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PT. BANDO INDONESIA

DOING MORE on the new frontier

BANDO

Breakthroughs for the future

BANDO CHEMICAL INDUSTRIES, LTD.

Since 1906

P.T. BANDO INDONESIA

Since 1987

ON THE RUN!

COMPANY PROFILE

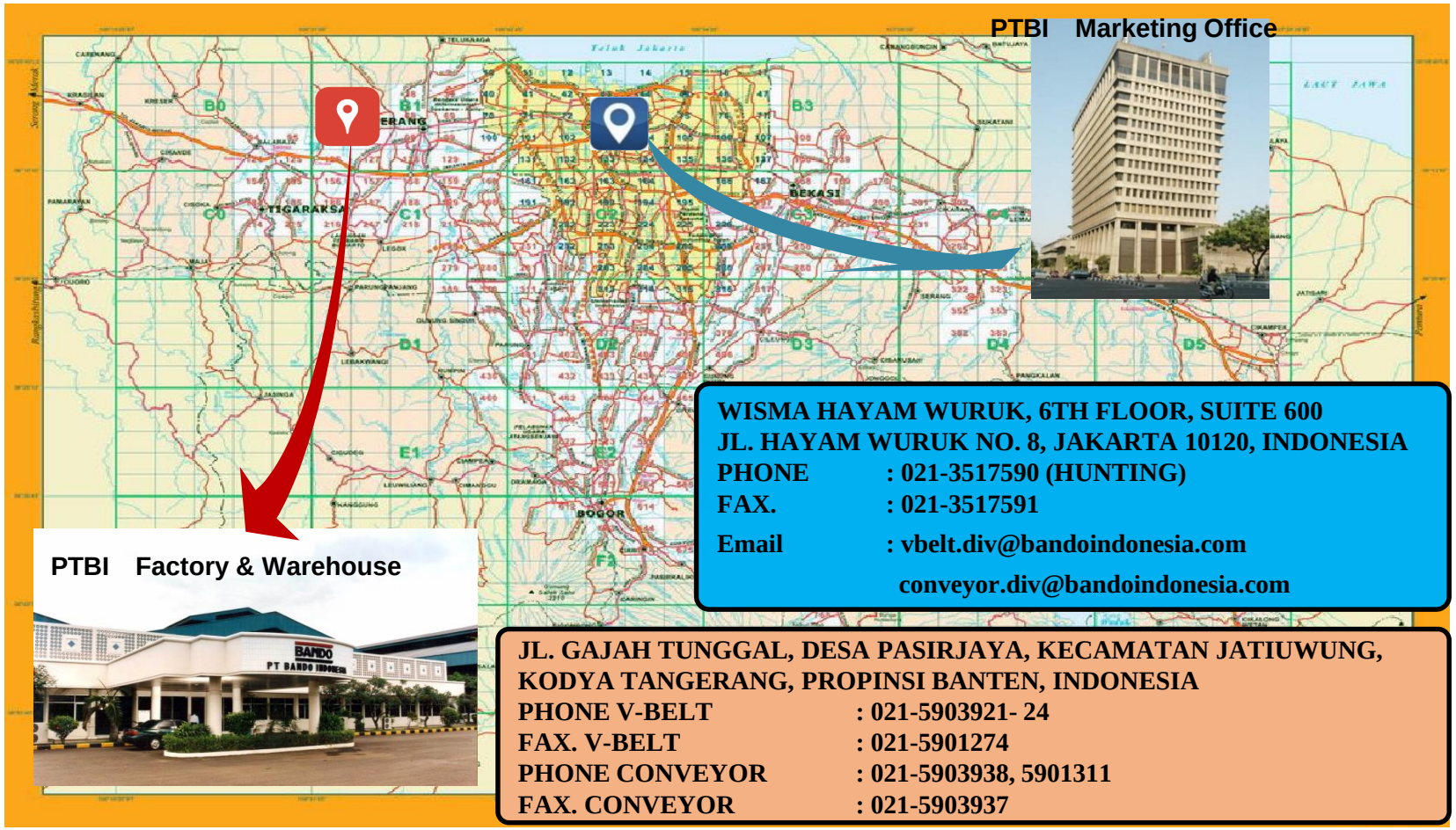
1987 PT. BANDO INDONESIA

Joint venture Bando Chemical Industries ltd. Japan with PT. Kreasi Utama Investama.

Technical Coorporation

V-BELT, November 25th, 1987

CONVEYOR, MAY 1ST, 1995



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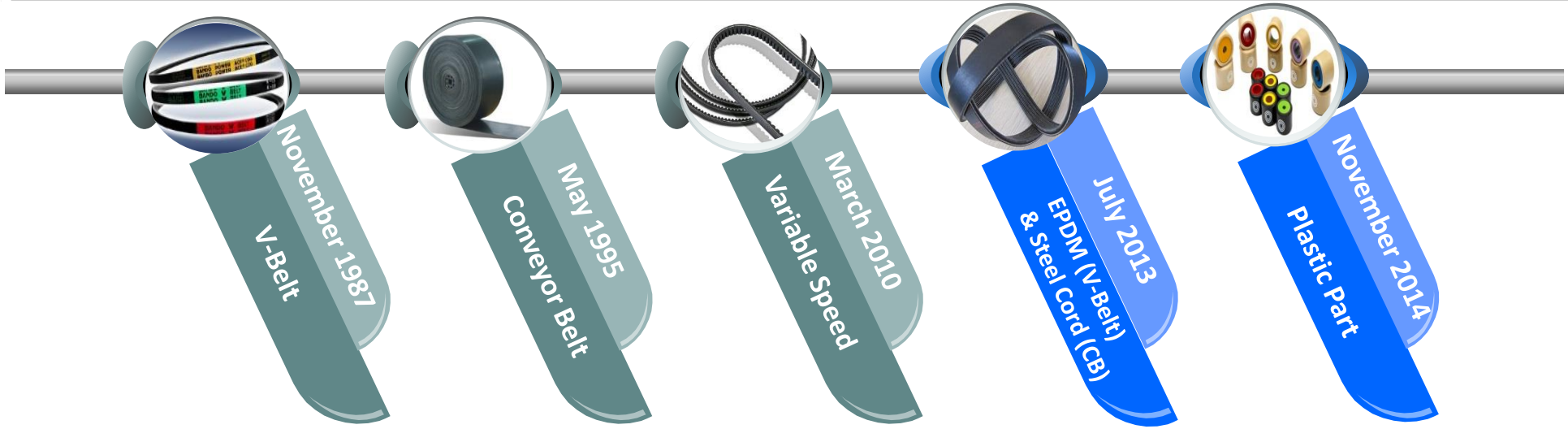
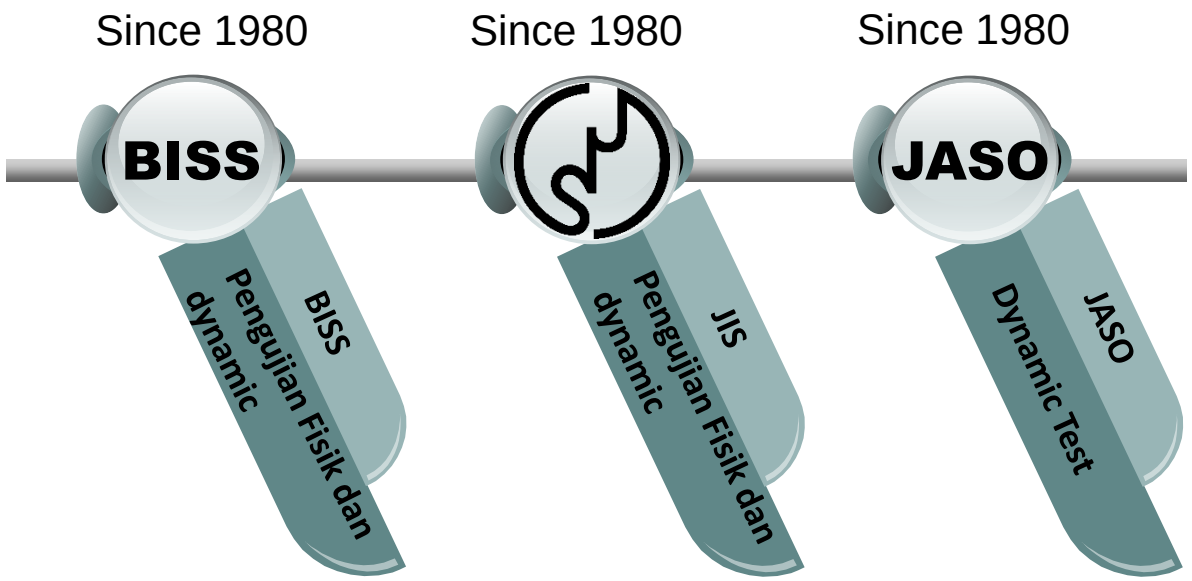
COMPANY PROFILE



STANDARD TEST



BISS : Bando Industrial Standard Specification
JIS : Japanese Industrial System
JASO : Japanese Automotive Standard Organization

