

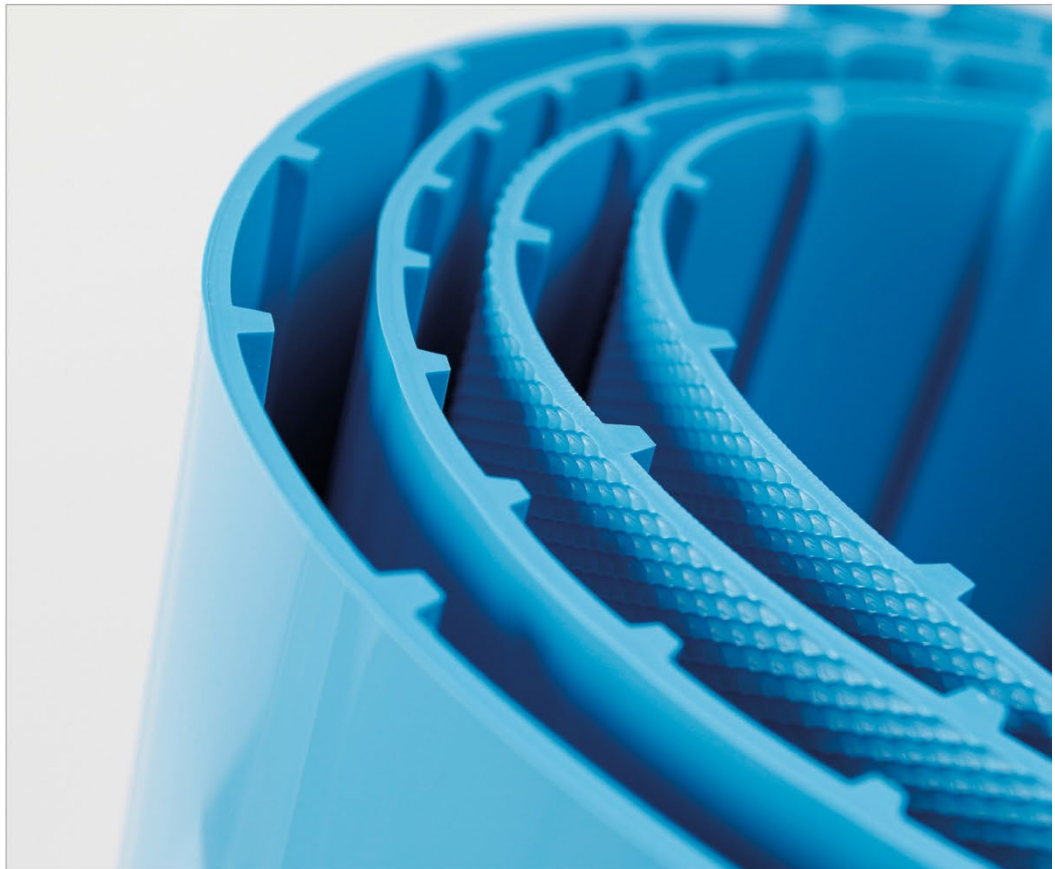
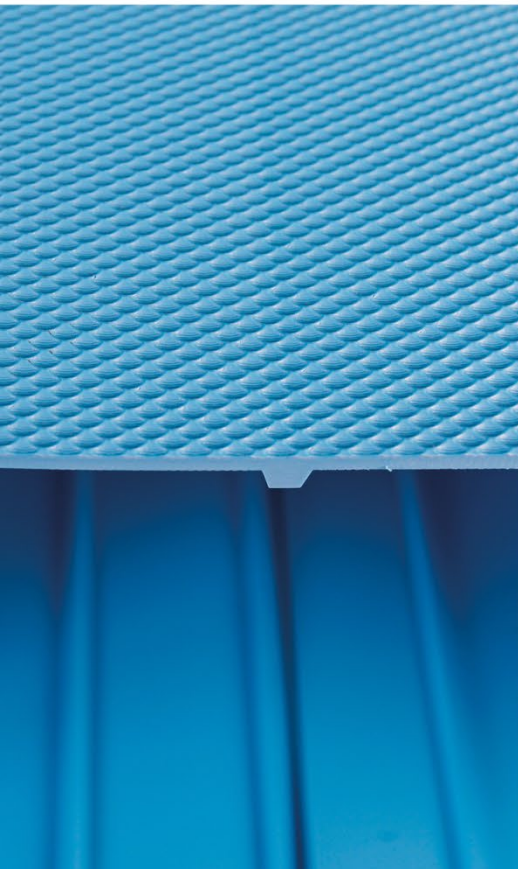
CHIORINO[®]
1906

Passion for belting

Your partner
for food
safety

PRODRIVE[®]

Monolithic positive drive belts



TECHNICAL MANUAL

PRODRIVE[®]
Easy to clean. Easy to fit. Easy to run.

Index

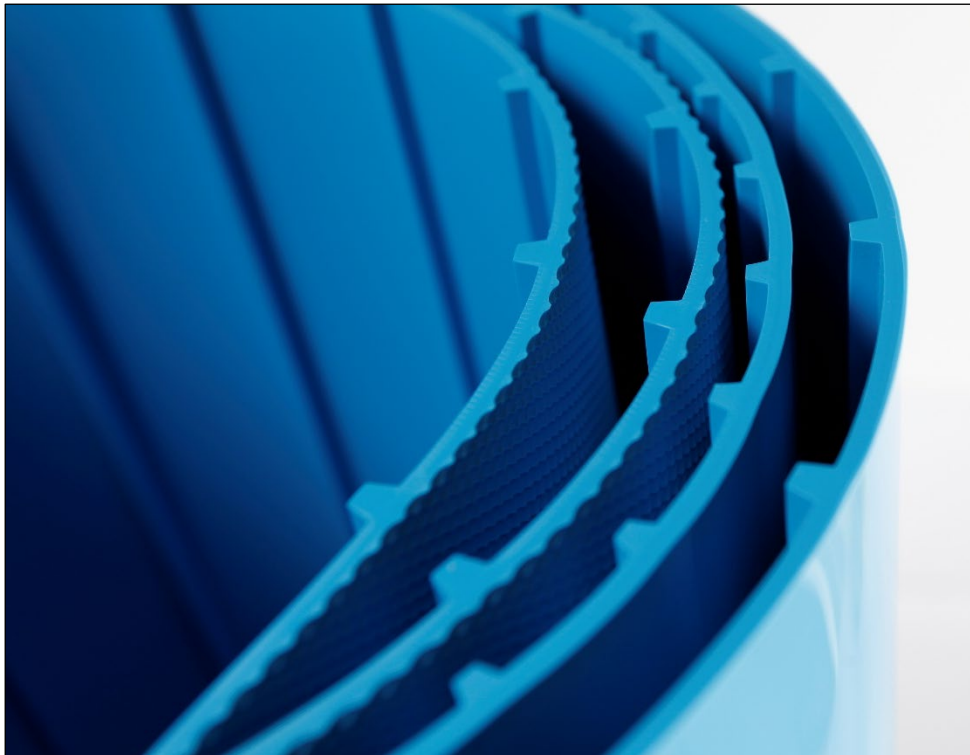
	Page
1. Introduction	6
2. Product line	7
2.1 Nomenclature	7
2.2 Additional information	8
2.2.1 Flat belt	8
2.2.2 Drive belts - central lug	8
2.2.3 Drive belts - full lug	8
3. Pulleys	9
3.1 Full lug pulleys - pitch 25.4 mm	9
3.2 Full lug pulleys - pitch 50 mm	10
3.3 Central lug pulleys - pitch 40 mm	11
4. Conveyor design	12
4.1 General principles	12
4.2 Drive shaft	13
4.3 Snub roller	14
4.4 Conveying way	15
4.4.1 Straight and parallel configuration	15
4.4.2 Chevron configuration	15
4.4.3 Solid plate configuration	16
4.5 Idle shaft	16
4.6 Return way	17
4.7 Lateral containments and guides	18
5. Types of conveyors	19
5.1 Horizontal conveyor	19
5.2 Inclined straight conveyor	19
5.3 Swan-neck conveyor	20
5.4 Central drive conveyor	21
5.5 Trough conveyors	22

6.	Applications and accessories	23
6.1	Guides	23
6.2	Transversal profiles	23
6.3	Sidewalls	24
7.	Splicing	26
7.1	Butt-joint splicing	26
7.2	Mechanical fastener PROLACE	27
7.3	Mechanical fastener APF100	27
7.4	Mechanical fastener SL02	28
7.5	Finger-joint splice with hot press	28
8.	Belt calculation	29
8.1	Horizontal conveyor	30
8.2	Inclination 10° conveyor	31
8.3	Inclination 20° conveyor	32
8.4	Inclination 30° conveyor	33
8.5	Inclination 40° conveyor	34

1. INTRODUCTION

PRODRIVE[®] are Chiorino monolithic belts product line.

Completely made of thermoplastic polyurethane, they are widely used in the food industry to meet high hygienic standards and the need for quick and easy installations.



PRODRIVE[®] is suitable for any driving system:

- full lug
- central lug
- friction

Monolithic belts can be equipped with guides, flights, sidewalls and holes for draining purposes.

PRODRIVE[®] installation is easy and simple, thanks to the full compatibility with every pulley and the quick on-site equipment specifically designed to reduce maintenance downtime.

2. PRODUCT LINE

PRODRIVE® product line covers both drive belts and flat belts.

Type	Driving system	Material	Hardness	Conveying surface	Colour	Total thickness		Pitch		Min. diameter	Temperature resistance		Max. width	Code
						mm	mm	mm	inches		mm	min °C		
ProDrive S 17 GS LB	Friction	TPU polyester	90	Smooth glossy	Light blue	1.7	-	-	30	-5	80	1200	NA2648	
ProDrive S 30 LB	Friction	TPU polyester	90	Smooth matt	Light blue	3.0	-	-	40	-5	80	1200	NA1823	
ProDrive S 30 GB LB	Friction	TPU polyester	90	Golf Ball	Light blue	3.0	-	-	40	-5	80	1200	NA2603	
ProDrive S 40 GS	Friction	TPU polyester	90	Smooth glossy	Light blue	4.0	-	-	40	-5	80	1200	NA2635	
ProDrive F-S 28/25 GS LB	Full Lug	TPU polyester	90	Smooth glossy	Light blue	2.8	25.4	1"	65	-5	80	1200	NA1776	
ProDrive F-S 28/25 LB	Full Lug	TPU polyester	90	Smooth matt	Light blue	2.8	25.4	1"	65	-5	80	1200	NA2631	
ProDrive F-S 30/50 GS LB	Full Lug	TPU polyester	90	Smooth glossy	Light blue	3.0	50	1.97"	130	-5	80	1200	NA1810	
ProDrive F-S 30/50 LB	Full Lug	TPU polyester	90	Smooth matt	Light blue	3.0	50	1.97"	130	-5	80	1200	NA1774	
ProDrive F-S 30/50 GB LB	Full Lug	TPU polyester	90	Golf Ball	Light blue	3.0	50	1.97"	130	-5	80	1200	NA1773	
ProDrive C-S 30/40 GS LB	Central Lug	TPU polyester	90	Smooth glossy	Light blue	3.0	40	1.57"	100	-5	80	900	NA1822	
ProDrive C-S 30/40 LB	Central Lug	TPU polyester	90	Smooth matt	Light blue	3.0	40	1.57"	100	-5	80	900	NA2595	
ProDrive C-S 30/40 GS W	Central Lug	TPU polyester	90	Smooth glossy	White	3.0	40	1.57"	100	-5	80	900	NA1824	
ProDrive C-S 30/40 W	Central Lug	TPU polyester	90	Smooth matt	White	3.0	40	1.57"	100	-5	80	900	NA2748	
ProDrive D-S 30/40 W	Dual Lug	TPU polyester	90	Smooth matt	White	3.0	40	1.57"	100	-5	80	1200	NA2773	
ProDrive D-S 30/40 LB	Dual Lug	TPU polyester	90	Smooth matt	Light blue	3.0	40	1.57"	100	-5	80	1200	NA2774	
ProDrive D-S 30/40 GS LB	Dual Lug	TPU polyester	90	Smooth glossy	Light blue	3.0	40	1.57"	100	-5	80	1200	NA2786	
ProDrive D-S 30/40 GS W	Dual Lug	TPU polyester	90	Smooth glossy	White	3.0	40	1.57"	100	-5	80	1200	NA2787	

2.1 NOMENCLATURE

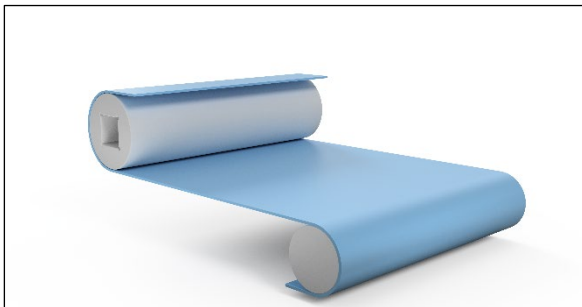
ProDrive	F	-	S	30	/	50	GS	LB
Chiorino monolithic belt ^[1]	F= Full lug C= Central lug D= Dual lug		S = TPU polyester	Thickness mm/10		Pitch mm	Surface texture GS = Glossy GB= Golf Ball	Colour LB = Light Blue W = White

^[1]All the products listed above are not reinforced. For reinforced versions please contact

2.2 ADDITIONAL INFORMATION

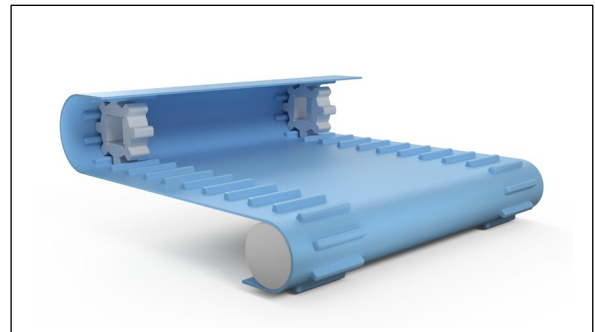
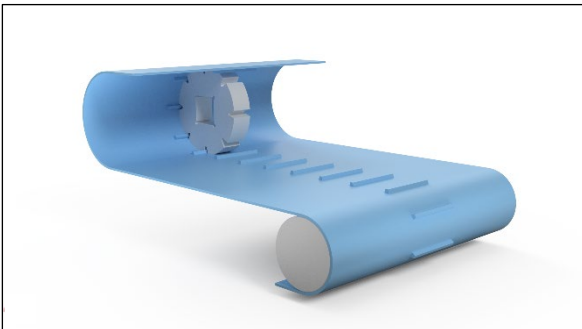
2.2.1 FLAT BELT

This monolithic belt has no positive drive system; it has a friction drive system instead.



