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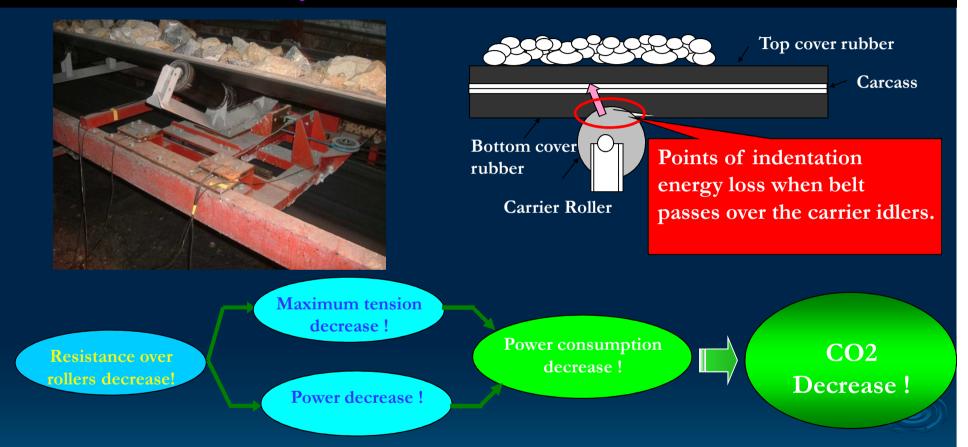
**Required Application Form** Page 26



<u>Eco Carry</u>

A environmentally-friendly

Bando Eco Carry Energy saving !! Tension can be reduced



Bando has developed special bottom cover compounds, which reduce the power consumption by up to 20 - 40% (depending on the operating condition ).



### Eco Carry

A environmentally-friendly

Bando Eco Carry Energy saving !! Reduced Tension



Belt Specification Cover thickness(mm) Cover rubber type(top) Cover rubber type(bottom) Total belt thickness(mm) Belt weight(kg/m)		Conventional Belt	Bando Eco Carry	Bando Eco Carry	
	Belt width(mm)	900	900	900	
	Type of strength	ST-3000	ST-3000	ST-2500	
	Cord Specification	7xSew19, 6.3φ	7xSew19, 6.3φ	7xSew19, 6.5φ	
	Cord size	67pcs, 12.5mm pitch	67pcs, 12.5mm pitch	50pcs, 17.0mm pitch	
Palt Smalfightian	Cover thickness(mm)	6.0 x 6.0	6.0 x 6.0	7.0 x 5.0	
Deit Specification	Cover rubber type(top)	Abrasion resistance	Abrasion resistance	Abrasion resistance	
	Cover rubber type(bottom)	Abrasion resistance	Low friction	Low friction	
	Total belt thickness(mm)	18.3	18.3	19.6	
	Belt weight(kg/m)	29.1	29.1	28.3	
	Safey factor at Maximum Tensions	7.8	8.6	7.3	
Joint	Joint step	2 steps ( step=700mm)	1 steps (step=900mm)	1 steps (step=900mm)	
Power	Necessary power P 【kW】	858	725	713	
Fower	Electric power P <b>^[</b> kW]	953	806	793	





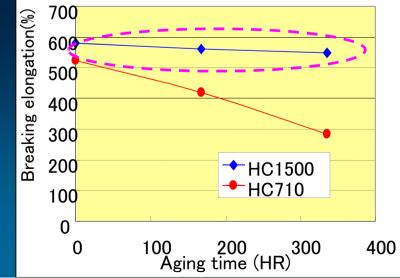
## HC 1500 SUPER HIGH HEAT CARRY

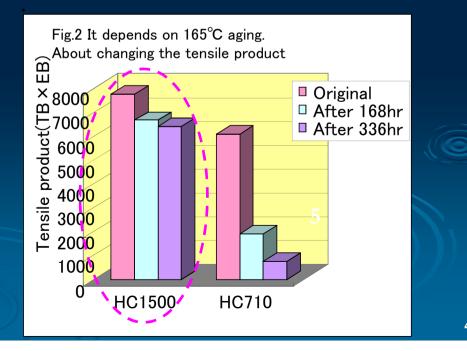


The variation by the heat aging is twice or more than HC710.

