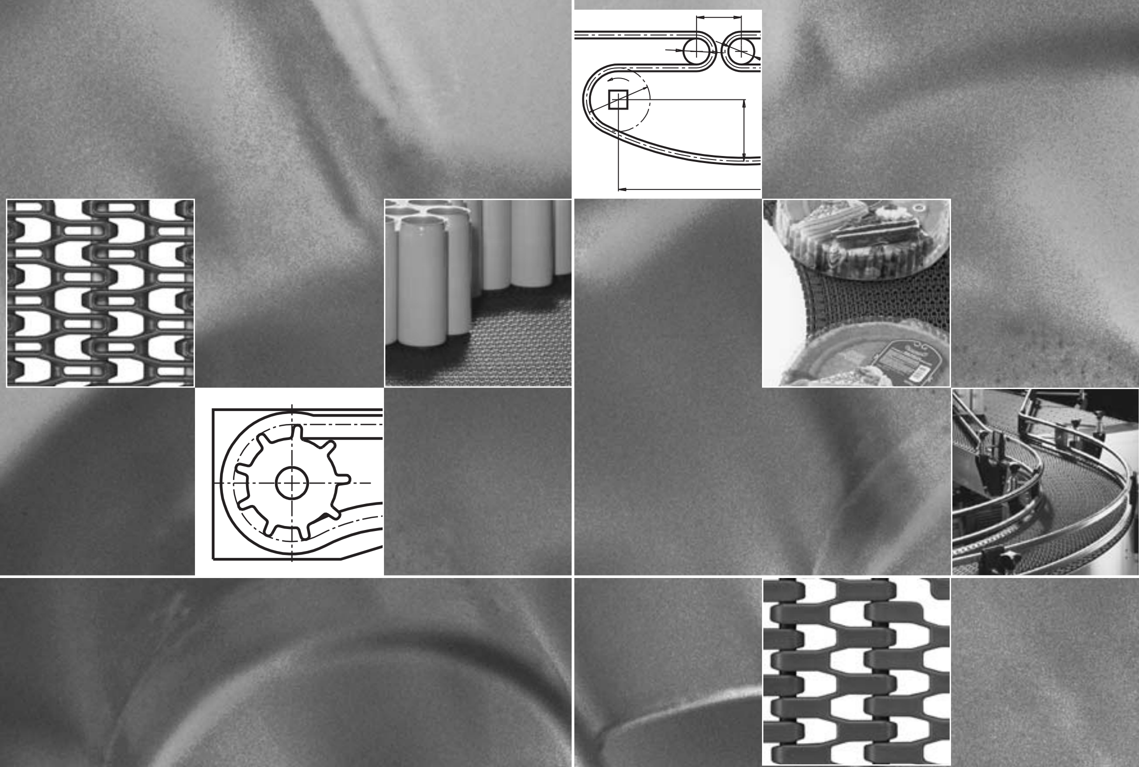
uni Flex SNB

Design Guidelines



State-of-the-art side flexing belt system with numerous possibilities for re-thinking conveyor layouts

These Design Guidelines contain useful information about the advantages of the uni Flex SNB belt system compared with existing, traditional conveyor solutions.

You will find a catalogue of ideas for possible layout solutions and comprehensive explanations of the uni Flex SNB conveyor construction including the wear-strips and the drive design.

There is useful information about belt installation and a thorough guide to the spare part terminology.

Last but not least you will find advice on operation and maintenance.

For further information, please, contact uni-chains.

Warnings

Fire

uni-chains plastic products are, unless clearly specified, made from materials which support open flame.
Products made from acetal material (D, LF and SLF), when so exposed, will emit toxic fumes. uni-chains plastic products should therefore not be exposed to extreme temperatures or open flame.
Special care should be taken when undertaking repair work particulary when welding at a conveyor if the conveyor is fitted with plastic chains or belts.

Personal Protection

Always use safety glasses when mounting or repairing chains and belts and while securing or removing pins.
Use only suitable tools in good conditions.
The weight of some products calls for the use of safety shoes.
When mounting/dismounting or repairing chains or belts on a conveyor the motor must be turned off.

Design Safety Guidelines

Most plastic products will loose their mechanical properties if exposed to the sun or ultra violet beams, which can lead to chain or belt breakage. This can also happen if the products are exposed to strong chemicals. Generally this is a problem with pH values lower than 4.5 or higher than 9.

Always make sure that there is enough space in the conveyor frame to allow chains and belts to retract or expand when exposed to temperature variations.
Never exceed the maximum or minimum temperatures given by uni-chains.
Note: The different materials have different temperature limits.

Care should be taken with high chain/belt speeds with which friction can lead to heating and subsequently melting of chain/belt as well as wearstrips. Do not exceed speeds recommended by uni-chains.

Use only original uni-chains sprockets with uni-chains belts and chains.

When constructing conveyors it is important always to include sufficient cover around the moving parts to prevent fingers and clothing from being caught up in the machinery. uni-chains can also supply safety chains and side flexing belts which leave minimal gaps when turning through curves making them incredibly safe.

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1. Conveyor layouts using uni Flex SNB belts

1.1 Directional changes of conveyors

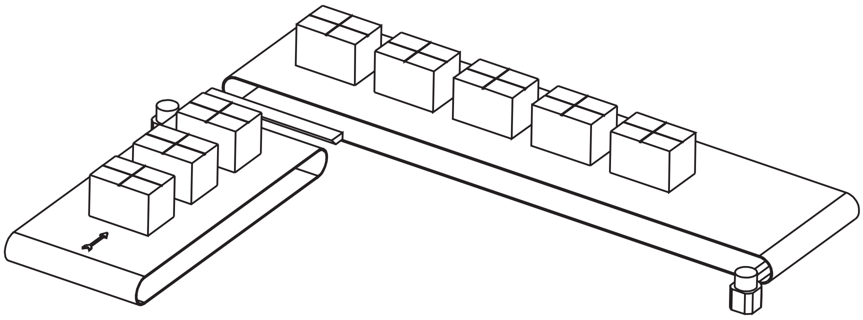
Straight running conveyors are still the prevailing form of conveyors. The optimisation of the production layout and the reduction of manual processes, however, require conveyors that can transport products in more than one direction.

1.2 How can this be done

Today, there are different methods of transport in several directions.

1.2.1 Traditional 90° transfer

Probably the most traditional method is 90° transfers.



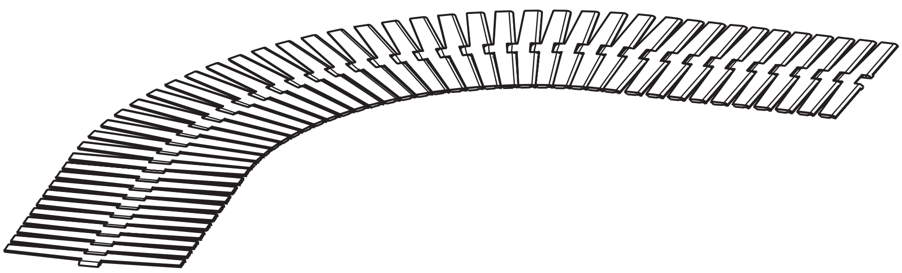
2 straight running conveyors built with:

- Straight running chain
- Rollers
- Flat belts
- Straight running belts

Disadvantages

- The dead plate between the two conveyors will cause problems with small products. The system cannot be emptied because there will be no backline pressure to push the last products onto conveyor no. 2
- The products will change orientation in relation to the travel direction by 90°.

1.2.2 Side flexing chains, single track



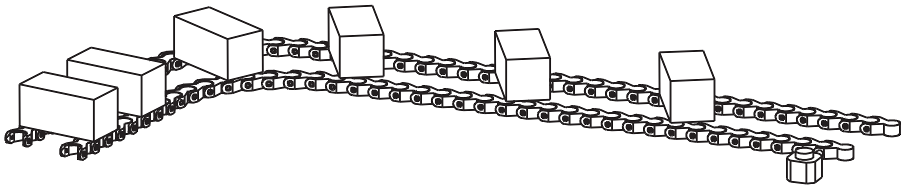
Side flexing chain conveyor built with:

- Side flexing Slat Top chain

Disadvantages

- Limitations in the widths
- Limited product support. The large openings in the outer radius limits the size of the products to be transported.

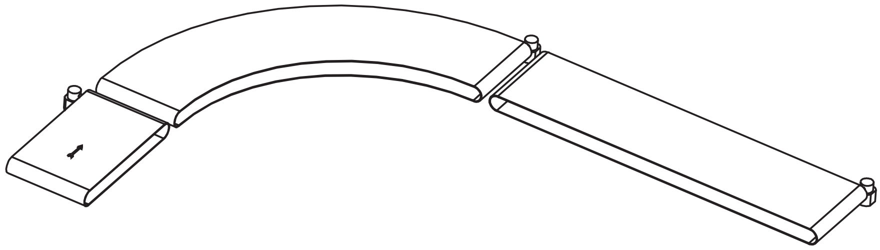
1.2.3 Side flexing chains, multiple tracks



2 track side flexing chain built with:
- Side Flexing chains Slat Top chains or other flex chains

Disadvantages
- Limited product support
- The product orientation changes because of different speeds of the individual chains in the curve

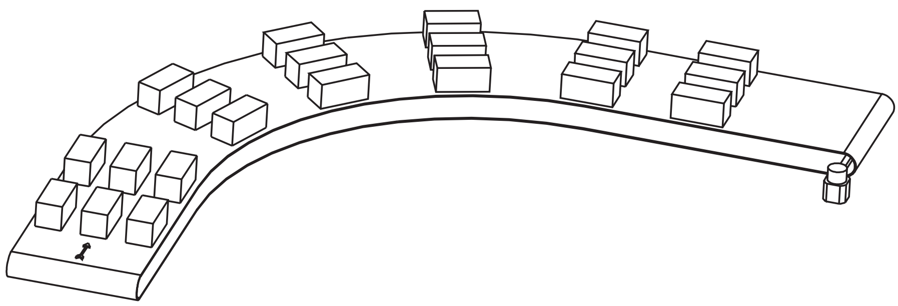
1.2.4 Flat belting



Flat Belt (PVC, Rubber belt) built with:
- 2 sections of straight running belt
- 1 curve section

Disadvantages
- 3 drive stations required
- 2 dead plates
- Complicated belt control in the curve

1.2.5 Side flexing belts, uni Flex SNB

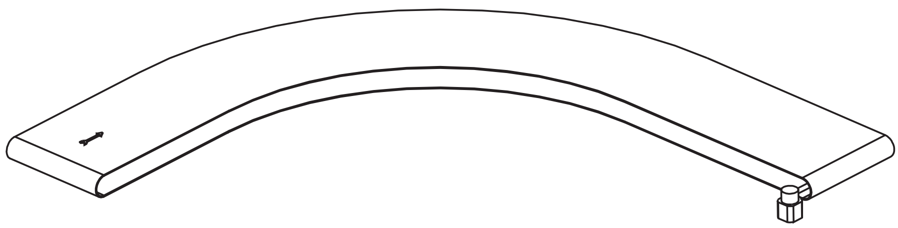


Side flexing modular belt conveyor built with:
- uni Flex SNB

Advantages
- Only 1 drive station required
- No intermediate dead plates
- Product orientation is not effected
- Stable product support also of small products
- Safety. When the belt turns in the curve there will be no large openings in the belt surface
- It is possible to build wide side flexing conveyors
- Safe belt control. Wearstrips and sprockets secure positive belt control

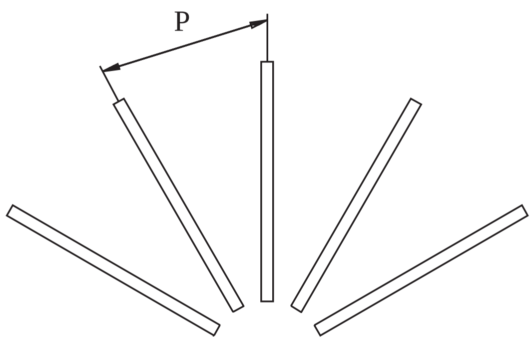
1.3 How does a side flexing belt work

1.3.1 Basic L-shape



A simple example of a side flexing conveyor is the L-shape: Straight section, curve, straight section.
The belt runs as a straight running belt in the straight sections; in the curve the belt pitch compresses at the inner radius to compensate for the difference of the arc length.
After the curve the belt is stretched and runs again as a straight running belt.
In the curve section only the outer edge remains at true pitch. This outer section transfers all the tensile forces.

1.3.2 True pitch in outside radius



P = pitch

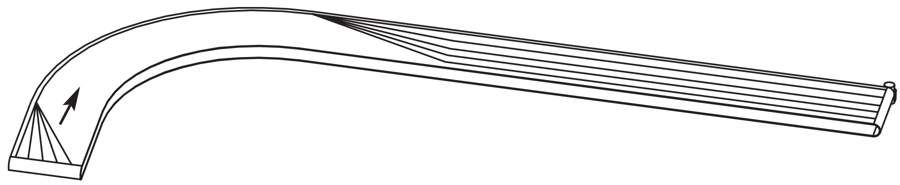
When the belt travels straight, the pitch is the same over the entire width. The belt is able to distribute the tensile forces across the full width of straight running sections.

When the belt travels in the curve the pitch will vary over the belt width. Only on the outer radius will the original pitch be maintained, therefore is only the outer edge able to transfer tensile forces.

When calculating the belt length it is important to use the outer arc length.

1.3.3 Load Line

To understand the function of a side flexing belt it is important to understand the distribution of the forces in the belt.
In a straight running belt the load lines are distributed evenly over the belt width.
In a side flexing belt the links are compressed in the inside radius and thus cannot absorb any tensile forces. Hence, the entire tensile force must be transferred on the outer radius where the pitch is normal.
The illustration below shows the distribution of the tensile forces **"load lines"** in a side flexing belt.



In the curve the tensile force will concentrate in the outside radius.
After the curve the tensile force will spread over the entire belt width again in the form of a fan and after a certain length the forces will again be distributed evenly like in a straight running belt.

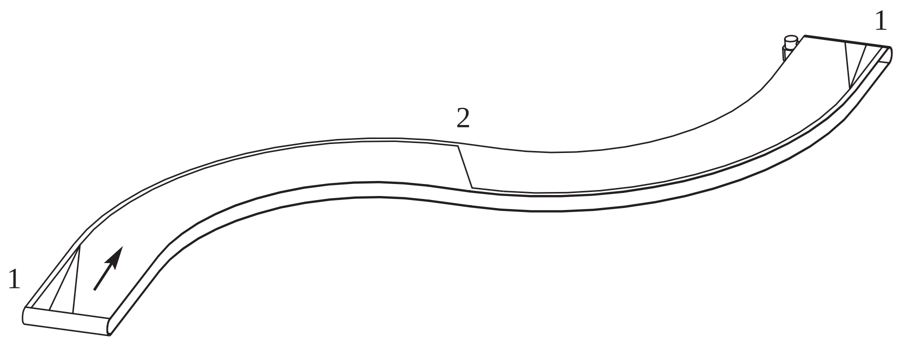
In straight running belts, where the tensile force is distributed evenly, the tensile capacity will increase in relation to the belt width.