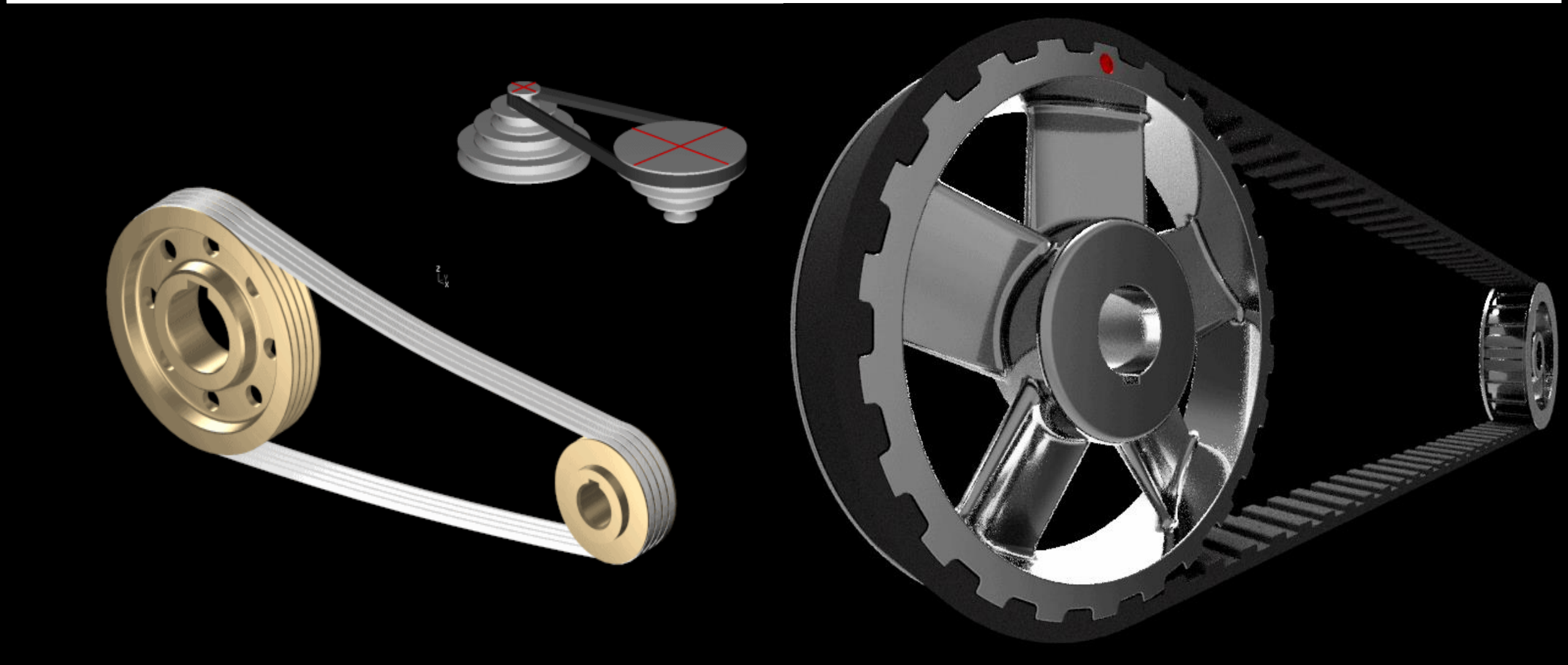
BANDO

COMPANY PROFILE

1992	RECEIVED THE JIS K 6323 CERTIFICATION
1996	RECEIVED THE “QUALITY ASSURANCE” **ISO 9002** CERTIFICATION FROM SGS “V-BELT”
2000	RECEIVED THE “QUALITY ASSURANCE” **ISO 9002** CERTIFICATION FROM SGS “CONVEYOR BELT”
2001	RECEIVED THE “QUALITY MANAGEMENT SYSTEM” **ISO 9001** CERTIFICATION FROM SGS
2004	RECEIVED THE “ENVIROMENT MANAGEMENT SYSTEM” **ISO 14001** CERTIFICATION FROM SGS
2008	RECEIVED THE “ENVIROMENT MANAGEMENT SYSTEM**”** **ISO 9001** CERTIFICATION FROM SGS
2013	RECEIVED THE “HEALTH & SAFETY MANAGEMENT” **OHSAS 18001** CERTIFICATION FROM SGS
2016	RECEIVED THE “DESIGN & MANUFACTURE OF POWER TRANSMISSION BELTS” **IATF 16949** FROM SGS
2017	RECEIVED THE “OCCUPATIONAL SAFETY AND HEALTH MANAGEMENT SYSTEM” **SMK3** CERTIFICATION FROM MINISTER OF EMPLOYMENT
2018	RECEIVED THE “OCCUPATIONAL HEALTH AND SAFETY (OH&S) MANAGEMENT” **ISO 45001** CERTIFICATION FROM SGS
2020	RECEIVED THE “**SKUP**” CERTIFICATION FROM MINISTRY OF ENERGY AND MINERAL RESOURCES
2021	RECEIVED THE “**TKDN**” CERTIFICATION FROM MINISTRY OF INDUSTRY

BANDO

V-BELT DIVISION



INDUSTRIAL V-BELT

❑ MULTIPLE V-BELT

LOCAL

- ➢ WRAPPED V-BELT **GREEN SEAL** **RED SEAL**
- ➢ RAW EDGE V-BELT (COOGED)
- ➢ POWER SCRUM V-BELT (BANDED)
- ➢ DOUBLE V-BELT

❑ NARRROW V-BELT

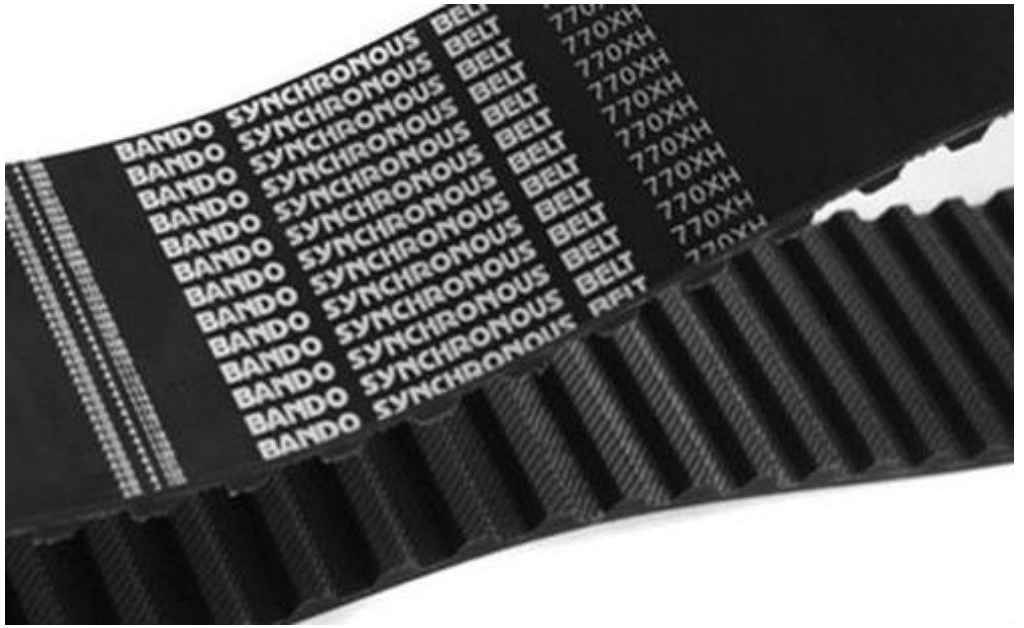
LOCAL

- ➢ POWER ACE V-BELT
- ➢ SP-TYPE V-BELT
- ➢ RAW EDGE V-BELT (COOGED)
- ➢ POWER SCRUM V-BELT (BANDED)

❑ SYNCHRONOUS BELT

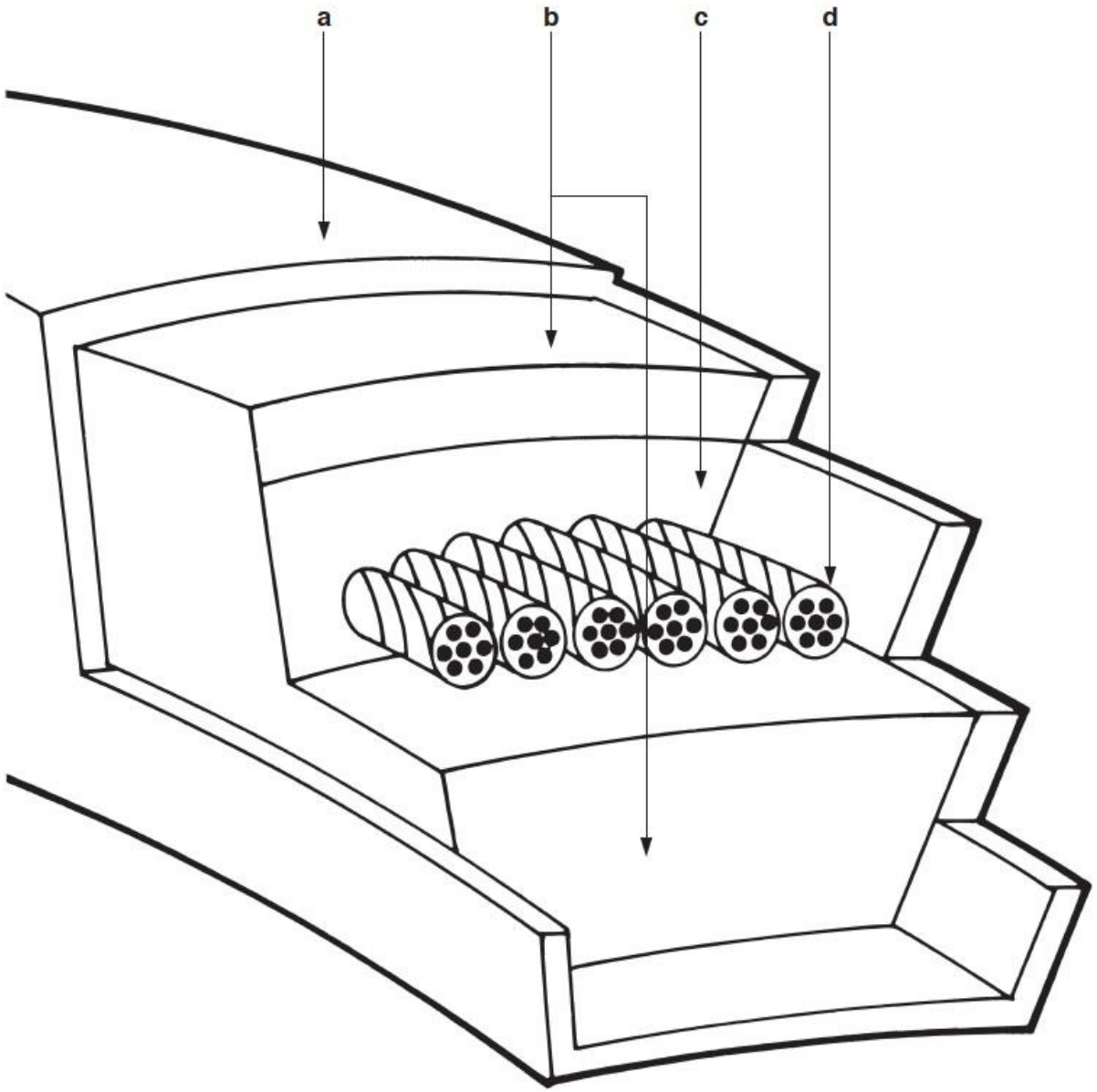
IMPORT

- ➢ SYNCHRONOUS BELT (RUBBER / PU)
- ➢ SUPER TORQUE SYNCHRONOUS (STS)
- ➢ HIGH-PERFORMANCE STS (HP-STS)
- ➢ HIGH TORQUE SYNCHRONOUS (HTS)