- It requires tension to have friction with cylinders.
- Standard fitting tension is 0.3% **(for specific application suggestions, contact Chiorino customer service)**.
- Machine configuration, drum motor, idle roller, inclination changes and dimensional calculations are the same as standard conveyor belts and power transmission belts (please consult *Chiorino technical manual*).

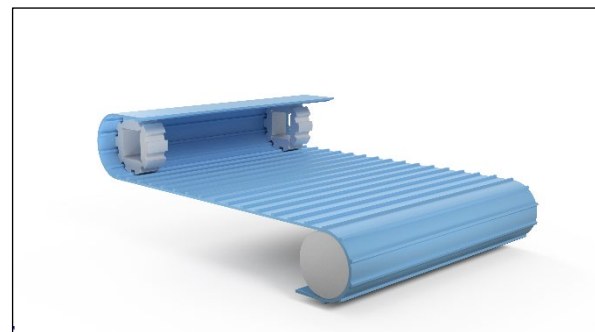
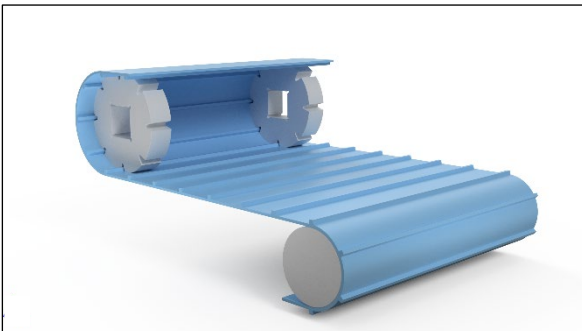
2.2.2 DRIVE BELTS - CENTRAL LUG



This monolithic belt has a positive drive system.

- Central row of teeth, 76 x 13 mm
- Single row of teeth available until width 900 mm
- Available with a double row of teeth, width 1200 mm, c-c distance 595 mm

2.2.3 DRIVE BELTS - FULL LUG



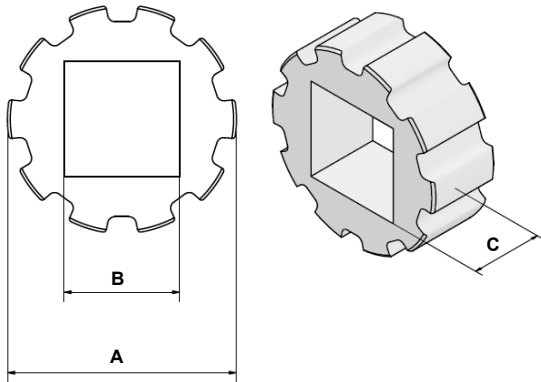
This monolithic belt has a positive drive system.

- Full lug teeth alongside all width, K6x4 for 50 mm and K5x3 for 25.4 mm

3. PULLEYS

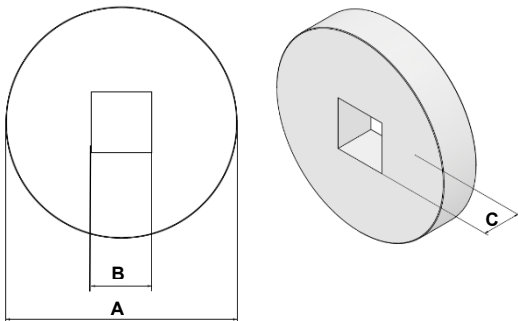
3.1 FULL LUG PULLEYS - PITCH 25.4 MM

DRIVE PULLEYS



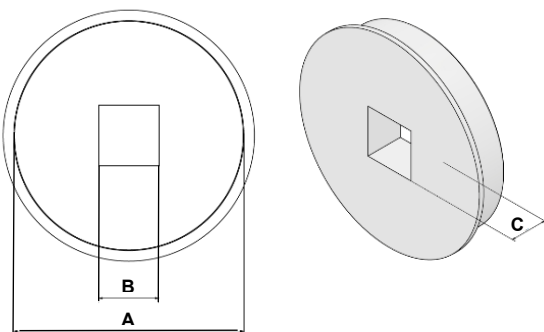
Pitch	Teeth	Ext. diam. A	Int. diam. B	Width C	Item code
mm		mm	mm	mm	
25.4	8	64	25x25	30	AT597
	10	79	40x40	30	AT598
	12	95	40x40	30	AT599
	14	111	40x40	30	AT600

SUPPORT PULLEYS



Pitch	Ext. diam. A	Int. diam. B	Width C	Item code
mm	mm	mm	mm	
25.4	57.5	25x25	30	AT616
	73.4	40x40	30	AT617
	89.3	40x40	30	AT618
	105.2	40x40	30	AT619

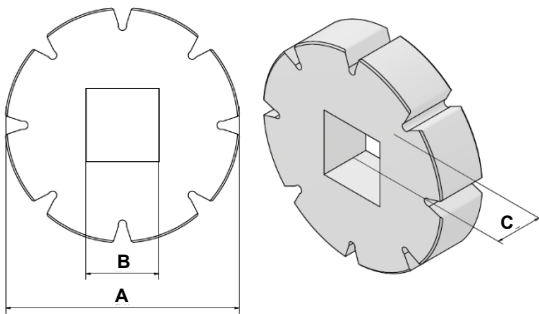
FLANGED SUPPORT PULLEYS



Pitch	Ext. diam. A	Int. diam. B	Width C	Item code
mm	mm	mm	mm	
25.4	57.5	25x25	30	AT620
	73.4	40x40	30	AT621
	89.3	40x40	30	AT622
	105.2	40x40	30	AT623

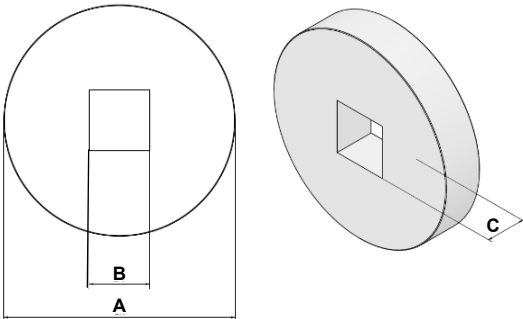
3.2 FULL LUG PULLEYS - PITCH 50 MM

DRIVE PULLEYS



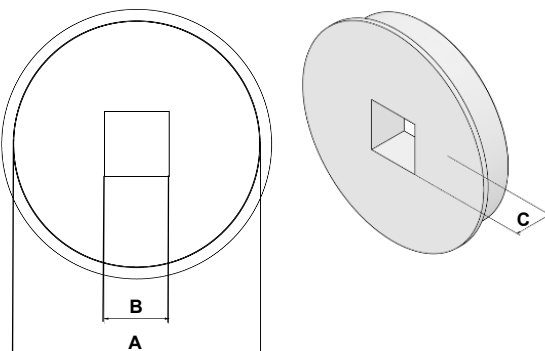
Pitch mm	Teeth	Ext. diam. A mm	Int. diam. B mm	Width C mm	Item code
50	8	130	40x40	30	AT601
	10	158	40x40	30	AT602
	12	194	40x40	30	AT603

SUPPORT PULLEYS



Pitch mm	Ext. diam. A mm	Int. diam. B mm	Width C mm	Item code
50	121	40x40	30	AT610
	153	40x40	30	AT611
	185	40x40	30	AT612

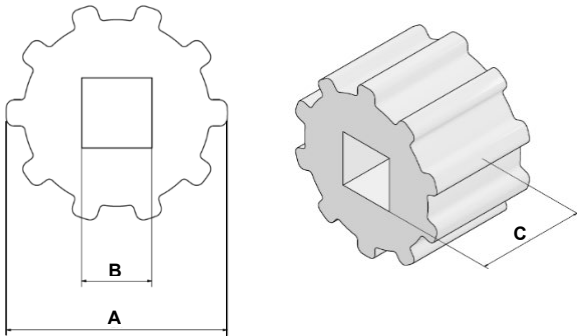
FLANGED SUPPORT PULLEYS



Pitch mm	Ext. diam. A mm	Int. diam. B mm	Width C mm	Item code
50	121	40x40	30	AT613
	153	40x40	30	AT614
	185	40x40	30	AT615

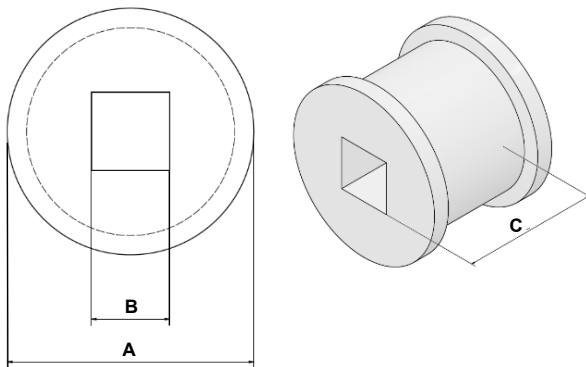
3.3 CENTRAL LUG PULLEYS - PITCH 40 MM

DRIVE PULLEYS



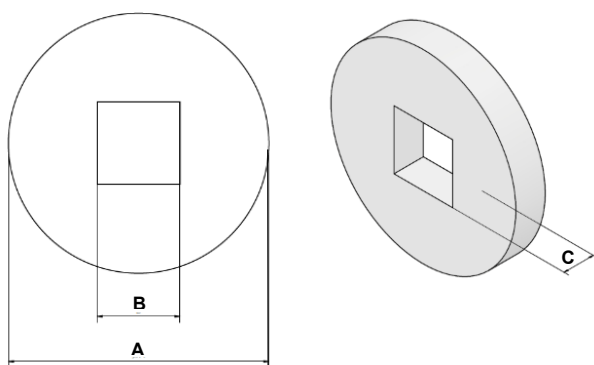
Pitch	Teeth	Ext. diam. A	Int. diam. B	Width C	Item code
mm		mm	mm	mm	
40	10	127	40x40	90	AT604

IDLE PULLEYS



Pitch	Ext. diam. A	Int. diam. B	Width C	Item code
mm	mm	mm	mm	
40	126	40x40	150	AT605

SUPPORT PULLEYS



Pitch	Ext. diam. A	Int. diam. B	Width C	Item code
mm	mm	mm	mm	
40	125	40x40	20	AT624

4. CONVEYOR DESIGN

PRODRIVE® offers different belt styles, materials, and colours. Additional fabrication options such as flights, sidewalls, guides and perforations can also be added to the belt.

To make the right choice when designing for a particular application, consider the operating and environmental conditions, such as:

- conveyor frame type (horizontal, inclined, trough conveyors)
- conveyor drive configuration (standard drive or central drive)
- dimensions of the installed belt
- belt speed
- specific information about the product conveyed (weight, shape, size, temperature, friction characteristics)
- processes (cooling, washing, draining)
- operating environment (temperature, humidity, possible chemical products).

The information in this technical manual includes basic design guidelines that apply to most applications. Contact Chiorino customer service for specific recommendations.

4.1 GENERAL PRINCIPLES

PRODRIVE® monolithic belts are driven thanks to teeth engagement with drive pulley.

With monolithic belts, tensioning is not needed since there are other elements (see snub roller) that guarantee perfect drive to the pulleys and teeth engagement.

