

HB41A Truck-Mounted Concrete Pump



I . Parts and System

1. Carrier

The carrier is original 3-axle chassis imported from Isuzu, Japan; comply with Euro III emission standard, designed in accordance with heavy duty chassis, and suitable for tough road conditions on China construction site.

1.1 Driver's cab

Left-side steering wheel, 3 seats, electric tilted cab, with mechanical suspension system,

cab has cold/hot air-conditioner and defrost device, radio and CD player, electric door lock, and electric doors and windows

1.2 Engine

Model: 6WF1A

Type: 6-cylinder in-line, turbocharged, water-cooled and direct injection, inter-cooled, overhead camshaft, electronic-controlled common rail, diesel engine.

Environmental: comply with Euro III emission standard.

1.3 Transmission

Model: MAL6U

Type: 6 forward and overdrive speeds with lubrication oil cooler.

1.4 Tire

Type: 295/80R22.5RIBLUG

1.5 Axle

The first axle: single tire, steering but not drive;

The second axle: double tires, drive but not steering;

The third axle: double tires, drive but not steering.

1.6 Suspension system

Front suspension: half-elliptic alloy steel leaf spring, with two-way telescopic shock absorber;

Rear suspension: pivot type, half-elliptic alloy steel leaf spring.

1.7 Brake system

Service brake: full air, dual circuit, roller type, leading and trailing shoes for front and rear wheels, ABS (anti-block brake system), ABA (automatic adjusting brake lining clearance).

Parking brake: spring brake acting on rear wheel.

Secondary brake: exhaust brake system, electronic-controlled butterfly valve in exhaust pipe.

Others: air compressor with air dryer.

1.8 Frame

The frame is reinforced heavy-duty dual slot type beam, made of high-tensile steel.

2. Structural Parts

2.1 Placing boom

The placing boom design is optimized to realize highest level filling and highest efficient working, with reasonable distribution of load and space on each boom section; under the precondition to ensure boom overall length, the long initial boom length and short end boom length is realized, which makes compact boom structure, little vibration, flexible operation and wide material placing range. The boom can easily and quickly reach work position for quick location and flexible material placing. The main material uses WELDOX700E high- strength steel imported from Sweden.

2.2 Turntable

The turntable is board frame box type structure; the steel is from Sweden WELDOX700E, the upper is connected with placing boom, through slewing ring connected with swivel base, and may $\pm 270^\circ$ swing operation.

2.3 Swivel base

The swivel base is board frame box type structure, the steel is from Sweden WELDOX700E, the upper connected with slewing ring and the lower connected with sub-frame; the cavity has built-in hydraulic oil tank; the outrigger and extension cylinder articulated on the swivel base.

2.4 Outrigger

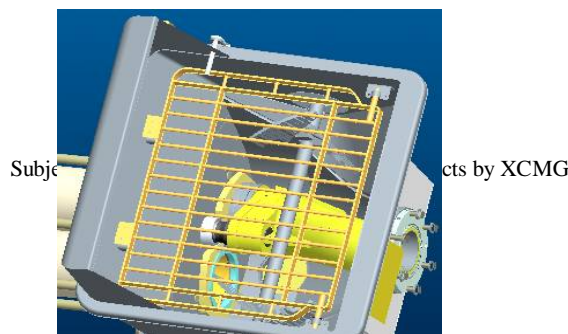
The outrigger is front "X" type with two-stage telescoping, the rear outrigger is folding, the cross-section is box type with reinforced structure, has built-in water tank.

2.5 Sub-frame

The sub-frame rear section has catwalks, the middle connected with central pump water tank, the rear connected with central pump hopper and upper/lower and left/right pedals; the main frame and sub-frame connected by connection part, the connection part welded with the sub-frame, and connected with the main frame by high-strength bolt; the sub-frame divided into front and rear two sections, the middle interval part for hydraulic piping.

2.6 Hopper

The hopper is new type hopper, with large pipe and large passing, considerably reduce pumping resistance, and increase suction sufficiency and absorption efficiency.



