

HB46A Truck-Mounted Concrete Pump



HB46A is the “Sleeping berth” type truck-mounted concrete pump developed independently by our company, and has the “Environmental, Safe, Reliable and Advanced” quality to keep ahead of domestic same industry and keep pace with international advanced technology.

The carrier is CYZ51Y chassis from Isuzu, Japan, comply with Euro III emission control regulations, powerful output and torque, high efficiency and energy saving, and strong off-road ability.

5-section “RZ”-fold placing boom, is designed with FEM analysis for strength of variable cross-section, light weight, and each pivot is in optimized status with better stability, can carry out operation on narrow construction site.

The two slewing type outriggers have large span, with good work stability and high safety.

Use of dia. $\phi 260$ cylinder large displacement central pumping system, with max. theoretical displacement $150\text{m}^3/\text{h}$, less direction change frequency, 13 times of high-pressure and 22 times of low-pressure, advanced for the same boom-meter in same domestic industry.

Selection of international famous brand product for key parts and components (refer

to the main parts list for detail), with reliable quality, long service life and low cost for later user maintenance. Application of modern pump vehicle advanced technologies such as engine energy-saving, fault self diagnosis and intelligent tipping prevention, greatly improve operation safety and reliability, as well as the convenience for customer operation and maintenance.

I. Parts and System

1. Carrier

The carrier is original 4-axle chassis imported from Isuzu, Japan, comply with Euro III emission control regulations, designed in accordance with heavy duty chassis, and suitable for tough road conditions on China construction site.

2. Structural Part

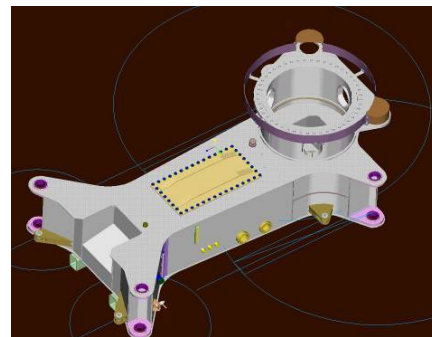
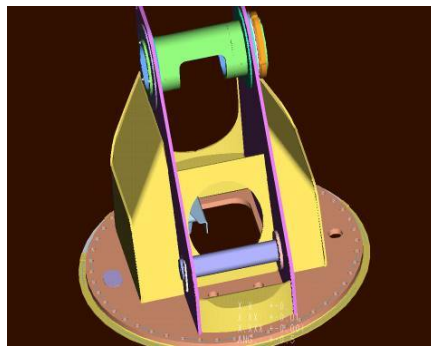
2.1 Placing boom

The placing boom is designed with FEM analysis for strength of variable cross-section, light weight, and each pivot is in optimized status with better stability, can carry out operation on narrow construction site.



2.2 Turntable

The turntable is board frame box type structure; the upper is connected with placing boom, through slewing ring connected with slewing basement, and may 370° swing operation.



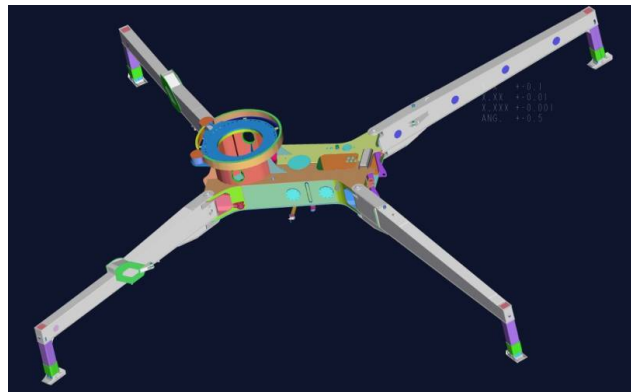
2.3 Slewing basement

The slewing basement is board frame box type structure, use of the steel imported from

Sweden, 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 slewing basement.

