

## 1. Power Ace Product Introduction

Power Ace is a narrow V-belt for high power transmission capability that significantly enhanced various characteristics and performance such as power transmission capability, high speed, and reliability by changing the cross-sectional structure of the previous V-belt. (Prescribed as Narrow V-belts for power transmission in JIS K 6368.)

### Features

#### ■ Allows miniaturization and cost reduction of power transmission devices.

Power Ace has an extremely high power transmission capability, and the space for the power transmission device is about one-third of that of the standard V-belt.

Unlike chain transmission or gear transmission, it requires no lubrication device, allowing the equipment cost and maintenance cost to be reduced.

#### ■ Allows high-speed operation.

Power Ace has an extremely high power transmission capability per belt and has a reduced loss in power transmission by centrifugal force; hence, it is also suitable for high-speed operation and can be used up to a speed of 40 m/s.

#### ■ Allows labor-saving in maintenance.

Power Ace has little belt elongation during operation and rarely requires re-tensioning. Unlike chain transmission and gear transmission, it requires no lubrication, allowing significant labor-saving in maintenance.

#### ■ Long belt service life and excellent reliability.

Power Ace, based on the ideal profile that was made by studying the power transmission theory as well as on the manufacturing technology on the highest standard, has a long service life and rarely incurs trouble during operation.

#### ■ Excellent physical characteristics.

##### ● Excellent heat resistance.

Generally, the higher the ambient temperature, the shorter the belt service life becomes; however, Power Ace can withstand high temperature compared to the standard V-belt.

##### ● Static electricity prevention.

It has an electric resistance performance that conforms to the U.S. RMA standard.

\*RMA (An abbreviation for Rubber Manufacturers Association)

##### ● Excellent flame resistance.

The specially compounded chloroprene rubber used in Power Ace has a self-anti-inflammation property and therefore can be used at ease.

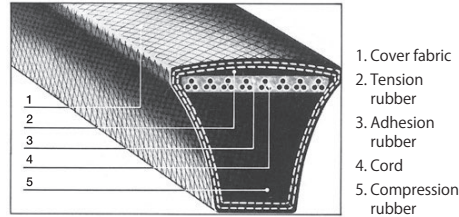
##### ● Excellent oil resistance.

It can be used even with slight adhesion of oil mist, oil, or grease.

##### ● Excellent weather resistance and ozone resistance.

It can also be used outdoors and in coastline areas without problems. Where the belt is exposed to direct sunlight, please protect the belt with a belt cover of the like if possible.

### Structure



#### ● Cord

It uses a polyester cord, has extremely little elongation, and has no concern for peeling of the cord layer.

#### ● Compression rubber

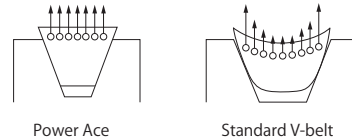
The specially compounded chloroprene rubber reduces heat generation during running and increases the belt service life.

#### ● Cover canvas

The special canvas has only a little tension and strain on the fiber even when it is wound around a small-diameter pulley, reducing losses in power transmission due to bending stress. It is also excellent in protection of the inside of the belt.

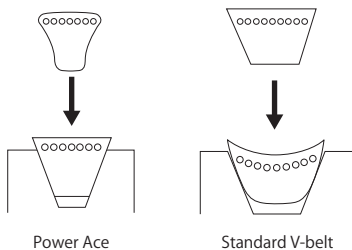
#### ● Arched top

At the time of operation, it prevents cross-sectional deformation of the belt and maintains the group of tension members at a normal position; hence the group of tension members receives a uniform force, leading to a longer belt service life.

