



使用前请仔细阅读使用说明书

Please read this operation manual carefully before use.

青羊牌滚槽机

使用说明书

Operation Manual of

QINGYANG Pipe Grooving Machine

Model GC984 - A

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I GENERAL SAFETY INSTRUCTIONS



Warning! Please read and follow all the safety rules for operation, any violation of the safety rules may cause electric shock, fire or personal injury.

1. SAFETY RULES FOR WORK SITE

- 1.1 Keep the work site clean and bright, disordered and dark site may cause accident.
- 1.2 It is not allowed to operate the electric machine in an environment with flammable liquid, gas or dust, which may easily cause explosion. The spark generated by the electric machine will light up the dust or gas.
- 1.3 Unrelated personnel, children and visitors should be kept far away from the site of the electric machine. Absent-minded operation will make the operator lose control of the machine.

2. ELECTRICAL SAFETY

- 2.1 The plug of the electric machine must be matched with the socket. It is prohibited to refit the plug in any way. It is not allowed to use any adaptor plug for the electric machine which needs grounding. The original plug and matched socket could reduce the risk of electric shock.
- 2.2 It should be avoided that human body gets contact with the grounding surface, like pipe and heat sink. Human body grounding will increase the risk of electric shock.
- 2.3 It is not allowed to expose the electric machine in the rain or in the humid environment. It will increase the risk of electric shock in case water enters the electric machine.
- 2.4 It is not allowed to abuse the power line. It is forbidden to use the electric wire to carry or haul the electric machine or remove the plug by pulling the wire. Keep the power line away from the heat source, oil, sharp edge or moving parts. The damaged or winded flexible line will increase the risk of electric shock.
- 2.5 When operating the electric machine in the open air, please use the external flexible line which is suitable for use in the open air. It will reduce the risk of electric shock.
- 2.6 If it is inevitable to operate the electric machine in a humid environment, the residual current protector device RCD (leakage protector) should be used to reduce the risk of electric shock.
 - 2.6.1 For single 220V electric machine, 2-pol 2-line RCD should be used in priority.
 - 2.6.2 For 3-phase 4-line 380V electric machine, 3-pol 4-line RCD or 4-pol 4-line RCD should be used in priority.
 - 2.6.3 For 3-phase 3-line 380V electric machine, 3-pol 3-line RCD should be used in priority.

3. PERSONAL SAFETY

- 3.1 Keep alert. When operating the electric machine, pay close attention to the operation and keep

clear-minded. When you feel tired, or have a drug, alcohol or treatment reaction, do not operate the electric machine. In the operation of electric machine, momentary negligence may cause serious personal injury.

3.2 Please use personnel protective device. Wear goggles during operation. Dust mask, antiskid shoes, safety helmet and hearing protection device must be used in corresponding situation.

3.3 Prevent unexpected start-up. Insure the switch is off when connecting the power supply, lifting up or moving the machine. It may cause danger if putting fingers on the alive switch or inserting the plug when the switch is on.

3.4 Before the electric machine is turned on, take off the tools (such as spanner, etc.) left on the rotary components of the electric machine to avoid personal injury.

3.5 Do not stretch your arms too far. Watch your foothold and keep body balance, so that the electric machine is well controlled in case of unforeseen circumstances.

3.6 Dress properly. It is not allowed to wear gloves, loose clothes or decorations. Keep clothes and hair away from the moving parts. Gloves, loose clothes, decorations or long hair may get involved in the moving parts to cause serious personal injury.

4. OPERATION AND POINTS FOR ATTENTION OF ELECTRIC MACHINE

4.1 Do not misuse the electric machine; use the proper electric machine according to your application. Choosing the properly designed electric machine will make your work more efficient and safer.

4.2 If the power cannot be turn on or turn off by the switch, it is not allowed to use the electric machine. The electric machine which cannot be controlled by the switch is dangerous, it must be repaired.

4.3 The power plug must be removed from the socket before any adjustment, or replacement of accessories, or storage of the electric machine. These protective measures will reduce the risk of unexpected start-up of the machine.

