Please read this operation manual carefully before use.

# QINGYANG Pipe Grooving Machine

## Contents

# 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, 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 abuse 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 can not be turn on or turn off by the switch, it is not allowed to use the electric machine. The electric machine which can not 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 comply with the instructions of the operation manual. It 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**

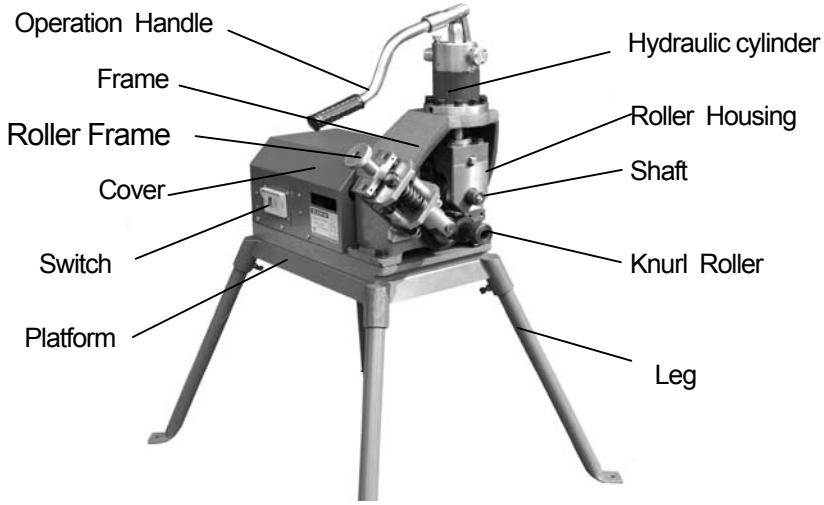


Fig.1

Notes：The roller framer are special order accessories.

### 3. MAIN TECHNICAL PARAMETERS

Table 1-a

| Model | | GC150-AN | GC150-BN | GC150-CN |
|---|---|---|---|---|
| Capacity | Wall thickness | 3-5mm | 3-5mm | 3-5mm |
| | Pipe diameter | 50-150 | 50-150 | 50-150 |
| Cylinder parameters | Maximum working force | 30 kN | 30 kN | 30 kN |
| | Maximum hydraulic cylinder pressure | 37MPa | 37MPa | 37MPa |
| | Oil pump displacement | 1.1 ml/ every time | 1.1 ml/ every time | 1.1 ml/ every time |
| | Cylinder capacity | 70 ml | 70 ml | 70 ml |
| Spindle speed | | 29 r/min | 29 r/min | 34 r/min |
| Motor | | YS7132A(short shaft)<br>380V 50Hz<br>1.1kW 2800 r/min | YC7142T(short shaft)<br>220V 50Hz<br>750W 2800 r/min | YDQ120-2AT<br>110V 60Hz<br>750W 3300 r/min |
| Capacitor | | - | 250V 150μF | 250V 100μF |
| Weight | | 48kg | 48kg | 48kg |
| Dimensions | | 568×245×538 | 568×245×538 | 568×245×538 |

Table 1-b

| Model | | GC200-AN | GC200-BN | |
|---|---|---|---|---|
| Capacity | Wall thickness | 1-6mm | 1-6mm | |
| | Pipe diameter | 50-200 | 50-200 | |
| Cylinder parameters | Maximum working force | 40 kN | 40 kN | |
| | Maximum hydraulic cylinder pressure | 32MPa | 32MPa | |
| | Oil pump displacement | 1.1 ml/ every time | 1.1 ml/ every time | |
| | Cylinder capacity | 110 ml | 110 ml | |
| Spindle speed | | 29 r/min | 29 r/min | |
| Motor | | YS7132A(short shaft)<br>380V 50Hz<br>1.1kW 2800 r/min | YC7142T(short shaft)<br>220V 50Hz<br>750W 2800 r/min | |
| Capacitor | | - | 250V 150μF | |
| Weight | | 59kg | 59kg | |
| Dimensions | | 637×316×600 | 637×316×600 | |

