



**CHUKOH FLO® BELT
GENERAL CATALOG**

Laminating

The higher strength of a belt or the mixing of different materials may be required from a design perspective. Our techniques and know-how developed over the years respond to a wide range of laminating requirements from narrow to wide widths.

Smaller pulley diameter

The design of a belt line sometimes requires a smaller pulley diameter. In such a case, it is recommended to use the A-type and N-type belts which have a higher resistance to bending.

“Snaking” prevention

“Snaking” is one of the unavoidable problems in designing a belt line. Our True-track “snaking” prevention belt and automatic “snaking” adjustment device achieve stable and smooth belt running.

Various belt base materials

Chukoh Chemical Industries is well-known as one of the leading fluoropolymer fabric makers having the world's best quality and production volume. Among a wide variety of our materials, we will select a belt base material that is best suited to your belt line.

Chukoh Flo® Belt is the top brand of fluoroplastic belts.

Cloths such as glass or aramid are coated with our fluoropolymer for making this high-performance belt. Chukoh Flo® Belt created using our techniques and know-how in fluoropolymer treatment is primarily used in the food production process, but is also suited to textiles, building materials, plastics, ceramics and many other types of manufacturing and production work.

High-quality fluoroplastic belt developed from our long experience.

Various belt joining methods

When it comes to creating a secure and stable running belt, the method of joining is of the utmost importance. At Chukoh, we have developed our own unique techniques and know-how from which we would like to propose the most useful well-suited belt joining methods.

Heat resistance

These resin belts are fashioned to have the highest level of heat resistant properties. At extreme low temperatures the belt also performs well, making these belts useful for a variety of uses in a very wide range of temperature exposures.

Non-adhesive quality

These resin belts have excellent non-adhesion properties. Consequently, they are ideal for use in conveyors for particularly sticky items.

Dimensional stability

Clothes such as glass or aramid of excellent machining keep the dimensions and integrity of these belts stable, even when exposed to high temperature ranges.

Conforming food sanitation act

Chukoh Flo® Belt conforms to the specification standards of utensils, containers and packages (Ordinance No.370 of the Ministry of Health, Labor and Welfare in 1959), and is meant to be used safely in the food production process.

On-site building and maintenance

Our expert staff with vast experience performs on-site building as well as timely follow-up maintenance.

Other characteristics

Excellent resistance to oils and chemicals / Light weight and with excellent durability / Less noise while running / Can be used in a microcircuit layout.



Product lineup...P

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■ BGF-series

A glass cloth coated with fluoroplastic. This belt uses the G-type fabric as its base material. This standard type belt is our most versatile and employed in a wide variety of uses.

● **Service temperature range: -100 to 260°C**
(According to service conditions)

■ BGB-series and BGC-series (antistatic type)

Treated by our unique electrification prevention method, this belt is ideal for use in a conveyor sensitive to static charges. There are two colors of your choice: black (BGB) and gray (BGC).

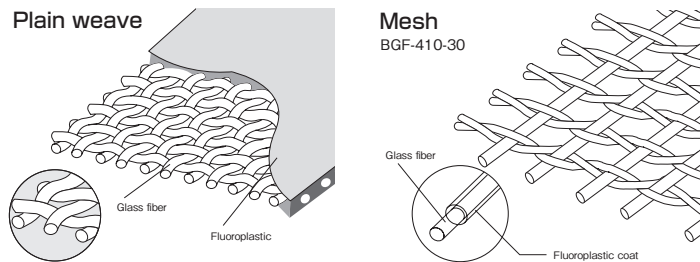
■ G-type seamless belt

Our unique manufacturing technologies have achieved this seamless belt, which is suited to severe service conditions where any slight step at a belt joining part is not acceptable.

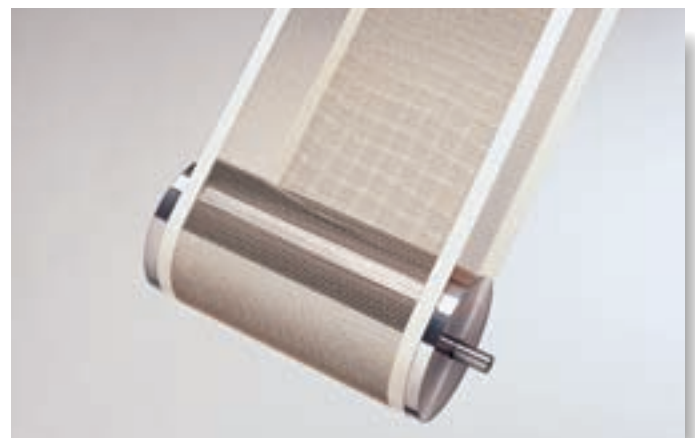
■ Super belt

This is an all-new belt with a higher penetration resistance, smaller resistance in separation, durability and slipping characteristics than our standard products, and ideal for use in food production involving a large amount of oil, including hamburger.

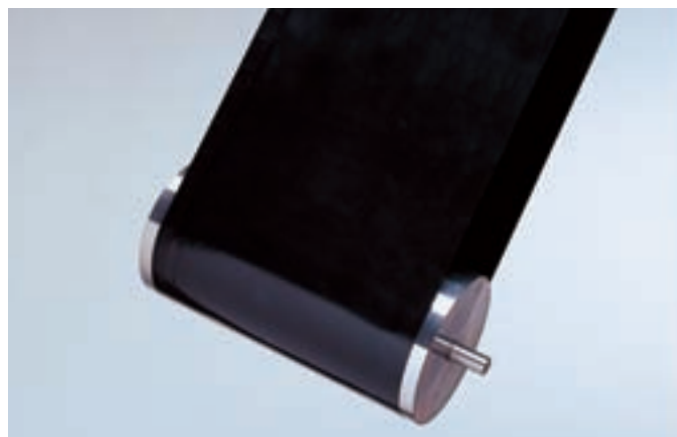
■ Material configuration



■ BGF-500-10



■ BGF-410-30



■ BGB-500-10



■ BGC-500-10

G-type belt

Conforming food sanitation act

■ Designation of the product number

B G F - 4 0 0 - 6

Nominal thickness:
Displayed number x 25.4 / 1000 (mm)

Cloth structure:
00: Plain weave
10: Mesh

Resin impregnation level:
3: Less than the standard
4: Standard
5: More than the standard

