

CT 250S Abrasive Cutter

Manual Instruction



CT 250S Abrasive Cutter

----- ▲ INSTRUCTION MANUAL

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Please read this instruction manual carefully and follow all installation, operating and safety guidelines.

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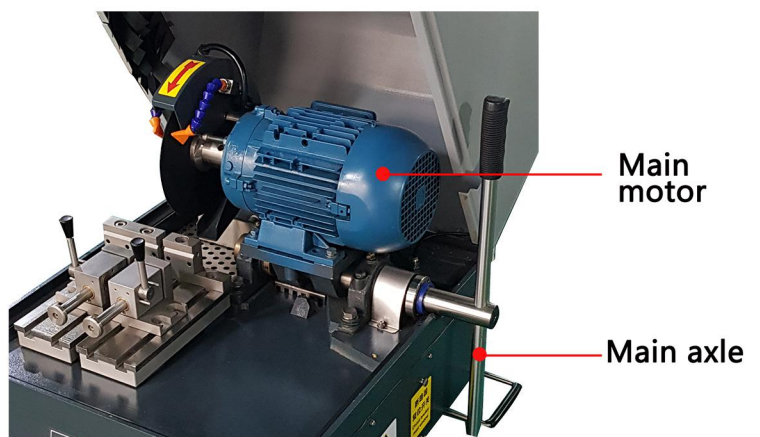
1.0 Product Description

1.1 General Description



The **CT 250S** is a manual abrasive cut-off machine for cutting materials ranging from soft aluminum metals to hardened tool steels. It is ideal for the metallographic laboratory, as well as for small industrial or production applications.

The **CT 250S** is very robust and durable, with its cast aluminum alloy and stainless steel construction. Featuring a corrosion-free T-slot table, the **CT 250S** is a very versatile bench-top metallographic cutter.



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1.2 Technical Specifications

Electrical specifications:	Stand 380V (220V Optional)
Motor power:	3 hp (2.2 kW) - 3-phase unit
Power:	7.6 / 4.4 amps
Cut-off wheels:	10-inch (250 mm) diameter
Wheel arbor:	32 mm (~1.25 inch) diameter
Speed:	2895 rpm (50 Hz) 3400 rpm (60 Hz)
Maximum sample diameter:	3-inch (75 mm)
Short sample size:	2.4 inch x 5.3 inch (60 mm x 135 mm)
Weight:	Approx. 280 lbs (126 kg)
Dimensions (WxHxD):	Approx. 28" x 30" x 26" (710 mm x 750 mm x 650 mm)
Table dimensions (WxD):	8.3" x 9.3" (212 mm x 232 mm)
Cabinet:	Cast aluminum block construction
Hood:	Fabricated steel with Lexan safety glass
Working temperature:	32° - 100°F (0 - 40°C)
Shipping temperature:	32° - 100°F (0 - 40°C)
Storage temperature:	32° - 100°F (0 - 40°C)
Recirculation system (included):	15 gallons (60 liters)

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1.3 Features



High leverage
cutting handle

Powerful motor

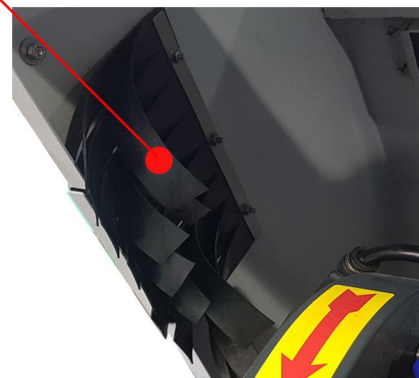
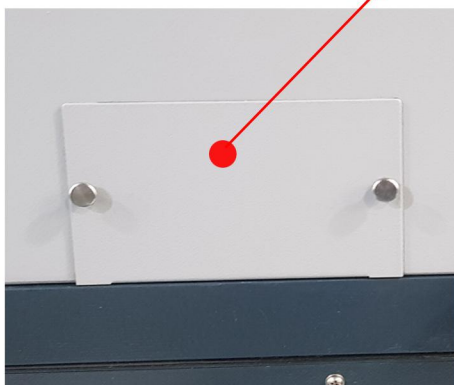
The **CT 250S** is equipped with a powerful direct drive motor. In addition, the motor has an inductive brake for faster stopping of the blade.