BANDO

V-BELT CONSTRUCTION



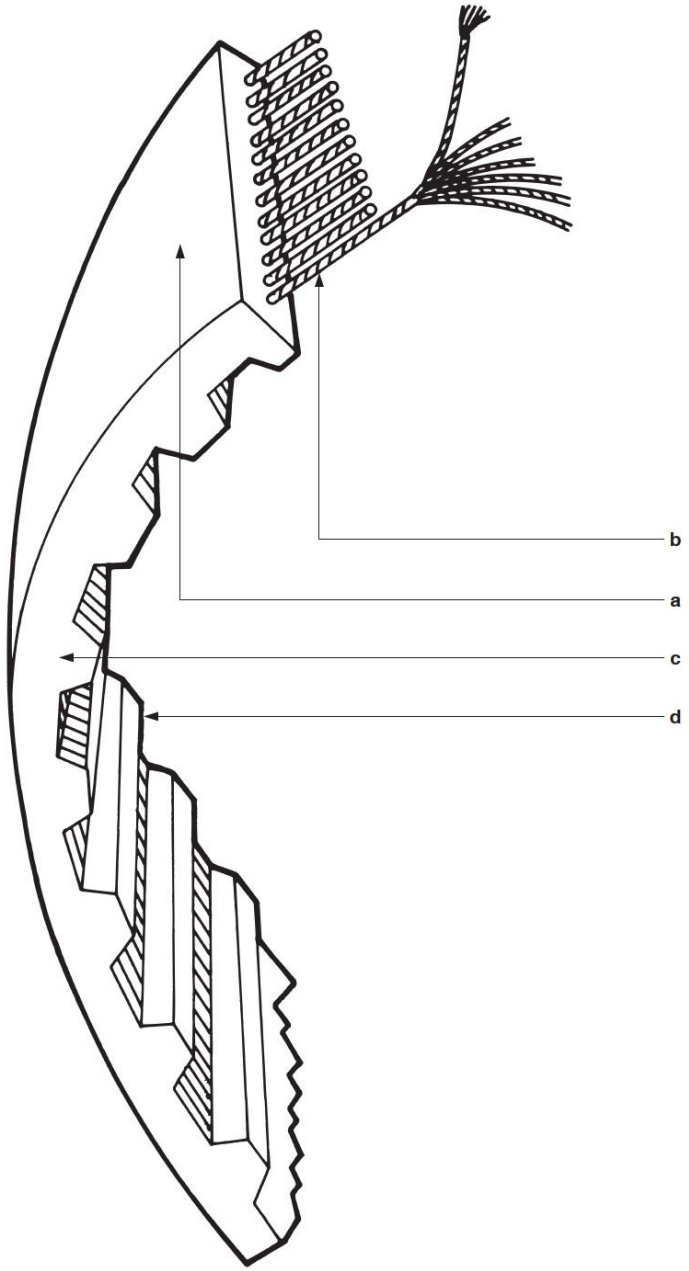
a) **Cover:** A canvas cover is usually wrapped completely around the belt, sometimes only on the top and bottom. It provides the proper amount of traction and protects the internal components from oil, dust and other foreign materials. It also increases belt flexibility.

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.

SYNCHRONOUS/TIMING BELT CONSTRUCTION



a) **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.

b) **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.

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.

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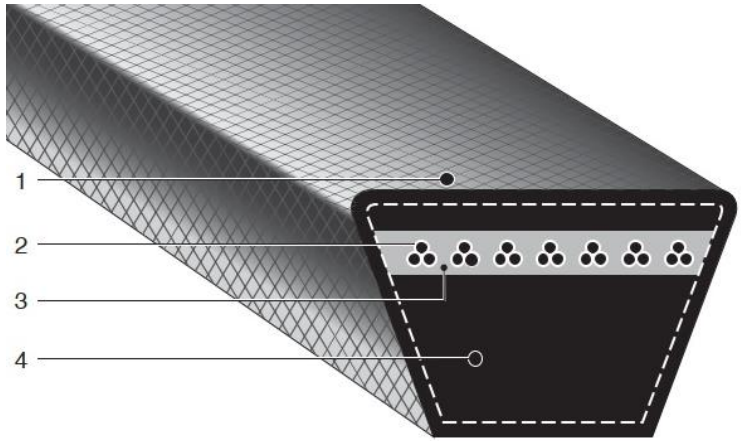
MULTIPLE V-BELT WRAPPED

RUBBER

LOCAL



❑ Construction

1: Rubber impregnated Canvas.
2: Polyester tensile members.
3: Chloroprene insulating rubber.
4: Natural compression rubber.

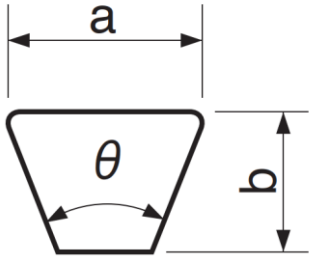
❑ Size Mark

A 100

Effective Pitch Length (Inch)

Belt Type

❑ Dimensions



Type	Top Width a	Thickness b	Angle θ	Size (Inch) JIS	Minimal Pulley Diameter
M	10.0 mm (0.38”)	5.5 mm (0.22”)	40º	14 – 60	50 mm
A	12.7 mm (0.50”)	8.0 mm (0.31”)	40º	17 – 810	75 mm
B	16.7 mm (0.66”)	10.7 mm (0.41”)	40º	20 – 1000	125 mm
C	22.2 mm (0.88”)	13.5 mm (0.53”)	40º	35 – 810	230 mm
D	32.0 mm (1.25”)	20.0 mm (0.75”)	40º	80 – 810	330 mm
E	40.0 mm (1.50”)	25.5 mm (0.91”)	40º	110 – 810	530 mm

GREEN SEAL

RED SEAL

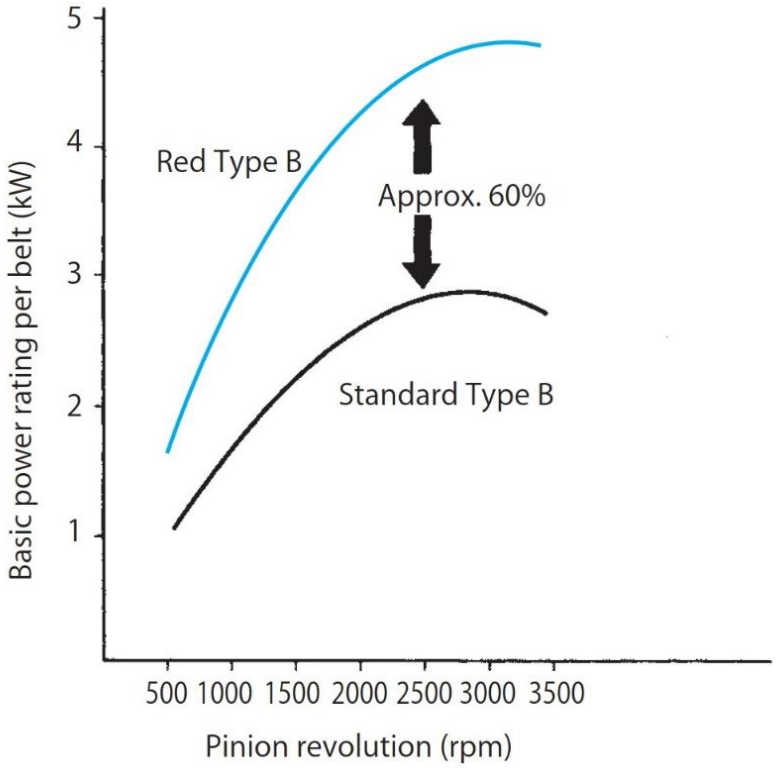
BANDO

MULTIPLE V-BELT WRAPPED RED SEAL RUBBER

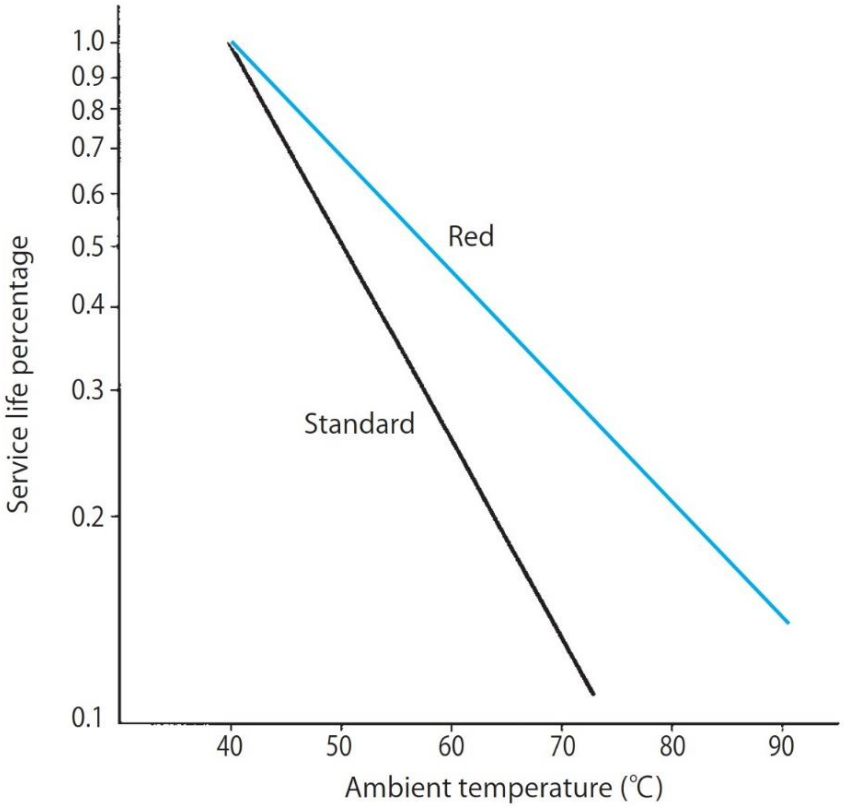
LOCAL

❑ High Quality and High Power Transmission V-Belt

- It employs polyester cords that are strong and have little elongation.
- Synthetic rubber compound.
- 60% higher power than the previous Standard.
- Excellent flame resistance.
- Bando Red has a lower reduction rate than Standard.



The transmission power per belt as compared to revolution when a Type B 125mm diameter pulley is used.



Generally, when the ambient temperature increases, the belt service life decreases as shown in the graph above.
Recommended to use Bando Red if the ambient temperature ≥ 60°C

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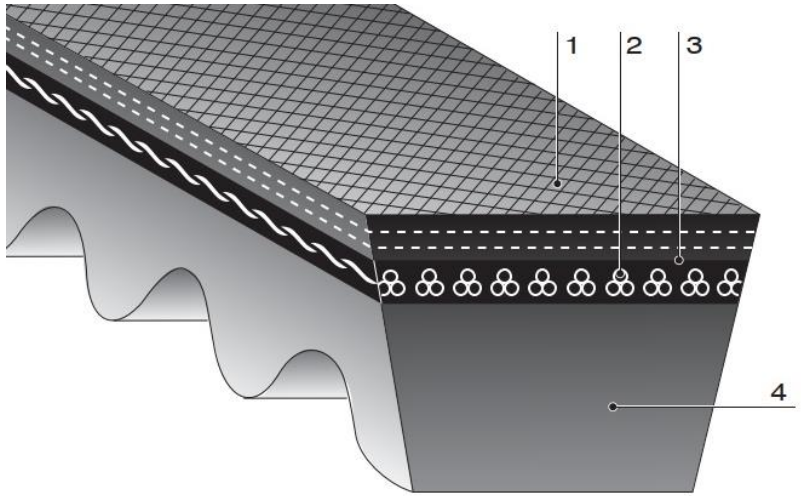
MULTIPLE V-BELT RAW EDGE (COGGED BELT)

RUBBER

LOCAL



❑ Construction

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

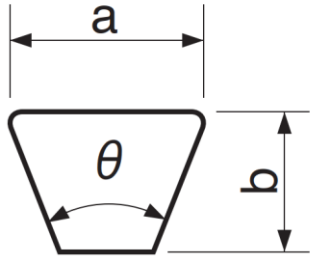
❑ Size Mark

AX 100

Inside Length (Inch)

Belt Type

❑ Dimensions



❑ Features

- Designed to make belts run cooler and last longer.
- Heat dissipating cogs.
- More efficient in higher RPM motor.

