BANDO

2024 1st Edition

BANDO V-BELT CATALOGUE

PT. BANDO INDONESIA

Tabel of content :

Profile

Profile

PT. Bando Indonesia is one of the leading automotive and industrial power transmission belt and conveyor belt manufacturer in Indonesia.

PT. Bando Indonesia facility is located on 84.000 square metres land in Tangerang, It has one main office, two main production facilities for producing power transmission belts, plastic parts and Conveyor belts with supporting facility of central finished goods warehouse and central rubber mixing center, its Marketing office is located in Central Jakarta.

The company was established on November 25,1987 as a joint venture by an Indonesian company, PT Kreasi Utama Investama and Bando Chemical Industries, Ltd. of Japan which is one of the world's leading manufacturer of rubber belts since 1906.

Bando Power transmission belt has been accepted by the local and foreign market for the quality products, enabling the company to dominate the market and fulfill export to Singapore (for re-export to Middle East, Asia, Australia and Africa), Japan, Europe and USA. Bando Automotive Belts are used in a number of automobiles and motorcycle manufactures as OEM (Original Equipment Manufacturer) and also as OEM spare parts in Indonesia.

Bando Industrial belts are used in agriculture, industrial machinery and many other industrial sectors.

Our conveyor belts are widely used in the mining, fertilizer, cement, pulp and paper, power plant, steel mill and many other industries in Indonesia. Along with our commitment towards quality products, quality service and continuous improvement, we also provide technical support to assist our customers in optimizing their belts reliability and performance, such commitment making Bando power transmission belt and conveyor belt the most trusted name in Indonesia.

PT. Bando Indonesia received the ISO 45001:2018,
the ISO 14001:2015 , the IATF 16949:2016 and the ISO 9001:2015.

History

History

1987 **PT. Bando Indonesia** was established on November 25th, 1987 and began producing industrial and automotive power transmission belt.

1988 OEM (Original equipment manufacturing) automotive belts accepted and used as genuine parts by Japanese automobile Manufacturer.
Began export to Japan, Singapore.

1989 Began export to United States and Europe

1995 **PT. Bando Indonesia** relocated production facility to new factory in 1995 and expanded its production to the conveyor belt business.

1996 Received the ISO 9002 certified for Power Transmission Belt in September 1996.

1999 Automotive Belts accepted and used by American Car Manufacturer General Motor Indonesia
Began producing national brand V-Power brand

2000 Received the QS 9000 certified for automotive belts.
Received ISO 9002 certified for conveyor belt.

2002 Received the ISO 14001 certified in March 2002
Relocated conveyor production to conveyor new factory.

2006 Received the ISOTS 16949 certified

2010 Began producing variable speed belt for scooter bike.

2011 PT. Bando Indonesia acquire new land 2,1 hectars.

2012 Build new finished goods warehouse at new land.

2013 Build new conveyor factory at new land.
Received the OHSAS 18001 certified- safety in October 2013.

2014 Began producing plastic parts Weight Roller and slide pieces.

2016 Began producing steel cord conveyor belt.

2017 Began investment food grade sunline conveyor belt facility

2018 Received ISO 45001 certified.
Received TKDN for V-Belt certified.

2020 Add one biggest size 3-meter width fabric conveyor belt production line and 2,7 meter width steel cord production line.
SKUP Mlgas ad SMK3 PP50:2009 certified.

2021 TKDN for Conveyor belt certified.

2023 Acquire new land 1,3 hectares.

2024 Build new central rubber mixing facility and raw material warehouse at new land.

Certification

Certification

CERTIFICATE

The Certification Body
of PT TÜV SÜD Indonesia
certifies that

PT BANDO INDONESIA
Jl. Gajah Tunggal
Kelurahan Pasir Jaya, Kecamatan Jati Uwung
Tangerang, Banten 15135
Indonesia

has established and applies
an Environmental Management System for

Manufacturing of Power Transmission Belt
for Industrial & Automotive Use, Conveyor Belt and Plastic Parts

Proof has been furnished that the requirements
according to

ISO 14001 : 2015

are fulfilled. The certificate is valid from 2023-03-31 to 2026-03-28
Certificate Registration No. 2023-2-0057
Date of Print : 2023-04-01

Original Certification Date: 2020-04-17 Recertification audit date : 2023-03-20 to 2023-03-21
Last Certification Expiry Date: 2023-03-28

Yuan Handajana
General Manager

Page 1 of 1

CERTIFICATE

Certificate Registration No.: 12 100 67296 TMS / Order No.: 720519072

The Certification Body
of TÜV SÜD Management Service GmbH
certifies that the organization

PT BANDO INDONESIA
Jl. Gajah Tunggal, Kelurahan Pasir Jaya,
Kecamatan Jati Uwung, Tangerang
15135 Banten
Indonesia

for the scope

Manufacturing of
power transmission belt for industrial and automotive use
including conveyor belt

has established and applies a Quality Management System.
An audit was performed and has furnished proof
that the requirements according to

DIN EN ISO 9001:2015

are fulfilled.

The certificate is valid from 2024-03-19 until 2027-03-18.

