
LCR-6-WT-EPP

**CYLINDER ROLLER
EXPLOSION PROOF SERIES**

INSTRUCTION MANUAL



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1.0 INTRODUCTION

The Galiso LCR-6-WT-EPP Large Cylinder Roller has been designed to provide a safe, economical method for mixing gases or abrasive media tumbling. This machine has been equipped with a timer to automatically reverse the rolling direction at preset intervals. The LCR-6-WT-EPP has also been equipped with two types of static proof rollers, and conductive strips, greatly reducing the chance of cylinder explosions.

The LCR-6-WT-EPP automatically inverts to a vertical position for easy loading and unloading of heavy cylinders, helping to reduce the risk of back injuries. This machine allows for as many as six 62" max and six 17" min cylinders to be cycled at once. Cylinders are loaded onto the rack in an upright position. The rack is then inverted to a horizontal position for mixing or tumbling.

The LCR-6-WT-EPP is equipped with a safety bar prevent any operation from starting without the bar in place. A manual safety stop switch (EMO), is also installed to allow for instantaneous stopping of all machine operations in cases of emergency.

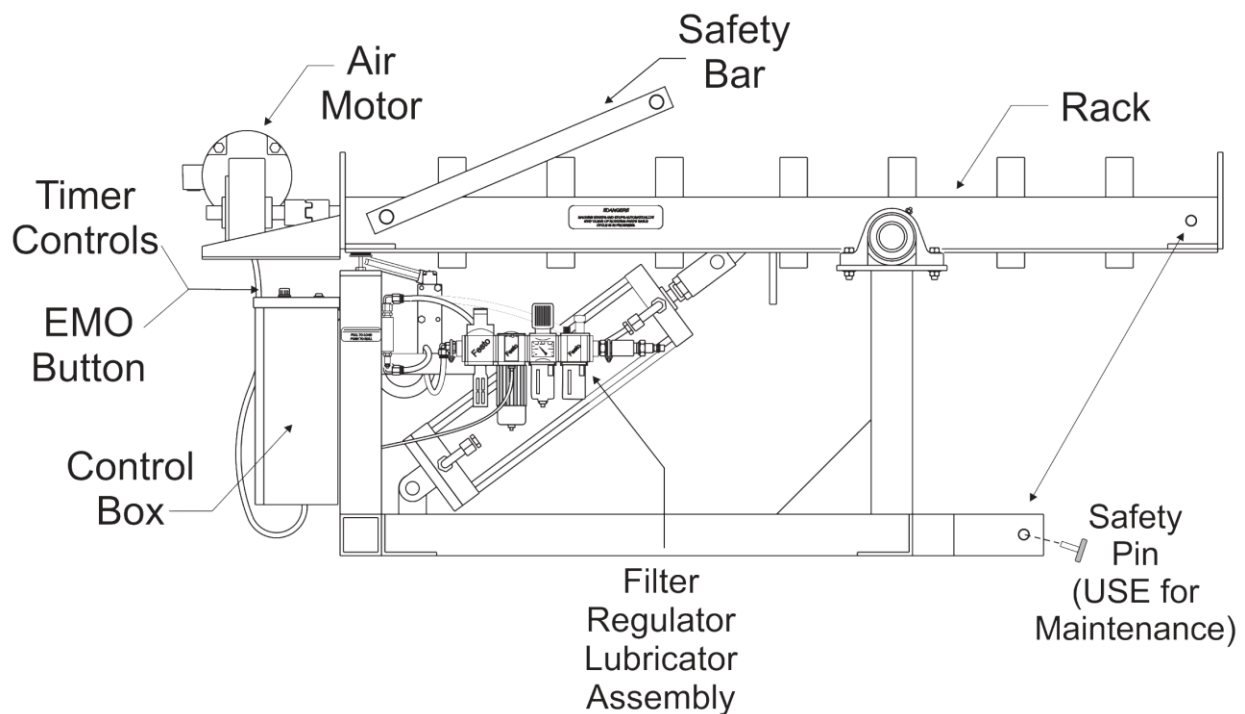


Figure 1, Basic Parts

The air motor complies with the applicable standards and specifications and meet the requirements of the guidelines of the EC directive 94/9EC (ATEX 100a). The motor is intended to be used in Zones 1 and 2 where explosive atmospheres are likely to occur.