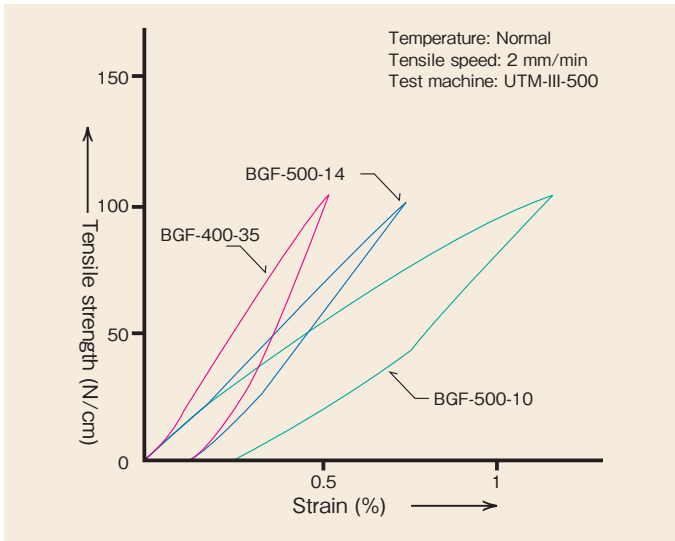
Color:
F: Natural
B: Black
C: Gray

Fabric type:
G: Glass
A: P-aramid
N: N-aramid
HG: Super type

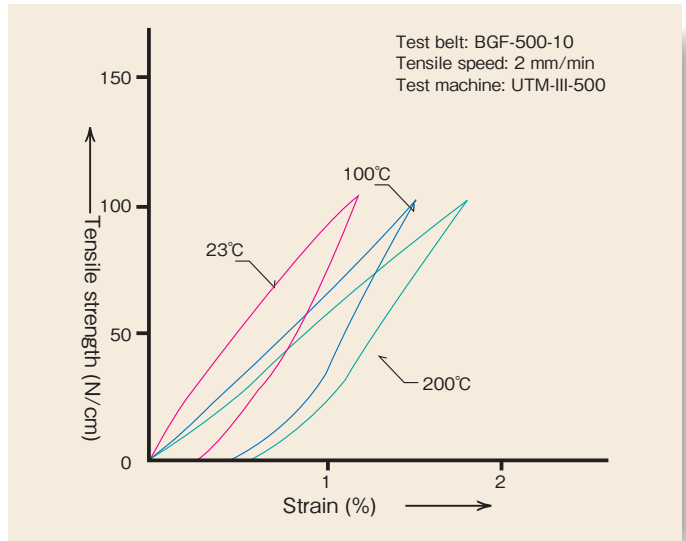
Chukoh Flo® Belt

Belt characteristics

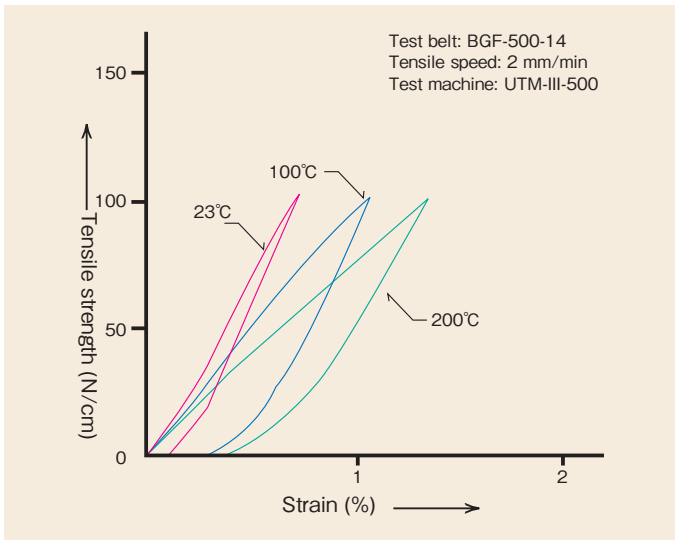
Stress-strain curve (warp)



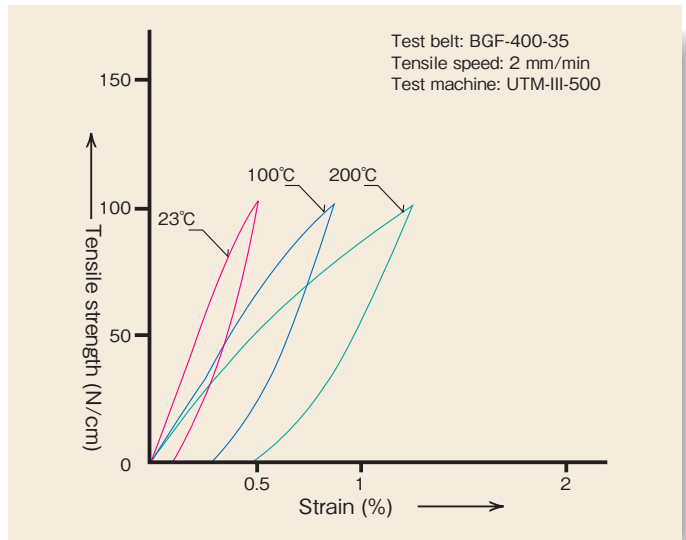
Stress-strain curve during heating



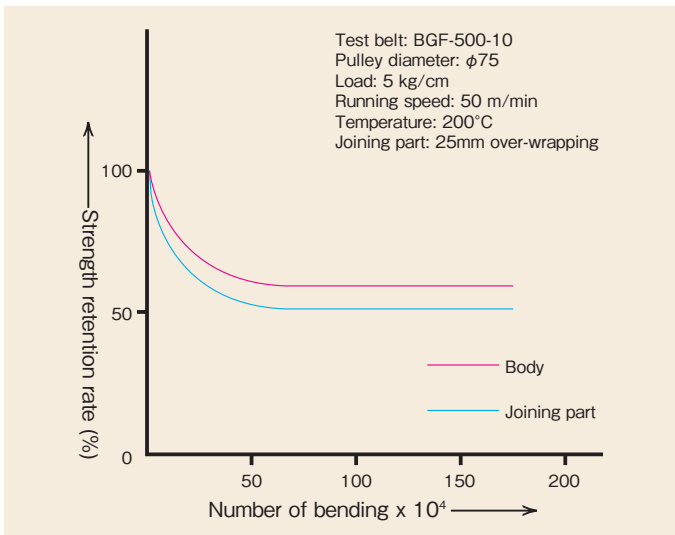
Stress-strain curve during heating



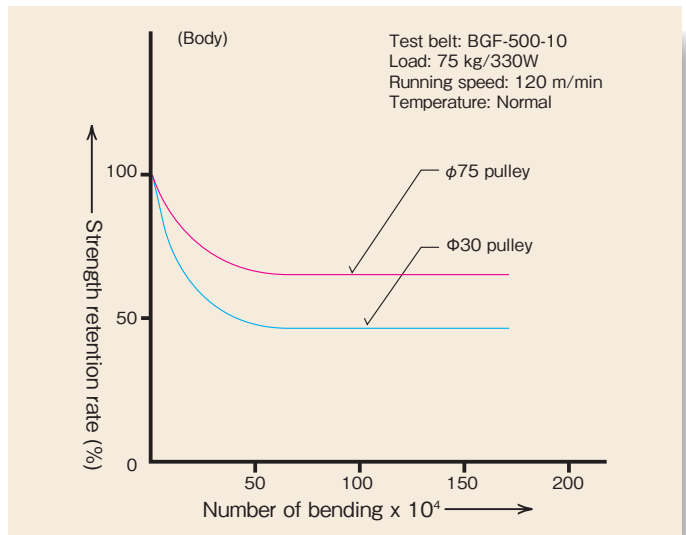
Stress-strain curve during heating



Fatigue resistance in heating running and bending (warp)



Fatigue resistance in heating running and bending (different pulley diameters)



■ G-type belt

	Product number	Nominal thickness (mm)	Maximum width (mm)	Maximum length (m)	Weight (g/m ²)	Tensile strength (N/cm)		Volume resistivity (Ω-cm)	Surface resistivity (Ω)
						Warp	Fill		
Natural / Plain weave	BGF-500-3	0.080	500	100	165	150	90	>10 ¹⁵	>10 ¹⁴
	BGF-500-4	0.100	900		215	290	160		
	BGF-400-6	0.115	1000		230	280	250		
	BGF-500-6	0.125			265	280	250		
	BGF-400-8	0.160	900		265	330	310		
	BGF-500-8	0.170			320	330	310		
	BGF-400-10	0.230	2100		425	500	410		
	BGF-500-10	0.240			500	500	410		
	BGF-400-14	0.330	2300		485	710	540		
	BGF-500-14	0.350			580	710	540		
	BGF-400-22	0.540			700	1180	750		
	BGF-501-21	0.580	2100		1125	820	650		
	BGF-400-35	0.915	2300		1220	1040	820		
Multi-piled belt	BL-GF500-6/2	0.250	900	530	280	250			
Natural / Mesh	BGF-410-18	0.550	1800	485	520	740	—	—	
	BGF-410-20	0.750	2800	630	840	570			
	BGF-410-30	0.950	2000	470	350	440			
Antistatic (B-type) / Plain weave	BGB-500-6	0.130	1000	255	300	250	<10 ⁸	<10 ⁸	
	BGB-500-10	0.245	2100	485	470	450			
	BGB-500-14	0.385	2300	745	860	660			
Super belt	BHGF-500-3	0.100	1000	165	190	150	>10 ¹⁵	>10 ¹⁵	
	BHGF-500-6	0.130		200	310	230			
	BHGF-500-10	0.220		410	480	430			

*Other specifications are available. Please contact us.

*The above values in the table are measured values, not guaranteed.

■ G-type seamless belt

	Product number	Nominal thickness (mm)	Maximum width (mm)	Maximum length (m)	Weight (g/m ²)	Tensile strength (N/cm)		Volume resistivity (Ω-cm)	Surface resistivity (Ω)
						Warp	Fill		
Natural / Plain weave	BGF-409-10	0.250	1500	2450 3200	510	390	340	>10 ¹⁵	>10 ¹⁴
	BGF-409-12	0.300	1500	2240 2450 3200	570	440	390		
Antistatic (B-type) / Plain weave	BGB-409-10	0.250	1500	2450 3200	470	390	340	<10 ⁸	<10 ⁸
	BGB-409-12	0.300	1500	2240 2450 3200	500	440	390		
Antistatic (C-type) / Plain weave	BGC-409-10	0.250	1500	2450 3200	620	390	340	<10 ⁸	<10 ⁸
	BGC-409-12	0.300	1500	2240 2450 3200	670	440	390		

*Other specifications are available. Please contact us.

