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Machine Manual For Syntec NK105 G2 System

PREFACE

The woodworking processing center produced by our company is constantly being improved, and the equipment provided to you may not necessarily match the description in the manual. Therefore, this manual is only a general description of the equipment and cannot be a credential for the acceptance of the equipment.

Please pay attention to the following items before using this machine.

It is recommended that all staff related to this machine should read this manual.

The operator of this machine should have received relevant technical training or be instructed by a special person.

This manual introduces the performance and structural characteristics of the machine, and guides the operation according to the regulations.

This manual reminds you to pay attention to safety matters and typical operation methods. According to these operation methods, you can avoid dangerous accidents,reduce maintenance costs, thereby improving machine utilization and improving Productivity.

This manual explains matters such as work-related injury prevention and environmental protection, and users can add to supplement.

This manual should be placed next to the machine for easy reference by the operator and maintenance personnel.

In addition to the regulations on accident prevention in the instruction manual and the country where the user is located, the operator also needs to abide by the generally recognized regulations.Safe operation rules.

Regarding other issues not covered by this manual, the final interpretation right belongs to the equipment manufacturing company.

1.1 Instructions for use

1.11 Brief introduction

This equipment is mainly used for engraving and milling, blanking, vertical drilling and other applications of various wood-based panels, solid wood panels, and semi-solid wood panels. It is an economical and simple processing equipment. The work surface can be directly absorbed and processed by the whole large board without any form of cutting. It is suitable for processing solid wood door moldings, paint-free doors, paint-free cabinet doors, panel bathroom cabinets, etc.

1.12 Machine size Technical Description

Machine air pressure supply	0.6~0.8MPa
Air pipe input size diameter	8mm
Machine dust holes	100mm
X Y Max travel speed	10m/min
Z Max travel speed	5m/min
FC6012 Work size	600*1200mm

1.13 Safe operation rules

WARNING

Be sure to read and understand the corresponding safety rules in detail before use, and strictly follow the relevant safety operations. If in doubt, please do not use the equipment without authorization, please contact the dealer or machine manufacturer where you purchased the equipment for consultation.

1.131 Machine safety rules

(1) Need to find professional engineer to operate the machine

(2) Keep the working area clean, It is forbidden to place sundries on the machine table.

(3) Do not wear loose clothing, gloves, bracelets, necklaces or ornaments.

(4) Do not loosen, remove, or adjust machine parts or cables while power is on.

(5) Do wear face, eye, respiratory and body protection devices as indicated for the operation or environment.

(6) Never leave the machine with the power on，Disconnect power to all system components when not in use, when changing accessories, and before servicing.

(7) Do no use dull, gummy or cracked cutting tools.

(8) Ensure that the keys and adjusting wrenches have been removed and all the nuts and bolts are secured.

(9) Make sure voltage supplied is appropriate to specifications of components.

Do not attempt to exceed limits of machine

(10) When the alarm signal appears, the operator should immediately stop all processing and solve the problem in

time before operating the machine again.

(11) Except in JOG mode or when the machine needs to be repaired, it is forbidden for personnel to stand on the equipment processing table

(12) Use proper precautions with dust collection systems to prevent sparks and fire hazards.

(13) Make sure to have proper fire extinguishing equipment on hand at all times.

1.132 Spindle Safety Operation Rules

Before changing the tool, please confirm the following actions.

1. Please confirm whether the spindle has stopped rotate.

2. Please press the emergency stop button to ensure that the spindle is locked, so as to prevent other people from touching the spindle operation button by mistake and causing injury to the operator.

3. Secure the tool collector in the holder, put the tool into the tool collector and lock it with the tool.

4.Before changing the tool, please confirm the following actions.

The tools used must be balanced and corrected. The larger the diameter of the tool, the higher the swing angle , and it is easy to reduce the life of the spindle.

Please confirm that the spindle is running normally before starting processing

1.133 Vacuum Adsorption Safety Operation Rules

(1) After starting the vacuum pump, the manual handle controlling the vacuum suction area needs to be opened. Due to the strong adsorption force of the vacuum pump, there may be a large adsorption sound, which is a normal phenomenon.

(2) Be careful when absorbing the board to avoid pinching your fingers.

2.1 Install the machine

2.11 Machine handling

When moving the equipment, insert the claws of the forklift into the forklift port of the machine, and place appropriate materials on the lifting point to protect the appearance of the machine.

(Note: It must be ensured that the load capacity of the forklift or crane can bear the weight of the machine, and the fork claws of the forklift need to be forked on the two square pipes under the machine, otherwise the machine will be damaged.

Forklift best use bear weight 3T.

2.12 Installation site preparation

There is no need to make a special foundation for the installation of this machine, but it must be a mixed ground, its strength must be able to bear the weight of the machine, and the surface should be smooth and flat. The installation site must have enough work space, and consider the safety distance between the machine and the building.

The installation place should not be exposed to strong microwave, ultraviolet, laser, and X-ray radiation, so as not to cause equipment malfunction and accelerate insulation aging.

The installation place of the machine should avoid vibration, collision and impact, and should be installed away from the vibration source.

