B-PB-05E



# Power Transmission and Conveyor Belt **PolyBelt**



# NITTA CORPORATION

# **Features**

Nitta Corporation has developed "PolyBelt" to meet the demands of its customers in the power transmission field, offering a wide variety of types.

These products have delivered proven results in power transmission for industrial machinery used in the textile, paper manufacturing and flour-milling industries. Nitta has also provided the best types of PolyBelt for conveying applications on printing and box-making machines.

PolyBelt, which is basically made up of a combination of thin and strong polyamide film and highly abrasion-resistant special rubber, is widely used in industry.

Nitta's mission is to deliver high quality and reliable products and to meet the needs of its customers in the fast-changing industrial market.

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<b>1</b> Abrasion resistance	Excellent friction co rubber (N (Taber Abra *Abrasive w
2 High-tensile tension member	High-qual tension m (Tensile str (3,000 kgf/d
<b>3</b> High-speed power transmission	High flex obtained reduce th (Up to 70 m
<b>4</b> Antistatic treatment	PolyBelt treatment (500 V or le
<b>5</b> Wide variety of types	Wide vari all fields i
6 Easy endless joining	On-site e special to

abrasion resistance achieved due to the stable oefficient provided by use of special synthetic IBR: Acrylonitrile Butadiene Rubber).

asion Test: 40 mg/1000 times) wheel used: H22, Load: 5N

lity stretched polyamide film is used as a nember to provide high tensile strength. rength of the polyamide film tension member: 300 Mpa cm<sup>2</sup>) or more)

resistance and high-speed power transmission by using a thin and strong tension member to he effect of centrifugal forces. m/s available)

(except as noted) is subjected to antistatic to obtain low electrostatic potential. ess)

iety of types available to meet the demands in including power transmission and conveyance.

ndless joining of belts is easy with Nitta's ols and adhesives.

