

**BİRİKİM MÜHENDİSLİK**  
ve ENDÜSTRİYEL YÜKLENİM LİMİTED ŞİRKETİ

# **SCREW (HELEZON) CONVEYORS**

**(OPERATING, MAINTENANCE AND  
SERVICE INFORMATIONS,  
TECHNICAL FILES)**

**CE**

## **TECHNICAL FILE SECTIONS**

### **I. WARNINGS**

### **II. MAINTENANCE AND SERVICE INFORMATIONS**

### **III. INSTRUCTION MANUAL**

#### **NOTES:**

This file includes safety rules, instructions of how to use the machine and maintenance information aside from introduction of the machine.

By examining this file you will get sufficient information about the machine, with that you can use machine without harming you, others or your machine.

If you follow the instructions in this file, your machine's safety and service life will increase, your repair cost and repair time will decrease.

This document is prepared for machine-related operators(user, maintenance and service personnel)

You should always preserve near the machine. It should be stored near the machine.

You should always use replacement parts recommended by **BIRIKIM ENGINEERING** Company.

**It should be noted that malfunctions and breakdowns due to the reasons below will not be covered by warranty :**

Operator errors

Inadequate and incomplete maintenance

Fault intervention in case of any malfunction

Fire, flood, earthquake etc. damage caused by external factors.

**BIRIKIM ENGINEERING reserves the right to change the values in this manual.**

*PART 1*

*WARNINGS*

## **IMPORTANT!**

**It is highly important regarding the safety that the persons who will install, use, adjust and maintenance tasks for the Screw Conveyor or who will deal with the equipment in any manner should carefully read the warnings indicated in this document and should comply with these warnings for safety.**

**The instructions contained in this document should be fully understood by the relevant persons. Any instructions / warnings that are not well understood due to the wording differences or other reasons should urgently be reported BIRIKIM ENGINEERING Company**

**Furthermore, care should be taken to avoid damage to the warning labels and signs on the units when installing, using, adjusting and maintenance of the equipment, and these labels and signs should be replaced if they are worn out to the extent they are illegible.**

**It should not be forgotten that any failures originating from any operator errors, inadequate and incomplete maintenance, faulty spare parts and material defects are not covered by warranty.**



**THIS DOCUMENT SHOULD ALWAYS BE KEPT AT A PLACE THAT IS EASILY ACCESSIBLE BY THE RELEVANT OPERATOR, AND IF POSSIBLE, ON THE EQUIPMENT**

**The meanings of the signs and symbols used in this manual**



Read the written instructions



Do not operate without the guards



Warning



Watch out your hands



Use gloves



Electrical hazard

### 3.1. General Warnings

<b>Warning</b>	
	<p>Screw Conveyor is designed and manufactured in order to carry the materials listed in Section 1. Transporting any materials other than those specified herein may be hazardous or may damage the equipment. BIRIKIM ENGINEERING should be consulted when intending to transport any other materials.</p> <p>The equipment must not be used in potentially explosive atmosphere and in underground areas.</p>

### 3.2. Warnings Regarding Transportation and Installation

	<p>Serious injuries may occur in case of failure to comply with the following rules during the loading the equipments or their components on the transport vehicles and unloading them from the vehicles, moving them to the assembly sites, and during the installation procedures:</p>
	<p>The weights of the equipment components are indicated on those components. Proper handling tools should be used with the specified weight.</p> <p>The location where the equipment should be appropriately prepared. The feet connections of the Screw Conveyor specified in the projects must be prepared. If necessary, the floor should be strengthened and appropriate fasteners should be used.</p>
	<p>It is absolutely necessary to wear hand-protection gloves in order to protect the hands from sharp edges during the transportation and installation of the product.</p> <p>Certain components of the product (engines, etc.) may be too heavy to be carried by a person. Special care should be given when these parts are lifted and moved, and if necessary, proper lifting and handling tools should be used.</p>

### 3.3. Warnings Related with the first Start-up and Settings

	<p>Before starting-up the equipment, sufficient grounding should be ensured against the dangers associated with the electrical power supply.</p>
	<p>Before the first start-up of the machine, it should be ensured that all assembly operations have been completed.</p> <p>Bearings and ball-bearings should be lubricated. Helezon Conveyor is operated after the conveyor subjected to a stop-start run sequence. <u>Intermediate bearing</u>, engine, wheels and screw are checked.</p>

### 3.4. Warnings Related with the Operation

	<p>After a power outage for any reason, it must be ensured that the equipment does not run by itself automatically. It is recommended to switch off the power supply or to use automatic on-off switches during power outages against the power outage caused by such a situation.</p> <p>There is no audible or light warning system Indicating that the equipment is running. Therefore, the person who turns on the switch for the operation of the equipment must make sure that the equipment is not maintained or no one is in contact with the equipment at that time.</p>
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### 3.5. Warnings Related with Maintenance and Service