The installation place of the machine should avoid rain, and it is forbidden to install it in the open air. Guaranteed to operate in the corresponding installation environment, so as not to affect the operation and precision of internal parts.

Temperature	Operating machinery	0°C ~ 40°C

	shutdown and transport	-20°C ~ 60°C
	temperature change	1.1°C/min
Humidity	Maximum change	7.5% (Relative humidity)
vibration value	Operating machinery	Max Value 0.5G
	Transport	Max Value 0.5G

2.13 CNC machine installation

When the machine is delivered from the factory, the Y-axis and X-axis parts are fixed on the base by the fixing plate. Use a forklift to move the machine to the required position. The forklift feet should extend from the side of the machine, and be careful not to dump it. And place the foundation foot in the corresponding position.

Space requirements: The size parameters of the machine in the space where the machining center is placed ensure that there is at least a 500mm safe space around the equipment when the machine is working.

2.14 Machine level adjustment

Make sure the table is clean, place the spirit level on the table, and adjust the leveling bolts to make the equipment level.

2.15 Vacuum pump installation

（1）Vacuum tube installation

Before installation, adjust the air pump one meter away from the back of the machine, connect one end to the vacuum valve port, and the other end to the vacuum pump.

（2）Fan rotation check

After the vacuum pump is powered on, observe whether the rotation direction of the blades of the vacuum pump is consistent with the direction indicated by the vacuum pump. If the rotation direction of the blades（fans） of the vacuum pump is inconsistent with the indicated direction, switch any two wires U, V, and W of the equipment power supply line.

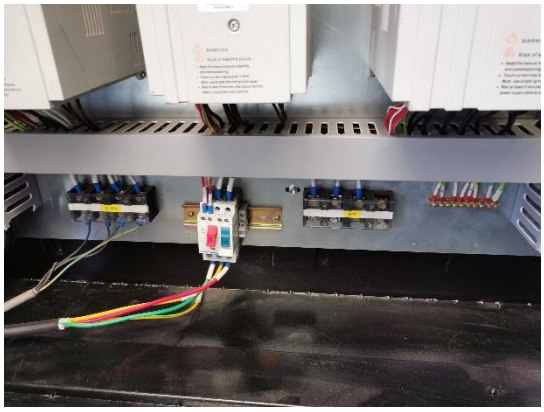
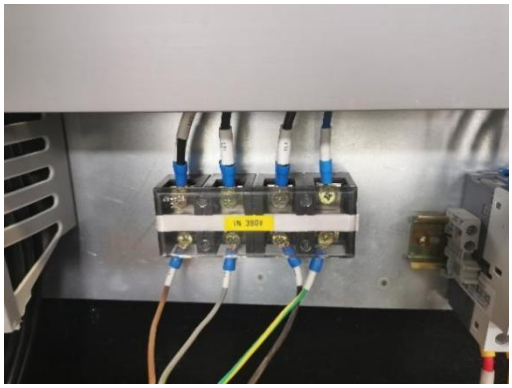
2.16 Base plate preparation for processing panels

(1)Material:
It is recommended to use MDF board with a thickness of ≥10mm and a density range of 680~720kg/㎥.
(2)Installation position:
The distance between the base plate, the location pins and the guide sealing strip is about 5mm.
(3)Milling the Base plate :
Milling the base plate by 32mm or 50mm diameter flat bottom tool.
(4)Base plate seal:
Seal around the bottom plate with glue (the pump should be turned on before sealing, and all the adsorption switches should be turned on to ensure that the bottom plate is completely absorbed).

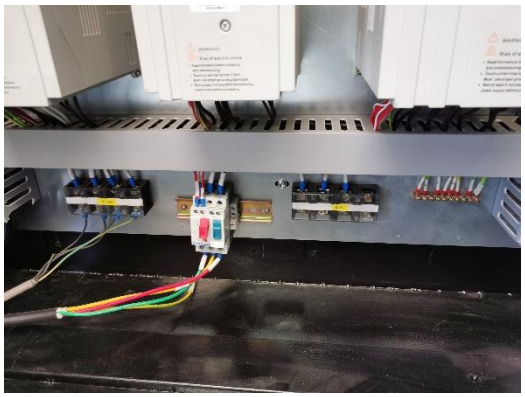
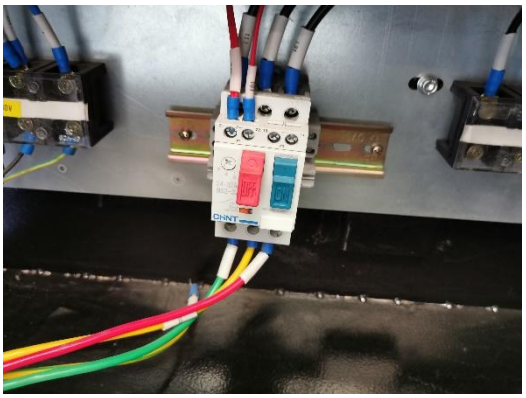
2.17 Power wiring connection

It should follow IEC_60038-2009 "IEC Standard Voltage", which is used for power supply voltage specifications based on AC frequency 50HZ and 60HZ power supply systems. Regarding the supply voltage range, under normal operating conditions, the difference between the supply voltage and the system nominal voltage should not exceed ±10%. Since each country has corresponding power quality regulations, please refer to the local regulations for details.

