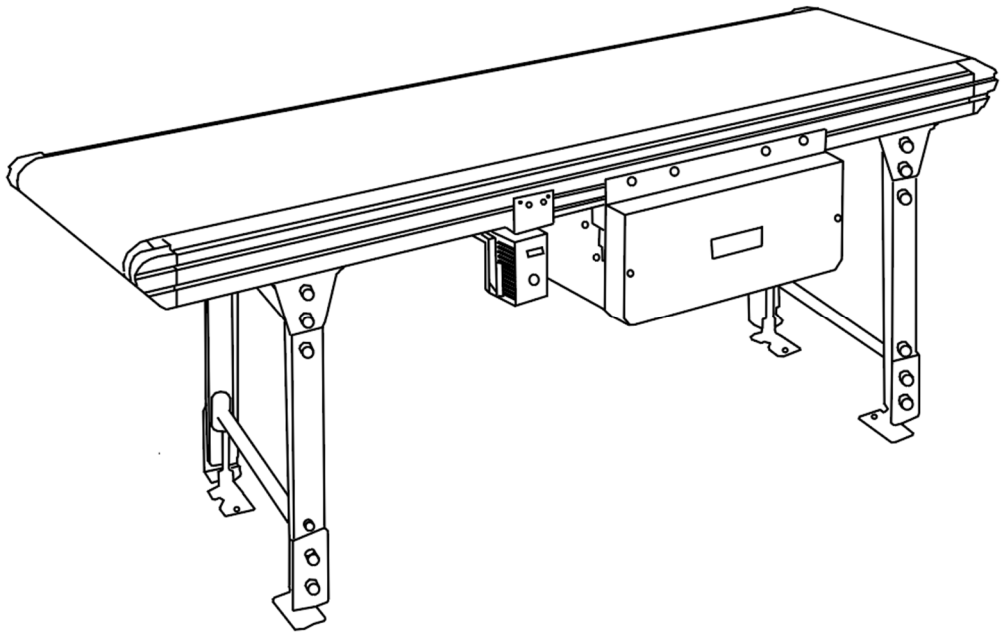
SANKI ENGINEERING CO., LTD.

S-CON®MINI Carrying Roller Type

MINI FLOW-BEL

OPERATING AND SERVICE MANUAL



Thank you very much for purchasing our **Carrying Roller Type MINI FLOW-BEL**. 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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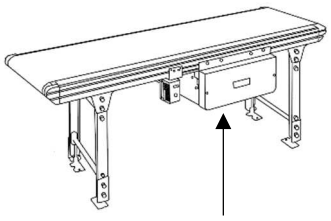
Upon delivery of this product, please check the package contents to ensure the product matches your order. If the delivered items do not match your order, please contact our local agent directly before use.



Serial number and model label
(affixed to bottom of chain cover)

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

[Example]

Date of production 20□□. □□ JOB №. □□－□□□□□－□□□－□□
SMF30-5.5CC（C02-3A17.4）R-BG i = 1/12.5 , M = 17 P = 17

Reduction gear ratio
Number of sprocket or timing-pulley teeth

SMF 30 - 5.5 CC (C 02 - 3 A17.4) R - BG
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

①Conveyor model code
②Nominal belt width in cm (eg 30cm)
③Machine length in m (eg 5.5m)
④Drive type (eg Center drive (under-mount))

Drive type		Clearance*	Code
Head drive	Under-mount motor	10mm	H
		100mm	HH
		200mm	HJ
	Top-mount motor	100mm	HUH
		200mm	HUJ
	Hollow shaft	—	HSM

Drive type	Machine length	Code
Center drive (under-mount)	10m or less	CC
	10.1m or more	CL

*NOTE: "Clearance" shows interval between motor and belt

⑤Motor type (eg Constant speed)

Motor type	Code
Constant speed	C
Inverter variable speed	F

⑦Power source type (eg 200V three-phase)

Power source type	Code
200V three-phase	3
other	0

⑥Motor output (eg 90W)

Motor output	Code
0.1kW	01
0.2kW	02
0.4kW	04
0.75kW	07

⑧Power source frequency and Belt speed
(eg 50Hz, 17.4m/min)

Frequency	Code
50Hz	A
60Hz	B

⑨Drive position and Direction of belt travel

Drive position	Direction	Code
Right	Normal direction	R
Left		L
Right	Reverse direction	RB
Left		LB

⑩Belt specification (eg Standard, Green)

Code	BG	BW	IG	IW	RG	EK	SG	SW
Specification	Standard		Incline		Special rubber for inclines	Ultra anti-static	Sliding	
Color	Green	White	Green	White	Green	Black	Green	White
Code	HW	OG	OW	XG	XW	XB	XX	NO
Specification	Heat-resistant	Oil resistant		Other				None
Color	White	Green	White	Green	White	Blue	Other	—

1 CAUTION WHEN HANDLING

FOR YOUR SAFE USAGE

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℃ to +40℃
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.

■WARNING LABELS etc. AND ATTACHMENT POSITIONS

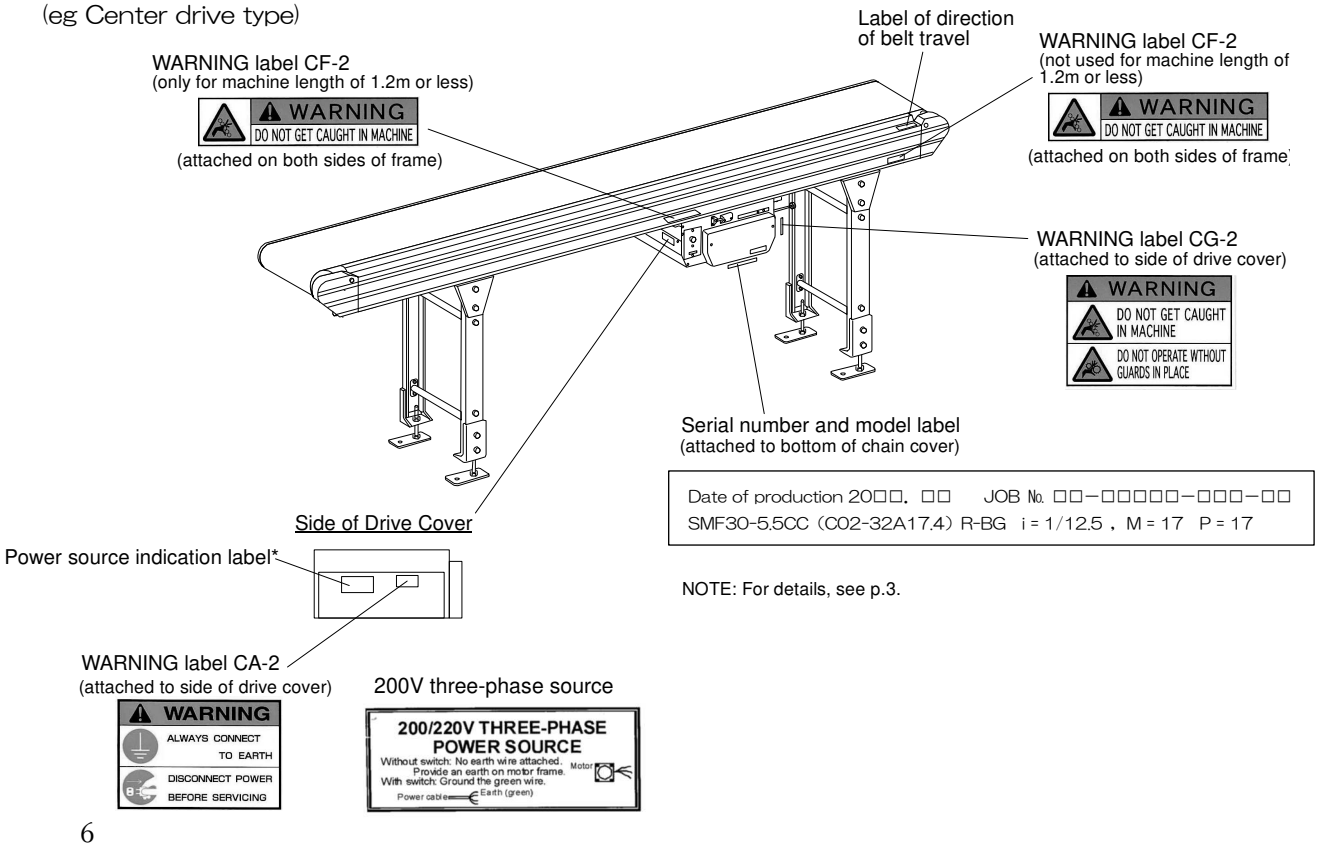
For standard machines, warning labels etc. and their attachment positions are as follows:

1. WARNING LABELS

Label classification	Label	Instruction
WARNING	CA-2 	■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.
	CF-2 	■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.
	CG-2 	■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. unexpectedly.

2. ATTACHMENT POSITIONS OF WARNING LABELS etc.

(eg Center drive type)



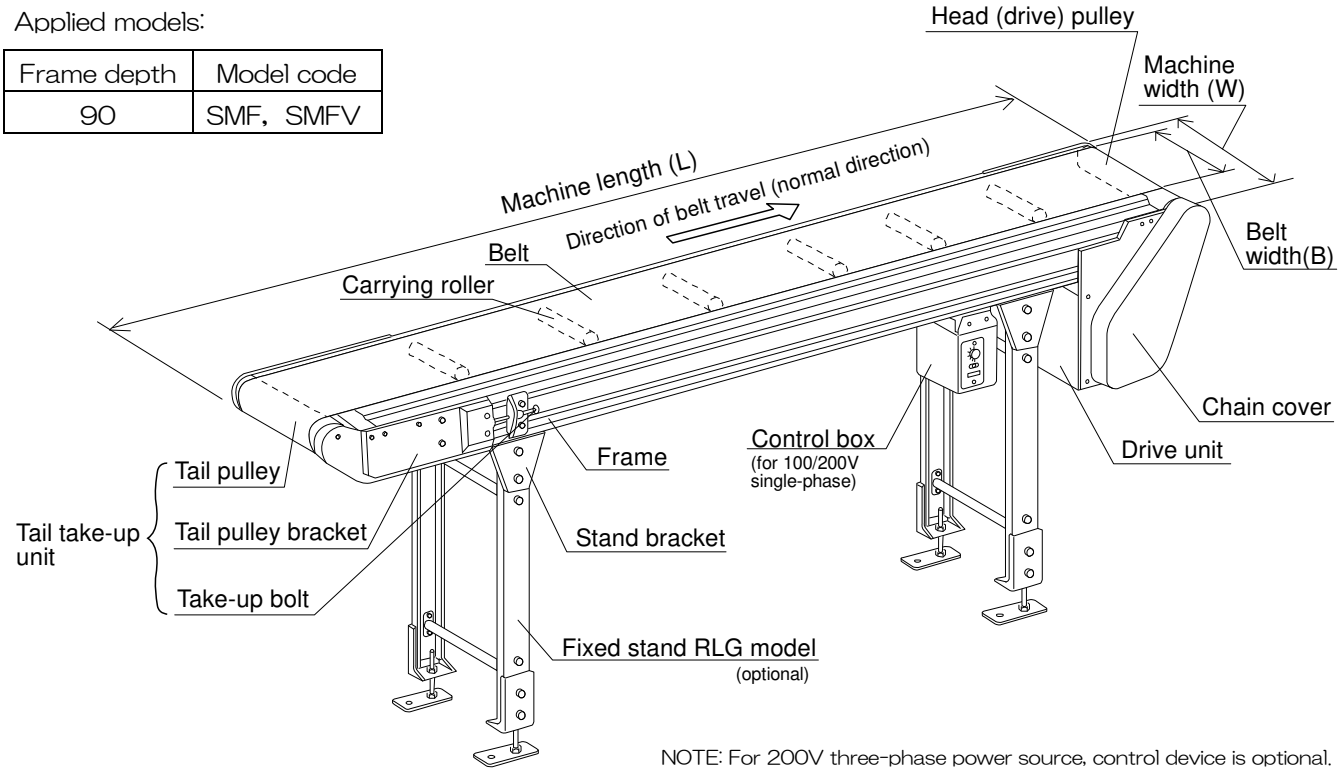
NOTE: For details, see p.3.

