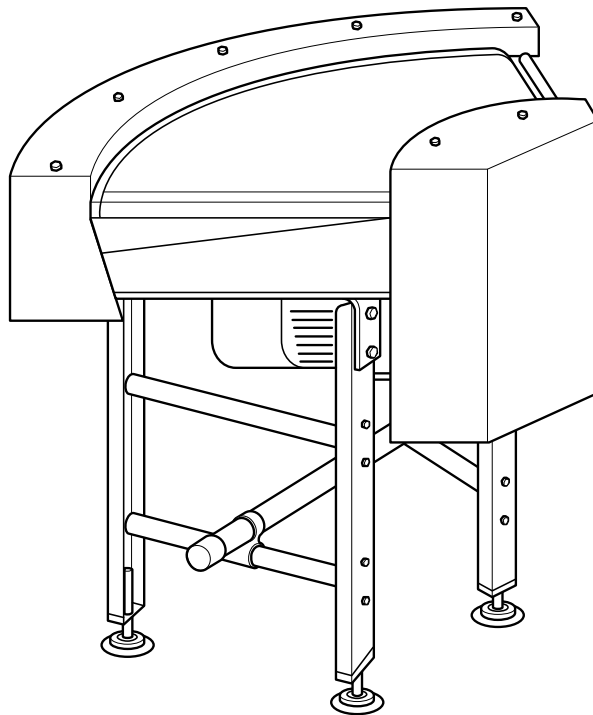


S-CON[®] MINI CURVE SANIVEYOR[®] CURVE

OPERATING AND SERVICE MANUAL



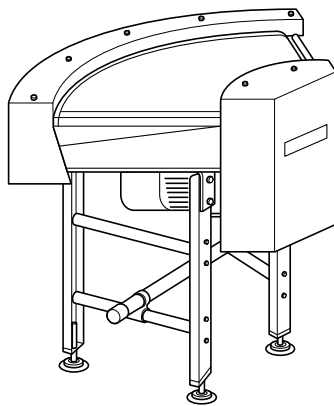
Thank you very much for purchasing our **S-CON[®]MINI/SANIVEYOR[®] CURVE**.
To use the machine properly, please read this operating and service manual
carefully before use. Keep the manual where the machine is installed, so that it
may be referred to when needed.



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Upon delivery of this product, please check the package contents to ensure the product matches your order. If the delivered items do not match your order, please contact our local agent directly before use.



Serial number and model label
(affixed to side of inside cover)

Manufacturer's serial number
(Refer to this number when contacting us)

[Example]

Date of production 20□□, □□ JOB No. □□-□□□□-□□□-□□
SMBM30-90R20H (K90-1A14.8) R-BG-H75 1/12.5 M=11 P=13

Reduction gear ratio Number of sprocket teeth

SMBM 30 - 90 R20 H (K 90 - 1 A14.8) R - BG - H75

Conveyor model code
Nominal belt width in cm (eg 30cm)

Curve angle (eg 90° curve)

Angle	Code
45°	45
60°	60
90°	90
180°	180

Inside radius in cm (eg 20cm)

Radius	Code
200mm	R20
300mm	R30
600mm	R60

Belt surface height H in cm (eg 75cm)

Belt specification (eg Standard, Green) see table below

Direction of belt travel (eg Clockwise)

Direction	Code
Clockwise	R
Counterclockwise	L

Power source frequency and Belt speed (eg 50Hz 14.3m/min)

NOTE: Maximum speed is shown.

Frequency	Code
50Hz	A
60Hz	B

Drive type (eg Under-mount motor)

Drive type	Code
Head drive Under-mount motor	H
Head drive Top-mount motor	HU
Head drive Side-mount motor	HS

Motor type (eg Constant speed motor)

Motor type	Code
Constant speed	K
Constant speed	C
Inverter variable speed	A
Inverter variable speed	F

Motor output (eg 90W)

Motor output	Code
90W	90
0.2kW	02
0.4kW	04
0.75kW	07

Power source type (eg 100V single-phase)

Power source type	Code
100V single-phase	1
200V single-phase	2
200V three-phase	3
other	0

Belt specification

Code	BG	BW	SG	SW	OG	OW
Specification	Standard		Sliding		Oil resistant	
Color	Green	Green	Green	White	Green	White
Code	EK	XG	XW	XB	XX	NO
Specification	Ultra anti-static	Other				None
Color	Black	Green	White	Blue	Other	—

A. Prior To Use

**CAUTION** : Improper handling of the conveyor may result in physical injury or damage!**■Transport and assembly**

When transporting and assembling the conveyor, pay special attention not to drop it in order to avoid physical injury or damage. When lifting by crane, pay attention to the balance of the conveyor.

**■Earth and leakage breaker**

Ensure the conveyor is connected to earth at all times to prevent electric shock. Also ensure that an earth leakage breaker is connected to the power supply.

**■Emergency stop**

Install an emergency stop device to immediately stop the conveyor in emergency.

**■Start alarm**

If it is not possible to supervise the operation of the full length of the conveyor from the operating position, install a start alarm for increased safety.

**■Keep the conveyor dry at all times**

Do NOT use the conveyor in wet or humid areas. Do NOT splash liquids onto the conveyor. Do NOT use or leave the conveyor outdoors. The machine is not waterproof. Do NOT touch electrical parts with wet hands.

**■Do NOT use in an explosive atmosphere**

(Avoid explosive gas, explosive dust, etc.)

 When using in a high or inclined position:**■Lower cover and guard**

Install the optional lower cover or guard in order to prevent entry under the conveyor.

■Guide rail, top and side covers

To prevent objects from falling off the conveyor, install the optional guide rail, top and/or side covers.

**■Braking system**

When using the conveyor on an incline, it is recommended that an optional braking system be installed, in order to prevent reverse or other incorrect running of the conveyor.










■Environmental conditions

Ambient temperature	: 0°C to +40°C
Ambient humidity	: RH 90% max (Avoid condensation)
Atmosphere	: Indoor (Avoid corrosive gases, dust, etc.)
Elevation	: 1,000m or less



NOTE :

- Using the conveyor in a strong electric field (eg near broadcasting devices or high- frequency welding machinery/equipment) could cause the conveyor to malfunction. In this case, install the conveyor at a sufficient distance. Alternatively shield completely to avoid any interference with the conveyor.
- Using an inverter to this machine could cause other machines to get effects of high-frequency. In this case, install the conveyor at a sufficient distance or shield completely.

