

# LAGUNA TOOLS

## SMARTSHOP SS2 (B-AXIS/SYNTEC )

### MANUAL 2021

Basic Operations-SS2 with B Axis & Syntec Controller.



#### **LAGUNA TOOLS**

744 Refuge Way

Grand Prairie, TX. 75050

Direct Phone #: (800) 234-1976

Warranty Repair Information: (800) 332-4094



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**Safe Operation of Your Machine-Read these instructions thoroughly **BEFORE** operating machine.**

- 1.) The machine is supplied ready to go—all motion parameters have been set up by the supplier. If any modifications are required, please have a professional operator to perform such changes.
- 2.) Never operate the machine with the electrical cabinet door open as there is high voltage supply inside.
- 3.) Carefully read through all the safety instructions, warnings as well as signs attached to the machine before operating.
- 4.) Use machine only in clean areas free from excessive moisture or flammable objects.
- 5.) Machine must be properly grounded. Level the machine if the ground is uneven.
- 6.) Keep the machine and cabinet clear of unnecessary objects and keep all parts clean.
- 7.) Keep the machine, cabinet and cables away from excessive heat, flammable substance and sharp objects. Do not attempt to exceed limits of the machine.
- 8.) **Safety**-Check to ensure that objects and persons are clear of the machine during operation.



**Safe Operation of Your Machine-Read these instructions thoroughly **BEFORE** operating machine (Cont'd.).**

9.) Disconnect power to all system components when not in use, when changing accessories and before servicing.

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

11.) Exercise care with machine controls and around keypad to avoid unintentional starting.

12.) Maintain equipment with care.

- Keep cutting tools clean and sharp.
- Lubricate and change accessories when necessary.
- Cables and cords should be inspected regularly.
- Keep controls clean and dry.



## Safe Operation of Your Machine-Read these instructions thoroughly **BEFORE** operating machine (Cont'd.).

### Safety Signs-

- Pay attention to the safety signs before operating the machine to avoid injury or damage to person or equipment.

 Danger: Improper or unsafe operation will result in personal injury and/or damage to the equipment.

 Prohibited: prohibited under any circumstances.

 Must-dos

 High voltage power supply: Caution



**Safe Operation of Your Machine-Read these instructions thoroughly **BEFORE** operating machine (Cont'd.).**

**Caution-**

- Read thoroughly before operating. Do not operate machine if the operator is unfamiliar with the safety instructions and safety signs.
- Users are required to keep a copy of this user manual for future reference.
- Failure to comply with the safety instructions may lead to personal injury and/or damage to the equipment.



## Safe Operation of Your Machine-Read these instructions thoroughly **BEFORE** operating machine (Cont'd.).

### The Operator Must:

- Be familiar with the equipment and its installation, adjusting and operation, and be able to react in emergencies.
- Be properly trained, familiar with the operation, repair and maintenance of the machine:

### The Operator must also:

- 1.) Perform daily inspection of the **Safety Device(s)**.
- 2.) **Stay Alert** at all times when operating the machine.
- 3.) Keep the table clear of debris or other unnecessary objects.
- 4.) Operate only after making sure the machine is clear of unnecessary objects.
- 5.) **Wear Safety Glasses at all Times, but gloves are prohibited.**
6. Keep the machine and cabinet free from unnecessary objects and keep all parts clean.
7. Not attempt to use the machine before proper inspection and preparation.
8. Know where the emergency stop switch is located.
9. Keep the machine from excessive moisture or use a filter to ensure this.



## Safe Operation of Your Machine-Read these instructions thoroughly **BEFORE** operating machine (Cont'd.).

### Safety Warnings-

- 1.) Do not operate the machine with Electrical Cabinet Door Open—High Voltage Supply Inside.
- 2.) The machine must have proper electrical grounding.  
The power supply must be connected to permanently fixed electrical wire.
- 3.) The machine is supplied ready-to-go.  
Adjustments and modifications are to be performed only by qualified personnel.
- 4.) Keep children and non-operators away from the machine.
- 5.) Carefully read through all the safety instructions and warnings. The **Safety Signs should be Attached** on places that are easy to spot.
- 6.) Operators must be familiar with the installation, operation and service of the machine.  
Only proper operation can guarantee the safe and smooth running of the machine.



## Descriptions & Definitions-

### Description of Machine-

This model is an extremely cost-effective work center with 8-Slot tool changer. With Italian high power ATC spindle, and gear reducers, French Schneider electronic components and other imported parts, this machine has stable and reliable performance.

It is highly suitable for various processing procedures with versatile functions: routing, drilling, cutting, side milling, chamfering, etc. The T-slot vacuum table can either hold the materials of different sizes with strong suction power, or clamp materials of irregular shapes Laguna Tools SS2 with B-Axis & Syntec Control with Fixtures.



## Descriptions & Definitions-

### 1.) Electrical Cabinet Layout and Operation-



E-Stop Button

Power "On" Button



USB Port

Power "Off" Button

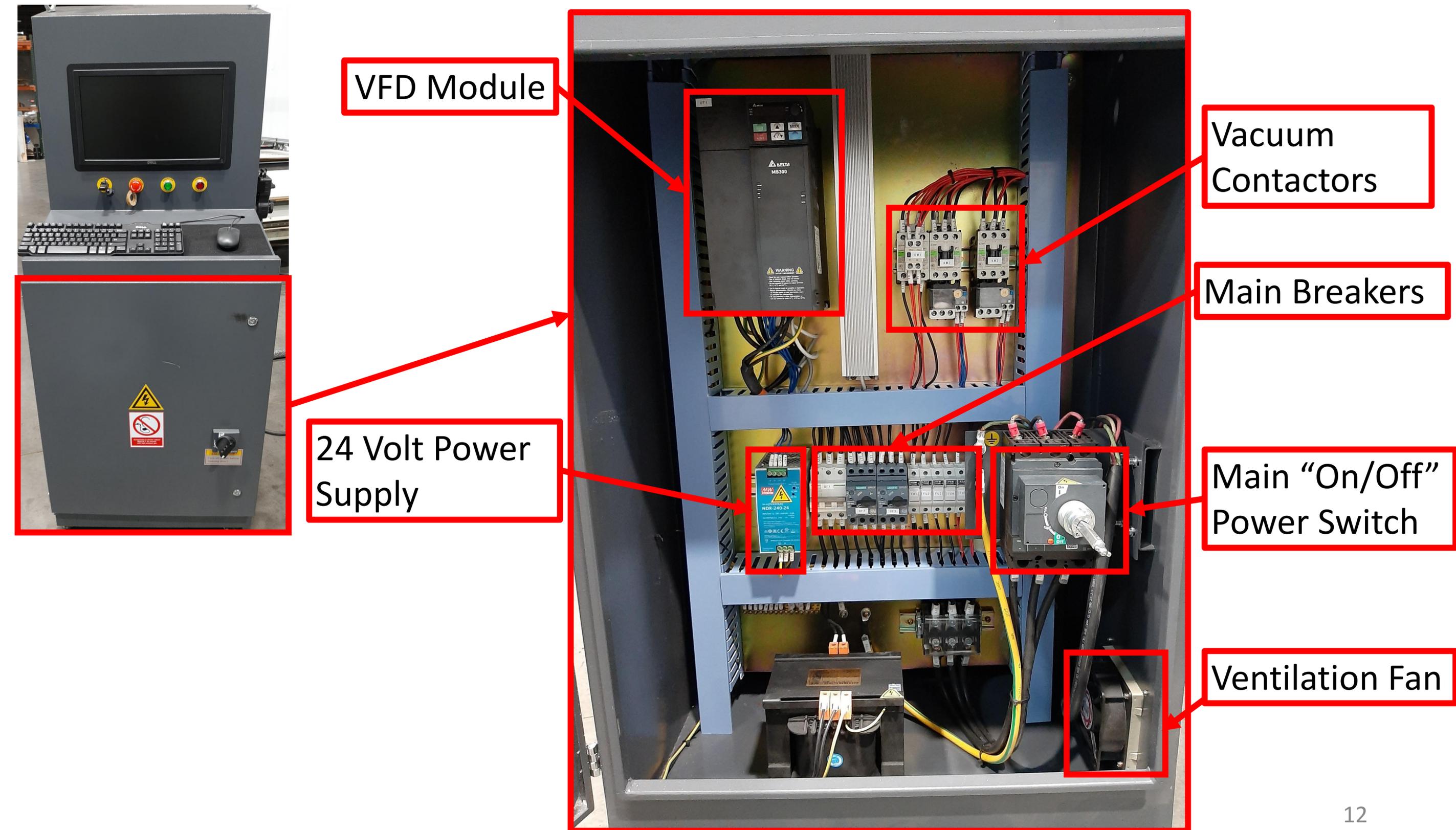


Main "On/Off" Power Switch



## Descriptions & Definitions-

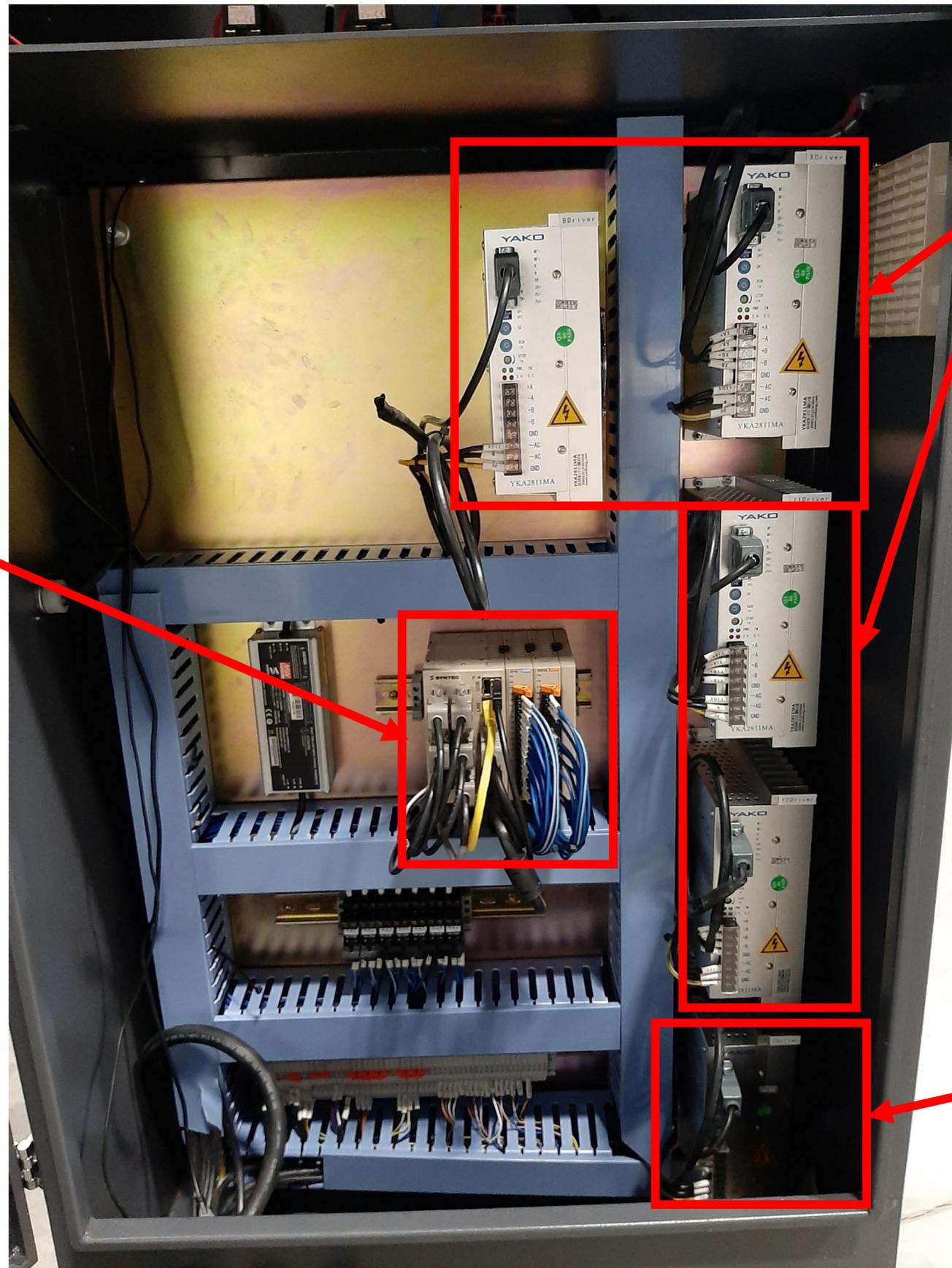
### 2.) Electrical Cabinets Lower Interior Layout and Operation-





## Descriptions & Definitions-

### 3.) Electrical Cabinets Back Door Interior Layout and Operation-



Syntec Control Modules

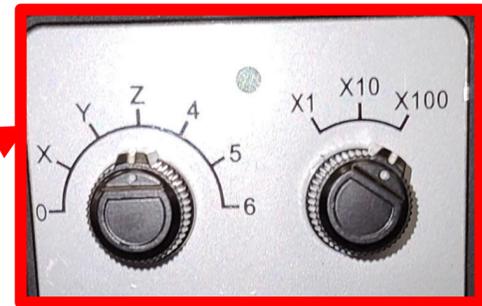
Drivers

Transformer



## Descriptions & Definitions-

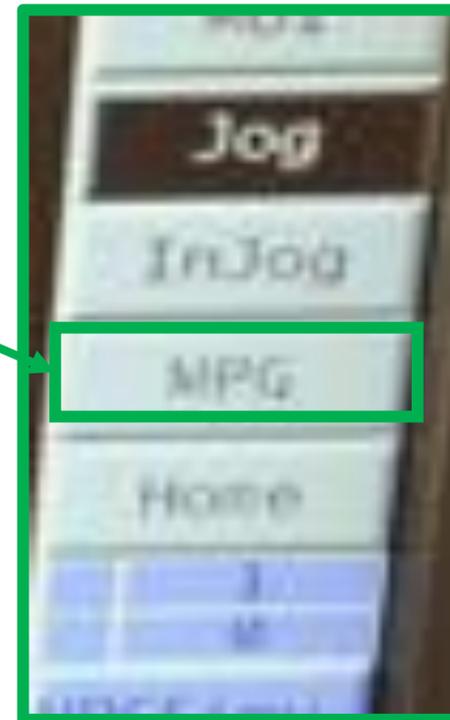
### 4.) Electrical Cabinets MPG (Manual Pulse Generator) Location and Operation-



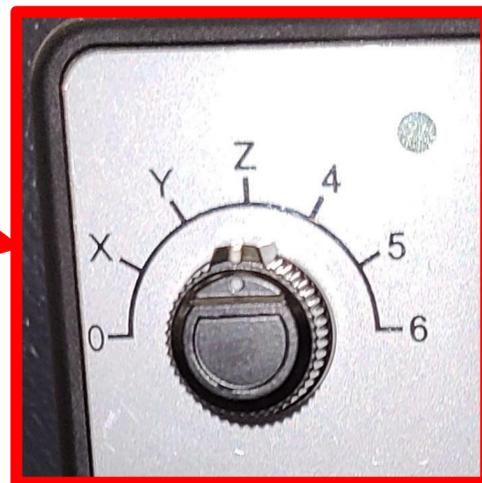


## Descriptions & Definitions-

1.) From the Main Screen, press the **“MPG Button”**.



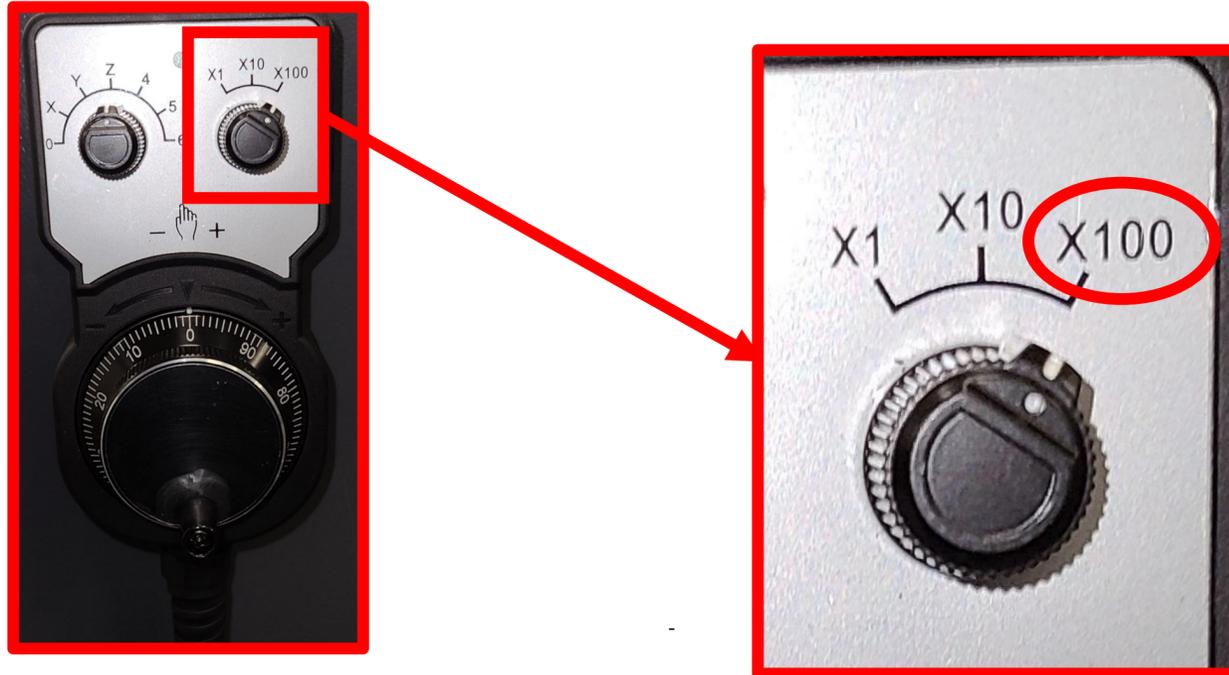
2.) Use the **“Top Left Knob on the MPG”** to select the axis to move.



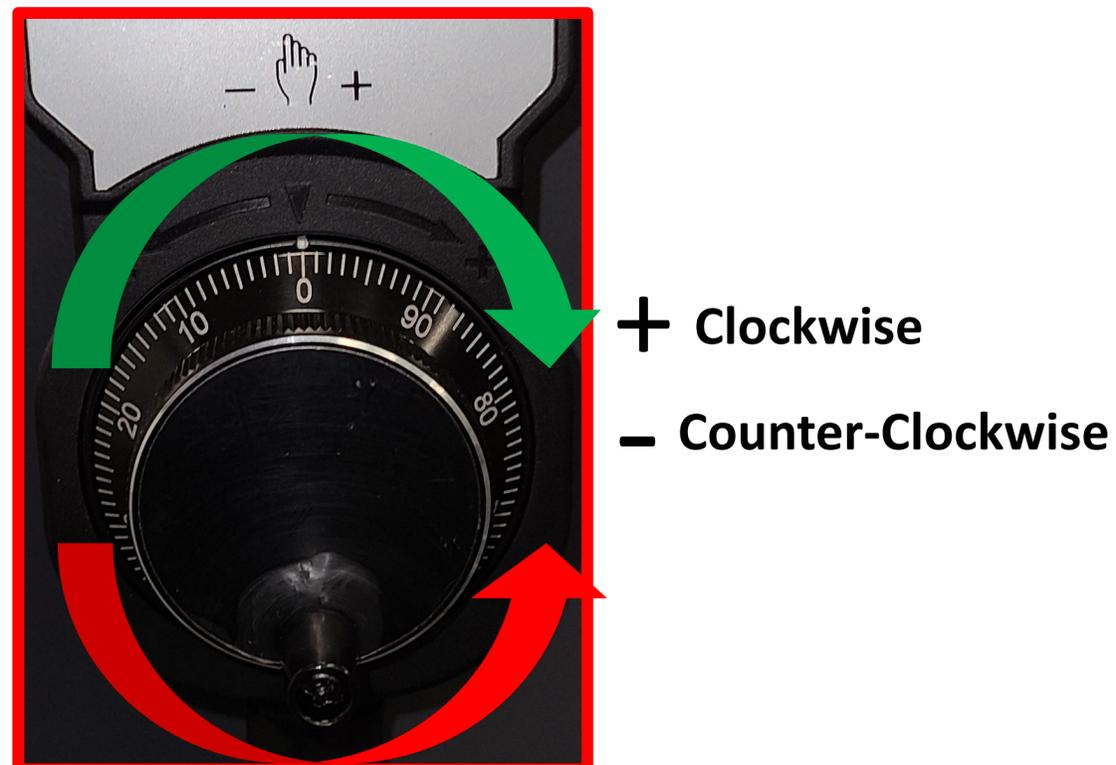


## Descriptions & Definitions-

3.) Use the **“Top Right Knob on the MPG”** to select speed, with 100X being the fastest.



4.) Rotate the **“Bottom Knob, Clockwise”** to move the Axis in the Positive (+) direction and **“Counter-Clockwise”** for Negative (-) direction.





## Descriptions & Definitions-

### Main Parts Functionalities-

**Electro-Spindle Assembly** : For cutting, engraving and other operations. Its compact structure, light in weight, low vibration and noise, high rotation speed and high power have gained it wide popularity with the CNC Router users.

**Square Linear Guide Rail**: Features high linear accuracy, rigidity and big dynamic load. The self-lubrication design achieves long service life and consistent accuracy. The machine features “**solid welded steel structure**”. The material has been vibrated and heat-treated to release the inner stress.

**Helical Rack**: This drives the machine. Each tooth is accurately geared, which enables smooth linear motion and minimum run noise. The load on each tooth is reduced and the movement is more steady.

**Electric Cabinet**: This houses the controller and other critical electronic components. The user-friendly design gives easy access to the operator. The electric fan located at the side of the cabinet guarantees effective air flow and keeps the inside cool.

**Gantry**: A rigid structure to carry the spindle’s horizontal movement.

**T-Slot Vacuum Table**: Is able hold down the work pieces with either vacuum suction power or fixtures, which is easy to use.



## Descriptions & Definitions-

**Caterpillar Track:** The caterpillar track runs along the side of the machine in a special trough and carries all the electrical cables and air lines.

**Vacuum Control Valves:** The machine has six (6) vacuum control valves that can be used to direct the vacuum to the vacuum table zones.

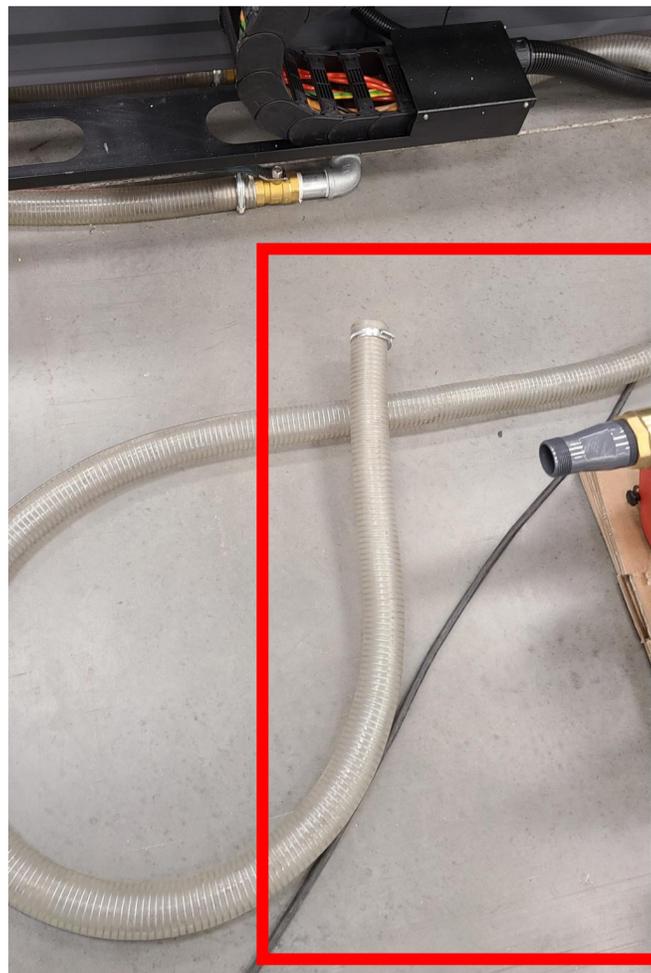
**Tool Rack ATC:** Tool changer includes eight (8) tool stations to accommodate a large range of tools. Each of the stations includes a ISO-30 gripper assembly, and station positions are controlled the Laguna Touch CNC controller.

**Frame:** The frame is a heavy steel all-welded construction that provides a rigid platform for the other components and ensures accuracy as well as edge finish.



## Connecting the Vacuum Pump-

The machine is provided with a 2-inch hose for connection to the vacuum pump. The vacuum hose is connected to the manifold located under the table toward the front of the machine. Connect the free end to the vacuum hose to the vacuum pump inlet. Ensure that it is clamped securely.



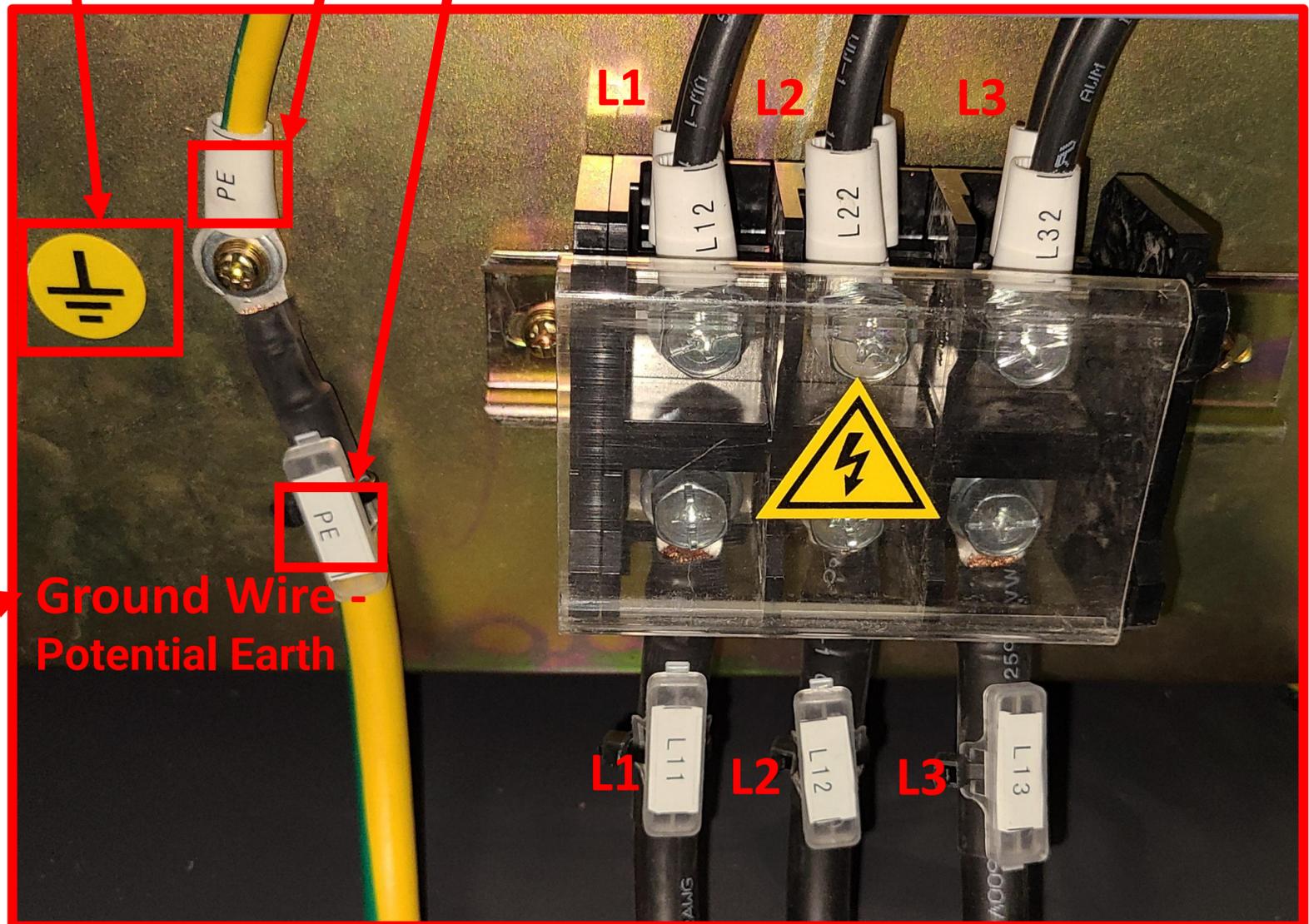
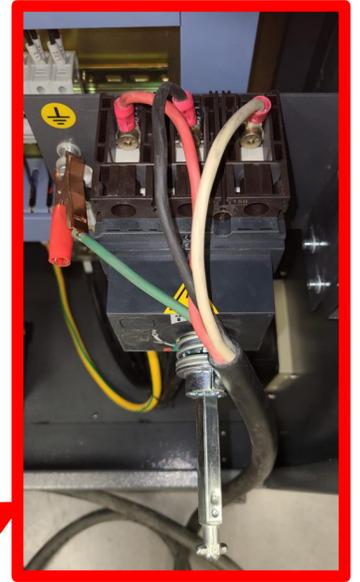
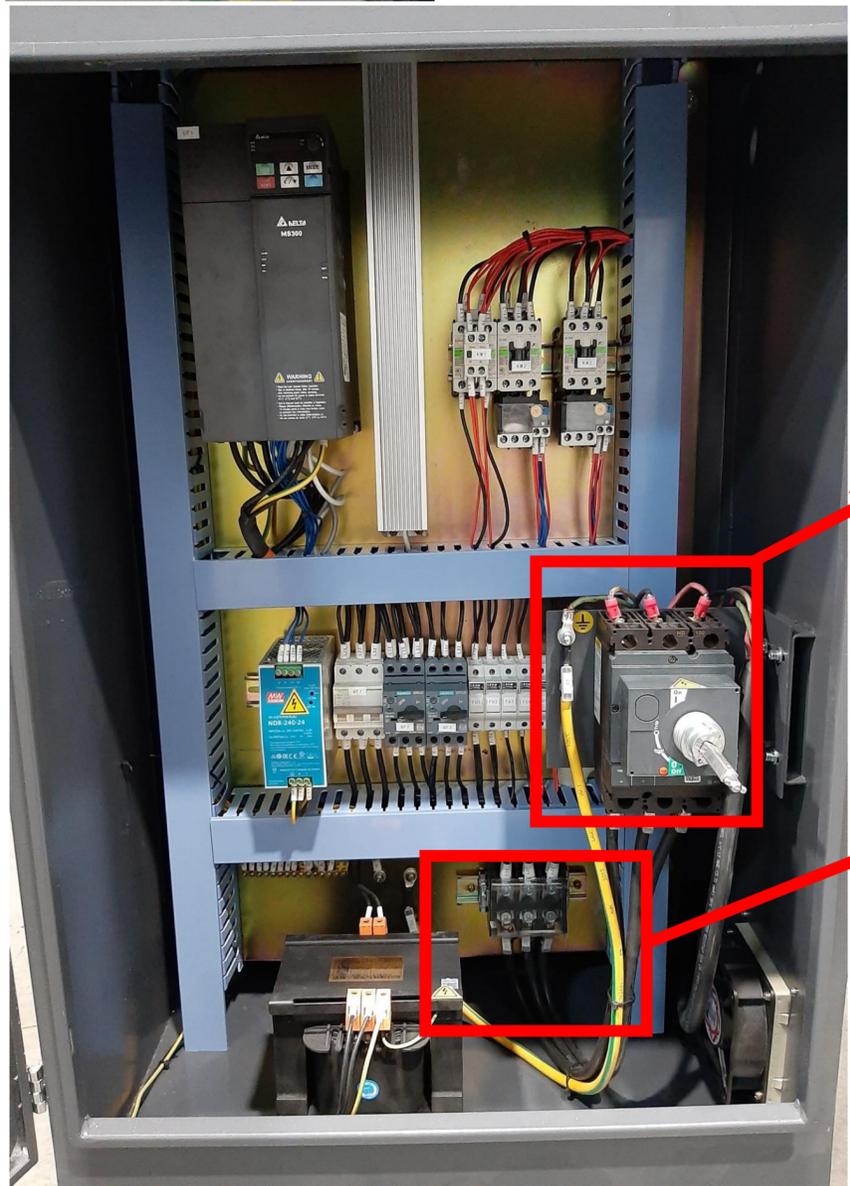


## Electrical Installation-

Electrify the following lines (as shown in the figure). Please test to guarantee 220V stabilized voltage before electrification.



**PE**- stands for **Potential Earth** (Earth Ground Point in an Electrical Circuit).

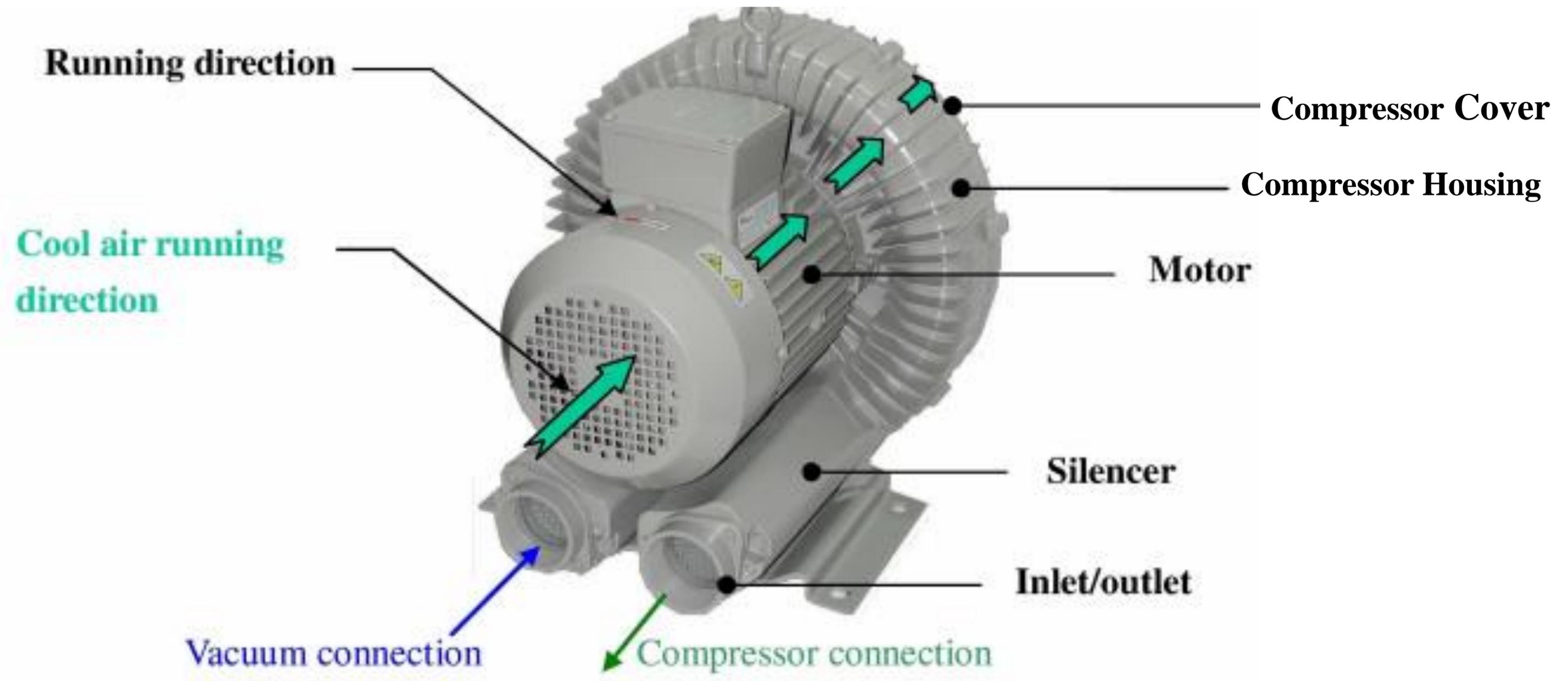


**Ground Wire - Potential Earth**



# Connecting the Vacuum Pump- DB Series

## DB Series Vacuum Pump (Parts) of Operation-

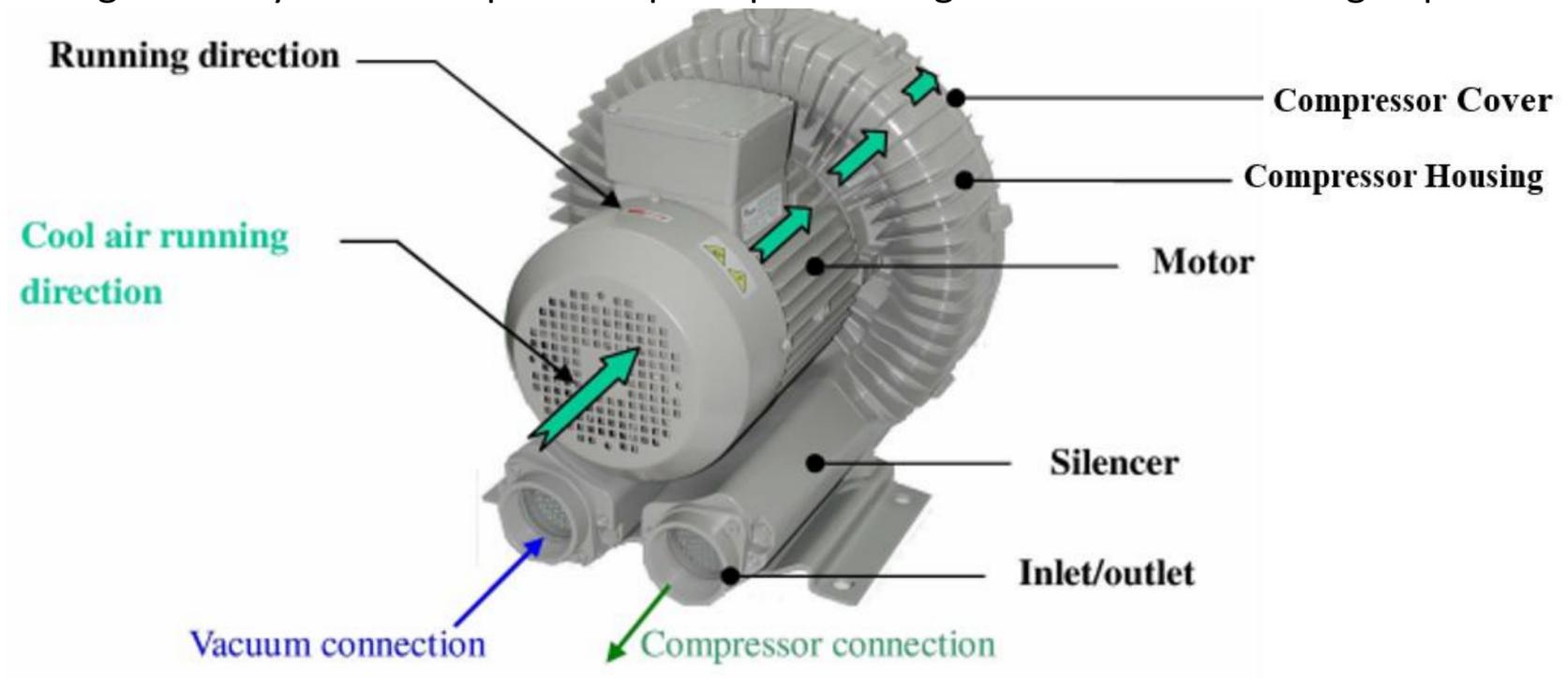




# Connecting the Vacuum Pump-

## DB Series Vacuum Pump Description-

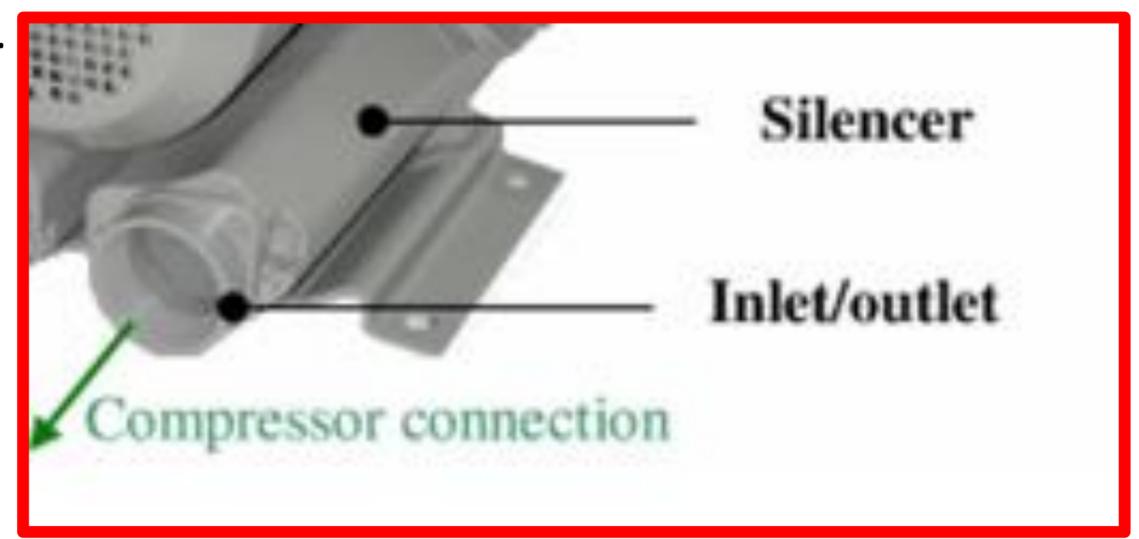
All DB Models work according to the dynamic compression principle utilizing a non-contact rotating impellor. Pumps poses a built-in motor. All use the motor for cooling.



**Warning!** Do not touch, when operating. Surface temperature of blowers will be more than +60 Degree Celsius/+140 Degree Fahrenheit.

It will depend on different operational pressure.

Air inlet & Outlet have built-in noise silencers that can decrease noise silencers.



Both the inlet & the outlet have an inside thread to connect the pipe or be installed different connection flanges on the suction side or the pressure side.



# Connecting the Vacuum Pump-



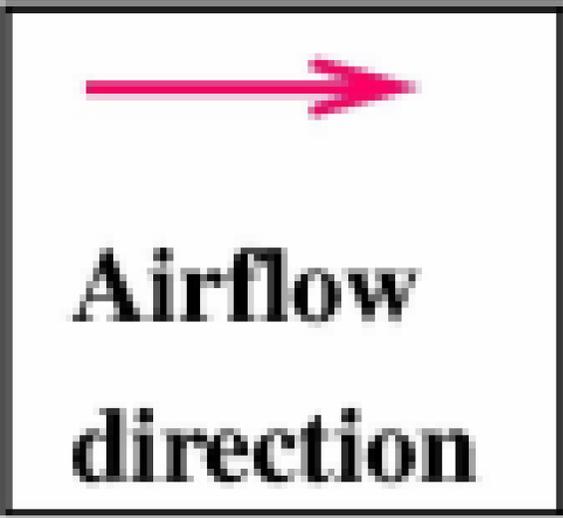
All Blowers have install a filter which can leach particles or dust above 15 microns ( $\mu\text{m}$ ).

It is the user's responsibility, if the blower is damaged by foreign matter. Only user confirms there is no impurities suction into blowers, they do not have to install filter.

