OPERATION AND MAINTENANCE MANUAL

TPS630/800

EN 2023

FOREWORD

Dear Customers and Partners,

Thank you very much for purchasing our products, and we are confident it will create more value to your business.

In this manual book, you will find all the information and suggestions needed to operate our TPS series workshop fitting welding machine in a safe, professional and proper way.
Therefore we strongly request you to read all messages in this book before the operators start using the machines.

As this machine is a professional device, and it must be limited to skilled and certificated personnel.

Now enjoy the welding journey through using RIYANG welding machines.

Sincerely

Note: We reserve the rights to change the technical parameters without prior notice.

Jack Chan

RIYANG™
INSPIRED BY FUSION WELDING

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1. General

1.1 Technical Parameter

RIYANG TPS series is workshop band saw. It is a special machinery for straight cutting thermoplastic material(HDPE, PP, PVDF, PPR) pipes up to φ800mm/φ32", and for cutting angles of max. 45° on both sides and max. 67.5°, on one side. Usually it is used to work with RIYANG workshop fitting fabrication machine ATLA series.

Technical Parameters	TPS630/800
Max. Diameter of Pipes	200 mm-800 mm/8 inch-32 inch
Cutting Material Applied	HDPE, PP, PVDF and other thermoplastics material
Cutting speed	Adjustable
Voltage	380V AC/{440V AC}
Frequency	50/60 HZ
Power	3.3 kW
Current	8.7 A
Rotating Speed of Motor	1390 rpm
Length	3450 mm/ 135.8 inch
Width	4000 mm/ 157.5 inch
Height (Closed)	2400 mm/ 94.5 inch
Height (Extended)	3200 mm/ 126 inch
Weight	1330 kg/ 2926 lbs
Options	
Hydraulically clamping pipes*	
Automatic angle setting*	
Electrically feeding pipes*	
Electrically adjusting saw guide*	

* Available as option

Note: when your local voltage is {440V AC}, the band saw will be equipped with a transformer, which will transform 440V AC to 380V AC to meet the requirement of machine electrical parts.

1.2 Purpose-Oriented Use

The described plastic band saw may only be operated, maintained and repaired by persons who are trained and informed about the dangers.
The machine is a workshop machine and not suitable for operation in hazardous locations.
It is forbidden to cut wood and sheets made out of wood (e.g. pressboard).
The manufacturer is not responsible for any damages caused by improper handling or operation.
For personal injuries, material and immaterial damages resulting herefrom, only the user is responsible!
Also part of the purpose-oriented use is

- respecting all the indications of the working instructions
- performing the inspection and maintenance work.

1.3 Safety Measures

In case of wrong use, wrong operation or wrong maintenance, the machine itself or products standing nearby can be damaged or destroyed.
Persons being in the endangered area may be injured.
Therefore these working instructions have to be thoroughly read and the corresponding safety regulations must be necessarily adhered to.

2. Safety Precautions

The use of workshop band saw TPS series is limited to skilled and certified personnel only. Any irregular operation could probably cause any injury. Attention please. ⚠

The safety precautions herein indicated must be taken into consideration all the time when operating the machine.

You should promptly replace the worn-out or damaged parts with original RIYANG spare parts only. Any sort of repair and maintenance must be conducted by authorized skilled and qualified personnel only.

2.1 General Safety Regulations

The working area must be well lightened and free of waste. And guardrails around the cutting area will be a great of help to improve the safety.

- Before starting the operation, make sure that the saw blade is tightened properly and the blade guiding is adjusted correctly
- During work, the pipe must be clamped firmly.
- Never remove shavings/oddments as long as the saw is working.
- In case of irregular running behaviour of the saw blade, switch off the saw immediately and check the saw blade for correct course, correct tension etc.
- Replace dull or badly set saw blades by orderly installed saw blades.
- Before elimination of any disturbances, and before any repair or maintenance work, switch off the saw and disconnect the plug.
- Wear tight clothes only, during the operation.
- Keep the handles and ground dry and free from oil and grease.
- Wear safety glasses during the sawing operation.
- Do not wear rings, bracelets etc.
- Protect long hair by means of a sufficient headgear.

2.1 Electrical Hazard

Hazard: Electric Shock
Parts involved: Electricity cabinet

Make sure that the power supply correspond to the request of the machine. And all connections are done properly.

Earth the machine
Please make sure the earthed system is working properly.

Important:

The panel board plug must accord with the IEC 309 type with IP44 minimum protection degree.

Do not expose the machine to rain or any other liquids.

Do not expose the cables to chemical environment, mechanical strain, and keep it away from some sharp objects.

