending/ retracting time	Outrigger beam	Synchronous extending		s	30
			Synchronous retracting		s	25
		Outrigger jack	Synchronous extending		s	40
			Synchronous retracting		s	35
	Hoisting speed (single line on the 4th layer)	Main winch		m/min	100	
Auxiliary winch		m/min	100			
Noise limit	Cab exterior noise level		dB (A)	≤118		
	Noise at seated position		dB (A)	≤90		

II. Main Technical Data in Traveling State

Category	Item		Unit	Parameter	
Outline dimension	Overall length		mm	15028	
	Overall width		mm	3000	
	Overall height		mm	3990	
	Wheel base	Axle 1		mm	2750
		Axle 2		mm	1620
		Axle 3		mm	2000
		Axle 4		mm	1620
Track		mm	2610		
Weight	Dead weight in travel state		kg	57000	
	Axle load	Axle 1		kg	11000
		Axle 2		kg	11000
		Axle 3		kg	11000
		Axle 4		kg	12000
		Axle 5		kg	12000
Power	Engine rated power		kW/(r/min.)	324/1900	
	Engine rated torque		N.m/(r/min.)	2100/1200	
	Engine rated speed		r/min	1800	
Travel performance	Travel speed	Max. travel speed		km/h	76
		Min. travel speed		km/h	0~7.5
	Turning diameter	Min. turning diameter	Front-axle steering	m	24
			All-axle steering	m	18
		Min. turning diameter at boom head	Front-axle steering	m	29.6
			All-axle steering	m	23.6
	Min. ground clearance		mm	300	
	Approach angle			24°	
	Departure angle			17°	
	Braking distance (at 30 km/h)		m	≤10	
	Max. grade-ability			45%	

	Fuel consumption of 100 km	L	70
--	----------------------------	---	----

III. Main Parts Description

Boom Length Boom profile Telescoping Material	5 sections 12.8~50m “U”-shaped profile, powerful load bearing capacity. Automatic telescoping with single cylinder pinning mechanism. Imported WELDOX960 high strength steel.
Jib Structural Length Offset angle Material	2 sections 4-chord lattice type, good stability and light weight. 11.55~20m 0° , 15° , 30° 20Mn2 high strength seamless steel pipe.
Winch type Working speed	Main and auxiliary winch, with built-in planetary speed reducer and driven by imported fixed displacement piston motor. not less than 100m/min.
Swing gear type Working speed	Two-stage planetary speed reducer, exterior gearing engaged, easy for adjusting and maintenance, controllable free swing. 360° full swing, swing speed not less than 2r/min.
Elevating	Single cylinder for front support elevating, with imported counter-balance valve.
Outrigger type Span Material	H-shaped outrigger at front and rear. Lateral 7.5m, Longitudinal 8m Imported WELDOX960 high strength steel.
Hydraulic system Oil pump Control	Main pump is imported slant-shaft variable displacement pump, with power regulator, and load feedback sensing. Electronic proportional control system, easy and flexible to operate, precision control.
Safety devices	Computer integrated control, real-time display of working parameter, with overload and over-winding protection, hoist limit switch, outrigger lock and counterbalance valve.
Chassis	5-axle all terrain chassis, 4-axle drive and all axle steering, crab walk possible.
Engine	Superstructure engine: VOLVO TAD720VE, 162kW/2100rpm; Carrier engine: Cummins ISM440E20, 324kW/1800rpm, Euro II.
Transmission	Imported ZF automatic transmission, infinitely variable speeds.
Suspension system	Hydro-pneumatic suspension, with automatic leveling, manual raising / lowering and rigid locking, stroke of suspension ± 300 mm.

Main Parts:

Superstructure engine: VOLVO TAD720VE engine from Sweden.

Carrier engine: Cummins ISM440E20 engine.

Gear- box: 6HP900 , made by Germany ZF company

Axle: Made by Changjiang Axle factory

Hydraulic pump: Rexroth quadruple variable valve.

Winch: Rexroth planetary reducer and axial piston motor.

Swing gear: Rexroth planetary reducer and Guizhou Liyuan axial piston motor.

Wire rope: German wire rope.

Main hydraulic components are imported products.

Load moment limiter is of German PAT Co., Ltd.

IV. Lifting capacity table

Total Rated Load for Boom
 —Outrigger fully extended, 360° swing.

