

Bolt and Pipe Threading Machine

OPERATION MANUAL



Thank you for using efficient threading machine. To ensure high performance and safe use, please read through this instruction before use and operate correctly according to this instruction during use.

I. Overview

This efficient threading machine applies to the cutting, threading and inner bore chamfering of all kinds of water, electricity and gas pipelines. Compared to traditional threading machine, this series of threading machine is characterized by high efficiency (which is enhanced by 50%-100%), large power (power of previous motor is 1hp while power of present motor is 1.5hp - 2hp) and good durability (life of critical components is increased by 30%-100%). Its overall performance is comparable to that of imported threading machine.

II. Important Notice

1. This machine shall be used with reliable grounding and anti-creep device.
2. Children are prohibited from touching this machine to avoid injury.
3. This machine shall not use the same socket with large-power machines, such as electric welding machine.
4. Pipe clamps shall not be installed on the machine, to avoid cracking of main components such as the cabinet.
5. Saponified solution shall not be used for cooling, such as water.
6. When leaving factory, centrality of the machine has been measured, but pipes maybe certain ovality. After machining, screw threads may be deep on one side and shallow on the other side. If they affect use, please check the quality of pipes.

III. Main Technical Performance

Model	Z1T-50A	Z1T-50AF	Z1T-100F-A
Threading Capacity	1/2" to 2"	1/2" to 2"	1/2" to 4"
Horsepower	1.2 HP	1.5 HP	2 HP
No. of Speeds	1	1	3
No Load RPM	28	35	15/25/44
Chuck Type	hammer chuck with replaceable rocker-action jaw Inserts	hammer chuck with replaceable rocker-action jaw inserts	hammer chuck with replaceable rocker-action jaw inserts
Die Head	1/2" to 2" multi-functional and self-oiling die head	1/2" to 2" multi-functional and self-oiling die head	1/2" to 2" multi-functional and self-oiling die head; 2½" to 4" profiling die head
NPT Dies	1/2" - 3/4" & 1" - 2" Right	1/2"-3/4" & 1" - 2" Right	1/2" - 3/4" & 1" - 2" 2½" - 4" Right
Reamers with a Shaft	5 Blade Conical Reamer	5 Blade Conical Reamer	3 Blade Conical Reamer
Voltage	1-Phase 110V/120V 60hz	1-Phase 110V/120V 60hz	1-Phase 110V/120V 60hz
Amps	10A	12A	19A
N.W.	127.9 lbs.	141.1 lbs.	299.9 lbs.
G.W.	154.4 lbs.	167.6 lbs.	344 lbs.
Packing Size	27-9/16" × 18-7/8" × 23-1/4"	27-9/16" × 18-7/8" × 23-1/4"	35-7/16" × 25-3/16" × 28-3/4"

