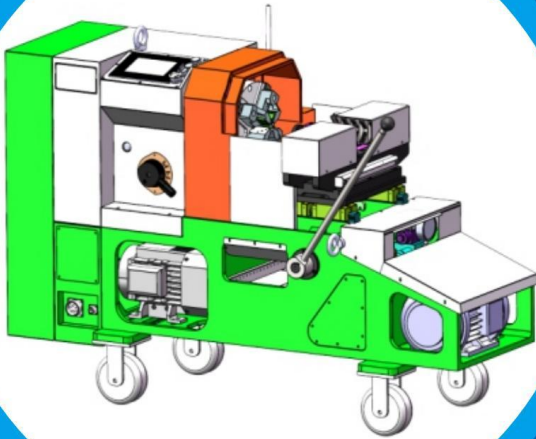


Instruction Manual



Automatic Threading Machine

Model DN15-100

SAFE·FAST·ACCURATE

Contents

I. Main Equipment Parameters

II. Introduction Of Equipment Operating System

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III. Equipment Operation Guide

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I. Main Equipment Parameters

1. Rated Power: 8.7 KW

2. Power Supply: Three-phase five-wire AC 380V 50Hz

3. Spindle Speed: 127/45/21 rpm (high, medium, low speeds)

4. Operating Hydraulic Pressure: 9-10 MPa

5. Equipment Dimensions: 1.52 x 0.58 x 1.1m (L x W x H) +0.1m

6. Equipment Weight: 530Kg $\pm$ 20KG

7. Machining Range: 1/2" to 4"

8. Hydraulic Oil: 46# wear-resistant hydraulic oil

Transportation & Operating Safety Precautions:

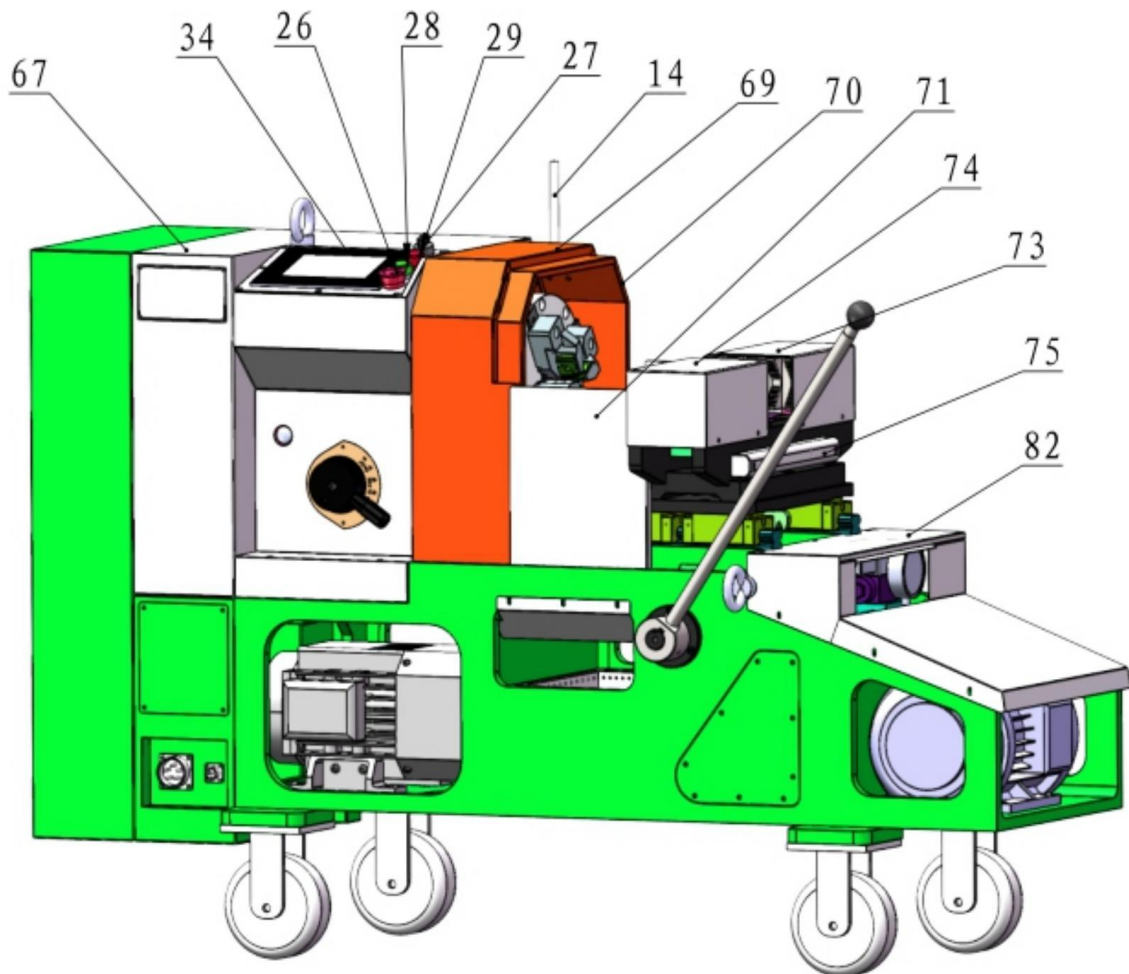
1. It is recommended to lift this equipment using a hoist (using the special lifting slings provided by the manufacturer).
2. When transporting this equipment by forklift, ensure the forks are placed at the designated lifting points.
3. When moving this equipment, first unlock the adjustment locking device and take care to prevent the equipment from tipping over.
4. Before operating this equipment, please read this instruction manual carefully and confirm the safety precautions.

