PNEUMATIC FRICTION WELDING BALER

B19、B25 Series Pneumatic Tool

OPERATIONS, COMPONENTS
AND SECURITY GUIDE

[1. Content]

In order to ensure safety, please read the Manual carefully before operation and keep it properly for future reference.

2. Safety Instructions

Please read the Manual carefully before using this packaging machine.

General safety rules

1. Bear in mind "safety-foremost" principle, and operate this pneumatic tool properly;
2. Read the Manual carefully before operation;
3. Don't dismantle safety parts of the tool;
4. Don't tear or damage label or mark of the product;
5. Don't put hand or other part of your body between packaging belt and packaging tool.

Application

This tool is specially designed for binding articles with PET packaging belt;
Applicable width of packaging belt: 13, 16, 19, 25mm;
Don't use the packaging belt for lifting.

Correct dressing

Wear safety glasses, earmuffs, protective gloves, helmet, protective footwear and long sleeve shirt, fasten all buttons; take care, your necktie, long hair and cloth shall not be hooked by the packaging machine.

Gas source

- Ensure the air supply pipe can bear pressure and is resistant oil;
- Do use the special quick union for air pipe; the air pressure shall not exceed 100psi/7bar;
- Use only clean compressed air, rather than gas source or dynamic source.

Ventilation

Indoor air is easily to be polluted by lubricating oil; hence, the ventilation should be proper.

Vibration

It's harmful to operators if contacting excessive vibration for a long time. The operation specification should conform to relevant requirements of ISO5349.

Noise

Operators shall wear earmuffs if the noise is higher than 85dB (A). Even the noise is lower than 85dB (A), it is also recommended to wear earmuffs.

Safety glasses

If the tensing packaging belt breaks suddenly, it may hurt eyes and result in blindness, so operators shall wear safety glasses.

Note:

While cutting the packaging belt, hold its upper part, and stand at its side; the upper belt will be cut down; be careful, there should be no people in the surrounding.

During maintenance and cleaning, the dust brought by air duster gun is harmful to eyes.

Moving part

During operation, the moving part (tightening pulley) may clip glove or other part of your body, so when the take-up pulley is rotating, don't touch it.

Maintenance

- Conduct daily maintenance to the machine;
- Check regularly, and remove dust with an air duster gun;
- Tighten the screws of hook;
- Turn off gas source while replacing parts.

Hazard while cutting

The sharp blade on the blade holder may hurt hand and finger, so please wear safety gloves.

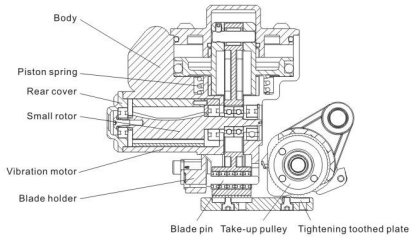
3. Principle of Friction fusion

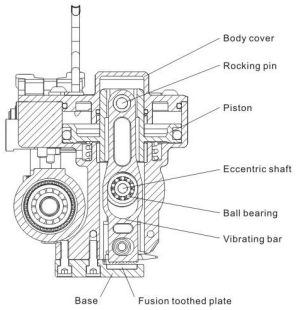
This tool is a kind of friction fusion packaging machine, The lapped thermoplastic packaging belt is fused by the heat produced by friction motion; hence, it is called "friction fusion".

The compressed air will push the piston within air cylinder. The upper part of piston and vibrating bar is connected with the rocking pin, so the vibrating bar will press the lapped part of packaging belt when moving down.

There is an elliptic hole at the center of vibrating bar. This hole is connected with the eccentric shaft of pneumatic motor. The pneumatic motor rotates at a high speed(10000rpm),so the vibrating bar conducts reciprocal motion quickly. The lower part is driven by the peg teeth of vibrator for strenuous friction.

Both upper and lower parts of the packaging belt are stuck while extruding.