# **Types and Properties**

Major Applications	Droportion	Dolt.	Tuno	Total Tension Member Weight		Cover Material			Cover Material					Material Bottom surface				Minii pulley d (mi	mum liameter m)	Antistatic	Standard maximum	Temperature range for continuous use
Major Applications	Properties	Belt	гуре	(mm)	Thickness (mm)	(kg/m <sup>2</sup> )	Material	Surface configuration	Color	Friction coefficient	⊐ Material	Surface configuration	Color	Friction coefficient	At 2% elongation	At 1% elongation	For power transmission	For conveyance	property	width (mm)	(°C) (°C) (For intermittent use)	
General power transmission	Moderate sliding properties	SG	250	0.8	0.2	0.8	NBR	Weave	Green	0.0	NBR	Weave	Black	0.0	6.0	3.0	25	20	0	300		
Paper feed section of the printing machine	on both sides		350	0.95	0.35	0.9	NBR	Weave	Green	0.3	NBR	Weave	Black	0.3	10.5	5.2	35	30	0	300	20 to 1 20	
Plywood conveyor			500	1.1	0.5	1.1	NBR	Weave	Green	10	NBR	Weave	Black	10	15.0	7 <b>.</b> 5	50	40	0	300	-20 to + 80	
			750	1.35	0.75	1.4	NBR	Weave	Green	0.4	NBR	Weave	Black	0.4	22.5	11.2	75	50	0	300	(-30 t0 +100)	
			1000	1.6	1.0	1.7	NBR	Weave	Green		NBR	Weave	Black		30.0	15.0	100	60	0	300		
Machine tools	Thin rubber especially	L	250	1.25	0.2	1.4	NBR	Weave	Blue		NBR	Weave	Black		6.0	3.0	25	20	0	300		
(automatic lathes, etc.) Drvers	suitable for flexing/high-speed operation		350	1.4	0.35	1.6	NBR	Weave	Blue	0.5	NBR	Weave	Black	0.5	10.5	5.2	35	30	0	300		
(cylinder drying machine, etc.)	noxing/ingit operation		500	1.55	0.5	1.8	NBR	Weave	Blue	0.5	NBR	Weave	Black	0.5	15.0	7.5	50	40	0	300		
Small to medium wood			750	2.2	0.75	2.5	NBR	Weave	Blue	to	NBR	Weave	Black	to	22.5	11.2	75	50	0	300	-20 to $+80$	
Small centrifugal pumps			1000	2.45	1.0	2.8	NBR	Weave	Blue	0.6	NBR	Weave	Black	0.6	30.0	15.0	100	60	0	300	(-30 to +100)	
and blowers			1500	2.95	1.5	3.4	NBR	Weave	Blue	Against iron)	NBR	Weave	Black	(Against iron)	45.0	22.5	150	90	0	300		
			2000	3.45	2.0	4.0	NBR	Weave	Blue		NBR	Weave	Black		60.0	30.0	200	120	0	300		
Power transmission in industrial	Standard type	М	250	2.2	0.2	2.4	NBR	Weave	Blue		NBR	Weave	Black		6.0	3.0	25	25	0	300		
machinery (fans, pumps, etc.) Sawmill machines	Suitable for normal		350	2.35	0.35	2.6	NBR	Weave	Blue		NBR	Weave	Black	0.5	10.5	5.2	35	35	0	300		
(chippers, etc.)	oporating contractions		500	2.5	0.5	2.7	NBR	Weave	Blue	0.5	NBR	Weave	Black	0.5	15.0	7 <b>.</b> 5	50	40	0	300		
Paper working machines			750	2.75	0.75	3.0	NBR	Weave	Blue	to	NBR	Weave	Black	to	22.5	11.2	75	50	0	300	-20 to $+80$	
Other power transmission			1000	3.0	1.0	3.3	NBR	Weave	Blue	0.6	NBR	Weave	Black	0.6	30.0	15.0	100	60	0	300	(-30  to  +100)	
Cut-proof conveyors			1500	3.5	1.5	4.0	NBR	Weave	Blue	Against iron)	NBR	Weave	Black	(Against iron)	45.0	22.5	150	90	0	300		
			2000	4.0	2.0	4.6	NBR	Weave	Blue		NBR	Weave	Black		60.0	30.0	200	120	0	300		
Compressors	Highly abrasion/impact	Н	500	3.5	0.5	3.8	NBR	Weave	Blue		NBR	Weave	Black	0.5	15.0	7.5	50	50	0	300		
Rolling machines	resistant thick rubber		750	3.75	0.75	4.1	NBR	Weave	Blue	0.5	NBR	Weave	Black	0.5	22.5	11.2	75	60	0	300		
Abrasion-resistant conveyors	Suitable for severe		1000	4.0	1.0	4.4	NBR	Weave	Blue	to	NBR	Weave	Black	to	30.0	15.0	100	75	0	300		
(building material conveyors,	operating conditions		1500	4.5	1.5	5.0	NBR	Weave	Blue	0.6	NBR	Weave	Black	0.6	45.0	22.5	150	120	0	300	—20 to +80	
6.0.)			2000	5.0	2.0	5.6	NBR	Weave	Blue	Against iron)	NBR	Weave	Black	(Against iron)	60.0	30.0	200	160	0	300	(-30 to +100)	
		MH	2500	5.0	2.5	6.0	NBR	Weave	Blue	0.5	NBR	Weave	Black	0.5	75.0	37.5	250		0	300		
			3000	5.5	3.0	6.5	NBR	Weave	Blue	to	NBR	Weave	Black	to	90.0	45.0	300		0	300		
			4000	6.5	4.0	7.6	NBR	Weave	Blue	Against iron)	NBR	Weave	Black	(Against iron)	120.0	60.0	400		0	300		