Radius (m)	Length (m)																	
	12.8	17	21.4	25.6	29.9	34.2	38.5	42.7	47	50								
3	130	99.4	75.5															
4	105	88.5	68.2	52.4														
5	76.7	70.8	62.1	48.2	42.6	31												
6	57.9	53.7	51	44.3	39.7	29.2	26.5											
7	47.1	43.8	41.6	39.3	37.1	27.3	25.2	19.2										
8	39.9	37.2	35.3	33.3	31.8	25.7	24	18	15.1									
9	34.7	32.5	30.8	29	27.7	23.6	22.8	17.2	14.2	12.6								
10		28.9	27.4	25.7	24.6	21.2	21	16.4	13.5	12								
12		23.7	22.5	21	20.1	19	17.4	15.2	12.6	11.4								
14			19.1	17.9	17.1	16.1	14.8	12.8	10.6	9.6								
16			16.7	15.5	14.9	14.1	12.8	11	9.1	8.2								
18				13.6	13.2	12.5	11.3	9.7	8	7.2								
20				11.8	11.3	11.2	10.2	8.7	7.2	6.5								
22					10.1	10.2	9.2	7.9	6.5	5.8								
24						8.6	8.5	7.2	5.9	5.3								
26						7.8	7.6	6.7	5.4	4.9								
28							6.8	6.0	5	4.5								
30							5.9	5.3	4.7	4.2								
32								4.5	4.4	4.0								
34								4.1	3.8	3.7								
36									3.3	3.3								
38									3.0	3.0								
40										2.6								
2 nd section (%)	0	0	46	46	92	46	92	46	46	92	92	46	92	92	92	92	92	100
3 rd section (%)	0	46	0	46	0	46	46	92	92	46	92	92	92	92	92	92	92	100
4 th section (%)	0	0	0	0	0	46	0	0	46	46	0	92	46	46	92	92	92	100
5 th section (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	46	0	46	92	100
Parts of line	12	10	7	6	5	4	3	2	2	2								
Hook block weight	1.61	1.41		0.99				0.71										

V. Total Rated Load for Jib

—Outrigger fully extended, 360° swing.

Boom (m)	38.5						42.7					
Jib (m)	11.55			20			11.55			20		
Offset (°)	0	15	30	0	15	30	0	15	30	0	15	30
Radius (m)												
8												
10	11						10.8					
12	10.1	7.2		5.27			9.81			5.1		
14	9.66	6.96	5.5	4.85			9.33	6.82		4.68		
16	9.2	6.64	5.38	4.5	3.16		8.67	6.49	5.31	4.33		
18	8.43	6.35	5.21	4.19	3.06		8.13	6.19	5.15	4.02	2.99	
20	7.92	6.09	5.06	3.91	2.91	2.3	7.59	5.92	4.98	3.75	2.84	
22	7.47	5.85	4.93	3.67	2.78	2.25	7.15	5.68	4.84	3.50	2.7	2.20
24	7.07	5.63	4.8	3.45	2.65	2.17	6.75	5.46	4.71	3.29	2.58	2.13
26	6.71	5.43	4.69	3.25	2.54	2.1	6.40	5.26	4.62	3.09	2.46	2.06
28	6.38	5.25	4.58	3.07	2.43	2.03	6.08	5.08	4.49	2.92	2.35	1.99
30	6.09	5.08	4.48	2.91	2.33	1.97	5.80	4.91	4.43	2.76	2.26	1.93
32	5.82	4.92	4.44	2.76	2.24	1.92	5.54	4.76	4.40	2.62	2.17	1.87
34	5.09	4.78	4.32	2.63	2.16	1.86	4.62	4.70	4.24	2.49	2.08	1.82
36	4.36	4.43	4.25	2.50	2.08	1.81	4.12	4.65	4.18	2.37	2.01	1.77
38	3.71	3.76	4.19	2.39	2.01	1.77	3.48	3.99	3.86	2.26	1.93	1.73
40	3.14	3.15	3.58	2.28	1.94	1.72	2.92	3.39	3.31	2.15	1.87	1.69
42	2.63	2.61	3.01	2.19	1.88	1.69	2.41	2.85	2.73	2.06	1.81	1.65
44			2.50	2.10	1.82	1.66	2.18	2.37	2.40	1.97	1.75	1.62
46				2.0	1.77	1.63	1.76	1.93	2.03	1.89	1.70	1.59
48					1.72	1.60				1.63	1.65	1.57
50						1.56				1.52	1.53	1.54
52										1.40	1.43	1.46
54												
2 nd section (%)	92			92			92					
3 rd section (%)	92			92			92					
4 th section (%)	46			92			92					
5 th section (%)	46			0			46					