4. Specification and Parts

Mode: B19、B25
Tension force of binding band (when input air pressure is 0.63Mpa): 3,500N
Max. allowable working pressure: 0.8Mpa
Required scope of working pressure: 0.5～0.7Mpa(72～100psi)
Ideal working pressure: 0.63Mpa
Weight of packaging machine: 3.65kg
Total length: 300mm(base70mm)
Width: 149.5mm
Height: 173mm
Material of packaging belt: PET
Width of packaging belt: 13mm～19mm
Thickness packaging belt: 0.5～1.5mm
Allowable lubricating oil: 51#
Vibration quantity: meet requirements of ISO5349
Consumption of compressed air: 0.3L/Min
Fusion time: 2～5s

Parts

(1) Tightener: 3,500N (when 0.63Mpa)
(2) Cutting device

Heavy cutting device

The heavy cutting device is composed of blade holder and blade and is used to cut 0.5～1.5mm thick packaging belt.

Friction cutting device

The friction cutting device is used to cut 0.5～0.7mm thick light PET packaging belt.

Suspension

B19、B25 proper hooks may be suspended at different positions (top sealing, vertical sealing, and horizontal sealing).

5. Gas Source Instruction

Requirement of air pressure

B19、B25 required scope of air pressure: 72-100psi (5.0-7.0 bar).

Installation of gas source

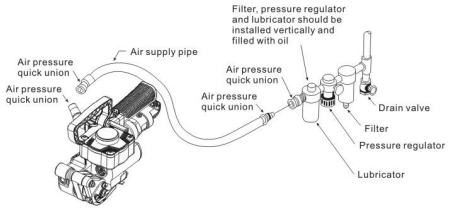
Filter, pressure regulating valve and lubricator assembly shall be close to the pneumatic tool. The min. inner diameter of air hose is 6.0mm (1/4). Both ends of air supply pipe should be equipped with quick unions.

Moisture filtration

A drain valve must be mounted at the bottom of the air supply circuit's bypass to drain once every day.

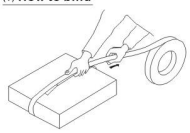
Lubrication

Pneumatic motor should be lubricated properly, and the lubricator should be full and well regulated (a drop every 2min).



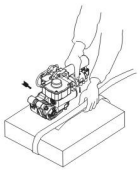
6. Operation Instruction

(1) **How to bind**



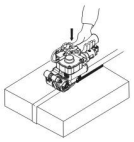
As shown in the left figure, bundle the article with packaging belt, hold the lapped part with left hand, leave about 300mm tail, pull the remaining part out with right hand.

(2) **Place packaging belt**



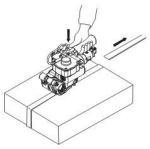
Hold handle and tighter with right hand (to ensure the maximum opening dimension between take-up pulley and tightening toothed plate), insert both upper and lower parts of the packaging belt into the packaging machine. **Note: the lapped part of packaging belt must be separated by the blade of blade holder; release the tightener (the take-up pulley clips the packaging belt tightly)**

(3) **Tighten the packaging belt**



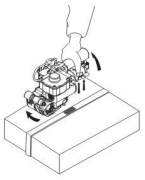
Press the tightening button (right side) with the thumb of right hand till the packaging belt is tight fully.

(4) **Vibration and cutting**



Press the fusion button (red) with the thumb of right hand till the packaging belt is fused and cut off.
Note: press the fusion button till the vibration timer stops automatically.

(5) **Take down the packaging machine**



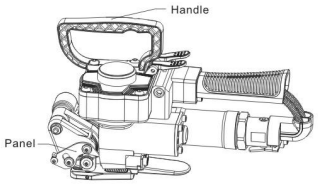
Press handle and tightener tightly with right hand. Press the rewinding button with the little finger of right hand till the belt is released from the take-up pulley. Press handle and tightener tightly, remove the tool from the packaging belt.
Note: don't remove the packaging machine until the packaging belt is released.

7. Specification Adjustment

Width of packaging belt

(1) **Panel**

The panel can be dismantled from the packaging machine through removing its screws. Replace a new panel according to the dimension of the used packaging belt and the installation method of the previous panel.



(2) **Location hook**

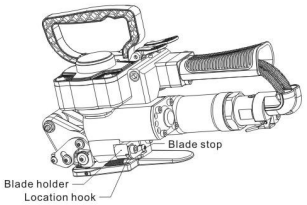
The location hook of blade holder may be reassembled through taking the spring pin from the blade holder.

⚠ **Note:**

There is a small compression spring with in the location hook. Don't lose it.

