Tuwei图伟®

TWG-ⅡA-P Roll Grooving Machine

CE

User's Manual

Familiar yourself with this Manual prior to operation

Tuwei Construction Equipment Manufacturing Co., Ltd,
People's Republic of China

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I. Major applications and scope

This machine is applicable for forming circular channel at the end of seamless steel tubing, galvanized pipes, plastic-lining pipes and stainless steel pipes etc, to facilitate the mounting of circular pipe clamps. It's an ideal tool for construction industry and pipeline construction sectors.

Technological Parameters

Max. diameter allowed for pipes to be channeled……325mm

Min. diameter allowed for pipes to be channeled…….……60mm

Max. wall thickness allowed for pipes to be channeled……10mm

Max. working pressure…….5000kg

Max. oil cylinder pressure ……52Mpa

Capacity of oil tank……..150ml

Speed……..23 rpm

Electric motor ……..three phase/750W, single phase/1100W

Overall dimensions…… …….single phase /910mmx450mmx910mm

(WxDxH)……..three phase /850mmx450mmx880mm

Gross weigh……single phase /170kg, three phase /159Kg

III. Major parts

Fig.1 TWG-Ⅱ A-B Roll Grooving Machine

1. Limit fastening nut
2. Limit nut
3. Oil cylinder
4. Relief valve
5. Slide
6. Roller frame
7. Pinch roller shaft
8. Power head safety cover
9. Knurl wheel
10. Power head
11. Bracket
12. Handle seat
13. Handle
14. Switch
15. Safety cover
16. Reduction motor
17. Handle grip

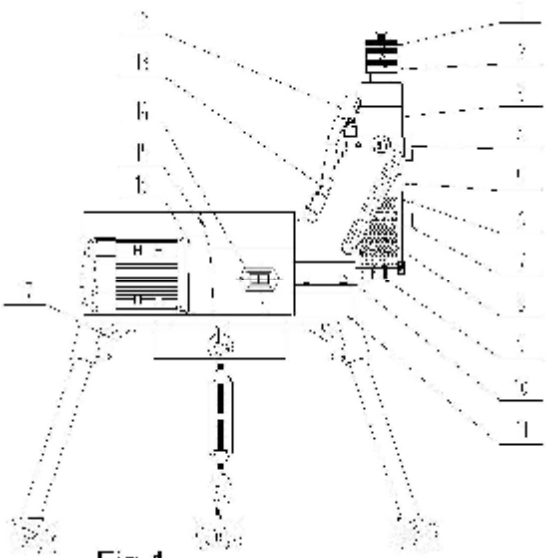


Fig.1

IV. Driving System

The major moving unit of this machine consists of a rotating spindle directly driven by a reduction motor, resulting in a reduced loss of mechanic power. The feeding movement is realized by manual hydraulic system.

V. Electric System

Fig.2 Electric Circuit Diagram

Consist of an electric motor, a Footswitch,a contractor and cables. Turning clockwise, anti-clockwise and stop are cont -rolled by the switch. An electric motor is the only load. The power supply shall agree with the requirements of motor, Sound earthing of ground wire (black) is required prior to starting the machine.

