

Belt Types and Possible Dimensions Table 1

Belt Types	Item	Suitable Features	Structure				Colors	Possible Sizes		
			Formation of the Tensile Members (Ply Quantity)	Protective Materials	Surface shape	Surface Interior		Total thickness mm	Width mm	Inner length mm
High Velocity Transmission	A-1C	Low-torque, high-velocity transmission Resistance to the climate and cold temperatures	Polyester 1-ply	Chloroprene rubber	Rough surface	Flat surface	Black	0.22	3 ~ 300	100 ~ 1900
	A-1U	Low-torque, high-velocity transmission Resistance to the climate, oil, and wear	Polyester 1-ply	Polyurethane	Rough surface	Flat surface	White, green	0.22	3 ~ 300	100 ~ 1900
	A-4U	Low-torque, high-velocity transmission Resistance to the climate, oil, and wear	Polyester 1-ply	Polyurethane	Rough surface	Flat surface	White, green	0.4	5 ~ 300	180 ~ 5700
	A-10N	Medium-torque, high-velocity transmission Resistance to oil and cold temperatures	Polyester 1-ply	Nitro rubber	Rough surface	Flat surface	Black	1.0	5 ~ 300	300 ~ 5700
	A-13C	Medium-torque, high-velocity transmission Resistance to the climate and cold temperatures	Polyester 1-ply	Chloroprene rubber	Rough surface	Flat surface	Black	1.1	5 ~ 300	300 ~ 5700
	A-P	Medium-torque, high-velocity transmission (No wear)	Polyamide 4-ply	Oil-soaked chloroprene rubber	Canvas surface	Canvas surface	Black	1.3	※4 10 ~ 350	200 ~ 1000 1000 ~ 2700
	A-W	Medium-torque, high-velocity transmission (Quiet operations (no wear))	Vinylon 1-ply	Textured canvas	Canvas surface	Canvas surface	Original shade of textured canvas	2.0	20 ~ 200	800 ~ 5700
Conveyance of paper, bills, and other light loads	B-2C	Conveyance of paper, bills, and other light loads Resistance to the climate and cold temperatures	Polyester 1-ply	Chloroprene rubber	Rough surface	Flat surface	Black	0.8	5 ~ 300	250 ~ 5700
	B-2H	Conveyance of paper, bills, and other light loads Sterility and resistance to the climate	Polyester 1-ply	Hypalon rubber	Rough surface	Flat surface	White	0.8	5 ~ 300	250 ~ 5700
	B-2CE	Conveyance of paper, bills, and other light loads Super-conductive (100 Ω level)	Polyester 1-ply	Chloroprene rubber	Canvas surface	Flat surface	Black	1.1	10 ~ 200	250 ~ 5700
	B-3C	Conveyance of paper, bills, and other light loads Low-torque, high-velocity transmission Resistance to the climate and cold temperatures	Polyester 1-ply	Chloroprene rubber	Rough surface	Flat surface	Black	0.6	10 ~ 300	250 ~ 5700
	B-6N	Conveyance of paper, bills, and other light loads Low-torque, high-velocity transmission Resistance to oil and wear	Polyester 1-ply	Nitrile rubber	Rough surface	Flat surface	Black	1.0	10 ~ 300	250 ~ 5700
Precision transmission and the conveyance of light loads at less than 100W in equipment with fixed spacing between axes	C-8C	Precision transmission and the conveyance of light loads in equipment with fixed spacing between axes	Polyester 1-ply	Chloroprene rubber	Rough surface	Flat surface	Black	0.7	3 ~ 300	160 ~ 2250
	C-16C	Precision transmission and the conveyance of light loads in equipment with fixed spacing between axes	Polyester 1-ply	Chloroprene rubber	Rough surface	Flat surface	Black	0.7	3 ~ 300	160 ~ 2250
Resistance to heat	Z-H250X	Belt for low-torque transmission or the conveyance of light loads in high-temperature environments (below 250°C)	Aromatic polyamide 1-ply	Silicone gum	Mirrored surface	Mirrored surface	Dark greenish brown	0.9	10 ~ 300	460 ~ 2000
The conveyance of light loads in equipment with fixed spacing between axes	E-8U	Belt for the conveyance of currencies, cards, bills, and other light loads in equipment with fixed spacing between axes	Polyester 1-ply	Urethane (mir-able)	Ground surface	Ground surface	Black	0.65 0.8 1.0	8 ~ 200	50 ~ 1500
	EX-10U	Belt for the conveyance of currencies, cards, bills, and other light loads in equipment with fixed spacing between axes	Polyester 1-ply	Urethane (mir-able)	Mirrored surface (Aluminum surface)	Ground surface	Black	0.65 0.8 1.0	8 ~ 200	50 ~ 1250

