

Chip Silo

User Manual

Health and Safety

This manual contains instructions for the daily operation of the equipment. It should always be accessible to those working with the equipment. It is important to ensure that:

- The manual and other relevant documents are stored for the entire service life of the equipment.
- The manual and other relevant documents remain with the equipment at all times.
- This manual is passed on to other users of the equipment.
- This manual is updated whenever additions or changes are made to the equipment.
- This manual describes the methods used when operating the equipment.

Safety Code

- Please read the relevant sections of the manual before using the equipment or performing maintenance or service operations.
- Assume all electrical equipment is live.
- Assume all hoses and pipelines are under pressure.
- When servicing and maintaining the equipment or machine, ensure the power supply is turned off, disconnected, and that the pressure in the pipes and hoses is released in a controlled manner.
- Service and maintenance operations must be performed by authorized personnel only.
- Use only spare parts approved by Sarigöl Konveyör Sistemleri.
- Ensure that the machine is securely mounted and installed according to the instructions before startup.
- Use the machine only as intended.
- In case of abnormal vibration or noise, stop the machine and refer to the manual.
- Electrical installation should only be carried out by a qualified electrician.

The coolant in the tanks must be drained before any lifting operations are performed.

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General Description

Chip silos are designed to store the chip with high capacity, which comes out from belt conveyors, and to facilitate their transfer into the truck or similar vehicle when needed.

The cover system is hydraulic. Chip silo has no maintenance cost and can be produced in desired capacities and sizes.

It plays a significant role, especially on the discharge of the mess which is generated in the factory scrap sections.

1 General Definition of the Machine and Safety

1.1 Introduction

Pay close attention to all safety and operating warnings stated in this manual. This will help reduce the risk of accidents and extend the lifespan of the machine.

Before assembling, operating, or maintaining the machine, ensure that this user manual has been read and understood by all relevant personnel (operators, maintenance staff, etc.).

It is dangerous for unauthorized individuals to interfere with the device.

Failure to follow the instructions, procedures, or safety warnings in this manual may result in accidents, damage, and injuries.

1.2 General Warning

The system is protected against electrical leakage and jamming. Despite the machine's built-in safety systems, warning and usage labels are placed on the machine. These labels must be observed and followed.



In addition to the company label containing chip silo information, the silo is equipped with various warning and caution labels. These labels are intended to guide users on proper behavior during use and maintenance, identify potential risks, and alert individuals to hazards. Do not remove or alter any of the labels on the silo.

Safety labels are essential for the safe and proper operation of both you and your machines. If any of the labels are removed or fall off for any reason, please request replacements from the manufacturer. Always adhere to the warnings provided.



1.3 Electricity

The control panel is designed to meet protection class IP54 standards. The drive power connection cables are safeguarded by a rubber-coated steel spiral, protecting the system from dust and water. This spiral also prevents the cables from being cut or damaged. Do not use worn or damaged cables; replace them as needed.



While motors or gear motors are operating, live, bare (open plug/terminal box), moving, or rotating parts present a risk of life-threatening or serious injury. Always follow the safety documents and guidelines.

1.4 Hydraulic Cover Lifting System

The hydraulic cover lifting system—including the hydraulic unit, piston, and cylinder—is securely installed to prevent external interference. This design ensures that the working parts are shielded from external factors and remain unaffected by external interventions. Additionally, risks associated with the machine's moving parts have been addressed, and users have been cautioned with appropriate warning and safety labels.

1.5 Tow Hitch

For domestic shipments, silos are loaded or unloaded by lifting them using the forklift blades. Silos are equipped with four lifting eyes for internal transportation within the factory. The lifting ropes attached to the pallets are connected to the overhead crane for moving the silos.



Maintain a safe distance from the load during loading and unloading. Only authorized personnel should handle or intervene with the equipment.