Fred Wenke
Head of Certification Body
Munich, 2024-03-19

CERTIFICATE

The Certification Body
of TÜV SÜD PSB Pte Ltd
certifies that

PT BANDO INDONESIA
Jl. Gajah Tunggal
Kelurahan Pasir Jaya, Kecamatan Jati Uwung
Tangerang, Banten 15135
Indonesia

has established and applies
an Occupational Health and Safety Management System for

Manufacturing of Power Transmission Belt for Industrial
& Automotive Use, Conveyor Belt and Plastic Parts

Proof has been furnished that the requirements
according to

ISO 45001 : 2018

are fulfilled. The certificate is valid from 2023-12-05 to 2026-12-04
Certificate Registration No. OHS-45001-2023-0357
Date of Print : 2023-12-05

SIEW Kwai Heng, Tiffany
Head of Certification Body
Management Systems
Business Assurance Division

Page 1 of 1

CERTIFICATE

Certificate Registration No.: 12 111 67296 TMS / IATF Certificate No.: 0506198
IATF USI: TC3WZK

The Certification Body
of TÜV SÜD Management Service GmbH
certifies that the organization

PT BANDO INDONESIA
Jl. Gajah Tunggal, Kelurahan Pasir Jaya,
Kecamatan Jati Uwung, Tangerang
15135 Banten
Indonesia

for the scope

Design & Manufacture of
Power Transmission Belts and Roller Weights,
Manufacture of Slide Pieces
(with Product Design as per Chapter 8.3)

has established and applies a Quality Management System.
An audit was performed and has furnished proof
that the requirements according to

IATF 16949
First Edition 2016-10-01

are fulfilled.

Issue date: 2024-03-19
Expiry date: 2027-03-18

Part of the certificate is an appendix.

Fred Wenke
Head of Certification Body
Munich, 2024-03-19

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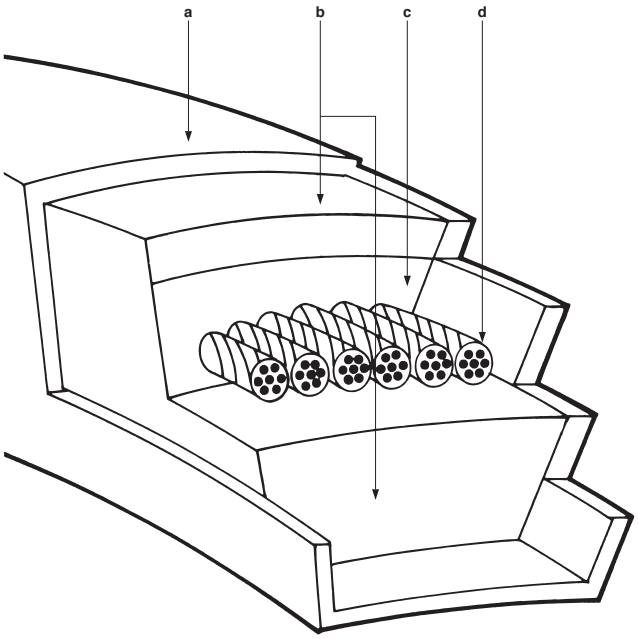
Belt Construction

V-Belt



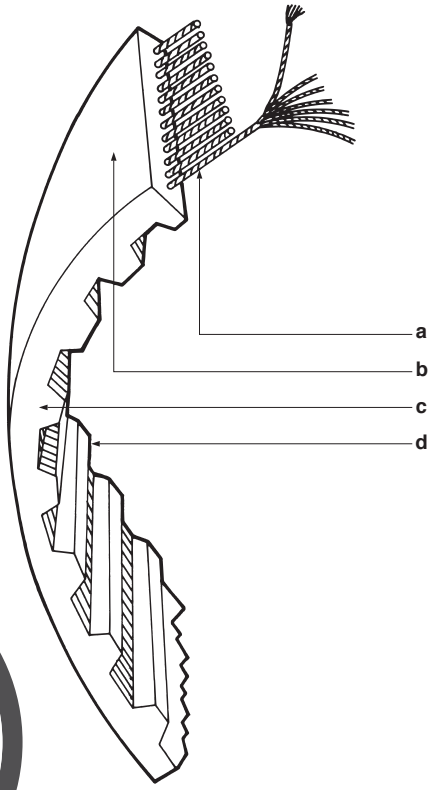
a)Cover: A canvas cover is usually wrapped completely around the belt, sometimes only on the top and bottom. It provides the proper amount of traction and protects the internal components from oil, dust and other foreign materials. It also increases belt flexibility.

b)Cushion Rubber: The material surrounding the Tensile Member. It absorbs the power from the drive pulley and helps transmit this power to the driven pulley. Its high elasticity allows smooth bending and flexing over even the smallest pulleys while preventing heat built-up. It is made of synthetic rubber.

c)Adhesion Rubber: Sets the tensile cords in the right place and firmly bonds the cords with the cushion rubber.

d)Tensile Member: Cord like material running through the belt. The 'muscles' of the belt, it transmits power from one pulley to the next. CONSTRUCTION

SYNCHRONOUS BELT



a) Tensile Member: Made of helically wound glass fiber cord, it is designed to transmit the power. The small diameter cord possesses high tensile strength, low stretch and high resistance to bending fatigue.

b) Rubber Backing: A synthetic rubber layer which gives protection to the tensile member. It is tough and flexible and completely bonded to the tensile member. Its excellent wear resistant backing can also be used for light duty transportation.

c) Rubber Teeth: Special synthetic rubber which has high shear strength and adequate hardness. To ensure that the teeth are compatible with the pulley grooves, they are precision made with a highly accurate pitch. (When the teeth in mesh [TIM] is 6 or more, the teeth shear strength virtually exceeds the belt's tensile strength).

d) Nylon Facing: A thin nylon cover cloth, which is tough and has excellent abrasion resistance, protects the belt teeth from wear caused by pulley contact. This gives
long belt service life.