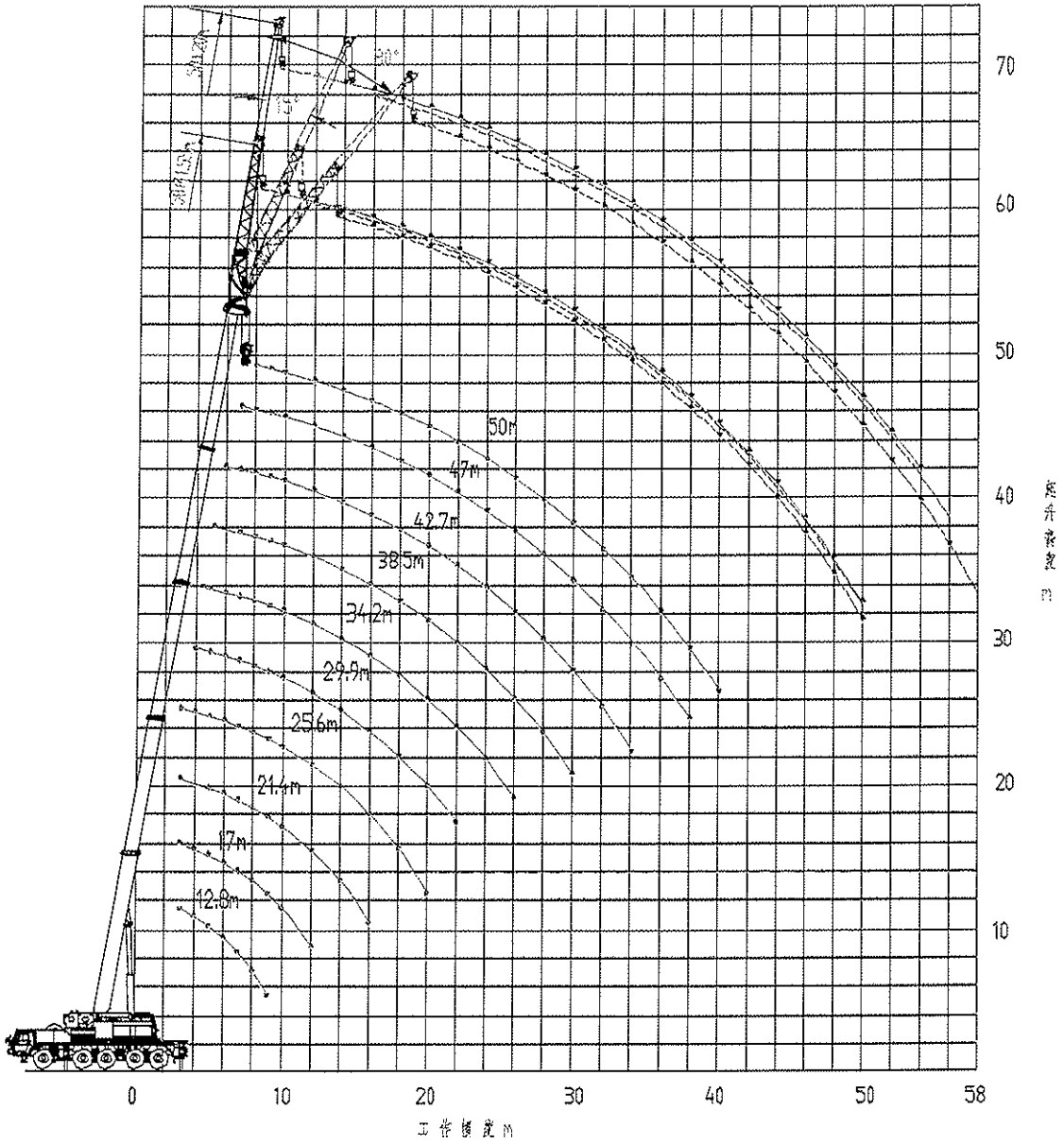
V.(extend) Total Rated Load for Jib (continued)

—Outrigger fully extended, 360° swing.