Table 1-c

| Model | | GC300-AN | GC300-BN | GC300- AM | GC300- BM |
|---|---|---|---|---|---|
| Capacity | Wall thickness | 3-7mm | 3-7mm | 3-10mm | 3-10mm |
| | Pipe diameter | 50-300 | 50-300 | 50-300 | 50-300 |
| Cylinder parameters | Maximum working force | 62kN | 62kN | 93kN | 93kN |
| | Maximum hydraulic cylinder pressure | 32MPa | 32MPa | 30MPa | 30MPa |
| | Oil pump displacement | 1.2 ml/ every time | | | |
| | Cylinder capacity | 100 ml | 100 ml | 230 ml | 230 ml |
| Spindle speed | | 22 r/min | 22 r/min | 25 r/min | 25 r/min |
| Motor | | YS7132A(short shaft)<br>380V 50Hz<br>1.1KW 2800 r/min | YC7142T(short shaft)<br>220V 50Hz<br>750W 2800 r/min | YST9012<br>380V 50Hz<br>1.5KW 2800 r/min | DOT9012GA<br>220V 50Hz<br>1.5KW 2800 r/min |
| Capacitor | | - | 250V 150μF | - | 450V 60μF |
| Weight | | 83kg | 83kg | 113kg | 113kg |
| Dimensions | | 680×288×516 | 680×288×516 | 730×400×715 | 730×400×715 |

**4. INSTALLATION**

4.1 Put the four stand legs into the four holes of the platform from bottom to top and fasten them. (See Fig.1)

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 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.

4.4 The roller frame reduces swing roll groove pipe process, as shown in Figure 1 Install wheel frame.

**5. GROOVING OPERATION**

5.1 Preparation

5.1.1 For GC300 pipe grooving machine series, turn the dial (Fig.2) to adjust the groove depth according to the specification, wall thickness of the pipe to be grooved and trial grooving result. One turn of the dial is equal to 2mm.

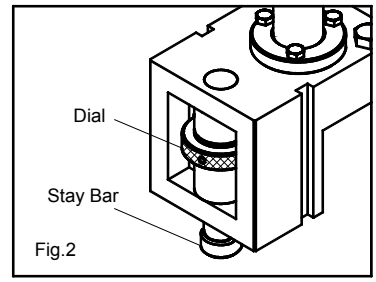

Fig.2

For GC150、GC200 pipe grooving machine series, turn the dial (Fig.3) to adjust the groove depth according to the specification, wall thickness of the pipe to be grooved and trial grooving result. One turn of the dial is equal to 2mm. Please note that the dial should be turned downwards first when it is loosened.

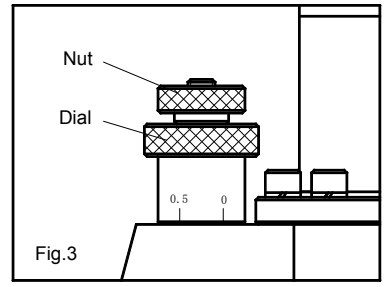

Fig.3

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

5.1.3 For GC200-AN/BN pipe grooving machines, select the knurl roller and pinch roller properly according to Table 2-a.

Table 2-a

| Nom. Pipe Size | O.D. | Allow. Wall Thickness | Pinch Roller No. | Knurl Roller No | Optimum Wall Thickness |
|---|---|---|---|---|---|
| 50 | 60.3 | 1-4 | 61033 (JLM6.206.1033) (JLM8.322.1082) | ——— | 1-4 |
| 65 | 76.1 | | | | |
| 80 | 88.9 | | | | |
| 100 | 114.3 | | | | |
| 125 | 140 | | | | |
| 150 | 165 | | | | |
| 200 | 219.1 | 2-6 | 61032 (JLM6.206.1032) (JLM8.322.1081) | 71018 (JLM8.227.1018) | 2-5 |

For GC300-AN/BN pipe grooving machines, select the knurl roller and pinch roller properly according to Table 2-b.