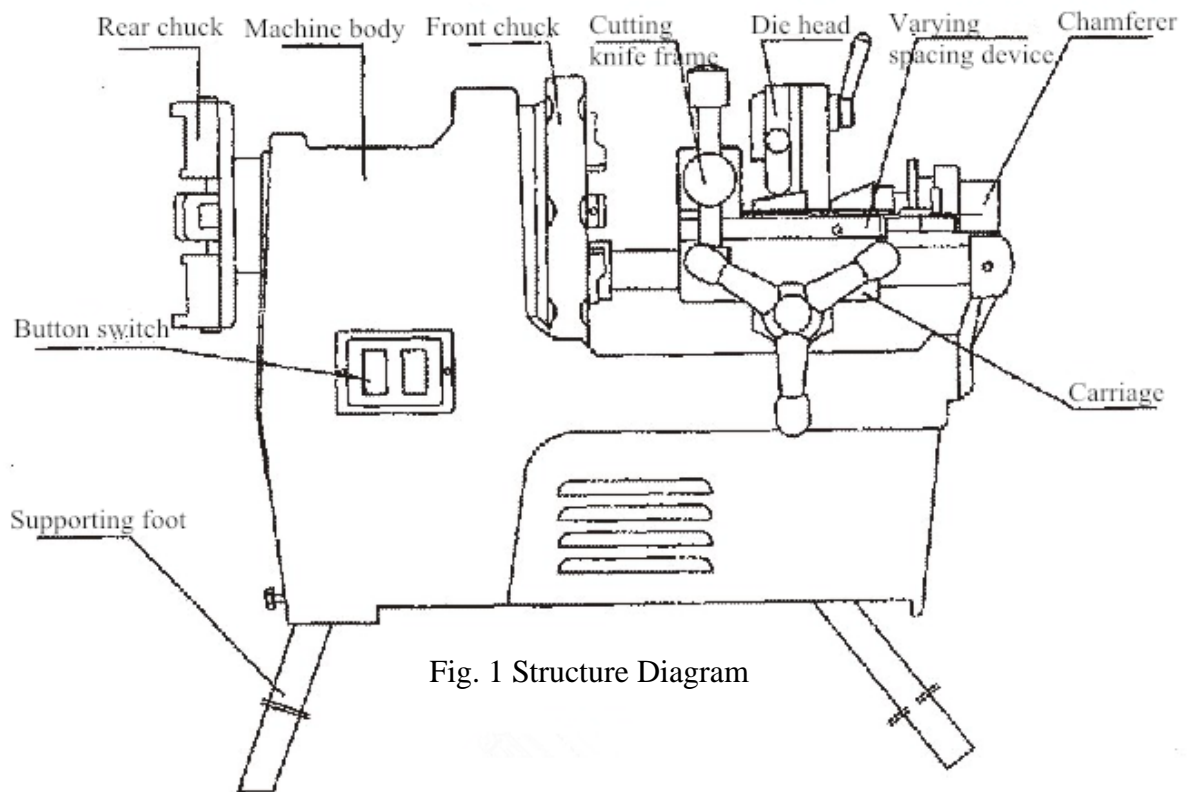
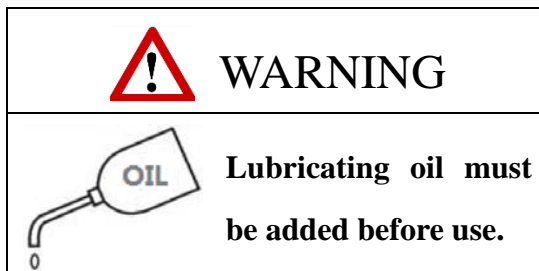


Fig. 1 Structure Diagram

IV. Outline Structure of Whole Machine

1. Main components of the machine is made of high-strength aluminum alloy and high-quality high-grade cast iron, so the whole machine owns light weight and large strength. (Its structure is shown in Fig. 1). Its die head, chamfering frame and cutting knife frame are installed on the carriage which is capable of longitudinal shift. Motor, gearbox and cooling oil pump are installed in the machine.

V. Use and Maintenance



1. Points for attention during operation: lock the die head at threading position, and completely open the threading die. Lock the chamferer at chamfering position before reliable handling.

2. Installation: when placing the machine, length of supporting foot shall be adjusted, so rear chuck is a little higher than front chuck.

3. Operation guide:

A. Installation of pipe clamp:

(1) Loosen front and rear chucks, put in the pipe from one side of rear chuck.

(2) Grasp the pipe with right hand, tighten rear chuck first and then tighten front chuck, to fix the pipe. Properly tighten the hammer panel in counter-clockwise direction, so as to clamp the pipe firmly.

(3) After completing threading and chamfering, push the hammer panel in an opposite direction, so as to loosen the chuck.

(4) When clamping a short pipe, the short pipe shall have bevel connection with threading die. In this way, the pipe can determine the center correctly when front

chuck is tightened.

B. Preparation for threading

- (1) Choose threading die according to your need.
- (2) Install threading dies into die head according to their number.
- (3) Pull the handle, to lock the threading die.
- (4) Adjust the spacing to required scale line.
- (5) According to pipe size, adjust scale line of die head to required position, and lock the handle nut.