B. During Operation

	WARNING : Improper handling of the conveyor could result in serious physical injury or damage!
	■ Do NOT touch the conveyor when it is running There is considerable risk of being caught and injured by the conveyor.
 	■ Do NOT ride on or climb on the conveyor / Do NOT go under the conveyor There is considerable risk of falling or being caught and injured by the conveyor.
	CAUTION : Improper handling of the conveyor may result in physical injury or damage!
	■ Beware of entanglement When working close to the conveyor, take care not to get caught in the conveyor. There is considerable risk of being injured by the conveyor.
	■ Do NOT remove safety covers There is a risk of getting caught in the rotating parts such as pulleys. Only remove in case of maintenance or inspection.
	■ Do NOT start the conveyor while it is loaded The motor may become damaged due to overload. Additionally, the motors of variable-speed type machines may burn out as a result of running at excessively low speeds for long periods. Use the conveyor within the specifications, indicated in the instructions for use, and in the catalogue.
	■ Do NOT apply force to ends of conveyor Do NOT press down on, or hang off the sides of the conveyor. Injury may result from a toppling conveyor.
	■ Secure the conveyor to the floor/ground When using the conveyor, be sure to secure it to the floor/ground with anchor bolts etc. to prevent it from toppling irrespective of indoor use or outdoor use.

C. After Use

	CAUTION : Improper handling of the conveyor may result in physical injury or damage!
	■ Switch off the power after use Ensure that the power is switched off when carrying out relocation, inspection, cleaning, etc. of the conveyor, otherwise there is a risk that the conveyor could start unexpectedly. When leaving the conveyor unused for a long period, take plug out of the outlet /connector to prevent electric shock or leakage.

- NOTE : 1. Always use in accordance with the Occupational Safety and Health Act.
2. If the owner modifies the conveyor, any ill effects will fall outside the conditions of the guarantee.
3. To SANIVEYOR@CURVE users:
Since salt and salt water cause stainless steel to get rusty and the belt to shrink, be sure to wash the conveyor with fresh water and completely dry it. Additionally, keep in mind that stainless steel may become rusty when it comes in contact with iron or iron powder.

■ WARNING LABELS etc. AND ATTACHMENT POSITIONS

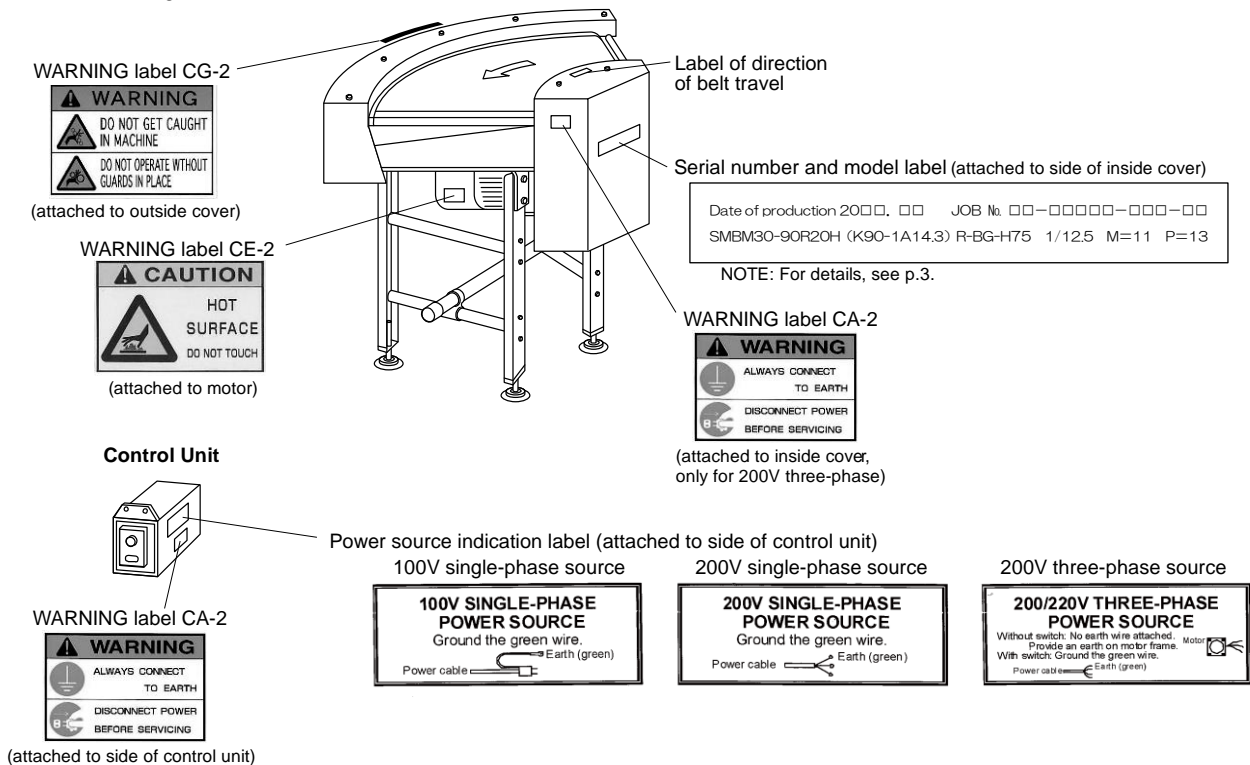
For standard machines, warning labels etc. and their attachment positions are as follows:

1. WARNING LABELS

Label classification	Label	Instruction
WARNING	<p>CA-2</p>	<ul style="list-style-type: none"> ■ ALWAYS CONNECT TO EARTH Ensure the conveyor is connected to earth at all times to prevent electric shock. ■ DISCONNECT POWER BEFORE SERVICING Ensure that the power is switched off when carrying out relocation, inspection, cleaning, etc. of the conveyor, otherwise there is a risk that conveyor may start unexpectedly.
	<p>CE-2</p>	<ul style="list-style-type: none"> ■ HOT SURFACE, DO NOT TOUCH When the conveyor is running or immediately after it stops, do NOT touch the motor, control unit, etc. There is a risk of getting burned or injured by the heat.
	<p>CG-2</p>	<ul style="list-style-type: none"> ■ DO NOT GET CAUGHT IN MACHINE When working close to the conveyor, take care not to get caught in it. There is a risk of being injured by the conveyor. ■ DO NOT OPERATE WITHOUT GUARDS IN PLACE Do NOT remove safety covers etc. There is a risk of getting caught in the rotating parts such as pulleys. Only remove in case of maintenance, inspection, etc.

