



# BANDO LIGHT-DUTY CONVEYOR BELT

- **SUNLINE™ BELTS**
- **BANCOLLAN™ LONG SYNCHRONOUS BELTS**
- **PS BELTS™**
- **BANCORD™ ROUND BELTS**

**BANDO** BANDO CHEMICAL INDUSTRIES, LTD.

Industrial Products Division

■ For further information contact below

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C-SL-003-104E

— ISO Certification and Food Sanitation Act standards —

Bando's Kakogawa Factory, which manufactures SUNLINE Belts, acquired ISO9001 and 14001 Certification to conduct organized and systematic quality assurance and environmental conservation.

We also integrated the ISO9001 and ISO14001 instruction manuals for system efficiency.

The SUNLINE Belts we supply to the food industry, including those made of PVC, meet Article 370 standards of the Food Sanitation Act of the Ministry of Health and Welfare.

We have polyurethane belts which pass flame resistant standard ISO340. For details, please contact Bando or your distributor.



Quality Management System  
Industrial Products Division  
**ISO 9001**  
Certification acquired on May 2, 1996  
ID No. YKA0953248



Environment Management System  
Kakogawa Factory  
**ISO 14001**  
Certification acquired on May 21, 1999  
ID No. YKA0772509

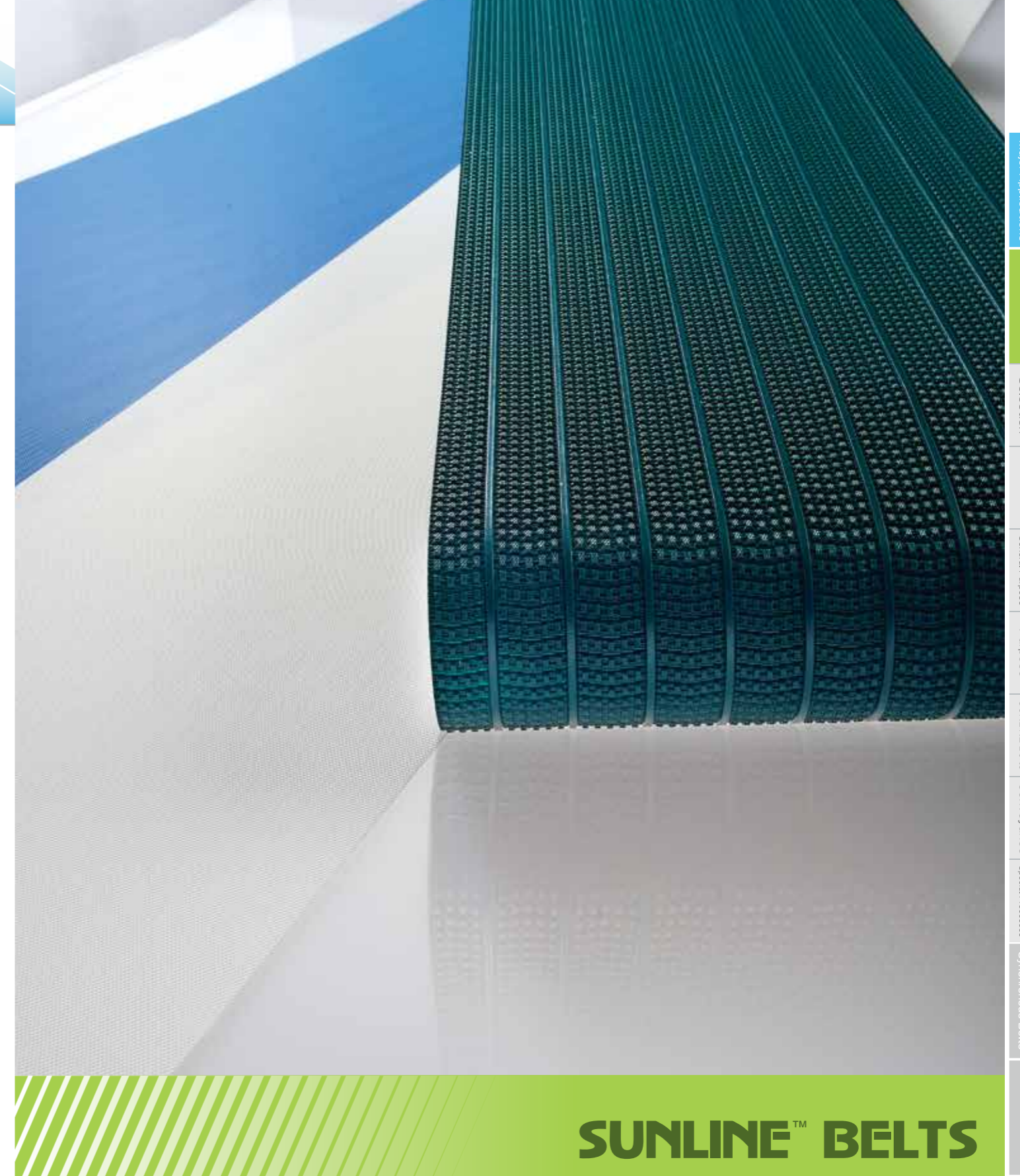
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# BANDO LIGHT-DUTY CONVEYOR BELT

- Features and Major Applications
- SUNLINE Belts
- Belt Selection
- Food
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- Special Purpose
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- Inclined Conveyance
- Design Materials/Special Processes
- Bancollan Long Synchronous Belts
- PS Belts
- Bancord Round Belts
- Glossary

# Bando Light-Duty Conveyor Belts Features and Major Applications

Products	Usage Examples
<p><b>SUNLINE Belts</b></p> <ul style="list-style-type: none"> <li>● Wide selection available</li> <li>● High performance "F Series" for food conveyance</li> <li>● "M Series" for logistics (material distribution) / general purpose conveyance</li> <li>● Multi-use "S Series"</li> <li>● Cleats and guides can be fabricated upon request</li> </ul> <p><b>Super SUNLINE Belts</b></p> <ul style="list-style-type: none"> <li>● Seamless, precision conveyance</li> <li>● Long life even in small pulley or knife edge conveyance</li> <li>● Wide selection, including non-fray</li> </ul>	<ul style="list-style-type: none"> <li>▶ Food</li> <li>▶ Baggage, boxes</li> <li>▶ Components, bulk</li> <li>▶ Lumber, plywood</li> <li>▶ Fibers</li> <li>▶ Paper</li> <li>▶ Gaming machines</li> <li>▶ Medical equipment</li> </ul>
<p><b>Bancollan Long Synchronous Belts</b></p> <ul style="list-style-type: none"> <li>● Synchronous conveyance and positioning applications</li> <li>● Wide selection of tooth profiles</li> <li>● Profile processing possibilities</li> <li>● Meets Article 370 standards of the Food Sanitation Act of the Ministry of Health and Welfare</li> </ul> <p><b>Bancollan Long Flat Belts</b></p> <ul style="list-style-type: none"> <li>● Excellent dimensional stability and precision thickness</li> </ul>	<ul style="list-style-type: none"> <li>▶ Food</li> <li>▶ Panels</li> <li>▶ Reciprocal motion, such as for sliding doors</li> <li>▶ Head motion and positioning for printers, plotters</li> <li>▶ Medical supplies, test tubes</li> <li>▶ Transport equipment risers</li> </ul>
<p><b>PS Belts</b></p> <ul style="list-style-type: none"> <li>● Transmission belts for light-load, high-speed applications</li> <li>● Proven performance in light duty applications</li> <li>● Axes adjust according to belt elongation (no need for take-up)</li> <li>● Seamless and precise conveyance</li> </ul>	<ul style="list-style-type: none"> <li>▶ Cards, banknotes</li> <li>▶ Test tubes</li> <li>▶ Chip registers</li> <li>▶ High-speed, light-load transmission</li> <li>▶ Paper</li> <li>▶ Scales</li> <li>▶ Food</li> <li>▶ Medical equipment</li> </ul>
<p><b>Bancord Round Belts</b></p> <ul style="list-style-type: none"> <li>● Easily joined to desired length</li> <li>● Light load and multi-belt conveyance</li> <li>● Meets Article 370 standards of the Food Sanitation Act of the Ministry of Health and Welfare</li> </ul>	<ul style="list-style-type: none"> <li>▶ Roller conveyor drives</li> <li>▶ Food</li> <li>▶ Cards, banknotes</li> <li>▶ Circuit boards</li> <li>▶ Light load power transmission</li> </ul>



**SUNLINE™ BELTS**

Features and Major Applications

SUNLINE Belts

Belt Selection

Food

Logistics/General Purpose

Special Purpose

Super SUNLINE Belts

Inclined Conveyance

Design Materials/Special Processes

Bancollan Long Synchronous Belts

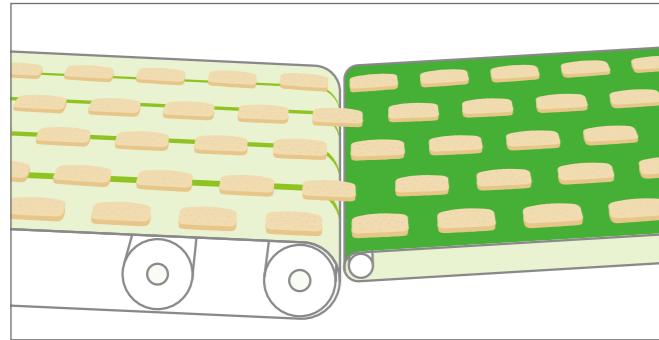
PS Belts

Bancord Round Belts

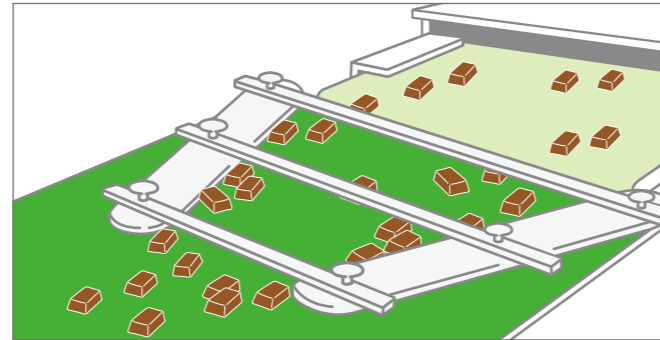
Glossary

## Food, Food Machinery

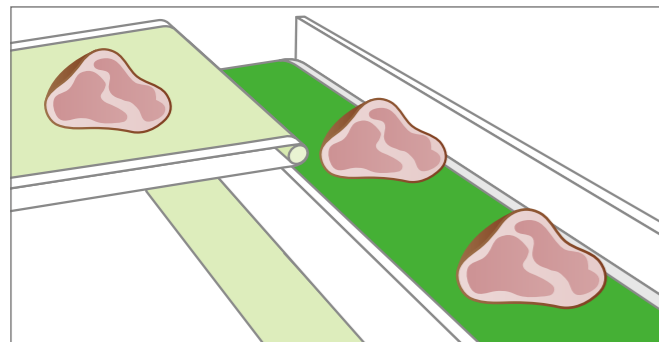
Bando's F-Series resin conveyor belts have been a pioneer in the food industry. Antibacterial, antifungal and non-fray features are standard specifications. A wide selection is available as we have made product improvements and size reductions to reduce environmental impact and respond to changes in work environments. SUNLINE Belts meet various demands - from standard operations to specialty applications.



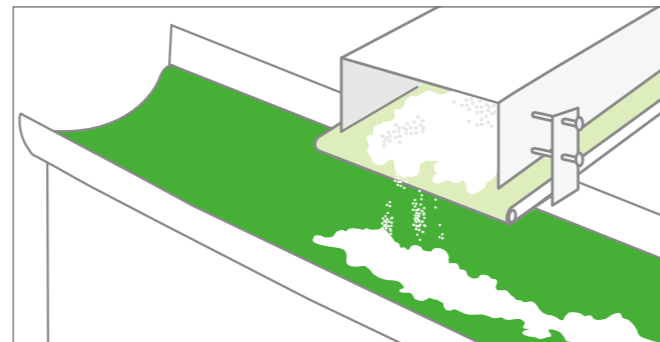
【 Small pulley and knife edge applications 】



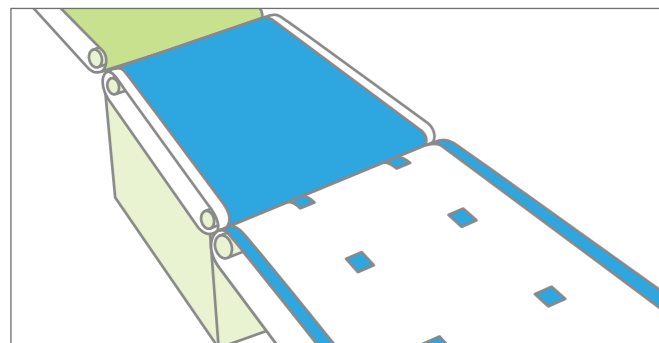
【 Less sticky 】



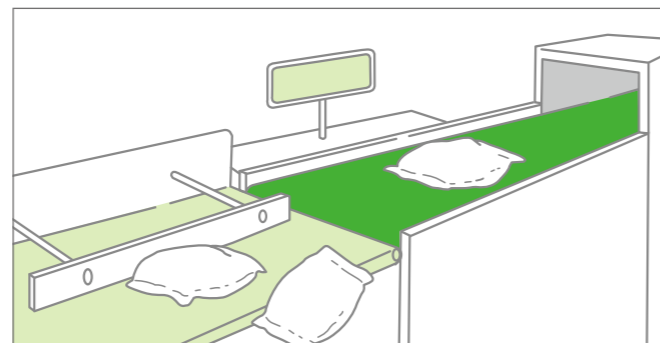
【 Long service life, even in applications requiring frequent cleaning or sterilization 】



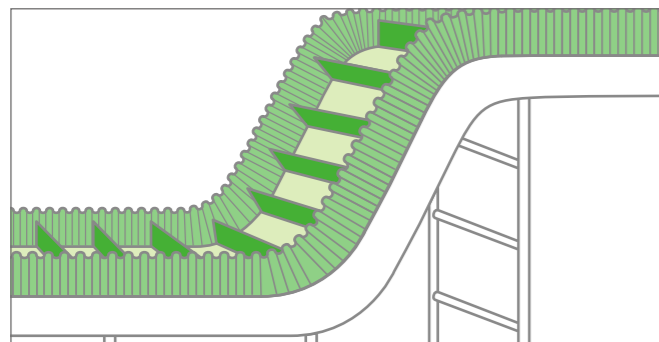
【 Trough-shaped conveyance for powder or bulk materials 】



【 Available in blue to easily detect foreign object inclusion 】

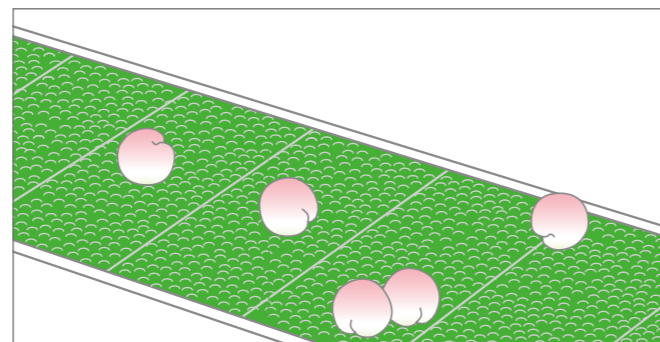


【 High precision seamless belts for scales 】



【 Inclined conveyance in narrow spaces 】

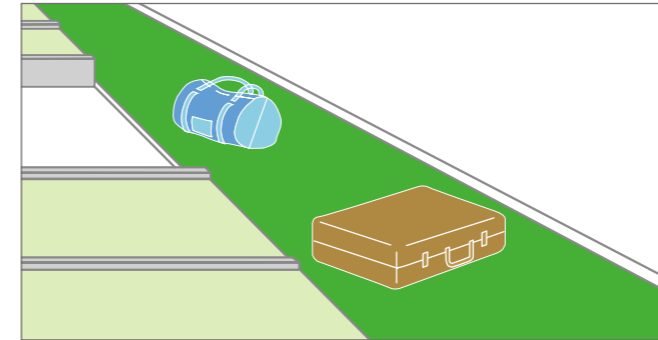
※Actual belt color may differ from those shown above.



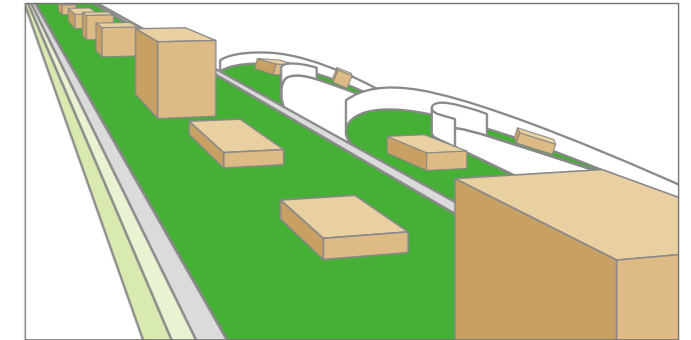
【 Prevents damage or rolling of fruits and vegetables 】

## Logistics, Logistic Equipment, Other

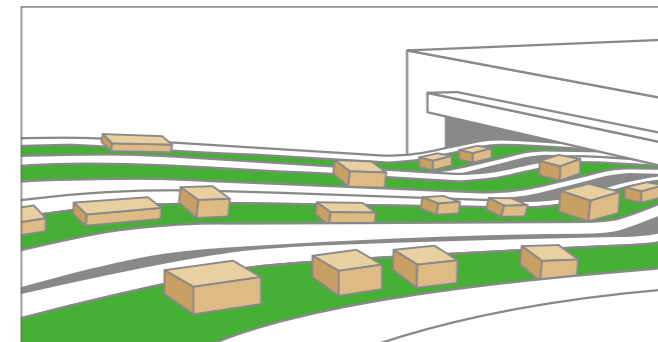
Reliable and effective conveyance is the most basic function of conveyor belts. Our belts offer high speed and low noise conveyance, with applications ranging from sorting and slide applications to inclined conveyance. We have belts resistant to heat, oil and chemicals for use in a variety of manufacturing processes, and we can provide processing service.



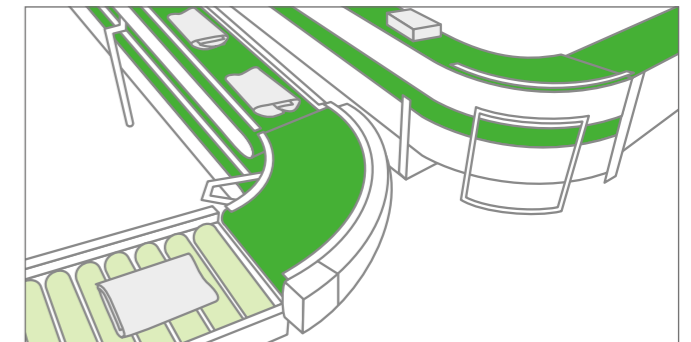
【 High speed conveyance for heavy baggage on airport conveyors 】



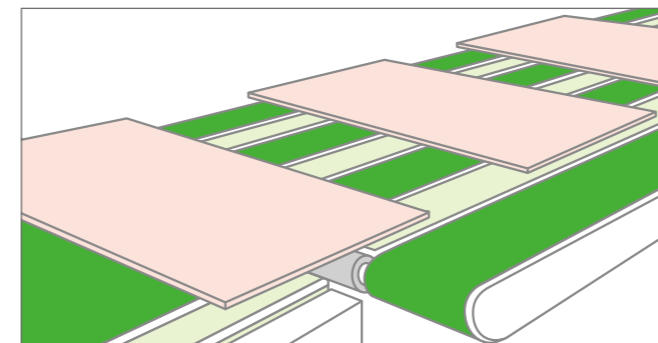
【 Slide conveyance for sorting lines 】



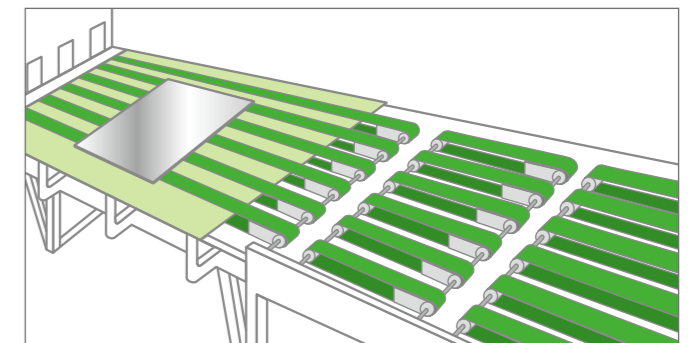
【 Inclined conveyance of boxes or bags 】



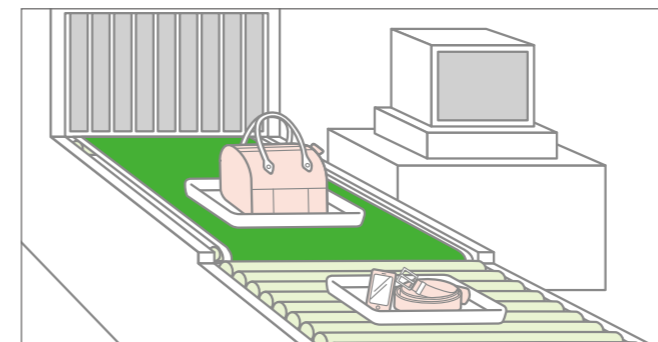
【 Flexible horizontal and vertical curves 】



【 Multiple belts for large sized material such as plywood 】

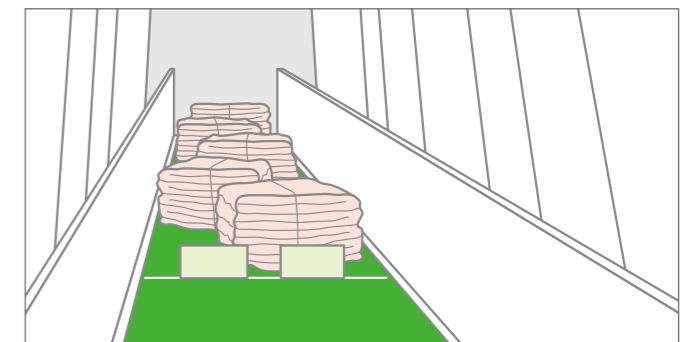


【 Post-press conveyance of steel plates and iron parts 】

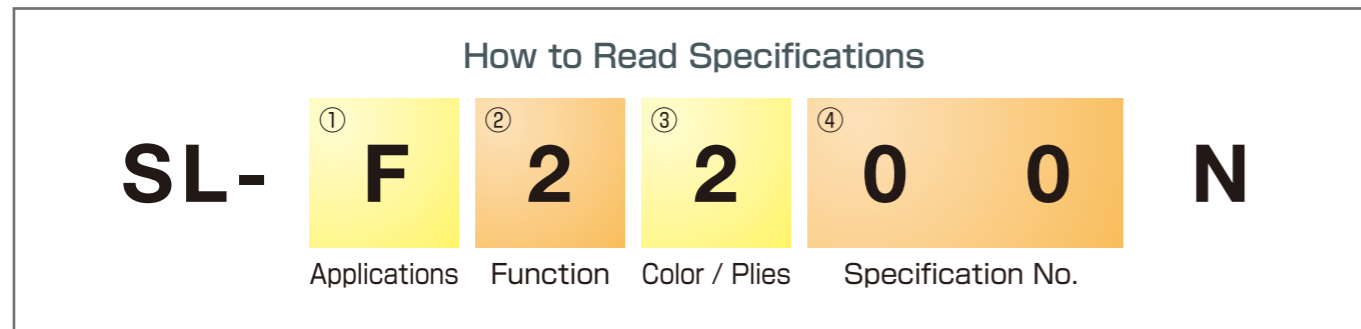


【 Inspection scanners 】

※Actual belt color may differ from those shown above.



【 Cleats used in inclined conveyance 】



## ① Applications

- F : Unpackaged food conveyance      S : Special specification and user type  
 M : Logistics and general purpose conveyance      P : Seamless belts (Super SUNLINE Belts)

## ② Function

- F :** All belts are antibacterial, antifungal, and non-fray.
- 1 : Standard belts for unpackaged food
  - 2 : For non-sticky unpackaged food
  - 3 : Humidity and heat resistance, low thermal shrinkage for unpackaged food conveyance
  - 4 : Flexibility in the direction of width for troughed conveyance of unpackaged food
  - 0 : Canvas belt top for conveyance of unpackaged food
- 
- M :** General purpose conveyance in various use conditions.
- 1 : Polyvinyl chloride cover (not available for unpackaged food)
  - 2 : Standard general purpose (available for unpackaged food)
  - 3 : Non-fray type for light load logistics (available for unpackaged food)
  - 4 : Low noise type for mini computers and logistics (available for unpackaged food)
  - 5 : Logistics slide conveyance (available for unpackaged food)
  - 9 : Special PVC surface for steep incline conveyance (available for unpackaged food)
  - 0 : Special polyurethane surface for steep incline conveyance (available for unpackaged food)
  - C : Special rubber surface for steep incline conveyance (available for unpackaged food)

- S :** Custom designs to meet use conditions
- |                              |  |
|------------------------------|--|
| 0 : Low noise                | 7 : Curved belts, flex belts and special cleat belts |
| 1 : Heat and cold resistance | 8 : Special materials installed                      |
| 2 : Oil resistance           | 9 : PVC for unpackaged food                          |
| 3 : Ultra anti-static        | Y : Customized use                                   |
| 5 : Non-penetration type     |  |

- P :** Seamless belts, suitable for conveying precision instruments (such as scales); may be used in small pulley and knife edge designs.
- |                                  |  |
|----------------------------------|--|
| 1 : Urethane                     | 5 : Silicon impregnated                |
| 2 : PVC                          | 6 : Slide type                         |
| 3 : Humidity and heat resistance | 7 : Polyester                          |
| 4 : Ultra anti-static            | 8 : Antibacterial, antifungal urethane |

## ③ Color / Plies (Belt cover color / Number of canvas plies)

- |                     |                                   |
|---------------------|-----------------------------------|
| 1 : White / 1 ply   | 6 : Blue / 2 plies                |
| 2 : White / 2 plies | 7 : Black / 1 ply                 |
| 3 : Green / 1 ply   | 8 : Black / 2 plies               |
| 4 : Green / 2 plies | 9 : Gray / 2 plies                |
| 5 : Blue / 1 ply    | 0 : Other color / Number of plies |

## ④ Specification No. (S Series is sequentially numbered)

- F·M :**
- |  |  |
|--|--|
| 00 : Standard type                                 | 11 : Top and backside covers both 0.2mm<br>(Top: smooth and glossy / Backside: fabric)                       |
| 01 : Standard type (fabric 2 plies / small pulley) | 12 : Top and backside covers both 0.2mm<br>(Top: smooth and glossy / Backside smooth and matte)              |
| 02 : Different color surface cover                 | 13 : Both surfaces covered Top 0.5 / Backside 0.2mm<br>(Top: smooth and glossy / Backside: smooth and matte) |
| 03 : Surface cover thickness 2.0mm                 | 14 : Top and backside covers both 0.5mm<br>(Top: smooth and glossy / Backside: fabric)                       |
| 04 : Textured surface cover Type N                 | 15 : Fabric surface cover for small pulleys N3   |
| 05 : Special surface cover Type R7                 | 16 : Surface covers for small pulley, different color  |
| 06 : Textured surface cover Type N3                | 17 : Silicon impregnation type for small pulley  |
| 07 : Special surface cover Type P1                 | N : New specification with same name   |
| 08 : Special surface cover Type P3                 |  |
| 09 : Special surface cover Type R1                 |  |
| 10 : Silicon impregnated                           |  |

Non-standard products are custom-made and distributors may not carry inventory.

- S :** The S Series are all numbered sequentially. Please refer to the corresponding page.  
**P :** Please refer to page 31 in this catalog.

Please select belts using the procedure below.

## Select belt series and type

Use the Selection Chart on pages 11-12 to choose the belt series and type. Progressively choosing one alternative in each section should result in proper belt selection.

## Select the number of belt plies ①

Use the tables on the following pages regarding belt size and the weight of the materials transported to determine the necessary number of plies. If the result is one ply, and if pulley diameter is not a problem, two plies may be selected. (If the result is two plies, one ply cannot be selected.) Two-ply belts reduce the risk of snaking and offset.

Go to the page for series and type recommended by the Selection Chart.

## Select the number of plies ② and decide on the belt type.

Choose plies from among “Ply Selection Based on Pulley Diameter” on page 10, and then select the belt type. In addition to standard belt selections for each series, you can select options, such as surface texture, covers on both belt surfaces, etc.

※ This procedure is for general purpose conveyor belts. If you use special belts, such as for marble grinders or vegetable slicers, please contact Bando or your distributor.

## Selection of the Number of Plies based on Pulley Diameter

### 1) Belt selection for existing conveyors

- Check the pulley diameter of the existing conveyor (Check R value if knife edge)
- Determine the belt series and type using the Selection Chart.
- Look for the same belt pulley diameter as that of the existing conveyor, or the minimum pulley diameter. (If using a knife edge, look for the belt with the same R value or a smaller one)
- The number of plies should match the plies necessary based on the conveyor size and weight of the material conveyed.