Type of V - Belt

Industry

Multiple V-Belt

- Wrapped (Red Seal And Green Seal)
  K, M, A, B, C, D, E
- Raw Edge (Cogged Belt)
  AX, BX, CX
- Hexagonal (Double)
  AA, BB, CC
- Banded / Scrum
  B, C, D

Narrow V-Belt

- Wrapped
  - Power Ace : 3V, 5V, 8V
  - SP Type : SPZ, SPA, SPB, SPC
- Raw Edge (Cogged Belt)
  3VX, 5VX, XPZ, XPA, XPB
- Power Scrum Belt
  3V, 5V, 8V

Synchronous Belt

- Synchro Belt
  MXL, XL, L, H, XH, XXH
- Super Torque Synch (STS)
  S2M, S3M, S4.5M, S5M, S8M, S14M
- High Performance STS Belt (HP-STS)
  HP-S5M, S8M, S14M
- High Torque Synchronous Belts (HTS)
  H8M, H14M

Automotive

4 Wheels

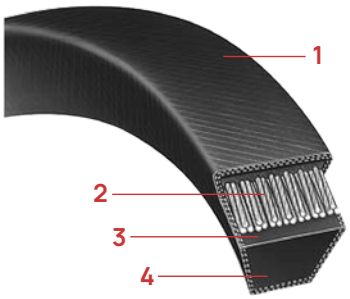
- Rib Ace (PK)
- Raw Edge
  - » REP (Raw Edge Plain)
  - » RAF (Raw Edge Auto Flex)
  - » RPF (Raw Edge Power Flex)
  - » TDPF (Tough Duty Power Flex)
  - » DDPF (Durable Duty Power Flex

2 Wheels

- Variable Speed
- Weight Roller
- Piece Slide

Wrapped (Red Seal & Green Seal)

Classical section belt to cut operation cost and reduce maintenance on multiple belt industrial drives.



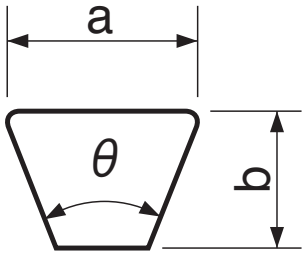
Contruction :

1. Rubber impragnated Special Woven.
2. Polyester tensile members
3. Chloroprene insulating rubber
4. Chloroprene compression rubber.

Size mark :

B 100

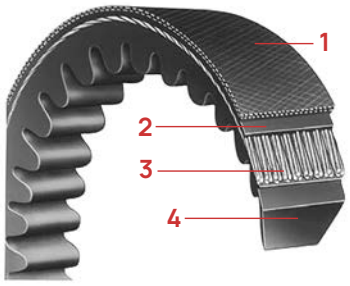
- 100 — Effective pitch length (Inch)
- B — Belt Type



Type	Width(a)	Thickness(b)	Angle	Size (Inch)	Min. pulley diameter
M	10.0 mm	5.5 mm	40°	14-60	50 mm
A	12.7 mm	8.0 mm	40°	17-810	75 mm
B	16.7 mm	10.3 mm	40°	20-1000	125 mm
C	22.2 mm	13.5 mm	40°	35-1000	230 mm
D	31.7 mm	19.0 mm	40°	80-1000	330 mm
E	38.0 mm	23.0 mm	40°	110-810	530 mm

Raw Edge (Cogged Belt)

Heat dissipating cogs, designed to make belts run cooler and last longer, permit the use of smaller sheaves and more efficient, higher rpm motors.



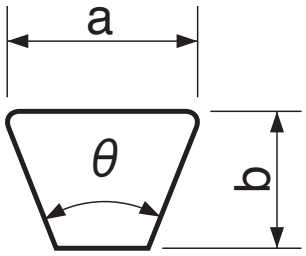
Contruction :

1. Rubber impragnated Special Woven.
2. Chloroprene insulating rubber
3. Polyester tensile members
4. Chloroprene compression rubber.

Size mark :

AX 100

- 100 — Effective pitch length (Inch)
- AX — Belt Type



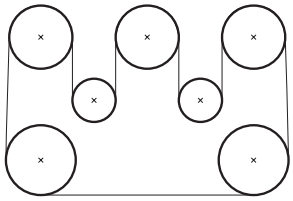
Type	Width(a)	Thickness(b)	Angle	Size (Inch)	Min. pulley diameter
AX	12.8 mm	8.5 mm	38°	21-123	56 mm
BX	16.9 mm	11.0 mm	38°	20-122	80 mm
CX	22.5 mm	14.0 mm	38°	19-121	125 mm

BANDO

Double (Hexagonal)

Designed for reverse-bend serpentine drives by covering belt with special woven fabric.
New cross section for maintaining proper belt position in pulley groove even in the case of extreme reverse-bend drive.
Due to greater flexibility created by special woven fabric as well as to the new Cross Section, service line has increased by about 40 over that of traditional double V-Belts.

Typical reverse-bend serpentine drive



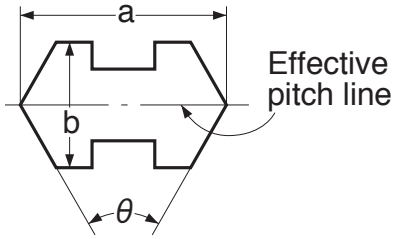
Contruction :

1. Rubber impragnated Special Woven.
2. Polyester tensile members
3. Chloroprene insulating rubber
4. Chloroprene compression rubber.