Table 2-b

| Nom. Pipe Size | O.D. | Allow. Wall Thickness | Pinch Roller No. | Knurl Roller No | Optimum Wall Thickness |
|---|---|---|---|---|---|
| 50 | 60.3 | 2-4 | 1 (JLM6.206.1017) (JLM8.322.1013) | 4 (JLM8.324.1001) | 3-4 |
| 65 | 76.1 | 2-6 | | | |
| 80 | 88.9 | | | | 3-5 |
| 100 | 114.3 | | | | |
| 125 | 139.7 | 3-7 | | | 3-6 |
| 150 | 168.3 | | | | |
| 200 | 219.1 | | 2 (JLM6.206.1005) (JLM8.322.1014) | 6 (JLM8.324.1003) | |
| 250 | 273 | | | | |
| 300 | 323.9 | | | | |

For GC300-AM/BM pipe grooving machines, select the knurl roller and pinch roller properly according to Table 2-b (they are also available for grooving common welded pipes).

Table 2-c

| Nom. Pipe Size | O.D. | Allow. Wall Thickness | Pinch Roller No. | Knurl Roller No. | Optimum Wall Thickness |
|---|---|---|---|---|---|
| 50 | 60.3 | 2-4 | 61028 (JLM6.206.1028) (JLM8.322.1077) | 41027 (JLM8.324.1027) | 3-4 |
| 65 | 76.1 | 2-6 | | | 3-5 |
| 80 | 88.9 | | 61029 (JLM6.206.1029) (JLM8.322.1078) | 41028 (JLM8.324.1028) | |
| 100 | 114.3 | | | | |
| 125 | 139.7 | 3-7 | | | 3-6 |
| 150 | 168.3 | | | | |
| 200 | 219.1 | 3-8 | 61030 (JLM6.206.1030) (JLM8.322.1079) | 41029 (JLM8.324.1029) | 4-8 |
| 250 | 273 | 4-10 | | | |
| 300 | 323.9 | | | | 5-9 |

Notes： in case 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 Turn the hex bolt properly to show the vent hole before operation of the hydraulic pipe grooving machine, as shown in Fig.4.

5.1.5 For hydraulic pipe grooving machine, screw up the cock before grooving (Fig. 4), and

unscrew it after grooving, the slide block will bring the pinch roller to the top position automatically.

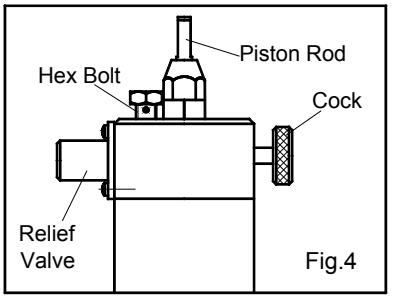

Fig.4

5.1.6 For GC200、GC300 series, the scale on the crossbeam of the pipe stand has scales relative to the pipe to be grooved. Before grooving, the slide frame should be adjusted properly as per the relative location, after the adjustment, the slide frame should be fastened(Fig. 5).

For GC150 series, the two rollers are installed at the lower position of the pipe stand for smaller pipe grooving while installed at the upper position for bigger pipe. (Fig.6)

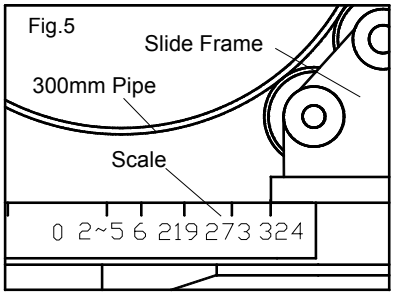

Fig.5

5.1.7 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.7 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.