In a side flexing belt only the outer hinges of the belt can transfer the entire tensile force in curves. Thus a larger width sideflexing belt will not have increased tensile capacity.

1.3.4 Layout following the load lines

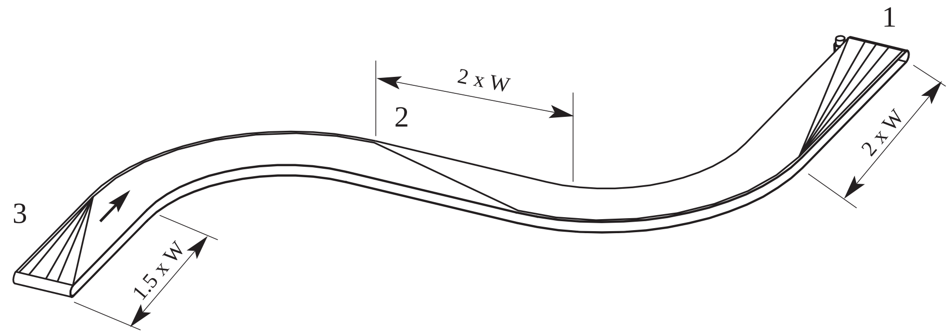
It is important to observe these load lines when designing the conveyor.

- To ensure correct engagement and optimum drive the sprockets must be placed where the belt is running straight and the forces are evenly distributed. uni-chains thus recommens placing the drive station in a distance from the curve of minimum 2 x belt width.
- At the idler end it must be ensured that the belt is stretched, so that the pins in the belt are parallel with the idler shaft when they rotate around it. A straight section before the curve of minimum 1.5 x belt width ensures correct rotation around the idler shaft.
- In an S-conveyor it is important that the tensile force is distributed evenly across the belt width between the two curves before it is compressed on the opposite side of the belt. A straight section between two opposite running curves of 2 x belt width ensures a good distribution of the tensile force. The distance can be smaller but this may influence the stability of the belt and cause vibrations.



Bad Layout

1. The load line pattern shows uneven forces at the sprockets.
2. The straight sections in this S-curve are too short causing a severe change of direction between curves. This will result in a pulsation of the belt and in a worst case senario could cause a break.



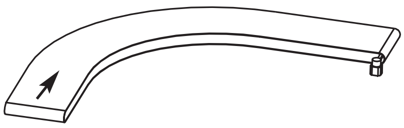
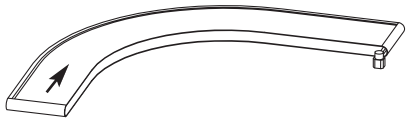
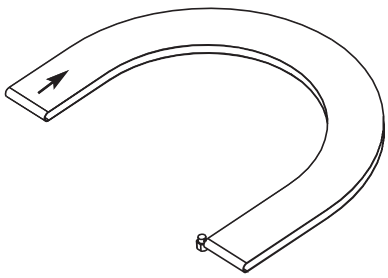
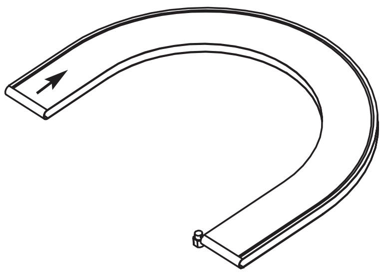
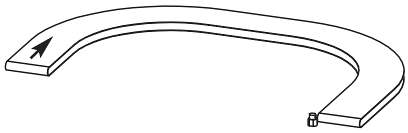
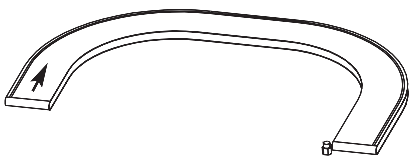
Good Layout

1. The load is distributed evenly over the belt width at the drive end.
2. The load is transferred evenly from one side of the belt to the other.
3. True pitch over the entire belt width at the idler end ensures a proper engagement.

1.4 Layout options for uni Flex SNB

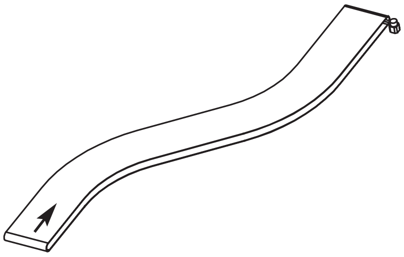
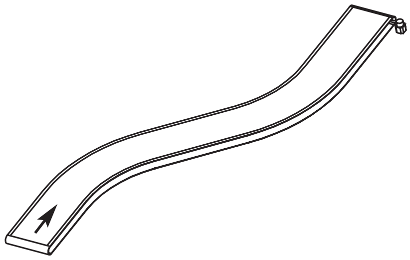
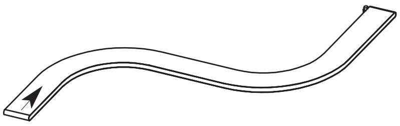
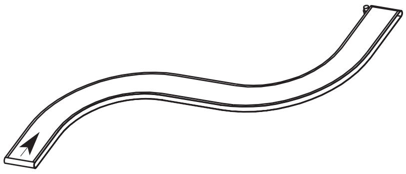
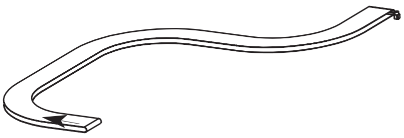
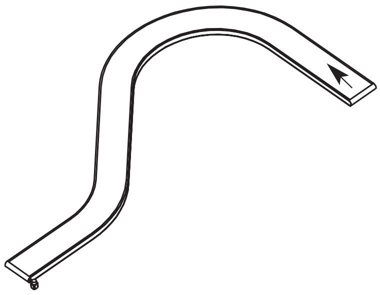
The great versatility and the wide product program of the uni Flex SNB series enables the building of conveyors for many applications. Below is a survey of six basic layouts that can be combined to meet different requirements.

1.4.1 Single direction curves

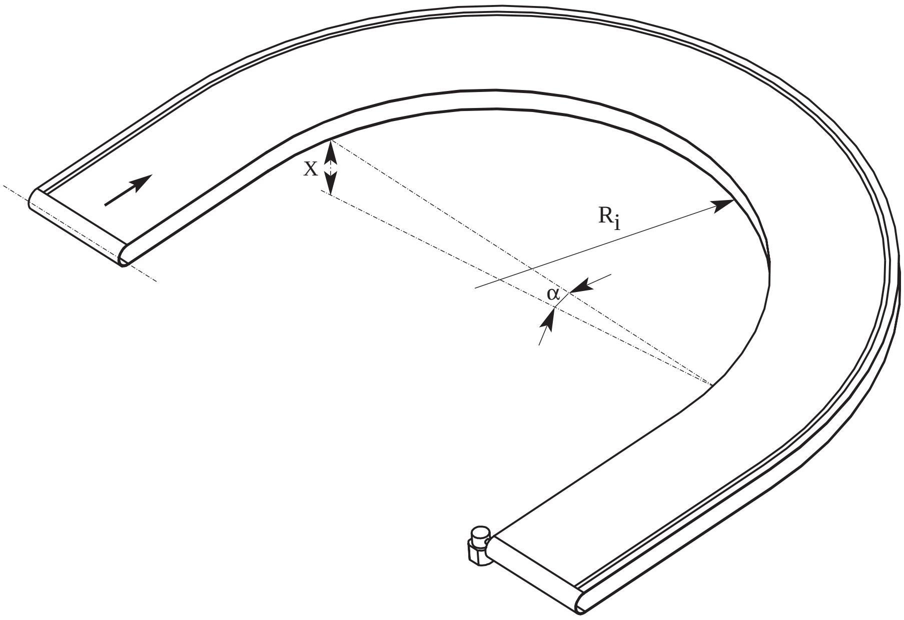
Light Load	High Load	
		• L-layout
		• U-layout
		• C-layout
• All plastic	• w. SS Reinforcement links • In single direction curves the SS reinforcement links are only necessary on one side of the belt (outside)	

1.4.2 Bi-directional curves

The great versatility and the wide product program of the uni Flex SNB series enables the building of conveyors for almost any application. Below is a survey of six basic layouts that can be combined to meet almost any requirement.

Light Load	**High Load**	
		• Curve angle <90° • Reducing the curve angle will reduce the tension in the belt, there by allowing a higher product load
		• 90° curve angle • 90° or larger curve angles increase the tension in the belt • A sufficient straight section between two opposite curves is essential to have a steady running belt
		• Multi-curve conveyors • To optimise a multi-curve conveyor place the largest curve angle closest to the idler end
• All plastic	• w. SS Reinforcement links • on bi-directional curved conveyors SS reinforcement links are normally used on both sides of the belt	

1.4.3 Three-dimensional curves (spirals)



A three-dimensional conveyor is used to change the horizontal level of the product transportation.

To control the belt it is necessary to use hold down wearstrips on the outer and inner radius.

Products must be tested to ensure they do not slide out of control on inclined sections. Normally, if the inclination angle (α) exceeds 2° to 3°, a product support is used to prevent the product from sliding down the conveyor.

The inclination angle is determind by the following formula:

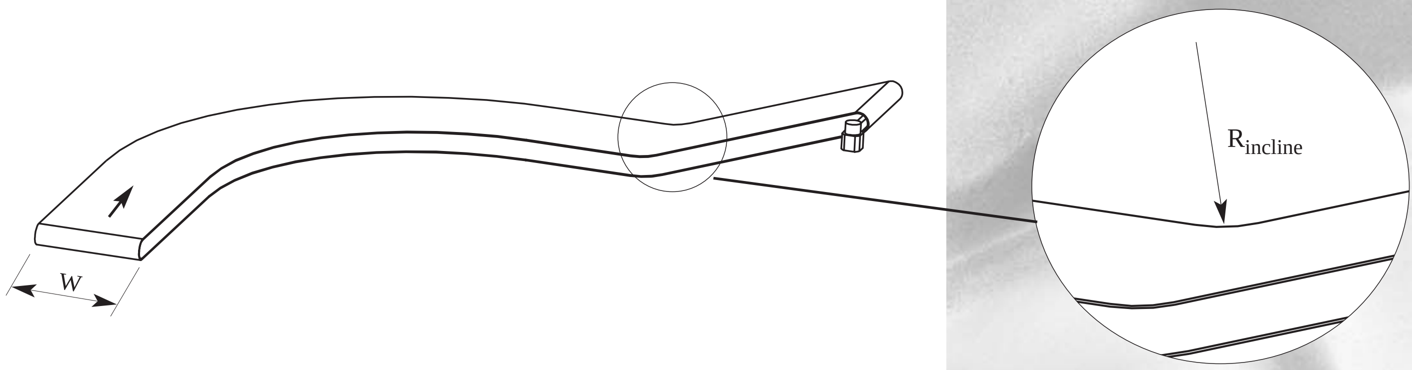
$$\alpha = \text{INVTAN} \left(\frac{X}{2 \times R_i} \right)$$

X = Change in the horizontal level

R_i = Inner radius

α = Inclination angle

1.4.4 Conveyors with slopes



At the point between the horizontal belt and the slope there must be a hold down wearstrip system to ensure the belt does not lift up from the conveyor frame.

Minimum incline/decline radius for uni Flex SNB: R_{min} = 100 mm (4 inch)

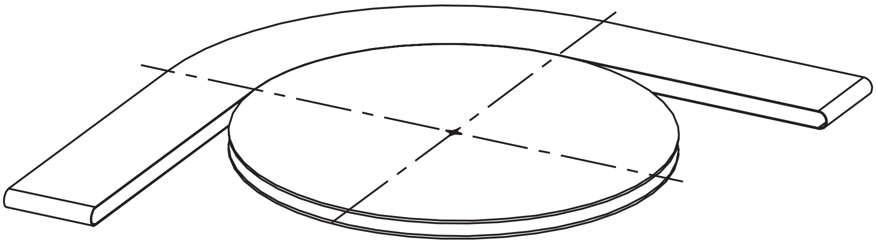
uni-chains recommend the largest possible incline radius is used to ensure smooth running of the belt.

Hold-down systems at incline radius:

	Belt width (W)	
	W≤ 400 mm (16 inch)	**W > 400 mm (16 inch)**
uni Flex SNB with plastic pins	**Outside wearstrips**	**Outside wearstrip + one I-Tab every 300 mm (12 inch)**

	Belt width (W)	
	W≤ 600 mm (24 inch)	**W > 600 mm (24 inch)**
uni Flex SNB with SS pins	**Outside wearstrips**	**Outside wearstrip + one I-Tab every 300 mm (12 inch)**

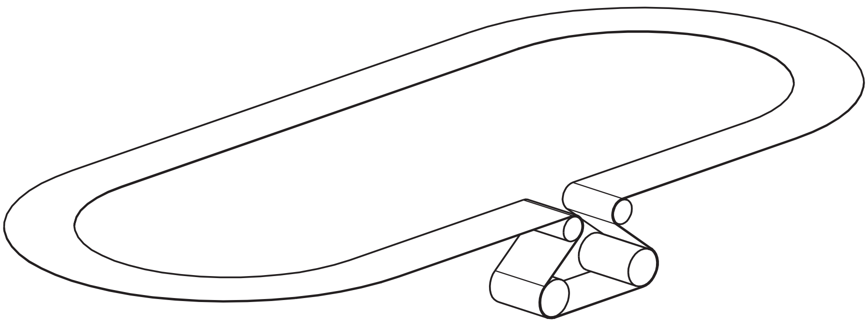
1.4.5 Conveyors with turn discs



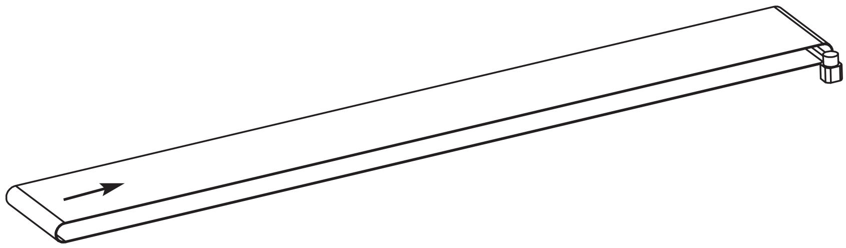
A turn disc is a disc mounted on a steel shaft with ball bearings which allow the disc to turn freely.
On narrow uni Flex SNB belts turn discs can be used to reduce the tension in the belt.
The use of turn discs will eliminate the friction between belt and wearstrip in the curves.

