

**ECONO CONVEYER
EC-CCZ
OPERATION MANUAL**



STAR SEIKI CO., LTD.

INTRODUCTION

Thank you for purchasing the Star conveyer “ECONO CONVEYER”.

This operation manual describes the conveyer’s functions, how to operate it, and the precautions necessary when using it. Please read this manual thoroughly in order to understand the features of this conveyer better and use it more efficiently.

Features

- Compact structure because of aluminum frame and resin belt used.
 - Can be interlocked with external signals such as your unloader, making it possible to have intermittent operations and change the tact time for moldings with ease.
 - Can be used as a service platform for finishing work because of flat belt surface used.
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1. SAFETY-RELATED INFORMATION


1-1. Safety-Precaution Indications

■ Danger Level Symbols

The safety precautions in this manual are classified into the following three levels.

 DANGER	Failure to follow this safety precaution may result in great physical danger to the operator, or even death.
 WARNING	Failure to follow this safety precaution may result in great physical danger to the operator, or severe damage to the equipment.
 CAUTION	Failure to follow this safety precaution may result in injury to the operator, or damage to the equipment.

■ About Important Points

Important points on handling are indicated with  in the manual.

1-2. Safety Precautions



DANGER

PROHIBITING WORKER TO RIDE ON CONVEYER

Never attempt to ride on the conveyer. If the worker rides on the conveyer, it may cause the risk of making the conveyer unstable and so fall down, getting the worker injured.

DO NOT PERFORM MAINTENANCE WHILE CONVEYER IS RUNNING!

Never attempt to service or perform maintenance on the conveyer while it is running. Before carrying out maintenance, be sure to shut down the machinery as follows: (1) Shut down the air supply. (2) Switch off the POWER switch in the control box. (3) Cut the power breaker.



WARNING

Wear appropriate work clothes.

Do not wear bulky clothing and accessories when working at the conveyer, as these may be caught in the machinery, getting the worker seriously injured.

Do not attempt to modify the conveyer.

Do not redesign, rebuild, or otherwise modify the conveyer. The manufacturer cannot be responsible for accidents or damage caused by modified equipment.

Be sure to ground the conveyer.

Use a No.3 ground setup to help reduce the risk of electric shock at installation. Also, after moving the conveyer to another place or performing periodic inspection, make sure that the specified ground setup has been done.

Use a non-fuse circuit breaker.

To avoid the risk of fire due to overcurrent, include a non-fuse circuit breaker in the wiring leading to the power source.

Do not open the cover on the power box.

High voltages are present within the power box. Opening the cover may lead to serious electric shock.

Do not remove the chain cover for operation.

Operating the conveyer with the chain cover removed may cause the risk of getting the worker caught or pinched in the machinery.

Do not touch the conveyer belt while it is running.

Never put your hands inside the conveyer belt while it is moving. Doing so may cause the risk of getting your hands caught or pinched in the conveyer driving rollers.

Shut down operation during periods of frequent power outage.

The machinery should be shut down during times when power supply is frequently going off due to thunderstorm or other such external event. Operating with an irregular power supply may lead to equipment damage. If you cannot locate the cause of failure, please contact the engineering service personnel of our sales office.



CAUTION

Confirm mutual safety in the case of cooperated work.

When two or more persons jointly work together, be sure to clarify who is responsible and confirm safety by pointing the finger to all safety confirmation places and saying “O.K” if safe before getting operation started, in order to avoid accidents due to miss-operation or safety confirmation failure at manual adjustment.

Secure adequate maintenance space.

For safe operation, please leave at least 1 meter of maintenance space (with empty floor) around the circumference of the conveyer.

Work under bright illumination.

To ensure that work is done safely in setting the conveyer and performing service or maintenance, be sure to work under bright illumination.

Carry out daily maintenance inspections.

Check machinery daily to make sure it is in safe operating condition. Contact STAR SEIKI in the event of problem.

Stop working in the event of breakdown or other problems.

If you think that the conveyer is abnormal or malfunctioned, do not keep working based on your own thought. Simply stop operating it. Be sure to get operation started on the basis of appropriated instructions from our engineering service personnel.

Never touch the switches with wet or dirty hands.

Doing so may cause the risk of not only getting the conveyer malfunctioned but also accidents due to electric shock.

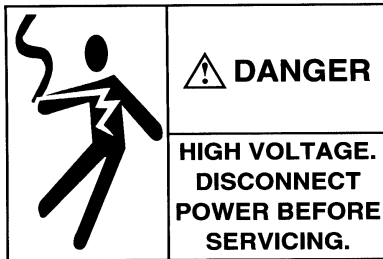
Stop all devices linked to the conveyer during operation.

Before carrying out inspection, repair, adjustment, cleaning or lubrication work in the conveyer's moving range, be sure to shut down not only the conveyer itself but also all devices linked to it, such as your molding machine, etc. A failure to do this may cause the risk of getting the worker seriously injured due to unexpected drive.

■ Kinds of Caution Plates

* Note that some of the caution plates given below are not used on the conveyer.