**Example 1** The pulley diameter of the existing conveyor is 40mm and one ply is necessary (if the number of plies is 1, 2 plies may also be selected)

Series and type selection pages	Belt type	Minimum pulley diameter	Number of plies
	A	20 ← Select 40 or less	1 ← As the number of
	B	40 ←	2 ← necessary plies is 1,
	C	50	2 ← you can choose either 1 and 2.

▶▶▶ Belts A and B are available. Either belt would be suitable. Two-ply belts can reduce the risk of belt snaking and offset.

**Example 2** The pulley diameter of the existing conveyor is 40mm and two plies are necessary.

Series and type selection pages	Belt type	Minimum pulley diameter	Number of plies
	A	20 ← Select 40 or less	1
	B	40 ←	2 ← Number of plies necessary is 2
	C	50	2 ← Only 2 plies is appropriate

▶▶▶ Belt B is appropriate

**Example 3** The pulley diameter of the existing conveyor is 30mm and two plies are necessary.

Series and type selection pages	Belt type	Minimum pulley diameter	Number of plies
	A	20 ← Select 30 or less	1
	B	40	2 ← Number of plies necessary is 2
	C	50	2 ← Only 2 plies is appropriate

▶▶▶ If no belt is appropriate, please contact Bando or your distributor for a design review.

### 2) New conveyor designs

- Choose the series and type from the chart.
- Choose the number of plies necessary based on the conveyor size and the weight of the material conveyed.
- Select the belt matching the series and type, and the necessary number of plies.
- Verify the minimum pulley diameter and the knife edge R, and design the conveyor.
- Check the minimum drive pulley diameter for the design. Please refer to the design manual instructions.

**Note) There is a relationship between motor capacity and the number of plies**

Check these items when selecting belts for existing conveyors.

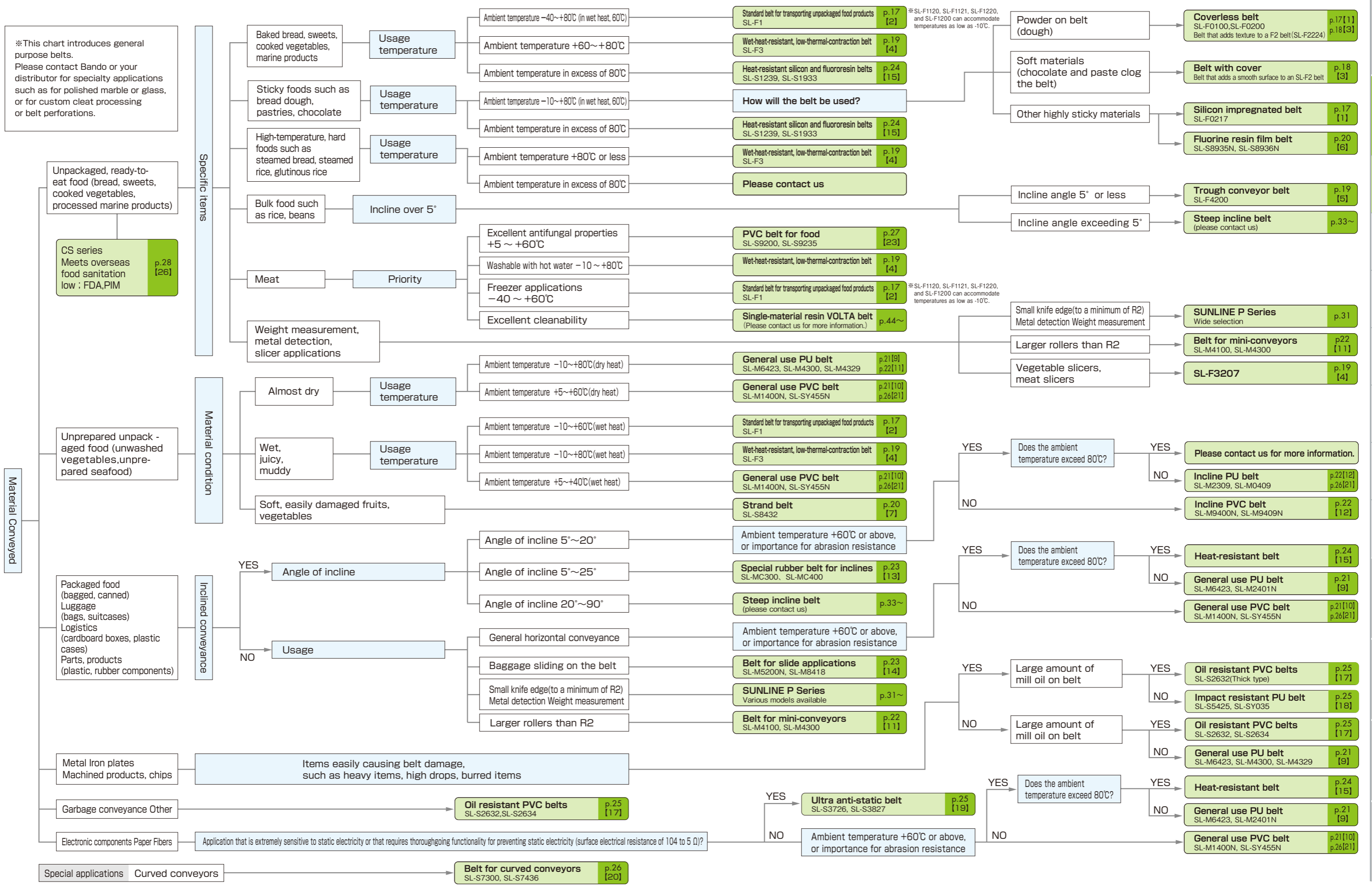
- 1) Check the conveyor's motor capacity.
- 2) Check whether the number of plies is correct in the table below.

Motor capacity	40W or less	40~200W	200W or more
Number of plies selected	1ply	1 ply or 2 plies	2ply

- The table above is applicable for most general-purpose conveyors.
- 200W motors are needed for 1-ply applications for high-speed conveyors, stretch-type conveyors or 24-hour operation.

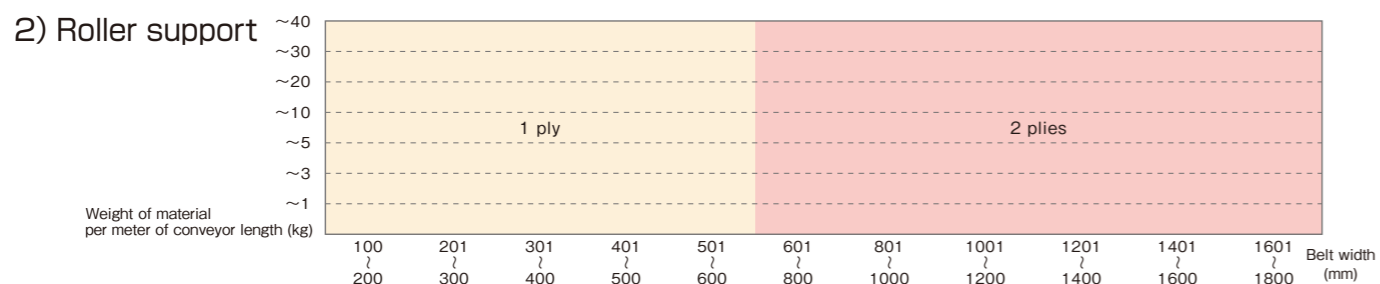
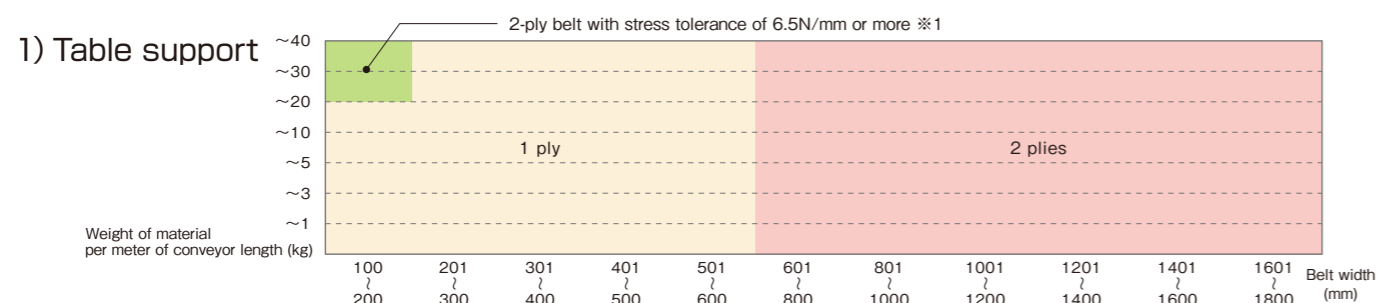
- 3) If you cannot find an appropriate belt, the conveyor may be for special use or specially designed. Please consult with Bando or your distributor.

※This chart introduces general purpose belts.  
Please contact Bando or your distributor for specialty applications such as for polished marble or glass, or for custom cleat processing or belt perforations.

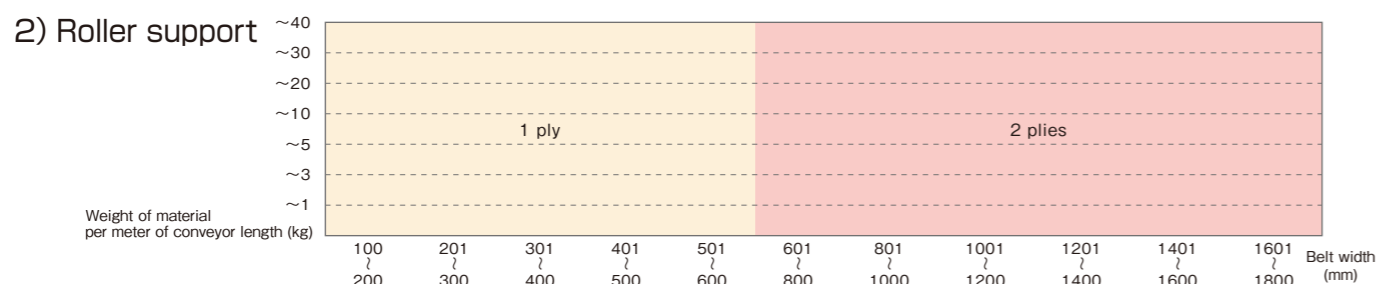
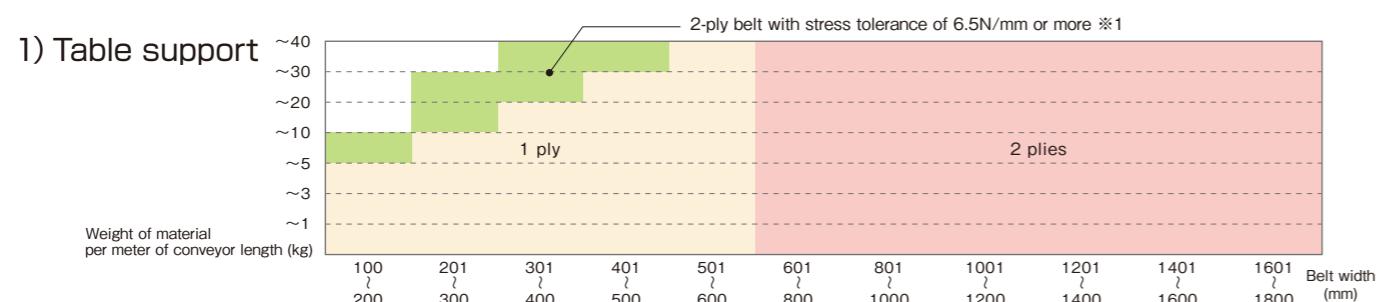


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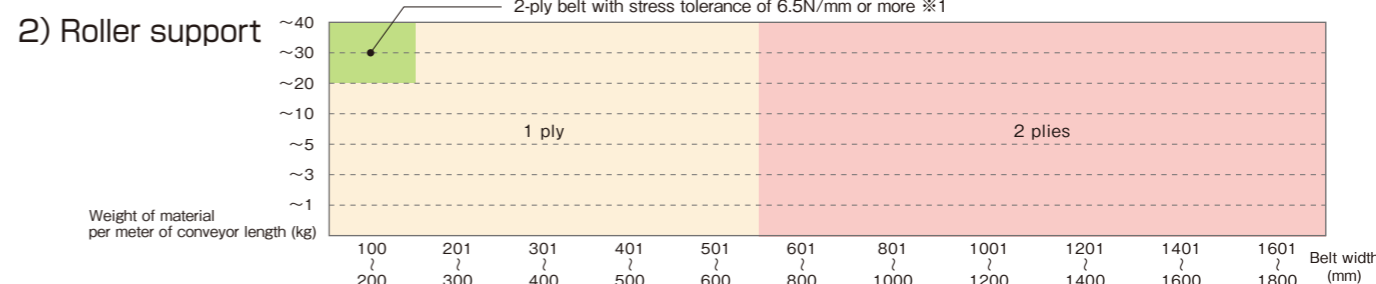
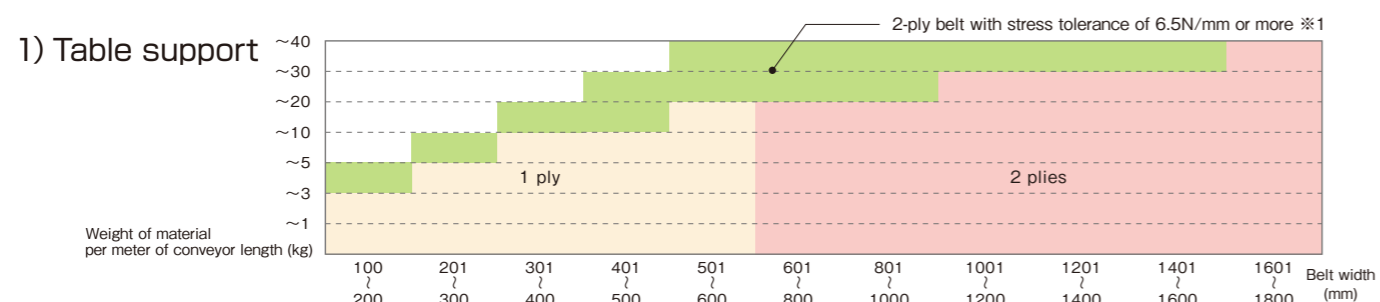
## 1. Conveyor length 2.0m or less



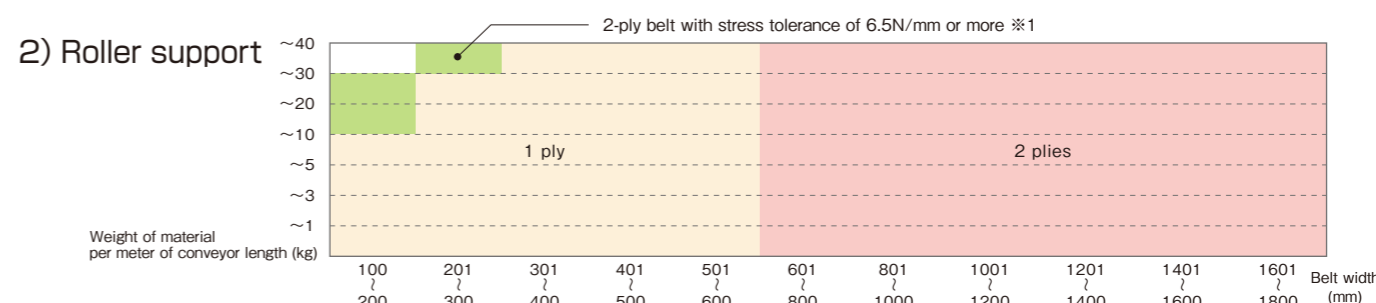
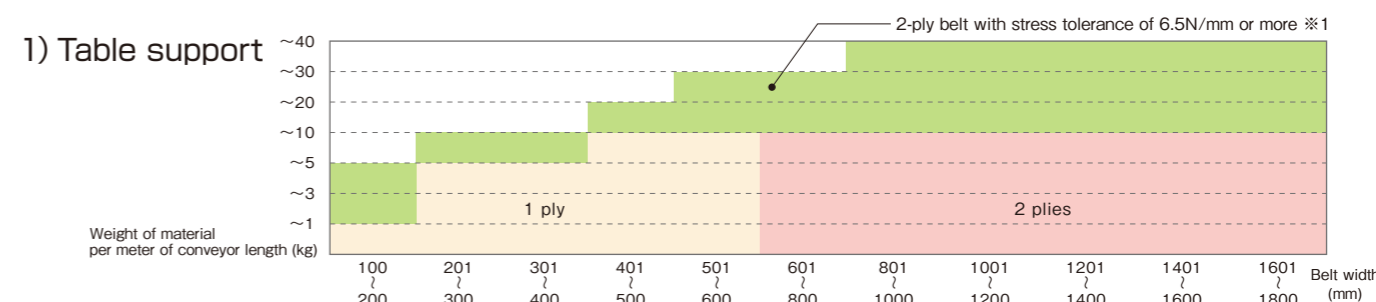
## 2. Conveyor length 2.1~5.0m



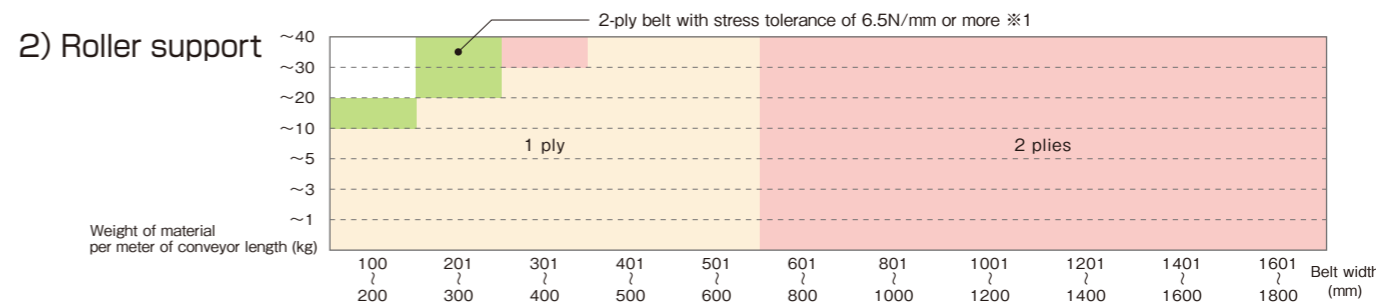
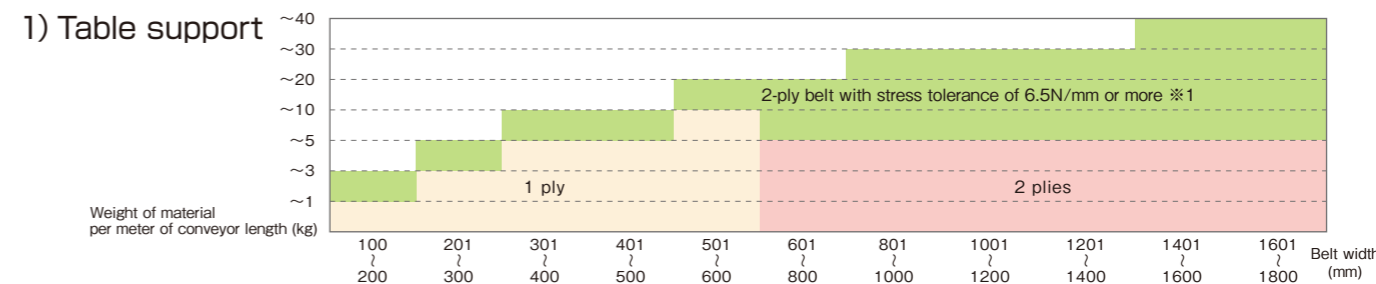
## 3. Conveyor length 5.1~10.0m



## 4. Conveyor length 10.1~15.0m

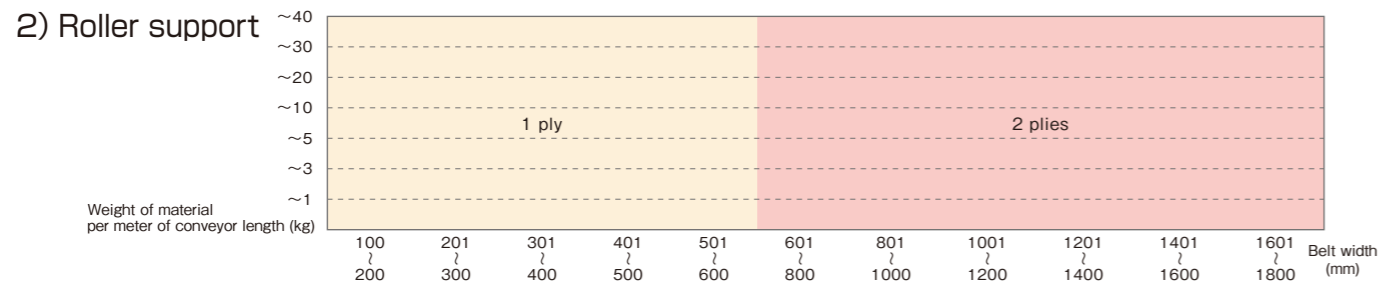
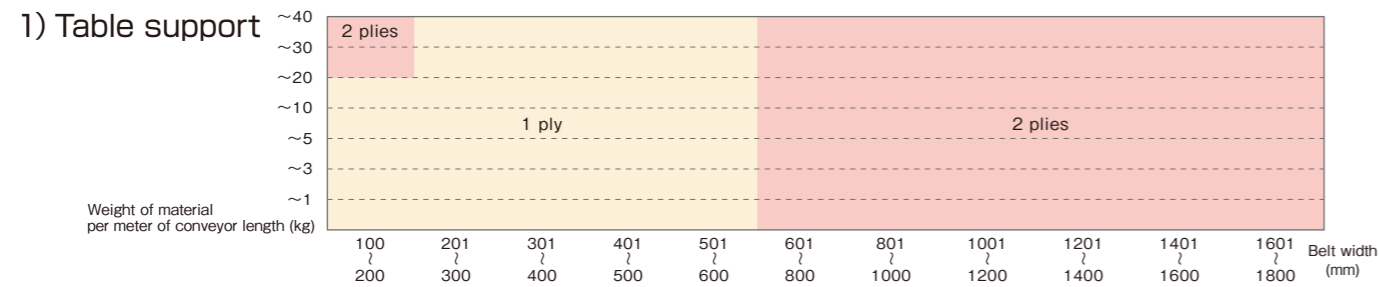


## 5. Conveyor length 15.1~20.0m or less

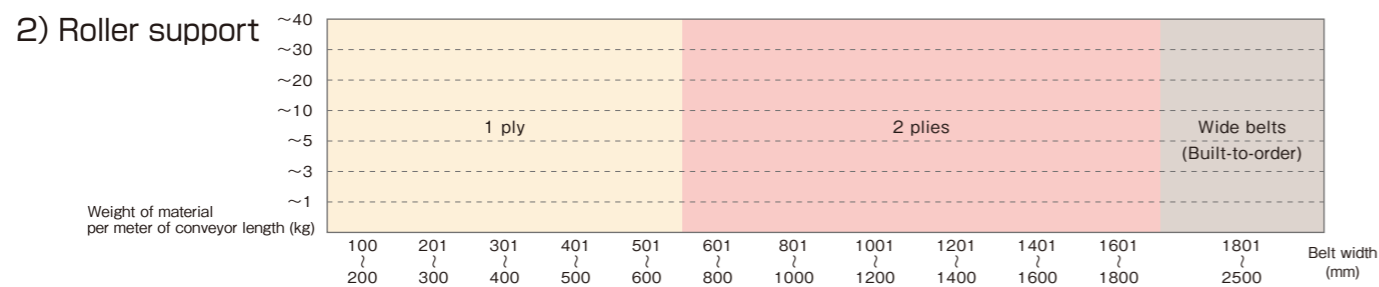
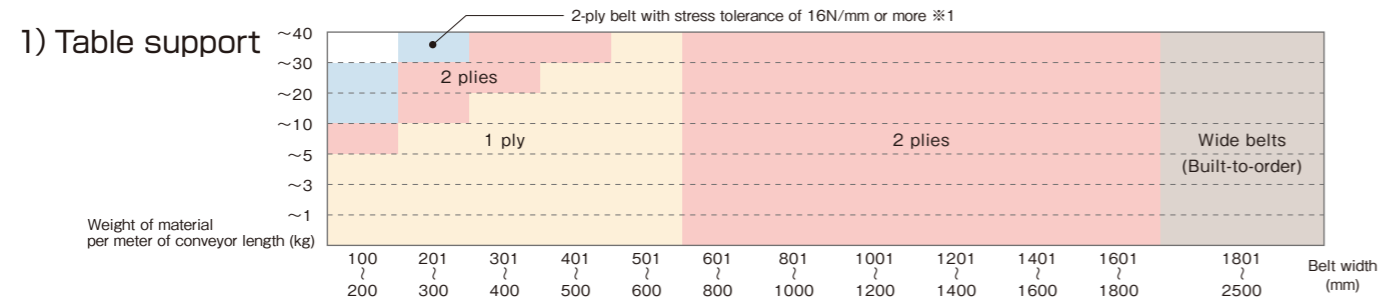


※1 2-ply belt with stress tolerance of 6.5N/mm or more : SL-F3202 · F3206N · F3207 · F3211 · F3611 · F4200 · F1200 · F2200 · CS060

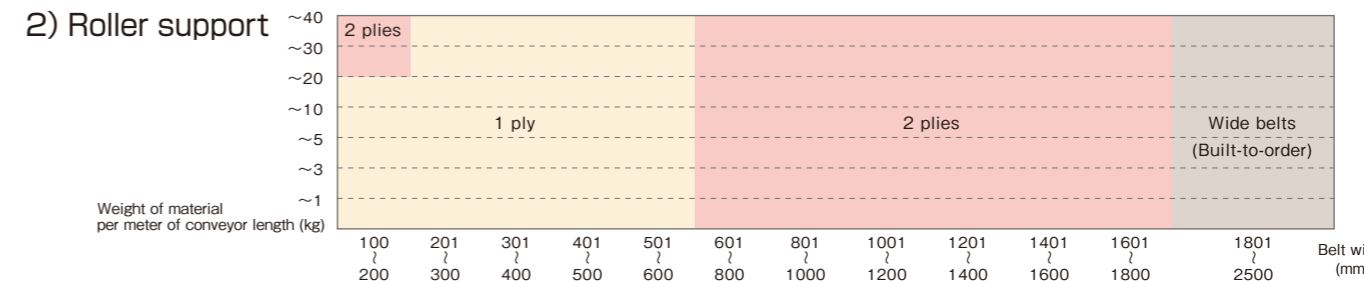
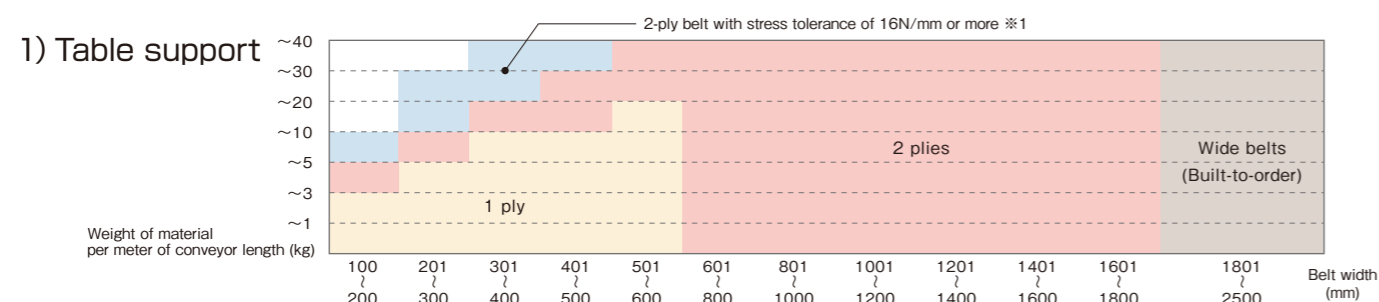
### 1. Conveyor length 2.0m or less