Large turn discs on small shafts need to be supported horizontally.

1.4.6 Endless carrousel conveyors



1.4.7 Straight running conveyors

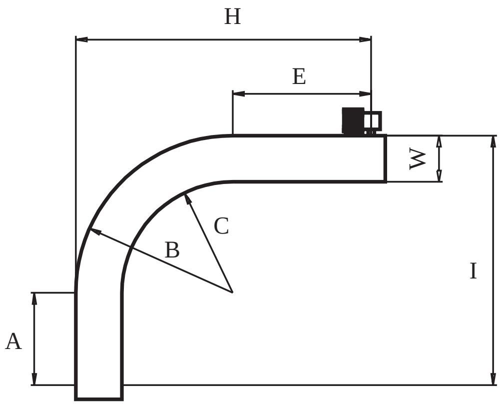


uni Flex SNB is a strong belt with a large range of accessories and therefore suitable for straight running conveyors.

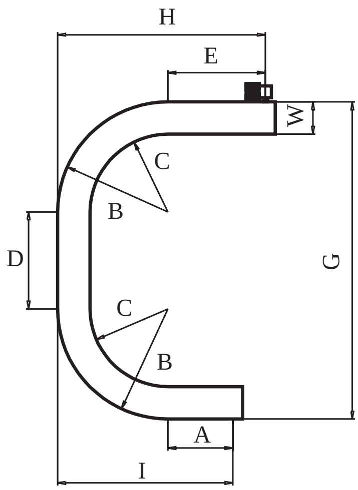
To have a uniform production lay-out and to reduce stocking of different spare parts and sprockets uni Flex SNB is used also on straight running conveyors in combination with side flexing conveyors.

2. Overall dimensions for uni Flex SNB conveyors

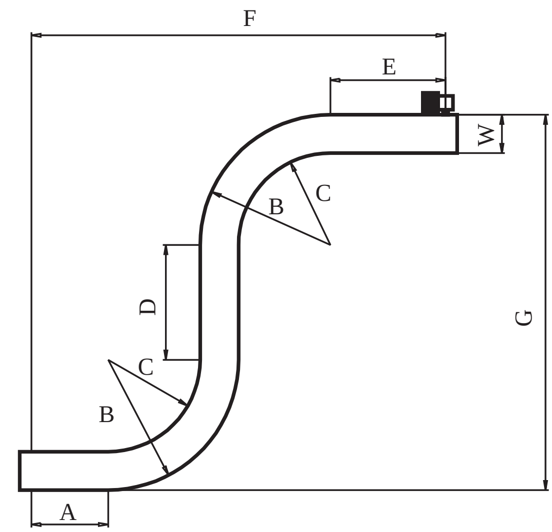
L-conveyors



C-conveyors



S-conveyors



	uni Flex SNB-L/W/WO/WT	uni Flex SNB-CR W≤229 (9 inch)	uni Flex SNB-CR W>229 (9 inch)
A 1)	min. 1.5 x W	min. 1.5 x W	min. 1.5 x W
B	min. 3.3 x W	min. 2.5 x W	min. 2.6 x W-18 mm (0.709 inch)
C	min. 2.3 x W	min. 1.5 x W	min. 1.6 x W-18 mm (0.709 inch)
D 2)3)	min. 2.0 x W	min. 2.0 x W	min. 2.0 x W
E	min. 2.0 x W	min. 2.0 x W	min. 2.0 x W
F	min. 9.1 x W	min. 7.5 x W	min. 7.7 x W-36 mm (1.417 inch)
G	min. 8.6 x W	min. 7.0 x W	min. 7.2 x W-36 mm (1.417 inch)
H	min. 5.3 x W	min. 4.5 x W	min. 4.6 x W-36 mm (0.709 inch)
I	min. 4.8 x W	min. 4.0 x W	min. 4.1 x W-36 mm (0.709 inch)

1. The A-dimension is for applications with sprockets at the idler end. If rollers mounted on bearings are used, the A-dimension can be reduced to 1 x W but must still be minimum 300 mm (12 inch).

2. Reduced D-dimension min. 400 mm (16 inch) is possible but this will influence the stability. The D-dimension can also be reduced if the curve angle is less than 90°.

3. On C-conveyors it is not necessary with a min. D-dimension.

2.1 Overall dimensions for standard belt widths

Shaft to shaft

Standard Radius

Metric dimensions

						Overall dimensions			
W	A 1)	B	C	D 2)	E	F	G	H	I
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
76	300	251	175	400	400	**1126**	**902**	**651**	**551**
152	300	502	350	400	400	**1551**	**1403**	**902**	**802**
229	344	756	527	458	458	**2084**	**1969**	**1214**	**1099**
304	456	1003	699	608	608	**2766**	**2614**	**1611**	**1459**
379	569	1251	872	758	758	**3449**	**3259**	**2009**	**1819**
456	684	1505	1049	912	912	**4150**	**3922**	**2417**	**2189**
532	798	1756	1224	1064	1064	**4841**	**4575**	**2820**	**2554**
608	912	2006	1398	1216	1216	**5533**	**5229**	**3222**	**2918**
684	1026	2257	1573	1368	1368	**6224**	**5882**	**3625**	**3283**
760	1140	2508	1748	1520	1520	**6916**	**6536**	**4028**	**3648**
836	1254	2759	1923	1672	1672	**7608**	**7190**	**4431**	**4013**
912	1368	3010	2098	1824	1824	**8299**	**7843**	**4834**	**4378**
988	1482	3260	2272	1976	1976	**8991**	**8497**	**5236**	**4742**

Imperial dimensions

						Overall dimensions			
W	A 1)	B	C	D 2)	E	F	G	H	I
inch	inch	inch	inch	inch	inch	inch	inch	inch	inch
3.0	11.8	9.9	6.9	15.7	15.7	**44.3**	**35.5**	**26.6**	**21.7**
6.0	11.8	19.7	13.8	15.7	15.7	**61.1**	**55.2**	**35.5**	**31.6**
9.0	13.5	29.8	20.7	18.0	18.0	**82.0**	**77.5**	**47.8**	**43.3**
12.0	18.0	39.5	27.5	23.9	23.9	**108.9**	**102.9**	**63.4**	**57.4**
14.9	22.4	49.2	34.3	29.8	29.8	**135.8**	**128.3**	**79.1**	**71.6**
18.0	26.9	59.2	41.3	35.9	35.9	**163.4**	**154.4**	**95.1**	**86.2**
20.9	31.4	69.1	48.2	41.9	41.9	**190.6**	**180.1**	**110.0**	**100.5**
23.9	35.9	79.0	55.1	47.9	47.9	**217.8**	**205.9**	**126.9**	**114.9**
26.9	40.4	88.89	61.9	53.9	53.9	**245.1**	**231.6**	**142.7**	**129.3**
29.9	44.9	98.7	68.8	59.8	59.8	**272.3**	**257.3**	**158.6**	**143.6**
32.9	49.4	108.6	75.7	65.8	65.8	**299.5**	**283.1**	**174.4**	**158.0**
35.9	53.9	118.5	82.6	71.8	71.8	**326.7**	**308.8**	**190.3**	**172.3**
38.9	58.3	128.4	89.5	77.8	77.8	**354.0**	**334.5**	**206.2**	**186.7**

1. The A-dimension is for applications with sprockets at the idler end. If rollers mounted on bearings are used, the A-dimension can be reduced to 1 x W but must still be minimum 300 mm (12 inch).

2. Reduced D-dimension min. 400 mm (16 inch) is possible but this will influence stability. The D-dimension can also be reduced if the curve angle is less than 90°.

Please, see drawings on page 2-1.

2.1 Overall dimensions for standard belt widths

Shaft to shaft

Tight Radius

Metric dimensions

						Overall dimensions			
W	**A 1)**	**B**	**C**	**D 2)**	**E**	**F**	**G**	**H**	**I**
mm	**mm**	**mm**	**mm**	**mm**	**mm**	**mm**	**mm**	**mm**	**mm**
76	300	190	114	400	400	**1004**	**780**	**590**	**490**
152	300	380	228	400	400	**1308**	**1160**	**780**	**680**
229	344	573	344	458	458	**1718**	**1603**	**1031**	**916**
304	456	772	468	608	608	**2305**	**2153**	**1380**	**1228**
379	569	967	588	758	758	**2882**	**2693**	**1725**	**1536**
456	684	1168	712	912	912	**3475**	**3247**	**2080**	**1852**
532	798	1365	833	1064	1064	**4060**	**3794**	**2429**	**2163**
608	912	1563	955	1216	1216	**4646**	**4342**	**2779**	**2475**
684	1026	1760	1076	1368	1368	**5231**	**4889**	**3128**	**2786**
760	1140	1958	1198	1520	1520	**5816**	**5436**	**3478**	**3098**
836	1254	2156	1320	1672	1672	**6401**	**5983**	**3828**	**3410**
912	1368	2353	1441	1824	1824	**6986**	**6530**	**4177**	**3721**
988	1482	2551	1563	1976	1976	**7572**	**7078**	**4527**	**4033**

Imperial dimensions

						Overall dimensions			
W	**A 1)**	**B 1)**	**C**	**D 2)**	**E**	**F**	**G**	**H**	**I**
inch	**inch**	**inch**	**inch**	**inch**	**inch**	**inch**	**inch**	**inch**	**inch**
3.0	11.8	7.5	4.5	15.7	15.7	**39.5**	**30.7**	**23.2**	**19.3**
6.0	11.8	15.0	9.0	15.7	15.7	**51.5**	**45.7**	**30.7**	**26.8**
9.0	13.5	22.5	13.5	18.0	18.0	**67.6**	**63.1**	**40.6**	**36.1**
12.0	18.0	30.4	18.4	23.9	23.9	**90.7**	**84.8**	**54.3**	**48.4**
14.9	22.4	38.1	23.2	29.8	29.8	**113.5**	**106.0**	**67.9**	**60.5**
18.0	26.9	46.0	28.0	35.9	35.9	**136.8**	**127.8**	**81.9**	**72.9**
20.9	31.4	53.7	32.8	41.9	41.9	**159.9**	**149.4**	**95.6**	**85.2**
23.9	35.9	61.5	37.6	47.9	47.9	**182.9**	**170.9**	**109.4**	**97.4**
26.9	40.4	69.3	42.4	53.9	53.9	**205.9**	**192.5**	**123.2**	**109.7**
29.9	44.9	77.1	47.2	59.8	59.8	**229.0**	**214.0**	**136.9**	**122.0**
32.9	49.4	84.9	52.0	65.8	65.8	**252.0**	**235.6**	**150.7**	**134.4**
35.9	53.9	92.6	56.7	71.8	71.8	**275.1**	**257.1**	**164.5**	**146.5**
38.9	58.3	100.4	61.5	77.8	77.8	**291.8**	**278.6**	**178.2**	**158.8**

1. The A-dimension is for applications with sprockets at the idler end. If rollers mounted on bearings are used, the A-dimension can be reduced to 1 x W but must still be minimum 300 mm (12 inch).

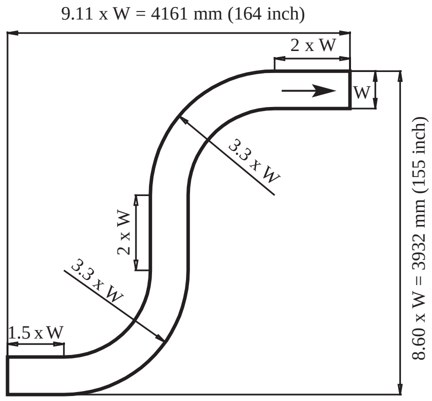
2. Reduced D-dimension min. 400 mm (16 inch) is possible but this will influence stability. The D-dimension can also be reduced if the curve angle is less than 90°.

Please, see drawings on page 2-1.

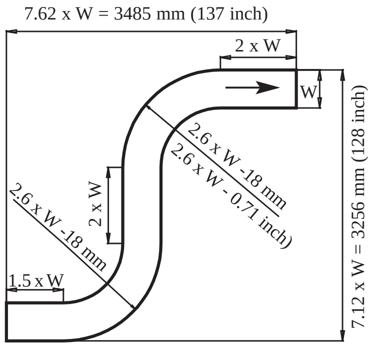
2.2 Methods for reducing overall dimensions

In applications with space problems and thus a critical overall dimensioning compact conveyors can be made in the following ways:

2.2.1 Reducing side flexing belt width ratio

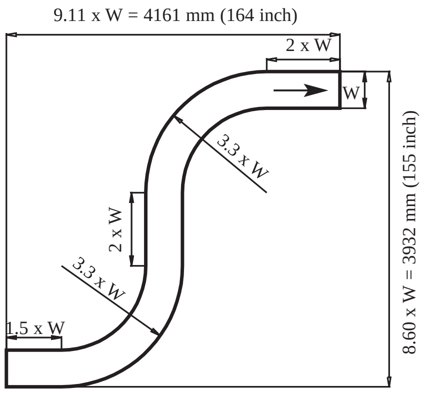


Belt width (W) = 18 inch (457 mm)

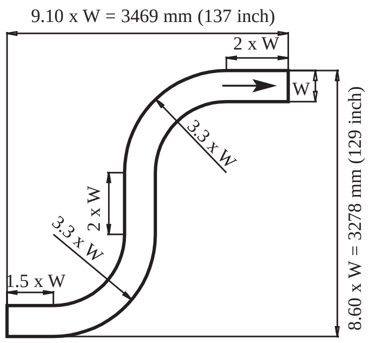


Belt width (W) = 18 inch (457 mm)

2.2.2 Reducing belt width

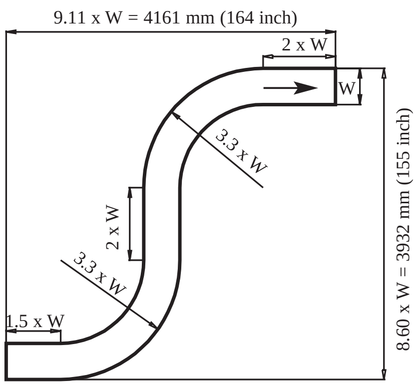


Belt width (W) = 18 inch (457 mm)

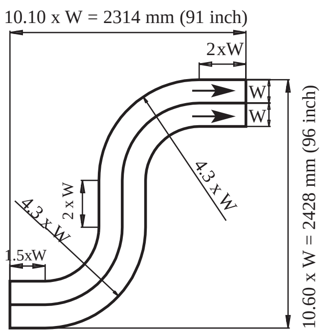


Belt width (W) = 15 inch (381 mm)

2.2.3 Split wide conveyors in 2 belts



Belt width (W) = 18 inch (457 mm)



Belt width (W) = 9 inch (229 mm)

With a tight radius belt the dimensions of the curved sections are reduced because the outer turning radius is smaller than with a standard radius belt. The overall dimensions of an S-conveyor with an 18 inch (457 mm) wide belt built according to minimum requirements requires approx. **33%** less space.