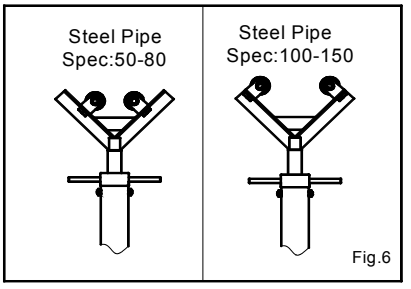

Fig.6

5.1.8 When pipes are grooved, it is required that the pipe grooving machine and the pipe stand should be relatively fixed so as to avoid movement of the pipe grooving machine and the pipe stand in relation to the ground.

5.1.9 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 as shown in Fig.9 and Fig.10. After the adjustment, fasten the hex bolt.

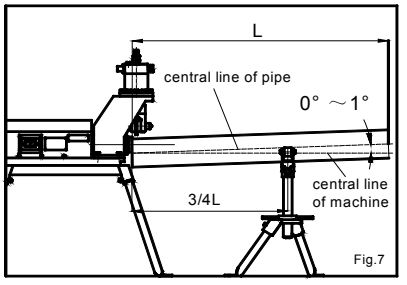

Fig.7

5.1.10 For GC300 series, when the 11.91mm pinch roller is used, it should be noted that the pinch roller should be set with the wider side outward as shown in Fig.10.

5.1.11 For GC300-AM/BM pipe grooving machines, when installing a pinch roller number 61028, should be roller housing to bring up the 3-4 mm outwards.

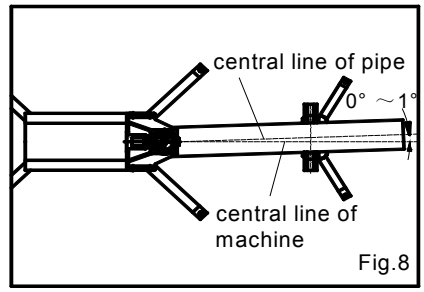

Fig.8

5.1.12 For GC300-AM/BM pipe grooving machines, when larger pipe is grooved ,the roller frame shout be installed outwards, when small pipe is grooved ,the roller frame shout be installed inwards . Especially to avoid the roller frame excessive contact the steel pipe started grooving .

5.2 Grooving Operation

5.2.1 For hydraulic pipe grooving machine, screw up the cock, operate the operation handle of the manual pump to make the pinch roller touch the pipe. Turn on the machine and continue to operate the handle of the manual pump to reach the grooving depth. It should be noted that 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.

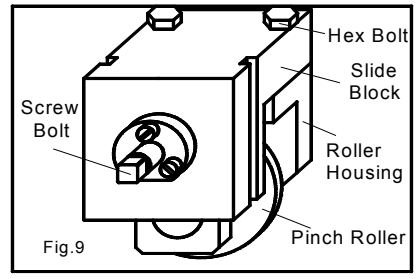

Fig.9

5.2.2 For GC300 series, when the stay bar touches the frame (for GC150、GC200 series, when the dial touches the frame), 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 cock to release the pressure to make the pinch roller away from the pipe. In case the pinch roller can not go away from the pipe, you can pat the pipe slightly downward to make it off. The above steps should be carried out without stopping the machine.

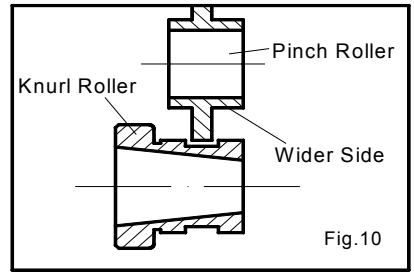

Fig.10

5.2.3 Stop the machine and take off the pipe.

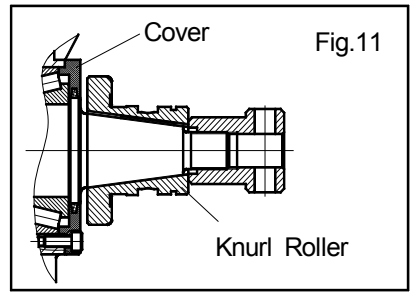

Fig.11

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.

## 6. POINTS FOR ATTENTION

6.1 The normal operation conditions for the pipe grooving machine: the height above the sea level is no more than 1000m; the environment temperature is from 0℃ to +40℃; the relative humidity is no more than 90%（25℃）.

