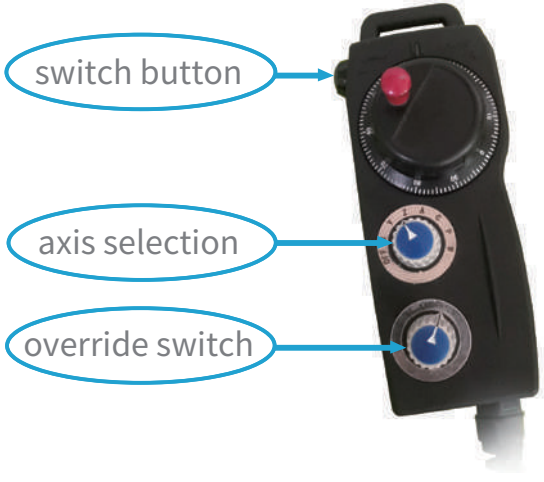


In manual mode, turn the MPG override switch to a non-“OFF” state to enter the handwheel feed mode，Adjust the axis selection switch to select the corresponding feed axis, adjust the override switch to select the appropriate override, and then press the switch button on the left side of the handwheel,，At the same time, shake the handwheel in the forward or reverse direction to realize the corresponding direction feeding.

notice：

(1) The handwheel operation is only used for the small feed amount and the slow feed such as the tool setting operation, so the handwheel override value should be selected as a small value.

(2) The handwheel has a magnet that can be attached to iron objects.

Print Head Temperature Control Operation Interface

Press the "Print Head Temperature Control Interface" key to enter the print head real-time temperature control interface，It is mainly used for real-time monitoring of temperature changes and fine-tuning the extrusion volume of the print head.

(1) In Mdi mode, there are two ways to warm up the print head :

a.The heating format is M200[A1,A2,A3,A4];
As shown on the right, the heating command is M200[161,184,207,230]

b.The heating format is M104SA4, A4 is the value of the fourth group of heating coils, and the other three groups of heating coils are heated by the proportional value through the command M104, as shown in the right figure, the heating command is M104S230

(2) A1~A4 on the left side of the interface, corresponding to 4 heating zones from heating zone A1 to heating zone A4;
(3) The temperature on the left is the set temperature of the heating zone;
(4) The temperature on the right is the actual temperature of the heating zone;
(5) 

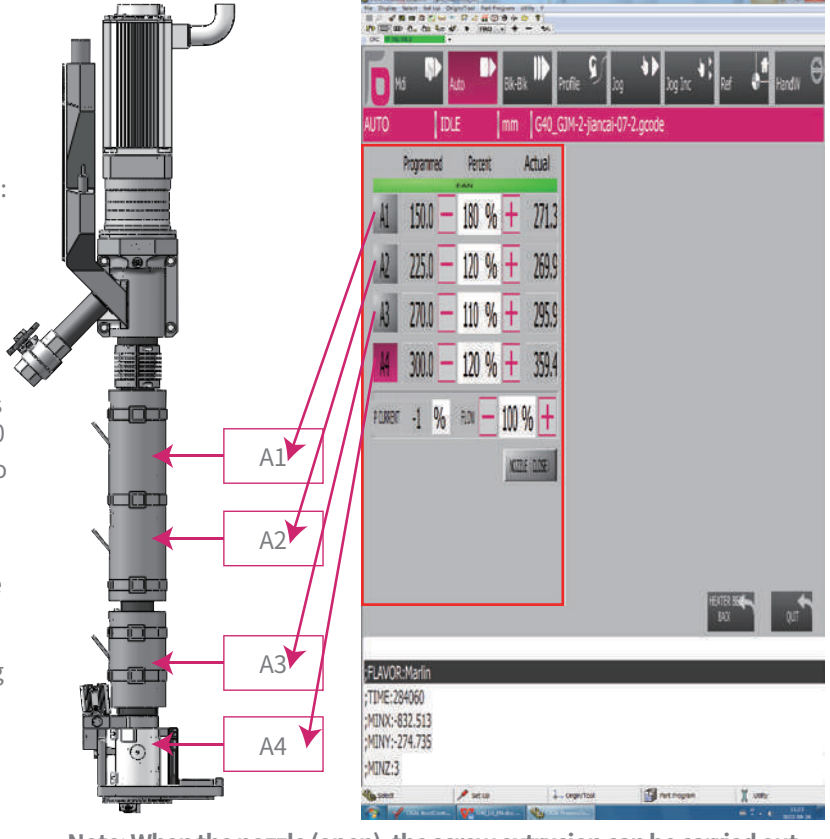
The middle is the temperature percentage of the four heating zones, which can be adjusted according to actual needs through the "+" and "-" signs;

(6)

The speed change ratio is the extrusion constant, and the extrusion amount can be manually adjusted according to "+" and "-" ;

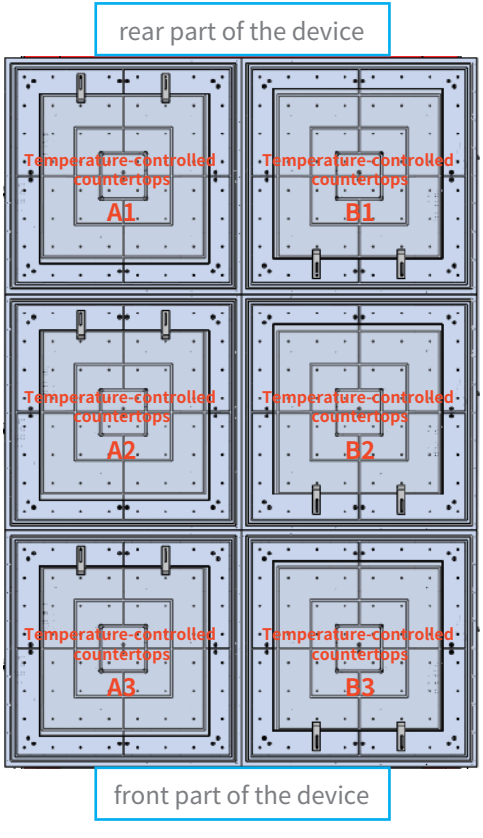
(7) 
On-off switch for print head nozzles;