C. Threading

- (1) Pull the cutting knife frame and chamferer; put down die head to touch the copying block. After reliable positioning of die head, press the button to start the machine.
- (2) Rotate the pipe in anti-clockwise direction, rotate the hand wheel of cutting feed, and make die head get close to the pipe.
- (3) Apply force to the hand wheel of cutting feed, until die head makes 3 ~4 threads on the pipe.
- (4) Then, loosen the hand wheel of cutting feed, so the machine starts automatic threading. When roller of die head goes over copying block and falls down, threading head will open automatically and the threading is completed. Multi-function die head shall be loosened manually.
- (5) Machine halt. Return to the carriage, until the whole die head exits pipe end. Pull out die head, lock the handle and pull up the die head.

D. Points for attention during threading:

- (1) When threading die touches the pipe, gradually increase the force to tighten hand wheel of cutting feed, until threading die bites 3~4 teeth into the pipe. If applying a small force to hand wheel of cutting feed and making it synchronize with threading die, higher quality threads will be produced.
- (2) Pay attention to extension distance of the pipe. If it is too short, die head will collide with front chuck and the machine will be damaged.

E. Thread specification adjustment:

Thread specification adjustment position has been demarcated before leaving factory. If necessary, demarcate it again according to the following method. For example, produce 2" pipe threads:

- (1) Adjust the copying device to 2" position.
- (2) Loosen screws at both ends of graduated scale of die head, move the graduated scale, align scale line with index line, and tighten the screws again.

F. Dismantle threading die:

- (1) Loosen handle nut of die head, move it to the farthest end and wrench it slightly.
- (2) Move the copying block in right direction, until die head roller touches base plate (basal plane). Then, get out the threading die.

G. Installation of threading die:

Insert corresponding threading die into die grooves in sequence. When inserting threading die, please note that: threading dies are prepared in sets, so they shall be used in sets. When one threading die is damaged, the other three threading dies shall be replaced at the same time, in order not to affect threading quality.

Note: when threading die is inserted to correct depth of die groove, its locking gap shall engage with locking key of curve plate. Then, wrench the curve plate, and the threading die will be positioned correctly.

H. Cutting and chamfering: regarding cutting or chamfering, cut before chamfer it.

Cutting:

- (1) Pull up chamferer and die head to above the pipe.
- (2) Put down cutting knife frame, and turn the cutting knife handle. Increase the opening of cutting knife frame, so roller of cutting knife frame strides over the pipe.
- (3) Rotate hand wheel of cutting feed, and move the cutting knife to required cutting position.
- (4) Rotate handle of cutting knife, so cutting knife and the pipe are clamped.
- (5) Start the machine, slowly rotate the handle of cutting knife, so cutting knife blade cuts into the pipe. When the pipe is rotated for one circle or several circles, the handle of cutting knife is rotated for 1/4 circle.

After cutting is completed, exit feeding screw of cutting knife and pull the cutting knife frame to original position.

Warning: if the handle of cutting knife is rotated too violently, when cutting knife is cut into the pipe, the pipe may be deformed, cutting knife wheel may be broken and cutting knife seat may be cracked.

Chamfering:

- (1) Pull up the die head and cutting knife.
- (2) Start the machine, rotate hand wheel of cutting feed, and push the chamferer to inner bore of the pipe.
- (3) Start the machine after completing the work, and raise the chamferer to idle position.

I. Cooling lubricating system:

- (1) Ensure sufficient oil in oil tank, and all pipelines are smooth.
- (2) If oil turns colors or becomes dirty, clean the oil tank and use new oil.
- (3) Clean oil filtering tray and oil absorption filtering tray after using for 8 -12 hours.
- (4) Since small scrap iron is mixed into the oil tank during threading, to ensure normal operation of threading machine, it is crucial to clean oil filtering tray regularly.
- (5) This machine adopts special oil of threading machine as cooling lubricant.
(Lubricating oil is not included in the accessories.)

J. Cutting knife:

- (1) If cutting knife wheel becomes blunt or damaged, replace it.
- (2) Timely clean and apply oil to feeding screw and roller of cutting knife.
- (3) Inspect the wear and tear of cutting knife, pin roll of roller and pin roll of cutting knife.
- (4) Clean and lubricate cutting knife blade and pin roll. Cutting knife wheel shall be lubricated with viscous heat-resisting oil.

