COSEN SAWS

F-F-31
Version 19

G320

SNC-100 Programmable Automatic Mass Production Horizontal Bandsaw

(CE Model)

Instruction Manual

The Pinnacle of Cutting Performance

Cosen Mechatronics Co., Ltd.

FROM THE MANUFACTURER

Thank you for your purchase of COSEN's bandsaw machine and your trust in the COSEN brand.

We are excited to have you as our valued customer and look forward as much as you do to the accelerated productivity, long-lasting endurance and superb cost-effectiveness this machine is about to bring to you.

To ensure you are fully utilizing our machine and taking advantage of it in every possible way, please take your time to read through this instruction manual.

Any comments or suggestions in making our services better, please do not hesitate to let us know. Thank you again!

NOTE:

- Read this instruction manual carefully to familiarize yourself with the installation, operation and maintenance of your COSEN bandsaw machine.
- Operate the machine following the procedures described in the manual to prevent personal injuries or machine damage.
- Keep this manual handy and refer to it whenever you are uncertain of how to perform procedures.

- For technical support or parts purchase, please contact your nearest COSEN representative or our service center:

For Europe:
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Instruction Manual: **G320**
SNC-100 Programmable Automatic Mass Production Horizontal Bandsaw (CE Model)
Ver.19 2020/12/14

Safety rules

- **It's essential to power on your Cosen bandsaw machine for at least one hour every two years, if you seldomly use the machine. (This period of power-on must be without proceeding with other operation) Otherwise the machine program may disappear due to not strictly follow this safety rule.**

****The restoration-service fee for improper use will be extra charge. Please note.****

- Make sure your work area is cleared of uninvited people and obstacles every time before you start operating the machine.

- Never step or stand on the roller table. Your foot may slip or trip on the rollers and you will fall.

- Never wear gloves or loose clothing when operating the machine. It may lead to serious injury if they are caught in the running machine. Wrap or cover long hair.

- Never touch the running saw blade with gloves or not. It is dangerous if your hands, clothing or gloves are caught by the running blade.

- Make sure any use of fire is prohibited in the shop and install a fire extinguisher or other fire control device near the machine when cutting titanium, magnesium, or any other material that produces flammable chips. Never leave the machine unattended when cutting flammable materials.

- Use a water-soluble cutting fluid on this machine. Oil-based cutting fluids may emit smoke or catch fire, depending on how they are used.

Safety rules

- Never cut carbon or any other material that may produce and disperse explosive dust. It is possible that sparks from motors and other machine parts will ignite and explode the air-borne dust.

- Never adjust the wire brush or remove chips while the saw blade is still running. It is extremely dangerous if hands or clothing are caught by the running blade.

- Stop the saw blade before you clean the machine. It is dangerous if hands or clothing are caught by the running blade.

- Never start the saw blade unless the workpiece has been clamped firmly. If the workpiece is not securely clamped, it will be forced out of the vise during cutting.

- Take preventive measures when cutting thin or short pieces from the work to keep them from falling. It is dangerous if the cut pieces fall.

- Use roller tables at the front and rear sides of the machine when cutting long work. It is dangerous if the work piece falls off the machine.

- Turn off the shop circuit breaker switch before performing maintenance on the machine. Post a sign indicating the machine is under maintenance.

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SAFETY INFORMATION

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RISK ASSESSMENT

Safety is a combination of a well-designed machine, operator's knowledge about the machine and alertness at all times. COSEN's band machine has incorporated many safety measures during the design process and used protective devices to prevent personal injuries and potential risks. Warning labels also serve as a reminder to the operator.

Throughout this manual, you will also see various safety-related symbols indicating important information that you should take note of prior to use of the machine or part of its functions. These important safety instructions do not cover all possible situations that might occur. It is your responsibility to take caution and follow procedures stated in this manual when installing, maintaining and operating your machine. Cosen will not be liable for damages resulting from improper use.

SAFETY INSTRUCTIONS

What the icons and signs in this user manual mean:

This icon marks **WARNING**; hazards or unsafe practices that may result in **personal injury or damage to the machine.**

Supplementary information to the procedures described in this manual.

Call your local agent or our service center for help.

This manual has important safety information. Read through it carefully before operating this machine to prevent personal injury or machine damage. Learn the operation, limitation and the specific potential hazards peculiar to this band saw. All users must read it before performing any activity on the machine, such as replacing the saw band or doing regular maintenance.

Do not operate this machine unless it is completely assembled.

Keep all guards and shields in place before installing or starting up the machine.

Keep blade protection cover and wheel covers in place and in working order.

Make sure the power switch is off before plugging in power cord.

Disconnect the power cord before making adjustment, maintenance or blade changes.

Always remember to switch off the machine when the work is completed.

Keep unauthorized personnel away.

Use recommended accessories. Improper accessories may be hazardous.

Never hold the material by hand for cutting. Always use the vise and make sure the material is clamped securely before cutting.

When a workpiece is too long or heavy, make sure it is supported with a roller table (recommended).

Do not use the machine to cut explosive material or high pressure vessels as it will generate great amount of heat during the sawing process and may ignite an explosion.

Wear proper apparel during operation and when servicing the machine. Some personal protective equipment is required for the safe use of the machine, e.g. protection goggles.

Never operate while under the influence of drugs, alcohol or medication.

Do not reach over or stand on any part of the machine.

It is dangerous to operate the machine when the floor is slippery. Keep the floor clean and dry. Check for ice, moisture, or grease before entering.

Keep the work environment safe. Do not use band saw in a damp or wet location.

Keep your work area clean. Cluttered and slippery floors invite accidents.

Keep your work area well illuminated at minimum 500 lumen.

Remove adjusting keys, wrenches or any loose parts or items from the machine before turning on power.

Moving parts should be kept in proper alignment and connection with the machine. Check for breakage, mounting and any other conditions that may affect its operation. Any damaged part or guard should be properly repaired or replaced.

Use a sharp saw blade and keep the machine in its best and safest performance by following a periodical maintenance schedule.

SAFEGUARD DEVICES

The safeguard devices incorporated in this machine include the following two main parts:

1. Protection covers & guards
2. Safety-related switches

<u>Protection Covers & Guards</u>

1. Idle wheel housing cover
2. Drive wheel housing cover
3. Gear reducer cover
4. Wire brush belt cover
5. Blade guard cover (left & right)
6. Safety fence (left & right)(CE model only, as shown in Illustration: *Safety Fence*)
7. Chip conveyor cover (CE model only)

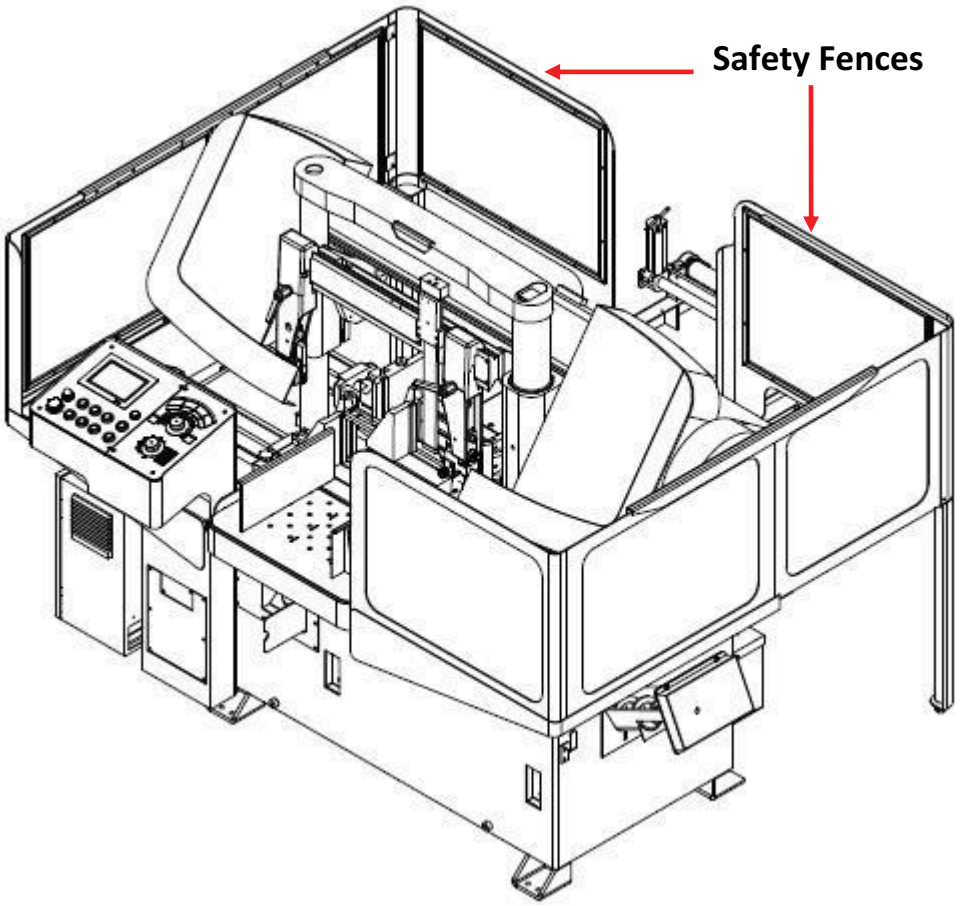

The protection devices should always be mounted on the machine whenever the machine is running.


Do not remove any of these safeguard devices under any circumstances except when servicing the machine. Even skilled service technicians should still take cautions when performing repairs or service on the machine with any of these protectors removed. It is the responsibility of the user to make sure all these elements are not lost and damaged.


Take note of the following main moving parts on the machine prior to and during machine operation:

- Saw bow assembly
- Drive and idle wheels
- Blade guide arm
- Saw blade guide rollers
- Quick approach device (optional)
- Wire brush
- Chip conveyor (optional)
- Workpiece clamping vises
- Shuttle vises and workbed rollers
- Top clamps (optional)
- Gear reducer

Illustration: Safety Fence



Safety Related Switches

To protect the operator, the following safety related switches on the machine are actuated when the machine is in operation.

Wheel motion detector	This is a proximity sensor used to detect the motion of the drive wheel. Once the saw blade is broken or as soon as it starts slipping, the sensor will detect and stop the drive wheel and the machine.
Power switch	Located on the cover of electrical cabinet, the power switch controls the main power of the machine. Up to your company's internal rules, this power switch can be locked with a padlock or a luggage lock to protect the operator and the machine.
Emergency stop button	Located on the control panel, the button when pressed will stop the machine completely.
Vise clamp switch	This switch assures firm clamping of the workpiece. If the workpiece is not clamped properly, the saw blade is not allowed to run.
Wheel cover interlock switches (CE model only)	Located on the two wheel housings, these switches are used to assure that the machine will stop whenever the wheel covers are open. This device is to protect users from being cut by the running saw blades.

Among all these safety switches, some of them are used to protect the users and some of them are used to prevent damage to saw blades, the workpiece and the machine itself, etc. We have taken every precaution to prevent injury or damage and to provide safe and economical operation of the machine.

EMERGENCY STOP

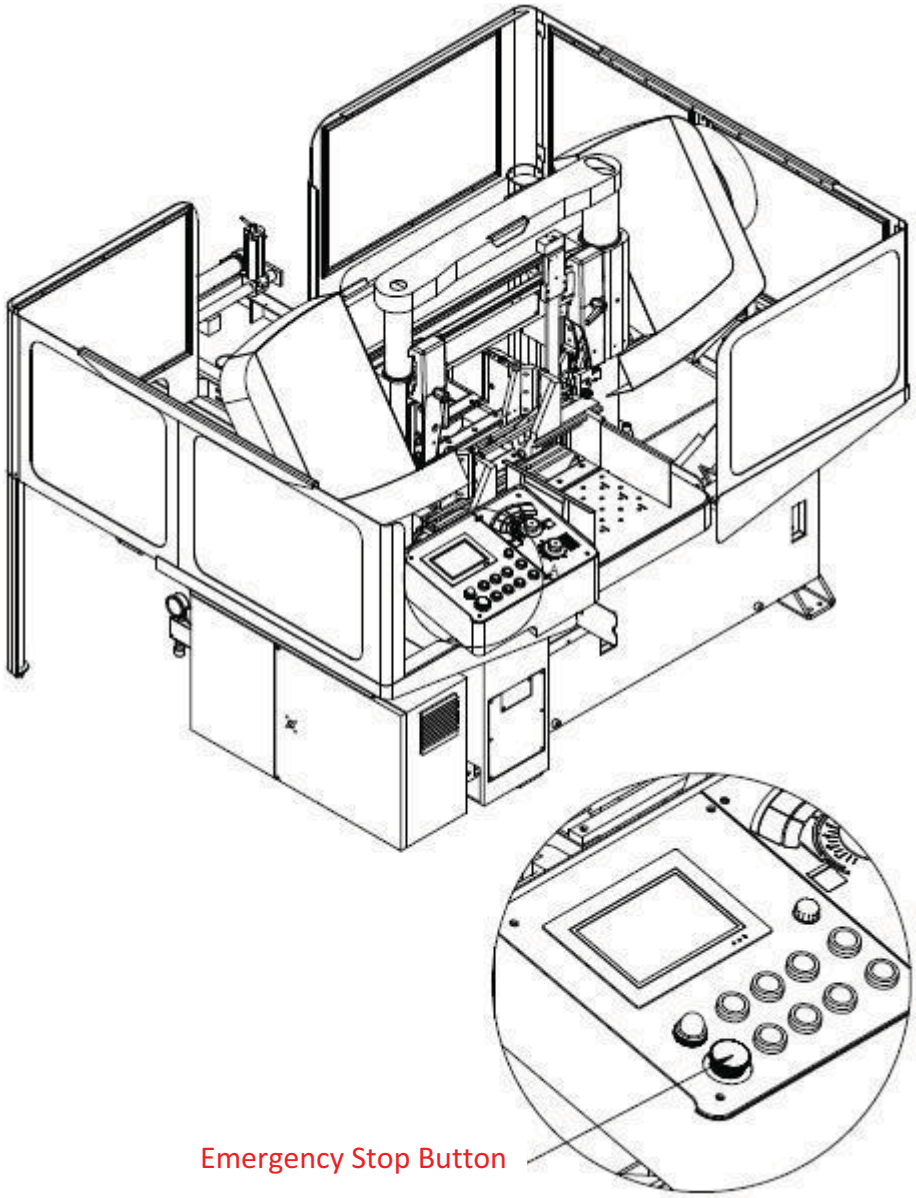
Designed to be easily accessible, the emergency stop button is located on the left bottom corner on the control panel and is made in red color and rubber material. For CE models, supplementary emergency stop button may be available at other area(s) of the machine depending on machine type. Please refer to *Illustration: Emergency Stop.*

When you press the button, the machine will immediately come to a full stop to avoid injury or damage when an accident occurs. The button will be locked when you press it. To unlock it, turn the button clockwise.

You should press it immediately without any hesitation when observing:

- An emergency situation that would cause any injury or damage
- An abnormal situation or problem such as fire, smoke, abnormal noise and etc.

Illustration: Emergency Stop

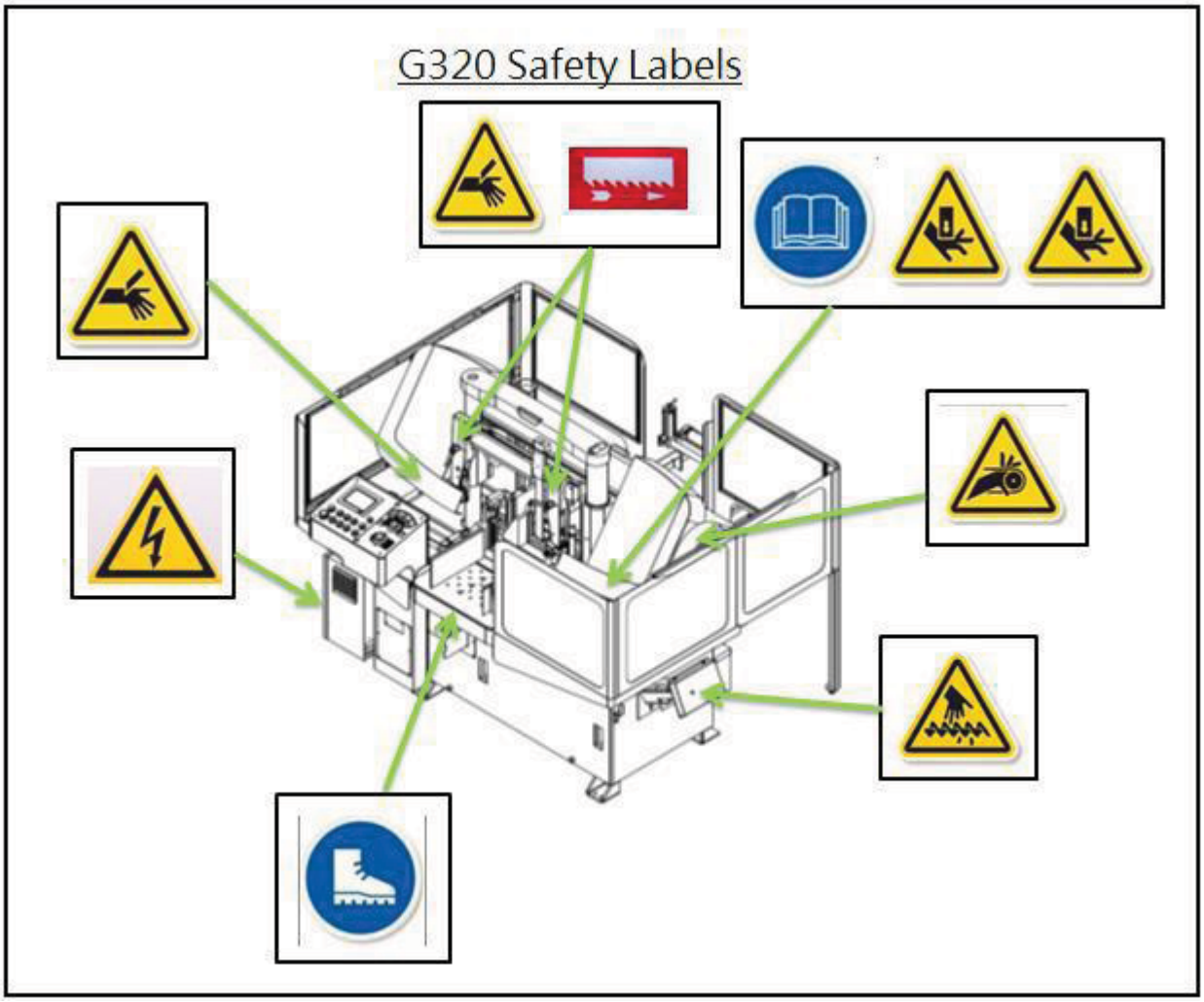


SAFETY LABELS

Please read through and understand them before operating the machine. Refer to *Illustration: Safety Labels.*

Label	Meaning	Label	Meaning
	Impact Hazard WEAR SAFETY SHOES. Do not approach dropping area during operation.		Read Operator's Manual This manual has important safety information. Read through it carefully before operating this machine to prevent personal injury or machine damage.
	Keep Unauthorized Personnel Away		Do not step. Do not stand on the machine or on the accessories!
	DANGER: Running Blade Blade runs through this area. Keep your hands away from a running blade to avoid severe injury. The arrow indicates direction of the blade.		Cutting Hazard KEEP COVER CLOSED / KEEP HAND OFF while the blade is running. Turn power off before opening cover. Failure to follow the warning can result in severe injury.
	Hazardous Voltage TURN POWER OFF before servicing. Failure to following the warning can result in severe injury.		Burn Hazard/Hot Surface
	Hand Crush/Force from Above		Crush hazard by vise
	Loose Hand Hazard KEEP HAND OFF. Do not touch chip conveyor. Failure to follow the warning can result in severe injury.		Pinch Point/Hand Entanglement
	CAUTION : Class I invisible Laser Radiation Present. Avoid direct exposure to beam.		

Illustration: Safety Labels



HEARING PROTECTION

 Always use ear protection!

When your machine is running, noise generated by the machine may come from the following:

- Saw blade during cutting or material feed mechanism
- Wire brush unit
- Chip conveyor unit
- Speed reducer
- Hydraulic motor/pump
- Belt transmissions variable speed motors
- Blade motor
- Coolant pump
- Drive wheel
- Parts not assembled tightly causing mechanical vibration

Our products pass noise testing less than 78 dBA. Noise level vary according to working conditions and we recommend ear plugs or other hearing protection at all time. If your machine produces an undesirable noise while it is running, you should:

1. Make sure all maintenance tasks have been performed following the prescribed maintenance schedule (Refer to Section 6).
2. If maintenance does not seem to solve the problem, follow the troubleshooting procedures under Section 7.

CE COMPLIANCE

Cosen's CE model is designed to satisfy regulations of the Council Directive on the approximation of the laws of the Member States relating to machinery (2006/42/EC) - Annex I Essential health and safety requirements relating to the design and construction of machinery.

RISK ASSESSMENT

Risk assessment generally takes account of intended use and foreseeable misuse, including process control and maintenance requirements. We made every effort to avoid any personal injury or equipment damage during the machine design stage. However, the operator (or other people) still needs to take precautions when handling any part of the machine that is unfamiliar and anywhere on the machine that has potential hazards (e.g. the electrical control box).

Section 2

GENERAL INFORMATION

SPECIFICATION

MACHINE PARTS IDENTIFICATION

FLOOR PLAN

This band saw machine is designed by Cosen's R&D engineers to provide you the following features and advantages:

Safety

- This machine is designed to fully protect the operator from its moving parts during cutting operation.
- The machine and each compoment has passed strict testing (Council Directive on the approximation of the laws of the Member States relating to Machinery).
- The machine will shut off automatically when the saw blade is broken, protecting both the operator and the machine.

Convenience & High-Performance

- The machine is designed in the way that the operation and adjustment can be easily performed.
- The machine will stop automatically when out of stock.
- Dual valve system is designed to achieve optimal cutting performance with the simple setting of feed rate and perspective cutting pressure for different material.

SPECIFICATION

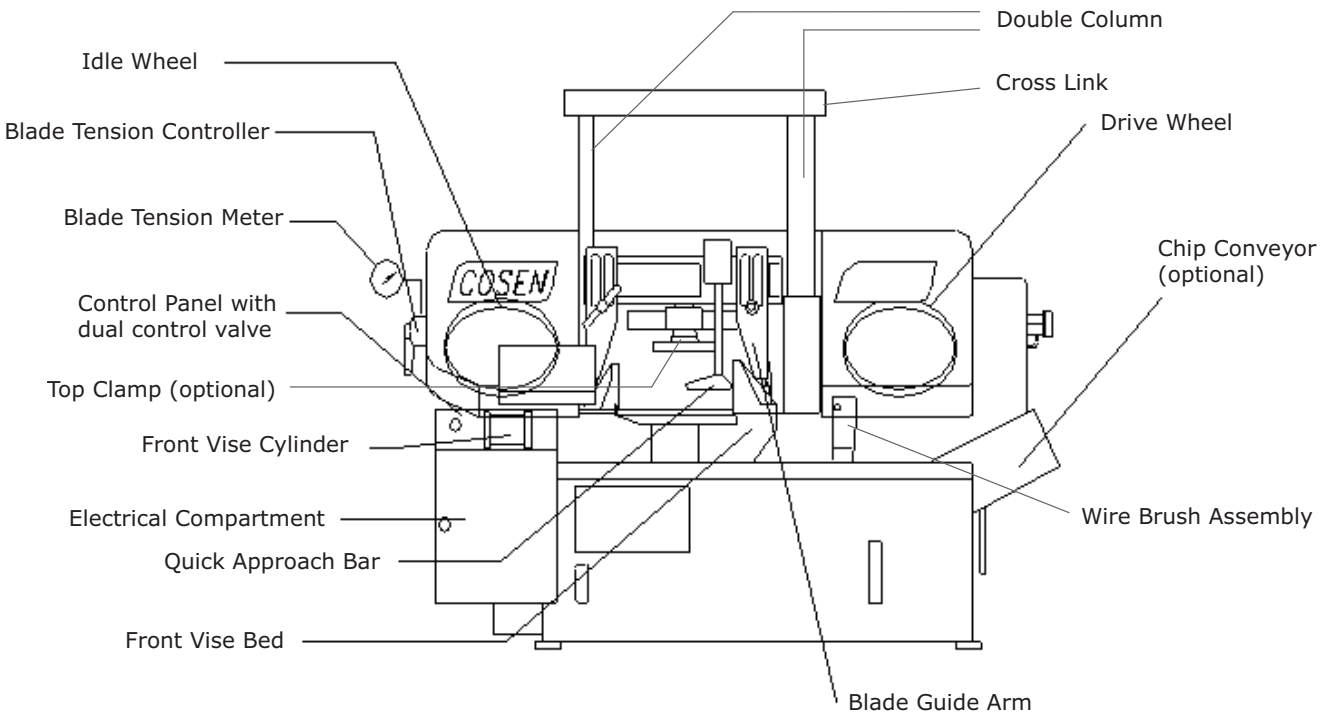
Model		G320 SNC-100 Programmable Automatic Mass Production Horizontal Bandsaw
Capacity	Round	325 mm (12.8 in)
	Square	325 mm (12.8 in)
	Rectangular (H x W)	325 x 380 mm (12.8 x 15.0 in)
	Bundle Cutting	W: 190 ~ 300 mm (7.5 ~ 11.8 in) H: 70 ~ 140 mm (2.7 ~ 5.5 in)
Saw Blade	Speed	15~80 m/min (49~262 ft/min)
	Size	4,240 x 34 x 1.1 mm (166.9 x 1.3 x 0.042 in)
	Pressure	30~34kgs / cm^2(Tolerance: +1~+2 kgs / cm^2)
	Tension	Hydraulic with automatic blade breakage detection 2200~2300kgs / cm^2 (Tolerance: +100~+150 kgs / cm^2)
	Guide	Interchangeable tungsten carbide
	Cleaning	Steel wire brush with flexible drive shaft driven by main motor
Motor Output	Saw Blade	5 HP (3.75 kW)
	Hydraulic	1 HP (0.75 kW)
	Coolant Pump	1/8 HP (0.1 kW)
Tank Capacity	Hydraulic	35 L (9.2 gal)
	Coolant	75 L (19.8 gal)
Vise	Control Method	Hydraulic with full stroke cylinder
	Clamping Pressure	23 kg/cm^2
	Minimum Clamping Capacity	0 mm
Feeding Length	Mode	Hydraulic, NC Automatic
	Single Stroke	403 mm (15.9 in)
	Multi Stroke	Max. 99 meter (3898 in)
	Rest Piece	50 mm (2 in)
Workbed Height		800 mm (31 in)
Weight	Net	2,000 kg (4409 lb)
	Gross	2,200 kg (4850 lb)
Floor Space (W x D x H)		2,397 x 2,235 x 1,685 mm (93.5 x 87.2 x 65.7 in)
Operating Environment	Temperature	5~40˚C (41~104˚F)
	Humidity	30%~85% (without condensation)

*Please refer to the formula "Watt/Voltage = Amperage" with the information above.

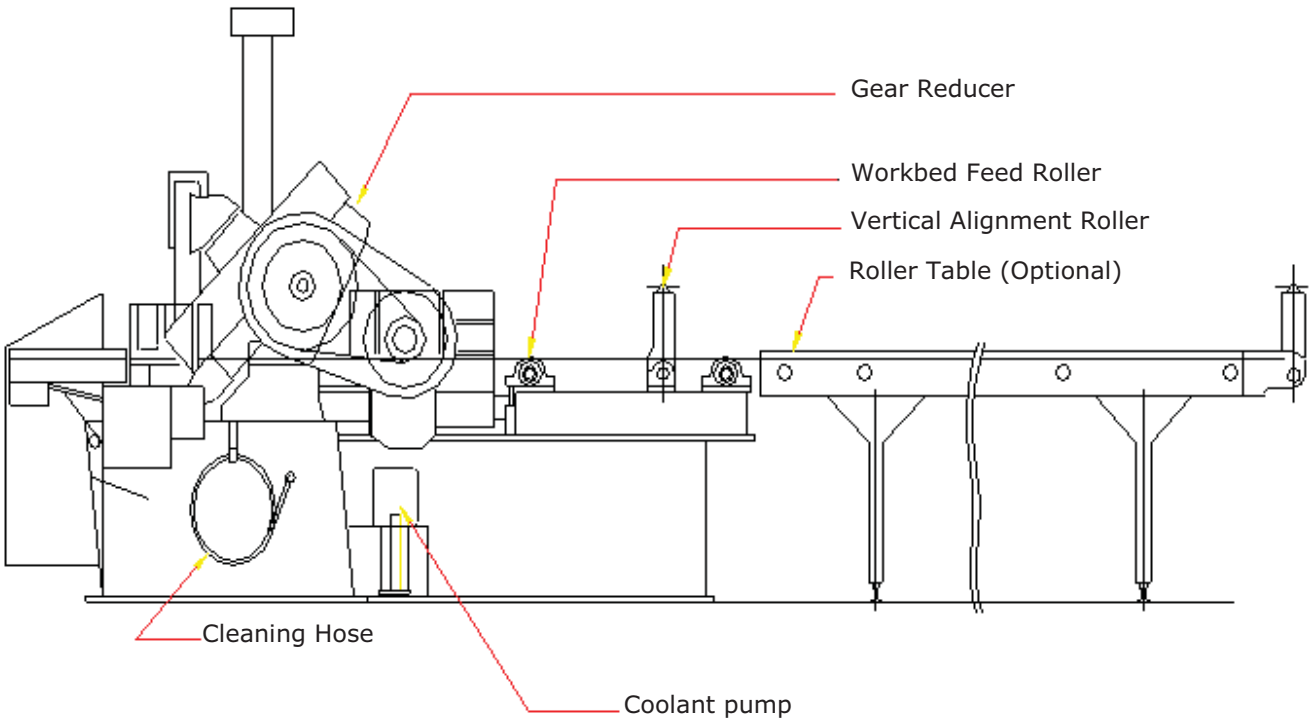
*Design and specification are subjected to change without notice.

*The saw blade pressure and tension standard above are the general values. For special saw blade, please contact to the saw blade manufacturer for the applicable values.

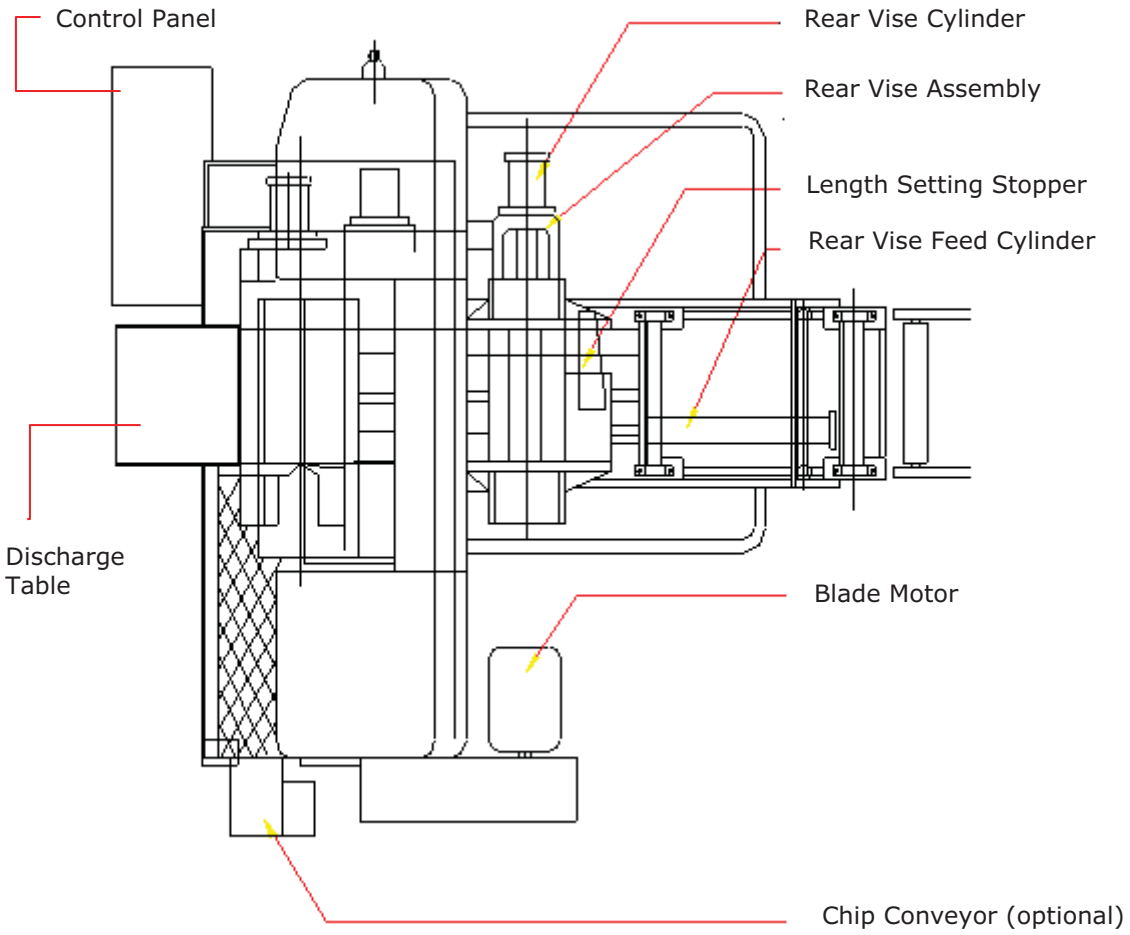
MACHINE PARTS IDENTIFICATION



Machine front view

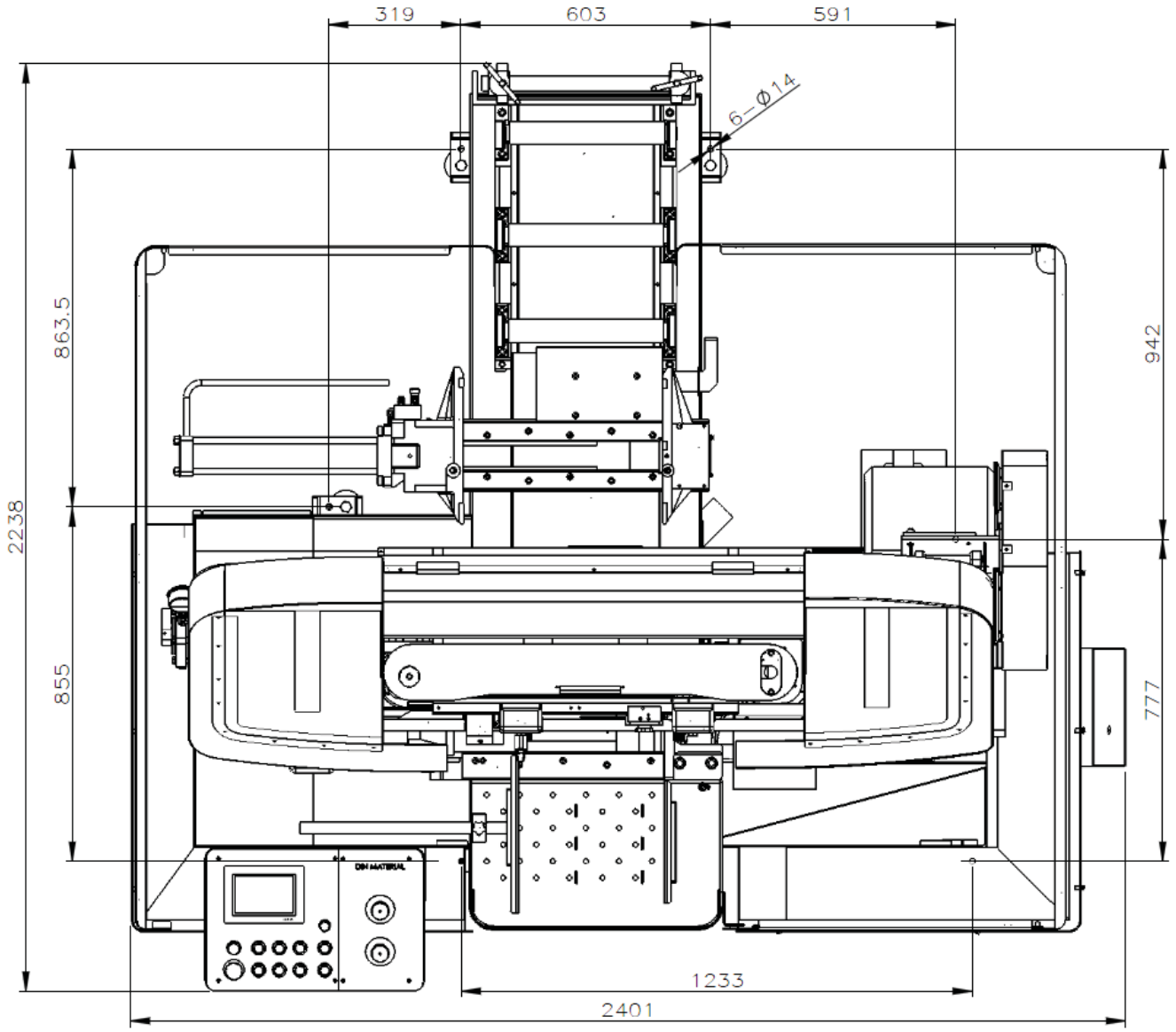


Machine side view

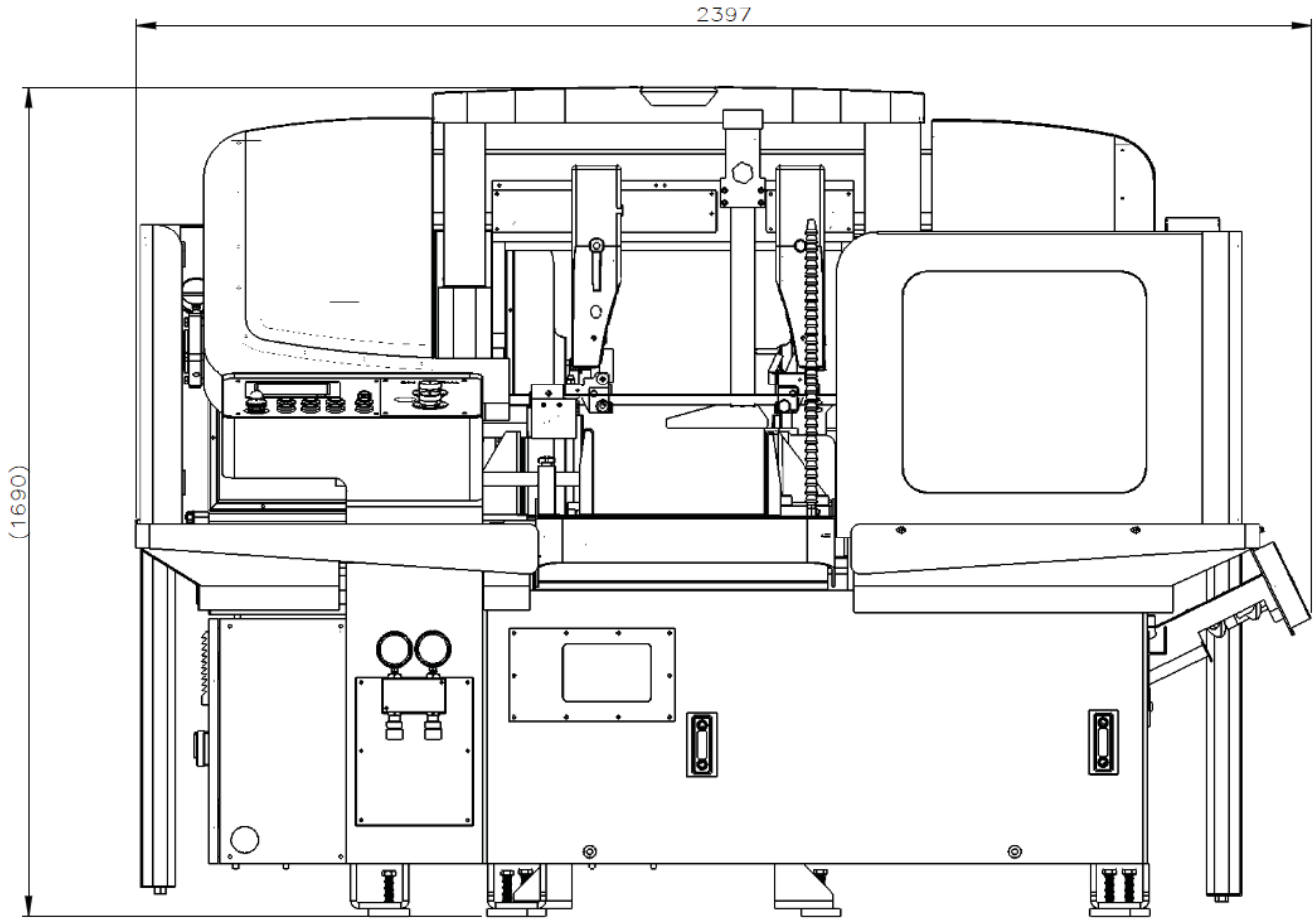


Machine top view

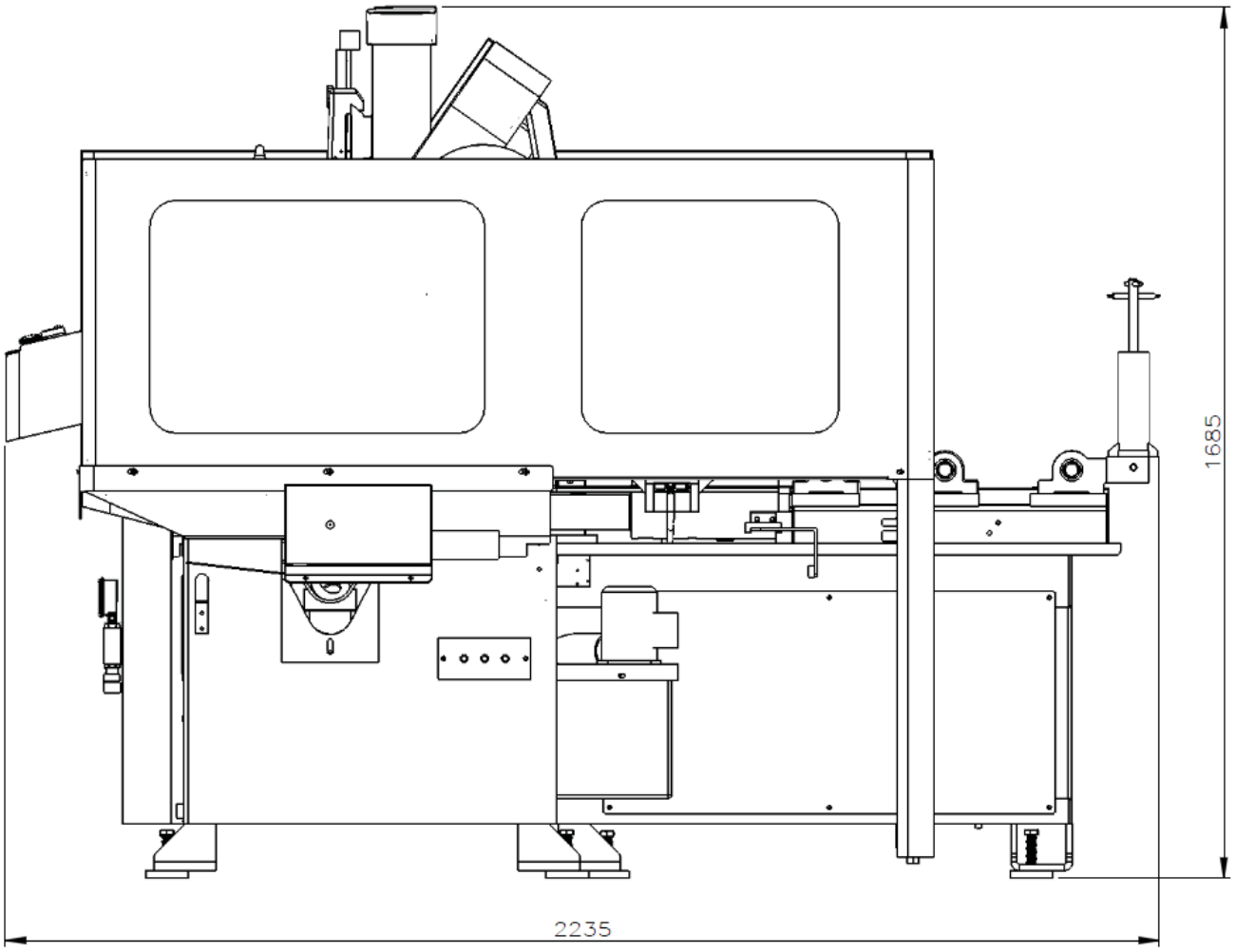
FLOOR PLAN



Machine top view



Machine front view



Machine side view

Section 3

MOVING & INSTALLATION

LOCATION & ENVIRONMENT

For your safety, please read all information regarding installation before proceeding. Install your machine in a place satisfying all of the following conditions:

Space:

- Leave enough free space around the machine for loading work and unloading cut-off pieces as well as for maintenance and inspection. Refer to *Section 2 General Information - Specification* for machine dimensions and floor space.