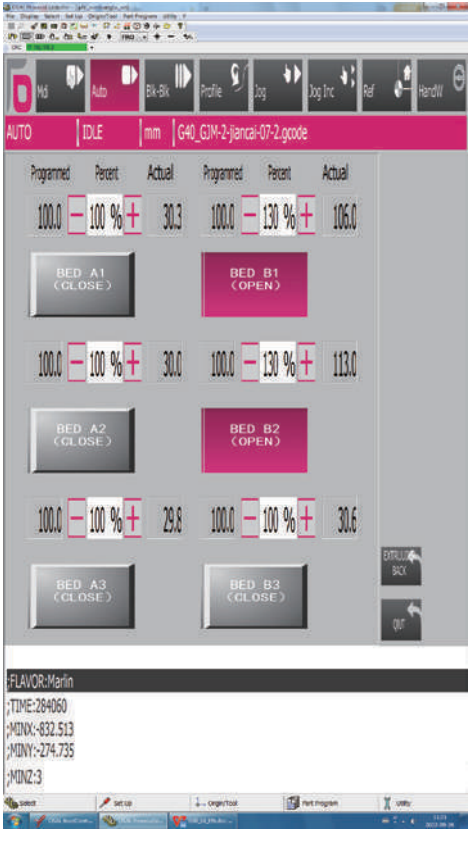
(8) 
Button to exit the real-time temperature control interface of the print head.



Note: When the nozzle (open), the screw extrusion can be carried out, otherwise, it will cause damage to the mechanical parts, Keep the air pressure at 0.6MPA. In addition, when the manual screw is extruded, avoid the left-hand wheel to prevent the internal screw from falling off.

Temperature Console Control Interface





Click "Temperature Control Interface" to enter the interface.This interface is mainly used to start, adjust and close the temperature of the temperature console.

(1) The temperature controller A1~A3 on the interface, the temperature controller B1~B3, correspond to the 6 heating zones of the temperature controller on the machine tool;

(2) The temperature on the left is the set temperature of the temperature control console, and the maximum setting is 200°C;

(3) The temperature on the right is the actual temperature of the thermostat;

(4)  The middle is the temperature percentage of the heating zone, which can be adjusted by the "+" and "-" signs according to actual needs;

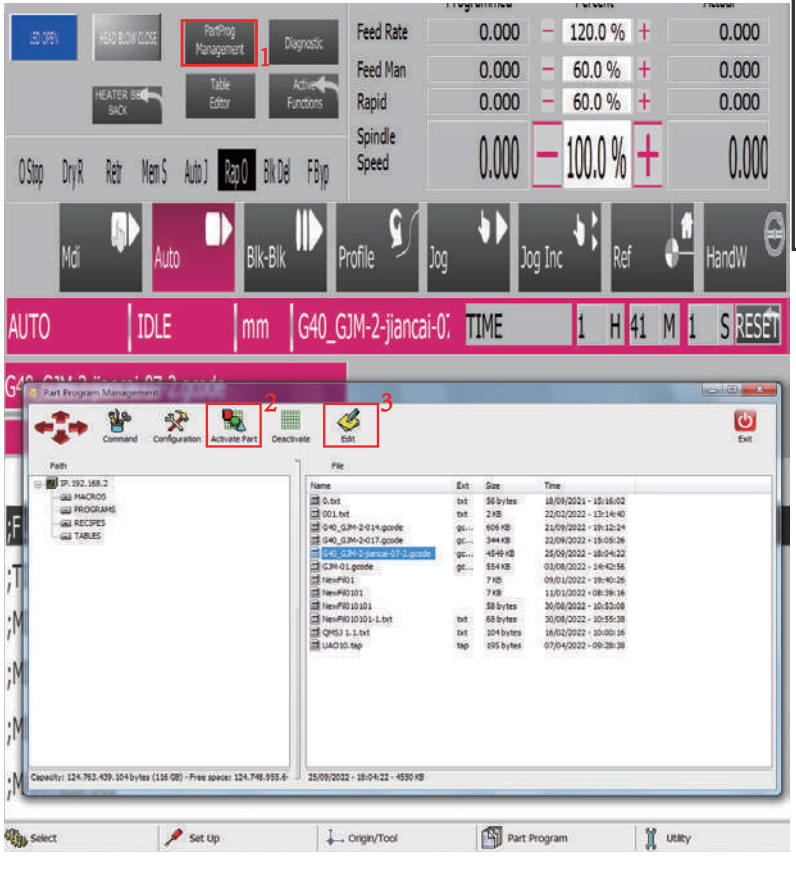
(6)  Button to exit the real-time temperature control interface of the temperature control console.

Pratprog Management Interface

1、Before starting the G code post-processing file, click PartProg Management to pop up the workpiece program management menu;

2、Select the file to be enabled, and then click Activate Part to import the startup file. When the rate is determined to be 0, press the start button to start running the G code, and adjust the feed rate as required.