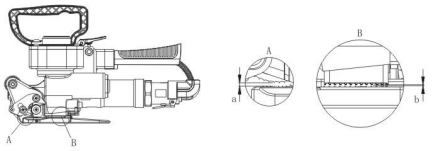
Reassembly

Choose a hole from the three holes of blade holder according to the dimension of packaging belt. The external hole is used for 19mm packaging belt; medium hole is for 16mm packaging belt; and internal hole is for 13mm packaging belt.



Distance (a) between tightening pulley and tightening toothed plate

The distance between take-up pulley and tightening toothed plate should be adjusted according to dimensions of the used packaging belt. Check the distance (a) between take-up pulley and tightening toothed plate with a feeler (as shown in the figure below).



The distance (a) should be no less than the thickness of packaging belt. While delivery, this distance is set to 1.0mm more than the thickness of packaging belt.

(1) If the thickness of packaging belt is 0.8mm, place a 0.2mm thick gasket under the tightening toothed plate;

(2) If such thickness is 0.6mm , place two 0.2 mm thick gaskets under the tightening toothed plate;

(3) If such thickness exceeds 1.4mm, insert two 0.2mm thick gaskets to the middle of body and bade.

Distance (b) between the bottom of vibrating bar and the fusion toothed plate

Measure the distance between the bottom of vibrating bar and the fusion toothed plate (see the above figure) with a feeler. While measuring, please follow the following steps:

(1) Press the fusion button (red) for at least 2S, so that both piston and vibrating bar will be downward fully.

(2) Measure the distance (b) with a feeler; if no gasket is used, the distance (b) has been set to 0.5m m. If the thickness of packaging belt is less than 0.6mm, insert a 0.2m m gasket to the bottom of fusion toothed plate.

Note:

- **Don't reduce the distance (b) by inserting too many gaskets;**
- **The packaging machine may be damaged if there is no clearance between the bottom of vibrating bar and the fusion toothed plate;**
- **If the vibrating bar strikes the fusion toothed plate, teeth of the plate will be damaged immediately.**

8. Disassembly

The following is the disassembly method of parts in daily maintenance. This is the best method of replace parts. It's hard to assemble the parts of motor body, so please send those parts to our service center for replacement.

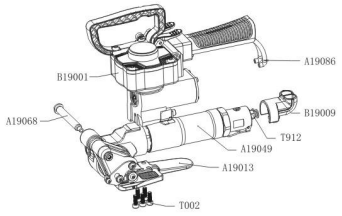
(1) **Base**

① Pull out the two hoses (A19086) on PL6-01m hose plug from the lower end of the rear side of motor body.

Note: if the steel ring of joint isn't pressed fully, the hose can't be pulled out.

② Remove 5 fillister round-head screws (T002) from the bottom of base (A19013) with a 4mm hexagonal wrench.

③ Then, the base can be disassembled from the motor body (A19049) of the body (A19001).

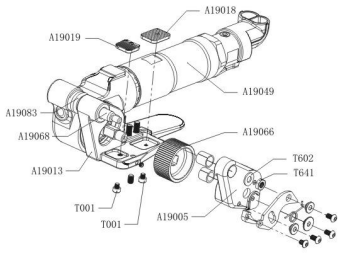


(2) **Take-up pulley and tightening toothed plate**

① Lock the connection pin shaft (A19068) with the attached 13mm wrench, remove M6 nut (T641) and gasket (T602) with a 10mm wrench;

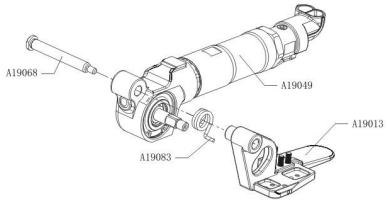
② Pull the assembly of front side plate to the left so as to separate it from the connection pin shaft, and disassemble the take-up pulley (A19066);

③ Remove 2 fillister round-head screws M4×4 (T001) with a 3mm hexagonal wrench, then the take-up pulley (A19018) and tightening toothed plate (A19019) can be removed.



(3) Connection pin shaft

① Motor body (A19049), base spring (A19083) and base (A19005) can be disassembled through pulling out the connection pin shaft (A19068).