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2.0 SAFETY

Read all instructions before attempting to install or operate this machine. GALISO, INCORPORATED IS NOT RESPONSIBLE FOR DAMAGE OR INJURY CAUSED BY UNSAFE USE, MAINTENANCE, APPLICATION, MODIFICATION OR IMPROPER INSTALLATION OF THIS MACHINE. Please contact Galiso, Inc. for guidance when you are in doubt as to the proper safety precautions to be taken when installing or operating this machine.

2.1 General Safety

- A. Galiso, Inc. recommends marking off the area surrounding the LCR-6-WT-EPP with yellow and black safety tape. The safety area should extend at least 36" on the loading side of the machine, to indicate the area occupied by the swing of the cylinder rack as it is inverted. All personnel should stay clear of the safety area while the machine is operating.
- B. The LCR-6-WT-EPP starts and stops rotation automatically. The operator should stay clear of all rotating parts and cylinders while any rotation is in progress. Make certain that all rotation has stopped before attempting to lift the safety bar or remove any cylinders.
- C. Do Not wear loose fitting clothing or jewelry near the LCR-6-WT-EPP. Excessively long hair should be covered with a hairnet or hat.
- D. When tumbling with etchant media, face shield, goggles, head protection and gloves should be worn.
- E. Be careful to avoid back strain when lifting heavy, abrasive filled cylinders onto or off of the LCR-6-WT-EPP.
- F. The LCR-6-WT-EPP is equipped with a safety switch that will prevent any rotation of the rack or rollers without the safety bar in place and/or the rack is in a horizontal position.
- G. To avoid injury from electric shock, the LCR-6-WT-EPP and the area around it should be kept as clean and dry as possible.

2.0 GENERAL SAFETY, continued

- H. To avoid injury from electric shock, the LCR-6-WT-EPP and the area around it should be kept as clean and dry
- I. as possible.
- J. Cylinders should always be loaded or unloaded in the vertical position. Do NOT attempt to place cylinders under the safety bar while the rack is in the horizontal position.
- K. The four corners below the rack of the LCR-6-WT-EPP are locations that could be possible pinch points (see Figure 2) Possible Pinch Points. Please be aware of this and keep all body parts away from the pinch points and from any moving parts.