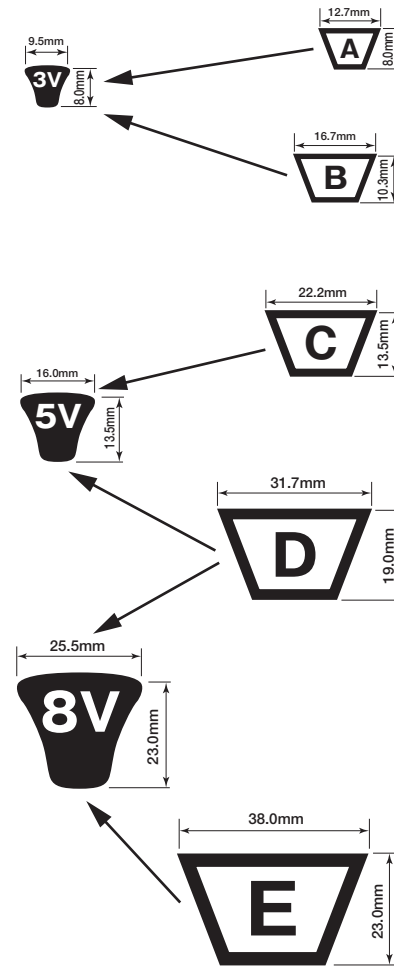


#### ● Concave side wall

When the belt is wound around a pulley, the belt side face becomes straight and comes in uniform contact with the pulley, which increases the power transmission capability. The abrasion on the belt side face is uniform, which extends the belt service life.



### Type

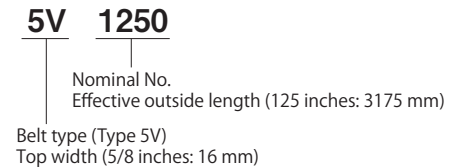


### ■ Belt size

Type 3V		Type 5V		Type 8V	
Nominal No.	Effective outside length (mm)	Nominal No.	Effective outside length (mm)	Nominal No.	Effective outside length (mm)
250	635	500	1270	1000	2540
265	673	530	1346	1060	2692
280	711	560	1422	1120	2845
300	762	600	1524	1180	2997
315	800	630	1600	1250	3175
335	851	670	1702	1320	3353
355	902	710	1803	1400	3556
375	953	750	1905	1500	3810
400	1016	800	2032	1600	4064
425	1080	850	2159	1700	4318
450	1143	900	2286	1800	4572
475	1207	950	2413	1900	4826
500	1270	1000	2540	2000	5080
530	1346	1060	2692	2120	5385
560	1422	1120	2845	2240	5690
600	1524	1180	2997	2360	5994
630	1600	1250	3175	2500	6350
670	1702	1320	3353	2650	6731
710	1803	1400	3556	2800	7112
750	1905	1500	3810	3000	7620
800	2032	1600	4064	3150	8001
850	2159	1700	4318	3350	8509
900	2286	1800	4572	3550	9017
950	2413	1900	4826	3750	9525
1000	2540	2000	5080	4000	10160
1060	2692	2120	5385	4250	10795
1120	2845	2240	5690	4500	11430
1180	2997	2360	5994	4750	12065
1250	3175	2500	6350	5000	12700
1320	3353	2650	6731	5600	14224
1400	3556	2800	7112		
		3000	7620		
		3150	8001		
		3350	8509		
		3550	9017		

When using multiple belts, please specify a matched set.

### Indication Example



(Note) The cross-sectional dimensions of Power Ace are nominal dimensions.

## 2. Power Ace Cog Product Introduction

This is an additional specification of the high power transmission narrow V-belt "Bando Power Ace" and is a raw-edge cogged type narrow V-belt that can meet the requirements of high transmission capacity and miniaturization. \*For other widths than the above, please contact us.

### Features

■ **Allows miniaturization and cost reduction of power transmission devices.**

Power Ace Cog has a higher transmission capacity than that of Power Ace and can also be used for small pulley diameters and high-speed revolution.

■ **Transmission capacity**

Although the rate of increase of transmission capacity varies slightly depending on the pulley diameter and the revolution, in generally used operating conditions, it has 20 to 30% higher transmission capacity than that of Power Ace.

■ **Minimum pulley diameter**

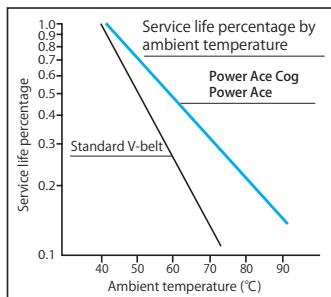
Power Ace Cog has a cogged profile at the bottom of the belt and therefore can be used for small pulley diameters as well.

