Power Transmission and Conveyor Belt **NittaBeltPoly**



B-PB-03



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

These products have delivered numerous results in power transmission for industrial machinery used in the textile, paper manufacturing and flour-milling industries. Also for Nitta has also provided the best types of NittaBeltPoly for conveyance used for printing and box-making machines.

NittaBeltPoly, 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 meet the needs of the customers in the fast-changing market environment.

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Features

Abrasion resistance

Excellent abrasion resistance achieved due to the stable friction coefficient obtained by using the special synthetic rubber (NBR: Acrylonitrile Butadiene Rubber) (Taber Abrasion Test: 40 mg/1000 times) *Abrasive wheel used: H22, Load: 5N

2 High-tensile tension member

High-quality stretched polyamide film is used as a tension member to provide high tensile strength. (Tensile strength of the tension member made of polyamide film: 300 Mpa (3,000 kgf/cm²) or more)

3 High-speed power transmission

High-flex resistance and high-speed power transmission obtained by using a thin and strong tension member to reduce the effect of centrifugal forces (Up to 70 m/s available)

4 Antistatic treatment

NittaBeltPoly (except for some types) is subjected to antistatic treatment to obtain low electrostatic potential. (500 V or less)

5 Wide variety of types

Wide variety of types available to meet the demands in all fields including power transmission and conveyance

6 Easy endless processing

On-site endless processing is available by using Nitta's special tools and adhesives.