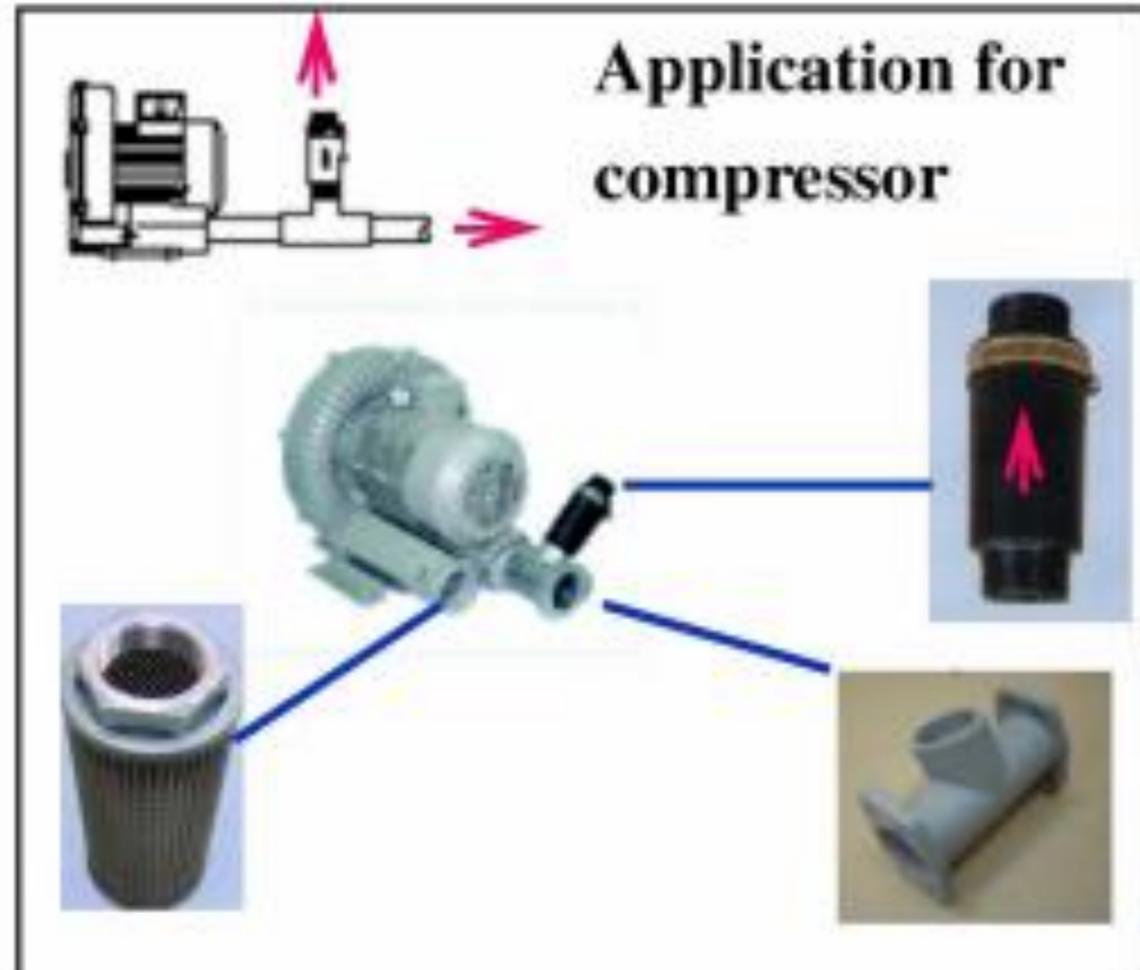
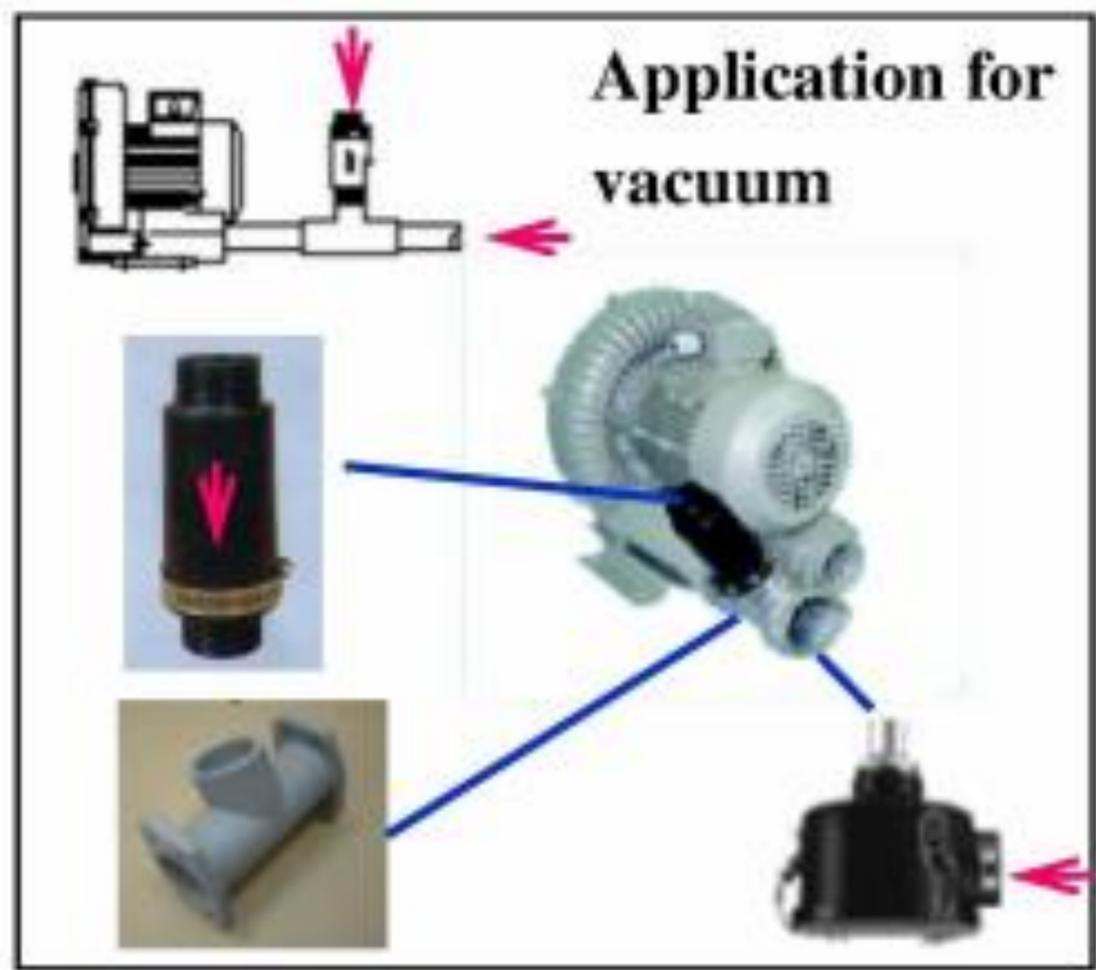
All the parts are made from high quality aluminum alloy expect for the motor rotor, stator, shaft & fan.

Optional Extras:

- Vacuum Limiting Valve
- Pressure Limiting Valve
- Suction Filter
- Tee Pipe



This represents Airflow Direction of the Vacuum Pump.





## Connecting the Vacuum Pump-

### Suitability-

1.) **DB Series-** can be operated as Vacuum Pumps & Compressors in a Industrial Environment. They are suitable for use with air of a relative humidity up to 90%, but aggressive gasses.



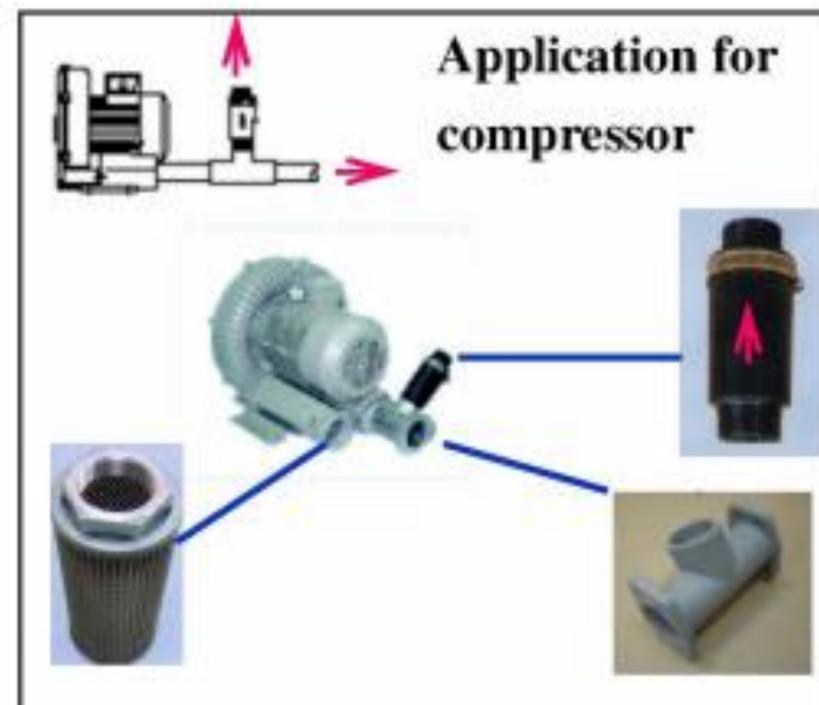
**Dangerous mixtures (i. e. inflammable or explosive gases or vapors). Water vapor or aggressive gases must not be handled. The ambient & suction temperatures must be under 40 Degree Celsius/104 Degrees Fahrenheit. For temperatures outside this range please contact supplier.**

**Special Versions:** Waterproof version can be suction few steam into blower. Heatproof version can be suction hot air under 100 Degrees Celsius/212 Degrees Fahrenheit into blower. The shaft seal lifetime relates directly to the operating conditions.

2.) The Maximum permissible pressure different fir vacuum or pressure depends upon the motor rating. This is on the data Plate (Picture 4) and is shown in the data sheet for standard voltages & frequency.

3.) Operating above these pressure differences the motor would be overloaded. As well as considering the maximum allowable pressure difference, the amperage should also be checked against the data plate.

4.) The loading of each unit depends on the specific gravity of the gas handled. Therefore, when handling gasses other than air, there are other pressure difference limits to be considered. If it is possible for the flow to be throttled more than the allowed limits, then the use of the vacuum or pressure limitation valves (Optional Extras) should be considered.



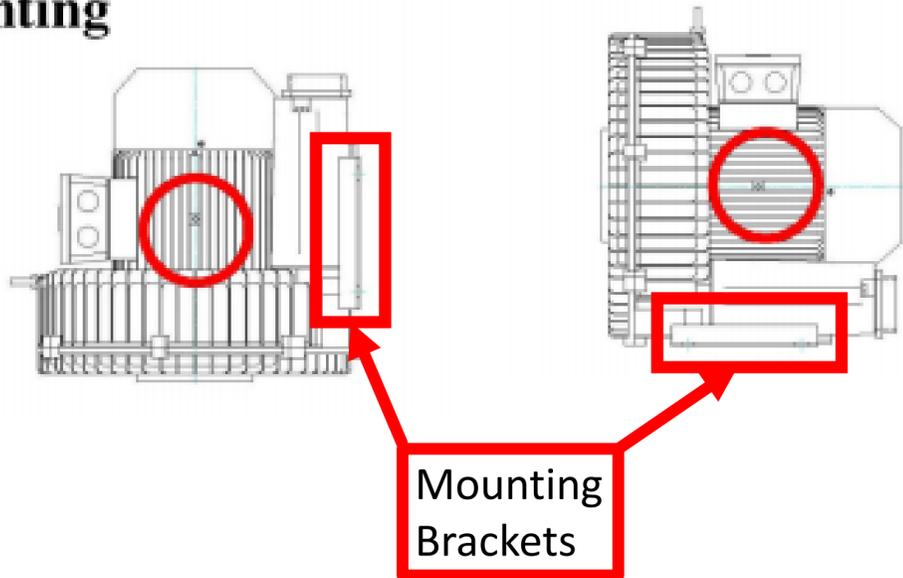


## Connecting the Vacuum Pump-

## Setting Up Vacuum Pump-

DB Models can be mounted in different positions

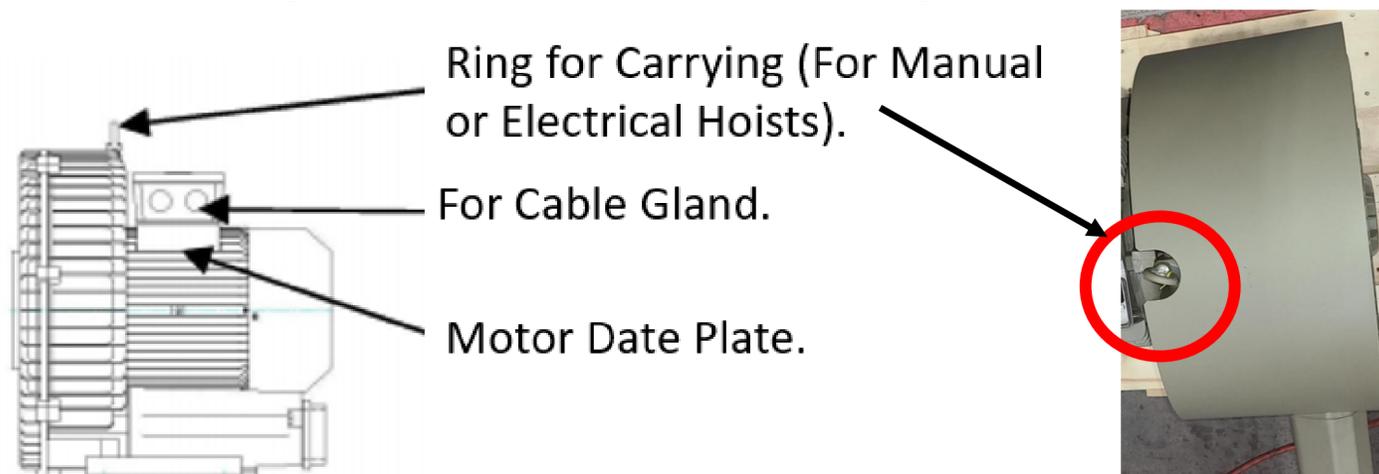
### Mounting



Mounting Brackets

The blower, especially when the units are built-in, the cooling air entries and the cooling air exits must have a minimum distance of 10cm from a obstruction. The discharged cooling air must not be re-circulated. DB models can be installed on a solid floor without bolting down. When fitting on framework we recommend using anti-vibration mounts (optional extras).

Please use the Ring of Blower to move the following DB Series Vacuum Pumps: DB-100, DB-200, DB-300, & DB-400.



DB -series are not suitable for dangerous environments. For all applications when an unplanned shut down of the blower could possibly cause harm to persons or installations, the corresponding safety back up system must be installed.



## Connecting the Vacuum Pump-

### Electrical Installation-

For operating and installation follow any relevant national standards that are in operation.

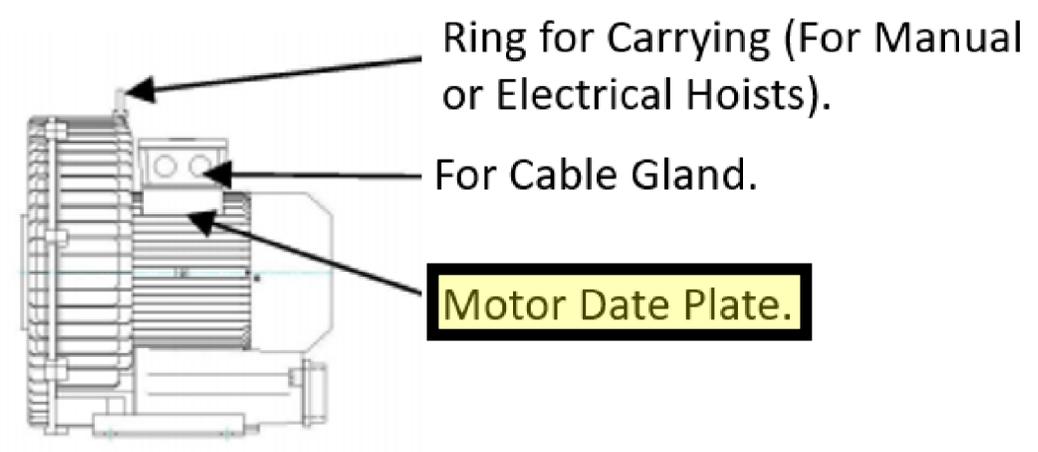
1. When on vacuum operation connect the suction pipe at inlet and when on pressure operation connect the pressure pipe at outlet.

Long and small bore pipework should be avoided as this tends to reduce the capacity of the blower.

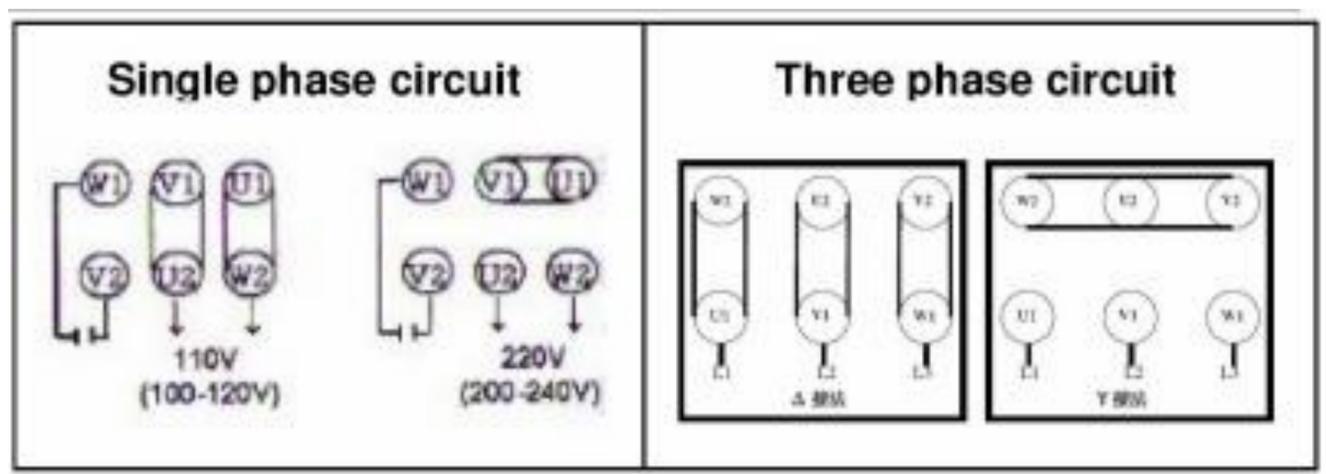


Avoid using the bore of pipework that is smaller than the diameter of inlet or outlet. Please use pipe made by metal, it can avoid damaging by high temperature or pressure.

2. The **Motor Data Plate** is shown what IP Protection is.



3. The connection diagram can be found in the Motor Terminal Box. Check the Electrical Data of the Motor for compatibility with your available supply (Voltage, Frequency, Permissible Current, etc.).



Cable Gland	M20*1.5	M20*1.5	M25*1.5	M25*1.5	M32*1.5
Type	DB-100	DB-300	DB-430	DB-640	DB-830
	DB-200	DB-330	DB-600		DB-840
	DB-300	DB-400	DB-630		DB-900

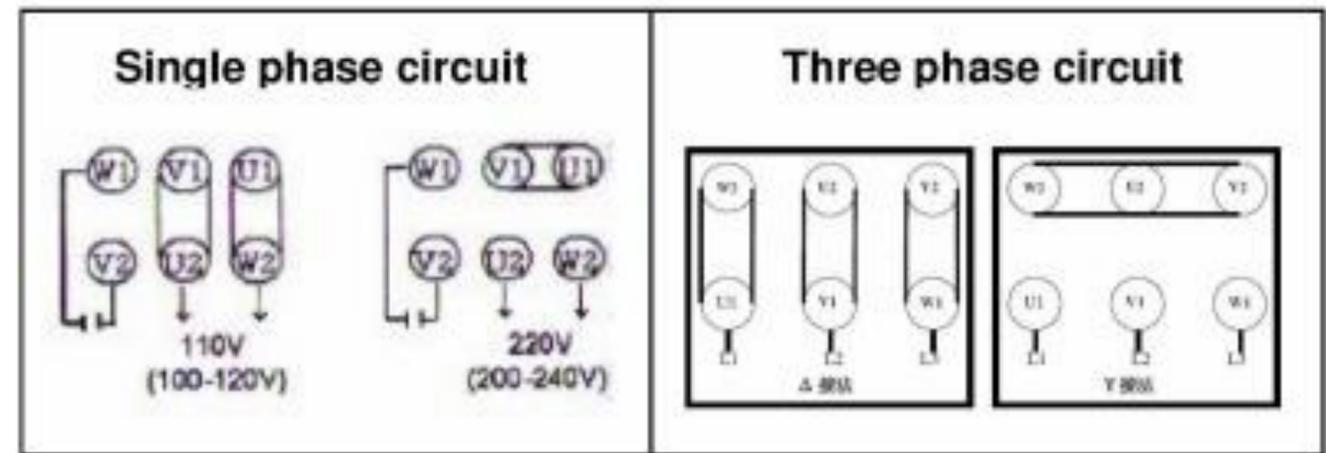


## Connecting the Vacuum Pump-

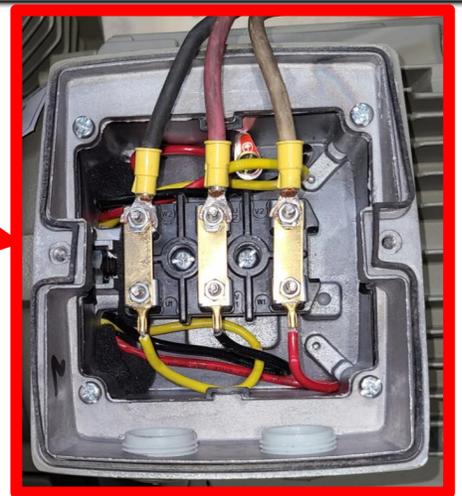
### Electrical Installation-

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Cable Gland	M20*1.5	M20*1.5	M25*1.5	M25*1.5	M32*1.5
Type	DB-100	DB-300	DB-430	DB-640	DB-830
	DB-200	DB-330	DB-600		DB-840
	DB-300	DB-400	DB-630		DB-900



4. Connect the motor via a motor tarter. It is advisable to use thermal overload motor starters to protect the motor and wiring. All cabling used on starters should be secured with good quality cable clamps.

We recommend that motor starters should be used that are fitted with a time delayed trip resulting from running beyond the amperage setting. When the unit is started cold overamperage may occur for a short time.



**The electrical installation may only be made by a qualified electrician. Installing the ground wire is necessary. The main switch, connecting cable and pipework must be provided by the operator.**



## Connecting the Vacuum Pump-

### Initial Operation-

Noise Emission : When working permanently in the vicinity of an operating unit we recommend wearing ear protection to avoid any damage to hearing.

**Maintenance- If a company is QS/ISO 9000 Certified, please place all recommended frequency of generalized cleaning & prevention maintenance measures into the any Quality Management Documentation System.**



When maintaining these units and where a situation exists where personnel could be hurt by moving parts or by live electrical parts the blower must be isolated by totally disconnecting the electrical supply. It is imperative that the unit cannot be re-started during the maintenance operation. Do not maintain a blower that is at its normal operating temperature as there is a danger from hot parts. The pressure leading pipes must be ventilated before dismantling.

All DB models only clean filter regularly, don't need to dismount maintenance ordinarily.



**The capacity of the blower can be reduced if the air inlet filters are not maintained correctly**



## Connecting the Vacuum Pump-

## Exploded Diagram-

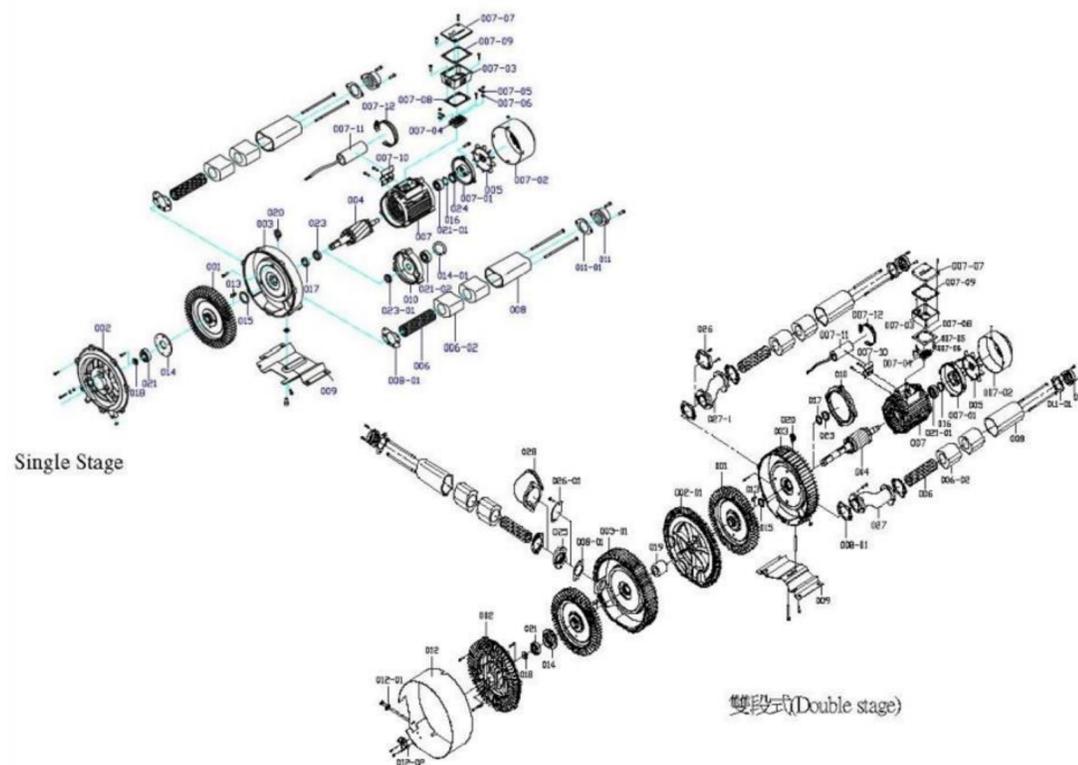
### Appendix :

**Repair :** For all repairs on site an electrician must disconnect the motor so that an accidental start of the unit cannot happen. All engineers are recommended to consult the original manufacturer or one of the subsidiaries, agent or service agents. The address of the nearest repair workshop can be obtained from the manufacturer on application. After a repair or before re-installation follow the instructions as shown under the headings “Installation and Initial Operation” .

**Storage :** Blower must be stored in dry ambient conditions with normal humidity. We recommend for a relative humidity of over 90% that the blower should be stored in a closed container with the appropriate drying agents.

**Disposal :** The wearing parts (as listed in the spare parts lists) should be disposed of with due regard to health and safety regulations.

**Part Illustration-Exploded View:** For dismantling & rebuilding or purchasing of components (Please notify Model + Part Item Number when one will purchase e.g., DB-600-26+002).

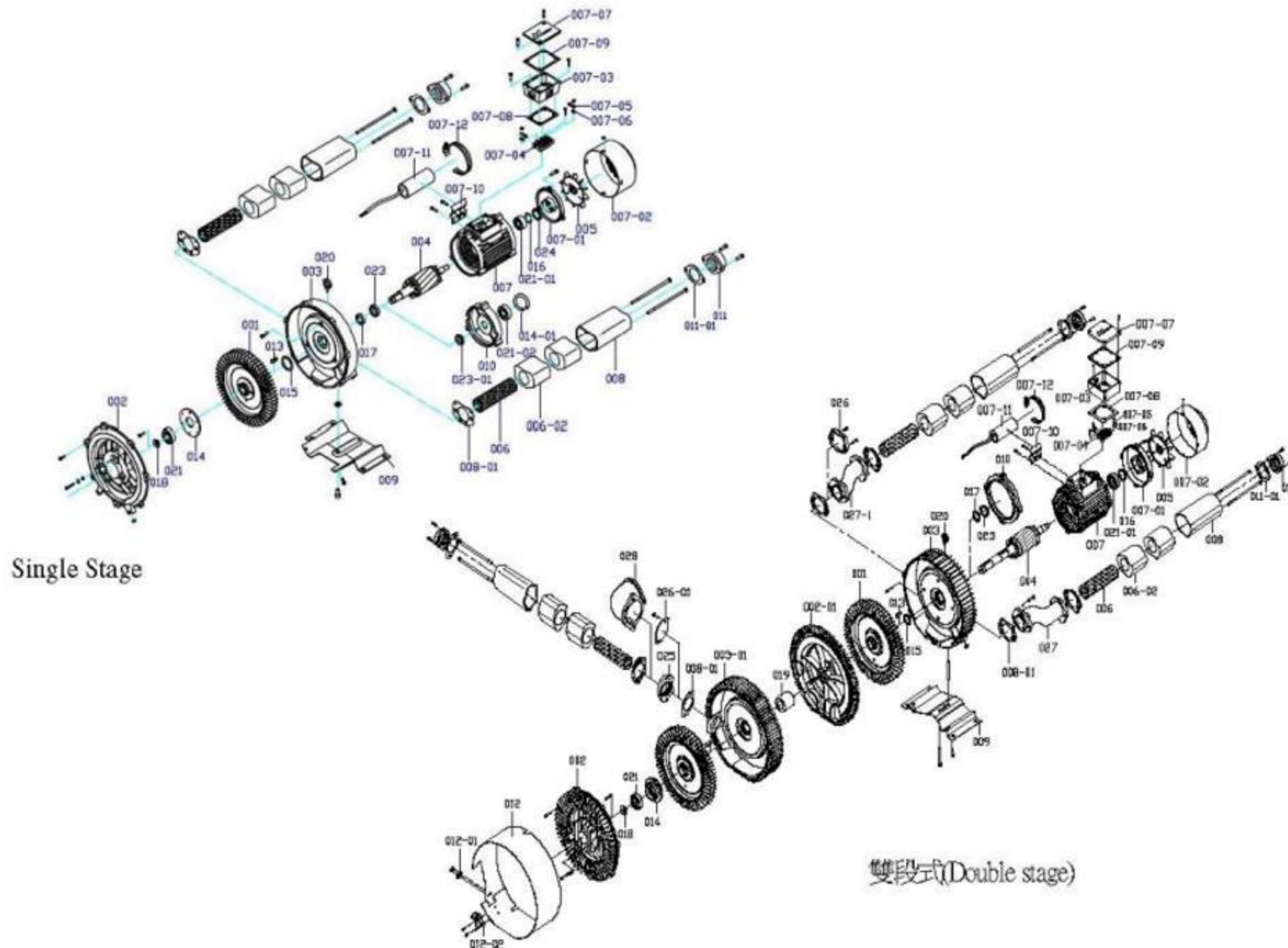




## Connecting the Vacuum Pump-

### Exploded Diagram-

**Part Illustration**-Exploded View: For dismantling & rebuilding or purchasing of components (Please notify Model + Part Item Number when one will purchase e.g., DB-600-26+002).





## Connecting the Vacuum Pump-

### ITEMS & PART NAMES for Exploded Diagram-

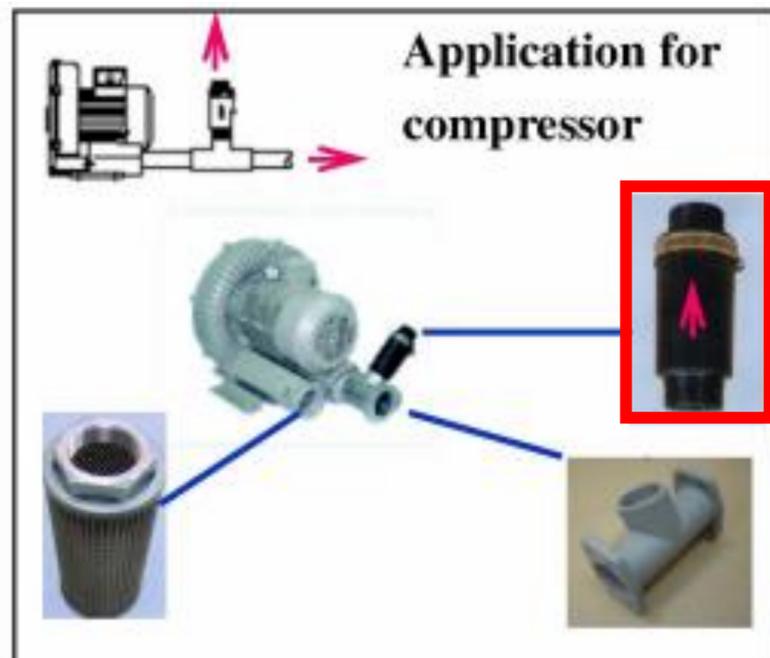
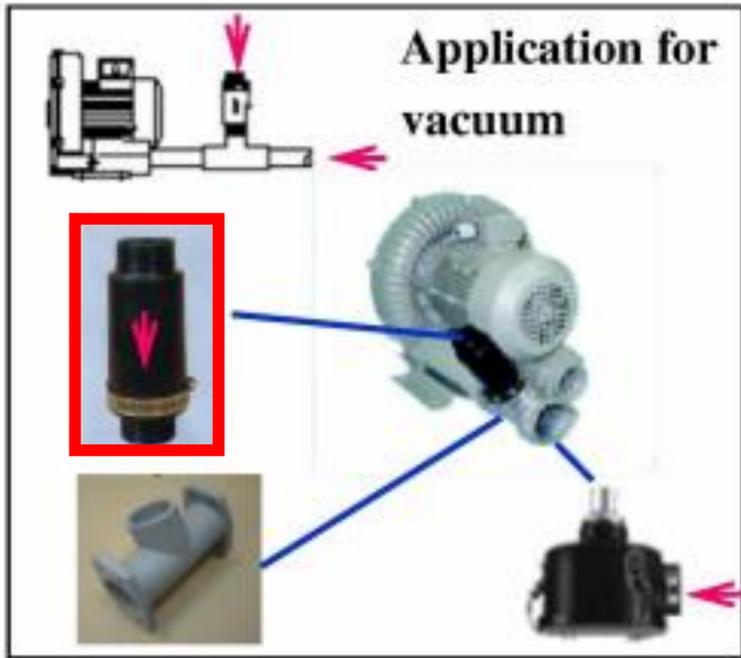
ITEM	PARTS NAME	ITEM	PARTS NAME	ITEM	PARTS NAME	ITEM	PARTS NAME
001	Impeller	007-04	Wire socket	013	Rotor pin	Single stage only	
002	Compressor cover	007-05	Wire connection slice	014	Bearing washer	007-10	Capacitor washer
003	Compressor housing	007-06	Fixed slice	015	Washer	007-11	Capacitor
004	Rotor	007-07	Terminal cover	016	Ware washer	007-12	Steel clip
005	Fan	007-08	Terminal box washer	017	Cotton seal	Waterproof only	
006	Silencer mesh pipe	007-09	Terminal cover washer	018	Washer	010	Middle motor cover
006-02	Silencer sponge	008	Silencer housing	020	Bronze ring	014-01	Bearing washer
007	Motor	008-01	Silencer washer	021	Front bearing	021-02	Front bearing
007-01	Motor cover	009	Mounting plate	021-01	Rear bearing	023-01	VA-seal
007-02	Fan cover	011	Inlet/outlet	023	Front oil seal		
007-03	Terminal box	011-01	Inlet/outlet washer	024	Rear oil seal		

**\*\*\*\*Laguna Tools does not supply any parts for the Vacuum Pump.**



# Connecting the Vacuum Pump-

1. Filter (Optional Extra) See Picture.

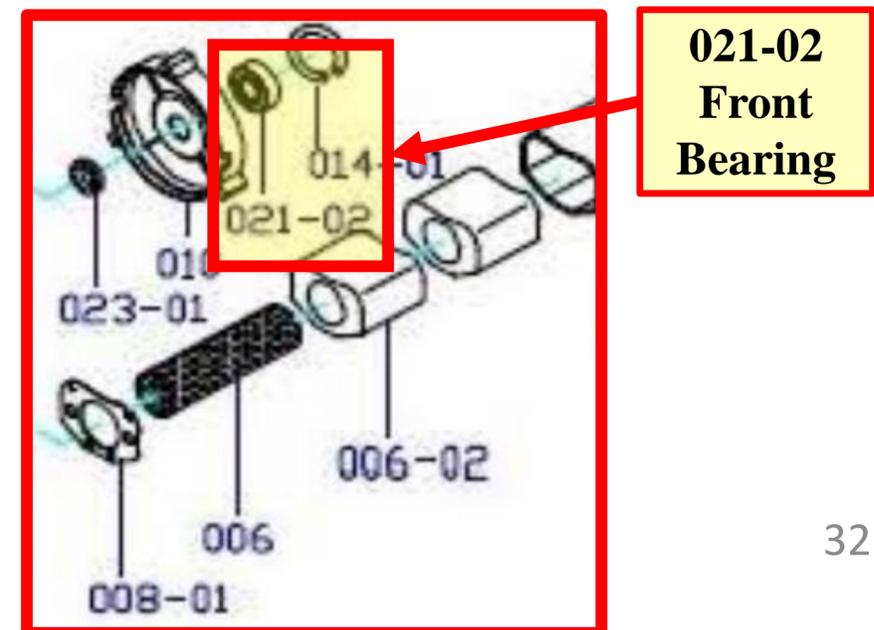
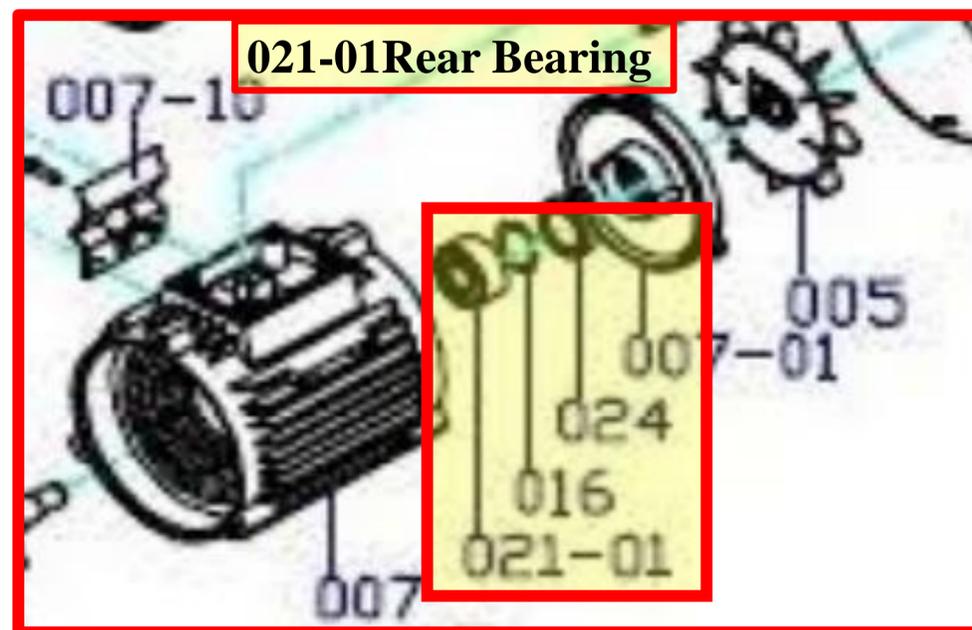
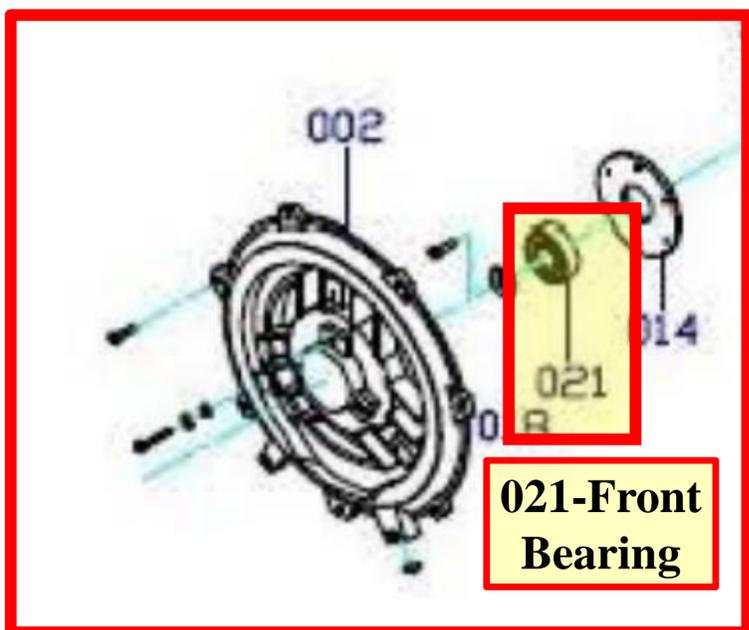


Air Filter

According to operational environment, the filter should be cleaned in timely manner.

- Recommend: Cleaning very 300 Operating Hours by using compressed air.
- Clean every 3000 operating Hours by Washing. Please replace Filter, if necessary.

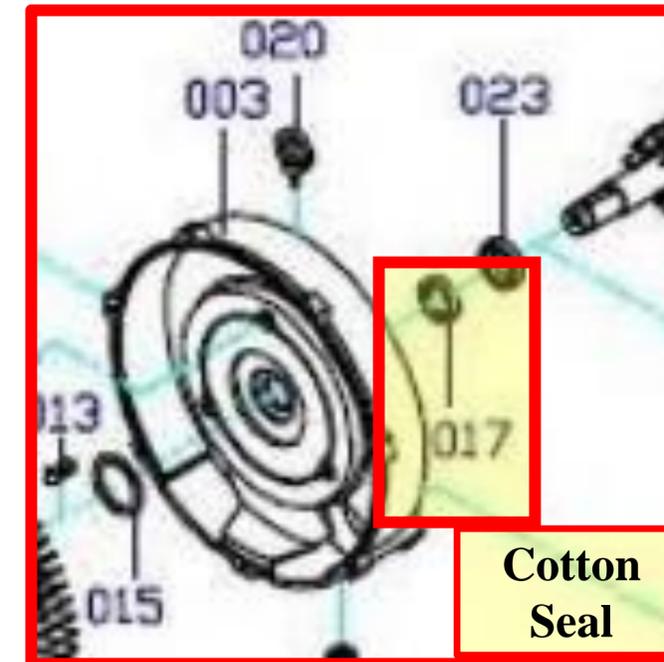
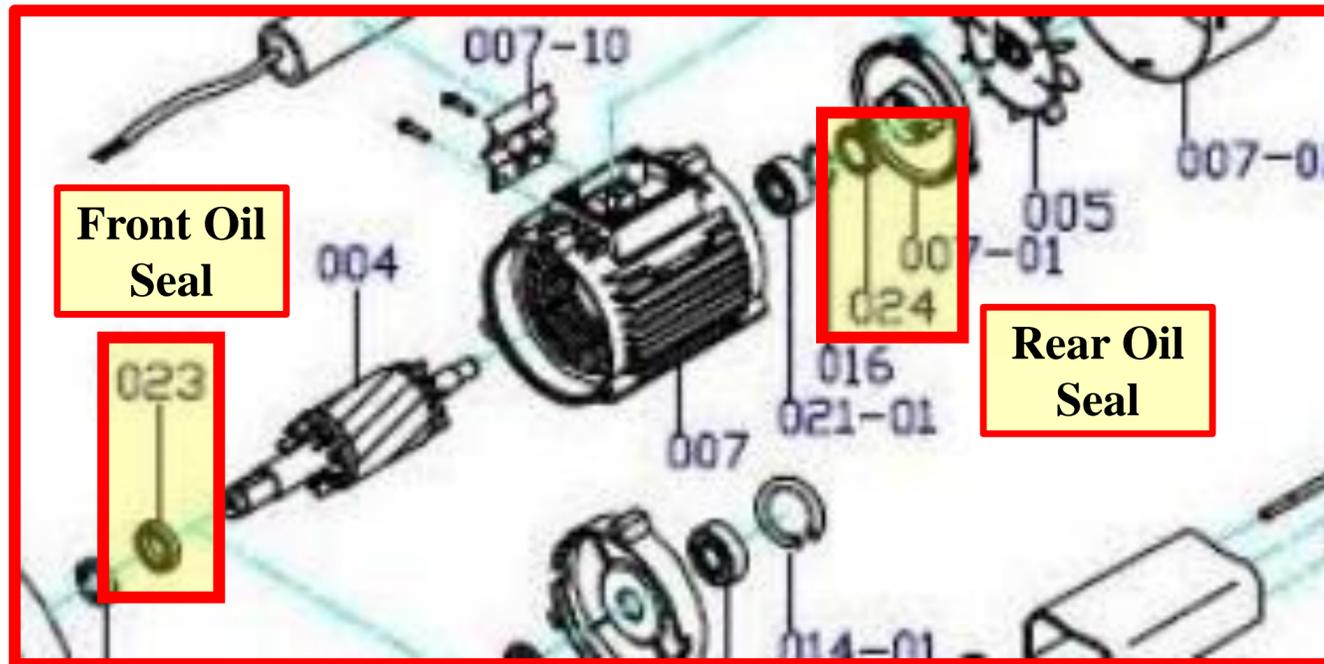
2. Bearing: **021 and 021-01** are for the Standard; **021-02 & 021-01** are for waterproof. The units have bearings that are greased for life and require no maintenance. Please replace Bearing, if necessary. (Usually 3-24 months depending on operation & environment.)





## Connecting the Vacuum Pump-

3. **Front Oil Seal (023), Rear Oil Seal (024) and Cotton Seal (017):** Please Spread with lubricating oil when you change new bearing. These three (3) parts should be changed together.