Belt type	Minimum pulley diameter	
	Power Ace Cog	Power Ace
Type 3V	56(3VX)	67(3V)
Type 5V	112(5VX)	150(5V)

■ **Allows high-speed operation.**

Power Ace Cog has a high power transmission capacity per belt and has a small loss in power transmission by centrifugal force; hence, it is also suitable for high-speed operation and can be used up to a speed of 40 m/s.

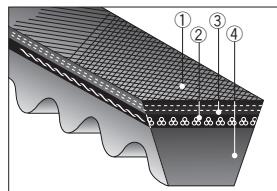
■ **Excellent heat resistance.**



■ **Excellent oil resistance.**

As this belt uses a synthetic rubber and takes oil resistance into consideration, it can be used even with slight adhesion of oil mist, oil, or grease.

### Structure



1. Top canvas
2. Cord
3. Adhesion rubber
4. Compression rubber

● **Top canvas**

The highly elastic biased canvas protects the belt.

● **Adhesion rubber**

While it maintains the cord at an appropriate position, it also improves the adhesion between the cord and the rubber layer.

● **Cord**

It uses a polyester cord and completely adheres to the adhesion rubber; hence, it rarely has belt elongation during running. In addition, it has no concern for peeling of the cord, allowing stable power transmission.

● **Compression rubber**

The specially compounded synthetic rubber mitigates fatigue during running and provides high side pressure resistance.

● **Cogged profile**

The cogged profile at the bottom of the belt allows a smaller-diameter pulley than the previous pulley diameter to be used and provides high flexibility; hence, it generates only little heat during running and has a longer belt service life.

### Belt profile and size range

- The bottom of the belt is "cogged."
- Because Power Ace Cog is often used in small to medium-sized machines that generally use small-diameter pulleys; hence, the types and sizes of the belt are limited.

Type	Size
3VX	3VX250~3VX1400
5VX	5VX500~5VX2000

When using multiple belts, please specify a matched set. For details of the size, refer to the **table on P. 230**.

For Power Ace Cog Scrum (3VX), please contact us.

## 3. Power Scrum Product Introduction

Bando Power Scrum is a combined belt that combines the top sections of Power Ace using tie bands. As the cross-sectional profile of the belt is the same as Power Ace, our Power Ace pulleys can be used.

### Features

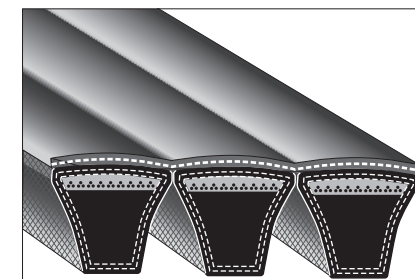
■ **Stable operation even under violent load fluctuations**

Even when the machine involves shock loads and pulsating loads, the belt tied with tie bands vibrates little and can operate stably, and it does not flip over to the side or come off of a pulley.

■ **Belt most suitable for vertical shaft drives**

The tying with tie bands allows the belt to be used even in a vertical shaft drive with no detachment from the pulleys.

### Structure



■ **Standard effective lengths**

Type 3V		Type 5V		Type 8V	
Nominal No.	Effective outside length (mm)	Nominal No.	Effective outside length (mm)	Nominal No.	Effective outside length (mm)
400	1016	600	1524	1000	2540
425	1080	630	1600	1060	2692
450	1143	670	1702	1120	2845
475	1207	710	1803	1180	2997
500	1270	750	1905	1250	3175
530	1346	800	2032	1320	3353
560	1422	850	2159	1400	3556
600	1524	900	2286	1500	3810
630	1600	950	2413	1600	4064
670	1702	1000	2540	1700	4318
710	1803	1060	2692	1800	4572
750	1905	1120	2845	1900	4826
800	2032	1180	2997	2000	5080
850	2159	1250	3175	2120	5385
900	2286	1320	3353	2240	5690
950	2413	1400	3556	2360	5994
1000	2540	1500	3810	2500	6350
1060	2692	1600	4064	2650	6731
1120	2845	1700	4318	2800	7112
1180	2997	1800	4572	3000	7620
1250	3175	1900	4826	3150	8001
1320	3353	2000	5080	3350	8509
1400	3556	2120	5385	3550	9017
		2240	5690	3750	9525
		2360	5994	4000	10160
		2500	6350	4250	10795
		2650	6731	4500	11430
		2800	7112	4750	12065
		3000	7620	5000	12700
		3150	8001	5600	14224
		3350	8509		
		3550	9017		

### How to Design

Refer to Power Ace belt design (P. 245 to P. 273).