# New super high heat resistant belts have been developed,, which is HC1500 (twice HC710 level)

Fig.1 It is possible to put it on 165°C condition making. About the change in breaking expansion EB









## BANDO HEAT CARRY LINE UP HIGH HEAT & GOOD IN ABRASION

### Application

Hot clinker, Sintered ore, Pellets, Dry materials

Features

1. Superior wear resistance in the high temperature.

- 2. Belt width : 100 ~ 3000mm(4~120inches)
- 3. Tensile strength : 200 ~1800N/mm
- 4. Carcass : HN, EP, ST (Steel Cord)

### Bando Heat Carry Line up



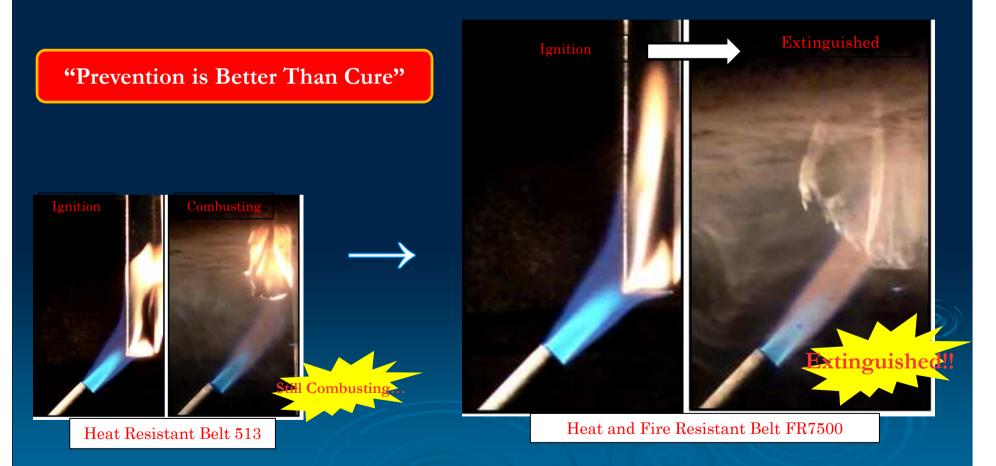
Item	Main Polymer	Max Belt Surface Temp	Max Material Temp
HC513	SBR	Lump: 100°C	Lump: 150°C
		Powder: 40°C	Powder : 70°C
HC730	EPR	Lump: 100°C	Lump: 150°C
(white color)		Powder: 40°C	Powder: 60°C
HC710	EPR	Lump: 180°C	Lump: 400°C
		Powder: 70-130°C	Powder: 180°C
HC770	EPR	Lump: 180°C	Lump: 450°C
	Superior in abrasion	Powder: 70-130°C	Powder: 180°C



## **BANDO Heat & Fire Resistant Lineup (World New Introduction)**

### Combustion Test Result

Our heat resistant conveyor belt keeps combusting for a while after ignition. Our heat and fire resistant conveyor belt extinguishes its fire soon after ignition.





# BANDO Heat & Fire Resistant Lineup (World New Introduction)

Application

Coal, Cokes, Hot Clinker, Sintered Ore, Pellets

THE AVERTHE

Features

Heat Resistance Max. 400°C (Material Temp.)