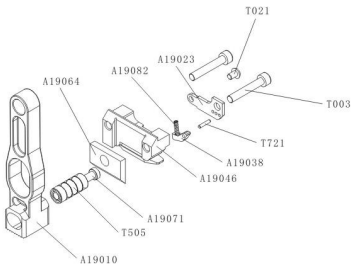
(4) Cutting device

① Remove 2 fillister round-head screws M5×30(T003) with a 4mm hexagonal wrench, then the blade holder (A19046) can be disassembled.

② Disassemble blade and blade pin (A19071).

③ Check the blade, and replace a new one if it is blunt.

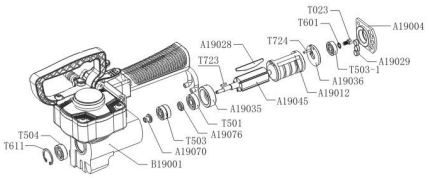
④ Remove blade pin and 5 bearings (T505) simultaneously;



(5) Vibration motor

① Remove 4 M5×12 half-round head screws (T025) from the rear cover with a 3mm hexagonal wrench, and knock the shaft end of small rotor (A19045).

② Bearing liner (A19070), ball bearing (T503) and gasket (A19076) are disassembled from the bottom of body along with the small rotor.



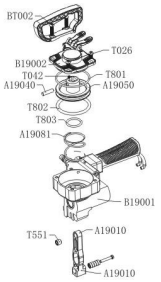
(6) Body cover and piston

① Remove the M6 × 16 half-round head screws (T026) from the top of body cover with a 4mm hexagonal wrench.

Note: don't lose the small spring or other parts disassembled from the body.

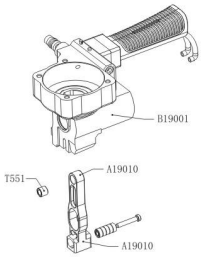
② Take out rocking pin (A 19040) with a 4mm hexagonal wrench.

③ Blow the hole (diameter: 6.5mm) under the body with an air duster gun, then piston (A 19050) and piston spring (A 19081) can be taken out.



(7) Vibrating bar

① Take out the vibrating bar(A19010)from the bottom of body (B19001)



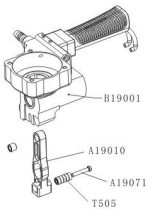
9. Reassembly

(1) Vibrating bar

① Insert vibrating bar (A19010) into the bottom of body (B19001). Pay attention to the front and rear direction. Don't turn upside down.

② Assemble 5 ball bearings (T505) on blade pin (A19071).

③ Assemble the blade pin assembly on the vibrating bar through the horizontal hole.



(2) Piston

① Insert piston spring (A19081) into the hole (diameter: 50mm) after lubricating oil is added in the interior of the body.

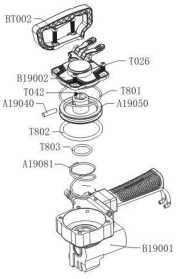
② Assemble O-ring P60(T802) into piston(A19050), and add lubricating oil, and then insert this part into the body.

Note: The front face of rocking pin must face forward.

③ Insert rocking pin into the axial pore (A19040) of piston and vibrating bar.

④ Assemble O-ring P28(T803) and G65(T801) on the body cover (A19002).

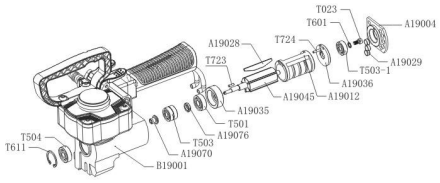
⑤ Assemble body cover on the above complete piston, and tighten it by 4 cup head screws to complete the assembly with the body.



(3) Vibration motor

① Assemble gasket (A19076), 2 ball bearings (T503) and bearing bushing on small rotor (A19045); insert pneumatic motor into the body from the opening, and assemble ball bearing (T504) from the opening of vibrating bar.

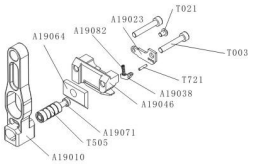
② Fix 4 M5x12 half-round head screws (T025) to rear cover (A19004).



(4) Cutting device

① Assemble blade at the head of blade pin (A19071) and confirm the right direction of blade.

② Assemble blade holder (A19046) on the blade (A19061) and tighten it by 2 M5×30 cheese head hex socket cap screws (T003).