Types and Properties

Major ApplicationsPropertiesBelt JunctionRest <th< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></th<>								
Paper fed section of the printing machine Plywood conveyor on both sides 350 0.35 0.35 0.37 Plywood conveyor in nubber especially (automatic lathes, etc.) Dryers Thin rubber especially suitable for flexing/high-speed operation (cylinder drying machine, etc.) Small to medium wood working machines (cylinder drying machines (cylinder drying machine, etc.) Small centrifugal pumps and blowers Thin rubber especially suitable for flexing/high-speed operation flexing/high-speed operation (cylinder drying machines (colleres, etc.) L 250 1.25 0.2 1.4 Power transmission in industrial machines (coaters, etc.) Standard type L 2000 3.45 2.4 2.4 Power transmissions (coaters, etc.) Standard type M 2.00 2.35 2.5 2.4 Power transmissions (coaters, etc.) Standard type M 2.00 2.05 2.07 2.05 Paper working machines (coaters, etc.) Standard type M 2.00 3.05 2.6 2.4 Power transmissions (uti-in-plate conveyors, etc.) Highly abrasion/impact resistant thick cover rubber is used. M 2.00 3.05 2.6 3.0 Compressors Robling machines Paper tube winding machin	Major Applications	Properties	Belt	Туре	Thickness	Member Thickness	-	
printing machine Plywood conveyor Highly abrasion/impact resistant thick cover yearing conditions 1000 <th< td=""><td></td><th>••••</th><td>SG</td><td>250</td><td>0.8</td><td>0.2</td><td>0.8</td><td></td></th<>		••••	SG	250	0.8	0.2	0.8	
Plywood conveyor Image: Figure F		on both sides		350	0.95	0.35	0.9	
Image: constraint of the image				500	1.1	0.5	1.1	
Machine tools (automatic lathes, etc.) Dryers (cylinder drying machine, etc.) Small to medium wood working machines Small centrifugal pumps and blowers Thin rubber especially suitable for flexing/high-speed operation flexing/high-speed operation L 250 1.25 0.2 1.4 Small centrifugal pumps and blowers Thin rubber especially suitable for working machines Small centrifugal pumps and blowers Imachines Standard type Imachines Standard type Imachines Standard type Imachines Standard type Imachines Suitable for normal operating conditions Imachines Standard type Imachines Standard type <td< td=""><td></td><th></th><td></td><td>750</td><td>1.35</td><td>0.75</td><td>1.4</td><td></td></td<>				750	1.35	0.75	1.4	
(automatic lathes, etc.) suitable for 350 1.4 0.35 1.6 Dryers (cylinder drying machine, etc.) 500 1.55 0.5 1.8 Small to medium wood 750 2.2 0.75 2.5 ind blowers 1000 2.45 1.0 2.8 and blowers 1500 2.9 1.5 3.4 Power transmission in industrial machines Standard type M 2000 3.45 2.0 4.0 Power transmissions Standard type Suitable for normal operating conditions 350 2.5 0.55 2.7 Paper working machines Suitable for normal operating conditions 350 2.5 0.55 2.7 Other power transmissions Suitable for normal operating conditions 350 2.5 0.5 2.7 Other power transmissions Suitable for sorear 1500 3.5 1.0 3.0 Compressors Highly abrasion/impact resistant thick cover ruber is used. 1500 3.5 1.5 3.0 Paper tube winding machines Abrasion-resistant conveyors, etc.) Suitable for severe operating conditions 1500				1000	1.6	1.0	1.7	
Dryers (cylinder drying machine, etc.) Small to medium wood working machines and blowers flexing/high-speed operation in medium wood working machines Small centrifugal pumps and blowers 1.4 0.35 1.6 9 1.55 0.5 1.8 9 2.2 0.75 2.5 1000 2.45 1.0 2.8 1000 2.45 1.0 2.8 1000 3.45 2.0 4.0 Power transmission in industrial machinery (fans, pumps, etc.) Standard type M 250 2.2 0.25 2.5 Paper working machines (coaters, etc.) Suitable for normal operating conditions M 250 2.5 0.55 2.7 Paper working machines (thin-plate conveyors, etc.) Suitable for normal operating conditions 1000 3.0 1.0 3.3 Compressors Rolling machines Paper tube winding machines Abrasion-resistant conveyors, (building material conveyors, etc.) Highly abrasion/impact resistant thick cover rubber is used. H 500 3.5 3.6 Viable for severe operating conditions Lisble for severe operating conditions Im 5.0 2.0 5.0 <td></td> <th></th> <td>L</td> <td>250</td> <td>1.25</td> <td>0.2</td> <td>1.4</td> <td></td>			L	250	1.25	0.2	1.4	
(cylinder drying machine, etc.) Small to medium wood 1.55 0.5 1.38 Small centrifugal pumps Free Properties 1000 2.45 1.00 2.45 Small centrifugal pumps Free Properties 1.50 2.69 1.55 3.40 Power transmission in industrial machines (chippers, etc.) Standard type M 2.00 3.45 2.0 2.45 Paper working machines (chippers, etc.) Suitable for normal operating conditions M 2.50 2.55 2.60 Other power transmissions (cut-proof conveyors (thin-plate conveyors, etc.) Standard type M 2.50 2.57 3.00 Paper tube winding machines Paper tube winding machines Paper tube winding machines (building material conveyors, etc.) Highly abrasion/impact resistant thick cover rubber is used. M 500 3.55 3.60 Poiling machines Paper tube winding machines Paper tube winding machines (building material conveyors, etc.) Highly abrasion/impact resistant thick cover rubber is used. 1000 4.50 3.60 Suitable for severe operating conditions 1000 4.50 5.00 5.60 Wilding material conveyors, etc.)	,			350	1.4	0.35	1.6	
working machines Small centrifugal pumps and blowers Standard type M 200 2.5 0.75 2.5 Power transmission in industrial machinery (fans, pumps, etc.) Sawmill machines (chippers, etc.) Standard type M 200 2.2 0.2 2.4 Paper working machines (coaters, etc.) Suitable for normal operating conditions M 250 2.5 0.5 2.7 Other power transmissions Cut-proof conveyors (thin-plate conveyors, etc.) Suitable for normal operating conditions 1000 3.0 1.0 3.3 Compressors Paper tube winding machines Abrasion-resistant conveyors, etc.) Highly abrasion/impact resistant thick cover rubber is used. H 500 3.5 3.6 M 500 2.5 0.55 3.8 Paper tube winding machines (building material conveyors, etc.) Highly abrasion/impact resistant thick cover rubber is used. H 500 3.5 0.75 3.8 MH 500 4.0 1.0 4.4 1500 4.5 1.5 5.0 Quitable for severe (building material conveyors, etc.) 5.0 5.0 5.0	(cylinder drying machine, etc.)			500	1.55	0.5	1.8	
Small centrifugal pumps and blowersHighly abrasion/impact resistant thick cover rubber is used.10002.451.002.8115002.0003.452.004.00Power transmission in industrial machinery (fans, pumps, etc.)Standard typeM25002.20.22.4Paper working machines (coaters, etc.)Standard typeM25002.50.352.60Paper working machines (coaters, etc.)Standard type5002.50.552.7Paper working machines (coaters, etc.)10003.001.003.30Other power transmissions Cut-proof conveyors (thin-plate conveyors, etc.)Highly abrasion/impact resistant thick cover rubber is used.H5003.51.503.8Rolling machines Paper tube winding machines (building material conveyors, etc.)Highly abrasion/impact resistant thick cover rubber is used.H5003.50.553.4Mine Equation10004.001.004.004.004.00Mine Equation15004.501.505.004.00Mine Equation15004.501.505.004.00Mine Equation15004.001.004.004.00Mine Equation15004.501.505.004.00Mine Equation15004.501.505.004.00Mine Equation15004.501.505.005.00Mine Equation15005.005.0				750	2.2	0.75	2.5	