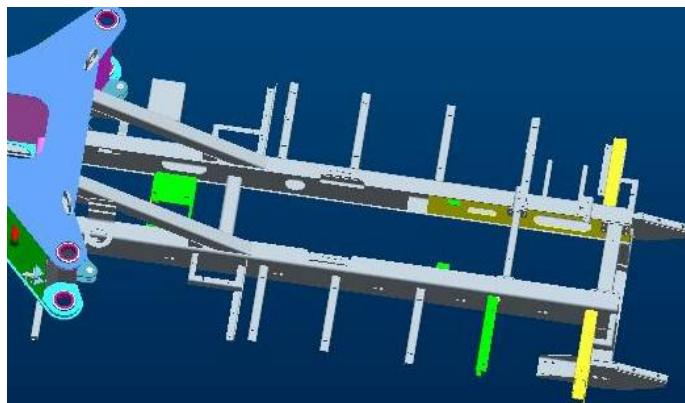
2.4 Outrigger

The front outrigger is forward folding and telescoping, the rear outrigger is folding, the cross-section is box type with reinforced structure, has built-in water tank.



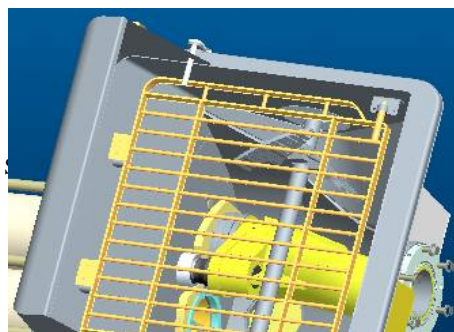
2.5 Sub-frame

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.



by XCMG

2.7 Delivery pipe

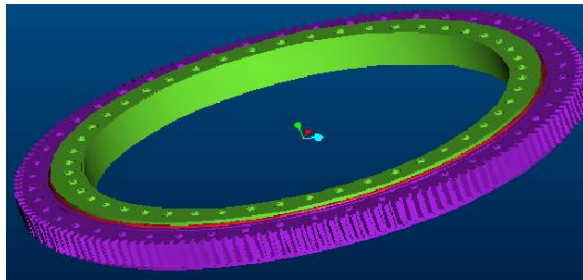
The delivery pipe is passageway for concrete pumping, use of casted high wear-resistance material, with high-frequency quenched inside surface, has a service life of 30,000m³.



3. Slewing Gear

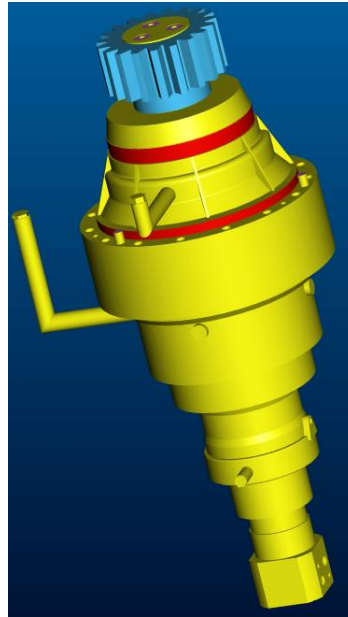
3.1 Slewing ring

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.



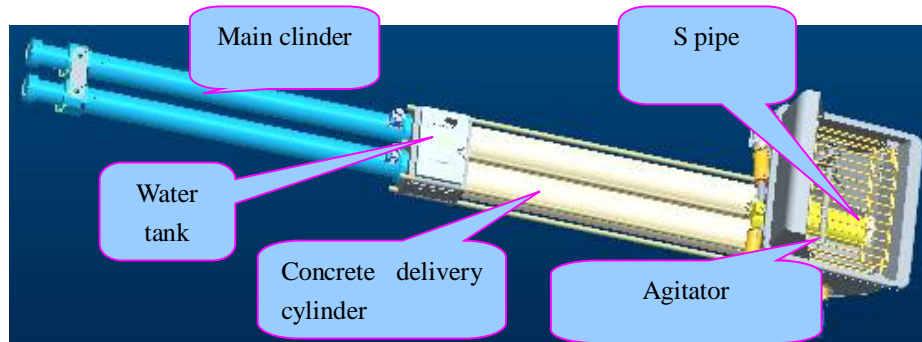
3.2 Slewing reducer

The slewing reducer is made by Italian Bonfiglioli company, 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.