Warm reminders

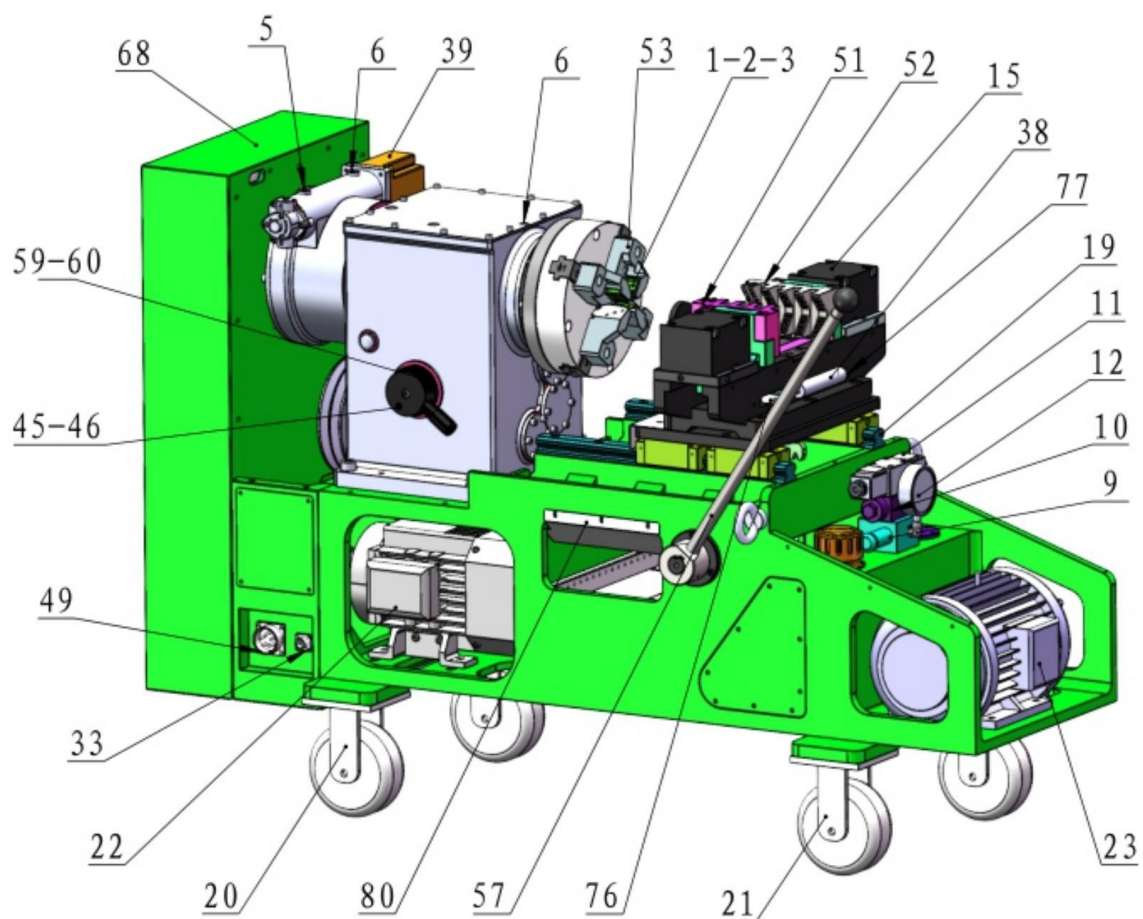
- 1.It is recommended to designate a special person to operate!
2. If there is no reliable grounding,it is forbidden to use this equipment!
- 3.Mechanical movement parts,Pay attention to mechanical injury!
- 4.When changing gears or replacing the dies,the machine must be turned off!
5. When using the device, safety goggles must be worn!