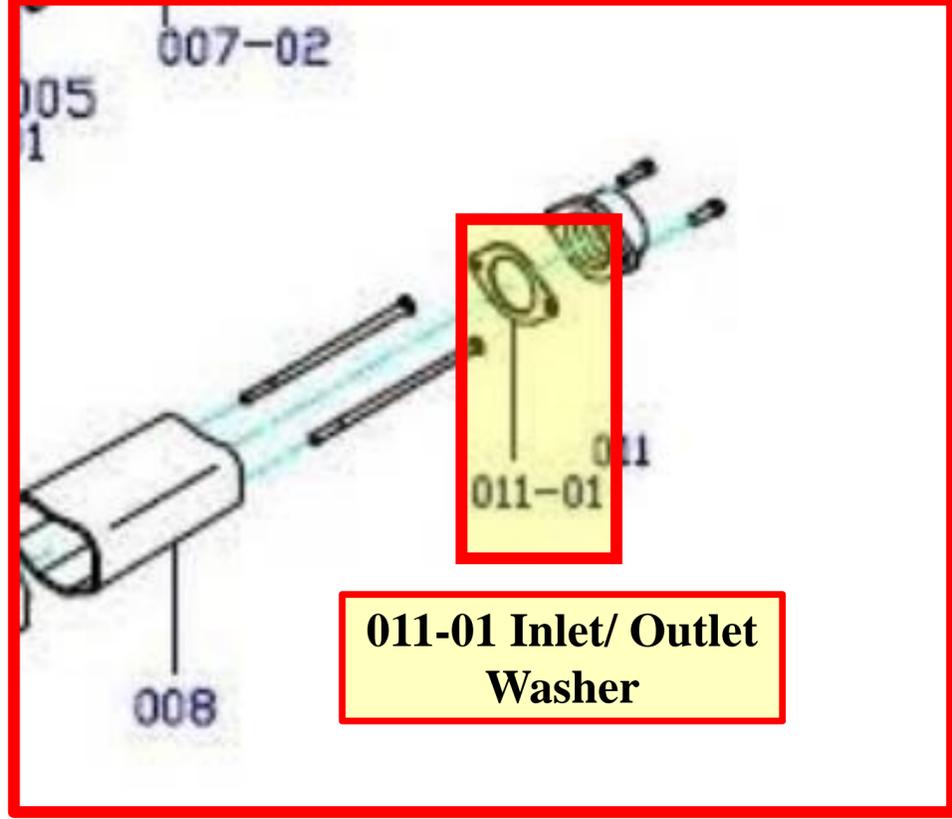
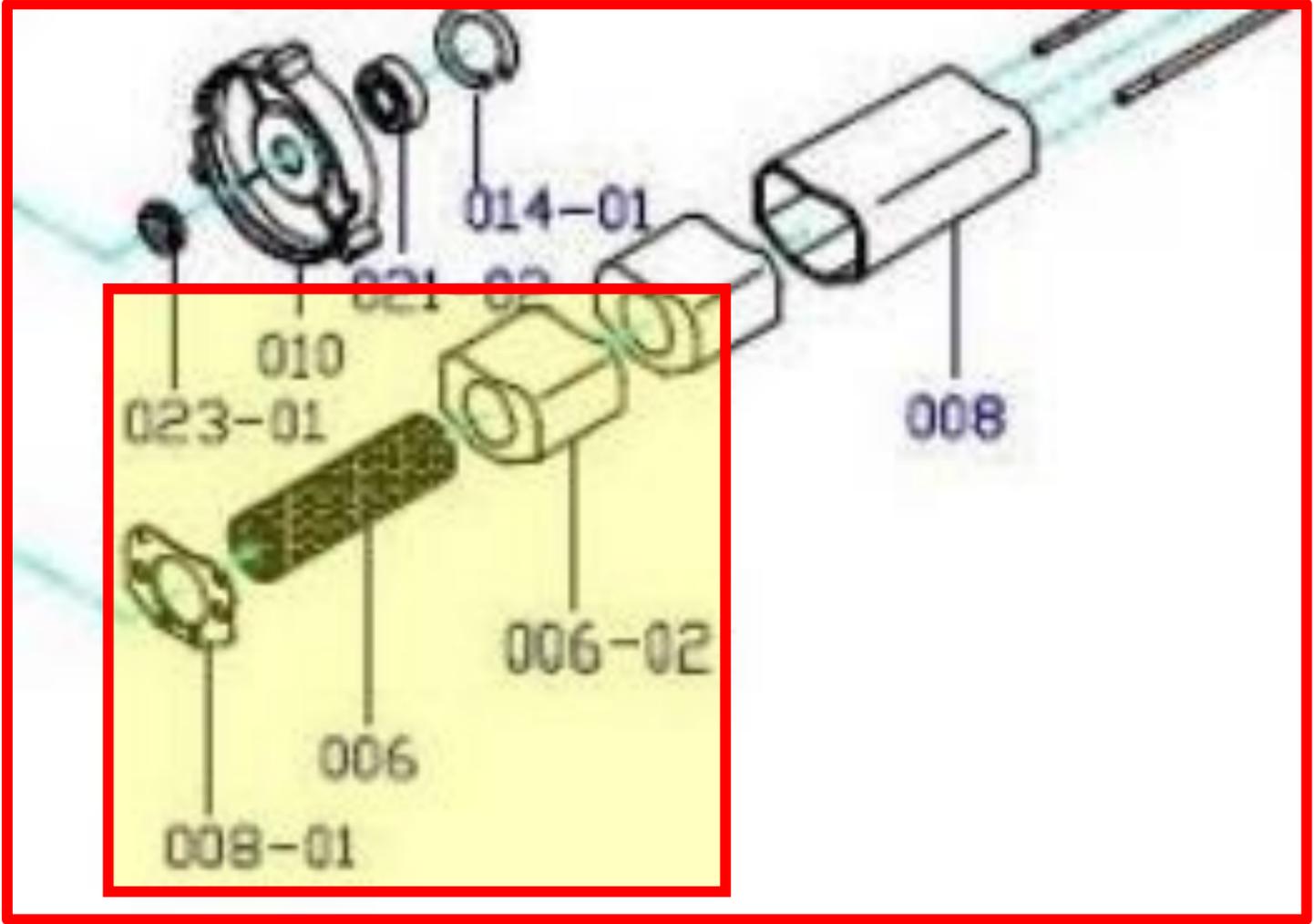


4. Surface: Please schedule regular elimination of surface dust to maintain the good radiation and lengthens the bearing life.



# Connecting the Vacuum Pump-

5. Others: Please place components, if necessary, such as **Silencer Sponge (006-02), Silencer Mesh Pipe (006), Washer (011-01, 007-08, 007-09, 008-01 Wire Socket, (007-04), etc.**



**008-01 Silencer Washer**

**006-Silencer Mesh Pipe**

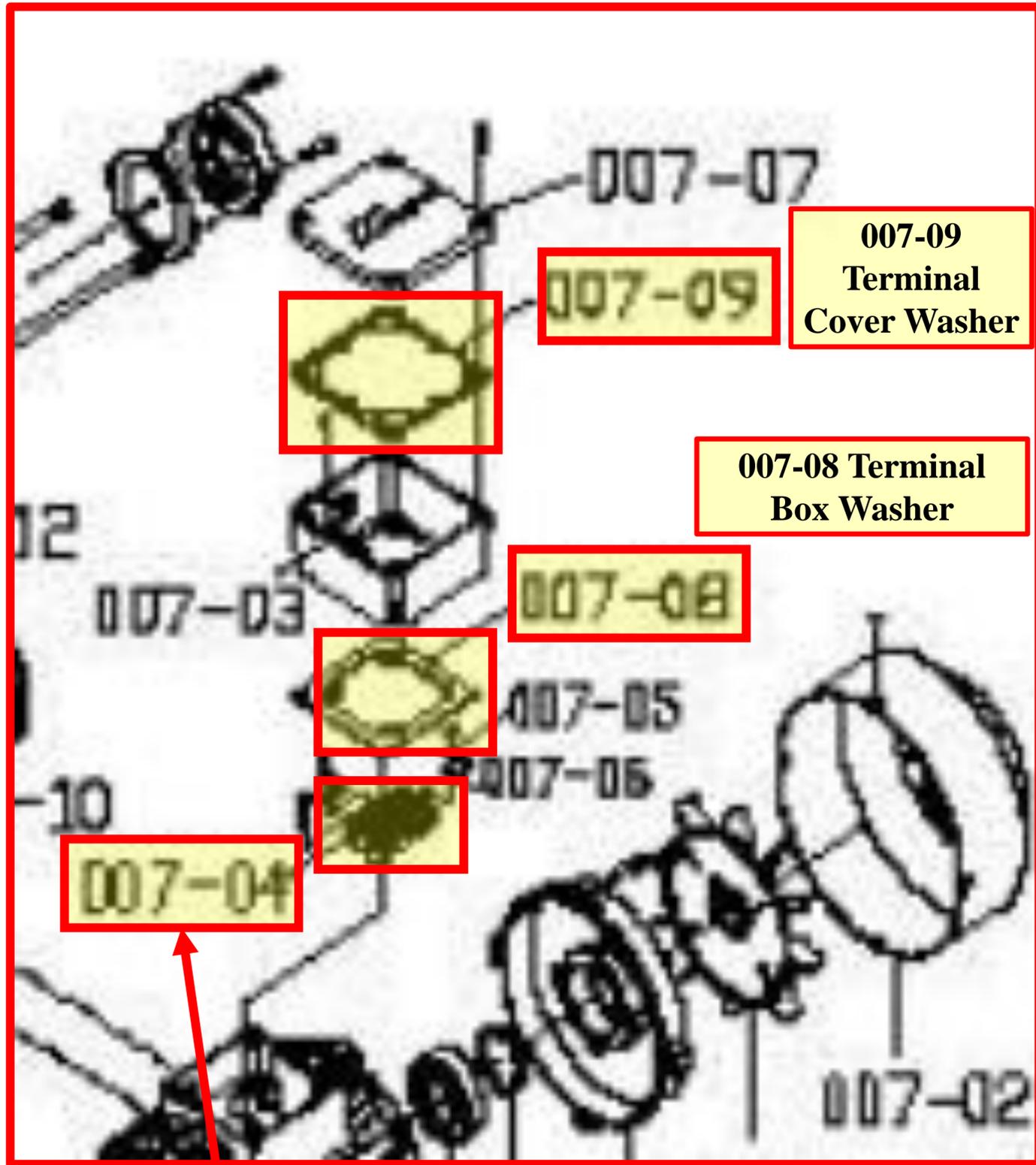
**006-02 Silencer Sponge**

**011-01 Inlet/ Outlet Washer**



## Connecting the Vacuum Pump-

5. (Cont'd.) Others: Please place components, if necessary, such as **Silencer Sponge (006-02), Silencer Mesh Pipe (006), Washer (011-01, 007-08, 007-09, 008-01 Wire Socket, (007-04), etc.**



\*\*\*These Items are on the Exploded Diagram Provided.

**007-04 Wire Socket**



## Connecting the Vacuum Pump-

### Trouble Shooting-

#### **1. Blower does not reach operating speed when starting:**

- a. Check the connections on the motor terminal block
- b. Check the incoming voltage and frequency corresponds with the motor data plate
- c. Check the nuts are screwed to the wire connection slices.

#### **2. Motor starter cuts out blower:**

- a. Incorrect setting on the motor starter                      Solution: check the motor data plate and set
- b. Motor starter trips too fast.                                      Solution: Use a motor starter with a time delay trip.
- c. Blower is overloaded, i.e. pressure difference is too high.

Solution: Increase the inlet or outlet diameter of the application, on pipework increase the diameter of the pipework, avoid restrictions in the line.

Limit the pressure different by limitation valves.

#### **3. Required pressure difference cannot be achieved:**

- a. Blower or motor rating selected, was too small
- b. Filters are contaminated    Solution: Clean filters or change filters if necessary.
- c. Pressure loss into pipe diameter, avoid restrictions              Solution: Use bigger pipe diameter
- d. Leaks on the system

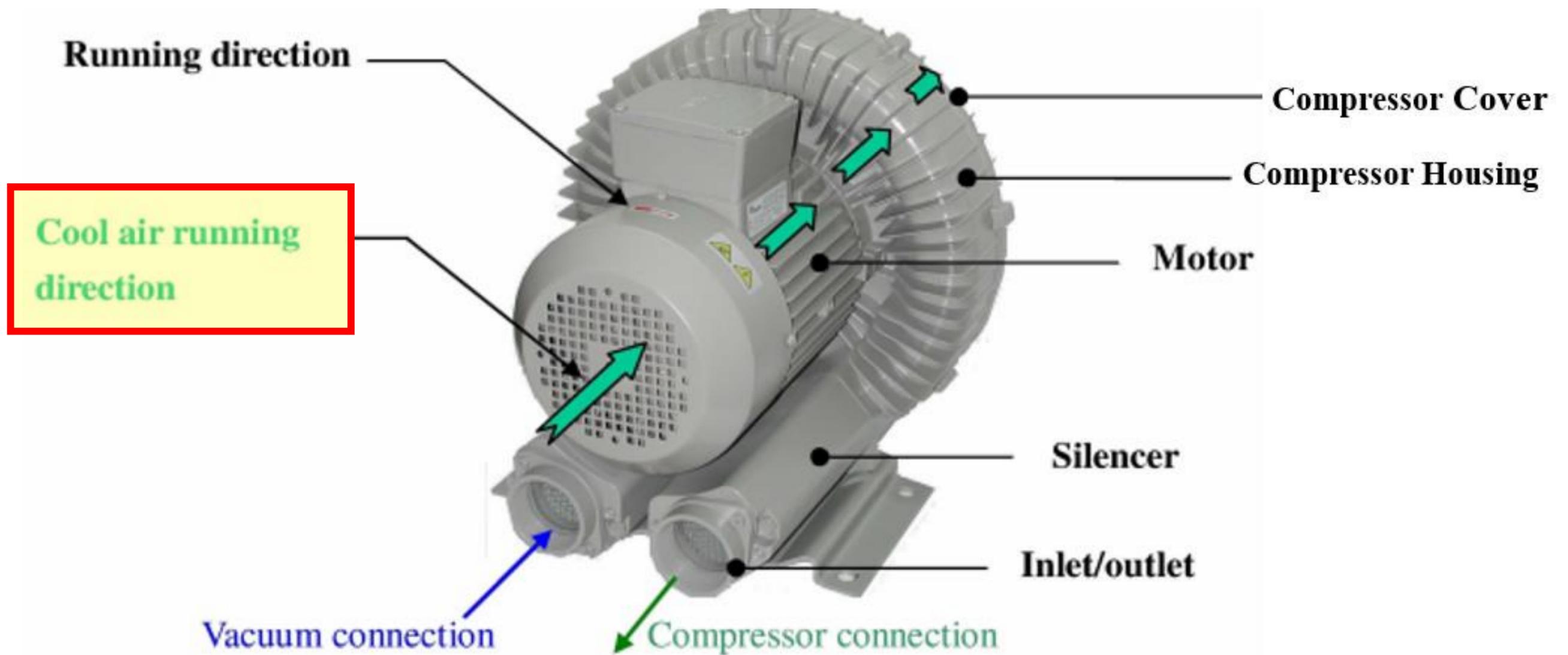


## Connecting the Vacuum Pump-

### Trouble Shooting (Cont'd.)-

#### 4. Blower Operates at an abnormally High Temperature:

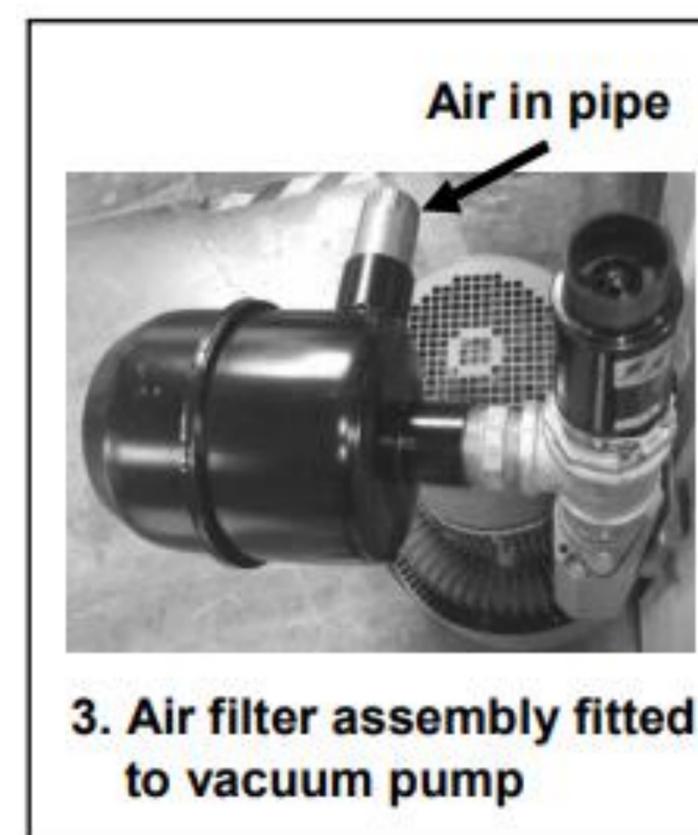
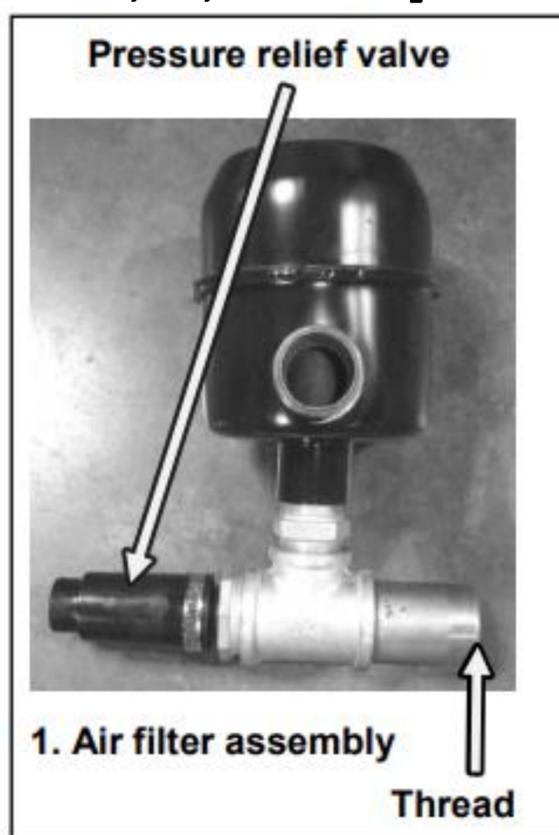
- a.) Ambient or Suction Temperature is too hot.
- b.) Pressure different is higher than permitted.
- c.) **Cooling Air Flow** is restricted (See Illustration Below.).





## Connecting the Vacuum Pump-

1.) Screw the air filter into the air filter attachment thread on the vacuum pump  
[See Photos 1, 2, and 3].



2.) Note that when the vacuum pump is running there will be a leaking noise from the pressure relief valve on the air filter, this is normal.



## Connecting the Vacuum Pump-

3.) There is an air in pipe with a thread provided should you wish to run a pipe to the vacuum pump from outside your shop.

4.) Fit the gasket to the silencer and fit the silencer threaded adaptor. The threaded adaptor is used to connect the pipe to the vacuum table of your machine [Photos 4,5, and 6].



**4. Silencer**



**5. Silencer gasket**



**6. Silencer threaded adaptor**



## Connecting the Vacuum Pump-

5.) Fit the gasket to the vacuum pump [See Photo 7].



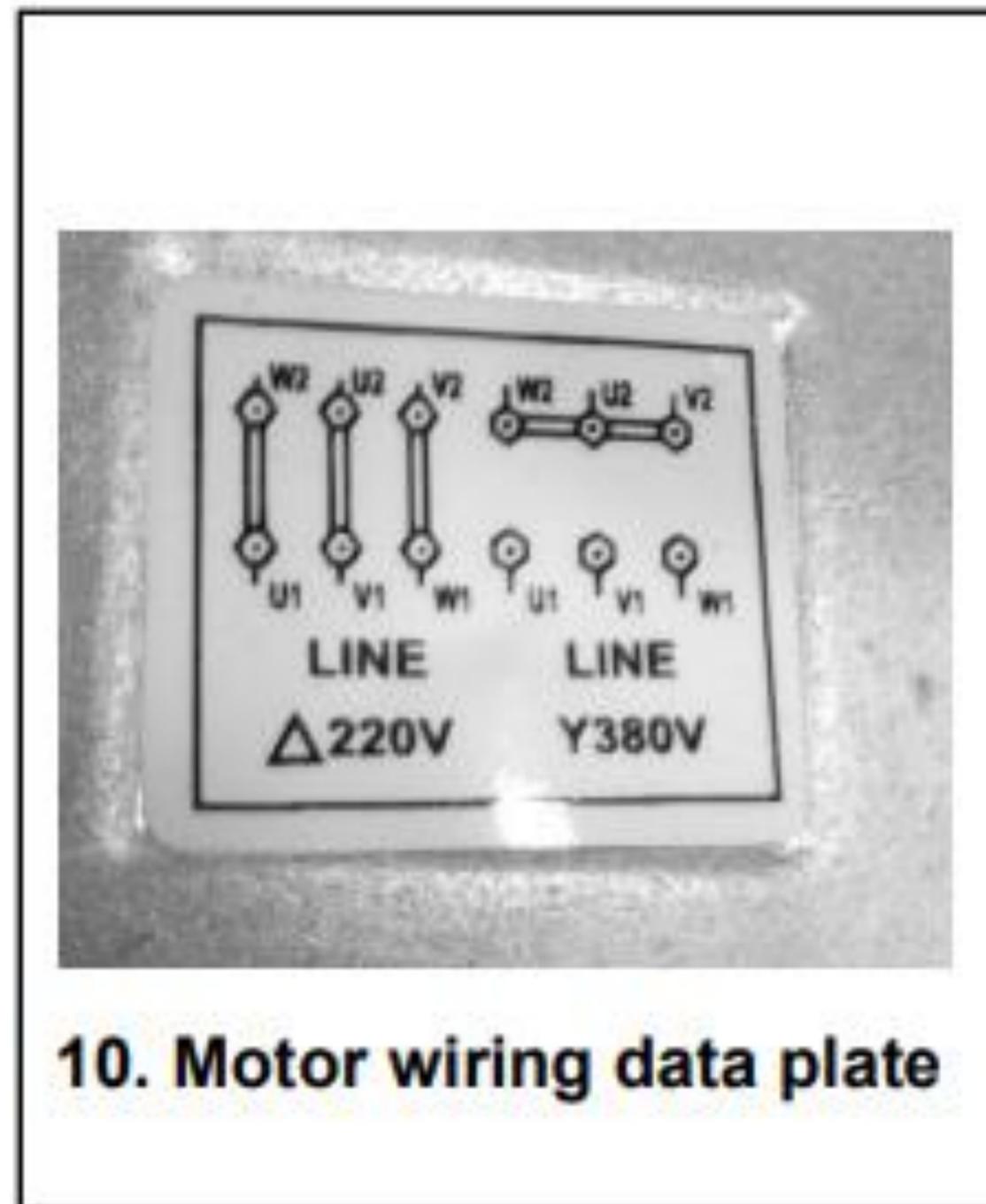
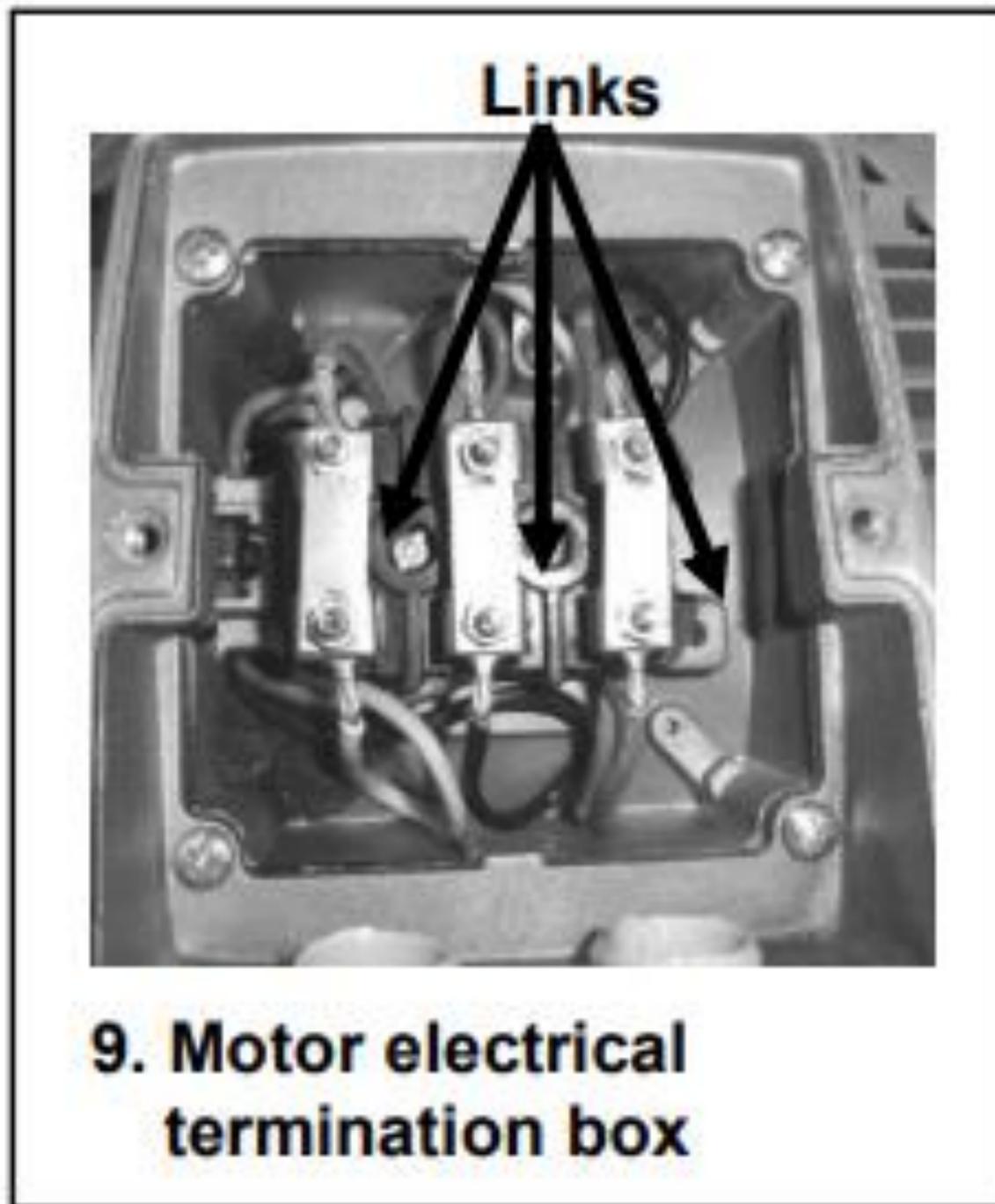
6.) Fit the silencer to the vacuum pump and secure with the screws [Photo 8].





## Connecting the Vacuum Pump-

7.) Remove the cover from the motor termination box. Note that on the inside of the cover there is a drawing to show how the links must be set to suit different voltages (220V/380V) [Photos 9 and 10].





## Connecting the Vacuum Pump-

8.) Inside the CNC machine control box there is a magnetic switch that the vacuum pump has to be connected too [Photo 11]. Note. A qualified electrician must conduct the electrical installation.

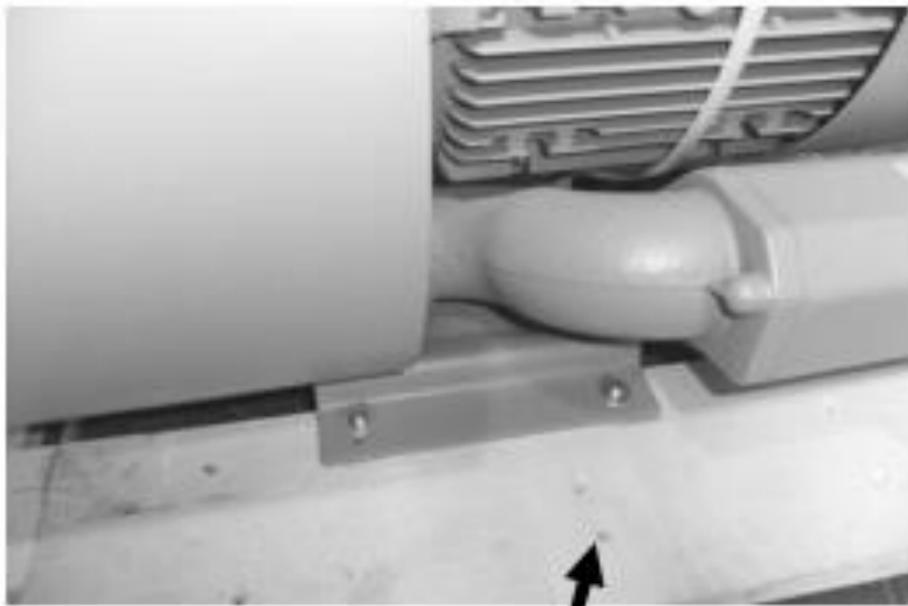


**11. Control box vacuum  
power supply  
termination**

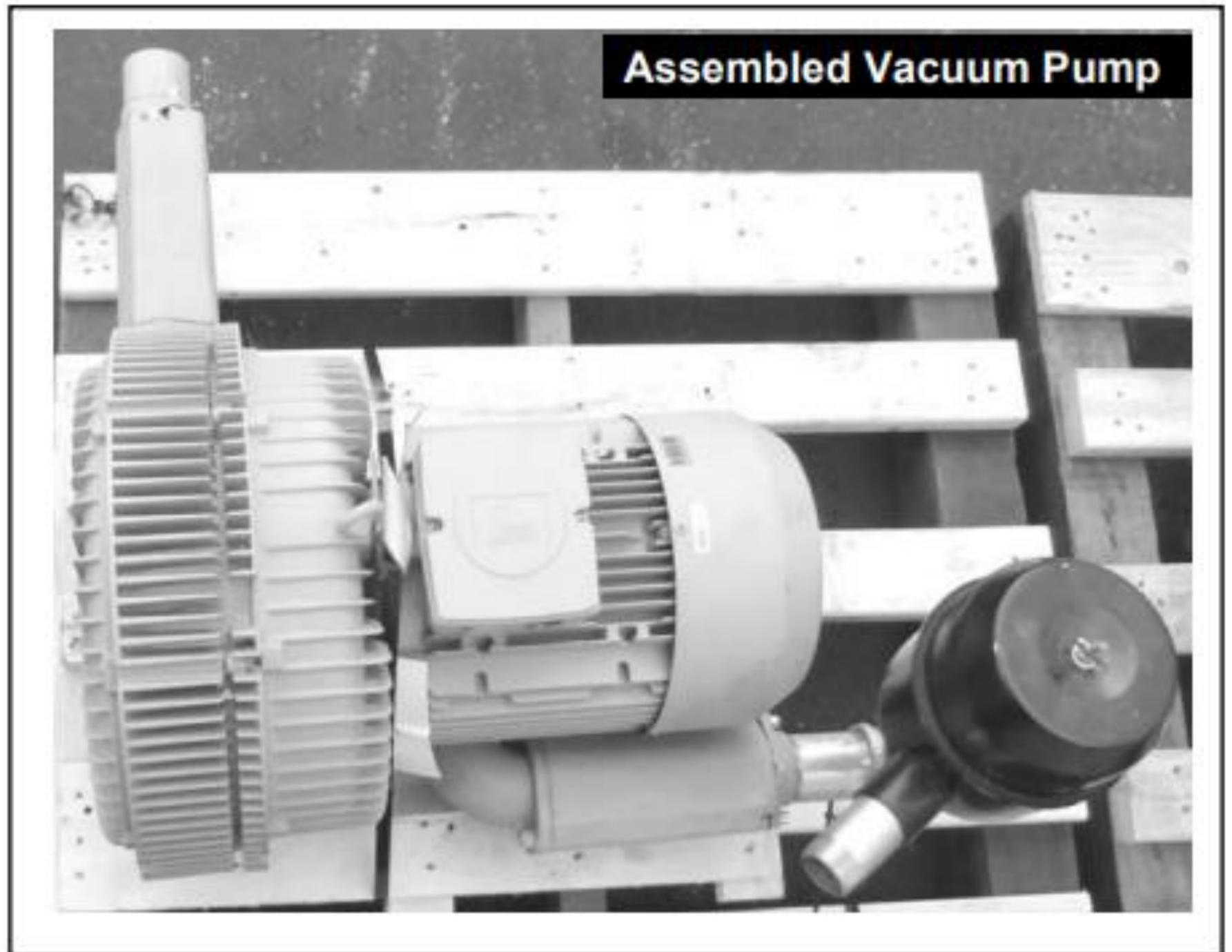


## Connecting the Vacuum Pump-

9.) The vacuum pump is supplied with a base mounting plate for securing in a convenient position. It is recommended that the vacuum pump is mounted on rubber pads or anti vibration mounts to reduce vibration [Photo 12].



**12. Mounting plate**





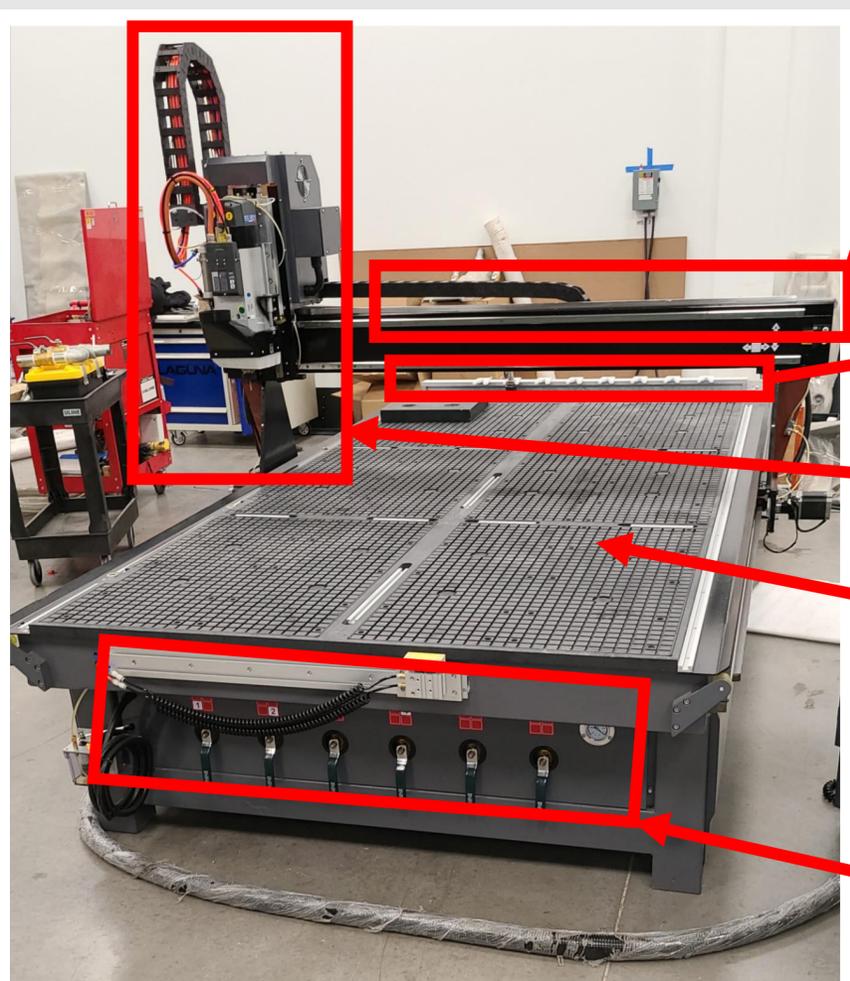
**SmartShop SS2 Machine (B-Axis/Syntec Controller) Specifications-**

**SmartShop SS2 Machine (B-Axis/Syntec Controller) Specifications-**

<b>Traveling Size</b>	98.5 In. x 49.60 In. x 7.87 In./11.81 In.
<b>Working Size</b>	97.63 In. x 48.42 In. x 7.09 In./11.02 In.
<b>Table Size</b>	98.42 In. x 48.42 In.
<b>Optional Working Length</b>	“N/A”
<b>Transmission</b>	X/Y Rack and Pinion, "Z" Ball Screw Drive
<b>Table Structure</b>	T-Slot Vacuum
<b>Spindle Power</b>	9.6kW
<b>Spindle Speed</b>	24000 rpm
<b>Traveling Speed</b>	750 in/min.
<b>Working Speed</b>	550 in/min.
<b>Driving System</b>	Stepper System
<b>Controller</b>	Syntec



# Introduction to CNC Machines- SmartShop SS2 Machine (B-Axis/Syntec Controller)



**Gantry**

**Spindle Assembly**

**Bed or Machine Table**

**Vacuum Control Valves**



**TTO Tool**

**ATC Tool Rack**

**Tool Clips**

**Green Tool Release Button**

**Caterpillar Track**

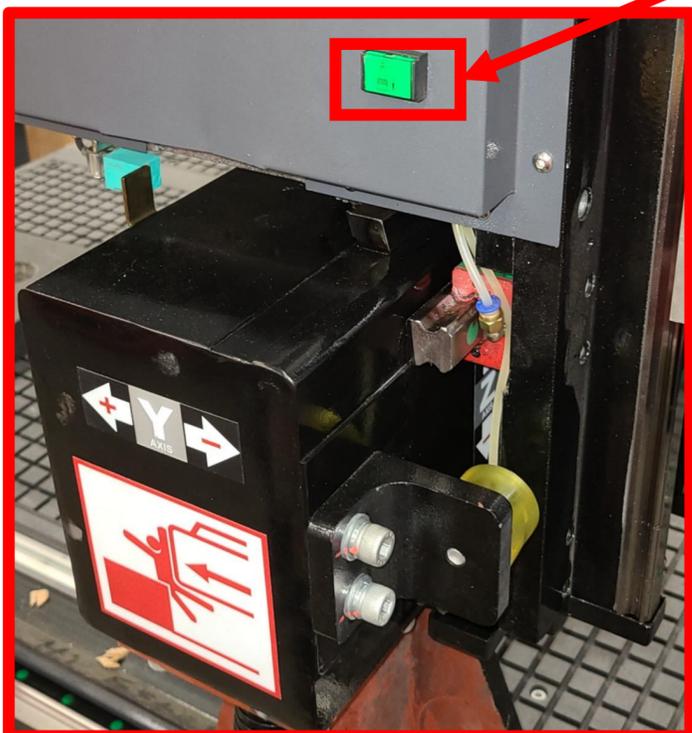
**Dust Collector**

**Electro-Spindle**

**Gantry**



**Caterpillar Track**





## Smartshop SS2 Machine (B-Axis/Syntec Controller) (Tool Kit)-

Name	Part No.	Qty.
Tool Kit	30505123	1
Collet	30505060	1
Collet	30505065	1
Collet	30505064	1
Collet	30505062	1
Collet	30505063	1
Spanner	30505028	1
Spanner	30505025	1
Press plate screw	20202494	8
Nut	40102475	8
Nut(butterfly)	40102537	8
Screw(hexagon)	40102536	8
Wrench(hexagon)	30505042	1



## SmartShop SS2 Machine (B-Axis/Syntec Controller) (Tool Kit)-

Name	Part No.	Qty.
Straight screwdriver	4010303009	1
Phillips screwdriver	4010303007	1
Automatic drainer	30511147	1
DSP Hand-held system	30505355	1
USB Cable	30505356	1
USB Flash Disk	30505219	2
Grease gun	30505310	1
Dust collector hose	30511072	12
Clip	30315039	4
Filter cotton	30511039	12
Screwed pipe	30405040	4
Screwed pipe joint	30405048	2
Rubber seal	30315033	30
plug	30315017	20
One set labels on cabinet		1



## Unpacking/Installation/Machine Set Up-

**Additional Instructions for the use of the Laguna SmartShop II CNC:** Like all machines, there is danger associated with the machine. Injury can be caused by lack of knowledge or familiarity. Use this machine with respect. If normal safety precautions are overlooked or ignored, serious personal injury may occur. As the CNC is under the control of the onboard machine controller, it is important that you are clear of the cutter when operating the machine.

### **List of Additional Accessories:**

Clamps

Cutters & Collets

Memory Stick

Dust Hose Clamps

Tool Holders Wrenches



## Unpacking/Installation/Machine Set Up (Cont'd.)-

### Machine Location & Guidelines:

Before unpacking the machine, select the area where the machine will be installed.

- 1) There should be an area around the machine suitable for the length of material that will be machined as well as any loading and unloading requirements.
- 2) There should be adequate lighting in the work area. The better the lighting, the better the productivity.
- 3) The floor area under the machine should be flat and solid so that the machine frame does not shift as the gantry and tool plate traverse. Concrete is preferable.
- 4) Consider the electrical and air supplies, vacuum pump location and dust collection when identifying an area to place the machine.



## Unpacking/Installation/Machine Set Up (Cont'd.)-

### Unpacking the Machine:

Unpacking the machine will require tin snips (to cut banding), a knife and an adjustable wrench. Follow the steps below:

- 1) Using the tin snips, cut the banding that is securing the machine to the pallet (if fitted).
- 2) **WARNING: EXTREME CAUTION MUST BE USED BECAUSE THE BANDING CAN SPRING AND COULD CAUSE INJURY.**
- 3) Remove the box from the CNC machine (if fitted) and any other packaging material. The parts ordered with the machine will be packed on or inside the machine. (Please note, the machine is heavy, and it is recommended that professional assistance [rigging] be used for unloading and placing the machine.)
- 4) Use a forklift with sufficient lifting capacity and forks that are long enough to reach the complete width of the machine before attempting to lift the machine.
- 5) Remove the securing bolts that attach the machine to the pallet (if fitted).
- 6) Approaching the machine from the side, lift the machine on the frame, taking care that there are no cables or pipes in the area of the forks.
- 7) Move the machine to the required position and install the leveling feet.
- 8) Then lower the machine gently to the floor.
- 9) Level the machine so that all the supporting feet are taking the weight of the machine and no rocking is taking place.



## Unpacking/Installation/Machine Set Up (Cont'd.)-

1.) Using Leveling Feet, Support and Level SS2 CNC Machine.



2.) SAFETY-Verify your shop/building has proper electrical supply. For confirmation on this, call customer service (1-800-234-1976) for diagrams verifying proper voltage & amperage requirements.

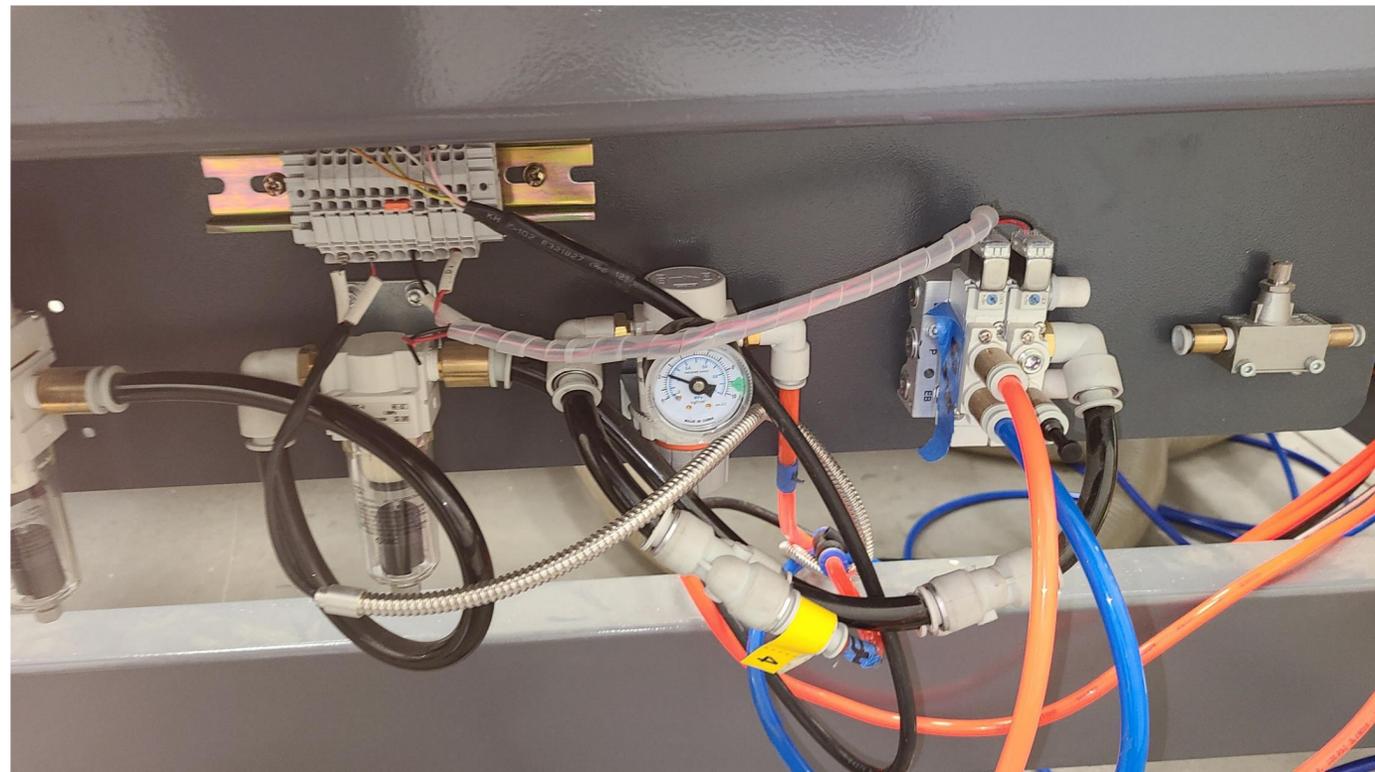


3.) Have a Certified Electrician wire from building breaker into control box (Does not need to hook up L1, L2, and L3, but they must run the wire into the box.)