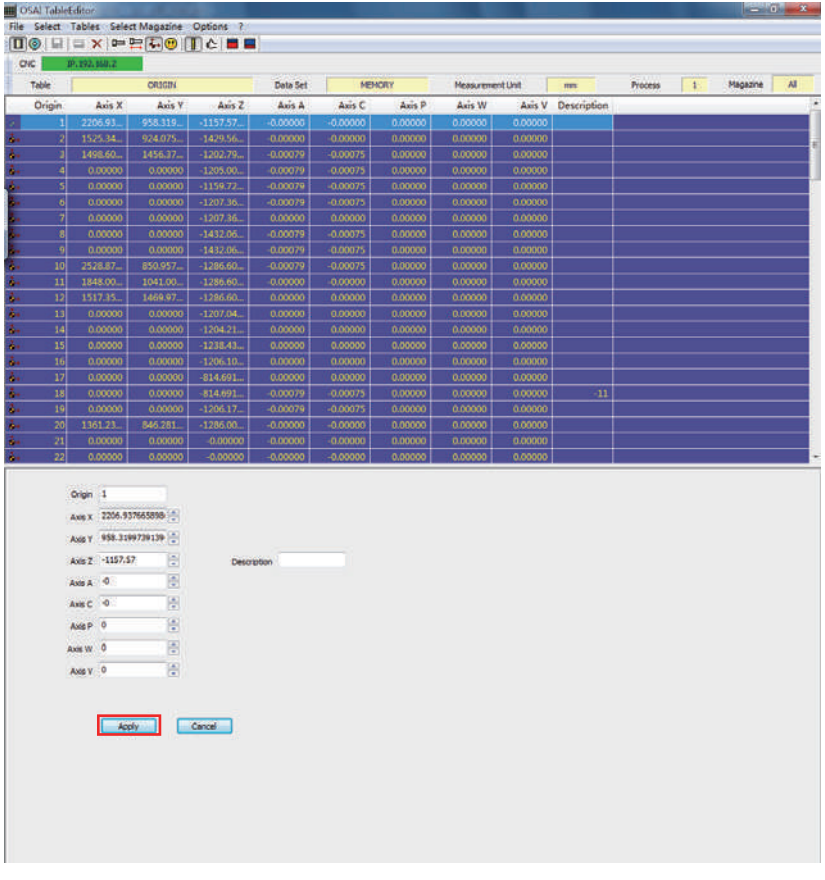
3、After selecting the specified file at the same time, click Edit to edit the internal code (as shown on the right)



UAO,1 is the origin coordinate system code; for other coordinate system codes, enter the document mode to change the corresponding UAO code, the specific coordinate system parameters, and open the Table Editor coordinate origin interface to view.

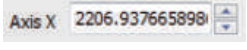
```
N119 G601
N120 (UAO,1)
N121 (TCP,1)
N122 S4500 M03
N123 G00 G90 X15.0 Y14.0
N124 Z20.0
N125 ;
N126 X14.7 Y30.3 C0.0 A0.0
N127 Z15.0
N128 G01 Z-0.2 F700.0
N129 G03 X15.0 Y30.0 R0.3 F1000.0
N130 G01 X29.9718
N131 X30.2543 Y29.9837
N132 X30.3956 Y29.9605
N133 X30.5367 Y29.9266
N134 X30.8192 Y29.8245
N135 X31.1017 Y29.6692
N136 X31.3842 Y29.4436
N137 X31.4327 Y29.3955
N138 X31.6617 Y29.113
N139 X31.8194 Y28.8305
N140 X31.9234 Y28.548
N141 X31.9823 Y28.2656
```

Table Editor Interface



1.Click 

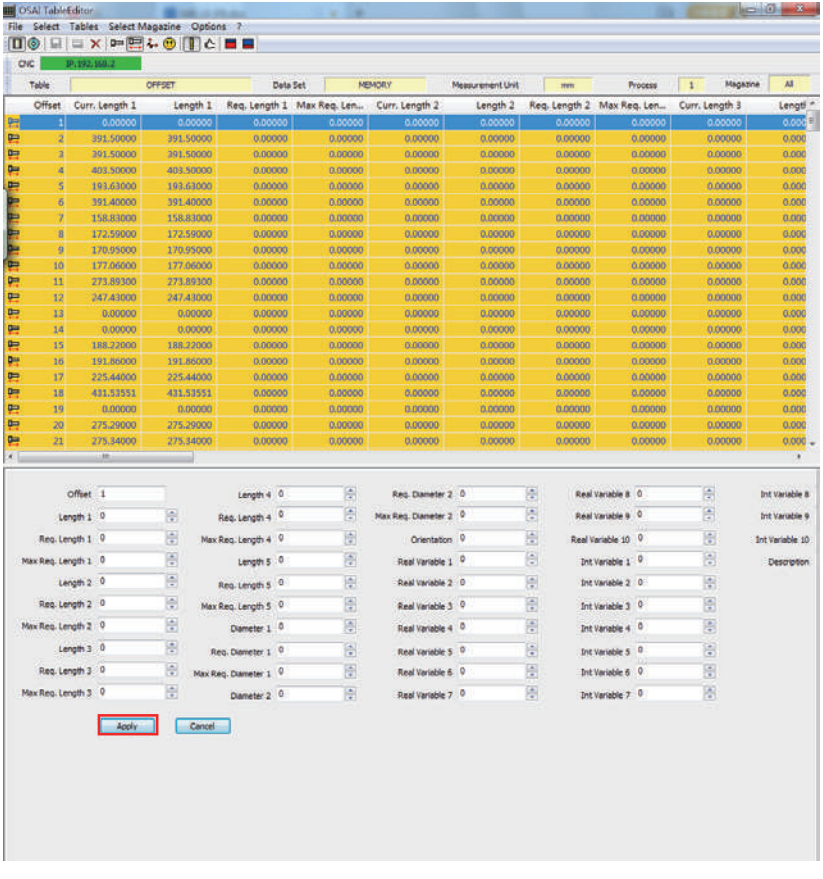
to enter the table editor, select  the menu, and set the origin of the workpiece coordinate position of the machine tool.

