

2 AXIS

Automatic Gyroscopic Mixer

Operating and Service Manual



User's Manual
Automatic Gyroscopic I Mixer
2 AXIS

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1. SAFETY INSTRUCTIONS

- **Read safety instruction carefully and follow them for your own protection.**
This Product is use on a nominal 115 or 230 Volt circuit, as shown on the Name plate.
Connect the Product to an outlet having the same configuration as the Plug.
Wear safety Shoes when installing or relocating the machine.
Make sure the machine stands securely.
Keep your place clean & tidy. There is risk of accidents at untidy work place.
- **Close the Machine when it is not being used.**
Machine shall be connected to dedicated electrical circuit- No other device shall be connected to this circuit.
This product is equipped with a cord having a grounding wire with an appropriate grounding plug. The plug must be plugged into an outlet that is properly installed and grounded in accordance with all local codes and ordinances.
This product shall be connected to a dedicated electrical circuit – no other devices shall be connected to this circuit.
Removal of the plug from the outlet is the means for isolating the mixer from the power supply. Ensure that the mixer is installed with the plug easily accessible to the operator.
This product is designed to operate only when the door is closed. **DO NOT ATTEMPT TO ALTER ELECTRICAL INTERLOCK MECHANISM**
In case of emergency, press the Red Emergency Stop button.
- **Do not overload the machine. Check that the weight and dimension of the mixing can are suitable**
Use only undamaged and sturdy Mixing Can, If you don't, the container may burst.
Never lift large and heavy Can into the machine.
The mixing Can has to be closed completely.
- **Make sure that the mixing Can sits in central position on mixing table. Secure the container handle with rubber bands or adhesive tape.**
Take good care of the machine. Make sure that the moving parts move smoothly and without restriction. Follow the maintenance instruction.
- **Do not use high pressure equipment to clean the machine.**
Make sure that the safety devices work properly and are clean.
- **Do not use the machine if the door or the plastic shutter is damaged. if the shutter strip is broken, do not reach into the interior. There is risk of injury from rotating components.**
- **Do not start the machine with shutter open. Pull out power plug! There is high risk of accidents!**
Before switching on the machine after maintenance work, check that no spanners or setting tools are left inside the machine.
Examine the machine for signs of damage. Check regularly that all parts are in good working condition. Have repairs carried out only by the manufacturer or an approved specialist.
Trained and authorized personnel shall use this product.

2. INTRODUCTION

2 AXIS is a revolutionary mixer, which is ideal for all your mixing requirements. 2 AXIS Mixer performs gyroscopic action, which enables in effective mixing, uniform blending and making homogeneous mixer. The 2 AXIS Mixer is specifically designed for point-of-sale color mixing applications as well as for semi-industrial applications.

This mixer is ideal for mixing closed, round and oval Cans made up of metal or plastic up to 40kgs.

2 AXIS is user friendly. The 2 AXIS has been designed to meet the demands of the wholesale and retail paint trade, in the paint lacquer and chemical industries and many other related sector. This mixer is particularly ideal as a component in paint dosing system.

The clamped Can rotates simultaneously about its longitudinal & transverse axis at multiple speed. It has 3 different time settings and the required mixing time is to be set depending upon Can size.

The dimension of the machine makes it versatile and suitable for use in all environments.

The unique design results in reduced maintenance and in color mixing at the lowest cost per liter produced. 2 AXIS is a rugged and reliable Mixer which performance and design exhibits the qualities of a strong and sturdy engineering product and low maintenance.



Machine components

1. Pull Handle	5. Control panel
2. Bottom clamping jaw	6. Door
3. Top clamping jaw	7. MCB
4. Door lock solenoid	8. Emergency Push Button



Phoenix shall not be liable for any damage or injury incurred by non-compliance with these regulations, or by not taking the usual and accepted precautions in handling, operation or repair, even if not expressly stated in this manual.