● Caution for high voltage electrical shock



Make sure to cut off the breaker of controller while maintenance work is being done. Especially during such work for inside the box, disconnect connecting cable with molding machine and cut off primary power supply of the factory.

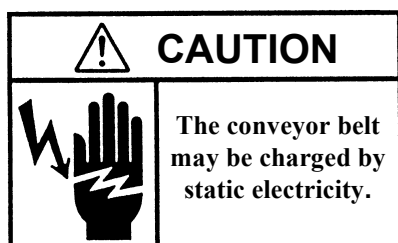
This label can be found at the locations (terminal block, etc.) where special attention is required in the range of high voltage warning.

● Caution for danger of enfolding



To work in moving zone for maintenance or other purposes, do not touch carelessly with such parts as motor, rotary axis, gear, pulley, belt which have danger of enfolding you. Cut off power supply and air pressure to work.

● Caution for static electricity

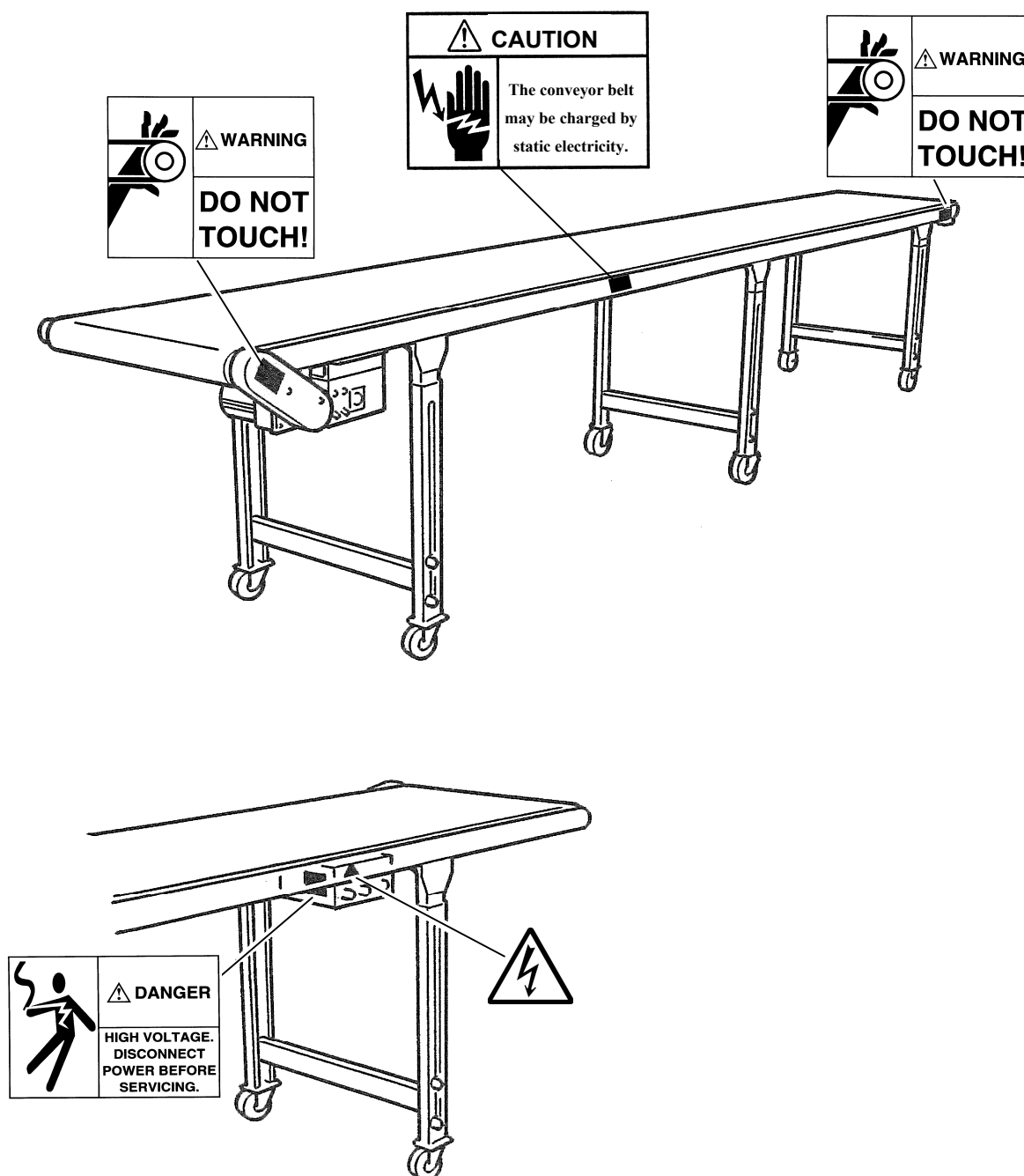


The conveyor belt or the product on the conveyor may be charged by static electricity. You may be shocked by electric when approaching.