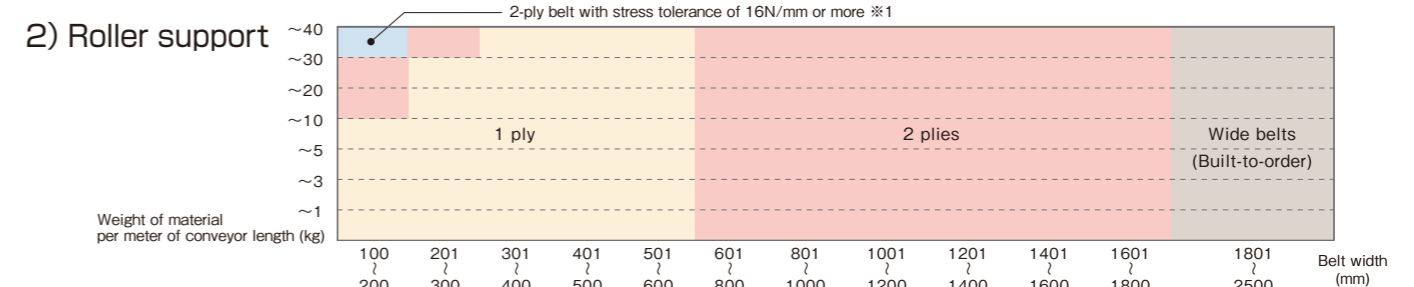
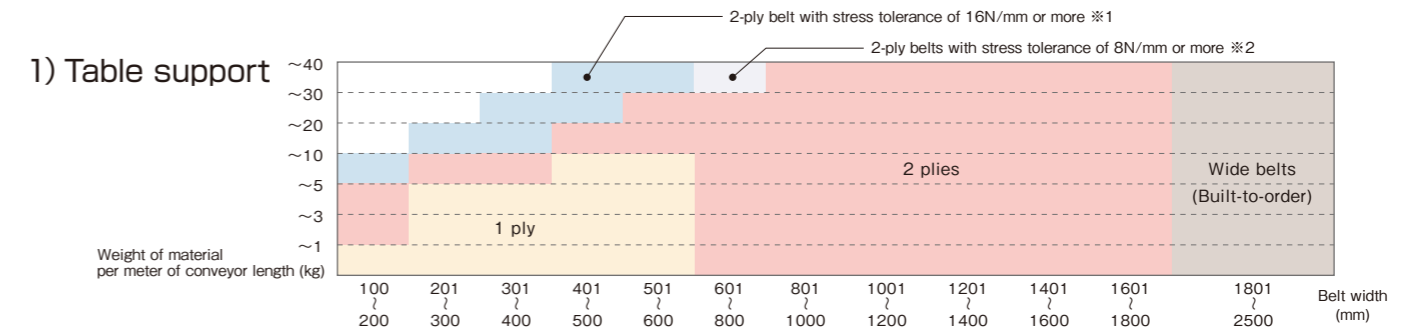
### 2. Conveyor length 2.1~5.0m



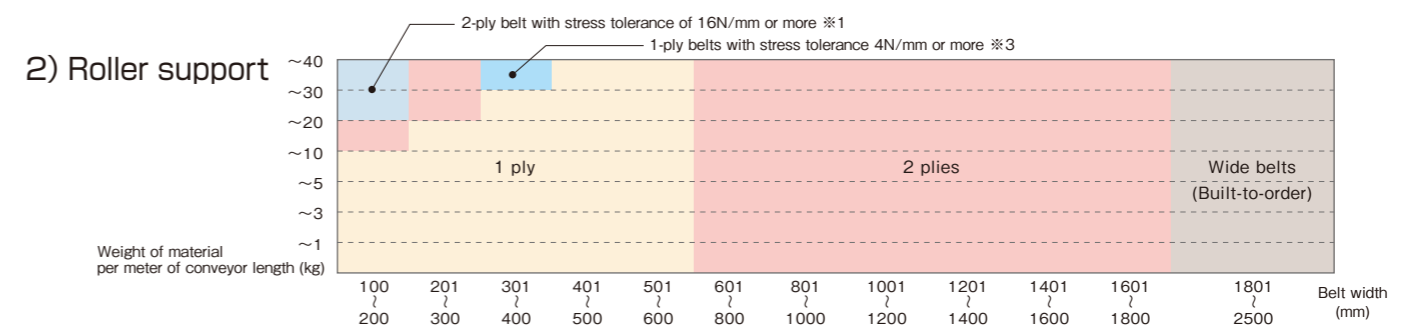
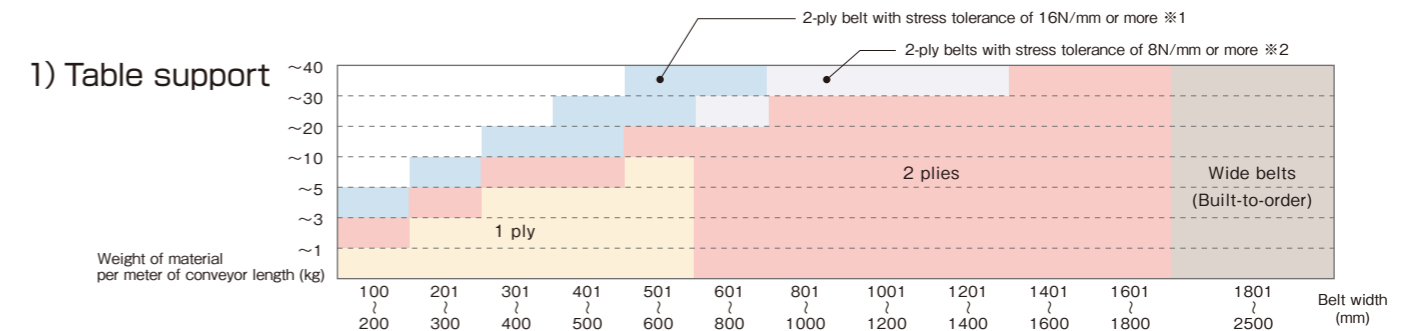
### 3. Conveyor length 5.1~10.0m



### 4. Conveyor length 10.1~15.0m



### 5. Conveyor length 15.1~20.0m or less



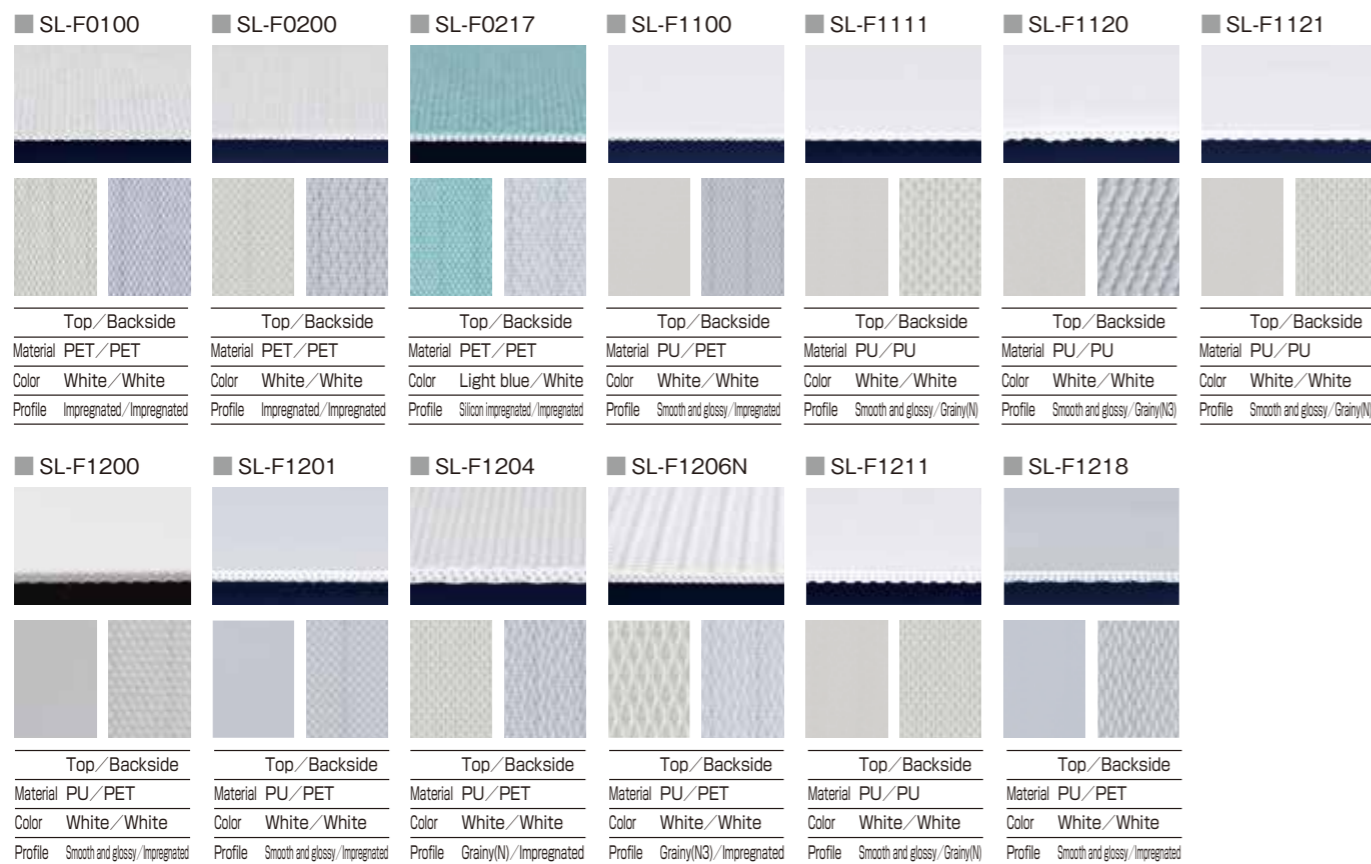
※1 2-ply belt with stress tolerance of 16N/mm or more : SL-S5425  
 ※2 2-ply belts with stress tolerance of 8N/mm or more, except the following specifications :  
 SL-M2401N · SL-M5201N · SL-M5422 · SL-S1239 · SL-S6235 · SL-S6400 · SL-S6404 · SL-S6933N · SL-S8231N · SL-S9200 · SL-SY045 · SL-SY456N · SL-S8432 · SL-S7200  
 ※3 1-ply belts with stress tolerance 4N/mm or more :  
 SL-M2309 · SL-M4100 · SL-M4300 · SL-M5100 · SL-M5302 · SL-MC300 · SL-S7300 · SL-SY040 · SL-SY533 · SL-SY534 · SL-M2100 · SL-M2300 · SL-S1235

## Belts for Unpackaged Food Conveyance

Please contact Bando or your distributor about delivery lead time.

Product	No. of plies	Weight (kg/m <sup>2</sup> )	Total thickness (mm)	Minimum pulley diameter (mm)/ Knife edge			Belt support			Top friction coefficient	Backside friction coefficient	Non-fray	Antibacterial Antifungal	Applicable operating temperature(°C)		Maximum applicable width (mm)
				Finger	Hot lap	Cold lap	Table	Roller	Trough					Dry heat	Wet heat	
<b>[1] No top cover. Excellent slide and separation properties. Applicable for materials alignment and dough conveyance applications</b>																
SL-F0100	1	0.7	0.6	25/R3	-	-	○	○	×	0.15	0.15	○	○	-40~80	60	600
SL-F0200	2	1.2	1.1	25/R5	30/R10	35**	○	○	△	0.15	0.25	○	○	-40~80	60	1800
SL-F0217	2	1.2	1.1	-	35	40**	○	○	△	0.1	0.25	○	○	-10~80	60	1600
<b>[2] Standard belt for unpackaged food</b>																
SL-F1100	1	0.9	0.8	15/R3	20/R5	25	○	○	×	0.3	0.15	○	○	-40~80	60	600
SL-F1111	1	1.3	1.1	15/R5	25/R10	30	△	○	×	0.3	0.3	○	○	-40~80	60	600
SL-F1120	1	1.3	1.3	25	30	-	○	○	×	0.3	0.2	○	○	-10~80	60	600
SL-F1121	1	1.2	1.0	15/R5	-	-	○	○	×	0.3	0.2	○	○	-10~80	60	600
SL-F1200	2	1.5	1.4	25/R8	30/R10	40	○	○	△	0.3	0.15	○	○	-10~80	60	1800
SL-F1201	2	1.3	1.1	10/R2	15/R3	25	○	○	△	0.3	0.15	○	○	-40~80	60	1800
SL-F1204	2	1.3	1.2	15/R3	20/R5	25	○	○	△	0.3	0.15	○	○	-40~80	60	1800
SL-F1206N	2	1.6	1.4	20/R5	25/R8	30	○	○	△	0.4	0.15	○	○	-40~80	60	1800
SL-F1211	2	1.6	1.4	25/R8	30/R10	40	△	○	△	0.3	0.3	○	○	-40~80	60	1800
SL-F1218	2	1.3	1.1	15/R3	20/R5	25	○	○	△	0.3	0.15	○	○	-40~80	60	1800

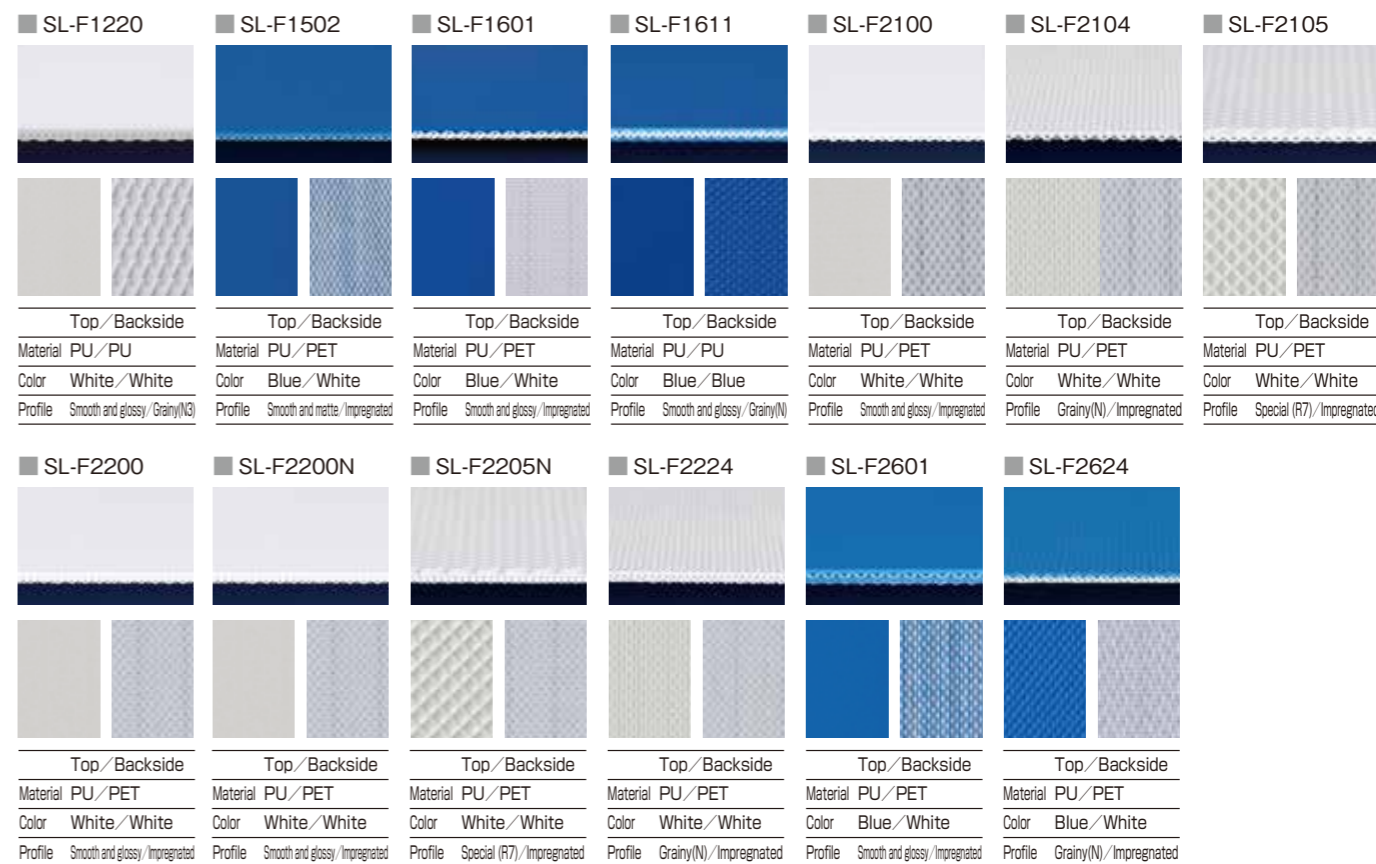
○: Suitable (functional) △: May be suitable. Please contact Bando or your distributor. ×: Not suitable -: Not functional  
 \*\*: Hot joint is recommended. Delicate fabric material is used, and unprocessed belt edge and cold joint may result in unstable joint strength.



PU: Polyurethane PET: Polyester

Product	No. of plies	Weight (kg/m <sup>2</sup> )	Total thickness (mm)	Minimum pulley diameter (mm)/ Knife edge			Belt support			Top friction coefficient	Backside friction coefficient	Non-fray	Antibacterial Antifungal	Applicable operating temperature(°C)		Maximum applicable width (mm)
				Finger	Hot lap	Cold lap	Table	Roller	Trough					Dry heat	Wet heat	
<b>[2] Standard belt for unpackaged food</b>																
SL-F1220	2	2.0	1.9	45	55	60	○	○	△	0.3	0.2	○	○	-10~80	60	1800
SL-F1502	1	0.9	0.8	15/R3	20/R5	25	○	○	×	0.25	0.15	○	○	-40~80	60	600
SL-F1601	2	1.3	1.1	10/R2	15/R3	25	○	○	△	0.3	0.15	○	○	-40~80	60	1800
SL-F1611	2	1.6	1.4	25/R8	30/R10	40	△	○	△	0.3	0.3	○	○	-40~80	60	1800
<b>[3] Excellent non-stick properties, ideal for conveyance of sticky materials, such as dough or chocolate</b>																
SL-F2100	1	1.0	0.9	20/R5	25/R8	-	○	○	△	0.2	0.15	○	○	-10~80	60	600
SL-F2104	1	1.1	1.0	20/R5	25/R8	-	○	○	×	0.2	0.15	○	○	-10~80	60	600
SL-F2105	1	1.4	1.4	25/R8	30/R10	-	○	○	△	0.2	0.15	○	○	-10~80	60	600
SL-F2200	2	1.6	1.4	15/R5	30	-	○	○	△	0.2	0.15	○	○	-10~80	60	1800
SL-F2200N	2	1.4	1.2	15/R5	30	-	○	○	△	0.2	0.15	○	○	-10~80	60	1800
SL-F2205N	2	1.7	1.7	15/R5	30	-	○	○	△	0.2	0.15	○	○	-10~80	60	1800
SL-F2224	2	1.4	1.3	15/R5	30	-	○	○	△	0.2	0.15	○	○	-10~80	60	1800
SL-F2601	2	1.4	1.2	15/R5	30	-	○	○	△	0.2	0.15	○	○	-10~80	60	1800
SL-F2624	2	1.4	1.3	15/R5	30	-	○	○	△	0.2	0.15	○	○	-10~80	60	1800

○: Suitable (functional) △: May be suitable. Please contact Bando or your distributor. ×: Not suitable -: Not functional



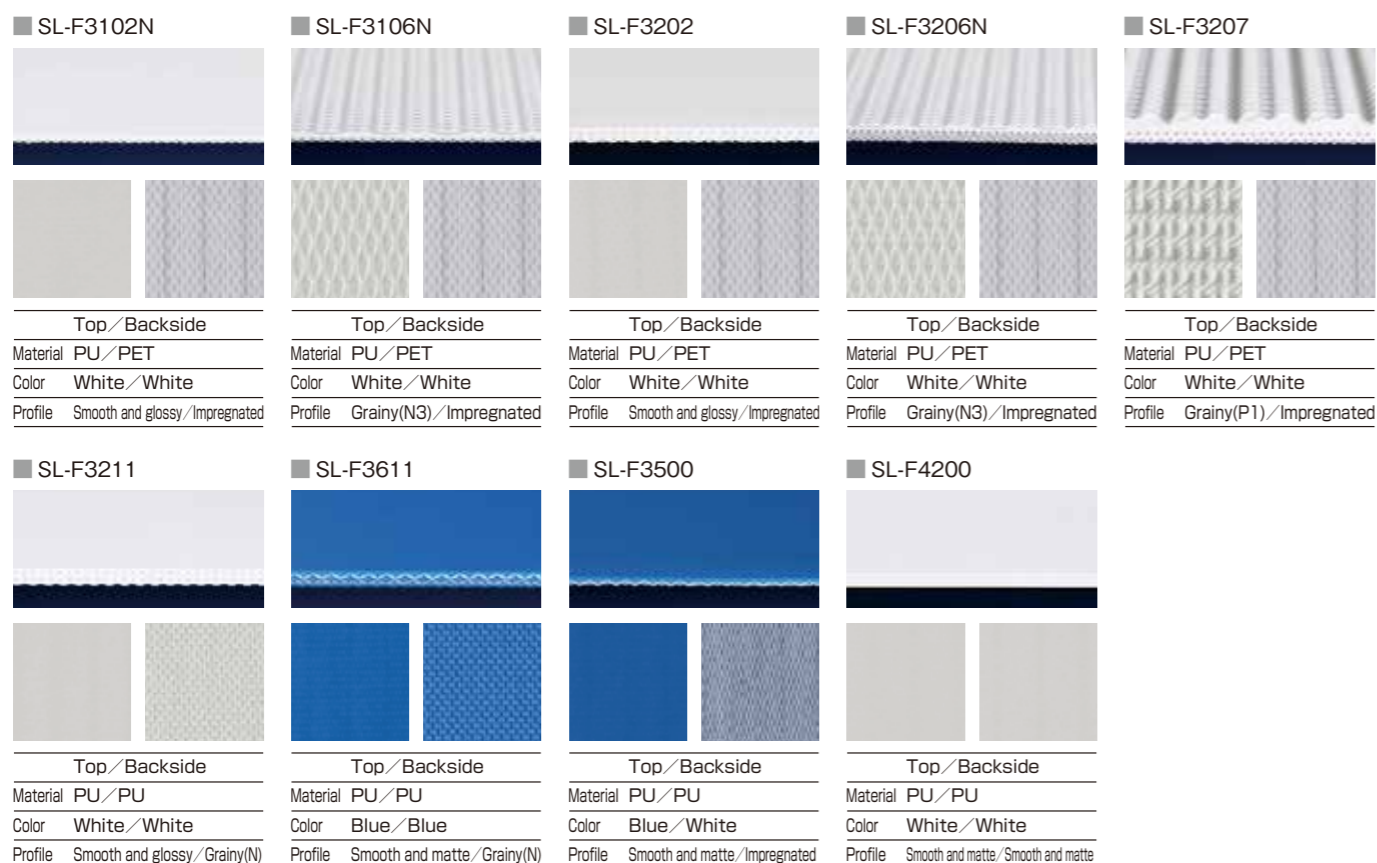
PU: Polyurethane PET: Polyester

## Belts for Unpackaged Food Conveyance

Please contact Bando or your distributor about delivery lead time.

Product	No. of plies	Weight (kg/m <sup>2</sup> )	Total thickness (mm)	Minimum pulley diameter (mm)/ Knife edge			Belt support			Top friction coefficient	Backside friction coefficient	Non-fray	Antibacterial Antifungal	Applicable operating temperature(°C)		Maximum applicable width (mm)
				Finger	Hot lap	Cold lap	Table	Roller	Trough					Dry heat	Wet heat	
<b>[4] Excellent humidity, heat (constant 80°C), and chemical resistance.</b> For use in heat-sterilized lines, meat and seafood processing, cooked rice conveyance, etc. Excellent heat durability, and can withstand exposure to chemical cleansing (sodium hypochlorite, etc.) at temperatures up to 100°C.																
SL-F3102N	1	1.0	0.9	20/R5	25	-	○	○	×	0.3	0.15	○	○	-10~80	80(70)	600
SL-F3106N	1	1.2	1.2	20/R5	25	-	○	○	×	0.4	0.15	○	○	-10~80	80(70)	600
SL-F3202	2	1.5	1.4	25/R10	30	-	○	○	△	0.3	0.15	○	○	-10~80	80(70)	1800
SL-F3206N	2	1.8	1.8	25/R10	30	-	○	○	△	0.4	0.15	○	○	-10~80	80(70)	1800
SL-F3207	2	2.8	2.8	-	45	-	○	○	△	0.5	0.15	○	○	-10~80	80(70)	1800
SL-F3211	2	2.0	1.8	50	55	-	△	○	△	0.3	0.3	○	○	-10~80	80(70)	1800
SL-F3611	2	2.0	1.8	50	55	-	△	○	△	0.3	0.4	○	○	-10~80	80(70)	1800
SL-F3500	1	1.0	0.9	20/R5	25	-	○	○	×	0.3	0.15	○	○	-10~80	80(70)	600
<b>[5] Bulk (granular) conveyance requiring troughs</b>																
SL-F4200	2	1.8	1.6	50	50	50	×	○	○	0.25	0.25	○	○	-10~80	60	1600

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 ※1 The figures in ( ) indicate the temperature of humidity and heat resistance at finger joints



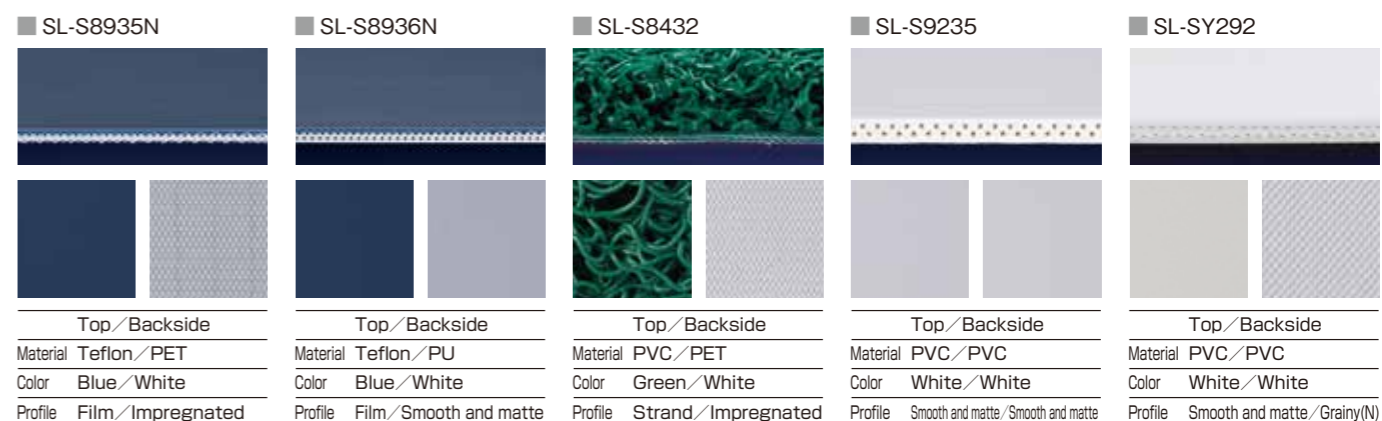
PU: Polyurethane PET: Polyester

## Other Belts for Food Conveyance

Please contact Bando or your distributor about delivery lead time.