Make sure the the isolation protection device, such as safety gloves and shoes, are completely dry when machine working in wet environment.

It is forbidden to splash the machine in purpose of cleaning the machine.

Should clean the machine after use. It is forbidden to use solvents, gasoline, abrasive liquids and corrosive liquids, these could probably destroy the isolating parts.

Check insulation condition of machine periodically by qualified personnel, including earthed system, leakage switch, cables insulation.

Unplug the machine from power source immediately after use.

2.2 Cutting Hazard

Hazard: Cutting or Catching
Parts involved: Saw blade

You can cut yourself during sawing or when exchanging the saw blade!
Before starting the cutting operation, take care that no person is standing in the operating, swiveling or cutting area.

Keep in mind that safety gloves is always needed.

2.3 Crush Hazard

Hazard: Crush
Part involved: Pipe support, saw guide roller

Make sure that no body part or object is lying on the the pipe support while you are clamping the pipe.
Make sure that no body part or object is lying on the movement rail when you are pushing the pipe towards to the saw area.
Make sure that you are familiar to operate the machine before cutting.
Make sure that the machine is stable at all times during the cutting.
Make sure that nothing stays in the cutting area except the pipes before starting.

2.4 Laser Hazard

Hazard: Glaring
Part involved: Laser beam

Do not straighten laser on people.
Do not stare at the laser source for too long time.

2.5 Danger of Being Injured By Chips / Oddments

Do not cut when any body part or additional objects are near to the saw blade.
Never remove the chips/oddments as long as the saw is running.

Always wear safety glasses or goggles

2.6 Obligations of the Owners

The owner is obliged only to let persons work at the machine who

- Know about basic safety and accident prevention rules and are instructed in the handling of the machine
- Have read and understood the safety chapter of this manual and certify this by their signature.

The safety-conscious working of the staff has to be checked in regular period.

2.7 Obligations of the Operator

All persons who are to work at the machine are obliged before working:

- To follow the basic safety and accident protection rules.
- To have read and understood the safety chapter and the warnings in this manual and to confirm by their signature that they have well understood them.
- To inform themselves about the functions of the machine before using it.

2.8 Instructions for the staff

- Only skilled and trained persons are allowed to work at the saw.
- It must be clearly defined who is responsible for transport, mounting and dismounting, starting the operation, setting and tooling, operation, maintenance and inspection, repair and dismounting.
- A person who is being trained may only work at the machine under supervision of an experienced person.

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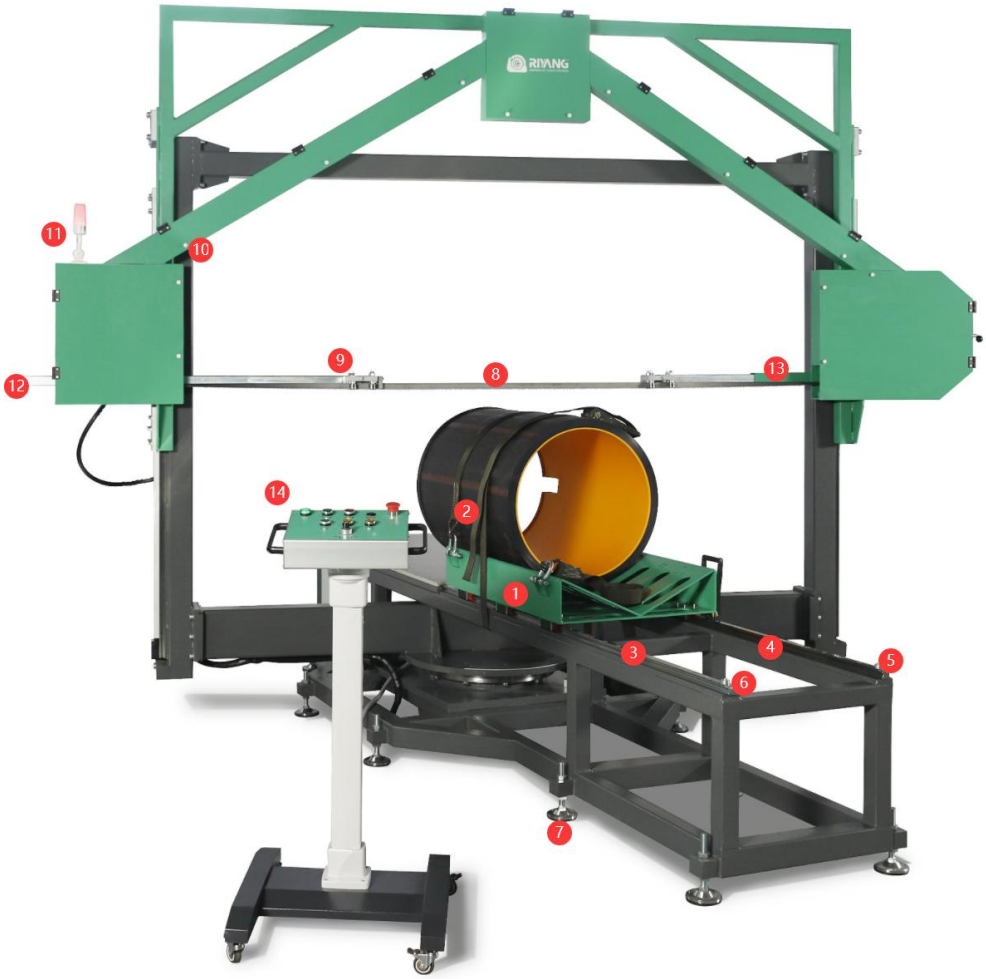
3. Machine Description