To have correct configuration, it is essential to have:

- extra length, because the return way should be looser than the conveying way
- since the belt is looser on the return way, snub rollers are used to ensure complete winding of the belt over the pulley. Teeth engagement must be at least 180°
- the conveying way should be designed with a supporting bed or railways, to distribute and support the weight, since there is no tension on the belt itself
- support the first part of the return way with full bed or with railways
- idlers support the rest of the belt on the return way, correctly spaced to create catenary sags, a part of the belt which is accumulating. The weight of the catenary sag gives the right tension to the conveying way
- containment blocks, flanged rollers and guides, that prevent the belt from shifting laterally, both on the conveying way and the return way

4.2 DRIVE SHAFT

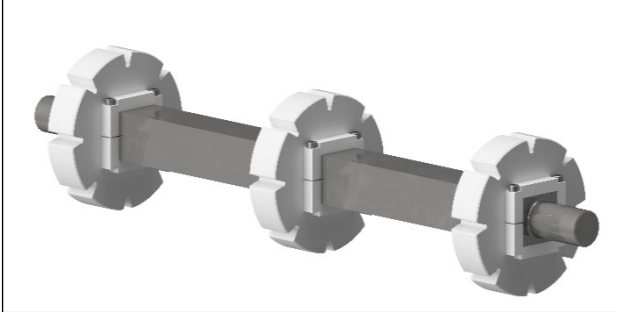


FIGURE 1 - DRIVE SHAFT WITH FULL LUG SPROCKETS

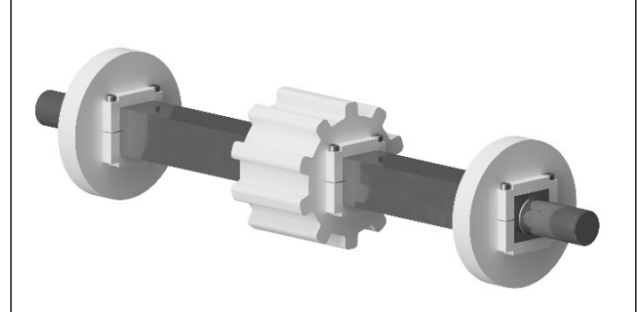


FIGURE 2 - DRIVE SHAFT WITH CENTRAL LUG SPROCKETS

Square drive shafts are usually the most used and preferred because there is no need for keys for the transmission of the torque force.

Bore shafts on PRODRIVE® are dimensioned at 40 mm (25,4 mm for small diameter pulleys) as this normally provides sufficient stiffness to avoid transverse flexion.

When installing sprockets onto the driving shaft, please choose one of the specific series.

With full lug PRODRIVE®, here are some requirements that must be followed:

- position the sprockets as symmetrically as possible with a maximum centerline distance of about 80 mm
- the most external sprockets on the drive shaft must be almost aligned to the edge of the belt, to guarantee maximum support to the lateral sides of the belt
- every pulley must be fixed in place with two locking collars each, so it doesn't shift laterally
- consider using stacked sprockets in heavy-duty applications or where precise scraping is essential.

With central lug PRODRIVE®, here are some requirements that must be followed:

- position the drive sprockets on the center of the drive shaft, aligned with the teeth
- position the support pulleys as symmetrically as possible with a maximum centerline distance of about 80 mm
- for belts with two rows of teeth, it is recommended to include at least one support pulley between the two drive pulleys
- every pulley must be fixed in place with two locking collars each, so it doesn't shift laterally.

4.3 SNUB ROLLER

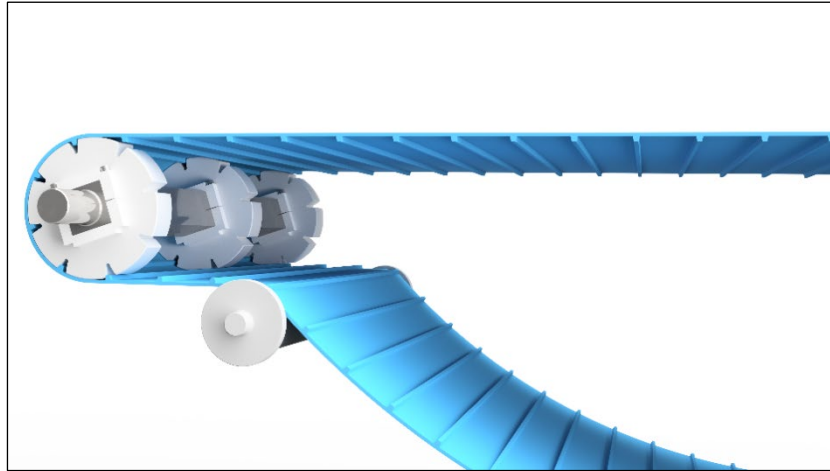


FIGURE 3 - SNUB ROLLER

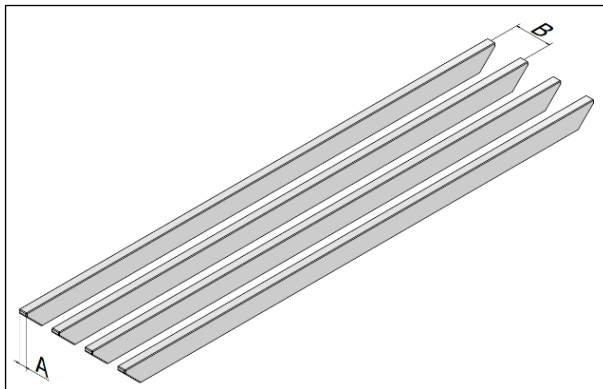
PRODRIVE[®] monolithic belt is designed to run loose on the return side and is essential to have a full engagement around the sprocket. To solve this problem, snub rollers are widely used to increase the arc of contact on the drive pulley. The absence of any slack eliminates belt jumping and ensures pulley engagement without tensioning the belt. This roller is installed right after the driving pulley, slightly lower to have at least 180-degree teeth engagement (in horizontal conveyors) and 90-degree teeth engagement (in central drive conveyors).

4.4 CONVEYING WAY

Design the conveying way as a continuous low friction sliding surface to reduce belt wear.

The use of UHMW-PE support guides or wear guides is advised. Avoid using UHMW-PE products at plant temperatures above 70 °C. Below, there are three main option configurations available.

4.4.1 STRAIGHT AND PARALLEL CONFIGURATION



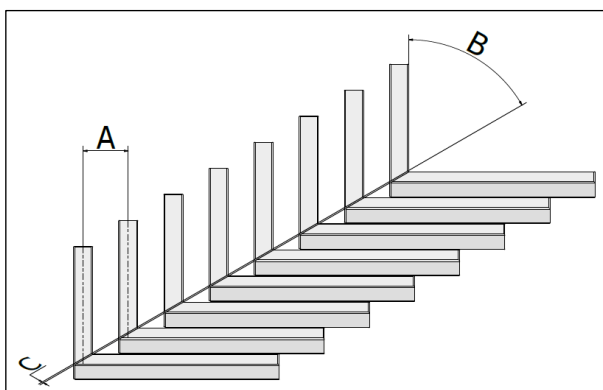
A min. 25 mm

B max. 150 mm

FIGURE 4 - STRAIGHT AND PARALLEL SUPPORT GUIDES

Support rails or wear rails are most installed in a configuration of straight, parallel sections to support the slideway. Use flat guides with a minimum width of 25 mm. Design a maximum centerline distance between guides of about 150 mm. All guide joints, cut edges must be rounded and sharp corners must be eliminated for a smooth transition. It is also important to stagger the guide joints to minimize the drive bar pinch points.

4.4.2 CHEVRON CONFIGURATION



A max. 130 mm

B 10 - 30 degrees

C min. 10 mm

FIGURE 5 - CHEVRON SUPPORT GUIDES

In certain applications and retrofit projects, the support rails and wear guides can be installed in a chevron configuration. Positioning the guides in this overlapping V configuration fully supports the belt across its entire width as it moves along the travel path. Use flat guides with a minimum width of 30 mm and design an opening angle guide between 10 - 30 degrees.

All guide joints, cut edges must be rounded and sharp corners must be eliminated for a smooth transition. It is also important to stagger the guide joints to minimize the drive bar pinch points.

4.4.3 SOLID PLATE CONFIGURATION

Consider using a solid UHMW-PE slideway at the entry or loading areas to support the impact of the product.

4.5 IDLE SHAFT



FIGURE 6 - IDLE SHAFT FULL LUG SUPPORT PULLEYS

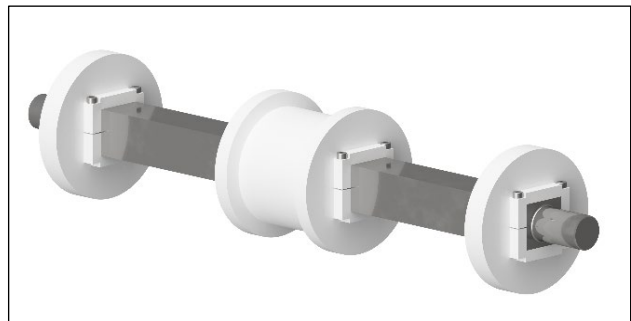


FIGURE 7 - IDLE SHAFT CENTRAL LUG IDLE AND SUPPORT PULLEYS

Idle shafts are usually adjustable to allow moving during installation and move belt accumulation and catenary sags on the return way.

Like the drive shaft, it is advisable to install idle pulleys on a square shaft to have evenness among the whole conveyor, but a round shaft can also work.

If heavy loads are conveyed, consider using an idle shaft with ball bearings.

When installing sprockets onto the driving shaft, please choose one of the specific series.

With full lug PRODRIVE®, here are some requirements that must be followed:

- position the support pulleys as symmetrically as possible with a maximum centerline distance of about 80 mm: they must be in line with drive sprockets on the drive shaft
- external support pulleys are flanged to contain the belt
- every pulley must be fixed in place with two locking collars each, so it doesn't shift laterally.

With central lug PRODRIVE®, here are some requirements that must be followed:

- position the idle pulley on the center of the drive shaft, aligned with the teeth
- position the support pulleys as symmetrically as possible with a maximum centerline distance of about 80 mm: they must be in line with drive sprockets on the drive shaft
- for belts with two rows of teeth, it is recommended to include at least one support pulley between the two idle pulleys
- every pulley must be fixed in place with two locking collars each, so it doesn't shift laterally.

4.6 RETURN WAY

The return way is very important to the overall design. A properly designed return way allows tension-free functioning.

On the return way, the accumulated belt tends to hang loosely and form a curve called catenary sag. The size of the curve is based on the distance between the supports, the length of the suspended portion of the belt, the stiffness and weight of the belt. Catenary sags are essential for achieving proper belt-to-sprockets engagement and tensioning the belt on the running way because the weight of the excessive belt pulls it down by gravity force. Moreover, catenary sags are better if are different in sizes, usually one bigger and the other smaller, so supports are not distributed evenly across all return way.

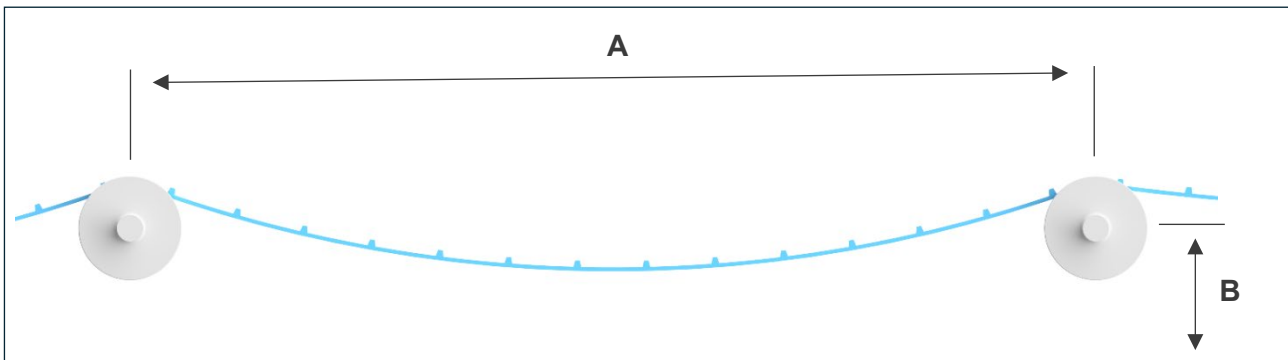


FIGURE 8 - CATENARY SAG

A Length between rollers

B Maximum length catenary sag

<i>Length Between Rollers [mm]</i>	<i>Maximun Length Catenary Sag [mm]</i>
600	100
900	150
1200	230
1500	300
1800	380

TABLE 1 - CATENARY SAG VALUES

The return way of a conveyor can have various frame options with components such as rollers, continuous guides or a combination of both, depending on the case:

- with rollers, the maximum spacing for the bigger accumulation between them is 1800 mm along the length of the conveyor for most applications. For smaller accumulation, distance between rollers is about 900 mm
- with continuous guides, they must be placed right after the idle shaft, and it is important to have at least 700 mm free for the belt to accumulate. Support guides with a maximum lateral centerline distance between guides of 300 mm
- if the belt has flights, consider using continuous support guides at the belt edges to support the return path.