Manual wheel cutting

The **CT 250S** is an easy-to-use manual cutter with simple controls. For control and safety the **CT 250S** is equipped with a trigger activated cutting handle.

The **CT 250S** also has a side port window for longer samples.

Side port for long samples



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2.0 Unpacking, Shipping and Installation

2.1 Unpacking

Unit is delivered in a box. Unpack and check for completeness of parts.

Measures WxHxD: Approx. 28" x 30" x 26"

Weight: Approximately 280 lbs.

2.2 Shipping

When moving box, lift from bottom.

The **CT 250S** is constructed of sensitive electronic and mechanical components. **Do not drop.**



! **Caution:** Heavy equipment. Take care to avoid bodily injury.

2.3 Installation

! Install unit carefully! Improper installation voids warranty.

The **CT 250S** should be placed on a flat stable surface.

! **TO OPEN HOOD, CUTTER IS SHIPPED WITH THE LOCKOUT SWITCH TURNED TO UNLOCK. AFTER CONNECTING POWER, TURN SWITCH TO LOCK TO OPEN HOOD AND TO USE CUTTER**

Connect coolant tank supply, drain and electrical connections.

! Electrical connections—The saw is designed to operate at 208-220V 3-phase (can be converted to 380V 3-phase by rewiring the motor and pump)

! Verify the direction of rotation of the cut-off wheel.
The wheel should turn from top to bottom as viewed from the front of the machine.

CAUTION

Before installation or when there is no power to the machine, the hood cannot be opened with the interlocking safety device in the **LOCK** position. To open the hood without power hook-up, turn the interlocking device with key to the **UNLOCK** position (used for service and shipping).

Turn to lock position to operate cutter!



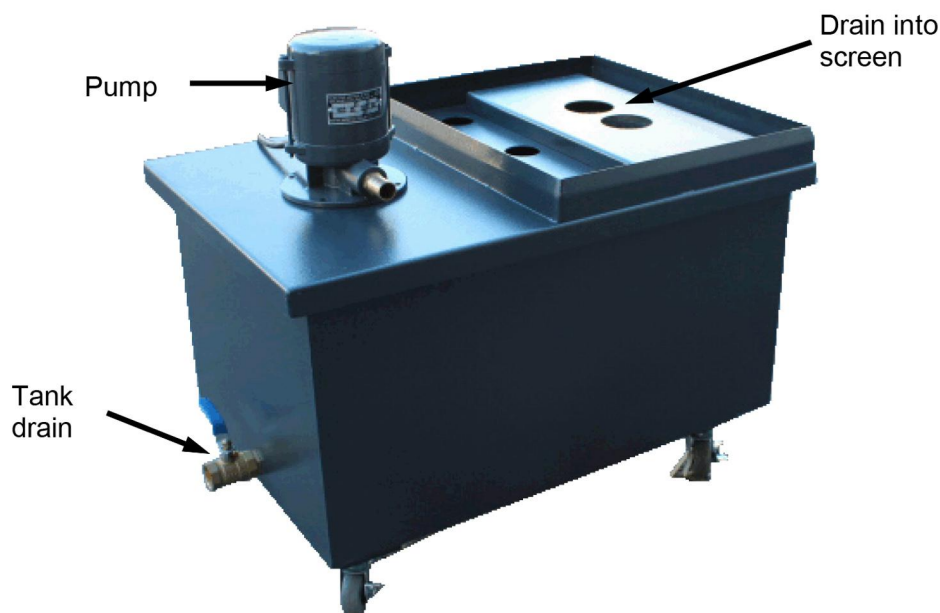
(Installation continued on next page)

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Recirculating tank connections



External coolant supply: Attach 1/2-inch tube between pump and cutter.

Drain: 1.5-inch (38 mm) tube.

Electrical connections: Connect six-foot electrical power cable to source.

Note: Inspect the operating voltage on the name plate.

Electrical connection for external coolant supply: Power for recirculation system comes from the **CT 250S** ,

(Installation continued on next page)

Please read this instruction manual carefully and follow all installation, operating and safety guidelines.

3.0 Safety Guidelines

3.1 Warning Sign

! This sign points to special safety features on the machine.