1-3. Caution plates

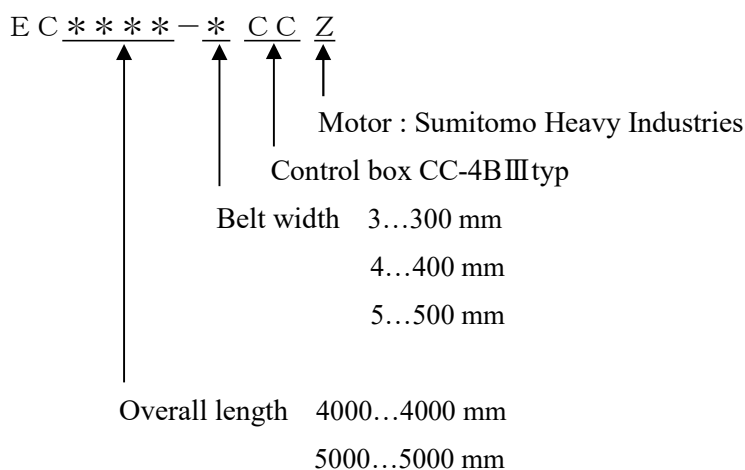
The following diagram shows the location and content of caution plates affixed to the conveyer.

■ Example of caution plates disposition



1-4. Specifications

Model



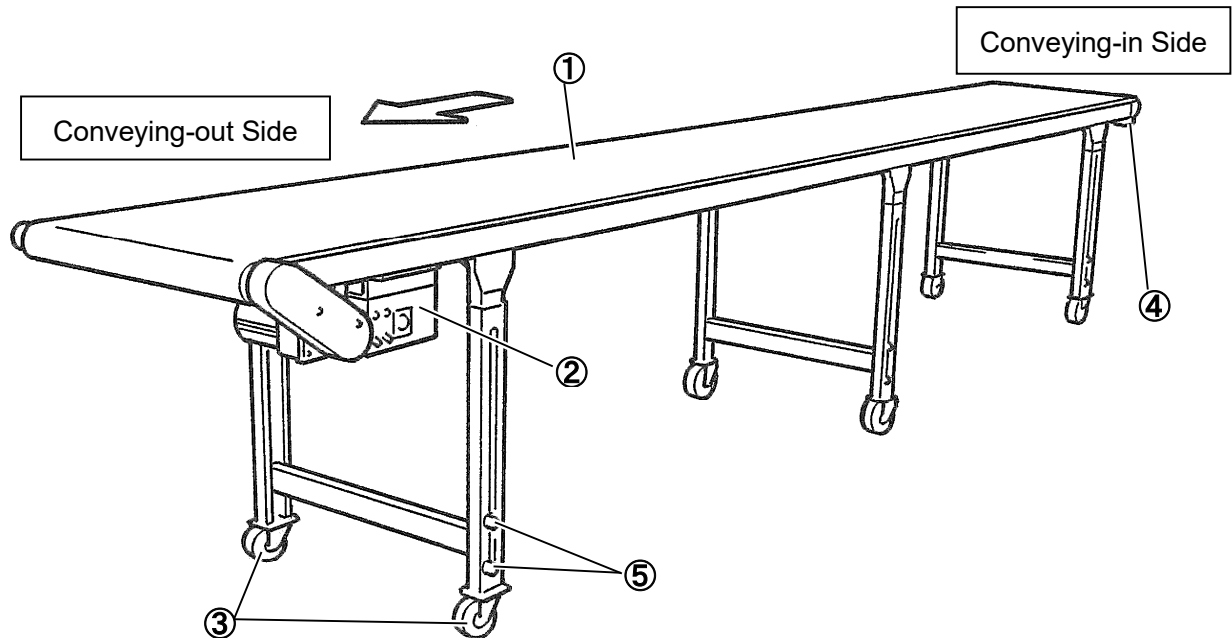
Height m/m	900~1300 Free adjustment
Working electric power	AC200V 40W
Speed	1~3 m/min (60HZ)
Maximum transport weight (horizontal position)[kg]	25(15 When option is mounted)
Total weight [kg]	See accompanying table.
Optional specifications	1002-02 feet + variable speed specifications (1~7.5 m/min 60HZ)

●Overall weight (Kg)

Belt width Overall length	3CCZ	4CCZ	5CCZ	6CCZ
EC2000-	41	44	47	50
EC3000-	47	51	55	58
EC4000-	64	69	74	78
EC5000-	69	75	80	86

2. FEATURES AND THEIR LOCATIONS

2-1. General Structure



① **Conveyor belt**

This is a special belt made from synthetic resin.

② **Control box**

This box is used to set and operate the conveyor drive.

③ **Caster**

These casters are used to move the conveyor. Lock them with the stopper after installing the conveyor in place.

④ **Tension adjusting bolt**

This bolt is used to adjust the conveyor belt if it is loosened. After adjustment, tighten the bolt.