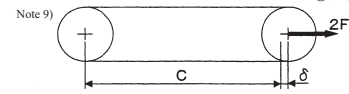
Note: The A Series also includes a static electricity resistant belt (A-4UD), which can be used with metallic examination equipment. For more information, please consult with our company.

Labeling Methods for Belts' Names B-2CEBR/F

Belt type	Index of the Tensile Strength N/10mm of width	Protective Materials	Additional Features		Colors					Surface shape							
			E	F	B Black	W White	G Green	Gr Grey	O Original texture	R Rough	F Flat	M Mirrored surface	S Soaked in oil	K Ground	P Pressed	O Original texture	
A-1	1/100 of the designated tensile strength of the A series	C Chloroprene	○	×	○	—	—	—	—	○	○	It will be necessary to check whether the production of types with different protective materials is possible. For more details, please inquire with our company.					
A-4	—	—	—	—	—	—	—	—	—	—	—						
A-10	—	N Nitrite rubber	×	×	○	—	—	—	—	○	○						
A-13	—	—	—	—	—	—	—	—	—	—	—						
B-2	1/100 of the designated tensile strength of the B series	U Polyurethane	×	×	○	○	○	○	○	○	○						
B-3	—	—	—	—	—	—	—	—	—	—	—						
B-6	—	H Hypalon	×	×	○	○	○	○	○	○	○						
C-8	1/10 of the designated tensile strength of the C series	E EPDM rubber	×	×	○	—	—	—	—	○	○						
C-16	—	G HNBR rubber	×	×	○	—	—	—	—	○	○						
E-8	—	Urethane (mil-able)	×	×	○	—	—	—	—	×	×	○	×	×	×		
EX-10U	—	—	×	×	○	—	—	—	—	×	×	○	×	×	×		
A-P	—	—	×	×	○	—	—	—	—	×	×	○	×	×	×		
A-W	—	—	×	×	○	—	—	—	—	×	×	○	×	×	×		

Note) For information on the Z series, please inquire with our company.

Stretching strength N/10mm of width	Axle load when stability is obtained in each degree of elongation N/10mm of width	Minimum pulley diameter mm	Weight (approximately) g/10mm of width × m of length	Resistance to wear	Resistance to oil	Electrical conductivity	Resistance to fire	Resistance to ozone	Primary Applications	Samples
150	0.5% 30	5	2.5	○	○	◎	◎	◎	• Taping • Dial driving • Precision measurement instrument driving • Audio equipment	A-1C A-1U
150	0.5% 30	5	2.3	◎	◎	×	○	◎	• Terminal and telecommunications equipment • Card readers, external accessories • Disks, audio equipment	A-4U
400	0.5% 45	10	4	◎	◎	×	○	◎	• Grinders, textile machinery • Rooter machines, washing machines • Line printers, automated machine tools	A-10N
1000	0.5% 110	15	11	◎	◎	◎	○	×	• Cleaning and grinding equipment • Rotary burners • Fiber machinery	A-13C
1350	0.5% 170	20	12	○	○	◎	◎	◎	• Printing machinery • Automated machinery	A-P
1400	1% 130 2% 210 3% 280	50	11	○	○	◎	○	◎	• Twisting machine • Cigarette-rolling machines	A-W
1700	1% 200 2% 490	30	9	×	◎	×	×	◎		
250	1% 30 2% 50 3% 60	10	9	○	○	◎	◎	◎	• Ticket-issuing machinery, bank terminal units • Automated ticketing machines, automated packaging machines • Foreign exchange machines, ATM's • Currency inspection machinery, office equipment • Auto-checkers • Shipping containers, ticket-issuing machinery, printers	B-2C B-2H
250	1% 30 2% 50 3% 60	10	9	○	○	×	◎	◎	• Sorters, copiers • Paper conveyance machinery • Tellers	B-2CE
200	1% 60 2% 80 3% 110	30	12	○	○	◎	◎	◎	• Copiers, video game machines • Automated packaging machine • Micro-cameras	B-3C
380	1% 70 2% 120 3% 140	10	7	○	○	◎	◎	◎	• Auto-checkers • Printers, office equipment • Laser readers	B-6N
600	1% 180 2% 280 3% 360	25	11	◎	◎	○	×	◎	• Floppy drive • Office machinery	C-8C
80	1% 9 2% 15 3% 20	5	8	○	○	◎	◎	◎	• Document feeders • Copiers, sorters • Fish detection machinery	C-16C
160	1% 20 2% 30 3% 40	7	8	○	○	◎	◎	◎	• Copiers, hot sealing machines • Measuring equipment, testing machinery • Large fax machines	Z-H250X
400	1% 120	30	10	×	○	×	○	◎	• Bank terminals • ATM • Card readers • Office machinery	E-8U
—	5% 10 6% 12 7% 14 8% 16	8	10	◎	○	◎	○	◎	• Bank terminals • ATM • Card reader • Office machinery	EX-10U
—	5% 10 6% 12 7% 14 8% 16	8	10	◎	○	◎	○	◎		