3.2 Safety Precautions

Careful attention to this instruction manual and the recommended safety guidelines is essential for the safe operation of the **CT 250S**

Proper operator training is required for the safe operation of the **CT 250S**. Any unauthorized mechanical and electrical change, as well as improper operation, voids all warranty claims. All service issues need to be reported to the manufacturer / supplier.

- !** Before operating, cutting chamber hood must be closed. After cutting, the safety latch will not open for approximately 5 seconds after pressing the stop (red) button.
- !** Use only certified cut-off wheels from a professional supplier. Improper blades selection voids warranty. (For appropriate blade selection, refer to the Abrasive Blade Selection Guidelines Chart in Section 4.3)
- !** Disconnect power before opening the main unit.
- !** Replacement parts should be installed only by qualified personnel.
- !** Securely clamp the part / sample to the working table. During cutting, consider that the part may pinch and cause jamming of the cut-off wheel. Use the appropriate clamping devices to avoid this occurrence.
- !** Never start a cut under load.
- !** Make sure that the cut-off blade is rotating down and into the sample.

3.3 Emergency Statement

The **CT 250S** abrasive cutter has been designed for cutting metallographic specimens. DO NOT CUT oversize samples. Always follow proper operational guidelines and avoid contact with moving parts, lubricants and abrasives. Seek appropriate medical care for cutting injuries.

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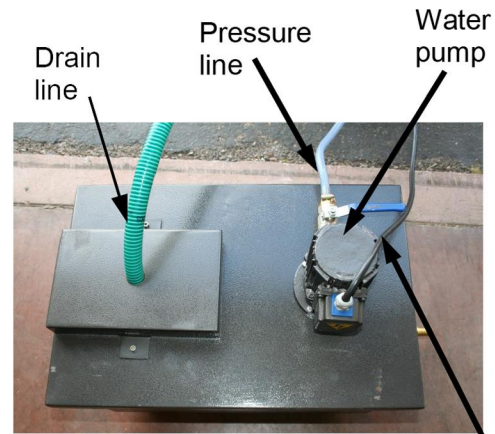
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Recirculation tank

The **CT 250S** is equipped with a mobile three-chamber counter-current coolant tank. The first chamber contains a coarse strainer for removing larger debris.

Replacement of the coolant is accomplished by rolling out the tank and removing the water pump.

Note: Dispose of the old coolant in accordance with federal, state and local regulations.



Three Chamber tank with counter-current flow



Coarse strainer

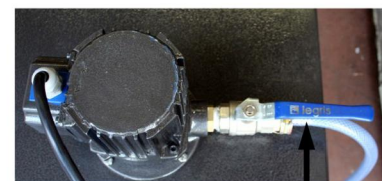
Electrical connection



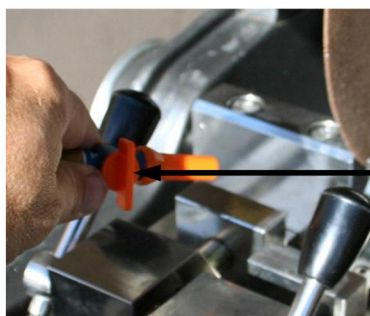
Tank drain

Rinse line

After cutting, it is recommended that the cutting chamber be rinsed to prevent debris and corrosion build-up.



Pump valve open



Water flow regulating valve



Pump valve closed

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3.4 Safety Tests

! Examine and verify that the **CT 250S** safety devices and operating performance are in good working condition prior to use. The following safety checks are considered important:

Emergency stop switch

Test: Activate main switch and close hood; depress emergency stop switch.

Proper Response: Machine powers down.

Malfunction: Machine does not lose power.

Corrective measure: If system does not power down, disconnect power supply cord and call service technician.

Magnetic safety lock out switch

Test: Activate main switch and close hood; turn cut-off wheel ON then OFF; Try to open the hood.

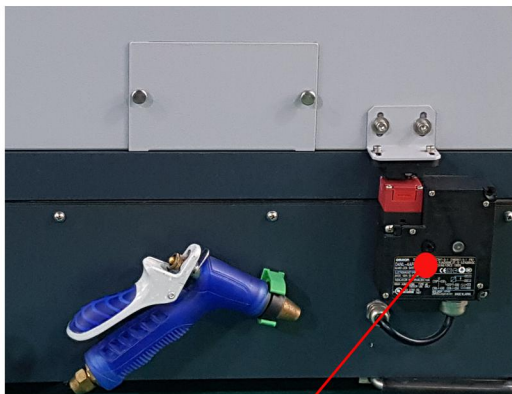
Proper Response: Hood does not open for approximately 5 seconds.