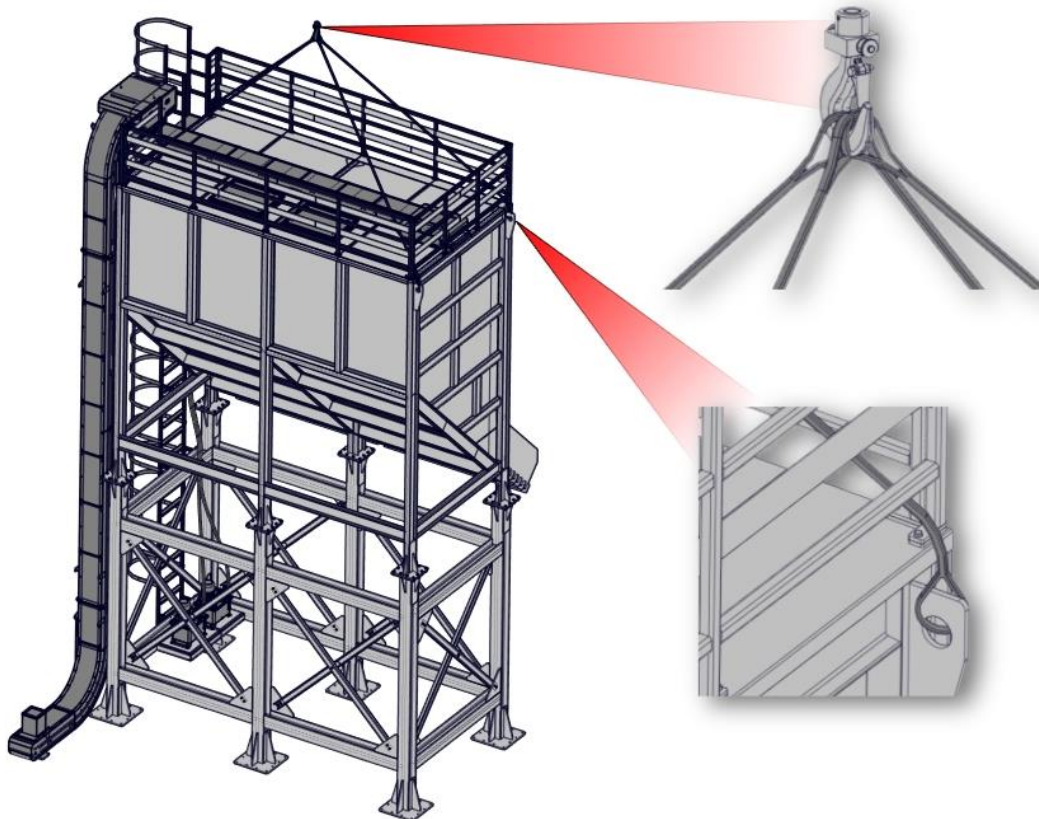


FIGURE 1.5.1






















2 Chip Silo Description and Components

Chip silos are designed for the storage and discharge of long, short, and spiral chips from CNC machines, as well as scrap metal sheets from presses.

They generally consist of three main components: the hydraulic cover, silo chassis, and chip-feeding conveyors. The operator should open the hydraulic covers via the control panel to discharge the silo when it is filled with semi-finished products or chips, following a warning from the filling sensor inside the silo. Ensure that the area around the chip silo is safe before starting operation.


The chip silo is intended solely for the storage and discharge of chips and should never be used for transporting or storing living individuals. It is dangerous to come into contact with the silo's moving parts or close to the cabin while it is operating.