Power transmission in industrial machinery (fans, pumps, etc.) Sawnill machines (chippers, etc.)Standard type Suitable for normal operating conditionsM2502.20.22.4Paper working machines (coaters, etc.)Suitable for normal operating conditions3502.350.352.6Other power transmissions Cut-proof conveyors (thin-plate conveyors, etc.)10003.01.03.3Compressors Paper tube winding machines Abrasion-resistant conveyors, etc.)Highly abrasion/impact resistant thick cover rubber is used.H5003.51.53.0Compressors (building material conveyors, etc.)Highly abrasion/impact resistant thick cover operating conditionsH5003.50.753.8Mithing material conveyors, etc.)Highly abrasion/impact resistant thick cover operating conditionsH5004.51.55.0Mithing material conveyors, etc.)Suitable for severe operating conditions15004.51.55.0Mithing material conveyors, etc.)15004.51.55.01.55.0Mithing material conveyors, etc.)15005.02.56.01.0Mithing material conveyors, etc.)15005.53.06.5Mithing material conveyors, etc.)5.05.05.05.0Mithing material conveyors, etc.)1.55.05.05.0Mithing material conveyors, etc.)5.05.05.05.0	Small centrifugal pumps			1000	2.45	1.0	2.8	
Power transmission in industrial machinery (fans, pumps, etc.) Sawmill machines (chippers, etc.)Standard typeM2502.20.22.4Sawmill machines (cohter power transmissions Cut-proof conveyors (thin-plate conveyors, etc.)Standard typeM2502.50.552.6Other power transmissions Cut-proof conveyors (thin-plate conveyors, etc.)10003.01.03.3Compressors Rolling machines Paper tube winding machines (building material conveyors, (building material conveyors, etc.)Highly abrasion/impact resistant thick cover rubber is used.H5003.51.54.0Suitable for severe operating conditionsH5003.50.754.1Mather explanationSuitable for severe operating conditions10004.01.04.4Mather explanation15004.55.05.05.05.0Mather explanationSuitable for severe operating conditions10004.01.04.4Min diagonal explanation15004.55.05.05.05.0Mather explanation15004.55.05.05.05.05.0Mather explanation15005.05.05.05.05.05.0Mather explanation15005.05.05.05.05.0Mather explanation15005.05.05.05.05.0Mather explanation15005.05.05.05.05.0 <t< td=""><td>and blowers</td><th></th><td></td><td>1500</td><td>2.95</td><td>1.5</td><td>3.4</td><td></td></t<>	and blowers			1500	2.95	1.5	3.4	
machinery (fans, pumps, etc.) Sawmill machines (chippers, etc.)Suitable for normal operating conditions3502.350.352.6Paper working machines (coaters, etc.)05002.50.52.7Other power transmissions Cut-proof conveyors (thin-plate conveyors, etc.)10003.01.03.3Compressors Rolling machines Paper tube winding machines Abrasion-resistant conveyors, (building material conveyors, etc.)Highly abrasion/impact resistant thick cover operating conditionsH5003.50.553.8Mighly abrasion/impact resistant thick cover operating conditionsH5003.50.553.4Multiple material conveyors, etc.)Suitable for severe operating conditions4.01.04.4MH25005.02.05.61.5MH25005.02.56.0MH25005.02.56.0MH25005.03.06.5				2000	3.45	2.0	4.0	
Sawmill machines (chippers, etc.)operating conditions3502.350.352.6Paper working machines (coaters, etc.)0ther power transmissions Cut-proof conveyors (thin-plate conveyors, etc.)7502.750.753.0Other power transmissions Cut-proof conveyors (thin-plate conveyors, etc.)10003.01.03.3Compressors Rolling machines Abrasion-resistant conveyors, (building material conveyors, etc.)Highly abrasion/impact resistant thick cover rubber is used.H5003.50.53.8Suitable for severe operating conditions10004.01.04.410004.51.55.020005.02.56.0MH25005.02.56.030005.53.06.5			М	250	2.2	0.2	2.4	
(chippers, etc.) Paper working machines (coaters, etc.)Image working machines (coaters, etc.)Source Image working machines (coaters, etc.)Source Image working machines Image working machines Paper tube winding machines Abrasion-resistant conveyors, etc.)Highly abrasion/impact resistant thick cover rubber is used.HSource Image working machines Image working machines Image working machines Abrasion-resistant conveyors, etc.)Highly abrasion/impact resistant thick cover rubber is used.HSource Image working machines Image working machines Image working machines Image working machines Abrasion-resistant conveyors, etc.)Highly abrasion/impact resistant thick cover rubber is used.HSource Image working machines Image working machines Image working machines Image working machines Image working machines Image working machines Abrasion-resistant conveyors, etc.)Highly abrasion/impact resistant thick cover rubber is used.HSource Image working				350	2.35	0.35	2.6	
(coaters, etc.) 0/50 2.75 0.75 3.0 Other power transmissions 1000 3.0 1.0 3.3 Cut-proof conveyors 1500 3.5 1.5 4.0 (thin-plate conveyors, etc.) 1500 4.0 2.00 4.6 Compressors Highly abrasion/impact H 500 3.5 0.5 3.8 Paper tube winding machines Highly abrasion/impact resistant thick cover 750 3.75 0.75 4.1 Suitable for severe operating conditions 1500 4.0 1.0 4.4 1500 4.5 1.5 5.0 5.0 5.0 5.0 etc.) MH 2500 5.0 2.0 5.6	(chippers, etc.)			500	2.5	0.5	2.7	
Other power transmissions Cut-proof conveyors (thin-plate conveyors, etc.)Highly abrasion/impact resistant thick cover rubber is used.Highly abrasion/impact resistant thick cover rubber is used.H5003.50.53.8Compressors Rolling machines Paper tube winding machines (building material conveyors, etc.)Highly abrasion/impact resistant thick cover operating conditionsH5003.50.53.8MH5003.750.754.1MH10004.01.04.410004.51.55.020005.05.05.0MH25005.05.0MH25005.05.0MH25005.06.5	, v			750	2.75	0.75	3.0	
(thin-plate conveyors, etc.)Highly abrasion/impact resistant thick cover rubber is used. Suitable for severe operating conditionsH5003.51.54.0MH20004.02.04.6MH5003.50.53.8Abrasion-resistant conveyors, (building material conveyors, etc.)Suitable for severe operating conditionsH5003.50.53.8MH20004.01.04.4MH20005.02.05.0MH25005.02.05.6MH25005.02.56.030005.53.06.5				1000	3.0	1.0	3.3	
Compressors Rolling machines Paper tube winding machines (building material conveyors, etc.)Highly abrasion/impact resistant thick cover rubber is used. Suitable for severe operating conditionsH5003.50.53.810004.01.04.110004.01.04.415004.51.55.020005.02.05.6MH25005.02.56.0MH25005.02.56.0				1500	3.5	1.5	4.0	
Rolling machines Paper tube winding machines Abrasion-resistant conveyors (building material conveyors, etc.)resistant thick cover rubber is used. Suitable for severe operating conditions7503.750.754.110004.01.04.415004.51.55.020005.02.05.6MH25005.02.56.0				2000	4.0	2.0	4.6	
Paper tube winding machines Abrasion-resistant conveyors (building material conveyors, etc.)rubber is used. Suitable for severe operating conditions10004.01.04.410004.51.55.020005.02.05.6MH25005.02.56.030005.53.06.5			Н	500	3.5	0.5	3.8	
Abrasion-resistant conveyors (building material conveyors, etc.) Suitable for severe operating conditions 1000 4.0 1.0 4.4 1500 4.5 1.5 5.0 2000 5.0 2.0 5.6 MH 2500 5.0 2.5 6.0 3000 5.5 3.0 6.5	•			750	3.75	0.75	4.1	
etc.) 1500 4.5 1.5 5.0 2000 5.0 2.0 5.6 MH 2500 5.0 2.5 6.0 3000 5.5 3.0 6.5	Abrasion-resistant conveyors	Suitable for severe		1000	4.0	1.0	4.4	
MH 2000 5.0 2.0 5.6 MH 2500 5.0 2.5 6.0 3000 5.5 3.0 6.5		operating conditions		1500	4.5	1.5	5.0	
3000 5.5 3.0 6.5				2000	5.0	2.0	5.6	
			MH	2500	5.0	2.5	6.0	
4000 6.5 4.0 7.6				3000	5.5	3.0	6.5	
				4000	6.5	4.0	7.6	