4.7 LATERAL CONTAINMENTS AND GUIDES

Both full lug PRODRIVE® and central lug PRODRIVE® belts must be guided along the running and return sides to control lateral shifting, because the lack of tensioning cannot help in centering the belt.

With full lug PRODRIVE®:

- design a gap of minimum 3 mm between the containment components and the belt edge on each side of the belt on the running way
- use UHMW-PE components with a smooth surface finish to minimize belt friction
- on the return way, use flanged rollers or belt retaining blocks close to the idler shaft.

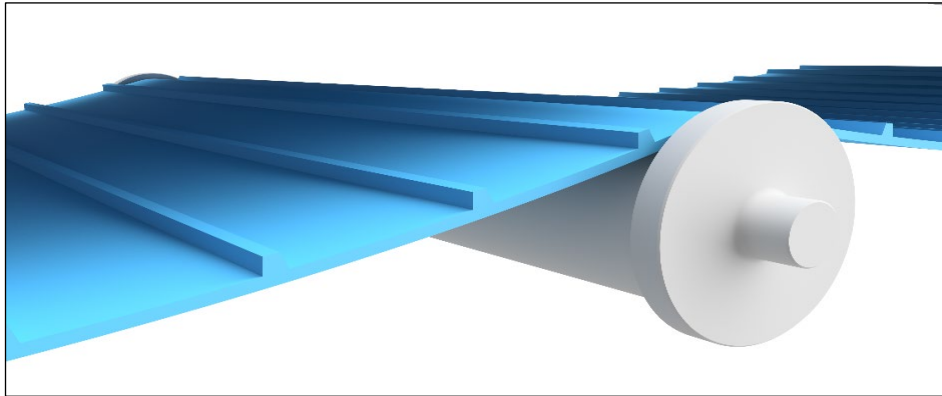


FIGURE 9 - FLANGED ROLLER ON FULL LUG

Instead, central lug PRODRIVE®, together with the same methods listed above, must be guided by longitudinal UHMW-PE guides along the driving way.

- The guide width should be 25 mm.
- Two guides across the teeth should be at 80 mm.
- Centre line between other guides should be maximum 150 mm.

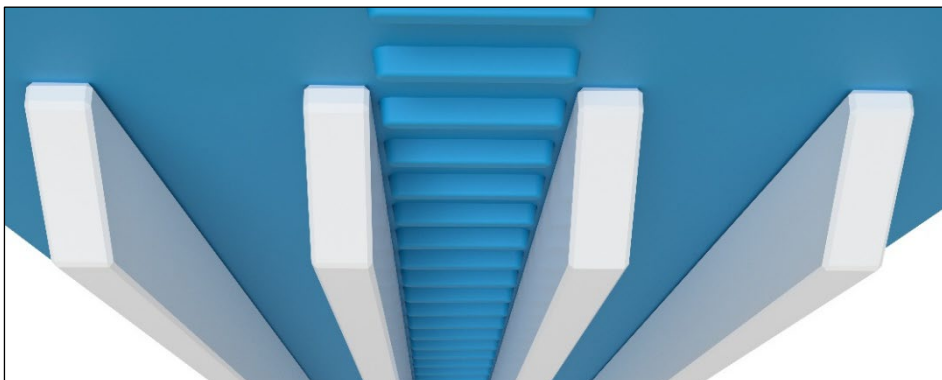


FIGURE 10 - CENTERING GUIDES ON CENTRAL LUG

5. TYPES OF CONVEYORS

Following is an overview of the possible frame configurations.

5.1 HORIZONTAL CONVEYOR

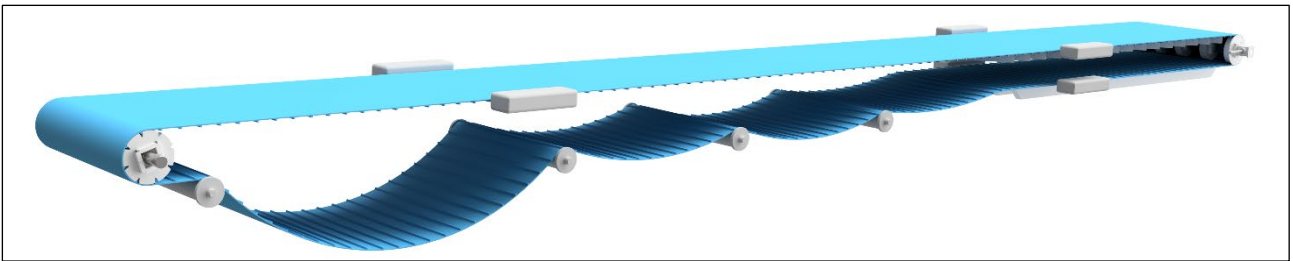


FIGURE 11 - HORIZONTAL CONVEYOR

This is the most common configuration which corresponds with the conveyor description done until this point.

If the conveyor length is modest (until 1800 mm), it is considered a short horizontal conveyor. Since there will not be a lot of belt accumulation generally no snub rollers are needed.

It is recommended to be one-directional with one-driven motor.

5.2 INCLINED STRAIGHT CONVEYOR

For the most part, this configuration applies to the same rules as the horizontal one.

The conveyor is recommended to be one-directional, with drive sprockets on the bottom.

Due to gravity, belt accumulation will be on the lower part just before the return sprocket.

On the return way, right after the idle pulley, it is preferred to have support railways or a solid plate to support the belt and ensure teeth engaging with the pulley.

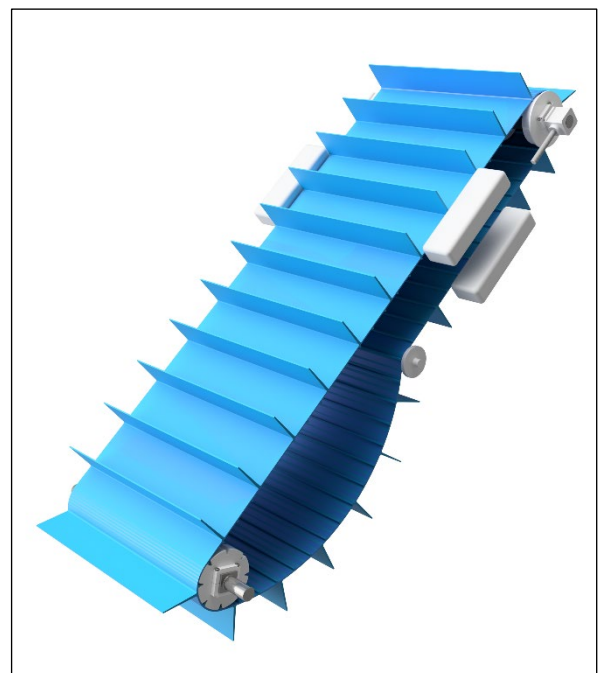


FIGURE 12 - INCLINED STRAIGHT CONVEYOR

5.3 SWAN-NECK CONVEYOR

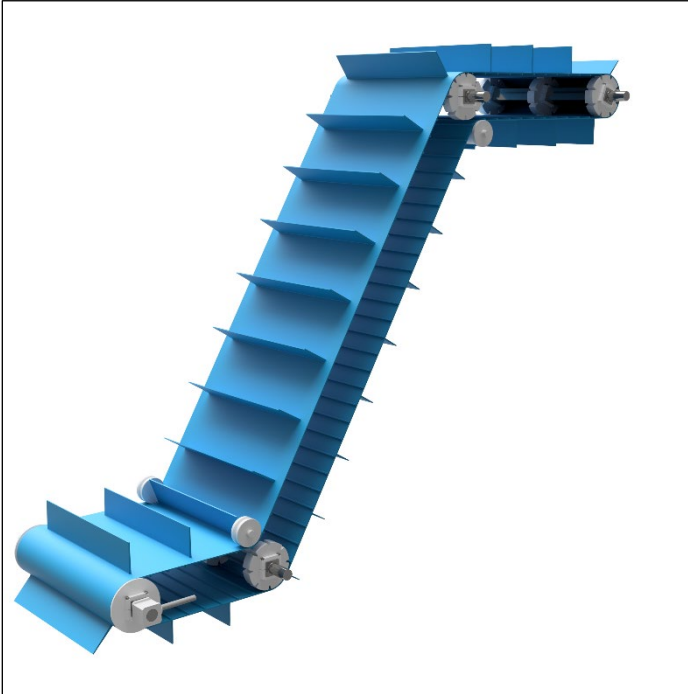


FIGURE 13 - SWAN-NECK CONVEYOR

The “Z” or swan-neck conveyor is commonly used for lifting product from one level to another.

For the most part, this configuration applies to the same rules as the horizontal one.

The conveyor is recommended to be one-directional, with drive sprockets on the bottom.

To move up the product, all swan-neck conveyors are equipped with profiles, so the return way support can only be in the form of lateral guides that support the belt from the underside on the sides, right outside the flights.

In the central part, where the conveyor belt is inclined, there can be both a UHMW-PE strip bed or a roller bed.

Moreover, due to the inclination change, rollers must be used on the conveying way to have proper adhesion during counter bending.

To change the belt angle, set of rollers or static low friction parts (e.g., “half-moons”) can be also used.

Belt curve should be the maximum possible size and not less than the minimum pulley diameter of the specific material.

5.4 CENTRAL DRIVE CONVEYOR

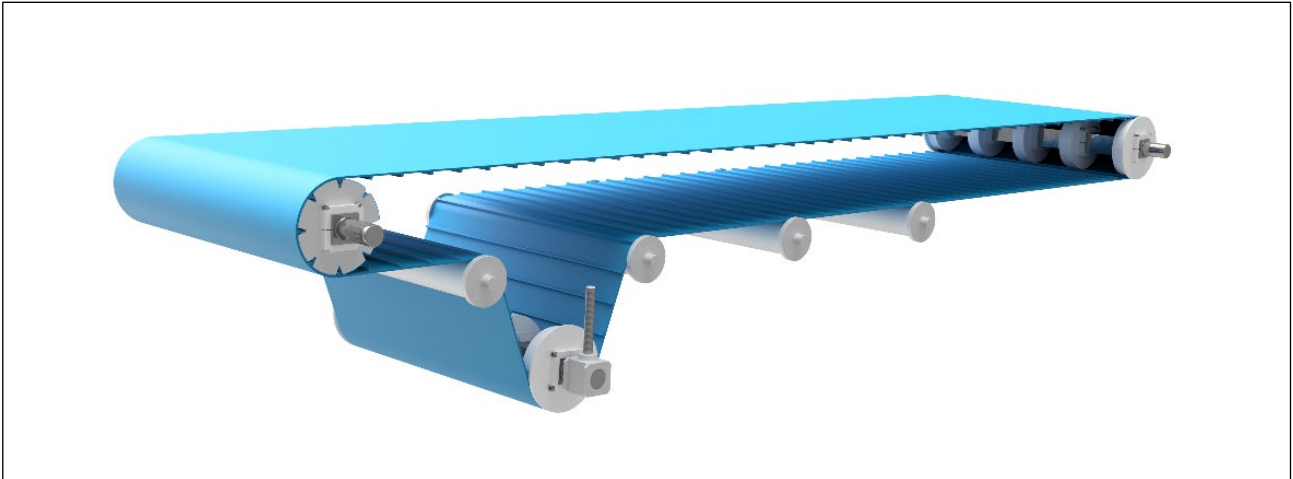


FIGURE 14 - CENTRAL DRIVE CONVEYOR

Central drive conveyor or omega conveyor is suitable for bi-directional use, with driving sprockets on the central pulley. This configuration is also used when the idle pulleys are smaller than the driving sprockets, usually because of tight transitions of the products.

For the most part, central drive conveyors operate under the same rules as horizontal ones.

Snub rollers must be present on either side of the drive sprocket to ensure teeth engage at 165 degrees when running in both directions.

If the conveyor is quite compact in size, it is common to have very little belt accumulation. On the contrary, if the conveyor is medium or big size, belt accumulation should be supported with rollers instead of a sliding support.

5.5 TROUGH CONVEYORS

In trough conveyors, it is usually recommended to use PRODRIVE® central lug, since the part which bends has more flexibility if without teeth, but full lug PRODRIVE® can be used as well. When designing the conveyor, allow enough space in the center for the belt to lay flat.

In a trough conveyor, belts must be pre-tensioned to 0.3 - 0.5% so that the belt takes the trough shape.

Bed construction can be done with solid bed, carrying rollers or with UHMW-PE strip bed.