2.1 Suitable Chip Types

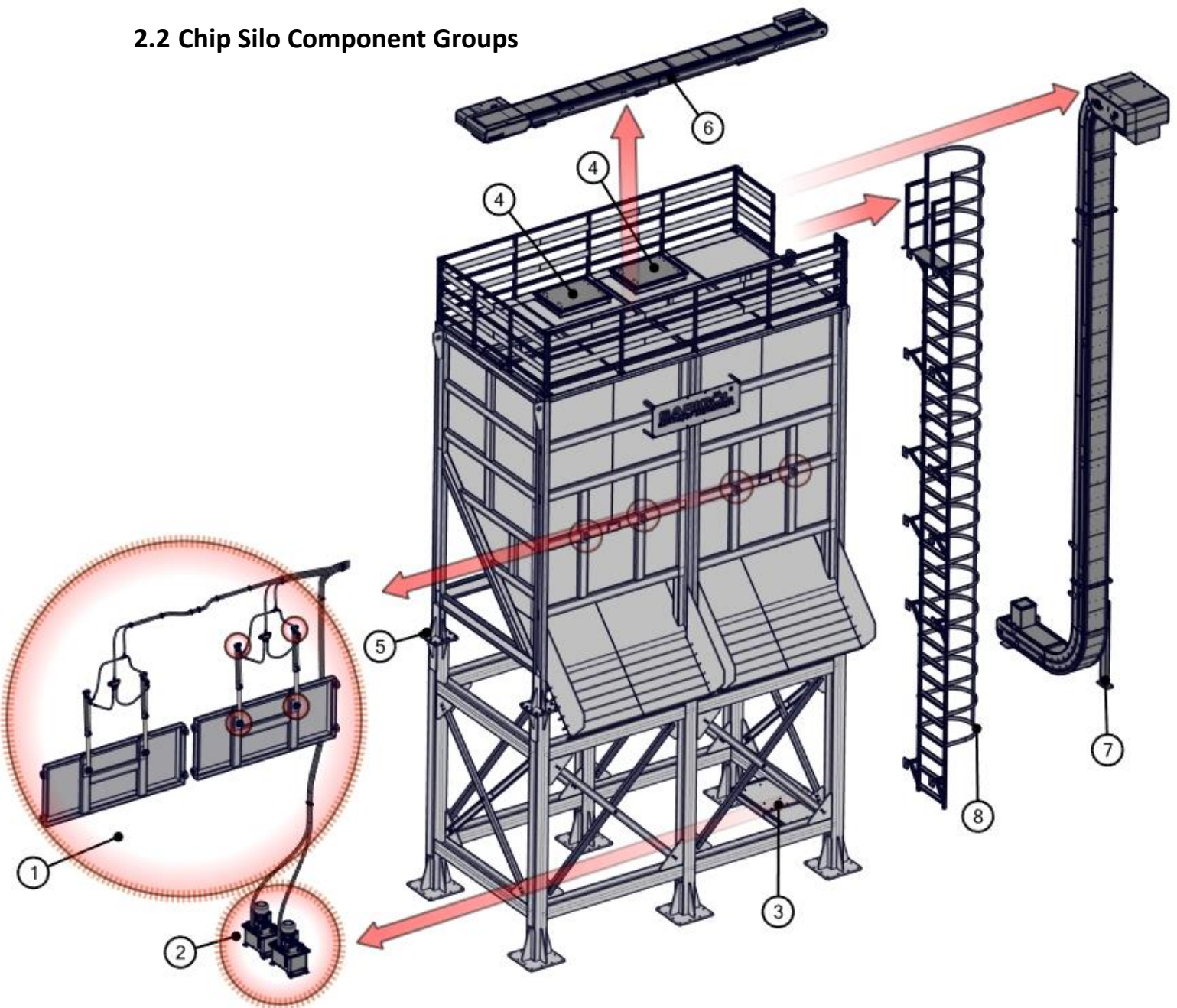
<u>Long</u>	<u>Short</u>	<u>Spiral</u>
		
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Do not touch the chips with bare hands!

Use personal protection!