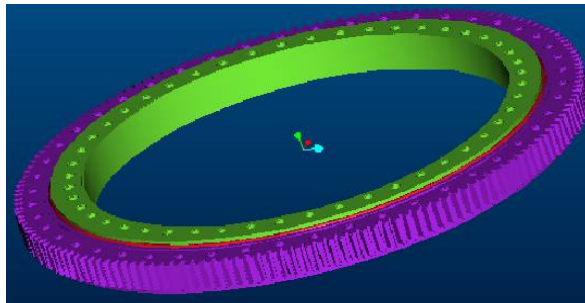
2.7 Delivery pipe

The delivery pipe is passageway for concrete pumping, use of casted high wear-resistance material, with high-frequency quenched inside surface, has a service life of 30,000m³.

3. Slewing System

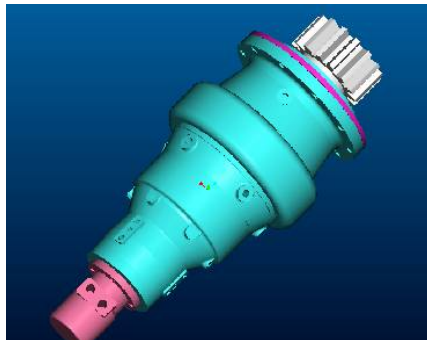
3.1 Slewing ring

The slewing ring is single-row cross roller external tooth meshed slewing ring, made by Xuzhou Rothe Erde, may 360° continues swing, the roller track is waterproof and dustproof.



3.2 Slewing reducer

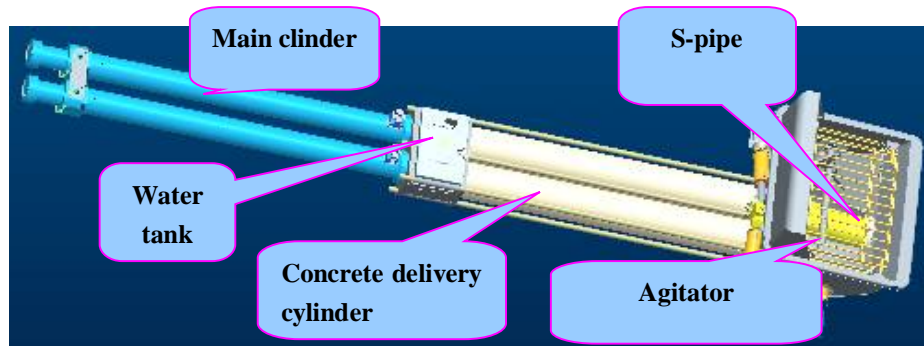
The slewing reducer is made by DINAMIC OIL, Italy, with 1st fixed shaft + 2nd shaft planetary reduction, features of compact structure, heavy load bearing capacity and high power drive efficiency. The slewing bearing is reinforced and in dual series type in order to increase service life.



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4. Central Pumping System

The central pumping system consists of pumping cylinder, water tank, concrete delivery cylinder and other parts. The pumping cylinder, water tank, concrete delivery cylinder, hopper are fixed together by lead-screw and connection bolt.



4.1 Main cylinder

The main cylinder guide sleeve seal is designed with XCMG patented seal, easy for assembly and disassembly, the guide sleeve seal can be replaced without removing the main cylinder, reduced replacement time, and which is unique to the industry.

4.2 Water tank

The water tank is full of water during pumping work, and it is used to cool and lubricate the piston head; while the central pumping system is connected with the sub-frame through the water tank.

4.3 Concrete delivery cylinder

The concrete delivery cylinder is used to suck concrete from the hopper and then pump out to delivery pipe, and it has special treatment on inside surface for high wear-resistance.

4.4 S-pipe

The S-pipe is floating seal structure, can automatically compensate wearing clearance for long service life. The drive shaft uses high-strength alloy steel 38CrMoAl with nitriding treatment, optimized structure, dispersed stress and long service life. The S-pipe can be guaranteed for a service life of 100,000 m³.

4.5 Agitator

The agitator uses single side motor for drive, the motor installation and positioning is ensured by the machining tolerance of flange and shaft, not by the adjustment of assembly. In operation, when replacing blade, S pipe and other components need removing motor, the motor is easy to be ensured for installation accuracy, avoid motor shaking and increase reliability for the work.