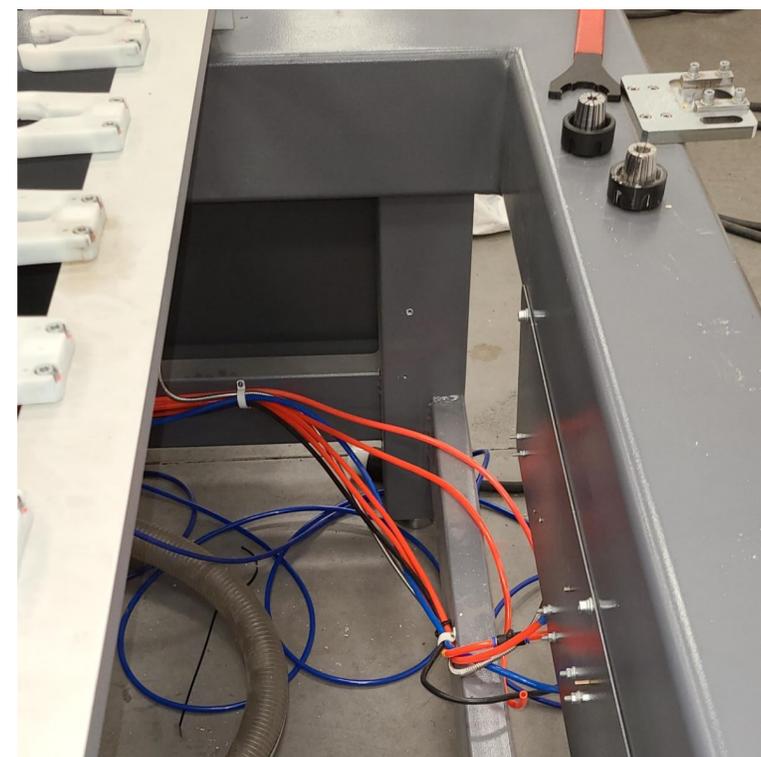
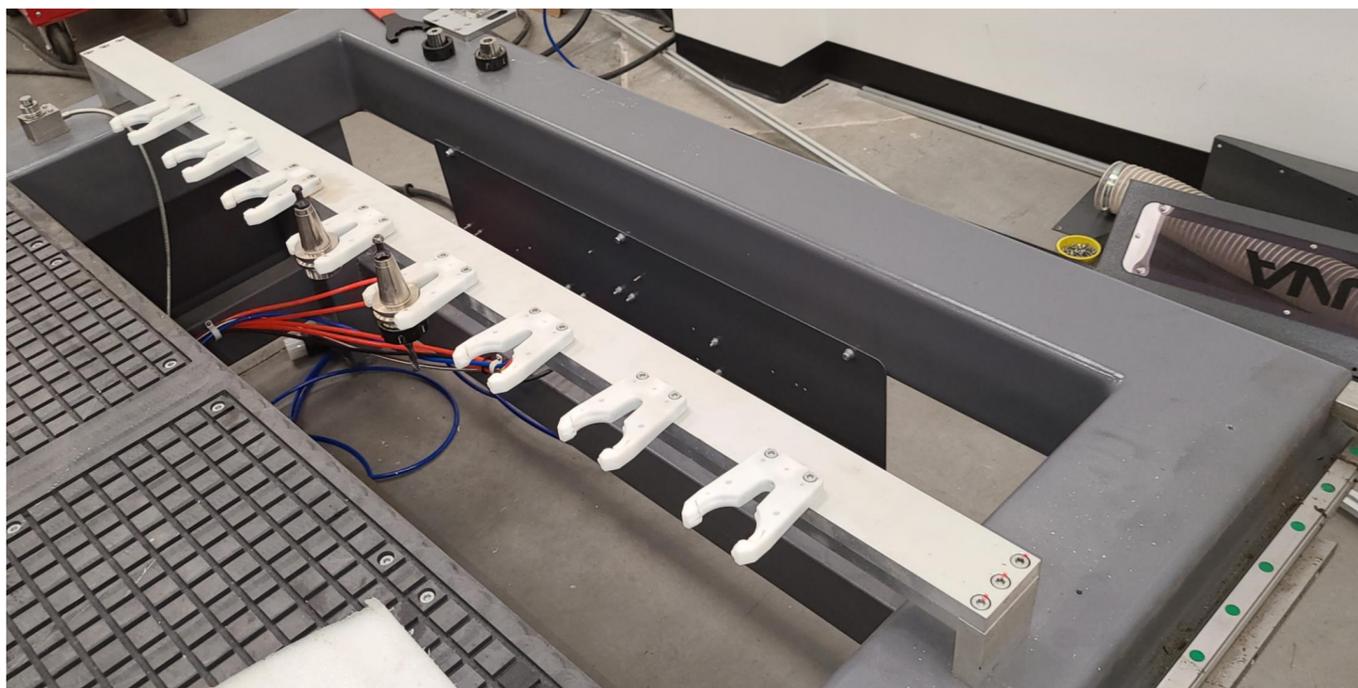


## Unpacking/Installation/Machine Set Up (Cont'd.)-

4.) Have a Certified Electrician wire from contactor to vacuum. (Run wires to vacuum and into box, we can wire once the wires are inside to the contactor. Vacuum has a Legend-Plate, electrician must decide wire size).



5.) Hook up clean, dry air to compressor on rear of machine underneath tool rack. (We do not supply inlet connector) Needs to be 85 PSI-95 PSI.



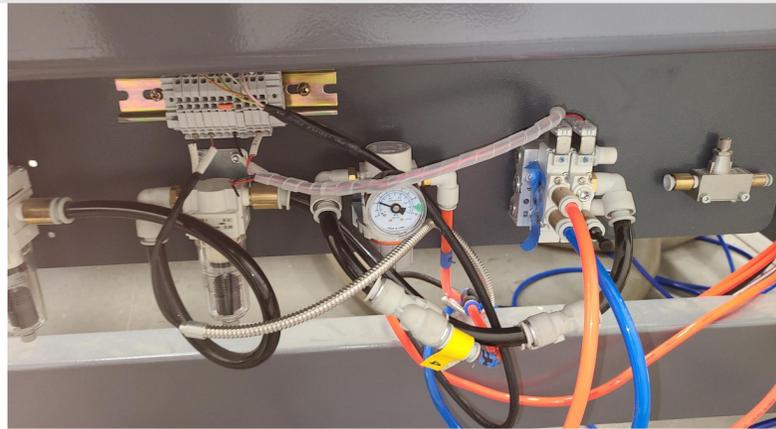


## Unpacking/Installation/Machine Set Up (Cont'd.)-

- 6.) Verify all items that were purchased and are on the sales order were sent and included. Verify there is a dust hood on the spindle. (If any items are missing, call customer service (1-800-234-1976 for verification on missing items so they may be sent out)
- 7.) If providing own tooling, verify all proper tooling is available and readily available.
- 8.) Acquire adequate supply of materials to be cut during install including MDF Board for a Spoil Board to be placed on tabletop (Spec. .75" – 1" Thick).
- 9.) Install all software ahead of time. Review tutorials and gather basic understanding of software before technician arrives.
- 10.) "**Read & Review Manuals**" and try to familiarize with machine and basic components.
- 11.) Get **30W Oil** for lubrication purposes **(DO NOT USE WD-40 as a lubricant!)**.



## Unpacking/Installation/Machine Set Up (Cont'd.)-



The machine is supplied with an air regulator. The input air regulator regulates the air pressure that is supplied to the machine. You will require an air supply that can deliver a constant minimum pressure of 85 psi. The input air regulator will need to be adjusted to 85 psi-95 psi once you have connected your air supply to the machine.

**Note:** No air pipe is supplied, as the length will depend on your installation. To adjust the air pressure, pull the cap out (up) and rotate until the gauge reads the correct pressure. Once the pressure is adjusted, push the cap in.

**Note:** It is strongly recommended that 90 psi is supplied to the SmartShop II and that the regulator then be set to 85 psi. This will ensure that the machine always has the minimum required air pressure. The input regulator has a moisture trap that must be emptied each day.

**Note:** It is important that the air that is supplied to the machine is clean and dry. The machine will not perform consistently if the air is wet or dirty, as any dirt and moisture will block the valves. Wet, damp or dirty air will damage your machine and cause inconsistent performance.

**Note:** The pneumatic system does not need any type of lubricant. Some types of lubricant can damage the machine and compromise the machine's functions.

**Note:** During maintenance, always disconnect the air supply.



## Unpacking/Installation/Machine Set Up (Cont'd.)-

### **Machine Set Up for the Smart Shop SS2 B-Axis/Syntec Controller) -**

Following are the steps one needs to be perform in order for us to schedule the set-up/training, if necessary.

- 1.) Per Unpacking Instructions make sure remove all protective coating and packaging.
  - 2.) Make sure check if machine has all the tooling (kits, etc.) components that were placed in your order.
  - 3.) Make sure that the building/shop have appropriate electrical voltage and amperage for machine(s) purchased.
- \*Electricians and service staff are welcome to contact our Customer Service if they have any questions (Toll Free: 1-800-234-1976).
- 4.) Make sure one has access to the main power source and available and can be pulled to the Electrical Cabinet and all Vacuum Pump(s) for use.
  - 5.) All machine(s) must be leveled with the leveling feet installed.



## Unpacking/Installation/Machine Set Up (Cont'd.)-

### **Machine Set Up for the Smart Shop SS2 B-Axis/Syntec Controller) -**

- 1.) Clean Dry Air is vital for the machine(s) performance. Make sure the clean dry air is available & compressed and can be attached to the machine(s).
- 2.) Prepare adequate supply of materials for practice cutting as well as several 3/4" Medium-Density Fiberboard (MDF) sheets for use as spoil boards (material to be cut and tested on).
- 3.) Make sure the Technician who is to be trained and operate purchased Machines, learn the software prior to set-up/training.

Should a technician representing Laguna Tools not be able to come to the site and work on the machines due to the lack of preparedness or inoperable equipment per the above and/or beyond Laguna Tools control any expenses incurred will be passed on to the customer.



## Test Run-

### Preparation

- 1.) Check if the appearance of the machine is intact and if all the moving parts are at the Home position.
- 2.) Check to make sure none of the electric components in the cabinet are loose or damaged, and none of the wire terminals get loose.
- 3.) Check if all the safety devices are complete and all the buttons and electric parts are in the right positions.
- 4.) Check if the tool clamps and fixtures are installed tightly and check if they are displaced or damaged.
- 5.) Check if any electric components are damaged or the wire terminals are loose.
- 6.) Check if the cables are connected tightly. The zero line should be N or P line. Connection must be made according to the right line numbers or else short circuit might occur.



## Test Run (Cont'd.)-

### Preparation (Cont'd.)-

7.) Disconnect the circuit breaker and see if there is any abnormality. If so, clear the error before one operates the machine. Have a thorough inspection of all the parts and electronics before turning on the power supply.

8.) Check the pressure of each pressure indicator (Spec. 85 psi-95 psi).

9.) Turn on the power supply and switch on the machine.



Main "On/Off"  
Power Switch





## Test Run (Cont'd.)-

### Preparation (Cont'd.)-

10.) Press the "Green Power On" Button to turn on the power to the Controller Area, Press "Red Power Off" Button to cut off power to the Controller Area.



Wait for the system to boot, then release the "Emergency Stop Switch". To release "Emergency Stop Switch" turn the red knob a  $\frac{1}{4}$  of turn "Clockwise" to release.



Press this "E-Stop Button" when one is in personnel danger or a problem occurs during the table operation, then all the electric controlling of the table will be cut off.

At this time, except the power of the controller, the power of the servo motor, spindle and metalworking fluids will be cut off to ensure personnel and machine safety.

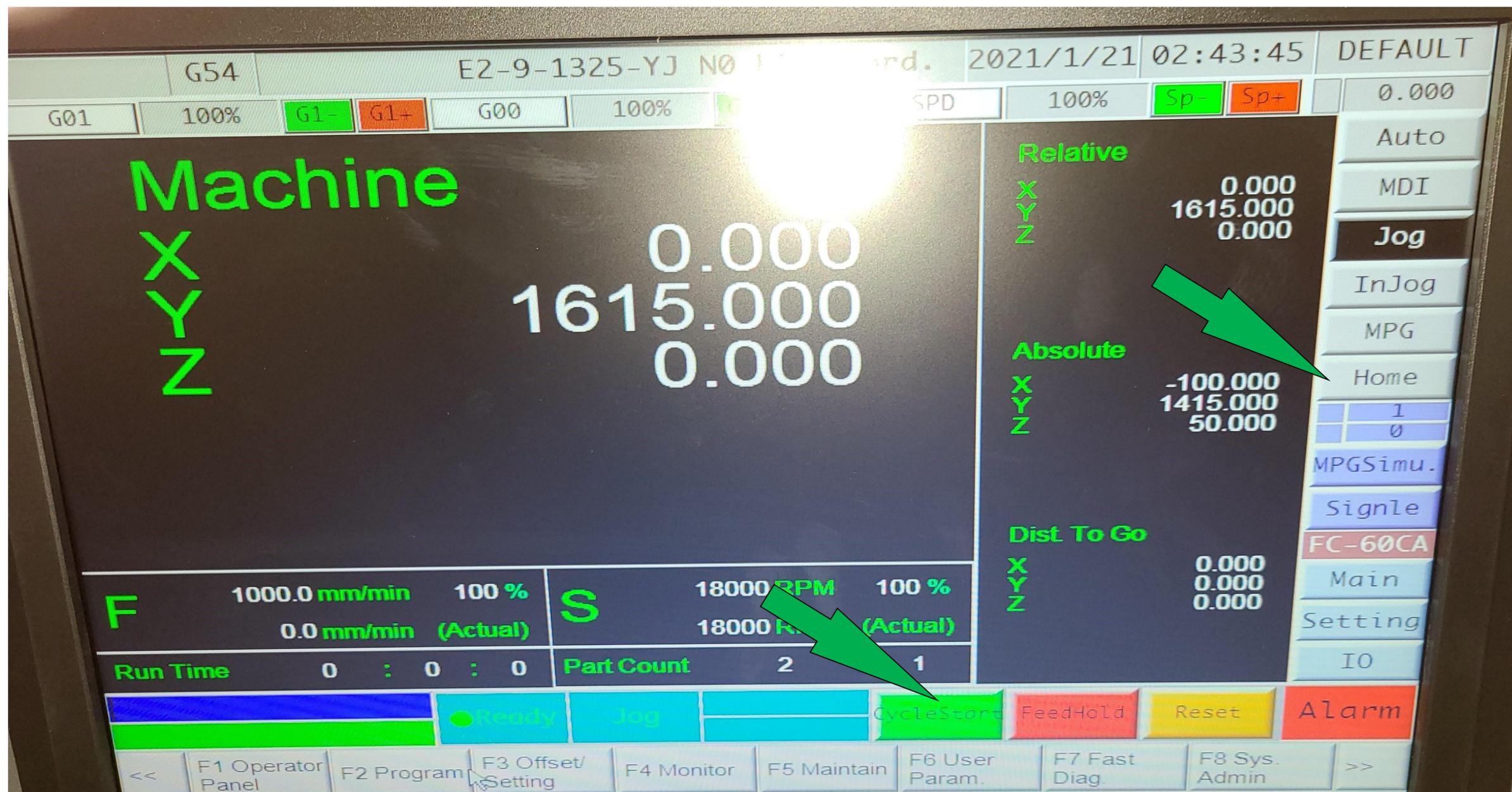


## Test Run (Cont'd.)-

11.) The Control Software Interface will automatically materialize on the computer screen when the machine is powered up and turned on.

To begin, select origin mode, "Home" then "Cycle Start".

The Machine "B" Parameter Setting, will not be present, unless one selects the setting in a prior operation.





# Operating Tutorials-

## Software Operation-

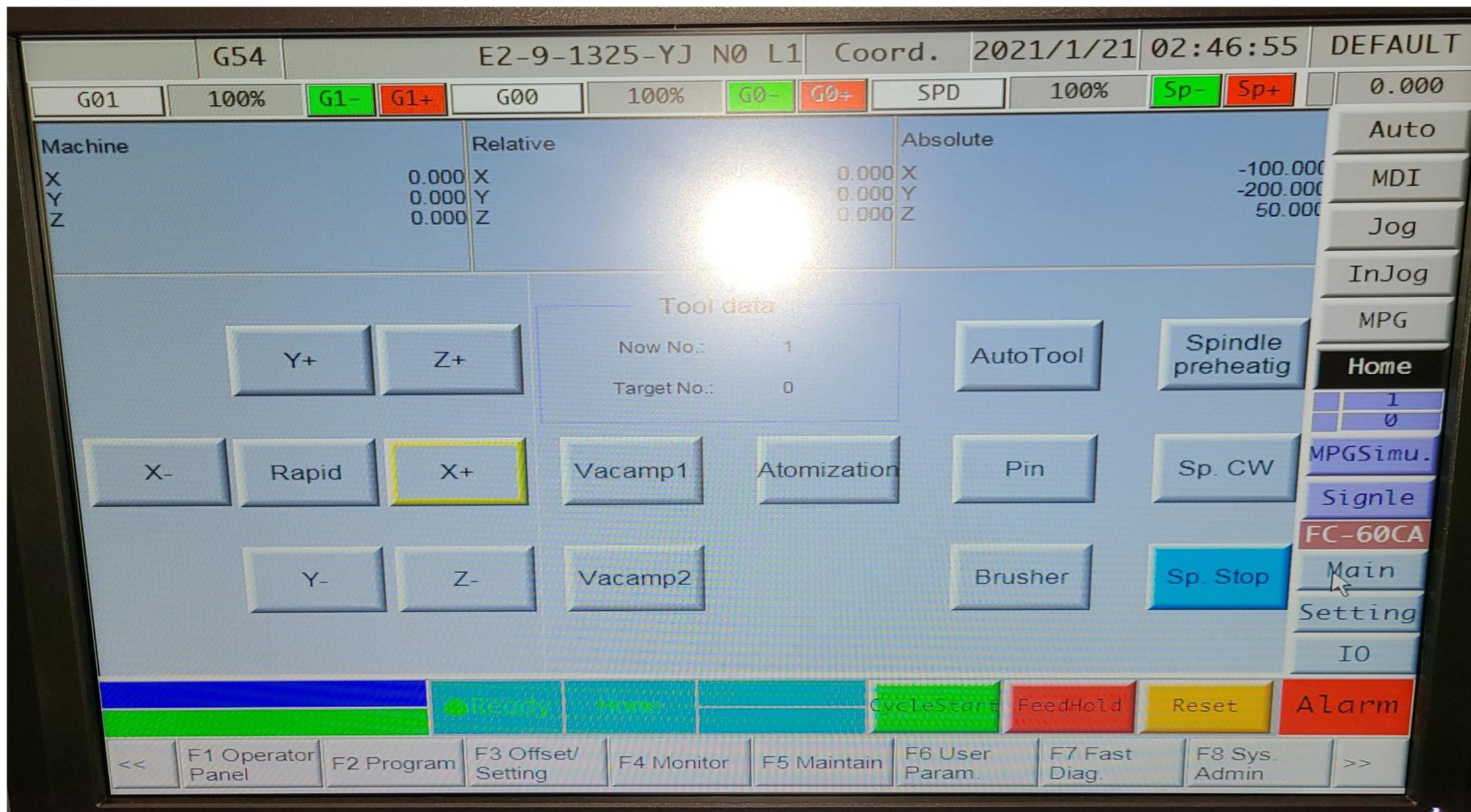
### 1.) About Syntec Folder:

Please do not delete Disk "C" and Network in the : "D" Disk of the computer.

Disk "C" Folder: System Interface File, Connect Controller, Modify Parameter Setting.

Network Folder: The process is stored here.

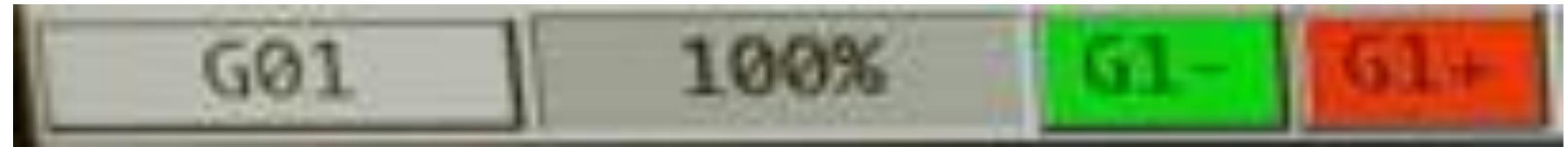
## Main Interface-





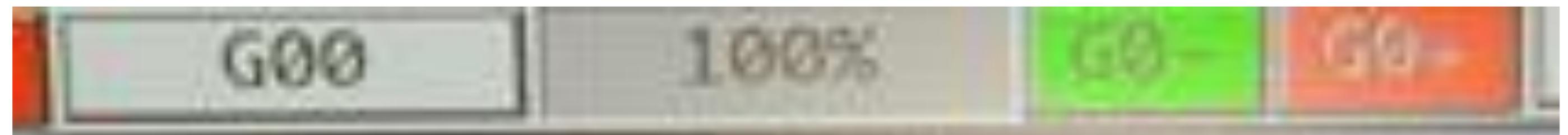
## Operating Tutorials (Cont'd.)-

### Processing Speed Adjustment-



Press **G1-** or **G1+** to reduce and increase the processing speed.

### Idle Speed Adjustment-

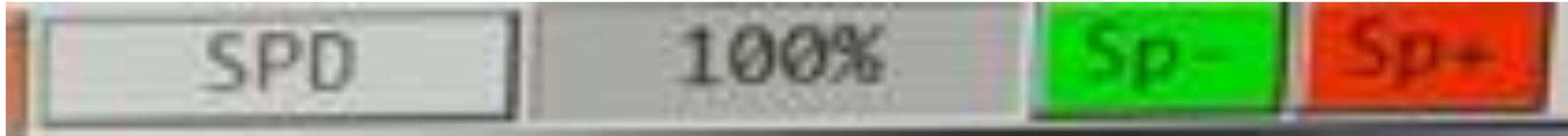


Press **G0-** or **G0+** to decrease and increase the Speed Spindle speed adjustment.

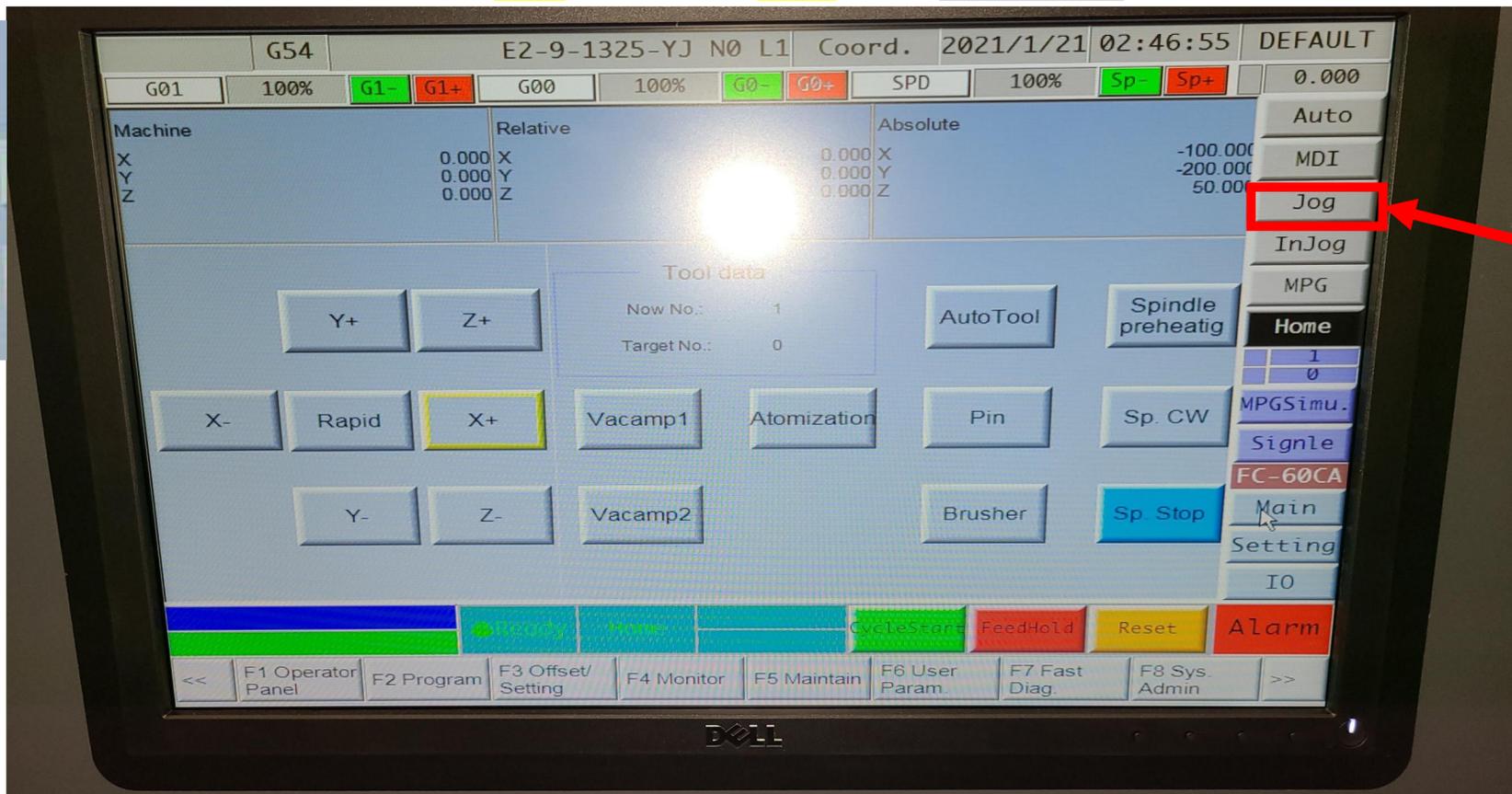
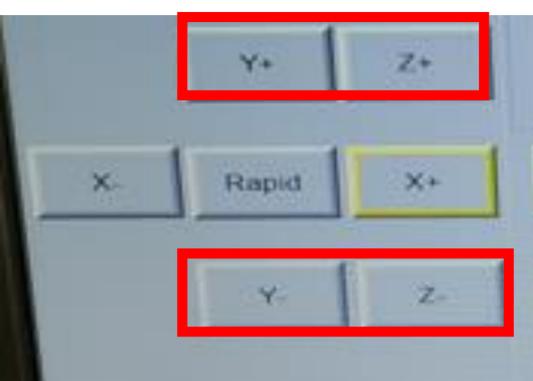


## Operating Tutorials (Cont'd.)-

Press **SP-** or **SP+** to decrease and increase the rotation speed of the spindle.

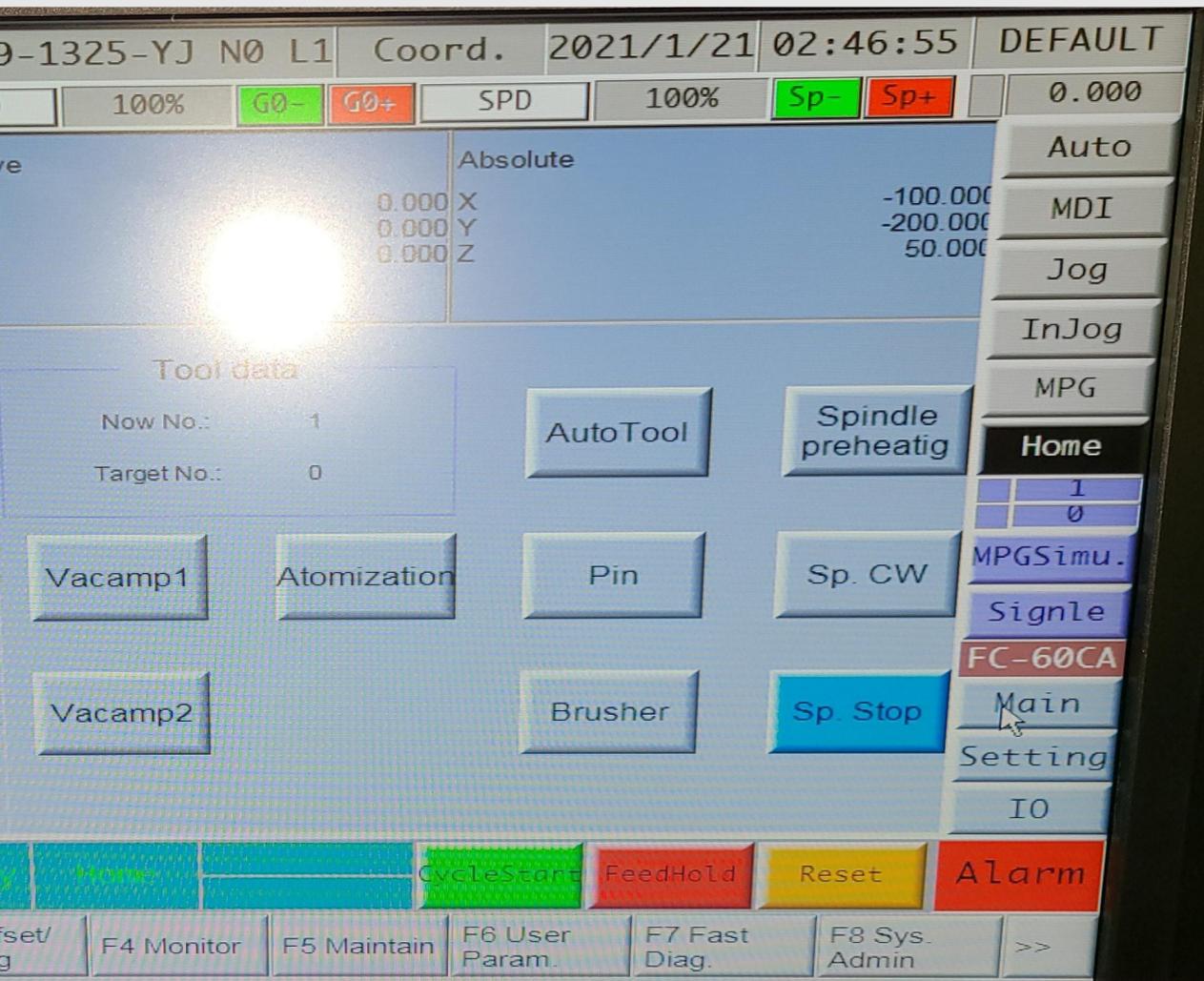


RAPID: Fast moving machine X+Y+Z+B+ X-Y-Z-B-: In **"JOG"** mode, move the machine manually.





## Operating Tutorials (Cont'd.)-



**OVER TRAVEL**: Cancel hardware overdrive alarm.

**AUTO TOOL** : Tool length is measured using an Auto Tool Sensor.

**SPINDLE PREHEAT**: Preheat the spindle, if you do not use the machine for a long time, you need to use this function.

**VACUUM1 OFF**: Vacuum Pump1 On.

**VACUUM2 OFF**: Vacuum Pump2 On.

**SUCT**: Table vacuum on.

**SP. CW**: Spindle Clockwise.

**SP. STOP**: Spindle Stop.

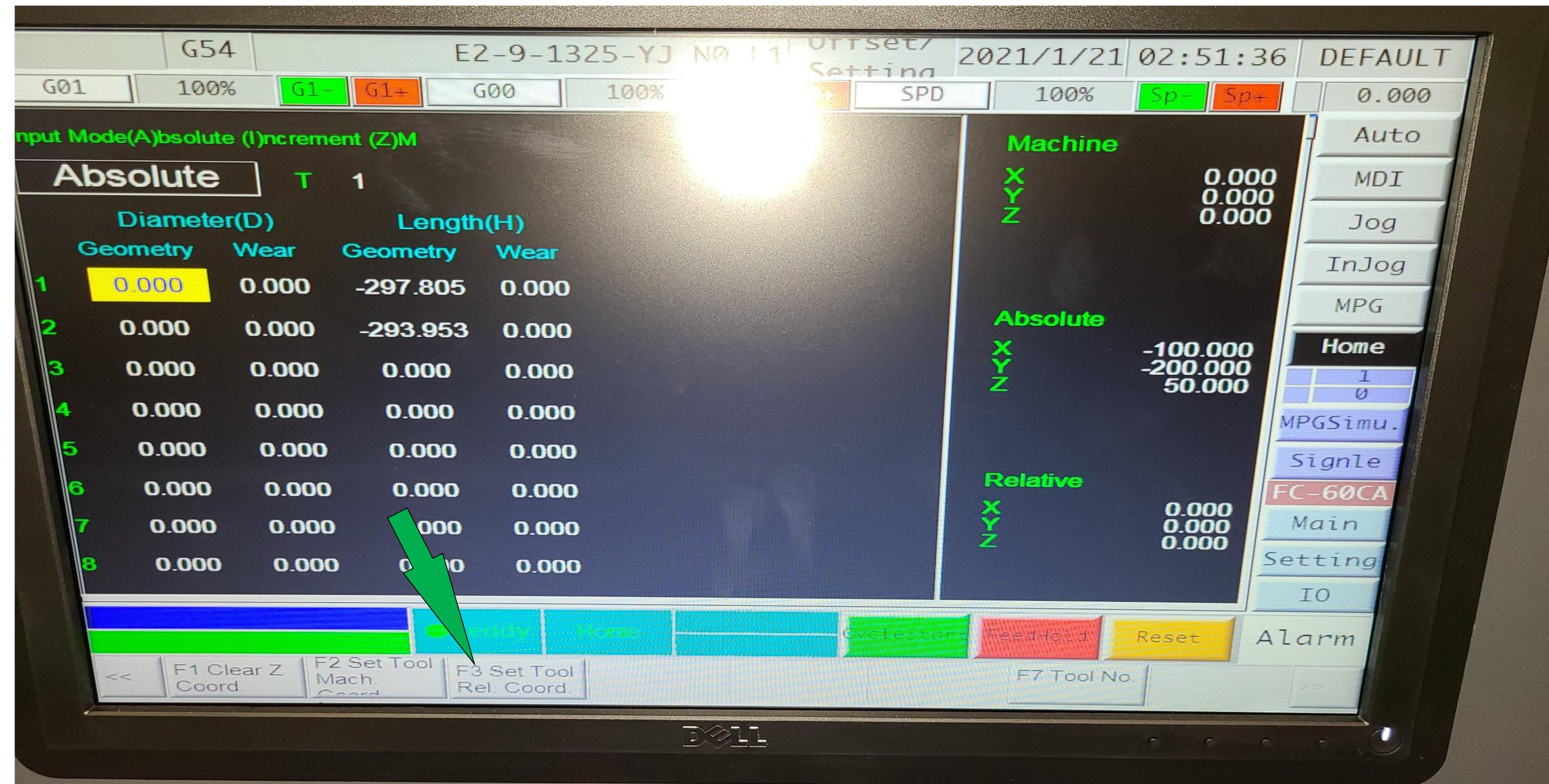
**BRUSHER**: Spindle Brush Up and Down

**“O” PIN DOWN**: Under positioning cylinder down.



# Operating Tutorials (Cont'd.)-

## Tool Management Interface



### Auto Tool Set-



## Operating Tutorials (Cont'd.)-

### Machine Operation Instruction-

#### Power On-

Turn the circuit breaker knob on the electric cabinet door Clockwise to switch on the power.



Main "On/Off"  
Power Switch

Release the emergency stop button and switch on the PC, and the system enters the main interface after the auto check.

Press the "**Green Power On**" Button to turn on the power to the Controller Area, Press "**Red Power Off**" Button to cut off power to the Controller Area.



Wait for the system to boot, then release the "**Emergency Stop Switch**". To release "**Emergency Stop Switch**" turn the red knob a ¼ of turn "Clockwise" to release.





## Operating Tutorials (Cont'd.)-

### Machine Operation Instruction (Cont'd.)-

#### Power Off-

1.) Before machine stops, first press the "Emergency Stop Button."



2.) Exit the System Operation Interface.



3.) Shut Down the Personal Computer (PC) "Off".



4.) Turn the knob on electric cabinet door Counter-Clockwise.



Main "On/Off"  
Power Switch





## Operating Tutorials (Cont'd.)-

### Machine Operation Instruction (Cont'd.)-

#### Emergency Stop-

In case of safety emergency, press the “**Emergency Stop Button/Switch**” and all the machine parts except for the controller are disconnected from the power supply to ensure personal and machine safety.

“Emergency Stop Button/Switch”



#### Auto Go Home-

##### Methods:

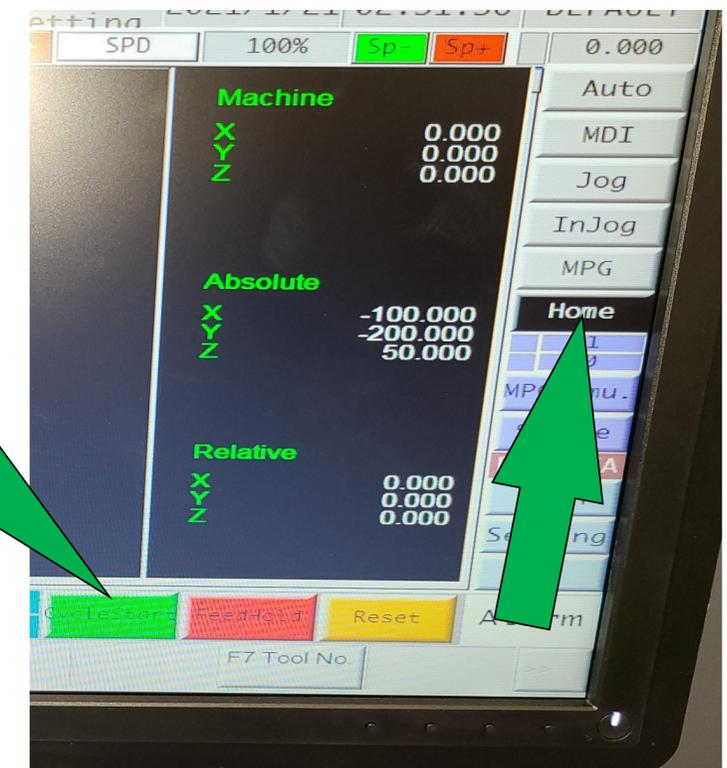
After the system self check is complete, it will direct you to the main screen.

Release the “**Emergency Stop Switch**” (1/4 Turn Clockwise to the Right) .

The system will prompt you to go home.

All Axis **MUST** be homed before you start to operate the machine.

Click on the “**Auto Go Home Button**” and “**Cycle Start Button**”, the Z Axis will go home. After Z Axis is homed, X and Y axes will begin.





## Operating Tutorials (Cont'd.)-

### Machine Operation Instruction (Cont'd.)-



Operator can jog the machine in the desired direction. Methods: Click on the “Manual Jog Button” to enter. Control the movement with axes directional keys-- 『X+,X-,Y+,Y-,Z+,Z-』 . Caution: Click on the “GO-” key to reduce the speed before entering this mode. If it is safe, you can use the “GO+” button to increase the speed.

### Idle Speed Adjustment-



Press GO- or GO+ to decrease and increase the speed Spindle speed adjustment.



## Operating Tutorials (Cont'd.)-

### Machine Operation Instruction (Cont'd.)-



**MPG Handwheel**

Operator can move the axes by spinning the **“MPG Handwheel”**.

Methods: Select the **“MPG MODE”** Define the axis, direction and speed.

i.) Spin the handwheel in the Clockwise (CW) direction, the machine will move in the positive direction.

ii.) Spin in the Counter-Clockwise (CCW) direction, the machine will move in the negative direction.

The speed is determined by the selected speed value.



**Auto Mode**

Operator can process a job under this mode. The machine will automatically run the NC program.

Methods: Select the program file you wish to process. Set the job origin and tool length offset value, then press **“Auto Mode Button”**. This mode is only available after all axes have been homed.

Press the **“Auto Mode Button”** and the system will begin process the selected file.

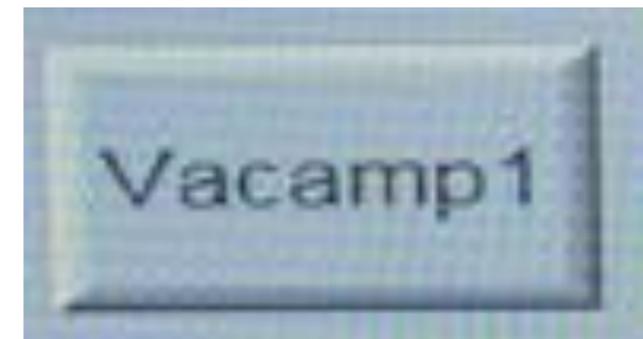


## Operating Tutorials (Cont'd.)-

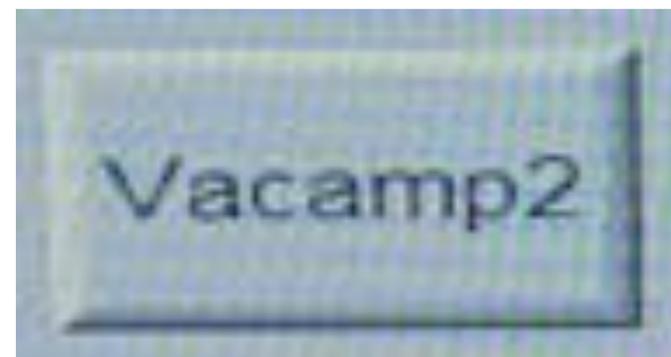
### Machine Operation Instruction (Cont'd.)-



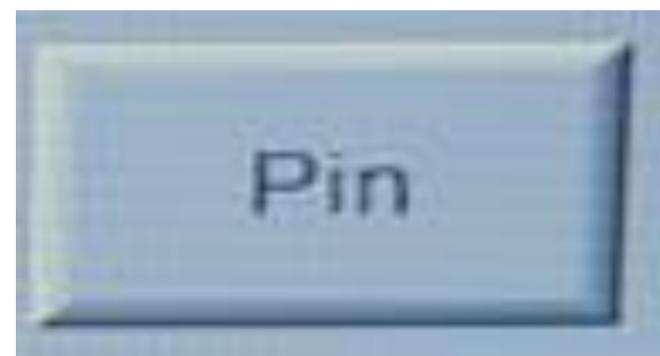
This mode allows the operator to write one block and execute that block..



When you press this button, the vacuum will be turned on.



Press once, the vacuum pump will be turned on. Press again, the pump will be turned off.



Press once, the pop-up pins will rise. Press again, the pins will go down.

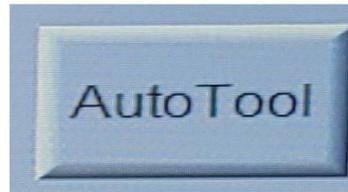


## Operating Tutorials (Cont'd.)-

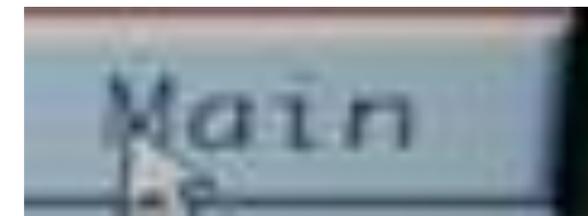
### Machine Operation Instruction (Cont'd.)-



**Tools**



Press to access the Tool Screen.



Press to go to the main screen.



Press to Reset.



Under Auto and MDI Modes, press once to start processing the program.



## Operating Tutorials (Cont'd.)-

### Machine Operation Instruction (Cont'd.)-



Press to **Freehold Button** to pause the process. If you wish to restart, press **Cycle Start Button** for **Program Start** to restart.



Under manual continuous mode, manual jog mode and handwheel mode, **pressing this button can stop the spindle.**



Press to make the spindle spin in the Clockwise (CW) direction under manual continuous, manual jog and handwheel modes.



## Operating Tutorials (Cont'd.)-

### Machine Operation Instruction (Cont'd.)-

#### “Go Home”

Caution: All axis must be homed after power is “On”.

As tool setting and job coordinate setting must be done based on the mechanical reference point, after CNC is switched on, reference point must be confirmed with all axes going back “Home”.

The Syntec Controller can't be started by auto NC program.

- 1.) Release the emergency switch. The system will display “READY”.
2. Press the “**HOME**” softkey. Press the “**Cycle start**” softkey.

Note: “**HOME**” Z axis before other X, Y Axis to avoid interference.

- 3.) Note: The homing direction can be set in the CNC parameters.



## Operating Tutorials (Cont'd.)-

### Machine Operation Instruction (Cont'd.)-

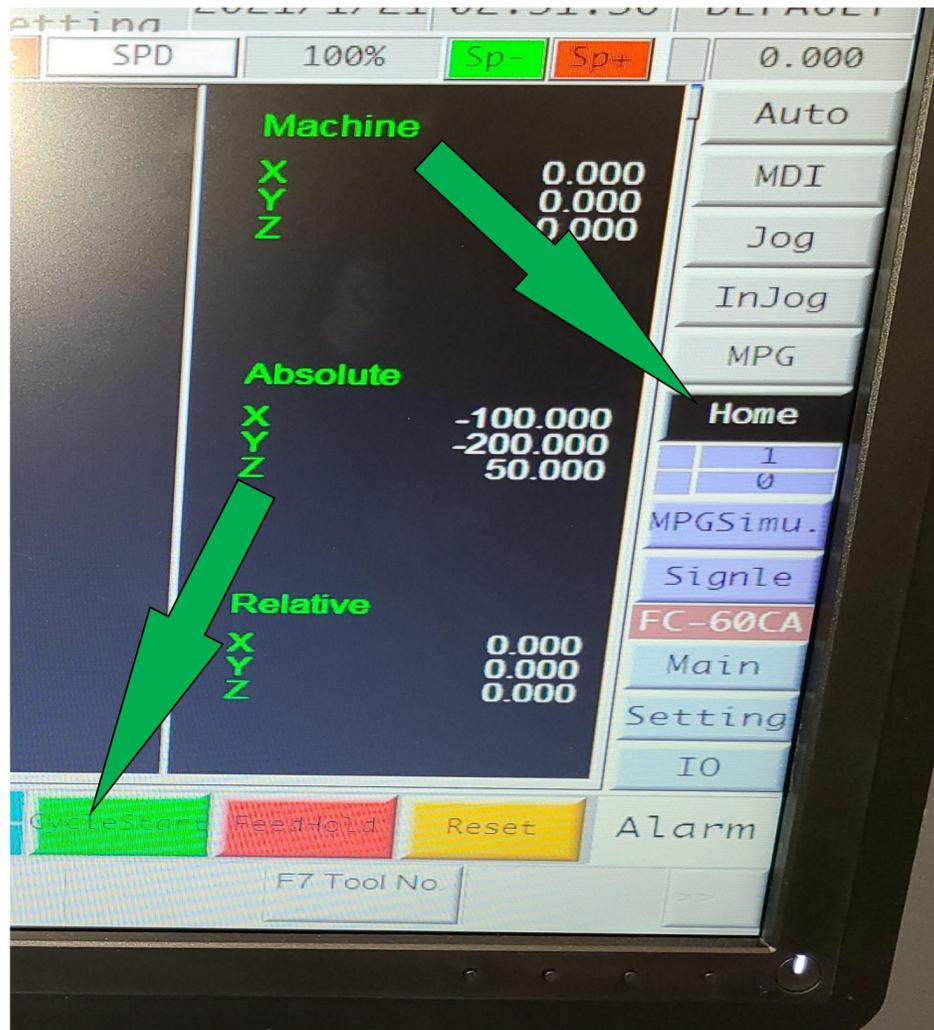
#### “Go Home (Cont'd.)”