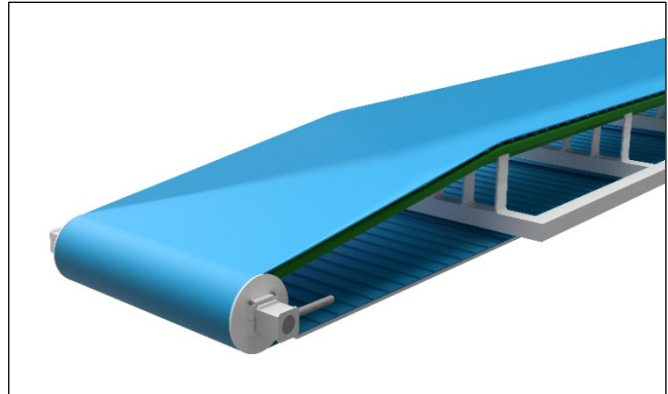


FIGURE 15 - TROUGH CONVEYOR

It is essential to have a minimum distance between the trough part of the conveyor and the drive/idle sprocket. This distance is called transition length:

$$L = C \times W$$

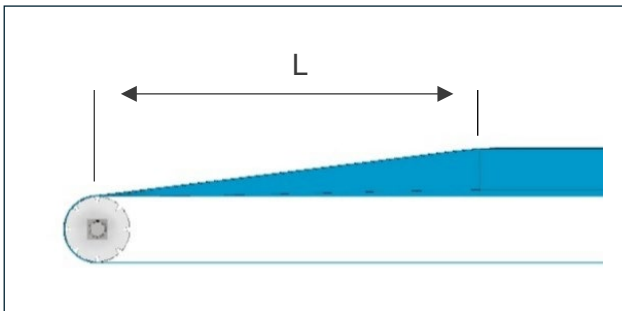


FIGURE 16 - TROUGH CONVEYOR LATERAL SIDE

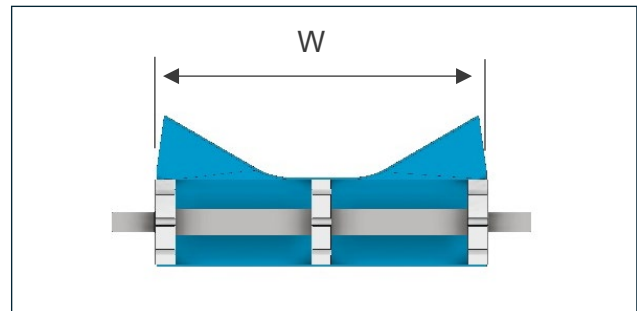


FIGURE 17 - TROUGH CONVEYOR FRONTAL SIDE

L Transition length

C Factor

W Belt width

Trough Angle	10°	20°	30°	45°
C Factor	1	1.5	1.5	2



TABLE 2 - TROUGH ANGLE FACTOR

In terms of pulley positioning, both drive and idle sprocket must be placed at full trough depth or even 20 mm - 40 mm lower but never higher: this allows the belt to take the trough shape even when the load is low or the belt is narrow or short.

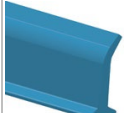
6. APPLICATIONS AND ACCESSORIES


6.1 GUIDES

	Type	Dimensions b x h mm	Material	Hardness	Colour	Min. transversal pitch mm	Min. transversal diameter ^[1] mm	Code
--	------	---------------------------	----------	----------	--------	------------------------------------	--	------

	K10 U P LB ProDrive	10 x 6	TPU polyester	70 Sh.A	Light blue	40	-	ES1070
	K13 U P LB ProDrive	13 x 8	TPU polyester	70 Sh.A	Light blue	45	-	ES1071
	S8 U P LB ProDrive	8 x 8	TPU polyester	70 Sh.A	Light blue	40	150	ES1095
	S12 U P LB ProDrive	12 x 12	TPU polyester	70 Sh.A	Light blue	45	80	ES1096

6.2 TRANSVERSAL PROFILES

	L20 U LB ProDrive	10 x 20	TPU polyester	85 Sh.A	Light blue	45	60	ES1066
	L40 U LB ProDrive	10 x 40	TPU polyester	85 Sh.A	Light blue	45	60	ES1067
	L60 U LB ProDrive	10 x 60	TPU polyester	85 Sh.A	Light blue	45	60	ES1068
	L80 U LB ProDrive	10 x 80	TPU polyester	85 Sh.A	Light blue	45	60	ES1069

	T20 U LB ProDrive	10 x 20	TPU polyester	85 Sh.A	Light blue	45	60	ES1062
	T40 U LB ProDrive	10 x 40	TPU polyester	85 Sh.A	Light blue	45	60	ES1063
	T60 U LB ProDrive	10 x 60	TPU polyester	85 Sh.A	Light blue	45	60	ES1064
	T80 U LB ProDrive	10 x 80	TPU polyester	85 Sh.A	Light blue	45	60	ES1065

^[1] Minimum pulley diameters referred to environment conditions of 20°C.

	Type	Dimensions b x h mm			Material	Hardness	Colour	Min. transversal pitch mm	Min. transversal diameter ^[1] mm	Code
	T80 U LB 55MD ProDrive	10 x 80	TPU polyester	55 Sh.D	Light blue	40	50	ES1076		
	T100 U LB 55MD ProDrive	10 x 100	TPU polyester	55 Sh.D	Light blue	40	50	ES1074		
	T120 U LB 55MD ProDrive	10 x 120	TPU polyester	55 Sh.D	Light blue	40	50	ES1075		
	T150 U LB 55MD ProDrive	10 x 150	TPU polyester	55 Sh.D	Light blue	40	50	ES1082		
	TS 80 U LB 55MD ProDrive	10 x 80	TPU polyester	55 Sh.D	Light blue	40	50	ES1087		
	TS 100 U LB 55MD ProDrive	10 x 100	TPU polyester	55 Sh.D	Light blue	40	50	ES1089		
	TS 120 U LB 55MD ProDrive	10 x 120	TPU polyester	55 Sh.D	Light blue	40	50	ES1091		
	SC 60/40 U LB 55MD ProDrive	10 x 60	TPU polyester	55 Sh.D	Light blue	40	50	ES1078		
	SC 80/20 U LB 55MD ProDrive	10 x 80	TPU polyester	55 Sh.D	Light blue	40	50	ES1079		
	SC 80/40 U LB 55MD ProDrive	10 x 80	TPU polyester	55 Sh.D	Light blue	40	50	ES1080		
	SC 100/20 U LB 55MD ProDrive	10 x 100	TPU polyester	55 Sh.D	Light blue	40	50	ES1081		
	SC 100/50 U LB 55MD ProDrive	10 x 100	TPU polyester	55 Sh.D	Light blue	40	50	ES1083		
	SC 120/30 U LB 55MD ProDrive	10 x 120	TPU polyester	55 Sh.D	Light blue	40	50	ES1084		

^[1] Minimum pulley diameters referred to environment conditions of 20°C.

6.3 SIDEWALLS

	Type	Dimensions mm			Material	Hardness	Colour	Min. diameter ^[1]	Code
		Pitch	Width	Height					
	C-U 20/40 LB ProDrive	50	42	40	TPU polyester	85 Sh.A	Light blue	100	ES1059
	C-U 20/60 LB ProDrive	50	42	60	TPU polyester	85 Sh.A	Light blue	150	ES1060
	C-U 20/80 LB ProDrive	50	42	80	TPU polyester	85 Sh.A	Light blue	190	ES1061

^[1] Minimum pulley diameters referred to environment conditions of 20°C.

Attention!

These are the recommended flights welding location. Positions 2 and 3 are both acceptable but 1 and 4 are not. This is because the base of the profile must be either over or outside the teeth area, otherwise the welding can be incomplete.

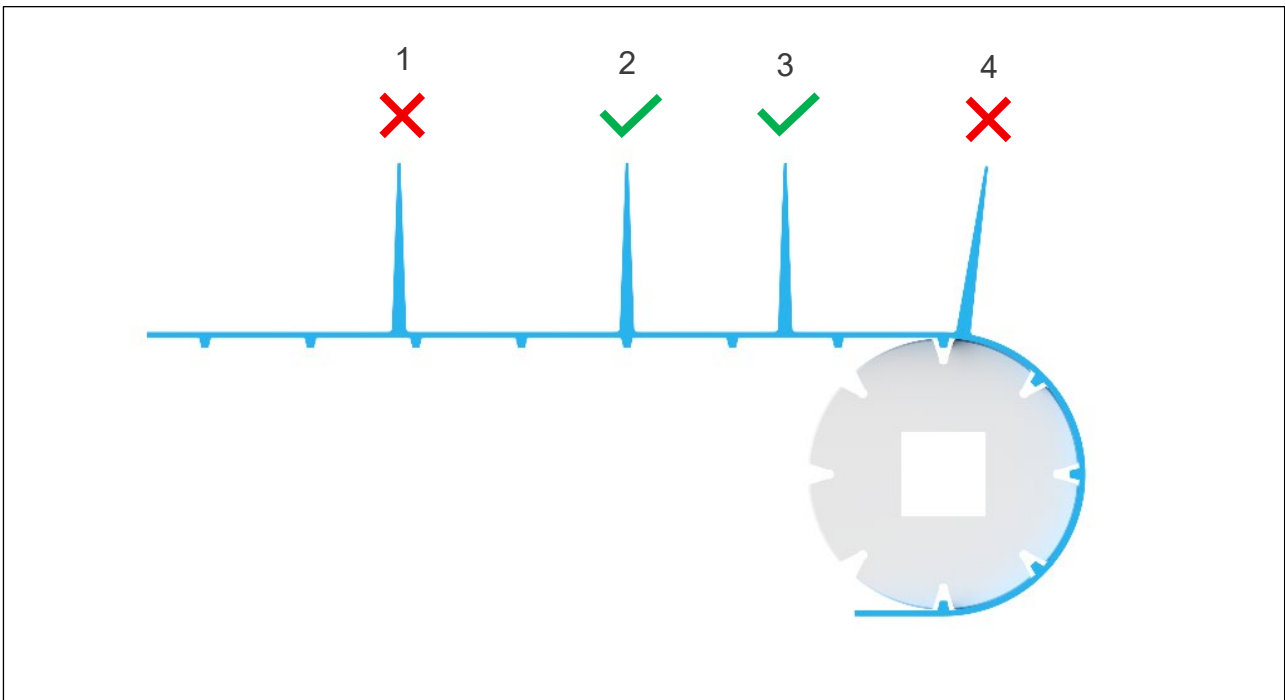


FIGURE 18 - CORRECT PROFILE WELDING

7. SPLICING

PRODRIVE® can be spliced in several different ways, depending on conveyor design needs.

- Butt-joint splice with PD1200L
- Mechanical fastener PROLACE
- Mechanical fastener APF100
- Mechanical fastener SL02
- Finger-joint splice with hot press

7.1 BUTT-JOINT SPLICING



FIGURE 19 - BUTT-JOINT SPLICING, CONVEYING SIDE



FIGURE 20 - BUTT-JOINT SPLICING, TEETH SIDE

This is the most common solution for monolithic belts, as it is the fastest, simplest, and most feasible to perform on-site.

This type of joint is made with the Chiorino PD1200 press, which can be used directly on-site, either for joining a new belt or during repair operations. With a single tool, it is possible to cut precisely both ends of the belt and to perform hot welding.

This operation can be performed on any type of PRODRIVE®: flat, full lug, or central lug.

7.2 MECHANICAL FASTENER PROLACE



FIGURE 21 – PROLACE, CONVEYING SIDE

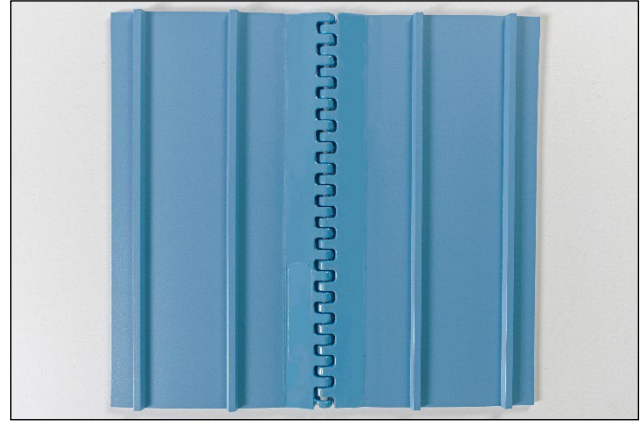


FIGURE 22 - PROLACE, TEETH SIDE

Mechanical fasteners are the option when opening the belt for specific cleaning necessities is needed. PROLACE is the neatest option to go for because it is embedded directly in the belt itself. It is suitable for lightweight to medium load applications.

The fastener is welded with the same butt-joint system.

The minimum diameter of the pulley is 160 mm, and it is compatible with scrapers. The self-locking pin design allows removal without damaging the belt or the pin.

This operation can be performed on any type of PRODRIVE®: flat, full lug (only on 50 mm pitch) or central lug (leaving out one tooth).

7.3 MECHANICAL FASTENER APF100

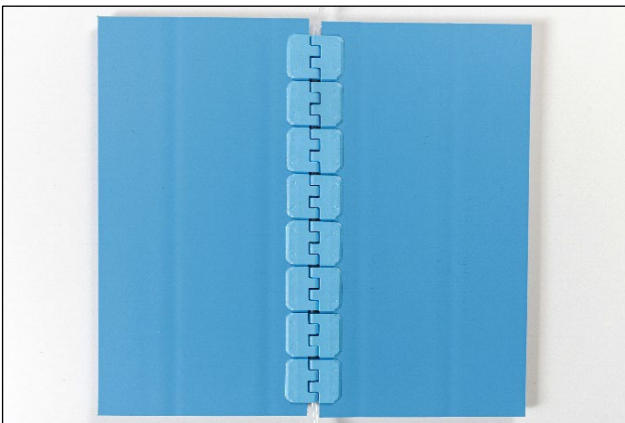


FIGURE 23 - APF100, CONVEYING SIDE



FIGURE 24 - APF100, TEETH SIDE

This mechanical fastener is an “applied over” option with no welding required. It is advised for lightweight to medium load applications and meets cleaning necessities and frequent removal of the belt.