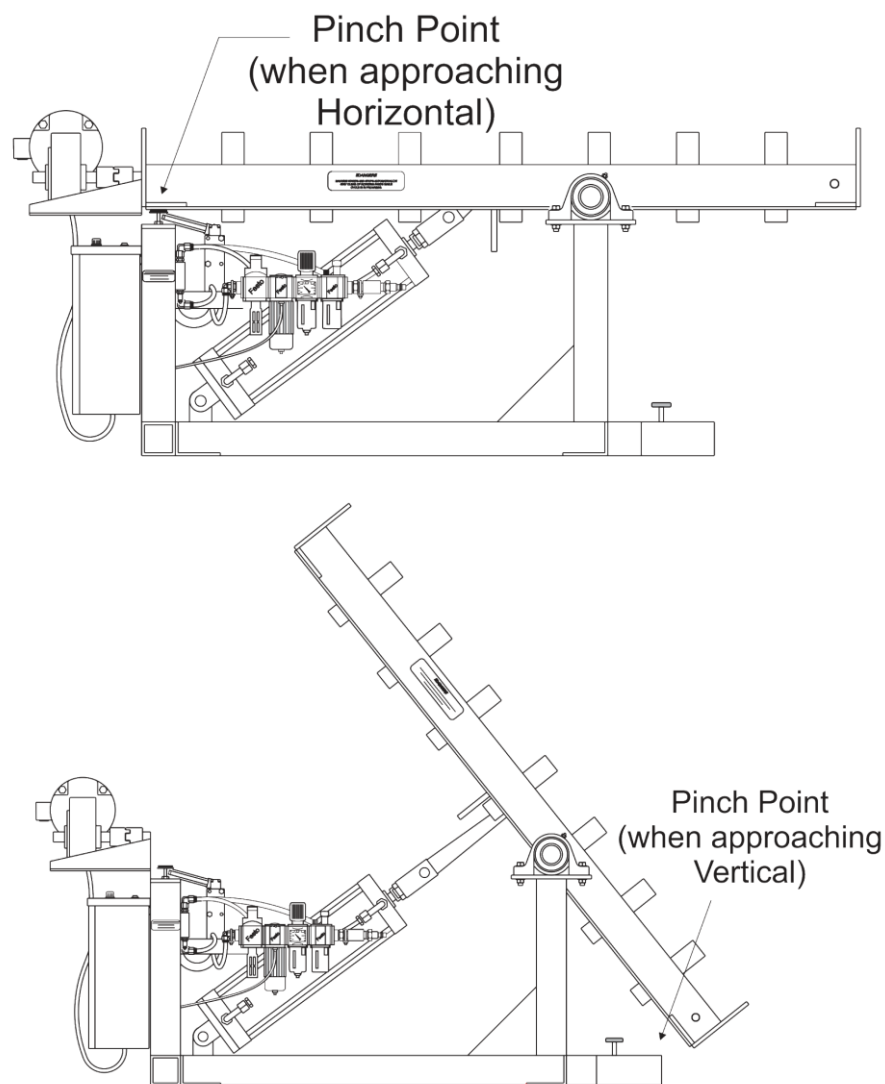


Figure 2, Pinch Points

2.1 General Safety, continued

!! DANGER !!

- L. DO NOT USE THIS EQUIPMENT TO PURGE TOXIC OR FLAMMABLE GASES. DO NOT USE THIS EQUIPMENT UNDER FLAMMABLE, VOLATILE OR TOXIC CONDITIONS.**
- M. DO Not attempt to tumble aluminum cylinders with Scale Cut HD Etchant or Poly Fast Cut Neutralizer.**
- N. Plugs used to seal the cylinder should be equipped with a vent hole to prevent pressure from accumulating inside the cylinder during the tumbling process.**
- O. To help prevent a static charge, the LCR-6-WT-EPP must be grounded using the bolt located on the right side of the Frame of the LCR.**
- P. Although the LCR is free standing, Galiso, Inc. recommends securing the machine to the shop floor with lags or bolts.
- Q. When performing maintenance always use the safety pins to lock the rack in place.
- R. In the event of loss of air pressure, the rack will remain in the position that it was in at the time of loss and the rollers will immediately stop until air is restored to the unit.
- I. To immediately stop the LCR-6-WT-EPP operation cycle, press the Emergency Manual Stop Switch. The LCR-6-WT-EPP will instantly stop all processes including roller bar rotation. To resume operation: follow the procedures described in Section 4.0, Operations.
- J. This machine has been designed to accept up to as many as six 62" max and six 17" min cylinders to be cycled at once. Cycling smaller cylinders than this is not recommended.

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3.0 INSTALLATION

Carefully read all instructions and familiarize yourself with the installation and operation procedures and drawings before attempting to install or operate the LCR-6-WT-EPP.

3.1 Receiving and Placement

- A. Carefully un-crate the LCR-6-WT-EPP and remove all banding and packing materials.
- B. Select a space for the installation of the LCR-6-WT-EPP. The location should be flat, level surface that evenly supports the base of the machine. Lag or bolt the LCR-6-WT-EPP to the shop floor.
- C. The location of the machine should allow adequate clearance around the frame of the machine, along with enough space for loading and unloading cylinders onto the rack. Galiso, Inc. recommends an additional safety zone of 36" safety zone be marked around the LCR-6-WT-EPP.
- D. The LCR-6-WT-EPP must be grounded using the bolt located on the right side of the Frame of the LCR.
- E. Connect your Shop Air Supply Line (1/2" minimum) to the port labeled. Shop Air should be supplied at a minimum 90 psi and maximum 120 psi.
- F. Turn the Shop Air Valve to the ON position (90°). Verify air pressure is on by using the pressure gauge.
- G. Release the EMO (Emergency Manual Off) by pressing down and turn clockwise. The rack will now move to the load position (vertical). Proceed to Operations section (section 4).

