



Tsurumi Automatic Bar Screen

KM / KMA / KMS series

INSTRUCTION MANUAL

INTRODUCTION

Thank you for selecting the Tsurumi KM/KMA/KMS automatic bar screen.



This instruction manual explains the product operation and gives important precautions regarding its safe use. Note that the manufacturer cannot be responsible for accidents arising because the product was not used as prescribed. After reading this instruction manual, keep it nearby as a reference in case questions arise during use.

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1. Safety Precautions

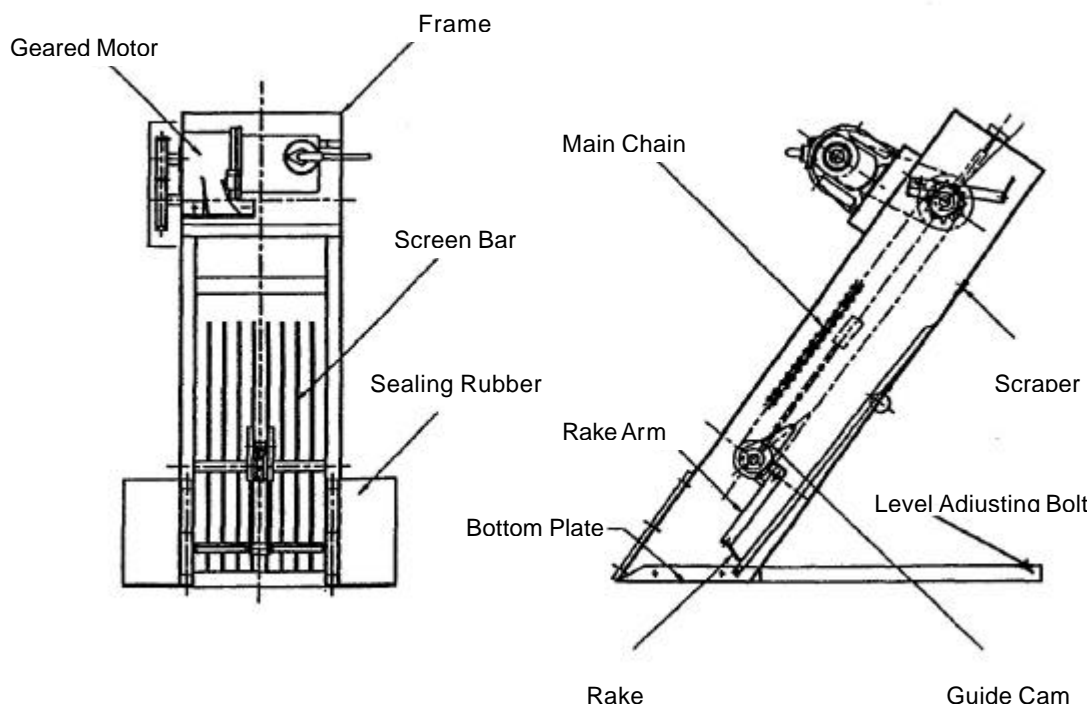
Type of Warning Term and The Meaning

In this manual, risks to personal or equipment are classified into two types according to the degree of the risk. You are requested to recognize the meaning of each term and to follow the instructions.

Warning Terms	Meanings
 Warning	This indicates that there is a potential of risk, and alert you to the possibility of severe injury or loss of life, if instructions are not followed.
 Caution	This indicates that there is a potential of risk, and alert you to the possibility of injury, if instructions are not followed.

2. Name of Parts

KM, KMA, or KMS type screen can be named as “rear screen type” or “front raking type” as the screen bars are positioned at the rear side of the body or as the rake operates in front of the screen bars. This screen features that the solids are hard to be twined around the chain, because the chain is always kept above the water level. (“Dry Chain Type”) This screen is, therefore, suitable for use in a shallow waterway.



3. Prior to Operation

After you receive the Tsurumi Bar Screen, verify the followings:

- (1) Inspect the product for damage during shipment, and make sure all bolts and nuts are tightened properly.
- (2) Check the nameplate of the unit to verify that it is the product that you have ordered. Pay particular attention to its voltage and frequency specifications.

Note: If you discover any damage or discrepancy in the product, please contact the dealer where the equipment was purchased or the Tsurumi sales office in your area.