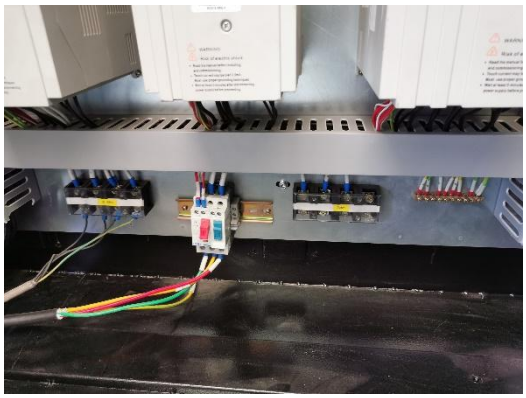
The electric cable standard：Should be bigger than 6 Square millimeter Copper wire(380 or 415V 50HZ), Better choose 10 Square millimeter Copper wire(380 V 60HZ or 415 V 60 HZ and 220V 50 or 60HZ).
Grounding: Connect the yellow-green cable from the grounding copper bar in the electrical box to the external ground.
（1）Connect power supplier to electric control box.L1,L2,L3,N for 3ph 380V,if your machine is 3ph 220v,then only L1,L2,L3.

（2）Connect Vacuum pump cable to electric control box.L1,L2,L3 for 3ph 380V/220V(the PE line can be connected to the grounding copper bar,its In the lower right corner of the control cabinet).

（3）Connect Dust collector cable to electric control box.L1,L2,L3 for 3ph 380V/220V(the PE line can be connected to the grounding copper bar,its In the lower right corner of the control cabinet).

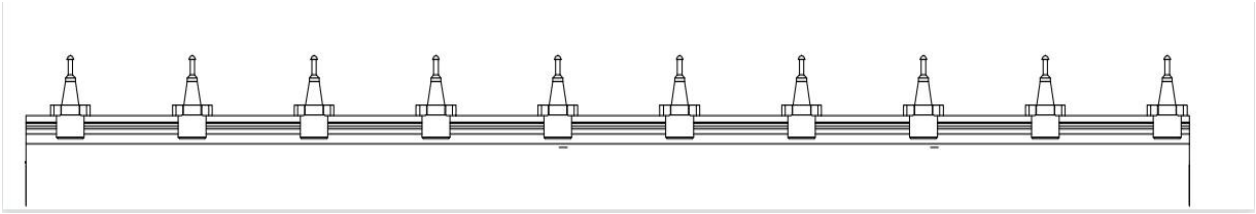



2.18 Air source requirements

The air pressure that provided by air compressor should bigger than 0.6Mpa.better during 0.6-0.8Mpa,And the air should be clean and without moisture, In order to prevent excessive moisture content in the air source from causing mechanical failure, the air source must be equipped with relevant air drying equipment.

If there is a slight change in the air pressure, adjust the pressure value through the pressure regulating valve of the three-stage filter to maintain the air pressure within a certain range; check once a week, when the oil volume is lower than 1/ 4, please add to 3/4 (note: use 32# anti-wear hydraulic oil).


2.19 Linear tool magazine installation



Install the tool in the tool holder as required. When changing tools, the spindle moves to the corresponding tool position. When the axis below the spindle coincides with the spindle, the spindle descends to clamp the tool handle, and the tool magazine retracts.

3.1 Equipment maintenance

3.11 Machine maintenance

（1）Do not modify the machine parameters without knowing the characteristics of the machine, which may cause the machine to malfunction or be damaged.Press the (Power on) button.

（2）Please turn off the power of the machine before maintenancePress (E stop) when you after work or An emergency.

（3）Before opening the operation panel for maintenance, the power must be turned off first, and before turning on the power, confirm that the panel has been installed..

（4）Check whether the emergency stop switch is functioning normally.

（5）Please repair or replace worn parts and make a record.

3.12 Lubrication and maintenance

(1) The three-stage filter system uses white oil(sewing machine oil), when the oil volume is lower than 1/4, please add to 3/4.