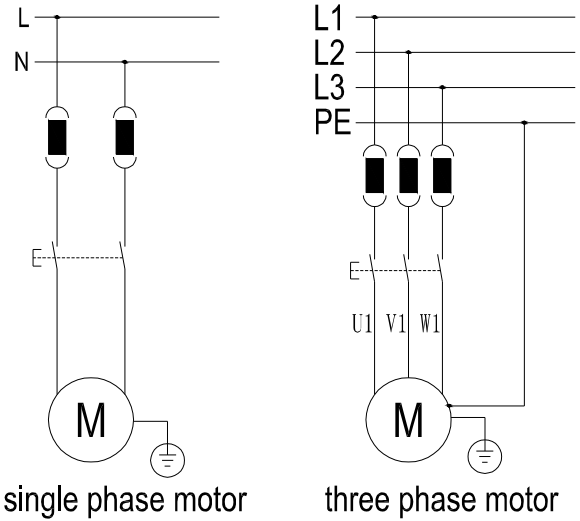


Fig.2

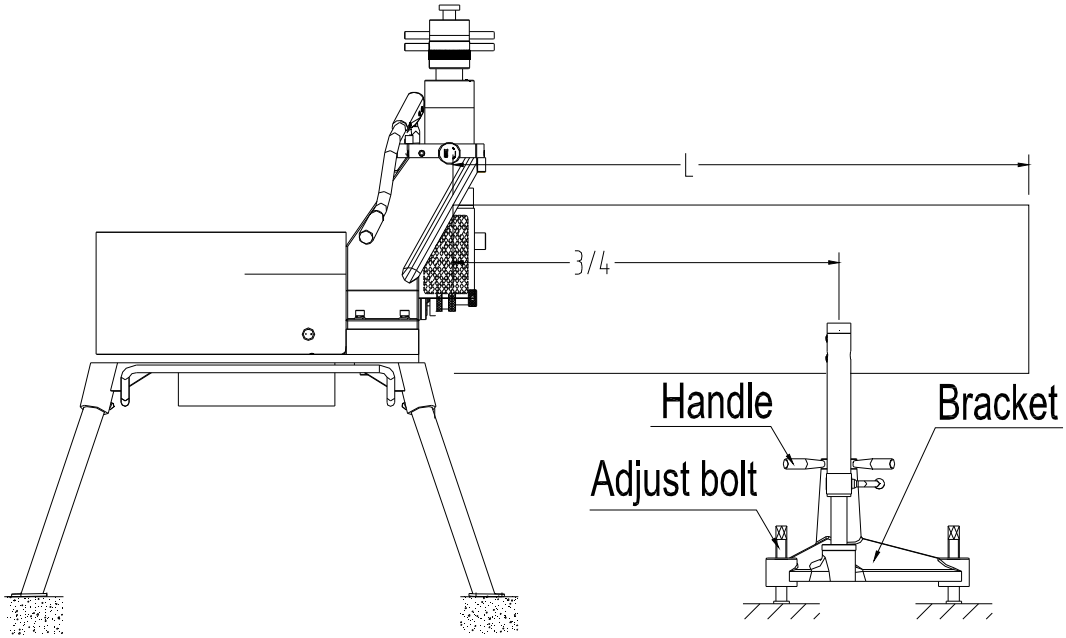


Fig .3

VI. Operation and Adjustment

1. According to **Fig.3** install 4 brackets into 4 holes of base separately in an upward direction and then tighten.
2. Let the machine run idle to check whether it's normal.
3. Place the steel tubes on the knurl wheel and bracket. Turn the handle (**see Fig. 3**) to vary the height of bracket, so that the steel tube and spindle are parallel. The bracket shall be placed at a position equal to 3/4 of the length of whole tube.
4. Fixing and installation of grooving machine as follows

Fig .4

①.Before fix bracket,make sure adjusting is regular operation.

②.Adjust the level and verticality of the chassis and bracket.

③.Fixing of chassism,fix the fishhook dilatant bolt on the ground under the chassis,Using adjusting bolt to connect chassis and tishhook bolt,then turn the adjustung Bolt to strain.

④.Fixing of bracket::fix the 3 feet of bracket on the ground by dilatant bolt.

5.Tightening the pressure relief valve in the oil pump (**See Fig.4**).Shake the the oil pump,the hanle make the roller frame downward movement,start up the machine, let the pinch roller pree to pipe.

6..Limit and depth adjustment of channel. First loosen the limit fastening nut (**See Fig.5**). Measure and cut the first channel followed by fastening of limit nut. For the following channels, it means the desired channeling depth has been attained when the force to apply to the handle increases, and you shall stop turning the

handle to let the pinch roller roll at the original position for 1-2 turns before opening the relief valve to allow the pinch roller leave the pipe. The above procedure shall occur while the machine is kept on.

Fig .5

7.Remove the filler plug (**Fig.6**) to add hydraulic oil(loosen the relief valve, remove all the dusts near the filler aperture).Use 20# hydraulic oil in Summer and 10# inWinter. Unscrew thedischarge screw (**Fig.6**) before discharging all the dirt used oil.

8.If you want to remove the whole oil cylinder from the unit head, you shall press the slide and move it downward to the lower position, loosen the 2 fastening screws of piston fasten ring (**Fig.7**) and the 4 socket head crews (**Fig.8**) of pump seat.

9..For the remove the hole roller frame,lossen the 2 piston screw (**Fig.7**) and the 8 hexagon socket head cap screw (**Fig.9**)