2 COMPONENT NAMES

HEAD DRIVE TYPE: H, HH, HJ, HUH, HUJ

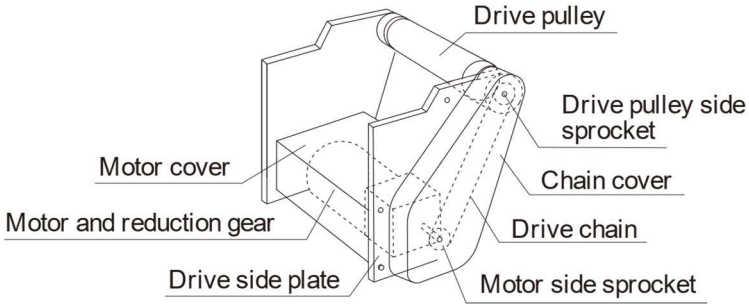
Applied models:

Frame depth	Model code
90	SMF, SMFV

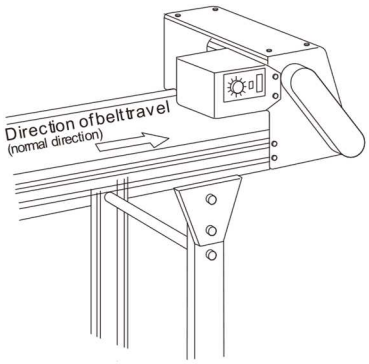


NOTE: For 200V three-phase power source, control device is optional.

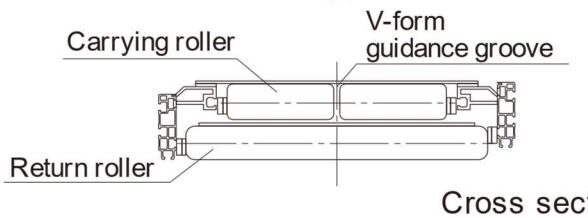
Under-mount motor type drive unit:
H, HH, HJ



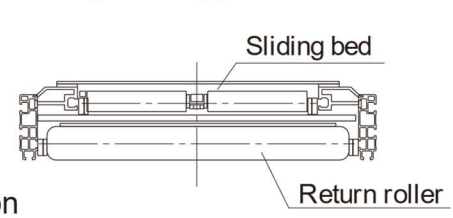
Top-mount motor type:
HUH, HUJ



Non-deviation type (SMFV model)



Sliding bed type (optional)

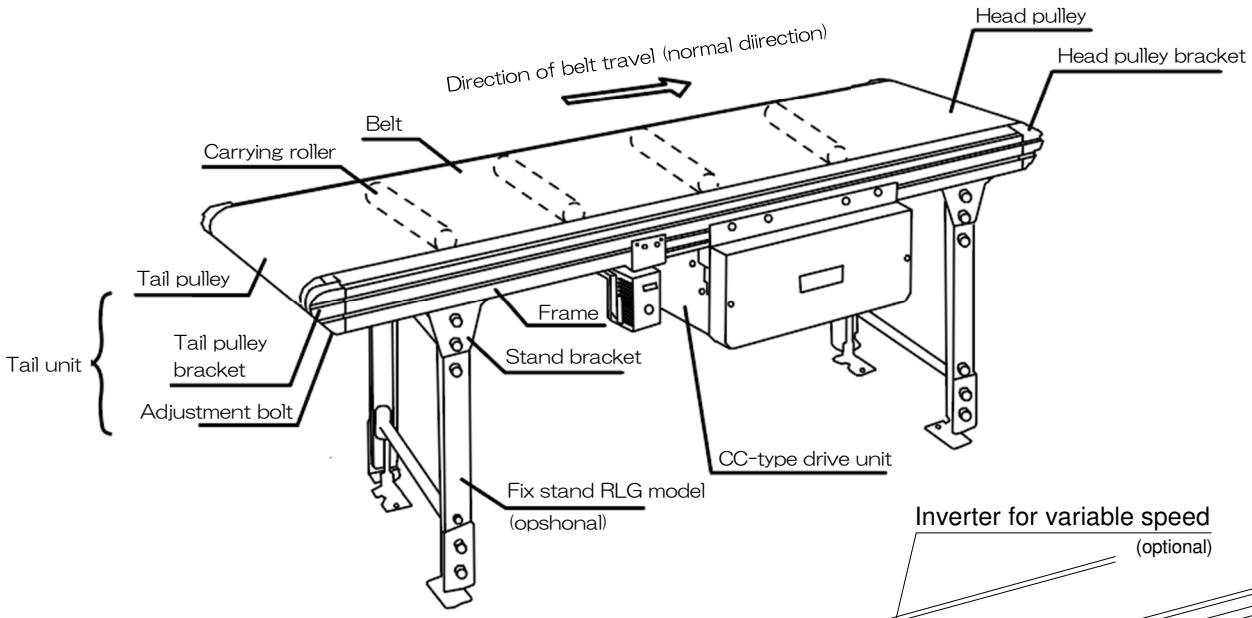


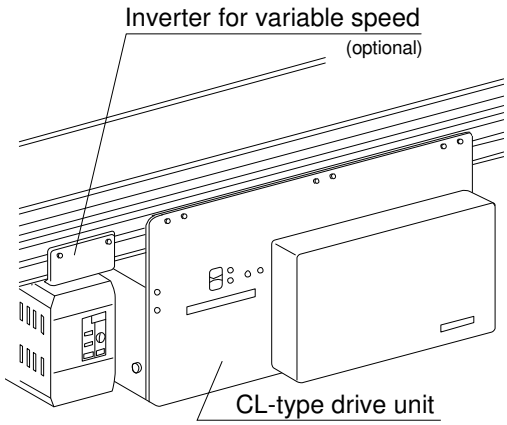
Cross section

CENTER DRIVE TYPE: CC, CL

Applied models:

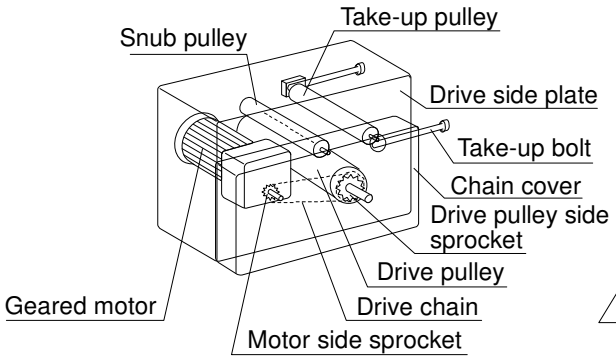
Frame depth	Model code
90	SMF, SMFV



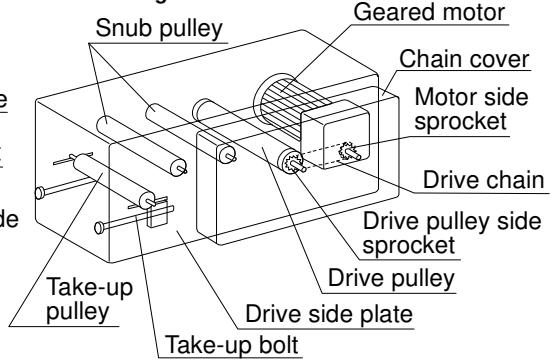


NOTE: For 200V three-phase power source, control device is optional.

CC-type drive unit
motor output: 0.2-0.75kW (200V three-phase)
machine length: 10m or less



CL-type drive unit
motor output: 0.2-0.75kW (200V three-phase)
machine length: 10.1m or more

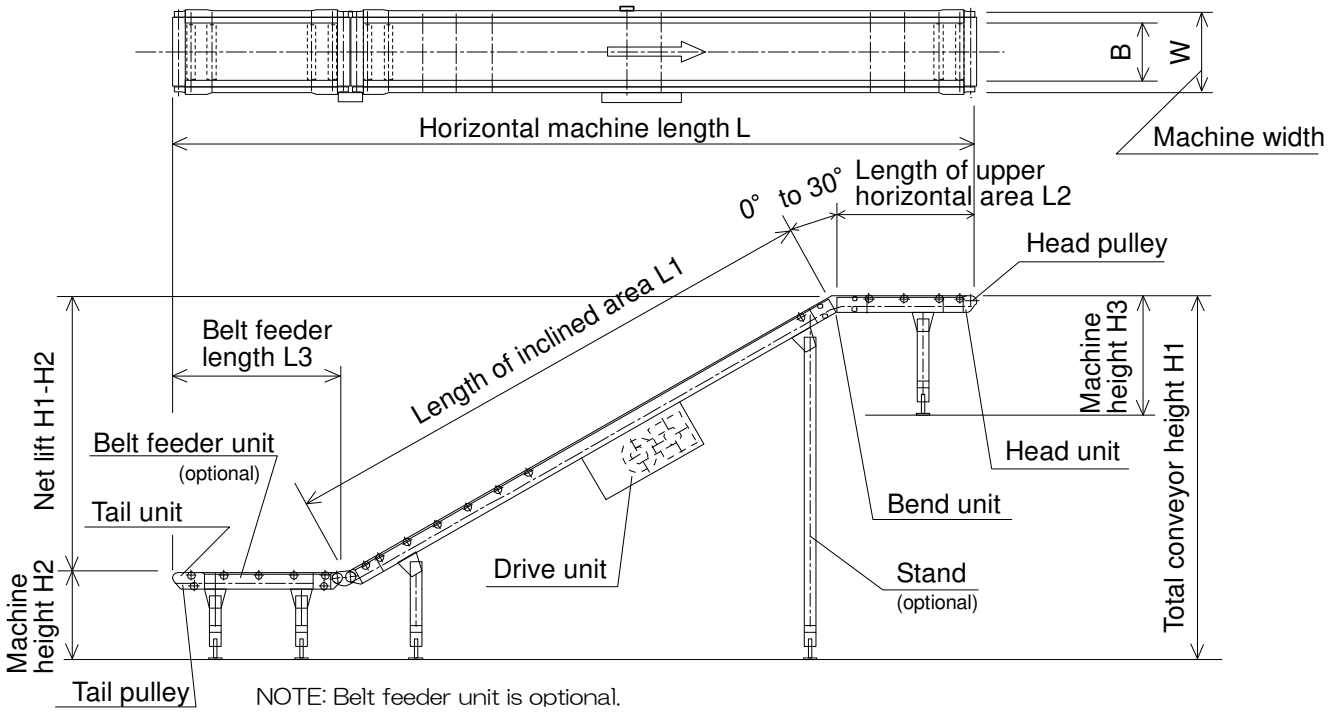


TILT MODELS

Applied models:

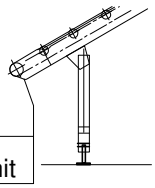
Frame depth	Model code
90	SMFS, SMFSV

Center Drive Type: CC, CL



NOTE: Belt feeder unit is optional.

Without belt feeder

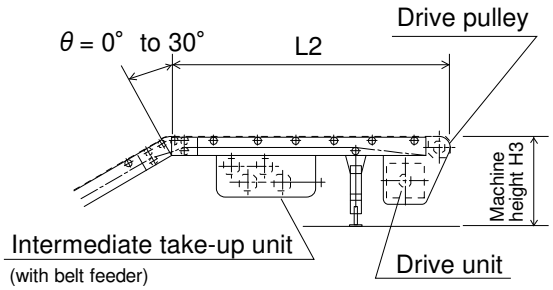


Center drive type Tail unit

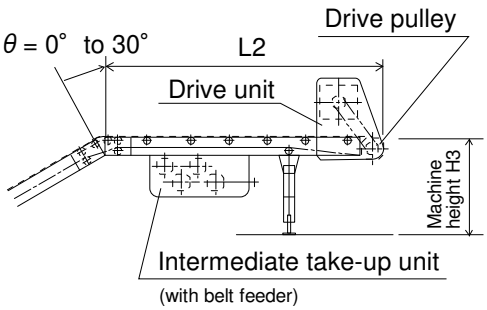
Head drive type Tail take-up unit

NOTE: For details of bend unit and belt feeder unit, see p.27.