5. Hydraulic System

The main hydraulic oil pump and boom pump are imported from Rexroth, Germany, placing boom control valve, cylinder lock, high-pressure hose, hydraulic pipe fitting, solenoid valve, hydraulic valve, all use world-famous company's parts and components to ensure high reliability for our product.

The superstructure hydraulic system is closed type system to achieve the main functions of 5-section boom luffing, turntable slewing and outrigger telescoping. 5-section boom luffing and turntable slewing may have not only independent but also synchronized operation, with smooth work and little vibration.

The undercarriage hydraulic system is closed type system to achieve the main functions of concrete delivery, S-pipe direction change, concrete mixing, water pump cleaning and heat radiation; at the same time it has reverse pumping, agitator automatic reversion, displacement control and automatic high/low pressure switch-over, with smooth work and little vibration.

6. Electric System

The machine has a color screen, can dynamically display variable operating parameters and real-time record variable working history of each equipment, and has the function of fault warning and automatic cut-off.

The electric system is equipped with HBC remote control, easy for carrying and operation, integrated with multiple functions for realization of remote operation, increase convenience of operation, while with the industry's unique step-less remote control of pumping operation.

The system can realize automatic control of engine running speed and idle speed with energy-saving effect; and can realize automatic control of hydraulic oil temperature.

It is also equipped with GPS / GPRS for remote fault diagnosis and quick troubleshooting.

7. Centralized Lubrication System

The imported progressive lubrication system can give grease to each key lubrication point with point by point, by time and by quantity. The vehicle has a self maintenance mechanism

for longer service life.

The lubrication point: S pipe, agitator, delivery cylinder.

8. Cleaning System

The outrigger has a built-in water tank to avoid the lack of water on construction site; high-pressure water pump can facilitate after-work cleaning of pumping system, delivery pipe and overall vehicle.

9. Radiator System

The radiator is driven by hydraulic motor and has an automatic checking device; when the oil temperature reaches the system specified 55°C, the radiator motor starts running to reduce system oil temperature, so as to ensure the normal work of hydraulic system and increase the service life of hydraulic components.

II. Safety Protection System

1. Engine overload protection

The system has a power limit valve; when engine overload occurs, pump can automatically reduce delivery so as to avoid damage to the engine.

2. Engine low speed protection

The system has no pumping function when engine speed is lower than 800rpm, so as to avoid engine running with load at low speed, and prolong engine service life.

3. Main pump overload protection

The system has a pressure cut-off valve; the system pressure will reach the highest when pump is clogged; at this time main pump flow will automatically return to zero to avoid overflow heat loss; engine in low load state and delivery pressure pulsation impact is easy to resolve pipe clogging; if it has no pressure cut-off valve, the engine will be in max. load status and even shutdown, so as to reduce the engine service life.

4. Hydraulic oil automatic cooling

When hydraulic oil temperature reaches 55°C, the oil radiator sensor automatically turns on the cooling fan to bring oil temperature down; when the system temperature reaches 90°C, pump delivery is stopped in order to protect system parts from damage.

5. Pump suction protection

When oil level is too low or filter is dirty, a vacuum meter will give warning to indicate oil refilling or filter element replacing, greatly reduce the possibility of pump suction, and

increase the pump service life.

6. Agitator automatic reversion

During pumping work, if agitator blade is blocked by big stone, oil pressure goes up fast; at this time, the pressure relay switch sends a signal, the solenoid change valve has a direction change, and the agitator motor turns in reverse direction; after 1s~3s delay for the barrier taken off, the electro-magnet resets and the agitator motor turns in normal work, thus efficiently protect agitator motor and oil pump against damage.

7. Automatic centralized lubrication protection

The lubrication system can use thin hydraulic oil for lubrication when users forget to refill lubricating oil.