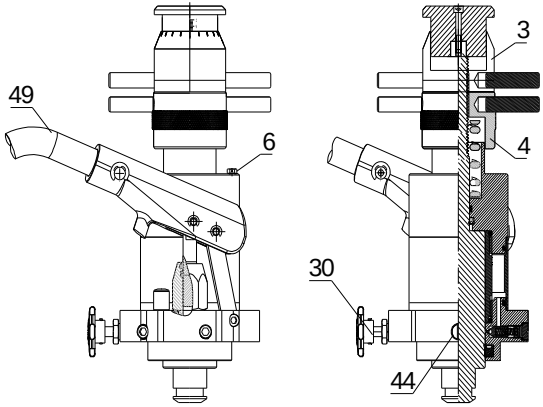


Fig .6

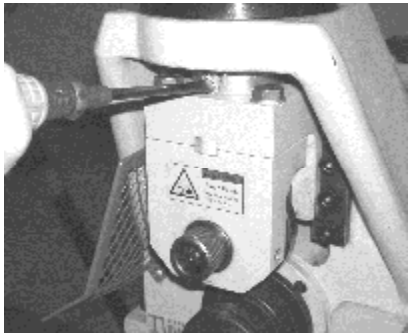


Fig .7

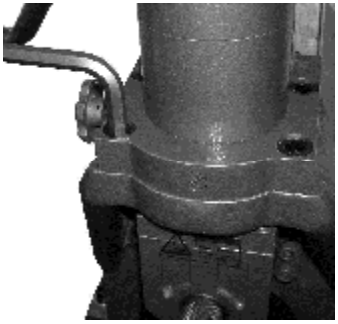


Fig. 8

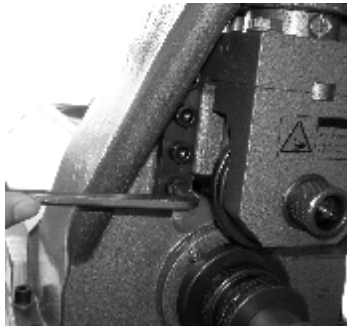


Fig .9

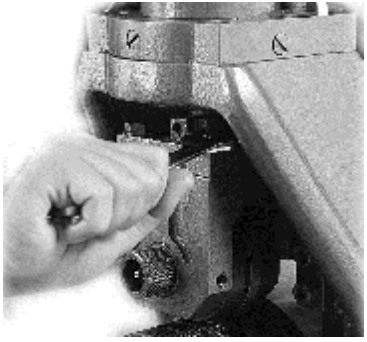


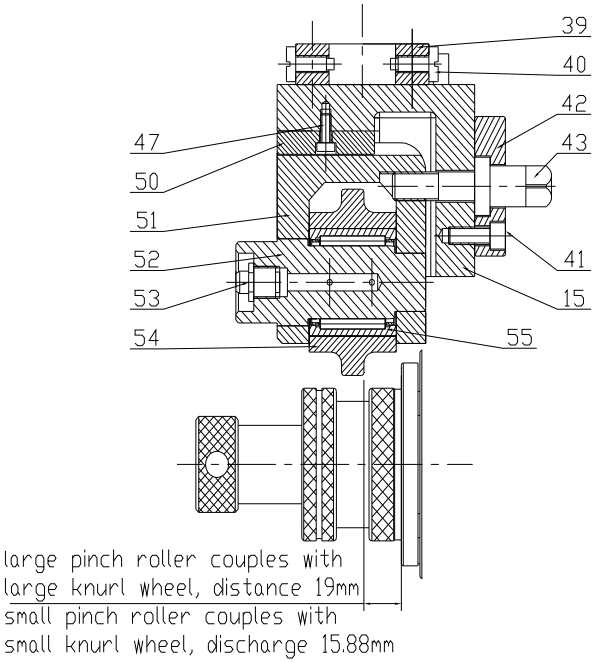
Fig.10

Fig .11

Fig .12

10..For the replacement of pinch roller, you shall return the pinch roller holder to the highest positionand remove the tighten screws (**Fig.15**),before pulling out the pinch roller shaft while holding the roller with your hand, install new pinch roller. For the relocating of pinch roller, you shall loosen 2 hexagonal bolts (**Fig.16**) on the slide and turn the adjustment bolts to move the pinch roller forward/backward. Refer to (**See Fig.10、Fig.11、Fig 13**) for specific location requirements. Followed bytightening the 2 hexagonal bolts on the pinchroller holder.

11. The main shaft fastening nut (**Fig.12**). shall be removed to facilitate the replacing of pinch roller and matching knurl wheel**(form 1 Fig.14**)



12..In case of steel pipes of large diameter (above Φ 165 mm) to be channeled, the pipe may swing violently in the process of channeling due to irregularity and a poor channeling or even failure may be resulted. To solve this problem, we particularly supply an optional jockey roller which can be moved to touch the steel pipe by turning the handwheel and screw down knurl fasten screws (**Fig.17**) of jockey rollerfor the purpose of reduced vibration.

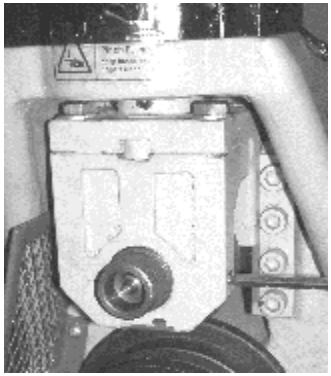
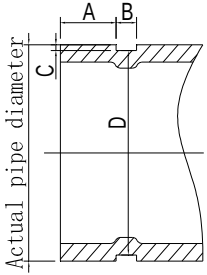


Fig .13



size of the channel

Fig .15

Fig. 16

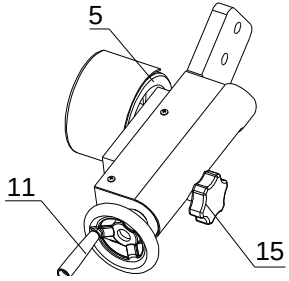


Fig .14

Fig .17

(form 1)

Model Of pinch roller	Model of knurl wheel	Nominal Pipe Dia.(inch)	Actual Pipe Dia.(mm)	A± 0.5 (mm)	B± 0.5 (mm)	C± 0.5 (mm)	Diameter of Groove Bottom	
							Max.(mm)	Min.(mm)
Medium-Sized Pinch roller	Small Knurl wheel	2”	60	15.88	8.74	1.65	57.15	56.77
		2-1/2”	76	15.88	8.74	1.98	72.26	71.80
	Medium-Sized Knurl wheel	3”	89	15.88	8.74	1.98	84.94	84.48
		4”	108	15.88	8.74	2.11	103.73	103.22
		4”	114	15.88	8.74	2.11	110.08	109.57
		5”	133	15.88	8.74	2.11	129.13	128.62
		5”	140	15.88	8.74	2.11	135.48	134.97
		6”	159	15.88	8.74	2.16	153.21	152.45
		6”	165	15.88	8.74	2.16	160.78	160.22
		6”	168	15.88	8.74	2.16	163.96	163.40

Large Pinch roller	Large Knurl wheel	8”	219	19.05	11.91	2.34	214.40	213.76
		10”	273	19.05	11.91	2.39	268.28	267.59
		12”	325	19.05	11.91	2.77	318.29	317.53

VII. Precautions

The operator is required to read this Manual in details to be familiar with the structure, buttons , handles, driving and lubricating systems of the machine prior to operation. Never operate the machine until you have got to know all the information related to operation and safety.