The minimum diameter of the pulley is 160 mm, and it is not suitable for scrapers.

This operation can be performed on any type of PRODRIVE®: flat, full lug (only on 50 mm pitch) or central lug (leaving out one tooth).

7.4 MECHANICAL FASTENER SL02

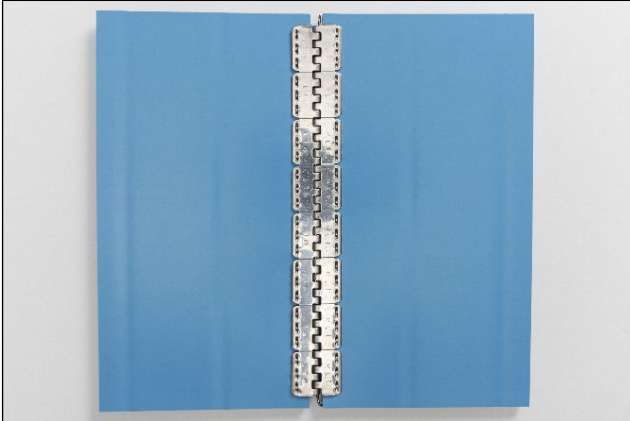


FIGURE 25 - SL02, CONVEYING SIDE



FIGURE 26 - SL02, TEETH SIDE

This mechanical fastener is another “applied over” option with no welding required. It is made of stainless steel and suitable for medium to high-load applications

The minimum diameter of the pulley is 160 mm, and it is not suitable for scrapers.

This operation can be performed on any type of PRODRIVE®: flat, full lug (only on 50 mm pitch) or central lug (leaving out one tooth).

7.5 FINGER-JOINT SPLICE WITH HOT PRESS

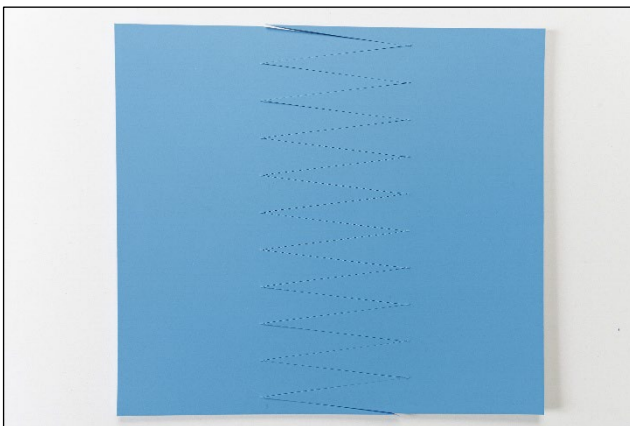


FIGURE 27 - FINGER-JOINT SPLICE

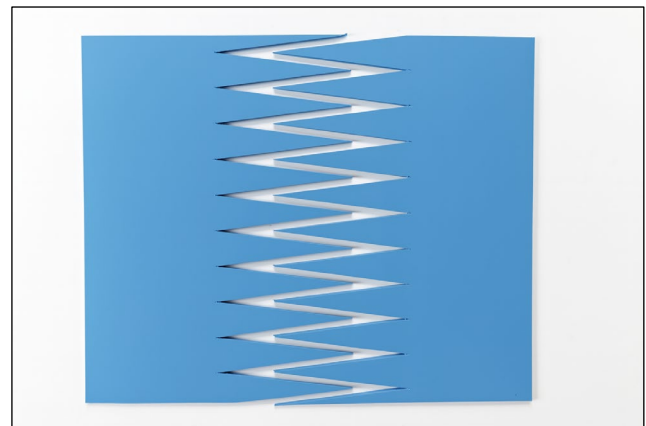


FIGURE 28 - FINGER-JOINT SPLICE

Exclusively for flat PRODRIVE®, when guides or longitudinal profiles are present, a finger splice can be performed to maximize joint strength and ensure exceptional reliability.

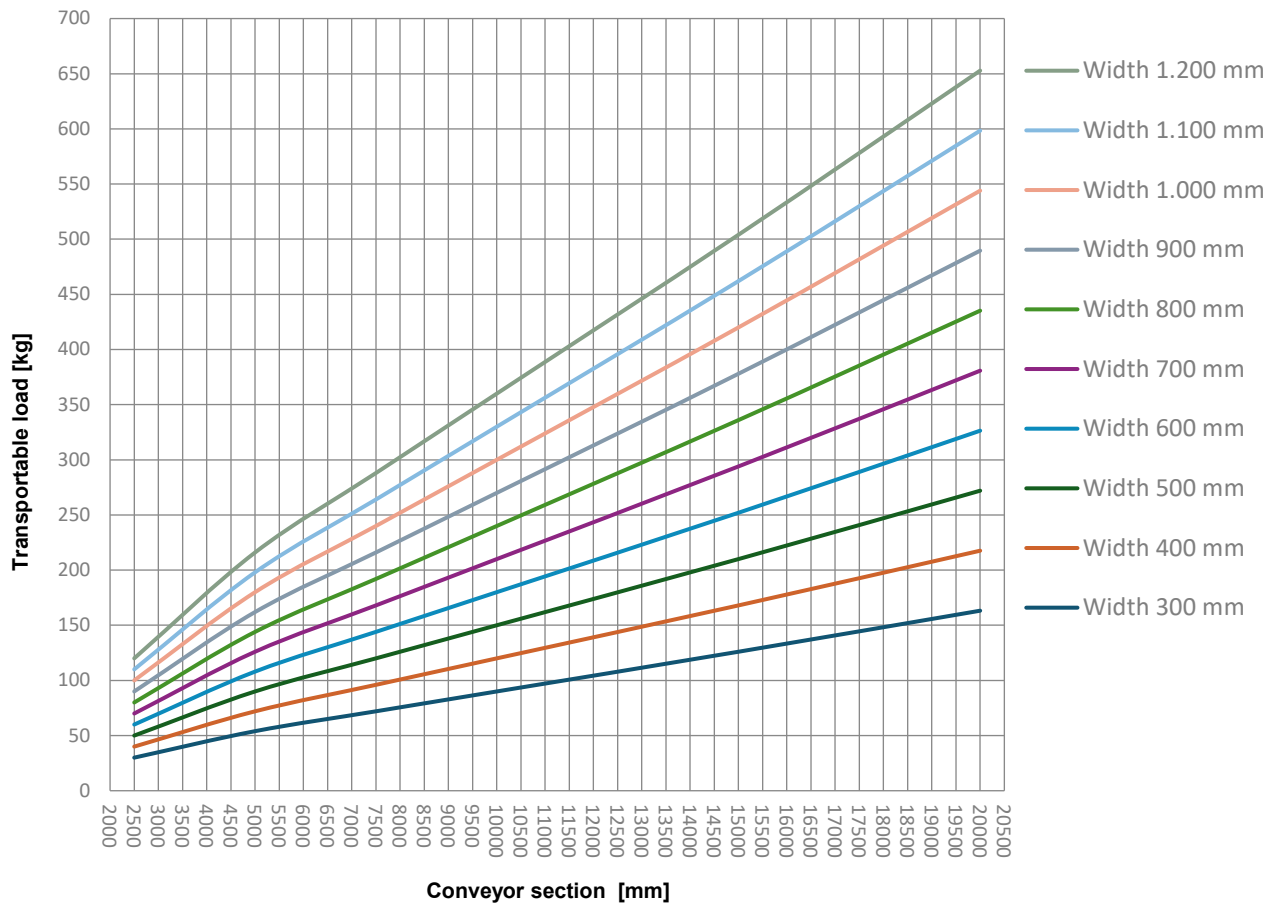
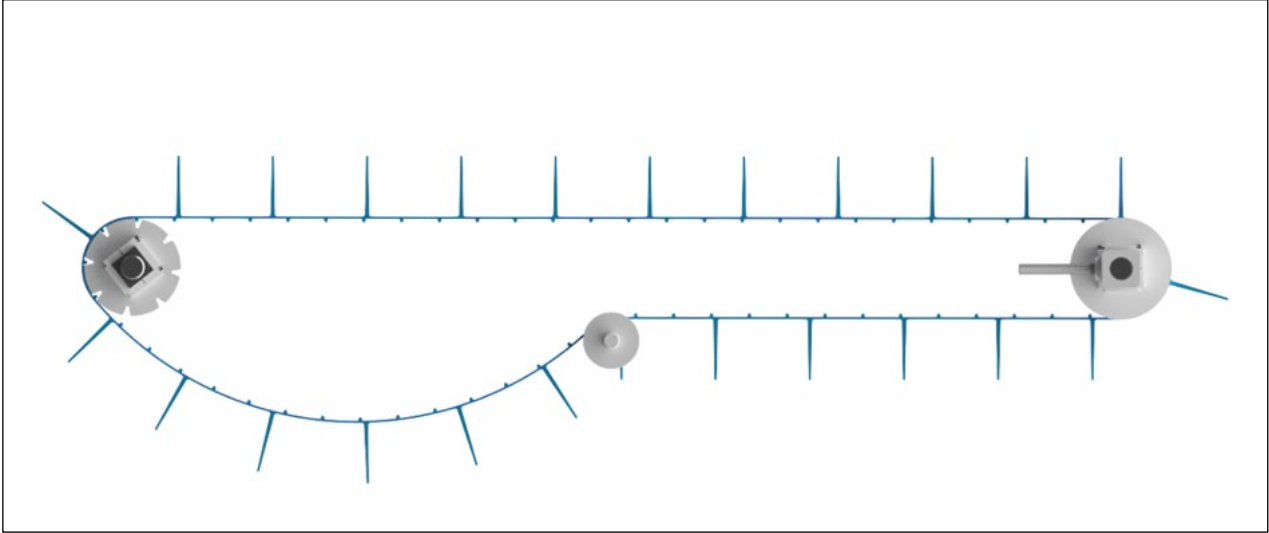
Fingers 80x20 mm are the best compromise in length and width.