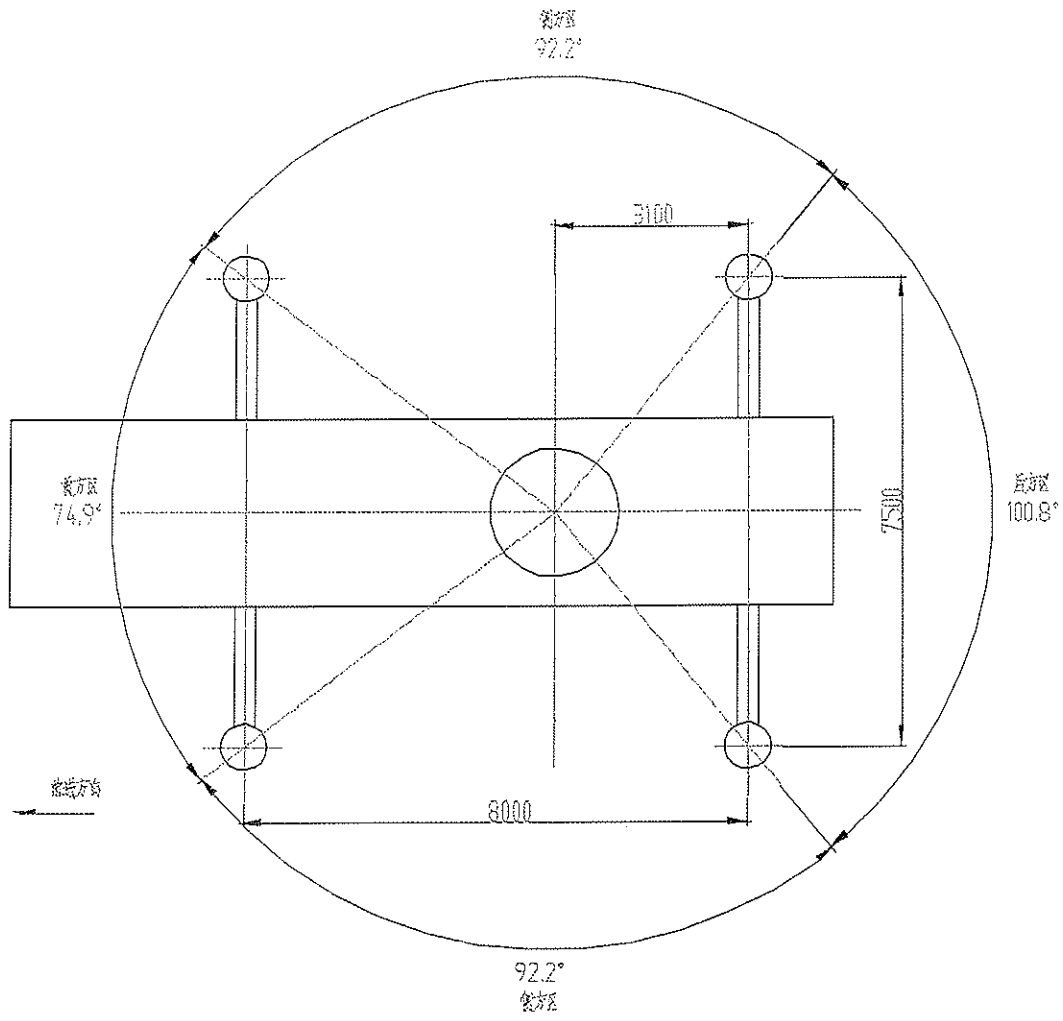
Boom (m)	47						50					
Jib (m)	11.55			20			11.55			20		
Offset (°)	0	15	30	0	15	30	0	15	30	0	15	30
Radius (m)												
10	10.0											
12	9.5	7.1		5.02			7.78			4.85		
14	9.37	6.79	5.45	4.67			7.30	6.75		4.5		
16	8.79	6.51	5.29	4.35	3.12		6.87	6.50	5.33	4.19	3.06	
18	8.28	6.25	5.14	4.08	2.98		6.53	6.35	5.19	3.91	2.91	
20	7.82	6.01	5.01	3.83	2.85	2.28	6.25	6.12	5.06	3.67	2.78	2.25
22	7.41	5.8	4.89	3.61	2.72	2.21	5.98	5.72	4.94	3.45	2.65	2.17
24	7.05	5.6	4.77	3.41	2.61	2.14	5.71	5.50	4.83	3.25	2.54	2.1
26	6.71	5.42	4.67	3.22	2.51	2.07	5.40	5.20	4.72	3.07	2.43	2.03
28	6.41	5.24	4.57	3.06	2.41	2.01	5.00	4.75	4.54	2.91	2.33	1.97
30	5.57	5.09	4.48	2.91	2.32	1.96	4.48	4.47	4.46	2.76	2.24	1.92
32	4.80	4.94	4.4	2.77	2.23	1.9	3.92	4.22	4.38	2.63	2.16	1.86
34	4.15	4.81	4.33	2.64	2.15	1.85	3.43	3.73	3.90	2.5	2.08	1.81
36	3.39	4.19	4.26	2.53	2.08	1.81	3.10	3.30	3.43	2.39	2.01	1.77
38	2.93	3.59	3.79	2.42	2.01	1.77	2.72	2.92	3.10	2.28	1.94	1.72
40	2.51	3.05	3.23	2.31	1.95	1.73	2.38	2.53	2.81	2.19	1.88	1.69
42	2.26	2.57	2.72	2.22	1.89	1.69	2.01	2.20	2.35	2.10	1.82	1.66
44	1.85	2.13	2.26	2.13	1.84	1.66	1.60	1.82	1.95	2.01	1.77	1.63
46	1.57	1.64	1.71	2.05	1.79	1.63		1.35	1.46	1.93	1.72	1.60
48		1.28	1.32	1.92	1.74	1.6				1.82	1.68	1.58
50				1.61	1.7	1.58				1.58	1.64	1.56
52				1.32	1.56	1.57				1.20	1.23	1.40
54					1.27	1.31						1.2
2 nd section (%)	92						100					
3 rd section (%)	92						100					
4 th section (%)	92						100					
5 th section (%)	92						100					