8. Anti-tipping safeguard protection

The installation of electronic level meter and pressure sensor is used to real-time monitor the pump truck inclination change, and the controller can carry out automatic analysis and judgment for truckload inclination and outrigger pressure for the possibility of overall machine tipping; when the longitudinal inclination exceeds 5° and lateral inclination exceeds 3°, or the inclination changes quickly during pumping work, the controller will give a warning.

The controller also can real-time monitor the force from each outrigger. When the force from outrigger is less than two, the controller can automatically send a warning signal and at the same time restrict boom operation, which increase the safety and intelligent level for pump truck operation.

III. Main Technical Specifications

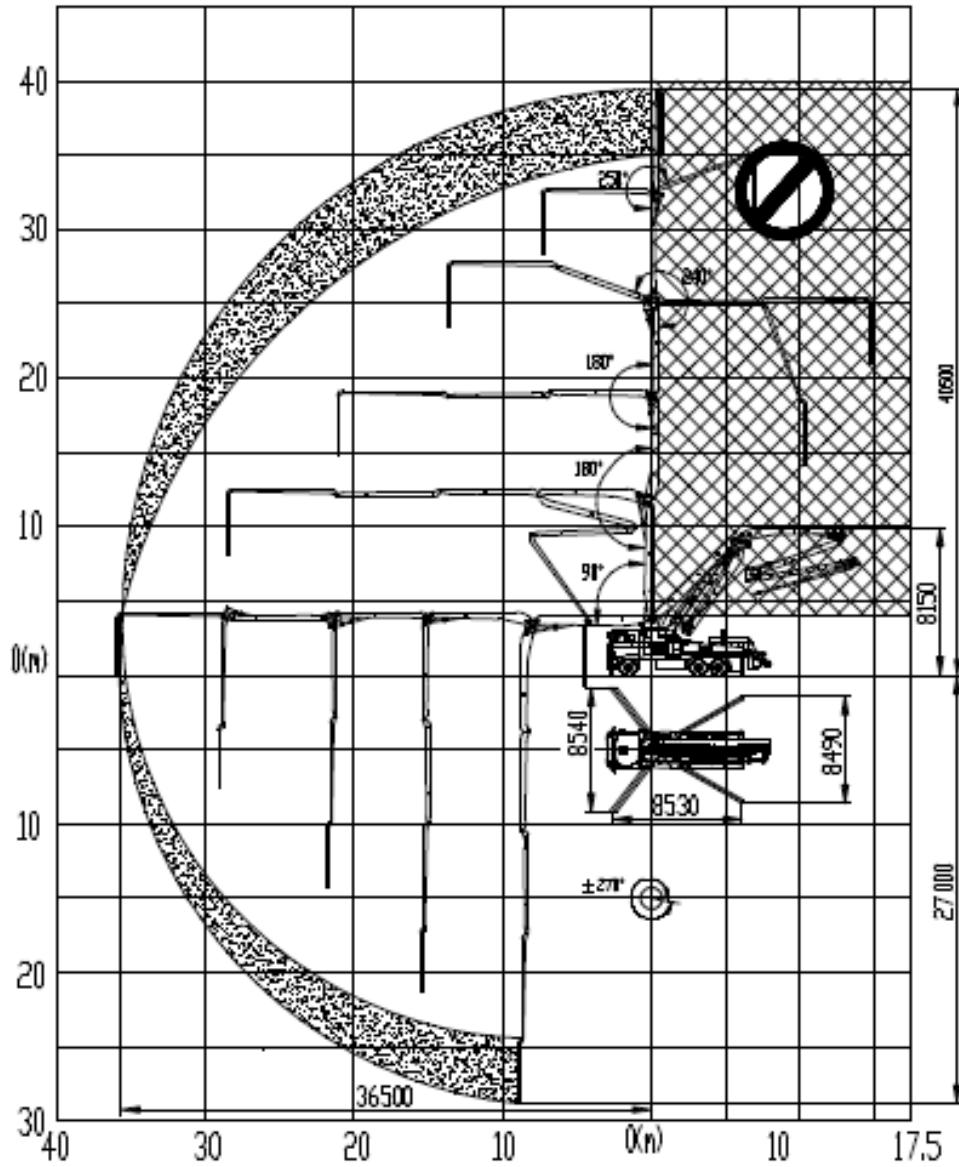
1). Technical data for travel

Category	Items	Unit	Parameter
Chassis	Model		CYZ 51Q
	Manufacturer		Isuzu, Japan
	Max. travel speed	km/h	85
	Max. grade-ability	%	34
	Min. turning diam.	m	17.6
	Braking distance	m	≤10
	Wheel base	mm	4595 + 1310
	Track (front/rear)	mm	2065/1850/1850
	Approach/Departure angle	°	23.5/10
	Min. ground clearance	mm	240
	Tire size		295/80R22.5
Engine	Model		6WF1A
	Output power	kw/(r/min)	265/1800
	Max. torque	N·m/(r/min)	1422/1100
	Displacement	L	14.256
	Engine emission		China III
Others	Outline dimension	L×W×H	11020×2500×3990
	Total vehicle mass	kg	32500
	Fuel tank capacity	L	400
	Fuel consumption of 100km	L/100km	40

2). Technical data for pumping operation

Category	Items		Unit	Parameter
Pumping system	Theoretical output (high/low pressure)		m ³ /h	90/150
	Theoretical delivery (high/low pressure)		MPa	13/8.1
	Theoretical cycle (high/low pressure)		cycle/min	15/24
	Delivery cylinder ID×Stroke		mm	Φ 260×2000
	Max. aggregate size		mm	40
	Concrete filling height		mm	1480
	Concrete slump		cm	12~23
Placing boom	Max. reach height		m	40.5