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A-type belt / K-type belt

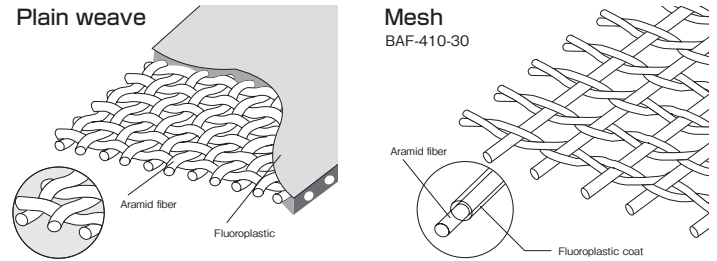
Conforming food sanitation act

■ BAF-series / BKF-series

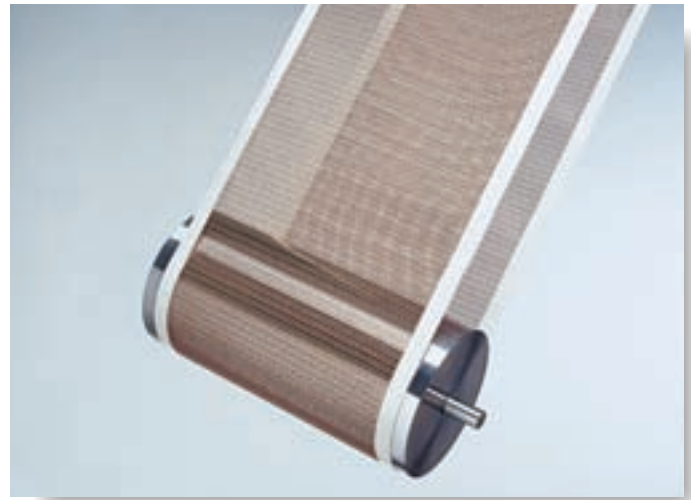
A para-aramid cloth coated with fluoroplastic. These belts use the A-type or K-type fabric as the base material. Compared with the G-type belt, these belts have a superior bending fatigue resistance and stream resistance qualities.

● **Service temperature range: -100 to 200°C**
(According to service conditions)

■ Material configuration



■ BAF-500-8



■ BAF-410-30

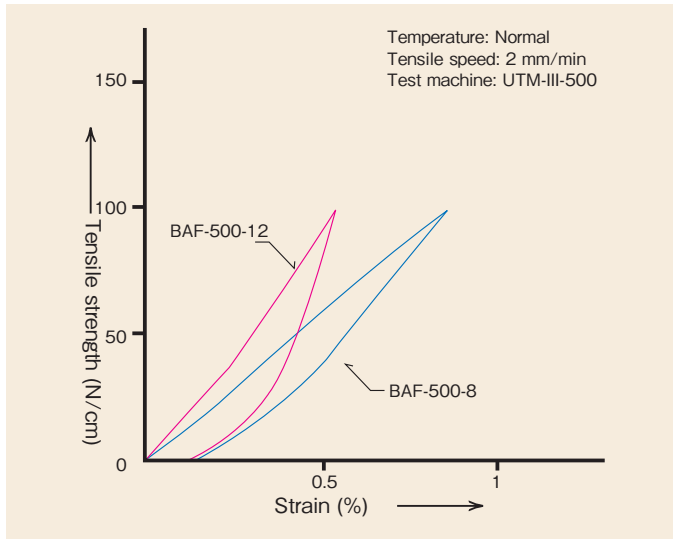
Typical dimensions and properties

	Product number	Nominal thickness (mm)	Maximum width (mm)	Maximum length (m)	Weight (g/m ²)	Tensile strength (N/cm)		Volume resistivity (Ω-cm)	Surface resistivity (Ω)
						Warp	Fill		
Natural / Plain weave	BAF-500-6	0.110	900	100	170	610	480	>10 ¹⁵	>10 ¹⁴
	BAF-500-8	0.155			220	840	700		
	BAF-500-12	0.310			440	1800	1400		
	BKF-500-12	0.340	1950		530	1270	1250		
	BAF-500-14	0.350	1500		575	1800	1300		
Natural / Mesh	BAF-410-30	1.100	2100		415	1100	1200	—	—

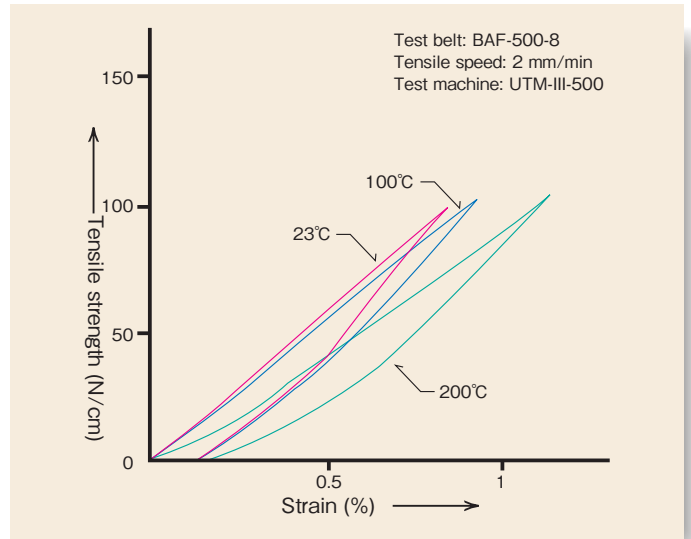
*Other specifications are available. Please contact us.

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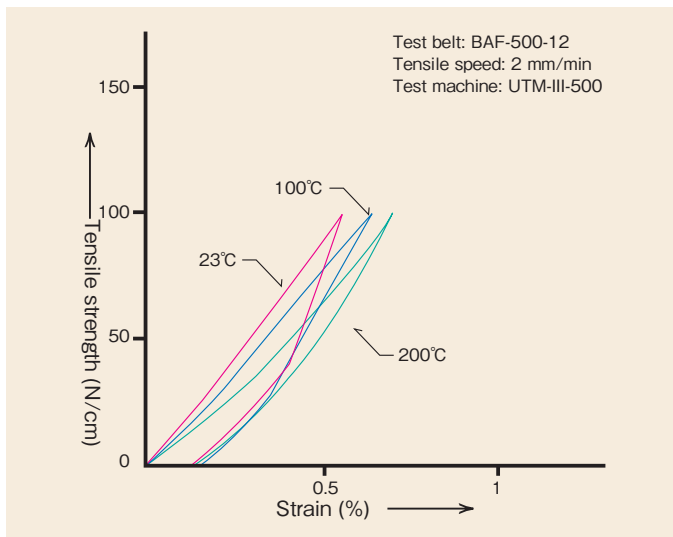
Stress-strain curve (warp)