Product	No. of plies	Weight (kg/m <sup>2</sup> )	Total thickness (mm)	Minimum pulley diameter (mm)/ Knife edge			Belt support			Top friction coefficient	Backside friction coefficient	Non-fray	Antibacterial Antifungal	Applicable operating temperature(°C)		Maximum applicable width (mm)	Previous product, remarks
				Finger	Hot lap	Cold lap	Table	Roller	Trough					Dry heat	Wet heat		
<b>[6] Teflon film-coated top gives a high degree of non-stickiness and chemical resistance.</b>																	
SL-S8935N	2	1.6	1.5	-	75	-	○	○	×	0.1	0.15	-	-	-10~80	60	1200	5FKDBE TS
SL-S8936N	2	1.7	1.6	-	75	-	×	○	×	0.1	0.4	-	-	-10~80	60	1200	5FKDB2/AW2E TF
<b>[7] Belt for fruit sorters that prevent rolling and damage to fruits and vegetables while being conveyed</b> ※ Not suitable for unpackaged food conveyance																	
SL-S8432	2	8.0	12.0	-	-	100	○	○	×	1.0	0.15	-	-	5~60	40	1200	Strand belt
<b>[8] Belts with plastic buckets attached for bucket elevators to lift or lower materials</b>																	
SL-S9235	2	2.6	2.4	80	80	80	×	○	△	0.4	0.4	-	-	5~60	40	1200	8CW5/W5JE FF
SL-SY292	2	3.2	2.9	100	100	100	×	○	○	0.4	0.5	-	-	5~60	40	1800	8YCW FN

○: Suitable (functional) △: May be suitable. Please contact Bando or your distributor. ×: Not suitable -: Not functional



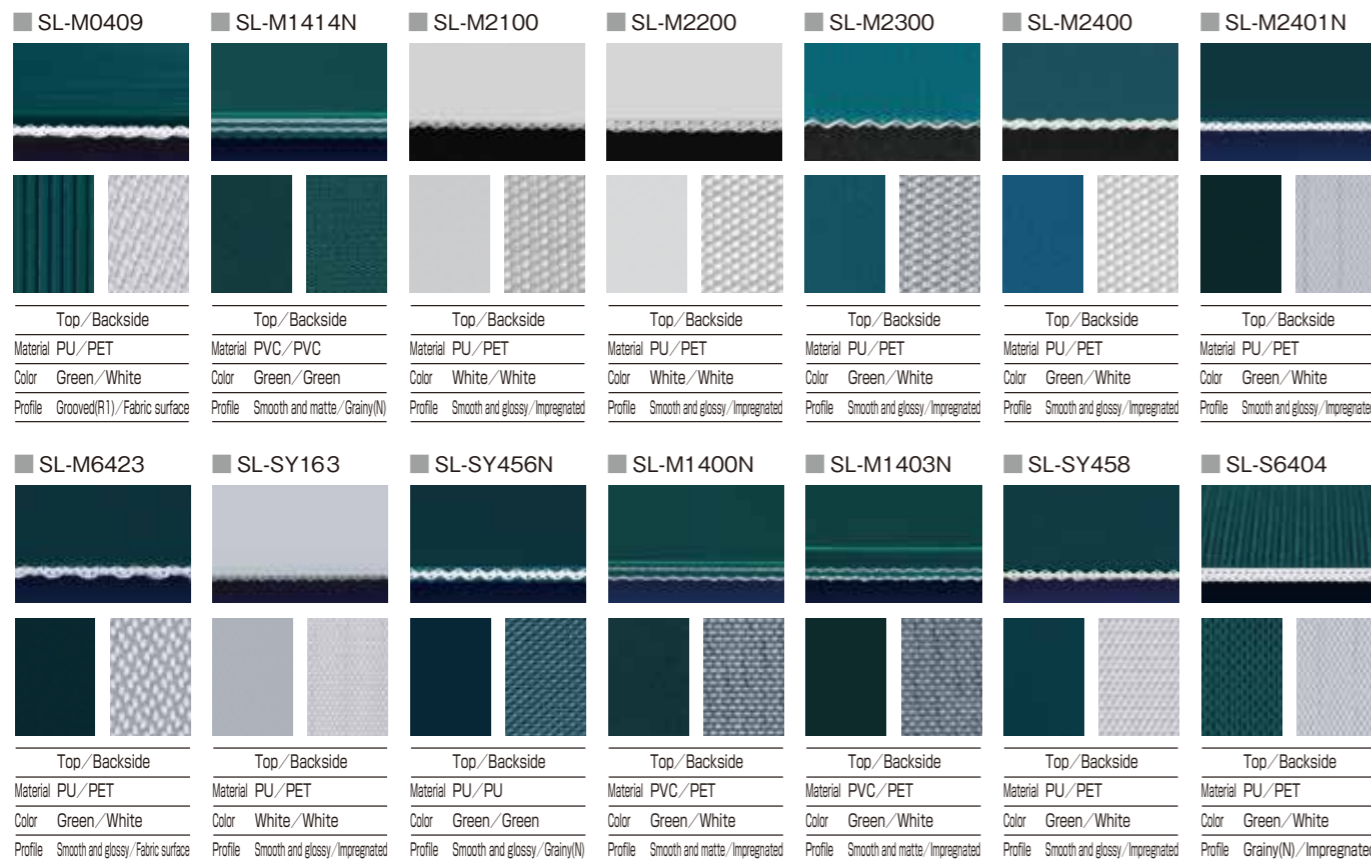
PU: Polyurethane PET: Polyester PVC: Polyvinyl chloride

## General Purpose Belts

Please contact Bando or your distributor about delivery lead time.

Product	No. of plies	Weight (kg/m <sup>2</sup> )	Total thickness (mm)	Minimum pulley diameter (mm)/ Knife edge			Belt support			Top friction coefficient	Backside friction coefficient	Unpackaged food	Non-fray	incline	Low noise	Applicable operating temperature (°C)	Maximum applicable width (mm)	Previous product, remarks
				Finger	Hot lap	Cold lap	Table	Roller	Trough									
<b>[9] General purpose, standard belts</b>																		
SL-M0409	2	2.2	2.1	50	50	55	○	○	△	1.7	0.1	○	-	○	-10~80	1800	8MUGE R10	
SL-M1414N	2	3.0	2.6	60	60	60	×	○	△	0.4	0.5	-	-	△	5~60	2000	8CG5/G5E HN	
SL-M2100	1	1.0	0.9	20/R5	25/R8	30	○	○	×	0.3	0.15	○	-	△	-10~80	1200	4DUWE HS	
SL-M2200	2	1.5	1.4	35	40	45	○	○	△	0.3	0.15	○	-	△	-10~80	1800	8UWE HS	
SL-M2300	1	1.0	0.9	20/R5	25/R8	30	○	○	×	0.3	0.15	○	-	△	-10~80	1200	4DUWE HS	
SL-M2400	2	1.5	1.4	35	40	45	○	○	△	0.3	0.15	○	-	△	-10~80	1800	8UGE HS	
SL-M2401N	2	1.5	1.4	25/R8	30/R10	40	○	○	△	0.3	0.15	○	○	△	-10~80	1800	5UGE HS	
SL-M6423	2	1.5	1.4	35	40	40	○	○	△	0.3	0.1	○	-	△	-10~80	1800	8MUGE HO	
SL-SY163	1	1.0	0.9	20/R5	25/R8	30	○	○	×	0.3	0.15	○	○	△	-10~80	1200	4DUWE NF HS	
SL-SY456N	2	1.7	1.7	50	55	60	△	○	△	0.3	0.3	○	○	△	-10~80	1800	8UG2/G2E HN	
<b>[10] Wide selection of belts for general logistics applications</b>																		
SL-M1400N	2	2.2	2.0	50	50	50	○	○	△	0.4	0.15	-	-	△	5~60	3000	8CGE HS	
SL-M1403N	2	3.6	3.3	75	75	75	○	○	△	0.4	0.15	-	-	△	5~60	3000	8CG20E HS	
SL-SY458	2	1.5	1.4	30	40	45	○	○	△	0.3	0.15	○	-	△	-10~80	2500	8HUGE HS	
SL-S6404	2	1.7	1.5	25	30	35	○	○	△	1.7	0.15	○	○	○	-10~80	1800		

○: Suitable (functional) △: May be suitable. Please contact Bando or your distributor. ×: Not suitable -: Not functional



PU: Polyurethane PET: Polyester PVC: Polyvinyl chloride

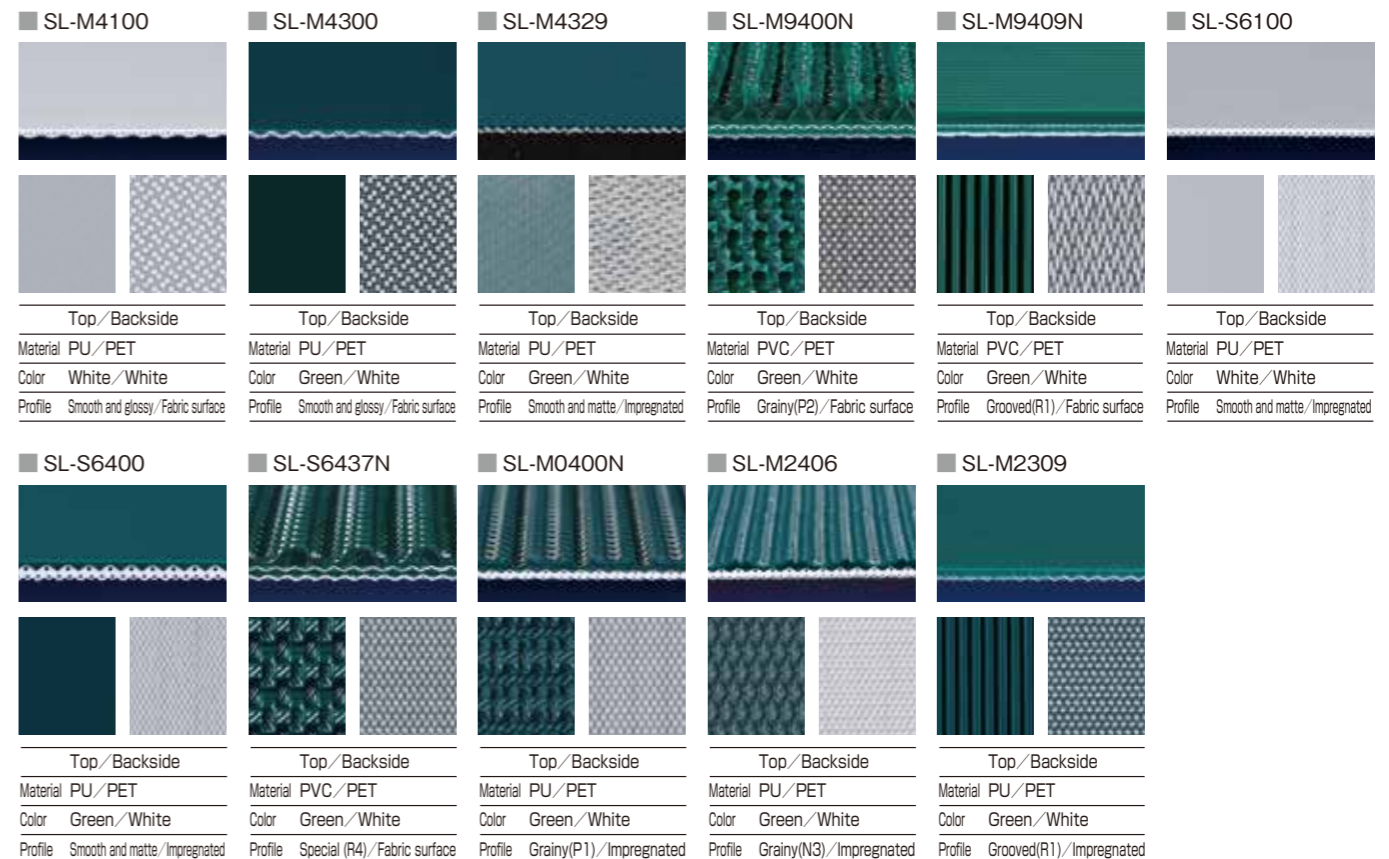
Product	No. of plies	Weight (kg/m <sup>2</sup> )	Total thickness (mm)	Minimum pulley diameter (mm)/ Knife edge			Belt support			Top friction coefficient	Backside friction coefficient	Unpackaged food	Non-fray	incline	Low noise	Applicable operating temperature (°C)	Maximum applicable width (mm)	Previous product, remarks
				Finger	Hot lap	Cold lap	Table	Roller	Trough									
<b>[11] Excellent belt flexibility, applicable for small pulleys or knife edges, suitable for small and mini conveyors</b>																		
SL-M4100	1	0.9	0.8	15/R3	25/R8	30	○	○	×	0.3	0.1	○	-	△	○	-10~80	600	4MUWE HO
SL-M4300	1	0.9	0.8	15/R3	25/R8	30	○	○	×	0.3	0.1	○	-	△	○	-10~80	600	4MUGE HO
SL-M4329	1	0.9	0.8	15/R3	25/R8	30	○	○	×	0.25	0.15	○	○	△	○	-10~80	600	

## Incline conveyor belts

Please contact Bando or your distributor about delivery lead time.

<b>[12] Inclined conveyance using surface juts and surface friction resistance magnitude.</b>																		
Product	No. of plies	Weight (kg/m <sup>2</sup> )	Total thickness (mm)	Minimum pulley diameter (mm)/ Knife edge			Belt support			Top friction coefficient	Backside friction coefficient	Unpackaged food	Non-fray	incline	Low noise	Applicable operating temperature (°C)	Maximum applicable width (mm)	Previous product, remarks
				Finger	Hot lap	Cold lap	Table	Roller	Trough									
SL-M9400N	2	5.1	5.1	-	50	50	○	○	△	0.7	0.1	-	-	○	-	5~60	2900	8CGE P20
SL-M9409N	2	3.5	3.2	50	-	50	○	○	△	0.7	0.1	-	-	○	○	5~60	3000	8MCGE R10
SL-S6100	1	1.0	0.9	25	25	30	○	○	×	1.7	0.15	○	○	○	-	-10~80	600	
SL-S6400	2	1.7	1.5	25	30	35	○	○	△	1.7	0.15	○	○	○	-	-10~80	1800	
SL-S6437N	2	3.4	3.3	-	50	50	○	○	△	0.7	0.1	-	-	○	○	5~60	1800	8MCSG10E R40
SL-M0400N	2	2.8	2.8	-	50	55	○	○	△	0.5	0.15	○	-	○	-	-10~80	1800	8UGE P1S
SL-M2406	2	1.8	1.7	35	40	40	○	○	△	0.3	0.15	○	-	○	-	-10~80	1800	8UGE N3S
SL-M2309	1	1.6	1.5	30	30	35	○	○	×	1.7	0.15	○	-	○	-	-10~80	1200	4DUWE R1S

○: Suitable (functional) △: May be suitable. Please contact Bando or your distributor. ×: Not suitable -: Not functional



PU: Polyurethane PET: Polyester PVC: Polyvinyl chloride

## Incline conveyor belts

Please contact Bando or your distributor about delivery lead time.







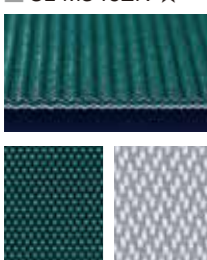
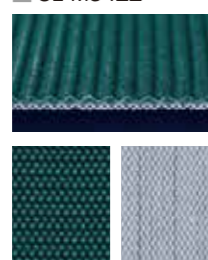
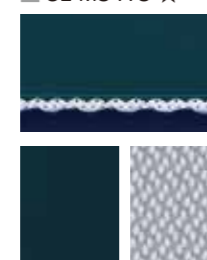



Product	No. of plies	Weight (kg/m <sup>2</sup> )	Total thickness (mm)	Minimum pulley diameter (mm)/ Knife edge			Belt support			Top friction coefficient	Backside friction coefficient	Unpackaged food	Non-fray	incline	Low noise	Applicable operating temperature (°C)	Maximum applicable width (mm)	Previous product, remarks
				Finger	Hot lap	Cold lap	Table	Roller	Trough									
<b>[13] Excellent durability in inclined conveyance contributes to long belt life</b>																		
SL-MC300	1	1.9	2.0	20	-	-	○	○	×	0.9	0.1	-	-	○	○	-5~60	600	*4MIGE R80 Mr. Climber <sup>®</sup>
SL-MC400	2	3.0	3.0	60	60	-	○	○	△	0.9	0.1	-	-	○	○	-5~60	1800	*8MIGE R80 Mr. Climber <sup>®</sup>

## Belts for slide applications

**[14] Easy-slide surface specification, suitable for side sorting and alignment applications**

SL-M5100	1	0.5	0.5	25/R3	30/R5	35	○	○	×	0.15	0.15	○	-	-	-	-10~80	600	4PE SS
SL-M5200N	2	1.1	1.1	25/R8	30/R10	40	○	○	△	0.15	0.1	○	-	-	○	-10~80	1800	8PE SO
SL-M5201N	2	1.2	1.2	25/R5	30/R10	-	○	○	△	0.15	0.15	○	○	-	-	-10~80	1800	5PE SS
SL-M5302	1	0.5	0.5	25/R3	30/R5	35	○	○	×	0.15	0.15	○	-	-	-	-10~80	600	4PGE SS
SL-M5402N	2	1.2	1.2	25/R8	30/R10	40	○	○	△	0.15	0.1	○	-	-	○	-10~80	1800	8PGE SO
SL-M5422	2	1.2	1.2	25/R5	30/R10	35	○	○	△	0.15	0.15	○	-	-	-	-10~80	1800	5PGE SS
SL-M8418	2	1.9	1.7	50	50	55	○	○	△	0.2	0.1	○	-	-	○	-10~80	1800	8MGU5E FO
SL-S6235	2	1.4	1.4	25	30	35	○	○	△	0.15	0.15	○	○	-	-	-10~80	1800	8PE NF SS
SL-S6933N	2	1.5	1.4	30/R10	35	-	○	○	△	0.2	0.15	○	○	-	-	-10~80	1800	5GUGRE FS
SL-SY040	1	1.0	0.9	25/R5	30	35	○	○	×	0.2	0.15	○	-	-	-	-10~80	1200	4DGUGRE FS

○: Suitable (functional) △: May be suitable. Please contact Bando or your distributor. ×: Not suitable - -: Not functional

<p>■ SL-MC300 ★</p>  <p>Top/Backside</p> <p>Material Special rubber/PET Color Green/White Profile Special (RB)/Fabric surface</p>	<p>■ SL-MC400 ★</p>  <p>Top/Backside</p> <p>Material Special rubber/PET Color Green/White Profile Special (RB)/Fabric surface</p>	<p>■ SL-M5100</p>  <p>Top/Backside</p> <p>Material PET/PET Color White/White Profile Impregnated/Impregnated</p>	<p>■ SL-M5200N ★</p>  <p>Top/Backside</p> <p>Material PET/PET Color White/White Profile Impregnated/Fabric surface</p>	<p>■ SL-M5201N</p>  <p>Top/Backside</p> <p>Material PET/PET Color White/White Profile Impregnated/Impregnated</p>	<p>■ SL-M5302</p>  <p>Top/Backside</p> <p>Material PET/PET Color Green/Green Profile Impregnated/Impregnated</p>
<p>■ SL-M5402N ★</p>  <p>Top/Backside</p> <p>Material PET/PET Color Green/White Profile Impregnated/Fabric surface</p>	<p>■ SL-M5422</p>  <p>Top/Backside</p> <p>Material PET/PET Color Green/White Profile Impregnated/Impregnated</p>	<p>■ SL-M8418 ★</p>  <p>Top/Backside</p> <p>Material PU/PET Color Green/White Profile Smooth and matte/Fabric surface</p>	<p>■ SL-S6235N</p>  <p>Top/Backside</p> <p>Material PET/PET Color White/White Profile Impregnated/Impregnated</p>	<p>■ SL-S6933N ★</p>  <p>Top/Backside</p> <p>Material PU/PET Color Gray/White Profile Smooth and matte/Impregnated</p>	<p>■ SL-SY040 ★</p>  <p>Top/Backside</p> <p>Material PU/PET Color Gray/White Profile Smooth and matte/Impregnated</p>

PU: Polyurethane PET: Polyester



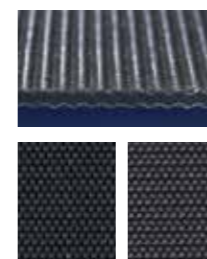
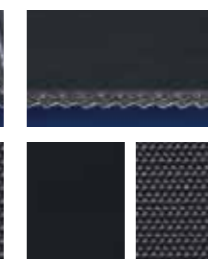
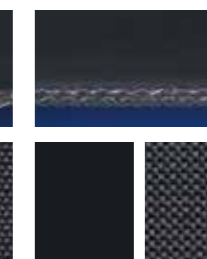
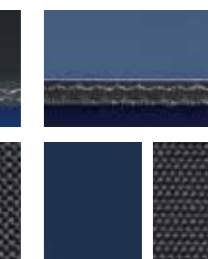

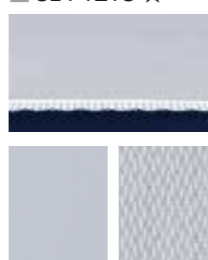

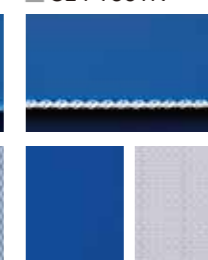
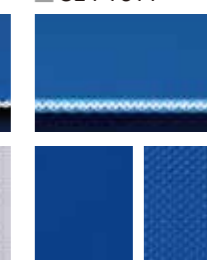
## Specialty Belts

Please contact Bando or your distributor about delivery lead time.

Product	No. of plies	Weight (kg/m <sup>2</sup> )	Total thickness (mm)	Minimum pulley diameter (mm)/ Knife edge			Belt support			Top friction coefficient	Backside friction coefficient	Unpackaged food	Non-fray	incline	Applicable operating dry heat temperature (°C)	Maximum applicable width (mm)	Previous product, remarks
				Finger	Hot lap	Cold lap	Table	Roller	Trough								
<b>[15] Belts with excellent heat resistance, suitable for conveyance of kneaded rubber, metal, plastics</b>																	
SL-S1235	1	6.0	9.0	-	100**	-	○	○	△	0.4	0.15	-	-	△	-10~250	1000	8AUCF8E OS
SL-S1239	2	1.8	1.6	-	75	-	○	○	×	1.7	0.25	○	○	△	-40~180	1200	5SWE KS
SL-S1831	2	2.2	2.0	-	50	-	○	○	△	0.15	0.15	-	-	-	-20~150	1200	8EE SS
SL-S1832	2	1.8	1.7	-	50	-	○	○	△	0.5	0.15	-	-	△	-20~150	1200	8EBKE FS
SL-S1833	2	2.2	2.1	-	50	-	×	○	△	0.5	0.5	-	-	△	-20~150	1200	8EBK4/BK4E FN
SL-S1933	2	2.6	2.4	-	100	-	○	○	×	0.1	0.15	○	-	-	-20~150	1200	8FGRE TS
<b>[16] Belts for low temperature conveyance, suitable for frozen food, ice cream and other cold products</b>																	
SL-F1201	2	1.3	1.1	10/R2	15/R3	25	○	○	△	0.3	0.15	○	○	△	-40~80	1800	
SL-F1218	2	1.3	1.1	15/R3	20/R5	25	○	○	△	0.3	0.15	○	○	△	-40~80	1800	
SL-F1502	1	0.9	0.8	15/R3	20/R5	25	○	○	×	0.25	0.15	○	○	△	-40~80	600	Mr. Cook the blue
SL-F1601	2	1.3	1.1	10/R2	15/R3	25	○	○	△	0.3	0.15	○	○	△	-40~80	1800	Mr. Cook the blue
SL-F1611	2	1.6	1.4	25/R8	30/R10	40	△	○	△	0.3	0.3	○	○	△	-40~80	1800	Mr. Cook the blue

○: Suitable (functional) △: May be suitable. Please contact Bando or your distributor. ×: Not suitable - -: Not functional

\*\* : Lace joint is generally used. Hot joint may be suitable, but it may cause crack by bent around jointed part.

<p>■ SL-S1235</p>  <p>Top/Backside</p> <p>Material Felt/PET Color White/White Profile Felt/Impregnated</p>	<p>■ SL-S1239</p>  <p>Top/Backside</p> <p>Material Silicon/PET Color White/White Profile Mirror type/Impregnated</p>	<p>■ SL-S1831</p>  <p>Top/Backside</p> <p>Material PET/PET Color Black/Black Profile Impregnated/Impregnated</p>	<p>■ SL-S1832</p>  <p>Top/Backside</p> <p>Material Heat resistant rubber/PET Color Black/Black Profile Smooth and matte/Impregnated</p>	<p>■ SL-S1833</p>  <p>Top/Backside</p> <p>Material Heat resistant rubber/Heat resistant rubber Color Black/Black Profile Smooth and matte/Grainy(N)</p>	<p>■ SL-S1933</p>  <p>Top/Backside</p> <p>Material Fluorine resin/PET Color Gray/Black Profile Film/Impregnated</p>
<p>■ SL-F1201 ★</p>  <p>Top/Backside</p> <p>Material PU/PET Color White/White Profile Smooth and glossy/Impregnated</p>	<p>■ SL-F1218 ★</p>  <p>Top/Backside</p> <p>Material PU/PET Color White/White Profile Smooth and glossy/Impregnated</p>	<p>■ SL-F1502</p>  <p>Top/Backside</p> <p>Material PU/PET Color Blue/White Profile Smooth and matte/Impregnated</p>	<p>■ SL-F1601N</p>  <p>Top/Backside</p> <p>Material PU/PET Color Blue/White Profile Smooth and glossy/Impregnated</p>	<p>■ SL-F1611</p>  <p>Top/Backside</p> <p>Material PU/PET Color Blue/Blue Profile Smooth and glossy/Grainy(N)</p>	

PU: Polyurethane PET: Polyester

## Specialty Belts

Please contact Bando or your distributor about delivery lead time.

Product	No. of plies	Weight (kg/m <sup>2</sup> )	Total thickness (mm)	Minimum pulley diameter (mm)/ Knife edge			Belt support			Top friction coefficient	Backside friction coefficient	Unpackaged food	Non-fray	incline	Ultra anti-static	Applicable operating temperature (°C)	Maximum applicable width (mm)	Previous product, remarks
				Finger	Hot lap	Cold lap	Table	Roller	Trough									
<b>【17】 Excellent oil resistance, such as to machine oil</b>																		
SL-S2632	2	3.6	3.3	75	75	-	○	○	△	0.5	0.15	-	-	△	-	5~60	1800	8RDB20E HS
SL-S2634	2	2.1	1.9	50	50	-	○	○	△	0.5	0.15	-	-	△	-	5~60	1800	8RDDB5E HS
SL-SY533	1	1.9	1.7	30	30	-	×	○	×	0.5	0.5	-	-	○	-	5~60	400	4RDB5/5E N3N
SL-SY534	1	1.1	1.0	25	25	-	○	○	×	0.5	0.15	-	-	△	-	5~60	600	4RDB5E HS
<b>【18】 Belts for heavy object conveyance, such as iron plates and lumber, with excellent resistance to impact and piercing</b>																		
SL-S5425	2	2.1	1.9	60	60	70	○	○	△	0.3	0.15	○	-	△	-	-10~80	1800	16AUGE HS
SL-SY035	3	2.9	2.8	100	100	125	○	○	△	0.3	0.15	○	-	△	-	-10~80	2500	12UG5E HS
<b>【19】 Belts suitable for conveyance of items easily affected by static electricity, such as paper, fiber or electrical components</b>																		
SL-S3726	1	1	0.9	25/R8	30/R10	35	○	○	×	0.3	0.15	○	○	△	○	-10~80	600	4DUBKE NF HS
SL-S3827	2	1.5	1.4	35	40	45	○	○	△	0.25	0.15	○	-	△	○	-10~80	1800	8HUBKE FS

○: Suitable (functional) △: May be suitable. Please contact Bando or your distributor. ×: Not suitable -: Not functional

■ SL-S2632

Top/Backside

Material PVC/PET  
Color Dark blue/White  
Profile Smooth and glossy/Impregnated

■ SL-S2634

Top/Backside

Material PVC/PET  
Color Dark blue/White  
Profile Smooth and glossy/Impregnated

■ SL-SY533

Top/Backside

Material PVC/PVC  
Color Dark blue/Dark blue  
Profile Grainy(N3)/Grainy(N)

■ SL-SY534

Top/Backside

Material PVC/PET  
Color Dark blue/White  
Profile Smooth and glossy/Impregnated

■ SL-S5425

Top/Backside

Material PU/PET  
Color Green/White  
Profile Smooth and glossy/Impregnated

■ SL-SY035

Top/Backside

Material PU/PET  
Color Green/White  
Profile Smooth and glossy/Impregnated

■ SL-S3726

Top/Backside

Material PU/PET  
Color Black/White  
Profile Smooth and glossy/Impregnated

■ SL-S3827

Top/Backside

Material PU/PET  
Color Black/White  
Profile Smooth and matte/Impregnated

PU: Polyurethane PET: Polyester PVC: Polyvinyl chloride

Product	No. of plies	Weight (kg/m <sup>2</sup> )	Total thickness (mm)	Minimum pulley diameter (mm)/ Knife edge			Belt support			Top friction coefficient	Backside friction coefficient	Unpackaged food	Non-fray	Antibacterial Antifungal	incline	Applicable operating temperature (°C)	Maximum applicable width (mm)	Previous product, remarks
				Finger	Hot lap	Cold lap	Table	Roller	Trough									
<b>【20】 Flexible in width direction, suitable for trough or curved conveyors</b>																		
SL-S7100 <sup>(※1)</sup>	1	0.9	0.8	25/R5	30	-	○	○	○	0.25	0.15	○	-	○	△	-40~80	600	
SL-S7200 <sup>(※1)</sup>	2	1.5	1.4	35	40	45	○	○	○	0.25	0.15	○	-	○	△	-40~80	1800	
SL-S7300	1	0.9	0.8	25/R5	30	-	○	○	○	0.25	0.15	○	-	-	△	-10~80	600	
SL-S7436	2	1.5	1.4	40	40	45	○	○	○	0.3	0.15	○	-	-	△	-10~80	1800	C2UGE BEL1 HS
<b>【21】 Low noise belts, suitable for use at airports and logistics centers</b>																		
SL-M0409	2	2.2	2.1	50	50	55	○	○	△	1.7	0.1	○	-	-	○	-10~80	1800	8MUGE R10
SL-M4100	1	0.9	0.8	15/R3	25/R8	30	○	○	×	0.3	0.1	○	-	-	△	-10~80	600	4MUWE HO
SL-M6423	2	1.5	1.4	35	40	40	○	○	△	0.3	0.1	○	-	-	△	-10~80	1800	8MUGE HO
SL-M9409N	2	3.5	3.2	50	50	50	○	○	△	0.7	0.1	-	-	-	○	5~60	3000	8MCGE R10
SL-SY455N	2	2.2	2.0	50	50	50	○	○	△	0.4	0.1	-	-	-	△	5~60	3000	8MCGE HO

○: Suitable (functional) △: May be suitable. Please contact Bando or your distributor. ×: Not suitable -: Not functional

※1 Not suitable for curved conveyors as cleat process adhesion is low

■ SL-S7100

Top/Backside

Material PU/PET  
Color White/White  
Profile Smooth and matte/Impregnated

■ SL-S7200

Top/Backside

Material PU/PET  
Color White/White  
Profile Smooth and matte/Impregnated

■ SL-S7300

Top/Backside

Material PU/PET  
Color Green/White  
Profile Smooth and matte/Impregnated

■ SL-S7436

Top/Backside

Material PU/PET  
Color Green/White  
Profile Smooth and matte/Impregnated

■ SL-M0409

Top/Backside

Material PU/PET  
Color Green/White  
Profile Grooved(R1)/Fabric surface

■ SL-M4100

Top/Backside

Material PU/PET  
Color White/White  
Profile Smooth and glossy/Fabric surface

■ SL-M6423

Top/Backside

Material PU/PET  
Color Green/White  
Profile Smooth and glossy/Fabric surface

■ SL-M9409N

Top/Backside

Material PVC/PET  
Color Green/White  
Profile Grooved(R1)/Fabric surface

■ SL-SY455N

Top/Backside

Material PVC/PET  
Color Green/White  
Profile Smooth and glossy/Fabric surface

PU: Polyurethane PET: Polyester PVC: Polyvinyl chloride

## Specialty Belts

Please contact Bando or your distributor about delivery lead time.