Malfunction: Hood opens.

Corrective measure: If cut-off wheel does not power down, disconnect power supply cord and call service technician.



Emergency stop switch



Magnetic safety switch

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4.0 Start-up and Operation

4.1 General

The **CT 250S** is a manual wheel feed cutter.

4.2 Control Panel



- | | |
|----------------------------|--|
| Emergency Shut off: | Cuts power to machine. |
| Cutting wheel ON/: | Starts the cutting wheel. |
| Cutting wheel OFF/: | Stops the cutting wheel (inductive brake engages to slow wheel). Hood cannot be opened until safety lock releases in approximately 5 seconds after pressing the stop button. |
| Coolant ON/OFF: | Operates the coolant pump in Auto or Manual mode. |

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4.3 Changing abrasive cut-off wheels

1. Remove blade locking bolt (reverse threaded).
2. Position new 10-inch abrasive cut-off wheel into position.

! Use only certified abrasive cut-off wheels.

3. Gently tighten blade locking bolt (Note: locking bolt is reverse threaded).

Changing Blade

Remove: Loosen by turning clockwise

Tighten: Turn counter-clockwise



To prevent shaft from turning use locking rod to hold in place



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4.4 Manual cutting (step-by-step procedure)

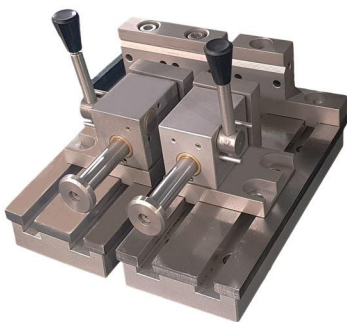
1. Connect electrical power and turn on master power switch on the back panel before opening the hood.
2. Position fixtures and sample near to cut-off wheel.
3. Close hood.
4. Turn on coolant and cutter motor.
5. Hand feed the cutting wheel into the sample.
6. Turn off cutter and allow blade to completely stop before opening cover.
Note magnetic safety switch has approximately a 5 second delay. Cutter hood can be opened until safety switch is deactivated.

4.5 Fixturing sample

For proper clamping, use the appropriate clamping vises to securely hold the sample in place. It is recommended that both sides of the part be clamped to avoid pinching of the blade (possibly breaking the blade) and to minimize burning of the workpiece during cutting.

! For proper fixturing, take into account the initial stress on the samples.

Fixture examples



Fast clamping

Clamping diameter 3 inches (76 mm)
Left lever
Right lever

Note: vises have a slot in them so that the face does not rotate



UNIVERSAL Clamping vise

UNIVERSAL
Clamping height (45 mm arm)

Height adapter (65 mm) attachment

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5.0 Maintenance

5.1 Introduction

The ***CT 250S*** requires very minimal maintenance. However, to increase the life of the saw, it is suggested that the cutting chamber be rinsed after cutting.

It is also recommended that the hood be left open in order to minimize corrosion inside of the chamber due to high humidity from the cutting operation and cutting fluid.

5.2 Cleaning outside cabinet

The cabinet and front shield should be cleaned occasionally with a moistened cloth. Do not use any chemicals or cleaning abrasives. We recommend an anti-condensation gel be used on the front panel.

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6.0 Trouble Shooting

More extensive trouble shooting, repair guides, video's, parts list are provided online at www.trojanchina.com

Problem	Cause	Solution
No power or function	<ul style="list-style-type: none"> a. Unit is disconnected from main electrical power supply. b. Main power switch is off. c. Emergency stop button engaged. 	<ul style="list-style-type: none"> a. Verify electrical source and connection. b. Turn on main power switch. c. Release by turning clockwise.
Main motor does not operate	<ul style="list-style-type: none"> a. Interlocking safety switch is in Unlock position (for shipping) b. Hood not closed. c. Overload relays activated 	<ul style="list-style-type: none"> a. Turn safety switch to Lock position to operate cutter. b. Close hood c. Restart after resetting Q1 relay.
Pump motor does not operate	<ul style="list-style-type: none"> a. Plug is disconnected b. Overload relay activated 	<ul style="list-style-type: none"> a. Check plug. b. Restart after resetting Q2 relay.
Excessive vibration during cutting	<ul style="list-style-type: none"> a. Not cutting with enough force b. Specimen locked too far back on cutting table c. Incorrect blade selection 	<ul style="list-style-type: none"> a. Increase cutting force. b. Move specimen forward. c. Use correct blade.