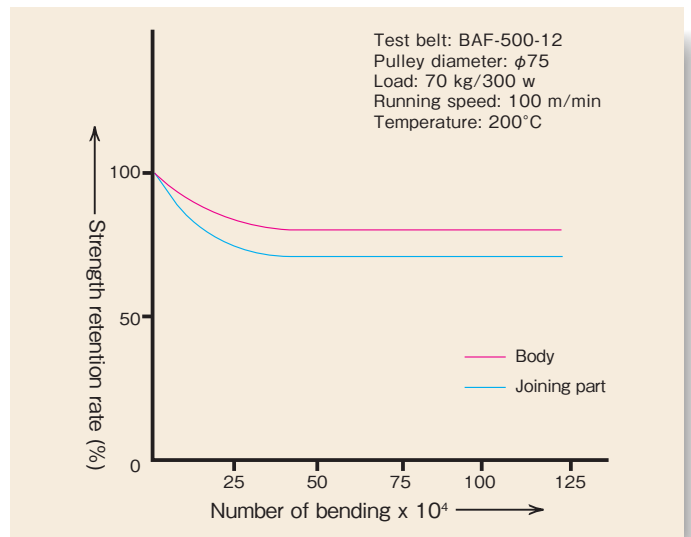
Stress-strain curve during heating



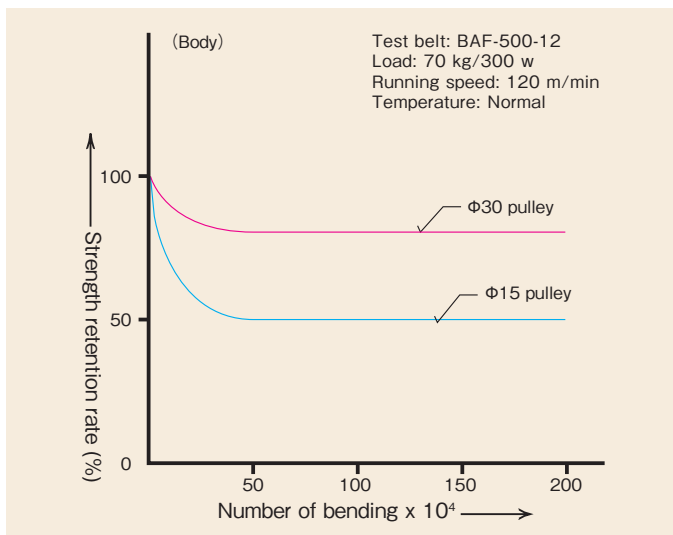
Stress-strain curve during heating



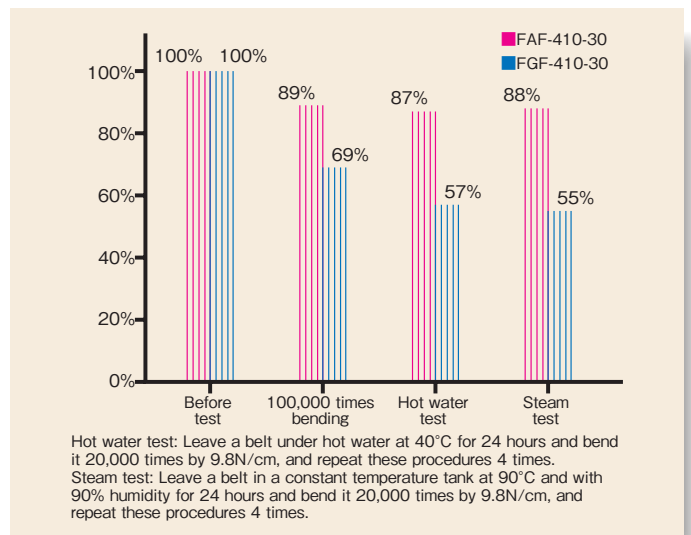
Fatigue resistance in heating running and bending (warp)



Fatigue resistance in heating running and bending (different pulley diameters)



Comparison of tensile strength with the initial strength



N-type belt

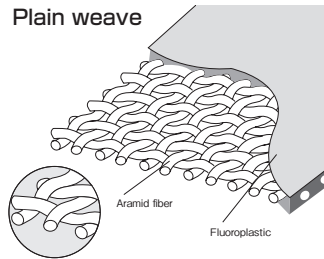
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■ BNP-series

A meta-aramid cloth coated with fluoroplastic, this belt uses the N-type fabric as the base material. Compare with the A-type belt, the N-type belt is even more resistant to bending fatigue resistance and is meant to be used with smaller pulley diameters.

● **Service temperature range: -100 to 200°C**
(According to service conditions)

■ Material configuration



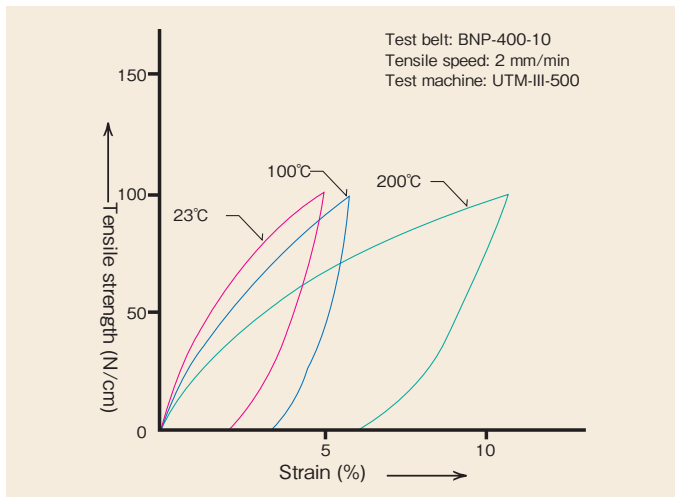
■ BNP-400-10

■ Typical dimensions and properties

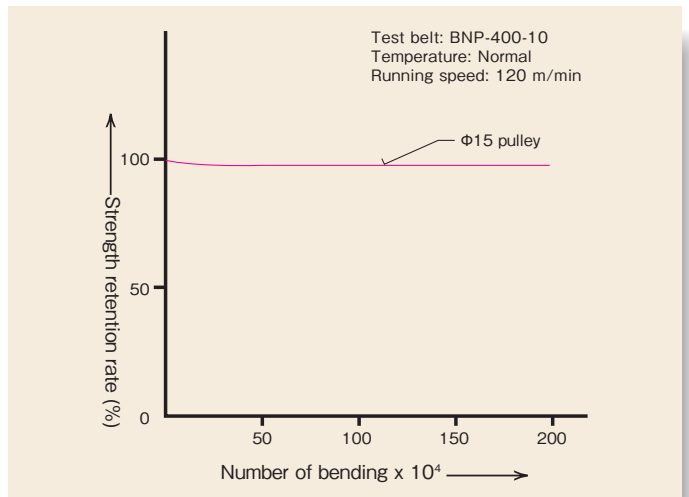
	Product number	Nominal thickness (mm)	Maximum width (mm)	Maximum length (m)	Weight (g/m ²)	Tensile strength (N/cm)		Volume resistivity (Ω-cm)	Surface resistivity (Ω)
						Warp	Fill		
Natural / Plain weave	BNP-400-10	0.185	700	100	230	260	200	>10 ¹⁵	>10 ¹⁴

*Other specifications are available. Please contact us. *The above values in the table are measured values, not guaranteed.

■ Stress-strain curve during heating



■ Fatigue resistance in heating running and bending (different pulley diameters)



This is a unique belt with the strength and pliability of rubber, and endowed with the quality of fluoroplastic. Custom built to accommodate your many uses, there are a variety of options to choose from including but not limited to color tone and composition.

● **Service temperature range: -20 to 180°C**
(According to service conditions)

■ Types of rubber base materials

NBR: Nitrile rubber type

A white rubber material with excellent resistance to heat and oil conforms to the specification standards of utensils, containers and packages (Ordinance No.370 of the Ministry of Health, Labor and Welfare in 1959), and is meant to be used safely in the food production process.

IIR: Butyl rubber type

This type uses butyl rubber which of the maximum service temperature is 150°C as the base material, and can be used in conjunction with other materials (i.e. PFA film, PTFE film and G-type fabric). Excellent resistance to heat, acid and alkali is also ensured.

CR: Chloroprene rubber type

Well-balanced chloroprene rubber including but not limited to resistance to heat, oil and ozone is primarily used in conveyor for rubber and resin under high temperatures.

ACM: Acryl rubber type

This type has the highest heat resistance among the R-type belt series (Maximum service temperature: 180°C). Superior heat resistance and anti-adhesion of fluoroplastic coating allow the belt to be used in severe service conditions.

■ Rough top treatment

For BRP-series and BRT-series, belt surface roughness adjustment (Rough top) is available upon request. This ensures the ideal surface for a sloped conveyor. *The level of roughness or evenness can be freely selected.



■ Typical dimensions of R-type belt

	Product number	Thickness (mm)		Maximum width (mm)	Maximum length (m)	Weight (g/m ²)
		Total	Surface			
BRP-type (Surface material: PFA film)	BRP-129-2	1.1	0.050	400	20	1400
	BRP-139-2	1.6		600		1800
	BRP-149-2	1.8		600		2200
BRG-type (Surface material: G-type fabric)	BRG-226-10	1.0	0.240	900	20	1400
	BRG-246-10	1.8				2300
BRT-type (Surface material: PTFE film)	BRT-229-4	1.2	0.100	400	20	1600
	BRT-249-4	1.9		900		2500
	BRT-329-1	1.0	0.025	250		1200
	BRT-337-4	1.4	0.100	600		1900
	BRT-347-4-R14	1.7		900		2300
	BRT-737S-4-R18			900		2200

*Other dimensions are available. Please contact us.

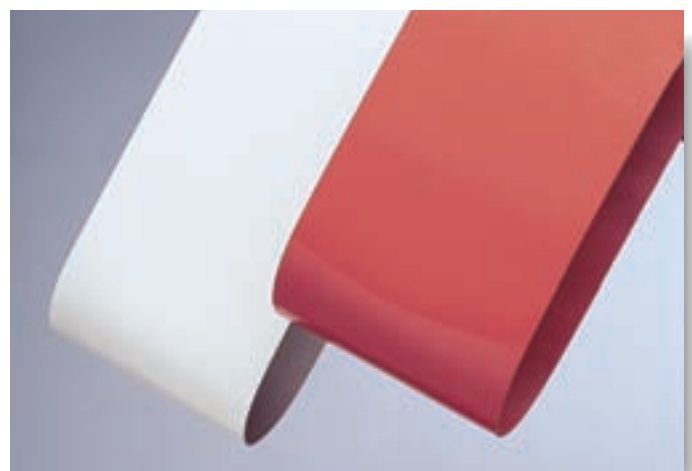
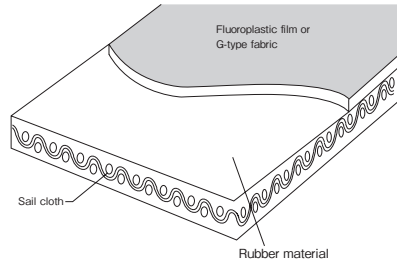
*The product will be delivered in an endless manner, in principle.