2. ATTACHMENT POSITIONS OF WARNING LABELS etc.

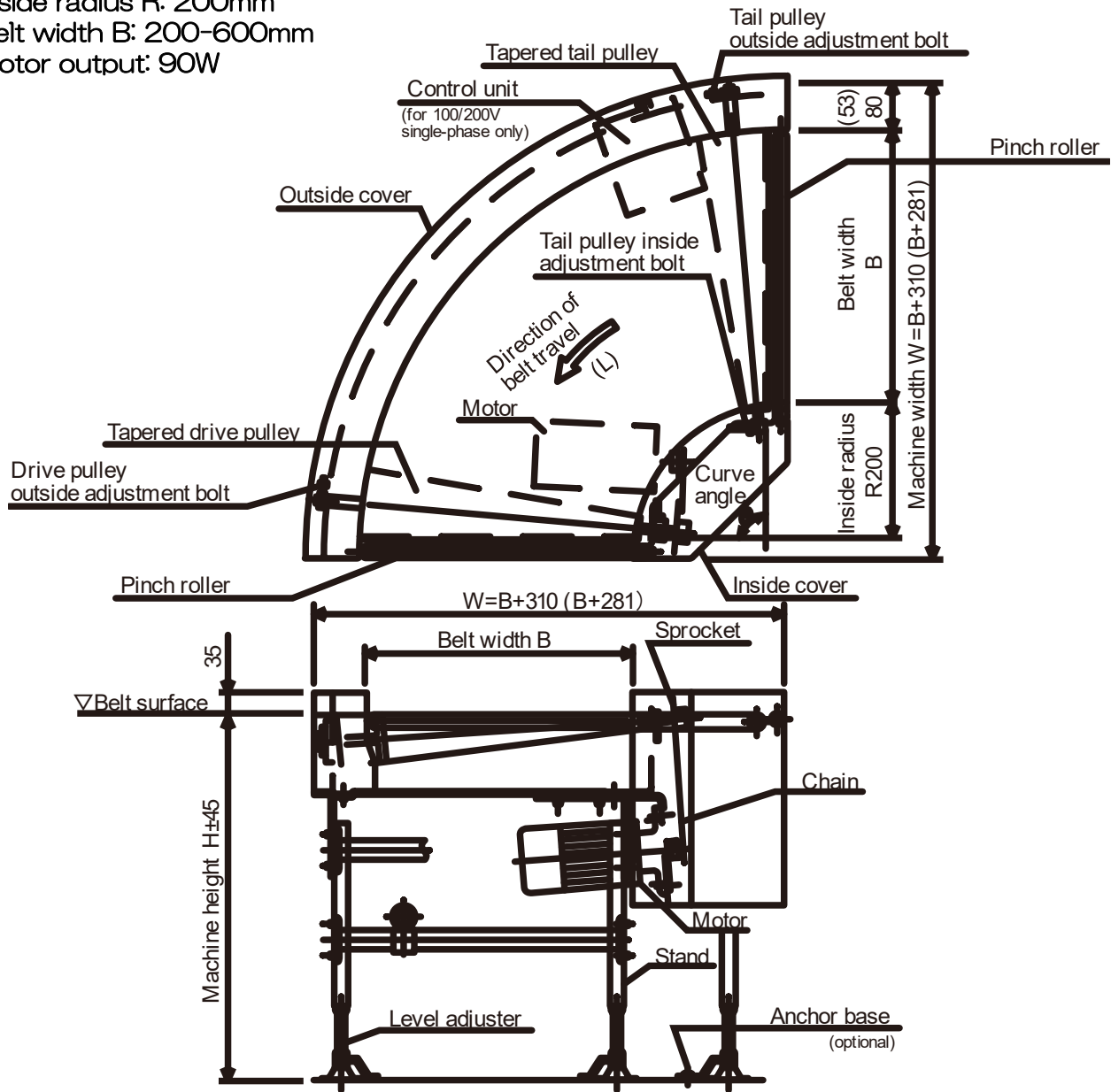
(eg S-CON₆ MINI CURVE with standard under-mount motor)