All dimension requirements for a side flexing belt are related to the belt width. If the belt width is reduced the overall dimensions will be reduced as well. By using O-tabs or the WO-type the belt can be narrower than the products and the overall dimensions smaller. A standard S-conveyor with an 18 inch (457 mm) wide belt is requires approx. **30%** less space.

Another method of reducing the belt width is by splitting a conveyor into two parallel belt lanes. Two 9 inch (229 mm) wide belts can thus replace an 18 inch (457 mm) wide belt and reduce the space required by **66%**.
If this option is chosen attention must be paid to the different speeds of the two belts in the curves (cf. two parallel chain tracks) and the fact that there is a distance between the two belts.

2.3 Placing the drive end

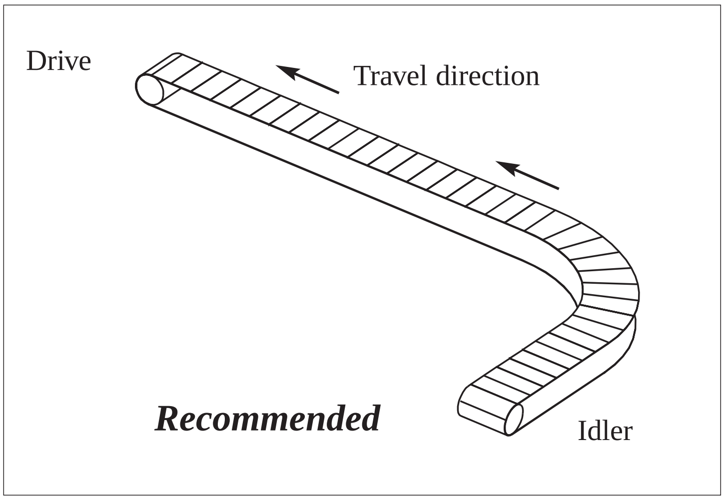
2.3.1 Where to split long conveyor layouts

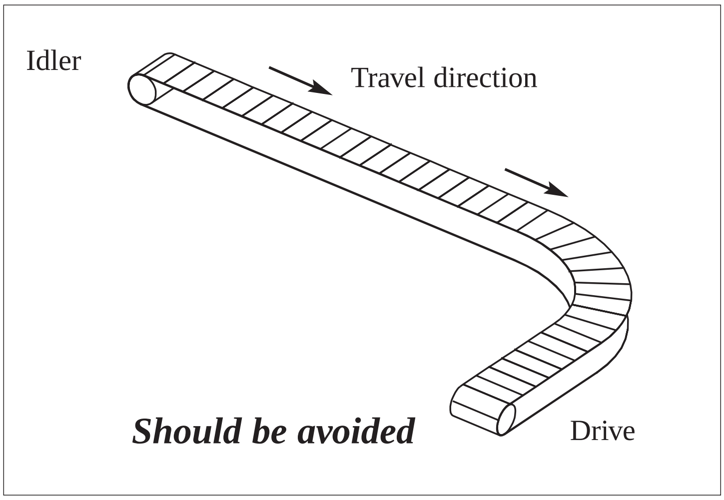
The drive unit must be placed, so that the chain/belt is pulled. Pushing the belt is therefore not recommended.

Belt tension increases as you move from the idler shaft to the drive shaft. On straight sections the tension will double if the belt length is doubled.

In curves the friction will increase against the inner radius of the guide rail. This means that the tension does not increase linearly but exponentially. It takes more power to pull the belt through a curve. The higher the load on the belt before the curve the larger the increase of the friction.

When placing of the drive it is important to minimize the sections before the curve and maximize the sections after the curve.





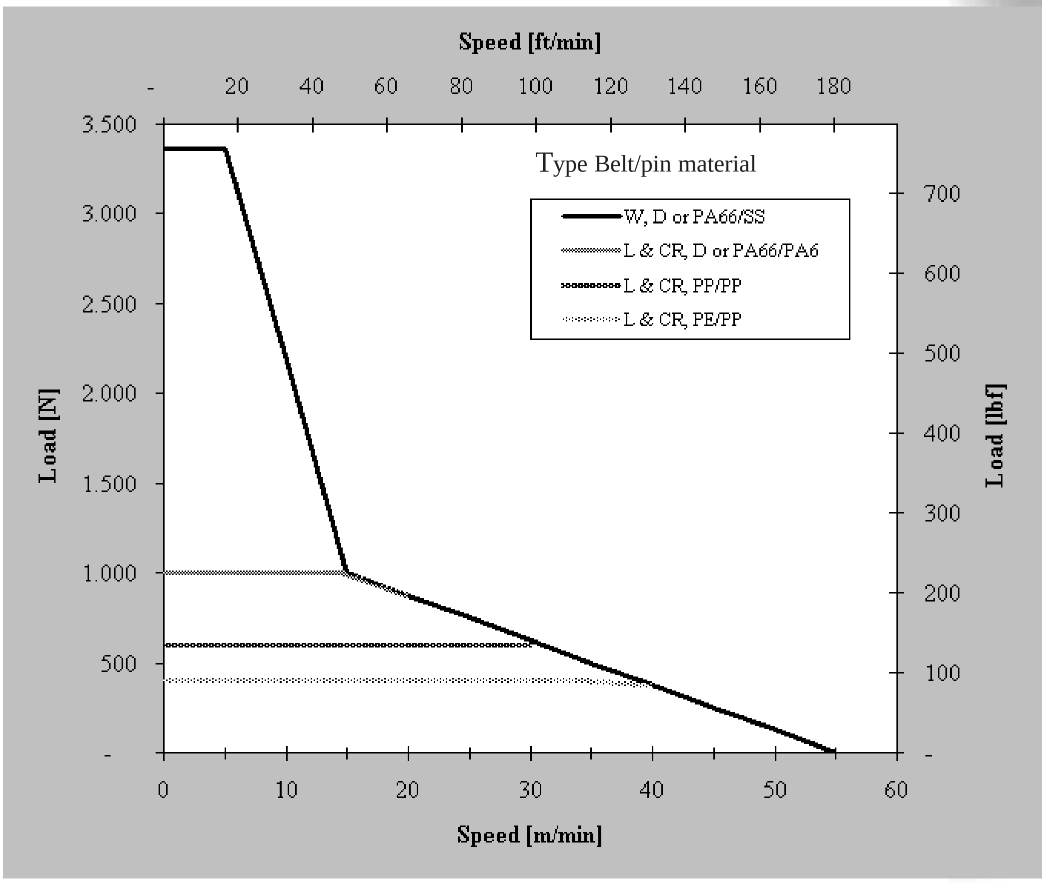
3. *Load & Speed properties*

The tensile force of a side flexing belt depends on the outer hinges and any reinforcement links. In side flexing belts, however, the speed is also an essential parameter.

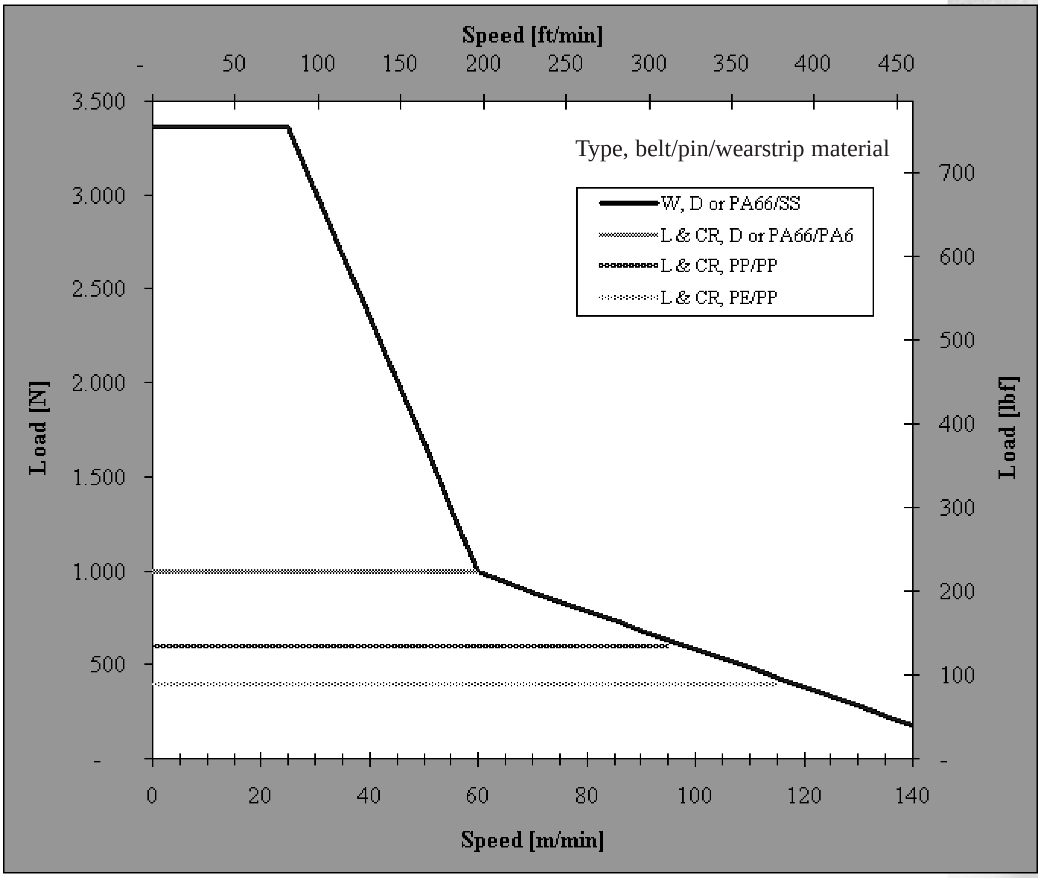
In side flexing belts there is a great radial load in the curve. At the point of contact between belt and wearstrip heat will occur due to friction. The temperature influences the friction properties of the materials. The friction coefficient will increase with the temperature, a higher friction coefficient will result in more heat being generated etc. It is important to avoid this as it will result in either the curve or the wearstrip melting.

On the basis of numerous tests and data collated from existing applications uni-chains has laid down some load/speed relations between our standard belt materials and UHMW PE HD 1000 and Nylatron (special high speed material) respectively.
Attention should be paid to the max. permissible tensile forces stated that apply only at relatively low speeds and that will decrease as speed increases.

Load/Speed relations for uni Flex SNB with HD 1000 wearstrips



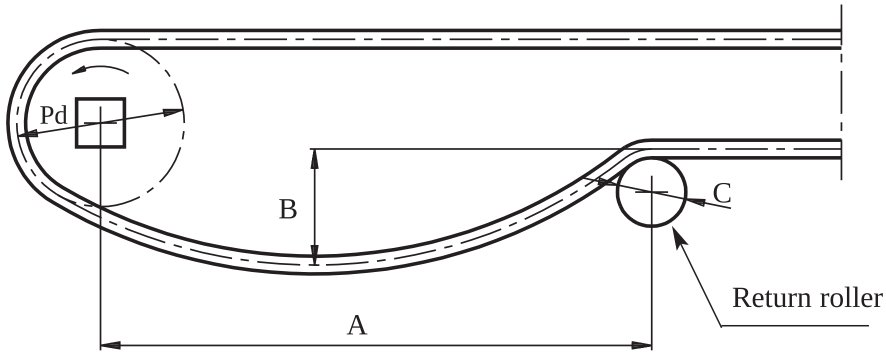
Load/Speed relations for uni Flex SNB with Nylatron wearstrips



4. Driving uni Flex SNB

4.1 Catenary sag

4.1.1 Catenary sag with return roller



Pd = Pitch diameter

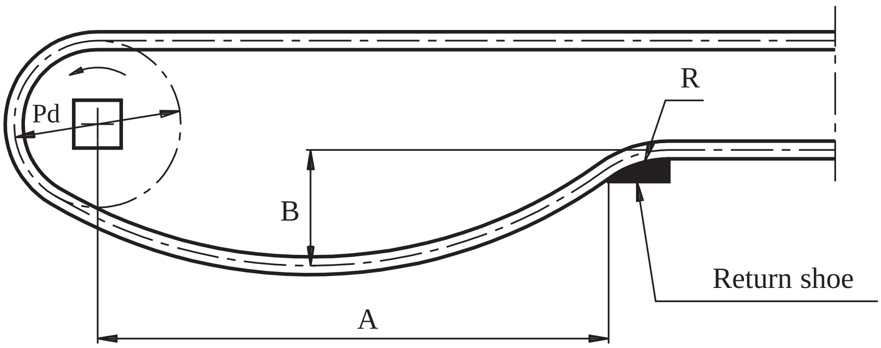
	mm	inch
A min.	500	19.7
B min.	25	1.0
C min.	ø40	ø1.6

Used where there are no heavy demands on transfers.

This traction method should be avoided in uni Flex SNB conveyors with heavy loads as the relatively small engagemnet and the "loose" belt can cause the belt to disengage from the sprockets.

This method is economical and, to a great extent, used in traditional belt conveyors.

4.1.2 Catenary sag with return shoe

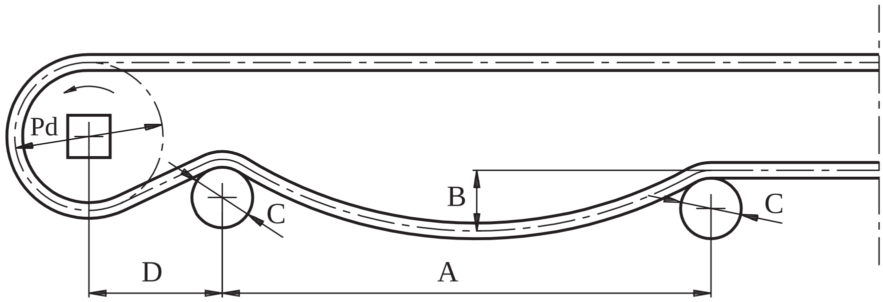


Pd = Pitch diameter

	mm	inch
A min.	500	19.7
B min.	25	1.0
R min.	20	0.8

The same layout as above except for the return shoe ensuring the belt is fed properly into the return profiles.