8. BELT CALCULATION

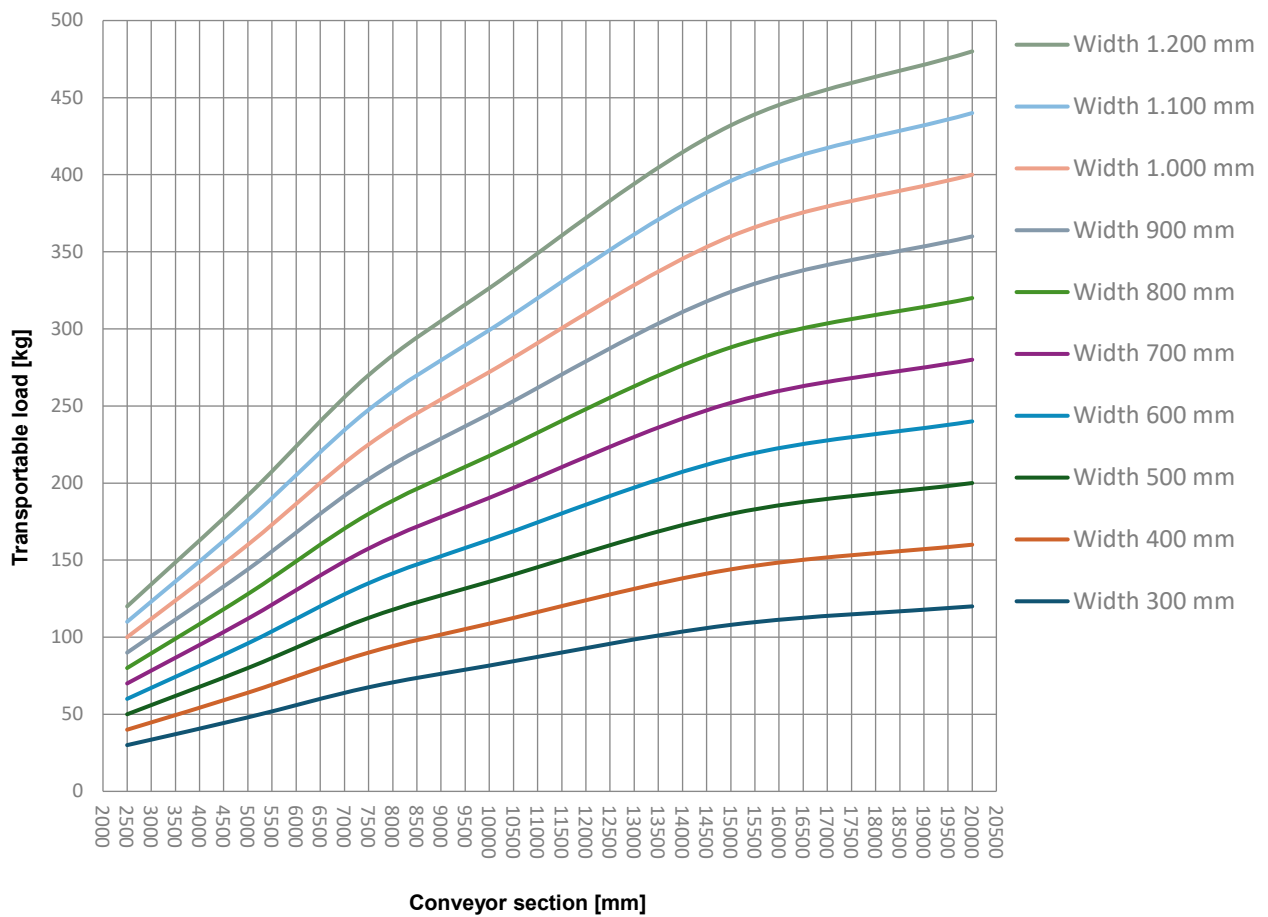
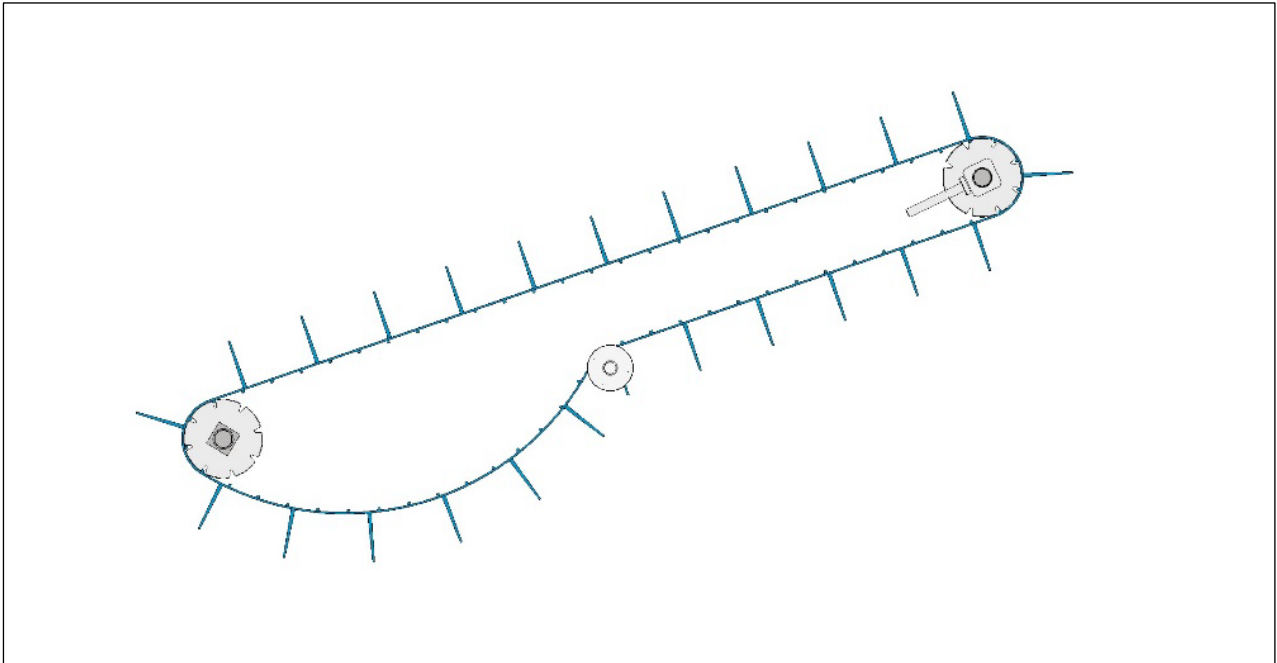
The following graphs give correct parameters calibration of PRODRIVE® belts. They output the maximum transportable load, and it varies as a function of the following parameters:

- the degree of inclination of the conveyor [°]
- belt width [mm]
- length of the conveyor section [mm]

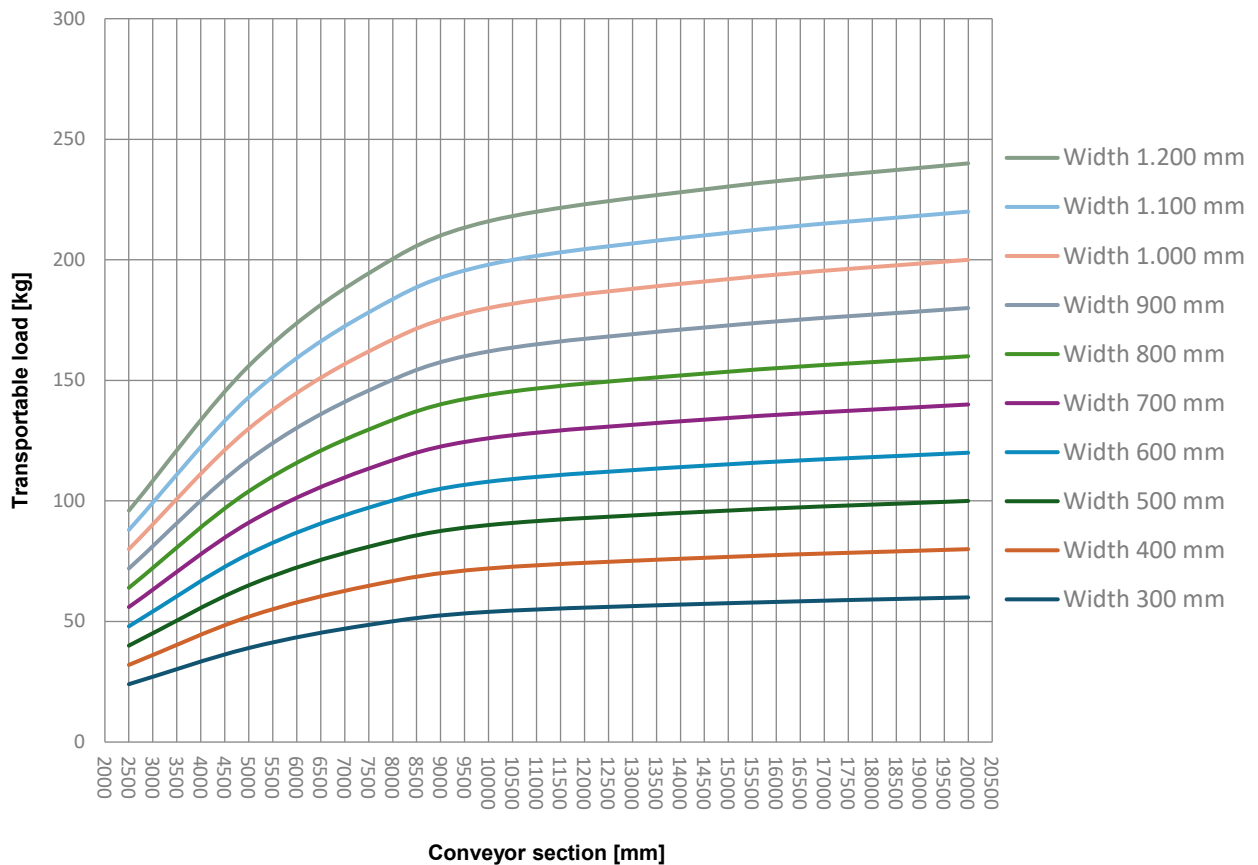
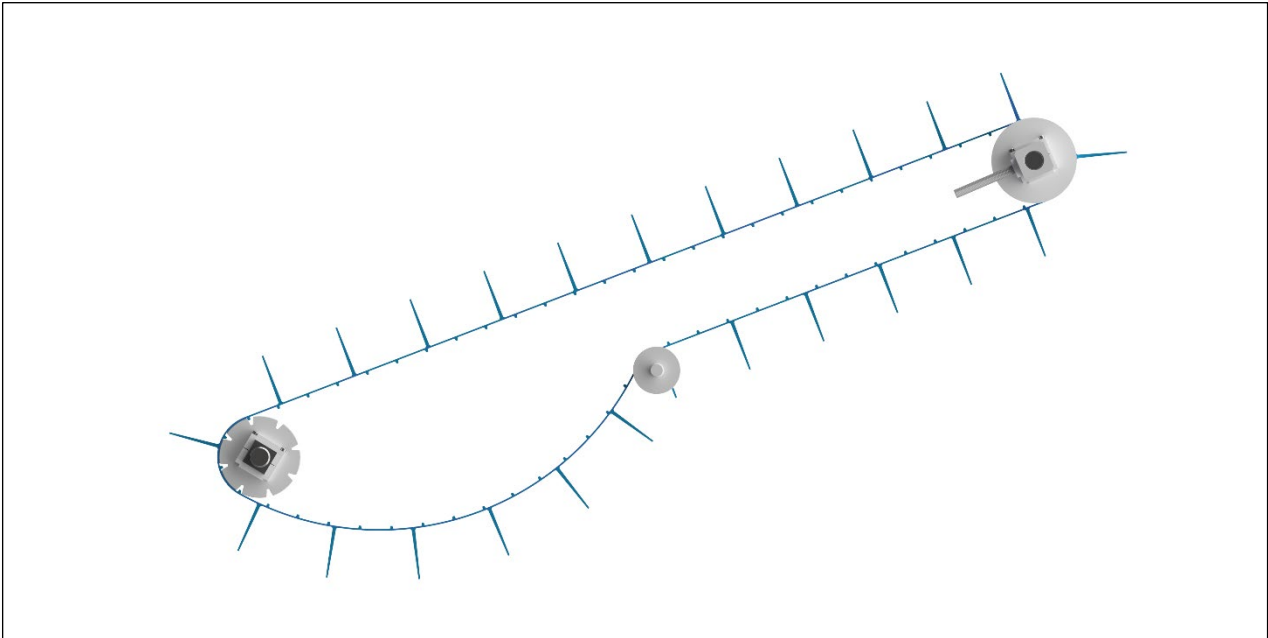
8.1 HORIZONTAL CONVEYOR