1. Safety Mark

Electric Shock

The mark indicates risk of electric shock and requires the operator to be careful.

Mechanical injury

This mark indicates the operator may be injured by mechanical parts.

Warning!

This mark indicates the operator may have risks of injury and even death due to improper operation.

Notice！

This mark indicates contents which the operator shall observe. Otherwise, unexpected results or even human injury may be produced.

2. General Notices

2.1 The operators shall observe in-house safety rules .

2.2 The machine shall be operated by a dedicated person who are well-trained , familiar with the User's Manual and fully aware of the functions of each part .

2.3 Before starting the machine, you shall make sure all the handles, buttons and protective facilities are at their intended places, and all the humans are sufficiently far away from the machine.

2.4 When the machine is running, don't touch any moving parts. Don't attempt to remove debris or shoot troubles until the machine comes to stop.

2.5 Refill the oil as instructed in the Manual before starting the machine. Make sure the hydraulic oil cylinder is full.

2.6 The grease nozzles in the front of pinch roller shaft and on the power head shall be

refilled with grease each shift respectively, after removing the dusts around the orifice.

3. Safety protective measures on electric control system

An earthing wire and a proper fuse are required in th power line . The voltage and frequency of motor shall be consistent with the power supply.; Overload running shall be avoided.

4. Miscellaneous

4.1 Use appropriate lifting apparatus in mounting and dismounting to avoid damaging the machine.

4.2 The knurl wheels shall be properly selected according to Table 1 in a bid to obtain optimized channeling results.

4.3 The steel tubing to be channeled shall have smooth and flat end face .

4.4 During maintenance of the machine, the needle roller bearings shall be lubricated with grease before re-assembling.

4.5 In case the machine rocks when channeling a large tubing, be sure to equip with guide wheels and anchor bolts to fix the four legs and stand to the ground.

VIII. Troubleshooting

Problem	Causes	Solutions
No pressure in the oil cylinder. No action resulted from turning the handle.	1. Insufficient hydraulic oil.	Add hydraulic oil.
	2. Dirt oil blocks the hole.	Replace the hydraulic oil, clean the oil net.
	3. Leakage occurs to the check valve	Remove the screws and spring. Knock the small steel balls lightly to force out the airtight surface.
The piston will move forward when the handle is forced downward, but it will return when the handle is released.	1. Dirt oil blocks the hole.	Replace the hydraulic oil.
	2. Leakage occurs to the check valve	Remove the screws and spring. Knock the small steel balls lightly to force out the airtight surface.
	3. Leakage occurs to other position	Trace the problem and correct.
Insufficient oil cylinder pressure	The spring of safety valve breaks down	Replace the safety valve

The pipe escapes	1. Improper direction and height of bracket.	Vary the direction and height of bracket.
	2. Improper direction of steel pipe	Toggle the clock-wise / anti-clockwise switch to change the rotation direction of spindle
	3. Rough end face of steel pipe	Grind the end face.