### Belt Indication

■ **Indication example**

**10 - 5V 1250**

No. of ridges | Nominal No. (1250 inches: 3175 mm)  
Belt type (Type 5V)

■ **Belt combination**

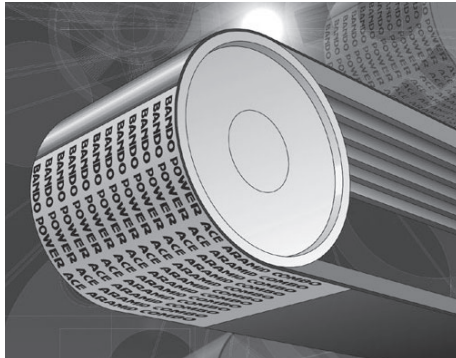
No. of ridges	Combination	No. of ridges	Combination
-	-	11	4+3+4
2	2	12	4+4+4
3	3	13	4+5+4
4	4	14	5+4+5
5	5	15	5+5+5
6	3+3	16	4+4+4+4
7	3+4	17	4+4+5+4
8	4+4	18	5+4+4+5
9	4+5	19	5+4+5+5
10	5+5	20	5+5+5+5

■ **Matched set**

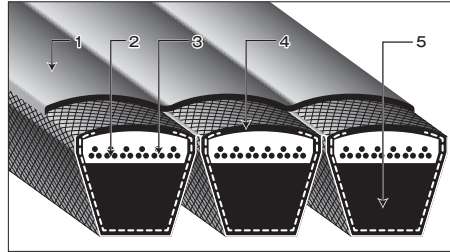
When using multiple belts, please specify a matched set.

## 4. Power Ace™ Aramid Combo Product Introduction

Power Ace™ Aramid Combo is a belt that employs a high-elasticity aramid cord and has improved dimensional stability and shock resistance. It also has excellent heat resistance and electric conductivity.



### Structure



1. Tie band
2. High-elasticity aramid cord
3. Adhesion rubber
4. Cover fabric
5. Compression rubber

#### ● Tie band

A peeling-resistant new type tie band structure is employed.

#### ● High-elasticity aramid cord

The high-elasticity aramid cord provides a 50% or higher breaking strength than the previous products.

The belt has a 40% or higher transmission capacity than the previous products.

#### ● Cover fabric

The belt has an electric conductivity that conforms to ARPM (RMA).

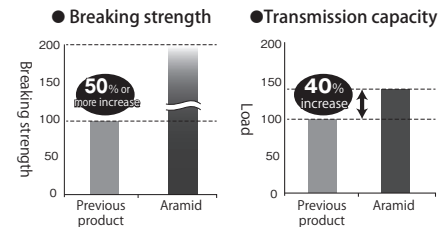
### Belt Indication

#### ■ Indication example

**3 - 8VK 1250**  
 No. of ridges      Nominal No. (1250 inches: 3175 mm)  
 Belt type (Type 8VK)

### Features

- The new tie band structure is resistant to peeling.
- The high-elasticity aramid cord provides a 50% or higher breaking strength than the previous products.
- The belt has a 40% or higher transmission capacity than the previous products.
- The belt has an electric conductivity that conforms to the ARPM (RMA) standard.



\*Pay due attention to the installation tension of the belt.

### ■ Standard effective lengths

5VK				8VK			
Nominal No.	Effective outside length (mm)	Nominal No.	Effective outside length (mm)	Nominal No.	Effective outside length (mm)	Nominal No.	Effective outside length (mm)
600	1524	2120	5385	1060	2692	3750	9525
630	1600	2240	5690	1120	2845	4000	10160
670	1702	2360	5994	1180	2997	4250	10795
710	1803	2500	6350	1250	3175	4500	11430
750	1905	2650	6731	1320	3353	4750	12065
800	2032	2800	7112	1400	3556	5000	12700
850	2159	3000	7620	1500	3810	5600	14224
900	2286	3150	8001	1600	4064		
950	2413	3350	8509	1700	4318		
1000	2540	3550	9017	1800	4572		
1060	2692			1900	4826		
1120	2845			2000	5080		
1180	2997			2120	5385		
1250	3175			2240	5690		
1320	3353			2360	5994		
1400	3556			2500	6350		
1500	3810			2650	6731		
1600	4064			2800	7112		
1700	4318			3000	7620		
1800	4572			3150	8001		
1900	4826			3350	8509		
2000	5080			3550	9017		

- 5VK can be manufactured with up to 16 ridges, and 8VK can be manufactured with up to 10 ridges. (For other sizes than the indicated sizes, please contact us.)