Head Drive Type
Under-mount motor type: H, HH, HJ



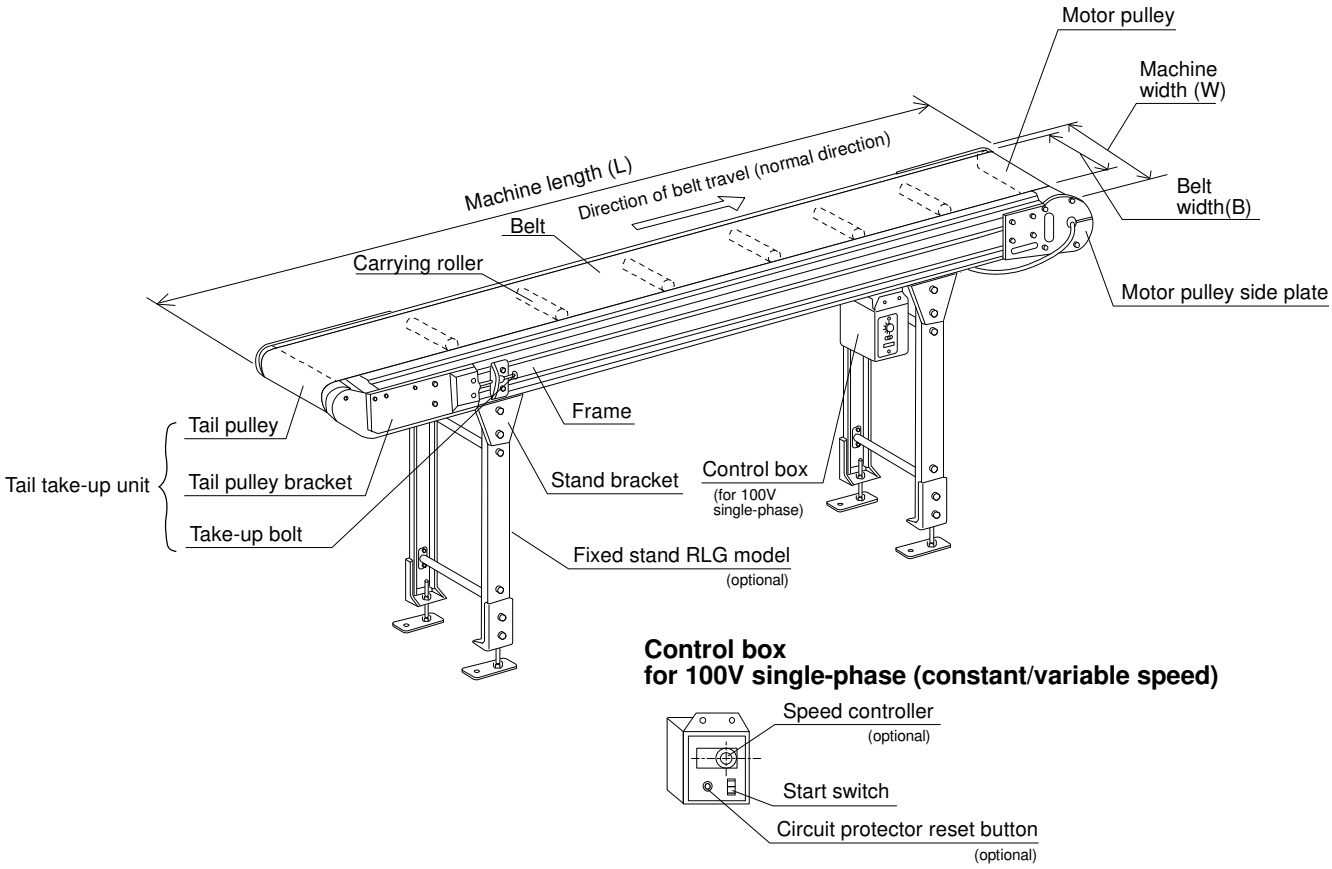
Head Drive Type
Top-mount motor type: HUH, HUJ



MOTOR PULLEY MODEL

Applied models:

Frame depth	Model code
90	SMFP，SMFPV



Control box
for 100V single-phase (constant/variable speed)

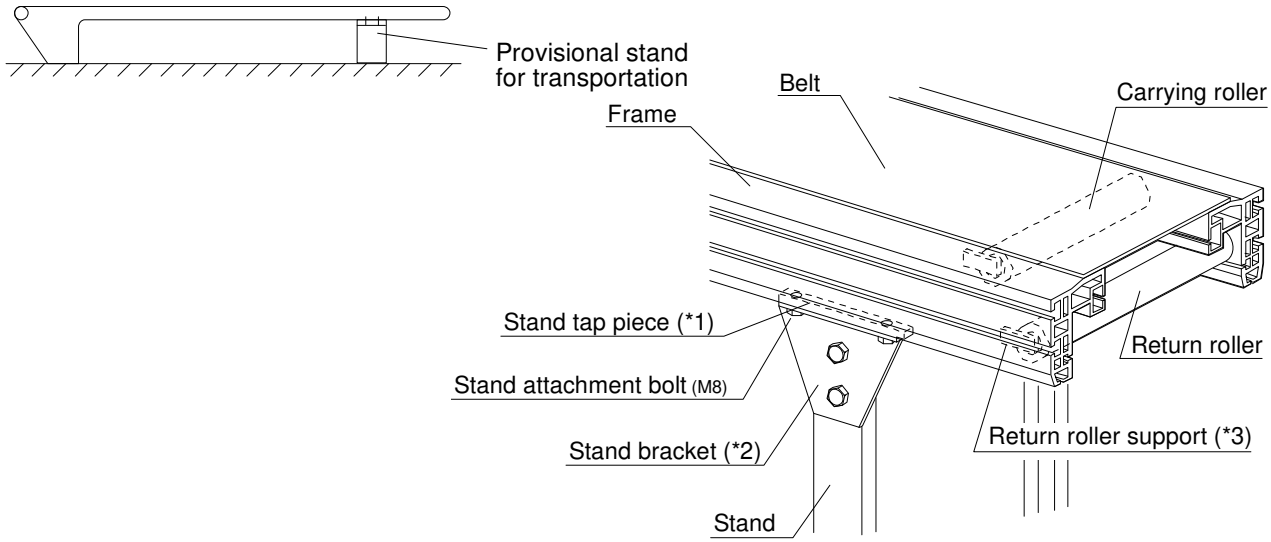
NOTE: For 200V three-phase power source, control device is optional.

3 ASSEMBLY

3-1. INSTALLING STANDS (OPTIONAL)

NOTE: Stands are delivered in separate packaging.

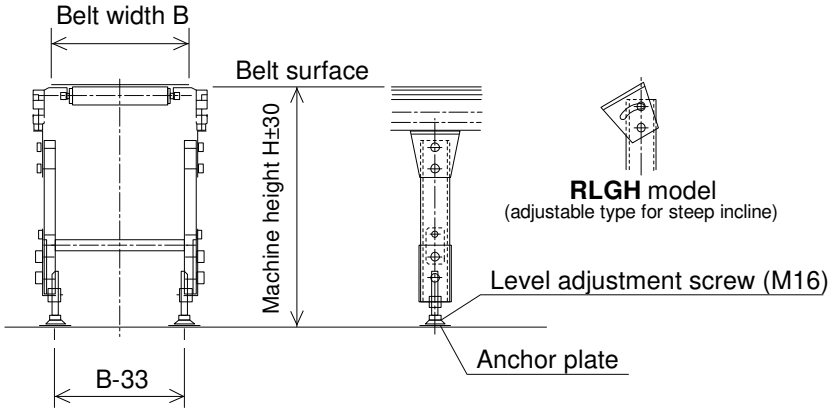
Stand tap pieces(*1) are temporarily tightened in frame underside slots. Remove stand attachment bolts(M8) and slide tap pieces(*1) to intended positions. Then fix stand brackets(*2). (Remove provisional stand for transportation, if any.)



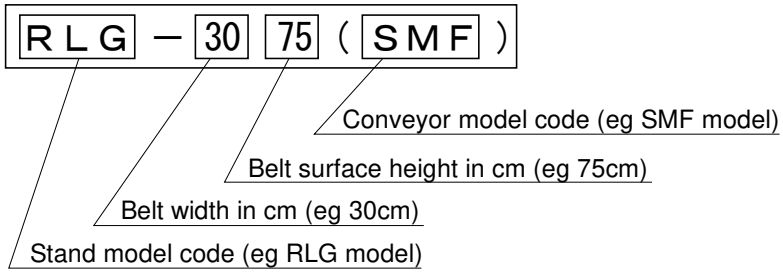
NOTE: For machine length exceeding 3m, frame is usually delivered divided. In this case install stands after assembling the frame. →See "3-3. ASSEMBLING LONGER MACHINES", p.13.

■ Fixed Stand for MINI FLOW-BEL

For horizontal setting: **RLG** model, **RLGD** model (drive-support type)
For inclined setting: **RLGH** model, **RLGHD** model (drive-support type)



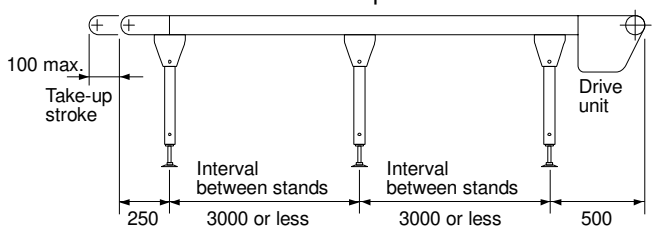
Example of stand type



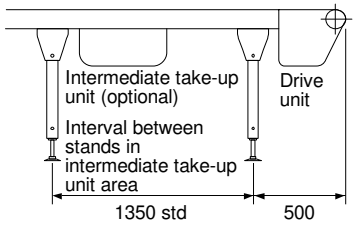
■ Standard Installation Positions of Stands

Head Drive Type

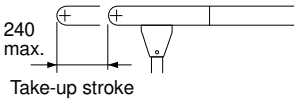
Machine length: 12m or less
with standard tail take-up unit



Machine length: 12.1m or more
with intermediate take-up unit (optional)

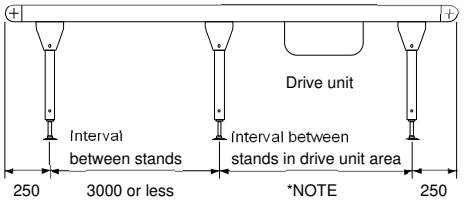


Machine length: 12.1m or more
with long-stroke type tail take-up unit
(with long take-up unit)



Center DriveType

unit: mm



*NOTE: Interval between stands in drive unit area
CC-type drive: 2000mm or less,
1100mm std for machine length of 3m or more
CL-type drive: 1300mm std

■ Quantity of Stands by Machine Length

Drive type		Applied machine length	Applied motor	Quantity of stands										
	Code			2	3	4	5	6	7	8	9	10	11	12
Head drive	H,HH, HJ, HUH, HUJ	1.2～30.0m	0.1～0.75kW	1.2～3.0m	3.1～6.0m	6.1～9.0m	9.1～10.0m	10.1～12.0m	12.1～15.0m	15.1～18.0m	18.1～21.0m	21.1～24.0m	24.1～27.0m	27.1～30.0m
				with standard tail take-up unit					with long-stroke type tail take-up unit					
Center drive	CC	10.0m or less	0.1～0.75kW	1.0～2.8m	2.9～5.4m	5.5～6.9m	7.0～10.0m	—	—	—	—	—	—	—
	CL	10.1m or more		—	—	—	—	10.1～12.0m	12.1～15.0m	15.1～18.0m	18.1～21.0m	21.1～24.0m	24.1～27.0m	27.1～30.0m

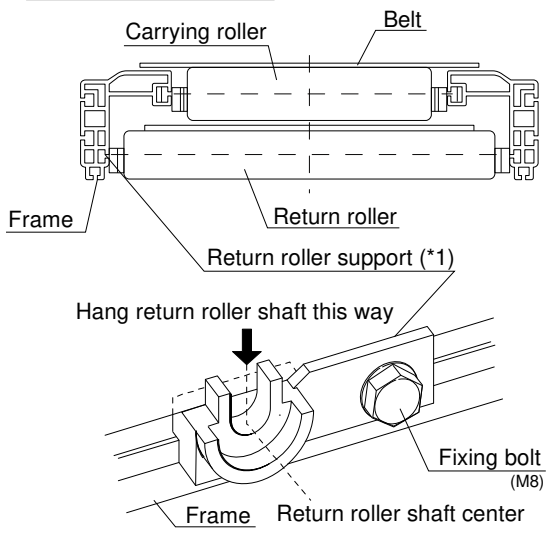
NOTE: 1. Center drive type machines are all equipped with take-up device in drive unit.
2. Quantity of stands alternates depending on position of drive unit.
3. For head drive type machines of 12.1m or more in length, intermediate take-up unit is optional.