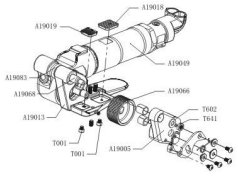
(5) Connection pin shaft

① Assemble base torsion spring (A19083) at the front of base (A19013), and assemble motor body (A19049), insert connection pin shaft (A19068)

② Assemble take-up pulley (A19066) on the shaft of turbine (A19024);

③ Insert front side plate (A19005) assembly into connection pin shaft, and insert the ending of turbine into the bushing of front side plate assembly.

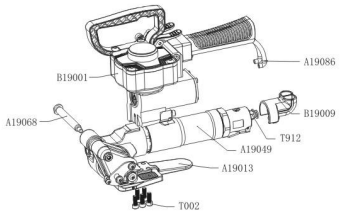
④ Fix the head of connection pin shaft with 13mm wrench, and tighten flat gasket M6 (T602) and nut M6 (T641) with 10mm wrench.



(6) Base

① After entire base (A19013) is assembled, fix motor body (A19049) on the base through connection pin shaft (A19068).

② Assemble 5 M5×15 cheese head hex socket cap screws (T002) at the bottom of base to fasten it with the body.



(7) Air supply hose

① Insert 2 pieces of air hose with stress protection spring (A19086) into pipe joint (T913) at the end of valve body.

10. Failure and Trouble-shooting

Common failure and trouble-shooting:

(1) Tightener operation

Phenomenon	Causes	Trouble-shooting
Motor body can't start	1.There is foreign material in the motor 2.The motor is too dry and in need of lubrication	1.Deliver packaging machine to factory for repair 2.Add several drops of lubricating oil to motor from air intake 3.Press inverting button, if can, then press entering button
Tightening pulley presses the upper packaging belt	1.Distance between take-up pulley and toothed plate is too wide 2.In point of thickness of packaging belt, tension force is too strong 3.Take-up pulley is blocked by dust or residue of packaging belt 4.The teeth of taking-up pulley are blunt	1.Increase gasket. Refer to adjustment of machine on the page 12 2.Clean the teeth of taking-up pulley with air blow gun or brush 3.Replace take-up pulley. Refer to replace of parts on the page 13
When packing, packaging machine moves forward or can't clamp the end of packaging belt	1.Take-up toothed plate is blocked by residue of packaging belt 2.The teeth on the take-up toothed plate are blunt 3.The tension of packaging belt is too strong	1.Clean the teeth of take-up toothed plate, blow off the residue with air blow gun 2.Replace take-up toothed plate, Refer to replacement of parts on the page 13

Cautions during the tension operation

① After the article is tied by packaging belt, hold the overlapping part by left hand to pull out redundant part.

② Make sue the overlapping part of packaging belt in the packaging machine is in alignment.

(2) Fusion operation

Phenomenon	Causes	Trouble-shooting
Incomplete fusion or no fusion	1. Air pressure is not enough 2. ID of air pipe is too small 3. The teeth of fusion toothed plate or vibrating bar are blocked by residue or worn out. 4. Vibration motor is too dry and in need of lubrication	1. Use screwdrivers Turn the Slotted Drives at the end of welding motor outside 2. Supply air at the air pressure of 72psi or higher 3. Replace the air pipe to a pipe with an internal diameter of over 6.4mm 4. Clean teeth part or replace vibrating bar and fusion toothed plate 5. Add lubricating oil from air intake
Packaging belt is excessively fused or broken off during the fusion process	1. The thickness of packaging belt is not enough 2. Fusion time is too long 3. The cooling time for friction fusion part is too short	1. Use the packaging belt which has correct specification 2. Reduce fusion time as required, refer to this manual 3. Keep at least 3 seconds after fusion
Packaging machine can't move off from packaging belt after fusion	1. Take-up pulley can't reverse. Packaging belt can't loosen 2. Vibrating bar fails to rise from packaging belt	1. Press rewind button to release the tension of packaging belt 2. Hold the handle of tightener to enable tightener to connect with exhaust valve, and then turn on shut-off valve

Cautions during fusion

① Sound fusion can ensure smooth and burr-free joint, however, overlong fusion will reduce the adhesive force of PET packaging belt.