Enter

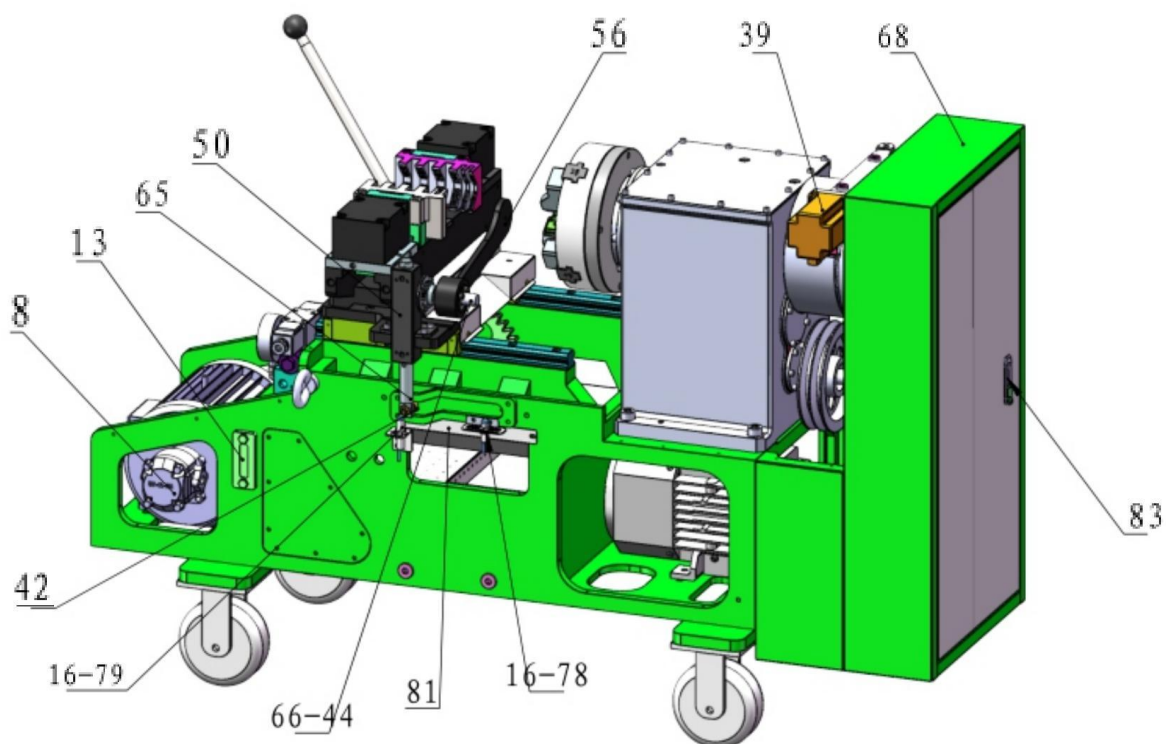
II. Introduction To Equipment Operating System Functional Components



Please see the attachment for details.



Please see the attachment for details.



Please see the attachment for details.

III. Equipment Operation Guide

1. Turn on the main power switch and rotate the start knob, Wait for the touchscreen to boot, then confirm the safety warning. Click the touch screen to enter the password input page, select the operator, enter the access password (initial password 111) and check that the oil pump motor rotates in the correct direction.
2. Pull the three-speed shift lever to select the required speed according to the processing speed demand. (Low gear 21 rpm, Medium gear 45 rpm, High gear 127 rpm. Please refer to the gear usage corresponding table for pipe diameter classification)
3. Click the oil pump start button to start the oil pump, confirm whether the oil pump motor is rotating forward. Click the "Return to Zero" button and wait until "Zero Return Completed" appears, confirm that the fixture is at the original position then click the start button on the screen to make the machine head rotate
4. Place the pipe between the two V-shaped jaws of the fixture, press the foot pedal. At this time, the intelligent hydraulic fixture will start to firmly clamp the pipe and identify the pipe diameter.
5. Pull the joystick forward for feeding. Slow down the feed rate when the tool approaches the pipe. Upon completion of threading, the tool opens automatically. Push the joystick back to its original position, and the fixture will release automatically.
6. Gear Selection Table (by Pipe Diameter): DN15-DN20 (optional); use high speed for DN15- DN25; Use medium speed for DN32-DN40; Use low speed for DN50-DN100.
7. Thread Length Adjustment: Move the thread length adjustment sensor forward or backward along its bracket to control the thread length. Alternatively, adjust the 24 thread length adjustment positioning piece by moving it forward and backward to set the thread length.
8. For DN80/DN100 pipes, when processing DN80/DN100 threads, it is necessary to adjust the position of the die tool rest. The four tool rests need to be moved outward by one mounting groove.
9. For DN15/DN20 pipes, when processing DN15/DN20 threads, it is necessary to replace with special dies.