Type	Top Width a	Thickness b	Angle θ	Size (Inch) RMA	Minimal Pulley Diameter
AX	13.0 mm (0.51”)	8.0 mm (0.32”)	38º	21 – 120	60 mm
BX	17.0 mm (0.67”)	11.0 mm (0.43”)	38º	20 – 120	90 mm
CX	22.0 mm (0.87”)	14.0 mm (0.55”)	38º	19 - 120	140 mm

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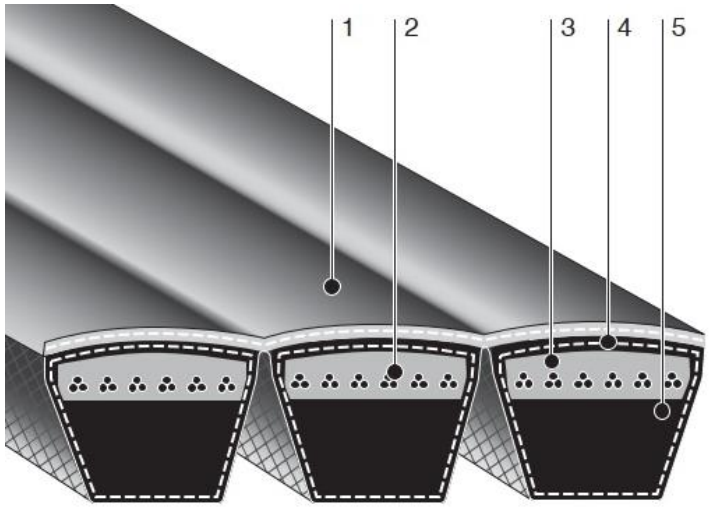
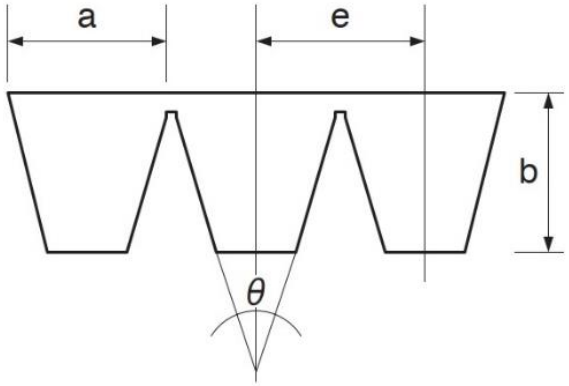
MULTIPLE V-BELT POWER SCRUM (BANDED)

RUBBER

LOCAL



❑ Dimensions



❑ Features

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

❑ Construction

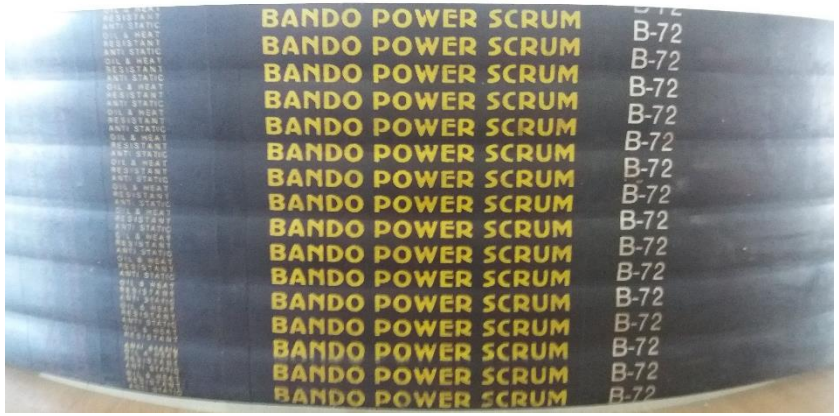
1: Tie-band
2: Polyester tensile members
3: Chloroprene insulation rubber
4: Rubber impregnated canvas
5: Chloroprene compression rubber

❑ Size Mark

5 C 100

- 100 — Belt pitch length in Inches
- C — Belt Type
- 5 — Number of belts in band

Type	Width a	Thickness b	Angle θ	Pitch (e)	Size (Inch) JIS	Minimal Pulley Diameter
B	17.0 mm (0.67”)	13.0 mm (0.51”)	40º	19.0 mm (0.75”)	45 – 810	125 mm
C	22.2 mm (0.87”)	16.0 mm (0.63”)	40º	25.5 mm (1.00”)	80 – 810	230 mm
D	31.7 mm (1.25”)	21.5 mm (0.85”)	40º	37.0 mm (1.46”)	105 - 810	330 mm

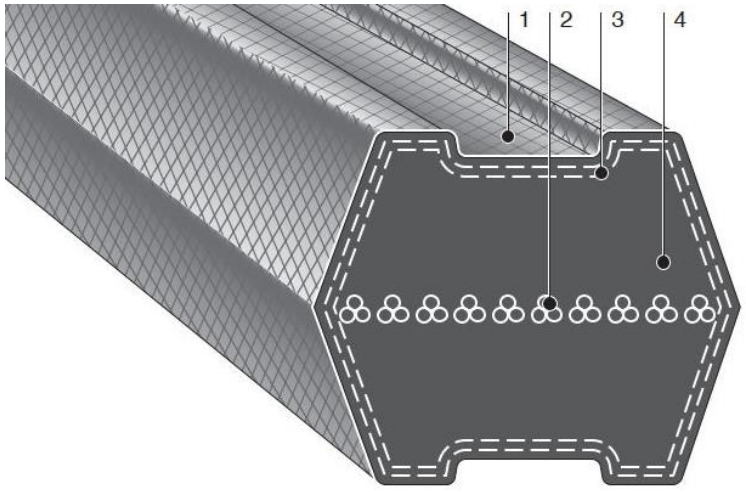


BANDO

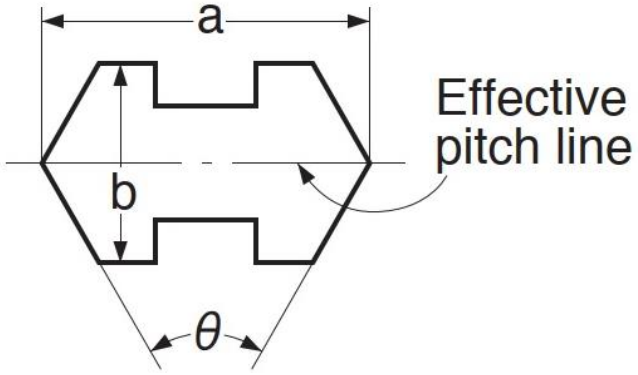
MULTIPLE DOUBLE V-BELT (HEXAGONAL)

RUBBER

LOCAL



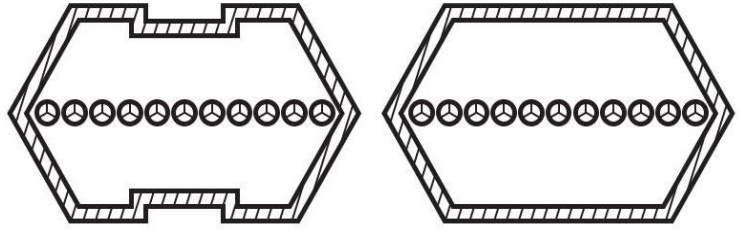
❑ Dimensions



❑ Features

New cross section

Conventional cross section



❑ Construction

1: Rubber impregnated special woven canvas
2: Polyester tensile members
3: Chloroprene insulation rubber
4: Chloroprene compression rubber

Type	Width a	Thickness b	Angle θ	Size (Inch) JIS
AA	12.5 mm (0.50”)	10.3 mm (0.40”)	40º	46 – 250
BB	16.5 mm (0.65”)	13.5 mm (0.54”)		60 – 810
CC	22.0 mm (0.87”)	18.0 mm (0.71”)		80 196

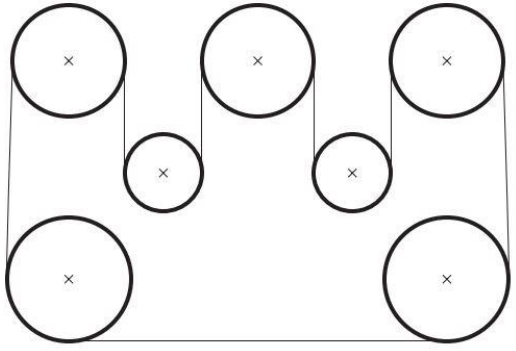
❑ Size Mark

BB 100

Effective Pitch Length (Inch)

Belt Type

Typical reverse-bend serpentine drive

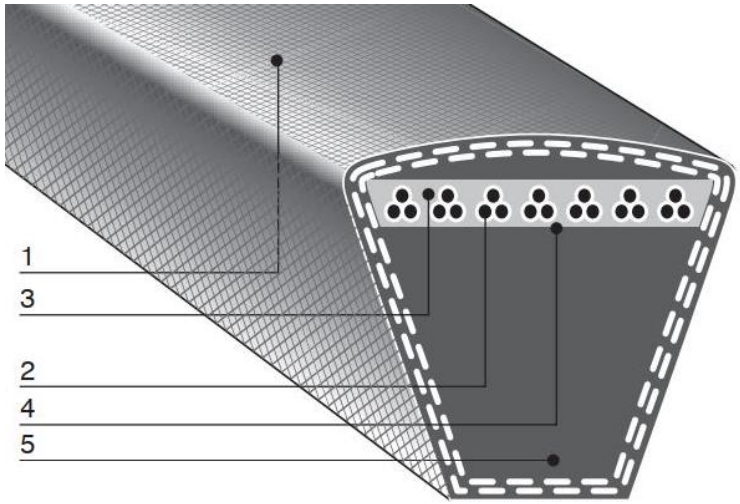


BANDO

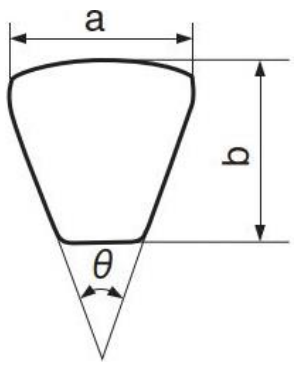
NARROW V-BELT POWER ACE

RUBBER

LOCAL



❑ Dimensions



❑ Features

- High horsepower rating.
- Long life.
- High heat and oil resistant.
- Length stability
  (for matched set of Bando NARROW)