3. TECHNICAL SPECIFICATIONS

FEATURES	2 AXIS
MAXIMUM CAN WEIGHT	40 KG
MAXIMUM CAN HEIGHT	410 MM
MAXIMUM CAN DIAMETER	340 MM
OVAL & MULTIPLE CANS	AVAILABLE
CAN LOADING	SLIDING PULL OUT BOTTOM DISC
CAN MIXING (MIN.-MAX.) 1 LIT.	1 - 5 NOS (Adaptor Disc)
CAN MIXING (MIN.-MAX.) 4 LIT.	1 NO
CAN MIXING (MIN.-MAX.) 10 LIT.	1 NO
CAN MIXING (MIN.-MAX.) 20 LIT.	1 NO
MINIMUM CAN HEIGHT	95 MM
GYRO OPEN (MAX)	410 MM
GYRO CLOSE (MIN)	90 MM
GYRO RPM	1 /4 LIT - 125RPM, 10 LIT - 100 RPM , 20 LIT - 75RPM
BOTTOM DISC RPM	1/4 LIT - 300RPM, 10 LIT - 250 RPM , 20 LIT - 190 RPM
CLAMPING	AUTOMETIC – PROGRAMMABLE
VERTICAL POSITIONING	AUTOMETIC BREAK – PROGRAMMABLE
MAIN MOTOR	1 HP , 3 PHASE BRAKE,230Vac,50Hz,1440 RPM
MAXIMUM NOISE LEVEL	55 Db

POWER SUPPLY	SINGLE PHASE,220 Vac,50Hz (15 AMP THREE PIN PLUG)
POWER SUPPLY (OPTIONAL)	SINGLE PHASE,110 Vac,60 Hz (15 AMP THREE PIN PLUG)
ELECTRONICS	BOARD WITH HMI
INVERTER	AVAILABLE
VARIABLE SPEED CONTROL	AVAILABLE
TIMER	THREE PROGRAMMABLE MIXING TIMER
CYCLE COUNTER WITH SERVICE INDICATOR	AVAILABLE
ERROR MESSAGES	AVAILABLE - HMI SCREEN
BRAKE MOTOR FOR STRONGER DECELERATION	AVAILABLE
LOCKING DOOR DEVICE (Safety Door s/w)	AVAILABLE
GYROSCOPIC MOTION	CLOCKWISE /ANTICLOCKWISE -30 SEC.
EMERGENCY SWITCH	AVAILABLE
BRAKE RELEASE SWITCH	AVAILABLE
TRANSPORT ROLLER (Custor wheel)	AVAILABLE
MACHINE DIMENSION (W X D X H)	900 x 780 x 1090 MM
MACHINE NET WEIGHT	190 KG
PACKING DIMENSION (W X D X H)	965 X 890 X 1200 MM
MACHINE GROSS WEIGHT	210 KG

EN 292 Part 1 and 2: 1991	Safety of Machinery – Basic concepts, general Principles for design
EN 418: 1992	Safety of Machinery – Emergency stop Equipment , Functional aspects
EN60204 Part 1: 1997	Safety of machinery – Electrical equipment of Machines -Specifications for general requirements.
EN 954-1: 1996	Safety of Machinery – Safety related parts of control Systems- Part 1: General principles for design
EN 1088: 1995	Safety of machinery-Interlocking devices associated with guards.
EN 294: 1992	Safety of machinery – Safety distances to prevent danger zones being reached by the upper limbs.
EN 953: 1997	Safety of machines – Guards-General requirements for the design and construction of fixed and movable for coating materials.
PrEN 12757-1	Mixing machinery for coating materials

- Materials used by Phoenix to manufacture the machine doesn't undergo corrosions or deteriorations (They are compatible) with the paints which have to be mixed.

4. WARRANTY

LIMITED WARRANTY: Phoenix warrants each unit manufactured to be free of defects in material and workmanship for a period of twelve months. This warranty applies to single-shift operation and is counted from the date of initial start-up. It covers all defects arising from faulty material or workmanship.

Please Note that all warranty claims must be accompanied by the original delivery note or initial start – up report.

All essential warranty repair work must only be carried out by trained service engineers or by third parties authorized by Phoenix. Unauthorized repair may render the warranty null and void.

Please return any defective parts or machines carriage-paid to our factory. Phoenix reserves the right to decide on whether cost-free parts replacement is applicable. Parts and labour covered by the warranty will be supplied free of charge. The warranty does not cover travel cost, expenses or possible overnight accommodation resulting from warranty repairs carried out off our premises.