4.1.3 Catenary sag with snub roller



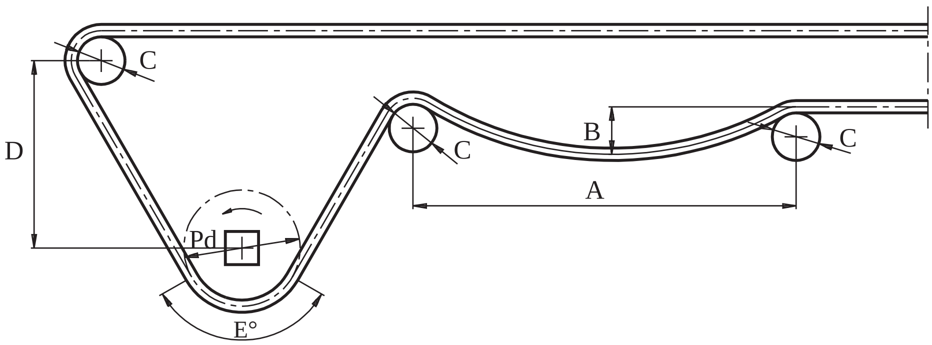
Pd = Pitch diameter

	mm	inch
A min.	500	19.7
B min.	25	1.0
C min.	ø40	ø1.6
D min.	(Pd + C)/2 + 50	(Pd + C)/2 + 2

This layout resembles the catenary sag with return roller. Here a snub roller is placed close to the drive sprocket ensuring a larger engagement angle reducing the risk of belt disengagement. With this method it is possible to transfer more forces in each drive sprocket than with catenary sag with return roller.

4.2 Tight transfer drives

4.2.1 Roller transfer



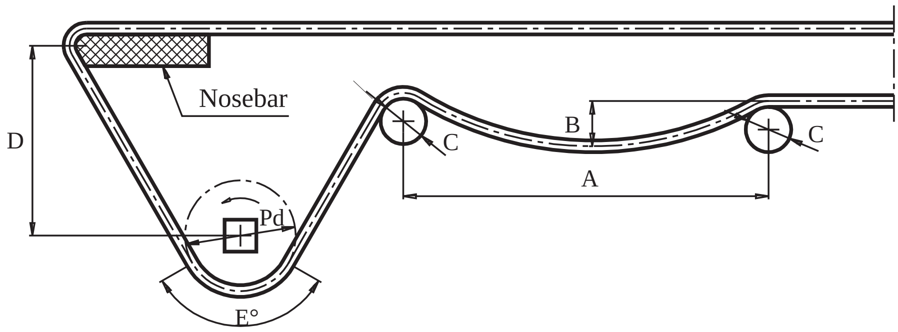
Pd = Pitch diameter

E = Engagement angle

	mm	inch
A min.	500	19.7
B min.	25	1.0
C min.	ø40	ø1.6
D min.	100	3.9
E min.	120°	120°
E max.	170°	170°

Used where a small nose radius is required e.g. at product transfers from one conveyor to another. The sag is not placed immediately at the drive sprocket, hence a larger engagement angle can be achieved resulting in more teeth engaging at the same time.

4.2.2 Nosebar



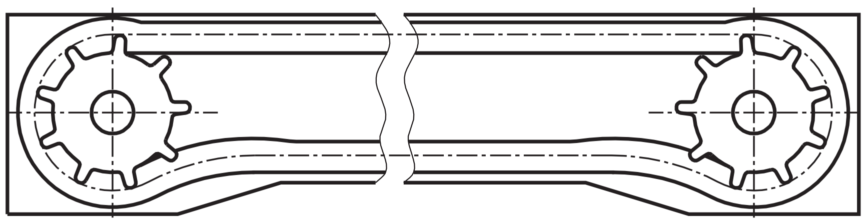
	mm	inch
A min.	500	19.7
B min.	25	1.0
C min.	ø40	ø1.6
D min.	100	3.9
E min.	120°	120°
E max.	170°	170°

Pd = Pitch diameter

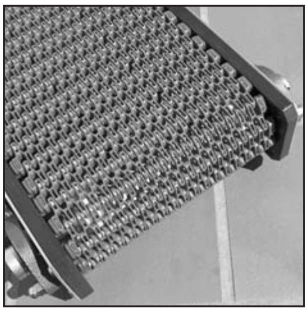
E = Engagement angle

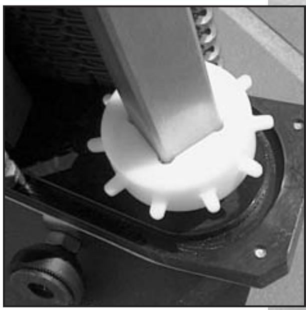
The same layout as 4.2.1 but instead of a roller/return shoe a nosebar is used.
The advantage of a nosebar is that it supports the belt over the entire width. The disadvantage of the nosebar is that due to the friction between the belt and the nosebar heat will generate. The nosebar solution should be avoided in heavy duty applications (belt load + 2000 N (450 lbf)) and at high speeds (+ 25 m/min. (82 ft/min.)).

4.3 Driving terminal



A driving terminal is a side plate mounted at the driving end to ensure good engagement between belt and driving sprockets. Side plates are mounted on either side of the belt. They keep the sprockets in place and prevent them from jumping.
The use of driving terminals eliminates the need for catenary sag. The belt is flexible and therefore it can be compressed on the return thereby taking up any extension of the belt.
Further, driving terminals ensure that the min. engagement angle between the belt and the driving sprockets is 180°. The result is that a larger force can be transferred at the driving end than if you did not use a driving terminal.

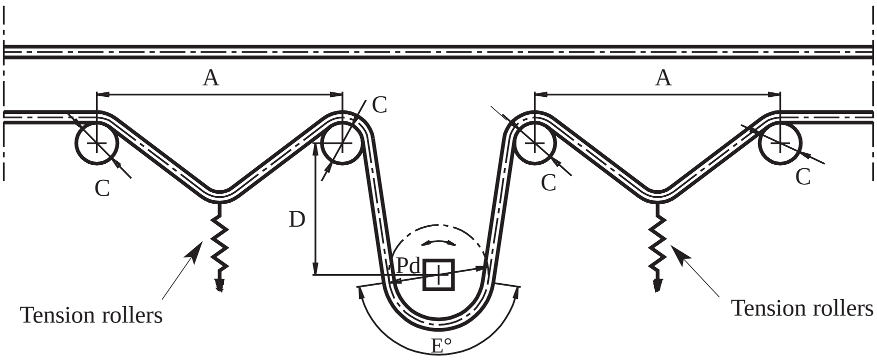




Examples of the principle of a driving terminal for uni Flex SNB-WO or uni Flex SNB-L locked with O-tab.

Driving terminals are also available for conveyors with multi-lane uni Flex SNB.

4.4 Center drive



Pd = Pitch diameter

E = Engagement angle

	mm	inch
A min.	500	19.7
C min.	ø40	ø1.6
D min.	100	3.9
E min.	120°	120°
E max.	170°	170°

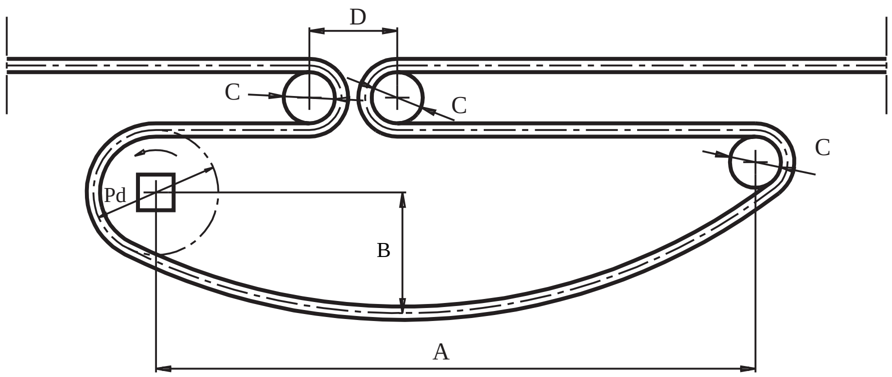
Used where reversible operation is required.

In uni Flex SNB conveyors uni-chains recommend that the double number of drive sprockets are mounted on the drive shaft. Please refer to the section on mounting of drive sprockets.

4.5 Carrousel drives

Used in conveyors without return

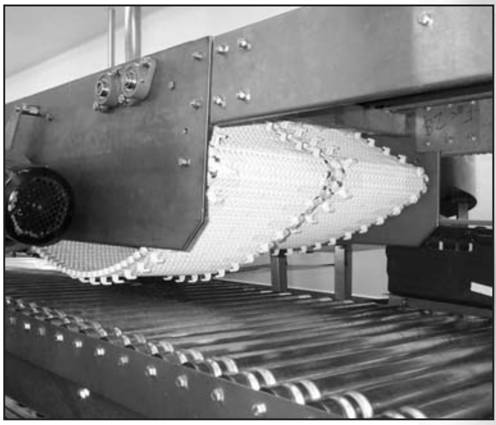
4.5.1 Asymmetric loop drive



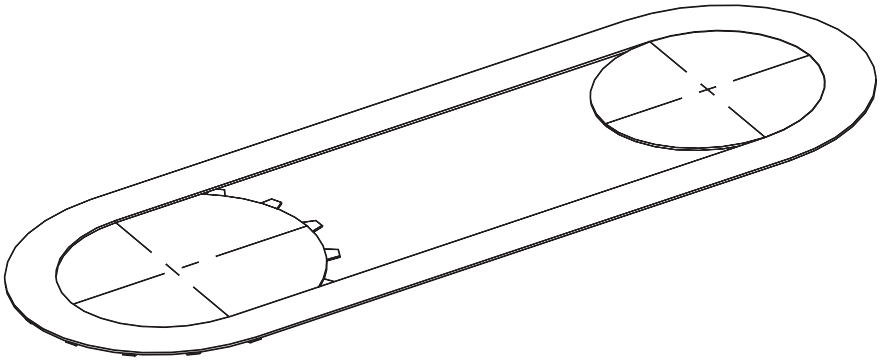
Pd = Pitch diameter

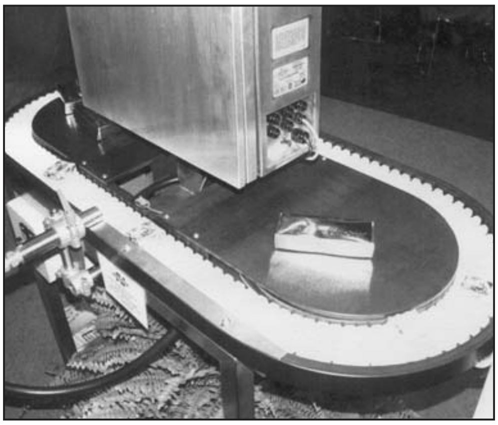
	mm	inch
A min.	500	19.7
B min.	Pd/2 + 25	Pd/2 + 1.0
C min.	ø40	ø1.6
D min.	C + 29	C + 1.14

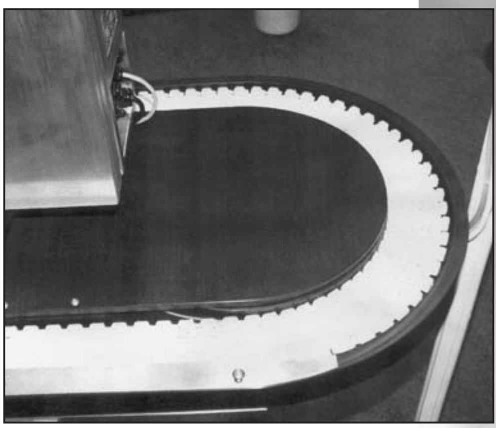
As can be seen from this sketch the catenary sag is not symmetrical around the two rollers. This enables a relatively small distance from the drive sprocket to the first roller. At the same time the distance to where the sag is required can be the necessary 500 mm (19.7 inch).



4.5.3 Horizontal drive







- Only for belt with S-Tab on outer radius
- Primarily for light applications

4.6 Precautions with sags for side flexing belts

Over time side flexing belts can elongate more in the loaded side of the belt.

Catenary sags and tension rollers must be able to absorb this elongation.

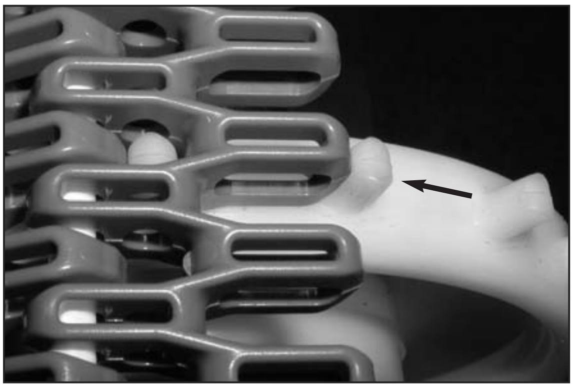
4.7 Mounting of sprockets

A very important element in any conveyor is the placing of sprockets as problems often arise because of the (bad) engagement between sprockets and belt.

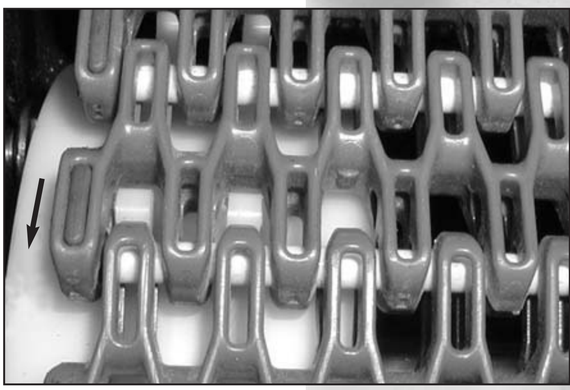
In uni Flex SNB conveyors the positions of especially the driving sprockets are very important because of due to the way the tension distributes in the belt.

4.7.1 Sprocket engagement

uni Flex SNB has been designed for bi-directional travel. In such case the double number of sprockets is installed because the engagement between sprockets and belt is best when the sprockets pull on the pin.



Correct placing of sprocket for belt travelling from right to left.



Correct placing of double rowed sprocket for belt travelling from top to bottom.

4.7.2 Alignment and timing of sprockets

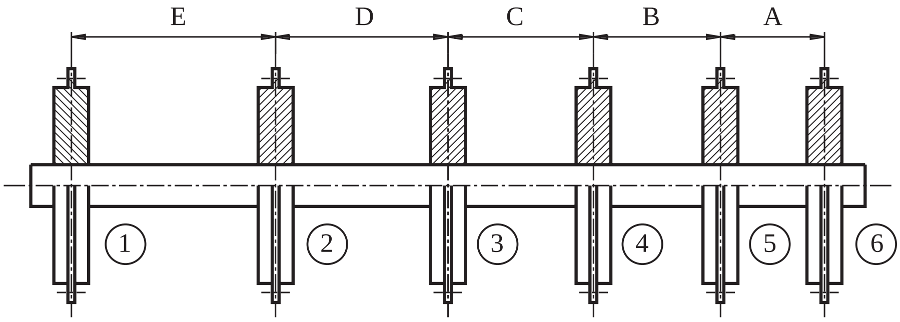
To ensure smooth running the conveyor must be absolutely level and the shafts must be aligned perpendicular to the travel direction.