4.) Note: The homing function homes all three axes together.

5.) Note: After homing, the mechanical coordinates are all “0”.

6.) Note: The software limit switches of the machine are not enabled until all axis are reset.

Do not engage the machine in movement too fast until the axis are reset.



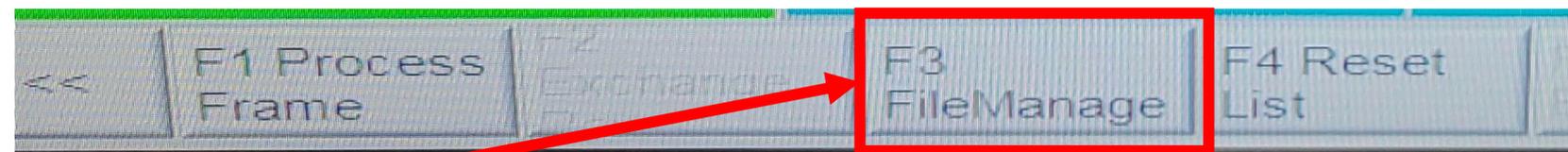
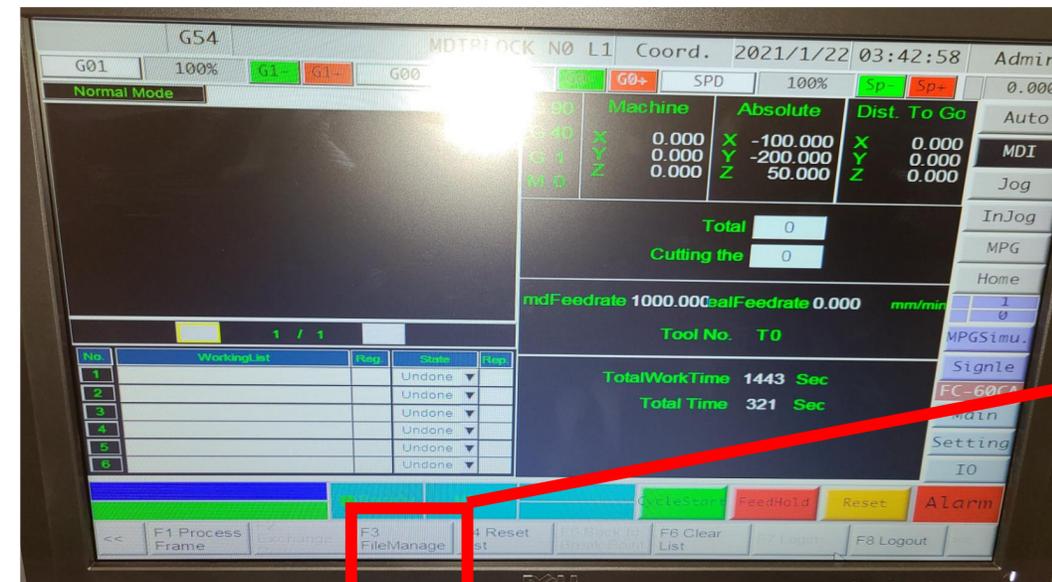
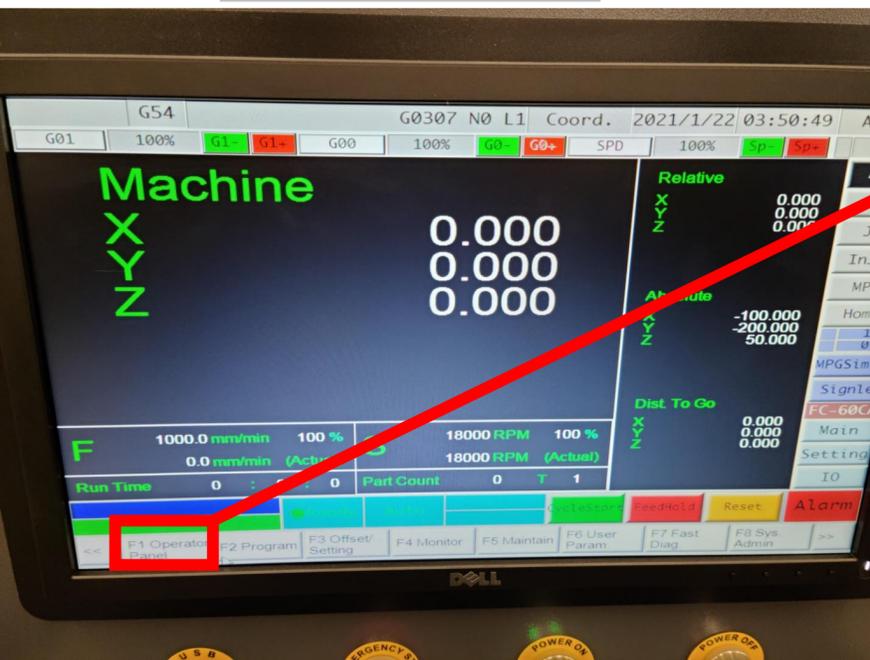
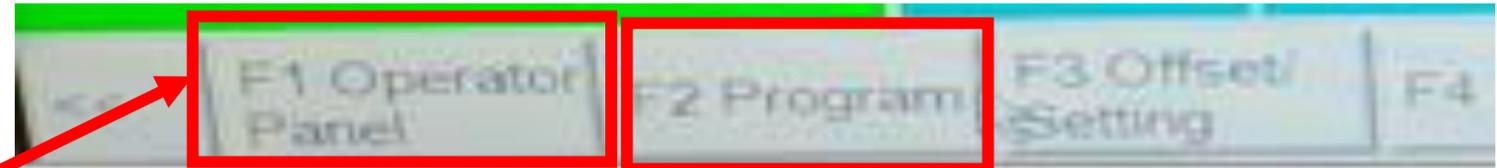


## Operating Tutorials (Cont'd.)-

### Machine Operation Instruction (Cont'd.)-

#### Part Program Selection-

Select "F2 PROGRAM"-



- 1.) Select "F1" Operator Panel.
- 2.) Select Program , Select "F2" Program
- 3.) then Select "F3" File Manager.

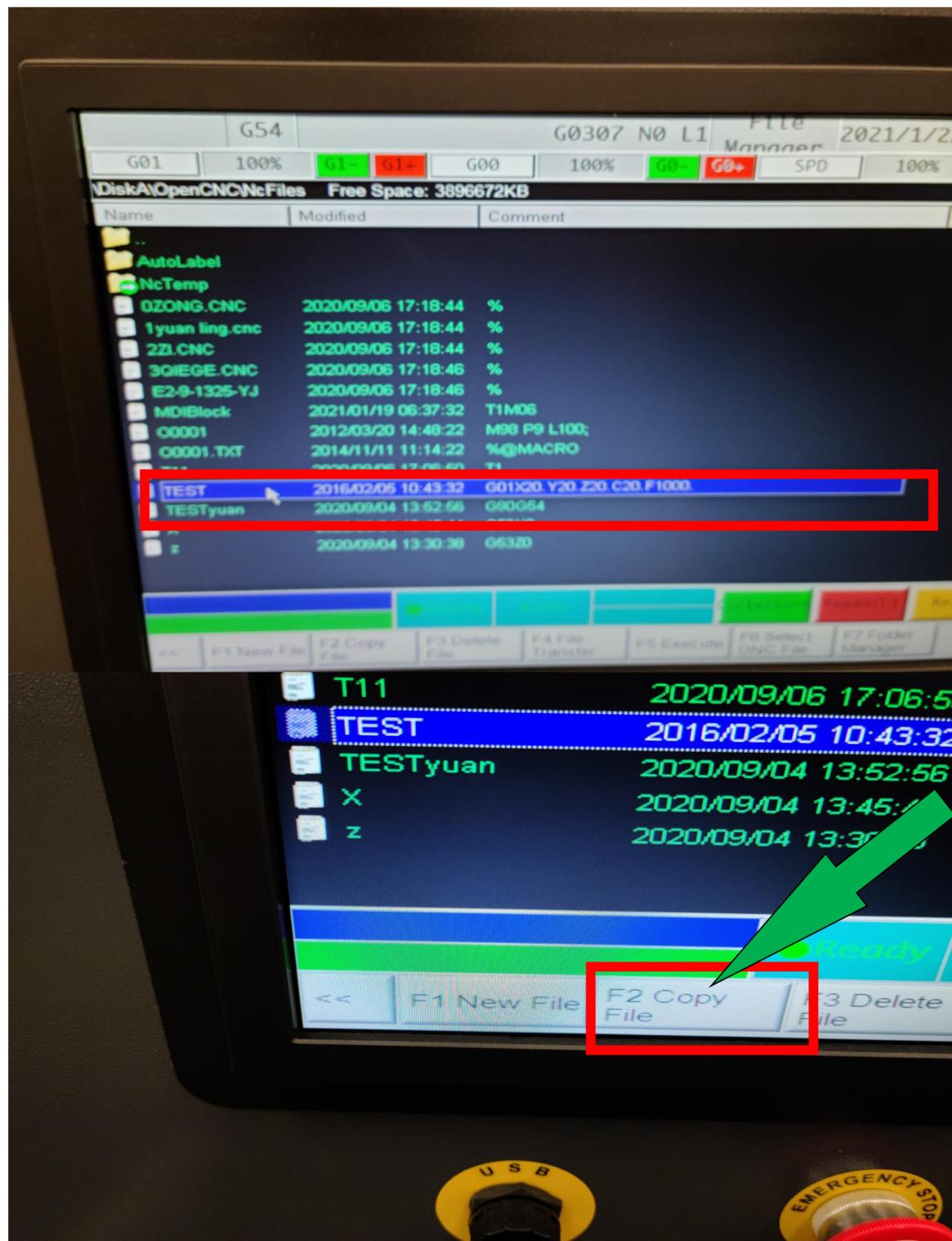


## Operating Tutorials (Cont'd.)-

### Machine Operation Instruction (Cont'd.)-

#### Part Program Selection-

Select the processing file, to “F1 Execute”.



4.) Select File for Execution.

5.) Select F2-Copy File for Execution.

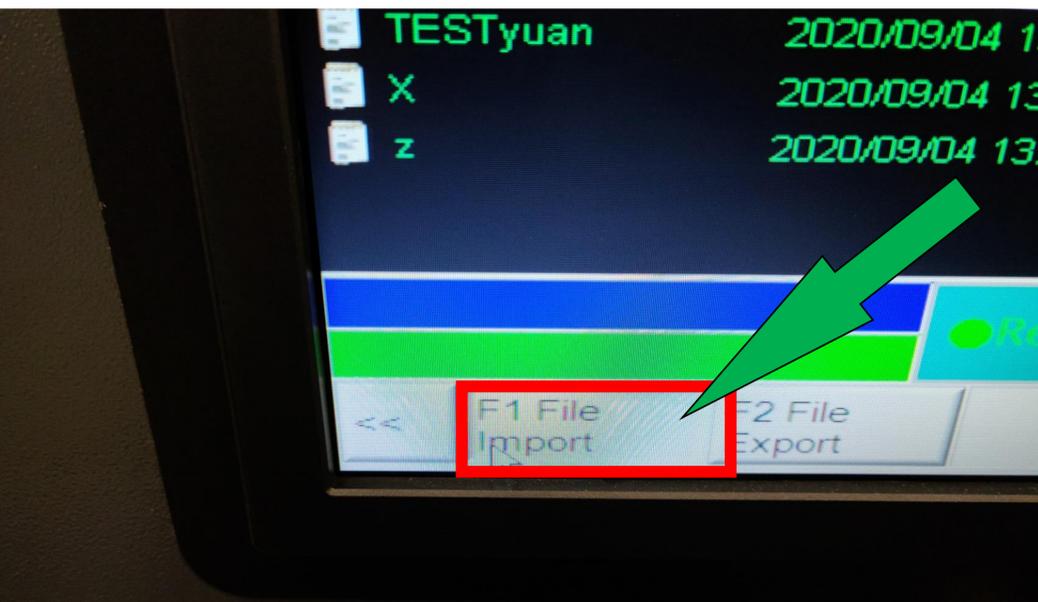


## Operating Tutorials (Cont'd.)-

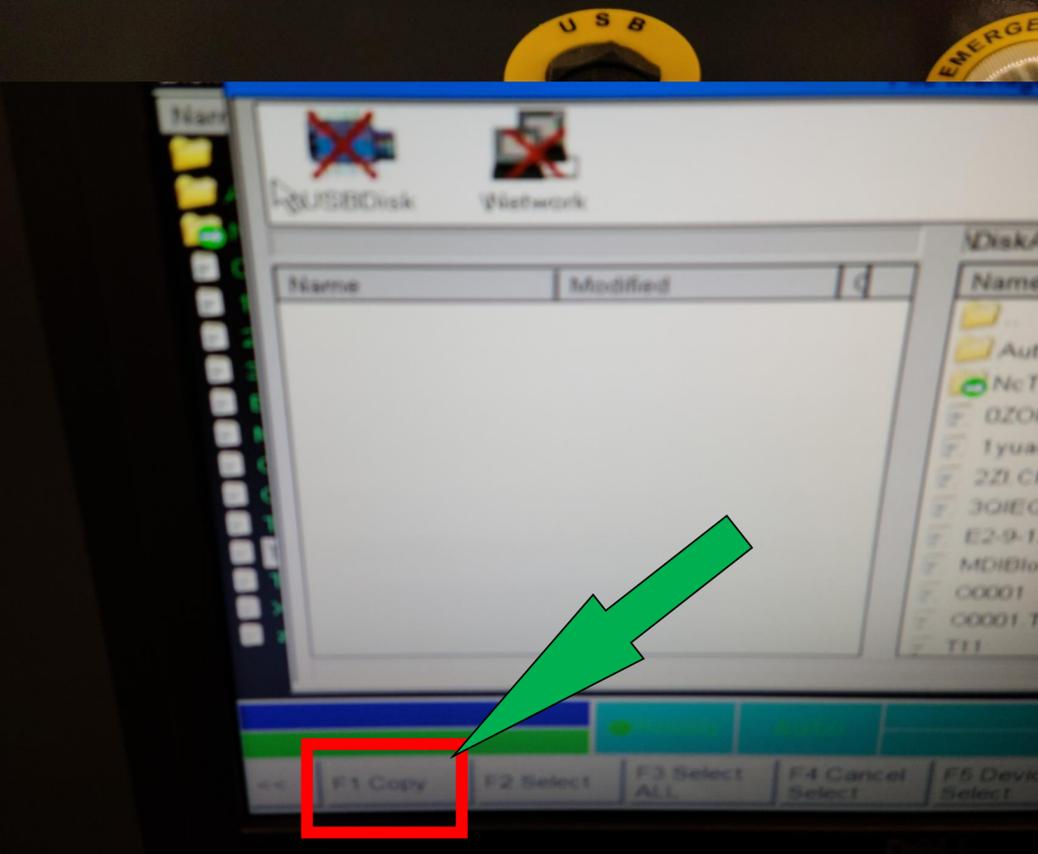
### Machine Operation Instruction (Cont'd.)-

#### Part Program Selection-

Select the processing file, then **F1 Execute**.



5.) Select **F1**-File Import for Execution.



6.) Select **F1**-Copy File for Execution.



## Operating Tutorials (Cont'd.)-

### Machine Operation Instruction (Cont'd.)-

#### Part Program Selection-

Select the processing file, then **F1 Execute**.



7.) Select **F1-Execute**-To Execute File.

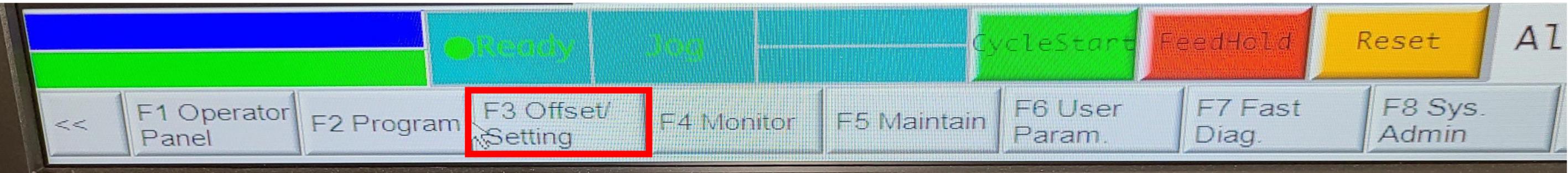


## Operating Tutorials (Cont'd.)-

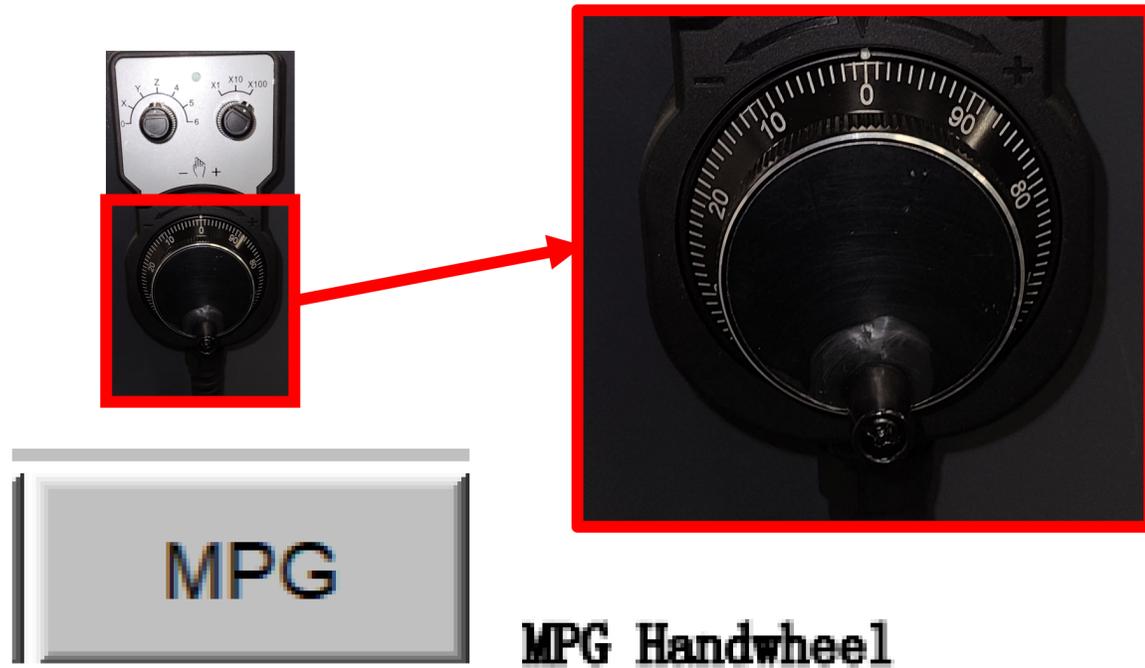
### Machine Operation Instruction (Cont'd.)-

#### Job Origin Preset-

Click on the “**F3 OFFSET/SETTING**” softkey on the bottom menu of the main interface.



And we use G54 as the “0” Point of Processing-



Press the “**Hand Wheel Mode**” to control and move the X/Y/Z axis to material processing surface, (For irregular materials, users need to set a center, and the workpiece origin should be benchmarked on the zero surface on which the tool is aligned with the workpiece).



## Operating Tutorials (Cont'd.)-

### Machine Operation Instruction (Cont'd.)-

#### Job Origin Preset (Cont'd.)-

ENTER, When the yellow cursor has been moved to X, press F1 on the panel (Latch Machine cord), and the following note will be shown:

Choose **“Yes”** , and press **“Enter”** on the panel.



(Set Workpiece) Choose F5 (Set Workpiece).

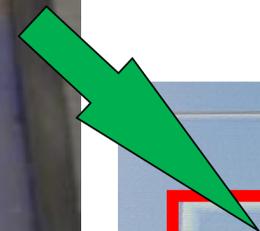
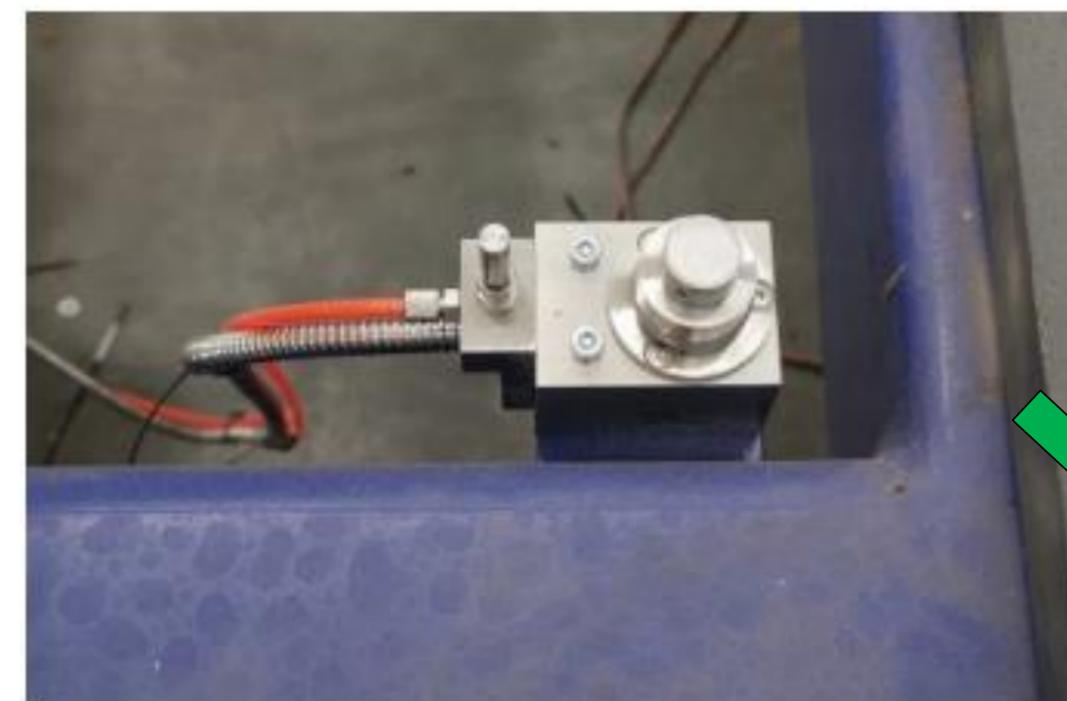


## Operating Tutorials (Cont'd.)-

### Machine Operation Instruction (Cont'd.)-

#### Job Origin Preset (Cont'd.)-

#### Spindle tool length measurement using auto tool sensor-



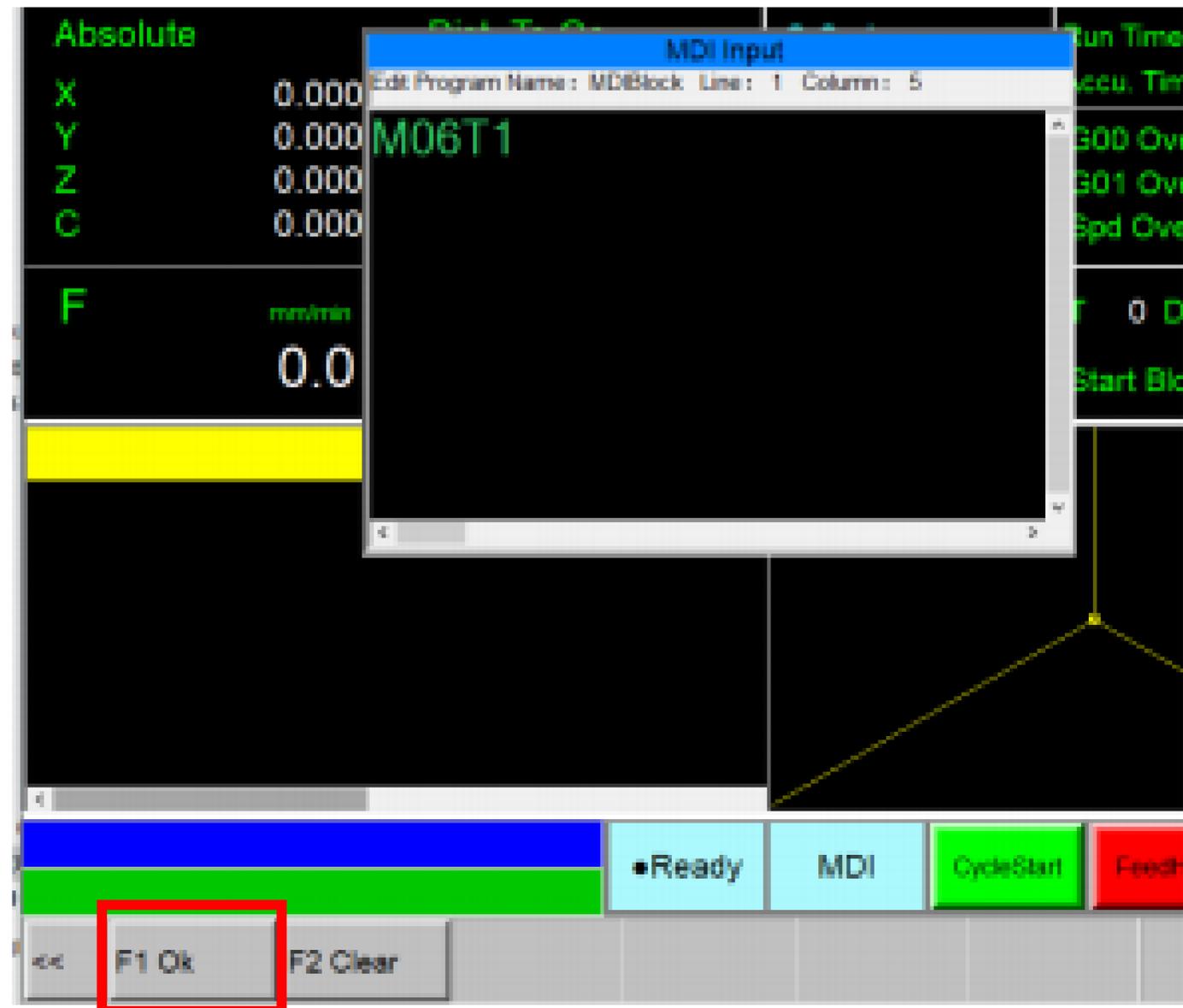
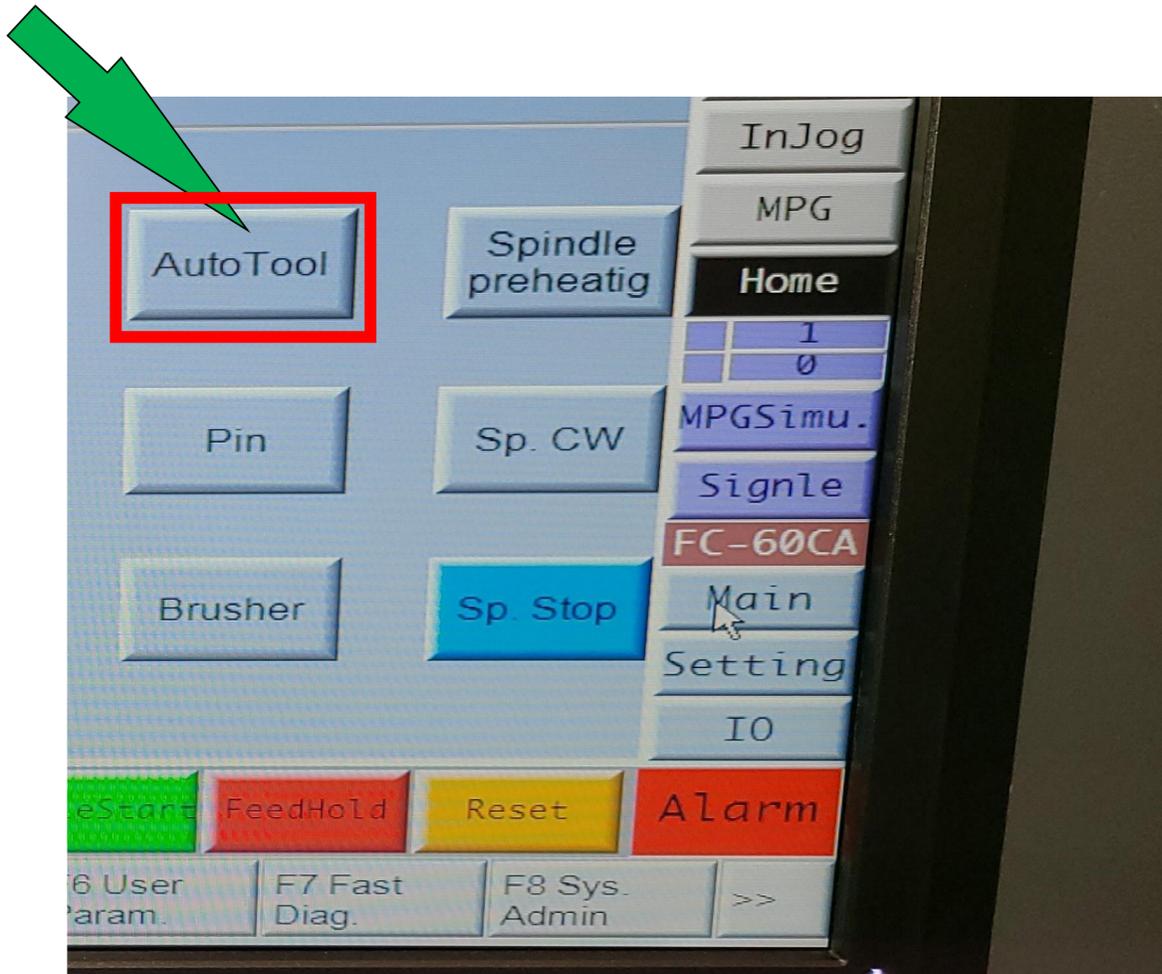
Press the **"AUTO TOOL Button"** to enter the TOOL number to be measured in MDI mode.



## Operating Tutorials (Cont'd.)-

### Machine Operation Instruction (Cont'd.)-

#### Job Origin Preset (Cont'd.)-



Click F1 "OK" and the machine will automatically measure the tool length.

After the measurement is completed, the machine will automatically enter the tool length into the system.



## Operating Tutorials (Cont'd.)-

### Machine Operation Instruction (Cont'd.)-

#### Job Origin Preset (Cont'd.)-

	Diameter(D)		Length(H)	
	Geometry	Wear	Geometry	Wear
1	0.000	0.000	-201.000	0.000
2	0.000	0.000	0.000	0.000
3	0.000	0.000	0.000	0.000
4	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000
7	0.000	0.000	0.000	0.000
8	0.000	0.000	0.000	0.000

F3 OFFSET/SETTING → F2 TOOL SET



## Service and Maintenance-

### Caution:

- 1.) Maintenance must be performed by qualified personnel.
- 2.) Switch off the main power supply before servicing.  
If power supply is needed, have a qualified Electrician install main power Outlet.
- 3.) The changed or replaced parts and components must be of same type, specification & quality.

### Drive System-

Wipe clean the linear guides after use. Make sure the guides stay clean and lubricated.



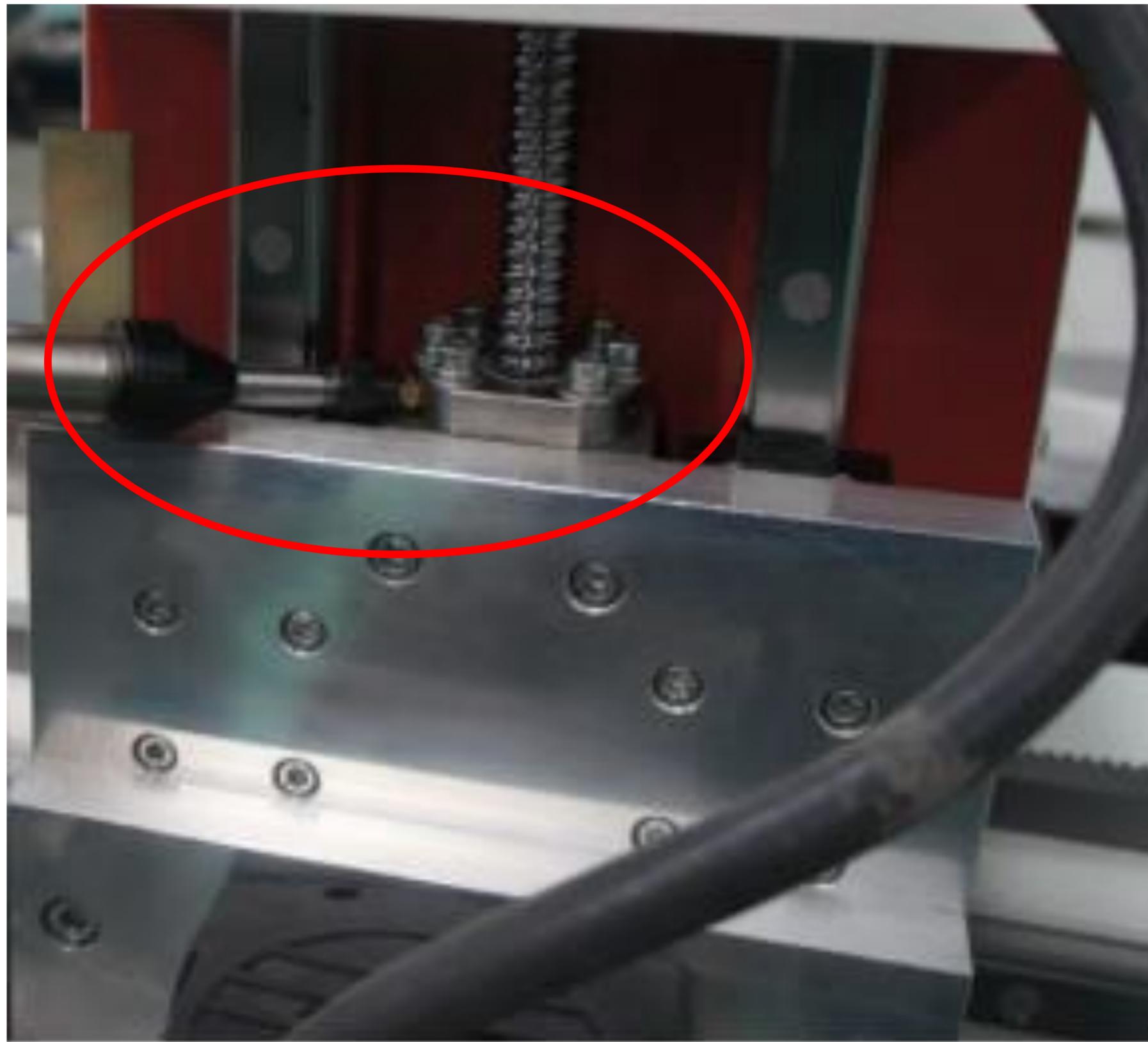
Lubricate the rack and pinion and the ball screw drive once every week. This ensures longer service life.





## Service and Maintenance (Cont'd.)-

When lubricating the spindle screw, please use the manual oil gun provided by the manufacturer.





## Service and Maintenance (Cont'd.)-

### Electric Cabinet-

**Attention!:** Switch off the main power supply before servicing. If power supply needed, have a qualified Electrician install an Electrical Outlet.

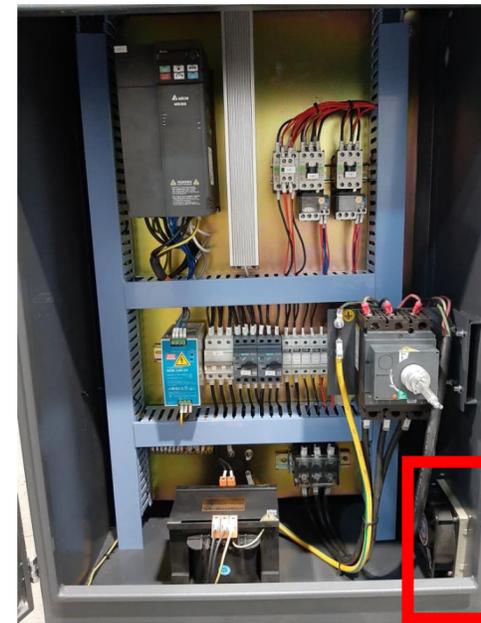


Main "On/Off" Power Switch



1.) Clean the cabinet with once every week. Keep the electronics clean.

2.) Inspect the fans every month. Keep them clean.



3.) Regularly inspect if the emergency stop button is functional.

If machine belongs to Company/Facility that is ISO/QS 9000 Quality System Certified, make sure to place & document the stated Service & Maintenance Protocols into the facilities General Preventive Maintenance Section of the Quality System.



## Service and Maintenance (Cont'd.)-

### Vacuum System(s):

#### Vacuum Pump:

- 1.) The entry filter net on the vacuum pump needs to be cleaned daily to keep dust from entering the pump.
- 2.) The exit filter net needs to be cleaned weekly.
- 3.) Inspect the pump grease every 2 months. Change, if the grease becomes dark and thick.
- 4.) Lubricate every three months. Only use the appointed grease.



## Service and Maintenance (Cont'd.)-

### **Other Maintenance Protocols:**

- The coolant filter net needs to be cleaned every day.
- Clean the tool magazine regularly.

To have a longer service life, perform regular maintenance on the following parts and components:

- 1.) Keep the machine lubricated. Regularly inspect and clean the lubrication system. Keep the ball screw, linear guide and rack and pinion lubricated at all times.
- 2.) Regularly inspect the vacuum system. The filter nets need to be cleaned and changed regularly. Remember to empty the filter in time. When the system gives out low pressure alarm, check if the pressure is enough.
- 3.) Inspect the overtravel limit switches (both software limit switch and mechanical stopper regularly. Do not let rust accumulate on the limit switches as it seriously affects their sensitiveness and may fail to give alarm when the machine over travels, which could lead to mechanical crash and damage to the machine. The way to inspect is to press the switch with hand to see if it gives off alarm. You can also check if the I/O port input signal changes.



## Service and Maintenance (Cont'd.)-

### **Other Maintenance Protocols (Cont'd.):**

4.) Regularly inspect the electronics.

Make sure all plug-in devices, cables and cords are well-connected.

Keep the cabinet door closed when possible.

**Opening the cabinet door will not help it cool down.**

Regularly inspect and clean the fans and filter nets to ensure better cooling effect.

5.) You are encouraged to utilize the machine and do not let it stay idle for long, especially in the first year.

The more you use the machine, the more likely the machine will be in good condition in the future. If the machine stays idle for too long, the electronics are exposed to moist, heat, etc., thus reducing the service life of the machine.

Make sure to power up the machine from time to time (at least once in a month) even you do not use it.

Perform regular check and maintenance.

Run the machine for one hour each time and the heat generated will help reduce the humidity.

This will also help you to discover problems with the machine in advance.



## Service and Maintenance (Cont'd.)-

### **Spindle Safety Instructions & Practices:**

- 1.) Use ISO 30 Tool Holder (HSD 9KW Spindle).
- 2.) It is suggested that you use original tool holders.
- 3.) The tool holder must be in the upright position when changing tools.
- 4.) Empty the filter every day (preferably every 8 hours) to prevent from rusting.
- 5.) Air Pressure needs to be 6kg-7kg during tool change.
- 6.) Clear the dust in the spindle regularly. Do not blow to clean. Shut the red cover plate when the spindle is not in use to prevent dust from falling in.
- 7.) Keep the tools sharp and clean. The workpiece needs to be fixed tightly on the table or the spindle will vibrate during a job.
- 8.) Change the filter in the oil-water separator on a monthly basis. Empty the water every 8 hours. Blow air into the middle hole and make sure there is no oil, or else the bearing might be damaged.



## Service and Maintenance (Cont'd.)-

### **Spindle Safety Instructions & Practices (Cont'd.):**

9.) The air needs to be filtered to be free of moist, oil mist and dust before entering the spindle.

### **More Maintenance Tasks:**

1.) Sweep clean the table every day. Keep the machine clean and free of other objects.

2.) Check and clean all the limit switches every day.

3.) Check the lubricator every day and make timely refill.

4.) Check every day to ensure there is enough water in the water tank used for spindle cooling and whether that water tank is functioning.

5.) Check each of the tools is in correct position.

6.) Make sure the air compressor has the right air pressure.

7.) Make sure the filter cup of the water separator and dryer is dry.



## Service and Maintenance (Cont'd.)-

### **More Maintenance Tasks:**

8.) Wipe clean the linear guides and check if they have any scratches or damages.

9.) Make sure the protective covers on the machines are all intact.

10.) Make sure the fan in the electrical cabinet is working and there is no clogging in the air filter net. Clean the filter regularly.

11.)

- Make sure all the signal lights are functioning.
- Make sure all axes are in zero position.
- Make sure the spindle, tool holders and other accessories are in working order. 12

12.) Regularly check the oil bowl and water tank to see if they need refilling. Replace the liquid when necessary. Clean the oil bowl and water tank regularly.

13.) Sweep clean the electrical cabinet when necessary.

14.) Clean the filter net regularly, replace with new one when necessary.

15.) Make sure the wirings and connections are alright.



## Service and Maintenance (Cont'd.)-

### **More Maintenance Tasks:**

- 16.) Make sure all the valves and switches are functioning.
- 17.) Check all the cables, cords and terminals are in correct working order.
- 18.) Perform monthly check of the controller.
- 19.) Check if the electrical parts are making strange noises. If they do, replace them.
- 20.) Measure the backlash on all axes every half year. If you find any deviation, make sure to adjust or make compensation.
- 21.) Inspect all the electronics and relays to make sure they are working.
- 22.) Make sure the whole machine is still properly balanced after 6 months of service. If not, adjust the iron pads and tighten the screws.



### (3) VFD MS300 Parameters Delta MS300-

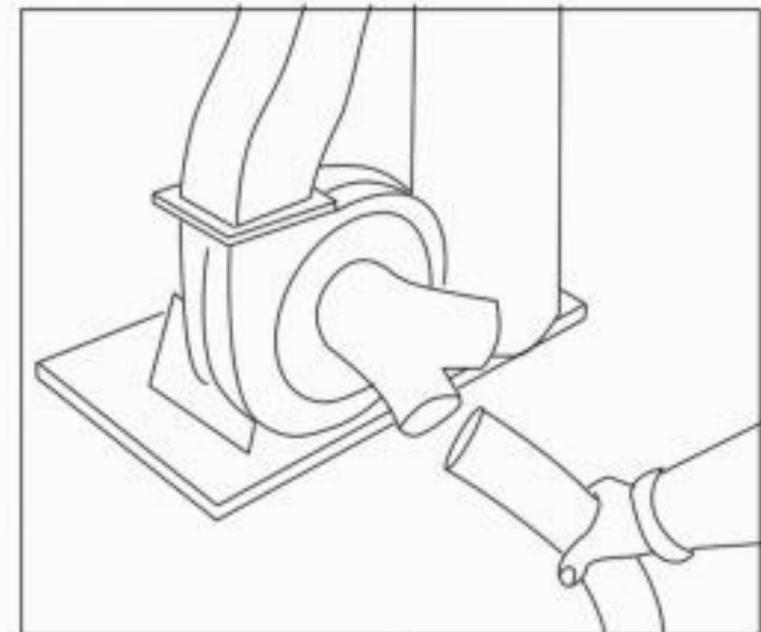
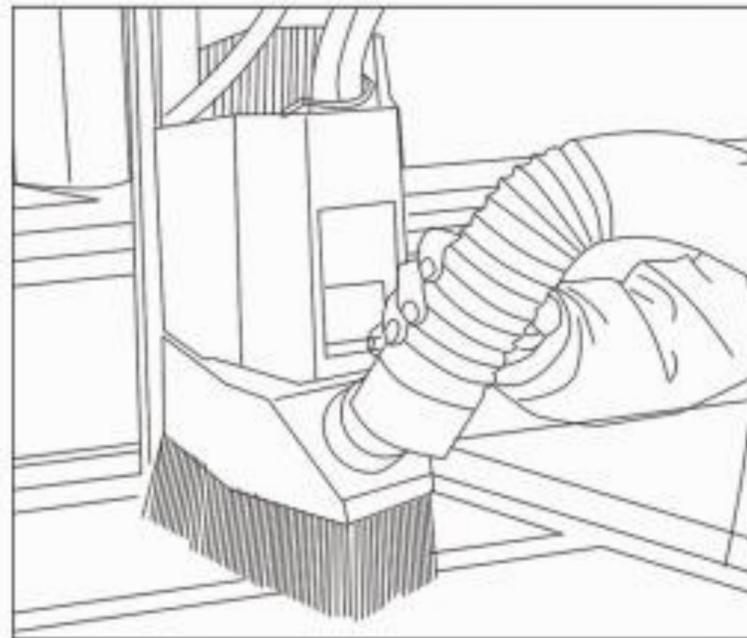
<b>(3) VFD MS300 Parameters Delta MS300-</b>		
<b>Number</b>		<b>Comment</b>
00-02	9	
00-03	1	
00-20	1	
00-21	1	
00-23	1	
00-32	0	
01-00	800	
01-01	800	
01-02	220	
01-12	10	
01-13	10	
02-16	34	
02-17	3	
05-00	2	
05-01	25	
05-02	8	
05-03	17999	
05-04	4	
05-05	10	
06-06	4	
06-07	74	
06-08	6	
07-01	20	
07-02	0	
07-03	1	
09-00	1	
09-01	19.2kbps	
09-04	12	



## Installing & Fitting the Dust Hose/Dust Collector-

1.) Take out the dust collector and install it according to the instruction. Balance it on the floor. Fit the dust shroud to the two air cylinder rods and clamp in position with the clamping nuts.