4.4 Store the unused electric machine out of the reach of children. And the person who is not familiar with the electric machine or does not understand the instructions is not allowed to operate the electric machine. If there is damage, the electric machine should be repaired before use. A lot of accidents are caused by poorly maintained machines.

4.5 Keep the cutting tools sharp and clean. The well maintained cutting tools with sharp edge is not easy to get stuck and easy to control.

4.6 Use the electric machine, its accessories and cutting tools according to the operation manual with consideration of the operation conditions and practical work. It may cause danger if the electric machine is used for the purpose other than its designed application.

5. REPAIR SERVICE

Send the electric machine to professionals for repaired with the original spare parts. This will ensure the safety of the repaired electric machine.

6. SAFETY OPERATION OF PIPE GROOVING MACHINE

6.1 The pipe threading machine are mainly used for rolling annular grooves at the ends of steel pipes, please obey the instructions of the operation manual. They will increase the risk of injury if it is used for other purposes.

6.2 Please fix the machine on the flat round or working bench to prevent the machine from turnover.

6.3 Please use the pipe stand to support longer and heavier pipe to prevent the machine from turnover.

6.4 It is not allowed to wear gloves and loose clothes. Please do not bend over the machine because the clothes may get involved in the rotary parts to cause winding and injury.

II OPERATION EXPLAIN

Manufactured as per Q/20193365-9.08

1. FUNCTION

QINGYANG pipe grooving machines are mainly used for rolling annular grooves at the ends of steel pipes. It is an ideal tool of grooved couplings and fittings for connection in pipe installation.

2. MAIN PARTS

2.1 GC984-A PIPE GROOVING MACHINE (Fig.1) (Fig. 2)

1. Cover
2. Motor
3. Gear box
4. Switch
5. Grinder switch
6. Grinder socket
7. Frame
8. Scale
9. Cylinder
10. Power cord
11. Base plate
12. Chassis
13. Auxiliary support
14. Pipe support
15. Cylinder handle
16. Pressure relief valve
17. Slide block
18. Pipe stabilizer
19. Shaft
20. Pinch roller
21. Pipe stabilizer
22. Pin
23. Adjust nut
24. Spindle