2

COMPONENT NAMES

Inside radius R: 200mm
 Belt width B: 200-600mm
 Motor output: 90W

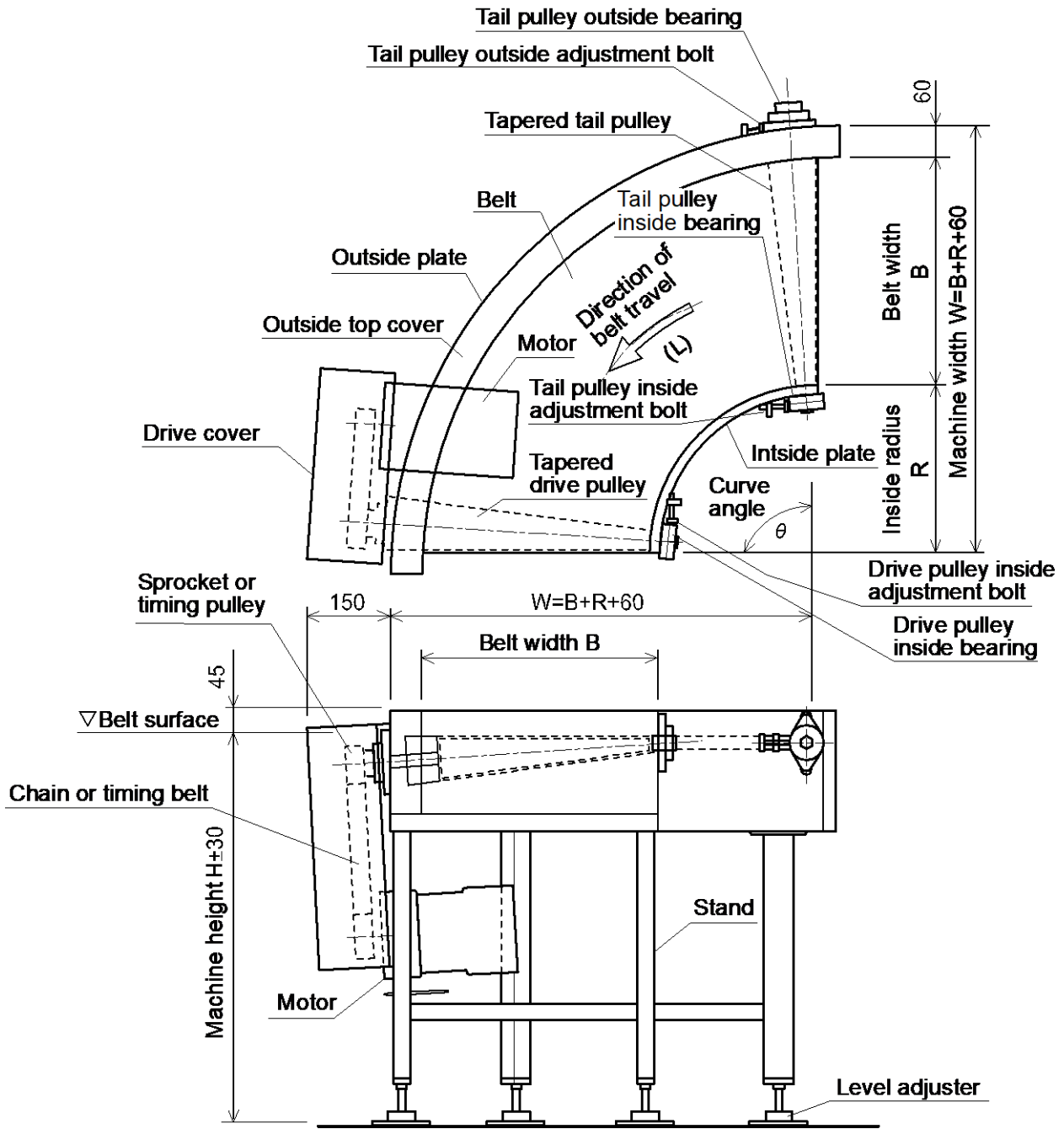


NOTE: For detailed cross section of conveyor, see p.9.

Code	R (Clockwise)	L (Counterclockwise)
Motor position		

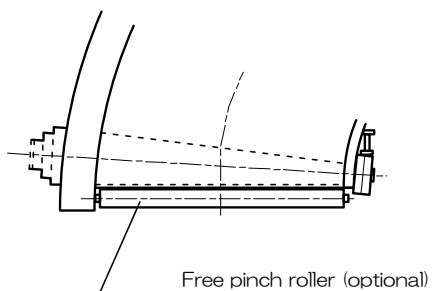
NOTE: It is impossible to reverse direction of belt travel.

Inside radius R: 300mm, 600mm
 Motor output: 0.2kW or more



Machine with free pinch roller (optional)

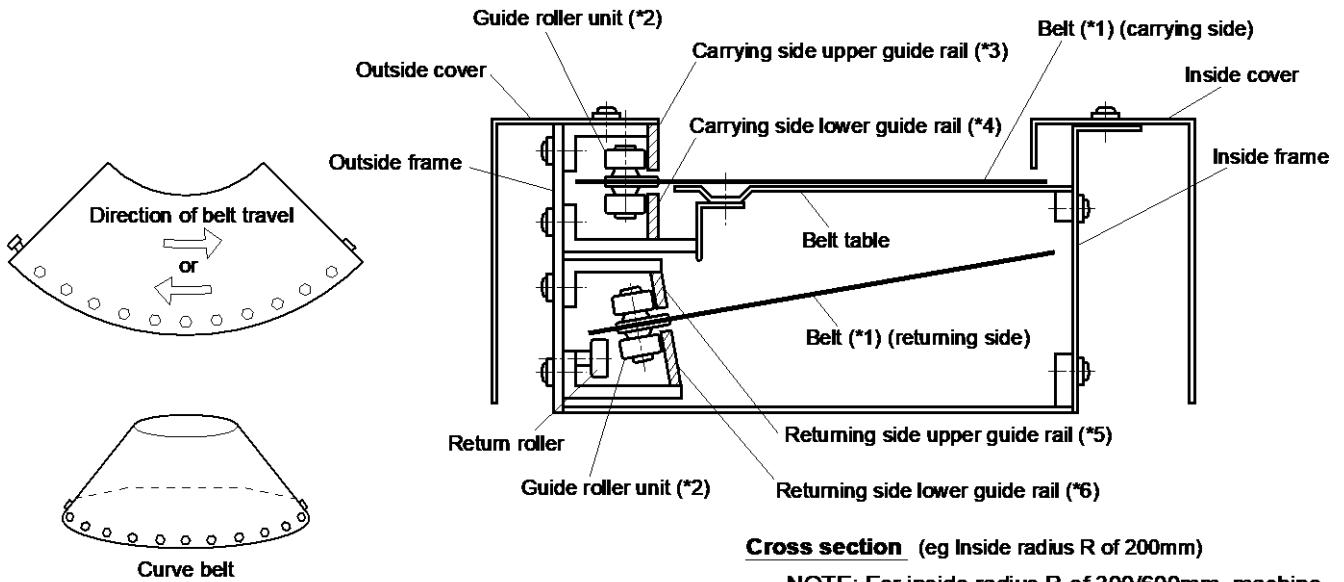
NOTE: For detailed cross section of conveyor, see p.9.



3

STRUCTURE

The belt(*1) of S-CON®MINI/SANIVEYOR® CURVE is conic and equipped with the guide roller units(*2) on the surface and undersurface of the outside edges. These guide roller units are attached at regular intervals and control the belt travel by running along the arc guide rails(*3, *4, *5, *6) (upper and lower guide rails for each of carrying and returning sides). Therefore it is unnecessary to adjust the belt alignment as long as the belt is installed correctly.