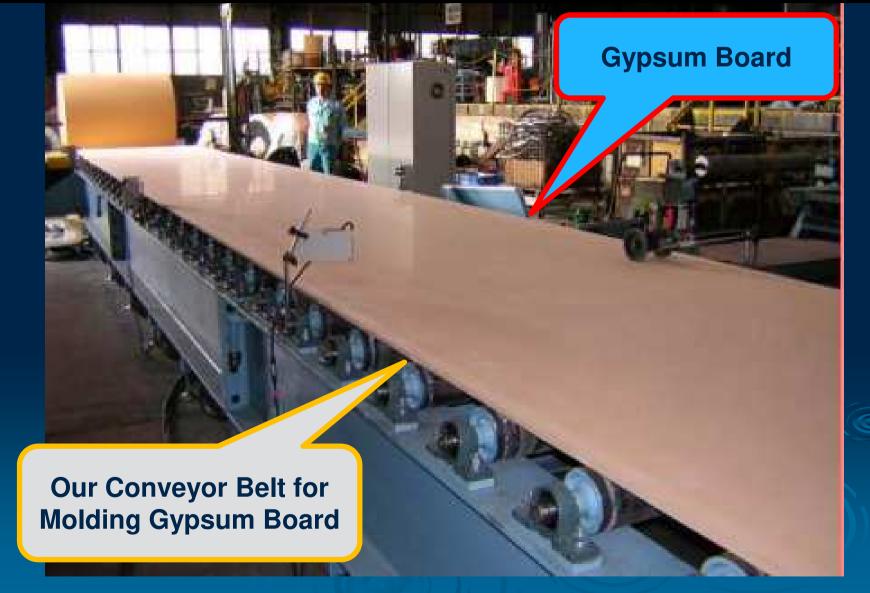
Fire Resistance Complies with the JIS K6324

	Temp.	Item Name	Max Belt Surface Temp.	Max Material Temp.
	Mid	FR7500	Lump: 100°C	Lump: 150°C
	Temp.		Powder: 40°C	Powder: 70°C
R	High	FR7700	Lump: 180°C	Lump: 400°C
	Temp.		Powder: 70-130°C	Powder: 180 °C





# **BANDO Gypsumboard Conveyor Belts**





# BANDO Gypsumboard Conveyor Belts

# Application

- Gypsum Board Molding
- Features

## High-precision Flatness

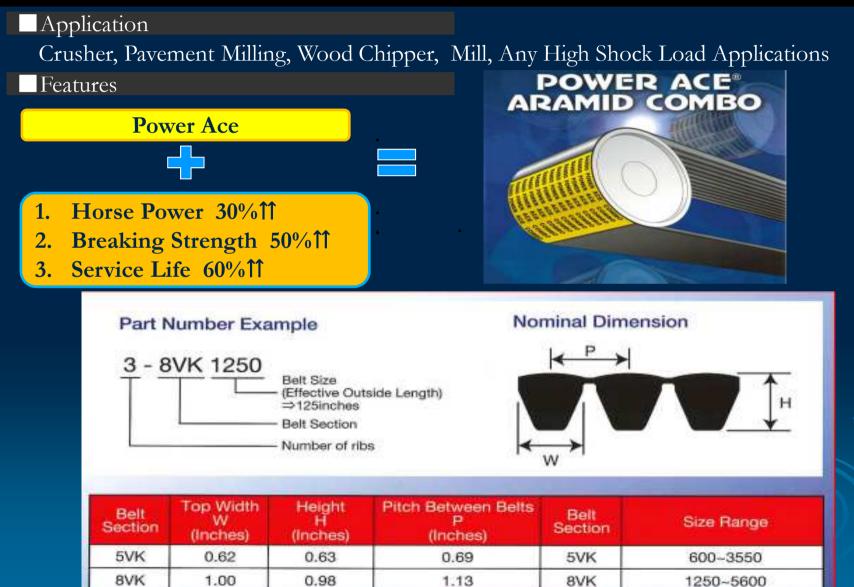
## **Extremely Precise Straightness**

### The Most Strict Tolerances

- (1) Width  $= \pm 1\%$  of Nominal Number
- (2) Total Thickness =  $\pm 1.5$ mm of Nominal Number
- (3) The Thickness Differences of Each Side = Less Than 0.2mm
- (4) The Difference of Total Thickness of the Whole Belt = Less Than 0.5mm
- (5) Flatness = Less Than 0.1mm of Dents and Bumps to the 100mm Length
- (6) Straightness: Less Than 10mm of Mistracking (in Sample Test)



