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**PS BELTS™**

# 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

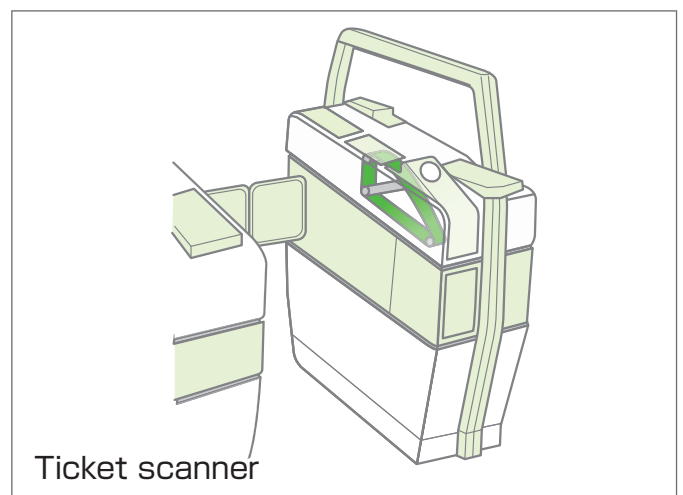
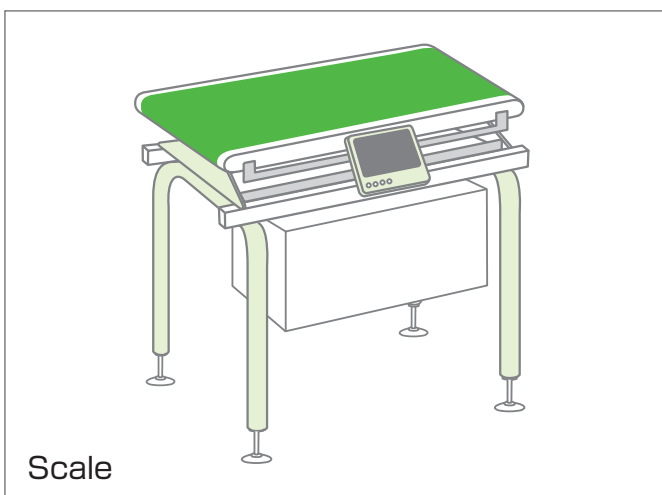
**B - 2 U F Gr R/F**

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)		E 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		E Series (mm)	
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)

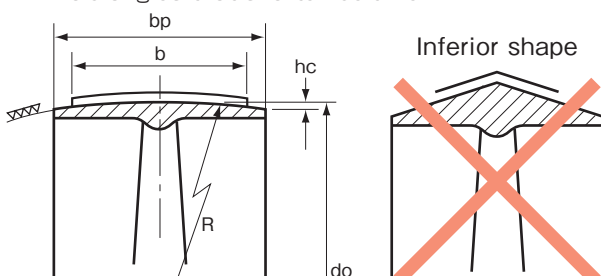
### Use the following formula (for A to C types) to determine the radius of curvature of the pulley surface:

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

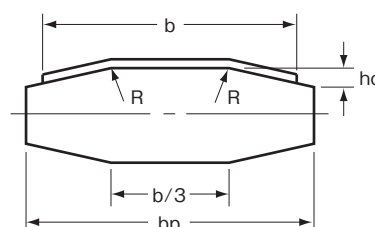
※ To prevent belt deviation in wide belts (length/width < 12), greater crown measurements than shown in the graph at right may be needed, which may result in reduced belt life and transmission capacity.

### Pulley shape

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

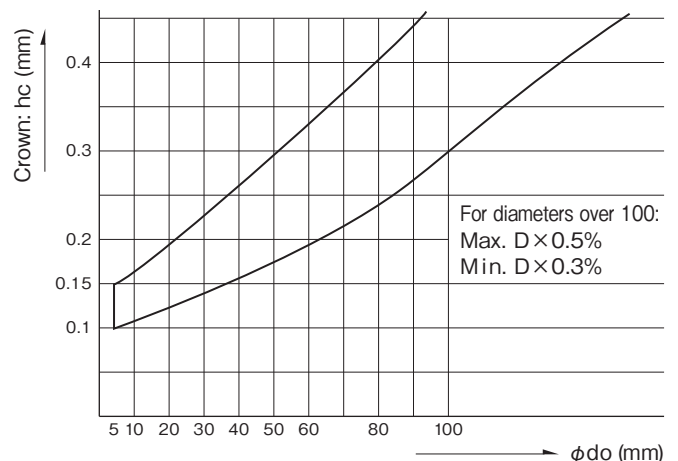


### Wide conveyor belts



bp : Pulley width  
 b : Belt width  
 hc : Crown height  
 do : Pulley outer diameter  
 R : Radius of curvature

※ Do not use a pulley flange.