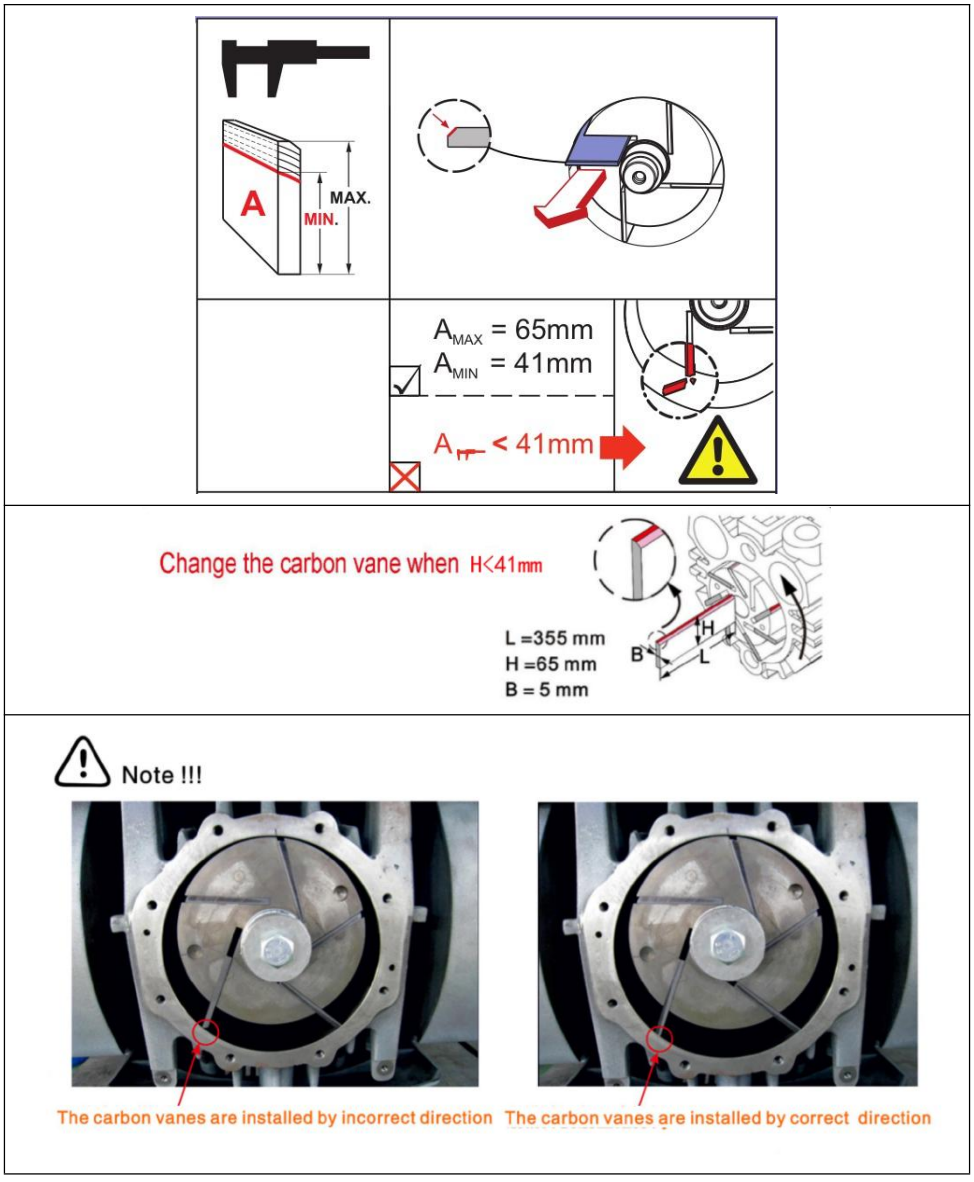
(2) The lubricating grease used by the vacuum pump should be high temperature butter, and the vacuum pump shall be lubricated and maintained according to the maintenance requirements of the vacuum pump.

(3) The ball screw should be lubricated with oil at least once every seven days.

(4) The guide rails and square rail of the machine are lubricated regularly according to the factory settings. Pay attention to the amount of oil in the oil pump and add it in time.

3.13 Vacuum pump maintenance

(1) Regular maintenance can keep the vacuum pump in the best working condition.
(2) The maintenance cycle depends on its use and working environment.
(3) Before maintenance, the main power supply of the motor must be cut off to prevent unintentional restart.
(4) Compressed air can make the pressure pump generate high temperature, so cool down the parts of the vacuum pump before disassembly.
(5) Due to the friction between the sliding vane and the inner wall of the pump, the sliding vane will wear. After 3000 hours of normal operation or every six months, open the rear cover and right end cover to check the width of the sliding vane. When the width is ≤ 41 mm, the sliding vane needs to be replaced.
When replacing the slide, blow off the end cover with dry compressed air, and insert the new slide into the rotor slot in the correct direction.

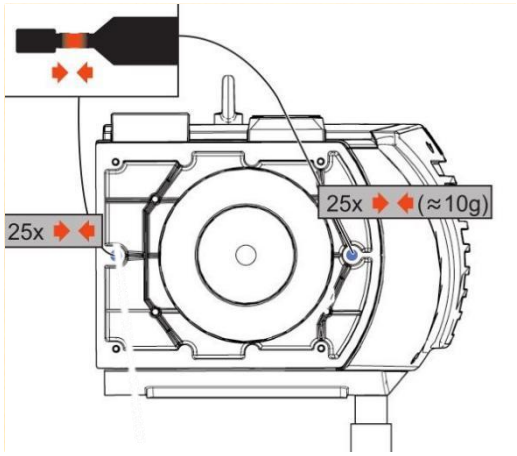


(6) The filter element is located on the rear side of the vacuum and pressure air chamber cover, and needs to be cleaned according to the amount of dust. When cleaning, blow the compressed air out of the filter element from the inside out, and the filter element that is clogged, oil-infiltrated or stuck with grease must be replaced. In environments with a high dust density, additional filters may be required.