POINT

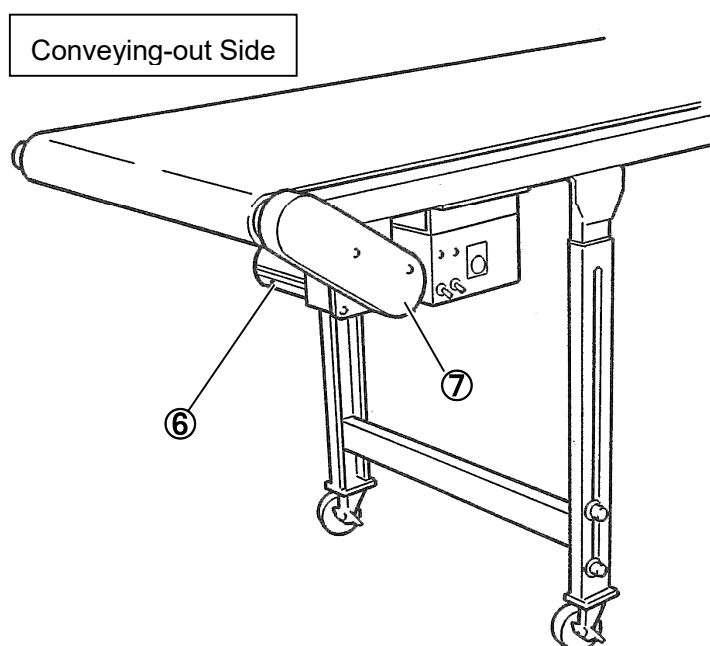


Do not tense the belt too taut.

Adjust the bolts on both sides uniformly.

⑤ **Height adjusting/securing bolt**

To adjust the height of legs, loosen these securing bolts and adjust the height.
After adjustment, tighten the bolts.



⑥ Motor reducer

This is the source of powering up the conveyer. The speed is 1 to 3m per minute (60HZ) (standard type).

POINT



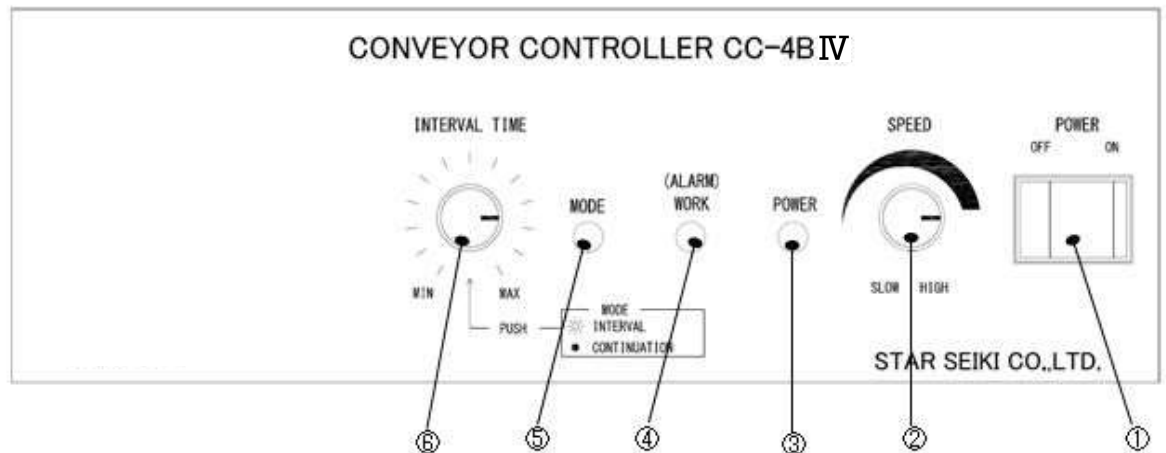
If the conveyer needs to be reversed in rotation, please contact the engineering service personnel of our sales office.

⑦ Chain cover

To adjust, maintain or inspect the chain sprocket, remove this cover.

2-2. Control Box (Operation Panel)

●Standard type (CC-4BIV)



① **Power Switch**

Turn on/off the power of conveyor

② **Speed Setting Switch**

This switch is used to set the speed of product delivery.

Setting range: 1~3m/min

Note: this speed is measured at a frequency of 60Hz.

③ **Power LED**

This LED is on when turning on the power.

④ **Working LED**

The green LED is on when conveyor works normally. The green LED flashes when alarming.

⑤ **Mode LED**

This LED is on when conveyor works in interval mode.

⑥ **Mode Selecting Switch**

This switch is used to shift modes (Press)

- INTERVAL.....Conveyor start signal is input from an Unloader. Conveyor works in the setting time of timer.
- CONTINUATION.....The conveyor works continuously.

Product Delivery Timer (Rotate)

After pressing switch No.6 and select interval mode, please rotate the switch No.6 to set the time interval for the conveyor to deliver products.

Use this knob to set the product feed speed.