② After fusion, keep 3S, otherwise fusion joint will be deformed or separated.

11. Part List

Use the parts supplied by our factory only. Please indicate specific model and name while ordering.

Spare parts list of B19、B25 Pneumatic strapping tool

Part Number	Figure No.	Part Name	Ratio
2010017411	B19001	Main body	1
1030116818	B19002	Main body cover	1
1030116819	B19003	Handle	1
2010013005	A19004	Back cover	1
2010013006	A19005	Front side panel	1
2010013007	A19006	Decelerator	1
1030116820	B19007	Tightening button	1
1030116821	B19008	Welding button	1
1030116822	B19009	Protecting cover	1
2010013008	A19010	Vibration rod	1
2010013021	A19011	Large cylinder	1
2010013022	A19012	Small cylinder	1
2010013009	A19013	Base	1
2010013023	A19014	Planet carrier	1
2010013096	A19015	Panel	1
2010013097	A19016	Back panel	1
2010013098	A19017	Bearing washer	1
2010013024	A19018	Welding wheel	1
2010013025	A19019	Strapping wheel	1
2010013099	A19020	Front washer	1
2010013100	A19021	Back washer	1
2010013089	A19022	Inverting button	1
2010013090	A19023	Cutting stopper	1
1030116823	B19025	Handle	1
2010013492	A19028	Blade	10
1020901738	A19029	Sound splitter	3
2010013027	A19030	Limit block 13	1
2010013028	A19031	Limit block 16	1
2010013029	A19032	Limit block 19	1
2010013162	A19033	Large front cover	1
2010013010	A19034	Large back cover	1
2010013011	A19035	Small front cover	1
2010013012	A19036	Small back cover	1
2010013161	A19037	Bearing base	1
2010013030	A19038	Orientation hook	1

Continued

Part Number	Figure No.	Part Name	Ratio
2010013106	A19039-1	Inverted valve element	1
2010013249	A19039	Inverted valve rod	1
2010013031	A19040	Oscillation pin	1
2010013032	A19041	Planet pin	2
2010013033	A19042	Turbine	1
2010013034	A19043	Worm	1
2010013035	A19044	Greater trochanter	1
2010013036	A19045	Lesser trochanter	1
2010013084	A19046	Cutting frame	1
2010013163	A19047	Inner wheel	1
2010013037	A19048	Planet wheel	2
2010013164	A19049	Motor	1
2010013013	A19050	Piston	1
2010013165	A19051	Valve	1
2010013166	A19052	Connecting nut	1
2010013167	A19053	Back bearing cap	1
2010013169	A19054	Bonnet	1
2010013038	A19061	Straping valve rod	1
2010013039	A19062	Welding valve rod	1
2010013156	A19063	Exhaust valve rod	1
2010013014	A19064	Cutter	1
2140080108	A19065	Internal tooth nest	1
2010013083	A19066	Tighten wheel	1
2010013158	A19068	Connecting pin roll	1
2010013159	A19069	Exhaust valve base	1
2010013160	A19070	Bearing bushing	1
20500010002	A19071	Cutter pin	1
2010013040	A19072	Large trochanter ring	1
20500010001	A19073	Front side bushing a	1
2010013041	A19074	Small trochanter ring	1
2140079861	A19075	Front side bushing b	2
2010013042	A19076	Gasket 12.5*3	1
2010013043	A19077	Plug Rc1/8-28	3
1030113393	A19078	Tighten valve spring	2
1030113392	A19079	Exhaust valve pressure spring	1
1030113394	A19080	Welding valve pressure spring	1
1030113395	A19081	Piston spring	1
1030113396	A19082	Cutting frame spring	1
1030113397	A19083	Base torsional spring	1
1030113398	A19084	Front side panel torsional spring	1