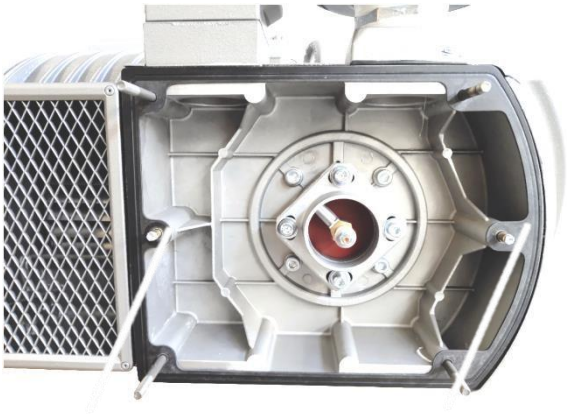


(7) There are two types of vacuum pumps, the type of vacuum pump should be determined according to the specific nozzle position, and grease should be added as required:

1) After working for 3000 hours, inject 10 grams of high-temperature lubricating grease into the two nipples of the rolling bearing respectively.

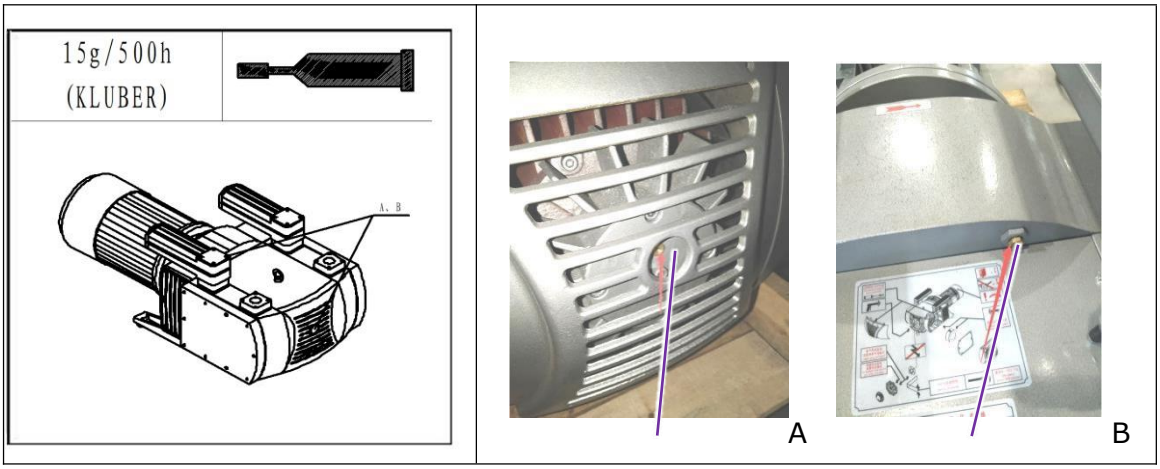


A



A B

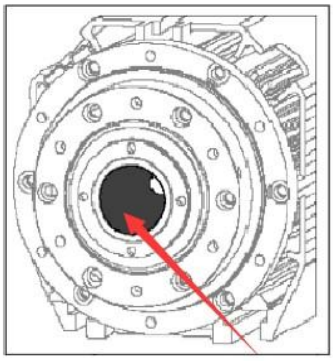
2) After working for 500 hours, inject 15 grams of high-temperature lubricating grease into the A and B nozzles of the rolling bearing when the pump is running.

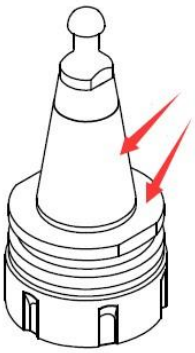


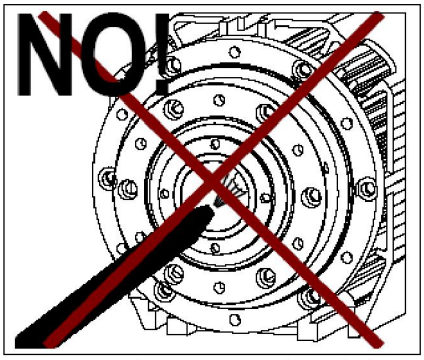
3.14 Spindle and tool holder maintenance

（1）Before using the spindle every day, make sure that the tapered surface of the tool holder and the tapered surface of the electric spindle are completely cleaned.At the end of each day, clean these parts with a soft, clean cloth.

（2）When there is no tool holder, it is forbidden to send compressed air into the spindle.







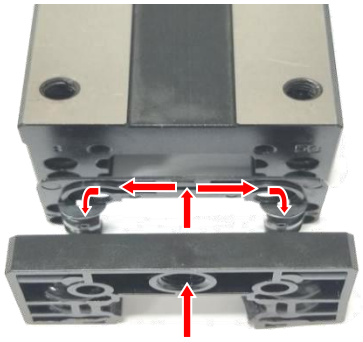
（3）Once every two weeks, use a clean soft cloth dipped in ethanol to carefully clean the tapered surface of the handle. After cleaning, spray an anti-rust agent (such as KLUBER LUSIN PROTECT G31 anti-rust agent) on the tapered surface of the handle, and use a piece of Apply it evenly with a dry cloth.