2.) Fit a 4-inch (not supplied) dust hose to the dust shroud and secure with the clamp. Ensure that it is tight; it is very inconvenient to have it fall off during production.



3.) The head of the machine will move across the complete table, and the dust hose will follow the head. If there is insufficient slack, the hose may break or damage the dust shroud. It is suggested that the hose be suspended from the ceiling of the shop with sufficient slack so that it will not restrict movement. It will also be out of the way and not causing a trip hazard.

4.) Connect one end of the hose to the dust collector and the other to the machine, as indicated below.

5.) Connect cable to the dust collector.

6.) Connect the cable to the power supply.

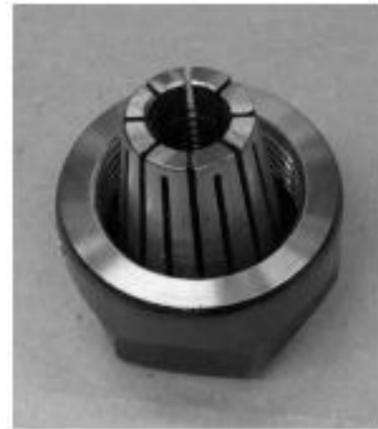
7.) Power on the machine to see if the motor rotates CW. If not, swap any two of the live wires.



## Installing Router Bit-

Installing the Router Bit in the Tool Holder **Caution:** Before changing or fitting the router bit, always **disconnect the power to the machine.**

- 1) Select a router bit and its relevant collet.
- 2) Fit the collet into the spindle nut. Press the collet into the spindle nut until it snaps into place.



**Note:** The router bit must not be fitted into the collet until the collet has been fitted into the spindle nut. With the router bit fitted into the collet, the collet can not compress and “snap” into the spindle nut. The face of the collet and the face of the spindle nut will be close to flush.

**Note:** To remove the collet, hold the spindle nut and press the collet on the side. The collet will compress and pop out. Do not try to remove the collet while a cutter is fitted, as the collet will not compress and pop out.

- 3) Fit the spindle nut and collet assembly onto the tool holder spindle thread by hand.

Press the bit into the collet. Note that the flute of the router bit must not be inside the collet and should be a minimum of 1/16" outside the collet. Hold the toolholder with the supplied wrench and tighten the collet with a second wrench. Do not over tighten.

**Note:** Use this process to install each of the router bits into the tool holders, being careful to use the correct collet size for each router bit. Note: Keep the collets clean and blow all dust out of the slots. Fine dust accumulates and may affect the clamping action.



## Manual Tool Release-

The tool holder can be released from the spindle manually by pressing the “Green Manual Release Button” near the Electro-Spindle.

Note. When the “Green Manual Release Button” is pressed, the clamping is released and the tool will fall out.

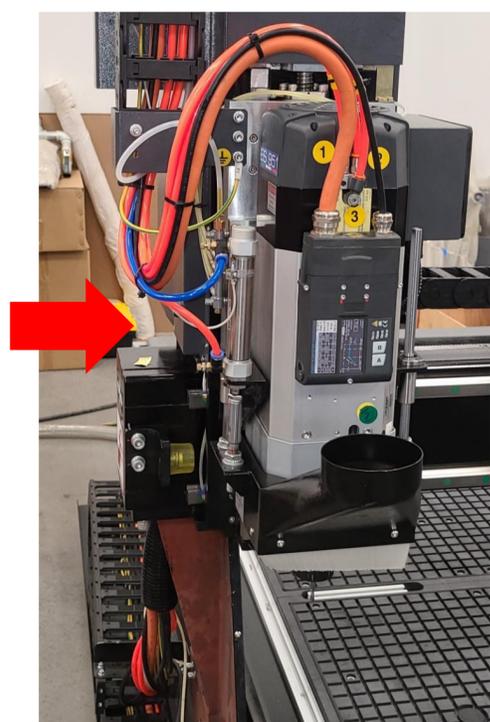
Place your hand so that the tool holder (not the cutter) is supported.

To manually insert a **Tool Holder**, hold the tool holder in the spindle taper while holding the green manual release button.

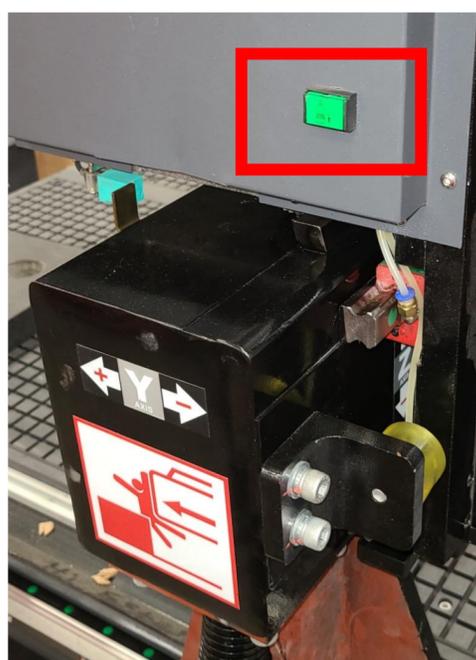
Once the green manual release button is released, the tool holder will be pulled up into the spindle hole and clamped in position.  
**\*\*\*Please note that a small amount of air escapes from the spindle nose. This is used to blow any dust out of the spindle taper and is normal.**

**Note: Keep the tool holders clean, lubricated with Teflon.**

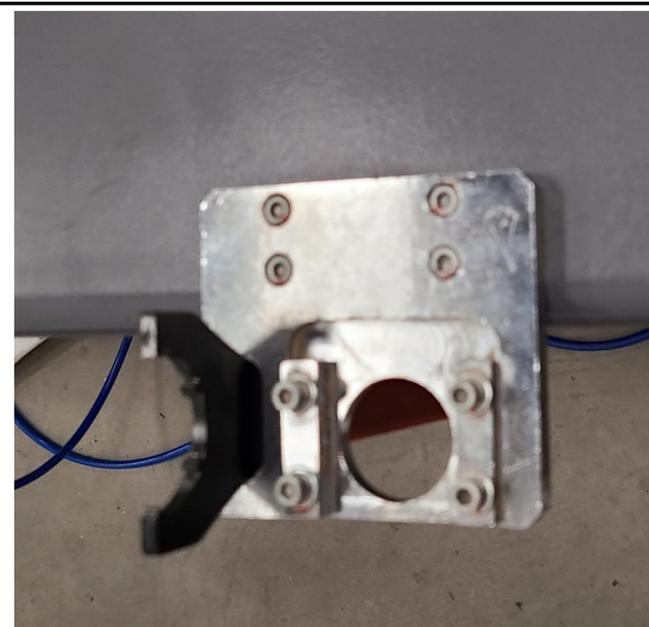
**Note: The spindle taper is susceptible to rust and must be kept clean and lubricated with a Teflon lubricant.**



“Green Manual Release Button”



Tool Holder & Tool Holder Bracket





## Selecting the Correct Router Bit-



### **Straight Router Bits**



**Straight Router Bits:** These are the standard router bits that are commonly used with handheld routers and are readily available at home centers. They will work but will generally not produce the edge finishes that are available with the spiral designed router bits.

**Up Shear Router Bits:** These bits have flutes that are spiraled upward (a standard twist drill is an example of this type of bit). This bit design removes the chips from the kerf but has a tendency to chip the top surface, especially on veneers or melamine surfaces.



## Selecting the Correct Router Bit (Cont'd.)-

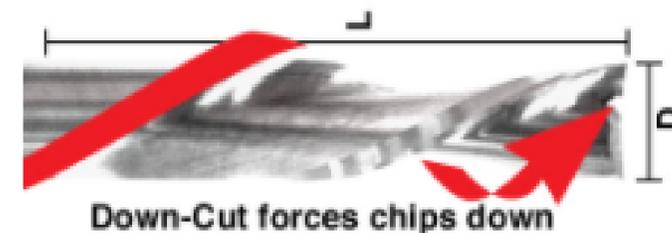


### Ball Nose End Mills

**Ball Nose Router Bits:** are a variation of the up shear bit design but have radiuses on the ends. These bits are typically used for 3D surfacing applications.



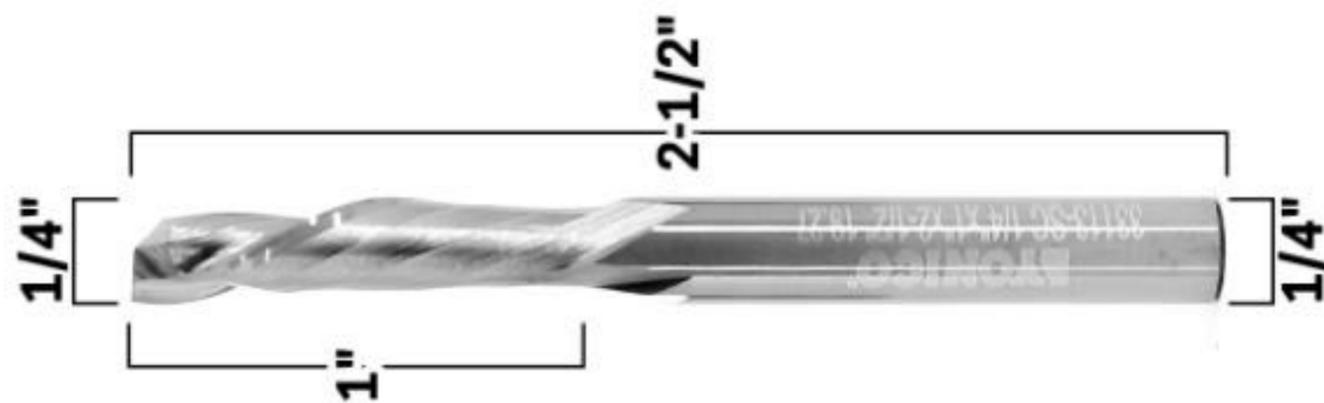
### **1/4" x 7/8" CL Down Shear Finish Router Bit**



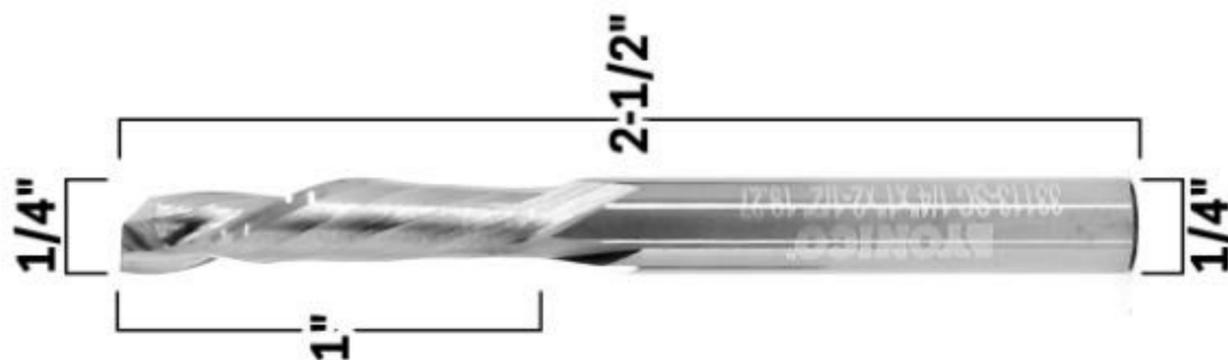
**Down Shear Router Bits:** These bits are similar to the up shear but with an opposite spiral that actually tends to pack the chips into the kerf. These bits prevent chipping the material surface, especially with veneers or melamine surfaces, and are an excellent choice for machining dadoes and other joinery that do not extend completely through the material.



## Selecting the Correct Router Bit (Cont'd.)-



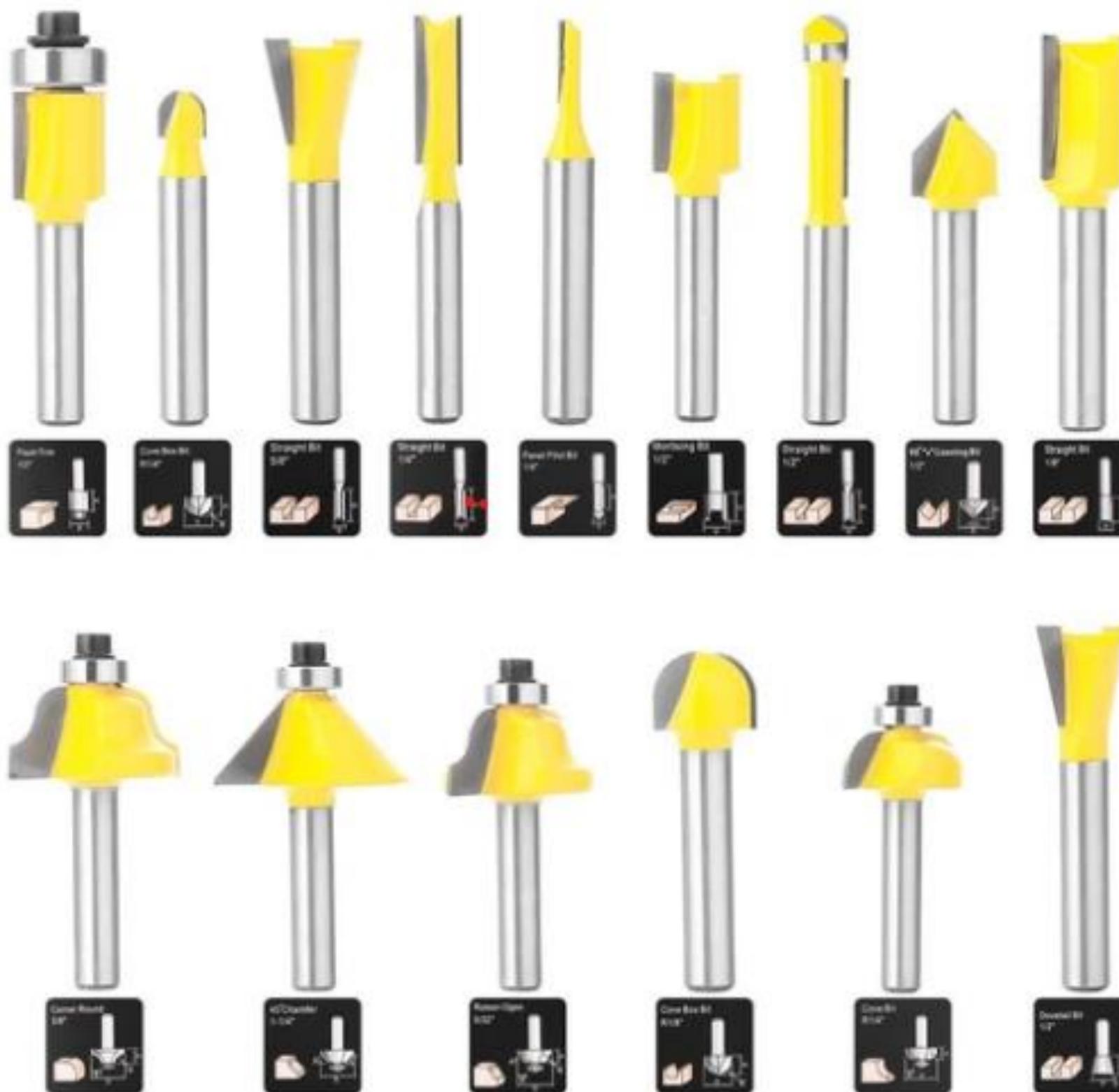
**Combination (Compression) Router Bits:** These bits combine the advantages of both up shear and down shear designs. The top section of the tool is down shear to prevent chipping the top surface of the material, and the lower part of the bit is up shear to prevent chipping the bottom surface of the material.



**Compression Router Bits:** are the preferred configuration for machining veneered plywood as well as melamine-surfaced product. A variation of the bit is called the "Mortising Compression" router bit. With this bit, the Up Shear portion of the bit is less than 1/4" in length so that the bit can be used on 1/4" veneered plywood and for dados.



## Selecting the Correct Router Bit (Cont'd.)-



**Form Router Bits:** Form Router Bits typically are available in standard profiles such as round over, ogee, cove, etc. Router bits that have a shape associated with them would be classified with this group.



## Working With Vacuum Tables and Spoil Boards-

The more effective the vacuum table setup, the more secure the parts will be held in place. Follow the instructions below to obtain optimum results. The vacuum table has six (6) zones that can be used to configure the vacuum supply depending on the type of application.





## Working With Vacuum Tables and Spoil Boards (Cont'd.)-

The table has vacuum ports for each zone that extract the air and generate the vacuum. The table also has grooves to ensure that the air is extracted evenly across the zones. Each zone is controlled by a valve located at the front of the machine.



These Valves Controls the six “6” Zones.



## Working With Vacuum Tables and Spoil Boards (Cont'd.)-

Spoil Board Material and Precautions For machining parts from panel materials (cabinets, fixtures, case goods, etc.) a technology referred to as “Flow-Through” fixturing is employed.

A sheet of porous material (usually MDF [Medium-Density Fiberboard]) is placed on top of the vacuum table.



Example: Medium-Density Fiberboard.

The panel material that is to be machined is actually placed on top of the MDF, and the vacuum passes through the MDF (Medium-Density Fiberboard) and holds the panel material down as it is machined.

\*\*\*Great care should be taken when machining parts free to limit the extension of the tool into the spoil board materials.



## Working With Vacuum Tables and Spoil Boards (Cont'd.)-

The purpose is to limit vacuum infiltration through grooves in the spoil board. This also allows the processing of various nests without any setup time on the machine.

This technology is the basis for Nested-Based Manufacturing (NBM)-Nested-based manufacturing refers to a system used to efficiently produce groups of rectangular and non-symmetrical parts from flat material, such as composite and solid wood panels or plastic sheets. The components are “Nested” together on the material (see the photo below), which means they are positioned in a pattern that achieves the best possible material utilization.





## Working With Vacuum Tables and Spoil Boards (Cont'd.)-

### Functions of the Spoil Board-

- 1) To protect the vacuum table from damage. The cutter extends only a few thousandths of an inch past the material thickness. Without the spoil board, the cutters could damage the surface of the vacuum table.
- 2) To transfer the vacuum from the table to the job. This means that the spoil board has to be porous to allow air flow to the panel material. Low cost MDF (Medium-Density Fiberboard) has proven to be a very good material for this purpose.
- 3) To provide a “Zero Setup” environment for processing panel products.

### Spoil Board Preparation-

When MDF is sourced for the spoil board, it should be (>) greater than  $\frac{3}{4}$ " of an inch.

Contrary to what might seem logical, the thicker the MDF the better the suction that is created.

“Flow-Through” fixturing maintains a careful balance between air flow through the MDF and the infiltration that occurs as the kerfs (Grooves or Notches made by a cutting tool) are machined.

\*\*\*It is not recommended that the spoil board material be is thicker than 1 inch\*\*\*.

The MDF manufacturing process causes the top and bottom surfaces of the material to be compressed. It is necessary, therefore, to remove the compacted top and bottom surfaces.

This process is termed “fly-cutting” and requires the removal of approximately 0.060" from each surface. This process also ensures that the machining plane and spoil board surface are parallel.



## Working With Vacuum Tables and Spoil Boards (Cont'd.)-

The spoil board (MDF) edges are also very porous, and sealing them can improve the part holding ability.

\*\*\***Hard Candle Wax**-is an excellent product for sealing the spoil board edges because it contains no water and is very easy to apply\*\*\*.

**Never use a water-based product** to seal the edges of the board, as this will make the board expand and become unsuitable for use as a spoil board.

Even some glue products contain water and can affect the edges of the spoil board.

**Note:** Do not confuse flatness with bow. If the board is bowed, the vacuum may not pull the board flat on the table. Never try to use a bowed MDF panel as a spoil board.



## Working With Vacuum Tables and Spoil Boards (Cont'd.)-

### Use the following Procedure for preparing the Spoil Board:

- 1) Cut the spoil board to the size of the table of the machine, if necessary.
- 2) Apply gasketing (The action of fitting or sealing with a gasket) to the outermost vacuum grooves on the table surface.
- 3) Make sure that the table is clean and free from sawdust and dirt.
- 4) Place the spoil board on the vacuum table, being careful not to displace the vacuum gasketing.
- 5) “Turn On” the vacuum pump and check for leaks.
- 6) Fly cut the surface of the spoil board, removing approximately 0.060 Inch" to ensure that the compressed surface of the material is removed.
- 7) Once the material surface is machined, “Turn Off” the vacuum pump, turn the spoil board over and repeat the process for the other side. (\*\*\*)Remember to ensure that the table and spoil board are clean. (\*\*\*)



## **Working With Vacuum Tables and Spoil Boards (Cont'd.)-**

Spoil Board Use Each time a new job is machined, there may be shallow cuts into the spoil board in the areas that the cutter passes through the material.

Prior to placing a sheet of material on the spoil board, clean with a hand-held blower or vacuum cleaner.

Dirt under the material will reduce the vacuum, and in extreme cases, parts may move during the machining process. In general, keeping everything clean is the key to achieving good, repeatable results.

## **Precautions Regarding Spoil Boards-**

The spoil board is porous and will absorb moisture. As moisture is absorbed, the dimensions of the board will change.

In general, this will not be a problem, as the changes from day to day are not that excessive and will typically be over the complete board.



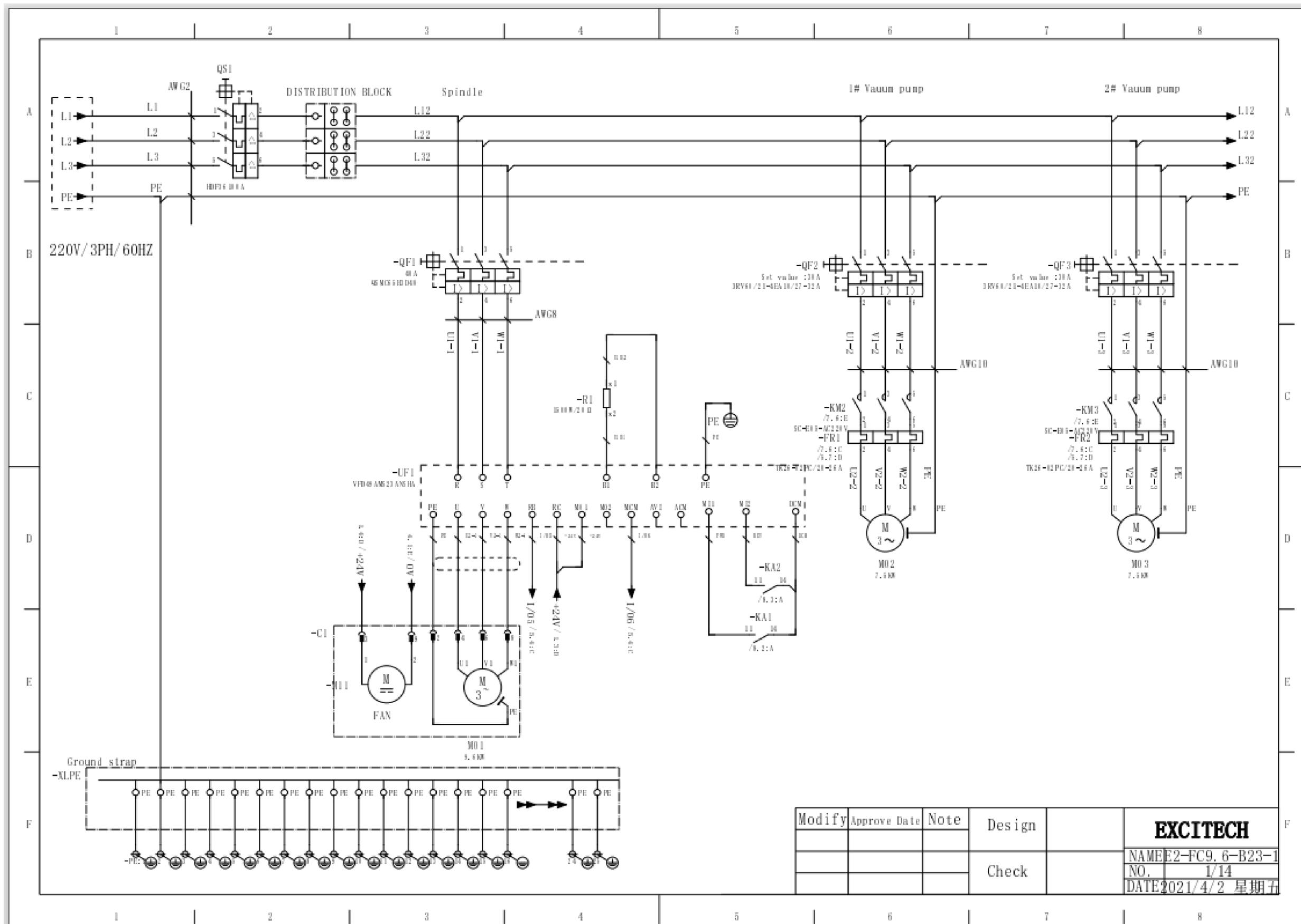
## Working With Vacuum Tables and Spoil Boards (Cont'd.)-

There are, however, exceptions-

- 1) It is a good practice to keep material on the top surface of the spoil board overnight to prevent warpage due to uneven moisture absorption by the material.
- 2) Once a spoil board has been used and has kerf cuts that resulted from machining parts, it is a good idea to fly cut the surface again. This time it should only be necessary to remove 0.015" of material since the only purpose is to produce a smooth, flat surface, and that amount should remove the machining marks.
- 3) The spoil board must cover the complete table and sit on the flats around the table. If the spoil board does not cover all the vacuum slots, the vacuum may be lost or not exist and the panel material will not be pulled down onto the spoil board effectively.



# Electrical Diagrams-



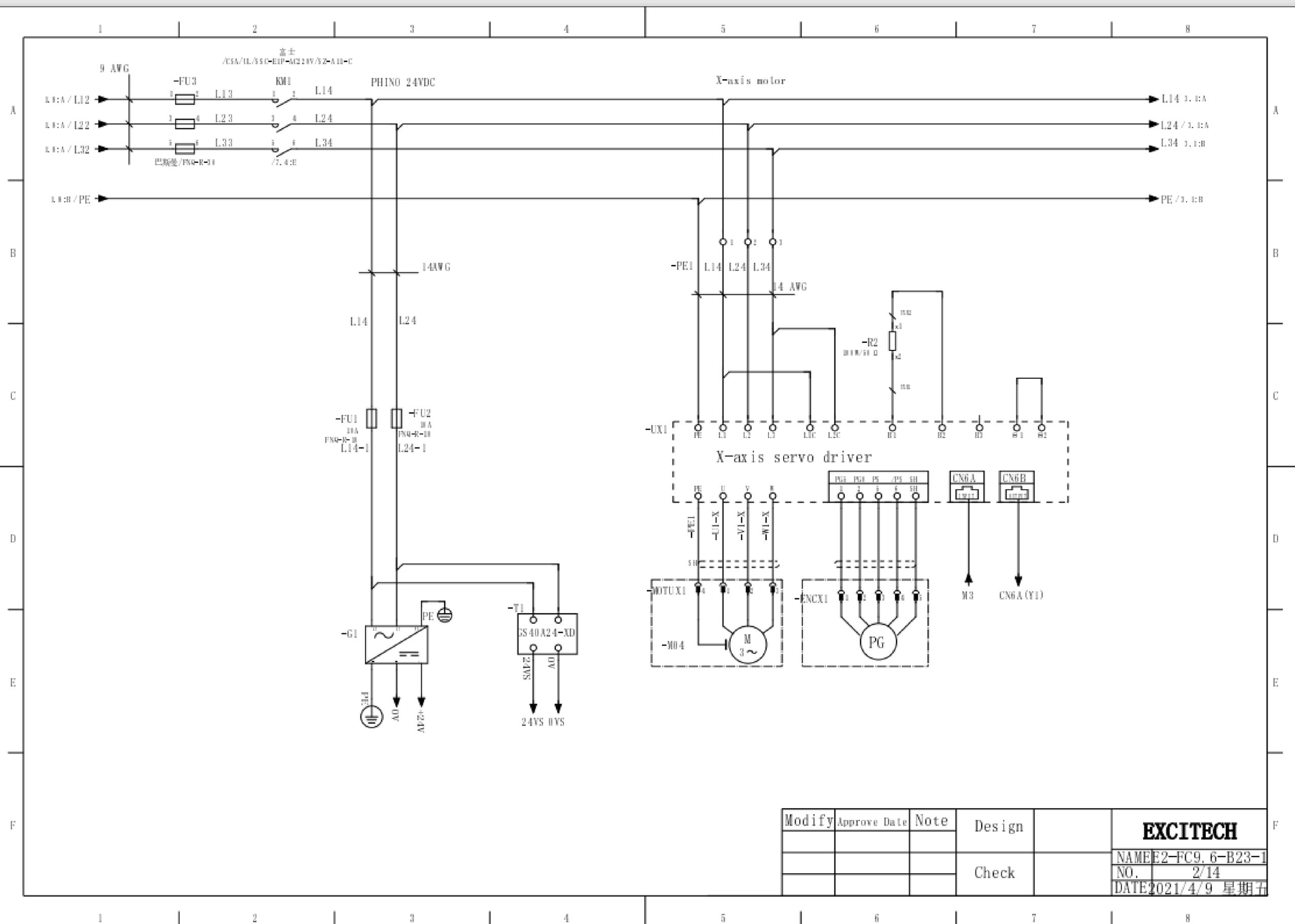
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NO.	1/14
DATE	2021/4/2 星期五



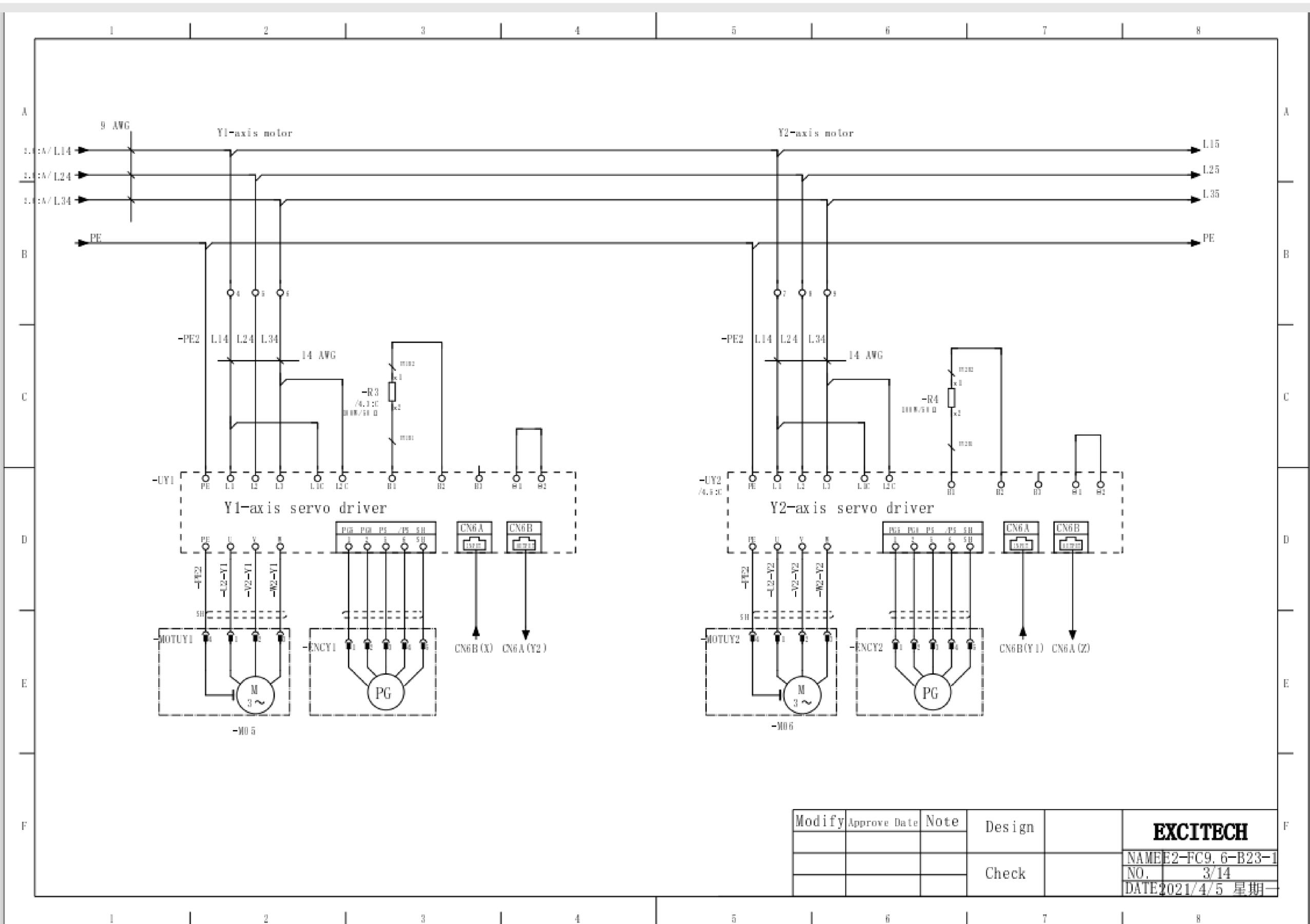
# Electrical Diagrams-



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							DATE 2021/4/9 星期五



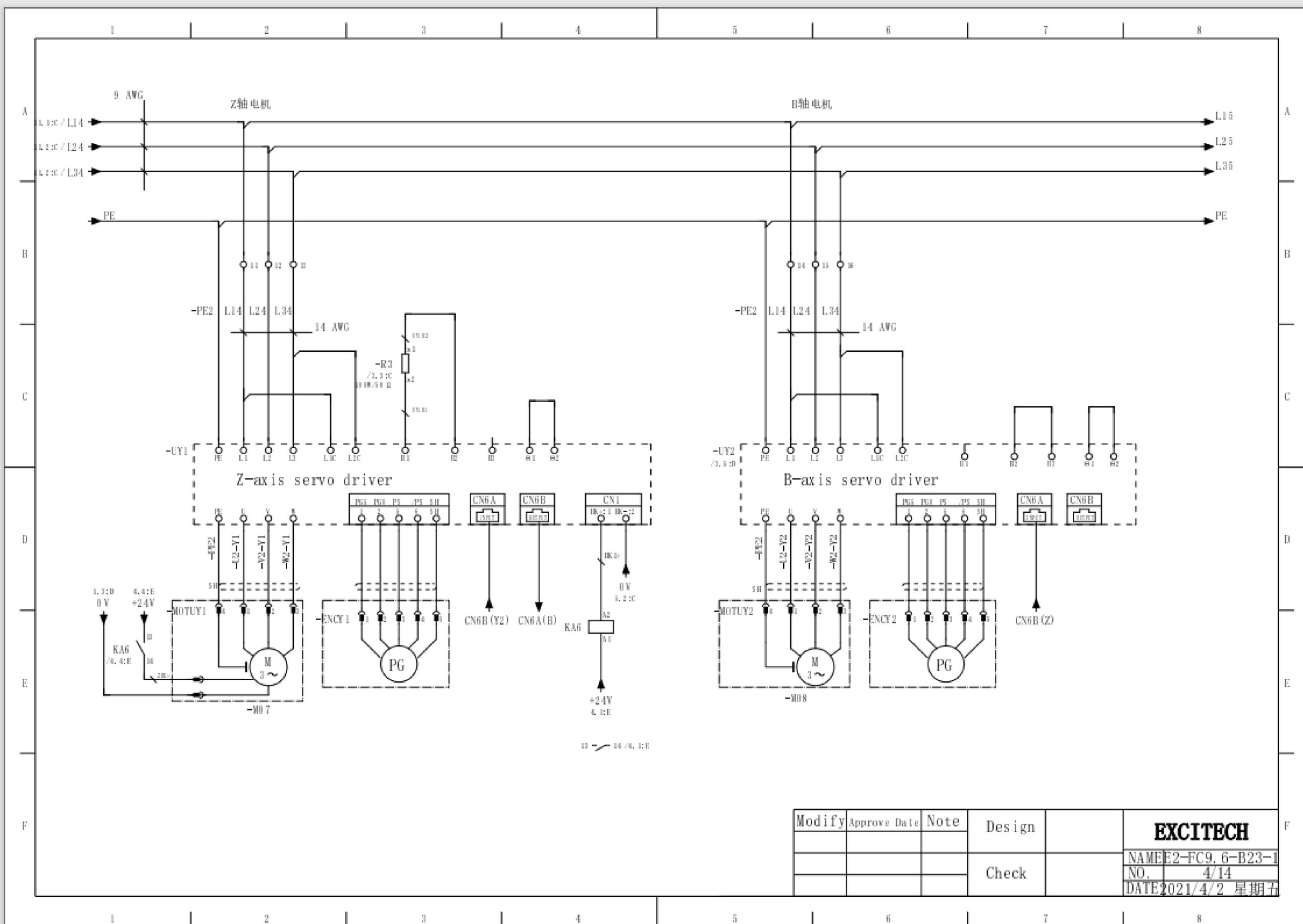
# Electrical Diagrams-



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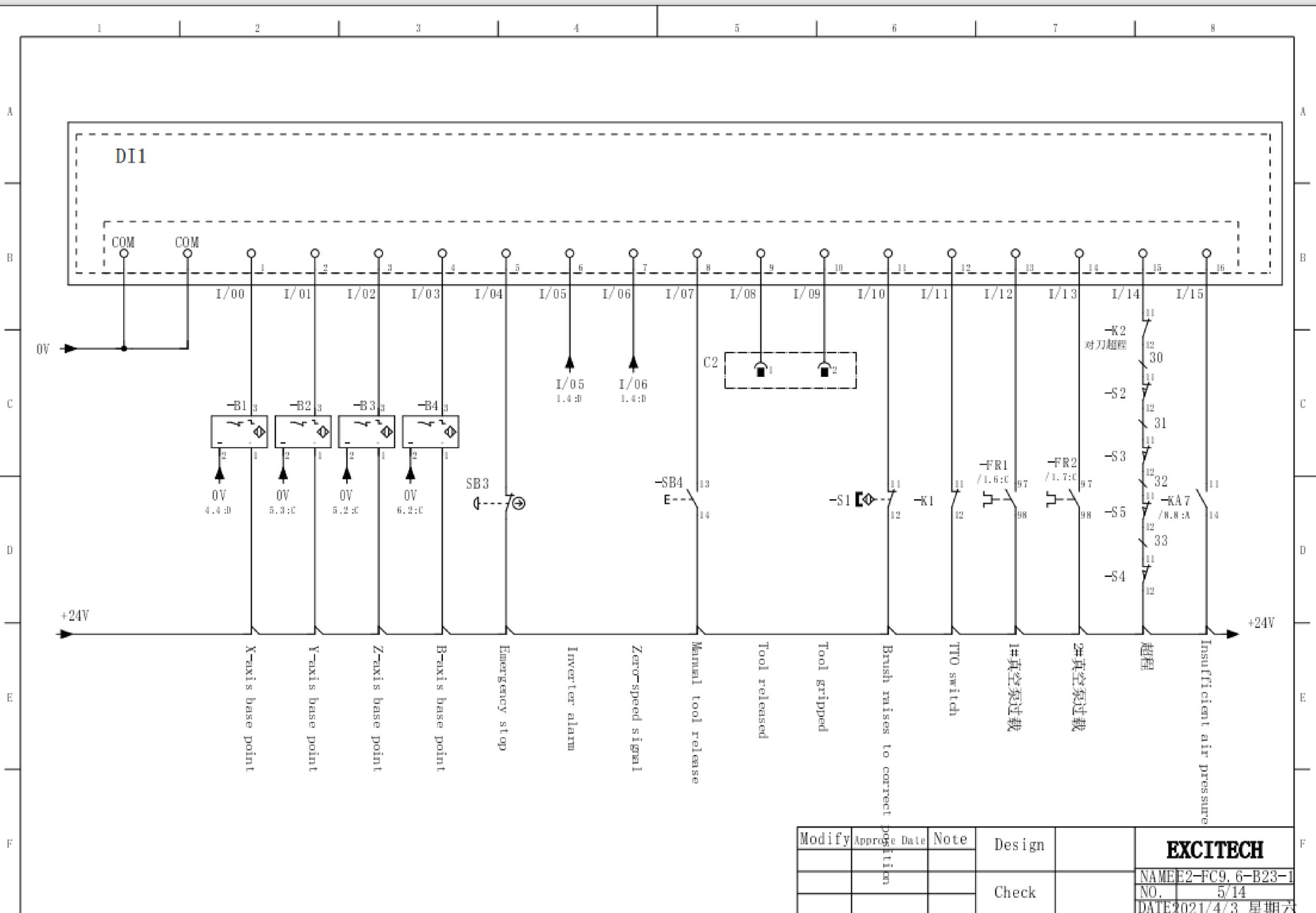
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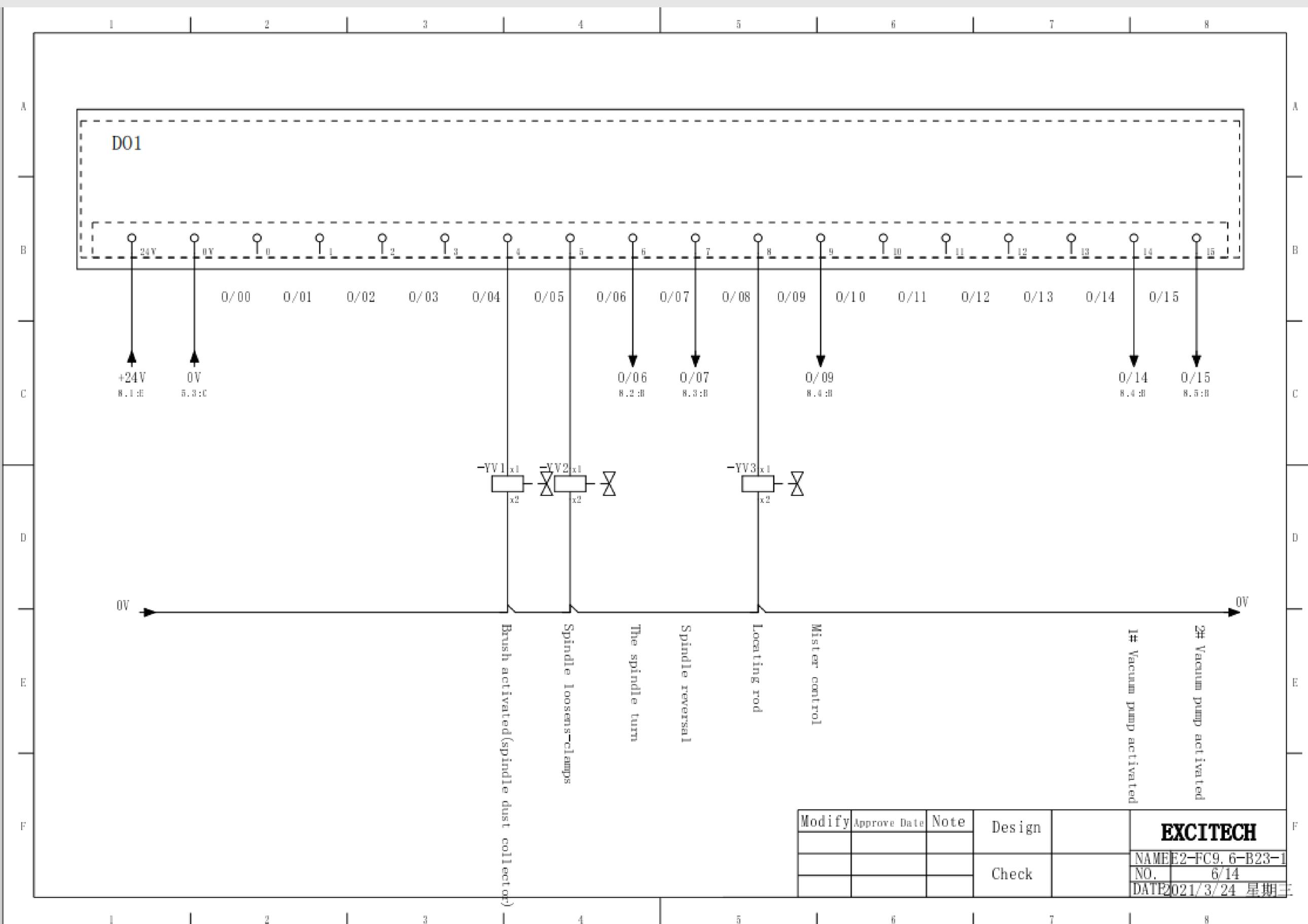
# Electrical Diagrams-