				Total	Tension Cover Material		Cover Material						Axial loa stable co	ad under onditions	Mini pulley d	mum liameter		Standard	Temperature			
Major Applications	Properties	Belt	Туре	Thickness	Member Thickness	Weight (ka/m <sup>2</sup> )		Top surface		B	ottom s	surface				(111		Antistatic property	maximum width	range for continuous use (°C)		
				(mm)	(mm)	(((1)))		Material	Surface configuration	Color	Friction coefficient	Material	Surface configuration	Color	Friction coefficient	At 2% elongation	At 1% elongation	For power transmission	For conveyance		(mm)	(For intermittent use)
Corrugated board machines (Paper feeding to and discharging from the rotary cutter)	Highly scratch/abrasion resistant surface material used	CBX-78	6	4.2	0.75	2.5		Artificial leather	Flat and smooth	Gray	0.4 to 0.5 (Against cardboard	Artificial leather	Flat and smooth	Gray	0.2 to 0.25 (Against SUS)		15.0		75		300	—20 to +80
Box making machines (Counter eject)	High gripping force and abrasion resistance	CBE-20	)	Approx.7.0		5.9		NBR	Rough top	Blue	Approx. 1.0 (Against cardboard	Polyester	Canvas	Black	0.2 to 0.25 (Against SUS)		6.0 (0.5%)		100	0	300	—20 to +80
For conveying cardboard boxes	Table-supported high speed conveyance possible	CBG-7	S	3.5	0.75	3.5		NBR	Rough	Blue	0.7 to 0.8 (Against cardboard	Polyamide	Canvas	Blue	0.2 to 0.25 (Against SUS)		15.0		75	0	300	—20 to +80
Conveying cardboard boxes	High conveyance capacity	NRT	0	Approx.5.5		4.8		NBR	Rough top	Blue	Approx. 1.0 (Against cardboard	Polyester	Canvas	White	0.2 to 0.25 (Against SUS)		1.3		100	0	300	
Conveying piywood	top cover		100	Approx.4.5		3.6		NBR	Rough top	Blue	Approx. 1.0 (Against cardboard	Polyester	Canvas	White	0.2 to 0.25 (Against SUS)		6.0 (0.5%)		50	0	300	00 to 1 00
	Suitable for severe		300	Approx.6.5		6.5		NBR	Rough top	Blue	Approx. 1.0 (Against cardboard	Polyester	Canvas	White	0.2 to 0.25 (Against SUS)		6.0 (0.5%)		100	0	300	-20 10 + 80
	operating conditions		500	Approx.6.0	0.5	5.6		NBR	Rough top	Blue	Approx. 1.0 (Against cardboard	NBR	Canvas	Black	0.2 to 0.25 (Against SUS)		7.5		90	0	300	(-30 to +100)
		RT	300	Approx.7.0		6.5		NBR	Rough top	Blue	Approx. 1.0 (Against cardboard	Polyester	Canvas	White	0.2 to 0.25 (Against SUS)		6.0 (0.5%)		100	0	300	
Printer paper feed	Top surface has high friction	IRTA	350	1.15	0.35	1.2		NBR	Weave	Green	0.5 to 0.6	Polyamide	Canvas	Blue	0.2 to 0.3	10.5	5.2		30	0	300	—20 to +80
Bottom surface has excellent sliding properties	KCS	350	1.1	0.35	0.8		NBR	Weave	Black	0.3 to 0.4	Polyamide	Canvas	Blue	0.2 to 0.3	10.5	5.2		30	0	300	(-30 to +100)	
Folder gluer	High conveyance capacity	ХН	500-3	3.0	0.5	3.4		NBR	Weave	Blue		NBR	Weave	Blue		15.0	7.5		50	0	300	
Conveying plywood	achieved due to rubber properties		500-3.5	3.5	0.5	3.9		NBR	Weave	Blue	0.8	NBR	Weave	Blue	0.7	15.0	7.5		55	0	300	
			500-4	4.0	0.5	4.3		NBR	Weave	Blue	to	NBR	Weave	Blue	to	15.0	7.5		60	0	300	—20 to +80
			500-6	6.0	0.5	7.4		NBR	Weave	Blue	0.9	NBR	Weave	Blue	0.8	15.0	7.5		80	0	300	(-30 to +100)
			750-4	4.0	0.75	4.4		NBR	Weave	Blue		NBR	Weave	Blue	(Against SUS)	22.5	11.2		75	0	300	
			1000-4	4.0	1.0	4.4		NBR	Weave	Blue		NBR	Weave	Blue		30.0	15.0		75	0	300	
Table-supported conveyor	Excellent sliding on both	TTA	500N	1.3	0.5	1.2		Polyamide	Canvas	Blue	0.2 to 0.3	Polyamide	Canvas	Blue	0.2 to 0.3	15.0	7.5		40		300	
Stopper conveyor	surfaces		1000N	1.8	1.0	1.7		Polyamide	Canvas	Blue	0.2 to 0.3	Polyamide	Canvas	Blue	0.2 to 0.3	30.0	15.0		60		300	—20 to +80
		TTB	1000	2.8	1.0	2.5		Polyamide	Canvas	Blue	0.2 to 0.3	Polyamide	Canvas	Blue	0.2 to 0.3	30.0	15.0		60		300	(-30 to +100)
Table-supported conveyor	Excellent sliding on one	GLTB	500	2.05	0.5	2.0		NBR	Weave	Blue	0.5 to 0.6	Polyamide	Canvas	Blue	0.2 to 0.3	15.0	7.5		40	0	300	
	surface		1000	2.75	1.0	2.6		NBR	Weave	Blue	0.5 to 0.6	Polyamide	Canvas	Blue	0.2 to 0.3	30.0	15.0		60	0	300	—20 to +80
		GMTB	1000	3.0	1.0	2.9		NBR	Weave	Blue	0.5 to 0.6	Polyamide	Canvas	Blue	0.2 to 0.3	30.0	15.0		- 60 $\bigcirc$ 300 (-	(-30 to +100)		
Sloping conveyor	High conveyance capacity	TW	250	1.8	0.2	1.5		NBR	Rough weave	Blue		NBR	Weave	Black	0.5 to 0.6	6.0	3.0		25	0	300	
	achieved due to rough surface of belt		500	2.1	0.5	1.9		NBR	Rough weave	Blue	_	NBR	Weave	Black	0.5 to 0.6	15.0	7.5		40	0	300	—20 to +80
		TWH	500	3.8	0.5	3.8		NBR	Rough weave	Blue	_	NBR	Weave	Black	0.5 to 0.6	15.0	7.5		40	0	300	(-30 to +100)