Size mark :

BB 100

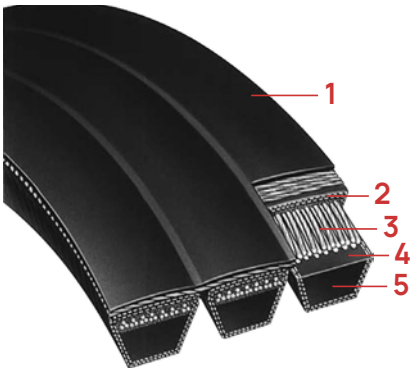
- 100 — Effective pitch length
- BB — Belt Type



Type	Width(a)	Thickness(b)	Angle	Size (Inch)
AA	12.5 mm	10.3 mm	36°	46-250
BB	16.5 mm	13.5 mm	36°	60-810
CC	22.0 mm	18.0 mm	36°	80-196

Banded (Scrum)

Permanent matched set, no lateral, spin or turn over. Deep pulley grooves are not required even on horizontal drives.
Heat and oil resistant.



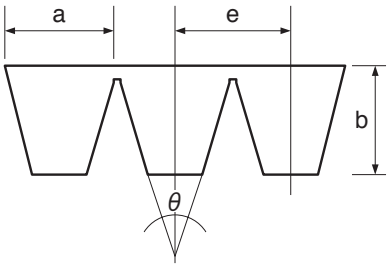
Contruction :

1. Tie Band
2. Rubber impragnated Special Woven.
3. Polyester tensile members
4. Chloroprene insulating rubber
5. Chloroprene compression rubber.

Size mark :

3-5V 100

- 100 — Effective outside length in inchs multiple by 10 (125"x10=1250) (3.175mm)
- 5V — Belt Type
- 3 — Number of belt in bend



Type	Width(a)	Thickness(b)	Angle	Pitch (e)	Size (Inch)	Min. pulley diameter
B	16.7 mm	13.0 mm	40°	19.0 mm	46-810	125 mm
C	22.2 mm	16.0 mm	40°	25.5 mm	80-810	230 mm
D	31.7 mm	21.5 mm	40°	37.0 mm	106-810	330 mm

Wrapped

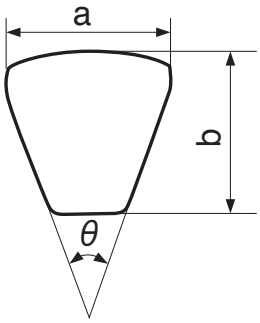
Power Ace Belts

High horsepower rating, required about 1 /3 of the space needed by traditonal multiple V-belt drive. Long life, high heat and oil resistance. length stability, a match set of Bando Power Ace for multiple belt drives retains superior uniformity under tension. A Bando matched set remains perfectly matched even after long period of storage.
Power Ace raised crookedness nature by making texture of canvas into 120 degrees instead of 90 degrees of conventional V-belts.

Contruction :
1. Rubber impregnated canvas
2. Chloroprene insulation rubber
3. Polyester tensile members
4. Special lateral reinforcing cord
5. Chloroprene compression rubber

Size mark :

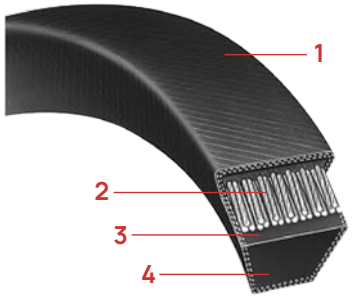
5V 100
- 100 — Effective pitch length (Inch) :10
- 5V — Belt Type



Type	Width(a)	Thickness(b)	Angle	Size (Inch)	Min. pulley diameter
3V	9.5 mm	8.0 mm	40°	25-150	67 mm
5V	16.0 mm	13.5 mm	40°	50-810	150 mm
8V	25.5 mm	23.0 mm	40°	100-810	300 mm

SP-Type Belts

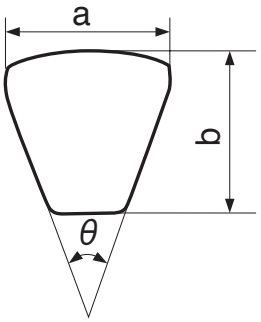
Narrow wedges design permit higher speed ratio, shorter distance and more eco-nomical compact drives.



Contruction :
1. Rubber impragnated Special Woven.
2. Polyester tensile members
3. Chloroprene insulating rubber
4. Chloroprene compression rubber.

Size mark :

SPZ 3500
- 3500 — Effective pitch length
- SPZ — Belt Type

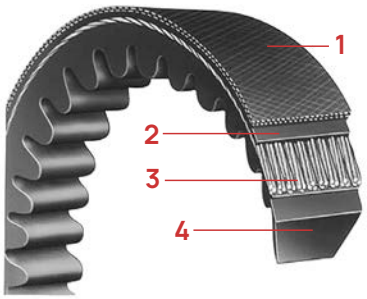


Type	Width(a)	Thickness(b)	Angle	Size (mm)	Min. pulley diameter
SPZ	9.5 mm	8.0 mm	40°	582-3550	67 mm
SPA	13 mm	10.0 mm	40°	707-20500	100 mm
SPB	16.0 mm	13.5 mm	40°	1250-20500	160 mm
SPC	22.0 mm	18.0 mm	40°	2032-20500	224 mm

SPZ	= Lw + 13 mm	= La
SPA	= Lw + 18 mm	= La
SPB	= Lw + 22 mm	= La
SPC	= Lw + 30 mm	= La

Raw Edge (Cogged)

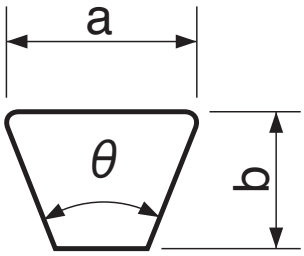
Heat dissipating cogs, designed to make belts run cooler and last longer, permit the use of smaller sheaves and more efficient, higher rpm motors.