# PS Belts

## Products

Primary usage	Applications	Belt specifications ※1	Construction						Color	Dimensions ※3		
			Surface ※2			Body		Cover material		Thickness (mm)	Width (mm)	Inner circumference (mm)
			Designation	Top surface	Backside surface	Material	Ply					
Conveyance	Foods	A-1UDW	P/S	Press	Impregnated	Polyester	1	Polyurethane	White	0.22	3~200	400~1500
		A-4UDG	F/R	Smooth	Coarse	Polyester	1	Polyurethane	Green	0.45	5~200	180~2710
		A-4UDGr	F/S	Smooth	Impregnated	Polyester	1	Polyurethane	Gray	0.45	5~200	180~2710
		A-4UDW	P/S	Press	Impregnated	Polyester	1	Polyurethane	White	0.45	5~200	180~2710
		A-4UDBL	P/S	Press	Impregnated	Polyester	1	Polyurethane	Blue	0.45	5~200	400~2710
	Paper (sandwiched conveyance)	B-2CB	R/F	Coarse	Smooth	Polyester	1	Chloroprene rubber	Black	0.80	5~200	250~2600
		C-16UB	R/F	Coarse	Smooth	Polyester	1	Polyurethane	Black	0.60	3~200	160~2500
	Paper (vacuum)	A-4UEB	F/R-A	Smooth	Coarse	Polyester	1	Polyurethane	Black	0.45	~360	180~2710
		E-8UB	M/K-A	Mirror	Polished	Polyester	1	Millable urethane	Black	0.65/0.8/1.0	8~200	50~1457
	Banknotes (sandwiched conveyance)	E-8UB	K/K	Polished	Polished	Polyester	1	Millable urethane	Black	0.65/0.8/1.0	8~200	50~1457
		EXL101B	M/K	Mirror	Polished	Polyester	1	Millable urethane	Black	0.65/0.8/1.0	8~200	50~1457
	Power transmission	Low torque (high speed rotation)	A-4CB	R/F	Coarse	Smooth	Polyester	1	Chloroprene rubber	Black	0.60	5~200
A-4NB			R/F	Coarse	Smooth	Polyester	1	Nitrile rubber	Black	0.60	5~200	180~2710
Medium torque (low speed rotation)		A-10CB	R/F	Coarse	Smooth	Polyester	1	Chloroprene rubber	Black	1.00	5~200	300~2200
		A-10NB	R/F	Coarse	Smooth	Polyester	1	Nitrile rubber	Black	1.00	5~200	300~2200
		A-13CB	R/F	Coarse	Smooth	Polyester	1	Chloroprene rubber	Black	1.10	5~200	300~2200
Specialty	Computer chips	A-1UE	F/F	Smooth	Smooth	Polyester	1	Polyurethane	White	0.24	3~50	100~1500
		A-1N	P/M	Press	Mirror	Polyester	1	Nitrile rubber	Black	0.22/0.23	3~50	100~1500
		CH-1U	P/P	Press	Press	Nylon	1	Polyurethane	White/black	0.18/0.23	5~50	400~1500
	Super heat resistance	ZH250X	M/M	Mirror	Mirror	Aramid	1	Silicon rubber	Brown	0.90	10~200	460~1500
	Bend resistance	A-P	S/S	Woven fabric	Woven fabric	Nylon	2,4,8	Chloroprene impregnation	Black	—	10~100	200~2700
		A-PW	O/O	Woven fabric	Woven fabric	Nylon	2,4,8	Curing agent impregnation	White	—	10~100	200~2700
	General use conveyance (rubber belts)	TB-3CG	R/F	Coarse	Smooth	Polyester	1	Chloroprene rubber	Green	0.85	10~200	
	Heat resistance, weather resistance	B-2HW	R/F	Coarse	Smooth	Polyester	1	Hypalon rubber	White	0.80	5~200	250~2600
		B-2HG	R/F	Coarse	Smooth	Polyester	1	Hypalon rubber	Green	0.80	5~200	250~2600
	Shrinkage resistance against heat	Z-10UW	P/S	Press	Impregnated	Aramid	2	Polyurethane	White	1.30	530	1530
	Forward and reverse conveyance	A-ESS2W	M/O	Mirror	Woven fabric	Polyester	2	Polyurethane	White	1.10	620	2482
	Wear resistance, special thickness	A-FN2BL	M/O	Mirror	Woven fabric	Polyester	2	Polyurethane	Blue	1.5~3.0	50~120	1000~5200
Non-fray	A-4UEB	M/D	Mirror	Grainy	Polyester	1	Polyurethane	Black	0.65	5~200	400~2710	

※1 Other combinations of cover materials, surface shapes and colors are available upon request.