A, B, and C Series Friction while in motion (according to PPC paper)

Surface shape	Flat surface	Ground surface	Mirrored surface	Rough surface	Oil-soaked	Original woven surface
Friction	0.6 ~ 0.8	0.6 ~ 0.8	0.6 ~ 0.8	0.5	0.4	0.3

Due to differences across belt types (the materials in the tensile members and the protective layer), there will also be corresponding differences in the values shown above. For more information, please inquire with our company.

E Series	
Mirrored surface	Ground surface
0.8 ~ 1.3	0.6 ~ 1.0

- Note 1) In addition to the types shown above, we are also able to provide other combinations of protective materials, surface shapes, and colors. For more information or to place an order, please contact our company.
- 2) Please select the surface that best fits your working environment and conditions of use. (Generally, pulleys feature a flat surface). In addition to the surfaces shown above, we can also produce oil-soaked/flat surfaces, flat/flat surfaces, and mirrored/mirrored surfaces (with one side ground). Please select the type that best fits your needs.
- 3) If belts beyond the designated sizes are needed, please inquire with our company.
- 4) If the belt is demonstrating inappropriate shimmying, and the result of the formula below is less than 2.0, please get in touch with our company.
- Belt width
Belt length
- 5) Rotational speed with the minimum pulley diameter
- 6) 4-ply seamless woven piece
- 7) Seamless cross-cross woven piece
- 8) 10— (Belt's inner length×0.15)
- 10) E-8U is the value obtained with 1mm of thickness
EX-10U is the value obtained with 0.65mm of thickness
- 11) Only one side of the E-8U has a mirrored surface. Additionally, one side of the EX-10U is a mirrored surface, while the other is a ground surface.