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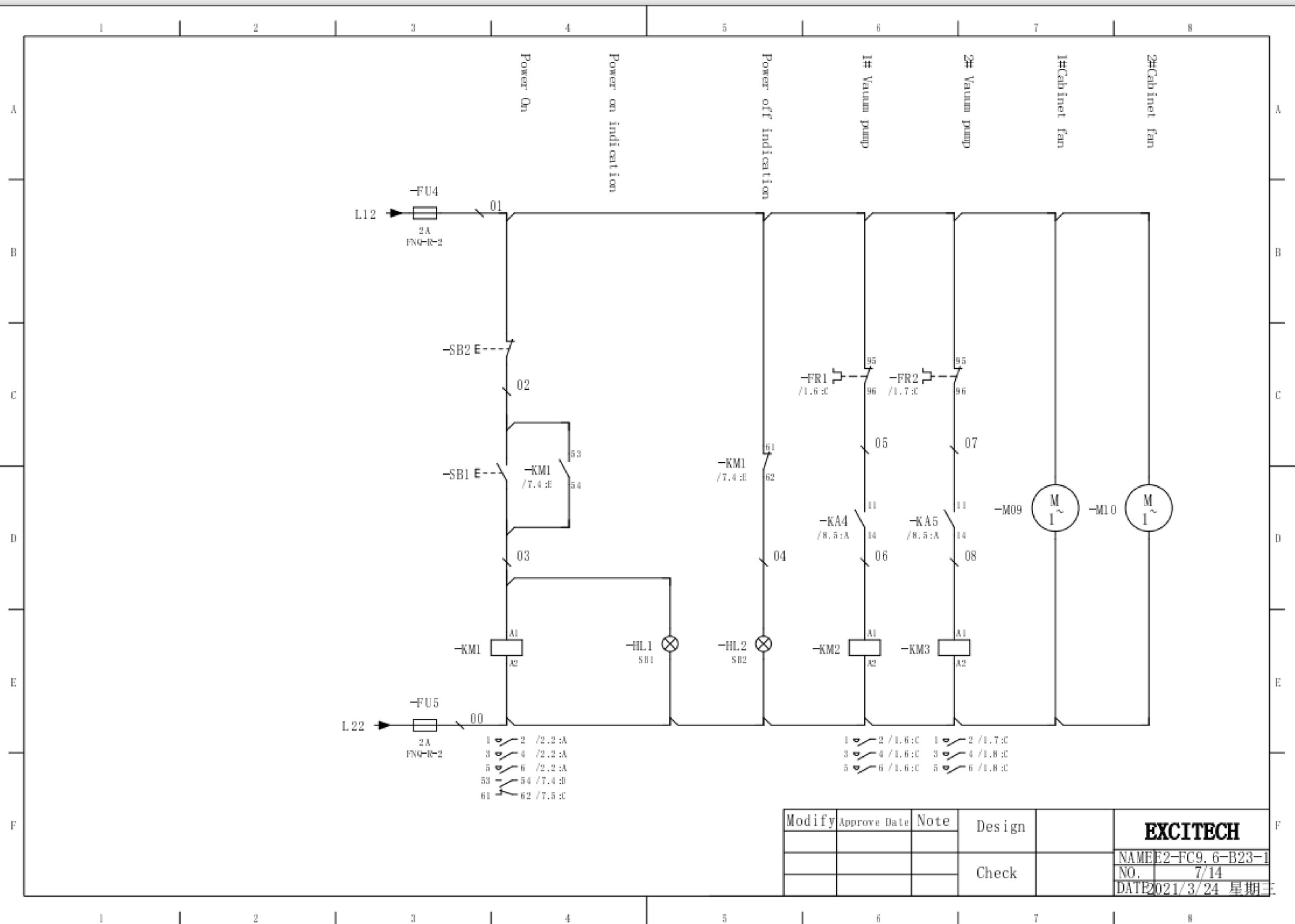


# Electrical Diagrams-





# Electrical Diagrams-



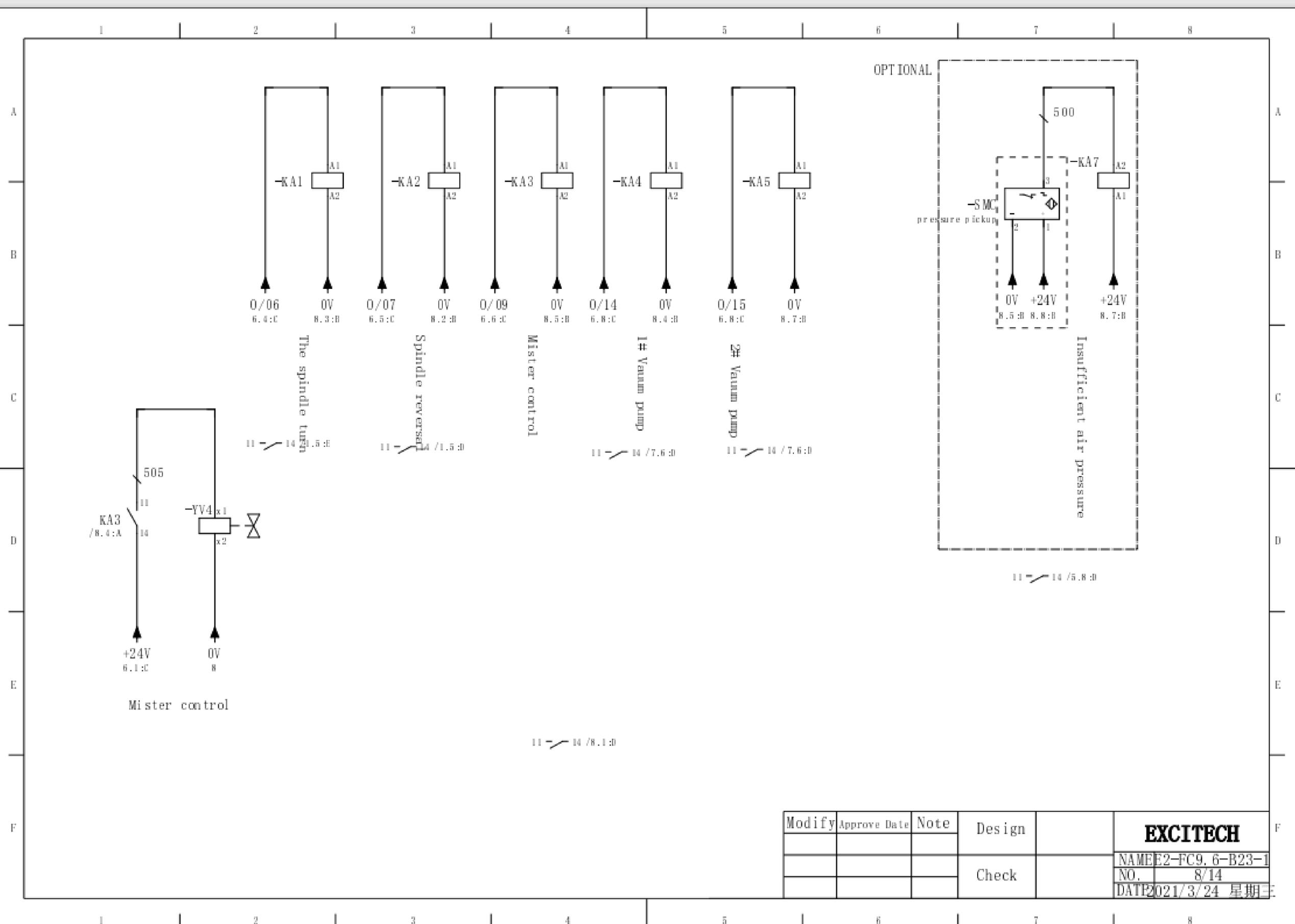
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NO. 7/14	
DATE 2021/3/24 星期三	



# Electrical Diagrams-

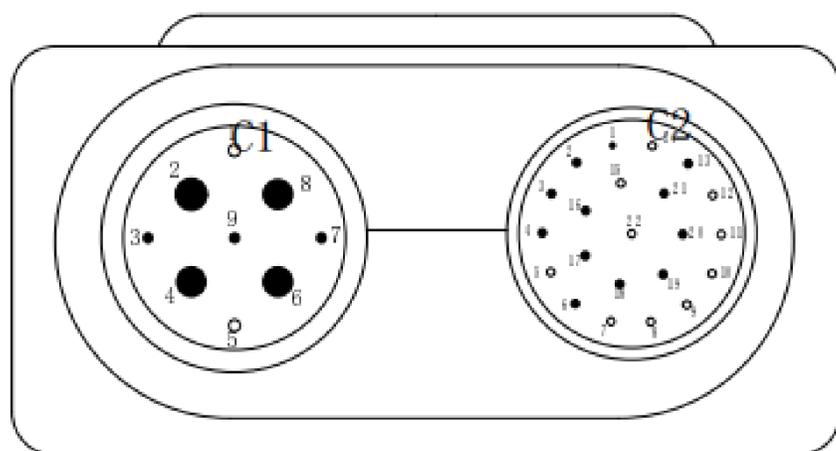


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				Check		



# Electrical Diagrams-

## ES951 Spindle



C1 (220V/3P:4×6+2\*1.5)

Define	Pin	Description
	1	Undefined
PE	2	The PE end is connected to the 7th pin
+24V	3	FAN DC24V
U2-1	4	U phase power supply
	5	Undefined
V2-1	6	V phase power supply
	7	The PE end is connected to the 7th pin
W2-1	8	W phase power supply
0V	9	FAN 0V DC

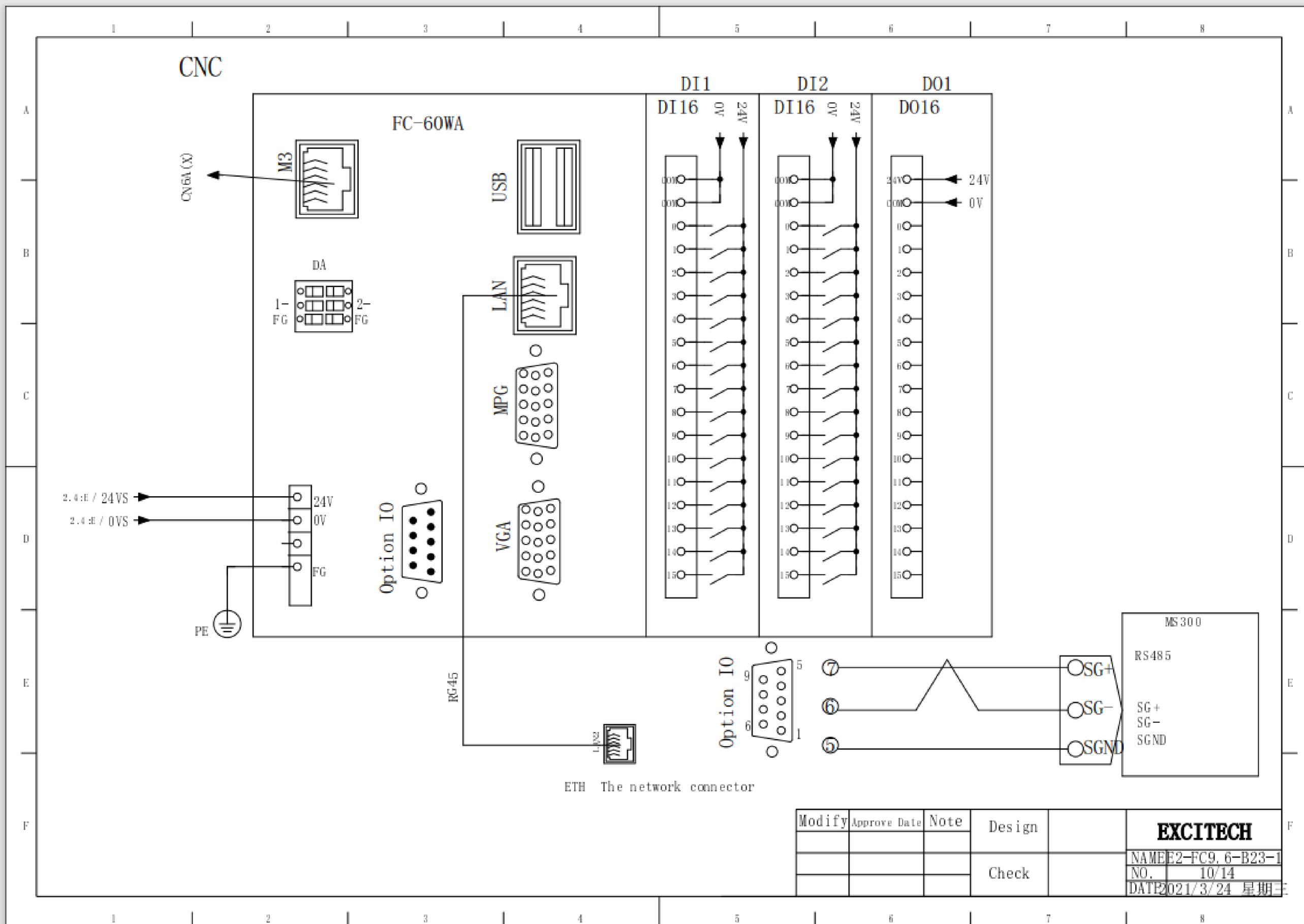
C2 (5\*0.34)

Define	Pin	Description
1/08	1	S2 output (clip open, output 24V)
1/09	2	S1+S4+S5 output (tool clamping and cylinder reset, output 24v)
Undefined	3	sp output (detects whether the motor spindle rotates or not, 24v when stationary)
+24V	4	Sensor +24V DC input (maximum current 1A)
0V	6	Sensor 0V DC input
Undefined	16	shield
Undefined	17	Optional - bearing temperature sensor (DC 0/24V)
Undefined	18	Fan detection (fan works normally, output 24v)
Undefined	19	Electrical component detection (electrical components work normally, output 24v)
Undefined	20	Output without tool (no tool holder and cylinder reset, output 24v)
Undefined	21	Spindle temperature detection (DC 0/24V, normal temperature, output 24v)

Modify	Approve Date	Note	Design		<b>EXCITECH</b> NAMEE2-FC9.6-B23-1 NO. 9/14 DATE 2021/3/24 星期三
			Check		



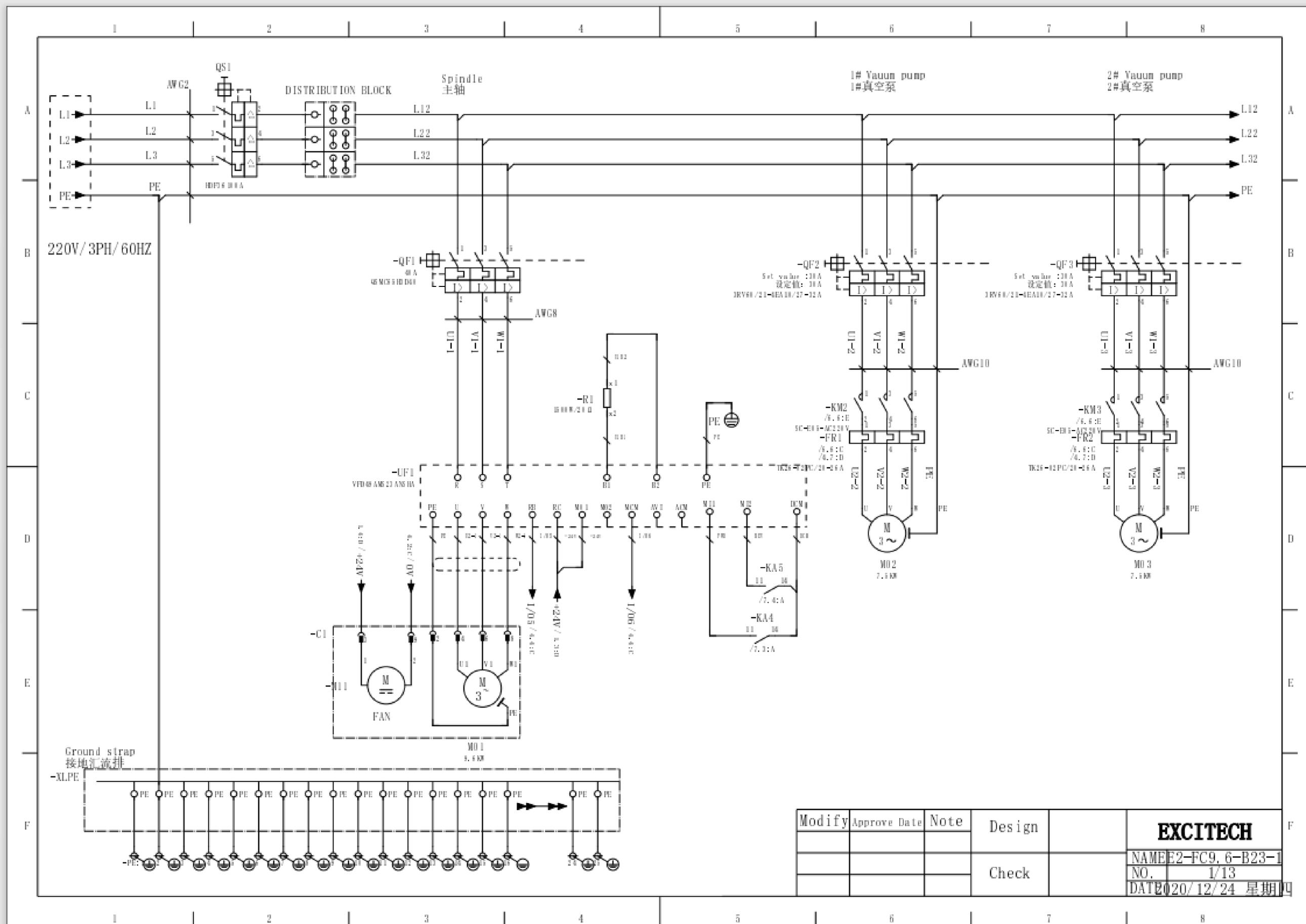
# Electrical Diagrams-



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				Check		NO.	10/14
						DATE	2021/3/24 星期三



# Electrical Diagrams-



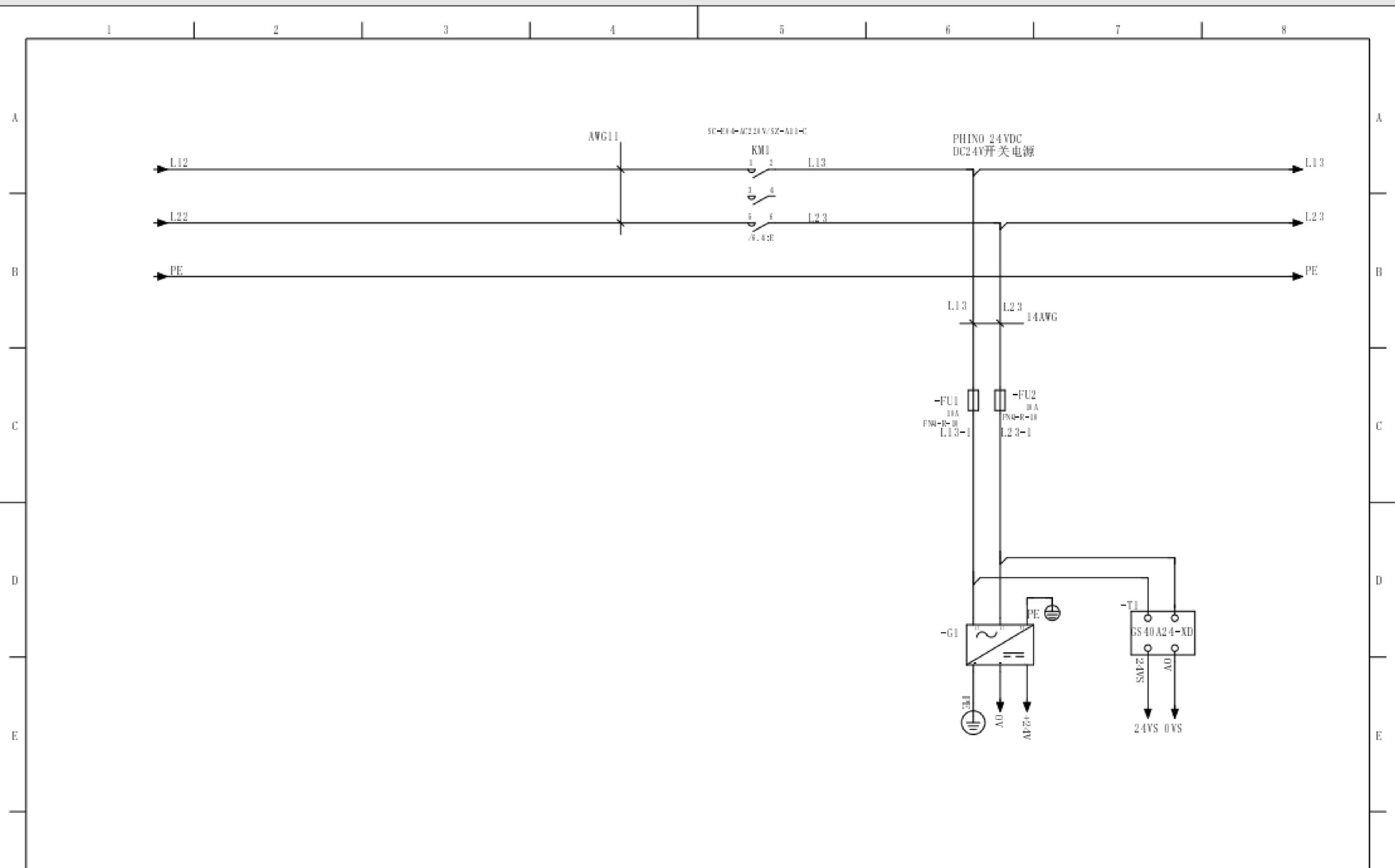
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NO.	1/13
DATE: 20/12/24 星期四	



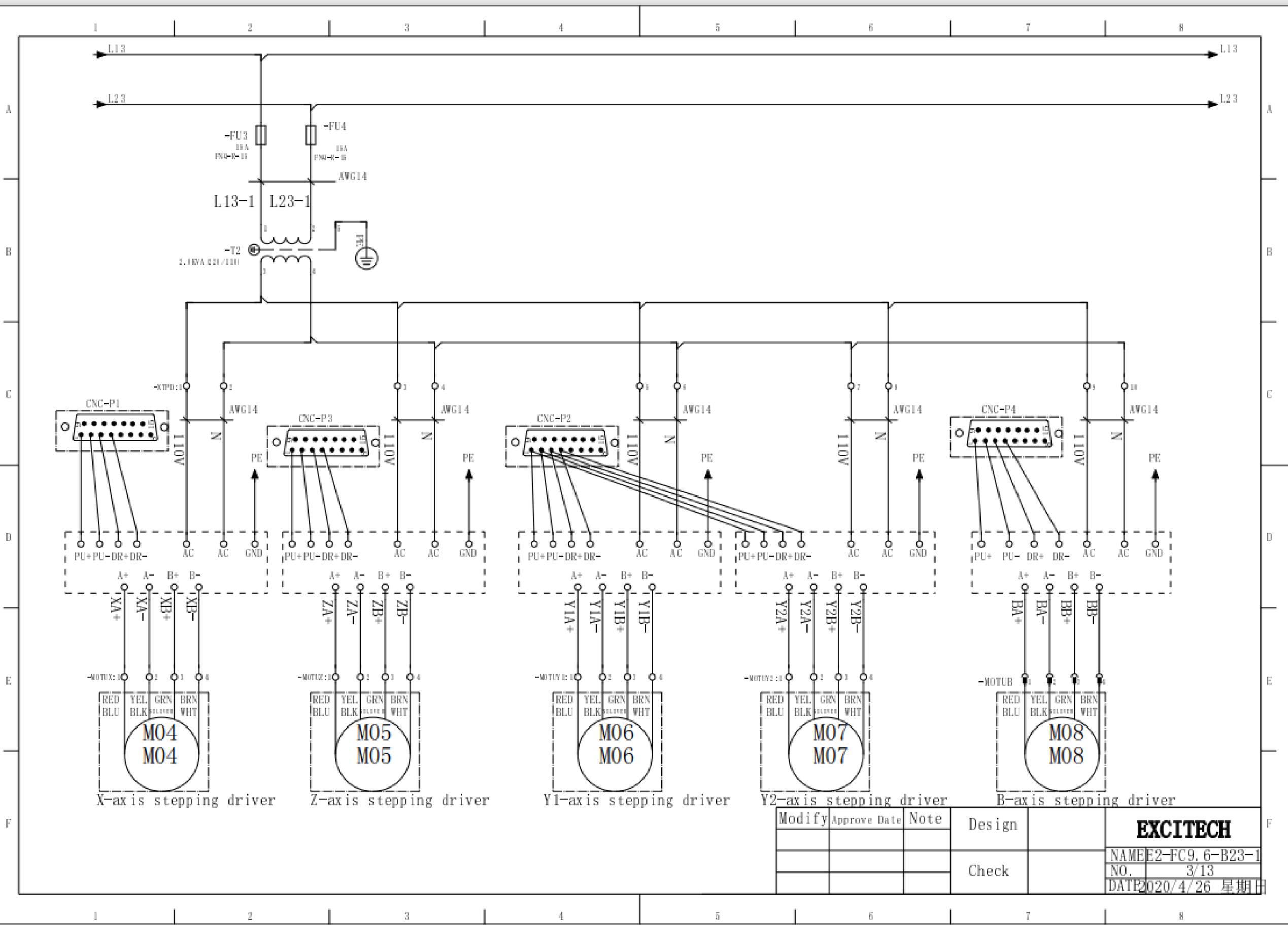
# Electrical Diagrams-



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						DATE	20/12/24 星期四



# Electrical Diagrams-



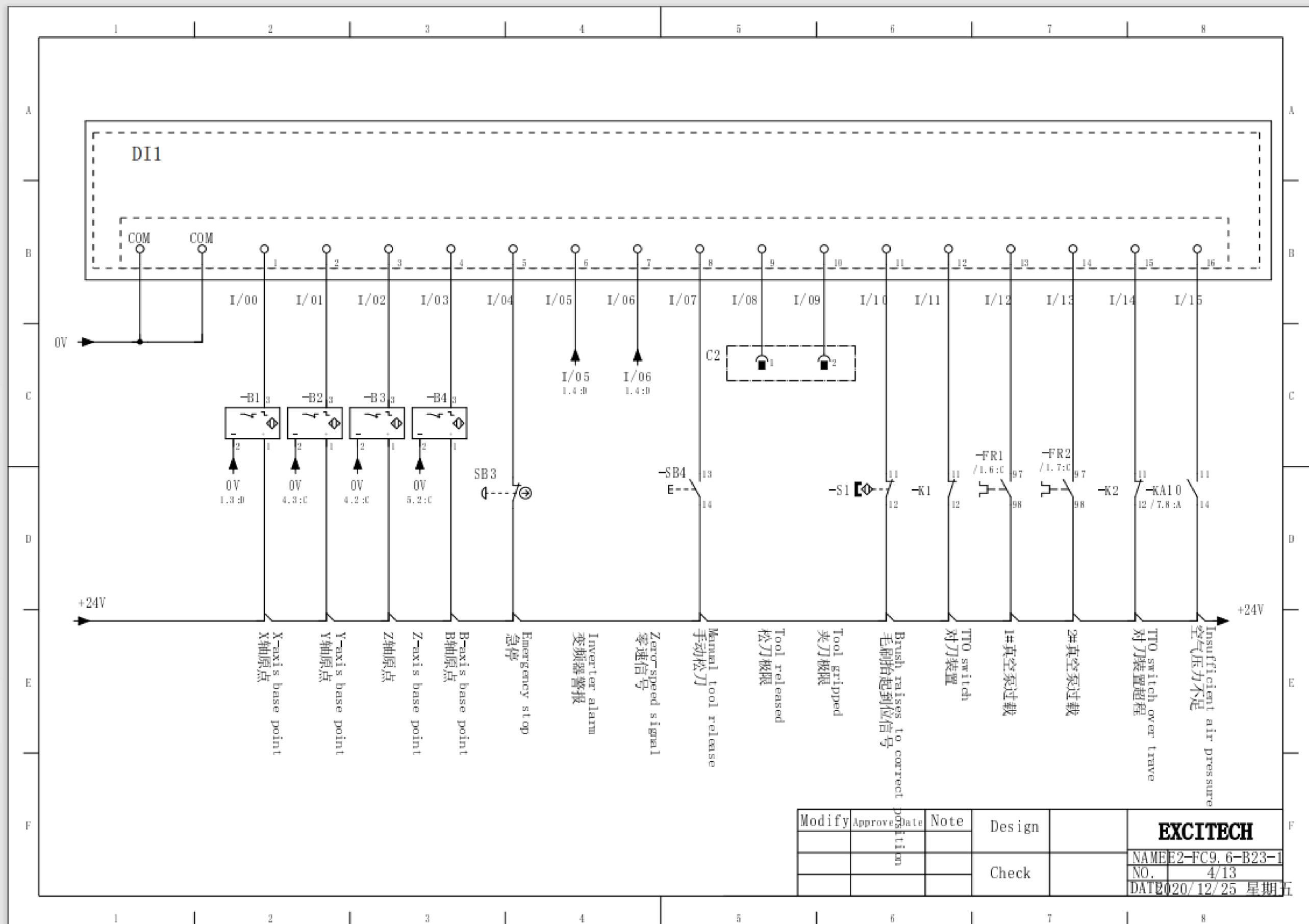
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NO.	3/13
DATE	2020/4/26 星期四



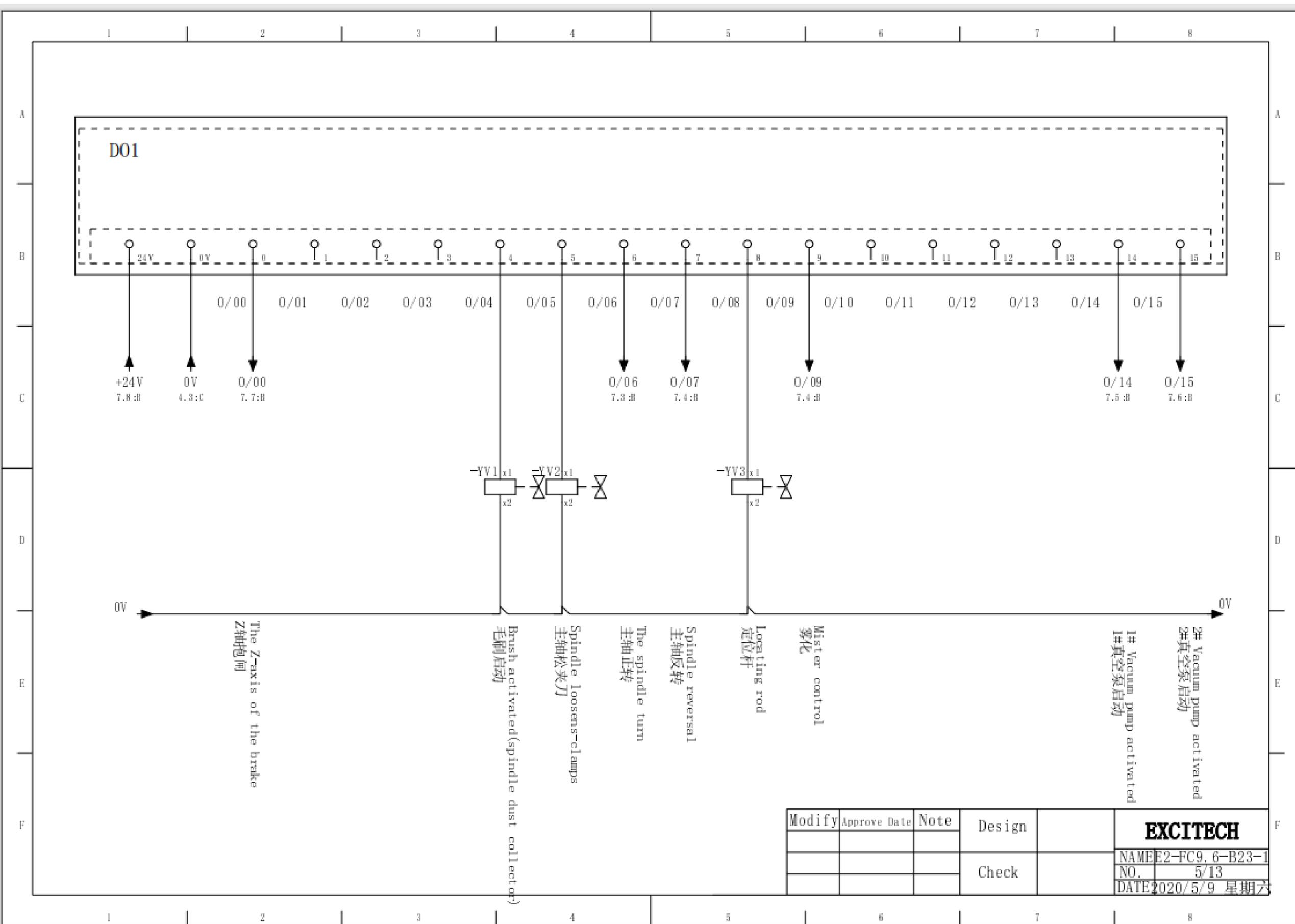
# Electrical Diagrams-



Modify	Approve	Date	Note	Design	<b>EXCITECH</b> NAMEE2-FC9. 6-B23-1 NO. 4/13 DATE 20/12/25 星期五
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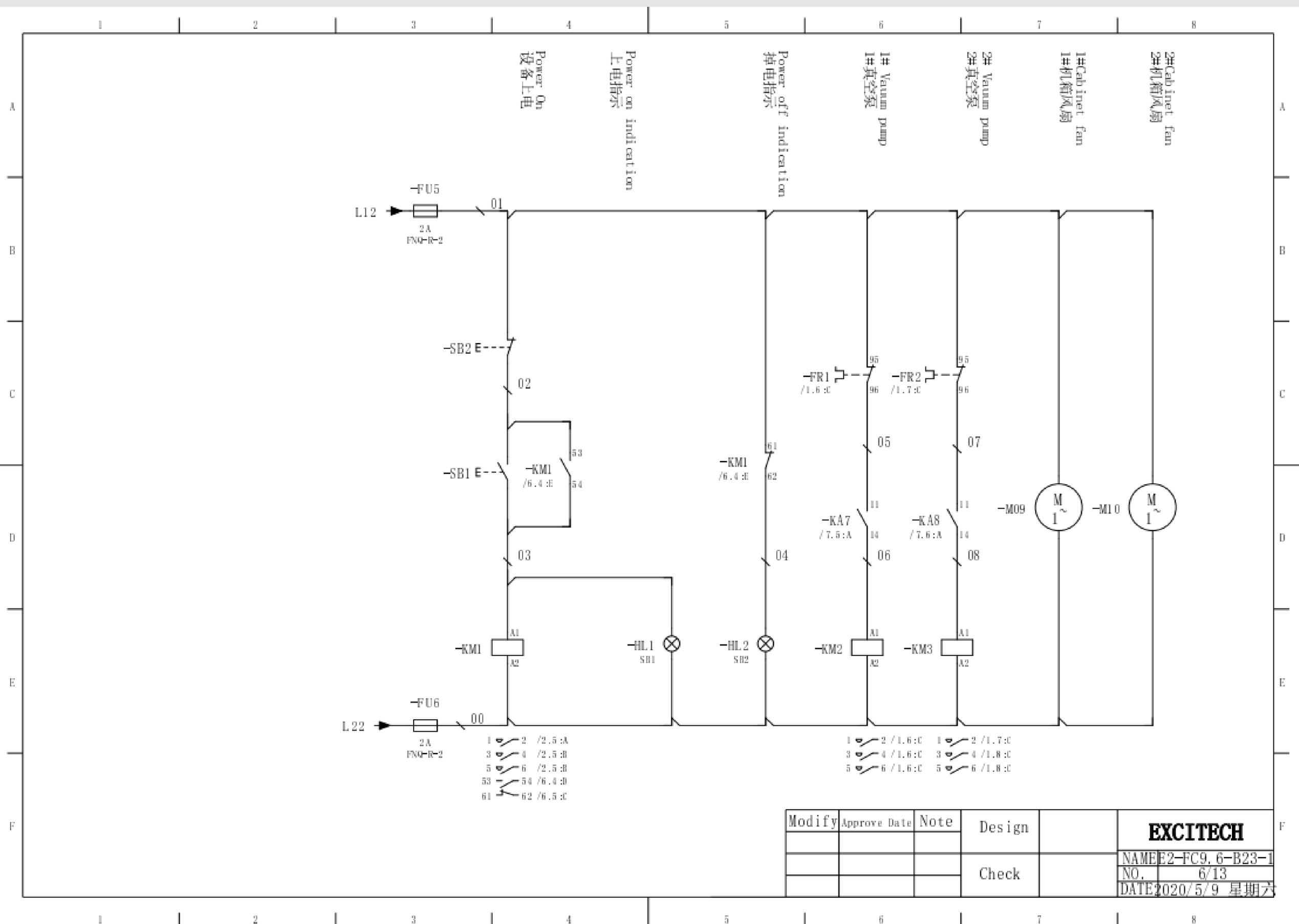
# Electrical Diagrams-



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# Electrical Diagrams-

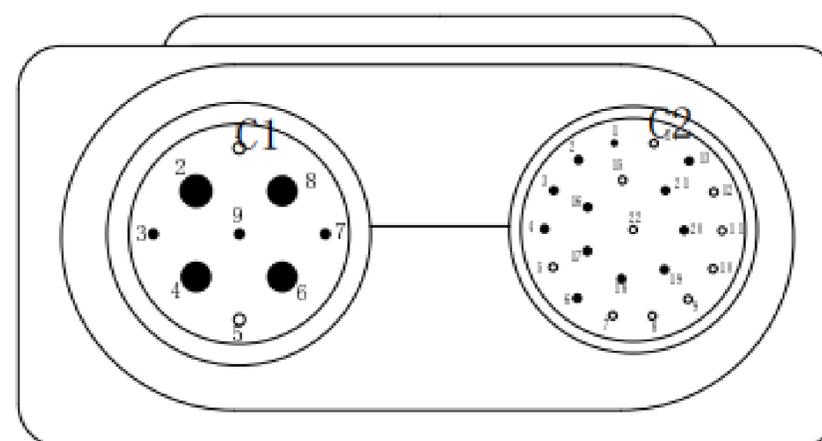






# Electrical Diagrams-

## ES951 Spindle

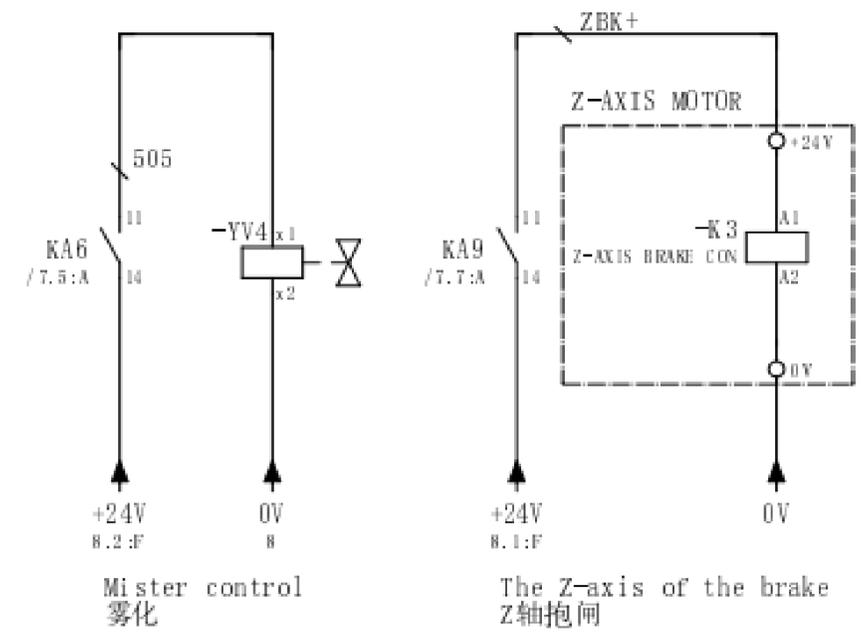


C1 (220V/3P:4×6+2\*1.5)

Define	Pin	Description
	1	Undefined
PE	2	The PE end is connected to the 7th pin
+24V	3	FAN DC24V
U2-1	4	U phase power supply
	5	Undefined
V2-1	6	V phase power supply
	7	The PE end is connected to the 7th pin
W2-1	8	W phase power supply
0V	9	FAN 0V DC

C2 (5\*0.34)

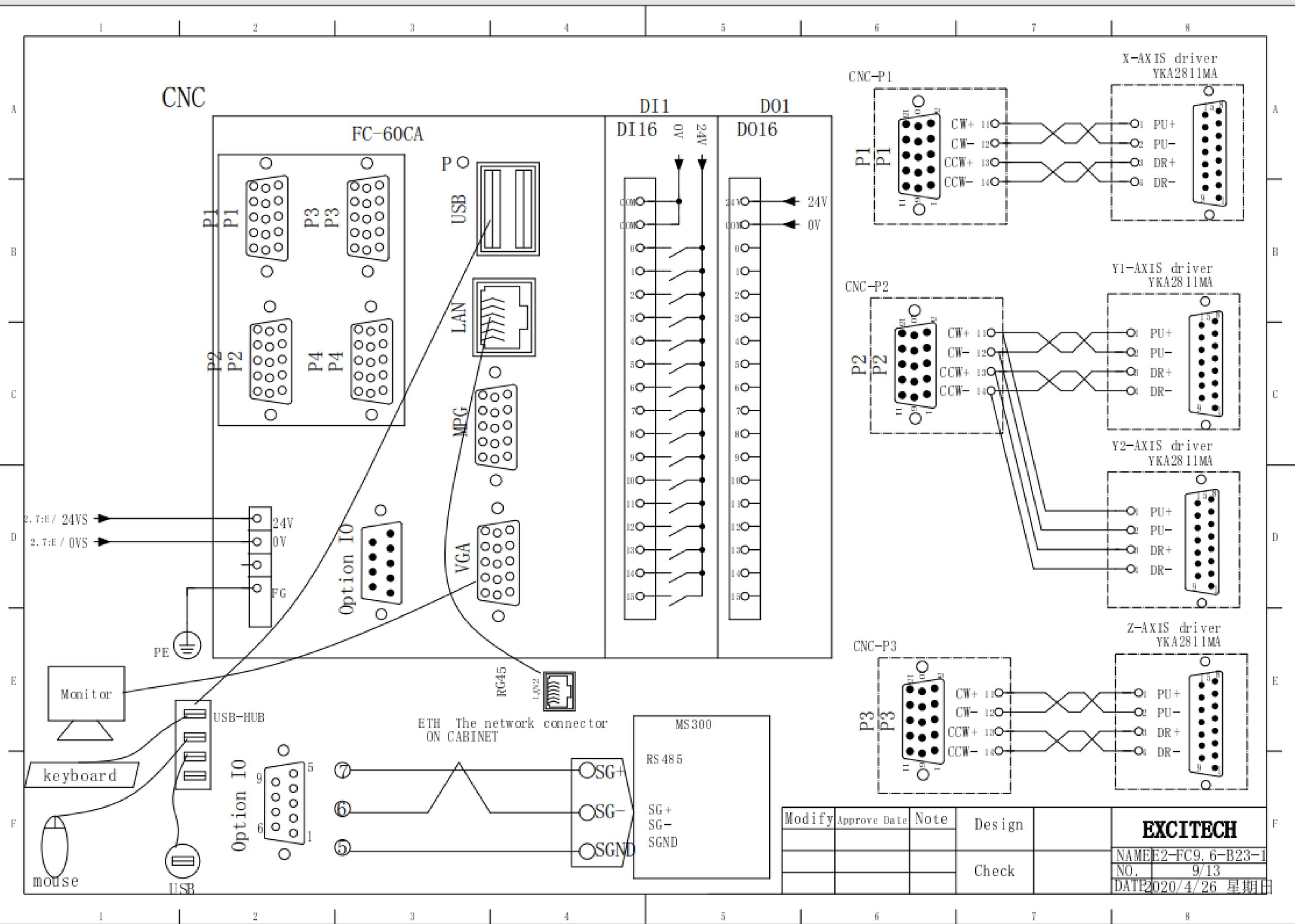
Define	Pin	Description
L708	1	S2 output (clip open, output 24V)
L709	2	S1+S4+S5 output (tool clamping and cylinder reset, output 24v)
Undefined	3	sp output detects whether the motor spindle rotates or not. 24v when spin forward
+24V	4	Sensor +24V DC input (maximum current 1A)
0V	6	Sensor 0V DC input
Undefined	16	shield
Undefined	17	Optional - bearing temperature sensor (DC 0/24V)
Undefined	18	Fan detection (fan works normally, output 24v)
Undefined	19	Electrical component detection (electrical components work normally, output 24v)
Undefined	20	output +24v tool ho tool holder and cylinder reset, output 24v
Undefined	21	Spindle temperature detection (DC 0/24V, normal temperature, output 24v)



Modify	Approve	Date	Note	Design		<b>EXCITECH</b>	
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				Check		NO.	8/13
						DATE	2020/5/9 星期六