3-2. INSTALLING RETURN ROLLERS

- For machine length of 3m or less, return rollers are already attached to frame.
- For machine length exceeding 3m, frame is usually delivered divided and return rollers are in separate packaging. In this case, after assembling frame, install return rollers by hanging them to return roller supports(*1) attached to inside slots of frame.

NOTE: 1. Install return rollers at a standard interval of 1.5m or less.
2. All the carrying rollers are already attached to machine.

Frame cross section

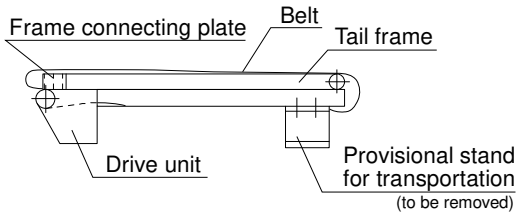


3-3. ASSEMBLING LONGER MACHINES

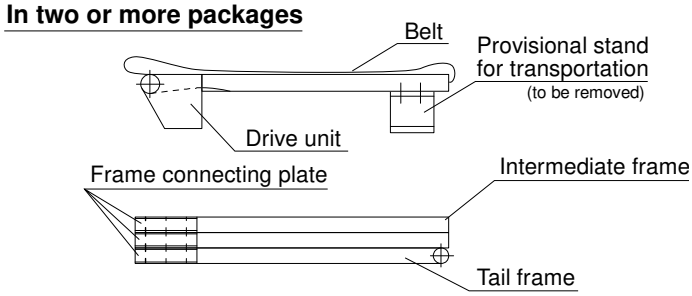
When machine exceeds 3m in length, it is delivered packed as shown below. Frame is usually divided into 3m sections.

■ Packaging

In one package



In two or more packages



1. Unpacking

Unpack and check stacked frames. Remove provisional stands for transportation, if any.

2. Frame Assembly

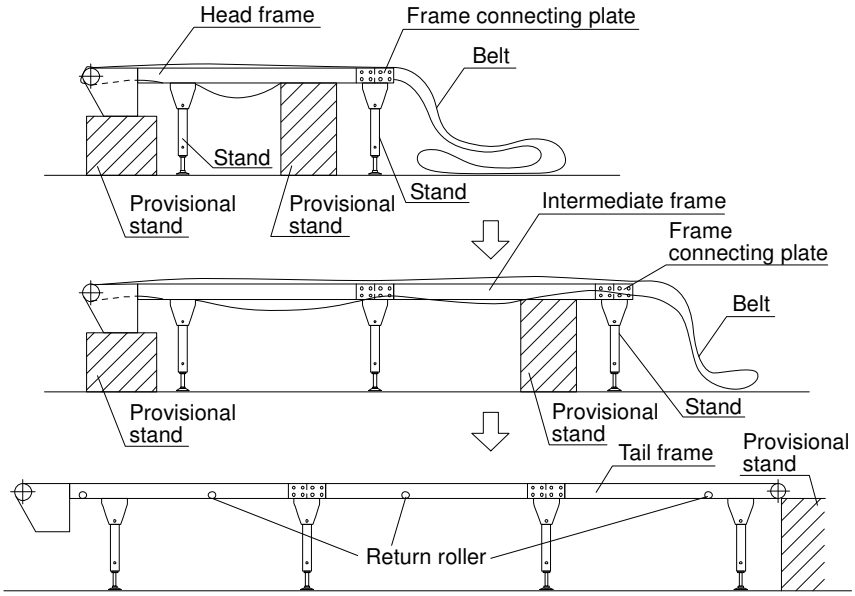
(1) Unfold belt. Join head frame, intermediate frame and tail frame in this order while installing stands at frame joints. → For details, see "■ Joining Frames" below and "3-1. INSTALLING STANDS (OPTIONAL)" on p.11.

NOTE: 1. When joining frames and installing stands, support both ends of frame with provisional stands. Take utmost care for safety.

2. Be sure to install stand at each frame joint.

(2) Install return rollers. → See p.12.

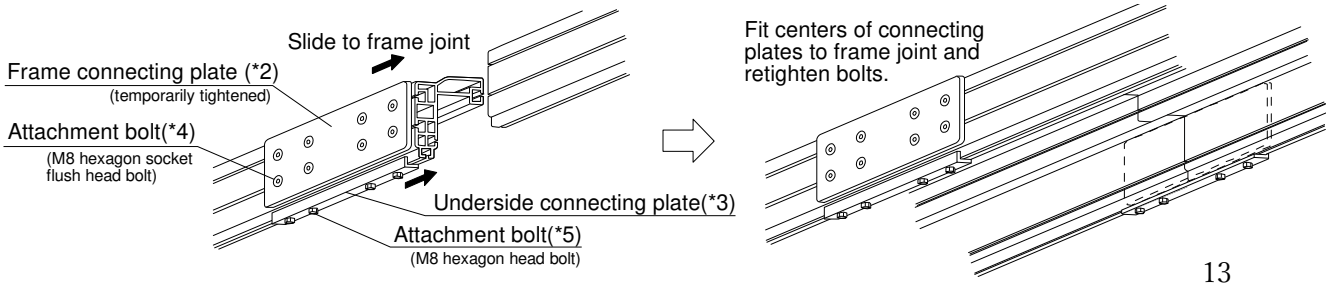
(3) Once assembly is completed, adjust belt alignment. → See p.19-23.



■ Joining Frames

Frame connecting plates(*2) and underside connecting plates(*3) are temporarily tightened to one side of frame. Loosen attachment bolts(*4, *5), and slide the plates(*2, *3) until their centers fit to frame joint. Then retighten attachment bolts(*4, *5).

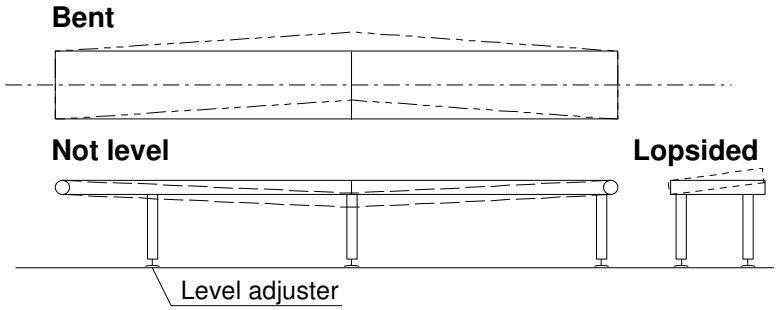
NOTE: When installing stand at frame joint, remove underside connecting plates.



■ Caution When Joining Frames and Setting up Conveyor

1. Install full length of frame straight, not bent in any place.
2. Finely adjust conveyor level with level adjustment screw beneath stands.

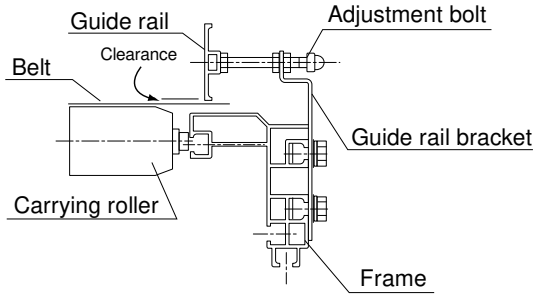
NOTE: If conveyor is bent or not level on top, belt may stray to one side or the other.



3-4. INSTALLING GUIDE RAILS (OPTIONAL)

Install guide rails (optional) using slots outside frame as shown in figure right. When installing, slightly raise guide rails, giving clearance to prevent belt from touching them.

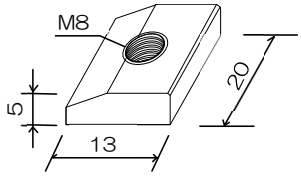
Guide rail (optional)
eg G-A2B (SMF) model

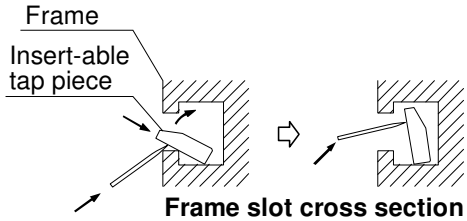


Cross section

■ Insertion of Insert-able Tap Pieces (optional)

When installing additional attachments to frame, insert insert-able tap pieces (M8, optional) into frame slots as shown in figures below.





Frame slot cross section

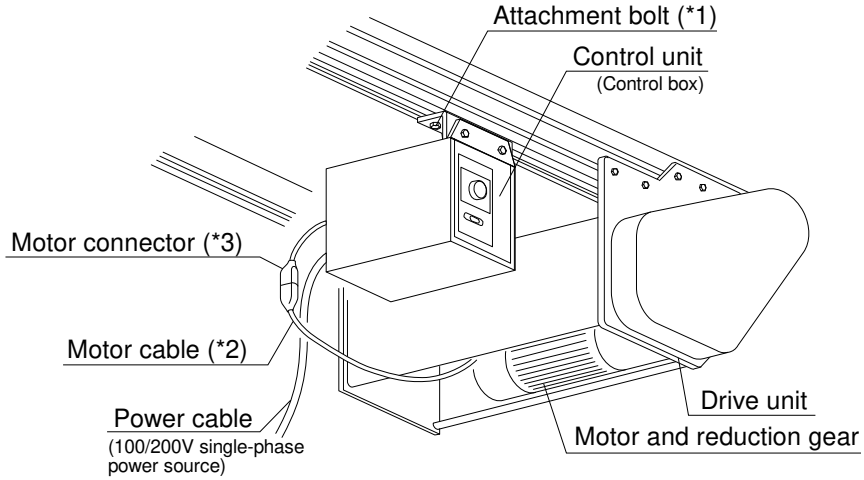
Insert insert-able tap piece into slot diagonally from above.
Lightly push up the tap piece with something cylindrical and pointed.

3-5. INSTALLING CONTROL UNIT

When power source type is 100/200V single-phase and control unit (control box) is delivered in separate packaging, install control unit as follows:

NOTE: For 200V three-phase power source, standard machine has only lead wire terminal of motor, control device such as switch is optional.

1. Install control unit near drive unit by tightening attachment bolts(*1) into underside slot of frame.
2. Motor cable(*2) is coming out of drive unit underside. Connect its connector to motor connector(*3) coming from rear of control box. (Connect tightly.)



4 RUNNING THE CONVEYOR

4-1. BE SURE TO GROUND MACHINE BEFORE OPERATION

200V three-phase power source : Standard machine has only lead wire terminal. For constant-speed type, switch etc. are not provided. When wiring, properly provide an earth on motor or drive side plate.

4-2. STARTING CONVEYOR

1. MITSUBISHI-inverter variable-speed Type

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

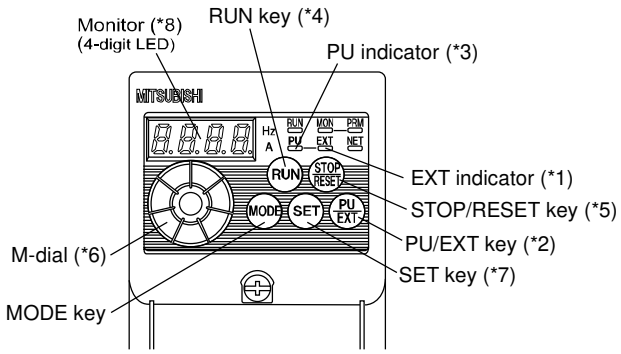
Speed Settings

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 change direction of belt travel or make external control by setting parameter. For details, refer to inverter instruction manual, appendix.

fig. Inverter operating panel



■ 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℃ to +40℃). 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.)