❑ Construction

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

Type	Top Width a	Thickness b	Angle θ	Size (Inch) DIN	Minimal Pulley Diameter
3V	9.5 mm (0.38”)	8.0 mm (0.32”)	40º	25 – 140	70 mm
5V	16.0 mm (0.62”)	13.5 mm (0.54”)	40º	50 – 810	180 mm
8V	25.5 mm (1.0”)	23.0 mm (0.88”)	40º	100 – 810	300 mm

❑ Size Mark

5V 1250

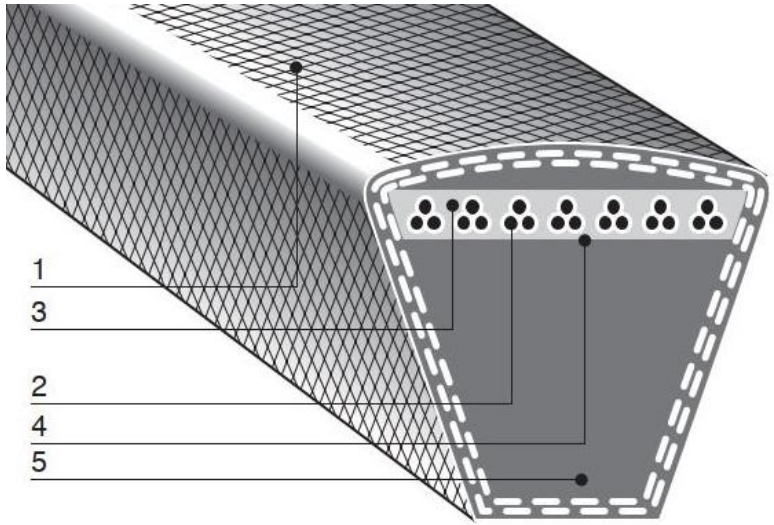
- 1250 — Effective outside length in inches × 10 (125” × 10 = 1250) (3.175m)
- 5V — Belt type

BANDO

NARROW V-BELT SP - TYPE

RUBBER

LOCAL



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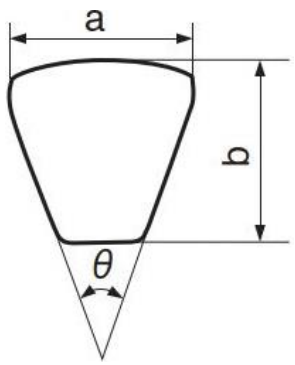

❑ Features

- High horsepower rating.
- Long life.
- High heat and oil resistant.
- Length stability
  (for matched set of Bando NARROW)
- Compared with conventional V-Belts,
  Bando Narrow V-Belts can handle high loads.

❑ Construction

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

Type	Top Width a	Thickness b	Angle θ	Size (mm) JIS	Minimal Pulley Diameter
SPZ	9.5mm (0.38”)	8.0mm (0.32”)	40º	582 – 3550	65 mm
SPA	12.5mm (0.50”)	10.0mm (0.39”)	40º	707 – 20500	90 mm
SPB	16.0mm (0.62”)	13.5mm (0.54”)	40º	1250 – 20500	140 mm
SPC	20.0mm (0.79”)	18.0mm (0.71”)	40º	2032 - 20500	225 mm

❑ Size Mark

SPZ 630

- 630 — Belt pitch length in mm
- SPZ — Belt Type

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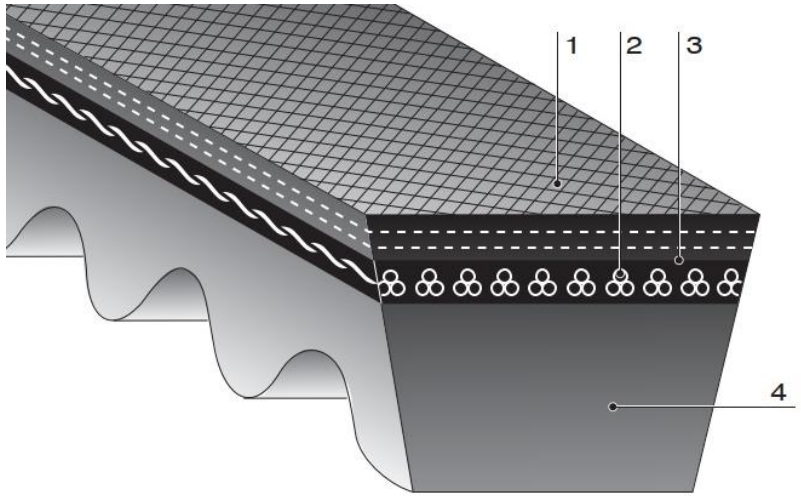
NARROW V-BELT RAW EDGE (COGGED BELT)

RUBBER

LOCAL



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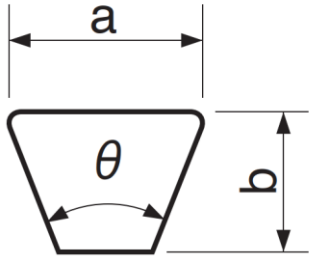


❑ Features

- Designed to make belts run cooler and last longer.
- Heat dissipating cogs.
- More efficient in higher RPM motor.

❑ Construction

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

Type	Top Width a	Thickness b	Angle θ	Size (Inch) RMA	Minimal Pulley Diameter
3VX	9.5 mm (0.37”)	8.0 mm (0.32”)	38º	23 – 125 (Inch) DIN	56 mm
5VX	15.7 mm (0.62”)	13.0 mm (0.51”)	38º	23 – 125 (Inch) DIN	112 mm
XPZ	9.7 mm (0.39”)	8.0 mm (0.32”)	38º	587 – 3160 (mm) JIS	60 mm
XPA	13 mm (0.51”)	8.8 mm (0.35”)	38º	592 – 3150 (mm) JIS	65 mm
XPB	16.3 mm (0.64”)	12.5 mm (0.49”)	38º	950 – 3150 (mm) JIS	80 mm

❑ Size Mark

5VX 500

- 500: Effective outside length in Inch x 10 (50” x 10 = 500)
- 5VX: Belt Type

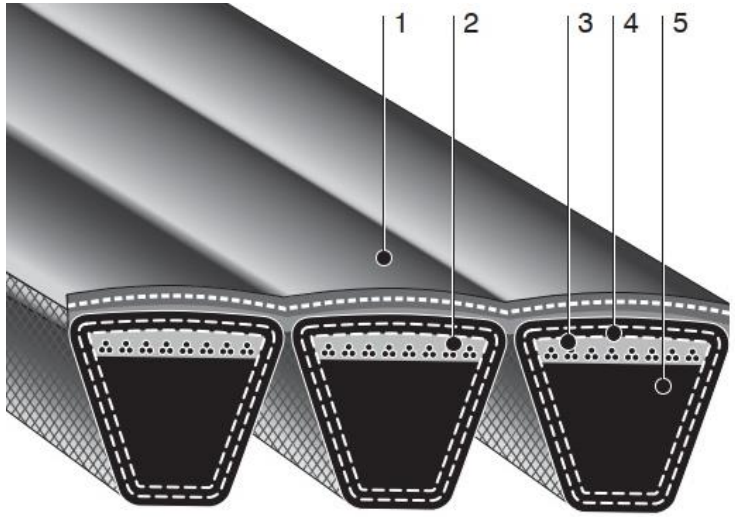
XPZ 3500

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

NARROW V-BELT POWER SCRUM (BANDED)

RUBBER

LOCAL



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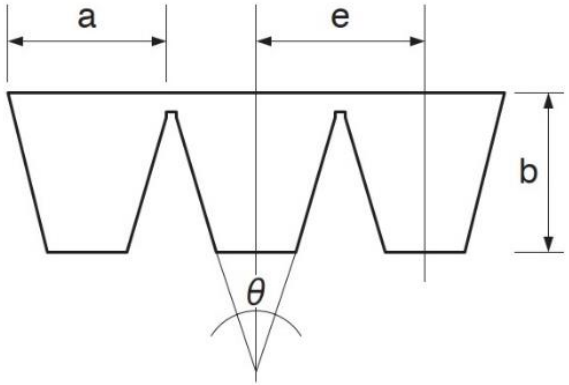


❑ Features

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

❑ Construction

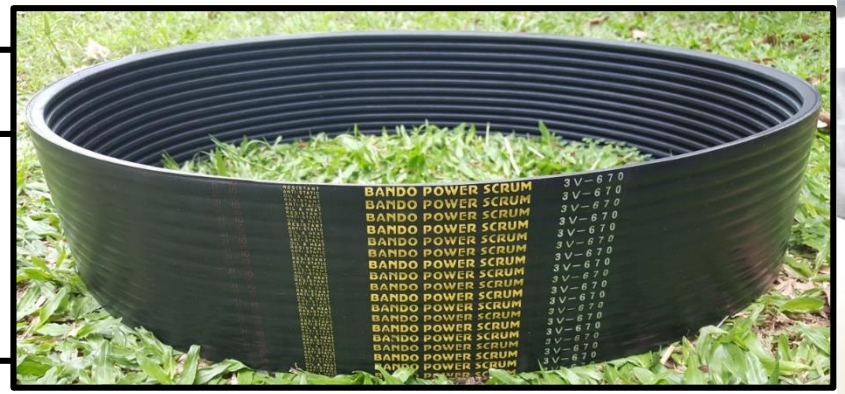
1: Tie-band
2: Polyester tensile members
3: Chloroprene insulation rubber
4: Rubber impregnated canvas
5: Chloroprene compression rubber

Type	Width a	Thickness b	Angle θ	Pitch (e)	Size (Inch) DIN
3V	9.5 mm (0.37”)	10.0 mm (0.39”)	40º	10.3 mm (0.41”)	40 – 150
5V	15.9 mm (0.63”)	16.0 mm (0.63”)	40º	17.5 mm (0.69”)	60 – 810
8V	25.4 mm (1.00”)	25.0 mm (0.98”)	40º	28.6 mm (1.12”)	106 - 810

❑ Size Mark

5 - 5V 1250

- 1250: Outside length in Inches x 10 (125” x 10 = 1250)
- 5V: Belt Type
- 5: Number of belts in band