	Max. reach depth		m	27.0
	Slewing radius		m	41.3
	Slewing angle		°	±270°
	1st section unfolding angle		°	90°
	2nd section unfolding angle		°	180°
	3rd section unfolding angle		°	180°
	4th section unfolding angle		°	240°
	5th section unfolding angle		°	250°
Outrigger span	Outrigger longitudinal distance		mm	8530
	Normal work	Front outrigger lateral distance	mm	8540
		Rear outrigger lateral distance	mm	8490
	Half-side work	Front outrigger lateral distance	mm	5520
		Rear outrigger lateral distance	mm	5495
Others	Transfer tube			S-Valve
	Lubrication			Automatic lubrication
	Control type			Manual/Remote control
	Water tank capacity		L	700
	Water pump max. pressure		MPa	2

IV. Placing boom operation area



V. Main Parts List

No.	Name	Model	Data	Qty.	Manufacturer
1	Placing boom	Imported steel WELDOX700E		1	XCMG, BMC
2	Swivel base	Imported steel WELDOX700E		1	XCMG, BMC
3	Turntable	Imported steel WELDOX700E		1	XCMG, BMC
4	Outrigger	Imported steel WELDOX700E		1	XCMG, BMC
5	Slewing ring	011.40.1218.101...		1	Xuzhou Rothe Erde
6	Slewing gear	RE1023 TS...		1	DINAMIC OIL, Italy
7	Chassis	CYZ51Q		1	Isuzu, Japan
8	Transfer case	4496.21		1	STIEBEL, Germany
9	Boom pump	A7V055	55ml/r 38MPa	1	Rexroth, Germany
10	Quadruple pump	A4VG125...	125ml/r 42MPa	1	Rexroth, Germany
11	Superstructure multi-way valve	PSV4S1/400-3-38...	40MPa	1	HAWE, Germany
12	Undercarriage multi-way valve	SD5/4-P(KG4-250).../AE	25MPa	1	Walvoil, Italy
		SD5/4-P(SV)/18L.../AET-PSA		1	
13	Cleaning water pump	BZ-320	20L/min	1	Jiebao, Suzhou
14	Agitator motor	BM5-985K3AY	985ml/r	1	Zhongyi, Ningbo
15	High-pressure oil filter	28P-2-10QM298C2C21	10μ		Parker
16	Accumulator	SB330-10A1/112A-330A	10L 10MPa		Hydac, Germany
17	Radiator	BCFL5310.76-00	53kW	1	Helinde, Shanghai
18	Lubrication system	BV4+MX-F4+EP-S+FAZ02706-01		1	BEKA, or Weidong
19	Display	ST064-A-C-Y-06	Color 6.4 inch	1	Palfin
20	Controller	TTC PC1000	9~ 32VDC IP67	1	TTC, Italy