# Electrical Diagrams-

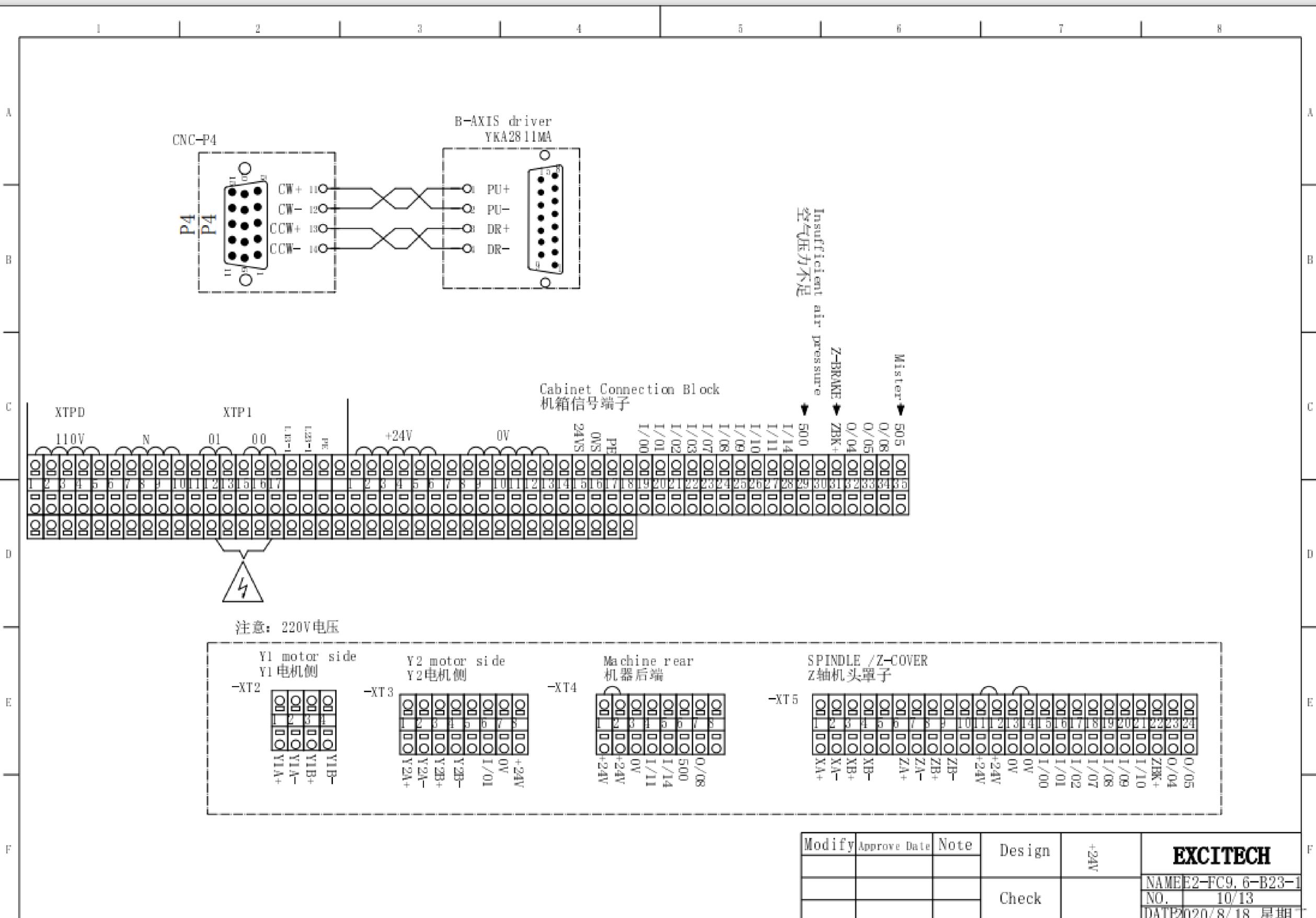


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 NO.: 9/13  
 DATE: 2020/4/26 星期日



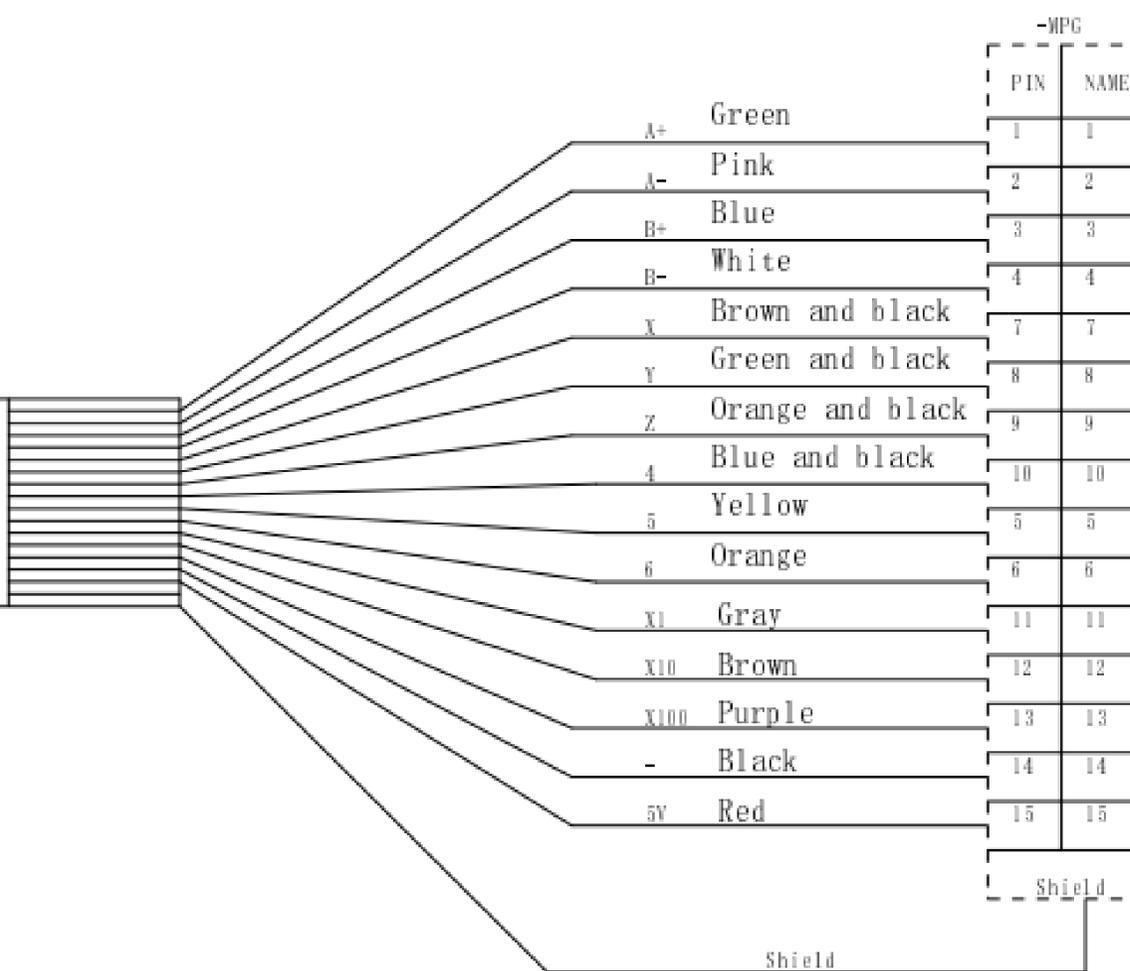
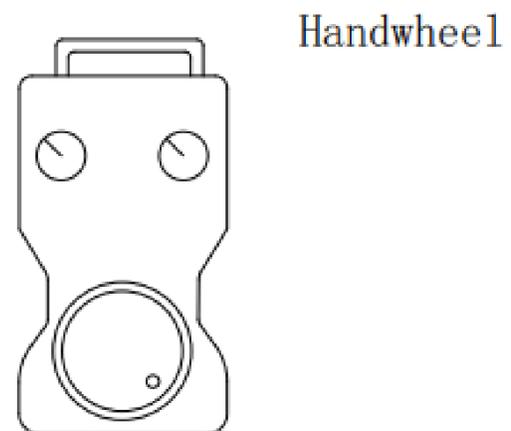
# Electrical Diagrams-



Modify	Approve	Date	Note	Design	+24V	<b>EXCITECH</b> NAME E2-FC9.6-B23-1 NO. 10/13 DATE 2020/8/18 星期二
				Check		



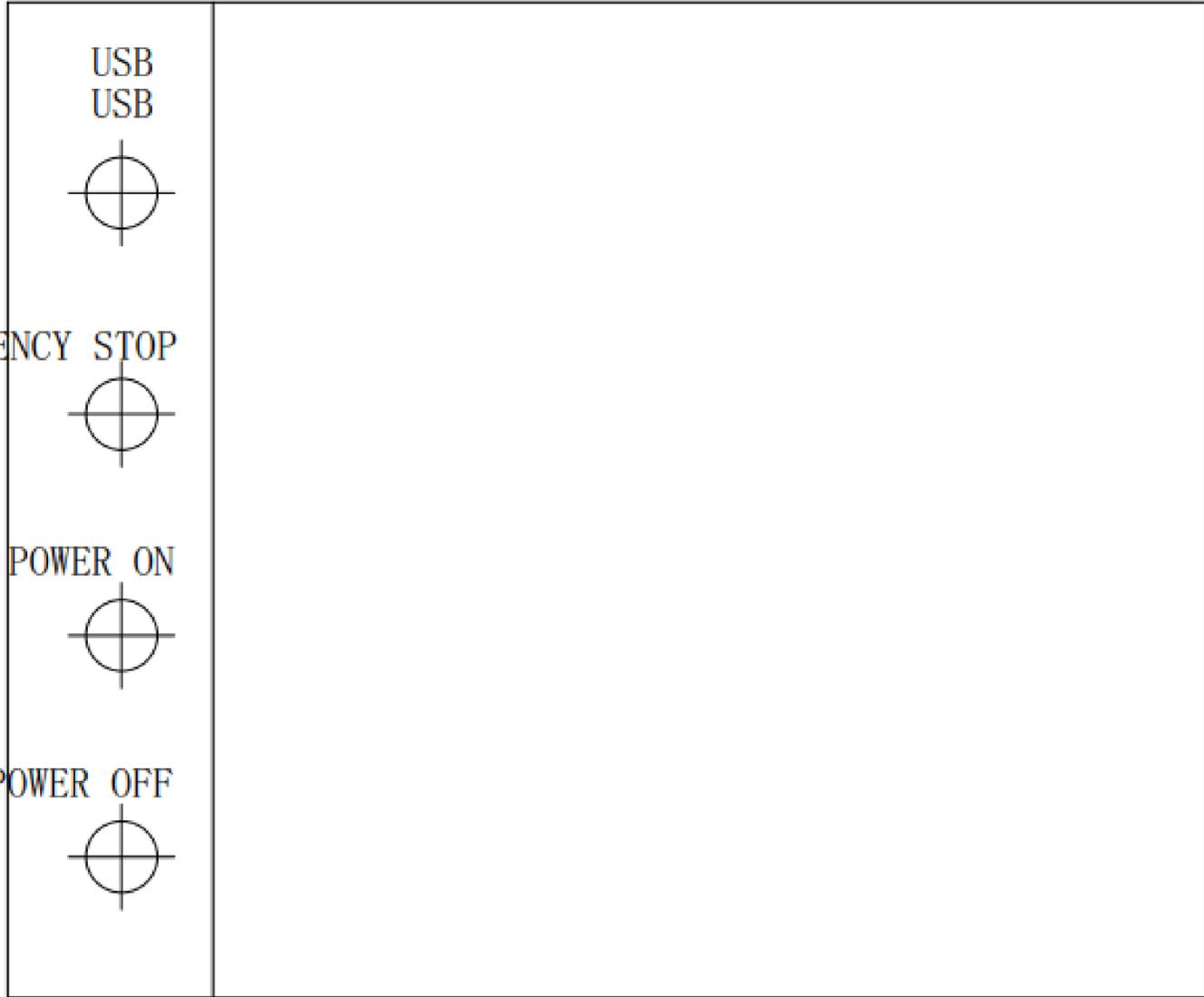
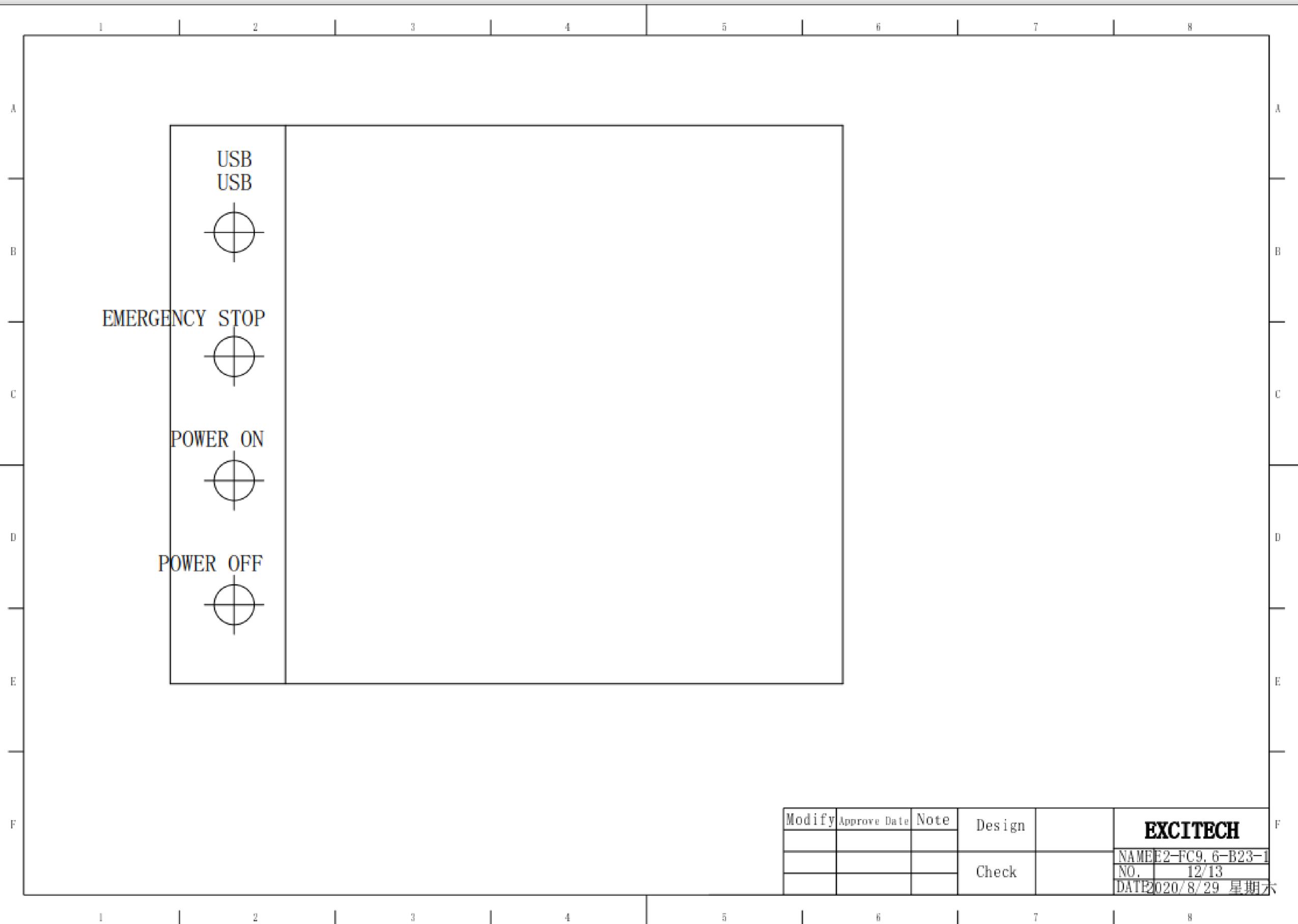
# Electrical Diagrams-



Modify	Approve	Date	Note	Design		<b>EXCITECH</b> NAMEE2-FC9, 6-B23-1 NO. 11/13 DATE 2020/4/2 星期四
				Check		



# Electrical Diagrams-



Modify	Approve Date	Note	Design		
					<b>EXCITECH</b>
					NAMEE2-FC9, 6-B23-1
			Check		NO. 12/13
					DATE2020/8/29 星期六





## Vacuum Table T-Slots & Automatic Tool Changer (ATC)-

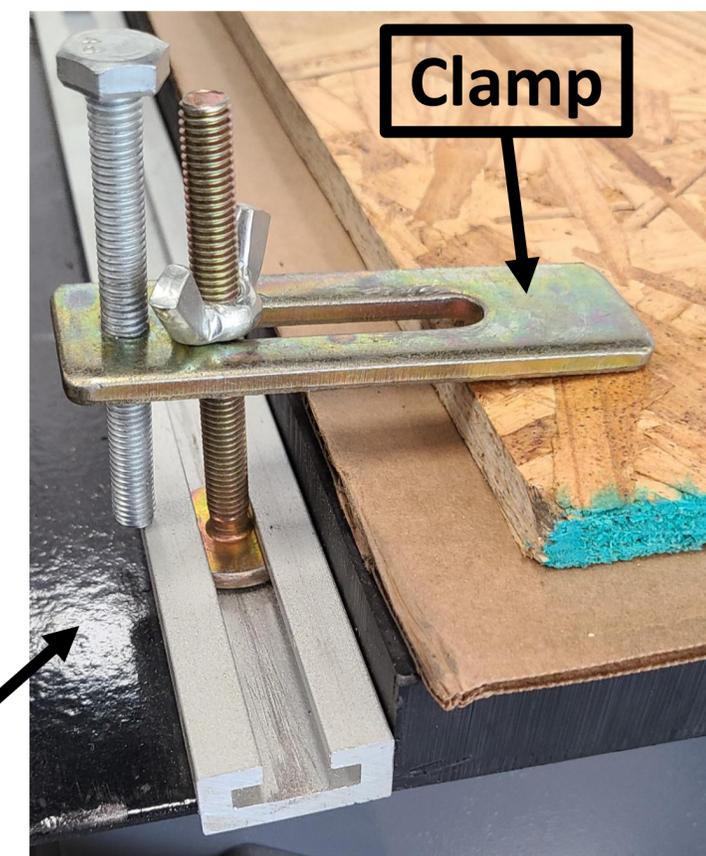
The vacuum table has T-slot mounting devices incorporated into the tables to enable fixtures and material blanks to be clamped directly to the table.

Clamps are provided, but the table must be protected with a backer when using jacking bolts. If the jacking bolts come in contact with the composite or aluminum of the table, the materials could be damaged. The backer should be as large as possible to spread the load on the machine table.



T-Slot Mounting Devices

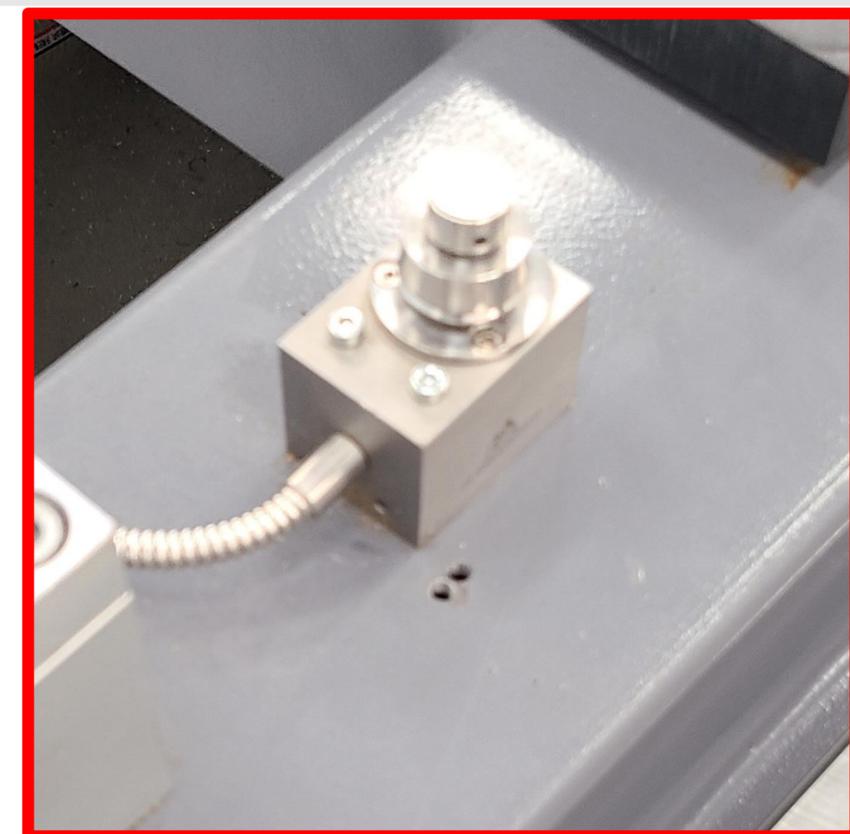
**Backing**



T-Slot Clamps

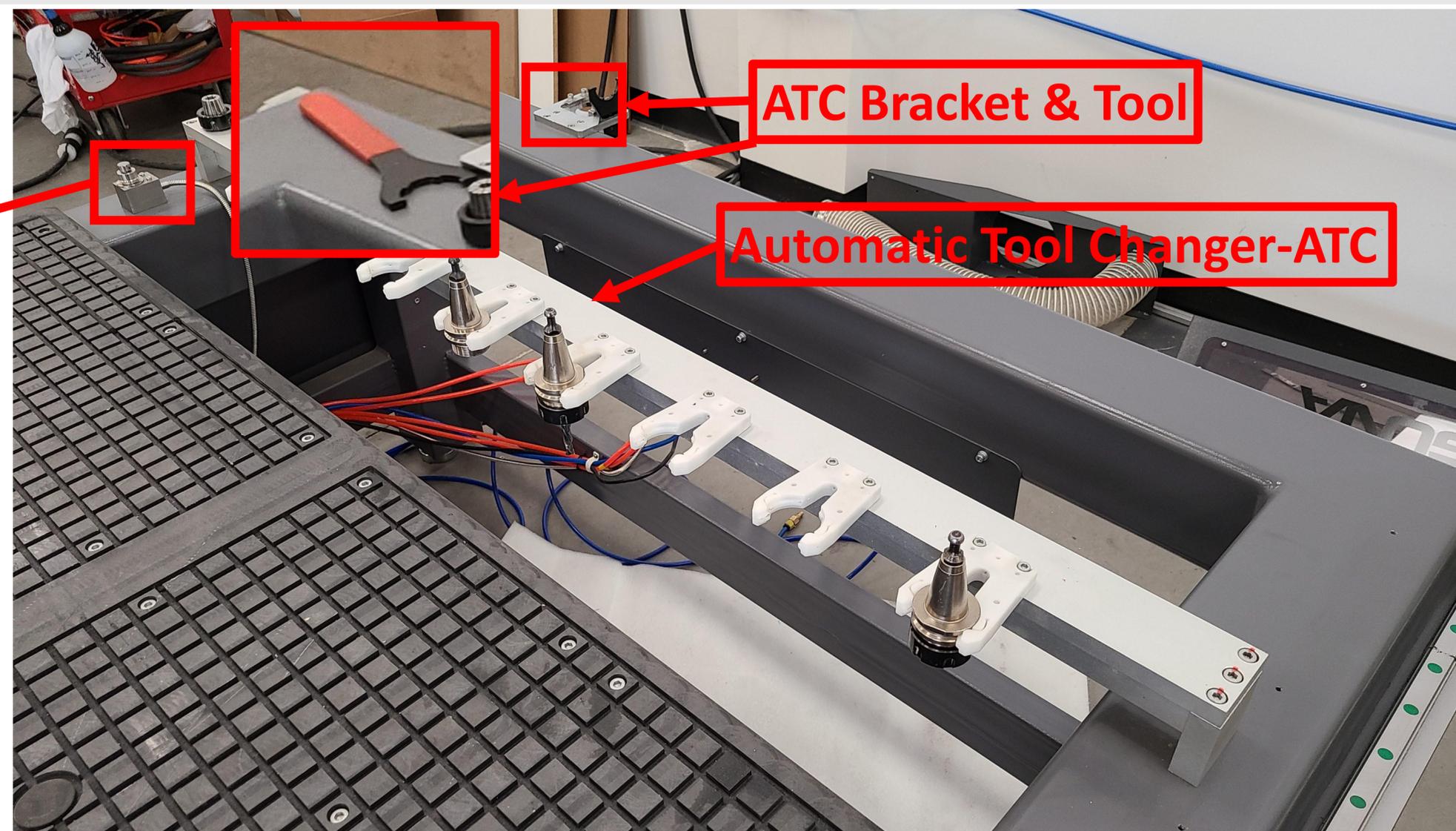


## Vacuum Table T-Slots & Automatic Tool Changer (ATC) Cont'd.-



### **Tool Touch Off-TTO**

The Automatic Tool Touch-Off system (described later in this manual) is used to measure the tool lengths automatically.



### **Automatic Tool Changer (ATC)**

The Automatic Tool Changer consists of a group of tool holder grippers mounted to a rigid bar. The machine control knows the location of each of the grippers and will load and unload tools automatically as required by the program.



## **Safety Rules-**

Safety Rules As with all machinery, there are certain hazards involved with the operation and use. Using it with caution will considerably lessen the possibility of personal injury. However, if normal safety precautions are overlooked or ignored, personal injury to the operator may result. If you have any questions relative to the installation and operation, do not use the equipment until you have contacted your supplying distributor.

### **Read carefully before operating the machine:**

- 1) Keep the working area clean and be sure adequate lighting is available.
- 2) Do not wear loose clothing, gloves, bracelets, necklaces or ornaments. Wear face, eye, respiratory and body protection devices as indicated for the operation or environment.
- 3) Be sure that the power is disconnected from the machine before tools are serviced or an attachment is to be fitted or removed.
- 4) Never leave the machine with the power on.
- 5) Do not use dull, gummy or cracked cutting tools.
- 6) Be sure that the keys and adjusting wrenches have been removed and all the nuts and bolts are secured.

# Delivery Protocol-

- Most large machinery will be delivering on a tractor trailer 48'-53' long. Please notify Sales Representative with any Delivery Restrictions.
- Customer is required to have a forklift (6000lb. or larger is recommended) with 72" forks or fork extensions and operator.
- Note any visible damage, torn packaging, scuffs or any abnormal marks on the delivery receipt or Bill of Lading (BOL).

Date: 12/02/2020 **BILL OF LADING**

**SHIP FROM**  
 Name: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 City/State/Zip: AUSTIN, TX 78704  
 Ph: (512) 645-4170 Contact: Nathaniel Boomer  FOB: \_\_\_\_\_

**SHIP TO**  
 Name: Laguna Tools TX Location# \_\_\_\_\_  
 Address: 744 Refuge Way  
 Suite 200  
 City/State/Zip: GRAND PRAIRIE, TX 75050  
 Ph: 9494741200 Contact: Vince (ZM) RMACR11096  FOB: \_\_\_\_\_

**FREIGHT CHARGES BILL TO**  
 Name: Worldwide Express  
 Address: 2828 Routh Street Suite 400  
 City/State/Zip: Dallas, TX 75201

**SPECIAL INSTRUCTIONS:** For assistance, please call 833-8WE-SHIP  
 Handling Instructions: RMACR11096  
 Pickup Instructions:  
 Delivery Instructions: RMACR11096  
 Pickup Service(s): Liftgate Pickup, Residential Pickup

**REFERENCE NUMBER INFORMATION**

REFERENCE	# PKGS	REFERENCE	# PKGS	Total # of Pkgs

**CARRIER INFORMATION**

HANDLING UNITS		PIECES		WEIGHT	H.M. X	COMMODITY DESCRIPTION Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged to ensure safe transportation with ordinary care. See section 2(e) of NMFC Item 360	LTL ONLY	
QTY	TYPE	QTY	TYPE				NMFC#	CLASS
1	PLT			385		machine, 48(L) x 48(W) x (H) DO NOT STACK		77.5
1				385		<b>Grand Total</b>		

Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of property as follows: The agreed or declared value of the property is specifically stated by the shipper to be not exceeding \_\_\_\_\_ per \_\_\_\_\_

Note: Liability limitation for loss or damage in this shipment may be applicable. See 49 U.S.C. B14706(c)(1)(A) and (B).

RECEIVED, subject to individually determined rates or contracts that have been agreed upon in writing between the carrier and Worldwide Express Operations, LLC, a registered motor carrier broker, pursuant to 49 USC 14101(b) and all applicable state and federal regulations.

SHIPPER'S SIGNATURE / DATE  
 This is to certify that the above-named materials are properly classified, described, packaged marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

Trailer Loaded:  
 By Shipper  
 By Driver

Freight Counted:  
 By Shipper  
 By Driver/pallet said to contain  
 By Driver/Pieces

Acceptable Forms of Payment:  
 Bank Certified Check  
 Customer Check  
 Personal Check  
 Money Order

CARRIER SIGNATURE / PICKUP DATE  
 Carrier acknowledges receipt of packages and required placards. Carrier certifies emergency response information was made available and for carrier has DOT emergency response guidebook or equivalent documentation in vehicle. Property described above is received in good order, except as noted.

(Signature) \_\_\_\_\_ (Date) \_\_\_\_\_

Bill of Lading Number : 145787446

**SPECIAL INSTRUCTIONS:** For assistance, please call 833-8WE-SHIP  
 Handling Instructions: RMACR11096  
 Pickup Instructions:  
 Delivery Instructions: RMACR11096  
 Pickup Service(s): Liftgate Pickup, Residential Pickup



## **Parts & Service**

<b>Name</b>	<b>Part No.</b>	<b>Qty.</b>
Cable	30402032	6
Cable	30402046	12
Inverter	3010302043	1
Brake resistor	3010601023	1
USB Cable	30317550	1
Transformer	30107041	1
Power supply	30114008	1
Driver	3010200007	4
Key switch	30109067	1
E-stop switch	30109035	1
Self-recover switch	30109009	1
Self-recover switch	30109006	1
Self-locking switch	30109025	2
Breaker	30108137	1
Fuse core	30113042	2
Fuse core	30113037	2
Fuse core	30113030	1
Fuse core base	30113058	5
Breaker	30108095	2
AC contactor	30110022	1
AC contactor	30110020	2



## Parts & Service

Name	Part No.	Qty.
Thermal relay	30112026	2
Breaker	30108047	1
Relay	30111007	3
Line adapter board	3010105002	1
Fan on the electric box	30115210	2
Dust screen	30115081	4
Ground strip	30115102	1
Ground strip	30115101	1
Electric box	20220226	1
Handheld hook	3010104018	1
Rotation handheld bracket	20120147	1
Hand wheel cover plate	20202001	2
Aviation plugs	30405027	1
Self-recover button	30109024	1
	30402046	13.7
	30402037	42.8
Ground Cable: From control box to machine, 54.5mm Dia. x 4M L (3010404026)	30402033	11.2
	30402032	2.5
	30402030	17.8
Proximity sensor	30404092	3
Limit switch supporter	30404059	3



## **Parts & Service**

<b>Name</b>	<b>Part No.</b>	<b>Qty.</b>
Drag chain	30403043	1
Drag chain	30403210	1
Pneumatic schematic diagram	3040101519	1
Terminal junction box	20221059	1
Terminal cover plate	20221058	1
Tool sensor	30406014	1
Speed control valve	30406036	1
Hose joint	30401096	1
Hose joint	30401090	1
Hose joint	30401127	1
Tool sensor supporter	20103117	1
Drag chain slot	20202411	1
X axis Drag chain slot	20202748	1
Drag chain slot bracket	20201045	1
Drag chain bracket	20204307	2
Button bracket	20206004	1



## **Parts & Service**

<b>Name</b>	<b>Part No.</b>	<b>Qty.</b>
Transition plate of limited block	20220100	4
Limited block	20120143	6
Drag chain	30403049	1
Upper bracket on Z-axis drag chain	20106008	1
Lower bracket on Z-axis drag chain	20101058	1
Limited sheet	20201068	1
Limited sheet	20201065	2
Limited sheet	20201067	1
Proximity switch supporter	20211046	1
Limit switch supporter	20102563	1
Pneumatic cover	20103233	1
Pneumatic protection cover	20102481	1
Protection window	30305088	1

## Laguna Tools Warranty-

### Dealer Machinery Warranty

New woodworking machines sold by Laguna Tools carry a two-year warranty effective from the date of dealer invoice to customer/end-user. Machines sold through dealers must be registered with Laguna Tools within 30 days of purchase to be covered by this warranty. Laguna Tools guarantees all new machine sold to be free of manufacturers' defective workmanship, parts and materials. We will repair or replace, without charge, any parts determined by Laguna Tools, Inc. to be a manufacturer's defect. We require that the defective item/part be returned to Laguna Tools with the complaint. The end-user must request an RMA (return material authorization) number from Customer Service and include the (RMA) number with any and all returned parts/components requesting warranty coverage.\* Any machines returned to Laguna Tools must be returned with packaging in the same manner in which it was received. If a part or blade is being returned it must have adequate packaging to ensure no damage is received during shipping. In the event the item/part is determined to be damaged due to lack of maintenance, cleaning or misuse/abuse, the customer will be responsible for the cost to replace the item/part, plus all related shipping charges. This limited warranty does not apply to natural disasters, acts of terrorism, normal wear and tear, product failure due to lack of maintenance or cleaning, damage caused by accident, neglect, lack of or inadequate dust collection, misuse/abuse or damage caused where repair or alterations have been made or attempted by others.

**\*\*NOTE: Issuing an RMA number is for referencing materials and issues, it does NOT indicate warranty acceptance/conformity.**

## Laguna Tools Warranty-

### CNC Limited Warranty

New CNC machines sold by Laguna Tools carry a one-year warranty effective from the date of shipping. Laguna Tools guarantees all new machine sold to be free of manufacturers' defective workmanship, parts, and materials. We will repair or replace without charge, any parts determined by Laguna Tools, Inc. to be a manufacturer's defect. We require that the defective item/part is determined to be damaged due to lack of maintenance, cleaning or misuse/abuse, the customer will be responsible for the cost to replace the item/part, plus all related shipping charges. This limited warranty does not apply to natural disasters, acts of terrorism, normal wear and tear, product failure due to lack of maintenance or cleaning, damage caused by accident, neglect, lack of or inadequate dust collection, misuse/abuse or damage caused where repair or alterations have been made or attempted by others.

Laguna Tools, Inc. is not responsible for additional tools or modifications sold or performed (other than from/by Laguna Tools, Inc.) on any Laguna Tools, Inc. woodworking machine. Warranty maybe voided upon the addition of such described tools and/or modifications, determined on a case-by-case basis. Software purchased through Laguna Tools, Inc., is not covered under this warranty and all technical support must be managed through the software provider. Normal user alignment, adjustment, tuning and machine settings are not covered by this warranty. It is the responsibility of the user to understand basic woodworking machinery settings and procedures and to properly maintain the equipment in accordance with the standards provided by the manufacturer.

Parts under warranty are shipped at Laguna Tools, Inc.'s cost either by common carrier, FEDEX ground service or a similar method.

Technical support to install replacement parts is primarily provided by phone, fax, e-mail or Laguna Tools Customer Support Website. The labor required to install replacement parts is the responsibility of the user. Laguna Tools is not responsible for damage or loss caused by a freight company or other circumstances not in our control. All claims for loss or damaged goods must be notified to Laguna Tools within twenty-four hours of delivery.

\*\*\*Please contact our Customer Service Department for more information. Only NEW machines sold to the original owner are covered by this warranty. For warranty repair information, call 1-800-332-4094. Copyright 2013 Laguna Tools, Inc. **\*\*Warning – no portion of these materials may be reproduced without written approval from Laguna Tools, Inc.**

## WARRANTY & REGISTRATION

### THANK YOU!

Welcome to the Laguna Tools® group of discriminating woodworkers. We understand that you have a choice of where to purchase your machines and appreciate the confidence you have in the Laguna Tools® brand.

Through hands-on experience, Laguna Tools® is constantly working hard to make innovative, precision products. Products that inspire you to create works of art, are a joy to operate, and encourage your best work.

Laguna Tools®  
Imagination, Innovation, and Invention at Work

### WARRANTY & REGISTRATION

Every product sold is warranted to be free of manufacturers' defective workmanship, parts, and materials. For any questions about this product, the intended use or what it was designed for, customer service, or replacement parts, please contact our customer service department:

Laguna Tools® Customer Service  
2072 Alton Parkway, Irvine, California 92606, USA  
1-800-332-4049  
customerservice@lagunatools.com  
www.lagunatools.com/why/customer-service/  
8AM to 5PM PST, Monday through Friday

For warranty claims or to report damage upon receiving – please reach out to our warranty department:

Laguna Tools® Warranty Service  
2072 Alton Parkway, Irvine, California 92606, USA  
1-949-474-1200  
customerservice@lagunatools.com  
www.lagunatools.com/policies/warranty  
8AM to 5PM PST, Monday through Friday

### REGISTRATION

To prevent voiding this warranty, all products sold must be registered within thirty (30) days of receiving the product. Registering the product will enable the original purchaser to receive notifications about important product changes, receive customer service, and be able to file a warranty claim against defective workmanship, parts, or materials.



### WHO IS COVERED

The applicable warranty covers only the initial purchaser of the product from the date of receiving the product. To file such claims, the original purchaser must present the original receipt as proof of purchase.

### WHAT IS COVERED

The warranty covers any defects in the workmanship of all parts and materials that make up the machine unless otherwise specified. Any part, determined by Laguna Tools®, to have a defect will be repaired or replaced (and shipped), without charge. The defective item/part must be returned to Laguna Tools® with the complaint and proof of purchase in the original packaging that it was received in. In the event the item/part is determined to be not covered by this warranty, the customer will be responsible for the cost to replace the item/part and all related shipping charges.

### WARRANTY LIMITATIONS

This limited warranty does not apply to natural disasters, acts of terrorism, normal wear and tear, product failure due to lack of maintenance or cleaning, damage caused by accident, neglect, or lack-of inadequate dust collection. The warranty may be voided against proof of misuse/abuse, damage caused where repair or alterations have been made or attempted by others, using the product for purposes other than those described as intended use (unless with consent by Laguna Tools®), modification to the product, or use with an accessory that was not designed for the product. It is the responsibility of the user to understand basic woodworking machinery settings and procedures and to properly maintain the equipment in accordance with the standards provided in this manual.

### LENGTH OF WARRANTY

All new machines and optional accessories sold through an authorized dealer carry a two-year warranty effective the date of receiving the product. Machines sold for either commercial or industrial use have a one-year warranty. Wearable parts like throat plates, bandsaw guides, etc., have a ninety-day warranty.

Table A-1 Warranty Lengths

2 Year – New Machines Sold Through an Authorized Dealer

2 Year – Accessories Sold as Machine Options (excluding blades)

1 Year – Machines Sold for Commercial or Industrial Use

1 Year – Blades and Accessories outside of Machine Options

90 Days – Wearable Parts

Aside from being free of defects upon receiving, consumable parts, like cutters and abrasives, are not covered by this warranty unless otherwise stated by Laguna Tools®. These parts are designed to be used at the expense of the operator and are available for replacement or inventory purchase. The determination of a consumable part will be made on a case-by-case basis by Laguna Tools®.

### SHIPPING DAMAGE

Laguna Tools® is not responsible for damage or loss caused by a freight company or other circumstances not in the direct control of Laguna Tools®. All shipping-related claims for loss or damage goods must be made to Laguna Tools within twenty-four hours of delivery.

### HOW TO RECEIVE SUPPORT

To file a warranty-claim please contact the warranty department at 1-949-474-1200. To receive customer service or technical support please contact the customer service department at 1-800-332-4094. Parts, under warranty, are shipped at the expense of Laguna Tools® either by common carrier, FedEx ground services or similar method. Technical support to install replacement parts is primarily provided by phone, fax, email, or the Laguna Tools Customer Support Website.

# LAGUNA

## Laguna Tools Warranty-

### No Modifications Allowed or Sold.

Laguna Tools, Inc. is not responsible for additional tools or modifications sold or performed (other than from/by Laguna Tools, Inc.) on any Laguna Tools, Inc. woodworking machine. Warranty maybe voided upon the addition of such described tools and/or modifications, determined on a case-by-case basis. Normal user alignment, adjustment, tuning and machine settings are not covered by this warranty. It is the responsibility of the user to understand basic woodworking machinery settings and procedures and to properly maintain the equipment in accordance with the standards provided by the manufacturer. Parts, under warranty, are shipped at Laguna Tools, Inc.'s cost either by common carrier, FEDEX ground service or a similar method. Technical support to install replacement parts is primarily provided by phone, fax, e-mail or Laguna Tools Customer Support Website. The labor required to install replacement parts is the responsibility of the user. Laguna Tools is not responsible for damage or loss caused by a freight company or other circumstances not in our control. All claims for loss or damaged goods must be notified to Laguna Tools within twenty-four hours of delivery. Please contact our Customer Service Department for more information. Only new machines sold to the original owner are covered by this warranty.

**For warranty repair information, call 1-800-332-4094.**

## Laguna Tools Packaging/RMA Procedures-

### Dealer Machinery Warranty

**\*\*Any machines returned to Laguna Tools must be returned with packaging in the same manner in which it was received. If a part or blade is being returned it must have adequate packaging to ensure no damage is received during shipping. In the event the item/part is determined to be damaged due to lack of maintenance, cleaning or misuse/abuse, the customer will be responsible for the cost to replace the item/part, plus all related shipping charges.**

We require that the defective item/part be returned to Laguna Tools with the complaint. The end-user must request an **RMA (Return Material Authorization) Number** from Customer Service and include the (RMA) number with any and all returned parts/components requesting warranty coverage.

# Laguna Tools Packaging/Laguna Tools RMA Example-

## RMA #

RTN. AUTH. #  
CR10979

12/1/2020

Return Authorization - NetSuite (Laguna Tools, Inc)

### Return Authorization

CR10979

Edit Back Receive Close

CUSTOMER

DATE

CURRENCY

SUBSIDIARY

RTN. AUTH. #  
CR10979

DEPARTMENT  
Sales

LOCATION  
Laguna Texas Demo / Returns

SALES REP

PARTNER

LEAD SOURCE

PO #  
PO-981

MEMO

SHIPPING COMMENTS

Items Promotions Address Messages History Workflow Custom Partners Sales Team Additional Information OzLINK Pacejet SPS

EXCHANGE RATE

RATE

DISCOUNT

ITEM	RETURNED	REFUNDED	QUANTITY	UNITS	INVENTORY DETAIL	DESCRIPTION	PRICE LEVEL	UNIT PRICE	AMOUNT	TAX CODE	TAX RATE	PST	OPTIONS	GIFT CERTIFICATE	CLOSED	DROP SHIPMENT	CO: EST TYF
																	Iter De Co

Edit Back Receive Close

Actions

### PENDING RECEIPT

#### Actions

CREATED FROM

SALES EFFECTIVE DATE

EST. EXTENDED COST

EST. GROSS PROFIT

EST. GROSS PROFIT PERCENT

PROMISE DATE

DEPOSIT RECEIVED

ACCOUNTING APPROVAL

COMMENTS

RETURN REASON

Manufacturers Warranty Defect

SHIP IMMEDIATE

SPLIT SHIP

REVISED INVOICE

ORDER HOLD REASON

Summary

SUBTOTAL

DISCOUNT

GST/HST

PST

TOTAL

# Laguna Tools Packaging/Laguna Tools BILL of LADING Example-

SHIP FROM		SHIP TO		FREIGHT CHARGES BILL TO					
Name: Address: City/State/Zip:		Name: Address: City/State/Zip:		Name: Address: City/State/Zip:					
Bill of Lading Number : 145787446		Carrier Name: Estes Express		Freight Charge Terms: (freight charges are prepaid by Worldwide Express unless indicated otherwise)					
SCAC: EXLA		Pro number:		<input type="checkbox"/> Master Bill of Lading: with attached underlying Bill Of Lading					
WWE Number: W709699351		SPECIAL INSTRUCTIONS: For assistance, please call 833-8WE-SHIP		Handling Instructions: RMACR11096					
Pickup Instructions:		Delivery Instructions: RMACR11096		Pickup Service(s): Liftgate Pickup, Residential Pickup					
REFERENCE NUMBER INFORMATION									
REFERENCE	# PKGS	REFERENCE	# PKGS	Total # of Pkgs					
CARRIER INFORMATION									
HANDLING UNITS		PIECES		WEIGHT	H.M. X	COMMODITY DESCRIPTION		LTL ONLY	
QTY	TYPE	QTY	TYPE			NMFC#	CLASS		
1	PLT			385		machine, 48(L) x 48(W) x (H) DO NOT STACK			77.5
1				385		<b>Grand Total</b>			
Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of property as follows: The agreed or declared value of the property is specifically stated by the shipper to be not exceeding _____ per _____				COD Amount: \$		Fee Terms: 3 <sup>rd</sup> Party WWE		Remit Address:	
Note: Liability limitation for loss or damage in this shipment may be applicable. See 49 U.S.C. B14706(c)(1)(A) and (B)				Acceptable Forms of Payment:		Bank Certified Check <input type="checkbox"/>		Customer Check <input type="checkbox"/>	
RECEIVED, subject to individually determined rates or contracts that have been agreed upon in writing between the carrier and Worldwide Express Operations, LLC, a registered motor carrier broker, pursuant to 49 USC 14101(b) and all applicable state and federal regulations.				Personal Check <input type="checkbox"/>		Money Order <input type="checkbox"/>		CARRIER SIGNATURE / PICKUP DATE	
SHIPPER'S SIGNATURE / DATE This is to certify that the above-named materials are properly classified, described, packaged marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.				Trailer Loaded:		Freight Counted:		Carrier acknowledges receipt of packages and required placards. Carrier certifies emergency response information was made available and /or carrier has DOT emergency response guidebook or equivalent documentation in vehicle. Property described above is received in good order, except as noted.	
<input type="checkbox"/> By Shipper <input type="checkbox"/> By Driver				<input type="checkbox"/> By Shipper <input type="checkbox"/> By Driver/pallet said to contain <input type="checkbox"/> By Driver/Pieces				(Signature) _____ (Date) _____	

Bill of Lading Number : 145787446

SPECIAL INSTRUCTIONS: For assistance, please call 833-8WE-SHIP

Handling Instructions: RMACR11096

Pickup Instructions:

Delivery Instructions: RMACR11096

Pickup Service(s): Liftgate Pickup, Residential Pickup