Cross section (eg Inside radius R of 200mm)

NOTE: For inside radius R of 300/600mm, machine does not have inside cover and vertical part of outside cover.

4

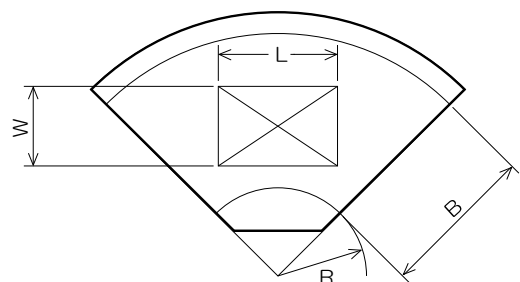
MAXIMUM SIZE OF HANDLED MATERIALS

The effective belt width of S-CON®MINI/SANIVEYOR® CURVE is limited by the guide rails. The maximum size of handled materials is determined as shown below, according to the belt width and inside radius. Make sure that the handled materials are within the maximum size.

Inside radius R	Belt width B	Maximum size of handled materials (L=W) *NOTE
200mm 300mm	200mm	150mm
	300mm	240mm
	400mm	330mm
	500mm	400mm
	600mm	480mm
600mm	400mm	330mm
	500mm	400mm
	600mm	480mm
	700mm	570mm
	800mm	660mm
	900mm	750mm
	1000mm	840mm

*NOTE: If width and length of material are not the same, check if it can be carried with the formula below.

$$B \geq \sqrt{(R+W)^2 + (L/2)^2} - R + 50 \text{ (mm)}$$



RUNNING THE CONVEYOR

5-1. BE SURE TO GROUND MACHINE BEFORE OPERATION

100V single-phase power source : Ground earth terminal (green) of power cable plug.

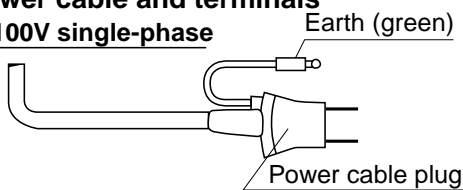
200V single-phase power source : Connect earth terminal (green) of power cable to power cable plug with an earth.

NOTE: For **SANIVEYOR® CURVE**, waterproof connectors with an earth are attached to machine. Be sure to ground earth terminal of female connector (on power source side) before use.

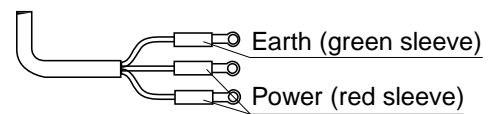
200V three-phase power source : Standard machine has only lead wire terminal. (Switch etc. are optional.) When wiring, properly provide an earth on motor or drive side plate.

● Power cable and terminals

AC 100V single-phase



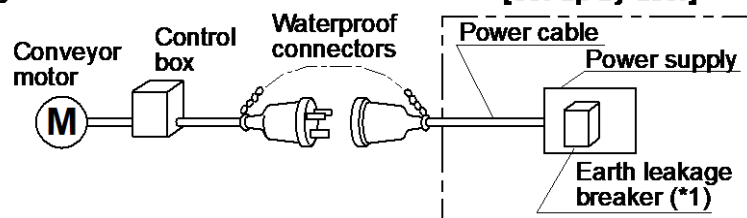
AC 200V single-phase



■ Installing Earth Leakage Breaker

Be sure to install an earth leakage breaker(*1) on power source side. Particularly, it is dangerous to use **SANIVEYOR® CURVE** without it because this model is usually used in wet or humid places.

Arrangement of control devices

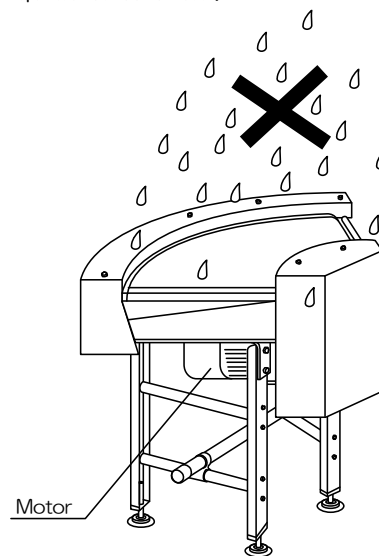


■ Installation Positions of Motor and Control Box

Since **S-CON® MINI CURVE** is not waterproof, use machine indoor and keep it dry at all times. For **SANIVEYOR® CURVE**, machine includes a drip-proof control box and drip-proof top cover of motor as standard equipments. Since control box and motor are not waterproof, however, do not splash liquids onto them. If it is possible that control box and motor get wet, it is recommended to choose top-mount type (HU type, optional).

⚠ CAUTION

- Standard motor and control box are not waterproof. Do NOT splash liquids onto them.



5-2. STARTING CONVEYOR

1. Machines Using 200V Three-phase Power Source

For 200V three-phase power source, standard machine has only lead wire terminal, switch etc. are optional.

2. MITSUBISHI-inverter variable-speed Type

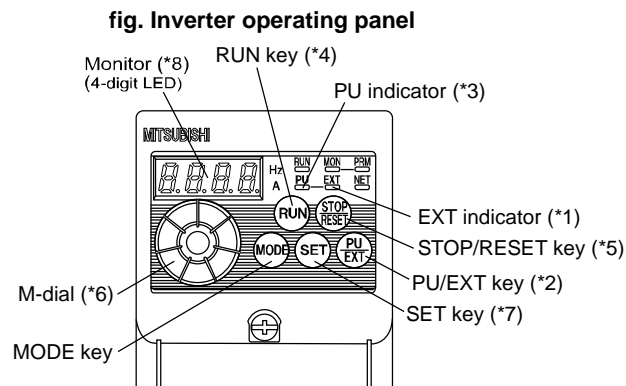
To start conveyor, press RUN key(*4); to stop conveyor, press STOP/RESET key(*5).

Speed Settings

To set speed, turn M-dial(*6) until the monitor(*8) shows intended frequency. Then press SET key(*7). (Only turning M-dial does not change speed. To complete speed setting, be sure to press SET key.)

Other operations

It is possible to make external control by setting parameter. For details, refer to inverter instruction manual, appendix.