## BANDO Power Ace Aramid Combo V Belts







## BANDO Power Ace Aramid Combo V Belts

### Size Chart

1111	5V	/K	
Description	Effective Outside Length (inches)	Description	Effective Outside Length (inches)
5VK600	60	5VK1500	150
5VK630	63	5VK1600	160
5VK670	67	5VK1620	162
5VK710	71	5VK1700	170
5VK750	75	5VK1800	180
5VK760	76	5VK1900	190
5VK800	80	5VK1920	192
5VK850	85	5VK1955	195.5
5VK860	86	5VK2000	200
5VK900	90	5VK2080	208
5VK920	92	5VK2120	212
5VK950	95	5VK2150	215
5VK960	96	5VK2200	220
5VK970	97	5VK2240	224
5VK1000	100	5VK2360	236
5VK1060	106	5VK2500	250
5VK1120	112	5VK2650	265
5VK1180	118	5VK2800	280
5VK1250	125	5VK3000	300
5VK1280	128	5VK3150	315
5VK1320	132	5VK3350	335
5VK1400	140	5VK3550	355
5VK1460	146		a exercita.
vailable up to	16 ribs		

	8\	/K	
Description	Effective Outside Length (inches)	Description	Effective Outside Length (inches)
8VK1250	125	8VK4500	450
8VK1320	132	8VK4750	475
8VK1400	140	8VK5000	500
8VK1500	150	8VK5600	580
8VK1600	160		
8VK1700	170		
8VK1800	180		
8VK1900	190		
8VK2000	200		
8VK2120	212		
8VK2240	224		
8VK2360	236		
8VK2500	250		
8VK2650	265		
8VK2730	273		
BVK2800	280		
8VK3000	300		
8VK3150	315		
8VK3350	335		
8VK3550	355		
8VK3750	375		
8VK4000	400		
8VK4250	425		



# **BANDO FLEXOWELL**

## Flexowell Conveyor Belts A environmentally-friendly

## **HIGH INCLINATION** Save space!

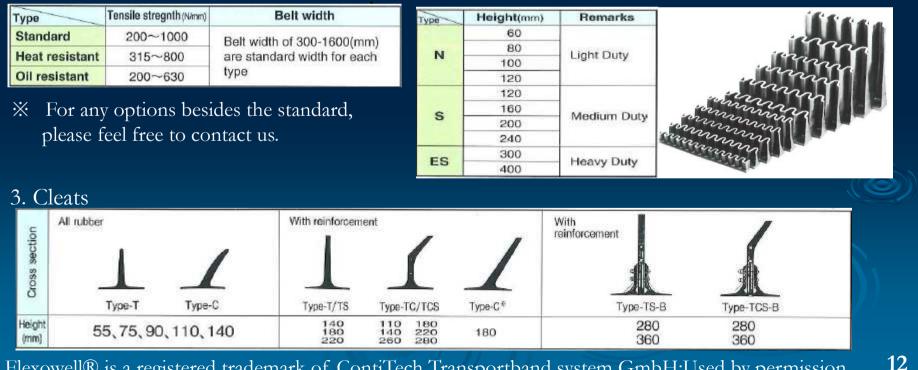
### Application

### Bulk Material, Powder, Oily Material

### Features

- 1. Space Saving
- 2. Curves in any directions
- Bando Flexowell Belt Component 1. Scope of base belt design
- 3. Increased material volume
- 4. Noise reduction

### 2. Size of sidewall



Flexowell® is a registered trademark of ContiTech Transportband system GmbH;Used by permission



 Flexowell Conveyor Belts

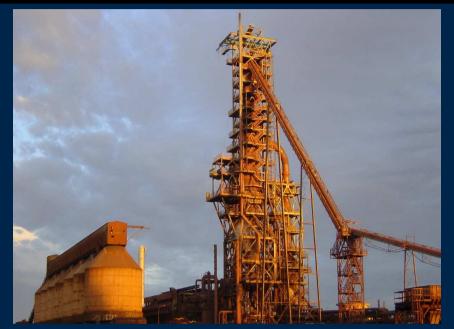
 A environmentally-friendly

## BANDO FLEXOWELL

Bando Flexowell Conveyor Belt has sidewalls and cleats for vertical conveyor lines.