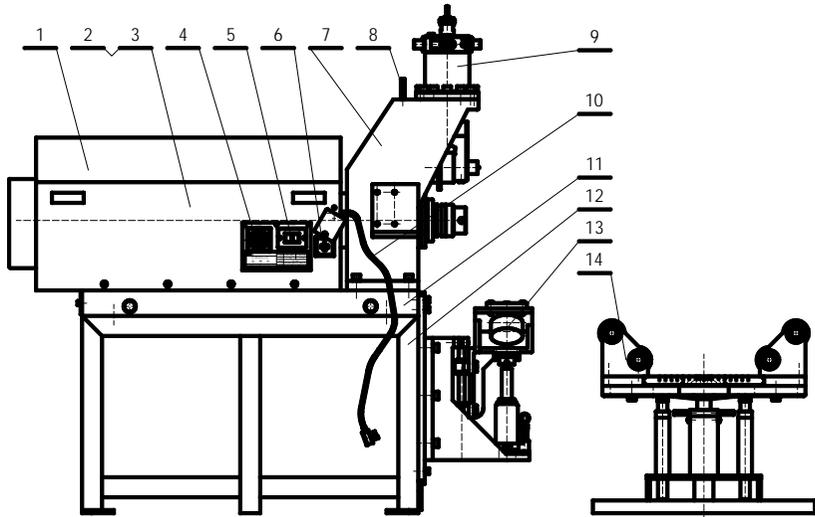


Fig. 1

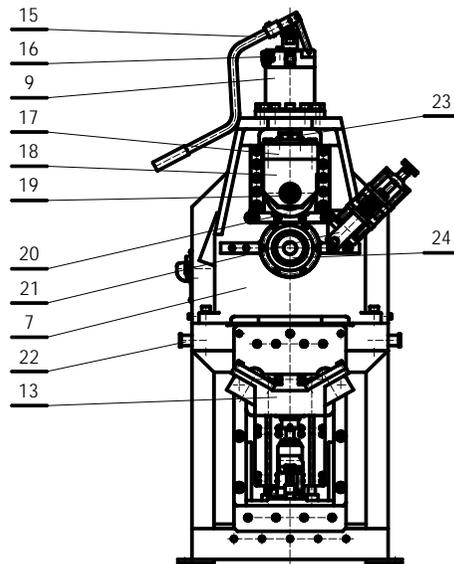


Fig. 2

3. MAIN TECHNICAL PARAMETERS

Table 1

Model		GC984- A
Feeding way		Hydraulic
Capacity	Wall thickness	3.5~20mm
	Pipe diameter	125~500
	Max. pipe weight	2000 kg
Cylinder Parameters	Max. working force	180 kN
	Max. hydraulic cylinder pressure	2/40MPa
	Oil pump displacement	2 /8 ml/ each time
	Cylinder capacity	500 ml
Spindle speed		20 r/min
Motor		Y132S-4 380V 50Hz 4 KW 8.77A 1430 r/min
Gear box		Cycloid gear box: ZWD4-7A-71
Weight		500 Kg
Dimensions		1480×560×1592 mm

4. INSTALLATION

4.1 The pipe grooving machine should be fixed on concrete ground. The pipe grooving machine and its pipe stand should be fixed with ground screws. It is recommended to use M12 expansion bolts. Pay attention to the alignment between the pipe grooving machine and the pipe stand.

4.2 All the rotating and moving parts should be lubricated. Turn on the machine without load and check the operation status.

4.3 The machine is relatively high, it is suggested that a foot rest pad not less than 200mm should be placed at the position where the operator stands.

4.4 This machine uses 380V power supply; please select power supply as per relevant regulations.

5. GROOVING OPERATION

5.1 Preparation

5.1.1 According to the specification and wall thickness of the pipe to be grooved, turn the adjusting

screw bolt (see Fig. 3) on the wedge base to vary the height of the slide wedge. After grooving, measure the groove depth and make accurate adjustment if necessary. The slide gauge is available for reference to control the groove depth (Fig.1).

5.1.2 Select the knurl roller and pinch roller properly according to the table below:

Table 2

Pipe Size	Pinch Roller No.	Knurl Roller No.	Allowed Wall Thickness (mm)
125~150	5~6	125—150x8	6~10
200~300	8~20	200—300x8	6~10
350~400		350—400x10	8~14
450~500		450—500x12	10~16

5.1.3 If the wall thickness of the steel pipe to be grooved is greater or smaller than that described above, proper knurl roller can be customized by our company.

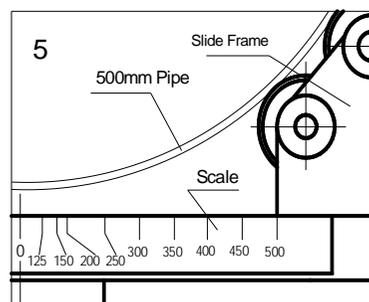
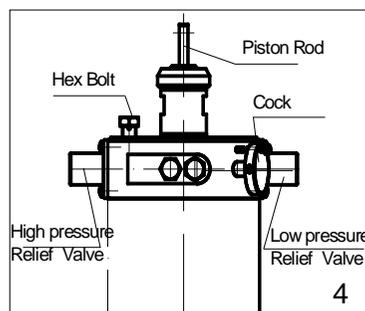
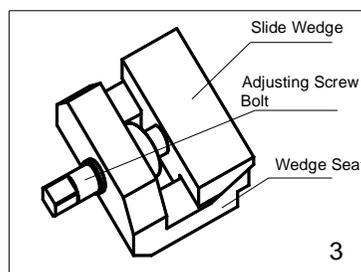
5.1.4 A grounding wire and a proper fuse are required in the power circuit.

5.1.5 Turn the hex bolt properly to show the vent hole (see Fig. 4).

5.1.6 The slide block will go back to the top automatically after opening the pressure relief valve (Fig. 4).

5.1.7 Loosen the roller rack of pipe stand (Fig.5) (Fig.6) and align the inner sides of roller rack to the expected size on scale to enable four rollers work; then fix the roller rack after adjustment. Finally, rise up the two assistant supporting bars under the crossbeam to make them support the crossbeam to avoid shaking (Fig.7).