MITSUBISHI inverter		FREQROL D700 standard specifications
Applied motor	90W	
Rated output voltage	AC 200V three-phase	
Power source voltage	Type 710W: AC 100V single-phase 720S : AC 200V single-phase 720 : AC 200V three-phase	
Permissible voltage variation	100V: 90-132V 200V: 170-264V	
Power source frequency	50/60Hz ±5%	
Environmental conditions	Temperature	-10°C to +40°C (Avoid freezing)
	Humidity	RH 90% or less (Avoid condensation)
	Atmosphere	Indoor, no corrosive/flammable gases, no oil mist or dust
	Elevation	1,000 m or less above sea level
	Vibration	5.9 m/s ² or less

■ Caution When Using Inverter



CAUTION

1. Be sure to confirm that the power source voltage is within the rated voltage range, before switching ON the power source. (Voltage exceeding the rated voltage could cause fuming, abnormal noise, etc.)
2. Be sure to start and stop the conveyor with RUN/STOP switch. When starting and stopping the conveyor frequently in a short period (tact operation etc.), it is impossible to start/stop the machine by turning on/off the power supply. In this case be sure to start and stop the machine by external signals. (Inverter variable-speed type is different from speed controller's, and the power supply will trip.) Do not start and stop the conveyor excessively frequently. It may cause machine failure or shorten its service life.
3. The RUN/STOP switch of inverter unit is not for turning the power on and off. When leaving the conveyor unused for a long period, make sure that the mains is off.
4. Do not run the conveyor at excessively low speed for a long period, or start and stop the conveyor excessively frequently. These may cause machine failure or shorten its service life.
5. Do not touch the inverter radiator of side of inverter unit, and do not allow any material to touch it, because of its high temperature.
6. Use the inverter unit within the permissible range of ambient temperature (from -10°C to $+40^{\circ}\text{C}$). Avoid freezing.
7. Pay special attention not to allow any foreign matter (dust, iron powder, etc.) to get into the inverter unit.
8. Operating the motor using the inverter could cause noises from the inverter I/O cables, motor, etc. Keep in mind that these could interfere with the correct operation of other electronic devices. (In this case, noises and their effects can be suppressed to some extent by providing the inverter I/O with a filter or otherwise shielding the power cable.)

■ Direction of Conveyor Travel

For **S-CON_®MINI/SANIVEYOR_® CURVE**, it is impossible to change direction of conveyor travel on account of machine structure. Use machine in the direction arrow mark sticker shows. (→See p.6.)

NOTE: Occasionally machine has a reverse switch. Since this switch is only for factory adjustment, do not tamper with it.

6

TAKING UP THE BELT

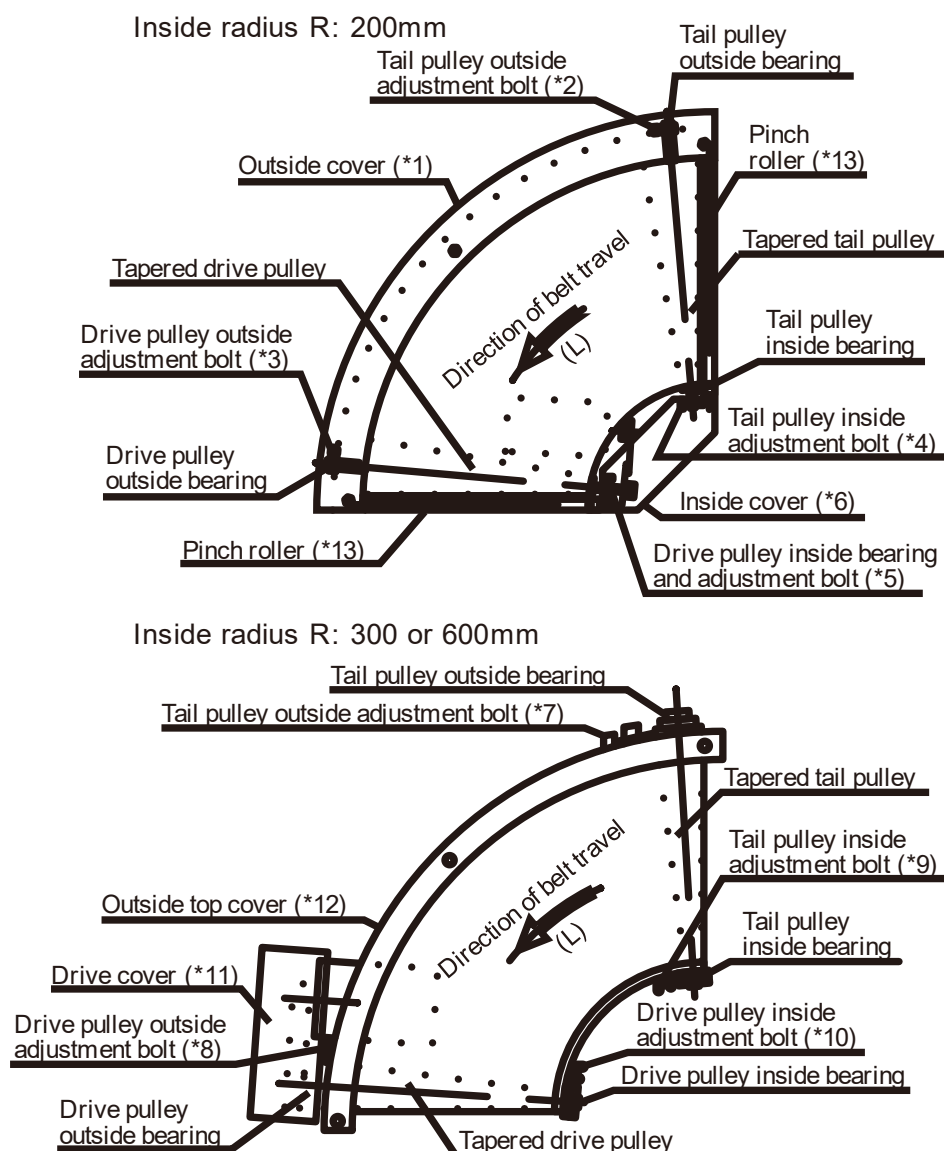
When belt is slackened off, take up belt as follows:

1. For inside radius R of 200mm, remove outside cover(*1) and inside cover(*6). For inside radius R of 300 or 600mm, remove drive cover(*11).
2. Slightly loosen attachment bolts of tail pulley outside bearing and drive pulley outside bearing.
3. Turn tail pulley outside adjustment bolt(*2 or *7) and drive pulley outside adjustment bolt(*3 or *8) little by little (1-2mm at a time) with a spanner. Pulleys and bearings will then move outward and belt will be taken up.
4. If belt wrinkles after taken up, slightly loosen attachment bolts of tail pulley inside bearing and drive pulley inside bearing. Then turn tail pulley inside adjustment bolt(*4 or *9) and drive pulley inside adjustment bolt(*5 or *10) little by little (1-2mm at a time) with a spanner. Belt will then be taken up.
5. Once adjustment is completed, retighten all the bearing attachment bolts loosened in steps above.
6. Reinstall all the covers removed in steps above.

■ Belt Tension

Do not take up belt too much, but only to extent that belt does not slip on drive pulley, i.e. enough to drive belt.

NOTE: Excessive belt take-up may overload motor or shorten service lives of belt, pulley, etc.



7

REPLACEMENT OF BELT AND GUIDE ROLLER UNIT

7-1. GUIDE ROLLER UNIT INSPECTION

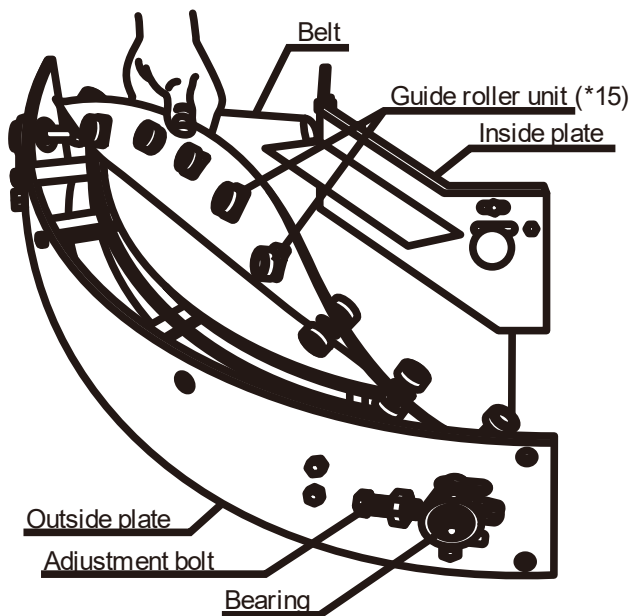
Before starting procedures below, be sure to stop conveyor and switch off power supply.

When machine makes abnormal noises or belt wrinkles in operation, to inspect guide roller units(*15), remove outside cover and carrying side upper guide rail. Check guide roller units by turning rollers one by one with fingers while manually running belt. Replace worn or un-rotatable ones, if any.

7-2. GUIDE ROLLER UNIT REPLACEMENT

1. Raise belt edge with hand. Remove entire guide roller unit(*15) by removing fixing bolt with a spanner and Phillips type screwdriver.
2. Install replacement guide roller unit, and reinstall carrying side upper guide rail and outside cover.

Inspection and replacement of guide roller unit



NOTE: For detailed cross section of conveyor, see p.9.

7-3. BELT REPLACEMENT

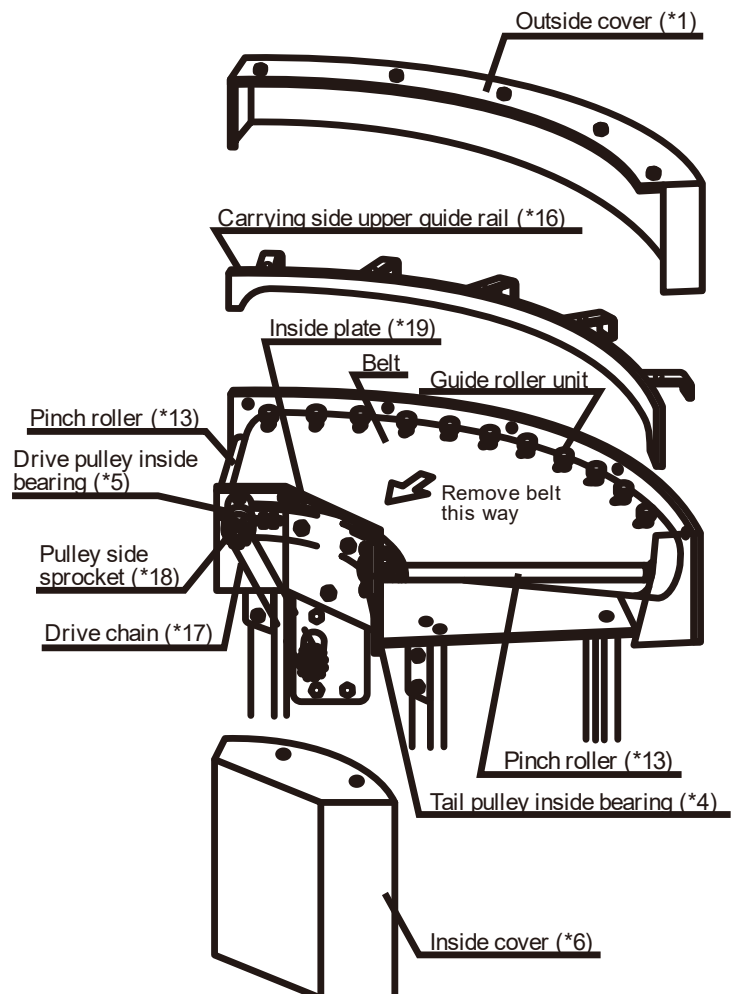
1. Belt Removal (→Refer to figures on p.12.)