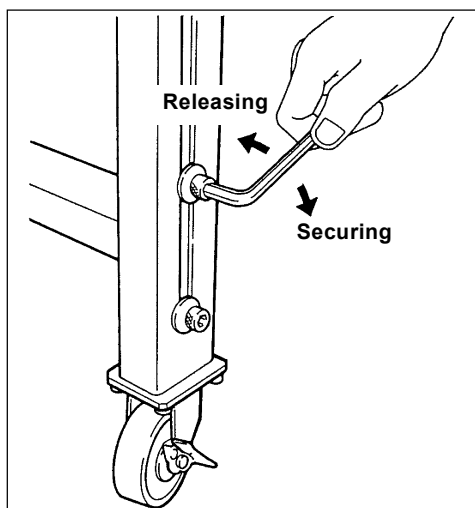
Conveyor speed specified range: 0.25 to 3 m/min (1 to 3 Recommended)

Note : The speed is for 60 Hz.

3. MECHANICAL ADJUSTMENTS

To determine conveyer arrangement, stop the casters and make the following adjustments.

●Height adjustment



Loosen the height adjusting bolts (2 bolts \times 4 to 6 places) located on each leg as shown in the illustration using a hexagon wrench and adjust the conveyer height.

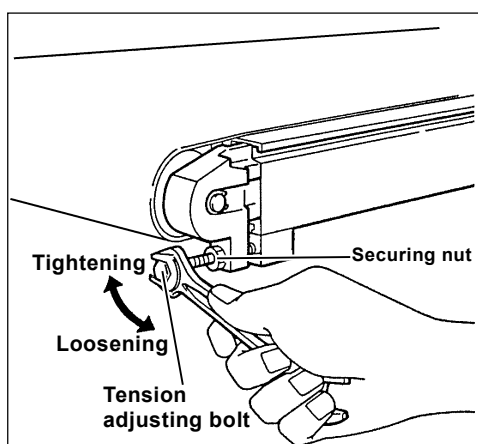
* Note that after adjustment, tighten the bolts.

●Belt tension adjustment



CAUTION

Adjustment should be made only if the conveyer zigzags sideward or only if the conveyer driving rollers run idle during operation. Otherwise, there is no need to make adjustment.



Adjust the belt tension using the tension adjusting bolts at both ends of conveying “IN” side if necessary.

POINT



Do not tense the belt too taut.

Tighten the bolts on both side uniformly for adjustment.

After adjustment, tighten the securing nut.

●What to do after adjustment ...

- ① Wire the power supply and conveyer start signals.



DANGER

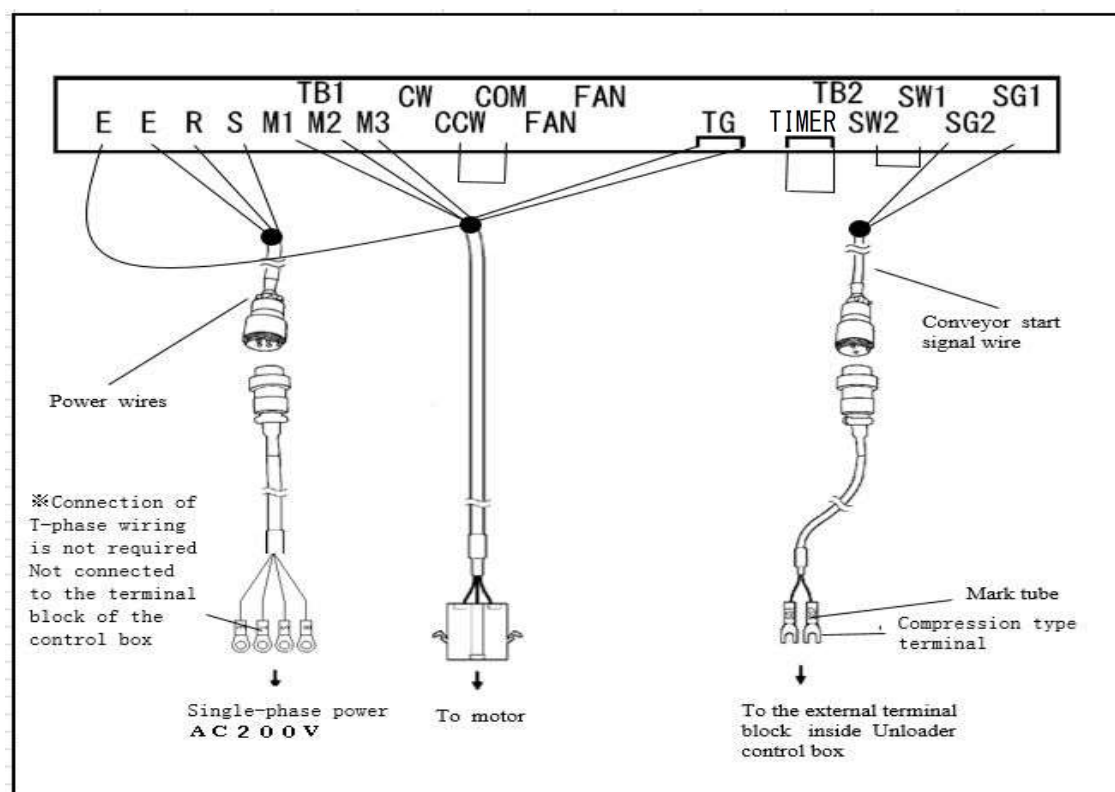
- Before wiring, shut down the supply-or primary-side power supply.
- For how to wire conveyer start signals (SG1 and SG2), see the instruction manual for the control box of your unloader. Also, to input conveyer start signals from other than the unloaders by STAR SEIKI, please contact the engineering service personnel of our sales office before using, because incorrect connection procedure may cause the risk of damaging the electric of the conveyer.