2. 

Input the value corresponding to the index axis.

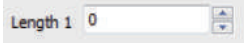
3. After entering the value, click Apply and close the interface.

Table Editor Tool Number Interface



1.Click 

to enter the table editor, select  the menu, and set the origin of the workpiece coordinate position of the machine tool.

2. 

Input the value.

3. After entering the value, click Apply and close the interface.

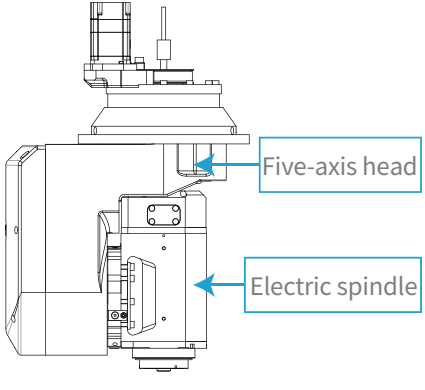
Mdi Mode Data Input Current Command Representation

1、Start the print head heating:
By default, the M104S220 displays four heating temperature groups: 110, 165, 198, and 220, which can be re-adjusted within the system;
2、Another input of the print head:
M104[110,165,198,220], if you need to change a group of temperature, you need to press the reset button, input the value of M104[A1, A2, A3, A4] corresponding to the heating zone, and then start it again;
3、G602 Switch print axis;
4、G601 Switch the cutting axis;
5、(UAO,1) Coordinate position;
6、(TCP,1) Represents the No. 1 center tool position compensation code.

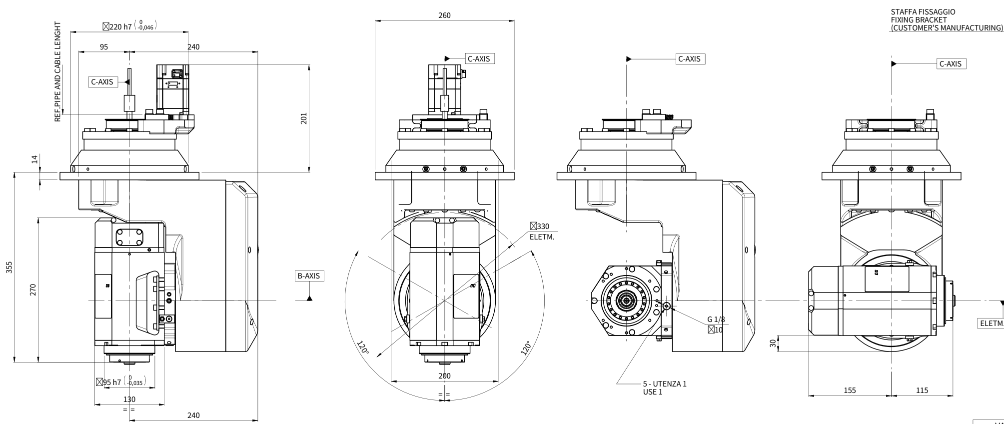
In addition, after inputting an MDI command segment, press the "cycle start" button on the operation panel, and the system starts to run the input command.

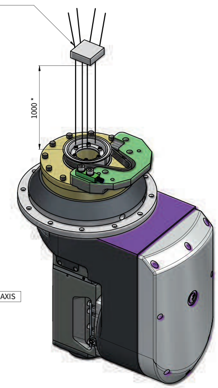
Five-axis head

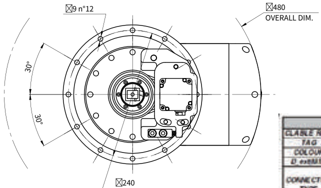
名称		数值
Five-axis head	A-axis	±120°
	C-axis	±320°
spindle air pressure		0.6MPA
Spindle power		8.5KW
Spindle speed		24000
Spindle holder		HSK63F
use coolant		Antifreeze, water tank treasure, refrigeration fluid



LAYOUT







I VALORI DEGLI ANGOLI SONO RIFERITI ALLE POSIZIONI COME DA SCHEMA

ROTATION ANGLES ARE REFERRED TO THIS AXIS ORIENTATION

* = VALORE MINIMO PER GARANTIRE LA ROTAZIONE DEGLI ASSI INDICATA

MINIMUM LENGTH TO ENSURE INDICATED AXIS ROTATION

CONNESSIONE PNEUMATICHE/IDRAULICHE
PNEUMATIC/IDRAULIC CONNECTION

TUBO PIPE	DESCRIZIONE / DESCRIPTION	D (mm)	PRESSIONE / PRESSURE	ADDUZIONE / FLUID	L.USCITA TUBI PIPE OUTER L.
1	RAFFREDDAMENTO MANDRINO / COOLANT INLET-OUTLET	ø8	max. 6 bar	LIQUIDO / COOLANT	5 mt
2	RAFFREDDAMENTO MANDRINO / COOLANT INLET-OUTLET	ø8	max. 6 bar	LIQUIDO / COOLANT	5 mt
3	SBLOCCO CONO UT. / TOOL RELEASE	ø6	10,5 - 11,5 bar	ARIA / AIR	5 mt
4	PRESSURIZZAZIONE - SOFFIO CONO / PRESSURIZATION - CONE CLEANING	ø6	4 - 4,5 bar	ARIA / AIR	5 mt
5	UTENZA 1 / USE 1 (FREE)	ø6	max. 6 bar	ARIA / AIR	5 mt