Before start operating this TPS630/800 workshop band saw, the qualified operator should get to know the machine components and its functions. Any irregular operation could probably cause any injury or cutting failure.

Left Front View:



Item	Name	Functionality
①	Pipe support	Lay and fix the pipes when cutting
②	Belt for clamping pipe	Fasten the pipes
③④	Guide for pipe support	Help pipe support move smoothly on the bed
⑤⑥	Position stop	To stop the pipe support when it is in motion
⑦	Leveling foot	To adjust the machine
⑧	Saw blade	Used to cut pipes
⑨	Saw guide roller	Guiding the saw blade
⑩	Laser	when switched on, the laser optically shows the later cutting course on the pipe surface
⑪	Working indication	When light is on, means the machine power on

⑫⑬	Saw guide	Guiding the saw for cutting kinds of diameter pipes
⑭	Control panel	To monitor the machine

Right Front View:

Item	Name	Functionality
①	Locker	To lock the pipe support after being positioned
②	Angle locker	To lock the saw arm after angle selected correctly
③	Saw guide clamping	To lock the saw guide
④	Tightness adjustment	To adjust the tightness of saw blade

Back View:

Item	Name
①	Saw arm
②	Motor
③	Gearbox
④	Electric cylinder
⑤	Servo driver
⑥	Slewing bearing

Control Panel:

Item	Name	Functionality
①	Indicator	Indicator activated when machine connected with power
②	Saw arm rising	Press the button to rise the saw arm before or after sawing
③	Saw arm declining	Press the button to decline the saw arm for sawing
④	(Canceled)	Button canceled
⑤	Emergency stop	Shut off the power in case of abnormity occurs
⑥	Saw on/off	Activate or shut off the sawing
⑦	Jogging clockwise	Applied when saw blade stuck in pipes during sawing process
⑧	Jogging counterclockwise	Applied when saw blade stuck in pipes during sawing process
⑨	Speed regulation	Used to regulate the speed of saw arm rising and declining

4. Operating Instruction

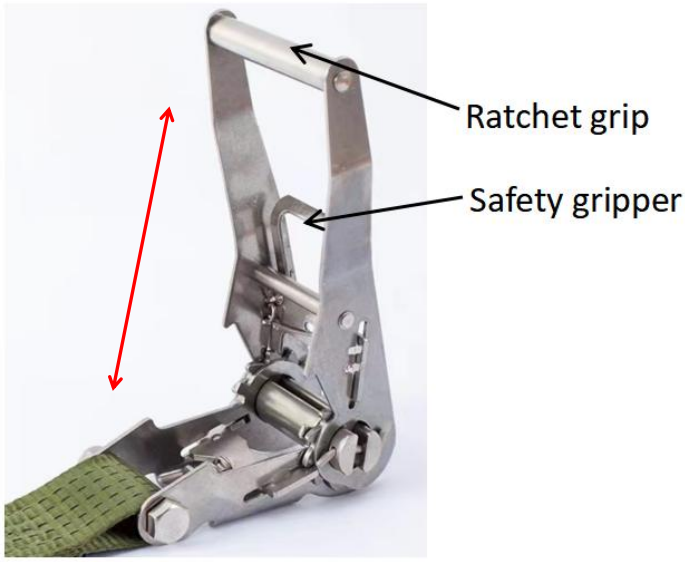
4.1 Lifting

When lifting and installing, the machine should be kept it horizontal, and never incline or reverse it to avoid possible damage.

If a forklift is used, it should be inserted carefully from the bottom of the machine carefully to avoid damaging the oil hose and structure frame.