6.2 In winter when the temperature is low, it is necessary to use 10# hydraulic oil to ensure normal operation of the hydraulic system.

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

6.4 The steel ball in the hole must not be lost when the cock of the hydraulic pipe grooving machine is screwed out.

6.5 This manual refers to the steel pipe are GB/T3091, GB/T8163 or ASTM A53/A53M, the yield strength of the material is less than 250MPa.

6.6 The end plane of the pipe to be grooved should be even, regular and vertical to the axis of the pipe. The mouth of the pipe that is cut with a pipe threading machine or with a manual pipe cutter should be chamfered, and the mouth of the pipe that is cut with a sand wheel cutter should be cleaned of its burs before grooving.

6.7 All the raw steel pipes can not 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.

6.8 When maintaining the spindle of the pipe grooving machine or replacing the pinch roller, it should be noted that the needles of the needle bearing should be well kept. If they are lost, even just one, they should be replenished. If the needles fall off, you can stick the needles onto the bearing seat with grease, and then carry out the assembling.

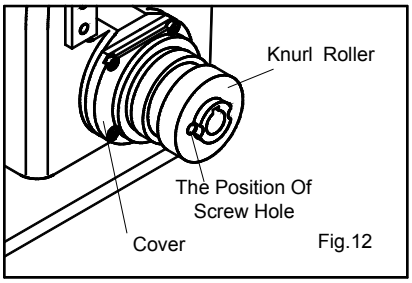

Fig.12

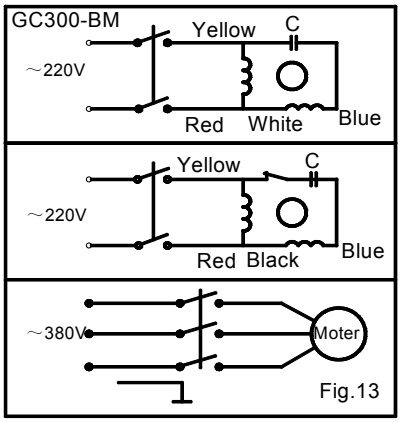

Fig.13

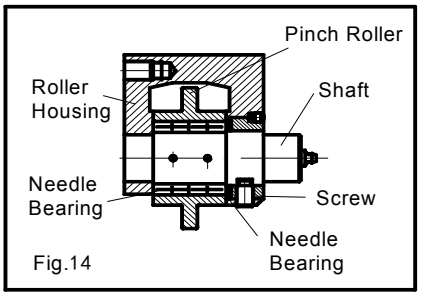

Fig.14

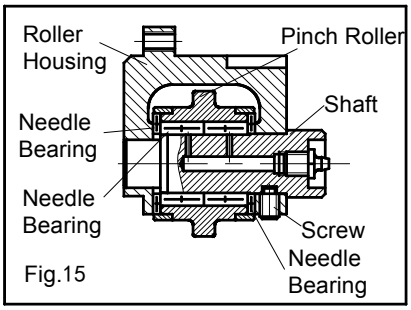

Fig.15

6.9 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.

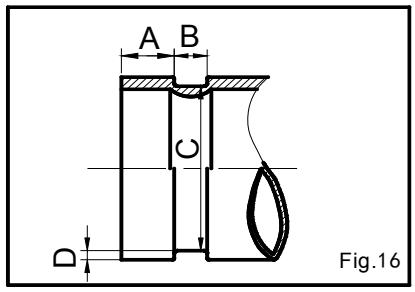

Fig.16

6.10 When wobbling occurs with the machine in pipe grooving operation, it is suggested that the user should fix the machine with ground screws.

6.11 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.

6.12 When the grooving machine of GC150、GC200 series is not in operation, it is not allowed to press the handle of the oil pump continuously so as to avoid the damage of certain parts. Before grooving operation, the dial should be turned to the position of desired groove depth so as to avoid the phenomenon that the desired groove depth is not achieved but the pinch roller refuses to go down due to the contact of the dial with the frame.