  	<p>Power supply should be disconnected on the main switch and power switch, and an information sign indicating “UNDER MAINTENANCE” or similar message should be placed on the main switch.</p> <p>When the equipment is de-energized, it must be ensured that all components should be stopped before any contact with the equipment.</p> <p>If it is needed to operate the equipment during the maintenance works, necessary measures should be taken against the parts that can be thrown out, and protective equipments such as gloves, goggles and helmets should be used.</p> <p>Protective gloves should be put on against the risk of contact with sharp-edges during maintenance works.</p> <p>Certain components of the product (engines, etc.) may be too heavy to be carried by a person. Special care should be given when these parts are lifted and moved, and if necessary, proper lifting and handling tools should be used.</p>
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### 3.6. Warnings Relevant with Periodic Inspection and Replacement Parts

	<p>The corrosion likely to occur over time in all components of the equipment must be checked periodically.</p> <p>Mobile locations where the moving parts are present and bearings must be lubricated regularly.</p> <p>All electrical equipment of the machines (switches, cables, connection elements) should be checked periodically against wears, cracks and breakage and should be replaced if necessary.</p> <p>The oils of the pulleys and the roller bearings should be replaced depending on the lifetime of the oil used, and the lubrication should be made at the specified periods.</p>
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## **PART 2**

# **MAINTENANCE AND SERVICE INSTRUCTIONS**

### **IMPORTANT!**

**It is highly important regarding the usage life and the safety of the equipment that the persons who will use the equipment should carefully read the warnings indicated in this document and should comply with these warnings.**

**The instructions contained in this document should be fully understood by the user.**

**Any instructions / warnings that are not well understood due to the wording differences or other reasons should urgently be reported BIRIKIM ENGINEERING Company.**

**Furthermore, care should be taken to avoid damage to the warning labels and signs on the units when using the equipment, and these labels and signs should be replaced if they are worn out to the extent they are illegible.**



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## 5.1. Preparation for maintenance

Power supply should be disconnected on the main switch and power switch, and an information sign indicating "UNDER MAINTENANCE" or similar message should be placed on the main switch.

When the equipment is de-energized, it must be ensured that all components should be stopped before any contact with the equipment.

If it is needed to operate the equipment during the maintenance works, necessary measures should be taken against the parts that can be thrown out, and protective equipments such as gloves, goggles and helmets should be used.

Protective gloves should be put on against the risk of contact with sharp-edges during maintenance works.

## 5.2. Daily Maintenance

- Visually check that there is any damage at the entry and exit chutes, intermediate bearings, shaft and cover, screw length or at the engine. If necessary immediately repair it.
- Visually check the coupling etc. which makes the connection with engine and screw conveyor.
- Check if screw length can rotate or not.
- Since the abnormal noises are the signs of major problems, you have to investigate the causes immediately.
- Be careful not to overload the Screw Conveyor.

## 5.3. Weekly Maintenance

- Check the Intermediate bearings. Adjust if necessary.
- Replace the worn scrapers.
- Check the fasteners.
- Check whether all safety and control devices operate properly.

## 5.4. Three Monthly Maintenance

- Check whether the bolt connections in the frame of the conveyor are loose or not.

## 5.5. Yıllık Bakım / Annual Maintenance

- All bolt connections are checked.
- Engine and intermediate bearing are checked
- Screw conveyor's screw, intermediate bearings and guards are checked.

### FAILURES OF THE SCREW CONVEYOR, THEIR CAUSES AND SOLUTIONS

COMPLAINTS	CAUSE	COMPLAINTS	CAUSE
Possible events, in order		Possible events, in order	
Excessive noise in the screw conveyor	1 2 3 4 5	Noise coming from Intermediate Bearings	1 2 3 4 5
Overly vibrated operation of the Screw Conveyor	1 2 3 4	Blockage in the screw conveyor	1 2 3 4
Falling of Intermediate Bearings	1 4		

1. **Connections made improperly** – After operation for a while, stop the screw conveyor and tighten fasteners again. Repeat the connection if the connection have not been made in accordance with the instructions. Check the connections at regular intervals.
2. **Very high conveyor speeds** - Reduce the conveyor speed.
3. **Worn or broken Screws** – Replace the screw pipe with a new one. If there are cracks, weld it with an appropriate electrode. Consult BIRIKIM ENGINEERING Company.
4. **Worn and deformed screw conveyor intermediate bearing and connection shafts** – All connection shafts and intermediate bearing should checked. Do not neglect lubrication.
5. **Improper storage conditions** – Take the manufacturer's storage recommendations as the reference.
6. **Material accumulation** – Pay more attention the daily cleaning.
7. **Relative loading speed is too high or too low** - Revise the chutes and belt speed.