Any other responsibility, with particular reference to damage claims, including foregone profit or other material losses on the part of the customer, is expressly excluded.

Warranty and liability claims for personal or material damage are excluded if attributable to one or more of the following causes.:

The part unit shall be returned with transportation charges prepaid. If the fault has been caused by misuse or abnormal conditions of operation, repairs will be billed at a normal cost. In this case, an estimate will be submitted before work is started, if requested.

Always include serial number in any correspondence concerning the part unit.

The warranty expires: Twelve months after date of invoicing

- Operation of the machine with defective safety or protection device.
- Incorrect operation of the machine, as defined in the operation instructions.
- Failure to observe the instruction in the operating manual with respect to set up, initial start up, operation and maintenance of the machine.
- Fault and damage caused by dirt or incorrect cleaning schedules, with particular reference to leaks and damaged cans.
- Unauthorized structural modification to the machine.
- Incorrect monitoring of parts subject to wear and consumables.
- Unauthorized repairs or fitting of non original parts.
- Damage caused by the impact of foreign bodies or majeure force.

We reserve the right to make amendments as a result of ongoing advances in the technical field.

The 2-Axis mixer is specifically designed for point-of-sale color mixing applications as well as for semi-industrial applications. The unique design results in reduced maintenance and in color mixing at the lowest cost per liter produced.

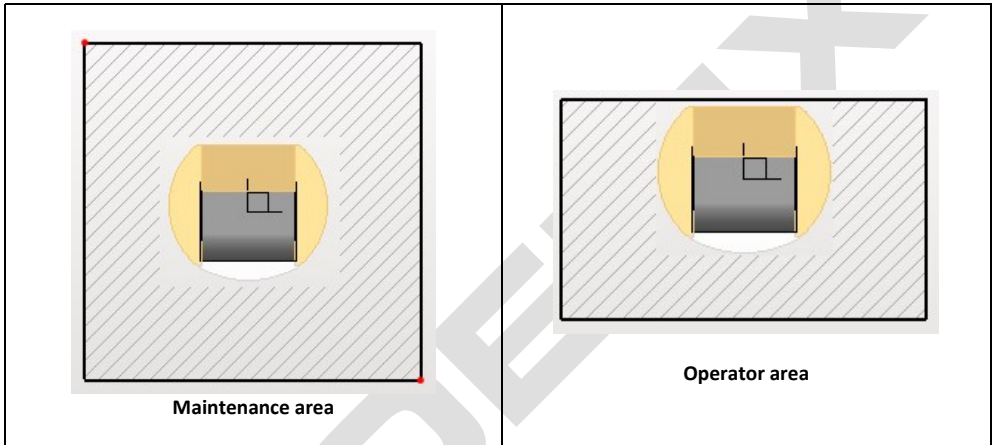
5. SAFETY SPECIFICATIONS

Compliance with safety requirements:

This mixer must be used and serviced by authorized and trained personnel only. Improper use or servicing may result in dangerous situations or accidents.

Risk to personnel is possible in two areas:

Operator area
└─ Maintenance area



THIS EQUIPMENT MUST BE GROUNDED.

Attention!!!

Connect this product to a dedicated electrical circuit – no other devices shall be connected to this circuit. Do not use extension cords to connect this product.



Attention!!!

Only trained personnel shall be permitted access to the electrical wiring within the machine. DO NOT USE THIS PRODUCT IF THE BACK PANEL IS NOT IN PLACE.

The machine is equipped with a power supply cable having the following specifications:

Length: 8 FT

Size: 14 AWG

The machine shall be connected to a dedicated, grounded circuit, protected by a 15 A circuit breaker. All wiring shall be in accordance with local codes

Important:

The power supply cable conductors are color-coded as follows:

GREEN or GREEN/YELLOW	—	GROUND
WHITE or BLUE/BLACK	—	NEUTRAL
BLACK or BROWN/RED	—	LINE

Service safety rules:

1. Prior to performing any maintenance or inspection of the 2 AXIS disconnect the power plug from the electrical outlet in order to ensure that the 2 AXIS cannot start unexpectedly.
2. To prevent injuries to personnel ensure that all removable panels are in place and properly secured except for any necessary inspections or maintenance.
3. Do not disable or override any of the installed safety features such as the door lock system.
4. The 2 AXIS shall be installed in an environment conforming to the appropriate local regulations. A permit issued by the local authority may be required. Keep the number of paint cans in the immediate area of the machine to a minimum.
5. Do not store flammable materials or other materials inside the machine. The area in which the 2 AXIS is installed must be kept free of exposed flames, incandescent fixtures or other devices that might create sparks.
6. It is recommended that a ventilation system, guaranteed to maintain the concentration of dangerous vapors around electrical components at less than 30%, be installed.
7. When the 2 AXIS is not being used for a period of time (such as at the end of the work day), ensure that it is empty (no paint can inside), close the door and unplug the power plug from the outlet.
8. Ensure that all tools are removed from inside the machine after any maintenance work.

RESIDUAL RISK**Residual risks list for the user:**

The 2 AXIS, and its operating and service instructions, have been developed giving careful consideration to the safety of the user and service technician. However, there are situations where risks can be reduced but not eliminated completely.

RISK	PRECAUTION
Injury or crushing during loading and unloading operations.	Use protective gloves and safety shoes during loading and unloading operations.
Abrasions and injuries caused by sharp edges on the cans being used	Use protective gloves during loading and unloading operations.
Liquid leakage from the cans being used	Thoroughly clean the operator and maintenance areas. Keep these areas clean.

Personal protection for user:

The 2 AXIS , when properly operated and maintain, presents minimal risk to the user. However, it is recommended that the user wear suitable protective equipment (safety glasses, safety shoes with non-slip soles and gloves), in particular when loading and unloading the mixer.

General danger situations:

There are no specifically identified hazard related to the operation and maintenance of the 2 AXIS (e.g. fire risk, issue or dispersion of dangerous products). However, it is recommended that a powder type fire extinguisher, suitable for electrical fires, be readily accessible.

Safety devices:

The machine is equipped with the following safety devices:

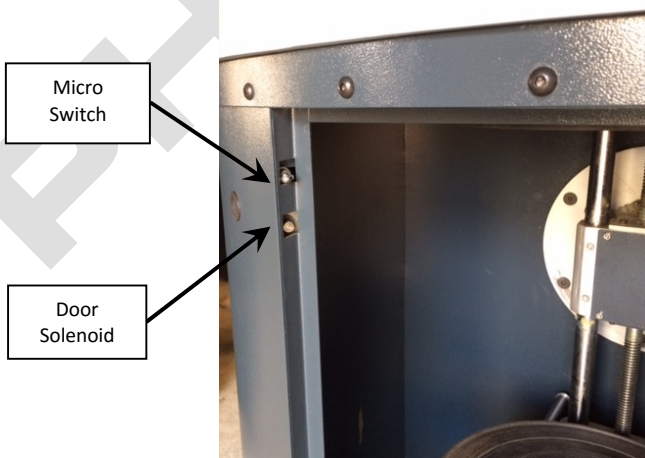
- Emergency Stop Button
- Door Lock and sensor

Emergency Stop Button

For safety reasons, all users should know the location of the Emergency Stop button, and how to use it. The RED Emergency Stop push button is located on the Left Hand control panel on the top front of the mixer – to the left of the door. Pushing the button will immediately cut power to the motor control relay, stopping the motor. To reset the button and restore the mixer to normal operation mode, rotate the button clockwise.

Door Lock and sensor

The 2 AXIS is equipped with a safety device which prevents start up of the mixing cycle when the door is in the open position. It also locks the door in the closed position during the mixing cycle.



6. INSTALLATION

INSTALLATION CONDITIONS:

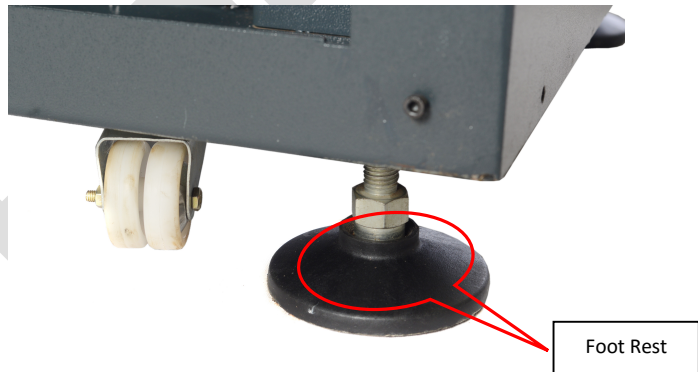
Before unpacking and installing the 2 AXIS Mixer, please make sure of the following:

- The crate/packaging in which the 2 AXIS was shipped has not been damaged in any way.
- The floor on which the 2 AXIS is to be located is firm and level
- An electrical receptacle on a properly grounded, dedicated, 15 A, 115 or 230 V circuit is available in the immediate vicinity. The circuit shall be installed in accordance with local codes. The receptacle shall be of a configuration appropriate for the voltage and current rating of the circuit.

INSTALLATION:

It is recommended that, during the installation of the mixer, protective gloves be worn in order to prevent hand injuries.

- Unpack the 2 AXIS Mixer.
- Ensure the machine has not been damaged in any way
- Position the mixer in the desired location. It is equipped with rollers to aid in positioning.
- Using the four leveling feet, level the machine, ensuring that all four feet are properly supporting the machine. Lock the leveling legs in place by tightening the jam nuts.



6.1 Trial Run

- It is best to carry out a trial run with an empty mixing Can when you are starting up the machines for the first time OR after carrying out maintenance work OR repairs.
- Remove all tools and any other loose items from inside the machine.
- It is prohibited to operate the machine on its shipment pallet.

7. CONTROLS

Control and display components



Stop /Open-Close the Clamping Jaws

Mixing cycle (1, 2, 3 mins.)

8. OPERATIONS




8.1 Switching on the machine (connect to power)



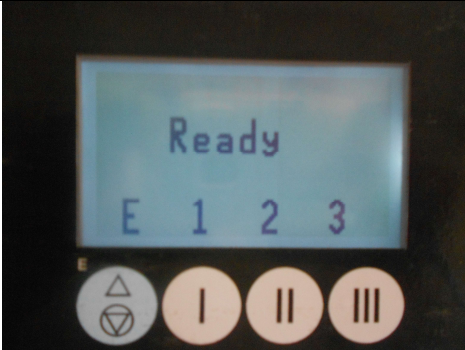

- The door will not open until the mixer is connected to the mains and MCB is ON.
- Ensure the Emergency switch is not pressed.
- Door will be opened once you have below screen.

8.2 Loading the Can


	<p>Open the Mixer door to its fully open position.</p>
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	<p>Unlock the Clamping Jaws by pressing button 'E' as per the Can size.</p> <p>Press the Can tray locking lever up and pull the tray outward.</p>
	<p>Place the Can which is to be mixed on the bottom disc.</p> <p>Press the pull tray locking lever up and slide the tray inside.</p> <p>Ensure that pull tray is locked properly.</p> <p>Align the Can properly in bottom disc circular groove.</p> <p>1LT x 3, 4LT, 10LT & 20LT x 1 Can mixing capacity.</p>
	<p>Close the door (The door has to be closed in order to start the mixing cycle).</p>

8.3 Starting the mixing cycle

	<p>Assign the timing for mixing operation.</p> <p>I - For 1 minute of mixing.</p> <p>II – For 2 minutes of mixing.</p> <p>III – For 3 minutes of mixing.</p> <p>The Can will get clamped automatically and mixing cycle will start.</p>
	<p>Wait for the completion of mixing operation cycle.</p>

8.4 Ending the Mixing cycle

	<p>Once the cycle completes, the gyro will be automatically moved to vertical position & will stop. The clamping jaw will get released and the door will get unlock. Open the door & press the Can tray locking lever up and pull the tray outward. Remove the Can from bottom disc. Press the Can tray locking lever up and slide the tray inside.</p>
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- You can end the mixing cycle prematurely **before the mixing time is over** by pressing button E. The mixing cycle will immediately end, the mixing unit will be positioned, clamping pressure released, and the door unlocked.
- **Important: when you have finished using the machine, be sure to switch it off with the main switch!**

8.5 Triggering the EMERGENCY STOP function

- You can press the Emergency Stop button to switch off the machine if ever the Can develops a leak or becomes loose or some dangerous situation for a man or machine arises while the mixing cycle is in progress.
- After **Emergency Stop** button is pressed, the mixing unit will be standstill and remain in this position. **The mixing unit will not move automatically to vertical position!**
- Unlock the Emergency Stop button by hand and press button 'E' to cancel the error message.
- Open the door. Press the gyro unlock yellow button and turn the mixing unit by hand until it comes in vertical position.
- Release the clamping pressure from the mixing unit by pressing button E and remove the Can.
- The machine is in base position and so the mixing can be continued if everything is ok.