IV. Touch Screen Operation Interface

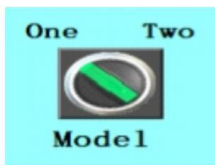
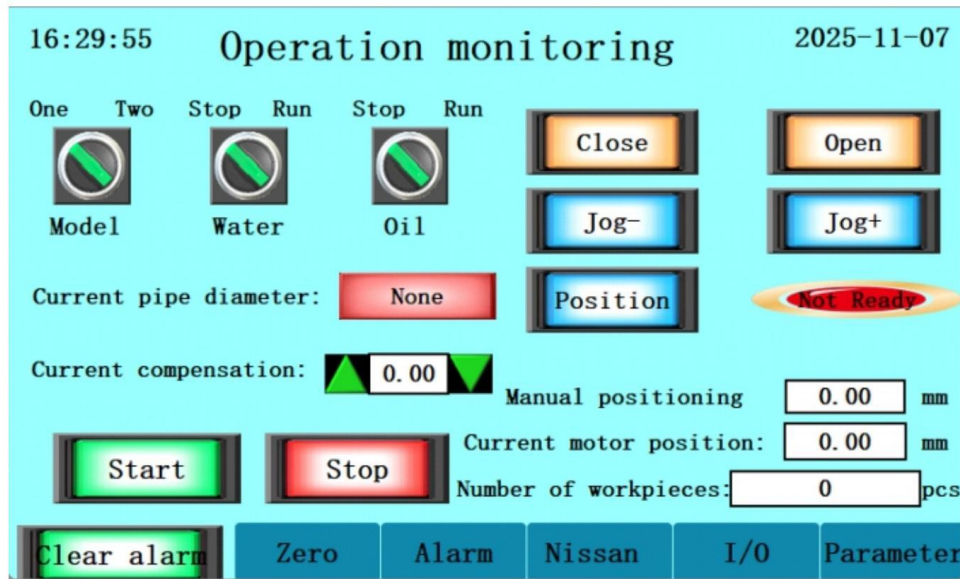
1.Power on the equipment, and the touch screen displays the operation interface. Confirm the safety reminder and enter the password to access the operation page.

2.Startup sequence: Zero return → Oil pump ON → Fixture at rear limit → Fixture released (press foot pedal to release) → Start

Startup Interface: Click the screen, enter the password 111 to enter the operation monitoring interface



General Version Interface



Standard mode: for regular pipes. Non-standard mode: for thick-walled or special pipes. The default is standard mode. Click to select non-standard mode, non-standard mode adopts one clamping cycle with two feeding strokes. After the first feeding is completed, it returns to the fixture base, the fixture does not open, and the machine head performs the second feeding to the processing value position. After the feeding is completed, it returns to the fixture base, and the fixture opens automatically.



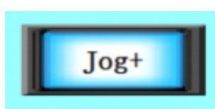
Starts the water pump (if not already running). Click once to start, click again to stop. Generally used for debugging. When the machine is in normal operation, the water pump will start and stop automatically.



Can be activated when the machine is powered on. Click once to start, click again to stop.



Operable only when the spindle is stopped and the oil pump is ON. Click to run, release to stop. Generally used for debugging.



Manual Mode Adjustment (Increase): Operate when spindle is stopped and rear limit is not engaged. Used for debugging or front limit alarm. Click $<0.5s$ to increase tool by 0.1mm at manual speed; click $\geq 0.5s$ to increase continuously at manual speed.



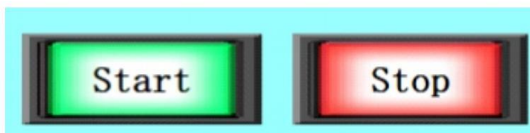
Manual Mode Adjustment (Increase): Operate when spindle is stopped and rear limit is not engaged. Used for debugging or front limit alarm. Click $<0.5s$ to increase tool by 0.1mm at manual speed; click $\geq 0.5s$ to increase continuously at manual speed.



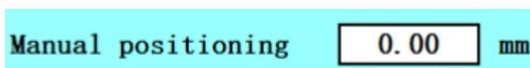
The spindle is stopped, the origin has returned to zero, and the motor has no alarms.



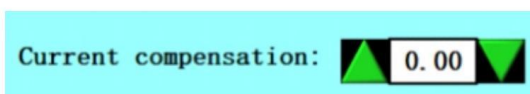
Effective when the current position is less than the original position and there are no front or rear limit alarms.



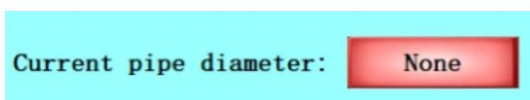
When the origin has returned to zero, there are no alarms, the oil pump is switched on, and the fixture is at the rear limit in the released state, click "Start" to start spindle rotation, and the green panel indicator flashes three times; click "Stop" to stop the spindle rotation.



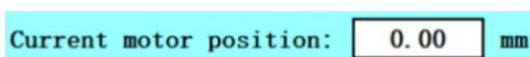
Set the target value for the minimum tool displacement under manual speed adjustment when defining the minimum working displacement. Generally used for debugging.