For an on-site endless treatment, please contact us.

R-type belt

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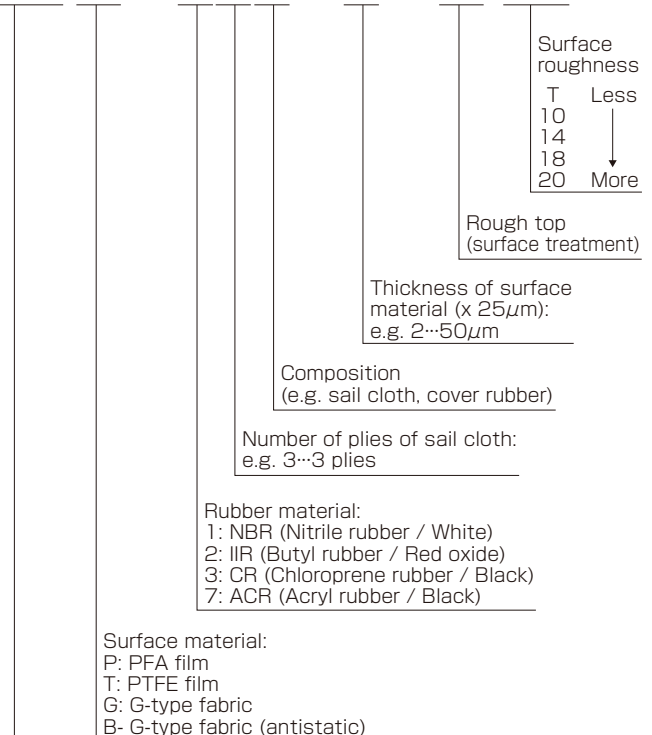
■ Material configuration



■ BRP-series

■ Designation of a product number

BR P - 239 - 2 - R 20



Chukoh Flo® Belt

True-track belt

■ CS-type (Cord support type)

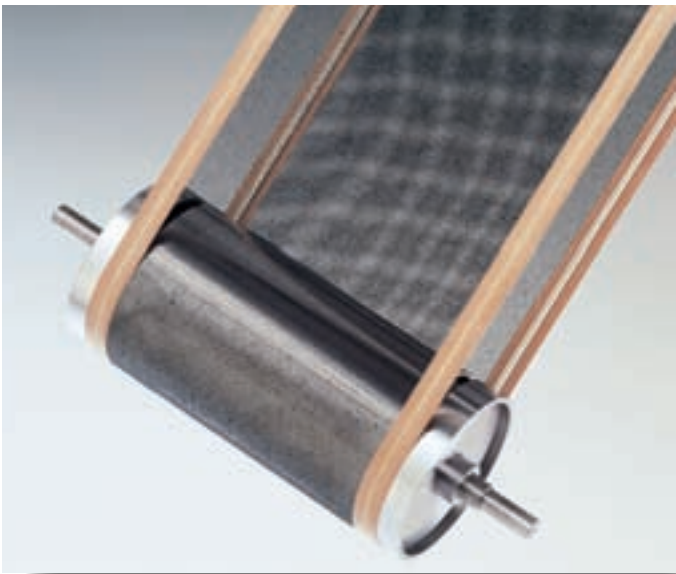
Chukoh Flo® Belt equipped with a special “snaking” prevention cord on its back which runs along the groove of a pulley prevents “snaking” and achieves stable and noiseless belt running.

● **Maximum service temperature: 200°C**

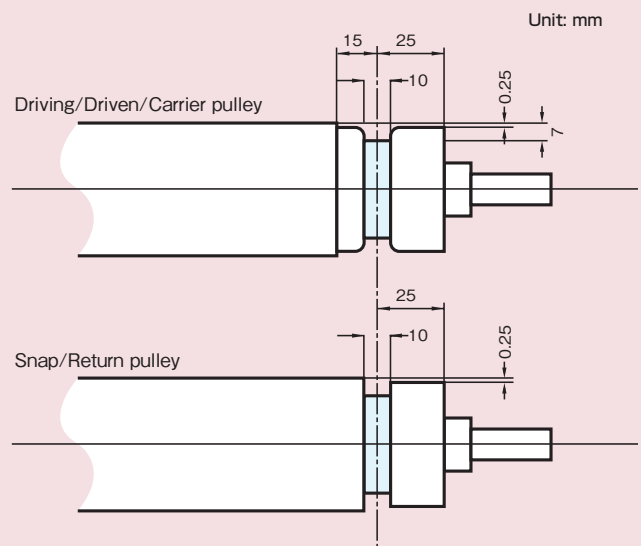
● **Applicable belt width (not over 400mm)**

The CS-type belt is particularly recommended for belts with a width of not over 400mm. For the shape of a pulley, please refer to the following picture.

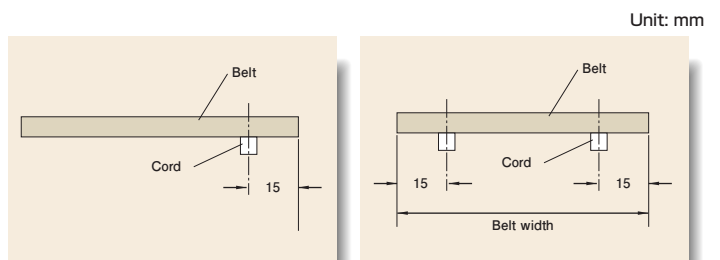
*For any belt with a width of over 400mm, please contact us.



Shape of a standard pulley



■ Variation of the CS-type



■ Single liner

■ Double liner

■ Cord specifications of the CS-type

CS-A	Cord coated with fluoroplastic (6 ^w ×4 ^T)
CS-B	Cord impregnated by fluoroplastic (6 ^w ×4 ^T)
CS-C	Cord impregnated by fluoroplastic (4 ^w ×4 ^T)

*The values in parentheses indicate the cord size (mm).

■ PS-type (Pins support type)

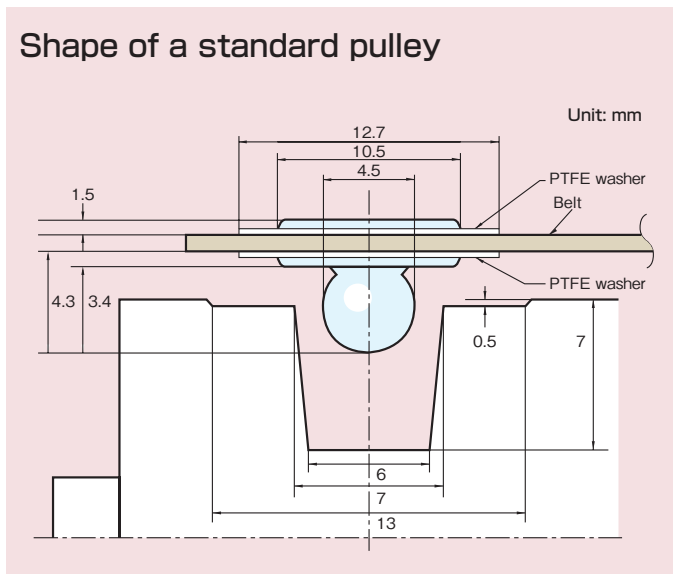
Chukoh Flo® Belt equipped with a special “snaking” prevention stainless pin on its back which runs along the groove of a pulley prevents “snaking” and achieves stable and noiseless belt running.

● **Maximum service temperature: 260°C**

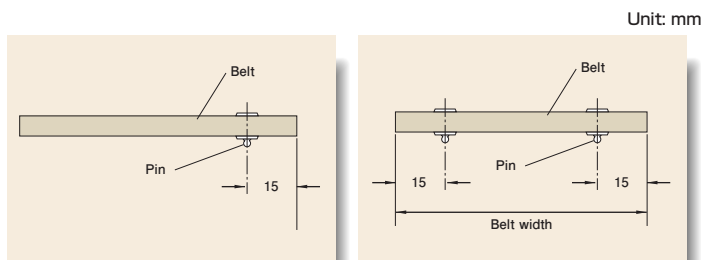
● **Applicable belt width (not over 400mm)**

The PS-type belt is particularly recommended for belts with a width of not over 400mm. For the shape of a pulley, please refer to the following picture.

*For any belt with a width of over 400mm, please contact us.