When installing sprockets, make sure the timing is identical for all sprockets on the shaft i.e. the teeth are in line to ensure correct mesh with the belt.

For "sprocket to wearstrip dimension" please refer to the chapter regarding mounting of wearstrips page 5-6.

4.7.3 Drive end

As mentioned earlier the entire tension will be on the outer radius in the curves and therefore the highest load will also be on the outermost sprockets. Depending on the length of straight section from the last curve to the driving station the load will be distributed on more sprockets. Therefore, it is important that there is a straight section after the last curve. uni-chains recommend that this section has a min. length of 2.0 x belt width. Even at this length the load will be heavier on the outermost sprocket. The distance between the sprockets on the driving shaft should therefore be smaller for the sprockets placed closest to the outer radius. See sketch below.



Inner radius Outer radius

Distance between sprockets: A<B<C<D<E
Sprockets no. 3: Fixed to the shaft.
Sprockets no. 1-2-4-5-6: Moving freely axially

The minimum number of driving sprockets can be calculated from the formula: 1 + belt width/150 mm (6 inch). The result is always rounded up. The sprockets should as with all other belt types be placed on the shaft with the middle sprocket fastened to the shaft and the others moving freely to enable them to move with belt in case of thermal expansion.

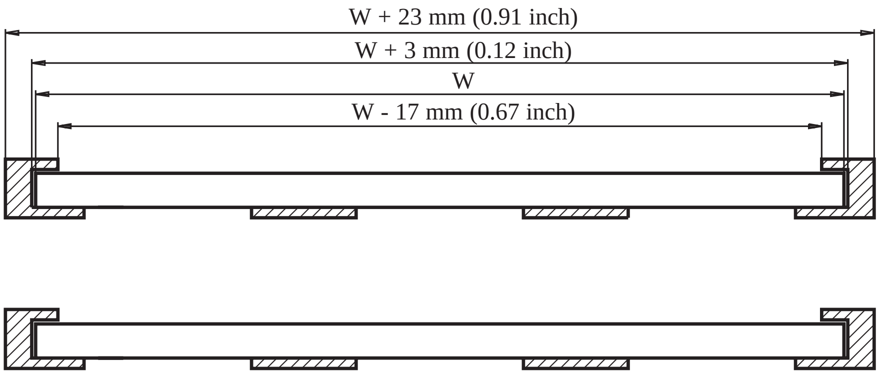
4.7.4 Idler end

The idler shaft can be constructed in different ways. uni-chains recommend that sprockets without teeth are used, i.e. either a disc or a shaft without teeth if support over the entire width is required. Loose discs should be made in POM with a smooth bore min. 0.2 mm (0.008 inch) larger than the diameter of the idler shaft. The radius of curvature should be min. = belt pitch (R25) if a shaft or nose transfer is applied. At high belt speeds (over 40 m/min. (130 ft/min.)) nose transfer should not be applied because of the risk of heat generation. In applications with speeds over 40 m/min. (130 ft/min.) a shaft should be embedded, so that it will rotate with the belt. Firstly this will prevent heat generation because of the friction between the shaft and the belt, secondly it will reduce the wear on the belt considerably.

5. Tracking & Control systems

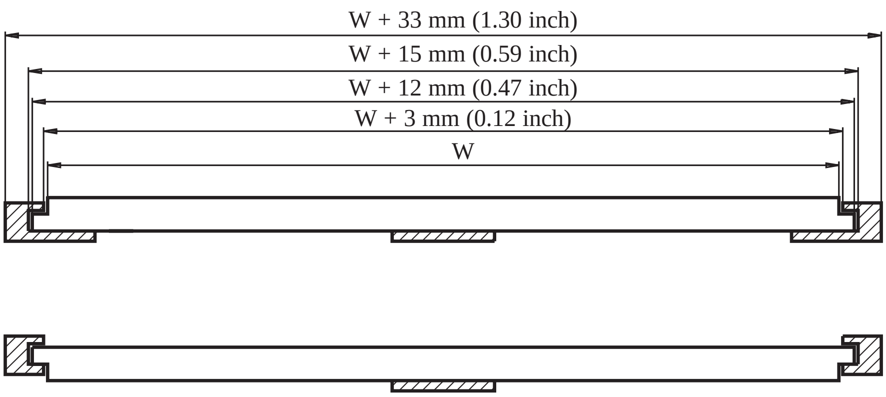
5.1 The 3 basic methods

5.1.1 uni Flex SNB-L & uni Flex SNB-CR, standard, with wearparts



Wearstrips for uni Flex SNB-L with wearpart and uni Flex SNB-W

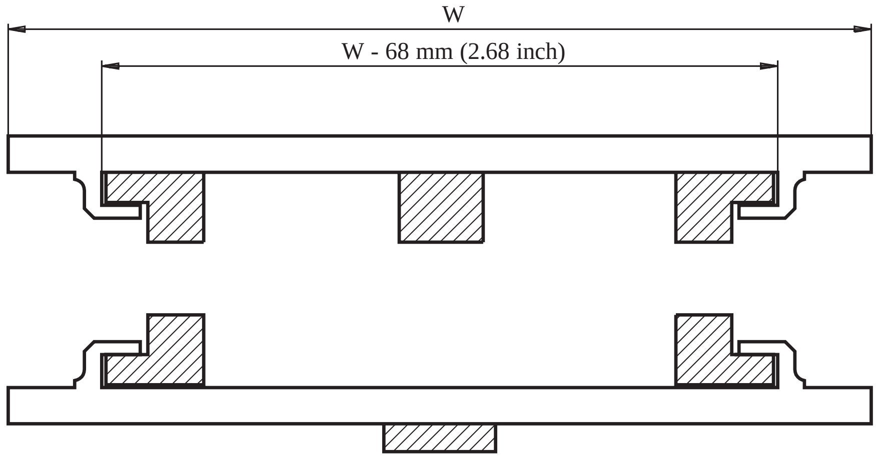
5.1.2 Using O-Tab & uni Flex SNB-WO



Wearstrips for uni Flex SNB-L with O-Tab and uni Flex SNB-WO

Note: The belt and/or the conveyor frame will expand when the temperature rises. Precautions to be made to ensure correct tracking and belt control.

5.1.3 uni Flex SNB-WT



Wearstrips for uni Flex SNB-WT

Note: The belt and/or the conveyor frame will expand when the temperature rises. Precautions to be made to ensure correct tracking and belt control.

5.2 Standard wearstrips for uni Flex SNB

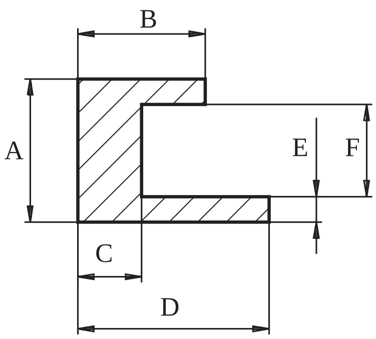
There are 3 different types of standard wearstrips for uni Flex SNB.

- Solid wearstrips are machined out of sheets to fit the radius on a given conveyor.
- Slotted wearstrips are standard straight sections. When mounting them on the conveyor frame they are bent into the radius given by the frame.
- Compact curves are an all-in-one curve where the inner radius, the center radius and the outer radius are combined in one solid part.

5.2.1 Solid wearstrips

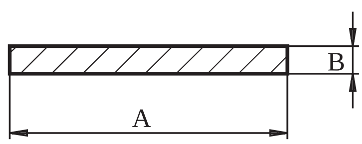
5.2.1.1 Solid wearstrips for uni Flex SNB-L, uni Flex SNB-CR and uni Flex SNB-W

Type L-1



Side profile
Carry section

Type L-2



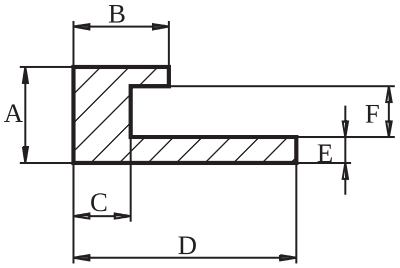
Center profile
Carry/return section

Type L-1		
	mm	**inch**
A	22.5	0.89
B	20.0	0.79
C	10.0	0.39
D	30.0	1.18
E	4.0	0.16
F	14.5	0.57

Type L-2		
	mm	**inch**
A	40.0	1.57
B	4.0	0.16

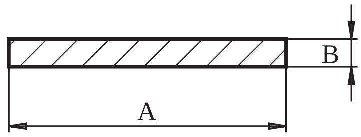
5.2.1.2 Solid wearstrips for uni Flex SNB with Outside tab (O-Tab)

Type O-1



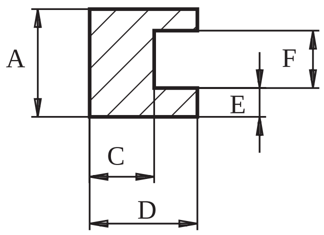
Side profile
Carry section

Type L-2



Center profile
Carry/return section

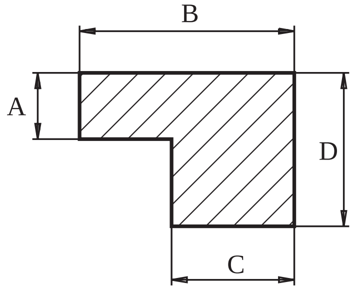
Type O-2



Side profile
Return section

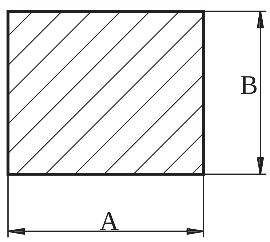
5.2.1.3 Solid wearstrips for uni Flex SNB-WT

Type T-1



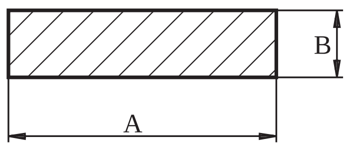
Side profile
Carry section

Type T-2



Center profile
Carry/return section

Type T-3



Center profile
Return section

Type O-1		
	mm	inch
A	15.0	0.59
B	15.0	0.59
C	9.0	0.35
D	35.0	1.38
E	4.0	0.16
F	8.0	0.31

Type L-2		
	mm	inch
A	40.0	1.57
B	4.0	0.16

Type O-2		
	mm	inch
A	15.0	0.59
C	9.0	0.35
D	15.0	0.59
E	4.0	0.16
F	8.0	0.31

Type T-1		
	mm	inch
A	10.8	0.43
B	35.0	1.38
C	20.0	0.79
D	25.0	0.98

Type T-2		
	mm	inch
A	30.0	1.18
B	25.0	0.98

Type T-3		
	mm	inch
A	40.0	1.57
B	10.0	0.39

5.2.2 Standard slotted wearstrips

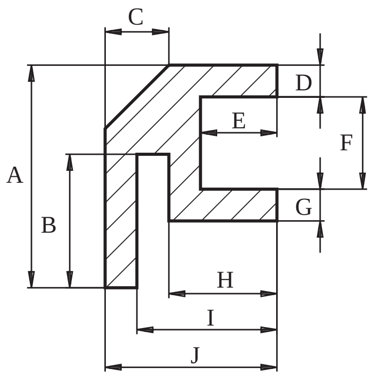
To be mounted directly on a cold rolled steel plate (frame). These wearstrips are supplied as straight sections and can be bent to the desired radius.

5.2.2.1 L-type

- uni Flex SNB-L
- uni Flex SNB-CR
- uni Flex SNB-W

For use in straight and curved sections.

Ordering:
5 mm slot, Part no.: 93uni123
Specify quantity in metres or feet



93uni123

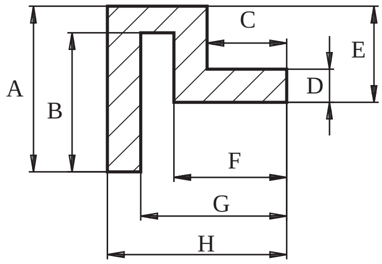
	mm	inch
A	35.0	1.38
B	21.0	0.83
C	10.0 x 45°	0.39 X 45°
D	5.0	0.20
E	12.0	0.47
F	14.5	0.57
G	5.0	0.20
H	17.0	0.67
I	22.0	0.87
J	27.0	1.06

5.2.2.2 L-type without hold down

- uni Flex SNB-L
- uni Flex SNB-CR
- uni Flex SNB-W

For use in straight sections.

Ordering:
5 mm slot, Part no.: 93uni124
Specify quantity in metres or feet



93uni124

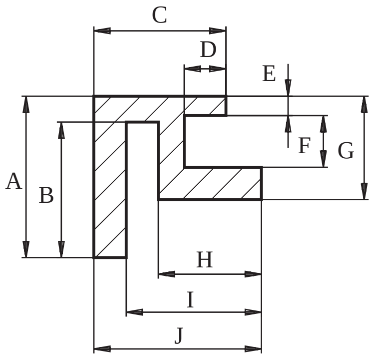
	mm	inch
A	25.0	0.98
B	21.0	0.83
C	12.0	0.47
D	5.0	0.20
E	14.5	0.57
F	17.0	0.67
G	22.0	0.87
H	27.0	1.06

5.2.2.3 O-type

- uni Flex SNB-L with O-TAB
- uni Flex SNB-CR with O-TAB
- uni Flex SNB-WO

For use in straight and curved sections.

Ordering:
5 mm slot, Part no.: 93uni125
Specify quantity in metres or feet



93uni125

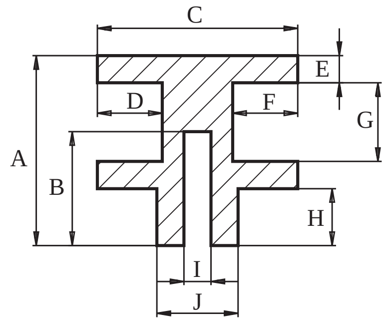
	mm	inch
A	25.0	0.98
B	21.0	0.83
C	20.5	0.81
D	6.5	0.26
E	3.0	0.12
F	8.0	0.31
G	16.0	0.63
H	16.0	0.63
I	21.0	0.83
J	26.0	1.02

5.2.2.4 LC-type

- uni Flex SNB-L
- uni Flex SNB-CR
- uni Flex SNB-W

For use in center sections between two parallel belts.
Straight and curved sections.