5.1.8 Put the pipe stand at a proper place on the axis of the spindle of the pipe grooving machine, and then put the pipe to be grooved on the spindle and the pipe stand. Adjust the pipe stand to make the axis of the pipe be aligned with the axis of the pipe grooving machine in both vertical and horizontal directions with



an angle allowance within one degree, just as shown in Fig.8 and Fig.8. It is suggested that the pipe stand should be put at a place about 3/4 of the total length of the pipe to be grooved.

5.1.9 The sliding board of pipe rack can slide a certain distance and has the function mentioned in clause 5.1.8. Loosen screws and push the sliding boarding to expected position, then fasten the screws after well judgment.

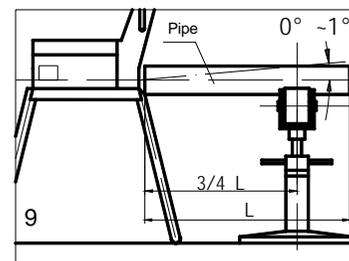
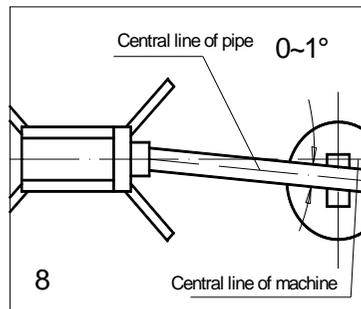
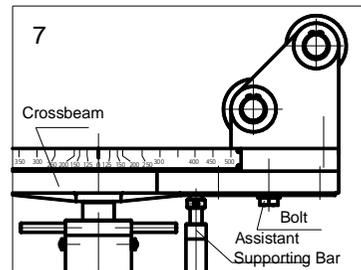
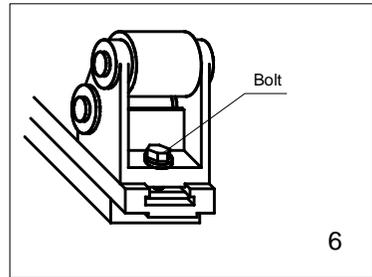
5.1.10 In case the knurl roller or the pinch roller is replaced, their relative position should be adjusted again. Loosen the hex bolt and turn the screw bolt to move the roller housing to align the pinch roller with the notch of the knurl roller (Fig.10) (Fig.11). After the adjustment, fasten the hex bolt.

5.1.11 An auxiliary pipe stand should be installed on the main pipe stand for 100-300 steel pipe grooving, please refer to Fig.12 for the installation method. The roller adjustment of auxiliary pipe stand is the same as Item 5.1.8.

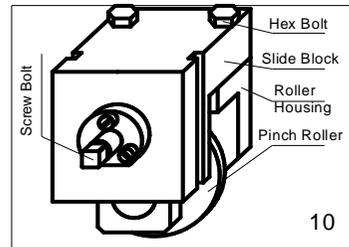
5.1.12 This pipe grooving machine is equipped with pipe stabilizer, which is installed on the left of spindle in 45° angle. When grooving, the rollers of pipe stabilizer butts the pipe to minimize pipe shaking. User can shorten the spring properly but cannot make it dead. (Fig. 2)

(Fig.13) .

5.1.13 Pipe grooving machine could attach an optional assistant supporting rack (Fig.1) (Fig.14). Before grooving, put the middle part of pipe on pipe stand, and put the to-be-grooved end on this assistant supporting rack, and utilize this rack to push pipe onto knurl. After finishing grooving, use jack to eject the pipe away from knurl, and take off the pipe from machine. Be alert that the assistant supporting rack should keep off from pipe during grooving.