# **Design Materials**

# **1. Biaxial Power Transmission Design**

(1) Select the belt type according to the design power and the small pulley rotation speed shown in Table 1 below.



(2) Calculate the belt speed (V) by using the pulley diameter and rotation speed.

$$v(m/s) = \frac{\pi \cdot d \cdot n}{60 \times 1000}$$

d: Drive pulley diameter (mm) n: Drive rotation speed (mm)

(3) Calculate the effective tension (Te) by using the transmission power and the belt speed.

 $Te(N) = \frac{1000 \times P}{V}$ 

P: Transmission power (kw)

(4) Calculate the pulley contact angle ( $\theta$ ) (for the open belt drive).

$$\theta (\text{deg}) = 180^{\circ} - \frac{57(\text{D}-\text{d})}{\text{C}}$$

D: Large pulley diameter (mm) d: Small pulley diameter (mm) C: Center distance (mm)

(5) Obtain the traction coefficient ( $\lambda$ ) from Table 2 below.



(6) Select the load reserve factor (K) from Table 3 below. Table 3. Load Reserve Factor (K)

Use conditions	Normal condition	Environment with oil and dust
Excessively light start-up load; small load fluctuation (Belt conveyors and small centrifugal pumps)	1.3	2.4
Light start-up load; small load fluctuation (Printing machines and wood working machines)	1.5	2.7
Heavy start-up load; large load fluctuation (Printing machines, pressing machines and rolling machines)	2.0	3.6

(7) Calculate the approximate axial load (2To).

2To(N)=Te 
$$\times \frac{K}{\lambda}$$

(8) Calculate the belt width limit (b).

$$b(mm) \leq \frac{(bp-10)}{1.1}$$
 bp: P

Round the calculated belt width to the nearest 5 mm.

Pulley width (mm)

(9) Obtain the centrifugal constant from Table 4 below. Then calculate the centrifugal tension (tc) using the following calculation formula.

<Calculation formula> Centrifugal tension (tc) = Centrifugal tension constant x Belt thickness (h) (mm)



(10) Calculate the axial load (2to) per unit width (N/mm width).

$$2\text{to}(\text{N/mm width}) = \frac{210}{\text{b}} + 2\text{tc}$$

(11) Calculate the elongation rate ( $\epsilon$ ) of the selected belt.

$$\varepsilon = \frac{2\text{to}}{2\text{to}(2\%)} \times \varepsilon$$
"  $\varepsilon$ ": Standard elongation rate (2 %)  
2to (2 %): Axial load under stable conditions (N/mm width) at 2 % elongation

The allowable belt elongation rate is 1 - 3 %. When the belt elongation rate is outside this range, take the following measures. a. Change the belt type. b. Change the belt width.

(12) Calculate the axial load (F) by using the belt tension.

During operation stop:  $Fs(N) = 2to \times \frac{\varepsilon}{2} \times b \times \sin \frac{\theta \times \pi}{2 \times 180^{\circ}}$  $Fr(N) = \left(2to \times \frac{\varepsilon}{2} - 2tc\right) \times b \times \sin \frac{\theta \times \pi}{2 \times 180^{\circ}}$ During operation:

(Note) For multiaxial power transmission and conveyance, please consult Nitta.