K. Replacement of clamping jaw tip:

- (1) Take out inner hexagon screw with internal hexagonal wrench.
- (2) Take out spring and spring seat.
- (3) Take out clamping jaw tip.

L. Installation of clamping jaw tip:

- (1) Put a new clamping jaw tip in place.
- (2) Put in jack-prop and spring.
- (3) Install screw, until it cannot rotate.

VI. General Warning about Electric Tools



Warning!

Read all warnings and all instructions. Violation of the following warnings and instructions will lead to electric shock, fire or serious injury. Keep all warnings and instructions, so as to refer to them in the future.

In all illustrated warnings, term “electric tool” refers to electric tool driven by commercial power (wired) or battery (wireless).

a) Workplace safety

- 1) Keep the workplace clean and bright, since disordered and dark place leads to accidents.
- 2) Don't operate electric tools in explosive environment, such as the environment with flammable liquid, gas or dust. Sparks produced by electric tools will ignite dust or gas.
- 3) Operate electric tools after asking children and spectators to leave. Inattention will make you lose control of the tools.

b) Electric safety

- 1) Plug and socket of electric tools shall match. Plug shall not be refitted in any way. Electric tools requiring grounding shall not use any changeover plugs, because original plug and matching socket will reduce risk of electric shock.
- 2) Protect human beings from grounding surface, such as pipelines, cooling fins and refrigerators. Electric shock risk increases, if your body is grounded.
- 3) Don't expose electric tools to rain or humid environment. Electric shock risk increases, if water enters electric tools.
- 4) Don't misuse electric wire; don't use electric wire to handle, pull electric tools or

pull out its plugs. Keep it away from heat, oil, sharp edge or moving parts. Damaged or twisted flexible wire increases electric shock risk.

5) When using electric tools in the open air, adopt external electric wire suitable for outdoor use, which will reduce electric shock risk.

6) If electric tools are located in humid environment inevitably, use residual current operated protective device.

Use of RCD reduces electric shock risk.

Note: term “residual current operated protective device (RCD)” can be replaced with “ground fault circuit interrupter (GFCI)” and “earth leakage circuit breaker (ELCB)”.

c) Personal safety

1) Be alert, pay attention to operation of electric tools and keep awake. When the operator feels tired, or is affected by medicine, alcohol or treatment, don't operate electric tools. Serious personal injury occurs due to momentary negligence during operation of electric tools.

2) Use personal protective device, always wear safety goggles and safety devices. For example, under suitable conditions, use dust mask, antiskid safety shoes, safety helmet and listening protection device to reduce personal injury.

3) Prevent accidental activation. Make sure that the switch is cut off when connecting power supply and/or battery box, picking up or handling tools. It may be dangerous if fingers are put on power-on switch or plugs are inserted when switch is turned on.

4) Before connecting electric tools, take away all adjustment keys or wrenches. Wrenches or keys left on rotating parts of electric tools lead to personal injury.

5) Don't stretch hands too long. Always pay attention to foothold and body balance, so as to control electric tools well even under unforeseen circumstances.

6) Be properly dressed. Don't wear loose clothes or decorations. Keep your clothes, gloves and hair away from moving parts, because loose clothes, decorations or long hair may be drawn into moving parts.

7) Keep hands dry, clean and free from grease. Greasy handle is unallowable to safe holding and control of tools under unforeseen circumstances.

8) If there are devices connected with chip removal and dust-collecting equipment,

make sure that they are well connected and properly used. Use of these devices can reduce dust risk.

d) Use of electric tools and points for attention

1) Don't misuse or overload electric tools; use proper electric tools according to purposes. Using electric tools with proper designed rated value, operators will work more effectively and safely.

2) If the switch cannot turn on or off power supply of the tool, the electric tool cannot be used. Electric tool that cannot be controlled with a switch is dangerous and shall be repaired.

3) Before any adjustment, accessory replacement or storage of electric tools, take out the plug from power supply. This protective measure will reduce accidental activation risk of electric tools.