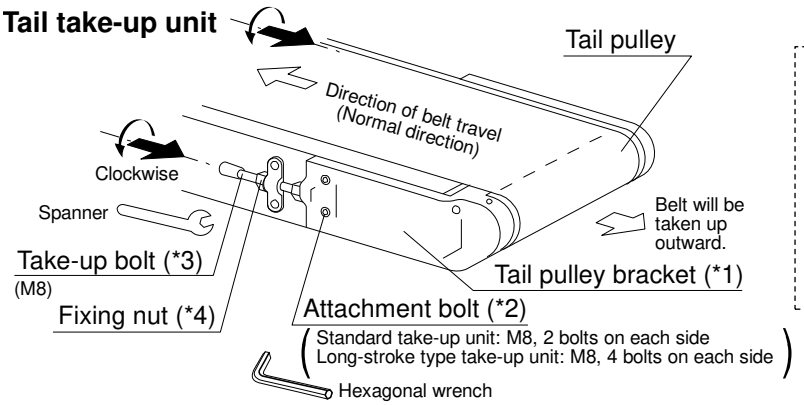
5 TAKING UP THE BELT

When belt is slackened off, take up belt as follows:
NOTE: For pre-assembled machines of 3m or less in length, belt tension is already adjusted. However, check the belt condition before use and make adjustments if necessary.

5-1. USING TAIL TAKE-UP UNIT

Applied to Head Drive Type (including Motor Pulley Model) and

On both sides of conveyor, loosen tail pulley bracket(*1) attachment bolts(*2). Loosen fixing nuts(*4) with a hexagonal wrench, and turn right and left take-up bolts(*3) clockwise with a spanner. Tail pulley and brackets(*1) will then move outward and belt will be taken up. When turning take-up bolts(*3), adjust them alternately, little by little, to keep their movement lengths the same. Once adjustment is completed, retighten fixing nuts(*4) and attachment bolts(*2).

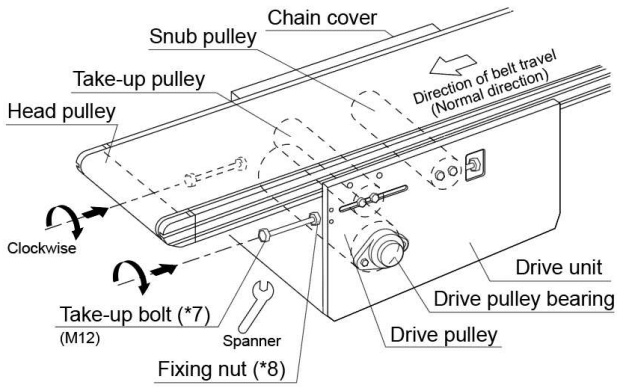


■ Belt Tension
Do not take up belt too much, but only to extent that belt does not slip on drive pulley, i.e. enough to drive belt.
NOTE: Excessive belt take-up may overload motor or shorten service lives of belt, pulley, etc.

5-2. USING TAKE-UP DEVICE OF DRIVE UNIT

1. Center Drive Type with CC-type Drive Unit
(motor output: 0.1-0.75kW, machine length: 10m or less)

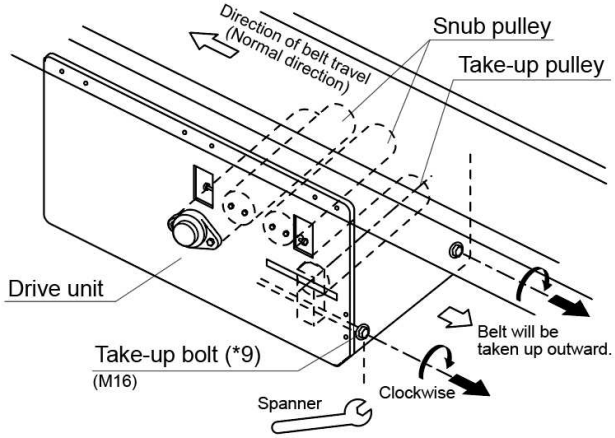
Loosen fixing nuts(*8) and turn right and left take-up bolts(*7) clockwise with a spanner. Belt will then be taken up. When turning take-up bolts(*7), adjust them alternately, little by little, to keep their movement lengths the same. Once adjustment is completed, retighten fixing nuts(*8). For belt tension, see p.17.



2. Center Drive Type with CL-type Drive Unit

(motor output: 0.1-0.75kW, machine length: 10.1m or more)

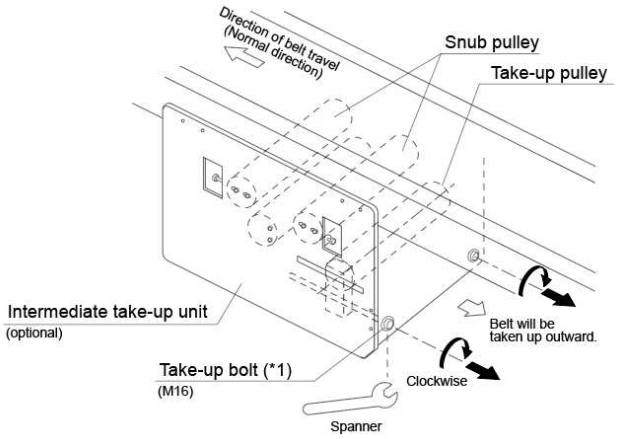
Turn right and left take-up bolts(*9) clockwise with a spanner. Belt will then be taken up. When turning take-up bolts(*9), adjust them alternately, little by little, to keep their movement lengths the same. For belt tension, see p.17.



5-3. USING INTERMEDIATE TAKE-UP UNIT (OPTIONAL)

Applied to Head Drive Type (motor output: 0.1-0.75kW)

When machine is equipped with intermediate take-up unit (optional), take up the belt by turning right and left take-up bolts(*1) clockwise with a spanner. When turning take-up bolts(*1), adjust them alternately, little by little, to keep their movement lengths the same. For belt tension, see p.17.



6 BELT ALIGNMENT ADJUSTMENT

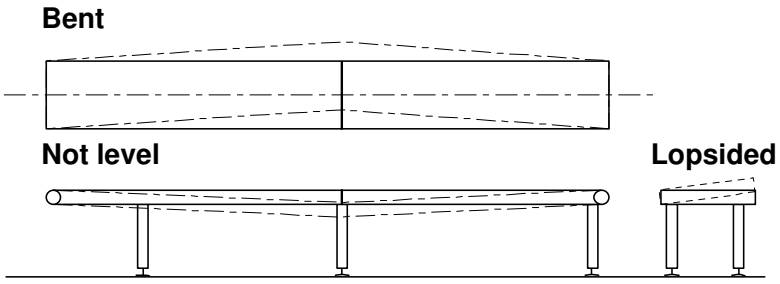
When belt is not correctly aligned, make adjustments as follows while running conveyor slowly:

NOTE: It is necessary to wait until belt running stabilizes after each adjustment step and to adjust belt alignment little by little. Belt running will not change immediately.

6-1. PRIOR CHECKING

1. Frame Condition

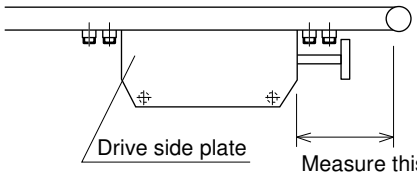
Confirm full length of frame is level on top, straight and not bent in any place.



2. Positions of Drive Side Plates

Confirm that right and left drive side plates are symmetrically positioned.

NOTE: If drive side plates are not positioned equally on right and left sides, it may cause belt deviation. Be sure to check their positions before using conveyor because side plates may have shifted out of position in transit.



Measure this length on both sides to check installation condition of right and left drive side plates.

3. Dirt on Pulleys

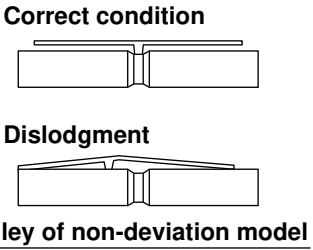
Check drive pulley, head and tail pulleys, etc. for dirt. Remove any dirt and clean. (Remove drive lower cover to check.)

4. Loading Condition

Improper loading, i.e. not-centered, may cause belt deviation.

5. Dislodgment of V-form Strip

For non-deviation models(**SMFV** model, etc.), check if V-form strip on belt undersurface has dislodged from V-form belt guidance grooves on pulleys and rollers. (For center drive type, remove drive lower cover to check.)



Pulley of non-deviation model

6. Belt Deviation

Check how belt is deviating before adjustment. Correct positions of the following parts while running conveyor slowly, and then continue running it for a while to check any further belt deviation.

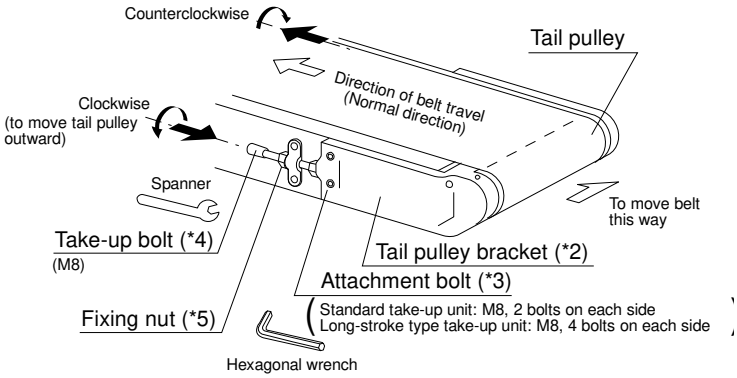
-**Take-up devices**: Position and adjust them equally on right and left sides.

-**Head and tail pulleys**: Set at right angle to frame.

6-2. ADJUSTMENTS OF HEAD DRIVE TYPE

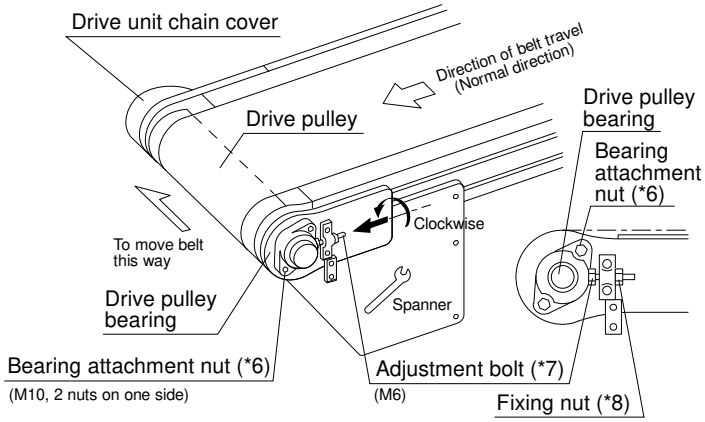
1. Adjustment Using Tail Take-up Bolt

On side to which belt is deviating, loosen tail pulley bracket(*2) attachment bolts(*3). Loosen fixing nut(*5) and slightly turn take-up bolt(*4) clockwise with a spanner. Tail pulley and bracket(*2) will then move outward on this side and belt will center itself. Alternatively, on opposite side, move tail pulley inward by turning take-up bolt(*4) counterclockwise. Once adjustment is completed, retighten fixing nut(*5) and attachment bolts(*3).



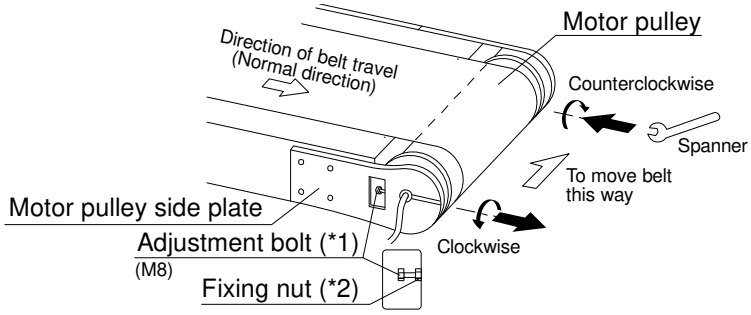
2. Adjustment Using Head Drive Pulley

On opposite side of drive unit chain cover, loosen bearing attachment nuts(*6). To move drive pulley inward/outward, loosen fixing nut(*8) and turn adjustment bolt(*7) with a spanner. Belt will then center itself. (This adjustment is possible only on one side. Determine the movement direction of drive pulley, according to belt deviation direction.) Once adjustment is completed, retighten fixing nut(*8) and bearing attachment nuts(*6).