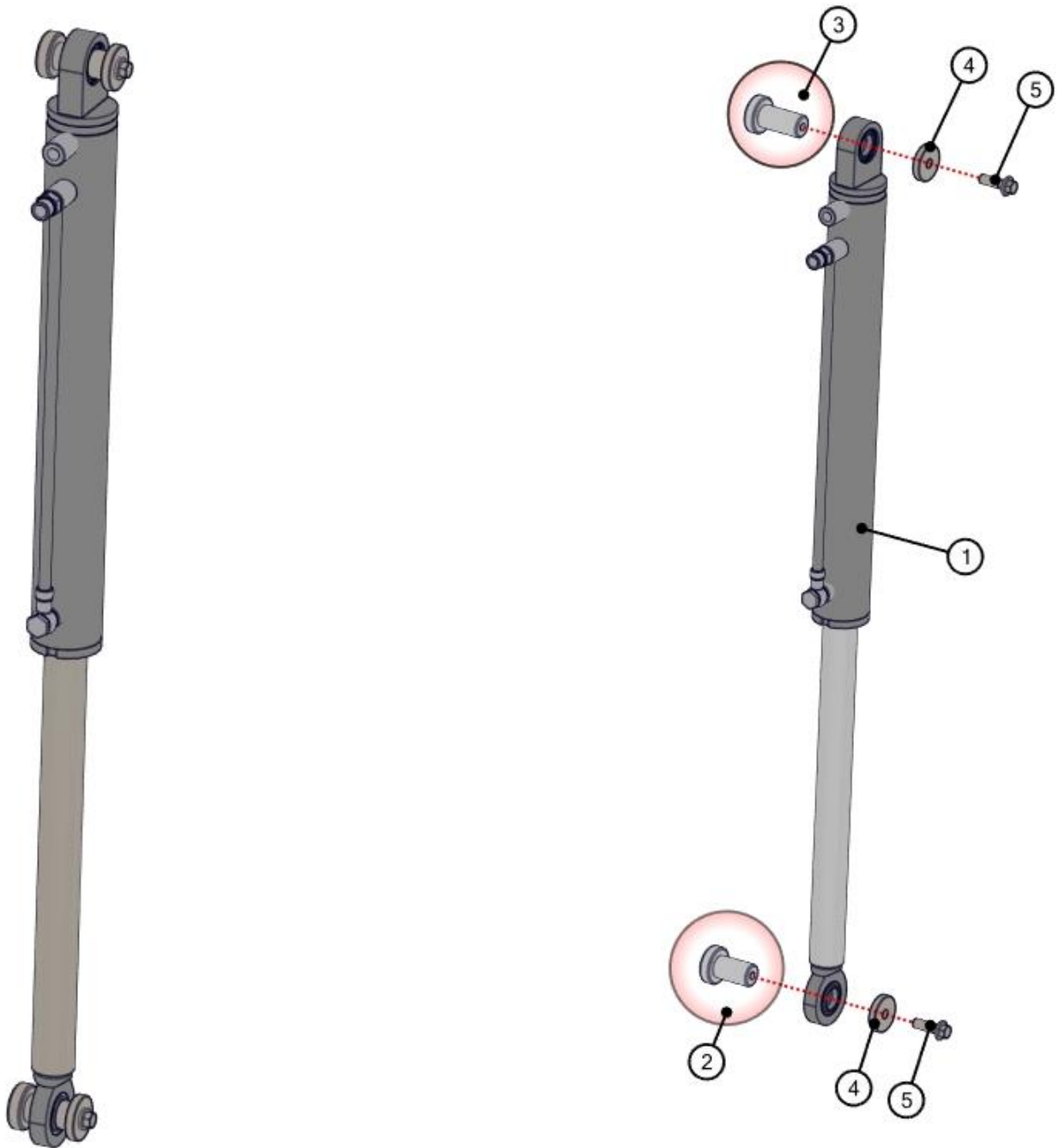


2.2 Chip Silo Component Groups



BALLOON NO	GROUPS
1	Hydraulic Cover Lifting Group
2	Hydraulic Fluid Tank Group
3	Hydraulic Fluid Tank Group Mounting Platform
4	Silo Maintenance Cover
5	Chassis Main Body Connection Group
6	Silo Feeding Upper Conveyor
7	Silo Feeding Conveyor
8	Stair Group

2.2.1 Hydraulic Cover Lifting Group



BALLOON NO	ITEM NO	DESCRIPTION	MİKTAR
1	150-01-3417	HYDRAULIC CYLINDER	2
2	150-01-0811	UPPER CONNECTING SHAFT	2
3	150-01-0811	LOWER CONNECTING SHAFT	2
4	150-01-3091	STAMP	4
5	150-01-0056	BOLT FULL TEETH WHITE DIN 933 (M12X30)	4

3 Installation and Assembly

3.1 Chip Silo Installation, Connections and Operation

To transport the chip silo to the installation area using a forklift, the forklift should lift the silo by entering from underneath the euro pallet at the bottom. If using a crane, the silo should be lifted by tying ropes to the lifting eyes.

Once at the installation site, the chip silo should be balanced and securely fixed to the ground.

During filling, the chip silo will be loaded through feeding conveyors, and the hydraulic covers must remain closed. Leaving the covers open can lead to an unsanitary working environment due to chips or debris.

Before operating the chip silo covers, ensure that a container is properly positioned underneath for the discharge process and that a safe area is established. This is essential for carrying out the chip discharge safely.



There must be a grounding line in the working area of the silo; never supply power without proper grounding. Grounding faults can lead to accidents and injuries. Always use a yellow-green cable (standard) for grounding and never use cables of any other color.