21	Remote control device	FST727A		1	HBC, Germany
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VI. Supplied Spare Parts List

No.	Name and Spec.	SAP Code	Unit	Qty.	Remarks
1	O ring 25×3.55G	801100120	piece	2	
2	O ring 37.5×2.65G	801100175	piece	1	
3	O ring 37.5×3.55G	801100040	piece	4	
4	O ring 40×2.65G	801100177	piece	1	
5	O ring 200×7.0G	801100301	piece	3	
6	O ring 258×7.0G	801100169	piece	1	
7	O ring 90×2.65G	801100056	piece	2	
8	O ring 100×5.3G	801100054	piece	1	
9	O ring 122×5.3G	801100073	piece	1	
10	O ring 47.5×3.55G	801100180	piece	1	
11	O ring 33.5×3.55G	801100144	piece	1	
12	O ring 265×5.3G	801100062	piece	2	
13	O ring 56×3.55G	801100222	piece	1	
14	O ring 69×3.55G	801100046	piece	1	
15	O ring 85×3.55G	801100295	piece	2	
16	O ring 272×7.0G	803107822	piece	2	
17	Y type seal ring 220×240	803107848	piece	3	
18	Support ring 220×225×24.5	800500001	piece	1	
19	Dustproof ring	803200400	piece	1	
20	Y type seal ring 120×100×16	803107861	piece	1	
21	Filter cartridge TFX-400×100	803169490	piece	1	
22	Filter cartridge G04268	803108676	piece	1	
23	Filter cartridge EF-108	803100124	piece	2	
24	Filter cartridge EF-109	803100125	piece	1	
25	BO-ZR10L/S Connector fitting	803111582	piece	1	
26	BO-ZR12L/S Connector fitting	803111028	piece	4	
27	BO-ZR12L Connector fitting	803111039	piece	4	
28	BO-ZR15L Connector fitting	803110641	piece	4	
29	BO-ZR18L Connector fitting	803111031	piece	4	
30	BO-ZR16S Connector fitting	803111291	piece	4	
31	BO-ZR20S Connector fitting	803111399	piece	4	

32	BO-ZR25S Connector fitting	803111042	piece	2	
33	BO-ZR25S Connector fitting	803111042	piece	2	
34	Tapered tube	150102268	piece	1	
35	Concrete seal	152601245	piece	2	
36	Seal ring	152601236	piece	2	
37	Wear-resistance sleeve	150102113	piece	1	
38	30° Bended tube	151301300	piece	1	
39	60° Bended tube	150702101	piece	1	
40	90° Bended tube	150102123	piece	2	
41	Φ 125 Pipe clamp	150102183	piece	2	
42	Φ 150 Pipe clamp	150102198	piece	1	
43	Cleaning ball	150102145	piece	1	
44	RH2B-U DC24V Relay	803602450	piece	2	
45	XS630B4PAL2 Access switch	803602570	piece	2	
46	Fuse 10A 5×20	803600932	piece	5	
47	Fuse 20A 5×20	803600934	piece	5	
48					
49					
50					
51					
52					

VII. Supplied Tools List

No.	Name and Spec.	SAP Code	Qty.	Remarks
1	NST-402 tools kit (Pump track)	819904746	1	
2	Inner-hexagon spanner 2.5	840500694	1	All the tools are packed in NST-402 tools kit (pump track).
3	Inner-hexagon spanner 3	840500695	1	
4	Inner-hexagon spanner 4	840500696	1	
5	Inner-hexagon spanner 5	840500268	1	
6	Inner-hexagon spanner 6	840500698	1	
7	Inner-hexagon spanner 8	840500699	1	
8	Inner-hexagon spanner 10	840500700	1	
9	Inner-hexagon spanner 12	840500701	1	
10	Inner-hexagon spanner 14	840500702	1	
11	Double-end spanner 6×7	840500452	1	
12	Double-end spanner 8×10	840500703	1	
13	Double-end spanner 12×14	840500689	1	
14	Double-end spanner 13×15	840500764	1	
15	Double-end spanner 16×18	840500208	1	
16	Double-end spanner 17×19	840500690	1	
17	Double-end spanner 22×24	840500766	1	
18	Double-end spanner 27×30	840500691	1	
19	Double-end spanner 32×36	840500692	1	
20	Double-end spanner 41×46	840500693	1	