IX. The assembly drawing of roll grooving machine and parts form

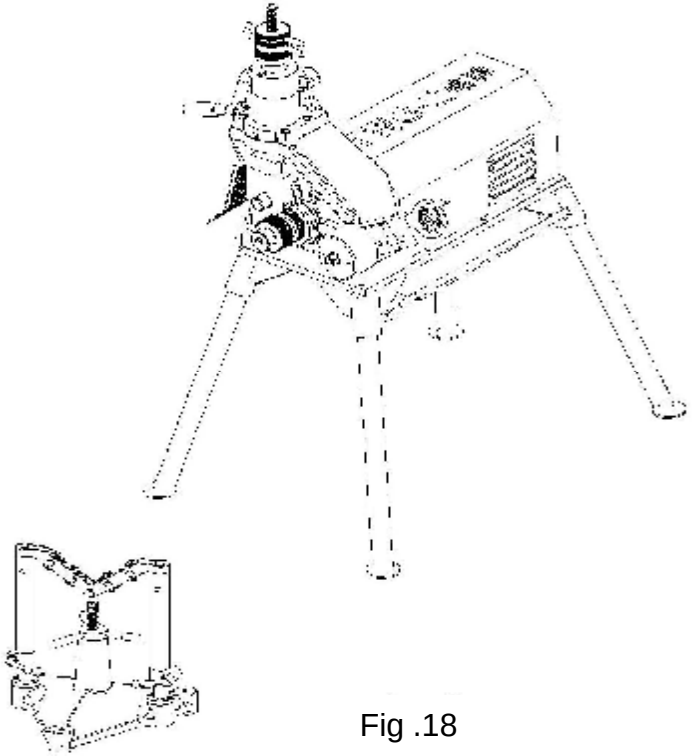


Fig .18

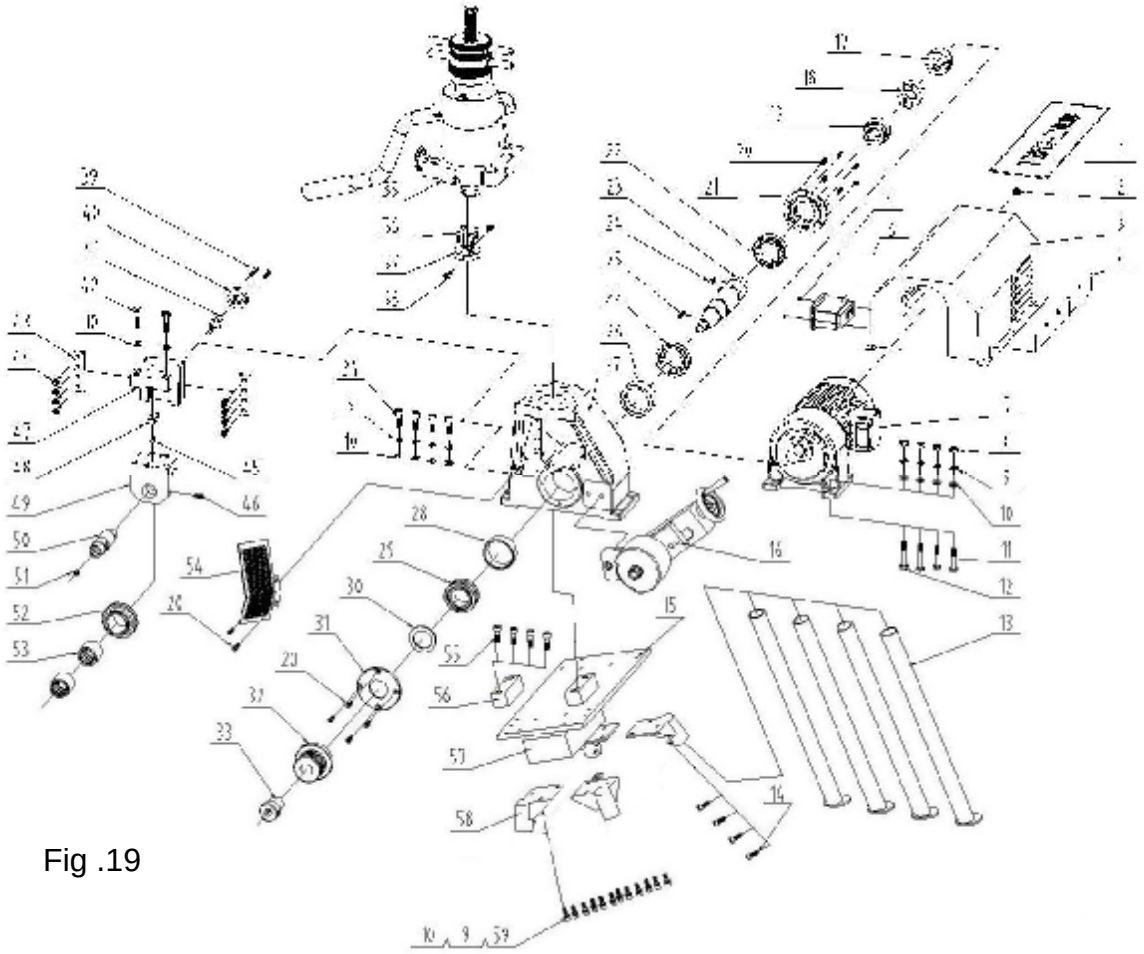


Fig .19

1. TWG-IIA -PRoll grooving machine component and parts form (Fig.19)

S/N	Code name	Name	Qty	Material
1		Nameplate	1	Aluminum alloy
2		Loop	1	
3	TWG/2-01-005	Safety cover	1	Sheet t=1.2
4	GB67-2000	Slotting screw M5x8	6	
5	GB67-2000	Slotting screw M5x16	2	
6		Switch	1	
7		Reduction motor 750W	1	
8	GB-41-2000	Hexagonal nut C level M10	4	
9	GB93-87	Spring washer 10	8	
10	GB97.1-2002	Flat washer A level 10	10	
11	GB5782-2000	Bolt M10x60	2	
12	GB5782-2000	Bolt M10x75	2	
13	TWG/2-01-004	Support foot	4	Jointing assembled
14	GB70.1-2000	Hexagonal screw M10x25	4	
15	TWG/2-01-003	Base	1	HT200
16	TWG/2-03-000	Jockey pulley holder assembly	1	Subassembly
17	TWG/2-01-006	Electric link	1	45#

S/N	Code name	Name	Qty	Material
18	TWG/2-01-007	Intermediate link	1	45#
19	TWG/2-01-008	Shaft link	1	45#
20	GB70.1-2000	Hexagonal screw M6x12	10	
21	TWG/2-01-009	Rear cover	1	HT200
22	GB297-94	Roller bearing 32010	2	
23	TWG/2-01-014	Main shaft	1	40Cr
24	GB/T1097-1979	Flat key 8x25	1	
25	GB/T1097-979	Flat key 6x30	1	
26	TWG/2-01-010	Bushing Φ80	1	45#
27	TWG/2-01-001	Unit head	1	HT200
28	TWG/2-01-011	Bushing Φ75	1	45#
29	GB/T5801-1994	Needle bearing 4074109	1	
30	GB/T1097-1994	Plane needle bearing 889109	1	
31	TWG/2-01-012	Fore cover	1	HT200
32	TWG/2P-01-001(3)	Knurl wheel	3	40Cr
33	TWG/2P-01-004	Main shaft fastening nut	1	45#
34	GB70.1-2000	Hexagonal screw M10x35	4	
35	TWG/2-02-000	Oil pump assembly	1	Subassembly