Ordering:
5 mm slot, Part no.: 93uni126
Specify quantity in metres or feet



93uni126

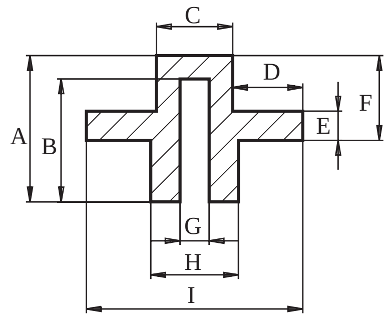
	mm	inch
A	35.0	1.38
B	21.0	0.83
C	37.0	1.46
D	12.0	0.47
E	5.0	0.20
F	12.0	0.47
G	14.5	0.57
H	10.5	0.41
I	5.0	0.20
J	15.0	0.59

5.2.2.5 LC-type without hold down

- uni Flex SNB-L
- uni Flex SNB-CR
- uni Flex SNB-W

For use in center sections between two parallel belts.
Only for straight sections

Ordering:
5 mm slot, Part no.: 93uni127
Specify quantity in metres or feet



93uni127

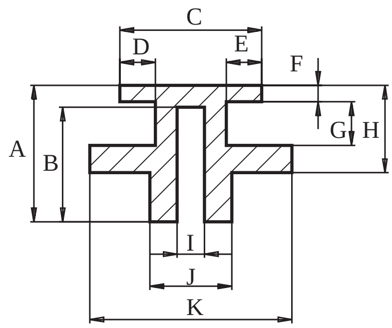
	mm	inch
A	25.0	0.98
B	21.0	0.83
C	13.0	0.51
D	12.0	0.47
E	5.0	0.20
F	14.5	0.57
G	5.0	0.20
H	15.0	0.59
I	37.0	1.46

5.2.2.6 OC-type

- uni Flex SNB-L with O-TAB
- uni Flex SNB-CR with O-TAB
- uni Flex SNB-WO

For use in center sections between two parallel belts. Straight and curved sections.

Ordering:
5 mm slot, Part no.: 93uni128
Specify quantity in metres or feet



93uni128

	mm	inch
A	25.0	0.98
B	21.0	0.83
C	26.0	1.02
D	6.5	0.26
E	6.5	0.26
F	3.0	0.12
G	8.0	0.31
H	16.0	0.63
I	5.0	0.20
J	15.0	0.59
K	37.0	1.46

5.3 Mounting wearstrips

A lot of problems may arise if sufficient care is not taken when mounting wearstrips for the uni Flex SNB system.

Ensure a clean environment
The basic rules for protecting the wearstrips from mechanical damage, dust and other particles during and after mounting are obvious but seldom seen in practice. Often wearstrips are fitted while someone nearby is using a grinder, is cleaning something using compressed air, spray painting etc...

Rule number one is to wash down the wearstrips before mounting the belt. Rule number two is to protect the mounted belt with some kind of cover when the finished conveyor is placed in the new factory while work is still going on around it.

Supporting wearstrips
Generally none of the different wearstrip systems are self-supported. This means that sufficient reinforcement must be provided in form of a supporting structure like a metal frame etc.

Required tolerances
The basic problem with wearstrips for the uni Flex SNB system is to maintain the correct distances between the parallel curve and straight segments used. Especially the distance between the outer profiles is important. The wider the belts the greater the effort that must be put into keeping the exact distances through the whole running track of the belt (both carry and return). The tolerance on the length from side to side profile (shown on the uni drawing) must be kept under 1 mm (0.04 inch) regardless of the belt width. Generally the uni wearstrip systems have a free space of 1.5 mm (0.06 inch) between the belt and the guide on both sides.

The profiles for the uni Flex SNB system are generally small profiles that do not always keep their machined shape due to inner tension in the plastic sheet used. Therefore great care must be taken to measure the correct mounting position before mounting. When one segment is mounted the use of a simple rod cut into the specific length can ensure correct positioning (distance) if it is used along the entire conveyor track.

Aligning wearstrips
Great effort must be made to ensure that the transfer from one profile to the next is done without gaps and misalignments. Gaps and misalignments can cause the belt to get trapped and damaged. Furthermore, the noise level and smooth running of the belt will be negatively invoked by poor alignment.

Fastening wearstrips
Most profiles are mounted with screws. If the screw is placed inside the track, great attention must be paid that the screws are properly countersunk in a way that does not conflict with the function of the track.
Do not overtighten the screws as this can squeeze the track.

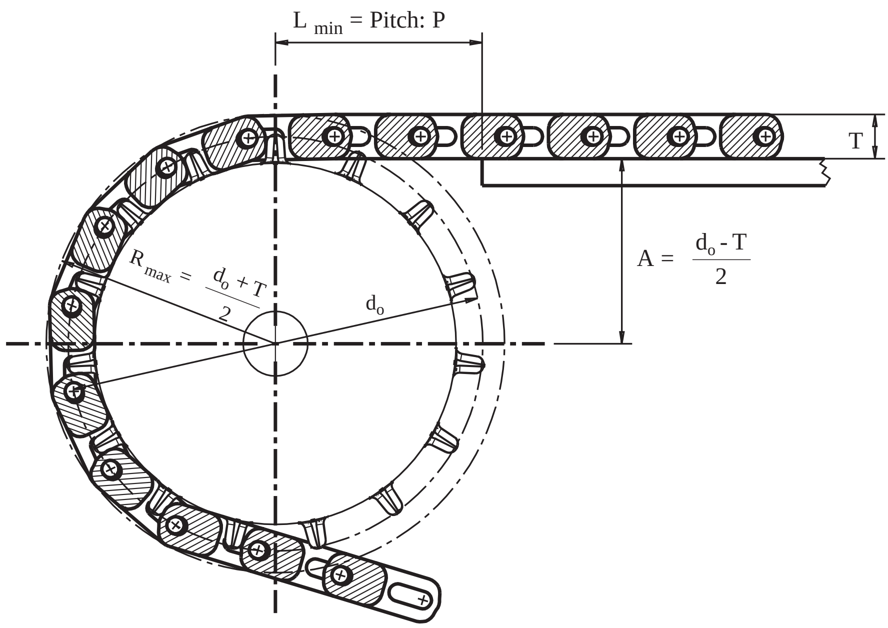
Cautions with conveyor frame
If the frame and support structures for the wearstrips are made of stainless steel, everything may look nice with (flat surfaces) correct curve dimension etc. before you sandblast the construction. When thin plates of stainless steel are sandblasted, the inner tensions in the metal are released causing the whole design to twist. Therefore you should not mount wearstrips on the surface the frame is straightened out.

Generally the frame should be as stiff as possible standing firmly on the ground with sufficient legs to support the whole structure.

Testing the tracks
When mounting the belt for the first time, do this simple test. First mount the belt on the carry only. Just by pulling the belt with the hands it should be possible to move the belt through the whole section. Repeat this test on the return tracks. If the belt is impossible to move by one or more persons something is wrong and the tracks should be checked to locate the problem. If the conveyor passes this test you can be sure that nothing is jamming thus ripping the teeths of the sprockets after some time.

5.3.1 Aligning wearstrips to sprockets

Sprocket to wearstrip dimensions are to be calculated following the formula below.



Examples:
Metric (mm)

d_o = 122.2 mm

T = 13 mm

$R_{max} = \frac{122.2 + 13}{2} = 67.6$ mm

$A = \frac{122.2 - 13}{2} = 54.6$ mm

Examples:
Imperial (inch)

d_o = 4.81 inch

T = 0.51 inch

$R_{max} = \frac{4.81 + 0.51}{2} = 2.66$ inch

$A = \frac{4.81 - 0.51}{2} = 2.15$ inch

d_o = Pitch diameter

R_{max} = Wrap radius

A = Vertical distance from wearstrip to sprocket center

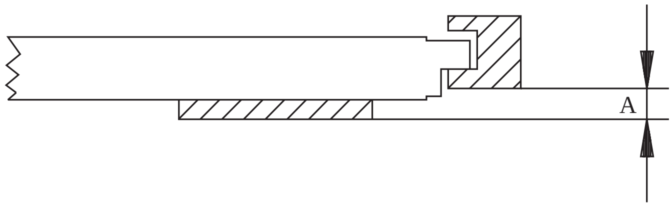
T = Thickness of belt link

5.4 Supporting belt on carry and return sections

The gap between the outer profiles must be filled with an appropriate number of supports.
The rule of thumb says that there should only be 100 mm (4 inch) free belt between the supports on the carry part. On the return 200 mm (8 inch) can be used as a rule of thumb.

Regarding the measurements for the support, the surface pressure must not cause floating in the plastic material.

Note that for the return section the standard uni wearstrip set for the O-Tab has a vertical offset between the outer wearstrip profiles and the centre profiles (see illustration below).



	mm	inch
A	6.35	0.25

A = Vertical offset between the outer wearstrip and the center profile standard return profiles for O-Tab.

Most profiles are mounted with screws. If the screw is placed inside the track pay attention that the screws are properly countersunk so that they do not conflict with the function of the track.

Do not overtighten the screws as this can squeeze the track.

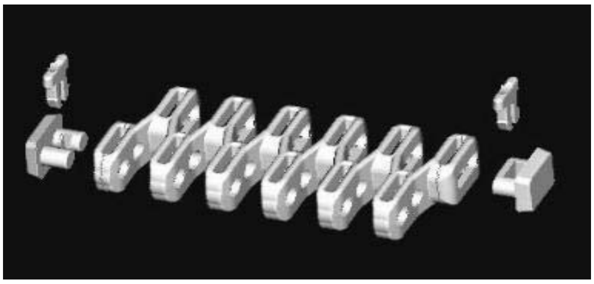
6. Belt Assembly

6.1 Belt orientation

This picture shows the orientation of the uni Flex SNB belt (with wearparts).

Top

Left side



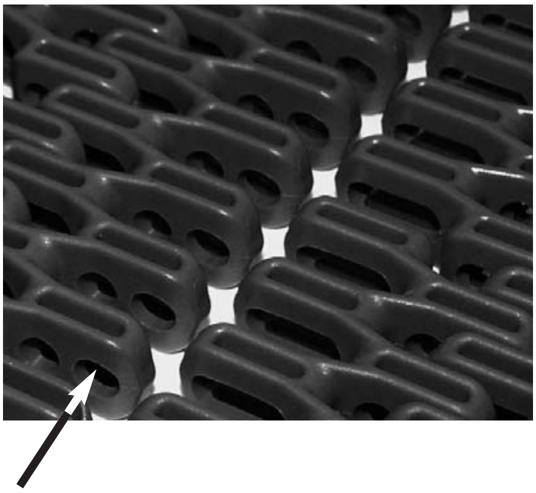
Right side

Bottom

6.2 Building pattern

Belt links must be assembled as shown below.

The end with the round holes in one link must face the end with the oval holes in the other link.



Always mount the pin in the **outer** round hole. Please, see page 6-10.

6.2.1 uni Flex SNB-L

The pattern below shows the layout and use of uni Flex SNB-L links in different belt widths.

Between the shown widths, belts can be made with a step of 12.67 mm (0.5 inch)

Width incl. locking plate/+ incl. wearpart

76/82 mm(3/3.2 inch)	K300	K300
152/158 mm (6.0/6.2 inch)	K600	K600
228/234 mm (9.0/9.2 inch)	K300 K600	K600 K300
304/310 mm (12.0/12.2 inch)	K1200	K1200
379/385 mm (15.0/15.2 inch)	K300 K600 K600	K600 K600 K300
456/462 mm (18.0/18.2 inch)	K600 K600 K600	K300 K600 K600 K300
532/538 mm (21.0/21.2 inch)	K600 K600 K600 K300	K300 K600 K600 K600
608/614 mm (23.9/24.2 inch)	K1200 K1200	K600 K1200 K600
684/690 mm (26.9/27.2 inch)	K300 K1200 K1200	K1200 K1200 K300
760/766 mm (29.9/30.2 inch)	K600 K1200 K1200	K1200 K1200 K600
836/842 mm (32.9/33.2 inch)	K300 K600 K1200 K1200	K1200 K1200 K600 K300
912/918 mm (35.9/36.1 inch)	K600 K1200 K1200 K600	K1200 K1200 K1200
988/994 mm (38.9/39.1 inch)	K300 K1200 K1200 K1200	K1200 K1200 K1200 K300
1065/1071 mm (41.9/42.2 inch)	K600 K1200 K1200 K1200	K1200 K1200 K1200 K600

Up

Widths above 600 mm (24 inch) *must* use K1200 links where ever possible!

6.2.2 uni Flex SNB-CR

The pattern below shows the layout and use of uni Flex SNB-CR links in different belt widths.

With wearpart or O-wearpart in both sides, you add 6 mm (0.24 inch) to the width.
Between the shown widths, belts can be made with a step of 12.67 mm (05 inch).
Note that belt widths are 0.5 - 1.0 mm (0.02 - 0.04 inch) wider than uni Flex SNB-L in widths below 600 mm (24 inch).

Width incl. locking plate/+ incl. wearpart

229/235 mm (9.0/9.3 inch)	K600	K300						
	K300	K600						
305/311 (12/12.2 inch)	K600	K600						
	K300	K600 LR	K300					
380/386 (15.0/15.2 inch)	K600	K600 LR	K300					
	K300	K600 LR	K600					
456/462 (18.0/18.2 inch)	K600	K600 LR	K600					
	K300	K600 LR	K600 LR	K300				
533/539 (21.0/21.2 inch)	K600	K600 LR	K600 LR	K300				
	K300	K600 LR	K600 LR	K600				
609/615 (24.0/24.2 inch)	K600	K600 LR	K600 LR	K600				
	K300	K600 LR	K600 LR	K600 LR	K300			
684/690 mm (27.0/27.2 inch)	K600	K600 LR	K600 LR	K600 LR	K300			
	K300	K600 LR	K600 LR	K600 LR	K600			
760/766 mm (29.9/30.2 inch)	K600	K600 LR	K600 LR	K600 LR	K600			
	K300	K600 LR	K600 LR	K600 LR	K600 LR	K300		
836/842 (32.9/33.2 inch)	K600	K600 LR	K600 LR	K600 LR	K600 LR	K300		
	K300	K600 LR	K600 LR	K600 LR	K600 LR	K600		
912/918 (36.0/36.1 inch)	K600	K600 LR	K600 LR	K600 LR	K600 LR	K600		
	K300	K600 LR	K600 LR	K600 LR	K600 LR	K600 LR	K300	
988/994 mm (38.9/39.1 inch)	K600	K600 LR	K600 LR	K600 LR	K600 LR	K600 LR	K300	
	K300	K600 LR	K600 LR	K600 LR	K600 LR	K600 LR	K600	
1065/1071 mm (41.9/42.2 inch)	K600	K600 LR	K600 LR	K600 LR	K600 LR	K600 LR	K600	
	K300	K600 LR	K600 LR	K600 LR	K600 LR	K600 LR	K600 LR	K300

K300	is a Closed Radius -K300
K600	is a Closed Radius -K600
K600 LR	is a Closed Radius Middle link

6.2.3 uni Flex SNB-W, -WO and -WT

The pattern below shows the layout and use of Flex SNB-W, -WO and -WT links in different belt widths.

Widths above 600 mm (24 inch) *must* use K1200 links where ever possible!