## 2. Belt Length Calculation Formula

Calculate the inner peripheral length (Li) as follows: Inner peripheral length  $(\Delta)$ 

$$\text{Li}(\text{mm}) = 2\text{C} + \frac{\pi}{2}(\text{D}+\text{d}) + \frac{(\text{D}-\text{d})^2}{4\text{C}}$$
  
nner peripheral length (B)  
$$\text{Li}(\text{mm}) = 2\text{C} + \frac{\pi}{2}(\text{D}+\text{d}) + \frac{(\text{D}+\text{d})^2}{4\text{C}}$$

The length of PolyBelt is determined according to the pitch length (Lc). Convert "Li" obtained above into "Lc" . Pitch length Lc = Li  $+ \pi$  h h: Belt thickness (mm)

When the center distance is fixed and there is no tension pulley in the device, shorten the belt length by the elongation rate as shown in the calculation formula below.

Belt length (mm) = 
$$\frac{Lc}{1+E}$$
  $E = \frac{\epsilon}{100}$ 

(Note) Please inform Nitta of the pulley diameter and the coordinates; we will calculate the belt length for multiaxial power transmission.

#### 3. Pulley Shape

(1) Calculate the pulley width (bp) from the following formula.

bp(mm) = 1.1b + 10mmb = Belt width (mm)

(2) Obtain the pulley crown (hc) from Table 5.

Table 5. Standard Crown hc (mm)

	Pulley Pulley width	30~150	151~300	301~700	701~1000	1001~1500	1501 or more			
	30~125	0.8	1.2	1.3	1.7	2.0	2 <b>.</b> 5			
	126~260	1.0	1.3	1.5	2.0	2.3	2.8			
	261~400	1.1	1.4	1.6	2.2	2.5	3.0			
Calculate the curvature radius (rc) from the following formula. $rc(mm) = \frac{bp^2}{8hc}$ The pulley surface finish is required to be 6.3S or more. Belt speed and pulley material										
	Belt speed	30 m/s or	less	30 to 50m/s	50 m/s or r	nore				
	Pullev material	Cast iron, alu	iminum, Ca	st iron or mild ste	steel Mild steel					

(3)

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

(4)

(5)

Pulley Pulley width	30~150	151~300	301~700	701	~1000	1001~1500	1501 or more			
30~125	0.8	1.2	1.3	1.7		2.0	2 <b>.</b> 5			
126~260	1.0	1.3	1.5	:	2.0	2.3	2.8			
261~400	1.1	1.4	1.6		2.2	2.5	3.0			
alculate the curvature radius (rc) from the following formula. $rc(mm) = \frac{bp^2}{8hc}$ he pulley surface finish is required to be 6.3S or more. elt speed and pulley material										
Belt speed	30 m/s or	less 30 to 50m/s 50 m/s or more								
Pulley material	Cast iron, alu mild ste	iminum, el								

(6) As a rule, do not attach a flange to the pulley.



ε: Elongation rate (%)

# **Precautions for Use**

#### The following are precautions for using **PolyBelt**.

#### **Belt Tension**

Measure the tension mark and stretch the belt to obtain the specified elongation rate. Rotate the belt once or twice to stretch it uniformly and check the tension mark.



#### **Crossed Belt Drive**

PolyBelt is highly abrasion resistant. In order to lengthen the belt life, insert a rotator at the intersection of the belt.



#### **Belt Shifters**

Use rotary belt shifters. If the shifters do not rotate, belt abrasion is accelerated.

Set the shifters at the positions where the belt enters the driven pulley.

When selecting the belt type, consider the shifting property as well as the transmission calculation.



#### **Attaching the Belt**

When attaching the belt, use a center-distance adjuster.

If the adjuster is not available, cover the pulley edges with waste cloth, etc. to prevent damage to the belt



### **Belt Elongation Rate**

The maximum allowable elongation rate for PolyBelt is 3 %.

When the belt elongation rate is more than 3 %, use the next highest rank of belt type or a wider belt.

#### Minimum Pulley Diameter

The minimum pulley diameters of PolyBelt for conveyance are listed in "Types and Properties" on P. 3 to 6. When the belt speed is 5 m/s or less, the minimum pulley diameter for conveyance is in effect.

#### **Resistance to Chemicals**

PolyBelt is not affected by wetting and drying, machine oil, steam, fat, benzine, etc. However, be aware that PolyBelt is affected by concentrated acids, phenols, ketones and alcohol.

### **Belt Length**

PolyBelt is manufactured according to pitch length. When ordering the belt, specify the pitch length. When ordering the belt to be set at a location where the center distance is not adjustable, specify the pitch length shortened in advance by the specified elongation rate. (See P. 10.)