Caution Do not operate this product under any conditions other than those that have been specified.

4. Installation

Install the product according to the following procedures, referring to the drawings described in Section 2, "Name of Parts":

- (1) Make sure that the screen sump or the place where the screen is to be installed is free of any debris such as concrete chips, sand, or trash.
- (2) Check to be certain that the waterway near the screen has been finished smoothly (walls and bottom surfaces). Projection or dent may result in a difficulty for the installation and/or the efficiency.
- (3) Provide a power source that is exclusive for the screen at the nearest place to the screen. This will ease the wiring work between the power source and the screen.
- (4) Be sure to install the bar screen in the center of the waterway. Make sure that the Sealing Rubber fully contacts the walls and the bottom of the waterway. Use Level Adjusting Bolts when the screen wobbles.



Warning Before starting the installation work, be certain that all the debris has been removed from the waterway.

5. Electrical Wiring & Trial Operation

After installing the bar screen, start the wiring works and a trial operation paying attention to the points described below:



Warning • All electrical work must be performed by an authorized electrician, in compliance with local electrical standards and internal wiring codes. Never allow an unauthorized person to perform electrical work because it is not only against the law, but it can also be extremely dangerous.

- Improper wiring can lead to current leakage, electrical shock or fire.
- Be sure to use a dedicated ground leakage circuit breaker and over-current protector provided exclusively for this unit, to prevent the screen from being damaged. Failure to observe this precaution may lead to current leakage and electrical shock.



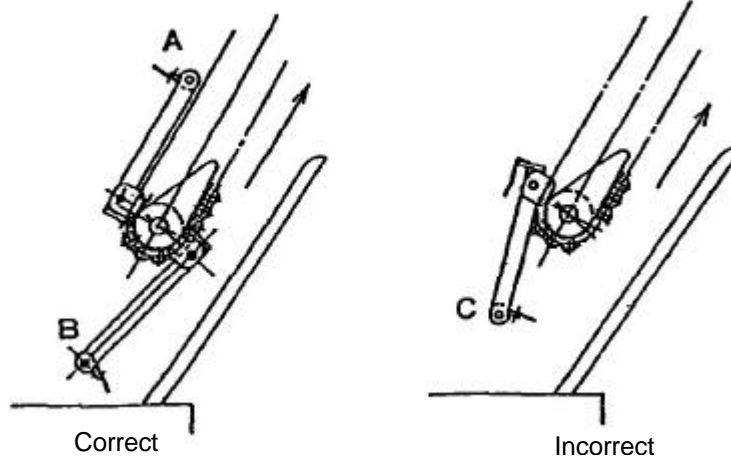
Warning Be sure to install the ground wire securely. Failure to observe this precaution could cause current leakage



Caution Do not connect the ground wire to a gas pipe, water pipe, lightning rod, or telephone ground wire. Improper grounding could cause electrical shock.

- (1) Connect the cable supplied with the screen to the power source. Use a suitable control panel that is furnished with appropriate protection equipment such as earth leakage circuit breaker, thermal overload relay, etc.
- (2) Before trial operation, make sure that the Rake is in the position of "A" or "B" shown in the below figure:

Starting Position



Warning If the screen starts with the Rake being in the "C" position, the Rake will be blocked by the Bottom Plate, which could cause the breakdown of the Rake or other components.

- (3) Operate for a short period (1 to 2 seconds), and make sure that the chain moves in the correct direction.



Warning Never operate the unit in incorrect direction. If the unit is operated in incorrect direction, this may cause a severe damage to the product.

- (4) After checking the direction of rotation, operate the unit for some time to make sure that the running current is below the rated current on the nameplate and that the unit is free from abnormal noise.



Caution Provide a thermal overload relay in the control panel in order to protect the screen from overload. Adjust the setting current according to the rated current on the nameplate.

6. Operation

If no abnormal conditions are found during the trial operation, proceed with the normal operation with water. In this case, be sure to open the gate gradually, watching the water level and the conditions of the screen.

In the early stages when the water runs off, the bar screen may encounter too many or too large solids to handle. Remove such solids by hand if it happens. Measure the running current to make sure if the driving device is not overloaded.