Environment:

- Well lighted (500 lumen at minimum).

- Floor kept dry at all times in order to prevent operators from slipping.

- Away from direct exposure to the sunlight
- Room temperature between 5˚C to 40˚C.
- Humidity level kept at 30%~85%“(without condensation) to avoid dew on electric installation and machine.
- Away from vibration of other machines
- Away from powders or dusts emitted from other machines
- Avoid uneven ground. Choose a solid level concrete floor which can sustain weight of both machine and material weight.

- Limit the operation area of the machine to staff only.

UNPACKING & INSPECTING

- Unpack your machine carefully to avoid damage to machine parts or surfaces.
- Upon arrival of your new band saw, please confirm that your machine is the correct model and it comes in the same specification you ordered by checking the model plate on the machine base.
- It is also imperative that a thorough inspection be undertaken to check for any damage that could have occurred during shipping. Pay special attention to machine surface, equipments furnished and the electrical and hydraulic systems for damaged cords, hoses and fluid leaks.
- In the event of damage caused during shipping, please contact your dealer and consult about filing a damage claim with the carrier.
- Your machine comes in with a set of tools for you to maintain the machine. The accessories furnished are as follows:

1.	Tool box	1 pc
2.	Grease gun	1 pc
3.	Screwdriver (+, -)	2 pcs
4.	Open-ended spanner	3 pcs
5.	Hexagon wrench	1 set
6.	Chip spade (only for manual models)	1 pc
7.	Operation manual	1 pc

 Should you find any missing accessories, please contact your local agent immediately.

LIFTING

When moving the machine, we strongly suggest you choose any one of the methods described below to move your machine.

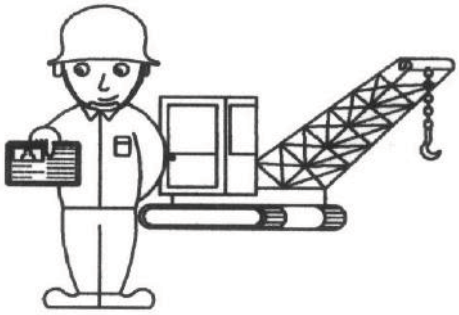
1. Use a crane (Only applies to the machine with the design of the hanging point.)

Move the machine to its location by using a crane and a wire rope sling that can fully withstand the weight of the machine (refer to machine specification under Section 2 *General Information*).

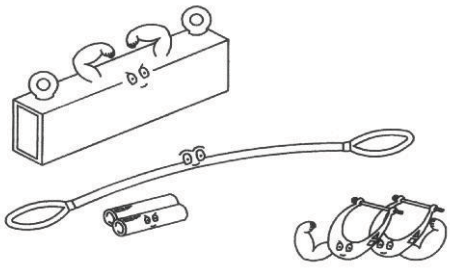
Machine hanging with a crane should be done strictly according to the hanging points designated by the original manufacturer. If there is any doubt on missing hanging points on your machine, please consult with the original manufacturer or its qualified agent before hanging the machine.

- Machine lifting is likely to damage the machine if not performed properly.

  You must have a qualified crane operator to perform the job.



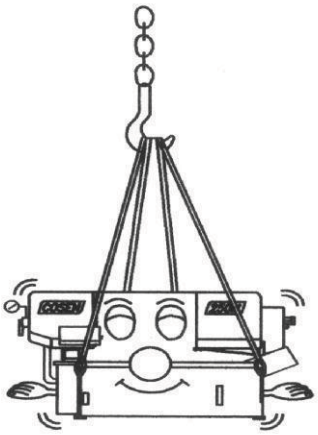
- You must use tools and equipment with the proper tensile strength and use proper method when moving your machine.



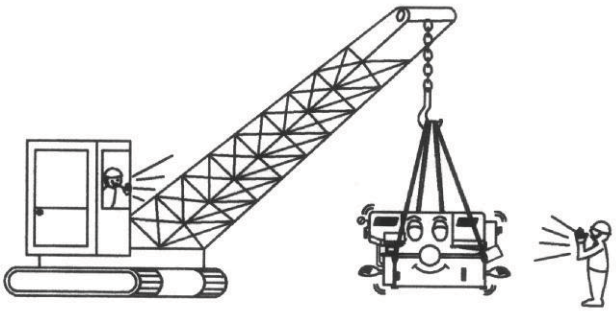
- Apply the wire rope sling to the lifting hooks on the four ends of the machine. Refer to *Illustration: Lifting Points* for exact locations.

- Slowly lift the machine. Be sure to protect the machine from impact or shock during this procedure. Also watch out your own fingers and feet to avoid injuries.

- Keep the machine well balanced during lifting process and make sure the wire rope does not interfere with the saw frame.



- When you work together with more than two people, it is best to keep constant verbal communication with each other.



2. Use a forklift (Only applies to the machine with the design of the lifting point.)

Make sure that the lifting rod can fully withstand the weight of the machine. (Refer to *Section 2 – General Information for Specifications.)*

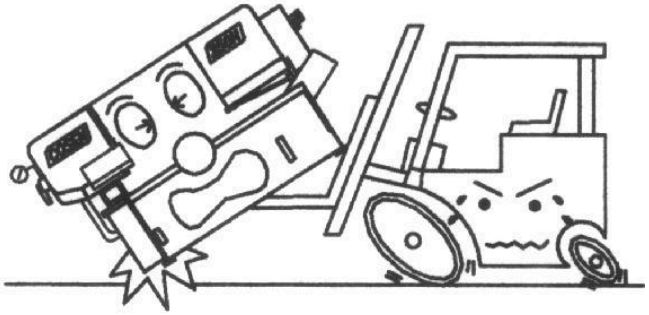
Machine lifting with a forklift should be done strictly according to the lifting points designated by the original manufacturer. If there is any doubt on missing lifting points on your machine, please consult with the original manufacturer or its qualified agent before lifting the machine.

- Machine lifting is likely to damage the machine if not performed properly.

You must have a qualified forklift operator to perform the job.

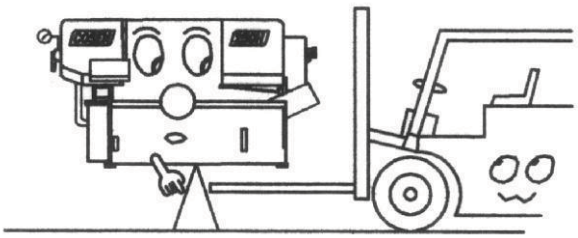
- You must apply proper forklift technique to avoid damage to the machine.

Make sure the forks are able to reach in at least 2/3 of the machine depth.



- You must keep the machine balanced at all times.

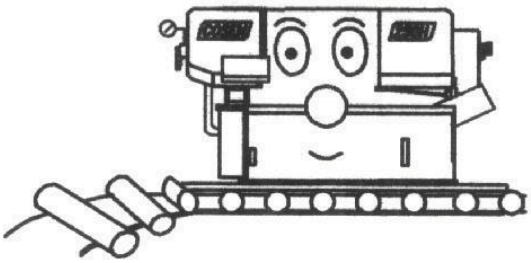
Make sure the forks are centered before use.



(Illustration only.)

3. Use rolling cylinders

You can use rolling cylinders to move your machine in a small machine shop environment.

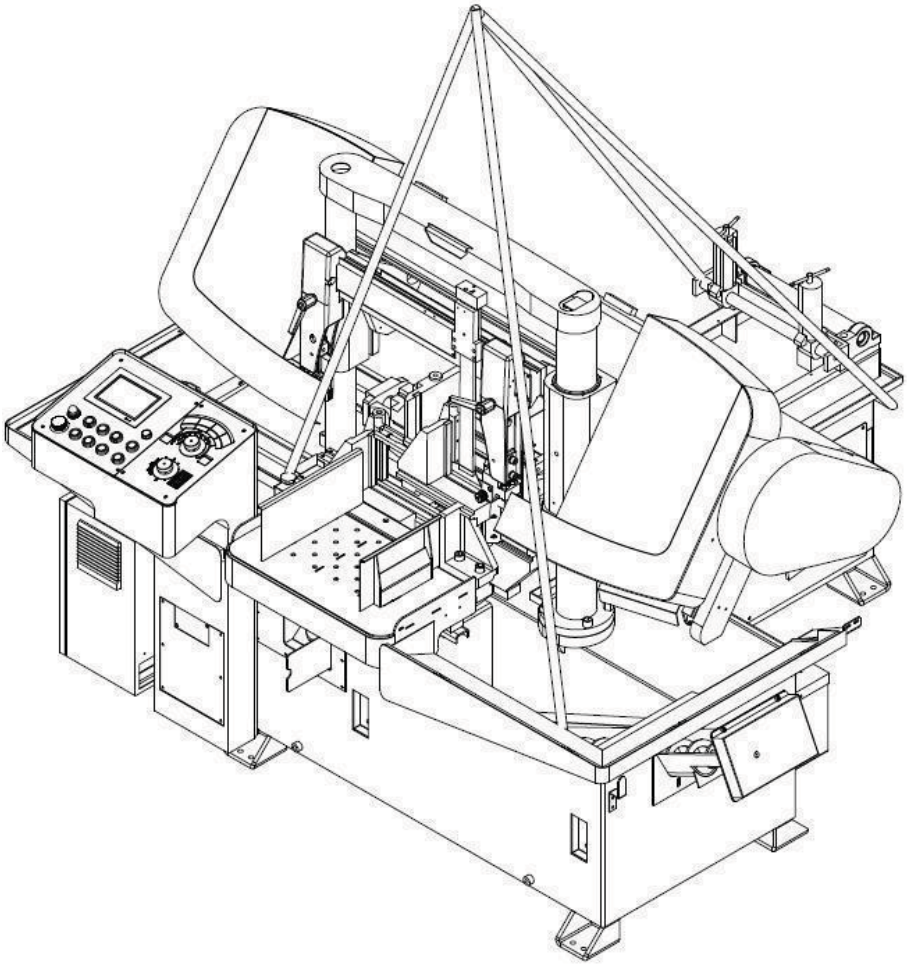


- You must use rolling cylinders made in material of proper compressive strength.

4. Other ways to move

If the machine does not have  or  stickers, please contact your local agent immediately.

Illustration: Lifting Points



Minimum weight capacity for each wire rope: **2.5 ton**
Total number of wire ropes required: **4**

REMOVING SHIPPING BRACKET

- After the machine has been properly positioned, remove the shipping bracket that is used to lock the saw frame and the saw bed.
- Retain this bracket so that it can be used again in the event that your machine must be relocated.

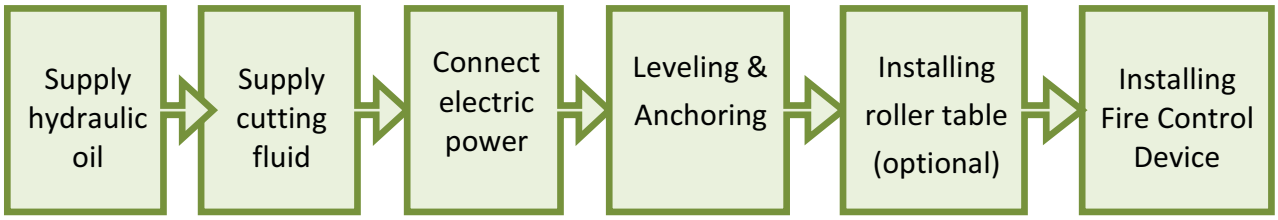
CLEANING

After the machine has been placed at the designated position, remove the rust-preventive grease with wiping cloth dampened with cleaning oil or kerosene. Apply machine oil to machine surfaces that are prone to rust.

Do not remove the rust-preventive grease with a metal scraper and do not wipe the painted surfaces with solvent as doing so would damage surface paint.

INSTALLING

Cosen's bandsaw machine is relatively easy to install. Follow these six easy steps to install your machine.



Supplying hydraulic oil

Open the filler cap and fill the hydraulic oil tank to above 2/3 or full level.

Check the sight gauge to make sure the oil level in the tank.

Refer to specification chart under Section 2 for tank capacity.

Oil tank should be full already if it is a new machine that operates for the first time.

Supplying coolant

Fill the coolant tank to the middle level of the sight gauge by pouring the coolant from above the chip conveyor.

Use the sight gauge to check the coolant level remaining in the tank.

Always check the coolant supply before starting the machine. If the coolant pump is started without enough coolant supply in the tank, the pump and its drive motor may be damaged.

Refer to specification chart under Section 2 *General Information* for tank capacity.

Consult your coolant supplier for bandsaw use regarding coolant type and mix ratio.

Connecting electric power

Have a qualified electrician make the electrical connections.

If the power supply voltage is different from the transformer and motor connection voltage shown on the label attached to the electrical compartment of the machine, contact COSEN or your agent immediately.

Connect to power supply independently and directly. Avoid using the same power supply with electric spark machines such as electric welder. Unstable electric tension may affect your machine's electric installation from working properly.

Ground the machine with an independent grounding conductor.

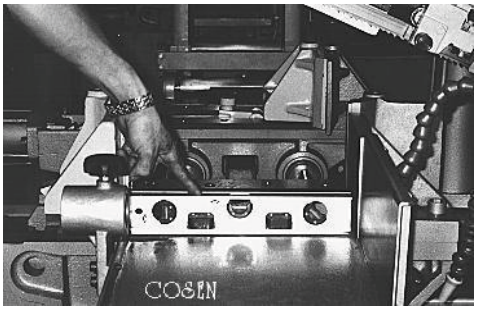
Supply voltage: 90% - 110 % of nominal supply voltage.

Source frequency: 99% - 101 % of nominal frequency.

Refer to the specification chart under Section 2 for total electric power consumption of the motors and make sure your shop circuit breaker is capable of this consumption amount. Also use a power supply cable of proper size to suit the power supply voltage.

1. Turn off the shop circuit breaker.
2. Make sure the machine circuit breaker switch on the electrical compartment door is turned to OFF.
3. Remove the screw securing the electrical compartment and then open the door.
4. Pull the power supply cable and grounding conductor through the power supply inlet into the electrical compartment. (Shown right)
5. Connect the power supply cable to the circuit breaker (N.F.B.) to the R, S and T terminals, and connect the ground cable to the E terminal.
6. Close the compartment door and fasten the screw back.
7. Turn on the shop circuit breaker and then turn the machine circuit breaker switch to ON. The *Power Indicator* on the control panel will come on.
8. Turn clockwise to unlock the *Emergency Stop* button and press the *hydraulic ON* button to start the hydraulic motor.
9. Make sure the sawing area is clear of any objects. Start the blade and check the blade rotation. If the electrical connections are made correctly, the blade should run in a counterclockwise direction. If not, shut the hydraulics off, turn off the machine as well as the shop circuit breaker. Then swap the power the power cable conductors connected to R and T terminals.
10. Repeat step 6 to 9 to ensure the electrical connections are in the right order.

Leveling



Place spirit level on the vise slide plates and the work feed table.

Level the machine in both directions i.e. along and across the machine. Adjust the level of the machine by turning the leveling bolts.

Make sure all leveling bolts evenly support the machine weight.

In some cases, leveling the machine with a slight slope toward the front of the machine is recommended as it would prevent coolant from running down cutting material especially tubes or bundles. To do so, make the rear end of the machine approximately 10 mm higher than the level of the front end.

Anchoring

Normally there is no need to anchor the machine. If the machine is likely to vibrate, fix the machine to the floor with anchor bolts.

Shock absorption steel plates are provided and can be placed under each leveling bolt to prevent their sinking into the concrete floor.

Installing roller table (optional)

The roller table is used to support long material at the rear and/or the front of the machine.

If you have ordered the optional roller table for cutting long material, position it before or behind the machine.

Level the roller table and the stand with the machine by adjusting the leveling bolts.

Installing Fire Control Device

Install a fire extinguisher or any other fire control device in the shop in case a fire breaks out.

RELOCATING

We recommend you follow these procedures when relocating or shipping your machine to other place:

1. Descend the saw frame to its lowest position then turn off the power.
2. Fix the saw frame using the shipping bracket that originally came with the machine.
3. If you are shipping the machine, pack the machine carefully with industrial plastic wraps to protect it from dust.
4. Use a crane or forklift to raise it. If a crane is used to lift the machine, ensure that the lifting cable is properly attached to the machine.
5. Do not forget to include the equipments originally furnished including the shock absorption steel plates and the instruction manual.

Section 4

OPERATING INSTRUCTIONS

SAFETY PRECAUTIONS

For your safety, please read and understand the instruction manual before you operate the machine.
The operator should always follow these safety guidelines:

- The machine should only be used for its designated purpose.
- Do not wear gloves, neckties, jewelry or loose clothing/hair while operating the machine.

- For eye protection, always wear protective safety glasses.

- Check the blade tension and adjust blade guides before starting the machine.
- Use auxiliary clamping or supporting devices to fix material in place before cutting long workpieces. Always make sure the material is clamped firmly in place before starting to cut.
- Do not remove jammed or cut-off pieces until the blade has come to a full stop.
- Keep fingers away from the path of the blade.

- Protection devices should be in place at all times. For your own safety, never remove these devices.
- Disconnect machine from the power source before making repairs or adjustments.

- Wear protection gloves only when changing the blade.

- Do not operate the machine while under the influence of drugs, alcohol or medication.

- Do not take your eyes off the machine while in operation.
- Do place warning signs to mark out machine work zone and restrict entry to be staff-only.

BEFORE OPERATING

Choosing an appropriate saw blade and using the right cutting method is essential to your cutting efficiency and safety. Select a suitable saw blade and cutting method based on your work material and job requirements e.g. cutting accuracy, cutting speed, economic concern, and safety control.

Wet cutting

If you choose dry cutting or low-speed cutting, the chips may accumulate in machine parts and may cause operation failure or insulation malfunction. We suggest you choose wet cutting to avoid machine damage.

Cutting unknown materials

Before cutting an unknown material, consult the material supplier, burn a small amount of chips from the material in a safe place, or follow any other procedure to check if the material is flammable.

 Never take your eyes off the machine while in operation.

Cutting fluid

For cooling and lubrication purpose, we recommend you use water-soluble cutting fluids. The following table lists out its pros and cons for your reference.

Pro	Con
• Have a high cooling effect • Not flammable • Economical • Does not require cleaning of the cut products	• Remove machine paint • Lose its rust protection effect if deteriorated • Tend to create foam • Subject to decay • Decline in performance, depending on the quality of the water used for dilution

 Never use water as your coolant.

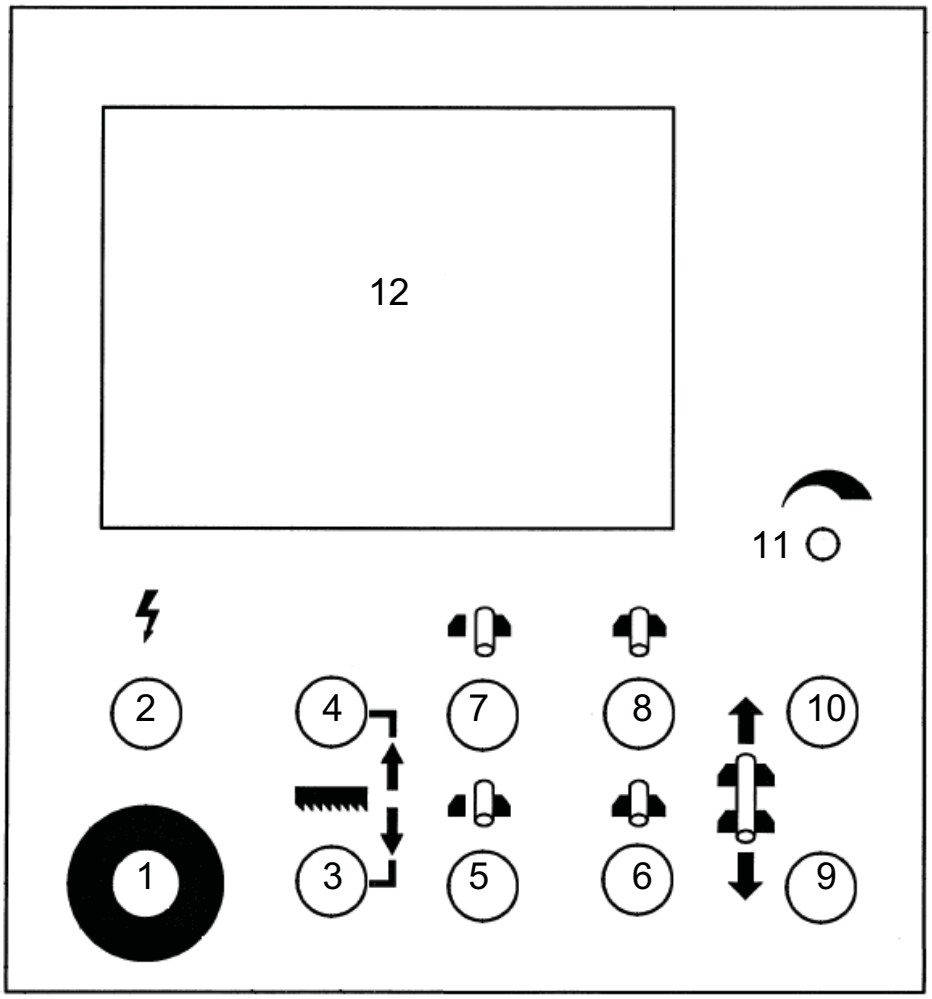
 Always add coolant into water for better mix result.

 Consult your coolant supplier for bandsaw use regarding coolant type and mix ratio.

 Before starting a cutting job, make sure there is sufficient amount of coolant in the tank. Check the fluid level through the sight gauge. Please refer to machine specifications in this manual (Section 2) for tank capacity.

CONTROL PANEL

The control panel is located on the top of the electrical box. It includes the following function: power system, hydraulic system, cooling system and the human-machine–interface (HMI). The operator must fully understand the function of each switch and button before operating the machine.



No.	Name	No.	Name
1	Emergency stop button	7	Rear vise open button
2	Power indicator lamp	8	Rear vise clamp button
3	Saw bow down button	9	Feed forward button
4	Saw bow up button	10	Feed backward button
5	Front vise open button	11	Blade speed control knob
6	Front vise clamp button	12	HMI touch screen

Control Buttons

1. Emergency stop button

Press this button to stop the machine in an emergency. When the button is pressed, it brings the machine to a full stop. The button locks when pressed. In order to unlock it, please turn the button clockwise.

2. Power indicator lamp

When the lamp is on, it indicates the power to the machine is turned on.

3. Saw bow down button

When this button is pressed, the saw bow descends.

 Before lowering the saw bow, the guide arm must be positioned outside the vise in order to avoid hitting the vise and causing damages.

4. Saw bow up button

When this button is pressed, the saw bow rises until the operator lets go of the button or until the saw bow touches the upper limit switch.

 While pressing the *saw bow up* button can stop the running blade, please still make use of the *emergency stop* button in an emergency.

5. Front vise open button

This button only works when the machine is switched to manual mode “”.

 If the saw bow is not above the middle limit switch, the front vise can only be opened in small increments, so as to prevent the vise from hitting the guide arm.

6. Front vise clamp button

This button only works when the machine is switched to manual mode “”.

7. Rear vise open button

This button only works when the machine is switched to manual mode “”.

8. Rear vise clamp button

This button only works when the machine is switched to manual mode “”.

9. Feed forward button

- When this button is pressed, the feeding workbed will move forward. Press and hold the button to feed forward. As soon as the button is released, the feeding workbed will stop moving forward.
- This button only works when the machine is switched to manual mode "✋".
- This button is only in function when the quick approach bar is touching the upper limit switch AND when either of the front and rear vises are unclamped.

 After the blade motor starts running, the function of rear vise is disabled due to safety concerns.

10. Feed backward button

- When this button is pressed, the feeding workbed will move backward. Press and hold the button to feed backward. As soon as the button is released, the feeding workbed will stop moving backward.
- This button only works when the machine is switched to manual mode "✋".
- This button is only in function when the quick approach bar is touching the upper limit switch AND when either of the front and rear vises are unclamped.

 After the blade motor starts running, the function of rear vise is disabled due to safety concerns.

11. Blade speed control knob

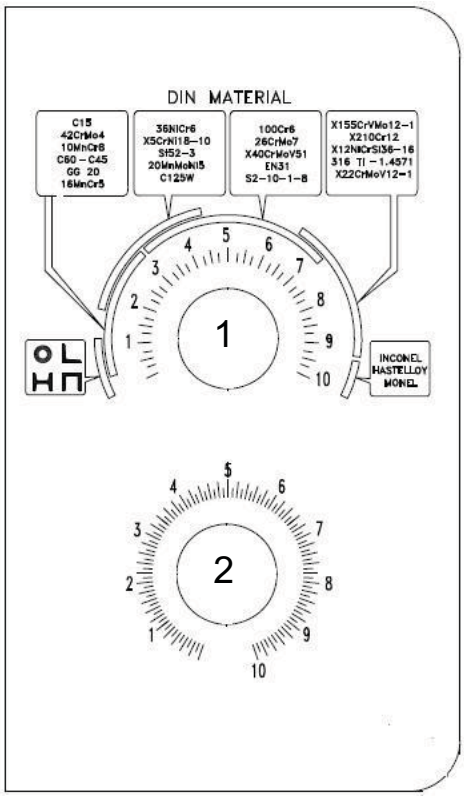
Blade speed is controlled by the inverter located under the workbed. Turning the knob clockwise increases the blade speed.

12. HMI touch screen

Please refer to later section for detailed introduction.

Blade Descend Pressure and Speed

The part of control panel is where cutting pressure and saw bow descend speed can be adjusted.



Cutting pressure and speed control panel

1. Cutting pressure control knob

- This pressure control knob is used to adjust the cutting pressure of the blade.
- Turning the knob clockwise increases the cutting pressure.
- To obtain a good cutting result, choose the right cutting pressure by turning the knob until it points to your material on the color chart.

2. Blade descend speed control knob

- This knob is used to adjust the descend speed of the saw blade.
- Turning the knob clockwise increases the blade descend speed.
- Blade descend speed is a determining factor to a good cutting time and quality cutoff surface.
- Set the blade descend speed in accordance with the *cutting pressure control* knob.
- Also commonly known as the flow control valve

Human-machine-interface (HMI) touch screen

This HMI touch screen displays operation messages so that the operator is able to understand the system condition. It also provides different operating modes and selections for the operator to work with. During a cutting job, the operator can still enter the system and make changes to the cutting operation as needed.

Do not wipe or clean the screen with volatile solvents.

Do not overexert pressure on the screen. The touch screen is very sensitive; all buttons on the screen just need a slight touch to operate.

All range parameters in HMI are configured under the “manual” mode.

Please pay attention to the following environment conditions necessary for HMI touch screen to properly operate:

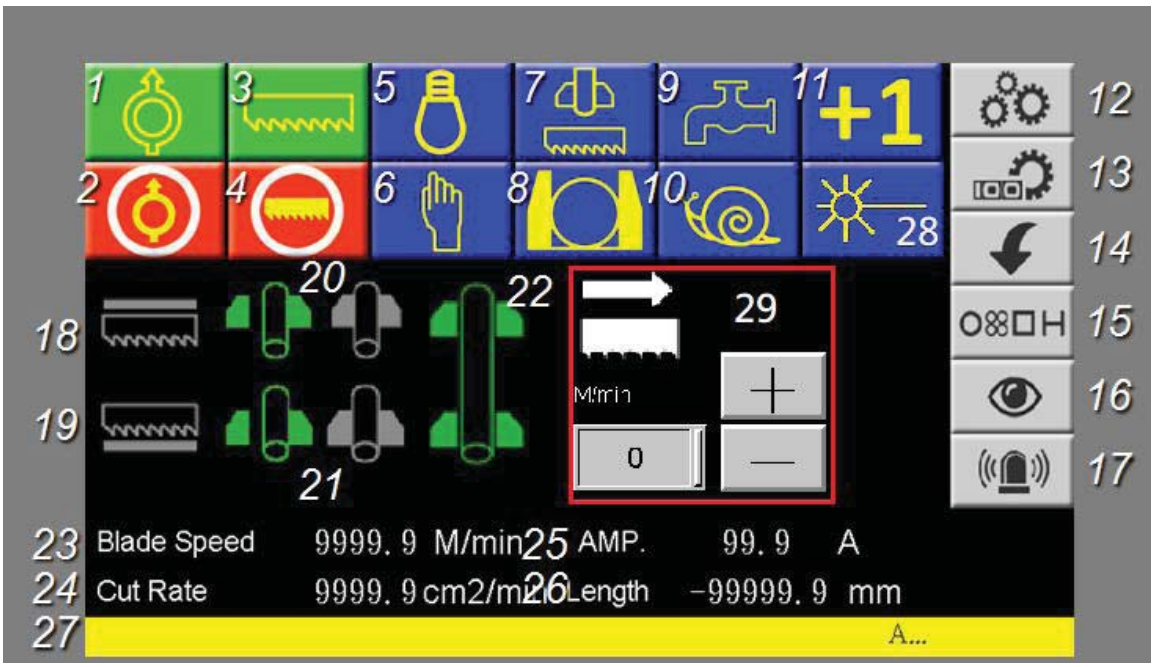
Item	Range
Ambient temperature	5℃ ~ 50℃
Temperature for safe operation	-10℃ ~ 60℃
Ambient humidity	30%~85% RH (No condensation)
Connection	RS422 MMI port
Environment	No condensation and rust

Startup Screen

After the power is turned on, Cosen's logo will appear as the startup screen, followed by the main operation menu..

Main control menu

The main control menu includes some operating button that were used on the control panel of the earlier machines. Some convenient functions are added to the page for the operator to better understand the features of the machine. Setting the parameters shown on the screen requires a gentle touch of the finger. You can also look up the parameters or make changes while in the middle of a cut.

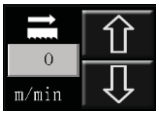


Refer to the table below for descriptions of each function.

No.	Item	Function	Description
1		Hydraulic start	When the power is turned on, press this button to start the hydraulic motor. A solid yellow icon indicates the hydraulic system has been turned on. 
2		Hydraulic stop	Press this button to turn off the hydraulic motor immediately.  When the blade is running, the Hydraulic Stop button is temporarily disabled. You need to press the *saw blade stop* or the *saw bow up* button to stop the blade first.
3		Blade start	When the work piece is clamped properly, press this button to start cutting. A solid yellow blade icon indicates the blade has been started. 
4		Blade stop	Press this button to stop the blade.
5		Work light ON/OFF	Press this button to turn on the work light. The light bulb showing a solid yellow icon indicates the worklight has been turned on. 
6	 	AUTO / Manual mode	Use this button to switch between automatic and manual mode. ● **AUTO mode:** used to automatically perform continuous cutting jobs. When switched to this mode, the machine will automatically operate according to the preset parameters. ● **Manual mode:** used to perform individual cutting job. When switched to the Manual mode, you can execute each individual function.  *Trim Cut* - When the machine is switched from the Manual mode to the AUTO mode, the first cut (trim cut) will not be counted into finished cuts and the machine will continue to operate according to the preset parameter. This function allows the machine to finish the trim cut and directly proceed into automatic cutting till the last cutting job.  If you switch to manual mode while cutting is already in action under AUTO mode, the machine will stop after the individual cut is finished. Switching to manual mode at any

No.	Item	Function	Description
			time other than cutting, the machine will proceed with the next cut until it is finished.
7		Material retract 2mm ON/OFF	When this function is turned on, the machine will retract the material for 2mm after completing each cut before the blade rises from its lowest position. A solid yellow icon indicates the *Material retract 2mm* mode has been turned on. 
8		Single/Bundle cutting mode	This button is used to switch between single or bundle cutting mode. ● Switch to single cutting model () to cut a single work piece. ● Switch to bundle cutting mode () to cut a stack of work pieces.  When under bundle cutting mode, the feeding vise must be touching the front limit switch for the blade to be able to start.
9		Coolant ON/OFF	Press this button to turn on the coolant pump. A solid yellow faucet icon indicates the coolant pump has been turned on.  Press again to turn off the coolant pump.
10		Slow material feeding mode	Used only when under Manual mode. When the slow material feeding mode is turned on, the material feeding speed will dramatically reduce to help you position the work piece precisely.
11		Trim cut ON/OFF	This selection button works with the AUTO mode. When under AUTO mode and before proceeding with your automatic cutting jobs, select +0 if you wish the first cut to be “trim cut” i.e. trimming the edge of your material without the cut being counted into the “finished cuts.” In the other hand, select +1 if you do not need to trim cut the material. The first cut will then be counted as the first cut of your programmed jobs.  After the first cut begins, you may still change your selection before the saw bow has descended to its lowest point.

No.	Item	Function	Description
12		System parameter setting	Press this button to set up system parameters. Password is required.  All parameters have been set up by the manufacturer. In order to prevent random change from being made to these parameters and affect cutting precision and machine life, this function is protected with a set of password.
13		Cutting program setting	Press this button to directly enter the cutting job program setup page. A total of 100 cutting programs can be set.
14		Cutting parameter setting	Press this button to display cutting-related information e.g. total number of cuts completed and feeding length OR to set parameters e.g. cutting lengths and quantity. (A total of 100 cutting programs can be set.) Blade deviation detector (optional) can be also configured in this setup page. Refer to Cutting Display & Setup in the following page.
15		Material cutting reference	This reference chart lists out the required blade speed and cutting rate for each different material.
16		PLC monitor	Shows current PLC signals.
17		Error report	Lists a historical report of the errors and the time of occurrence as well as provides troubleshooting support.
18		Saw blade up indicator	Indicates that the saw blade is rising. When activated, the saw blade icon will turn solid white. 
19		Saw blade down indicator	Indicates that a cut is completed and the saw blade is at its lowest position. When the blade completes each cut and triggers the lower limit switch, the saw blade icon will turn solid white. 
20		Rear vise status indicator	Indicates if the **rear** vises have clamped and secured the workpiece. When the rear vises have secured the workpiece, the clamping vise icon on the right will turn solid white. 

No.	Item	Function	Description
21		Front vise status indicator	Indicates if the **front** vises have clamped and secured the workpiece. When the front vises have secured the workpiece, the clamping vise icon on the right will turn solid white. 
22		Feeding movement indicator	When the feeding vise reaches the front limit, the vise set icon will turn solid white. 
23		Blade speed display	Displays current blade speed.
24		Cutting rate display	Displays the current cutting rate.
25		Blade motor amp draw	Displays the motor amperage drawn. With this information the operator will be able to optimize cutting speed and blade usage.
26		Feeding length display	Displays current feeding length while the material is being fed.
27	 (yellow highlight)	Error display	Displays error messages in the order of occurrences; press the message for one second to clear the messages.  **The message must be cleared for the machine to continue to operate normally.**
28		Laser light ON/OFF	Press this button to turn on the laser light. A beam of light will be projected on the work piece for alignment. A solid yellow light bulb icon indicates the lamp has been turned on.  The laser light automatically turns off in 90 seconds to prolong light bulb lifetime.
29		Blade speed controller (Options with V Drive)	Blade speed is controlled by the inverter located under the workbed.

Cutting program setup

When cutting is in operation, press  to quickly access the cutting program setup page.

Notice:

1. 100 cutting jobs (job 00~99) is the Max Amount for the system to save; more than 100 jobs setting will start to cover the jobs from the first job of the HMI.(EX: If you set-up the 101th job, your first job(job 00) will be rewritten by the 101th job.)

2. The memory can keep 7 days without electric supply.

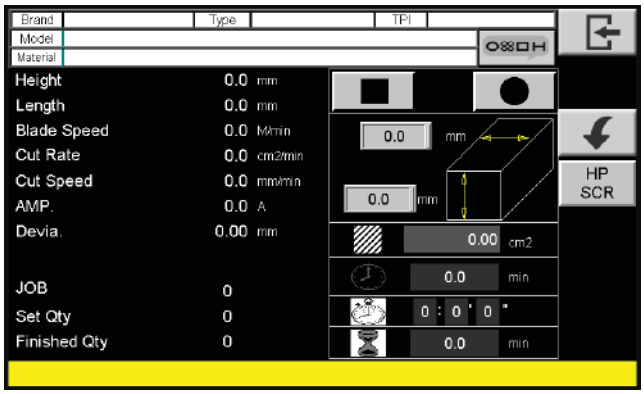
- In this page you can set your desired cutting length and quantity and see the number of finished cuts (*Cut Finished*) and number of current cutting job in operation
- A total of 100 cutting jobs can be set and performed under the automatic mode.
- In “start job” and the “end job” field, fill in the number of the cutting job you wish to start and end with. The machine will automatically perform cutting jobs within this range.
- In *Length* column, set each respective cutting length in mm or inch.
- In *Quantity* column, set each respective cutting quantity.
- Press Cut Piece button for 3 seconds to reset the cutoff quantity.