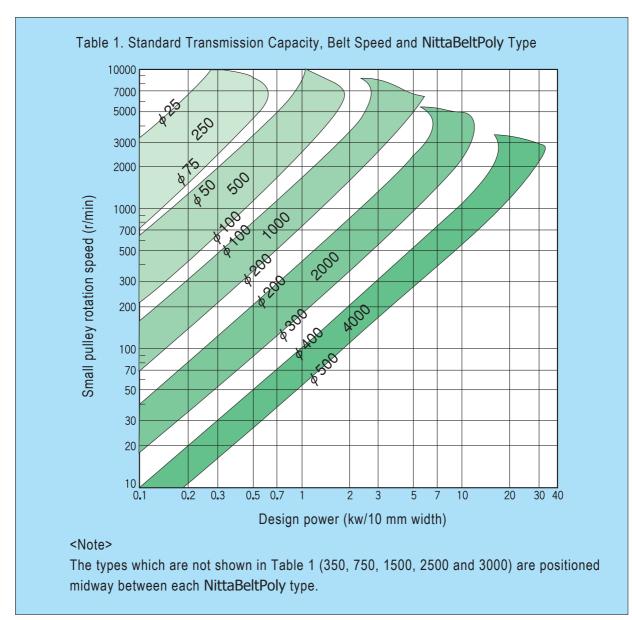
			Cover N	laterial				stable co	nd under onditions kgf/cm width)		iameter		Standard	Temperature
	Top sur	face		В	ottom s	urfac	e	(IN/IIIII WIUUI,		(mi	11)	Antistatic property		range for continuous use
Material	Surface configuration	Color	Friction coefficient	Material	Surface configuration	Color	Friction coefficient	At 2% elongation	At 1% elongation	For power transmission	For conveyance	r .r. y	(mm)	(°C) (For intermittent use)
NBR	Weave	Green		NBR	Weave	Black		6.0	3.0	25	20	0	300	
NBR	Weave	Green	0.3 to	NBR	Weave	Black	0.3 to	10.5	5.2	35	30	0	300	—20 to +80
NBR	Weave	Green		NBR	Weave	Black		15.0	7 . 5	50	40	0	300	
NBR	Weave	Green	0.4	NBR	Weave	Black	0.4	22.5	11.2	75	50	0	300	(-30 to +100)
NBR	Weave	Green		NBR	Weave	Black		30.0	15.0	100	60	0	300	
NBR	Weave	Blue		NBR	Weave	Black		6.0	3.0	25	20	0	300	
NBR	Weave	Blue	0.5	NBR	Weave	Black	0.5	10.5	5.2	35	30	0	300	
NBR	Weave	Blue	0.5	NBR	Weave	Black	0.5	15.0	7.5	50	40	0	300	00 to 1 00
NBR	Weave	Blue	to	NBR	Weave	Black	to	22.5	11 . 2	75	50	0	300	-20 to +80
NBR	Weave	Blue	0.6	NBR	Weave		0.6	30.0	15.0	100	60	0	300	(-30 to +100)
NBR	Weave	Blue	(Against iron)	NBR	Weave		(Against iron)	45.0	22 . 5	150	90	0	300	
NBR	Weave	Blue		NBR	Weave	Black		60.0	30.0	200	120	0	300	
NBR	Weave	Blue		NBR	Weave	Black		6.0	3.0	25	25	0	300	
NBR	Weave	Blue		NBR	Weave	Black		10.5	5.2	35	35	0	300	
NBR	Weave	Blue	0.5	NBR	Weave	Black	0.5	15.0	7.5	50	40	0	300	
NBR	Weave	Blue	to	NBR	Weave	Black		22.5	11.2	75	50	0	300	-20 to +80
NBR	Weave	Blue	0.6	NBR	Weave		0.6	30.0	15.0	100	60	0	300	(-30 to +100)
NBR	Weave	Blue	(Against iron)	NBR	Weave		(Against iron)	45.0	22.5	150	90	0	300	
NBR	Weave	Blue		NBR	Weave	Black		60.0	30.0	200	120	0	300	
NBR	Weave	Blue	0.5	NBR	Weave	Black	0.5	15.0	7.5	50	50	0	300	
NBR	Weave	Blue	0.5	NBR	Weave	Black	0.5	22.5	11.2	75	60	0	300	
NBR	Weave	Blue	to	NBR	Weave	Black	to	30.0	15.0	100	75	0	300	
NBR	Weave	Blue	0.6	NBR	Weave		0.6	45.0	22.5	150	120	0	300	—20 to +80
NBR	Weave	Blue	(Against iron)	NBR	Weave		(Against iron)	60.0	30.0	200	160	0	300	(-30 to +100)
NBR	Weave	Blue	0.5	NBR	Weave	Black	0.5	75.0	37.5	250		0	300	
NBR	Weave	Blue	to 0.6	NBR	Weave	Black	to 0.6	90.0	45 . 0	300	—	0	300	
NBR	Weave	Blue	(Against iron)	NBR	Weave	Black	(Against iron)	120.0	60.0	400		0	300	