Check the electrical connections and motor current, as loose connections can be hazardous. Verify the machine's working direction to ensure it is not operating in reverse.

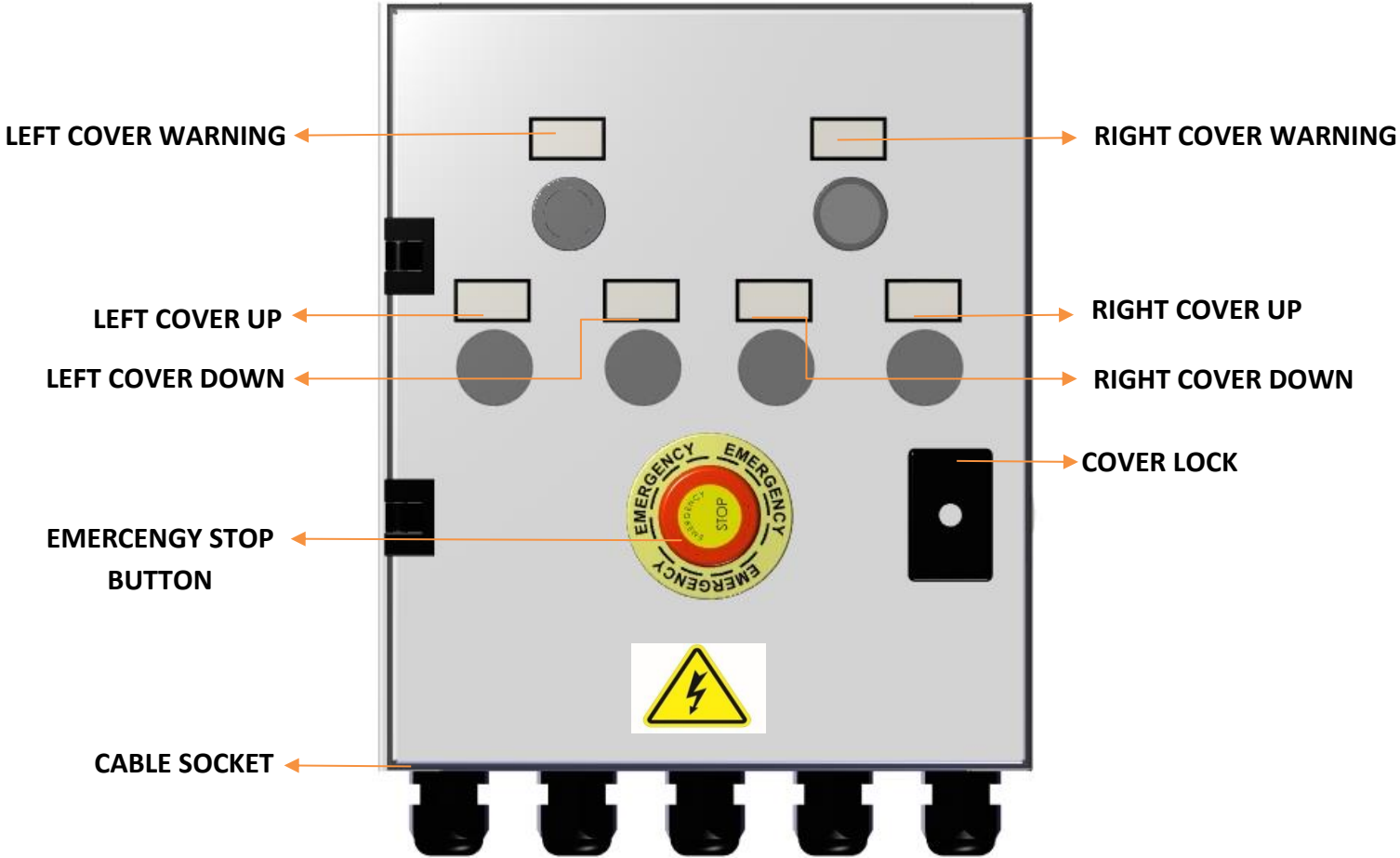
There are buttons on the chip silo so that the hydraulic covers can move. There are two cover groups; the right cover and the left cover.

For the right cover, there are manual movement buttons as right upward and right downward. Also, there are manual movement buttons to the left upward and left downward for the left cover.