Contruction :
1. Rubber impragnated Special Woven.
2. Chloroprene insulating rubber
3. Polyester tensile members
4. Chloroprene compression rubber.

Size mark :

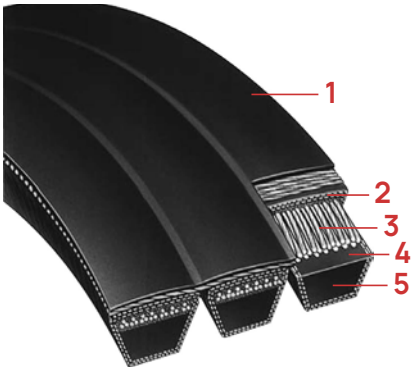
XPZ 3500
- 3500 — Effective pitch length(mm)
- XPZ — Belt Type



Type	Width(a)	Thickness(b)	Angle	Size	Min. pulley diameter
3VX	9.5 mm	8.8 mm	38°	23-125 inch	56 mm
5VX	15.9 mm	13.7 mm	38°	23-125 inch	122 mm
XPZ	9.3 mm	8.0 mm	38°	587-3175 mm	50 mm
XPA	12.4 mm	8.8 mm	38°	592-3165 mm	63 mm
XPB	15.8 mm	12.5 mm	38°	950-3165 mm	100 mm

Power Scrum (Banded)

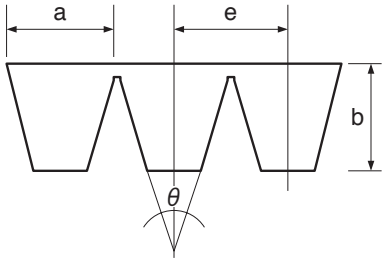
Permanent matched set, no lateral, spin or turn over. Deep pulley grooves are not required even on horizontal drives.
Heat and oil resistant.



Contruction :
1. Tie Band
2. Rubber impragnated Special Woven.
3. Polyester tensile members
4. Chloroprene insulating rubber
5. Chloroprene compression rubber.

Size mark :

3-5V 1250
- 1250 — Effective outside length in inchs multiple by 10 (125"x10=1250) (3.175mm)
- 5V — Belt Type
- 3 — Number of belt in bend

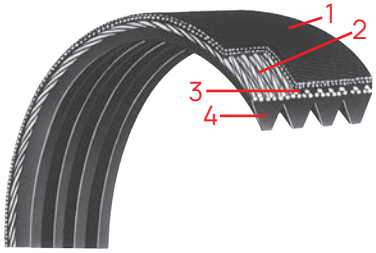


Type	Width(a)	Thickness(b)	Angle	Pitch (e)	Size (Inch)
3V	9.5 mm	10 mm	40°	10.3 mm	42.5-150
5V	15.9 mm	16 mm	40°	17.5 mm	60-810
8V	25.4 mm	25 mm	40°	28.6 mm	106-810

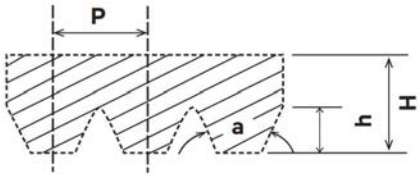
R - A (Rib Ace)

Trusted by the world's Top Automakers, Bando is OE on Domestic and Import nameplates.

The V-ribbed belt is precision engineered for long life under severe operating conditions. Used on standard V-ribbed pulley and serpentine drives.



Contruction :
1. Rubber impragnated Special Woven.
2. Polyester tensile members
3. Chloroprene insulating rubber
4. Chloroprene compression rubber.

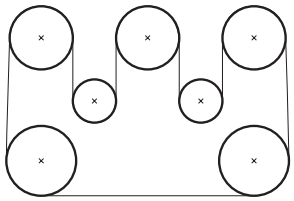


Size mark :

RIB ACE 7PK 2300

- 2300 — Effective length (mm)
- 7PK — Number of Ribs and Type of belt

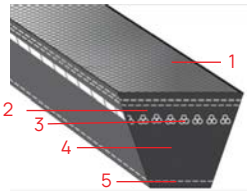
Typical reverse-bend serpentine drive



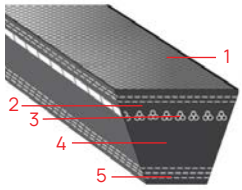
Type	PITCH (P)	Thickness (H)	Angle	Size (MM)
PK	0.14" (3.56)	0.19"(4.8 mm)	40°	560 - 3000

AUTOMOTIVE 4W SERIES (REP, RAF; RPF, TDPF, DDPF)

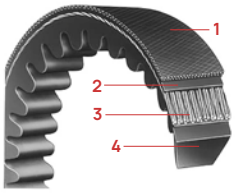
BANDO's Molded notch design gives extra flexibility to reduce heat build-up and provide long belt life, especially on small pulleys.



Contruction :
1. REP



Contruction :
1. RAF



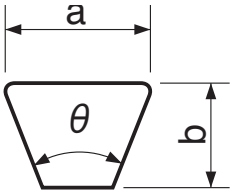
Contruction :
1. RPF
2. TDPF
3. DDPF

Contruction :
1. Rubber impragnated Special Woven.
2. Chloroprene insulating rubber
3. Polyester tensile members
4. Chloroprene compression rubber
5. Rubber impragnated Special Woven.