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4.0 OPERATION, MIXING GASES

- A. With the rack in the vertical (load/unload) position release the safety bar by pulling out the lock pin, on the side of the rack, and lift the safety bar.
- B. Load gas filled cylinders onto the rack, loading heaviest cylinders onto the center roller and loading the lighter cylinders towards the outer rollers. Replace the safety bar by pulling out the lock pin and lowering the safety bar.
- C. To set the Cycle Time, pull the white lever on the Timer Control Switch, towards you and hold. Push the black levers to set the desired time value (in minutes 0-99999) for Total Cycle Time. Unless the Safety Bar is up or the EMO Switch is down, the Ready Indicator Light should now be lit, indicating the machine is ready for operation.
- D. The procedure for setting the Forward OFF or ON and the Reverse OFF or ON is the same for either direction. By turning the knob above "Forward Off" clockwise, the time of the rollers turning forward will increase in 10 second increments. If you turn the knob in a counterclockwise direction, the time will decrease in 10 second increments. The Forward OFF or the Reverse OFF act as a delay before the next step begins.
- E. Press start to lower the rack to horizontal and begin the mixing/tumbling process.
- F. After pressing the Start Switch a pause of approximately 5 seconds will pass, before the rack rotates to a horizontal position and begins the mixing/tumbling process. **BE CERTAIN TO STAND ON THE CONTROL SIDE AT ALL TIMES AFTER OPERATION HAS BEEN STARTED. AVOID BEING UNDER THE RACK OR NEAR THE PINCH POINTS.**
- G. As the Rollers begin to rotate the cylinders in the forward direction, the Cycle in Progress (or Ready) Indicator will be lit yellow. When the forward rotation time has elapsed, the cylinders will stop rotating for the amount of time set on the Forward OFF timer and then the rotation direction will automatically reverse. When the reverse rotation time has elapsed, the LCR-6-WT-EPP will continue to alternate the direction of rotation until the Total Cycle Time has elapsed. When the Total Cycle Time has passed, the rotation of the cylinders will automatically stop. After the Total Cycle Time has elapsed there is a short pause (approximately one 1 second) after which the Rack will then revert to the (vertical) Load/Unload position. **DO NOT STEP TOWARDS THE CYLINDERS OR RACK UNTIL THE RACK HAS BEEN RETURNED TO THE VERITCAL POSITION.**

4.0 OPERATION, MIXING GASES

- H. The Operator can press the STOP Switch at any time, during any cycle to stop the rolling, inverting or reverting processes. Pressing the STOP Switch will cause all rollers to stop and the rack to be moved to the Load/Unload (vertical) position.
- I. If at any time during operation, an emergency should occur, The Emergency Manual Off (EMO) Switch should be pressed to instantly stop all movement of the machine. To release the EMO Switch and return to cylinder processing, press down on the EMO Switch and turn clockwise. The switch will “pop up” and return to the operation it was performing at the time the EMO was pressed.

After start has been pressed, the automatic steps that the LCR will cycle through are as follows:

- I. Forward rolling will begin and continue rolling in the same direction for the time allotted on the Forward ON timer.
- II. After forward rolling has stopped, the rollers will stay in a “paused” position for the time period set on the Forward OFF position.
- III. After the rollers have been stopped for the allotted time, they will begin to roll in the Reverse direction for the amount of time set on the Reverse ON timer.
- IV. The rollers will then complete another “pause” cycle (Reverse OFF) before beginning the next Forward rolling cycle.
- V. These steps will continue to cycle in this manner until all of the time on the Cycle Time timer has elapsed.

CAUTION: After the Cycle Time has elapsed the LCR-6-WT-EPP will automatically invert the cylinder rack to an upright (vertical) position. It is very important to stay clear of the arc of the rack during this time and to stay clear of the area **under** the rack at this time.