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 pumping hydraulic system is the latest closed constant power variable displacement system, less pressure loss, little heating, no impact to direction change and smooth operation. The high-pressure automatic unloading system, when the main pump oil pressure exceeds 35MPa, can automatically reduce pumping pilot pressure to 1MPa below and automatically stop pumping, reduce energy loss and system heating, while the pulse shocking pressure can effectively solve the pipe clogging.

The placing boom hydraulic system is variable displacement pump with electro-hydraulic proportional remote control for load sensing system. The use of pilot pressure-relief balance valve makes the operation of control lever more convenient, flexible, good fine motion, less power loss, and smooth work and little vibration for placing boom operation.

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. 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.

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. Engine overload protection

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

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. 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.

6. 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.

7. Automatic centralized lubrication protection

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

III. Main Technical Specifications

1). Technical data for travel

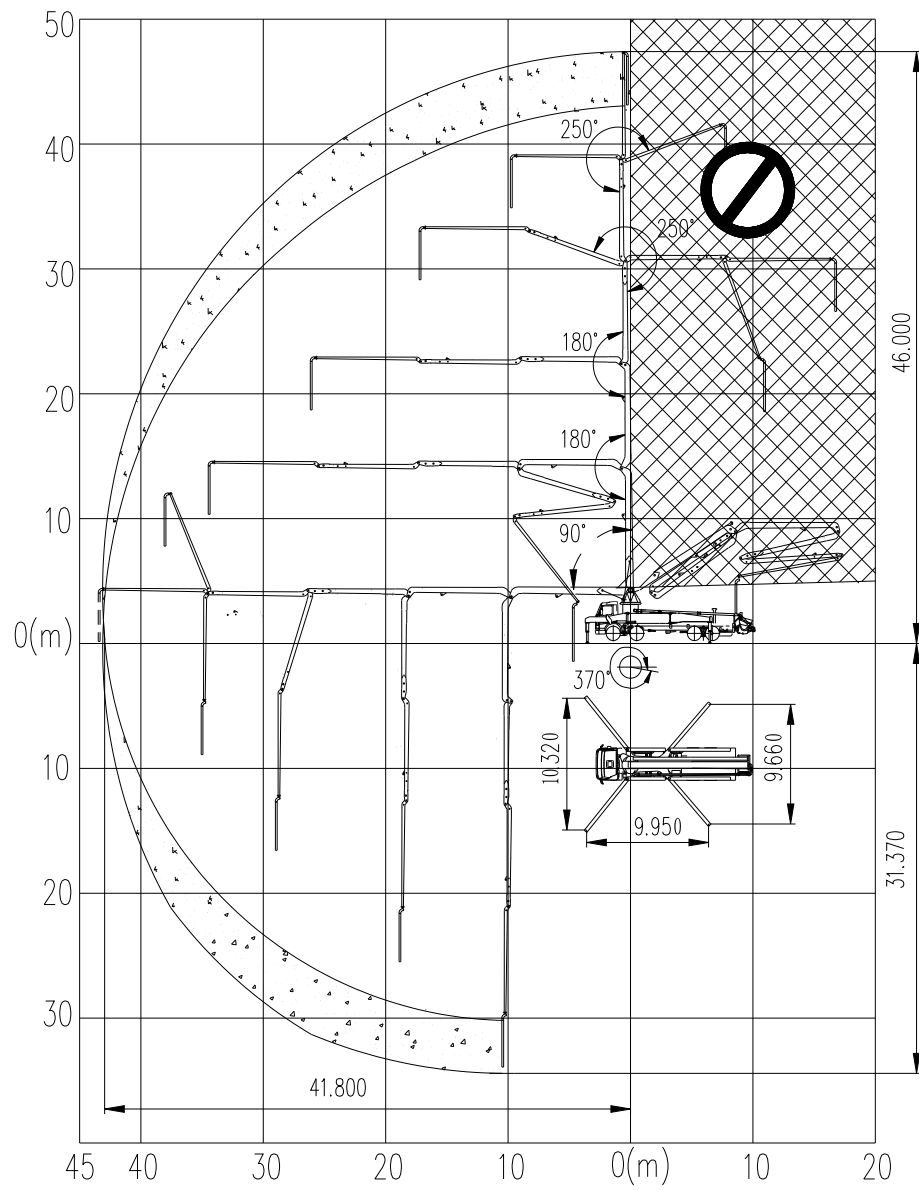
Category	Items	Unit	Parameter
Chassis	Model		CYH51Y
	Manufacturer		Isuzu, Japan
	Max. travel speed	km/h	89
	Max. grade-ability	%	34
	Min. turning dia.	m	23.8
	Brake distance	m	≤10
	Wheel base	mm	1850 + 4605 + 1310
	Track (front/rear)	mm	2065/1850
	Approach/Departure angle	°	23.5/10
	Min. ground clearance	mm	240
	Tire size		295/80R22.5
Engine	Model		6WF1D
	Output power	kw/(r/min)	287/1800
	Max. torque	N·m/(r/min)	1863/1100
	Displacement	L	14.256