  If you start a new set of program without clearing cutoff data from previous job, the first cut (trim cut) will be skipped as the second program is deemed as the succeeding part of the previous program.

- All Reset - Reset all preset cutting data within *Start Job* and *End Job* by pressing this button for three seconds.
- Display of Remaining Pieces.
- Display of Remaining Time.
- Press  to return to the main control menu.
- Press 00~09, 10~19, 20~29, 30~39 to quickly jump between cutting programs (Job 00 ~ 99)

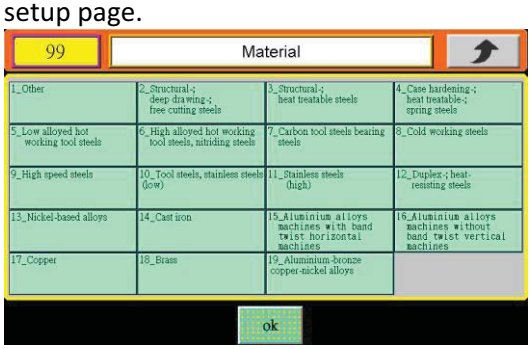
 *Cutting status display & setup*

When cutting is in operation, press  to enter cutting status display and setup page.



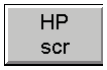
Page 1 – cutting status display & setup

- This page shows the following information (from top to bottom):
  - Blade brand, blade type, blade TPI, blade model, and cutting material are displayed. Press  to enter below material setup page.



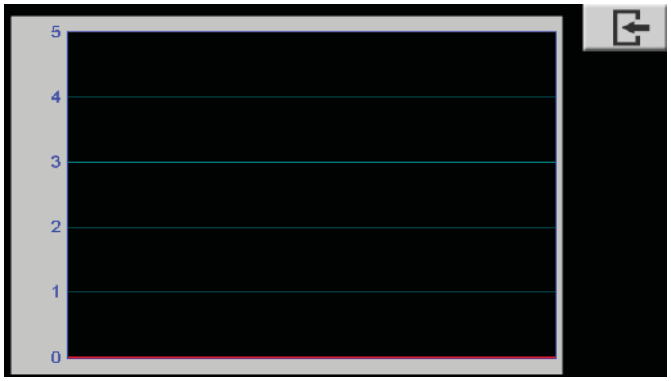
  - There are total 19 cutting material types. Choose the material type, press  and it will go back to last page automatically.  displays current chosen material. Press  to return to the last page.
  - Blade height
  - Feeding length (current feeding vise position)
  - Blade speed
  - Cut rate
  - Current blade descending speed (optional)
  - Deviation value (optional)
  - Current in ampere (optional)
  - Number of current cutting job/step in operation
  - Preset quantity of current cutting job
  - Number of cuts finished
  - Press  or  to switch between material shape: rectangle and circle.
  - Press  to key in the material size. Without inputing the material size, cut rate can not be calculated by the system.
  - Cutting area
  - The upper clock shows cycle time per cut.
  - The lower clock shows estimated cutting time in hour, minute, and seconds.
  - The sandglass shows how much time left to cut.

- Error messages (highlighted in yellow; can be cleared by pressing down for one second)

- Press  to return to the main control menu.
- Press  to go to the next page.
- Press 

to go to Horse Power screen page.

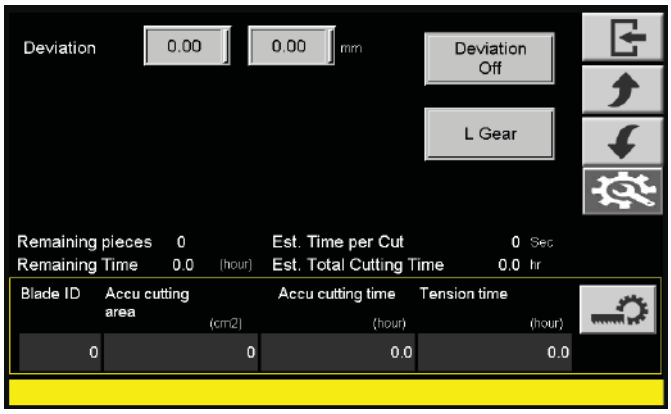
As Figure below:



V-Drive Page (Optional)

Tap this button to enter the HP (horsepower) monitor screen for V_Drive, which is an optional accessory for enhancing cutting efficiency and reducing cutting vibrations.

- Press  to return to the main control menu.



Page 2 – cutting status setup

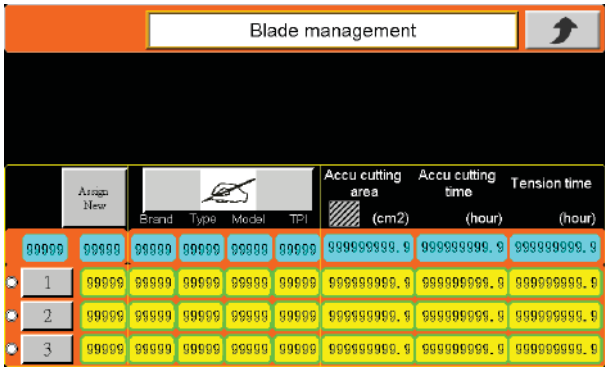
- Blade ID, accumulative cutting area, accumulative cutting time and accumulative tension time are displayed.
- Remaining pieces, Ext. Time per Cut, Remaining Time and Est. Total Cutting Time are displayed.
- Deviation Off (On) button:
  - Turn On/Off the deviation detecting function.
- Deviation Value Set-Up:
  - Set up the tolerance of deviation value; if the value out of range when blading for 15 seconds, the machine will be automatically full stopped with alarm message.
  -

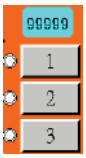
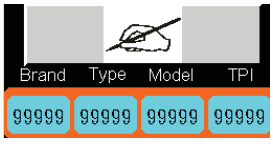
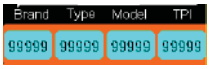
Deviation Tolerance (Recommended):

±0.1~0.5 mm (±0.004”~0.02 ”) 。

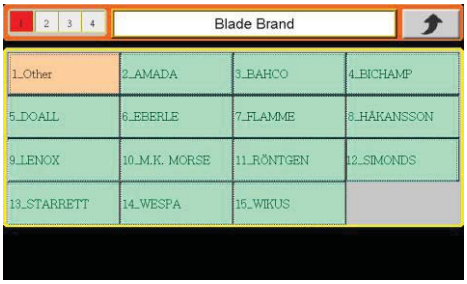
＊Set up according to the tolerance range the users need.

- Press  to open the blade set up page shown below.



- Press  to go back to the last page.
-  - Display current chosen blade number. Only 3 blades' information can be saved and displayed here. Press  ,  or  to choose blade number and blade information in blue fields will change according to the chosen blade. For example,  displays the current chosen blade number. The yellow light indicates the current chosen blade.
-  - Assign and display new blade ID. Press  for 3 seconds to key in the new blade ID.  displays the current chosen blade ID. The default blade ID are 0, 1, and 2, correspondsing to blade number 1, 2, and 3. Default blade information of blade ID 1 and 2 is blank. If blade number 1 breaks, you can either press  to assign a new ID, which will be 4 in this case, to the new blade, or you can press  and save the new blade's info as blade ID 1.
-  - Setup and display blade brand, blade type, blade model and blade TPI. Press  for 3 seconds to enter below blade brand, blade type, blade model and blade TPI set up page. Setup the blade brand, blade type, blade model and blade TPI here. 

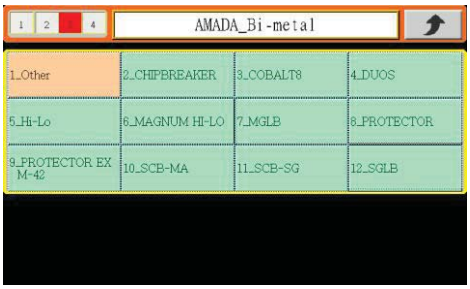
displays current chosen blade brand, blade type, blade modle and blade TPI.

- 

- There are total 15 blade brands. Choose the blade brand and it will go to blade material type page automatically. Press  to return to the last page.

- 

-
There are total 5 blade material types. Choose the blade material type and it will go to blade model page automatically. Press  to return to the last page.

- 

- After choosing the blade brand and blade material type, the corresponding blade models will appear. Choose the blade model and it will go to blade TPI page automatically. Press  to return to the last page.

- 

-

Choose the blade TPI. Press 

to finish setup. Press  to return to the last page.

- 

- Displays accumulative cutting area of current chosen blade.
- 

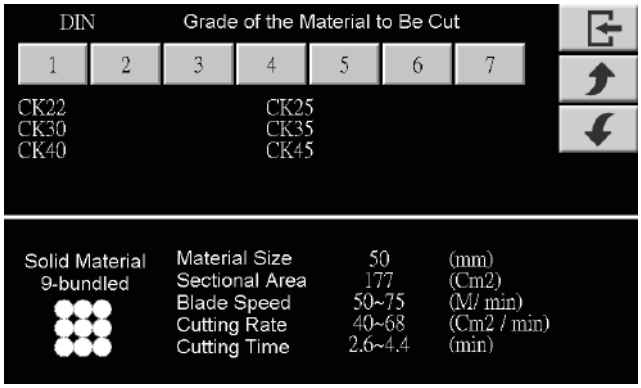
- Displays accumulative cutting time of current chosen blade
- 

- Displays accumulative tension time of current chosen blade.
- Error message (bottom of page)
- Press  to return to the main control menu.
- Press  to go back to the previous page.
- Press  to go to the next page.

Page 3 – cutting program setup

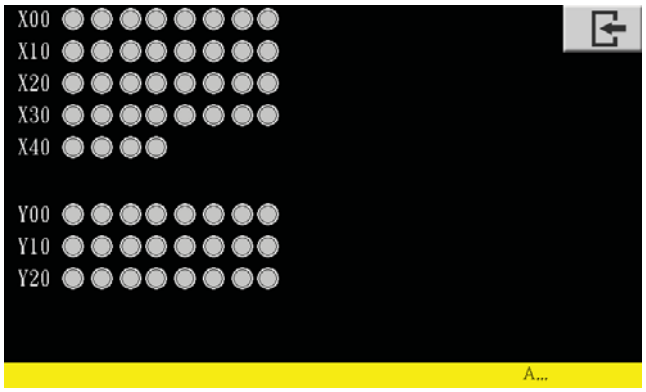
- This setup page is the same as the cutting program setup page.

Material cutting reference



- This reference chart lists out the required blade speed and cutting rate for each different material.
- Press  to return to the main control menu.
- Press  to go back to the previous page.
- Press  to go to the next page.

PLC Monitor



- Shows all signals of the PLC system.
- Press  to return to the main control menu.

Error report

Page 1 – error report

- Lists a historical report of the errors and the time of occurrence.
- Press  to return to the main control menu.
- Press  to go to the troubleshooting support page.

Page 2 – troubleshooting

- Provides suggestions on troubleshooting.
- Also refer to the below Table for error codes, descriptions and solutions.
- Press  to return to the main control menu.
- Press  to go to the next page.

Error Code	Error Description	Solution
M300	Front vises not clamping	Check if the queen valve works.
M301	Rear vises not clamping	Check if the queen valve works.
M303	Lower limit switch error	Check if the lower limit switch works.
M304	Hydraulic motor not starting	Check if the hydraulic motor works.
M306	Broken blade detected	1. Check if the speed switch works. 2. Check if the blade is broken.
M308	Left safety door abnormal	1. Check if the left safety door is shut properly. 2. Check if the left safety door limit switch works.
M309	Right safety door abnormal	1. Check if the right safety door is shut properly. 2. Check if the right safety door limit switch works.
M312	Quick approach bar abnormal	Check if the quick approach limit switch works.
M313	Blade motor overload	Check if the blade motor overload relay has tripped.
M314	Hydraulic motor overload	Check if the hydraulic motor overload relay has tripped.
M315	Coolant pump overload	Check if the coolant pump motor overload relay has tripped.
M316	Saw bow upper limit abnormal	Check the upper limit switch works.
M350	Insufficient length - first cut	Make material 100mm out of vise
M352	Front vise clamping error	1. Place new material. 2. Check if the vise queen valve works. 3.Check if the “no material parameter” is too small.
M357	Saw bow descending error	1. Check if the descend solenoid valve is stuck. 2. Check the quick approach bar works. 3. Check if the quick approach bar limit switch works.
M358	Saw bow ascending error	1. Check if the ascend solenoid valve is stuck. 2. Check the quick approach bar works. 3. Check the quick approach bar limit switch works.
M361	No material	1. Place new material. 2. Check if the vise queen valve works. 3.Check if the “no material parameter” is too small.
M363	PLC battery voltage too low	Replace PLC battery.

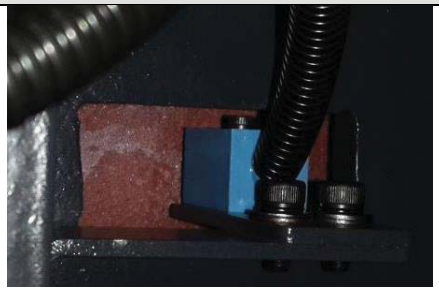
STANDARD ACCESSORIES

Blade tension device

- This blade tension device equipped with hydraulic cylinder provides appropriate tension to the saw blade.
- To tighten the saw blade, turn the selector to  .
- Upon saw blade breakage, the safety device will activate and automatically stop all machine operation.
- The limit switch of the safety device can be reset by turning the blade tension selector to  .
- To change the blade, turn the handle to  to release saw blade tension.

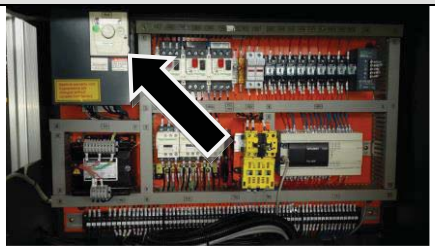
Never adjust blade tension while the blade is running.

Blade speed/motion detector



- Besides detecting the blade speed, the speed/motion detector also functions as a safety device.
- The speed/motion detector protects operators and the machine by preventing blade overloads and consequent damages if a saw blade breaks or skids.
- Once blade breakage or slippage is detected, the drive wheel will stop in 10 seconds.

Inverter

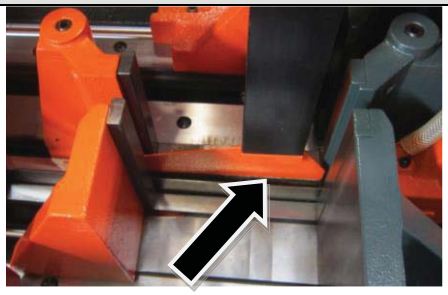


- This inverter is installed inside the electrical compartment. It is used to control and stabilize the saw blade speed during cutting.
- To adjust blade speed, use the blade speed control knob on the control panel.

Note:

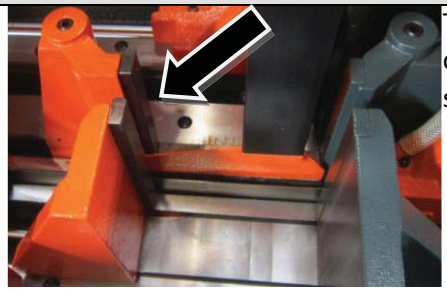
1. Make sure the terminal points are connected.
2. Make sure the ambient temperature is within acceptable range and keep the surroundings well ventilated.
3. Keep the inverter away from dust.
4. For repair or maintenance, please contact your local agent.

Quick approach device



This device allows the blade to quickly descend to just right above the material to save you operation time.

Split front vises



The spilt vises are a clever design to make sure your workpiece is tightly clamped by the two vises from both sides of the blade, maximizing stability and cutting precision.

Gear reducer

The specially designed gear reducer can work toward your preset blade speed and torque.

Please refer to Section 6 for information on maintenance.

Coolant pump

When the hydraulic system is turned on, the coolant pump can be operated individually from the control panel. Coolant can be used to wash off chips as well as providing cooling during cutting.

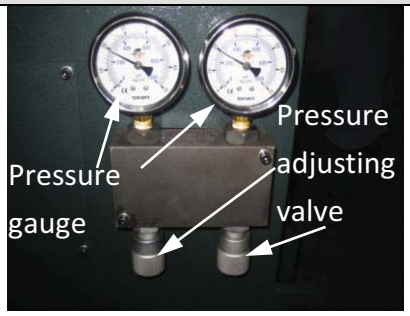
Chip conveyor

Chip conveyor is a spiral device to bring chips out during cutting.

As a regular maintenance, remove the chip conveyor and clean all chip deposits inside.

OPTIONAL ACCESSORIES

Vise pressure regulator

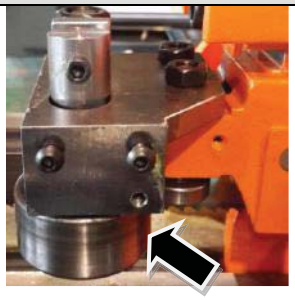


- This adjustment valve is used to control vise pressure.
- Adjust vise pressure based on the material of your workpiece.
- When cutting pipes or soft materials, reduce vise pressure to prevent exerted pressure from damaging the workpiece shape or exterior.

Do not adjust vise pressure at any time during cutting.

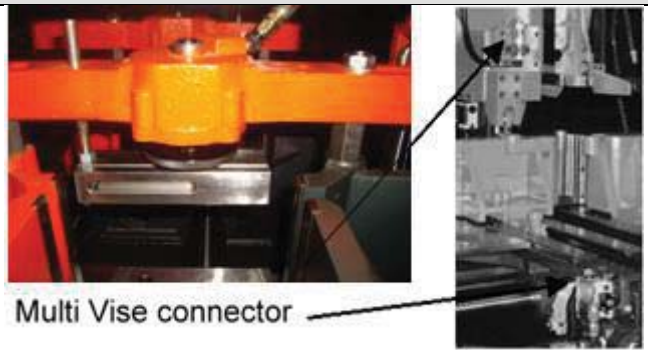
Vise pressure should never be lower than 8 kg/cm^2.

Vibration damper



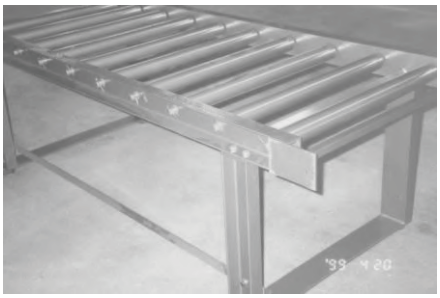
The vibration damper can be assembled to the left saw arm. This optional accessory is extremely useful in reducing the high-frequency noise produced when cutting large-sized material.

Hydraulic top clamps



- The top clamp device composed of two clamps is installed on top of the front and rear vises before executing bundle cutting.
- Refer to *Using Top Clamp for Bundle Cutting* for operating procedure on bundle cutting.

2M roller table



- The optional 2M roller table supports the work material and ensures the material be fed in smoothly.
- Refer to Section 7 for further information on adjusting the roller table.

Cosen Predictive Computing

Cosen Predictive Computing MechaLogix is a cloud based system that revolutionizes the metal-working and fabrication industry. MechaLogix utilizes innovative technology that not only includes blade life monitoring, but also predicts blade failure. This technology will decrease cost and maximize tool usage.

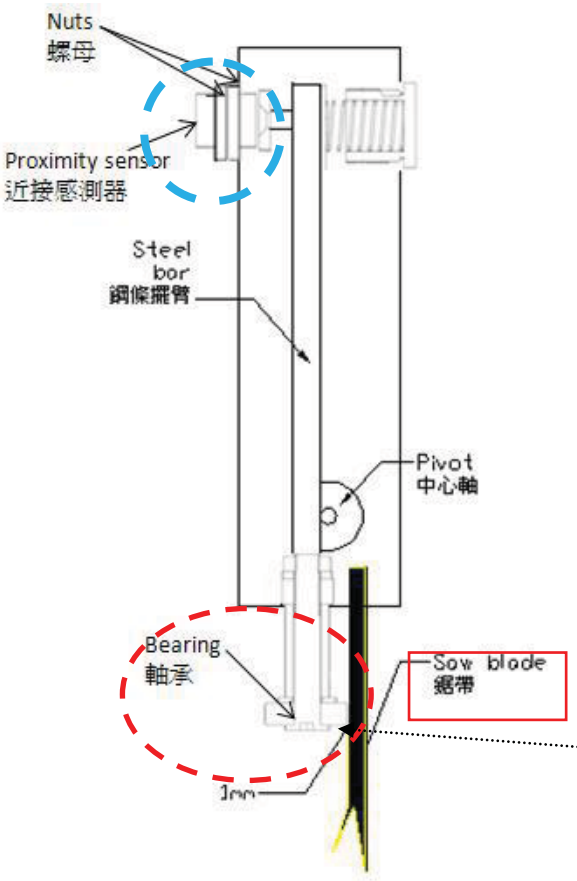
Blade Deviation Detector & Calibration Procedure (Optional)

Blade Deviation Detector

This device detects blade deviation. If the blade deviates beyond the preset range, the machine will stop automatically. When this device is installed, the cutting width will be reduced. The blade deviation detected value and preset values are displayed on the HMI screen.

Before cutting, please make sure if the deviation value is "Zero". If not, please calibrate the deviation detector before proceeding to cutting.

Deviation Value Display (Shown on HMI display)
Tolerance (Recommended):
±0.1~0.5 mm (±0.004"~0.02 ") 。
＊Set up according to the tolerance range the users need.



Deviation Dectector Side Section

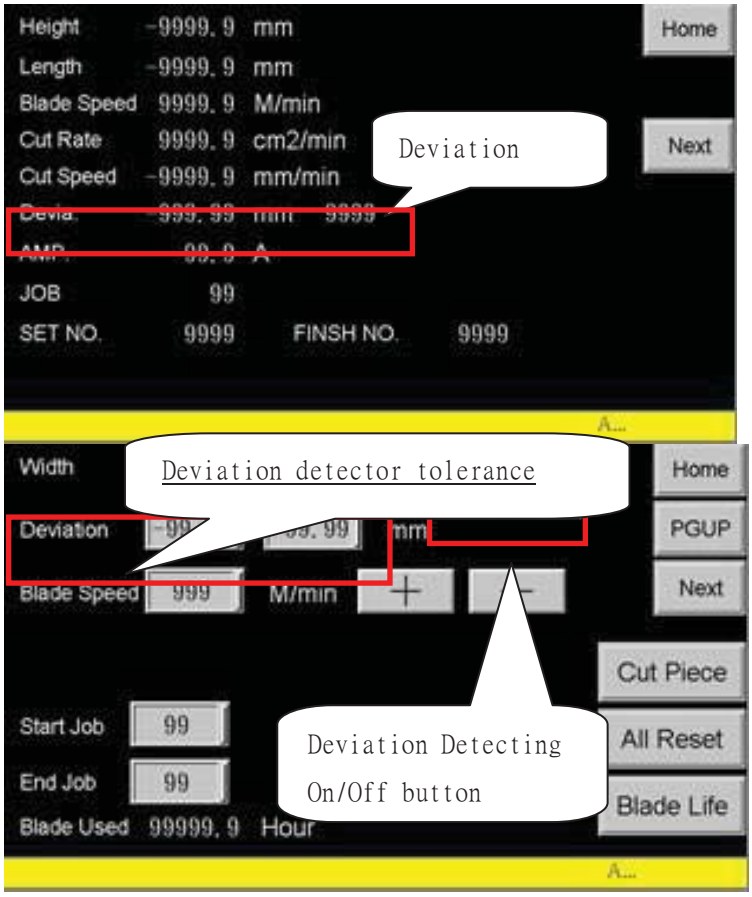
How to Adjust

1. Loosen the nuts.
2. Adjust the proximity sensor until the blade deviation value shown the display returns to zero. (Please refer to the next page.)
3. Tighten the nuts.

How to Check

Put a thick ruler (0.1mm) between saw blade and deviation roller for measurement. Also, check the deviation tilt value; it should be 0.1mm.

- Adjust the proximity sensor until the blade deviation displayed on the control panel is zero.
- If the deviation value not changed when adjusting the proximity sensor or **bearing**, it means the deviation detector with malfunction. Need to replace a new one.
- Please clean the internal shell of deviation detector sometimes for keeping dry and clean.



Picture B : Deviation calibration Value Display

- Make the proximity sensor connect with power & adjust the proximity sensor until the blade deviation displayed on the control panel is 0 mm。
- Tolerance: ±0.03 mm (0.0012”) 。

Picture C:
Deviation detector tolerance Set-Up & On/Off button

- Deviation Value Set-Up:
  - Set up the tolerance of deviation value; if the value out of range when blading for 15 seconds, the machine will be automatically full stopped with alarm message.
- Deviation Detecting On/Off button:
  - Turn On/Off the deviation detecting function.

***Deviation Detector Tolerance (Recommended):**
±0.1~0.5 mm (±0.004”~0.02 ”) 。

[NOTE]

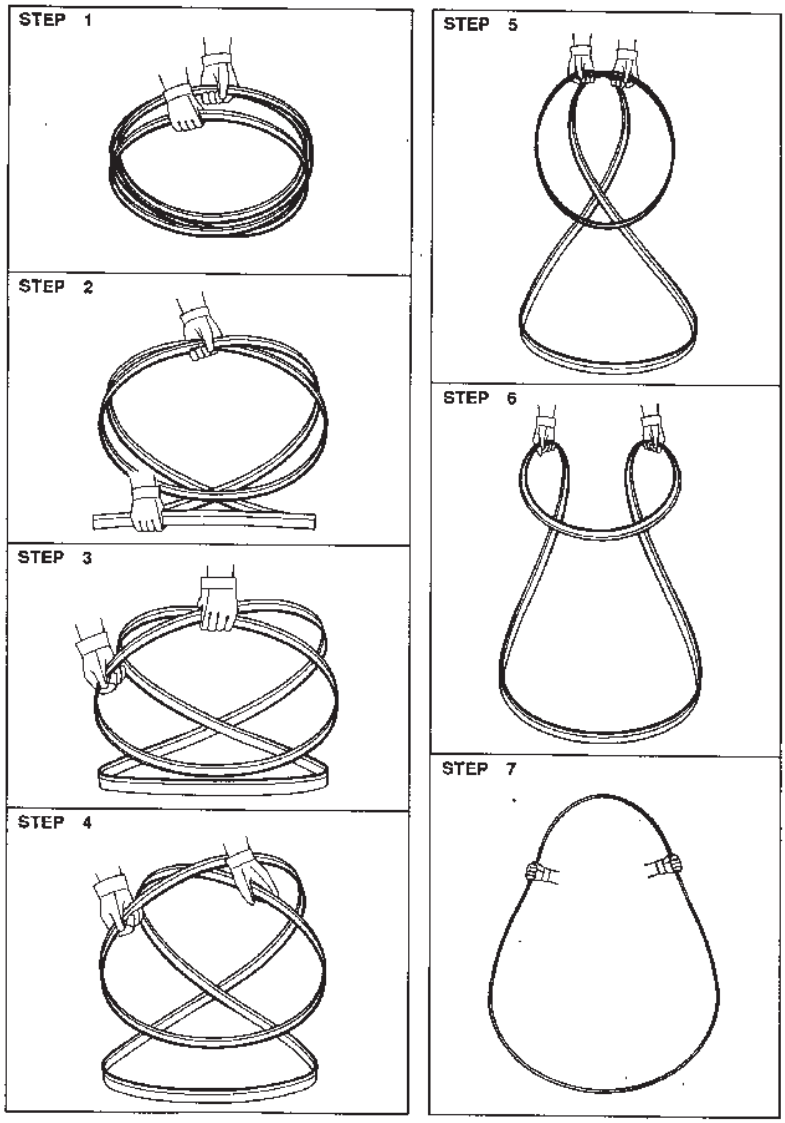
The information shown on HMI display: The format of HMI interface will be different from the difference of model and software design.

UNROLLING & INSTALLING THE BLADE


Always wear leather gloves and protection glasses when handling a blade.

Unrolling the blade

Please follow the procedures illustrated below.



Unroll and roll the blade

Installing a new blade

Step 1 - Select the most suitable saw blade for your workpiece considering the size, shape and material.

Step 2 - Turn on the machine power by switching to *ON*.

Step 3 - Switch to *manual* ( ) mode.

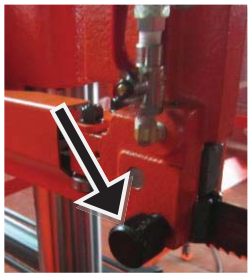
Step 4 - Press the *saw bow up* button and elevate the saw bow until it reaches to its highest point.

Step 5 - Turn the tension controller handle from "  " to "  " position to release tension. The idle wheel will then move slightly toward the direction of the drive wheel.

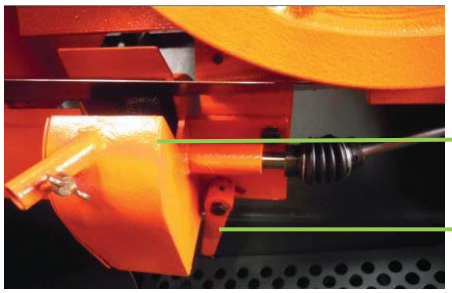
Step 6 - Open the idle and drive wheel covers.

Step 7 - Press the *Blade Clip* device to hold onto the blade. This device makes blade changing easy and feasible even with only one operator available.

Step 8 - Loosen the left and right carbide inserts by loosening the "lock nut" shown below.



Step 9 - Open the wire brush cover. Loosen the lock lever and lower the wire brush.



Step 10 - Remove the old blade. If necessary, clean the carbide inserts before installing a new saw blade.

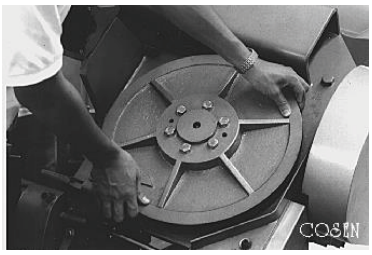
Step 11 - Place the new blade around the idle wheel and the drive wheel.

Step 12 - Insert the blade into the left and right tungsten carbide inserts. The back and the sides of the blade need to be touching the inserts as well as the adjacent rollers.

Step 13 - Place the blade to the drive wheel and press the back of the blade against the flange of the drive wheel. Use the *Blade Clip* device to tightly hold the blade from falling out of the

drive wheel.

When saw blade begins to rotate, the blade holder will automatically release the blade and fall back to its original position.



Step 14 - Make sure the back of the blade is also pressed against the flange of the idle wheel.

Step 15 - Turn the tension controller handle to [ ] position to obtain blade tension.

Step 16 - Make sure the sides of the blade are in close contact with the carbide inserts and then tighten the left and right carbide inserts by tightening the "lock nut."

Step 17 - Gently close the idle and drive wheel covers.

Step 18 - Press the *saw blade start* button to start the blade. Allow the blade to run for a few rotations then press the *saw bow up* button to elevate the saw bow. Open the wheel covers and make sure the blade has not fallen off the drive and idle wheels. If the blade has shifted, follow the same procedure to reinstall the blade again.

Step 19 - Adjust wire brush to a proper position. Refer to *Adjusting Wire Brush* in this section.

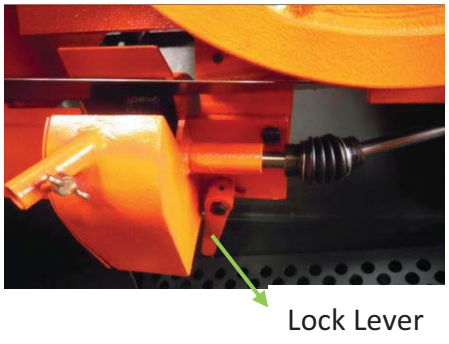
ADJUSTING WIRE BRUSH

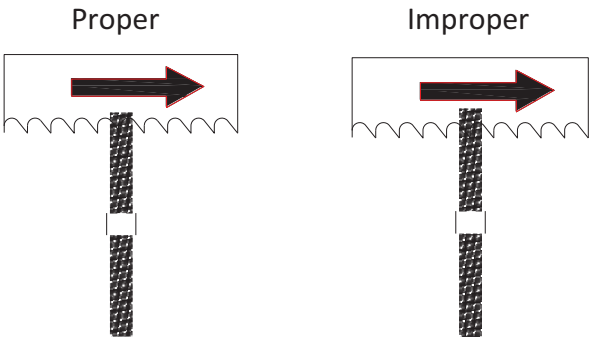
Follow these steps to adjust wire brush to appropriate position:

Step 1 - Loosen the lock lever and the wire brush cover.

Step 2 - Adjust the screw to make brush move up / down until it makes proper contact with the saw blade (see below illustration).

Step 3 - Reinstall the wire brush cover and tighten the lock lever.





ADJUSTING SAW ARM

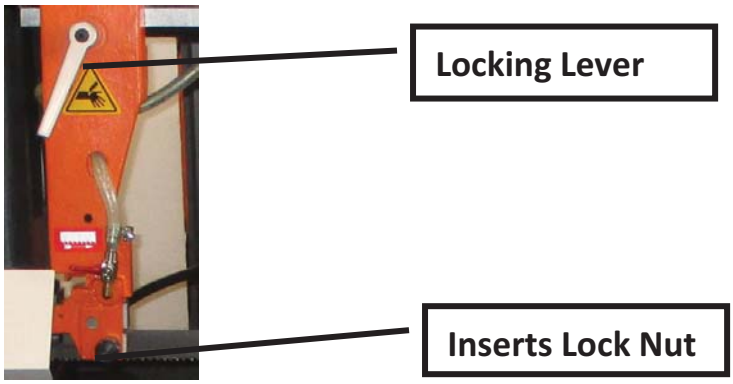
Adjust the blade guide (guide arm) position based on the size of your workpiece:

Step 1 – Loosen the inserts by unlocking the lock nut.

Step 2 – Loosen the blade guide locking lever. Then adjust the guide arm to a position suitable for your workpiece size.

Step 3 – After adjustment is made, tighten the blade guide locking lever.

Step 4 – Clamp the inserts back by tightening the lock nut.



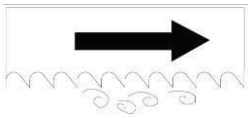
ADJUSTING COOLANT FLOW

Step 1 – Press the *saw blade start* button to start the saw blade drive motor.

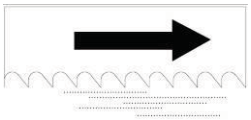
Step 2 – Press the *saw bow down* button to lower the saw bow.

Step 3 – Use the flow control valve (shown below) to adjust the amount of fluid flowing to the cutting area.

Adjust the flow amount if you observe the following changes to the chips generated from cutting.



If the chips are sharp and curved, increase the coolant flow amount.



If the chips are granulated, decrease the coolant flow amount.

PLACING WORKPIECE ONTO WORKBED

Step 1 – Press the *saw bow up* button and elevate the saw bow until it reaches to its highest point.
Step 2 – Press the *front vise open* and *rear vise open* buttons to open vises.
Step 3 – Loosen the vertical roller lock handles and fully open the vertical rollers.
Step 4 – Carefully place the workpiece onto the work feed table to where it extends approximately 30mm(1.2 inch) beyond the rear vise toward the front vise.

POSITIONING WORKPIECE FOR CUTTING

Follow these steps to position your workpiece:

Step		Action
rear vises clamp material	*1*	Press the *rear vise clamp* button until the workpiece is securely clamped.
align vertical rollers	*2*	Move the vertical alignment rollers toward workpiece until it stands against the workpiece. Lock the vertical alignment rollers by tightening the lock handles
feed material forward	*3*	Press the *feed forward* button until the rear vise touches the front limit switch.
front vises clamp material	*4*	Press the *front vise clamp* button until the workpiece is securely clamped.
rear vises retract to clamp material again	*5*	Press the *rear vise open* button.
	6	Press the *feed backward* button until the rear vises reach back limit switch.
	7	Press the *rear vise clamp* button until the workpiece is securely clamped again.
front vises open; prepare for precision position	*8*	Simultaneously press the *front vise open* button and the *rear vise clamp* button again to make sure the material is clamped.
confirm cutoff point	*9*	Press the *saw bow down* button to lower the saw bow until the quick approach bar descends to just about 10mm (0.4 inch)

		above the workpiece.  Under no circumstances should the quick approach bar be lowered below the height of the workpiece.
precision position	*10*	Press the *feed forward* button (and the *feed backward* button if necessary) until the cutoff point on the workpiece aligns with the blade line.
front vises clamp material; ready to cut	*11*	After the workpiece is correctly positioned, press the *front vise clamp* button so the workpiece is securely clamped.

ADJUSTING BLADE SPEED

Step 1 – Set the flow control to "0" position.
Step 2 – Press the *saw blade start* button to start the blade.
Step 3 – Turn the *blade speed control knob* to adjust the blade speed. The blade speed should be adjusted based on the size and the material of the workpiece.

BREAKING-IN THE BLADE

When a new saw blade is used, be sure to first break in the blade before using it for actual, extended operation. Failure to break in the blade will result in less than optimum efficiency. To perform this break-in operation, the following instructions should be followed:
Step 1 - Reduce the blade speed to one-half of its normal setting.
Step 2 - Lengthen the cutting time to 2-3 times of what is normally required.
Step 3 - The complete break-in operation requires cutting on a 645 mm2 (25.4 square inches) section for 5 times.
Step 4 - After the break-in operation is completed, set all parameters back to normal settings.

TEST-RUNNING THE MACHINE

Test-running this machine can ensure good machine performance in the future. We suggest you run the following tests on the machine before first use:

Testing machine performance:
Turn on the power and run a basic performance test after you finish installing the machine. Follow these steps to test machine performance:
Step 1 – Disassemble shipping brackets and bolts.
Step 2 – Install roller table (optional).

Step 3 – Turn on the relay switch in the control box.

Step 4 – Elevate the saw bow. (If your coolant pump is in reverse and the machine cannot run, please change the electrical phase.)

Step 5 – After the saw bow ascends, extend the quick approach device.

Step 6 – Remove the rust-prevention grease with cleaning oil or kerosene.

Step 7 – Start the coolant pump.

Step 8 – Test these functions under manual mode:

- vise clamping/unclamping
- saw bow ascending/descending
- feeding forward and backward.

CUTTING OPERATION

Step 1 – Check before you cut

- **Power:** Check the voltage and frequency of your power source.
- **Coolant:** Check if you have sufficient coolant in the tank.
- **Hydraulic:** Check if you have sufficient (at least two-thirds or higher) hydraulic oil.
- **Workbed:** Check if there is any object on the feeding bed that may cause interference.
- **Blade:** Check the blade teeth and make sure there is no worn out teeth along the blade.
- **Light:** Check the work lamp or laser light (optional) and make sure there is sufficient lighting.
- **Roller:** Check all the rollers on the front and rear workbed can roll smoothly.
- **Saw bow:** Check the saw bow to see if it can be elevated and lowered smoothly

Step 2 – Place your workpiece onto the workbed manually or by using a lifting tool e.g. a crane.

 Before loading, make sure the vises are opened to at least wider than the width of the workpiece.

Step 3 – Position your workpiece.

Step 4 – Clamp the workpiece.

Step 5 – Turn the *cutting pressure control* knob to adjust cutting pressure according to the material.

Step 6 – Adjust *blade descend speed control* knob to obtain a suitable blade descend speed for your material.

Step 7 – Start running the blade.

 Before you start cutting, check again that there is no other object in the cutting area.

Step 8 –While the blade descends, adjust the blade speed if necessary. You can do so by turning the *blade speed control* knob, clockwise to speed up and counterclockwise to slow down. The blade speed is displayed in the HMI touch screen.

Step 9 – Select the proper cutting condition according to different material.

Step 10 – After the entire cutting job is completed, elevate the saw bow to the top and open the vises to remove the workpiece.

Step 11 – Clean the workbed by removing chips and cutting fluids.
Step 12 – Lower the saw bow to a proper position then turn off the power.

STARTING AN AUTOMATIC OPERATION

Step 1 – Use manual mode and cut the edge of the workpiece by using the same procedures as those described under manual operation.
Step 2 – After the trim cut is completed and the saw blade has stopped at the lower limit position, press the *saw blade up* button to raise the saw bow until the quick approach bar is approximately 10mm (0.4inch) above the workpiece.
Step 3 – Turn the *Auto / manual* switch to manual.
Step 4 – Set your desired cutting length and quantity via the HMI touch screen. A total of 100 sets of cutting data can be programmed.
Step 5 – Turn the *Auto / manual* switch to Auto.
Step 6 – Press the *saw blade start* button and press the *saw bow down* button to start automatic cutting.

USING TOP CLAMP FOR BUNDLE CUTTING

 **Before Cutting , Make sure that the bundle is properly tightly clamped but not being distorted by clamp force.**

Any improper bundle cutting can cause damage to the blade, reduce the blade life.