※2 Please select the most appropriate surface to meet your use conditions. (Pulleys with smooth surfaces are generally used.)

Other than above surfaces, Impregnated/ Smooth, Smooth/Smooth and Mirror/Mirror (One side polished) are also possible to produce.

※3 Please inquire if necessary belt dimensions are outside the ranges shown.

Tensile strength N/10mm	Shaft load at proper tension ratio N/10mm	Minimum pulley diameter (mm)	Wear resistance ※4	Oil resistance ※4	Electrical conductivity ※4	Flame resistance ※4	Ozone resistance ※4	Weather resistance ※4	Water humidity resistance ※4	Food hygiene ※4	Temperature range for use (°C)													Belt specification
											-40	-20	0	20	40	60	80	100	120	140	160	180	200	
150	0.5% 30	5	◎	◎	○	○	◎	○	×	◎	←→													A-1UDW
400	0.5% 45	10	◎	◎	○	○	◎	○	×	◎	←→													A-4UDG
400	0.5% 45	10	◎	◎	○	○	◎	○	×	◎	←→													A-4UDGr
400	0.5% 45	10	◎	◎	○	○	◎	○	×	◎	←→													A-4UDW
400	0.5% 45	10	◎	◎	○	○	◎	○	×	◎	←→													A-4UDBL
250	1% 30 2% 50 3% 60	10	○	○	◎	◎	◎	○	◎	×	←→													B-2CB
160	1% 20 2% 30 3% 40	7	◎	◎	×	○	◎	○	×	×	←→													C-16UB
400	0.5% 45	10	◎	◎	◎	○	◎	○	×	×	←→													A-4UEB
—	5% 10 6% 12 7% 14	8/12/14	◎	○	×	○	◎	○	×	×	←→													E-8UB
—	5% 10 6% 12 7% 14	8/12/14	◎	○	×	○	◎	○	×	×	←→													E-8UB
—	5% 10 6% 12 7% 14	8/12/14	◎	○	◎	○	◎	○	×	×	←→													EXL101B
400	0.5% 45	10	○	○	◎	◎	◎	○	◎	×	←→													A-4CB
400	0.5% 45	10	◎	◎	◎	○	×	○	◎	×	←→													A-4NB
1000	0.5% 110	15	○	○	◎	◎	◎	○	◎	×	←→													A-10CB
1000	0.5% 110	15	◎	◎	◎	○	×	○	◎	×	←→													A-10NB
1350	0.5% 170	20	○	○	◎	◎	◎	○	◎	×	←→													A-13CB
150	0.5% 30	5	◎	◎	○	◎	◎	○	◎	×	←→													A-1UE
150	0.5% 30	5	◎	◎	◎	○	×	○	◎	×	←→													A-1N
150	0.5% 30	5	○	○	◎	◎	◎	○	◎	×	←→													CH-1U
400	1% 120	30	×	○	×	○	◎	◎	◎	×	←→													ZH250X
	1% 130	50	○	○	×	○	◎	○	◎	×	←→													A-P
	2% 210		×	◎	×	×	◎	○	×	×	←→													A-PW
380	1% 70 2% 120 3% 140	10	○	○	×	◎	◎	○	◎	×	←→													TB-3CG
250	1% 30 2% 50 3% 60	10	○	○	×	◎	◎	◎	◎	×	←→													B-2HW
250	1% 30 2% 50 3% 60	10	○	○	×	◎	◎	◎	◎	×	←→													B-2HG
1000	0.5% 80	5	○	○	×	◎	◎	○	◎	◎	←→													Z-10UW
780	0.5% 80	10	○	○	×	◎	◎	○	×	◎	←→													A-ESS2W
2000	0.5% 175	60	◎	◎	×	○	◎	○	×	○	←→													A-FN2BL
350	0.5% 45	10	◎	◎	◎	○	◎	○	×	×	←→													A-4UEB

◎: Optimum ○: Suitable △: Problematic ×: Not suitable

※4 These indications are for the general physical characteristics of the cover rubber.

They are not guaranteed, so please consult with your sales representative and evaluate sufficiently.

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Major Applications

SUNLINE Belts

Belt  
Selection

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Logistics/  
General Purpose

Special  
Purpose

Super  
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Design Materials/  
Special Processes

Bancor Long  
Synchronous Belts

PS Belts

Bancord  
Round Belts

Glossary

# PS Belt Design and Notes on Use

## 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, B-2UF belts have passed Ministry of Health and Welfare Notification No. 20 for such applications.

## 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.