Category	Items	Unit	Parameter
	Engine emission		China III
Others	Outline dimension	L×W×H	12665×2500×3990
	Total vehicle mass	kg	38400
	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
	Theoretical cycle (high/low pressure)	cycle/min	13/22
	Delivery cylinder ID×Stroke	mm	Φ260×2200
	Max. aggregate size	mm	40
	Concrete filling height	mm	1540
	Concrete slump	cm	12~23
Placing boom	Max. reach height	m	46
	Max. reach depth	m	31.7
	Slewing radius	m	41.8
	Slewing angle	°	370
	1st section unfolding angle	°	90
	2nd section unfolding angle	°	180
	3rd section unfolding angle	°	180
	4th section unfolding angle	°	250
	5th section unfolding angle	°	250
	Outrigger span	Longitudinal distance	mm
Front lateral distance		mm	10320
Rear lateral distance		mm	9660
Others	Transfer tube		S-Valve
	Lubrication		Manual lubrication
	Control type		Manual/Remote control
	Water tank capacity	L	600
	Water pump max. pressure	MPa	2

IV. Placing boom operation area



V. Main Parts List

No.	Name	Model	Data	Qty.	Manufacturer
1	Placing boom			1	XCMG, BMC
2	Slewing basement			1	XCMG, BMC
3	Outrigger			1	XCMG, BMC
4	Slewing ring	011.50.1390.101.24.03D3		1	Xuzhou Rothe Erde
5	Slewing gear	310L3101HZ5B		1	Bonfiglioli, Italy
6	Chassis	CYH51Y		1	Isuzu, Japan
7	Transfer case	4496.21		1	STIEBEL, Germany
8	Boom pump	A7V055	55ml/r 38MPa	1	Rexroth, Germany
9	Triple/quadruple pump	A4VG125...	125ml/r 42MPa	1	Rexroth, Germany
10	Superstructure multi-way valve	PSV4S1/420-3...	40MPa	1	HAWE, Germany
11	Undercarriage multi-way valve	SD5/5-P(KG4-250)/1B8L/18L/18L		1	沃尔福
		SD5/5-P(SV)	25MPa	1	
12	Cleaning water pump	BZ-320	20L/min	1	Jiebao, Suzhou
13	Agitator motor	BM5-985K3AY	985ml/r	1	Zhongyi, Ningbo
14	High-pressure oil filter	28P-2-10QM298C2C21	10 μ		Parker
15	Accumulator	SB330-10A1/112A-330A	10L 10MPa		Hydac, Germany
16	Radiator	BCFL5310.76-00	53kW	1	Helinde, Shanghai
17	Lubrication system	BV4+MX-F4+EP-S+FAZ02706-01		1	BEKA
18	Display	ST064-A-C-Y-06	Color 6.4 inch	1	Palfin
19	Controller	TTC PC1000	9~32VDC IP67	1	TTC, Italy
20	Remote control device	FST727A		1	HBC, Germany