Product	No. of plies	Weight (kg/m <sup>2</sup> )	Total thickness (mm)	Minimum pulley diameter (mm)/ Knife edge			Belt support			Top friction coefficient	Backside friction coefficient	Unpackaged food	Non-fray	incline	Applicable operating dry heat temperature (°C)	Maximum applicable width (mm)	Previous product, remarks
				Finger	Hot lap	Cold lap	Table	Roller	Trough								
<b>[22] Belts with non-sticky covers impregnated with heat resistant rubber, or made using silicon or felt.</b>																	
SL-S1239	2	1.8	1.6	-	75	-	○	○	×	1.7	0.25	○	○	△	-40~180	1200	5SWE KS
SL-S1831	2	2.2	2.0	-	50	-	○	○	△	0.15	0.15	-	-	-	-20~150	1200	8EE SS
SL-S8231N	2	2.3	2.3	50	50	55	○	○	△	0.25	0.15	○	-	△	-10~80	1800	4PCE 00
SL-SY137N	1	2.2	2.6	-	40	40	○	○	△	0.4	0.15	○	-	△	-10~80	600	4DUMFE OS
<b>[23] Belts resistant to mold propagation, meeting food sanitation needs</b>																	
SL-S9200	2	2.3	1.8	60	60	60	○	○	△	0.5	0.15	○	○	△	5~60	1800	8CWJE NF HS
SL-S9235	2	2.6	2.4	80	80	80	×	○	△	0.4	0.4	○	-	△	5~60	1200	8CW5/W5JE FF
SL-SY292	2	3.2	2.9	100	100	100	×	○	○	0.4	0.5	○	-	△	5~60	1800	8YCW FN
<b>[24] Belt suitable for detection devices (Weight Checker, X-ray inspection apparatus, electronic scan)</b>																	
SL-SY045	2	1.4	1.3	35	40	-	△	○	○	0.25	0.25	○	-	△	-10~80	1500	5UTOMEI FF
SL-M4100	1	0.9	0.8	15/R3	25/R8	30	○	○	×	0.3	0.1	○	-	△	-10~80	600	4MUWE HO
SL-M4300	1	0.9	0.8	15/R3	25/R8	30	○	○	×	0.3	0.1	○	-	△	-10~80	600	4MUGE HO
SL-M4329	1	0.9	0.8	15/R3	25/R8	30	○	○	×	0.25	0.15	○	○	△	-10~80	600	
<b>[25] Belts suitable for cutting of conveyed items on the belt surface</b>																	
SL-SY245	2	4.4	4.0	-	150	150	×	○	△	1.7	0.3	○	-	△	-10~80	1800	8YUSW15/W12E FN

○: Suitable (functional) △: May be suitable. Please contact Bando or your distributor. ×: Not suitable -: Not functional

<p>■ SL-S1239</p> <p>Top/Backside</p> <p>Material Silicon/PET Color White/White Profile Mirror type/Impregnated</p>	<p>■ SL-S1831</p> <p>Top/Backside</p> <p>Material PET/PET Color Black/Black Profile Impregnated/Impregnated</p>	<p>■ SL-S8231N</p> <p>Top/Backside</p> <p>Material Cotton/PET Color White/White Profile Cotton fabric/Impregnated</p>	<p>■ SL-SY137N</p> <p>Top/Backside</p> <p>Material Felt/PET Color White/White Profile Felt/Impregnated</p>	<p>■ SL-S9200</p> <p>Top/Backside</p> <p>Material PVC/PET Color White/White Profile Smooth and glossy/Impregnated</p>	<p>■ SL-S9235</p> <p>Top/Backside</p> <p>Material PVC/PVC Color White/White Profile Smooth and matte/Smooth and matte</p>
<p>■ SL-SY292</p> <p>Top/Backside</p> <p>Material PVC/PVC Color White/White Profile Smooth and matte/Grainy(N)</p>	<p>■ SL-SY045</p> <p>Top/Backside</p> <p>Material PU/PU Color Transparent/Transparent Profile Smooth and matte/Smooth and matte</p>	<p>■ SL-M4100</p> <p>Top/Backside</p> <p>Material PU/PET Color White/White Profile Smooth and glossy/Fabric surface</p>	<p>■ SL-M4300</p> <p>Top/Backside</p> <p>Material PU/PET Color Green/White Profile Smooth and glossy/Fabric surface</p>	<p>■ SL-M4329</p> <p>Top/Backside</p> <p>Material PU/PET Color Green/White Profile Smooth and matte/Fabric surface</p>	<p>■ SL-SY245</p> <p>Top/Backside</p> <p>Material PU/PU Color White/White Profile Smooth and matte/Grainy(N)</p>

PU: Polyurethane PET: Polyester PVC: Polyvinyl chloride

## Belts for Unpackaged Food Conveyance (meets overseas food sanitation law)

Please contact Bando or your distributor about delivery lead time.

Product	No. of plies	Weight (kg/m <sup>2</sup> )	Total thickness (mm)	Minimum pulley diameter (mm)/ Knife edge			Belt support			Top friction coefficient	Backside friction coefficient	Non-fray	Antibacterial Antifungal	Applicable operating temperature(°C)		Maximum applicable width (mm)
				Finger	Hot lap	Cold lap	Table	Roller	Trough					Dry heat	Wet heat	
<b>[26] Belts meets food sanitation law of USA, EU and Japan.</b> *CS series meets European PIM.																
SL-CS020	2	0.9	0.8	10/R5	15/R8	25	○	○	△	0.15	0.25	○	-	-40~70	60	400
SL-CS060	2	1.1	1.1	30/R10	40	45	○	○	△	0.15	0.15	-	-	-10~70	60	1,700
SL-CS110	1	0.9	0.8	15/R3	20/R8	25	○	○	×	0.25	0.15	○	-	-40~70	60	600
SL-CS111	1	0.8	0.7	20/R5	25/R8	30	○	○	×	0.30	0.10	-	-	-40~70	60	600
SL-CS120	2	1.3	1.1	10/R3	15/R5	25	○	○	△	0.30	0.15	○	-	-40~70	60	1,800
SL-CS150	1	0.9	0.8	15/R3	20/R8	25	○	○	×	0.25	0.15	○	-	-40~70	60	600
SL-CS151	1	0.9	0.8	15/R3	25/R8	30	○	○	×	0.30	0.10	-	-	-40~70	60	600
SL-CS160	2	1.3	1.1	10/R3	15/R5	25	○	○	△	0.30	0.15	○	-	-40~70	60	1,800
SL-CS162	2	1.3	1.1	20/R5	25/R10	30	○	○	△	0.20	0.15	○	-	-10~70	60	1,800

\*: Hot joint is recommended. Delicate fabric material is used, and unprocessed belt edge and cold joint may result in unstable joint strength.

<p>■ SL-CS020</p> <p>Top/Backside</p> <p>Material PET/PET Color White/White Profile Impregnated/Impregnated</p>	<p>■ SL-CS060</p> <p>Top/Backside</p> <p>Material PET/PET Color Blue/White Profile Impregnated/Impregnated</p>	<p>■ SL-CS110</p> <p>Top/Backside</p> <p>Material PU/PET Color White/White Profile Smooth and glossy/Impregnated</p>	<p>■ SL-CS111</p> <p>Top/Backside</p> <p>Material PU/PET Color Green/White Profile Smooth and glossy/Fabric surface</p>	<p>■ SL-CS120</p> <p>Top/Backside</p> <p>Material PU/PET Color White/White Profile Smooth and glossy/Impregnated</p>
<p>■ SL-CS150</p> <p>Top/Backside</p> <p>Material PU/PET Color Blue/White Profile Smooth and matte/Impregnated</p>	<p>■ SL-CS151</p> <p>Top/Backside</p> <p>Material PU/PET Color Blue/White Profile Smooth and glossy/Fabric surface</p>	<p>■ SL-CS160</p> <p>Top/Backside</p> <p>Material PU/PET Color Blue/White Profile Smooth and glossy/Impregnated</p>	<p>■ SL-CS162</p> <p>Top/Backside</p> <p>Material PU/PET Color Blue/White Profile Smooth and matte/Impregnated</p>	

PU: Polyurethane PET: Polyester

## F Series for Food Conveyance Applications

### ■ Non-fray specification

Suppresses belt edge fraying without additional processing, and reduces the risk of foreign matter inclusion.



### ■ Antibacterial, antifungal

Contributes to belt sanitation by restraining bacterial reproduction and mold generation

<Antibacterial performance>

Test sample: Coliform bacteria

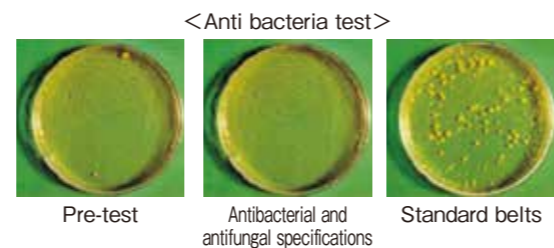
Viable cell count immediately after inoculation: 250,000

After 24 hours at 35°C: 10 or less

<Antifungal performance>

Antifungal test in compliance with JIS Z2911 (5 types of fungi)

After 28 days from cultivation: up to 25% less cultivation overall



### ■ Notes

#### • Unpackaged food conveyance

A "O" in the tables for F, M and S Series indicates that the belts meet Article 370 standards of the Food Sanitation Act of the Ministry of Health and Welfare. Please do not use other belts for unpackaged food other than those marked "O." Other belts may be used to convey foods packaged in boxes, trays, etc.

#### • Ministry of Health, Labour and Welfare Food hygiene Bulletin No. 370

This standard addresses food additives and related topics, which it categorizes as (1) food products, (2) additives, (3) tools and packaging containers, (4) toys, and (5) cleaning agents. Synthetic resin tools and packaging containers are subject to the general standard as well as individual standards that have been formulated for each resin material. Manufacturers must carry out predetermined hygienic tests (material tests and elution tests) using the final product and obtain passing results.

#### • FDA (Federal Food, Drug, and Cosmetic Act: FFDCA)

This regulation governs tools and packaging containers for food products in the U.S. Indirect food additives are governed by 21 CFR § 174 to § 186 (Code of Federal Regulations). Materials with which foods make contact as listed in 21 CFR are regulated on the basis of individual materials, products, and applications, and their safety is subject to approval by the FDA.

#### • PIM (Plastic Implementation Measure): Regulation (EU) No. 10/2011

Basic provisions concerning materials with which foods make contact are set forth in Regulation (EU) No. 1935/2004 to eliminate discrepancies among the regulations of EU member countries. Regulation (EU) No. 10/2011 contains specific rules to ensure the safe use of plastic materials and other products that are intended to come into contact with foods.

### ■ Operating temperature range for belts

The operating temperature ranges for SUNLINE belts have been determined so as to take into account the strength of not only the belt itself, but also the joints. Due to the significant deterioration in strength that room-temperature gluing and finger joints exhibit at high temperatures, use of these belts under conditions that would expose them to high temperatures over extended periods of time should be avoided. They can withstand temperatures in excess of the operating temperature range for short periods of time (about 5 min.), for example to allow cleaning of the belt.

In addition, please review the dry- and wet-heat operating temperature ranges as the degree of the effect on the belt varies greatly depending on the amount of humidity present. If the belt surface temperature will range from -10° C to 0° C, choose a model with finger joints or hot lap joints. Models with cold lap joints should not be used under those conditions. If the belt surface temperature will range from -40° C to -10° C, choose a model with finger joints. Models with hot or cold lap joints should not be used under those conditions.

### ■ Cleaning and sterilization

Food manufacturing processes incorporate heat sterilization (using hot water or steam) that includes not only food products, but also mechanical equipment (conveyor belts) in order to ensure long shelf life and safety. Exposure of the polyurethane belts that are typically used with food products to wet heat will hasten joint damage as well as the degradation of the belt itself, eventually rendering the belt unusable. If your application includes cleaning and sterilization (with wet heat at temperatures from 80° C to 100° C), use one of the belts listed in the table to the right.

Belt model	
SL-F3102N	SL-F3211
SL-F3106N	SL-F3500
SL-F3202	SL-F3611
SL-F3206N	SL-F3207

\*The wet-heat operating temperature range is -10° C to 80° C for continuous operation and 100° C for momentary exposure (around 5 min.).  
 \*If equipped with table supports and a cover for the bottom surface, use at a length of 10 m or less and a belt speed of 10 m/min. or less. The travel resistance increases when the belt is wet, which may lead to issues such as slippage when operation starts.  
 \*SUNLINE belts not designed for use in wet-heat applications should be cleaned using cold or warm water at a temperature of 40° C or less. If using a cleaning agent, avoid use of powerful products such as those that are strongly alkaline.  
 \*The SL-S8935N and SL-S8936N have a fluororesin film surface.

## M Series for Logistics and General Purpose Conveyance

### ■ Inclined conveyance

Belts with coarse or friction-resistant surfaces are available for inclined conveyance without cleats. Normally, belts with higher friction coefficients can convey at higher angles, but exposure to dust, dirt and moisture may lower performance. SL-MC300 and SL-MC400 ("Mr. Climber" belts) have a high friction coefficient and are resistant to dirt.

### ■ Low noise capability

The low noise specification uses a softened belt backside to reduce the abrasive sound generated when the belt touches the belt support, such as an iron plate. The effect is normally about 5db, but this depends on the conveyor, the operating environment and peripheral equipment. Please consider these factors, and consult with Bando or your distributor for effectiveness in a specific application.

### ■ Sliding of objects on belts

High-hardness polyurethane-covered models and models with an uncoated canvas surface are often used in applications where the object being transported must be able to slide on the belt, for example to allow alignment, ejection, or quantity-based arrangement of objects. Anti-stick polyurethane models are also sometimes used in such applications. The ease with which transported objects slide on the belt is affected by factors such as the belt's surface material and shape. If necessary, you can use a sample to check the ease with which your application's transported object slides on the belt.

## S Series for Specialty Conveyance

### ■ Heat resistance

Belt surface temperature is the basis for determining heat resistance temperatures. The belt surface temperature is usually lower than the material being conveyed, so belts may be used even if the material temperature exceeds the temperature range for the belt. If ambient temperatures are high, the belt surface temperature should conform to the ambient temperature.

### ■ Antifungal PVC for food

Bando offers belts with PVC covers that meet Article 370 standards of the Food Sanitation Act of the Ministry of Health and Welfare. The properties of these PVC-covered belts are suitable where antifungal performance is required, as mold is less likely to occur.

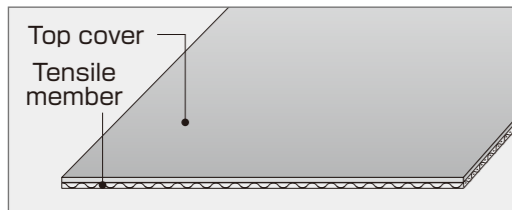
### ■ Oil resistance

The polyurethane used as a cover material for SUNLINE belts is relatively resistant to mineral oil and food oils. Specially formulated oil-resistant PVC also provides resistance to machine oil and other similar lubricants. See pages 41 and 42 for more information about resistance to specific oils and chemical agents. If the list does not include the substance you're looking for, we can verify the belt's resistance if you provide a sample oil or chemical agent for us to test. Please contact a Bando Chemical Industries sales company or dealer for more information.

### ■ Antistatic performance

Static electricity is generated when belts move due to friction between the belt and the belt supports. Belts develop an electric charge as the result of this static electricity, but the canvas and resin materials used in SUNLINE belts incorporate features designed to reduce the effect of this phenomenon.

## Structure



## Features

- Seamless
- Applicable for unpackaged food conveyance
- Built-to-Order sizes available
- Humidity and heat resistance, non-sticky specifications
- Non-fray specification available

### How to Read Specifications

**SL- P1 1 0 5**

- ① **Type :**  
 P1...Urethane P2...PVC  
 P3...Humidity and heat resistant urethane  
 P4...Ultra anti-static  
 P5...Silicon impregnated  
 P6...Slide P7...Polyester  
 P8...Antibacterial, antifungal urethane
- ② **Fabric :**  
 1...Lateral rigidity 2...Non-fray 3...Flexible
- ③ **Belt color · Top cover thickness · Form :**  
 01...Blue · 0.5mm · Smooth/Fabric  
 02...Blue · 0.5mm · Smooth/Impregnated  
 04...Gray · 0.2mm · Smooth/Impregnated  
 05...Green · 0.2mm · Smooth/Impregnated  
 06...White · 0.2mm · Smooth/Impregnated  
 08...White · 0.2mm · Smooth/Smooth  
 11...White · 0.2mm · Smooth/Fabric  
 12...White · 0mm · Impregnated/Impregnated  
 14...Black · 0.2mm · Impregnated/Fabric  
 16...Green · 0.1mm · Smooth/Fabric  
 18...Green · 0.2mm · Smooth/Smooth  
 23...Black · 0.2mm · Smooth/Impregnated  
 32...White · 0.5mm · Smooth/Impregnated

## Main Applications

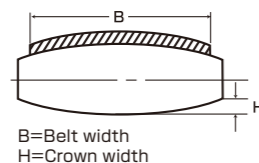
- P1 Series :** Sweets, bread, snacks, ham, sausage  
**P2 Series :** Paper, fiber, metal chips  
**P3 Series :** Fish cakes, frozen food  
**P4 Series :** IC, LSI, printed circuit boards, electronic components  
**P5 Series :** Sweets, bread, prepared foods, non-sticky material  
**P7 Series :** Sweets, bread, dairy products  
**P8 Series :** Sweets, bread, dairy products

## Pulleys

### • Crown pulleys

B	100 or less	101~300	301~650
H	0.2	0.3	0.4

- Use crown pulleys for the drive, head and tail pulleys.
- Use crown pulleys for each belt in multiple belt applications.
- The crown should be the entire pulley width R.



### • Pulley diameter

Belt width (mm)	Pulley diameter (common to all)	Belt internal circumference (mm)
Less than 100	20 φ	1000 or less
100~400	50 φ	1001~2500
401~650	75 φ	2501~5000

- Select the pulley diameter in the table above by belt width and inner circumference. The large pulley should be the "minimum drive pulley diameter" and small pulley should be "minimum pulley diameter". Example: Belt width 90mm, Belt length 1500mm  
 For belt width: 20φ minimum pulley diameter  
 For belt length: 50φ drive pulley diameter
- For knife edge applications, select 1 rank larger diameter for the minimum drive pulley diameter
- The winding angle of the drive pulley diameter should be 180° or more.
- If the pulley gets wet or it is used in temperatures of 0°C or less, use pulley lagging on the drive pulley surface to avoid slipping.

## Dimensional tolerance

	Belt dimensions (mm)	Allowance (mm)
Belt inner circumference	400~1000	±2 (Non-fray ±3)
	1001~5000	±5
Belt inner circumference lateral difference	400~5000	1
Belt width	100以下	±1
	101以上	±2
Belt thickness	0.5~1.0	±0.15

## Manufacturing range

Belt inner circumference (mm)	Belt width (mm)
400~5000 ※1	10~650
100mm intervals	1mm intervals

- ※1 The inner circumference is 700~5000mm for belts with covers on both surfaces.
- Please contact Bando or your distributor if you would like us to manufacture non-standard belt sizes.
- Please tell us when ordering if it is a multi-belt application.

## Minimum order lot

Please order at least the minimum lot as shown below.

Belt width (mm)	Minimum lot (pcs)	Belt width (mm)	Minimum lot (pcs)	Belt width (mm)	Minimum lot (pcs)
10	60	41~60	10	111~130	5
11~15	40	61~70	9	131~160	4
16~20	30	71~80	8	161~220	3
21~30	20	81~90	7	221~330	2
31~40	15	91~110	6	331~650	1

## Products

Belt	No. of plies	Total thickness (mm)	Top cover			Backside		Minimum pulley diameter (mm)	Belt support		Friction coefficient		Anti-static	Unpackaged food	Non-fray	Slide	Low noise	Reference (previous product name)
			Material	Color	Form	Material	Form		Table	Roller	Top surface	Backside surface						
<b>[P1] Meets Article 370 standards of the Food Sanitation Act of the Ministry of Health and Welfare, suitable for general food conveyance, such as sweets, bread, snack food, etc.</b> ※ Continuous use temperature range (belt surface temperature) -10 ~ 80°C																		
SL-P1105	1	0.8	PU	Green	Smooth (matte)	PET	Impregnated	4 (R2)	○	○	0.2	0.15	○	○	-	-	-	SP-EUGFS
SL-P1106	1	0.8	PU	White	Smooth (matte)	PET	Impregnated	4 (R2)	○	○	0.2	0.15	○	○	-	-	-	SP-EUWFS
SL-P1108	1	1.0	PU	White	Smooth (matte)	PU	Smooth (matte)	10	△	○	0.2	0.2	○	○	-	-	-	SP-EUW2/W2FF
SL-P1118	1	1.0	PU	Green	Smooth (matte)	PU	Smooth (matte)	10	△	○	0.2	0.2	○	○	-	-	-	SP-EUG2/G2FF
SL-P1132	1	1.1	PU	White	Smooth (matte)	PET	Impregnated	4 (R2)	○	○	0.2	0.15	○	○	-	-	-	SP-EUW5FS
SL-P1206	1	0.8	PU	White	Smooth (matte)	PET	Impregnated	4 (R2)	○	○	0.2	0.15	○	○	◎	-	-	New product
SL-P1311	1	0.7	PU	White	Smooth (matte)	PET	Fabric	4 (R2)	○	○	0.2	0.15	○	○	-	-	○	SP-EMUWFO
SL-P1310	1	0.7	PU	Green	Smooth (matte)	PET	Fabric	4 (R2)	○	○	0.2	0.15	○	○	-	-	○	SP-EMUGFO
SL-P1318	1	1.0	PU	Green	Smooth (matte)	PU	Smooth (matte)	10	△	○	0.2	0.2	○	○	-	-	-	SP-EMUG2/G2FF
<b>[P2] General purpose food conveyance, except unpackaged food, with a PVC cover.</b> ※ Continuous use temperature range (belt surface temperature) +5 ~ 60°C																		
SL-P2102	1	1.0	PVC	Blue	Smooth (matte)	PET	Impregnated	5	○	○	0.3	0.15	○	-	-	-	-	SP-ECBFS
SL-P2301	1	0.9	PVC	Blue	Smooth (matte)	PET	Fabric	5	○	○	0.3	0.15	○	-	-	-	○	SP-EMCBFO
<b>[P3] High resistance to humidity and heat, and meets Article 370 standards of the Food Sanitation Act of the Ministry of Health and Welfare, suitable for the conveyance of kneaded goods, frozen foods, processed meats and steamed products.</b> ※ Continuous use temperature range (belt surface temperature) -10 ~ 80°C																		
SL-P3105	1	0.8	PU	Green	Smooth (matte)	PET	Impregnated	4 (R2)	○	○	0.2	0.15	○	○	-	-	-	SP-EKAGFS
SL-P3106	1	0.8	PU	White	Smooth (matte)	PET	Impregnated	4 (R2)	○	○	0.2	0.15	○	○	-	-	-	SP-EKAWFS
SL-P3206	1	0.8	PU	White	Smooth (matte)	PET	Impregnated	4 (R2)	○	○	0.2	0.15	○	○	◎	-	-	New product
SL-P3311	1	0.7	PU	White	Smooth (matte)	PET	Fabric	4 (R2)	○	○	0.2	0.15	○	○	-	-	○	SP-EMKAWFO
<b>[P4] Ultra anti-static specification, ideal for process conveyance of electronic components sensitive to static, IC boards, etc.</b> ※ Continuous use temperature range (belt surface temperature) -10 ~ 80°C																		
SL-P4123	1	0.8	PU	Black	Smooth (matte)	PET	Impregnated	4 (R2)	○	○	0.2	0.15	◎	-	-	-	-	SP-EUBKFS
SL-P4314	1	0.7	PU	Black	Smooth (matte)	PET	Fabric	4 (R2)	○	○	0.2	0.15	◎	-	-	-	○	SP-EMUBKFO
<b>[P5] Low friction coefficient, ideal for conveyance of sticky materials. Meets Article 370 standards of the Food Sanitation Act of the Ministry of Health and Welfare.</b> ※ Continuous use temperature range (belt surface temperature) -10 ~ 80°C																		
SL-P5112	1	0.5	SPET	White	Impregnated	PET	Impregnated	4 (R2)	○	○	0.15	0.15	○	○	-	○	-	SP-EPS SS
SL-P5212	1	0.6	SPET	White	Impregnated	PET	Impregnated	4 (R2)	○	○	0.15	0.15	○	○	◎	○	-	New product
SL-P5312	1	0.4	SPET	White	Impregnated	PET	Impregnated	4 (R2)	○	○	0.15	0.15	○	○	-	○	-	SP-EMPS SS
<b>[P6] Ideal belt for alignment, sorting and accumulation applications</b> ※ Continuous use temperature range (belt surface temperature) -10 ~ 80°C																		
SL-P6104	1	0.8	Rigid PU	Gray	Smooth (matte)	PET	Impregnated	4 (R2)	○	○	0.15	0.15	○	○	-	◎	-	SP-EGUGRFS
SL-P6304	1	0.7	Rigid PU	Gray	Smooth (matte)	PET	Impregnated	4 (R2)	○	○	0.15	0.15	○	○	-	◎	-	SP-EMGUGRFS
<b>[P7] Belts use polyurethane-impregnated fabric, suitable for slide applications.</b> ※ Continuous use temperature range (belt surface temperature) -10 ~ 80°C																		
SL-P7112	1	0.5	PET	White	Impregnated	PET	Impregnated	4 (R2)	○	○	0.15	0.15	○	○	-	○	-	SP-EPSS
SL-P7212	1	0.6	PET	White	Impregnated	PET	Impregnated	4 (R2)	○	○	0.15	0.15	○	○	◎	○	-	New product
SL-P7312	1	0.4	PET	White	Impregnated	PET	Impregnated	4 (R2)	○	○	0.15	0.15	○	○	-	○	-	SP-EMPSS
<b>[P8] Antibacterial and antifungal polyurethane belts</b> ※ Continuous use temperature range (belt surface temperature) -10 ~ 80°C																		
SL-P8111	1	0.8	PU	White	Smooth (matte)	PET	Impregnated	4 (R2)	○	○	0.2	0.15	○	○	-	-	○	SP-EUBWFO

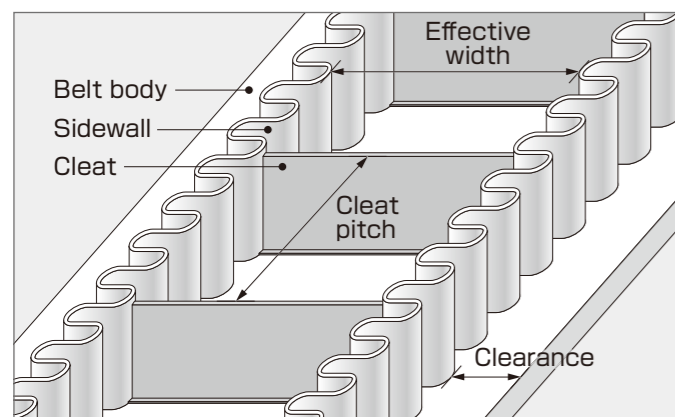
◎: Ideal ○: Suitable (functional) △: May be suitable. Please contact Bando or your distributor. ×: Not suitable -: Not functional  
 PU: Polyurethane PET: Polyester SPET: Silicon impregnated fabric PVC: Polyvinyl chloride

### For unpackaged food conveyance

- : Meets Article 370 standards of the Food Sanitation Act of the Ministry of Health and Welfare
- ×: Do not use for unpackaged food, but may be used to convey food packed in bags, boxes or trays

SUNLINE Belts are used for steep incline conveyance with a combination of cleats and sidewalls on the belt body. Vertical conveyance of bulk materials and powders is also possible in narrow-space installations.