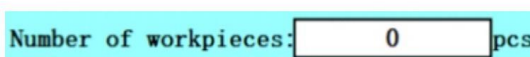
For clamping the pipe to be identified, it can be adjusted via the up and down switches. When the value is negative, the tool retracts; when the value is positive, the tool advances. The modified value is automatically saved when the fixture opens.



Displays the clamped pipe diameter specification when the fixture is closed.



Displays the working position of the die tool.



Displays the continuous workload.

Alarm scroll bar

I/O

Click "I/O" to enter the I/O monitoring interface.

I/O monitoring

X00:		X10:		Y00:		Y10:	
X01:		X11:		Y01:		Y11:	
X02:		X12:		Y02:			
X03:		X13:		Y03:			
X04:		X14:		Y04:			
X05:		X15:		Y05:			
X06:				Y06:			
X07:				Y07:			

Back

Parameter

Click "Parameter" to enter the parameter setting interface.

Englis

Parameter

NO.	Model	Position	Imitate
1	DN15	2. 70	380
2	DN20	7. 20	490
3	DN25	12. 50	747
4	DN32	19. 60	1050
5	DN40	24. 30	1250
6	DN50	34. 00	1685
7	DN65	47. 00	2250
8	DN80	23. 00	2674
9	DN100	45. 00	3520

Motor automatic speed: 50 mm/s

Motor manual speed: 15 mm/s

Close the time setting: 1. 7 s

Open the time setting: 1. 5 s

Two compensation: 1. 00 mm

Calibration location: 54. 00 mm

Current Imitate: 0

Change the password

The soft limit

Back

NO.	Model	Position	Imitate
1	DN15	2.70	380

Positioning Position: Set the displacement for each pipe diameter specification.

Analog Value: Set the displacement detection analog value for each pipe diameter specification. Configure based on the feedback value of the clamping state of each pipe diameter specification, namely the current analog value.

Motor automatic speed:	50	mm/s
Motor manual speed:	15	mm/s

Set the motor automatic/manual speed.

Calibration location:	54.00	mm
-----------------------	-------	----

Set the tool position after homing.

Current Imitate:	0
------------------	---

Analog feedback of the current position.

Close the time setting:	1.7	s
Open the time setting:	1.5	s

Adjust the working time of the hydraulic fixture. The time can be shortened at high temperatures and extended at low temperatures; adjust according to actual operation. The high-spec version does not include this adjustment window, as this action is automatically completed via pressure sensing.

Two compensation:	1.00	mm
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The non-standard mode uses two feed strokes. This parameter represents the difference between the first feeding and the second feeding. Adjustment is only available after logging in with the administrator password.

Click Return to go back to the operation interface.

Click "Password Modification" to enter the password modification interface, set a new password, and click "Modify" to complete password modification; click "Exit" to return to the user login interface.


Change password
✕

User name: 操作员/Operators

Old Password:

New Password:

Re-enter Password:

Ok
Cancel

The soft limit

Press and hold for two seconds, then release to enter the soft limit interface.

The soft limit

Back

Take zero knives



The limit of the knife

58

mm

In Enabling

Knife limit

-50

mm

In Enabling

Take zero knives

Press and hold Tool Zero Calibration until the text dims, then release to finish tool zero calibration.

Tool zero calibration sets the zero origin for the tool position of the machine head. Before calibration, retract the machine head to its fully retracted minimum position and then perform zero calibration.

V. Equipment Maintenance

1.The equipment adopts HL46# anti-wear hydraulic oil. The operating temperature of the hydraulic oil shall be maintained between 30°C and 80°C, with a standard filling volume of 30 liters. (At low ambient temperatures, preheat the equipment for approximately 5 minutes before the fixture can operate normally.) The gearbox is equipped with forced circulation lubrication. For new machines during the running-in period, replace the hydraulic oil after processing 10,000 threads.