SPECIFICHE TECNICHE / TECHNICAL SPECIFICATION

	ASSE B	ASSE C
SERVOMOTORE / SERVOMOTOR	YASKAWA SGM7J-04A7C6S	YASKAWA SGM7J-04A7C6S
POTENZA SERVOMOTORE / SERVOMOTOR POWER	0,40kW	0,40kW
ENCODER SERVOMOTORE / SERVOMOTOR ENCODER	Absolute 24 Bit	Absolute 24 Bit
RIDUTTORE / GEARBOX	HARMONIC DRIVE HFUS 40-100-2UH	HARMONIC DRIVE HFUS 40-100-2UH
RAPPORTO DI TRASMISSIONE / GEAR RATIO	1:297,5	1:297,5
COPPIA IN CONTINUO / CONTINUOS TORQUE	380 Nm	380 Nm
COPPIA MASSIMA / MAX. TORQUE	570 Nm	570 Nm
MAX ROTAZIONE ASSE / MAX ROTATION AXIS	+/- 120 °	+/- 320°
FRENI MECCANICI / MECHANICAL BLOCKING AXIS	No	No
VELOCITÀ POSIZIONAMENTO MAX / MAX. POSITIONING SPEED	6.100 °/ '	6.100 °/ '
VELOCITÀ DI LAVORO MAX / MAX OPERATING SPEED	3.700 °/ '	3.700 °/ '
GIOCO DI INVERSIONE / BACKLASH	1 arcmin	
PESO / WEIGHT	60 kg	
ELETTROMANDRINO DI SERIE / STANDARD ELECTROSPINDLE	QX-2 8,5/12 24 63F NC	

ELECTRIC CONNECTIONS

CABLE REF.	SP	SS	PC	SC	PB	SB
TAG		SPINDLE SIGNAL	POWER C	FEEDBACK C	POWER B	FEEDBACK B
COLOUR		Black	Black	Black	Orange	Green
D ext(MM)		ø8	ø7.5	ø5.5	ø12.4	ø8.2
CONNECTOR TYPE		M23 17 poles MALE	M23 6 poles MALE	M23 17 poles MALE	M23 6 poles MALE	M23 17 poles MALE
CONNECTOR LAYOUT						
MACHINE SIDE		HITECO cod. 0001352745L	HITECO cod. 0001352744G	HITECO cod. 0001352745L	HITECO cod. 0001352744G	HITECO cod. 0001352745L

PINOUT

SS pin	SS	PC pin	PC	SC pin	SC	PB pin	PB	SB pin	SB
1	24 Vcc - [illegible]	1	U PHASE MOTOR	1	0 V (BATTERY)	1	U PHASE MOTOR	1	0 V (BATTERY)
2	0 Vcc - [illegible]			2	3.6 V (BATTERY)			2	3.6 V (BATTERY)
3	24 Vcc - [illegible]	2	V PHASE MOTOR	3	DATA +	2	V PHASE MOTOR	3	DATA +
4	0 Vcc - [illegible]			4	DATA -			4	DATA -
5	OUT [illegible] - LOCK TOOL	4	W PHASE MOTOR	5	-	4	W PHASE MOTOR	5	-
6	OUT [illegible] - [illegible] TOOL			6	-			6	-
7	OUT [illegible] - SHAFT STOPPED	GND	GROUND	7	-	GND	GROUND	7	-
8	OUT [illegible] - PISTON BACK			8	5 V (POWER SUPPLY)			8	5 V (POWER SUPPLY)
9	-	-	-	9	0 V (POWER SUPPLY)	-	-	9	0 V (POWER SUPPLY)
10	-			10	-			10	-
11	-	-	-	11	-	-	-	11	-
12	-			12	-			12	-
13	-	Case	SHIELD	13	-	Case	SHIELD	13	-
14	-			14	-			14	-
15	-			15	-			15	-
16	THERMAL SWITCH			16	-			16	-
17	THERMAL SWITCH			17	-			17	-
Case	SHIELD			Case	SHIELD			Case	SHIELD

Data / Date	Firma / Signature	Descrizione ultima modifica / Last change description	N° Modifica / Change ID

Caratteristiche tecniche non evidenziate secondo istruzione operativa SCM GROUP : IO 23/1DTG
Specifications not shown according to SCM GROUP operation instruction : IO 23/1DTG
Strutture saldate secondo specifica SCM / Welded according to SCM specific : ST232DTG
Fusioni secondo specifica SCM / Mergers second SCM specific : ST233DTG
Quote senza indicazione di tolleranza, grado di precisione / Dimensions without indication of tolerance, accuracy: SCM Specifica ST2310DTG

Verniciatura / Painting (SCM specific ST231DTG): VER000 — Superfice / Surface (m²): 0
Trattamento Superficiale / Surface Treatment (SCM specifications ST234DTG)
Trattamento Termico / Heat Treatment (SCM specifications ST234DTG)
Rugosita' / Roughness'

	Firma / Signature	Data / Date
Ultimo rilascio / Latest release		
Controllato / Checked by		
Disegnato / Designed by	L.Cremoni	29/08/2019

CF3 0 0 — Smussi / chamfer
Peso grezzo/Raw weight (kg): 0
Massa / Mass (kg): 613031,255
Ricavare da o Stato di fornitura / Based on or State of supply
Materiale / Material (SCM specifications ST235DTG): Vedi Tabella