3.15 Slider Guide maintenance

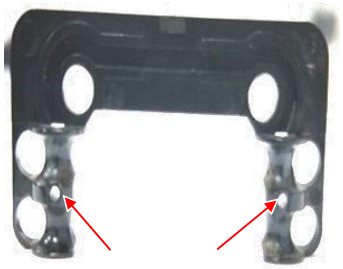
Slider oil injection structure and principle

The lubricating oil of the slider are injected into the lubricating oil channel of the end cover of the slider through the oil nipple or the grease nipple, and distributed to the steel return point of the end cover through the lubricating oil channel, and then the lubricant is transferred to the groove of the slider by the rolling of the steel ball, reaching the operating time. Comprehensive lubrication effect.

Description of lubricating oil passages in slider return system (normal oil supply oil passage distribution).

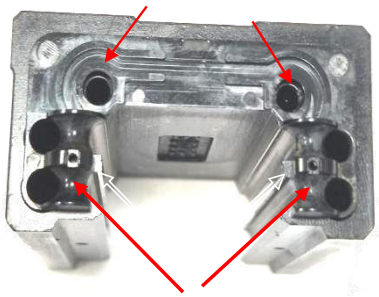


lubricant inlet



Lubricating oil reaches and distributes in the bead groove through small holes

lubricating oil channel



3.16 Other Maintenance

(1) The vacuum filter cartridge must be cleaned once a day to avoid sawdust or other sundries and dust being sucked into the vacuum pump motor.

(2) Clean the vacuum filter once a week.

(3) Clean the operation panel once a week to avoid dust getting stuck in the button and causing poor contact.

(4) Clean the computer keyboard and screen every day to avoid damage caused by wood chips and dust attached for too long.

(5) Clean up the dust on the square rail every day to keep it clean. Maintain the smoothness of machine movement.

(6) Clean up the dust and sawdust on the tool magazine at any time to prevent debris from running into the spindle when changing tools.

(7) Clean the filter screen on the radiator at any time to keep the cooling system in good condition.

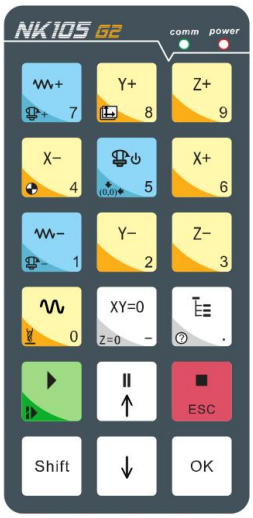
4.1 Know well the Basic operation

4.11 Control cabinet button introduce

Power Light:It mean that the machine have power if lighting
Power:Power on and power off the machine
E Stop:Machine general power control
Vacuum pump:turn on and off the vacuum pump
Dust collector:turn on and off the dust collector

CNC processing mode ,machine turn on Step:
(1) Loose the Middle E Stop switch
(2) Press “Power” button
(3) Machine homing.
(4) Measure all tools
(5) Start vacuum pump and Set the work origin point
(6) Press (Dust collector) button when you ready to processing.
(7) Running the G code

4.12 NK105 G2 System key introduce



The operation panel of NK105G2 is both light and concise. With a single-key or combination key, all the operations can be realized. The usage of each single-key: press a key lightly to complete the called function and then release the key, except that the function of the mode shift key becomes effective when released.See Table 5 for the function information of each single-key.

Key icon	Key name	Function
	Override+	Increase of feedrate override; input of number 7; increase of spindle gear with the help of the auxiliary key when the spindle port has input
	Y+	Positive movement of Y axis; input of number 8; switch between MCS and WCS with the help of the auxiliary key
	Z+	Positive movement of Z axis; input of number 9
	X-	Negative movement of X axis; input of number 4; homing all the axes with the help of the auxiliary key
	Spindle ON/ OFF	Start or stop of spindle in manual mode; input of number 5; backing to workpiece origin with the help of the auxiliary key
	X+	Positive movement of X axis; input of number 6

	Override-	Decrease of feedrate override; input of number 1; decrease of spindle gear with the help of the auxiliary key when the spindle port has input
	Y-	Negative movement of Y axis; input of number 2; first tool measurement with the help of the auxiliary key
	Z-	Negative movement of Z axis; input of number 3; measurement after tool change with the help of the auxiliary key
	Speed switchover	Switchover between jog/rapid jog speed in jog mode; input of number 0; tool measurement with the help of auxiliary key
	Clearing	XY clearing; input of minus; Z clearing with the help of auxiliary key
	Menu	Entering menu page; input of decimal point; entering image update page at the time of system start-up

Key icon	Key name	Function
	Start	Start key; breakpoint resume with the help of the auxiliary key
	Up	Suspend processing; up direction key
	ESC	Stop processing; cancellation of various selections, inputs and operations
	Shift	Auxiliary key; switchover between stepping mode and jog mode under machining page
	Down	Down direction key
	OK	Entering jog/rapid jog speed adjustment page under menu page; confirmation of various selections, inputs and operations

Function Information of Combination Key

The usage of the combination key: press the auxiliary key, and then the second; release the two keys after the corresponding function is called.