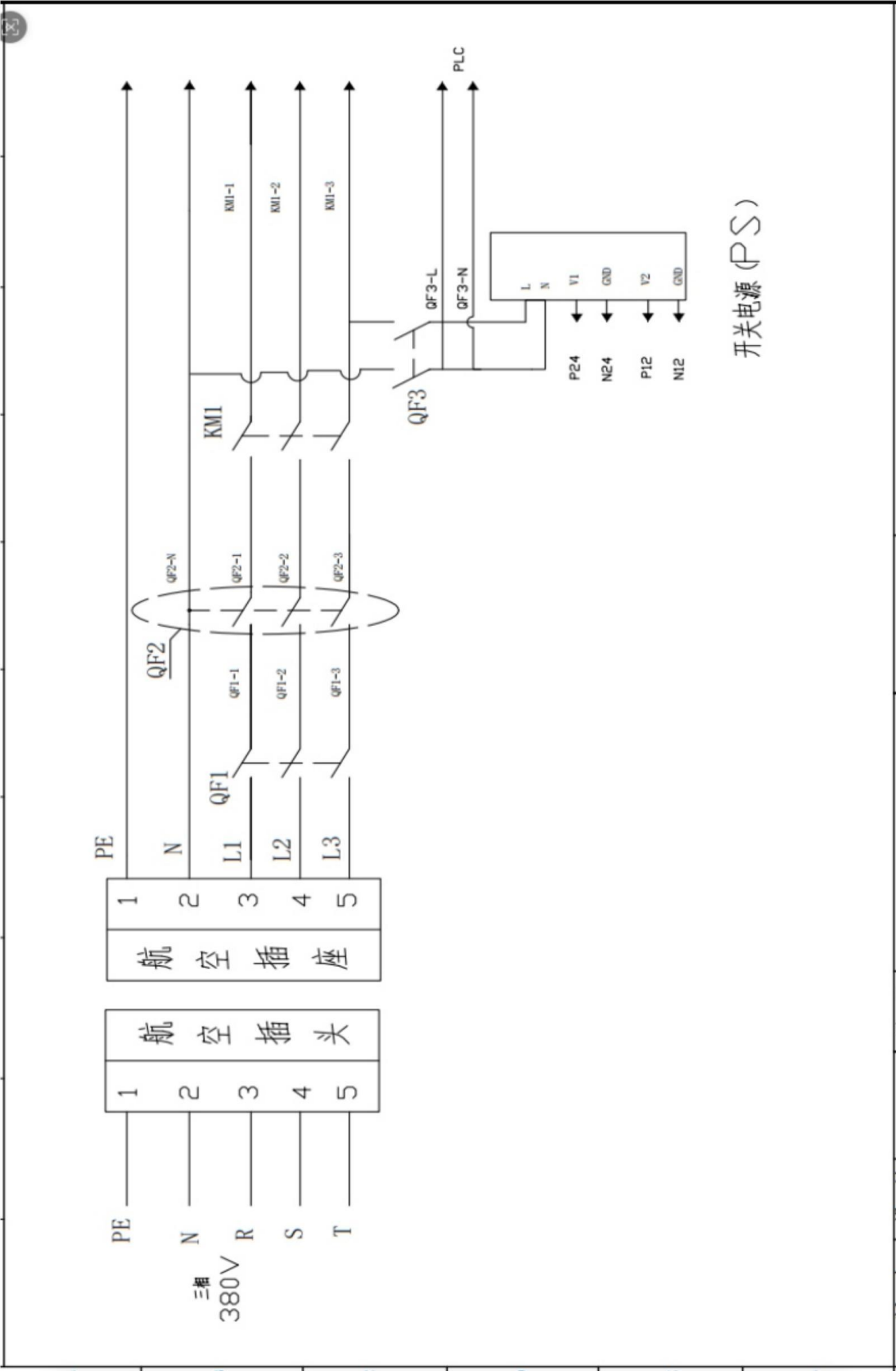
2.Replace the lubricating oil inside the equipment gearbox once a year.