11. Part List

Continued

Part Number	Figure No.	Part Name	Ratio
1020901891	A19086	Tube	2
1020901740	A19087	Air inflow contactor	1
1030116824	B19088	Tube retainer spring	2
1030113539	T001	Black coating soket head cap screw 12.9 grade m4*4	2
1030113710	T002	Black coating soket head cap screw 12.9 grade m5*14	5
1030111940	T003	Black coating soket head cap screw 12.9 grade m5*30	2
1030102181	T004	Black coating soket head cap screw 12.9 grade m5*20	2
1030113849	T021	Black coating allen cup head screws 10.9 grade m4*6	2
1030113545	T022	Black coating round head hex socket screws 10.9 grade m4*8	3
1030105808	T023	Black coating allen cup head screws 10.9 grade m4*8	3
1030105860	T024	Black coating soket head cap screw 12.9 grade m5*10	5
1030102215	T026	Black coating socket cap screw 12.9 grade m6*12	2
1030112364	T041	Black coating hexagon socket set screw 12.9 grade m4*3	1
1030102639	T042	Black coating set screw 10.9 grade m4*5	1
1030113851	T043	Black coating set screw 10.9 grade m5*8	3
1021401562	T501	Bearing 608	1
1021401563	T502	Bearing 619-6	1
1021400130	T503	Bearing 626	2
1021401564	T503-1	Import bearing 626	1
1021401565	T504	Bearing 627	2
1021401566	T505	Bearing 685	5
1021401567	T506	Bearing 6000	1
1021401568	T507	Bearing 6001	3
1021401569	T508	Bearing 6300	1
1021401560	T551	Bearing HK0709	1
1021401561	T552	Bearing K4X7X7	2
1021401555	T553	Bearing HK0408	2
1021401556	T554	Bearing BK0810	1
1021401557	T581	Sliding bearing 9*12*10	1
1021401558	T583	Composite bearing 28*32*12	1
1021401559	T584	Composite bearing 10*12*12	1
1030100748	T601	Flat gasket 4	2
1030100081	T602	Flat gasket 6	1
1030102686	T611	Clamp spring for hole 22	1
1030106527	T612	Clamp spring for hole 48	1
1030100187	T631	Clamp spring for bearing 10	1
1030100196	T641	Retaining nut m6	1
1030101767	T705	Spring pin 3*16	1
1030101765	T706	Spring pin 4*40	1
1030113385	T721	Column pin 2*10	1
1030113386	T722	Column pin 2.5*6	1

11. Part List

Continued

Part Number	Figure No.	Part Name	Ratio
1030113387	T723	Column pin 2.5*8	2
1030113388	T724	Column pin 2.5*12	2
1030113403	T801	O type ring 69*3	1
1030113404	T802	O type ring 64*5.7	1
1030113405	T803	O type ring 28*2.5	1
1030113406	T804	O type ring 16*2	2
1030113412	T811	O type ring 2.5*2	2
1030113437	T901	Nylon ball 7.95	2
1030113730		Rubber ball 7.95	1
1030113438	T902	Nylon ball 12.7	1
1020901742	T912	Coupling (straight)	4
1030113778	A19089	Inner box (white no words)	1
1030113666	A19090	Inner box (colorful)	1
1030113779	A19098	Outer carton (one piece)	1
1030113780	A19091	Outer carton (two pieces)	0.5
1030113781	A19092	Outer carton (four pieces)	0.25
1030113746	A19093	inner sleeve (PE Foam)	1
1030116827	B19094	Chinese instruction book	1
1030116828	B19095	English instruction book	1
1030202263	T930	Hexagon socket key s2.5	1
1030200298	T931	Hexagon socket key s3	1
1030200299	T932	Hexagon socket key s4	1
1030200331	T933	Open-end wrench 8-10	1
1030201905	T934	Open-end wrench 12-14	1
1030113572	T935	Flathead screwdriver	1
1030113449	T980	Oiler	1
1030113448	T981	Steel pricker	1
1030113870	A19096	Strapping washer	5
1030113871	A19097	Welding washer	5
1030114110		Packing box with handle	1
1030116825	BT001	Black coating set screw 10.9 grade M12*12	1
1030116826	BT002	Black coating allen cup head screws 12.9 grade M6X25	2
B25 series (Note: The difference between B19 and B25, in addition to the following 9 kinds of products are not the same			
2010013107	A25001	Front side panel	1
2010013123	A25002	Vibration rod	1
2010013124	A25003	Base	1
2010013495	A25004	Welding wheel	1
2010013494	A25005	Strapping wheel	1
2010013108	A25006	Orientation hook	1
2010013493	A25007	Tightening pulley	1
1030113873	A25008	Strapping washer	5
1030113874	A25009	Welding washer	5

12. Assembly Drawing