Belt Dimensions and Permitted Deviations

Standard Belt Lengths Table 2

Belt type	Inner Length
A-1	125 132 140 150 160 170 180 190 200 212 224 236 250 265 280 300 315 335 355 375 400 425 450 475 500 530 560 600 630 670 710 750 800 850 900 950 1000 1060 1120 1180 1250 1320 1400 1500
A-4	180 190 200 212 224 236 250 265 280 300 315 335 355 375 400 425 450 475 500 530 560 600 630 670 710 750 800 850 900 950 1000 1060 1120 1180 1250 1320 1400 1500 1600 1700 1800 1900 2000 2120 2240
(A-10) (A-13)	300 315 335 355 375 400 425 450 475 500 530 560 600 630 670 710 750 800 850 900 950 1000 1060 1120 1180 1250 1320 1400 1500 1600 1700 1800 1900 2000 2120 2240
A-P	200 212 224 236 250 265 280 300 315 335 375 400 425 450 475 500 530 560 600 630 670 710 750 800 850 900 950 1000 1060 1120 1180 1250 1320 1400 1500 1600 1700 1800 1900 2000 2120 2240 2360 2500 2650
A-W	710 750 800 850 900 950 1000 1060 1120 1180 1250 1320 1400 1500 1600 1700 1800 1900 2000 2120 2240 2360 2500 2650 2800 3000 3150 3350
B-2 B-3 B-6	250 265 280 300 315 335 355 375 400 425 450 475 500 530 560 600 630 670 710 750 800 850 900 950 1000 1060 1120 1180 1250 1320 1440 1500 1600 1700 1800 1900 2000 2120 2240
C-8 C-16	180 190 200 212 224 236 250 265 280 300 315 335 375 400 425 450 475 500 530 560 600 630 670 710 750 800 850 900 950 1000 1060 1120 1180 1250 1320 1400 1500 1600 1700 1800 1900 2000 2120 2240
E-8	41 66 72 76 82 90 93 95 103 104 106 110 114 116 118 120 121 125 128 131 133 136 138 140 145 148 149 151 152 154 155 157 159 162 164 165 166 167 168 170 173 176 178 180 182 185 187 189 191 192 194 197 200 204 207 210 211 212 214 216 219 221 224 228 232 235 239 240 241 243 245 247 248 250 253 256 258 261 262 264 267 269 272 276 280 282 284 286 288 293 295 296 300 302 305 309 312 314 318 321 323 328 331 335 336 338 341 342 343 347 348 353 354 356 358 360 363 366 368 371 376 381 382 383 388 393 394 399 404 405 410 417 421 423 426 431 435 438 442 444 445 447 453 457 462 467 471 477 479 484 487 490 494 497 499 502 505 509 514 518 520 525 534 540 547 552 555 559 564 569 573 577 586 591 593 603 608 613 619 625 632 643 650 658 661 667 672 674 683 690 705 715 735 750 755 764 773 777 787 803 811 815 820 828 833 843 847 857 865 867 881 899 909 914 925 934 943 947 949 965 969 994 995 1000 1012 1020 1029 1039 1055 1061 1072 1100 1113 1164 1219 1264 1335 1337 1398 1457 1579 1611
EX-10U	176 181 190 200 208 229 246 258 283 284 294 307 318 332 344 349 350 369 376 388 421 447 453 468 476 482 486 495 505 520 524 541 580 593 601 615 642 680 704 716 731 765 828 919 1098

Note 1) Our company can also perform processing to create products beyond the dimensions illustrated above. If this will be necessary, please inquire with our company.

Z Series	For information on standard belt lengths, please inquire with Bando.
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Thickness Table 3

A Series	B Series	C Series	Z Series	E Series
A-1			Z-H120	
A-4, A-10, A-13	B-2 B-3	C-8	Z-H250	
A-P	B-6	C-16	Z-H250S	
A-W			Z-H250X	

Width Table 4

Manufacturing Dimensions	Permitted Deviations in Manufacturing					Manufacturing Dimensions	E Series
	A-1 ~ A-13	A-P, A-W	B Series	C Series	Z Series		
~less than 30	±0.5	±1.0	±0.5	±0.5	±0.5	~ less than 12	±0.3
30 ~ less than 100	±1.0	±1.5	±1.0	±1.0	±1.0	12 ~ less than 20	±0.5
100 ~ less than 150	±1.5	±2.0	±1.5	±1.5	±1.5	20 ~ less than 100	±1.0
150 ~ less than 200	±2.0	±2.5	±2.0	±2.0	±2.0	100 ~	±1.5
200 ~	±2.5	±3.0	±2.5	±2.5	±2.5		