- 1. Space saving
- 2. Vertical Transportation
- 3. Increased material volume
- 4. Noise reduction
- 5. Cost efficiency

## HIGH INCLINATION Save space!



### ■ Main supply record (大きいやつ、Data Natureで探して仕向地を聞く)

2005	Power Plan	t Japan
2005	Steel	Korea
2006	Steel	Korea
2006	Power Plan	t China
2011	OEM	Malaysia
2014	Machinery	Malaysia
2014	Power Plan	t Thailand
2014	Cement	Indonesia
2017	Power Plan	Japan
2017	Power Plan	t Korea

2400xXST3150x8x8x147m 800xXOE800/5+1x4x2x100m 750xXOE1250/6+1x8x4x261m 1200xXOE800/5+1x4x2x282m 600x 4x3x43.5m 800xXOE630/4+1x4x2x60m 900xXOE500/3+1x6x3x73m 1200xXOE630/34+1x4x2x88m 1600xXST2500x8x8x129m 1200xXOE630/4+1x4x2x53m

FX-500ES, TBS-500B,P-500, NB-140, R-400 FX-240S, TCS-220,P-250, NB-350, R-150 FX-200S, TCS-180,P-333, NB-400, R-100 FX-240S, TCS-220,P-333, NB-750, R-150

FX-200S, TCS-180,P-250, NB-450, R-100 FX-120S, TCS-110,P-250, NB-500, R-125 FX-240S, TCS-180,P-250, NB-770, R-140 FX-500ES, TCS-470-B, P-420, NB-800, R-300 FX-240S, TCS-220,P-200, NB-750, R-150

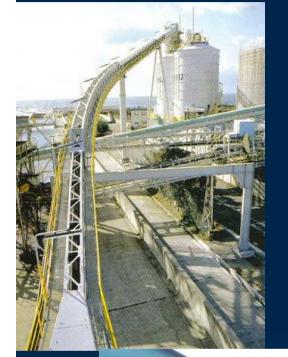




### **<u>Pipe Conveyor Belts</u>**

A environmentally-friendly

# **BANDO PIPE CONVEYOR BELTS**



### Features

- Tube conveyor which avoids material spillage
- 1) Closed belt system with belt transforming to pipe
- 2) New pipe conveyor applicable to conveying any types of materials
- 3) 3D curve. Steep slope transfer layout possible.
- 4) The closed construction makes pollution-free transfer possible
- 5) Reduction of conveyor length

## **Dust prevention !!**









A environmentally-friendly

## **BANDO PIPE CONVEYOR BELTS**

## **Dust prevention!!**

Bando pip	be conveyor belt stand	dard size		
Pipe Diameter (mm Φ)	Belt Width (mm)	PLY x Top x Bottom (mm)	Belt type (N/mm)	Belt weight (kg/m2)
150	600	2p x 3.0 x 2.0	125,160, 250,315	8.4
200	780	2p x 3.0 x 2.0 2p x 5.0 x 2.0	160,250, 315,400	9.1/10.9
250	1000	2p x 3.0 x 2.0 2p x 5.0 x 2.0	250,315, 400,500	10/11.8
300	1100	2p x 3.0 x 2.0 2p x 5.0 x 2.0	315,400 500,630	11.4/12.5
400	1600	4+1p x 6.0 x 2.0	800	19.3
600	2250	5+2p x 6.5 x 3.0	1000	26.6



This system has advantages as a conventional belt conveyor that is the most economical utilized most among all transport systems and has a other advantages to supplement demerits of a conventional belt conveyor regarding transport terms and performance. The system does not transport materials on the troughed belt like a conventional BC but the troughed belt makes a pipe shape and encloses materials for transport after materials are charged on the flat belt.

The belt is flat at the tail end for material charging, is a pipe shape in the intermediate section, and returns flat for material discharging at the head end.