S/N	Code name	Name	Qty	Material
36	GB70.1-2000	Hexagonal screw M5x16	4	
38	TWG/2-02-029	Piston fixed ring screw	2	45#
39	GB70.1-2000	Hexagonal screw M6x30	2	
40	TWG/2-04-004	Screw fixed ring	1	45#
41	TWG/2-04-003	Adjust screw	1	45#
42	GB5782-2000	Hexagonal head tap bolt M10x45	2	
43	TWG/2-01-002	Guide rail bar	2	45#
44	GB70.1-2000	Hexagonal screw M10x20	8	
45	GB70.1-2000	Hexagonal screw M5x10	1	
46	GB79-2000	Hexagonal fasten screw M10x30	1	
47	TWG/2-04-009	Slide	1	ZG200-400
48	TWG/2-04-008	Feather key	1	45#
49	TWG/2-04-001	Roller frame	1	ZG200-400
50	TWG/2-04-010	Pinch roller shaft	1	20CrMnTi
51	JB7940.1-95	Oil cup M10x1	1	
52	TWG/2-04-007	Pinch roller	1	40Cr
53	GB/T5801-1994	Needle bearing 4084105	2	

S/N	Code name	Name	Qty	Material
54	TWG/2-01-016	Power hearing safety cover	1	Jointing assembled
55	GB/T70.1-2000	Hexagonal screw M10x50	4	
56	TWG/2A-01-019	Booster bloosk	2	45#
57	TWG/2A-01-018	Tool box	1	Jointing assembled
58	TWG/2A-01-017	Platform support blok	4	ZG200-400
59	GB/T70.1-2000	Hexagonal screw M10x25	12	
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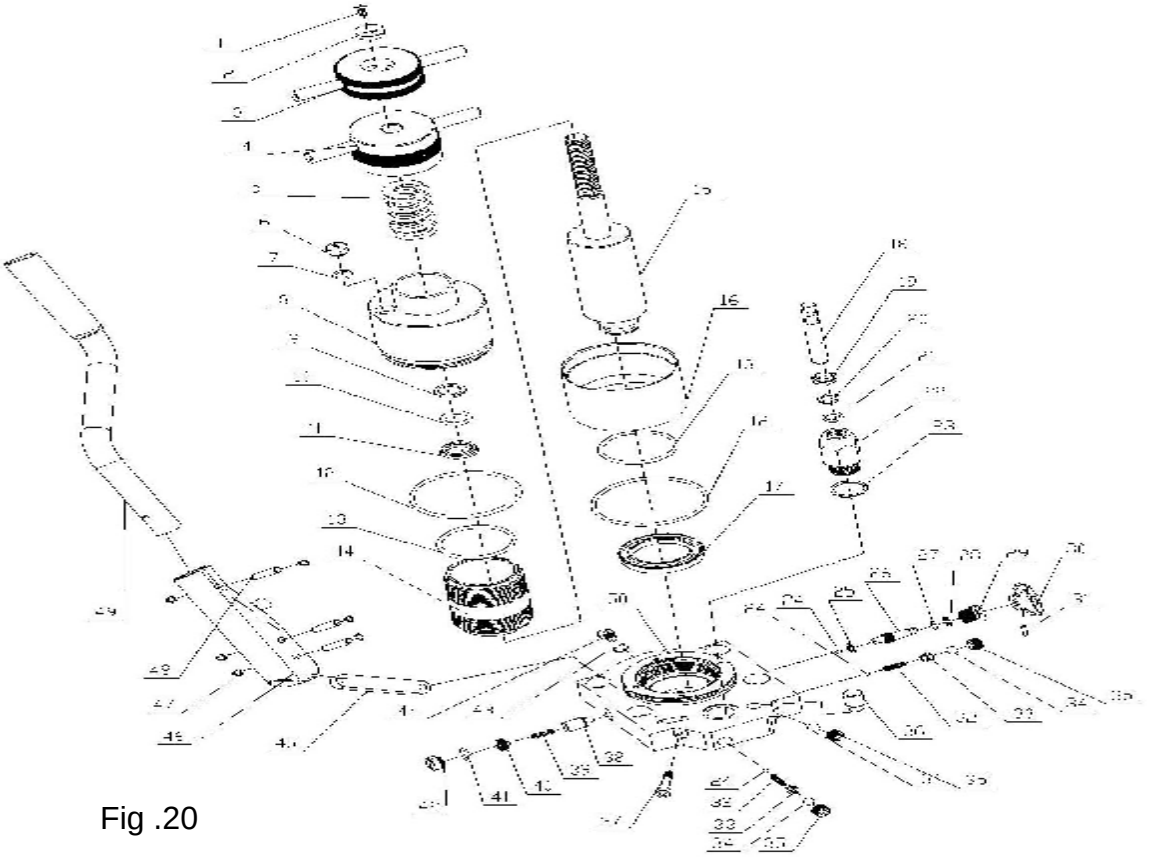