6.13 When dismounting the knurl roller of GC300 series pipe grooving machine, unscrew the nut firstly, then insert the wedge into the gap between knurl roller and cover, knock the wedge to make the knurl roller fall off. (Refer to Fig. 11)

When dismounting the knurl roller of GC200 series pipe grooving machine, insert the wedge into the gap between knurl roller and cover, knock the wedge to make the knurl roller fall off. If the knurl roller hasn't been dismounted in this way, please screw two M8 screws (the length is more than 20mm) to the position of screw hole as shown in Fig. 12, then the knurl roller sleeve can be pushed out.

**7. ELECTRICAL PRINCIPLE AND SAFETY**

The electrical principle and connection diagram is shown in Fig.13.

Warning!

7.1 l 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 can not be dismounted until the fastening screw beneath the roller housing is loosened, and note that the needles must not get lost. For hydraulic GC300 series, there is thrust needle bearing at the outer side of the pinch roller (Fig.14) and for hydraulic GC150、GC200 series, there are thrust needle bearings at both sides of the pinch roller (Fig.15).

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 25mm, oil should be replenished. The hydraulic oil should also be replaced regularly (by means of siphonage).

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（Fig.16）**

Table 3

| Pipe Nominai Size | A | B | C | D |
|---|---|---|---|---|
| 50 | 15.88 | 8.74 | 57.15 | 1.60 |
| 65 | 15.88 | 8.74 | 69.09 | 1.98 |
| 80 | 15.88 | 8.74 | 84.94 | 1.98 |
| 100 | 15.88 | 8.74 | 110.08 | 2.11 |
| 125 | 15.88 | 8.74 | 135.48 | 2.11 |
| 150 | 15.88 | 8.74 | 160.78 | 2.16 |
| 200 | 19.05 | 11.91 | 214.4 | 2.34 |
| 250 | 19.05 | 11.91 | 268.28 | 2.39 |
| 300 | 19.05 | 11.91 | 318.29 | 2.77 |

**10. TOOLS, SPARE PARTS AND ACCESSORIES**

GC150-AN/BN/CN：

Table 4-a

| Description | Specifications | Quantity |
|---|---|---|
| Hydraulic Oil | 200ml | 1 bottle |

| | | |
|---|---|---|
| Pipe stand | JLM4.114.1028 | 1 |
| Screw Driver | 75 | 2 |
| Hexagonal Key | 4、5、6、8 | One for each |
| Double-end Spanner | 10×12、11×13 | One for each |

GC200-AN/BN：

Table 4-b

| Description | Specifications | Quantity |
|---|---|---|
| Hydraulic Oil | 200ml | 1 bottle |
| Pinch roller | 61033 | 1 |
| Pipe stand | JLM4.114.1059 | 1 |
| Screw Driver | 75 | 2 |
| Hexagonal Key | 4、5、6、8 | One for each |
| Double-end Spanner | 10×13、16×18 | One for each |

GC300-AN/BN：

Table 4-c

| Description | Specifications | Quantity |
|---|---|---|
| Hydraulic Oil | 200ml | 1 bottle |
| Pinch roller | 2 | 1 |
| Knurl roller | 6 | 1 |
| Pipe stand | JLM4.114.1032 | 1 |
| Screw Driver | 75 | 2 |
| Hexagonal Key | 4、5、6、8 | One for each |
| Double-end Spanner | 10×12、16×18 | One for each |

GC300-AM/BM：

表 4-d

| Description | Specifications | Quantity |
|---|---|---|
| Hydraulic Oil | 200ml | 1 bottle |
| Pinch roller | 61028、61030 | One for each |
| Knurl roller | 41027、41029 | One for each |
| Pipe stand | JLM4.114.1032 | 1 |
| Screw Driver | 75 | 2 |
| Hexagonal Key | 4、5、6、8、10 | One for each |
| Double-end Spanner | 10×12、16×18 | One for each |

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