Key icon	Function
Shift + 7	Increase of spindle gear
Shift + Y+ 8	Switchover between WCS and MCS
Shift + X− 4	Homing all the axes
Shift + 5	Backing to workpiece origin
Shift + 1	Decrease of spindle gear
Shift + XY=0 Z=0	Z clearing
Shift +	Breakpoint resume
Shift +	Entering help page of combination key
Shift + Y− 2	First tool measurement
Shift + Z− 3	Measurement after tool change
Shift +	Jiggle at pause

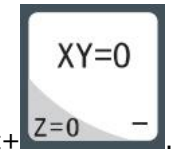
4.13 System start,Machine go home.

(1) Loose the middle general switch,then press the green machine start button

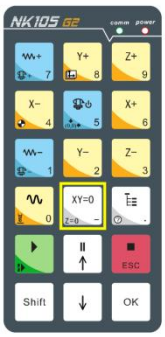
(2)Machine homing.

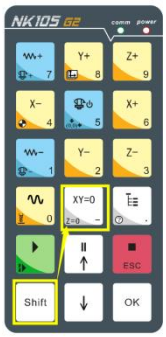
The machine DSP Show “Back to REF.point?”,We press “OK”

4.14 Setting the working point.

Manually move the X and Y axes to the desired origin position, Then XY clean 0,Shift+ 

.i.e. to confirm the position of Z axis workpiece origin.





After finish Setting the working point,Let spindle up some distance and keep some safe height.

4.15 Loading U disk G code file processing

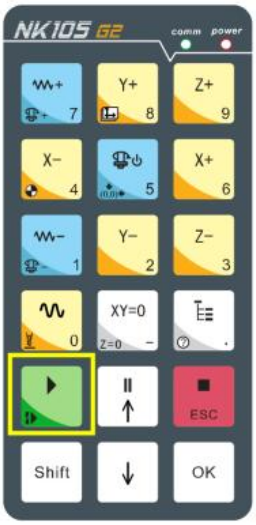
Put U disk in USB Port

Menu→

USB File→

Press ok to choose,then press 1 to load the file into system→

Press green start button to running the file→



Feedrate Override Adjustment

Feedrate override can be increased or decreased through  or  during machining. The feed rate changes with the feedrate override. Their relationship is as follows:

Actual feed rate = Feed rate × Feedrate override

The least unit of feedrate override is 0.1. Namely, override increases (decreases) by 0.1 after each press of  or  ; at the same time, the feedrate override displayed on the LCD increases (decreases) by 10%. The range of feedrate override is within 0%~120%. In addition, the display of feed rate value changes with the feedrate override.

4.16 Spindle Speed Adjustment

Spindle speed are adjusted by pressing Shift +  or Shift +  , and divided into 8 gears from S0~S7 with speed increasing sequentially.

4.17 Advanced Tutorials

Let the system read S and F code.To determine what speed protocol will be used, do the following:

（1）In the main screen, press  menu to enter the menu screen.

（2）Use the arrow key to scroll the cursor and highlight Press OK to select. 4. oper param

8. ignore F code

（3）Use the arrow keys to scroll the cursor and highlight Press OK to select. 9. ignore S code

Note:The F or S Option.

F stands for Feed rates, and S stands for Spindle RPMS.

Note:

"No" means speed in the G-code file will be obeyed.

"Yes" means speed will be overrode by the controller.

5.1 Machine G code and M code

5.11 G code list(The bold font is the common FINECNC code）

G00	**Positioning**
G01	**Linear interpolation**
G02	**Circular interpolation/Helical interpolation(CW)**
G03	**Circular interpolation/Helical interpolation(CCW)**
G04	**Dwell,exact stop**
G05	High speed and high precision interpolation
G09	Exact stop
G10	Programmable data input
G15	Polar coordinates command cancel
G16	Polar coordinates command
G17	**X-Y plane selection**
G18	Z-X plane selection
G19	Y-Z plane selection
G28	Return to reference position
G29	Return from reference position
G30	Regression at any reference point
G31	Skip function
G33	Thread cutting
G40	Cutter compensation cancel
G41	Cutter compensation left
G43	**Tool length compensation+direction**
G44	Tool length compensation-direction
G49	Tool length compensation cancel
G50	Scaling
G51	Scaling cancel
G52	Local coordinate system setting
G53	**Machine coordinate system setting**
G54	**Workpiece coordinate system 1 selection**
G59	Workpiece coordinate system 6 selection
G61	Exact stop mode
G64	Cutting mode
G65	Marco call
G66	Marco modal call
G67	Marco modal call cancel
G68	Coordinate rotation
G69	Coordinate rotation cancel
G70	Inch perform
G71	MM perform
G73	Peck drilling cycle
G74	Counter tapping cycle
G76	Fine boring cycle
G80	**Canned cycle cancel**