If a overhead crane is used, you should pay more attention to the lifting point and find the weight gravity for stable transportation.

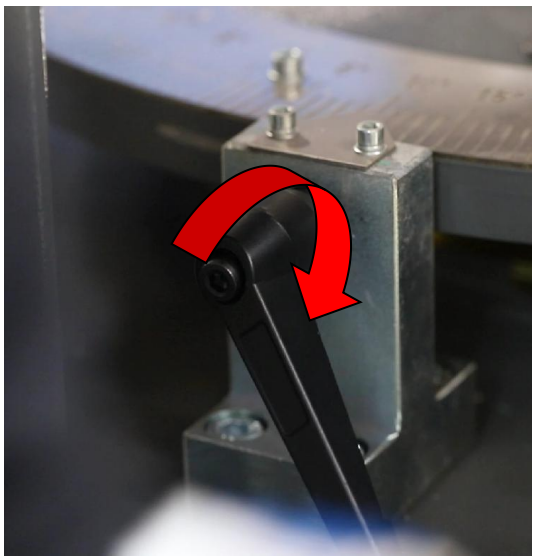
4.2 How to Clamp With The Clamping Belt



Lay the pipe onto the pipe supports (take care of the saw blade distance!) and clamp it by the clamping belt.
Hook one side of the pipe support and lead the belt from the inside to the outside through the aperture of the ratchet and tighten it (see above pictures).
Clamp the pipe firmly onto the pipe support by moving several times the grip of the ratchet into direction of the arrow.
The ratchet snaps in at both ends.
The belt can be loosen again by pulling the safety gripper into direction of the ratchet grip.

Attention! Do not deform pipes with thin walls.

4.3 How to Fix the Angle 0-67.5°

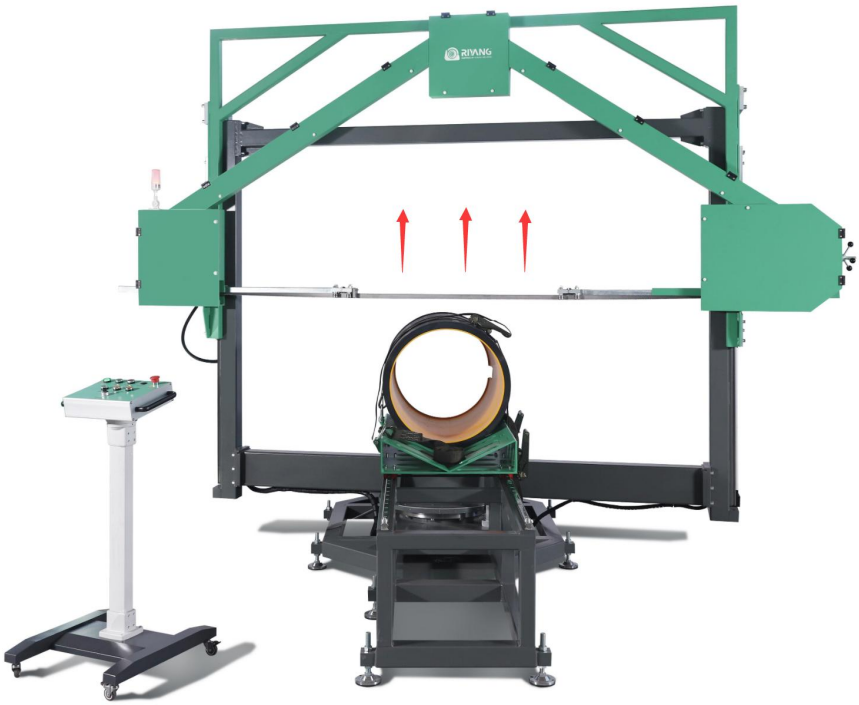


It is labor-saving to select the requested angle by pushing or pulling the saw vertical beam. After selection, lock it.

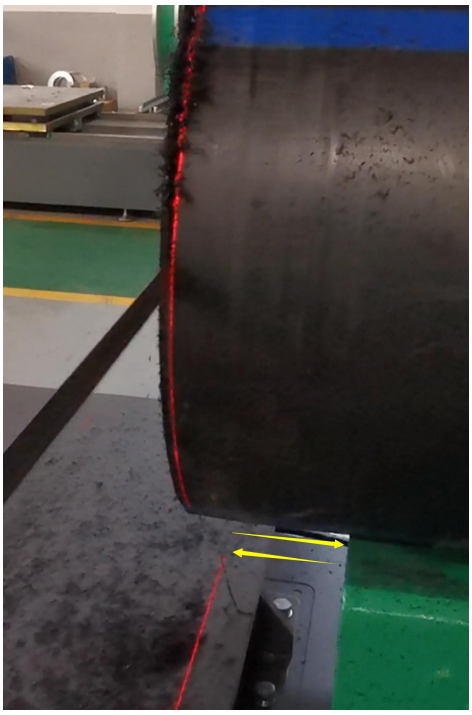
Cutting angles with 0 and up to 45 is possible on both sides, cutting of angles of 67,5 is only possible on one side.