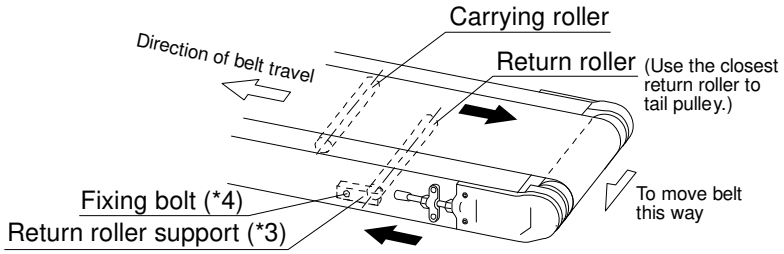
■ Adjustment of Motor Pulley Type

Loosen fixing nut(*2) with a spanner and slightly turn adjustment bolt(*1) of motor pulley side plate in intended direction. Motor pulley will then move diagonally and belt will center itself. Once adjustment is completed, retighten fixing nut(*2).



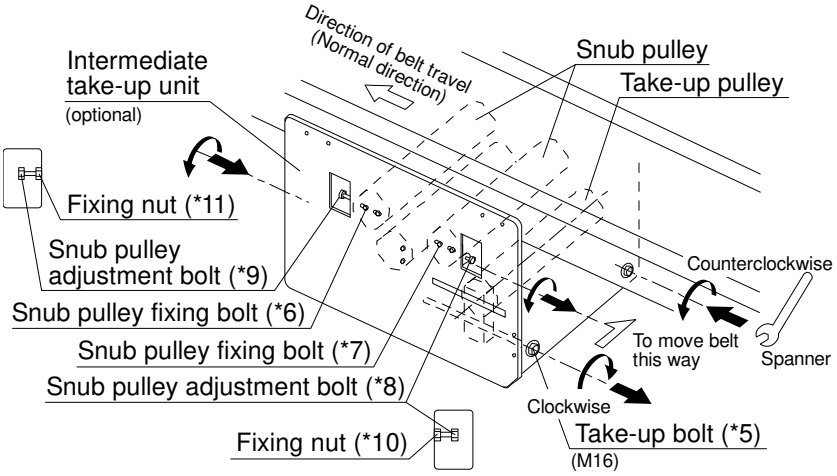
3. Adjustment Using Return Roller

Find the closest return roller to tail pulley and make adjustment using it. On one side, loosen return roller support(*3) fixing bolt(*4) with a spanner, and set return roller slightly diagonally. Belt will then move to form right angle to return roller rotation axis. Once adjustment is completed, retighten fixing bolt(*4).
→For details of return roller support, see p.12.



4. Adjustment Using Intermediate Take-up Unit (optional)

On side to which belt is deviating, turn take-up bolt(*5) clockwise. Belt will then be taken up on this side and center itself. For adjustment using snub pulley, loosen fixing bolts(*6 or *7) and loosen fixing nut(*10 or *11) with a spanner. Then make adjustment by turning adjustment bolt(*8 or *9). Belt will then move to form right angle to snub pulley rotation axis. Once adjustment is completed, retighten fixing bolts(*6 or *7) and fixing nut(*10 or *11).



6-3. ADJUSTMENTS OF CENTER DRIVE TYPE

1. Center Drive Type with CC-type Drive Unit

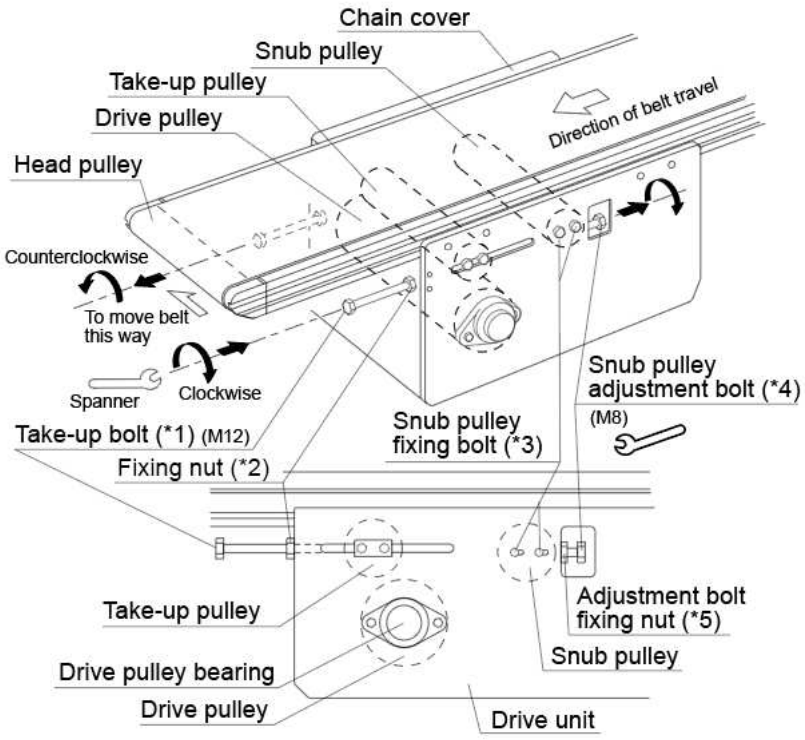
(motor output: 0.1-0.75kW, machine length: 10m or less)

(1) Adjustment Using Take-up Bolt

On side to which belt is deviating, loosen fixing nut(*2) with a spanner and turn take-up bolt(*1) clockwise. Belt will then be taken up on this side and center itself. Alternatively, on opposite side, loosen belt by turning take-up bolt(*1) counterclockwise. Once adjustment is completed, retighten fixing nut(*2).

(2) Adjustment Using Snub Pulley

On opposite side of chain cover, loosen snub pulley fixing bolts(*3) (2 bolts) with a hexagonal wrench. Loosen adjustment bolt fixing nut(*5) with a spanner, and turn snub pulley adjustment bolt(*4) in intended direction. Belt will then move to form right angle to snub pulley rotation axis. (This adjustment is possible only on one side. Determine the movement direction of snub pulley, according to belt deviation direction.) Once adjustment is completed, retighten snub pulley fixing bolts(*3) and adjustment bolt fixing nut(*5).



(3) Adjustment Using Head or Tail Pulley

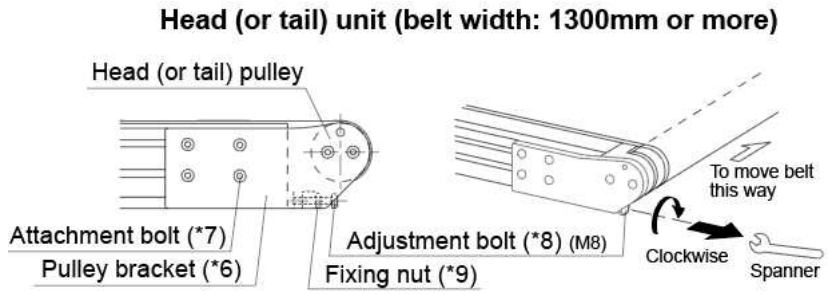
For belt width less than 1300mm:

Make adjustment referring to "(2) Adjustment Using Head or Tail Pulley", p.27.

For belt width of 1300mm or more:

Loosen pulley bracket(*6) attachment bolts(*7) with a hexagonal wrench. To move head (or tail) pulley inward/outward, loosen fixing nut(*9) with a spanner and turning adjustment bolt(*8). Belt will then center itself.

Once adjustment is completed, retighten attachment bolts(*7) and fixing nut(*9).



2. Center Drive Type with CL-type Drive Unit

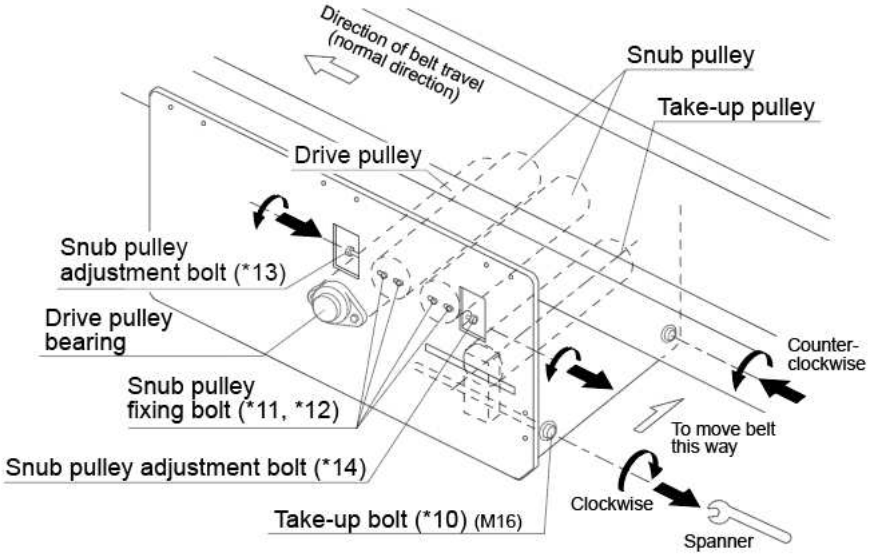
(motor output: 0.1-0.75kW, machine length: 10.1m or more)

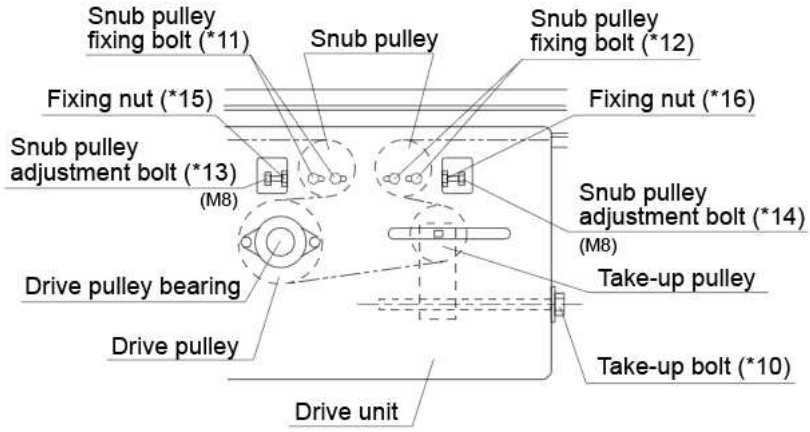
(1) Adjustment Using Take-up Bolt

On side to which belt is deviating, turn take-up bolt(*10) clockwise with a spanner. Belt will then be taken up on this side and center itself. Alternatively, on opposite side, loosen belt by turning take-up bolt(*10) counterclockwise.

(2) Adjustment Using Snub Pulley

On opposite side of chain cover, loosen snub pulley fixing bolts(*11 or *12) with a hexagonal wrench. Loosen fixing nut(*15 or *16) with a spanner, and turn snub pulley adjustment bolt(*13 or *14) in intended direction. Belt will then move to form right angle to snub pulley rotation axis. (This adjustment is possible only on one side. Determine the movement direction of snub pulley, according to belt deviation direction.) Once adjustment is completed, retighten snub pulley fixing bolts(*11 or *12) and fixing nut(*15 or *16).





(3) Adjustment Using Head or Tail Pulley

Make adjustment referring to "(3) Adjustment Using Head or Tail Pulley" (for CC-type drive unit), p.22.

(4) Adjustment Using Intermediate Take-up Unit (optional)

Make adjustment referring to "(1) Adjustment Using Take-up Bolt" and "(2) Adjustment Using Snub Pulley" above.