- (1) Remove outside cover(*1) or outside top cover(*12). If machine has inside cover(*6), remove it also.
- (2) If machine has pinch rollers(*13), remove them from slots. In this case, do not remove round-belts (for pinch roller driving) from drive pulley and tail pulley.
- (3) To loosen belt, loosen the following bolts:
 - Tail pulley outside adjustment bolt (*2 or *7)
 - Tail pulley inside adjustment bolt (*4 or *9)
 - Drive pulley outside adjustment bolt (*3 or *8)
 - Drive pulley inside adjustment bolt (*5 or *10)
- (4) Remove carrying side upper guide rail(*16) and returning side lower guide rail.
- (5) Remove drive chain(or timing belt) (*17) and pulley side sprocket(or timing pulley) (*18).
- (6) Drive pulley shaft and drive pulley inside bearing(*5) are fixed with setting screws. Loosen the setting screws, and pull out the bearing(*5) while tapping it with a wooden hammer. Similarly remove tail pulley inside bearing(*4) also.
- (7) Remove inside plate(*19).
- (8) Remove belt toward center of curve. Clean dirty parts, if any. Check if conditions of replacement belt and other parts are all correct.

2. Belt Installation

Install belt in reverse order of “1. Belt Removal” . When installing, pay attention to the following items.

- After installing belt and reinstalling bearings and guide rails, run the belt by turning pulley manually and check if roller units are correctly touching guide rails.
- Take up the belt referring to “6 TAKING UP THE BELT” on p.13.
- Make sure that all the bolts and nuts are firmly tightened.
- After reinstalling covers, restart machine and check for abnormal noise and vibration.



**CAUTION** : Improper handling of the conveyor may result in physical injury or damage!**Switch off the power after use**

Ensure that the power is switched off when carrying out relocation, inspection, cleaning, etc. of the conveyor, otherwise there is a risk that the conveyor could start unexpectedly. When leaving the conveyor unused for a long period, take plug out of the outlet /connector to prevent electric shock or leakage.

8-1. PROBLEMS AND REMEDIES

PROBLEM	CAUSE	REMEDY
1. Conveyor does not run when switched on.	(1) Power plug is not properly connected to mains. (2) Power switch is not turned on. (3) Inappropriate power source	(1) Inspection, correction (2) Inspection, correction (3) Check power source. → See p.10.
2. Conveyor is turned on, but motor will not run.	(1) Disconnection or breakage in wiring (2) Conveyor speed is set too slow. (3) Circuit protector or emergency stop switch has been activated. (4) Failure of motor or speed controller	(1) Inspection, repair (2) Reset to appropriate speed. →See p.11. (3) Restore protection circuit or emergency stop switch. (4) Replacement (motor, condenser and speed controller)
3. Motor runs, but belt does not move.	(1) Belt is slacked off. (2) Chain has come off. (3) Foreign substances between belt and guide rail (4) Motor gear head teeth have become worn.	(1) Take up belt. → See p.13. (2) Repair (3) Remove foreign substances. (4) Replacement (Replace motor also.)
4. Conveyor will not start running unless belt is pulled.	(1) Belt has been taken up too much. (2) Belt has something sticky on undersurface. (3) Belt has excessive resistance to winding. (Incorrect belt has been chosen.)	(1) Loosen belt to proper tension. (2) Remove any foreign matter and clean belt undersurface, or replace motor with higher capacity version. (3) Replace belt, or replace motor with higher capacity version. → See p.15.
5. Belt runs, but speed cannot be changed. (in case of variable-speed type)	(1) Disconnection or breakage in wiring of motor and speed controller (2) Failure of speed changing device inside motor or speed controller	(1) Inspection, repair (2) Replace motor and speed controller.
6. Belt wrinkles.	(1) Belt is not correctly taken up. (2) Wear or damage of roller of guide roller unit.	(1) Make adjustment with adjustment bolts. →See p.12. (2) Replace defective roller. →See p.14.
7. Conveyor makes abnormal noises.	(1) Foreign substances in guide roller unit or between belt and guide rail (2) Damage of roller of guide roller unit (3) Setting screw of pulley bearing or sprocket has become loose. (4) Chain has expanded and become loose.	(1) Remove foreign substances. (2) Inspection, replacement →See p.14. (3) Tighten loose setting screw. (4) Take up or replace chain.

PROBLEM	CAUSE	REMEDY
8. Electric shock is received from conveyor.	(1) Static electricity has been charged in frames. (2) Electric leakage	(1) Properly ground the machine. → See p.10. (2) Inspection, investigation

8-2. ITEMS FOR REGULAR INSPECTION

CHECKING PERIOD	PART TO CHECK	THINGS TO CHECK FOR	CHECKING METHOD	REMEDY
Daily	Belt, round-belts (for pinch roller driving)	Slip (tension)	Visual inspection	Adjustment → See p.12.
		Foreign substances	Visual inspection	Remove foreign substances.
Monthly	Chain, sprockets (or timing belt, pulleys)	Slack of chain	Visual inspection	Take up chain.
		Wear, expansion, damage	Visual inspection and measurement	Replacement -Permissible chain expansion: 2% max. -Permissible tooth wear: 10% max.
Three monthly	Guide roller units	Loose bolts	Visual inspection	Retightening
		Wear of rollers	Visual inspection	Replacement → See p.13.
	Attachments such as guide rails, bearings, sprockets (or timing pulleys)	Loose bolts and setting screws	Visual inspection	Retightening
		Loose keys	Tapping	Firmly set keys.
	Motor, reduction gear (gear head)	Loose attachment bolts	Tapping, check for vibration.	Retightening
		Overheat of bearings and motor	Manual check and measurement	Disassembly, inspection, replacement
Abnormal noise		Listening	Disassembly, inspection, replacement	
Six monthly	Drive pulley, tail pulley, bearing units	Rotation malfunction	Visual inspection	Replacement
		Wear of surface	Visual inspection	Replacement
		Abnormal noise, overheat	Listening and manual check	Replacement

NOTE: Apply oil to chain every 1 months or every 160 operating hours.

MEMO

MEMO

Customer Center

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URL <https://www.hansou.jp>

E-mail kikaiinfo@eng.sanki.co.jp



[hansou.jp](https://www.hansou.jp)



Contact us

- Particular attention is given to the manufacture and transportation of SANKI conveyors. However, if you need any information about the use or failure of the machine or any other matters, please contact our customer service. Also do not hesitate to ask us for information about conveyors in general.
- The specification given in this manual are subject to change without notice.