Return run belt also forms a pipe shape in the inter mediate section, which prevents dropping of materials attached to the carrying side belt.



# BANDO STEELCORD CONVEYOR BELTS

### Application

Long span, high strength, high capacity

Features

- 1. High Tensile Strength permits high tension operation
- 2. Excellent bending resistance
- 3. Extremely small elongation
- 4. Excellent dynamic adhesion
- 5. Excellent impact resistance
- 6. Better troughablity
- 7. Longer in life of the spliced part.



CROSS SECTION CARCASS (CORD) tion TOP COVER BELT WIDTH

## CORD DIA. CORD PITCH BOTTOM COVER

\*Basic Specification Info Width Strength Top Cover Rubber Thickness Bottom Cover Rubber Thickness Cover Rubber Grade Belt Length Cord Construction a. Cord Diameter b. Cord Pitch c. Number of Cords

### Steel Cord Conveyor Belts



## **BANDO STEELCORD CONVEYOR BELTS**

### Standard Belt Specification ST member : ST500~ST6000 (Example of cord's construction)

				<b>`</b>					,	
			JIS			DIN			AS	
	Cord Construction	Cord Pitch	Cord Diameter	Cord tensile strength	Cord Pitch	Cord Diameter	Cord tensile strength	Cord Pitch	Cord Diameter	Cord tensile strength
(KN/m)		mm	inch mm	(KN)	mm	inch mm	(KN)	mm	inch mm	(KN)
ST1000	7 × 7	12.0	0.157	12.9	12	0.1.61	13.2	15.3	0.165	16.5
ST1250	7 × 7	12.0	0.177	16.1	14	0.193	19.2	15.3	0.181	20.6
ST2000	7 x 19	12.0	0.236	25.7	12	0.220 5.6	26.4	17.3	0.236	36.4
ST3150	7 x 19	15.0	0.319 8.1	50.4	15.0	0.319	52.0	19.4	0.346	64.6
ST4000	7 x 19	15.0	0.362	64.0	15.0	0.350 8.9	66.0	19.4	0.370 9.4	82.0
ST4500	7 x 19	16.0	0.398	76.8	16.0	0.382	79.2	19.4	0.398	92.3
ST5000	7 x 19	16.0	0.421	85.3	17.0	0.429	93.5		0.000	
ST5400	7 x 19				17.0	0.445	1 01 0.0			
ST5500	7 x 19	17.0	0.457	103.0						



# Special designs are available upon customer's request Cover rubber grade

Cover Rubber Grade	Features	
STANDARD		
Grade-M	Used as cover rubber for general and high tension conveyor belts.	
BS Grade-M	Superior in abrasion resistance and cut and gouge resistance.	
DIN Grade-X	Suitable for conveying large sized lumps, sharp and rugged materials.	
RMA Grade-1		
Grade-N	Used as cover rubber for general and high tension conveyor belts as in the case of	
BS Grade-N	Grade-M.	
DIN Grade-Y	Superior in abrasion resistance, but inferior to Grade M in cut-and-gouge	
	resistance.	
RMA-2	General light duty service. Moderately abrasive materials. Suitable for conveying small-	
	sized materials.	
HEAVY ABRASION	Superior in abrasion resistance, but inferior to Grade M in cut-and-gouge	
Super Abrasion Resistance	resistance.	1
	Suitable for conveying materials tending to cause fast wear on belts.	



## **BANDO ROCK BELTS**





Special Reinforcement

Steel cords

Cover rubber

Cover rubber

**※**Fabric conveyor belt is also available for this specification

### Application

This belt has been designed for conveying lumps of earth or rocks at quarries or mines. It is used in conveyor lines for giant rock belt loaders, over size receivers from grizzly loading chute or ore receivers.



### **Rock Belts**

**UIP 114** 

## BANDO ROCK BELTS (for the building work of KANSAI International Airport)

Range of Production Belt width : Max. 3000mm Tensile strength : Max. 6000N/mm Carcass : Steel cord, Special Nylon fabric Cover rubber : Ultra Impact Resistance (U.I.P.)