HITECO HIGH TECHNOLOGY COMPONENTS

Denominazione / Item Name: TESTA BIROT. TILT T-JQX 85 YASKAWA S7 200V MC

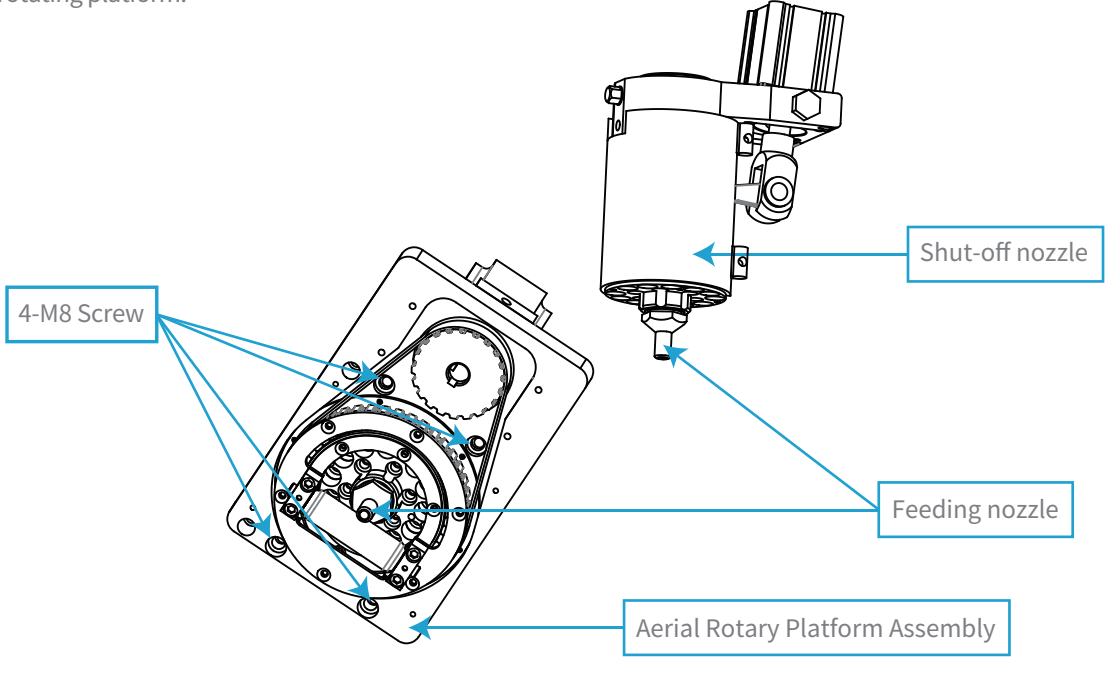
Scala / Scale	Codice / Item ID	Rev	Status	Tav. N. di N.
1:2	29L0556135B	00		1/3

For specific electro-spindle parameters, please refer to the description of the electro-spindle.

Print head shut-off nozzle and press wheel

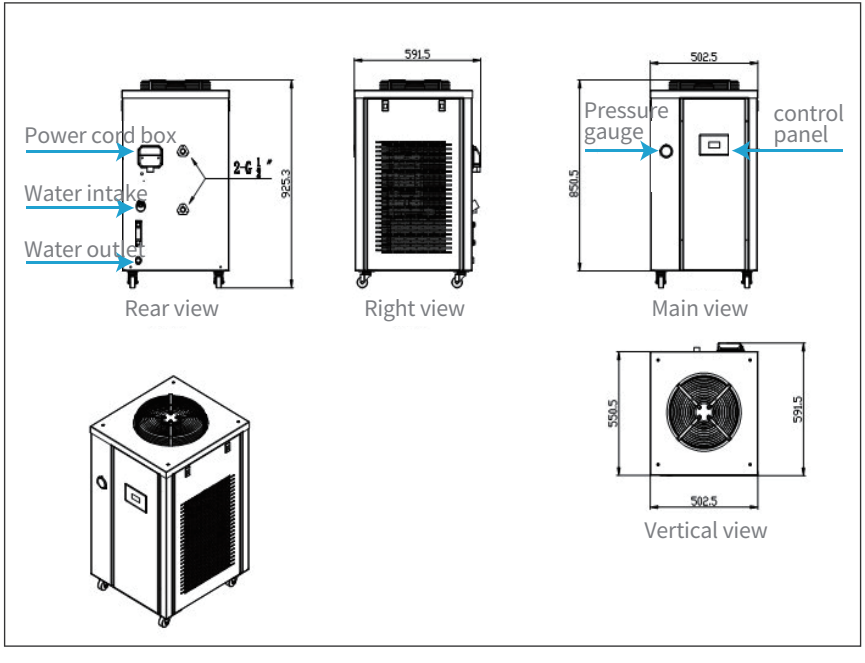
Steps to replace the nozzle:

1. Before replacing the nozzle, it is necessary to remove the 4-M8 screw and remove the aerial rotating platform assembly. Note that the motor wire is not allowed to be disconnected.
2. After the rotating platform assembly is removed, the nozzle can be replaced (higher length nozzle is required).
3. In addition, the aerial rotating platform assembly is only suitable for the nozzle diameter of 5-8, and the other nozzle specifications do not require a rotating platform.