Inner Length Table 5

Manufacturing Dimensions	Permitted Deviations in Manufacturing								Manufacturing Dimensions	E Series
	A-1 ~ A-13	A-P, A-W	B Series	C Series	Z-H120	Z-H250	Z-H250S	Z-H250X		
~less than 300	±2	±3	±2	±2	±2	—	—	—	~ less than 200	±2
300 ~ less than 600	±3	±5	±3	±3	±3	±3	±5	±5	200 ~ less than 400	±3
600 ~ less than 800	±4	±6	±4	±4	±4	±4	±6	±6	400 ~ less than 600	±5
800 ~ less than 1000	±5	±7	±5	±5	±5	±5	±7	±7	600 ~ less than 800	±6
1000 ~	±0.5%	±0.7%	±0.5%	±0.5%	±0.5%	±0.5%	±0.7%	±0.5%	800 ~ less than 1000	±8
									1000 ~	±0.8%

Note 1) If you require precision beyond the permitted deviations listed above, please contact our company.
 Note 2) Permitted deviations in matching sets: the permitted deviations for matching pieces are as shown above. As for matching pieces' permitted interior deviations, they are 1mm when the belt's length is less than 1000mm, and processing should be performed to 2mm when the belt's length is greater than 1000mm. Please make your requirements clear when placing your order.

Table 6 Table of Loads (W) Detected on the Belt's Interior Length						Unit: N/ mm of width	
Belt type	Detected load	Belt type	Detected load	Belt type	Detected load		
A-1	0.5	C-8, C-16	0.3	E-8 (1.0mm thick)	0.25	Z-H120, 250, 250X	0.98
A-10, A-13, A-W, A-P	2.0	E-8 (0.65mm thick)	0.15	EX-10U (0.65mm thick)	0.15	Z-H250S	1.96
A-4, B-2, B-3, B-6	1.0	E-8 (0.8 mm thick)	0.20				

About Pulleys

Height of the Pulley's Crowns

Please find the height of the pulley's crown based on the curve shown on the right.

Processing of the Pulley's Surface

Our recommended standard for the precision of surface processing is 3S~6S.

Pulley's width

We recommend that the pulley's width be calculated according to the following formula.

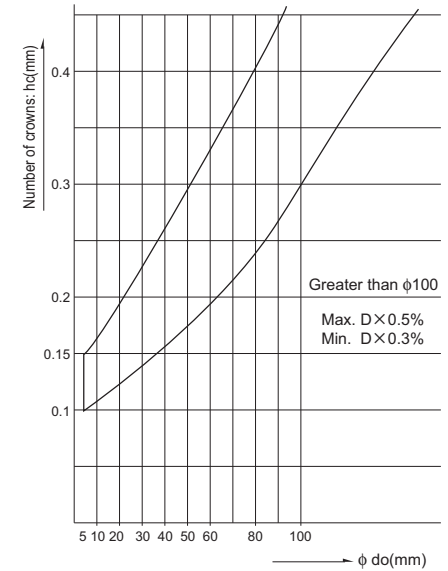
$$\text{Belt's width}(bp) = 1.1 \times b + 5 \text{ (mm)}$$

b: Belt's width (mm)

Please use the following formula to calculate the radius (R) of bending on the surface. (This formula is suited for use on types A ~ C).

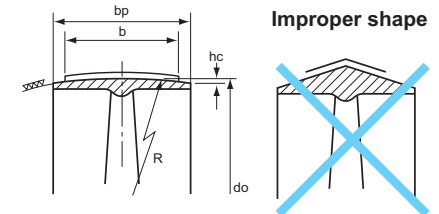
$$R = \frac{bp^2}{8hc} \text{ (mm)}$$

(Note) In order to prevent belts (length/ width < 12) from running on a slant, it is occasionally necessary to take steps to increase the number of crowns beyond the values shown in the curve on the right. However, please take note that doing so may lower the belt's transmission capabilities and shorten its service life.

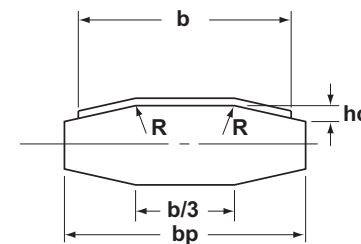


Pulley's Shape

Please use a product whose shape displays the same symmetry as shown in the image to the right.
 Please avoid the use of chevron-shaped crowns, which may shorten the belt's service life.



A Wide Conveyor Belt



bp : Pulley's width
 b : Belt's width
 hc : Number of crowns
 do : Pulley's outer diameter
 R : Radius of bending