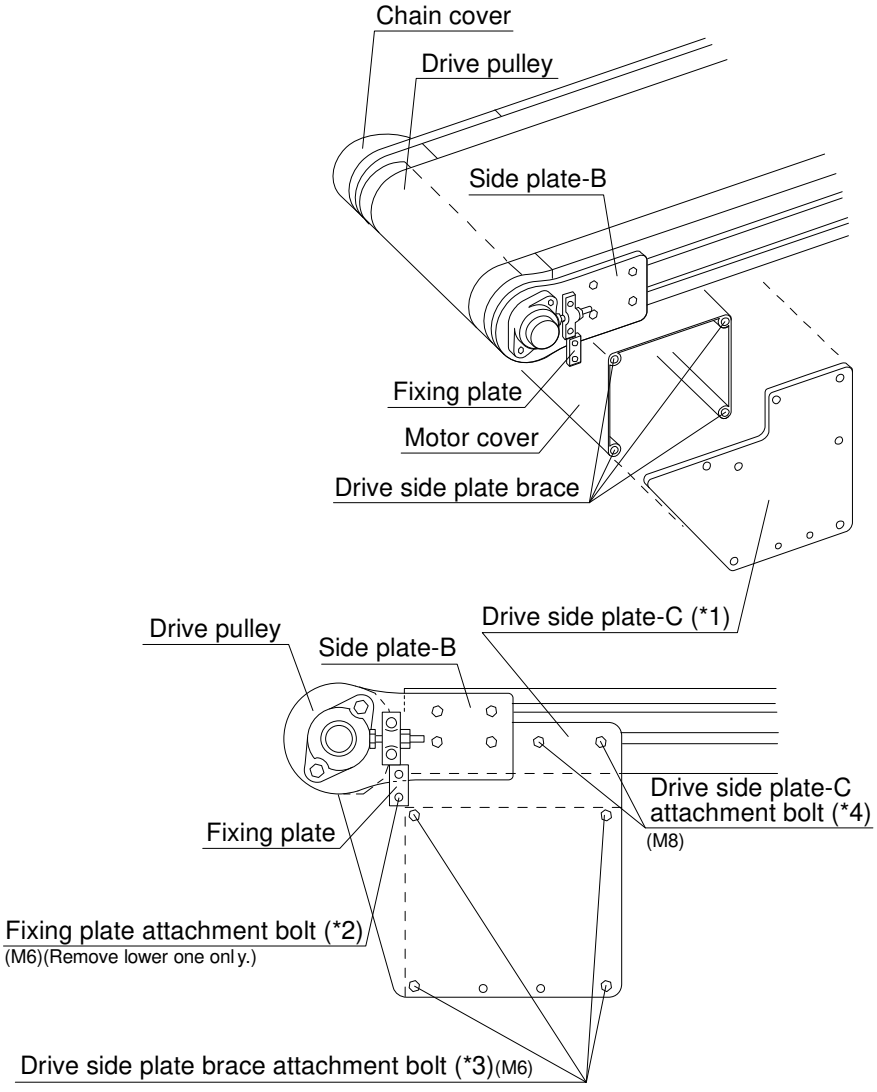
NOTE: For adjustment using return roller, see "(3) Adjustment Using Return Roller", p.21.

7 BELT REPLACEMENT

7-1. BELT REPLACEMENT OF HEAD DRIVE TYPE

1. Remove stands from conveyor. (If impossible, remove all the stand attachment bolts on opposite side of drive chain cover.)
2. Remove all the return rollers. (→See "3-2. INSTALLING RETURN ROLLERS", p12.)
3. Loosen belt by turning take-up bolts of tail unit counterclockwise. (→See the figure "Tail take-up unit", p16.)
4. To remove drive side plate-C(*1) on opposite side of chain cover, remove the following bolts:
   -Fixing plate attachment bolt (*2) (Remove lower one only.)
   -Drive side plate brace attachment bolts (*3) (4 bolts)
   -Drive side plate-C attachment bolts (*4) (2 bolts)
5. Remove tail pulley. (→See "■ Tail Pulley Removal", p.27.)
6. Remove belt sideways and install replacement belt.
   NOTE: In advance, check replacement belt for length, straightness, etc. When installing, pay attention to direction of belt travel.
7. Reinstall parts in reverse order. Take up belt and adjust belt alignment.

NOTE: For machines with intermediate take-up unit (optional), remove side plate on one side as well, referring to "3. CL-type Center Drive Unit", p.26.



7-2. BELT REPLACEMENT OF CENTER DRIVE TYPE

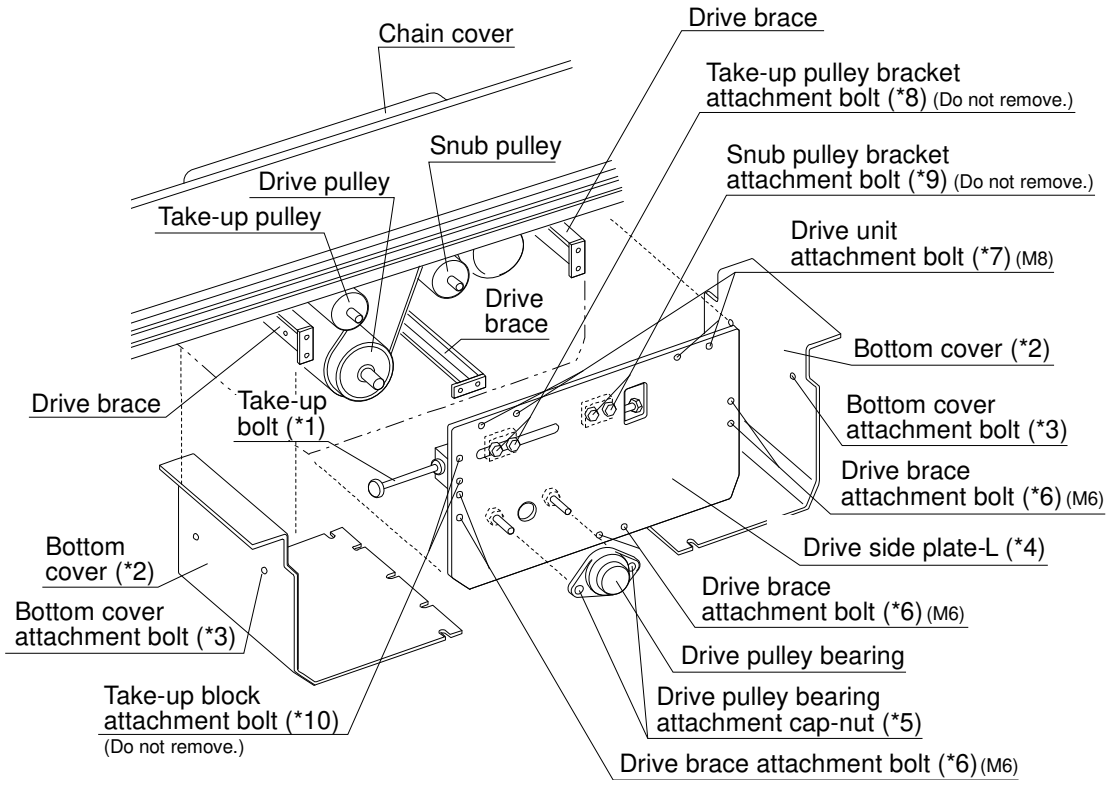
1. CC-type Center Drive Unit(motor output: 0.1-0.75kW, machine length: 10m or less)

(1) Remove stands from conveyor. (If impossible, remove all the stand attachment bolts on opposite side of drive chain cover.)
(2) Remove all the return rollers. (→See "3-2. INSTALLING RETURN ROLLERS", p12.)
(3) Loosen belt by turning take-up bolts(*1) counterclockwise.
(4) Loosen attachment bolts(*3) and remove bottom covers(*2) (2 covers).
(5) To remove drive side plate-L(*4) on opposite side of chain cover, remove the following bolts and nuts:
-Drive pulley bearing attachment cap-nuts (*5) (2 nuts)
-Drive brace attachment bolts (*6) (2 bolts in 3 places)
-Drive unit attachment bolts (*7) (2 bolts in 2 places)

NOTE: ① For proper re-assembly, mark initial positions of right and left drive side plates.
② Do not remove the following bolts.
-Take-up pulley bracket attachment bolts(*8) (2 bolts)
-Snub pulley bracket attachment bolts (*9) (2 bolts)
-Take-up block attachment bolts (*10) (2 bolts)

6) Remove head (or tail) pulley. (→See "■ Tail Pulley Removal", p.27.)
7) Remove belt sideways and install replacement belt.
NOTE: In advance, check replacement belt for length, straightness, etc. When installing, pay attention to direction of belt travel.
8) Reinstall parts in reverse order. Take up belt and adjust belt alignment.

CC-type center drive unit



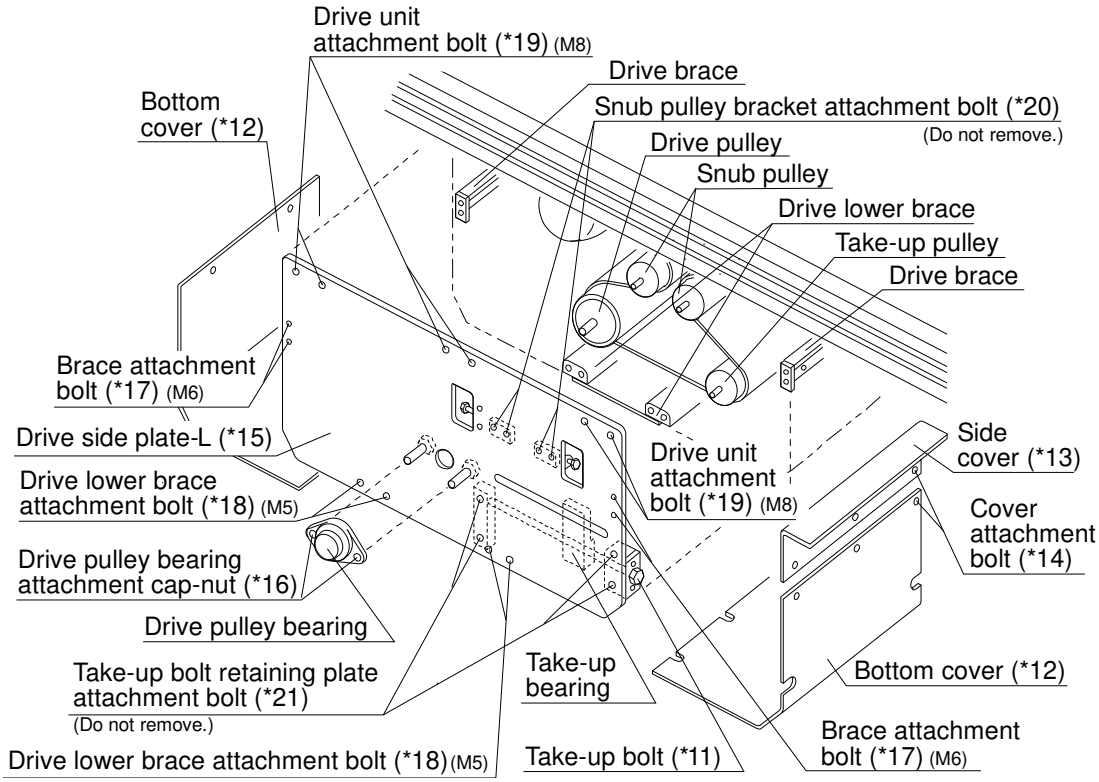
2. CL-type Center Drive Unit(motor output: 0.1-0.75kW, machine length: 10.1m or more)

(1) Remove stands from conveyor. (If impossible, remove all the stand attachment bolts on opposite side of drive chain cover.)
(2) Remove all the return rollers. (→See "3-2. INSTALLING RETURN ROLLERS", p12.)
(3) Loosen belt by turning take-up bolts(*11) counterclockwise.
(4) Loosen cover attachment bolts(*14), and remove bottom covers(*12) (2 covers) and side cover(*13).
(5) To remove drive side plate-L(*15) on opposite side of chain cover, remove the following bolts and nuts:
- -Drive pulley bearing attachment cap-nuts (*16) (2 nuts)
- -Drive brace attachment bolts (*17) (2 bolts in 2 places)
- -Drive lower brace attachment bolts (*18) (2 bolts in 2 places)
- -Drive unit attachment bolts (*19) (2 bolts in 3 places)

NOTE: ① For proper re-assembly, mark initial positions of right and left drive side plates.
② Do not remove the following bolts.
-Snub pulley bracket attachment bolts (*20) (2 bolts in 2 places)
-Take-up bolt retaining plate attachment bolts (*21) (2 bolts in 2 places)

(6) Remove head (or tail) pulley. (→See "■ Tail Pulley Removal", p.27.)
(7) Remove belt sideways and install replacement belt.
NOTE: In advance, check replacement belt for length, straightness, etc. When installing, pay attention to direction of belt travel.
(8) Reinstall parts in reverse order. Take up belt and adjust belt alignment.