### ■ Belt combination

No. of ridges	Combination	No. of ridges	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

For pulleys, our Power Ace pulleys can be used as with Power Ace and Power Scrum.

### ■ List of belt sizes of Power Ace / Power Ace Cog / Power Scrum / Power Ace Aramid Combo

Belt nominal No.	Effective outside length (mm)	3V			Belt nominal No.	Effective outside length (mm)	5V				Belt nominal No.	Effective outside length (mm)	8V		
		Power Ace	Power Scrum	Power Ace Cog 3VK			Power Ace	Power Scrum	Power Ace Cog 5VK	Power Ace Aramid Combo 5VK			Power Ace	Power Scrum	Power Ace Aramid Combo 8VK
250	635	○		○	500	1270	○		○		1000	2540	○	○	
265	673	○		○	530	1346	○		○		1060	2692	○	○	○
280	711	○		○	560	1422	○		○		1120	2845	○	○	○
300	762	○		○	600	1524	○	○	○	○	1180	2997	○	○	○
315	800	○		○	630	1600	○	○	○	○	1250	3175	○	○	○
335	851	○		○	670	1702	○	○	○	○	1320	3353	○	○	○
355	902	○		○	710	1803	○	○	○	○	1400	3556	○	○	○
375	953	○		○	750	1905	○	○	○	○	1500	3810	○	○	○
400	1016	○	○	○	800	2032	○	○	○	○	1600	4064	○	○	○
425	1080	○		○	850	2159	○	○	○	○	1700	4318	○	○	○
450	1143	○	○	○	900	2286	○	○	○	○	1800	4572	○	○	○
475	1207	○	○	○	950	2413	○	○	○	○	1900	4826	○	○	○
500	1270	○		○	1000	2540	○	○	○	○	2000	5080	○	○	○
530	1346	○		○	1060	2692	○	○	○	○	2120	5385	○	○	○
560	1422	○		○	1120	2845	○	○	○	○	2240	5690	○	○	○
600	1524	○	○	○	1180	2997	○	○	○	○	2360	5994	○	○	○
630	1600	○	○	○	1250	3175	○	○	○	○	2500	6350	○	○	○
670	1702	○	○	○	1320	3353	○	○	○	○	2650	6731	○	○	○
710	1803	○	○	○	1400	3556	○	○	○	○	2800	7112	○	○	○
750	1905	○	○	○	1500	3810	○	○	○	○	3000	7620	○	○	○
800	2032	○	○	○	1600	4064	○	○	○	○	3150	8001	○	○	○
850	2159	○	○	○	1700	4318	○	○	○	○	3350	8509	○	○	○
900	2286	○	○	○	1800	4572	○	○	○	○	3550	9017	○	○	○
950	2413	○	○	○	1900	4826	○	○	○	○			○	○	○
1000	2540	○	○	○	2000	5080	○	○	○	○			○	○	○
1060	2692	○	○	○	2120	5385	○	○	○	○	4000	10160	○	○	○
1120	2845	○	○	○	2240	5690	○	○	○	○	4250	10795	○	○	○
1180	2997	○	○	○	2360	5994	○	○	○	○	4500	11430	○	○	○
1250	3175	○	○	○	2500	6350	○	○	○	○	4750	12065	○	○	○
1320	3353	○	○	○	2650	6731	○	○	○	○	5000	12700	○	○	○
1400	3556	○	○	○	2800	7112	○	○	○	○	5600	14224	○	○	○
					3000	7620	○	○	○	○					
					3150	8001	○	○	○	○					
					3350	8509	○	○	○	○					
					3550	9017	○	○	○	○					