# **Troubleshooting for Power Transmission Problems**

When any of the following failures occur, troubleshoot as follows:

Failure	Failure Diagnosis	Troubleshooting						
The belt comes off the pulley.	The belt deviates at start-up and then returns.	• The starting torque is too high; tighten the belt further or lower the starting load.						
	Normal performance when the load is low; the belt comes off under high load.	<ul> <li>The load is high; tighten the belt further or lower the load.</li> </ul>						
	The belt comes off even when the load is low.	<ul> <li>Correct the pulley parallelism.</li> <li>Tighten the part where the belt comes off.</li> <li>If the tension pulley is used, tilt its axis.</li> </ul>						
The specified speed is not reached.	When further tightening the belt, the rotation speed does not increase.	<ul> <li>Measure the pulley diameter. When the speed ratio is large, add the belt thickness to the pulley diameter.</li> <li>Measure the rotation speed of the driver.</li> </ul>						
Contraction of the second seco	When further tightening the belt, the rotation speed increases.	<ul> <li>Check for excessive load.</li> <li>Check the belt tension and the tension rate.</li> <li>Recheck that the belt transmission capacity is appropriate for the load.</li> <li>In an excessively high temperature environment, tighten the belt further.</li> </ul>						
The bearings are excessively heated.	Check for excessive tightening of the belt.	<ul> <li>Check the tension mark or measure the tension with a tensiometer. If the tension is too high, loosen the belt.</li> <li>If the belt is too wide for the load, narrow the belt width.</li> </ul>						
Heat	The belt tension is appropriate.	<ul> <li>Select appropriate bearings according to the bearing allowable load and rotation speed. Check for a shortage of lubricating oil.</li> </ul>						
Belt deflection	The belt deflects to the pulley axis. (Snaking)	• When slight snaking of the belt affects functionality, check that the belt is not bent.						
	The belt deflects perpendicularly to the direction of the pulley axis. (Waving)	• The vibration frequency of the machine resonates with that of the natural vibration frequency of the belt; change the belt tension.						

# For Safe Use of Products

\*Before use, carefully read and follow the safety precautions below.

For safe use, this instruction manual and the product use various symbols and signal words. After fully understanding their meanings, read the safety precautions and follow the instructions. Improper use ignoring the symbols and the signal words may result in the following risks.



Indicates matters that may lead to imminent risk of death or serious injury if ignored or incorrectly handled. Indicates matters that may lead to death or serious injury if ignored or incorrectly handled. Indicates matters that may lead to injury and physical damage if ignored or incorrectly handled.

#### 1. Function and Performance

## DANGER

Do not use the belt as hoisting or towing equipment.

#### WARNING

- Do not use the belt beyond the acceptable ranges specified in the Catalogue.
- When fire and malfunction of the control device are expected due to static electricity generating in the transmission device, use an antistatic belt. Set a neutralization apparatus in the transmission device.
- Do not use the belt for conveying unpackaged food.

#### 2. Storage and Shipping WARNING

- Keep fire away.
- Belt is combustible; do not store or use it near fire or a high-temperature heat source.
- When storing heavy belts, fix them by appropriate jigs or stoppers to prevent falling or rolling.

## CAUTION

- When storing and shipping the belts, do not distort them excessively.
- Store the belts in a well-ventilated, low-humidity place free from direct sunlight. The recommended storage temperature is -10 to  $+30^{\circ}$ C.
- Store the belts in the shipping packages.

#### 3. Installation and Daily Use DANGER

 Be sure to put a safety cover over the rotating part including the belt; hair, gloves or clothes may get caught in the belt pulley.

#### Severity of Risk

• Before maintenance, inspection or replacement, be sure to turn off the switch and check that the machine stops.

#### WARNING

• When cleaning the belt, do not use chemicals harmful to humans.

#### CAUTION

- After replacing the belt with a new one, perform a test operation to adjust tension, elongation rate and operation.
- Do not attach the belt forcibly; use a motor slide, a tension pulley or a special pulling device.
- When abnormal noise, snaking, deviation, slipping, etc.

occur, stop the belt immediately for inspection.

#### 4. Installation, Endless Processing, etc.

#### **WARNING**

• When using solvent or adhesive, fully ventilate the workplace. Keep fire away.

#### CAUTION

 Perform endless joining of belts by using the materials, the methods and the procedures specified by Nitta.

#### 5. Handling Used Belts

## WARNING

Do not leave the belts near fire.

#### CAUTION

- Do not burn used belts; harmful gasses may be generated.
- Lawfully dispose of the used belts as industrial waste.

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