Major ApplicationsPropertiesBelt TypeTotal Thickness (mm)Tension Member Thickness (mm)Weigh (kg/m2)	
Corrugated board machines (Paper feeding to and discharging from the rotary cutter)Highly scratch/abrasion resistant surface material usedCBX-7S4.20.752.5	
Box making machines (Counter eject)High gripping force and abrasion resistance realizedCBE-20Approx.7.05.9	
For conveying cardboard boxesTable-supported high speed conveyance possibleCBG-7S3.50.753.5	
Conveying cardboard boxes High conveyance capacity NRT 0 Approx.5.5 — 4.8	
Conveying plywoodachieved due to the rough top conveyor belt100Approx.4.53.6	
Suitable for severe 300 Approx.6.5 — 6.5	
operating conditions 500 Approx.6.0 0.5 5.6	
RT 300 Approx.7.0 — 6.5	
Printer paper feedTop surface with high friction coefficientIRTA3501.150.351.2	
Bottom surface with high sliding propertiesKCS3501.10.350.8	
Folder gluerHigh conveyance capacityXH500-33.00.53.4Conveying plywoodachieved due to rubber	
Conveying plywoodachieved due to rubber properties500-3.53.50.53.9	
500-4 4.0 0.5 4.3	
500-6 6.0 0.5 7.4	
750-4 4.0 0.75 4.4	
1000-4 4.0 1.0 4.4	
Table-supported conveyor Excellent sliding on both TTA 500N 1.3 0.5 1.2	
Stopper conveyor surfaces 1000N 1.8 1.0 1.7	
TTB 1000 2.8 1.0 2.5	
Table-supported conveyor Excellent sliding on one surface GLTB 500 2.05 0.5 2.0	
1000 2.75 1.0 2.6	
GMTB 1000 3.0 1.0 2.9	
Sloping conveyor High conveyance capacity TW 250 1.8 0.2 1.5	
achieved due to the rough surface5002.10.51.9	
TWH 500 3.8 0.5 3.8	