■ Variation of the PS-type

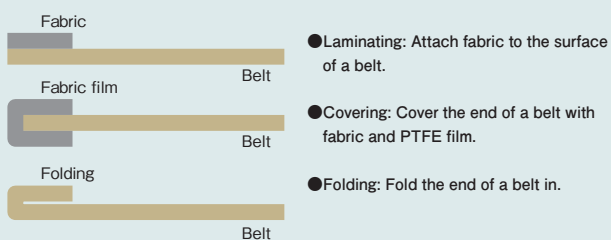


■ Single pin

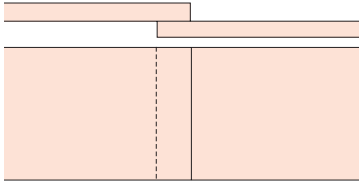
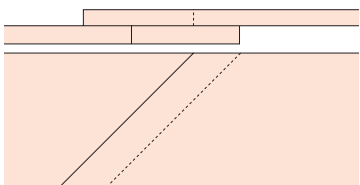
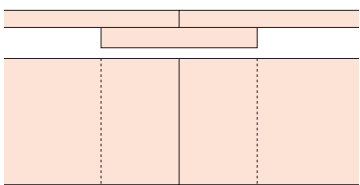
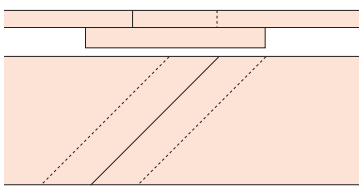
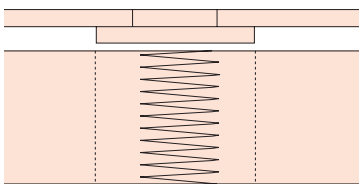
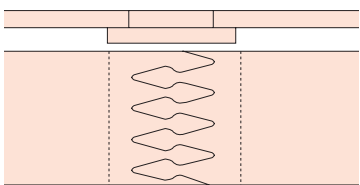
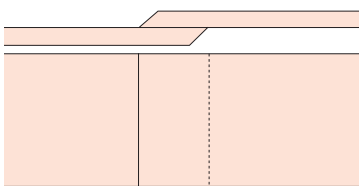
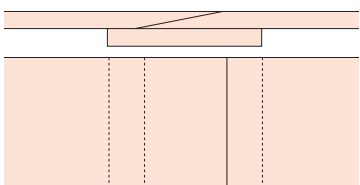
■ Double pin

■ Belt end reinforcement

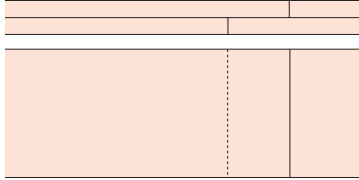
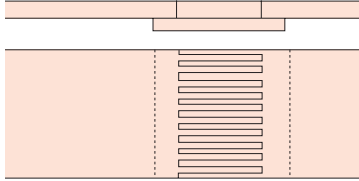
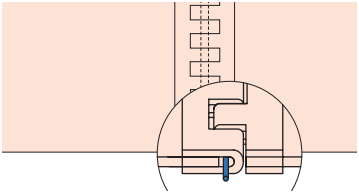
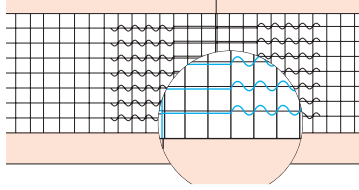
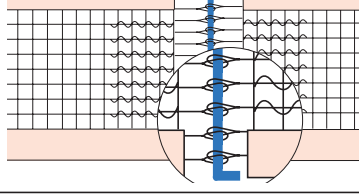
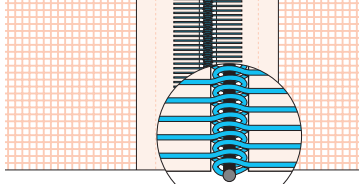
The following arrangements are available to prevent breaks or snags at the end of a belt.



Typical belt joining methods

Joining method		Joining diagram	Joining efficiency (%)	Evenness	On-site support	Special characteristics
Over-wrap method	90°		95	△	◎	It is the most popular method to ensure adequate strength, suited to lines with a high tensile load.
	45°		95	△	○	By using an angle at the jointed area, this method improves the connection between a belt and a pulley.
Bat method	90°		Strength of material attached to the back of a joined area	○	◎	While this method improves the evenness of a belt, it is prone to bending wear and tear.
	45°		Strength of material attached to the back of a joined area	○	○	By using an angle at the jointed area, this method relieves concentrated stress seen on the 90° union.
	V-ridged		Strength of surface material + Strength of material attached to the back of a joined area	○	○	By using a ridged V-shaped joining, better union strength can be achieved. The joint then reinforced with over-taping.
	Finger		Strength of surface material + Strength of material attached to the back of a joined area	○	○	In this method, the V-shaped is maintained while slightly reducing the number of ridges. Basically, this method demonstrates the similar characteristics to the V-ridged method.
Skybar joint method	Over-wrap		95	△	△	In addition to adequate strength in the jointed area, this method also improves bending strength.
	Bat		Strength of material attached to the back of a joined area	○	○	This method demonstrates a good balance between surface evenness and bending strength.

Typical belt joining methods

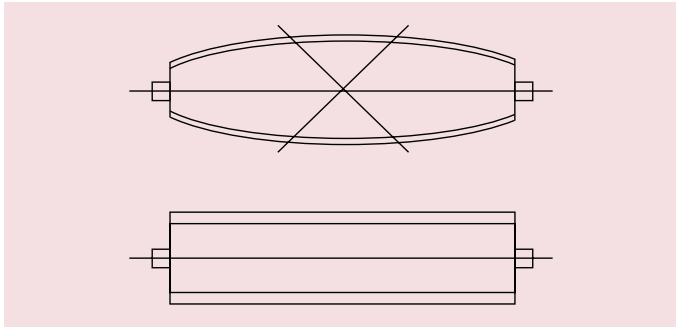
Joining method	Joining diagram	Joining efficiency (%)	Evenness	On-site support	Special characteristics
Layered method		87	⊙	○	This method achieves the best surface evenness and is particularly suited for work loads which demand a smooth surface.
Wrapless joint method		Strength of material attached to the back of a joined area	○	○	A good balance between surface evenness and bending strength, but this method may not be suited for on-site work.
Alligator method		Strength of the joined area	△	⊙	This method makes on-site construction simple and is suited to sites which prone to the existence of metals.
Webbing method (Mesh type)		33	○	○	For use with mesh belts, this method offers moderate evenness and bending strength.
Loop lacing method (Mesh type)		40	△	⊙	For use with mesh belts, this method works well even in severe on-site production situations.
Metal fastener method		Metal fastener S 30 Metal fastener L 45	△	⊙	A metal faster is used in the loop area. This method makes on-site construction simple, the same as the loop lacing method.

$$* \text{Joining efficiency (\%)} = \frac{\text{Joint area strength}}{\text{Material strength}} \times 100$$

Belt driving method

■ Pulley shape

A flat pulley is used. It is recommended to apply a rubber lining to a driving pulley especially when running loss is concerned. The thickness and hardness of a lining should be 5 to 10mm and 50 (SHORE S durometer A) respectively.



■ Pulley length and belt width

It is recommended to use a pulley which is slightly longer than belt width. For the relationship between the pulley length and the belt width, please refer to the following formula. However, this is not applicable to the True-track pulley.

$$P = 1.13 (B + 5)$$

P: Pulley length (mm) B: Belt width (mm)

■ Belt thickness and pulley diameter

The relationship between the pulley diameter and the belt thickness needs to be taken into consideration to ensure correct conduction and the lifetime of the belt. For the design of a driving pulley, please refer to the following table.

Minimum driving pulley diameter				
Belt thickness \ Belt width	6~300	301~760	761~1500	1501~2000
0.120~0.250	75	155	205	255
0.280~0.490	155	155	205	255
0.510~0.640	205	205	205	255
0.660~	350	350	350	350

*The G-type with $\phi 75$ or less may be prone to bending fatigue.

■ Recommended tensile force

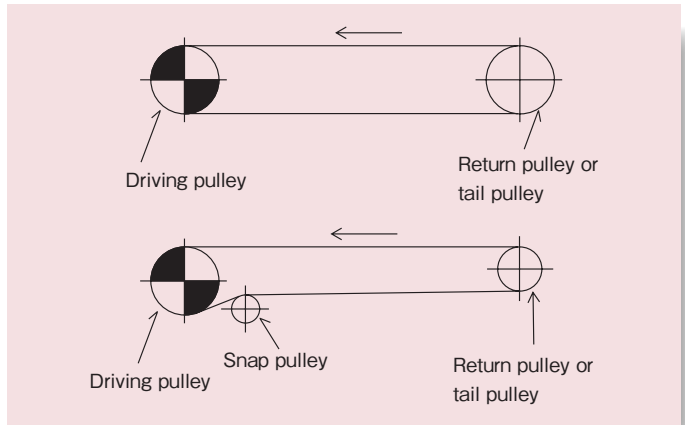
While the tensile force of a belt is generally designed to be 1/10 of that of the material of the joined area, it is recommended to use a belt with the tensile force of not over 10 N/cm.