Notes:

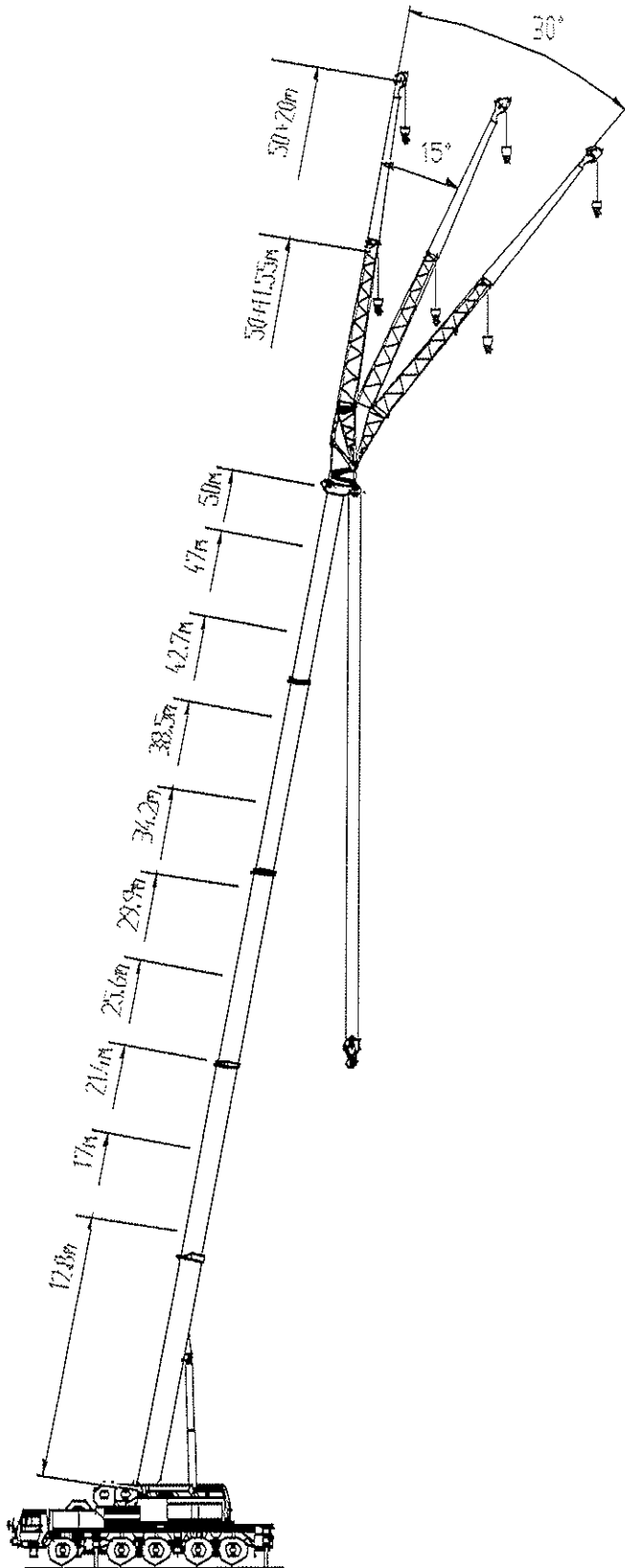
- ✧ The data given in the above tables are the maximum lifting capacity for the crane set up on level and firm ground, the figures above the bold lines are based on boom strength and those below the bold lines are based on crane stability. The total rated loads include the weight of hook block and slings. The unit of total rated load and the weight of hook block is ton.
- ✧ The working radii in the tables are the actual values including boom deflection under load. The radii in the table of total rated load for jib are for reference.
- ✧ The total rated loads for single top are the same as those for jib at 0° offset.
- ✧ The number of parts of line for jib is 1, and the load weight for auxiliary hook block is 0.46t.
- ✧ Only use the boom length in the above tables, the telescoping percentage for respective boom section must be in accordance with the data in the tables, for example, when boom length is 38.5m, only use 2nd section telescoping 92%, 3rd section telescoping 92%, 4th section telescoping 46% and 5th section telescoping 46%, or 2nd section telescoping 92%, 3rd section telescoping 92%, 4th section telescoping 92% and 5th section no telescoping.