1.Mounting holes and outline dimensions

2.Technical parameter



Technical parameter	
Model	QG-025LS-ZBA-1225
Power system	1PH+PE220V/50HZ
Rated cooling capacity	2.5KW(water temperature 35°C、environment 35°C、water tank treasure)
Rated power/current	2.2KW/6A
Oil temperature settable range	5-55°C(It is recommended to use 20-40°C)
Oil temperature control accuracy	±0.5°C
Connection size	G1/2(1 for 1 time)
Refrigerant	R22
Use ambient temperature	10-43°C
Protection class	IP44
Noise	⩽72dB(A)
Pump rated flow	2m³/h
Rated lift	37m
Colour	Ripple white
Applicable liquid	Water tank treasure, refrigerant

3.Protection function

The machine settings are: phase sequence protection, refrigeration high pressure protection, refrigeration low protection, oil temperature ultra-high protection, ambient temperature too high protection, oil pump overload protection, oil pump overload protection, compressor overload protection.

4.Power wiring

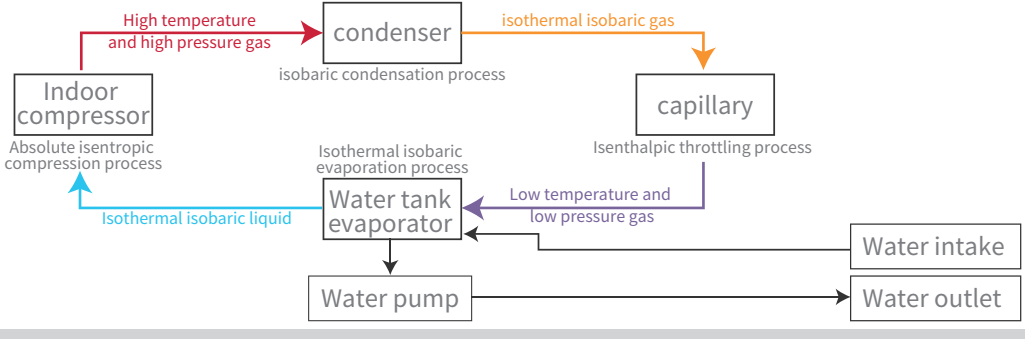
Junction box location diagram				
R	S	PE	95	96
R	S	PE	95	96

1PH+PE220V/50HZ　　Signal output

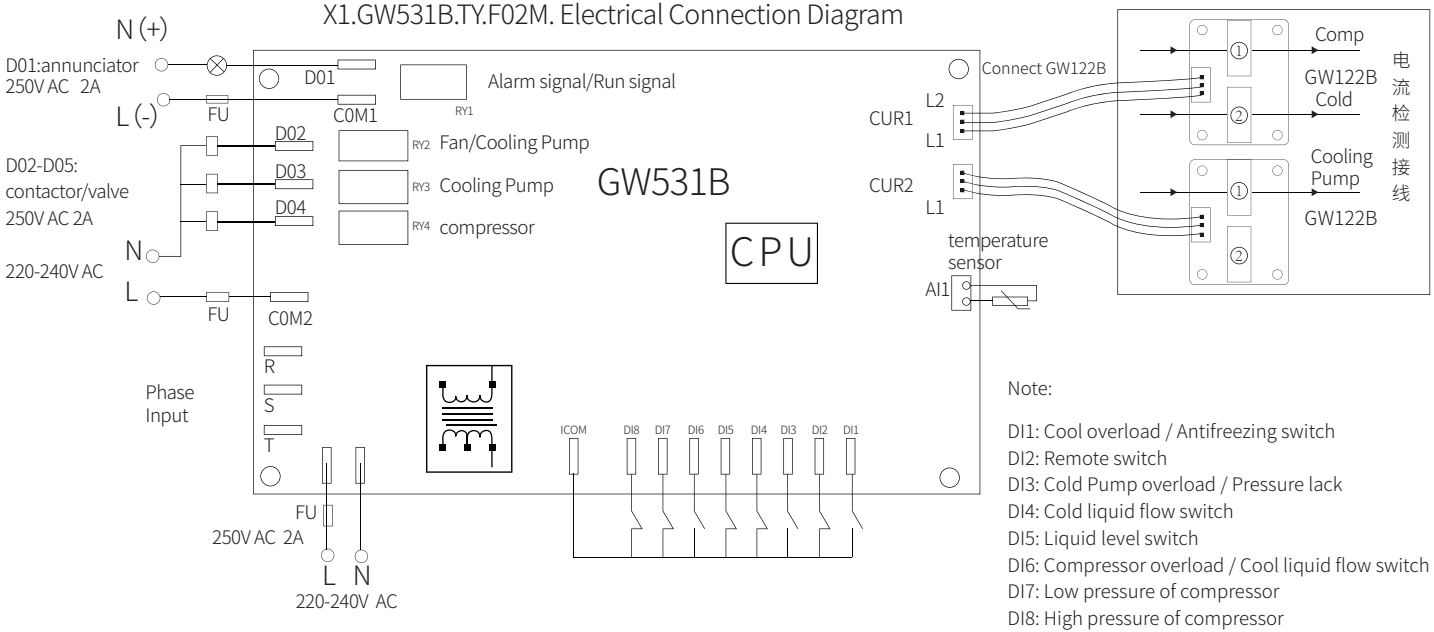
5.Signal wiring (no need to connect)

In the electrical control of the cooling machine, a passive alarm signal is provided for the machine tool host. When the cooling machine fails for some reason, the equipment down. The alarm terminals are completely independent contacts, and the maximum driving capacity is 220V3A. Two output modes of normally open point and normally closed point can be carried out inside the control, and the factory routine setting is normally closed point.