CL-type center drive unit



■ Tail Pulley Removal

Head Drive Type

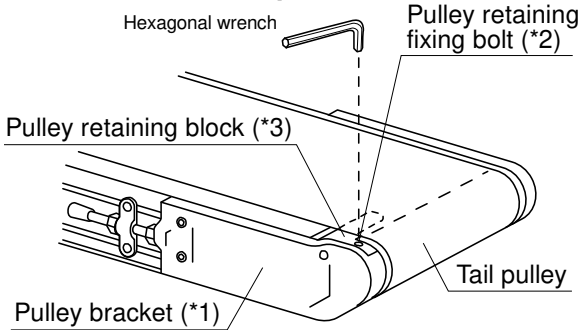
● Standard tail take-up unit

Remove pulley retaining block fixing bolts(*2) on tops of pulley brackets(*1) with a hexagonal wrench. Remove pulley retaining blocks(*3) upwards. Tail pulley may then be removed upwards.

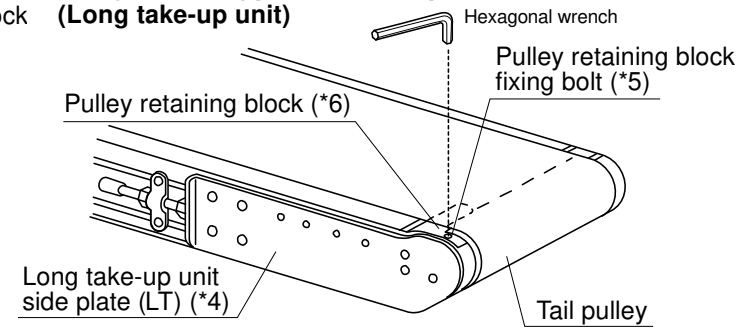
● Long-stroke type tail take-up unit (long take-up unit)

Remove pulley retaining block fixing bolts(*5) on tops of side plates(LT)(*4) with a hexagonal wrench. Remove pulley retaining blocks(*6) upwards. Tail pulley may then be removed upwards.

Standard tail take-up unit



Long-stroke type tail take-up unit (Long take-up unit)



Center Drive Type

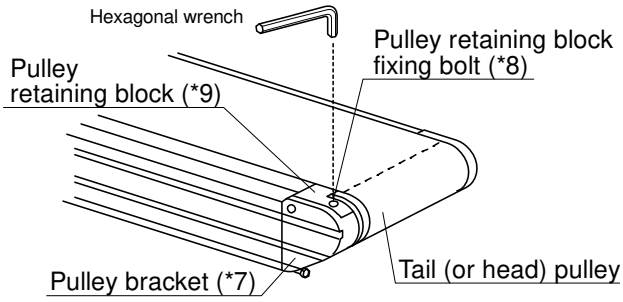
● Tail (or head) unit

Remove pulley retaining block fixing bolts(*8) on tops of pulley brackets(*7) with a hexagonal wrench. Remove pulley retaining blocks(*9) upwards. Tail pulley may then be removed upwards.

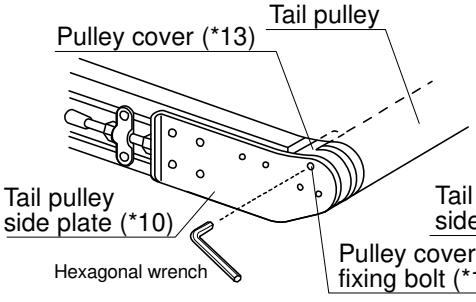
● For belt width of 1300mm or more

Remove pulley cover fixing bolts(*12) on tail pulley side plates(*10) or tail (or head) pulley side plates(*11) with a hexagonal wench. Remove pulley covers(*13) upwards. Tail pulley may then be removed upwards.

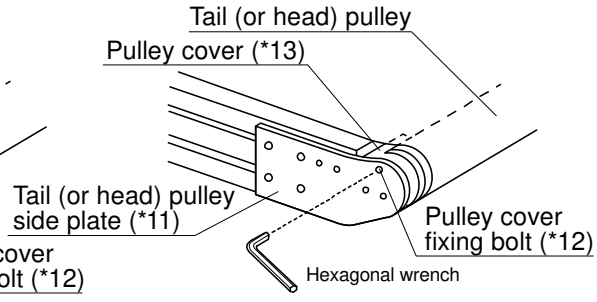
Tail (or head) unit



Tail take-up unit (For belt width of 1300mm or more)



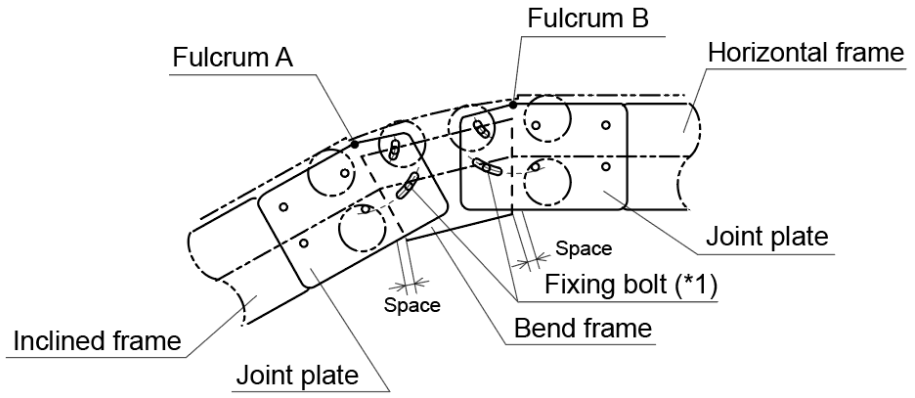
Tail (or head) unit (For belt width of 1300mm or more)



8 ANGLE ADJUSTMENT OF TILT MODELS

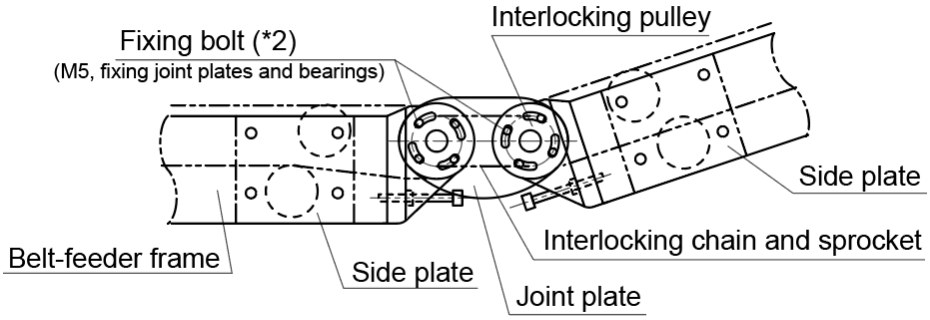
8-1. ANGLE ADJUSTMENT OF BEND UNIT

Slightly loosen fixing bolts(*1) (4 bolts on each side). Change angle by moving inclined frame and bend frames with fulcra A and B. When making adjustments, ensure spaces between bend frames and joint plates are all the same. Once adjustment is completed, retighten fixing bolts(*1).



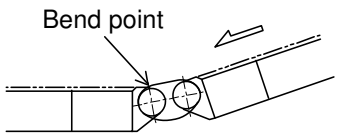
8-2. ANGLE ADJUSTMENT OF BELT-FEEDER INTERLOCKING UNIT (OPTIONAL)

Slightly loosen fixing bolts(*2). Change angle as shown in figures to right, according to type of operation. Once adjustment is completed, retighten fixing bolts(*2).

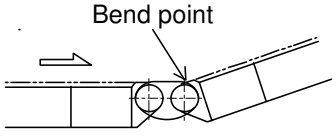


NOTE: For complete diagram of tilt models, see p.9.

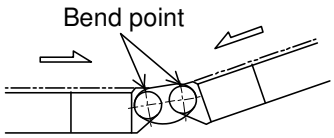
Angle adjustment method



Downward operation
Change angle on belt feeder side.



Upward operation
Change angle on main body side.



Reversible operation
Change angle by half on each side.

9 INSPECTION AND MAINTENANCE

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.

9-1. 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. (Reverse switch remains halfway.) (3) Inappropriate power source	(1) Inspection, correction (2) Inspection, correction (3) Check power source. → See p.15.
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 control unit	(1) Inspection, repair (2) Reset to appropriate speed. → See p.15. (3) Restore protection circuit or emergency stop switch. (4) Inspection, repair or replacement
3. Motor runs, but belt does not move.	(1) Belt is slacked off. (2) Chain has come off. (3) Belt is trapped after misalignment. (4) Conveyor has been overloaded. (5) Motor gear head teeth have become worn.	(1) Take up belt. → See p.17-18. (2) Inspection, repair (3) Adjust belt alignment. → See p.19-23. (4) Reduce load. (5) Inspection, replacement
4. Conveyor will not start running unless belt is pulled.	(1) Belt has been taken up too much. (2) Foreign substances on belt undersurface (3) Belt has excessive resistance to winding. (Incorrect belt has been chosen.)	(1) Loosen belt to proper tension. → See p.17-18. (2) Remove any foreign matter and clean belt (3) Replace belt, or replace motor with higher capacity version. → See p.19-23.
5. Abnormal noise or vibration	(1) Drive pulley setting bolt(s) has become loose. (2) Sprocket setting bolt(s) has become loose. (3) Chain has become slack.	(1) Tighten setting bolt(s). (2) Tighten setting bolt(s). (3) Take up or replace chain.
6. Overheat or damage of motor	(1) Inappropriate power source (2) Conveyor has been overloaded. (3) Conveyor runs too quickly or too slowly. (4) Belt is trapped after misalignment.	(1) Check power source. → See p.15. (2) Reduce load. (3) Set at proper speed, or replace reductiongear. (4) Adjust belt alignment. → See p.19-23.
7.Electric shock is received from conveyor.	(1) Static electricity has been charged in frames. (2) Electric leakage	(1) Properly ground the machine. → See p.15. (2) Inspection, investigation

9-2. ITEMS FOR REGULAR INSPECTION

CHECKING PERIOD	PART TO CHECK	THINGS TO CHECK FOR	CHECKING METHOD	REMEDY
Daily	Belt	Foreign substances on surface and undersurface	Visual inspection	Clean and remove foreign substances
		Dislodgment from V-form belt guidance grooves	Visual inspection	Inspection, adjustment
		Getting caught	Visual inspection	Inspection, adjustment
	Drive pulley and other pulleys	Foreign substances	Visual inspection	Clean and remove foreign substances
Monthly	Drive chain	Slack, lubrication	Visual inspection and manual check	Take up slack. Apply oil*.
	Sprocket	Wear of sprocket teeth, damages	Visual inspection and manual check	Inspection and adjustment or replacement
Three monthly	Geared motor	Rotation malfunction, loose attachment bolts	Visual inspection and manual check	Inspection Tighten loose bolts.
		Overheat, abnormal noise	Manual check, listening	Inspection and adjustment or replacement
Six monthly	Drive pulley	Wear of surface, rotation malfunction	Visual inspection and manual check	Inspection and adjustment or replacement
	Pulleys and rollers	Rotation malfunction, loose attachment bolts	Visual inspection and manual check	Inspection, repair Tighten loose bolts.
		Overheat of bearings, abnormal noise	Manual check, listening	Inspection and adjustment or replacement
	Frame, stands, attachments	Loose attachment bolts	Visual inspection and manual check	Tighten loose bolts.
		Damages	Visual inspection and manual check	Inspection and adjustment or replacement

MEMO

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- 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.

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