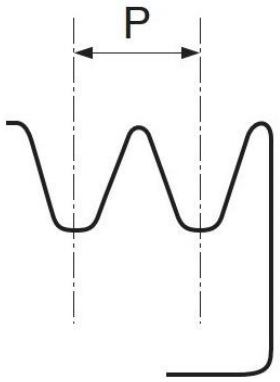
BANDO

NARROW V-BELT POWER SCRUM (BANDED)

RUBBER

LOCAL

- **Recommended pulley groove pitch**

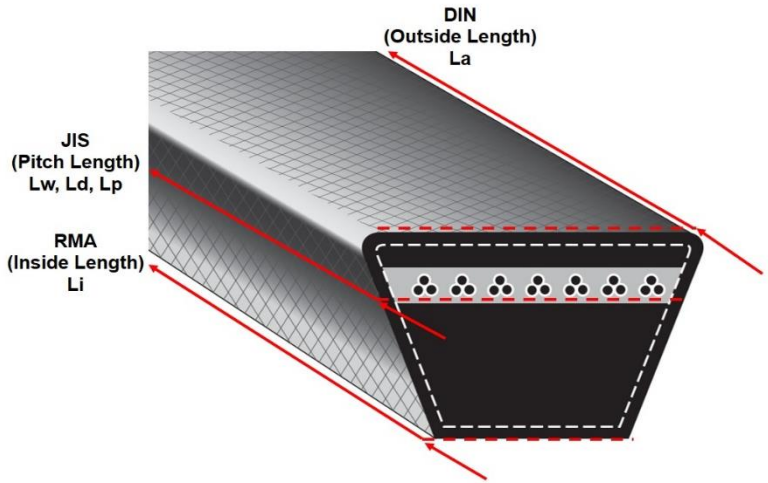


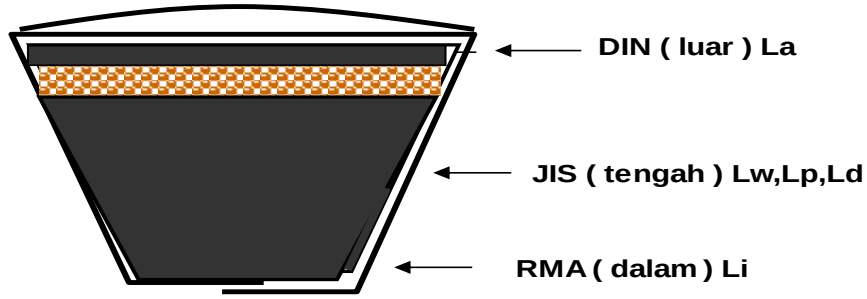
Type	Pulley pitch P	
	mm	inch
3V	10.3	0.41
5V	17.5	0.69
8V	28.6	1.13

- **For more than 6 ribs we use a combination of belts**

Number of ribs	Standard combination	Number of ribs	Standard combination
–	–	11	4+3+4
2	2	12	4+4+4
3	3	13	4+5+4
4	4	14	5+4+5
5	5	15	5+5+5
6	3+3	16	4+4+4+4
7	3+4	17	4+4+5+4
8	4+4	18	5+4+4+5
9	4+5	19	5+4+5+5
10	5+5	20	5+5+5+5

V-BELT STANDARD LENGTH SIZE





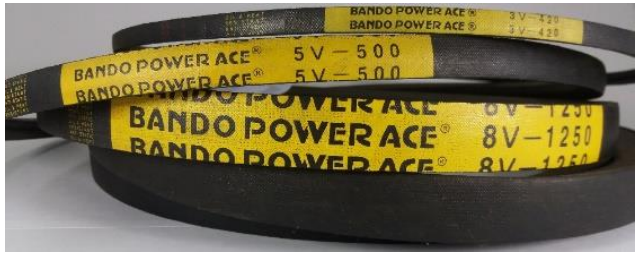
TYPE/ JENIS BELT :		STANDARDS		SIZE
A,B,C,D,E	>>>>>>>>>>>>>>>>>>	*JIS (Lw)*	>>>>>>>>>>>	INCH
3V,5V,8V	>>>>>>>>>>>>>>>>>>	*DIN (La)*	>>>>>>>>>>>	INCH
3VX,5VX	>>>>>>>>>>>>>>>>>>	*DIN (La)*	>>>>>>>>>>>	INCH
AX,BX,CX,	>>>>>>>>>>>>>>>>>>	*RMA (Li)*	>>>>>>>>>>>	INCH
FM	>>>>>>>>>>>>>>>>>>	*DIN (La)*		
K	>>>>>>>>>>>>>>>>>>	*JIS (Lw)*		
M	>>>>>>>>>>>>>>>>>>	*DIN (La)*		
DOUBLE	>>>>>>>>>>>>>>>>>>	*JIS (Lw)*		
SPA,SPB,SPC,SPZ	>>>>>>>>>>>>>>>>>>	*JIS (Lw)*	>>>>>>>>>>>	mm
XPA,XPB,XPZ	>>>>>>>>>>>>>>>>>>	*JIS (Lw)*	>>>>>>>>>>>	mm

SCRUM/ BANDED		STANDARD		
B, C, D	>>>>>>>>>>>>>>>>>	*RMA (Li)*	>>>>>>>>>>>	MERAH
B, C, D	>>>>>>>>>>>>>>>>>	*JIS (Lw)*	>>>>>>>>>>>	KUNING
3V, 5V, 8V	>>>>>>>>>>>>>>>>>	*DIN (La)*		

INDUSTRIAL SEGMENT APPLICATION

Application

INDUSTRIAL SEGMENT APPLICATION



Application

INDUSTRIAL SEGMENT APPLICATION

Application

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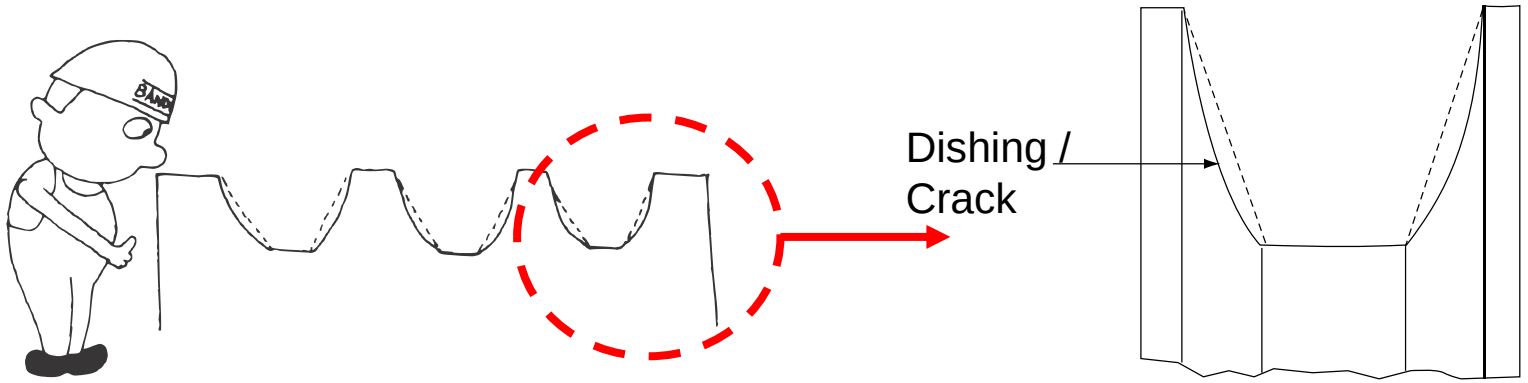
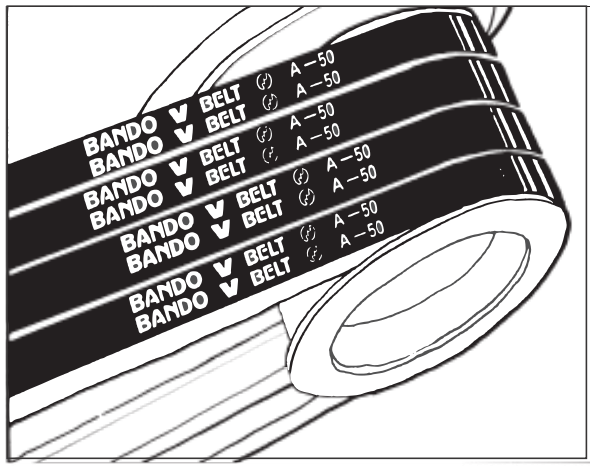
V-BELT INSTALATION

V-BELT INSTALLATION

- Pulley should be checked. Any rust should be removed from the pulley surface.
  Paint and Wax should never be applied to the pulley grooves.

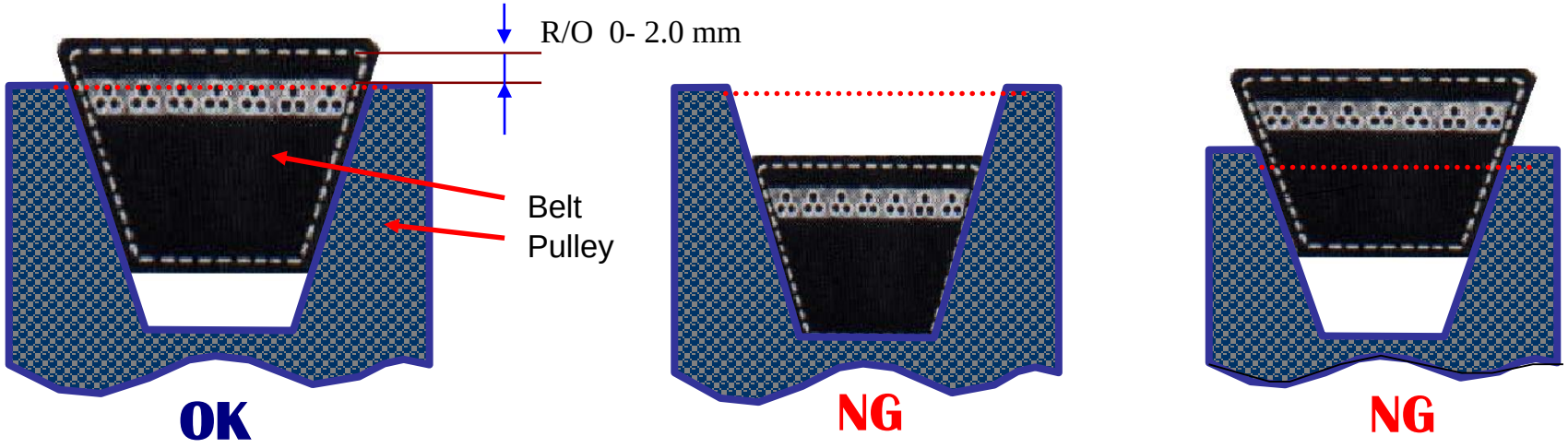


- Use a matched set from the same manufacturer. Belts from different manufacturers can have different characteristics.
  When installing new belts, always replace all the belts. If old and new belts are mixed, the new belts will do more work.