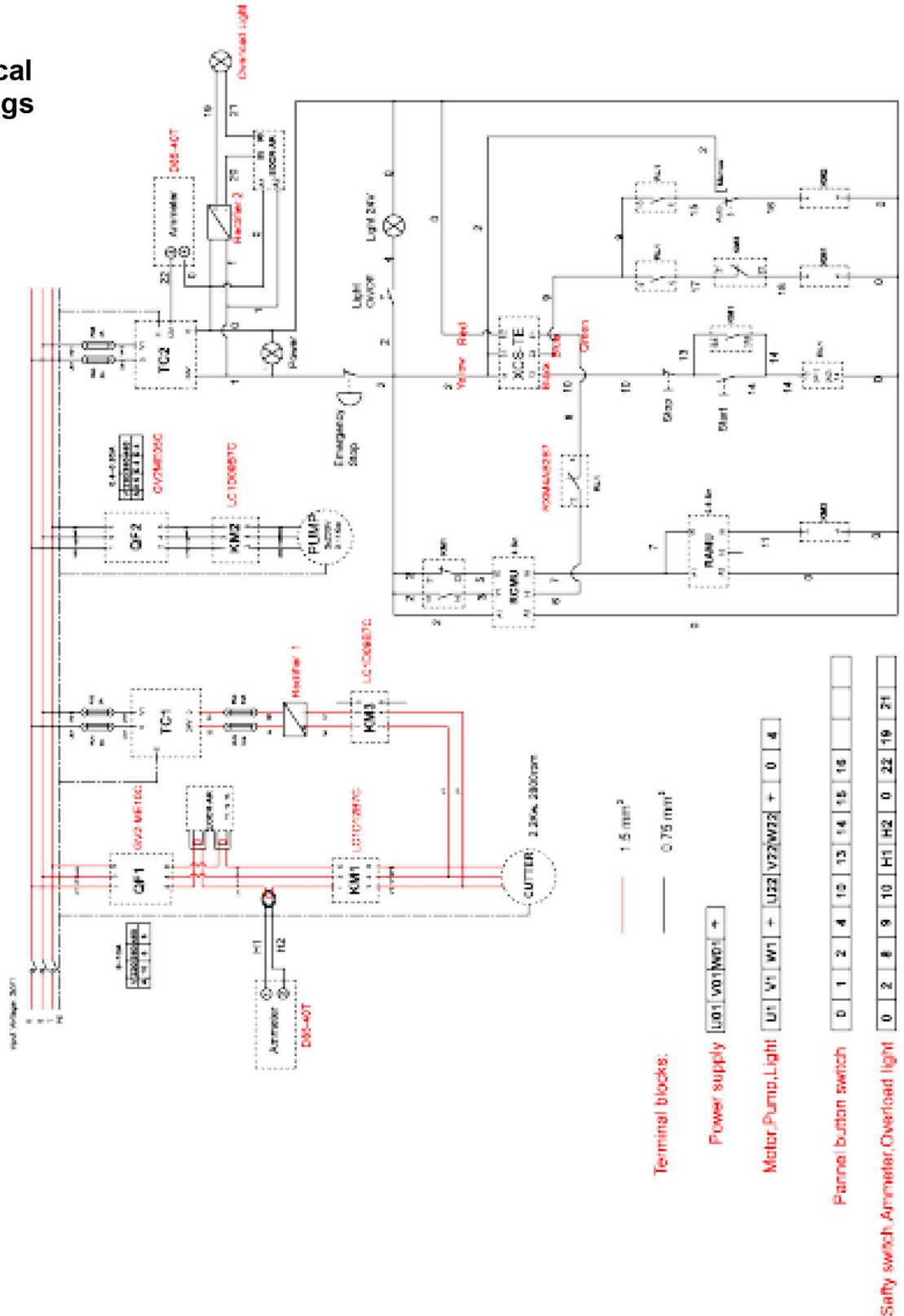
If motor or pump does not turn on check Q1 - motor and Q2- pump relays