Country

Indonesia

Colombia

Indonesia

Belt Specification

2438xNS1500/3px8.0x3.2x151 m

2438xNS1500/3px8.0x3.2x151 m

1800xNS1250/3px12.7x3.2x170m

2400mm

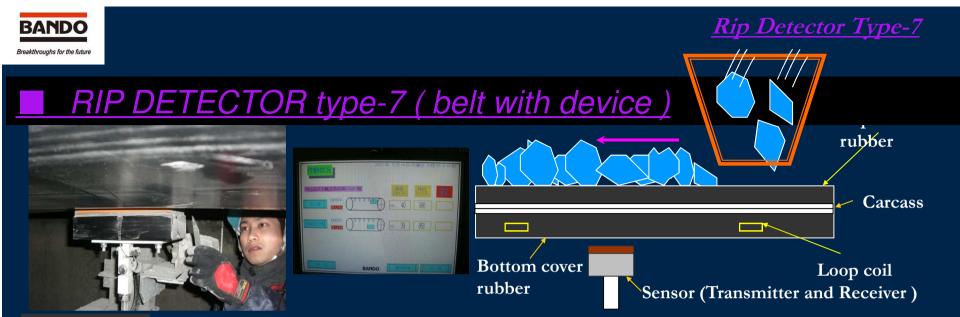
Rock belt Supply record Type of customer

2007 Nickel

2008 Nickel

2008 Nickel





### Principle

Loop coils are embedded in the belt monitored by electromagnetic detectors placed at the material loading chute points. When the conveyor runs, these loop coils pass over the detectors which generate output pulses. If the belt begins to rip, a sensor loop coil is also cut. As this cut loop coil passes over a detector, no pulse is generated. The lack of pulse is recognized by the control box, which signals the drive units to shut the conveyor down to minimize the further damage.



Magnetic current is not generated

# Sensor recognize belt's rip, then stop the belt

### Features

- 1. Maximum 4 lines or less can be remotely intensively controlled.
- 2. The control box and the sensor can make it part up to 2km or less.
- (in case of remotely-type)

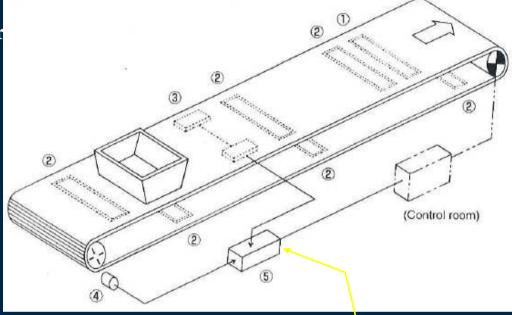




## **<u>RIP DETECTOR type-7 ( belt with device )</u>**

### Layout

A start coil ①, and a number of rip detector coils spaced at a certain interval ②, are built into the conveyor belt; and the system comprises the sensor (transmitter and receiver ) ③which is mounted at the chute part, a pulse generator ④mounted at the driven pulley, and a control box ⑤ for Processing signals from the sensor and the pulse generator.



①Start coil ②Rip detector coil
③Sensor ④Pulse generator
⑤Control box



A environmentally-friendly

## BANDO SUNPAT ECO ( cold splicing materials ) eco friendly and safety

For Cold Splicing

For Repairing of damaged point



### Features

- 1. Halogen organic solvent is not used.
- 2. After splicing work, operating the belt will become possible in two hours.
- 3. High bending resistance and high bonding.
- 4. Efficient work( easy to dry it up)

### Contents

Product Name	Contents per set
Cement : Sunpat ECO#310	0.7L / can
Hardner : Sunpat ECO#305	52g/bottole





## **BANDO SUPERVISORY SERVICE**

Bando offers Technical Service at Site for Splicing Supervising



BANDO



### Improve your maintenance team's knowledge about splicing.

Secure the best quality of splicing.