Especially for the G-type, use beyond the recommended tensile force may reduce the lifetime of a belt as well as cause wrinkles and folding.

Tensile force varies according to the belt width and the specifications of the joined area. For details, please contact us.

■ Driving method

The single driving method is most commonly used, some of which are shown below.

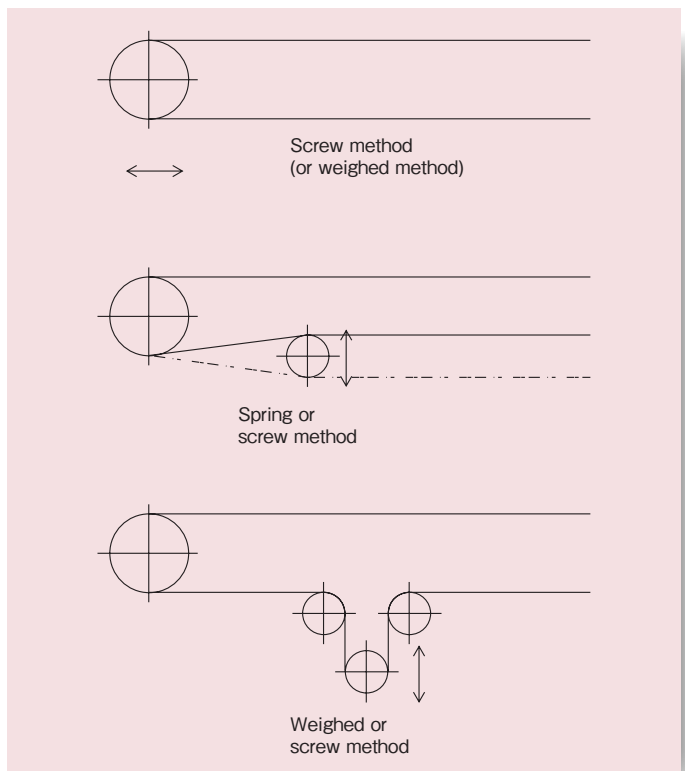


■ Belt support device

There are two types of belt support devices, carrier roller support method and plate support method, either of which should be selected according to the weight and shape of the job, misalignment during transport and other related factors. (The plate support method is primarily used for light weight. It is recommended to apply a lining with the G-type adhesion tape, when using the plate support method.)

■ Tension device

Tensile force needs to be applied continuously for stable belt running, where the take-up becomes of importance. The following three types of take-ups are available, any of which should be selected according the service conditions.

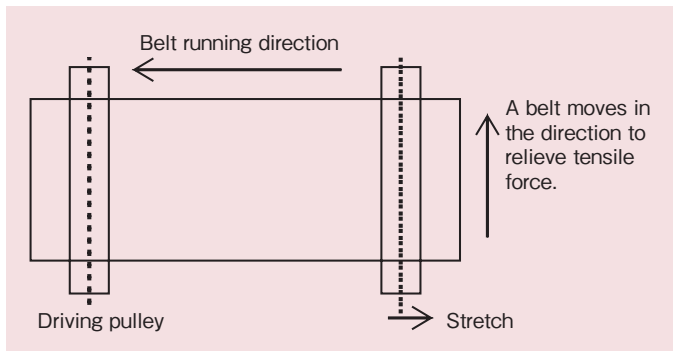


■ About belt “snaking”

Since there is little stretching in our fluoroplastic belts, they may cause “snaking”, the degree of which varies according to the use and size. The relationship between the movement of a pulley and a belt is illustrated below for your reference.

● Differences in belt movement according to stretching

Due to little stretching in a fluoroplastic belt, when tensile force is applied from a pulley on one side, it will move in the opposite direction (to relieve the tensile force applied).



● Relationship between belt movement and pulley adjustment

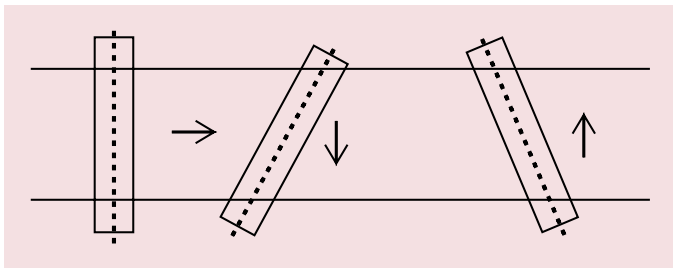
(1) Movement in the case of open suspension.

Please refer to the above diagram.

(2) Movement with a snap pulley

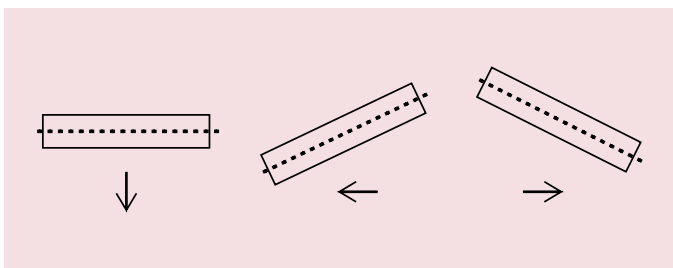
a) Adjustment according to the degree of parallelism

When adjusting the degree of parallelism of a snap pulley, a belt will move in the direction of the arrows.

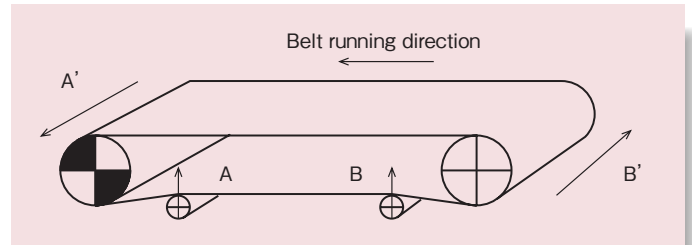


b) Adjustment according to the levelness of a roller

When adjusting the levelness of a roller, a belt will move in the direction of the arrows.



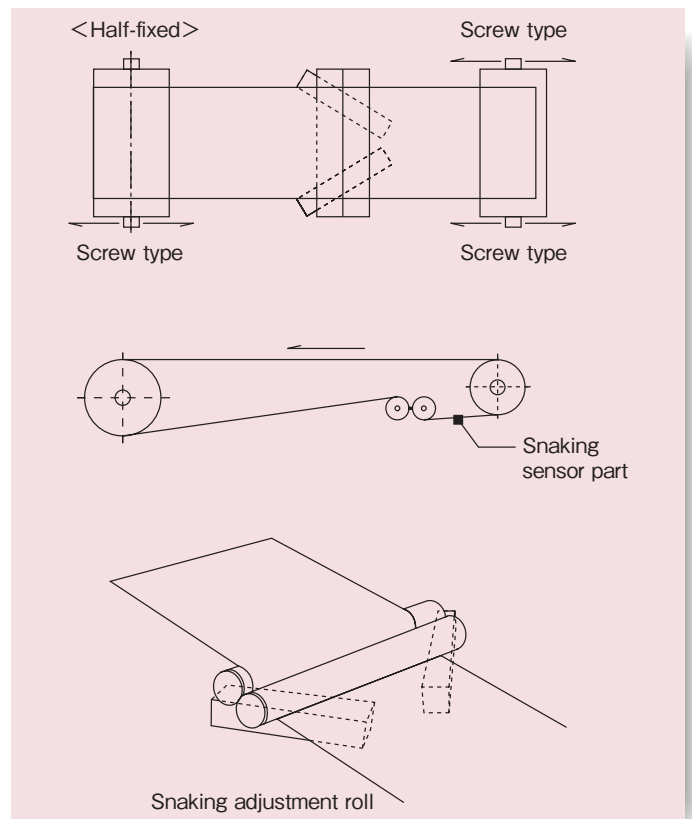
(3) Differences in the adjusted direction according to the position of a snap pulley
The position of a snap pulley will change the adjusted direction of a belt. When the snap pulleys (A) and (B) below up in the direction of the arrows, a belt will move in the directions (A') and (B').



■ Automatic “snaking” adjustment device

At Chukoh, we design and manufacture “anti-snaking” devices exclusively for fluoroplastic belts, which can be solely designed to meet your belt specifications and use conditions.

*Recommended for belts with a width of over 500mm.



■ True-track system

We offer two types of the True-track system, the cord support type and the pin support type. Both types can prevent belt “snaking” only by adding grooves in a pulley. Any additional equipment will not be required in particular.

*Recommended for belts with a width of not over 400mm.