Fig .20

2. Oil pump parts form (Fig.20)

S/N	Code name	Name	Qty	Material
1	GB/T819-2000	Cross slot countersuhr head screw M5X10	1	
2	TWG2P-02-008	Bead flange	1	45#
3	TWG2P-02-007	Limit locking nut	1	45#
4	TWG2P-02-006	Limit mut	1	45#
5	TWG6.04-006	Big spring	1	65Mn
6	TWG/2-02-024	Safety vakve bulk head	1	A3
7	GB3452.1-1992	Universal O-ring rubber D15X1.9	1	Buna-N rubber
8	TWG/2P-02-004	Cylinder cover	1	45#
9	TWG6.04-010	Fore cover 24X1.5	1	F4
10	GB/T3452.1-1992	Universal O-ring rubber D24x2.4	1	Buna-N rubber
11	GB/T10708.1-2000	Y-type piston ring d22XD28X5..5	1	
12	GB/T3452.1-1992	Universal O-ring rubber D85x3.1	2	Buna-N rubber
13	GB/T3452.1-1992	Universal O-ring rubber D50X3.5	2	Buna-N rubber
14	TWG/2P-02-003	Cylinder	1	45#
15	TWG/2P-02-005	Limit piston	1	40Cr
16	TWG/2P-02-002	Tank	1	45#
17	GB/T10708.3-2000	Y-type piston ring Und50X40X10	1	

S/N	Code name	Name	Qty	Material
18	TWG/2-02-007	Small piston rong	1	45#
19	GB/T10708.3-2000	Scraper seal	1	
20	TWG/2-02-028	Fore cover D16X1	1	F4
21	GB/T3452.1-1992	Viton O-ring 16X2.4	1	
22	TWG/2-02-010	Hexagonal cylinder cover	1	45#
23	TWG/2-02-011	Copper backing ¢28X ¢22X1mm	1	
24	GB/T308-84	Steel ball ¢6	3	
25		Copper backing ¢12X ¢7X1mm	1	
26	TWG2P.02-006	Relier valve screw	1	45#
27	GB3452.1-1992	Universal O-ring rubber D11X1.9	1	Buna-N rubber
28	TWG/2-02-027	Fore cover D11X1	1	F4
29	TWG/2-02-019(1)	Relief valve nut	1	45#
30	TWG/2-02-019(3)	Relief valve handle	1	Zl101
31	GB/T879.1-2000	Elastic cylindrical pin ¢3X20	1	
32	TWG/4-05-003	Oil outlet valve spring	2	65Mn
33	TWG/4-05-004	Cylinder clamping sctrew sets	2	45#
34	GB/T308-84	Steel ball ¢9	3	
35	TWG/2-02-002	The new oil pump screw	3	45#
36	TWG2.02-006-01	Handle limit nails	1	45#

S/N	Code name	Name	Qty	Material
37	GB/T70.1-2000	Hexagonal screw M6x30	1	
38	TWG/2-02-026	New cone valve	1	45#
39	TWG/2-02-025	New safety valve spring	1	65Mn
40	TWG/2-02-023	New safety valve screw	1	45#
41	GB3452.1-1992	Universal O-ring rubber D10X1.9	1	Buna-N rubber
42	TWG/2-02-024	New safety valve blank cap	1	45#
43	GB3452.1-1992	Universal O-ring rubber D8X1.9	1	Buna-N rubber
44	TWG/2-02-021	Oil drain stooper	1	45#
45	TWG/2-02-009	Connecting plate	1	A3
46	TWG/2-02-005	Handle seat	1	ZG200-400
47	GB/T894.1-1986	Shaft circlip	6	
48	TWG/2-02-008	Pin roll	3	45#
49	TWG/2-02-007	Handle	1	
50	TWG/2P-02-001	Pump body	1	ZQ800-2
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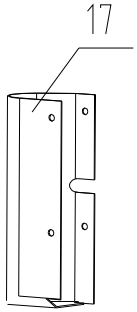