VI. Supplied Spare Parts List

No.	SAP Code	Name and Spec.	Qty.	Remarks
1	801100162	O ring 12.5×2.65G	2	GB/T3452.1-2005
2	801100120	O ring 25×3.55G	2	GB/T3452.1-2005
3	801100175	O ring 37.5×2.65G	1	GB/T3452.1-2005
4	801100040	O ring 37.5×3.55G	4	GB/T3452.1-2005
5	801100177	O ring 40×2.65G	1	GB/T3452.1-2005
6	801100239	O ring 63×3.55G	2	GB/T3452.1-2005
7	801100301	O ring 200×7.0G	3	GB/T3452.1-2005
8	801100169	O ring 258×7.0G	1	GB/T3452.1-2005
9	801100056	O ring 90×2.65G	2	GB/T3452.1-2005
10	801100054	O ring 100×5.3G	1	GB/T3452.1-2005
11	801100073	O ring 122×5.3G	1	GB/T3452.1-2005
12	801100180	O ring 47.5×3.55G	1	GB/T3452.1-2005
13	801100144	O ring 33.5×3.55G	1	GB/T3452.1-2005
14	801100251	O ring 236×5.3G	1	GB/T3452.1-2005
15	803107822	O ring 272×7.0G	2	GB/T3452.1-2005
16	801100062	O ring 265×5.3G	4	GB/T3452.1-2005
17	803107848	Y type seal ring 240×220	3	
18	800500001	Support ring 220×225×24.5	1	
19	803200400	Dustproof ring A1M010P5008	1	Imported [America]
20	803107861	Y type seal ring 120×100×16	1	GB/T10708.1-2000
21	803100125	Filter cartridge EF-109	1	
22	803100124	Filter cartridge EF-108	3	
23	803169490	Filter cartridge TFX-400×100	1	
24	803108676	Filter cartridge G04268	1	
25	803111057	Connector fitting BO-ZR8L/S	2	Imported
26	803111582	Connector fitting BO-ZR10L	1	Imported
27	803111028	Connector fitting BO-ZR12L/S	4	Imported
28	803111039	Connector fitting BO-ZR12L	4	Imported
29	803110641	Connector fitting BO-ZR15L	4	Imported
30	803111031	Connector fitting BO-ZR18L	4	Imported
31	803111291	Connector fitting BO-ZR16S	4	Imported
32	803111399	Connector fitting BO-ZR20S	4	Imported
33	803111042	Connector fitting BO-ZR25S	2	Imported
34	150102268	Tapered tube	1	
35	152601245	Concrete seal polyester	2	
36	152601236	Seal ring butyl rubber	2	
37	150102113	Wear-resistance sleeve	1	
38	150102183	Φ 125 Pipe clamp (with seal ring)	2	
39	150102198	Φ 150 Pipe clamp (with seal ring)	1	

40	150102181	Φ 180 Pipe clamp	1	
41	150102188	36° Bended tube ZG30Mn	1	
42	150102123	90° Bended tube ZG30Mn	1	
43	150501840	90° Bended tube ZGMn 13-4	1	
44	150501712	90° Bended tube ZGMn 13-4	1	
45	150501713	15° Bended tube ZGMn 13-4	1	
46	150102145	Cleaning ball, foam rubber	1	
47	803602560	Access switch XS630B4PAL2	2	Imported
48	803602450	Relay RH2B-U DC24V	2	Imported
49	803600932	Fuse 10A 5×20	5	
50	803600934	Fuse 20A 5×20	5	
51	803006927	Water pump supplied spare parts	1 set	Supplied with water pump