4.4 Moving the pipe to right position ready for sawing

Manually (electrically as option) push the pipe support to the right position and lock it by rotating two lockers in clockwise.

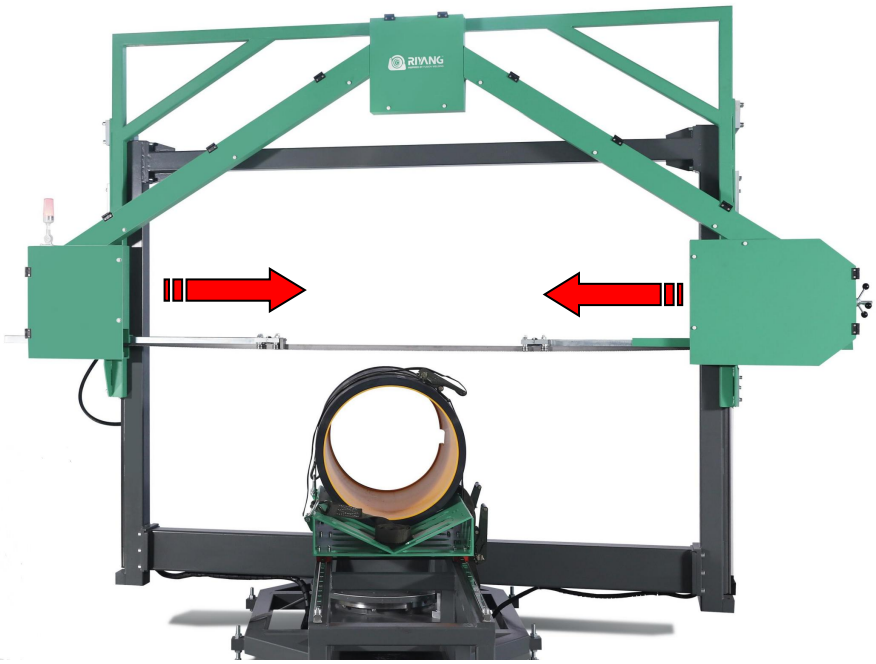


Attention! Before push the pipe support, do remember to rise the saw blade to the top, at least above the pipe height.



Attention! Do remember that the pipe support edge never be allowed to exceed the vertical side of the saw blade. You could verify it by laser beam.

4.5 Adjust the Distance of Saw Guides



You should adjust the saw guides according to the pipe diameter that will be cut.
Loose the saw guide locker by rotating it in counterclockwise and adjust the distance between two saw guides by pushing or pulling them. After that, lock them.

4.6 Adjust The Cutting Speed

When you are ready to cut the pipe, the recommended speed mode should not exceed 2, and the larger the pipe, the lower the cutting speed. Surely, if the saw band rises upwards and downwards, you can increase the speed to maximum.