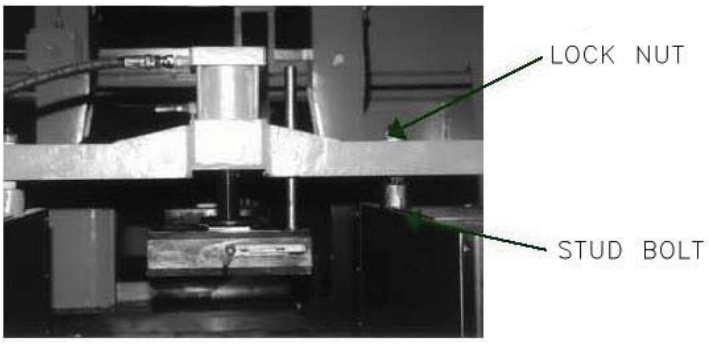
Notice: There are several factors to makes bundle cutting more difficult and unstable, such as vibration, wide guide spacing, coolant getting to the teeth and cutting through work hardened chips.

1. Each bar of the bundle is suggested to be the same size for being firmly clamped in the bundle.
2. Make sure that the bundle is properly placed (before cutting) to refrain from vibration, spinning and changing length position during cutting.
3. Tack welding ends of bars will prevent spinning but not vibration.

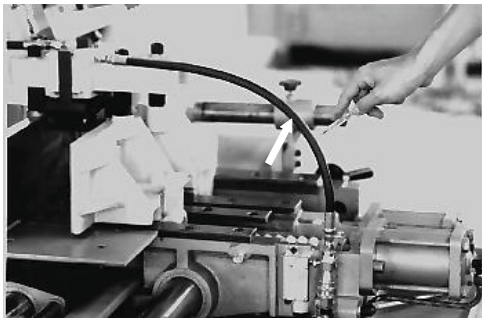
Installing top clamp

To perform bundle cutting, use the top clamps and take the following installation procedures.

Step 1 – Install stud bolts on the front and rear vises and position the top clamp.



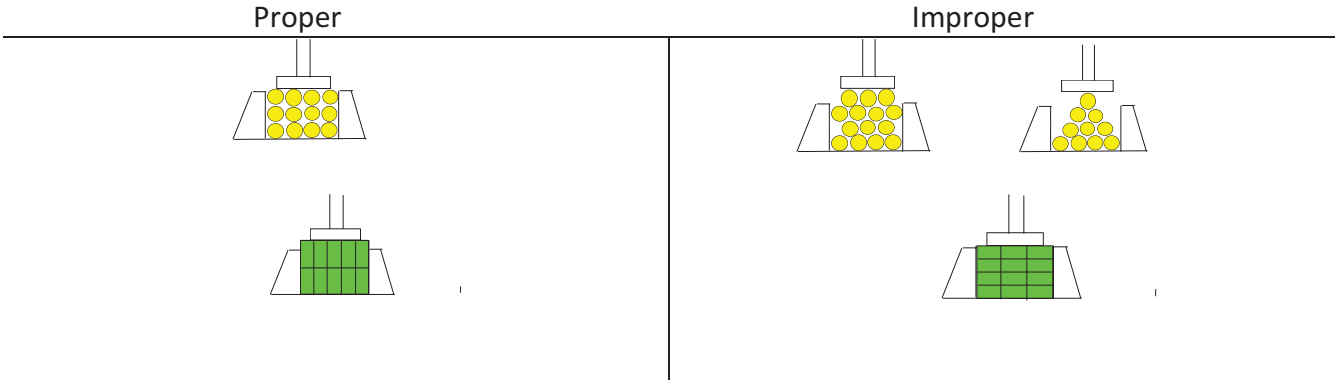
Step 2 – Connect the top clamp hoses to the pressure joints on the vise hydraulic cylinders.



Step 3 – Position the workpiece for bundle cutting.

Note the allowable clamping width and height. (Refer to *Section 2 General Information - Specifications*)

Proper and improper stacking of workpieces



Step 4 – Align the top clamp cylinders with the center of the workpiece and tighten the lock nuts.

Step 5 – Turn the top clamp handles so that the clearance between the top clamp jaw and the top of the bundled workpiece is within 5 to 10 mm (0.2 ~ 0.4 in).

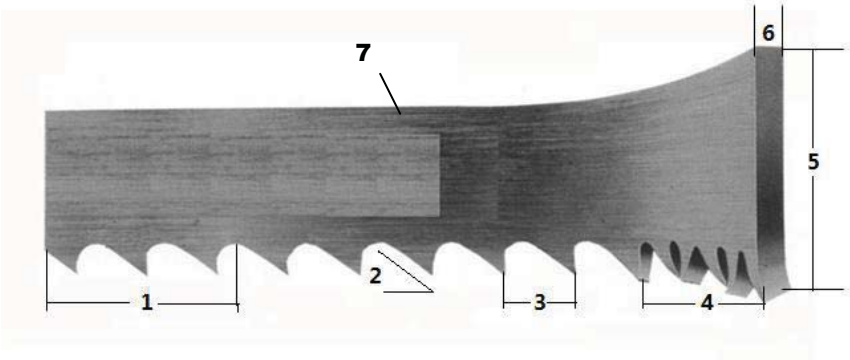
Step 6 – Press *Single/Bundle cutting mode* button and switch to bundle cutting mode.

Step 7 – For subsequent cutting procedures, refer to the cutting instructions above.

Section 5

BANDSAW CUTTING: A PRACTICAL GUIDE

INTRODUCTION



1. TPI: The number of teeth per inch as measured from gullet to gullet.

2. Tooth Rake Angle: The angle of the tooth face measured with respect to a line perpendicular to the cutting direction of the saw.

3.Tooth Pitch: Tooth pitch refers to the number of teeth per inch (tpi). 1 inch equates to 25.4 mm.

A distinction is made between constant tooth pitches with a uniform tooth distance, 2 tpi for example, and variable tooth pitches with different tooth distances within one toothing interval.

Variable tooth pitches, for instance 2-3 tpi, can be characterized by two measures: 2 tpi stands for the maximum tooth distance and 3 tpi stands for the minimum tooth distance in the toothing interval.

Constant **Variable**

4. Set: The bending of teeth to right or left to allow clearance of the back of the blade through the cut.

5. Width: The nominal dimension of a saw blade as measured from the tip of the tooth to the back of the band.

6. Thickness: The dimension from side to side on the blade.

7. Gullet: The curved area at the base of the tooth. The tooth tip to the bottom of the gullet is the gullet depth.

SAW BLADE SELECTION

1. Band length

The dimensions of the band will depend on the band saw machine that has been installed.

Please refer to Section 2 – General Information

2. Band width

Band width: the wider the band saw blade, the more stability it will have.

3. Cutting edge material

The machinability of the material to be cut determines what cutting material you should choose.

4. Tooth pitch

The main factor here is the contact length of the blade in the workpiece.

If it is 4P, 25.4 ÷ 4 P = 6.35 mm, that is, one tooth is 6.35 mm.

If it is 3P, 25.4 ÷ 3 P = 8.46 mm If the number is small, it means that the tooth is large.

What is written as 3/4 is that it is a variable pitch of large (3) / small (4).

The saw blade must contact the cutting material at least two pitches. In the case of a thickness of 15 mm, 4P = OK, 3P = NG.

- The surface conditions will also affect the cutting rate. If there are places on the surface on the material which are hard, a slower blade speed will be required or blade damage may result.
- It will be slower to cut tubing than to cut solids, because the blade must enter the material twice, and because coolant will not follow the blade as well.
- Tough or abrasive materials are much harder to cut than their machinability rating would indicate.
- Tooth spacing is determined by the hardness of the material and its thickness in cross section.
- Tooth set prevents the blade from binding in the cut. It may be either a "regular set" (also called a "raker set") or a "wavy set".
- The regular or raker set is most common and consists of a pattern of one tooth to the left, one tooth to the right, and one which is straight, or unset. This type of set is generally used where the material to be cut is uniform in size and for contour cutting.
- Wavy set has groups of teeth set alternately to right and left, forming a wave-like pattern. This reduces the stress on each individual tooth, making it suitable for cutting thin material or a variety of materials where blade changing is impractical. Wavy set is often used where tooth breakage is a problem. This is shown in Fig. 7.2 as follows:

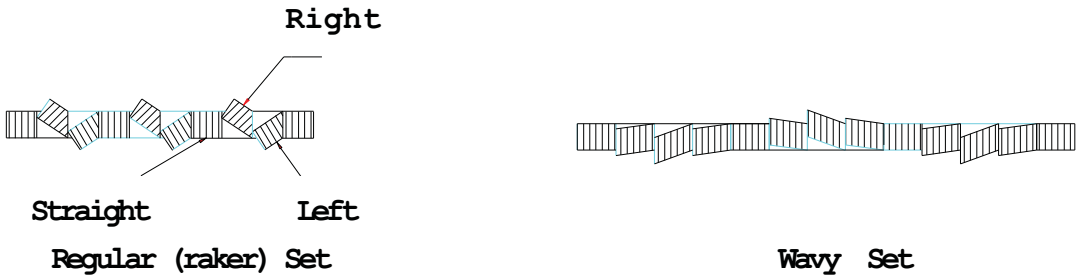


Fig. 7.2 The Saw Set

VISE LOADING

The position in which material is placed in the vise can have a significant impact on the cost per cut.

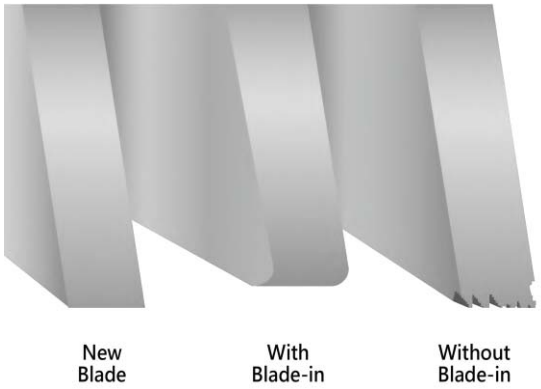
Often, loading smaller bundles can mean greater sawing efficiency.

When it comes to cutting odd-shaped material, such as angles, I-beams, channel, and tubing, the main point is to arrange the materials in such a way that the blade cuts through as uniform a width as possible throughout the entire distance of cut.

The following diagrams suggest some costeffective ways of loading and fixturing. Be sure, regardless of the arrangement selected, that the work can be firmly secured to avoid damage to the machine or injury to the operator.

BladeBreak -In

Completing a proper break-in on a new band saw blade will dramatically increase its life.



1. Select the proper band speed for the material to be cut.

2. Reduce the feed force/rate to achieve a cutting rate 20% to 50% of normal (soft materials require a larger feed rate reduction than harder materials).

3.Begin the first cut at the reduced rate. Make sure the teeth are forming a chip. Small adjustments to the band speed may be made in the event of excessive noise/vibration. During the first cut, **increase feed rate/force** slightly once the blade fully enters the workpiece.With each following cut, **gradually increase feed rate/force** until normal cutting rate is reached.

Section 6

MAINTENANCE & SERVICE

INTRODUCTION

For the best performance and longer life of the band saw machine, a maintenance schedule is necessary. Some of the daily maintenance usually takes just a little time but will give remarkable results for the efficient and proper operation of cutting.

BASIC MAINTENANCE

It is always easy and takes just a little effort to do the basic maintenance. But it always turns out to be a very essential process to assure the long life and efficient operation of the machine. Most of the basic maintenance requires the operator to perform it regularly.

MAINTENANCE SCHEDULE

We suggest you do the maintenance on schedule.

Before beginning a day's work

1. Please check the hydraulic oil level. If oil level volume is below 1/2, please add oil as necessary.(Filling up to 2/3 level is better for system operation.)
2. Please check the cutting fluid level, adding fluid as necessary. If the fluid appears contaminated or deteriorated, drain and replace it.
3. Please check the saw blade to ensure that it is properly positioned on both the drive and idle wheels.
4. Please make sure that the saw blade is properly clamped by the left and right inserts.
5. Please check the wire brush for proper contact with the saw blade. Replace the wire brush if it is worn out.

After ending a day's work

Please remove saw chips and clean the machine with discharging the cutting fluid when work has been completed.

 Do not discharge cutting fluid while the saw blade is operating because it will cause severe injury on operator's hand.

 Be sure the saw blade is fully stop, it will be performed after working inspection.

Every 2 weeks

Please apply Grease to the following points:
1. Idle wheel
2. Drive wheel
3. Blade tension device

Recommended Grease:

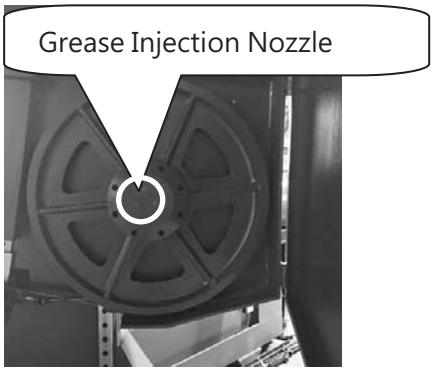
- Shell Alvania EP Grease 2
- Mobil Mobilplex 48

Please apply lubricating oil to the following points: (if applicable)
Main shaft (double column)

Recommended Lubricating Oil:

- CPC Circluation oil R68

Grease Injection Hole:

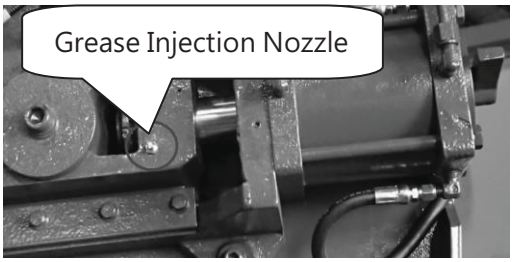


1. Grease Injection Nozzles at the middle of drive wheel and idle wheel;

   (You need to rotate the wheel until you ssee the Grease injection nozzle.)


: The position of injection indicating.

2. Please inject the grease into the Nozzle.

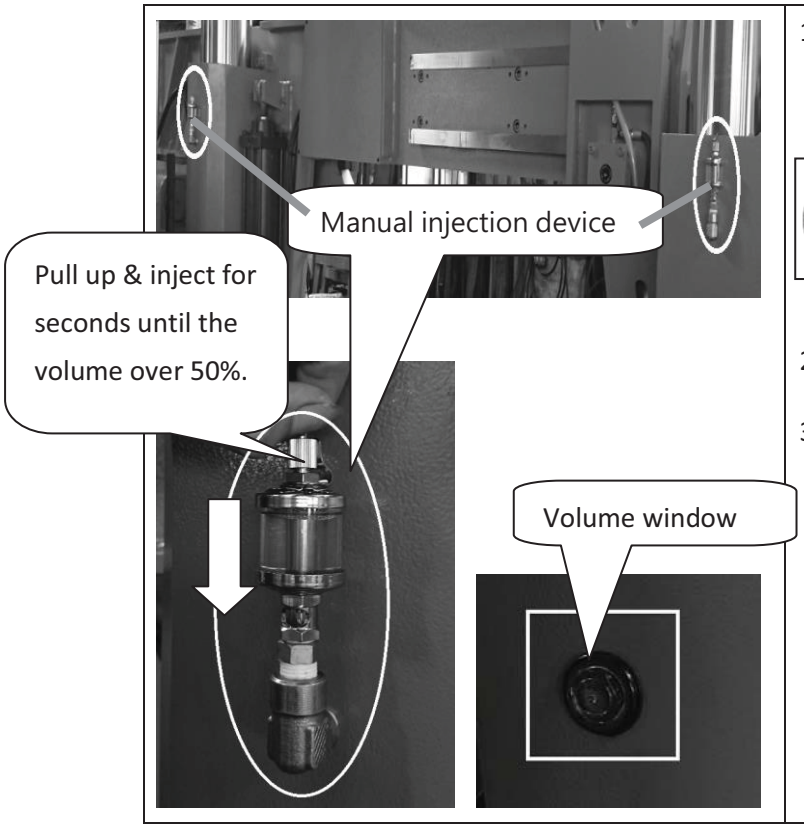


1. Grease Injection Nozzle on the blade tension device.

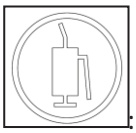

: The position of injection indicating.

3. Please inject the grease into the Nozzle.

Lubricating Oil Injection for Main shaft (double column) (if applicable):

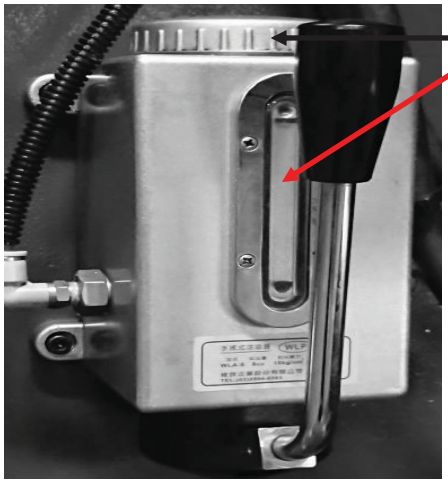


1. Two manual injection device for two main shafts (double column)


: The position of injection indicating.

2. Pull up & inject lubricating oil for seconds
3. Recommend always keeping the volume over 50% inside the vessel of volume window. ◦

Manual Lubrication Injection Device: (if applicable)



Lubrication volume indicator.
Recommend keeping the volume over 50% inside the vessel.

Please take down this vessel cap to replenish the lubrication.

For the prevention of working environment pollution, **DO NOT** replenish too much volume of lubrication while supplying the lubrication into the vessel.

Under the circumstances of normal operation, replenish the lubrication once every three days.

It may be adjusted the schedule of replenishing whenever the user needs.

The main function is to lubricate the **slide rail and block**.

(The **liner guideway for saw bow**).

First 600hrs for new machine,then every 1200hrs for routine change

Replace the transmission oil after operating for first 600hrs for new machine,then every 1200hrs

Recommended gear oil

- Shell Omala oil HD220
- Mobil gear 630

Recommended hydraulic oil

- ShellTellus 32
- Mobil DTE Oil Light Hydraulic 24

Every six months

1.Clean the filter of the cutting fluid.
2.Replace the transmission oil for every half of a year(or 1200 hours).
Check the sight gauge to ascertain the transmission level.

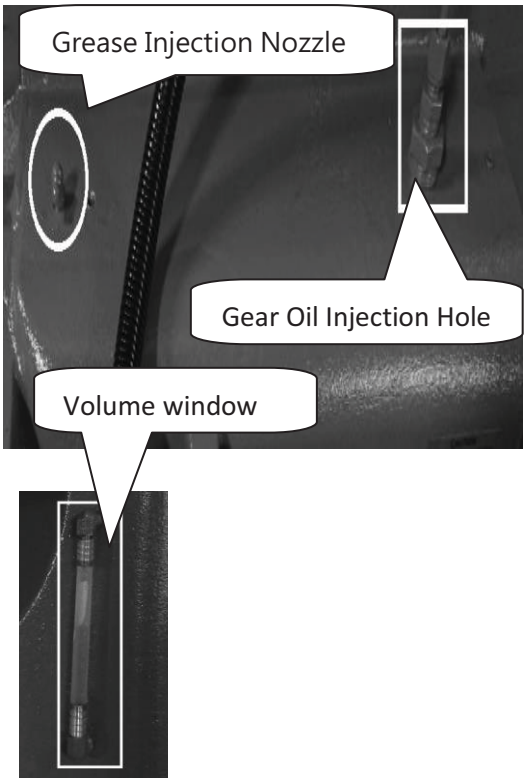
Recommended TRANSMISSION OIL

- Omala oil HD220
- Mobil comp 632 600W Cylinder oil

3.Replace the hydraulic oil.
Recommended HYDRAULIC OIL

- ShellTellus 32
- Mobil DTE Oil Light Hydraulic 24

Gear Oil & Grease Injection Hole:

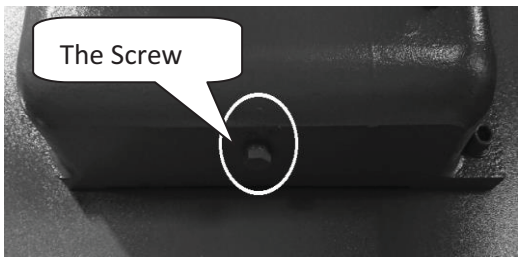


1. A grease injection hole and a gear oil injection hole on the top of gear reducer.

: The position of injection indicating.

2. Recommend keeping the volume over 50% inside the vessel of volume window. °

To unload the waste fluid:



Bottom of Gear reducer

1. Put the waste oil container in the bottom of the reducer for unloading waste fluid

.

2. Use the wrench to open the screw for unloading the waste fluid.

3. Make sure the screw bolted tightly after unloading completed,

STORAGE CONDITIONS

Generally, this machine will be stored on the following conditions in future:

(1) Turn off the power.

(2) Ambient temperature: 5℃ ~ 40℃

(3) Relative humidity: 30%~85% (without condensation)

(4) Atmosphere: use a plastic canvas to cover machine to avoid excessive dust, acid fume, corrosive gases and salt.

(5) Avoid exposing to direct sunlight or heat rays which can change the environmental temperature.

(6) Avoid exposing to abnormal vibration.

(7) Must be connected to earth.

TERMINATING THE USE OF THE MACHINE

Waste disposal:

When your machine can not work anymore, you should drain the oil from machine body. Please store the oil in safe place with bottom tray. Ask a environment specialist to handle the oil. It can avoid soil pollution. The oil list in machine:

- Hydraulic oil
- Cutting fluid
- Drive wheel gear oil

OIL RECOMMENDATION FOR MAINTENANCE

Item		Method	Revolution	Suggest oil
Dovetail guide		Keep grease covered. Antirust.	Daily	Shell R2
Roller bearing		Sweep clean and oil with lubricant.	Daily	SAE #10
Bed roller / surface		Sweep clean and oil with lubricant.	Daily	SAE #10
Nipples of bearing		Use grease gun, but not excess.	Monthly	Shell R2
Blade tension device		Use grease gun, but not excess.	Monthly	Shell Alvania EP Grease 2, Mobil Mobilplex 48
Reducer		Inspect once a week. Change oil of 600 hours of using. Change it every year.	Regularly	Omala oil HD220 Mobil Gear 630
Hydraulic system		Inspect half a year. Change oil every year.	Regularly	Shell Tellus 32 Mobil DTE oil Light Hydraulic 24
Bearing	Inserts	Oil with lubricant, but not excess.	Daily	Shell R2
	Band wheel	Oil with lubricant, but not excess.	Weekly	
	Cylinder	Oil with lubricant, but not excess.	6 Monthly	
	Wire brush	Oil with lubricant, but not excess.	6 Monthly	

1. Turn off the stop circuit breaker switch before servicing the machine.

2. Then post a sign to inform people that the machine is under maintenance.

3. Drain all of the cutting fluid and oil off and carefully treat them to avoid pollution.

4. The machine must be either LOCKED OUT OR TAGGED OUT while under maintenance.

Section 7

TROUBLESHOOTING

INTRODUCTION

All the machines manufactured by COSEN pass a 72 hours continuously running test before shipping out and COSEN is responsible for the after sales service problems during the warranty period if the machines are used normally. However, there still exist the some unpredictable problems which may disable the machine from operating.

Generally speaking, the system troubles in this machine model can be classified into three types, namely GENERAL TROUBLES, MOTOR TROUBLES and BLADE TROUBLES. Although you may have other troubles which can not be recognized in advance, such as malfunctions due to the limited life-span of mechanical, electric or hydraulic parts of the machine.

COSEN has accumulated enough experiences and technical data to handle all of the regular system troubles. Meanwhile, the engineering department of COSEN had been continuously improving the machines to prevent all possible troubles.

It is hoped that you will give COSEN your maintenance experience and ideas so that both sides can achieve the best performance.

PRECAUTIONS

When an abnormality occurs in the machine during operation, you can do it yourself safely. If you have to stop machine motion immediately for parts exchanging, you should do so according to the following procedures:

- Press HYDRAULIC MOTOR OFF button or EMERGENCY STOP button.
- Open the electrical enclosure door.
- Turn off breaker.

 **BEFORE ANY ADJUSTMENT OR MAINTENANCE OF THE MACHINE, PLEASE MAKE SURE TO TURN OFF THE MACHINE AND DISCONNECT THE POWER SUPPLY.**

GENERAL TROUBLES AND SOLUTIONS

 **DISCONNECT POWER CORD TO MOTOR BEFOER ATTEMPTING ANY REPAIR OR INSPECTION.**

TROUBLE	PROBABLE CAUSE	SUGGESTED REMEDY
Motor stalls	Excessive belt tension	Adjust belt tension so that belt does not slip on drive pulley while cutting (1/2“ Min. deflection of belt under moderate pressure.)
	Excessive head pressure	Reduce head pressure. Refer to Operating Instructions “Adjusting Feed”.
	Excessive blade speed	Refer to Operating Instructions “Speed Selection”.
	Improper blade selection	Refer to Operating Instructions “Blade Selection”.
Cannot make square cut	Dull blade	Replace blade.
	Guide rollers not adjusted properly	Refer to Adjustments.
	Rear vise jaw not adjusted properly	Set fixed vise jaw 90° to blade.
	Excessive head pressure	Reduce head pressure. Refer to operating instructions “Adjusting Feed.”
Increased cutting time	Dull blade	Replace blade
	Insufficient head pressure	Increase head pressure. Refer to Operating Instructions “Adjusting Feed.”
	Reduce blade speed	Refer to Operating Instructions “Speed Selection.”
Will not cut	Motor running in wrong direction	Reverse rotation of motor. (Motor rotation C.C.W. pulley end.)
	Blade teeth pointing in wrong direction	Remove blade, turn blade inside out. Re-install blade. (Teeth must point in direction of travel.)
	Hardened material	Use special alloy blades. (Consult your industrial distributor for recommendation on type of blade required.)

MINOR TROUBLES & SOLUTIONS

TROUBLE	PROBABLE CAUSE	SUGGESTED REMEDY
Saw blade motor does not run even though blade drive button is pressed.	Overload relay activated	Reset
	Saw blade is not at forward limit position.	Press SAW FRAME FORWARD button

MOTOR TROUBLES & SOLUTIONS

TROUBLE	PROBABLE CAUSE	SUGGESTED REMEDY
Motor will not start	Magnetic switch open, or protector open.	Reset protector by pushing red button (inside electric box.)
	Low voltage	Check power line for proper voltage.
	Open circuit in motor or loose connections.	Inspect all lead terminations on motor for loose or open connections.
Motor will not start, fuse or circuit breakers “blow”.	Short circuit in line, cord or plug.	Inspect line, cord and plug for damaged insulation and shorted wire.
	Short circuit in motor or loose connections	Inspect all lead terminations on motor for loose or shorted terminals or worn insulation on wires.
	Incorrect fuses or circuit breakers in power line.	Install correct fuses or circuit breakers.
Motor fail to develop full power. (Power output of motor decreases rapidly with decrease in voltage at motor terminals.)	Power line overloaded with lights, appliances and other motors.	Reduce the load on the power line.
	Undersize wires or circuit too long.	Increase wire sizes, or reduce length of wiring
	General overloading of power company‘s facilities.	Request a voltage check from the power company
Motor overheat	Motor overloaded.	Reduce load on motor
	Air circulation through the motor restricted.	Clean out motor to provide normal air circulation through motor.
Motor stalls (Resulting in blown fuses or tripped circuit breakers)	Short circuit in motor or loose connections.	Inspect terminals in motor for loose or shorted terminals or worn insulation on lead wires.
	Low voltage	Correct the low line voltage conditions.
	Incorrect fuses or circuit breakers in power line.	Install correct fuses circuit breakers.
	Motor overloaded	Reduce motor load.
Frequent opening of fuses or circuit breakers.	Motor overloaded	Reduce motor load
	Incorrect fuses or circuit breakers.	Install correct fuses or circuit breakers.

BLADE TROUBLES AND SOLUTIONS

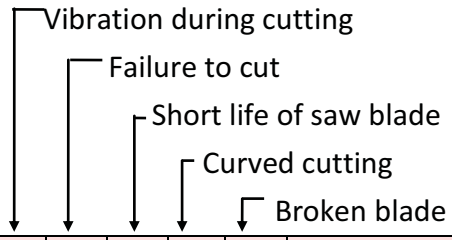
 **DISCONNECT POWER CORD TO MOTOR BEFOER ATTEMPTING ANY REPAIR OR INSPECTION.**

TROUBLE	PROBABLE CAUSE	SUGGESTED REMEDY
Teeth strippage	Too few teeth per inch	Use finer tooth blade
	Loading of gullets	Use coarse tooth blade or cutting lubricant.
	Excessive feed	Decrease feed
	Work not secured in vise	Clamp material securely
Blade breakage	Teeth too coarse	Use a finer tooth blade
	Misalignment of guides	Adjust saw guides
	Dry cutting	Use cutting lubricant
	Excessive speed	Lower speed. See Operating Instructions “Speed selection.”
	Excessive speed	Reduce feed pressure. Refer to Operating Instructions “Adjusting Feed.”
	Excessive tension	Tension blade to prevent slippage on drive wheel while cutting.
	Wheels out of line	Adjust wheels
Blade line Run-out or Run-in	Guides out of line	For a straight and true cut, realign guides, check bearings for wear.
	Excessive pressure	Conservative pressure assures long blade life and clean straight cuts.
	Support of blade insufficient	Move saw guides as close to work as possible.
	Material not properly secured in vise	Clamp material in vise, level and securely.
	Blade tension improper	Loosen or tighten tension on blade.
Blade twisting	Blade not in line with guide bearings	Check bearings for wear and alignment.
	Excessive blade pressure	Decrease pressure and blade tension
	Blade binding in cut	Decrease feed pressure
Premature tooth wear	Dry cutting	Use lubricant on all materials, except cast iron
	Blade too coarse	Use finer tooth blade
	Not enough feed	Increase feed so that blade does not ride in cut
	Excessive speed	Decrease speed

SAWING PROBLEMS AND SOLUTIONS

Other than this manual, the manufacturer also provides some related technical documents listed as follows:

Sawing Problems and Solutions



Vibration during cutting	Failure to cut	Short life of saw blade	Curved cutting	Broken blade		
✓	✓	✓	✓	✓	**Use of blade with incorrect pitch**	**Use blade with correct pitch suited to workpiece width**
✓	✓	✓	✓	✓	**Failure to break-in saw blade**	**Perform break-in operation**
✓	✓	✓			**Excessive saw blade speed**	**Reduce speed**
			✓	✓	**Insufficient saw blade speed**	**Increase speed**
✓		✓	✓	✓	**Excessive saw head descending speed**	**Reduce speed**
✓		✓	✓		**Insufficient saw head descending speed**	**Increase speed**
		✓	✓		**Insufficient saw blade tension**	**Increase tension**
✓		✓	✓	✓	**Wire brush improperly positioned**	**Relocate**
✓		✓	✓		**Blade improperly clamped by insert**	**Check and correct**
✓	✓	✓	✓	✓	**Improperly clamped workpiece**	**Check and correct**
	✓	✓	✓		**Excessively hard material surface**	**Soften material surface**
		✓	✓	✓	**Excessive cutting rate**	**Reduce cutting rate**
	✓	✓			**Non-annealed workpiece**	**Replace with suitable workpiece**
✓		✓	✓	✓	**Insufficient or lean cutting fluid**	**Add fluid or replace**
✓		✓	✓	✓	**Vibration near machine**	**Relocate machine**
		✓	✓		**Non-water soluble cutting fluid used**	**Replace**
✓		✓	✓		**Air in cylinder**	**Bleed air**
✓		✓		✓	**Broken back-up roller**	**Replace**
✓	✓	✓	✓	✓	**Use of non-specified saw blade**	**Replace**
✓	✓	✓	✓	✓	**Fluctuation of line voltage**	**Stabilize**
✓		✓	✓		**Adjustable blade guide too far from workpiece**	**Bring blade guide close to workpiece**
✓		✓	✓	✓	**Loose blade guide**	**Tighten**
		✓		✓	**Blue or purple saw chips**	**Reduce cutting rate**
✓		✓		✓	**Accumulation of chips at inserts**	**Clean**
	✓				**Reverse positioning of blade on machine**	**Reinstall**
✓		✓	✓		**Workpieces are not bundled properly**	**Re-bundle**
✓		✓		✓	**Back edge of blade touching wheel flange**	**Adjust wheel to obtain clearance**
✓	✓	✓			**Workpiece of insufficient diameter**	**Use other machine, suited for diameter of workpiece Replace**
	✓	✓	✓		**Saw blade teeth worn**	**Replace**

SOLUTIONS TO SAWING PROBLEMS

Table Of Contents

#1. Heavy Even Wear On Tips and Corners Of Teeth

Probable Cause :

A. Improper break-in procedure.

B. Excessive band speed for the type of material being cut. This generates a high tooth tip temperature resulting in accelerated tooth wear.

C. Low feed rate causes teeth to rub instead of penetrate. This is most common on work hardened materials such as stainless and toolsteels.

D. Hard materials being cut such as "Flame Cut Edge" or abrasive materials such as " Fiber Reinforced Composites".

E. Insufficient sawing fluid due to inadequate supply, improper ratio, and/or improper application

#2. Wear On Both Sides Of Teeth

Probable Cause :

A. Broken, worn or missing back-up guides allowing teeth to contact side guides.

B. Improper side guides for band width.

C. Backing the band out of an incomplete cut.

#3. Wear On One Side Of Teeth

Probable Cause :

A. Worn wheel flange, allowing side of teeth to contact wheel surface or improper tracking on flangeless wheel.

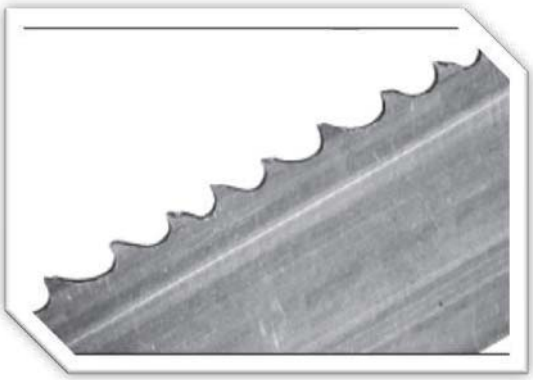
B. Loose or improperly positioned side guides.

C. Blade not perpendicular to cut.

D. Blade rubbing against cut surface on return stroke of machine head.

E. The teeth rubbing against a part of machine such as chip brush assembly, guards, etc.

#4. Chipped Or Broken Teeth



Probable Cause :

A. Improper break-in procedure.

B. Improper blade selection for application.

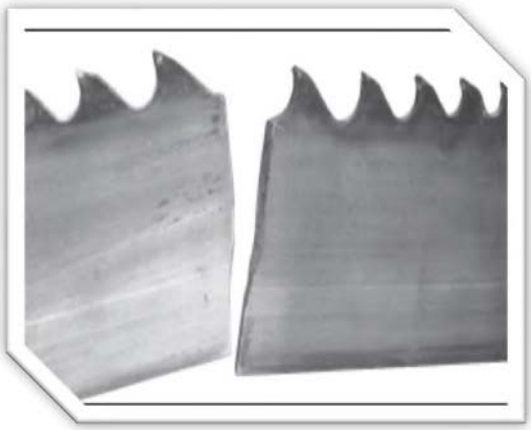
C. Handling damage due to improper opening of folded band.

D. Improper positioning or clamping of material.

E. Excessive feeding rate or feed pressure.

F. Hitting hard spots or hard scale in material

#5. Body Breakage Or Cracks From Back Edge



Probable Cause :

A. Excessive back-up guide "preload" will cause back edge to work harden which results in cracking.

B. Excessive feed rate.

C. Improper band tracking – back edge rubbing heavy on wheel flange.

D. Worn or defective back-up guides.

E. Improper band tension.

F. Notches in back edge from handling damage

#6. Tooth Strippage

Probable Cause :

A. Improper or lack of break-in procedure.

B. Worn, missing or improperly positioned chip brush.

C. Excessive feeding rate or feed pressure.

D. Movement or vibration of material being cut.

E. Improper tooth pitch for cross sectional size of material being cut.

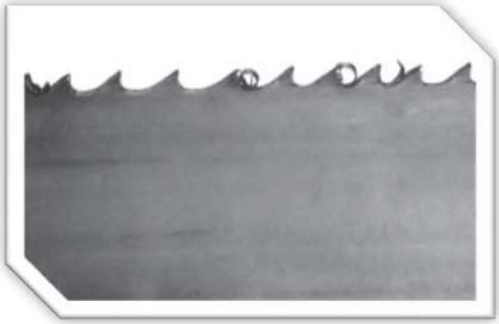
F. Improper positioning of material being cut.

G. Insufficient sawing fluid due to inadequate supply,improper ratio and/or improper application.

H. Hard spots in material being cut.

I. Band speed too slow for grade of material being cut.

#7. Chips Welded To Tooth Tips



Probable Cause :

A. Insufficient sawing fluid due to inadequate supply, improper ratio and/or improper application.

B. Worn, missing or improperly positioned chip brush.

C. Improper band speed.

D. Improper feeding rate.

#8. Gullets Loading Up With Material

Probable Cause :

A. Too fine of a tooth pitch – insufficient gullet capacity.

B. Excessive feeding rate producing too large of a chip.

C. Worn, missing or improperly positioned chip brush.

D. Insufficient sawing fluid due to inadequate supply, improper ratio and/or improper application.

#9. Discolored Tips Of Teeth Due To Excessive Frictional Heat

Probable Cause :

A. Insufficient sawing fluid due to inadequate supply, improper ratio and/or improper application.

B. Excessive band speed.

C. Improper feeding rate.

D. Band installed backwards.

10. Heavy Wear On Both Sides Of Band

Probable Cause :

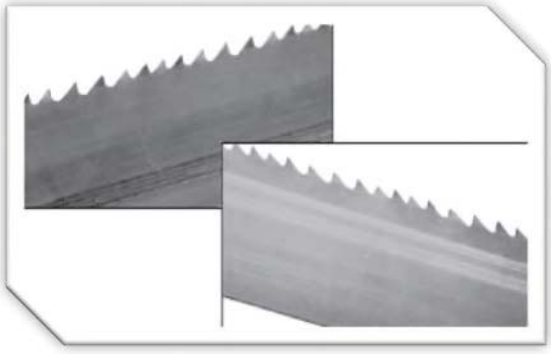
A. Chipped or broken side guides.

B. Side guide adjustment may be too tight.

C. Insufficient flow of sawing fluid through the side guides.

D. Insufficient sawing fluid due to inadequate supply, improper ratio and/or improper application.

#11. Uneven Wear Or Scoring On The Sides Of Band



Probable Cause :

A. Loose side guides.

B. Chipped, worn or defective side guides.

C. Band is rubbing on part of the machine.

D. Guide arms spread to maximum capacity.

E. Accumulation of chips in side guides.

#12. Heavy Wear And/Or Swagging On Back Edge

Probable Cause :

A. Excessive feed rate.

B. Excessive back-up guide "preload".

C. Improper band tracking – back edge rubbing heavy on wheel flange.

D. Worn or defective back-up guides.

#13. Butt Weld Breakage

Probable Cause :

A. Any of the factors that cause body breaks can also cause butt weld breaks.

(See Observations #5, #15 and #16)

#14. Heavy Wear In Only The Smallest Gullets

Probable Cause :

A. Excessive feeding rate.

B. Too slow of band speed.

C. Using too fine of a tooth pitch for the size of material being cut.

#15. Body Breaking – Fracture Traveling In An Angular Direction

Probable Cause :

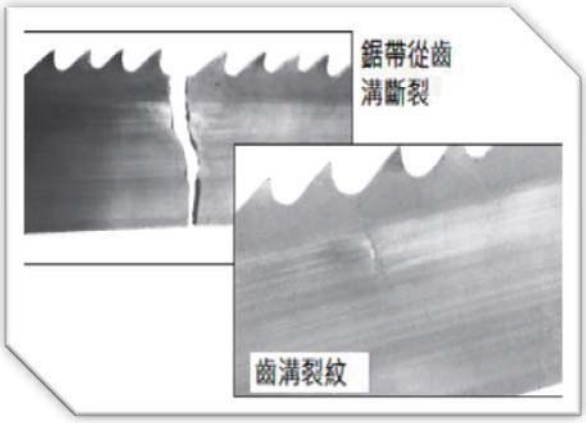
A. An excessive twist type of stress existed.