7. Maintenance & Inspection

Conduct the maintenance works periodically according to the following basic instructions:

- (1) Check to be certain that there is no remarkable sedimentation of solids in the screen sump. Pay special attention to the backside of the screen, as the sedimentation of solids here could cause damage to the screen.
- (2) Check for abnormal noise or high temperature of motor (It is normal if the temperature of motor is below 80 deg. C)
- (3) Pay special attention that no solid attaches to the rake, rake arm, guide cam, or screen bars. Twining of fibrous solid may result in an unexpected damage. Remove such solid whenever it is found. Clean the screen bars periodically by a brush.
- (4) Make sure that the main chain is not sagging.

If the chain is found to be sagging, repair it with either of the followings, depending on the difference of its mechanism:

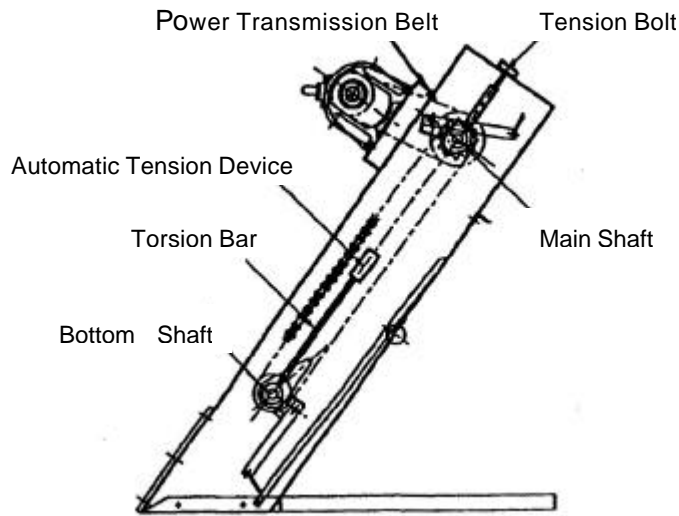
Fixed Shaft Type (KM - S, KMA - S)

These screens have no tension mechanism. If the sagging of chain happens, replace with a new chain set.

Adjustable Type (Other models than above)

Unfasten the lock nuts that are attached to the Tension Bolts located at the top of the body. Fastening the knob enables you to adjust the tension of the chain.

- Adjust the two Tension Bolts equally.
- After adjusting, be sure to fasten the lock nut.



- (5) Make sure that the running current does not exceed the rated current.

Check that the running current of the motor is below the rated current. If it is found to exceed the rated current, stop the operation immediately and remove the cause of the overload.

- (6) Verify that the V-belt always keeps its tension.

You can restore the tension of the V-belt by sliding the Motor Base down. Always keep tension of the V-belt.

8. Replacement of Wearing Parts

The product is mostly operated continuously for a long time. It is, therefore, inevitable that wearing will occur on a certain parts as time goes by. In order to obtain longer and stable operations of the product, it is recommended that such wearing parts be replaced in earlier occasions as well as routine inspection.

- (1) Bearings for Main Shaft (Made of resin)

Inspect the bearings every 2 to 3 years operation. Check visually and replace if deformation or abrasion has occurred.

- (2) Guide Cam (Cast Iron & Resin)

The Guide Cam that is fitted on the Bottom Shaft, is a component exclusively designed for the bar screen. When abrasion is found on the parts. Replace as a "Guide Cam Assembly".

(3) Rake and Scraper

Inspect the sliding part of these parts every 2 to 5 years operation, and replace if abrasion is found.

(4) Screen Bars

Wearing of the Screen Bars occurs at the part where the Rake slides. Replace if a considerable abrasion is found on them.

(5) Main Chain

A long-time operation will bring abrasion to the roller and bushing and consequent elongation of the chain. Inspect the chain periodically. Check visually if the roller rotates normally and if uneven wear does not occur. Replace if such conditions are found as they could cause a breakdown of the chain.



Caution Conduct periodic inspections for the wearing parts, and replace if necessary at earlier opportunities. Excessive wear may result in a severe accident.

9. In Case of Malfunction

In the event of malfunction and if you cannot find the cause of it, contact the dealer where you purchased this equipment. Be sure to report the necessary information such as, the part of damage or breakdown, description of the damage or breakdown, operating condition, model number, serial number, and so on.