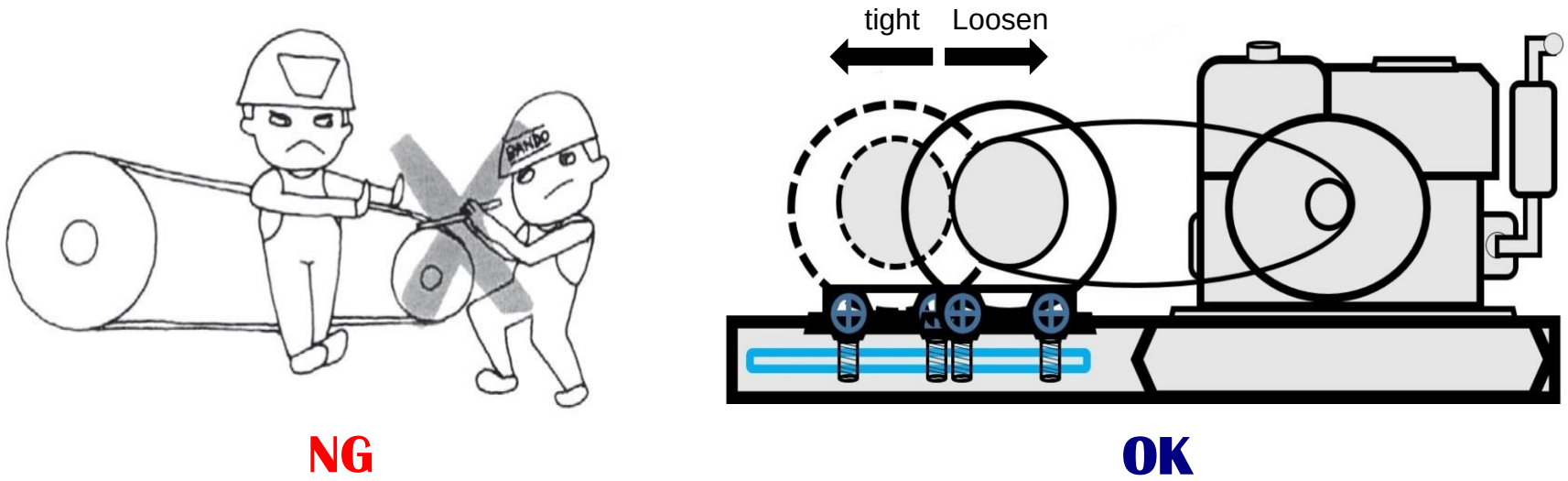


V-BELT INSTALLATION

- Installation type of V-Belt must match with the type of pulley.

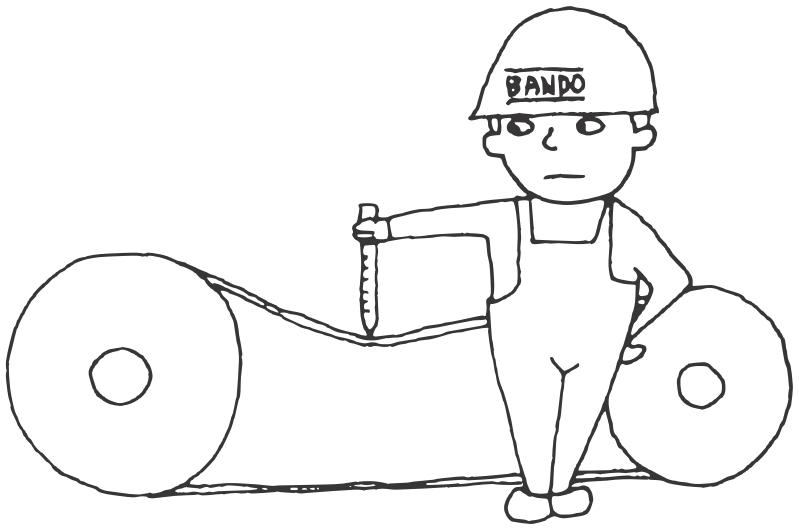


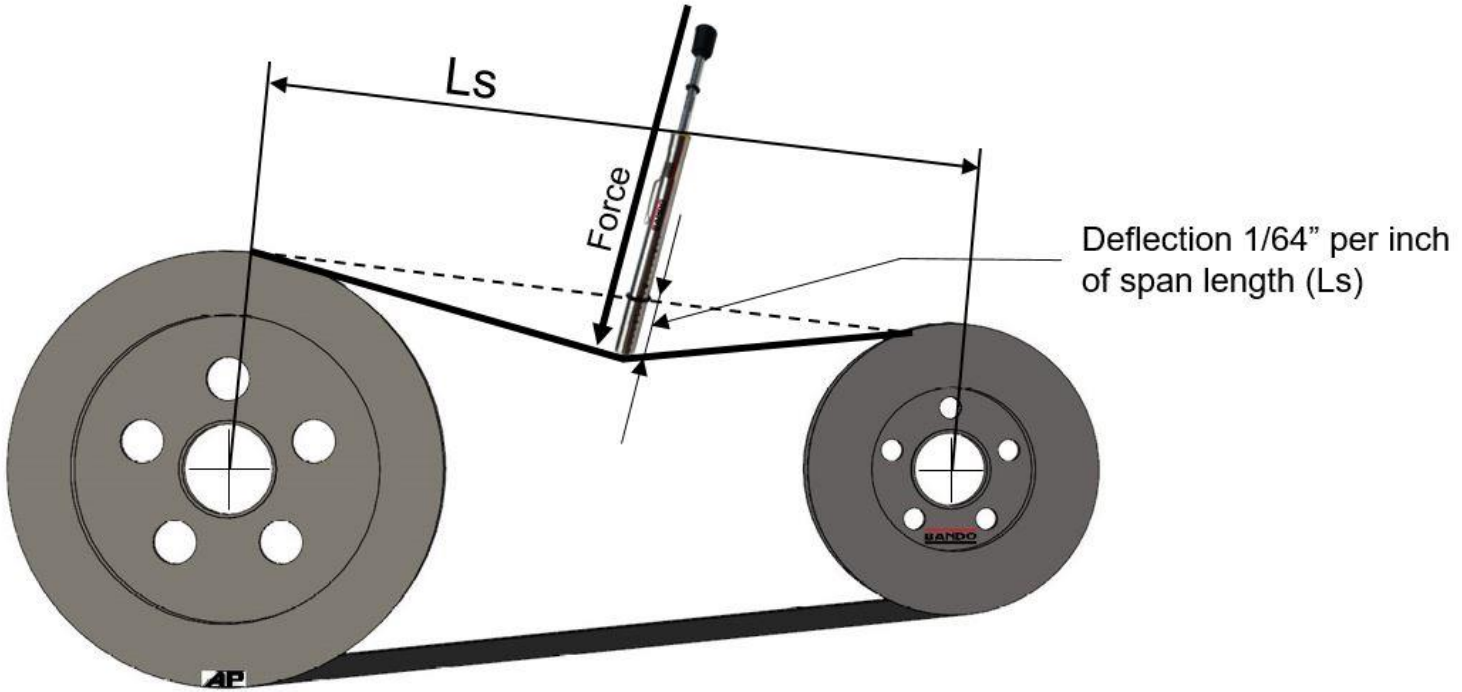
- Use adjuster pulley for remove and install the Belts.



V-BELT INSTALLATION

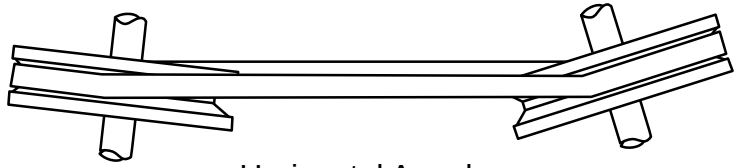
- Check the tension of belts. The optimum tension is the lowest tension.
  Over or under-tensioning causes, respectively, damage to the shaft bearings and belt slippage.
  To maintain performance, re-check belt tension after 24-48 hours.



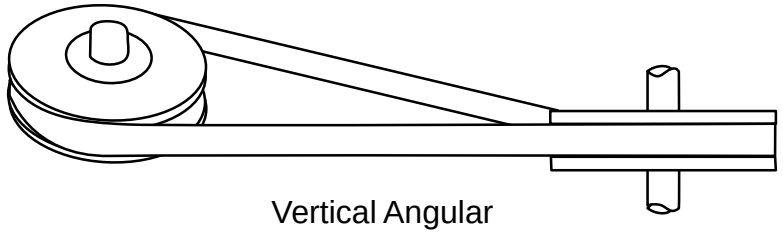


V-BELT INSTALLATION

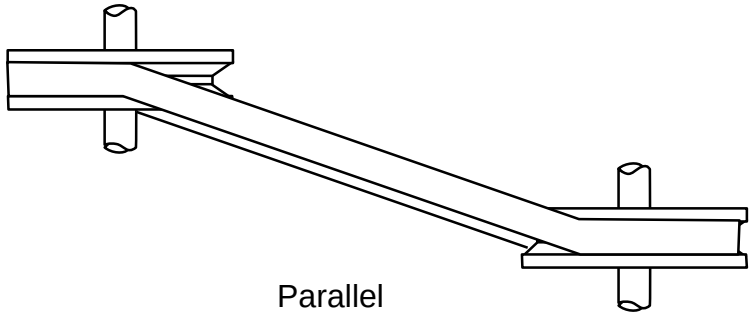
- Check alignment pulley. Unless belts enter and leave pulley in relatively straight line, wear is accelerated.
  Use a steel straight edge to ensure correct pulley.