## Belt structure



## Features

- Step incline conveyance
- Contributes to minimizing conveyor system size
- The same belt can be used on a line with different angles
- Little spillage
- Use in various applications and amounts of materials conveyed

## Main Applications

- Step incline conveyance of food, especially powder or bulk
- Step incline conveyance of raw materials, components
- Withdrawing applications from hoppers, etc.

**How to Read Specifications**

[ Example ]

<Belt> **SL-S7233**  
 400(mm) × 12500(mm)  
 ① Belt ② Width ③ Length

<Sidewall> **WA-60U(W)**  
 ① ② ③ ④

<Cleat> **TC-50U(W)** pitch 200(mm)  
 ① ② ③ ④ ⑤

① Type : [Sidewall]WA WB WC [Cleat]TC ② Height(mm)  
 ③ Material : U...PU C...PVC  
 ④ Color : W...White G...Green ⑤ Installation pitch(mm)

<Effective width> 190(mm) Effective width dimensions  
 <Clearance> 60(mm) Clearance dimensions

## Belt Products

Belt	No. of plies	Weight (kg/m <sup>2</sup> )	Total thickness (mm)	Minimum pulley diameter (mm)/ Knife edge			Belt support			Top friction coefficient	Backside friction coefficient	Unpackaged food	Notes, previous product name
				Finger	Hot lap	Cold lap	Table	Roller	Trough				
SL-S7233	2	1.9	1.7	55	60	65	○	○	△	0.3	0.15	○	8DUWE HS
SL-S7432	2	1.9	1.7	55	60	65	○	○	△	0.3	0.15	○	8DUGE HS
SL-S7211	2	2.8	2.6	75	75	75	×	○	△	0.5	0.5	-	8DCW5/W5E HN
SL-S7411	2	2.8	2.6	75	75	75	×	○	△	0.5	0.5	-	8DCG5/G5E HN

○ : Suitable (functional) × : Not suitable - : Not functional

SL-S7233	SL-S7432	SL-S7211	SL-S7411
Material PU/PET	Material PU/PET	Material PVC/PVC	Material PVC/PVC
Color White/White	Color Green/White	Color White/White	Color Green/Green
Profile Smooth and glossy/Impregnated	Profile Smooth and glossy/Impregnated	Profile Smooth and glossy/Grainy(N)	Profile Smooth and glossy/Grainy(N)

PU : Polyurethane PET : Polyester PVC : Polyvinyl chloride

### For unpackaged food conveyance

○ : Meets Article 370 standards of the Food Sanitation Act of the Ministry of Health and Welfare.  
 X : Do not use for unpackaged food, but may be used to convey food packed in bags, boxes or trays

## Sidewall Standard Specifications

Type	Shape	Name	Color	P Sidewall pitch (mm)	W Sidewall width (mm)	Height (mm)	Minimum pulley diameter (mm)
WA		WA-40U (G)	Green	50	45	40	100
		WA-60U (W)	White			60	150
		WA-80U (G)	Green			80	200
		WA-40C (G)	Green			40	100
		WA-60C (G)	Green			60	150
		WA-80C (G)	Green			80	200
WB		WB-30U (G)	Green	33	30	30	75
		WB-30U (W)	White				
WC		WC-40U (G)	Green	45	55	40	80
		WC-60U (G)	Green			60	100

## Cleat Standard Specifications

Type	Shape	Name	Color	H Height (mm)	W Width (mm)	Weight (kg/m)	Unpackaged food
TC		SL-TC30U (G)	Green	30	25	0.21	○
		SL-TC30U (W)	White				
		SL-TC50U (G)	Green	50	30	0.34	○
		SL-TC50U (W)	White				
		SL-TC70U (G)	Green	70	35	0.54	○
		SL-TC70U (W)	White				
		SL-TC30C (G)	Green	30	29	0.24	×
		SL-TC30C (W)	White				
SL-TC50C (G)	Green	50	33	0.63	×		
SL-TC50C (W)	White						
SL-TC70C (G)	Green	70	40	1.20	×		
SL-TC70C (W)	White						

○ : Suitable (functional) × : Not suitable

- ※ The gap tolerance in the sidewall and cleat dimension is 0~4mm
- ※ Standard cleat pitch: 150mm, 300mm, 400mm, 500mm (Other cleat pitches can be manufactured in intervals of 100~1000mm)
- ※ If required sidewall height is not standard, please contact us.
- ※ We can manufacture 5mm and at 10mm intervals from 10mm to 100mm for free zone R. Variable angle line R dimension should be calculated by  $R \geq 0.1 \times (B+H)$ . Round up for less than 10mm.
- ※ Manufacturing dimensions: Maximum belt width B is 1000mm, maximum effective width in variable line is 700mm, straight line is 800mm, maximum length is 60m. Please contact Bando or your distributor if you require other specifications.

## Standard combinations

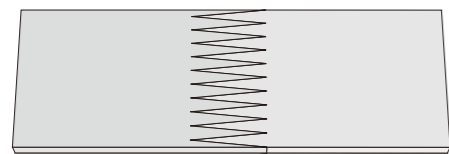
Type	Shape	B (mm)	H (mm)	H <sub>1</sub> (mm)	NB (mm)	R (mm)
Variable angle line		200	-	-	-	-
		250	-	-	-	-
		300	40	30	110	50
			60	50		
		350	40	30	160	50
			60	50		
		400	40	30	190	60
			60	50		
		450	40	30	240	60
			60	50		
		500	40	30	270	70
			60	50		
		600	40	30	370	70
			60	50		
		800	40	30	530	90
60	50					
1000	40	30	710	100		
	60	50				
Straight line		210	40	30	110	5
		250	40	30	150	5
			60	50		
		300	40	30	200	5
			60	50		
		350	40	30	250	5
			60	50		
		400	40	30	300	5
			60	50		
		450	40	30	350	5
			60	50		
		500	40	30	400	5
			60	50		
		600	40	30	500	5
			60	50		
800	40	30	700	5		
	60	50				
1000	40	30	790	60		
	60	50				

## Joining Methods

SUNLINE Belts can be joined using hot or cold jointing methods. Joint types include finger, overlap, lace (fastener), but most common are finger or overlap.

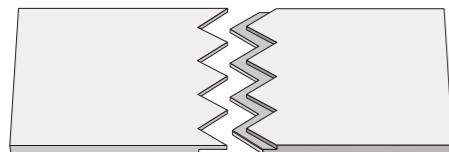
### • Finger joints

Small pulleys and knife edges require flexibility, so smooth belt surfaces and precision thickness is required. This type of joint is not appropriate for high temperature areas or for roller applications with clinging matter on the belt.



### • Double finger joints (specialty)

Combination finger and overlap joint. Easy use on small pulleys, and strong against foreign matter. Applicable for 2 ply belts.



※ Skiver joints are also possible. Please contact Bando or your distributor.

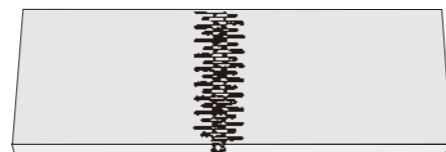
### • Overlap joints

Overlap joints include hot joint and cold joint. Hot joint is more durable. Hot wrap is generally used where heat and humidity resistance is required. With one ply belts, finger joint is recommended because of better appearance and higher flexibility compared to hot joint and cold joint, which may cause unevenness on belt surface.



### • Lace joints

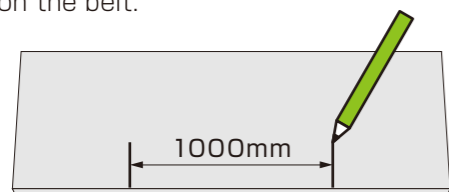
Simple joining method using metal clips or fasteners to easily join and replace belts. However, joint strength is inferior to hot and cold joints.



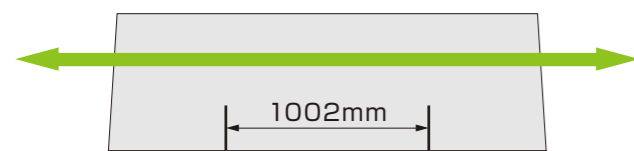
## Belt tension adjustment

Proper tension is determined by conveyor structure and materials, and the weight of the materials conveyed, so it is difficult to precisely determine proper tension. It is better not to put more tension than the permanent elongation. Please refer to the procedure below.

① Mark a 1000mm (1m) line on an inconspicuous place on the belt.



② Gradually add tension until the mark is 1002mm.



③ Run the belt under this condition, and check for belt slipping. (Also adjust if there is snaking.) Test conveyance if there is no problem. If there is still no problem, it can be used as it is.

※ Please do step 4 if the belt slips when loading the material.

④ If there is belt slipping, add tension to the belt little by little until the belt does not slip or snake. Test conveyance, and use if there is no problem.

## Standard Width

Widths are standard for ease of use. Please use standard widths from the table below when ordering.

### • Common specifications for SUNLINE Belts (not including Super SUNLINE and inclined conveyor belts)

Belt width range (mm)	Standard width (mm)
50~100	50, 60, 70, 80, 90, 100
101~200	120, 140, 150, 160, 180, 200
201~300	220, 240, 250, 260, 280, 300
301~650	350, 400, 450, 500, 550, 600, 650
700~1000	700, 750, 800, 850, 900, 950, 1000
1001~2500	Every 100mm

※ Please contact Bando or your distributor for non-standard widths.

## Dimensional tolerances

### • General use belts

#### ■ Width

Width (mm)	Tolerance (mm)
~100	±2
101~400	±2
401~600	±3
601~800	±4
801~1000	±5
1001~1800	±5
1801~2500	±6

#### ■ Length

Length (mm)	Joints (mm)	
	Tolerance	Difference in lateral circumference length
~1000	±4	4
1001~3000	±5	6
3001~5000	±7	8
5001~10000	±10	10
10001~	±0.1%	0.1%

※ If the belt length is 20m or longer, joining at site is recommended.

#### ■ Thickness

Thickness (mm)	Main body tolerance (mm)	Joint tolerance (mm)		
		Lap		Finger
~1.0	±0.1	1ply	2ply	±0.2
		+0.7 -0.1	+0.3 -0.2	
1.1~1.5	±0.2	+0.5	-0.2	±0.3
1.6~2.0	±0.2	+0.5	-0.2	±0.3
2.1~2.5	±0.3	+0.5	-0.2	±0.3
2.6~3.0	±0.3	+0.5	-0.3	±0.3
3.1~3.5	±0.3	+0.5	-0.4	±0.3
3.6~4.0	±0.4	+0.6	-0.4	±0.4
4.1~4.5	±0.4	+0.7	-0.4	±0.4
4.6~5.0	±0.5	+0.7	-0.4	±0.4
5.1~	±0.5	+0.7	-0.4	±0.4

※ Joint thickness tolerance is about the same as main body tolerance.

### • Dry heat resistant belts (except heat resistant felt)

#### ■ Width

Width (mm)	Tolerance (mm)
~100	±2
101~400	±2
401~600	±3
601~800	±4
801~1000	±5
1001~1800	±8

#### ■ Length

Length (mm)	Joints (mm)	
	Tolerance	Difference in lateral circumference length
~1000	±7	7
1001~3000	±10	10
3001~5000	±15	15
5001~10000	±20	20
10001~	±0.2%	0.2%

※ If the belt length is 20m or longer, joining at site is recommended.

#### ■ Thickness

Thickness (mm)	Main body tolerance (mm)	Joint tolerance (mm)	
		Lap	
1.1~1.5	±0.2	+0.5	-0.2
1.6~2.0	±0.25	+0.5	-0.2
2.1~2.5	±0.25	+0.5	-0.2
2.6~3.0	±0.3	+0.5	-0.3

※ Joint tolerance is ± against the finished belt body.

## Cleats (Standard)

Cleats are installed on SUNLINE Belts in a wide range of fields to prevent material from falling, for inclined conveyance, and alignment. Heat vulcanization does not limit the use of water or oil in applications. (However, water and oil applications are limited using cold joins.)

### Features

- Effective against spillage and for inclined conveyance**  
Prevents drops and slipping. Conveyance at 30~50°, depending on conditions
- Nontoxic, odorless**  
Meets Article 370 standards of the Food Sanitation Act of the Health and Welfare Ministry
- Clean, and stain resistant - washable with water**  
Good appearance and keeps a clean and comfortable work environment

How to Read Specifications

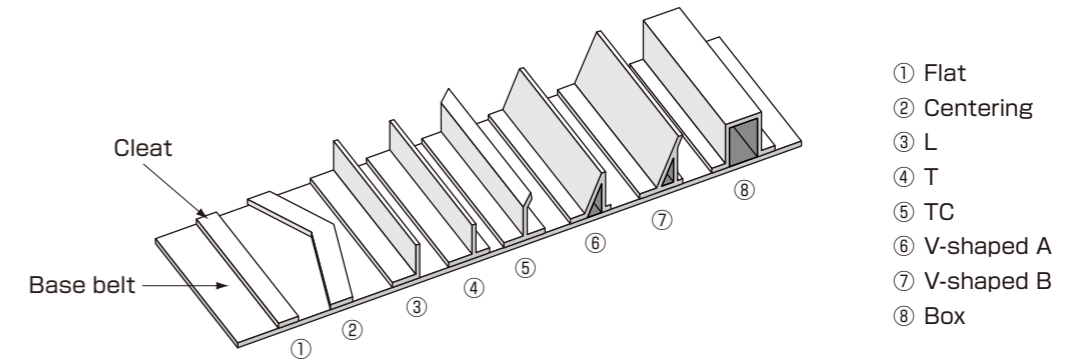
<T and C> **SL-T20UG** <F> **SL-F530UG**

① Cleat shape ② Height: mm ③ Width: mm ④ Material: Polyurethane ⑤ Color: G...Green W...White

### Products

Type	Shape	Name	Color	Material	H : Height (mm)	W : Width (mm)	t : Thickness (mm)	Weight (g/m)	Minimum pulley diameter (mm/φ)
T		SL-T20U (G)	Green	Polyurethane	20	20	4	140	50
		SL-T20U (W)	White		20	20	4	140	50
		SL-T30U (G)	Green		30	20	4	180	60
C		SL-T30U (W)	White		30	20	4	180	60
		SL-T50U (G)	Green		50	30	7	330	70
		SL-T50U (W)	White		50	30	7	330	70
F		SL-C30U (G)	Green		30	25	5	210	50
		SL-C30U (W)	White		30	25	5	210	50
		SL-C50U (G)	Green		50	30	7	340	70
F		SL-C50U (W)	White	50	30	7	340	70	
		SL-C70U (G)	Green	70	35	9	540	100	
		SL-C70U (W)	White	70	35	9	540	100	
F		SL-F530U (G)	Green	5	30	-	185	100	
		SL-F530U (W)	White	5	30	-	185	100	
		SL-F55U (G)	Green	5	5	-	31	50	
F		SL-F55U (W)	White	5	5	-	31	50	
		SL-F510U (G)	Green	5	10	-	62	50	
F		SL-F510U (W)	White	5	10	-	62	50	

## Cleat Types



## Specialty cleat processing examples

### Vertical cleats for curved conveyance



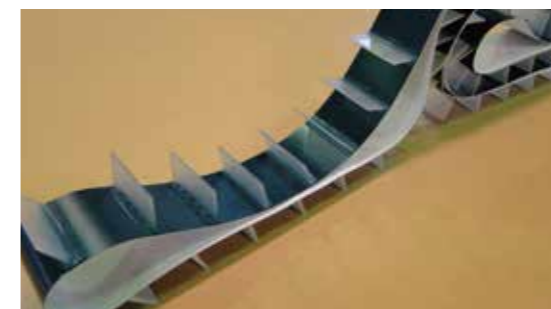
Vertical cleats fixed with bearings attached to both edges to prevent material spills

### Specialty cleat processing



Different cleat types are available depending on the material conveyed.

### Specialty cleat processing



Small pulleys may be used as the belt and cleat are made of the same materials, so the join area is small.

### Specialty cleat processing



Cleats made to fit machinery use

### Centering



Centering cleats on the belt surface for inclined conveyance of bulk materials

## V-Guide Processing

V-guides can be used to prevent snaking. They can also be used to prevent products from falling off a conveyor by attaching them to the top of the belt, as V-guides are longitudinally flexible.

### Features

- Effective in snaking and spillage prevention
- Heat vulcanization allows for use on small pulleys
- Nontoxic and odorless

Standard PU and humidity and heat resistant PU meets Article 370 standards of the Food Sanitation Act of the Health and Welfare Ministry

**How to Read Specifications**

**SL- V M 2 C G**

① ② ③ ④ ⑤

① V-guide ② Type  
 ③ Shape: 1...trapezoid 2...trapezoid with groove  
 ④ Material: C...PVC K...Humidity and heat resistant PU R...Oil resistant PVC U...PU  
 ⑤ Color: G ...Green W ...White AW...White DB...Navy blue

### Product Lineup

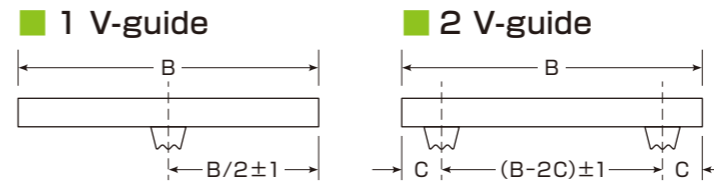
Type	Shape	Product name	Color	Material ※5	H: Height (mm) ※2	W1: Top width(mm)	W2: Bottom width(mm)	Weight (g./m)	Minimum pulley diameter Normal/ Reverse (mm./φ)	Hardness (JIS-A)	Unpackaged food conveyance
A		SL-VA2CG	Green	PVC	8.5	13	7.5	88	70/60	70	× ※1
		SL-VA2CW	White	PVC	8.5	13	7.5	88	70/60	70	× ※1
		SL-VA2RDB	Navy blue	Oil resistant PVC	8.5	13	7.5	88	70/60	70	×
		SL-VA1UG	Green	PU	8.5	13	7.5	90	90/70	82	○
B		SL-VB2CG	Green	PVC	10.3	16.7	9.3	147	120/105	70	× ※1
		SL-VB2CW	White	PVC	10.3	16.7	9.3	147	120/105	70	× ※1
		SL-VB2RDB	Navy blue	Oil resistant PVC	10.3	16.7	9.3	147	120/105	70	×
D		SL-VD1UW	White	PU	3	5	2	19	30/30 (15/15) ※3	90	○
H ※4		SL-VH4X2UC	Transparent	PU	2.1	4.1	4.1	9	25/25 (15/15) ※3	85	○
		SL-VH4X2RE	Transparent	PU	2.1	4.1	4.1	9	25/25 (15/15) ※3	70	○
M		SL-VM2CG	Green	PVC	5.5	10	6	51	45/45	70	× ※1
		SL-VM2CW	White	PVC	5.5	10	6	51	45/45	70	× ※1
		SL-VM2RDB	Navy blue	Oil resistant PVC	5.5	10	6	51	45/45	70	×
		SL-VM2KAW	Whitish Gray	Moisture/heat resistant PU	5.7	9.7	6	54	60/50	80	○
		SL-VM1KAW	Whitish Gray	Moisture/heat resistant PU	5.5	10	6	54	60/50	80	○
		SL-VM1UG	Green	PU	5.5	10	6	54	60/50	82	○
N		SL-VN2UG	Green	PU	4.1	7	4.2	30	40/40	91	○
		SL-VN2UW	White	PU	4.1	7	4.2	30	40/40	91	○
O		SL-VO2UW	White	PU	3.1	7	5	29	40/40	80	○
S		SL-VS2UG	Green	PU	3.1	9.5	7	26	25/25	91	○
		SL-VS2UW	White	PU	3.1	9.5	7	26	25/25	91	○
		SL-VS2USW	White	PU	3.1	9.5	7	26	25/25 (15/15) ※3	77	○
		SL-VS2KAW	灰白	Moisture/heat resistant PU	3.1	9.5	7	26	30/30	80	○
		SL-VS2CB	Blue	PVC	3.1	9.5	7	26	30/30	75	× ※1

※1 V-guide itself does not conform to Notice No. 370 of Ministry of Health and Welfare. Front side of the belt conforms to Notice No.370 of Ministry of Health and Welfare when the V-guide is attached to the back side of a belt that conforms to the Notice No.370.  
 ※2 The height of the V-guide is the height of the component itself. The mounted height will be shorter by approximately 0.5mm.  
 ※3 When welded, it can be used with the pulley diameter in the parenthesis.  
 ※4 Type H has V-guides of 2 different hardness.  
 SL-VH4X2UC has excellent abrasion resistance.  
 SL-VH4X2RE has a poorer abrasion resistance than the UC but has excellent flexibility.  
 As it is easily joined to the pulley, it is suitable for a mini conveyor with a light weight frame which is difficult to apply belt tension.

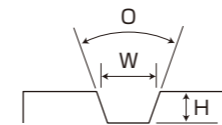
※5 Range of operational ambient temperature (°C)

Material	Dry heat (°C)	Wet heat (°C)
PVC	5~60	NA
Oil resistant PVC		
PU	5~80	NA
Moisture/heat resistant PU	-10~80	-10~80

### Attachment position



### Groove dimensions



Pulley groove				Table groove		
Type	W(mm)	H(mm)	O(度)	Type	W(mm)	H(mm)
D	8	5	60	D	10	5
S	14	5	40	S	15	5
N	11	6	40	N	13	6
M	14	7.5	40	M	15	8
A	17	10.5	40	A	20	11
B	20.7	12.3	40	B	25	13
H	7	4	0	H	7	4
O	11	5	40	O	13	5

### Number of attachment

Number of plies	Width(mm)				
	500 Under	1000 Under	1500 Under	2000 Under	2000 Over
1 ply	1Type S	2Type S	2Type S		
2 plies	1Type M	2Type M	2Type M or 2Type A	2Type A or 2Type B	2Type B
3 plies	1Type A	2Type A			

### Cautions on attaching V-guides

- In the case of jointing the belt on the site, attachment of the V-guide on the joint part will be done by hand at the side, therefore it may make the work difficult. When jointing the belt on the site, it is recommended to scrape down the V-guide diagonally in front and behind the joint press.
- Attaching the V-guide on one side of the belt may destabilize the running of the belt. A single V-guide shall be attached to the center of the belt or 2 V-guide shall be attached one on each side of the belt.

## Cleats and Custom Fabrication Examples

#### Multi-row V-guides



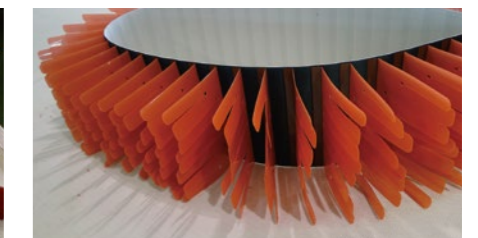
Multi-row V-guides on the belt surface are used to align granular transport.

#### Marking + Fixed Cleats



Marking and cleats are used to position the materials being conveyed.

#### Bancollan Sheet Cleats



Multiple Bancollan Sheets, made of flexible urethane.

#### Cushion (sponge) Fabrication



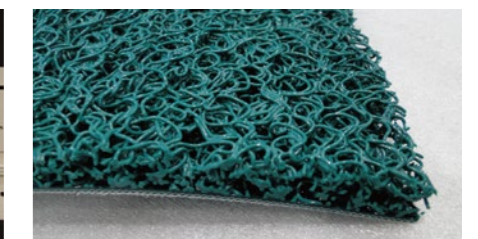
Sponge on the belt surface and V-guides on the belt backside are used in sandwich conveyance.

#### Punched Holes + V-guides



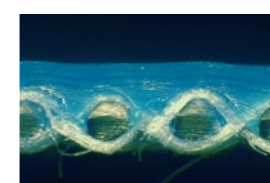
Holes punched through the belt are used in suction conveyance.

#### Cushion (strand material) Fabrication



Cushion on the belt surface prevents product rolling and damage to materials conveyed.

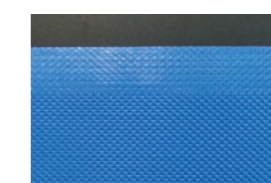
#### Edge Seals



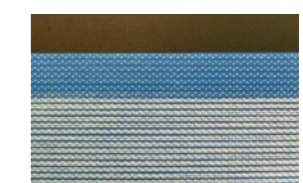
Pre-processing



Post-processing (edge)



Post-processing (surface)



Post-processing (backside)

Covering the belt edges with resin suppresses foreign matter entry and fraying.

The table below shows belt suitability for conveying products containing chemicals and oil at room temperature.

## Chemical

Chemical	Belt cover material	PU	PVC	Polyester (impregnated, canvas surface) PET	Oil resistant chloride vinyl	Specialty rubber Special R	Heat resistant rubber Silicon rubber	Fluorine resin		Specialty synthetic resin
								Surface	Backside	
Isopropyl alcohol		○	△	△	△	△	○	○	○	○
Ethyl alcohol (ethanol)		○	△	○	○	△	○	○	○	○
Potassium chloride		○	○	○	○	○	○	○	○	○
Calcium chloride		○	○	○	○	○	○	○	○	○
Hydrochloric acid (gas)		×	△	×	△	△	○	○	○	○
Hydrochloric acid (5-36%)		×	○	×	○	○	○	○	○	○
Hydrochloric acid (5% or less)		○	○	○	○	○	○	○	○	○
Caustic soda (sodium hydroxide)		△	○	○	○	○	○	○	○	○
Sodium hydroxide solution (50%)		△	○	×	○	○	×	△	×	△
Volatile oil		○	△	○	○	△	△	○	△	○
Strong alkali		△	△	×	△	△	△	△	×	△
Strong acid		×	△	×	△	△	○	○	○	○
Light oil		○	×	△	△	×	△	○	×	○
Ethyl acetate		×	×	×	×	×	△	○	×	○
Sodium hypochlorite (undiluted)		△	○	△	○	○	○	○	○	○
Sodium hypochlorite (600PPM)		○	○	○	○	○	○	○	○	○
Weak alkali		○	○	○	○	○	○	○	○	○
Weak acid		○	○	○	○	○	○	○	○	○
Soap		○	○	○	○	○	○	○	○	○
Cutting oils		△	×	△	○	×	×	○	×	○
Diesel oil		○	△	△	○	△	×	○	×	○
Toluene		△	×	△	×	×	×	○	×	○
Naphthalene		△	△	△	△	△	×	○	×	○
Paraffin oil		○	△	○	○	△	○	○	○	○
Phenol		△	△	△	△	△	△	○	△	○
Anti-rust oil		△	×	△	○	×	×	○	×	○
Machine oil		△	×	△	○	×	×	○	×	○
Methyl alcohol (methanol)		○	△	○	○	△	○	○	○	○
Sulfuric acid (10%)		△	△	△	△	△	△	○	△	○
Sulfuric acid (50%)		△	△	△	△	△	△	○	△	○
Sulfuric acid (70%)		×	×	×	×	×	△	○	×	○
Sulfuric acid (98%)		×	×	×	×	×	×	○	×	○

○ : No erosion △ : Some erosion (brittleness, color change, swelling may occur) × : Complete erosion  
 ※ The SUNLINE Design Manual shows the effectiveness against additional chemicals.  
 ※ Please contact Bando or your distributor if the belt is unsuitable against corrosion or if it is used at temperatures above room temperature.

The table below shows belt suitability for conveying food products at room temperature.

## Food

Food	Belt cover material	PU	PVC	Polyester (impregnated, canvas surface) PET	Oil resistant chloride vinyl	Specialty rubber Special R	Heat resistant rubber Silicon rubber	Fluorine resin		Specialty synthetic resin
								Surface	Backside	
Yeast		○	○	○	○	○	○	○	○	○
Tea leaves		○	○	○	○	○	○	○	○	○
Olive oil		○	△	○	○	△	△	○	△	○
Fruits		○	○	○	○	○	○	○	○	○
Cashews		×	×	×	×	×	×	○	×	○
Cream		○	△	○	○	△	○	○	○	○
Spices		○	○	○	○	○	○	○	○	○
Cereals		○	○	○	○	○	○	○	○	○
Coffee beans		○	○	○	○	○	○	○	○	○
Flour		○	○	○	○	○	○	○	○	○
Rice		○	○	○	○	○	○	○	○	○
Fish		○	△	○	○	△	△	○	△	○
Sugar		○	○	○	○	○	○	○	○	○
Salt		○	○	○	○	○	○	○	○	○
Salt water		○	○	○	○	○	○	○	○	○
Fats		○	△	○	○	△	×	○	×	○
Cooking oil		○	△	○	○	△	△	○	△	○
Syrup		○	○	○	○	○	○	○	○	○
Soy sauce		○	△	○	○	△	△	○	△	○
Vinegar		○	△	○	○	△	△	○	△	○
Sauces		○	△	○	△	△	△	○	△	○
Molasses		○	○	○	○	○	○	○	○	○
Meats		○	△	○	○	△	△	○	△	○
Butter		○	△	○	○	△	△	○	△	○
Breads		○	○	○	○	○	○	○	○	○
Peanut oil		○	×	○	○	×	×	○	×	○
Beer		○	○	○	○	○	○	○	○	○
Margarine		○	△	○	○	△	△	○	△	○
Mayonnaise		○	△	○	○	△	△	○	△	○
Water (+60 °C or less)		○	○	○	○	○	○	○	○	○
Hot water (+60 °C or more)		●	×	●	×	×	×	×	×	×
Lard		○	△	○	○	△	△	○	△	○

○ : No erosion △ : Some erosion (brittleness, color change, swelling may occur) × : Complete erosion  
 ● : Some belt specifications are not applicable for use. Please contact Bando or your distributor for details.  
 ○ : May be used. However, please contact Bando or your distributor if the belt has almost constant contact with oils or is used at temperatures above room temperature.  
 △ : May be used if the belt surface has some contact with oil but immediately dries. Please contact Bando or your distributor if this is difficult to assess.  
 ※ ○ and △ : Unlikely for brittleness, color change or swelling to occur. However, mold might occur.  
 Although it is difficult to completely prevent the occurrence of mold, it can be delayed by cleaning the belt and wiping off moisture.  
 The above information indicates belt characteristics. Please refer to products information from page 17 for suitability to convey unpacked food

## Storage

- Avoid storage in direct sunlight. In particular, store the fluorine film type with the black polyethylene cover completely shielded from direct sunlight.
- Store at temperatures of 0~40°C, with humidity at or below 80%, without exposure to water.
- Do not stack multiple belts or sharply bend belts in storage. Avoid storing the belts directly on the floor; keep them on shelves or pallets.
- Avoid belt contact with oil and chemicals.