Width

Width					
235 mm (9.3 inch)	K300	K600			
	K600	K300			
311 mm (12.2 inch)	K300	K600	K300		
	K600	K600			
387 mm (15.2 inch)	K300	K600	K600		
	K600	K600	K300		
463 mm (18.2 inch)	K300	K600	K600	K300	
	K600	K600	K600		
540 mm (21.3 inch)	K300	K600	K600	K600	
	K600	K600	K600	K300	
615 mm (24.2 inch)	K300	K600	K1200	K300	
	K600	K1200	K600		
692 mm (27.2 inch)	K300	K1200 UP	K600	K600	
	K600	K600	K1200	K300	
767 mm (30.2 inch)	K300	K1200	K1200	K300	
	K600	K1200	K600	K600	
843 mm (33.2 inch)	K300	K1200	K1200	K600	
	K600	K1200	K1200	K300	
919 mm (36.2 inch)	K300	K1200	K600	K1200	K300
	K600	K1200	K1200	K600	
995 mm (39.2 inch)	K300	K1200	K600	K1200	K600
	K600	K1200	K1200	K600	K300
1072 mm (42.2 inch)	K300	K1200	K1200	K1200	K300
	K600	K1200	K1200	K600	K600

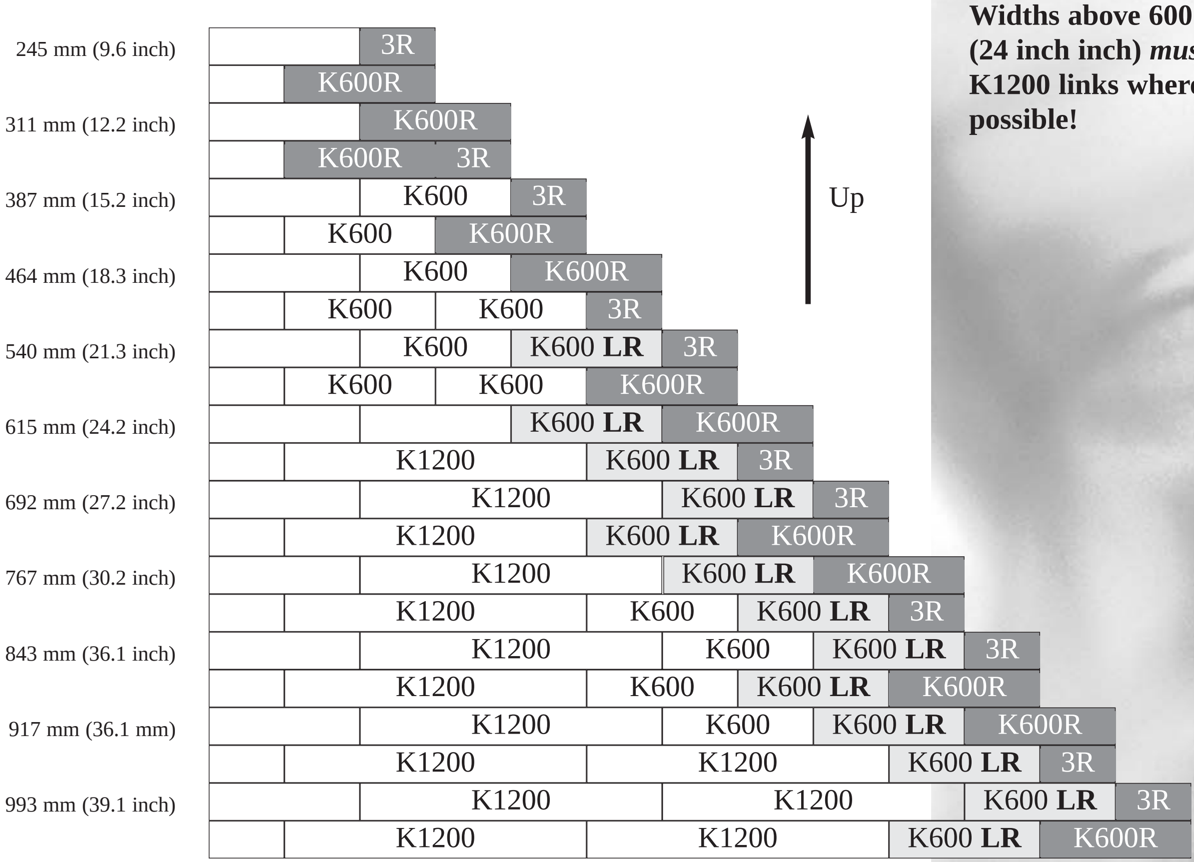
↑ Up

6.2.4 uni Flex SNB-W types with tight radius in one side

The pattern below shows the layout and use of uni Flex SNB-W type links with tight radius, in different belt widths.
Here, the layout is shown with CR links in the right side.

Width

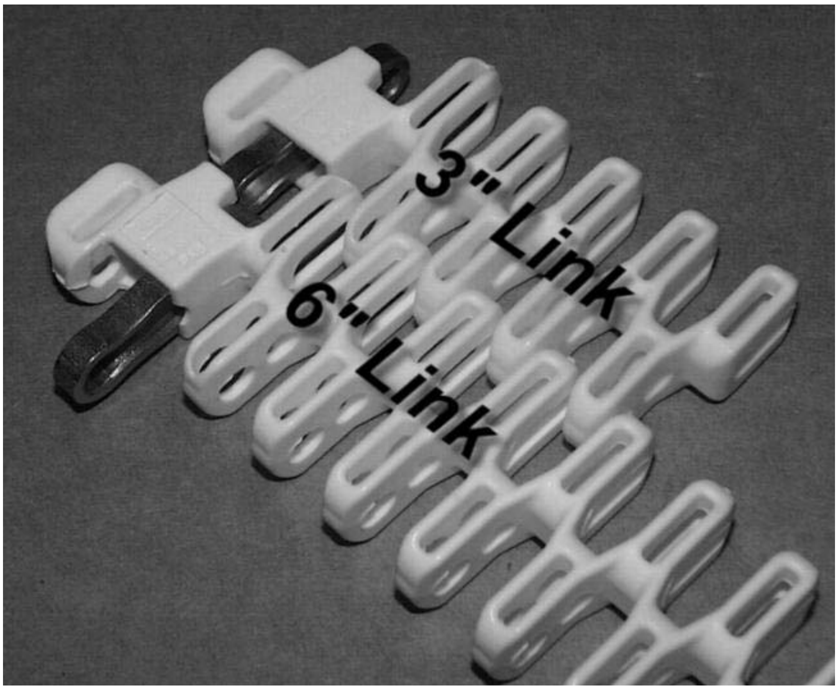
Widths above 600 mm (24 inch inch) *must* use K1200 links where ever possible!



- 3R — a K300 **R**adius (closed)
- K600R — a K600 **R**adius link (closed)
- K600 — a K600 middle (open)
- K600 **LR** — a K600 **L**ight **R**adius (closed middle)
- K1200 — a K1200 middle (open)
- (blank) — uni Flex SNB-W, -WO or -WT

6.2.5 Placing of reinforcement links in uni Flex SNB-W types

Regardless of whether you have plastic or steel reinforcement links in the uni Flex SNB-W types they must always be placed in the outermost position on the K300 link. Please see the pictures below.



6.3 Spare part terminology for uni Flex SNB

Below the different types of spare parts and accessories for uni Flex SNB are shown. Please, refer to page 6-10.

Pinlock left/right
For belts with SS pins

Wearpart lock left/right
For belts with wearparts

Locking plate left
For belts without wearparts

Locking plate right
For belts without wearparts

Wearpart left

Wearpart right

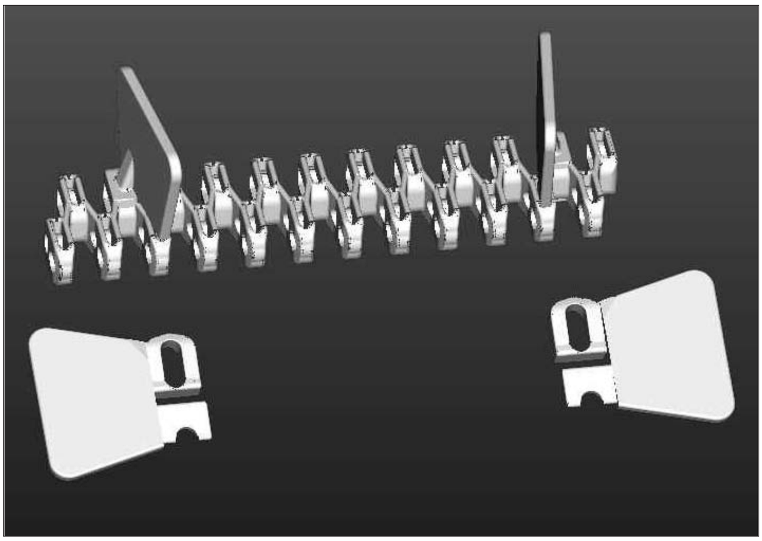
Wearpart-O left

Wearpart-O right

Wearpart-OR left

Wearpart-OR right

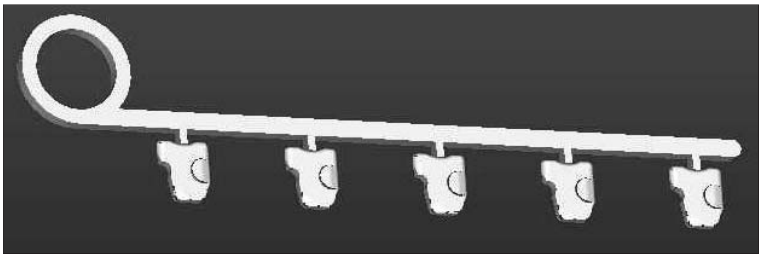
Side Guards



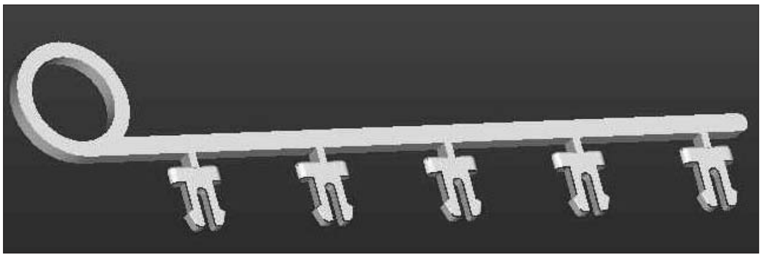
6.3.1 Spare parts on a stick

Pin locks and locking plates are moulded on a strip with spacing identical to the belt pitch. When assembling the belt, you hold the strip with your forefingers while inserting the locking plate.
This makes it much easier to handle and mount these small parts as the distance between the locking plates is adjusted to the belt pitch.
5 pcs. can be mounted at a time.

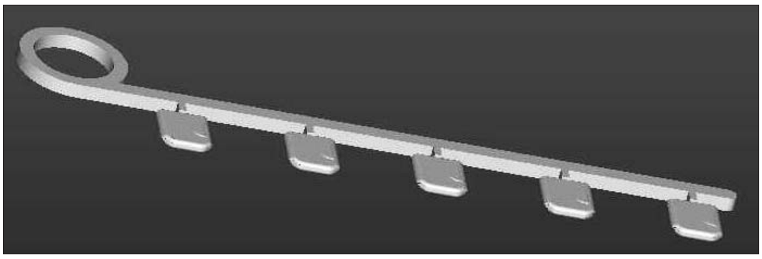
Pinlocks



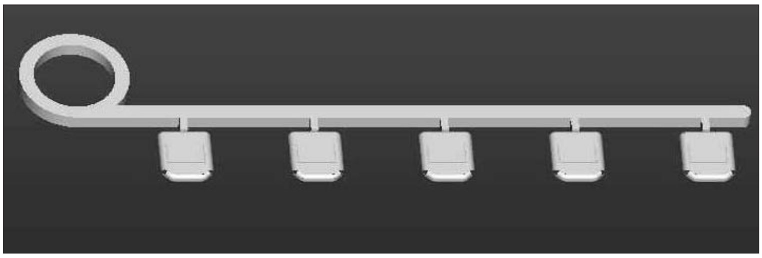
Wearpart locks



Left locking plates



Right locking plates



6.4. Coming design improvements

uni-chains focuses constantly on possible improvements to our products to make them as user friendly as possible. One of our objectives has been to simplify the assembly of uni Flex SNB belts to reduce the risk of wrong assembly.

During 2002 the design of uni Flex SNB will be modified. The two round holes in one of the hinge rows will be replaced by one oval hole. The result is that the belt links will be symmetrical and the risk of wrong assembly is considerably reduced.

Furthermore, this design modification will reduce the need for spare parts because separate locking plates and loose wearparts in the left and right side respectively will be unnecessary. With the new design the type "right" can be used in both sides.

The new design is fully compatible with the existing uni Flex SNB.

7. Operation & Maintenance

7.1 Lubrication

If the conditions allow, the conveyor should be lubricated to obtain the least possible pull and wear on the belt. Lubrication is especially important for conveyors with curves. If continuous lubrication is not possible, the conveyor should be stopped and lubricated at regular intervals.
The following lubricants are suitable:

Oil:
Vegetable or mineral oils are very good lubricants which at the same time provide a fine corrosion protection.

Soapy water:
Is a good lubricant that at the same time helps to keep the belt clean.

Water:
Is a less efficient lubricant which is why a permanent thin water film should be aimed for.

7.2 Cleaning

It is important that the belt is kept clean of dirt, broken glass, sand etc. as these will reduce the service life of the belt and wearstrips. uni-chains recommend that the conveyor is cleaned with water and/or soap at regular intervals. Stronger detergents are often used in the food industry and they can be corrosive on belt pins and wearstrips. Therefore the conveyors should be washed down thoroughly after cleaning with these detergents.
Cleaning with foam may cause a creaking noise when starting the conveyor. Lubricating the belt prior to the restart of the conveyor can easily eliminate this noise.
uni-chains strongly dissuade you from using high-pressure pistols with cold or hot water or steam for cleaning the belt.

7.3 Service

All parts of a conveyor should be inspected regularly to ensure the longest service life possible for belt and wearstrips. The following points should be controlled at the inspection:

1. Examine the belt wear
2. Check that the belt can run freely between the wearstrips, at transfer plates etc.
3. Check the belt for cracks
4. Check the belt for elongation/catenary sag
5. Examine the belt sprockets for wear
6. Examine wearstrips

7.3.1 Management of belt length

Belts need to be set as short as possible at start-up of a new system.
All belts tend to grow in length as they are used.
During the first weeks of operation the most elongation will occur.

Note: In cold applications the belt length may become shorter when the temperature drops. In these cases, change of belt length must be calculated.

Catenary loop must be inspected and belt length adjusted by removing link(s) to ensure correct operation.