Size mark :

RPF 3500

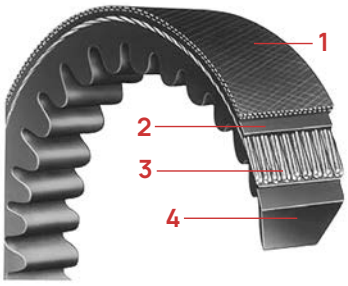
- 3500 — Effective length (inch)
- RPF — Belt code number
- Belt Type (REP, RAF, RPF, TDPF, DDPF)



Type	Width(a)	Thickness(b)	Angle	Number	Size Code
FM	0.38" (9.5 mm)	0.32" (8.0 mm)	40°	2 XXX	9.5 X ... La
A	0.50" (13.0 mm)	0.32" (8.0 mm)	40°	3 XXX	12.5 X ... La
B	0.66" (17.0 mm)	0.44" (11.0 mm)	40°	5 XXX	17 X ... Li
C	0.88" (22.0 mm)	0.56" (14.0 mm)	40°	7 XXX	22 X ... Li

Variable Speed

Heat dissipiating cogs, designed to make belts run cooler and last longer, permit the use of smaller sheaves and more efficient, and higher rpm motors. specifically designed for Continuously Variable Transmission.



Contruction :

1. Rubber impragnated Special Woven.
2. Chloroprene insulating rubber
3. Polyester tensile members
4. Chloroprene compression rubber.

Size mark :

778.5-18.5-8.5

└──Bando VS Part Number

Weight Roller

Roller serves to regulate and maintain the stability of the pulley rotation on the engine so the engine would spin at a stable acceleration ratio. To fulfill their function, BANDO uses a special material that gives a much tougher durability.

Contruction :

1. Plastic part with special material
2. Metal / iron weights.

Slide Piece

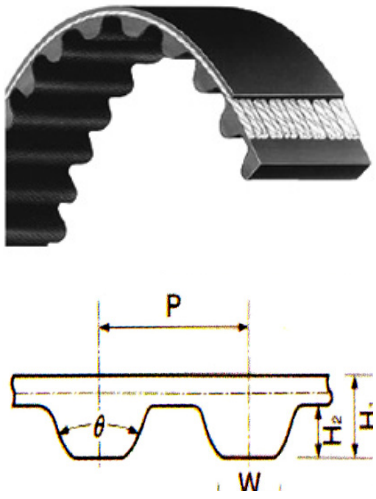
Slide Piece keep the movement of the rollers stable and well-directed as the pulley opens or closes based on speed changes. The slide piece prevents the rollers from shifting in the wrong direction, ensuring that they move smoothly up and down within their housing. This is crucial for the transmission to work smoothly without causing vibrations or disruptions. BANDO uses a special material that gives a much tougher durability and smoother.

Contruction :

1. Plastic part with special material

Synchronous Belt

Precise design and manufacturing tolerance assure belt teeth mesh smoothly with pulley grooves for non-slip, positive performance on synchronous drives.



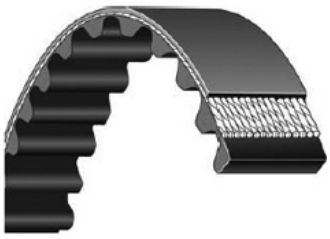
Type	P	W	H1	H2	Θ
MXL	2.03mm	0.75mm	1.1mm	0.51mm	40
Mini Synchro	(0.080")	(0.030")	(0.043")	(0.020")	
XL	5.08mm	1.35mm	2.3mm	1.27mm	40
Extra Light	(0.200")	(0.054")	(0.09")	(0.050")	
L	9.05mm	3.2mm	3.6mm	1.91mm	40
Light	(0.375")	(0.128")	(0.14")	(0.075")	
H	12.70mm	4.4mm	4.3mm	2.29mm	40
Heavy	(0.500")	(0.175")	(0.17")	(0.090")	
XH	22.22mm	8.0mm	11.2mm	6.35mm	40
Extra Heavy	(0.875")	(0.313")	(0.44")	(0.250")	
XXH	31.75mm	12.2mm	15.7mm	9.53mm	40
Double Extra Heavy	(1.250")	(0.477")	(0.62")	(0.375")	

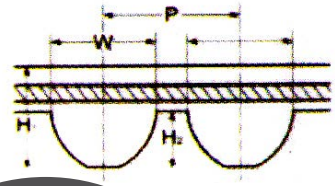
Size code :
140 XL 025 :
① ② ③

① Pitch length inch x10, / Teeth No for MXL
② BELT Pitch, / Same for MXL
③ BELT Width inch x 100, / Width mm for MXL

Super Torque (STS)

High torque capacity drive, with unique tooth profile enables the belt transmit higher power, with lower noise level, long service life, no need maintenance or lubrication and space saving.





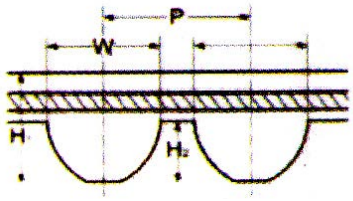
Type	P	H1	H2	W
S2M	2.0mm	1.31mm	0.76mm	1.3mm
	(0.078")	(0.052")	(0.029")	(0.051")
S3M	3.0mm	2.1mm	1.14mm	1.95mm
	(0.118")	(0.083")	(0.044")	(0.076")
S4.5M	4.5mm	2.70mm	1.171mm	2.93mm
	(0.177")	(0.0106")	(0.067")	(0.115")

Size code :
600 S8M 1000 :
① ② ③

① BELT Width mm x 10
② BELT Pitch
③ BELT Length mm

High Perfomance STS (HP type)

Exceptionally high power, with compact design and low noise.