Cover Material								Axial load under stable conditions (N/mm width; kgf/cm width)		Minimum pulley diameter (mm)			Standard	Temperature
	Top sur	face		В	ottom s	urfac	e	(w/mm width;	kgi/cm width)			Antistatic property	maximum width	range for continuous use
Material	Surface configuration	Color	Friction coefficient	Material	Surface configuration	Color	Friction coefficient	At 2% elongation	At 1% elongation	For power transmission	For conveyance	,	(mm)	(°C) (For intermittent use)
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
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
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
NBR	Rough top	Blue	Approx. 1.0 (Against cardboard)	Polyester	Canvas	White	0.2 to 0.25 (Against SUS)		1.3		100	0	300	
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	—20 to +80
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	(-30 to +100)
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 10 100)
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	
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
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)
NBR	Weave	Blue		NBR	Weave	Blue		15.0	7.5		50	0	300	
NBR	Weave	Blue	0.8	NBR	Weave	Blue	0.7	15.0	7.5		55	0	300	
NBR	Weave	Blue	to	NBR	Weave	Blue	to	15.0	7.5		60	0	300	—20 to +80
NBR	Weave	Blue	0.9	NBR	Weave	Blue	0.8	15.0	7.5		80	0	300	(-30 to +100)
NBR	Weave	Blue		NBR	Weave	Blue	(Against SUS)	22.5	11.2		75	0	300	
NBR	Weave	Blue		NBR	Weave	Blue		30.0	15.0		75	0	300	
Polyamide	Canvas	Blue	0.2 to 0.3	Polyamide	Canvas	Blue	0.2 to 0.3	15.0	7.5		40		300	—20 to +80
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)
Polyamide	Canvas	Blue	0.2 to 0.3	Polyamide	Canvas	Blue	0.2 to 0.3	30.0	15.0		60		300	
NBR	Weave	Blue	0.5 to 0.6	Polyamide	Canvas	Blue	0.2 to 0.3	15.0	7.5		40	0	300	—20 to +80
NBR	Weave	Blue	0.5 to 0.6	Polyamide	Canvas	Blue	0.2 to 0.3	30.0	15.0		60	0	300	(-30 to +100)
NBR	Weave	Blue	0.5 to 0.6	Polyamide	Canvas	Blue	0.2 to 0.3	30.0	15.0		60	0	300	
NBR	Rough weave	Blue		NBR	Weave	Black	0.5 to 0.6	6.0	3.0		25	0	300	—20 to +80
NBR	Rough weave	Blue		NBR	Weave	Black	0.5 to 0.6	15.0	7.5		40	0	300	(-30 to +100)
NBR	Rough weave	Blue		NBR	Weave	Black	0.5 to 0.6	15.0	7.5		40	0	300	(50 10 (100)