In case of malfunction, there are right and left buzzer alarm lamps that show the warning.

There is one emergency stop button to intervene in case of malfunction.

3.2 Electrical Panel



3.3 Chip Silo Safety

The chip silo is controlled using the direction buttons on the panel.

An emergency stop button is located on the panel of the silo body to halt the silo covers in case of an emergency.

If the hydraulic covers do not restart after the chip silo has been emptied, check the warning signal lamp. If the warning lamp for the closed hydraulic covers is not illuminated, the silo is in a safety mode. In this case, follow these steps:

- Check the emergency stop button.
- Inspect the silo's hydraulic covers.
- Adhere to safety procedures in areas with stairs and railings around the silo, and follow the warning labels.

During silo maintenance, ensure that the feeding conveyors are de-energized, closed, and completely stopped.

4 MAINTENANCE

4.1 Weekly Maintenance

- Maintenance periods other than routine cleaning and weekly maintenance vary according to operating conditions. The main parts that require periodic maintenance in the chip silo are the hydraulic cover arms, hydraulic fluid tank, and silo filling sensor.
- Be sure to lubricate all zerk fittings on the chip silo.
- Check the bolt connections.
- Check that all sensors on the chip silo are in working order.

4.2 Monthly Maintenance

- Monthly maintenance of the chip silo should be performed routinely.
- All valves on the hydraulic unit should be checked.
- The hydraulic oil level should be monitored.
- Important components, such as sealing gaskets in the system, should be replaced as needed. Address any leaks promptly.
- Hydraulic circuit elements should be protected from external factors such as water, humidity, and impact.
- Check the safety switches. If any switch is malfunctioning, replace it with a new one.
- Verify the operation of the hydraulic pistons.
- In case of wear, breakage, or rupture, notify and inform the manufacturer immediately.

4.3 Troubleshooting

WARNING!

The unit must be shut down and electrically isolated before any corrective actions are taken. Electrical maintenance and repairs should only be performed by qualified personnel.



Problem	Possible Situations	What Needs to be Done
5.4.1 <ul style="list-style-type: none"> Hydraulic motor failure. 	<ul style="list-style-type: none"> Thermic tripped. Overload. Phase deficiency. 	<ul style="list-style-type: none"> Thermic control. Current control. Phase control.
5.4.2 <ul style="list-style-type: none"> Valve malfunction. 	<ul style="list-style-type: none"> Valve failure 	<ul style="list-style-type: none"> Check the valves. Change the valves.
5.4.3 <ul style="list-style-type: none"> Hydraulic cylinders are not working. 	<ul style="list-style-type: none"> Valve failure Switch deficiency 	<ul style="list-style-type: none"> Check the valves. Check the switches. Check the oil pressure.
5.4.4 <ul style="list-style-type: none"> Oil leakage. 	<ul style="list-style-type: none"> Hydraulic pipes are leaking Connection points are leaking 	<ul style="list-style-type: none"> Check the pipes and the connection points. Change the malformed parts.
5.4.5 <ul style="list-style-type: none"> The hydraulic cylinders operate in different directions. 	<ul style="list-style-type: none"> Valve ports are connected incorrectly. 	<ul style="list-style-type: none"> Check the valve connection directions.
5.4.6 <ul style="list-style-type: none"> There is a noise coming from the hydraulic cover lifting group. 	<ul style="list-style-type: none"> The bearing may be broken. The cover bearing movement area oil may be low. 	<ul style="list-style-type: none"> Replace the defective bearing or the entire bearing set. Lubricate the movement area of the cover bearings.

5 About Malfunction

5.1 General Explanations

The information in this booklet is based on the experiences gained from service work and factory tests. The symptoms and causes of malfunctions are outlined according to reports from our service companies and the observations of service technicians. Conducting a detailed visual inspection is beneficial for identifying problems. Careful monitoring of the malfunction helps prevent unwanted damages during repairs.

First of all:

- Check the electrical connections for looseness.
- Inspect parts that may be affected by short circuits or heat.

If the problem persists despite following the solutions outlined in this booklet, please contact our company.

Having our company handle all fault resolution, maintenance, and repair work is the best way to ensure the efficiency and safety of your conveyor system and business operations. Taking action without proper knowledge may lead to incorrect results, unnecessary downtime, or costly damage.



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