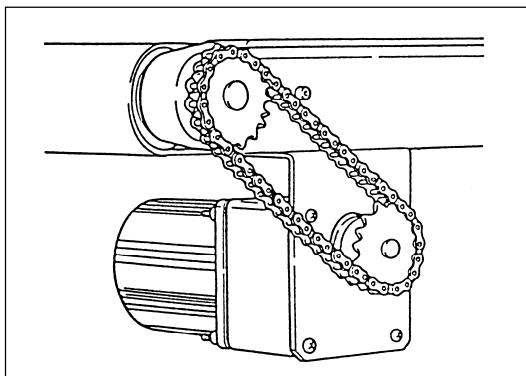
WARNING

Before plugging in or out the metal connectors, shut down the supply. A failure to do this may cause the risk of accidents due to electric shock.

●Standard type



●Maintenance and inspection



Remove the chain cover once every 6 months and apply grease to the chain using brush.

CAUTION

After maintenance or inspection, return the chain cover in place. A failure to do this may cause the risk of getting you caught or pinched in the chain.

4. PARTS LIST

Part Name	Type	Manufacture	Qty
Motor (AC200V)	A9U40C	Sumitomo	1
Condenser	DMF45255	Sumitomo	1
Gear head	G9A90K	Sumitomo	1
Motor (OP AC100V)	A9U40A	Sumitomo	1
Condenser (OP)	DMF251006	Sumitomo	1
Gear head (OP 1~7.5m/min)	G9A36K	Sumitomo	1
Conveyer belt	SL-F1502 ****_***	Bando	1

5. WARRANTY AND AFTER-SALE SERVICE

For information about repairs and other service, refer to the nearest STAR SEIKI business office.