B. Guide arms spread to capacity causing excessive twist from band wheel to guides.

C. Guide arms spread too wide while cutting small cross sections.

D. Excessive back-up guide "preload".

#16. Body Breakage Or Cracks From Gullets



Probable Cause :

A. Excessive back-up guide "preload".

B. Improper band tension.

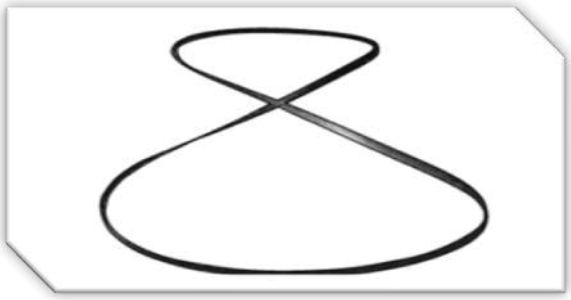
C. Guide arms spread to maximum capacity.

D. Improper beam bar alignment.

E. Side guide adjustment is too tight.

F. Excessively worn teeth.

#17. Band is Twisted Into A Figure "8" Configuration



Probable Cause :

A. Excessive band tension.

B. Any of the band conditions which cause the band to be long (#18) or short (#19) on tooth edge.

C. Cutting a tight radius.

#18. Used Band Is "Long" On The Tooth Edge

Probable Cause :

A. Side guides are too tight – rubbing near gullets.

B. Excessive "preload" – band riding heavily against back-up guides.

C. Worn band wheels causing uneven tension.

D. Excessive feeding rate.

E. Guide arms are spread to maximum capacity.

F. Improper band tracking – back edge rubbing heavy on wheel flange.

#19. Used Band Is "Short" On The Tooth Edge

Probable Cause :

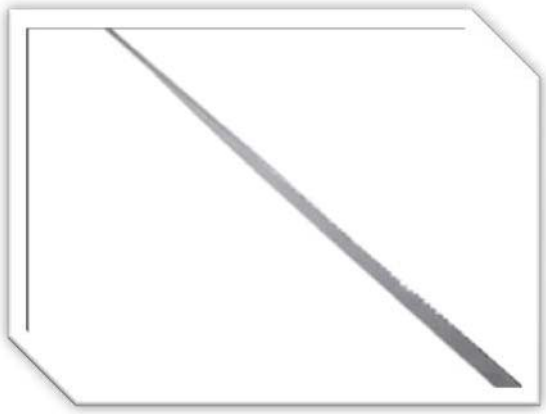
A. Side guides are too tight – rubbing near back edge.

B. Worn band wheels causing uneven tension.

C. Guide arms are spread too far apart.

D. Excessive feeding rate.

#20. Broken Band Shows A Twist In Band Length



Probable Cause :

A. Excessive band tension

B. Any of the band conditions which cause the band to be long (#18) or short (#19) on tooth edge.

C. Cutting a tight radius.

RE-ADJUSTING THE ROLLER TABLE

If the feeding table suffers the huge stroke and the alignment is effected, follow the below procedure to adjust.

TOOL, measuring

Measurement, Horizontal balance

Procedure

1. Screw or loosen the adjusting bolt to attain the horizontal balance (leveling) between the roller table and the machine frame.
2. Ensure that the machine frame is not struck by the loaded material on the feeding table.
3. Check the leveling by the measuring tool.
4. After finished the adjusting, fix the roller table.

If the feeding table and the machine frame are not positioned under the horizontal balance, the loaded material may be going up gradually and affect the cutting effect.

PARTS

SPARE PARTS RECOMMENDATIONS

SPARE PARTS RECOMMENDATIONS

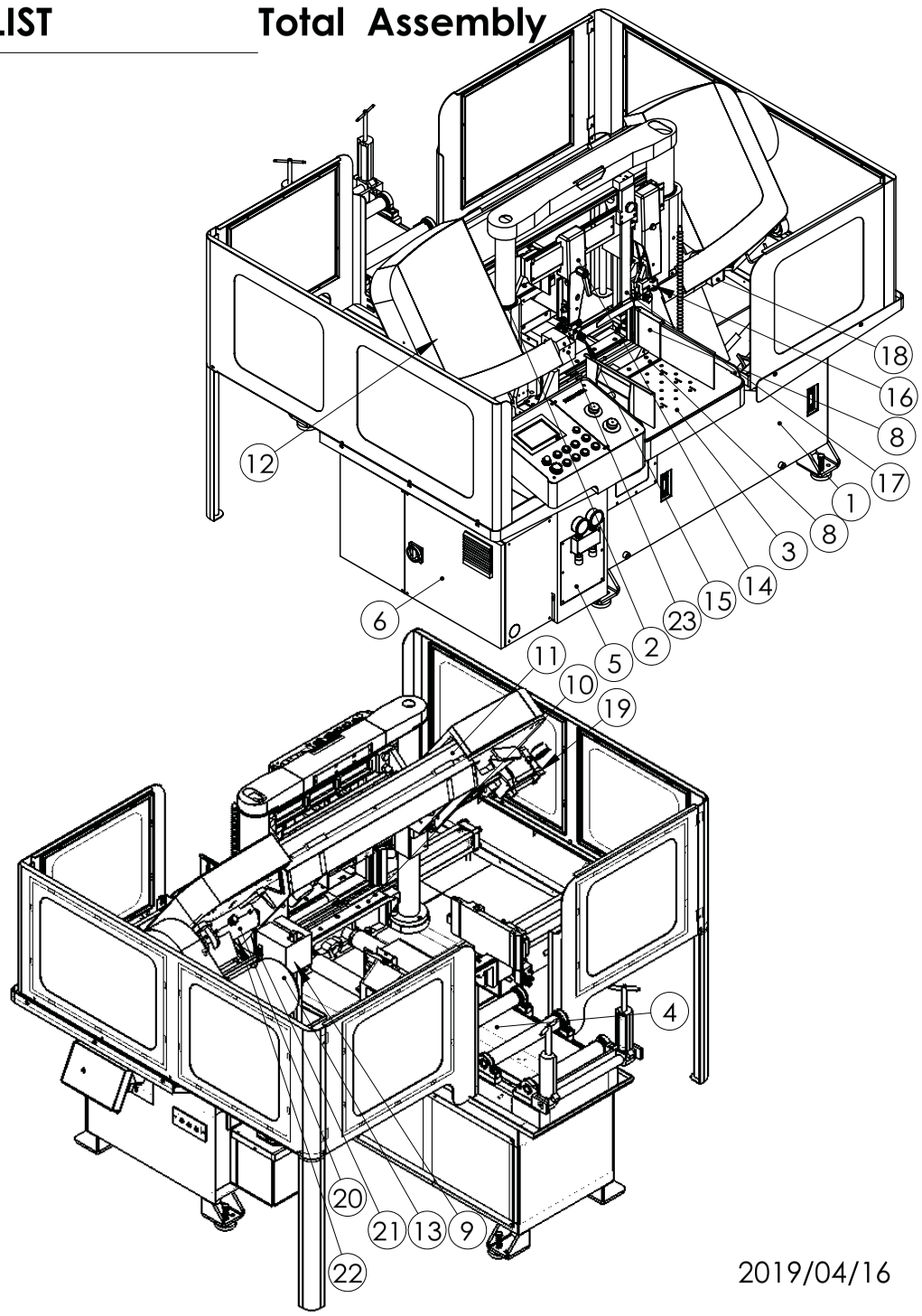
The following table lists the common spare parts we suggest you purchase in advance:

Part Name	Part Name
Saw blade	Coolant tank filter
Wire brush	Steel plates
Carbide inserts	Rollers
Bearings	Belt
Hydraulic tank leak-proof gasket	Duster seal
Rubber washer	Oil seal
O-ring	Snap ring
Drive wheel	Idle wheel

05G320-EU168 SERIES PART LIST

C320G-60000-EU168 總組合圖
Total Assembly

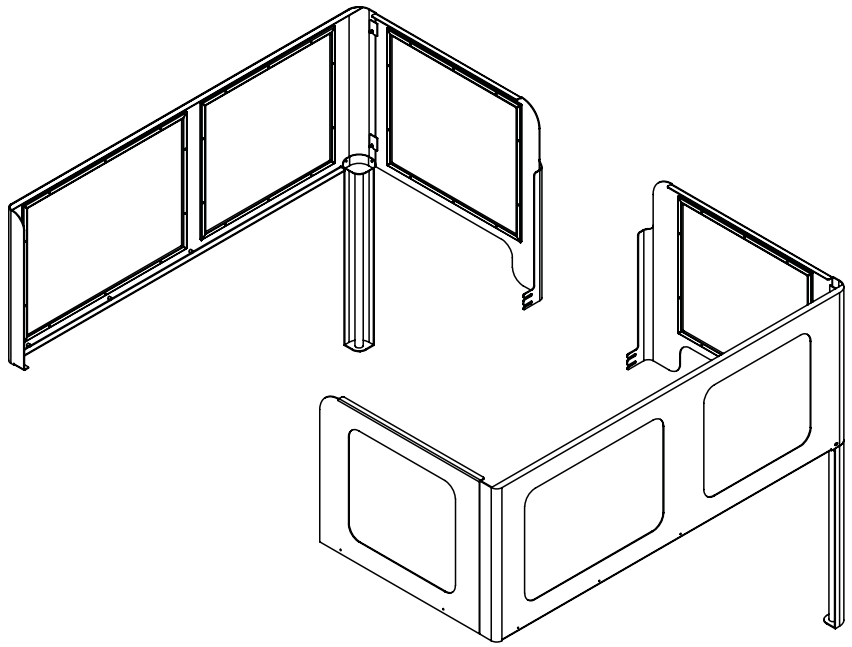
ITEM	PART NO	PART NAME	PART NAME IN CHINESE	Q'TY
1	C320G-10000-EU168	Base assembly	底座組	1
2	C320G-11000-EU168	Main shaft assembly	主軸組	1
3	C320G-12000	Tray assembly	托架組	1
4	C320G-12500	Inch encorder assembly	定寸譯碼器組	1
5	C320G-13000A-EU168	Control box assembly-A	操作組	1
6	C320G-13000B-EU168	Control box assembly-B	控制箱門	1
7	C320G-20000-EU168	Fixed bed assembly	床面組	1
8	C320G-20110-EU168	Feeding bed assembly	送料床面組	1
9	C320G-21000	Height encoder assembly	高度譯碼器組	1
10	C320G-23500-EU168	Movable bed assembly	活動床面組	1
11	C320G-30000-EU168	Saw bow assembly	鋸弓	1
12	C320G-30300	Idle wheel assembly	上輪組	1
13	C320G-30600-EU168	Driver motor assembly	主動馬達組	1
14	C320G-31000	Guide arm assembly	鋸臂組	1
15	C320G-31300	Left guide roller assembly	左導輪座組	1
16	C320G-31600	Right guide roller assembly	右導輪座組	1
17	C320G-32000	Quick approach assembly	急降桿組	1
18	C320G-32200	Wire brush assembly	鋼刷組	1
19	C320G-33000	Tensioner sliding plate assembly	張力滑座滑板油缸組	1
20	C320G-33500	Gear reducer assembly	減速機組	1
21	C320G-33530	Worm shaft assembly	蝸桿組	1
22	C320G-33550	Worm gear assembly	蝸輪組	1
23	C320G-42000	Vibration damper (Optional assembly)	防震導輪機構 (選配)	1
24	C320G-18500C	Safety fence assembly	護欄組	1

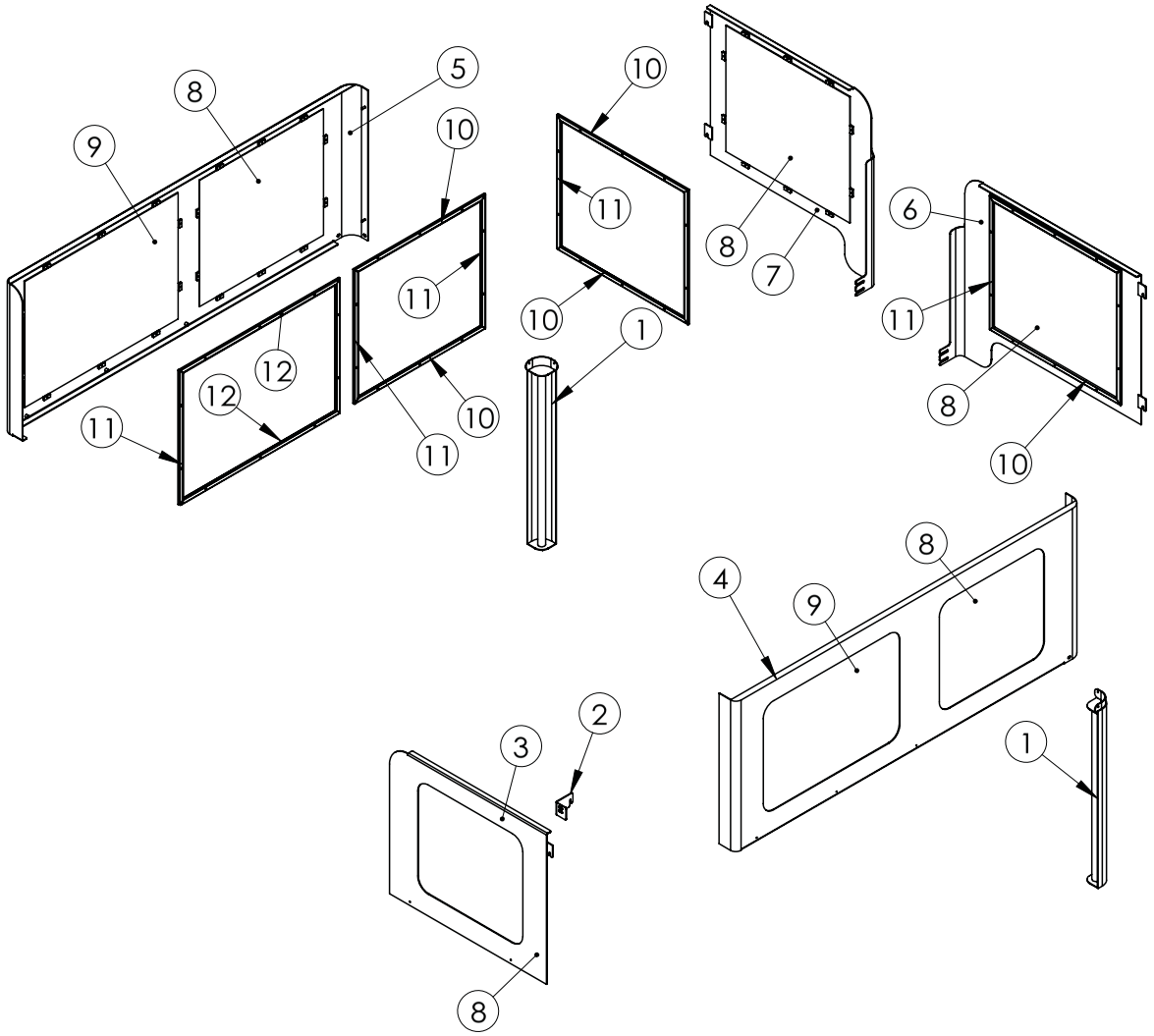


2019/04/16

C320G-18500C 防護欄組
Safety Fence Assembly

ITEM	PART NO.	PART NAME	PART NAME IN CHINESE	Q'TY
1	C320G-1855A	Safety fence foot	護欄腳架	2
2	C320G-1862	Front fence fixed ear	前護欄固定耳	1
3	C320G-1851C-1	Safety fence (1)	防護欄(一)	1
4	C320G-1851C-2	Safety fence (2)	防護欄(二)	1
5	C320G-1851C-3	Safety fence (3)	防護欄(三)	1
6	C320G-1851C-4	Safety fence (4)	防護欄(四)	1
7	C320G-1851C-5	Safety fence (5)	防護欄(五)	1
8	C320G-1852A-1	Safety fence acrylic plate (1)	防護欄壓克力板(一)	5
9	C320G-1852A-2	Safety fence acrylic plate (2)	防護欄壓克力板(二)	2
10	C320G-1860A-1	Guide plate(1)	壓條(一)	10
11	C320G-1860A-2	Guide plate(2)	壓條(二)	14
12	C320G-1860A-3	Guide plate(3)	壓條(三)	4



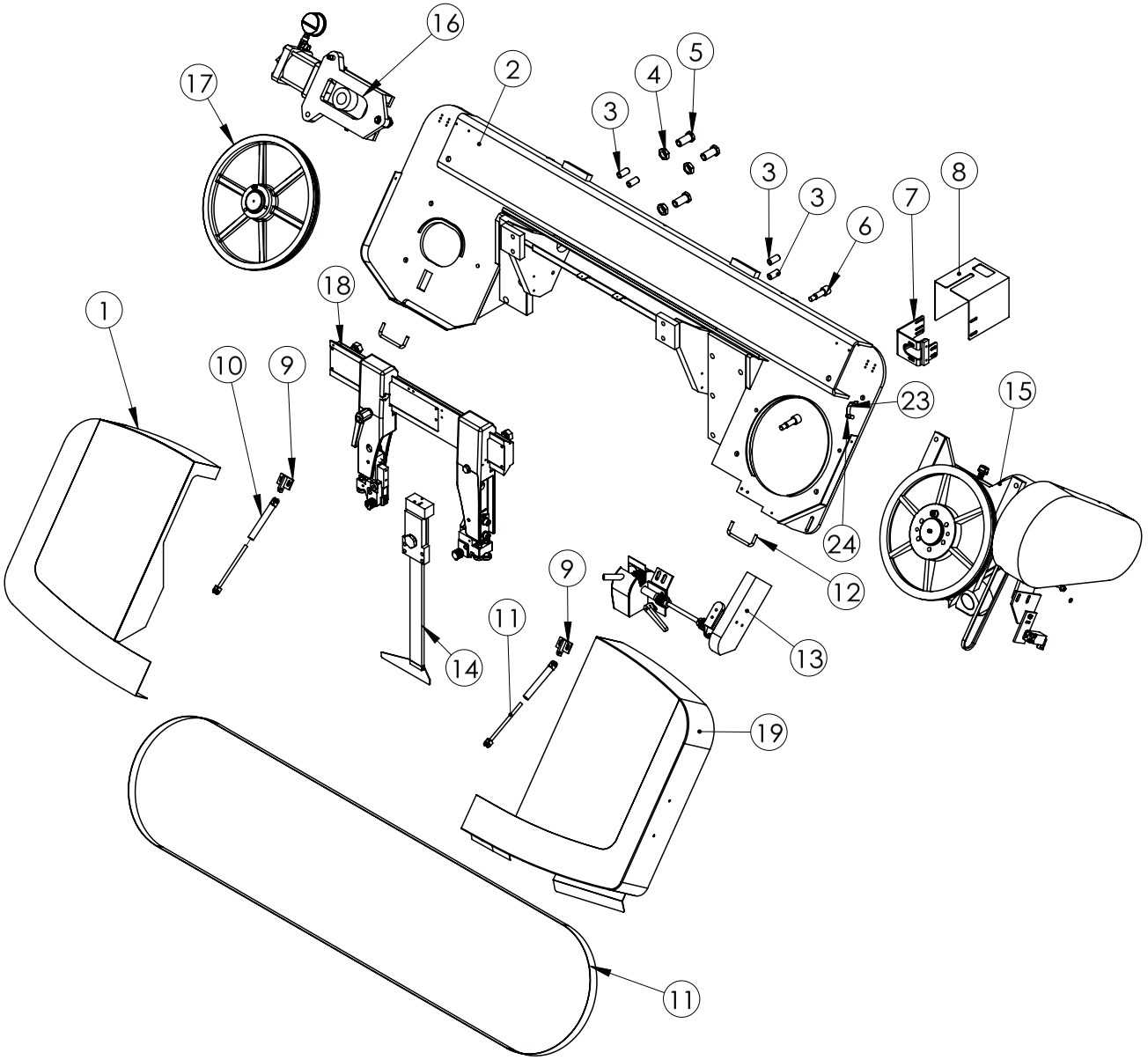


2019/04/08

05G320-EU168 SERIES PART LIST

C320G-30000-EU168 鋸弓組
Saw Bow Assembly

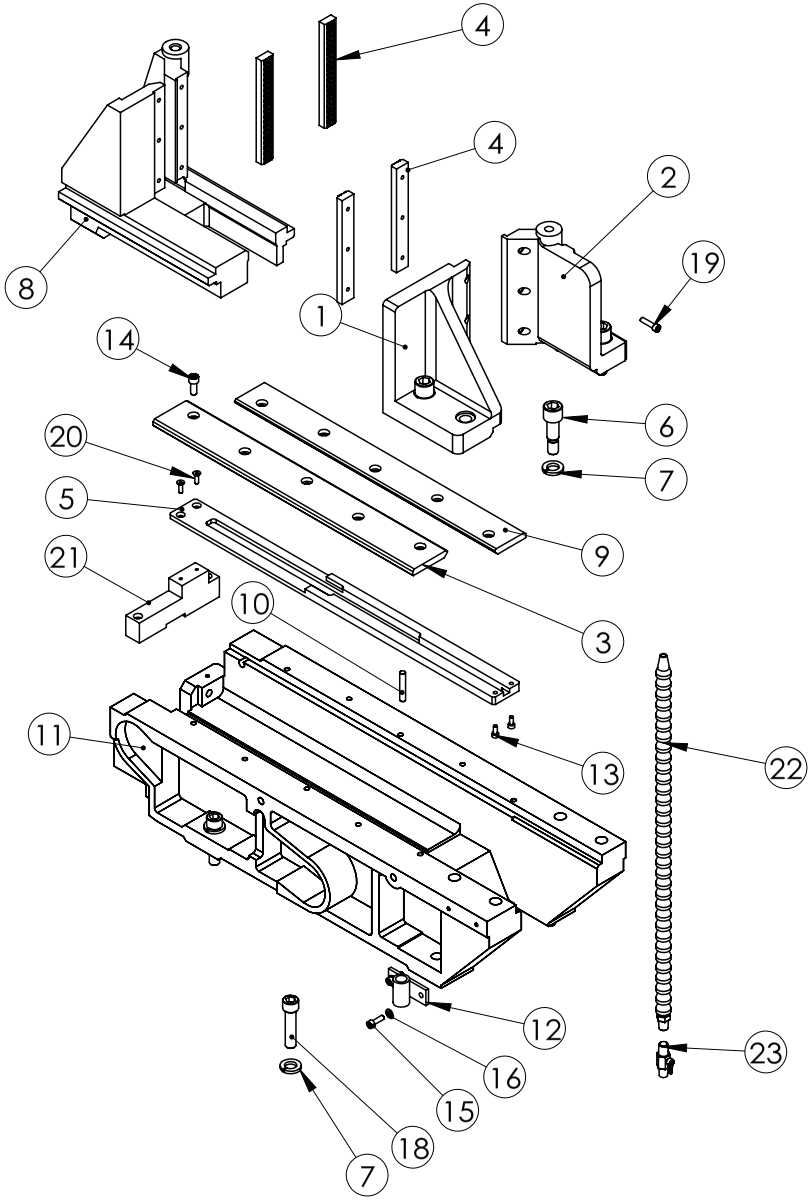
ITEM	PART NO.	PART NAME	PART NAME IN CHINESE	Q'TY
1	C320G-3003A	Idel wheel cover	上輪箱蓋	1
2	C320G-3001A	Saw bow	鋸弓	1
3	C320G-3021	Sliding plate adjusting bolt	滑板調整螺絲	4
4	AHA-0611	Adjusting nut	調整螺母	3
5	AHA-0610	Adjusting bolt	調整螺絲	3
6	C320G-1154	Fixed hex soc bolt	內六角固定螺栓	2
7	WC320G-0006	Limit switch holder	限動開關固定座	1
8	C320G-2104	Encoder cover	譯碼器護蓋	1
9	C250H-3460	Nitrogen cylinder fixed seat	氮氣缸固定座	2
10	PP-57010-8	Nitrogen cylinder	支撐缸	2
11	PP-18027	Balt	鋸帶	1
12	PP-52124	Handle	輪箱把手	2
13	C320G-32200	Wire brush cover	鋼刷組	1
14	C320G-32000	Quick approach assembly	急降桿組	1
15	C320G-30600-EU168	Driver motor assembly	主動馬達組	1
16	C320G-33000	Tensioner sliding plate assembly	張力滑座滑板油缸組	1
17	C320G-30300	Idle wheel	上輪組	1
18	C325H-31000	Guide arm assembly	鋸臂組	1
19	C320G-3005A	Drive wheel cover	下輪箱蓋	1
20	C320G-3001A	Saw bow	鋸弓	1
23	C250H-3009-S0	Blade fixed plate	鋸帶固定片	1
24	PRA-8-55	Spring pin	彈簧銷	1



2019/04/12

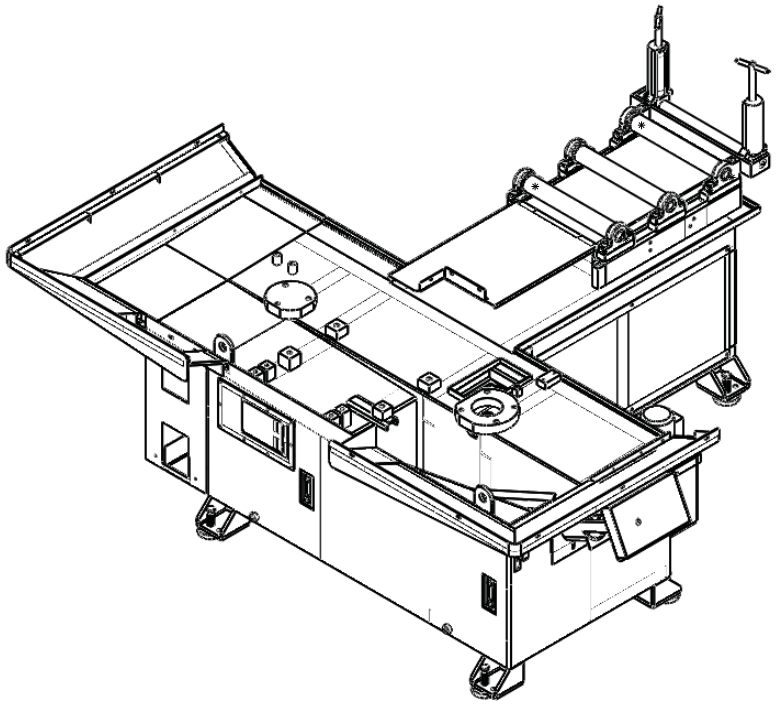
C320G-20000-EU168 床面組
Fixed Bed ASSEMBLY

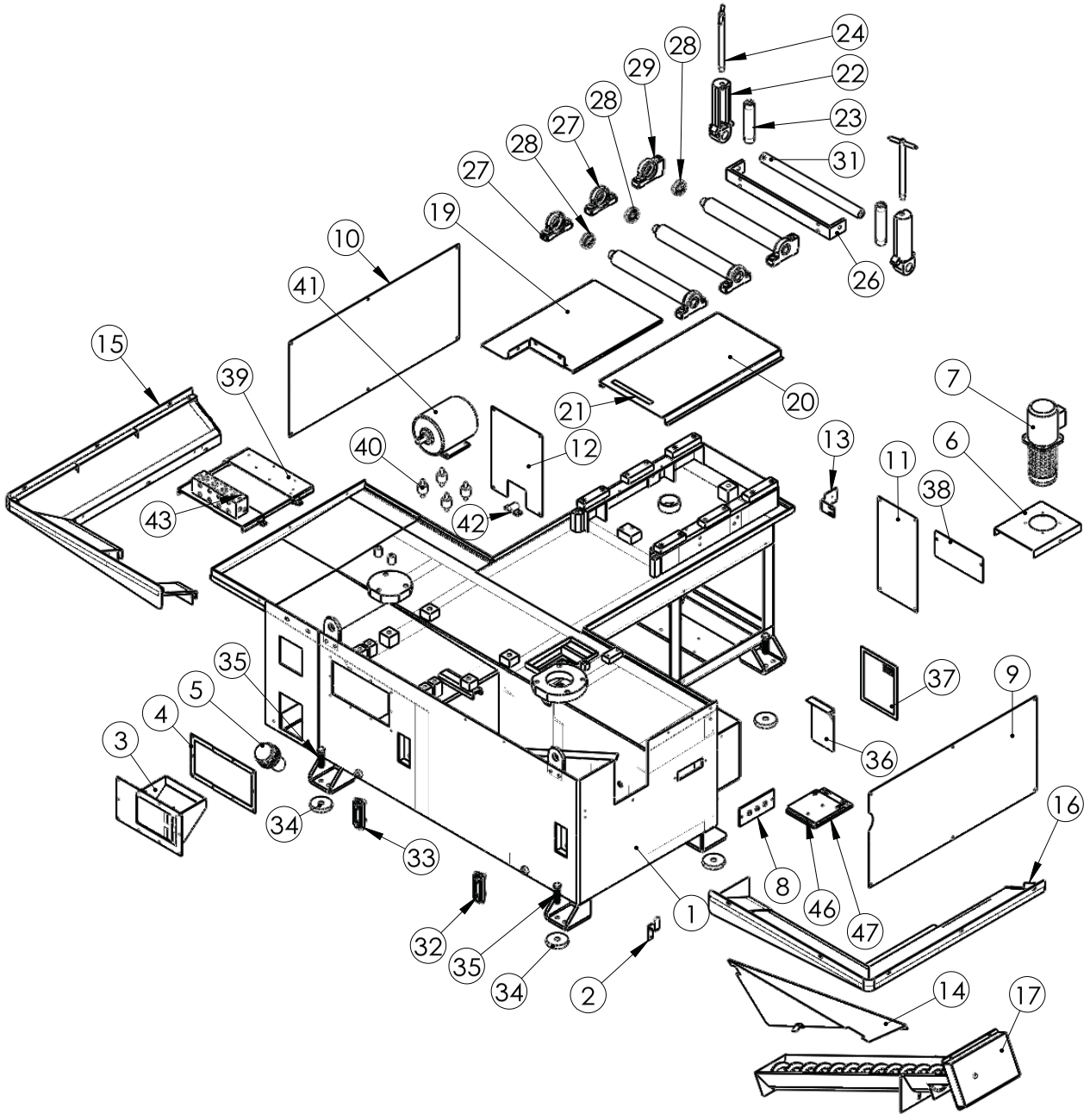
ITEM	PART NO	PART NAME	品名	Q'TY
1	C325H-2201	Front fixed vise 1	前固定虎鉗(一)	1
2	C325H-2203	Front fixed vise (rear)	前固定虎鉗(後)	1
3	AHC-0234B	Front bed plate	前床面鋼板	1
4	C325H-2241A	Vise plate	虎鉗綱板(刻花)	4
5	C325H-2008	Saw blade	鋸帶HS 5230x34x1.1x4/6T	1
6	AHA-0122B	Fixed nut	內六角螺栓	4
7	PQA-16	Screw	外六角螺絲	8
8	C325H-2215	Front movable vise	前活動虎鉗	1
9	AHC-0234A	Rear bed plate	後床面鋼板	1
10	PRD-8-45	Pin	平行銷	1
11	C325H-2001	Base	床面	2
12	AGB-70220	Water pipe fixed bracket	冷卻水管固定板	1
13	PBA-5-12	Nut	螺帽	2
14	PBA-8-20	Quick aapproach assembly	內六角螺絲	10
15	PBA-6-20	Hexagon socket head cap screw	丸頭內六角螺絲M6x20L	2
16	PQA-6	Spring washer	彈簧華司	2
17	AHA-0122D	Fixed nut	外六角固定螺栓	2
18	PBA-14-60	Hexagon socket head cap screw	內六角螺絲M14x60L	2
19	PBA-6-25	Hexagon socket head cap screw	內六角螺絲M6x25L	1
20	PCA-5-16	Screw	皿型內六角螺絲	2
21	C325H-2006	Front blade line steel	前鋸線鋼板固定座	1
22	PP-57071-32P-A	Water-pipe	出水管HK803	1
23	PP-43136	On/off valve	開關閥 A103PT38	1



2019/04/09

C320G-10000-EU168 底座組
Base Assembly



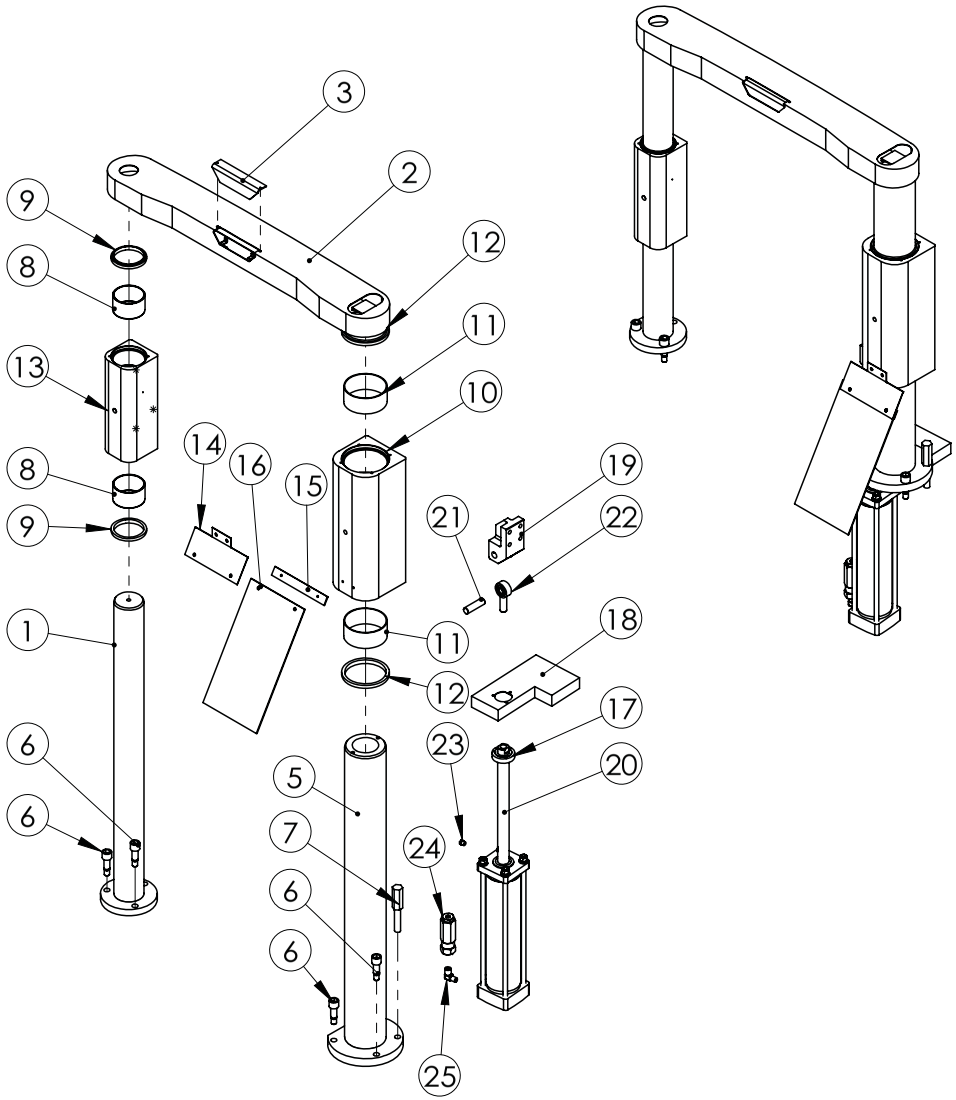


2019/04/12

ITEM	PART NO.	PART NAME	PART NAME IN CHINESE	Q'TY
1	C320G-1001A	Base	底座	1
2	AHA-1309	Hose bracket	軟管架	1
3	C320G-1003A	Oil tank cover	油箱蓋	1
4	C320G-1004A	Oil tank gasket	油箱墊片	1
5	PP-43320	Filler breather filter	注油器	1
6	C250H-0136	Hydraulic cylinder cover	泵浦固定座蓋	1
7	PP-32051-CE-AM55xT	Pressure regulator	浸水幫浦(過濾式)	1
8	AHG-0138A	Fitting seat	水管接頭座	1
9	C320G-1067	Cover	後右後蓋	1
10	C320G-1063A	Motor	油壓馬達	1
11	C320G-1060	Oil tank cover	油箱蓋	1
12	C320G-1061A	Pump	油壓幫浦	1
13	C250H-2030B	Limit switch seat	限動開關座(CE用)	1
14	C325H-1041	Collecting chip board	水槽集屑板	1
15	C320G-1023C	Right splash shield	右防濺板	1
16	C320G-1025C	Right splash shield	右防濺板	1
17	C250H-40000A -1	Chip conveyor assembly	除屑機	1
18	C460H-1079-	Lifting ear(1)	吊耳(一)	2
19	C250H-1281	Feeding shaft cover	送料軸護蓋	1
20	C325H-1283A	Main shaft assembly	油壓缸護蓋	1
21	C250H-1290	Plastic plate	塑膠墊	1
22	OPR-5015B	Vertical roller seat	側滾輪座	2
23	OPR-5013B	Vertical roller	側滾輪（簡易）	2
24	OPR-5014B	Vertical roller shaft and handle	側滾輪軸及把手	2
25	BAAHC-1625	Roller	滾輪	3
26	C325H-1261	Vertical roller stopper	側滾輪擋板	1
27	C325H-1253	Fixed bed assembly	滾輪固定座	4
28	PP-13020	Bearing	軸承(滾輪專用)	6
29	C325H-1255	Roller fixed seat	滾輪固定座(左)	1
30	C325H-1257	Roller fixed seat	滾輪固定座(右)	1
31	C325H-1259	Vertical roller fixed	側滾輪固定軸	1
32	PP-21030A	Water gauge	水面計(含刻度表)	1
33	PP-21030	oil gauge	油面計(含刻度表)	1
34	BAAHR-1055	Saw bow assembly	底座墊塊	6
35	PLA-16-70A	Hexagon screw	外六角螺絲-M16xP2.0x70	6
36	AHA-0139	Filter	水箱通管濾網(小)	1
37	C320G-1009	Water tank filter	水箱濾網	1
38	C320G-1059	Cover	右後右蓋	1
39	C250H-1015	Manifold plate seat	油路板座	1
40	PP-70700-1	M8 rubber	防震墊M8	4
41	PBH5-C408-P	Motor	馬達(位移) 5HP D3 4P 50HZ 200/400V	1
42	AGB-70220	Water pipe fixed bracket	冷卻水管固定板	1
43	AHA-1001B	Manifold plate	油路板(4口)	1
44	C320G-1061A	Left rear cover	左後蓋	1
45	C320G-1060	Cover	右後蓋	1
46	C320G-1997	Saw bow cylinder y-axit	鋸弓油缸Y軸板	1
47	C320G-1995	Saw bow cylinder x-axit	鋸弓油缸X軸板	1