Type	P	H1	H2	W
HP- S5M	5.0mm	3.61mm	1.91mm	3.25mm
	(0.197")	(0.142")	(0.075")	(0.128")
HP-S8M	8.0mm	5.3mm	3.05mm	5.20mm
	(0.315")	(0.202")	(0.120")	(0.205")
HP-S14M	14.0mm	10.2mm	5.30mm	9.10mm
	(0.551")	(0.402")	(0.0209")	(0.358")

Size code :

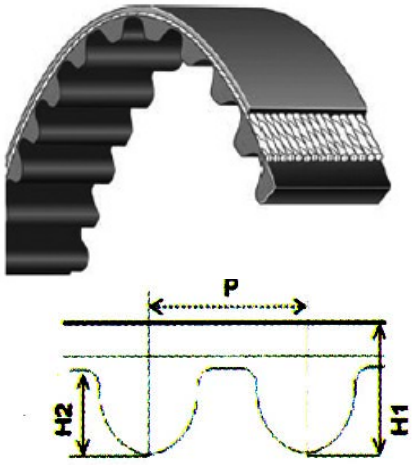
600. HP-S8M 1000 :

① ② ③

① BELT Width mm x 10
② BELT Pitch
③ BELT Length mm

High Torque (HTS)

BANDO HTS is curvilinear tooth (round tooth) profile, belt and pulley teeth is mesh smooth and improves stress distribution to higher power transmission capacity.



Type	P	H1	H2
H8M	8mm	5.3mm	35mm
	(0.315")	(0.209")	(0.138")
H14M	14mm	10.2mm	6.0mm
	(0551")	(0.402")	(0.236")

Size code :

600 H14M 100 :

① ② ③

① BELT Width mm x 10
② BELT Pitch
③ BELT Length mm

Troubleshooting Guide

V Belts

Short Belt Life

Problem	Cause	Solution
Rapid failure with no visible reason	Worn sheave grooves (Check with groove gauge)	Replace sheaves
	Tensile cords damaged through improper installation	Replace all belts with a new set, properly installed
	Underdesigned drive	Redesign drive
	Wrong type or cross section belt	Replace all belts with correct type, properly installed
	Sheave diameter too small	Redesign drive
	Foreign substance caught between belts and sheave	Shield the drive
Soft, slick, swollen sidewalls. Low adhesion between plies	Oil or grease on belt or sheave	Clean belts and sheaves with degreasing agent or detergent and water. Remove source of oil or grease
Dry, hard sidewalls. Low adhesion between plies. Cracked belt bottom	High temperature	Remove heat source. Improve ventilation
	Worn or damaged sheaves	Replace sheaves
Deterioration of rubber	Belt dressing	Don't use belt dressing. Clean belts and sheaves with degreasing agent or detergent and water. Tension belts properly
Rapid sidewall wear	Worn or damaged sheaves	Replace sheaves
Broken belts	Foreign object in drive	Shield drive
Spin burns	Belts slip under starting or stalling load	Retension drive
	Sheave diameter too small	Redesign drive
	Load miscalculated – drive underdesigned	Redesign drive
Cracked bottom	Sheave diameter too small	Redesign drive
	Back side idler too small	Replace with an inside idler on slack side, or redesign
	Slippage	Retension drive
	High temperature	Remove heat source. Improve ventilation
Cut bottom	Belt ran off sheave	Check tension and alignment
	Foreign object in drive	Shield drive
	Improper installation	Replace all belts with a new set, properly installed

Problem	Cause	Solution
Extreme cover wear, worn corners	Belt rubs against guard or other obstruction	Remove obstruction or realign drive
	Improper tension	Retension drive
	Dirt on belt	Clean belt, shield drive
	Sheaves rusted, sharp corners or burrs on sheaves	Repair or replace sheaves
	Sheaves misaligned	Align sheaves
Belt Stretch		
Belts stretch unequally	Misaligned drive	Realign drive
	Tensile cord broken from improper installation	Replace all belts with a new set, properly installed
Belts stretch equally	Insufficient take-up allowance	Check take-up and follow guidelines
	Overloaded or underdesigned drive	Redesign drive
Belt Turnover		
	Severe vibration and shock loads	Use Bando Combo belts
	Foreign material in grooves	Shield drive
	Misaligned sheaves	Realign sheaves
	Worn sheave grooves (Check with groove gauge)	Replace sheaves
	Tensile cord broken from improper installation	Replace all belts with a new set, properly installed
	Belt undertensioned	Retension drive
	Incorrectly placed flat idler pulley	Position idler on slack side of drive, as close as possible to driveR sheave
Belt Noise		
	Belt slip	Retension
	Misaligned sheaves	Realign sheaves
	Wrong belt type	Replace cut edge with wrapped belt
Belt Vibration		
	Shock loads	Use Bando Combo belts
	Incorrectly placed flat idler pulley	Position idler on slack side of drive, as close as possible to driveR sheave
	Distance between shafts too long	Install idler
	Belt lengths uneven	Replace with Bando BAN/SET® belts
	Belts too loose	Retension drive
Severe Slippage		
	Spin burns	Retension drive
	Too few belts	Redesign drive