## **PART 3**

# **USER INSTRUCTIONS**

### **IMPORTANT!**

**It is highly important regarding the safety that the persons who will use the equipment should carefully read the warnings indicated in this document and should comply with these warnings.**

**The instructions contained in this document should be fully understood by the user.**

**Any instructions / warnings that are not well understood due to the wording differences or other reasons should urgently be reported BIRIKIM ENGINEERING Company.**

**Furthermore, care should be taken to avoid damage to the warning labels and signs on the units when using the equipment, and these labels and signs should be replaced if they are worn out to the extent they are illegible.**



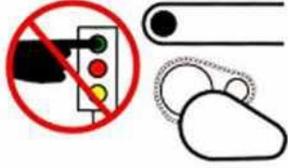
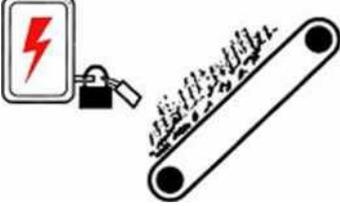
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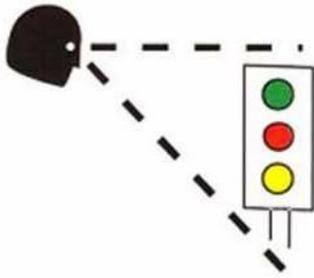
#### 4.1. Installation of the Equipment and Preparation for Operation

	<p><b>Removing the Equipment Components from the Packaging</b></p> <p>Equipment components may have been shipped, depending on their sizes, in a box, with wooden palettes or in a bare form. The equipment should be removed from the packaging, if any, before the installation, and care must be taken to avoid damaging the outer surfaces of the components during this task.</p> <p>Do not forget to use the right hawser and the correct method for the transport of the materials. Material weights are indicated on the packages, in packing lists, and may be forwarded in the electronic media (if so requested).</p>
	<p>Do not forget to request a supervisor to perform the installation from BIRIKIM ENGINEERING.</p>
	<p>Do not start any installation work unless reading the instructions for Maintenance and Security. If there are issues that are not well understood in the instructions, please consult your supervisor or request information from BIRIKIM ENGINEERING.</p>
	<p>Perform the installation of the materials at the mounting site in the following order:</p> <ul style="list-style-type: none"> <li>- Mount the chassis of Apron Conveyor in accordance with the technical drawings.</li> <li>- Check all of the fasteners. Check bearing and motor-reduction gear's oil.</li> <li>- Make sure that all screw connections have been made completely without missing.</li> </ul>
	<p>Electrical connections of the motor-reduction gear should be made by qualified personnel, selecting an appropriate cable diameter and completing the ground connection. For the compliance of the connection, please read the documentation provided by the manufacturer of the motor-reduction gear unit.</p>
	<p>Check if all the guards and protectors that are made for Apron conveyors are fully installed.</p>
	<p>Absolutely perform the following checks before the first operation of the equipment:</p> <ul style="list-style-type: none"> <li>- All screw connections should be checked and those loose ones should be tightened accordingly.</li> <li>- Adjust the rubber of the belt using the tensioning device. Ensure that the Apron Conveyor is not very tight or loose and it is in a normal tension.</li> <li>- Check the motor-gearbox unit and the oil of the bed, and top up If any oil is missing.</li> </ul>

## 4.2. Operation and Use of Equipment

It is absolutely recommended to take into account the following warnings during the use of the Fixed Belt Conveyor equipment, and to consult BIRIKIM ENGINEERING company in case of any incomprehensible or abnormal conditions in order to ensure the safe use, environment and personnel health and safety.

 <p><b>Never climb, sit, walk on the conveyor or ride it or touch it.</b></p>	 <p><b>Do not perform any maintenance work on the conveyor before turning off the electricity, air, hydraulic and energy supplies.</b></p>	 <p><b>Conveyor should be operated only after all the guards and covers are fixed into their places.</b></p>
 <p><b>Before the maintenance jobs, power supply should be disconnected and free loads should be secured.</b></p>	 <p><b>Make sure all the personnel are kept away before starting up the conveyor.</b></p>	 <p><b>Only authorized personnel should operate the conveyor or perform the maintenance.</b></p>
 <p><b>Clothing, parts of the body and hair should be kept away from the conveyor.</b></p>	 <p><b>Debris around loading points, tail drum and pulleys should be removed only after the power supply is cut off and protections measures are taken.</b></p>	 <p><b>Do not alter or disable the settings of the conveyor controls.</b></p>



**All the control devices should be kept visible and in an accessible state.**



**Do not alter or remove the controls, guards, warning and other safety components of the conveyor the permission of the manufacturer.**



**All the dangerous situations should be reported.**