- **The EMERGENCY STOP button does not disconnect the machine from the mains power supply. Therefore, before performing any maintenance work or repairs always be sure to disconnect the machine from the mains by pulling out the power plug.**

9. MAINTENANCE & TROUBLESHOOTING

Monthly Maintenance:

Regular maintenance is necessary to ensure that the machine remains in good working condition at all the times.

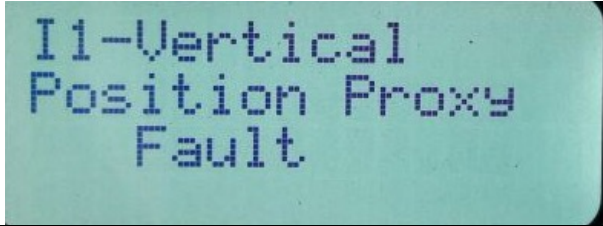
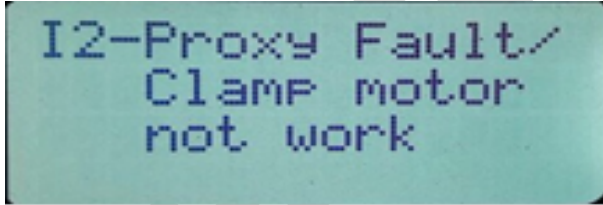
**Always pull out the power plug before carrying out any maintenance work.
Before calling the customer service department, please make a note of the machine's serial number.**

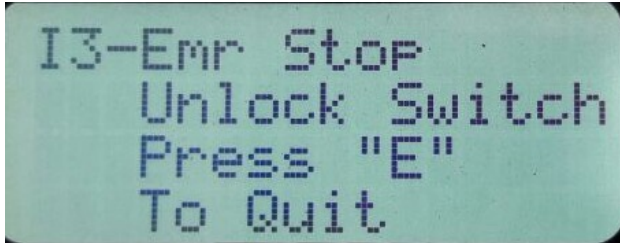
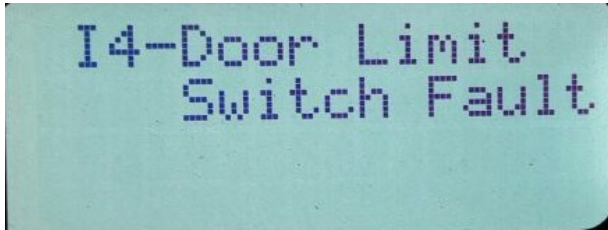
PROBLEM	TROUBLE SHOOTING
Machine is not turning on	<ol style="list-style-type: none"> 1) Check the Mains supply. 2) Check MCB Position, it should be ON. 3) Check the Power supply 4) Check plug or lose wire. 5) Check PLC error if any.
Brake not operating	<ol style="list-style-type: none"> 1) Check the Push button. 2) Check the Brake coil. 3) Check Brake Power supply. 4) Check brake mechanism in motor.
Main Motor not running / working	<ol style="list-style-type: none"> 1) Check the door solenoid, Micro switch. 2) Check Emergency switch. 3) Check Motor mechanism and Motor capacitor, Pulley belt. 4) Check supply on PLC, Relay card & Motor Relay, PLC error if any.
Machine vibrates during operation	<ol style="list-style-type: none"> 1) Check the floor flatness. 2) Greasing of guide shaft, screw shaft of the clamping mechanism.
Machine makes a loud noise after every revolution	<ol style="list-style-type: none"> 1) Check the foundation of the Motor. Foot resting on ground. 2) Check the tension of the belt joining the Motor pulley and the Main Wheel. If found loose, adjust it to the proper tension. 3) Check whether the belt has worn out. 4) Check greasing of bevel gears.
Clamped container becomes loose	<ol style="list-style-type: none"> 1) Check clamping motor working properly. 2) Check whether Rubber pads worn out. 3) Check whether guide shaft and screw shaft are clean and the

	clamping brackets are working properly up & down.
Clamping bracket does not slide smoothly.	1) Clean the Guide Shafts and apply the general-purpose grease
Machine is giving shock while in operation	1) Check for proper grounding of the machine.