Troubleshooting Guide

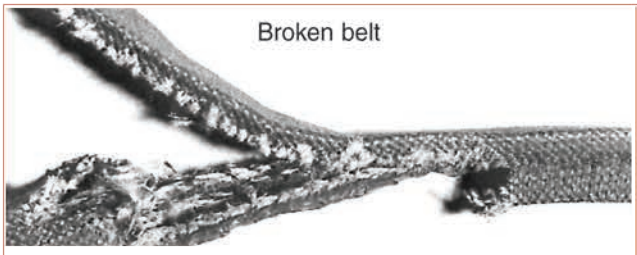
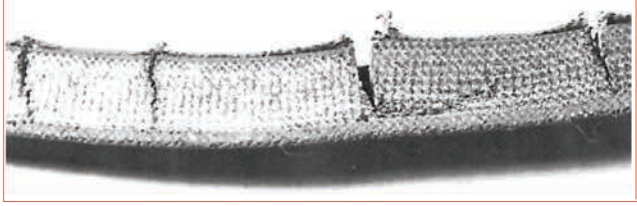
Problem	Cause	Solution
	Arc of contact too small	Install back side idler on slack side, or use timing belt
	Oil or water on belt	Clean belts and sheaves, shield drive
Improper DriveN Speed		
Incorrect driveR to driveN ratio	Design error	Redesign drive
Installation Problems		
Belts too long or short at installation	Design and/or belt selection error	Check design and selection
Belts mismatched at installation	Mixed used and new belts	Replace all belts with new belts
	Mixed belts from different manufacturers	Replace with belts from the same manufacturer
	Worn sheave grooves	Replace sheaves
Hot Bearings		
Drive overtensioned	Worn sheave grooves, belts bottom out	Replace sheaves
Sheave diameter too small	Design error	Redesign drive
Bad bearings	Underdesigned or poor maintenance	Check bearing design and maintenance
Drive undertensioned	Belts slip and cause heat build-up	Retension drive
Sheaves too far out on shaft	Design error or obstruction	Place sheaves as close to bearings as possible
Combo (Banded) Belts		
Tie band cut and/or separated. Belts riding out of sheave grooves	Worn sheaves (Check with groove gauge)	Replace sheaves
	Sheave misalignment	Realign sheaves
	Belts undertensioned	Retension drive
	Foreign object in drive	Shield drive
All belts separated from tie band	Damage from belt guard	Adjust guard
	Worn idler sheave	Replace idler sheave
Frayed tie band	Obstruction on machine	Remove obstruction and realign drive
Blistered tie band	Foreign material between belts	Clean and shield drive
Cracked belt bottom	Slippage	Retension drive
Timing Belts		
Broken belts	Underdesigned drive	Redesign drive
	Sharp bend damaged tensile cord	Follow proper storage and handling procedures
	Belt was pried or forced on the drive	Follow proper installation guidelines
	Foreign object in drive	Shield drive
	Belt runs onto pulley flange	Align pulleys
Apparent belt stretch	Reduction of center distance or non-rigid mounting	Replace pulleys. Install cover if drive is dusty
	Pulley teeth poorly machined or worn	Increase deceleration time or redesign drive
	Sudden equipment stops	Increase deceleration time or redesign drive
	Belt doesn't engage pulley teeth	Retension drive
Tooth shear	Less than 6 teeth-in-mesh	Redesign drive, install back side idler, or use next smaller pitch
	Excessive load	Redesign drive
Tensile or tooth shear failure	Pulley diameter too small	Increase pulley diameter or use next smaller pitch
	Exposure to acid or caustic atmosphere	Protect drive or ask Bando about special construction belt
Excessive pulley tooth wear (on pressure face and/or O.D.)	Drive overload and/or excess belt tension	Reduce installation tension and/or increase drive load carrying capacity
	Insufficient hardness of pulley material	Use harder material or surface-harden pulley
Excessive jacket wear between teeth, exposing tensile cord	Excessive installation tension	Reduce installation tension
Excessive noise	Misalignment	Realign drive
	Excessive installation tension	Reduce tension
	Excessive load	Increase drive load carrying capacity
	Pulley diameter too small	Increase pulley diameter
Cracks in belt backing	High temperatures	Improve ventilation, remove heat source, or check with Bando for special construction belt
Softening of backing	Excess heat (over 200°F) and/or oil	Lower ambient temperature, protect from oil, or ask Bando about special belt construction
Excessive edge wear	Misalignment or non-rigid centers	Realign drive and/or reinforce mounting
	Bent flange	Straighten flange
Unmounting of flange or flange wear	Incorrect flange installation	Install flange correctly
	Misalignment	Realign drive

Exemple

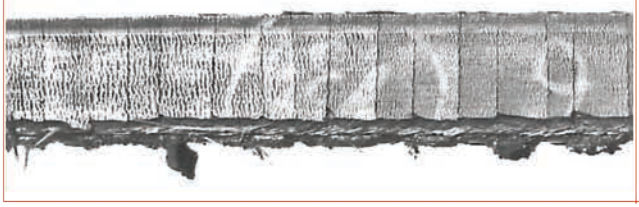
Troubleshooting Examples

Here are some examples of belt failures described on pages 6 and 7.
If you've encountered similar problems, check below for probable causes and solutions.

V-Belts

Problem	Probable Cause	Solution
Broken belt 	Foreign object in drive	Shield drive
Excessive sidewall wear 	Worn or damaged sheaves	Replace sheaves
Cracked bottom 	Sheave diameter too small Back side idler diameter too small Slippage High temperature	Redesign drive Replace with an inside idler on slack side, or redesign Retension drive Remove heat source. Improve ventilation

Timing Belts

Broken belt 	Underdesigned drive Crimp caused tensile cord damage Belt was pried or forced on the drive Foreign object in drive Belt ran onto pulley flange	Redesign drive Follow proper storage and handling procedures Follow proper installation guidelines Shield drive Align pulleys
Excessive sidewall wear 	Misalignment or non-rigid centers Bent flange	Align drive and/or reinforce mounting Straighten flange
Cracks in belt backing 	High temperatures	Remove heat source. Improve ventilation. Check for special belt construction

Note :

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