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
n: Drive rotation speed

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

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

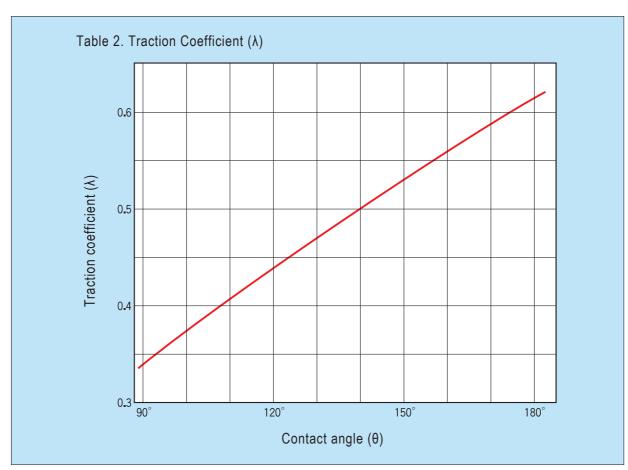
P: Transmission power (kw)

(mm) (mm)

(4) Calculate the pulley contact angle (θ) (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 (λ) 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).

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

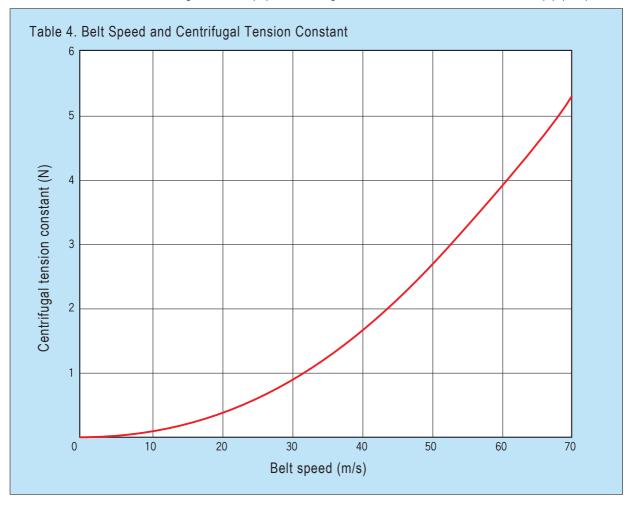
(8) Calculate the belt width limit (b).

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

Round the calculated belt width to the nearest 5 mm.

(9) Obtain the centrifugal constant from Table 4 below. Then calculate the centrifugal tension (tc) by 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).

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

(11) Calculate the elongation rate (ϵ) of the selected belt.

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

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.

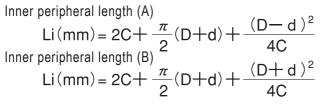
During operation stop: Fs (N) =
$$2\text{to} \times \frac{\varepsilon}{2} \times b \times \sin \frac{\theta \times \pi}{2 \times 180^{\circ}}$$

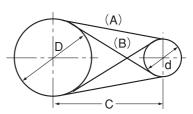
During operation: Fr(N) = $\left(2\text{to} \times \frac{\varepsilon}{2} - 2\text{tc}\right) \times b \times \sin \frac{\theta \times \pi}{2 \times 180^{\circ}}$

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

2. Belt Length Calculation Formula

Calculate the inner peripheral length (Li) as follows:





The length of NittaBeltPoly 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) = $\frac{Lc}{1+E}$ $E = \frac{\epsilon}{100}$ ϵ : Elongation rate (%)

(Note) Please inform us of the pulley diameter and the coordinate; 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 + 10mm b = Belt width (mm)

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

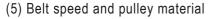
Table 5. Standard Crown hc (mm)

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	2.5
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

(3) Calculate the curvature radius (rc) from the following formula.

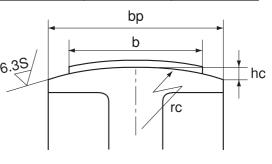
$$rc(mm) = \frac{bp^2}{8hc}$$

(4) The pulley surface finish is required to be 6.3S or more.



Belt speed	30 m/s or less	30 to 50m/s	50 m/s or more
Pulley material	Cast iron, aluminum, mild steel	Cast iron or mild steel	Mild steel

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

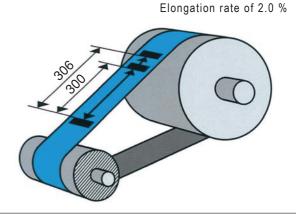


Precautions for Use

The followings are the precautions for using NittaBeltPoly.