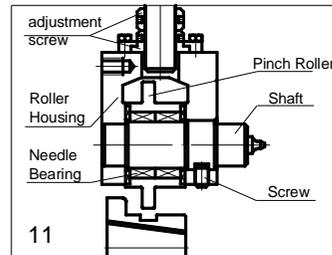


5.1.14 The difference of pinch roller and knurl roller is very large in diameter, which requires different space for machining. There is an adjustment screw on the junction of the piston of hydraulic and the slide block. Turn this screw to make the slide block move to change the space for machining. Be alert that the adjustment screw should be fixed after adjustment. (Fig.11)

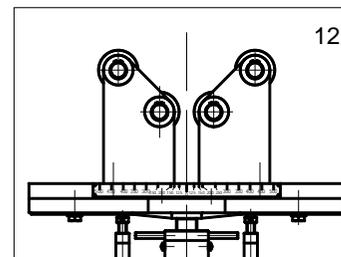


5.2 Grooving Operation

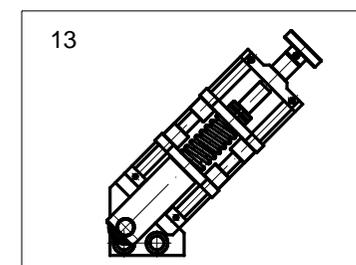
5.2.1 The cylinder of this machine is double functional (see Fig. 4). Screw up the pressure relief valve, operate the handle of the manual pump to make the pinch roller touch the pipe. The pinch roller will go 0.5mm toward pipe every time stressing the handle when pinch roller has not touched pipe, and 0.05mm when pinch roller has touched pipe. Turn on the machine and continue to operate the handle of the manual pump. The handle can only be operated once for one revolution of the pipe. Too fast handle feeding operation may easily cause pipe mouth enlarging, or have the pipe pressed flat or broken



5.2.2 When the slide block touches the slide wedge of the wedge assembly (or observe the gauge), it reaches the desired grooving depth. The operator should stop operating the handle, keep the pinch roller rolling for one or two revolutions, and then, unscrew the pressure relief valve to release the pressure to make the pinch roller away from the pipe.



5.2.3 When finishing grooving, move back the pipe stabilizer and take off pipe. User can use assistant supporting rack to lift pipe to keep pipe away from knurl if the assistant supporting rack is equipped in the machine.



5.2.4 When a short pipe is to be grooved, the pipe is easy to fall off. It is suggested that you hold the pipe with a piece of wood and push the pipe slightly backwards. When the initial grooving is made, you can remove your hand. The method is only suitable for the steel pipe with diameter less than 150.

5.4 Instruction on Assistant Supporting Rack

5.4.1 Install the assistant rack in machine. Lift it higher when grooving small pipes and lower when big pipes. (Fig.14) Please pay attention to the adjustment hole on it.

5.4.2 Operate the handle of jack to lift the universal balls to a proper height that is suitable to pipe.

5.4.3 The pipe that will be grooved should be put on the two universal balls, and then pushed onto the knurl against the flange of knurl. After the pipe is in proper position, release the jack to make the universal balls leave away from pipe, then user can start the machine.

5.4.4 After grooving, use jack to eject the pipe from groove, and take away it from knurl.

5.4.5 During grooving, the assistant supporting rack cannot touch steel pipe, otherwise, they may be damaged.

6. POINTS FOR ATTENTION

6.1 It is not allowed to open or dismount the safety valve.

6.2 The pipe mentioned in this manual means the welded pipe or galvanized steel pipe under the standard GB/T3091 and GBT13793.

6.3 The end plane of the pipe to be grooved should be even, regular and vertical to the axis of the pipe.

6.4 All the raw steel pipes can't be grooved until they are cut at their ends, otherwise the pipes will be grooved with many burs because of the unevenness of the ends of the raw steel pipes.

6.5 The axial clearance between two taper roller bearings when repairing the spindle.

6.6 The spindle of the pipe grooving machine has been well adjusted before delivery from the factory, the user is not allowed to dismount or adjust it at will, or it will probably cause damage of the spindle bearing.

6.7 If the hydraulic cylinder can't be pressured, it may be caused by the following reasons: the vent hole is not screwed out, insufficient hydraulic oil or there is air in the cylinder.