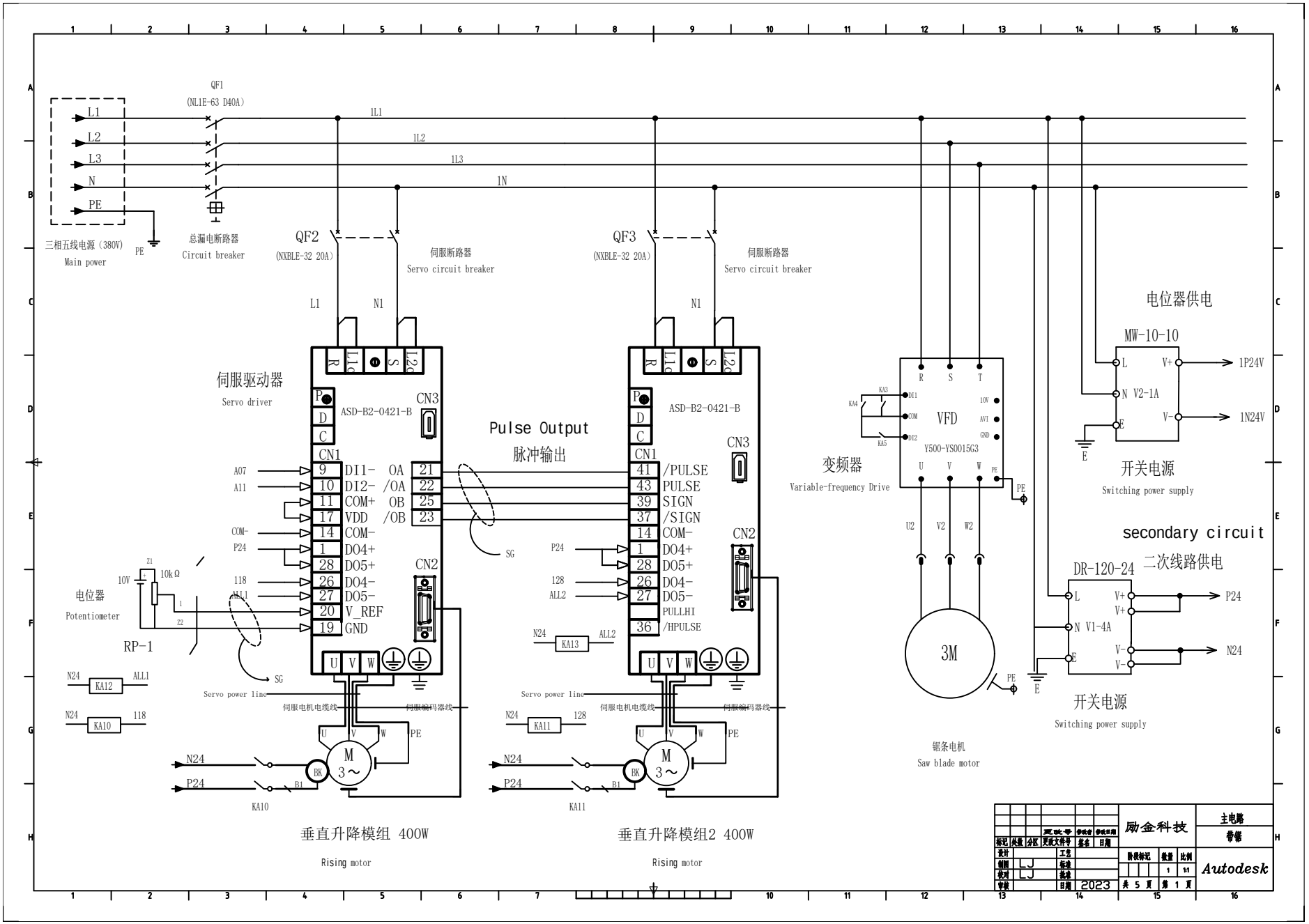
4.7 How to make a cut

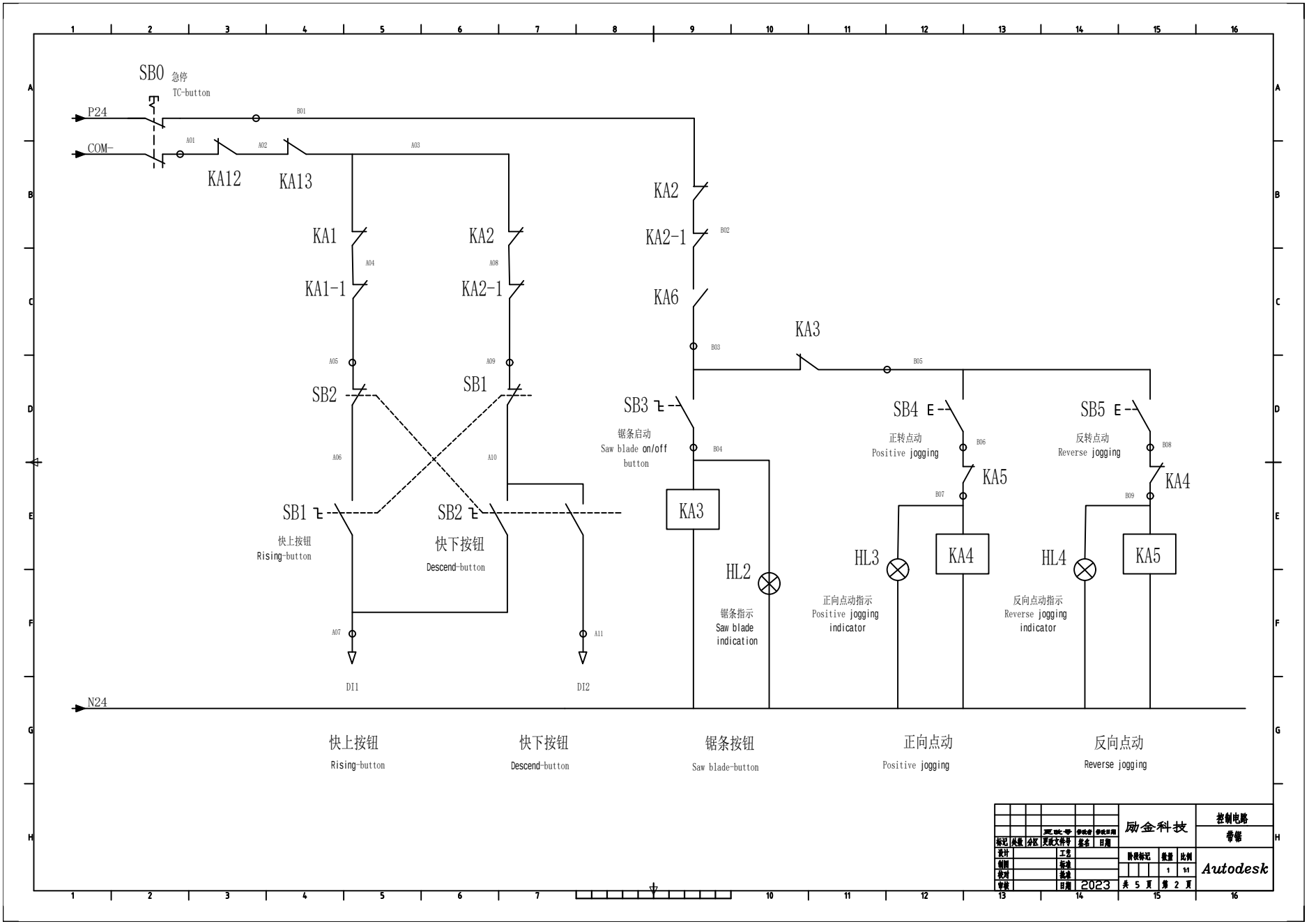
- Lay the pipes on pipe support and clamp it
- Rise the saw band and select the requested cutting angle
- Move the pipe support to right position
- Adjust the saw guide
- Activate the saw to cut the pipe
- Regulate the cutting speed properly
- Unclamp the clamped pipe end

To see demo video, please go to click:

https://www.youtube.com/watch?v=NY4aZT54bkw

5. Electrical Diagram




SB0 急停
TC-button
P24
COM-
B01
A01
A02
A03
KA12
KA13
KA1
KA1-1
KA2
KA2-1
A04
A08
A05
A09
SB2
SB1
A06
A10
SB1
快上按钮
Rising-button
SB2
快下按钮
Descend-button
A07
A11
DI1
DI2
KA2
KA2-1
B02
KA6
B03
KA3
B05
SB3
锯条启动
Saw blade on/off button
B04
KA3
HL2
锯条指示
Saw blade indication
SB4
正转点动
Positive jogging
B06
KA5
B07
HL3
正向点动指示
Positive jogging indicator
KA4
SB5
反转点动
Reverse jogging
B08
KA4
B09
HL4
反向点动指示
Reverse jogging indicator
KA5
N24
快上按钮
Rising-button
快下按钮
Descend-button
锯条按钮
Saw blade-button
正向点动
Positive jogging
反向点动
Reverse jogging
励金科技
控制电路
带锯
Autodesk
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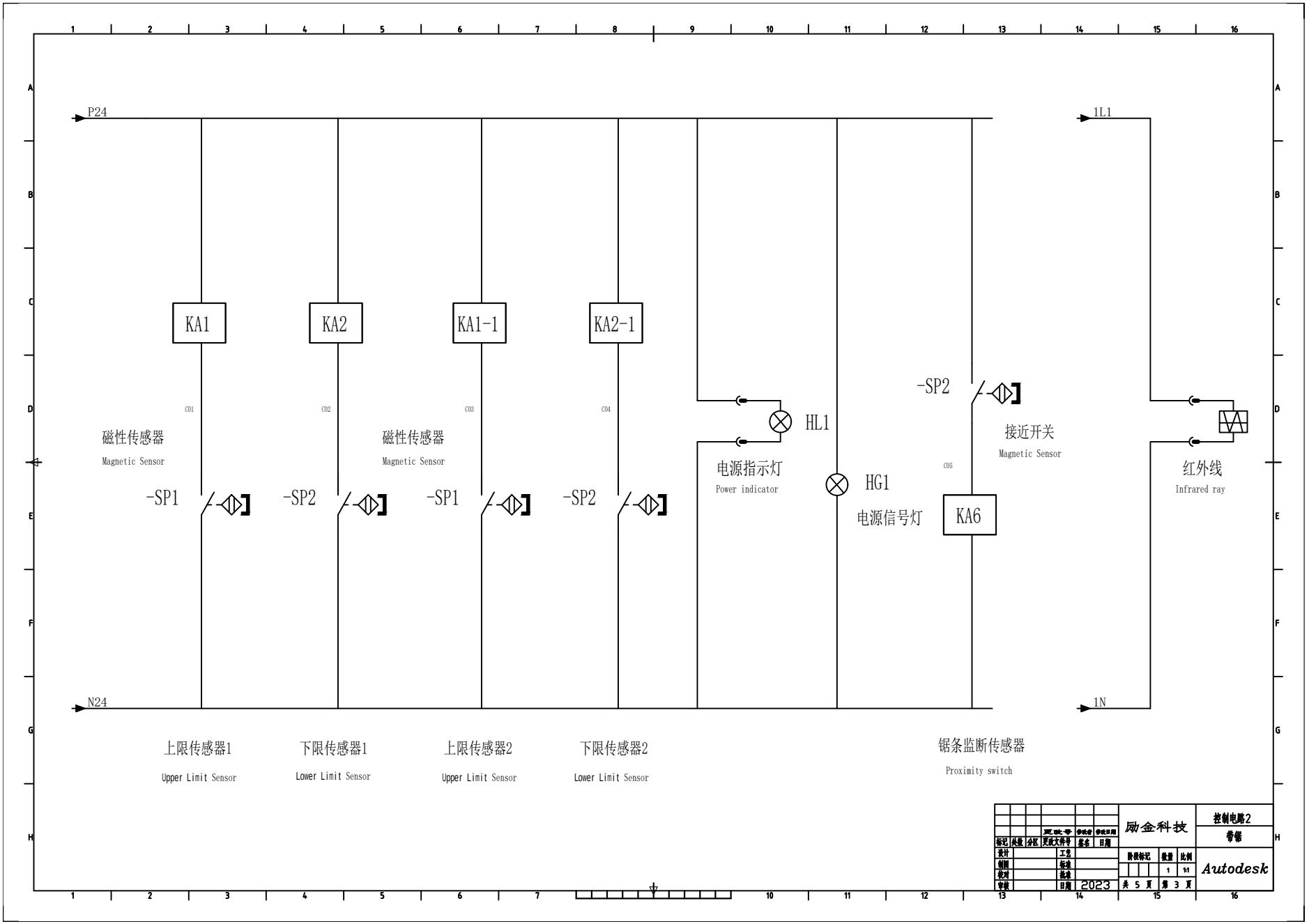
P24
N24
1L1
1N
KA1
KA2
KA1-1
KA2-1
KA6
-SP1
-SP2
-SP1
-SP2
-SP2
HL1
HG1
磁性传感器
Magnetic Sensor
磁性传感器
Magnetic Sensor
电源指示灯
Power indicator
电源信号灯
接近开关
Magnetic Sensor
红外线
Infrared ray
上限传感器1
Upper Limit Sensor
下限传感器1
Lower Limit Sensor
上限传感器2
Upper Limit Sensor
下限传感器2
Lower Limit Sensor
锯条监断传感器
Proximity switch
励金科技
控制电路2
带锯
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端子图

Terminal figure

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
L1	L2	L3	N	PE	U2	V2	W2	PE	P24	N24	PE	COM-	A01	A05	A07	A09	A11	B01	B03	B04	B05	B06	B07	B08	B09	1P24	REF	1N24	

三相五线电源（380V）
Main power

锯条电机
Saw blade motor

二次线路
The secondary circuit

控制线（24*0.5²）
Control line

1-- PE	11-- B03	
2-- P24	12-- B04	
3-- N24	13-- B05	
4-- COM-	14-- B06	
5-- A01	15-- B07	YDK40J24TQ
6-- A05	16-- B08	
7-- A07	17-- B09	
8-- A09	18-- 1P24	
9-- A11	19-- 1N24	
10-- B01	20-- REF	

屏蔽线（5*0.5²）
Shielded wire

棕色（brown) -- sigh
蓝色（blue) -- /sigh
红（red) -- pulse
黑色（black) -- /pulse
SG

锯条电机 Saw blade motor	380V	2.2KW
升降电机 Upgrade the motor	220V	400W*2

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设计		工艺		阶段标记	数量	比例	Autodesk
制图		标准			1	1:1	
校对		批准					
审核		日期	2023	共 5 页	第 4 页		