- ✧ Lifting operation is allowable under the condition of less than wind force 5.
- ✧ The data in the boom total rated loads table are for the boom without jib, if with jib on boom head, the lifting loads should be reduced 3.5t.



QAY130 All Terrain Crane Lifting Height Curves



QAY130 All Terrain Crane Working Area



QAY130 All Terrain Crane in Lifting Operation

序号	项目	内容
1	下车发动机	康明斯
	型式	电控、直列、六缸、水冷、增压、中冷
	型号	ISM440E20
2	上车发动机	沃尔沃
	型式	直列六缸水冷 增压
	型号	TAD720VE
3	变速箱	ZF
	型式	液力自动箱
	型号	6HP900
4	驾驶室	湖北齐星
	型式	全头钢制
	乘员	2 人
	操纵室	徐工金属结构有限公司
	型式	大圆弧全钢可翻转
5	空调装置	徐州全兴空调汽配有限公司
6	车桥	凯斯兰
7	力矩限制器型号	IFLEX5
	生产厂	德国派特
8	油泵	博世力士乐
	型号	A8V0140
8	主、副卷扬	博世力士乐
	型号	GFT80W3
	主、副卷扬马达	博世力士乐
	型号	A2FE160 轴向柱塞马达
9	回转减速机	北京力士乐
	型号	GJB36T3
	回转马达	贵州力源
	型号	A2F28 轴向柱塞马达
10	变幅缸型式	单缸前支变幅

序号	项目	内容
	油缸生产厂	成都油缸厂
13	伸缩油缸型式	PLC 集成控制自动伸缩
	生产厂	成都油缸厂
14	车架结构型式	前段为“Z”形纵梁式结构，后段大箱形与小箱形结合的结构
14	车架材料	进口 WELDOX960 超高强度钢
15	转台结构型式	单板加筋加局部箱形
	转台材料	进口 WELDOX960 超高强度钢
	主臂结构及截面	“U”形臂
	主臂材料	进口 WELDOX960 超高强度钢
	伸缩方式	单缸插销式全自动伸缩
16	钢丝绳生产厂家	德国 DIEPA
	钢丝绳型号	D 1315CZ- 1960
17	悬挂形式	油气悬挂