### Bando hard hat about 1966

This type of hard hat was worn by employees of Japanese company Bando Chemical Industries while constructing conveyor belt systems used at Mount Tom Price to transport ore around the processing complex. During the 1960s Japan was not only a major buyer of Australian iron ore but also a major supplier of large mining equipment and technical skills.

Hamersley Iron hard hat 1990

Rio Tinto

<u>Service</u>



**Service** 





**Quality Assurance** 

Bando is a qualified manufacturer which conforms to ISO standards.

## Quality Assurance ISO 9001:2008 ISO14001:2004



CERTIFICATE OF APPROVAL

This is to certify that the Environmental Management System of:

### Bando Chemical Industries, Ltd. 4-6-6, Minatojima Minamimachi, Chuo-ku, Kobe-shi, Hyogo-ken, 650-0047 Japan

has been approved by Lloyd's Register Quality Assurance to the following Environmental Management System Standards:

ISO 14001:2004, JIS Q 14001:2004

The Environmental Management System is applicable to:

Research, design, development and manufacture of power transmission belts & associated transmission units, (Rubber, PVC, TPU) conveyor belts, electro-photographic parts, molded plastic products, elastomer products & its composites, plastic films, rubber sheets, molded PU products, organoelectronic materials, nanoparticle and functional coating films.

This certificate is valid only in association with the certificate schedule bearing the same number on which the locations applicable to this approval are listed.

Approval Certificate No: YKA 0772509 Original Approval: 21 May 1999

Current Certificate: 1 January 2017

Certificate Expiry: 14 September 2018

Issued by: Lloyd's Register Quality Assurance Limited



Sueen's Tower & 10th Floor, 7-3-1, Minatomiral, Nishi-ku, Yokohama 220-5010, Janar For and on behalf of 1 Trinity Park, Bickenhill Lane, Birmingham, B37 7E5, United Kingdom



#### CERTIFICATE OF APPROVAL

This is to certify that the Quality Management System of:

### Bando Chemical Industries, Ltd. 4-6-6, Minatojima Minamimachi, Chuo-ku, Kobe-shi, Hyogo-ken, 650-0047

Japan

has been approved by Lloyd's Register Quality Assurance to the following Quality Management System Standards:

#### ISO 9001:2008, JIS O 9001:2008

The Quality Management System is applicable to:

Design, development and manufacture of conveyor belts & light conveyor belts and assembly of associated conveying units. Design, development and manufacture of elastomer products and its composites for civil engineering & construction, railway track and general industrial & construction machinery. Design, development and manufacture of plastic films and its composites including decorative, marking, masking, insulation and sticking usage. Design, development and manufacture of blades, rollers and toner products, molded plastic products for electrophotographic machines & office equipment and power transmission belts (except automotive). Design, development and manufacture of organoelectronic materials, nanoparticle and functional coating films. Design, development and manufacture of bancollan squeegee and solid tires.

This certificate is valid only in association with the certificate schedule bearing the same number on which the locations applicable to this approval are listed.

Approval Certificate No: YKA 0953248 Original Approval: 2 May 1996

Current Certificate: 1 January 2017

Certificate Expiry: 14 September 2018



Issued by: Lloyd's Register Quality Assurance Limited



ueen's Tower A. 10th Floor, 2-3-1, Minatomiral, Nishi-ku, Yokohama 220-6010, Japar For and on behalf of 1 Trinity Park, Bickenhill Lane, Birmingham, 837 755, United Kingdom

BANDO

### Breakthroughs for the future

# **Requirement Sheet** Yes, we can design specification for you.

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Spec., Compatibility, etc.)					
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		<u>nfo.</u>																		
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		ame:								Ema	il:									
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	Type of Oik	s/Chemic	als:								sture									
	Conveyor s																			
	Belt Descri																	-	-	
*	Belt Width (									Belt	Spee	ed:								
*	Recess Wid										wall I		nt:						-	
*		 x. t/h:									t/h:								-	
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	Party Reques																			-
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*	Take-Up	Type:	Gravi			erw	inch	/ 50	srew			No					-		-	$\mathbf{O}$
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