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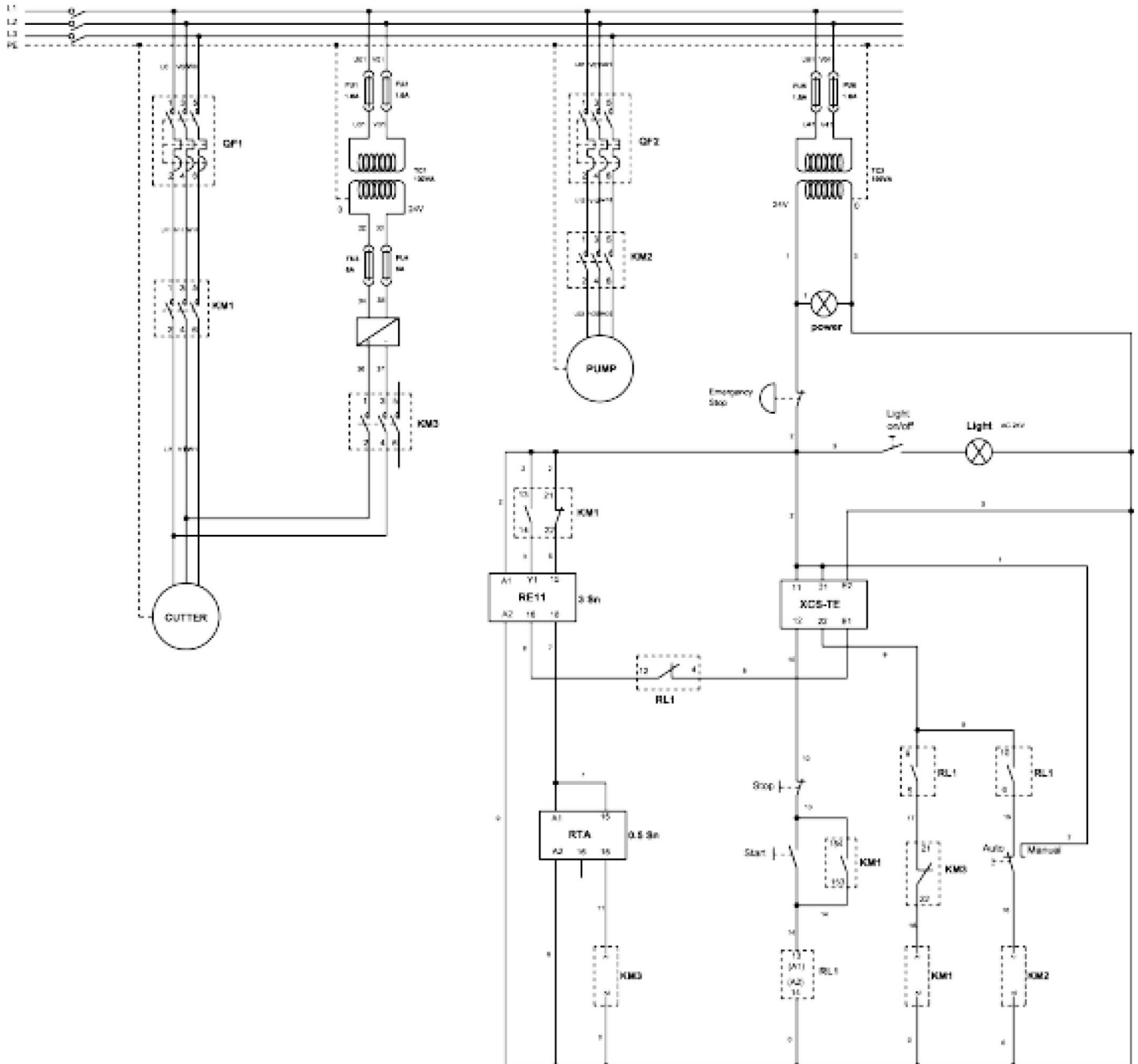
7.0 Electrical Drawings



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