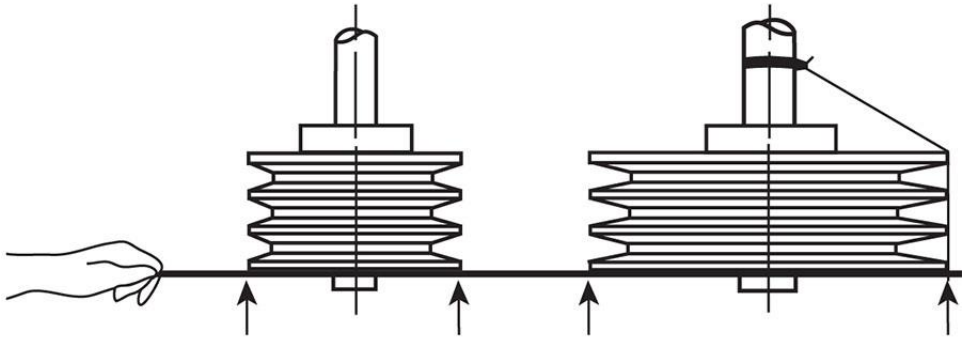
Horizontal Angular



Vertical Angular

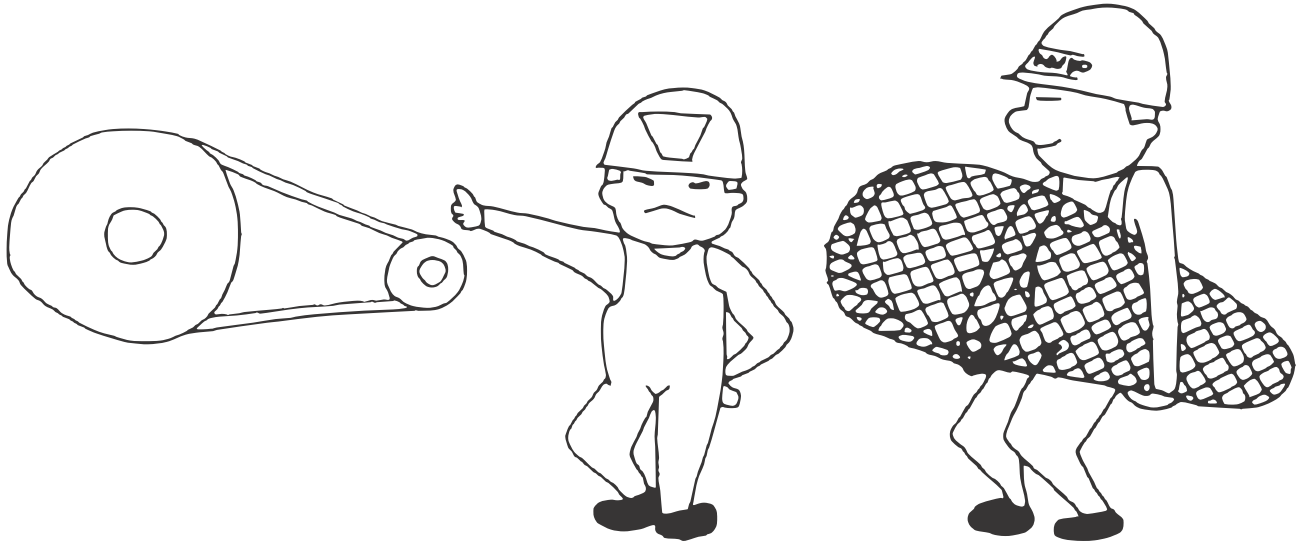


Parallel



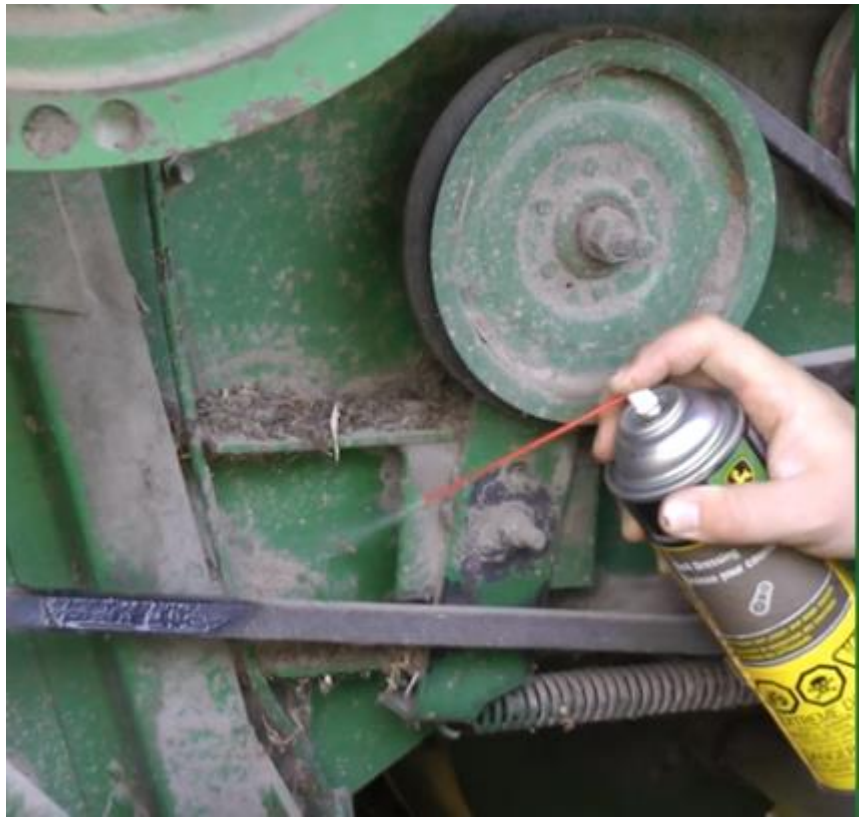
V-BELT INSTALLATION

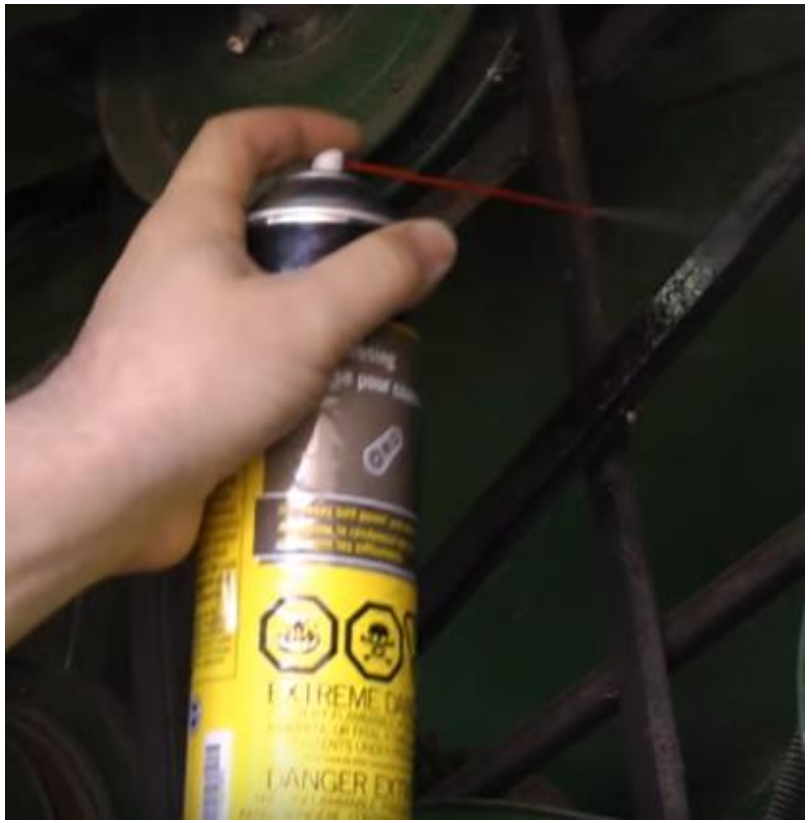
- The drive should be fully protected by a guard.
  This also protects the drive from debris and keeps the belt running smoothly



V-BELT INSTALLATION

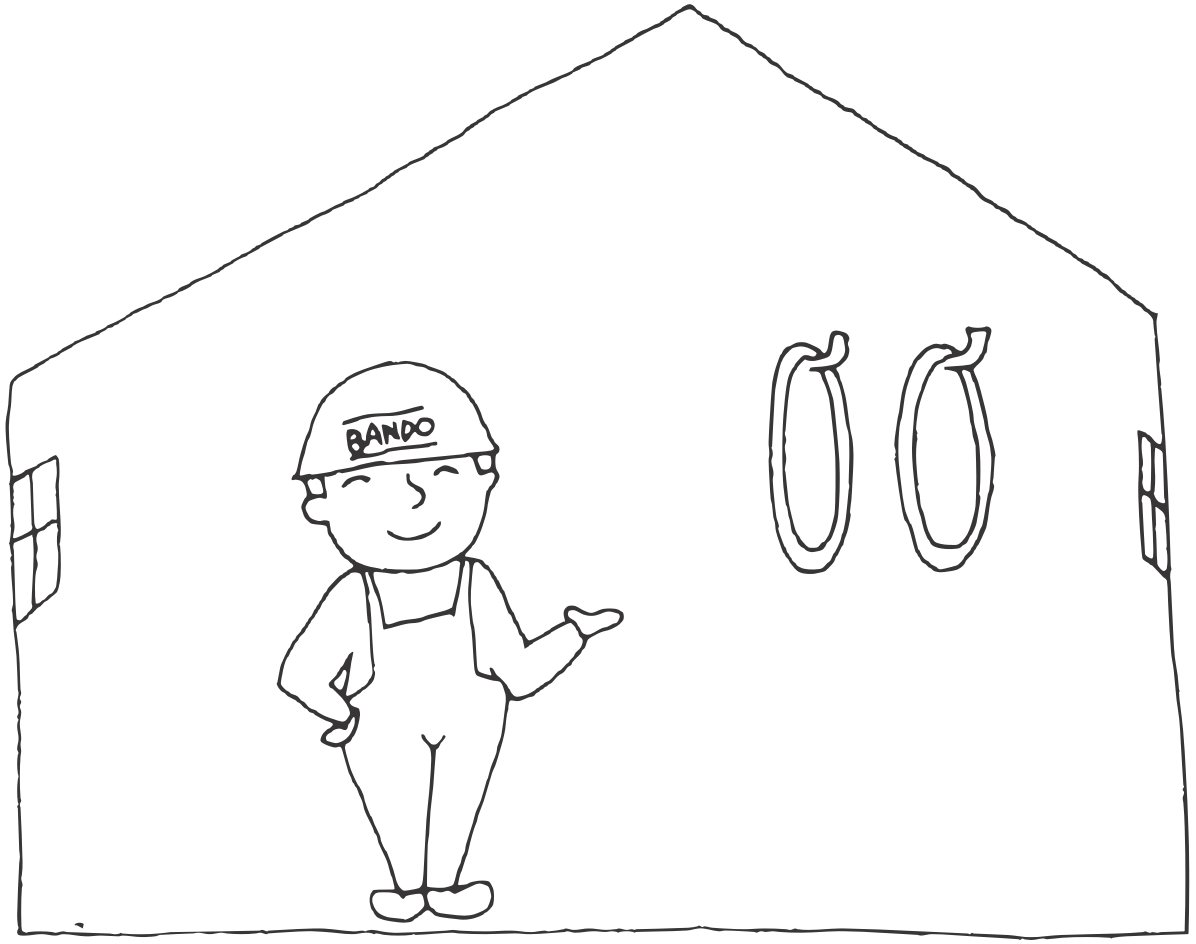
- Not recommended using belt dressing to clean the belts or eliminates noise from the belts.





V-BELT INSTALLATION

- Belts should be stored in a cool dark place, away from heaters and direct sunlight.
  Heat will dry out the belts and cause them to become brittle and hard.
  Optimum conditions, temperature below 30°C and relative humidity below 70%.



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THANK YOU