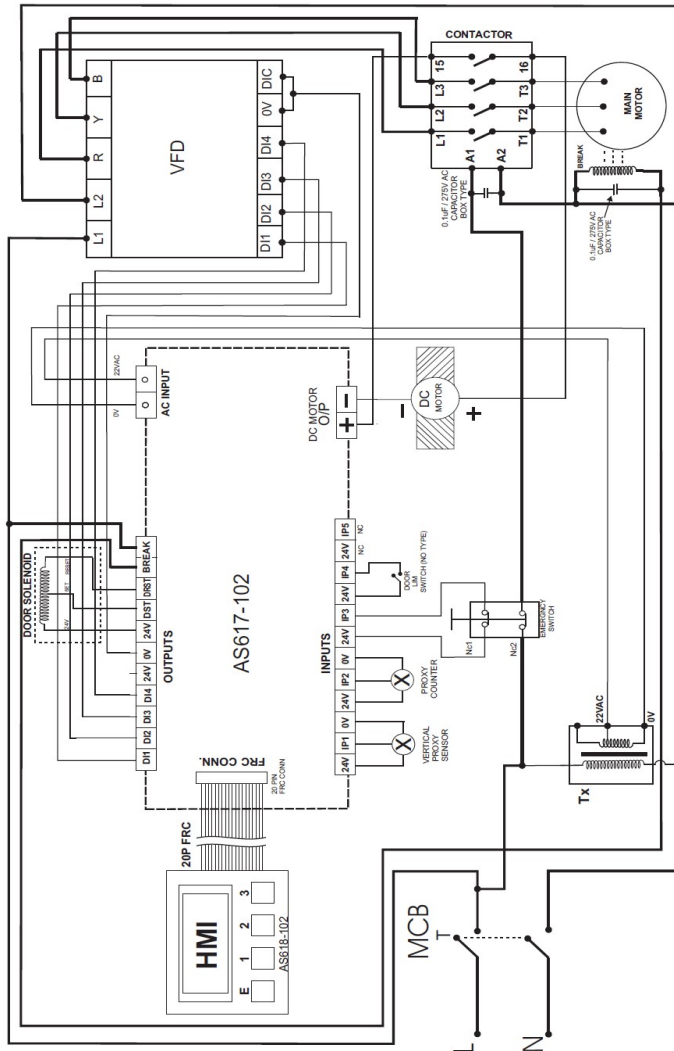
9.1 PLC - Error Messages

Following table provides an overview of possible PLC errors and their remedies.

Error Display	Actions to take
	<p>Display shows "I1-Vertical position Proxy Fault" Error.</p> <p>Check Proximity sensor (Home Position) connection to Board input pin I1 & DC motor.</p> <p>Check other pinning connections of sensor. Press "E" to resume on "Ready" Mode.</p>
	<p>Display shows "I2 Proxy Fault / Clamp Motor not work" Error.</p> <p>Check Proximity sensor (Home Position) connection to Board input pin IP2.</p> <p>Check connections at Board input port no M+ for forward rotation.</p> <p>Check connections at PLC input port no M- for Reverse rotation.</p> <p>Check other pinning connections of sensor. Press "E" to resume on "Ready" Mode.</p>

	<p>Display shows "I 3 -Emr Stop Unlock Switch." Error.</p> <p>Check Emergency switch is in NC state (Normally contact). Verify Board input connection at pin I 3.</p> <p>Press "E" to quit & resume on "Ready" Mode.</p>
	<p>Display shows "I 4-Door Limit Switch Fault" Error.</p> <p>Check door solenoid connection to Board input pin. Verify that Board output IP4 & connection DR, BS, & 24V</p> <p>Check Limit Switch connection to Board input pin I 5.</p> <p>Press "E" to resume on "Ready" Mode.</p>

10. SCHEMATIC DIAGRAM



THANK YOU

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