4) Standby electric tools shall be kept out of the reach of children. Those who are unfamiliar with electric tools or who don't understand these instructions shall not operate electric tools. It is dangerous for untrained users to use electric tools.

5) Maintain electric tools. Inspect whether moving parts are adjusted properly or jammed, whether parts are damaged and other circumstances that affect operation of electric tools. Damaged ones shall be repaired before use, since many accidents are caused by poorly maintained electric tools.

6) Keep cutting tools sharp and clean. Well maintained cutting tools with sharp cutting edge are easy to control and don't jam easily.

7) Use electric tools, accessories and cutting head of tools according to operation instruction, considering working conditions and operations. It may lead to dangers if electric tools are used beyond their purposes.

e) Repair

Electric tools shall be sent to professional maintenance personnel and shall be replaced with the same spare parts, in order to ensure their safety.

VII. Common Troubleshooting

Common faults	Reasons	Solutions
1. Motor doesn't work or work with intermittent sound	<ol style="list-style-type: none"> 1. Fuse is burnt down 2. Capacitor breakdown 3. Environment temperature is too low, and lubricating grease solidifies. 4. Ultra-low voltage 	<ol style="list-style-type: none"> 1. Detect the broken part with a multimeter 2. Use a new capacitor 3. Operate indoor or help it to start up 4. Use proper power supply
2. Pipe fails to be fixed and slips during threading	<ol style="list-style-type: none"> 1. Insufficient hammering force 2. Clamping jaw tip turns over 3. One clamping jaw tip breaks or has a gap 4. Clamping jaw tip is worn out 	<ol style="list-style-type: none"> 1. Hammer hard 2. Adjust clamping jaw tip 3. Use a new clamping jaw tip 4. Use a new clamping jaw tip
3. Cutting knife fails to cut, and fails to produce proper threads	<ol style="list-style-type: none"> 1. Sharp corner of cutting knife is worn out and becomes an arc 2. Pin roll of cutting knife is worn out 3. Cutting force is insufficient 	<ol style="list-style-type: none"> 1. Replace cutting knife blade 2. Replace pin roll 3. Cut more vigorously
4. Knife cannot cut during threading	<ol style="list-style-type: none"> 1. Opening of threading die is too small at the start of threading 2. Several teeth of die head are broken 3. Threading die doesn't match 4. There is scrap iron in threading die groove 	<ol style="list-style-type: none"> 1. Use threading die correctly 2. Replace threading die 3. Re-install threading die 4. Clean threading die head
5. Front chuck loosens and falls down	Screws loosen due to long-term use	Inspect them timely
6. Main shaft is heated and jammed	Insufficient oil	<ol style="list-style-type: none"> 1. Add oil timely 2. Exit beam barrel and repair shaft sleeve
7. Cooling oil doesn't come up	<ol style="list-style-type: none"> 1. Oil line is jammed 2. Oil hole doesn't align after 	<ol style="list-style-type: none"> 1. Clean oil line 2. Re-assemble

Common faults	Reasons	Solutions
	dismantling and re-assembling fulcrum shaft of threading die or tray 3. Oil leaks from oil pump after stopping use for a long time 4. Oil pump is worn out 5. Rotor pin roll of oil pump is broken	3. Add some cooling oil into oil pump 4. Replace oil pump
8. Oil leakage	1. Oil line plugging leads to falloff or rupture of oil line. 2. Oil draining screw in the oil tank isn't tightened	1. Inspect plugging point and replace oil line 2. Tighten oil draining screw
9. Cooling oil leaks into motor	Skeleton type oil seal of oil pump PD8×22×8 is damaged	Replace a new oil seal or oil pump
10. Single-phase motor is burnt down	1. Starting voltage is too low 2. Environment temperature is too low, and lubricating grease solidifies.	1. Wind wires and inspect voltage; replace qualified power line and power supply 2. Wind wires and carry out indoor operation
11. Unilateral threads	1. Oval pipe 2. Clamping jaw tip breaks or has a gap	1. Replace the pipe 2. Replace the jaw