C320G-11000-EU168 主軸組
Main Shaft Assembly

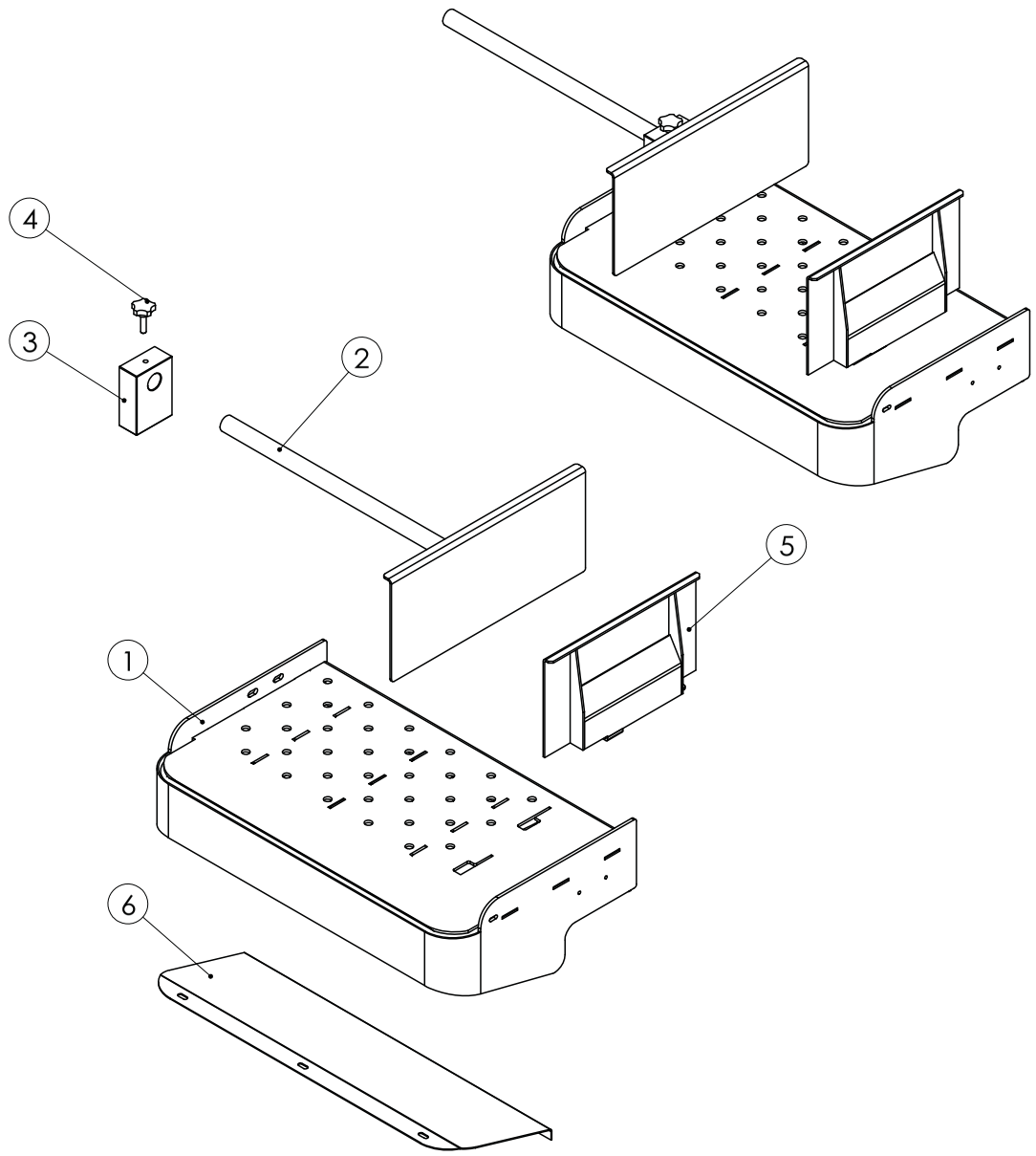
ITEM	PART NO.	PART NAME	PART NAME IN CHINESE	Q'TY
1	C320G-1121	Sub shaft	小主軸	1
2	C320G-1131A	Cross beam	橫梁	1
3	C320G-1136A	Acrylic lamp shade	壓克力燈罩	1
4	C320G-1134A	Cross beam rear cover	橫梁後蓋板	1
5	C320G-1101	Main shaft	大主軸	1
6	C320G-1154	Fixed hex soc bolt	內六角固定螺栓	5
7	AGC-1030	Lower limit Positioninq rod	下限定位支桿	1
8	PP-13281	DU bushing	乾式軸承	2
9	PP-51196A	duster seal	防塵套(軟橡皮)	2
10	C320G-1103	Main shaft assembly	大軸套	1
11	PP-13310C	DU bushing	乾式軸承11050	2
12	PP-51140	duster seal	防塵套	2
13	C320G-1123	Sub shaft sleeve	小軸套	1
14	C320G-1008-1	Anti-chip plate-1	遮屑壓板-1	1
15	C320G-1008-2	Anti-chip plate-2	遮屑壓板-2	1
16	PP-57001B	Rubber	耐油橡皮 200 x360 x3T mm	1
17	AGC-1022A	Saw bow cylinder cover	鋸弓油缸遮環	1
18	AGC -1018B	Saw bow cylinder cover	鋸弓油缸護罩	1
19	C320G-3275	Saw bow cylinder top seat	鋸弓油缸上耳	1
20	C320G-32500-1	Cylinder assembly	鋸弓油壓缸組	1
21	AGB-70304A	Pin	上鋸弓油缸插銷	1
22	BAAHA-1113	Top seat	連桿軸承	1
23	C320G-1721	Screw	透氣螺絲(PT1/8)	1
24	PP-43121-03	Pilot-operated check valve	引導式止回閥 (防爆閥)	1
25	PUJ-030-020-03	Elbow joint	彎接頭	1



2019/04/11

C320G-12000 托架組
Tray Assembly

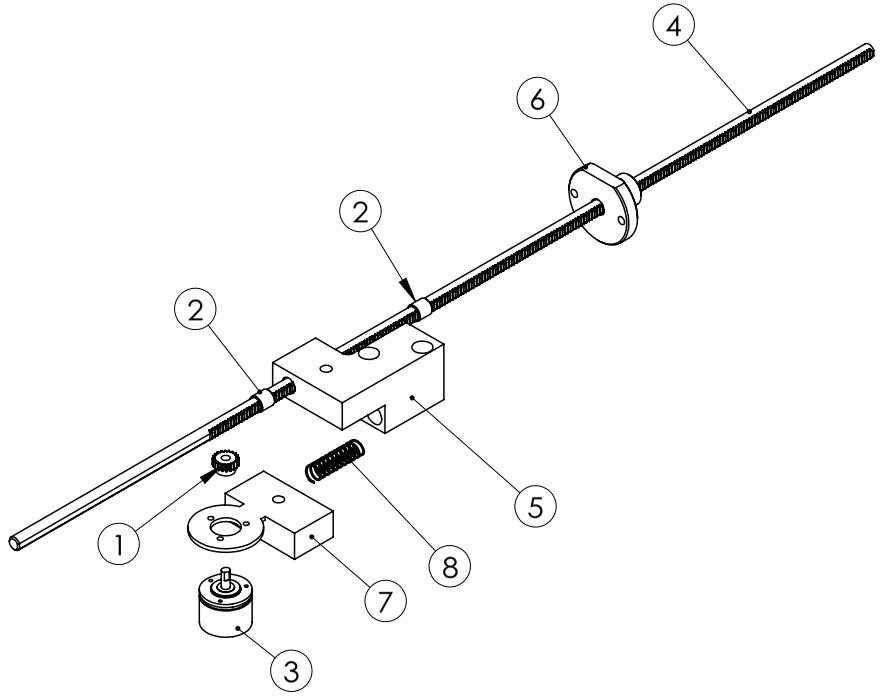
ITEM	PART NO.	PART NAME	PART NAME IN CHINESE	Q'TY
1	C320G-1201A	Bracket	托架	1
2	C320G-1211A	Left bracket	托架左板	1
3	C320G-1215A	Bracket guiding rod fixed seat	托架導桿固定座	1
4	PP-53010	Knob screw	梅花螺絲	1
5	C320G-1209A	Right bracket	托架右板	1
6	C320G-1208A	Left bracket	托架左板	1



2019/04/11

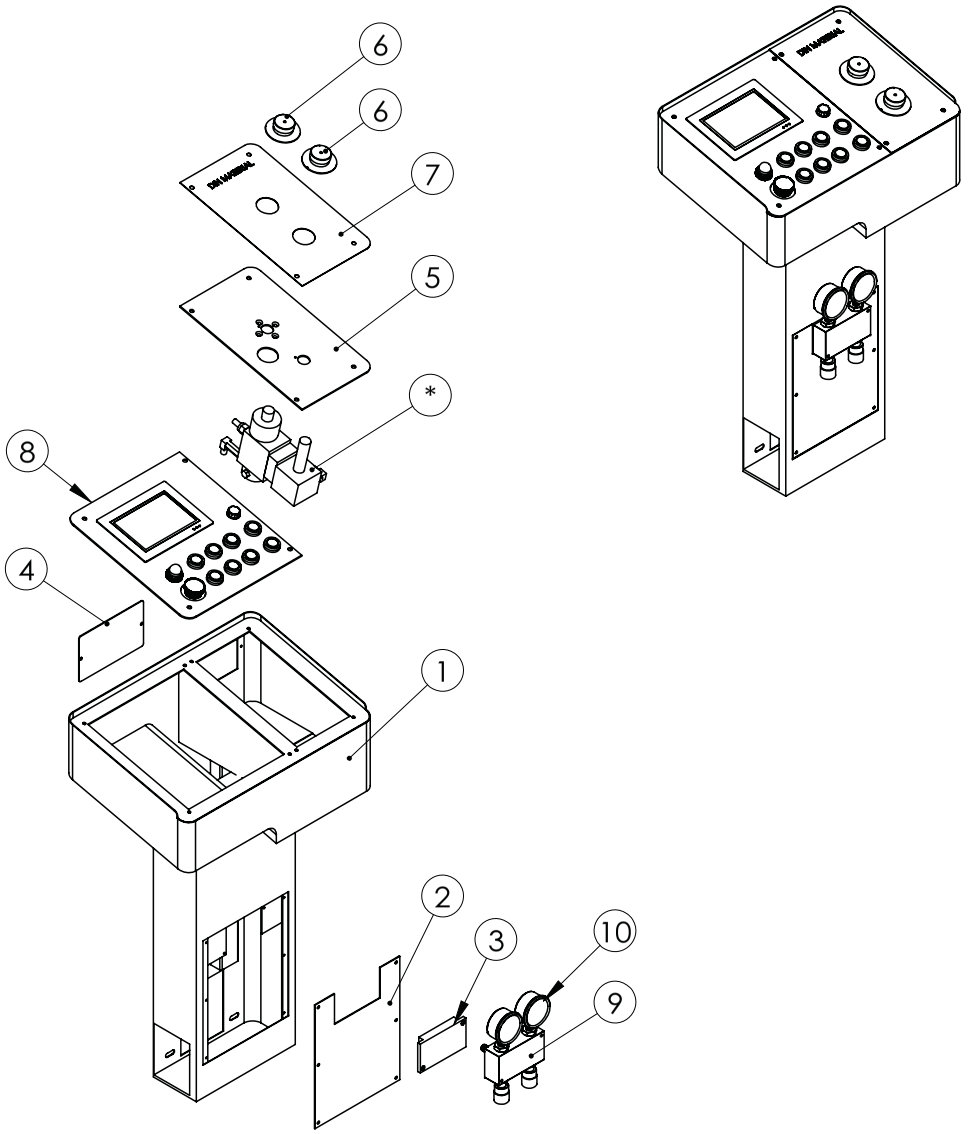
G320C-12500 定寸譯碼器組
INCH ENCORDER ASSEMBLY

ITEM	PART NO.	PART NAME	PART NAME IN CHINESE	Q'TY
1	AHA-1560	Gear	定寸齒輪	1
2	PP-13020	Bearing	乾式軸承	2
3	BAEP-90492V	Encorder	譯碼器	1
4	AHA-1561-1	Tooth bar	定寸齒條(620L)	1
5	AHA-1563	Encorder seat	譯碼器固定座	1
6	AHA-1564	Tooth bar seat #2	齒排固定座(二)	1
7	G325H-31000	Movable plate	譯碼器活動板	1
8	M3L-9-10	Spring	M3L-9-10	1



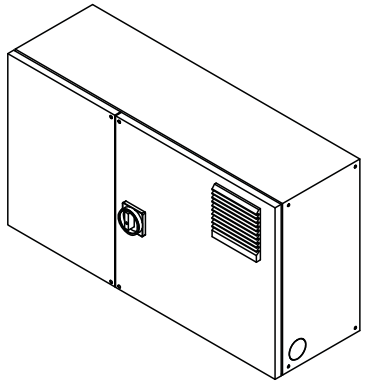
C320G-13000A-EU168 操作組
Control Box Assembly

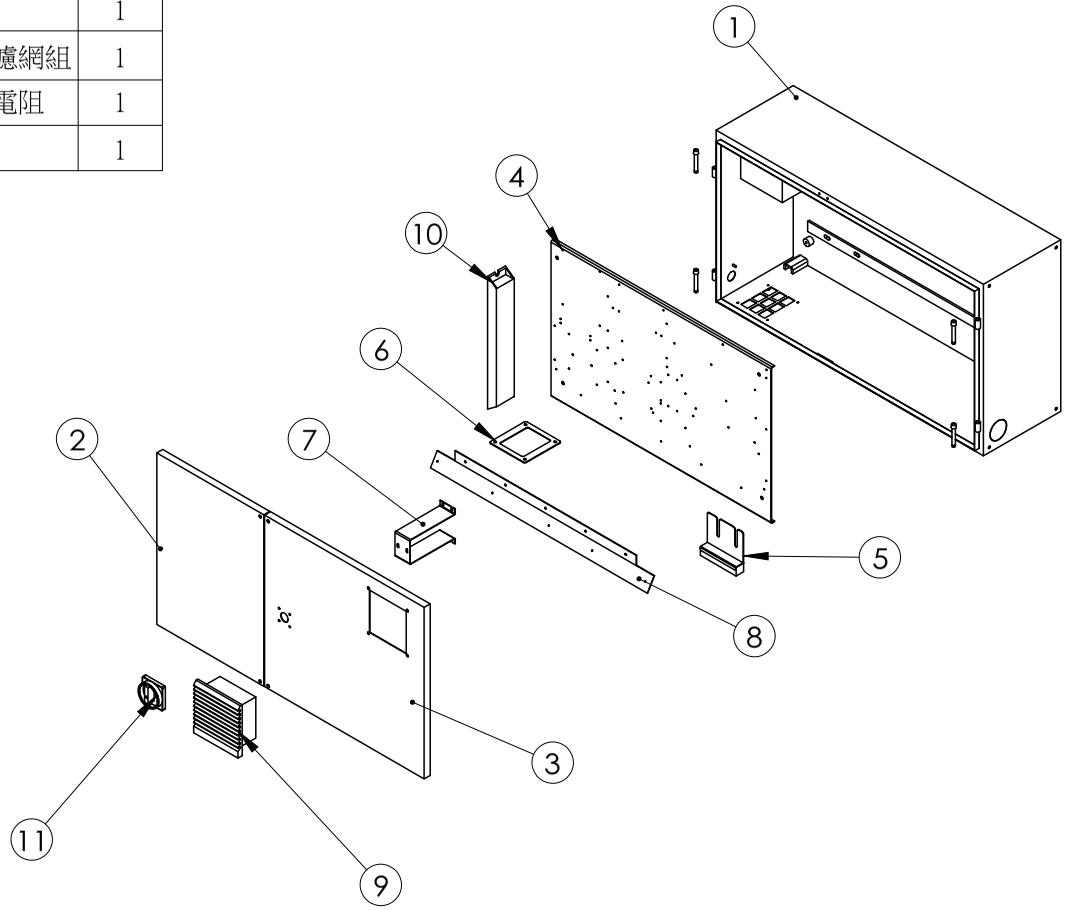
ITEM	PART NO.	PART NAME	PART NAMR IN CHINESE	Q'TY
1	C320G-1337A	Control box	操作箱	1
2	C320G-1338A	Control box front cover	操作箱前蓋板	1
3	C320G-1072A	Reserved fixed seat	減壓閥預留固定座	1
4	C320G-1308A	Control box rear cover	操作箱後蓋	1
5	C320G-1328A	Flow control base plate	流量控制底板	1
6	AHA-1806	Control knob	流量閥旋鈕	2
7	C320G-1325A-D	Flow valve control plate	流量控制面板(DIN)	1
8	C320G-1321-CPC	Control panel	控制面板板 (5.7吋)(全行程）	1
9	PP-43127A	Pressure regulator	雙減壓閥組	1
10	PP-43311A	Pressure gauge	壓力錶(直立式)(CE用)	2



C320G-13000B-EU168 控制箱組
Electrical compartment Assembly

ITEM	PART NO.	PART NAME	PART NAME IN CHINESE	Q'TY
1	C320G-1301A	Control box	控制箱	1
2	C320G-1310A-P2	Control box door	控制箱門	1
3	C320G-1310A-P1	Control box door	控制箱門	1
4	C320G-1305A	Control box bsae plate	控制箱底板	1
5	C320G-1320A	Wire fixed Board	電線固定板	1
6	C250H-1312	Control box gasket	控制箱防塵壓板	1
7	C250H-1317	Supporting seat	門式開關支撐座	1
8	C320G-1306A	Terminal block	接線板	1
9	EP-90641-8	fan	百葉式風扇濾網組	1
10	EP-90466L-1	Braking resistor	變頻器煞車電阻	1
11	EP-90016C	Door switch	門式開關	1





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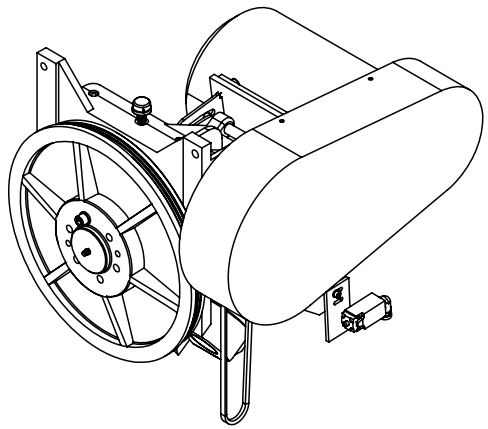
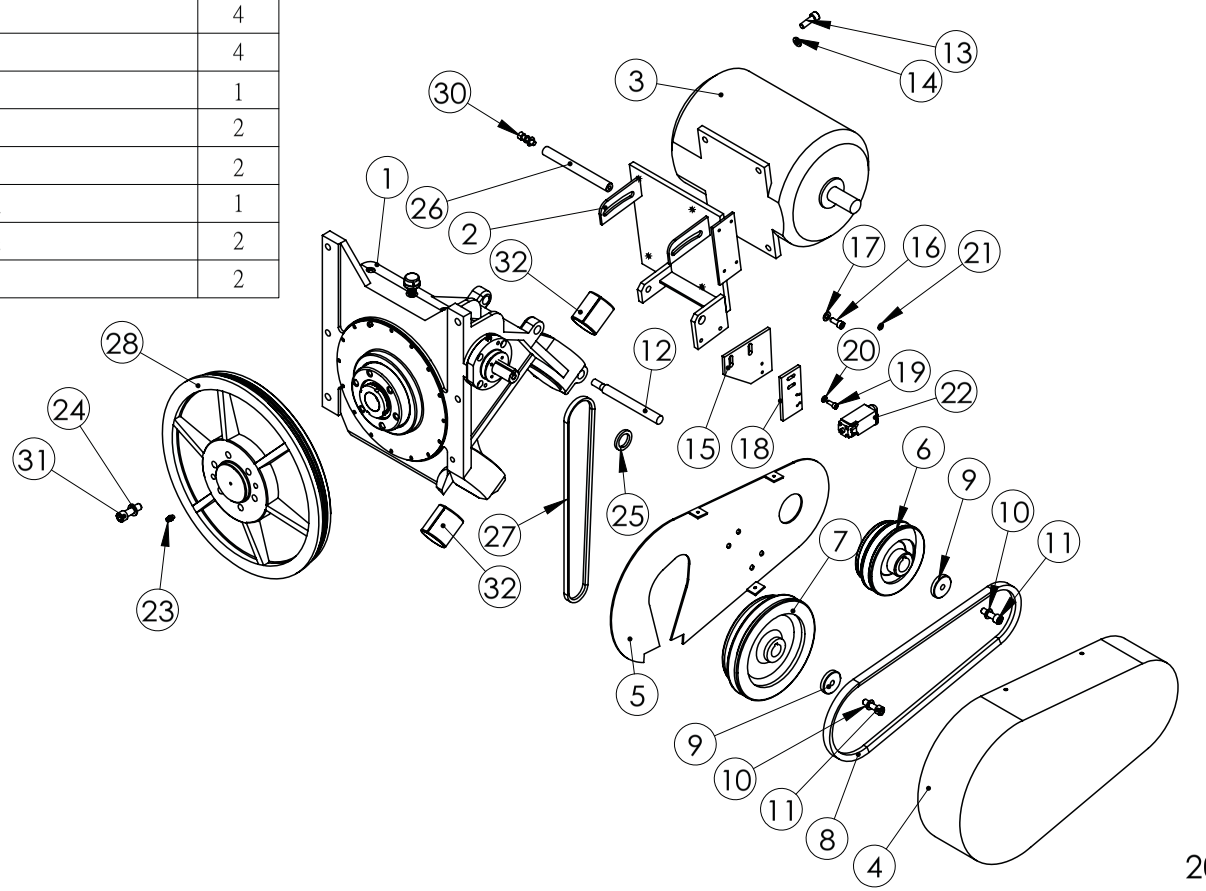
05G320-EU168 SERIES PART LIST

C320G-30600-EU168 主動馬達組
Driver motor Assembly

ITEM	PART NO	PART NAME	PART NAME IN CHINESE	Q'TY
1	C320G-33500	Gear reducer	減速機組	1
2	C260H-3081	Motor plate	馬達底板	1
3	PBH5-C408-P	Motor	馬達 5HP 3∅ 4P 50HZ 200/400V	1
4	C320G-3071-CE	Pulley cover	普利護蓋	1
5	C320G-3073-CE	Pulley cover bracket	普利護蓋底板	1
6	BAAHA-0538G	Motor belt wheel	馬達皮帶輪(無段)	1
7	BAAHA-0514G	Transmission pulley	減速機普利	1
8	PP-56287	Belt	皮帶(B44)	1
9	AHA-0525	Washer	墊圈	2
10	PQA-10	Spring washer	彈簧華司	2
11	PBA-10-35	Hexagon socket head cap screw	內六角螺絲	2
12	C250H-3082	Motor movable shaft	馬達活動軸	1
13	PBA-10-30	Hexagon socket head cap screw	內六角螺絲	4
14	PQA-10A	Spring washer	彈簧華司 M10	4
15	C250H-3209	Limit switch seat	限動開關座	1
16	PBA-8-20	Quick aapproach assembly	內六角螺絲	2
17	PPA-8	flat washer	平面華司	2
18	C250H-3208	Limit switch fixed plate	限動開關固定板	1
19	PBA-6-16	Ball Hexagon bolt	有頭內六角螺絲	2
20	PQA-6	Spring washer	彈簧華司	2

ITEM	PART NO	PART NAME	PART NAME IN CHINESE	Q'TY
21	PPA-6	flat washer	平面華司	2
22	PP-90	Limit switch	限動開關	1
23	PUC-007	Grease nipple	油嘴 M6xP1.0	1
25	C250H-3062	Motor pulley washer	馬達皮帶輪墊圈	1
26	C250H-3085	Motor position shaft	馬達定位軸	1
27	PP-56510	Belt	皮帶(M37)	1
28	C250H-3041	Drive wheel	下輪	1
29	PQA-8	Spring washer	彈簧華司	2
30	PBA-8-30	Hexagon socket head cap screw	有頭內六角螺絲	2
31	PBA-12-40	Hexagon socket head cap screw	有頭內六角螺絲	6
32	PP-13250(5060)	DU bushing	乾式軸承	2





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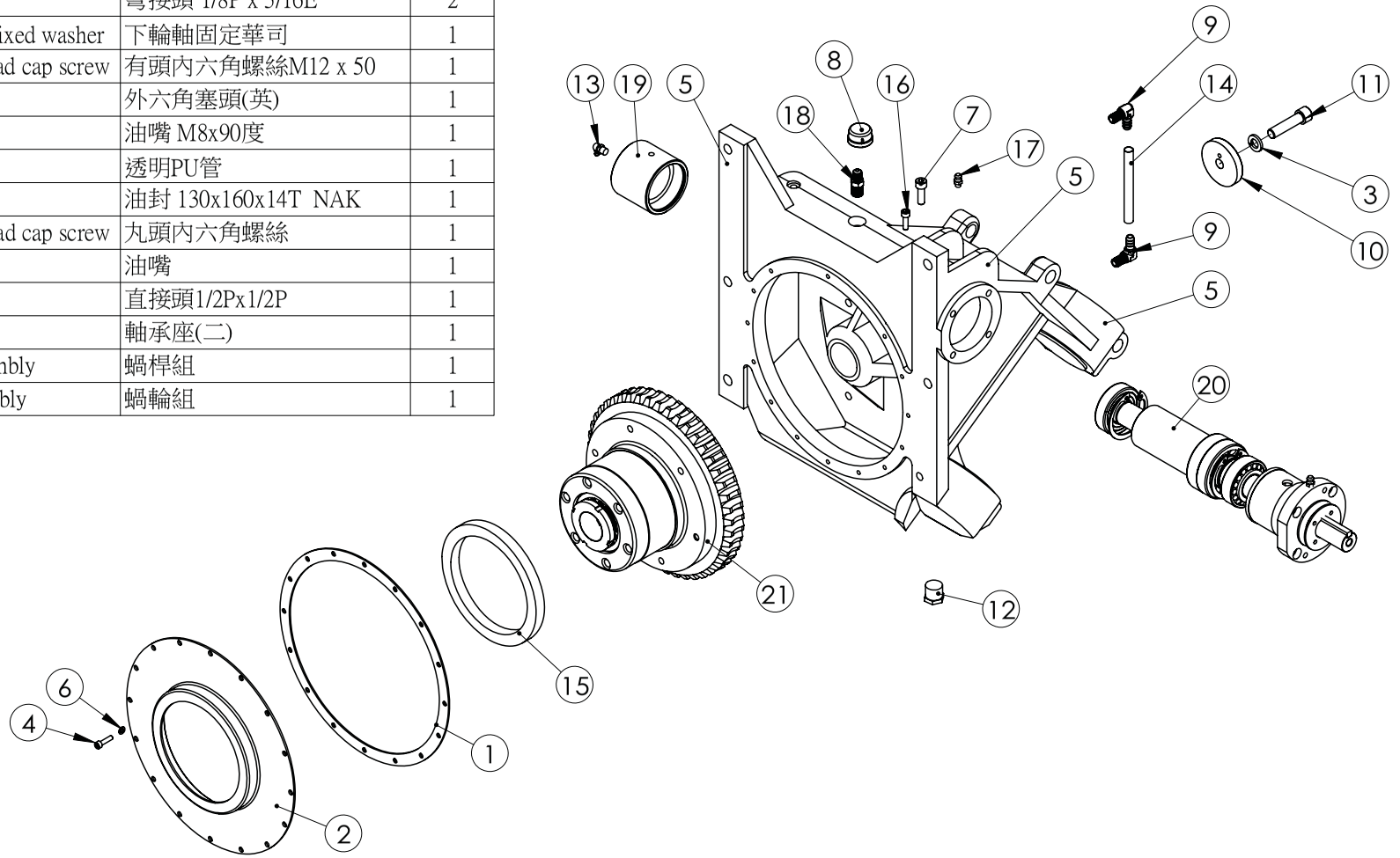
C320G-33500 減速機組
Gear reducer Assembly

ITEM	PART NO	PART NAME	PART NAME IN CHINESE	QTY
1	C250H-3369	Gear reducer rubber washer	減速機橡膠墊圈	1
2	AHA-0433A	Oil fixed plate	油封固定盤	1
3	PQA-12	Spring Washer	彈簧華司	1
4	PBA-5-20	Hexagon socket head cap screw	有頭內六角螺絲M5 x 20	14
5	C320G-3351	Bearbox body	減速機本體	1
6	PQA-5	Spring washer	彈簧華司(公)	14
7	PBA-8-25	Ball Hexagon bolt	丸頭內六角螺絲	1
8	AHA-0335	Plug	減速機管帽	1
9	PUJ-010-025-01	Curved Fitting	彎接頭 1/8P x 5/16E	2
10	C250H-3046	Drive wheel shaft fixed washer	下輪軸固定華司	1
11	PBA-12-50	Hexagon socket head cap screw	有頭內六角螺絲M12 x 50	1
12	PED-040P-01	Hexagon plug	外六角塞頭(英)	1
13	PUC-008	Grease nipple	油嘴 M8x90度	1
14	PU-10-105	Tube	透明PU管	1
15	PP-51090B	O-ring	油封 130x160x14T NAK	1
16	PBA-6-20	Hexagon socket head cap screw	丸頭內六角螺絲	1
17	PUC-007	Grease nipple	油嘴	1
18	PUI-040-040-01	Straight connector	直接頭1/2Px1/2P	1
19	BAAHA-0326A	Bearing seat	軸承座(二)	1
20	C325H-33530	Worm Shaft assembly	蝸桿組	1
21	C325H-33550	Worm gear assembly	蝸輪組	1



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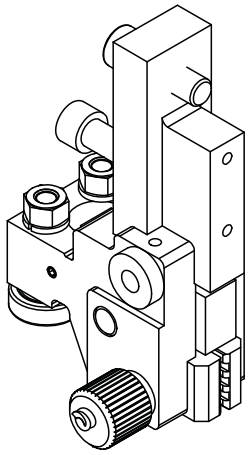
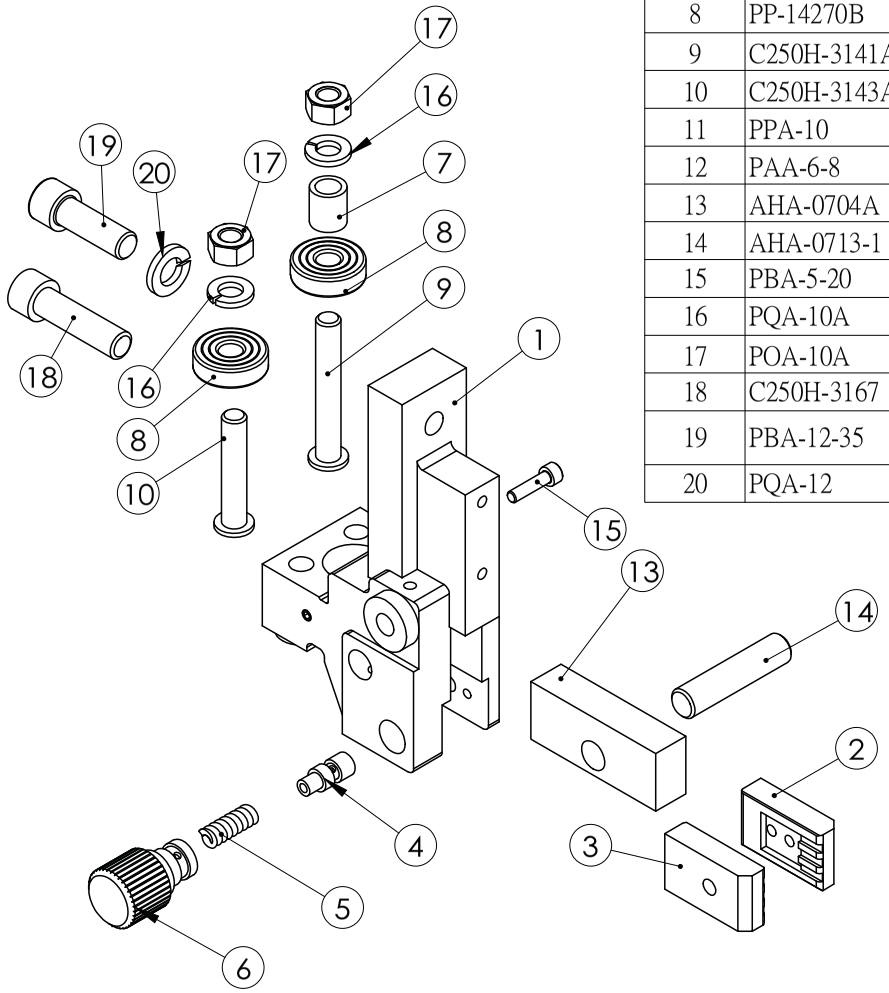
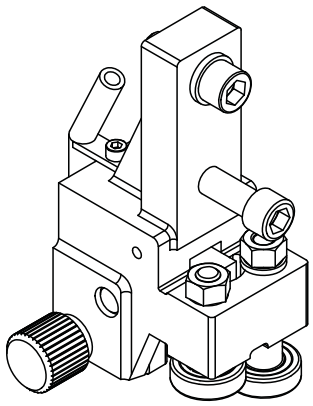
C320G-31300 左導輪座組
Left guide roller Assembly

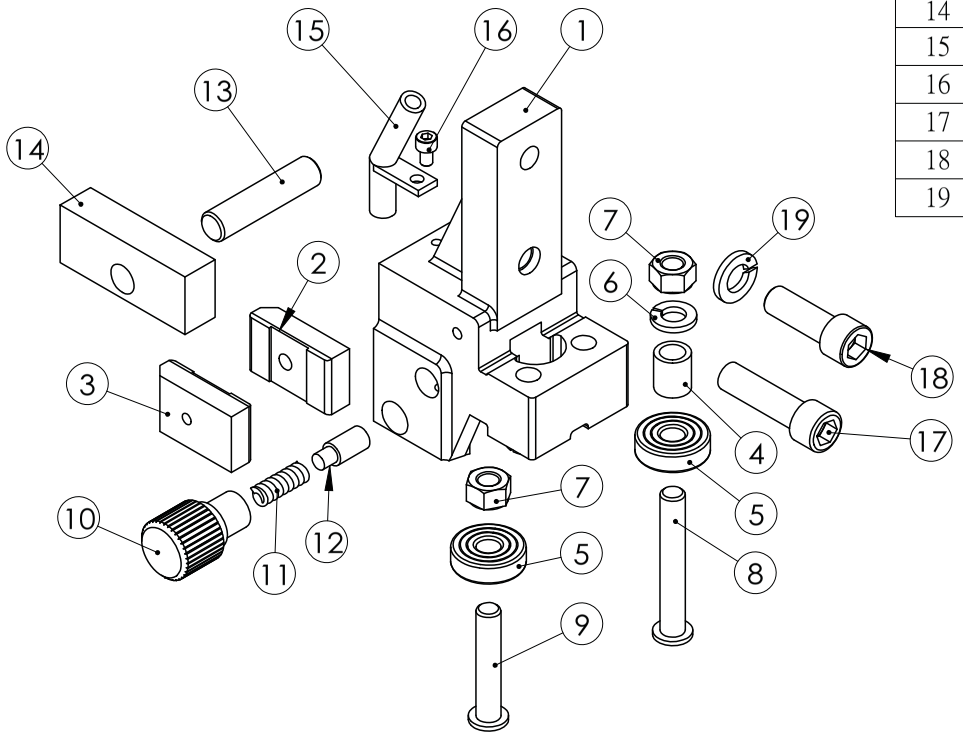




ITEM	PART NO	PART NAME	PART NAME IN CHINESE	Q'TY
1	C250H-3131	Left guide roller seat	左導輪座	1
2	AHA-0701B	Left fixed insert	左固定鎢鋼片	1
3	AHA-0702B	Left movable insert	左活動鎢鋼片	1
4	AHA-0709	Left spring plug	左簧塞	1
5	AHA-0710	Carbide insert spring	鎢鋼片彈簧	1
6	AHA-0711A	Left adjusting screw	左調整螺絲	1
7	AHA-0708B	Washer	導輪墊圈	1
8	PP-14270B	Bearing	軸承6200DDU	2
9	C250H-3141A	Guild wheel shaft	導輪軸 (一)	1
10	C250H-3143A	Guild wheel shaft	導輪軸 (二)	1
11	PPA-10	flat washer	平面華司	1
12	PAA-6-8	Set screw	止附螺絲 M6*8L	1
13	AHA-0704A	Pressure block	下壓座(EU79用)	1
14	AHA-0713-1	Fixed shaft	軸承座固定軸	1
15	PBA-5-20	Hexagon socket head cap screw	內六角螺絲M5x20L	1
16	PQA-10A	Spring washer	彈簧華司 M10	2
17	POA-10A	Nut	螺帽 M10	2
18	C250H-3167	Position pin	導輪座定位銷	1
19	PBA-12-35	Hexagon socket head cap screw	有頭內六角螺絲M12x35L	1
20	PQA-12	Spring washer	彈簧華司 M12	1

C320G-31600 右導輪座組
Right guide roller Assembly

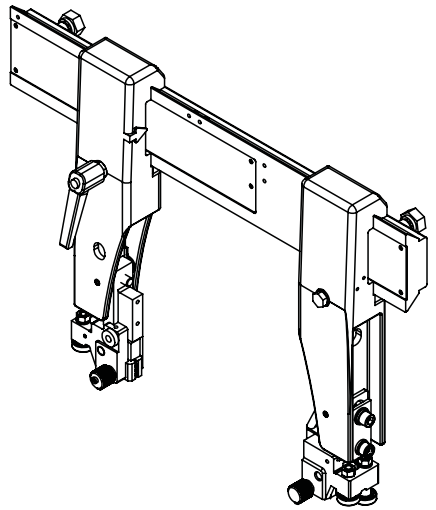


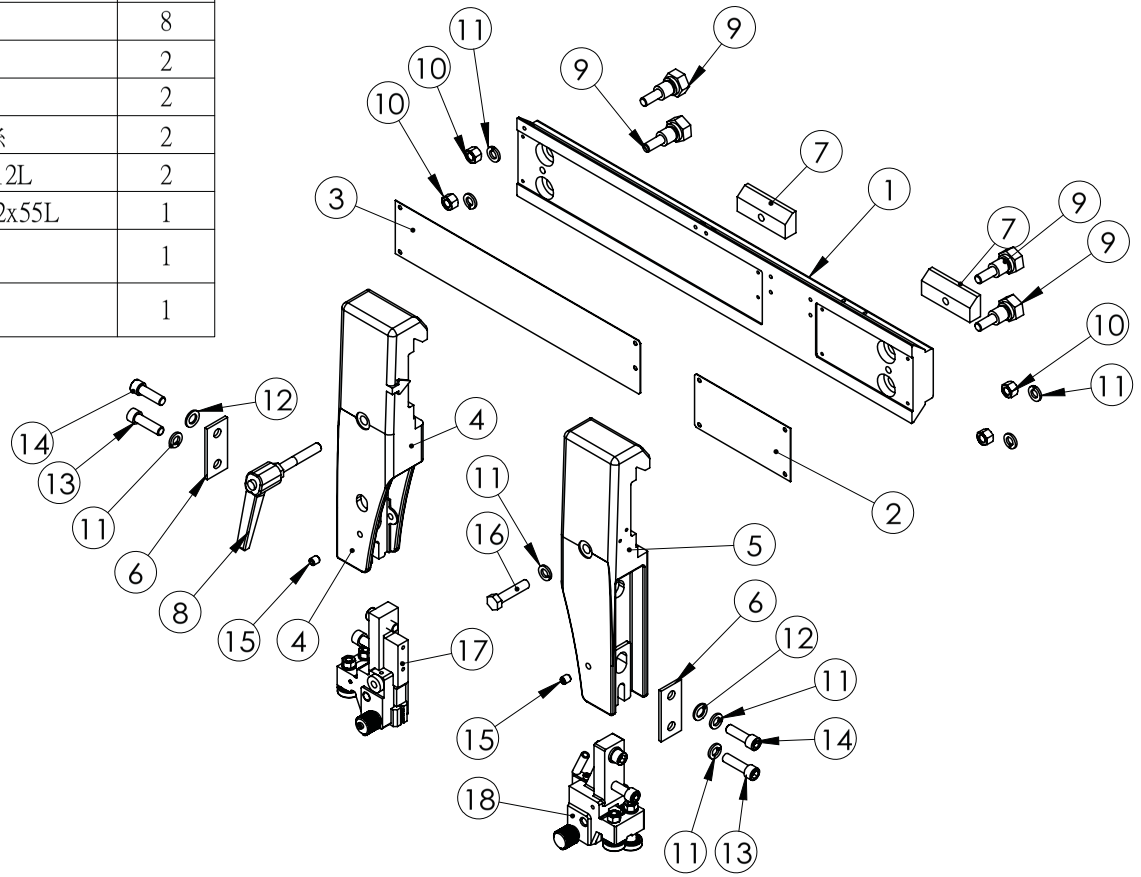


ITEM	PART NO	PART NAME	PART NAME IN CHINESE	Q'TY
1	C250H-3161	Right guide roller seat	右導輪座組	1
2	AHA-0743B	Right movable insert	右活動鎢鋼片1	1
3	AHA-0744B	Right fixed insert	右固定鎢鋼片1	1
4	AHA-0708B	Washer	導輪墊圈	1
5	PP-14270B	Bearing	軸承6200DDU	2
6	PQA-10A	Spring washer	彈簧華司 M10	2
7	POA-10A	Nut	螺帽 M10	2
8	C250H-3141A	Guide roller shaft(1)	導輪軸(一)	1
9	C250H-3143A	Guide roller shaft(2)	導輪軸(二)	1
10	AHA-0742A	Left adjusting screw	右調整螺絲	1
11	AHA-0710	Carbide insert spring	鎢鋼片彈簧	1
12	AHA-0741	Left spring plug	右簧塞	1
13	AHA-0713-1	Fixed shaft	軸承座固定軸	1
14	AHA-0704A	Pressure block	下壓座(EU79用)	1
15	AHA-0745	Spray nozzle	冷卻水噴嘴	1
16	PBA-5-8	Hexagon socket head cap screw	有頭內六角螺絲M5x8L	1
17	C250H-3167	Position pin	導輪座定位銷	1
18	PBA-12-35	Hexagon socket head cap screw	有頭內六角螺絲M12x35L	1
19	PQA-12	Spring washer	彈簧華司 M12	1

C320G-31000 鋸臂組
Guide Arm Assembly

ITEM	PART NO	PART NAME	PART NAME IN CHINESE	Q'TY
1	C320G-3101	Saw arm sliding plate	鋸臂滑板	1
2	C320G-3111	Right nameplate	右鋸臂銘牌	1
3	C320G-3112	Left nameplate	左鋸臂滑板銘牌	1
4	C325H-3103A	Left guide arm	左鋸臂	1
5	C325H-3105A	Right guide arm	右鋸臂	1
6	AHA-0719	Spacer	導輪座墊片	2
7	AHA-0737	Guide arm fixed block	鋸臂固定塊	2
8	PP-52111E	Saw arm handle	鋸臂把手	1
9	C325H-3021A	Adjusting Balt	滑板調整螺絲	4
10	POA-12	Nut	螺帽	4
11	PQA-12	Spring washer	彈簧華司	8
12	PPA-12	Flat washer	平面華司	2
13	C250H-3167	Position pin	導輪座定位銷	2
14	PBA-12-40	Balt	有頭內六角螺絲	2
15	PAA-10-12	Socket set screw	止付螺絲 M10x12L	2
16	PLA-12-55	Bolt	外六角螺絲 M12x55L	1
17	C320G-31300	Left guide roller assembly	左導輪座組	1
18	C320G-31600	Right guide roller assembly	右導輪座組	1