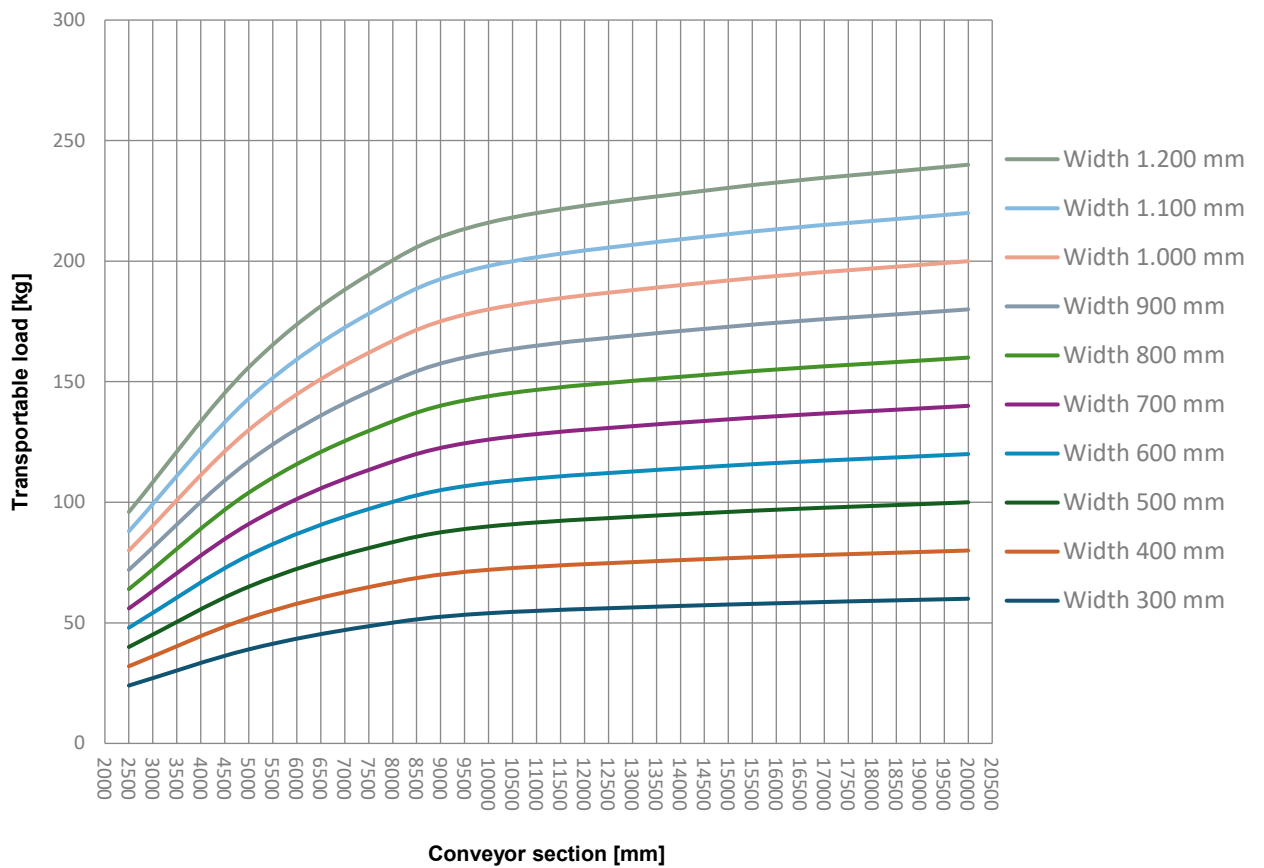
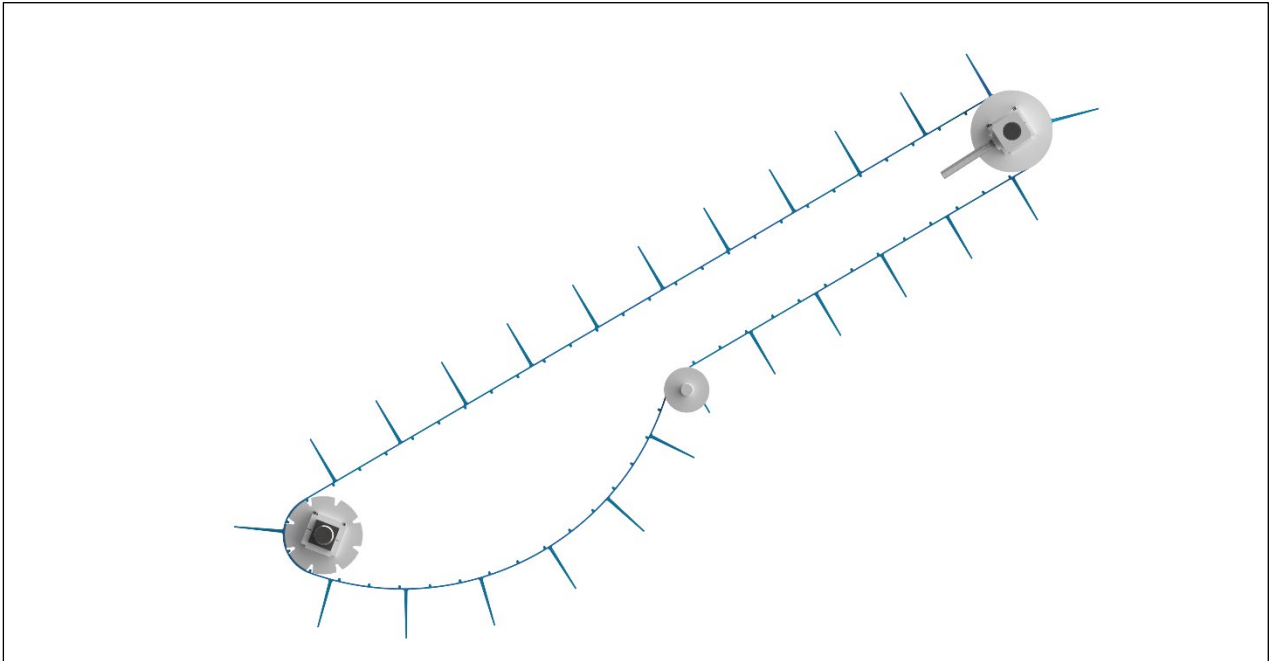
8.2 INCLINATION 10° CONVEYOR



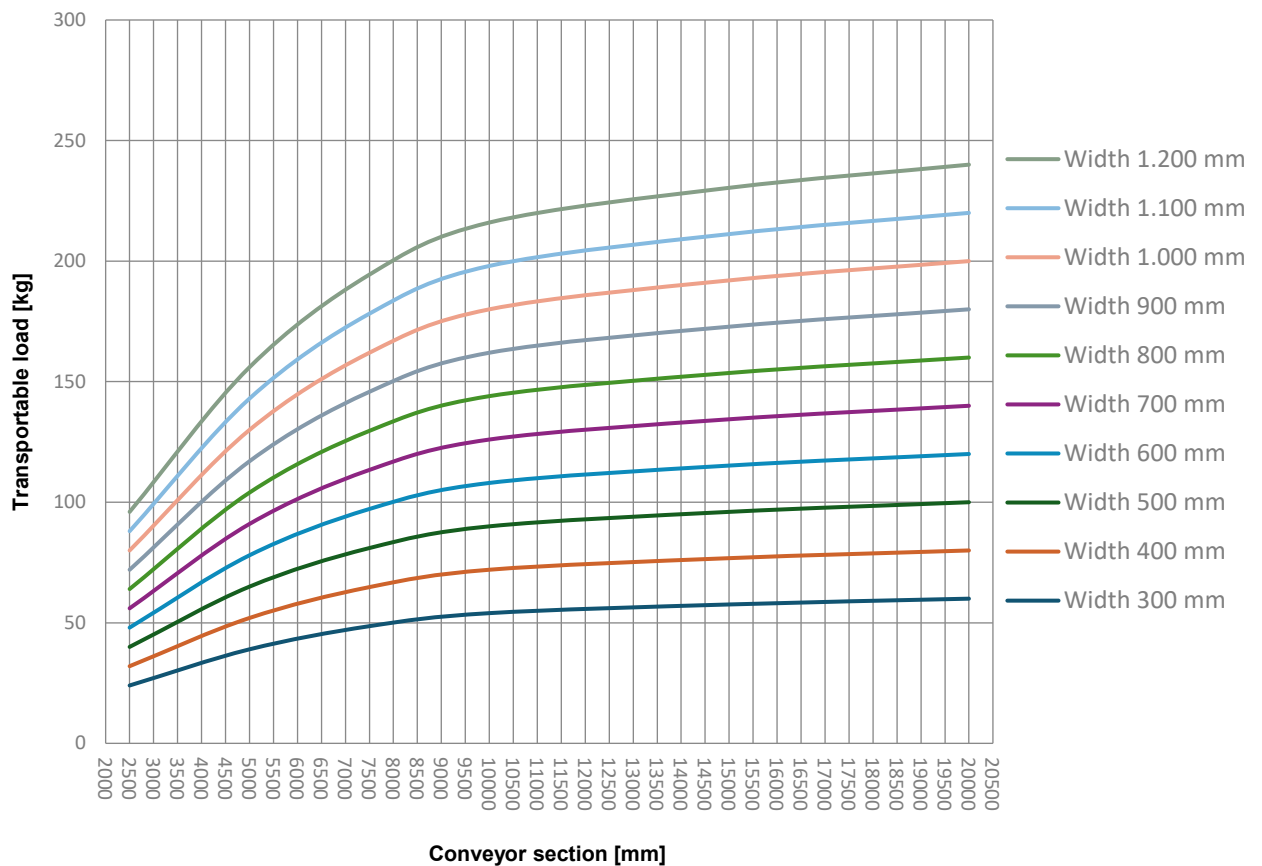
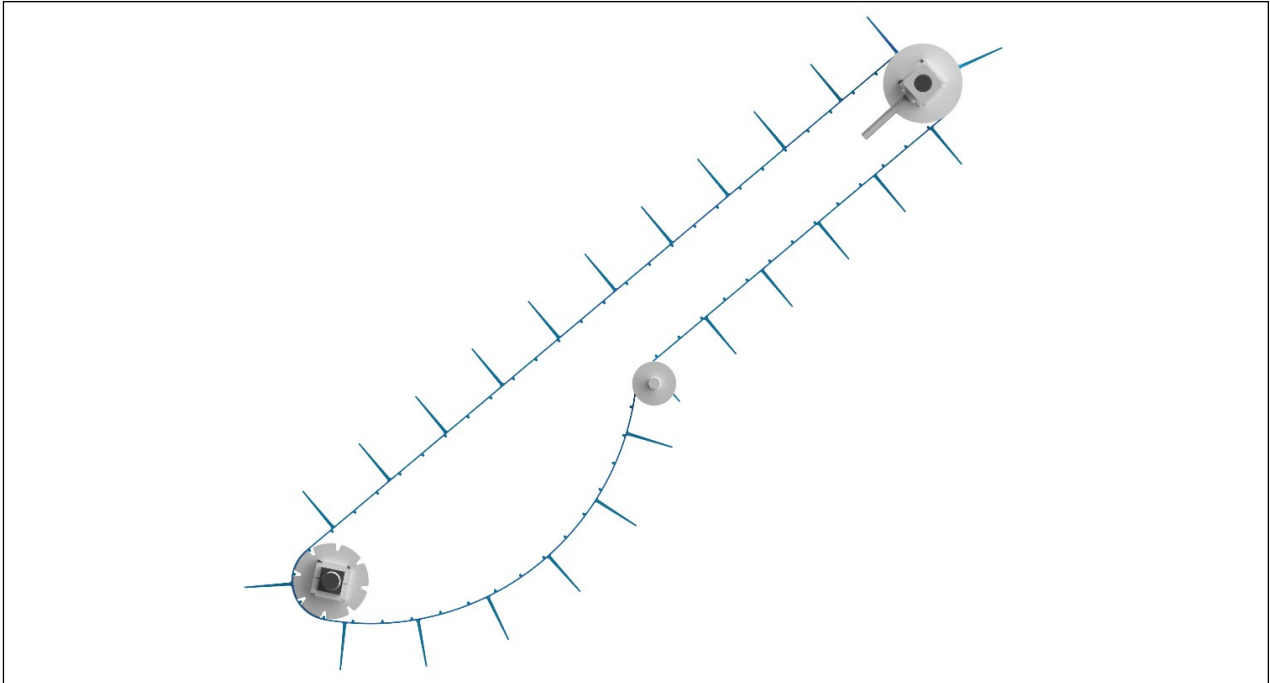
8.3 INCLINATION 20° CONVEYOR



8.4 INCLINATION 30° CONVEYOR



8.5 INCLINATION 40° CONVEYOR



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HEADQUARTERS

CHIORINO S.p.A.

Via S. Agata, 9
I-13900 Biella, Italy

Tel. +39 015 8489 1
Fax +39 015 8489 161

chiorino@chiorino.com
www.chiorino.com



CHIORINO GROUP COMPANIES

America

CHIORINO AMERICA Inc.
Suwanee, GA
Tel. +1-302-292-1906
info@chiorino.us

SAFARI BELTING SYSTEMS, Inc.
Olathe, KS
Tel. +1-888-662-6611
info@safaribelting.com

Australia

CHIORINO AUSTRALIA Pty. Ltd.
Brisbane
Tel. +61-7-32741900
sales@chiorino.com.au

Benelux

CHIORINO BENELUX B.v.
Houten - The Netherlands
Tel. +31-302-413-060
chiorino@chiorino.nl

Czech Republic

REKO s.r.o.
Jaromer
Tel. +420-491-840012
info@reko-sro.cz

France

CHIORINO SAS
Lagny, Paris
Tel. +33-1-64304075
chiorino.paris@chiorino.fr

Germany

CHIORINO GmbH
Mainz
Tel. +49-(0)6131-55449-0
info@chiorino.de

Hungary

CHIORINO Kft.
Szigetszentmiklós, Budapest
Tel. +36-24-525930
mail@chiorino.hu

India

FRANSTEK BELTS PRIVATE Ltd.
Salcete Goa
Tel. +91 93709 18733
info@chiorino.in

Italy

CHIORINO S.p.A.
Parma plant
Tel. +39-0521-292236
chiorinoparma@chiorino.com

CHIORINO VENETO s.r.l.

Colle Umberto (TV)
Tel. +39-0438-430460
chiorinoveneto@chiorino.com

Poland

CHIORINO Sp. z o.o. Bydgoszcz
Tel. +48-(0)52-3487708
chiorino@chiorino.com.pl

Portugal

CHIORINO PORTUGAL, Lda
Alfena Valongo, Porto
Tel. +351-229684442
geral@chiorino.pt

Romania

CHIORINO srl
Sannicoara, Jud.Cluj Napoca
Tel. +40-264-432977
chiorino@chiorino.ro

Slovakia

CHIORINO SLOVAKIA s.r.o.
Nové Zámky
Tel. +421-910-486654
info@chiorino.sk

South Africa

CHIORINO SOUTH AFRICA Pty. Ltd.
Johannesburg
Tel. +27-11-3971268
sales@chiorino.co.za

Spain

CHIORINO IBERICA S.A.
Rubí, Barcelona
Tel. +34-93-5860480
chiorino@chiorino.es

Switzerland

CHIORINO SCHWEIZ GmbH
Wetzikon
Tel. +41-(0)43-3116001
info@chiorino.ch

Türkiye

ZILİGEN BT KONVEYÖR BANT
İstanbul
Tel. +90-216-671 11 90
info@ziligen.com

Ukraine

CHIORINO UKRAINE LLC
Poltava region,
Shcherbani village
Tel. +38-050806560
office@chiorino.com.ua

United Kingdom

CHIORINO U.K. Ltd.
Glasshoughton
Tel. +44-1977-691880
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