4.1 OPERATION, TUMBLING WITH ABRASIVE MEDIA

- A. When tumbling with abrasive media, fill cylinders at least half full with tumbling media. A tight fitting plug should be screwed into the neck threads of the cylinder. The plug should be equipped with a vent hole to prevent pressure generated by the tumbling process from accumulating inside the cylinder.
- B. When tumbling with Scale Cut Etchant, mix a solution of two ounces of etchant to one gallon of water, pour it into the cylinder, cap the cylinder and tumble for approximately thirty minutes. After tumbling with etchant, cylinders must be washed and then tumbled with Poly Fast Cut neutralizer to remove any acid residue and to prevent flash rusting. Face shield, goggles, head protection and gloves should be worn when tumbling with Scale Cut HD.

NOTE: DO NOT TUMBLE ALUMINUM CYLINDERS WITH SCALE CUT HD ETCHANT OR POLY FAST CUT NEUTRALIZER.

- C. After the LCR-6-WT-EPP has been installed, press the start button to place the rack in the vertical (load/unload) position. Pull out the side lock pin and lift up the safety bar. Load the media filled cylinders onto the rollers starting with the heaviest cylinder in the center and the lighter cylinders towards the outsides of the rack.
- D. To set the Cycle Time, pull the white lever on the Timer Control Switch, towards you and hold. Push the black levers to set the desired time value (in minutes 0-99999) for Total Cycle Time. Unless the Safety Bar is up or the EMO Switch is down, the Ready Indicator Light should now be lit, indicating the machine is ready for operation.
- E. The procedure for setting the Forward OFF or ON and the Reverse OFF or ON is the same for either direction. By turning the knob above "Forward Off" clockwise, the time of the rollers turning forward will increase in 10 second increments. If you turn the knob in a counterclockwise direction, the time will decrease in 10 second increments. The Forward OFF or the Reverse Off act a delay before the next step begins.
- F. Press start to lower the rack to horizontal and begin the mixing/tumbling process.
- G. After pressing the Start Switch a pause of approximately 5 seconds will pass, before the rack rotates to a horizontal position and begins the mixing/tumbling process. **BE CERTAIN TO STAND ON THE CONTROL SIDE AT ALL TIMES AFTER OPERATION HAS BEEN STARTED. AVOID BEING UNDER THE RACK OR NEAR THE PINCH POINTS.**

4.1 OPERATION, TUMBLING WITH ABRASIVE MEDIA, continued

- H. As the Rollers begin to rotate the cylinders in the forward direction, the Cycle in Progress (or Ready) Indicator will be lit yellow. When the forward rotation time has elapsed, the cylinders will stop rotating for the amount of time set on the Forward OFF timer and then the rotation direction will automatically reverse. When the reverse rotation time has elapsed, the LCR-6-WT-EPP will continue to alternate the direction of rotation until the Total Cycle Time has elapsed. When the Total cycle Time has passed, the rotation of the cylinders will automatically stop. **DO NOT STEP TOWARDS THE CYLINDERS OR RACK UNTIL THE RACK HAS BEEN RETURNED TO THE VERTICAL POSITION.** After the Total Cycle Time has elapsed there is a short pause (approximately one 1 second) after which the Rack will then revert to the vertical (Load/Unload) position.
- I. The operator can press the STOP Switch at any time, during any cycle to stop the rolling, inverting or reverting processes. Pressing the STOP Switch will cause all rollers to stop and the rack to move to the vertical (Load/Unload) position.
- J. If at any time during operation, and emergency should occur, the Emergency Manual Off (EMO) Switch should be pressed to instantly stop all movement of the machine. To release the EMO Switch and return to cylinder processing, press down on the EMO Switch and turn clockwise. The switch will “pop up” and now allow the operator to press Start to return to mixing/rolling, or to press stop to revert the rack back to the vertical (Load/Unload) position.

NOTE: WHEN TUMBLING SMALL CYLINDERS (i.e. SCUBA SIZE), THE LCR-EPP MUST BE LOADED AND UNLOADED IN THE HORIZONTAL POSITION.

- K. Lift the safety bar and unload the cylinders.
- L. To remove abrasive media after tumbling, Galiso recommends placing the cylinder in an EDR-1 or similar Dump Rack. Remove the vented plug from the cylinder neck and invert the cylinder over a perforated pan to catch the abrasive media. Flush the cylinder with water or suitable cleansing solution. Dry the cylinder to prevent rust from forming.
- M. After tumbling, cylinders should be Hydrostatically Tested.