## Usage Precautions

Symbol and meaning	Contents
⚠ Danger	Imminent risk of serious injury or death due to incorrect or improper handling.
⚠ Warning	Risk of serious injury or death due to incorrect or improper handling.
⚠ Caution	Risk of personal injury or property damage due to incorrect or improper handling.

### 1 Function and Performance

- ⚠ Warning ● Do not use SUNLINE Belts outside the permissible operating range shown in this catalog (pulley diameter, elongation, resistance to chemicals, etc.)
- ⚠ Warning ● When conveying upackaged food, please use belts that meet Food Sanitation Act standards of Ministry of Health and Welfare (Articles s 370 and 85).

### 2 Notes for Storage and Transport

- ⚠ Warning ● Use of open flames strictly prohibited
- ⚠ Warning ● Store heavy belts with appropriate parts or stoppers so that the belts do not fall down or roll.
- ⚠ Caution ● Avoid direct sunlight and humid areas. Cover belts with cloth or sheet.
- ⚠ Caution ● Do not allow abnormal distortion to the belt during storage and transport.

### 3 Notes for installation and daily use.

- ⚠ Danger ● Do not allow any part of the body or clothing to contact pulleys or rollers during operation.
- ⚠ Danger ● Switch off the conveyor and related equipment before installation or repair.
- ⚠ Warning ● Do not use chemicals harmful to the human body while cleaning the belt.

### 4 Engineering (installation, joins)

- ⚠ Warning ● Ventilate well when using solvents and adhesives. Open flames are strictly prohibited in the working area.
- ⚠ Warning ● Do not leave solvents or adhesives at the work site.
- ⚠ Caution ● Install and join belts in accordance with the materials, methods and steps recommended by Bando.

### 5 Replace the belt or contact Bando or your distributor if any of the following occur while using SUNLINE Belts.

- ⚠ Warning ● The join portion comes apart or seems likely to come apart soon.
- ⚠ Warning ● The belt edge is cut and the tear is growing.
- ⚠ Warning ● The belt cover material is worn down and the carcass appears.
- ⚠ Warning ● The belt edge is frayed or there is abrasion debris in the frame guide area that may introduce foreign matter to the products conveyed.

### 6 Handling of used belts

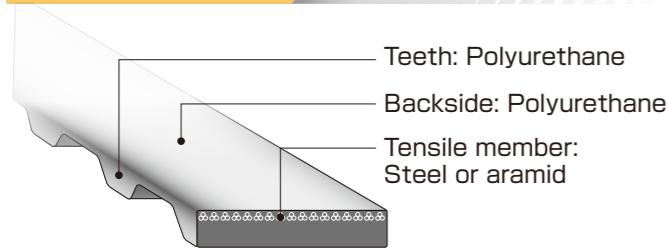
- ⚠ Caution ● Lawfully dispose of belts as industrial waste.
- ⚠ Warning ● Do not expose to fire.



**BANCOLLAN™**  
**LONG SYNCHRONOUS BELTS**

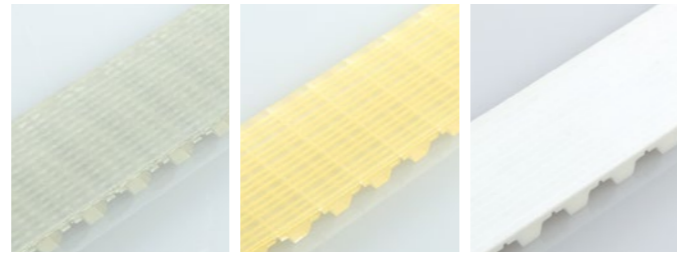
Bancollan Long Synchronous Belts, made from polyurethane, are capable of long-span synchronous transmission and conveyance. They are suitable for food processing machinery and sanitary transmission and conveyance. Various types of cleat profiles may be used to increase conveyor functions.

## Construction



Steel is suitable in applications where responsiveness or size and positioning are required.  
Aramid is suitable for food applications.

## Color



SW: Transparent (Wire tensile member) SK: Transparent (Aramid) White

## Features

- Excellent cleanliness with less dust
- Low elongation of steel cord belts
- Join to desired length
- May be used for food conveyance (meets Article 370 standards of the Food Sanitation Act of the Health and Welfare Ministry)
- Cleats may be fabricated on the top side of the belt.
- May be used in long-span synchronized transmission

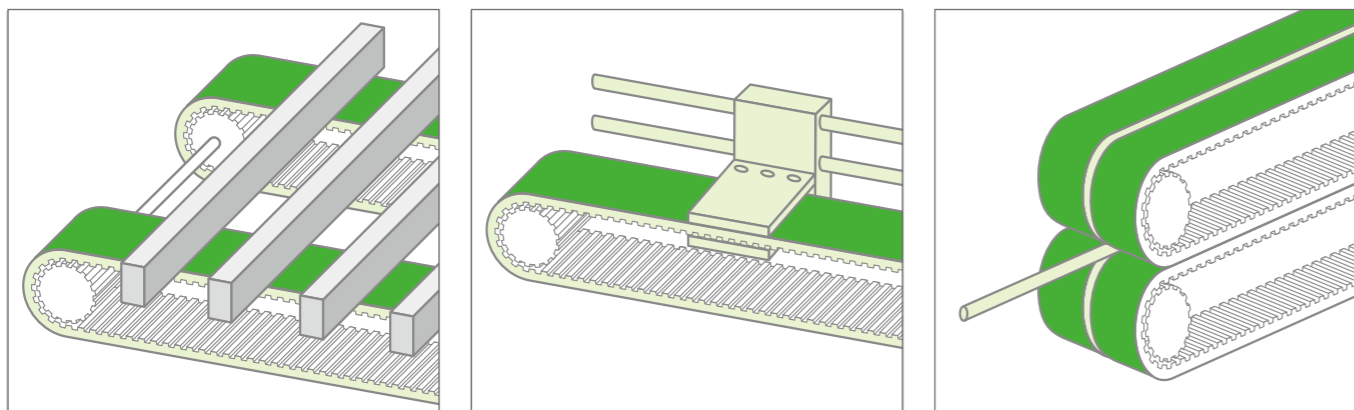
### How to read size

[Trapezoid teeth/Inch pitch] (XL·L·H)	[Trapezoid teeth/mm pitch] (T5·T10·AT5·AT10·AT20)	[Round teeth] (S2M·S3M·S5M·S8M·S14M·S25M)
<b>037 XL-1015 S W-C</b>	<b>25 T10-890 S W Z-J (P)</b>	<b>240 S3M-1000 L W-C</b>
Nominal width (0.37インチ=9.5mm)   Type   Number of teeth   Cord material (mark)   Joint type (mark)	Belt width (mm)   Type   Number of teeth   Cord material (mark)   Joint type (mark)   Special Specification   Custom fabrication(mark)	Belt width (240/24mm)   Number of teeth   Cord material (mark)   Joint type

【Polyurethane material mark】Standard·semi-transparent/Standard·white/Low abrasion·white/Low abrasion·blue/Moisture and heat resistance·white  
 【Cord material mark】W: Steel cord / K: Aramid cord  
 【Special Specification】Z: Canvas applied to tooth surfaces G: Polished bottom surface  
 【Joint type mark·Custom fabrication mark】C: Cut (Open end)/J: Jointed/(P): Custom fabrication (ex:Attaching profile)

## Usage examples

Bancollan Long Synchronous Belts have various uses. For example, reciprocating motion of automatic doors or printer heads, synchronized conveyance of products on the belt top, panel conveyance by multiple belt drives and pulling products by sandwiching belts. Please contact Bando or your distributor for custom cleat profiles for these versatile belts.



## Material combination table

Type	Cord material	Polyurethane material					Fabric screen tooth surfaces
		S:Standard	W:Standard	L:Low abrasion	B:Low abrasion	M:Moisture and heat resistance	
		semi-transparent	White	White	Blue	White	
XL	Steel cord	○	○			○	
	Aramid cord	○					
L	Steel cord	○	○			○	
	Aramid cord	○					
H	Steel cord	○	○			○	
	Aramid cord	○	○			○	
T5	Steel cord	○	○			○	○
	Aramid cord	○	○				
T10	Steel cord	○	○			○	○
	Aramid cord	○	○			○	
AT5	Steel cord	○	○				
AT10	Steel cord	○	○				
AT20	Steel cord	○	○				
S2M	Steel cord			○			
S3M	Steel cord			○			
S5M	Steel cord		○				
	Aramid cord		○				
S8M	Steel cord		○				
	Aramid cord		○				
S14M	Steel cord			○			
S25M	Steel cord			○			
	Aramid cord				○		

## Usage Conditions

- Ambient temperature, humidity

	Temperature	Humidity
Standard material	-20~70°C	75%以下
Moisture and heat resistance material	-20~90°C	85%以下

- Do not allow steam, organic solvents, acid or alkali to adhere to the belts
- Do not dip or immerse in oil (a small amount of oil mist is allowable)
- Ozone: Use at 50PPhm or less
- Do not allow dust to accumulate on the belt.  
Install a dust cover if necessary.
- Meets Article 370 standards of the Food Sanitation Act of the Health and Welfare Ministry

## Pulleys

### • Synchronous Pulleys

Type	Tooth shape	Dimensions (mm)		
		W	H	$\theta (^{\circ})$
XL		1.27	1.40	50
L		3.10	2.13	40
H		4.24	2.59	40
T5		1.50	1.70	50
T10		3.40	3.00	50
AT5		2.70	1.10	50
AT10		5.40	2.35	50
AT20		10.80	4.65	50

### • STS Pulleys

Type	Tooth shape	Dimensions (mm)			
		W	R	H	a
S2M		1.30	1.325	0.76	0.254
S3M		1.95	1.975	1.14	0.381
S5M		3.25	3.275	1.77	0.480
S8M		5.20	5.30	2.83	0.686
S14M		9.10	9.28	4.95	1.397
S25M		16.25	16.56	8.65	2.055

### Number of teeth of pulley (Minimum · Maximum)

Synchronous pulley		XL	L	H	T5	T10	AT5	AT10	AT20	
Pitch (mm)		5.08	9.525	12.7	5	10	5	10	20	
Minimum number of teeth	Rotational speed (rpm)	900	10	12	14	12	14	15	15	18
		1200			16					
		1800	12	16	18	16	20	80	80	50
		2360			20					
		3000			20					
		3600	14	18	20	69	69	80	80	50
4800	20									
Maximum number of teeth		30	40	40	69	69	80	80	50	

STS pulley		S2M	S3M	S5M	S8M	S14M	S25M	
Pitch (mm)		2	3	5	8	14	25	
Minimum number of teeth	Rotational speed (rpm)	870	27	27	16	22	26	28
		1160			24			
		1750	20	20	26			
		2670			28			
		5000	24					
Maximum number of teeth		60	60	60	84	48	38	

---Not applicable

Use a pulley whose tooth count is greater than or equal to the minimum number of teeth and less than or equal to the maximum number of teeth.

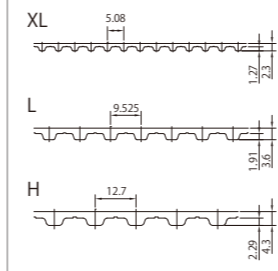
The minimum number of teeth value that applies depends on the rotational speed (rpm).

Models that use synchronous pulleys and models that use STS pulleys belong to different rotational speed (rpm) categories due to the difference in pitch as measured in inches and millimeters.

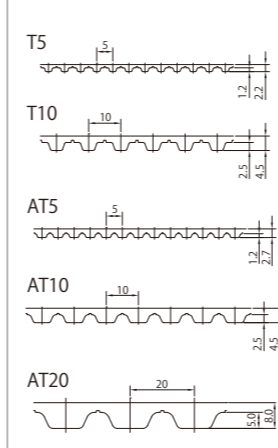
Use S2M and S3M type belts at a speed of 10 m/s or less.

## Product Lineup

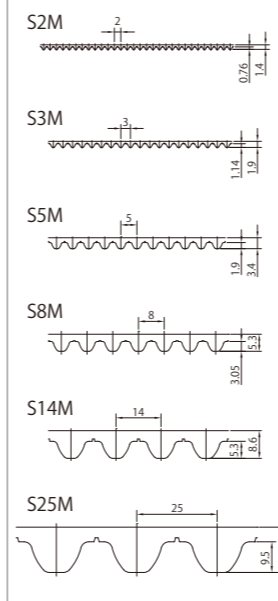
### 【Trapezoid teeth/Inch pitch】



### 【Trapezoid teeth/mm pitch】



### 【Round teeth】



Type	Standard nominal width	width (mm)	Maximum nominal width	Maximum length	Joint	Minimum joint length
XL	025	6.4	200	50m	○	0.5m
	031	7.9				
	037	9.5				
	050	12.7				
	075	19.1				
	100	25.4				
	150	38.1				
L	050	12.7	200	50m	○	0.5m
	075	19.1				
	100	25.4				
	150	38.1				
	200	50.8				
H	075	19.1	400	50m	○	0.5m
	100	25.4				
	150	38.1				
	200	50.8				
	300	76.2				
T5	7	7	50	50m	○	0.5m
	10	10				
	15	15				
	20	20				
	25	25				
T10	15	15	100	50m	○	0.5m
	20	20				
	30	30				
	40	40				
	50	50				
AT5	10	10	50	50m	○	0.5m
	15	15				
	20	20				
	25	25				
	30	30				
S2M	50	5	400	60m	X	—
	100	10				
	150	15				
	200	20				
	250	25				
S3M	60	6	480	60m	X	—
	120	12				
	180	18				
	240	24				
	300	30				
S5M	100	10	500	50m	○	0.5m
	150	15				
	200	20				
	300	30				
	400	40				
S8M	150	15	1000	50m	○※1	0.5m
	200	20				
	250	25				
	300	30				
	400	40				
S14M	1000	100	1000	30m	X	—
	250	25				
	330	33				
S25M	1000	100	1000	20m	X	—
	330	33				

※ The maximum joint length for models that support joints is 50 m. Please contact a Bando Chemical Industries sales company or dealer if your application would exceed that length.

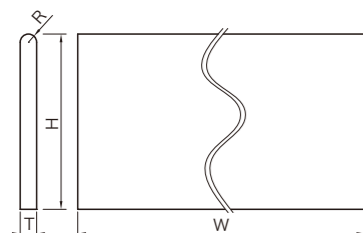
※ Please contact a Bando Chemical Industries sales company or dealer if your application requires a non-standard width.

※1 Constraints apply to product use. Please contact Bando Chemical Industries for more information.

## Standard Profile

Various functions are possible with surface profiles on Bancollan Long Synchronous Belts. Various custom fabrications and profiles are available. Please consult with Bando or your distributor.

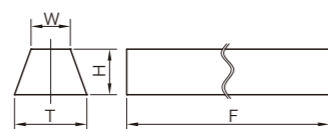
### ●P-0102~P-0108



H and W dimensions can be reduced at customer request. Unit: mm

Profile No.	T	Tolerance	H	W	R
P-0102	2.0	±0.2	50.0	101.6	1.0
P-0103	5.0	±0.25	50.0	101.6	2.5
P-0104	6.0	±0.25	50.0	101.6	3.0
P-0105	8.0	±0.3	50.0	101.6	4.0
P-0106	10.0	±0.4	50.0	101.6	5.0
P-0107	3.0	±0.2	50.0	101.6	1.5
P-0108	4.0	±0.25	50.0	101.6	2.0

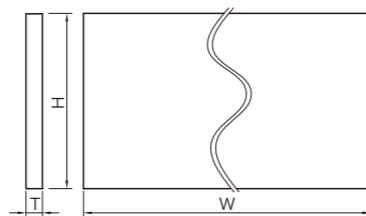
### ●P-0201~P-0203



F dimensions can be reduced at customer request. Unit: mm

Profile No.	T	H	W
P-0201	8.0	5.0	4.4
P-0202	10.0	5.0	6.0
P-0203	12.7	8.0	6.9

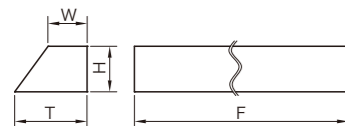
### ●P-0302~P-0308



H and W dimensions can be reduced at customer request. Unit: mm

Profile No.	T	Tolerance	H	W
P-0302	2.0	±0.2	45.0	101.6
P-0303	5.0	±0.25	45.0	101.6
P-0304	6.0	±0.25	45.0	101.6
P-0305	8.0	±0.3	45.0	101.6
P-0306	10.0	±0.4	45.0	101.6
P-0307	3.0	±0.2	45.0	101.6
P-0308	4.0	±0.25	45.0	101.6

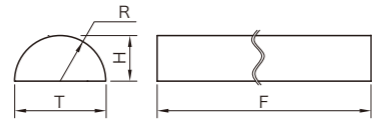
### ●P-0401~P-0403



F dimensions can be reduced at customer request. Unit: mm

Profile No.	T	H	W
P-0401	4.0	5.0	2.2
P-0402	5.0	5.0	3.0
P-0403	6.4	8.0	3.5

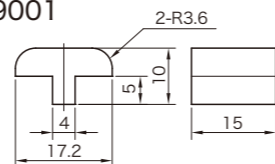
### ●P-0501~P-0504



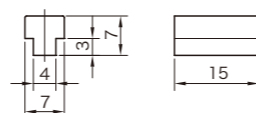
F dimensions can be reduced at customer request. Unit: mm

Profile No.	T	H	R
P-0501	5.0	10.0	5.0
P-0502	3.0	6.0	3.0
P-0503	4.0	8.0	4.0
P-0504	6.0	12.0	6.0

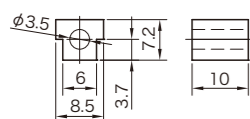
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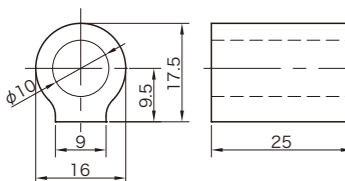
### ●P-9002



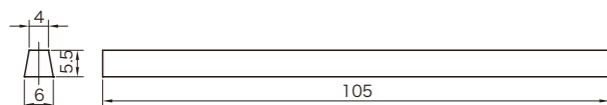
### ●P-9004



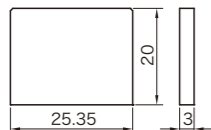
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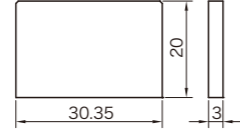
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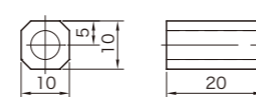
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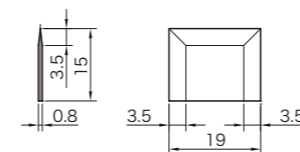
### ●P-9023



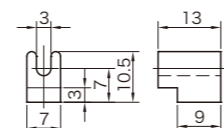
### ●P-9008



### ●P-9012

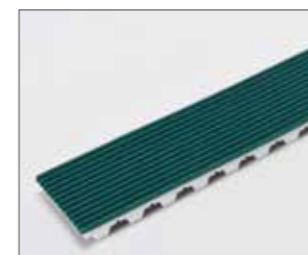


### ●FUZE-2



## Custom Fabrication

Various custom fabrications are possible with Bancollan Long Synchronous Belts, such as tooth buffing, and hole and sponge fabrications. Please consult with Bando or your distributor.



Grooved profile



Jersey and sponge fabrication



cutting profile



hole profile

## Width joints

Type	Standard Maximum width		Width joints Maximum width		Width joint range		
	Nominal width	Width (mm)	Nominal width	Width (mm)	Polyurethane rubber		Tensile member
					S: Standard	M: Moisture and heat resistance	K: Aramid
T5	50	50.0	100	100.0	○	—	○
T10	100	100.0	300	300.0	○	○	○
XL	200	50.8	400	101.6	○	—	○
L	200	50.8	400	101.6	○	—	○
H	400	101.6	800	203.2	○	○	○

## Bancollan Long Flat Belts

### Features

- Belt elongation is extremely small due to use of steel wire tensile members
- Narrow widths can withstand heavy loads
- High-precision belt thickness accuracy is high, so there is no take-up from position shifts in risers

How to Read Specifications

**25 × 1.2 G W**

① Width (mm)   ② Thickness (mm)   ③ Urethane color : G...gray   ④ Tensile member : W...Steel wire

### Products

Belt	Load capacity (kgf)	Width (mm)	Thickness (mm)	Minimum pulley diameter (mm)	Covered tensile member
25 × 1.2GW	30	25.00 ± 0.80	1.20 ± 0.03	φ 33	×
40 × 1.2GW	50	40.00 ± 0.80	1.20 ± 0.03	φ 33	×
40 × 2.0GW	110	40.00 ± 0.80	2.00 ± 0.05	φ 45	○
50 × 2.0GW	130	50.00 ± 1.50	2.00 ± 0.05	φ 45	○

## Usage Precautions

Please read this catalog and our Design Manual, and pay attention to the points below to ensure safe and proper product handling. The impact on safety is described below.

Symbol and meaning	Contents
<b>⚠ Danger</b> …… Imminent risk of serious injury or death due to incorrect or improper handling.	
<b>⚠ Warning</b> …… Risk of serious injury or death due to incorrect or improper handling.	
<b>⚠ Caution</b> …… Risk of personal injury or property damage due to incorrect or improper handling.	

### 1 Use and Intended Use

- ⚠ Danger** ● A safety device must be installed to stop the belt in case it is severed but continues to run, or if it operates in idle, which could cause serious injury or accident.
- ⚠ Danger** ● Do not use the belt as a sling or a towing tool.
- ⚠ Warning** ● If static electricity is generated by the belt drive, use an anti-static belt and provide a neutralizing mechanism for the drive device to prevent fire or a malfunction of the control equipment.
- ⚠ Caution** ● Do not use the belt as insulation. Please contact Bando or your distributor about the insulation properties of different belt types.
- ⚠ Caution** ● If the belt comes into direct contact with food, use belts that meet Food Sanitation Act requirements.
- ⚠ Caution** ● Do not modify the belt as this may reduce quality and performance.

### 2 Function and Performance

- ⚠ Caution** ● Do not use belts outside allowable ranges or for applications not shown in this catalog or in the Design Manual, as this may lead to premature belt failure.
- ⚠ Caution** ● If water, oil, chemicals, paint or dust adhere to the belt or pulley, transmission power will degrade and may cause premature belt failure.
- ⚠ Caution** ● Noise may be high for toothed belts in high speed drive applications. If so, please install a soundproof cover.

### 3 Storage and Transport

- ⚠ Caution** ● Use proper equipment to carry or handle heavy belts and pulleys to avoid physical injury.
- ⚠ Caution** ● Do not forcibly bend the belt, and do not place heavy objects on the belt during storage or transport, as this may damage the belt and cause premature failure.
- ⚠ Caution** ● Please store belts out of direct sunlight at temperatures between -10~40°C in areas with low humidity.

### 4 Installation and Operation

- ⚠ Danger** ● Install a safety cover over the rotating parts, including the belt and pulley, as hair, gloves or clothing may get caught between the belt and pulleys. Also, injury may occur from flying debris if the belt or pulley breaks.
- ⚠ Danger** ● Please observe the following during maintenance, inspection and replacement:
  - 1) Switch off the equipment, and make sure that the belt and all pulleys have come to a complete stop before maintenance and replacement.
  - 2) Securely fix the machinery in place if there is any possibility that the machinery will move when the belt is replaced.
  - 3) Make sure that the machinery is not accidentally switched on during maintenance and replacement.
- ⚠ Caution** ● Use same-specification products when replacing belts or pulleys. Use of different products may cause premature belt failure.
- ⚠ Caution** ● Check and adjust pulley alignment to avoid premature belt failure due to pulley misalignment.
- ⚠ Caution** ● Do not cut a tensioned belt with a knife or scissors, as the belt may snap and cause injury.
- ⚠ Caution** ● In multi-belt operations, replace all belts at the same time to avoid premature belt failure.
- ⚠ Caution** ● Confirm that the belt correctly enters the pulley groove.
- ⚠ Caution** ● Belt and pulleys may be extremely hot immediately after operation. Do not touch them until they have cooled down.
- ⚠ Caution** ● Loosen belt tension before replacing belts. Do not use a screwdriver or the like to unreasonably force the new belt over the pulley flange as this may cause premature belt failure.
- ⚠ Caution** ● Follow the procedures in this catalog and the Design Manual to give initial belt tension. Improper tensioning may result in premature belt failure or damage to the shaft.
- ⚠ Caution** ● Follow the points below if you additionally process the pulleys.
  - 1) Remove burrs or sharp angles from processed parts. 2) Ensure dimensional accuracy after processing.
  - 3) Ensure pulley strength after processing.

### 5 Handling of used products

- ⚠ Caution** ● Lawfully dispose of used products as industrial waste.
- ⚠ Danger** ● Do not incinerate used belts as they generate toxic gas.



**PS BELTS™**

PS Belts (Precision Seamless) are thin, woven flat belts without seams. High-performance flat belts have experienced remarkable developments in response to demand for their use in the low-vibration, rotational transfer of paper, paper currency, tickets and cards. PS Belts are used in automated equipment in offices, factories, banks and other precision equipment applications.

## Features

### Ideally compact

Thin, seamless and highly flexible, PS Belts can be used with small pulley designs.

### Smooth rotation

Positioning is always constant because PS Belts are seamless; rotation is smooth and vibration-free.

### No re-tensioning

PS Belts are specially processed for excellent dimensional stability, with almost no elongation.

### Contributes to energy conservation

Minimal transmission loss as PS Belts are thin, lightweight and highly flexible.

### Wide selection available

Various combinations of body/cover materials and surface profiles are available, so the optimum belt can be selected.