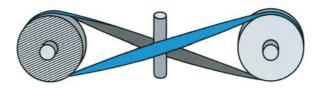
Belt Tension

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

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

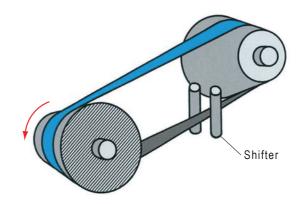


Belt Shifters

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.

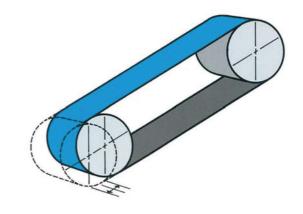
When selecting the belt type, consider the shifting property as well as the transmission calculation.



Attaching the Belt

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

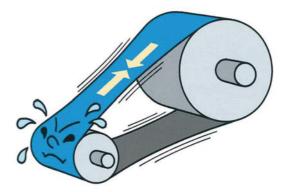
If the adjuster is not available, cover the pulley edges with waste cloth, etc. to prevent damage to the belt



Belt Elongation Rate

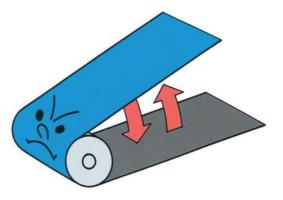
The maximum allowable elongation rate for NittaBeltPoly is 3 %.

When the belt elongation rate is more than 3 %, use the belt type of one rank higher or the wider type.



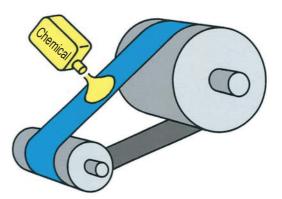
Minimum Pulley Diameter

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



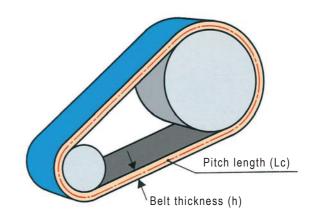
Resistance to Chemicals

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



Belt Length

NittaBeltPoly is manufactured according to the 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 occurs, 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 when the load is low; the belt comes off when the load becomes high.	 The load is high; tighten the belt further or lower the load.
	The belt comes off even when the load is low.	 Correct the pulley parallelism. Tighten the part where the belt comes off. If the tension pulley is used, tilt its axis.
The specified speed is not reached.	When further tightening the belt, the rotation speed does not increase.	 Measure the pulley diameter. When the speed ratio is large, add the belt thickness to the pulley diameter. Measure the rotation speed of the driver.
() · · · · · · · · · · · · · · · · · ·	When further tightening the belt, the rotation speed increases.	 Check for excessive load. Check the belt tension and the tension rate. Recheck that the belt transmission capacity is appropriate for the load. At a place with excessively high temperature, tighten the belt further.
The bearings are excessively heated.	Check for excessive tightening of the belt.	 Check the tension mark or measure the tension by the tensiometer. If the tension is too high, loosen the belt. If the belt is too wide for the load, narrow the belt width.
Heat	The belt tension is appropriate.	 Select appropriate bearings according to the bearing allowable load and rotation speed. Check for shortage of the lubricating oil.
Belt deflection	The belt deflects to the pulley axis. (Snaking)	 When slight snaking of the belt affects the function, 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 Safety Use of NittaBeltPoly

1. Function and Performance

DANGER

• Do not use NittaBeltPoly as hoisting or towing equipment.

WARNING 🥂

- Do not use NittaBeltPoly beyond the acceptable range specified in the Catalog.
- When fire and malfunction of the controlled equipment are expected due to static electricity generating in the belt transmission device, use an antistatic belt. Set a neutralization apparatus in the transmission device.
- Do not use NittaBeltPoly for conveying prepackaged food.

2. Storage and Shipping WARNING

- NittaBeltPoly 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 and rolling.

CAUTION

- When storing and shipping the belts, do not distort them excessively.
- Store the belts in a low-temperature place free from direct sunlight. The recommended storage temperature is - 10 to + 30 ℃.

3. Attaching the Belt and Daily Use

DANGER 🥂

- Be sure to put a cover over the rotating part including the belt.
- Before maintenance and inspection, 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, skidding, etc. occur, stop the belt immediately for inspection.

4. Attachment, Endless Processing, etc.

WARNING 🥂

• When using solvents or adhesives, fully ventilate the workplace. Keep fire away from the workplace.

CAUTION

- Carry out the endless processing by using the materials, the methods and the procedures specified by Nitta.
- Handle solvents and adhesives as directed.

5. Handling Used Belts CAUTION

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

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