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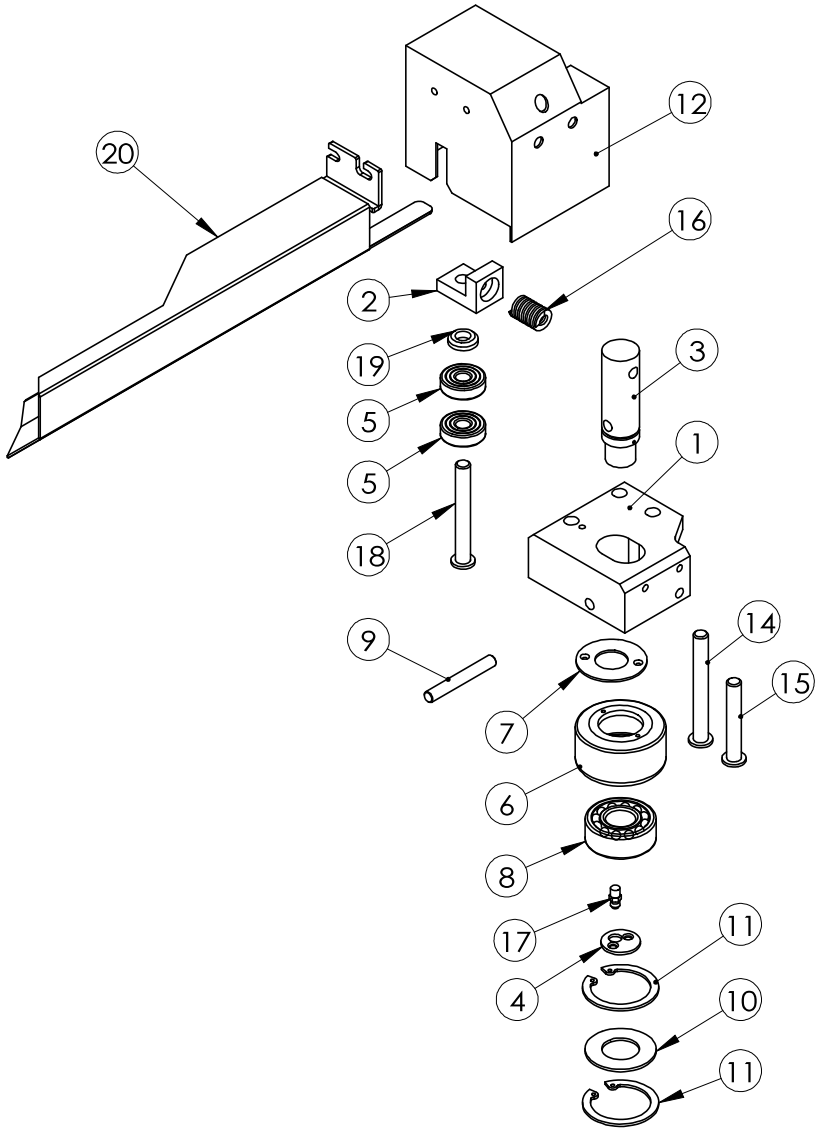
C320G-42000 防震導輪組 (選配)
Vibration damper (Optional assembly)

ITEM	PART NO.	PART NAME	PART NAME IN CHINESE	Q'TY
1	C320G-4221	Vibration damper seat	防震座	1
2	C320G-4225	Spring holder	防震彈簧座	1
3	C510M-4231A	roller shaft	防震導輪軸	1
4	C460H-4206	Bearing washer	軸承墊圈	1
5	PP-14270B	Bearing	軸承6200DDU	2
6	AHA-3301	Vibration damper roller	防震導輪	1
7	AGB-3308	Rubber ring	遮水橡皮	1
8	PP-14507	Bearing	調心軸承2204	1
9	PRD-8-60	Pin	平行銷	1
10	AGB-3307A	Grease cover	牛油擋	1
11	PP-58111	Snap ring	扣環R47	2
12	C320G-3397A	Vibration damper roller cover	防震導輪護蓋	1
14	C320G-3141	Guide roller shaft (1)	導輪軸(一)	1
15	C320G-3143	Guide roller shaft (2)	導輪軸64L(二)	1
16	PP-57403	Spring	彈簧TH-1625	1
17	PUC-020	Grease nipple	油嘴	1
18	C320G-3143A	Guide roller shaft	導輪軸80L	1
19	C320G-4222	Bearing washer	軸承墊圈	1
20	C320G-3013C-1	Anti-vibration blade cover	防震鋸帶護蓋(CE)	1



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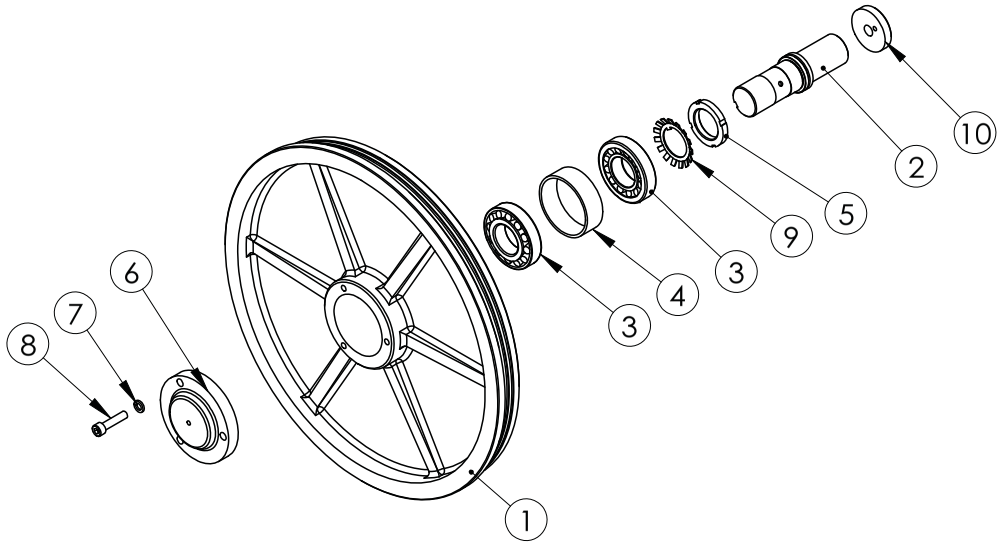
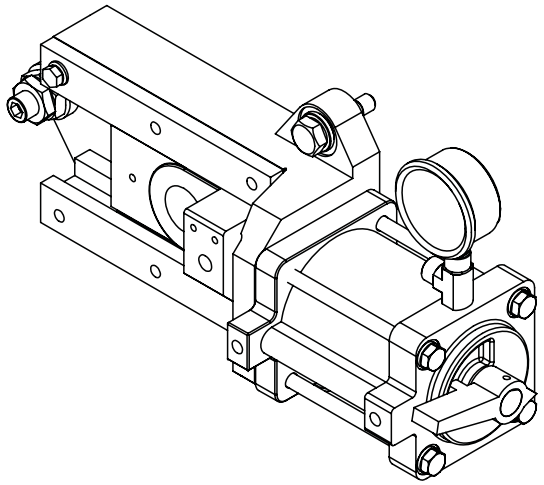
C320G-30300 上輪組
Idle Wheel Assembly

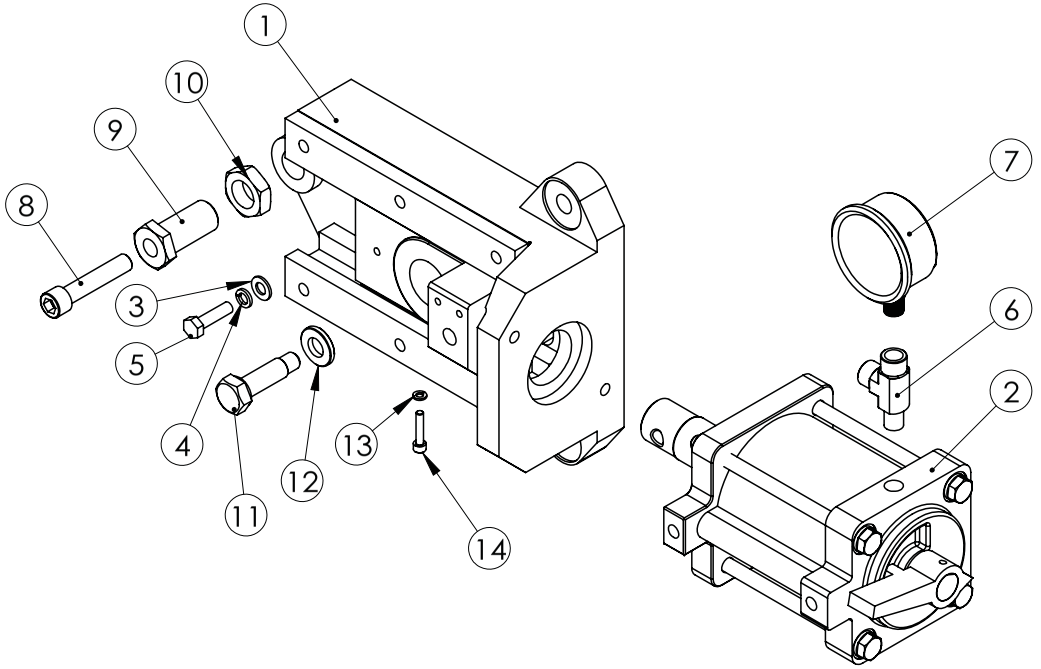
ITEM	PART NO	PART NAME	PART NAME CHINESE	Q,TY
1	C250H-3031	Idle wheel	上輪	1
2	C250H-3033	Idle wheel shaft	上輪軸	1
3	PP-14613	Ball bearing	軸承	2
4	AHA-0637	Idle wheel bearing washer	上輪軸承墊圈	1
5	PP-14907	Fixed nut	固定螺母	1
6	C250H-3037	Idle wheel shaft cover	上輪軸蓋	1
7	PQA-8A	Spring washer	彈簧華司	3
8	PBA-8-30	Screw	螺絲	3
9	PP-14957	Stop ring	止動環	1
10	C250H-3045	Fixed washer	上輪軸固定華司	1



C320G-33000 張力滑座滑板油缸組
Tensioner Sliding plate Assembly



ITEM	PART NO	PART NAME	PART NAME IN CHINESE	Q'TY
1	C250H-33000	Tensioner sliding plate seat	張力滑座滑板組	1
2	C250H-33200-1	Tensioner cylinder assembly	張力油缸組	1
3	PPA-8	flat washer	平面華司	6
4	PQA-8		彈簧華司	6
5	PLA-8-30	Hexagon bolt	外六角頭螺絲	6
6	PUK-020-020-020-10	3-WAT Bushing	三通接頭	1
7	PP-43311A	Pressure gauge	壓力表(直立式)	1
8	PBA-12-60	Hexagon socket head cap screw	內六角螺絲M12x60L	1
9	AHA-0610	Adjusting bolt	調整螺絲	1
10	AHA-0611	Adjusting nut	調整螺母	1
11	C250H-3315	Pisition bolt	定位螺絲	2
12	C250H-3002	Washer	彈簧華司	2
13	PQA-5	Spring washer	彈簧華司(公)	2
14	PBA-5-25	Hexagon socket head cap screw	內六角螺絲	2



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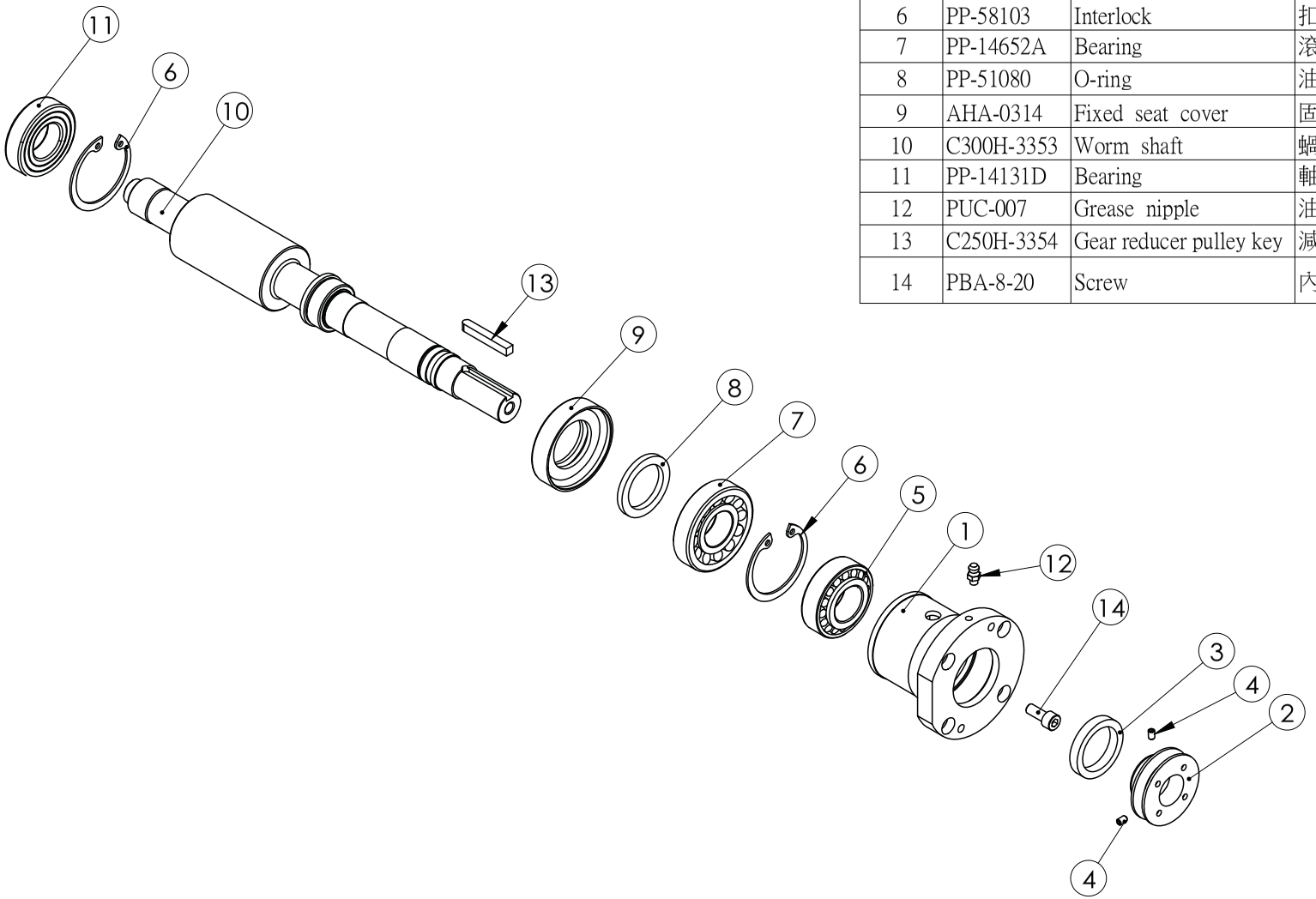
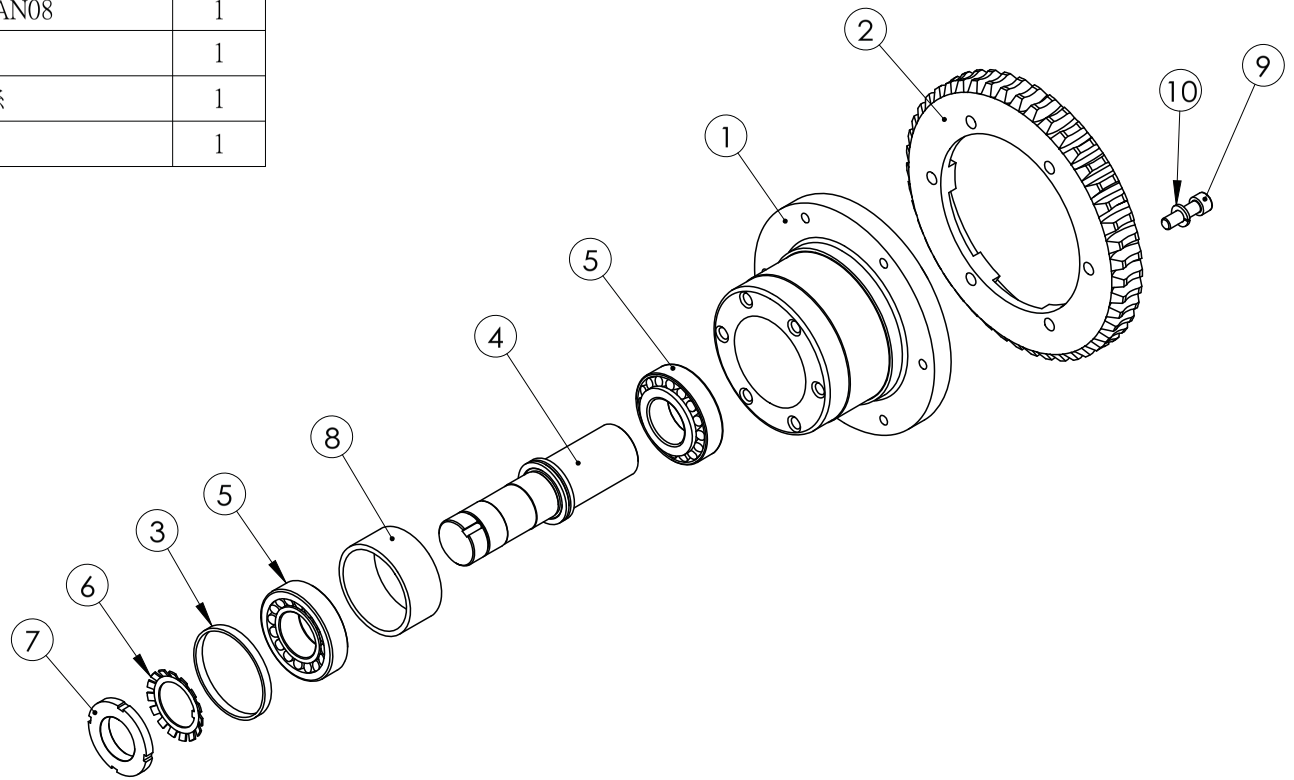
C320G-33530 蝸桿組
Worm Shaft Assembly

ITEM	PART NO	PART NAME	PART NAME CHINESE	Q'TY
1	AHA-0319	Fixed seat (1)	固定座(一)	1
2	C250H-3061	Wire brush pulley	鋼刷普利	1
3	PP-51070	Oil seal	油封TC 38x50x8 NOK	1
4	PAA-5-8	Set screw	止付螺絲 M5*8L	2
5	PP-14691	Ball bearing	滾錐軸承	1
6	PP-58103	Interlock	扣環 R62	2
7	PP-14652A	Bearing	滾錐軸承	1
8	PP-51080	O-ring	油封 38x52x5	1
9	AHA-0314	Fixed seat cover	固定座蓋	1
10	C300H-3353	Worm shaft	蝸桿	1
11	PP-14131D	Bearing	軸承 6206Z KOYO	1
12	PUC-007	Grease nipple	油嘴 M6x1.0 (直)	1
13	C250H-3354	Gear reducer pulley key	減速機普利方鍵7x7x50L	1
14	PBA-8-20	Screw	內六角螺絲	4



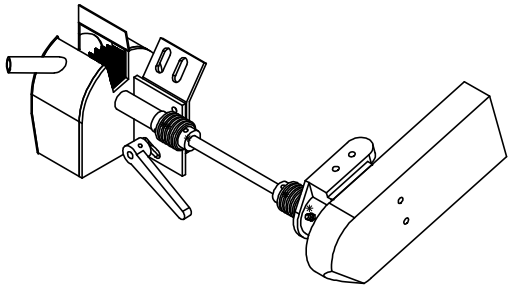
2019/04/11

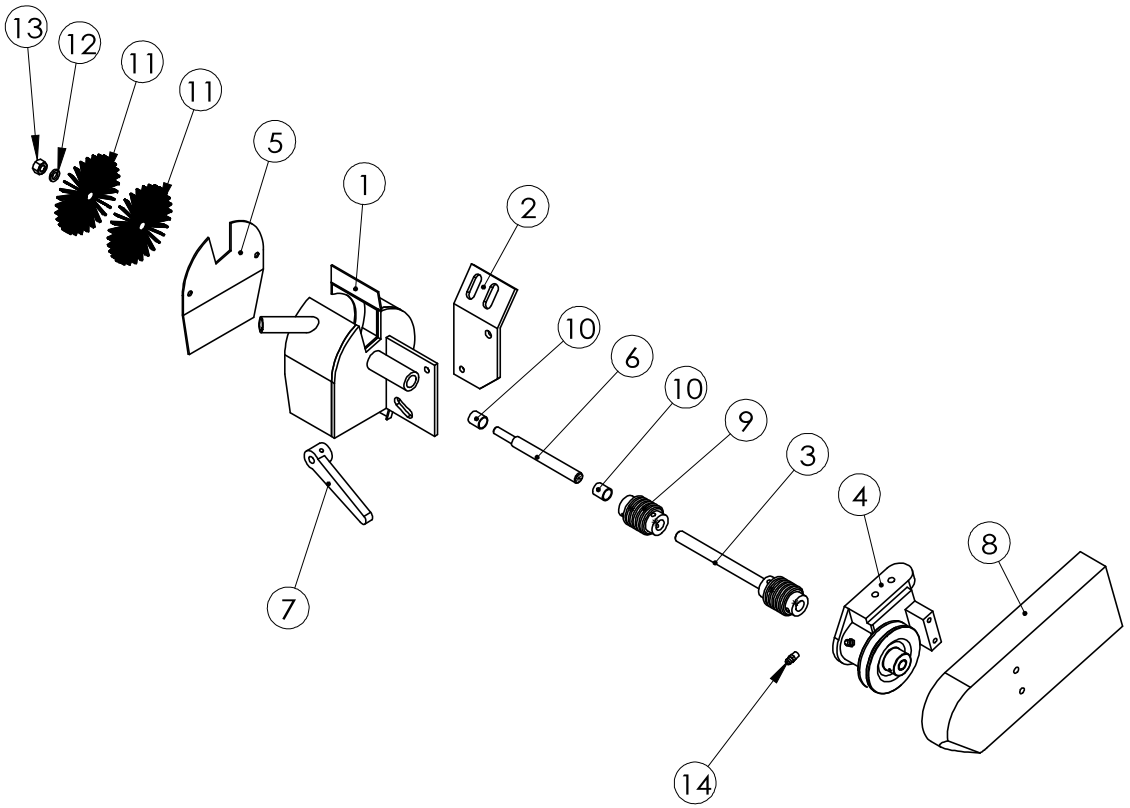
ITEM	PART NO.	PART NAME	PART NAME IN CHINESE	Q'TY
1	C250H-3365	Housing	蝸輪固定座	1
2	C300H-3355	Worm gear	蝸輪	1
3	AHA-0429	Adjusting ring	調整環	1
4	C250H-3043	Drive wheel shaft	下輪軸	1
5	PP-14693B	Ball bearing	滾錐軸承 32208 KOYO	2
6	PP-14958	Ball bearing	止動環 AW08	1
7	PP-14908	Fixed nut	固定螺母 AN08	1
8	AHA-0431B	Bearing washer	軸承墊圈	1
9	PBA-10-35	Hexagon socket head cap screw	內六角螺絲	1
10	PQA-10	Spring washer	彈簧華司	1



C320G-32200 鋼刷組
Wire brush Assembly

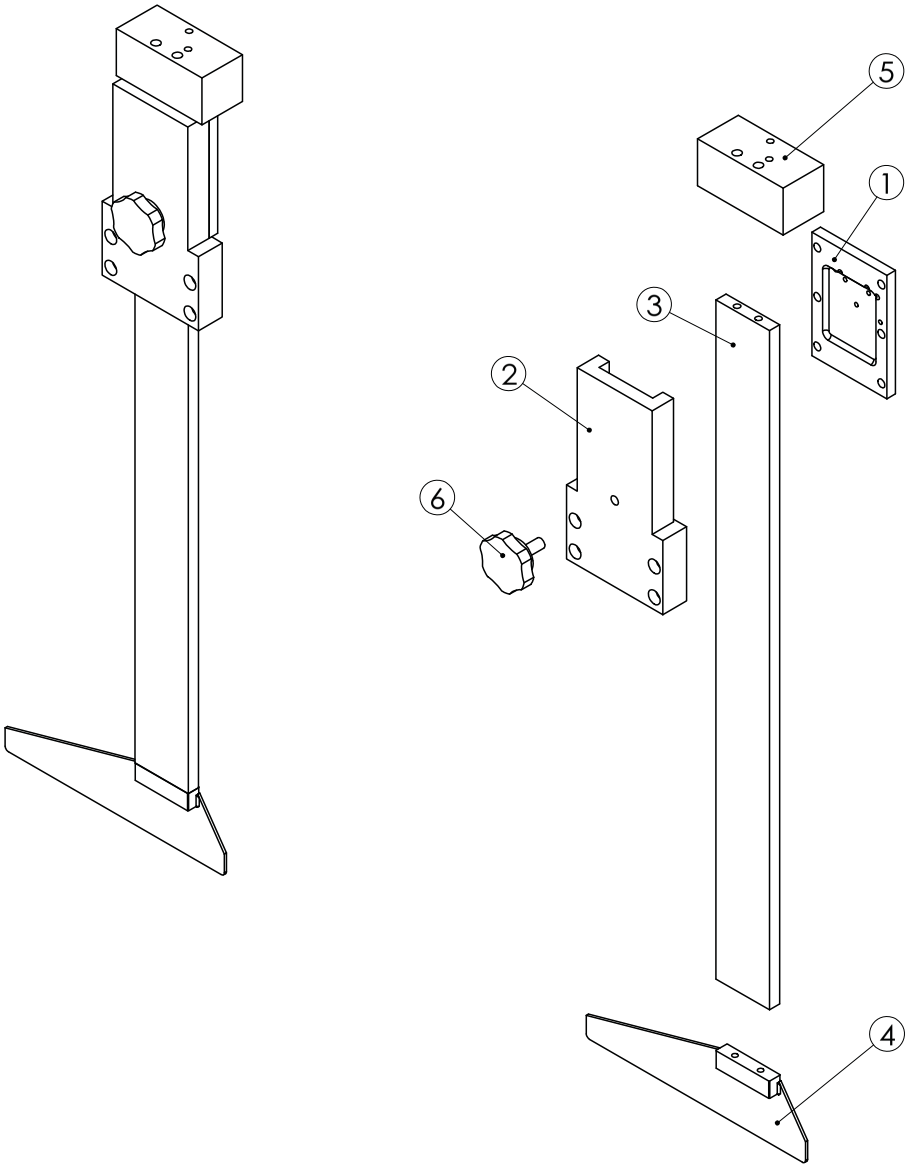
ITEM	PART NO	PART NAME	PART NAME IN CHINESE	Q'TY
1	AGC-3025	Wire brush cover	鋼刷護蓋	1
2	AGC-3027	Brush cover fixed plate	鋼刷護蓋固定板	1
3	AGC-3026	Wire brush transmission shaft	鋼刷傳動桿	1
4	AHA-12110-1	Wire brush bearing seat assembly	鋼刷軸承座組	1
5	AHA-1220-2	Wire brush bearing seat assembly	鋼刷護蓋板(320)	1
6	AHB-0519	Wire brush shaft	鋼刷軸	1
7	BAAHA-1217	Wire brush fixed handle	鋼刷固定把手	1
8	C325H-3237	Pulley cover	鋼刷普利護蓋	1
9	PP-15010	Universal joint	萬向接頭	2
10	PP-13025	DU bushing	乾式軸承	2
11	PP-58002	Wire Brush	鋼刷	2
12	PQA-8	Spring Washer	彈簧華司	1
13	POA-8	Nut	螺帽	1
14	PUC-020-1	Grease nipple	油嘴	1





2019/04/11

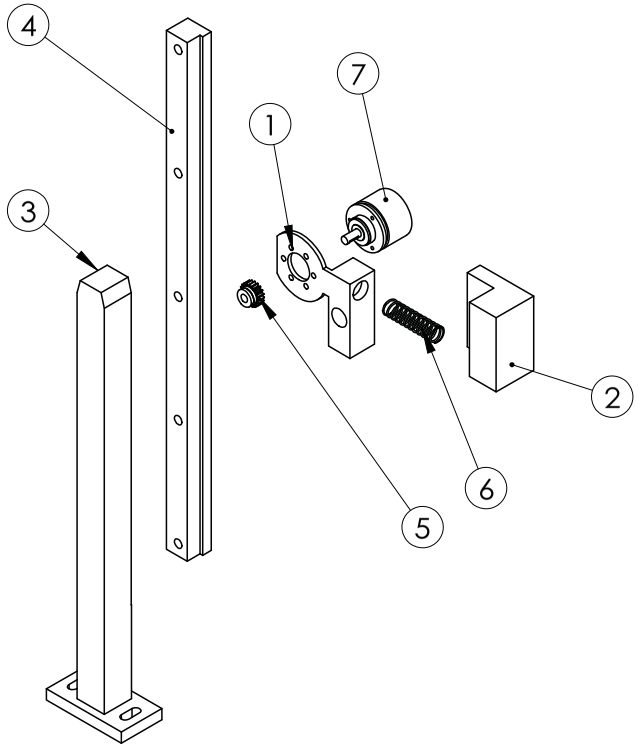
C325H-32000 急降桿組
Quick Approach Assembly

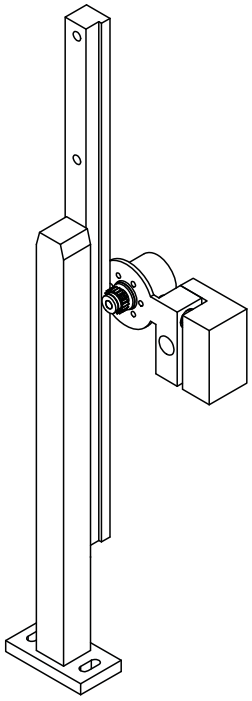


ITEM	PART NO	PART NAME	PART NAME IN CHINESE	Q'TY
1	AHA-1754	Quick approach Assembly	急降桿座蓋	1
2	C250H-3205	Quick approach fixed seat	急降桿固定座	1
3	C325H-3201	Quick approach bar	急降桿	1
4	C325H-3203	Stopper plate	急降桿擋板	1
5	AHA-1756	Limit switch seat	限動開關座	1
6	PP-53010	Knob screw	梅花螺絲	1

C320G-21000 高度譯碼器組
Height Encoder Assembly

ITEM	PART NO.	PART NAME	PART NAME IN CHINESE	Q'TY
1	C320G-70536	Encoder fixed seat	譯碼器固定座	1
2	C320G-2103	Encoder movable seat	譯碼器活動座	1
3	C320G-1116	Middle limit switch sliding bar	中限滑桿	1
4	C360L-2109A	Tooth bar	定寸齒條	1
5	C560L-2105	Gear	定寸齒輪 M0.8	1
6	M3L-9-10	Spring	微動彈簧	1
7	BAEP-90492V	Encoder	譯碼器	1

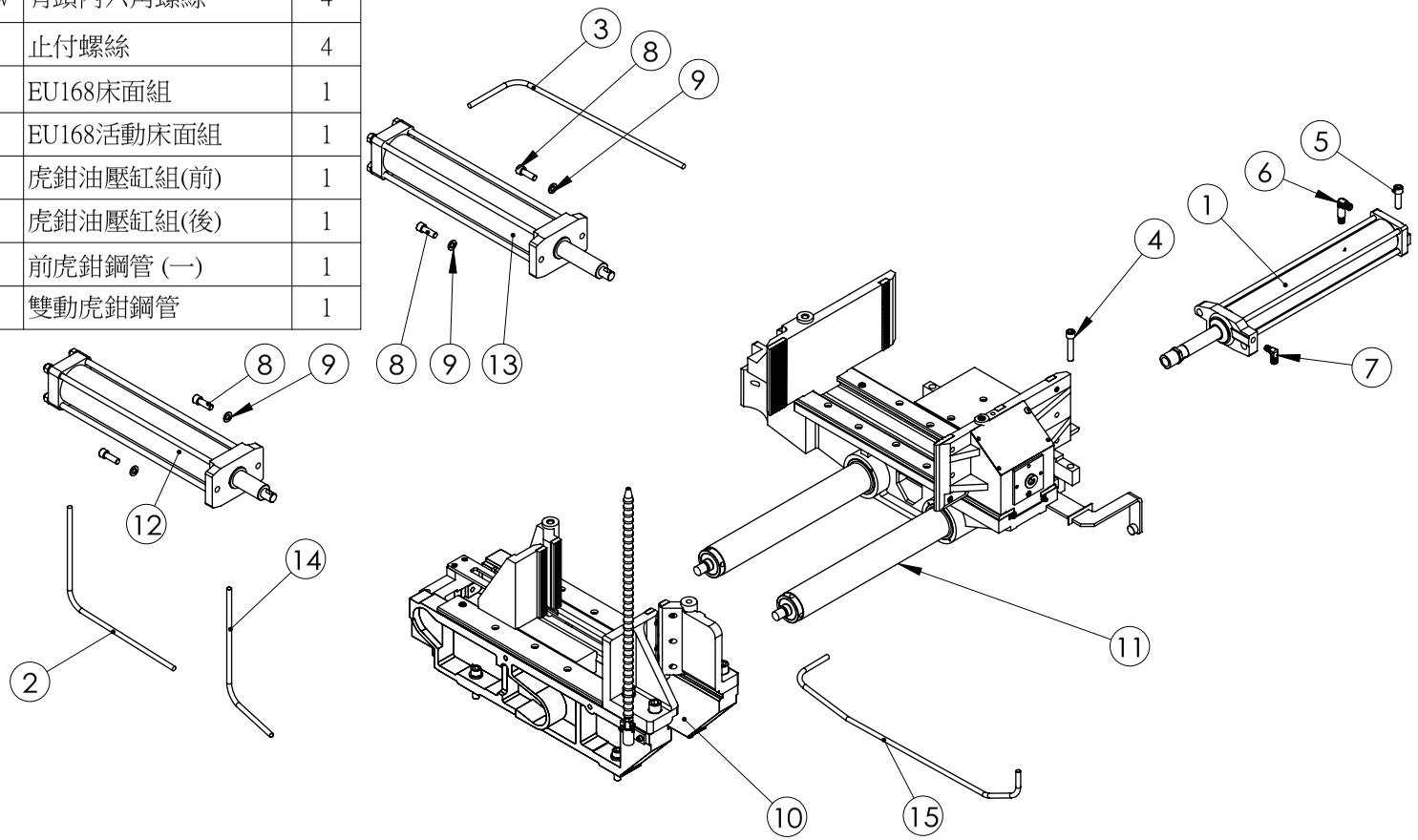




2019/04/12

C320G-20110-EU168 送料床面組
Feeding Bed ASSEMBLY

ITEM	PART NO.	PART NAME	PART NAME CHINESE	Q'TY
1	C250H-26500	Feeding cylinder assemble	送料油壓缸	1 set
2	C250H-2865	Front vise tube (2)	前虎鉗鋼管(二)	1
3	C325H-2861	Feeding seat tube	送料座鋼管	1
4	PBA-12-60	Hexagon socket head cap screw	有頭內六角螺絲	1
5	PBA-12-40	Hexagon socket head cap screw	有頭內六角螺絲	1
6	PUJ-020-020-01	Elbow joint	彎接頭	1
7	PUJ-020-020-05	Elbow joint	彎接頭	1
8	PBA-12-35	Hexagon socket head cap screw	有頭內六角螺絲	4
9	PQA-12	Set screw	止付螺絲	4
10	C320G-20000-EU168	Fixed bed	EU168床面組	1
11	C320G-23500-EU168	Feeding cylinder assembly	EU168活動床面組	1
12	C320G-23000B	Cyliner	虎鉗油壓缸組(前)	1
13	C320G-23000D	Cyliner	虎鉗油壓缸組(後)	1
14	C250H-2863	Front vise tube (1)	前虎鉗鋼管 (一)	1
15	C250H-2813	Double retracting vise tube	雙動虎鉗鋼管	1



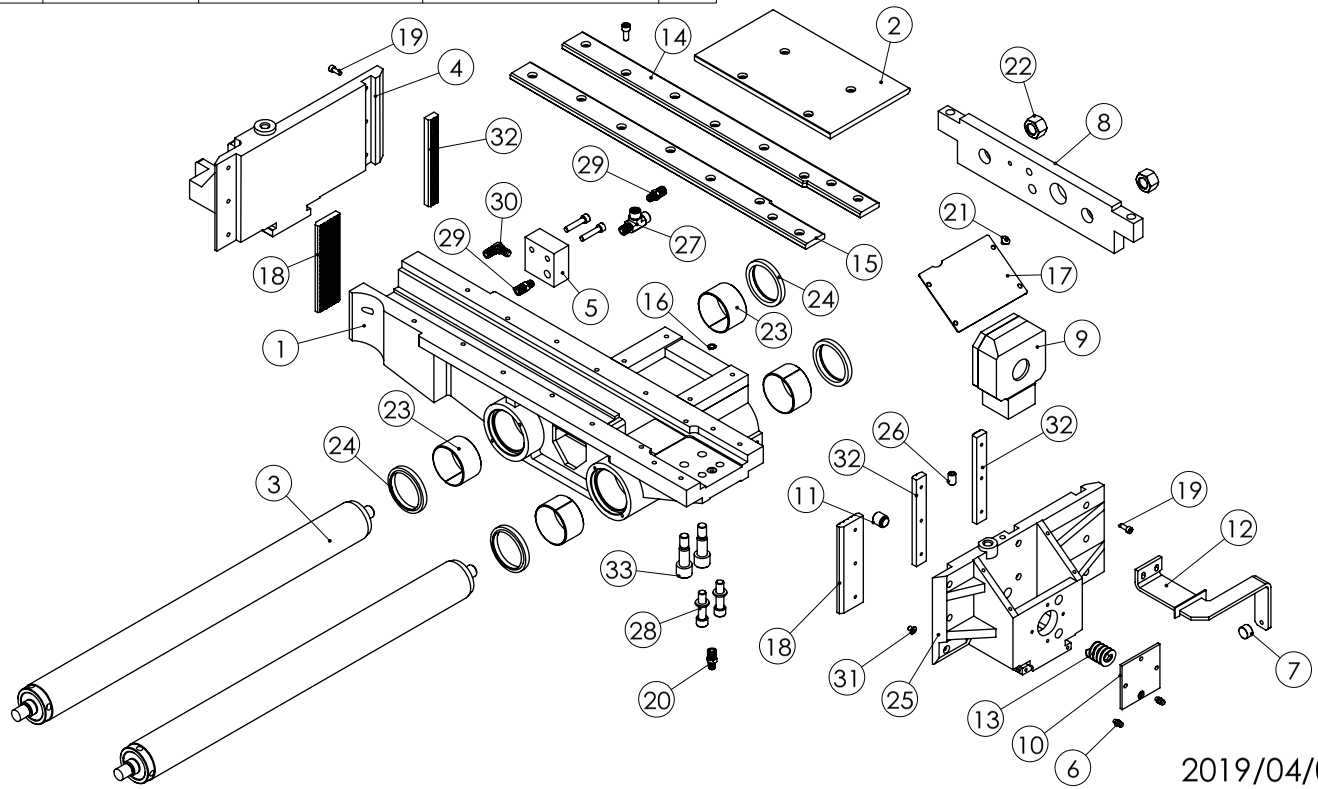
2019/04/09

05G320-EU168 SERIES PART LIST

C320G-23500-EU168 活動床面組
Movable Bed Assembly

ITEM	PATR NO.	PART NAME	PART NAMR IN CHINESE	Q'TY
1	C320G-2011	Feeding bed	送料床面	1
2	C325H-1524	Bed cover	床面遮版	1
3	C250H-1601	Feeding shaft	送料軸	2
4	C325H-2223A	Rear movable vise	後活動虎鉗	1
5	C250H-2815	Vise manifold plate	虎鉗油路板	1
6	PUC-007	Grease nipple	油嘴	2
7	AHA-1539	Screw (sensor)	感應器螺桿M8	1
8	C250H-2029	Fixed bracket	送料軸固定板	1
9	C250H-28000	Rear fixed vise cylinder	雙動虎鉗油缸組	1
10	C250H-2809	Spring shield	彈簧擋板	1
11	C250H-2811	Stop screw	止動螺絲(後固定虎鉗)	1
12	C250H-2885A	Feeding front limit sensing seat	送料前限感應座	1
13	PP-57412-1	Square spring	方型彈簧	1
14	C325H-2015	Feeding bed plate 2	送料床面鋼板(二)	1
15	C325H-2013	Feeding bed plate 1	送料床面鋼板(一)	1
16	PP-59030	O-ring	O型環	1
17	C325H-2220	Feed double retracting vise cover	送料雙動虎鉗蓋	1
18	C320G-2241A	Vise plate	虎鉗鋼板(刻花)	2
19	PBA-6-16	Ball Hexagon bolt	有頭內六角螺絲	14
20	PUI-020-020	Straight connector	直接頭	1
21	PHA-6-10	Round head screw	大扁丸頭螺絲	1