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21	Double-end ring spanner 12×14	840500777	1
22	Double-end ring spanner 17×19	840500763	1
23	Cross-head screwdriver 100×6	840500767	1
24	Single-end spanner 65	840500228	1
25	Plain-head screwdriver 100×6	840500768	1
26	Square head hammer 0.5KG	801500802	1
27	Wire pliers L=150	840500674	1
28	Adjustable spanner 150×18	840500675	1
29	Adjustable spanner 300×36	840500676	1
30	Grease gun (lever type) 120CC	819904310	1
31	Socket spanner Socket 10	840500677	1
32	Socket spanner Socket 11	840500678	1
33	Socket spanner Socket 12	840500679	1
34	Socket spanner Socket 14	840500680	1
35	Socket spanner Socket 17	840500681	1
36	Socket spanner Socket 19	840500682	1
37	Socket spanner Socket 22	840500683	1
38	Socket spanner Socket 24	840500684	1
39	Socket spanner Socket 27	840500685	1
40	Socket spanner Socket 30	840500686	1
41	Socket spanner Socket 32	840500687	1
42	Ring ratchet spanner 10	840500688	1

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43	Sliding lever 10	801500777	1	
44	Quick crank 16-1/4	819904312	1	
45	Connection rod 5 inch	801500780	1	
46	Connection rod 10 inch	801500781	1	
47	Tire pressure gun GAS-1	819904311	1	
48	CQJ-BC Inflation tool	819904497	1	
49	AK-120 First-aid kit	839900454	1	
50	Brush 3	840500689	1	
51	SJB-50 Manual greasing pump	803000602	1	
52	Water pump supplied tools	803006927	1	Supplied by manufacturer
53	Chassis supplied tools	151001064	1	Attached chassis supplied tools list
54	Lever type information bag	819900607	1	

Note: Use SJB-50 manual greasing pump for Weidong lubrication system (803000602), use grease filler (208103026) for BEKA lubrication system, use manual greasing tool (803007351) for BIJUR lubrication system, select one of the three.

VIII. Packing List

No.	Name	Qty.	Package	Remarks
1	HB41A Truck-Mounted Concrete Pump	1	Nude packing	With 20L fuel in fuel tank
2	HB41A Product Certificate	1		
3	HB41A Operation Manual	1		
4	HB41A Maintenance Manual	1		
5	HB41A Parts Catalogue	1		
6	HB41A Supplied Tools List	1		
7	HB41A Supplied Tools	1	In iron case	
8	HB41A Supplied Spare Parts List			
9	HB41A Supplied Spare Parts	1	In wood case	
10	Chassis Packing List and Specified Documents	1	Original package	
11	Reducer Packing List and Specified Documents	1	Original package	
12	Transfer Case Packing List and Specified Documents	1	Original package	
13	Lubrication System Packing List and Specified Documents	1	Original package	
14	Cleaning Water Pump Packing List and Specified Documents	1	Original package	
15	Remote Control Operation Instructions, Product Certificate and Other Supplied Documents	1	Original package	