6.Working principle diagram of oil cooler



7.Electrical schematic



Note:

DI1: Cool overload / Antifreezing switch
DI2: Remote switch
DI3: Cold Pump overload / Pressure lack
DI4: Cold liquid flow switch
DI5: Liquid level switch
DI6: Compressor overload / Cool liquid flow switch
DI7: Low pressure of compressor
DI8: High pressure of compressor

1.Dehumidifying Dryer Connection Instructions

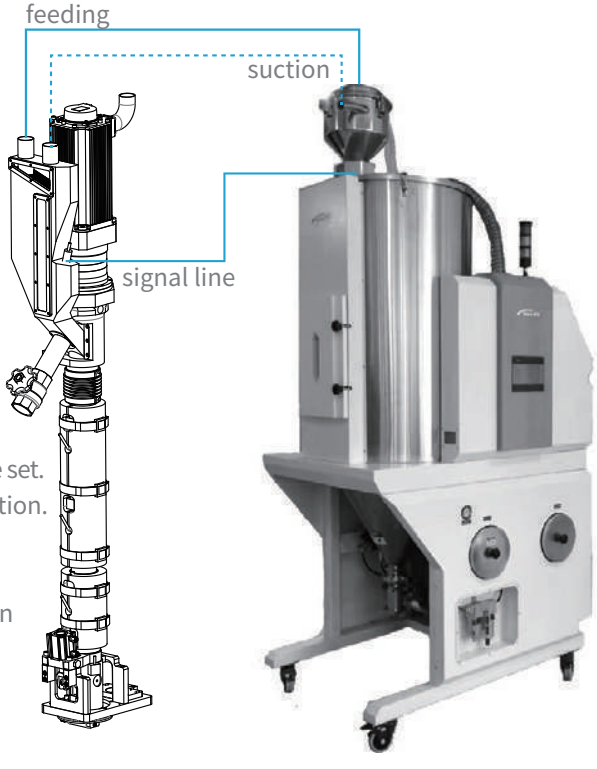
Use PVC steel wire hose to connect the raw material delivery pipe of the hopper.
Use PVC steel wire pipe to connect the negative pressure pipe of the hopper.
Connect the hopper signal wire.
Connect compressed air (0.6MPA).

2.Component Function Description

Printing Extruder Feeding System

This machine adopts single barrel feeder:

1、Three functions of drying, dehumidification and feeding.
2、Maximum storage capacity: 75KG.
3、Automatic feeding, automatic feeding.
4、The amount of each feeding and the time of a single feeding can be set.
5、The system is automatically controlled without human intervention.
6、Maximum drying temperature: 150°C.
7、Customized 160°C high temperature feeding tube.
8、After the machine tool is turned off, press the heating button on the dehumidifying dryer panel to turn off, and wait for 5 to 10 minutes before turning off the device.



3.Engineering plastic drying temperature reference table (parameter setting)

Plastic name		Drying Temperature (°C)	Drying Time (h)
Chinese scientific name	General name		
丙稀腈-丁二烯-苯乙烯	ABS	80	3h
聚碳酸酯	PC	120	3h
聚碳酸酯-丙稀腈-丁二烯-苯乙烯	PC/ABS	100	3h
聚酰胺-6	PA6	80	3h
聚酰胺-66	PA66	80	3h
聚酰胺-66玻纤35%	PA66 GF35%	80	3h
聚甲基丙烯酸甲酯	PMMA	80	3h
聚甲醛	POM	100	3h
聚对苯二甲酸丁二醇酯	PBT	120	3h
聚苯醚/聚苯撑氧	PPO	100	3h
	PPE	100	3h
聚苯硫醚	PPS	150	3h
聚对苯二甲酸乙二醇酯	PET	125	3h

1) The standard of this machine is that the drying temperature is higher than 150 °C, and a special statement is required;
2) This machine is not suitable for sucking the raw materials with added toner;
3) (Drying temperature) Display the actual temperature value of the baking material of this machine;
4) The setting time of the suction control of the drying bucket indicates the amount of each time it enters the drying hopper;
5) The setting time of the material quantity control indicates how much each time it enters the injection hopper;
6) When there is no material level signal after feeding 5 times, it will prompt a material shortage alarm, press the (Release alarm) button to release the alarm;

4.Abnormal situation and handling reference

Phenomenon	Reason	Countermeasures
no action	No material shortage signal	Check the signal
	Action switch not turned on	Open the corresponding screen and turn on the switch
Suction motor running	The drying hopper can't pump the material	Solenoid valve not open
	Injection bucket can not draw material	The feed valve is not open
		The blanking time is set correctly
		Material shortage signal and screen switch, keep consistent
Drying hopper shortage alarm Injector Ⅰ lack of material alarm Injector II material shortage alarm Injector III material shortage alarm	If the raw material has not been pumped after 5 times of pumping, stop the machine and give an alarm	Enter the corresponding computer screen, turn off the pumping， release the alarm, and turn it on again
Fan motor overload alarm	Current overload protection	After checking the cause, manually reset the overload protection and release the alarm
Suction motor overload alarm		
Temperature exceeds upper limit	Temperature over 180°C	abnormal heating
	The temperature exceeds the fixed value by 20°C	Adjust the set value
Can't heat up to set value	Hot air motor reverse	Swap the power cord
	The heating tube is broken	replace
	Heating Magnetic Destruction	replace
No display on boot	Out of phase	Check the power cord
	Blown fuse	Check the reason for well replacement
	Switching Power Line Indicators	Replacing the DC 24V fuse
	Switching power supply without indicator light	Replacing the AC 220V fuse
	Special note: The current of the fuse fuse used in this machine is 1 A, please do not increase the current,otherwise it will not be able to play a protective role, which may cause unforeseen failures.	
Alarm after power on	reverse phase protection	