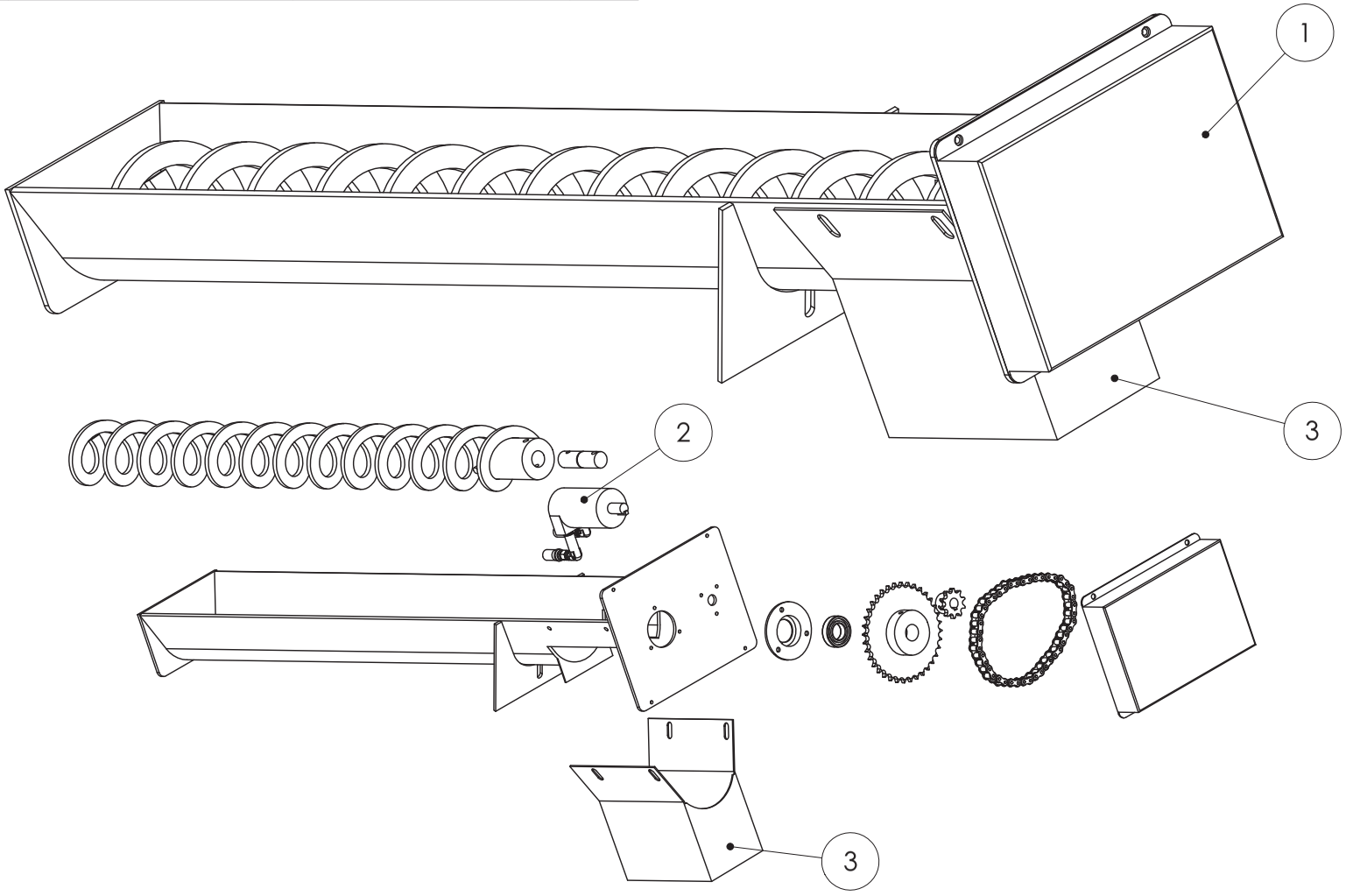
ITEM	PATR NO.	PART NAME	PART NAMR IN CHINESE	Q'TY
22	POA-20	NUT	螺帽	2
23	PP-13260B	Du Bushing	乾式軸承6540	4
24	PP-51146	Rear fixed vise	後固定虎鉗	4
25	C325H-2221A	Rear fixed vise	後固定虎鉗	1
26	PAA-12-20	Set screw	止付螺絲	1
27	PUK-020-020-	3-WAT Bushing	三通接頭	1
28	PBA-12-50	Hexagon socket head cap screw	有頭內六角螺絲M5 x 20	2
29	PUI-040-040-01	Straight connector	直接頭	2
30	PUJ-020-020-05	Connecting rod bearing	彎接頭	1
31	PCA-6-10	Screw	皿頭內六角螺絲(公)	1
32	C325H-2241A	Vise plate	虎鉗鋼板(刻花)	3
33	C250H-2807	Position pin	雙動虎鉗定位銷	2

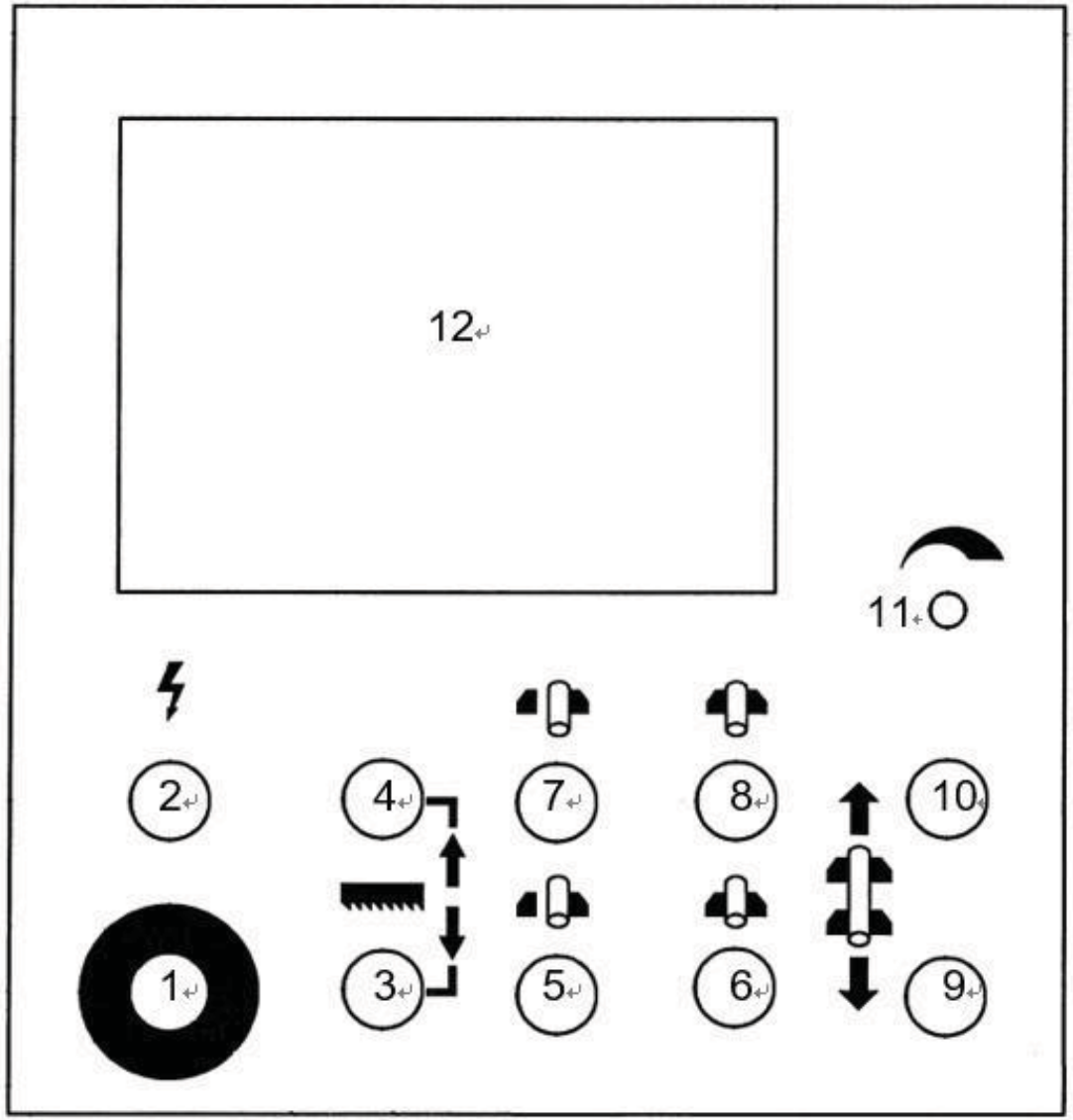


2019/04/09

C250H-40000A 除屑機組Chip conveyor assembly (Optional)

ITEM	PART NO	PART NAME	PART NAME IN CHINESE	Q'TY
1	C250H-40000A-1	Chip conveyor	除屑機(整機購入)	1
2	PP-31640-8	Hydraulic	液壓缸(除屑機用)	1
3	C320G-4015A	Cover	排屑遮罩	1

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11
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No.	PART NUMBER	PART Name IN ENG.	PART Name IN CHI.	Q'TY
1	EP-90763A*T & E-90760*T	Emergency stop button	緊急停止按鈕	1
2	EP-90755-1*T	Power indicator lamp	電源指示燈	1
3	EP-90758*T & EP-90759*T	Saw bow down button	鋸弓下降按鈕	1
4	EP-90758*T & EP-90759*T	Saw bow up button	鋸弓上升按鈕	1
5	EP-90758*T & EP-90759*T	Front vise open button	前虎鉗釋放鈕	1
6	EP-90758*T & EP-90759*T	Front vise clamp button	前虎鉗夾持鈕	1
7	EP-90758*T & EP-90759*T	Rear vise open button	後虎鉗釋放鈕	1
8	EP-90758*T & EP-90759*T	Rear vise clamp button	後虎鉗夾持鈕	1
9	EP-90758*T & EP-90759*T	Feed forward button	鋸材往前按鈕	1
10	EP-90758*T & EP-90759*T	Feed backward button	鋸材退後按鈕	1
11	EP-90769*T	Blade speed control knob	鋸刀切削速度控制旋鈕	1
12	EP-90981F-1	HMI touch screen	HMI 觸控螢幕	1

APPENDIX

DECLARATION OF CONFORMITY

ELECTRICAL SYSTEM

HYDRAULIC SYSTEM

COSEN MECHATRONICS CO., LTD.
110 Ching-Fu St., Hsinchu 300 Taiwan R.O.C. Email: sales@cosen.com.tw
Tel: 886-3-5332143 Fax: 886-3-5348324 Visit our website at: www.cosen.com

Original Instruction

DECLARATION OF CONFORMITY

(DIRECTIVE 2006/42/CE, ENCLOSURE II, PART A)

The Manufacturer:

COSEN MECHATRONICS CO., LTD.
110 CHING-FU ST.
HSINCHU 300
TAIWAN

Person authorized to compile the technical file in Europe:

Cosen Europe B.V.
Willem Barentszweg 20
5928 LM, Venlo
The Netherlands
Tel: +31 77 760 0280

Hereby declare at its own responsibility that the product

NAME:	METAL-CUTTING BANDSAW MACHINE
MODEL:	G320

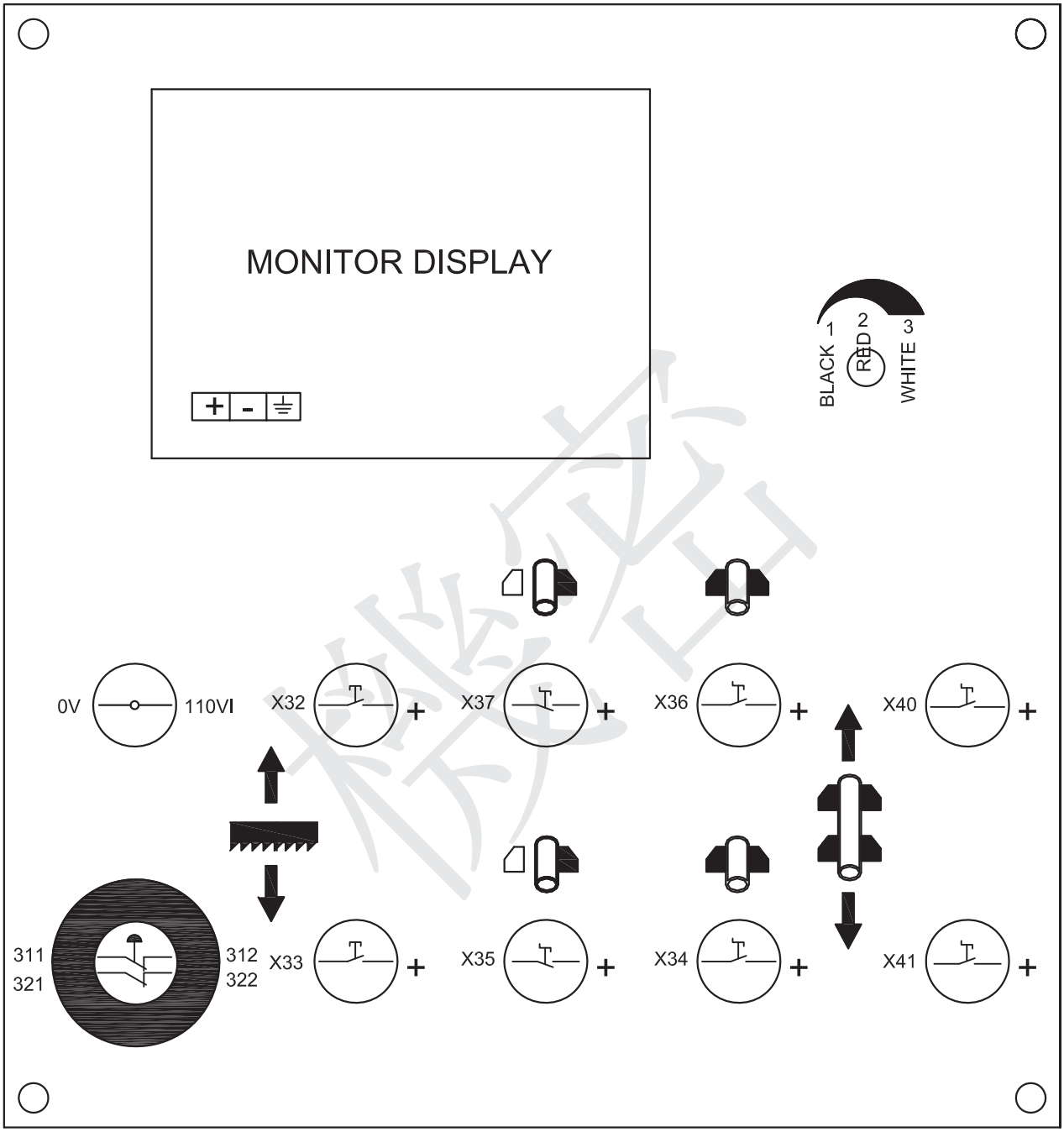
Complies with the provisions of the machinery directive, Directive 2006/42/CE with the following amendment and integrations; complies with EMC Directive 2004/108/CE with the following amendment and integrations;

And also complies with the following provisions:

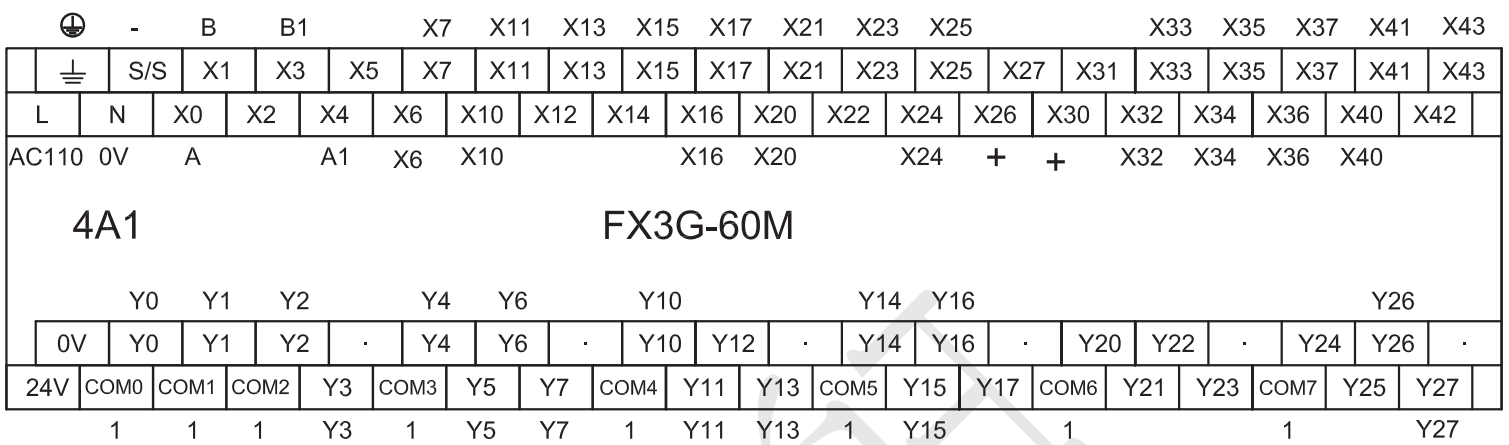
- EN ISO 12100:2010
- EN ISO 4413:2010
- EN ISO 13849-1:2008
- EN ISO 13857: 2008
- EN 60204-1: 2006+A1: 2009
- EN 13898:2003+A1:2009

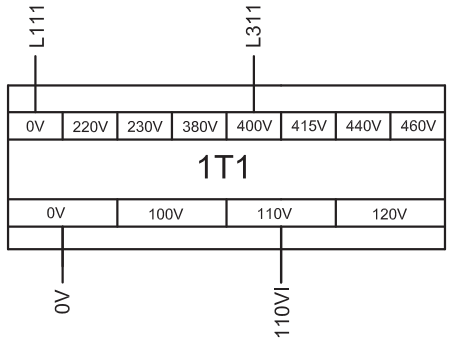
The technical documentation of the equipment listed above is available.

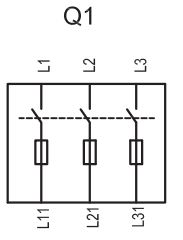
CE

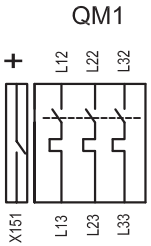


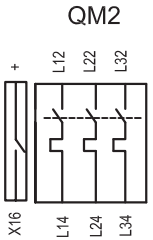
高聖精密機電股份有限公司 COSEN MECHATRONICS CO., LTD.	圖名	Control Panel Layout 面板配置圖	圖號	EL-G320-F09-001S3-A	繪圖	許玉萍	日期	1090605	版本
					審核	林泰維	日期	1090605	S3

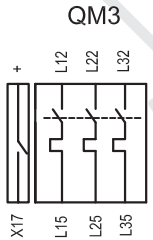


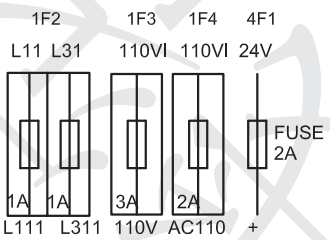


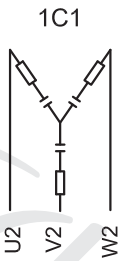


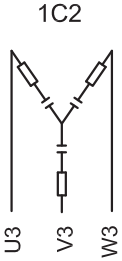


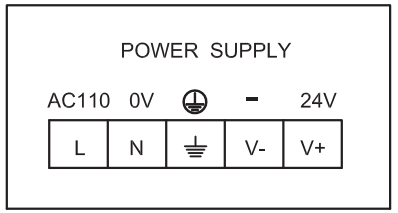


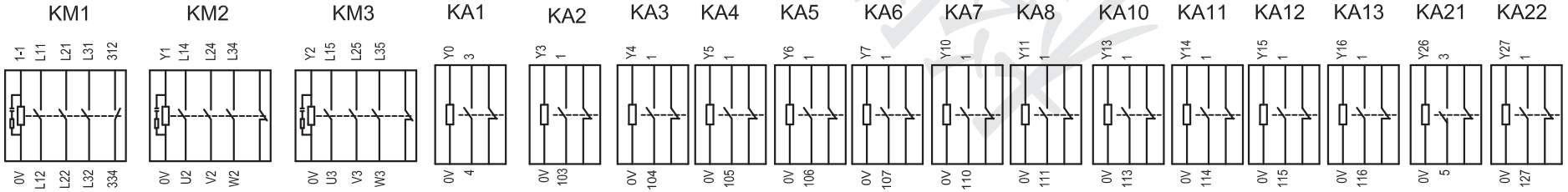












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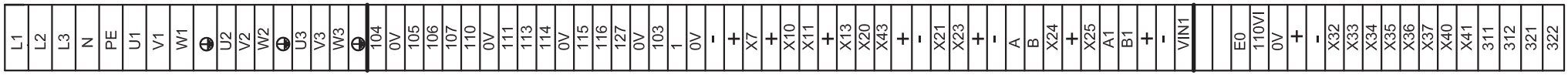
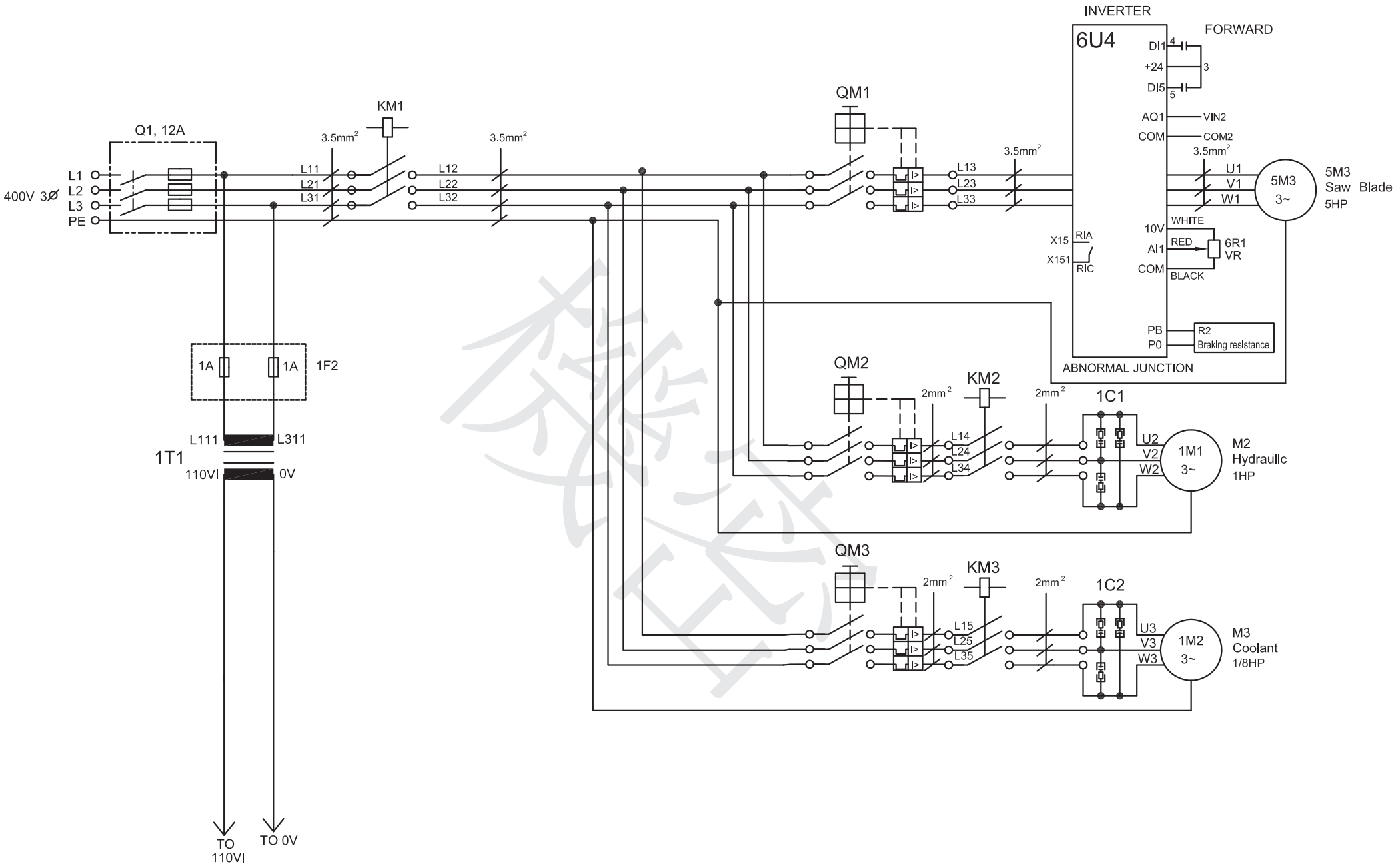
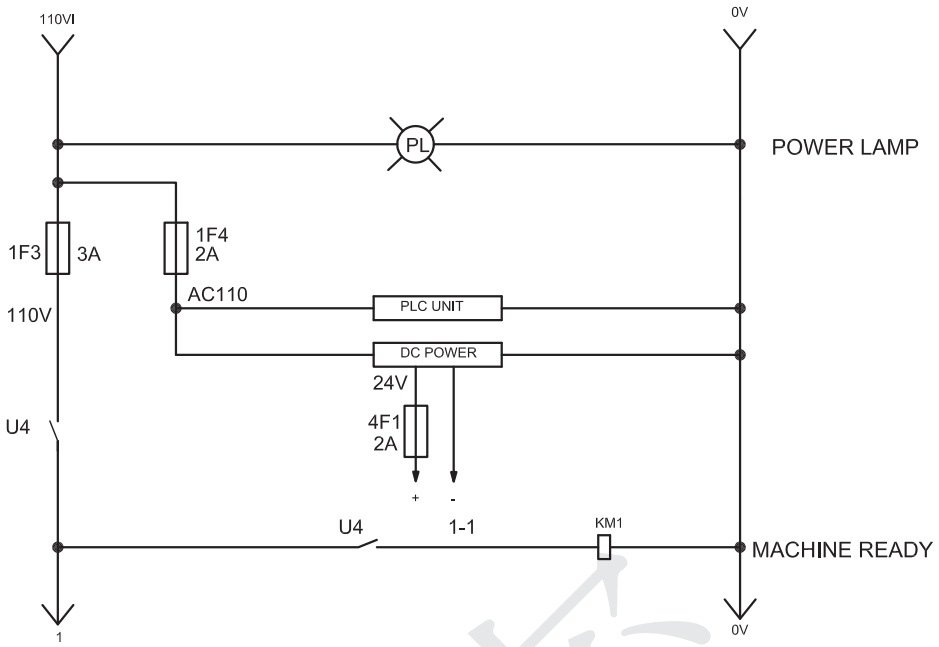


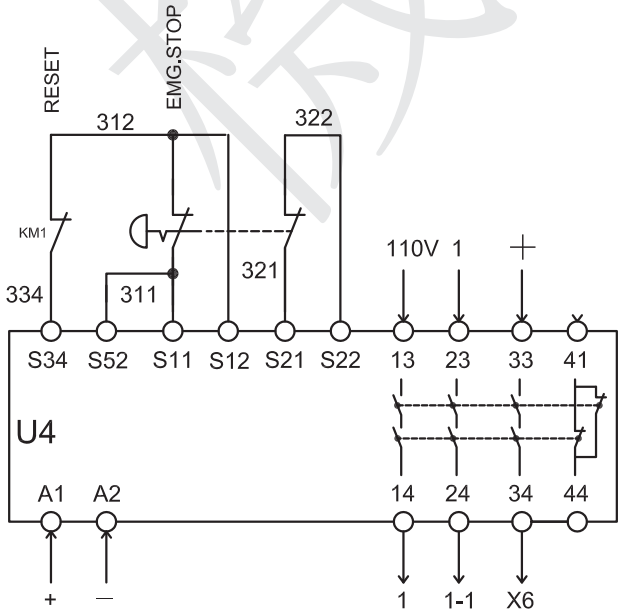
圖名	
Circuit Board Layout 線路板配置圖	
圖號	
EL-G320-F09-001S3-B	
繪圖	許玉萍
審核	林泰維
日期	1090605
日期	1090605
版本	S3

高聖精密機電股份有限公司 COSEN MECHATRONICS CO., LTD.

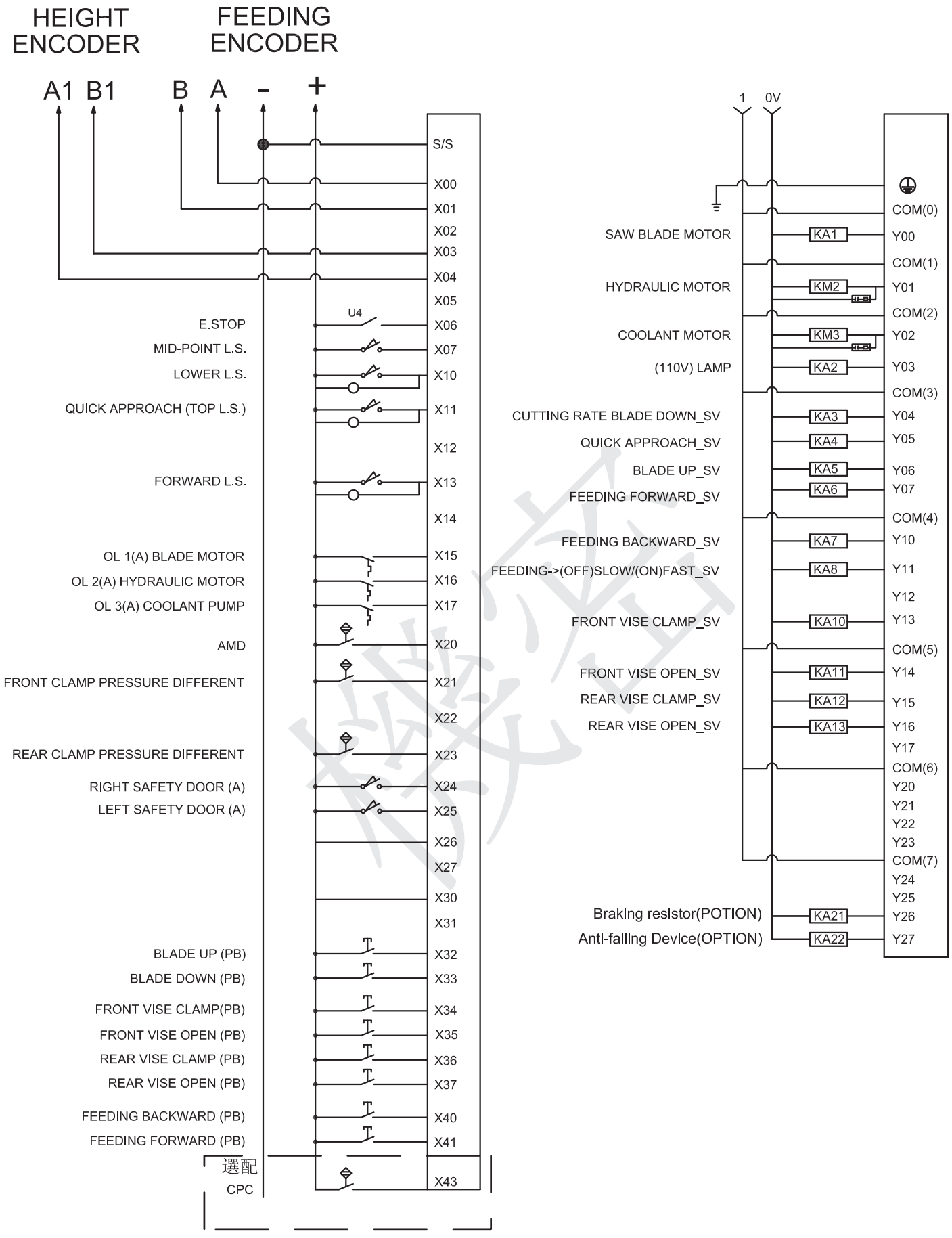


圖名	Power Supply Layout 動力配置圖
圖號	EL-G320-F09-001S3-C
繪圖	許玉萍
審核	林泰維
日期	1090605
日期	1090605
版本	S3

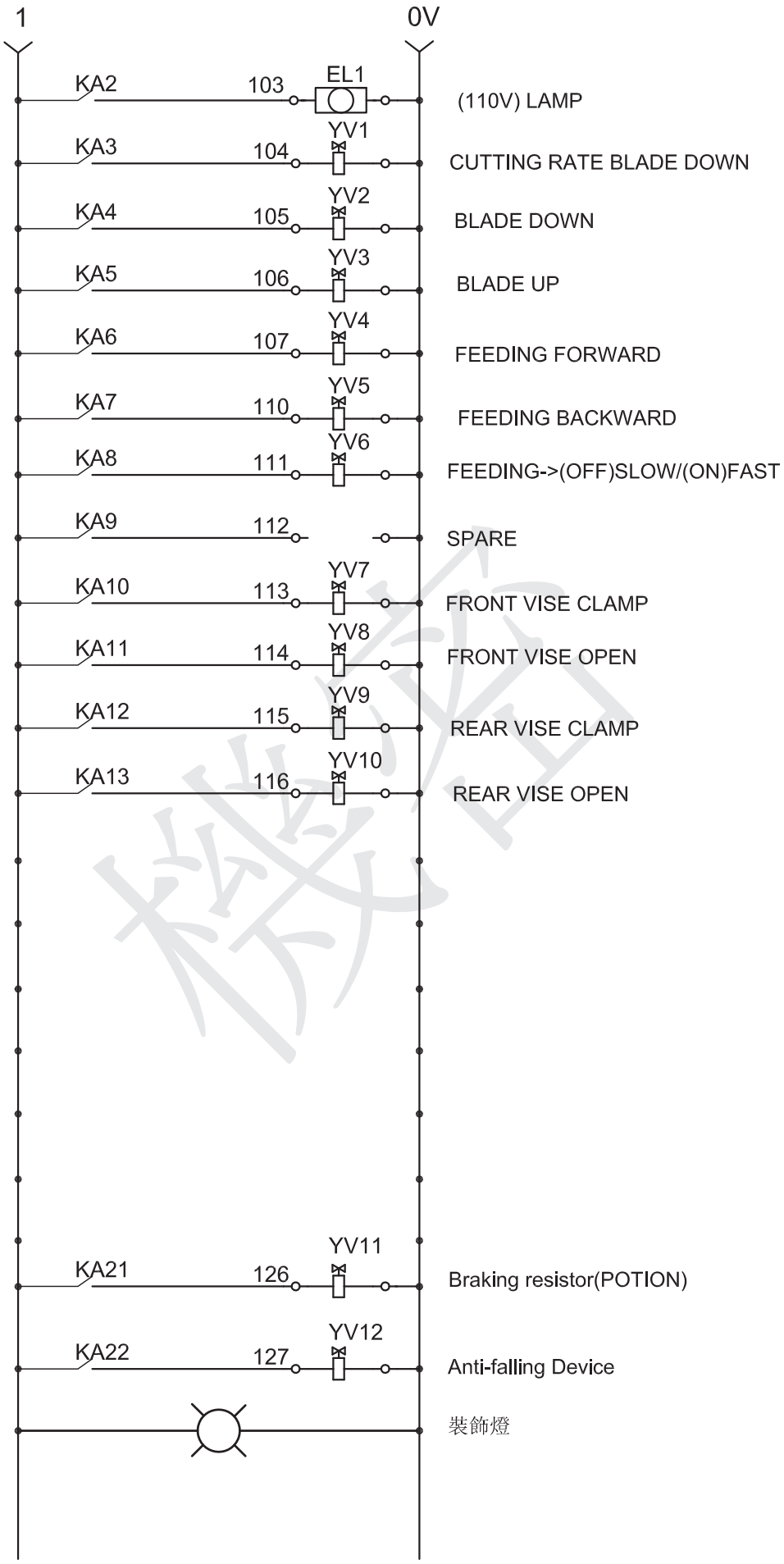




高聖精密機電股份有限公司 COSEN MECHATRONICS CO., LTD.	圖名	PLC Input /Output Layout PLC I/O配置圖	圖號	EL-G320NC-F09-001S3-D	繪圖	許玉萍	日期	1090605	版本
					審核	林泰維	日期	1090605	S3

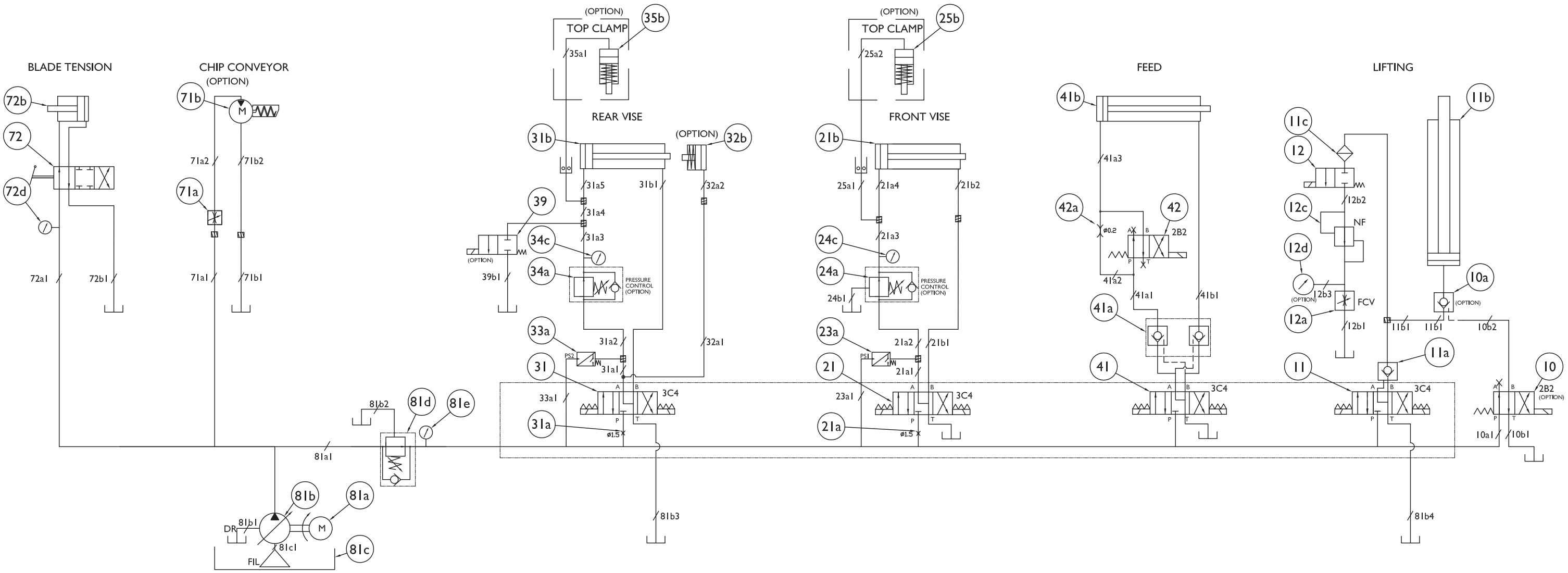


COSEN 高聖精密機電股份有限公司 COSEN MECHATRONICS CO., LTD.	圖名	PLC Input /Output Layout PLC I/O配置圖	圖號	EL-G320-F09-001S3-E	繪圖	許玉萍	日期	1090605	版本
					審核	林泰維	日期	1090605	S3



高聖精密機電股份有限公司 COSEN MECHATRONICS CO., LTD.	圖名	PLC Input /Output Layout PLC I/O配置圖	圖號	EL-G320-F09-001S3-F	繪圖	許玉萍	日期	1090605	版本
					審核	林泰維	日期	1090605	S3

G320 HYDRAULIC CIRCUIT



COSEN MECHATRONICS CO.,LTD.			DRAW	20191120	ELAINE
			CHECK	批准 2019.11.22	林 秦 維
TITLE	G320 HYDRAULIC CIRCUIT		APPROVED		
DRAWING NO.05G320*T ALL TYPE	VERSION	1-0		DATE	NAME

COSEN SAWS

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Vertical Plate Saws
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