Main applications

Heat-seal

- Heat seal for polyethylene, cellophane and other plastic films
- Continuous tube-seal for poly foil, poly paper and poly lamination, and transportation
- Heat-seal packaging machinery for candy, bread, cigarettes, bakery products and other daily commodities

Anti-adhesion

- Conveyor for vinyl paints, glues and spray paints
- Foam rubber production process
- Drying varnished paper
- Casting process of plastic films and rubber sheets
- Press conveyor for adhesive cores

Heat treatment

- Hot blast furnace for electrical parts
- Heat treatment of synthetic fibers and strings
- Baking process of resins, inks and pigments
- Vulcanization process of synthetic rubber belts for high tensile
- Conveyor for packaged goods in a shrink tunnel

Plastic processing

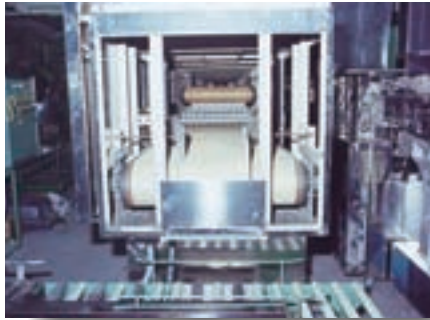
- Transport and after-treatment process of molded goods such as PVC sheets
- Laminating process of heat-hardened resins
- Embossing process of PVC films
- Curing process of PCBs
- Conveyor for styrene foam and other heat-molded plastic products

High frequency

- High frequency drying process
- High frequency treatment of candy, fruits and other food

Others

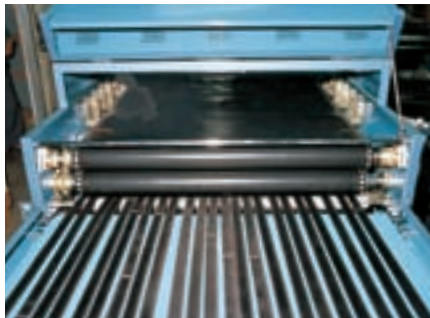
- Paper feeding for photocopiers
- Manufacturing and defreezing of frozen food
- Weighing and transport of grinding materials



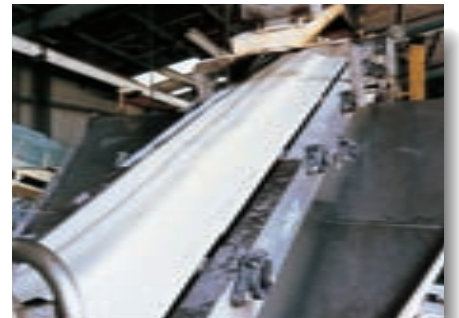
■ Cooling and conveying line of rice



■ Hardening line of liquid resins



■ Pressing line of adhesive cores



■ Conveying line of mochi (rice cake)



■ Packaging line of candy



■ Drying line of food



■ Steaming process of kamaboko (processed fish paste)

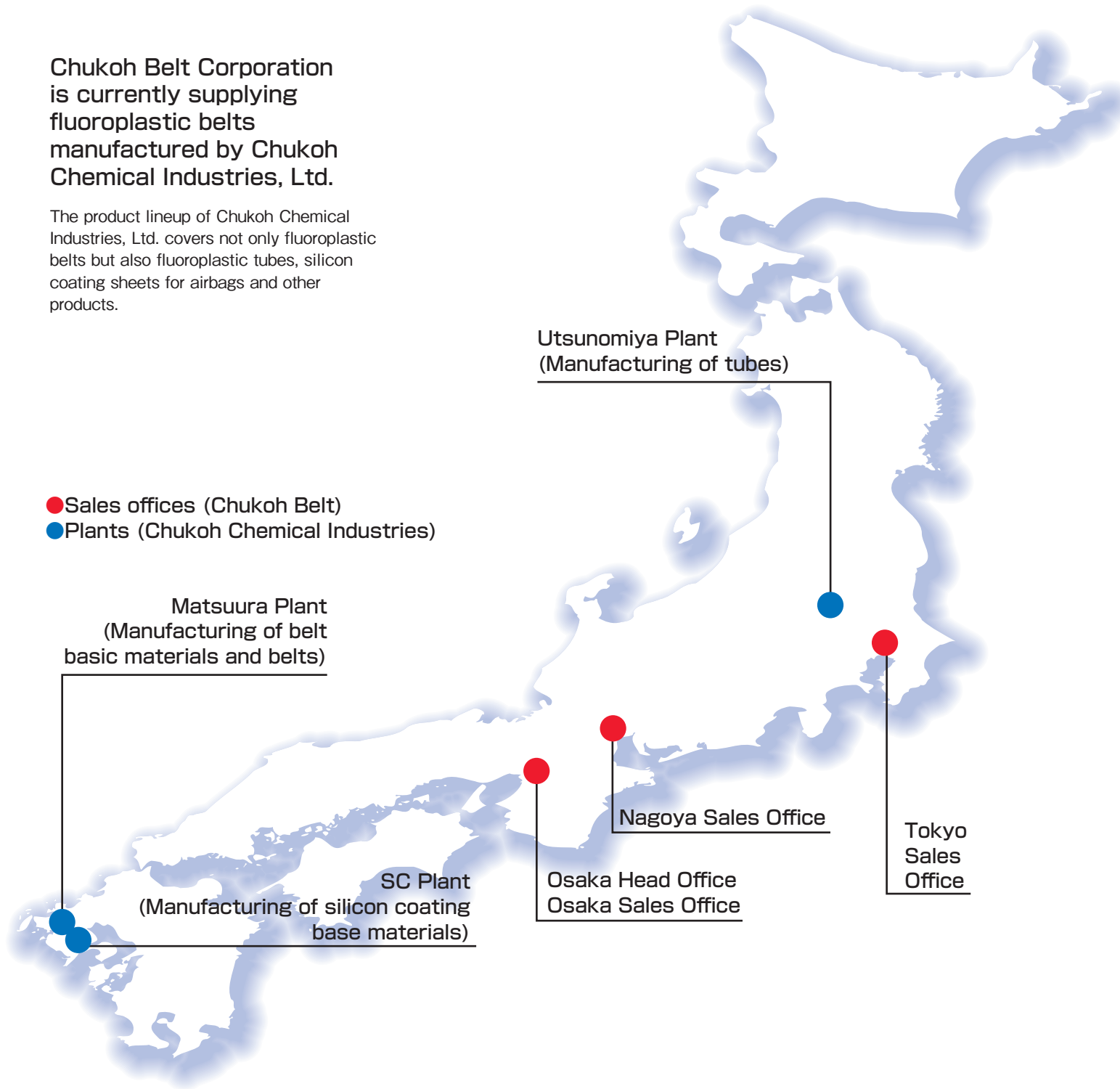


■ Vacuum drying process of food

Chukoh Belt Corporation is currently supplying fluoroplastic belts manufactured by Chukoh Chemical Industries, Ltd.

The product lineup of Chukoh Chemical Industries, Ltd. covers not only fluoroplastic belts but also fluoroplastic tubes, silicon coating sheets for airbags and other products.

- Sales offices (Chukoh Belt)
- Plants (Chukoh Chemical Industries)



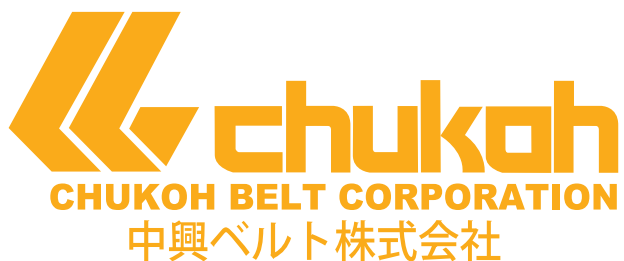
■ Matsuura Plant (Manufacturing of belt basic materials and belts)
200 Shioiri, Hiraomen, Tsukinokawa-cho, Matsuura-city, Nagasaki-prefecture



■ Utsunomiya Plant (Manufacturing of tubes)
990-13 Fukahodo, Kanuma-city, Tochigi-prefecture



■ SC Plant (Manufacturing of silicon coating base materials)
851-46 Shimomen, Tsukinokawa-machi, Matsuura-city, Nagasaki-prefecture



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■ Sales dept.

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Questions about our products

If you have any questions about our products,
please feel free to contact us.

email:support-belt@chukoh.co.jp

Warnings!

- Do not use the products for any applications involving contact with the human body such as medical use.
- Dispose the products in compliance with applicable laws and regulations. Never burn the products.
- Do not use the products beyond the maximum service temperature.
- Carefully read the catalogue, safety data sheet (MSDS) and fluoroplastic instruction manual in order to ensure how the products works and is used properly.

URL <http://www.chukoh-belt.co.jp/>