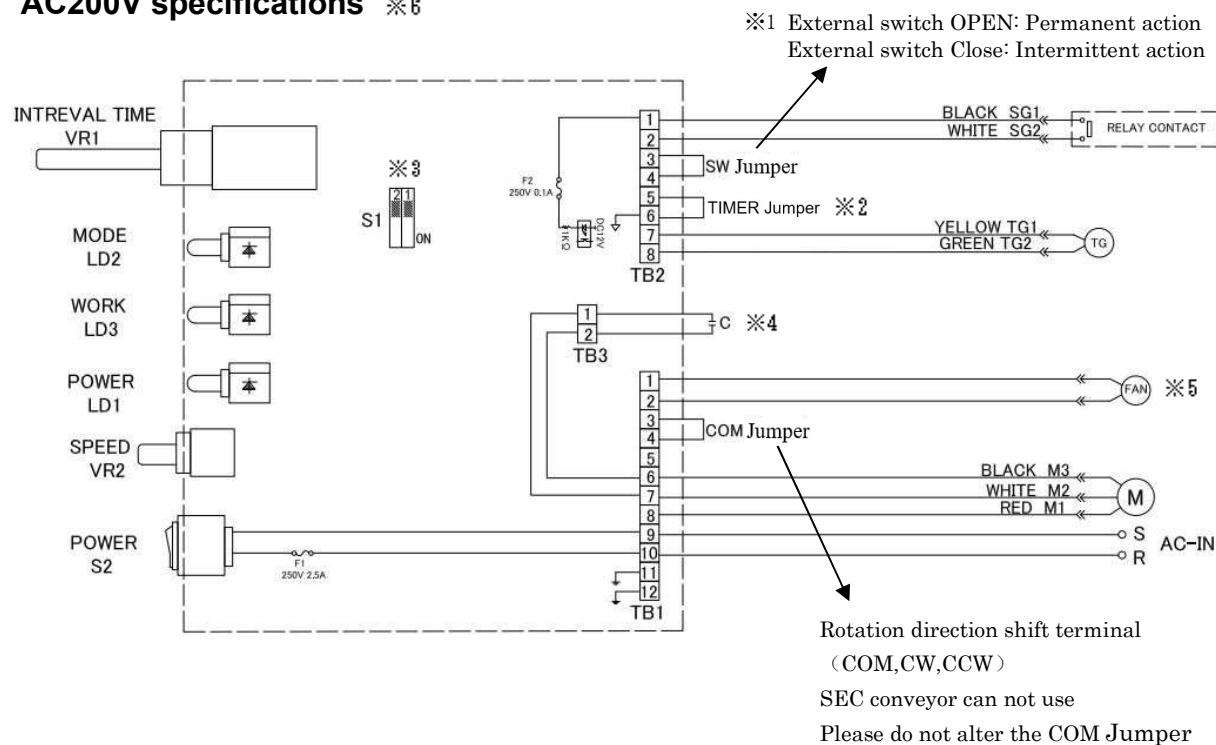
■ Warranty

1. The term of the warranty specified by the contract shall begin upon purchaser's approval of the delivered machine. In principle, the term of warranty shall be six (6) months.
2. Breakdowns that occur within the term of warranty period shall be repaired free of charge, with the exceptions noted immediately below.
3. The following are not covered by the warranty.
 - Breakdown caused by inadequate maintenance or inspection.
 - Damage caused by improper handling of the machine.
 - Damage caused by fire or natural disaster (act of God).
 - Damage related to expendable components (chucking parts, etc.)
 - Damage caused by modification or attempted repair carried out by user. (Refer to Section 1-5 for machine specifications.)

6. ELECTRIC CIRCUIT DIAGRAM

•Econo Conveyor Electric Circuit Diagram (Standard Specifications)

AC200V specifications ※6



※1 Usage method of SW terminal

Under Intermittent action mode, if want to control the conveyor manually, please use SW terminal.
Please use B connection switch.

※2 Time selection

With jumper : Operates for the time set by Interval Time (VR1).

No jumper : Interval Time (VR1) is disabled, and operation is performed while SG1 and 2 are ON.

Use this option if you want to set the operation time from the unloader.

※3 Motor Manufacturer Selection

	S1-1	S1-2	Number of times WORK LED flashes after version is displayed
Sumitomo	OFF	OFF	1 time
Panasonic	OFF	ON	2 time
SPG	ON	OFF	3 time

※4 The capacity of TB3 capacitor (The accessory of the Motor)

100/110V : 10uF/250V

200/220V : 2.5uF/450V

220/240V : 2.0uF/450V

※5 If use 90W (Or above 90W) type of motor, need to connect the fan.

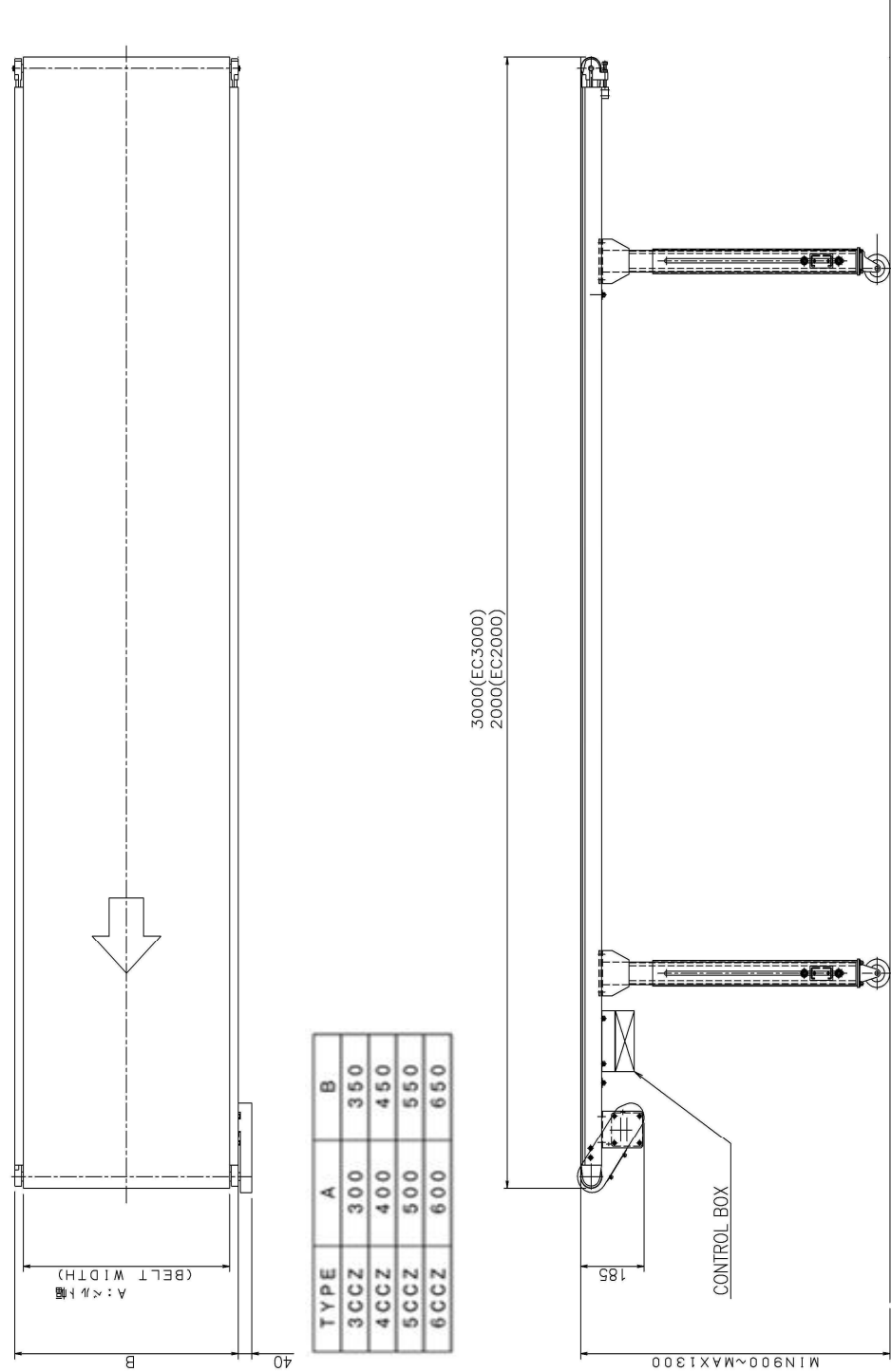
The supply voltage of the fan is the same as the output voltage of the conveyor.