IX. 3000 Hour Easy Wear Parts List

Optional parts, not included in the total bid price

No.	Spare parts name	SAP Code	Qty.	Unit price (RMB)	Manufacturer
1	Luffing cylinder I balance valve	803002052	1	3705.16	OIL CONTROL
2	Luffing cylinder II balance valve	803002053	1	3705.16	OIL CONTROL
3	Luffing cylinder III balance valve	803002054	1	3705.16	OIL CONTROL
4	Luffing cylinder IV balance valve	803002055	1	3705.16	OIL CONTROL
5	Luffing cylinder V balance valve	803002055	1	3705.16	OIL CONTROL
6	Outrigger two-way hydraulic lock	803001667	4	1517.11	Jiujiang
7	Outrigger one-way hydraulic lock	803000213	4	1030.90	Jiujiang
8	High-pressure filter	803109595	1	4333.10	Helinde
9	Outrigger jack backpressure valve	803001591	4	933.89	HAWE
10	Front outrigger telescopic cylinderI	150602154	2	3510.00	Xuzhou Hydraulics
11	Front outrigger telescopic cylinderII	150501587	2	3188.25	Xuzhou Hydraulics
12	Outrigger jack cylinder	150501940	4	7875.56	Xuzhou Hydraulics
13	Rear outrigger slewing cylinder	150602156	2	2193.75	Xuzhou Hydraulics
14	Solenoid valve	803001633	2	821.34	Rexroth
15	Solenoid valve	803001634	1	1138.80	Rexroth
16	Speed limit lock	803000293	1	2187.90	Jiujiang
17	Proportional overflow valve	803002338	1	6471.86	HAWE
18	Shuttle valve	803001599	1	525.20	Rexroth
19	S-pipe assy.	152601233	1	7850.70	
20	Bearing ring assy.	150102095	1	1424.48	
21	Cutting ring	152601234	1	1950.00	
22	Spectacle plate	152601235	1	5362.50	
23	Y type seal ring	803107848	3	257.40	
24	Supporting ring	800500001	1	509.54	
25	Seal ring	152601236	2	23.84	
26	Supporting ring	152601244	1	82.06	
27	Concrete seal body	152601245	1	377.50	
28	Crank lever	152601263	1	1475.66	
29	Flange bearing	150102018	1	381.24	
30	Wear-resistance sleeve	150102113	1	555.75	
31	Retaining plate	150102078	2	24.69	
32	Retaining plate	150102079	2	25.26	
33	Ball type basement	150102114	4	96.91	
34	Supporting ring	150102112	1	25.01	
35	Y type seal ring	803107861	1	7.46	
36	O ring	801100056	2	0.78	

37	O ring	801100054	1	1.61	
38	O ring	801100073	1	1.76	
39	S-pipe drive cylinder	152601220	2	1997.78	
40	Flange assy.	152601264	1	418.28	
41	Flange bearing	152601268	1	303.44	
42	Nylon sleeve	150102328	2	25.45	
43	Nylon sleeve	152601269	1	69.25	
44	Clamp plate assy. 1	152601441	2	248.02	
45	Clamp plate assy. 2	152601442	2	248.02	
46	Y type seal ring	803107848	3	257.40	
47	Rubber washer	152601270	2	32.47	
48	Rubber washer	152601271	2	28.67	
49	Rubber washer	150102048	2	14.63	
50	Slewing motor	803000505	1	2807.77	
51	Seal ring	803108429	1	2.93	
52	Frame seal	803107826	1	3.74	
53	Flange	152601330	1	864.34	
54	3-way bended tube	150102122	1	1066.25	
55	Chain bended tube	152601331	1	1499.06	
56	Tapered tube	150102268	1	960.00	
57	Tapered tube	150601335	1	849.13	
58	Φ180 Tube clamp	150102181	3	191.25	
59	Φ150 Tube clamp	150102198	2	97.50	
60	Φ125 Tube clamp	150102183	40	83.74	
61	90°bended tube	150102123	1	269.10	
62	Bended tube	150501714	2	162.50	
63	Bended tube	151301300	1	225.01	
64	End hose	152601232	1	2062.51	
65	Relay	803602452	2	53.24	
66	Relay	803602450	2	56.28	
67	Relay	803602449	2	96.20	
68	Access switch	803602542	2	903.47	
69	Access switch	803602395	1	678.37	Schneider
70	Position limit switch	803602534	1	168.98	
71	Access switch	803602560	1	627.87	
72	Temperature sensor	803501025	1	2503.87	
73	Horn	803501002	1	165.03	
74	Fuse	803600934	10	0.65	
75	Fuse	803600933	10	0.65	
76	Fuse	803600932	10	0.61	
	Fuse	803600946	10	0.59	