6.8 The steel ball in relief valve cannot be lost when removing the valve.

6.9 Tie ropes to the hoist pins when moving machine.

6.10 The normal operation condition for the pipe grooving machine: the height above the sea level is no more than 1000m; the environment temperature is from 0°C to +40°C; the relative humidity is not more than 90% (25°C) .

6.11 10# hydraulic oil is needed when temperature is low in winter.

7. ELECTRICAL PRINCIPLE AND SAFETY

The electrical principle and connection diagram is shown in Fig.16.



Warning!

7.1 The power circuit must be provided with a ground wire and connected with a proper fuse.

7.2 Non-professionals are not allowed to connect power for this product.

7.3 To avoid overheat caused by idle running of the motor, the idle running time should be less than 30 minutes.

8. MAINTENANCE

8.1 All the rotating and moving parts must be lubricated at least one or two times every shift.

8.2 The gear box of a new machine should be cleaned after the first 600-hour running, and after that, it should be cleaned once every 1200-hour running. After each cleaning, the gear box should be greased properly with clean No.3 lime grease.

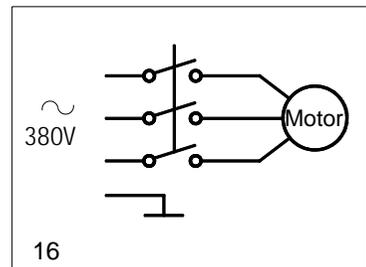
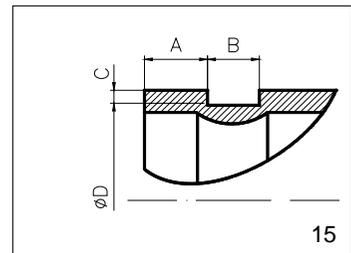
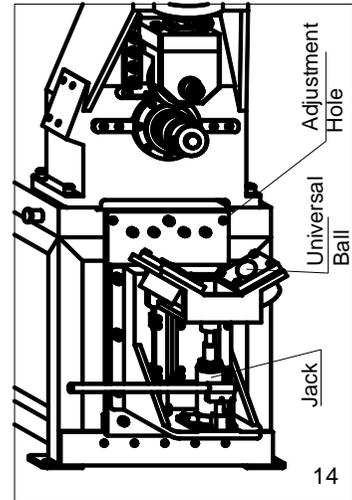
8.3 After repair or maintenance, the grounding wire must be well connected. All the wire ends should be sleeved with wire conduits and fastened to the switch body with rubber rings.

8.4 To dismount the knurl roller conveniently, it is suggested that a big screw driver should be put into the chink between the knurl roller and the frame to dismount it. Attention should be paid to the relative position of the key and the keyway when the knurl roller is installed.

8.5 The shaft cannot be dismounted until the fastening screw beneath the roller housing is loosened. (Fig.11 and 13).

8.6 The hydraulic oil should be checked regularly. To check the oil, remove the cylinder cock first, and then put in a wire to check the oil depth. If the oil depth is less than 70mm, oil should be replenished. The hydraulic oil should also be replaced regularly (by means of siphon age). 20# oil for summer and 10# oil for winter.

8.7 The inner sleeve of the unused or removed pinch roller must not get lost, or it is easy to have the needles dropped.



9. GROOVE DIMENSIONS (The dimensions in the table is just for reference)

9.1 GROOVE DIMENSION (Fig. 15) (Table 4)

Table 4

Pipe Dimension	A	B	C	ΦD
125	15.8	8.7	2.15	135.48
150	15.8	8.7	2.2	160.78
200	19	12	2.4	214.40
250	19	12	2.4	268.28
300	19	12	3	318.29
350	24	12	3	350.04
400	24	12	3	400.84
450	25.4	12	3	451.64
500	25.4	12	3	502.44

10 TOOLS, SPARE PARTS AND ACCESSORIES

Table 5

Description	Specifications	Quantity
Screw Driver	75	2
Hexagonal Spanner	6、8、10、12	1 each
Oil Gun	180mL	1
Pipe Stand	1	
Double-end Spanner	13×16、19×24	1 each
Hydraulic Oil	250mL	

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