5.0 MAINTENANCE

5.1 General Maintenance

- A. When performing maintenance always use the safety pins to lock the rack in place.
- B. Using the grease zert, lubricate the Bearings,-once per year with moly grease.
- C. Check the air supply line filter and lubricator twice per week for proper operation.

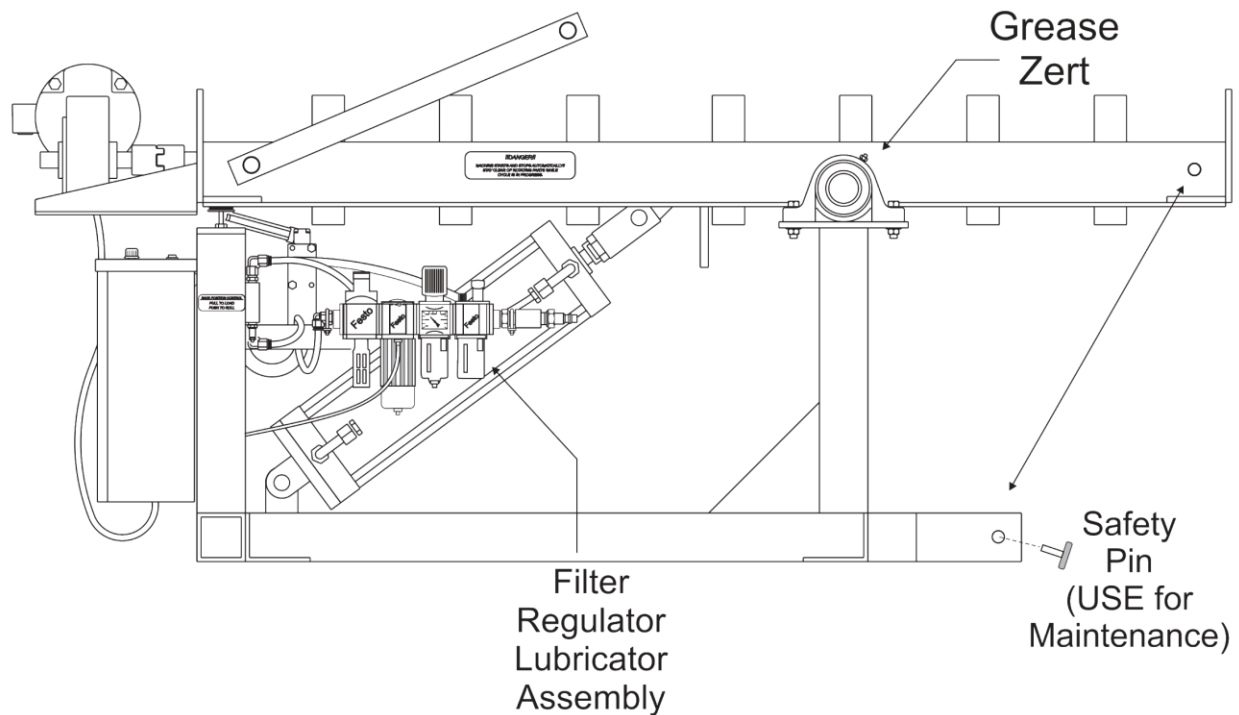


Figure 3, Maintenance Parts

5.2 Air Lubricator Fill

Fill the air lubricator in accordance with the following instructions.

- A. Disconnect the shop air supply to the LCR-6-WT-EPP, and bleed all entrapped air by turning the air regulator all the way off. Verify the air pressure reads 0 psig on the regulator air pressure gauge.
- B. Locate the oil reservoir, remove and fill with 10 weight non-detergent oil.
- C. Replace the oil reservoir. The oil feed should already be factory adjusted to approximately one drop per minute at full speed air flow.
- D. Re-adjust the air pressure regulator to the proper air pressure. Close the inverter access panel and re-connect the air supply.

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LCR-6-WT-EPP