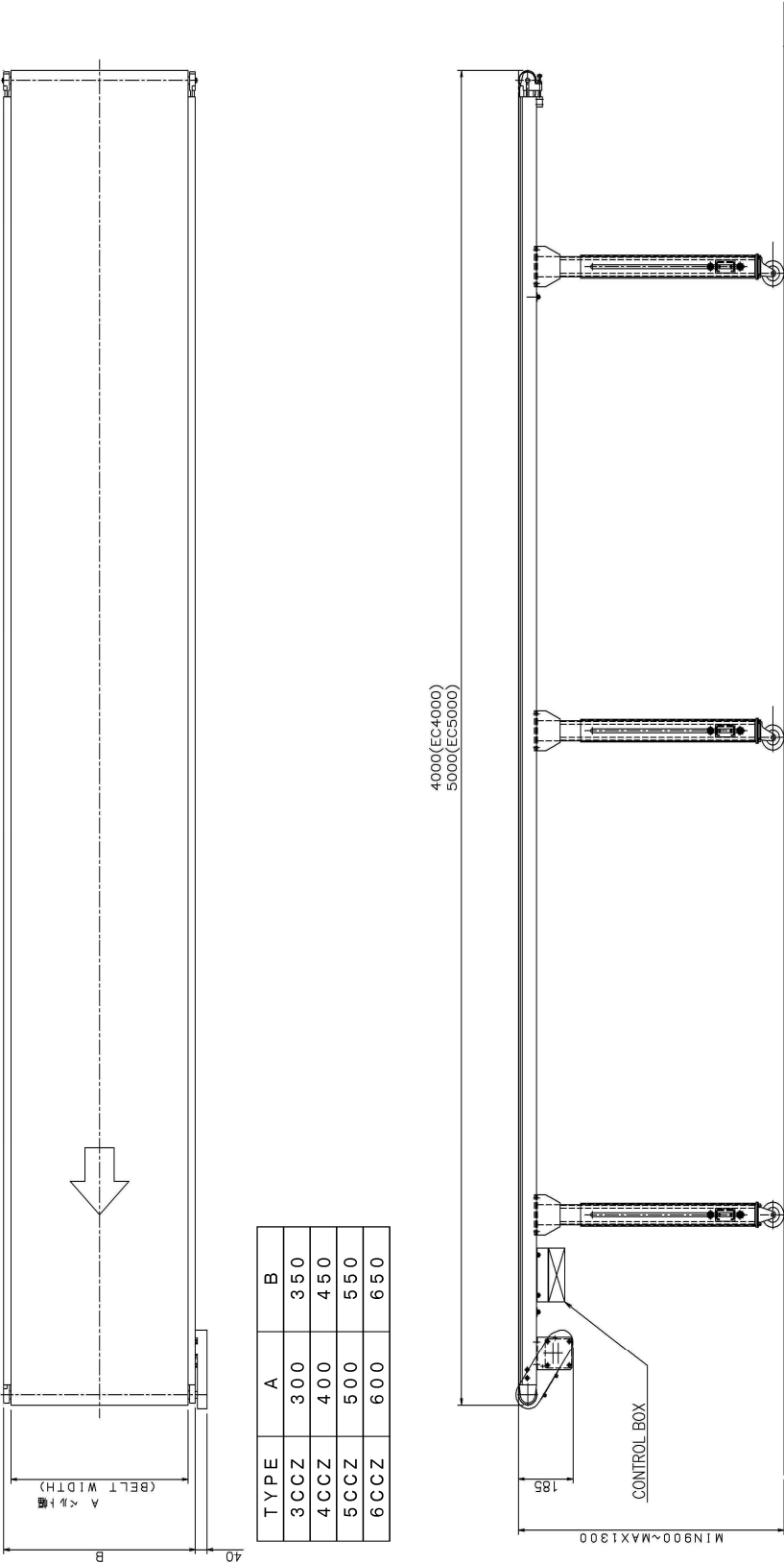
※6 The input voltage of the Board is AC100V or AC200V. Do not need power supply shift switch.

Due to the different voltage, the connection of the motor, TB3 capacitor etc. are also different.

Please pay attention to it.

7. OVERALL DIAGRAM





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