G81	Drilling cycle
G82	Drilling cycle of dwell on the hole bottom
G83	Peck drilling cycle
G84	Tapping cycle
G85	Drilling cycle
G86	High speed drilling cycle
G87	Fine boring cycle of back side
G88	Fine boring cycle of half automation
G89	Boring cycle of dwell on the hole bottom
G90	**Absolute command**
G91	**Increment command**
G92	**Setting of work coordinate system**
G94	Feed per minute(mm/min.)
G95	Feed per rotation(mm/rev.)
G96	Constant linear velocity control on surface
G97	Constant linear velocity control on surface cancel
G98	Return to initial point in canned cycle
G99	Return to R point in canned cycle
G134	Circumference hole cycle
G135	Angular straight hole cycle
G136	Arc type hole cycle
G43H1	**Tool length compensation （x means tool number，T means tool number,drilling bank is T21-T29）**

5.12 M code list(The bold font is the common FINECNC code）

M03	**Spindle Turn on in clockwise**
M05	**Spindle stop**
M30	**Back to the program start（Program end and back to work original point）**
M63	Drilling bank offset
M10/M11	Tool sensor blowing
M101	Unloading up
M102	Unloading down
M103	vacuum pump 1 start
M104	vacuum pump 1 close
M113	vacuum pump 2 start
M175	Dust cover up
M176	Dust cover down
M177	Dust collector on
M178	Dust collector off
M500	Automatic loading unloading
M501	Automatic unloading
M7/M9	Processing blow air

M8/M9	Mist cooling pump
M10/M11	Tool sensor blow air
M13/M15	Spindle 1 start stop
M23/M25	Spindle 2 start stop
M33/M35	Spindle 3 start stop
M43/M45	Spindle 4 start stop
M83/M85	Spindle 5 start stop
M50/M51	Spindle loose / hold tool
M63	Drilling bank bias
M139	Automatic load unload machine all cylinder back
M301/M302	Left location pins(position cylinder)
M303/M304	Right location pins(position cylinder)
M305/M306	Front location pins(position cylinder)
M327/M328	Rear positioning cylinder（ Position cylinder）
M321	Press roller on
M322	Press roller off
M00	Program suspended
M06	Auto tool change
M99	Circulation processing

6.1 Machine electric cable number introduce

Output wire number		Input wire number	
Number	Information	Number	Information
000	Z axis break	100	X Limited
001	Yellow light	101	X Limited protect
002	Green light	102	Y Limited
003	Red light	103	Y Limited protect
004	Vacuum pump star/stop	104	Z Limited
005	Dust collector	105	Measure tool
006	Manual loose and hold tool	106	Measure tool limited protect
007	Dust cover up and down	107	Vacuum alarm
008	Position cylinder up and down	108	Inverter Alarm
009	Atc Tool magazine cylinder	109	Left position cylinder push out check
010	Unloading function	110	Air pressure check
011	Spindle 1	111	Dust cover arrive check
012	Spindle 2	112	Spindle hold tool check
013	Spindle 3	113	Spindle loose tool check
014	Spindle 4	114	Spindle loose and hold tool check

015	Spindle 5	115	Emergency stop
016	Spindle 6	116	Tool magazine original place signal
017	Drilling bank on/off	117	ISO30 tool handle check signal
018	drilling bank cylinder up and down	118	Tool magazine original location
019	Exhaust valve	119	Tool magazine arrive place
020	Front position cylinder	120	Drilling bank cylinder
021	Rear position cylinder	121	front position cylinder push out check
022	Left position cylinder	122	Rear position cylinder push out check
023	Right position cylinder	123	Right position cylinder push out check
024	A Area position cylinder	124	A Area prepare
025	B Area position cylinder	125	B Area prepare
026	Intermediate position cylinder	126	A Area position cylinder check
027	A Area Release value	127	B Area position cylinder check
028	B Area Release value	128	
029	Tool magazine Forward rotation	129	Intermediate position cylinder check
030	Tool magazine reverse	130	Pushing function check
031	Vacuum generation	131	Negative pressure alarm
032	Loading Cylinder	132	Loading function check
033	Main value non-return	133	Program Start
034	Gas seal	134	Program suspend
035	Front pressure roller	135	
036	Rear pressure roller	136	Dust collector alarm
037	Vacuum breaker	137	A limited
038	Spindle Start	138	Small board left
039	Oil Mist pump	139	Catch the Small board
040	Horizon spindle cylinder	140	wind pressure
041	Side push cylinder	141	Lubrication detection
042	Left Loading Cylinder	142	Push materials assist
043	Left vacuum cylinder	143	Oil pump alarm
044	Push assist	144	Labeling cylinder upward inspection
045	Tool Sensor blowing	145	Take the label
046	X+ dust less	146	With or without labels
047	X- dust less	147	Start,Pause
048	Y+ dust less		
049	Y- dust less		
050	Labeling cylinder		
051	Labeling rotary cylinder		
052	Label blowing		
053	Label adsorption		

054	Vacuum breaker		