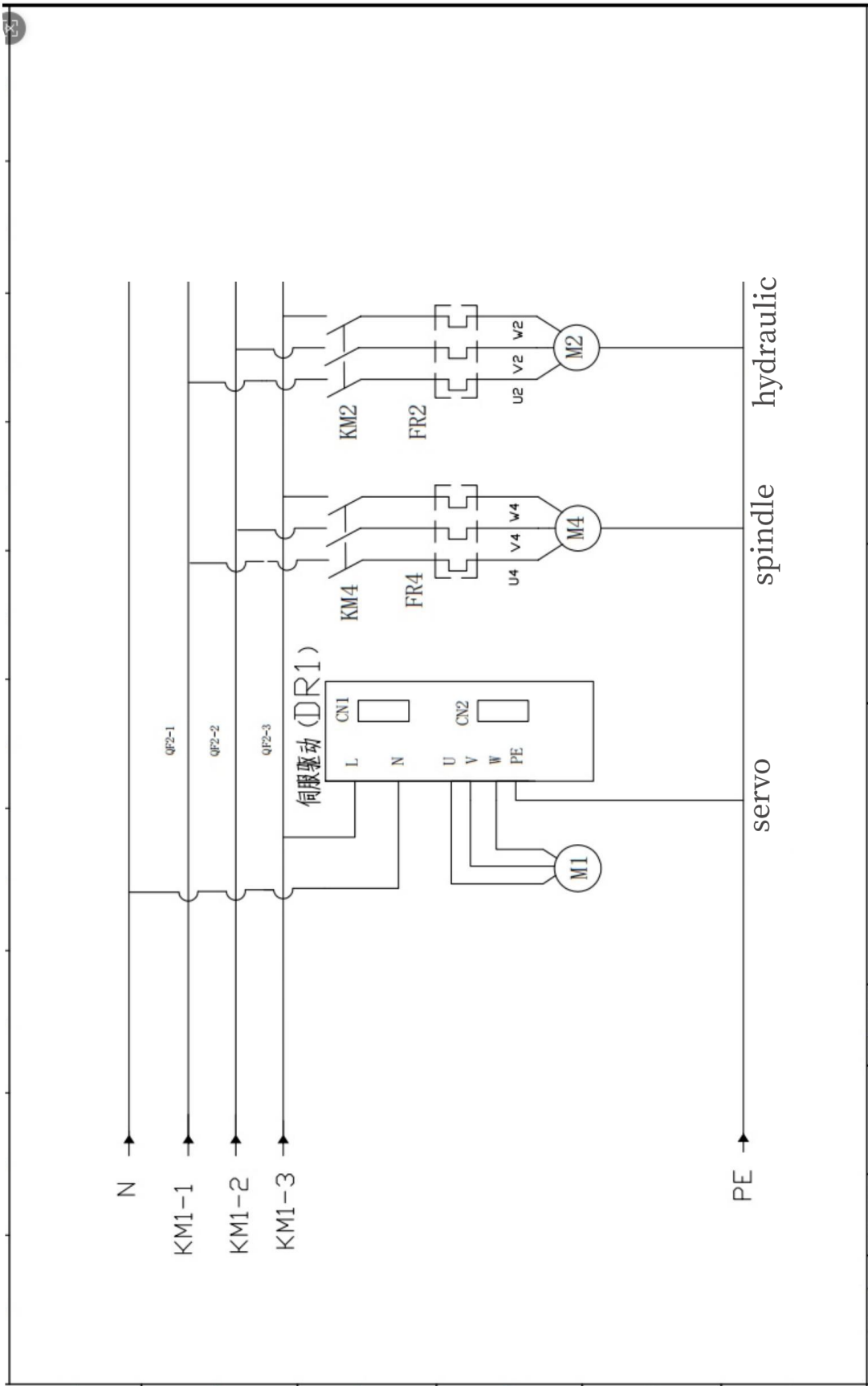
3.Lubrication for Guide Rail Sliders: The guide rail sliders are installed beneath the support plate of the V-type chuck assembly. Refill oil before startup; regularly apply lubricating oil to the guide rail surface once per shift.

4.Add lubricating oil to all moving parts of the machine head once per shift.

5.For equipment transportation, use a forklift at the designated forklift points or lifting equipment at the designated safe lifting points.

VI. Electrical Wiring Diagram





I / □ 分配表						
× 点	分配名称	字母符号	Y 点	分配名称	Y 点	分配名称
×0			Y0	伺服脉冲		
×1			Y1	伺服方向		
×2			Y2			
×3	台钳前限位	SQ1	Y3	K1		
×4	台钳后限位	SQ2	Y4	K2		
×5	减压热保	FR2	Y5	K3		
×6	水泵热保	FR3	Y6	K5		
×7	主轴热保	FR4	Y7	K6		
×10	伺服报警	ALM	Y10	K7		
×11	脚踏	SQ3	Y11	K8		
×12	工作结束	SQP4				
×13	伺服原点	SQP1				
×14	伺服正极限	SQP2				
×15	伺服负极限	SQP3				

VII. Common Faults and Troubleshooting

No.	Fault Occurred	Causes	Troubleshooting Methods
1	The V-shaped fixture does not open when the carriage feed joystick is pulled back to the starting point after threading is completed.	Check if it returns to normal after toggling the travel switch by hand. If there is no response, it indicates a fault in the switch circuit or a problem with the switch.	Check the circuit or replace the switch.
2	The V-shaped fixture has no clamping action.	The oil cylinder and oil pump are not working.	1. Check if the oil cylinder solenoid valve is working. 2. Check if the oil pump motor is reversed or not rotating. 3. Confirm whether the power supply phase is correct and whether there is phase loss. 4. Confirm whether the foot pedal is damaged.
3	The spindle cutter head has no tool expansion action.	The servo motor is not working.	1. Check if the power plug and communication plug of the servo motor are loose. If not loose, touch the motor housing by hand to check if it is overheated. If the housing temperature exceeds 75 degrees, the motor needs to be replaced. 2. Check the alarm light or the alarm prompt on the display screen. It is generally caused by the machine head being stuck by iron chips. Clean the iron chips and fully lubricate to clear the alarm.
4	Water pump fault.	1. Circuit phase loss. 2. Overload protector. 3. The water pump does not discharge water.	1. Check the circuit. 2. Check the overload protector. 3. Check if the water pump and pipeline are blocked.
5	Spindle motor fault.	1. Circuit phase loss. 2. Overload protector. 3. Spindle motor damage.	1. Check the circuit. 2. Check the overload protector. 3. Check the motor.
6	Oil pump motor fault.	1. Circuit phase loss. 2. Overload protector. 3. Oil pump damage.	1. Check the circuit. 2. Check the overload protector. 3. Check the oil pump.
7	Servo front limit alarm.	1. Sensor damage. 2. Misoperation.	1. Replace the sensor. 2. Manually increase the value until the signal disappears, then return to zero.