VII. Supplied Tools List

No.	SAP Code	Name and Spec.	Qty.	Remarks
1	819904746	NST-402 tools kit (Pump track)	1	
2	840500694	Inner-hexagon spanner 2.5 Imported	1	
3	840500695	Inner-hexagon spanner 3 Imported	1	
4	840500696	Inner-hexagon spanner 4 Imported	1	
5	840500268	Inner-hexagon spanner 5	1	
6	840500698	Inner-hexagon spanner 6 Imported	1	
7	840500699	Inner-hexagon spanner 8mm	1	
8	840500700	Inner-hexagon spanner 10mm	1	
9	840500701	Inner-hexagon spanner 12 Imported	1	
10	840500702	Inner-hexagon spanner 14 Imported	1	
11	840500452	Double-end spanner 6×7 Imported	1	
12	840500703	Double-end spanner 8×10 Imported	1	
13	840500689	Double-end spanner 12×14 Imported	1	
14	840500764	Double-end spanner 13×15 Imported	1	
15	840500208	Double-end spanner 16×18 Imported	1	
16	840500690	Double-end spanner 17×19 Imported	1	
17	840500766	Double-end spanner 22×24 Imported	1	
18	840500691	Double-end spanner 27×30 Imported	1	
19	840500692	Double-end spanner 32×36 Imported	1	
20	840500693	Double-end spanner 41×46 Imported	1	
21	840500777	Double-end ring spanner 12×14 Imported	1	
22	840500763	Double-end ring spanner 17×19 Imported	1	
23	840500767	Cross-head screwdriver 100×6 Imported	1	
24	840500768	Plain-head screwdriver 100×6 Imported	1	
25	801500802	Square head hammer 0.5KG Imported	1	
26	840500674	Wire pliers L=150 Imported	1	
27	840500675	Adjustable spanner 150×18 Imported	1	

28	840500676	Adjustable spanner 300×36 Imported	1	
29	819904310	Grease gun (lever type) 120CC Imported	1	
30	840500677	Socket spanner Socket 10mm Imported	1	
31	840500678	Socket spanner Socket 11mm Imported	1	
32	840500679	Socket spanner Socket 12mm Imported	1	
33	840500680	Socket spanner Socket 14mm Imported	1	
34	840500681	Socket spanner Socket 17mm Imported	1	
35	840500682	Socket spanner Socket 19mm Imported	1	
36	840500683	Socket spanner Socket 22mm Imported	1	
37	840500684	Socket spanner Socket 24mm Imported	1	
38	840500685	Socket spanner Socket 27mm Imported	1	
39	840500686	Socket spanner Socket 30mm Imported	1	
40	840500687	Socket spanner Socket 32mm Imported	1	
41	840500688	Ring ratchet spanner 10 Imported	1	
42	801500777	Sliding lever 10 Imported	1	
43	819904312	Quick crank 16-1/4 Imported	1	
44	801500780	Connection rod 5 inch Imported	1	
45	801500781	Connection rod 10 inch Imported	1	
46	819904311	Tire pressure gun GAS-1	1	
47	819904497	CQJ-BC Inflation tool	1	
48	819900454	AK-120 First-aid kit Domestic	1	
49	839900089	Brush 3	1	Attached a chassis supplied tools list
50		Chassis supplied tools	1	
51	819900607	Lever type information bag	1	
52	840500228	Single-end spanner 65	1	
Note: No.2~No.46 (total 45 pcs.) are packed in one kit with 819904746 (NST-402 tools kit (pump truck), and purchased as a complete sets in one kit.				