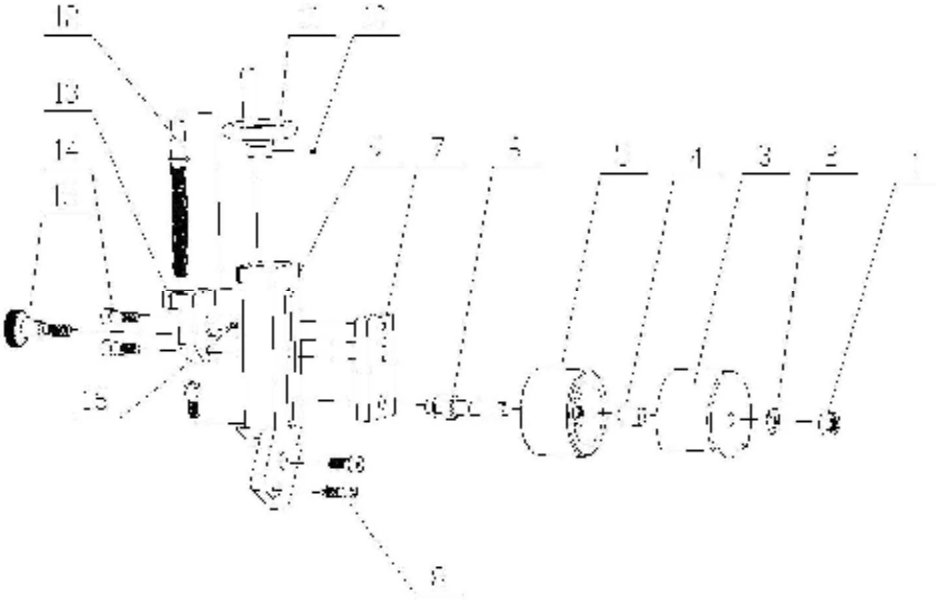

Fig .21

3. Jockey pulley parts form (Fig.21)

S/N	Code name	Name	Qty	Material
1	GB/T61785-2000	Outler hexagonal nut M14	1	
2	GB/T95-2002	Plain washer C-Φ14	1	
3	TWG/2B-03-010	Guide roller safety cover	1	45#
4	TWG/2B-03-001	Gasket	1	45#
5	TWG/2B-03-002	Guide roller	1	Subassembly
6	TWG/2-B03-003	Guide roller shaft	1	45#
7	TWG/2B-03-004	Guide block	1	45#
8	GB/T70.1-2000	Hexagonal screw M10x20	3	
9	TWG/2B-03-008	Roller frame	1	Jointing assembled
10	GB/T75-85	Hexagon socketset screws with cone M6 x8	1	
11	TWG/2-03-009	Handwheel	1	Subassembly
12	TWG/2B-03-006	Nut M14	1	45#
13	TWG/2B-03-005	Screw slider	1	45#
14	GB/T5281-1985	Hexagonal screw M8x35	2	
15	TWG/2B-03-007	Knurling locking screw	1	Subassembly
16	GB/T75-85	Hexagon socketset screws with cone M5 x8	1	
17	TWG/2B-03-012	COVER	1	

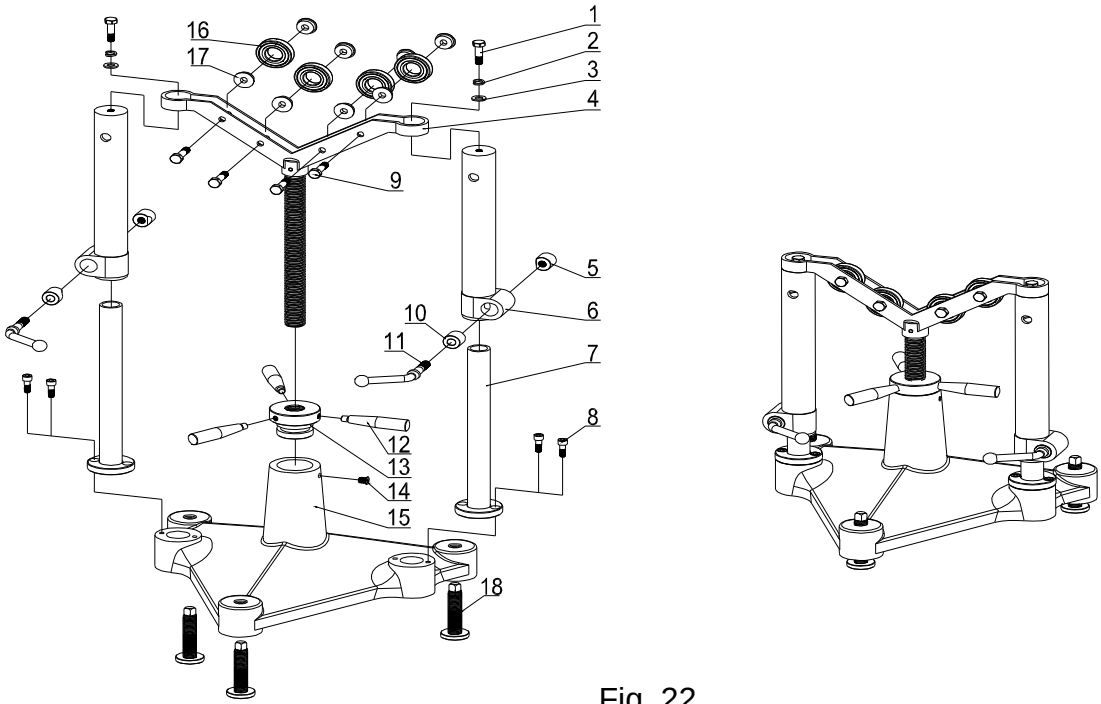

Fig .22

4. Bracket parts form (Fig.22)

S/N	Code name	Name	Qty	Material
1	GB/T 5781-2000	Hexagonal bolt M10x25	2	
2	GB93-87	Spring washer 10	2	
3	GB97.1-2002	Flat washer A level 10	2	
4	TWG/2A-05-005	Triangle bracket	1	Jointing assembled
5	TWG/2A-05-008(1)	Stopping block A	2	45#
6	TWG/2A-05-009	Bracket pipe	2	HT200
7	TWG/2A-05-007	Guide column	2	Jointing assembled
8	GB/T 70.1-2000	Hexangular bolt M8x20	4	
9	GB/T 5781-2000	Bolt M10x30	4	
10	TWG/2A-05-008(1)	Stopping block B	2	45#
11	TWG/2A-05-010	Tighten screw	2	45#
12	TWG/2A-05-004	Adjust screw cap	1	45#
13	TWG/2A-05-003	Handle	3	45#
14	GB/T 846-1985	C-type cross screw M8x10	1	
15	TWG/2A-05-001	Triangle bracket base	1	HT200
16	GB/T 276-1994	Bearing 6205	4	
17	TWG/2A-05-006	Bearing retainer ring	8	45#
18	TWQ/5-05-02	Adjust bolt M16×80	3	45#

1. Our company reserves the authority of changing the products and specification, if any alteration we don't inform specially.

2. Difference between the picture and the object, please be subject to the object.

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