No.	Fault Occurred	Causes	Troubleshooting Methods
8	Servo rear limit alarm.	1. Sensor damage. 2. Misoperation.	1. Replace the sensor. 2. Manually decrease the value until the current position is less than the tool zero position, then return to zero.
9	Servo drive alarm.	1. The driver displays E-161/E-100. 2. Fault of the servo drive or motor itself. 3. Abnormal connection of the servo system.	1. For mechanical faults, check if the power tailstock and machine head are abnormal, the lubrication status of each axis, and whether the iron chips of the machine head are cleaned. 2. Check the servo drive or motor. 3. After the servo connection is normal, shut down and restart.
10	Linear displacement sensor fault.	1. Unable to identify the pipe diameter. 2. Incorrect pipe diameter identification.	1. Enter the display screen page to check if the current analog value matches the corresponding pipe diameter. 2. Check if the linear displacement sensor is damaged or flooded.
11	The pipe slips during threading.	1. Check the jaws. 2. Check the pressure gauge. 3. Check the synchronous gear. 4. Check the oil circuit.	1. Clean the attachments or paint on the jaw tips. Replace the jaws if they are damaged or worn flat. 2. Check if the pressure gauge pressure is between 9--10 Mpa. 3. Check if the synchronous gear is loose, falling off or damaged. 4. Check for oil leakage.
12	The screen does not light up when the machine is turned on.	1. Check the power supply. 2. Check the emergency stop button.	1. Check if the connected power plug is loose. 2. Check if the switching power supply is damaged. 3. Reset the emergency stop button.
13	The thread is not formed.	1. Check the dies. 2. Check the tool rest.	1. Check if the dies are installed in order and flat. 2. Check if the dies are damaged. 3. Check if the mounting screws of the tool rest are loose or the tool rest is damaged.

Attachment

No.	Name
1	Dies 15-20
2	Dies 25-65
3	Dies 80-100
4	Oil Pipe
5	Stainless Steel Ferrule Tee Joint
6	Stainless Steel Compression Elbow
7	304 Stainless Steel Braided Hose
8	Hydraulic Pump
9	Manifold Block 02-1W
10	Stacked Check Valve (Pressure Retention)
11	Solenoid Valve
12	Pressure Gauge
13	Liquid Level Gauge
14	Machine Cooling Pipe
15	Hydraulic Cylinder
16	M12 Proximity Sensor
17	Circulation Pump
18	Belt B800/B850
19	Guide Rail
20	6-Inch Caster - Fixed Direction
21	6-inch Caster - Swivel
22	Spindle Motor
23	Oil Pump Motor
24	3-Phase 4-Wire Self-Resetting Over/Under Voltage Protector
25	(Omron) Relay Module
26	Emergency Stop Switch (Red)
27	Rotary Switch (Black)
28	Indicator Light (Red)
29	Indicator Light (Green)
30	Miniature Circuit Breaker
31	AC Contactor
32	Thermal Overload Protector (Thermal Relay)
33	Foot switch
34	Display Screen
35	Programmable Logic Controller (PLC)
36	Expansion Module
37	Switching Power Supply
38	Displacement Sensor
39	Servo Motor
40	Servo Driver
41	Graphene Oil-Free Bushing

42	Cam Follower Bearing
43	6200 Roller Guide Wheel
44	Locking Assembly
45	Spring
46	Steel Ball
47	TC Skeleton Oil Seal
48	Tool Kit (Including Tools)
49	Aviation Connector – Power Cable
50	Mounting Bracket – Reverse
51	U-Shaped Clamping Tooth – Left
52	U-Shaped Clamping Tooth – Right
53	Tool Holder
54	Shift Fork Fixing Block
55	Shift Positioning Plate
56	Material Stop Plate
57	Half-Tooth Pull Rod
58	Fixture Gear Locking Sleeve
59	Speed Change Lever Shaft
60	Speed Change Rotating Shaft
61	Worm Shaft
62	Worm Wheel
63	Rack
64	Fixture Gear
65	Lifting Rod – Reverse
66	Gear
67	Control Cabinet
68	Electrical Control Box
69	Fixed Cover – Welded Assembly
70	Retractable Cover
71	Front Water Shield
72	Rear Water Baffle
73	Right Fixture Cover
74	Left Fixture Cover
75	Linear Scale Card Protection Cover
76	L-Shaped Fixing Plate
77	L-Shaped Fixing Plate 1
78	Proximity Sensor Bracket
79	Proximity Sensor Bracket
80	Front Water Collection Plate
81	Rear Water Collection Plate
82	Oil Pump Motor Cover
83	Jump Lock
84	Die screw M6*10