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

VIII. Packing List

No.	Name	Qty.	Package	Remarks
1	HB46A Truck-Mounted Concrete Pump	1	Nude packing	With 20L fuel in fuel tank
2	HB46A Product Certificate	1		
3	HB46A Operation Manual	1		
4	HB46A Parts Catalogue	1		
5	HB46A Maintenance Manual	1		
6	HB46A Supplied Tools	1	In iron case	
7	HB46A Supplied Spare Parts	1	In wood case	
8	Chassis Packing List and Specified Documents	1	Original package	
9	Reducer Packing List and Specified Documents	1	Original package	
10	Transfer Case Packing List and Specified Documents	1	Original package	
11	Lubrication System Packing List and Specified Documents	1	Original package	

IX. 3000 Hour Easy Wear Parts List

No.	Spare parts name	SAP Code	Qty.	Manufacturer
1	Luffing cylinder I balance valve	803002030	1	HAWE
2	Luffing cylinder II balance valve	803001952	1	HAWE
3	Luffing cylinder III balance valve	803001953	1	HAWE
4	Luffing cylinder IV balance valve	803001954	1	HAWE
5	Luffing cylinder V balance valve	803001955	1	HAWE
6	Outrigger two-way hydraulic lock	803001667	4	Jiujiang
7	Outrigger one-way hydraulic lock	803000213	4	Jiujiang
8	High-pressure filter	803109595	1	Helinde
9	Outrigger jack backpressure valve	803001591	4	HAWE
10	Front outrigger slewing cylinder	150702051	2	Xuzhou Hydraulics
11	Front outrigger telescopic cylinder	150702052	2	Xuzhou Hydraulics
12	Outrigger jack cylinder	150702053	4	Xuzhou Hydraulics
13	Rear outrigger slewing cylinder	150702054	2	Xuzhou Hydraulics
14	Solenoid valve	803001633	2	Rexroth
15	Solenoid valve	803001634	1	Rexroth
16	Speed limit lock	803000293	1	Jiujiang
17	Proportional overflow valve	803002338	1	HAWE
18	Shuttle valve	803001599	1	Rexroth
19	S Pipe assy.	152601233	1	
20	Bearing ring assy.	150102095	1	
21	Cutting ring	152601234	1	

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22	Spectacle plate	152601235	1	
23	Y type seal ring	803107848	3	
24	Supporting ring	800500001	1	
25	Seal ring	152601236	2	
26	Supporting ring	152601244	1	
27	Concrete seal body	152601245	1	
28	Crank lever	152601263	1	
29	Flange bearing	150102018	1	
30	Wear-resistance sleeve	150102113	1	
31	Retaining plate	150102078	2	
32	Retaining plate	150102079	2	
33	Ball type basement	150102114	4	
34	Supporting ring	150102112	1	
35	Y type seal ring	803107861	1	
36	O ring	801100056	2	
37	O ring	801100054	1	
38	O ring	801100073	1	
39	S Pipe drive cylinder	152601220	2	
40	Flange assy.	152601264	1	
41	Flange assy.	152601268	1	
42	Nylon sleeve	150102328	2	
43	Nylon sleeve	152601269	1	
44	Clamp plate assy. 1	152601441	2	
45	Clamp plate assy. 2	152601442	2	
46	Y type seal ring	803107848	3	
47	Rubber washer	152601270	2	
48	Rubber washer	152601271	2	
49	Rubber washer	150102048	2	
50	Slewing motor	803000505	1	
51	Seal ring	803108429	1	
52	Frame seal	803107826	1	
53	Flange	152601330	1	
54	3-way bended tube	150102122	1	
55	Chain bended tube	152601331	1	
56	Tapered tube	150102268	1	
57	Tapered tube	150601335	1	
58	Φ180 Tube clamp	150102181	3	
59	Φ150 Tube clamp	150102198	2	
60	Φ125 Tube clamp	150102183	40	
61	90° bended tube	150102123	1	
62	Bended tube	150501714	2	
63	Bended tube	151301300	1	
64	End hose	152601232	1	

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65	Relay	803602452	2	
66	Relay	803602450	2	
67	Relay	803602449	2	
68	Access switch	803602560	2	
69	Slewing limit switch	803607813	1	Schneider
70	Position limit switch	803602534	1	
71	Temperature sensor	803501025	1	
72	Horn	803501002	1	
73	Fuse	803600934	10	
74	Fuse	803600933	10	
75	Fuse	803600932	10	
76	Fuse	803600946	10	