#### How to Read Specifications

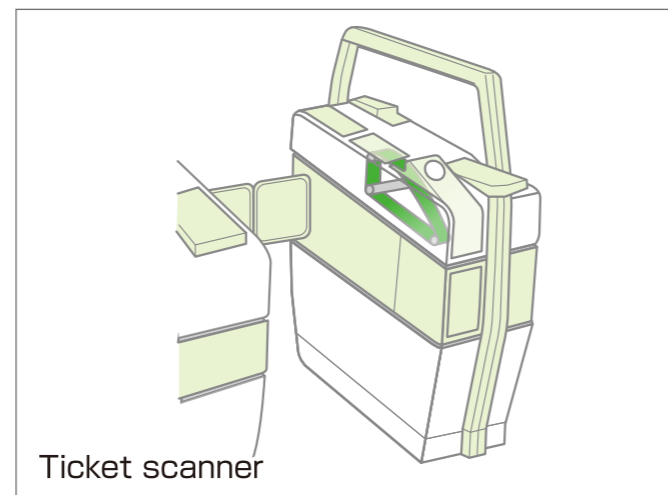
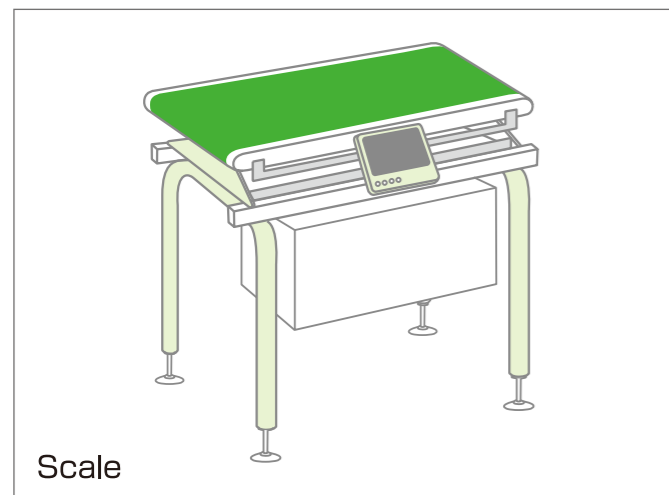
**B - 2 U F Gr R/F**

① ② ③ ④ ⑤ ⑥

- ① **Type**: A...Mainly for high-speed transmission, B...Mainly for lightweight transmission of paper, tickets, etc., C...Mainly for precision transmission, Z...Heat resistance, E...Lightweight transmission
- ② **Tensile strength (N/10mm)**: A, B Series...Number shown x around 100, C Series...Number shown x around 10
- ③ **Materials**: C...Chloroprene rubber, N...Nitrile rubber, U...Polyurethane, H...Hypalon rubber
- ④ **Additional capability**: E...100Ω level conductivity, F...Meets Article 370 standards of the Food Sanitation Act of the Health and Welfare Ministry
- ⑤ **Color**: B...Black, W...White, G...Green, Gr...Gray
- ⑥ **Surface profile**: R...Rough, F...Smooth, M...Mirror, S...Impregnated, K...Polished, P...Pressed, O...Woven fabric

## Usage examples

Precision machinery: Gaming machines, currency transmission, ticket scanners, metal detection devices, scales, factory and office automation equipment, medical devices



## Dimensional tolerance

### Thickness

A Series (mm)		B Series (mm)		C Series (mm)		Z Series (mm)		E Series (mm)	
A-1	±0.05	B-2,B-3,B-6	±0.1	C-8,C-16	±0.1	Z-H250X	±0.1	±0.05	
A-4,A-10,A-13	±0.1								

### Width

Dimensions (mm)	Tolerance (mm)				Dimensions (mm)	Tolerance (mm)
	A-1 - A-13	B Series (mm)	C Series (mm)	Z Series (mm)		
Less than 30	±0.5	±0.5	±0.5	±0.5	Less than 12	±0.3
30~less than 100	±1.0	±1.0	±1.0	±1.0	12~less than 20	±0.5
100~less than 150	±1.5	±1.5	±1.5	±1.5	20~less than 100	±1.0
150~less than 200	±2.0	±2.0	±2.0	±2.0	100 or more	±1.5
200 or more	±2.5	±2.5	±2.5	±2.5		

### Inner circumference

Dimensions (mm)	Tolerance (mm)				Dimensions (mm)	Tolerance (mm)
	A-1 - A-13	B Series (mm)	C Series (mm)	Z-H250X		
Less than 300	±2	±2	±2	—	Less than 200	±2
300~less than 600	±3	±3	±3	±	200~less than 400	±3
600~less than 800	±4	±4	±4	±6	400~less than 600	±5
800~less than 1000	±5	±5	±5	±7	600~less than 800	±6
1000 or more	±0.5%	±0.5%	±0.5%	±0.5%	800~less than 1000	±8
					1000 or more	±0.8%

\* Please consult with Bando or your distributor if tolerances outside those listed above are needed.  
 \* For matched sets of 1000mm or less, the tolerance should be within 1mm for the belts used; and within 2mm if the belts are longer than 1000mm.

## Pulleys

### Pulley crown height

Pulley crown height may be found in the graph at right.

### Pulley surface finish

3S to 6S coarseness is recommended.

### Pulley width

Use the following formula to determine pulley width:  
 Pulley width (bp) = 1.1 × b + 5 (mm), where b = belt width (mm)

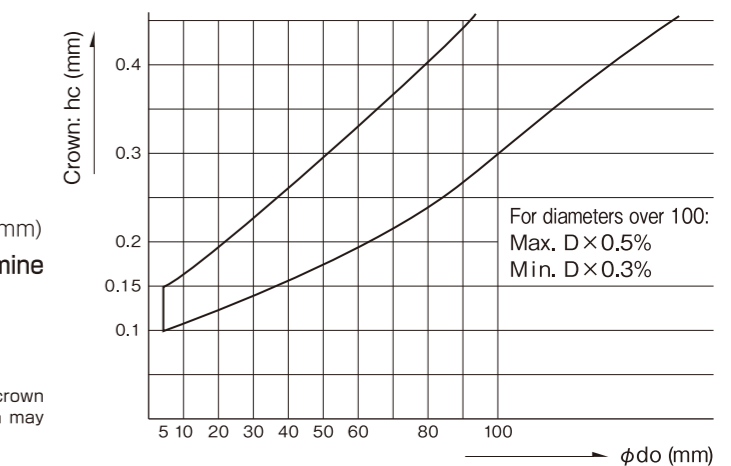
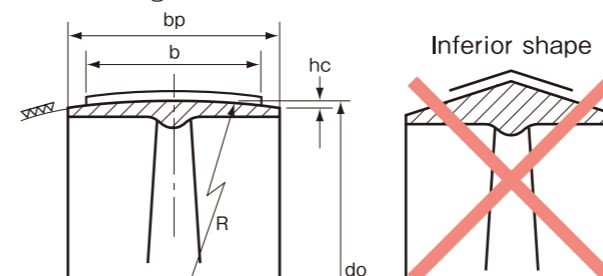
### Use the following formula (for A to C types) to determine the radius of curvature of the pulley surface:

$$R \approx \frac{bp^2}{8hc} \text{ (mm)}$$

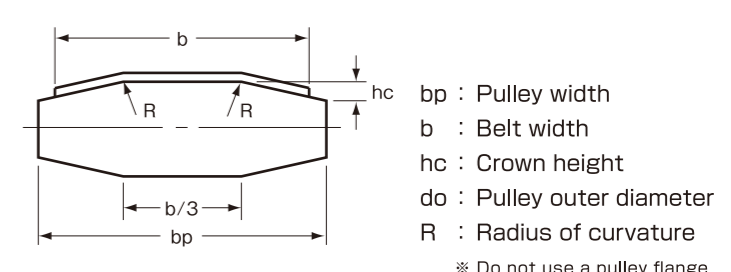
\* To prevent belt deviation in wide belts (length/width < 12), greater crown measurements than shown in the graph at right may be needed, which may result in reduced belt life and transmission capacity.

### Pulley shape

Use symmetrically-shaped pulleys as shown below.  
 Avoid angles that shorten belt life.



### Wide conveyor belts





## Environmental conditions

- Use belts within the temperature ranges shown on the previous page.
- Belts may harden at temperatures below the operating range, and belt life may be reduced if used at temperatures exceeding the operating range.
- Avoid use in contact with oils, chemicals and solvents.
- Avoid applications where the belt is in direct contact with food. However, Polyurethane white, green, and grey meet Article 370 standards of the Food Sanitation Act of the Ministry of Health and Wealth, and are suitable for carrying unpacked food.

## Pulley shaft misalignment

- Pulley shaft misalignment (parallel, eccentric) can cause belts to snake or separate from the pulley, so align the shafts within 20 degrees of each other.

## Safety cover

- Use a safety cover to prevent accidents and belt damage due to the inclusion of foreign matter. However, sealing causes operating temperatures to rise and affects belt life, so provide good ventilation.

## Inspection

- Turn off power to the equipment and make sure that rotation has completely stopped before conducting belt inspection and maintenance.

## Storage

- Do not allow the belt to become wrinkled or bent in storage.
- The belts are packaged for delivery in polyethylene bags. Do not remove the belts from the bags prior to use, and store in a cool, dark place, without exposure to moisture or direct sunlight.



**BANCORD™ ROUND BELTS**

Features and Major Applications
SUNLINE Belts
Belt Selection
Food
Logistics/General Purpose
Special Purpose
Super SUNLINE Belts
Inclined Conveyance
Design Materials/Special Processes
Bancord Long Synchronous Belts
PS Belts
Bancord Round Belts
Glossary

Bancord Round Belts are made from polyurethane "Bancollan", and are easily joined by heat fusion. Bancord is convenient and easy-to-use, and its superior performance enjoys a good reputation among customers.

## Features

### Freely set belt length

Instantly get the required belt length as the belts are easily and firmly joined by heat. There is no need to use "standard" belt lengths as the length can be freely selected. Designs can take advantage of optimum machinery performance.

### Multi-axis transmission, 3-dimensional transmission

Since Round Belts have no cross-sectional direction, design possibilities include multi-axis transmission, changes in idler pulley direction, and complex 3-dimensional transmission.

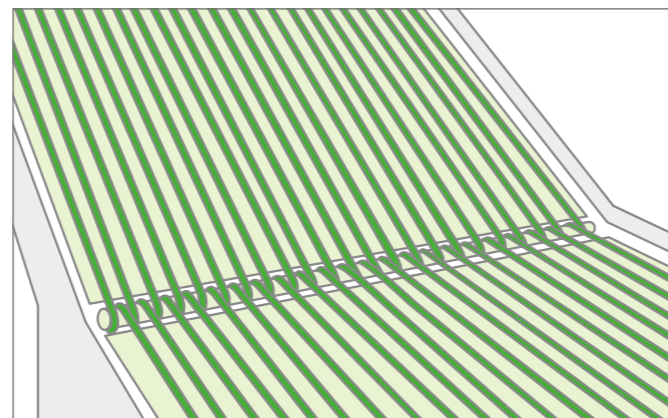
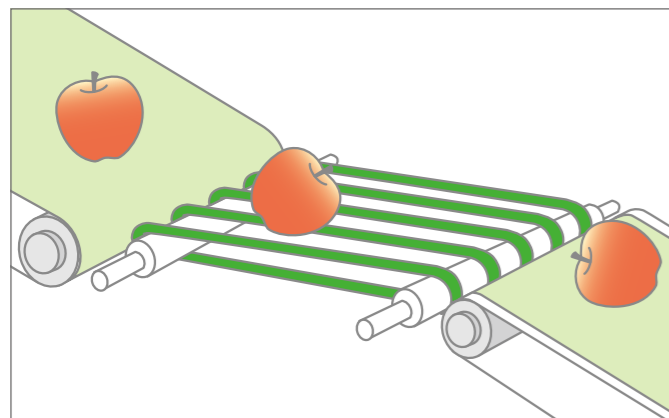
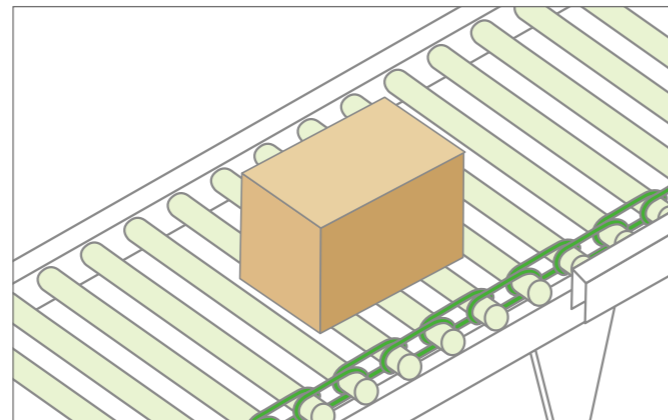
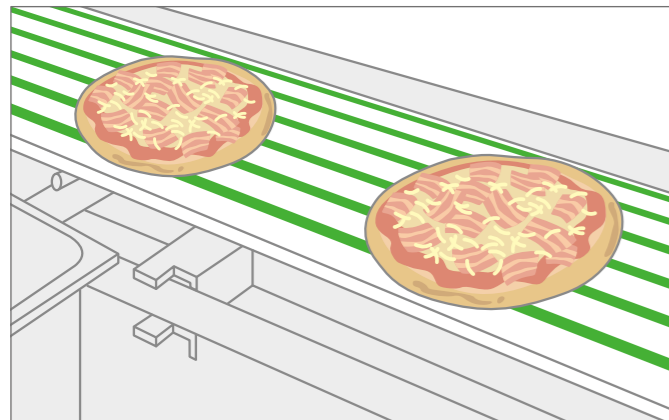
### Simple installation and management

Round Belts can be installed without dismantling the machinery, and less management is required, such as for troublesome tension adjustments.

### Superior mechanical properties

Round Belts are made from Bancollan (polyurethane), with superior resistance to abrasion and tearing. Bancord Round Belts are widely used in industrial applications.

## Usage examples



\* Belts are illustrated in green above, which may differ from the actual belt color.

## Products

Type	Compound	Product photo	Applications	Color	Cross-sectional diameter (mm)																				
					1.5	2	2.5	3	3.5	4	5	6	7	8	9	10	11	12	15						
Round Belts	# 480		General purpose and food conveyance	Orange (Standard)																					
				Semi-transparent	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			
				Black																					
	# 485N		Roller conveyor drive	Semi-transparent	-	-	-	○	-	○	○	-	-	-	-	-	-	-	-	-	-				
	# 485T		Roller conveyor drive (high-durability/anti-wear)	Semi-transparent	-	-	-	-	-	○	○	○	-	-	-	-	-	-	-	-	-				
	# 485RB		Paper, food conveyance ※1	Green	-	-	-	○	-	○	○	-	○	-	-	-	-	-	-	-	-				
	# 489		Wear resistance (high load)	White (Standard)																					
				Semi-transparent	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	-		
				Blue																					
				Red																					
# 490		Wear resistance (high load)	Red																						
			Green																						
# 494C (antistatic)		Semiconductor field	Black	-	○	○	-	-	○	○	-	-	-	-	-	-	-	-	-	-	-				
Roll length					#480	200m/roll	#485N	200m/roll	#485T	200m/roll	#485RB	200m/roll	#489	100m/roll	#490	200m/roll	#494C	200m/roll	100m/roll ※2						
V belts	M type (# 480/# 495) A type (# 480/# 495) B type (# 480/# 495)			Orange (#480) White (#495)	Top width (mm)	10.0	Thickness (mm)	5.5	Angle (degree)	40	100m/roll														
					Top width (mm)	12.7	Thickness (mm)	8.0	Angle (degree)	40															
					Top width (mm)	16.7	Thickness (mm)	10.3	Angle (degree)	40															
					Top width (mm)	16.7	Thickness (mm)	10.3	Angle (degree)	40															
					Top width (mm)	16.7	Thickness (mm)	10.3	Angle (degree)	40															
					Top width (mm)	16.7	Thickness (mm)	10.3	Angle (degree)	40															

※1 Coarse surface specification  
 ※2 #480 with a cross-sectional diameter of 15 mm and #494C with a cross-sectional diameter of 5 mm are supplied in 50 m reels.  
 ※ Bando or your distributor can make joints for you. For belts with diameters up to 2.5mm, the minimum length is 125mm.  
 For belts with diameters of 3mm or more, the minimum length is 50 times belt diameter.  
 ※ Please consult with Bando or your distributor if φ 15 joints are necessary  
 ※ Round belt meet Article 370 standards of the Food Sanitation Act of the Health and Welfare Ministry (Except black of #480, #494C)

## Mechanical properties

特性	#480	#485N	#485T	#485RB	#489	#490	#494C	#495 (Vタイプ)
Color	Orange, Semi-transparent, Black	Semi-transparent	Semi-transparent	Green	White	Semi-transparent, Blue, Red, Green	Black	White
Hardness (JIS-Hs)	85°	86°	86°	86°	90°		94°	95°
Specific gravity	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23
Tensile modulus 3% (GPa)	$2.9 \times 10^{-4}$	$2.9 \times 10^{-4}$	$2.9 \times 10^{-4}$	$3.3 \times 10^{-4}$	$9.8 \times 10^{-4}$		$5.6 \times 10^{-4}$	$1.7 \times 10^{-3}$
Tensile modulus 4% (GPa)	$3.9 \times 10^{-4}$	$3.9 \times 10^{-4}$	$3.9 \times 10^{-4}$	$4.4 \times 10^{-4}$	$1.08 \times 10^{-3}$		$8.3 \times 10^{-4}$	$2.2 \times 10^{-3}$
Tensile modulus 5% (GPa)	$4.9 \times 10^{-4}$	$4.9 \times 10^{-4}$	$4.9 \times 10^{-4}$	$5.6 \times 10^{-4}$	$1.47 \times 10^{-3}$		$1.1 \times 10^{-3}$	$2.6 \times 10^{-3}$
Tensile modulus 6% (GPa)	$6.4 \times 10^{-4}$	$6.4 \times 10^{-4}$	$6.4 \times 10^{-4}$	$7.3 \times 10^{-4}$	$1.52 \times 10^{-3}$		$1.4 \times 10^{-3}$	$2.8 \times 10^{-3}$
Tensile modulus 7% (GPa)	$6.9 \times 10^{-4}$	$6.9 \times 10^{-4}$	$6.9 \times 10^{-4}$	$7.9 \times 10^{-4}$	$1.72 \times 10^{-3}$		$1.7 \times 10^{-3}$	$3.1 \times 10^{-3}$
Tensile modulus 100% (GPa)	$4.9 \times 10^{-3}$	$5.4 \times 10^{-3}$	$3.9 \times 10^{-3}$	$5.4 \times 10^{-3}$	$7.85 \times 10^{-3}$		$8.8 \times 10^{-3}$	$9.8 \times 10^{-3}$
Tensile strength at break (GPa)	$2.94 \times 10^{-2}$ or more	$2.94 \times 10^{-2}$ or more	$2.94 \times 10^{-2}$ or more	$2.94 \times 10^{-2}$ or more	$2.94 \times 10^{-2}$ or more		$1.96 \times 10^{-2}$ or more	$3.23 \times 10^{-2}$ or more
Tensile elongation at break (%)	450 or more	300 or more	400 or more	300 or more	350 or more		400 or more	350 or more
Linear expansion coefficient (1°C)	$2.6 \times 10^{-4}$	$2.6 \times 10^{-4}$	$2.6 \times 10^{-4}$	$2.6 \times 10^{-4}$	$2.6 \times 10^{-4}$		$2.6 \times 10^{-4}$	$2.6 \times 10^{-4}$

### Round Belts

Cross-sectional diameter (mm)	1.5	2	2.5	3	3.5	4	5	6	7	8	9	10	11	12	15
Tensile strength (N/belt)	60	100	160	230	310	410	640	930	1150	1500	1900	2360	2850	3390	5300

### V Belts

Type	M	A	B
Tensile strength (N/belt)	1450	2590	4400

## Water resistance

Bancord can be used for long periods under conditions of high humidity.

Daily variation in tensile strength under wet conditions (#489)				
Days immersed in water	20	30	50	70
Residual strength (%)	99	98	96	91

※ The sample was immersed in water at 40°C, with 5% elongation.

## Oil and chemical resistance

Oil, chemicals	Suitability
Oil resistance - ASTM# 1	○
Oil resistance - ASTM# 3	○
Acid resistance - 10% hydrochloric acid	○
Alkali resistance - 10% caustic soda	△
Organic solvent resistance - acetone	×
Organic solvent resistance - benzene	×
Organic solvent resistance - methanol	△

※ In general, avoid use with strong acids, strong alkali, aromatic hydrocarbon (such as benzene, toluene), ester solvents (such as ethyl acetate), and ketone solvents (such as MEK, acetone).

## Joints

Bancord is joined using the following procedure.

Photo 1

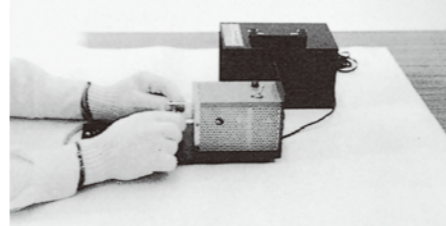


Photo 2

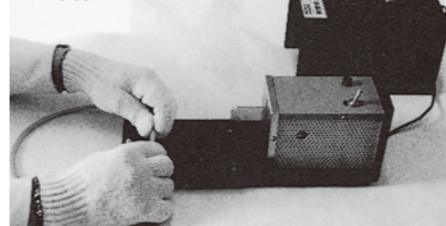


Photo 3

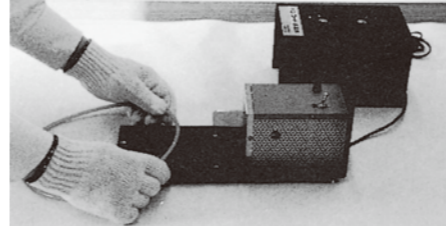
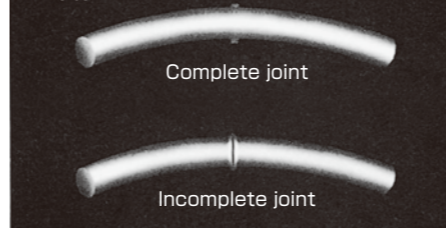


Photo 4



### Cutting

- ① Calculate or measure the length needed for installation.
- ② The cut should be about 5% less (3% to 7% is acceptable) than the measurement needed. Make a straight cut at a right angle to the belt.  
Example: If the required length is 1m, the cut should be at 950mm.  
Note: The belt will slip if it is too long, and belt life will be reduced if it is too short.

### Bancord Joints

- ① Lightly and uniformly melt both ends through contact with a heating plate (Photo1). Standard melting times are shown below (heating plate temperature: 240°C±10°C).

Type	Diameter (mm)		
	1.5~5	6~10	11~15
#480	20 seconds	50 seconds	70 seconds
#485N	60 seconds	80 seconds	—
#485RB	60 seconds	80 seconds	—
#489・490	40 seconds	60 seconds	90 seconds

※ Use 90 seconds for long V Belts (M, A, B Types).

- ② Quickly and evenly press the two melted ends together (Photo 2).
- ③ Hold the two ends together for a minute or two, and allow to cool and solidify (Photos 2 and 3).
- ④ Use scissors, nail clippers or a grinder to cut away any protrusions from the joint.

※ A transparent layer (Photo 4) may be visible if the joint is incomplete (particularly with #489).

### Bancord Adhesion Machine

Bando offers a Bancord Adhesion Machine (DX-81), with a standard setting temperature of 240°C±10°C.

※ Width:130mm / Depth:210mm / Height:130mm / Power:AC100V

- Wear protective gloves to prevent burns during the joining procedure.
- Do not use candles or lighters to make joints.

## Operating conditions

Classification	Item	
Round Belts	Belt tension rate	3~7% (typically 5%)
	Pulleys	Bancord Round Belt Pulleys
	Small pulley contact angle	180°
	Belt speed	#480・485N・485RB:2~12m/s #489:2~20m/s
	Operating temperature	0~50°C
V Belts	Belt tension rate	3~7% (typically 5%)
	Pulleys	Bancord V Belt Pulleys
	Small pulley contact angle	180°
	Belt speed	2~20m/s
	Operating temperature	0~50°C

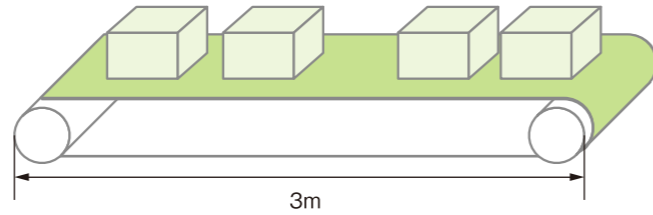
## Storage and transportation notes

- Belts and pulleys may be heavy. Use suitable equipment for transport and handling.
- Do not unreasonably bend belts, and do not transport or store with heavy objects on top of belts, as these may cause belt damage or premature belt failure.
- Store at low humidity at temperatures from 10°C~40°C, without exposure to direct sunlight.

**Material weight per belt meter**

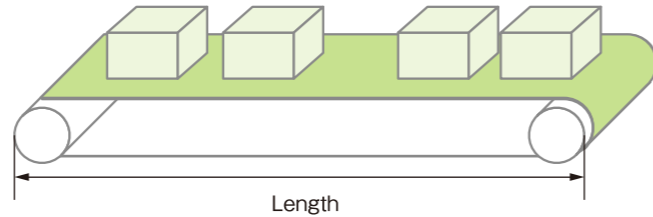
Material weight per belt meter is found by multiplying the weight of each package carried by the number of packages carried, divided by the length of the conveyor.

Example: If the conveyor is 3m long, and carries four packages each weighing 3kg, material weight per belt meter is 4kg/m (3kg x 4 packages ÷ 3 m).



**Conveyor length**

Conveyor length is the distance from end to end, which differs from actual belt length.



**Cleats**

Positioning cleats may be installed on the belt surface to prevent drops or for use in inclined conveyance.

Refer to page 35

**Seamless Belts**

Seamless Belts have no joints. They have little variation in thickness and weight, and superior bending resistance and small pulley matching. Attention to cost, delivery and manufacturing lot are necessary as belt production begins after receipt of order.

Refer to page 29 for Super SUNLINE and to page 51 for PS Belts

**Joints**

Joints are the places on the belt where it is joined. There are advantages and disadvantages to SUNLINE Belt joining methods, which affect belt life.

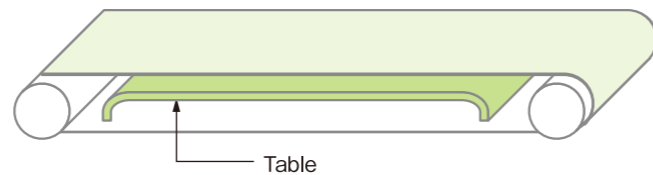
Refer to page 33

**Anti-static**

Static electricity is generated from friction when the belt contacts the supporting part during operation. The materials in the belt reduce static to prevent sparks and static clinging of electronic components, paper and fibers.

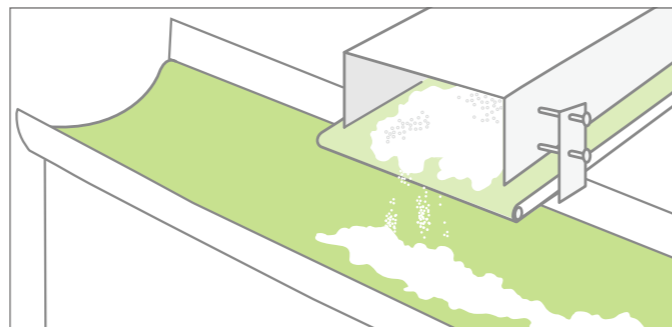
**Table support**

A support method is used under the belt's backside surface. The support is made of iron plate, stainless steel, plywood or the like.



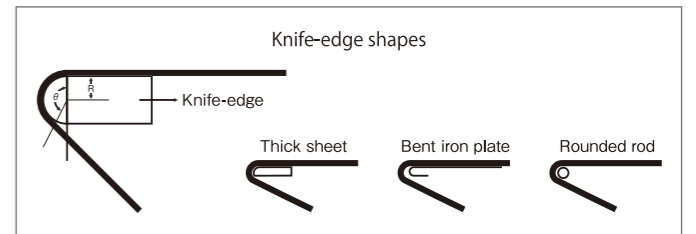
**Trough conveyance**

Trough-shaped conveyance is a method to prevent spillage of powders or granular loads.



**Knife edge**

Knife edges are used in place of pulleys so that items do not fall off the conveyor when the belt comes into contact with a pulley or when items have high adhesion to the belt. Rounded iron rods or sheets are typically used, generally with a radius of 2mm to 5mm. (Radius (R) is shown in mm.)



**V-Guides**

V-guides are cleats added to the belt backside to prevent snaking or bias, or cleats added to the belt surface to prevent drops or spills.

Refer to page 37

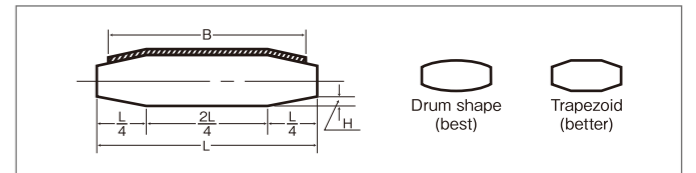
**Plies**

Plies refers to the number of canvas layers containing tensile members.



**Crown pulley**

Crown pulleys have higher central portions and are narrower at the sides. They prevent snaking or bias when tension is higher in the central portion of the belt.



H(mm)	B(mm)										
	100 or less	300 or less	600 or less	1000 or less	1200 or less	1400 or less	1600 or less	1800 or less	2000 or less	2200 or less	2500 or less
1 ply	0.2	0.3	0.4	0.5	0.6	—	—	—	—	—	—
2-3 plies	0.5	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4

※ Use crown pulleys for the drive, head and tail pulleys.  
 ※ If using crown pulleys when the belt circumference is 5m or less, the circumference at the edge of the belt should be within 0.5% of the circumference at the center of the belt.  
 ※ Use crown pulleys on each belt when using multiple belts. ※ Crown pulleys should reach the entire belt width R (drum type).  
 ※ Using crowns with 1-ply belts causes wrinkles and undulations in the belt. ※ Please consult with Bando for widths over 2500mm.

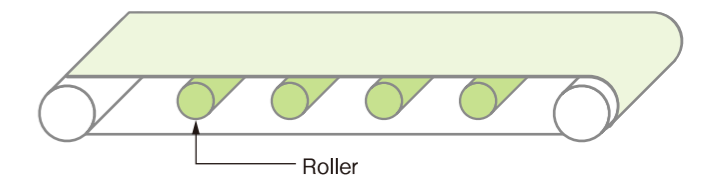
**Belt cleats**

Pieces added to the top of the belt through a fusing process. Rigidity is obtained through a fusion with the canvas inside the belt. Many heights and shapes are possible. Bonding problems are likely to occur if a different resin from the belt body is used.

Refer to page 36

**Rollers**

Method of support on the belt backside.



**Belt edges**

Both sides in the direction of width.

